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LOCKHEED MARTIN

Date: January 04, 2013

To: Alan Humphrey, Work Assignment Manager, ERT

From: J. Syslo, Analytical Support Chemist, SERAS JS 1/4/13

Subject: **Results of TPH Analysis in Soil using *Draft* SERAS GC/MS SOP# 1841**

Project: Oil Spill Response Support Site: Enbridge Oil: WA# SER00017

This document contains the analytical results and report for the following samples:

Chain(s) of Custody #s:	SERAS-017-02/01/12-0001, SERAS-017-02/08/12-0002 SERAS-017-02/21/12-0003, SERAS-017-02/23/12-0004
Analyses:	TPH
No. of Samples:	Four
Matrix:	2 River bottom Sediments & 2 Product Samples

- This data package contains the results of four samples received ar SERAS between 02/01/12 through 02/23/12 by the for TPH analysis using Draft SERAS GC/MS Method 1841. The samples were analyzed within holding times. Preliminary TPH results were reported for the two sediment samples. The TPH results for the product samples were issued to the WAM verbally during a meeting with the WAM on 2/28/12. The WAM stated the TPH results of the product samples were not necessary or of any significant value because those samples were submitted primarily as reference oils for the oil fingerprint analysis. Nevertheless, since the COC requested TPH analysis, those results and data are included in this data package.

ec A. Humphrey, M. Sprenger, V. Kansal, D. Miller, D. Killeen, and T.F. Miller.

cc Analyst: John Syslo
Central File: G. DePasquale

Case Narrative

Date: **January 04, 2013**
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The LIMS work order(s) from the WAM indicate that these samples were to be analyzed for oil fingerprint. The Projected Work Assignment documents issued by the task leader show the samples required TPH analysis without a validated report, and that the TPH results were for verification only. Through undocumented discourse with the WAM and/or Task Leader, the four samples were extracted & analyzed for both TPH & Oil Fingerprinting.

The documentation section of this report contains an Excel spreadsheet (Attachment 01) that lists a summary of all the samples received and work performed for this project. This data package represents the analytical work for just the TPH analysis for the four samples received between 2/01/12 and 2/23/12.

The two bucket sediments were processed and dried by the Task Leader and submitted to the SERAS central lab and extracted according to the procedures listed in SERAS Draft SOP #1841. At the request of the Task Leader, only a blank was required with each sample. The two product samples were extracted "as is" using the Waste Dilution method, and surrogates were added to the sample when it was weighed – before diluting with solvent. A waste dilution blank and duplicate was extracted/weighed with the product samples. This was done to satisfy the fingerprint QC as outlined in ASTM method D-5739.

The GC/Ms system was calibrated on 05/16/11 using #2 Diesel fuel and the ICAL verified using a second source initial calibration verification (ICV) standard. The TPH concentration was calculated based on the response factor of the #2 Diesel fuel ICAL and reported in **Table 1.0** as total TPH, and not just what is defined as the DRO/TPH fraction.

Sediment samples 001 and 002 contain a mixture of sulfur and TPH that is identified as a mixture of the spilled oil and naturally occurring background organics.

The TPH analytical method is presented as a written document and the print out from the GC/MS system that lists all analytical parameters in the method. The total TPH was calculated by extracting and summing the area of six ions that made it possible to calculate fresh or weathered TPH using a fresh DRO ICAL. Additionally, the total TPH, which includes the heavy oil past the range of DRO can also be accurately measured within +- 20% error using this novel TPH method. A copy of the macro (DROTPH.mac) is included in the analytical conditions section. The macro routinely extracts the ion chromatograms from 4.5 to 30 minutes for DRO, but was extended to 55 minutes to include the total TPH, or extra oil from the heavy lube oil in the samples.

All surrogate recoveries and internal standard areas were within acceptable limits **(Table 2.0)**, and the results for the ICV presented in **Table 3.0**.

All electronic tables and documents for this report are located on the SERAS network at the following location:
I:\Organics\SERAS_After_11-02-2009\Projects\0017 EnbridgeOil\TPH_Buckets&2Products2012.

In addition to the standards preparation information, the **I:\Organics\OilLab_Documents** directory contains another subdirectory for oil and TPH ICAL documents. These .PDF files contain all the necessary documents such as injection logs, DFTPP, raw data, tables, ICV, etc that are routinely associated with running a TPH ICAL.

J. Syslo - 01/04/13

Analytical Conditions and Method Summary
TPH as DRO in Soil using SERAS – *Draft* GC/MS SOP 1841

Method Summary: The method outlined in SERAS *Draft* GC/MS SOP 1841 that is routinely used for oil fingerprinting and oil characterization, is also used to quantitate TPH concentration in samples. In this application the TPH is reported as "Diesel range Organics" (DRO), and the DRO response factor is determined using the total area of the combined signal (constructed from ions 83, 85, 105, 113, 123, and 183) that elute between ~ 8.0 to 25 minutes. A macro was written which automatically extracts and adds the signal for the six TPH ions. The total area of the DRO pattern that elutes within the DRO time range is manually integrated as the DRO-TPH area. A copy of this macro (DROTPH) is included with this report. This is a flexible and accurate method to quantitate the TPH as DRO present in pure oils, samples, and is applicable to weathered and fresh oils.

Soil Extraction Procedures: The soil samples were extracted using procedures based on SW-846 extraction methods and outlined in the SERAS (former REAC) extraction SOP's. In summary, 30 grams of soil/sample is used, and prior to extraction, the sample spiked with 500µL of a 40 µg/mL surrogate mixture and concentrated to a final volume of 1.0 mL. If the samples are visibly or ascertained to contain high concentrations of oil (usually in the % level) the initial sample weight is reduced, or the final volume increased from 1.0mL to 10.0 mL. Prior to gc/ms analysis, 20 ul of a 500 ppm solution of internal standard mix is added to 1.0 mL of analysis extract. The internal standard solution contains nine internal standards: 1,4-dichlorobenzene-d_4, naphthalene-d_8, phenanthrene-d_{10}, chrysene-d_{12}, perylene-d_{12}, n-tetradecane-d_{30}, n-hexatriacontane-d_{74} and n-tetracosane-d_{50}. The TPH analysis uses only four of internal standards: Phenanthrene-d_{10} is used to quantitate three of the surrogates, and the three internal standards n-tetradecane-d_{30}, n-tetracosane-d_{50}, and n-hexatriacontane-d_{74} are used to quantitate TPH. The other internal standards in the mixture are used for fingerprinting and/or characterization purposes and are not applicable to this analysis.

Water Extraction Procedures: Prior to extraction, the pH each water sample is adjusted to ~12.0pH and spiked with 500µL of a 40 µg/mL surrogate mixture containing anthracene-d_{10}, 5a-androstane, ortho-terphenyl-d_{14}, and triacontane-d_{62}. One liter of water sample is extracted with three 60mL portions of methylene chloride and concentrated to a final volume of 1.0 mL. Prior to analysis, 20 ul of a 500 ppm solution of internal standard mix is added to 1.0 mL of analysis extract. The internal standard solution contains: naphthalene-d_8, phenanthrene-d_{10}, chrysene-d_{12}, and perylene-d_{12}, tetradecane-d_{30}, hexatriacontane-d_{74} and tetracosane-d_{50}. The water sample extracts may be screened before analysis, or the final sample volume of water extract may be adjusted to 10.0mL or higher if product is visible within the sample jar or floating on the aqueous layer.

GC/MS Operating Parameters:

A Hewlett Packard 7890A with a 5975C GC/MS system was used in the selective ion mode for this fingerprint analysis. The instrument conditions are below:

Column	Zebron, ZB-5, 30 m X 0.25mm ID, 0.5 micron film
Initial temp.	40°C, hold for 1.0 min
Temp program	10°C/min to 310° , hold 8.5 min
Injection port temp.	300° C
Injection mode	Pulsed Split (8:1), 1 ul injection Pulse Pressure 20.0 psi for 0.5 min. Gas saver ON at 0.6min., 20mL/min.
Transfer line temp.	330° C
Flow	1.2 mL/min EPC constant flow
Post Run	3.0 min with 3.0mL/min @325° oven,
SIM Mode	Samples analyzed at +150 EV above tune.
Three Ion Groups	(2.5 to 18.6) 22 ions @dwell 20 (18.4 to 24.4) 25 ions @dwell 20 (24.4 to end of analysis) 22 ions @dwell 20 Scan delay 3.0 min
Source temp.	280° C
Quad temp.	190° C

A print out of the GC/MS analytical conditions are included in this report and follow this method summary.

The GC/MS is calibrated for TPH using a #2 diesel standard with surrogate compounds added. A six point calibration range was prepared from serial dilutions of the #2 diesel + surrogates mixture at the following concentrations (TPH as DRO) in each calibration standard: 10,000, 5000, 1000, 500, 100 and 50µg/mL. The DRO TPH response factor was determined by integrating the total TPH pattern constructed from the sum of ions 83, 85, 105, 113, 123, and 183 that eluted between ~ 8.0 to 25 minutes. The TPH response factors and sample calculations were performed using Excel spreadsheets and the surrogate concentrations and recoveries were calculated using the HP-Enviroquant software.

Before analysis each day, the system was tuned with PFTBA and validated with a 50ng Decafluorotriphenylphosphine (DFTPP) analysis. A continuing calibration check of 1,000 ppm DRO-TPH was analyzed and the response factors evaluated against the calibration range. The samples are analyzed using a 12 hour clock which starts with the injection of a valid DFTPP analysis. Sample quantification is based on the average response factor obtained from the initial calibration curve. TPH uses the sum of the three internal standards to calculate the DRO response factor as outlined in the SERAS TPH by GC/MS SOP #1841.

An analysis batch begins by injecting a 50µg/ml DFTPP standard in the linear scan mode, (the system tuned with PFTBA) so that spectra produced meets or passes the acceptable criteria set by CLP. Then a calibration check standard of the TPH of interest is analyzed and the responses factor evaluated against the initial calibration range. All surrogates and TPH concentrations are based on the average response factor obtained from the calibration range. If the %RSD for TPH or surrogate compound exceeded 20% RSD, then linear regression is used, if the coefficient of linearity is within the range of 0.95 to 0.99.

J.S.

Macro DROTPH.mac applied to obtain DRO-TPH signal.

```
! File  : DROTPH.mac
! J. Syslo MACRO for presenting DRO - TPH as sum of 83 + 85 + 105 + 123 + 113 + 183
 ! Integrate from 8 min to 28 min
NAME DROTPH
format separated,,,0
EIC 4.5:30,105
eic 4.5:30,123
r6=x+y
EIC 4.5:30,113
EIC 4.5:30,183
R7=x+Y
EIC 4.5:30,85
EIC 4.5:30,83
r8=x+y
r4=r6+r7+R8
exchange r4,r0
draw 2,r0
remove DROTPH
clear
return
```

INSTRUMENT CONTROL PARAMETERS: Slick2

C:\MSDCHEM\1\METHODS\DROTPH102110.M Thu Oct 21 16:41:22 2010

Control Information

Sample Inlet : GC
Injection Source : GC ALS
Mass Spectrometer : Enabled

Oven

Equilibration Time	0.5 min
Oven Program	On
40 °C for 1 min	
then 10 °C/min to 310 °C for 8.5 min	
Run Time	36.5 min

Front Injector

Syringe Size	10 µL
Injection Volume	1 µL
Solvent A Washes (PreInj)	2
Solvent A Washes (PostInj)	2
Solvent A Volume	8 µL
Solvent B Washes (PreInj)	2
Solvent B Washes (PostInj)	2
Solvent B Volume	8 µL
Sample Washes	1
Sample Wash Volume	8 µL
Sample Pumps	2
Dwell Time (PreInj)	0 min
Dwell Time (PostInj)	0 min
Solvent Wash Draw Speed	300 µL/min
Solvent Wash Dispense Speed	6000 µL/min
Sample Wash Draw Speed	300 µL/min
Sample Wash Dispense Speed	6000 µL/min
Injection Dispense Speed	6000 µL/min
Viscosity Delay	0 sec
Sample Depth	Disabled

Front SS Inlet He

Mode	Pulsed Split
Heater	On 300 °C
Pressure	On 9.8343 psi
Total Flow	On 13.8 mL/min
Septum Purge Flow	On 3 mL/min
Gas Saver	On 20 mL/min After 0.6 min
Split Ratio	8:1
Split Flow	9.6 mL/min
Injection Pulse Pressure	20 psi until 0.5 min

Thermal Aux 2 {MSD Transfer Line}

Heater	On
Temperature Program	On
325 °C for 0 min	
Run Time	36.5 min

Column #1
Zebron, ZB-5Zebron, ZB-5
360 °C: 33 m x 250 µm x 0.5 µm
In: Front SS Inlet He
Out: Vacuum

(Initial)	40 °C
Pressure	9.8343 psi
Flow	1.2 mL/min
Average Velocity	38.765 cm/sec
Holdup Time	1.4188 min
Flow Program	On
1.2 mL/min for 37 min	
Run Time	36.5 min

MS ACQUISITION PARAMETERS

General Information

Tune File : Xtune.u
Acquistion Mode : SIM

MS Information

Solvent Delay : 3.00 min
EMV Mode : Relative
Relative Voltage : 153
Resulting EM Voltage : 1647

[Sim Parameters]

GROUP 1
Group ID : GRO/DRO
Resolution : High
Plot 1 Ion : 85.00

Ions/Dwell In Group	(Mass, Dwell)	(Mass, Dwell)	(Mass, Dwell)
	(66.00, 20)	(78.00, 20)	(83.00, 20)
	(85.00, 20)	(91.00, 20)	(105.00, 20)
	(113.00, 20)	(123.00, 20)	(128.00, 20)
	(136.00, 20)	(142.00, 20)	(152.00, 20)
	(154.00, 20)	(156.00, 20)	(166.00, 20)
	(170.00, 20)	(180.00, 20)	(183.00, 20)
	(184.00, 20)	(193.00, 20)	(266.00, 20)
	(330.00, 20)		

GROUP 2
Group ID : DRO
Resolution : High
Group Start Time : 18.40
Plot 1 Ion : 85.00

Ions/Dwell In Group	(Mass, Dwell)	(Mass, Dwell)	(Mass, Dwell)
	(66.00, 20)	(83.00, 20)	(85.00, 20)
	(105.00, 20)	(113.00, 20)	(123.00, 20)
	(178.00, 20)	(180.00, 20)	(183.00, 20)
	(184.00, 20)	(188.00, 20)	(192.00, 20)
	(194.00, 20)	(198.00, 20)	(202.00, 20)
	(206.00, 20)	(208.00, 20)	(212.00, 20)
	(216.00, 20)	(220.00, 20)	(226.00, 20)
	(230.00, 20)	(244.00, 20)	(260.00, 20)
	(266.00, 20)		

GROUP 3
Group ID : DRO/UCM
Resolution : High
Group Start Time : 24.40
Plot 1 Ion : 85.00

Ions/Dwell In Group	(Mass, Dwell)	(Mass, Dwell)	(Mass, Dwell)
	(66.00, 20)	(83.00, 20)	(85.00, 20)
	(105.00, 20)	(113.00, 20)	(123.00, 20)
	(177.00, 20)	(183.00, 20)	(191.00, 50)
	(205.00, 20)	(217.00, 20)	(218.00, 20)
	(228.00, 20)	(230.00, 20)	(231.00, 20)
	(240.00, 20)	(242.00, 20)	(252.00, 20)
	(256.00, 20)	(264.00, 20)	(276.00, 20)
	(278.00, 20)		

[MSZones]

MS Source : 280 C maximum 300 C
MS Quad : 190 C maximum 200 C

END OF MS ACQUISITION PARAMETERS

TUNE PARAMETERS for SN: US90432092: GC/MS Slick II

Trace Ion Detection is OFF.

EMISSION	:	34.610		
ENERGY	:	69.922		
REPELLER	:	25.432		
IONFOCUS	:	80.667		
ENTRANCE_LE	:	0.000		
EMVOLTS	:	1494.118		
			Actual EMV :	1647.06
			GAIN FACTOR :	3.78
AMUGAIN	:	1836.000		
AMUOFFSET	:	125.313		
FILAMENT	:	1.000		
DCPOLARITY	:	0.000		
ENTLENSOFFS	:	14.000@ 3	19.000@ 50	15.200@ 69
		14.800@414	14.800@502	17.000@1049
MASSGAIN	:	-623.000		
MASSOFFSET	:	-38.000		

End of TPH method summary:
JS Ver. 11/04/2010

Table 1.0: Results of theTPH in Soil Analysis by GC/MS
Enbridge Oil: WA# 0-017
TPH as DRO+ORO (Total TPH} and Based on Dry Weight in Sediment

Method: SERAS SOP 1841

Sample No.	Sampling Location	GC/MS File	Conc. (mg/Kg)	RL (mg/Kg)
Soil Blank	1200012-BLK1	SL02672	U	1.67
SERAS-017-0001	275-44-21	SL02674	130	1.67
Soil Blank	1200024-BLK1	SL02828	U	1.67
SERAS-017-0002	275-45-24	SL02829	194	1.67

Samples from COC#: SERAS-017-02/01/12-0001 & SERAS-017-02/08/12-0002

Table 1.1: Results of theTPH in Soil Analysis by GC/MS
Enbridge Oil: WA# 0-017
TPH as DRO+ORO (Total TPH) and Based on Dry Weight in Sediment

Method: SERAS SOP 1841

Sample No.	Sampling Location	GC/MS File	Conc. (mg/Kg)	RL (mg/Kg)
2/24/12 Sequence				
Waste Dilution Blank	BLK022412WD	SL02864	U	5000
SERAS-017-0003	275-55-05	SL02861	242000	4850
SERAS-017-0003 dup	275-55-05	SL02863	264000	4570
SERAS-017-0004	275-56-24	SL02862	38000	2590

Samples from COC#: SERAS-017-02/21/12-0003 & SERAS-017-02/23/12-0004

TABLE 2.0: Results of the Internal Standard Areas & Surrogate Recoveries

for TPH in Soil Analysis using SERAS GC/MS Method 1841

Enbridge Oil; WA# 0=017

SERAS TPH SOP# 1841

		Internal Standard Areas		
Sample Number	**GC/MS File**	**d30-Tetradecane**	**d50-Tetracosane**	**d74-Hexatriacontane**
Analysis Date: 02/02/12				
1000ppm TPH ICAL Std. CCV	*SL02671*	*175782*	*209958*	*153567*
1200012-BLK1 Soil Blank	SL02672	133055	149646	110992
SERAS-017-0001	SL02674	124892	142419	117011
Analysis Date: 02/15/12				
1000ppm TPH ICAL Std. CCV	*SL02827*	*179024*	*220786*	*162003*
1200024-BLK1 Soil Blank	SL02828	139126	159054	106564
SERAS-017-0002	SL02829	129686	144537	130132
Analysis Date: 02/15/12				
1000ppm TPH ICAL Std. CCV	*SL02857*	*167742*	*206077*	*152529*
BLK022412WD	SL02864	93255	110642	89433
SERAS-017-0003	SL02861	115287	142648	130020
SERAS-017-0004	SL02862	110839	126586	115812
SERAS-017-0003 dup	SL02863	102210	127325	115036

	Surrogate Recoveries			
Sample Number	**d10-Anthracene**	**o-Terphenyl-d14**	**5a-Androstane**	**d62-Triacontane**
1200012-BLK1 Soil Blank	63	70	75	93
SERAS-017-0001	76	82	87	98
1200024-BLK1 Soil Blank	56	61	66	72
SERAS-017-0002	58	62	65	70
BLK022412WD	95	109	119	116
SERAS-017-0003	77	86	92	100
SERAS-017-0004	82	93	103	107
SERAS-017-0003 dup	83	92	106	106

Table 3.0: Results of Initial Calibration Verificaiton (ICV) for DRO-TPH as #2 Diesel
SERAS GC/MS Method 1841
Calibration Date: 05/16/11 - GC/MS ID-File DROTPH051611.M
ICV Prepared at 1000 µg/mL ; GC/MS File SL01878.D

Method: SERAS SOP 1841

Compound	Target Conc. µg/mL	ICV Conc. µg/mL	%Recovery	Tentative %Rec.Limits
DRO-TPH as #2 Diesel Fuel	1000	946	95	50-150 %

ICV LIMS# = RUE0049; 1000ppm #2 Diesel from 2nd Source Standard

#2 Diesel TPH Calibration Range - Using SERAS GC/MS Method 1803
TPH Calibration Range of 05/16/11
GC/MS System "Slick2" S/N#'s US10915004/US90432092

	TPH/Oil Concentration					
DRO-TPH as #2 Diesel Fuel	10000 ug/ml	5000 ug/ml	1000 ug/ml	500 ug/ml	100 ug/ml	50 ug/ml
GC/MS TPH Response (m/z 85+83+105+113+123+183)	86697279	40295375	9385180	4381273	981077	430368
d30-tetracosane response	156450	142438	157056	146200	145897	144045
d50-tetracosane response	176876	151428	182621	153167	134713	128364
d74-Hexatriacontane response	79529	60526	79109	63224	55469	53519
Sum of d30, d50 & d74-IS	412855	354392	418786	362591	336079	325928

IS Conc. (total ng) = 30

	TPH/Oil Concentration							
	10000 ug/ml	5000 ug/ml	1000 ug/ml	500 ug/ml	100 ug/ml	50 ug/ml	Average RF	% RSD
Response Factor from sum of ions 85+83+105+113+123+183	0.62998	0.68222	0.67231	0.72499	0.87576	0.79226	0.72959	12.38

Using DROTPH051611.M, a clone of OilsimS2.M: SERAS Oil Characterization Method ; with surrogates added to TPH range.

TPH response based on the sum of all peaks in the DRO (m/z 85 + 83 + 105 + 113 + 123 + 183) pattern from ~8.1 min to 28min.
%RSD Denotes Relative Standard Deviation.

Stock Oil Standard = RSJ0102: 50,000pm AccuStandard Stock Diesel Calibration Composite Mix
Calibration range preparation: 05/16/11 by J. Syslo; Oil Surrogates were spiked into the stock diesel standard.

Response Factor Report Slick2

Method Path : C:\MSDCHEM\1\METHODS\
Method File : DROTPH051611.M
Title : DRO/TPH ICAL + Surr. 05/16/11
Last Update : Tue May 17 18:20:58 2011
Response Via : Initial Calibration

ICAL - Surrogate

Calibration Files
10 =SL01871.D 100 =SL01872.D 50 =SL01874.D 5 =SL01873.D 1 =SL01875.D

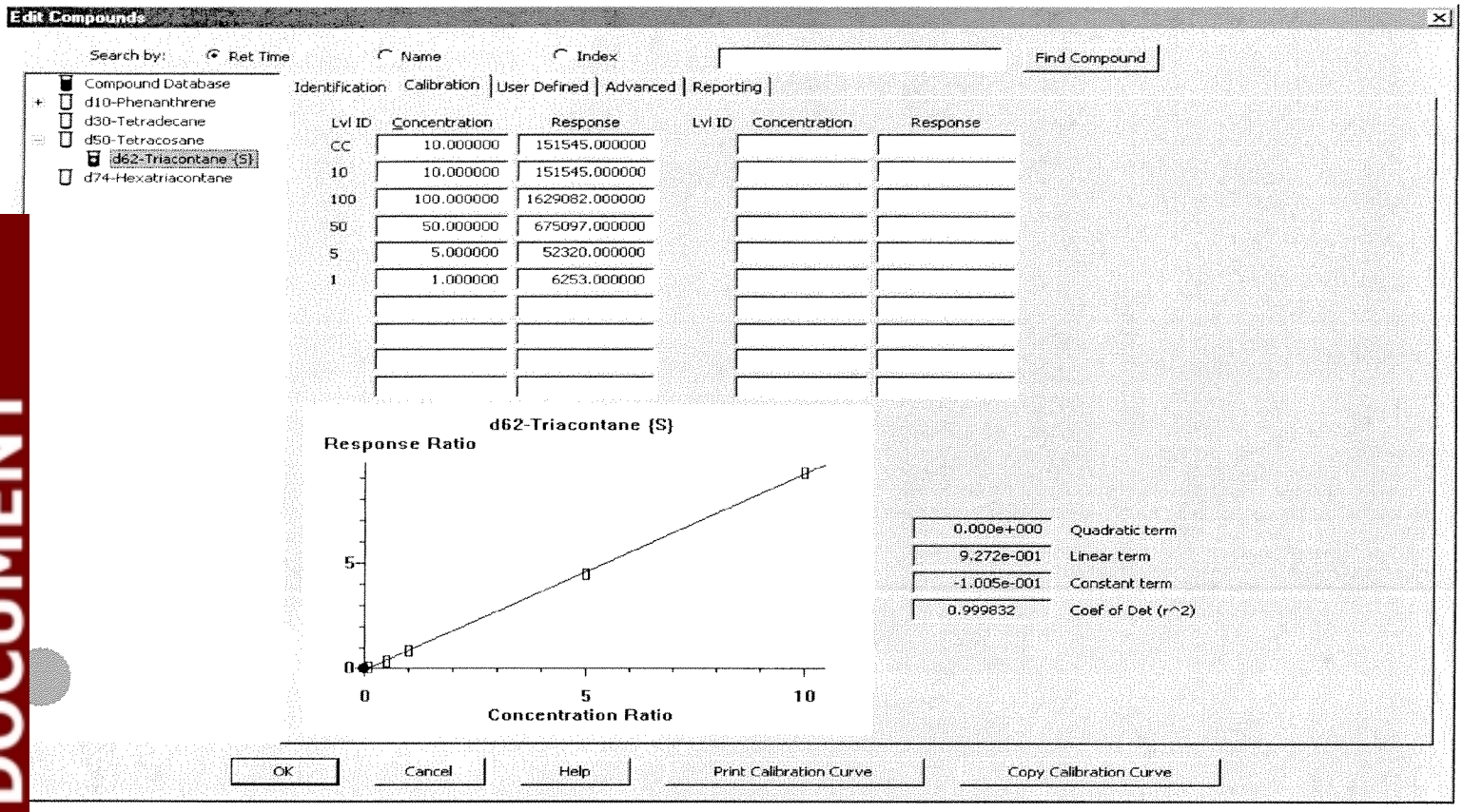
		Compound	10	100	50	5	1	Avg	%RSD
1)	I	d10-Phenanthrene	ISTD						
2)	S	d10-Anthracene {S}	1.078	0.995	1.043	1.018	1.088	1.044	3.78
3)	S	d14-o-Terphenyl {S}	0.498	0.453	0.464	0.482	0.472	0.474	3.65
4)	S	5a-Androstane {S}	0.062	0.059	0.058	0.059	0.055	0.059	4.16
5)	I	d30-Tetradecane	ISTD						
6)	I	d50-Tetracosane	ISTD						
7)	S	d62-Triacontane {S}	0.830	0.921	0.892	0.683	0.464	0.758	24.82
8)	I	d74-Hexatriacontane	ISTD						

LR
0.999832

(#) = Out of Range

DROTPH051611.M Tue May 17 18:21:06 2011

Linear Regression Compounds: DROTPH051611 on Slick II



Compound List Report Slick2

Method Path : C:\MSDCHEM\1\METHODS\
Method File : DROTPH051611.M
Title : DRO/TPH ICAL + Surr. 05/16/11
Last Update : Tue May 17 18:20:58 2011
Response Via : Initial Calibration

Total Cpnds : 8

PK#		Compound Name	QIon	Exp_RT	Rel_RT	Cal	#Qual	A/H	ID
1	I	d10-Phenanthrene	188	18.921	1.000	A	0	A	R
2	S	d10-Anthracene {S}	188	19.038	1.006	A	0	A	B
3	S	d14-o-Terphenyl {S}	244	19.941	1.054	A	0	A	B
4	S	5a-Androstane {S}	260	21.357	1.129	A	0	A	B
5	I	d30-Tetradecane	66	13.724	1.000	A	0	A	B
6	I	d50-Tetracosane	66	23.974	1.000	A	0	A	B
7	S	d62-Triacontane {S}	66	28.360	1.183	L	0	A	B
8	I	d74-Hexatriacontane	66	35.131	1.000	A	0	A	B

Cal A = Average L = Linear LO = Linear w/origin Q = Quad QO = Quad w/origin
#Qual = number of qualifiers
A/H = Area or Height
ID R = R.T. B = R.T. & Q Q = Qvalue L = Largest A = All

DROTPH051611.M Tue May 17 18:22:02 2011

Calibration Status Report Slick2

Method Path : C:\MSDCHEM\1\METHODS\
Method File : DROTPH051611.M
Title : DRO/TPH ICAL + Surr. 05/16/11
Last Update : Tue May 17 18:20:58 2011
Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	CC	10	10	C:\msdchem\1\DATA\051611\SL01871.D
2	10	10	10	C:\msdchem\1\DATA\051611\SL01871.D
3	100	10	10	C:\msdchem\1\DATA\051611\SL01872.D
4	50	10	10	C:\msdchem\1\DATA\051611\SL01874.D
5	5	10	10	C:\msdchem\1\DATA\051611\SL01873.D
6	1	10	10	C:\msdchem\1\DATA\051611\SL01875.D

#	ID	Update Time	Quant Time	Acquisition Time
1	CC	May 16 18:51 2011	May 16 18:42 2011	16 May 2011 18:09
2	10	May 16 18:51 2011	May 16 18:42 2011	16 May 2011 18:09
3	100	May 17 17:56 2011	May 16 19:30 2011	16 May 2011 18:57
4	50	May 17 18:08 2011	May 16 20:56 2011	16 May 2011 20:23
5	5	May 17 18:08 2011	May 16 20:13 2011	16 May 2011 19:40
6	1	May 17 18:12 2011	May 17 18:11 2011	16 May 2011 21:06

DROTPH051611.M Tue May 17 18:22:10 2011

```
   Sequence Name: C:\msdchem\1\sequence\Xchop.s
         Comment: TPH Stds. check
        Operator: Syslo
       Data Path: C:\MSDCHEM\1\DATA\051611\
Instrument Control  Pre-Seq Cmd:
Data Analysis       Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis      Post-Seq Cmd:

   Method Sections To Run      On A Barcode Mismatch
    (X) Full Method              (X) Inject Anyway
    ( ) Reprocessing Only        ( ) Don't Inject

   ------------------------------------------------------------------------
   Line                    Sample Name/Misc Info
 1)  Sample        99  SL01867  DFT8270D 50ppm DFTPP
 2) Sample          1  Blank + IS
     Datafile          SL01868
     Method            DROTPH102110
 3) Sample         71  1.0K TPH-DRO Std.
     Datafile          SL01871
     Method            DROTPH051611
 4) Sample         72  10K TPH-DRO Std.
     Datafile          SL01872
     Method            DROTPH051611
 5) Sample         73  500ppm TPH-DRO Std.
     Datafile          SL01873
     Method            DROTPH051611
 6) Sample         74  5.0K TPH-DRO Std.
     Datafile          SL01874
     Method            DROTPH051611
 7) Sample         75  100ppm TPH-DRO Std.
     Datafile          SL01875
     Method            DROTPH051611
 8) Sample         76  50ppm TPH-DRO Std.
     Datafile          SL01876
     Method            DROTPH051611
 9) Sample         78  1.0K TPH-DRO ICV
     Datafile          SL01878
     Method            DROTPH051611
```

Injection Log

Data Directory: C:\msdchem\1\DATA\051611\

SampleName	MiscInfo	Vial	Multiplier	Injection Time
1) SL01867.D				
50ppm DFTPP	RUA0001	99	1.000	16 May 2011 14:28
2) SL01868.D				
Blank + IS	DCM/Hex + 20µL RUE00	1	1.000	16 May 2011 15:18
3) SL01869.D				
2000ppm TPH/DRO	10xd of old 20K RTJ0	2	1.000	16 May 2011 16:03
4) SL01870.D				
10ppm SHC/PAH	Mass/Res Check {RTL0	3	1.000	16 May 2011 17:09
5) SL01871.D				
1.0K TPH-DRO Std.	RUE0044	71	1.000	16 May 2011 18:09
6) SL01872.D				
10K TPH-DRO Std.	RUE0042	72	1.000	16 May 2011 18:57
7) SL01873.D				
500ppm TPH-DRO Std.	RUE0045	73	1.000	16 May 2011 19:40
8) SL01874.D				
5.0K TPH-DRO Std.	RUE0043	74	1.000	16 May 2011 20:23
9) SL01875.D				
100ppm TPH-DRO Std.	RUE0046	75	1.000	16 May 2011 21:06
10) SL01876.D				
50ppm TPH-DRO Std.	RUE0047	76	1.000	16 May 2011 21:49
11) SL01877.D				
50ppm TPH-DRO Std.	RUE0048 {alt. prep}	77	1.000	16 May 2011 22:32
12) SL01878.D				
1.0K TPH-DRO ICV	RUE0049 from 2nd sou	78	1.000	16 May 2011 23:14
13) SL01879.D				
10K TPH-DRO old	RTJ0112 prep'd 10/21	79	1.000	16 May 2011 23:57
14) SL01880.D				
5.0K TPH-DRO old	RTJ0113 prep'd 10/21	80	1.000	17 May 2011 00:40
15) SL01881.D				
Surrogate Check 2xd	40ppm RUE0038 dil. 2	81	1.000	17 May 2011 1:23
16) SL01882.D				
400ppm MDL spike che	RUE0039 MDL spike ch	82	1.000	17 May 2011 2:06
17) SL01883.D				
LCS spike check 2xd	2000ppm RUE0040 dil.	83	1.000	17 May 2011 2:49
18) SL01884.D				
5K 75% "w" #2 Diesel	RTK0024 Vendor "weat	84	1.000	17 May 2011 3:32
19) SL01885.D				
10K 10W40 Oil	RUE0050 Motor Oil	85	1.000	17 May 2011 4:14
20) SL01886.D				
4.0K 10W40 Oil	RTK0060 Motor Oil	86	1.000	17 May 2011 5:14
21) SL01887.D				

TPH ICAL : DROTPH0516H.M

Logbook # SERAS-I-0121

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SERAS, GC/MS Injection Log

GC/MS System: "SLICK II" S/N#'s US10915004/US90432092

Project Name: TPH MDL, DOC in Soil + ICAL
Work Assign.#: 0-011
Analysis/Date: 5/16/11

Method File: DFTPP/ DROTPH051611.M
Inj. Volume: 1ul 1ul
Analyst: T. Syed

ALS	FILE ID	SAMPLE ID		REAC ID	Date of Analysis	TIME Inj.	COMMENTS
99	SL01860	50ppm DFTPP		RUA0601	5/13/11	14:59	Pass
71	SL01861	1000ppm TPH		RUA00117		15:20	exp 9/16/11 17.6%
2	SL01862	10 ppm Oil Surr Check		RVE0038		16:08	4th of RVE0038
3	SL01863	400ppm MDL Check		RVE0039		16:53	
~~4~~	~~SL01864~~	~~20ppm Oil Surr Check~~		~~RVE0038~~			2nd inj Run
5	SL01865	1000ppm LCS Check		RVE0040		17:37	
6	SL01866	20 ppm Oil Surr Check		RVE0038		18:27	
—	~~SL~~	end of std Check 5/13/11					D Syed
99	SL01867	50ppm DFTPP		RUA0001	5/16/11	14:38	Pass 1446 – 1455
1	SL01868	Blank + IS		RVE0037		15:18	+ 20ul RVE0037
2	SL01869	2000 ppm DRO/TPH		RTJ0110		16:03	FROM RTJ0110
3	SL01870	10 ppm PAH/SHC	Surr	RTL0035		17:09	Oil/sim... M (for Res)
71	SL01871	1000 ppm TPH Cal	10ppm	RVE0044		18:11	TPH as DRO
72	SL01872	10,000 ppm TPH Cal	100	RVE0042		18:57	
73	SL01873	500 ppm TPH Cal	5ppm	RVE0045		19:40	
74	SL01874	5000ppm TPH Cal	50	RVE0043		20:23	
75	SL01875	100 ppm TPH Cal	1.0	RVE0046		21:06	
76	SL01876	50 ppm TPH Cal	0.5	RVE0047		21:49	TPH as DRO
77	SL01877	5 ppm TPH Cal	0.5	RVE0048		22:32	all prep of 5?
78	SL01878	1000 ppm DROTPH ICV	—	RVE0049		23:14	from 2nd Source
79	SL01879	10K DRO-TPH	10c	RTJ0112	5/16/11	23:57	OLD std
80	SL01880	5K DRO-TPH	50	RTJ0113	5/17/11	00:40	OLD std
81	SL01881	Surrogate Check 2nd		RVE0038		1:23	2x of 40 ppm (20ppm)
82	SL01882	400ppm MDL spike check		RVE0039		2:06	
83	SL01883	LCS spike check 2x		RVE0040		2:49	~~OUT OF 72 HOUR CLOCK / NOT DIAGNOSTIC RUN~~
84	SL01884	5000ppm 75% Weathered Diesel		RTK0024		3:32	
85	SL01885	10K 10W40		RVF0051		4:14	Not done
86	SL01886	4K 10W40 Oil		RTK0060		5:14	Not done
1	SL01887	Blank + IS		RVE0037	5/17/11	6:14	No blank

	REAC ID	Standard Description	Exp.date	Conc.	Ref. P.	Comment
1	RUA0001	DFTPP	7/2/11	50 ppm		
2	~~RVE0037~~	Calibration Check RVE0044	11/13/11	1000ppm		
3	RVE0037	Internal Standard	11/13/11	500 ppm		
4						
5						
6						

Reviewed By: [signature] Date Checked: 05-17-11

Analyzed by: D Syed 5/16/11

020

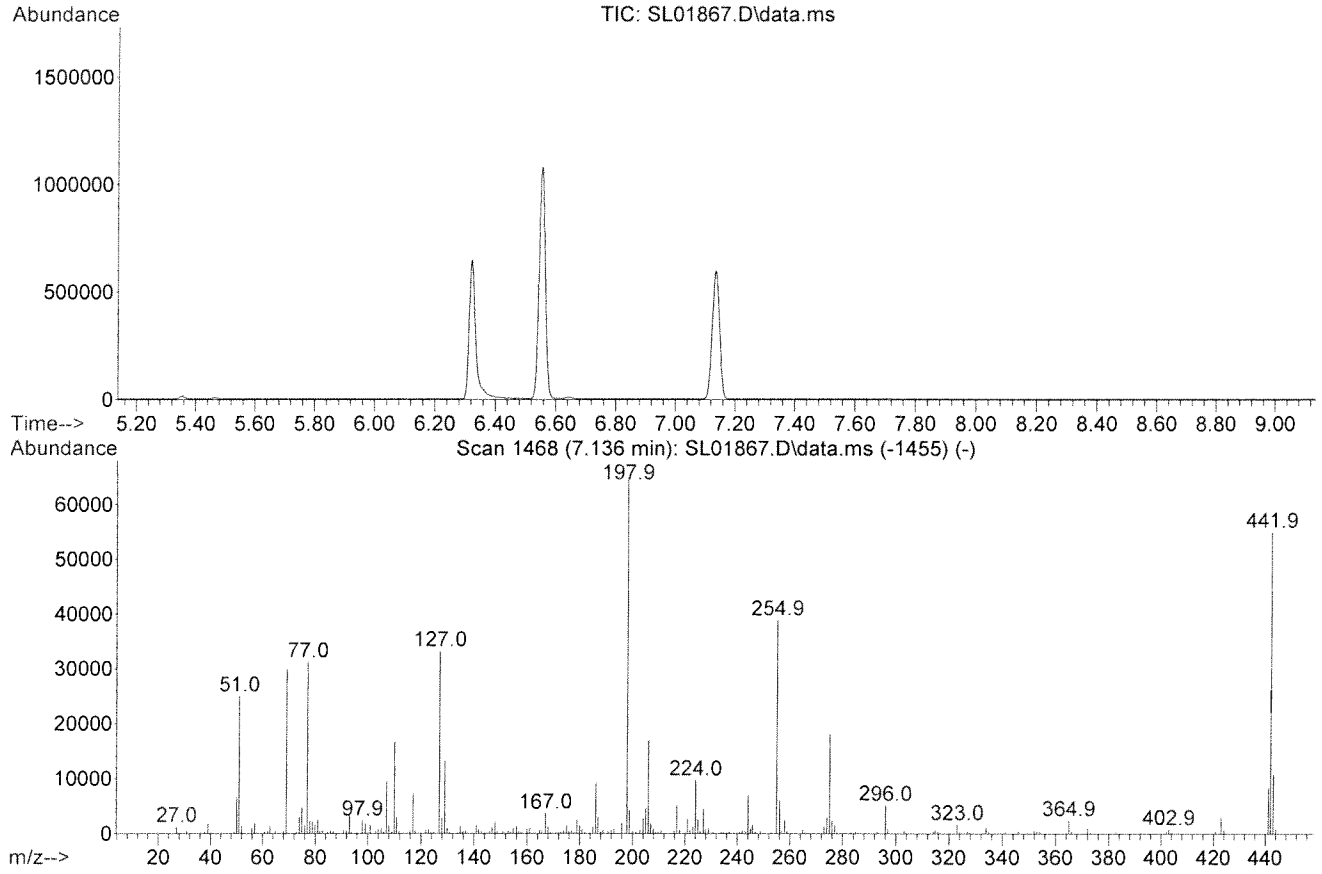
SERAS-017-DTM-011413_1

Data Path : C:\msdchem\1\DATA\051611\
Data File : SL01867.D
Acq On : 16 May 2011 14:28
Operator : Syslo
Sample : 50ppm DFTPP
Misc : RUA0001
ALS Vial : 99 Sample Multiplier: 1

Tailing: 7cp = 1.51
Benzidine = 1.72
% DDT Deg = 1.57%

Integration File: rteint.p

Method : C:\msdchem\1\METHODS\DFT8270d.M
Title : DFTPP Method with 8270D criteria: 8/20/10
Last Update : Tue Aug 24 16:22:45 2010



Spectrum Information: Scan 1468

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	38.5	24981	PASS
68	69	0.00	2	1.4	409	PASS
69	198	0.00	100	46.3	30040	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.2	33191	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	64823	PASS
199	198	5	9	6.6	4251	PASS
275	198	10	60	27.9	18096	PASS
365	198	1	100	3.6	2346	PASS
441	442	0.01	24	15.2	8364	PASS
442	198	50	100	84.8	54954	PASS
443	442	15	24	19.4	10662	PASS

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\051611\
Data File : SL01867.D
Acq On : 16 May 2011 14:28
Operator : Syslo
Sample : 50ppm DFTPP
Misc : RUA0001
ALS Vial : 99 Sample Multiplier: 1

Quant Time: May 16 14:40:30 2011
Quant Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
Quant Title : DFTPP Method with 8270D criteria: 8/20/10
QLast Update : Tue Aug 24 16:22:46 2010
Response via : Initial Calibration

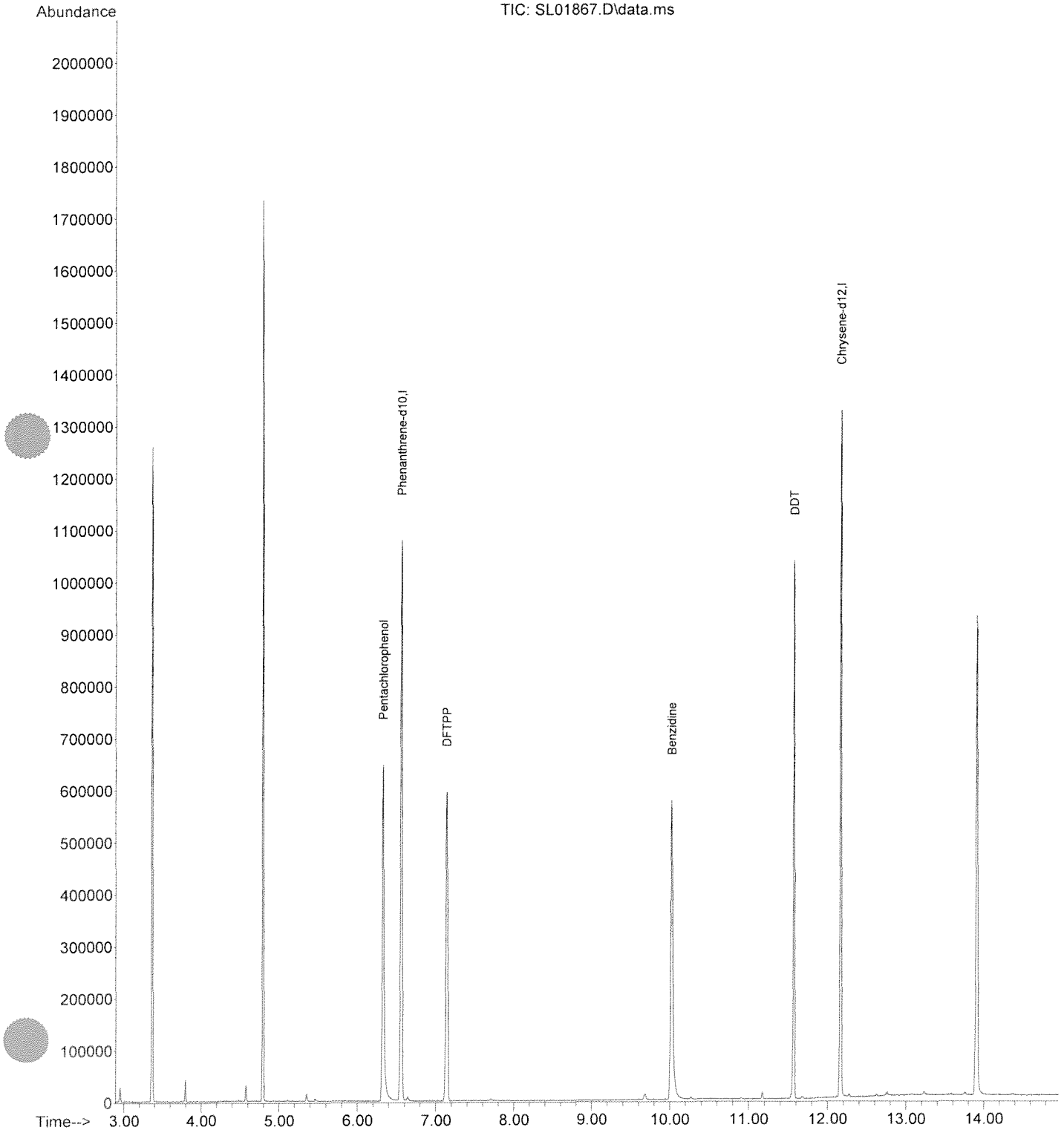
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Phenanthrene-d10	6.555	188	622865	40.00	ug/mL	0.00
4) Chrysene-d12	12.159	240	543842	40.00	ug/mL	-0.01
Target Compounds						Qvalue
2) Pentachlorophenol	6.323	266	112061	46.31	ug/mL	99
3) DFTPP	7.136	198	111412	40.28	ug/mL	95
5) Benzidine	10.017	184	454349	54.30	ug/mL	98
6) DDT	11.565	235	231180	47.35	ug/mL	90

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\051611\
Data File : SL01867.D
Acq On : 16 May 2011 14:28
Operator : Syslo
Sample : 50ppm DFTPP
Misc : RUA0001
ALS Vial : 99 Sample Multiplier: 1

Quant Time: May 16 14:40:30 2011
Quant Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
Quant Title : DFTPP Method with 8270D criteria: 8/20/10
QLast Update : Tue Aug 24 16:22:46 2010
Response via : Initial Calibration

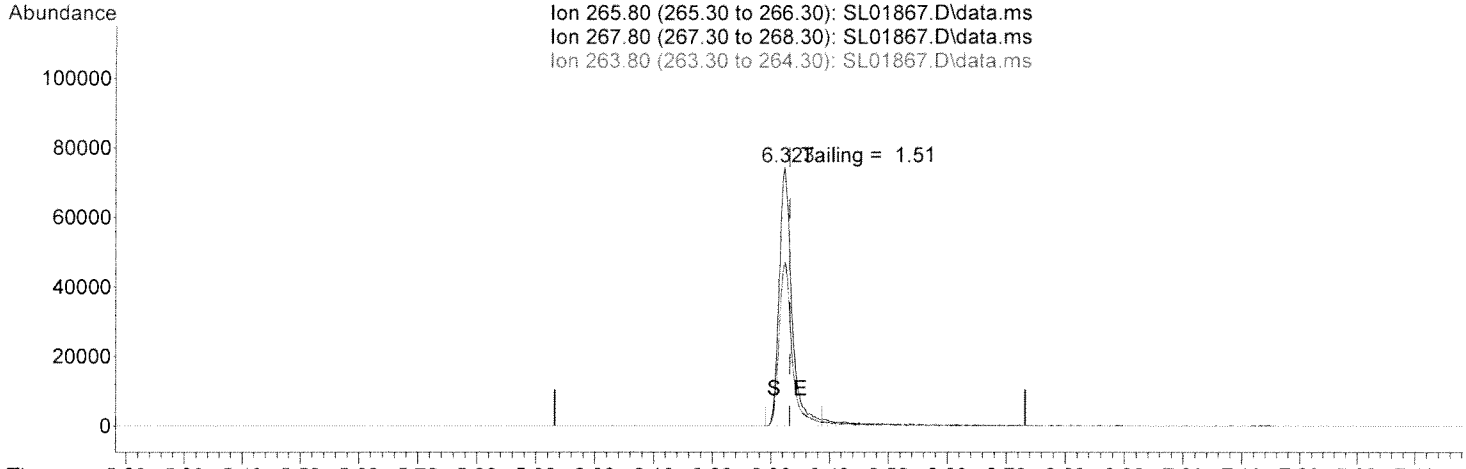


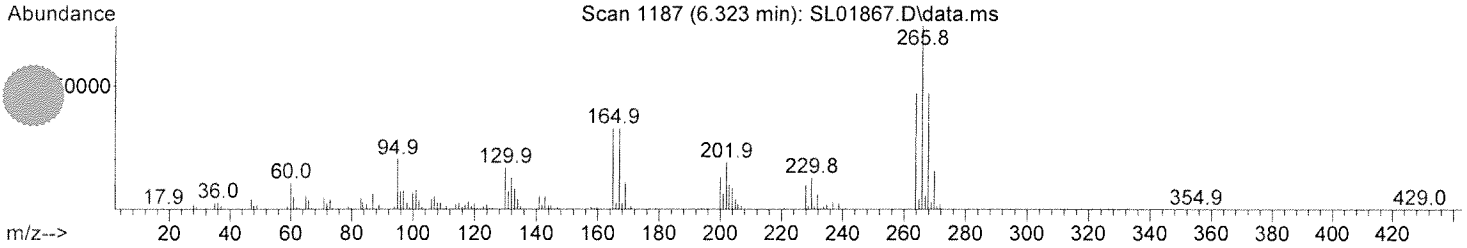
SERAS-017-DTM-011413_1
023

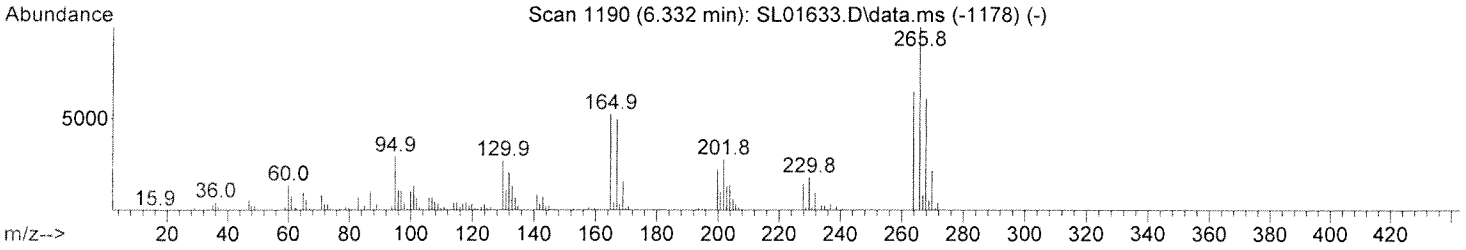
Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\051611\
Data File : SL01867.D
Acq On : 16 May 2011 14:28
Operator : Syslo
Sample : 50ppm DFTPP
Misc : RUA0001
ALS Vial : 99 Sample Multiplier: 1

Quant Time: May 16 14:40:30 2011
Quant Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
Quant Title : DFTPP Method with 8270D criteria: 8/20/10
QLast Update : Tue Aug 24 16:22:46 2010
Response via : Initial Calibration







TIC: SL01867.D\data.ms

(2) Pentachlorophenol

6.323min (-0.009) 46.31 ug/mL

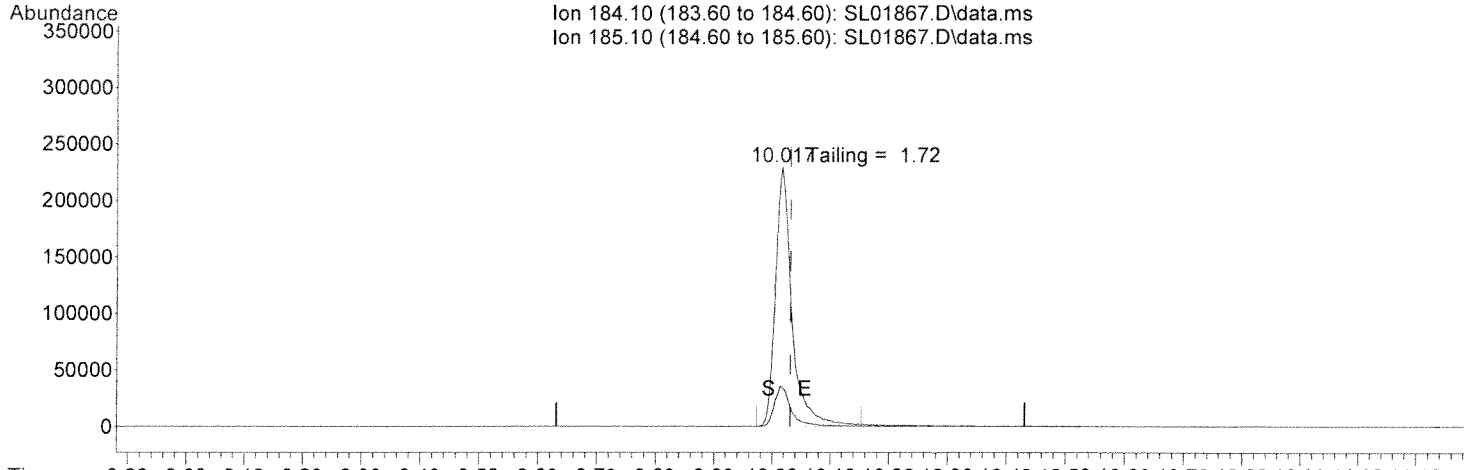
response 112061

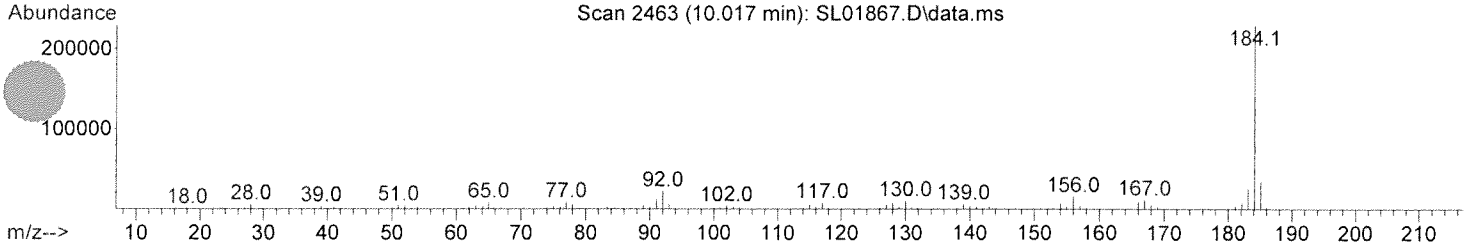
Ion	Exp%	Act%
265.80	100	100
267.80	64.50	64.30
263.80	63.60	62.78
0.00	0.00	0.00

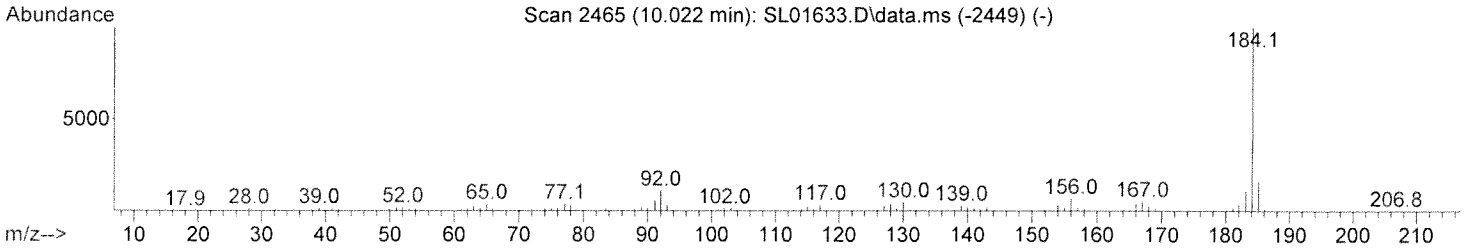
Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\051611\
Data File : SL01867.D
Acq On : 16 May 2011 14:28
Operator : Syslo
Sample : 50ppm DFTPP
Misc : RUA0001
ALS Vial : 99 Sample Multiplier: 1

Quant Time: May 16 14:40:30 2011
Quant Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
Quant Title : DFTPP Method with 8270D criteria: 8/20/10
QLast Update : Tue Aug 24 16:22:46 2010
Response via : Initial Calibration







TIC: SL01867.D\data.ms

(5) Benzidine

10.017min (-0.014) 54.30 ug/mL

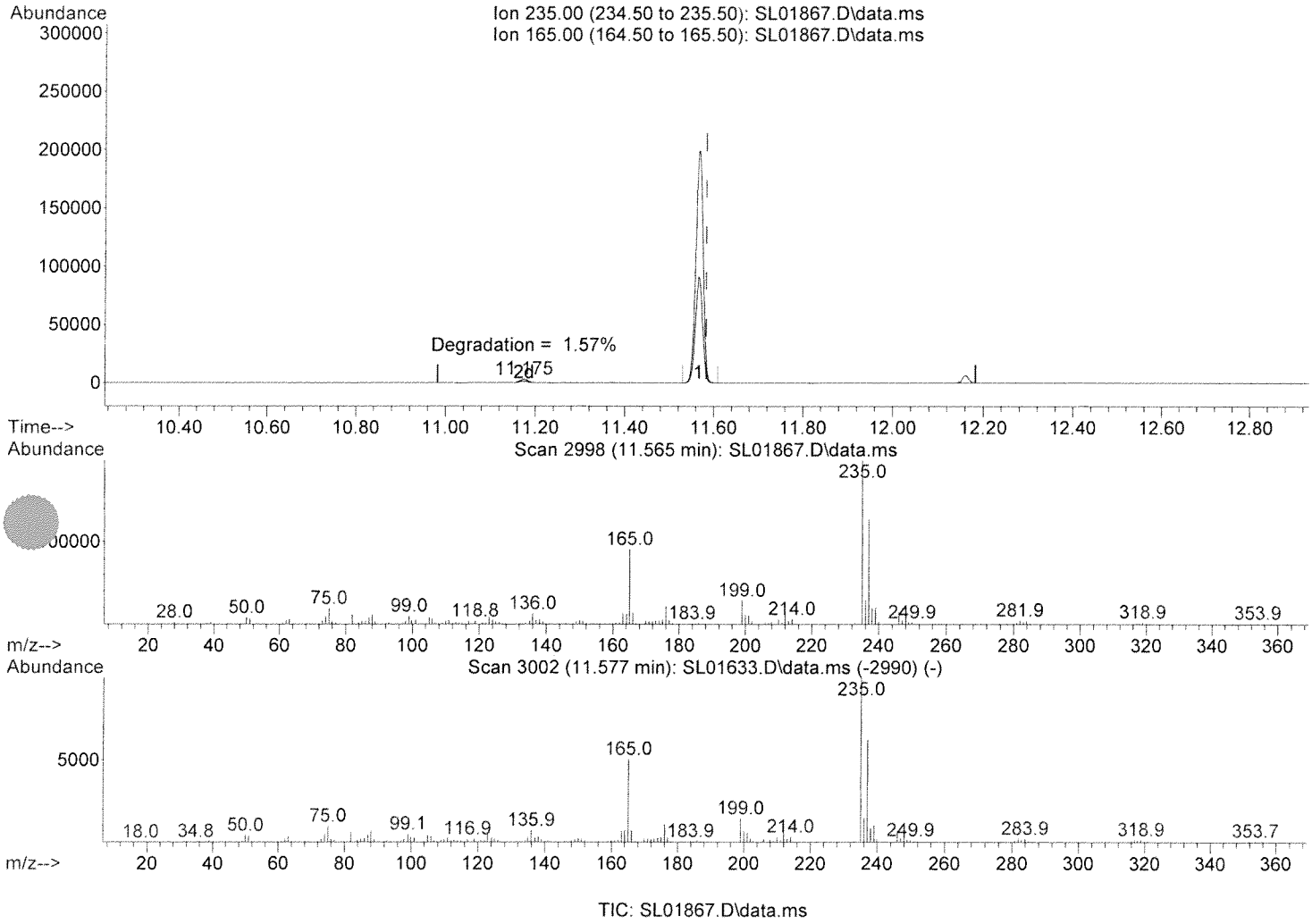
response 454349

Ion	Exp%	Act%
184.10	100	100
185.10	14.60	15.43
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\051611\
Data File : SL01867.D
Acq On : 16 May 2011 14:28
Operator : Syslo
Sample : 50ppm DFTPP
Misc : RUA0001
ALS Vial : 99 Sample Multiplier: 1

Quant Time: May 16 14:40:30 2011
Quant Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
Quant Title : DFTPP Method with 8270D criteria: 8/20/10
QLast Update : Tue Aug 24 16:22:46 2010
Response via : Initial Calibration



TIC: SL01867.D\data.ms

(6) DDT

11.565min (-0.017) 47.35 ug/mL

response 231180

Ion	Exp%	Act%
235.00	100	100
165.00	51.80	44.80
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\051611\
Data File : SL01868.D
Acq On : 16 May 2011 15:18
Operator : Syslo
Sample : Blank + IS
Misc : DCM/Hex + 20µL RUE0037
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 16 15:58:35 2011
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH102110.m
Quant Title : DRO/TPH ICAL: SIM 10/21/10
QLast Update : Mon Nov 22 17:17:41 2010
Response via : Initial Calibration

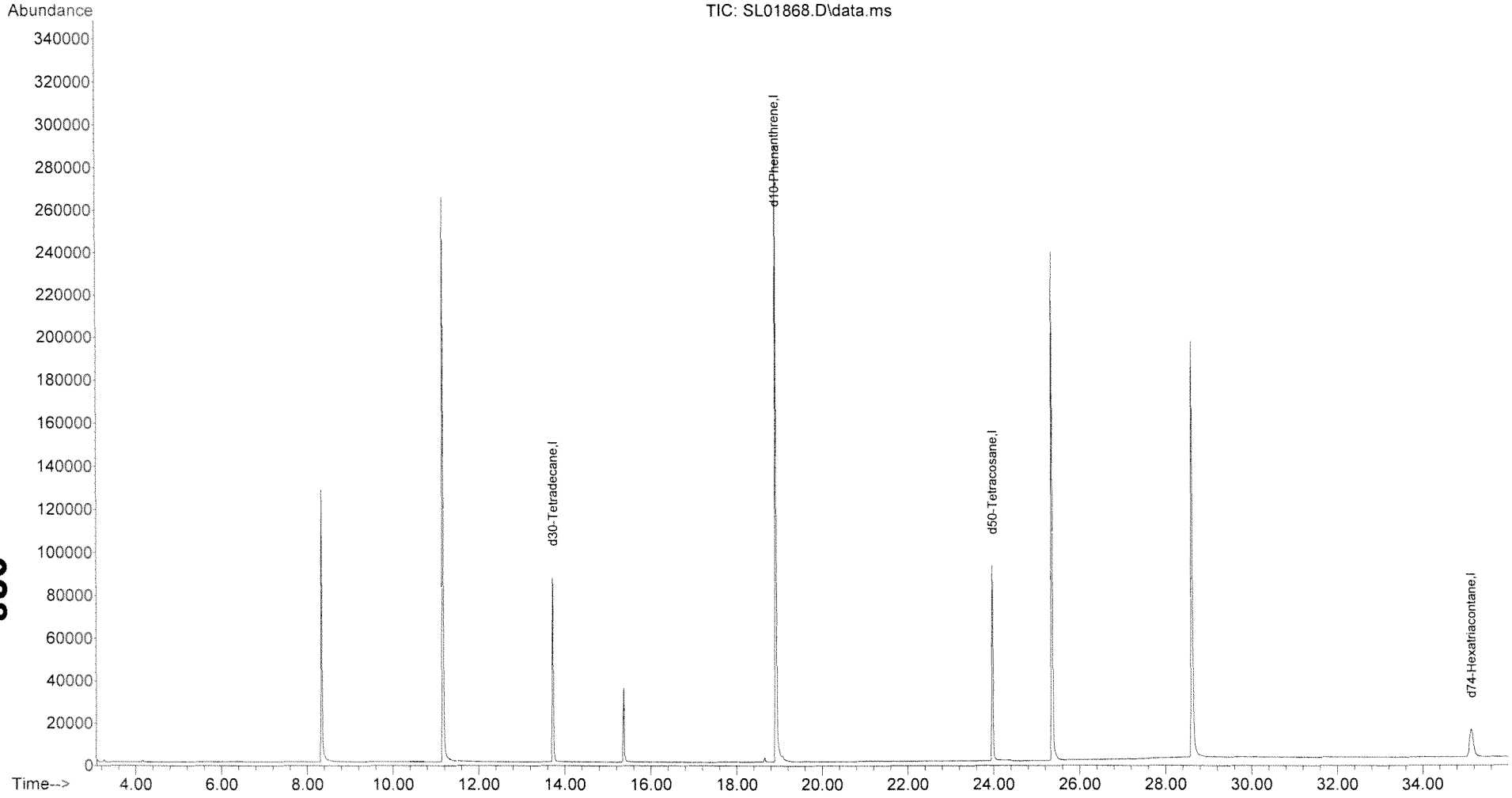
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.921	188	477227	10.00	ug/mL	0.00
5) d30-Tetradecane	13.732	66	148411	10.00	ug/mL	0.00
6) d50-Tetracosane	23.983	66	162479	10.00	ug/mL	0.00
8) d74-Hexatriacontane	35.139	66	86388	10.00	ug/mL	0.00
System Monitoring Compounds						
2) d10-Anthracene {S}	0.000	188	0	0.00	ug/mL	
Spiked Amount 20.000			Recovery =	0.00%		
3) d14-o-Terphenyl {S}	19.968	244	5	0.00	ug/mL	0.02
Spiked Amount 20.000			Recovery =	0.00%		
4) 5a-Androstane {S}	21.384	260	2	0.00	ug/mL	0.02
Spiked Amount 20.000			Recovery =	0.00%		
7) d62-Triacontane {S}	0.000	66	0d	0.00	ug/mL	
Spiked Amount 20.000			Recovery =	0.00%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\051611\
Data File : SL01868.D
Acq On : 16 May 2011 15:18
Operator : Syslo
Sample : Blank + IS
Misc : DCM/Hex + 20µL RUE0037
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 16 15:58:35 2011
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH102110.m
Quant Title : DRO/TPH ICAL: SIM 10/21/10
QLast Update : Mon Nov 22 17:17:41 2010
Response via : Initial Calibration



028

5.16.11

TPH as DRO + Surr.

