

US EPA ARCHIVE DOCUMENT



Date: January 07, 2013
To: Alan Humphrey, Work Assignment Manager, ERT
From: J. Syslo, Analytical Support Chemist, SERAS *g 1/7/13*
Subject: Results of TPH Analysis of Day 28 Biodegradation Study 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-017-03/15/12-0005	7 Samples – Day 0
	SERAS-017-03/22/12-0006	6 Samples – Day 14
	SERAS-017-04/06/12-0007	6 Samples – Day 28

Analyses:	TPH
No. of Samples:	Total of Nineteen
Matrix:	Nutrient Medium / Biodegradation Study

This data package contains the results of 19 samples received by the GC/MS lab between 03/19/12 through 04/12/12 for TPH analysis using *draft* SERASGC/MS Method 1841. Each batch of samples was analyzed within 4 days of receipt by the GC/MS lab. The TPH concentration is reported as *total mg* for each sample and not dependant on the volume of water extracted. The client requested a gravimetric analysis of two sample extracts from the day 0 and day 14 study for information concerning the asphaltene content. Those results are also included.

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

cc Analyst: J. Syslo
Central File: G. DePasquale

Case Narrative

Date: January 07, 2013
Project: Oil Spill Response Support Site: Enbridge Oil: WA# SER0017
Subject: Results of TPH Analysis for Day 28 Biodegradation Samples using SERAS *Draft* GC/MS Method 1841. Includes Gravimetric Analysis of Select Day 0 and Day 14 Extracts.

This data package contains the results of 19 samples received by the GC/MS lab between 03/19/12 through 04/12/12 for TPH analysis using *draft* SERAS GC/MS Method# 1841. The following samples were received:

Chain(s) of Custody #s:	SERAS-017-03/15/12-0005	7 Samples – Day 0
	SERAS-017-03/22/12-0006	6 Samples – Day 14
	SERAS-017-04/06/12-0007	6 Samples – Day 28

Each batch of samples was analyzed within 4 days of receipt by the GC/MS lab. The TPH concentration is reported as *total mg* for each sample and not dependant on the volume of water extracted. The client requested a gravimetric analysis of two sample extracts from the day 0 and day 14 study for information concerning the asphaltene content. Those results are also included.

The LIMS work order(s) from the Project manager 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, all the samples received were extracted and analyzed for TPH analysis only.

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 TPH analytical method is outlined in SERAS *Draft* GC/MS SOP# 1841. In this application the TPH is reported as “Total TPH : (GRO + DRO + ORO)” and TPH 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 ~ 4.5.0 to 55 minutes. A macro was written which automatically extracts and adds the signal for the six TPH ions. The total area of the identified TPH pattern is manually integrated as the TPH area. A copy of this macro (TPHSERAS) is included with this report. This is a flexible and accurate method to quantitate the TPH present in pure oils, samples, and is applicable to weathered and fresh oils.

The GC/MS system was calibrated on 03/22/12 using site specific oil collected from the site. The biodegradation samples were received from the Task Leader as a nutrient medium and extracted as water samples. The sample extracts were concentrated to 5.0mL and diluted 4x before analysis. The TPH concentration is reported as *total mg* in Table 1.0 for the Day 0 study, 2.0 for the Day 14 study, and 3.0 for the Day 28 study.

The gravimetric analysis was performed by transferring 2.0mL of the 5.0mL dichloromethane extract to a tared vial, carefully evaporating all the solvent, and recording the weight of oil as total mg. The weight of surrogate spike compounds was less than 5% of the total weight and considered negligible since we were attempting to get an approximated value. Table 2.1 shows the TPH results (as *total mg*) that were calculated by the GC/MS system and by the gravimetric process. All the TPH results were discussed and presented to the client during an afternoon meeting on 4/23/12 and at that time no formal analytical report was required.

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

An MS/MSD pair was extracted with the Day 0 samples, but the samples spiked at a level that was below the RL and the results not calculable.

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 of the 28 day biodegradation samples.

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\28DayTreatabilityStudy2012.

J. Syslo - 01/07/2013

Analytical Conditions and Method Summary

TPH as "Total TPH" in Soil & Water 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 "Total TPH : (GRO + DRO + ORO)" and TPH 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 ~ 4.5.0 to 50 minutes. A macro was written which automatically extracts and adds the signal for the six TPH ions. The total area of the identified TPH pattern is manually integrated as the TPH area. A copy of this macro (TPHSERAS) is included with this report. This is a flexible and accurate method to quantitate the TPH 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-d₄, naphthalene-d₈, phenanthrene-d₁₀, chrysene-d₁₂, perylene-d₁₂, n-tetradecane-d₃₀, n-hexatriacontane-d₇₄ and n-tetracosane-d₅₀. The TPH analysis uses only four of internal standards: Phenanthrene-d₁₀ is used to quantitate three of the surrogates, and the three internal standards n-tetradecane-d₃₀, n-tetracosane-d₅₀, and n-hexatriacontane-d₇₄ 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, each water sample is spiked with 500µL of a 40 µg/mL surrogate mixture containing anthracene-d₁₀, 5α-androstane, ortho-terphenyl-d₁₄, and triacontane-d₆₂. 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-d₈, phenanthrene-d₁₀, chrysene-d₁₂, and perylene-d₁₂, tetradecane-d₃₀, hexatriacontane-d₇₄ and tetracosane-d₅₀. 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.

For this biodegradation study, the TPH calibration range was prepared using a site specific oil (SERAS-017-0004). The GC/MS was calibrated for TPH using the site oil with surrogate compounds added. A five point calibration range was prepared from serial dilutions of TPH + surrogates mixture, with the following TPH concentration in each calibration standard: 50,000, 25,000, 10,000, 5000, and 1000µg/mL. The 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 ~48 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 5,000ppm 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 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 TPHSERAS.mac applied to obtain the total TPH signal.

```
! File: TPHSERAS.mac
! J. Syslo MACRO for sum of GRO (105) & DRO (85+83+113+123+183) TPH
! For total GRO & DRO +UCM TPH quanted as total fingerprint
! *** New way to do TPH . . . with 6 ions not just 83 + 85***
! *** Developed October 2009 for DRO in water PT sample by J. Syslo***
!
! Plots NOT normalized
! integratable in window 2
! This will automatically print the fingerprint, then after macro runs, show TPH over TIC onscreen
```

```
NAME TPHSERAS
format separated,,0
EIC 4:55,105
EIC 4:55,123
r6=x+y
eic 4:55,113
eic 4:55,183
r7=x+y
eic 4:55,85
eic 4:55,83
r8=x+y
r4=r6+r7+r8
exchange r4,r0
DRAW 2,r0
! macro "printwin2.mac",go
! remove printwin2
TIC 4:55
draw 1,x
remove TPHSERAS
clear
return
```

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
Acquisition 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

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
14.800@414
MASSGAIN : -623.000
MASSOFFSET : -38.000

19.000@ 50 15.200@ 69 14.200@131 15.000@219
14.800@502 17.000@1049

End of TPH method summary:
JS Ver. 03/20/2012

Table 1.0: Results of the TPH in Water Analysis by GC/MS
Day 0 Biodegradation Study Samples: Enbridge Oil: WA# 0-017
TPH Calculated from Site Specific Oil and Reported as Total Miligrams (mg) Extracted

Method: SERAS Draft GC/MS SOP 1841

Sample No.	Sampling Location	GC/MS File	Conc. Total mg	RL Total mg
<i>03/22/12 Sequence</i>				
Water Blank	1200039-BLK1	SL02967	U	1.00
SERAS-017-0007	275-78-10	SL02969	192	20.00
SERAS-017-0008	275-78-11	SL02970	237	20.00
SERAS-017-0009	275-78-12	SL02971	175	20.00
SERAS-017-0010	275-78-13	SL02972	196	20.00
SERAS-017-0011	275-78-14	SL02973	172	20.00
SERAS-017-0012	275-78-15	SL02974	178	20.00
SERAS-017-0013	275-78-16	SL02975	188	20.00

Samples from COC#: SERAS-017-03/15/12-0005

Table 2.0: Results of the TPH in Water Analysis by GC/MS
Day 14 Biodegradation Study Samples: Enbridge Oil: WA# 0-017
TPH Calculated from Site Specific Oil and Reported as Total Miligrams (mg) Extracted

Method: SERAS Draft GC/MS SOP 1841

Sample No.	Sampling Location	GC/MS File	Conc. <i>Total mg</i>	RL <i>Total mg</i>
<i>03/23/12 Sequence</i>				
Water Blank	1200040-BLK1	SL02981	U	1.00
SERAS-017-0014	275-82-07	SL02982	73.1	20.00
SERAS-017-0015	275-82-08	SL02983	77.0	20.00
SERAS-017-0016	275-82-09	SL02984	72.7	20.00
SERAS-017-0017	275-82-10	SL02985	84.2	20.00
SERAS-017-0018	275-82-11	SL02986	77.7	20.00
SERAS-017-0019	275-82-12	SL02987	71.8	20.00

Samples from COC#: SERAS-017-03/22/12-0006

Table 2.1: Results of the TPH Analysis by GC/MS & Gravimetric Analysis
Select Day 0 & 14 Samples: Enbridge Oil: WA# 0-017
TPH Calculated from Site Specific Oil & Determined Gravimetrically
and Reported as Total Miligrams (mg) Extracted

Method: SERAS Draft GC/MS SOP 1841

		GC/MS Calculated	Gravimetric Calculated	RL
		Conc.	Conc.	
Sample No.		Total mg	Total mg	Total mg
SERAS-017-0007	Day 0	192	183	20.00
SERAS-017-0014	Day 14	73.1	136	20.00
SERAS-017-0013	Day 0	188	182	20.00
SERAS-017-0019	Day 14	71.8	148	20.00

Table 3.0: Results of the TPH in Water Analysis by GC/MS
Day 28 Biodegradation Study Samples: Enbridge Oil: WA# 0-017
TPH Calculated from Site Specific Oil and Reported as Total Miligrams (mg) Extracted

Method: SERAS Draft GC/MS SOP 184I

Sample No.	Sampling Location	GC/MS File	Conc. Total mg	RL Total mg
<i>04/18/12 Sequence</i>				
Water Blank	1200055-BLK1	SL03053	U	1.00
SERAS-017-0020	275-89-06	SL03056	65.9	20.00
SERAS-017-0021	275-89-07	SL03057	62.6	20.00
SERAS-017-0022	275-89-08	SL03058	65.5	20.00
SERAS-017-0023	275-89-09	SL03059	66.3	20.00
SERAS-017-0024	275-89-10	SL03060	68.3	20.00
SERAS-017-0025	275-89-11	SL03061	67.5	20.00

Samples from COC#: SERAS-017-04/06/12-0007

**TABLE 4.0: Results of the Internal Standard Areas & Surrogate Recoveries
for TPH in Water Analysis using SERAS *Draft* GC/MS Method 1841
Day 0 Biodegradation Study Samples: Enbridge Oil: WA# 0-017**

SERAS TPH SOP# 1841

Sample Number	GC/MS File	Internal Standard Areas		
		d30-Tetradecane	d50-Tetracosane	d74-Hexatriacontane
03/22/12 Sequence				
5000ppm TPH ICAL Std. CCV	SL02966	119900	144569	112634
1200039-BLK1	SL02967	118029	139445	111377
1200039-BS1 LCS	SL02968	121762	143973	109556
SERAS-017-0007	SL02969	119011	145052	110410
SERAS-017-0008	SL02970	122607	145631	112288
SERAS-017-0009	SL02971	124895	147089	110260
SERAS-017-0010	SL02972	114589	139187	109675
SERAS-017-0011	SL02973	124642	147719	111962
SERAS-017-0012	SL02974	121230	141754	108789
SERAS-017-0013	SL02975	116264	140334	109222
1200039-MS1	SL02976	121248	142173	109222
1200039-MSD1	SL02977	115226	136105	105829

Sample Number	Surrogate Recoveries			
	d10-Anthracene	o-Terphenyl-d14	5a-Androstane	d62-Triacontane
1200039-BLK1	80	76	74	97
1200039-BS1 LCS	81	85	85	95
SERAS-017-0007	102	98	92	94
SERAS-017-0008	105	99	93	95
SERAS-017-0009	108	105	96	99
SERAS-017-0010	108	102	93	102
SERAS-017-0011	103	98	90	96
SERAS-017-0012	104	100	91	97
SERAS-017-0013	108	101	89	97
1200039-MS1	108	103	97	99
1200039-MSD1	109	105	96	102

**TABLE 4.1: Results of the Internal Standard Areas & Surrogate Recoveries
for TPH in Water Analysis using SERAS *Draft* GC/MS Method 1841
Day 14 Biodegradation Study Samples: Enbridge Oil: WA# 0-017**

SERAS TPH SOP# 1841

Sample Number	GC/MS File	Internal Standard Areas		
		d30-Tetradecane	d50-Tetracosane	d74-Hexatriacontane
03/23/12 Sequence				
5000ppm TPH ICAL Std. CCV	SL02980	117728	144092	115840
1200040-BLK1	SL02981	106157	126812	104377
SERAS-017-0014	SL02982	107071	128524	101278
SERAS-017-0015	SL02983	108529	133698	105811
SERAS-017-0016	SL02984	104970	128225	101411
SERAS-017-0017	SL02985	104173	126782	99924
SERAS-017-0018	SL02986	102970	126411	100881
SERAS-017-0019	SL02987	110829	135561	104457
1200040-BS1	SL02988	97888	118099	92030
1200040-BSD1	SL02989	99326	121875	95414

Sample Number	Surrogate Recoveries			
	d10-Anthracene	o-Terphenyl-d14	5a-Androstane	d62-Triacontane
1200040-BLK1	84	80	77	93
SERAS-017-0014	99	97	90	90
SERAS-017-0015	93	93	89	89
SERAS-017-0016	96	96	89	90
SERAS-017-0017	98	98	92	94
SERAS-017-0018	95	96	94	91
SERAS-017-0019	95	96	88	90
1200040-BS1	88	90	88	97
1200040-BSD1	85	88	86	95

**TABLE 4.2: Results of the Internal Standard Areas & Surrogate Recoveries
for TPH in Water Analysis using SERAS *Draft* GC/MS Method 1841
Day 28 Biodegradation Study Samples: Enbridge Oil: WA# 0-017**

SERAS TPH SOP# 1841

Sample Number	GC/MS File	Internal Standard Areas		
		d30-Tetradecane	d50-Tetracosane	d74-Hexatriacontane
04/18/12 Sequence				
5000ppm TPH ICAL Std. CCV	SL03052	138365	199934	162938
1200055-BLK1	SL03053	121623	157600	118416
1200055-BS1	SL03054	129741	173733	119096
1200055-BSD1	SL03055	116171	133157	87997
SERAS-017-0020	SL03056	125925	175849	132234
SERAS-017-0021	SL03057	125565	174377	124976
SERAS-017-0022	SL03058	124891	174909	123255
SERAS-017-0023	SL03059	116789	167418	132840
SERAS-017-0024	SL03060	118838	171974	131586
SERAS-017-0025	SL03061	120123	149414	96319

Sample Number	Surrogate Recoveries			
	d10-Anthracene	o-Terphenyl-d14	5a-Androstane	d62-Triacontane
1200055-BLK1	88	95	92	113
1200055-BS1	59	72	81	95
1200055-BSD1	58	70	77	90
SERAS-017-0020	134	117	148	112
SERAS-017-0021	134	117	143	109
SERAS-017-0022	136	119	140	114
SERAS-017-0023	133	116	144	116
SERAS-017-0024	134	116	136	115
SERAS-017-0025	129	105	119	92

Table 5.0: Results of the LCS and LCS/LCSD Analysis for TPH in Water Samples
28 Day Biodegradation Study for Enbridge Oil: WA# 0-017
TPH Reported as Total mg in Sample

Method: SERAS Draft SOP# 1841

Day 0 Spiked Sample	Sample Conc. (total mg)	LCS Spike Added (total mg)	LCS Conc. (total mg)	LCS % Rec.	QC LIMITS	
					% Rec.	
1200039-BS1	U	2.50	1.92	77	50 - 150	

Day 14 Spiked Sample	Sample Conc. (total mg)	LCS Spike Added (total mg)	LCS Conc. (total mg)	LCS % Rec.	LCSD Spike Added (total mg)	LCSD Conc. (total mg)	LCSD % Rec.	% RPD	QC LIMITS	
									RPD	% Rec.
1200040-BS1 & BSD1	U	2.50	2.49	100	2.50	2.40	96	4	20	50 - 150

Day 28 Spiked Sample	Sample Conc. (total mg)	LCS Spike Added (total mg)	LCS Conc. (total mg)	LCS % Rec.	LCSD Spike Added (total mg)	LCSD Conc. (total mg)	LCSD % Rec.	% RPD	QC LIMITS	
									RPD	% Rec.
1200055-BS1 & BSD1	U	2.50	2.11	84	2.50	2.11	84	0	20	50 - 150

Table 6.0: Results of Initial Calibration Verificaiton (ICV) for Enbridge Oil TPH
SERAS *Draft* GC/MS SOP# 1841: GC/MS Oil Characterization & TPH
Calibration Date: 03/22/12 - GC/MS ID-File ENOTPH032212.M
ICV Prepared at 5000 µg/mL ; GC/MS File SL02964.D

Method: SERAS SOP#1841

Compound	Target Conc. µg/mL	ICV Conc. µg/mL	%Recovery	Tentative %Rec.Limits
TPH from Enbridge site Oil	5000	5560	111	50-150 %

ICV LIMS# = RVC0066; 5000ppm Site Specific Oil prepared from sample SERAS-017-0003

Table X.0: Results of the Total TPH in Water Analysis by GC/MS
LCS/LCSD Calculations: Enbridge Oil: WA# 0-017
Total TPH Calculated from Site Specific Oil and Reported as Total Miligrams (mg) Extracted

Method: SERAS GC/MS SOP 1841

Sample No.	Sampling Location	GC/MS File	Conc. <i>Total mg</i>	RL <i>Total mg</i>
LCS Day 0	1200039-BS1	SL02968	1.92	1.00
LCS Day 14	1200040-BS1	SL02988	2.49	1.00
LCSD Day 14	1200040-BSD1	SL02989	2.40	1.00
LCS Day 28	1200055-BS1	SL03054	2.11	1.00
LCSD Day 28	1200055-BSD1	SL03055	2.11	1.00

Enbridge Oil TPH Calibration Range - Using SERAS *Draft* GC/MS Method 1841

TPH Calibration Range of 03/22/12

GC/MS System "Slick2" S/N#'s US10915004/US90432092

TPH from RVC0056 Site Oil: SERAS-017-0004	TPH/Oil Concentration				
	25000 ug/ml	10000 ug/ml	5000 ug/ml	1000 ug/ml	50000 ug/ml
GC/MS TPH Response (m/z 85+83+105+113+123+183)	45401525	18442674	9776223	1867654	85192346
d30-tetracosane response	118180	133554	132173	130685	126146
d50-tetracosane response	141124	158231	156768	157544	142158
d74-Hexatriacontane response	111081	115110	113404	119572	113508
Sum of d30, d50 & d74-IS	370385	406895	402345	407801	381812

IS Conc. (total ng) = 30

	TPH/Oil Concentration					Average RF	% RSD
	25000 ug/ml	10000 ug/ml	5000 ug/ml	1000 ug/ml	50000 ug/ml		
Response Factor from sum of ions 85+83+105+113+123+183	0.14710	0.13598	0.14579	0.13739	0.13388	0.14003	4.29

Using ENOTPH032212.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 TPH (m/z 85 + 83 + 105 + 113 + 123 + 183) pattern from ~10.1 min to 53min.

%RSD Denotes Relative Standard Deviation.

Response Factor Report Slick2

Method Path : C:\MSDCHEM\1\METHODS\
 Method File : ENOTPH032212.M
 Title : Enbridge Oil ICAL: 3/22/12
 Last Update : Mon Mar 26 17:07:53 2012
 Response Via : Initial Calibration

Calibration Files

5.0k=SL02958.D 1.0k=SL02959.D 10k =SL02960.D 50k =SL02961.D 25k =SL02962.D
 0.5k=SL02963.D

Compound		5.0k	1.0k	10k	50k	25k	0.5k	Avg	%RSD

1) I	d10-Phenanthrene	-----ISTD-----							
2) S	d10-Anthracene...	1.017	0.892	0.914	0.804	0.901	0.850	0.897	7.98
3) S	d14-o-Terpheny...	0.447	0.413	0.400	0.361	0.395	0.404	0.403	6.90
4) S	5a-Androstane {S}	0.058	0.052	0.052	0.050	0.052	0.051	0.053	5.06
5) I	d30-Tetradecane	-----ISTD-----							
6) I	d50-Tetracosane	-----ISTD-----							
7) S	d62-Triacontan...	0.892	0.781	0.797	0.714	0.791	0.783	0.793	7.20
8) I	d74-Hexatriacontane	-----ISTD-----							

(#) = Out of Range									

ENOTPH032212.M Mon Mar 26 17:08:57 2012 SLICK2

For Surrygate

TPH ICAL for ENBRIDGE Oil Samples
- used site oil

Logbook # SERAS-I-0121

TPH ICAL: ENOTPH03212.M Page 90

SERAS, GC/MS Injection Log

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

Project Name: ENBRIDGE Oil: TPH ICAL + Samples

Method File: DFTPP/ENOTPH03212

Work Assign#: 0-017

Inj. Volume: 1ul

Analysis/Date: TPH in BIOTREMATION STUDY

Analyst: JSL

ALS	FILE ID	SAMPLE ID	REAC ID	Date of Analysis	TIME Inj.	COMMENTS
99	SL02956	50 ppm DFTPP	RVB0025	3/22/12	14:51	Pass 1385-1376
71	SL02957	My Hand Blank			15:30	5.1/Hand Blank + Surc
72	SL02958	5000 ppm ENO TPH STD	RVC0059		16:51	
73	SL02959	1000 ppm ENO TPH STD	RVC0062		17:52	
74	SL02960	10,000 ppm ENO TPH STD	RVC0060		18:52	
75	SL02961	50,000 ppm ENO TPH STD	RVC0058		19:52	
76	SL02962	25,000 ppm ENO TPH STD	RVC0061		20:51	
77	SL02963	0.5 ppm ENO TPH STD	RVC0063		21:51	
78	SL02964	5000 ppm End Source CV	RVC0066		22:51	
99	SL02965	50 ppm DFTPP	RVB0025	3/22/12	23:47	Pass Sample
72	SL02966	5000 ppm ENO CCC TPH	RVC0059	3/23/12	00:08	Pass Cal. Check TPH
1	SL02967	BLANK	1200039-BLKI		1:08	1uL EV
2	SL02968	LCS	1200039-BSI		2:07	1uL EV
3	SL02969	SERAS-017-0007	4x R203011-01		3:08	5uL EV then 4x
4	SL02970	-0008	-02		4:08	
5	SL02971	-0009	-03		5:08	
6	SL02972	-0010	-04		6:09	
7	SL02973	-0011	-05		7:09	
8	SL02974	-0012	-06		8:09	
9	SL02975	-0013	R203011-07		9:09	
10	SL02976	-0013 MS	1200039-MSI		10:09	
11	SL02977	SERAS-017-0013 MS	4x R200039-MSI		11:09	5uL EV then 4x
1	SL02978	CO2 Blank	Blank	3/23/12	12:08	
SL		Send 3/23/12				
99	SL02979	50 ppm DFTPP	RVB0025	3/23/12	17:56	Pass 1387-1379
71	SL02980	5000 ppm ENO TPH STD	RVC0059		18:21	Pass
1	SL02981	2000 ppm Blank	1200040-BLKI	1200140-MS	19:38	1uL EV
2	SL02982	SERAS-017-0014	4x R203015-01		20:37	5uL EV then 4x
3	SL02983	SERAS-017-0015	4x R203015-02	3/23/12	21:58	5uL EV then 4x
	REAC ID	Standard Description	Exp. date	Conc.	Ref. P.	Comment
1	RVB0025	DFTPP	8/14/12	50 ppm		
2	RVC0059	Calibration Check TPH	9/15/12	5000 ppm		Site Specific TPH
3	RVC0035	Internal Standard Oil IS	9/15/12	5000 ppm		Spikes 20uL/1uL
4						
5						
6						

Reviewed By: JSL

Date Checked: 3/26/12

Analyzed by: JSL 3/24/12

Sequence Name: C:\msdchem\1\sequence\032212.s

Comment: Enbridge Oil ICAL 0-017

Operator: Syslo

Data Path: C:\MSDCHEM\1\DATA\032212\

Instrument Control Pre-Seq Cmd:

Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:

Data Analysis Post-Seq Cmd:

Enbridge ICAL

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 SL02956 DFT8270D 50 DFTPP
2) Sample	71 Method Blank
Datafile	SL02957
Method	ENOTPH032212
3) Sample	72 5.0K ENO-TPH ICAL
Datafile	SL02958
Method	ENOTPH032212
4) Sample	73 1.0K ENO-TPH ICAL
Datafile	SL02959
Method	ENOTPH032212
5) Sample	74 10K ENO-TPH ICAL
Datafile	SL02960
Method	ENOTPH032212
6) Sample	75 50K ENO-TPH ICAL
Datafile	SL02961
Method	ENOTPH032212
7) Sample	76 25K ENO-TPH ICAL
Datafile	SL02962
Method	ENOTPH032212
8) Sample	77 0.5K ENO-TPH ICAL
Datafile	SL02963
Method	ENOTPH032212
9) Sample	78 5.0K 2nd Source CCV
Datafile	SL02964
Method	ENOTPH032212

Injection Log

Data Directory: C:\msdchem\1\DATA\032212\

ENO ICAL 1000 - 50,000 ppm

SampleName	MiscInfo	Vial	Multiplier	Injection Time	
1) L02956.D					
50 DFTPP	RVB0025	99	1.000	22 Mar 2012 14:51	ICAL
2) SL02957.D					
Method Blank	RVC0018 + 20µL RVC00	71	1.000	22 Mar 2012 15:30	
3) SL02958.D					
5.0K ENO-TPH ICAL	RVC0059	72	1.000	22 Mar 2012 16:51	
4) SL02959.D					
1.0K ENO-TPH ICAL	RVC0062	73	1.000	22 Mar 2012 17:52	
5) SL02960.D					
10K ENO-TPH ICAL	RVC0060	74	1.000	22 Mar 2012 18:52	
6) SL02961.D					
50K ENO-TPH ICAL	RVC0058	75	1.000	22 Mar 2012 19:52	
7) SL02962.D					
25K ENO-TPH ICAL	RVC0061	76	1.000	22 Mar 2012 20:51	
8) SL02963.D					
0.5K ENO-TPH ICAL	RVC0063	77	1.000	22 Mar 2012 21:51	For Sw/igate
9) SL02964.D					
5.0K 2nd Source CCV	RVC0066 from SERAS-0	78	1.000	22 Mar 2012 22:51	
10) L02965.D					
50 DFTPP	RVB0025	99	1.000	22 Mar 2012 23:47	
11) SL02966.D					
5.0K ENO-TPH ICAL	RVC0059 CCC	72	1.000	23 Mar 2012 00:08	
12) SL02967.D					
Blank	1mL FV	1	1.000	23 Mar 2012 1:08	
13) SL02968.D					
LCS	1mL FV	2	1.000	23 Mar 2012 2:07	
14) SL02969.D					
4xd of SERAS-017-000 5.0mL fv, then 4xd		3	1.000	23 Mar 2012 3:08	
15) SL02970.D					
4xd of SERAS-017-000 5.0mL fv, then 4xd		4	1.000	23 Mar 2012 4:08	
16) SL02971.D					
4xd of SERAS-017-000 5.0mL fv, then 4xd		5	1.000	23 Mar 2012 5:08	
17) SL02972.D					
4xd of SERAS-017-001 5.0mL fv, then 4xd		6	1.000	23 Mar 2012 6:09	
18) SL02973.D					
4xd of SERAS-017-001 5.0mL fv, then 4xd		7	1.000	23 Mar 2012 7:09	
19) L02974.D					
4xd of SERAS-017-001 5.0mL fv, then 4xd		8	1.000	23 Mar 2012 8:09	
20) SL02975.D					
4xd of SERAS-017-001 5.0mL fv, then 4xd		9	1.000	23 Mar 2012 9:09	
21) SL02976.D					
SERAS-017-DTM-011413_2					

4xd of SERAS-017-001 5.0mL fv, then 4xd	10	1.000	23 Mar 2012	10:09

22) SL02977.D				
4xd of SERAS-017-001 5.0mL fv, then 4xd	11	1.000	23 Mar 2012	11:09

23) SL02978.D				
Blank reblank	1	1.000	23 Mar 2012	12:08

24) SL02979.D				
50 DFTPP RVB0025	99	1.000	23 Mar 2012	16:42

GC/MS QA-QC Check Report

Tune File : C:\msdchem\1\DATA\032212\SL02956.D

Tune Time : 22 Mar 2012 14:51

Daily Calibration File : C:\msdchem\1\DATA\032012\SL02928.D

3/22/12 Emb. bridge O.I.
ICN

384525 143687 194266

131489

File	Sample	Surrogate	Recovery %	Internal Standard Responses
SL02957.D	Method Bla	0	0	0
		0	0	0
		113591		
SL02958.D	5.0K ENO-T	104*	100*	98*
		98*		
		332210	132173	156768
		113404		
SL02959.D	1.0K ENO-T	18*	18*	18*
		17*		
		329432	130685	157544
		118572		
SL02960.D	10K ENO-TP	186*	179*	174*
		175*		
		334084	133554	158231
		115110		
SL02961.D	50K ENO-TP	820*	805*	846*
		784*		
		309391	126146	142158
		113508		
SL02962.D	25K ENO-TP	459*	441*	444*
		434*		
		297487	118180	141124
		111081		
SL02963.D	0.5K ENO-T	9*	9*	9*
		9*		
		309155	123489	149417
		117528		
SL02964.D	5.0K 2nd S	0*	0*	1*
		0*		
		302824	119607	144886
		114347		

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

Created: Fri Mar 23 19:21:22 2012 Slick2

Calibration Status Report Slick2

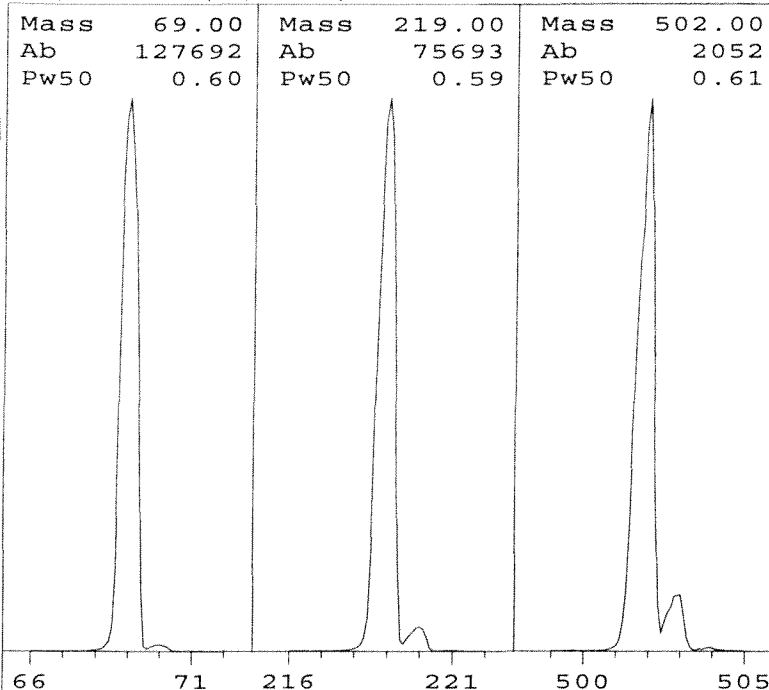
Method Path : C:\MSDCHEM\1\METHODS\
Method File : ENOTPH032212.M
Title : Enbridge Oil ICAL: 3/22/12
Last Update : Mon Mar 26 17:07:53 2012
Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	CC	10	10	C:\msdchem\1\DATA\032212\SL02958.D
2	5.0k	10	10	C:\msdchem\1\DATA\032212\SL02958.D
3	1.0k	10	10	C:\msdchem\1\DATA\032212\SL02959.D
4	10k	10	10	C:\msdchem\1\DATA\032212\SL02960.D
5	50k	10	10	C:\msdchem\1\DATA\032212\SL02961.D
6	25k	10	10	C:\msdchem\1\DATA\032212\SL02962.D
7	0.5k	10	10	C:\msdchem\1\DATA\032212\SL02963.D

#	ID	Update Time	Quant Time	Acquisition Time
1	CC	Mar 26 17:02 2012	Mar 22 17:41 2012	22 Mar 2012 16:51
2	5.0k	Mar 26 17:03 2012	Mar 22 17:41 2012	22 Mar 2012 16:51
3	1.0k	Mar 26 17:05 2012	Mar 22 18:42 2012	22 Mar 2012 17:52
4	10k	Mar 26 17:06 2012	Mar 22 19:42 2012	22 Mar 2012 18:52
5	50k	Mar 26 17:06 2012	Mar 22 20:42 2012	22 Mar 2012 19:52
6	25k	Mar 26 17:07 2012	Mar 22 21:41 2012	22 Mar 2012 20:51
7	0.5k	Mar 26 17:07 2012	Mar 22 22:41 2012	22 Mar 2012 21:51

ENOTPH032212.M Mon Mar 26 17:08:35 2012 SLICK2

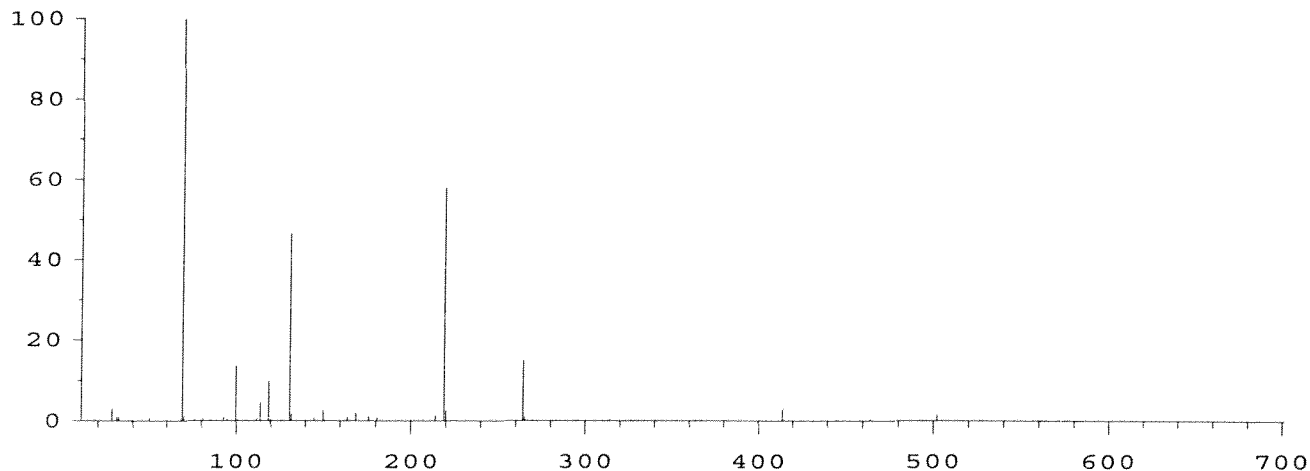
5975

Thu Mar 22 14:43:35 2012
C:\msdchem\1\5975\Xtune.uInstrument: Slick2
US90432092

Ion Pol	Pos	MassGain	MassOffs
Emission	34.6	AmuGain	1862
EIEnergy	69.9	AmuOffs	122.94
Filament	2	Wid219	-0.018
		DC Pol	Pos
Repeller	25.43		
IonFcus	80.7	HEDEnab	On
EntLens	0.0	EMVolts	1624
EntOffs	Var		

PFTBA	Open	Samples	Averages	Stepsize
		8	5	0.10

Temperatures and Pressures:			
MS Source	280	TurboSpd	100
MS Quad	190	HiVac	1.58e05

Scan: 10.00 - 701.00 Samples: 8 Thresh: 100 Step: 0.10
56 peaks Base: 69.00 Abundance: 122384

Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	122384	100.00	70.00	1413	1.15
219.00	70768	57.82	220.00	3020	4.27
502.00	1870	1.53	503.00	157	8.40

Air/Water Check: H2O~0.33% N2~2.86% O2~0.87% CO2~0.00% N2/H2O~855.75%

Ramp Criteria:

Ion Focus Maximum	110	volts using ion	502;	EM Gain	15167
Repeller Maximum	35	volts using ion	502;	Gain Factor	0.15

MassGain Values(Samples): -617(3) -606(2) -589(1) -549(0) -462(FS)

TARGET MASS:	50	69	131	219	414	502	1050
Amu Offset:	122.9	122.9	122.9	122.9	122.9	122.9	122.9
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(%)	0.8	100.0	46.5	57.8	2.8	2.5	

SERAS-017-DTM-011413_2

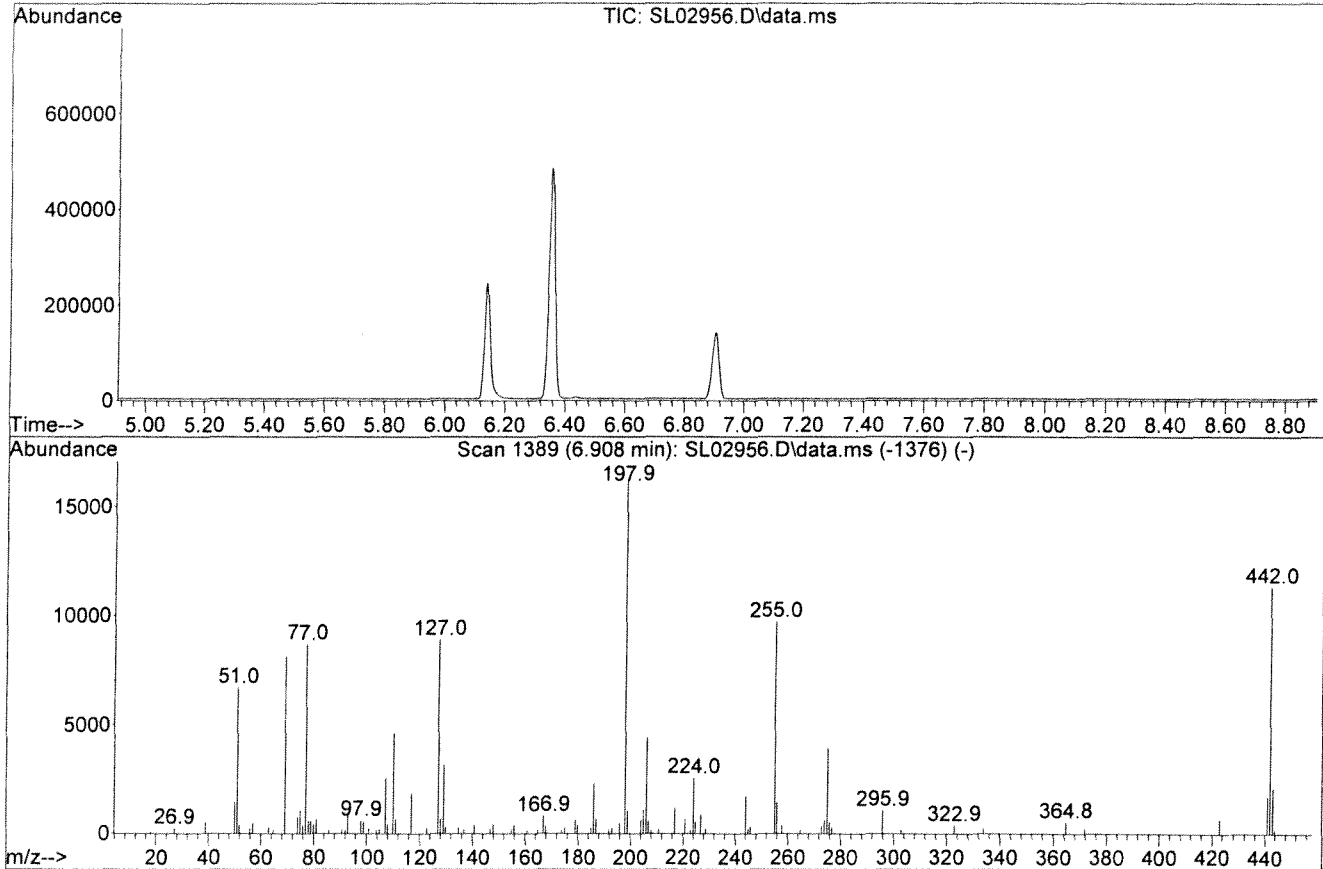
026

Data Path : C:\msdchem\1\DATA\032212\
 Data File : SL02956.D
 Acq On : 22 Mar 2012 14:51
 Operator : Syslo
 Sample : 50 DFTPP
 Misc : RVB0025
 ALS Vial : 99 Sample Multiplier: 1

Tailing
 PCP = 1.41%
 Benzidine = 0.98%
 DDT Deg = 8.3%.

Integration File: rteint.p

Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
 Title : DFTPP Method with 8270D criteria: 8/20/10
 Last Update : Thu Mar 08 02:08:57 2012



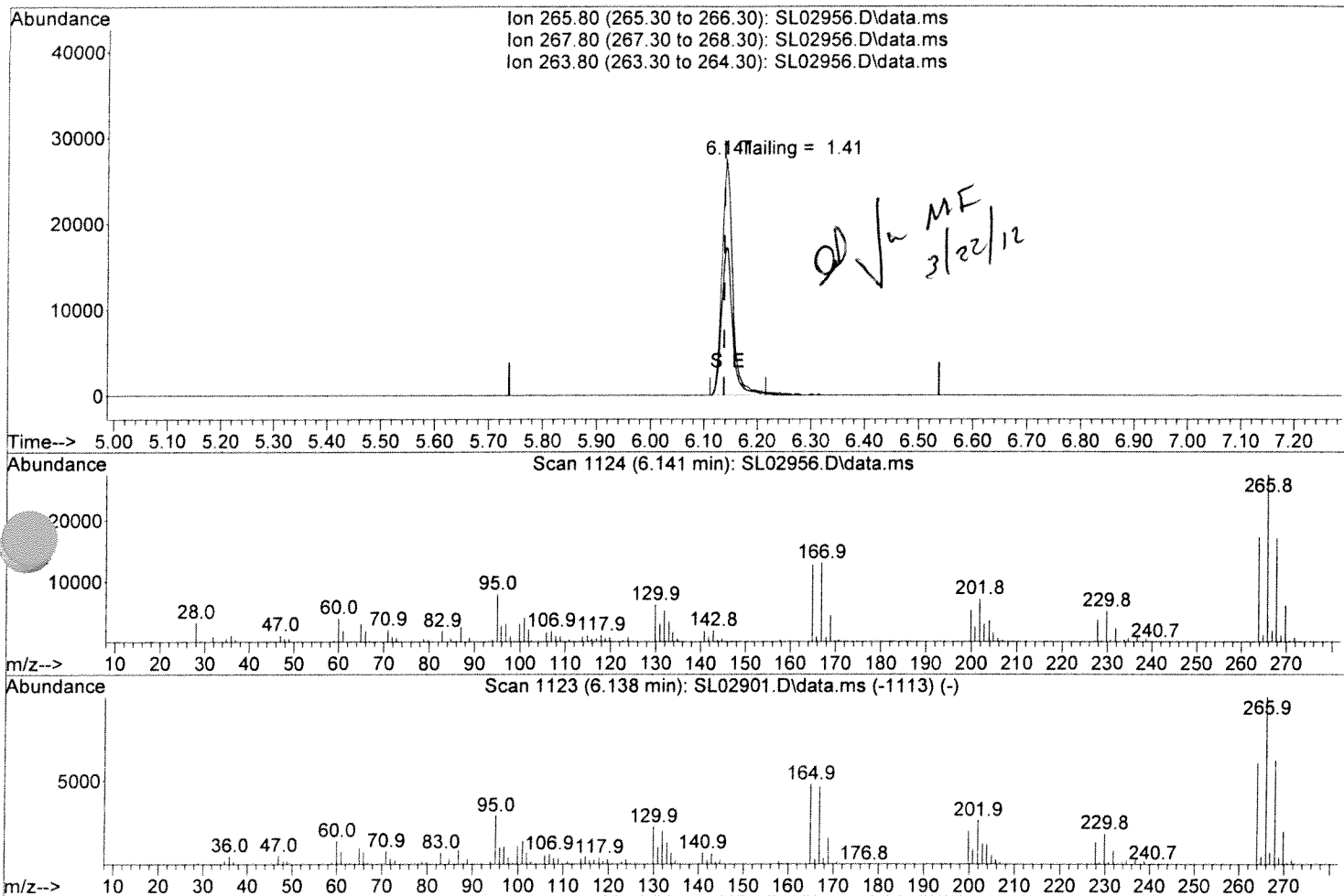
Spectrum Information: Scan 1389

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	41.1	6687	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	49.9	8121	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	54.6	8887	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	16272	PASS
199	198	5	9	6.4	1040	PASS
275	198	10	60	24.1	3921	PASS
365	198	1	100	3.2	515	PASS
441	442	0.01	24	14.9	1684	PASS
442	198	50	100	69.6	11327	PASS
443	442	15	24	18.3	2071	PASS

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02956.D
Acq On : 22 Mar 2012 14:51
Operator : Syslo
Sample : 50 DFTPP
Disc : RVB0025
ALS Vial : 99 Sample Multiplier: 1

Quant Time: Mar 22 15:03:38 2012
Quant Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
Quant Title : DFTPP Method with 8270D criteria: 8/20/10
QLast Update : Thu Mar 08 02:08:58 2012
Response via : Initial Calibration



TIC: SL02956.D\data.ms

(2) Pentachlorophenol

6.141min (+0.003) 43.68 ug/mL

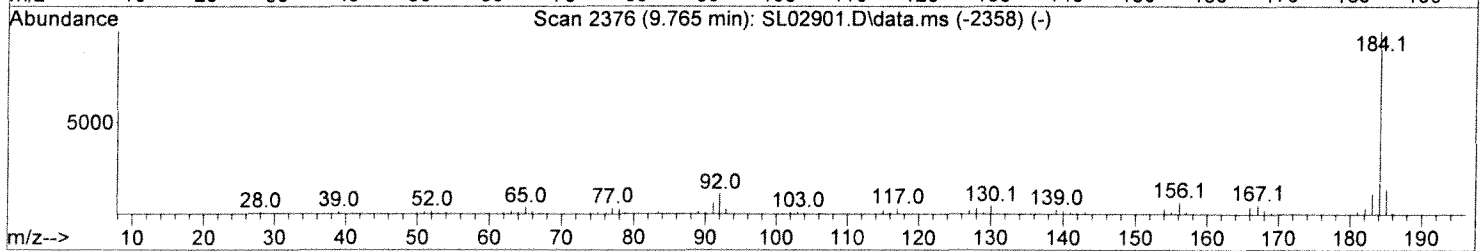
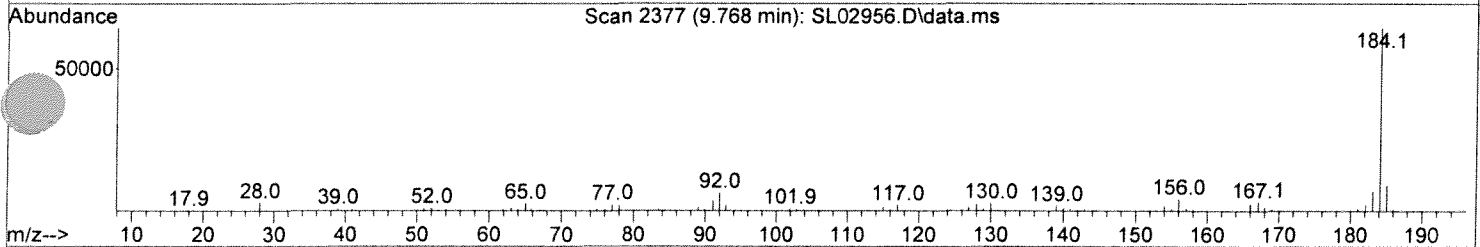
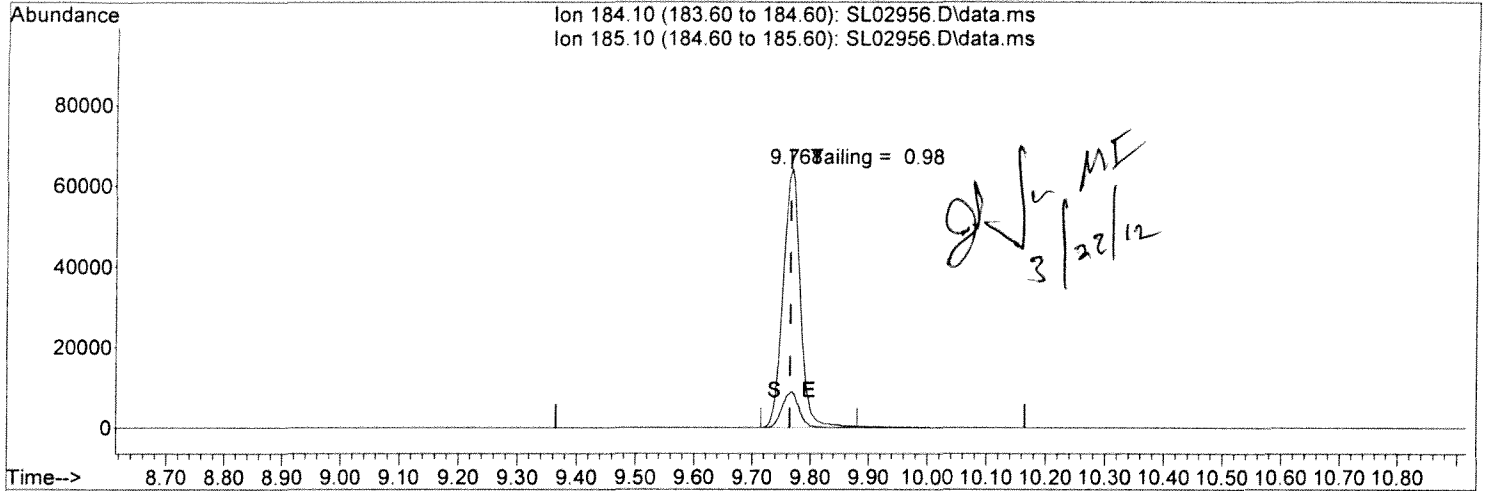
response 38467

Ion	Exp%	Act%
265.80	100	100
267.80	64.50	62.97
263.80	63.60	63.79
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\032212\
 Data File : SL02956.D
 Acq On : 22 Mar 2012 14:51
 Operator : Syslo
 Sample : 50 DFTPP
 Misc : RVB0025
 ALS Vial : 99 Sample Multiplier: 1

Quant Time: Mar 22 15:03:38 2012
 Quant Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
 Quant Title : DFTPP Method with 8270D criteria: 8/20/10
 QLast Update : Thu Mar 08 02:08:58 2012
 Response via : Initial Calibration



TIC: SL02956.D\data.ms

(5) Benzidine

9.768min (+0.003) 39.73 ug/mL

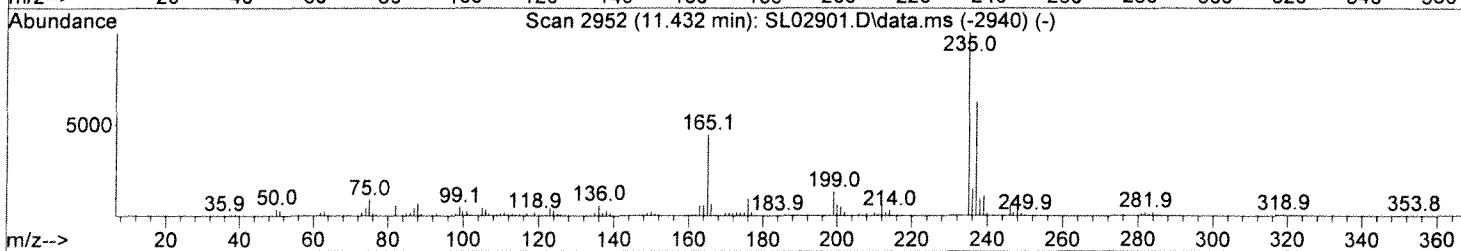
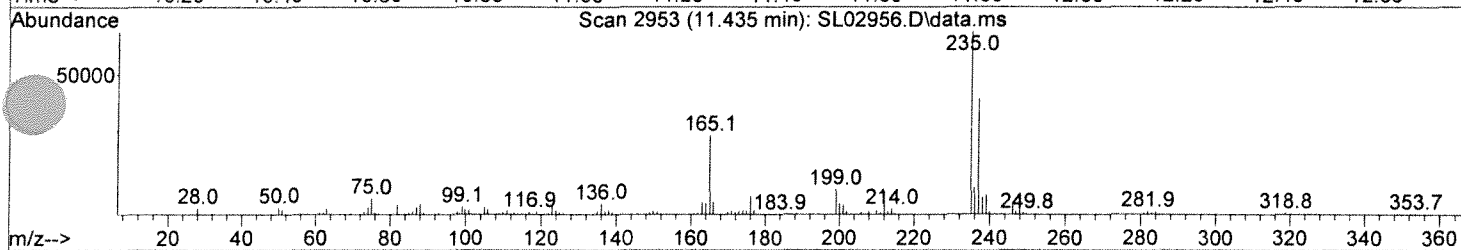
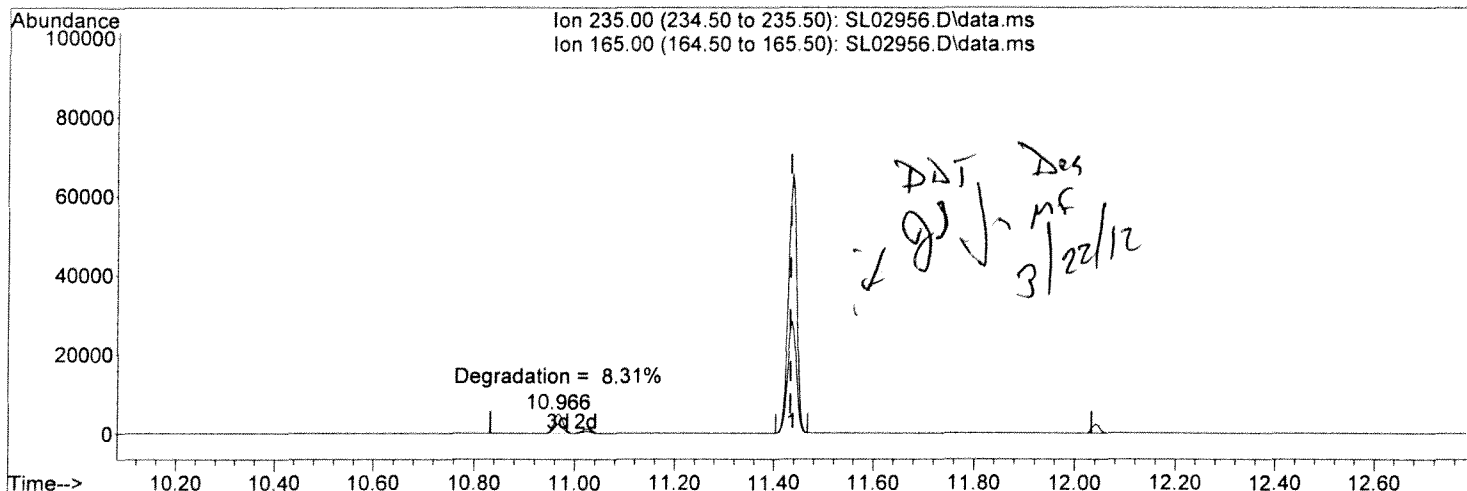
response 132315

Ion	Exp%	Act%
184.10	100	100
185.10	14.60	13.58
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02956.D
Acq On : 22 Mar 2012 14:51
Operator : Syslo
Sample : 50 DFTPP
Disc : RVB0025
ALS Vial : 99 Sample Multiplier: 1

Quant Time: Mar 22 15:03:38 2012
Quant Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
Quant Title : DFTPP Method with 8270D criteria: 8/20/10
QLast Update : Thu Mar 08 02:08:58 2012
Response via : Initial Calibration



TIC: SL02956.D\data.ms

(6) DDT

11.435min (+0.003) 51.79 ug/mL

response 76738

Ion	Exp%	Act%
235.00	100	100
165.00	51.80	44.12
0.00	0.00	0.00
0.00	0.00	0.00

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02957.D
Acq On : 22 Mar 2012 15:30
Operator : Syslo
Sample : Method Blank
sc : RVC0018 + 20µL RVC0053 IS
LS Vial : 71 Sample Multiplier: 1

Quant Time: Mar 22 16:40:57 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) d10-Phenanthrene	18.686	188	316801	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	125247	10.00	ug/mL	0.00
6) d50-Tetracosane	23.766	66	144740	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.545	66	113591	10.00	ug/mL	0.03
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%	

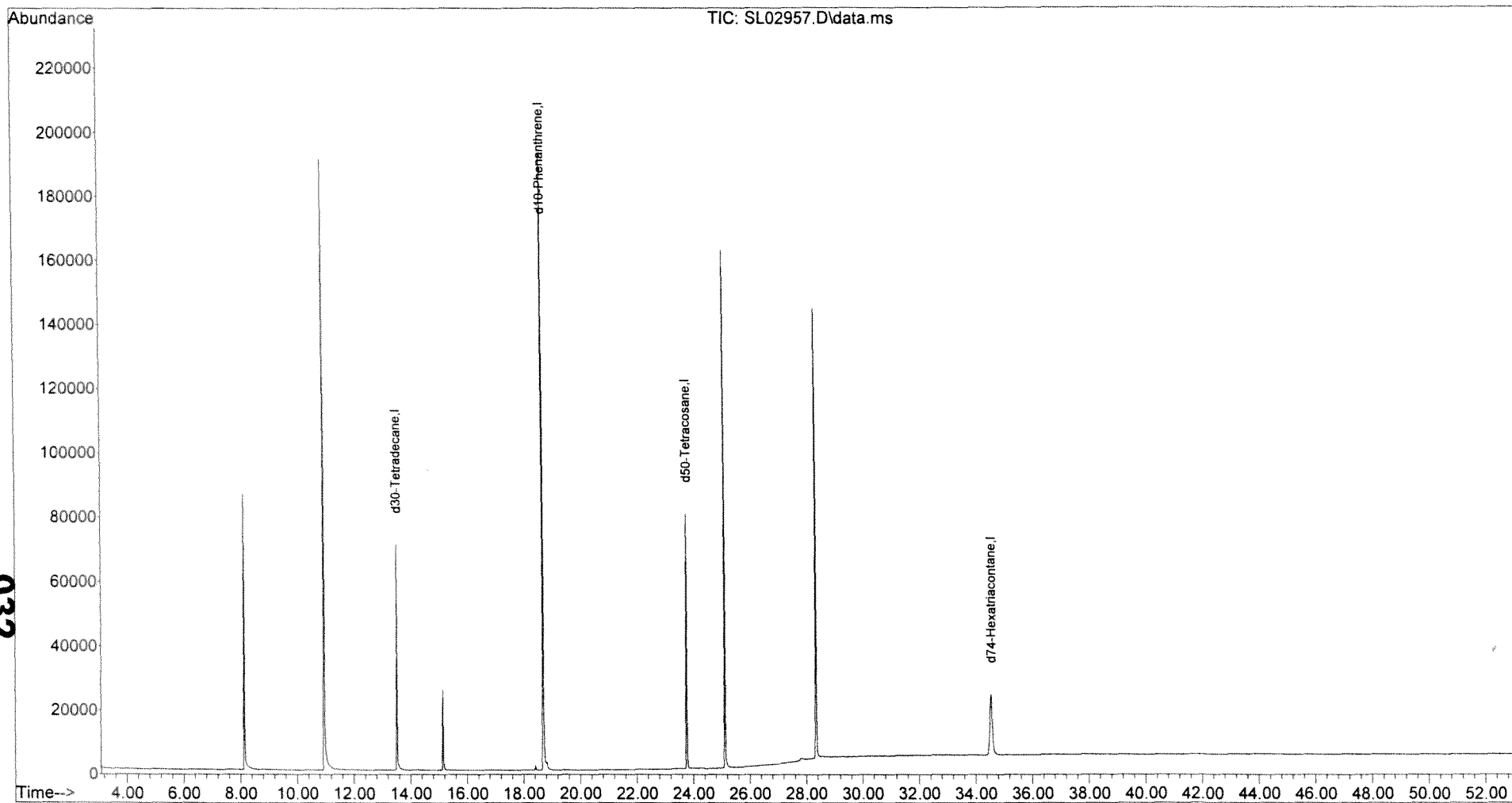
Target Compounds Qvalue

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

ND $\sqrt{a}$ TAT

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02957.D
Acq On : 22 Mar 2012 15:30
Operator : Syslo
Sample : Method Blank
Misc : RVC0018 + 20µL RVC0053 IS
ALS Vial : 71 Sample Multiplier: 1

Quant Time: Mar 22 16:40:57 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration



Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02958.D
Acq On : 22 Mar 2012 16:51
Operator : Syslo
Sample : 5.0K ENO-TPH ICAL
SC : RVC0059
ALS Vial : 72 Sample Multiplier: 1

Quant Time: Mar 22 17:41:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) d10-Phenanthrene	18.686	188	332210	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	132173	10.00	ug/mL	0.00
6) d50-Tetracosane	23.766	66	156768	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.537	66	113404	10.00	ug/mL	0.03
System Monitoring Compounds						
2) d10-Anthracene {S}	18.804	188	676023	20.74	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	103.70%	
3) d14-o-Terphenyl {S}	19.715	244	297078	19.95	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	99.75%	
4) 5a-Androstane {S}	21.123	260	38305	19.51	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	97.55%	
7) d62-Triacontane {S}	28.139	66	279654	19.58	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	97.90%	

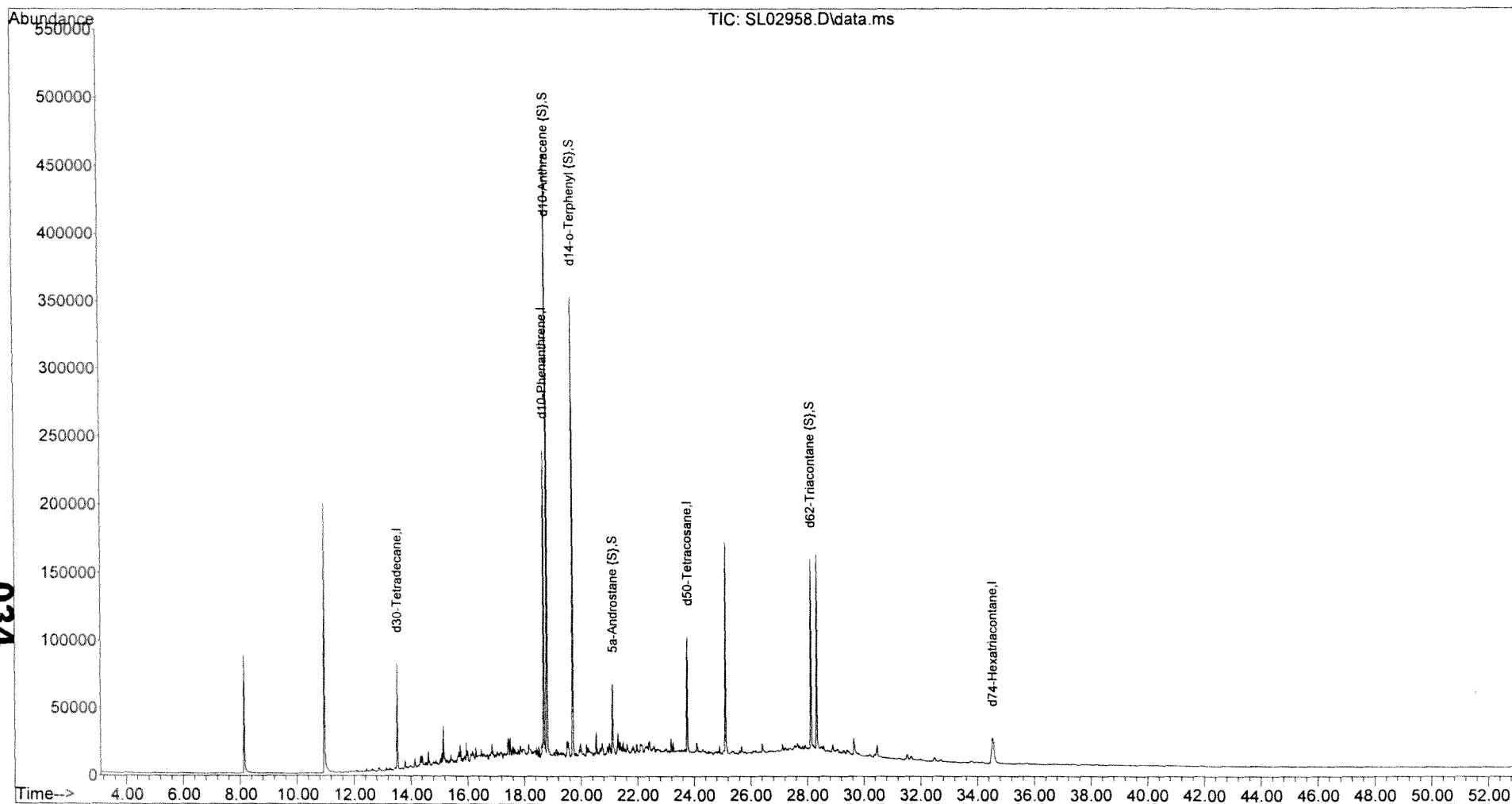
Target Compounds Qvalue

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

$\Sigma_{TPH} = 9776223$

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02958.D
Acq On : 22 Mar 2012 16:51
Operator : Syslo
Sample : 5.0K ENO-TPH ICAL
Misc : RVC0059
ALS Vial : 72 Sample Multiplier: 1

Quant Time: Mar 22 17:41:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02958.D
Acq On : 22 Mar 2012 16:51
Operator : Syslo
Sample : 5.0K ENO-TPH ICAL
Vial : RVC0059
ALS Vial : 72 Sample Multiplier: 1

Integration Parameters: Oilint.P

Integrator: RTE

Smoothing : ON

Sampling : 1

Start Thrs: 0.05

Stop Thrs : 0.05

Filtering: 5

Min Area: 0.5 % of largest Peak

Max Peaks: 5

Peak Location: TOP

If leading or trailing edge < 50 prefer < Tangent else baseline drop >
Peak separation: 3

Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M

Title : CUC/TPH ICAL + Surr. 03/20/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02958.D\data.ms

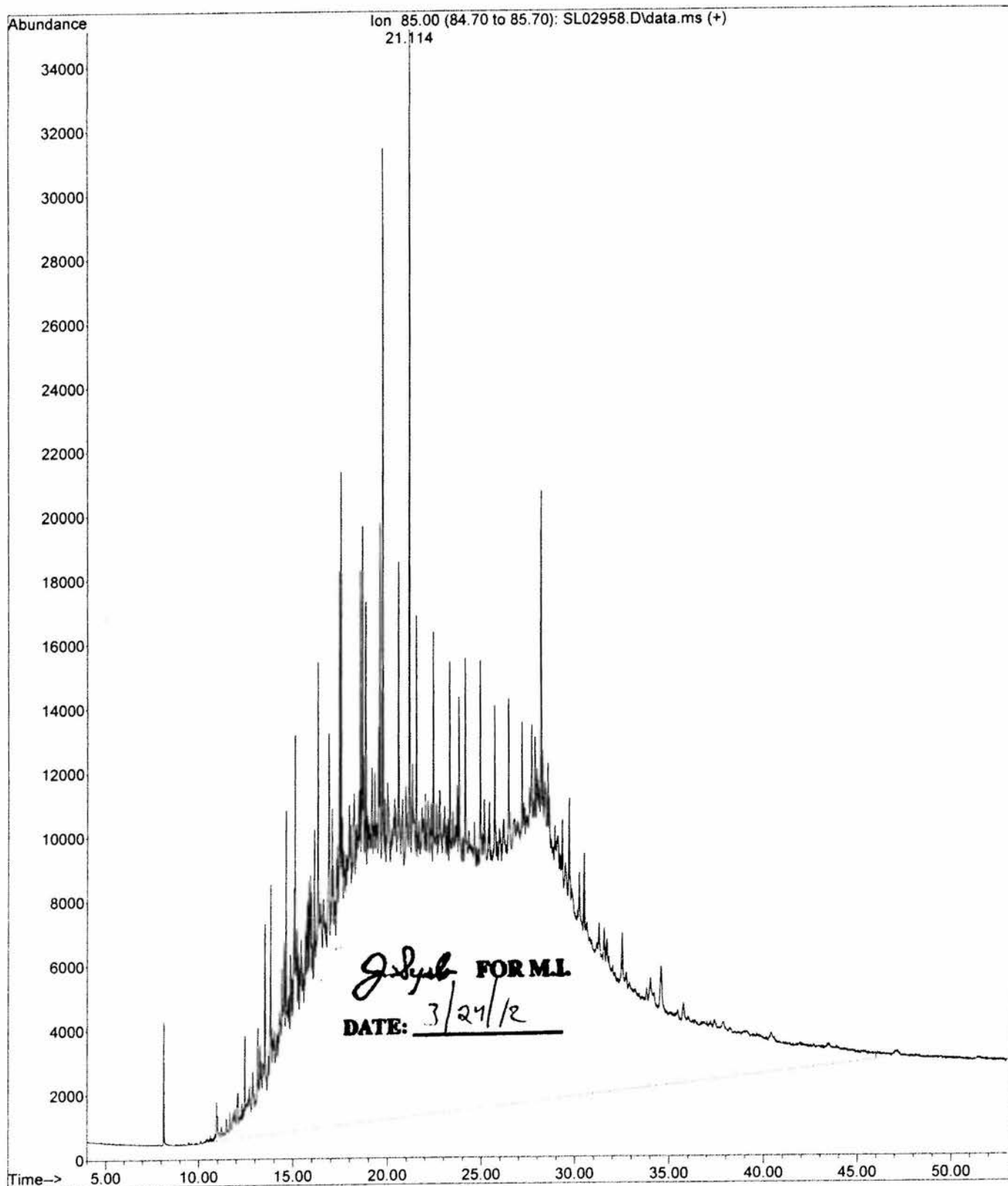
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	21.114	818	2218	5174	rM 5	33879	9776223	100.00%	100.000%

Sum of corrected areas: 9776223

ENOTPH032212.M Fri Mar 23 19:57:47 2012 SLICK2

J. Sub **FORM L**
DATE: 3/24/12

File : C:\msdchem\1\DATA\032212\SL02958.D
Operator : Syslo
Acquired : 22 Mar 2012 16:51 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: 5.0K ENO-TPH ICAL
Misc Info : RVC0059
Vial Number: 72



Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02959.D
Acq On : 22 Mar 2012 17:52
Operator : Syslo
Sample : 1.0K ENO-TPH ICAL
sc : RVC0062
ALS Vial : 73 Sample Multiplier: 1

Quant Time: Mar 22 18:42:20 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) d10-Phenanthrene	18.686	188	329432	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	130685	10.00	ug/mL	0.00
6) d50-Tetracosane	23.757	66	157544	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.537	66	118572	10.00	ug/mL	0.03
System Monitoring Compounds						
2) d10-Anthracene {S}	18.804	188	117593	3.64	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	18.20%	
3) d14-o-Terphenyl {S}	19.706	244	54361	3.68	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	18.40%	
4) 5a-Androstane {S}	21.123	260	6905	3.55	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	17.75%	
7) d62-Triacontane {S}	28.131	66	49248	3.43	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	17.15%	

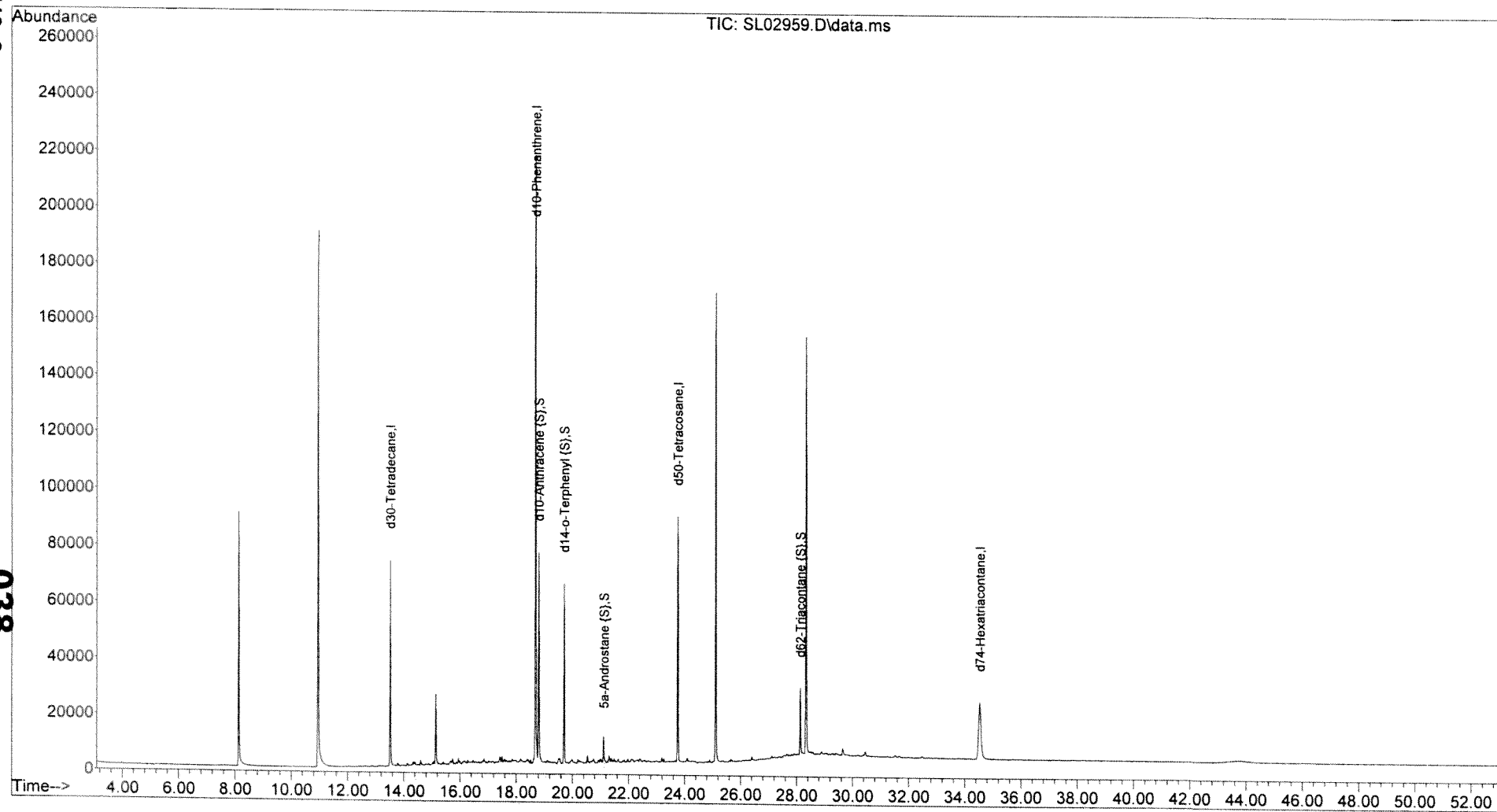
Target Compounds

Qvalue

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

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02959.D
Acq On : 22 Mar 2012 17:52
Operator : Syslo
Sample : 1.0K ENO-TPH ICAL
Misc : RVC0062
ALS Vial : 73 Sample Multiplier: 1

Quant Time: Mar 22 18:42:20 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02959.D
Acq On : 22 Mar 2012 17:52
Operator : Syslo
Sample : 1.0K ENO-TPH ICAL
Vial : RVC0062
ALS Vial : 73 Sample Multiplier: 1

Integration Parameters: Oilint.P

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

If leading or trailing edge < 50 prefer < Tangent else baseline drop >
Peak separation: 3

Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Title : CUC/TPH ICAL + Surr. 03/20/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02959.D\data.ms

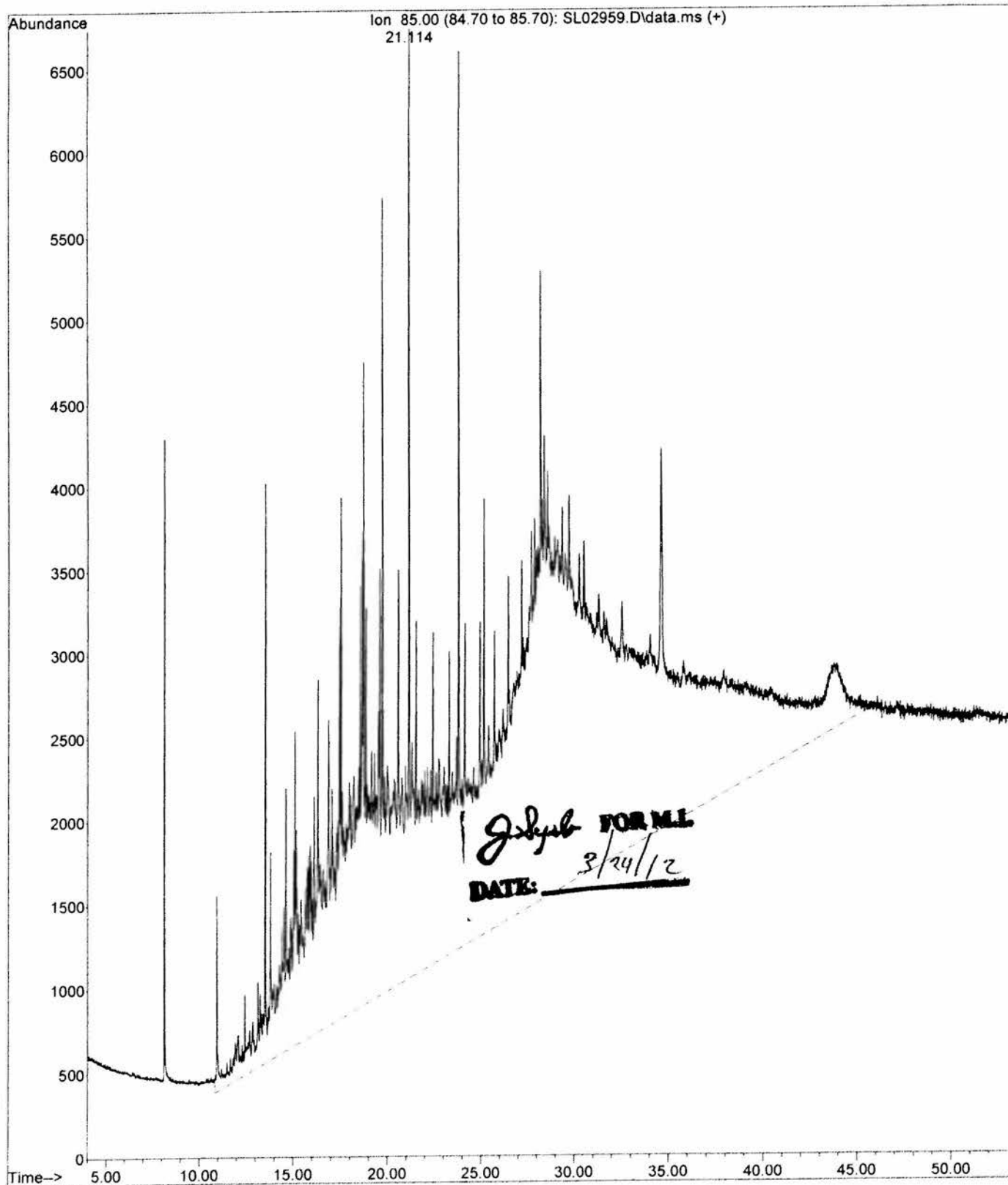
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	21.114	970	2218	5182	rM 5	5684	1876654	100.00%	100.000%

Sum of corrected areas: 1876654

ENOTPH032212.M Fri Mar 23 20:01:47 2012 SLICK2

J. J. J. FORM L.
DATE: 3/24/12

File : C:\msdchem\1\DATA\032212\SL02959.D
Operator : Syslo
Acquired : 22 Mar 2012 17:52 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: 1.0K ENO-TPH ICAL
Misc Info : RVC0062
Vial Number: 73



Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02960.D
Acq On : 22 Mar 2012 18:52
Operator : Syslo
Sample : 10K ENO-TPH ICAL
sc : RVC0060
Vial : 74 Sample Multiplier: 1

Quant Time: Mar 22 19:42:15 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

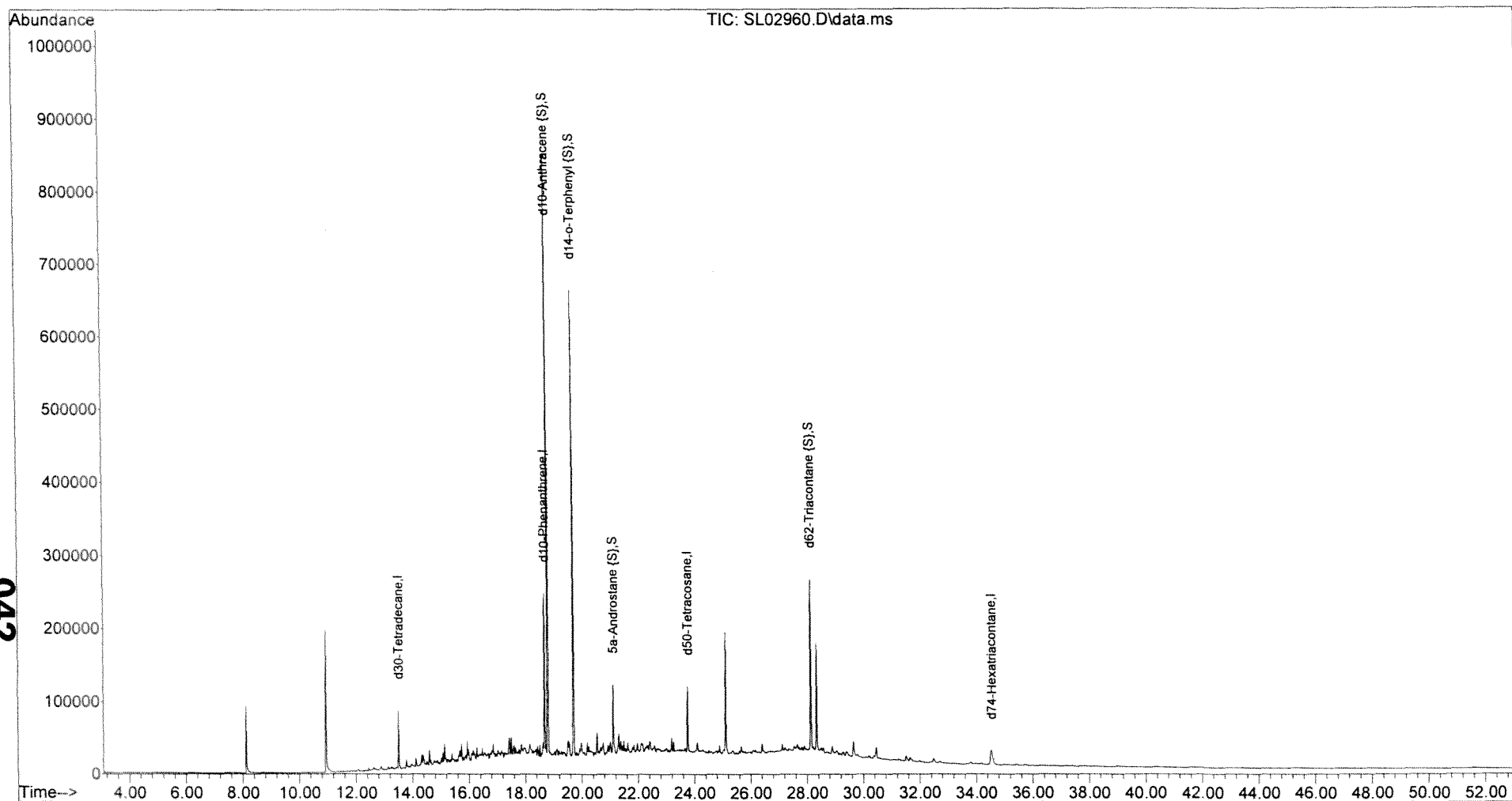
Internal Standards						
1) d10-Phenanthrene	18.686	188	334084	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	133554	10.00	ug/mL	0.00
6) d50-Tetracosane	23.757	66	158231	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.537	66	115110	10.00	ug/mL	0.03
System Monitoring Compounds						
2) d10-Anthracene {S}	18.804	188	1221738	37.27	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	186.35%	
3) d14-o-Terphenyl {S}	19.706	244	534760	35.71	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	178.55%	
4) 5a-Androstane {S}	21.123	260	68882	34.89	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	174.45%	
7) d62-Triacontane {S}	28.131	66	504330	34.99	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	174.95%	

Target Compounds Qvalue

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

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02960.D
Acq On : 22 Mar 2012 18:52
Operator : Syslo
Sample : 10K ENO-TPH ICAL
Misc : RVC0060
ALS Vial : 74 Sample Multiplier: 1

Quant Time: Mar 22 19:42:15 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02960.D
Acq On : 22 Mar 2012 18:52
Operator : Syslo
Sample : 10K ENO-TPH ICAL
Sc : RVC0060
ALS Vial : 74 Sample Multiplier: 1

Integration Parameters: Oilint.P

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

If leading or trailing edge < 50 prefer < Tangent else baseline drop >
Peak separation: 3

Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Title : CUC/TPH ICAL + Surr. 03/20/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02960.D\data.ms

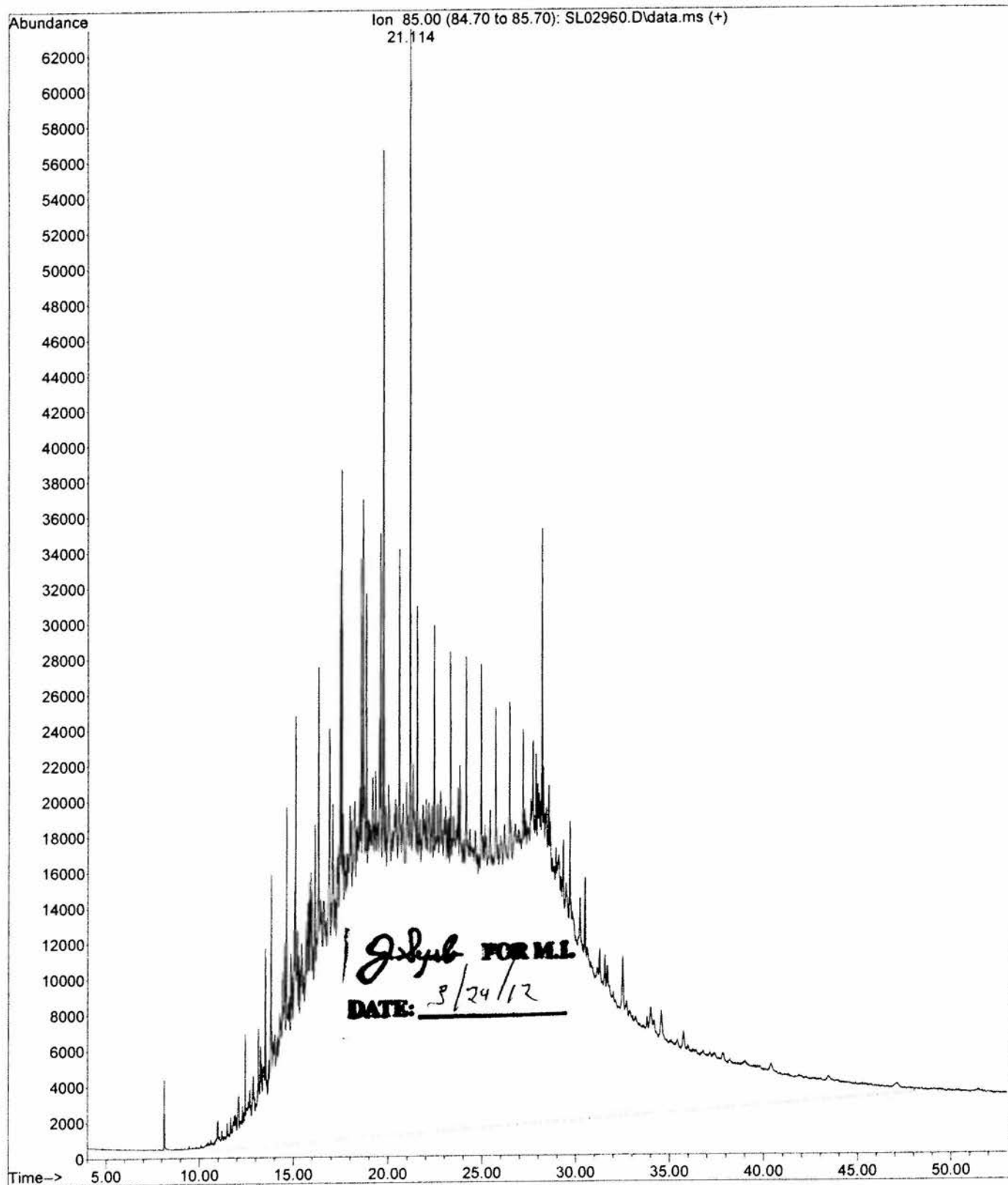
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	21.114	674	2218	5418	rM 6	62240	18442674	100.00%	100.000%

Sum of corrected areas: 18442674

ENOTPH032212.M Fri Mar 23 20:03:33 2012 SLICK2

J. J. J. FOR M.L.
DATE: 3/24/12

File : C:\msdchem\1\DATA\032212\SL02960.D
Operator : Syslo
Acquired : 22 Mar 2012 18:52 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: 10K ENO-TPH ICAL
Misc Info : RVC0060
Vial Number: 74



Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02961.D
Acq On : 22 Mar 2012 19:52
Operator : Syslo
Sample : 50K ENO-TPH ICAL
Vial : RVC0058
Vial : 75 Sample Multiplier: 1

Quant Time: Mar 22 20:42:10 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.686	188	309391	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	126146	10.00	ug/mL	0.00
6) d50-Tetracosane	23.766	66	142158	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.545	66	113508	10.00	ug/mL	0.03
System Monitoring Compounds						
2) d10-Anthracene {S}	18.812	188	4977753	163.96	ug/mL	0.02
Spiked Amount 20.000			Recovery	=	819.80%	
3) d14-o-Terphenyl {S}	19.724	244	2233832	161.08	ug/mL	0.02
Spiked Amount 20.000			Recovery	=	805.40%	
4) 5a-Androstane {S}	21.131	260	309530	169.29	ug/mL	0.02
Spiked Amount 20.000			Recovery	=	846.45%	
7) d62-Triacontane {S}	28.147	66	2029648	156.74	ug/mL	0.02
Spiked Amount 20.000			Recovery	=	783.70%	