ICAL DATA

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\051611\
Data File : SL01871.D
Acq On : 16 May 2011 18:09
Operator : Syslo
Sample : 1.0K TPH-DRO Std.
Misc : RUE0044
ALS Vial : 71 Sample Multiplier: 1

Quant Time: May 16 18:42:58 2011
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Mon Nov 22 17:17:41 2010
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.921	188	481334	10.00	ug/mL	0.00
5) d30-Tetradecane	13.724	66	157056	10.00	ug/mL	0.00
6) d50-Tetracosane	23.974	66	182621	10.00	ug/mL	0.00
8) d74-Hexatriacontane	35.131	66	79109	10.00	ug/mL	-0.02
System Monitoring Compounds						
2) d10-Anthracene {S}	19.038	188	518982	12.04	ug/mL	0.00
Spiked Amount 20.000			Recovery =	60.20%		
3) d14-o-Terphenyl {S}	19.941	244	239939	12.48	ug/mL	0.00
Spiked Amount 20.000			Recovery =	62.40%		
4) 5a-Androstane {S}	21.357	260	29860	12.41	ug/mL	0.00
Spiked Amount 20.000			Recovery =	62.05%		
7) d62-Triacontane {S}	28.360	66	151545	10.89	ug/mL	0.00
Spiked Amount 20.000			Recovery =	54.45%		
Target Compounds						Qvalue

#) = qualifier out of range (m) = manual integration (+) = signals summed

Σ_{TPH} = 9385180

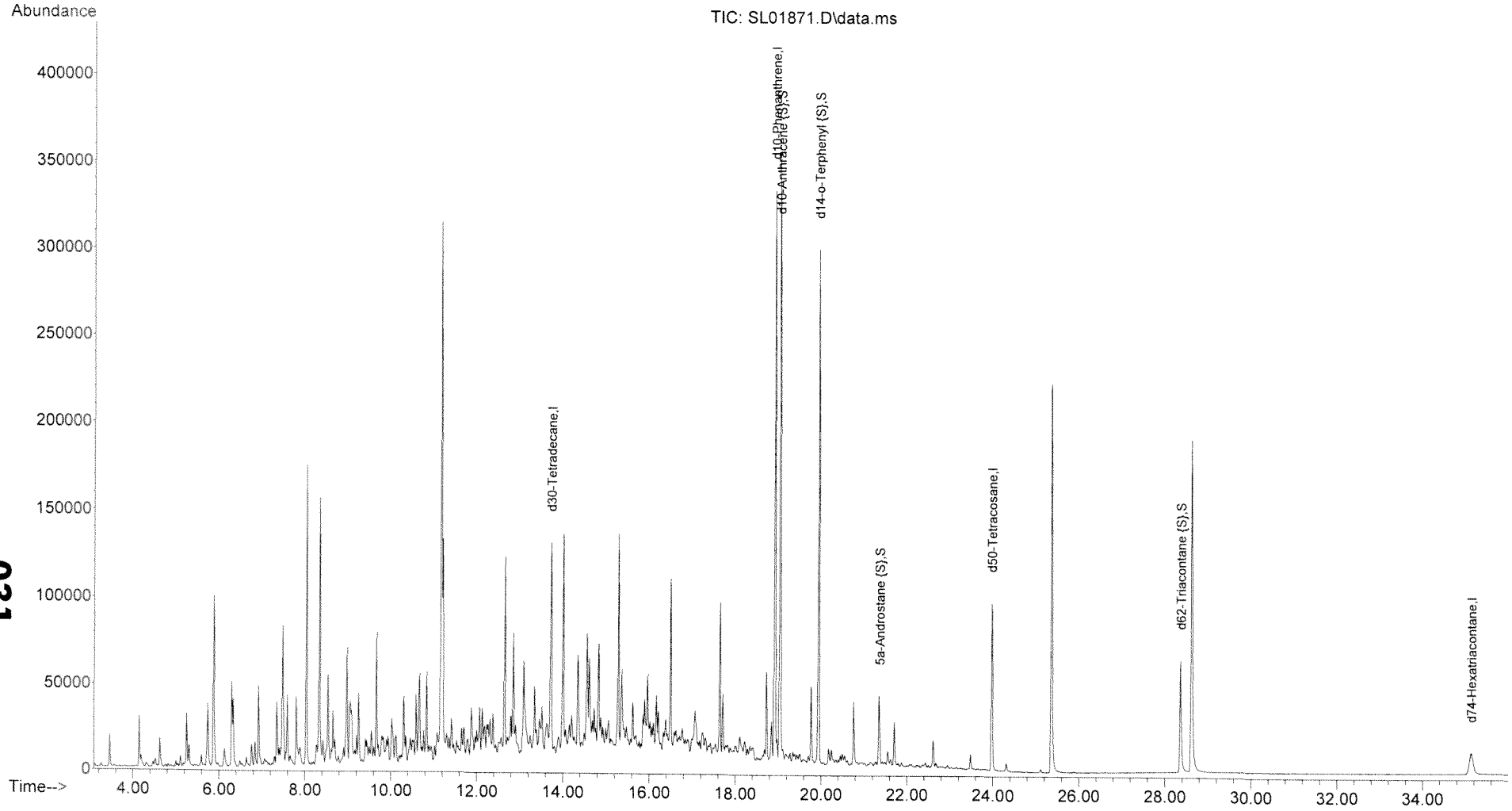
≈ 1070 ppm on 10/22/11 curve.

SERAS-017-DTM-011413_1

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\051611\
Data File : SL01871.D
Acq On : 16 May 2011 18:09
Operator : Syslo
Sample : 1.0K TPH-DRO Std.
Misc : RUE0044
ALS Vial : 71 Sample Multiplier: 1

Quant Time: May 16 18:42:58 2011
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Mon Nov 22 17:17:41 2010
Response via : Initial Calibration



031

Area Percent Report

Data Path : C:\msdchem\1\DATA\051611\
Data File : SL01871.D
Acq On : 16 May 2011 18:09
Operator : Syslo
mple : 1.0K TPH-DRO Std.
sc : RUE0044
ALS Vial : 71 Sample Multiplier: 1

Integration Parameters: Oilint.P
Integrator: RTE
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 5 % of largest Peak
Start Thrs: 0.05 Max Peaks: 150
Stop Thrs : 0.05 Peak Location: TOP

If leading or trailing edge < 50 prefer < Baseline drop else tangent >
Peak separation: 3

Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Title : DRO/TPH ICAL + Surr. 05/16/11

Signal : EIC Ion 85.00 (84.70 to 85.70): SL01871.D\data.ms

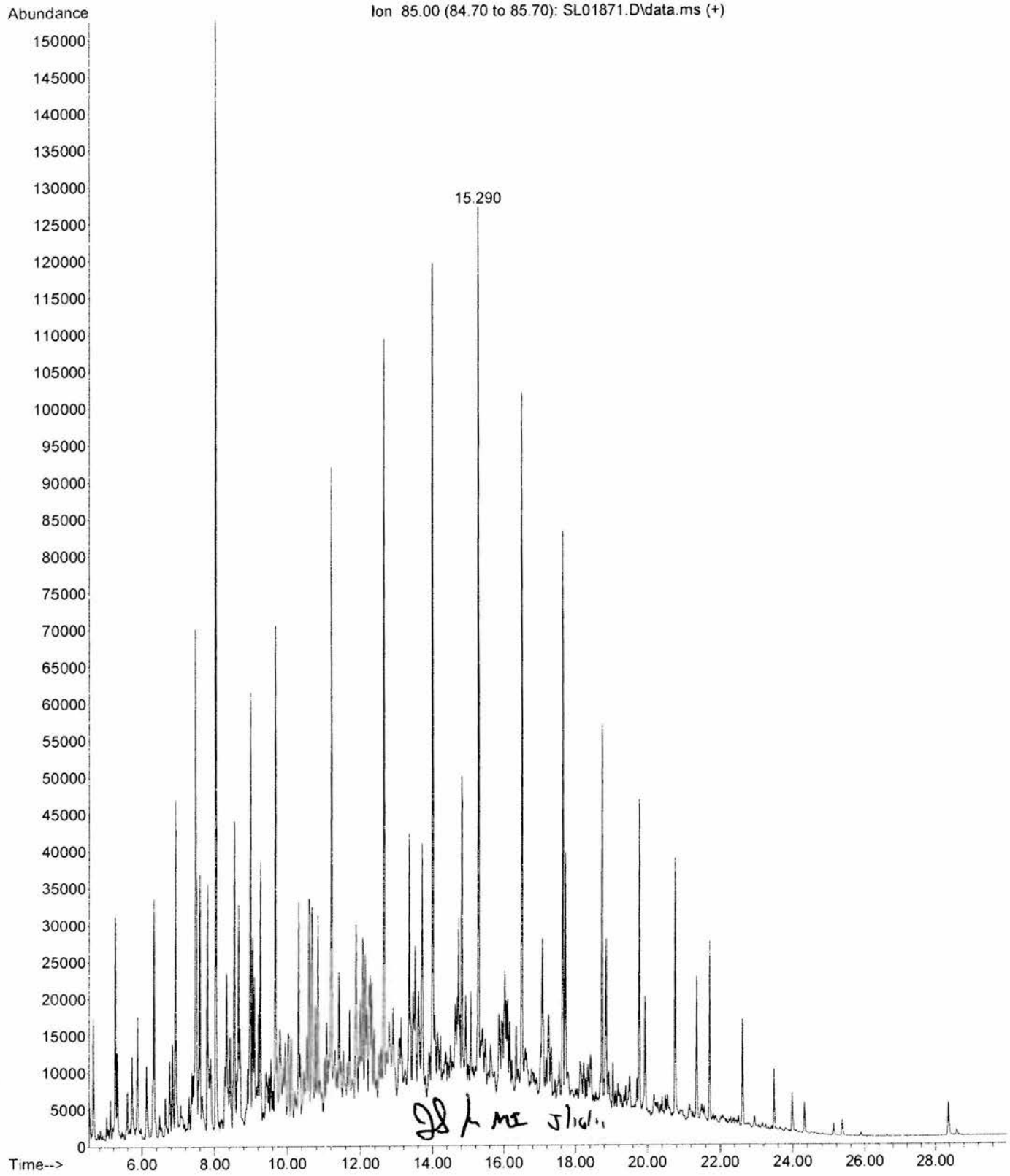
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	15.290	629	1528	2777	rM 9	126231	9385180	100.00%	100.000%

Sum of corrected areas: 9385180

MF 5/16/11

DR TPH051611.M Mon May 16 18:46:25 2011

File :C:\msdchem\1\DATA\051611\SL01871.D
Operator : Syslo
Acquired : 16 May 2011 18:09 using AcqMethod DROTPH051611.M
Instrument : Slick2
Sample Name: 1.0K TPH-DRO Std.
Misc Info : RUE0044
Vial Number: 71



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\051611\
Data File : SL01872.D
Acq On : 16 May 2011 18:57
Operator : Syslo
Sample : 10K TPH-DRO Std.
Misc : RUE0042
ALS Vial : 72 Sample Multiplier: 1

Quant Time: May 16 19:30:15 2011
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Mon May 16 18:51:22 2011
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.921	188	460599	10.00	ug/mL	0.00
5) d30-Tetradecane	13.732	66	156450	10.00	ug/mL	0.00
6) d50-Tetracosane	23.983	66	176876	10.00	ug/mL	0.00
8) d74-Hexatriacontane	35.130	66	79529	10.00	ug/mL	0.00
System Monitoring Compounds						
2) d10-Anthracene {S}	19.047	188	4582777	106.97	ug/mL	0.00
Spiked Amount 20.000			Recovery =	534.85%		
3) d14-o-Terphenyl {S}	19.949	244	2087742	107.92	ug/mL	0.00
Spiked Amount 20.000			Recovery =	539.60%		
4) 5a-Androstane {S}	21.366	260	272472	112.94	ug/mL	0.00
Spiked Amount 20.000			Recovery =	564.70%		
7) d62-Triacontane {S}	28.369	66	1629082	108.65	ug/mL	0.00
Spiked Amount 20.000			Recovery =	543.25%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Σ_{TPH} = 86697279

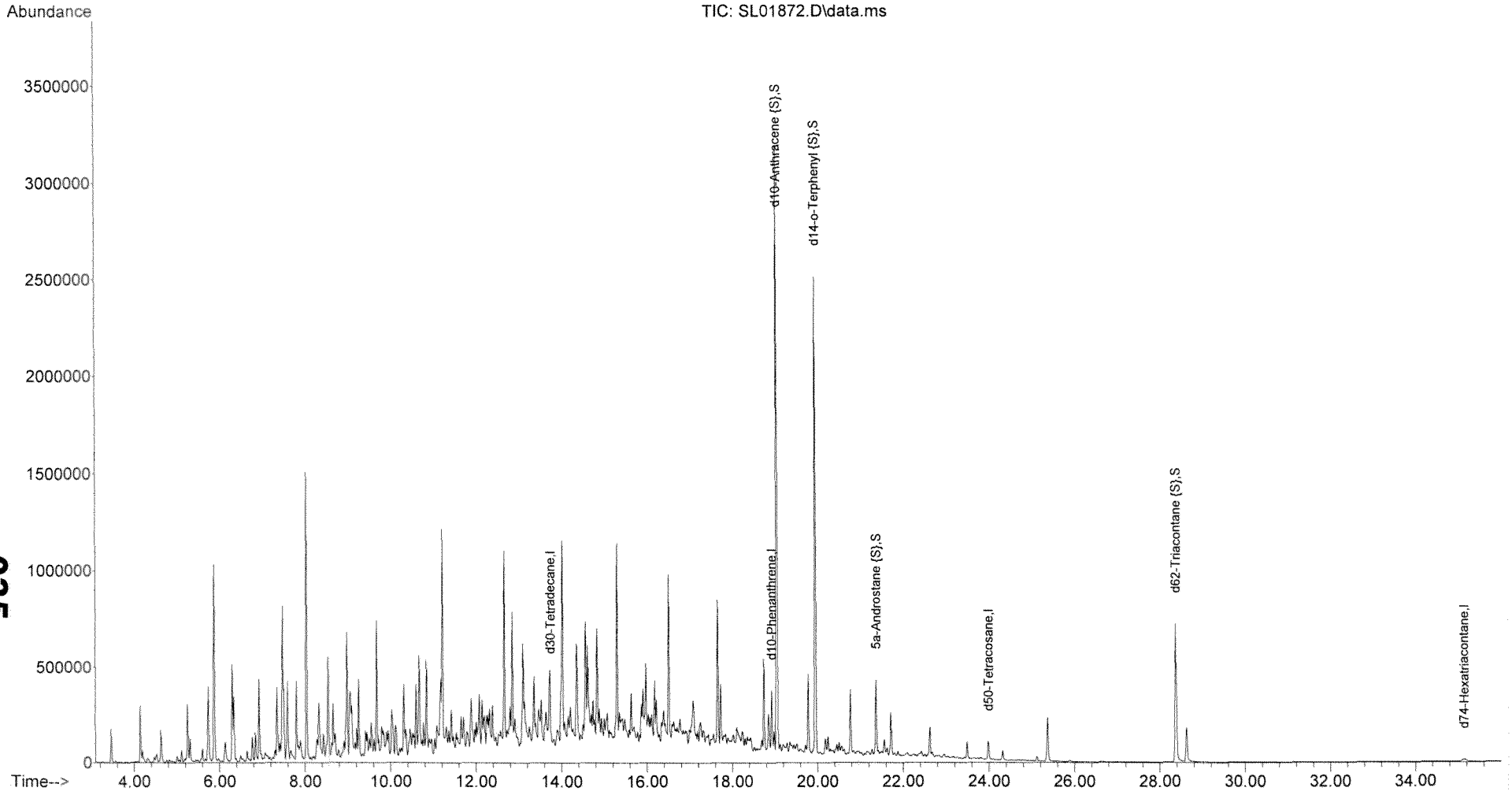
SERAS-017-DTM-011413_1

035

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\051611\
Data File : SL01872.D
Acq On : 16 May 2011 18:57
Operator : Syslo
Sample : 10K TPH-DRO Std.
Misc : RUE0042
ALS Vial : 72 Sample Multiplier: 1

Quant Time: May 16 19:30:15 2011
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Mon May 16 18:51:22 2011
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\051611\
Data File : SL01872.D
Acq On : 16 May 2011 18:57
Operator : Syslo
Sample : 10K TPH-DRO Std.
Misc : RUE0042
ALS Vial : 72 Sample Multiplier: 1

Integration Parameters: Oilint.P
Integrator: RTE
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 5 % of largest Peak
Start Thrs: 0.05 Max Peaks: 150
Stop Thrs : 0.05 Peak Location: TOP

If leading or trailing edge < 50 prefer < Baseline drop else tangent >
Peak separation: 3

Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Title : DRO/TPH ICAL + Surr. 05/16/11

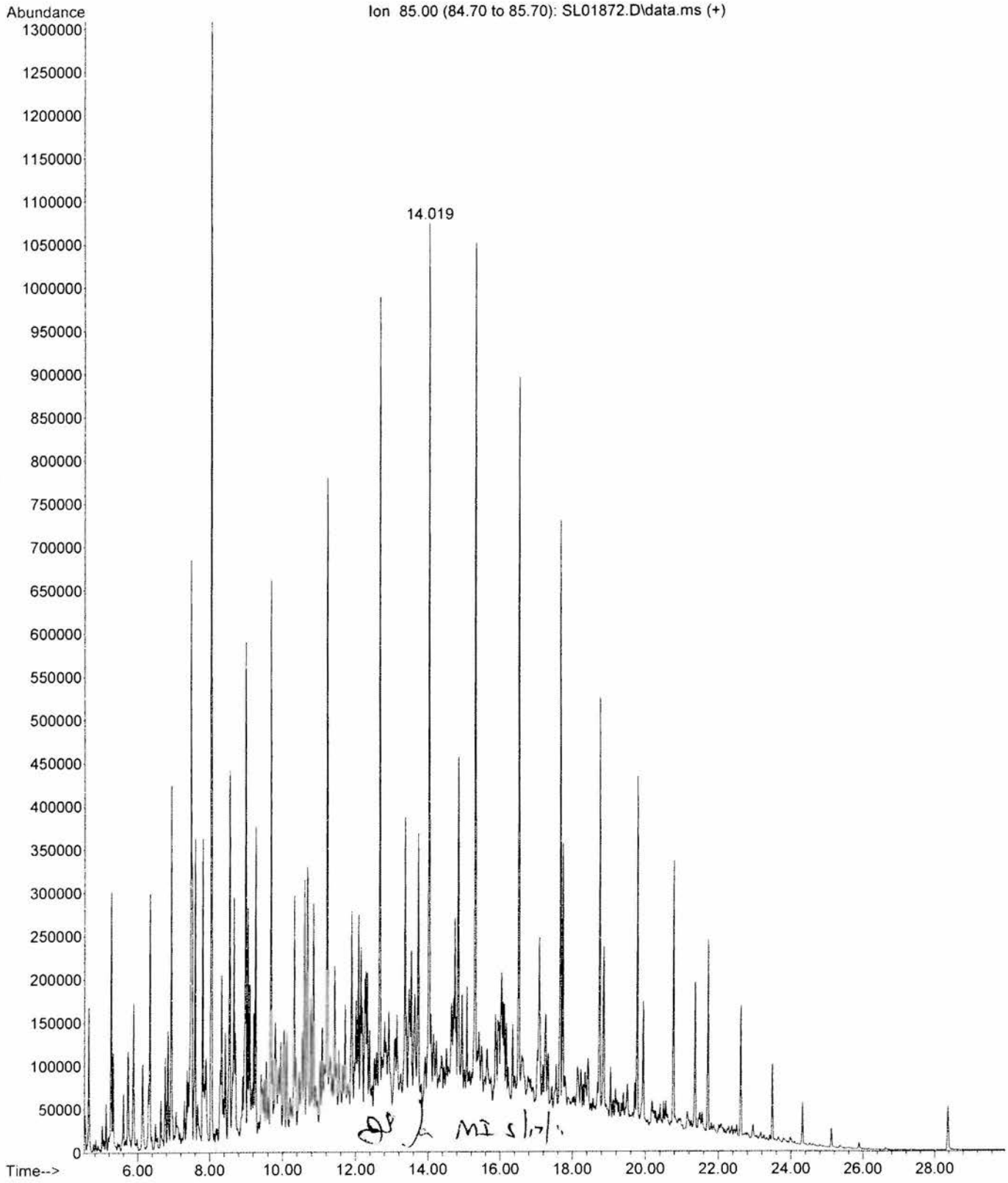
Signal : EIC Ion 85.00 (84.70 to 85.70): SL01872.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	14.019	636	1369	2976	rM 7	1073264	86697279	100.00%	100.000%

Sum of corrected areas: 86697279

DROTPH051611.M Tue May 17 17:58:46 2011

```
File        :C:\msdchem\1\DATA\051611\SL01872.D
Operator    : Syslo
Acquired    : 16 May 2011   18:57      using AcqMethod DROTPH051611.M
Instrument :    Slick2
Sample Name: 10K TPH-DRO Std.
Misc Info   : RUE0042
Vial Number: 72
```



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\051611\
Data File : SL01873.D
Acq On : 16 May 2011 19:40
Operator : Syslo
Sample : 500ppm TPH-DRO Std.
Misc : RUE0045
ALS Vial : 73 Sample Multiplier: 1

Quant Time: May 16 20:13:26 2011
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Mon May 16 18:51:22 2011
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.921	188	434315	10.00	ug/mL	0.00
5) d30-Tetradecane	13.724	66	146200	10.00	ug/mL	0.00
6) d50-Tetracosane	23.974	66	153167	10.00	ug/mL	0.00
8) d74-Hexatriacontane	35.130	66	63224	10.00	ug/mL	0.00
System Monitoring Compounds						
2) d10-Anthracene {S}	19.038	188	220965	5.47	ug/mL	0.00
Spiked Amount 20.000			Recovery =	27.35%		
3) d14-o-Terphenyl {S}	19.940	244	104564	5.73	ug/mL	0.00
Spiked Amount 20.000			Recovery =	28.65%		
4) 5a-Androstane {S}	21.357	260	12842	5.65	ug/mL	0.00
Spiked Amount 20.000			Recovery =	28.25%		
7) d62-Triacontane {S}	28.360	66	52320	4.71	ug/mL	0.00
Spiked Amount 20.000			Recovery =	23.55%		

Target Compounds Qvalue

#) = qualifier out of range (m) = manual integration (+) = signals summed

Stph: 4381273

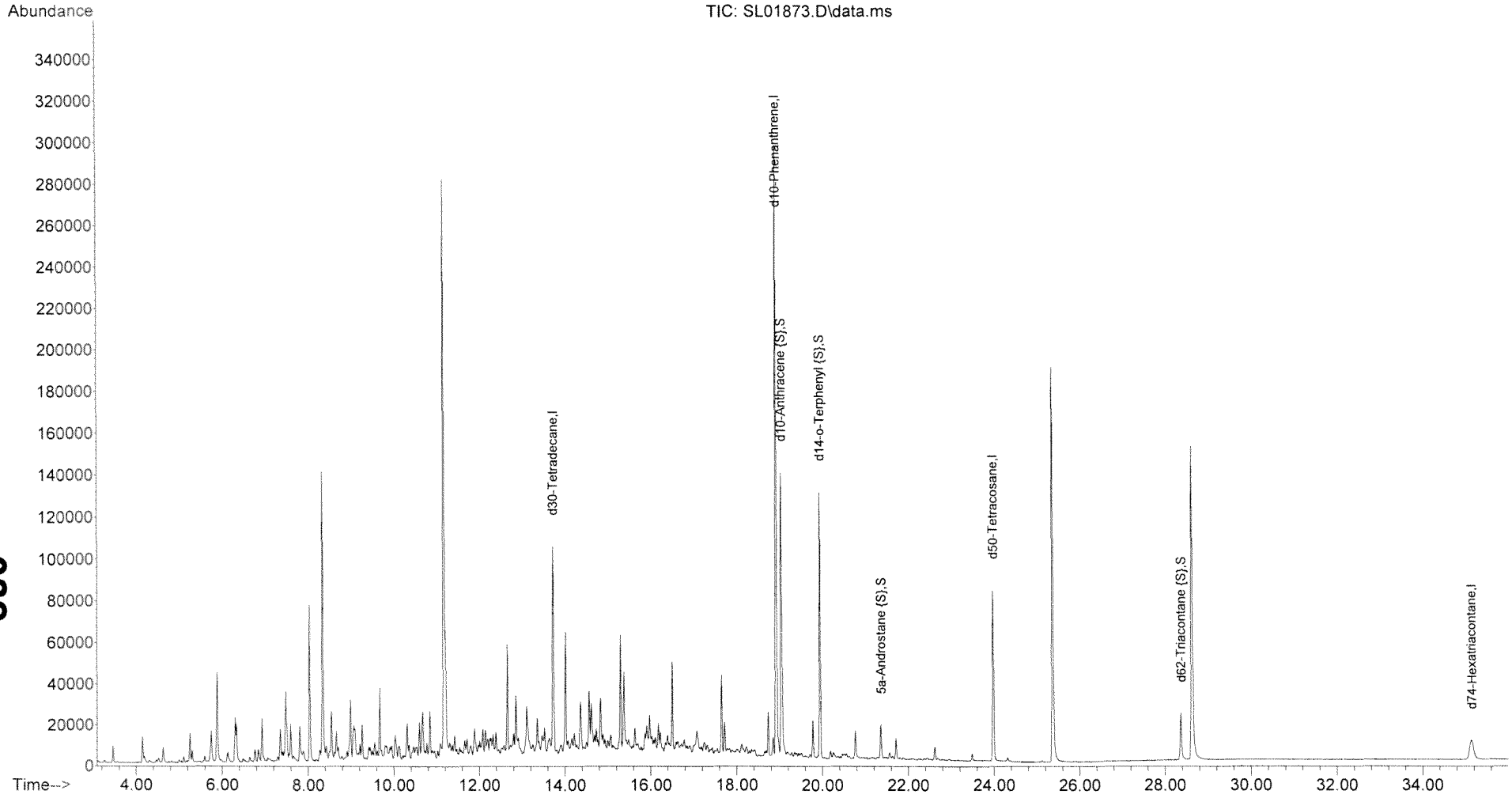
SERAS-017-DTM-011413_1

039

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\051611\
Data File : SL01873.D
Acq On : 16 May 2011 19:40
Operator : Syslo
Sample : 500ppm TPH-DRO Std.
Misc : RUE0045
ALS Vial : 73 Sample Multiplier: 1

Quant Time: May 16 20:13:26 2011
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Mon May 16 18:51:22 2011
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\051611\
Data File : SL01873.D
Acq On : 16 May 2011 19:40
Operator : Syslo
[illegible]mple : 500ppm TPH-DRO Std.
[illegible]sc : RUE0045
ALS Vial : 73 Sample Multiplier: 1

Integration Parameters: Oilint.P
Integrator: RTE
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 5 % of largest Peak
Start Thrs: 0.05 Max Peaks: 150
Stop Thrs : 0.05 Peak Location: TOP

If leading or trailing edge < 50 prefer < Baseline drop else tangent >
Peak separation: 3

Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Title : DRO/TPH ICAL + Surr. 05/16/11

Signal : EIC Ion 85.00 (84.70 to 85.70): SL01873.D\data.ms

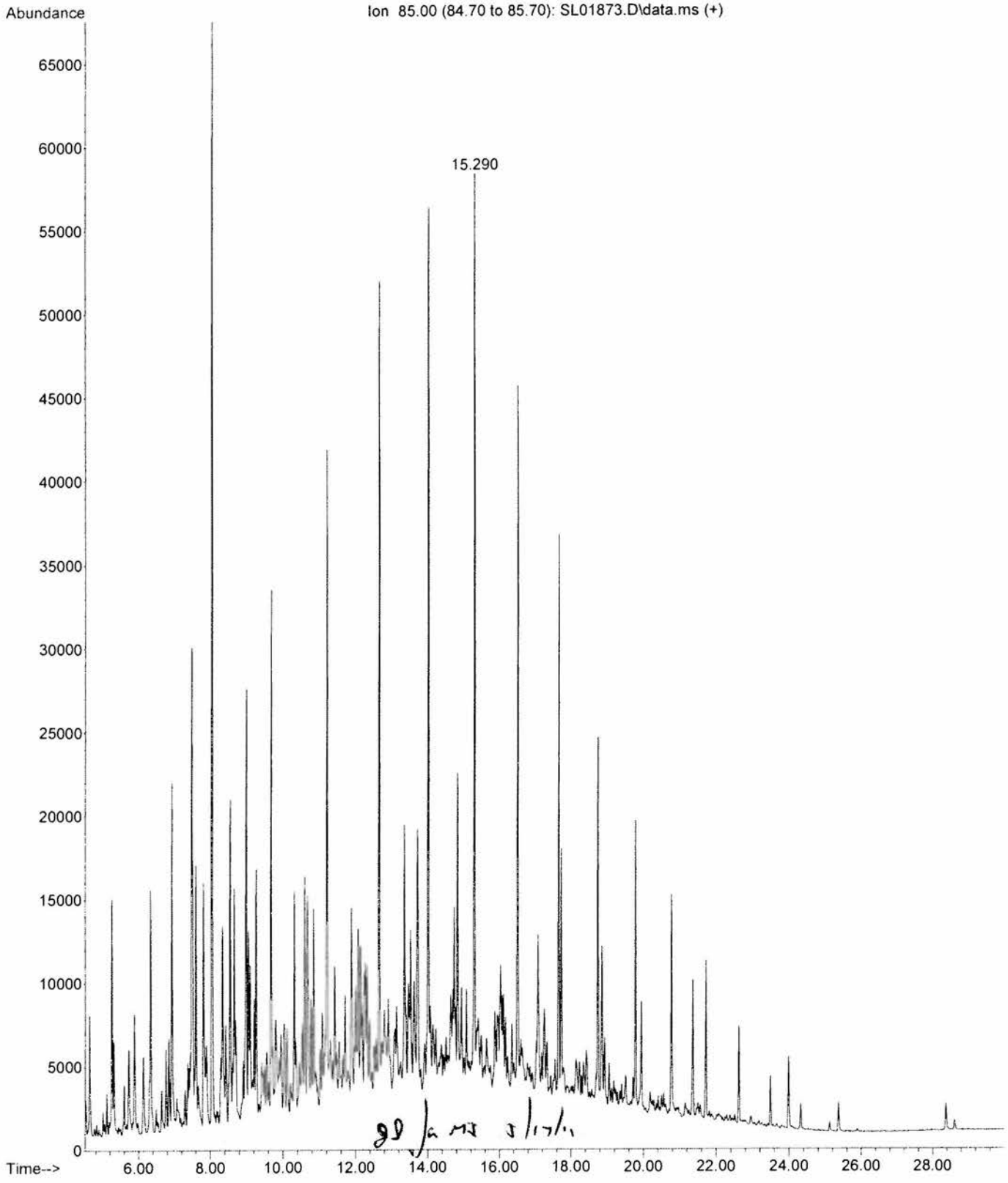
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	15.290	645	1528	2717	rM 6	57665	4381273	100.00%	100.000%

Sum of corrected areas: 4381273

[illegible]PH051611.M Tue May 17 18:03:26 2011

MI
5/17/11

File :C:\msdchem\1\DATA\051611\SL01873.D
Operator : Syslo
Acquired : 16 May 2011 19:40 using AcqMethod DROTPH051611.M
Instrument : Slick2
Sample Name: 500ppm TPH-DRO Std.
Misc Info : RUE0045
Vial Number: 73



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\051611\
Data File : SL01874.D
Acq On : 16 May 2011 20:23
Operator : Syslo
Sample : 5.0K TPH-DRO Std.
Misc : RUE0043
ALS Vial : 74 Sample Multiplier: 1

Quant Time: May 16 20:56:26 2011
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Mon May 16 20:16:54 2011
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.921	188	411935	10.00	ug/mL	0.00
5) d30-Tetradecane	13.724	66	142438	10.00	ug/mL	0.00
6) d50-Tetracosane	23.974	66	151428	10.00	ug/mL	0.00
8) d74-Hexatriacontane	35.130	66	60526	10.00	ug/mL	0.00
System Monitoring Compounds						
2) d10-Anthracene {S}	19.038	188	2148482	53.87	ug/mL	0.00
Spiked Amount 20.000			Recovery =	269.35%		
3) d14-o-Terphenyl {S}	19.940	244	955201	51.94	ug/mL	0.00
Spiked Amount 20.000			Recovery =	259.70%		
4) 5a-Androstane {S}	21.357	260	120381	52.62	ug/mL	0.00
Spiked Amount 20.000			Recovery =	263.10%		
7) d62-Triacontane {S}	28.360	66	675097	60.54	ug/mL	0.00
Spiked Amount 20.000			Recovery =	302.70%		
Target Compounds						Qvalue

#) = qualifier out of range (m) = manual integration (+) = signals summed

$\Sigma_{TPH} = 40295375$

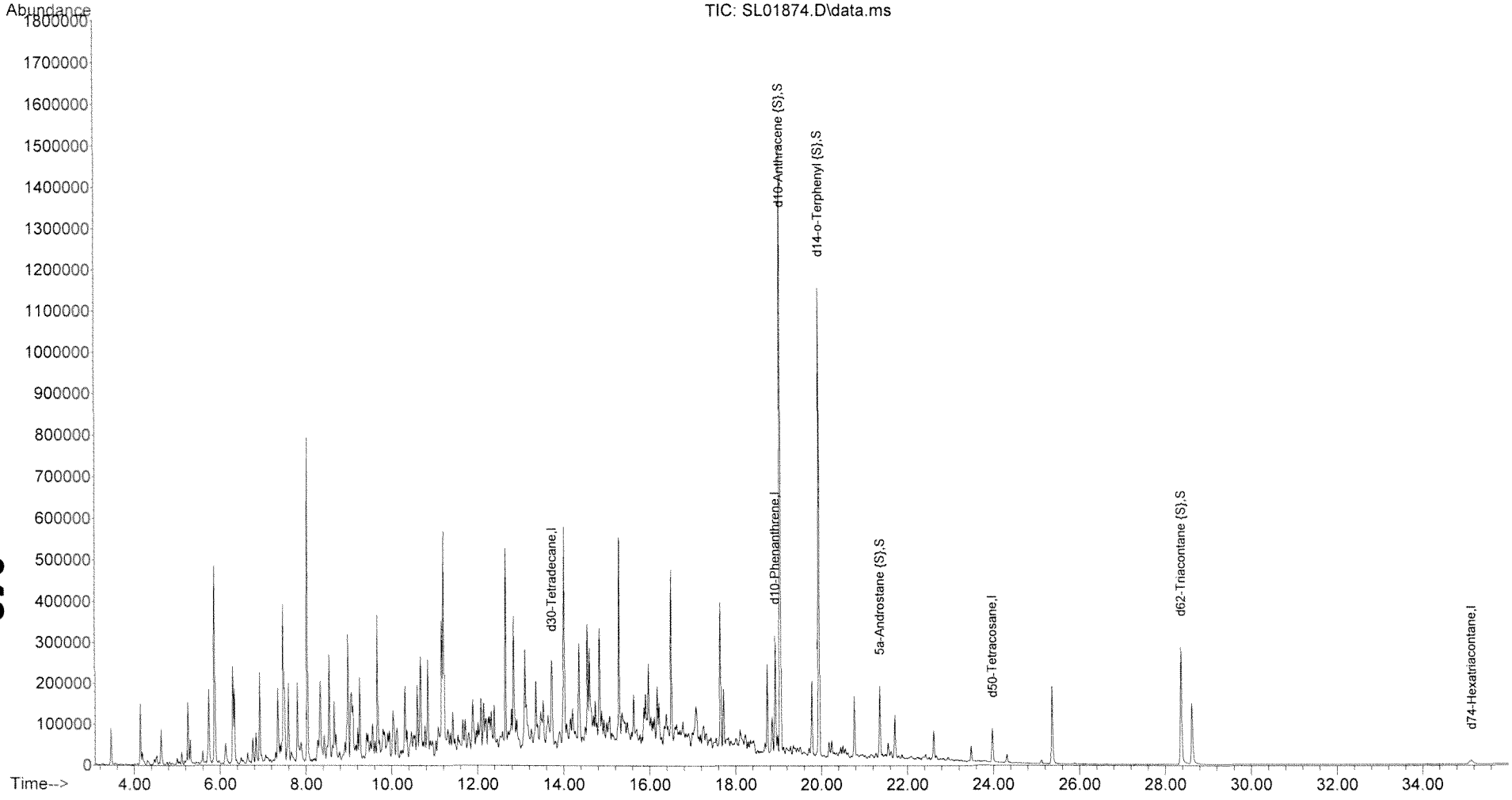
SERAS-017-DTM-011413_1

043

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\051611\
Data File : SL01874.D
Acq On : 16 May 2011 20:23
Operator : Syslo
Sample : 5.0K TPH-DRO Std.
Misc : RUE0043
ALS Vial : 74 Sample Multiplier: 1

Quant Time: May 16 20:56:26 2011
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Mon May 16 20:16:54 2011
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\051611\
Data File : SL01874.D
Acq On : 16 May 2011 20:23
Operator : Syslo
Sample : 5.0K TPH-DRO Std.
Misc : RUE0043
ALS Vial : 74 Sample Multiplier: 1

Integration Parameters: Oilint.P
Integrator: RTE
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 5 % of largest Peak
Start Thrs: 0.05 Max Peaks: 150
Stop Thrs : 0.05 Peak Location: TOP

If leading or trailing edge < 50 prefer < Baseline drop else tangent >
Peak separation: 3

Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Title : DRO/TPH ICAL + Surr. 05/16/11

Signal : EIC Ion 85.00 (84.70 to 85.70): SL01874.D\data.ms

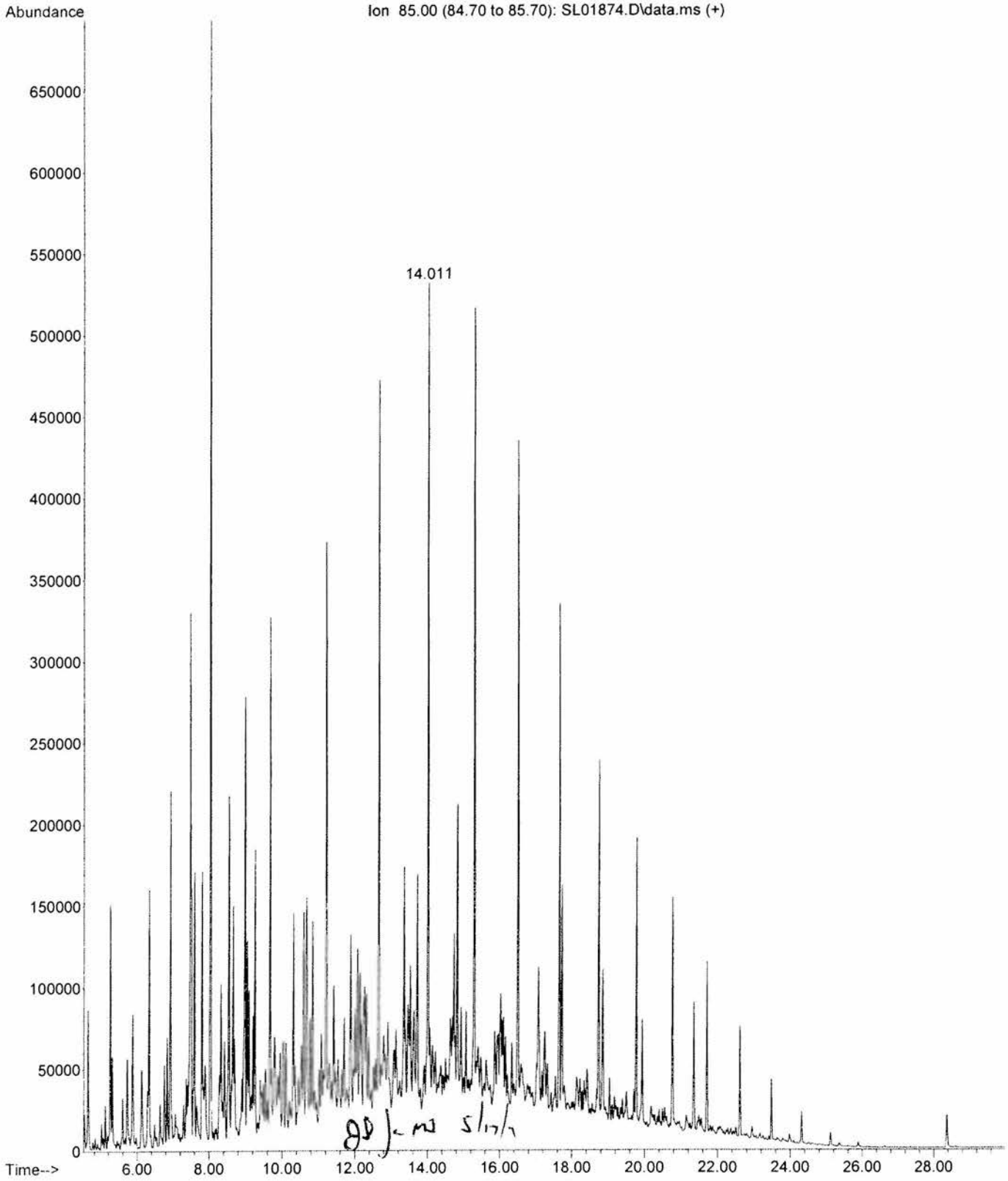
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	14.011	624	1368	2831	rM 8	530728	40295375	100.00%	100.000%

Sum of corrected areas: 40295375

98 JL MF 5/17/11

DRO/TPH051611.M Tue May 17 18:06:33 2011

File :C:\msdchem\1\DATA\051611\SL01874.D
Operator : Syslo
Acquired : 16 May 2011 20:23 using AcqMethod DROTPH051611.M
Instrument : Slick2
Sample Name: 5.0K TPH-DRO Std.
Misc Info : RUE0043
Vial Number: 74



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\051611\
Data File : SL01875.D
Acq On : 16 May 2011 21:06
Operator : Syslo
Sample : 100ppm TPH-DRO Std.
Misc : RUE0046
ALS Vial : 75 Sample Multiplier: 1

Quant Time: May 17 18:11:25 2011
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Tue May 17 18:08:56 2011
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.921	188	417749	10.00	ug/mL	0.00
5) d30-Tetradecane	13.723	66	145897	10.00	ug/mL	0.00
6) d50-Tetracosane	23.974	66	134713	10.00	ug/mL	0.00
8) d74-Hexatriacontane	35.130	66	55469	10.00	ug/mL	0.00
System Monitoring Compounds						
2) d10-Anthracene {S}	19.056	188	45457	1.09	ug/mL	0.02
Spiked Amount 20.000			Recovery =	5.45%		
3) d14-o-Terphenyl {S}	19.940	244	19720	1.03	ug/mL	0.00
Spiked Amount 20.000			Recovery =	5.15%		
4) 5a-Androstane {S}	21.357	260	2305	0.97	ug/mL	0.00
Spiked Amount 20.000			Recovery =	4.85%		
7) d62-Triacontane {S}	28.360	66	6253	1.62	ug/mL	0.00
Spiked Amount 20.000			Recovery =	8.10%		
Target Compounds						Qvalue

#) = qualifier out of range (m) = manual integration (+) = signals summed

$\Sigma_{TPH} = 98/077$

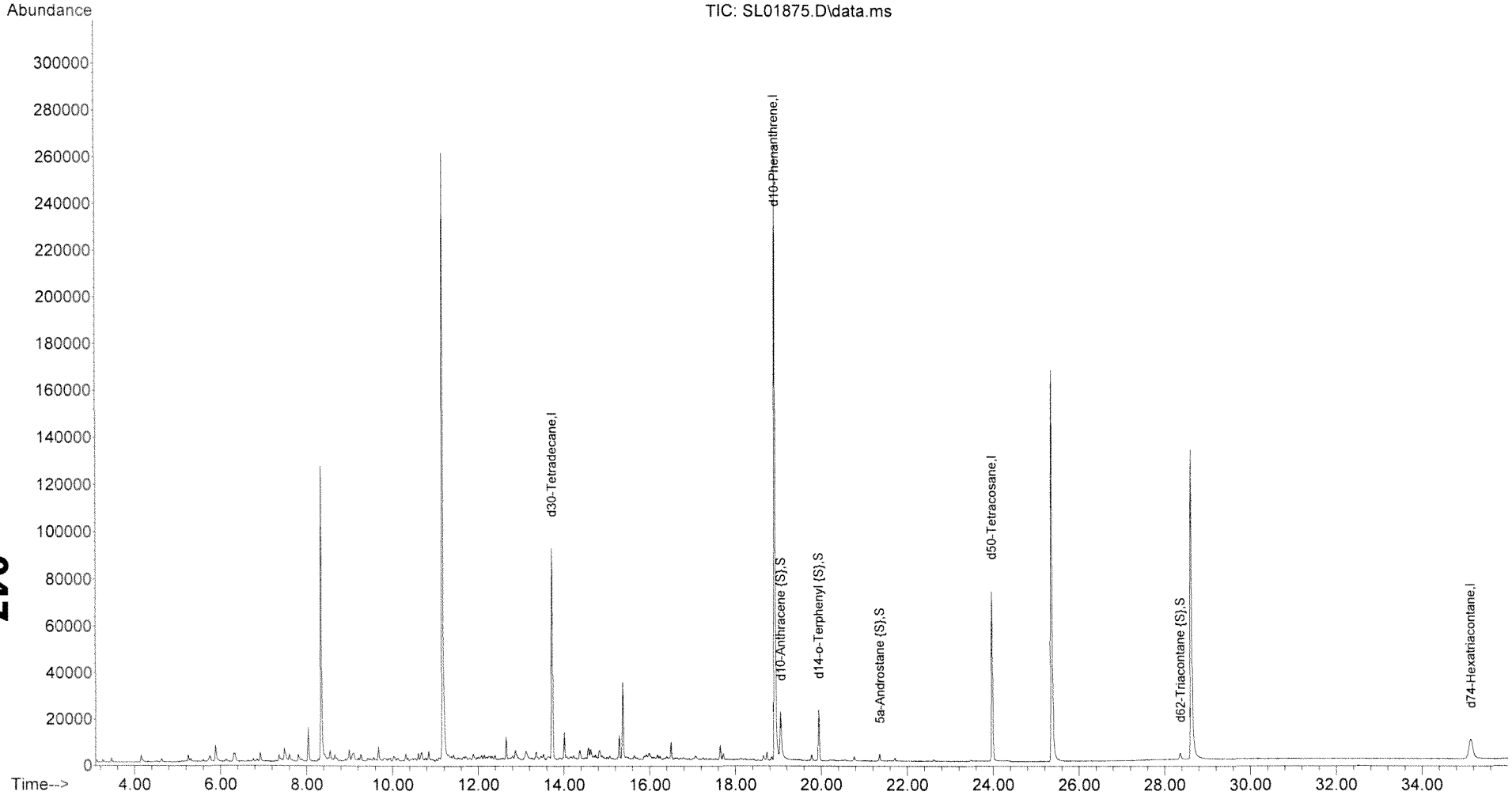
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\051611\
Data File : SL01875.D
Acq On : 16 May 2011 21:06
Operator : Syslo
Sample : 100ppm TPH-DRO Std.
Misc : RUE0046
ALS Vial : 75 Sample Multiplier: 1

Quant Time: May 17 18:11:25 2011
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Tue May 17 18:08:56 2011
Response via : Initial Calibration

SERAS-017-DTM-011413_1

047



Area Percent Report

Data Path : C:\msdchem\1\DATA\051611\
Data File : SL01875.D
Acq On : 16 May 2011 21:06
Operator : Syslo
Sample : 100ppm TPH-DRO Std.
Misc : RUE0046
ALS Vial : 75 Sample Multiplier: 1

Integration Parameters: Oilint.P
Integrator: RTE
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 5 % of largest Peak
Start Thrs: 0.05 Max Peaks: 150
Stop Thrs : 0.05 Peak Location: TOP

If leading or trailing edge < 50 prefer < Baseline drop else tangent >
Peak separation: 3

Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Title : DRO/TPH ICAL + Surr. 05/16/11

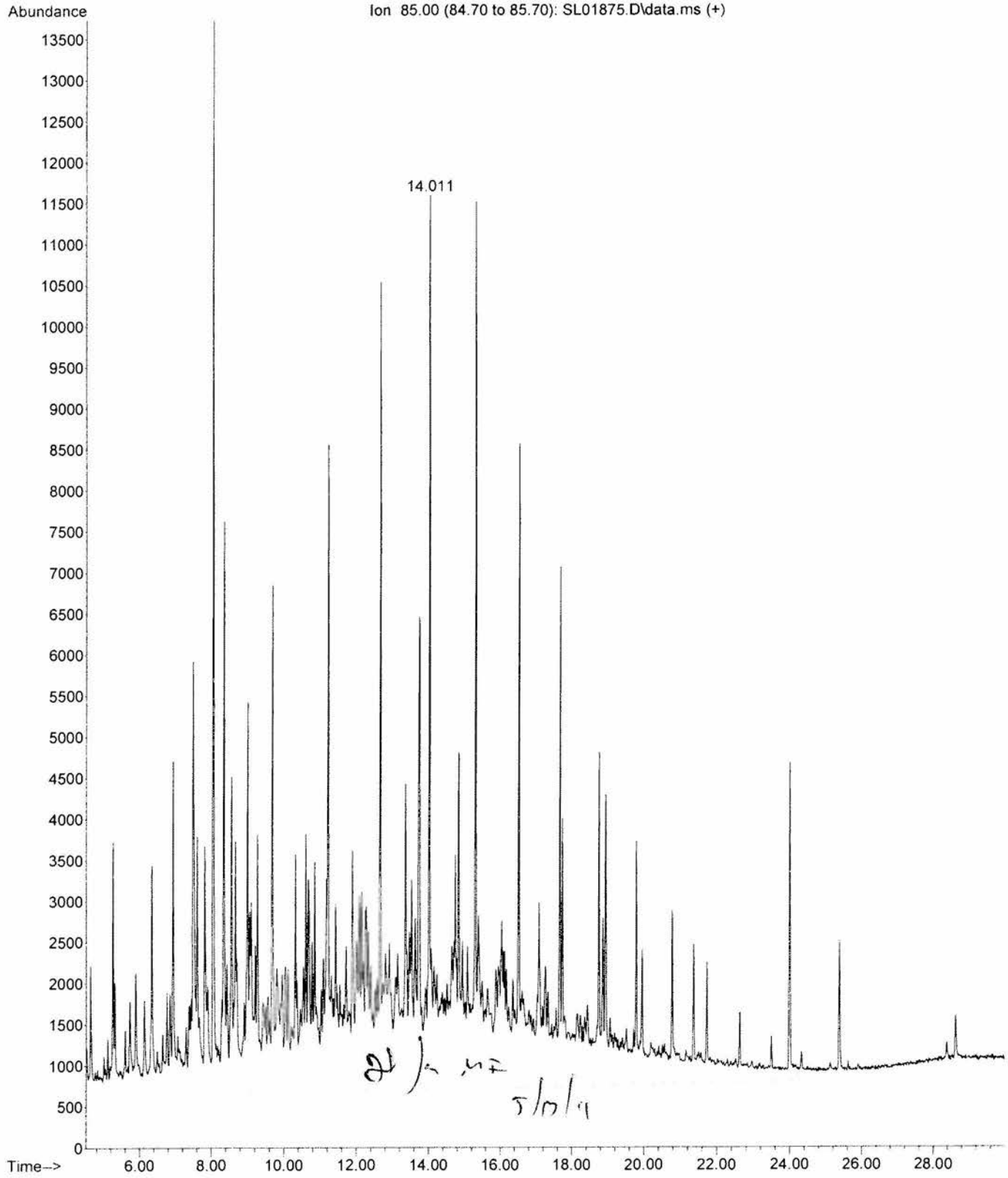
Signal : EIC Ion 85.00 (84.70 to 85.70): SL01875.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	14.011	633	1368	2559	rM 4	10898	981077	100.00%	100.000%

Sum of corrected areas: 981077

DRO/TPH051611.M Tue May 17 18:13:49 2011

File :C:\msdchem\1\DATA\051611\SL01875.D
Operator : Syslo
Acquired : 16 May 2011 21:06 using AcqMethod DROTPH051611.M
Instrument : Slick2
Sample Name: 100ppm TPH-DRO Std.
Misc Info : RUE0046
Vial Number: 75



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\051611\
Data File : SL01876.D
Acq On : 16 May 2011 21:49
Operator : Syslo
Sample : 50ppm TPH-DRO Std.
Misc : RUE0047
ALS Vial : 76 Sample Multiplier: 1

Quant Time: May 17 18:14:14 2011
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Tue May 17 18:12:38 2011
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.921	188	412580	10.00	ug/mL	0.00
5) d30-Tetradecane	13.724	66	144045	10.00	ug/mL	0.00
6) d50-Tetracosane	23.974	66	128364	10.00	ug/mL	0.00
8) d74-Hexatriacontane	35.130	66	53519	10.00	ug/mL	0.00
System Monitoring Compounds						
2) d10-Anthracene {S}	19.056	188	23904	0.55	ug/mL	0.02
Spiked Amount 20.000			Recovery =	2.75%		
3) d14-o-Terphenyl {S}	19.949	244	8969	0.46	ug/mL	0.00
Spiked Amount 20.000			Recovery =	2.30%		
4) 5a-Androstane {S}	21.357	260	974	0.40	ug/mL	0.00
Spiked Amount 20.000			Recovery =	2.00%		
7) d62-Triacontane {S}	28.360	66	2424	1.30	ug/mL	0.00
Spiked Amount 20.000			Recovery =	6.50%		

Target Compounds Qvalue

#) = qualifier out of range (m) = manual integration (+) = signals summed

Σ_{TPH} = 430368

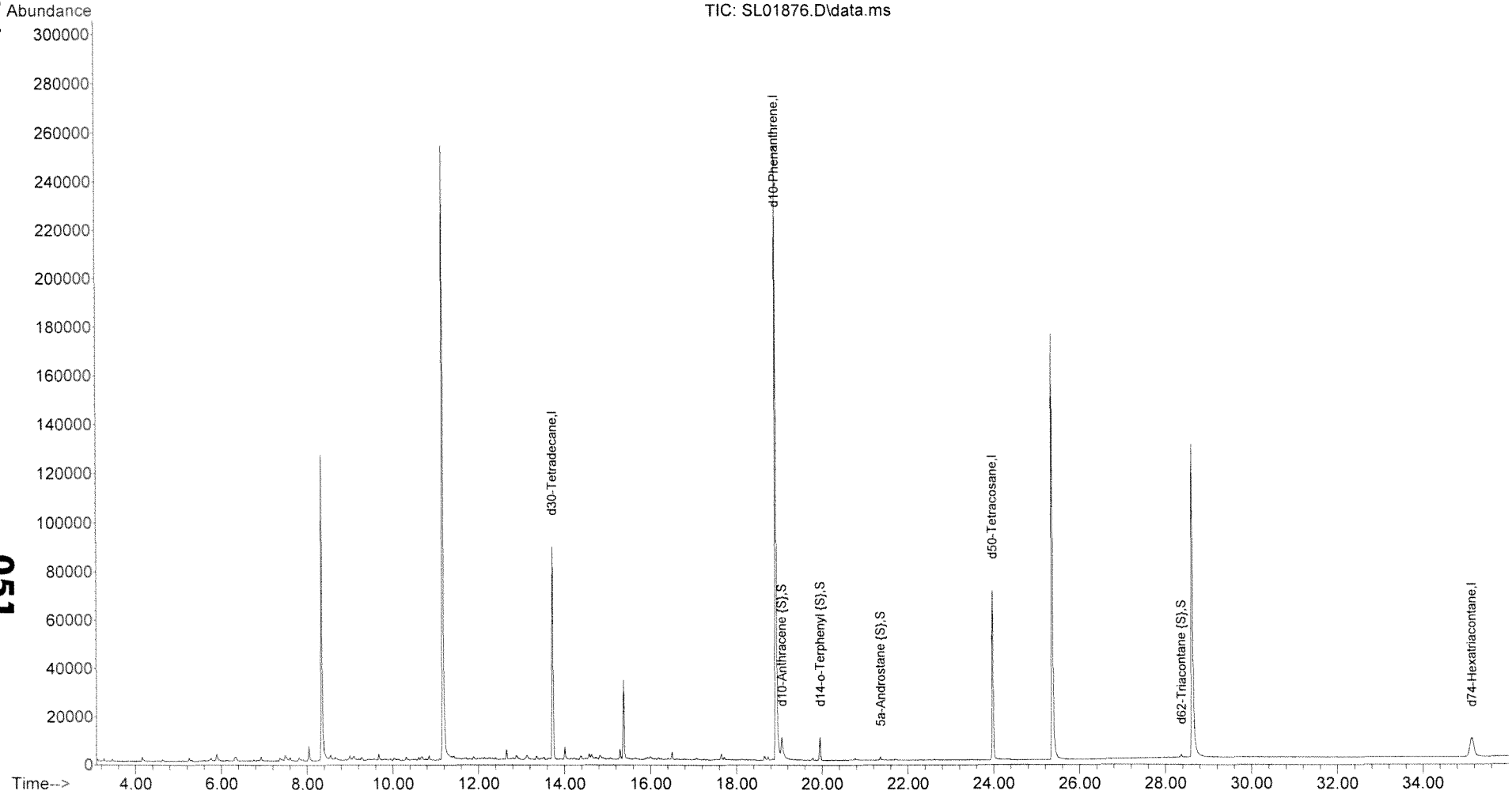
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\051611\
Data File : SL01876.D
Acq On : 16 May 2011 21:49
Operator : Syslo
Sample : 50ppm TPH-DRO Std.
Misc : RUE0047
ALS Vial : 76 Sample Multiplier: 1

Quant Time: May 17 18:14:14 2011
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Tue May 17 18:12:38 2011
Response via : Initial Calibration

SERAS-017-DTM-011413_1

051



Area Percent Report

Data Path : C:\msdchem\1\DATA\051611\
Data File : SL01876.D
Acq On : 16 May 2011 21:49
Operator : Syslo
Sample : 50ppm TPH-DRO Std.
Misc : RUE0047
ALS Vial : 76 Sample Multiplier: 1

Integration Parameters: Oilint.P
Integrator: RTE
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 5 % of largest Peak
Start Thrs: 0.05 Max Peaks: 150
Stop Thrs : 0.05 Peak Location: TOP

If leading or trailing edge < 50 prefer < Baseline drop else tangent >
Peak separation: 3

Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Title : DRO/TPH ICAL + Surr. 05/16/11

Signal : EIC Ion 85.00 (84.70 to 85.70): SL01876.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	8.337	637	658	2405	rM 4	6185	430368	100.00%	100.000%

Sum of corrected areas: 430368

DRO/TPH051611.M Tue May 17 18:16:27 2011

File :C:\msdchem\1\DATA\051611\SL01876.D
Operator : Syslo
Acquired : 16 May 2011 21:49 using AcqMethod DROTPH051611.M
Instrument : Slick2
Sample Name: 50ppm TPH-DRO Std.
Misc Info : RUE0047
Vial Number: 76

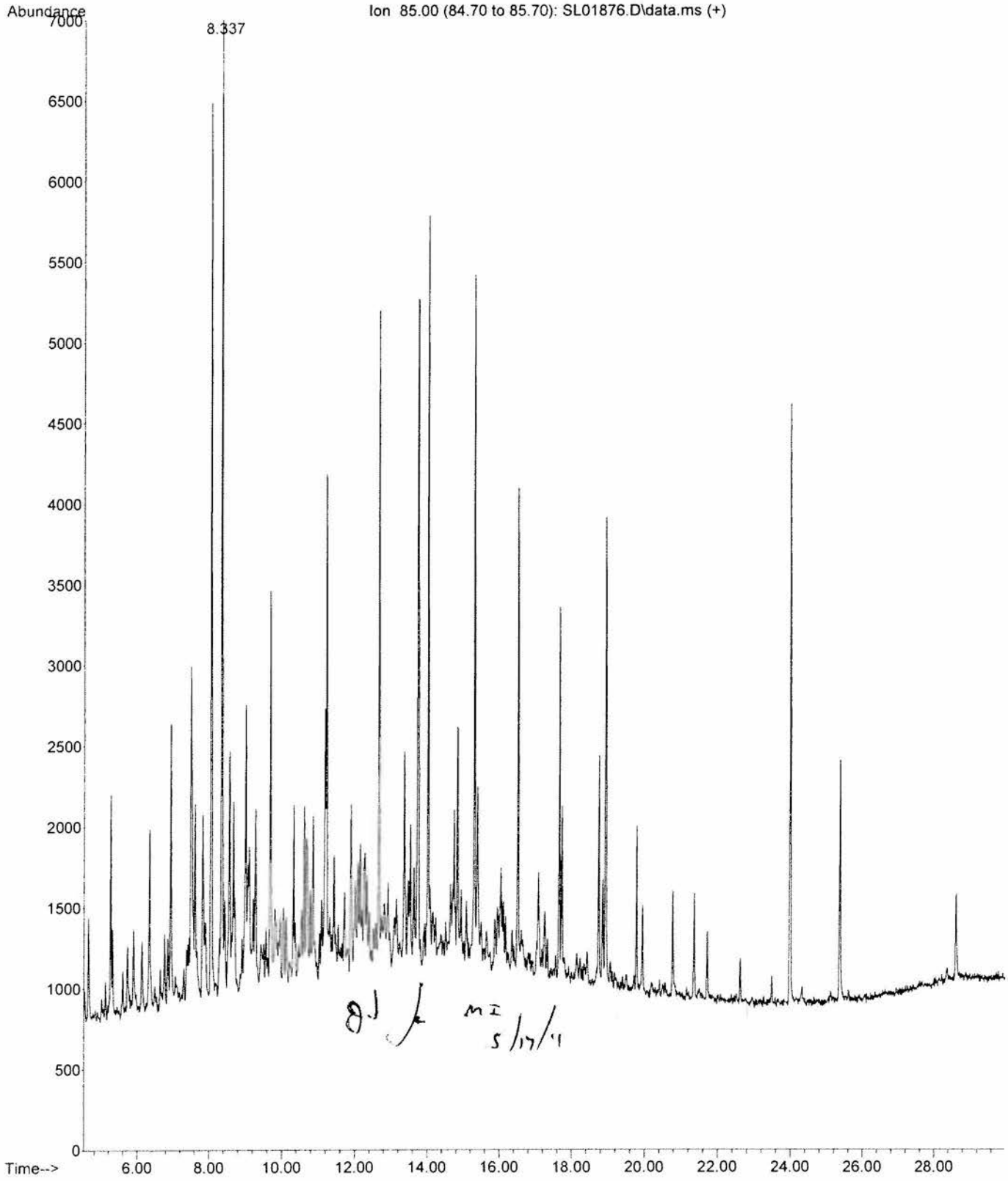


Table X. Results of Initial Calibration Verificaiton (ICV) for DRO-TPH as #2 Diesel

REAC Method 1803: GC/MS Oil Characterization & TPH

Calibration Date: 05/16/11 - GC/MS ID-File DROTPH051611.M

ICV Prepared at 1000 µg/mL ; GC/MS File SL01878.D

Method: SERAS SOP#1803

Compound	Target Conc. µg/mL	ICV Conc. µg/mL	%Recovery	Tentative %Rec.Limits
DRO-TPH as #2 Diesel Fuel	1000	946	95	50-150 %

ICV LIMS# = RUE0049; 1000ppm #2 Diesel from 2nd Source Standard

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\051611\
Data File : SL01878.D
Acq On : 16 May 2011 23:14
Operator : Syslo
Sample : 1.0K TPH-DRO ICV
Misc : RUE0049 from 2nd source
ALS Vial : 78 Sample Multiplier: 1

Quant Time: May 17 18:18:18 2011
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Tue May 17 18:12:38 2011
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.921	188	389893	10.00	ug/mL	0.00
5) d30-Tetradecane	13.724	66	133926	10.00	ug/mL	0.00
6) d50-Tetracosane	23.974	66	138153	10.00	ug/mL	0.00
8) d74-Hexatriacontane	35.122	66	51687	10.00	ug/mL	0.00
System Monitoring Compounds						
2) d10-Anthracene {S}	0.000	188	0d	0.00	ug/mL	
Spiked Amount 20.000			Recovery =	0.00%		
3) d14-o-Terphenyl {S}	0.000	244	0d	0.00	ug/mL	
Spiked Amount 20.000			Recovery =	0.00%		
4) 5a-Androstane {S}	0.000	260	0d	0.00	ug/mL	
Spiked Amount 20.000			Recovery =	0.00%		
7) d62-Triacontane {S}	0.000	66	0d	0.00	ug/mL	
Spiked Amount 20.000			Recovery =	0.00%		
Target Compounds						Qvalue

#) = qualifier out of range (m) = manual integration (+) = signals summed

$E_{TPH} = 745017$

$ICV = 946 / 1000$

$= 5.47$

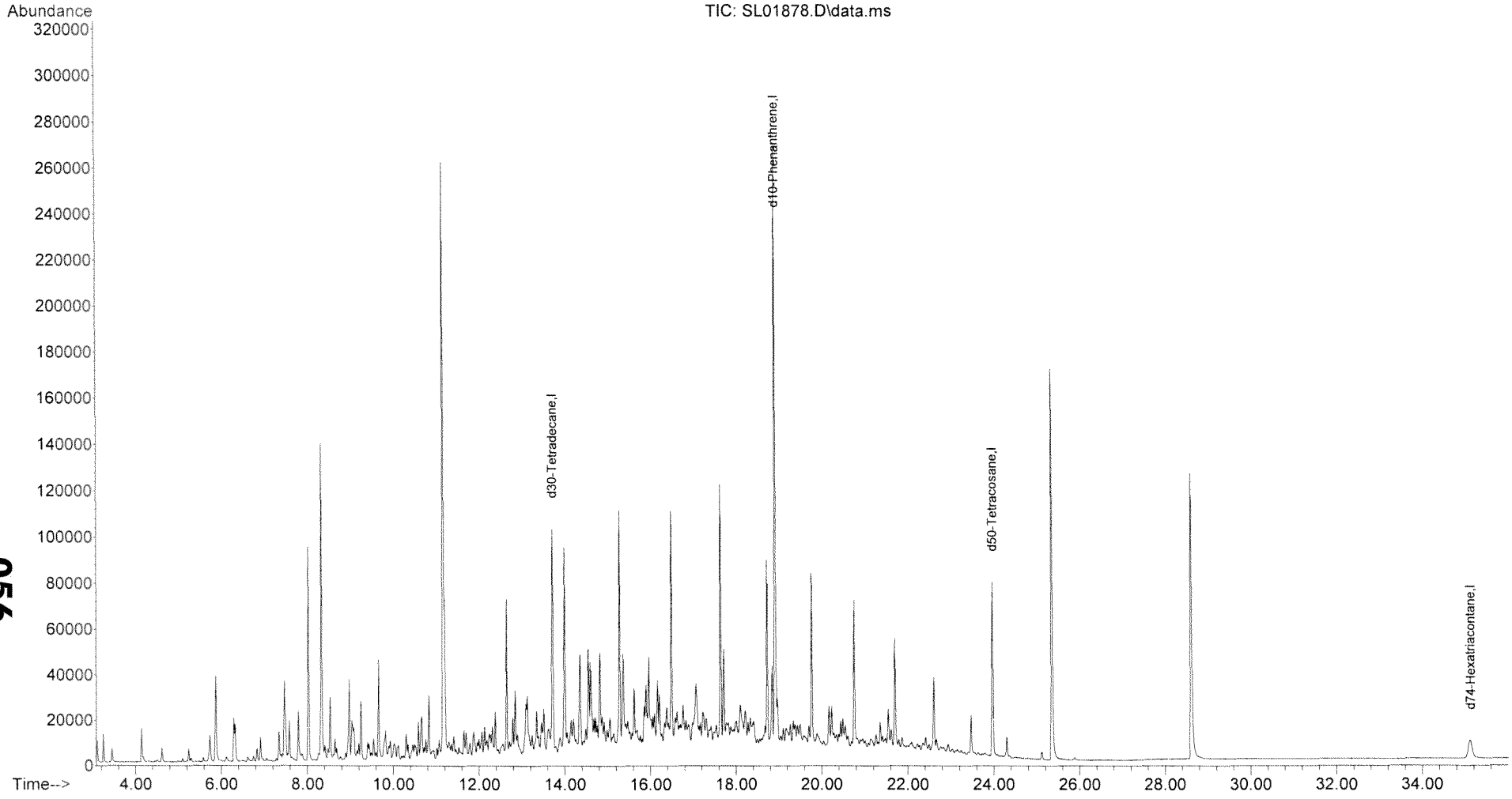
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\051611\
Data File : SL01878.D
Acq On : 16 May 2011 23:14
Operator : Syslo
Sample : 1.0K TPH-DRO ICV
Misc : RUE0049 from 2nd source
ALS Vial : 78 Sample Multiplier: 1

Quant Time: May 17 18:18:18 2011
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Tue May 17 18:12:38 2011
Response via : Initial Calibration

SERAS-017-DTM-011413_1

056



Area Percent Report

Data Path : C:\msdchem\1\DATA\051611\
Data File : SL01878.D
Acq On : 16 May 2011 23:14
Operator : Syslo
Sample : 1.0K TPH-DRO ICV
Misc : RUE0049 from 2nd source
ALS Vial : 78 Sample Multiplier: 1

Integration Parameters: Oilint.P
Integrator: RTE
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 5 % of largest Peak
Start Thrs: 0.05 Max Peaks: 150
Stop Thrs : 0.05 Peak Location: TOP

If leading or trailing edge < 50 prefer < Baseline drop else tangent >
Peak separation: 3

Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Title : DRO/TPH ICAL + Surr. 05/16/11

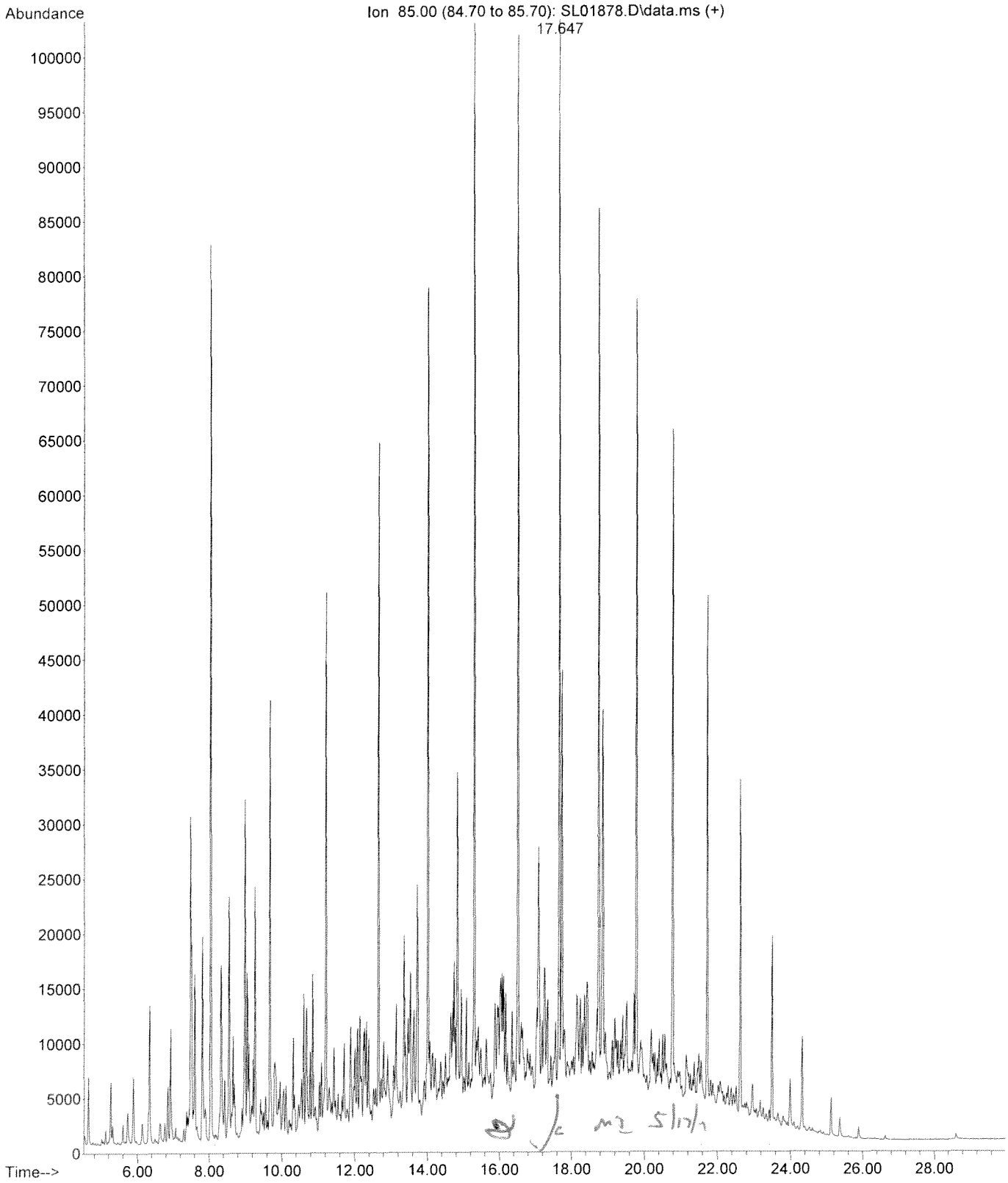
Signal : EIC Ion 85.00 (84.70 to 85.70): SL01878.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	17.647	635	1823	2813	rM 5	102642	7450171	100.00%	100.000%

Sum of corrected areas: 7450171

DRO/TPH051611.M Tue May 17 18:19:05 2011

File :C:\msdchem\1\DATA\051611\SL01878.D
Operator : Syslo
Acquired : 16 May 2011 23:14 using AcqMethod DROTPH051611.M
Instrument : Slick2
Sample Name: 1.0K TPH-DRO ICV
Misc Info : RUE0049 from 2nd source
Vial Number: 78



TPH STANDARDS

PREP. LIMS

FOR ICAL

Analytical Standard Record

ERT/SERAS Laboratory

RUF0005

Description:	5000ppm #2 Diesel MS/MSD	Expires:	11/30/11
Standard Type:	Analyte Spike	Prepared:	06/03/11
Solvent:	DCM/Hexane 65/35 (RUC022)	Prepared By:	John Syslo
Final Volume (mls):	2.5	Department:	CENTRAL
Vials:	1	Last Edit:	06/03/11 11:19 by JS
Vendor:	SERAS	Lot Number:	A0907168

Dilute 50,000ppm Primary Source #2 Diesel 10x for MS/MSD: JS 06/03/11

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		5000	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RSJ0102	#2 Diesel Fuel Mix 50,000 ppm	10/20/09	John Syslo	04/18/19	05/13/11 16:18 by JS	0.25

Reviewed By J. Syslo 6/3/11 Date

Analytical Standard Record

ERT/SERAS Laboratory

RUE0050

Description:	10,000ppm 10W40 Oil	Expires:	11/12/11
Standard Type:	Reagent	Prepared:	05/16/11
Solvent:	DCM/Hexane 65:35 (RUC0022)	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	05/16/11 19:03 by JS
Vendor:	SERAS	Lot Number:	NA

Dilute 20K Stock to 10,oooppm and add IS: No Surrogates

Analyte	CAS Number	Concentration	Units
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Motor Oil	NA	10000	ug/mL
Chrysene-d12	NA	10	ug/mL
Acenaphthene-d10	NA	10	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RTK0021	SAE 10W40 Motor Oil 20K	11/12/10	John Syslo	01/30/19	11/19/10 20:42 by JS	0.5
RUE0037	500ppm Oil IS Mix	05/13/11	John Syslo	11/13/11	05/13/11 15:33 by JS	0.02

Reviewed By J. Syslo 5/16/11 Date

Analytical Standard Record

ERT/SERAS Laboratory

RUE0049

Description:	1000ppm DRO/TPH ICV	Expires:	11/13/11
Standard Type:	Calibration Stan	Prepared:	05/16/11
Solvent:	DCM/Hexane 65:35 (RUC0022)	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	05/16/11 18:16 by JS
Vendor:	AccuStandard,Inc.	Lot Number:	B90302060

dilute 2nd Source Stock 50x and add IS

Analyte	CAS Number	Concentration	Units
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		1000	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Acenaphthene-d10	NA	10	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RSJ0107	#2 Diesel Fuel LCS 50,000ppm	10/20/09	John Syslo	10/15/19	10/20/09 13:52 by JS	0.02
RUE0037	500ppm Oil IS Mix	05/13/11	John Syslo	11/13/11	05/13/11 15:33 by JS	0.02

Reviewed By J. Syslo Date 5/16/11

Analytical Standard Record

ERT/SERAS Laboratory

RUE0048

Description:	50ppm DRO + 0.5ppm Surr TPH ICAL	Expires:	11/12/11
Standard Type:	Calibration Stan	Prepared:	05/16/11
Solvent:	DCM/Hexane 65:35 (RUC0022)	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	05/16/11 18:11 by JS
Vendor:	SERAS	Lot Number:	NA

Serial dilution of RUE0041 + 20µL IS (RUE0037) TPH ICAL:
Used 25µL syringe to measure 2.5µL ; not 10µL syringe (RUE0047)

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	0.5	ug/mL
Terphenyl-d14	NA	0.5	ug/mL
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		50	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Anthracene-d10	1719-06-8	0.5	ug/mL
Acenaphthene-d10	NA	10	ug/mL
5a-Androstane	438-22-2	0.5	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RUE0037	500ppm Oil IS Mix	05/13/11	John Syslo	11/13/11	05/13/11 15:33 by JS	0.02
RUE0041	20K DRO & 200ppm Surr. ICAL S	05/16/11	John Syslo	11/13/11	05/16/11 16:04 by JS	0.0025

Reviewed By: J Syslo 5/16/11 Date

Analytical Standard Record

ERT/SERAS Laboratory

RUE0047

Description:	50ppm DRO + 0.5ppm Surr TPH ICAL	Expires:	11/13/11
Standard Type:	Calibration Stan	Prepared:	05/16/11
Solvent:	DCM/Hexane 65:35 (RUC0022)	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	05/16/11 17:50 by JS
Vendor:	SERAS	Lot Number:	NA

Serial dilution of RUE0041 + 20µL IS (RUE0037) TPH ICAL:

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	0.5	ug/mL
Terphenyl-d14	NA	0.5	ug/mL
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		50	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Anthracene-d10	1719-06-8	0.5	ug/mL
Acenaphthene-d10	NA	10	ug/mL
5a-Androstane	438-22-2	0.5	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RUE0037	500ppm Oil IS Mix	05/13/11	John Syslo	11/13/11	05/13/11 15:33 by JS	0.02
RUE0041	20K DRO & 200ppm Surr. ICAL S	05/16/11	John Syslo	11/13/11	05/16/11 16:04 by JS	0.0025

Reviewed By J. Syslo 5/16/11 Date

Analytical Standard Record

ERT/SERAS Laboratory

RUE0046

Description:	100ppm DRO + 1.0ppm Surr TPH ICAL	Expires:	11/13/11
Standard Type:	Calibration Stan	Prepared:	05/16/11
Solvent:	DCM/Hexane 65:35 (RUC0022)	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	05/16/11 17:49 by JS
Vendor:	SERAS	Lot Number:	NA

Serial dilution of RUE0041 + 20µL IS (RUE0037) TPH ICAL:

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	1	ug/mL
Terphenyl-d14	NA	1	ug/mL
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		100	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Anthracene-d10	1719-06-8	1	ug/mL
Acenaphthene-d10	NA	10	ug/mL
5a-Androstane	438-22-2	1	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RUE0037	500ppm Oil IS Mix	05/13/11	John Syslo	11/13/11	05/13/11 15:33 by JS	0.02
RUE0041	20K DRO & 200ppm Surr. ICAL S	05/16/11	John Syslo	11/13/11	05/16/11 16:04 by JS	0.005

Reviewed By J. Syslo Date 5/16/11

Analytical Standard Record

ERT/SERAS Laboratory

RUE0045

Description:	500ppm DRO + 5.0ppm Surr TPH ICAL	Expires:	11/13/11
Standard Type:	Calibration Stan	Prepared:	05/16/11
Solvent:	DCM/Hexane 65:35 (RUC0022)	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	05/16/11 16:20 by JS
Vendor:	SERAS	Lot Number:	NA

Serial dilution of RUE0041 + 20µL IS (RUE0037) TPH ICAL:

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	5	ug/mL
Terphenyl-d14	NA	5	ug/mL
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		500	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Anthracene-d10	1719-06-8	5	ug/mL
Acenaphthene-d10	NA	10	ug/mL
5a-Androstane	438-22-2	5	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RUE0037	500ppm Oil IS Mix	05/13/11	John Syslo	11/13/11	05/13/11 15:33 by JS	0.02
RUE0041	20K DRO & 200ppm Surr. ICAL S	05/16/11	John Syslo	11/13/11	05/16/11 16:04 by JS	0.025

Reviewed By 5/16/11 Date

Analytical Standard Record

ERT/SERAS Laboratory

RUE0044

Description:	1000ppm DRO + 10ppm Surr TPH ICAL	Expires:	11/12/11
Standard Type:	Calibration Stan	Prepared:	05/16/11
Solvent:	DCM/Hexane 65:35 (RUC0022)	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	05/16/11 16:18 by JS
Vendor:	SERAS	Lot Number:	NA

Serial dilution of RUE0041 + 20µL IS (RUE0037) TPH ICAL:

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	10	ug/mL
Terphenyl-d14	NA	10	ug/mL
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		1000	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Anthracene-d10	1719-06-8	10	ug/mL
Acenaphthene-d10	NA	10	ug/mL
5a-Androstane	438-22-2	10	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RUE0037	500ppm Oil IS Mix	05/13/11	John Syslo	11/13/11	05/13/11 15:33 by JS	0.02
RUE0041	20K DRO & 200ppm Surr. ICAL S	05/16/11	John Syslo	11/13/11	05/16/11 16:04 by JS	0.05

Reviewed By _____ Date 5/16/11

Analytical Standard Record

ERT/SERAS Laboratory

RUE0043

Description:	5k DRO + 50ppm Surr Cal.	Expires:	11/13/11
Standard Type:	Calibration Stan	Prepared:	05/16/11
Solvent:	DCM/Hexane 65:35 (RUC0022)	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	05/16/11 16:19 by JS
Vendor:	SERAS	Lot Number:	NA

Serial dilution of RUE0041 + 20µL IS (RUE0037) TPH ICAL:

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	50	ug/mL
Terphenyl-d14	NA	50	ug/mL
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		5000	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Anthracene-d10	1719-06-8	50	ug/mL
Acenaphthene-d10	NA	10	ug/mL
5a-Androstane	438-22-2	50	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RUE0037	500ppm Oil IS Mix	05/13/11	John Syslo	11/13/11	05/13/11 15:33 by JS	0.02
RUE0041	20K DRO & 200ppm Surr. ICAL S	05/16/11	John Syslo	11/13/11	05/16/11 16:04 by JS	0.25

Reviewed By _____ Date 5/16/11

Analytical Standard Record

ERT/SERAS Laboratory

RUE0042

Description:	10k DRO + 100ppm Surr Cal.	Expires:	11/13/11
Standard Type:	Calibration Stan	Prepared:	05/16/11
Solvent:	DCM/Hexane 65:35 (RUC0022)	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	05/16/11 16:15 by JS
Vendor:	SERAS	Lot Number:	NA

Serial dilution of RUE0041 + 20µL IS (RUE0037) TPH ICAL:

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	100	ug/mL
Terphenyl-d14	NA	100	ug/mL
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		10000	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Anthracene-d10	1719-06-8	100	ug/mL
Acenaphthene-d10	NA	10	ug/mL
5a-Androstane	438-22-2	100	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RUE0037	500ppm Oil IS Mix	05/13/11	John Syslo	11/13/11	05/13/11 15:33 by JS	0.02
RUE0041	20K DRO & 200ppm Surr. ICAL S	05/16/11	John Syslo	11/13/11	05/16/11 16:04 by JS	0.5

Reviewed By J. Syslo 5/19/11 Date

Analytical Standard Record

ERT/SERAS Laboratory

RUE0041

Description:	20K DRO & 200ppm Surr. ICAL Stock	Expires:	11/13/11
Standard Type:	Calibration Stan	Prepared:	05/16/11
Solvent:	DCM/Hexane 65/35 (RUC0022)	Prepared By:	John Syslo
Final Volume (mls):	2	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	05/16/11 16:04 by JS
Vendor:	AccuStandard,Inc.	Lot Number:	A9070168

Primary Source Diesel + Surrogate mixture for DRO/TPH ICAL. Make serial dilutions and add IS: JS

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	200	ug/mL
Terphenyl-d14	NA	200	ug/mL
Oil Fingerprint		20000	ug/mL
Anthracene-d10	1719-06-8	200	ug/mL
5a-Androstane	438-22-2	200	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RSJ0102	#2 Diesel Fuel Mix 50,000 ppm	10/20/09	John Syslo	04/18/19	05/13/11 16:18 by JS	0.8
RUE0036	2000ppm Oil Surrogate Stock	05/13/11	John Syslo	11/13/11	05/13/11 15:13 by JS	0.2

Reviewed By J. Syslo 5/16/11 Date

Analytical Standard Record

ERT/SERAS Laboratory

RUE0040

Description:	2000ppm TPH (DRO) LCS Spike (2nd)	Expires:	11/13/11
Standard Type:	Analyte Spike	Prepared:	05/13/11
Solvent:	DCM/Hexane 65:35 (RUC0022)	Prepared By:	John Syslo
Final Volume (mls):	20	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	05/13/11 17:09 by JS
Vendor:	AccuStandard,Inc.	Lot Number:	B9030206 (2nd source diesel)

Dilute 50K 2nd source Diesel Standard 25x with DCM/Hexane :
= 800µL Rsj0107 into FV 20.0mL DCM/Hexane (RUC0022) = 2000ppm

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		2000	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RSJ0107	#2 Diesel Fuel LCS 50,000ppm	10/20/09	John Syslo	10/15/19	10/20/09 13:52 by JS	0.8

Reviewed By 5/13/11 Date

Analytical Standard Record

ERT/SERAS Laboratory

RUE0039

Description:	400ppm DRO/TPH MDL Spike	Expires:	11/13/11
Standard Type:	Analyte Spike	Prepared:	05/13/11
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	20	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	05/13/11 16:22 by JS
Vendor:	AccuStandard,Inc.	Lot Number:	A9070168 for DRO

Dilute 160µL of 50,000ppm into 20mL DCM/Hexane

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		400	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RSJ0102	#2 Diesel Fuel Mix 50,000 ppm	10/20/09	John Syslo	04/18/19	05/13/11 16:18 by JS	0.16

Reviewed By _____ Date 5/13/11

Analytical Standard Record

ERT/SERAS Laboratory

RUE0038

Description:	40ppm Oil Surrogate	Expires:	11/13/11
Standard Type:	Surrogate Spike	Prepared:	05/13/11
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	25	Department:	CENTRAL
Vials:	1	Last Edit:	05/13/11 15:42 by JS
Vendor:	SERAS	Lot Number:	RUC00226

Dilute 2000ppm RUE0036 (500µL in 25mL) with DCM/Hexane
Spike 500 µL per sample for FV of 1.0 mL

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	40	ug/mL
Terphenyl-d14	NA	40	ug/mL
Anthracene-d10	1719-06-8	40	ug/mL
5a-Androstane	438-22-2	40	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RUE0036	2000ppm Oil Surrogate Stock	05/13/11	John Syslo	11/13/11	05/13/11 15:13 by JS	0.5

Reviewed By _____ Date 5/13/11

Analytical Standard Record

ERT/SERAS Laboratory

RUE0037

Description:	500ppm Oil IS Mix	Expires:	11/13/11
Standard Type:	Internal Standar	Prepared:	05/13/11
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	2	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	05/13/11 15:33 by JS
Vendor:	SERAS	Lot Number:	DCM/Hex = LIMS# RUC0022

Dilute 2000ppm TPH IS (RUE0035) and 2000ppm BNA IS (RTF0070) to 2.0mL
spike 20µL per 1.0mL extract. JS

Analyte	CAS Number	Concentration	Units
Phenanthrene-d10	NA	500	ug/mL
Perylene-d12	NA	500	ug/mL
Naphthalene-d8	NA	500	ug/mL
n-Tetradecane-d30		500	ug/mL
n-Tetracosane-d50	16416-32-3	500	ug/mL
n-Hexatriacontane-d74	16416-34-5	500	ug/mL
Chrysene-d12	NA	500	ug/mL
Acenaphthene-d10	NA	500	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	500	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RTF0070	Stock SVOC Internal Std. Mix. 2	06/16/10	** Vendor **	11/05/11	05/05/11 12:51 by JS	0.5
RUE0035	TPH IS Mix: 2000ppm : 3 Compo	05/13/11	John Syslo	11/13/11	05/13/11 15:10 by JS	0.5

Reviewed By 5/13/11 Date

Analytical Standard Record

ERT/SERAS Laboratory

RUE0036

Description:	2000ppm Oil Surrogate Stock	Expires:	11/13/11
Standard Type:	Surrogate Spike	Prepared:	05/13/11
Solvent:	DCM/CS2 75:25	Prepared By:	John Syslo
Final Volume (mls):	50	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	05/13/11 15:13 by JS
Vendor:	REAC	Lot Number:	REAC

Mix of 4 neat surrogates for Oil Surrogate Stock. 0.1g each

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	2000	ug/mL
Terphenyl-d14	NA	2000	ug/mL
Anthracene-d10	1719-06-8	2000	ug/mL
5a-Androstane	438-22-2	2000	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RSF0090	Neat Triacontane-d62	06/29/09	John Syslo	06/26/19	06/30/09 13:27 by JS	0.1
RSF0092	Neat o-Terphenyl-d14	06/29/09	John Syslo	12/26/19	06/30/09 13:28 by JS	0.1
RSF0093	Neat Anthracene-d10	06/29/09	John Syslo	12/26/19	06/30/09 13:28 by JS	0.1
RSF0122	Neat 5a-Androstane	06/30/09	John Syslo	12/27/19	06/30/09 13:25 by JS	0.1

Reviewed By 5/13/11 Date

Analytical Standard Record

ERT/SERAS Laboratory

RUE0035

Description:	TPH IS Mix: 2000ppm : 3 Compounds	Expires:	11/13/11
Standard Type:	Internal Standar	Prepared:	05/13/11
Solvent:	DCM/CS2 4:1	Prepared By:	John Syslo
Final Volume (mls):	50	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	05/13/11 15:10 by JS
Vendor:	NA	Lot Number:	NA

2000ppm 3 Compound IS Mix for TPH. To be mixed with BNA IS

Analyte	CAS Number	Concentration	Units
n-Tetradecane-d30		2000	mg/Kg
n-Tetracosane-d50	16416-32-3	2000	mg/Kg
n-Hexatriacontane-d74	16416-34-5	2000	mg/Kg

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RSF0123	Neat D50-n-Tetradecane	06/30/09	John Syslo	12/27/19	06/30/09 14:26 by JS	0.1
RSF0124	Neat D74-n-Hexatriacontane	06/30/09	John Syslo	12/27/19	06/30/09 14:33 by JS	0.1
RSF0126	Neat D30-n-Tetradecane	06/30/09	John Syslo	12/27/19	06/30/09 13:56 by JS	0.1

Reviewed By J Syslo 5/13/11 Date

Analytical Standard Record

ERT/SERAS Laboratory

RUA0001

Description:	50ppm DFTPP with IS added	Expires:	07/02/11
Standard Type:	MS Tune Soluti	Prepared:	01/03/11
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	10	Department:	SVOCGCMS
Vials:	1	Last Edit:	03/28/11 12:01 by JS
Vendor:	Restek	Lot Number:	AO75699

Dilute 1000ppm DFTPP mix (500µL to 10mL) and add 200µL BNA IS. JS

Analyte	CAS Number	Concentration	Units
Phenanthrene-d10	NA	40	ug/mL
Perylene-d12	NA	40	ug/mL
Pentachlorophenol	87-86-5	50	ug/mL
Naphthalene-d8	NA	40	ug/mL
Decafluorotriphenylphosphine	NA	50	ug/mL
Chrysene-d12	NA	40	ug/mL
Benzidine	92-87-5	50	ug/mL
Acenaphthene-d10	NA	40	ug/mL
4,4´-DDT	50-29-3	50	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	40	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RTF0066	Stock SVOC Internal Std. Mix, 2	12/30/10	** Vendor **	06/30/11	03/07/11 11:15 by JS	0.2
RTJ0038	DFTPP Mixture; Stock, 1000ppm	01/03/11	John Syslo	07/03/11	03/28/11 12:01 by JS	0.5

Reviewed By J Syslo 6/10/11 Date

Attachment 21

Attachment 01
Summary of Enbridge Oil Samples Recieved: 02/01/12 - 03/01/12

COC#	Sample ID	Date Received	Analysis Requested	Date Analyzed	Matrix / Sample Description
SERAS-017-02/01/12-0001	SERAS-017-0001	2/1/2012	TPH	2/2/2012	This was one of two 5 gallon buckets recieved that contained water and rever sediment. The bucket was 3/4 full and the aqueous/sediment layer was approximately equal. The dried sediment was extracted and analyzed on 2/2/12 for TPH.
	SERAS-017-0000	*This sample is referred to as the "skimmed" oil. I took a one liter beaker and grabbed a subsample of this bucket which resulted in ~300mL of sediment and bottome debris topped with ~500mL water. I skimmed a small quantity of the visible product that flated to the surface and placed it in 1.0mL of DCM/hexane and analyzed this for fingerprint analysis. I did not obtain a weight for the "skimmed" product. This sample is referred to as either the "skimmed" product or sample 00X in some of the chromatograms since it was not officially logged in on a COC.*				
SERAS-017-02/08/12-0002	SERAS-017-0002	2/1/2012	TPH	2/15/2012	The sediment of this sample was extracted on 2/14/12 and analyzed for TPH on 2/15/12. The fingerprints of this sample and the TPH were compared to SERAS-017-0001
SERAS-017-02/21/12-0003	SERAS-017-0003	2/21/2012	TPH* fingerprint	2/27/2012	Pure product: Called "product of recovered oil in tank". Mobile black liquid with characteristic odor of "crude" oil. Was not analyzed for TPH since it was product. Analyzed 2/27/12 for fingerprinting.
SERAS-017-02/23/12-0004	SERAS-017-0004**	2/23/2012	TPH* fingerprint	2/27/2012	The matrix indicates "pure product" but the sample was an emulsion of thick black product and fine silt. When the product was separated from the water/silt, it was a thick-black-viscous product. It was analyzed on 2/27 for fingerprinting, but not TPH since the TPH/silt was not the issue. Also referred to as "tar from excavation"
072223 Conestoga-Rovers & Associates	SERAS-017-0005 SERAS-017-0006	3/1/2012	fingerprint	3/1/2012	These two samples were recieved as duplicates in 40mL VOA vials on the Conestoga-Rovers chain of custody. The SERAS numbers were assigned to the sample numbers listed on the COC and information is provided below:
	SERAS-017-0005	is Sample No. WCS-6B-072223-092910-JPS-KA-002-20. two bottles recieved with custody seal # 701795. This is a mobile-black crude oil sample.			
	SERAS-017-0006	is Sample No. CL-6B-072223-092710-JPS-KA-001-33. two bottles recieved with custody seal # 701688. This is a mobile-black crude oil sample. Both of these samples were analyzed on 3/1/12 for fingerprint analysis.			

* Chain of custody indicates TPH analysis. These were samples contained pure product and fingerprint analysis was performed.
** This oil from this sample was processed and used to perform the biodegradation studies.

Summary of Additional Analytical Work Performed: Biodegredatation Studies : 03/01/12 - 04/18/12

COC#	# of Samples	Date Received	Analysis Requested	Date Analyzed	Comments
On 03/07/2012 a portion of sample SERAS-017-0004 was processed to remove all silt, debris, water, and baked at 125 for 1 hour degrees to simulate autoclaving. Approzximately 6.5 grams was delivered to the SERAS microbiology lab to perform degradation studies. A GC/MS TPH calibration range was performed on 03/22/2012 using the processed oil, and TPH results calculated using the "site" oil.					
SERAS-017-03/15/12-0005	7	3/19/2012	TPH ***	3/23/2012	**Day 0 Samples** of biodegradation study. Results in **Table 02.**
SERAS-017-03/22/12-0006	6	3/22/2012	TPH ***	3/23/2012	**Day 14 Samples** of biodegradation study. Results in **Table 03.**
*After reviewing the Day 0 and Day14 TPH results, gravimetric analysis was perfomed on 2 select Day 0 and Day 14 samples to obtain information concerning the asphaltene content, **Table 3a** shows the TPH as calculated using the GC/MS system and TPH calculated by gravimetric analysis of the TPH extract for the two selected samples.*					
SERAS-017-04-06/12-007	7	4/12/2012	TPH ***	4/18/2012	**Day 28 Samples** of biodegradation study. Results in **Table 04.**

*** TPH analysis was performed using SERAS GC/MS TPH Method #1841 and additional fingerprint chromatograms were submitted to supply visual evidence of degradation.

coe's + work ord.

Pa

EPA/ERT
SERAS, Edison, NJ
EPA Contract Number: EP-W-09-031

CHAIN OF CUSTODY RECORD
Site #: SERAS-017
Contact Name: T. Ferrell Miller
Contact Phone: [redacted]

No: SERAS-017-02/01/12-0001

Lab: SERAS Laboratory
Lab Phone: 732-321-4212

WO# R202001

Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container	Preservative	MS/MSD
01	SERAS-017-0001	275-44-21	TPH-DRO	River Sediment	1/31/2012	1	68-oz HDPE	None	Y

TFM
2/1/12

RECEIVED
FEB 2 2012

Special Instructions:

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
Analysis	T. F. Miller	2/1/12	[signature]	2/1/12	11:00	All Analysis	[signature]	2/2/12	[signature]	2/2/12	10:45

E

WORK ORDER

Printed: 6/1/2012 4:37:43PM

R202001

ERT/SERAS Laboratory

Bucket Sed

Client: US EPA/ERT (Edison)
Project: Oil Spill Response Support

Project Manager: Vinod Kansal
Project Number: SERAS-017

Report To:
US EPA/ERT (Edison)
Harry Allen
2890 Woodbridge Avenue
Edison, NJ 08837
Phone: [redacted]
Fax: (732) 321-6724

Invoice To:
US EPA/ERT (Edison)
Alan Humphrey
2890 Woodbridge Avenue
Edison, NJ 08837
Phone [redacted]
Fax: (732) 321-6724

TPH + Fing

Date Due: 02/22/12 17:00 (15 day TAT)

Received By: Lawrence Martin
Logged In By: Lawrence Martin

Date Received: 02/01/12 12:35
Date Logged In: 02/01/12 12:35

Samples Received at: 23°C
Custody Seals No Received On Ice No
Containers Intact Yes
COC/Labels Agree Yes
Preservation Confir No

Analysis	Due	TAT	Expires	Comments
R202001-01 SERAS-017-0001 [Soil] Sampled 01/31/12 00:00 Eastern				**275-44-21**
Fingerprint	02/01/12 16:00	8	02/07/12 00:00	

Reviewed By

Date

EPA/ERT
SERAS, Edison, NJ
EPA Contract Number: EP-W-09-031

CHAIN OF CUSTODY RECORD
Site #: SERAS-017
Contact Name: T. Ferrell Miller
Contact Phone: [redacted]

No: SERAS-017-02/08/12-0002

Lab: SERAS Laboratory
Lab Phone: 732-321-4212

WO# R202008

Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container	Preservative	MS/MSD
01	SERAS-017-0002	275-45-34	TPH-DRO	River Sediment	2/8/2012	1	68-oz HDPE	None	Y

TFm 2/8/12

RECEIVED
FEB 14 2012
21

Special Instructions:	SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
1/ analysis	T. F. Miller	2/8/12	[signature]	2/8/12	15:00	All Analysis	[signature]	2/13/12	[signature]	2/13/12	14:15

E

WORK ORDER

Printed: 6/1/2012 4:40:03PM

R202008

ERT/SERAS Laboratory

Bucket Sed

Client: US EPA/ERT (Edison)
Project: Oil Spill Response Support

Project Manager: Vinod Kansal
Project Number: SERAS-017

Report To:
US EPA/ERT (Edison)
Harry Allen
2890 Woodbridge Avenue
Edison, NJ 08837
Phone: [redacted]
Fax: (732) 321-6724

Invoice To:
US EPA/ERT (Edison)
Alan Humphrey
2890 Woodbridge Avenue
Edison, NJ 08837
Phone : [redacted]
Fax: (732) 321-6724

Fingerprint + TPH

Date Due: 02/29/12 17:00 (15 day TAT)

Received By: Lawrence Martin
Logged In By: Lawrence Martin

Date Received: 02/08/12 15:43
Date Logged In: 02/08/12 15:43

Samples Received at: **23°C**
Custody Seals No
Containers Intact Yes
COC/Labels Agree Yes
Preservation Confir No
Received On Ice No

Analysis	Due	TAT	Expires	Comments
R202008-01 SERAS-017-0002 [Soil] Sampled 02/08/12 00:00 Eastern				**275-45-34**
Fingerprint	02/08/12 16:00	8	02/15/12 00:00	

Reviewed By

Date

EPA/ERT
SERAS, Edison, NJ
EPA Contract Number: EP-W-09-031

CHAIN OF CUSTODY RECORD
Site #: SERAS-017
Contact Name: T. Ferrell Miller
Contact Phone: [redacted]

No: SERAS-017-02/21/12-0003

Lab: SERAS Laboratory
Lab Phone: 732-321-4212

WO# R202016

Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container	Preservative	MS/MSD
01	SERAS-017-0003	275-55-05	TPH-DRO	Pure Oil Source	2/21/2012	1	2 oz amber	4 C	Y

RECEIVED
FEB 22 2012

From
2/21/12

Special Instructions: TPH and fingerprint analysis are requested.

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
1/analysis	T. F. Miller	2/21/12	[signature]	2/21/12	14:30	All/Analysis	[signature]	2/22/12	[signature]	2/22/12	0905

085

E

EPA/ERT
SERAS, Edison, NJ
EPA Contract Number: EP-W-09-031

CHAIN OF CUSTODY RECORD
Site #: SERAS-017
Contact Name: T. Ferrell Miller
Contact Phone: [redacted]

No: SERAS-017-02/23/12-0004

Lab: SERAS Laboratory
Lab Phone: 732-321-4212

WO# R202016

Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container	Preservative	MS/MSD
02	SERAS-017-0004	275-56-24	TPH-DRO	Pure Oil Source	2/23/2012	1	2 oz amber	4 C	Y

T. F. Miller
2/23/12

RECEIVED
FEB 23 2012

Special Instructions: Please analyze the sample for TPH content and fingerprint analysis.

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #

Received Room Temp
for 2/23/12

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
1/analysis	T. F. Miller	2/23/12	[signature]	2/23/12	16:00	All/Analysis	[signature]	2/25/12	[signature]	2/23/12	16:00

E

WORK ORDER

Printed: 6/1/2012 4:37:41PM

R202016

ERT/SERAS Laboratory

Client: US EPA/ERT (Edison)
Project: Oil Spill Response Support

Project Manager: Vinod Kansal
Project Number: SERAS-017

Report To:
US EPA/ERT (Edison)
Harry Allen
2890 Woodbridge Avenue
Edison, NJ 08837
Phone: [redacted]
Fax: (732) 321-6724

Invoice To:
US EPA/ERT (Edison)
Alan Humphrey
2890 Woodbridge Avenue
Edison, NJ 08837
Phone [redacted]
Fax: (732) 321-6724

Date Due: 03/13/12 17:00 (15 day TAT)

Received By: Lawrence Martin
Logged In By: Lawrence Martin

Date Received: 02/21/12 16:07
Date Logged In: 02/21/12 16:07

Samples Received at: 23°C
Custody Seals No Received On Ice No
Containers Intact Yes
COC/Labels Agree Yes
Preservation Confir No

Analysis	Due	TAT	Expires	Comments
R202016-01 SERAS-017-0003 [Oil] Sampled 02/21/12 00:00 Eastern				**275-55-05**
Oil Fingerprint	02/22/12 16:00	8	02/28/12 00:00	
R202016-02 SERAS-017-0004 [Oil] Sampled 02/23/12 00:00 Eastern				**275-56-24**
Oil Fingerprint	02/22/12 16:00	8	03/01/12 00:00	

Reviewed By

Date

Extraction Logs

SERAS-017-DTM-01141_P

PREPARATION BENCH SHEET

Batch No. 1200012

Printed: 2/2/2012 2:54:01PM

Lab Number	Sample #	Prepared	Initial (g)	Final (mL)	Surrogate	µl Surrogate	Spike ID	Source ID	µl Spike	Extraction Solvent Vol.	Extraction Comments
1200012-BLK1	Blank	02/02/12 11:39	30	1	RUK0078	500					
1202001-01	SERAS-017-0001	02/02/12 11:39	30	1	RUK0078	500					

Project Name: Oil Spill Response Support
Project No.: SERAS-017

Matrix: Soil
Analysis: Oil Fingerprint

Prepared By: SS
Prepared using: EPA 3545 MS by Soxtherm

For VPH

Bucket

089

Spiking Witnessed By Date

Preparation Reviewed By Date 2/2/12

Extracts Received By Date 2/02/12

SERAS

PREPARATION BENCH SHEET

Batch No. 1200024

Printed: 2/14/2012 12:05:53PM

Lab Number	Sample #	Prepared	Initial (g)	Final (mL)	Surrogate	µl Surrogate	Spike ID	Source ID	µl Spike	Extraction Solvent Vol.	Extraction Comments
00024-BLK1	Blank	02/14/12 12:04	30	1	RVB0021	500					
202008-01	SERAS-017-0002	02/14/12 12:04	30	1	RVB0021	500					

Project Name: **Oil Spill Response Support**
Project No.: **SERAS-017**

Matrix: Soil
Analysis: Oil Fingerprint

Prepared By: SS
Prepared using: EPA 3545 MS by Soxtherm

For TPH
Bucket

SERAS-017-DTM-011414_1

090

Spiking Witnessed By ______ Date ______

Preparation Reviewed By [signature] Date 2/14/12

Extracts Received By [signature] Date 2/14/12 15:25

Extraction of Product - WASTE Dilution

PROJECT Enbridge Oil WA# 0-017

Notebook No. L-0146

Continued From Page

2/24/12

FRIDAY → Need to make waste dilution of 2 product samples for TPH + Oil Fingerprinting

2 Samples:

COC #	Sample #	LOCATION
SERAS-017-02/21/12-0003	SERAS-017-0003	275-55-05
SERAS-017-02/23/12-0004	SERAS-017-0004	275-56-24

↳ Extract 1 Blank - Waste Dilution
1 Duplicate - Sample SERAS-017-0003

↳ Sample prep: weigh 0.100 g product, add 100 µl of 2000 ppm oil surrogate, dilute to 10 mL volume with DCM/Hexane 65:35

↳ Waste Dilution Extraction / Prep LOG
• checked/calibrated OHAUS scale: SN# 1356 with TROEMNER weights: SN# 006897
• Recorded on page 5 of SERAS-L-0157 logbook

Sample	wt.	Final Vol	Surr Added	
BLK022412WD	—	10.0 mL	100 µl	of RUK0077
SERAS-017-0004	0.103 g	10.0 ml	100 µl	↓ 4
SERAS-017-0003	0.103 g	10.0 ml	100 µl	6 1
SERAS-017-0003 d	0.104 g	10.0 ml	100 µl	"
SERAS-017-0004 A	1.029 g	10.0 ml	100 µl	RUK0077

↳ used DCM/Hex 65:35 + 20% Acetone to extract - Also - a Bocco had wicked out of dust + I grabbed it - SERAS-017-0004 = chunks of oily soot - possibly oil soaked debris - unk. Formed soil soot balls when vortex
* Will do Again with DCM/Hex + 10% Acetone

J Hogle 2/24/12

Continued on Page

Read and Understood By

J Hogle 2/24/12 (Signed, Date)

[signature] 3-5-12 (Signed, Date)

SERAS-017-DTM-011413_1

INJECTION LOG

TPH ICAL : DROTPH05161 1.M

Logbook # SERAS-I-0121

Page 41

SERAS, GC/MS Injection Log

GC/MS System: "SLICK II" S/N#'s US10915004/US90432092

Project Name: TPH MDL, DOC in Soil + ICAL
Work Assign.#: 0-011
Analysis/Date: 5/16/11
Method File: DFTPP/ DROTPH05161 1.M
Inj. Volume: 1µl 1µl
Analyst: J. Syph

ALS	FILE ID	SAMPLE ID		REAC ID	Date of Analysis	TIME Inj.	COMMENTS
99	SL01860	50 ppm DFTPP		RUA0001	5/13/11	14:59	Peak
71	SL01861	1000 ppm TPH		RUA0002		15:20	4/18/11 17.67
2	SL01862	10 ppm Oil Surr Check		RUE0038		16:08	4x g RUE0038
3	SL01863	400 ppm MDL Check		RUE0039		16:53	
4	SL01864	20 ppm Oil Surr Check		RUE0038			2nd - not Run
5	SL01865	1000 ppm LCS Check		RUE0040		17:37	
6	SL01866	20 ppm Oil Surr Check		RUE0038		18:37	
—	SL	end of Std Check 5/13/11					2 Syph
99	SL01867	50 ppm DFTPP		RUA0001	5/16/11	14:38	Peak 1406 - 1455
1	SL01868	Blank + IS		RUE0037		15:18	+ 20µl RUE0037
2	SL01869	2000 ppm DRO/TPH		RTJ0110		16:03	FROM RTJ0110
3	SL01870	10 ppm PAH/SHC	Surr	RTL0035		17:09	Oil(SIM-SE.M) (FIA Rel)
71	SL01871	1000 ppm TPH Cal	10 ppm	RUE0044		18:09	TPH as DRO
72	SL01872	10,000 ppm TPH Cal	100	RUE0042		18:57	
73	SL01873	500 ppm TPH Cal	5 ppm	RUE0045		19:40	
74	SL01874	5000 ppm TPH Cal	50	RUE0043		20:23	
75	SL01875	100 ppm TPH Cal	1.0	RUE0046		21:06	
76	SL01876	50 ppm TPH Cal	0.5	RUE0047		21:49	TPH as DRO
77	SL01877	5 ppm TPH Cal	0.5	RUE0048		22:32	2nd peak of 50
78	SL01878	1000 ppm DROTPH ICV	—	RUE0049		23:14	from 2nd Source
79	SL01879	10K DRO-TPH	100	RTJ0112	5/16/11	22:47	OLD Std
80	SL01880	5K DRO-TPH	50	RTJ0113	5/17/11	00:40	OLD Std
81	SL01881	Surrogate check 2nd		RUE0038		1:23	2x g 40 ppm (20 ppm)
82	SL01882	Add 50 MDL spike check		RUE0039		2:06	
83	SL01883	LCS spike check 2x		RUE0040		2:49	OUT OF 12 MDL check
84	SL01884	5000 ppm 75% Weathered Diesel		RTK0024		3:32	NOT DIAGNOSTIC 2nd
85	SL01885	10K 10 Wax		RUF0050		4:14	No Int
86	SL01886	4K 10W40 Oil		RTK0040		5:14	No Int.
1	SL01887	Blank + IS		RUF0037	5/17/11	6:14	No Int

	REAC ID	Standard Description	Exp.date	Conc.	Ref. P.	Comment
1	RUA0004	DFTPP	7/2/11	50 ppm		
2	RUE0037	Calibration Check RUE0044	11/13/11	1800 ppm		
3	RUE0037	Internal Standard	11/13/11	500 ppm		
4						
5						
6						

Reviewed By: [signature]

Date Checked: 05-17-11

Analyzed by: J Syph 5/16/11

Mariner's Marsh : 1816   Enbridge Oil : 1803

Logbook # SERAS-I-0121

Page 75

SERAS, GC/MS Injection Log

GC/MS System: "SLICK II" S/N#'s US10915004/US90432092

Project Name: Mariners Marsh + ENBRIDGE OIL — Method File: DFTPP/CS110711.M; PROTPH051611.M

Work Assign.#: 0-170   0-017 — Inj. Volume: 2ul

Analysis/Date: Carbon Chain VOC   TPH — Analyst: Sy..

ALS	FILE ID	SAMPLE ID	REAC ID	Date of Analysis	TIME Inj.	COMMENTS
21	SL02655	STATION #1 F	201006-22	2/2/12	00:59	AA-001-013112-004
22	SL 56	#1 B	-22		1:19	-001- -004
23	SL 57	STATION #2 F	-23		1:39	-002- -005
24	SL 58	#2 B	-23		1:59	-002- -005
25	SL 59	STATION #3 F	-24		2:20	-003- -004
26	SL 60	#3 B	-24		2:40	-003- -004
27	SL 61	STATION #4 F	-25		3:00	-004- -004
28	SL 62	#4 B	-25		3:20	-004- -004
29	SL 63	STATION #5 F	-26		3:40	-005 -004
30	SL 64	#5 B	-26		4:00	AA-005-013112-004
31	SL 65	FB-013112 F	-27		4:20	Field Blank
32	SL 66	" B	-27		4:40	
33	SL 67	TB-013112 F	-28		5:00	Trip Blank
34	SL02668	TB-013112 B	201006-28	2/2/12	5:2	
—	SL	end of Mariners Marsh seq			2/02/12	
99	SL02669	50ppm DFTPP	RVK01084	2/2/12	14:13	Pass
99	SL02670	50ppm DFTPP	RVK01084		15:44	Pass 1402-1390
71	SL02671	1000ppm TPH CCV	RVB00003		16:23	Pass - ok
80	SL02672	Soil Blank	120001?-BLK		17:18	
81	SL02673	SERAS-017-0001 Sud	R202601-01		18:43	3g/1ml, 5x Screen
82	SL02674	SERAS-017-0001	" "		19:53	
80	SL02675	Blank - re-inj - ?	- Blank		21:53	Dot ?
82	SL02676	SERAS-017-0001 LINEAR	R202601-01	2/2/12	21:54	LINEAR SCAN Screen
—	SL	End of Enbridge Oil sequence			2/3/12	
	SL					
	SL					
	SL					
	SL					
	SL					

[signature] 2/3/12

	REAC ID	Standard Description	Exp.date	Conc.	Ref. P.	Comment
1	RVK01084	DFTPP	5/5/12	50ppm		
2	RVK00039	Calibration Check	2/25/12	?		
3	RSF0112	Internal Standard	5/8/12	2500ppm		Spike 20ul + 1.0ml / 10->.5
4	RSC0154	BS/BSD Spike	7/20/12	5000ppm		Spike 10ul -> tube
5	RVA0052	Extraction Solv	7/26/12	"		
6						

Reviewed By: [signature]   Date Checked: 2/8/12

Analyzed by: [signature] 2/3/12

Sample 017-0001 TPH 1

TPH 017-0002

Logbook # SERAS-I-0121

SERAS, GC/MS Injection Log

GC/MS System: "SLICK II" S/N#'s US10915004/US90432092

Project Name: Enbridge Oil
Work Assign.#: WA-017
Analysis/Date: TPH 2/15/12
Method File: DFTPP/ DROTPH0516H.M
Inj. Volume: 1ul
Analyst: [illegible]

ALS	FILE ID	SAMPLE ID	REAC ID	Date of Analysis	TIME Inj.	COMMENTS
99	SL02826	50 ppm DFTPP	RUK0084	2/15/12	12:20	Pass 198-186
91	SL02827	1000 ppm TPH CCV	RVB0003		12:42	Pass
82	SL02828	Soil Blank			13:43	1200824-BLK1
83	SL02829	SERAS-017-0002	R202018-01		14:27	
84	SL02830	Toluene Blank	RTJ0030		15:47	in CUC-DCM
85	SL02831	DCM in Toluene 0.1 7.			16:07	1ul DCM - 1.0ml Toluene
86	SL02832	RVB0026 in Toluene			16:23	0.1g → 5.0ml Toluene
87	SL02833	Toluene Blank			16:55	
88	SL02834	BEO 20K Toluene			17:16	re-run 0.1g→1.0ml
87	SL02835	Tol. Blank			17:42	
89	SL02836	BEO RV 0.1g → 8ml			18:01	Big Peak Vgr
90	SL02837	BEO RV 2.5K			18:40	
82	SL02838	Soil Blank		2/15/12	19:41	
—	SL	end of 2/15/12	Signature			
99	SL02839	50 ppm DFTPP	RVB0025	2/16/12	12:21	
1	SL02840	Toluene Blank			12:39	
1	SL02841	Toluene Blank			12:57	
1	SL02842	Tol Blank			13:34	
2	SL02843	RVB0026 DCM - 4:30			16:50	0.05g → 2ml Tol
1	SL02844	Toluene Blank			17:26	.. DCM
3	SL02845	Toluene Blank			18:16	..
4	SL02846	BEO 66.7 x d		2/16/12	18:26	
99	SL02847	50 ppm DFTPP	RVB0025	2/17/12	21:45	
75	SL02848	10K Arabian Crude		2/17/12	22:07	in Tol
99	SL02849	50 ppm DFTPP	RVB0025	2/22/12	10:19	
99	SL02850	50 ppm DFTPP	RVB0025		10:37	
98	SL02851	10K EPP Sim	275-5505		10:59	
88	SL02852	10K BEO lin	"		19:33	linear scan
99	SL02853	50 ppm DFTPP	RVB0025	2/22/12	20:29	

	REAC ID	Standard Description	Exp.date	Conc.	Ref. P.	Comment
1	RUK0084	DFTPP	5/5/12	50ppm		
2	RVB0003	Calibration Check	8/2/12	1000ppm		
3	RUK0080	Internal Standard	5/11/12	500ppm		
4						
5						
6						

Reviewed By: [signature] Screen Data Date Checked: 2/24/12

ENBRIDGE OIL: FINGERPRINTS + (TPH)

Logbook # SERAS-1-0121

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SERAS, GC/MS Injection Log

GC/MS System: "SLICK II" S/N#'s US10915004/US90432092

Project Name: ENBRIDGE OIL
Work Assign.#: 0-017
Analysis/Date: 2/24/12

Method File: DFTPP/ OILSIMS2 (DROTPH051611.M)
Inj. Volume: 1ul
Analyst: Sysl

ALS	FILE ID	SAMPLE ID	REAC ID	Date of Analysis	TIME Inj.	COMMENTS
99	SL02856	50 ppm DFTPP	RVB0025	2/24/12	11:35	Pass 1397-1385
71	SL02857	1K TPH CCV	RVB0003		11:57	Pass
72	~~SL02858~~	~~10 ppm SHC/PAH Res/Mass~~	~~RTL0035~~		~~15:46~~	~~Res/Mass Disc Test~~
73	~~SL02859~~	~~10K CG-117 Reference~~	~~RUL0003~~		~~17:36~~	~~Fingerprint Reference~~
1	~~SL02860~~	~~Method WD Blank~~	~~RVB0060~~		~~18:58~~	
2	SL02861	SERAS-017-0003	275-55-05		21:18	0.109g → 10ml
3	SL02862	SERAS-017-0004	275-56-24	2/24/12	22:20	0.193g → 10ml
4	SL02863	SERAS-017-0003 dup	275-55-05	2/25/12	00:29	0.109g → 10ml dup
5	SL02864	Blk022412WD	WD Blank	2/25/12	1:32	10ml RVC0022 + Sur
6	~~SL02865~~	~~Method Blank 1.0ml rerun~~	~~RVB0060~~	~~2/27/12~~	~~9:42~~	~~Reading of Solvent Blank~~
7	SL02866	SERAS-017-0003			X	D-5739 "bracketed"
8	SL02867	10K CG-117 Reference	RUL0003		X	D-5739 "Batch bracket"
9	SL02868	BLK022412WD			X	EOS Blank
10	SL02869	SERAS-017-0004A 1.5xd	275-56-24	2/24/12	23:26	re-extract & DCM/Hex/Ace
11	SL02870	SERAS-017-0004A NK	275-56-24	2/27/12	9:42	" "
	~~SL~~	Sequence halted at 1:32AM 2/25/12 — syringe error —				
	SL X - not injected					
	SL					
	SL					
	SL					
	SL					
	SL					
	SL					
	SL					
	SL					
	SL					
	SL					
	SL					
	SL					

(signature) 2/27/2012

	REAC ID	Standard Description	Exp.date	Conc.	Ref. P.	Comment
1	RVB0025	DFTPP	8/14/12	50ppm		
2	RVB0003	Calibration Check	8/12/12	1000ppm		TPH as DRO
3	RVB0058	Internal Standard + Oil	5/14/12	500ppm		Spike 20ul → 1.0ml
4	RUL0003	CG-117 Reference Fingerprint	qual 5/24/12	10000ppm		Fingerprint Ref.
5	RTL0035	10 ppm SHC/PAH Std	qual	10ppm		MASS Discrimination Chk
6						

Reviewed By: (signature) Date Checked: 03-06-12

ALS # 10, 11 were inserted in sequence after performing re-extraction of sample
The File ID's are not in sequence with sequential injection/Time stamp
Because they had to be run before others

TYH >RELIMS
RELEASE

Lockheed Martin
Scientific Engineering Response and Analytical Services
2890 Woodbridge Avenue Building 209
Edison, NJ 08837-3679
Telephone 732-321-4200 Facsimile 732-494-4021

LOCKHEED MARTIN

Date: February 03, 2012

To: Alan Humphrey, Work Assignment Manager, ERT

From: J. Syslo, Analytical Support Chemist, SERAS

Through: V. Kansal, Analytical Support Chemist, SERAS Vinod Kansal

Subject: **Results of TPH Analysis in Soil using SERAS GC/MS SOP# 1803**

Project: Oil Spill Response Support Site: Enbridge Oil: WA# SER00017

This document contains the analytical results and report for the following samples:

Chain(s) of Custody #:	SERAS-017-02/01/12-0001
Analyses:	TPH
No. of Samples:	One
Matrix:	Soil.

ec A. Humphrey, M. Sprenger, V. Kansal, D. Miller, D. Killeen, and T.F. Miller.

cc Analyst: John Syslo
Central File: G. DePasquale

Table 1.0: Results of theTPH in Soil Analysis by GC/MS
Enbridge Oil: WA# 0-017
TPH as DRO+ORO (Total TPH) and Based on Dry Weight in Sediment

Method: SERAS SOP 1803

Sample No.	Sampling Location	GC/MS File	Conc. (mg/Kg)	RL (mg/Kg)
2/2/2012 Sample				
Soil Blank	1200012-BLK1	SL02672	U	1.67
SERAS-017-0001	275-44-21	SL02674	129	1.67

Samples from COC#: SERAS-017-02/01/12-0001

Case Narrative

Date: February 03, 2012
Project: Oil Spill Response Support Site: Enbridge Oil
WA# SER00017
Subject: Results of TPH in Soil using SERAS GC/MS Method 1803.