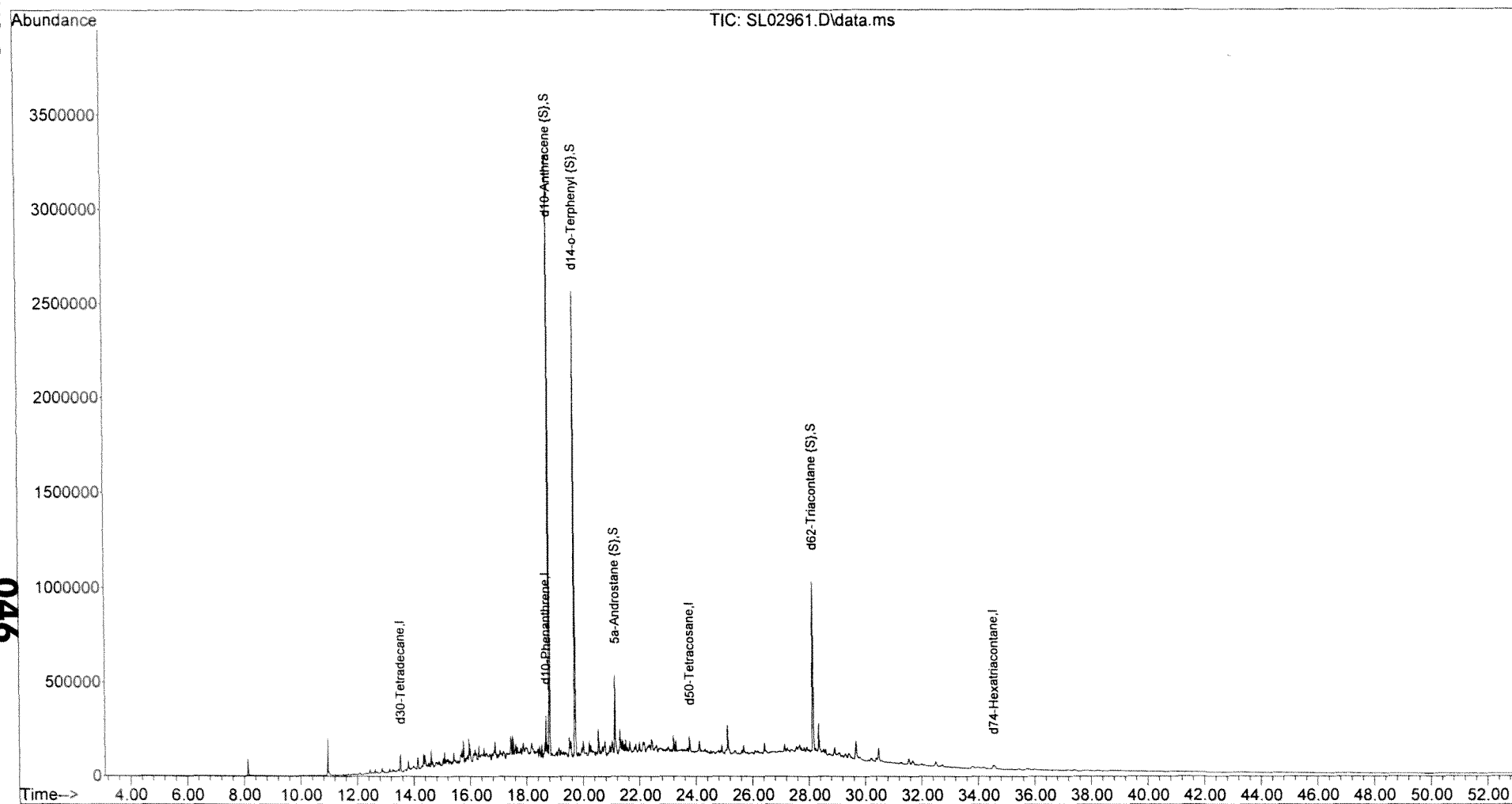
Target Compounds

Qvalue

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

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02961.D
Acq On : 22 Mar 2012 19:52
Operator : Syslo
Sample : 50K ENO-TPH ICAL
Misc : RVC0058
ALS Vial : 75 Sample Multiplier: 1

Quant Time: Mar 22 20:42:10 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02961.D
Acq On : 22 Mar 2012 19:52
Operator : Syslo
Sample : 50K ENO-TPH ICAL
Sc : RVC0058
ALS Vial : 75 Sample Multiplier: 1

Integration Parameters: Oilint.P

Integrator: RTE
Smoothing : ON
Sampling : 1
Start Thrs: 0.05
Stop Thrs : 0.05

Filtering: 5
Min Area: 0.5 % of largest Peak
Max Peaks: 5
Peak Location: TOP

If leading or trailing edge < 50 prefer < Tangent else baseline drop >
Peak separation: 3

Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Title : CUC/TPH ICAL + Surr. 03/20/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02961.D\data.ms

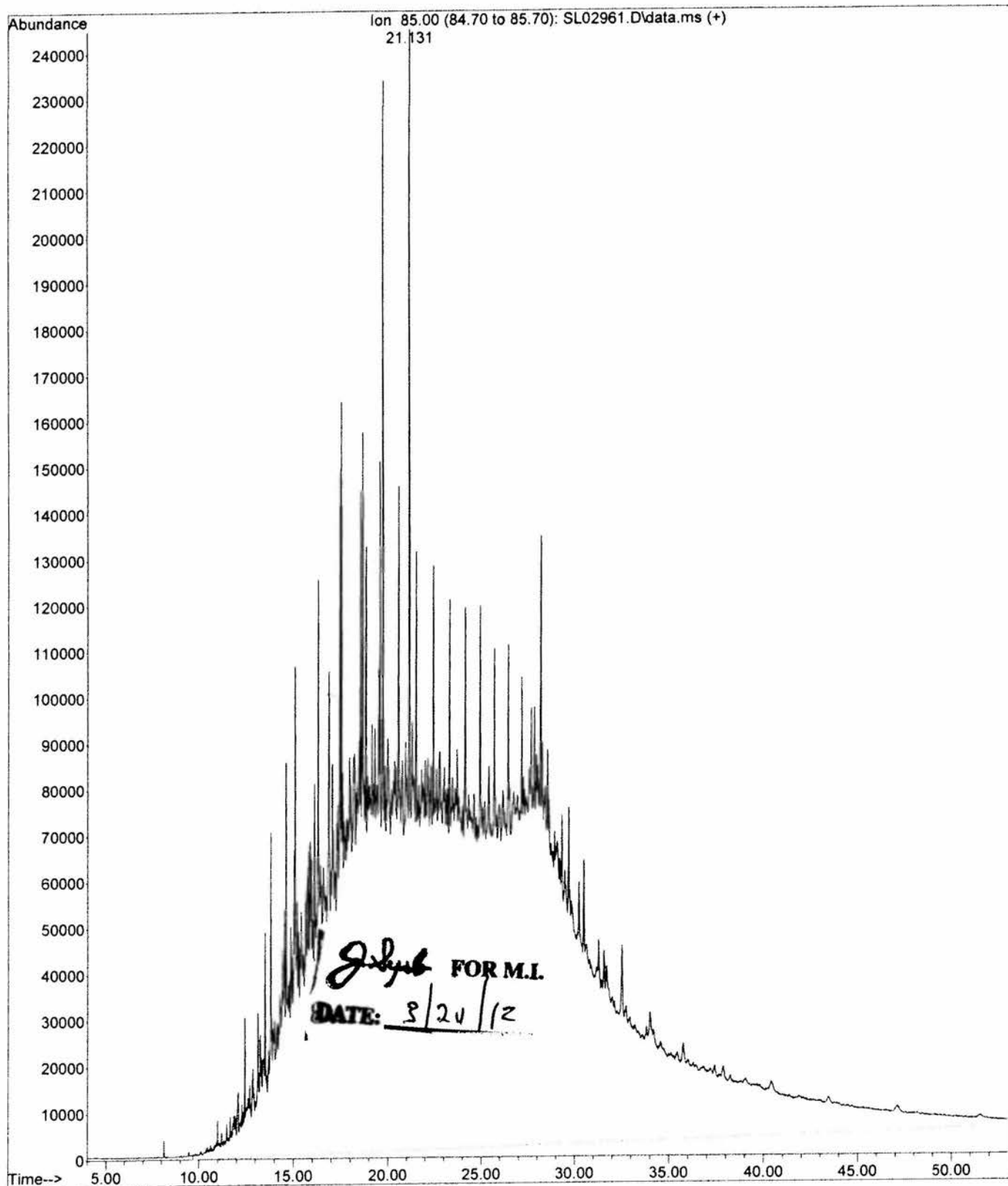
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	21.131	826	2220	5819	rM 3	243500	85192346	100.00%	100.000%

Sum of corrected areas: 85192346

ENOTPH032212.M Fri Mar 23 20:05:19 2012 SLICK2

J. Sykes FOR ML
DATE: 3/24/12

File : C:\msdchem\1\DATA\032212\SL02961.D
Operator : Syslo
Acquired : 22 Mar 2012 19:52 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: 50K ENO-TPH ICAL
Misc Info : RVC0058
Vial Number: 75



Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02962.D
Acq On : 22 Mar 2012 20:51
Operator : Syslo
Sample : 25K ENO-TPH ICAL
sc : RVC0061
LS Vial : 76 Sample Multiplier: 1

Quant Time: Mar 22 21:41:57 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

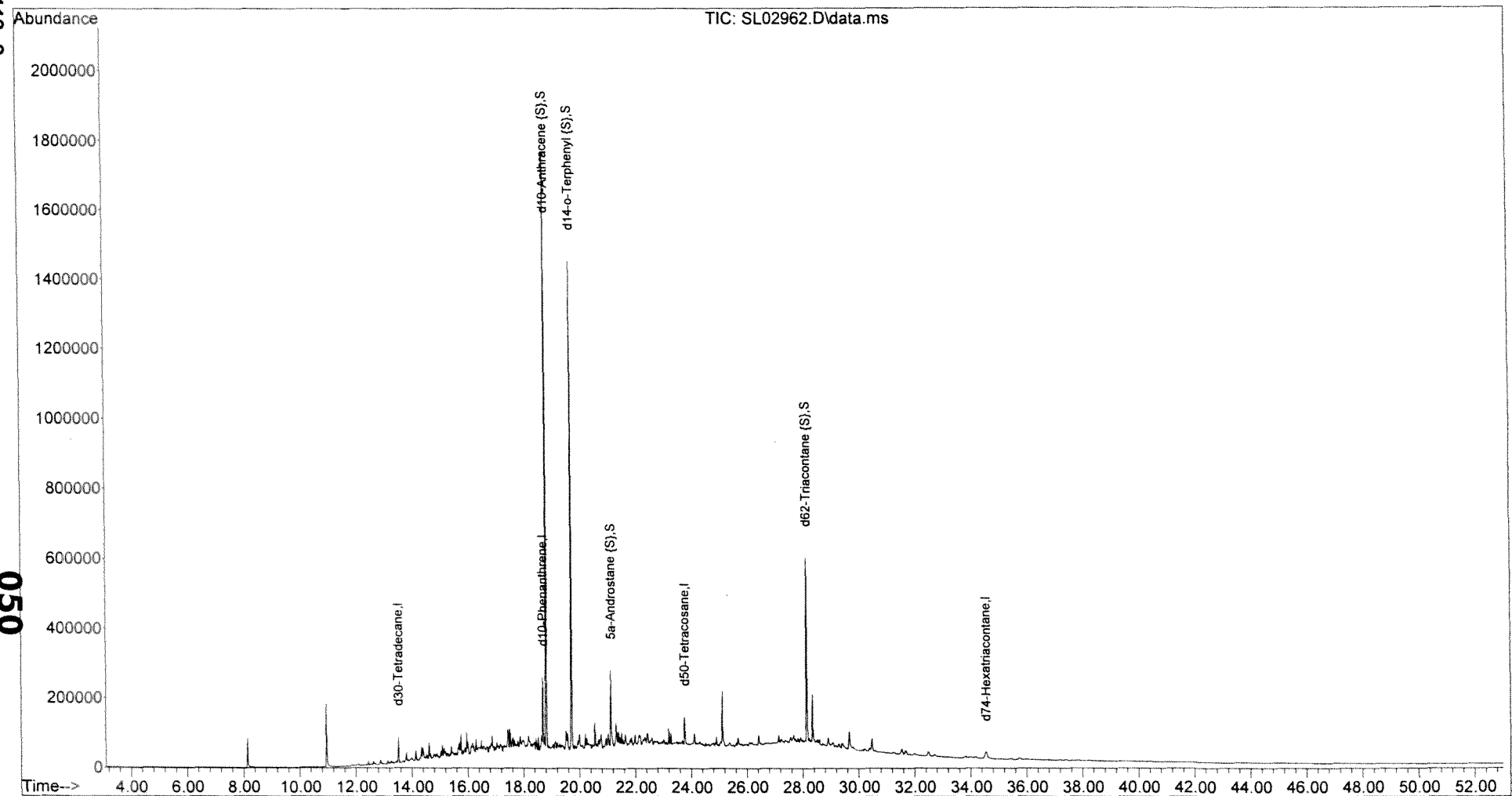
Internal Standards						
1) d10-Phenanthrene	18.686	188	297487	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	118180	10.00	ug/mL	0.00
6) d50-Tetracosane	23.757	66	141124	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.537	66	111081	10.00	ug/mL	0.02
System Monitoring Compounds						
2) d10-Anthracene {S}	18.812	188	2681016	91.84	ug/mL	0.02
Spiked Amount 20.000			Recovery	=	459.20%	
3) d14-o-Terphenyl {S}	19.715	244	1176005	88.19	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	440.95%	
4) 5a-Androstane {S}	21.122	260	155968	88.71	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	443.55%	
7) d62-Triacontane {S}	28.139	66	1116106	86.82	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	434.10%	

Target Compounds Qvalue

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

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02962.D
Acq On : 22 Mar 2012 20:51
Operator : Syslo
Sample : 25K ENO-TPH ICAL
Misc : RVC0061
ALS Vial : 76 Sample Multiplier: 1

Quant Time: Mar 22 21:41:57 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02962.D
Acq On : 22 Mar 2012 20:51
Operator : Syslo
Sample : 25K ENO-TPH ICAL
Vial : RVC0061
ALS Vial : 76 Sample Multiplier: 1

Integration Parameters: Oilint.P

Integrator: RTE
Smoothing : ON
Sampling : 1
Start Thrs: 0.05
Stop Thrs : 0.05

Filtering: 5
Min Area: 0.5 % of largest Peak
Max Peaks: 5
Peak Location: TOP

If leading or trailing edge < 50 prefer < Tangent else baseline drop >
Peak separation: 3

Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Title : CUC/TPH ICAL + Surr. 03/20/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02962.D\data.ms

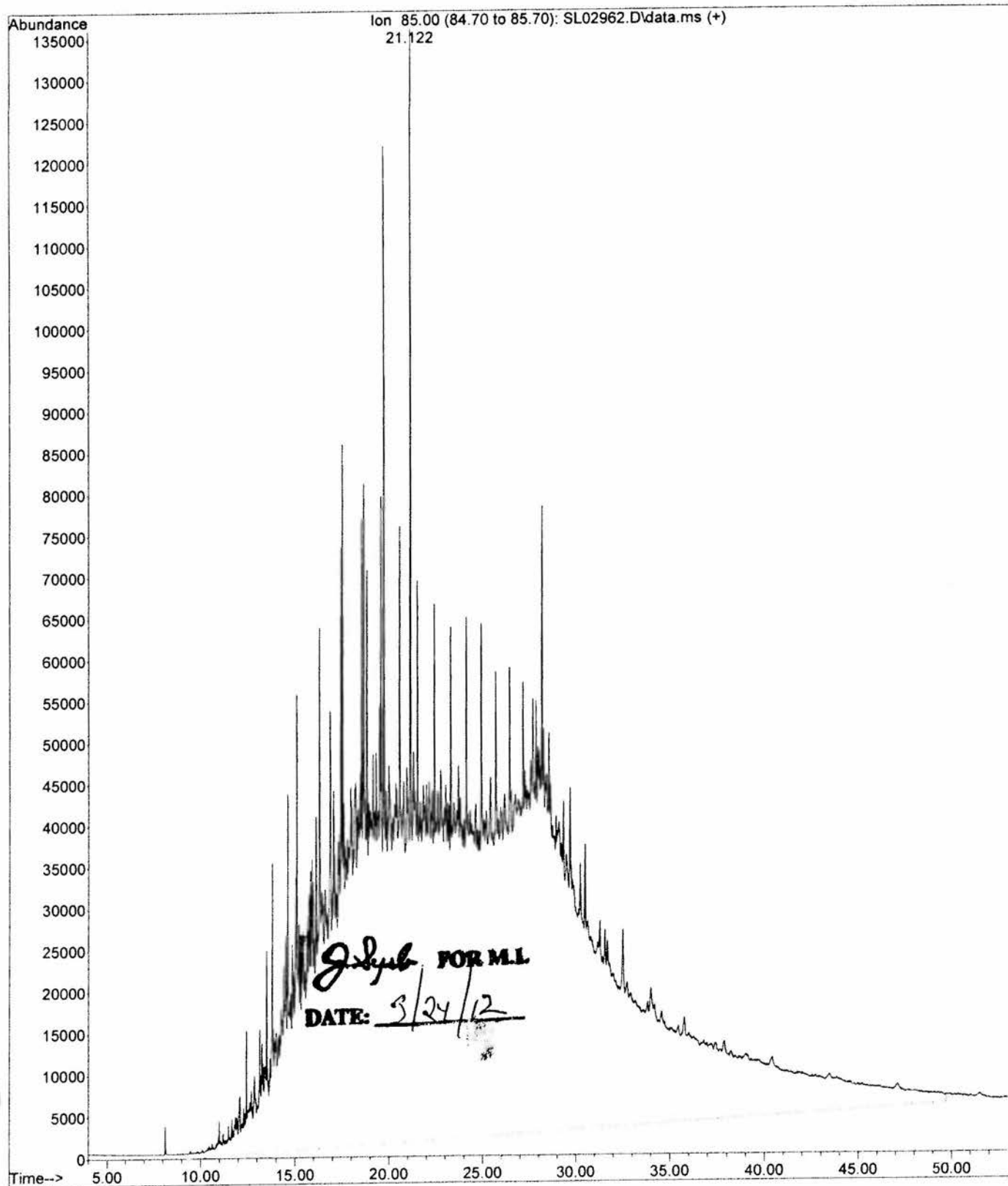
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	21.122	781	2219	5617	rM 3	134326	45401525	100.00%	100.000%

Sum of corrected areas: 45401525

ENOTPH032212.M Fri Mar 23 20:06:17 2012 SLICK2

J. Sub FOR M.L.
DATE: 3/24/12

File : C:\msdchem\1\DATA\032212\SL02962.D
Operator : Syslo
Acquired : 22 Mar 2012 20:51 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: 25K ENO-TPH ICAL
Misc Info : RVC0061
Vial Number: 76



Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02963.D
Acq On : 22 Mar 2012 21:51
Operator : Syslo
Sample : 0.5K ENO-TPH ICAL
Sc : RVC0063
ALS Vial : 77 Sample Multiplier: 1

Quant Time: Mar 22 22:41:33 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.686	188	309155	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	123489	10.00	ug/mL	0.00
6) d50-Tetracosane	23.757	66	149417	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.529	66	117528	10.00	ug/mL	0.02
System Monitoring Compounds						
2) d10-Anthracene {S}	18.803	188	52572	1.73	ug/mL	0.00
Spiked Amount	20.000		Recovery	=	8.65%	
3) d14-o-Terphenyl {S}	19.706	244	24950	1.80	ug/mL	0.00
Spiked Amount	20.000		Recovery	=	9.00%	
4) 5a-Androstane {S}	21.113	260	3166	1.73	ug/mL	0.00
Spiked Amount	20.000		Recovery	=	8.65%	
7) d62-Triacontane {S}	28.131	66	23408	1.72	ug/mL	0.00
Spiked Amount	20.000		Recovery	=	8.60%	

Target Compounds

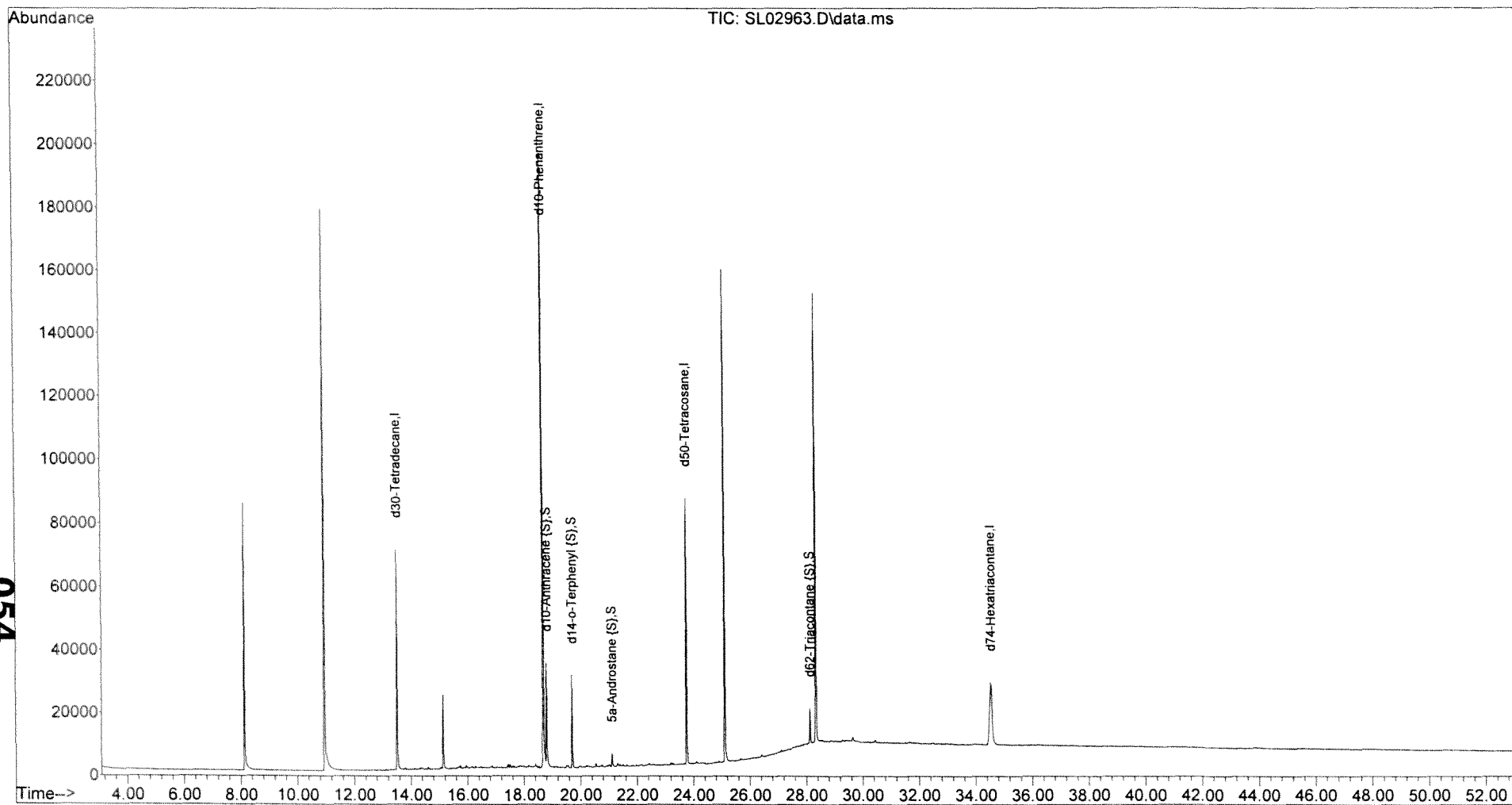
Qvalue

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

For surrogate only

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02963.D
Acq On : 22 Mar 2012 21:51
Operator : Syslo
Sample : 0.5K ENO-TPH ICAL
Misc : RVC0063
ALS Vial : 77 Sample Multiplier: 1

Quant Time: Mar 22 22:41:33 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration



File : C:\msdchem\1\DATA\032212\SL02963.D
Operator : Syslo
Acquired : 22 Mar 2012 21:51 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: 0.5K ENO-TPH ICAL
Misc Info : RVC0063
Vial Number: 77

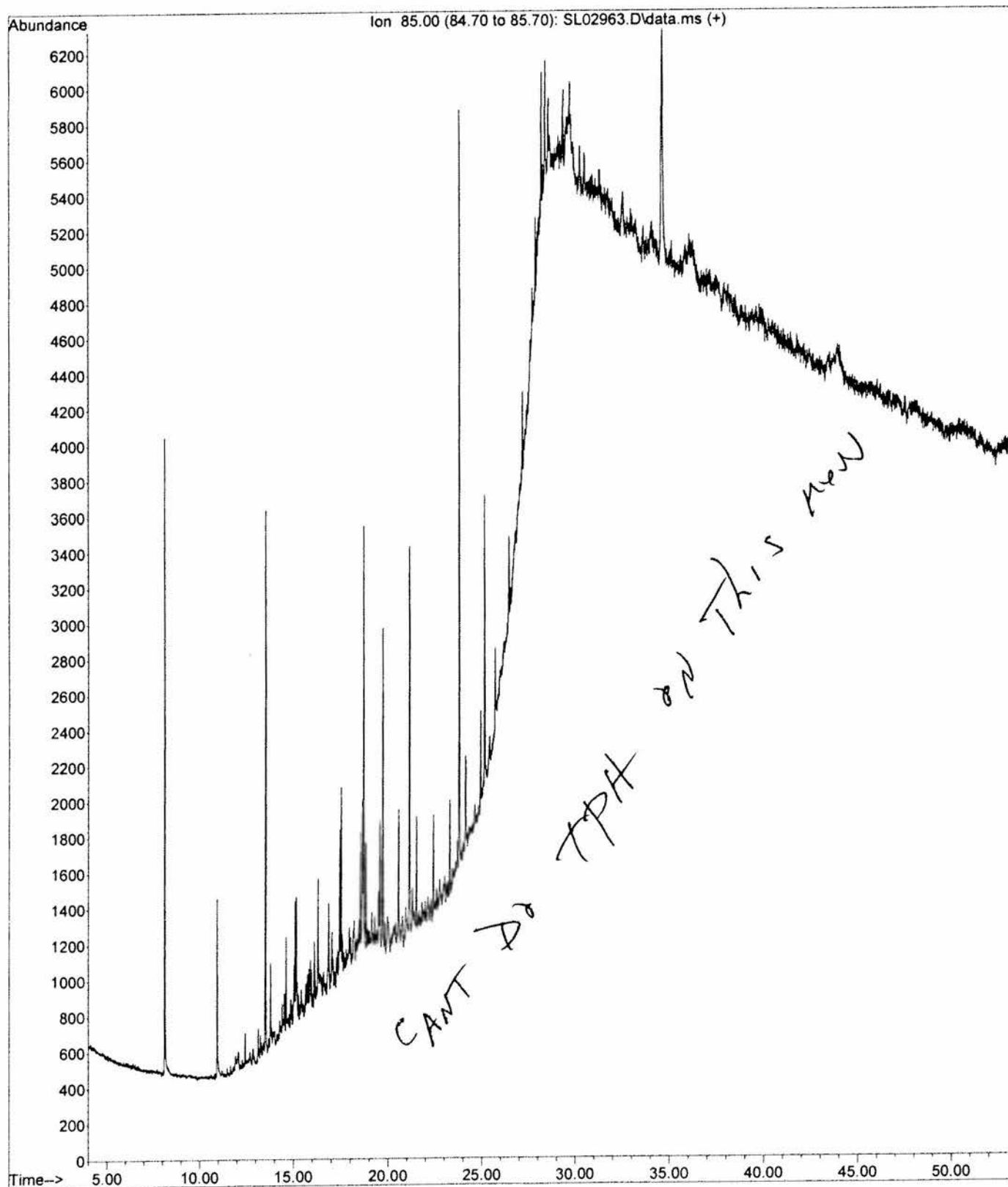


Table 7.0: Results of Initial Calibration Verificaiton (ICV) for Enbridge Oil TPH
SERAS *Draft* GC/MS SOP# 1841: GC/MS Oil Characterization & TPH
Calibration Date: 03/22/12 - GC/MS ID-File ENOTPH032212.M
ICV Prepared at 5000 µg/mL ; GC/MS File SL02964.D

Method: SERAS SOP#1841

Compound	Target Conc. µg/mL	ICV Conc. µg/mL	%Recovery	Tentative %Rec.Limits
TPH from Enbridge site Oil	5000	5560	111	50-150 %

ICV LIMS# = RRVC0066; 5000ppm Site Specific Oil prepared from sample SERAS-017-0003

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02964.D
Acq On : 22 Mar 2012 22:51
Operator : Syslo
Sample : 5.0K 2nd Source CCV
sc : RVC0066 from SERAS-017-0003
LS Vial : 78 Sample Multiplier: 1

CCV 2nd Source
Wbridge 011

Quant Time: Mar 23 20:12:10 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.686	188	302824	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	119607	10.00	ug/mL	0.00
6) d50-Tetracosane	23.757	66	144886	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.529	66	114347	10.00	ug/mL	0.02
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%	

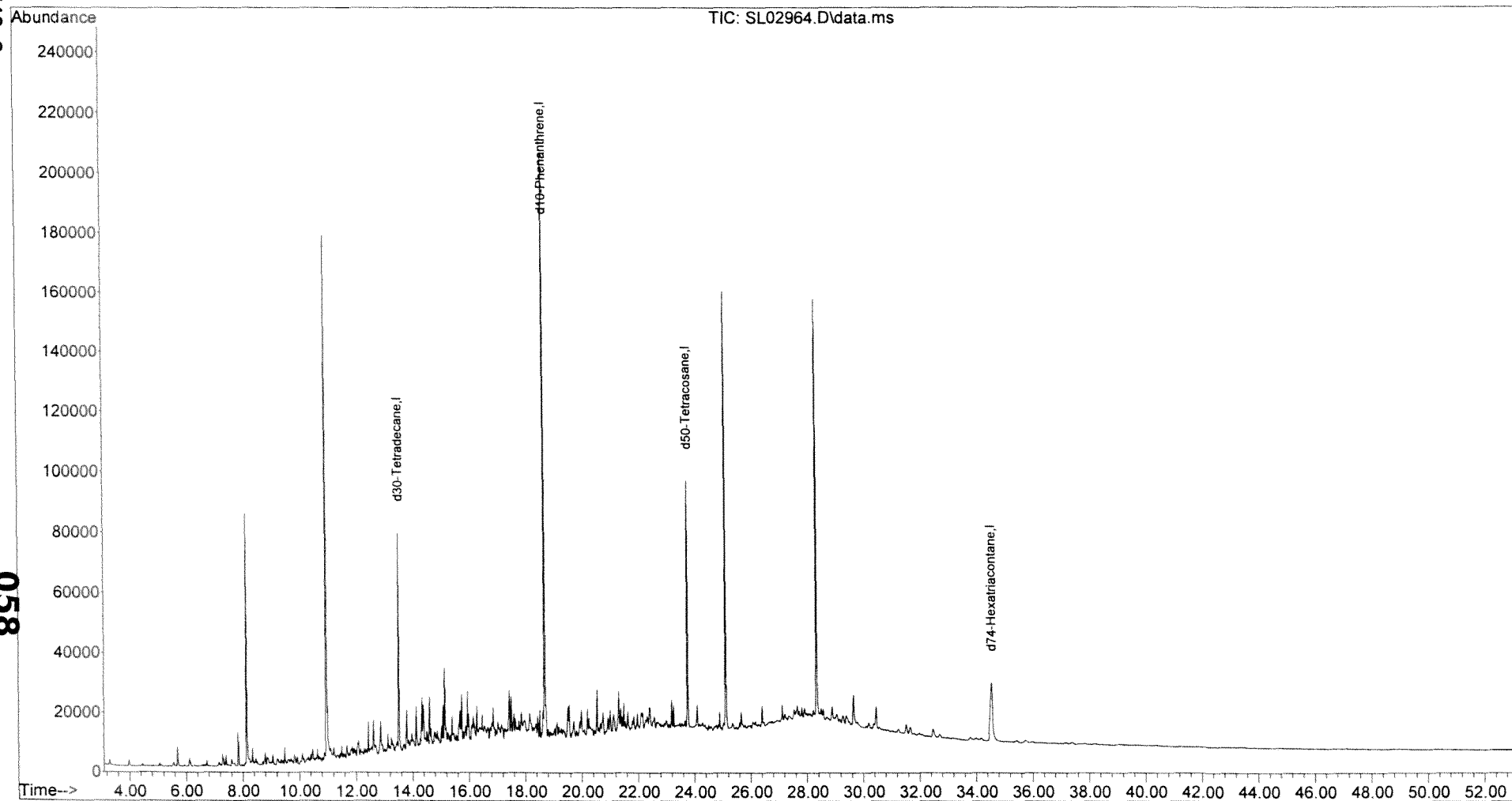
Target Compounds Qvalue

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

5560 ppm

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02964.D
Acq On : 22 Mar 2012 22:51
Operator : Syslo
Sample : 5.0K 2nd Source CCV
Misc : RVC0066 from SERAS-017-0003
ALS Vial : 78 Sample Multiplier: 1

Quant Time: Mar 23 20:12:10 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02964.D
Acq On : 22 Mar 2012 22:51
Operator : Syslo
Sample : 5.0K 2nd Source CCV
Sc : RVC0066 from SERAS-017-0003
ALS Vial : 78 Sample Multiplier: 1

Integration Parameters: Oilint.P

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

If leading or trailing edge < 50 prefer < Tangent else baseline drop >
Peak separation: 3

Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Title : CUC/TPH ICAL + Surr. 03/20/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02964.D\data.ms

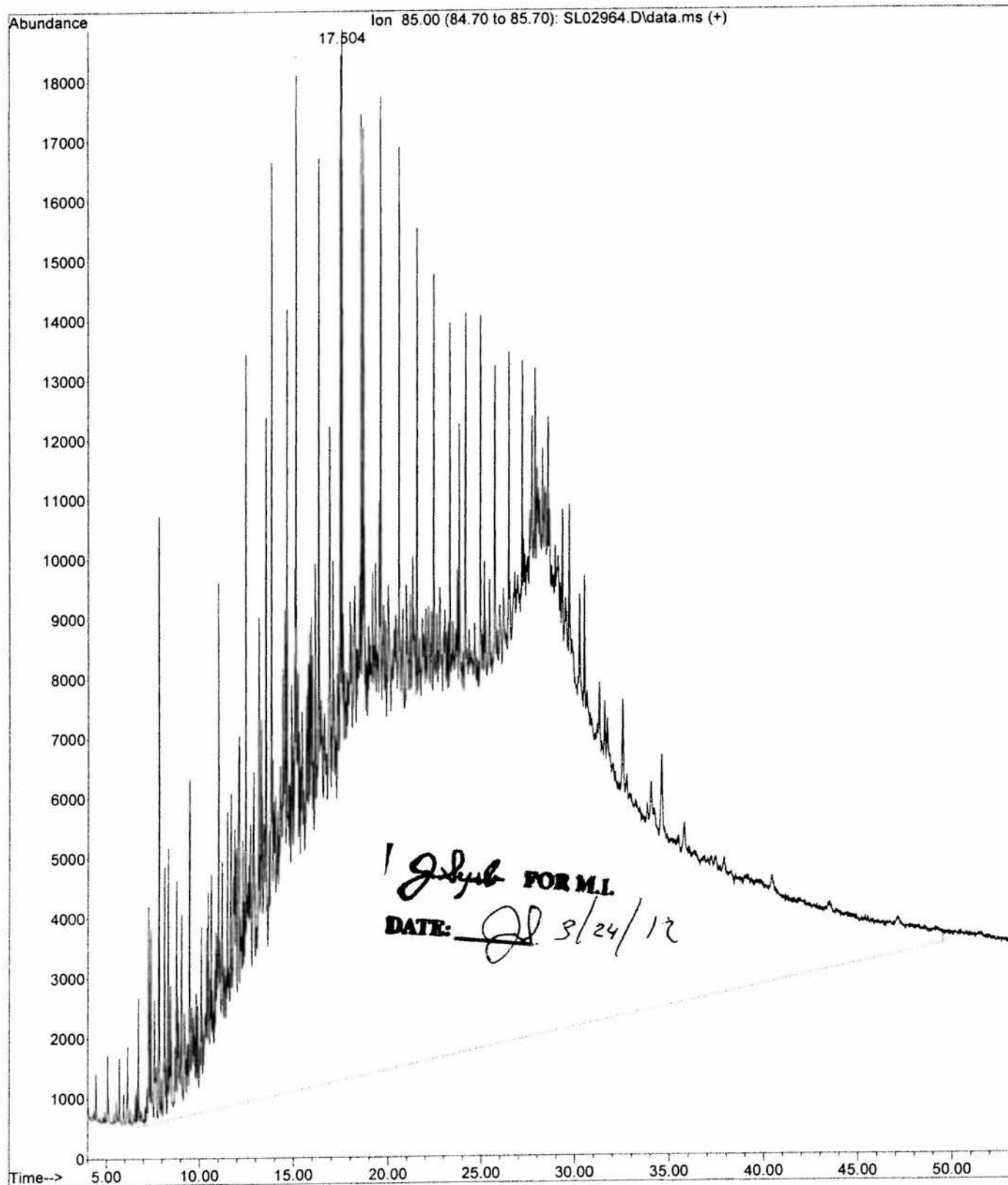
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	17.504	420	1805	5591	rM 6	17584	9836052	100.00%	100.000%

Sum of corrected areas: 9836052

ENOTPH032212.M Fri Mar 23 20:12:33 2012 SLICK2

J. Syb FORM L
DATE: 21 3/24/12

File : C:\msdchem\1\DATA\032212\SL02964.D
Operator : Syslo
Acquired : 22 Mar 2012 22:51 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: 5.0K 2nd Source CCV
Misc Info : RVC0066 from SERAS-017-0003
Vial Number: 78



TPH Standards prep
For Enbridge O. / ICAL

Analytical Standard Record

ERT/SERAS Laboratory

RVC0066

Description: 5000ppm 2nd Source CCV foe Enbridge O 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

Date

Analytical Standard Record

ERT/SERAS Laboratory

RVC0065

Description:	30,000ppm TPH 2nd Source Enbridge Oil	Expires:	09/18/12
Standard Type:	Reagent	Prepared:	03/22/12
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 Stock	03/22/12	John Syslo	09/18/12	03/22/12 18:22 by JS	0.178

Reviewed By

Date

John Syslo 5/22/12

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

US EPA ARCHIVE DOCUMENT

Reviewed By John Syslo Date 3/22/12

Analytical Standard Record

ERT/SERAS Laboratory

RVC0063

Description:	0.5K EO TPH ICAI 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

Date

Analytical Standard Record

ERT/SERAS Laboratory

RVC0062

Description:	1.0K EO TPH ICAI 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

Date

Analytical Standard Record
ERT/SERAS Laboratory
RVC0061

Description:	25K EO TPH ICAI 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

John Syslo 3/22/12
 Date

Analytical Standard Record

ERT/SERAS Laboratory

RVC0060

Description:	10K EO TPH ICAI 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



Date

3/22/12

Analytical Standard Record
ERT/SERAS Laboratory
RVC0059

Description: 5.0K EO TPH ICAI 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

Date

Analytical Standard Record

ERT/SERAS Laboratory

RVC0058

Description:	50K EO TPH ICAI 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

Date

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 John Syslo Date 3/22/13

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 dissolution 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

Placed ~ 200mg of baked K_2SO_4 in the standard to encourage water oil + parent emulsional behavior. J. Syslo

Reviewed By

J. Syslo

3/21/12

Date

Analytical Standard Record
ERT/SERAS Laboratory
RVC0054

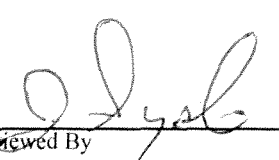
Description:	5,000 ppm CCV for CUC TPH	Expires:	09/15/12 0
Standard Type:	Reagent	Prepared:	03/20/12 0
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	0.5	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/20/12 16:38 by JS
Vendor:	SERAS	LotNumber:	LIMS # RVC0018

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 _____ Date 3/20/12

Analytical Standard Record

ERT/SERAS Laboratory

RVC0053

Description: 5000ppm TPH Spike for Enbridge Oil Expires: 09/20/12 0
Standard Type: Analyte Spike Prepared: 03/20/12 0
Solvent: DCM/Hexane 65:35 Prepared By: John Syslo
Final Volume (mls): 10 Department: CENTRAL
Vials: 1 Last Edit: 03/20/12 15:36 by JS
Vendor: SERAS LotNumber: Lims # RVC0018

Dilute 50K 10x DCM/Hexane : Using Oil extracted from EO Sample SERAS-017-0004

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)
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

Date

John Syslo 3/20/12

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 JS Date 3/29/12

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 sample 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

JS

Date

3/20/12

076

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 14:46 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	03/20/12	John Syslo	09/15/12	03/20/12 12:28 by JS	0.01

Reviewed By

Date

Analytical Standard Record

ERT/SERAS Laboratory

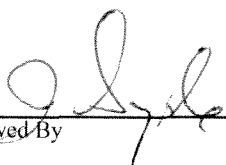
RVC0048

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 14:45 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	03/20/12	John Syslo	09/15/12	03/20/12 12:28 by JS	0.02


 Reviewed By _____ Date 3/20/12

Analytical Standard Record
ERT/SERAS Laboratory
RVC0046

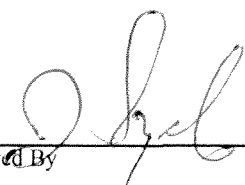
Description: 10 K TPH & 40ppm Surr. ICAL Stock Expires: 09/15/12 0
Standard Type: Calibration Stan Prepared: 03/20/12 0
Solvent: DCM/Hexane 65/35 (RCV0018) Prepared By: John Syslo
Final Volume (mls): 1 Department: Oil/Fingerprint Lab
Vials: 1 Last Edit: 03/20/12 12:51 by JS
Vendor: SERAS LotNumber: --

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	03/20/12	John Syslo	09/15/12	03/20/12 12:28 by JS	0.4

Reviewed By  Date 3/20/12

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 12:31 by JS
Vendor:	SERAS	LotNumber:	--

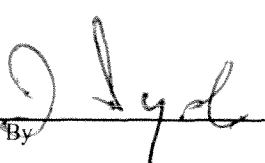
Weathered ORO TPH ICAL using CUC bulk extracted oil. Use this to make serial dilutions and add IS: JS

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	03/20/12	John Syslo	09/15/12	03/20/12 12:28 by JS	0.04

Reviewed By


 3/20/12

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 12:29 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	03/20/12	John Syslo	09/15/12	03/20/12 12:28 by JS	0.2

Reviewed By

Date

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 12:28 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	03/20/12	John Syslo	09/15/12	03/20/12 12:28 by JS	1

Reviewed By

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 12:28 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	03/19/12 16:12 by JS	1

Reviewed By

Date

Analytical Standard Record

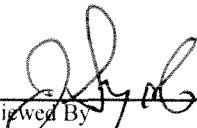
ERT/SERAS Laboratory

RVC0041

Description:	SV Internal Std. Mix, 2000 ppm	Expires:	09/16/12 0
Standard Type:	Internal Standard	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


3/20/12
 Reviewed By _____ Date _____

084

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 John Syslo Date 3/20/12

Analytical Standard Record

ERT/SERAS Laboratory

RVC0039

Description:	5000ppm TPH Spike for CUC Oil	Expires:	09/15/12 0
Standard Type:	Analyte Spike	Prepared:	03/19/12 0
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	25	Department:	CENTRAL
Vials:	1	Last Edit:	03/20/12 15:37 by JS
Vendor:	SERAS	LotNumber:	Lims # RVC0018

Dilute 50K CUC site specific oil 10x with DCM/Hexane :

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)
RVC0040	50,000 ppm CUC TPH Std	03/19/12	John Syslo	09/15/12	03/20/12 15:20 by JS	2.5

Reviewed By

John Syslo 3/20/12

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

US EPA ARCHIVE DOCUMENT

Reviewed By

JS

Date

3/20/12

Analytical Standard Record

ERT/SERAS Laboratory

RVC0035

Description:	500ppm Oil IS Mix	Expires:	09/15/12 0
Standard Type:	Internal Standard	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

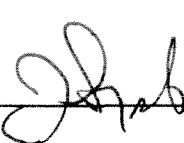
Dilute 2000ppm TPH IS (RCv0034) and 2000ppm BNA IS (RUK0081) to 2.0mL
spike 20µL per 1.0mL extract. JS

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



Date

3/20/12

Analytical Standard Record

ERT/SERAS Laboratory

RVC0034 ✓

Description: TPH IS Mix: 2000ppm : 3 Compounds Expires: 09/15/12 0
Standard Type: Internal Standard 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

Date

Analytical Standard Record
ERT/SERAS Laboratory
RVC0033

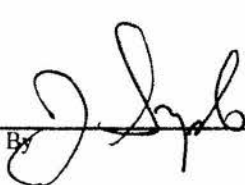
Description: 40 ppm Oil Surrogate - 4 Cmpds. Expires: 09/15/12 0
Standard Type: Surrogate Spike Prepared: 03/19/12 0
Solvent: DCM/Hexane 65:35 Prepared By: John Syslo
Final Volume (mls): 25 Department: CENTRAL
Vials: 1 Last Edit: 03/20/12 08:05 by JS
Vendor: SERAS LotNumber: RVC0018 for DCM/Hexane

Dilute 2000ppm RVC0032 (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)
RVC0032	2000ppm Oil Surrogate Stock	03/19/12	John Syslo	09/15/12	03/19/12 10:07 by JS	0.5

Reviewed By  Date 3/20/12

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 Triaccontane-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 3/19/12

Date

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

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

US EPA ARCHIVE DOCUMENT

Reviewed By J. Syslo Date 3/19/12

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

US EPA ARCHIVE DOCUMENT

Reviewed By JS Date 3/1/12

094

Analytical Standard Record

ERT/SERAS Laboratory

RVB0060

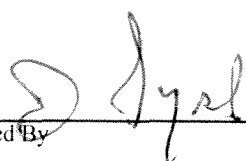
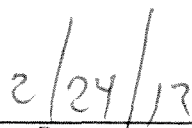
Description:	Method/Waste Dilution Blank	Expires:	05/12/12 0
Standard Type:	Reagent	Prepared:	02/24/12 0
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	1	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	02/24/12 19:18 by JS
Vendor:	SERAS	LotNumber:	RUC0022

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 _____ Date _____

095

Analytical Standard Record

ERT/SERAS Laboratory

RVB0058

Description:	500ppm Oil IS Mix	Expires:	05/14/12 0
Standard Type:	Internal Standard	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

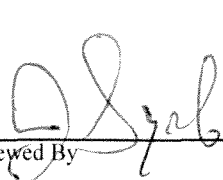
Dilute 2000ppm TPH IS (RUK0079) and 2000ppm BNA IS (RUK0081) to 2.0mL
spike 20µL per 1.0mL extract. JS

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 Comp	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



Date

2/24/12

096

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 JS Date 2/22/12

Analytical Standard Record

ERT/SERAS Laboratory

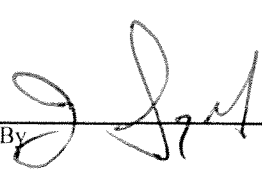
RVB0026

Description:	CUC BEO 12/14/12	Expires:	08/12/22 0
Standard Type:	Reagent	Prepared:	02/14/12 0
Solvent:	Neat Oil Mixture	Prepared By:	John Syslo
Final Volume (mls):	20	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	02/14/12 12:44 by JS
Vendor:	SERAS	LotNumber:	Extracted from Soil

20mL of mixed product that was extracted & reclaimed on 2/13/12 from CUC-0135 soil : J. Syslo
Logging in the neat standard

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		1000000	ug/mL

US EPA ARCHIVE DOCUMENT

Reviewed By  Date 2/14/12

Analytical Standard Record
ERT/SERAS Laboratory
RVB0020

Description: 40 ppm Oil Surrogate - 4 Cmpds. Expires: 05/12/12 0
Standard Type: Surrogate Spike Prepared: 02/13/12 0
Solvent: DCM/Hexane 65:35 Prepared By: John Syslo
Final Volume (mls): 25 Department: Oil/Fingerprint Lab
Vials: 1 Last Edit: 02/13/12 15:55 by JS
Vendor: SERAS LotNumber: RUC0022 for DCM/Hexane

Dilute 2000ppm RUK077 (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)
RUK0077	2000ppm Oil Surrogate Stock	11/14/11	John Syslo	05/12/12	11/14/11 16:50 by JS	0.5

Reviewed By

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

John Syslo 2/24/12

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

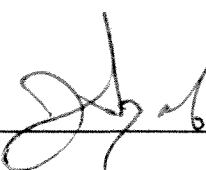
Diluting neat product to obtain 10,000ppm standard. adding IS for SIM method.

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

 2/24/12

Date

Analytical Standard Record

ERT/SERAS Laboratory

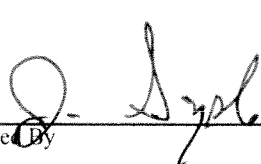
RUC0021

Description:	Hexanes (95% n-hexane)	Expires:	03/10/21 0
Standard Type:	Reagent	Prepared:	03/10/11 0
Solvent:	Hexane	Prepared By:	John Syslo
Final Volume (mls):	4000	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	03/07/12 18:22 by JS
Vendor:	J.T. Baker	LotNumber:	H49E38

Cat# 9262-03

Analyte	CAS Number	Concentration	Units
Hexane	110-54-3	950000	ug/mL

Reviewed By



Date

3/9/12

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

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:	Cambridge Isotope Labs	LotNumber:	P-7449

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

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

Reviewed By John Syslo Date 3/19/12

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:	Cambridge 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

US EPA ARCHIVE DOCUMENT

Reviewed By John Syslo Date 8/15/12

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

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:	IY0212

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

Date

J. Syslo 3/19/12

Analytical Standard Record

ERT/SERAS Laboratory

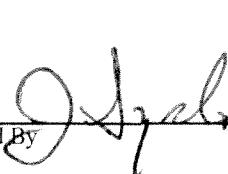
RSF0092

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



Date

3/19/12

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 JSyslo Date 3/19/13

0109

Analytical Standard Record

ERT/SERAS Laboratory

RVA0051

Description:	Carbon Disulfide - Solvent	Expires:	07/25/12 0
Standard Type:	Reagent	Prepared:	01/27/12 0
Solvent:	Carbon Disulfide 99.9%	Prepared By:	John Syslo
Final Volume (mls):	100	Department:	Carbon/XAD
Vials:	1	Last Edit:	03/19/12 10:08 by JS
Vendor:	Sigma Aldrich	LotNumber:	MKBB0780

This bottle has 1.34ppm toluene!!!

Carbon Disulfide for carbon tube extraction. COA not available. This is one of about 20 bottles that were recieved 7/2009 , kept in

Analyte	CAS Number	Concentration	Units
Carbon Disulfide	75-15-0	1000000	ug/mL

US EPA ARCHIVE DOCUMENT

Reviewed By JSyslo Date 5/20/12

Attachment 81

Attachment 01

Summary of Enbridge Oil Samples Received: 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 received that contained water and river 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.
	<i>SERAS-017-0000</i>				<i>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 bottom debris topped with ~500mL water. I skimmed a small quantity of the visible product that floated 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.</i>
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 received as duplicates in 40mL VOA vials on the Conestoga-Rivers chain of custody. The SERAS numbers were assigned to the sample numbers listed on the COC and information is provided below:
	SERAS-017-0005 SERAS-017-0006				is Sample No. WCS-6B-072223-092910-JPS-KA-002-20. two bottles received with custody seal # 701795. This is a mobile-black crude oil sample. is Sample No. CL-6B-072223-092710-JPS-KA-001-33. two bottles received 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: Biodegradation Studies : 03/01/12 - 04/18/12

COC#	# of Samples	Date Received	Analysis Requested	Date Analyzed	Comments
<i>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. Approximately 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.</i>					
SERAS-017-03/15/12-0005	7	3/19/2012	TPH ***	3/23/2012	Day 0 Samples of biodegradation study. Results in Table 1.0 .
SERAS-017-03/22/12-0006	6	3/22/2012	TPH ***	3/23/2012	Day 14 Samples of biodegradation study. Results in Table 2.0 . <i>After reviewing the Day 0 and Day 14 TPH results, gravimetric analysis was performed on 2 select Day 0 and Day 14 samples to obtain information concerning the asphaltene content, Table 2.1 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.</i>
SERAS-017-04/06/12-0007	7	4/12/2012	TPH ***	4/18/2012	Day 28 Samples of biodegradation study. Results in Table 3.0

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

Chain of Custody

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

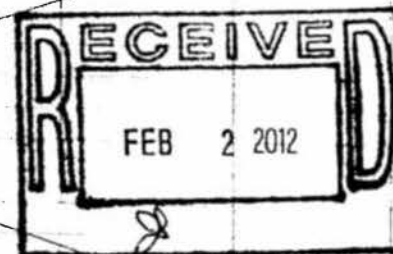
Lab: SERAS Laboratory

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

T-F-m
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
1/2 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

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

Date Received: 02/01/12 12:35

Logged In By: Lawrence Martin

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	

200 Say Fingerprint

Reviewed By

Date

Page 1 of 1

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0115

US EPA ARCHIVE DOCUMENT

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
RECEIVED FEB 14 2012 <i>21</i>									

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	<i>John Miller</i>	2/8/12	15:00	All/Analysis	<i>John Miller</i>	2/13/12	<i>John Miller</i>	2/13/12	14:15

3

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

Date Received: 02/08/12 15:43

Logged In By: Lawrence Martin

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

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
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	

gph dan

Reviewed By

Date

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0117

US EPA ARCHIVE DOCUMENT

SERAS-017-DTM-011413_2

0118

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

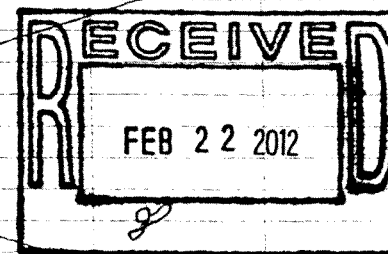
Lab: SERAS Laboratory

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

Tfm
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	T. F. Miller	2/21/12	14:30	All Analysis	T. F. Miller	2/22/12	J. [Signature]	2/22/12	0905

E

EPA/ERT

SERAS, Edison, NJ

EPA Contract Number: EP-W-09-031

WO# R202016

CHAIN OF CUSTODY RECORD

Site #: SERAS-017

Contact Name: T. Ferrell Miller

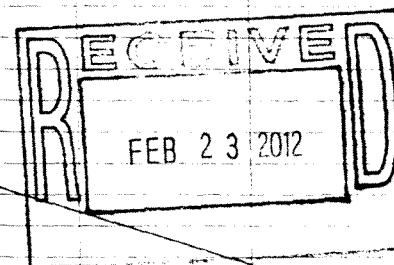
Contact Phone: [REDACTED]

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

Lab: SERAS Laboratory

Lab Phone: 732-321-4212

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

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

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Received Room Temp

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	T. F. Miller	2/23/12	16:00	All/Analysis	T. F. Miller	2/23/12	J. J. [Signature]	2/23/12	16:00

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

Date Received: 02/21/12 16:07

Logged In By: Lawrence Martin

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
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	

Fingerprint

Reviewed By

Date

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SERAS-017-DTM-011413_2

0120

CHAIN OF CUSTODY RECORD

CONESTOGA-ROVERS & ASSOCIATES 2055 Niagara Falls Blvd Niagara Falls, NY 14304				SHIPPED TO (Laboratory Name): Raymond Siegener, PhD Alpha Analytical 320 Forbeo Blvd Mansfield, MA 02048				REFERENCE NUMBER: Wne WBSampling 072223			
SAMPLER'S SIGNATURE: <i>Christa Nunn</i>				PRINTED NAME: Christa Nunn				REMARKS Bottle Custody Seal # 701795 701688 *Sample Petroleum Crude Oil, 3, UN1267, PGII			
SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	No. of Containers	PARAMETERS					
1	2/22/12	1100	WCS-WB-072223-092910-JPS-KA-002-20	CO	1						
1	1	1	CL-WB-072223-092910-JPS-KA-001-33	1	1						
RECEIVED MAR 1 2012											
ENBRIDGE OIL											
⑤ = SERAS-017-0005 ⑥ = SERAS-017-0006											
TOTAL NUMBER OF CONTAINERS					2	HEALTH/CHEMICAL HAZARDS					
RELINQUISHED BY: ① <i>Christa Nunn</i>			DATE: 2/22/12 TIME: 1105		RECEIVED BY: ① <i>FedEx</i>			DATE: _____ TIME: _____			
RELINQUISHED BY: ② <i>FedEx</i>			DATE: 2/24/12 TIME: 1050		RECEIVED BY: ② <i>[Signature]</i>			DATE: 2/24/12 TIME: 1050			
RELINQUISHED BY: ③ <i>[Signature]</i>			DATE: 2/27/12 TIME: 1135		RECEIVED BY: ③ <i>UPS</i>			DATE: _____ TIME: _____			
METHOD OF SHIPMENT: <i>FedEx Ground</i>					WAY BILL No. <i>396871330076591</i>						
White ☒ —Fully Executed Copy Yellow ☐ —Receiving Laboratory Copy Pink ☐ —Shipper Copy Goldenrod ☐ —Sampler Copy			SAMPLE TEAM: <i>Christa Nunn</i>		RECEIVED FOR LABORATORY BY: <i>John E. Jones</i> DATE: 3/01/2012 TIME: 15:50						

WORK ORDER

Printed: 6/1/2012 4:37:40PM

R203003

ERT/SERAS Laboratory

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

Project Manager: Vinod Kansal
Project Number: SERAS-017

Report To:

US EPA/ERT (Edison)
Alan Humphrey
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: 03/22/12 17:00 (15 day TAT)

Received By: Lawrence Martin

Date Received: 03/01/12 14:21

Logged In By: Lawrence Martin

Date Logged In: 03/06/12 14:21

Samples Received at: 23°C

Custody Seals No Received On Ice No

Containers Intact No

COC/Labels Agree No

Preservation Confir No

Analysis	Due	TAT	Expires	Comments
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R203003-01 Does Not Exist [Other] Sampled 03/05/12 00:00 Eastern				
--	--	--	--	--

R203003-02 Does Not Exist [Other] Sampled 03/05/12 00:00 Eastern				
--	--	--	--	--

R203003-03 SERAS-017-0005 [Other] Sampled 02/22/12 00:00 Eastern				WCS-6B-072223-092910-JPS-KA-002-20
--	--	--	--	------------------------------------

Oil Fingerprint	03/01/12 16:00	8	02/29/12 00:00	
-----------------	----------------	---	----------------	--

R203003-04 SERAS-017-0006 [Other] Sampled 02/22/12 00:00 Eastern				CL-6B-072223-092710-JPS-KA-001-33
--	--	--	--	-----------------------------------

Oil Fingerprint	03/01/12 16:00	8	02/29/12 00:00	
-----------------	----------------	---	----------------	--

Reviewed By

Date

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SERAS-017-DTM-011413_2

0122

E110

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-017-03/15/12-0005

Lab: SERAS Laboratory

Lab Phone: 732-321-4212

W0# R203011

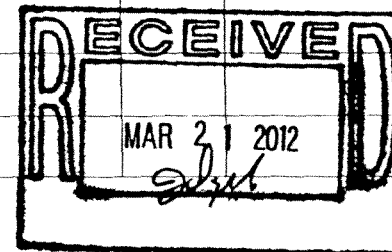
Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container	Preservative	MS/MSD
01	SERAS-017-0007	275-78-10	TPH-DRO	Nutrient Medium	3/6/2012	1	4-oz. amber	formaldehyde	N
02	SERAS-017-0008	275-78-11	TPH-DRO	Nutrient Medium	3/6/2012	1	4-oz. amber	formaldehyde	N
03	SERAS-017-0009	275-78-12	TPH-DRO	Nutrient Medium	3/8/2012	1	4-oz. amber	formaldehyde	N
04	SERAS-017-0010	275-78-13	TPH-DRO	Nutrient Medium	3/8/2012	1	4-oz. amber	formaldehyde	N
05	SERAS-017-0011	275-78-14	TPH-DRO	Nutrient Medium	3/8/2012	1	4-oz. amber	formaldehyde	N
06	SERAS-017-0012	275-78-15	TPH-DRO	Nutrient Medium	3/8/2012	1	4-oz. amber	formaldehyde	N
07	SERAS-017-0013	275-78-16	TPH-DRO	Nutrient Medium	3/14/2012	3	4-oz. amber	formaldehyde	Y
TPM									
3/15/12									

Special Instructions: Each sample contains 65 mL (nutrient medium), 10 mL methylene chloride, 6.5 mL 37% v/v formaldehyde and 200 mg TPH. Extract the entire sample. Please use sample SERAS-017-0013 for matrix, matrix spike and matrix spike duplicate analyses.

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
9/analyses	T. F. Miller	3/15/12	T. F. Miller	3/16/12	8:00	All Analyses	T. F. Miller	3/19/12	[Signature]	3/19/12	11:20



SERAS-017-DTM-011413_2

0123

WORK ORDER

Printed: 6/1/2012 4:37:40PM

R203011

ERT/SERAS Laboratory

Client: US EPA/ERT (Edison)
Project: Bioremediation Support for Oil

Project Manager: Vinod Kansal
Project Number: 0-017

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)
Harry Allen
2890 Woodbridge Avenue
Edison, NJ 08837
Phone: [REDACTED]
Fax: (732) 321-6724

Date Due: 04/06/12 17:00 (15 day TAT)

Received By: Lawrence Martin

Date Received: 03/16/12 09:49

Logged In By: Lawrence Martin

Date Logged In: 03/19/12 09:49

Samples Received at: 23°C

Custody Seals No Received On Ice No
Containers Intact Yes
COC/Labels Agree Yes
Preservation Confr No

Analysis	Due	TAT	Expires	Comments
R203011-01 SERAS-017-0007 [Water] Sampled 03/06/12 00:00 Eastern				275-78-10
Fingerprint	03/16/12 16:00	8	03/13/12 00:00	
R203011-02 SERAS-017-0008 [Water] Sampled 03/06/12 00:00 Eastern				275-78-11
Oil Fingerprint	03/16/12 16:00	8	03/13/12 00:00	
R203011-03 SERAS-017-0009 [Water] Sampled 03/08/12 00:00 Eastern				275-78-12
Oil Fingerprint	03/16/12 16:00	8	03/15/12 00:00	
R203011-04 SERAS-017-0010 [Water] Sampled 03/08/12 00:00 Eastern				275-78-13
Oil Fingerprint	03/16/12 16:00	8	03/15/12 00:00	
R203011-05 SERAS-017-0011 [Water] Sampled 03/08/12 00:00 Eastern				275-78-14
Oil Fingerprint	03/16/12 16:00	8	03/15/12 00:00	
R203011-06 SERAS-017-0012 [Water] Sampled 03/08/12 00:00 Eastern				275-78-15
Oil Fingerprint	03/16/12 16:00	8	03/15/12 00:00	
R203011-07 SERAS-017-0013 [Water] Sampled 03/08/12 00:00 Eastern				275-78-16
Oil Fingerprint	03/16/12 16:00	8	03/15/12 00:00	

Reviewed By

Date

Page 1 of 1

SERAS-017-DTM-011413_2

0124

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-017-03/22/12-0006

Lab: SERAS Laboratory

Lab Phone: 732-321-4212

WO# R203015

Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container	Preservative	MS/MSD
01	SERAS-017-0014	275-82-07	TPH-DRO	Nutrient Medium	3/20/2012	1	4-oz. amber	formaldehyde	N
02	SERAS-017-0015	275-82-08	TPH-DRO	Nutrient Medium	3/20/2012	1	4-oz. amber	formaldehyde	N
03	SERAS-017-0016	275-82-09	TPH-DRO	Nutrient Medium	3/22/2012	1	4-oz. amber	formaldehyde	N
04	SERAS-017-0017	275-82-10	TPH-DRO	Nutrient Medium	3/22/2012	1	4-oz. amber	formaldehyde	N
05	SERAS-017-0018	275-82-11	TPH-DRO	Nutrient Medium	3/22/2012	1	4-oz. amber	formaldehyde	N
06	SERAS-017-0019	275-82-12	TPH-DRO	Nutrient Medium	3/22/2012	1	4-oz. amber	formaldehyde	N
TFM 3/22/12									

Special Instructions: Each sample consists of 65 mL water (nutrient medium), 10 mL methylene chloride, 6.5 mL 37% v/v formaldehyde and 200 mg TPH. Samples SERAS-017-0018 and SERAS-017-0019 contain 17.5 mL methylene chloride rather than 10 mL.

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
6/analysis	T.F. Miller	3/22/12	[Signature]	3/22/12	15:00	All/Analysis 5 [Signature]	[Signature]	3/22/12	[Signature]	3/22/12	15:30

MAR 22 2012

[Signature]

WORK ORDER

Printed: 6/1/2012 4:37:39PM

R203015

ERT/SERAS Laboratory

Client: US EPA/ERT (Edison)
Project: Bioremediation Support for Oil

Project Manager: Vinod Kansal
Project Number: 0-017

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)
Harry Allen
2890 Woodbridge Avenue
Edison, NJ 08837
Phone: [REDACTED]
Fax: (732) 321-6724

Date Due: 04/12/12 17:00 (15 day TAT)

Received By: Lawrence Martin

Date Received: 03/22/12 15:28

Logged In By: Lawrence Martin

Date Logged In: 03/22/12 15:28

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
R203015-01 SERAS-017-0014 [Water] Sampled 03/20/12 00:00 Eastern				275-82-07
Fingerprint	03/22/12 16:00	8	03/27/12 00:00	
R203015-02 SERAS-017-0015 [Water] Sampled 03/20/12 00:00 Eastern				275-82-08
Oil Fingerprint	03/22/12 16:00	8	03/27/12 00:00	
R203015-03 SERAS-017-0016 [Water] Sampled 03/22/12 00:00 Eastern				275-82-09
Oil Fingerprint	03/22/12 16:00	8	03/29/12 00:00	
R203015-04 SERAS-017-0017 [Water] Sampled 03/22/12 00:00 Eastern				275-82-10
Oil Fingerprint	03/22/12 16:00	8	03/29/12 00:00	
R203015-05 SERAS-017-0018 [Water] Sampled 03/22/12 00:00 Eastern				275-82-11
Oil Fingerprint	03/22/12 16:00	8	03/29/12 00:00	
R203015-06 SERAS-017-0019 [Water] Sampled 03/22/12 00:00 Eastern				275-82-12
Oil Fingerprint	03/22/12 16:00	8	03/29/12 00:00	

Reviewed By

Date

Page 1 of 1

SERAS-017-DTM-011413_2

0126

EPA Contract Number: EP-W-09-031

Site #: SERAS-017

Contact Phone: [REDACTED]

No: SERAS-017-04/06/12-0007

Lab Phone: 732-321-4212

WO# R204002

[illegible]

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time		Items/Reason	Relinquished By	Date	Received by	Date	Time
e / analysis	T. F. Miller	4/6/12	[Signature]	4/6/12	12:00							

A rectangular stamp with the word "RECEIVED" at the top in large, bold letters. Below it, the date "APR 18 2012" is stamped. At the bottom, there is a handwritten signature.

10127

WORK ORDER

Printed: 6/1/2012 4:37:38PM

R204002

ERT/SERAS Laboratory

Client: US EPA/ERT (Edison)
Project: Bioremediation Support for Oil

Project Manager: Vinod Kansal
Project Number: 0-017

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)
Harry Allen
2890 Woodbridge Avenue
Edison, NJ 08837
Phone: [REDACTED]
Fax: (732) 321-6724

Date Due: 04/27/12 17:00 (15 day TAT)

Received By: Lawrence Martin

Date Received: 04/06/12 12:22

Logged In By: Lawrence Martin

Date Logged In: 04/06/12 12:22

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
R204002-01 SERAS-017-0020 [Water] Sampled 04/03/12 00:00 Eastern				275-89-06
Fingerprint	04/06/12 16:00	8	04/10/12 00:00	
R204002-02 SERAS-017-0021 [Water] Sampled 04/03/12 00:00 Eastern				275-89-07
Oil Fingerprint	04/06/12 16:00	8	04/10/12 00:00	
R204002-03 SERAS-017-0022 [Water] Sampled 04/05/12 00:00 Eastern				275-89-08
Oil Fingerprint	04/06/12 16:00	8	04/12/12 00:00	
R204002-04 SERAS-017-0023 [Water] Sampled 04/05/12 00:00 Eastern				275-89-09
Oil Fingerprint	04/06/12 16:00	8	04/12/12 00:00	
R204002-05 SERAS-017-0024 [Water] Sampled 04/05/12 00:00 Eastern				275-89-10
Oil Fingerprint	04/06/12 16:00	8	04/12/12 00:00	
R204002-06 SERAS-017-0025 [Water] Sampled 04/05/12 00:00 Eastern				275-89-11
Oil Fingerprint	04/06/12 16:00	8	04/12/12 00:00	

Reviewed By

Date

Page 1 of 1

SERAS-017-DTM-011413_2

0128

US EPA ARCHIVE DOCUMENT

Injection Logs

TPH ICAL for ENBRIDGE Oil Samples
- uses site oil

Logbook # SERAS-I-0121

TPH ICAL: ENOTPH032212.M Page 90

SERAS, GC/MS Injection Log

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

Project Name: ENBRIDGE Oil: TPH ICAL + SAMPLES

Method File:

DFTPP/ ENOTPH032212

Work Assign: 8-017

Inj. Volume:

Analysis Date: TPH in Biotransformation Study

Analyst:

Luk
Sylvia

ALS	FILE ID	SAMPLE ID	REAC ID	Date of Analysis	TIME Inj.	COMMENTS
99	SL02956	50 ppm DFTPP	RVB0025	2/22/12	14:51	Pass 1385-1376
71	SL02957	Blank			15:30	Solvent Blank + Surf
72	SL02958	5000 ppm ENO TPH SH	RVC0059		16:51	
73	SL02959	1000 ppm ENO TPH SH	RVC0062		17:52	
74	SL02960	10,000 ppm ENO TPH SH	RVC0060		18:32	
75	SL02961	50,000 ppm ENO TPH SH	RVC0058		19:32	
76	SL02962	25,000 ppm ENO TPH SH	RVC0061		20:51	
77	SL02963	8.5 ppm ENO TPH SH	RVC0063		21:51	
78	SL02964	5000 ppm 2nd Surf. CV	RVC0066		22:51	
99	SL02965	50 ppm DFTPP	RVB0025	3/23/12	23:47	Pass 1385-1376
72	SL02966	5000 ppm ENO CQC TPH	RVC0059	3/23/12	00:08	Pass Col. Check TPH
1	SL02967	BLANK	120039-BLK1		1:08	1 mL FV
2	SL02968	LCS	120039-BL1		2:07	1 mL FV
3	SL02969	SERAS-017-0007	R203011-01		3:08	5 mL FV thru 4X
4	SL02970	-0008	-02		4:08	
5	SL02971	-0009	-03		5:08	
6	SL02972	-0010	-04		6:09	
7	SL02973	-0011	-05		7:09	
8	SL02974	-0012	-06		8:09	
9	SL02975	-0013	R203011-07		9:09	
10	SL02976	-0013 MS	120039-MS1		10:09	
11	SL02977	SERAS-017-0013 MS	120039-MS1		11:09	5 mL FV thru 4X
1	SL02978	C03 Blank	Blank	3/23/12	12:08	
99	SL02979	50 ppm DFTPP	RVB0025	3/23/12	17:55	Pass 1387-1374
71	SL02980	5000 ppm ENO TPH SH	RVC0059		18:31	Pass
1	SL02981	2nd Surf. Blank	120040-BLK1/120040-MS1		19:38	1 mL FV
2	SL02982	SERAS-017-0014	R203015-11		20:57	5 mL FV thru 4X
3	SL02983	SERAS-017-0015	R203015-12	3/23/12	21:58	5 mL FV thru 4X
	REAC ID	Standard Description	Exp. date	Conc.	Ref. P.	Comment
1	RVB0025	DFTPP	8/14/12	50 ppm		
2	RVC0059	Calibration Check TPH	9/15/12	5000 ppm		Site Specific TPH
3	RVC0035	Internal Standard Oil IS	9/15/12	5000 ppm		Spiked 2000/1 mL
4						
5						
6						

Reviewed By:

Date Checked:

Analyzed by: J. Sylvia 3/24/12

3/26/12

SERAS, GC/MS Injection Log

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

Project Name:

Method File:

DFTPP/ EN/TP/40322/2

Work Assign.#:

Inj. Volume:

Analysis/Date:

Analyst:

[illegible]

Reviewed By:

Date Checked:

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

Embryology

Method File:

DFTPP/ENOTPH0322(2

Work Assign.#:

Inj. Volume:

Analysis/Date:

Analyst:

Reviewed By:

Vind Kansel

Date Checked:

~~5/6/12~~ 6/5/12

Extraction Logs



PREPARATION WORK SHEET

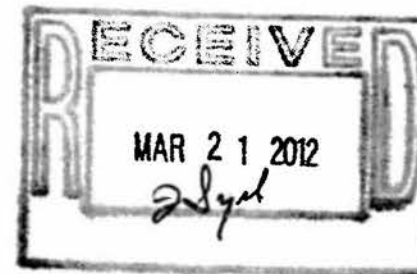
ENO
Day 6

Printed: 3/21/2012 3:04:00PM

Batch No. 1200039

SERAS-017-BTM-01413

Lab Number	Sample #	Prepared	Initial (mL)	Final (mL)	Surrogate	µl Surrogate	Spike ID	Source ID	µl Spike	Extraction Solvent Vol.	Extraction Comments
200039-BLK1	Blank	03/21/12 15:01	200	1	RVB0021	500					
200039-BS1	LCS	03/21/12 15:01	200	1	RVB0021	500	RVC0053		500		
200039-MS1	Matrix Spike	03/21/12 15:01	200	+ 5	RVB0021	500	RVC0053	R203011-07	500		
200039-MSD1	Matrix Spike Dup-	03/21/12 15:01	200	+	RVB0021	500	RVC0053	R203011-07	500		
R203011-01	SERAS-017-0007	03/21/12 15:01	200	+	RVB0021	500					
R203011-02	SERAS-017-0008	03/21/12 15:01	200	+	RVB0021	500					
R203011-03	SERAS-017-0009	03/21/12 15:01	200	+	RVB0021	500					
R203011-04	SERAS-017-0010	03/21/12 15:01	200	+	RVB0021	500					
R203011-05	SERAS-017-0011	03/21/12 15:01	200	+	RVB0021	500					
R203011-06	SERAS-017-0012	03/21/12 15:01	200	+	RVB0021	500					
R203011-07	SERAS-017-0013	03/21/12 15:01	200	+	RVB0021	500					

Project Name: Bioremediation Support for Oil
Project No.: 0-017Matrix: Water
Analysis: Oil FingerprintPrepared By: SS
Prepared using: Method 3510C by Separatory Funnel0134
White it at 4/1RVC0053 = 5000 ppm
200 µl = 2500 ppm in 1ml
or 500 µl = 500 ppm

Spiking Witnessed By

Date

Preparation Reviewed By

Date

Extracts Received By

Date



PREPARATION WORK SHEET

Day 14

Printed: 3/23/2012 3:35:32PM

Batch No. 1200040

SERAS-017-DIM-011413

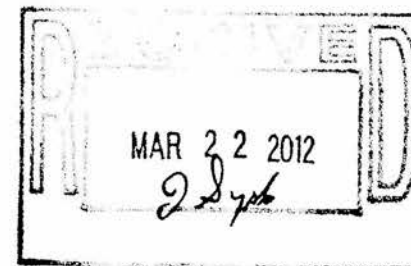
Lab Number	Sample #	Prepared	Initial (mL)	Final (mL)	Surrogate	μ l Surrogate	Spike ID	Source ID	μ l Spike	Extraction Solvent Vol.	Extraction Comments
1200040-BLK1	Blank	03/23/12 09:00	200	1	RVB0021	500					
1200040-BS1	LCS	03/23/12 09:00	200	1	RVB0021	500	RVC0053		500		
1200040-BSD1	LCS Dup	03/23/12 09:00	200	1	RVB0021	500	RVC0053		500		
R203015-01	SERAS-017-0014	03/23/12 09:00	200	5	RVB0021	500					
R203015-02	SERAS-017-0015	03/23/12 09:00	200	5	RVB0021	500					
R203015-03	SERAS-017-0016	03/23/12 09:00	200	5	RVB0021	500					
R203015-04	SERAS-017-0017	03/23/12 09:00	200	5	RVB0021	500					
R203015-05	SERAS-017-0018	03/23/12 09:00	200	5	RVB0021	500					
R203015-06	SERAS-017-0019	03/23/12 09:00	200	5	RVB0021	500					

Project Name: Bioremediation Support for Oil
Project No.: 0-017

Matrix: Water
Analysis: Oil Fingerprint

Prepared By: SS
Prepared using: Method 3510C by Separatory Funnel

0135



Spiking Witnessed By

Date

Preparation Reviewed By

Date

Extracts Received By

Date



PREPARATION SHEET

Day 28

Batch No. 1200055

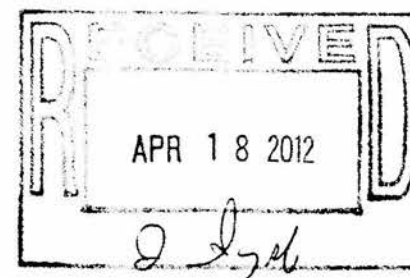
Printed: 4/18/2012 2:52:20PM

Lab Number	Sample #	Prepared	Initial (mL)	Final (mL)	Surrogate	µl Surrogate	Spike ID	Source ID	µl Spike	Extraction Solvent Vol.	Extraction Comments
1200055-BLK1	Blank	04/18/12 14:49	200	1	RVD0036	500					
1200055-BS1	LCS	04/18/12 14:49	200	1	RVD0036	500	RVC0053		500		
1200055-BSD1	LCS Dup	04/18/12 14:49	200	1	RVD0036	500	RVC0053		500		
R204002-01	SERAS-017-0020	04/18/12 14:48	200	5	RVD0036	500					
R204002-02	SERAS-017-0021	04/18/12 14:48	200	5	RVD0036	500					
R204002-03	SERAS-017-0022	04/18/12 14:48	200	5	RVD0036	500					
R204002-04	SERAS-017-0023	04/18/12 14:48	200	5	RVD0036	500					
R204002-05	SERAS-017-0024	04/18/12 14:48	200	5	RVD0036	500					
R204002-06	SERAS-017-0025	04/18/12 14:48	200	5	RVD0036	500					

Project Name: Bioremediation Support for Oil
Project No.: 0-017

Matrix: Water
Analysis: Oil Fingerprint

Prepared By: SS
Prepared using: Method 3510C by Separatory Funnel



Spiking Witnessed By

Date

Preparation Reviewed By

Date

Extracts Received By

Date

Waste Dilution
+

Bulk Extraction of Oil

2/24/12

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

2 Samples:

COL #	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 100ul of 2000 ppm
oil surrogate, dilute to 10ml volume with DCM/Hexane
65:35

↳ Waste Dilution Extraction / Prep 40g
• 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
BLK022412VD	—	10.0ml	100ul y RUK0077
SERAS-017-0004	0.193g	10.0ml	100ul y W 4
SERAS-017-0003	0.103g	10.0ml	100ul y K 1
SERAS-017-0003d	0.109g	10.0ml	100ul y
SERAS-017-0004A	1.029g	10.0ml	100ul y RUK0077

Used DCM/Hex 65:35 + 20% Acetone to extract - also - a
beaker had wiped out of dust + ± gravel +
SERAS-017-0004 - chunks of oily surf - possibly oil soaked
debris - under. Formed soil surf balls when vortex
+ will do again with DCM/Hex + 10% Acetone

→ JLB 2/24/12

Continued on Page

Read and Understood By

Signed
SERAS-017-BTM-011413_2

2/24/12
Date

Signed
0138

3-5-12
Date

PROJECT ENDRIPGt Oil WA#0-017Notebook No. L-0146
Continued From Page

17

2/27/12 Monday

- Sequences that run ahead 2/24/12 extracts held - Data not usable according to D-5725
- Centrifuging sample today before washing

Sample	wt.	Final Vol	Surv. Alkyl
BLK022912	0.1g	10ml	100ul RUK0027
SERAS-017-0003	0.111g	10ml	100ul
SERAS-017-0003 dup	0.111g	10ml	100ul
SERAS-017-004	0.029g	2.0ml	20ul RUK0027

Sample	wt.	Final Vol	Surv. Alkyl
RVB0026	0.121g	10ml	100ul CUC Sample
AMTSTOCK	0.100g	10ml	NO SUR
CUC-BEO	0.508g	10ml	NO SUR
SERAS-017-0004	0.825g		Cont 7.664
CUC-1390			Cont

3/1/2012 Thursday

- Extracting Pure Product for Flemingsburg Ky

Sample	wt.	Final Vol	Surv. Alkyl
BLK030112	0.1g	10ml	100ul RUK0027
Centrifuged sample FOR-TRENCH + FOR-CREEK from CUC# for AES: 1m 2/28/12			
R202018-01	0.055g	5.0ml	50ul RUK0027
R202018-01 dup	0.105g	5.0ml	50ul RUK0027
R202018-02	0.148g	5.0ml	50ul RUK0027
↑ Big Endstar - Could use more centrifuge			
SERAS-017-0005	0.104g	10ml	100ul RUK0027
SERAS-017-0006	0.102g	10ml	100ul RUK0027
SERAS-017-0005 dup	0.115g	10ml	100ul RUK0027

Continued on Page

Read and Understood By

SERAS-017-0005-01413_2

Date

3/1/12

Signed

Gina Debus

0139

Date

3-5-12

3/6/12

Tuesday • Going to simulate autoclave of Bulk Extracted
CUC oil to determine if Degradation charge
• USING RVB0026 - The oil that still contains BCM
• could save time / a new BED
• will put in GC oven at 120°C

Vial wt = 4.634g

Vial + oil = 5.236g

5.192g

before bake

.602g

.0044g

loss 7.3%

Autoclaved BED = 0.118g → 2nd BCM/Lex

= 62000 ppm

Dilute 10x before inject

004 flask to lid

17.174

18.446

= 1.27g

Bake in GC oven at 120 - no wtd gain

Add 10ml BCM/Lex

2nd one → to test bake

004 Vial = 4.883

= 5.005g

4.966g

no oil - Put in 2 hrs at 125°C

4.975

= 0.092g

Weighing 003 will cook its AD to keep

2nd

VIAL = 12.407g

12.614g

the 6th 12.585

check by 4x

= 0.178g ~

6. part the 7.4
dilute by 3/4

use as CCV

Extends 0.1

Continued on Page

John Lynch

Signed

3/6/12

Date

Read and Understood By

[Signature]

Signed

3/12/12

Date

3/7/2012

Wed. Preparing SERAS-017-0004 prepared for Farrell Miller: he will use for biomarker study.

- Sample-0004 consists of an oil soaked mud/silt. I tried to separate oil from sediment/mud by just centrifuge - but the mud with is very viscous & and difficult to work with.
- Centrifuging followed by heating entire sample in water bath at 100°C for 1 hour to only sediment layers / water (hard to see) and break apart.

To remove water - I'll push whatever Bore I can off top layer and put in Farn Vial - the bath at 125°C for 1 hour in 60/AS - I'll not remove water & run Bore.

• calibration scale - in logbook SERAS-L-0157 - just 51

↳ 20mL Vial weight = 13.920g

- Decided to use 30mL Vial VIAL: 20.984g
in dish @ 11:30

NOW

20.234g - 20 L/D
28.914g

= 9.25g wet
= 7.982g (cooked at 125°C)

cooked 14Y.

Farrell got 6.514g

[Signature]
3/7/12

Continued on Page

[Signature]
Signed

3/7/12
Date

Read and Understood By

[Signature]
Signed

3/12/12
Date

3/20/12

- Making EO TPH ECL from cleaned + autoclaved 5000-017-0004 oil
- weighed 0.503g $\rightarrow$ 10ml DCM/hexane for 50,000 ppm STOCK
- Note this oil has that unique - non sticky physical property - it sticks to itself ~ but not on other object
- This is like sample 0000 from Run
- $\Rightarrow$ Experiment - will take $\sim \sqrt{1.0g}$ of oil - Dilute 1:1 DCM
- Bake off DCM ~ see if stuff settles out - maybe still
- see if still sticky

EX032012A: 1.267g $\rightarrow$ ~5ml DCMCENTRIFUGE 3.0ml $\uparrow$

Ca Layer of ocean water came to top $\sim 50\mu$
 $\rightarrow$ pipetting out 2.0ml of Dark DCM layer to
 Tared zone Vial - will evap off DCM

Vial weight 13.900g

14.339g with DCM + EVU

after some DCM Bake 14.385

after 125° Autoclave 14.679

 $\Rightarrow$ have 0.178g of autoclaved 017-0004 oil

• adding 5.0ml hexane

 $\rightarrow$ want to try and clean

= 35,600 ppm

• dilute 140ml $\rightarrow$ 1ml = 5000 ppm

* It didn't dissolve in hexane: little black spicule
 everywhere. It formed an emulsion that settled
 to bottom

• Added 1ml CS_2 ~ still emulsion
 • Adding 1ml DCM?

got rid of 90% spicules

• One more ml DCM

- not spicule gone + oil is popping glob

• 8ml total dilute = 22,300 ppm ~ dilute 4x DCM/hex
 = EX032012B: 8ml dilute 4x

Continued on Page

Read and Understood By

SERAS-017-011413_2

Signed

3/21/12

Date

Vivian Tanciel 0142

Signed

5/2/12

Date

3/21/12 ~ EO analyzing

Ex 032112A: Took 1.0ml of the 8ml extract and added 200 μ l of acetoneEx 032112B: Took 1.0ml of 8ml extract and added 200 μ l of Methanol

• New AutoClave 30ml + Cap = 25.91g

25.988g

25.796g

changed cap, but ran at 130°C

Ex 032112C

Got 0.330g $\rightarrow$ dilute with 6.0ml DCM/Hexane/Acetone/MeOH
60 30 5 5

It seems like it worked - no top globe or residual

= 55,000 μ g/ml if all went into extract

J. Sylve 3/21/12

3/24/12

Saturday

Acid cleaning some oils to check effects
on PAH's + maybe hopane

EX 032412A: 10,000ppm Amit Oil

 $\rightarrow$ used MOTOR OIL0.1g $\rightarrow$ 10ml Hexane

EX 032412B = 10ml Hexane blank

+ 100 μ l RVC0032

EX 032412C = Acid cleaned EX 032412B

Use 1ml extract with 2ml H₂SO₄ 50%

EX 032412D = Acid cleaned EX 032412A

- put hexane extract on H₂SO₄ to remove traces of H₂SO₄

Continued on Page

J. Sylve

Signed

4/5/12

Date

Read and Understood By

[Signature]

Signed

4/6/12

Date

4/19/12

Day 0 Samples

SERAS-017-0007 0003 oil

SERAS-017-0013 0004 oil

Day 14 Samples

SERAS-017-0014 0002 oil

SERAS-017-0019 0004 oil

- Centrifuging @ 3500 rpm ~ 2.5 ml of each oil extract then take 2 ml each + evaporate in 4.0 ml vials

VIALS + CAP + CHIPS	EMPTY		crv Extract
OHAV3	Mettler 240		2.0 ml Mg oil
0007 = A: 6.112	6.1114g	8.698	6.1844g
0013 = B: 6.100	6.1024g	8.632	6.1756g
0014 = C: 6.152	6.1566g	8.681	6.2108g
0019 = D: 6.148	6.1485g	8.770	6.2076g

* Checking METTLER AE 240 with Troemner weights
Serial A 006897

WT 10g = 10.0000 1g = 1.0000 0.1g = 0.1001
0.020g = 0.0200 0.010g = 0.0100g

Continued on Page

SERAS-017-DTM-011413_2

Signed

Date

Read and Understood By

Vinod K. K. 0144

Signed

Date

5/2/12

4/19/12
Thursday

Predicted that Fennell needs to combine 3 soils
from CUC to produce the oil mixture used
for CUC Day 0 → Day 84 2011 mix and make
the bulk extracted oil RV 30020.

Combine equal weight CUC-01 } T.F.H gave me
CUC-03 } Sub : sample
CUC-06 }

I weighed 8.535g : correct w/ DCM + MeOH 10ml + 1ml 2x
the 3ml + 2ml 1x
8.535 = 27.2 ml

centrifuge 15 min at 3000 rpm
* Total dist = 100x for original - 01, 02, 06 10g = 10ml then 10x
* combine w/ 10g = 10ml x 2x = 200x
gave 25000 bottles #2
8.535 = 27 ~ 3.1 - Should be OK

J. Syal
4/19/12

Continued on Page

J. Syal
Signed

4/19/12
Date

Read and Understood By

Vincent Kausel
Signed

5/2/12
Date

LIMS
STANDARDS Prep.