This data package contains the results of one soil sample received by the GC/MS lab on 02/02/012 for TPH analysis using SERAS/REAC GC/MS Method 1803. The soil sample and one blank were extracted and analyzed on 02/02/12.

The GC/Ms system was calibrated on 05/16/11 using #2 Diesel fuel and the ICAL verified using a second source initial calibration verification (ICV) standard. Thirty grams of the blank and sample were concentrated to a final volume of 1.0mL. The TPH concentration is reported in Table 1.0 as total TPH and not just what is defined as the DRO/TPH fraction.

The TPH analytical method is presented as a written document and the print out from the GC/MS system that lists all analytical parameters in the method. The total TPH was calculated by extracting and summing the area of six ions that made it possible to calculate fresh or weathered TPH using a fresh DRO ICAL. Additionally, the total TPH, which includes the heavy oil past the range of DRO can also be accurately measured within +- 20% error using this novel TPH method. A copy of the macro (DROTPH.mac) is included in the analytical conditions section. The macro routinely extracts the ion chromatograms from 4.5 to 30 minutes for DRO, but was extended to 55 minutes to include the total TPH, or extra oil from the heavy lube oil in the samples.

All surrogate recoveries and internal standard areas were within acceptable limits.

All electronic tables and documents for this report are located on the SERAS network at the following location:
I:\Organics\SERAS_After_11-02-2009\Projects\0017 . . somewhere

In addition to the standards preparation information, the **I:\Organics\OilLab_Documents** directory contains another subdirectory for oil and TPH ICAL documents. These .PDF files contain all the necessary documents such as injection logs, DFTPP, raw data, tables, ICV, etc that are routinely associated with running a TPH ICAL.

J. Syslo - 02/03/12

SERAS-017-DTM-011413_1

EPA/ERT
SERAS, Edison, NJ
EPA Contract Number: EP-W-09-031

CHAIN OF CUSTODY RECORD
Site #: SERAS-017
Contact Name: T. Ferrell Miller
Contact Phone: [redacted]

No: SERAS-017-02/01/12-0001

Lab: SERAS Laboratory
Lab Phone: 732-321-4212

WO# R202001

Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container	Preservative	MS/MSD
01	SERAS-017-0001	275-44-21	TPH-DRO	River Sediment	1/31/2012	1	68-oz HDPE	None	Y

TFM
2/1/12

Special Instructions:

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
1/analysis	T. F. Miller	2/1/12	[signature]	2/1/12	11:00	All/Analysis	[signature]	2/2/12	[signature]	2/2/12	10:45

0101

Lockheed Martin
Scientific Engineering Response and Analytical Services
2890 Woodbridge Avenue Building 209
Edison, NJ 08837-3679
Telephone 732-321-4200 Facsimile 732-494-4021

LOCKHEED MARTIN

Date: February 15, 2012

To: Alan Humphrey, Work Assignment Manager, ERT

From: J. Syslo, Analytical Support Chemist, SERAS

Through: D. Miller, Program Manager, SERAS

Subject: **Results of TPH Analysis in Soil using SERAS GC/MS SOP# 1803**

Project: Oil Spill Response Support Site: Enbridge Oil: WA# SER00017

This document contains the analytical results and report for the following samples:

Chain(s) of Custody #:	SERAS-017-02/08/12-0002
Analyses:	TPH
No. of Samples:	One
Matrix:	Soil.

- This data package contains the results of one soil sample received by the GC/MS lab on 02/14/12 for TPH analysis using SERAS/REAC GC/MS Method 1803. The soil sample and one blank was analyzed on 02/15/12

ec A. Humphrey, M. Sprenger, V. Kansal, D. Miller, D. Killeen, and T.F. Miller.

cc Analyst: John Syslo
Central File: G. DePasquale

Case Narrative

Date: February 15, 2012
Project: Oil Spill Response Support Site: Enbridge Oil
WA# SER00017
Subject: Results of TPH in Soil using SERAS GC/MS Method 1803.

This data package contains the results of one soil sample received by the GC/MS lab on 02/14/12 for TPH analysis using SERAS/REAC GC/MS Method 1803. The soil sample and one blank was analyzed on 02/15/12.

The GC/Ms system was calibrated on 05/16/11 using #2 Diesel fuel and the ICAL verified using a second source initial calibration verification (ICV) standard. Thirty grams of the blank and sample were concentrated to a final volume of 1.0mL. The TPH concentration is reported in **Table 1.0** as total TPH and not just what is defined as the DRO/TPH fraction.

The TPH analytical method is presented as a written document and the print out from the GC/MS system that lists all analytical parameters in the method. The total TPH was calculated by extracting and summing the area of six ions that made it possible to calculate fresh or weathered TPH using a fresh DRO ICAL. Additionally, the total TPH, which includes the heavy oil past the range of DRO can also be accurately measured within +- 20% error using this novel TPH method. A copy of the macro (DROTPH.mac) is included in the analytical conditions section. The macro routinely extracts the ion chromatograms from 4.5 to 30 minutes for DRO, but was extended to 55 minutes to include the total TPH, or extra oil from the heavy lube oil in the samples.

All surrogate recoveries and internal standard areas were within acceptable limits.

All electronic tables and documents for this report are located on the SERAS network at the following location: **I:\Organics\SERAS_After_11-02-2009\Projects\0017 .**

In addition to the standards preparation information, the **I:\Organics\OilLab_Documents** directory contains another subdirectory for oil and TPH ICAL documents. These .PDF files contain all the necessary documents such as injection logs, DFTPP, raw data, tables, ICV, etc that are routinely associated with running a TPH ICAL.

J. Syslo - 02/15/12

Table 1.0: Results of theTPH in Soil Analysis by GC/MS
Enbridge Oil: WA# 0-017
TPH as DRO+ORO (Total TPH} and Based on Dry Weight in Sediment

Method: SERAS SOP 1803

Sample No.	Sampling Location	GC/MS File	Conc. (mg/Kg)	RL (mg/Kg)
2/282012 Sample				
Soil Blank	1200024-BLK1	SL02828	U	1.67
SERAS-017-0002	275-45-24	SL02829	194	1.67

Samples from COC#: SERAS-017-02/08/12-0002

SERAS-017-DTM-011413_1

EPA/ERT
SERAS, Edison, NJ
EPA Contract Number: EP-W-09-031

CHAIN OF CUSTODY RECORD
Site #: SERAS-017
Contact Name: T. Ferrell Miller
Contact Phone: [redacted]

No: SERAS-017-02/08/12-0002

Lab: SERAS Laboratory
Lab Phone: 732-321-4212

WO# R202008

Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container	Preservative	MS/MSD
01	SERAS-017-0002	275-45-34	TPH-DRO	River Sediment	2/8/2012	1	68-oz HDPE	None	Y

TFm
2/8/12

Special Instructions:

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
1/ onalysis	T. F. Miller	2/8/12	[signature]	2/8/12	15:00	All Analysis	[signature]	2/15/12	[signature]	2/13/12	14:15

0105

SERAS PROJECTED WORK ASSIGNMENT

WA #: SERAS-017
TL: T. Ferrell Miller
Date: February 1, 2012

WA Name: Oil Spill Response Support Site
WAM: Alan Humphrey

ANALYTICAL WORK REQUESTED

Number of Samples by Matrix					Analytical Schedule		
Analysis	Soil	Water	Air	Shipment Date(s)	Laboratory Prelim(BD)	Laboratory Final (BD)	Validated Report (BD)
TPH	1	-	-	02/01/12	02/15/12	02/22/12	Verification Only

Additional Requirements:

ANALYTICAL RESOURCE REQUIREMENTS

Estimated Hours or Cost by Matrix or Function					
Analysis	Number of Samples	Water	Soil/ Sediment	Air	Data Validation/ Report Writing
TPH					

ANALYTICAL LABORATORIES (estimated cost or hours)

Analysis	SERAS	Subcontract Laboratory

Stbj Dej

SERAS-017-DTM-011413_1

0108

Analytical Standard Record
ERT/SERAS Laboratory
RVE0033

Description:	CUC BEO 05/18/12 Neat Product	Expires:	11/15/22 0
Standard Type:	Reagent	Prepared:	05/19/12 0
Solvent:	Neat	Prepared By:	John Syslo
Final Volume (mls):	10	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	05/19/12 08:06 by JS
Vendor:	SERAS	LotNumber:	Extracted from CUC soil

Extracted from soil sample: SERAS-135-0083 on COC# SERAS-135-05/16/12-0015
Gave Ferrell 9.6g, I kept 2g for inventory/standards. J. Syslo

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		1000000	ug/mL

Reviewed By J Syslo 5/19/12 Date

Page 1 of 1

Analytical Standard Record
ERT/SERAS Laboratory
RVE0033

Description:	CUC BEO 05/18/12 Neat Product	Expires:	11/15/22 0
Standard Type:	Reagent	Prepared:	05/19/12 0
Solvent:	Neat	Prepared By:	John Syslo
Final Volume (mls):	10	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	05/19/12 08:06 by JS
Vendor:	SERAS	LotNumber:	Extracted from CUC soil

Extracted from soil sample: SERAS-135-0083 on COC# SERAS-135-05/16/12-0015
Gave Ferrell 9.6g, I kept 2g for inventory/standards. J. Syslo

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		1000000	ug/mL

Reviewed By 5/19/12 J Syslo Date

Page 1 of 1

SERAS-017-DTM-011413_1

Analytical Standard Record
ERT/SERAS Laboratory
RVD0079

Description:	2nd Source DRO/TPH LCS Spike	Expires:	10/24/12 0
Standard Type:	Analyte Spike	Prepared:	04/27/12 0
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	25	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	04/27/12 20:29 by JS
Vendor:	--	LotNumber:	RVC0018

I made 50ml and delivered 25mL to Central Lab; 4/9/12
Diluted 2x, called ICV #2 for DRo ICAL: JS

Analyte	CAS Number	Concentration	Units
Diesel	NA	2000	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVD0017	Diesel Fuel - Neat Sandard	04/09/12	John Syslo	10/06/22	04/09/12 17:47 by JS	0.05

Reviewed By 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVD0078

Description:	DROTPH ICV 1000ppm	Expires:	09/15/12 0
Standard Type:	Calibration Stan	Prepared:	04/27/12 0
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	04/27/12 20:26 by JS
Vendor:	AccuStandard.Inc.	LotNumber:	B2120083

50x dilution of 2nd source DRO-TPH standard + OilIS: Called ICV #1

Analyte	CAS Number	Concentration	Units
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		1000	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Acenaphthene-d10	NA	10	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0035	500ppm Oil IS Mix	03/19/12	John Syslo	09/15/12	03/20/12 11:48 by JS	0.02
RVD0057	#2 Diesel (2nd source) Mix 50,000	04/25/12	John Syslo	08/10/22	04/26/12 18:34 by JS	0.02

Reviewed By 5/19/12 Date

0109

Analytical Standard Record
ERT/SERAS Laboratory
RVD0077

Description:	50ppb DROTPH + 0.5ppm Surr.	Expires:	10/27/12 0
Standard Type:	Calibration Stan	Prepared:	04/27/12 0
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	04/27/12 17:23 by JS
Vendor:	*	LotNumber:	RVC0018

Made serial dilution of 20K DRO stock in 1.0mL solvent: added 20µL OilIS RVC0035

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	0.5	ug/mL
Terphenyl-d14	NA	0.5	ug/mL
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		50	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Anthracene-d10	1719-06-8	0.5	ug/mL
Acenaphthene-d10	NA	10	ug/mL
5a-Androstane	438-22-2	0.5	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0035	500ppm Oil IS Mix	03/19/12	John Syslo	09/15/12	03/20/12 11:48 by JS	0.02
RVD0071	20K DRO & 200ppm Surr. ICAL S	04/27/12	John Syslo	10/27/12	04/27/12 17:23 by JS	0.0025

Reviewed By J Lyal 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVD0076

Description:	100ppb DROTPH + 1.0ppm Surr.	Expires:	10/27/12 0
Standard Type:	Calibration Stan	Prepared:	04/27/12 0
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	04/27/12 17:23 by JS
Vendor:	*	LotNumber:	RVC0018

Made serial dilution of 20K DRO stock in 1.0mL solvent: added 20µL OilIS RVC0035

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	1	ug/mL
Terphenyl-d14	NA	1	ug/mL
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		100	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Anthracene-d10	1719-06-8	1	ug/mL
Acenaphthene-d10	NA	10	ug/mL
5a-Androstane	438-22-2	1	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0035	500ppm Oil IS Mix	03/19/12	John Syslo	09/15/12	03/20/12 11:48 by JS	0.02
RVD0071	20K DRO & 200ppm Surr. ICAL S	04/27/12	John Syslo	10/27/12	04/27/12 17:23 by JS	0.005

Reviewed By J Lyal 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVD0075

Description:	500ppb DROTPH + 5.0ppm Surr.	Expires:	10/27/12 0
Standard Type:	Calibration Stan	Prepared:	04/27/12 0
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	04/27/12 17:23 by JS
Vendor:	*	LotNumber:	RVC0018

Made serial dilution of 20K DRO stock in 1.0mL solvent: added 20µL OilIS RVC0035

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	5	ug/mL
Terphenyl-d14	NA	5	ug/mL
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		500	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Anthracene-d10	1719-06-8	5	ug/mL
Acenaphthene-d10	NA	10	ug/mL
5a-Androstane	438-22-2	5	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0035	500ppm Oil IS Mix	03/19/12	John Syslo	09/15/12	03/20/12 11:48 by JS	0.02
RVD0071	20K DRO & 200ppm Surr. ICAL S	04/27/12	John Syslo	10/27/12	04/27/12 17:23 by JS	0.025

Reviewed By _____ Date 5/19/12

Analytical Standard Record
ERT/SERAS Laboratory
RVD0074

Description:	1.0k DROTPH + 10ppm Surr.	Expires:	10/27/12 0
Standard Type:	Calibration Stan	Prepared:	04/27/12 0
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	04/27/12 17:23 by JS
Vendor:	*	LotNumber:	RVC0018

Made serial dilution of 20K DRO stock in 1.0mL solvent: added 20µL OilIS RVC0035

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	10	ug/mL
Terphenyl-d14	NA	10	ug/mL
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		1000	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Anthracene-d10	1719-06-8	10	ug/mL
Acenaphthene-d10	NA	10	ug/mL
5a-Androstane	438-22-2	10	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0035	500ppm Oil IS Mix	03/19/12	John Syslo	09/15/12	03/20/12 11:48 by JS	0.02
RVD0071	20K DRO & 200ppm Surr. ICAL S	04/27/12	John Syslo	10/27/12	04/27/12 17:23 by JS	0.05

Reviewed By _____ Date 5/19/12

0112

Analytical Standard Record
ERT/SERAS Laboratory
RVD0073

Description:	5.0k DROTPH + 50ppm Surr.	Expires:	10/27/12 0
Standard Type:	Calibration Stan	Prepared:	04/27/12 0
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	04/27/12 17:23 by JS
Vendor:	*	LotNumber:	RVC0018

Made serial dilution of 20K DRO stock in 1.0mL solvent: added 20µL OilIS RVC0035

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	50	ug/mL
Terphenyl-d14	NA	50	ug/mL
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		5000	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Anthracene-d10	1719-06-8	50	ug/mL
Acenaphthene-d10	NA	10	ug/mL
5a-Androstane	438-22-2	50	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0035	500ppm Oil IS Mix	03/19/12	John Syslo	09/15/12	03/20/12 11:48 by JS	0.02
RVD0071	20K DRO & 200ppm Surr. ICAL S	04/27/12	John Syslo	10/27/12	04/27/12 17:23 by JS	0.25

Reviewed By: J Syslo Date: 5/19/12

Analytical Standard Record
ERT/SERAS Laboratory
RVD0072

Description:	10k DROTPH + 100ppm Surr.	Expires:	10/27/12 0
Standard Type:	Calibration Stan	Prepared:	04/27/12 0
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	04/27/12 17:23 by JS
Vendor:	*	LotNumber:	RVC0018

Made serial dilution of 20K DRO stock in 1.0mL solvent: added 20µL OilIS RVC0035

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	100	ug/mL
Terphenyl-d14	NA	100	ug/mL
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		10000	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Anthracene-d10	1719-06-8	100	ug/mL
Acenaphthene-d10	NA	10	ug/mL
5a-Androstane	438-22-2	100	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0035	500ppm Oil IS Mix	03/19/12	John Syslo	09/15/12	03/20/12 11:48 by JS	0.02
RVD0071	20K DRO & 200ppm Surr. ICAL S	04/27/12	John Syslo	10/27/12	04/27/12 17:23 by JS	0.5

Reviewed By: J Syslo Date: 5/19/12

Analytical Standard Record
ERT/SERAS Laboratory
RVD0071

Description:	20K DRO & 200ppm Surr. ICAL Stock	Expires:	10/27/12 0
Standard Type:	Calibration Stan	Prepared:	04/27/12 0
Solvent:	DCM/Hexane 65/35 (RVC0018)	Prepared By:	John Syslo
Final Volume (mls):	2	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	04/27/12 17:23 by JS
Vendor:	AccuStandard.Inc.	LotNumber:	211051030

Primary Source Diesel + Surrogate mixture for DRO/TPH ICAL. Make serial dilutions and add IS: JS

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	200	ug/mL
Terphenyl-d14	NA	200	ug/mL
Oil Fingerprint		20000	ug/mL
Anthracene-d10	1719-06-8	200	ug/mL
5a-Androstane	438-22-2	200	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0032	2000ppm Oil Surrogate Stock	03/19/12	John Syslo	09/15/12	03/19/12 10:07 by JS	0.2
RVD0052	#2 Diesel Fuel Mix 50,000 ppm	04/25/12	John Syslo	05/05/21	04/26/12 18:32 by JS	0.8

Reviewed By J Syslo 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVD0060

Description:	#2 Diesel (2nd source) Mix 50,000 ppm	Expires:	08/10/22 0
Standard Type:	Calibration Stan	Prepared:	04/25/12 0
Solvent:	Dichloromethane	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	04/27/12 21:35 by JS
Vendor:	AccuStandard.Inc.	LotNumber:	B2120083

Cat# DRO-AK-102-DCS-10X-R1-PAK Stock Diesel Calibration Composite Mix.

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		50000	ug/mL

Reviewed By J Syslo 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVD0059

Description:	#2 Diesel (2nd source) Mix 50,000 ppm	Expires:	08/10/22 0
Standard Type:	Calibration Stan	Prepared:	04/25/12 0
Solvent:	Dichloromethane	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	04/27/12 21:34 by JS
Vendor:	AccuStandard.Inc.	LotNumber:	B2120083

Cat# DRO-AK-102-DCS-10X-R1-PAK Stock Diesel Calibration Composite Mix.

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		50000	ug/mL

Reviewed By J Syst 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVD0058

Description:	#2 Diesel (2nd source) Mix 50,000 ppm	Expires:	08/10/22 0
Standard Type:	Calibration Stan	Prepared:	04/25/12 0
Solvent:	Dichloromethane	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	04/27/12 21:34 by JS
Vendor:	AccuStandard.Inc.	LotNumber:	B2120083

Cat# DRO-AK-102-DCS-10X-R1-PAK Stock Diesel Calibration Composite Mix.

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		50000	ug/mL

Reviewed By J Syst 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVD0057

Description:	#2 Diesel (2nd source) Mix 50,000 ppm	Expires:	08/10/22 0
Standard Type:	Calibration Stan	Prepared:	04/25/12 0
Solvent:	Dichloromethane	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	04/26/12 18:34 by JS
Vendor:	AccuStandard.Inc.	LotNumber:	B2120083

Cat# DRO-AK-102-DCS-10X-R1-PAK Stock Diesel Calibration Composite Mix.

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		50000	ug/mL

Reviewed By J Syslo 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVD0056

Description:	#2 Diesel (2nd source) Mix 50,000 ppm	Expires:	08/10/22 0
Standard Type:	Calibration Stan	Prepared:	04/25/12 0
Solvent:	Dichloromethane	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	04/26/12 18:33 by JS
Vendor:	AccuStandard.Inc.	LotNumber:	B2120083

Cat# DRO-AK-102-DCS-10X-R1-PAK Stock Diesel Calibration Composite Mix.

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		50000	ug/mL

Reviewed By J Syslo 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVD0055

Description:	#2 Diesel Fuel Mix 50,000 ppm	Expires:	05/05/21 0
Standard Type:	Calibration Stan	Prepared:	04/25/12 0
Solvent:	Dichloromethane	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	04/27/12 21:33 by JS
Vendor:	AccuStandard.Inc.	LotNumber:	211051030

Cat# DRO-AK-102-DCS-10X-R1-PAK Stock Diesel Calibration Composite Mix.

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		50000	ug/mL

Reviewed By J Syslo 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVD0054

Description:	#2 Diesel Fuel Mix 50,000 ppm	Expires:	05/05/21 0
Standard Type:	Calibration Stan	Prepared:	04/25/12 0
Solvent:	Dichloromethane	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	04/27/12 21:33 by JS
Vendor:	AccuStandard.Inc.	LotNumber:	211051030

Cat# DRO-AK-102-DCS-10X-R1-PAK Stock Diesel Calibration Composite Mix.

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		50000	ug/mL

Reviewed By J Syslo 5/19/12 Date

SERAS-017-DTM-011413_1

0117

Analytical Standard Record
ERT/SERAS Laboratory
RVD0053

Description:	#2 Diesel Fuel Mix 50,000 ppm	Expires:	05/05/21 0
Standard Type:	Calibration Stan	Prepared:	04/25/12 0
Solvent:	Dichloromethane	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	04/27/12 21:33 by JS
Vendor:	AccuStandard.Inc.	LotNumber:	211051030

Cat# DRO-AK-102-DCS-10X-R1-PAK Stock Diesel Calibration Composite Mix.

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		50000	ug/mL

Reviewed By J. Syd 5/19/12 Date

Page 1 of 1

Analytical Standard Record
ERT/SERAS Laboratory
RVD0052

Description:	#2 Diesel Fuel Mix 50,000 ppm	Expires:	05/05/21 0
Standard Type:	Calibration Stan	Prepared:	04/25/12 0
Solvent:	Dichloromethane	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	04/26/12 18:32 by JS
Vendor:	AccuStandard.Inc.	LotNumber:	211051030

Cat# DRO-AK-102-DCS-10X-R1-PAK Stock Diesel Calibration Composite Mix.

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		50000	ug/mL

Reviewed By J. Syd 5/19/12 Date

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SERAS-017-DTM-011413_1

0118

Analytical Standard Record
ERT/SERAS Laboratory
RVD0051

Description:	#2 Diesel Fuel Mix 50,000 ppm	Expires:	05/05/21 0
Standard Type:	Calibration Stan	Prepared:	04/25/12 0
Solvent:	Dichloromethane	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	04/26/12 18:32 by JS
Vendor:	AccuStandard.Inc.	LotNumber:	211051030

Cat# DRO-AK-102-DCS-10X-R1-PAK Stock Diesel Calibration Composite Mix.

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		50000	ug/mL

Reviewed By JS 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVD0049

Description:	CUC BEO 04/23/12 Neat Product	Expires:	10/20/22 0
Standard Type:	Reagent	Prepared:	04/23/12 0
Solvent:	Neat	Prepared By:	John Syslo
Final Volume (mls):	50	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	04/23/12 18:05 by JS
Vendor:	SERAS	LotNumber:	Extracted from CUC soil

extracted from combined soil sample: SERAS-135-0079 on COC# SERAS-135-04/18/12-0013
Got 48g of oil, gave Ferrell 45g, I kept 3g for inventory/standards. J. Syslo

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		1000000	ug/mL

Reviewed By JS 5/19/12 Date

Analytical Standard Record

ERT/SERAS Laboratory

RVD0016

Description:	CUC BEO 04/05/12	Expires:	10/02/17 0
Standard Type:	Reagent	Prepared:	04/05/12 0
Solvent:	Dichloromethane (RVC0017)	Prepared By:	John Syslo
Final Volume (mls):	3.024	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	04/06/12 18:37 by JS
Vendor:	SERAS	LotNumber:	Extracted from CUC soil

See page 23 + 24, SERAS-L-0146: Processed Bulk Extracted Oil, & Weg-Bake at 150 degrees. 3.024g recovered; DCM free. JS

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		1000000	ug/mL

Reviewed By: J Syslo Date: 5/19/12

Analytical Standard Record

ERT/SERAS Laboratory

RVD0017

Description:	Diesel Fuel - Neat Sandard	Expires:	10/06/22 0
Standard Type:	Reagent	Prepared:	04/09/12 0
Solvent:	Neat standard	Prepared By:	John Syslo
Final Volume (mls):	100	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	04/09/12 17:47 by JS
Vendor:	--	LotNumber:	---

Logging in 100mL of neat 2nd source Diesel Fuel - Unknown source: J. Syslo

Analyte	CAS Number	Concentration	Units
Diesel	NA	1000000	ug/mL

Reviewed By: J Syslo Date: 5/19/12

Analytical Standard Record

ERT/SERAS Laboratory

RVD0015

Description:	CUC BEO 04/05/12	Expires:	10/02/12 0
Standard Type:	Reagent	Prepared:	04/05/12 0
Solvent:	Dichloromethane (RVC0017)	Prepared By:	John Syslo
Final Volume (mls):	40	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	04/05/12 15:20 by JS
Vendor:	SERAS	LotNumber:	Extracted fro CUC soil

40mL of diluted mixed product that was extracted & reclaimed on 2/13/12 , reclaimed again 04/05/12 from CUC-0135 soil ; Concentration approx 25% oil; reprocess this to obtain NEAT product: See page 23, SERAS-L-0146, Syslo

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		1000000	ug/mL

Reviewed By [signature] Date 5/19/12

Analytical Standard Record

ERT/SERAS Laboratory

RVD0018

Description:	2nd Source DRO/TPH LCS Spike	Expires:	10/06/12 0
Standard Type:	Analyte Spike	Prepared:	04/09/12 0
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	25	Department:	CENTRAL
Vials:	1	Last Edit:	04/11/12 15:07 by SS
Vendor:	--	LotNumber:	RVC0018

I made 50ml and delivered 25mL to Central Lab; 4/9/12

Analyte	CAS Number	Concentration	Units
Diesel	NA	2000	ug/mL

Parent Standards used in this standard

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVD0017	Diesel Fuel - Neat Sandard	04/09/12	John Syslo	10/06/22	04/09/12 17:47 by JS	0.05

Reviewed By [signature] Date 5/19/12

Analytical Standard Record
ERT/SERAS Laboratory
RVC0066

Description:	5000ppm 2nd Source CCV foe Enbridge C	Expires:	09/15/12 0
Standard Type:	Calibration Stan	Prepared:	03/22/12 0
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/22/12 18:30 by JS
Vendor:	SERAS	LotNumber:	RVC0018

Diluted the baked crude oil standard 6x and use as 2nd source CCV for Enbridge Oil TPH ICAL; Syslo

Analyte	CAS Number	Concentration	Units
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		4954.4	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Acenaphthene-d10	NA	10	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0035	500ppm Oil IS Mix	03/19/12	John Syslo	09/15/12	03/20/12 11:48 by JS	0.02
RVC0065	30,000ppm TPH 2nd Source Enbri	03/22/12	John Syslo	09/18/12	03/22/12 18:26 by JS	0.167

Reviewed By J Syslo Date 5/19/12

Analytical Standard Record
ERT/SERAS Laboratory
RVC0065

Description:	30,000ppm TPH 2nd Source Enbridge Oil	Expires:	09/18/12 0
Standard Type:	Reagent	Prepared:	03/22/12 0
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	6	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/22/12 18:26 by JS
Vendor:	SERAS	LotNumber:	RVC0018

Cleaned SERAS-017-0003 crude, then baked at 125 degrees C for 1 hour to simulate autoclave. Looks like -0004 now. JS

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		29667	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0064	ENBRIDGE TPH 2nd Source Stoc	03/22/12	John Syslo	09/18/12	03/22/12 18:22 by JS	0.178

Reviewed By J Syslo Date 5/19/12

Analytical Standard Record
ERT/SERAS Laboratory
RVC0064

Description:	ENBRIDGE TPH 2nd Source Stock NEA	Expires:	09/18/12 0
Standard Type:	Reagent	Prepared:	03/22/12 0
Solvent:	Fresh but Baked Enbridge Crude	Prepared By:	John Syslo
Final Volume (mls):	2	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/22/12 18:22 by JS
Vendor:	SERAS	LotNumber:	Cleaned & baked sample 0003

2.0 Grams of Enbridge Oil product: From Sample SERAS-017-0003. Centrifuged & autoclaved. 3/06/2012; page 18 of SERAS-L-0146

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		1000000	ug/mL

Reviewed By J Syslo 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVC0063

Description:	0.5K EO TPH ICAl Std.	Expires:	09/15/12 0
Standard Type:	Calibration Stan	Prepared:	03/22/12 0
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/22/12 16:22 by JS
Vendor:	SERAS	LotNumber:	RVC0038

Site Specific Enbridge Oil-TPH. Serial dilution of RVC0057; J. Syslo

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	2	ug/mL
Terphenyl-d14	NA	2	ug/mL
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		500	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Anthracene-d10	1719-06-8	2	ug/mL
Acenaphthene-d10	NA	10	ug/mL
5a-Androstane	438-22-2	2	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0035	500ppm Oil IS Mix	03/19/12	John Syslo	09/15/12	03/20/12 11:48 by JS	0.02
RVC0057	50K EO TPH Stock	03/22/12	John Syslo	09/15/12	03/22/12 15:04 by JS	0.01

Reviewed By J Syslo 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVC0062

Description:	1.0K EO TPH ICAl Std.	Expires:	09/15/12 0
Standard Type:	Calibration Stan	Prepared:	03/22/12 0
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/22/12 16:16 by JS
Vendor:	SERAS	LotNumber:	RVC0038

Site Specific Enbridge Oil-TPH. Serial dilution of RVC0057; J. Syslo

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	4	ug/mL
Terphenyl-d14	NA	4	ug/mL
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		1000	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Anthracene-d10	1719-06-8	4	ug/mL
Acenaphthene-d10	NA	10	ug/mL
5a-Androstane	438-22-2	4	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0035	500ppm Oil IS Mix	03/19/12	John Syslo	09/15/12	03/20/12 11:48 by JS	0.02
RVC0057	50K EO TPH Stock	03/22/12	John Syslo	09/15/12	03/22/12 15:04 by JS	0.02

Reviewed By J Syslo 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVC0061

Description:	25K EO TPH ICAl Std.	Expires:	09/15/12 0
Standard Type:	Calibration Stan	Prepared:	03/22/12 0
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/22/12 16:17 by JS
Vendor:	SERAS	LotNumber:	RVC0038

Site Specific Enbridge Oil-TPH. Serial dilution of RVC0057; J. Syslo

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	100	ug/mL
Terphenyl-d14	NA	100	ug/mL
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		25000	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Anthracene-d10	1719-06-8	100	ug/mL
Acenaphthene-d10	NA	10	ug/mL
5a-Androstane	438-22-2	100	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0035	500ppm Oil IS Mix	03/19/12	John Syslo	09/15/12	03/20/12 11:48 by JS	0.02
RVC0057	50K EO TPH Stock	03/22/12	John Syslo	09/15/12	03/22/12 15:04 by JS	0.5

Reviewed By J Syslo 5/19/12 Date

SERAS-017-DTM-011413_1

Analytical Standard Record
ERT/SERAS Laboratory
RVC0060

Description:	10K EO TPH ICAl Std.	Expires:	09/15/12 0
Standard Type:	Calibration Stan	Prepared:	03/22/12 0
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/22/12 16:15 by JS
Vendor:	SERAS	LotNumber:	RVC0038

Site Specific Enbridge Oil-TPH. Serial dilution of RVC0057; J. Syslo

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	40	ug/mL
Terphenyl-d14	NA	40	ug/mL
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		10000	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Anthracene-d10	1719-06-8	40	ug/mL
Acenaphthene-d10	NA	10	ug/mL
5a-Androstane	438-22-2	40	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0035	500ppm Oil IS Mix	03/19/12	John Syslo	09/15/12	03/20/12 11:48 by JS	0.02
RVC0057	50K EO TPH Stock	03/22/12	John Syslo	09/15/12	03/22/12 15:04 by JS	0.2

Reviewed By J Syslo 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVC0059

Description:	5.0K EO TPH ICAl Std.	Expires:	09/15/12 0
Standard Type:	Calibration Stan	Prepared:	03/22/12 0
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/22/12 15:08 by JS
Vendor:	SERAS	LotNumber:	RVC0038

Site Specific Enbridge Oil-TPH. Serial dilution of RVC0057L; J. Syslo

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	20	ug/mL
Terphenyl-d14	NA	20	ug/mL
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		5000	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Anthracene-d10	1719-06-8	20	ug/mL
Acenaphthene-d10	NA	10	ug/mL
5a-Androstane	438-22-2	20	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0035	500ppm Oil IS Mix	03/19/12	John Syslo	09/15/12	03/20/12 11:48 by JS	0.02
RVC0057	50K EO TPH Stock	03/22/12	John Syslo	09/15/12	03/22/12 15:04 by JS	0.1

Reviewed By J Syslo 5/19/12 Date

0124

SERAS-017-DTM-011413_1

Analytical Standard Record
ERT/SERAS Laboratory
RVC0058

Description:	50K EO TPH ICAl Std.	Expires:	09/15/12 0
Standard Type:	Calibration Stan	Prepared:	03/22/12 0
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/22/12 15:07 by JS
Vendor:	SERAS	LotNumber:	RVC0038

Site Specific Enbridge Oil-TPH. Serial dilution of RVC0057L; J. Syslo

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	200	ug/mL
Terphenyl-d14	NA	200	ug/mL
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		50000	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Anthracene-d10	1719-06-8	200	ug/mL
Acenaphthene-d10	NA	10	ug/mL
5a-Androstane	438-22-2	200	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0035	500ppm Oil IS Mix	03/19/12	John Syslo	09/15/12	03/20/12 11:48 by JS	0.02
RVC0057	50K EO TPH Stock	03/22/12	John Syslo	09/15/12	03/22/12 15:04 by JS	1

Reviewed By J Syslo 5/19/12 Date

0125

Analytical Standard Record
ERT/SERAS Laboratory
RVC0057

Description:	50K EO TPH Stock	Expires:	09/15/12 0
Standard Type:	Calibration Stan	Prepared:	03/22/12 0
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	2.2	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/22/12 15:04 by JS
Vendor:	SERAS	LotNumber:	RVC0038

Site Specific Enbridge Oil-TPH. Has surrogates - do serial dilutions for ICAL; J. Syslo

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	200	ug/mL
Terphenyl-d14	NA	200	ug/mL
Oil Fingerprint		50000	ug/mL
Anthracene-d10	1719-06-8	200	ug/mL
5a-Androstane	438-22-2	200	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0032	2000ppm Oil Surrogate Stock	03/19/12	John Syslo	09/15/12	03/19/12 10:07 by JS	0.22
RVC0056	Enbridge TPH Stock	03/21/12	John Syslo	09/17/12	03/21/12 17:06 by JS	2

Reviewed By J Syslo 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVC0056

Description:	Enbridge TPH Stock	Expires:	09/17/12 0
Standard Type:	Reagent	Prepared:	03/21/12 0
Solvent:	DCM/Hexane/Acetone/Methanol (	Prepared By:	John Syslo
Final Volume (mls):	6	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/21/12 17:06 by JS
Vendor:	SERAS	LotNumber:	NA

This TPH standard is prepared from SERAS-017-0004 oil. The solvent mixture was necessary because of disolution problems. J. Syslo

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		55000	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0050	ENBRIDGE TPH Stock NEAT	03/20/12	John Syslo	09/16/22	03/20/12 15:26 by JS	0.33

Reviewed By J Syslo 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVC0054

Description:	5,000 ppm CCV for CUC TPH	Expires:	09/15/12 0
Standard Type:	Reagent	Prepared:	03/20/12 0
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	0.5	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/20/12 16:38 by JS
Vendor:	SERAS	LotNumber:	LIMS # RVC0018

Using Enbridge Oil Product: SERAS-017-0004: Surrogates added ; Also Check of 5000ppm EO TPH Spike for central

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	20	ug/mL
Terphenyl-d14	NA	20	ug/mL
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		5000	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Anthracene-d10	1719-06-8	20	ug/mL
Acenaphthene-d10	NA	10	ug/mL
5a-Androstane	438-22-2	20	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0032	2000ppm Oil Surrogate Stock	03/19/12	John Syslo	09/15/12	03/19/12 10:07 by JS	0.005
RVC0035	500ppm Oil IS Mix	03/19/12	John Syslo	09/15/12	03/20/12 11:48 by JS	0.01
RVC0053	5000ppm TPH Spike for Enbridge	03/20/12	John Syslo	09/20/12	03/20/12 15:36 by JS	0.5

Reviewed By J Syslo 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVC0052

Description:	25K EO-TPH & 100ppm Surr. ICAL Stock	Expires:	09/15/12 0
Standard Type:	Calibration Stan	Prepared:	03/20/12 0
Solvent:	DCM/Hexane 65/35 (RCV0018)	Prepared By:	John Syslo
Final Volume (mls):	2	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/20/12 15:31 by JS
Vendor:	SERAS	LotNumber:	--

Weathered ORO TPH ICAL using Enbridge Oil Sample SERAS-017-0004. Use this to make serial dilutions and add IS: JS

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	100	ug/mL
Terphenyl-d14	NA	100	ug/mL
Oil Fingerprint		25000	ug/mL
Anthracene-d10	1719-06-8	100	ug/mL
5a-Androstane	438-22-2	100	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0032	2000ppm Oil Surrogate Stock	03/19/12	John Syslo	09/15/12	03/19/12 10:07 by JS	0.1
RVC0051	50,000 ppm EO TPH Std	03/20/12	John Syslo	09/16/12	03/20/12 15:28 by JS	1

Reviewed By 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVC0051

Description:	50,000 ppm EO TPH Std	Expires:	09/16/12 0
Standard Type:	Reagent	Prepared:	03/20/12 0
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	10	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/20/12 15:28 by JS
Vendor:	SERAS	LotNumber:	LIMS # RVC0018

From Enbridge Oil Sample SERAS-017-0004: This is to make LCS/MS spikes and ICAL from site extracted oil: No Surrogates

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		50000	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0050	ENBRIDGE TPH Stock NEAT	03/20/12	John Syslo	09/16/22	03/20/12 15:26 by JS	0.5

Reviewed By 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVC0050

Description:	ENBRIDGE TPH Stock NEAT	Expires:	09/16/22 0
Standard Type:	Reagent	Prepared:	03/20/12 0
Solvent:	Weathered Enbridge Crude	Prepared By:	John Syslo
Final Volume (mls):	2	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/20/12 15:26 by JS
Vendor:	SERAS	LotNumber:	Cleaned & baked samnle 0004

2.0 Grams of Enbridge Oil product: From Sample SERAS-017-0004. Centrifuged & autoclaved. 3/07/2012

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		1000000	ug/mL

Reviewed By J Syslo 5/21/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVC0049

Description:	0.25K TPH & 1.0ppm Surr. ICAL Stock	Expires:	09/15/12 0
Standard Type:	Calibration Stan	Prepared:	03/20/12 0
Solvent:	DCM/Hexane 65/35 (RCV0018)	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/20/12 15:20 by JS
Vendor:	SERAS	LotNumber:	--

Weathered ORO TPH ICAL using CUC bulk extracted oil. Use this to make serial dilutions and add IS: JS

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	1	ug/mL
Terphenyl-d14	NA	1	ug/mL
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		250	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Anthracene-d10	1719-06-8	1	ug/mL
Acenaphthene-d10	NA	10	ug/mL
5a-Androstane	438-22-2	1	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0035	500ppm Oil IS Mix	03/19/12	John Syslo	09/15/12	03/20/12 11:48 by JS	0.02
RVC0042	25K TPH & 100ppm Surr. ICAL S	03/20/12	John Syslo	09/15/12	03/20/12 15:20 by JS	0.01

Reviewed By J Syslo 5/21/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVC0048

Description:	0.5 K TPH & 2ppm Surr. ICAL Stock	Expires:	09/15/12 0
Standard Type:	Calibration Stan	Prepared:	03/20/12 0
Solvent:	DCM/Hexane 65/35 (RCV0018)	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/20/12 15:20 by JS
Vendor:	SERAS	LotNumber:	--

Weathered ORO TPH ICAL using CUC bulk extracted oil. Use this to make serial dilutions and add IS: JS

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	2	ug/mL
Terphenyl-d14	NA	2	ug/mL
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		500	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Anthracene-d10	1719-06-8	2	ug/mL
Acenaphthene-d10	NA	10	ug/mL
5a-Androstane	438-22-2	2	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0035	500ppm Oil IS Mix	03/19/12	John Syslo	09/15/12	03/20/12 11:48 by JS	0.02
RVC0042	25K TPH & 100ppm Surr. ICAL S	03/20/12	John Syslo	09/15/12	03/20/12 15:20 by JS	0.02

Reviewed By 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVC0046

Description:	10 K TPH & 40ppm Surr. ICAL Stock	Expires:	09/15/12 0
Standard Type:	Calibration Stan	Prepared:	03/20/12 0
Solvent:	DCM/Hexane 65/35 (RCV0018)	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/20/12 15:20 by JS
Vendor:	SERAS	LotNumber:	--

Weathered ORO TPH ICAL using CUC bulk extracted oil. Use this to make serial dilutions and add IS: JS

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	40	ug/mL
Terphenyl-d14	NA	40	ug/mL
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		10000	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Anthracene-d10	1719-06-8	40	ug/mL
Acenaphthene-d10	NA	10	ug/mL
5a-Androstane	438-22-2	40	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0035	500ppm Oil IS Mix	03/19/12	John Syslo	09/15/12	03/20/12 11:48 by JS	0.02
RVC0042	25K TPH & 100ppm Surr. ICAL S	03/20/12	John Syslo	09/15/12	03/20/12 15:20 by JS	0.4

Reviewed By 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVC0045

Description:	1.0 K TPH & 4ppm Surr. ICAL Stock	Expires:	09/15/12 0
Standard Type:	Calibration Stan	Prepared:	03/20/12 0
Solvent:	DCM/Hexane 65/35 (RCV0018)	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/20/12 15:20 by JS
Vendor:	SERAS	LotNumber:	--

Weathered ORO TPH ICAL using CUC bulk extracted oil. Use this to make serial dilutions and add IS: JS

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	4	ug/mL
Terphenyl-d14	NA	4	ug/mL
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		1000	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Anthracene-d10	1719-06-8	4	ug/mL
Acenaphthene-d10	NA	10	ug/mL
5a-Androstane	438-22-2	4	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0035	500ppm Oil IS Mix	03/19/12	John Syslo	09/15/12	03/20/12 11:48 by JS	0.02
RVC0042	25K TPH & 100ppm Surr. ICAL S	03/20/12	John Syslo	09/15/12	03/20/12 15:20 by JS	0.04

Reviewed By: J Syslo Date: 5/19/12

Analytical Standard Record
ERT/SERAS Laboratory
RVC0044

Description:	5.0 K TPH & 20ppm Surr. ICAL Stock	Expires:	09/15/12 0
Standard Type:	Calibration Stan	Prepared:	03/20/12 0
Solvent:	DCM/Hexane 65/35 (RCV0018)	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/20/12 15:20 by JS
Vendor:	SERAS	LotNumber:	--

Weathered ORO TPH ICAL using CUC bulk extracted oil. Use this to make serial dilutions and add IS: JS

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	20	ug/mL
Terphenyl-d14	NA	20	ug/mL
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		5000	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Anthracene-d10	1719-06-8	20	ug/mL
Acenaphthene-d10	NA	10	ug/mL
5a-Androstane	438-22-2	20	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0035	500ppm Oil IS Mix	03/19/12	John Syslo	09/15/12	03/20/12 11:48 by JS	0.02
RVC0042	25K TPH & 100ppm Surr. ICAL S	03/20/12	John Syslo	09/15/12	03/20/12 15:20 by JS	0.2

Reviewed By: J Syslo Date: 5/19/12

Analytical Standard Record
ERT/SERAS Laboratory
RVC0043

Description:	25K TPH & 100ppm Surr. ICAL Stock	Expires:	09/15/12 0
Standard Type:	Calibration Stan	Prepared:	03/20/12 0
Solvent:	DCM/Hexane 65/35 (RCV0018)	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/20/12 15:20 by JS
Vendor:	SERAS	LotNumber:	--

Weathered ORO TPH ICAL using CUC bulk extracted oil. Use this to make serial dilutions and add IS: JS

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	100	ug/mL
Terphenyl-d14	NA	100	ug/mL
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		25000	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Anthracene-d10	1719-06-8	100	ug/mL
Acenaphthene-d10	NA	10	ug/mL
5a-Androstane	438-22-2	100	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0035	500ppm Oil IS Mix	03/19/12	John Syslo	09/15/12	03/20/12 11:48 by JS	0.02
RVC0042	25K TPH & 100ppm Surr. ICAL S	03/20/12	John Syslo	09/15/12	03/20/12 15:20 by JS	1

Reviewed By J Syslo 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVC0042

Description:	25K TPH & 100ppm Surr. ICAL Stock	Expires:	09/15/12 0
Standard Type:	Calibration Stan	Prepared:	03/20/12 0
Solvent:	DCM/Hexane 65/35 (RCV0018)	Prepared By:	John Syslo
Final Volume (mls):	2	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/20/12 15:20 by JS
Vendor:	SERAS	LotNumber:	--

Weathered ORO TPH ICAL using CUC bulk extracted oil. Use this to make serial dilutions and add IS: JS

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	100	ug/mL
Terphenyl-d14	NA	100	ug/mL
Oil Fingerprint		25000	ug/mL
Anthracene-d10	1719-06-8	100	ug/mL
5a-Androstane	438-22-2	100	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0032	2000ppm Oil Surrogate Stock	03/19/12	John Syslo	09/15/12	03/19/12 10:07 by JS	0.1
RVC0040	50,000 ppm CUC TPH Std	03/19/12	John Syslo	09/15/12	03/20/12 15:20 by JS	1

Reviewed By J Syslo 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVC0041

Description:	SV Internal Std. Mix, 2000 ppm	Expires:	09/16/12 0
Standard Type:	Internal Standar	Prepared:	03/20/12 0
Solvent:	DCM	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	4	Last Edit:	03/20/12 11:46 by JS
Vendor:	Restek	LotNumber:	A082566

CAT#31206 : This is one of 5 vials that I am opening up for use.

Analyte	CAS Number	Concentration	Units
Phenanthrene-d10	NA	2000	ug/mL
Perylene-d12	NA	2000	ug/mL
Naphthalene-d8	NA	2000	ug/mL
Chrysene-d12	NA	2000	ug/mL
Acenaphthene-d10	NA	2000	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	2000	ug/mL

Reviewed By J Syd 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVC0040

Description:	50,000 ppm CUC TPH Std	Expires:	09/15/12 0
Standard Type:	Reagent	Prepared:	03/19/12 0
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	10	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/20/12 15:20 by JS
Vendor:	SERAS	LotNumber:	LIMS # RVC0018

From bulk extracted oil: This is to make LCS/MS spikes and ICAL from site extracted oil: No Surrogates

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		50000	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0038	CUC-BEO 2/22/12	03/19/12	John Syslo	09/15/22	03/20/12 15:20 by JS	0.5

Reviewed By J Syd 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVC0038

Description:	CUC-BEO 2/22/12	Expires:	09/15/22 0
Standard Type:	Reagent	Prepared:	03/19/12 0
Solvent:	Neat Oil Mixture	Prepared By:	John Syslo
Final Volume (mls):	3	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/20/12 15:20 by JS
Vendor:	SERAS	LotNumber:	Bulk Extracted Oil from Soil

1.0 grams of mixed product that was extracted & reclaimed on 2/13/12 from CUC-0135 soil : Methylene chloride baked off on 2/17/12: This is portion of the extra sample that I had and gave to T.F.M on 03/02/12: JS

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		1000000	ug/mL

Reviewed By J Syslo 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVC0035

Description:	500ppm Oil IS Mix	Expires:	09/15/12 0
Standard Type:	Internal Standar	Prepared:	03/19/12 0
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	2	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/20/12 11:48 by JS
Vendor:	SERAS	LotNumber:	DCM/Hex = LIMS# RUC0022

Dilute 2000ppm TPH IS (RCv0034) and 2000ppm BNA IS (RUK0081) to 2.0mL
spike 20µL per 1.0mL extract. JS

Analyte	CAS Number	Concentration	Units
Phenanthrene-d10	NA	500	ug/mL
Perylene-d12	NA	500	ug/mL
Naphthalene-d8	NA	500	ug/mL
n-Tetradecane-d30		500	ug/mL
n-Tetracosane-d50	16416-32-3	500	ug/mL
n-Hexatriacontane-d74	16416-34-5	500	ug/mL
Chrysene-d12	NA	500	ug/mL
Acenaphthene-d10	NA	500	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	500	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RVC0034	TPH IS Mix: 2000ppm : 3 Compo	03/19/12	John Syslo	09/15/12	03/19/12 11:31 by JS	0.5
RVC0041	SV Internal Std. Mix, 2000 ppm	03/20/12	John Syslo	09/16/12	03/20/12 11:46 by JS	0.5

Reviewed By J Syslo 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVC0034

Description:	TPH IS Mix: 2000ppm : 3 Compounds	Expires:	09/15/12 0
Standard Type:	Internal Standar	Prepared:	03/19/12 0
Solvent:	DCM/CS2 4:1	Prepared By:	John Syslo
Final Volume (mls):	25	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/19/12 11:31 by JS
Vendor:	NA	LotNumber:	NA

2000ppm 3 Compound IS Mix for TPH. To be mixed with BNA IS
DCM = RCV0017; Cs2 = RVA0051

Analyte	CAS Number	Concentration	Units
n-Tetradecane-d30		2000	mg/Kg
n-Tetracosane-d50	16416-32-3	2000	mg/Kg
n-Hexatriacontane-d74	16416-34-5	2000	mg/Kg

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RSF0123	Neat D50-n-Tetradecane	06/30/09	John Syslo	12/27/19	06/30/09 14:26 by JS	0.05
RSF0124	Neat D74-n-Hexatriacontane	06/30/09	John Syslo	12/27/19	06/30/09 14:33 by JS	0.05
RSF0126	Neat D30-n-Tetradecane	06/30/09	John Syslo	12/27/19	06/30/09 13:56 by JS	0.05

Reviewed By J Syslo Date 5/19/12

Analytical Standard Record
ERT/SERAS Laboratory
RVC0032

Description:	2000ppm Oil Surrogate Stock	Expires:	09/15/12 0
Standard Type:	Surrogate Spike	Prepared:	03/19/12 0
Solvent:	DCM/CS2 75:25	Prepared By:	John Syslo
Final Volume (mls):	50	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/19/12 10:07 by JS
Vendor:	REAC	LotNumber:	REAC

Mix of 4 neat surrogates for Oil Surrogate Stock. 0.1g each
DCM = RCV0017, and CS2 = RVA0051

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	2000	ug/mL
Terphenyl-d14	NA	2000	ug/mL
Anthracene-d10	1719-06-8	2000	ug/mL
5a-Androstane	438-22-2	2000	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RSF0090	Neat Triacontane-d62	06/29/09	John Syslo	06/26/19	06/30/09 13:27 by JS	0.1
RSF0092	Neat o-Terphenyl-d14	06/29/09	John Syslo	12/26/19	06/30/09 13:28 by JS	0.1
RSF0093	Neat Anthracene-d10	06/29/09	John Syslo	12/26/19	06/30/09 13:28 by JS	0.1
RSF0122	Neat 5a-Androstane	06/30/09	John Syslo	12/27/19	06/30/09 13:25 by JS	0.1

Reviewed By J Syslo Date 5/19/12

Analytical Standard Record
ERT/SERAS Laboratory
RVC0018

Description:	DCM/Hexane Mix 65/35	Expires:	03/07/13 0
Standard Type:	Reagent	Prepared:	03/07/12 0
Solvent:	DCM/DE507 & Hexane/H49E38	Prepared By:	John Syslo
Final Volume (mls):	1000	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/07/12 18:28 by JS
Vendor:	SERAS	LotNumber:	See Solvent/Solvent Lot

DCM/Hexane solvent mixture used to prepare BNA ICAL standards,: mix 650mL DCM + 350mL Hexane
JS

Analyte	CAS Number	Concentration	Units
Hexane	110-54-3	332500	ug/mL
Dichloromethane	75-09-2	650000	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RUC0021	Hexanes (95% n-hexane)	03/10/11	John Syslo	03/10/21	03/07/12 18:22 by JS	350
RVC0017	Dichloromethane 99.9% Solvent	03/07/12	John Syslo	03/07/22	03/07/12 17:01 by JS	650

Reviewed By J Syslo 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVC0017

Description:	Dichloromethane 99.9% Solvent	Expires:	03/07/22 0
Standard Type:	Reagent	Prepared:	03/07/12 0
Solvent:	Dichloromethane / DE507	Prepared By:	John Syslo
Final Volume (mls):	4000	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/07/12 17:01 by JS
Vendor:	Burdick & Jackson	LotNumber:	DB241

Solvent Dichloromethane . Honeywell/B&J Solvent. Cat. GC299-4
Logged into LIMS 03/07/12. J. Syslo
Burdick & Jackson listed as Vendor because Honeywell is misspelled.

Analyte	CAS Number	Concentration	Units
Dichloromethane	75-09-2	1000000	ug/mL

Reviewed By J Syslo 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVC0006

Description:	CUC-BEO 12/22/12	Expires:	03/02/19 0
Standard Type:	Reagent	Prepared:	03/01/12 0
Solvent:	Neat Oil Mixture	Prepared By:	John Syslo
Final Volume (mls):	3	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/02/12 12:49 by JS
Vendor:	SERAS	LotNumber:	Bulk Extracted Oil from Soil

2.8 grams of mixed product that was extracted & reclaimed on 2/13/12 from CUC-0135 soil : Methylene chloride baked off on 2/17/12: This is extra sample that I had and gave to T.F.M on 03/02/12: JS

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		1000000	ug/mL

Reviewed By J Syslo 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVB0060

Description:	Method/Waste Dilution Blank	Expires:	05/12/12 0
Standard Type:	Reagent	Prepared:	02/24/12 0
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	02/24/12 19:18 by JS
Vendor:	SERAS	LotNumber:	RUC0022

Added 10µL 2000ppm Surrogate (RUK0077) and 20µ 500ppm IS (RVB0058) to Solvent Blank. A waste dilution blank.

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	20	ug/mL
Terphenyl-d14	NA	20	ug/mL
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Anthracene-d10	1719-06-8	20	ug/mL
Acenaphthene-d10	NA	10	ug/mL
5a-Androstane	438-22-2	20	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RUK0077	2000ppm Oil Surrogate Stock	11/14/11	John Syslo	05/12/12	11/14/11 16:50 by JS	0.01
RVB0058	500ppm Oil IS Mix	02/24/12	John Syslo	05/14/12	02/24/12 15:13 by JS	0.02

Reviewed By J Syslo 5/19/12 Date

SERAS-017-DTM-011413_1

0137

Analytical Standard Record
ERT/SERAS Laboratory
RVB0057

Description:	CUC-BEO 12/22/12	Expires:	08/20/29 0
Standard Type:	Reagent	Prepared:	02/22/12 0
Solvent:	Neat Oil Mixture	Prepared By:	John Syslo
Final Volume (mls):	10	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	02/22/12 09:20 by JS
Vendor:	SERAS	LotNumber:	Bulk Extracted Oil from Soil

9.25 grams of mixed product that was extracted & reclaimed on 2/13/12 from CUC-0135 soil ; Methylene chloride baked off on 2/17/12: JS

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		1000000	ug/mL

Reviewed By 5/19/17 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVB0058

Description:	500ppm Oil IS Mix	Expires:	05/14/12 0
Standard Type:	Internal Standar	Prepared:	02/24/12 0
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	2	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	02/24/12 15:13 by JS
Vendor:	SERAS	LotNumber:	DCM/Hex = LIMS# RUC0022

Dilute 2000ppm TPH IS (RUK0079) and 2000ppm BNA IS (RUK0081) to 2.0mL
spike 20µL per 1.0mL extract. JS

Analyte	CAS Number	Concentration	Units
Phenanthrene-d10	NA	500	ug/mL
Perylene-d12	NA	500	ug/mL
Naphthalene-d8	NA	500	ug/mL
n-Tetradecane-d30		500	ug/mL
n-Tetracosane-d50	16416-32-3	500	ug/mL
n-Hexatriacontane-d74	16416-34-5	500	ug/mL
Chrysene-d12	NA	500	ug/mL
Acenaphthene-d10	NA	500	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	500	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RUK0079	TPH IS Mix: 2000ppm : 3 Compo	11/14/11	John Syslo	05/14/12	11/14/11 17:00 by JS	0.5
RUK0081	Stock SVOC Internal Std. Mix, 2	11/15/11	John Syslo	05/15/12	11/15/11 15:06 by JS	0.5

Reviewed By 5/19/17 Date

Analytical Standard Record

ERT/SERAS Laboratory

RUL0003

Description:	10K CG-117 Fingerprint Reference	Expires:	05/24/12 0
Standard Type:	Reagent	Prepared:	02/24/12 0
Solvent:	DCM/Hexane 65:35 (RUC0022)	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	02/24/12 19:13 by JS
Vendor:	-	LotNumber:	NA

Diluting neat product to obtain 10,000ppm standard. adding IS for SIM method.

Analyte	CAS Number	Concentration	Units
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		10000	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Acenaphthene-d10	NA	10	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RUL0002	10K CG-117 Fingerprint Reference	12/01/11	John Syslo	05/29/12	12/01/11 16:25 by JS	1
RVB0058	500ppm Oil IS Mix	02/24/12	John Syslo	05/14/12	02/24/12 15:13 by JS	0.02

Reviewed By J Syslo 5/19/12 Date

DFTPP + Neat Standard

Analytical Standard Record
ERT/SERAS Laboratory
RVB0025

Description:	50 ppm DFTPP + ISTD	Expires:	08/12/12 0
Standard Type:	Calibration Stan	Prepared:	02/14/12 0
Solvent:	DE507	Prepared By:	Ben Beauchaine
Final Volume (mls):	20	Department:	SVOCGCMS
Vials:	1	Last Edit:	04/19/12 09:45 by GA
Vendor:	--	LotNumber:	-

Analyte	CAS Number	Concentration	Units
Phenanthrene-d10	NA	40	ug/mL
Perylene-d12	NA	40	ug/mL
Pentachlorophenol	87-86-5	50	ug/mL
Naphthalene-d8	NA	40	ug/mL
Decafluorotriphenylphosphine	NA	50	ug/mL
Chrysene-d12	NA	40	ug/mL
Benzidine	92-87-5	50	ug/mL
Acenaphthene-d10	NA	40	ug/mL
4,4'-DDT	50-29-3	50	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	40	ug/mL

Parent Standards used in this standard

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RUA0036	GC/MS Tuning Mix (DFTPP), Sto	01/14/11	Ben Beauchaine	07/01/13	06/02/11 14:45 by JS	1
RUJ0028	SV Internal Std. Mix, 2000 ppm	04/12/12	Ben Beauchaine	10/12/12	04/19/12 09:45 by GA	0.4

Reviewed By _____ Date 5/19/12

Analytical Standard Record
ERT/SERAS Laboratory
RUA0036

Description:	GC/MS Tuning Mix (DFTPP), Stock, 100	Expires:	07/01/13 0
Standard Type:	MS Tune Soluti	Prepared:	01/14/11 0
Solvent:	Methylene Chloride	Prepared By:	Ben Beauchaine
Final Volume (mls):	1	Department:	SVOCGCMS
Vials:	5	Last Edit:	06/02/11 14:45 by JS
Vendor:	Restek	LotNumber:	A075699

Catalog # 31615; Mix of 4 compounds for 8270 DFTPP; dilute to 50ppm before use.
BB

Analyte	CAS Number	Concentration	Units
Pentachlorophenol	87-86-5	1000	ug/mL
Decafluorotriphenylphosphine	NA	1000	ug/mL
Benzidine	92-87-5	1000	ug/mL
4,4'-DDT	50-29-3	1000	ug/mL

Reviewed By _____ Date 5/19/12

Analytical Standard Record
ERT/SERAS Laboratory
RUJ0028

Description:	SV Internal Std. Mix, 2000 ppm	Expires:	10/12/12 0
Standard Type:	Internal Standar	Prepared:	04/12/12 0
Solvent:	DCM	Prepared By:	Ben Beauchaine
Final Volume (mls):	1	Department:	SVOCGCMS
Vials:	4	Last Edit:	04/19/12 09:45 by GA
Vendor:	Restek	LotNumber:	A082566

CAT#31206 :

Analyte	CAS Number	Concentration	Units
Phenanthrene-d10	NA	2000	ug/mL
Perylene-d12	NA	2000	ug/mL
Naphthalene-d8	NA	2000	ug/mL
Chrysene-d12	NA	2000	ug/mL
Acenaphthene-d10	NA	2000	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	2000	ug/mL

Reviewed By 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RSF0126

Description:	Neat D30-n-Tetradecane	Expires:	12/27/19 0
Standard Type:	Reagent	Prepared:	06/30/09 0
Solvent:	Neat	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	06/30/09 13:56 by JS
Vendor:	Cambridge Isotope Labs	LotNumber:	PR-16109/04285TD1

1 gram of neat Oil IS compound; CAT# DLM-670-1

Analyte	CAS Number	Concentration	Units
n-Tetradecane-d30		1000000	mg/Kg

Reviewed By 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RSF0124

Description:	Neat D74-n-Hexatriacontane	Expires:	12/27/19 0
Standard Type:	Reagent	Prepared:	06/30/09 0
Solvent:	Neat	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	06/30/09 14:33 by JS
Vendor:	Cambridee Isotope Labs	LotNumber:	P-7449

1.0 grams of Neat Oil IS cmpd. CAT# DLM-2634-1

Analyte	CAS Number	Concentration	Units
n-Hexatriacontane-d74	16416-34-5	1000000	mg/Kg

Reviewed By: 5/15/12 Date

Page 1 of 1

Analytical Standard Record
ERT/SERAS Laboratory
RSF0123

Description:	Neat D50-n-Tetradecane	Expires:	12/27/19 0
Standard Type:	Reagent	Prepared:	06/30/09 0
Solvent:	Neat	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	06/30/09 14:26 by JS
Vendor:	Cambridee Isotope Labs	LotNumber:	PR-17753/09216TC1

0.5 grams of neat Oil IS compound. CAT# DLM-2209-0.5

Analyte	CAS Number	Concentration	Units
n-Tetracosane-d50	16416-32-3	1000000	mg/Kg

Reviewed By: 5/17/12 Date

Page 1 of 1

Analytical Standard Record
ERT/SERAS Laboratory
RSF0122

Description:	Neat 5a-Androstane	Expires:	12/27/19 0
Standard Type:	Reagent	Prepared:	06/30/09 0
Solvent:	Neat	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	06/30/09 13:25 by JS
Vendor:	Sigma	LotNumber:	098K4035

1 gram of neat Oil Surrogate cmpd. CAT# A0887-1G

Analyte	CAS Number	Concentration	Units
5a-Androstane	438-22-2	1000000	mg/Kg

Reviewed By: 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RSF0093

Description:	Neat Anthracene-d10	Expires:	12/26/19 0
Standard Type:	Reagent	Prepared:	06/29/09 0
Solvent:	Neat	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	06/30/09 13:28 by JS
Vendor:	Isotec	LotNumber:	1Y0212

1 gram of neat oil surrogate compound CAT# 176591-1G

Analyte	CAS Number	Concentration	Units
Anthracene-d10	1719-06-8	1000000	ug/mL

Reviewed By: 5/19/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RSF0092

Description:	Neat o-Terphenyl-d14	Expires:	12/26/19 0
Standard Type:	Reagent	Prepared:	06/29/09 0
Solvent:	Neat	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	06/30/09 13:28 by JS
Vendor:	Cambridge Isotope Labs	LotNumber:	PR-19171

1 gram, neat oil surrogate compound, cat# DLM-450-1

Analyte	CAS Number	Concentration	Units
Terphenyl-d14	NA	1000000	mg/Kg

Reviewed By: 5/13/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RSF0090

Description:	Neat Triacontane-d62	Expires:	06/26/19 0
Standard Type:	Reagent	Prepared:	06/29/09 0
Solvent:	neat	Prepared By:	John Syslo
Final Volume (mls):	0.5	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	06/30/09 13:27 by JS
Vendor:	Cambridge Isotope Labs	LotNumber:	P-8790

Neat TPH/Oil surrogate, 0.5grams, Cat# DLM-2210-0.5

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	1000000	mg/Kg

Reviewed By: 5/13/12 Date

Analytical Standard Record

ERT/SERAS Laboratory

RVB0003

Description:	1000ppm DRO + 10ppm Surr TPH ICAL	Expires:	08/02/12 0
Standard Type:	Calibration Stan	Prepared:	02/02/12 0
Solvent:	DCM/Hexane 65:35 (RUC0022)	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	02/02/12 15:04 by JS
Vendor:	SERAS	LotNumber:	NA

Serial dilution of RUE0041 + 20µL IS (RUE0037) TPH ICAL:

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	10	ug/mL
Terphenyl-d14	NA	10	ug/mL
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		1000	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Anthracene-d10	1719-06-8	10	ug/mL
Acenaphthene-d10	NA	10	ug/mL
5a-Androstane	438-22-2	10	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RSJ0103	#2 Diesel Fuel Mix 50,000 ppm	10/20/09	John Syslo	04/18/19	02/02/12 14:52 by JS	0.02
RUK0077	2000ppm Oil Surrogate Stock	11/14/11	John Syslo	05/12/12	11/14/11 16:50 by JS	0.005
RUK0080	500ppm Oil IS Mix	11/14/11	John Syslo	02/14/12	11/14/11 17:04 by JS	0.02

Reviewed By JSyslo 2/2/12 Date

Analytical Standard Record

ERT/SERAS Laboratory

RUK0079

Description:	TPH IS Mix: 2000ppm : 3 Compounds	Expires:	05/14/12 0
Standard Type:	Internal Standar	Prepared:	11/14/11 0
Solvent:	DCM/CS2 4:1	Prepared By:	John Syslo
Final Volume (mls):	50	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	11/14/11 17:00 by JS
Vendor:	NA	LotNumber:	NA

2000ppm 3 Compound IS Mix for TPH. To be mixed with BNA IS

Analyte	CAS Number	Concentration	Units
n-Tetradecane-d30		2000	mg/Kg
n-Tetracosane-d50	16416-32-3	2000	mg/Kg
n-Hexatriacontane-d74	16416-34-5	2000	mg/Kg

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RSF0123	Neat D50-n-Tetradecane	06/30/09	John Syslo	12/27/19	06/30/09 14:26 by JS	0.1
RSF0124	Neat D74-n-Hexatriacontane	06/30/09	John Syslo	12/27/19	06/30/09 14:33 by JS	0.1
RSF0126	Neat D30-n-Tetradecane	06/30/09	John Syslo	12/27/19	06/30/09 13:56 by JS	0.1

Reviewed By 2/2/12 Date

Analytical Standard Record

ERT/SERAS Laboratory

RUK0077

Description:	2000ppm Oil Surrogate Stock	Expires:	05/12/12 0
Standard Type:	Surrogate Spike	Prepared:	11/14/11 0
Solvent:	DCM/CS2 75:25	Prepared By:	John Syslo
Final Volume (mls):	50	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	11/14/11 16:50 by JS
Vendor:	REAC	LotNumber:	REAC

Mix of 4 neat surrogates for Oil Surrogate Stock. 0.1g each

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	2000	ug/mL
Terphenyl-d14	NA	2000	ug/mL
Anthracene-d10	1719-06-8	2000	ug/mL
5a-Androstane	438-22-2	2000	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RSF0090	Neat Triacontane-d62	06/29/09	John Syslo	06/26/19	06/30/09 13:27 by JS	0.1
RSF0092	Neat o-Terphenyl-d14	06/29/09	John Syslo	12/26/19	06/30/09 13:28 by JS	0.1
RSF0093	Neat Anthracene-d10	06/29/09	John Syslo	12/26/19	06/30/09 13:28 by JS	0.1
RSF0122	Neat 5a-Androstane	06/30/09	John Syslo	12/27/19	06/30/09 13:25 by JS	0.1

Reviewed By JSyslo 5/2/12 Date

Analytical Standard Record

ERT/SERAS Laboratory

RSJ0103

Description:	#2 Diesel Fuel Mix 50,000 ppm	Expires:	04/18/19 0
Standard Type:	Reagent	Prepared:	10/20/09 0
Solvent:	Dichloromethane	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	02/02/12 14:52 by JS
Vendor:	AccuStandard.Inc.	LotNumber:	A9070168

Cat# DRO-AK-102-DCS-10X-R1 Stock Diesel Calibration Composite Mix

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		50000	ug/mL

Reviewed By 2/2/12 Date

Analytical Standard Record

ERT/SERAS Laboratory

RUE0044

Description:	1000ppm DRO + 10ppm Surr TPH ICAL	Expires:	11/12/11 0
Standard Type:	Calibration Stan	Prepared:	05/16/11 0
Solvent:	DCM/Hexane 65:35 (RUC0022)	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	11/14/11 16:59 by JS
Vendor:	SERAS	LotNumber:	NA

Serial dilution of RUE0041 + 20µL IS (RUE0037) TPH ICAL:

Analyte	CAS Number	Concentration	Units
Triacontane-d62	93952-07-9	10	ug/mL
Terphenyl-d14	NA	10	ug/mL
Phenanthrene-d10	NA	10	ug/mL
Perylene-d12	NA	10	ug/mL
Oil Fingerprint		1000	ug/mL
Naphthalene-d8	NA	10	ug/mL
n-Tetradecane-d30		10	ug/mL
n-Tetracosane-d50	16416-32-3	10	ug/mL
n-Hexatriacontane-d74	16416-34-5	10	ug/mL
Chrysene-d12	NA	10	ug/mL
Anthracene-d10	1719-06-8	10	ug/mL
Acenaphthene-d10	NA	10	ug/mL
5a-Androstane	438-22-2	10	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	10	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RUE0037	500ppm Oil IS Mix	05/13/11	John Syslo	11/13/11	11/14/11 16:59 by JS	0.02
RUE0041	20K DRO & 200ppm Surr. ICAL S	05/16/11	John Syslo	11/13/11	05/16/11 16:04 by JS	0.05

Reviewed By _____ Date 5/2/12

Analytical Standard Record

ERT/SERAS Laboratory

RUL0025

Description:	Neat Custom Weathered #2 Oill	Expires:	06/06/22 0
Standard Type:	Reagent	Prepared:	12/09/11 0
Solvent:	Neat	Prepared By:	John Syslo
Final Volume (mls):	5	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	12/09/11 22:16 by JS
Vendor:	SERAS	LotNumber:	--

Logging this in LIMS - I made this 11/07/09

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		1000000	ug/mL

Reviewed By 12/12/11 Date

Analytical Standard Record

ERT/SERAS Laboratory

RUK0080

Description:	500ppm Oil IS Mix	Expires:	02/14/12 0
Standard Type:	Internal Standar	Prepared:	11/14/11 0
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	2	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	11/14/11 17:04 by JS
Vendor:	SERAS	LotNumber:	DCM/Hex = LIMS# RUC0022

Dilute 2000ppm TPH IS (RUK0079) and 2000ppm BNA IS (RUH0041) to 2.0mL
spike 20µL per 1.0mL extract. JS

Analyte	CAS Number	Concentration	Units
Phenanthrene-d10	NA	500	ug/mL
Perylene-d12	NA	500	ug/mL
Naphthalene-d8	NA	500	ug/mL
n-Tetradecane-d30		500	ug/mL
n-Tetracosane-d50	16416-32-3	500	ug/mL
n-Hexatriacontane-d74	16416-34-5	500	ug/mL
Chrysene-d12	NA	500	ug/mL
Acenaphthene-d10	NA	500	ug/mL
1,4-Dichlorobenzene-d4	3855-82-1	500	ug/mL

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
RUH0041	SV Internal Std. Mix, 2000 ppm	08/18/11	John Syslo	02/14/12	09/15/11 15:15 by JS	0.5
RUK0079	TPH IS Mix: 2000ppm : 3 Compou	11/14/11	John Syslo	05/14/12	11/14/11 17:00 by JS	0.5

Reviewed By

2/2/12
Date

2/2/12

Mariner's Marsh : 1816 Enbridge Oil : 1803

SERAS, GC/MS Injection Log

GC/MS System: "SLICK II" S/N#'s US10915004/US90432092

Project Name:	Mariner Marsh + ENBRIDGE OIL	Method File:	PROTPH051611.M / DFTPP CS110711.M
Work Assign.#:	0-170 0-017	Inj. Volume:	2ul
Analysis/Date:	Carbon Chain VOC TPH	Analyst:	Syed

ALS	FILE ID	SAMPLE ID	REAC ID	Date of Analysis	TIME Inj.	COMMENTS
21	SL02655	STATION #1 F	201006-22	2/2/12	00:59	AA-001-013112-004
22	SL 56	#1 B	-22		1:19	-001- -004
23	SL 57	STATION #2 F	-23		1:39	-002- -005
24	SL 58	#2 B	-23		1:59	-002- -005
25	SL 59	STATION #3 F	-24		2:20	-003- -004
26	SL 60	#3 B	-24		2:40	-003- -004
27	SL 61	STATION #4 F	-25		3:00	-004- -004
28	SL 62	#4 B	-25		3:20	-004- -004
29	SL 63	STATION #5 F	-26		3:40	-005 -004
30	SL 64	#5 B	-26		4:00	AA-005-013112-004
31	SL 65	FB-013112 F	-27		4:20	Field Blank
32	SL 66	" B	-27		4:40	
33	SL 67	TB-013112 F	-28		5:00	Trip Blank
~~34~~	~~SL02668~~	~~TB-013112 B~~	~~201006-28~~	~~2/2/12~~	~~5:2[illegible]~~	
—	SL	— end of Mariner Marsh analysis			2/02/12	
~~[illegible]~~	~~SL02669~~	~~50ppm DFTPP~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~
99	SL02670	50ppm DFTPP	RUK0084		15:44	Pass 1962-1990
71	SL02671	100ppm TPH CCV	RVB0003		16:23	Pass - ok
80	SL02672	Soil Blank	120012-BLK		17:18	
~~81~~	~~SL02673~~	~~SERAS-017-0001 Syed~~	~~R20201-01~~		~~18:[illegible]~~	~~[illegible] Screen~~
82	SL02674	SERAS-017-0001	" "		19:53	
~~[illegible]~~	~~SL02675~~	~~Blank-[illegible]~~	~~Blank~~		~~21:[illegible]~~	~~[illegible]~~
~~82~~	~~SL02676~~	~~SERAS-017-0001 LINEAR~~	~~R202201-01~~	~~2/2/12~~	~~21:34~~	~~LINEAR SCAN Screen~~
—	SL	— End of Enbridge Oil sequence SS			2/3/12	
	SL					
	SL					
	SL	Syed 2/3/12				
	SL					
	SL					

	REAC ID	Standard Description	Exp.date	Conc.	Ref. P.	Comment
1	RUK0084	DFTPP	3/5/12	50ppm		
2	RUK0039	Calibration Check	2/25/12	50ppm		
3	RSF0112	Internal Standard	3/8/12	250ppm		Spike 20ul + 1.0ml/10+.5
4	RSC0154	IS/BSD Spike	7/20/12	500ppm		Spike, 10ul - tube
5	RVA0052	BS Extraction Soil	7/26/12	"		
6						

Reviewed By: [signature] Date Checked: 2/3/12

Analyzed by: Syed 2/3/12

Sequence Name: C:\msdchem\1\sequence\020212.s
Comment: Enbridge Oil
Operator: Syslo
Data Path: C:\MSDCHEM\1\DATA\020212\
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line		Sample Name/Misc Info
1) Sample	99	SL02669 DFT8270D 50 DFTPP
2) Sample	99	SL02670 DFT8270D 50 DFTPP
3) Sample	71	1.0k TPH CCV
Datafile		SL02671
Method		DROTPH051611
4) Sample	80	Blank
Datafile		SL02672
Method		DROTPH051611
5) Sample	81	SERAS-017-0001 5xd
Datafile		SL02673
Method		DROTPH051611
6) Sample	82	SERAS-017-0001
Datafile		SL02674
Method		DROTPH051611
7) Sample	80	Blank
Datafile		SL02675
Method		DROTPH051611
8) Sample	82	SL02676 OILLINS2 SERAS-017-0001 {L}

not need

Injection Log

Data Directory: C:\msdchem\1\DATA\020212\

SampleName	MiscInfo	Vial	Multiplier	Injection Time
1) SL02669.D				
50 DFTPP	RUK0084	99	1.000	2 Feb 2012 14:13
2) SL02670.D				
50 DFTPP	RUK0084	99	1.000	2 Feb 2012 15:44
3) SL02671.D				
1.0k TPH CCV	RVB0003	71	1.000	2 Feb 2012 16:23
4) SL02672.D				
Blank	1200012-Blk1	80	1.000	2 Feb 2012 17:18
5) SL02673.D				
SERAS-017-0001 5xd	30g to 1.0mL, then 5	81	1.000	2 Feb 2012 18:43
6) SL02674.D				
SERAS-017-0001	30g to 1.0mL	82	1.000	2 Feb 2012 19:53
7) SL02675.D				
Blank	1200012-Blk1	80	1.000	2 Feb 2012 20:53
8) SL02676.D				
SERAS-017-0001 {L}	Linear Scan 30g to 1	82	1.000	2 Feb 2012 21:54

GC/MS QA-QC Check Report 2/02/12

Tune File : C:\msdchem\1\DATA\020212\SL02670.D
Tune Time : 2 Feb 2012 15:44

Daily Calibration File : C:\msdchem\1\DATA\020212\SL02671.D

File	Sample	Surrogate Recovery %				Internal Standard Responses		
SL02671.D								
	1.0k TPH C	51*	55*	59*	58*	505006	175782	209958
			153567					
SL02672.D								
	Blank	63*	70*	75*	93*	385841	133055	149646
			110992					
SL02674.D								
	SERAS-017-	76*	82*	87*	98*	363912	124892	142419
			117011					

Created: Wed Jan 02 12:07:11 2013 Slick2

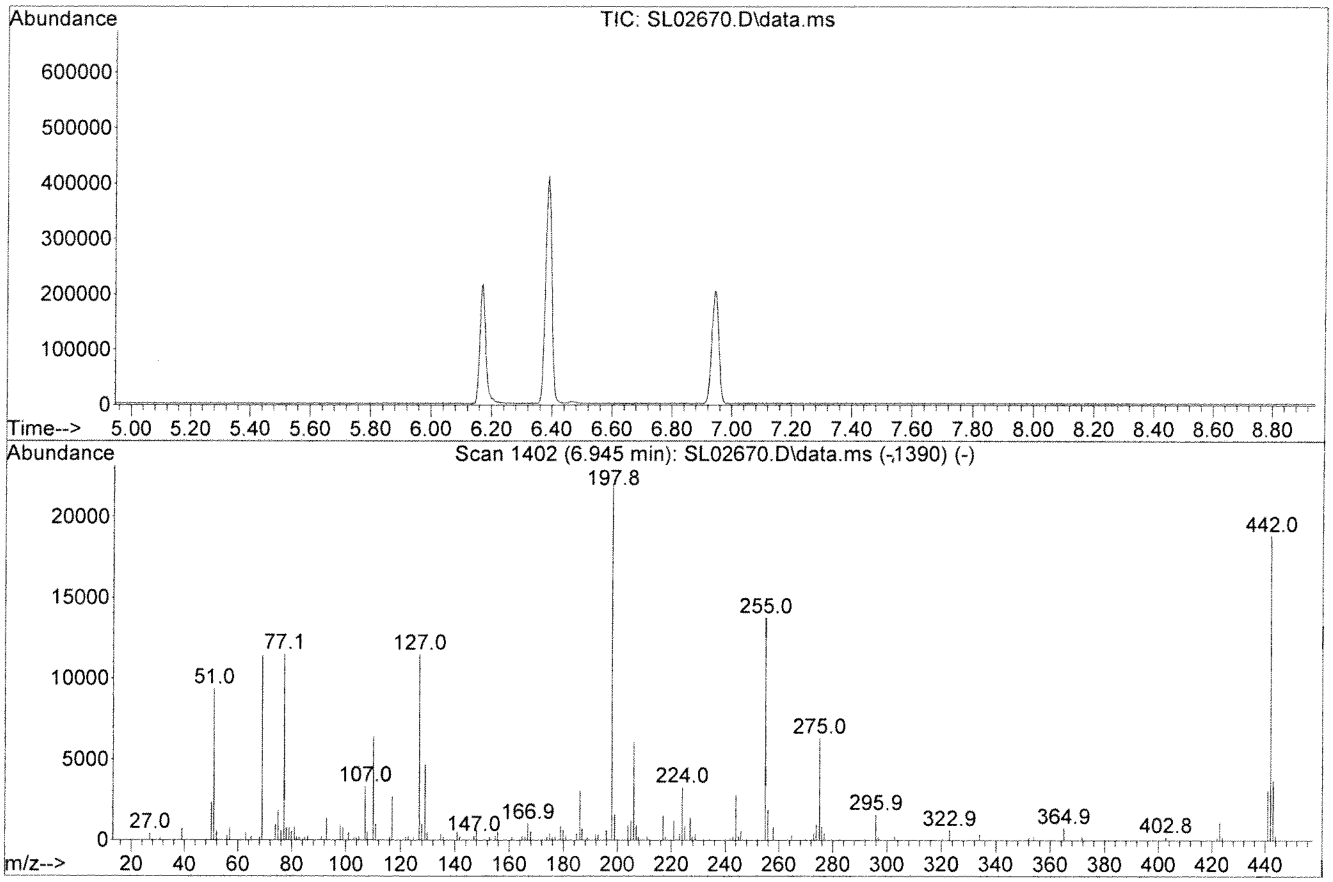
DFTPP - 8270D

Data Path : C:\msdchem\1\DATA\020212\
Data File : SL02670.D
Acq On : 2 Feb 2012 15:44
Operator : Syslo
Sample : 50 DFTPP
Misc : RUK0084
ALS Vial : 99 Sample Multiplier: 1

Tailing : Pcp : 1.29
Benzidine : 1.20
DDT B.D : 3.70

Integration File: rteint.p

Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
Title : DFTPP Method with 8270D criteria: 8/20/10
Last Update : Thu Jan 26 14:45:44 2012



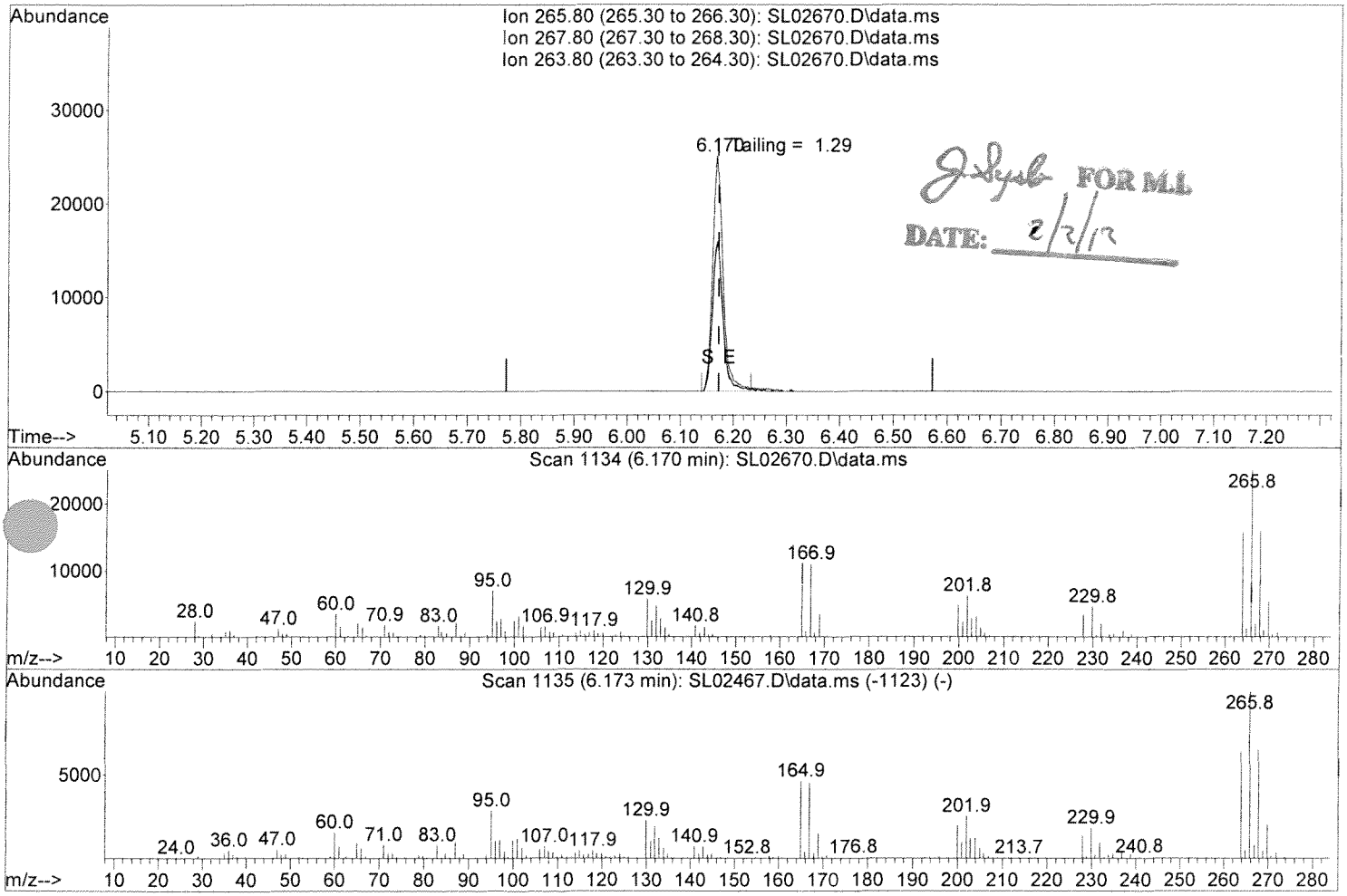
Spectrum Information: Scan 1402

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	42.4	9351	PASS
68	69	0.00	2	1.7	194	PASS
69	198	0.00	100	51.8	11430	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	52.0	11474	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	22063	PASS
199	198	5	9	7.2	1586	PASS
275	198	10	60	28.6	6307	PASS
365	198	1	100	3.4	752	PASS
441	442	0.01	24	16.3	3074	PASS
442	198	50	100	85.4	18832	PASS
443	442	15	24	19.5	3679	PASS

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\020212\
Data File : SL02670.D
Acq On : 2 Feb 2012 15:44
Operator : Syslo
Sample : 50 DFTPP
Misc : RUK0084
ALS Vial : 99 Sample Multiplier: 1

Quant Time: Feb 02 15:57:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
Quant Title : DFTPP Method with 8270D criteria: 8/20/10
QLast Update : Thu Jan 26 14:45:51 2012
Response via : Initial Calibration



TIC: SL02670.D\data.ms

(2) Pentachlorophenol

6.170min (-0.003) 45.21 ug/mL

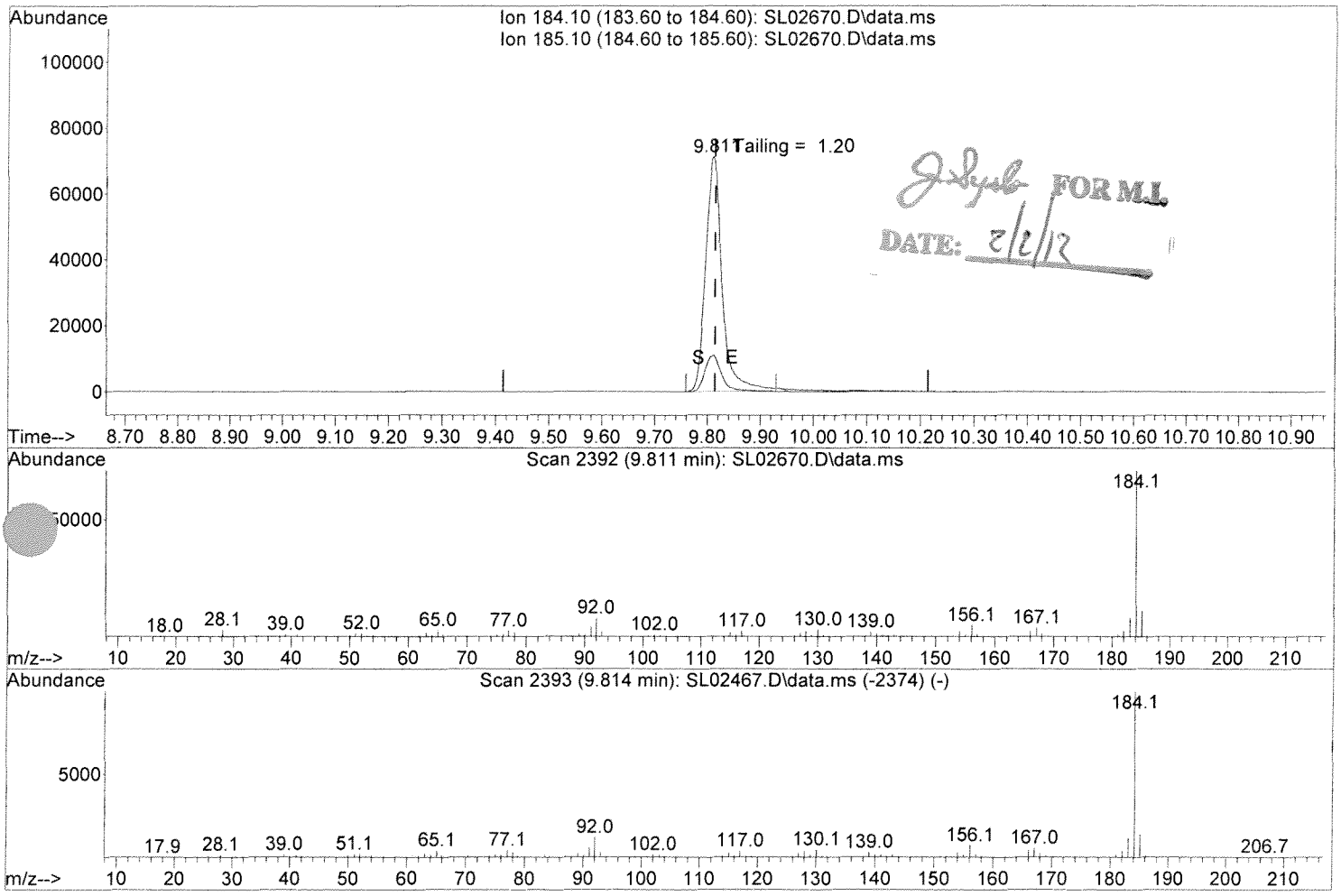
response 34880

Ion	Exp%	Act%
265.80	100	100
267.80	64.50	64.41
263.80	63.60	62.72
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\020212\
Data File : SL02670.D
Acq On : 2 Feb 2012 15:44
Operator : Syslo
Sample : 50 DFTPP
Misc : RUK0084
ALS Vial : 99 Sample Multiplier: 1

Quant Time: Feb 02 15:57:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
Quant Title : DFTPP Method with 8270D criteria: 8/20/10
QLast Update : Thu Jan 26 14:45:51 2012
Response via : Initial Calibration



FOR M.L.
DATE: 2/2/12

TIC: SL02670.D\data.ms

(5) Benzidine

9.811min (-0.003) 49.79 ug/mL

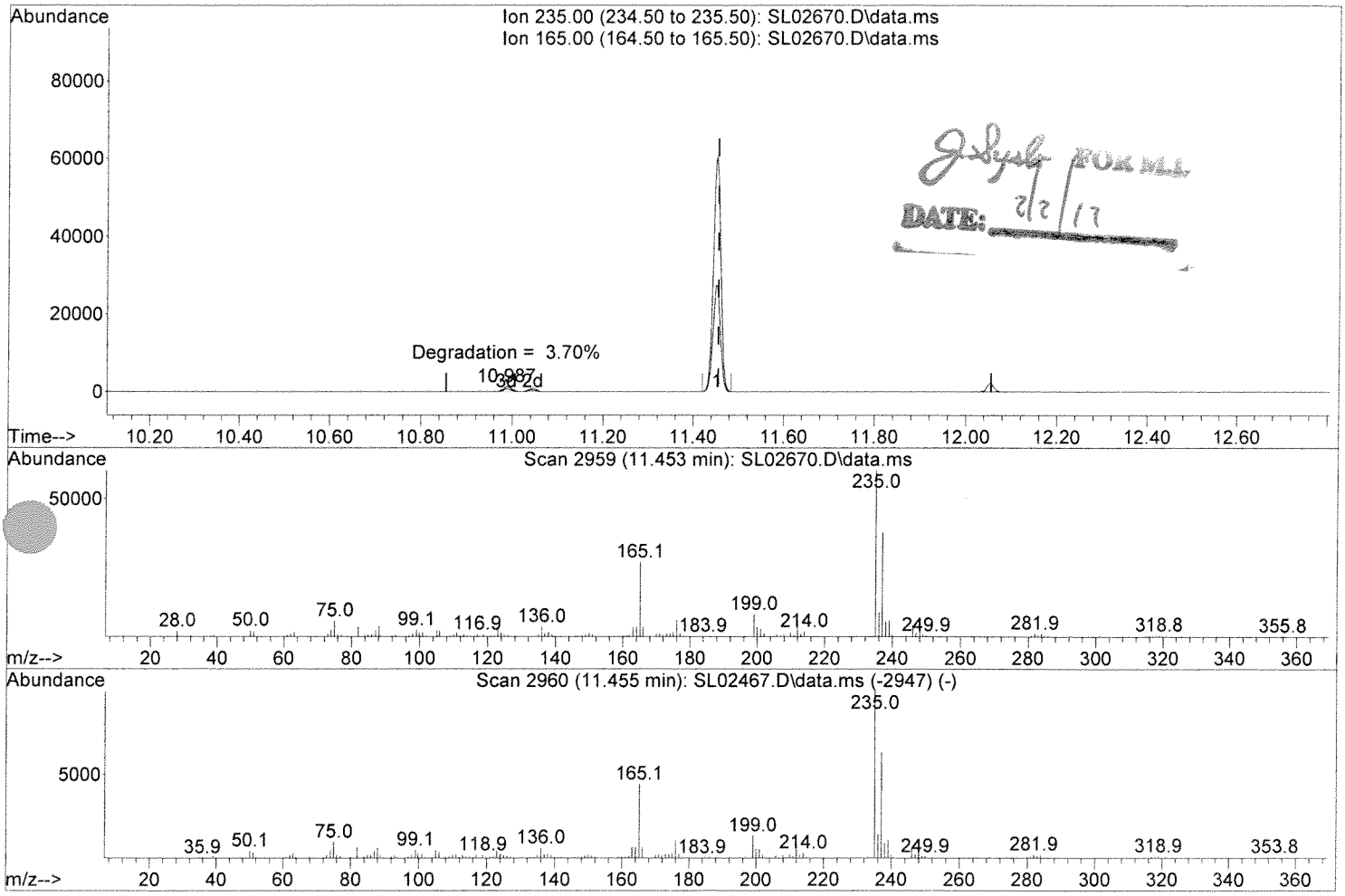
response 155668

Ion	Exp%	Act%
184.10	100	100
185.10	14.60	15.12
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\020212\
Data File : SL02670.D
Acq On : 2 Feb 2012 15:44
Operator : Syslo
Sample : 50 DFTPP
Misc : RUK0084
ALS Vial : 99 Sample Multiplier: 1

Quant Time: Feb 02 15:57:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
Quant Title : DFTPP Method with 8270D criteria: 8/20/10
QLast Update : Thu Jan 26 14:45:51 2012
Response via : Initial Calibration



TIC: SL02670.D\data.ms

(6) DDT

11.453min (-0.003) 50.33 ug/mL

response 70001

Ion	Exp%	Act%
235.00	100	100
165.00	51.80	45.18
0.00	0.00	0.00
0.00	0.00	0.00

TPH Daily Calibration Check Results
#2 Diesel TPH Calibration Range - Using SERAS GC/MS Method 1841

Calibration Check Date	ICAL Date	Project	Wa#	GC/MS Datafile	TPH Response	d30-IS Area	d50-IS Area	d74-IS Area	Cal Check RF	Calibration Average RF	% Diff.
05/17/11	05/16/11	WSoil MDL	0-011	SL01889	7932426	132429	130508	51192	0.75756	0.72959	3.83
06/09/11	05/16/11	CUC-Power Plant	0-135	SL01942	7860351	128757	120362	11883	0.90348	0.72959	23.83
06/09/11	05/16/11	CUC-Power Plant	0-135	SL01945	6544592	104943	128978	88104	0.60970	0.72959	16.43
07/08/11	05/16/11	CUC-Power Plant	0-135	SL01970	6848120	109628	127366	77204	0.65387	0.72959	10.38
07/11/11	05/16/11	CUC-Power Plant	0-135	SL01974	7184921	121573	136941	70557	0.65502	0.72959	10.22
07/12/11	05/16/11	CUC-Power Plant	0-135	SL01989	7699927	130026	148583	96240	0.61624	0.72959	15.54
07/27/11	05/16/11	CUC-Power Plant	0-135	SL02012	5526770	90684	107174	65457	0.62968	0.72959	13.69
08/01/11	05/16/11	CUC-Power Plant	0-135	SL02036	7282274	117359	139028	90753	0.62934	0.72959	13.74
08/08/11	05/16/11	Move-Maintenance	0-011	SL02067	20772937	342644	403655	197034	0.66062	0.72959	9.45
08/08/11	05/16/11	Move-Maintenance	0-011	SL02069	9013310	151400	176386	86475	0.65273	0.72959	10.54
08/10/11	05/16/11	Move-Maintenance	0-011	SL02071	8539256	140844	161739	77290	0.67438	0.72959	7.57
08/11/11	05/16/11	TPH Soil MDL	0-011	SL02079	8559600	142237	165518	79165	0.66367	0.72959	9.03
08/12/11	05/16/11	TPH Waterl MDL	0-011	SL02093	8541528	140220	170089	76028	0.66327	0.72959	9.09
08/23/11	05/16/11	CUC-Power Plant	0-135	SL02133	8279388	130044	151992	63182	0.71949	0.72959	1.38
08/24/11	05/16/11	CUC-Power Plant	0-135	SL02166	6757179	110307	122438	62687	0.68617	0.72959	5.95
09/21/11	05/16/11	CUC-Power Plant	0-135	SL02202	11190934	169011	205927	119691	0.67875	0.72959	6.97
09/22/11	05/16/11	CUC-Power Plant	0-135	SL02213	8986654	146134	179078	114918	0.61255	0.72959	16.04
02/02/12	05/16/11	Enbridge Oil	0-017	SL02671	10771363	175782	209958	153567	0.59918	0.72959	17.87
02/15/12	05/16/11	Enbridge Oil	0-017	SL02827	11689228	179024	220786	162003	0.62419	0.72959	14.45
02/24/12	05/16/11	Enbridge Oil	0-017	SL02857	11425492	166909	205857	151555	0.65373	0.72959	10.40
02/27/12	05/16/11	Enbridge Oil	0-017	SL02872	10457816	165200	202882	161132	0.59283	0.72959	18.74
03/01/12	05/16/11	Enbridge Oil	0-017	SL02885	7203855	109515	150757	134865	0.54694	0.72959	25.03

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\DATA\020212\
Data File : SL02671.D
Acq On : 2 Feb 2012 16:23
Operator : Syslo
Sample : 1.0k TPH CCV
Misc : RVB0003
ALS Vial : 71 Sample Multiplier: 1

Quant Time: Feb 02 16:56:39 2012
Quant Method : C:\msdchem\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Thu Dec 15 15:26:49 2011
Response via : Initial Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	d10-Phenanthrene	1.000	1.000	0.0	105	0.00
2	S	d10-Anthracene {S}	1.063	1.081	-1.7	105	0.00
3	S	d14-o-Terphenyl {S}	0.467	0.510	-9.2	107	0.00
4	S	5a-Androstane {S}	0.057	0.067	-17.5	113	0.00
5	I	d30-Tetradecane	1.000	1.000	0.0	112	0.00
6	I	d50-Tetracosane	1.000	1.000	0.0	115	0.00
7	S	d62-Triacontane {S}	Linear Regression =		-15.0	136	0.00
8	I	d74-Hexatriacontane	1.000	1.000	0.0	194	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

DROTPH051611.M Thu Feb 02 16:57:04 2012 SLICK2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\020212\
Data File : SL02671.D
Acq On : 2 Feb 2012 16:23
Operator : Syslo
Sample : 1.0k TPH CCV
Misc : RVB0003
ALS Vial : 71 Sample Multiplier: 1

Quant Time: Feb 02 16:56:39 2012
Quant Method : C:\msdchem\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Thu Dec 15 15:26:49 2011
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.722	188	505006	10.00	ug/mL	0.00
5) d30-Tetradecane	13.548	66	175782	10.00	ug/mL	0.00
6) d50-Tetracosane	23.793	66	209958	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.645	66	153567	10.00	ug/mL	0.00
System Monitoring Compounds						
2) d10-Anthracene {S}	18.840	188	545660	10.16	ug/mL	0.00
Spiked Amount 20.000			Recovery = 50.80%			
3) d14-o-Terphenyl {S}	19.742	244	257413	10.91	ug/mL	0.00
Spiked Amount 20.000			Recovery = 54.55%			
4) 5a-Androstane {S}	21.159	260	33800	11.77	ug/mL	0.00
Spiked Amount 20.000			Recovery = 58.85%			
7) d62-Triacontane {S}	28.172	66	206090	11.50	ug/mL	0.00
Spiked Amount 20.000			Recovery = 57.50%			
Target Compounds			LR 15%-A			Qvalue

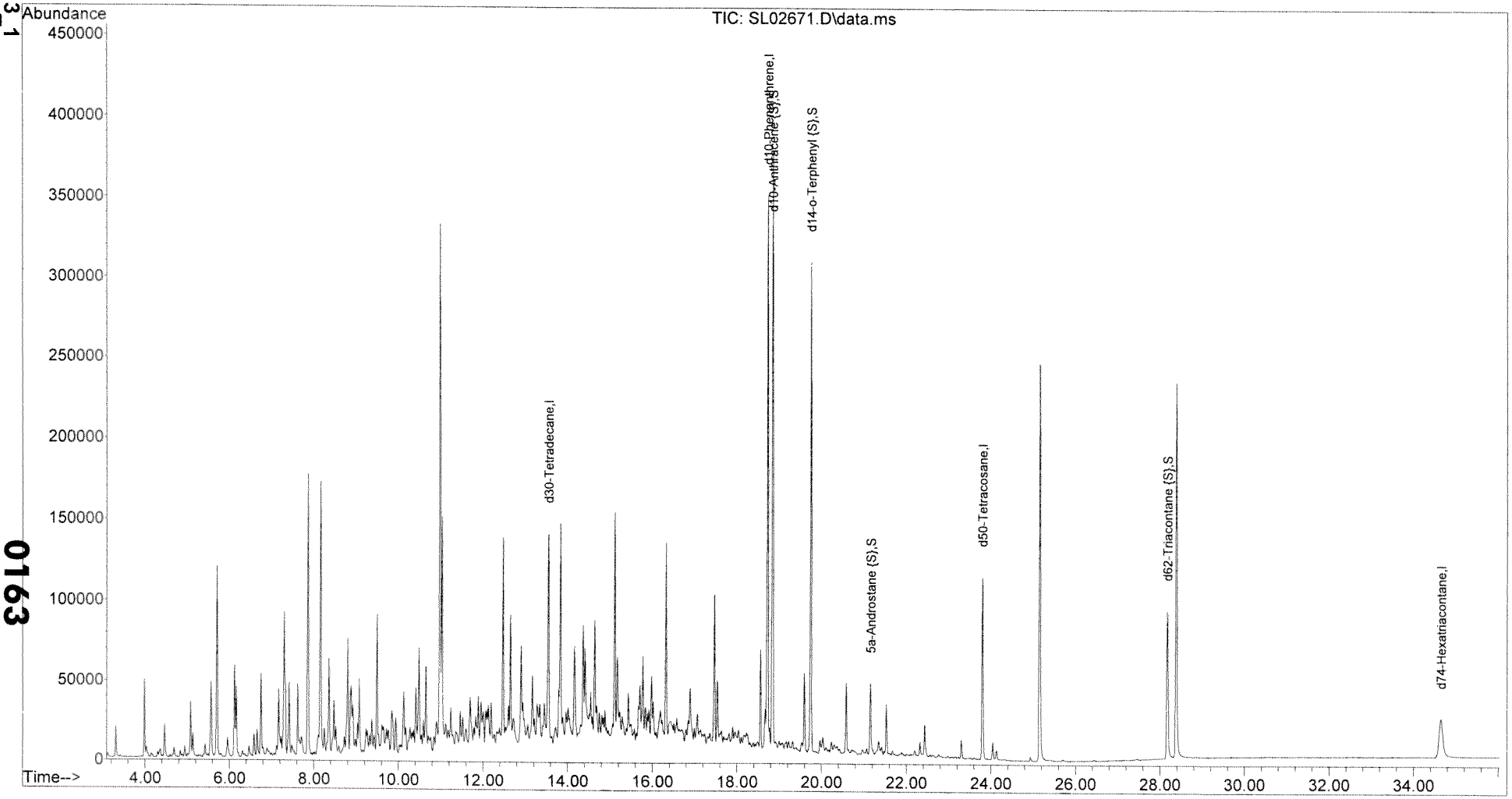
#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\020212\
Data File : SL02671.D
Acq On : 2 Feb 2012 16:23
Operator : Syslo
Sample : 1.0k TPH CCV
Misc : RVB0003
ALS Vial : 71 Sample Multiplier: 1

Quant Time: Feb 02 16:56:39 2012
Quant Method : C:\msdchem\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Thu Dec 15 15:26:49 2011
Response via : Initial Calibration

SERAS-017-DTM-011413_1



0163

Area Percent Report

Data Path : C:\msdchem\1\DATA\020212\
Data File : SL02671.D
Acq On : 2 Feb 2012 16:23
Operator : Syslo
Sample : 1.0k TPH CCV
Misc : RVB0003
ALS Vial : 71 Sample Multiplier: 1

Integration Parameters: Oilint.P
Integrator: RTE
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 7 % of largest Peak
Start Thrs: 0.05 Max Peaks: 150
Stop Thrs : 0.05 Peak Location: TOP

If leading or trailing edge < 50 prefer < Baseline drop else tangent >
Peak separation: 3

Method : C:\msdchem\1\METHODS\DROTPH051611.M
Title : DRO/TPH ICAL + Surr. 05/16/11

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02671.D\data.ms

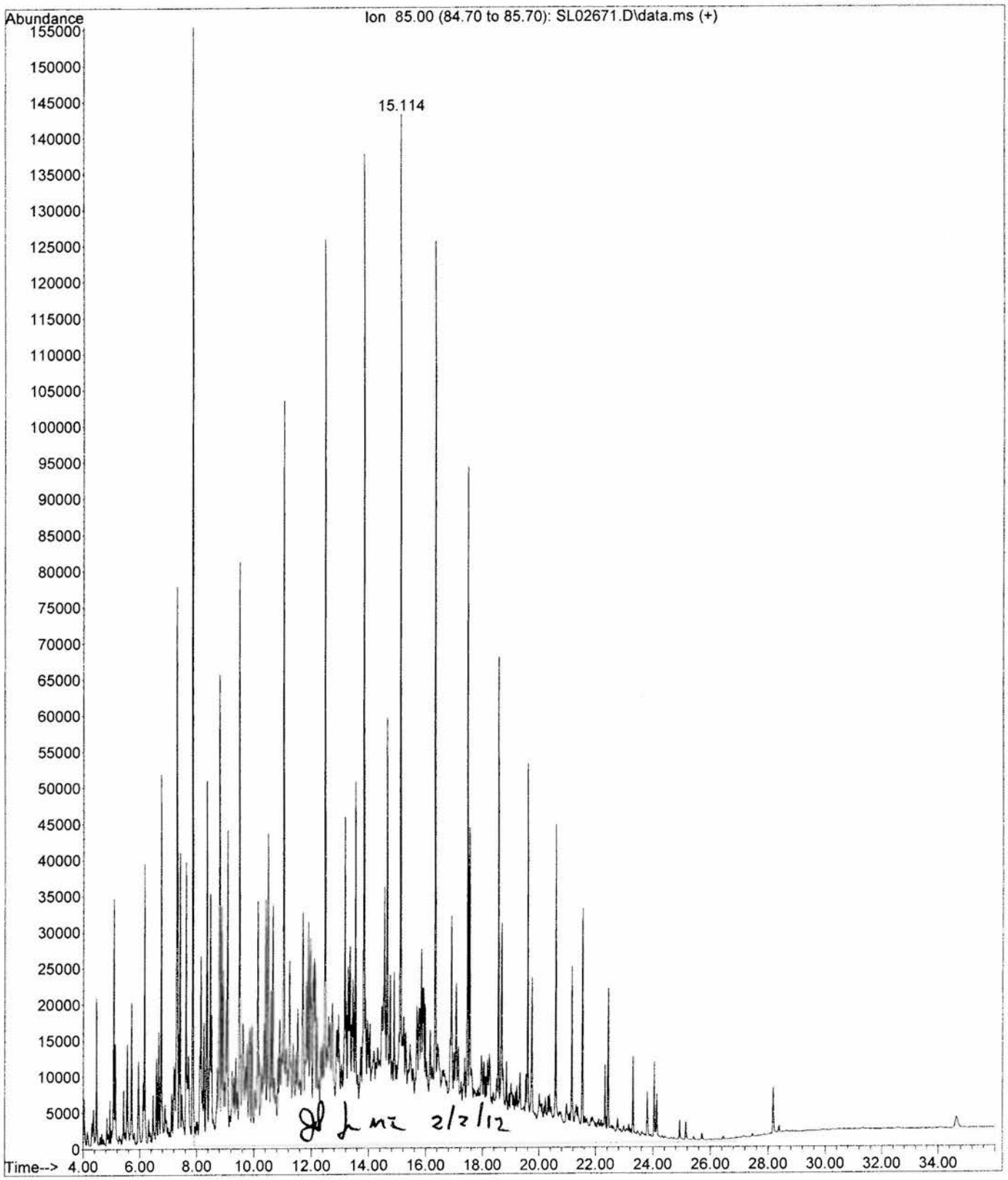
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	15.114	605	1506	2879	rM 10	142688	10771363	100.00%	100.000%

Sum of corrected areas: 10771363

DROTPH051611.M Thu Feb 02 17:01:58 2012 SLICK2

Y.D = 17.87

File :C:\msdchem\1\DATA\020212\SL02671.D
Operator : Syslo
Acquired : 2 Feb 2012 16:23 using AcqMethod DROTPH051611.M
Instrument : Slick2
Sample Name: 1.0k TPH CCV
Misc Info : RVB0003
Vial Number: 71



2/2/12

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\020212\
Data File : SL02672.D
Acq On : 2 Feb 2012 17:18
Operator : Syslo
Sample : Blank
Misc : 1200012-Blk1
ALS Vial : 80 Sample Multiplier: 1

Quant Time: Feb 02 18:08:13 2012
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Thu Dec 15 15:26:49 2011
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.722	188	385841	10.00	ug/mL	0.00
5) d30-Tetradecane	13.548	66	133055	10.00	ug/mL	0.00
6) d50-Tetracosane	23.793	66	149646	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.637	66	110992	10.00	ug/mL	-0.02
System Monitoring Compounds						
2) d10-Anthracene {S}	18.840	188	518432	12.63	ug/mL	0.00
Spiked Amount 20.000			Recovery = 63.15%			
3) d14-o-Terphenyl {S}	19.742	244	251502	13.95	ug/mL	0.00
Spiked Amount 20.000			Recovery = 69.75%			
4) 5a-Androstane {S}	21.159	260	32945	15.02	ug/mL	0.00
Spiked Amount 20.000			Recovery = 75.10%			
7) d62-Triacontane {S}	28.172	66	244793	18.58	ug/mL	0.00
Spiked Amount 20.000			Recovery = 92.90%			

Target Compounds Qvalue

#) = qualifier out of range (m) = manual integration (+) = signals summed

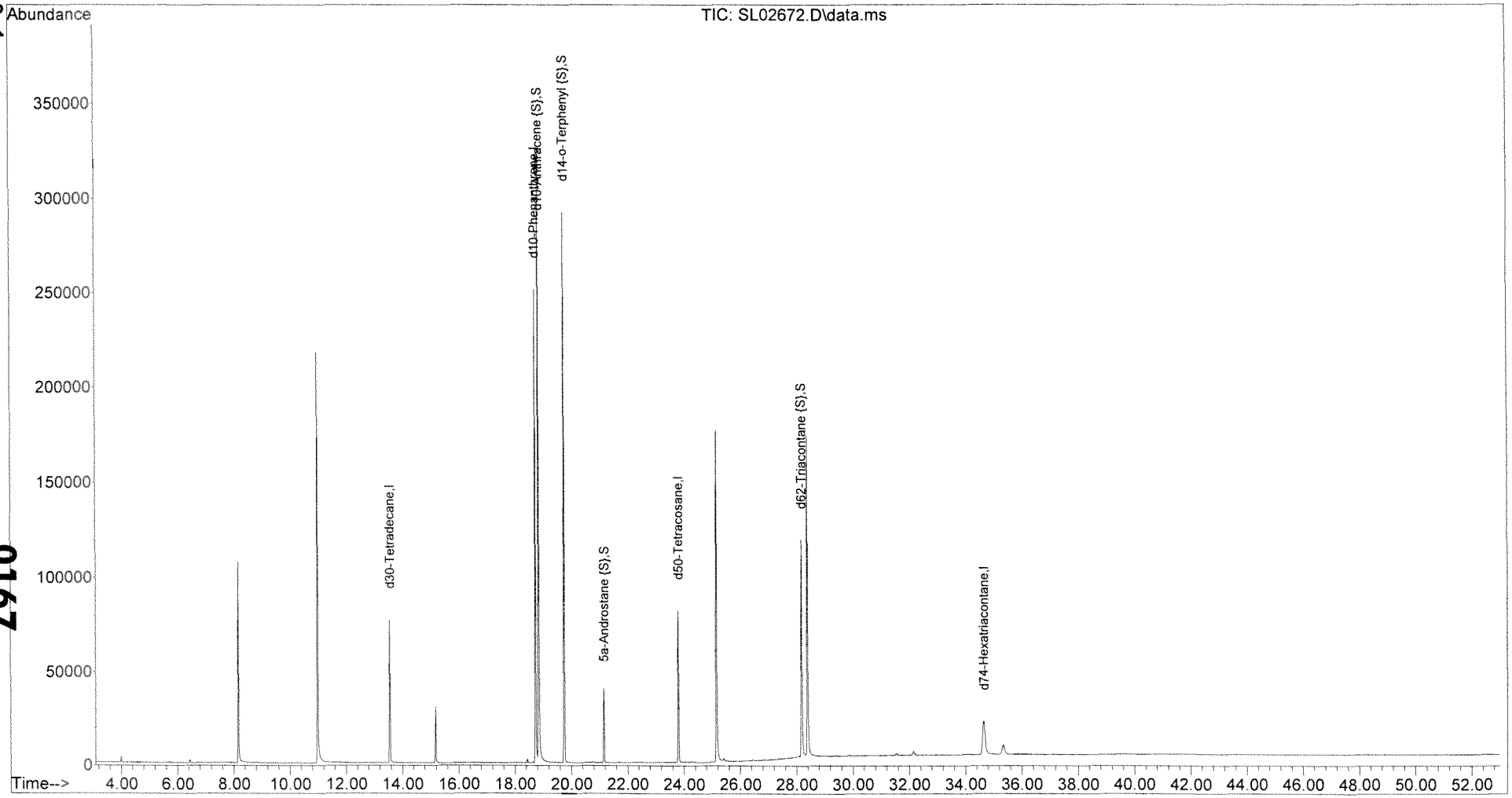
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\020212\
Data File : SL02672.D
Acq On : 2 Feb 2012 17:18
Operator : Syslo
Sample : Blank
Misc : 1200012-Blk1
ALS Vial : 80 Sample Multiplier: 1

Quant Time: Feb 02 18:08:13 2012
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Thu Dec 15 15:26:49 2011
Response via : Initial Calibration

SERAS-017-DTM-011413_1

0167



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\020212\
Data File : SL02674.D
Acq On : 2 Feb 2012 19:53
Operator : Syslo
Sample : SERAS-017-0001
Misc : 30g to 1.0mL
ALS Vial : 82 Sample Multiplier: 1

Quant Time: Feb 02 20:43:21 2012
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Thu Dec 15 15:26:49 2011
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.713	188	363912	10.00	ug/mL	0.00
5) d30-Tetradecane	13.548	66	124892	10.00	ug/mL	0.00
6) d50-Tetracosane	23.793	66	142419	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.653	66	117011	10.00	ug/mL	0.00
System Monitoring Compounds						
2) d10-Anthracene {S}	18.840	188	585933	15.14	ug/mL	0.00
Spiked Amount 20.000			Recovery = 75.70%			
3) d14-o-Terphenyl {S}	19.742	244	278735	16.39	ug/mL	0.00
Spiked Amount 20.000			Recovery = 81.95%			
4) 5a-Androstane {S}	21.158	260	35980	17.39	ug/mL	0.00
Spiked Amount 20.000			Recovery = 86.95%			
7) d62-Triacontane {S}	28.172	66	245317	19.51	ug/mL	0.00
Spiked Amount 20.000			Recovery = 97.55%			
Target Compounds						Qvalue

#) = qualifier out of range (m) = manual integration (+) = signals summed

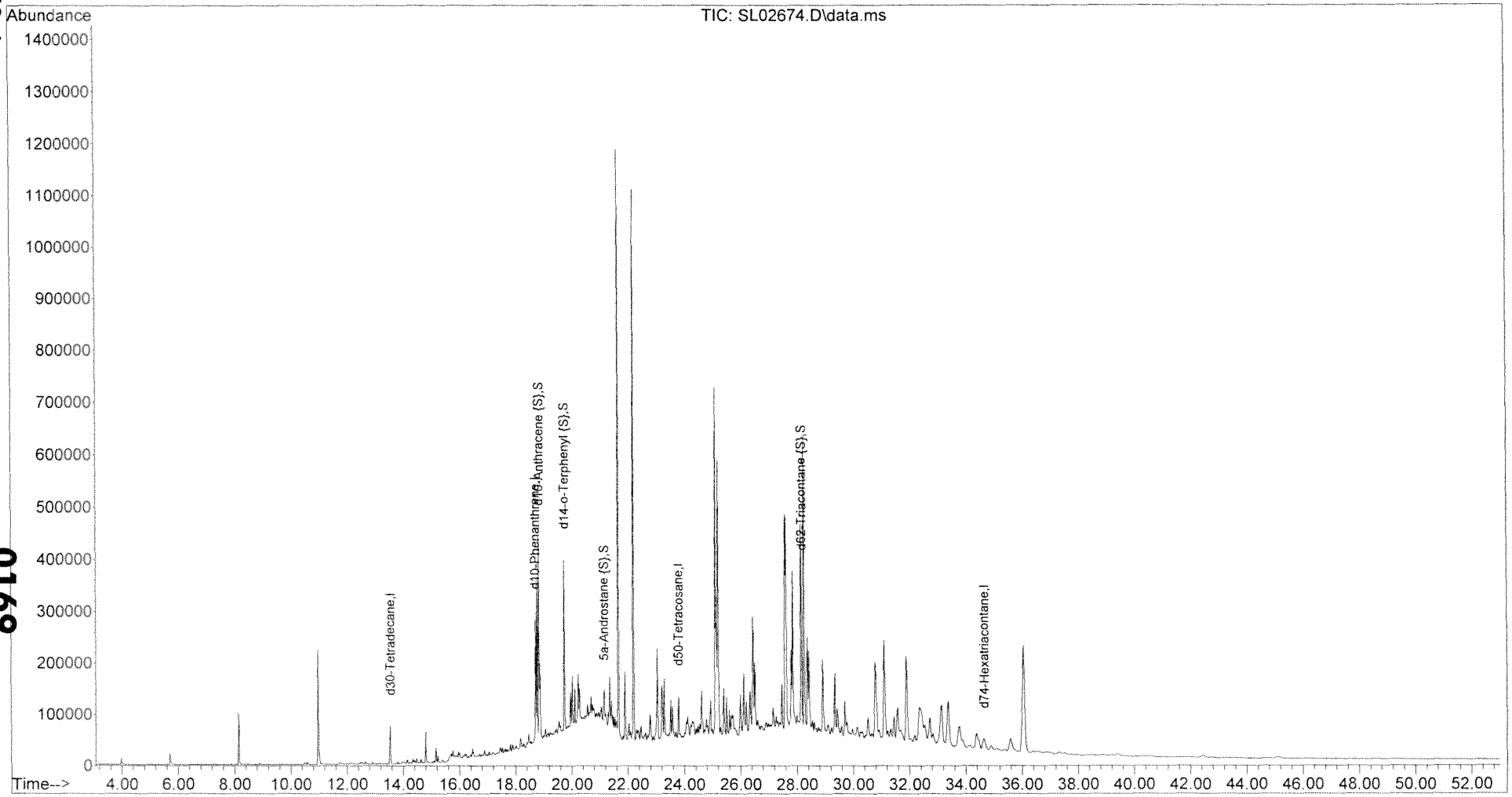
am 365241799

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\020212\
Data File : SL02674.D
Acq On : 2 Feb 2012 19:53
Operator : Syslo
Sample : SERAS-017-0001
Misc : 30g to 1.0mL
ALS Vial : 82 Sample Multiplier: 1