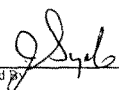
Analytical Standard Record
ERT/SERAS Laboratory
RVE0033

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



Date

5/19/12

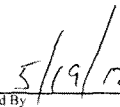
Analytical Standard Record
ERT/SERAS Laboratory
RVE0033

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



Date

5/19/12

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 Standard	04/09/12	John Syslo	10/06/22	04/09/12 17:47 by JS	0.05

Reviewed By J. Syslo Date 5/19/12

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 J. Syslo Date 5/19/12

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

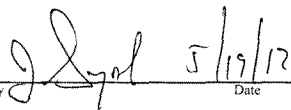
Made serial dilution of 20K DRO stock in 1.0mL solvent: added 20µL OilIS RVC0035

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 S04/27/12		John Syslo	10/27/12	04/27/12 17:23 by JS	0.0025

Reviewed By

5/19/12

Date

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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

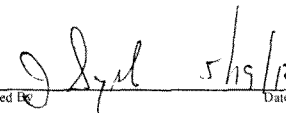
Made serial dilution of 20K DRO stock in 1.0mL solvent: added 20µL OilIS RVC0035

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 S04/27/12		John Syslo	10/27/12	04/27/12 17:23 by JS	0.005

Reviewed By

5/19/12

Date

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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. 1CAL S04/27/12		John Syslo	10/27/12	04/27/12 17:23 by JS	0.025

Reviewed By

JS 5/19/12

Date

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. 1CAL S04/27/12		John Syslo	10/27/12	04/27/12 17:23 by JS	0.05

Reviewed By

JS 5/19/12

Date

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 S04/27/12		John Syslo	10/27/12	04/27/12 17:23 by JS	0.25

Reviewed By

J. Syslo

Date

5/19/12

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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 S04/27/12		John Syslo	10/27/12	04/27/12 17:23 by JS	0.5

Reviewed By

J. Syslo

Date

5/19/12

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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

Date

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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

Date

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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 Syslo 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 Syslo 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

Date

5/19/12

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

Date

5/19/12

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. Syslo 5/19/12

Date

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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. Syslo 5/19/12

Date

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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

J. Syslo 5/19/12

Date

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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

J. Syslo 5/19/12

Date

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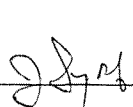
Analytical Standard Record
ERT/SERAS Laboratory
RVD0016

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

 5/19/12

Date

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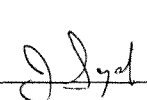
Analytical Standard Record
ERT/SERAS Laboratory
RVD0017

Description: Diesel Fuel - Neat Standard 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

 5/19/12

Date

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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

Date

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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 Standard	04/09/12	John Syslo	10/06/22	04/09/12 17:47 by JS	0.05

Reviewed By

Date

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Analytical Standard Record
ERT/SERAS Laboratory
RVC0066

Description: 5000ppm 2nd Source CCV for 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 Enbridge	03/22/12	John Syslo	09/18/12	03/22/12 18:26 by JS	0.167

Reviewed By

John Syslo 5/19/12

Date

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 Stock	03/22/12	John Syslo	09/18/12	03/22/12 18:22 by JS	0.178

Reviewed By

John Syslo 5/19/12

Date

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

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Analytical Standard Record
ERT/SERAS Laboratory
RVC0063

Description: 0.5K EO TPH ICAI 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

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Analytical Standard Record
ERT/SERAS Laboratory
RVC0062

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

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

Analyte	CAS Number	Concentration	Units
Triacotane-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

Date

J. Syslo 5/19/12

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Analytical Standard Record
ERT/SERAS Laboratory
RVC0061

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

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

Analyte	CAS Number	Concentration	Units
Triacotane-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

Date

J. Syslo 5/19/12

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Analytical Standard Record
ERT/SERAS Laboratory
RVC0060

Description: 10K EO TPH ICAI 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

Date

J Syslo 5/19/12

Analytical Standard Record
ERT/SERAS Laboratory
RVC0059

Description: 5.0K EO TPH ICAI 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

Date

J Syslo 5/19/12

Analytical Standard Record
ERT/SERAS Laboratory
RVC0058

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

Analytical Standard Record
ERT/SERAS Laboratory
RVC0057

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

Site Specific Enbridge Oil-TPH. Has surrogates - do serial dilutions for ICAI; 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 dissolution 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
Triacotane-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

Date

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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

Date

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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 sample 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 5/19/12

Date

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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
Triacantane-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 S03/20/12		John Syslo	09/15/12	03/20/12 15:20 by JS	0.01

Reviewed By

J Syslo 5/19/12

Date

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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	03/20/12	John Syslo	09/15/12	03/20/12 15:20 by JS	0.02

Reviewed By

Date

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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	03/20/12	John Syslo	09/15/12	03/20/12 15:20 by JS	0.4

Reviewed By

Date

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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 S03/20/12		John Syslo	09/15/12	03/20/12 15:20 by JS	0.04

Reviewed By

J Syslo 5/19/12

Date

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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 S03/20/12		John Syslo	09/15/12	03/20/12 15:20 by JS	0.2

Reviewed By

J Syslo 5/19/12

Date

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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: --

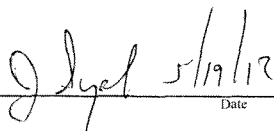
Weathered ORO TPH ICAL using CUC bulk extracted oil. Use this to make serial dilutions and add IS: JS

Analyte	CAS Number	Concentration	Units
Triacotane-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	03/20/12	John Syslo	09/15/12	03/20/12 15:20 by JS	1

Reviewed By



Date

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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: --

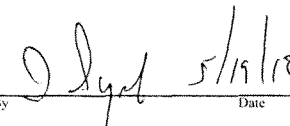
Weathered ORO TPH ICAL using CUC bulk extracted oil. Use this to make serial dilutions and add IS: JS

Analyte	CAS Number	Concentration	Units
Triacotane-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



Date

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Analytical Standard Record
ERT/SERAS Laboratory
RVC0041

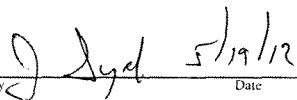
Description: SV Internal Std. Mix, 2000 ppm
Standard Type: Internal Standard
Solvent: DCM
Final Volume (mL): 1
Vials: 4
Vendor: Restek

Expires: 09/16/12 0
Prepared: 03/20/12 0
Prepared By: John Syslo
Department: Oil/Fingerprint Lab
Last Edit: 03/20/12 11:46 by JS
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



Date

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Analytical Standard Record
ERT/SERAS Laboratory
RVC0040

Description: 50,000 ppm CUC TPH Std
Standard Type: Reagent
Solvent: DCM/Hexane 65:35
Final Volume (mL): 10
Vials: 1
Vendor: SERAS

Expires: 09/15/12 0
Prepared: 03/19/12 0
Prepared By: John Syslo
Department: Oil/Fingerprint Lab
Last Edit: 03/20/12 15:20 by JS
LotNumber: LIMS # RVC0018

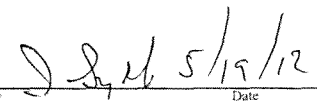
From bulk extracted oil: This is to make LCS/MS spikes and ICAL from site extracted oil: No Surrogates

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



Date

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Analytical Standard Record
ERT/SERAS Laboratory
RVC0038

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

John Syslo 5/19/12

Date

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Analytical Standard Record
ERT/SERAS Laboratory
RVC0035

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

John Syslo 5/15/12

Date

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Analytical Standard Record
ERT/SERAS Laboratory
RVC0034

Description: TPH IS Mix: 2000ppm : 3 Compounds Expires: 09/15/12 0
Standard Type: Internal Standard 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-Tetradecane-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 5/19/12

Date

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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
Triacotane-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 Triacotane-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 5/19/12

Date

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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

Date

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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

Date

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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 (mL): 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

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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 (mL): 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

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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 (mL): 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

Date

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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 (mL): 2 Department: Oil/Fingerprint Lab
Vials: 1 Last Edit: 02/24/12 15:13 by JS
Vendor: SERAS LotNumber: DCM/Hex = LIMS# R1/C0022

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 Comp	11/14/11	John Syslo	05/14/12	11/14/11 17:00 by JS	0.5
RUK0081	Stock SVOC Internal Std. Mix.	2011/15/11	John Syslo	05/15/12	11/15/11 15:06 by JS	0.5

Reviewed By

Date

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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

DFTPP + Neat Standards

Reviewed By

Date

JSyslo 5/19/12

Analytical Standard Record
ERT/SERAS Laboratory
RVB0025

Description: 50 ppm DFTPP + ISTD
Standard Type: Calibration Stan
Solvent: DE507
Final Volume (mls): 20
Vials: 1
Vendor: --

Expires: 08/12/12 0
Prepared: 02/14/12 0
Prepared By: Ben Beauchaine
Department: SVOCGCMS
Last Edit: 04/19/12 09:45 by GA
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)
RU/A0036	GC/MS Tuning Mix (DFTPP), Sto01/14/11		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

[Signature]

Date

5/19/12

Analytical Standard Record
ERT/SERAS Laboratory
RUA0036

Description: GC/MS Tuning Mix (DFTPP), Stock, 100
Standard Type: MS Tune Soluti
Solvent: Methylene Chloride
Final Volume (mls): 1
Vials: 5
Vendor: Restek

Expires: 07/01/13 0
Prepared: 01/14/11 0
Prepared By: Ben Beauchaine
Department: SVOCGCMS
Last Edit: 06/02/11 14:45 by JS
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

[Signature]

Date

5/19/12

Analytical Standard Record
ERT/SERAS Laboratory
RUJ0028

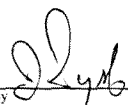
Description: SV Internal Std. Mix, 2000 ppm
Standard Type: Internal Standar
Solvent: DCM
Final Volume (mls): 1
Vials: 4
Vendor: Restek

Expires: 10/12/12 0
Prepared: 04/12/12 0
Prepared By: Ben Beauchaine
Department: SVOGCMS
Last Edit: 04/19/12 09:45 by GA
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



Date

5/19/12

Analytical Standard Record
ERT/SERAS Laboratory
RSF0126

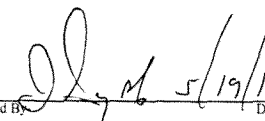
Description: Neat D30-n-Tetradecane
Standard Type: Reagent
Solvent: Neat
Final Volume (mls): 1
Vials: 1
Vendor: Cambridge Isotope Labs

Expires: 12/27/19 0
Prepared: 06/30/09 0
Prepared By: John Syslo
Department: Oil/Fingerprint Lab
Last Edit: 06/30/09 13:56 by JS
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



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: Cambridge Isotope Labs LotNumber: P-7449

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

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

Reviewed By

J. Syslo 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: Cambridge 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

J. Syslo 5/12/12

Date

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Analytical Standard Record
ERT/SERAS Laboratory
RSF0122

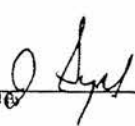
Description: Neat 5a-Androstane
Standard Type: Reagent
Solvent: Neat
Final Volume (mls): 1
Vials: 1
Vendor: Sigma

Expires: 12/27/19 0
Prepared: 06/30/09 0
Prepared By: John Syslo
Department: Oil/Fingerprint Lab
Last Edit: 06/30/09 13:25 by JS
LotNumber: 098K4035

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

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

Reviewed By



Date

5/19/12

Page 1 of 1

Analytical Standard Record
ERT/SERAS Laboratory
RSF0093

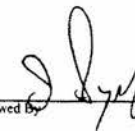
Description: Neat Anthracene-d10
Standard Type: Reagent
Solvent: Neat
Final Volume (mls): 1
Vials: 1
Vendor: Isotec

Expires: 12/26/19 0
Prepared: 06/29/09 0
Prepared By: John Syslo
Department: Oil/Fingerprint Lab
Last Edit: 06/30/09 13:28 by JS
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



Date

5/19/12

Page 1 of 1

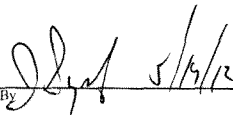
Analytical Standard Record
ERT/SERAS Laboratory
RSF0092

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



Date

Page 1 of 1

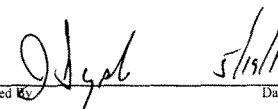
Analytical Standard Record
ERT/SERAS Laboratory
RSF0090

Description: Neat Triacotane-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
Triacotane-d62	93952-07-9	1000000	mg/Kg

Reviewed By



Date

Page 1 of 1

TPH STANDARDS Prep
For Enbridge ICAL
- Treatability Studies

0183

Analytical Standard Record

ERT/SERAS Laboratory

RVC0066

Description:	5000ppm 2nd Source CCV for Enbridge	Expires:	09/15/12
Standard Type:	Calibration Stan	Prepared:	03/22/12
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	Lot Number:	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 Enbridge	03/22/12	John Syslo	09/18/12	03/22/12 18:26 by JS	0.167

Reviewed By

J. Syslo 3/22/12

Date

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 Stock	03/22/12	John Syslo	09/18/12	03/22/12 18:22 by JS	0.178

Reviewed By

John Syslo 3/22/12
Date

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

John Syslo 3/22/12
Date

**Analytical Standard Record
ERT/SERAS Laboratory
RVC0063**

Description: 0.5K EO TPH ICA! 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 John Syslo 3/22/12 Date

**Analytical Standard Record
ERT/SERAS Laboratory
RVC0062**

Description: 1.0K EO TPH ICA! 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 John Syslo 3/22/12 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVC0061

Description: 25K EO TPH ICAI Std.
Standard Type: Calibration Stan
Solvent: DCM/Hexane 65:35
Final Volume (mls): 1
Vials: 1
Vendor: SERAS
Expires: 09/15/12 0
Prepared: 03/22/12 0
Prepared By: John Syslo
Department: Oil/Fingerprint Lab
Last Edit: 03/22/12 16:17 by JS
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 Date: 3/22/12

Analytical Standard Record
ERT/SERAS Laboratory
RVC0060

Description: 10K EO TPH ICAI Std.
Standard Type: Calibration Stan
Solvent: DCM/Hexane 65:35
Final Volume (mls): 1
Vials: 1
Vendor: SERAS
Expires: 09/15/12 0
Prepared: 03/22/12 0
Prepared By: John Syslo
Department: Oil/Fingerprint Lab
Last Edit: 03/22/12 16:15 by JS
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 Date: 3/22/12

Analytical Standard Record
ERT/SERAS Laboratory
RVC0059

Description: 5.0K EO TPH ICAI Std.
 Standard Type: Calibration Stan
 Solvent: DCM/Hexane 65:35
 Final Volume (mls): 1
 Vials: 1
 Vendor: SERAS

Expires: 09/15/12 0
 Prepared: 03/22/12 0
 Prepared By: John Syslo
 Department: Oil/Fingerprint Lab
 Last Edit: 03/22/12 15:08 by JS
 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 3/22/12
 Date

Analytical Standard Record
ERT/SERAS Laboratory
RVC0058

Description: 50K EO TPH ICAI Std.
 Standard Type: Calibration Stan
 Solvent: DCM/Hexane 65:35
 Final Volume (mls): 1
 Vials: 1
 Vendor: SERAS

Expires: 09/15/12 0
 Prepared: 03/22/12 0
 Prepared By: John Syslo
 Department: Oil/Fingerprint Lab
 Last Edit: 03/22/12 15:07 by JS
 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 3/22/12
 Date

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 3/22/12 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 dissolution 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

There is a copy of the K₂S₂O₈ in the standard to ensure that the oil is properly emulsified before use.

Reviewed By J. Syslo 3/21/12 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 JSyslo Date 3/20/12

Analytical Standard Record
ERT/SERAS Laboratory
RVC0053

Description:	5000ppm TPH Spike for Enbridge Oil	Expires:	09/20/12 0
Standard Type:	Analyte Spike	Prepared:	03/20/12 0
Solvent:	DCM/Hexane 65:35	Prepared By:	John Syslo
Final Volume (mls):	10	Department:	CENTRAL
Vials:	1	Last Edit:	03/20/12 15:36 by JS
Vendor:	SERAS	LotNumber:	Lims # RVC0018

Dilute 50K 10x DCM/Hexane : Using Oil extracted from EO Sample SERAS-017-0004

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)
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 JSyslo Date 3/20/12

US EPA ARCHIVE DOCUMENT 0190 SERAS-017-DTM-011413-2

Analytical Standard Record
ERT/SERAS Laboratory
RVC0051

Description: 50,000 ppm EO TPH Std
Standard Type: Reagent
Solvent: DCM/Hexane 65:35
Final Volume (mls): 10
Vials: 1
Vendor: SERAS
Expires: 09/16/12 0
Prepared: 03/20/12 0
Prepared By: John Syslo
Department: Oil/Fingerprint Lab
Last Edit: 03/20/12 15:28 by JS
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	09/16/12	03/20/12 15:26 by JS	0.5

Reviewed By

JS 3/20/12

Date

Analytical Standard Record
ERT/SERAS Laboratory
RVC0050

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

JS 3/20/12

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 14:46 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 S03/20/12	John Syslo	09/15/12	03/20/12 12:28 by JS		0.01

Reviewed By John Syslo Date 3/20/12

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 14:45 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 S03/20/12	John Syslo	09/15/12	03/20/12 12:28 by JS		0.02

Reviewed By John Syslo Date 3/20/12

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 12:51 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	03/20/12	John Syslo	09/15/12	03/20/12 12:28 by JS	0.4

Reviewed By

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 12:31 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	03/20/12	John Syslo	09/15/12	03/20/12 12:28 by JS	0.04

Reviewed By

Date

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 12:29 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 S03/20/12		John Syslo	09/15/12	03/20/12 12:28 by JS	0.2

Reviewed By

Date

3/20/12

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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 12:28 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 S03/20/12		John Syslo	09/15/12	03/20/12 12:28 by JS	1

Reviewed By

Date

3/20/12

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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 12:28 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
Triacotane-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	03/19/12 16:12 by JS	1

Reviewed By

Date

Analytical Standard Record
ERT/SERAS Laboratory
RVC0041

Description: SV Internal Std. Mix, 2000 ppm Expires: 09/16/12 0
Standard Type: Internal Standard 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

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	09/15/12	03/20/12 15:20 by JS	0.5

Reviewed By JSyl Date 3/2/12

Analytical Standard Record
ERT/SERAS Laboratory
RVC0039

Description: 5000ppm TPH Spike for CUC Oil Expires: 09/15/12 0
Standard Type: Analyte Spike Prepared: 03/19/12 0
Solvent: DCM/Hexane 65:35 Prepared By: John Syslo
Final Volume (mls): 25 Department: CENTRAL
Vials: 1 Last Edit: 03/20/12 15:37 by JS
Vendor: SERAS LotNumber: Lims # RVC0018

Dilute 50K CUC site specific oil 10x with DCM/Hexane :

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)
RVC0040	50,000 ppm CUC TPH Std	03/19/12	John Syslo	09/15/12	03/20/12 15:20 by JS	2.5

Reviewed By JSyl Date 3/20/12

Analytical Standard Record
ERT/SERAS Laboratory
RVC0038

Description: CUC-BEO 2/22/12
Standard Type: Reagent
Solvent: Neat Oil Mixture
Final Volume (mls): 3
Vials: 1
Vendor: SERAS

Expires: 09/15/22 0
Prepared: 03/19/12 0
Prepared By: John Syslo
Department: Oil/Fingerprint Lab
Last Edit: 03/20/12 15:20 by JS
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 [Signature] Date 3/20/12

Analytical Standard Record
ERT/SERAS Laboratory
RVC0035

Description: 500ppm Oil IS Mix
Standard Type: Internal Standar
Solvent: DCM/Hexane 65:35
Final Volume (mls): 2
Vials: 1
Vendor: SERAS

Expires: 09/15/12 0
Prepared: 03/19/12 0
Prepared By: John Syslo
Department: Oil/Fingerprint Lab
Last Edit: 03/20/12 11:48 by JS
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 [Signature] Date 3/20/12

Analytical Standard Record
ERT/SERAS Laboratory
RVC0034

Description: TPH IS Mix: 2000ppm : 3 Compounds Expires: 09/15/12 0
Standard Type: Internal Standard 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

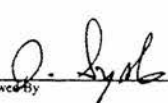
2000ppm 3 Compound IS Mix for TPH. To be mixed with BNA IS
DCM = RCV0017; Cs2 = RVA0051

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



Date

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Analytical Standard Record
ERT/SERAS Laboratory
RVC0033

Description: 40 ppm Oil Surrogate - 4 Cmpds. Expires: 09/15/12 0
Standard Type: Surrogate Spike Prepared: 03/19/12 0
Solvent: DCM/Hexane 65:35 Prepared By: John Syslo
Final Volume (mls): 25 Department: CENTRAL
Vials: 1 Last Edit: 03/20/12 08:05 by JS
Vendor: SERAS LotNumber: RVC0018 for DCM/Hexane

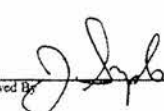
Dilute 2000ppm RVC0032 (500µL in 25mL) with DCM/Hexane
Spike 500 µL per sample for FV of 1.0 mL

Analyte	CAS Number	Concentration	Units
Triacotane-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)
RVC0032	2000ppm Oil Surrogate Stock	03/19/12	John Syslo	09/15/12	03/19/12 10:07 by JS	0.5

Reviewed By



Date

Page 1 of 1

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 JSyslo 3/19/12 Date

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 JSyslo 3/19/12 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 3/19/12

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 3/1/12

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 Lot Number: 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
5α-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

Date

2/24/12

Page 1 of 1

Analytical Standard Record
ERT/SERAS Laboratory
RVB0058

Description: 500ppm Oil IS Mix Expires: 05/14/12 0
Standard Type: Internal Standard 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 Lot Number: 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 Comp	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

J. Syslo

Date

2/24/12

Page 1 of 1

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

Date

2/22/12

Analytical Standard Record
ERT/SERAS Laboratory
RVB0026

Description:	CUC BEO 12/14/12	Expires:	08/12/22 0
Standard Type:	Reagent	Prepared:	02/14/12 0
Solvent:	Neat Oil Mixture	Prepared By:	John Syslo
Final Volume (mls):	20	Department:	Oil/Fingerprint Lab
Vials:	1	Last Edit:	02/14/12 12:44 by JS
Vendor:	SERAS	LotNumber:	Extracted from Soil

20mL of mixed product that was extracted & reclaimed on 2/13/12 from CUC-0135 soil : J. Syslo
Logging in the neat standard

Analyte	CAS Number	Concentration	Units
Oil Fingerprint		1000000	ug/mL

Reviewed By

Date

2/14/12

Analytical Standard Record

ERT/SERAS Laboratory

RVB0020

Description: 40 ppm Oil Surrogate - 4 Cmpds. Expires: 05/12/12 0
Standard Type: Surrogate Spike Prepared: 02/13/12 0
Solvent: DCM/Hexane 65:35 Prepared By: John Syslo
Final Volume (mls): 25 Department: Oil/Fingerprint Lab
Vials: 1 Last Edit: 02/13/12 15:55 by JS
Vendor: SERAS LotNumber: RUC0022 for DCM/Hexane

Dilute 2000ppm RUK077 (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)
RUK0077	2000ppm Oil Surrogate Stock	11/14/11	John Syslo	05/12/12	11/14/11 16:50 by JS	0.5

Reviewed By

Date

Page 1 of 1

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

Date

Page 1 of 1

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

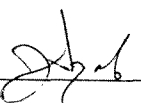
Diluting neat product to obtain 10,000ppm standard. adding IS for SIM method.

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	2/01/11	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

 2/24/12
DateAnalytical Standard Record
ERT/SERAS Laboratory
RUC0021

Description: Hexanes (95% n-hexane) Expires: 03/10/21 0
Standard Type: Reagent Prepared: 03/10/11 0
Solvent: Hexane Prepared By: John Syslo
Final Volume (mls): 4000 Department: Oil/Fingerprint Lab
Vials: 1 Last Edit: 03/07/12 18:22 by JS
Vendor: J.T. Baker LotNumber: H49E38

Cat# 9262-03

Analyte	CAS Number	Concentration	Units
Hexane	110-54-3	950000	ug/mL

Reviewed By

 3/9/12
Date

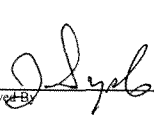
Analytical Standard Record
ERT/SERAS Laboratory
RSF0126

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



Date

3/19/12

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: Cambridge Isotope Labs LotNumber: P-7449

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

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

Reviewed By



Date

3/19/12

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: Cambridge 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

J. Syslo 3/15/12

Date

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 compd. CAT# A0887-1G

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

Reviewed By

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

J Syslo 3/19/12

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

J Syslo 3/19/12

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

JS 3/12/13

Date

Analytical Standard Record
ERT/SERAS Laboratory
RVA0051

Description:	Carbon Disulfide - Solvent	Expires:	07/25/12 0
Standard Type:	Reagent	Prepared:	01/27/12 0
Solvent:	Carbon Disulfide 99.9%	Prepared By:	John Syslo
Final Volume (mls):	100	Department:	Carbon/XAD
Vials:	1	Last Edit:	03/19/12 10:08 by JS
Vendor:	Siema Aldrich	LotNumber:	MKBB0780

This bottle has 1.34ppm toluene!!!

Carbon Disulfide for carbon tube extraction. COA not available. This is one of about 20 bottles that were recieved 7/2009 , kept in

Analyte	CAS Number	Concentration	Units
Carbon Disulfide	75-15-0	1000000	ug/mL

Reviewed By

JS 3/12/13

Date

Day 0
3/22/12 - after ITAL

Sequence Name: C:\msdchem\1\sequence\032212.s
Comment: Enbridge Oil ICAL 0-017
Operator: Syslo
Data Path: C:\MSDCHEM\1\DATA\032212\
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

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

Day 0
Enbridge

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 SL02965 DFT8270D 50 DFTTP
2)	Sample	72 5.0K ENO-TPH ICAL
	Datafile	SL02966
	Method	ENOTPH032212
3)	Sample	1 Blank
	Datafile	SL02967
	Method	ENOTPH032212
4)	Sample	2 LCS
	Datafile	SL02968
	Method	ENOTPH032212
5)	Sample	3 4xd of SERAS-017-0007
	Datafile	SL02969
	Method	ENOTPH032212
6)	Sample	4 4xd of SERAS-017-0008
	Datafile	SL02970
	Method	ENOTPH032212
7)	Sample	5 4xd of SERAS-017-0009
	Datafile	SL02971
	Method	ENOTPH032212
8)	Sample	6 4xd of SERAS-017-0010
	Datafile	SL02972
	Method	ENOTPH032212
	Sample	7 4xd of SERAS-017-0011
	Datafile	SL02973
	Method	ENOTPH032212
10)	Sample	8 4xd of SERAS-017-0012
	Datafile	SL02974
	Method	ENOTPH032212
11)	Sample	9 4xd of SERAS-017-0013
	Datafile	SL02975
	Method	ENOTPH032212
12)	Sample	10 4xd of SERAS-017-0013 MS
	Datafile	SL02976
	Method	ENOTPH032212
13)	Sample	11 4xd of SERAS-017-0013 MSD
	Datafile	SL02977
	Method	ENOTPH032212

TPH ICAL for ENBRIDGE Oil Samples
- uses site oil

Logbook # SERAS-I-0121

TPH ICA: ENOTPH032212.M Page 90

SERAS, GC/MS Injection Log

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

Project Name: ENBRIDGE Oil : TPH ICAL + samples

Method File:

DFTPP/ ENOTPH032212

Work Assign.#: 0-017

Inj. Volume:

1ul

Analysis Date: TPH in Bioremediation Study

Analyst:

Syle

ALS	FILE ID	SAMPLE ID	REAC ID	Date of Analysis	TIME Inj.	COMMENTS
99	SL02956	50 ppm DFTPP	RVB0025	3/22/12	14:51	Pass 1385-1376
71	SL02957	Method Blank			15:30	Solvent Blank + Surf
72	SL02958	5000 ppm ENO TPH SH	RVCO059		16:51	
73	SL02959	1000 ppm ENO TPH SH	RVCO062		17:52	
74	SL02960	1000 ppm ENO TPH SH	RVCO060		18:52	
75	SL02961	50,000 ppm ENO TPH SH	RVCO058		19:53	
76	SL02962	25,000 ppm ENO TPH SH	RVCO061		20:51	
77	SL02963	0.5 ppm ENO TPH SH	RVCO063		21:51	
99	SL02964	5000 ppm ENO TPH SH	RVCO060		22:51	
99	SL02965	50 ppm DFTPP	RVB0025	3/23/12	23:47	Pass 1385-1376
72	SL02966	5000 ppm ENO CQC TPH	RVCO059	3/23/12	00:08	Pass Col. Check TPH
1	SL02967	BLANK	120039-BLK1		1:08	1uL FV
2	SL02968	LCS	120039-BL1		2:07	1uL FV
3	SL02969	SERAS-017-0007	R203011-01		3:08	5uL FV then 4x
4	SL02970	-0008	-02		4:08	
5	SL02971	-0009	-03		5:08	
6	SL02972	-0010	-04		6:09	
7	SL02973	-0011	-05		7:09	
8	SL02974	-0012	-06		8:09	
9	SL02975	-0013	R203011-07		9:09	
10	SL02976	-0013 MS	120039-MS1		10:09	
11	SL02977	SERAS-017-0013 MS	120039-MS1		11:09	5uL FV then 4x
12	SL02978	CO2 Blank	Blank	3/23/12	12:08	
99	SL02979	50 ppm DFTPP	RVB0025	3/23/12	17:56	Pass 1382-1374
71	SL02980	5000 ppm ENO TPH SH	RVCO059		18:21	1uL
1	SL02981	Blank	120040-BLK1	3/23/12	19:38	1uL FV
2	SL02982	SERAS-017-0014	R203015-11		20:57	5uL FV then 4x
3	SL02983	SERAS-017-0015	R203015-12	3/23/12	21:58	5uL FV then 4x
	REAC ID	Standard Description	Exp. date	Conc.	Ref. P.	Comment
1	RVB0025	DFTPP	8/14/12	50 ppm		
2	RVCO059	Calibration Check TPH	9/15/12	5000 ppm		Site Specific TPH
3	RVCO035	Internal Standard Oil IS	9/15/12	500 ppm		Spk. 200/1uL
4						
5						
6						

Reviewed By:

Date Checked:

Analyzed by: J Syle 3/24/12

3/26/12

Day 0

Injection Log

Data Directory: C:\msdchem\1\DATA\032212\

SampleName	MiscInfo	Vial	Multiplier	Injection Time
1) SL02965.D				
50 DFTPP	RVB0025	99	1.000	22 Mar 2012 23:47

11) SL02966.D				
5.0K ENO-TPH ICAL	RVC0059 CCC	72	1.000	23 Mar 2012 00:08

12) SL02967.D				
Blank	1mL FV	1	1.000	23 Mar 2012 1:08

13) SL02968.D				
LCS	1mL FV	2	1.000	23 Mar 2012 2:07

14) SL02969.D				
4xd of SERAS-017-000 5.0mL fv, then 4xd		3	1.000	23 Mar 2012 3:08

15) SL02970.D				
4xd of SERAS-017-000 5.0mL fv, then 4xd		4	1.000	23 Mar 2012 4:08

16) SL02971.D				
4xd of SERAS-017-000 5.0mL fv, then 4xd		5	1.000	23 Mar 2012 5:08

17) SL02972.D				
4xd of SERAS-017-001 5.0mL fv, then 4xd		6	1.000	23 Mar 2012 6:09

18) SL02973.D				
4xd of SERAS-017-001 5.0mL fv, then 4xd		7	1.000	23 Mar 2012 7:09

19) SL02974.D				
4xd of SERAS-017-001 5.0mL fv, then 4xd		8	1.000	23 Mar 2012 8:09

20) SL02975.D				
4xd of SERAS-017-001 5.0mL fv, then 4xd		9	1.000	23 Mar 2012 9:09

21) SL02976.D				
4xd of SERAS-017-001 5.0mL fv, then 4xd		10	1.000	23 Mar 2012 10:09

22) SL02977.D				
4xd of SERAS-017-001 5.0mL fv, then 4xd		11	1.000	23 Mar 2012 11:09

✓
clock
Rdn
with

✓

GC/MS QA-QC Check Report

Tune File : C:\msdchem\1\DATA\032212\SL02965.D

Tune Time : 22 Mar 2012 23:47

Daily Calibration File : C:\msdchem\1\DATA\032212\SL02964.D

IS report

302824 119607 144886

114347

File	Sample	Surrogate Recovery %				Internal Standard Responses		
=====								
SL02966.D	5.0K ENO-T	115*	111*	109*	115*	305628	119900	144569
			112634					

SL02967.D	Blank	80*	77*	74*	96*	297383	118029	139445
			111377					

SL02968.D	LCS	81*	85*	85*	95*	304549	121762	143973
			109556					

SL02969.D	4xd of SER	5*	5*	5*	5*	304090	119013	145052
			110410					

SL02970.D	4xd of SER	5*	5*	5*	5*	307868	122607	145631
			112288					

SL02971.D	4xd of SER	5*	5*	5*	5*	307219	124895	147089
			110260					

SL02972.D	4xd of SER	5*	5*	5*	5*	294224	114589	139187
			109675					

SL02973.D	4xd of SER	5*	5*	5*	5*	313994	124642	147719
			111962					

SL02974.D	4xd of SER	5*	5*	5*	5*	301151	121230	141754
			108789					

SL02975.D	4xd of SER	5*	5*	4*	5*	294273	116267	140334
			109222					

SL02976.D	4xd of SER	5*	5*	5*	5*	299863	121248	142173
			109222					

SL02977.D	4xd of SER	5*	5*	5*	5*	288650	115226	136105
			105829					

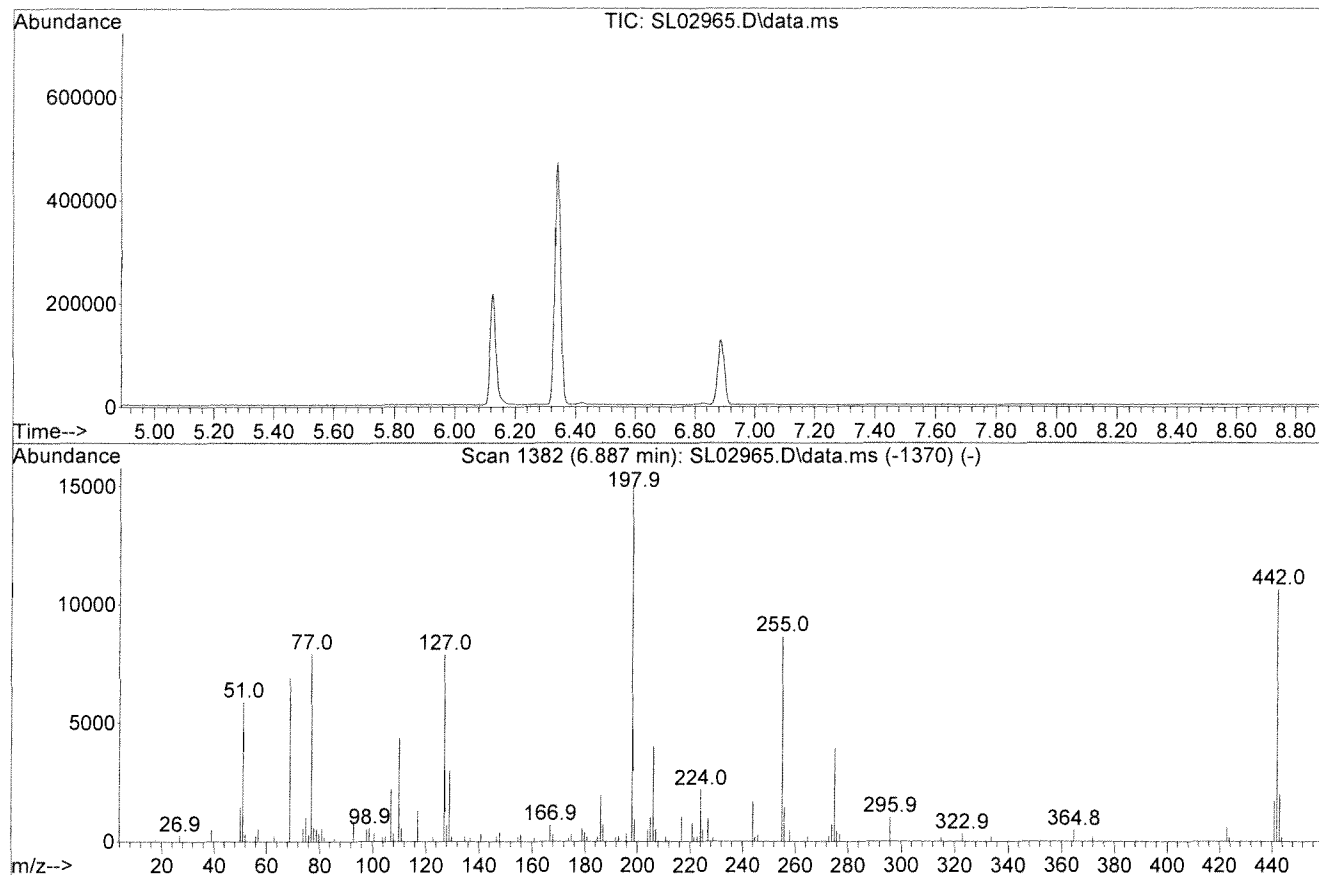
SL02978.D	Blank	79*	76*	73*	95*	301036	117519	139239
			109931					

Data Path : C:\msdchem\1\DATA\032212\
 Data File : SL02965.D
 Acq On : 22 Mar 2012 23:47
 Operator : Syslo
 Sample : 50 DFTPP
 Misc : RVB0025
 ALS Vial : 99 Sample Multiplier: 1

Tailing: PCF ~ 1.33
 Bz ~ 1.14
 %API dy = 85%

Integration File: rteint.p

Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
 Title : DFTPP Method with 8270D criteria: 8/20/10
 Last Update : Thu Mar 08 02:08:57 2012



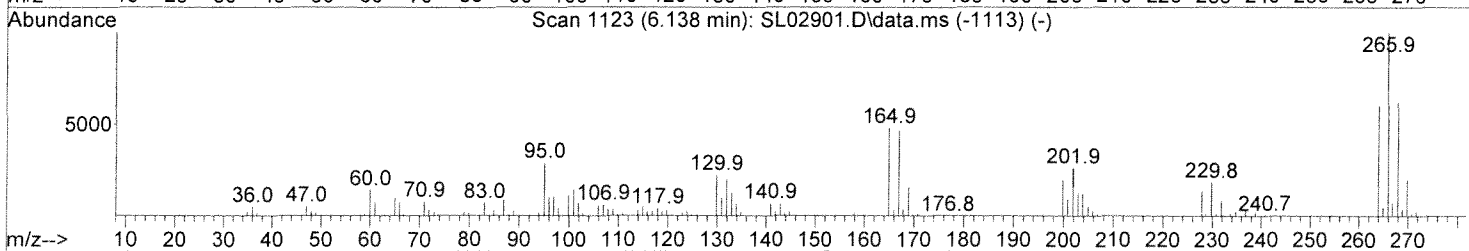
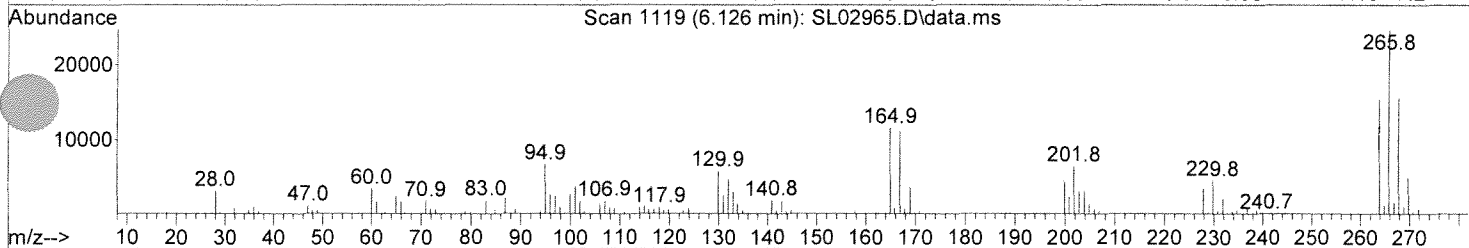
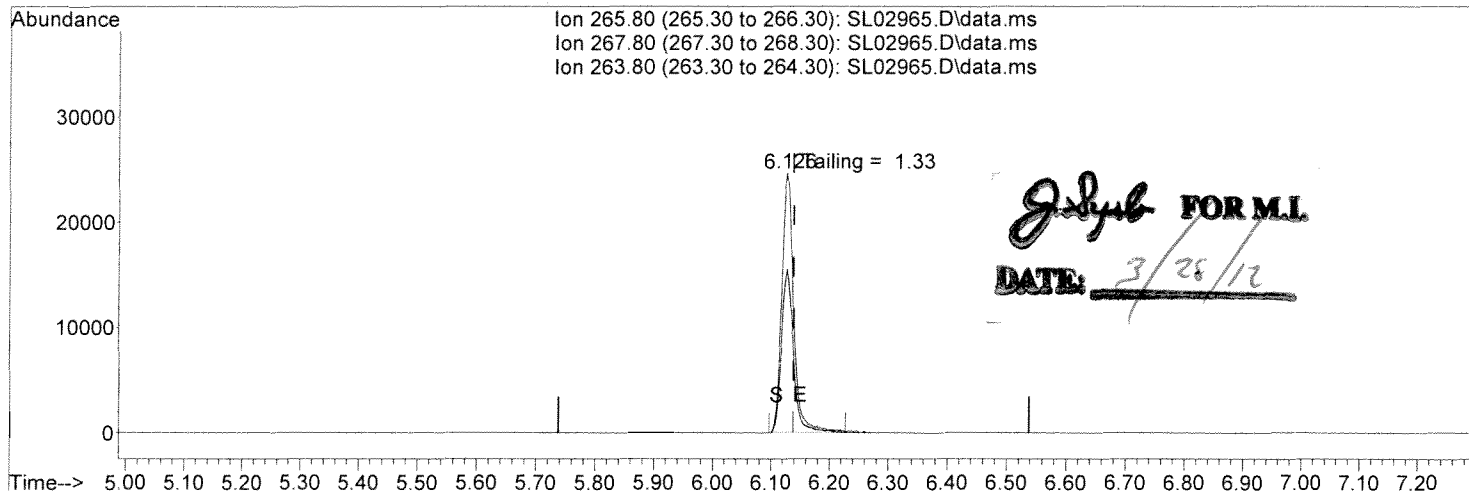
Spectrum Information: Scan 1382

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	39.2	5892	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	46.0	6908	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	52.5	7882	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	15025	PASS
199	198	5	9	6.3	944	PASS
275	198	10	60	26.0	3913	PASS
365	198	1	100	3.2	478	PASS
441	442	0.01	24	16.1	1707	PASS
442	198	50	100	70.7	10626	PASS
443	442	15	24	18.6	1972	PASS

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\032212\
 Data File : SL02965.D
 Acq On : 22 Mar 2012 23:47
 Operator : Syslo
 Sample : 50 DFTPP
 Misc : RVB0025
 ALS Vial : 99 Sample Multiplier: 1

Quant Time: Mar 22 23:59:19 2012
 Quant Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
 Quant Title : DFTPP Method with 8270D criteria: 8/20/10
 QLast Update : Thu Mar 08 02:08:58 2012
 Response via : Initial Calibration



TIC: SL02965.D\data.ms

(2) Pentachlorophenol

6.126min (-0.012) 42.11 ug/mL

response 34948

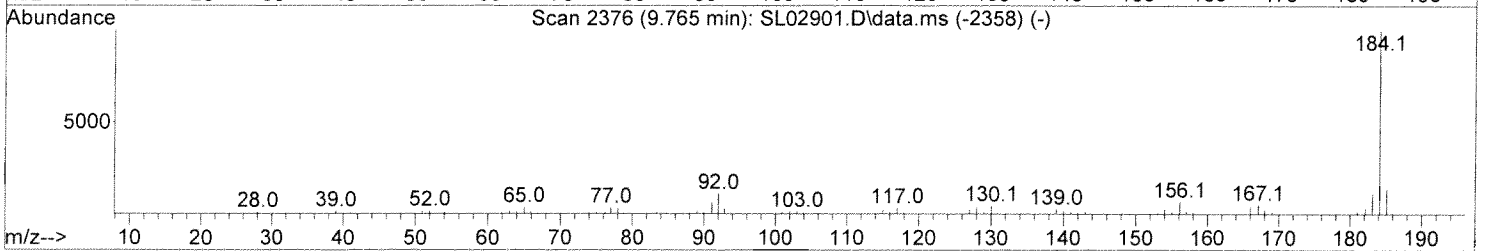
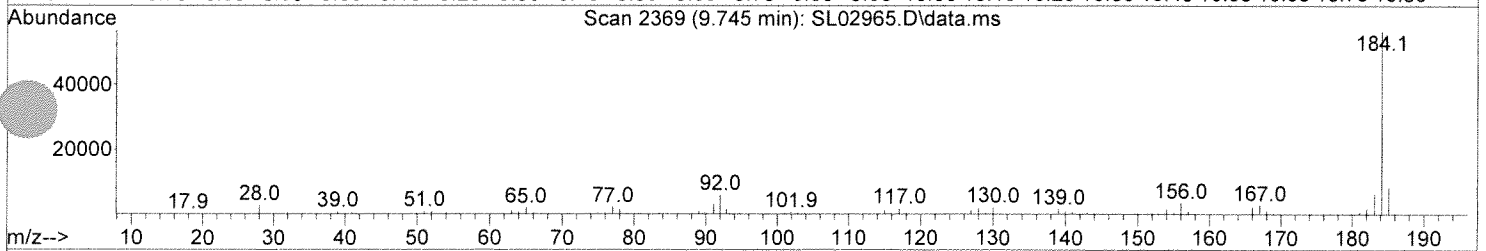
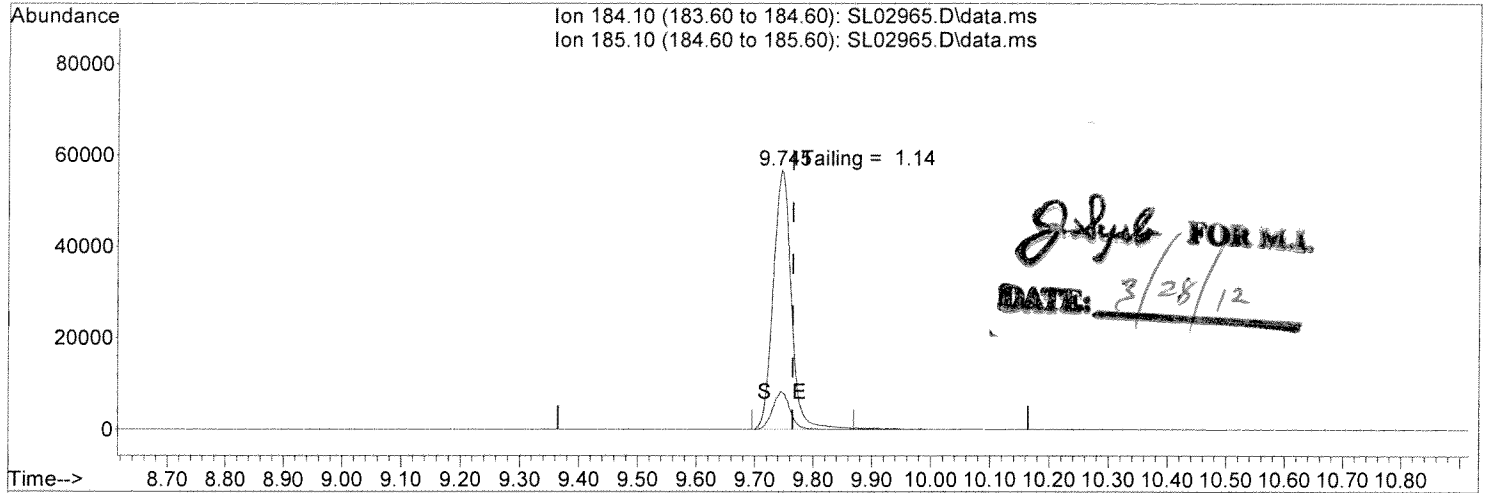
Ion	Exp%	Act%
265.80	100	100
267.80	64.50	61.94
263.80	63.60	62.20
0.00	0.00	0.00



Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\032212\
 Data File : SL02965.D
 Acq On : 22 Mar 2012 23:47
 Operator : Syslo
 Sample : 50 DFTPP
 Misc : RVB0025
 ALS Vial : 99 Sample Multiplier: 1

Quant Time: Mar 22 23:59:19 2012
 Quant Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
 Quant Title : DFTPP Method with 8270D criteria: 8/20/10
 QLast Update : Thu Mar 08 02:08:58 2012
 Response via : Initial Calibration



TIC: SL02965.D\data.ms

(5) Benzidine

9.745min (-0.020) 38.09 ug/mL

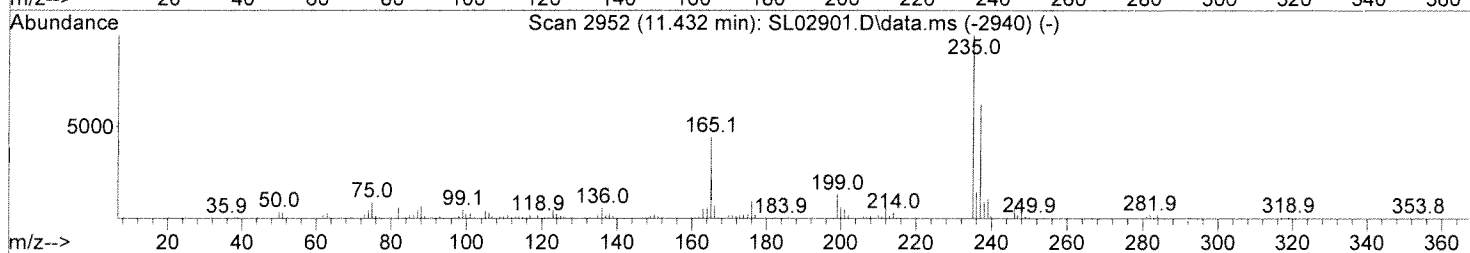
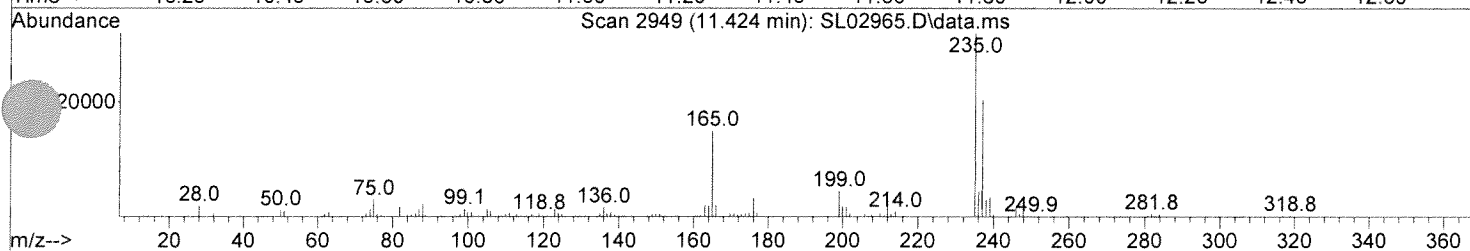
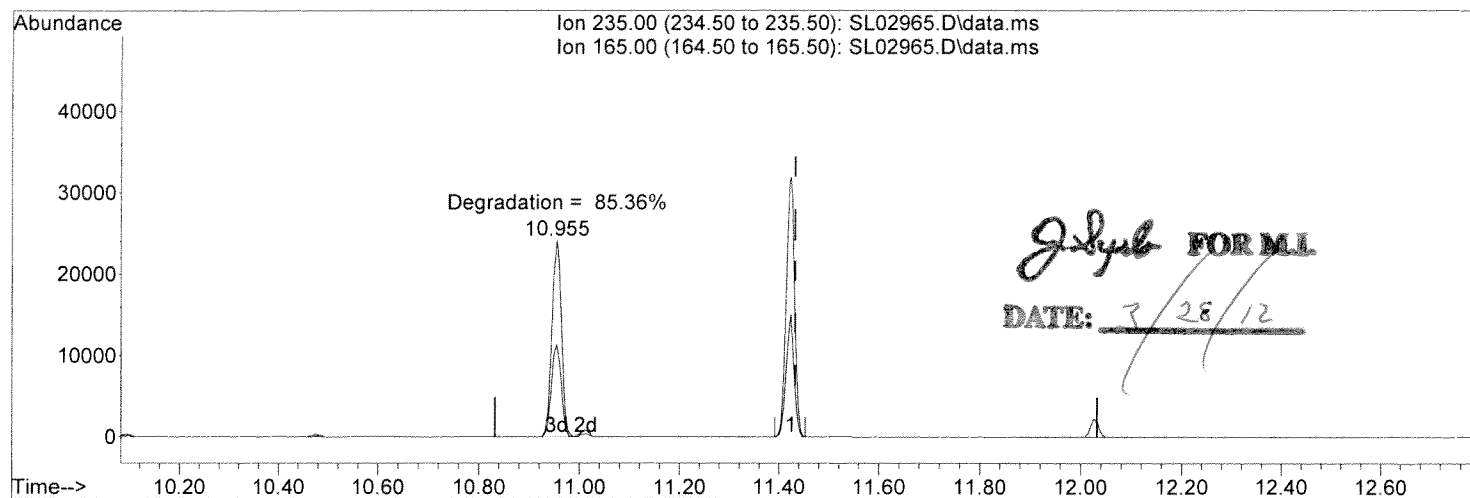
response 121842

Ion	Exp%	Act%
184.10	100	100
185.10	14.60	14.04
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02965.D
Acq On : 22 Mar 2012 23:47
Operator : Syslo
Sample : 50 DFTPP
Misc : RVB0025
ALS Vial : 99 Sample Multiplier: 1

Quant Time: Mar 22 23:59:19 2012
Quant Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
Quant Title : DFTPP Method with 8270D criteria: 8/20/10
QLast Update : Thu Mar 08 02:08:58 2012
Response via : Initial Calibration



TIC: SL02965.D\data.ms

(6) DDT

11.424min (-0.009) 26.48 ug/mL

response 37688

Ion	Exp%	Act%
235.00	100	100
165.00	51.80	43.95
0.00	0.00	0.00
0.00	0.00	0.00

TPH Daily Calibration Check Results
Enbridge Oil TPH Calibration Range - Using SERAS *Draft* 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.
03/22/12	03/22/12	Enbridge Oil D0	0-017	SL02966	10063058	119900	144569	112634	0.16011	0.14003	14.34
03/23/12	03/22/12	Enbridge Oil D14	0-017	SL02980	10391565	117729	144092	115840	0.16509	0.14003	17.90
04/18/12	03/22/12	Enbridge Oil D28	0-017	SL03052	12605180	138365	199934	162938	0.15089	0.14003	7.75

TPH response based on the sum of all peaks in the TPH (m/z 85 + 83 + 105 + 113 + 123 + 183) pattern from ~10.1 min to 53min.

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02966.D
Acq On : 23 Mar 2012 00:08
Operator : Syslo
Sample : 5.0K ENO-TPH ICAL
Sc : RVC0059 CCC
ALS Vial : 72 Sample Multiplier: 1

Quant Time: Mar 28 12:55:25 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Mon Mar 26 17:07:53 2012
Response via : Initial Calibration

For Surrogate

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	92	0.00
2 S	d10-Anthracene {S}	0.897	1.027	-14.5	93	0.00
3 S	d14-o-Terphenyl {S}	0.403	0.447	-10.9	92	0.00
4 S	5a-Androstane {S}	0.053	0.057	-7.5	91	0.00
5 I	d30-Tetradecane	1.000	1.000	0.0	91	0.00
6 I	d50-Tetracosane	1.000	1.000	0.0	92	0.00
7 S	d62-Triacontane {S}	0.793	0.910	-14.8	94	0.00
8 I	d74-Hexatriacontane	1.000	1.000	0.0	99	0.00

(#) = Out of Range

SPCC's out = 0 CCC's out = 0

ENOTPH032212.M Mon Jan 07 14:21:02 2013 SLICK2

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02966.D
Acq On : 23 Mar 2012 00:08
Operator : Syslo
Sample : 5.0K ENO-TPH ICAL
Lsc : RVC0059 CCC
ALS Vial : 72 Sample Multiplier: 1

Quant Time: Mar 28 12:55:25 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Mon Mar 26 17:07:53 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.686	188	305628	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	119900	10.00	ug/mL	0.00
6) d50-Tetracosane	23.757	66	144569	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.529	66	112634	10.00	ug/mL	0.00
System Monitoring Compounds						
2) d10-Anthracene {S}	18.804	188	627971	22.91	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	114.55%	
3) d14-o-Terphenyl {S}	19.706	244	273385	22.18	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	110.90%	
4) 5a-Androstane {S}	21.122	260	35016	21.81	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	109.05%	
7) d62-Triacontane {S}	28.131	66	263028	22.94	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	114.70%	

Target Compounds Qvalue

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

$\Sigma Tph = 10063058$

Area Percent Report

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02966.D
Acq On : 23 Mar 2012 00:08
Operator : Syslo
Sample : 5.0K ENO-TPH ICAL
Vial : RVC0059 CCC
ALS Vial : 72 Sample Multiplier: 1

Integration Parameters: Oilint.P

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

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

Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Title : Enbridge Oil ICAL: 3/22/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02966.D\data.ms

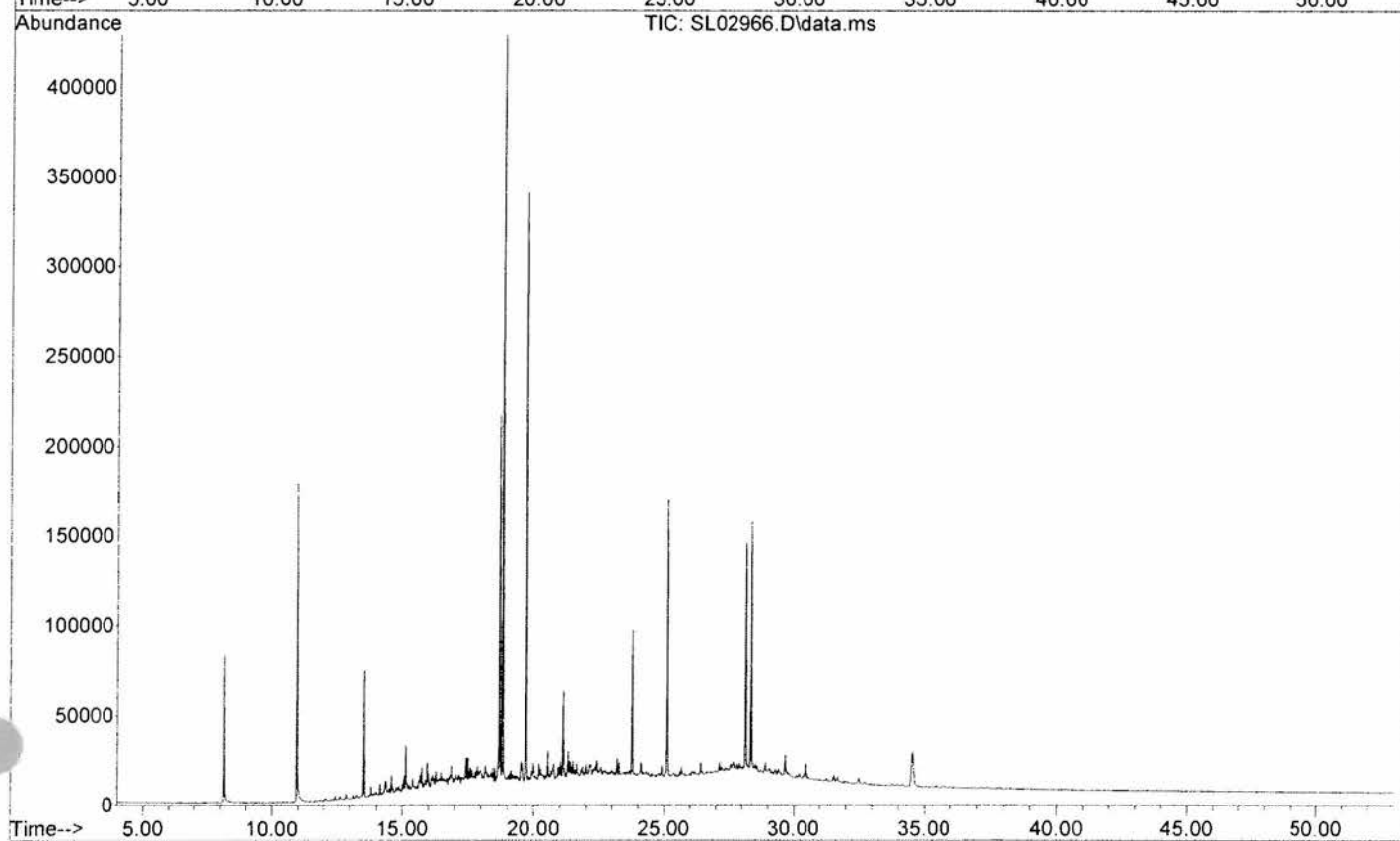
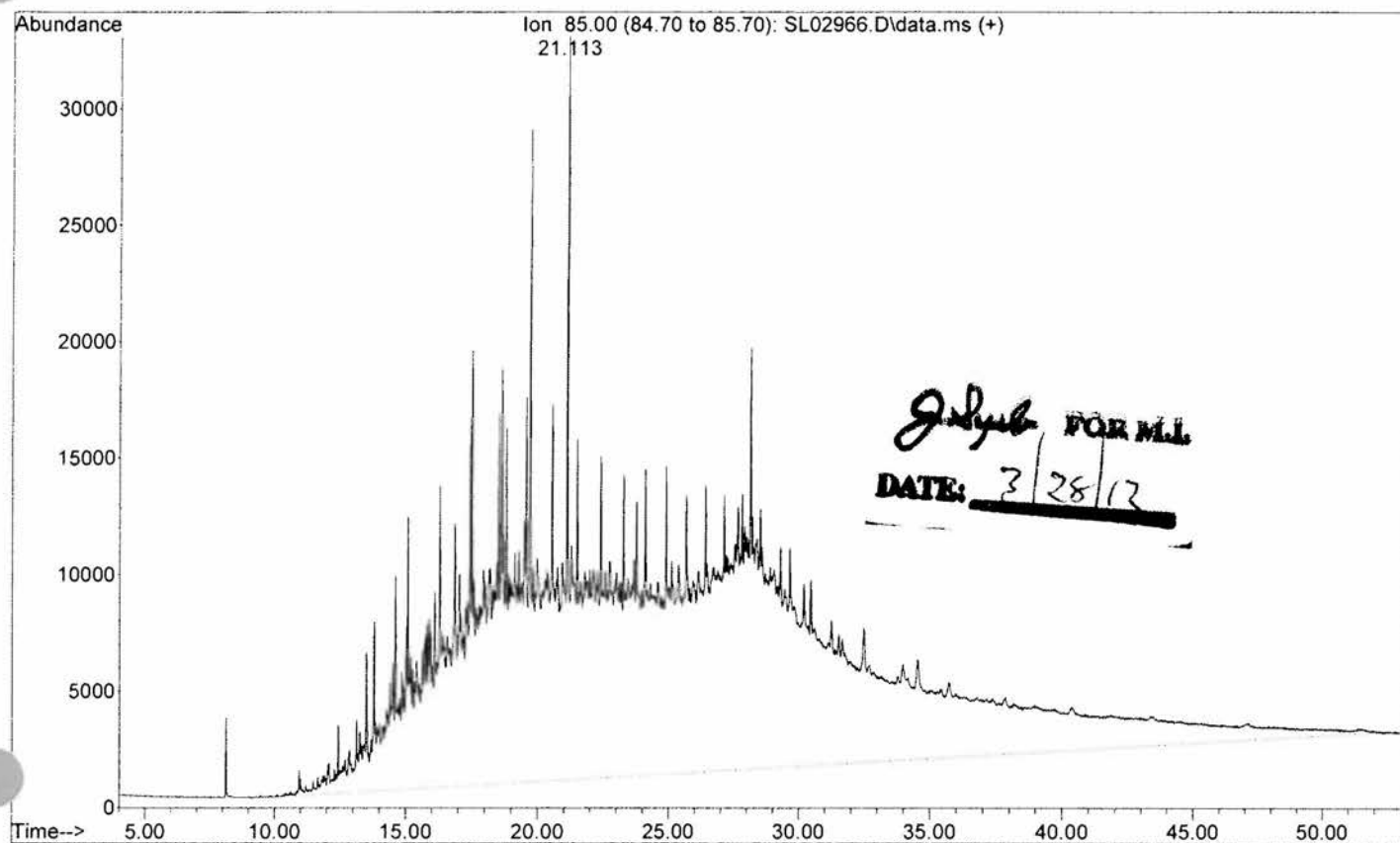
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	21.113	854	2218	5889	rM 5	31922	10063058	100.00%	100.000%

Sum of corrected areas: 10063058

ENOTPH032212.M Wed Mar 28 13:06:46 2012 SLICK2

John FOR M.L.
DATE: 3/28/12

File : C:\msdchem\1\DATA\032212\SL02966.D
Operator : Syslo
Acquired : 23 Mar 2012 00:08 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: 5.0K ENO-TPH ICAL
Misc Info : RVC0059 CCC
Number: 72



Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02967.D
Acq On : 23 Mar 2012 1:08
Operator : Syslo
Sample : Blank
Vial : 1 Sample Multiplier: 1

Quant Time: Mar 28 12:55:27 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Mon Mar 26 17:07:55 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev (Min)
Internal Standards						
1) d10-Phenanthrene	18.686	188	297383	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	118029	10.00	ug/mL	0.00
6) d50-Tetracosane	23.757	66	139445	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.537	66	111377	10.00	ug/mL	0.00
System Monitoring Compounds						
2) d10-Anthracene {S}	18.804	188	424238	15.91	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	79.55%	
3) d14-o-Terphenyl {S}	19.706	244	183508	15.30	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	76.50%	
4) 5a-Androstane {S}	21.123	260	23224	14.86	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	74.30%	
7) d62-Triacontane {S}	28.131	66	211794	19.15	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	95.75%	

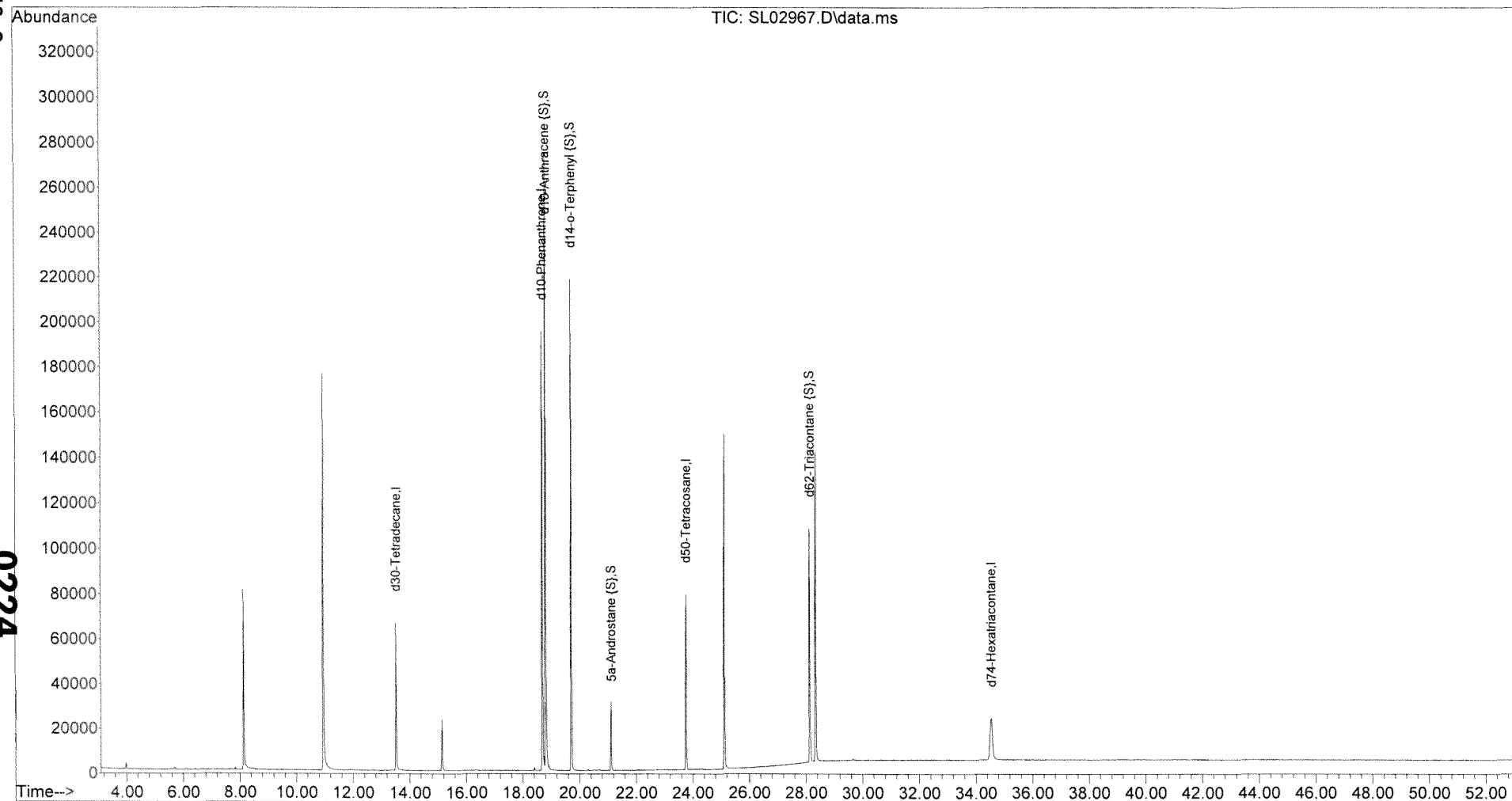
Target Compounds Qvalue

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

AD ✓ TP41

Data Path : C:\msdchem\1\DATA\032212\
 Data File : SL02967.D
 Acq On : 23 Mar 2012 1:08
 Operator : Syslo
 Sample : Blank
 Misc : 1mL FV
 ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 28 12:55:27 2012
 Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
 Quant Title : Enbridge Oil ICAL: 3/22/12
 QLast Update : Mon Mar 26 17:07:55 2012
 Response via : Initial Calibration



Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02968.D
Acq On : 23 Mar 2012 2:07
Operator : Syslo
Sample : LCS
Vial : 1mL FV
Vial : 2 Sample Multiplier: 1

Quant Time: Mar 28 12:55:29 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Mon Mar 26 17:07:55 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev (Min)
Internal Standards						
1) d10-Phenanthrene	18.686	188	304549	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	121762	10.00	ug/mL	0.00
6) d50-Tetracosane	23.757	66	143973	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.529	66	109556	10.00	ug/mL	0.00
System Monitoring Compounds						
2) d10-Anthracene {S}	18.803	188	443785	16.25	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	81.25%	
3) d14-o-Terphenyl {S}	19.706	244	209644	17.07	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	85.35%	
4) 5a-Androstane {S}	21.122	260	27094	16.93	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	84.65%	
7) d62-Triacontane {S}	28.131	66	217147	19.02	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	95.10%	

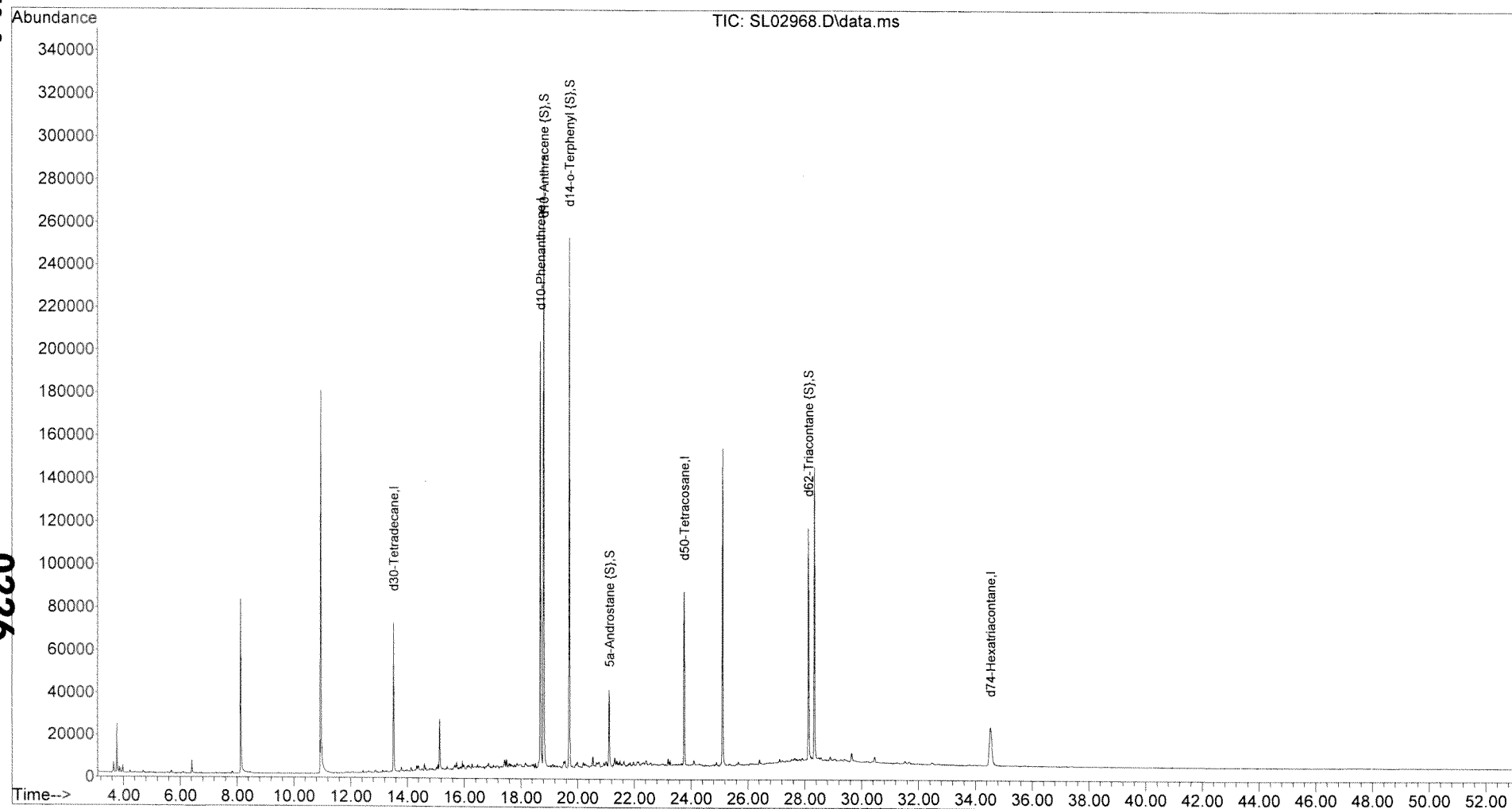
Target Compounds Qvalue

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

336793

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02968.D
Acq On : 23 Mar 2012 2:07
Operator : Syslo
Sample : LCS
Misc : 1mL FV
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Mar 28 12:55:29 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Mon Mar 26 17:07:55 2012
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02968.D
Acq On : 23 Mar 2012 2:07
Operator : Syslo
Sample : LCS
Vial : 1mL FV
ALS Vial : 2 Sample Multiplier: 1

Integration Parameters: Oilint.P

Integrator: RTE

Smoothing : ON

Sampling : 1

Start Thrs: 0.05

Stop Thrs : 0.05

Filtering: 5

Min Area: 0.5 % of largest Peak

Max Peaks: 5

Peak Location: TOP

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

Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M

Title : Enbridge Oil ICAL: 3/22/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02968.D\data.ms

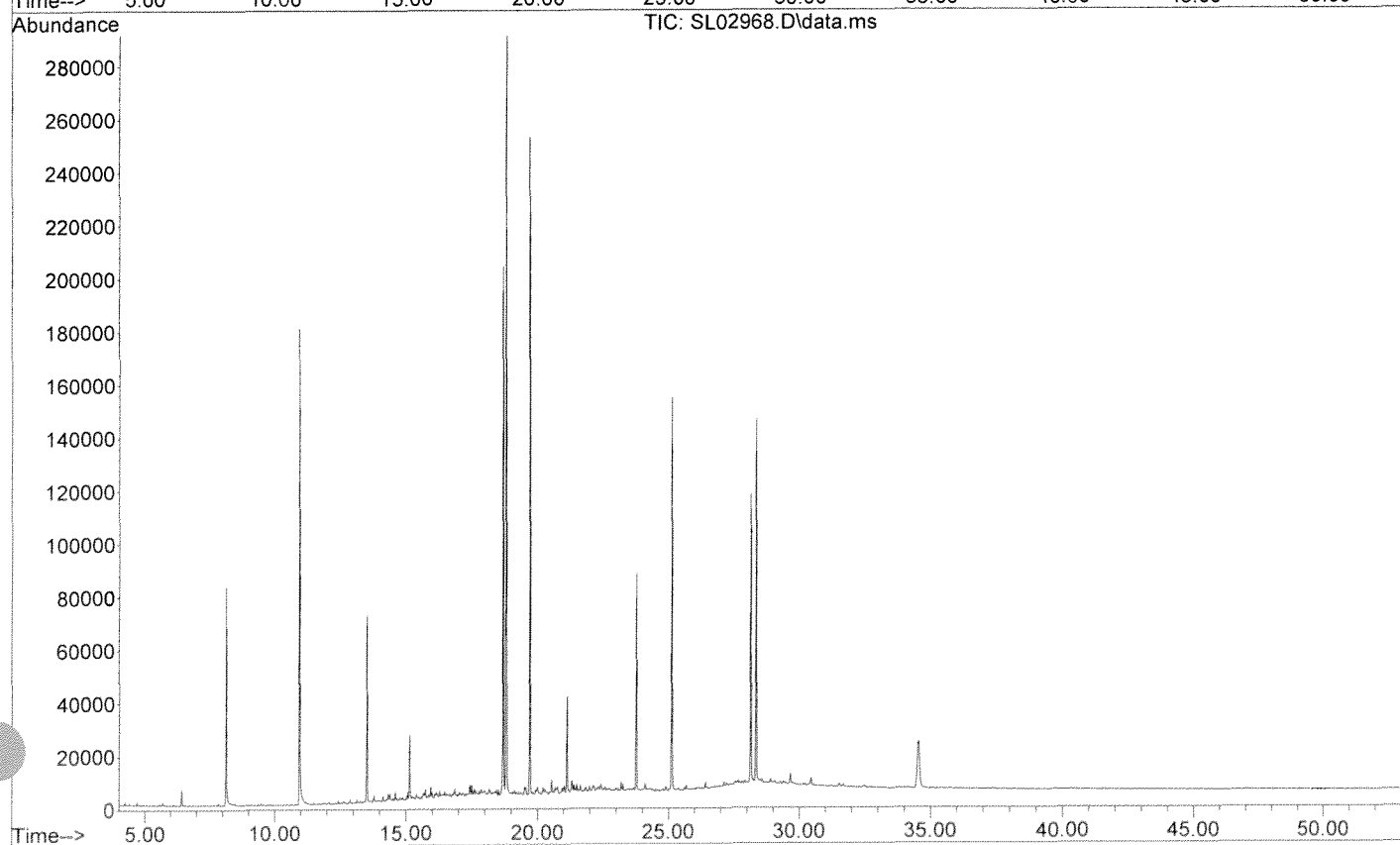
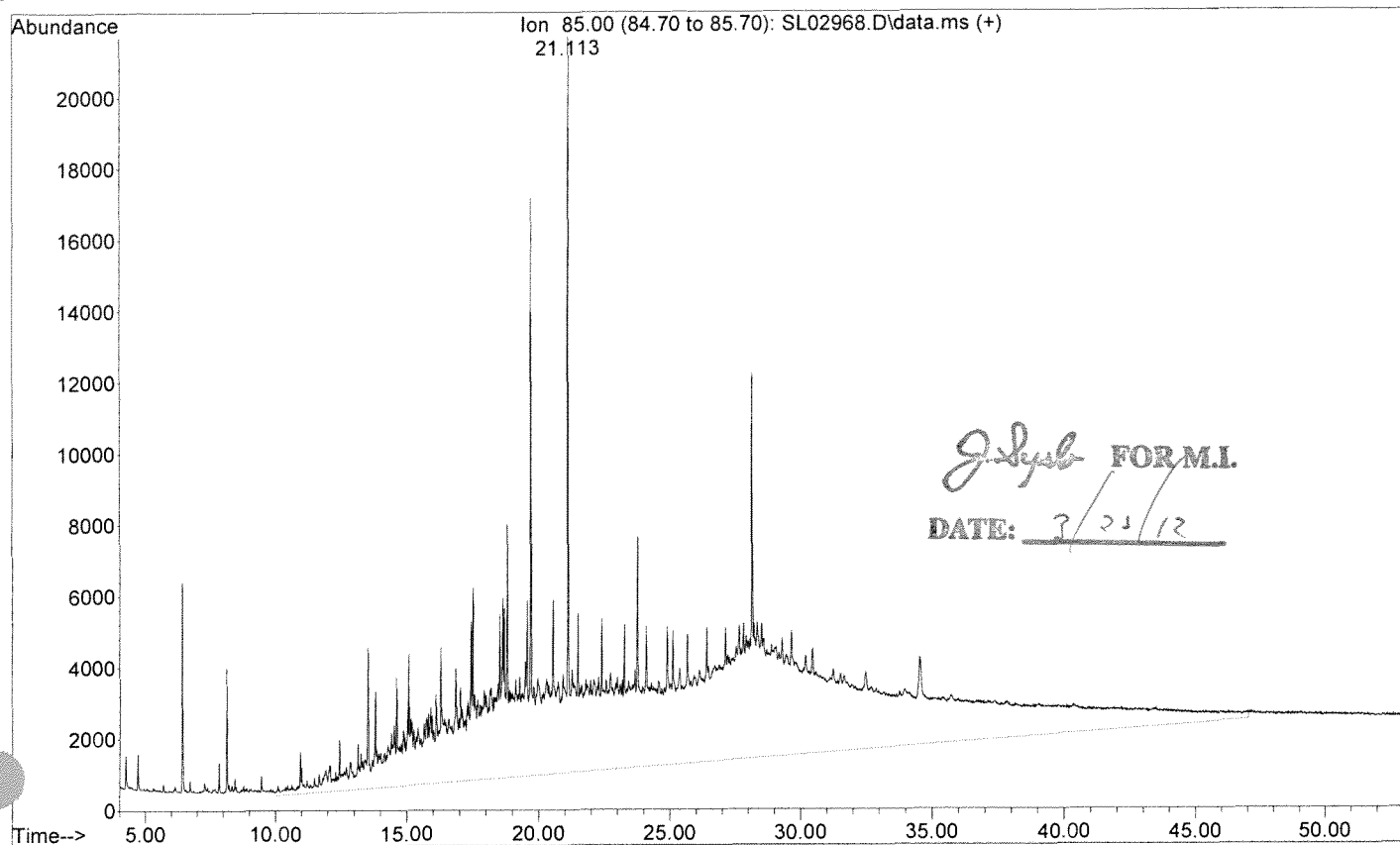
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	21.113	866	2218	5296	rM 5	20681	3367936	100.00%	100.000%

Sum of corrected areas: 3367936

ENOTPH032212.M Wed Mar 28 13:29:12 2012 SLICK2

J. S. J. FOR M.I.
DATE: 3/28/12

File : C:\msdchem\1\DATA\032212\SL02968.D
Operator : Syslo
Acquired : 23 Mar 2012 2:07 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: LCS
Misc Info : 1mL FV
Vial Number: 2



Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02969.D
Acq On : 23 Mar 2012 3:08
Operator : Syslo
Sample : 4xd of SERAS-017-0007
Vial : 5.0mL fv, then 4xd
Vial : 3 Sample Multiplier: 1

Quant Time: Mar 28 12:55:31 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Mon Mar 26 17:07:55 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.686	188	304090	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	119013	10.00	ug/mL	0.00
6) d50-Tetracosane	23.757	66	145052	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.528	66	110410	10.00	ug/mL	0.00
System Monitoring Compounds						
2) d10-Anthracene {S}	18.803	188	27843	1.02	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	5.10%	
3) d14-o-Terphenyl {S}	19.706	244	12057	0.98	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.90%	
4) 5a-Androstane {S}	21.122	260	1469	0.92	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.60%	
7) d62-Triacontane {S}	28.131	66	10842	0.94	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.70%	

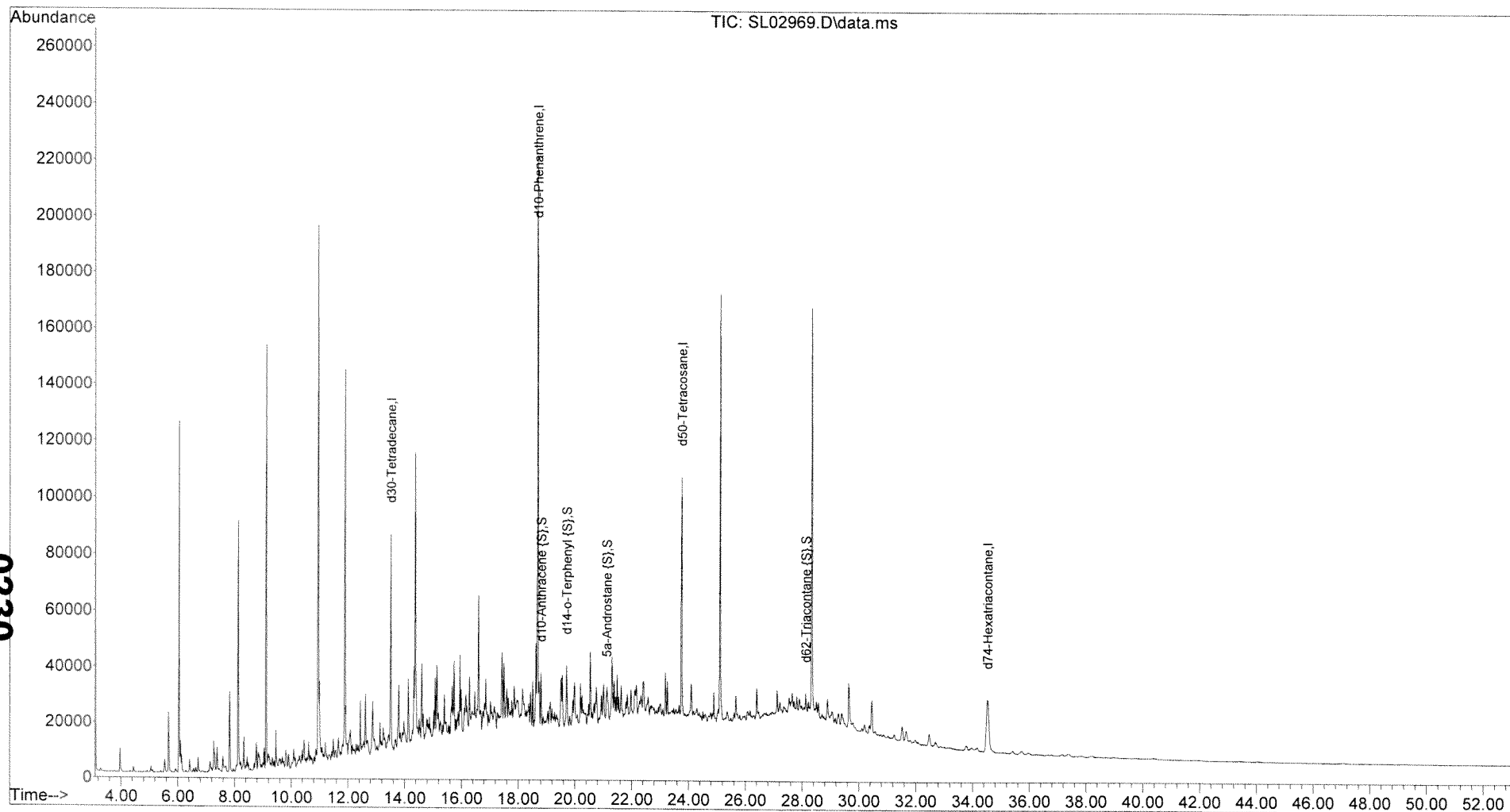
Target Compounds Qvalue

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

1679 2335

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02969.D
Acq On : 23 Mar 2012 3:08
Operator : Syslo
Sample : 4xd of SERAS-017-0007
Misc : 5.0mL fv, then 4xd
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Mar 28 12:55:31 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Mon Mar 26 17:07:55 2012
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02969.D
Acq On : 23 Mar 2012 3:08
Operator : Syslo
Sample : 4xd of SERAS-017-0007
Vial : 5.0mL fv, then 4xd
ALS Vial : 3 Sample Multiplier: 1

Integration Parameters: Oilint.P

Integrator: RTE

Smoothing : ON

Sampling : 1

Start Thrs: 0.05

Stop Thrs : 0.05

Filtering: 5

Min Area: 0.5 % of largest Peak

Max Peaks: 5

Peak Location: TOP

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

Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M

Title : Enbridge Oil ICAL: 3/22/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02969.D\data.ms

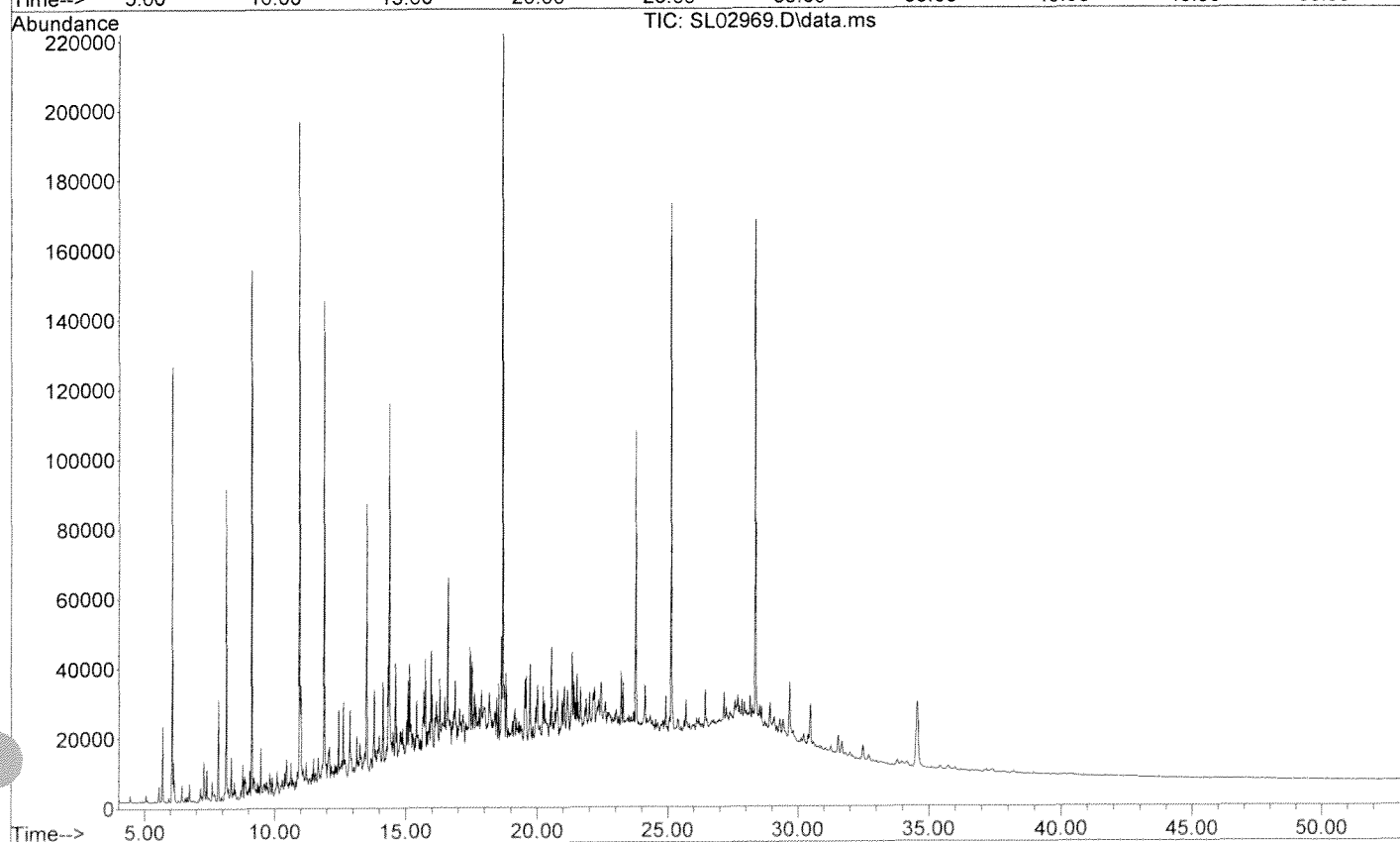
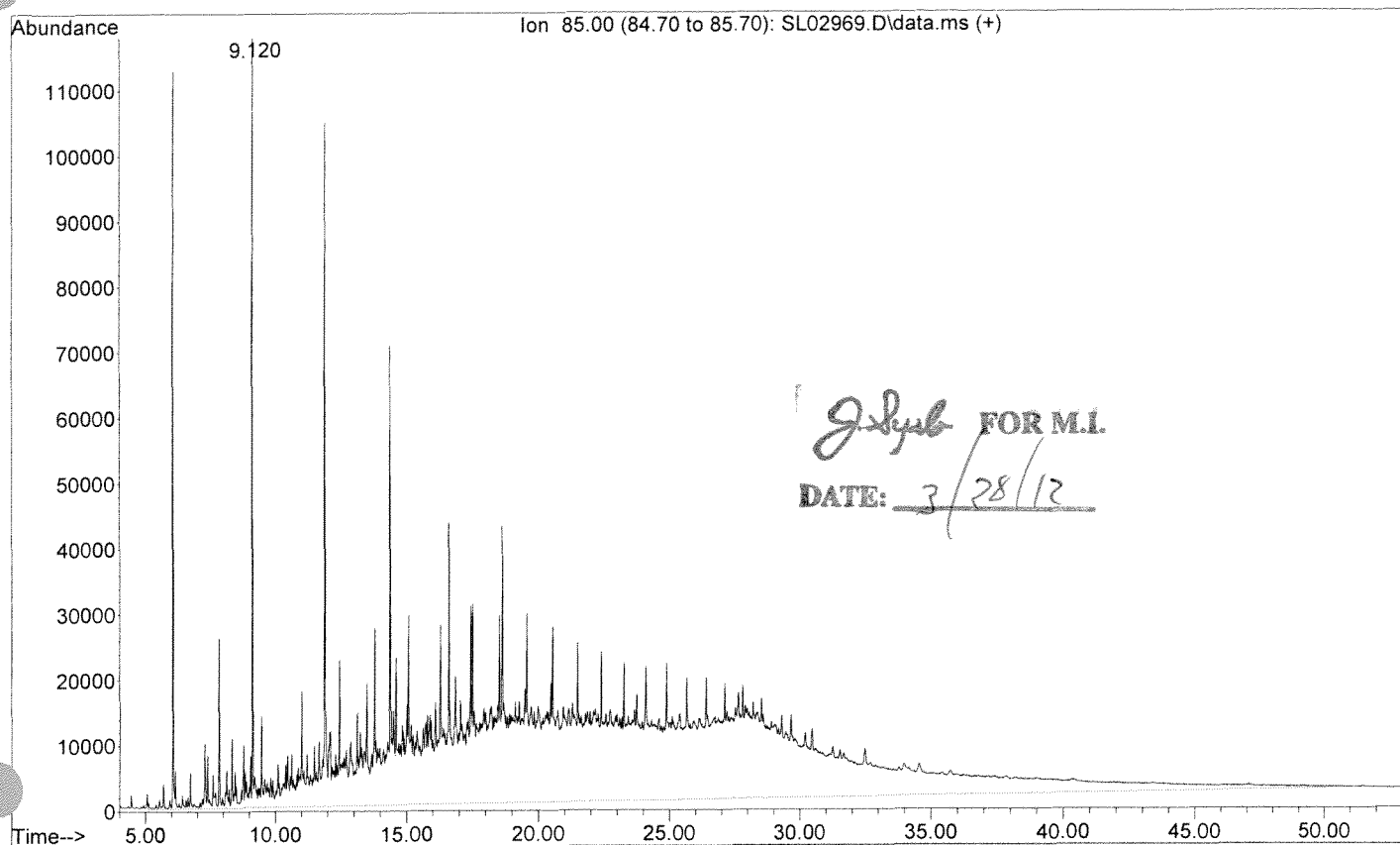
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	9.120	251	756	5660	rM 8	117500	16792335	100.00%	100.000%