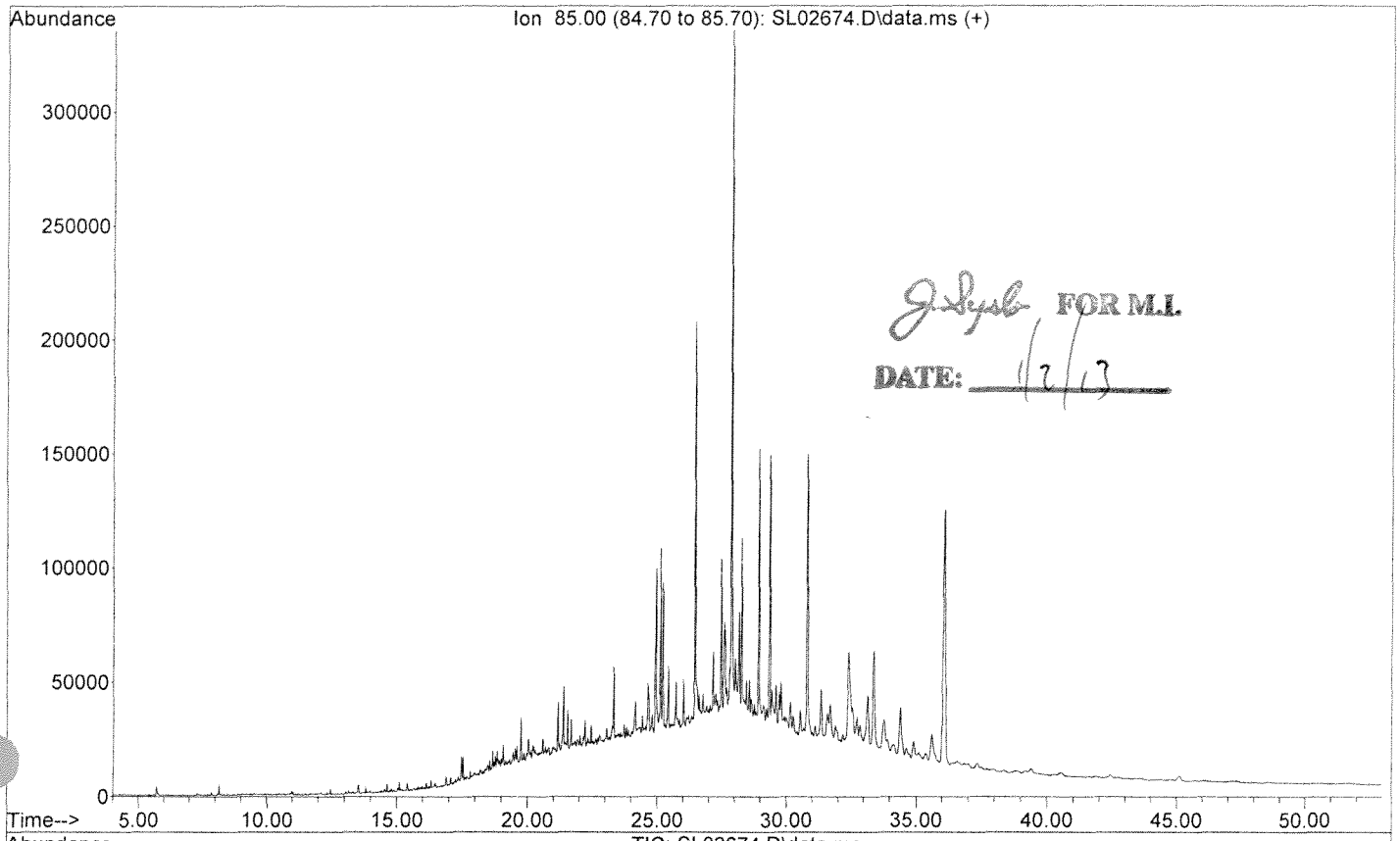
Quant Time: Feb 02 20:43:21 2012
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Thu Dec 15 15:26:49 2011
Response via : Initial Calibration

SERAS-017-DTM-011413_1

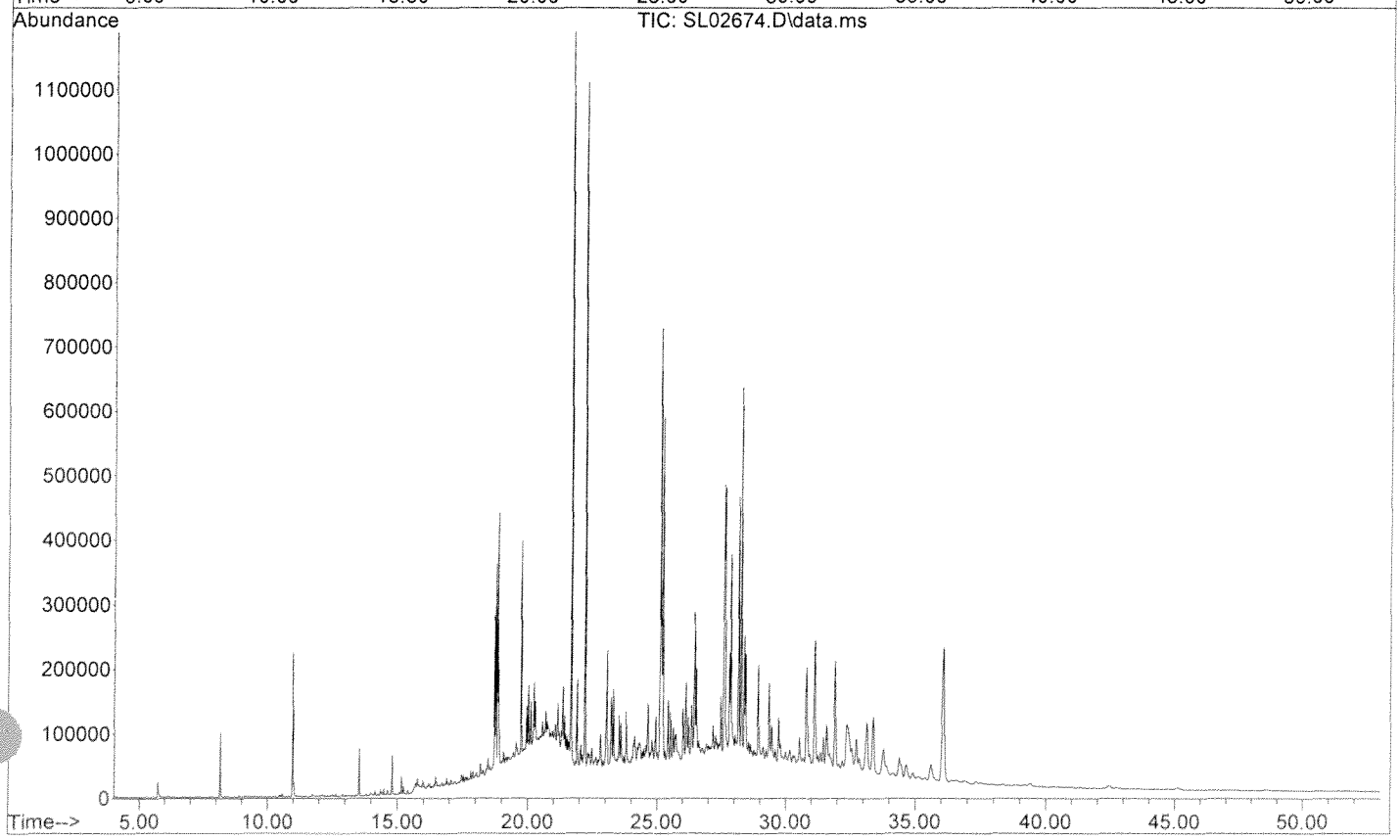


0169

File :C:\msdchem\1\DATA\020212\SL02674.D
Operator : Syslo
Acquired : 2 Feb 2012 19:53 using AcqMethod DROTPH051611.M
Instrument : Slick2
Sample Name: SERAS-017-0001
Misc Info : 30g to 1.0mL
Vial Number: 82



J. Syslo FOR M.I.
DATE: 1/2/13



Area Percent Report

Data Path : C:\msdchem\1\DATA\020212\
Data File : SL02674.D
Acq On : 2 Feb 2012 19:53
Operator : Syslo
Sample : SERAS-017-0001
Misc : 30g to 1.0mL
ALS Vial : 82 Sample Multiplier: 1

Integration Parameters: Oilint.P
Integrator: RTE
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 0.5 % of largest Peak
Start Thrs: 0.05 Max Peaks: 5
Stop Thrs : 0.05 Peak Location: TOP

If leading or trailing edge < 50 prefer < Baseline drop else tangent >
Peak separation: 3

Method : C:\msdchem\1\METHODS\DROTPH051611.M
Title : DRO/TPH ICAL + Surr. 05/16/11

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02674.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	27.856	960	2997	5916	rM	333409	36524299	100.00%	100.000%

Sum of corrected areas: 36524299

DROTPH051611.M Wed Jan 02 12:12:08 2013 SLICK2

J. Lyle FOR M.L.
DATE: 1/2/13

2/15/12

TPH DTT-0002

Logbook # SERAS-I-0121

Page 84

SERAS, GC/MS Injection Log

GC/MS System: "SLICK II" S/N#'s US10915004/US90432092

Project Name: Enbridge Oil | Method File: DFTPP/ DFTPP05161f.m

Work Assign.#: WA-017 | Inj. Volume: 1ul

Analysis/Date: TPH 2/15/12 | Analyst: Sgyl

ALS	FILE ID	SAMPLE ID	REAC ID	Date of Analysis	TIME Inj.	COMMENTS
99	SL02826	50 ppm DFTPP	RUK00184	2/15/12	12:21	Pass 1998-1386
91	SL02827	1000 ppm TPH CCV	RVB0003		12:42	Pass
82	SL02828	Soil Blank			13:43	1200624-Blk1
83	SL02829	SERAS-017-0002	R202008-01		14:27	
84	SL02830	Toluene Blank	RTB0030		15:49	1ul CCC-DCM
85	SL02831	DCM in Toluene 0.1%			16:07	1ul DCM-1.0ml Tol
86	SL02832	RVB0026 in Toluene			16:23	0.1g → 5.0ml Toluene
87	SL02833	Toluene Blank			16:55	
88	SL02834	BEO 20 in Toluene			17:16	re-run 0.1g→1.0ml
87	SL02835	Tol. Blank			17:42	
89	SL02836	BEO RV 0.1g →8ml			18:01	Big Rob RV
90	SL02837	BEO RV 2.5%			18:40	
82	SL02838	Soil Blank		2/15/12	19:41	
	SL	end of 2/15/12	Sequence			DJ
99	SL02839	50 ppm DFTPP	RVB0025	2/16/12	12:21	
1	SL02840	Toluene Blank			12:39	
1	SL02841	Toluene Blank			12:57	
1	SL02842	Tol Blank			13:34	
2	SL02843	RVB0026 DCM - 4:30			16:50	0.05g → 2ml Tol
1	SL02844	Toluene Blank			17:26	1ul DCM
3	SL02845	Toluene Blank			18:14	
4	SL02846	BEO 66.7 ml		2/16/12	18:26	
99	SL02847	50 ppm DFTPP	RVB0025	2/17/12	21:45	
75	SL02848	10K Arabian Crude		2/17/12	22:07	1ul Std
99	SL02849	50 ppm DFTPP	RVB0025	2/22/12	10:19	
99	SL02850	50 ppm DFTPP	RVB0025		10:37	
98	SL02851	10K ESO SIM	275-55-05		10:59	
98	SL02852	10K BEO Lin			19:33	Linear scan
99	SL02853	50 ppm DFTP	RVB0025	2/22/12	20:29	

	REAC ID	Standard Description	Exp.date	Conc.	Ref. P.	Comment
1	RUK00184	DFTPP	5/5/12	50ppm		
2	RVB0003	Calibration Check	8/2/12	1000ppm		
3	RVK0080	Internal Standard	5/11/12	500ppm		
4						
5						
6						

Reviewed By: J Sgyl Screen > ASN | Date Checked: 2/24/12

```
   Sequence Name: C:\msdchem\1\sequence\021512.s
         Comment: Enbridge Oil
        Operator: Syslo
       Data Path: C:\MSDCHEM\1\DATA\021512\
Instrument Control  Pre-Seq Cmd:
Data Analysis       Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis      Post-Seq Cmd:

   Method Sections To Run      On A Barcode Mismatch
    (X) Full Method              (X) Inject Anyway
    ( ) Reprocessing Only        ( ) Don't Inject

   ------------------------------------------------------------------------------
   Line                    Sample Name/Misc Info
 1)  Sample        99   SL02826  DFT8270D 50 DFTPP
 2)  Sample        71   1.0k TPH CCV
     Datafile           SL02827
     Method             DROTPH051611
 3)  Sample        82   Soil Blank
     Datafile           SL02828
     Method             DROTPH051611
 4)  Sample        83   SERAS-017-0001
     Datafile           SL02829
     Method             DROTPH051611
```

Injection Log

Data Directory: C:\msdchem\1\DATA\021512\

SampleName	MiscInfo	Vial	Multiplier	Injection Time
1) SL02826.D				
50 DFTPP	RUK0084	99	1.000	15 Feb 2012 12:20
2) SL02827.D				
1.0k TPH CCV	RVB0003	71	1.000	15 Feb 2012 12:42
3) SL02828.D				
Soil Blank	1200024-Blk1	82	1.000	15 Feb 2012 13:43
4) SL02829.D				
SERAS-017-0002	30g to 1.0mL	83	1.000	15 Feb 2012 14:27

GC/MS QA-QC Check Report: 02/15/12

Tune File : C:\msdchem\1\DATA\021512\SL02826.D
Tune Time : 15 Feb 2012 12:20

Daily Calibration File : C:\msdchem\1\DATA\021512\SL02827.D

602225 179024 220786

162003

File	Sample	Surrogate Recovery %				Internal Standard Responses		
SL02827.D								
	1.0k TPH C	51*	55*	59*	57*	~~602225~~	179024	220786
			162003					
SL02828.D								
	Soil Blank	56*	61*	66*	72*	~~455645~~	139126	159054
			106564					
SL02829.D								
	SERAS-017-	58*	62*	65*	70*	~~419430~~	129686	144537
			130132					

(fails) - fails 24hr time check * - fails criteria

Created: Wed Jan 02 12:50:03 2013 Slick2

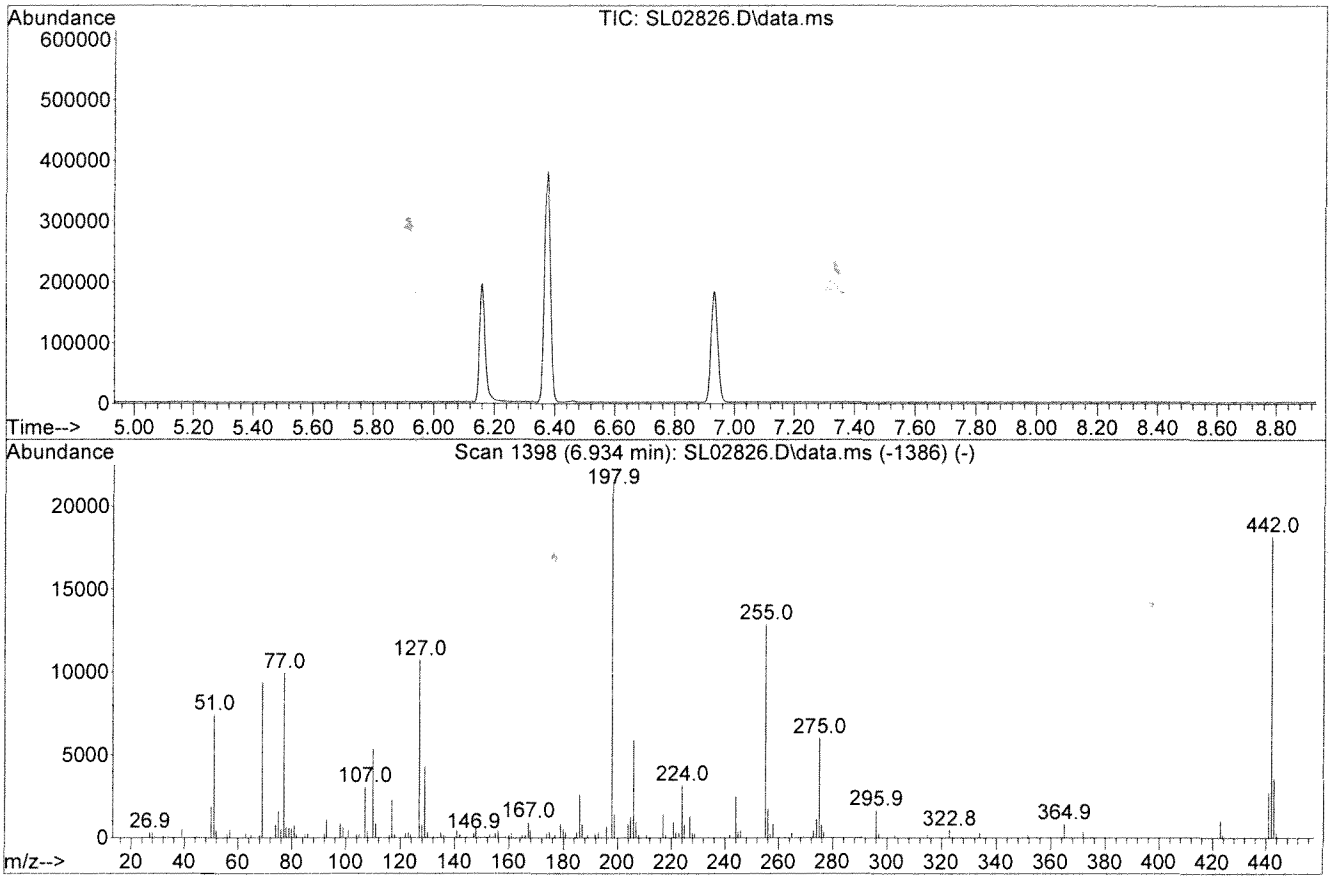
DFTPP - 8270D

Data Path : C:\msdchem\1\DATA\021512\
Data File : SL02826.D
Acq On : 15 Feb 2012 12:20
Operator : Syslo
Sample : 50 DFTPP
Misc : RUK0084
ALS Vial : 99 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
Title : DFTPP Method with 8270D criteria: 8/20/10
Last Update : Thu Jan 26 14:45:44 2012

Tailing PCP · 1.31
Benzidine 1.51
4,4'-DDT deg = 0.63



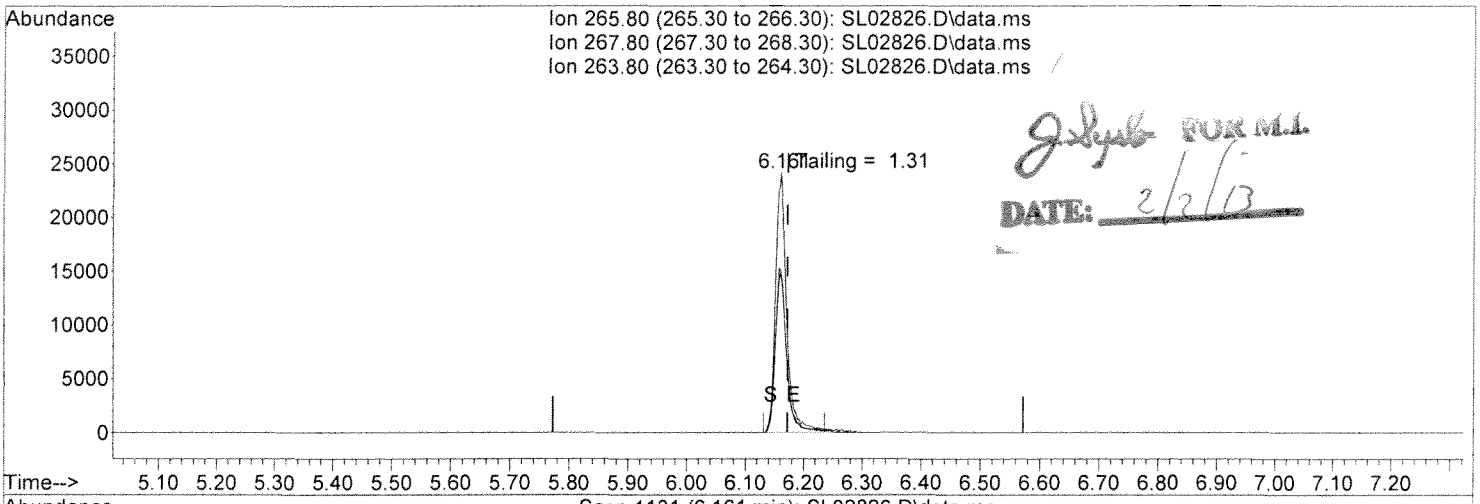
Spectrum Information: Scan 1398

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	34.6	7431	PASS
68	69	0.00	2	1.6	152	PASS
69	198	0.00	100	43.6	9368	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	49.8	10705	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	21480	PASS
199	198	5	9	6.6	1418	PASS
275	198	10	60	27.9	5996	PASS
365	198	1	100	3.9	829	PASS
441	442	0.01	24	15.0	2737	PASS
442	198	50	100	84.8	18216	PASS
443	442	15	24	19.5	3560	PASS

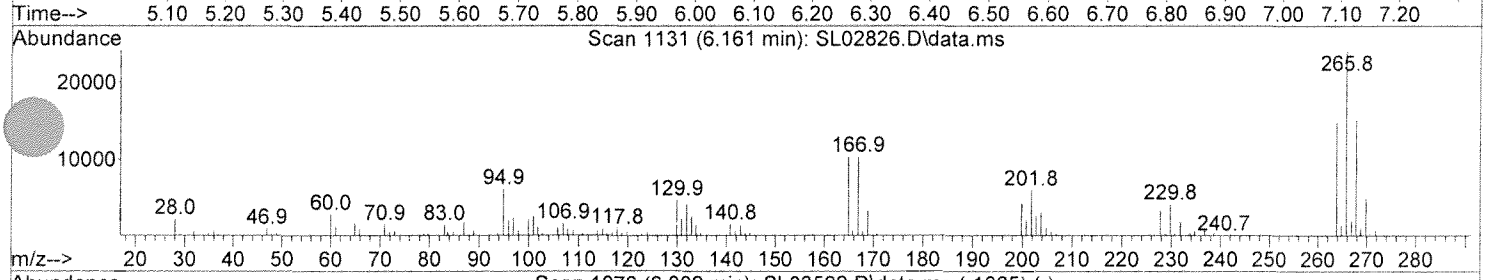
Quantitation Report (Qedit)

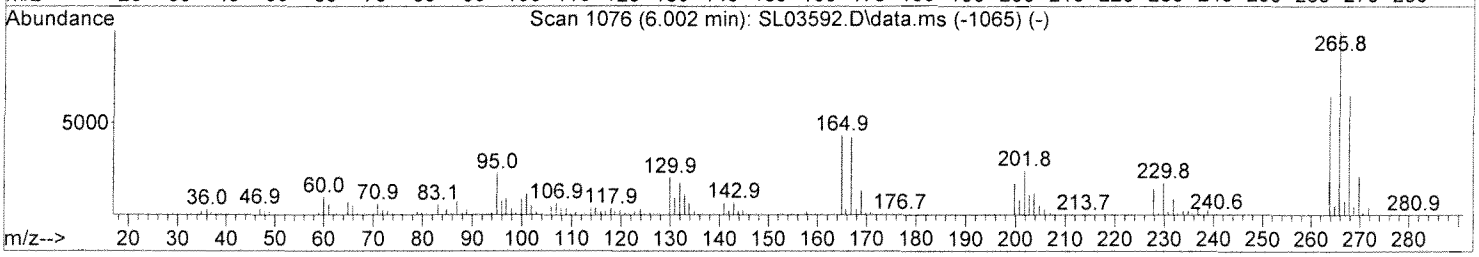
Data Path : C:\msdchem\1\DATA\021512\
Data File : SL02826.D
Acq On : 15 Feb 2012 12:20
Operator : Syslo
Sample : 50 DFTPP
Misc : RUK0084
ALS Vial : 99 Sample Multiplier: 1

Quant Time: Feb 15 12:32:33 2012
Quant Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
Quant Title : DFTPP Method with 8270D criteria: 8/20/10
QLast Update : Thu Jan 26 14:45:51 2012
Response via : Initial Calibration



J. Lyle FOX M.I.
DATE: 2/2/13





TIC: SL02826.D\data.ms

(2) Pentachlorophenol

6.161min (-0.012) 45.36 ug/mL

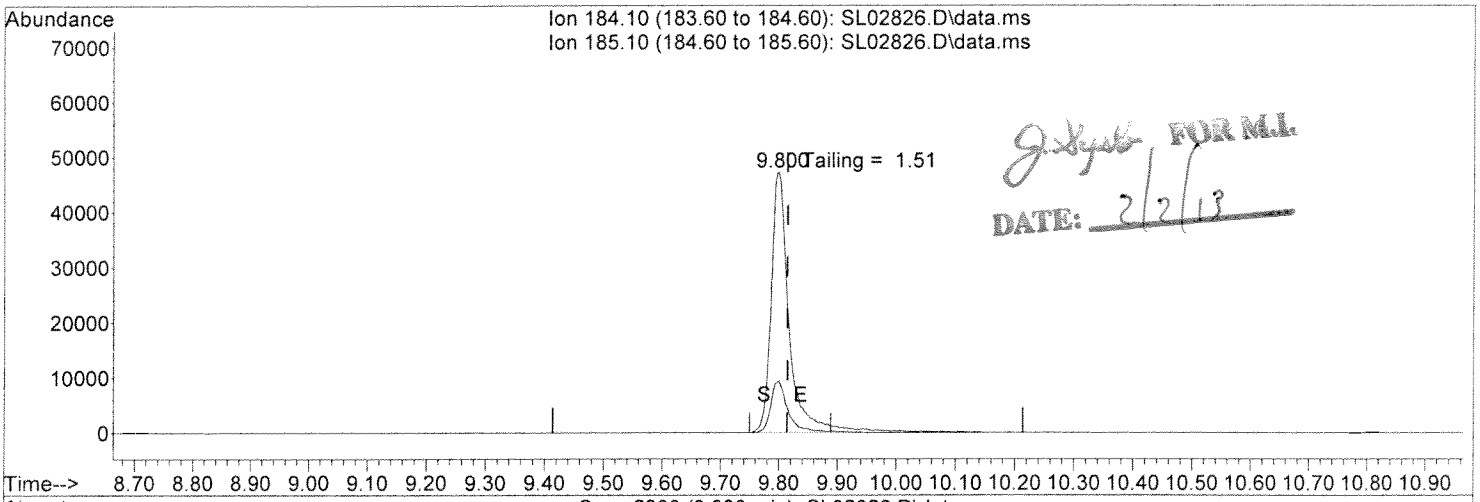
response 32028

Ion	Exp%	Act%
265.80	100	100
267.80	64.50	63.06
263.80	63.60	62.24
0.00	0.00	0.00

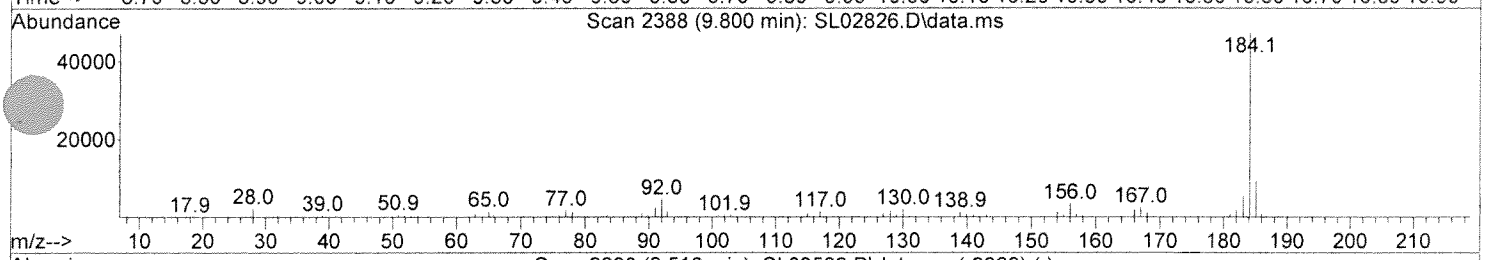
Quantitation Report (Qedit)

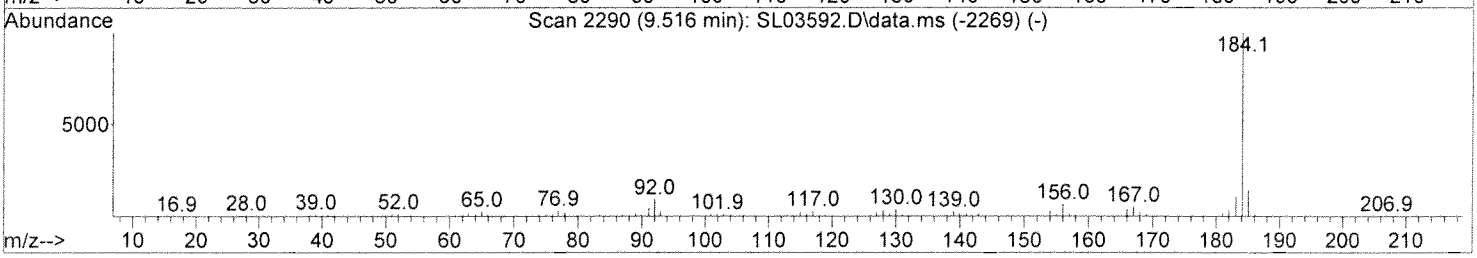
Data Path : C:\msdchem\1\DATA\021512\
Data File : SL02826.D
Acq On : 15 Feb 2012 12:20
Operator : Syslo
Sample : 50 DFTPP
Misc : RUK0084
ALS Vial : 99 Sample Multiplier: 1

Quant Time: Feb 15 12:32:33 2012
Quant Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
Quant Title : DFTPP Method with 8270D criteria: 8/20/10
QLast Update : Thu Jan 26 14:45:51 2012
Response via : Initial Calibration



J. Kyle FOR M.L.
DATE: 2/27/13





TIC: SL02826.D\data.ms

(5) Benzidine

9.800min (-0.015) 35.06 ug/mL

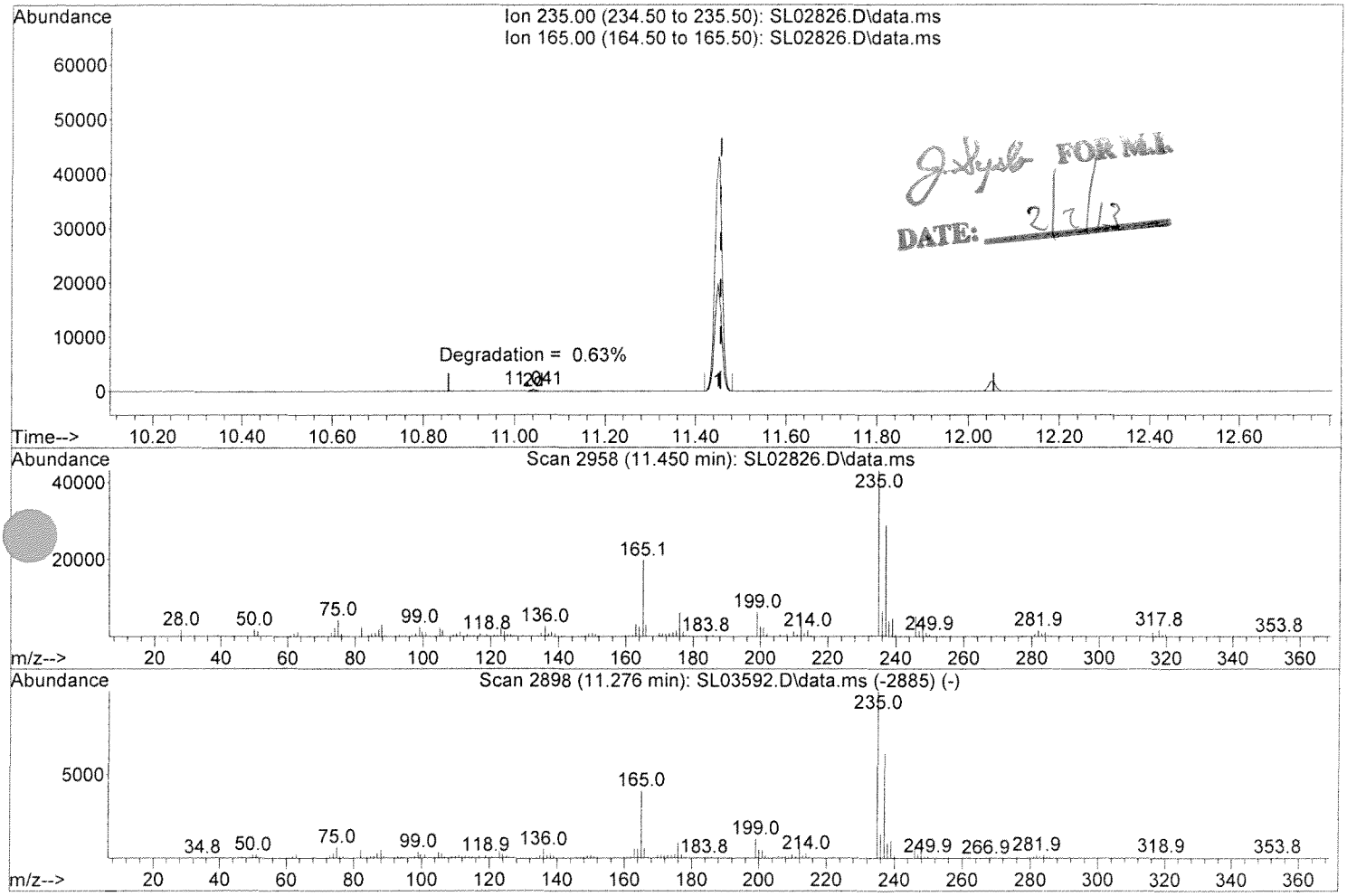
response 98122

Ion	Exp%	Act%
184.10	100	100
185.10	14.60	19.17
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\021512\
Data File : SL02826.D
Acq On : 15 Feb 2012 12:20
Operator : Syslo
Sample : 50 DFTPP
Misc : RUK0084
ALS Vial : 99 Sample Multiplier: 1

Quant Time: Feb 15 12:32:33 2012
Quant Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
Quant Title : DFTPP Method with 8270D criteria: 8/20/10
QLast Update : Thu Jan 26 14:45:51 2012
Response via : Initial Calibration



TIC: SL02826.D\data.ms

(6) DDT

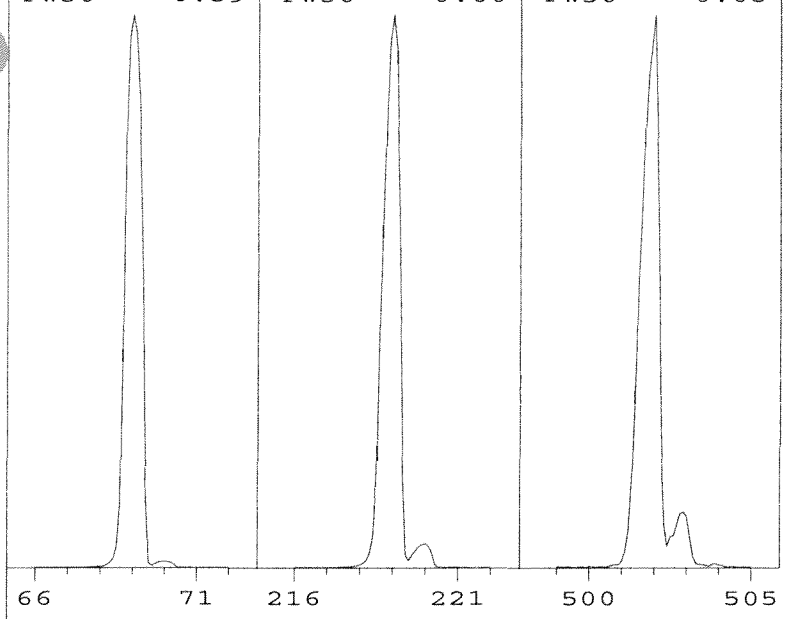
11.450min (-0.006) 38.78 ug/mL

response 48284

Ion	Exp%	Act%
235.00	100	100
165.00	51.80	43.93
0.00	0.00	0.00
0.00	0.00	0.00

Wed Feb 15 12:13:01 2012 Instrument: Slick2
C:\msdchem\1\5975\Xtune.u US90432092

Mass	69.00	Mass	219.00	Mass	502.00
Ab	100272	Ab	73200	Ab	2171
Pw50	0.59	Pw50	0.60	Pw50	0.65

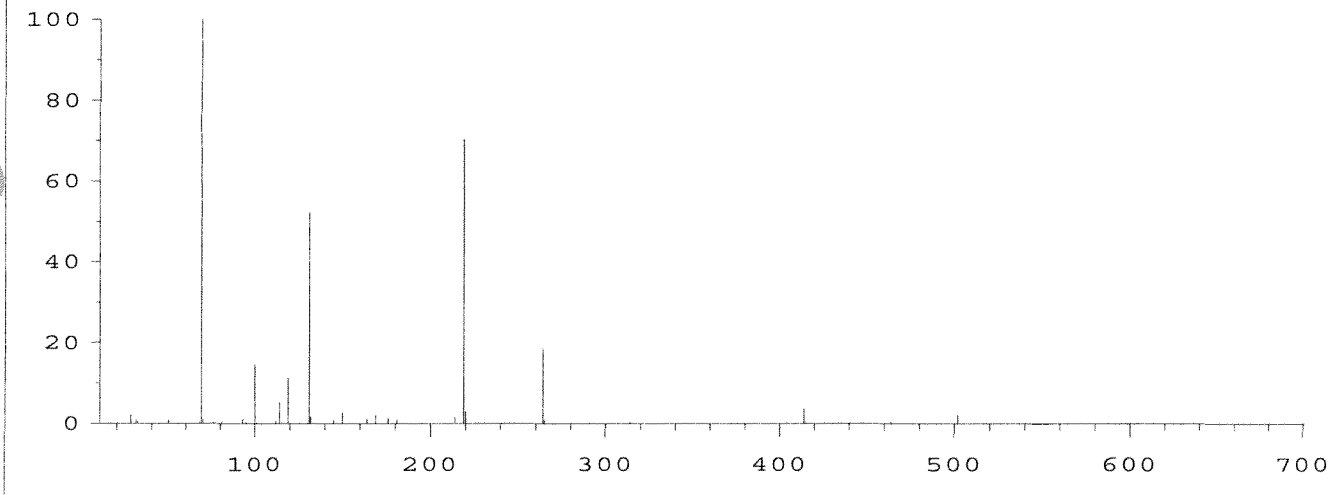


Ion Pol	Pos	MassGain	-629
		MassOffs	-37
Emission	34.6	AmuGain	1857
EIEnrgy	69.9	AmuOffs	123.31
Filament	1	Wid219	-0.018
		DC Pol	Pos
Repeller	25.43		
IonFcus	80.7	HEDEnab	On
EntLens	0.0	EMVolts	1553
EntOffs	Var		
		Samples	8
PFTBA	Open	Averages	5
		Stepsize	0.10

Temperatures and Pressures:

MS Source	280	TurboSpd	100
MS Quad	190	HiVac	1.65e05

Scan: 10.00 - 701.00 Samples: 8 Thresh: 100 Step: 0.10
52 peaks Base: 69.00 Abundance: 98008



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	98008	100.00	70.00	1075	1.10
219.00	69000	70.40	220.00	3005	4.36
502.00	2069	2.11	502.90	212	10.25

Air/Water Check: H2O~0.14% N2~2.15% O2~0.69% CO2~0.00% N2/H2O~1517.27%

Ramp Criteria:
Ion Focus Maximum 110 volts using ion 502; EM Gain 16016
Repeller Maximum 35 volts using ion 502; Gain Factor 0.16

MassGain Values(Samples): -619(3) -608(2) -591(1) -551(0) -464(FS)

TARGET MASS:	50	69	131	219	414	502	1050
Amu Offset:	123.3	123.3	123.3	123.3	123.3	123.3	123.3
Entrance Lens Offset:	18.0	15.8	14.2	15.5	15.8	14.8	17.0
Target Abund(%):	1.0	100.0	45.0	55.0	3.5	2.0	
Actual Tune Abund(%):	0.7	100.0	52.3	70.4	3.7	2.1	

TPH Daily Calibration Check Results
#2 Diesel TPH Calibration Range - Using SERAS GC/MS Method 1803

Calibration Check Date	ICAL Date	Project	Wa#	GC/MS Datafile	TPH Response	d30-IS Area	d50-IS Area	d74-IS Area	Cal Check RF	Calibration Average RF	% Diff.
05/17/11	05/16/11	WSoil MDL	0-011	SL01889	7932426	132429	130508	51192	0.75756	0.72959	3.83
06/09/11	05/16/11	CUC-Power Plant	0-135	SL01942	7860351	128757	120362	11883	0.90348	0.72959	23.83
06/09/11	05/16/11	CUC-Power Plant	0-135	SL01945	6544592	104943	128978	88104	0.60970	0.72959	16.43
07/08/11	05/16/11	CUC-Power Plant	0-135	SL01970	6848120	109628	127366	77204	0.65387	0.72959	10.38
07/11/11	05/16/11	CUC-Power Plant	0-135	SL01974	7184921	121573	136941	70557	0.65502	0.72959	10.22
07/12/11	05/16/11	CUC-Power Plant	0-135	SL01989	7699927	130026	148583	96240	0.61624	0.72959	15.54
07/27/11	05/16/11	CUC-Power Plant	0-135	SL02012	5526770	90684	107174	65457	0.62968	0.72959	13.69
08/01/11	05/16/11	CUC-Power Plant	0-135	SL02036	7282274	117359	139028	90753	0.62934	0.72959	13.74
08/08/11	05/16/11	Move-Maintenance	0-011	SL02067	20772937	342644	403655	197034	0.66062	0.72959	9.45
08/08/11	05/16/11	Move-Maintenance	0-011	SL02069	9013310	151400	176386	86475	0.65273	0.72959	10.54
08/10/11	05/16/11	Move-Maintenance	0-011	SL02071	8539256	140844	161739	77290	0.67438	0.72959	7.57
08/11/11	05/16/11	TPH Soil MDL	0-011	SL02079	8559600	142237	165518	79165	0.66367	0.72959	9.03
08/12/11	05/16/11	TPH Water MDL	0-011	SL02093	8541528	140220	170089	76028	0.66327	0.72959	9.09
08/23/11	05/16/11	CUC-Power Plant	0-135	SL02133	8279388	130044	151992	63182	0.71949	0.72959	1.38
08/24/11	05/16/11	CUC-Power Plant	0-135	SL02166	6757179	110307	122438	62687	0.68617	0.72959	5.95
09/21/11	05/16/11	CUC-Power Plant	0-135	SL02202	11190934	169011	205927	119691	0.67875	0.72959	6.97
09/22/11	05/16/11	CUC-Power Plant	0-135	SL02213	8986654	146134	179078	114918	0.61255	0.72959	16.04
02/02/12	05/16/11	Enbridge Oil	0-017	SL02671	10771363	175782	209958	153567	0.59918	0.72959	17.87
02/15/12	05/16/11	Enbridge Oil	0-017	SL02827	11689228	179024	220786	162003	0.62419	0.72959	14.45

TPH response based on the sum of all peaks in the DRO (m/z 85 + 83 + 105 + 113 + 123 + 183) pattern from ~8min to 28min.

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\021512\
Data File : SL02827.D
Acq On : 15 Feb 2012 12:42
Operator : Syslo
Sample : 1.0k TPH CCV
Misc : RVB0003
ALS Vial : 71 Sample Multiplier: 1

Quant Time: Feb 15 13:33:01 2012
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Thu Dec 15 15:26:49 2011
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.704	188	602225	10.00	ug/mL	-0.02
5) d30-Tetradecane	13.540	66	179024	10.00	ug/mL	0.00
6) d50-Tetracosane	23.784	66	220786	10.00	ug/mL	-0.02
8) d74-Hexatriacontane	34.612	66	162003	10.00	ug/mL	-0.04
System Monitoring Compounds						
2) d10-Anthracene {S}	18.831	188	649341	10.14	ug/mL	0.00
Spiked Amount 20.000			Recovery = 50.70%			
3) d14-o-Terphenyl {S}	19.733	244	308159	10.95	ug/mL	-0.02
Spiked Amount 20.000			Recovery = 54.75%			
4) 5a-Androstane {S}	21.150	260	40473	11.82	ug/mL	0.00
Spiked Amount 20.000			Recovery = 59.10%			
7) d62-Triacontane {S}	28.164	66	213472	11.34	ug/mL	0.00
Spiked Amount 20.000			Recovery = 56.70%			
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

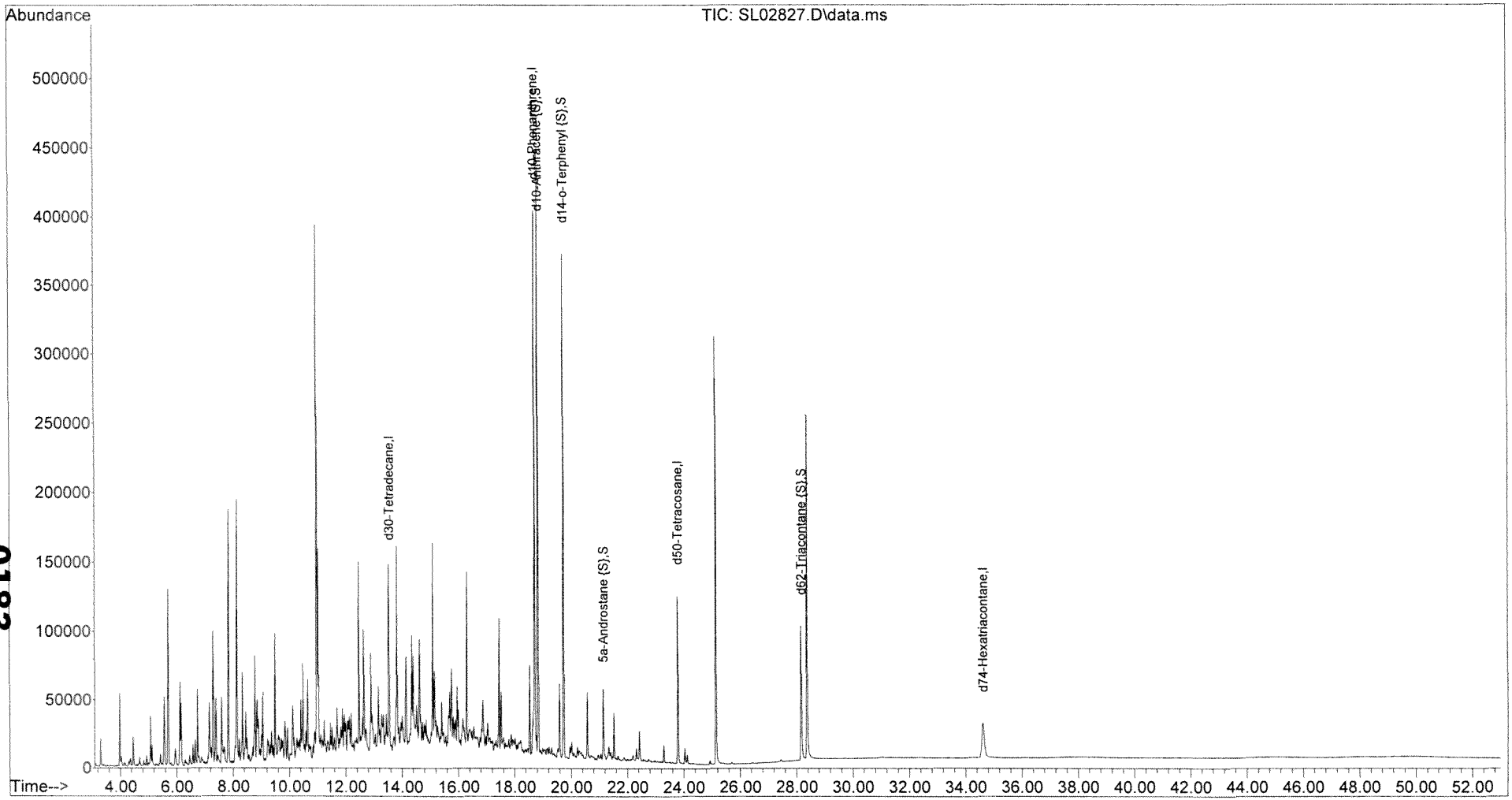
11689228

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\021512\
Data File : SL02827.D
Acq On : 15 Feb 2012 12:42
Operator : Syslo
Sample : 1.0k TPH CCV
Misc : RVB0003
ALS Vial : 71 Sample Multiplier: 1

Quant Time: Feb 15 13:33:01 2012
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Thu Dec 15 15:26:49 2011
Response via : Initial Calibration

SERAS-017-DTM-011413_1



0183

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\DATA\021512\
Data File : SL02827.D
Acq On : 15 Feb 2012 12:42
Operator : Syslo
Sample : 1.0k TPH CCV
Misc : RVB0003
ALS Vial : 71 Sample Multiplier: 1

Quant Time: Feb 15 13:33:01 2012
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Thu Dec 15 15:26:49 2011
Response via : Initial Calibration

Fo Surr

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	d10-Phenanthrene	1.000	1.000	0.0	125	-0.02
2	S	d10-Anthracene {S}	1.063	1.078	-1.4	125	0.00
3	S	d14-o-Terphenyl {S}	0.467	0.512	-9.6	128	-0.02
4	S	5a-Androstane {S}	0.057	0.067	-17.5	136	0.00
5	I	d30-Tetradecane	1.000	1.000	0.0	114	0.00
6	I	d50-Tetracosane	1.000	1.000	0.0	121	-0.02
7	S	d62-Triacontane {S}	0.695	0.967	-13.4	141	0.00
8	I	d74-Hexatriacontane	1.000	1.000	0.0	205	-0.04

(#) = Out of Range SPCC's out = 0 CCC's out = 0

DROTPH051611.M Wed Feb 15 13:52:47 2012 SLICK2

Area Percent Report

Data Path : C:\msdchem\1\DATA\021512\
Data File : SL02827.D
Acq On : 15 Feb 2012 12:42
Operator : Syslo
Sample : 1.0k TPH CCV
Misc : RVB0003
ALS Vial : 71 Sample Multiplier: 1

Integration Parameters: Oilint.P
Integrator: RTE
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 7 % of largest Peak
Start Thrs: 0.05 Max Peaks: 150
Stop Thrs : 0.05 Peak Location: TOP

If leading or trailing edge < 50 prefer < Baseline drop else tangent >
Peak separation: 3

Method : C:\msdchem\1\METHODS\DROTPH051611.M
Title : DRO/TPH ICAL + Surr. 05/16/11

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02827.D\data.ms

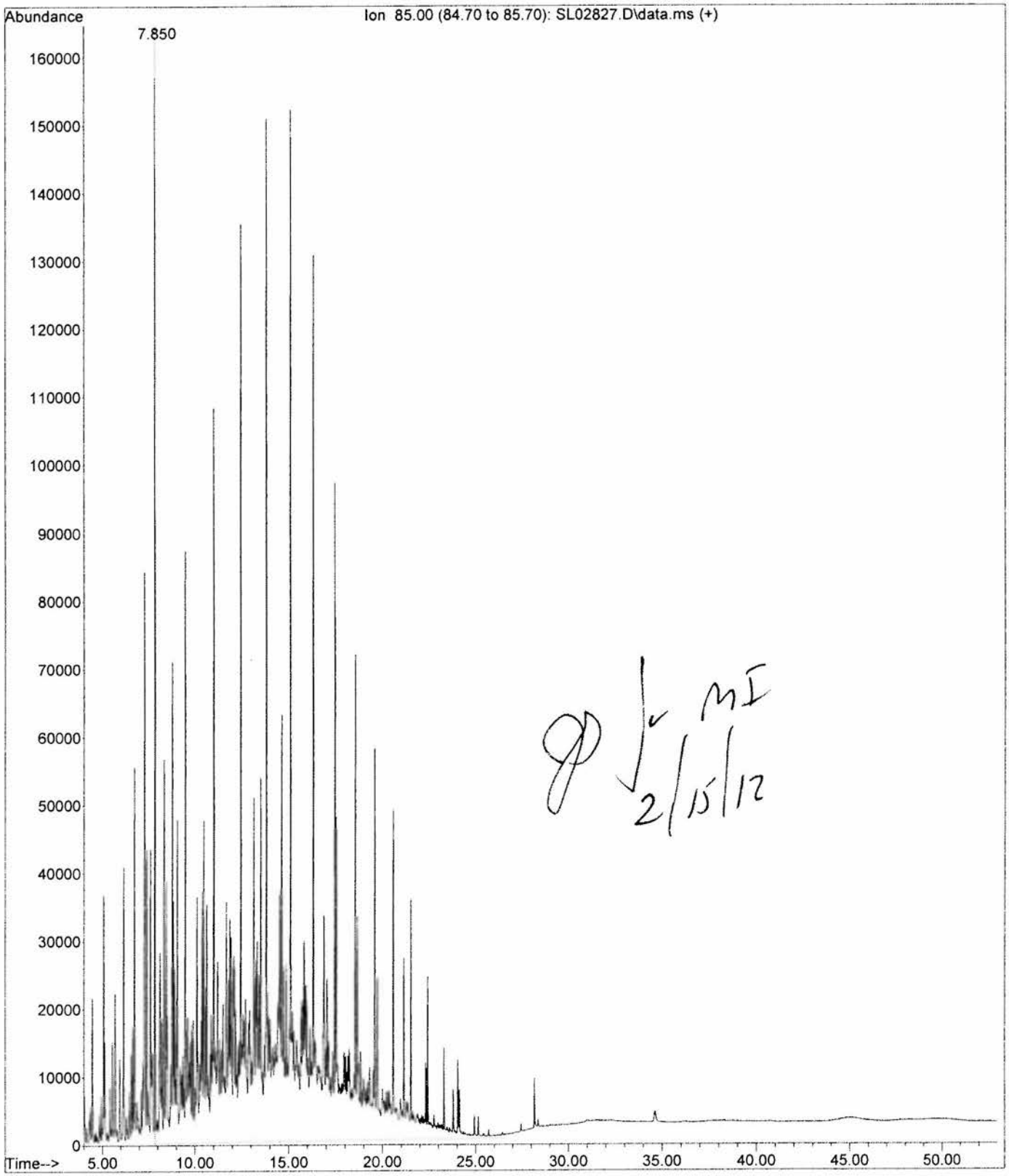
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	7.850	597	597	2838	rM 8	164679	11689228	100.00%	100.000%

Sum of corrected areas: 11689228

DROTPH051611.M Wed Feb 15 13:56:09 2012 SLICK2

gs MI 2/15/12

File :C:\msdchem\1\DATA\021512\SL02827.D
Operator : Syslo
Acquired : 15 Feb 2012 12:42 using AcqMethod DROTPH051611.M
Instrument : Slick2
Sample Name: 1.0k TPH CCV
Misc Info : RVB0003
Vial Number: 71



MI
2/15/12

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\021512\
Data File : SL02828.D
Acq On : 15 Feb 2012 13:43
Operator : Syslo
Sample : Soil Blank
Misc : 1200024-Blk1
ALS Vial : 82 Sample Multiplier: 1

Quant Time: Feb 15 16:22:43 2012
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Thu Dec 15 15:26:49 2011
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.704	188	455645	10.00	ug/mL	-0.02
5) d30-Tetradecane	13.540	66	139126	10.00	ug/mL	0.00
6) d50-Tetracosane	23.784	66	159054	10.00	ug/mL	-0.02
8) d74-Hexatriacontane	34.612	66	106564	10.00	ug/mL	-0.04
System Monitoring Compounds						
2) d10-Anthracene {S}	18.822	188	539411	11.13	ug/mL	-0.02
Spiked Amount 20.000			Recovery = 55.65%			
3) d14-o-Terphenyl {S}	19.733	244	258958	12.16	ug/mL	-0.02
Spiked Amount 20.000			Recovery = 60.80%			
4) 5a-Androstane {S}	21.141	260	34097	13.16	ug/mL	-0.02
Spiked Amount 20.000			Recovery = 65.80%			
7) d62-Triacontane {S}	28.156	66	197748	14.33	ug/mL	-0.02
Spiked Amount 20.000			Recovery = 71.65%			
Target Compounds						Qvalue

#) = qualifier out of range (m) = manual integration (+) = signals summed

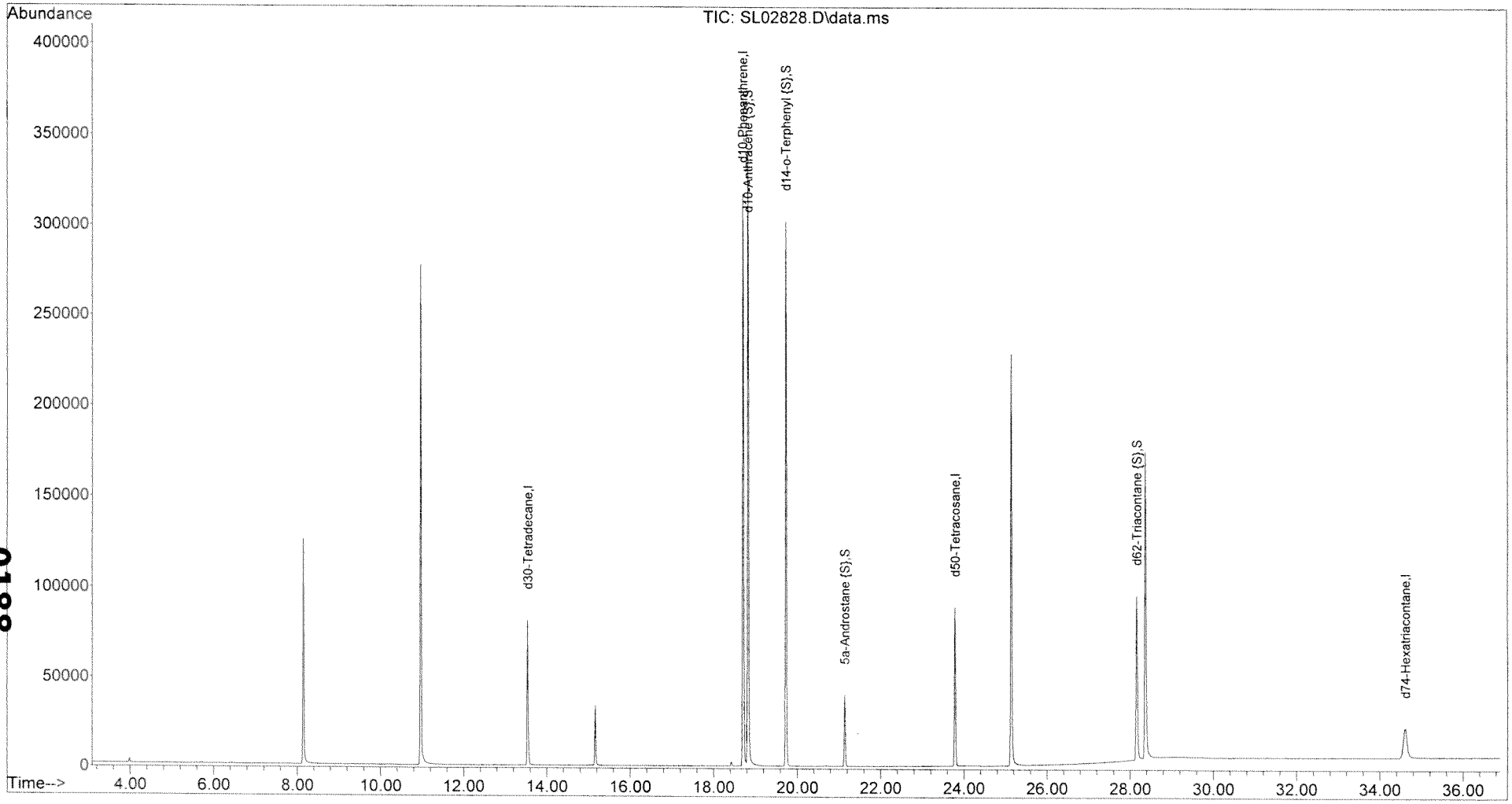
TPH: ND

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\021512\
Data File : SL02828.D
Acq On : 15 Feb 2012 13:43
Operator : Syslo
Sample : Soil Blank
Misc : 1200024-Blk1
ALS Vial : 82 Sample Multiplier: 1

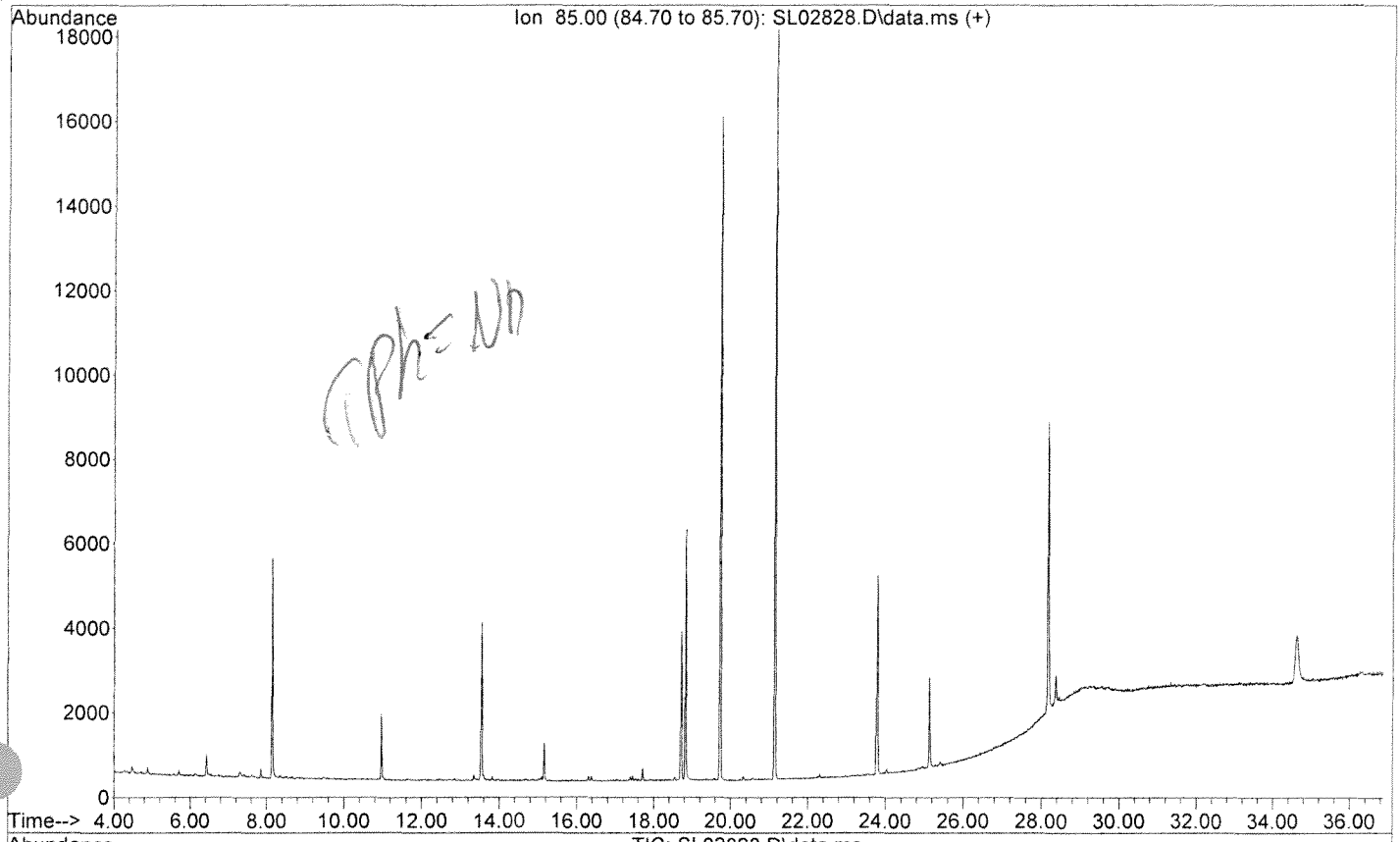
Quant Time: Feb 15 16:22:43 2012
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Thu Dec 15 15:26:49 2011
Response via : Initial Calibration