Sum of corrected areas: 16792335

ENOTPH032212.M Wed Mar 28 13:30:59 2012 SLICK2

J. Syslo FOR M.I.
DATE: 3/28/12

File :C:\msdchem\1\DATA\032212\SL02969.D
Operator : Syslo
Acquired : 23 Mar 2012 3:08 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: 4xd of SERAS-017-0007
Misc Info : 5.0mL fv, then 4xd
Vial Number: 3



Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02970.D
Acq On : 23 Mar 2012 4:08
Operator : Syslo
Sample : 4xd of SERAS-017-0008
Vial : 5.0mL fv, then 4xd
Vial : 4 Sample Multiplier: 1

Quant Time: Mar 28 12:55:33 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Mon Mar 26 17:07:55 2012
Response via : Initial Calibration

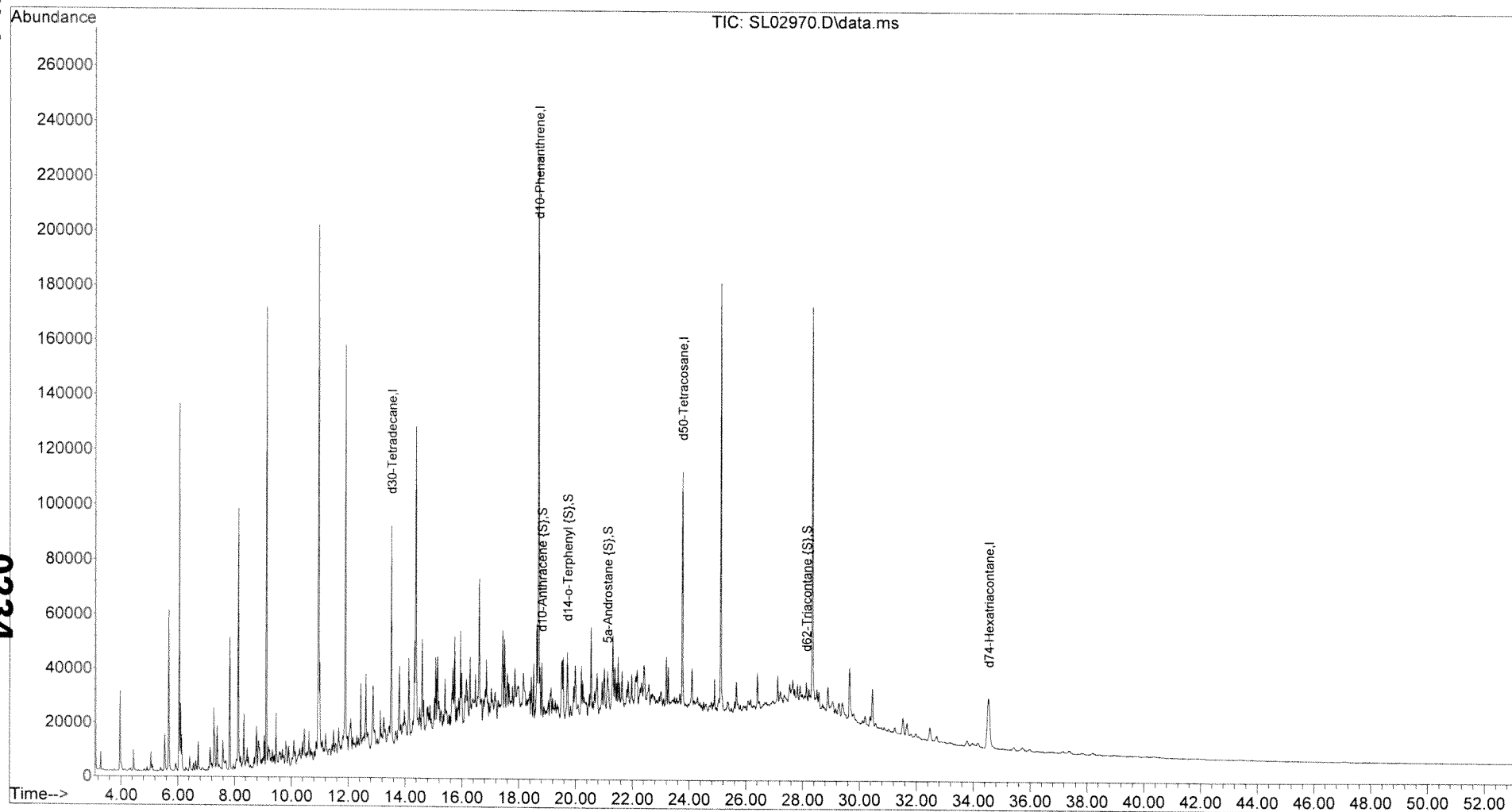
Compound	R.T.	QIon	Response	Conc	Units	Dev (Min)
Internal Standards						
1) d10-Phenanthrene	18.686	188	307868	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	122607	10.00	ug/mL	0.00
6) d50-Tetracosane	23.757	66	145631	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.537	66	112288	10.00	ug/mL	0.00
System Monitoring Compounds						
2) d10-Anthracene {S}	18.803	188	28923	1.05	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	5.25%	
3) d14-o-Terphenyl {S}	19.706	244	12335	0.99	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.95%	
4) 5a-Androstane {S}	21.122	260	1512	0.93	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.65%	
7) d62-Triacontane {S}	28.131	66	10950	0.95	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.75%	

Target Compounds Qvalue

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

$\Sigma + \text{ph} = 21028050$

Quant Time: Mar 28 12:55:33 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Mon Mar 26 17:07:55 2012
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02970.D
Acq On : 23 Mar 2012 4:08
Operator : Syslo
Sample : 4xd of SERAS-017-0008
Sc : 5.0mL fv, then 4xd
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\ENOTPH032212.M
Title : Enbridge Oil ICAL: 3/22/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02970.D\data.ms

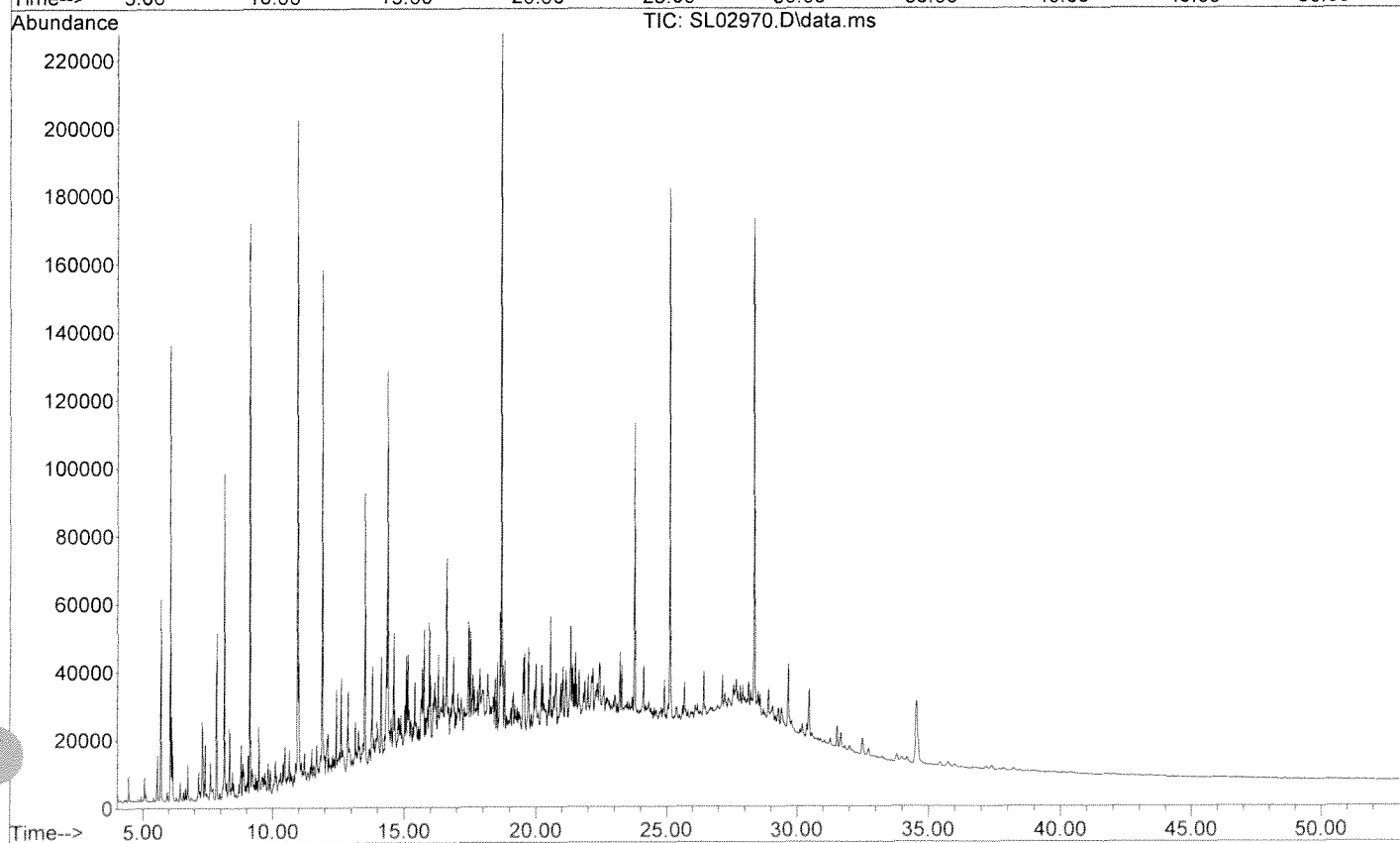
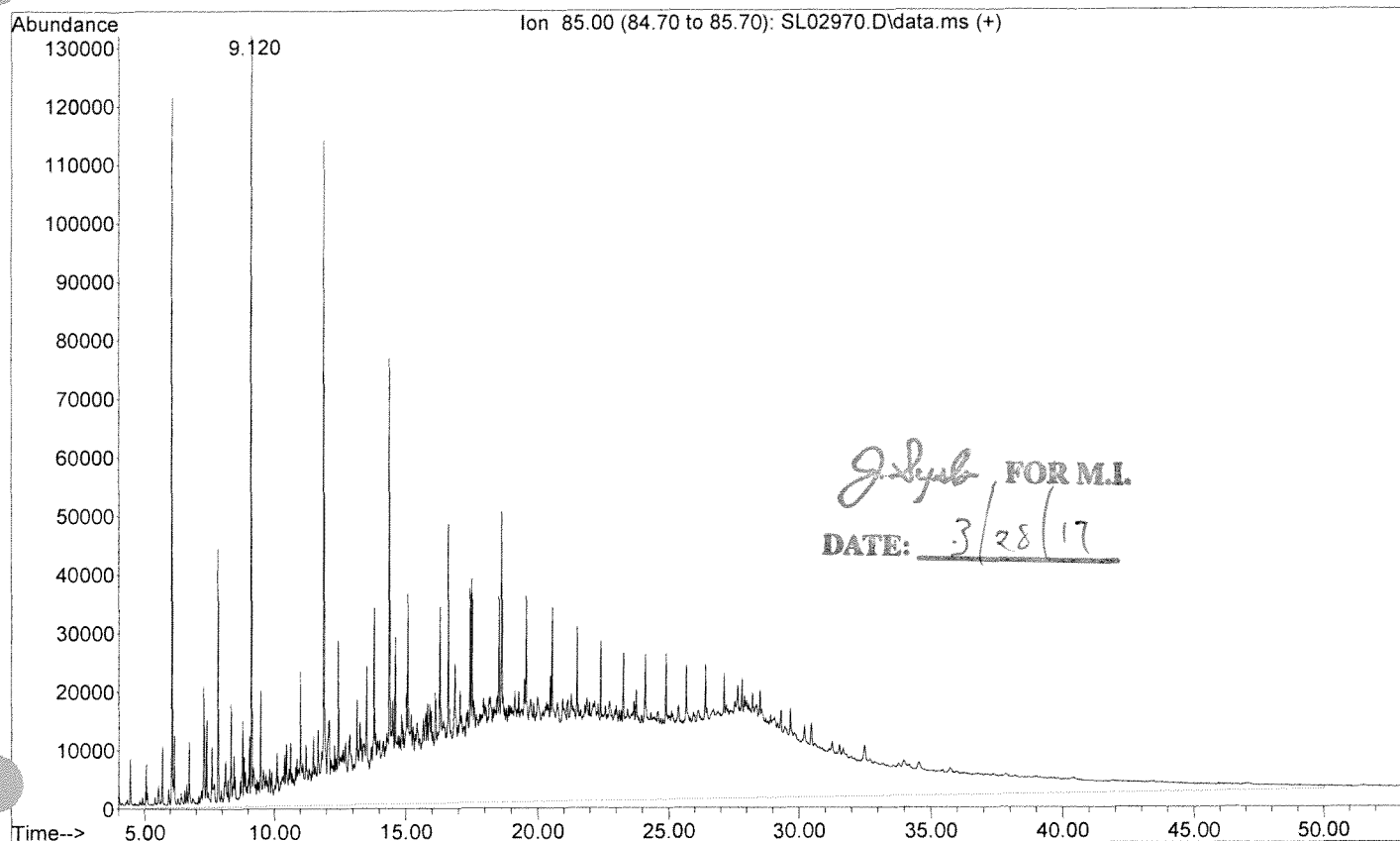
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	9.120	282	756	5908	rM 9	131448	21028050	100.00%	100.000%

Sum of corrected areas: 21028050

ENOTPH032212.M Wed Mar 28 13:56:12 2012 SLICK2

J. Syslo FOR M.L.
DATE: 3/28/12

File : C:\msdchem\1\DATA\032212\SL02970.D
Operator : Syslo
Acquired : 23 Mar 2012 4:08 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: 4xd of SERAS-017-0008
Misc Info : 5.0mL fv, then 4xd
Vial Number: 4



Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02971.D
Acq On : 23 Mar 2012 5:08
Operator : Syslo
Sample : 4xd of SERAS-017-0009
Insc : 5.0mL fv, then 4xd
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 28 12:55:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Mon Mar 26 17:07:55 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.686	188	307219	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	124895	10.00	ug/mL	0.00
6) d50-Tetracosane	23.757	66	147089	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.529	66	110260	10.00	ug/mL	0.00
System Monitoring Compounds						
2) d10-Anthracene {S}	18.804	188	29854	1.08	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	5.40%	
3) d14-o-Terphenyl {S}	19.706	244	13010	1.05	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	5.25%	
4) 5a-Androstane {S}	21.122	260	1546	0.96	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.80%	
7) d62-Triacontane {S}	28.131	66	11493	0.99	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.95%	

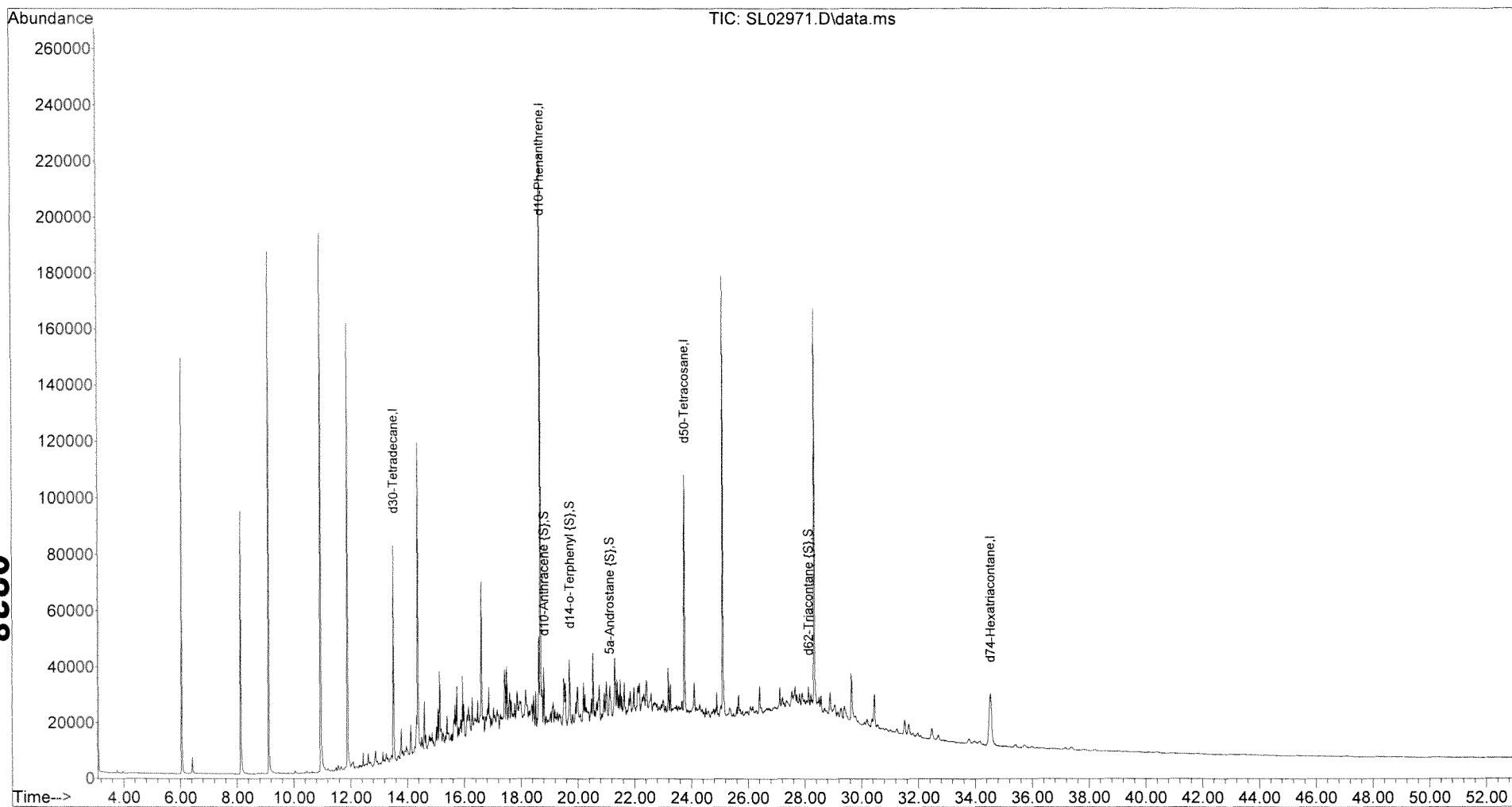
Target Compounds Qvalue

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

SL- 15597/84

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02971.D
Acq On : 23 Mar 2012 5:08
Operator : Syslo
Sample : 4xd of SERAS-017-0009
Misc : 5.0mL fv, then 4xd
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 28 12:55:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Mon Mar 26 17:07:55 2012
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02971.D
Acq On : 23 Mar 2012 5:08
Operator : Syslo
Sample : 4xd of SERAS-017-0009
Vial : 5.0mL fv, then 4xd
ALS Vial : 5 Sample Multiplier: 1

Integration Parameters: Oilint.P

Integrator: RTE
Smoothing : ON
Sampling : 1
Start Thrs: 0.05
Stop Thrs : 0.05

Filtering: 5
Min Area: 0.5 % of largest Peak
Max Peaks: 5
Peak Location: TOP

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

Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Title : Enbridge Oil ICAL: 3/22/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02971.D\data.ms

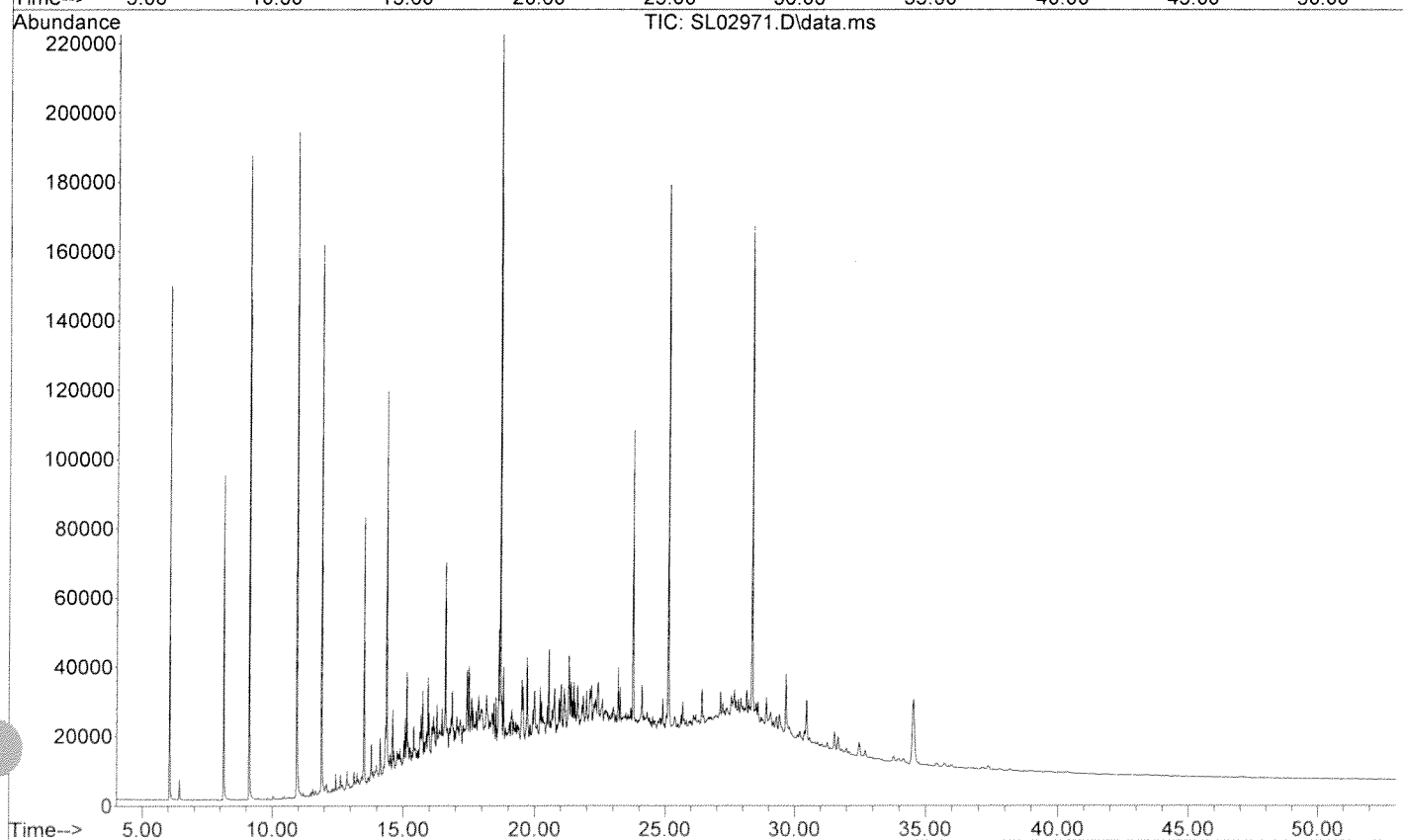
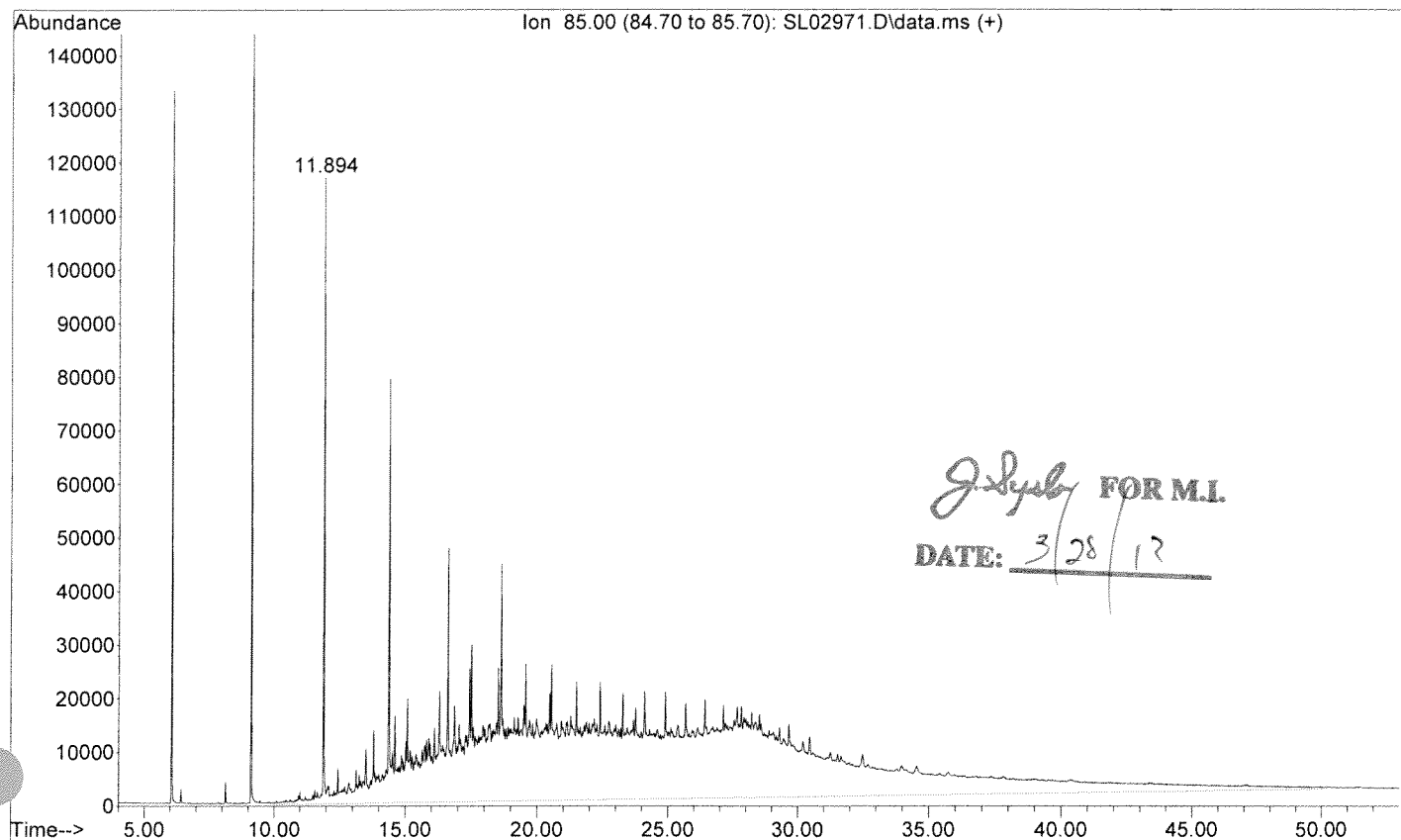
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	11.894	860	1103	5666	rM 5	116933	15597184	100.00%	100.000%

Sum of corrected areas: 15597184

ENOTPH032212.M Wed Mar 28 13:33:22 2012 SLICK2

J. Syslo FOR M.L.
DATE: 3/28/12

File : C:\msdchem\1\DATA\032212\SL02971.D
Operator : Syslo
Acquired : 23 Mar 2012 5:08 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: 4xd of SERAS-017-0009
Misc Info : 5.0mL fv, then 4xd
V Number: 5



Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02972.D
Acq On : 23 Mar 2012 6:09
Operator : Syslo
Sample : 4xd of SERAS-017-0010
Insc : 5.0mL fv, then 4xd
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 28 12:55:37 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Mon Mar 26 17:07:55 2012
Response via : Initial Calibration

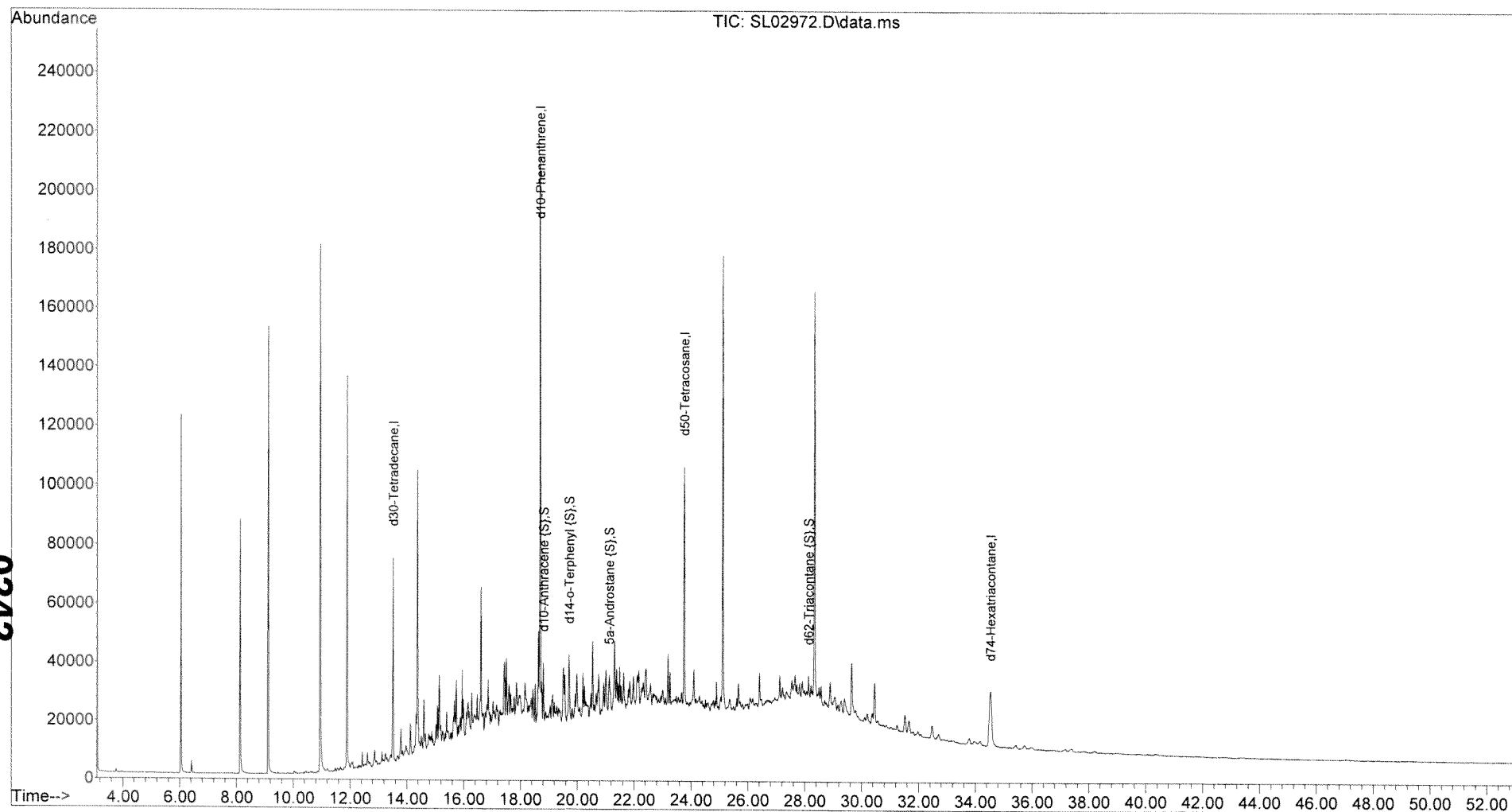
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.686	188	294224	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	114589	10.00	ug/mL	0.00
6) d50-Tetracosane	23.757	66	139187	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.529	66	109675	10.00	ug/mL	0.00
System Monitoring Compounds						
2) d10-Anthracene {S}	18.803	188	28409	1.08	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	5.40%	
3) d14-o-Terphenyl {S}	19.706	244	12149	1.02	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	5.10%	
4) 5a-Androstane {S}	21.122	260	1441	0.93	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.65%	
7) d62-Triacontane {S}	28.131	66	11214	1.02	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	5.10%	

Target Compounds Qvalue

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

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02972.D
Acq On : 23 Mar 2012 6:09
Operator : Syslo
Sample : 4xd of SERAS-017-0010
Misc : 5.0mL fv, then 4xd
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 28 12:55:37 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Mon Mar 26 17:07:55 2012
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02972.D
Acq On : 23 Mar 2012 6:09
Operator : Syslo
Sample : 4xd of SERAS-017-0010
sc : 5.0mL fv, then 4xd
ALS Vial : 6 Sample Multiplier: 1

Integration Parameters: Oilint.P

Integrator: RTE
Smoothing : ON
Sampling : 1
Start Thrs: 0.05
Stop Thrs : 0.05

Filtering: 5
Min Area: 0.5 % of largest Peak
Max Peaks: 5
Peak Location: TOP

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

Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Title : Enbridge Oil ICAL: 3/22/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02972.D\data.ms

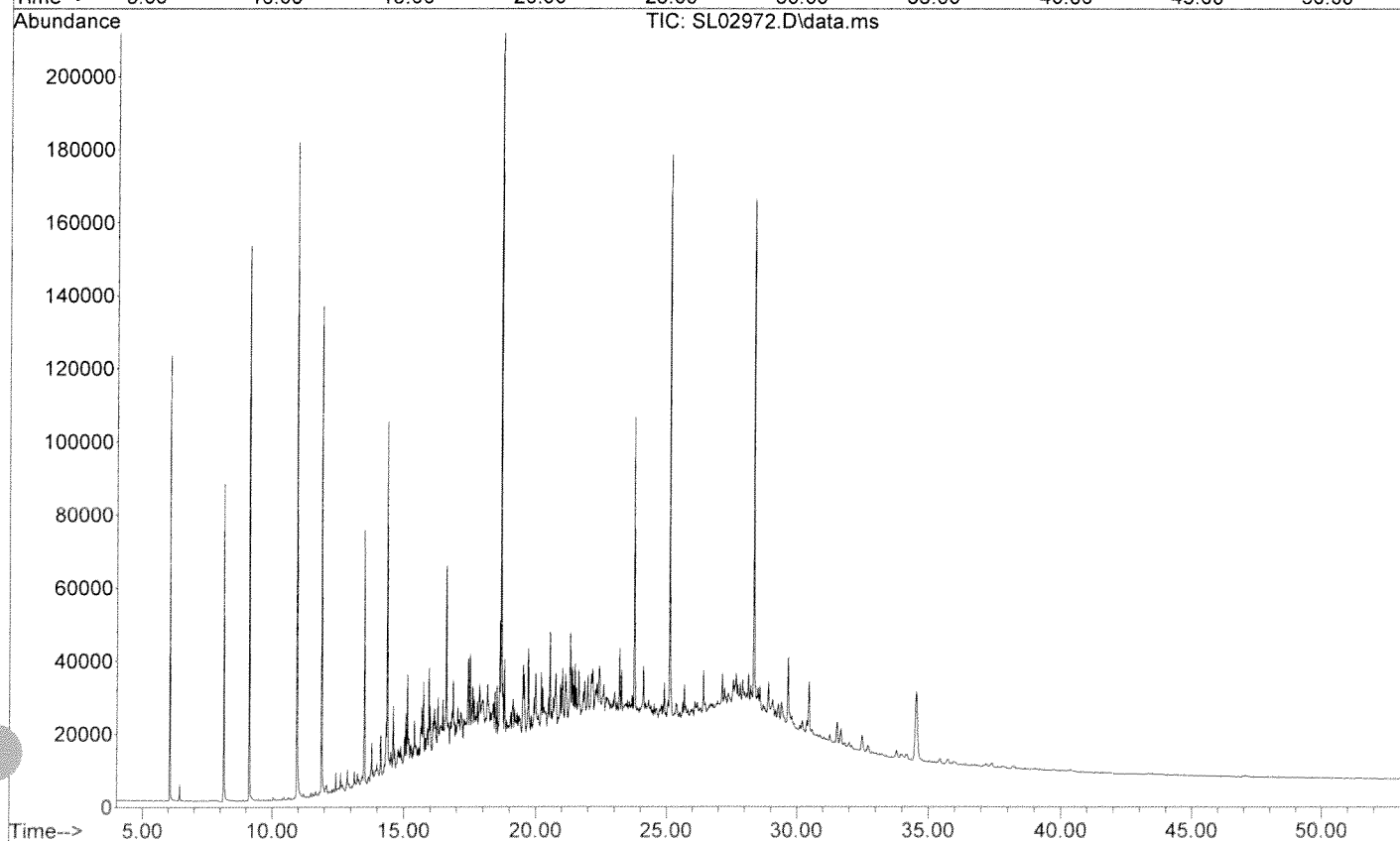
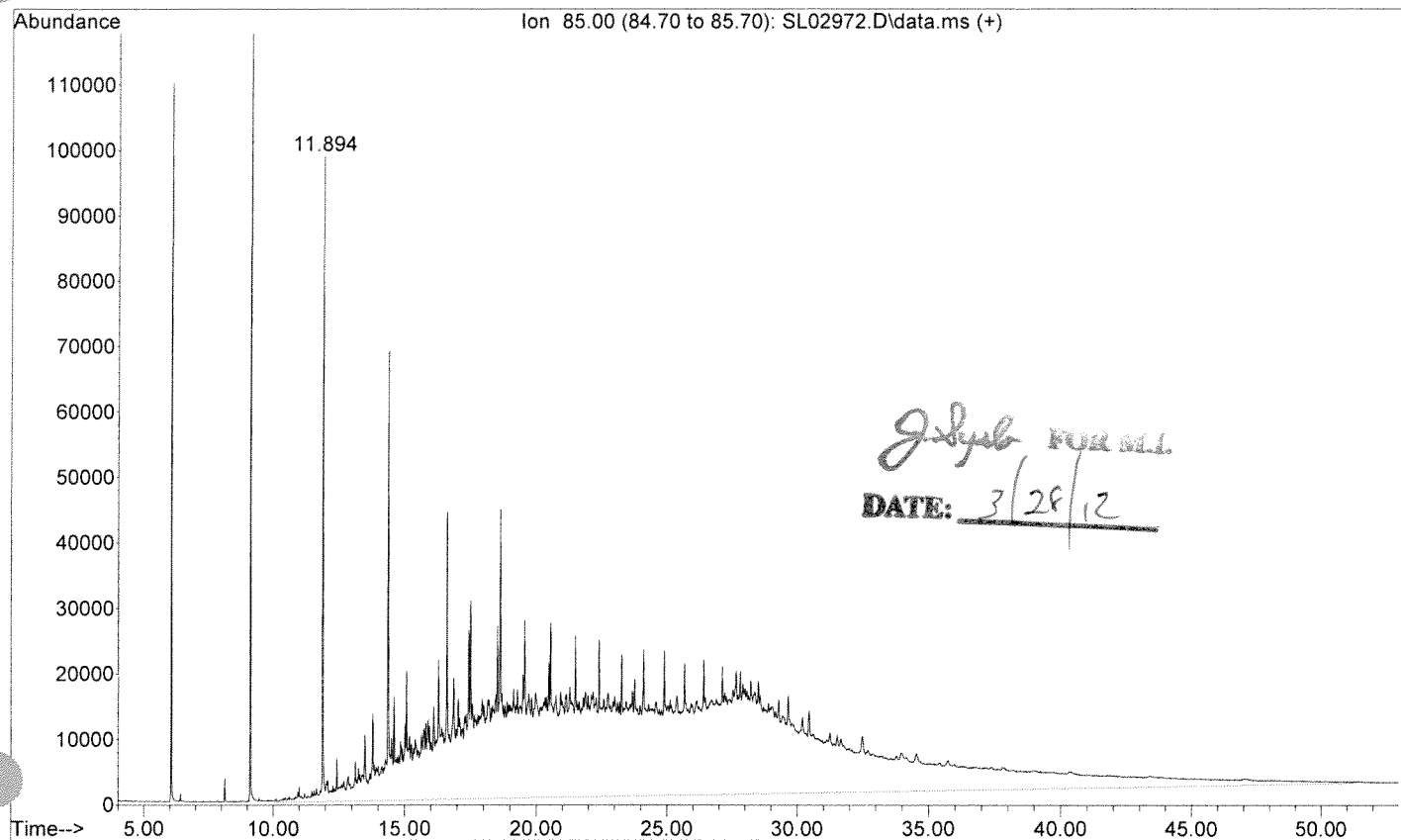
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	11.894	871	1103	5804	rM 5	98667	16632523	100.00%	100.000%

Sum of corrected areas: 16632523

ENOTPH032212.M Wed Mar 28 13:34:18 2012 SLICK2

J. Lyub FOR M.I.
DATE: 3/28/12

File : C:\msdchem\1\DATA\032212\SL02972.D
Operator : Syslo
Acquired : 23 Mar 2012 6:09 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: 4xd of SERAS-017-0010
Misc Info : 5.0mL fv, then 4xd
Vial Number: 6



Data Path : C:\msdchem\1\DATA\032212\
 Data File : SL02973.D
 Acq On : 23 Mar 2012 7:09
 Operator : Syslo
 Sample : 4xd of SERAS-017-0011
 Vial : 5.0mL fv, then 4xd
 Vial : 7 Sample Multiplier: 1

Quant Time: Mar 28 12:55:39 2012
 Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
 Quant Title : Enbridge Oil ICAL: 3/22/12
 QLast Update : Mon Mar 26 17:07:55 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev (Min)
Internal Standards						
1) d10-Phenanthrene	18.686	188	313994	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	124642	10.00	ug/mL	0.00
6) d50-Tetracosane	23.757	66	147719	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.529	66	111962	10.00	ug/mL	0.00
System Monitoring Compounds						
2) d10-Anthracene {S}	18.804	188	29046	1.03	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	5.15%	
3) d14-o-Terphenyl {S}	19.706	244	12456	0.98	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.90%	
4) 5a-Androstane {S}	21.123	260	1489	0.90	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.50%	
7) d62-Triacontane {S}	28.131	66	11275	0.96	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.80%	

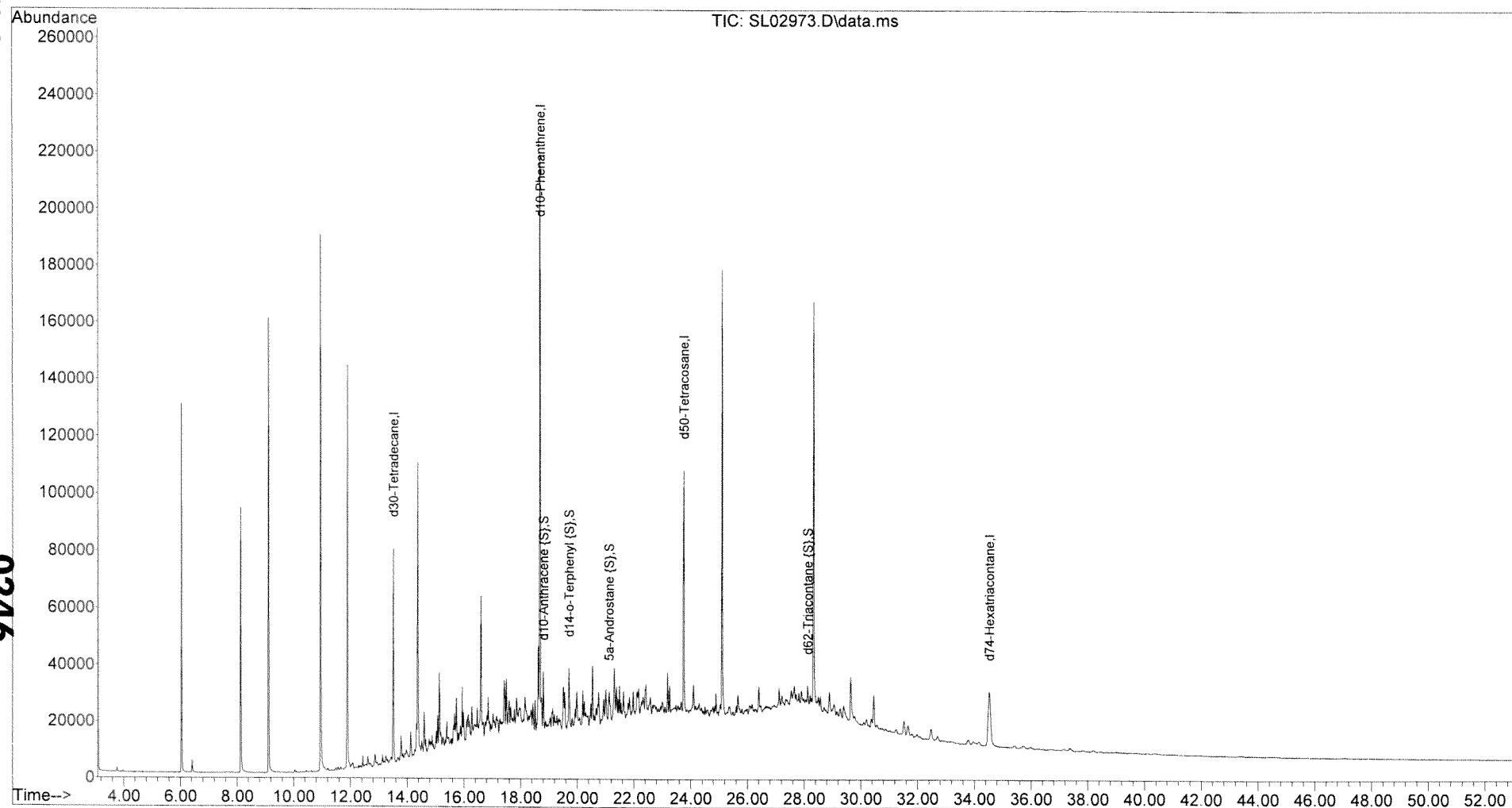
Target Compounds Qvalue

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

US EPA ARCHIVE DOCUMENT

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02973.D
Acq On : 23 Mar 2012 7:09
Operator : Syslo
Sample : 4xd of SERAS-017-0011
Misc : 5.0mL fv, then 4xd
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 28 12:55:39 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Mon Mar 26 17:07:55 2012
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02973.D
Acq On : 23 Mar 2012 7:09
Operator : Syslo
Sample : 4xd of SERAS-017-0011
Sc : 5.0mL fv, then 4xd
ALS Vial : 7 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\ENOTPH032212.M
Title : Enbridge Oil ICAL: 3/22/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02973.D\data.ms

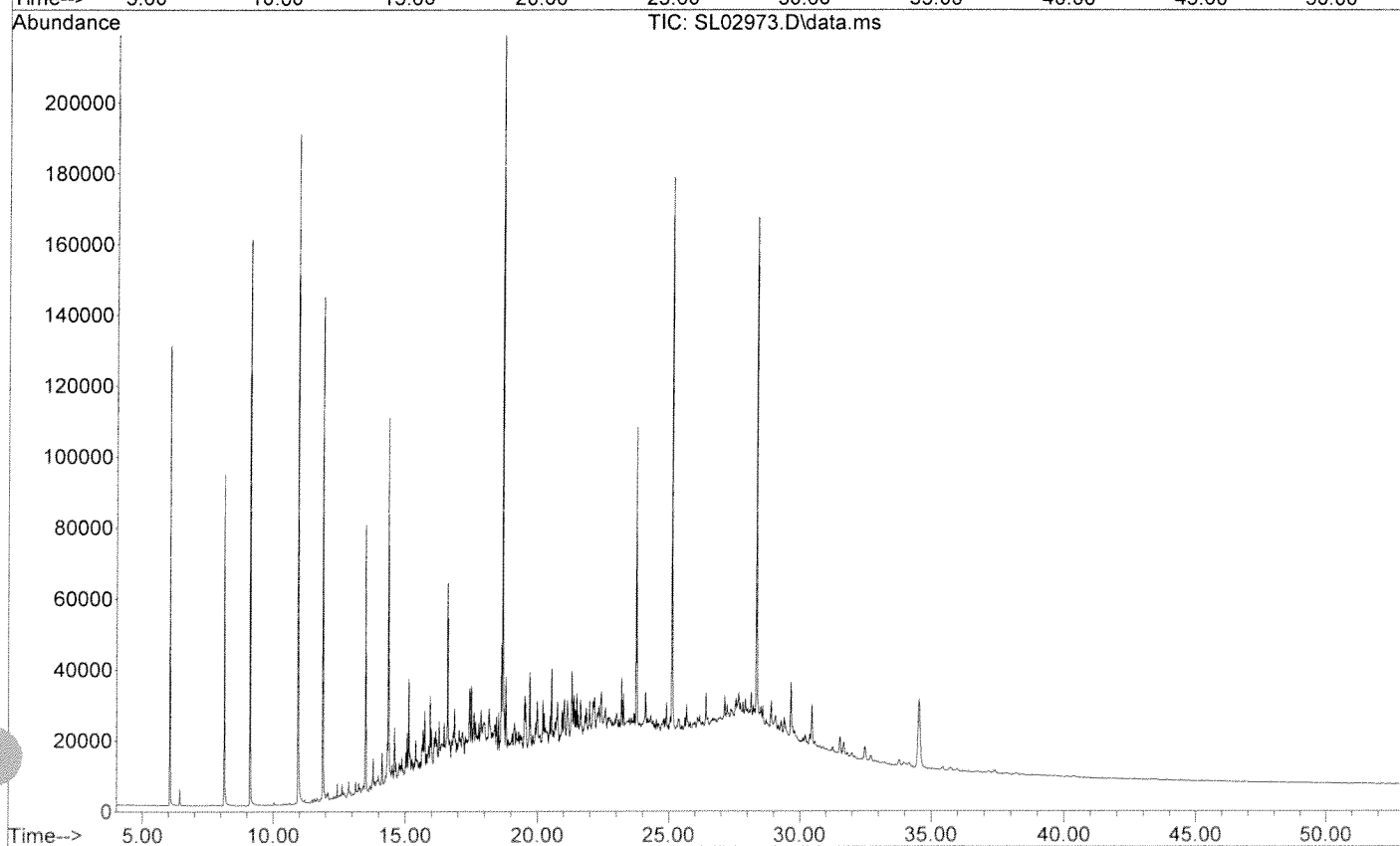
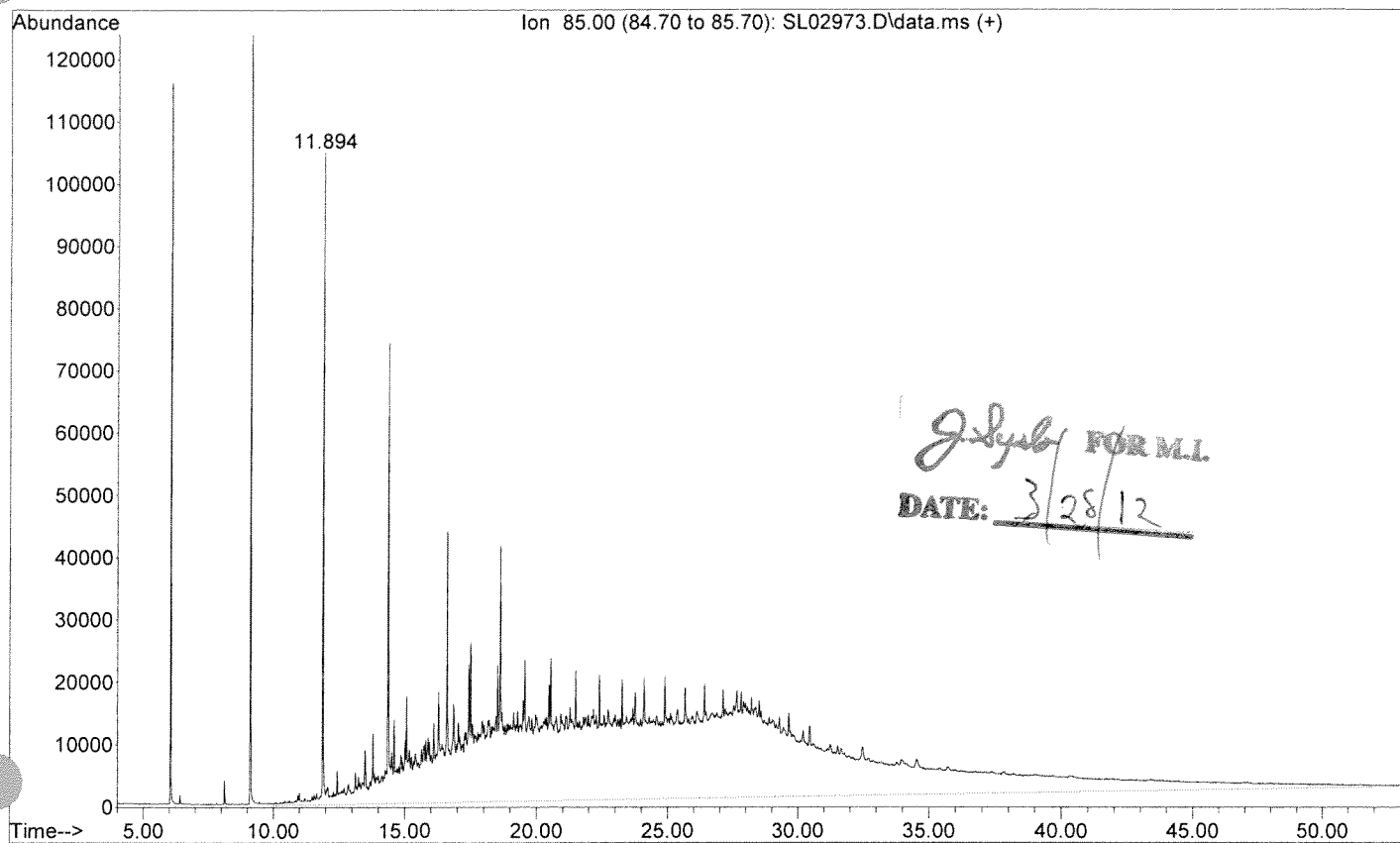
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	11.894	860	1103	5886	rM 5	104556	15401975	100.00%	100.000%

Sum of corrected areas: 15401975

ENOTPH032212.M Wed Mar 28 13:35:18 2012 SLICK2

J. Syslo FOR M.I.
DATE: 3/28/12

File : C:\msdchem\1\DATA\032212\SL02973.D
Operator : Syslo
Acquired : 23 Mar 2012 7:09 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: 4xd of SERAS-017-0011
Misc Info : 5.0mL fv, then 4xd
Vial Number: 7



Data Path : C:\msdchem\1\DATA\032212\
 Data File : SL02974.D
 Acq On : 23 Mar 2012 8:09
 Operator : Syslo
 Sample : 4xd of SERAS-017-0012
 Vial : 5.0mL fv, then 4xd
 Vial : 8 Sample Multiplier: 1

Quant Time: Mar 28 12:55:41 2012
 Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
 Quant Title : Enbridge Oil ICAL: 3/22/12
 QLast Update : Mon Mar 26 17:07:55 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.686	188	301151	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	121230	10.00	ug/mL	0.00
6) d50-Tetracosane	23.757	66	141754	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.528	66	108789	10.00	ug/mL	0.00
System Monitoring Compounds						
2) d10-Anthracene {S}	18.803	188	28155	1.04	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	5.20%	
3) d14-o-Terphenyl {S}	19.706	244	12155	1.00	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	5.00%	
4) 5a-Androstane {S}	21.122	260	1442	0.91	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.55%	
7) d62-Triacontane {S}	28.131	66	10918	0.97	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.85%	

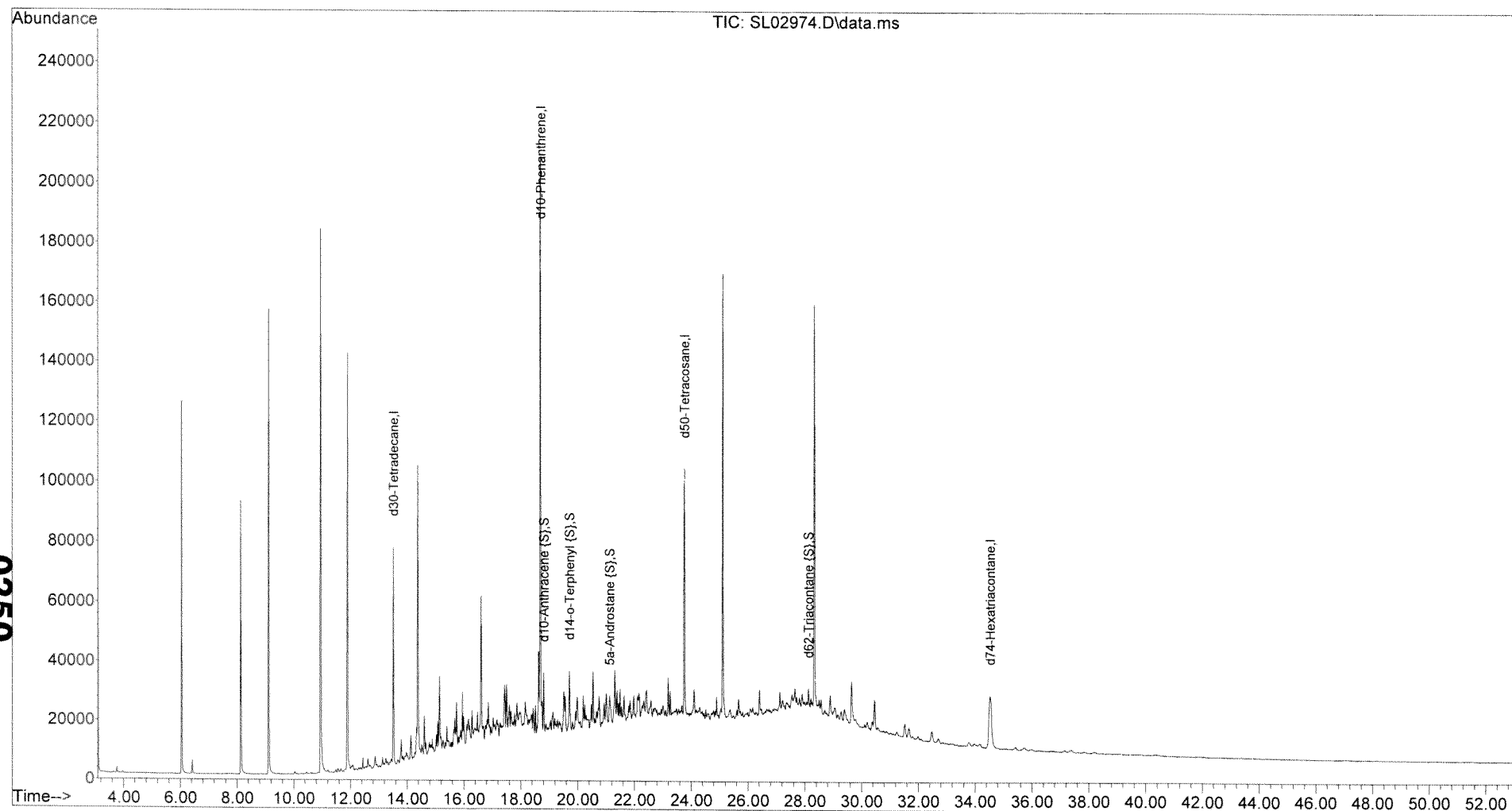
Target Compounds Qvalue

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

US EPA ARCHIVE DOCUMENT

Data Path : C:\msdchem\1\DATA\032212\
 Data File : SL02974.D
 Acq On : 23 Mar 2012 8:09
 Operator : Syslo
 Sample : 4xd of SERAS-017-0012
 Misc : 5.0mL fv, then 4xd
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 28 12:55:41 2012
 Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
 Quant Title : Enbridge Oil ICAL: 3/22/12
 QLast Update : Mon Mar 26 17:07:55 2012
 Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02974.D
Acq On : 23 Mar 2012 8:09
Operator : Syslo
Sample : 4xd of SERAS-017-0012
Vial : 5.0mL fv, then 4xd
ALS Vial : 8 Sample Multiplier: 1

Integration Parameters: Oilint.P

Integrator: RTE
Smoothing : ON
Sampling : 1
Start Thrs: 0.05
Stop Thrs : 0.05

Filtering: 5
Min Area: 0.5 % of largest Peak
Max Peaks: 5
Peak Location: TOP

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

Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Title : Enbridge Oil ICAL: 3/22/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02974.D\data.ms

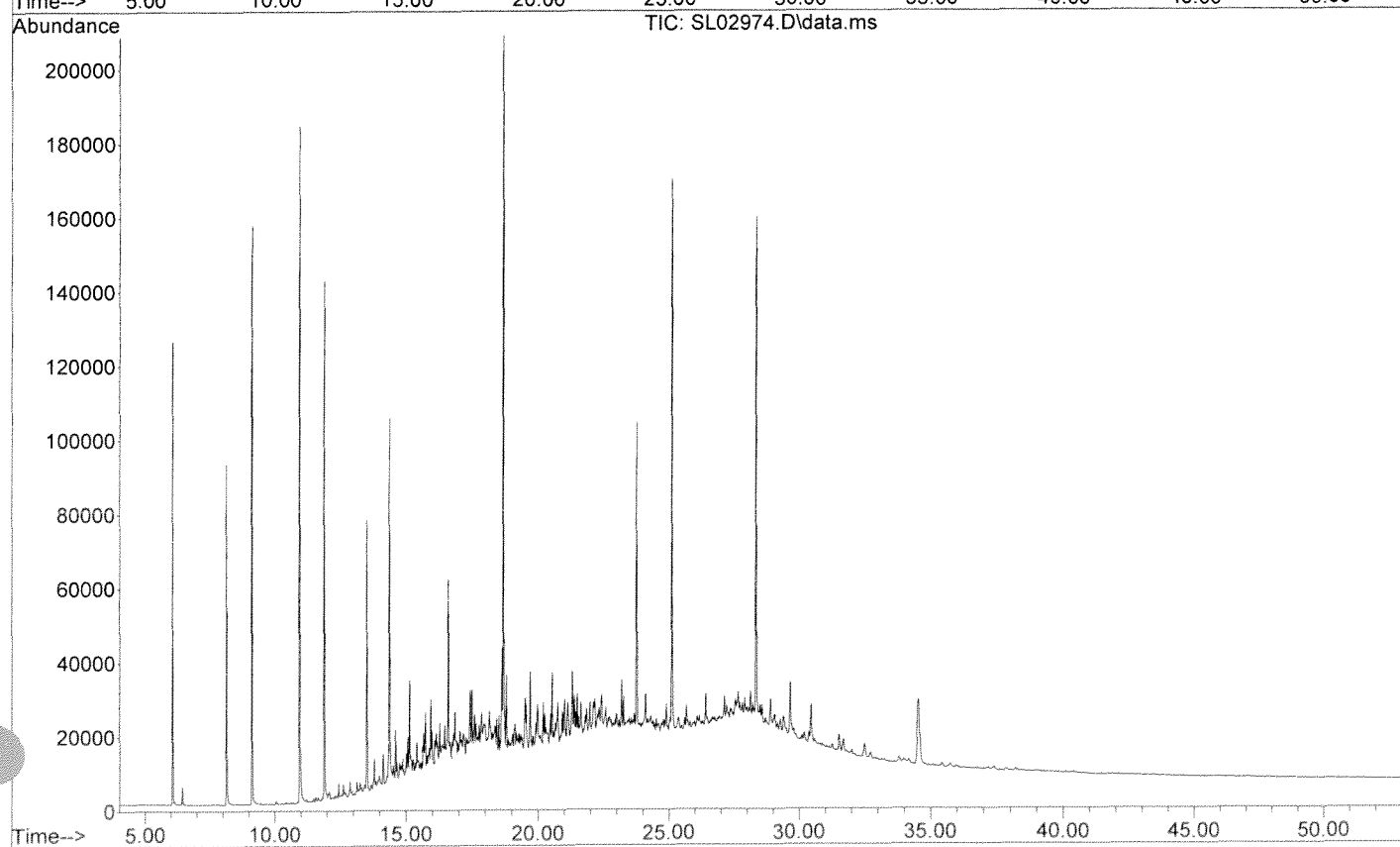
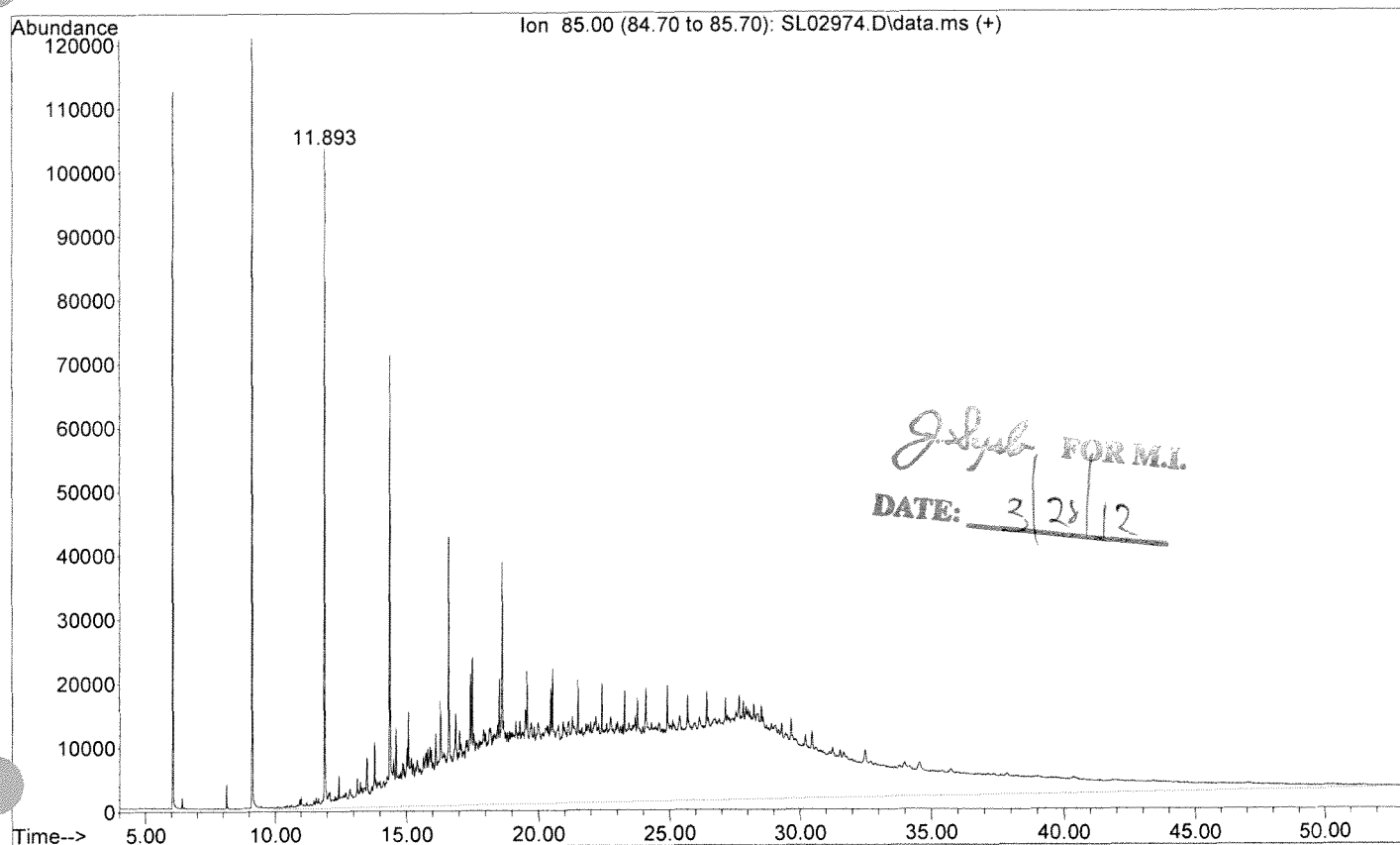
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	11.893	860	1103	5889	rM 5	103058	14220166	100.00%	100.000%

Sum of corrected areas: 14220166

ENOTPH032212.M Wed Mar 28 13:40:22 2012 SLICK2

J. Syslo FOR M.L.
DATE: 3/28/12

File : C:\msdchem\1\DATA\032212\SL02974.D
Operator : Syslo
Acquired : 23 Mar 2012 8:09 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: 4xd of SERAS-017-0012
Misc Info : 5.0mL fv, then 4xd
Vial Number: 8



Data Path : C:\msdchem\1\DATA\032212\
 Data File : SL02975.D
 Acq On : 23 Mar 2012 9:09
 Operator : Syslo
 Sample : 4xd of SERAS-017-0013
 Lsc : 5.0mL fv, then 4xd
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 28 12:55:43 2012
 Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
 Quant Title : Enbridge Oil ICAL: 3/22/12
 QLast Update : Mon Mar 26 17:07:55 2012
 Response via : Initial Calibration

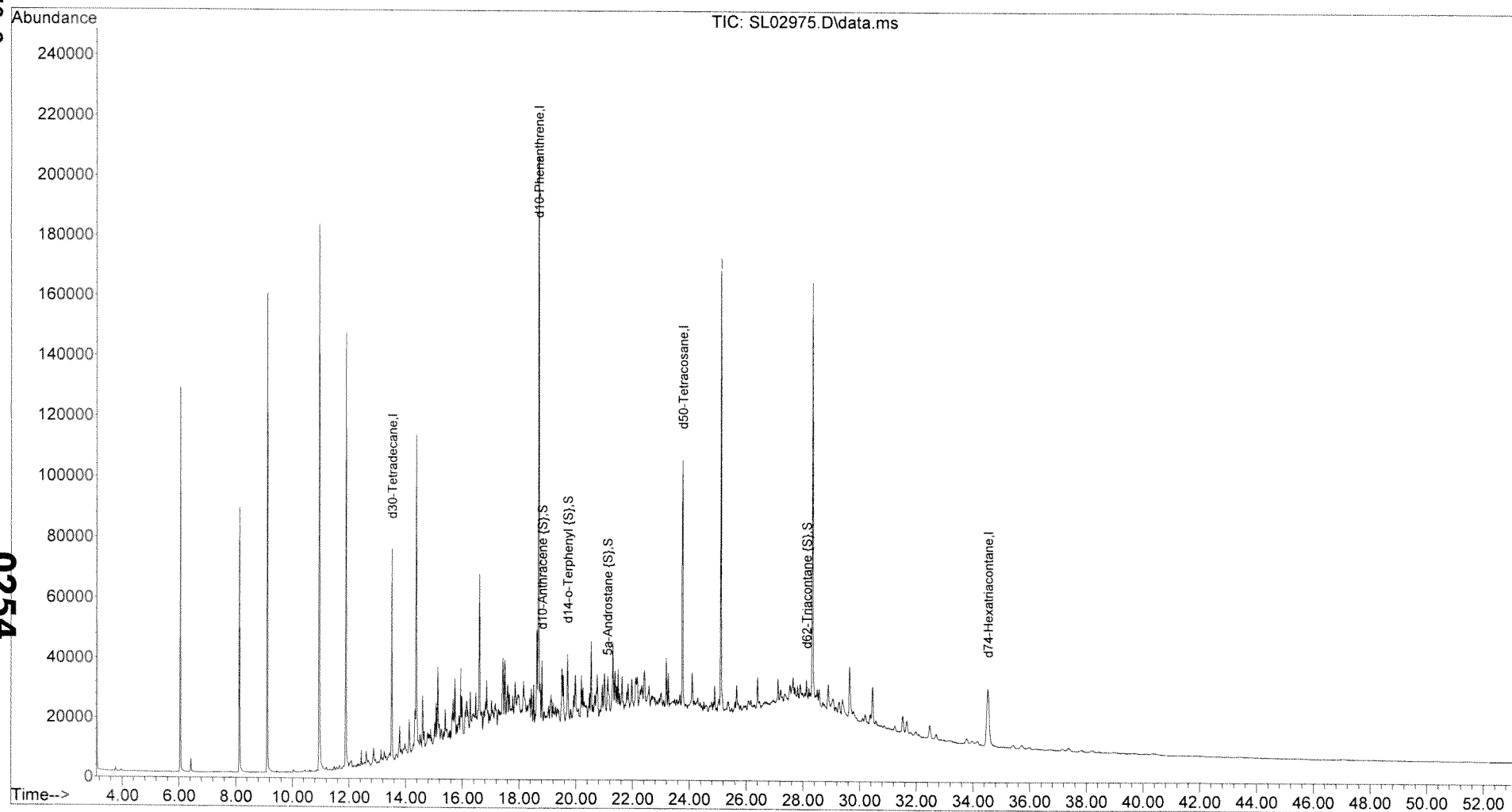
Compound	R.T.	QIon	Response	Conc	Units	Dev (Min)
Internal Standards						
1) d10-Phenanthrene	18.677	188	294273	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	116267	10.00	ug/mL	0.00
6) d50-Tetracosane	23.757	66	140334	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.529	66	109222	10.00	ug/mL	0.00
System Monitoring Compounds						
2) d10-Anthracene {S}	18.803	188	28382	1.08	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	5.40%	
3) d14-o-Terphenyl {S}	19.706	244	11979	1.01	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	5.05%	
4) 5a-Androstane {S}	21.113	260	1383	0.89	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.45%	
7) d62-Triacontane {S}	28.131	66	10812	0.97	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.85%	

Target Compounds Qvalue

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

US EPA ARCHIVE DOCUMENT

Quant Time: Mar 28 12:55:43 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Mon Mar 26 17:07:55 2012
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02975.D
Acq On : 23 Mar 2012 9:09
Operator : Syslo
Sample : 4xd of SERAS-017-0013
sc : 5.0mL fv, then 4xd
ALS Vial : 9 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\ENOTPH032212.M
Title : Enbridge Oil ICAL: 3/22/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02975.D\data.ms

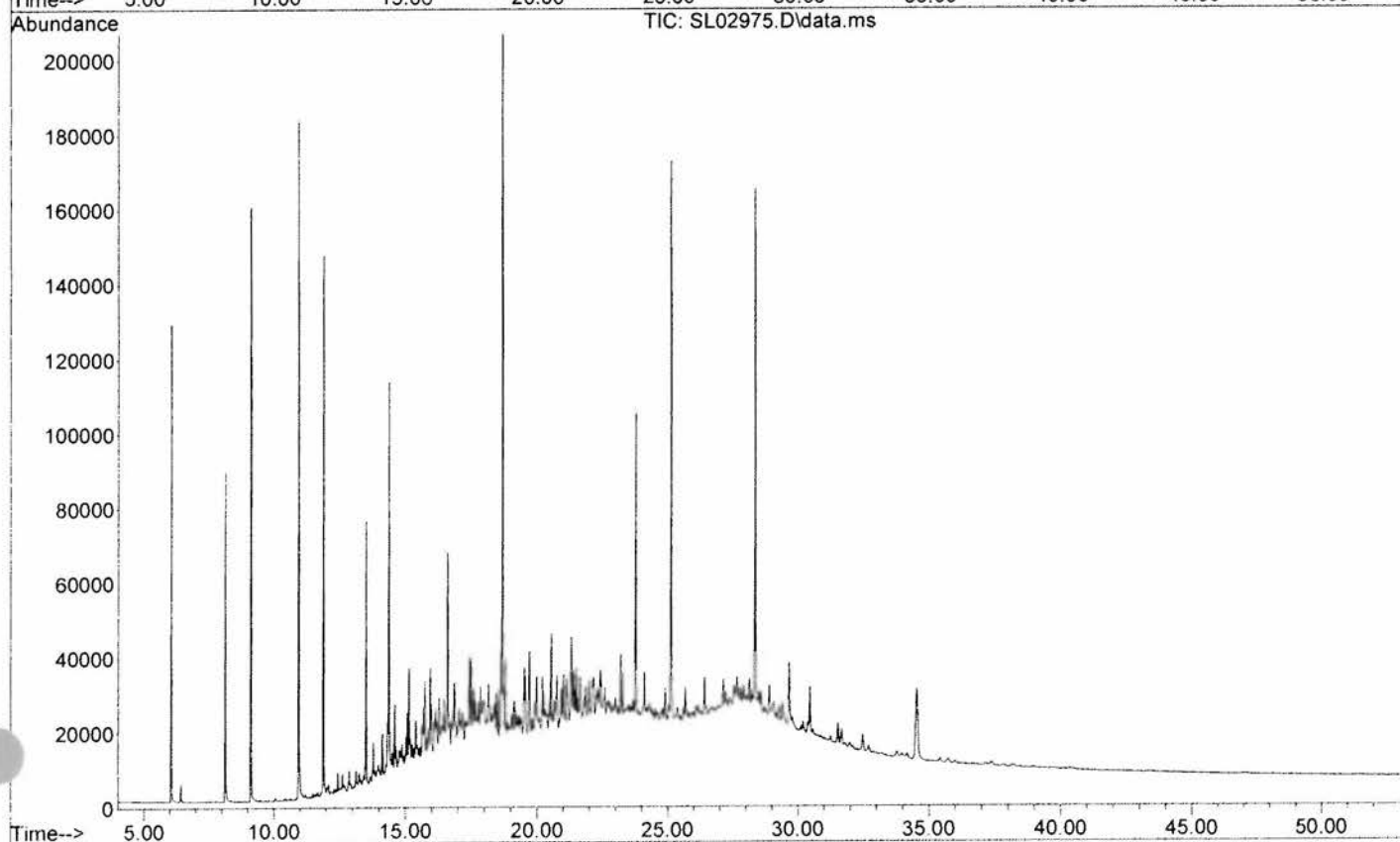
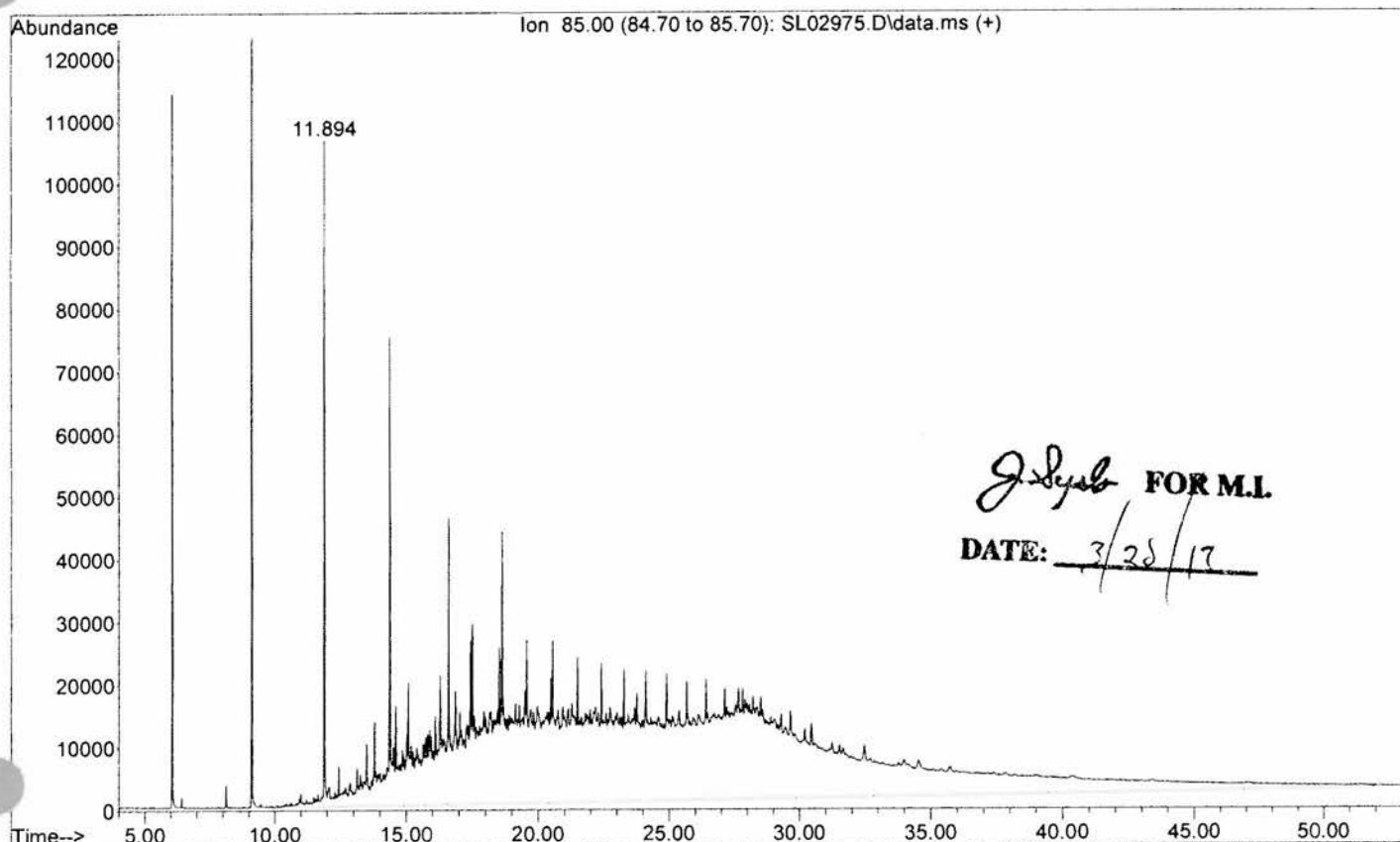
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	11.894	848	1103	5888	rM 5	106416	16038702	100.00%	100.000%

Sum of corrected areas: 16038702

ENOTPH032212.M Wed Mar 28 13:41:07 2012 SLICK2

J. Syslo FOR M.L.
DATE: 3/28/12

File :C:\msdchem\1\DATA\032212\SL02975.D
Operator : Syslo
Acquired : 23 Mar 2012 9:09 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: 4xd of SERAS-017-0013
Misc Info : 5.0mL fv, then 4xd
V Number: 9



Data Path : C:\msdchem\1\DATA\032212\
 Data File : SL02976.D
 Acq On : 23 Mar 2012 10:09
 Operator : Syslo
 Sample : 4xd of SERAS-017-0013 MS
 Lsc : 5.0mL fv, then 4xd
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: Mar 28 12:55:45 2012
 Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
 Quant Title : Enbridge Oil ICAL: 3/22/12
 QLast Update : Mon Mar 26 17:07:55 2012
 Response via : Initial Calibration

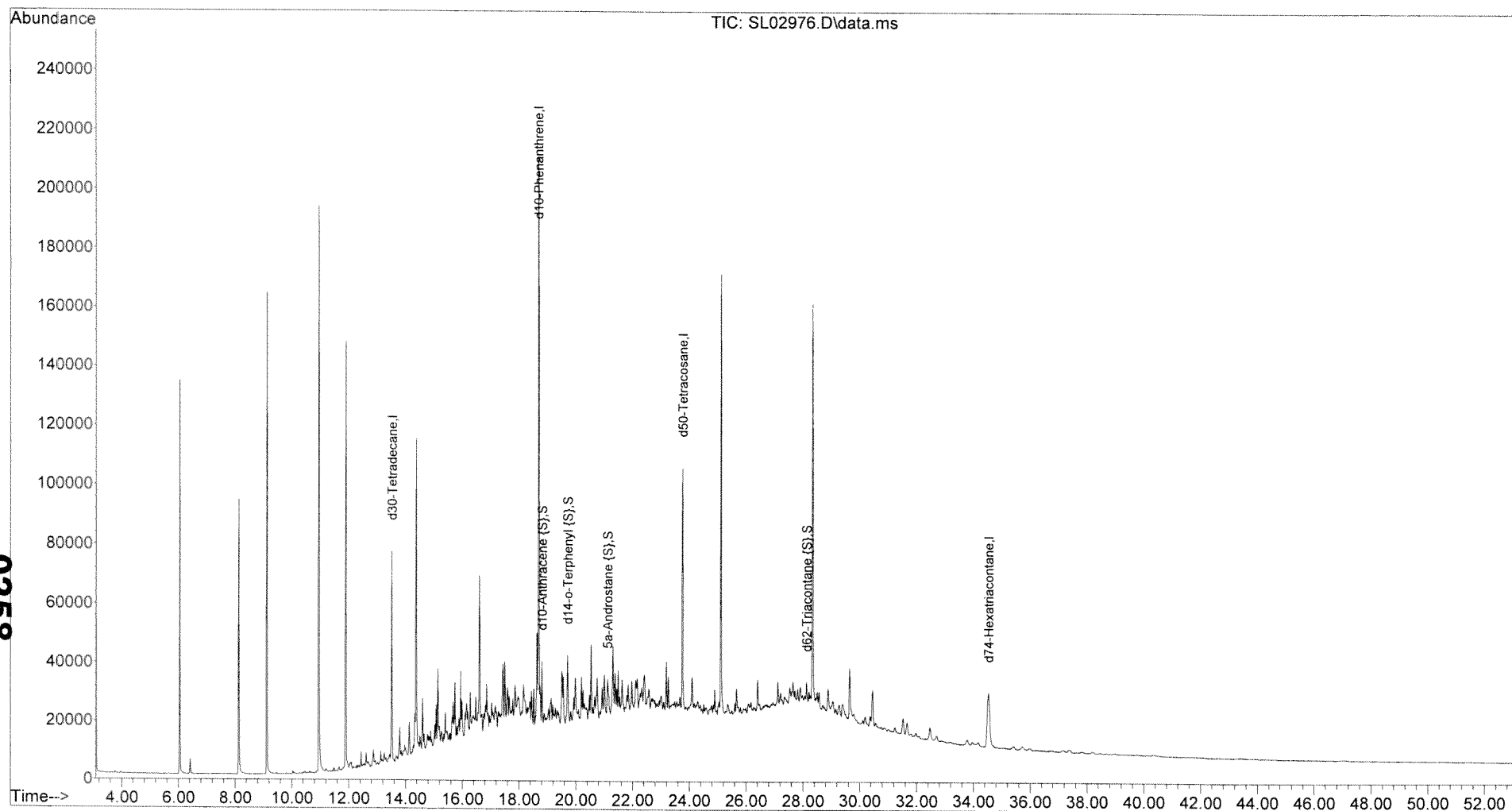
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.677	188	299863	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	121248	10.00	ug/mL	0.00
6) d50-Tetracosane	23.757	66	142173	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.528	66	109222	10.00	ug/mL	0.00
System Monitoring Compounds						
2) d10-Anthracene {S}	18.803	188	28949	1.08	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	5.40%	
3) d14-o-Terphenyl {S}	19.706	244	12467	1.03	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	5.15%	
4) 5a-Androstane {S}	21.122	260	1528	0.97	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.85%	
7) d62-Triacontane {S}	28.131	66	11159	0.99	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.95%	

Target Compounds Qvalue

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

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02976.D
Acq On : 23 Mar 2012 10:09
Operator : Syslo
Sample : 4xd of SERAS-017-0013 MS
Misc : 5.0mL fv, then 4xd
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Mar 28 12:55:45 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Mon Mar 26 17:07:55 2012
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02976.D
Acq On : 23 Mar 2012 10:09
Operator : Syslo
Sample : 4xd of SERAS-017-0013 MS
sc : 5.0mL fv, then 4xd
ALS Vial : 10 Sample Multiplier: 1

Integration Parameters: Oilint.P

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

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

Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Title : Enbridge Oil ICAL: 3/22/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02976.D\data.ms