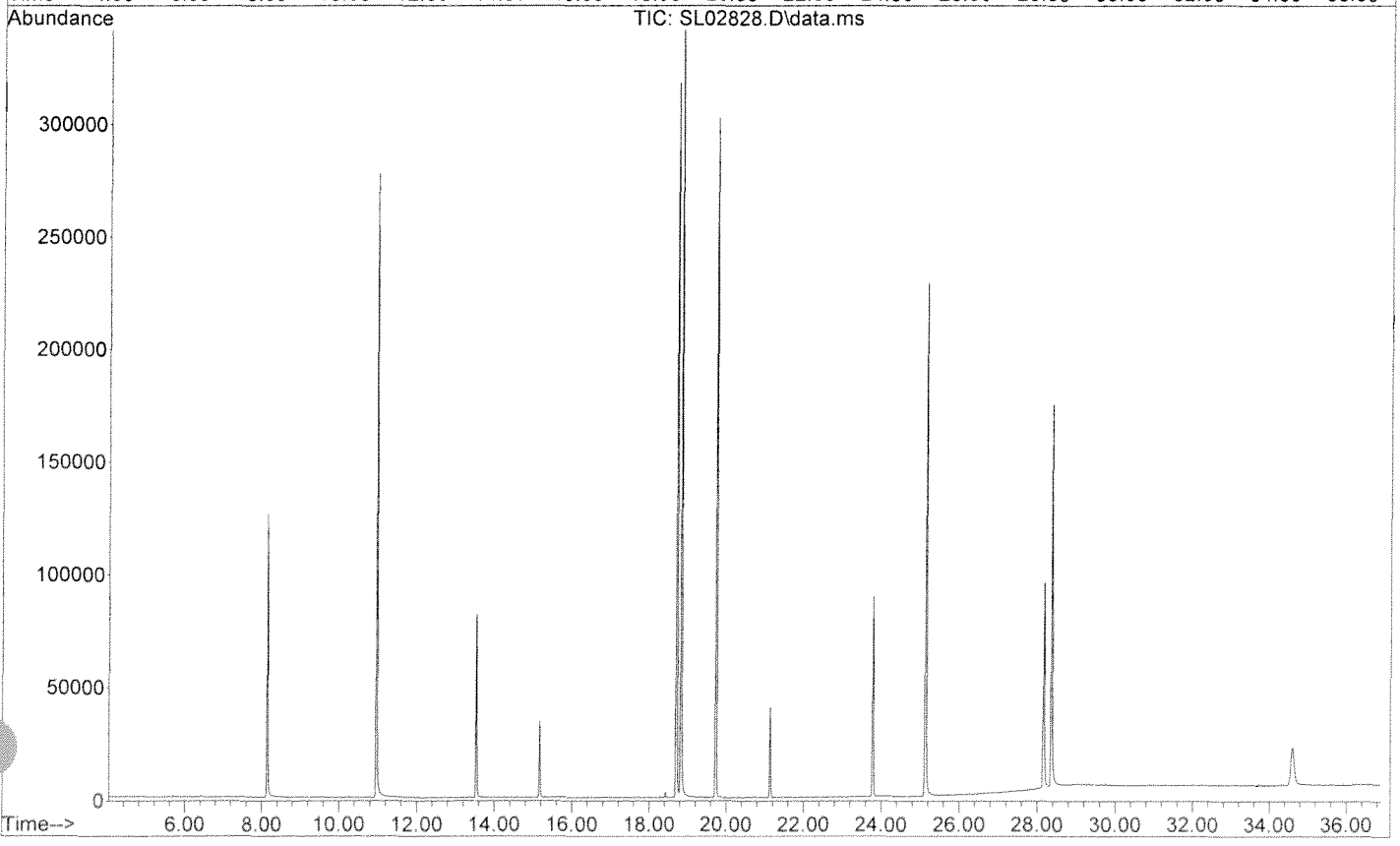
SERAS-017-DTM-011413_1



0188

File :C:\msdchem\1\DATA\021512\SL02828.D
Operator : Syslo
Acquired : 15 Feb 2012 13:43 using AcqMethod DROTPH051611.M
Instrument : Slick2
Sample Name: Soil Blank
Misc Info : 1200024-Blk1
Vial Number: 82





Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\021512\
Data File : SL02829.D
Acq On : 15 Feb 2012 14:27
Operator : Syslo
Sample : SERAS-017-0002
Misc : 30g to 1.0mL
ALS Vial : 83 Sample Multiplier: 1

Quant Time: Feb 15 15:17:56 2012
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Thu Dec 15 15:26:49 2011
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.704	188	419430	10.00	ug/mL	-0.02
5) d30-Tetradecane	13.532	66	129686	10.00	ug/mL	-0.02
6) d50-Tetracosane	23.784	66	144537	10.00	ug/mL	-0.02
8) d74-Hexatriacontane	34.637	66	130132	10.00	ug/mL	-0.02
System Monitoring Compounds						
2) d10-Anthracene {S}	18.830	188	514605	11.54	ug/mL	0.00
Spiked Amount 20.000			Recovery = 57.70%			
3) d14-o-Terphenyl {S}	19.733	244	243105	12.40	ug/mL	-0.02
Spiked Amount 20.000			Recovery = 62.00%			
4) 5a-Androstane {S}	21.158	260	30879	12.95	ug/mL	0.00
Spiked Amount 20.000			Recovery = 64.75%			
7) d62-Triacontane {S}	28.164	66	176034	14.06	ug/mL	-0.01
Spiked Amount 20.000			Recovery = 70.30%			
Target Compounds						Qvalue

#) = qualifier out of range (m) = manual integration (+) = signals summed

TPH = 5723-7733

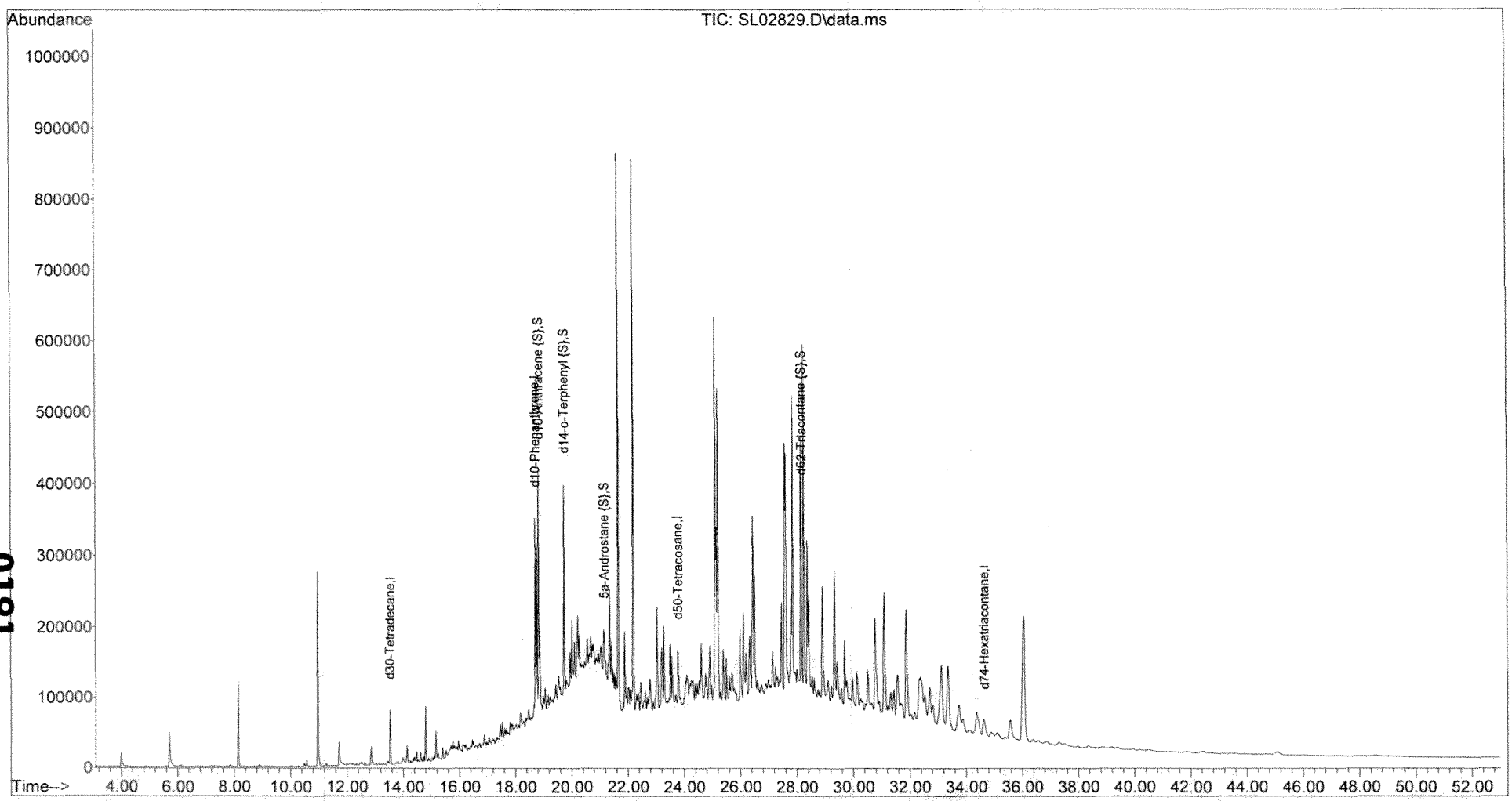
SERAS-017-DTM-011413_1

0191

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\021512\
Data File : SL02829.D
Acq On : 15 Feb 2012 14:27
Operator : Syslo
Sample : SERAS-017-0002
Misc : 30g to 1.0mL
ALS Vial : 83 Sample Multiplier: 1

Quant Time: Feb 15 15:17:56 2012
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Thu Dec 15 15:26:49 2011
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\021512\
Data File : SL02829.D
Acq On : 15 Feb 2012 14:27
Operator : Syslo
Sample : SERAS-017-0002
Misc : 30g to 1.0mL
ALS Vial : 83 Sample Multiplier: 1

Integration Parameters: Oilint.P
Integrator: RTE
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 0.5 % of largest Peak
Start Thrs: 0.05 Max Peaks: 5
Stop Thrs : 0.05 Peak Location: TOP

If leading or trailing edge < 50 prefer < Tangent else baseline drop >
Peak separation: 3

Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Title : DRO/TPH ICAL + Surr. 05/16/11

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02829.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	27.856	973	2997	5610	rM	459843	57237733	100.00%	100.000%

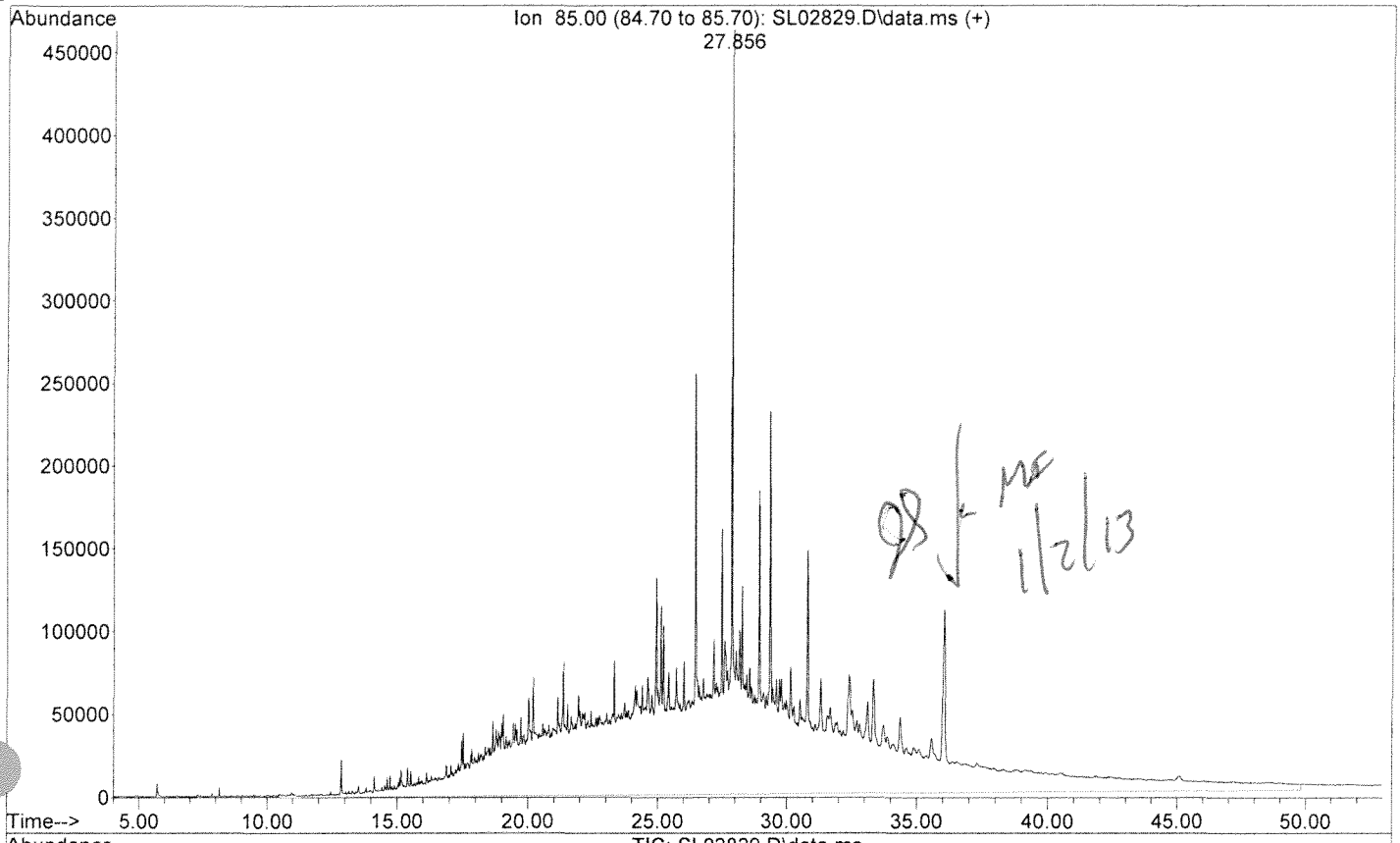
Sum of corrected areas: 57237733

DROTPH051611.M Wed Jan 02 16:39:59 2013 SLICK2

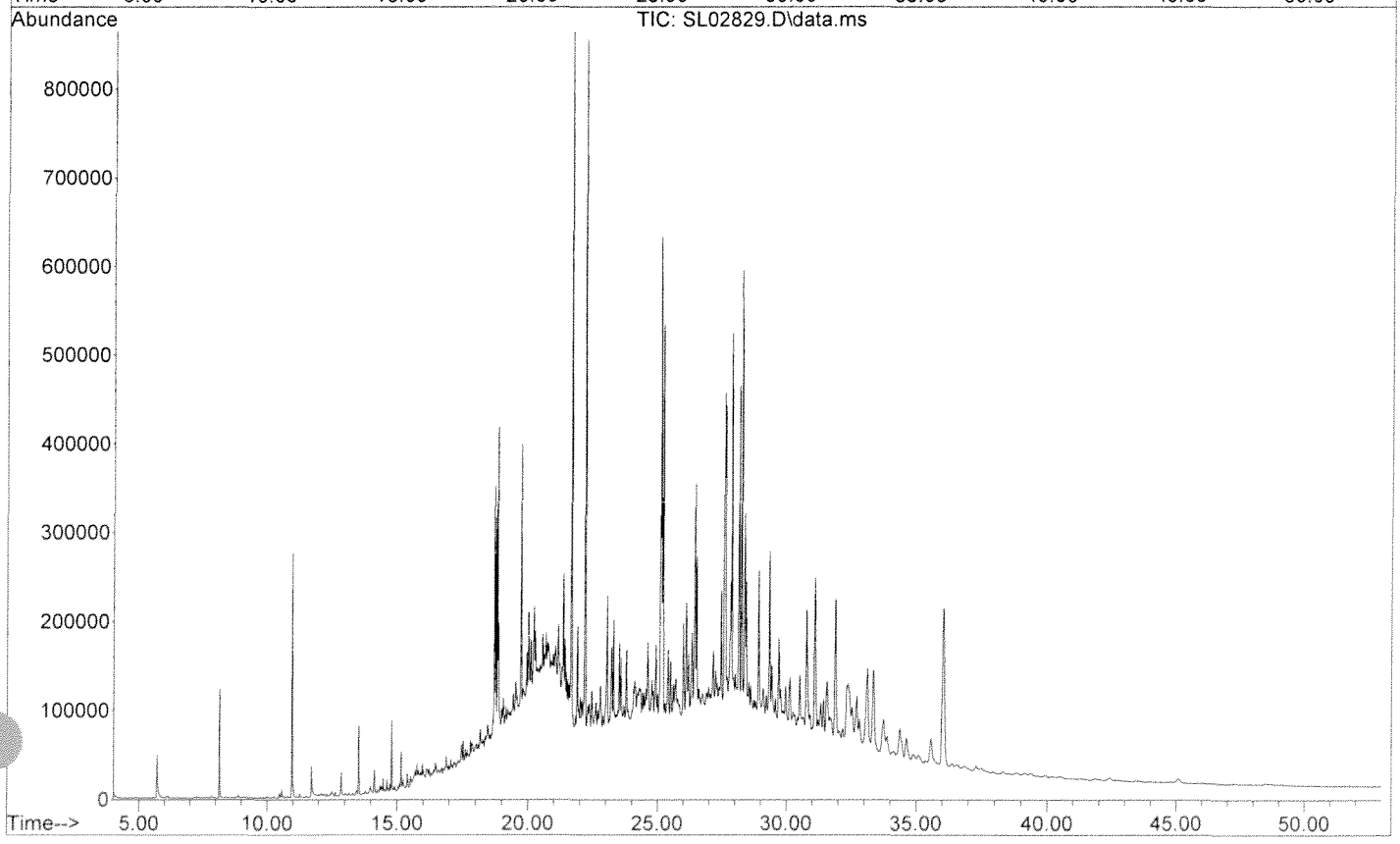
FOR M.I.
DATE: 1/2/13

DATE:

File :C:\msdchem\1\DATA\021512\SL02829.D
Operator : Syslo
Acquired : 15 Feb 2012 14:27 using AcqMethod DROTPH051611.M
Instrument : Slick2
Sample Name: SERAS-017-0002
Misc Info : 30g to 1.0mL
V Number: 83



98 MF 1/2/13



2/24/12

```
   Sequence Name: C:\msdchem\1\sequence\022412.s
         Comment: Enbridge Oil
        Operator: Syslo
       Data Path: C:\MSDCHEM\1\DATA\022412\
Instrument Control  Pre-Seq Cmd:
Data Analysis       Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis      Post-Seq Cmd:

   Method Sections To Run      On A Barcode Mismatch
    (X) Full Method              (X) Inject Anyway
    ( ) Reprocessing Only        ( ) Don't Inject

   ------------------------------------------------------------------------
   Line                    Sample Name/Misc Info
 1)  Sample        99  SL02856  DFT8270D 50 DFTPP
 2) Sample         71  1K DRO/TPH CCV
     Datafile          SL02857
     Method            DROTPH051611
 3) Sample          1  Method/WD Blank
     Datafile          SL02860
     Method            DROTPH051611
 4) Sample          2  SERAS-017-0003
     Datafile          SL02861
     Method            DROTPH051611
 5) Sample          3  SERAS-017-0004
     Datafile          SL02862
     Method            DROTPH051611
 6) Sample          4  SERAS-017-0003 dup
     Datafile          SL02863
     Method            DROTPH051611
 7) Sample          5  BLK022412WD
     Datafile          SL02864
     Method            DROTPH051611
```

Logbook # SERAS-I-0121

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ENBRIDGE OIL: FINGERPRINTS + TPH

SERAS, GC/MS Injection Log

GC/MS System: "SLICK II" S/N#'s US10915004/US90432092 DROTPH0516H.M

Project Name: ENBRIDGE OIL

Work Assign.#: 0-017

Analysis/Date: 2/24/12

Method File: DFTPP/ OILSIMS2

Inj. Volume: 1ul

Analyst: [illegible]

ALS	FILE ID	SAMPLE ID	REAC ID	Date of Analysis	TIME Inj.	COMMENTS
99	SL02856	50 ppm DFTPP	RVB0005	2/24/12	11:35	Pass 1397-1385
71	SL02857	1K TPH CCV	RVB0003		11:57	Pass
72	SL02858	10 ppm SVOC/PAH Res/Mass	RTL0035		[illegible]	Res/Mass Disc Test
73	SL02859	10K Crudity Reference	RUL0003		[illegible]	Fingerprint Reference
1	SL02860	Method WD Blank	RVB0060		18:58	
2	SL02861	SERAS-017-0003	275-55-05		21:48	0.109g → 10ml
3	SL02862	SERAS-017-0004	275-56-24	2/24/12	22:20	0.193g → 10ml
4	SL02863	SERAS-017-0003 Dup	275-55-05	2/25/12	00:29	0.109g → 10ml dup
5	SL02864	BLK0224/2WD	WD Blank	2/25/12	1:32	10ml [illegible]0022 + [illegible]
6	SL02865	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] of solvent [illegible]
7	SL02866	SERAS-017-0003			X	[illegible] "bracket dz"
8	SL02867	10K CG-117 Reference	RUL0103		X	D-5739 "batch bracket"
9	SL02868	BLK0224/2WD			X	EOS Blank
10	SL02869	SERAS-017-0004A 1.5Xd	275-56-24	2/26/12	23:24	re-extract & [illegible]
11	SL02870	SERAS-017-0004A NK	275-56-24	2/27/12	9:42	" "
—	SL	Sequence halted at	1.32AM	2/25/12	— syringe error —	
	SL X - not	injected				
	SL					
	SL					
	SL					
	SL					
	SL					
	SL					
	SL					
	SL					
	SL					
	SL					
	SL					
	SL					

[signature] 2/27/2012

	REAC ID	Standard Description	Exp.date	Conc.	Ref. P.	Comment
1	RVB0005	DFTPP	8/19/12	51ppm		
2	RVB0003	Calibration Check	8/12/12	1000ppm		TPH as DRO
3	RVB0058	Internal Standard + Oil	5/14/12	500ppm		Spike 20ul → 1.0ml
4	RUL0003	CG-117 Reference Fingerprint	[illegible] 5/24/12	1000ppm		Fingerprint RF.
5	RTL0035	10 ppm SVOC/PAH Std	[illegible]	10ppm		Mass Discrimination Chk
6						

Reviewed By: [signature] Date Checked: 03-06-12

ALS #'s 10, 11 were inserted in sequence after performing re-extraction of sample. The file ID's are not in sequence with sequential injection/Time stamp because they had to be run before other

Injection Log

Data Directory: C:\msdchem\1\DATA\022412\

SampleName	MiscInfo	Vial	Multiplier	Injection Time
1) SL02856.D				
50 DFTPP	RVB0025	99	1.000	24 Feb 2012 11:35
2) SL02857.D				
1K DRO/TPH CCV	RVB0003 Exp. 8/12/1	71	1.000	24 Feb 2012 11:57
3) SL02858.D				
10ppm SHC/PAH	RTL0035 RES/MASS DIS	72	1.000	24 Feb 2012 15:48
4) SL02859.D				
10K CG-117 Reference	RUL0003	73	1.000	24 Feb 2012 17:36
5) SL02860.D				
Method/WD Blank	RUC0022 + 10µL Surr	1	1.000	24 Feb 2012 18:58
6) SL02861.D				
SERAS-017-0003	275-55-05 {0.103gin1	2	1.000	24 Feb 2012 21:18
7) SL02862.D				
SERAS-017-0004	275-56-24 {0.193gin1	3	1.000	24 Feb 2012 22:20
8) SL02869.D				
SERAS-017-0004A 5xd	{1.029g in 10mL} DCM	10	1.000	24 Feb 2012 23:26
9) SL02863.D				
SERAS-017-0003 dup	275-55-05 {0.109gin1	4	1.000	25 Feb 2012 00:29
10) SL02864.D				
BLK022412WD	10mL RUC0022 + 0.1mL	5	1.000	25 Feb 2012 1:32

Screen

GC/MS QA-QC Check Report

Tune File : C:\msdchem\1\DATA\022412\SL02856.D
Tune Time : 24 Feb 2012 11:35

Daily Calibration File : C:\msdchem\1\DATA\022412\SL02857.D

File	Sample	Surrogate Recovery %				Internal Standard Responses		
SL02857.D								
	1K DRO/TPH	50*	56*	61*	59*	511328	167742	206077
			152529					
SL02860.D								
	Method/WD	82*	95*	103*	100*	259131	86488	100285*
			78374					
SL02861.D								
	SERAS-017-	77*	86*	92*	100*	348567	115287	142648
			130020					
SL02862.D								
	SERAS-017-	82*	93*	103*	107*	311259	100839	126586
			115819					
SL02863.D								
	SERAS-017-	83*	92*	106*	106*	312803	102210	127325
			115036					
SL02864.D								
	BLK022412W	95*	109*	119*	116*	281424	93255	110642
			89433					

Not For TPH

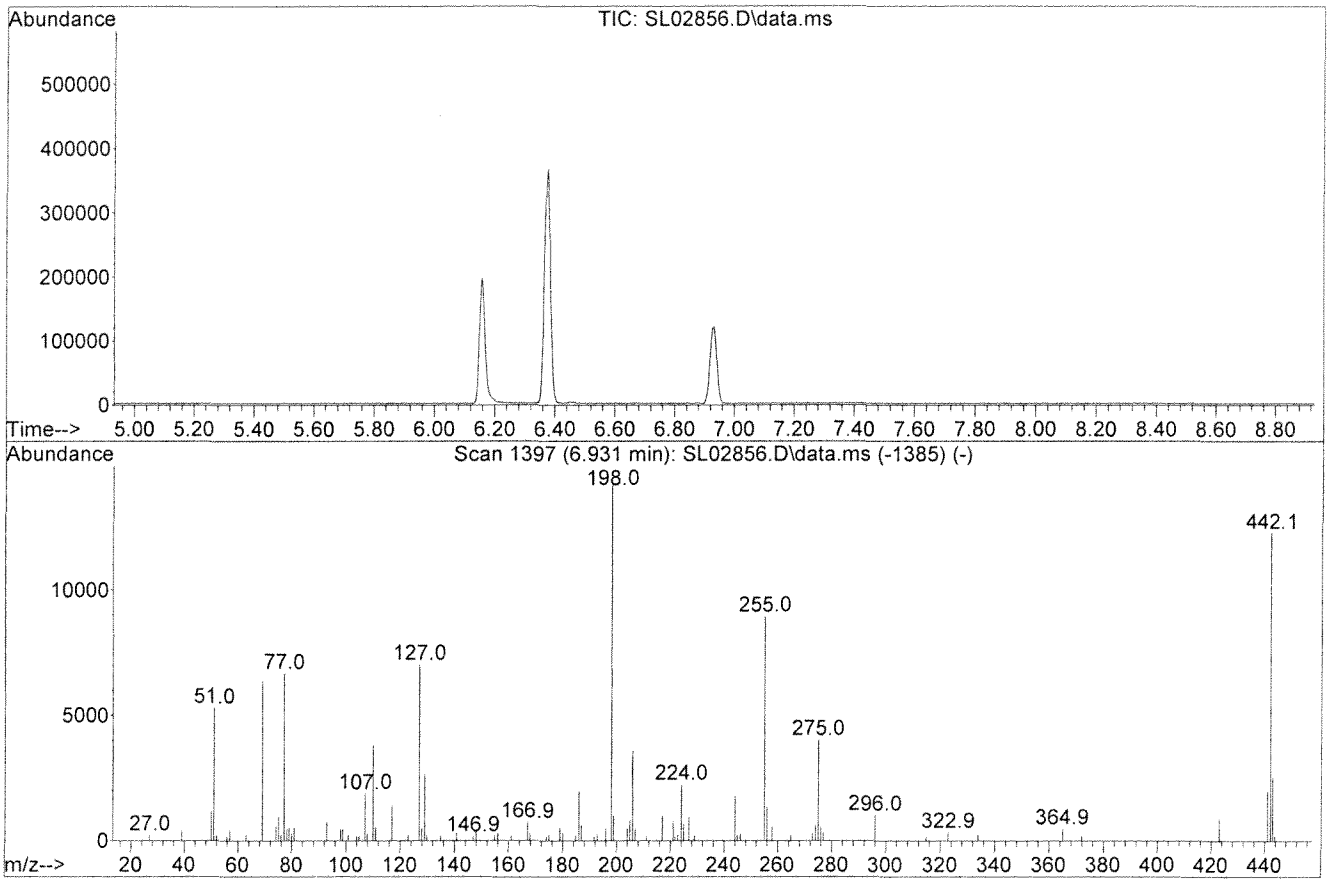
Created: Thu Jan 03 15:59:07 2013 Slick2

Data Path : C:\msdchem\1\DATA\022412\
Data File : SL02856.D
Acq On : 24 Feb 2012 11:35
Operator : Syslo
Sample : 50 DFTPP
Misc : RVB0025
ALS Vial : 99 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
Title : DFTPP Method with 8270D criteria: 8/20/10
Last Update : Thu Dec 20 10:09:10 2012

Grading: PCP : 1.44
Benzidine : 1.12
DDT deg : 7.55



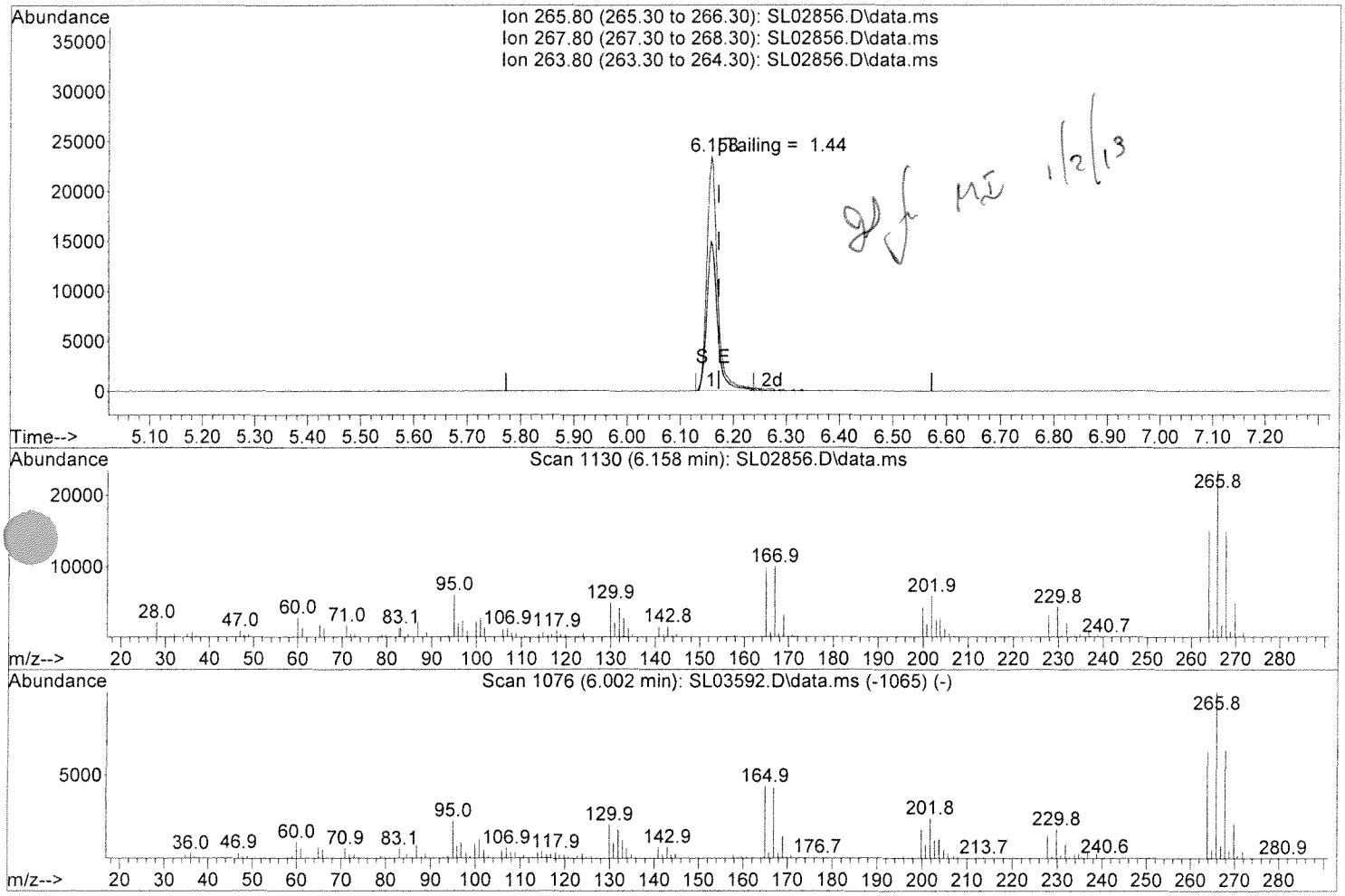
Spectrum Information: Scan 1397

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	37.1	5289	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	44.9	6406	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	49.3	7024	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	14259	PASS
199	198	5	9	6.8	973	PASS
275	198	10	60	28.1	4011	PASS
365	198	1	100	3.3	466	PASS
441	442	0.01	24	16.0	1968	PASS
442	198	50	100	86.1	12273	PASS
443	442	15	24	20.6	2523	PASS

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\022412\
Data File : SL02856.D
Acq On : 24 Feb 2012 11:35
Operator : Syslo
Sample : 50 DFTPP
Misc : RVB0025
ALS Vial : 99 Sample Multiplier: 1

Quant Time: Feb 24 11:47:34 2012
Quant Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
Quant Title : DFTPP Method with 8270D criteria: 8/20/10
QLast Update : Thu Jan 26 14:45:51 2012
Response via : Initial Calibration



TIC: SL02856.D\data.ms

(2) Pentachlorophenol

6.158min (-0.015) 48.78 ug/mL

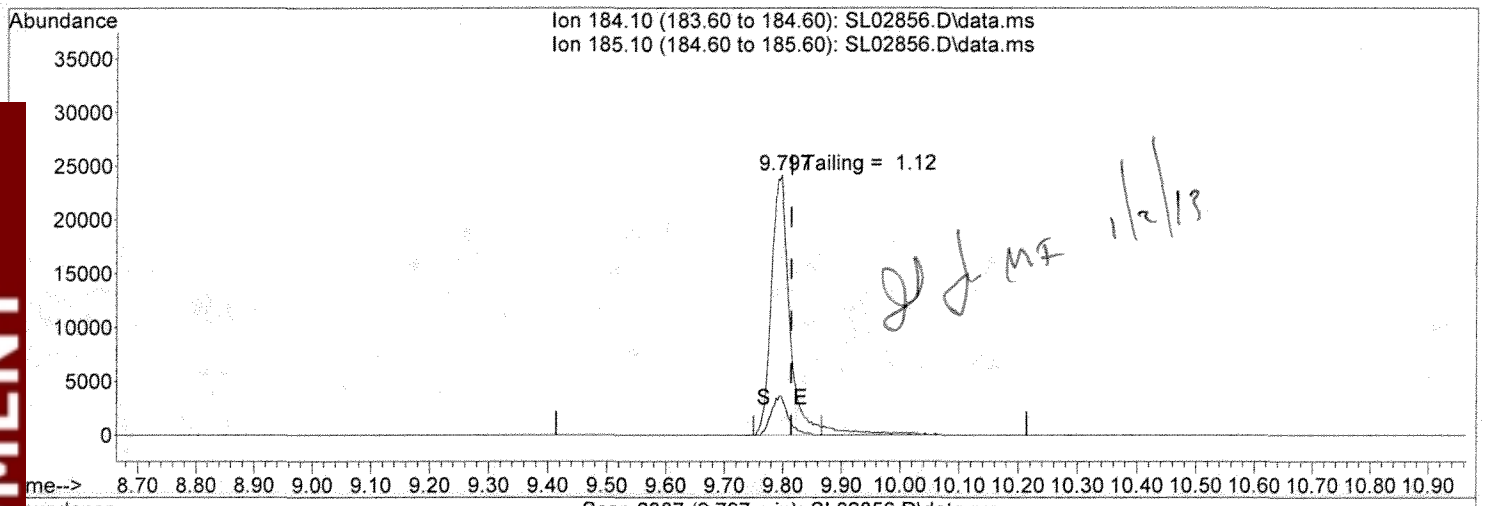
response 33139

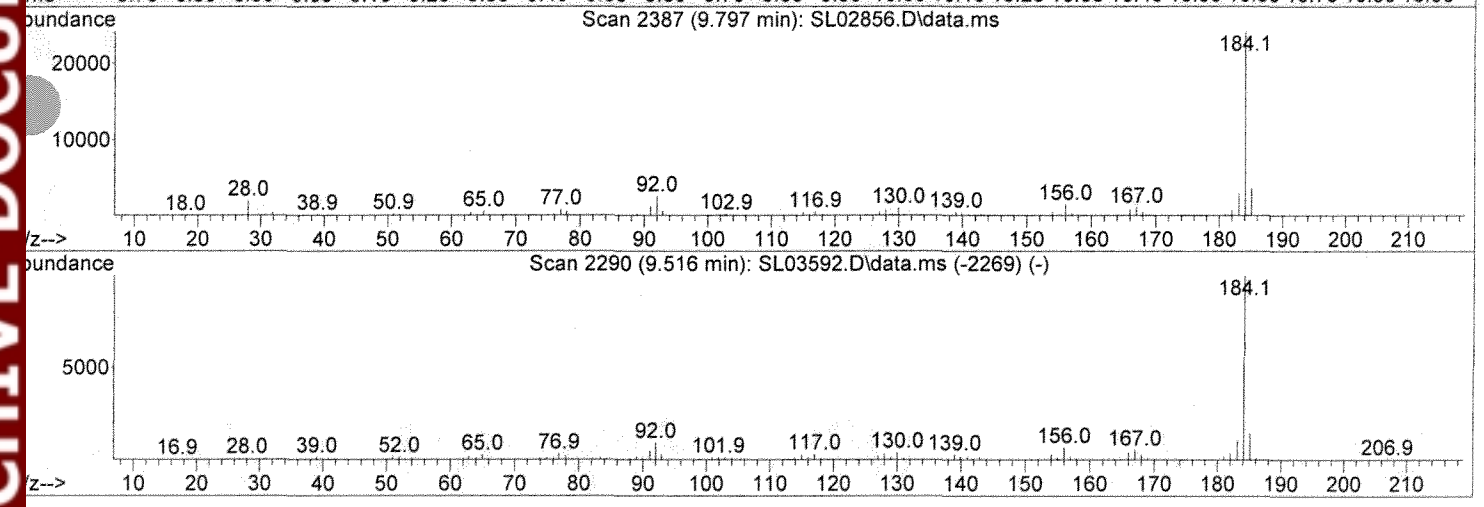
Ion	Exp%	Act%
265.80	100	100
267.80	64.50	63.31
263.80	63.60	62.01
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\022412\
Data File : SL02856.D
Acq On : 24 Feb 2012 11:35
Operator : Syslo
Sample : 50 DFTPP
Misc : RVB0025
ALS Vial : 99 Sample Multiplier: 1

Quant Time: Feb 24 11:47:34 2012
Quant Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
Quant Title : DFTPP Method with 8270D criteria: 8/20/10
QLast Update : Thu Jan 26 14:45:51 2012
Response via : Initial Calibration





TIC: SL02856.D\data.ms

(5) Benzidine

9.797min (-0.017) 21.01 ug/mL

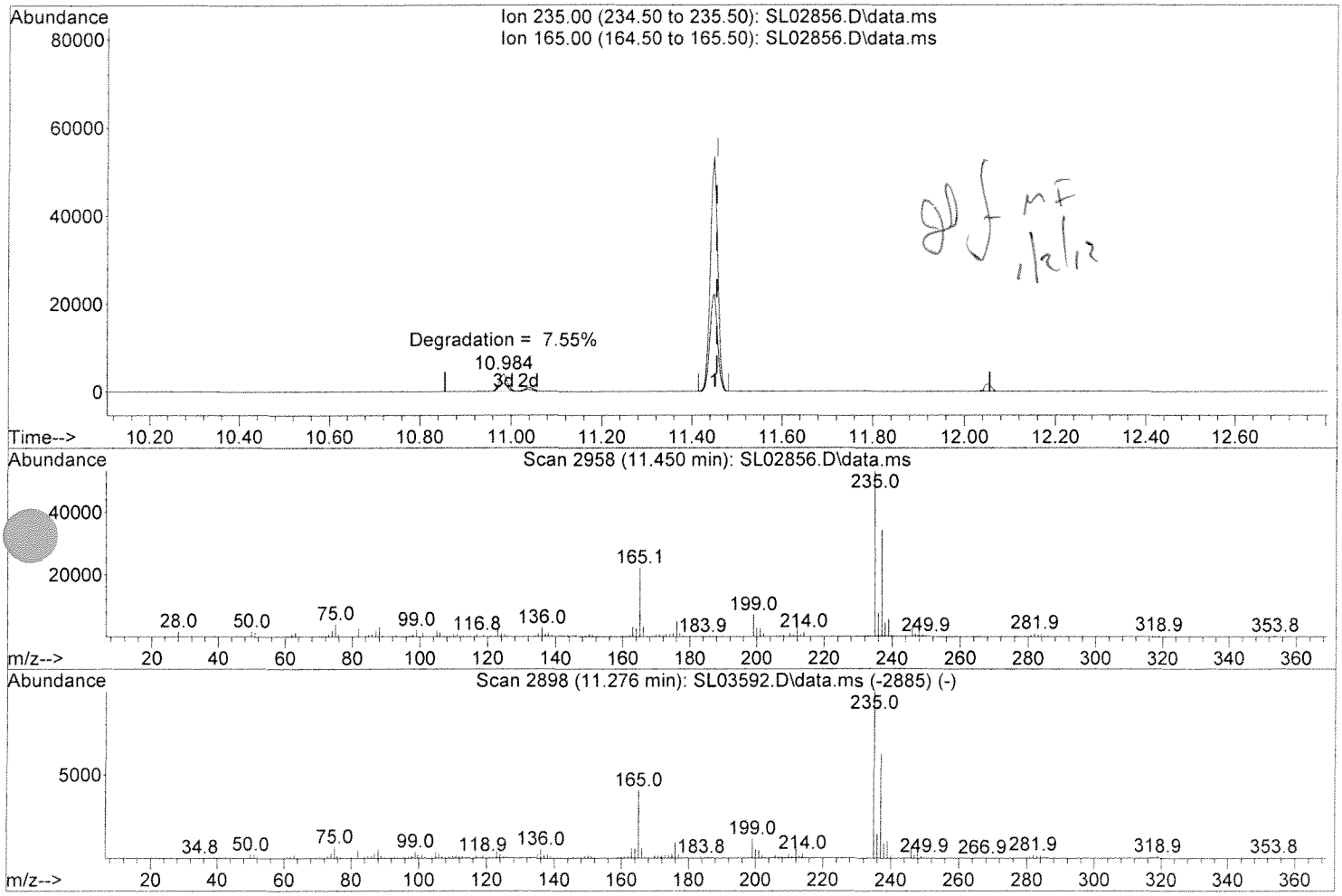
response 51817

Ion	Exp%	Act%
184.10	100	100
185.10	14.60	14.28
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\022412\
Data File : SL02856.D
Acq On : 24 Feb 2012 11:35
Operator : Syslo
Sample : 50 DFTPP
Misc : RVB0025
ALS Vial : 99 Sample Multiplier: 1

Quant Time: Feb 24 11:47:34 2012
Quant Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
Quant Title : DFTPP Method with 8270D criteria: 8/20/10
QLast Update : Thu Jan 26 14:45:51 2012
Response via : Initial Calibration



TIC: SL02856.D\data.ms

(6) DDT

11.450min (-0.006) 55.98 ug/mL

response 61420

Ion	Exp%	Act%
235.00	100	100
165.00	51.80	42.64
0.00	0.00	0.00
0.00	0.00	0.00

TPH Daily Calibration Check Results
#2 Diesel TPH Calibration Range - Using SERAS GC/MS Method 1841

Calibration Check Date	ICAL Date	Project	Wa#	GC/MS Datafile	TPH Response	d30-IS Area	d50-IS Area	d74-IS Area	Cal Check RF	Calibration Average RF	% Diff.
05/17/11	05/16/11	WSoil MDL	0-011	SL01889	7932426	132429	130508	51192	0.75756	0.72959	3.83
06/09/11	05/16/11	CUC-Power Plant	0-135	SL01942	7860351	128757	120362	11883	0.90348	0.72959	23.83
06/09/11	05/16/11	CUC-Power Plant	0-135	SL01945	6544592	104943	128978	88104	0.60970	0.72959	16.43
07/08/11	05/16/11	CUC-Power Plant	0-135	SL01970	6848120	109628	127366	77204	0.65387	0.72959	10.38
07/11/11	05/16/11	CUC-Power Plant	0-135	SL01974	7184921	121573	136941	70557	0.65502	0.72959	10.22
07/12/11	05/16/11	CUC-Power Plant	0-135	SL01989	7699927	130026	148583	96240	0.61624	0.72959	15.54
07/27/11	05/16/11	CUC-Power Plant	0-135	SL02012	5526770	90684	107174	65457	0.62968	0.72959	13.69
08/01/11	05/16/11	CUC-Power Plant	0-135	SL02036	7282274	117359	139028	90753	0.62934	0.72959	13.74
08/08/11	05/16/11	Move-Maintenance	0-011	SL02067	20772937	342644	403655	197034	0.66062	0.72959	9.45
08/08/11	05/16/11	Move-Maintenance	0-011	SL02069	9013310	151400	176386	86475	0.65273	0.72959	10.54
08/10/11	05/16/11	Move-Maintenance	0-011	SL02071	8539256	140844	161739	77290	0.67438	0.72959	7.57
08/11/11	05/16/11	TPH Soil MDL	0-011	SL02079	8559600	142237	165518	79165	0.66367	0.72959	9.03
08/12/11	05/16/11	TPH Water MDL	0-011	SL02093	8541528	140220	170089	76028	0.66327	0.72959	9.09
08/23/11	05/16/11	CUC-Power Plant	0-135	SL02133	8279388	130044	151992	63182	0.71949	0.72959	1.38
08/24/11	05/16/11	CUC-Power Plant	0-135	SL02166	6757179	110307	122438	62687	0.68617	0.72959	5.95
09/21/11	05/16/11	CUC-Power Plant	0-135	SL02202	11190934	169011	205927	119691	0.67875	0.72959	6.97
09/22/11	05/16/11	CUC-Power Plant	0-135	SL02213	8986654	146134	179078	114918	0.61255	0.72959	16.04
02/02/12	05/16/11	Enbridge Oil	0-017	SL02671	10771363	175782	209958	153567	0.59918	0.72959	17.87
02/15/12	05/16/11	Enbridge Oil	0-017	SL02827	11689228	179024	220786	162003	0.62419	0.72959	14.45
02/24/12	05/16/11	Enbridge Oil	0-017	SL02857	11406510	166909	205857	151555	0.65264	0.72959	10.55
02/27/12	05/16/11	Enbridge Oil	0-017	SL02872	10457816	165200	202882	161132	0.59283	0.72959	18.74
03/01/12	05/16/11	Enbridge Oil	0-017	SL02885	7203855	109515	150757	134865	0.54694	0.72959	25.03

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\DATA\022412\
Data File : SL02857.D
Acq On : 24 Feb 2012 11:57
Operator : Syslo
Sample : 1K DRO/TPH CCV
Misc : RVB0003 Exp. 8/12/12
ALS Vial : 71 Sample Multiplier: 1

Quant Time: Jan 03 13:00:57 2013
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Wed Jan 02 12:06:20 2013
Response via : Initial Calibration

Surr

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	d10-Phenanthrene	1.000	1.000	0.0	106	0.00
2	S	d10-Anthracene {S}	1.063	1.063	0.0	105	0.00
3	S	d14-o-Terphenyl {S}	0.467	0.524	-12.2	112	0.00
4	S	5a-Androstane {S}	0.057	0.069	-21.1	118	0.00
5	I	d30-Tetradecane	1.000	1.000	0.0	107	0.00
6	I	d50-Tetracosane	1.000	1.000	0.0	113	0.00
7	S	d62-Triacontane {S}	0.695	1.008	~~-45.0#~~	137	0.00
8	I	d74-Hexatriacontane	1.000	1.000	0.0	193	0.00

Linear Regression = 11.8%
OK

(#) = Out of Range SPCC's out = 0 CCC's out = 0

DROTPH051611.M Thu Jan 03 13:01:43 2013 SLICK2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\022412\
Data File : SL02857.D
Acq On : 24 Feb 2012 11:57
Operator : Syslo
Sample : 1K DRO/TPH CCV
sc : RVB0003 Exp. 8/12/12
LS Vial : 71 Sample Multiplier: 1

Quant Time: Feb 24 12:47:12 2012
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Thu Dec 15 15:26:49 2011
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.704	188	508363	10.00	ug/mL	-0.02
5) d30-Tetradecane	13.540	66	166909	10.00	ug/mL	0.00
6) d50-Tetracosane	23.784	66	205857	10.00	ug/mL	-0.02
8) d74-Hexatriacontane	34.612	66	151555	10.00	ug/mL	-0.04
System Monitoring Compounds						
2) d10-Anthracene {S}	18.831	188	541543	10.02	ug/mL	0.00
Spiked Amount 20.000			Recovery =	50.10%		
3) d14-o-Terphenyl {S}	19.733	244	267901	11.28	ug/mL	-0.02
Spiked Amount 20.000			Recovery =	56.40%		
4) 5a-Androstane {S}	21.150	260	35284	12.21	ug/mL	0.00
Spiked Amount 20.000			Recovery =	61.05%		
7) d62-Triacontane {S}	28.164	66	206716	11.75	ug/mL	0.00
Spiked Amount 20.000			Recovery =	58.75%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

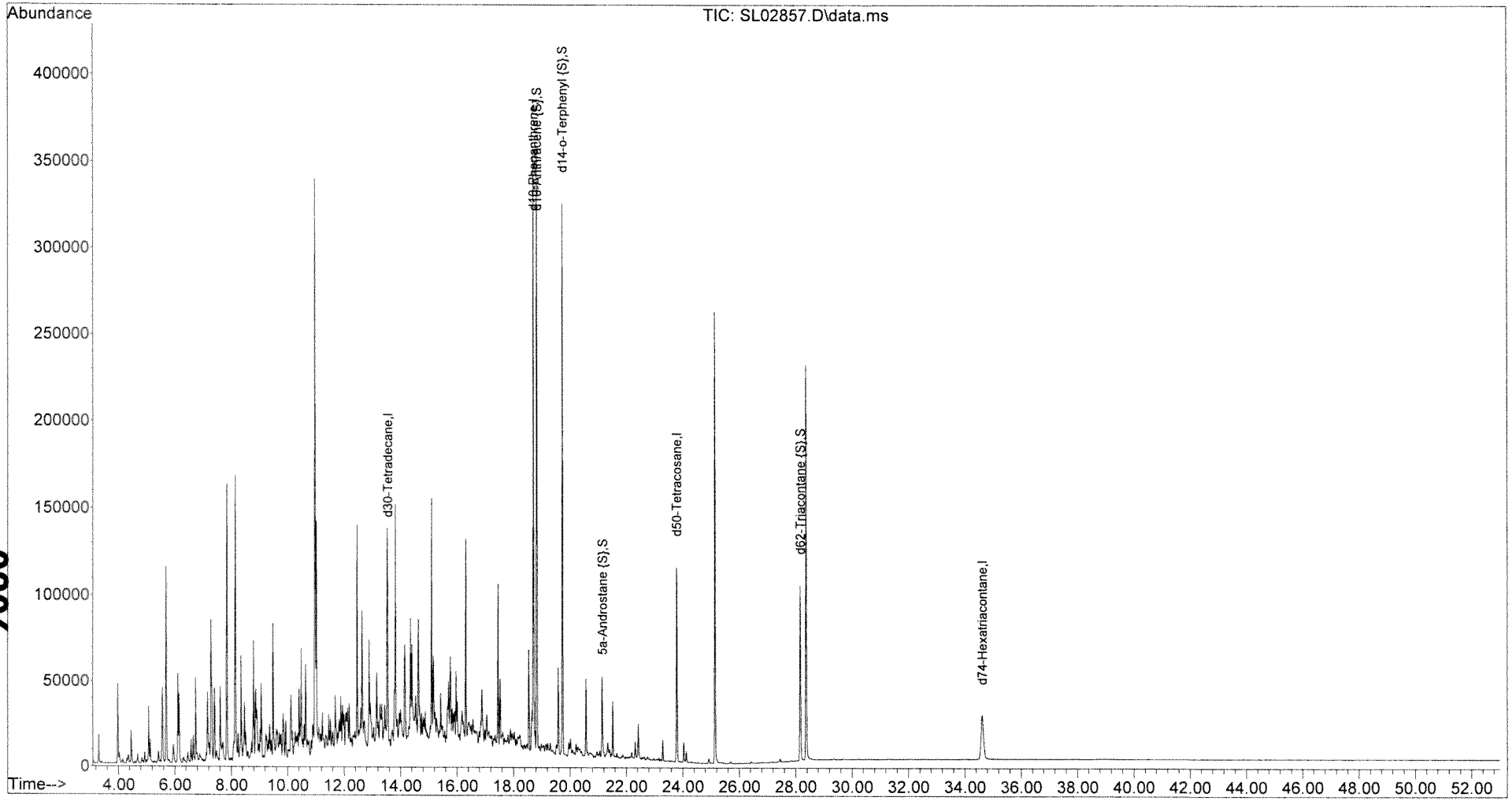
%D = 10.5%

SERAS-017-DTM-011413_1

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\022412\
Data File : SL02857.D
Acq On : 24 Feb 2012 11:57
Operator : Syslo
Sample : 1K DRO/TPH CCV
Misc : RVB0003 Exp. 8/12/12
ALS Vial : 71 Sample Multiplier: 1

Quant Time: Feb 24 12:47:12 2012
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Thu Dec 15 15:26:49 2011
Response via : Initial Calibration



0206

Area Percent Report

Data Path : C:\msdchem\1\DATA\022412\
Data File : SL02857.D
Acq On : 24 Feb 2012 11:57
Operator : Syslo
Sample : 1K DRO/TPH CCV
Misc : RVB0003 Exp. 8/12/12
ALS Vial : 71 Sample Multiplier: 1

Integration Parameters: Oilint.P
Integrator: RTE
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 0.5 % of largest Peak
Start Thrs: 0.05 Max Peaks: 5
Stop Thrs : 0.05 Peak Location: TOP

If leading or trailing edge < 50 prefer < Baseline drop else tangent >
Peak separation: 3

Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Title : DRO/TPH ICAL + Surr. 05/16/11

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02857.D\data.ms

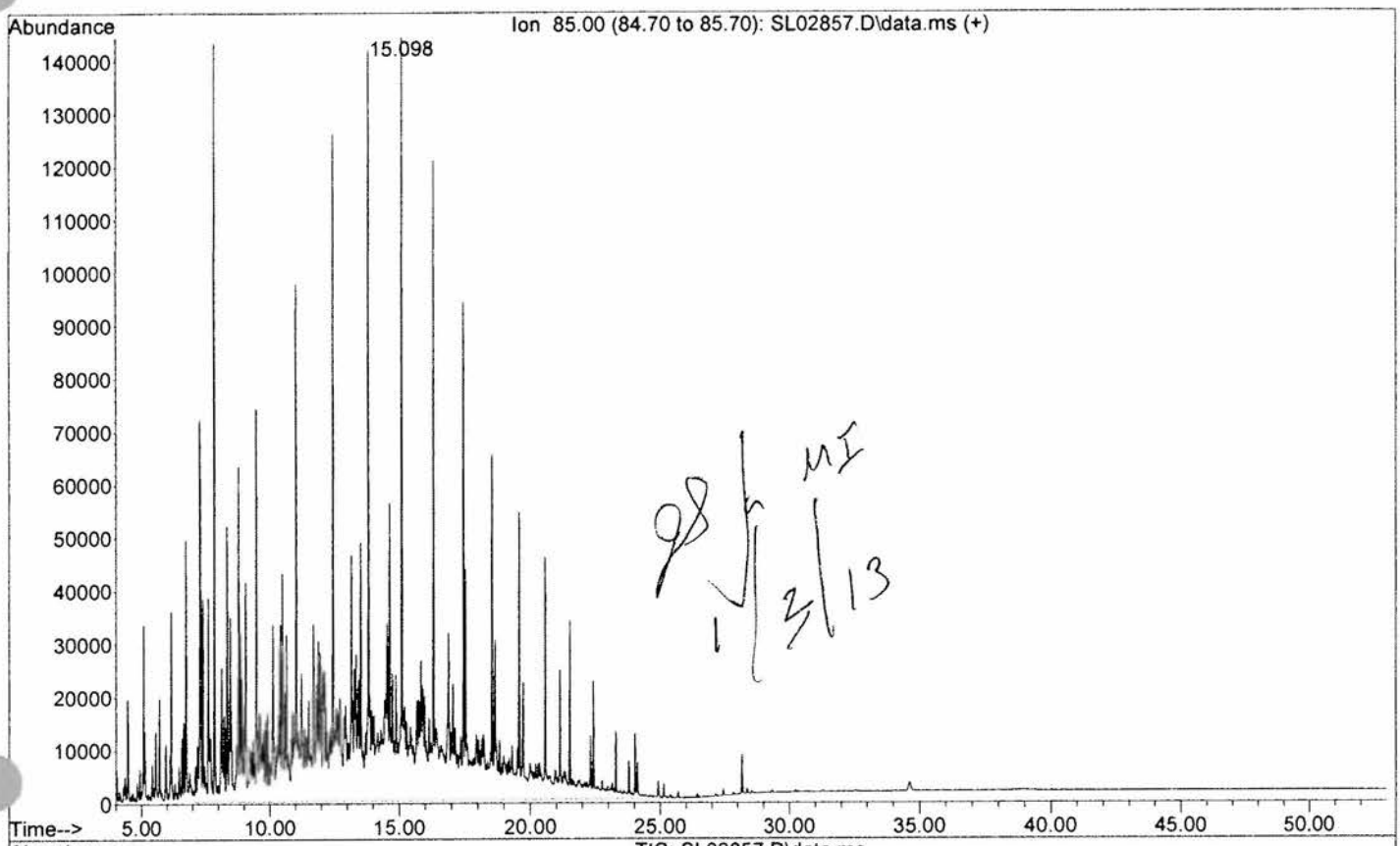
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	15.098	497	1504	2842	rM	144050	11406510	100.00%	100.000%

Sum of corrected areas: 11406510

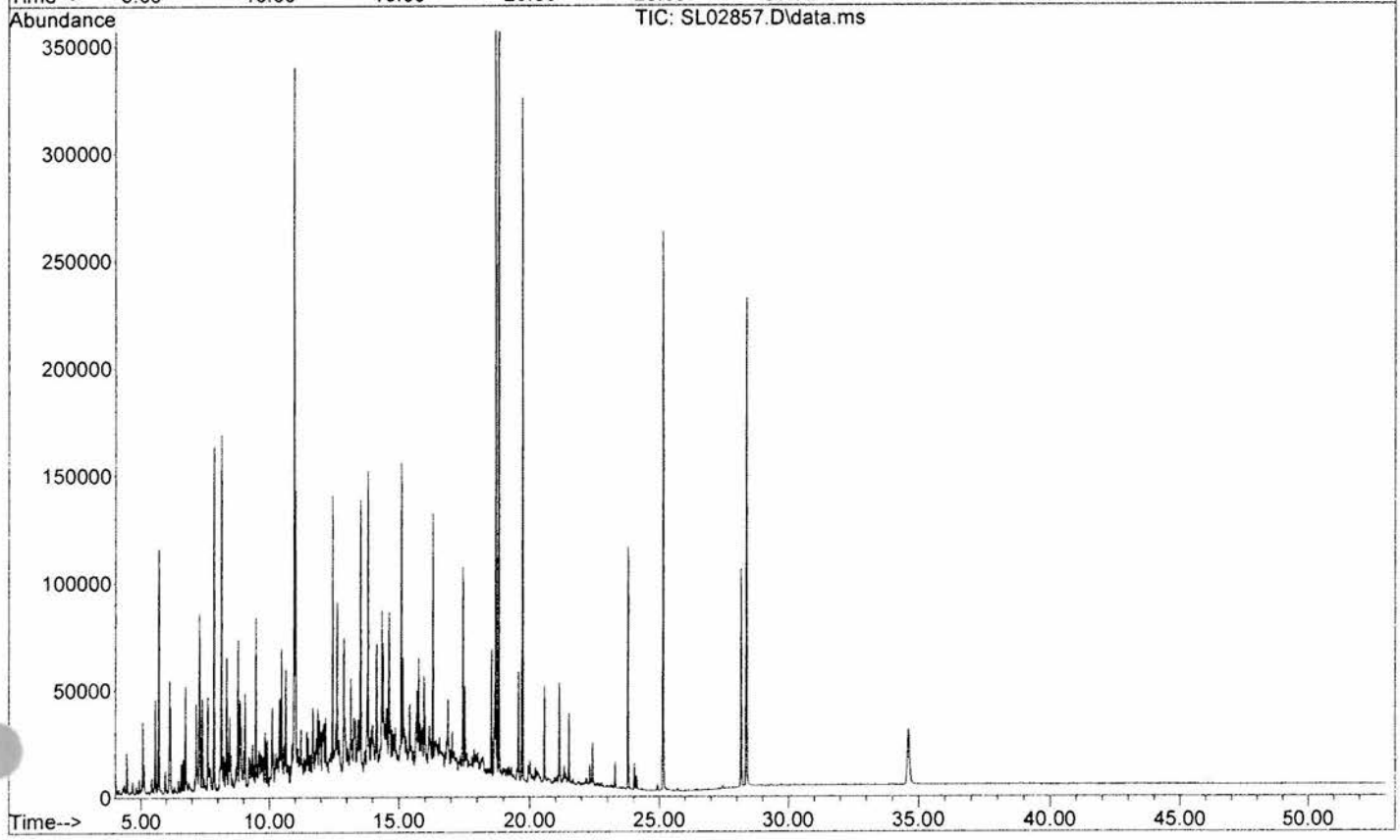
DROTPH051611.M Thu Jan 03 12:54:59 2013 SLICK2