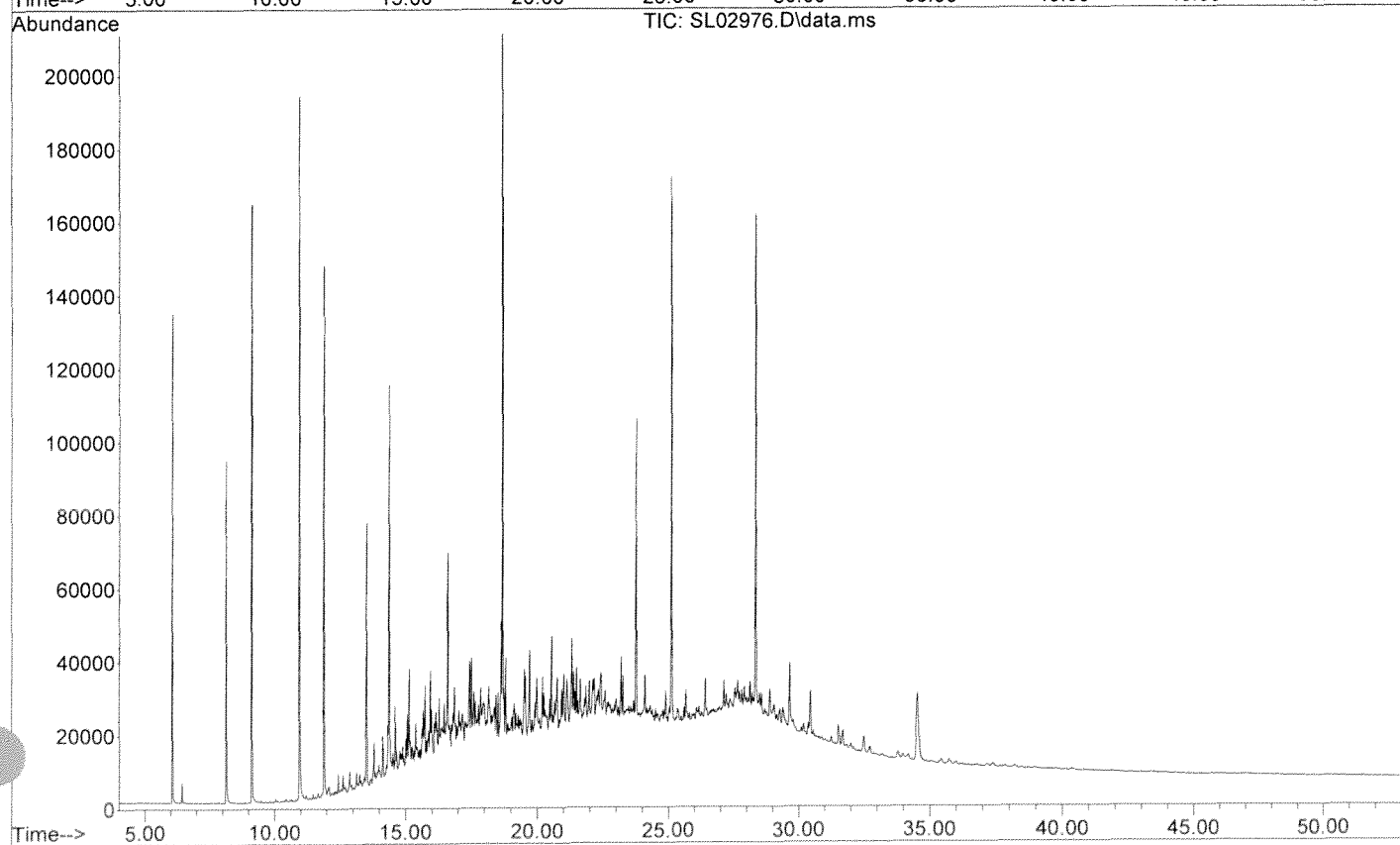
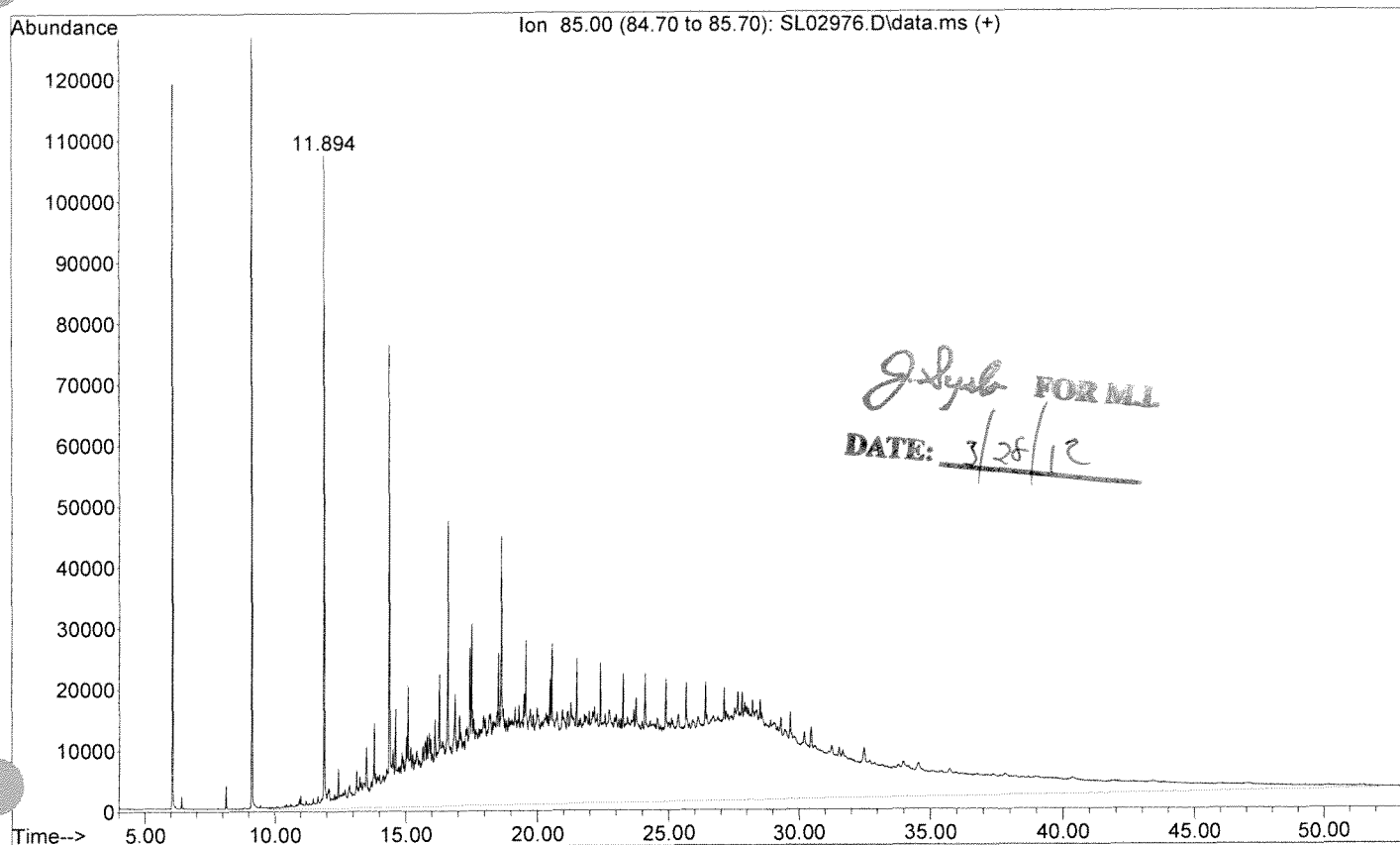
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	11.894	844	1103	5914	rM 5	107118	16218695	100.00%	100.000%

Sum of corrected areas: 16218695

ENOTPH032212.M Wed Mar 28 13:41:52 2012 SLICK2

J. Syslo FOR ML
DATE: 3/28/12

File : C:\msdchem\1\DATA\032212\SL02976.D
Operator : Syslo
Acquired : 23 Mar 2012 10:09 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: 4xd of SERAS-017-0013 MS
Misc Info : 5.0mL fv, then 4xd
V Number: 10



Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02977.D
Acq On : 23 Mar 2012 11:09
Operator : Syslo
Sample : 4xd of SERAS-017-0013 MSD
Vial : 5.0mL fv, then 4xd
Vial : 11 Sample Multiplier: 1

Quant Time: Mar 28 12:55:47 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Mon Mar 26 17:07:55 2012
Response via : Initial Calibration

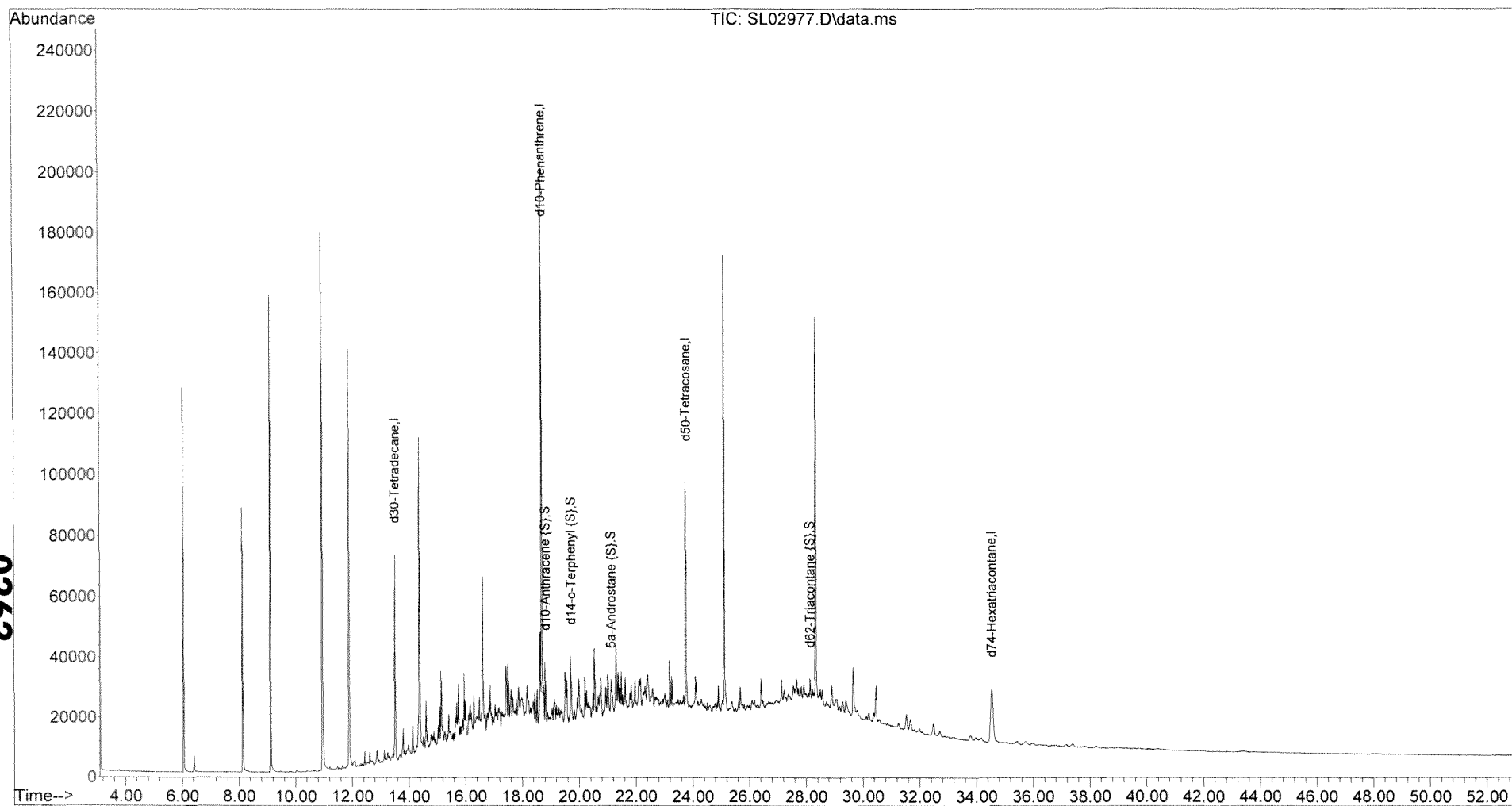
Compound	R.T.	QIon	Response	Conc	Units	Dev (Min)
Internal Standards						
1) d10-Phenanthrene	18.686	188	288650	10.00	ug/mL	0.00
5) d30-Tetradecane	13.508	66	115226	10.00	ug/mL	0.00
6) d50-Tetracosane	23.757	66	136105	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.528	66	105829	10.00	ug/mL	0.00
System Monitoring Compounds						
2) d10-Anthracene {S}	18.803	188	28287	1.09	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	5.45%	
3) d14-o-Terphenyl {S}	19.706	244	12214	1.05	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	5.25%	
4) 5a-Androstane {S}	21.122	260	1463	0.96	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.80%	
7) d62-Triacontane {S}	28.131	66	11050	1.02	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	5.10%	

Target Compounds Qvalue

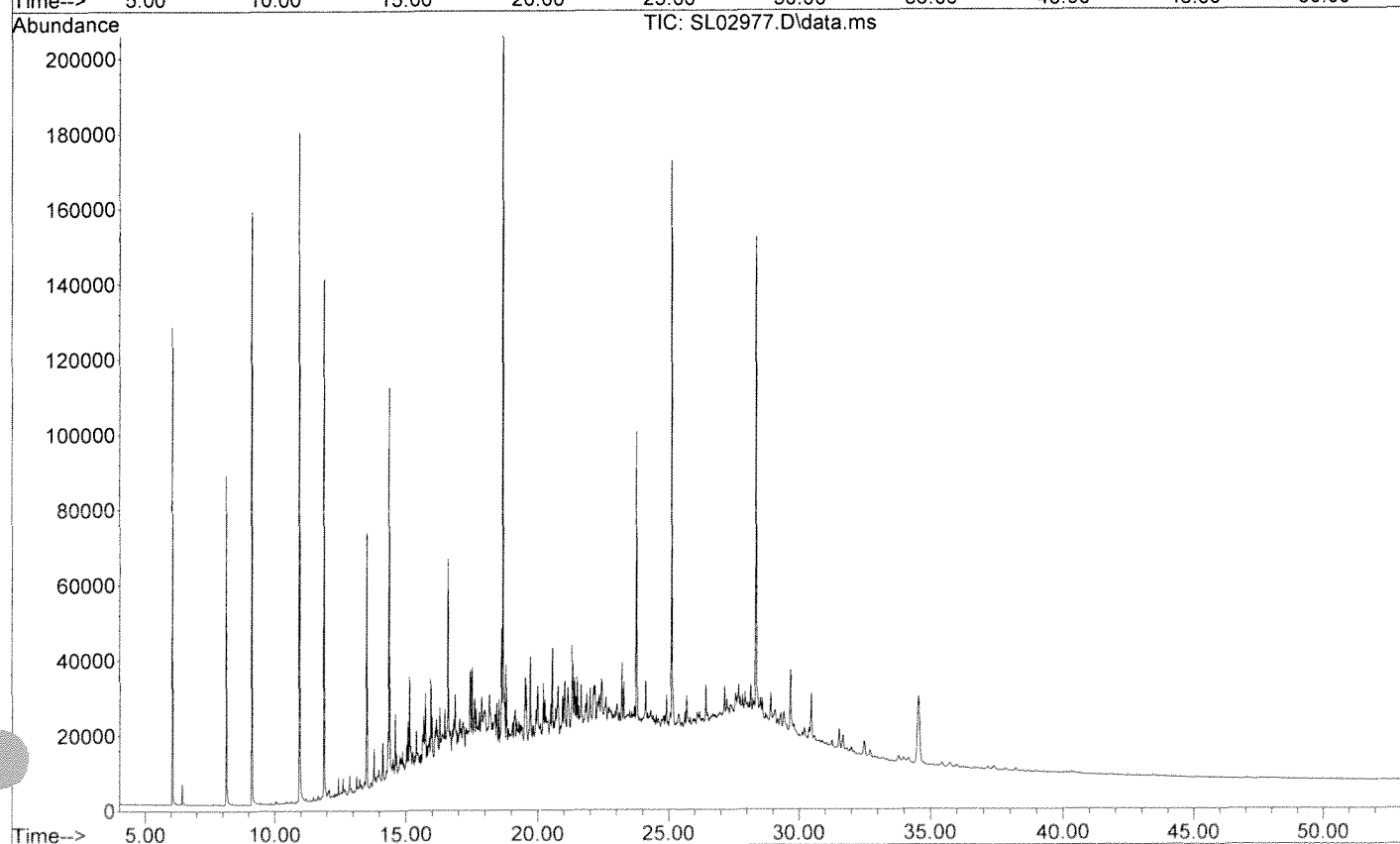
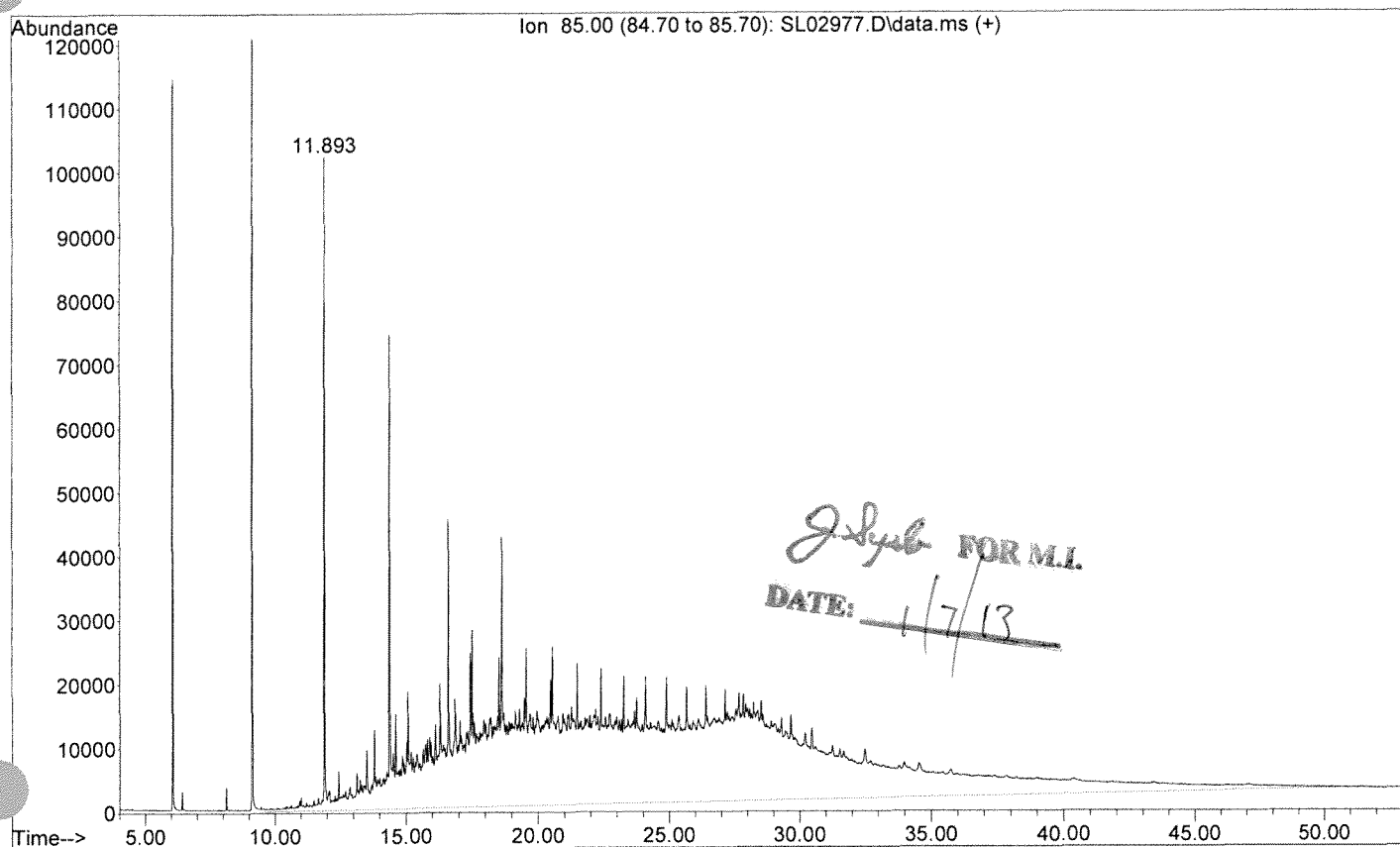
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Σ y/L = 1498 y/gR

Quant Time: Mar 28 12:55:47 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Mon Mar 26 17:07:55 2012
Response via : Initial Calibration



File :C:\msdchem\1\DATA\032212\SL02977.D
Operator : Syslo
Acquired : 23 Mar 2012 11:09 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: 4xd of SERAS-017-0013 MSD
Misc Info : 5.0mL fv, then 4xd
V Number: 11



Area Percent Report

Data Path : C:\msdchem\1\DATA\032212\
Data File : SL02977.D
Acq On : 23 Mar 2012 11:09
Operator : Syslo
Sample : 4xd of SERAS-017-0013 MSD
Sc : 5.0mL fv, then 4xd
ALS Vial : 11 Sample Multiplier: 1

Integration Parameters: Oilint.P

Integrator: RTE
Smoothing : ON
Sampling : 1
Start Thrs: 0.05
Stop Thrs : 0.05
Filtering: 5
Min Area: 0.5 % of largest Peak
Max Peaks: 10
Peak Location: TOP

If leading or trailing edge < 70 prefer < Baseline drop else tangent >
Peak separation: 3

Method : C:\msdchem\1\METHODS\ENOTPH032212.M
Title : Enbridge Oil ICAL: 3/22/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02977.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	11.893	817	1103	5727	rM 5	102090	14985942	100.00%	100.000%

Sum of corrected areas: 14985942

ENOTPH032212.M Mon Jan 07 14:47:33 2013 SLICK2

J. Syb FOR M.I.
DATE: 1/7/12

Day 14
3/23/12

TPH ICAL for ENBRIDGE Oil Samples
- uses site oil

Logbook # SERAS-I-0121

TPH ICA: ENOTPH032212 .M Page 90

SERAS, GC/MS Injection Log

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

Project Name: ENBRIDGE Oil : TPH ICAL + SAMPLES

Method File:

DFTPP/ ENOTPH032212

Work Assign #: 0-017

Inj. Volume:

1ul

Analysis Date: TPH in BIOTRENTATION STUDY

Analyst:

Syle

ALS	FILE ID	SAMPLE ID	REAC ID	Date of Analysis	TIME Inj.	COMMENTS
99	SL02956	50 ppm DFTPP	RVB0025	3/22/12	14:51	Pass 1385-1376
71	SL02957	Mythical Blank			15:30	Solvent Blank + Surf
72	SL02958	5000 ppm ENO TPH SH	RVC0059		16:51	
73	SL02959	1000 ppm ENO TPH SH	RVC0062		17:52	
74	SL02960	10,000 ppm ENO TPH SH	RVC0060		18:52	
75	SL02961	50,000 ppm ENO TPH SH	RVC0058		19:52	
76	SL02962	25,000 ppm ENO TPH SH	RVC0061		20:51	
77	SL02963	0.5 ppm ENO TPH SH	RVC0063		21:51	
78	SL02964	5000 ppm End Point CV	RVC0066		22:51	
99	SL02965	50 ppm DFTPP	RVB0025	3/22/12	23:47	Pass 1385-1376
72	SL02966	5000 ppm ENO CQC TPH	RVC0059	3/23/12	00:08	Pass Cal. Check TPH
1	SL02967	BLACK	120039-BLK		1:08	1ul FV
2	SL02968	LCS	120039-BLS		2:07	1ul FV
7	SL02969	SERAS-017-0007	4x R203011-01		3:08	5ul FV then 4x
4	SL02970	-0008	-02		4:08	
5	SL02971	-0009	-03		5:08	
6	SL02972	-0010	-04		6:09	
7	SL02973	-0011	-05		7:09	
8	SL02974	-0012	-06		8:09	
9	SL02975	-0013	R203011-07		9:09	
10	SL02976	-0013 MS	120039-MS1		10:09	
11	SL02977	SENS-017-0013 MS	4x 120039-MS1		11:09	5ul FV then 4x
1	SL02978	5000 ppm ENO TPH SH	RVC0059	3/23/12	12:00	
99	SL02979	50 ppm DFTPP	RVB0025	3/23/12	12:56	Pass 1387-1374
71	SL02980	5000 ppm ENO TPH SH	RVC0059		18:21	Pass
1	SL02981	20000 ppm ENO TPH SH	120040-BLK	120040-MS1	19:38	1ul FV
2	SL02982	SERAS-017-0014	4x R203015-11		20:57	5ul FV then 4x
3	SL02983	SERAS-017-0015	4x R203015-12	3/23/12	21:58	5ul FV then 4x
	REAC ID	Standard Description	Exp. date	Conc.	Ref. P.	Comment
1	RVB0025	DFTPP	8/14/12	50 ppm		
2	RVC0059	Calibration Check TPH	9/15/12	5000 ppm		Site Specific TPH
3	RVC0035	Internal Standard Oil IS	9/15/12	5000 ppm		Spk. 20ul/1ul
4						
5						
6						

Reviewed By:

Date Checked:

Analyzed by: J Syle 3/24/12

3/26/12

Day 14

SERAS, GC/MS Injection Log

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

Project Name: Embroidery Oil Method File: DFTPP/EN17P14032212
 Work Assign.#: TPH Inj. Volume: 1.2
 Analysis Date: 3/24/12 Analyst: SL

ALS	FILE ID	SAMPLE ID	REAC ID	Date of Analysis	TIME Inj.	COMMENTS
4	SL02984	SERAS-017-0016 4x6	R203015-03	3/23/12	2:00	5ml FV tk 4x6
5	SL02985	-0017	-01	3/24/12	08:02	
6	SL02986	-0018	-05		1:07	
7	SL02987	-0019	R203015-06		2:05	
8	SL02988	LCS - 1200040 BSI			3:07	1ml FV
9	SL02989	LCS - 1200040 BSI			4:09	1ml FV
10	SL02990	SERAS-017-0017 5x6	R203011-01		5:10	5ml FV tk 3x
11	SL02991	1200039-M.S 5x	MS		6:13	5ml FV tk 5x
12	SL02992	1200040-BK1	PW Blank		7:15	
13	SL02993	Reference Standard			8:17	Amid Oil Sample
14	SL02994	1200040-BK1			9:18	
15	SL02995	EXTD-516 det Line	R203025	3/24/12	14:32	2.141
16	SL	end of 3/24/12 run				
17	SL					
18	SL					
19	SL					
20	SL					
21	SL					
22	SL					
23	SL					
24	SL					
25	SL					
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89	SL					
90	SL					
91	SL					
92	SL					
93	SL					
94	SL					
95	SL					
96	SL					
97	SL					
98	SL					
99	SL					
100	SL					

Reviewed By: SLDate Checked: 3/26/12Analysis By: SL 3/24/12

Day 14

Sequence Name: C:\msdchem\1\sequence\032312.s
Comment: Enbridge Oil : 0-017
Operator: Syslo
Data Path: C:\MSDCHEM\1\DATA\032312\
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

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

3/23/12 Sequence

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 SL02979 DFT8270D 50 DFTPP 17:59
2)	Sample	71 5.0K ENO-TPH ICAL
	Datafile	SL02980
	Method	ENOTPH032212
3)	Sample	1 Water Blank
	Datafile	SL02981
	Method	ENOTPH032212
4)	Sample	2 SERAS-017-0014 4xd
	Datafile	SL02982
	Method	ENOTPH032212
5)	Sample	3 SERAS-017-0015 4xd
	Datafile	SL02983
	Method	ENOTPH032212
6)	Sample	4 SERAS-017-0016 4xd
	Datafile	SL02984
	Method	ENOTPH032212
7)	Sample	5 SERAS-017-0017 4xd
	Datafile	SL02985
	Method	ENOTPH032212
8)	Sample	6 SERAS-017-0018 4xd
	Datafile	SL02986
	Method	ENOTPH032212
9)	Sample	7 SERAS-017-0019 4xd
	Datafile	SL02987
	Method	ENOTPH032212
10)	Sample	8 LCS 1200040-BS1
	Datafile	SL02988
	Method	ENOTPH032212
11)	Sample	9 LCSD 1200040-BSD1 - 4:09
	Datafile	SL02989
	Method	ENOTPH032212
12)	Sample	10 SERAS-017-0007 5xd
	Datafile	SL02990
	Method	ENOTPH032212
13)	Sample	11 1200039-MS 5xd
	Datafile	SL02991
	Method	ENOTPH032212
14)	Sample	1 Water Blank
	Datafile	SL02992
	Method	ENOTPH032212
15)	Sample	12 AmitOil 5000ppm
	Datafile	SL02993
	Method	ENOTPH032212
16)	Sample	1 Water Blank
	Datafile	SL02994
	Method	ENOTPH032212

Diagnostics
Not For Site

GC/MS QA-QC Check Report

Tune File : C:\msdchem\1\DATA\032312\SL02979.D

Tune Time : 23 Mar 2012 17:59

Daily Calibration File : C:\msdchem\1\DATA\032012\SL02928.D

384525 143687 194266

131489

File	Sample	Surrogate	Recovery %	Internal Standard Responses
SL02980.D	5.0K ENO-T	105* 100* 98* 103*	314783 117729 144092	
		115840		
SL02981.D	Water Blan	84* 80* 77* 93*	285814 106157 126812	
		104377		
SL02982.D	SERAS-017-	5* 5* 5* 4*	282655 107071 128524	
		101278		
SL02983.D	SERAS-017-	5* 5* 4* 4*	288711 108529 133698	
		105811		
SL02984.D	SERAS-017-	5* 5* 4* 4*	278736 104970 128225	
		101411		
SL02985.D	SERAS-017-	5* 5* 5* 5*	277119 104173 126782	
		99924		
SL02986.D	SERAS-017-	5* 5* 5* 5*	276977 102970 126411	
		100881		
SL02987.D	SERAS-017-	5* 5* 4* 4*	291919 110829 135561	
		104457		
SL02988.D	LCS 120004	88* 90* 88* 97*	259090 97888 118099	
		92030		
SL02989.D	LCSD 12000	85* 88* 86* 95*	265019 99326 121875	
		95414		
SL02990.D	SERAS-017-	4* 4* 3* 4*	285769 108332 130795	
		101559		
SL02991.D	1200039-MS	4* 4* 3* 4*	289247 110162 134095	
		103201		
SL02992.D	Water Blan	84* 81* 78* 94*	257359 96137 116520	
		97542		
SL02993	SERAS-017-DTM-011413_2			

0269

Don't
Need

Injection Log

Data Directory: C:\msdchem\1\DATA\032312\

3/23/12

SampleName	MiscInfo	Vial	Multiplier	Injection Time
1) SL02979.D				
50 DFTPP	RVB0025	99	1.000	23 Mar 2012 17:59
2) SL02980.D				
5.0K ENO-TPH ICAL	RVC0059 CCC	71	1.000	23 Mar 2012 18:21
3) SL02981.D				
Water Blank	1200040-BLK1	1	1.000	23 Mar 2012 19:38
4) SL02982.D				
SERAS-017-0014 4xd	275-82-07 5mlfv, the	2	1.000	23 Mar 2012 20:57
5) SL02983.D				
SERAS-017-0015 4xd	275-82-08 5mlfv, the	3	1.000	23 Mar 2012 21:58
6) SL02984.D				
SERAS-017-0016 4xd	275-82-09 5mlfv, the	4	1.000	23 Mar 2012 23:00
7) SL02985.D				
SERAS-017-0017 4xd	275-82-10 5mlfv, the	5	1.000	24 Mar 2012 00:02
8) SL02986.D				
SERAS-017-0018 4xd	275-82-11 5mlfv, the	6	1.000	24 Mar 2012 1:03
9) SL02987.D				
SERAS-017-0019 4xd	275-82-12 5mlfv, the	7	1.000	24 Mar 2012 2:05
10) SL02988.D				
LCSD 1200040-BS1	1.0mL FV	8	1.000	24 Mar 2012 3:07
11) SL02989.D				
LCSD 1200040-BSD1	1.0mL FV	9	1.000	24 Mar 2012 4:09
12) SL02990.D				
SERAS-017-0007 5xd	R203011-01 5xd conf 10		1.000	24 Mar 2012 5:10
13) SL02991.D				
1200039-MS 5xd	MatrixSpike 5xd con 11		1.000	24 Mar 2012 6:13

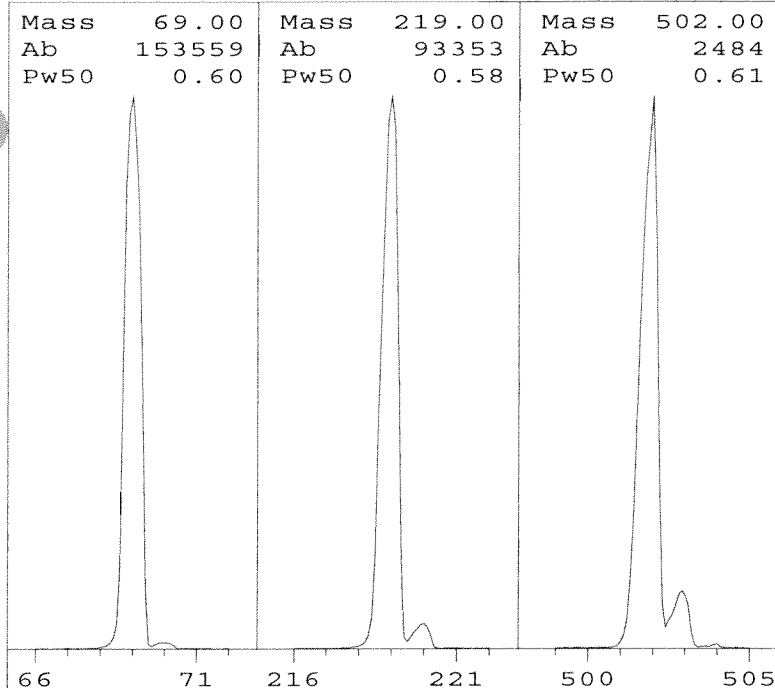
12h
clock d

DIAG NOTE

5975

Fri Mar 23 17:51:50 2012
C:\msdchem\1\5975\Xtune.u

Instrument: Slick2
US90432092

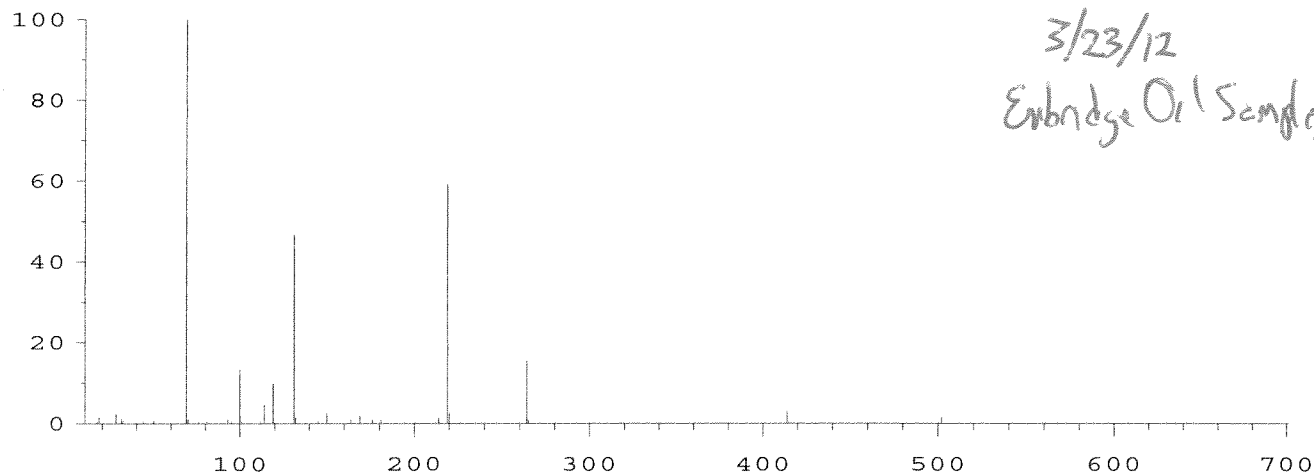


Ion Pol Pos MassGain -627
MassOffs -38
Emission 34.6 AmuGain 1862
EIEnrgy 69.9 AmuOffs 122.94
Filament 2 Wid219 -0.018
DC Pol Pos
Repeller 25.43
IonFcus 80.7 HEDEnab On
EntLens 0.0 EMVolts 1624
EntOffs Var

Samples 8
PFTBA Open Averages 5
Stepsize 0.10

Temperatures and Pressures:
MS Source 280 TurboSpd 100
MS Quad 190 HiVac 1.79e05

Scan: 10.00 - 701.00 Samples: 8 Thresh: 100 Step: 0.10
68 peaks Base: 69.00 Abundance: 146368



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	146368	100.00	70.00	1586	1.08
219.00	86544	59.13	220.00	3778	4.37
502.00	2261	1.54	502.90	205	9.07

Air/Water Check: H2O~1.51% N2~2.36% O2~0.69% CO2~0.44% N2/H2O~156.30%

Ramp Criteria:

Ion Focus Maximum 110 volts using ion 502; EM Gain 14498
Repeller Maximum 35 volts using ion 502; Gain Factor 0.14

MassGain Values(Samples): -617(3) -606(2) -589(1) -549(0) -462(FS)

TARGET MASS:	50	69	131	219	414	502	1050
Amu Offset:	122.9	122.9	122.9	122.9	122.9	122.9	122.9
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	46.7	59.1	3.0	1.5	

SERAS-017-DTM-011413_2

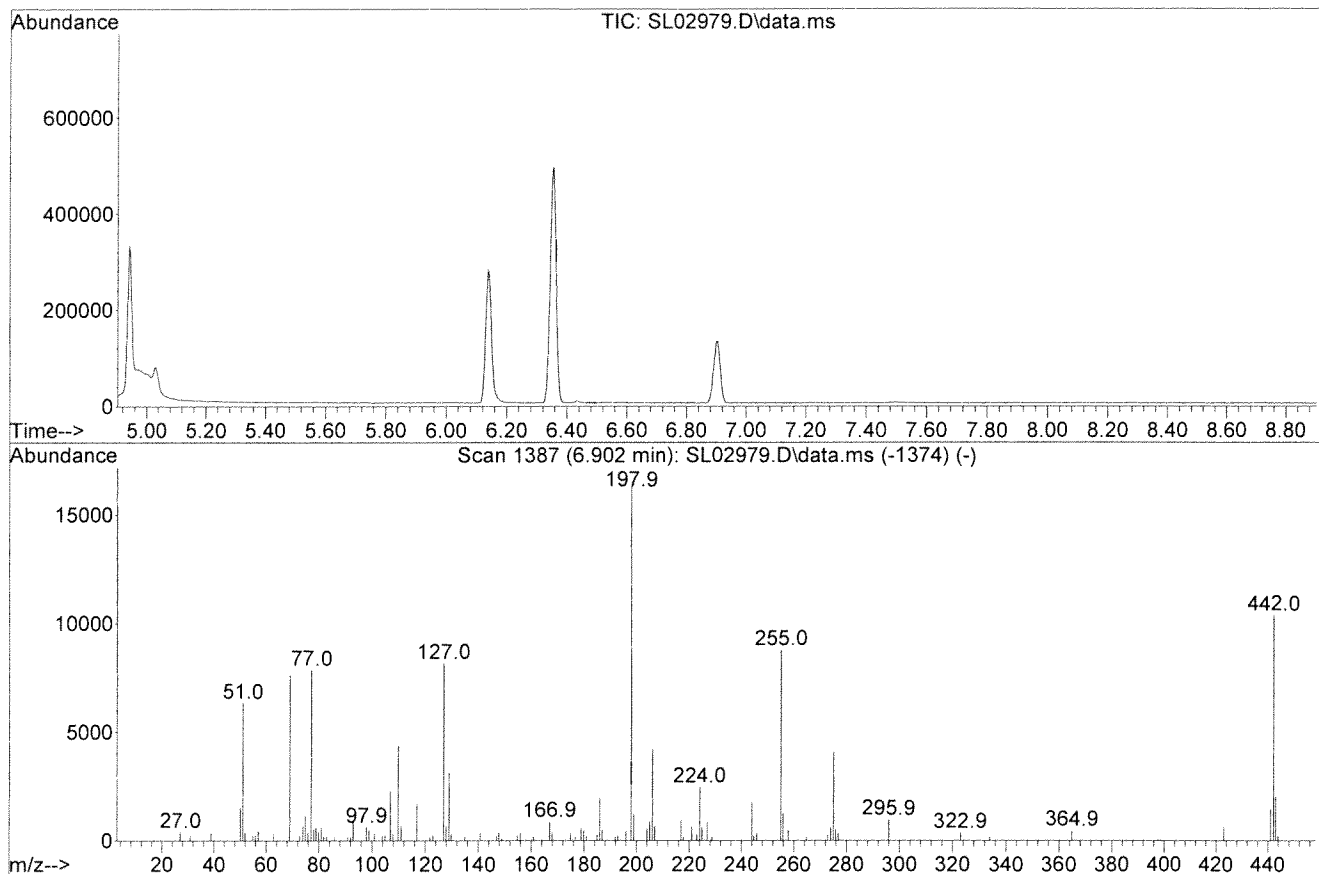
0271

Data Path : C:\msdchem\1\DATA\032312\
 Data File : SL02979.D
 Acq On : 23 Mar 2012 17:59
 Operator : Syslo
 Sample : 50 DFTPP
 Disc : RVB0025
 ALS Vial : 99 Sample Multiplier: 1

Tailing
 PCP - 1.40
 Benzidine = 1.03
 %DDT Deg = 1.72 OK

Integration File: rteint.p

Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
 Title : DFTPP Method with 8270D criteria: 8/20/10
 Last Update : Thu Mar 08 02:08:57 2012



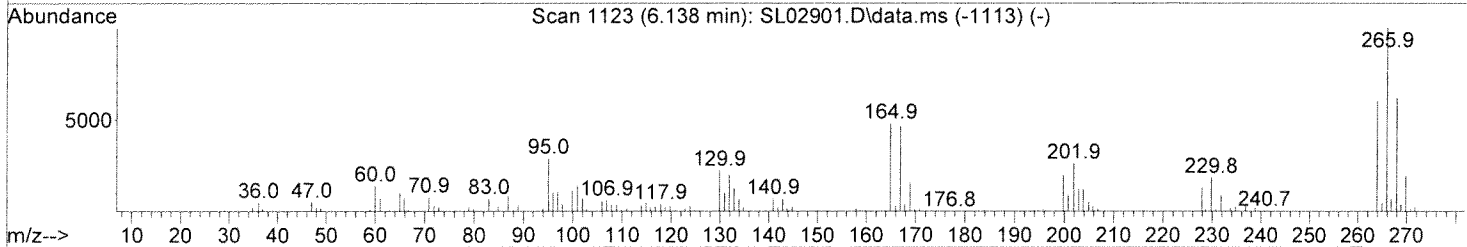
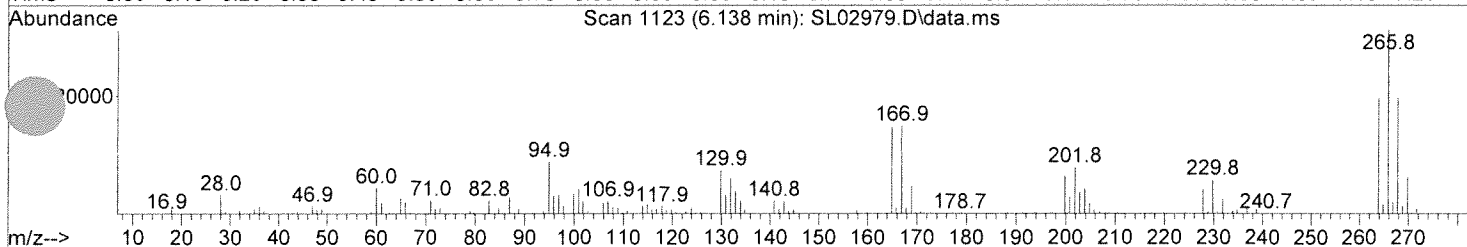
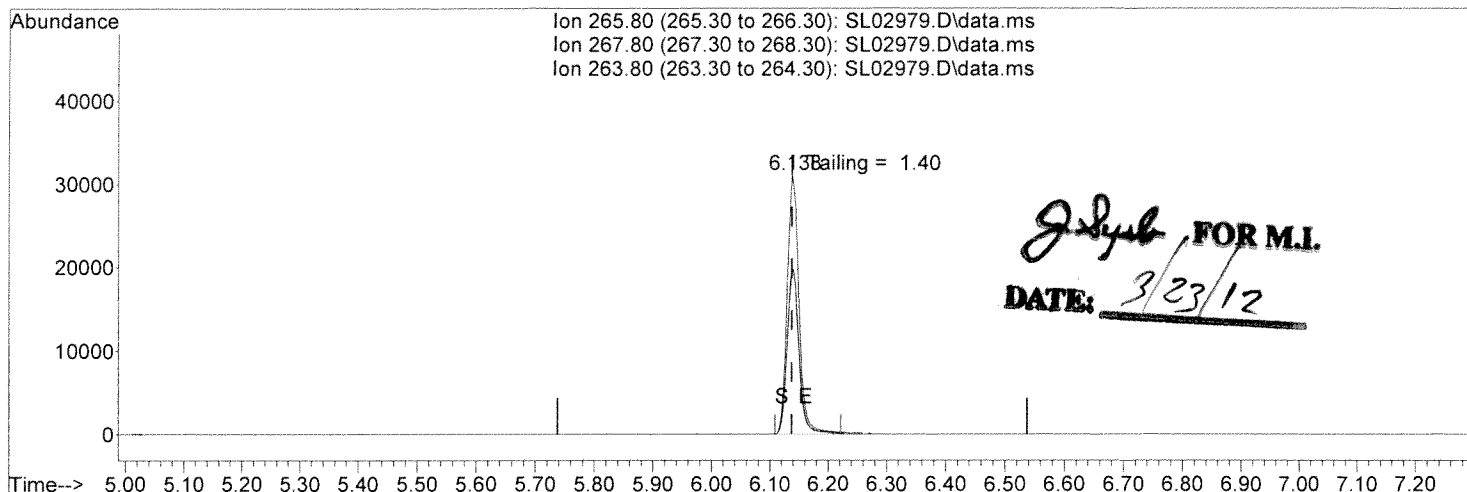
Spectrum Information: Scan 1387

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	38.7	6332	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	46.5	7617	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	49.8	8151	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	16370	PASS
199	198	5	9	7.4	1207	PASS
275	198	10	60	24.7	4043	PASS
365	198	1	100	2.7	450	PASS
441	442	0.01	24	13.9	1444	PASS
442	198	50	100	63.4	10372	PASS
443	442	15	24	19.3	2006	PASS

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\032312\
 Data File : SL02979.D
 Acq On : 23 Mar 2012 17:59
 Operator : Syslo
 Sample : 50 DFTPP
 Disc : RVB0025
 ALS Vial : 99 Sample Multiplier: 1

Quant Time: Mar 23 18:11:36 2012
 Quant Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
 Quant Title : DFTPP Method with 8270D criteria: 8/20/10
 QLast Update : Thu Mar 08 02:08:58 2012
 Response via : Initial Calibration



TIC: SL02979.D\data.ms

(2) Pentachlorophenol

6.138min (+0.000) 50.07 ug/mL

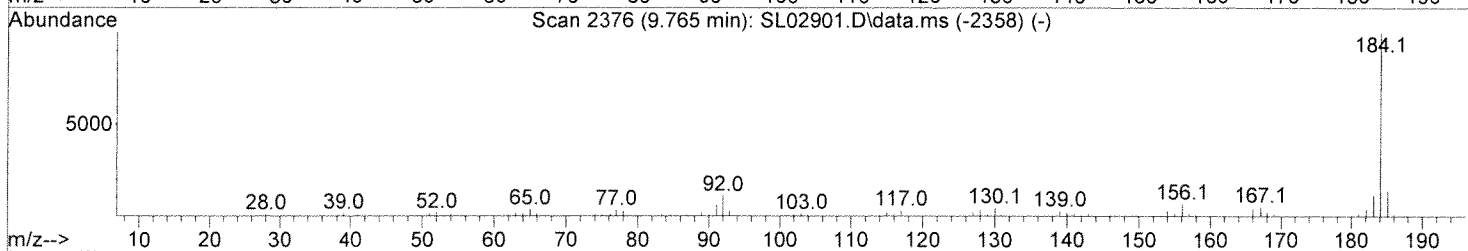
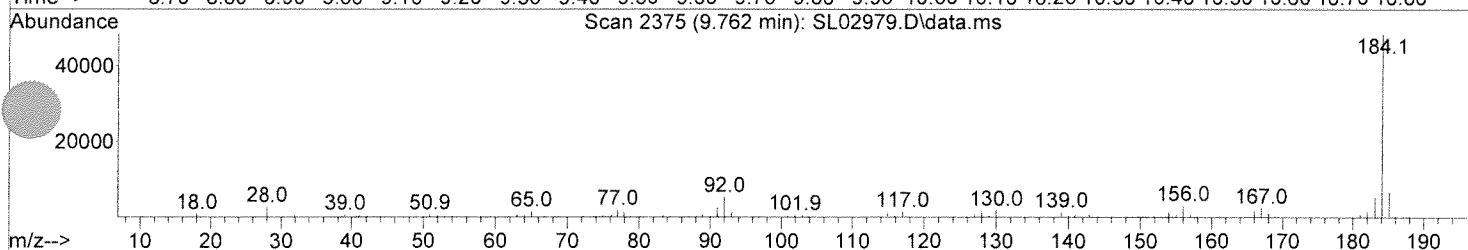
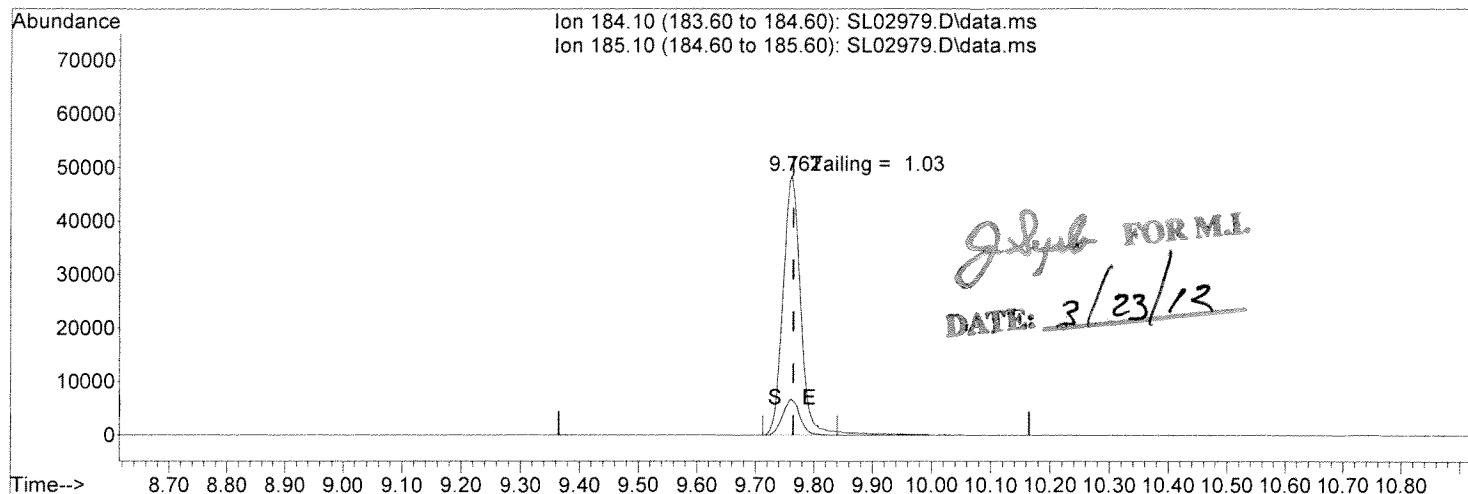
response 43900

Ion	Exp%	Act%
265.80	100	100
267.80	64.50	63.94
263.80	63.60	62.65
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\032312\
 Data File : SL02979.D
 Acq On : 23 Mar 2012 17:59
 Operator : Syslo
 Sample : 50 DFTPP
 Misc : RVB0025
 ALS Vial : 99 Sample Multiplier: 1

Quant Time: Mar 23 18:11:36 2012
 Quant Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
 Quant Title : DFTPP Method with 8270D criteria: 8/20/10
 QLast Update : Thu Mar 08 02:08:58 2012
 Response via : Initial Calibration



TIC: SL02979.D\data.ms

(5) Benzidine

9.762min (-0.003) 30.72 ug/mL

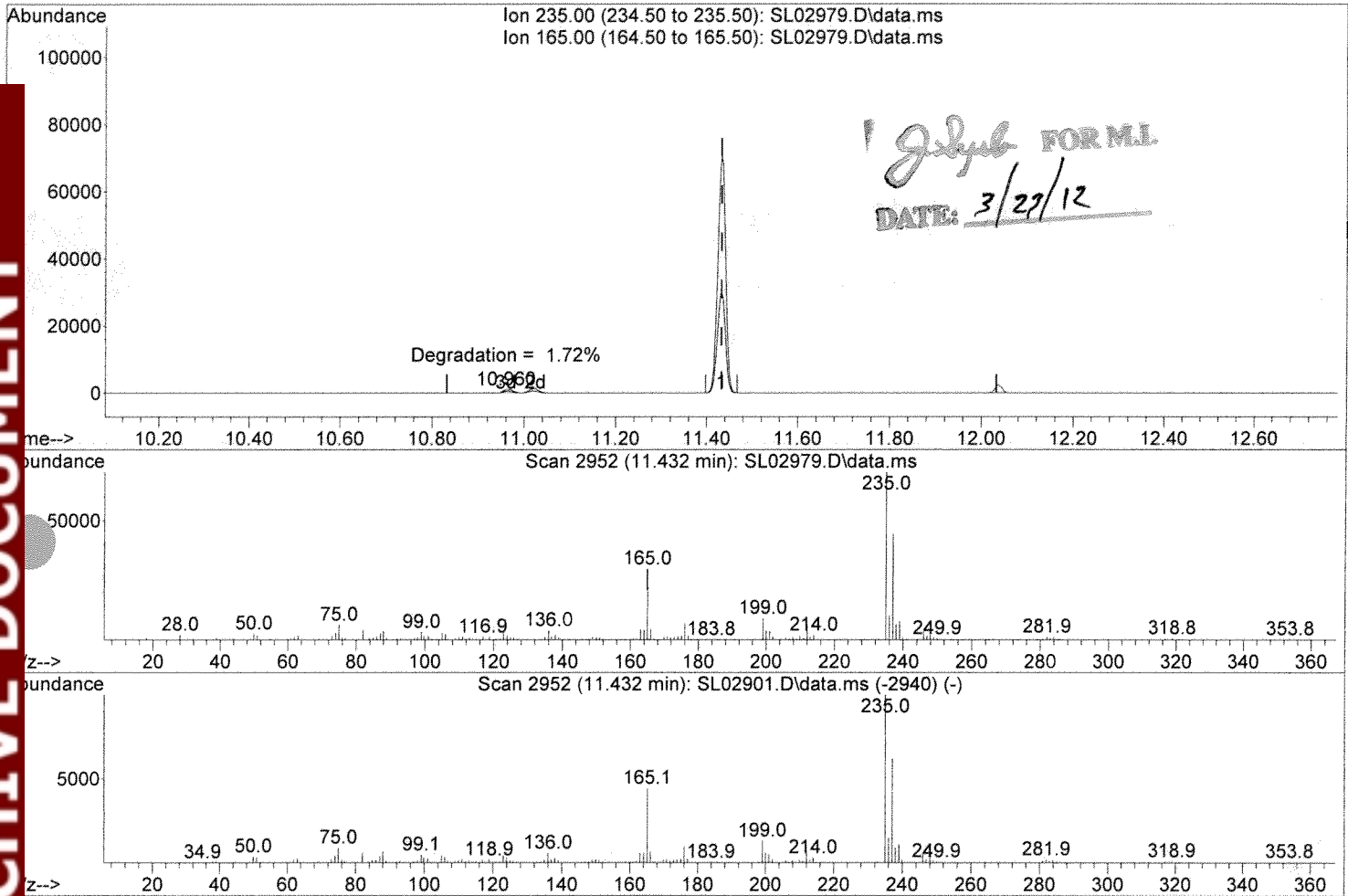
response 100708

Ion	Exp%	Act%
184.10	100	100
185.10	14.60	13.71
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\032312\
Data File : SL02979.D
Acq On : 23 Mar 2012 17:59
Operator : Syslo
Sample : 50 DFTPP
Misc : RVB0025
ALS Vial : 99 Sample Multiplier: 1

Quant Time: Mar 23 18:11:36 2012
Quant Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
Quant Title : DFTPP Method with 8270D criteria: 8/20/10
QLast Update : Thu Mar 08 02:08:58 2012
Response via : Initial Calibration



TIC: SL02979.D\data.ms

(6) DDT

11.432min (+0.000) 58.74 ug/mL

response 85653

Ion	Exp%	Act%
235.00	100	100
165.00	51.80	43.54
0.00	0.00	0.00
0.00	0.00	0.00

TPH Daily Calibration Check Results
Enbridge Oil TPH Calibration Range - Using SERAS *Draft* 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.
03/22/12	03/22/12	Enbridge Oil D0	0-017	SL02966	10063058	119900	144569	112634	0.16011	0.14003	14.34
03/23/12	03/22/12	Enbridge Oil D14	0-017	SL02980	10391565	117729	144092	115840	0.16509	0.14003	17.90
04/18/12	03/22/12	Enbridge Oil D28	0-017	SL03052	12605180	138365	199934	162938	0.15089	0.14003	7.75

TPH response based on the sum of all peaks in the TPH (m/z 85 + 83 + 105 + 113 + 123 + 183) pattern from ~10.1 min to 53min.

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\DATA\032312\
 Data File : SL02980.D
 Acq On : 23 Mar 2012 18:21
 Operator : Syslo
 Sample : 5.0K ENO-TPH ICAL
 Sc : RVC0059 CCC
 ALS Vial : 71 Sample Multiplier: 1

Quant Time: Mar 23 19:11:29 2012
 Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
 Quant Title : CUC/TPH ICAL + Surr. 03/20/12
 QLast Update : Wed Mar 21 18:41:58 2012
 Response via : Initial Calibration

For Surr
OK

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	95	0.00
2 S	d10-Anthracene {S}	0.897	1.027	-14.5	96	0.00
3 S	d14-o-Terphenyl {S}	0.403	0.448	-11.2	95	0.00
4 S	5a-Androstane {S}	0.053	0.058	-9.4	95	0.00
5 I	d30-Tetradecane	1.000	1.000	0.0	89	0.00
6 I	d50-Tetracosane	1.000	1.000	0.0	92	0.00
7 S	d62-Triacontane {S}	0.793	0.938	-18.3	97	0.00
8 I	d74-Hexatriacontane	1.000	1.000	0.0	102	0.00

(#) = Out of Range

SPCC's out = 0 CCC's out = 0

ENOTPH032212.M Mon Jan 07 15:18:09 2013 SLICK2

Data Path : C:\msdchem\1\DATA\032312\
Data File : SL02980.D
Acq On : 23 Mar 2012 18:21
Operator : Syslo
Sample : 5.0K ENO-TPH ICAL
sc : RVC0059 CCC
ALS Vial : 71 Sample Multiplier: 1

Quant Time: Mar 23 19:11:29 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration

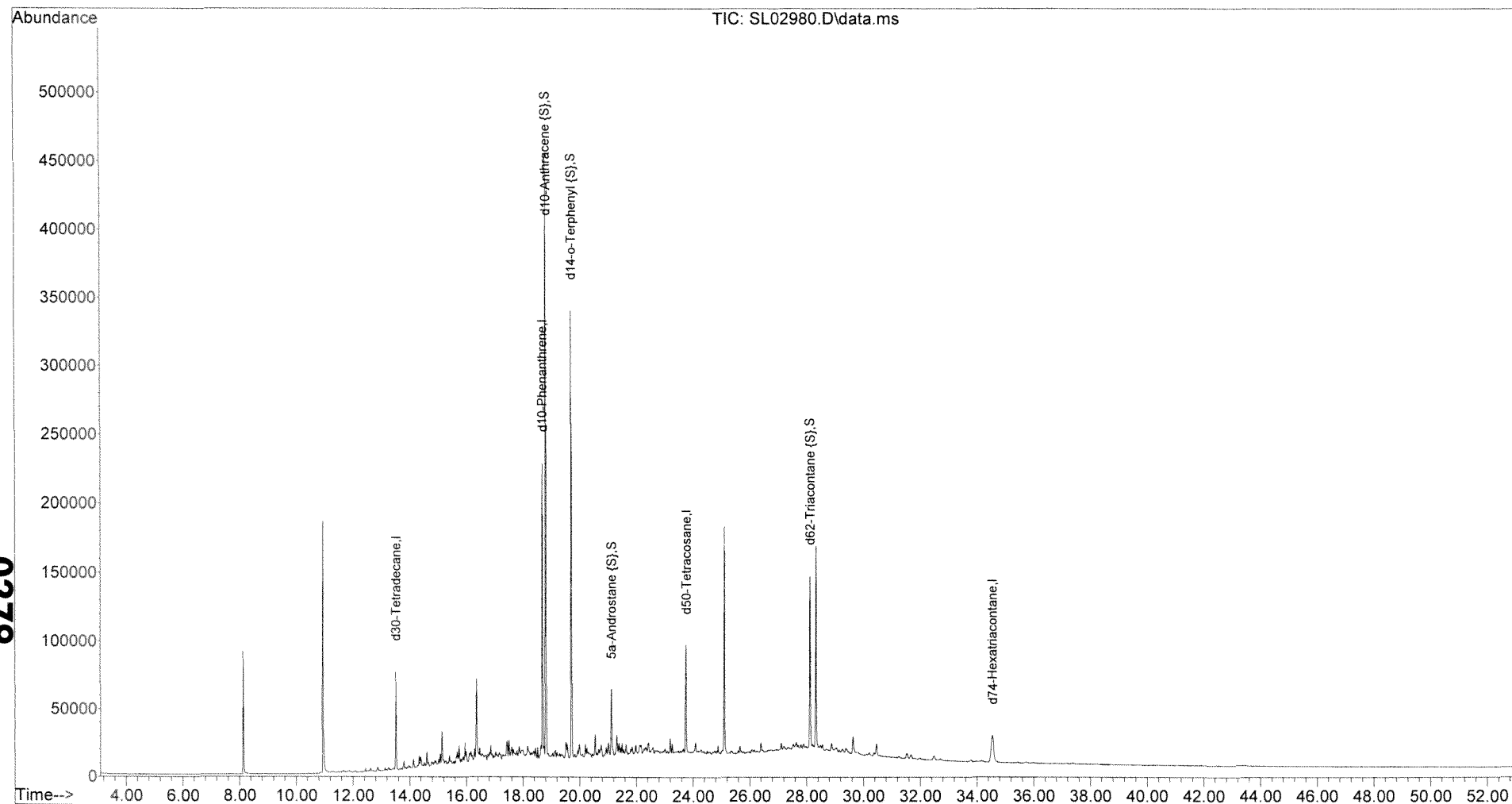
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.686	188	314783	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	117729	10.00	ug/mL	0.00
6) d50-Tetracosane	23.757	66	144092	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.537	66	115840	10.00	ug/mL	0.03
System Monitoring Compounds						
2) d10-Anthracene {S}	18.804	188	646594	20.93	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	104.65%	
3) d14-o-Terphenyl {S}	19.706	244	282186	20.00	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	100.00%	
4) 5a-Androstane {S}	21.122	260	36528	19.64	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	98.20%	
7) d62-Triacontane {S}	28.131	66	270458	20.61	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	103.05%	

Target Compounds Qvalue

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

Data Path : C:\msdchem\1\DATA\032312\
Data File : SL02980.D
Acq On : 23 Mar 2012 18:21
Operator : Syslo
Sample : 5.0K ENO-TPH ICAL
Misc : RVC0059 CCC
ALS Vial : 71 Sample Multiplier: 1

Quant Time: Mar 23 19:11:29 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\032312\
Data File : SL02980.D
Acq On : 23 Mar 2012 18:21
Operator : Syslo
Sample : 5.0K ENO-TPH ICAL
Sc : RVC0059 CCC
ALS Vial : 71 Sample Multiplier: 1

Integration Parameters: Oilint.P

Integrator: RTE

Smoothing : ON

Sampling : 1

Start Thrs: 0.05

Stop Thrs : 0.05

Filtering: 5

Min Area: 0.5 % of largest Peak

Max Peaks: 5

Peak Location: TOP

If leading or trailing edge < 50 prefer < Tangent else baseline drop >
Peak separation: 3

Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M

Title : CUC/TPH ICAL + Surr. 03/20/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02980.D\data.ms

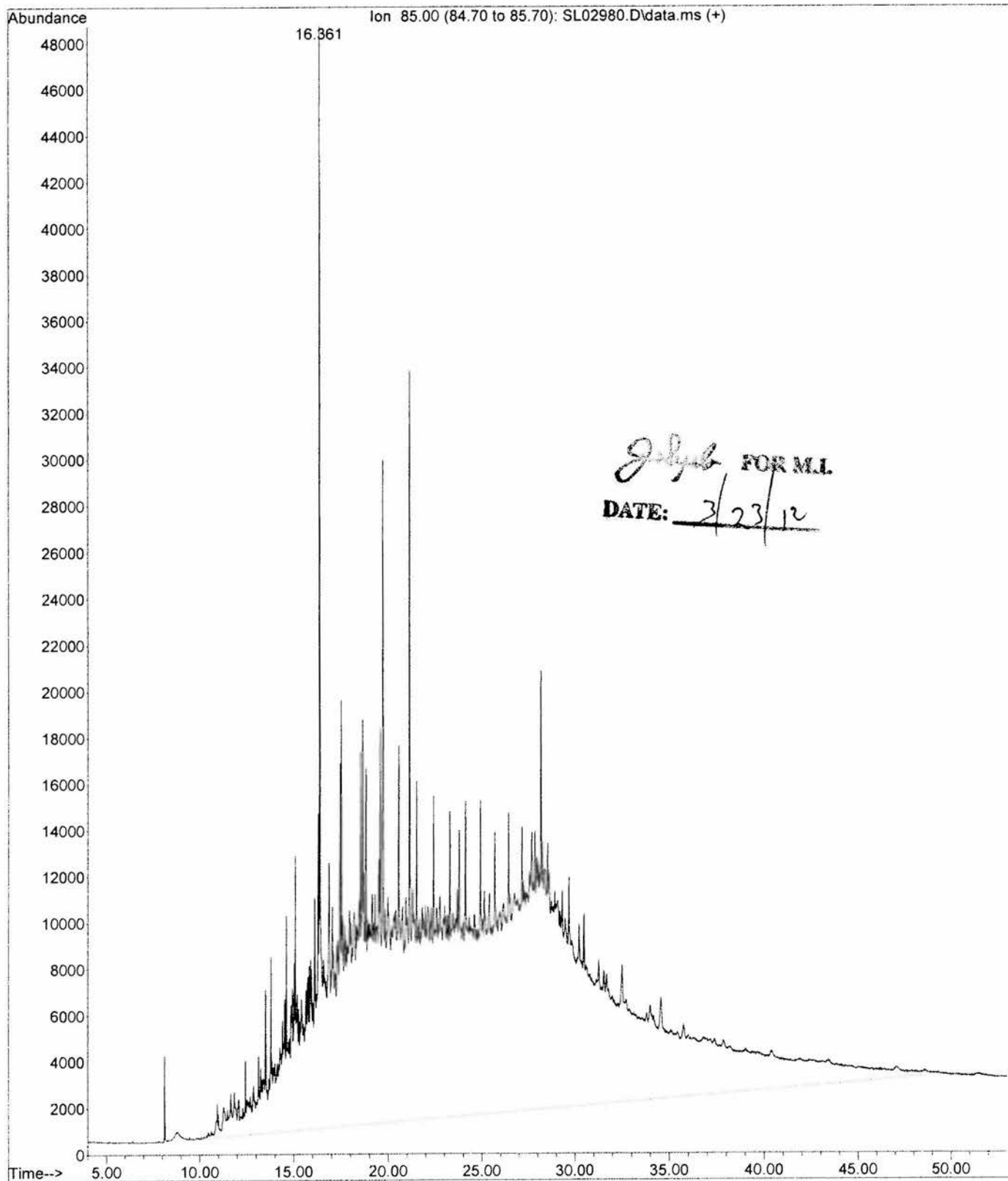
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	16.361	859	1662	5462	rM 5	47686	10391565	100.00%	100.000%

Sum of corrected areas: 10391565

ENOTPH032212.M Fri Mar 23 20:24:47 2012 SLICK2

J. J. J. FOR M.I.
DATE: 3/23/12

File : C:\msdchem\1\DATA\032312\SL02980.D
Operator : Syslo
Acquired : 23 Mar 2012 18:21 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: 5.0K ENO-TPH ICAL
Misc Info : RVC0059 CCC
Vial Number: 71



Data Path : C:\msdchem\1\DATA\032312\
Data File : SL02981.D
Acq On : 23 Mar 2012 19:38
Operator : Syslo
Sample : Water Blank
SC : 1200040-BLK1
Vial : 1 Sample Multiplier: 1

Quant Time: Mar 23 20:28:45 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.686	188	285814	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	106157	10.00	ug/mL	0.00
6) d50-Tetracosane	23.757	66	126812	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.537	66	104377	10.00	ug/mL	0.03
System Monitoring Compounds						
2) d10-Anthracene {S}	18.804	188	470102	16.76	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	83.80%	
3) d14-o-Terphenyl {S}	19.706	244	204694	15.98	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	79.90%	
4) 5a-Androstane {S}	21.122	260	25964	15.37	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	76.85%	
7) d62-Triacontane {S}	28.139	66	215382	18.65	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	93.25%	

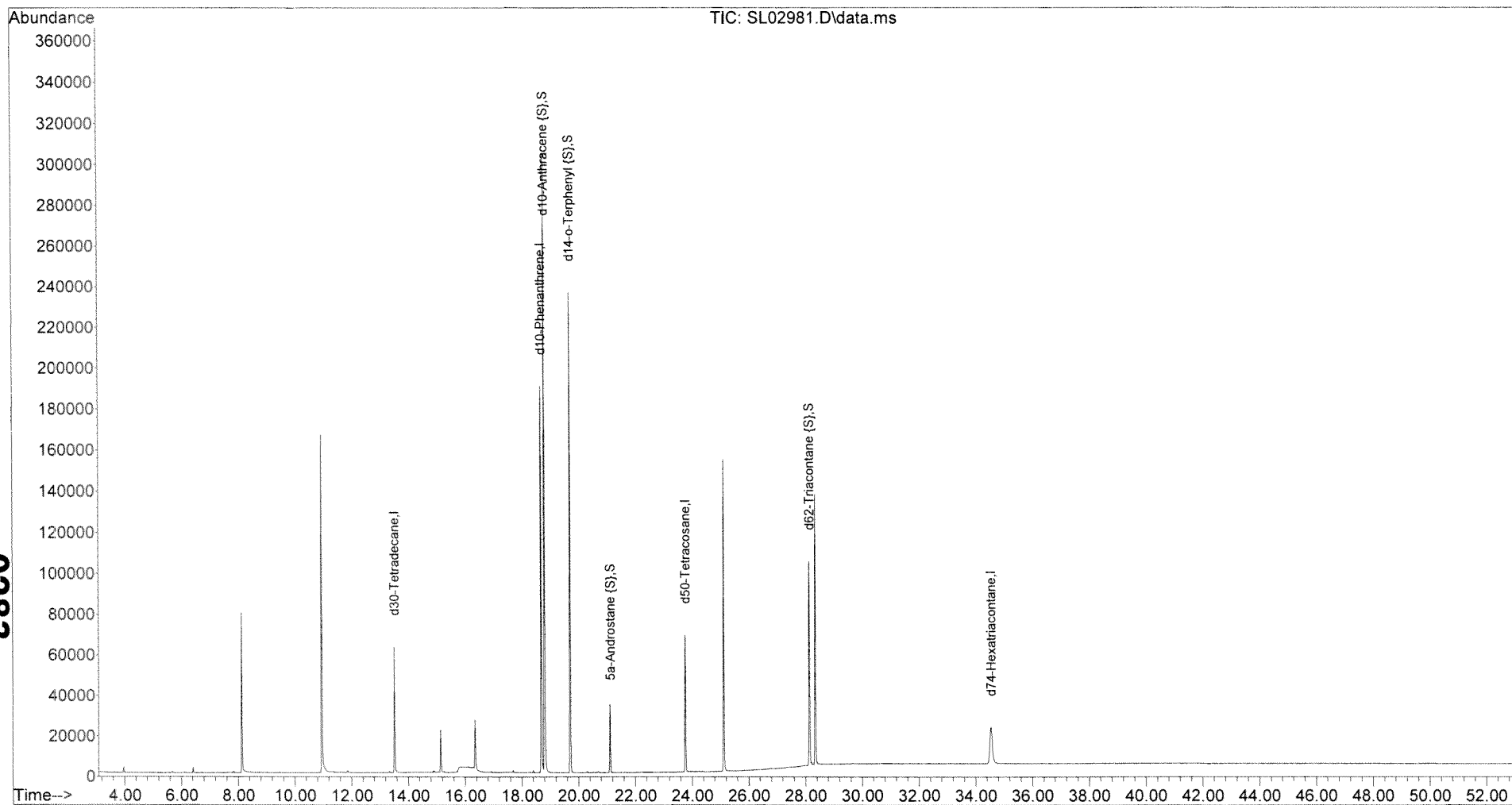
Target Compounds Qvalue

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

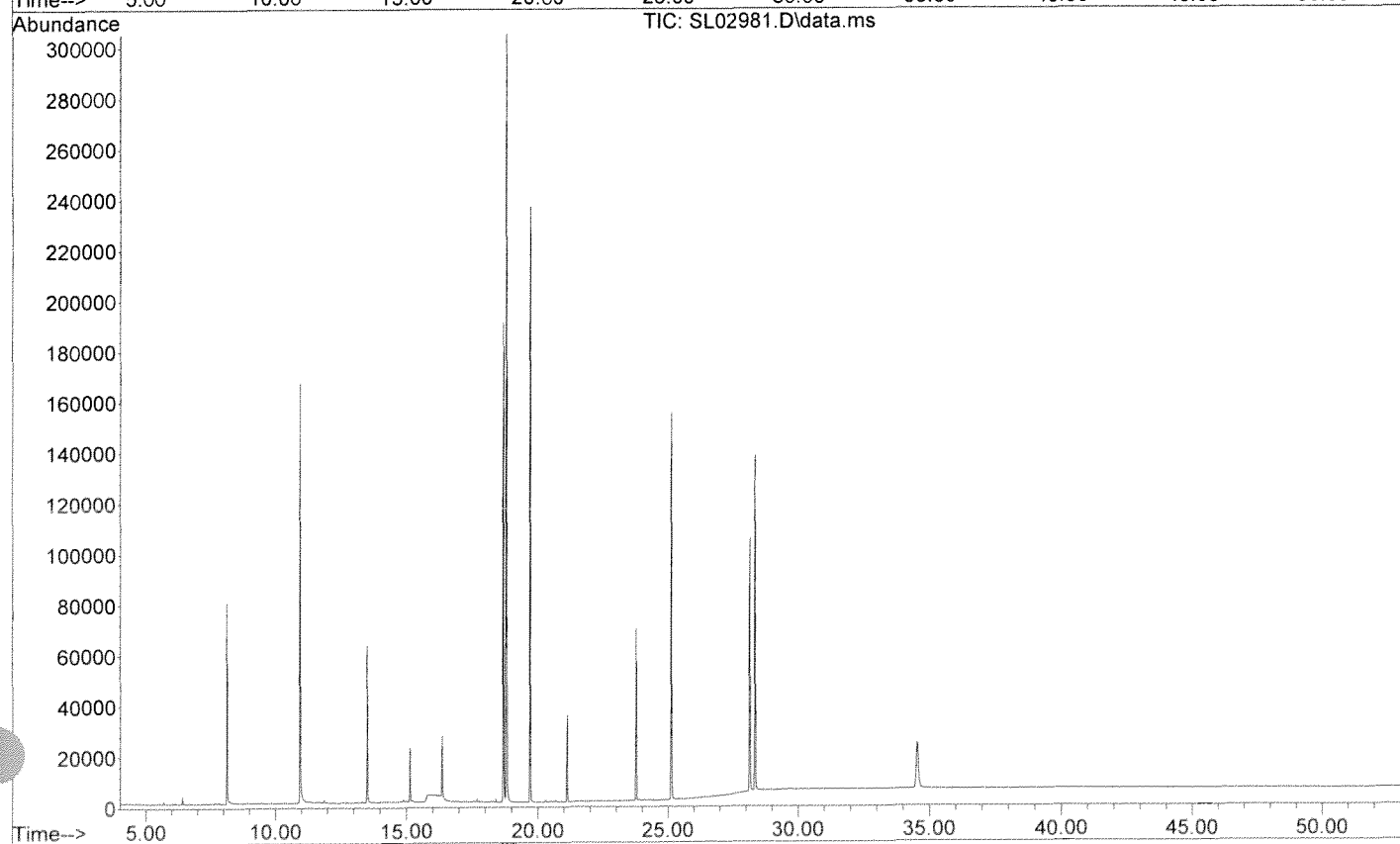
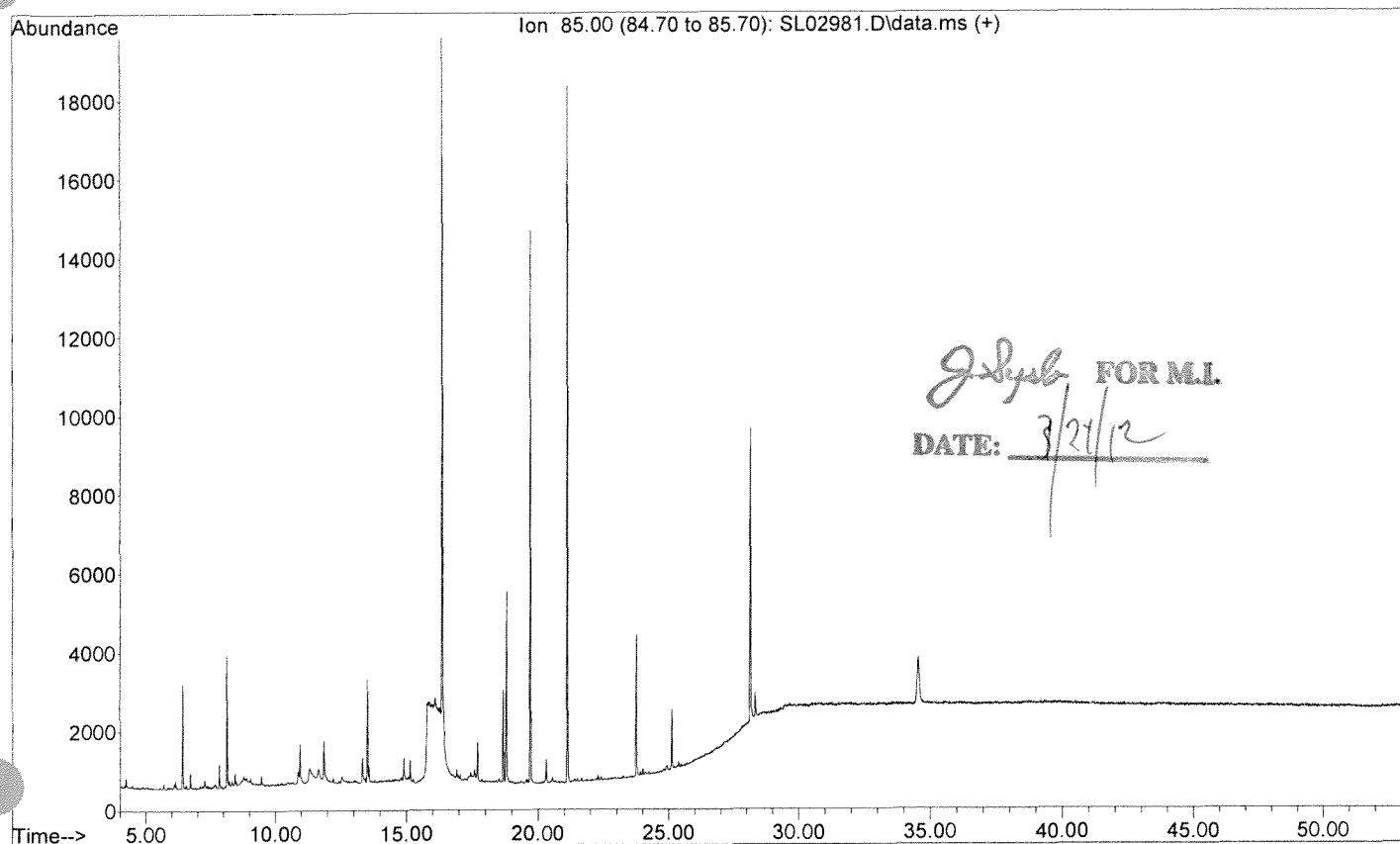
ND

Data Path : C:\msdchem\1\DATA\032312\
Data File : SL02981.D
Acq On : 23 Mar 2012 19:38
Operator : Syslo
Sample : Water Blank
Misc : 1200040-BLK1
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 23 20:28:45 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration



File : C:\msdchem\1\DATA\032312\SL02981.D
Operator : Syslo
Acquired : 23 Mar 2012 19:38 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: Water Blank
Misc Info : 1200040-BLK1
Vial Number: 1



Data Path : C:\msdchem\1\DATA\032312\
Data File : SL02982.D
Acq On : 23 Mar 2012 20:57
Operator : Syslo
Sample : SERAS-017-0014 4xd
sc : 275-82-07 5mlfv, then 4xd
LS Vial : 2 Sample Multiplier: 1

Quant Time: Mar 23 21:46:29 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.686	188	282655	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	107071	10.00	ug/mL	0.00
6) d50-Tetracosane	23.757	66	128524	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.545	66	101278	10.00	ug/mL	0.03
System Monitoring Compounds						
2) d10-Anthracene {S}	18.803	188	27402	0.99	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.95%	
3) d14-o-Terphenyl {S}	19.706	244	12230	0.97	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.85%	
4) 5a-Androstane {S}	21.122	260	1509	0.90	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.50%	
7) d62-Triacontane {S}	28.139	66	10521	0.90	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.50%	

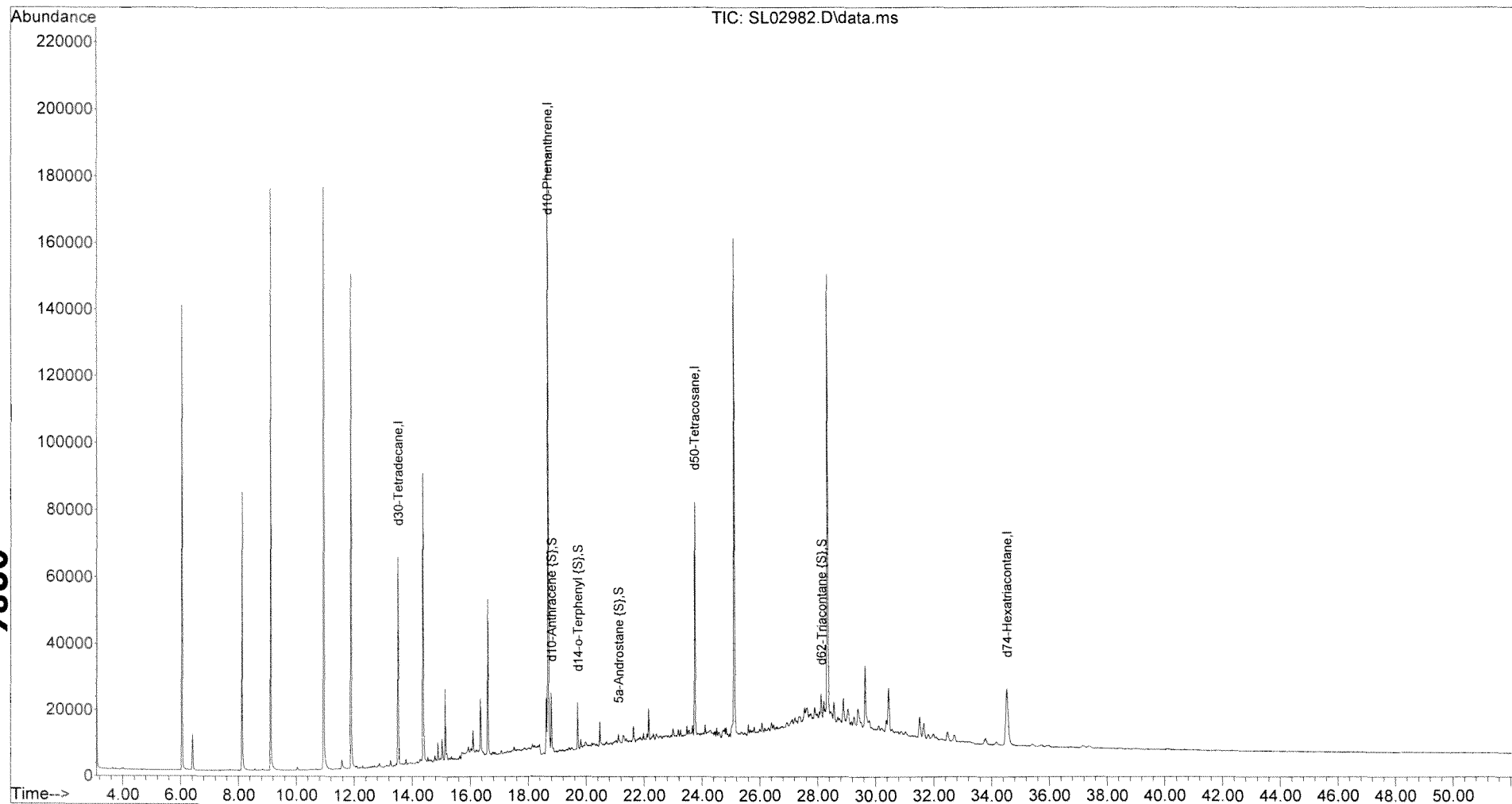
Target Compounds Qvalue

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

5749726

Data Path : C:\msdchem\1\DATA\032312\
 Data File : SL02982.D
 Acq On : 23 Mar 2012 20:57
 Operator : Syslo
 Sample : SERAS-017-0014 4xd
 Misc : 275-82-07 5mlfv, then 4xd
 ALS Vial : 2 Sample Multiplier: 1

Quant Time: Mar 23 21:46:29 2012
 Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
 Quant Title : CUC/TPH ICAL + Surr. 03/20/12
 QLast Update : Wed Mar 21 18:41:58 2012
 Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\032312\
Data File : SL02982.D
Acq On : 23 Mar 2012 20:57
Operator : Syslo
Sample : SERAS-017-0014 4xd
sc : 275-82-07 5mlfv, then 4xd
ALS Vial : 2 Sample Multiplier: 1

Integration Parameters: Oilint.P

Integrator: RTE
Smoothing : ON
Sampling : 1
Start Thrs: 0.05
Stop Thrs : 0.05

Filtering: 5
Min Area: 0.5 % of largest Peak
Max Peaks: 5
Peak Location: TOP

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

Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Title : Enbridge Oil ICAL: 3/22/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02982.D\data.ms

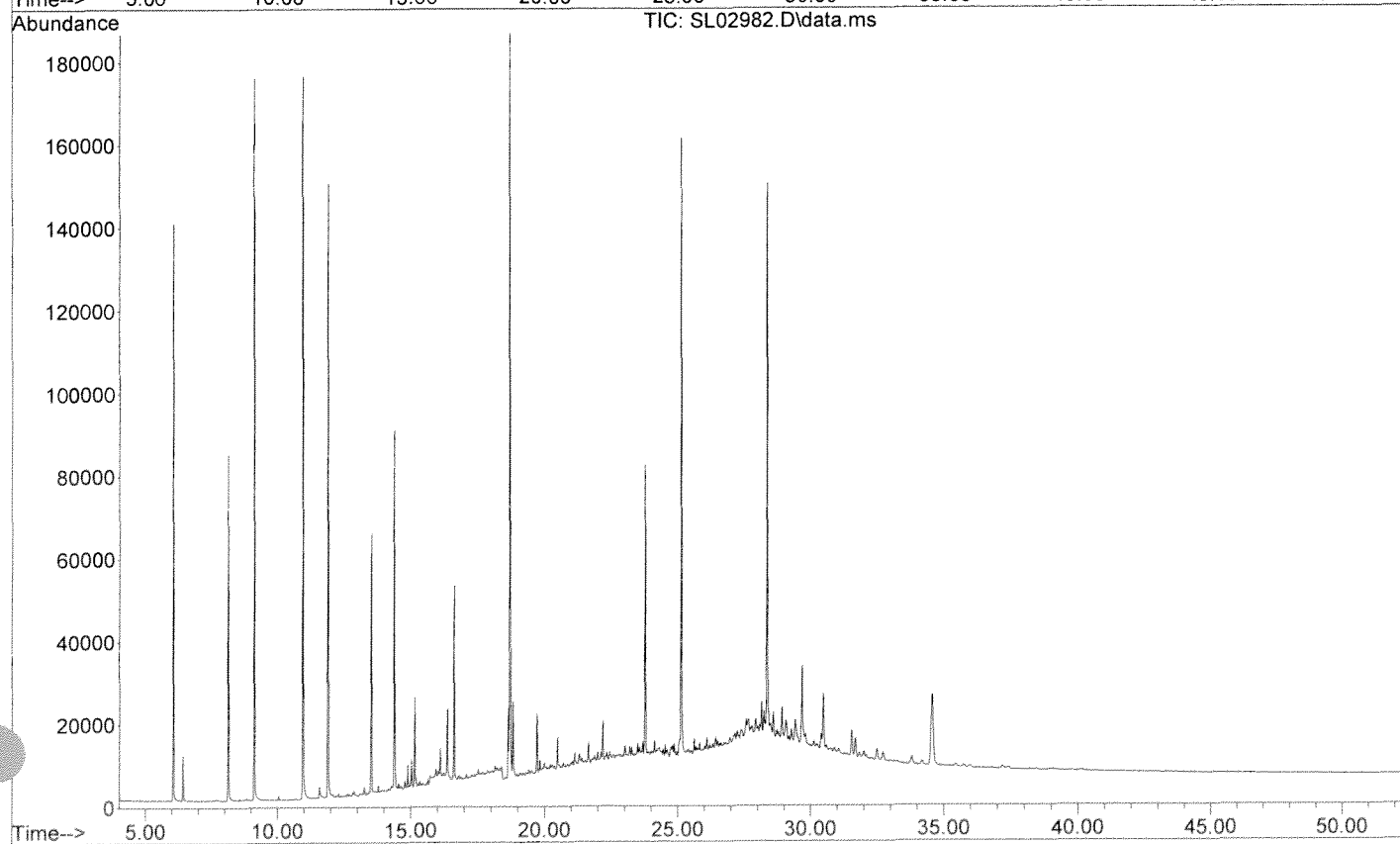
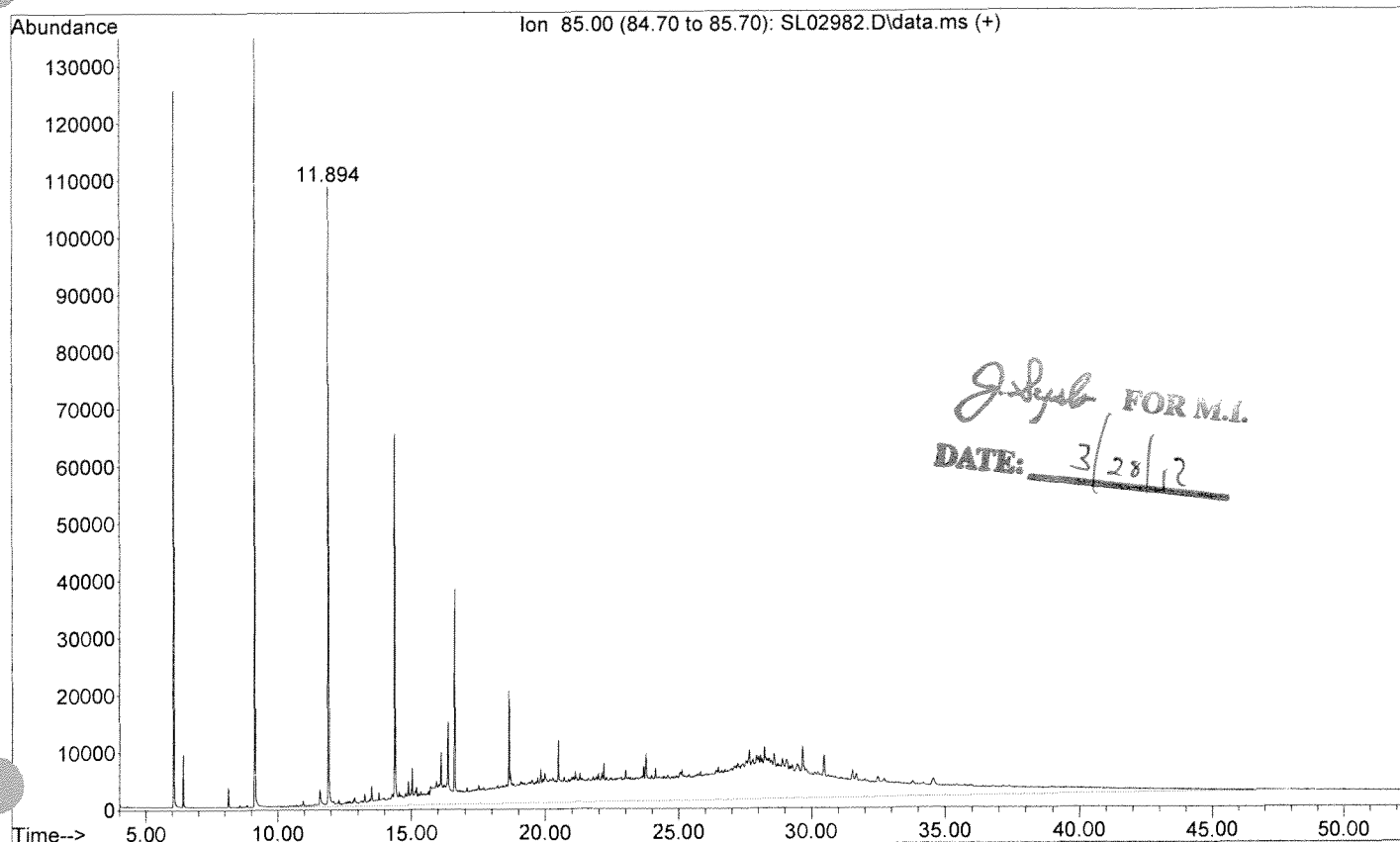
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	11.894	872	1103	5410	rM 5	108336	5749726	100.00%	100.000%