1/3/13

File :C:\msdchem\1\DATA\022412\SL02857.D
Operator : Syslo
Acquired : 24 Feb 2012 11:57 using AcqMethod DROTPH051611.M
Instrument : Slick2
Sample Name: 1K DRO/TPH CCV
Misc Info : RVB0003 Exp. 8/12/12
Vial Number: 71



98 MI
1 3/13



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\022412\
Data File : SL02860.D
Acq On : 24 Feb 2012 18:58
Operator : Syslo
Sample : Method/WD Blank
Misc : RUC0022 + 10µL Surr + RVB0058
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jan 03 16:00:32 2013
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Thu Jan 03 13:01:26 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.713	188	263718	10.00	ug/mL	0.00
5) d30-Tetradecane	13.540	66	86702	10.00	ug/mL	0.00
6) d50-Tetracosane	23.784	66	100382	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.620	66	79169	10.00	ug/mL	0.00
System Monitoring Compounds						
2) d10-Anthracene {S}	18.830	188	456179	16.27	ug/mL	0.00
Spiked Amount 20.000			Recovery =	81.35%		
3) d14-o-Terphenyl {S}	19.733	244	229982	18.66	ug/mL	0.00
Spiked Amount 20.000			Recovery =	93.30%		
4) 5a-Androstane {S}	21.149	260	30349	20.24	ug/mL	0.00
Spiked Amount 20.000			Recovery =	101.20%		
7) d62-Triacontane {S}	28.164	66	178678	20.14	ug/mL	0.00
Spiked Amount 20.000			Recovery =	100.70%		

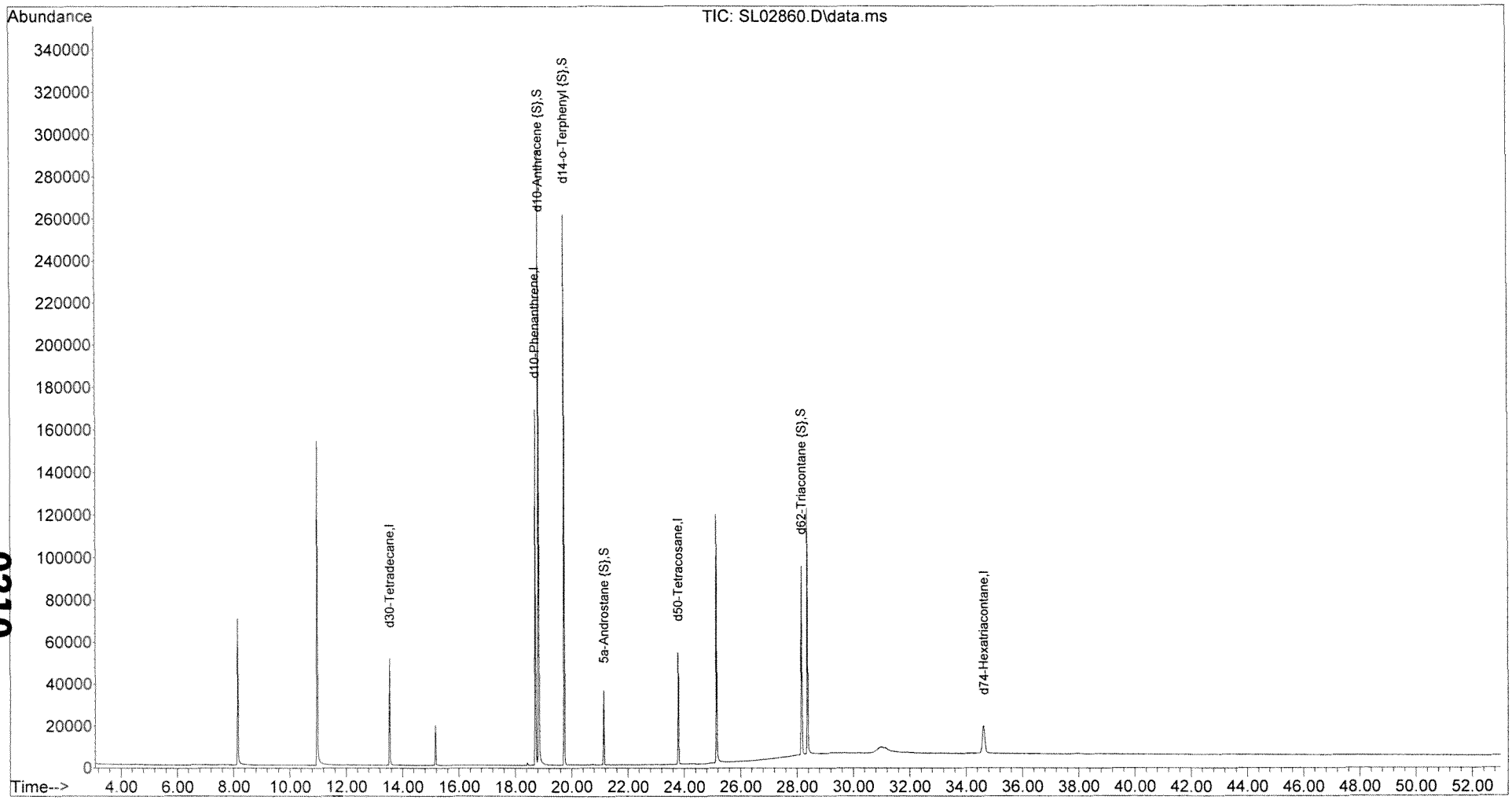
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

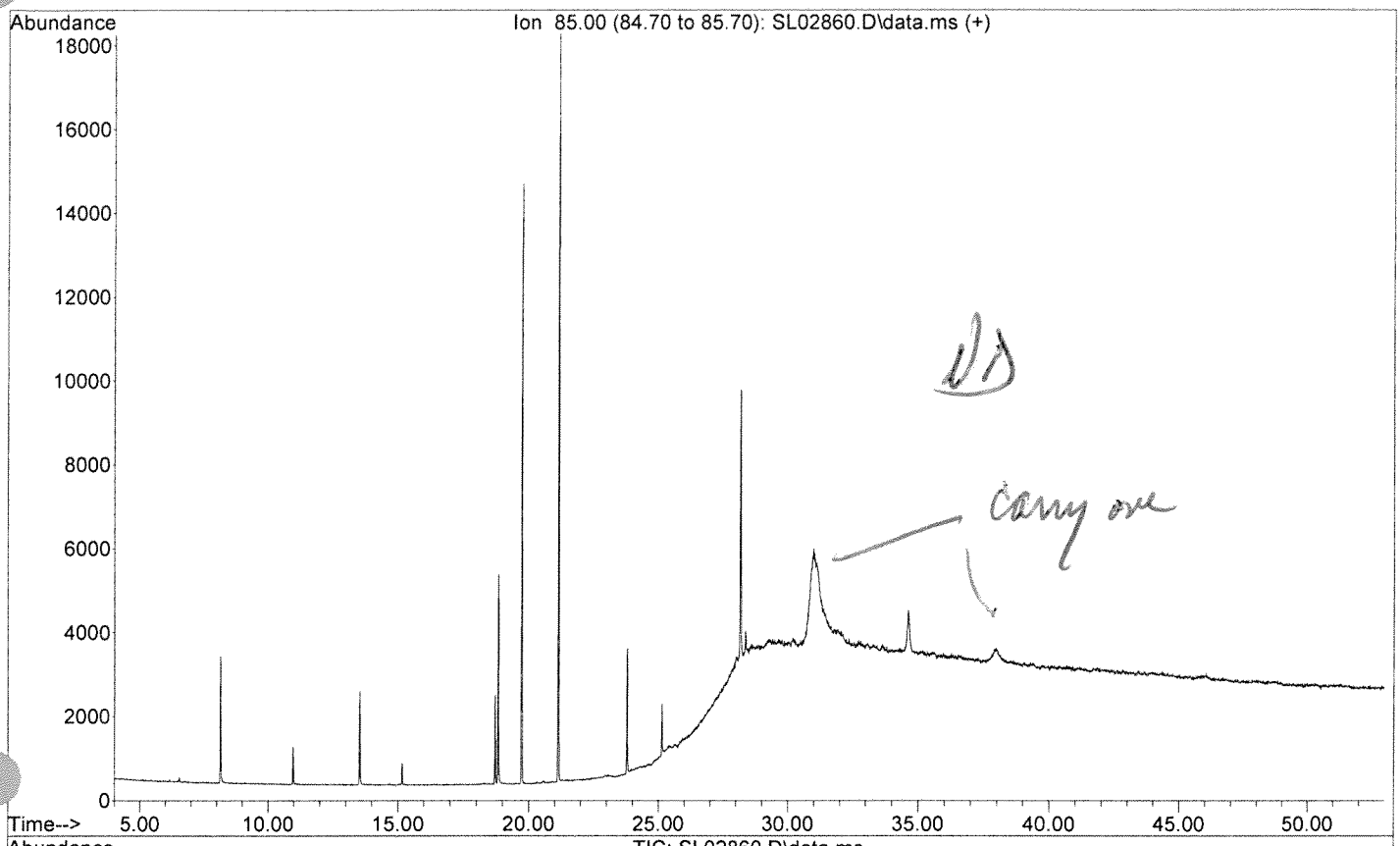
ND ✓ TPH

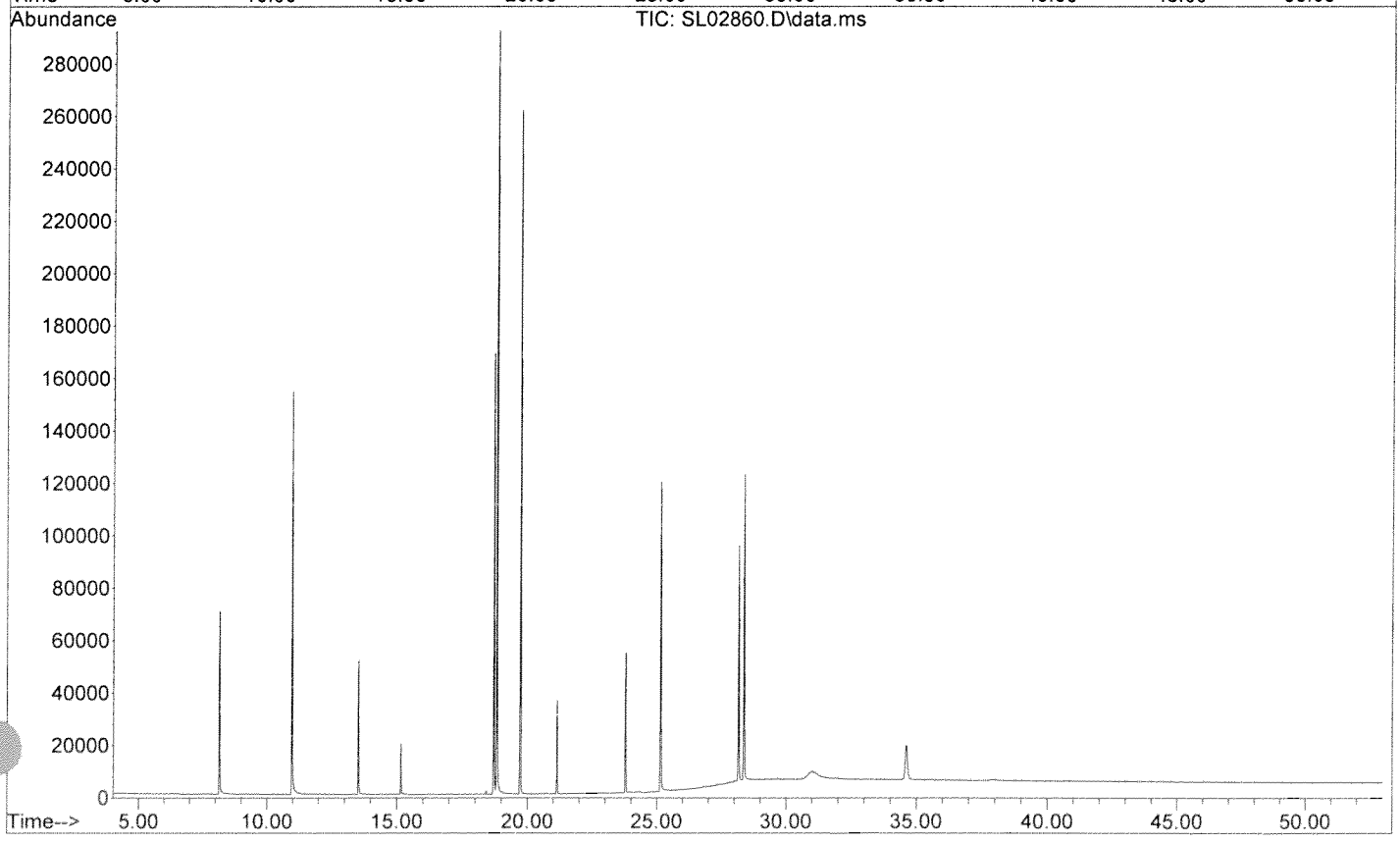
Data Path : C:\msdchem\1\DATA\022412\
Data File : SL02860.D
Acq On : 24 Feb 2012 18:58
Operator : Syslo
Sample : Method/WD Blank
Misc : RUC0022 + 10µL Surr + RVB0058
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jan 03 16:00:32 2013
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Thu Jan 03 13:01:26 2013
Response via : Initial Calibration



File :C:\msdchem\1\DATA\022412\SL02860.D
Operator : Syslo
Acquired : 24 Feb 2012 18:58 using AcqMethod DROTPH051611.M
Instrument : Slick2
Sample Name: Method/WD Blank
Misc Info : RUC0022 + 10µL Surr + RVB0058
Vial Number: 1





Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\022412\
Data File : SL02861.D
Acq On : 24 Feb 2012 21:18
Operator : Syslo
Sample : SERAS-017-0003
Misc : 275-55-05 {0.103gin10mL}
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 03 16:00:34 2013
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Thu Jan 03 13:01:31 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.713	188	352260	10.00	ug/mL	0.00
5) d30-Tetradecane	13.540	66	115710	10.00	ug/mL	0.00
6) d50-Tetracosane	23.793	66	142695	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.629	66	131331	10.00	ug/mL	0.02
System Monitoring Compounds						
2) d10-Anthracene {S}	18.831	188	571445	15.25	ug/mL	0.00
Spiked Amount 20.000			Recovery = 76.25%			
3) d14-o-Terphenyl {S}	19.742	244	281617	17.11	ug/mL	0.00
Spiked Amount 20.000			Recovery = 85.55%			
4) 5a-Androstane {S}	21.150	260	38713	19.33	ug/mL	0.00
Spiked Amount 20.000			Recovery = 96.65%			
7) d62-Triacontane {S}	28.164	66	252464	20.02	ug/mL	0.00
Spiked Amount 20.000			Recovery = 100.10%			
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

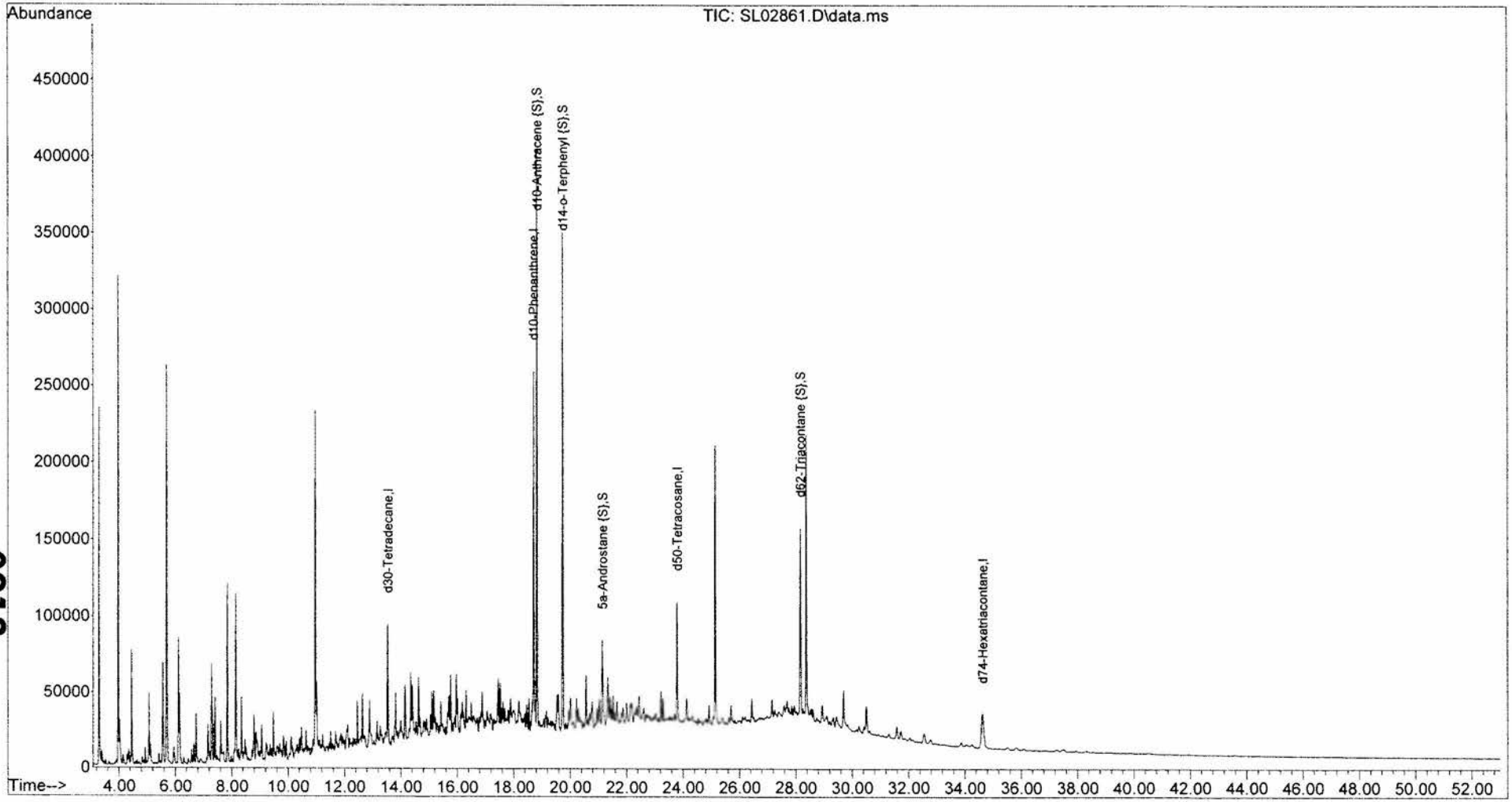
Σ_{TPH} = 23631649

SERAS-017-DTM-011413_1

Quantitation Report (QT Reviewed)

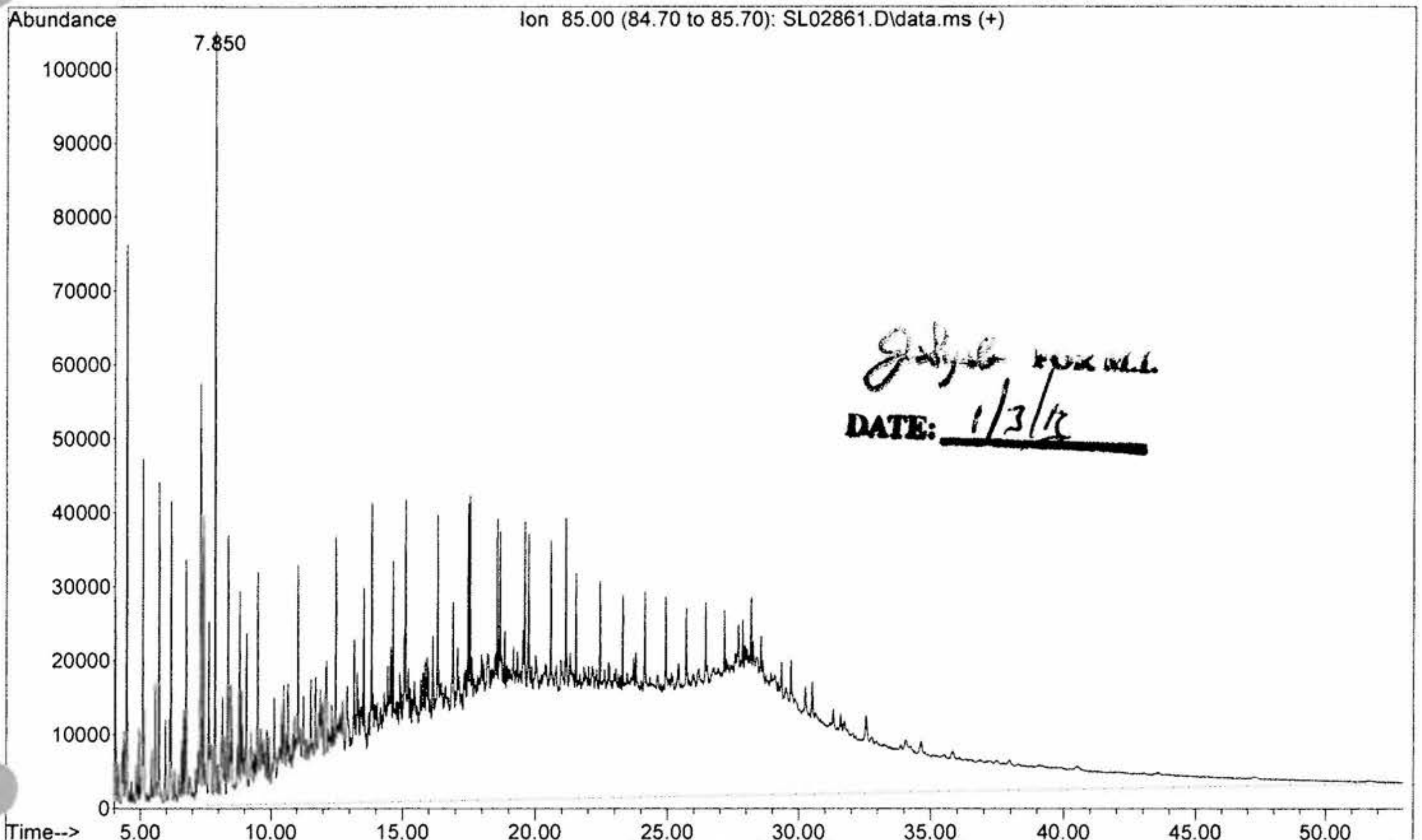
Data Path : C:\msdchem\1\DATA\022412\
Data File : SL02861.D
Acq On : 24 Feb 2012 21:18
Operator : Syslo
Sample : SERAS-017-0003
Misc : 275-55-05 {0.103gin10mL}
ALS Vial : 2 Sample Multiplier: 1

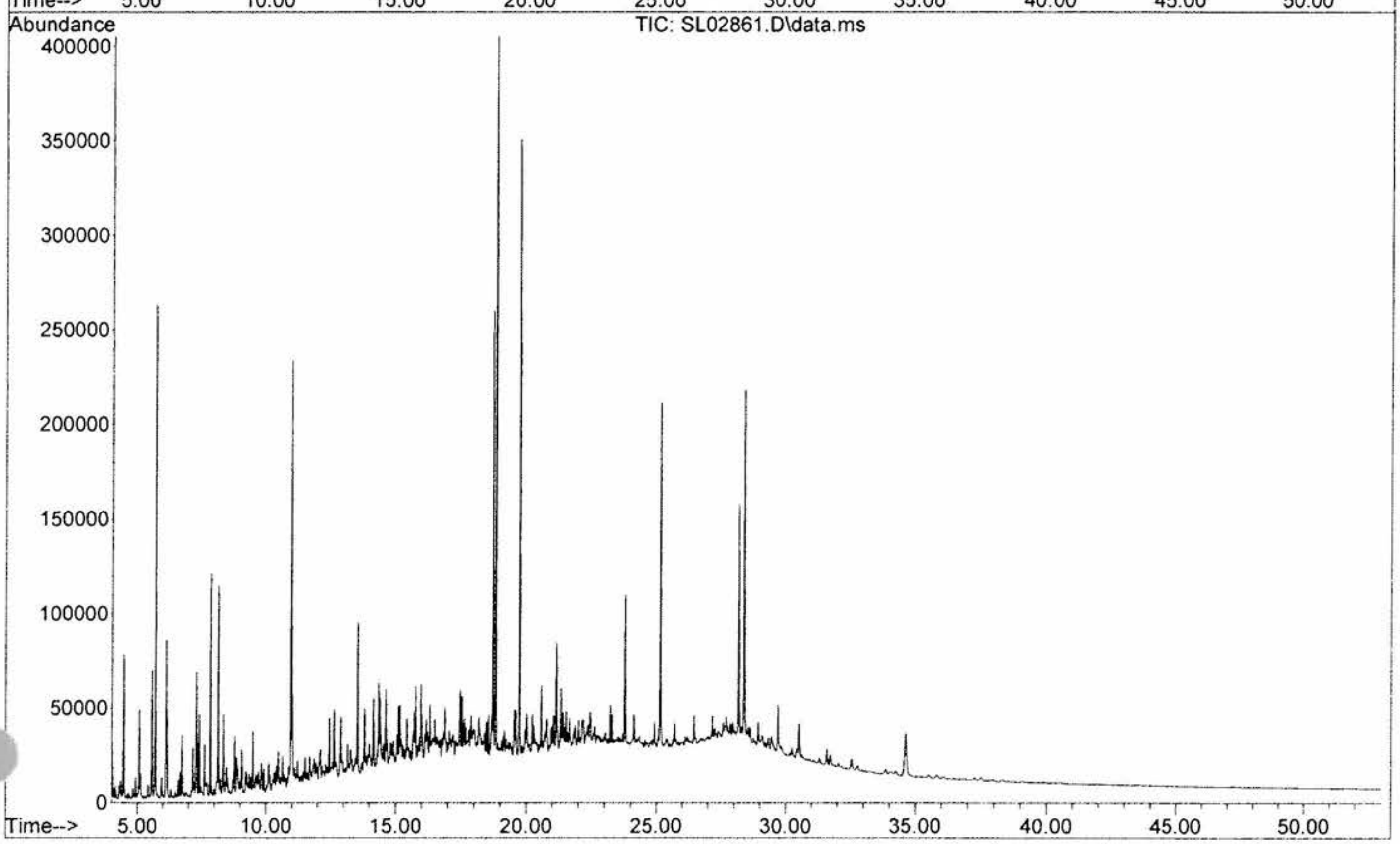
Quant Time: Jan 03 16:00:34 2013
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Thu Jan 03 13:01:31 2013
Response via : Initial Calibration



0213

```
File        :C:\msdchem\1\DATA\022412\SL02861.D
Operator    : Syslo
Acquired    : 24 Feb 2012  21:18     using AcqMethod DROTPH051611.M
Instrument  :    Slick2
Sample Name: SERAS-017-0003
Misc Info   : 275-55-05 {0.103gin10mL}
Vial Number: 2
```





Area Percent Report

Data Path : C:\msdchem\1\DATA\022412\
Data File : SL02861.D
Acq On : 24 Feb 2012 21:18
Operator : Syslo
Sample : SERAS-017-0003
Misc : 275-55-05 {0.103gin10mL}
ALS Vial : 2 Sample Multiplier: 1

Integration Parameters: Oilint.P
Integrator: RTE
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 0.5 % of largest Peak
Start Thrs: 0.05 Max Peaks: 5
Stop Thrs : 0.05 Peak Location: TOP

If leading or trailing edge < 50 prefer < Baseline drop else tangent >
Peak separation: 3

Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Title : DRO/TPH ICAL + Surr. 05/16/11

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02861.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	7.850	563	597	5999	rM 6	104728	23631649	100.00%	100.000%

Sum of corrected areas: 23631649

DROTPH051611.M Thu Jan 03 16:11:52 2013 SLICK2

FOR M.L
DATE: 1/3/13

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\022412\
Data File : SL02862.D
Acq On : 24 Feb 2012 22:20
Operator : Syslo
Sample : SERAS-017-0004
Misc : 275-56-24 {0.193gin10mL}
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jan 03 16:00:36 2013
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Thu Jan 03 13:01:31 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.704	188	315053	10.00	ug/mL	0.00
5) d30-Tetradecane	13.532	66	101066	10.00	ug/mL	0.00
6) d50-Tetracosane	23.784	66	126751	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.612	66	116744	10.00	ug/mL	0.00
System Monitoring Compounds						
2) d10-Anthracene {S}	18.822	188	546440	16.31	ug/mL	0.00
Spiked Amount 20.000			Recovery =	81.55%		
3) d14-o-Terphenyl {S}	19.733	244	270951	18.40	ug/mL	0.00
Spiked Amount 20.000			Recovery =	92.00%		
4) 5a-Androstane {S}	21.150	260	36644	20.46	ug/mL	0.00
Spiked Amount 20.000			Recovery =	102.30%		
7) d62-Triacontane {S}	28.164	66	241004	21.45	ug/mL	0.00
Spiked Amount 20.000			Recovery =	107.25%		
Target Compounds						Qvalue

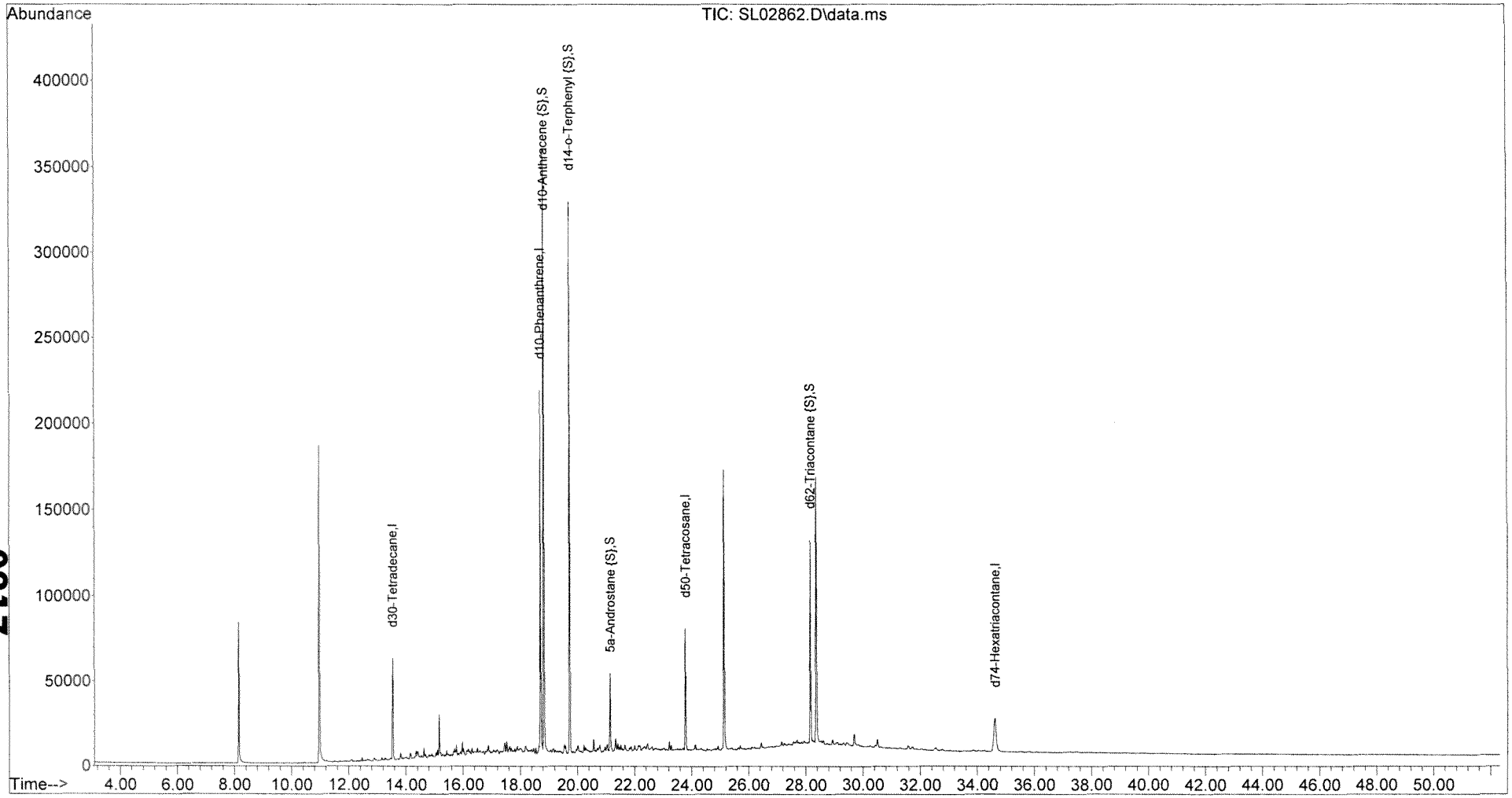
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Expl: 615/072

Data Path : C:\msdchem\1\DATA\022412\
Data File : SL02862.D
Acq On : 24 Feb 2012 22:20
Operator : Syslo
Sample : SERAS-017-0004
Misc : 275-56-24 {0.193gin10mL}
ALS Vial : 3 Sample Multiplier: 1

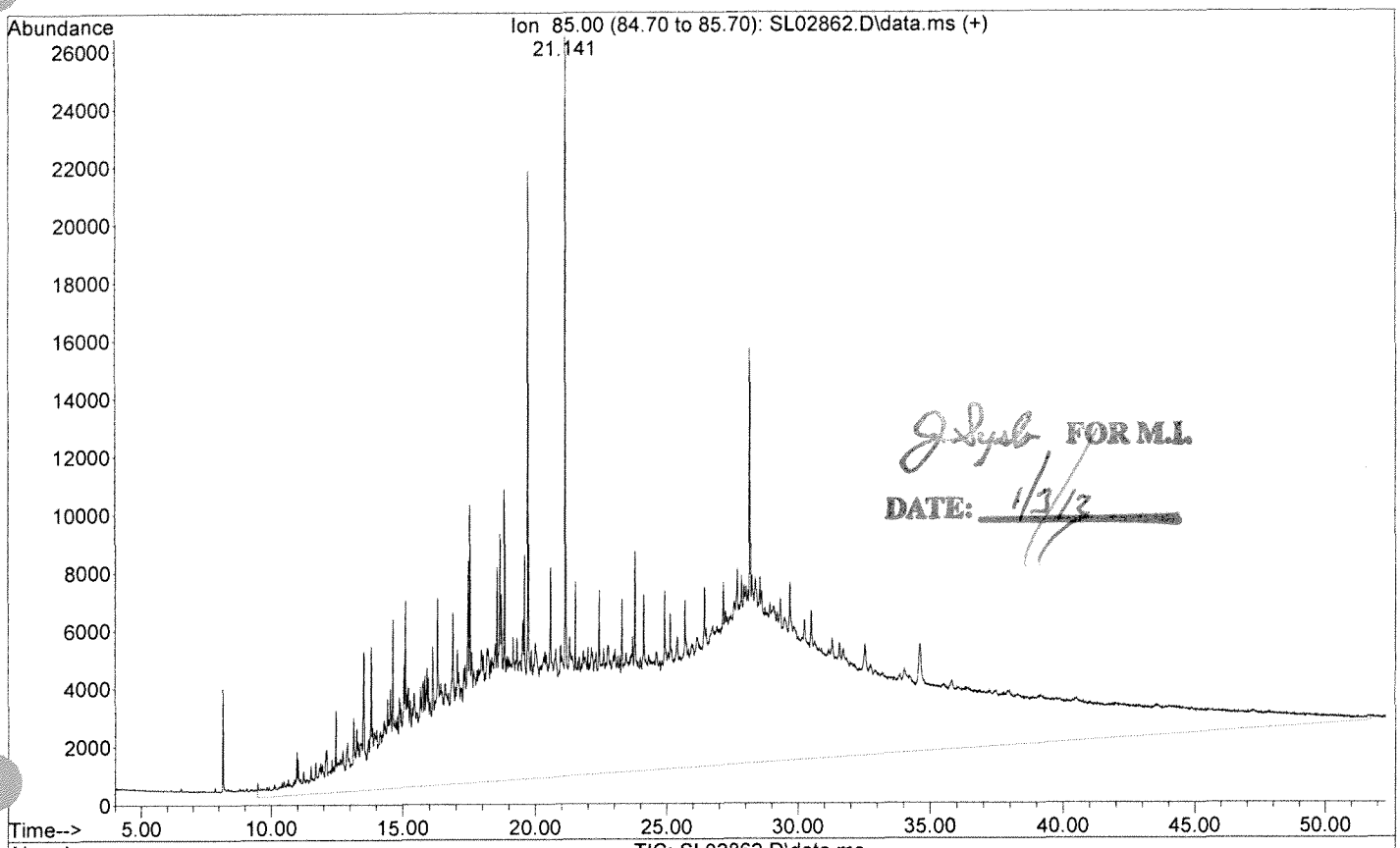
Quant Time: Jan 03 16:00:36 2013
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Thu Jan 03 13:01:31 2013
Response via : Initial Calibration

SERAS-017-DTM-011413_1

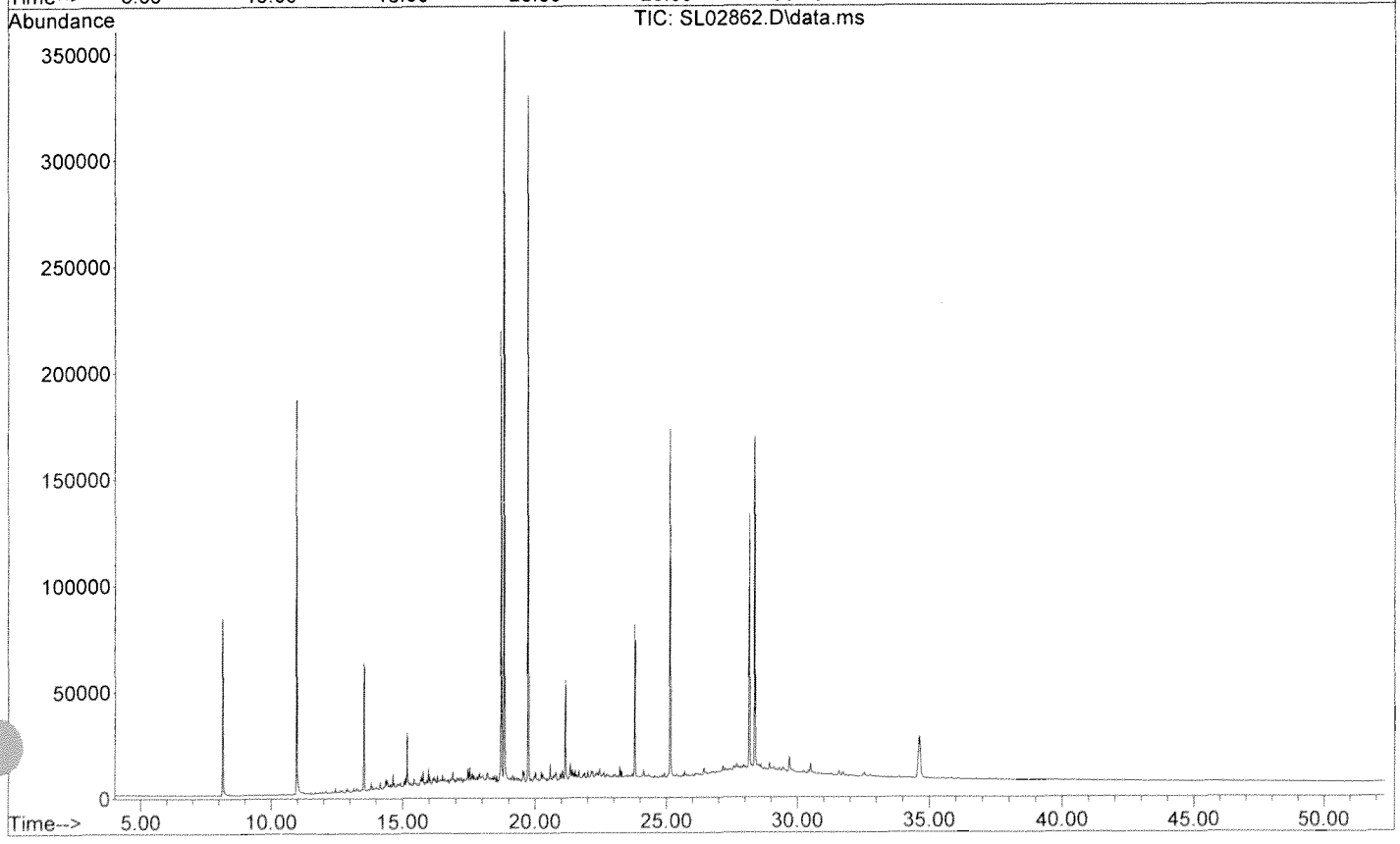


0217

File :C:\msdchem\1\DATA\022412\SL02862.D
Operator : Syslo
Acquired : 24 Feb 2012 22:20 using AcqMethod DROTPH051611.M
Instrument : Slick2
Sample Name: SERAS-017-0004
Misc Info : 275-56-24 {0.193gin10mL}
Vial Number: 3



J Syslo FOR M.L.
DATE: 1/3/13



Area Percent Report

Data Path : C:\msdchem\1\DATA\022412\
Data File : SL02862.D
Acq On : 24 Feb 2012 22:20
Operator : Syslo
Sample : SERAS-017-0004
Misc : 275-56-24 {0.193gin10mL}
ALS Vial : 3 Sample Multiplier: 1

Integration Parameters: Oilint.P
Integrator: RTE
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 0.5 % of largest Peak
Start Thrs: 0.05 Max Peaks: 5
Stop Thrs : 0.05 Peak Location: TOP

If leading or trailing edge < 50 prefer < Baseline drop else tangent >
Peak separation: 3

Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Title : DRO/TPH ICAL + Surr. 05/16/11

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02862.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	21.141	799	2221	5861	rM 5	25510	6151072	100.00%	100.000%

Sum of corrected areas: 6151072

DROTPH051611.M Thu Jan 03 16:13:10 2013 SLICK2

FOR M.I.
DATE: 1/3/13

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\022412\
Data File : SL02863.D
Acq On : 25 Feb 2012 00:29
Operator : Syslo
Sample : SERAS-017-0003 dup
Misc : 275-55-05 {0.109gin10mL}
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jan 03 16:00:38 2013
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Thu Jan 03 13:01:31 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.704	188	312803	10.00	ug/mL	0.00
5) d30-Tetradecane	13.532	66	102210	10.00	ug/mL	0.00
6) d50-Tetracosane	23.784	66	127325	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.604	66	115036	10.00	ug/mL	0.00
System Monitoring Compounds						
2) d10-Anthracene {S}	18.822	188	552247	16.60	ug/mL	0.00
Spiked Amount 20.000			Recovery = 83.00%			
3) d14-o-Terphenyl {S}	19.733	244	267802	18.32	ug/mL	0.00
Spiked Amount 20.000			Recovery = 91.60%			
4) 5a-Androstane {S}	21.150	260	37687	21.19	ug/mL	0.00
Spiked Amount 20.000			Recovery = 105.95%			
7) d62-Triacontane {S}	28.164	66	239590	21.24	ug/mL	0.00
Spiked Amount 20.000			Recovery = 106.20%			
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Σ_{TPH} = 24156905

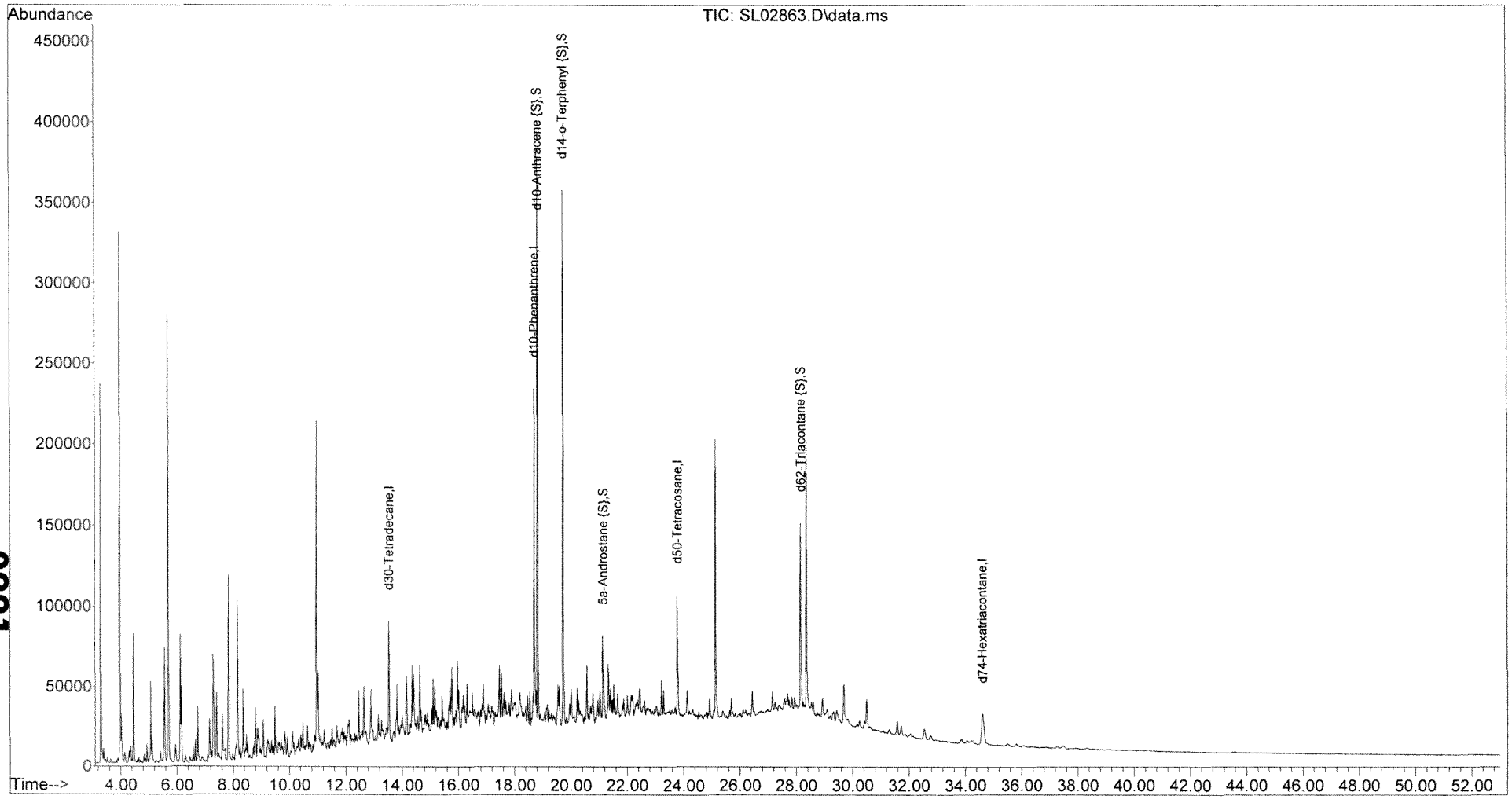
Note: This was not necessary for TPH - Done for D5739 oil fingerprint QC.

SERAS-017-DTM-011413_1

Quantitation Report (QT Reviewed)

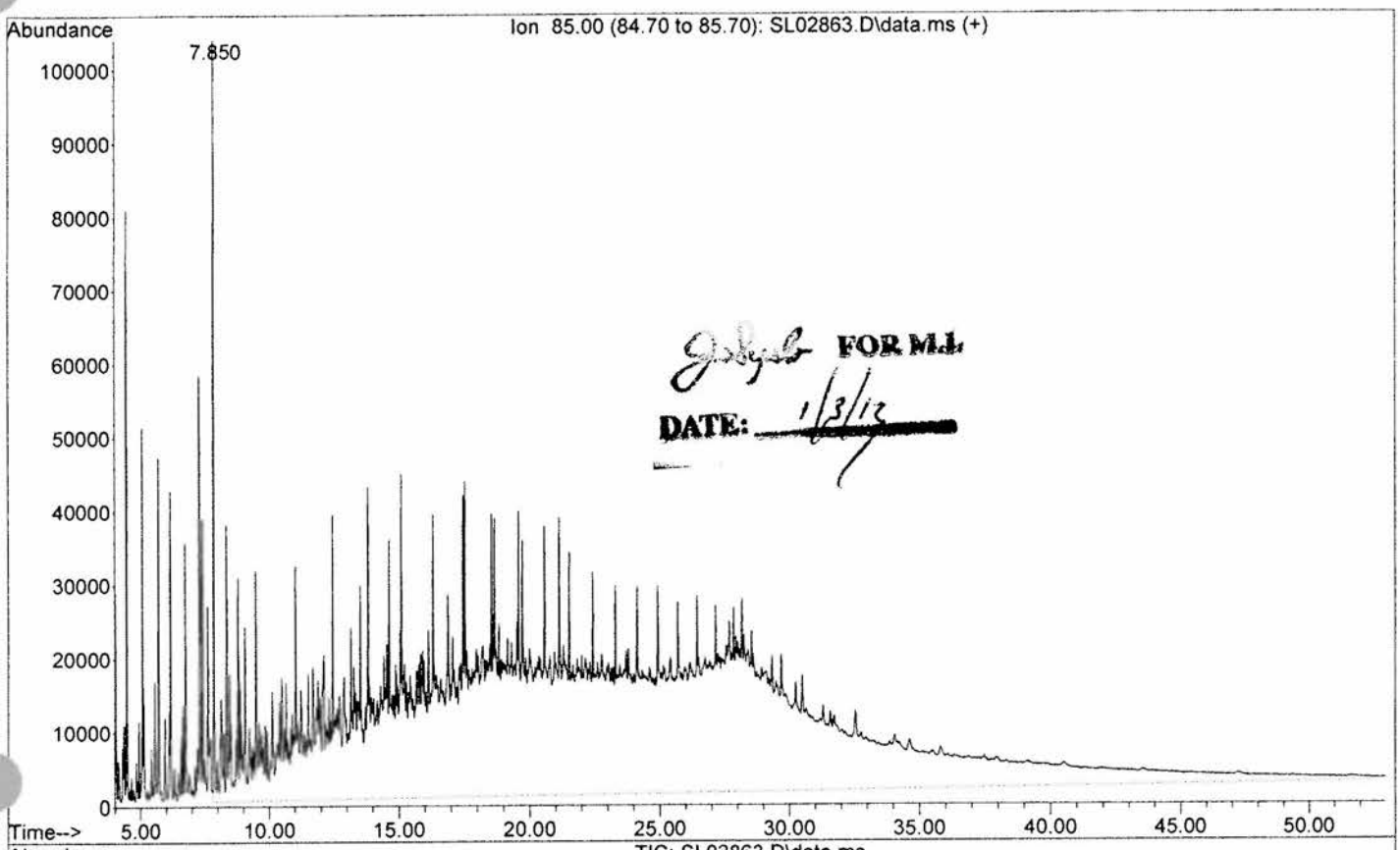
Data Path : C:\msdchem\1\DATA\022412\
Data File : SL02863.D
Acq On : 25 Feb 2012 00:29
Operator : Syslo
Sample : SERAS-017-0003 dup
Misc : 275-55-05 {0.109gin10mL}
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jan 03 16:00:38 2013
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Thu Jan 03 13:01:31 2013
Response via : Initial Calibration

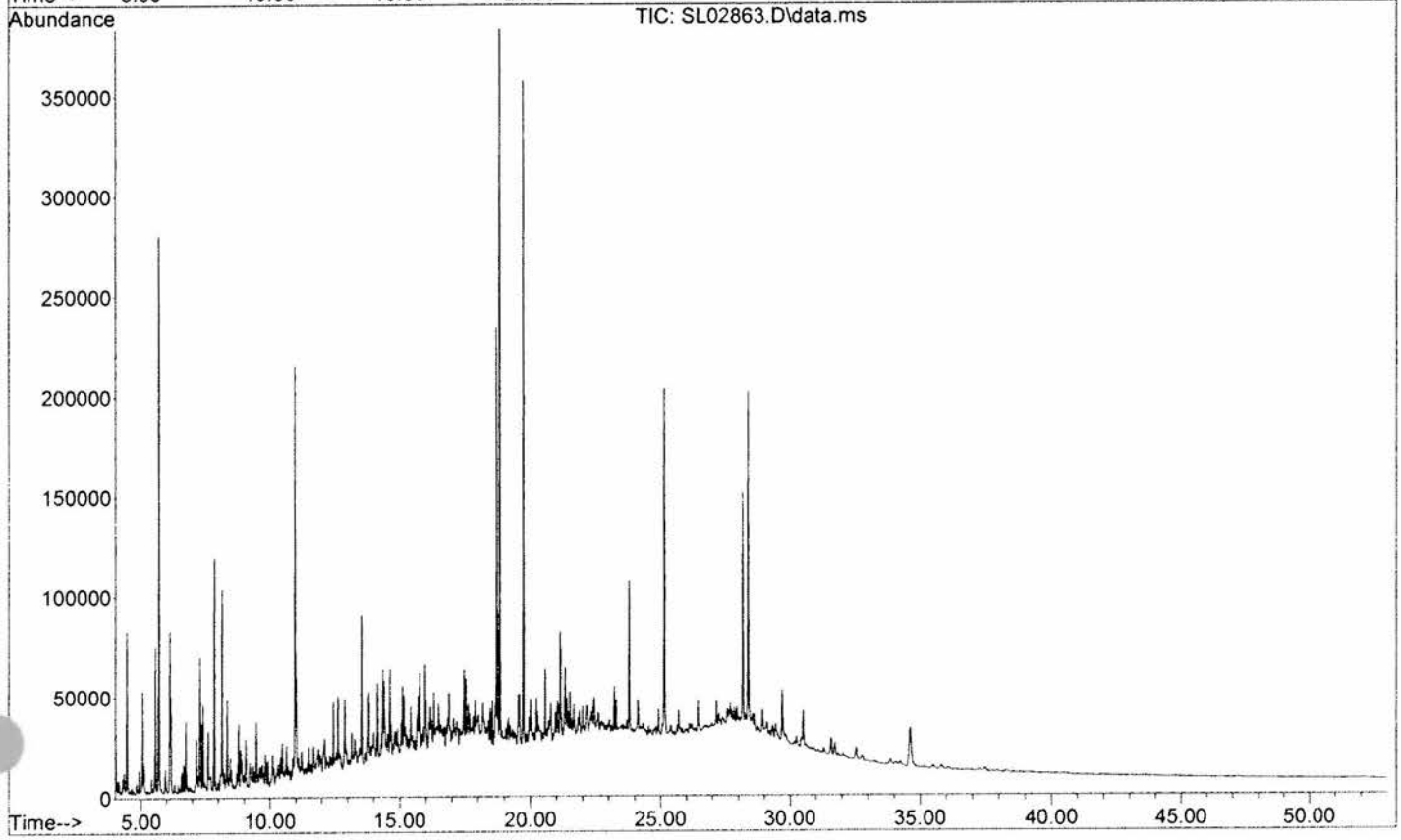


0221

File :C:\msdchem\1\DATA\022412\SL02863.D
Operator : Syslo
Acquired : 25 Feb 2012 00:29 using AcqMethod DROTPH051611.M
Instrument : Slick2
Sample Name: SERAS-017-0003 dup
Misc Info : 275-55-05 {0.109gin10mL}
Vial Number: 4



FOR M.L
DATE: 1/3/13



Area Percent Report

Data Path : C:\msdchem\1\DATA\022412\
Data File : SL02863.D
Acq On : 25 Feb 2012 00:29
Operator : Syslo
Sample : SERAS-017-0003 dup
Misc : 275-55-05 {0.109gin10mL}
ALS Vial : 4 Sample Multiplier: 1

Integration Parameters: Oilint.P
Integrator: RTE
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 0.5 % of largest Peak
Start Thrs: 0.05 Max Peaks: 5
Stop Thrs : 0.05 Peak Location: TOP

If leading or trailing edge < 50 prefer < Baseline drop else tangent >
Peak separation: 3

Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Title : DRO/TPH ICAL + Surr. 05/16/11

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02863.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	7.850	591	597	5946	rM 6	103410	24156906	100.00%	100.000%

Sum of corrected areas: 24156906

DROTPH051611.M Thu Jan 03 16:14:15 2013 SLICK2

J. Ryals FOR M.I.
DATE: 1/3/13

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\022412\
Data File : SL02864.D
Acq On : 25 Feb 2012 1:32
Operator : Syslo
Sample : BLK022412WD
sc : 10mL RUC0022 + 0.1mL RUK0077
LS Vial : 5 Sample Multiplier: 1

Quant Time: Jan 03 16:00:40 2013
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Thu Jan 03 13:01:31 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.704	188	286913	10.00	ug/mL	0.00
5) d30-Tetradecane	13.532	66	93739	10.00	ug/mL	0.00
6) d50-Tetracosane	23.784	66	110868	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.612	66	90400	10.00	ug/mL	0.00
System Monitoring Compounds						
2) d10-Anthracene {S}	18.822	188	573942	18.81	ug/mL	0.00
Spiked Amount 20.000			Recovery = 94.05%			
3) d14-o-Terphenyl {S}	19.733	244	285892	21.32	ug/mL	0.00
Spiked Amount 20.000			Recovery = 106.60%			
4) 5a-Androstane {S}	21.141	260	38030	23.31	ug/mL	0.00
Spiked Amount 20.000			Recovery = 116.55%			
7) d62-Triacontane {S}	28.164	66	228970	23.22	ug/mL	0.00
Spiked Amount 20.000			Recovery = 116.10%			

Target Compounds Qvalue

#) = qualifier out of range (m) = manual integration (+) = signals summed

ND for TPH

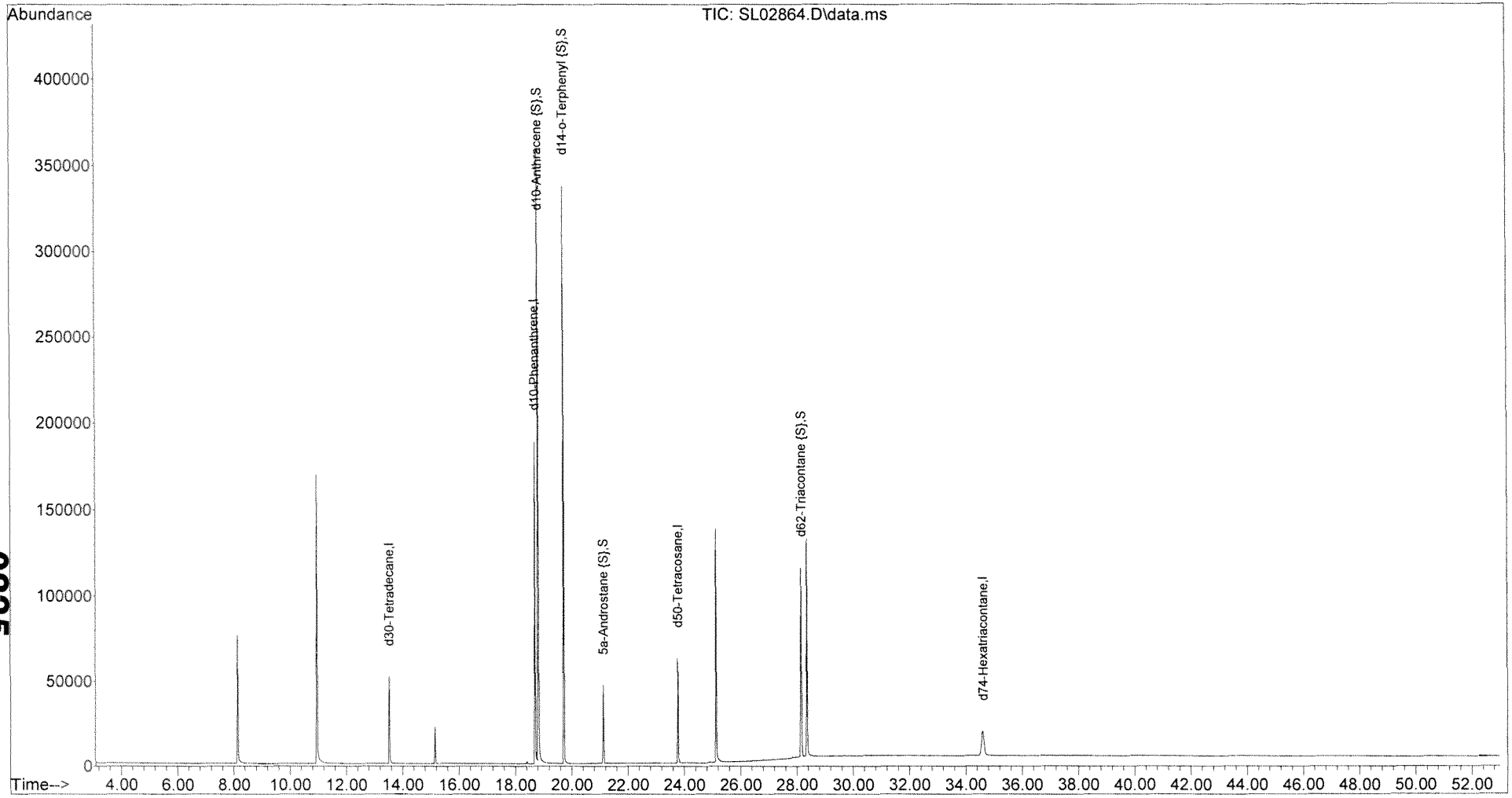
SERAS-017-DTM-011413_1

0225

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\022412\
Data File : SL02864.D
Acq On : 25 Feb 2012 1:32
Operator : Syslo
Sample : BLK022412WD
Misc : 10mL RUC0022 + 0.1mL RUK0077
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jan 03 16:00:40 2013
Quant Method : C:\MSDCHEM\1\METHODS\DROTPH051611.M
Quant Title : DRO/TPH ICAL + Surr. 05/16/11
QLast Update : Thu Jan 03 13:01:31 2013
Response via : Initial Calibration



```
File          :C:\msdchem\1\DATA\022412\SL02864.D
Operator      : Syslo
Acquired      : 25 Feb 2012    1:32      using AcqMethod DROTPH051611.M
Instrument :     Slick2
Sample Name: BLK022412WD
Misc Info   : 10mL RUC0022 + 0.1mL RUK0077
Vial Number: 5
```