Sum of corrected areas: 5749726

ENOTPH032212.M Wed Mar 28 14:56:05 2012 SLICK2

J. Syab FOR M.L.
DATE: 3/28/12

File : C:\msdchem\1\DATA\032312\SL02982.D
Operator : Syslo
Acquired : 23 Mar 2012 20:57 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: SERAS-017-0014 4xd
Misc Info : 275-82-07 5mlfv, then 4xd
Vial Number: 2



Data Path : C:\msdchem\1\DATA\032312\
Data File : SL02983.D
Acq On : 23 Mar 2012 21:58
Operator : Syslo
Sample : SERAS-017-0015 4xd
SC : 275-82-08 5mlfv, then 4xd
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Mar 23 22:48:20 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration

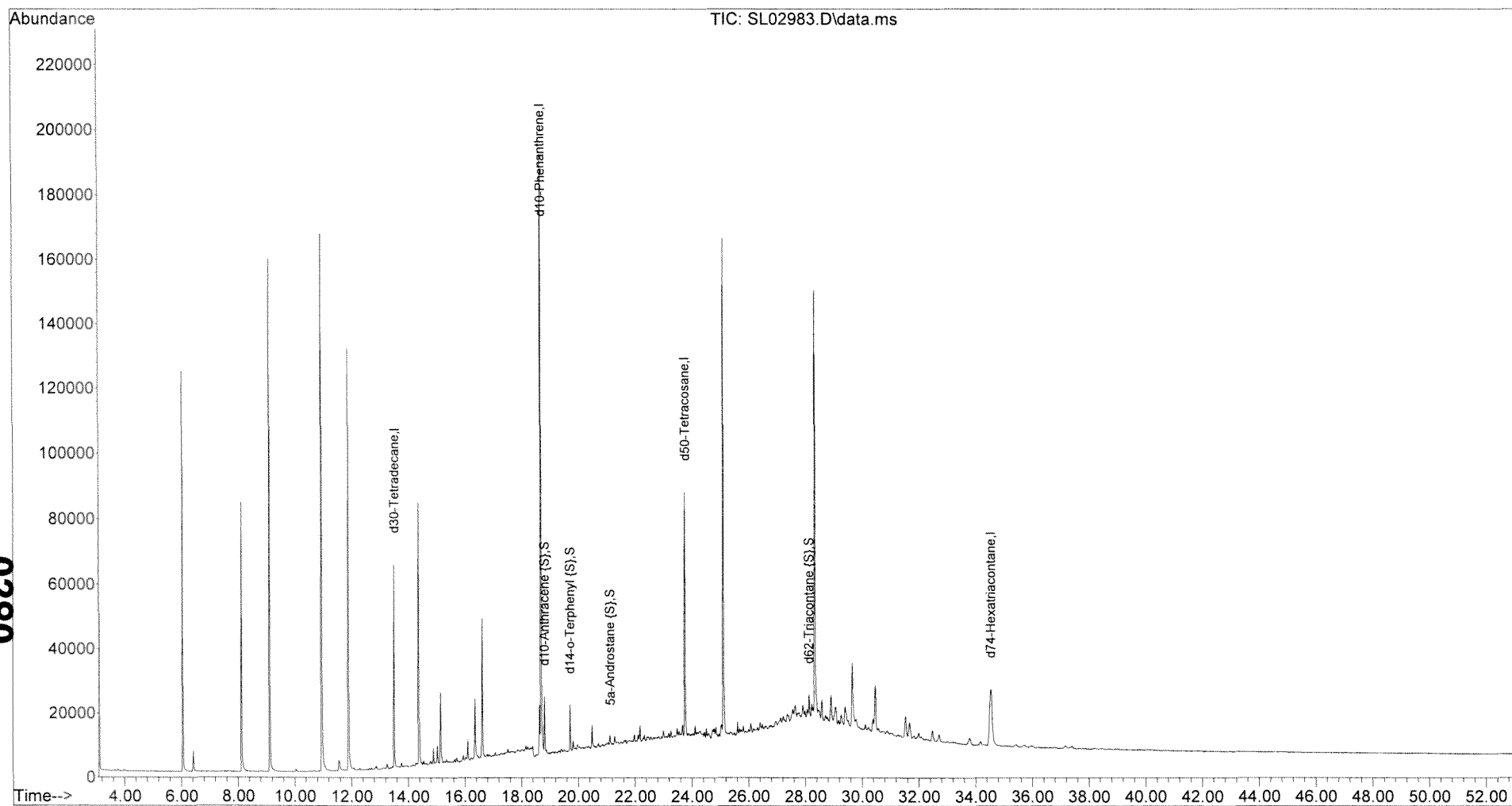
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.686	188	288711	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	108529	10.00	ug/mL	0.00
6) d50-Tetracosane	23.757	66	133698	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.537	66	105811	10.00	ug/mL	0.02
System Monitoring Compounds						
2) d10-Anthracene {S}	18.803	188	26456	0.93	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.65%	
3) d14-o-Terphenyl {S}	19.706	244	12058	0.93	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.65%	
4) 5a-Androstane {S}	21.122	260	1518	0.89	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.45%	
7) d62-Triacontane {S}	28.131	66	10723	0.88	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.40%	

Target Compounds

Qvalue

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

Quant Time: Mar 23 22:48:20 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\032312\
Data File : SL02983.D
Acq On : 23 Mar 2012 21:58
Operator : Syslo
Sample : SERAS-017-0015 4xd
Vial : 275-82-08 5mlfv, then 4xd
ALS Vial : 3 Sample Multiplier: 1

Integration Parameters: Oilint.P

Integrator: RTE
Smoothing : ON
Sampling : 1
Start Thrs: 0.05
Stop Thrs : 0.05

Filtering: 5
Min Area: 0.5 % of largest Peak
Max Peaks: 5
Peak Location: TOP

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

Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Title : Enbridge Oil ICAL: 3/22/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02983.D\data.ms

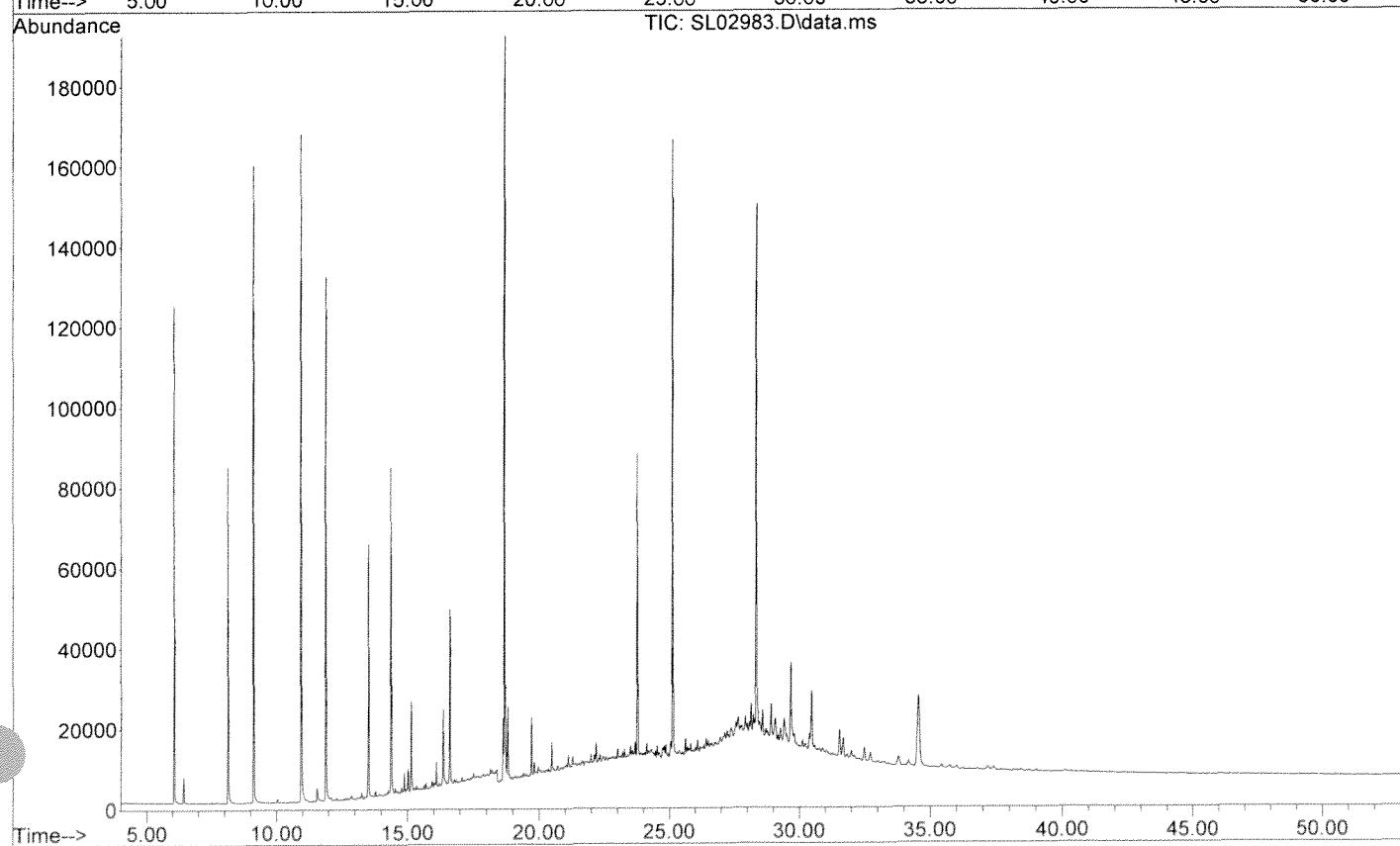
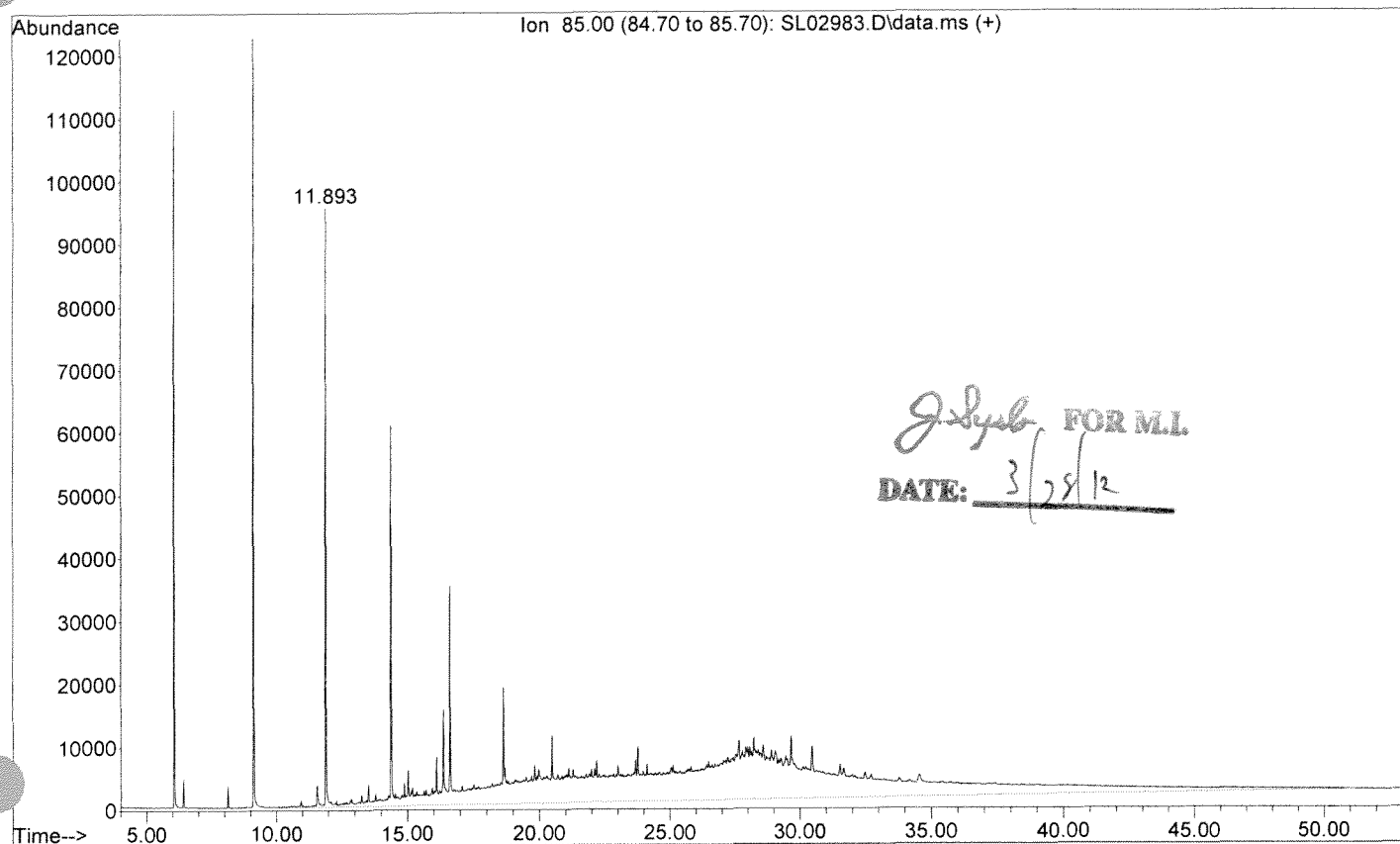
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	11.893	873	1103	5800	rM 5	95282	6253823	100.00%	100.000%

Sum of corrected areas: 6253823

ENOTPH032212.M Wed Mar 28 15:02:19 2012 SLICK2

J. Sykes FOR M.I.
DATE: 3/28/12

File : C:\msdchem\1\DATA\032312\SL02983.D
Operator : Syslo
Acquired : 23 Mar 2012 21:58 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: SERAS-017-0015 4xd
Misc Info : 275-82-08 5mlfv, then 4xd
Vial Number: 3



Data Path : C:\msdchem\1\DATA\032312\
Data File : SL02984.D
Acq On : 23 Mar 2012 23:00
Operator : Syslo
Sample : SERAS-017-0016 4xd
sc : 275-82-09 5mlfv, then 4xd
Vial : 4 Sample Multiplier: 1

Quant Time: Mar 23 23:50:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration

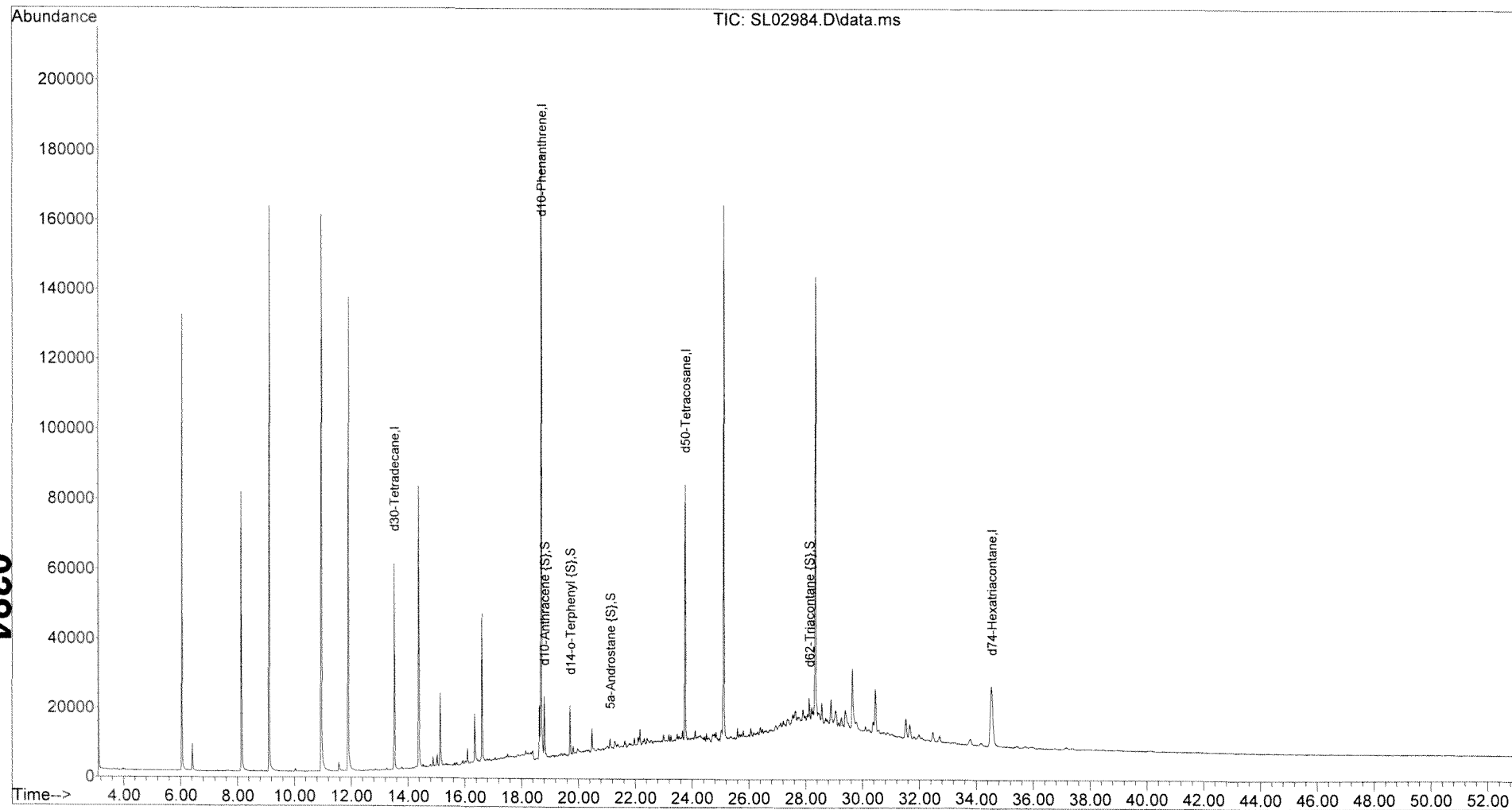
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) d10-Phenanthrene	18.686	188	278736	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	104970	10.00	ug/mL	0.00
6) d50-Tetracosane	23.757	66	128225	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.537	66	101411	10.00	ug/mL	0.03
System Monitoring Compounds						
2) d10-Anthracene {S}	18.804	188	26323	0.96	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.80%	
3) d14-o-Terphenyl {S}	19.706	244	12030	0.96	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.80%	
4) 5a-Androstane {S}	21.122	260	1469	0.89	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.45%	
7) d62-Triacontane {S}	28.131	66	10483	0.90	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.50%	

Target Compounds Qvalue

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

Quant Time: Mar 23 23:50:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\032312\
Data File : SL02984.D
Acq On : 23 Mar 2012 23:00
Operator : Syslo
Sample : SERAS-017-0016 4xd
Vial : 275-82-09 5mlfv, then 4xd
ALS Vial : 4 Sample Multiplier: 1

Integration Parameters: Oilint.P

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

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

Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Title : Enbridge Oil ICAL: 3/22/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02984.D\data.ms

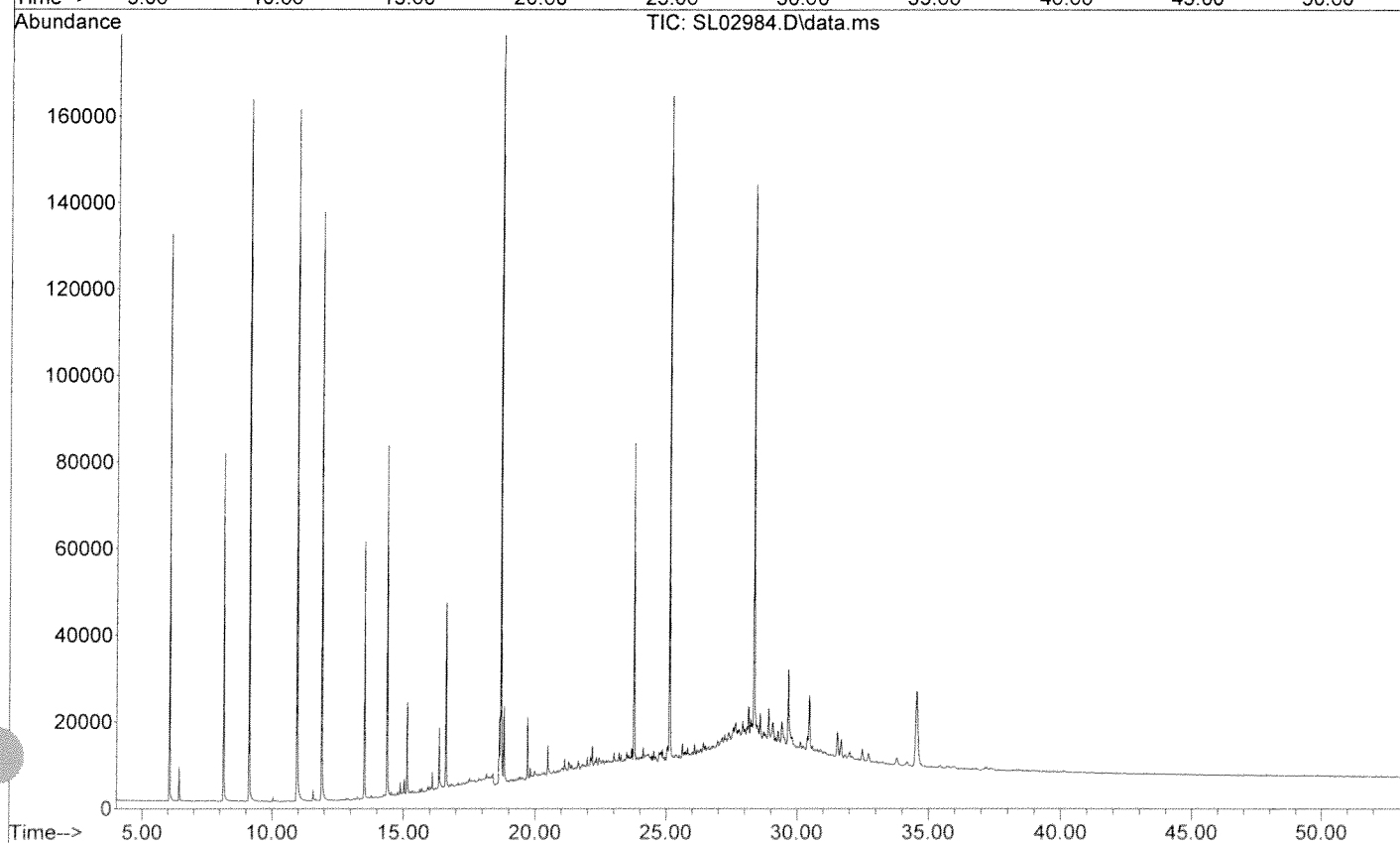
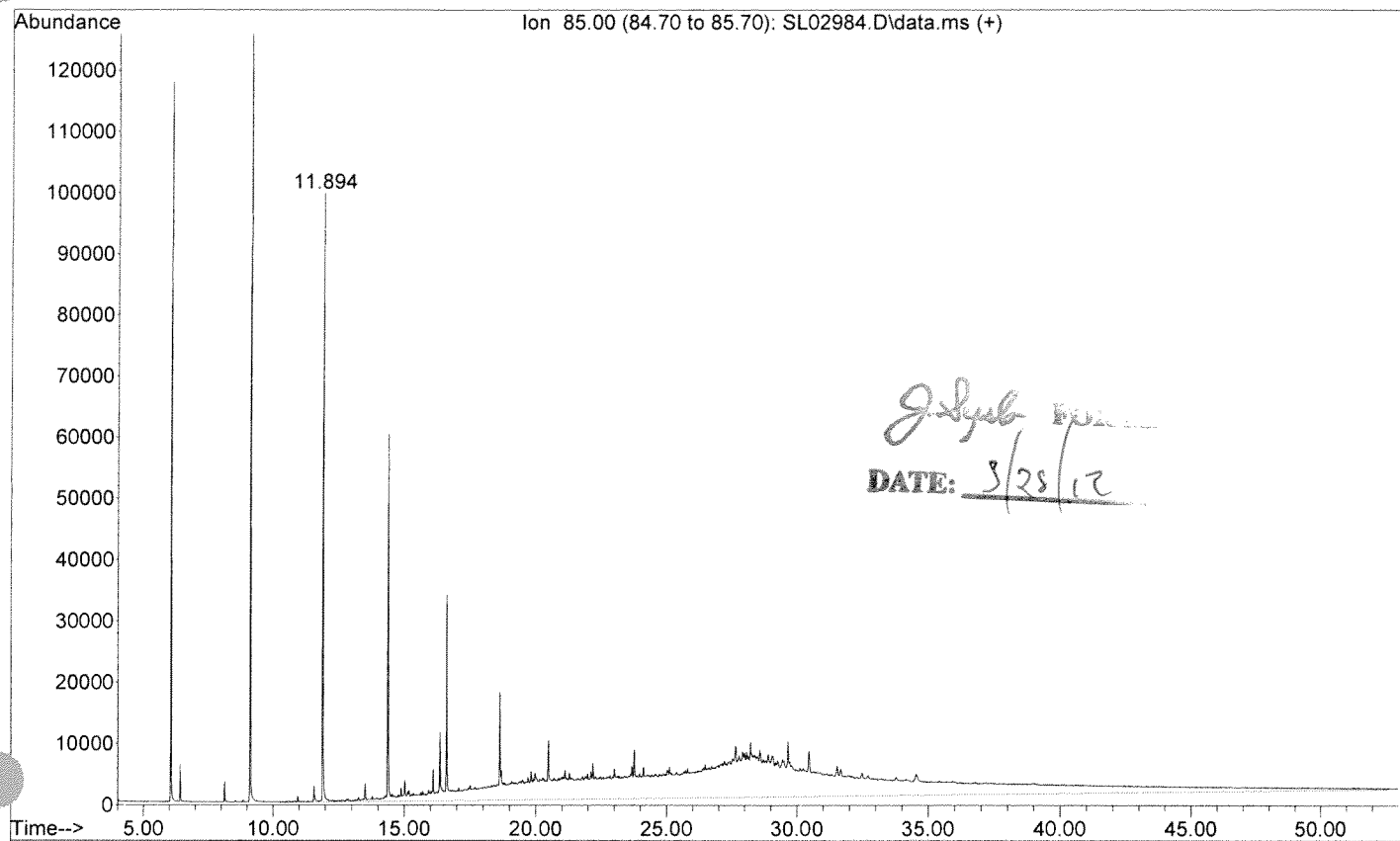
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	11.894	897	1103	5962	rM 5	99367	5674955	100.00%	100.000%

Sum of corrected areas: 5674955

ENOTPH032212.M Wed Mar 28 15:04:16 2012 SLICK2

J. Sub FOR M.L.
DATE: 3/28/12

File : C:\msdchem\1\DATA\032312\SL02984.D
Operator : Syslo
Acquired : 23 Mar 2012 23:00 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: SERAS-017-0016 4xd
Misc Info : 275-82-09 5mlfv, then 4xd
V Number: 4



Data Path : C:\msdchem\1\DATA\032312\
Data File : SL02985.D
Acq On : 24 Mar 2012 00:02
Operator : Syslo
Sample : SERAS-017-0017 4xd
sc : 275-82-10 5mlfv, then 4xd
LS Vial : 5 Sample Multiplier: 1

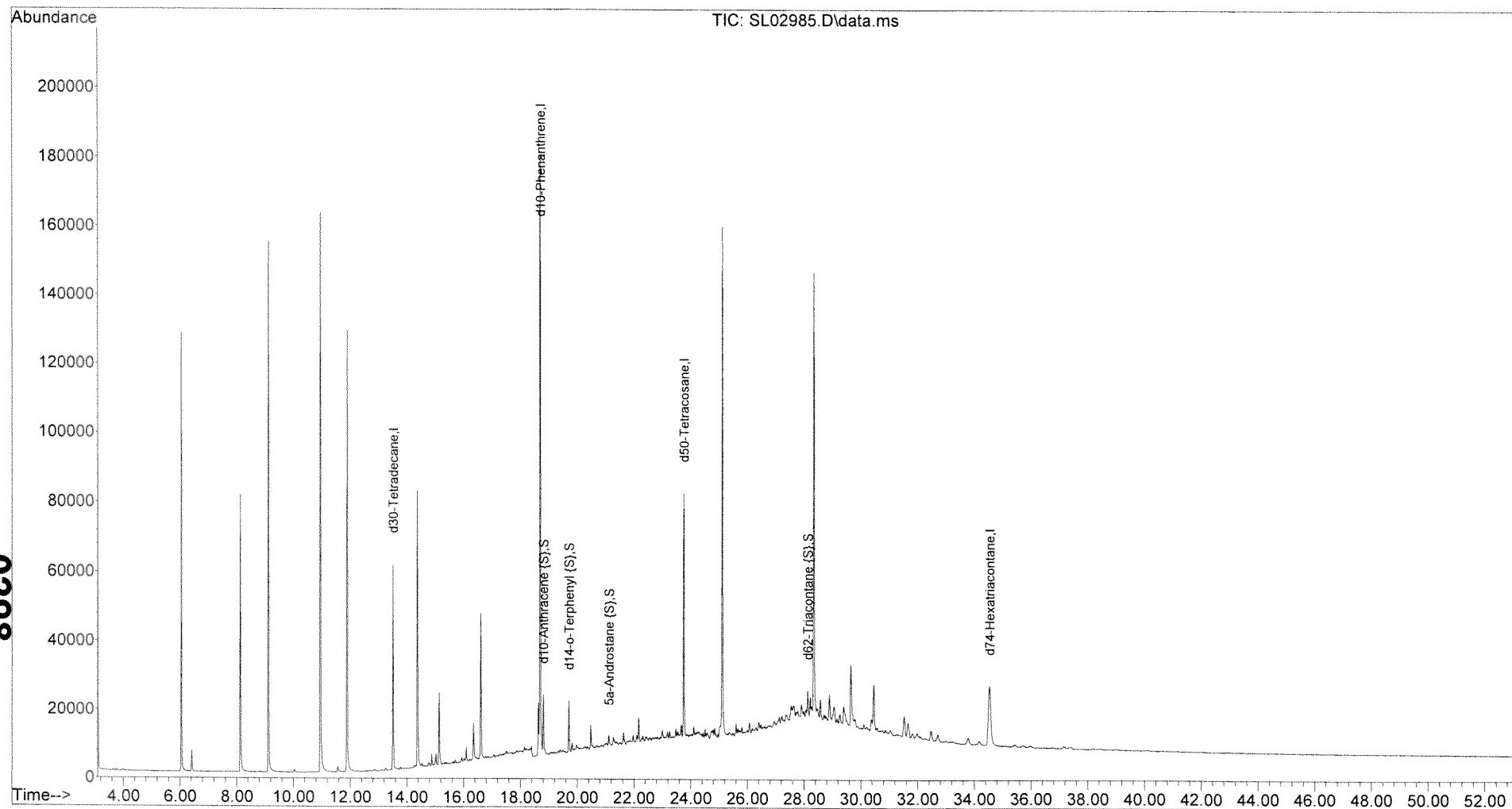
Quant Time: Mar 24 00:52:04 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev (Min)
Internal Standards						
1) d10-Phenanthrene	18.686	188	277119	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	104173	10.00	ug/mL	0.00
6) d50-Tetracosane	23.757	66	126782	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.537	66	99924	10.00	ug/mL	0.02
System Monitoring Compounds						
2) d10-Anthracene {S}	18.803	188	26542	0.98	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.90%	
3) d14-o-Terphenyl {S}	19.706	244	12176	0.98	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.90%	
4) 5a-Androstane {S}	21.122	260	1510	0.92	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.60%	
7) d62-Triacontane {S}	28.131	66	10805	0.94	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.70%	

Target Compounds Qvalue

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

Quant Time: Mar 24 00:52:04 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\032312\
Data File : SL02985.D
Acq On : 24 Mar 2012 00:02
Operator : Syslo
Sample : SERAS-017-0017 4xd
sc : 275-82-10 5mlfv, then 4xd
ALS Vial : 5 Sample Multiplier: 1

Integration Parameters: Oilint.P

Integrator: RTE
Smoothing : ON
Sampling : 1
Start Thrs: 0.05
Stop Thrs : 0.05

Filtering: 5
Min Area: 0.5 % of largest Peak
Max Peaks: 5
Peak Location: TOP

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

Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Title : Enbridge Oil ICAL: 3/22/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02985.D\data.ms

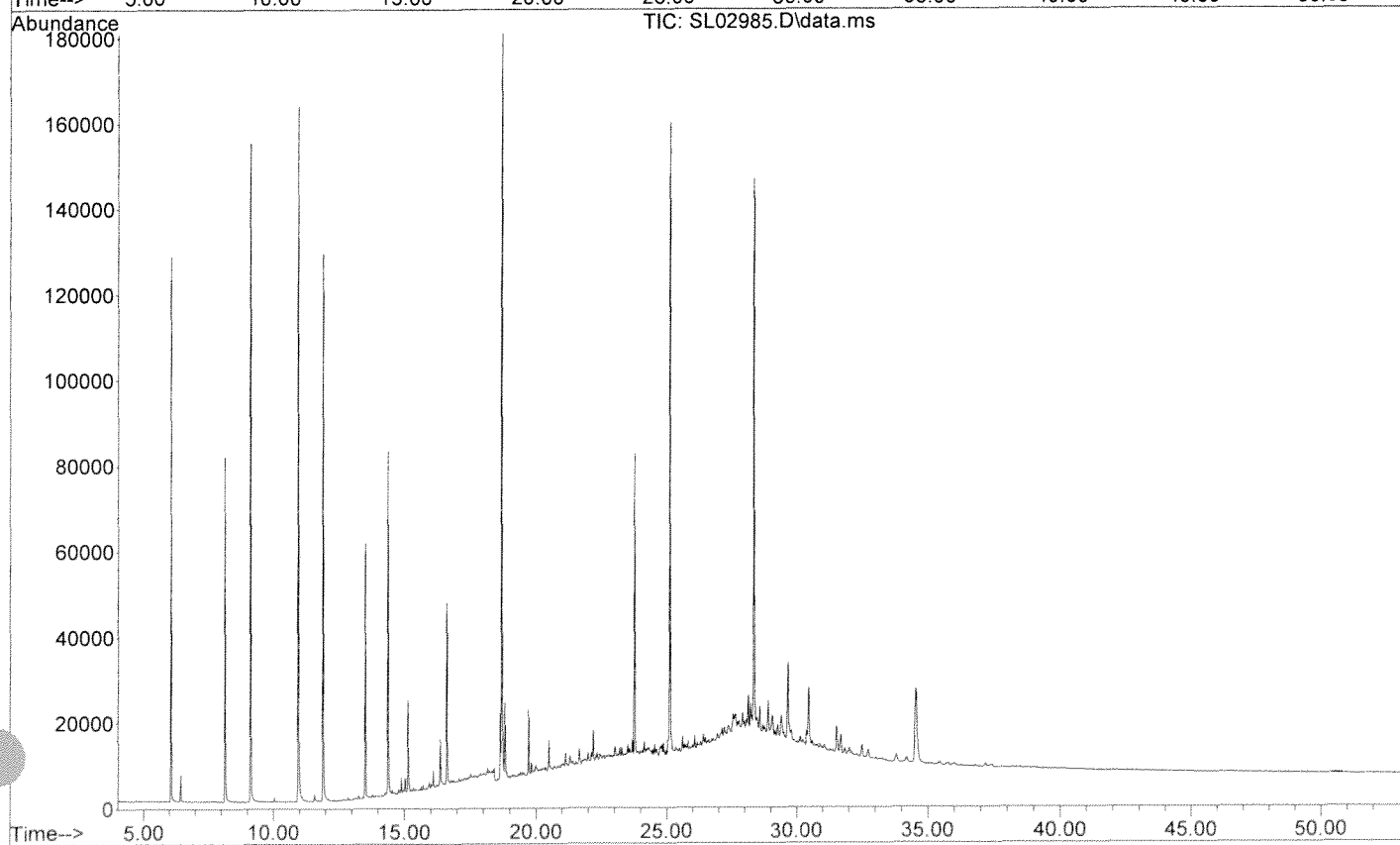
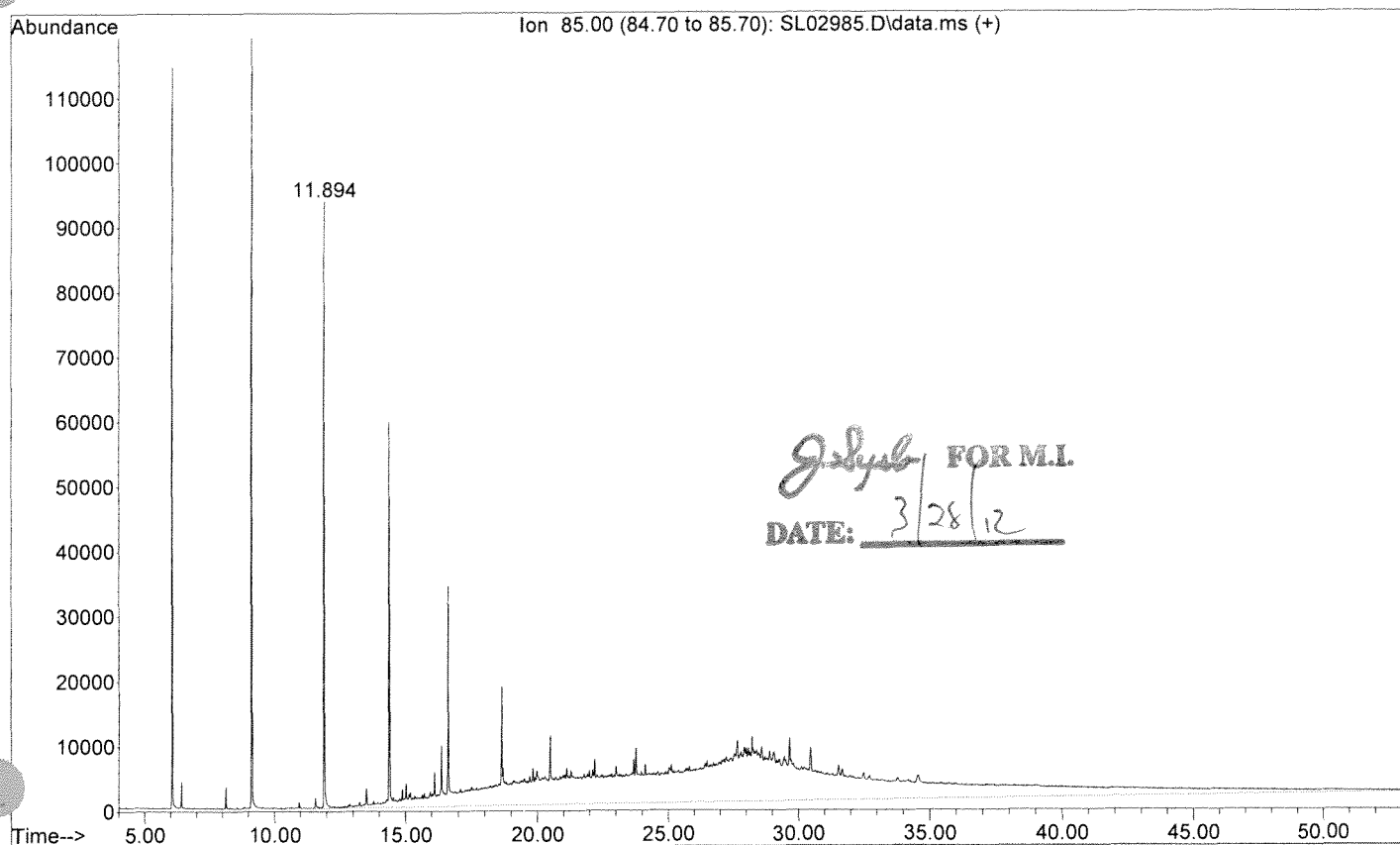
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	11.894	1010	1103	5999	rM 5	93528	6502380	100.00%	100.000%

Sum of corrected areas: 6502380

ENOTPH032212.M Wed Mar 28 15:07:12 2012 SLICK2

J. J. J. FOR M.L.
DATE: 3/28/12

File : C:\msdchem\1\DATA\032312\SL02985.D
Operator : Syslo
Acquired : 24 Mar 2012 00:02 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: SERAS-017-0017 4xd
Misc Info : 275-82-10 5mlfv, then 4xd
V Number: 5



Data Path : C:\msdchem\1\DATA\032312\
Data File : SL02986.D
Acq On : 24 Mar 2012 1:03
Operator : Syslo
Sample : SERAS-017-0018 4xd
sc : 275-82-11 5mlfv, then 4xd
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 24 01:53:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev (Min)

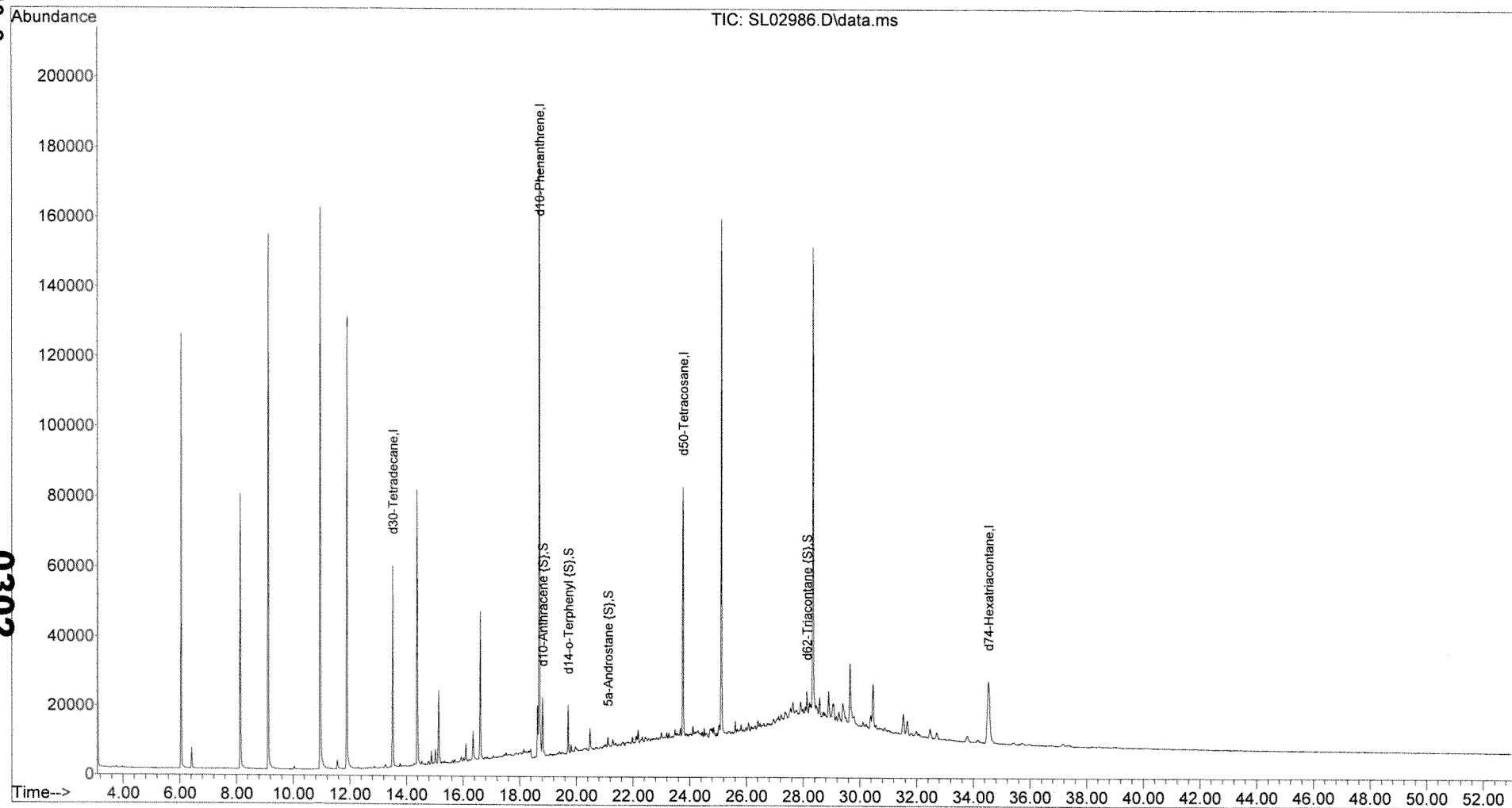
Internal Standards						
1) d10-Phenanthrene	18.686	188	276977	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	102970	10.00	ug/mL	0.00
6) d50-Tetracosane	23.757	66	126411	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.529	66	100881	10.00	ug/mL	0.02
System Monitoring Compounds						
2) d10-Anthracene {S}	18.804	188	25845	0.95	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.75%	
3) d14-o-Terphenyl {S}	19.706	244	11979	0.96	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.80%	
4) 5a-Androstane {S}	21.113	260	1534	0.94	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.70%	
7) d62-Triacontane {S}	28.131	66	10511	0.91	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.55%	

Target Compounds Qvalue

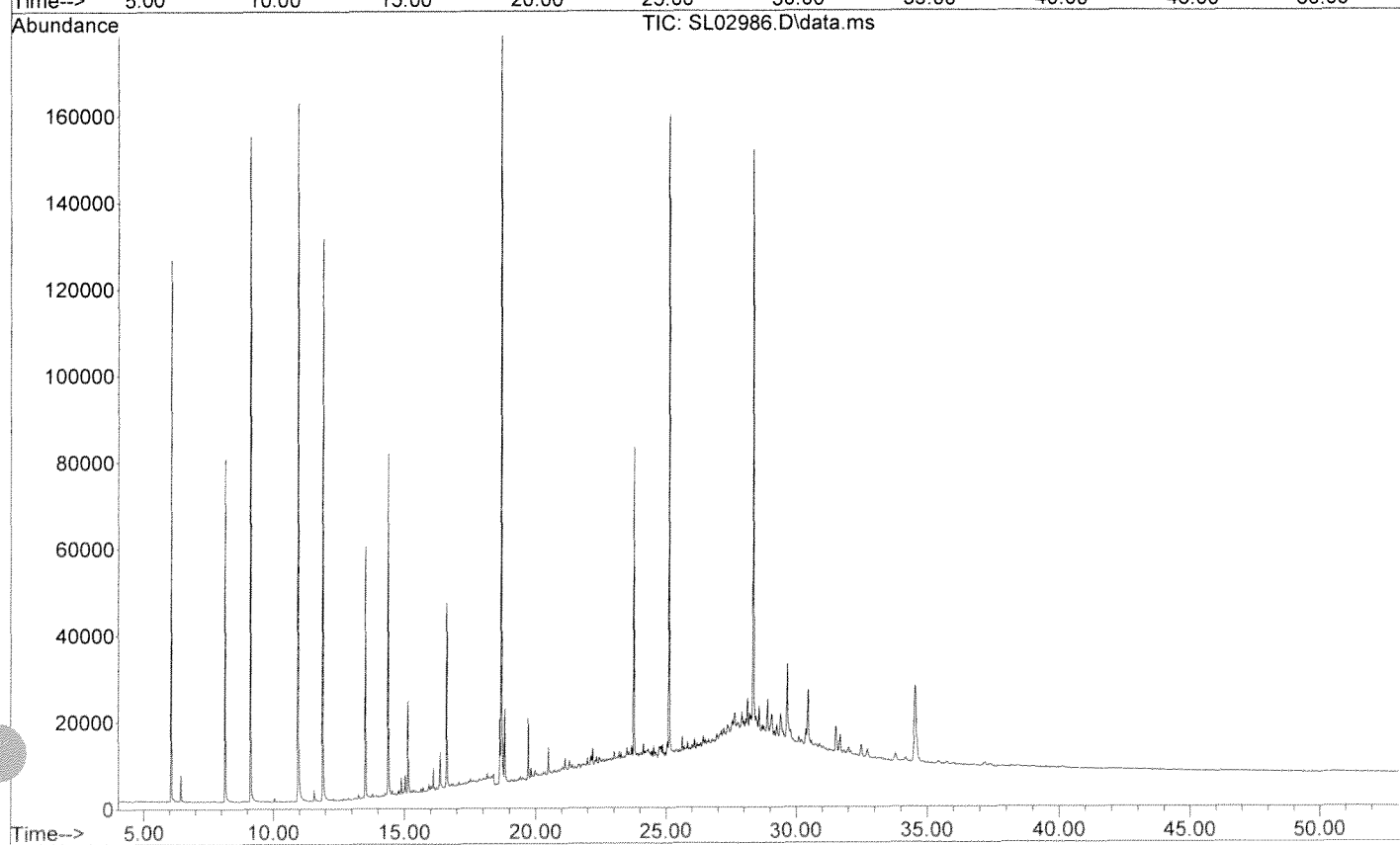
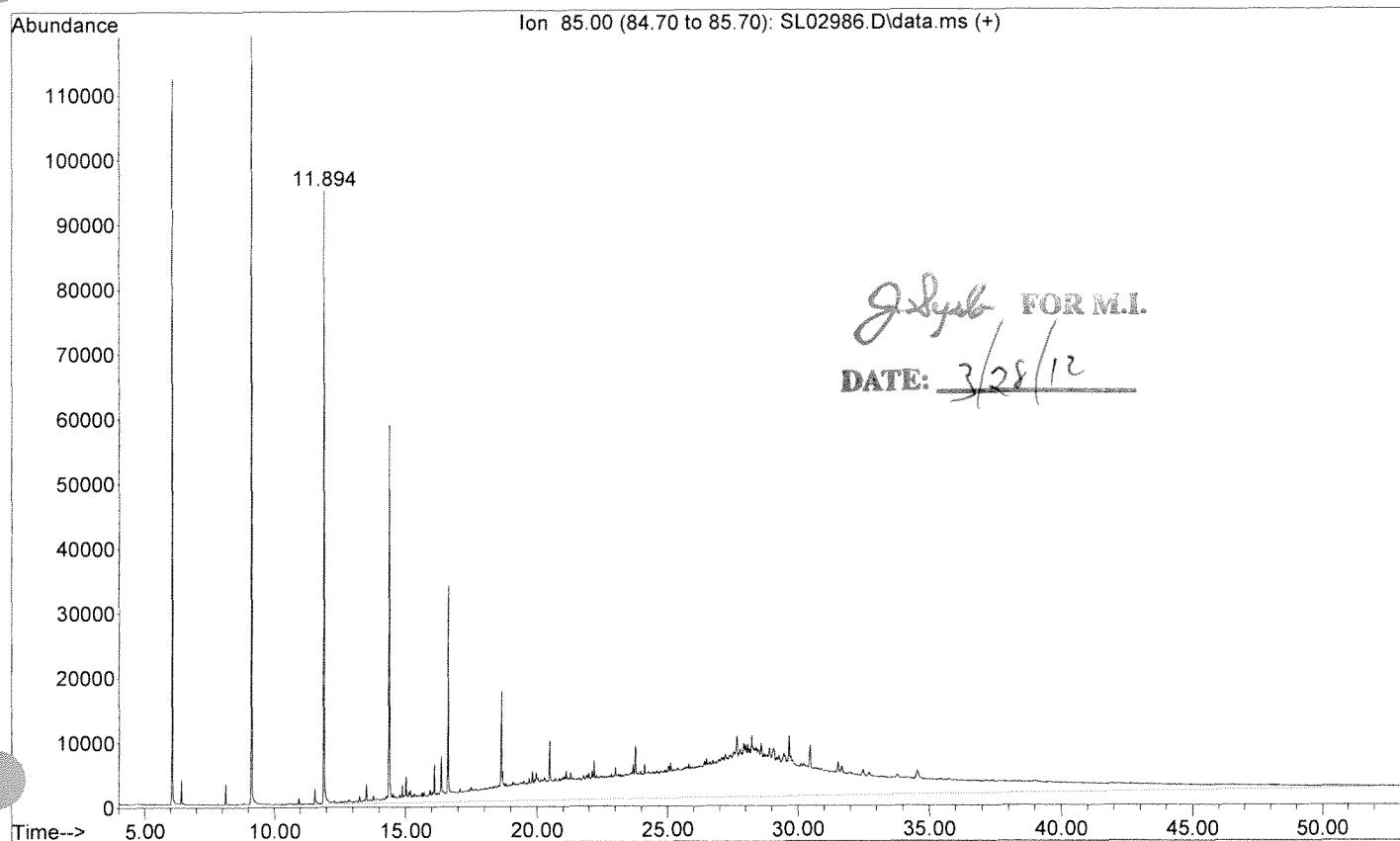
#) = qualifier out of range (m) = manual integration (+) = signals summed

```
Data Path : C:\msdchem\1\DATA\032312\  
Data File : SL02986.D  
Acq On : 24 Mar 2012 1:03  
Operator : Syslo  
Sample : SERAS-017-0018 4xd  
Misc : 275-82-11 5mlfv, then 4xd  
ALS Vial : 6 Sample Multiplier: 1
```

Quant Time: Mar 24 01:53:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration



File : C:\msdchem\1\DATA\032312\SL02986.D
Operator : Syslo
Acquired : 24 Mar 2012 1:03 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: SERAS-017-0018 4xd
Misc Info : 275-82-11 5mlfv, then 4xd
V Number: 6



Area Percent Report

Data Path : C:\msdchem\1\DATA\032312\
Data File : SL02986.D
Acq On : 24 Mar 2012 1:03
Operator : Syslo
Sample : SERAS-017-0018 4xd
Vial : 275-82-11 5mlfv, then 4xd
ALS Vial : 6 Sample Multiplier: 1

Integration Parameters: Oilint.P

Integrator: RTE
Smoothing : ON
Sampling : 1
Start Thrs: 0.05
Stop Thrs : 0.05

Filtering: 5
Min Area: 0.5 % of largest Peak
Max Peaks: 5
Peak Location: TOP

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

Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Title : Enbridge Oil ICAL: 3/22/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02986.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	11.894	953	1103	5896	rM 5	94748	5987745	100.00%	100.000%

Sum of corrected areas: 5987745

ENOTPH032212.M Wed Mar 28 15:08:45 2012 SLICK2

J. Syslo FOR M.L.
DATE: 3/28/12

Area Percent Report

Data Path : C:\msdchem\1\DATA\032312\
Data File : SL02986.D
Acq On : 24 Mar 2012 1:03
Operator : Syslo
Sample : SERAS-017-0018 4xd
Vial : 275-82-11 5mlfv, then 4xd
ALS Vial : 6 Sample Multiplier: 1

Integration Parameters: Oilint.P

Integrator: RTE

Smoothing : ON

Sampling : 1

Start Thrs: 0.05

Stop Thrs : 0.05

Filtering: 5

Min Area: 0.5 % of largest Peak

Max Peaks: 5

Peak Location: TOP

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

Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M

Title : Enbridge Oil ICAL: 3/22/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02986.D\data.ms

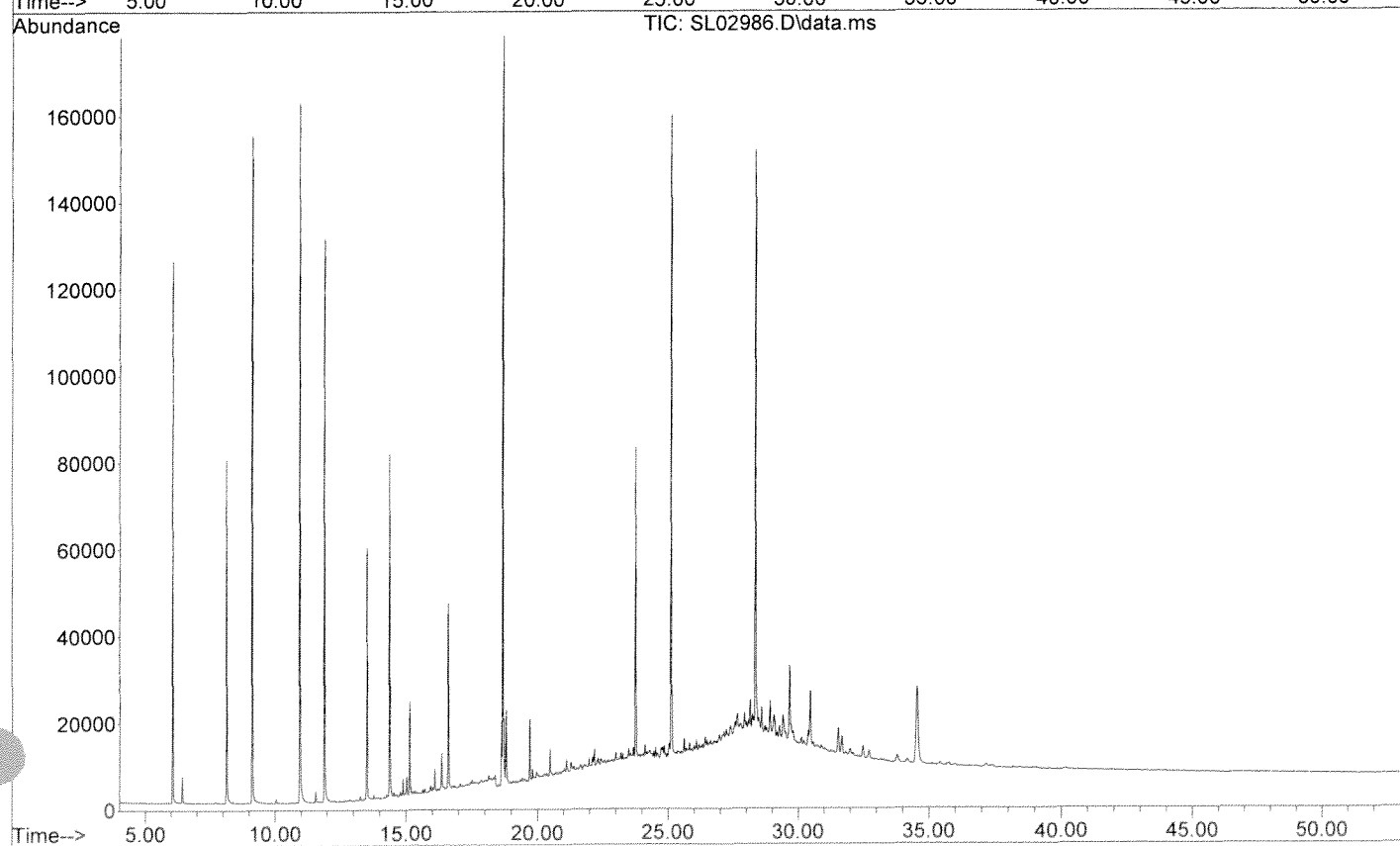
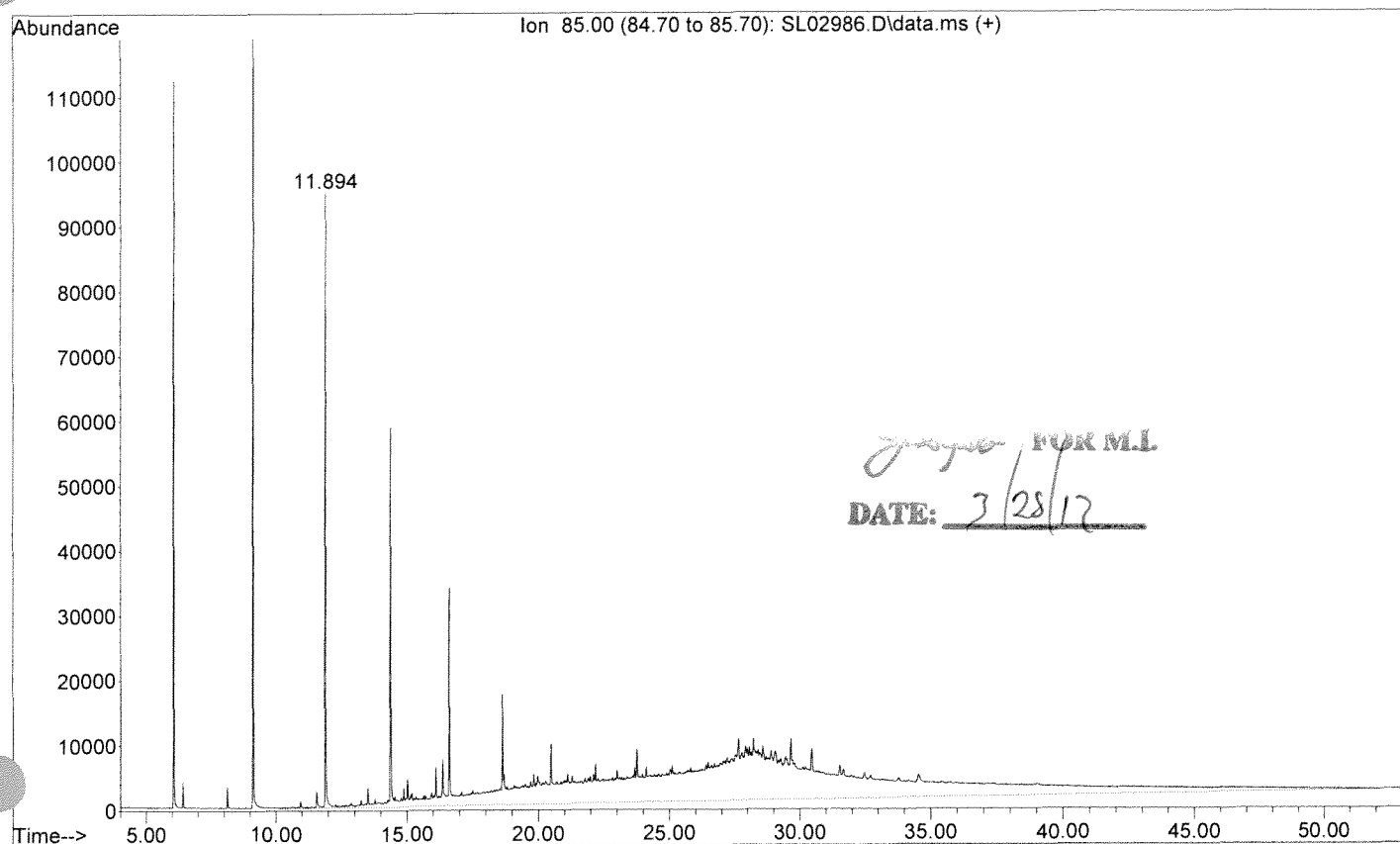
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	11.894	887	1103	5965	rM 5	94793	5875682	100.00%	100.000%

Sum of corrected areas: 5875682

ENOTPH032212.M Wed Mar 28 15:10:44 2012 SLICK2

J. Slick FOR M.I.
DATE: 3/28/12

File : C:\msdchem\1\DATA\032312\SL02986.D
Operator : Syslo
Acquired : 24 Mar 2012 1:03 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: SERAS-017-0018 4xd
Misc Info : 275-82-11 5mlfv, then 4xd
Vial Number: 6



Data Path : C:\msdchem\1\DATA\032312\
Data File : SL02987.D
Acq On : 24 Mar 2012 2:05
Operator : Syslo
Sample : SERAS-017-0019 4xd
sc : 275-82-12 5mlfv, then 4xd
LS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 24 02:55:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration

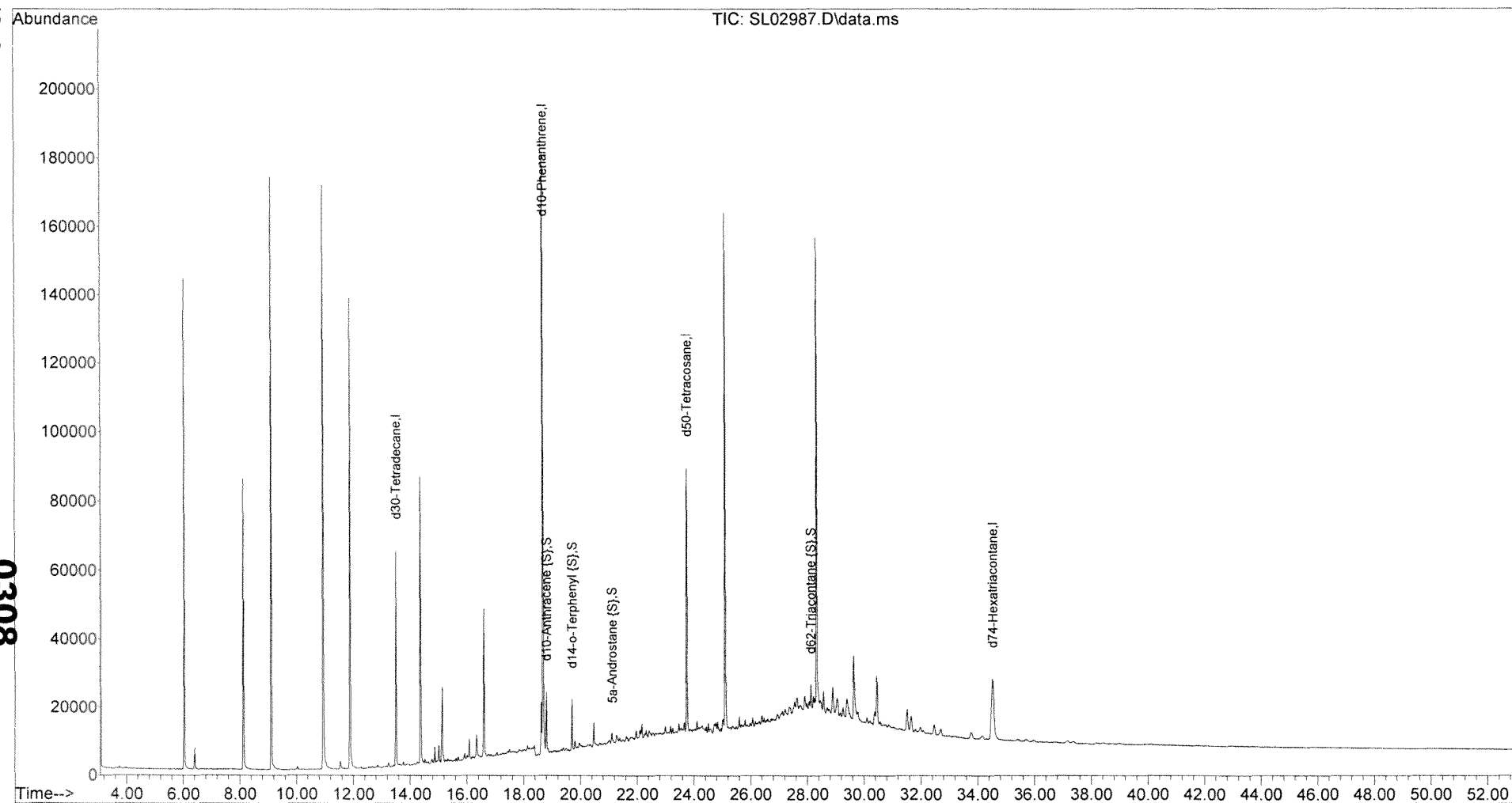
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.686	188	291919	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	110829	10.00	ug/mL	0.00
6) d50-Tetracosane	23.757	66	135561	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.537	66	104457	10.00	ug/mL	0.02
System Monitoring Compounds						
2) d10-Anthracene {S}	18.803	188	27254	0.95	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.75%	
3) d14-o-Terphenyl {S}	19.706	244	12529	0.96	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.80%	
4) 5a-Androstane {S}	21.122	260	1526	0.88	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.40%	
7) d62-Triacontane {S}	28.131	66	11054	0.90	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.50%	

Target Compounds Qvalue

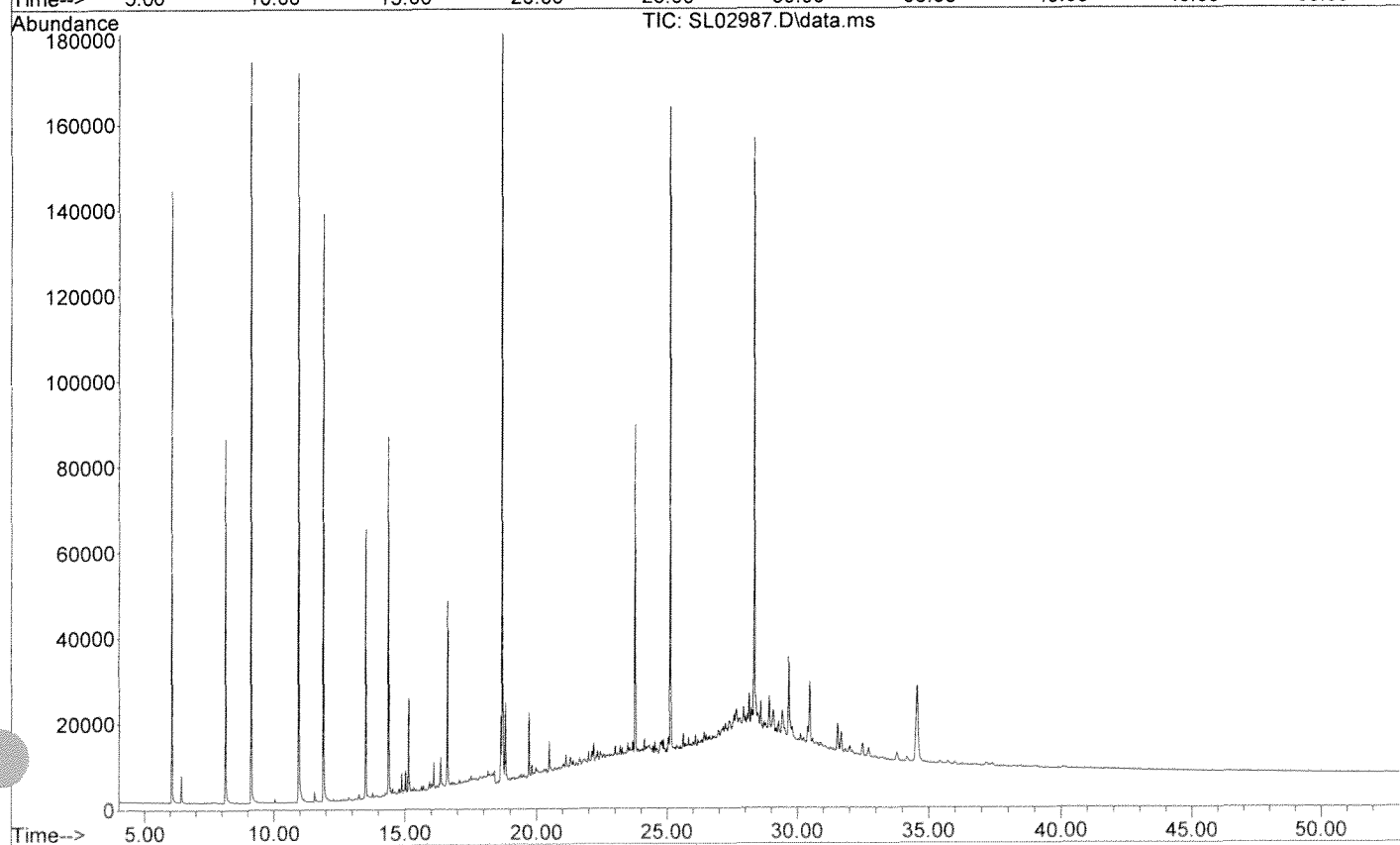
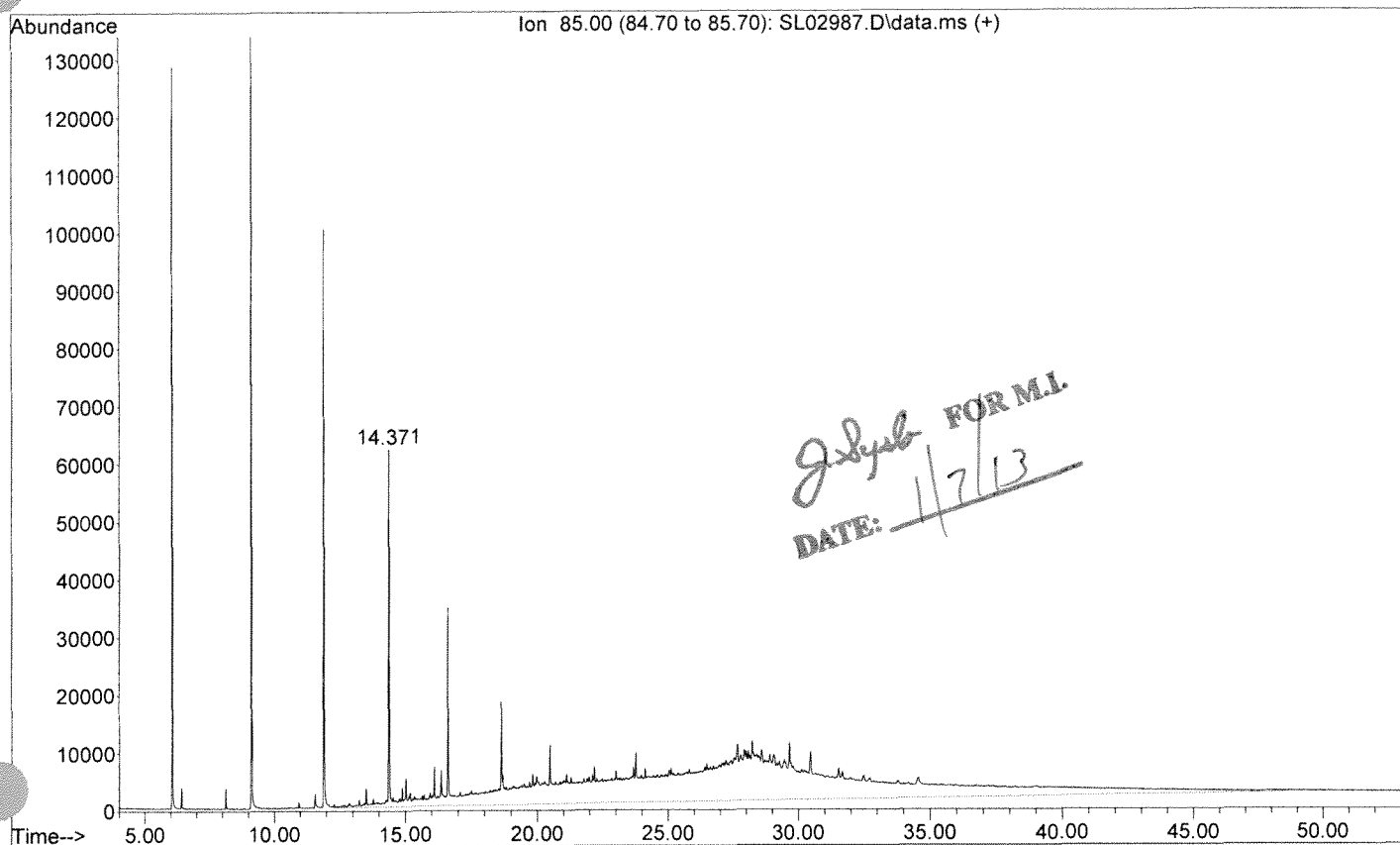
#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\DATA\032312\
Data File : SL02987.D
Acq On : 24 Mar 2012 2:05
Operator : Syslo
Sample : SERAS-017-0019 4xd
Misc : 275-82-12 5mlfv, then 4xd
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 24 02:55:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration



File : C:\msdchem\1\DATA\032312\SL02987.D
Operator : Syslo
Acquired : 24 Mar 2012 2:05 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: SERAS-017-0019 4xd
Misc Info : 275-82-12 5mlfv, then 4xd
V Number: 7



Area Percent Report

Data Path : C:\msdchem\1\DATA\032312\
Data File : SL02987.D
Acq On : 24 Mar 2012 2:05
Operator : Syslo
Sample : SERAS-017-0019 4xd
Sc : 275-82-12 5mlfv, then 4xd
ALS Vial : 7 Sample Multiplier: 1

Integration Parameters: Oilint.P

Integrator: RTE
Smoothing : ON
Sampling : 1
Start Thrs: 0.05
Stop Thrs : 0.05
Filtering: 5
Min Area: 0.5 % of largest Peak
Max Peaks: 10
Peak Location: TOP

If leading or trailing edge < 70 prefer < Baseline drop else tangent >
Peak separation: 3

Method : C:\msdchem\1\METHODS\ENOTPH032212.M
Title : Enbridge Oil ICAL: 3/22/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02987.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	14.371	1148	1413	5487	rM 5	61889	5867973	100.00%	100.000%

Sum of corrected areas: 5867973

ENOTPH032212.M Mon Jan 07 15:27:07 2013 SLICK2

J. Lyub FOR M.L.
DATE: 1/7/13

Data Path : C:\msdchem\1\DATA\032312\
Data File : SL02988.D
Acq On : 24 Mar 2012 3:07
Operator : Syslo
Sample : LCS 1200040-BS1
SC : 1.0mL FV
Vial : 8 Sample Multiplier: 1

Quant Time: Mar 24 03:57:09 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.686	188	259090	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	97888	10.00	ug/mL	0.00
6) d50-Tetracosane	23.757	66	118099	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.537	66	92030	10.00	ug/mL	0.03
System Monitoring Compounds						
2) d10-Anthracene {S}	18.804	188	447233	17.59	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	87.95%	
3) d14-o-Terphenyl {S}	19.706	244	209101	18.00	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	90.00%	
4) 5a-Androstane {S}	21.123	260	27090	17.69	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	88.45%	
7) d62-Triacontane {S}	28.131	66	209272	19.45	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	97.25%	

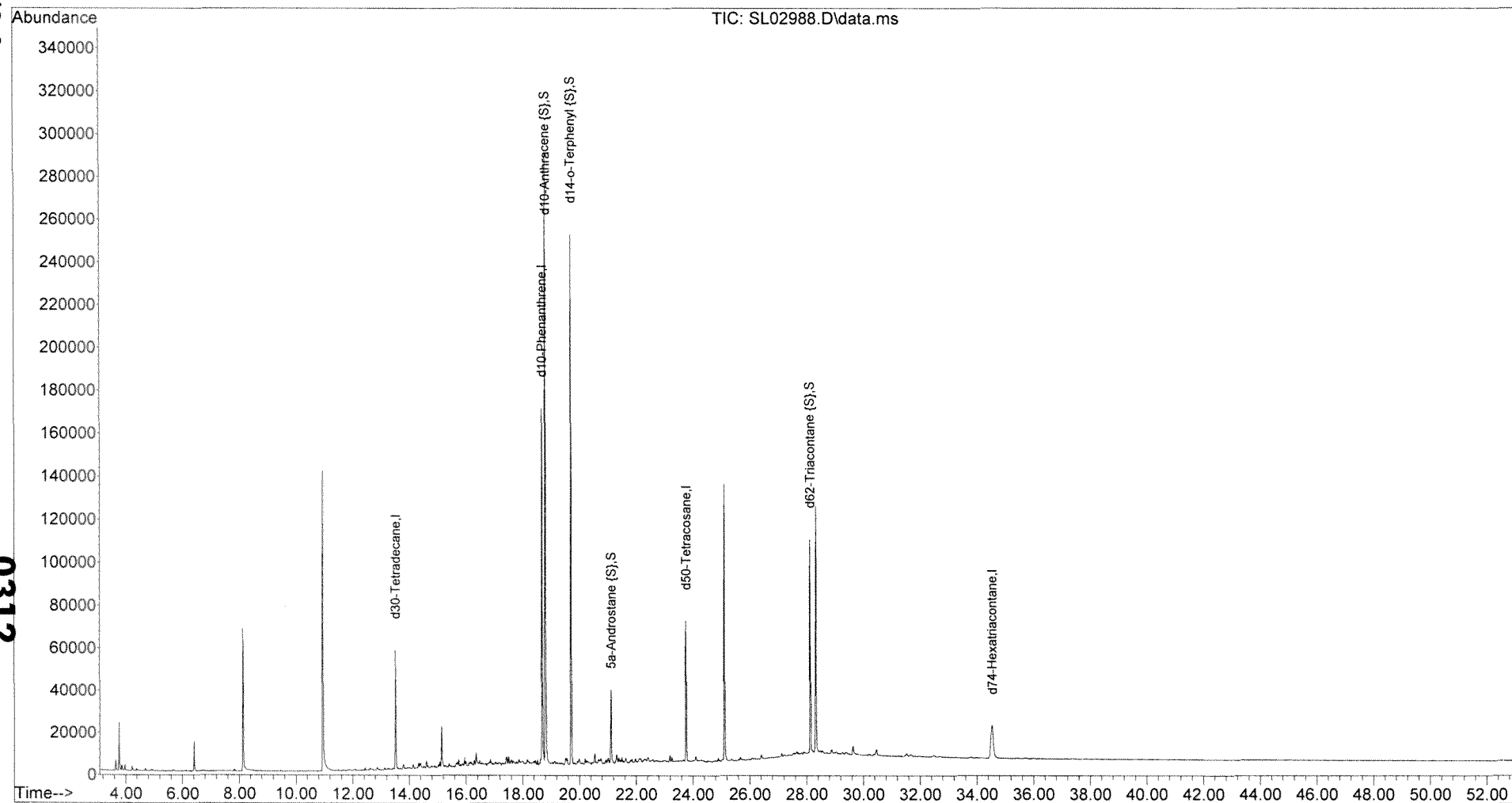
Target Compounds Qvalue

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

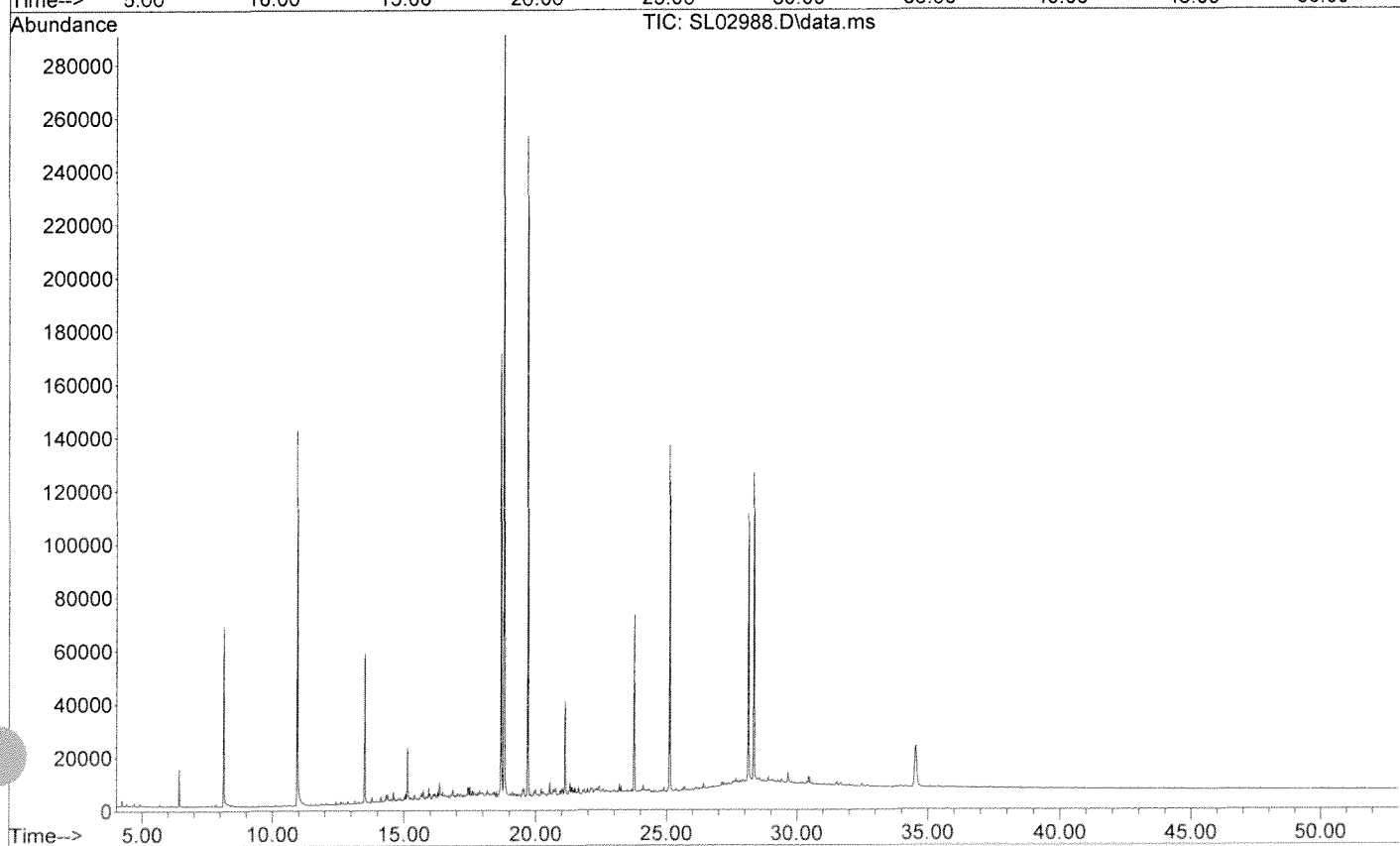
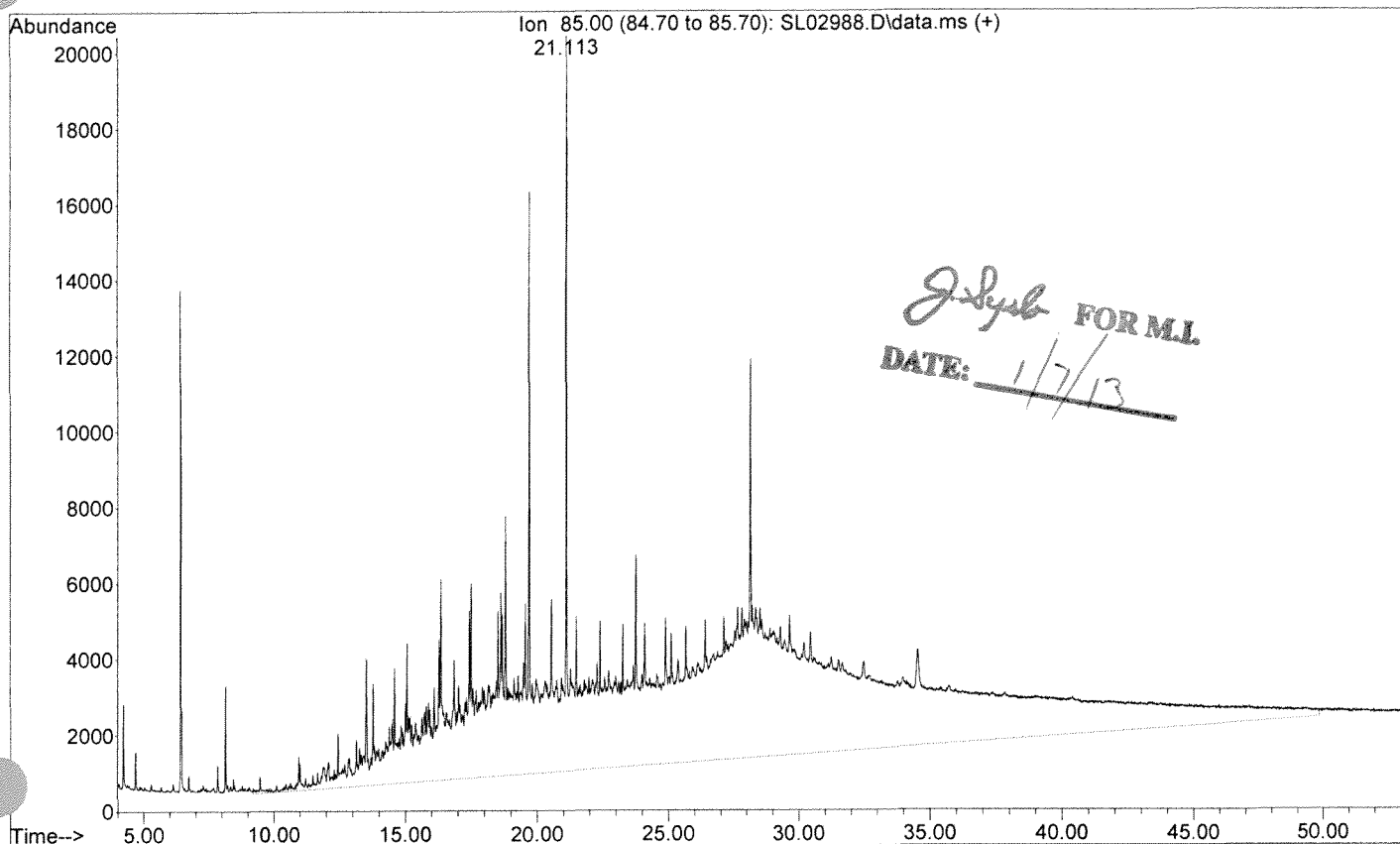
35774.74

Data Path : C:\msdchem\1\DATA\032312\
Data File : SL02988.D
Acq On : 24 Mar 2012 3:07
Operator : Syslo
Sample : LCS 1200040-BS1
Misc : 1.0mL FV
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 24 03:57:09 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration



File : C:\msdchem\1\DATA\032312\SL02988.D
Operator : Syslo
Acquired : 24 Mar 2012 3:07 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: LCS 1200040-BS1
Misc Info : 1.0mL FV
V Number: 8



Area Percent Report

Data Path : C:\msdchem\1\DATA\032312\
Data File : SL02988.D
Acq On : 24 Mar 2012 3:07
Operator : Syslo
Sample : LCS 1200040-BS1
Vial : 8
ALS Vial : 8 Sample Multiplier: 1

Integration Parameters: Oilint.P

Integrator: RTE
Smoothing : ON
Sampling : 1
Start Thrs: 0.05
Stop Thrs : 0.05
Filtering: 5
Min Area: 0.5 % of largest Peak
Max Peaks: 10
Peak Location: TOP

If leading or trailing edge < 70 prefer < Baseline drop else tangent >
Peak separation: 3

Method : C:\msdchem\1\METHODS\ENOTPH032212.M
Title : Enbridge Oil ICAL: 3/22/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02988.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	21.113	767	2218	5635	rM 5	19404	3577474	100.00%	100.000%

Sum of corrected areas: 3577474

ENOTPH032212.M Mon Jan 07 15:29:20 2013 SLICK2

J. Slick FOR ML
DATE: 1/7/13

Data Path : C:\msdchem\1\DATA\032312\
Data File : SL02989.D
Acq On : 24 Mar 2012 4:09
Operator : Syslo
Sample : LCSD 1200040-BSD1
Vial : 1.0mL FV
Vial : 9 Sample Multiplier: 1

Quant Time: Mar 24 04:59:05 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.686	188	265019	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	99326	10.00	ug/mL	0.00
6) d50-Tetracosane	23.757	66	121875	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.529	66	95414	10.00	ug/mL	0.02
System Monitoring Compounds						
2) d10-Anthracene {S}	18.804	188	440018	16.92	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	84.60%	
3) d14-o-Terphenyl {S}	19.706	244	208390	17.54	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	87.70%	
4) 5a-Androstane {S}	21.123	260	26924	17.19	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	85.95%	
7) d62-Triacontane {S}	28.131	66	210319	18.94	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	94.70%	

Target Compounds

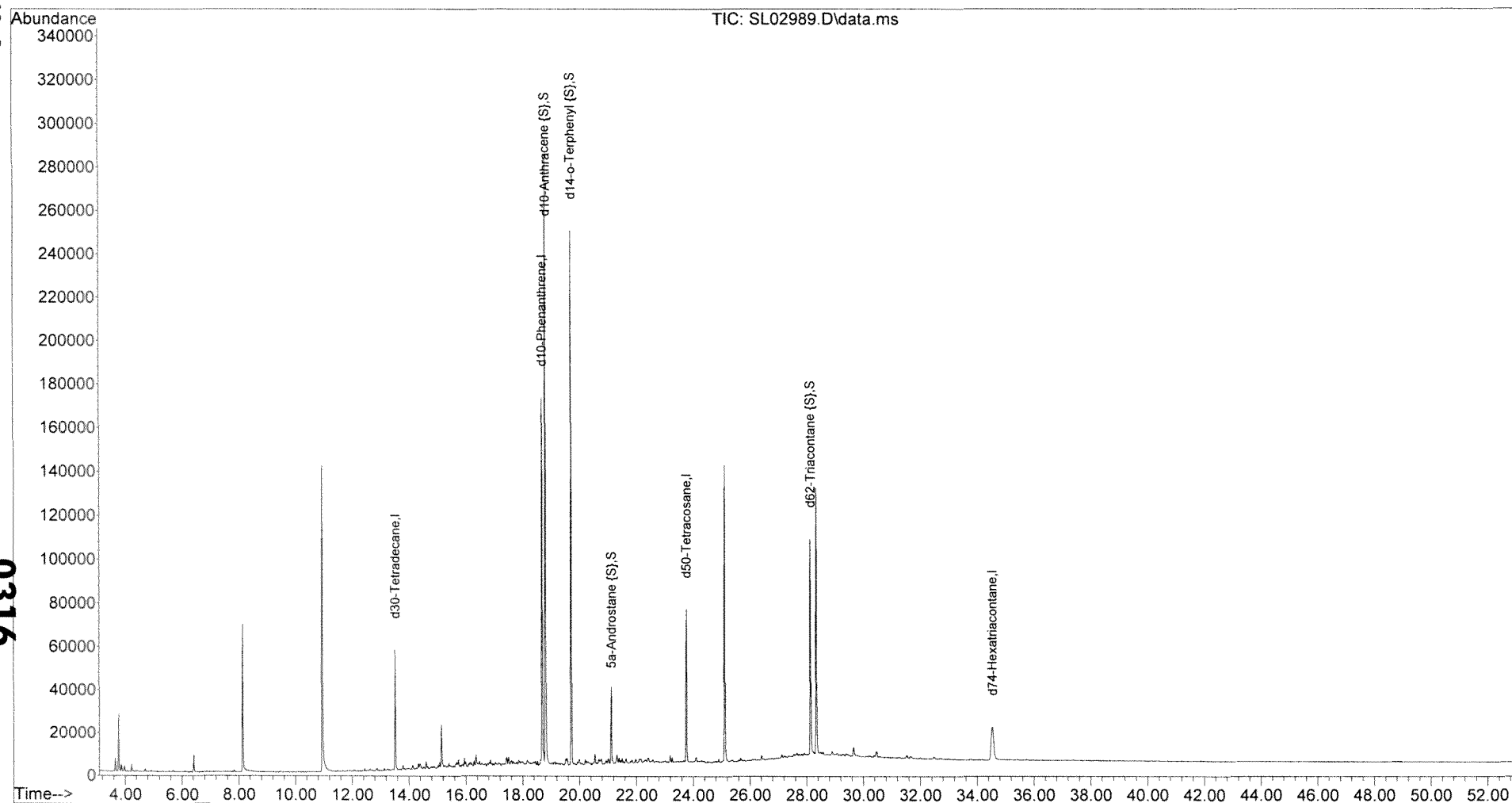
Qvalue

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

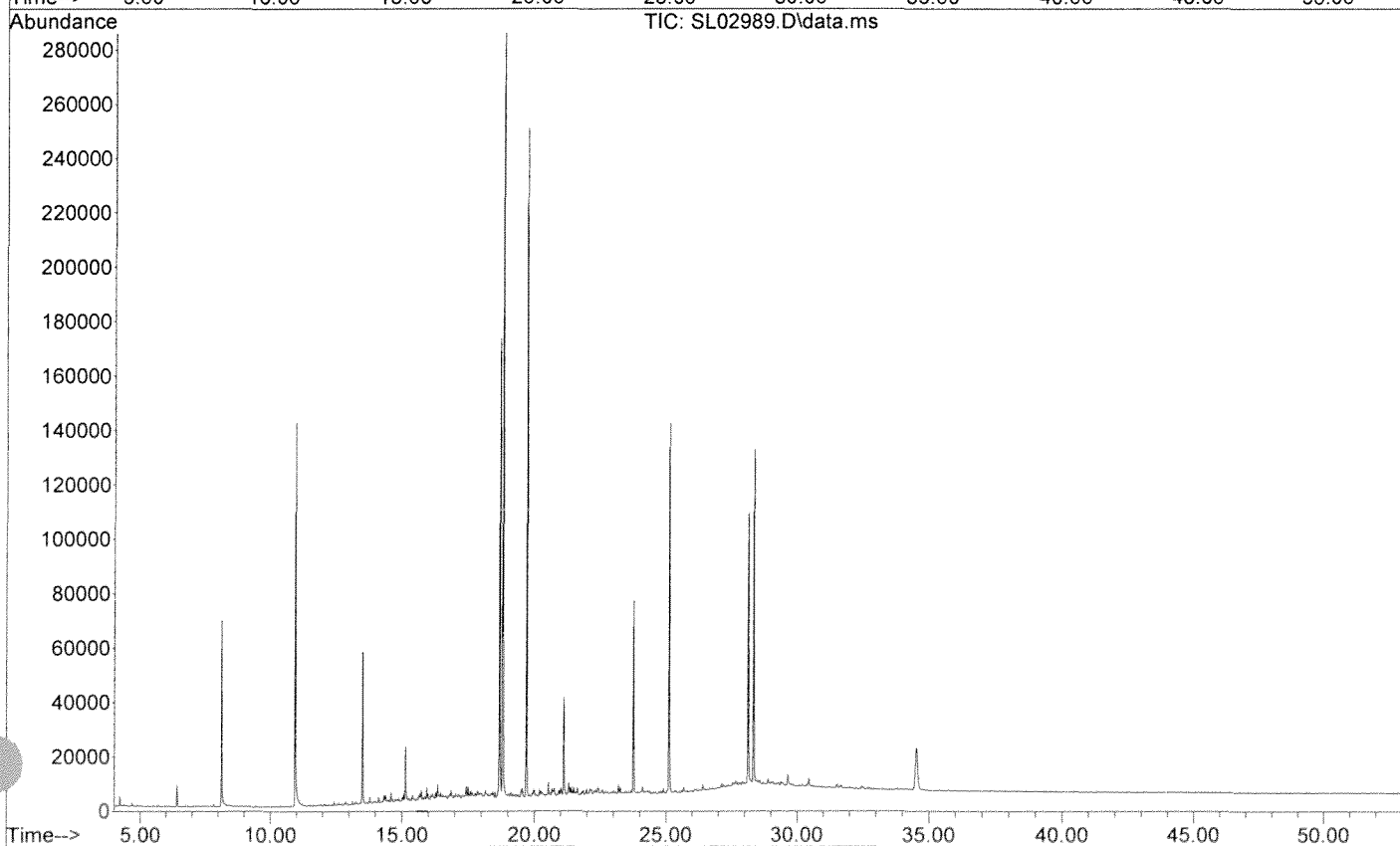
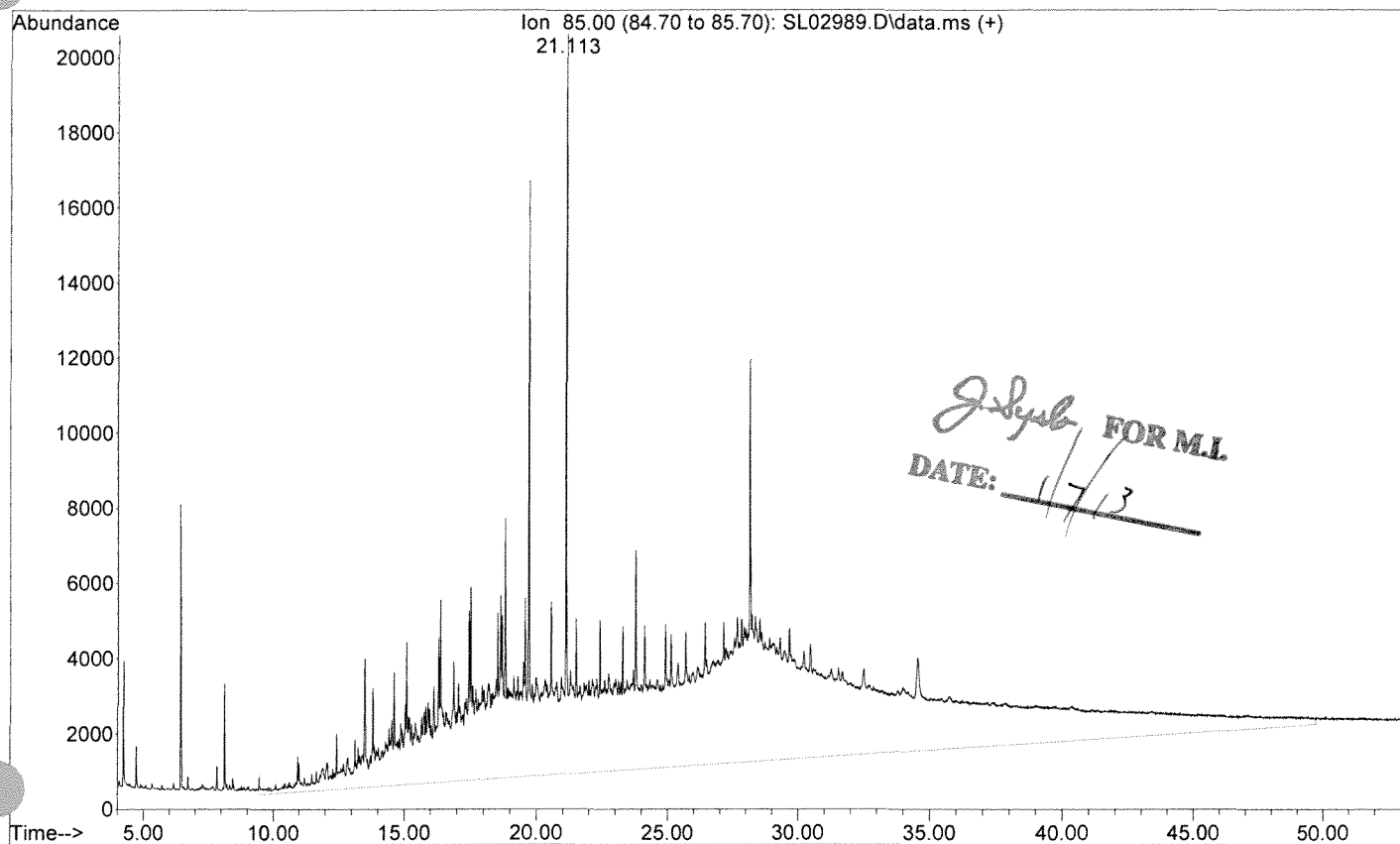
3544/121

Data Path : C:\msdchem\1\DATA\032312\
 Data File : SL02989.D
 Acq On : 24 Mar 2012 4:09
 Operator : Syslo
 Sample : LCSD 1200040-BSD1
 Misc : 1.0mL FV
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 24 04:59:05 2012
 Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
 Quant Title : CUC/TPH ICAL + Surr. 03/20/12
 QLast Update : Wed Mar 21 18:41:58 2012
 Response via : Initial Calibration



File : C:\msdchem\1\DATA\032312\SL02989.D
Operator : Syslo
Acquired : 24 Mar 2012 4:09 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: LCSD 1200040-BSD1
Misc Info : 1.0mL FV
V Number: 9



Area Percent Report

Data Path : C:\msdchem\1\DATA\032312\
Data File : SL02989.D
Acq On : 24 Mar 2012 4:09
Operator : Syslo
Sample : LCSD 1200040-BSD1
Vial : 1.0mL FV
ALS Vial : 9 Sample Multiplier: 1

Integration Parameters: Oilint.P

Integrator: RTE
Smoothing : ON
Sampling : 1
Start Thrs: 0.05
Stop Thrs : 0.05
Filtering: 5
Min Area: 0.5 % of largest Peak
Max Peaks: 10
Peak Location: TOP

If leading or trailing edge < 70 prefer < Baseline drop else tangent >
Peak separation: 3

Method : C:\msdchem\1\METHODS\ENOTPH032212.M
Title : Enbridge Oil ICAL: 3/22/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL02989.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	21.113	799	2218	5622	rM 5	19685	3544121	100.00%	100.000%

Sum of corrected areas: 3544121

ENOTPH032212.M Mon Jan 07 15:29:55 2013 SLICK2

J. Syslo FORM 1.1
DATE: 1/7/13

Data Path : C:\msdchem\1\DATA\032312\
Data File : SL02990.D
Acq On : 24 Mar 2012 5:10
Operator : Syslo
Sample : SERAS-017-0007 5xd
sc : R203011-01 5xd confirm
LS Vial : 10 Sample Multiplier: 1

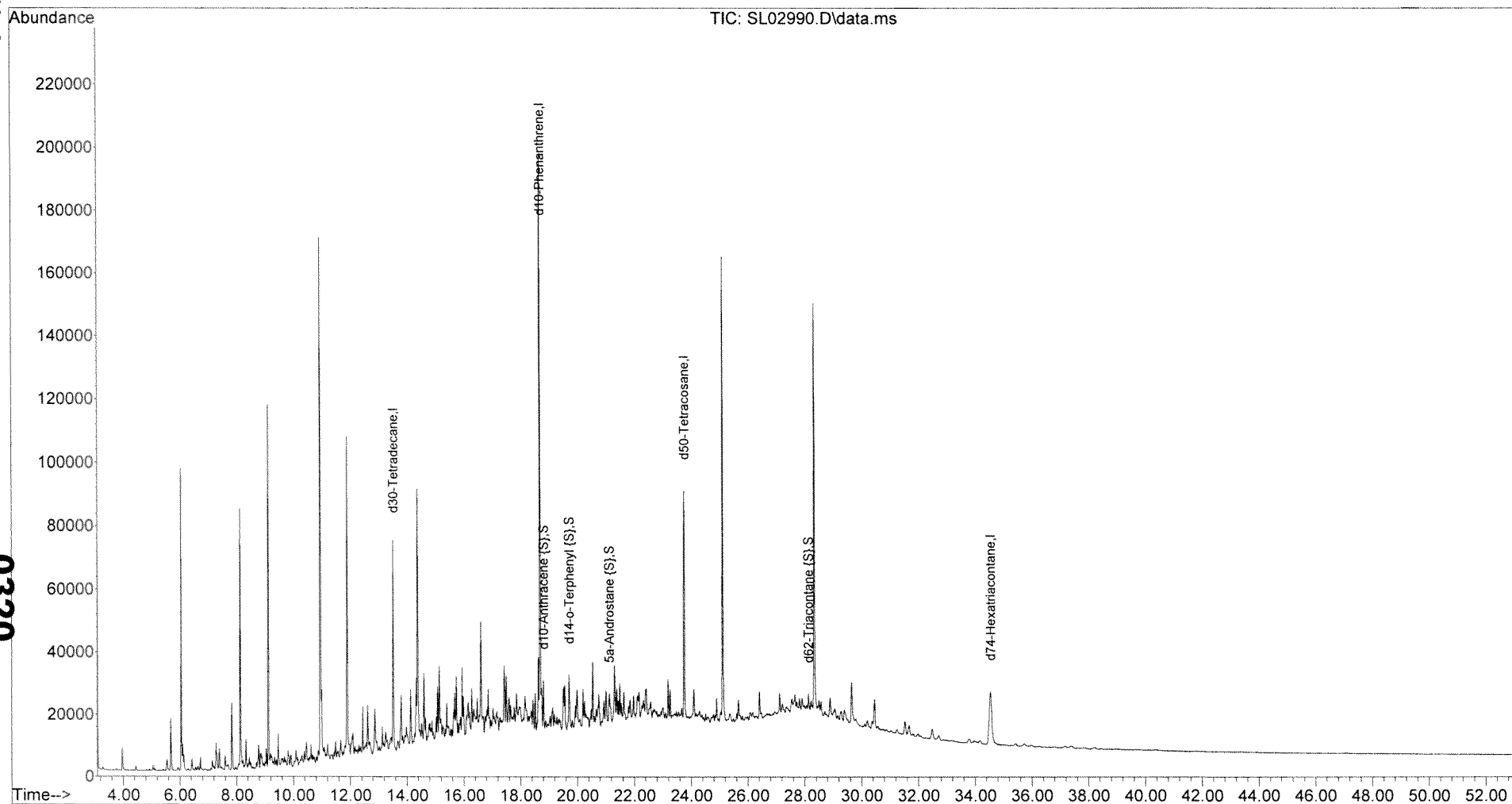
Quant Time: Mar 24 06:00:55 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.686	188	285769	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	108332	10.00	ug/mL	0.00
6) d50-Tetracosane	23.757	66	130795	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.537	66	101559	10.00	ug/mL	0.02
System Monitoring Compounds						
2) d10-Anthracene {S}	18.803	188	22074	0.79	ug/mL	0.00
Spiked Amount	20.000		Recovery	=	3.95%	
3) d14-o-Terphenyl {S}	19.706	244	9722	0.76	ug/mL	0.00
Spiked Amount	20.000		Recovery	=	3.80%	
4) 5a-Androstane {S}	21.122	260	1137	0.67	ug/mL	0.00
Spiked Amount	20.000		Recovery	=	3.35%	
7) d62-Triacontane {S}	28.131	66	8385	0.70	ug/mL	0.00
Spiked Amount	20.000		Recovery	=	3.50%	

Target Compounds Qvalue

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

Quant Time: Mar 24 06:00:55 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration



Data Path : C:\msdchem\1\DATA\032312\
Data File : SL02991.D
Acq On : 24 Mar 2012 6:13
Operator : Syslo
Sample : 1200039-MS 5xd
sc : MatrixSpike 5xd confirm
LS Vial : 11 Sample Multiplier: 1

Quant Time: Mar 24 07:03:07 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

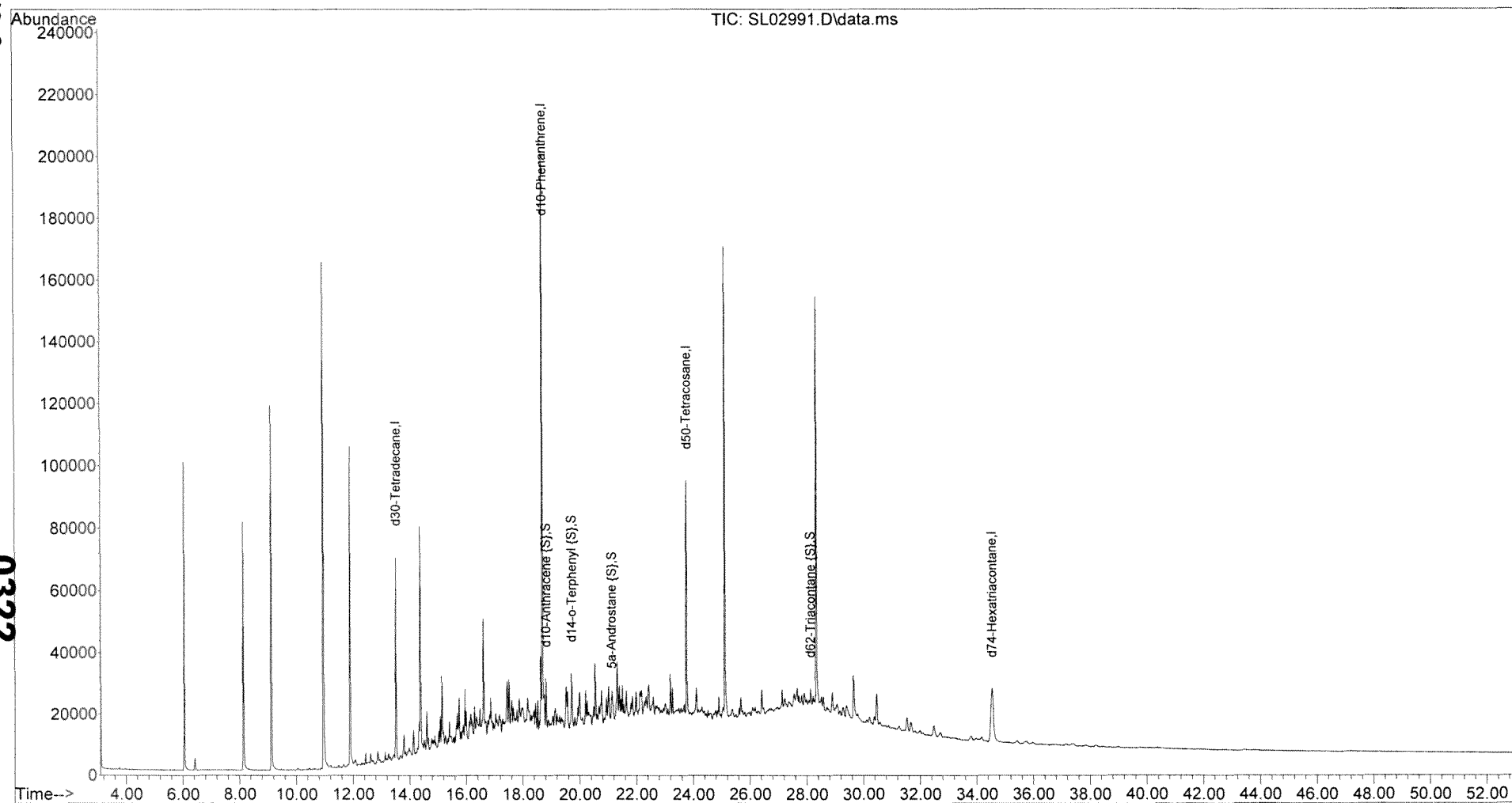
Internal Standards						
1) d10-Phenanthrene	18.686	188	289247	10.00	ug/mL	0.00
5) d30-Tetradecane	13.516	66	110162	10.00	ug/mL	0.00
6) d50-Tetracosane	23.757	66	134095	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.529	66	103201	10.00	ug/mL	0.02
System Monitoring Compounds						
2) d10-Anthracene {S}	18.804	188	22573	0.80	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.00%	
3) d14-o-Terphenyl {S}	19.706	244	10056	0.78	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	3.90%	
4) 5a-Androstane {S}	21.113	260	1157	0.68	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	3.40%	
7) d62-Triacontane {S}	28.131	66	8774	0.72	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	3.60%	

Target Compounds Qvalue

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

Data Path : C:\msdchem\1\DATA\032312\
Data File : SL02991.D
Acq On : 24 Mar 2012 6:13
Operator : Syslo
Sample : 1200039-MS 5xd
Misc : MatrixSpike 5xd confirm
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Mar 24 07:03:07 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : CUC/TPH ICAL + Surr. 03/20/12
QLast Update : Wed Mar 21 18:41:58 2012
Response via : Initial Calibration



Day 28
4/18/13

Day 28 Treatability Study
SERAS, GC/MS Injection Log

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

Project Name:

Method File:

DFTPP/ENOTPH#32212

Work Assign.#:

Inj. Volume:

Analysis/Date:

Analyst:

Reviewed By: Vand Farsell Date Checked: 5/15/12
Analyzed by: J. Syde 4/18/12 6/5/12

Reviewed By:

Date Checked:

Analyzed by: J. Syts 4/18/12

~~5/6/12~~ 6/5/12

Day 28

Sequence Name: C:\msdchem\1\sequence\041812.s
Comment: CUC & EnbridgeStudies
Operator: Syslo
Data Path: C:\MSDCHEM\1\DATA\041812\
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  SL03050 DFT8270D 50 DFTPP  
2) Sample      71  5.0k ENO CCC  
   Datafile    SL03051  
   Method      ENOTPH032212  
3) Sample      71  5.0k ENO CCC  
   Datafile    SL03052  
   Method      ENOTPH032212  
4) Sample      1   Soil Blank  
   Datafile    SL03053  
   Method      ENOTPH032212  
5) Sample      2   Soil LCS  
   Datafile    SL03054  
   Method      ENOTPH032212  
6) Sample      3   Soil LCS Dup  
   Datafile    SL03055  
   Method      ENOTPH032212  
7) Sample      4   4xd SERAS-017-0020  
   Datafile    SL03056  
   Method      ENOTPH032212  
8) Sample      5   4xd SERAS-017-0021  
   Datafile    SL03057  
   Method      ENOTPH032212  
9) Sample      6   4xd SERAS-017-0022  
   Datafile    SL03058  
   Method      ENOTPH032212  
10) Sample     7   4xd SERAS-017-0023  
   Datafile    SL03059  
   Method      ENOTPH032212  
11) Sample     8   4xd SERAS-017-0024  
   Datafile    SL03060  
   Method      ENOTPH032212  
12) Sample     9   4xd SERAS-017-0025  
   Datafile    SL03061  
   Method      ENOTPH032212
```

Injection Log

Data Directory: C:\msdchem\1\DATA\041812\

SampleName	MiscInfo	Vial	Multiplier	Injection Time	
1) SL03050.D 50 DFTPP	RVB0025	99	1.000	18 Apr 2012 15:23	START
2) SL03051.D 5.0k ENO CCC	RVC0059	71	1.000	18 Apr 2012 15:53	
3) SL03052.D 5.0k ENO CCC	RVC0059	71	1.000	18 Apr 2012 17:18	
4) SL03053.D Soil Blank	1200055-BKL1 1ml FV	1	1.000	18 Apr 2012 18:19	
5) SL03054.D Soil LCS	1200055-BS1 1ml FV	2	1.000	18 Apr 2012 19:20	
6) SL03055.D Soil LCS Dup	1200055-BSD1 1ml FV	3	1.000	18 Apr 2012 20:20	
7) SL03056.D 4xd SERAS-017-0020	275-89-06 {5mlFV,th	4	1.000	18 Apr 2012 21:21	
8) SL03057.D 4xd SERAS-017-0021	275-89-07 {5mlFV,th	5	1.000	18 Apr 2012 22:22	
9) SL03058.D 4xd SERAS-017-0022	275-89-08 {5mlFV,th	6	1.000	18 Apr 2012 23:23	
10) SL03059.D 4xd SERAS-017-0023	275-89-09 {5mlFV,th	7	1.000	19 Apr 2012 00:23	
11) SL03060.D 4xd SERAS-017-0024	275-89-10 {5mlFV,th	8	1.000	19 Apr 2012 1:24	
12) SL03061.D 4xd SERAS-017-0025	275-89-11 {5mlFV,th	9	1.000	19 Apr 2012 2:25	
13) SL03062.D Soil Blank EOS	1200055-BKL1 1ml FV	1	1.000	19 Apr 2012 3:26	FINISH

12 hour
Clock

FINISH

GC/MS QA-QC Check Report

Tune File : C:\msdchem\1\DATA\041812\SL03050.D

Tune Time : 18 Apr 2012 15:23

Daily Calibration File : C:\msdchem\1\DATA\041812\SL03052.D

363371 138365 199934

162938

File	Sample	Surrogate	Recovery %	Internal	Standard	Responses
SL03052.D	5.0k ENO C	103*	111*	116*	116*	363371 138365 199934 162938
SL03053.D	Soil Blank	88*	95*	92*	113*	301519 121623 157600 118416
SL03054.D	Soil LCS	59*	72*	81*	95*	323535 129741 173733 119096
SL03055.D	Soil LCS D	58*	70*	77*	90*	273267 116171 133157 87997
SL03056.D	4xd SERAS-	7*	6*	7*	6*	331318 125925 175849 132234
SL03057.D	4xd SERAS-	7*	6*	7*	5*	326449 125565 174377 124976
SL03058.D	4xd SERAS-	7*	6*	7*	6*	330208 124891 174909 123255
SL03059.D	4xd SERAS-	7*	6*	7*	6*	314315 116789 167418 132840
SL03060.D	4xd SERAS-	7*	6*	7*	6*	324010 118838 171974 131586
SL03061.D	4xd SERAS-	6*	5*	6*	5*	295458 120123 149414 96319
SL03062.D	Soil Blank	89*	90*	87*	109*	316835 123636 161070 110731

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

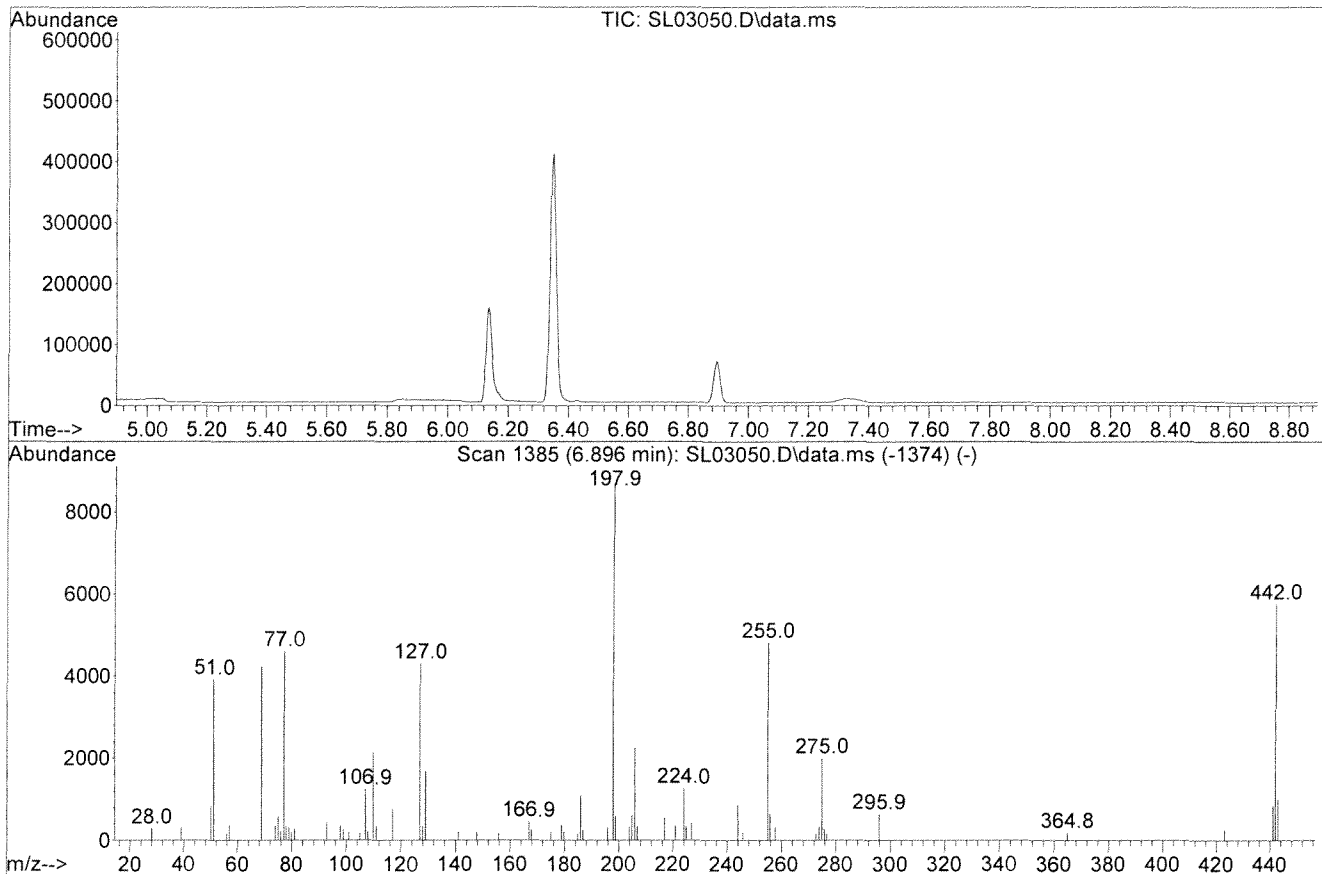
Created: Thu Apr 19 15:01:17 2012 Slick2

Data Path : C:\msdchem\1\DATA\041812\
 Data File : SL03050.D
 Acq On : 18 Apr 2012 15:23
 Operator : Syslo
 Sample : 50 DFTPP
 Misc : RVB0025
 ALS Vial : 99 Sample Multiplier: 1

Tailing PCP : 1.45
 Denzidim : 1.91
 %ADT dy = 4.44

Integration File: rteint.p

Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
 Title : DFTPP Method with 8270D criteria: 8/20/10
 Last Update : Thu Mar 08 02:08:57 2012



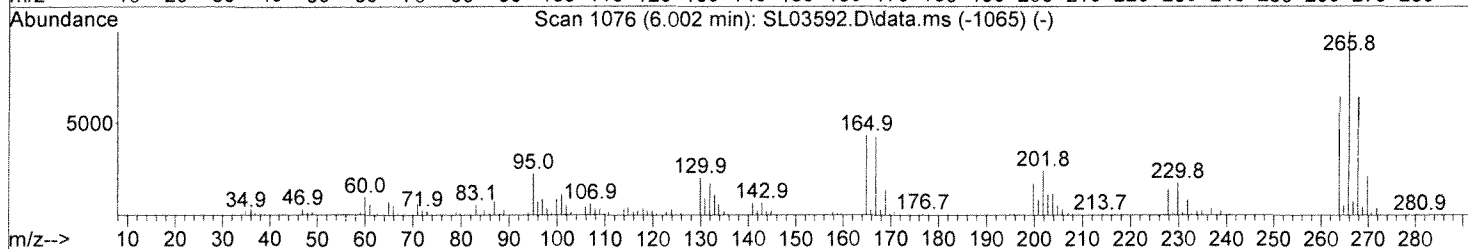
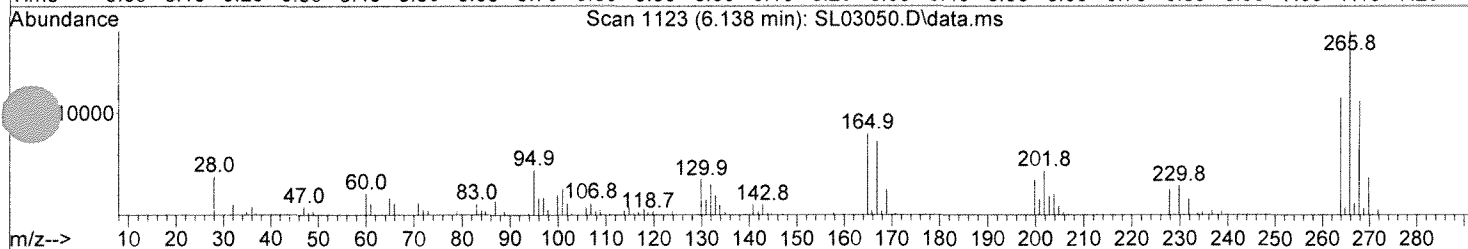
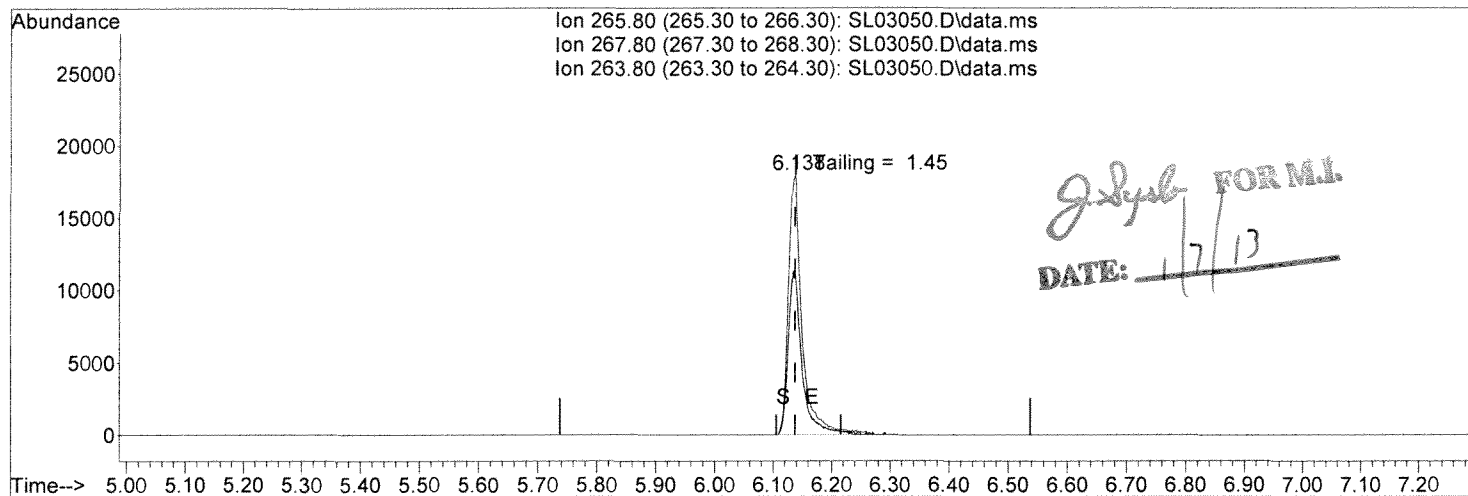
Spectrum Information: Scan 1385

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	45.2	3921	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	48.6	4223	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	49.6	4304	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	8683	PASS
199	198	5	9	6.6	577	PASS
275	198	10	60	23.0	2001	PASS
365	198	1	100	2.2	194	PASS
441	442	0.01	24	14.6	842	PASS
442	198	50	100	66.4	5762	PASS
443	442	15	24	17.3	996	PASS

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\041812\
Data File : SL03050.D
Acq On : 18 Apr 2012 15:23
Operator : Syslo
Sample : 50 DFTPP
Misc : RVB0025
ALS Vial : 99 Sample Multiplier: 1

Quant Time: Apr 18 15:35:30 2012
Quant Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
Quant Title : DFTPP Method with 8270D criteria: 8/20/10
QLast Update : Thu Mar 08 02:08:58 2012
Response via : Initial Calibration



TIC: SL03050.D\data.ms

(2) Pentachlorophenol

6.138min (-0.000) 36.94 ug/mL

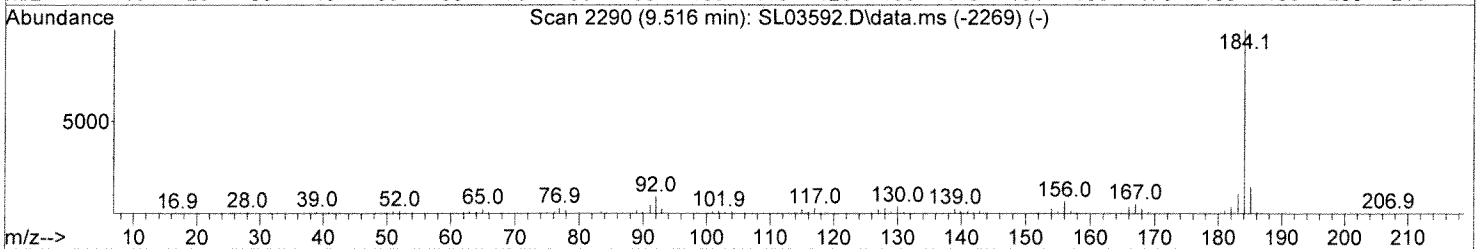
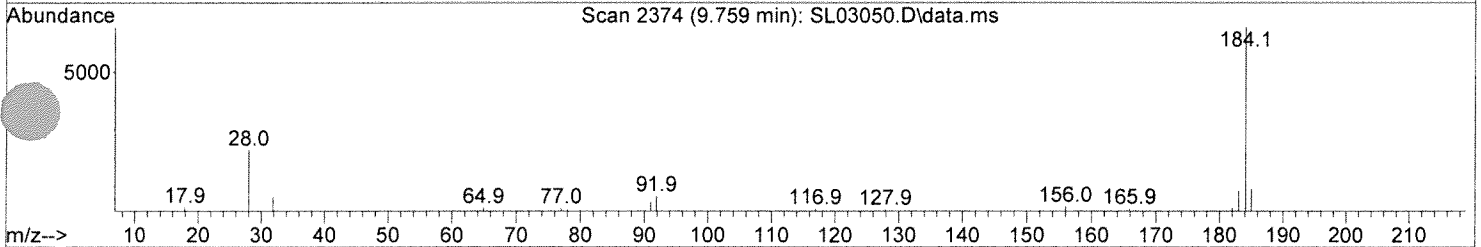
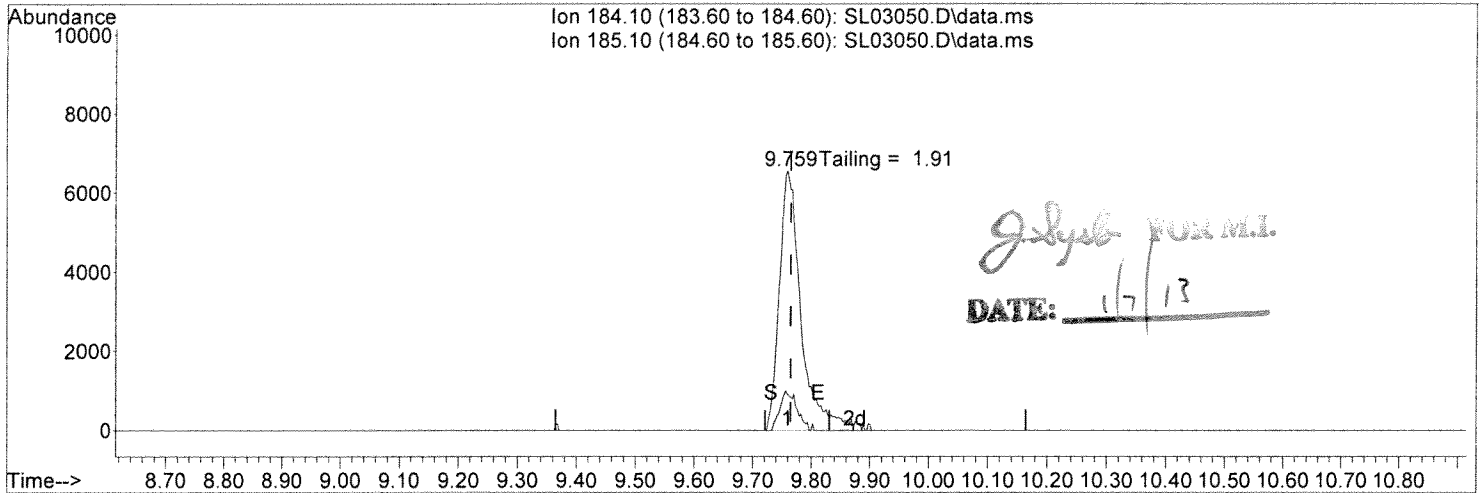
response 28835

Ion	Exp%	Act%
265.80	100	100
267.80	64.50	64.45
263.80	63.60	64.14
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\041812\
 Data File : SL03050.D
 Acq On : 18 Apr 2012 15:23
 Operator : Syslo
 Sample : 50 DFTPP
 Misc : RVB0025
 ALS Vial : 99 Sample Multiplier: 1

Quant Time: Apr 18 15:35:30 2012
 Quant Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
 Quant Title : DFTPP Method with 8270D criteria: 8/20/10
 QLast Update : Thu Mar 08 02:08:58 2012
 Response via : Initial Calibration



TIC: SL03050.D\data.ms

(5) Benzidine

9.759min (-0.006) 6.70 ug/mL

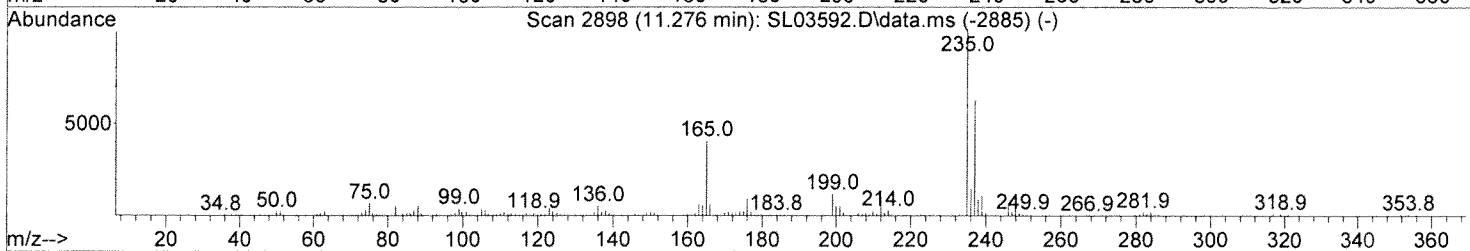
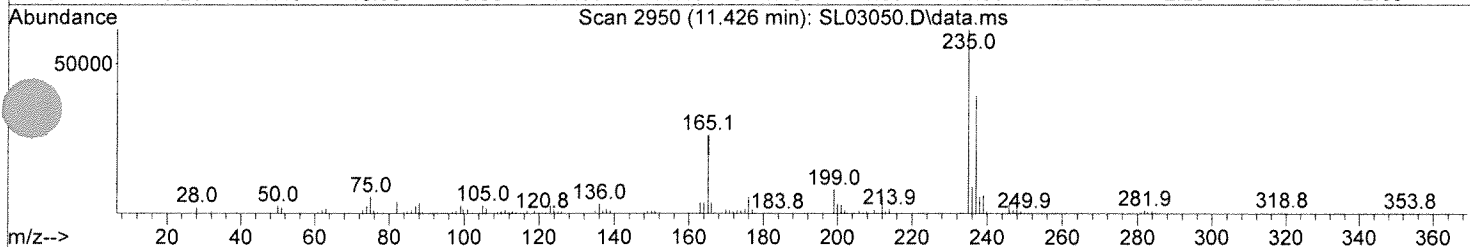
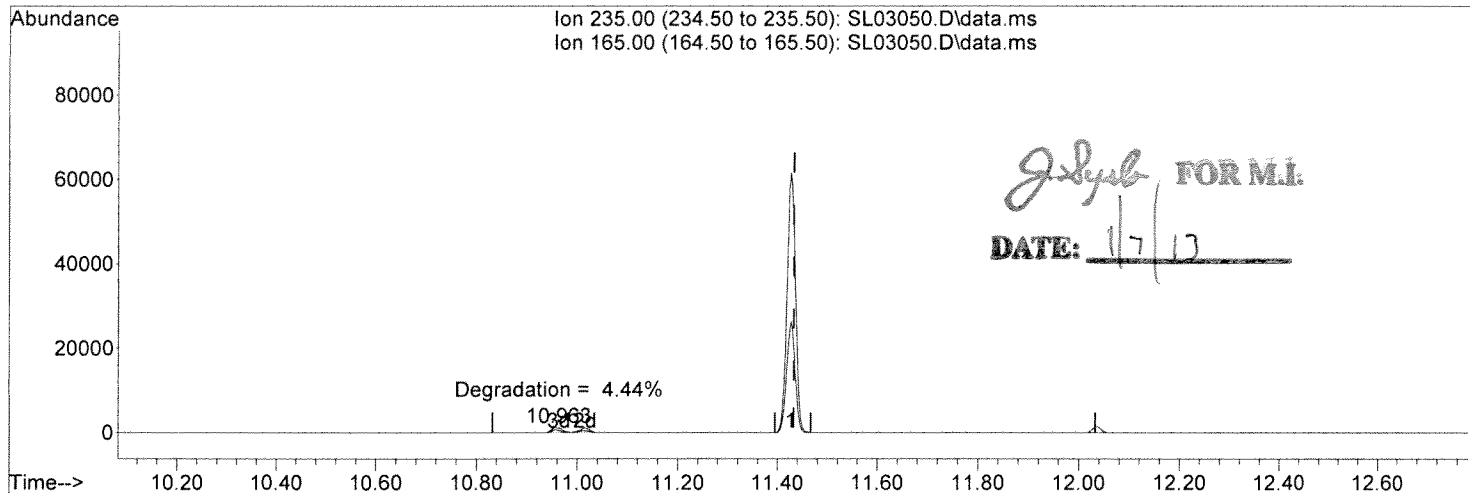
response 16155

Ion	Exp%	Act%
184.10	100	100
185.10	14.60	12.39
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\041812\
 Data File : SL03050.D
 Acq On : 18 Apr 2012 15:23
 Operator : Syslo
 Sample : 50 DFTPP
 Misc : RVB0025
 ALS Vial : 99 Sample Multiplier: 1

Quant Time: Apr 18 15:35:30 2012
 Quant Method : C:\MSDCHEM\1\METHODS\DFT8270D.M
 Quant Title : DFTPP Method with 8270D criteria: 8/20/10
 QLast Update : Thu Mar 08 02:08:58 2012
 Response via : Initial Calibration



TIC: SL03050.D\data.ms

(6) DDT

11.426min (-0.006) 69.13 ug/mL

response 74135

Ion	Exp%	Act%
235.00	100	100
165.00	51.80	42.36
0.00	0.00	0.00
0.00	0.00	0.00

TPH Daily Calibration Check Results
Enbridge Oil TPH Calibration Range - Using SERAS *Draft* 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.
03/22/12	03/22/12	Enbridge Oil D0	0-017	SL02966	10063058	119900	144569	112634	0.16011	0.14003	14.34
03/23/12	03/22/12	Enbridge Oil D14	0-017	SL02980	10391565	117729	144092	115840	0.16509	0.14003	17.90
04/18/12	03/22/12	Enbridge Oil D28	0-017	SL03052	12605180	138365	199934	162938	0.15089	0.14003	7.75

TPH response based on the sum of all peaks in the TPH (m/z 85 + 83 + 105 + 113 + 123 + 183) pattern from ~10.1 min to 53min.

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\DATA\041812\
 Data File : SL03052.D
 Acq On : 18 Apr 2012 17:18
 Operator : Syslo
 Sample : 5.0k ENO CCC
 Sc : RVC0059
 ALS Vial : 71 Sample Multiplier: 1

Quant Time: Apr 18 18:08:43 2012
 Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
 Quant Title : Enbridge Oil ICAL: 3/22/12
 QLast Update : Mon Mar 26 17:07:55 2012
 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	109	0.00
2 S	d10-Anthracene {S}	0.897	0.924	-3.0	99	0.00
3 S	d14-o-Terphenyl {S}	0.403	0.450	-11.7	110	-0.02
4 S	5a-Androstane {S}	0.053	0.061	-15.1	116	0.00

5 I	d30-Tetradecane	1.000	1.000	0.0	105	0.00
6 I	d50-Tetracosane	1.000	1.000	0.0	128	-0.02
7 S	d62-Triacontane {S}	0.793	0.921	-16.1	132	0.00

8 I	d74-Hexatriacontane	1.000	1.000	0.0	144	-0.02

(#) = Out of Range

SPCC's out = 0 CCC's out = 0

ENOTPH032212.M Thu Apr 19 14:18:02 2012 SLICK2

f *sur* *ok*

Data Path : C:\msdchem\1\DATA\041812\
Data File : SL03052.D
Acq On : 18 Apr 2012 17:18
Operator : Syslo
Sample : 5.0k ENO CCC
SC : RVC0059
Vial : 71 Sample Multiplier: 1

Quant Time: Apr 18 18:08:43 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Mon Mar 26 17:07:55 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.677	188	363371	10.00	ug/mL	0.00
5) d30-Tetradecane	13.508	66	138365	10.00	ug/mL	0.00
6) d50-Tetracosane	23.748	66	199934	10.00	ug/mL	-0.02
8) d74-Hexatriacontane	34.520	66	162938	10.00	ug/mL	-0.02
System Monitoring Compounds						
2) d10-Anthracene {S}	18.794	188	671840	20.62	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	103.10%	
3) d14-o-Terphenyl {S}	19.697	244	326767	22.30	ug/mL	-0.02
Spiked Amount 20.000			Recovery	=	111.50%	
4) 5a-Androstane {S}	21.113	260	44306	23.21	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	116.05%	
7) d62-Triacontane {S}	28.131	66	368219	23.22	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	116.10%	

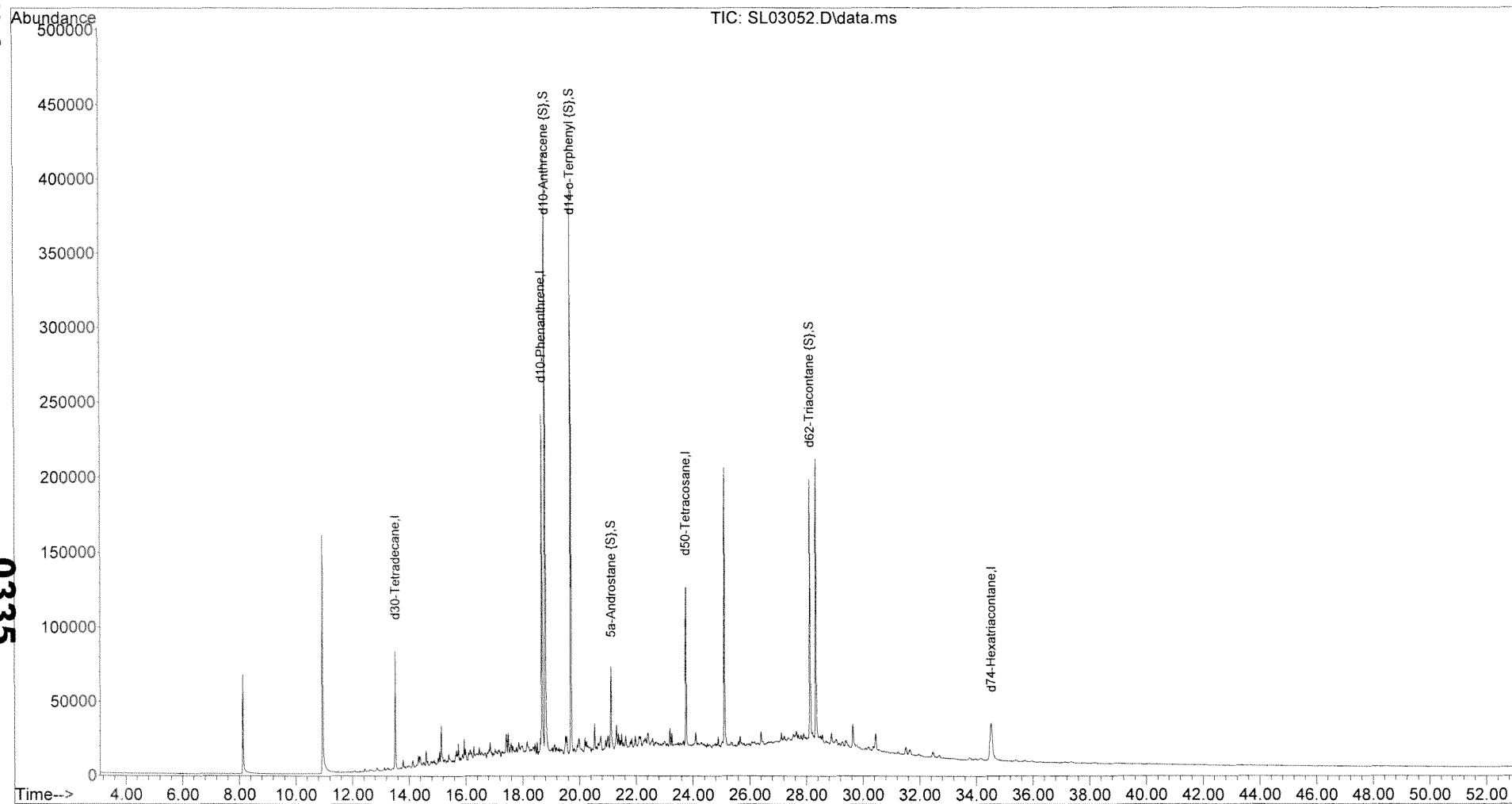
Target Compounds Qvalue

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

$\Sigma_{+ph} = 12605180$
N.D. = 7.75

Data Path : C:\msdchem\1\DATA\041812\
Data File : SL03052.D
Acq On : 18 Apr 2012 17:18
Operator : Syslo
Sample : 5.0k ENO CCC
Misc : RVC0059
ALS Vial : 71 Sample Multiplier: 1

Quant Time: Apr 18 18:08:43 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Mon Mar 26 17:07:55 2012
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\041812\
Data File : SL03052.D
Acq On : 18 Apr 2012 17:18
Operator : Syslo
Sample : 5.0k ENO CCC
Sc : RVC0059
ALS Vial : 71 Sample Multiplier: 1

Integration Parameters: Oilint.P

Integrator: RTE
Smoothing : ON
Sampling : 1
Start Thrs: 0.05
Stop Thrs : 0.05
Filtering: 5
Min Area: 0.5 % of largest Peak
Max Peaks: 10
Peak Location: TOP

If leading or trailing edge < 70 prefer < Baseline drop else tangent >
Peak separation: 3

Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Title : Enbridge Oil ICAL: 3/22/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL03052.D\data.ms

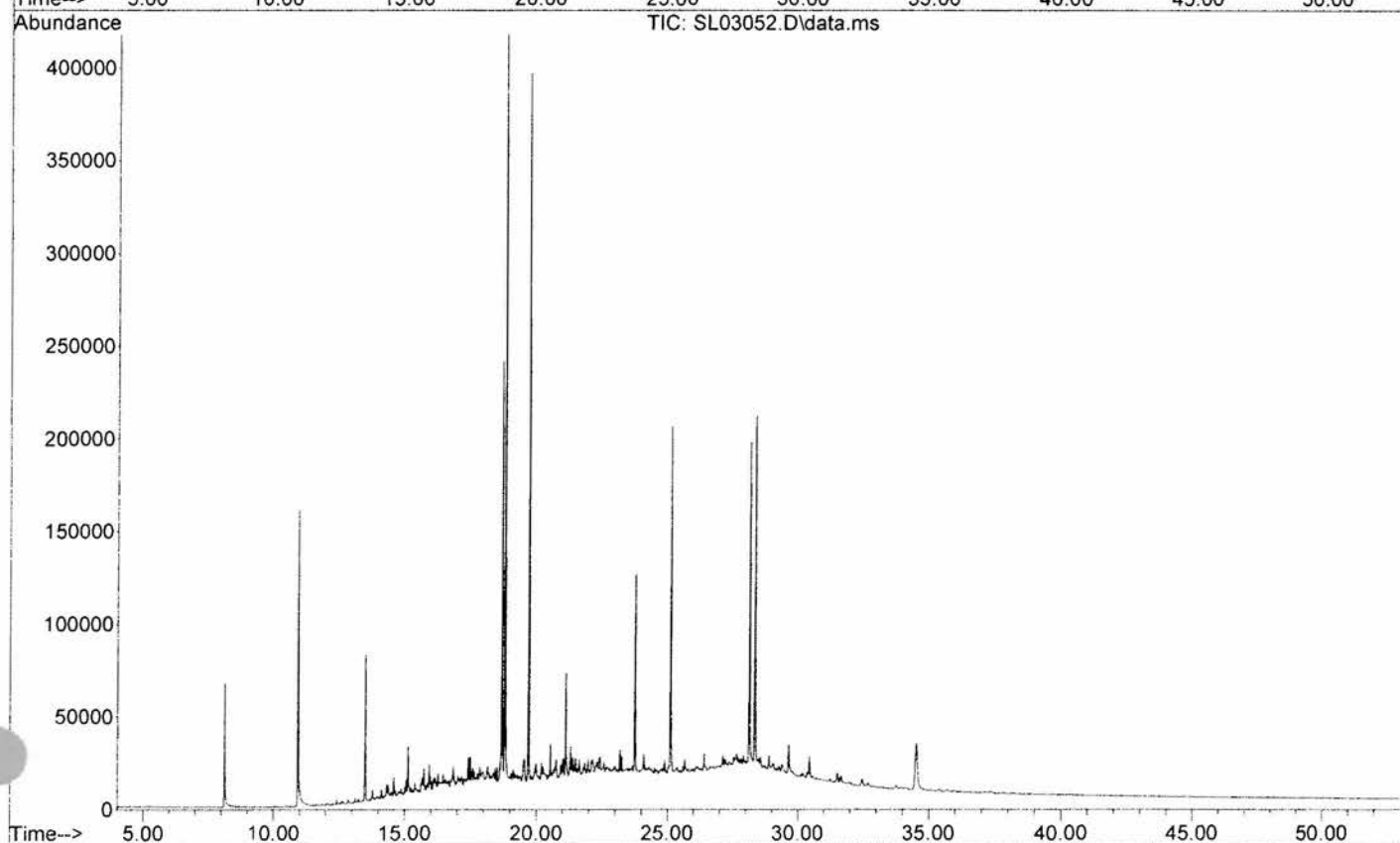
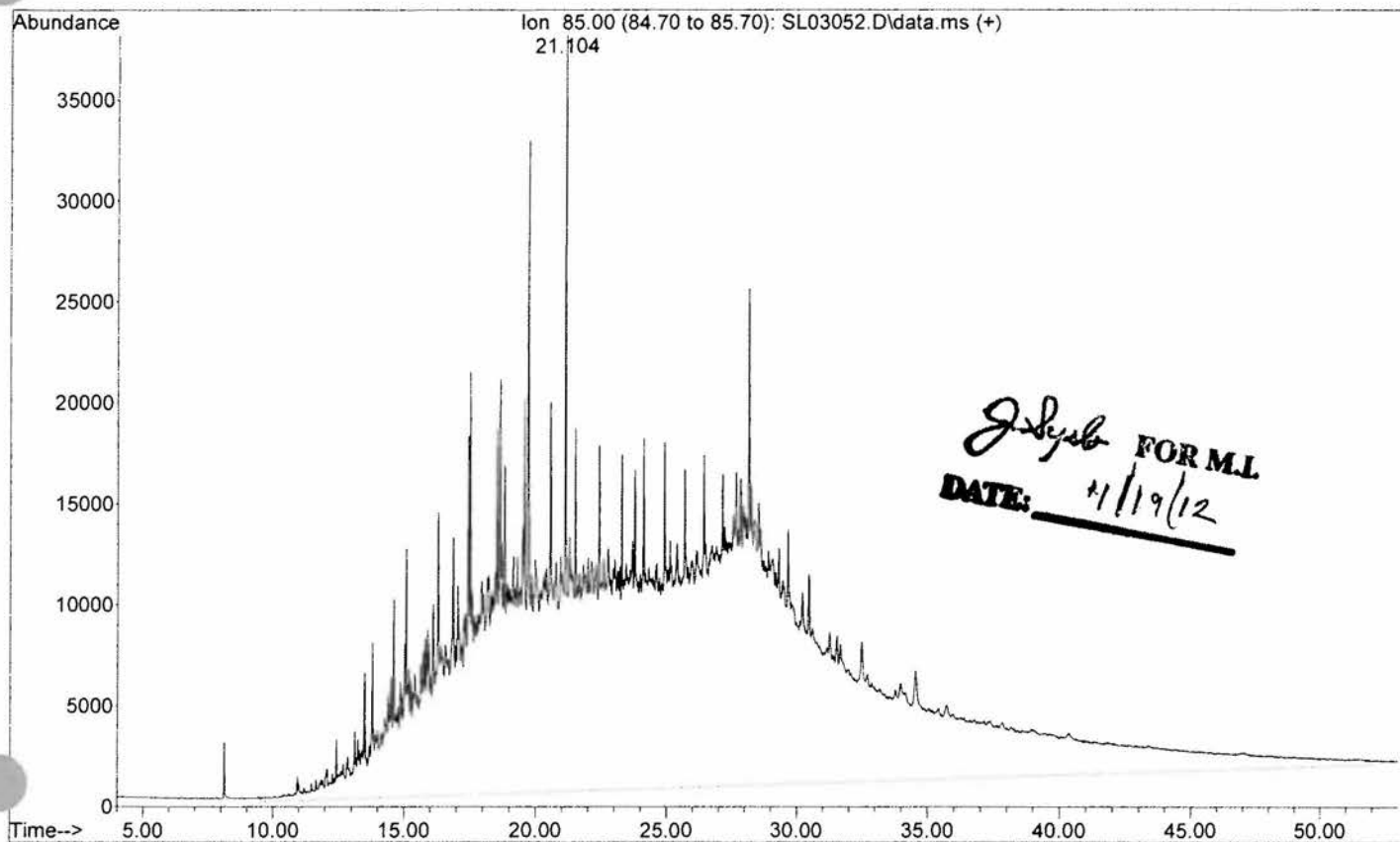
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	21.104	808	2217	5892	rM 5	37525	12605180	100.00%	100.000%

Sum of corrected areas: 12605180

ENOTPH032212.M Thu Apr 19 14:24:14 2012 SLICK2

J. Slick FOR ML
DATE: 4/19/12

File : C:\msdchem\1\DATA\041812\SL03052.D
Operator : Syslo
Acquired : 18 Apr 2012 17:18 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: 5.0k ENO CCC
Misc Info : RVC0059
V Number: 71



Data Path : C:\msdchem\1\DATA\041812\
Data File : SL03053.D
Acq On : 18 Apr 2012 18:19
Operator : Syslo
Sample : Soil Blank
Vial : 1200055-BKL1 1ml FV
Vial : 1 Sample Multiplier: 1

Quant Time: Apr 19 14:18:59 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Thu Apr 19 14:18:18 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.677	188	301519	10.00	ug/mL	0.00
5) d30-Tetradecane	13.508	66	121623	10.00	ug/mL	0.00
6) d50-Tetracosane	23.748	66	157600	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.503	66	118416	10.00	ug/mL	-0.02
System Monitoring Compounds						
2) d10-Anthracene {S}	18.794	188	476558	17.63	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	88.15%	
3) d14-o-Terphenyl {S}	19.697	244	232170	19.09	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	95.45%	
4) 5a-Androstane {S}	21.104	260	29284	18.48	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	92.40%	
7) d62-Triacontane {S}	28.122	66	281823	22.55	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	112.75%	

Target Compounds

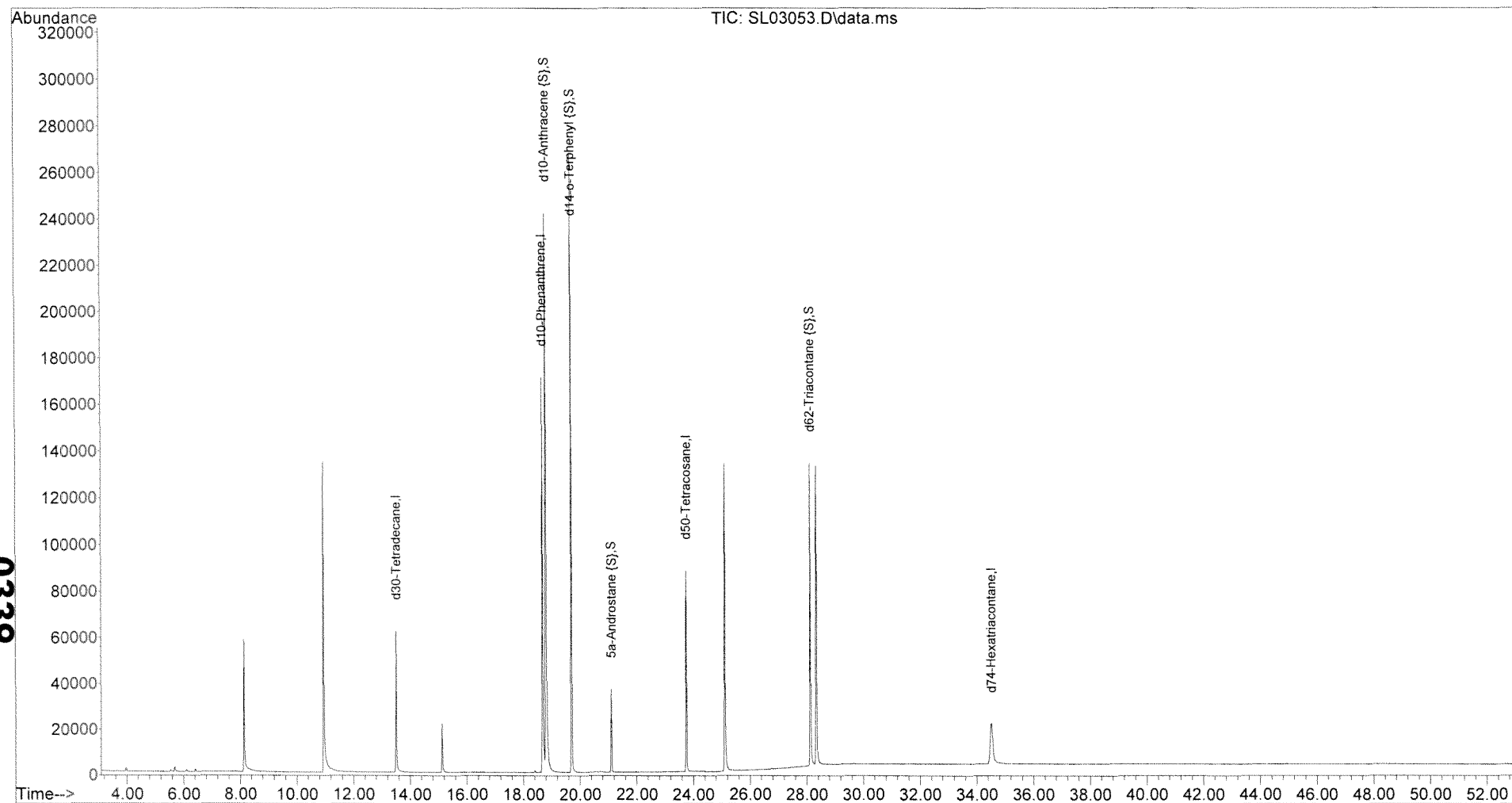
Qvalue

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

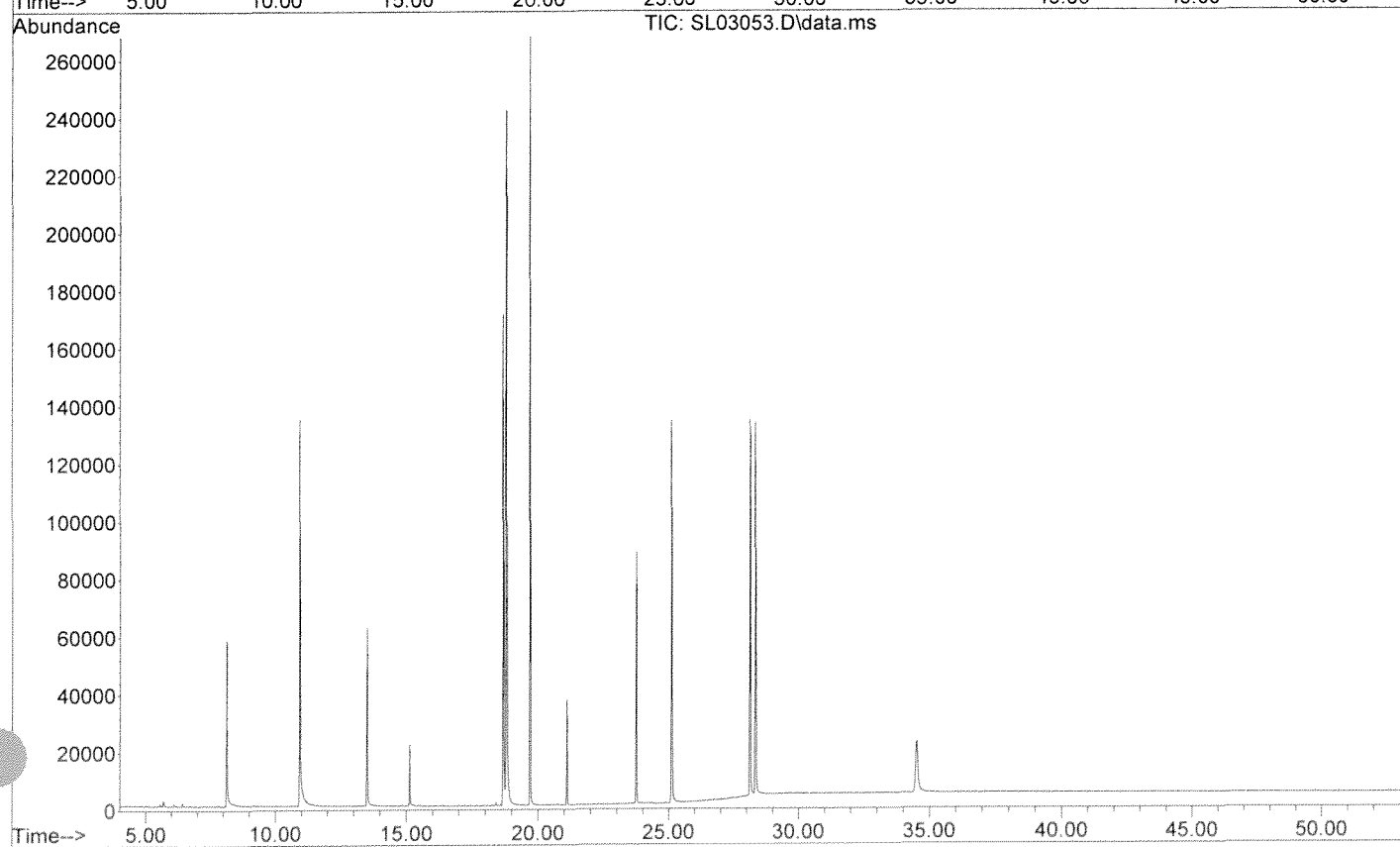
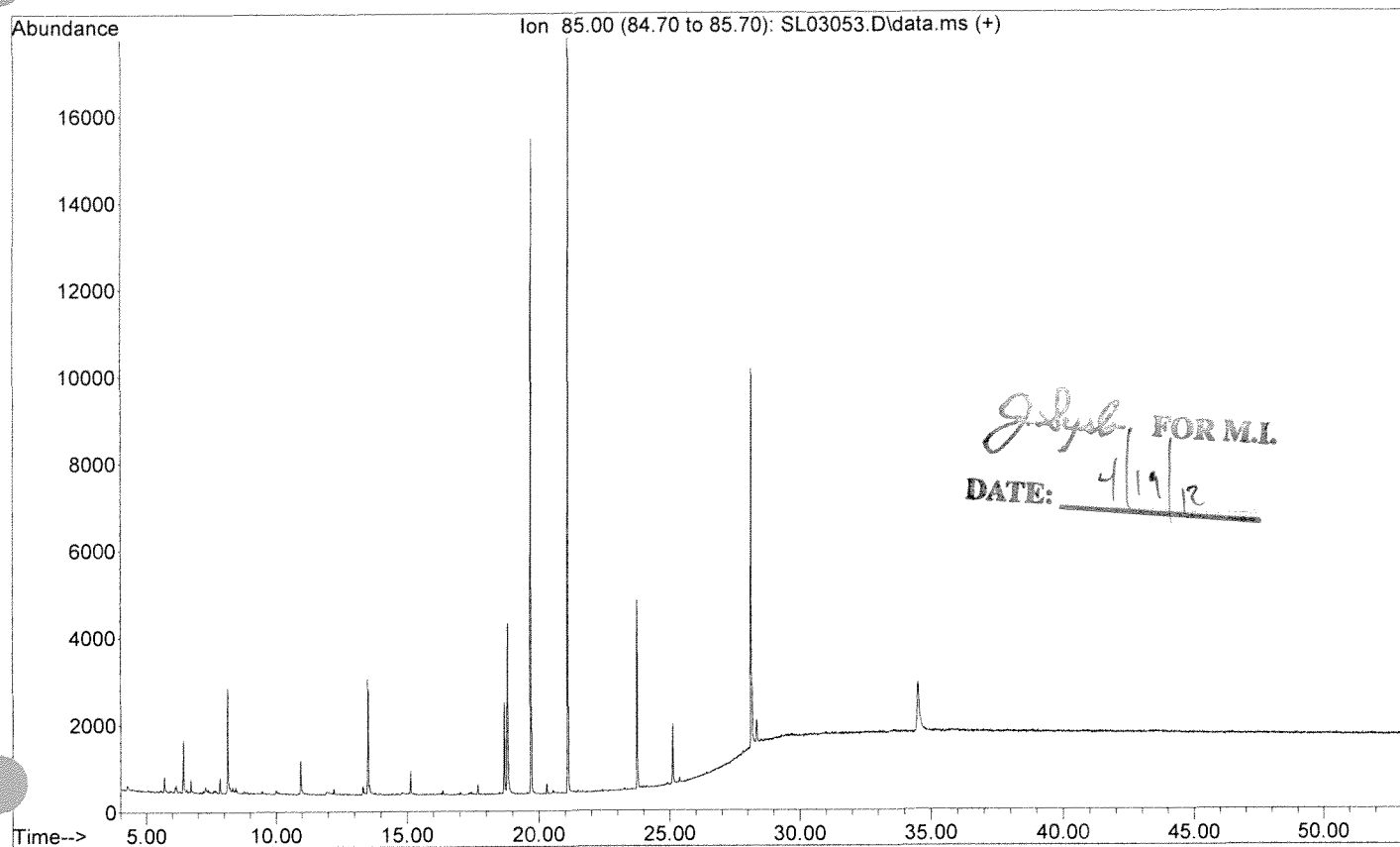
ND TP5

Data Path : C:\msdchem\1\DATA\041812\
Data File : SL03053.D
Acq On : 18 Apr 2012 18:19
Operator : Syslo
Sample : Soil Blank
Misc : 1200055-BKL1 1ml FV
ALS Vial : 1 Sample Multiplier: 1

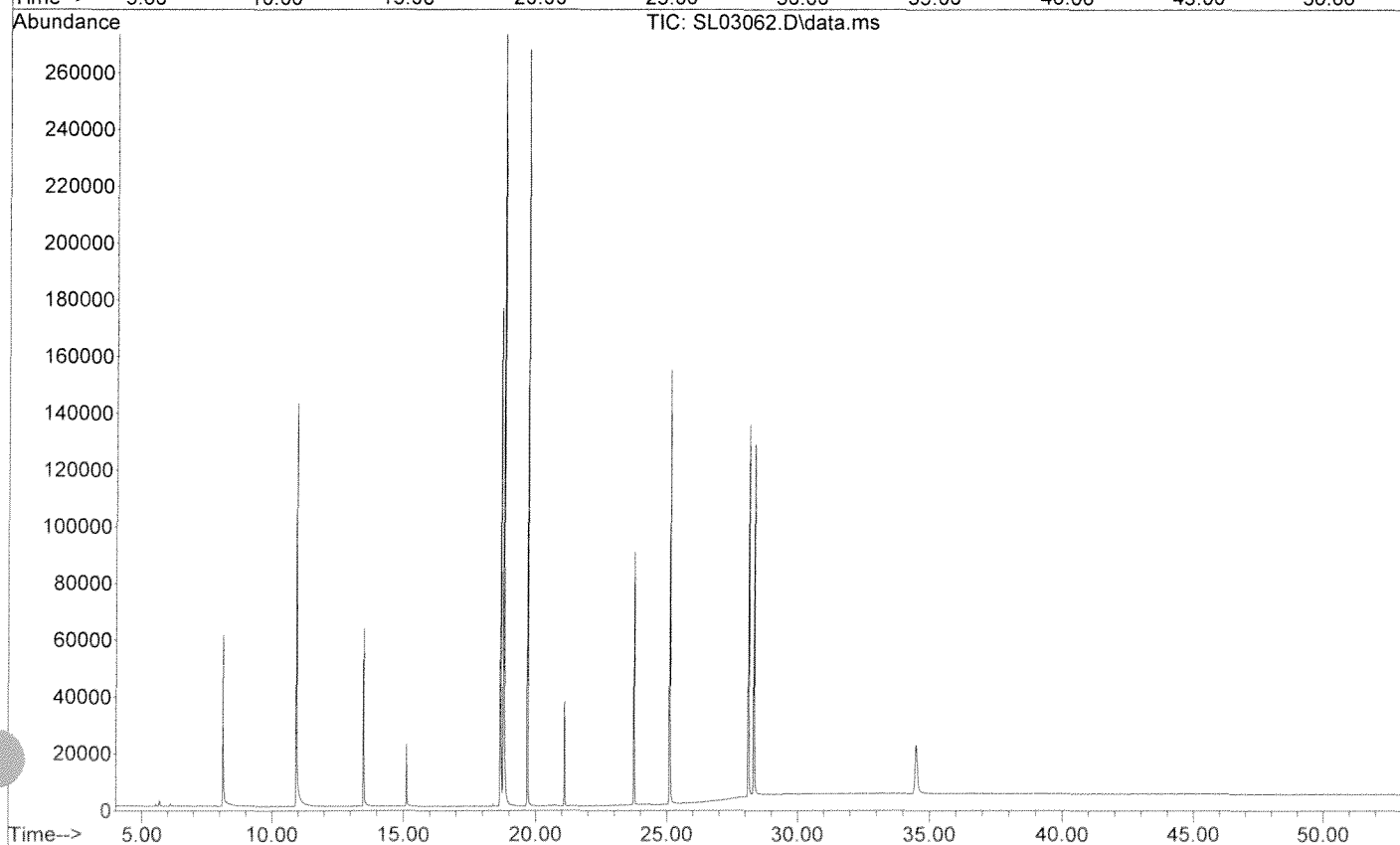
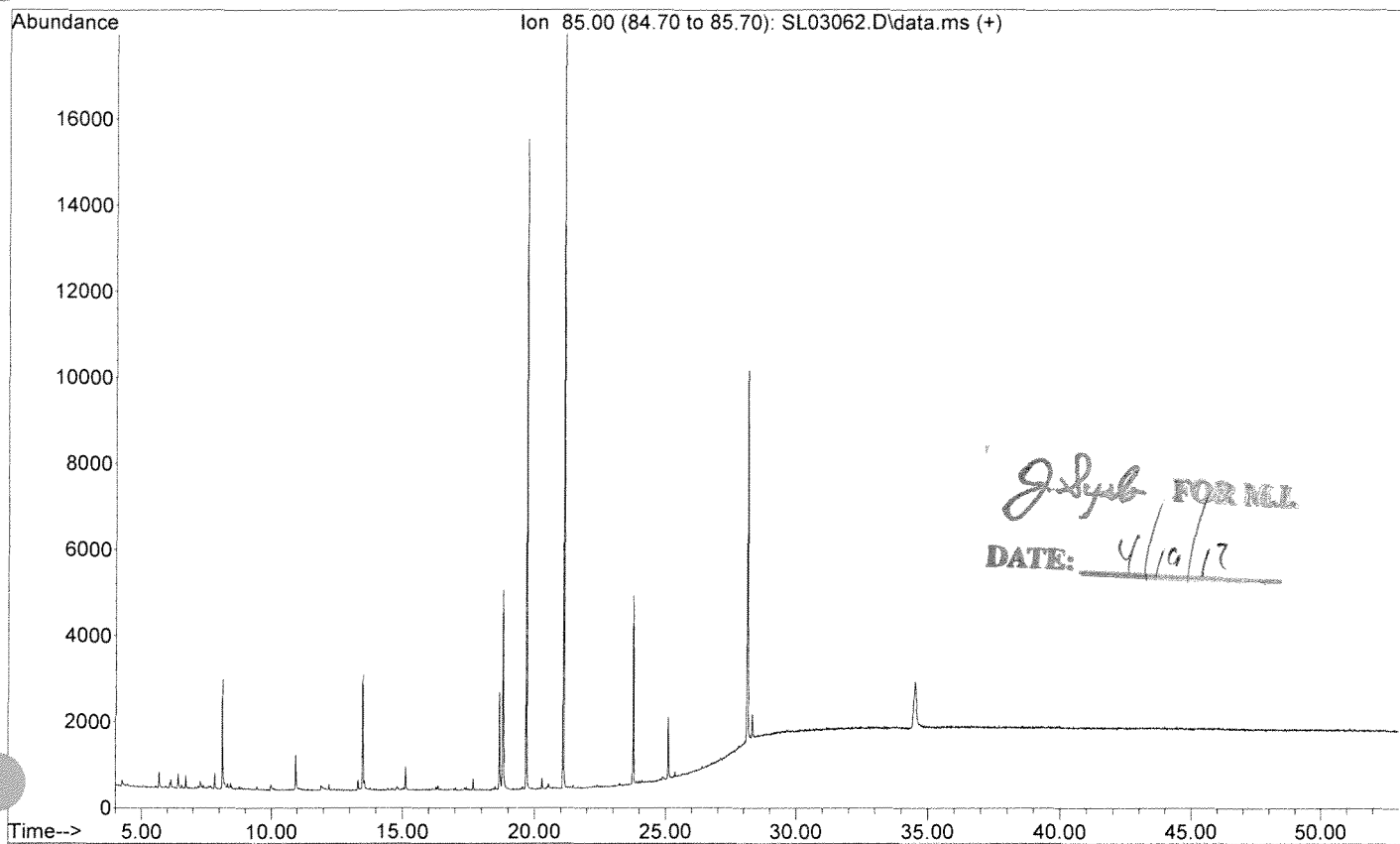
Quant Time: Apr 19 14:18:59 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Thu Apr 19 14:18:18 2012
Response via : Initial Calibration



File : C:\msdchem\1\DATA\041812\SL03053.D
Operator : Syslo
Acquired : 18 Apr 2012 18:19 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: Soil Blank
Misc Info : 1200055-BKL1 1ml FV
V Number: 1



File : C:\msdchem\1\DATA\041812\SL03062.D
Operator : Syslo
Acquired : 19 Apr 2012 3:26 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: Soil Blank EOS
Misc Info : 1200055-BKL1 1ml FV
V Number: 1



Data Path : C:\msdchem\1\DATA\041812\
Data File : SL03054.D
Acq On : 18 Apr 2012 19:20
Operator : Syslo
Sample : Soil LCS
SC : 1200055-BS1 1ml FV
LS Vial : 2 Sample Multiplier: 1

Quant Time: Apr 19 14:19:01 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Thu Apr 19 14:18:18 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.677	188	323535	10.00	ug/mL	0.00
5) d30-Tetradecane	13.508	66	129741	10.00	ug/mL	0.00
6) d50-Tetracosane	23.748	66	173733	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.512	66	119096	10.00	ug/mL	0.00
System Monitoring Compounds						
2) d10-Anthracene {S}	18.795	188	339546	11.70	ug/mL	0.00
Spiked Amount	20.000		Recovery	=	58.50%	
3) d14-o-Terphenyl {S}	19.697	244	186618	14.30	ug/mL	0.00
Spiked Amount	20.000		Recovery	=	71.50%	
4) 5a-Androstane {S}	21.104	260	27457	16.15	ug/mL	0.00
Spiked Amount	20.000		Recovery	=	80.75%	
7) d62-Triacontane {S}	28.122	66	262487	19.05	ug/mL	0.00
Spiked Amount	20.000		Recovery	=	95.25%	

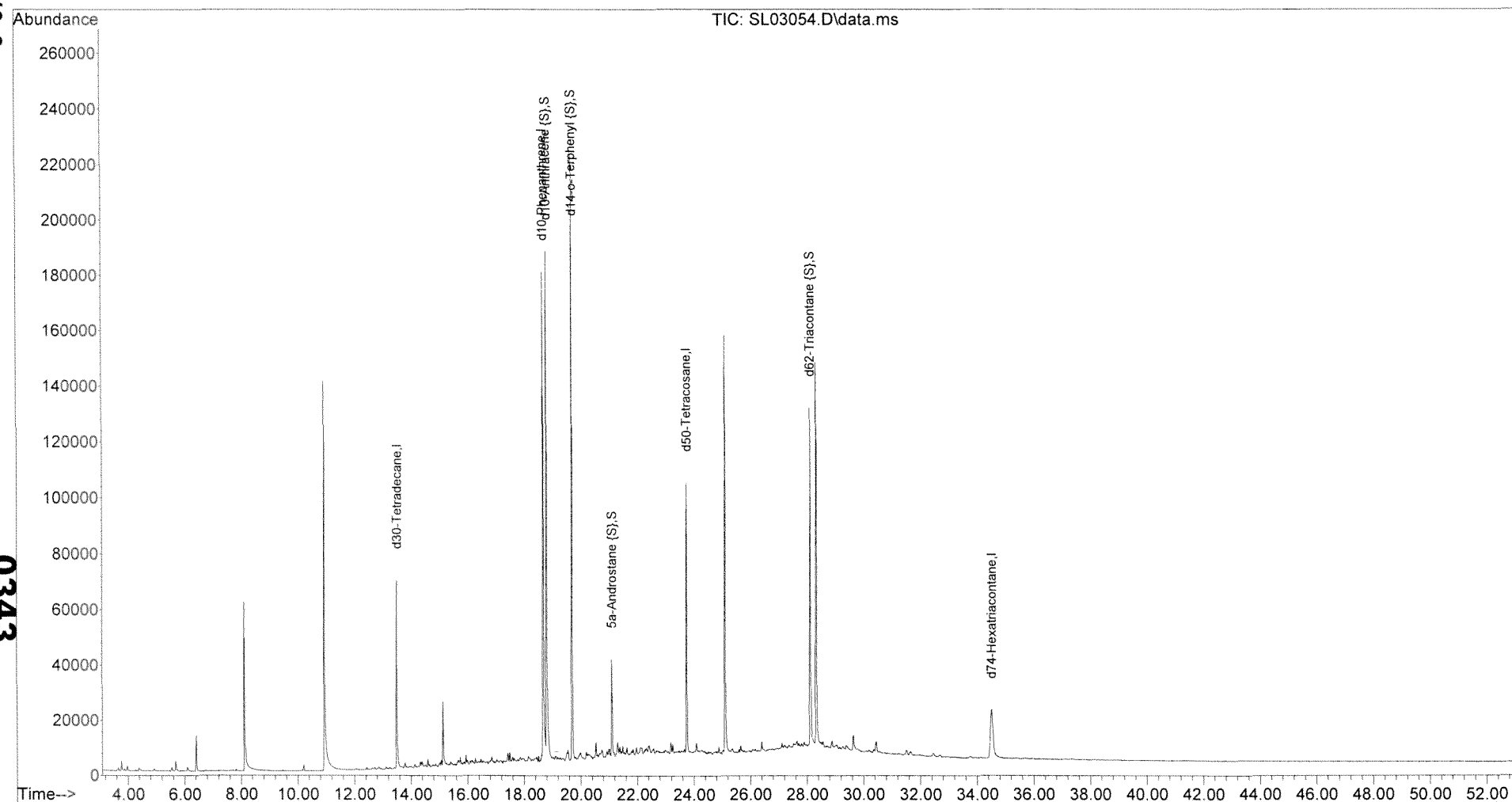
Target Compounds Qvalue

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

LCS = 2.11 mg

Data Path : C:\msdchem\1\DATA\041812\
Data File : SL03054.D
Acq On : 18 Apr 2012 19:20
Operator : Syslo
Sample : Soil LCS
Misc : 1200055-BS1 1ml FV
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Apr 19 14:19:01 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Thu Apr 19 14:18:18 2012
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\041812\
Data File : SL03054.D
Acq On : 18 Apr 2012 19:20
Operator : Syslo
Sample : Soil LCS
Vial : 1200055-BS1 1ml FV
ALS Vial : 2 Sample Multiplier: 1

Integration Parameters: Oilint.P

Integrator: RTE

Smoothing : ON

Sampling : 1

Start Thrs: 0.05

Stop Thrs : 0.05

Filtering: 5

Min Area: 0.5 % of largest Peak

Max Peaks: 10

Peak Location: TOP

If leading or trailing edge < 70 prefer < Baseline drop else tangent >
Peak separation: 3

Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M

Title : Enbridge Oil ICAL: 3/22/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL03054.D\data.ms

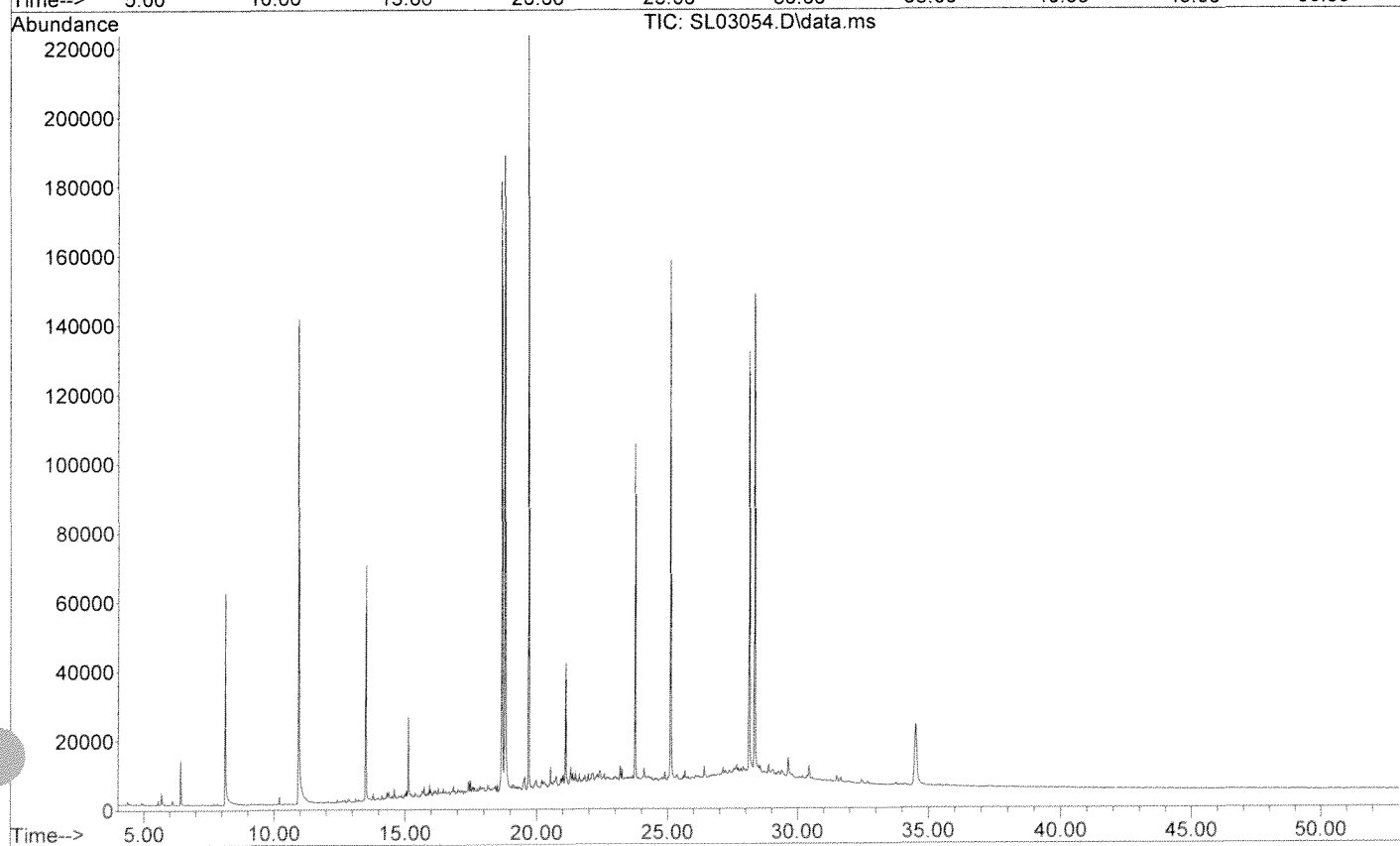
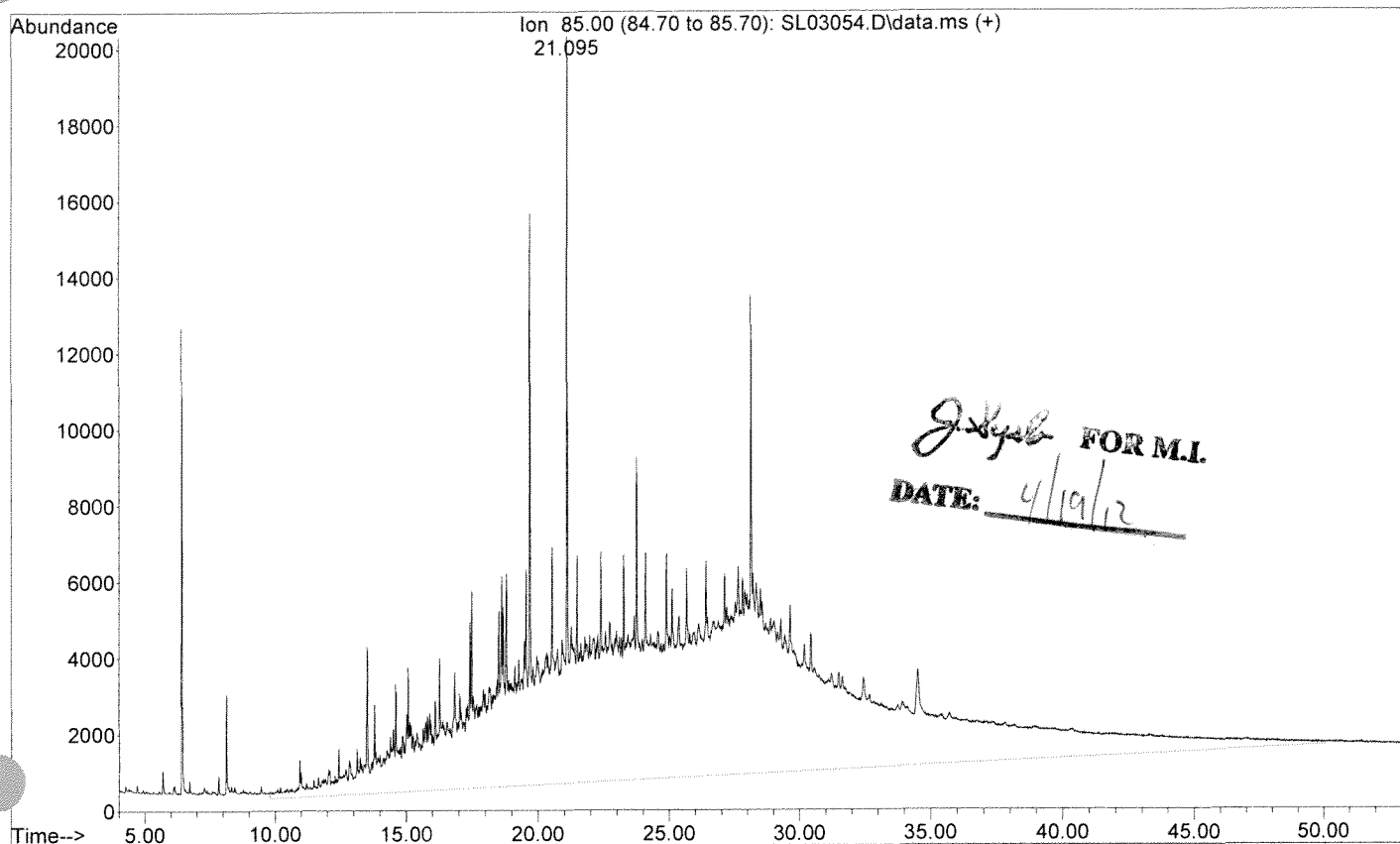
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	21.095	839	2216	5660	rM 5	19623	4162602	100.00%	100.000%

Sum of corrected areas: 4162602

ENOTPH032212.M Thu Apr 19 15:13:36 2012 SLICK2

J. J. J.
DATE: 4/19/12

File : C:\msdchem\1\DATA\041812\SL03054.D
Operator : Syslo
Acquired : 18 Apr 2012 19:20 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: Soil LCS
Misc Info : 1200055-BS1 1ml FV
V Number: 2



Data Path : C:\msdchem\1\DATA\041812\
Data File : SL03055.D
Acq On : 18 Apr 2012 20:20
Operator : Syslo
Sample : Soil LCS Dup
Vial : 1200055-BSD1 1ml FV
Vial : 3 Sample Multiplier: 1

Quant Time: Apr 19 14:19:03 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Thu Apr 19 14:18:18 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) d10-Phenanthrene	18.677	188	273267	10.00	ug/mL	0.00
5) d30-Tetradecane	13.500	66	116171	10.00	ug/mL	0.00
6) d50-Tetracosane	23.748	66	133157	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.504	66	87997	10.00	ug/mL	-0.02
System Monitoring Compounds						
2) d10-Anthracene {S}	18.795	188	283412	11.57	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	57.85%	
3) d14-o-Terphenyl {S}	19.697	244	155302	14.09	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	70.45%	
4) 5a-Androstane {S}	21.104	260	22048	15.36	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	76.80%	
7) d62-Triacontane {S}	28.122	66	189863	17.98	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	89.90%	

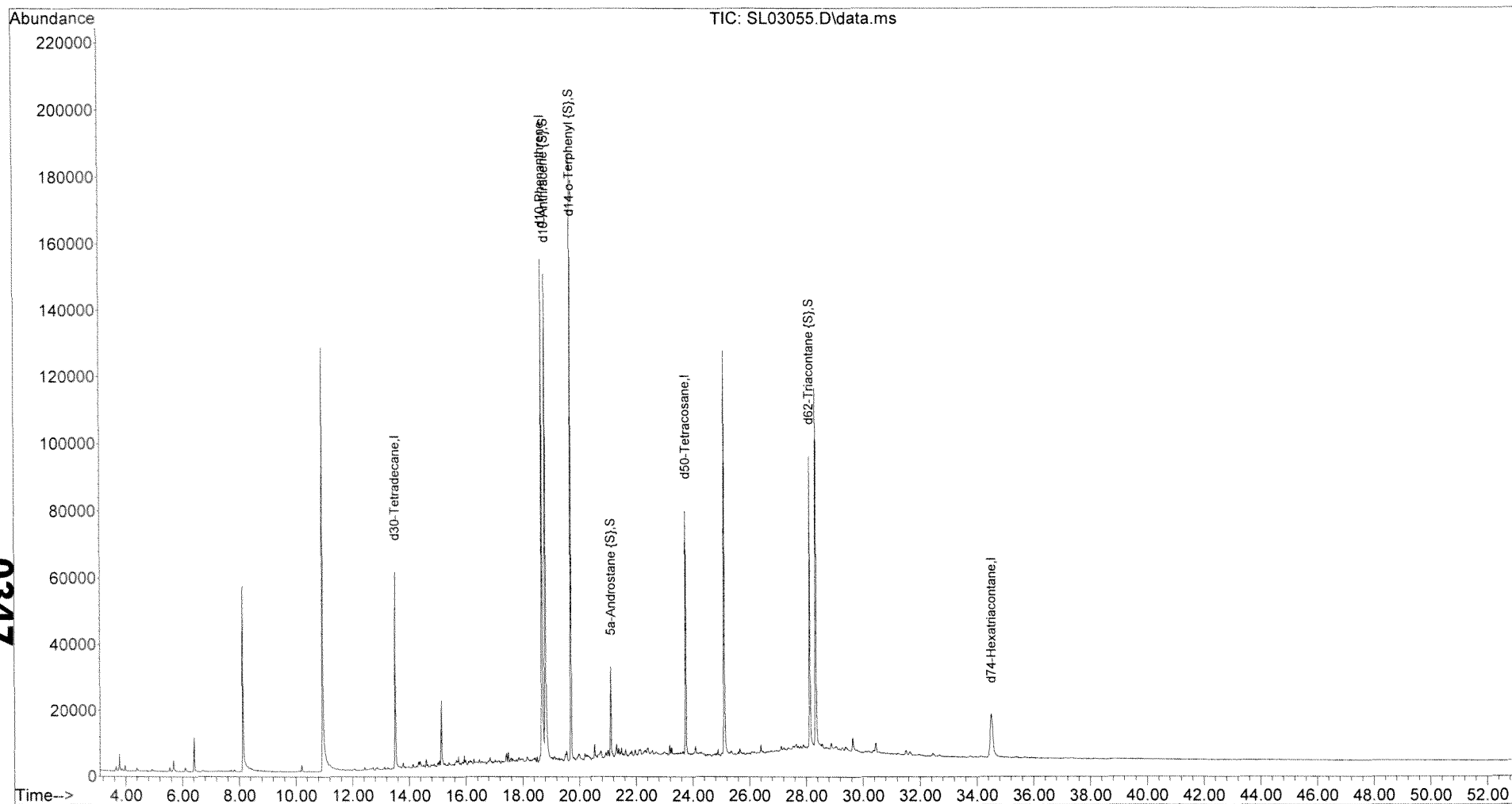
Target Compounds Qvalue

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

2.11 mg

Data Path : C:\msdchem\1\DATA\041812\
Data File : SL03055.D
Acq On : 18 Apr 2012 20:20
Operator : Syslo
Sample : Soil LCS Dup
Misc : 1200055-BSD1 1ml FV
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Apr 19 14:19:03 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Thu Apr 19 14:18:18 2012
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\041812\
 Data File : SL03055.D
 Acq On : 18 Apr 2012 20:20
 Operator : Syslo
 Sample : Soil LCS Dup
 Sc : 1200055-BSD1 1ml FV
 ALS Vial : 3 Sample Multiplier: 1

Integration Parameters: Oilint.P

Integrator: RTE
 Smoothing : ON
 Sampling : 1
 Start Thrs: 0.05
 Stop Thrs : 0.05

Filtering: 5
 Min Area: 0.5 % of largest Peak
 Max Peaks: 10
 Peak Location: TOP

If leading or trailing edge < 70 prefer < Baseline drop else tangent >
 Peak separation: 3

Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
 Title : Enbridge Oil ICAL: 3/22/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL03055.D\data.ms

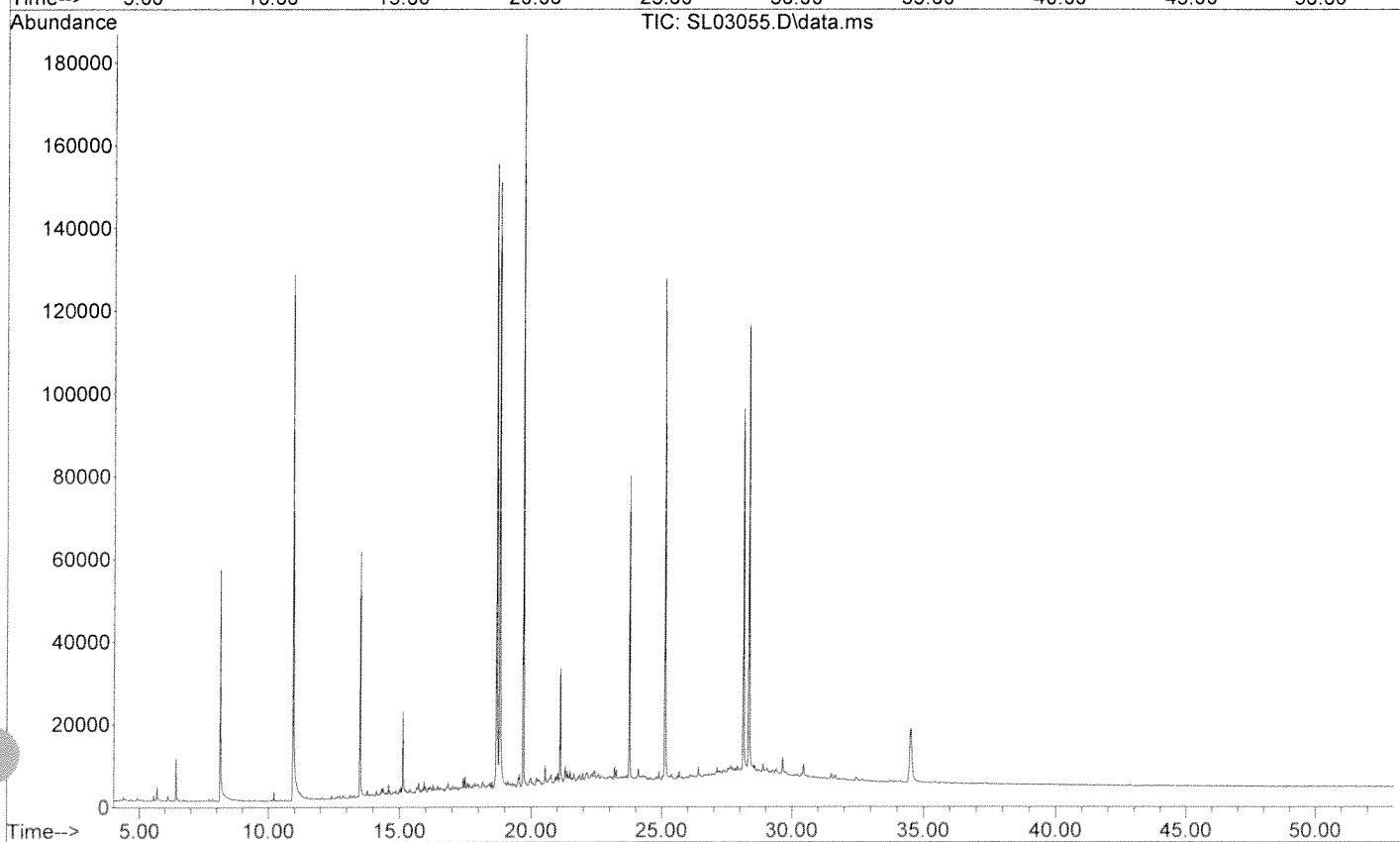
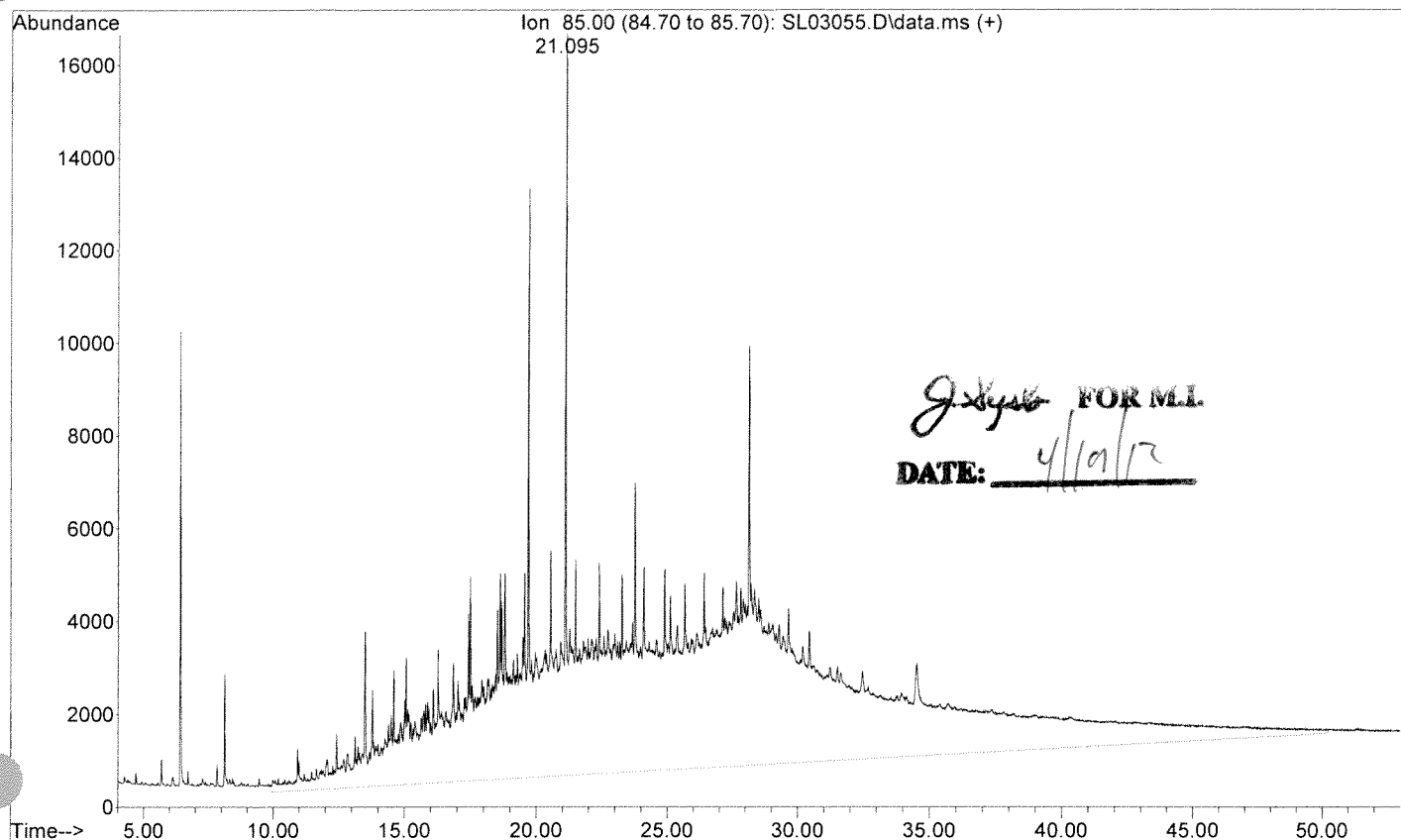
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	21.095	848	2216	5678	rM 5	15993	3322329	100.00%	100.000%

Sum of corrected areas: 3322329

ENOTPH032212.M Thu Apr 19 15:14:02 2012 SLICK2

J. Slick FOR ML
 DATE: 4/19/12

File :C:\msdchem\1\DATA\041812\SL03055.D
Operator : Syslo
Acquired : 18 Apr 2012 20:20 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: Soil LCS Dup
Misc Info : 1200055-BSD1 1ml FV
V Number: 3



Data Path : C:\msdchem\1\DATA\041812\
Data File : SL03056.D
Acq On : 18 Apr 2012 21:21
Operator : Syslo
Sample : 4xd SERAS-017-0020
sc : 275-89-06 {5mlFV, then 4xd}
Vial : 4 Sample Multiplier: 1

Quant Time: Apr 19 14:19:05 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Thu Apr 19 14:18:18 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

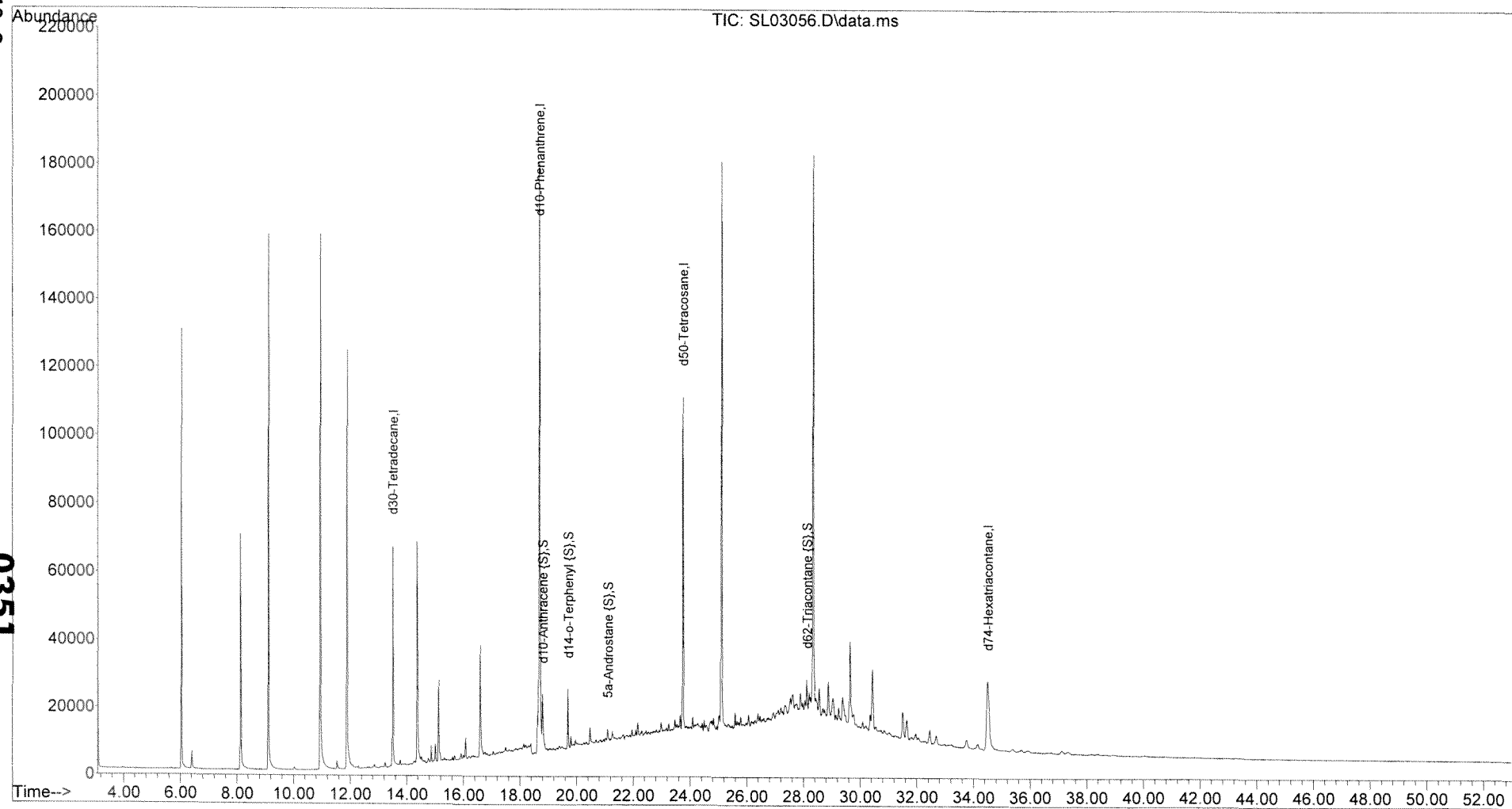
Internal Standards						
1) d10-Phenanthrene	18.677	188	331318	10.00	ug/mL	0.00
5) d30-Tetradecane	13.508	66	125925	10.00	ug/mL	0.00
6) d50-Tetracosane	23.748	66	175849	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.504	66	132234	10.00	ug/mL	-0.02
System Monitoring Compounds						
2) d10-Anthracene {S}	18.794	188	39883	1.34	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	6.70%	
3) d14-o-Terphenyl {S}	19.697	244	15597	1.17	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	5.85%	
4) 5a-Androstane {S}	21.104	260	2572	1.48	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	7.40%	
7) d62-Triacontane {S}	28.122	66	15620	1.12	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	5.60%	

Target Compounds Qvalue

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

```
Data Path : C:\msdchem\1\DATA\041812\  
Data File : SL03056.D  
Acq On : 18 Apr 2012 21:21  
Operator : Syslo  
Sample : 4xd SERAS-017-0020  
Misc : 275-89-06 {5mlFV, then 4xd}  
ALS Vial : 4 Sample Multiplier: 1
```

Quant Time: Apr 19 14:19:05 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Thu Apr 19 14:18:18 2012
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\041812\
Data File : SL03056.D
Acq On : 18 Apr 2012 21:21
Operator : Syslo
Sample : 4xd SERAS-017-0020
sc : 275-89-06 {5mlFV, then 4xd}
ALS Vial : 4 Sample Multiplier: 1

Integration Parameters: Oilint.P

Integrator: RTE
Smoothing : ON
Sampling : 1
Start Thrs: 0.05
Stop Thrs : 0.05
Filtering: 5
Min Area: 0.5 % of largest Peak
Max Peaks: 10
Peak Location: TOP

If leading or trailing edge < 70 prefer < Baseline drop else tangent >
Peak separation: 3

Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Title : Enbridge Oil ICAL: 3/22/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL03056.D\data.ms

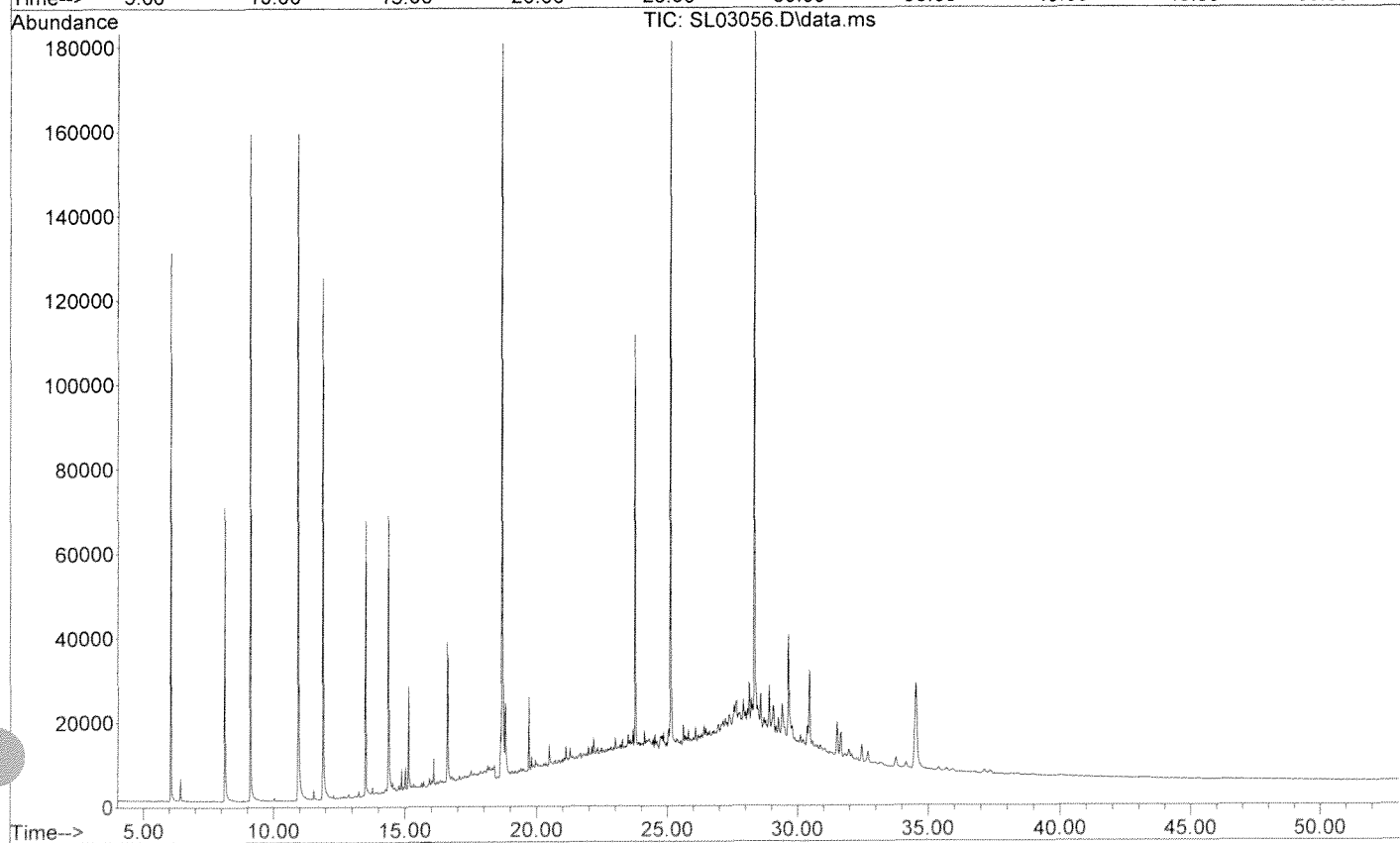
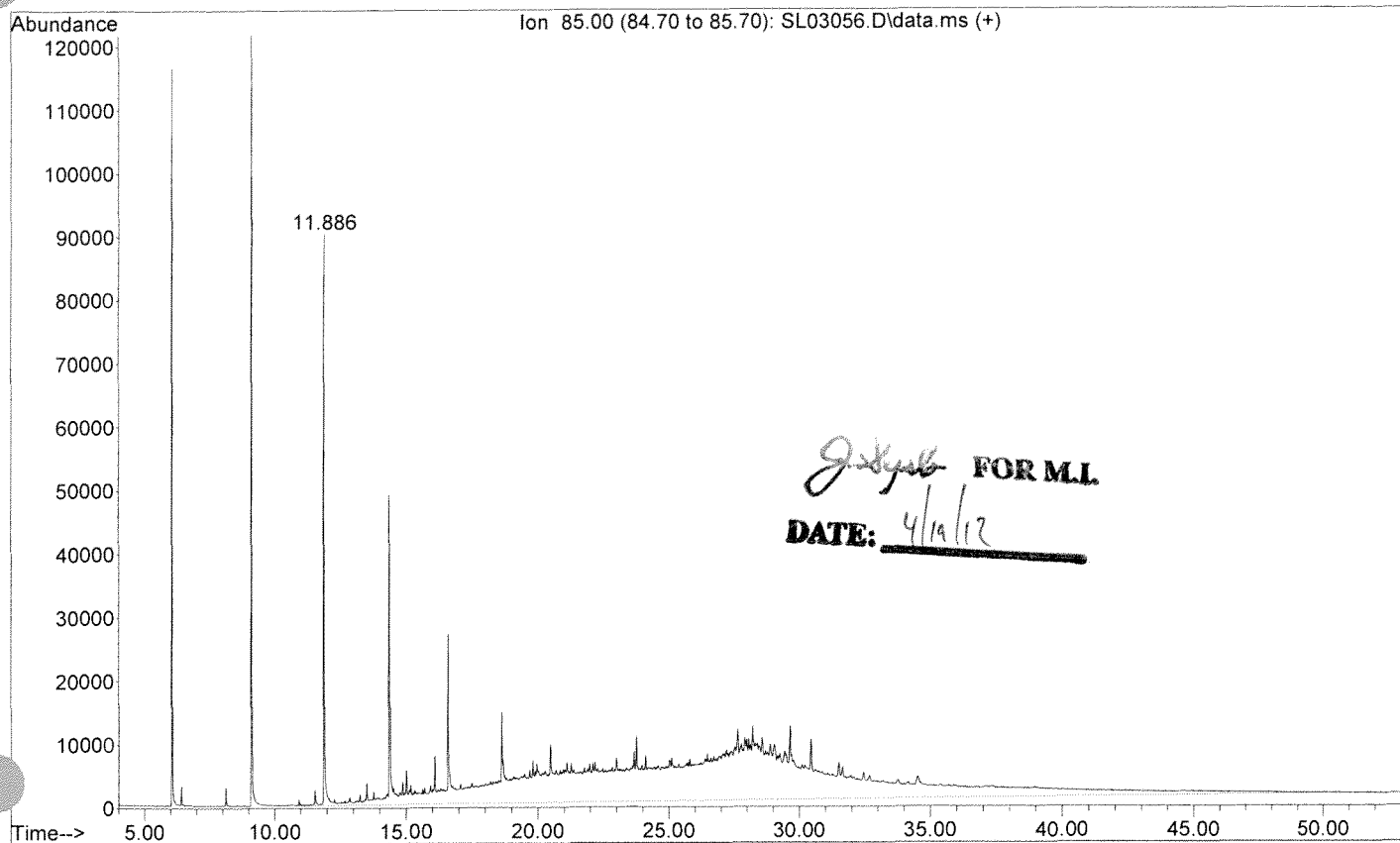
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	11.886	971	1102	5663	rM 5	90041	6679050	100.00%	100.000%

Sum of corrected areas: 6679050

ENOTPH032212.M Thu Apr 19 15:14:56 2012 SLICK2

J. Syslo FORM L
DATE: 4/19/12

File :C:\msdchem\1\DATA\041812\SL03056.D
Operator : Syslo
Acquired : 18 Apr 2012 21:21 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: 4xd SERAS-017-0020
Misc Info : 275-89-06 {5mlFV, then 4xd}
V Number: 4



Data Path : C:\msdchem\1\DATA\041812\
Data File : SL03057.D
Acq On : 18 Apr 2012 22:22
Operator : Syslo
Sample : 4xd SERAS-017-0021
sc : 275-89-07 {5mlFV, then 4xd}
LS Vial : 5 Sample Multiplier: 1

Quant Time: Apr 19 14:19:07 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Thu Apr 19 14:18:18 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.677	188	326449	10.00	ug/mL	0.00
5) d30-Tetradecane	13.508	66	125565	10.00	ug/mL	0.00
6) d50-Tetracosane	23.748	66	174377	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.503	66	124976	10.00	ug/mL	-0.02
System Monitoring Compounds						
2) d10-Anthracene {S}	18.794	188	39297	1.34	ug/mL	0.00
Spiked Amount	20.000		Recovery	=	6.70%	
3) d14-o-Terphenyl {S}	19.697	244	15367	1.17	ug/mL	0.00
Spiked Amount	20.000		Recovery	=	5.85%	
4) 5a-Androstane {S}	21.104	260	2413	1.41	ug/mL	0.00
Spiked Amount	20.000		Recovery	=	7.05%	
7) d62-Triacontane {S}	28.122	66	15079	1.09	ug/mL	0.00
Spiked Amount	20.000		Recovery	=	5.45%	

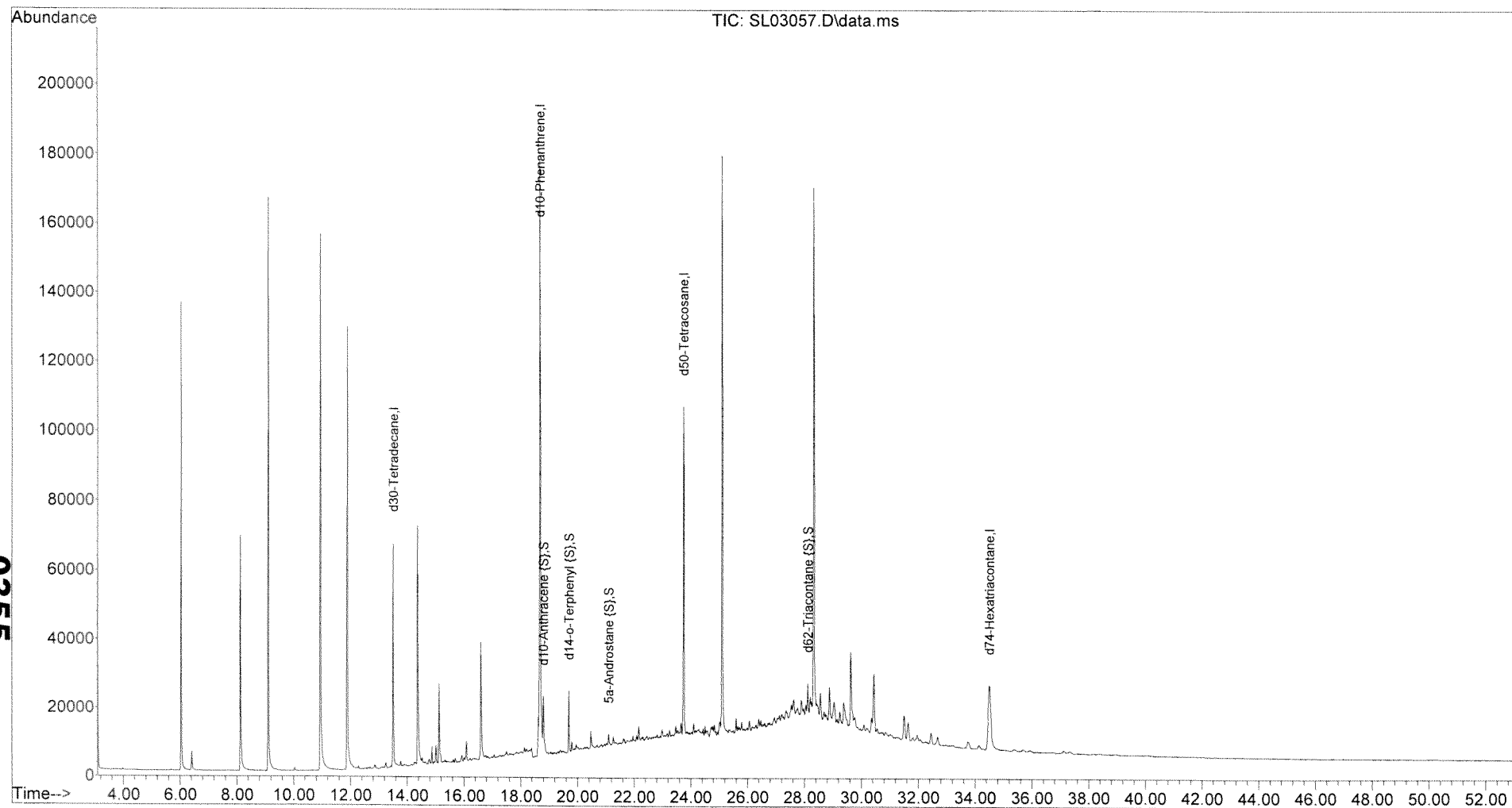
Target Compounds

Qvalue

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

Data Path : C:\msdchem\1\DATA\041812\
Data File : SL03057.D
Acq On : 18 Apr 2012 22:22
Operator : Syslo
Sample : 4xd SERAS-017-0021
Misc : 275-89-07 {5mlFV, then 4xd}
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Apr 19 14:19:07 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Thu Apr 19 14:18:18 2012
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\041812\
Data File : SL03057.D
Acq On : 18 Apr 2012 22:22
Operator : Syslo
Sample : 4xd SERAS-017-0021
Vial : 275-89-07 {5mlFV, then 4xd}
ALS Vial : 5 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: 10
Stop Thrs : 0.05 Peak Location: TOP

If leading or trailing edge < 70 prefer < Baseline drop else tangent >
Peak separation: 3

Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Title : Enbridge Oil ICAL: 3/22/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL03057.D\data.ms

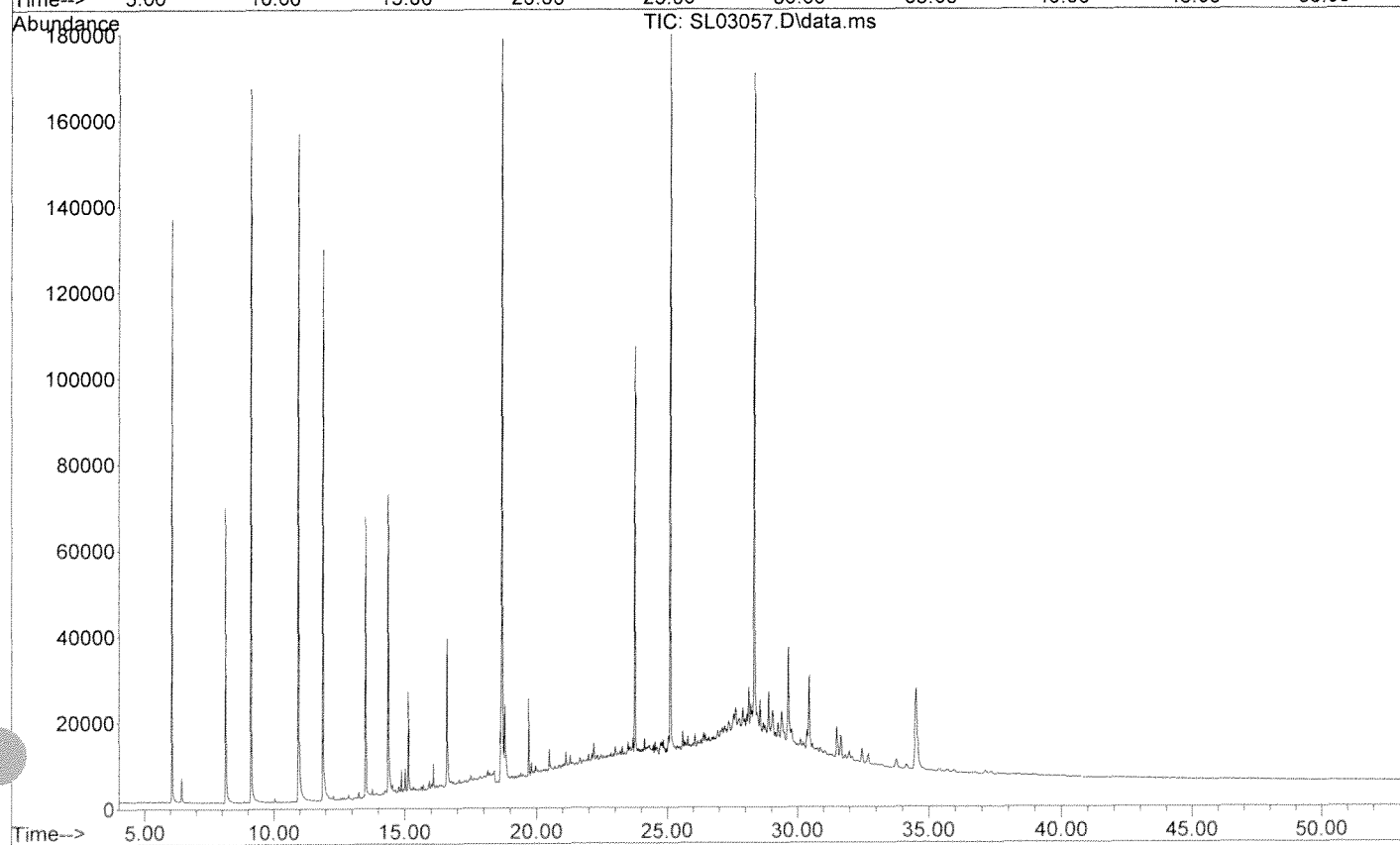
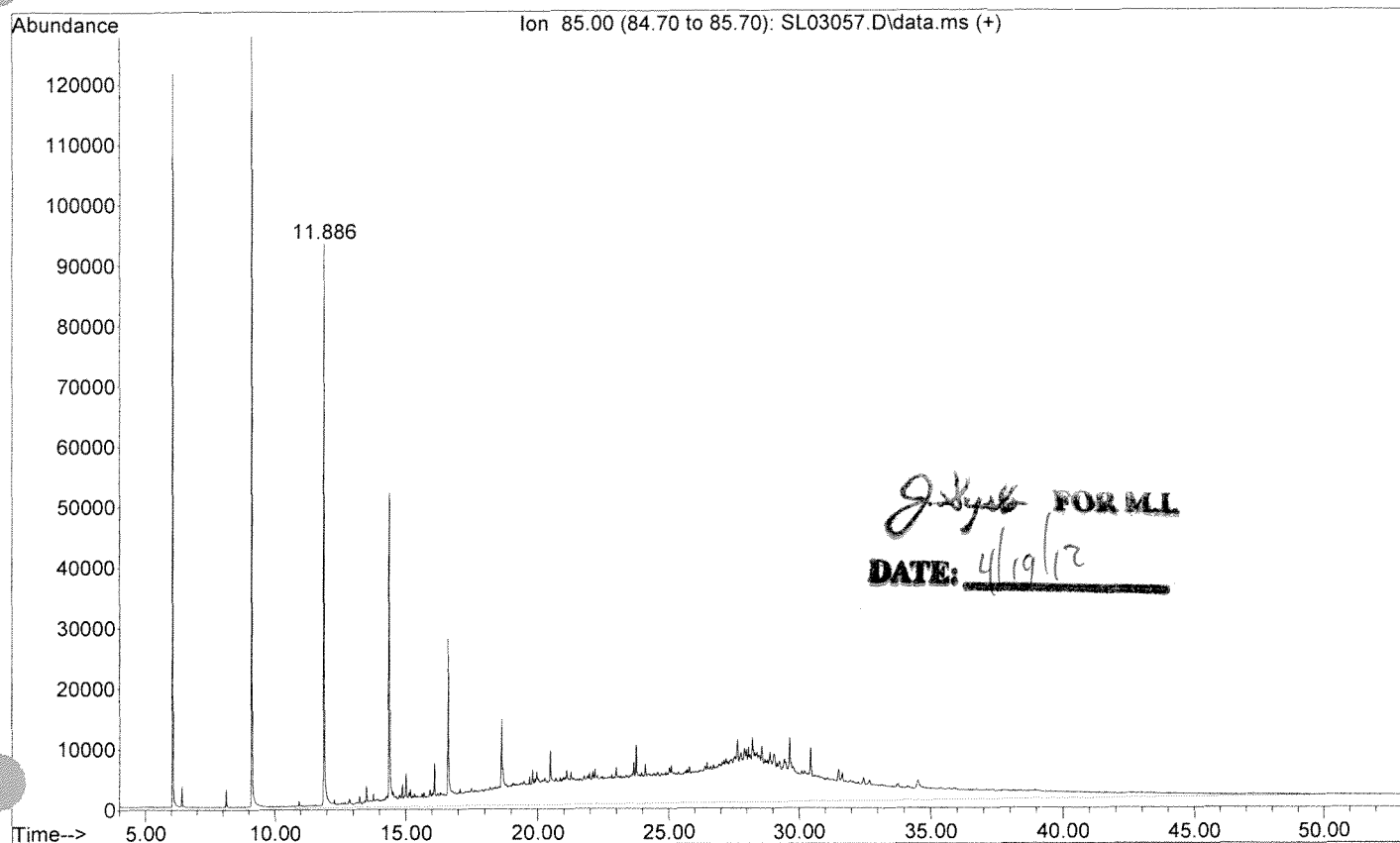
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	11.886	956	1102	5665	rM 5	93295	6206072	100.00%	100.000%

Sum of corrected areas: 6206072

ENOTPH032212.M Thu Apr 19 15:15:38 2012 SLICK2

J. D. Slick FORM L
DATE: 4/19/12

File : C:\msdchem\1\DATA\041812\SL03057.D
Operator : Syslo
Acquired : 18 Apr 2012 22:22 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: 4xd SERAS-017-0021
Misc Info : 275-89-07 {5mlFV, then 4xd}
V Number: 5



Data Path : C:\msdchem\1\DATA\041812\
Data File : SL03058.D
Acq On : 18 Apr 2012 23:23
Operator : Syslo
Sample : 4xd SERAS-017-0022
sc : 275-89-08 {5mlFV, then 4xd}
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Apr 19 14:19:09 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Thu Apr 19 14:18:18 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

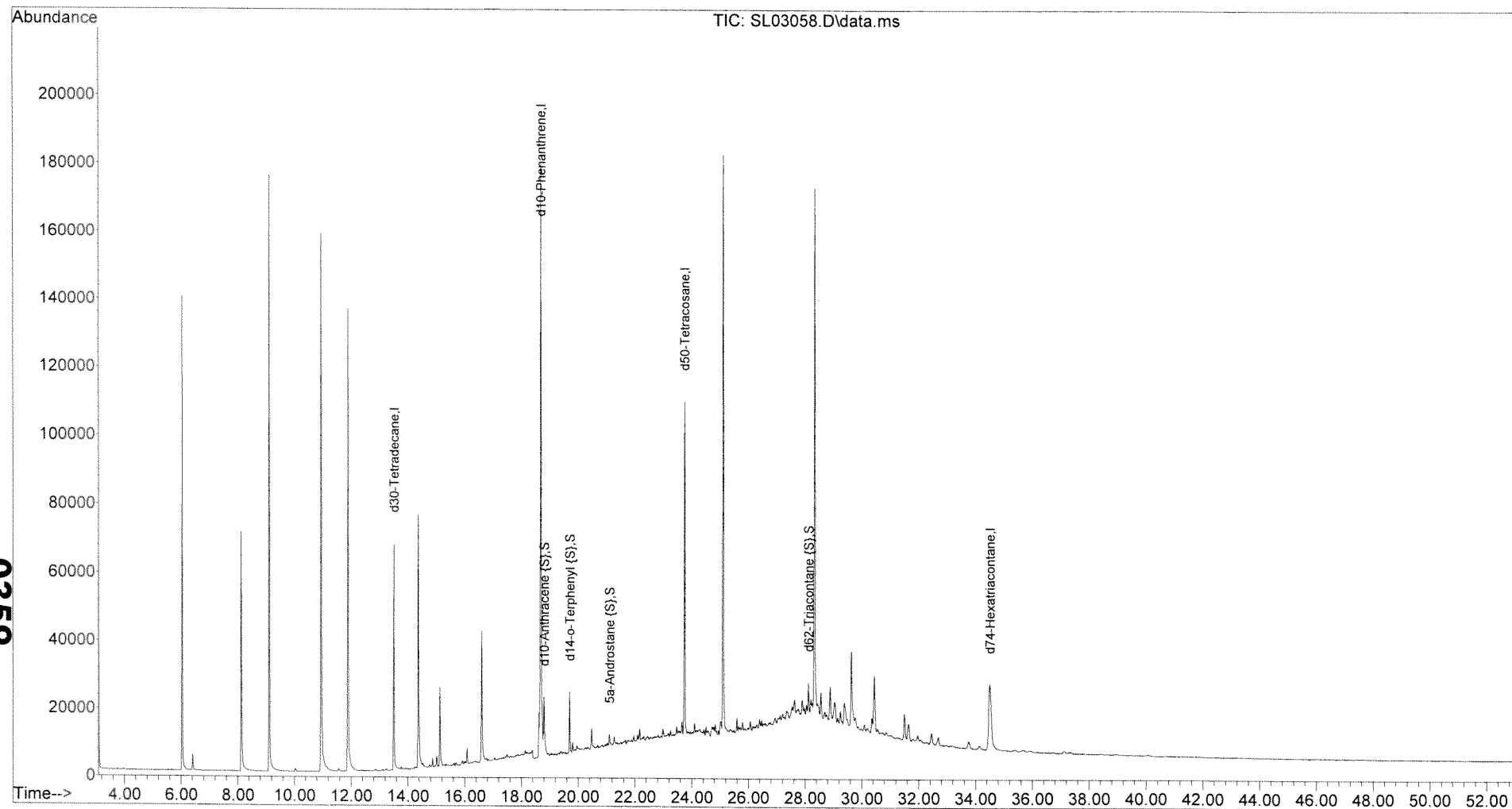
Internal Standards						
1) d10-Phenanthrene	18.677	188	330208	10.00	ug/mL	0.00
5) d30-Tetradecane	13.508	66	124891	10.00	ug/mL	0.00
6) d50-Tetracosane	23.748	66	174909	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.504	66	123255	10.00	ug/mL	-0.02
System Monitoring Compounds						
2) d10-Anthracene {S}	18.795	188	40363	1.36	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	6.80%	
3) d14-o-Terphenyl {S}	19.697	244	15835	1.19	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	5.95%	
4) 5a-Androstane {S}	21.104	260	2434	1.40	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	7.00%	
7) d62-Triacontane {S}	28.122	66	15841	1.14	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	5.70%	

Target Compounds Qvalue

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

Data Path : C:\msdchem\1\DATA\041812\
Data File : SL03058.D
Acq On : 18 Apr 2012 23:23
Operator : Syslo
Sample : 4xd SERAS-017-0022
Misc : 275-89-08 {5mlFV, then 4xd}
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Apr 19 14:19:09 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Thu Apr 19 14:18:18 2012
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\041812\
Data File : SL03058.D
Acq On : 18 Apr 2012 23:23
Operator : Syslo
Sample : 4xd SERAS-017-0022
sc : 275-89-08 {5mlFV, then 4xd}
ALS Vial : 6 Sample Multiplier: 1

Integration Parameters: Oilint.P

Integrator: RTE
Smoothing : ON
Sampling : 1
Start Thrs: 0.05
Stop Thrs : 0.05

Filtering: 5
Min Area: 0.5 % of largest Peak
Max Peaks: 10
Peak Location: TOP

If leading or trailing edge < 70 prefer < Baseline drop else tangent >
Peak separation: 3

Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Title : Enbridge Oil ICAL: 3/22/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL03058.D\data.ms

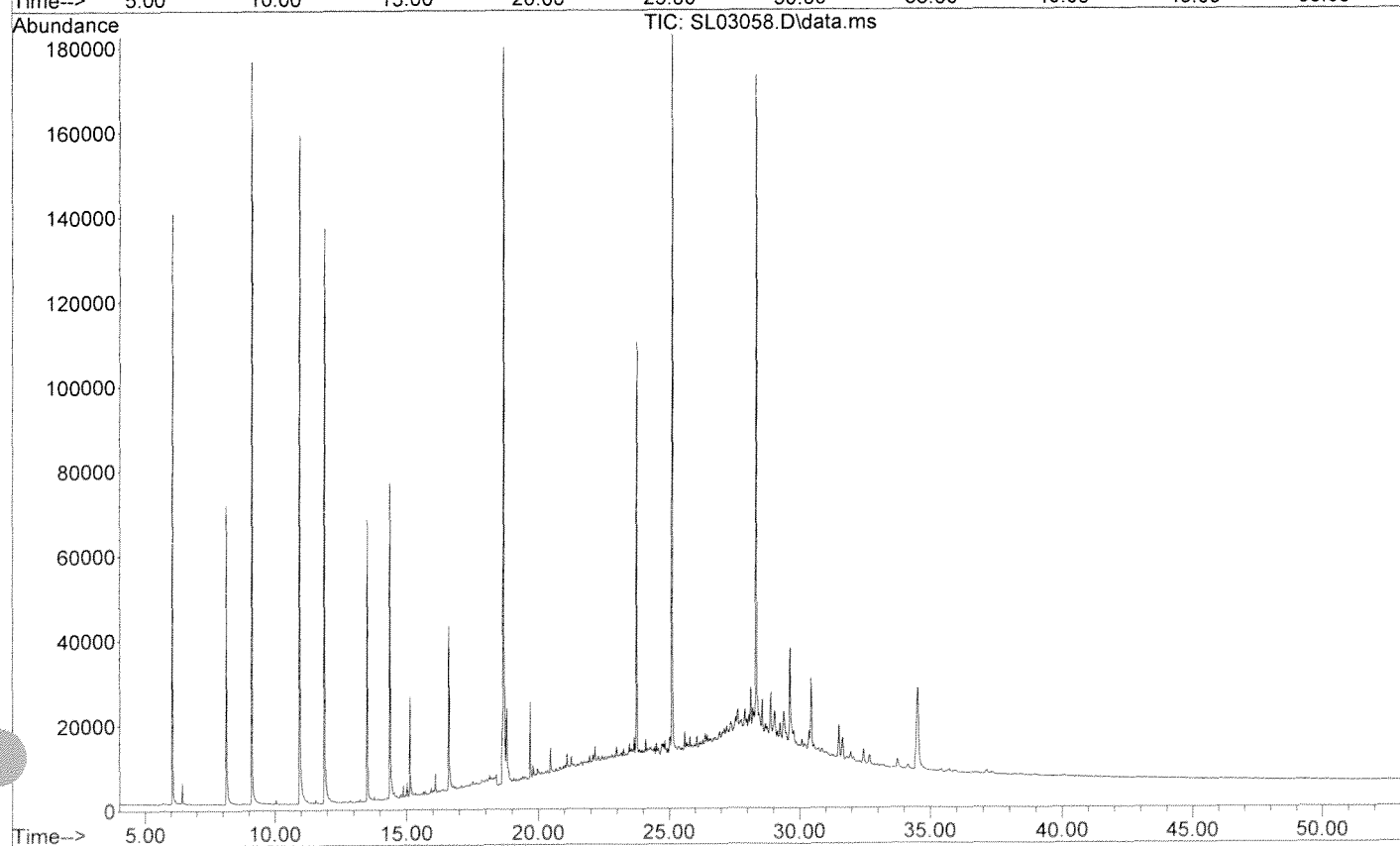
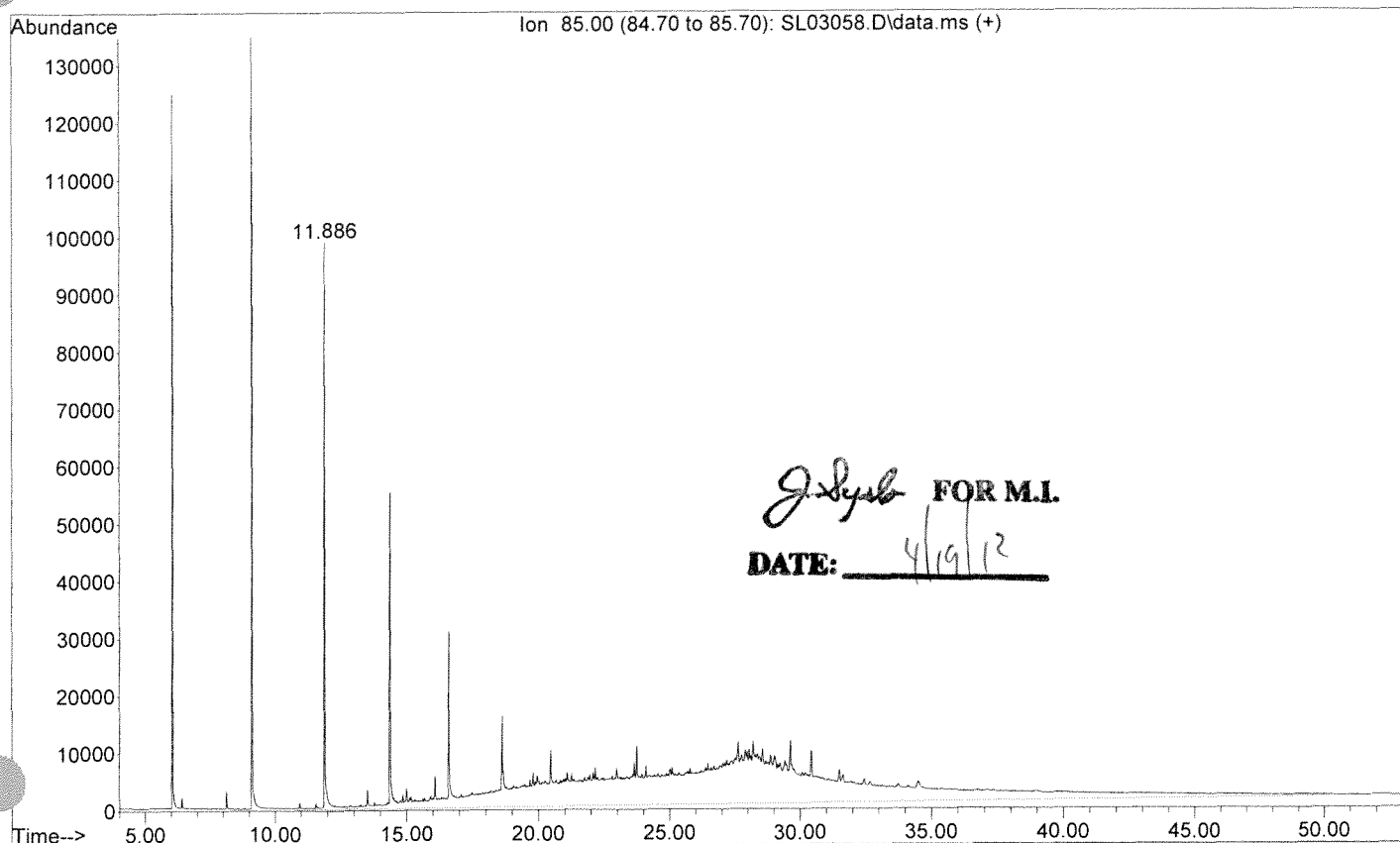
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	11.886	972	1102	5678	rM 5	98773	6462569	100.00%	100.000%

Sum of corrected areas: 6462569

ENOTPH032212.M Thu Apr 19 15:16:27 2012 SLICK2

gibbs **FOR ML**
DATE: 4/19/12

File : C:\msdchem\1\DATA\041812\SL03058.D
Operator : Syslo
Acquired : 18 Apr 2012 23:23 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: 4xd SERAS-017-0022
Misc Info : 275-89-08 {5mlFV, then 4xd}
V Number: 6



Data Path : C:\msdchem\1\DATA\041812\
Data File : SL03059.D
Acq On : 19 Apr 2012 00:23
Operator : Syslo
Sample : 4xd SERAS-017-0023
Vial : 275-89-09 {5mlFV, then 4xd}
Vial : 7 Sample Multiplier: 1

Quant Time: Apr 19 14:19:11 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Thu Apr 19 14:18:18 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

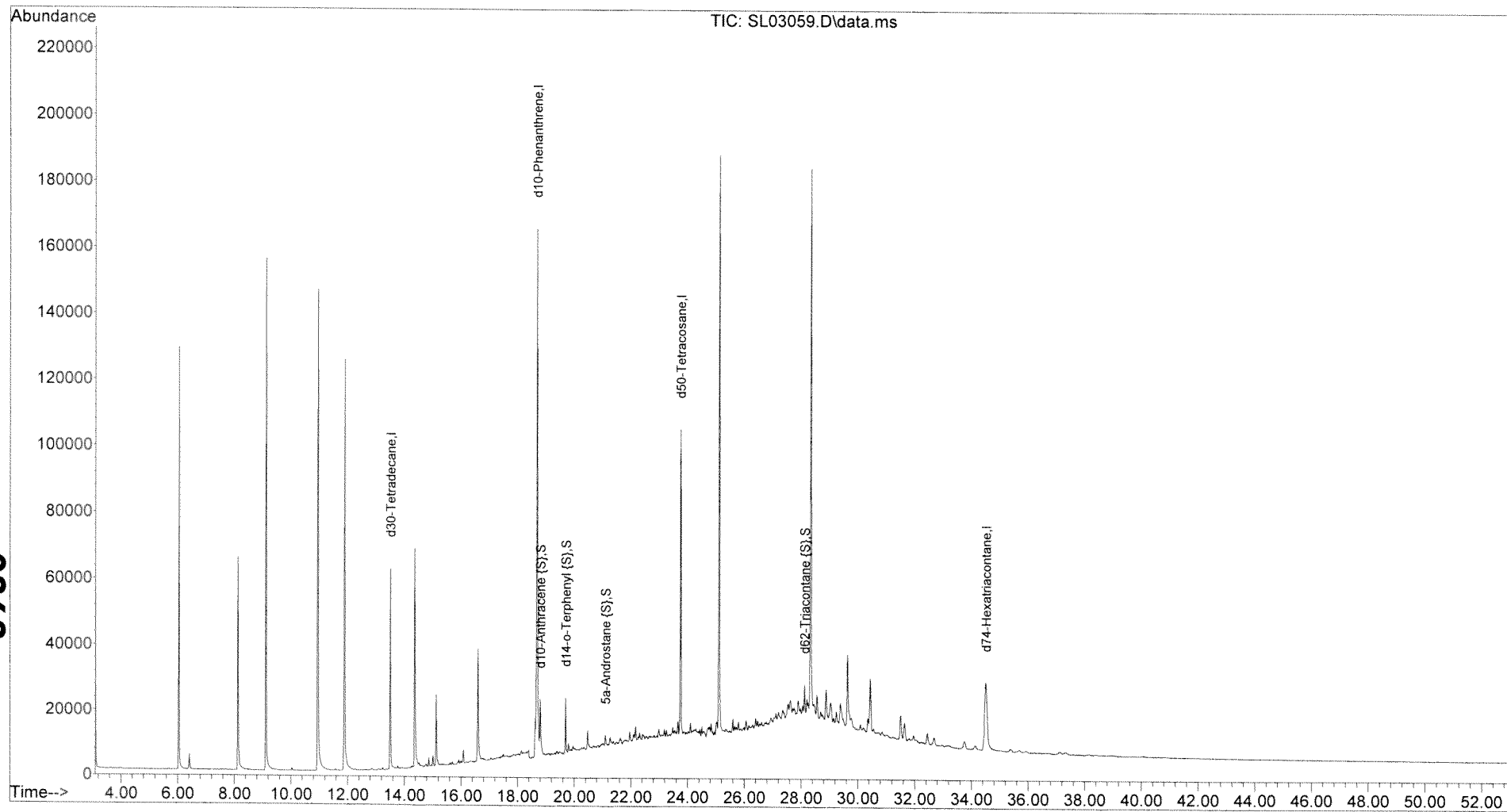
Internal Standards						
1) d10-Phenanthrene	18.677	188	314315	10.00	ug/mL	0.00
5) d30-Tetradecane	13.508	66	116789	10.00	ug/mL	0.00
6) d50-Tetracosane	23.748	66	167418	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.512	66	132840	10.00	ug/mL	0.00
System Monitoring Compounds						
2) d10-Anthracene {S}	18.795	188	37402	1.33	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	6.65%	
3) d14-o-Terphenyl {S}	19.697	244	14664	1.16	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	5.80%	
4) 5a-Androstane {S}	21.104	260	2380	1.44	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	7.20%	
7) d62-Triacontane {S}	28.122	66	15445	1.16	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	5.80%	

Target Compounds Qvalue

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

Data Path : C:\msdchem\1\DATA\041812\
Data File : SL03059.D
Acq On : 19 Apr 2012 00:23
Operator : Syslo
Sample : 4xd SERAS-017-0023
Misc : 275-89-09 {5mlFV, then 4xd}
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Apr 19 14:19:11 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Thu Apr 19 14:18:18 2012
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\041812\
Data File : SL03059.D
Acq On : 19 Apr 2012 00:23
Operator : Syslo
Sample : 4xd SERAS-017-0023
Vial : 275-89-09 {5mlFV, then 4xd}
ALS Vial : 7 Sample Multiplier: 1

Integration Parameters: Oilint.P

Integrator: RTE
Smoothing : ON
Sampling : 1
Start Thrs: 0.05
Stop Thrs : 0.05

Filtering: 5
Min Area: 0.5 % of largest Peak
Max Peaks: 10
Peak Location: TOP

If leading or trailing edge < 70 prefer < Baseline drop else tangent >
Peak separation: 3

Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Title : Enbridge Oil ICAL: 3/22/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL03059.D\data.ms

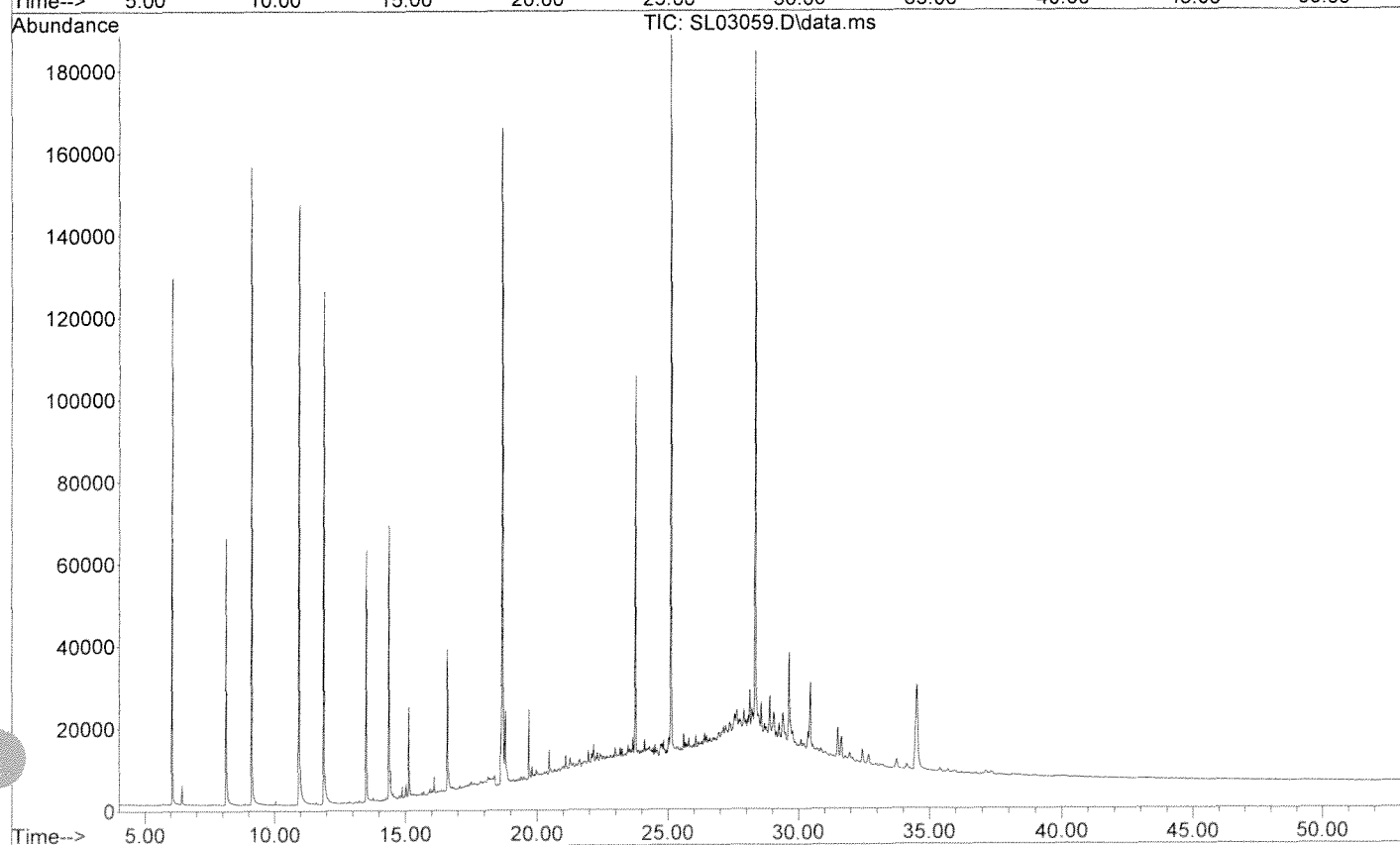
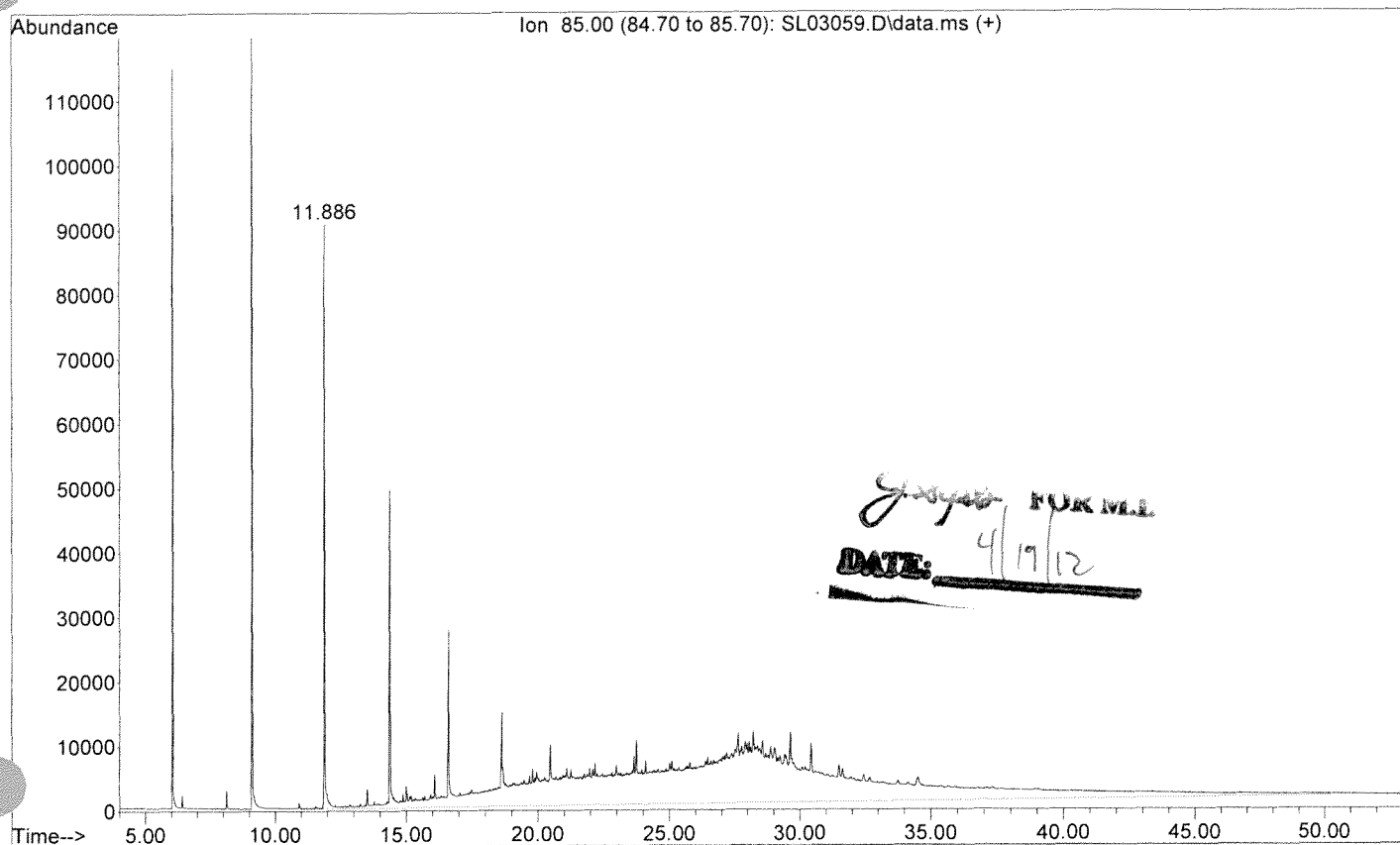
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	11.886	990	1102	5682	rM 5	90629	6450329	100.00%	100.000%

Sum of corrected areas: 6450329

ENOTPH032212.M Thu Apr 19 15:17:04 2012 SLICK2

J. J. J. **FORM 1**
DATE: 4/19/12

File :C:\msdchem\1\DATA\041812\SL03059.D
Operator : Syslo
Acquired : 19 Apr 2012 00:23 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: 4xd SERAS-017-0023
Misc Info : 275-89-09 {5mlFV, then 4xd}
V Number: 7



Data Path : C:\msdchem\1\DATA\041812\
Data File : SL03060.D
Acq On : 19 Apr 2012 1:24
Operator : Syslo
Sample : 4xd SERAS-017-0024
SC : 275-89-10 {5mlFV, then 4xd}
Vial : 8 Sample Multiplier: 1

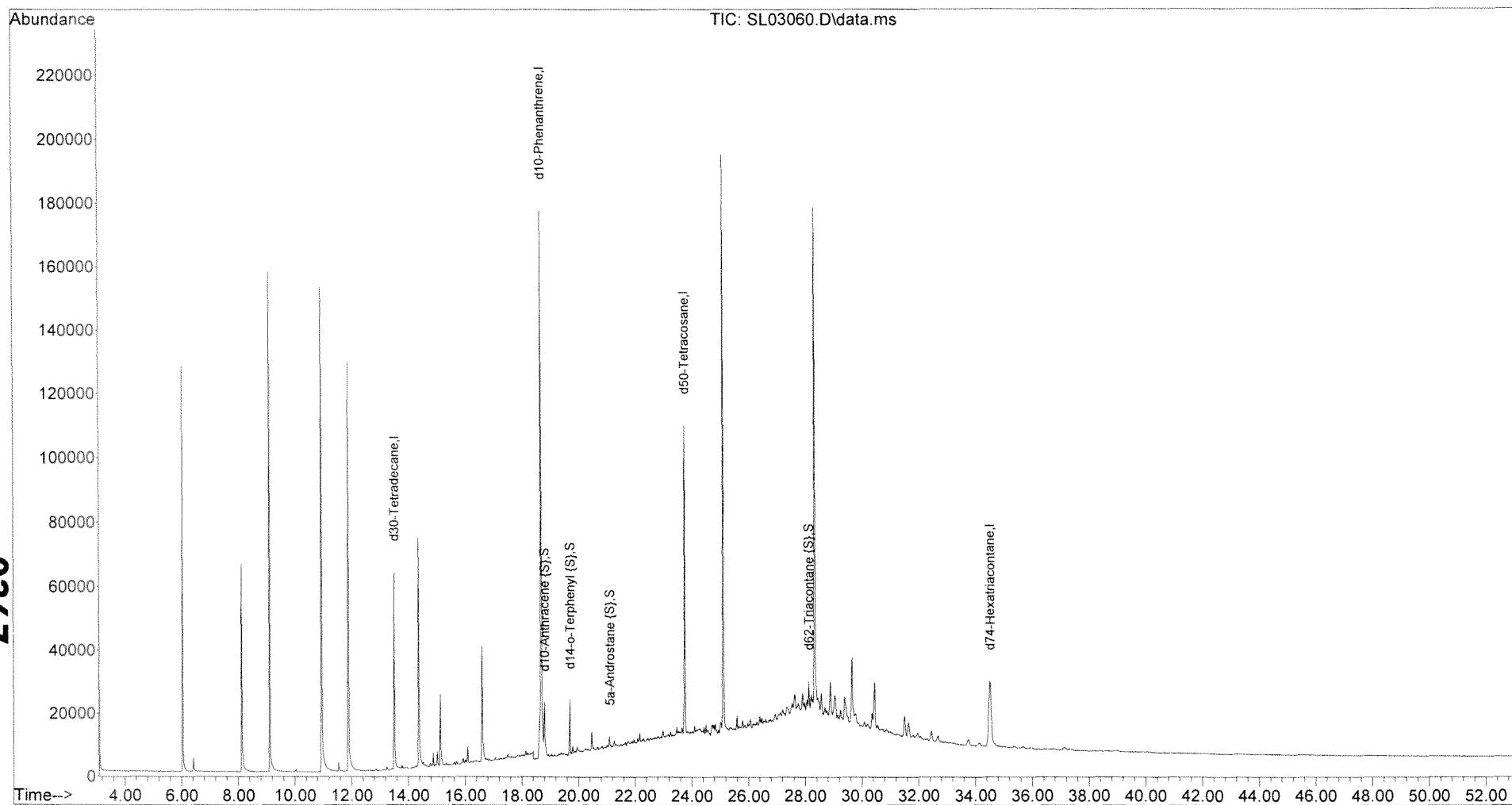
Quant Time: Apr 19 14:19:13 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Thu Apr 19 14:18:18 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d10-Phenanthrene	18.677	188	324010	10.00	ug/mL	0.00
5) d30-Tetradecane	13.508	66	118838	10.00	ug/mL	0.00
6) d50-Tetracosane	23.748	66	171974	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.504	66	131586	10.00	ug/mL	-0.02
System Monitoring Compounds						
2) d10-Anthracene {S}	18.794	188	38978	1.34	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	6.70%	
3) d14-o-Terphenyl {S}	19.697	244	15143	1.16	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	5.80%	
4) 5a-Androstane {S}	21.104	260	2315	1.36	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	6.80%	
7) d62-Triacontane {S}	28.122	66	15665	1.15	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	5.75%	

Target Compounds Qvalue

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

Quant Time: Apr 19 14:19:13 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Thu Apr 19 14:18:18 2012
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\041812\
Data File : SL03060.D
Acq On : 19 Apr 2012 1:24
Operator : Syslo
Sample : 4xd SERAS-017-0024
Vial : 275-89-10 {5mlFV, then 4xd}
ALS Vial : 8 Sample Multiplier: 1

Integration Parameters: Oilint.P

Integrator: RTE
Smoothing : ON
Sampling : 1
Start Thrs: 0.05
Stop Thrs : 0.05

Filtering: 5
Min Area: 0.5 % of largest Peak
Max Peaks: 10
Peak Location: TOP

If leading or trailing edge < 70 prefer < Baseline drop else tangent >
Peak separation: 3

Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Title : Enbridge Oil ICAL: 3/22/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL03060.D\data.ms

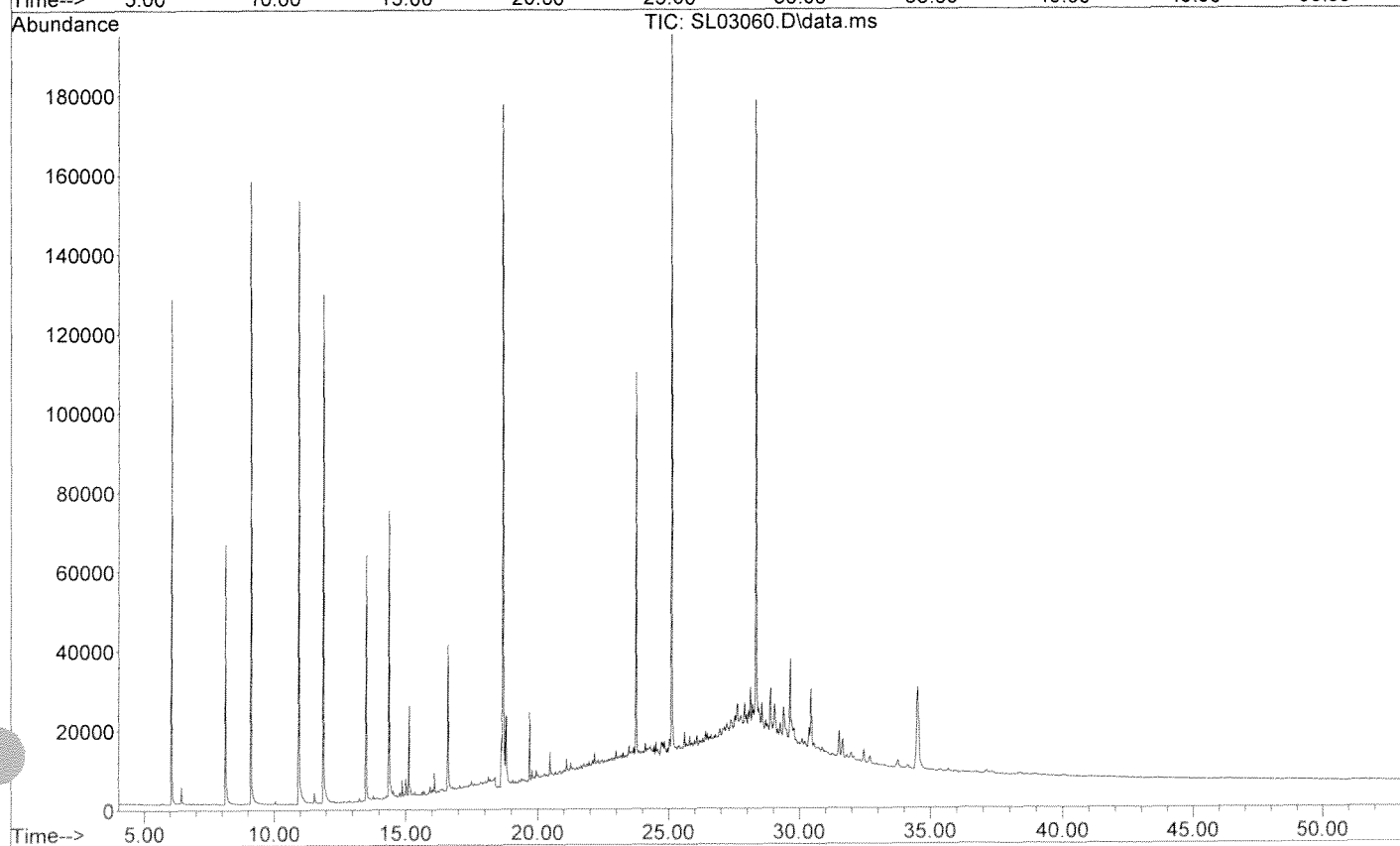
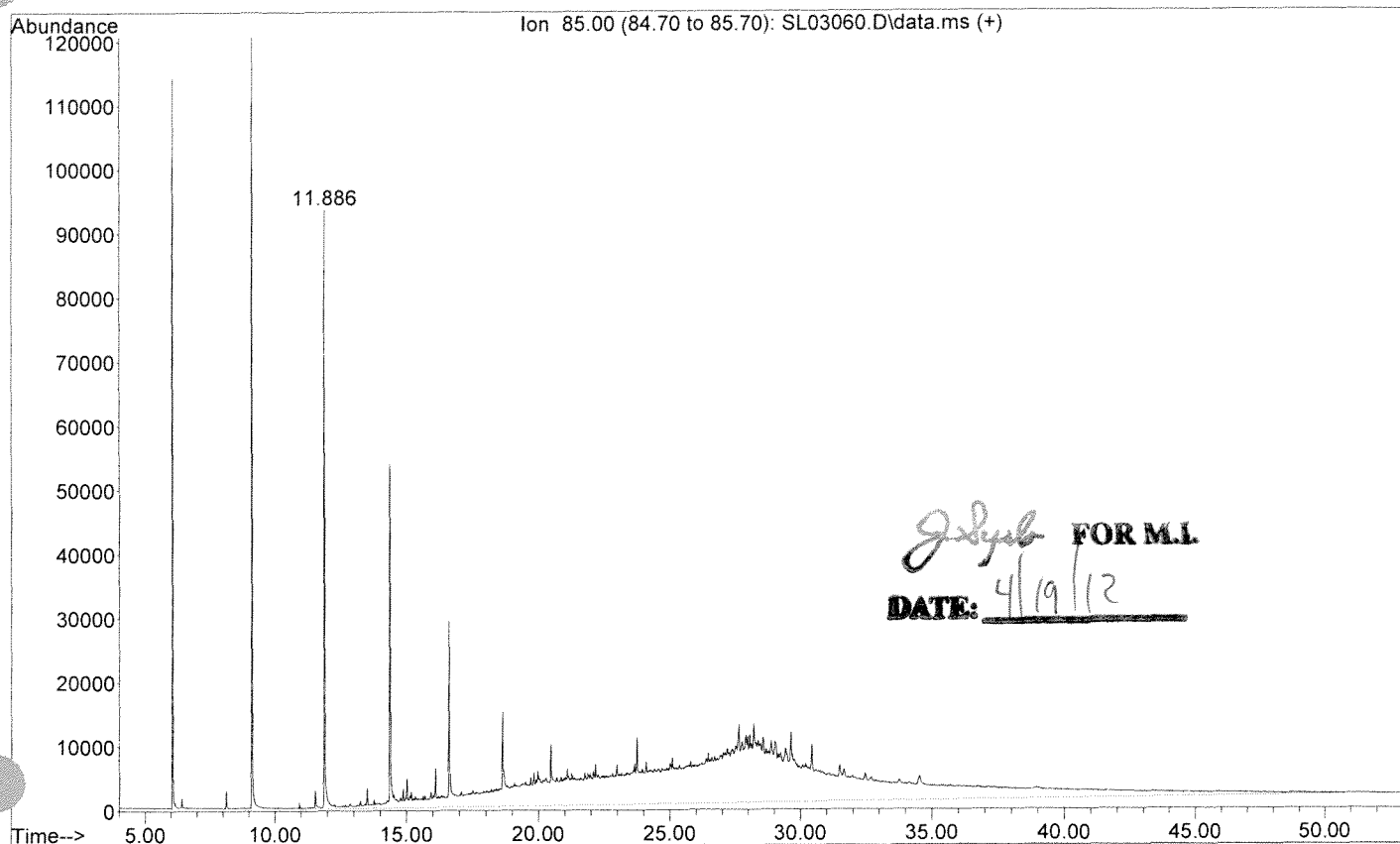
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	11.886	984	1102	5687	rM 5	93494	6733672	100.00%	100.000%

Sum of corrected areas: 6733672

ENOTPH032212.M Thu Apr 19 15:17:50 2012 SLICK2

J. Sykes FOR M.I.
DATE: 4/19/12

File : C:\msdchem\1\DATA\041812\SL03060.D
Operator : Syslo
Acquired : 19 Apr 2012 1:24 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: 4xd SERAS-017-0024
Misc Info : 275-89-10 {5mlFV, then 4xd}
V Number: 8



Data Path : C:\msdchem\1\DATA\041812\
Data File : SL03061.D
Acq On : 19 Apr 2012 2:25
Operator : Syslo
Sample : 4xd SERAS-017-0025
sc : 275-89-11 {5mlFV, then 4xd}
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Apr 19 14:19:15 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Thu Apr 19 14:18:18 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev (Min)

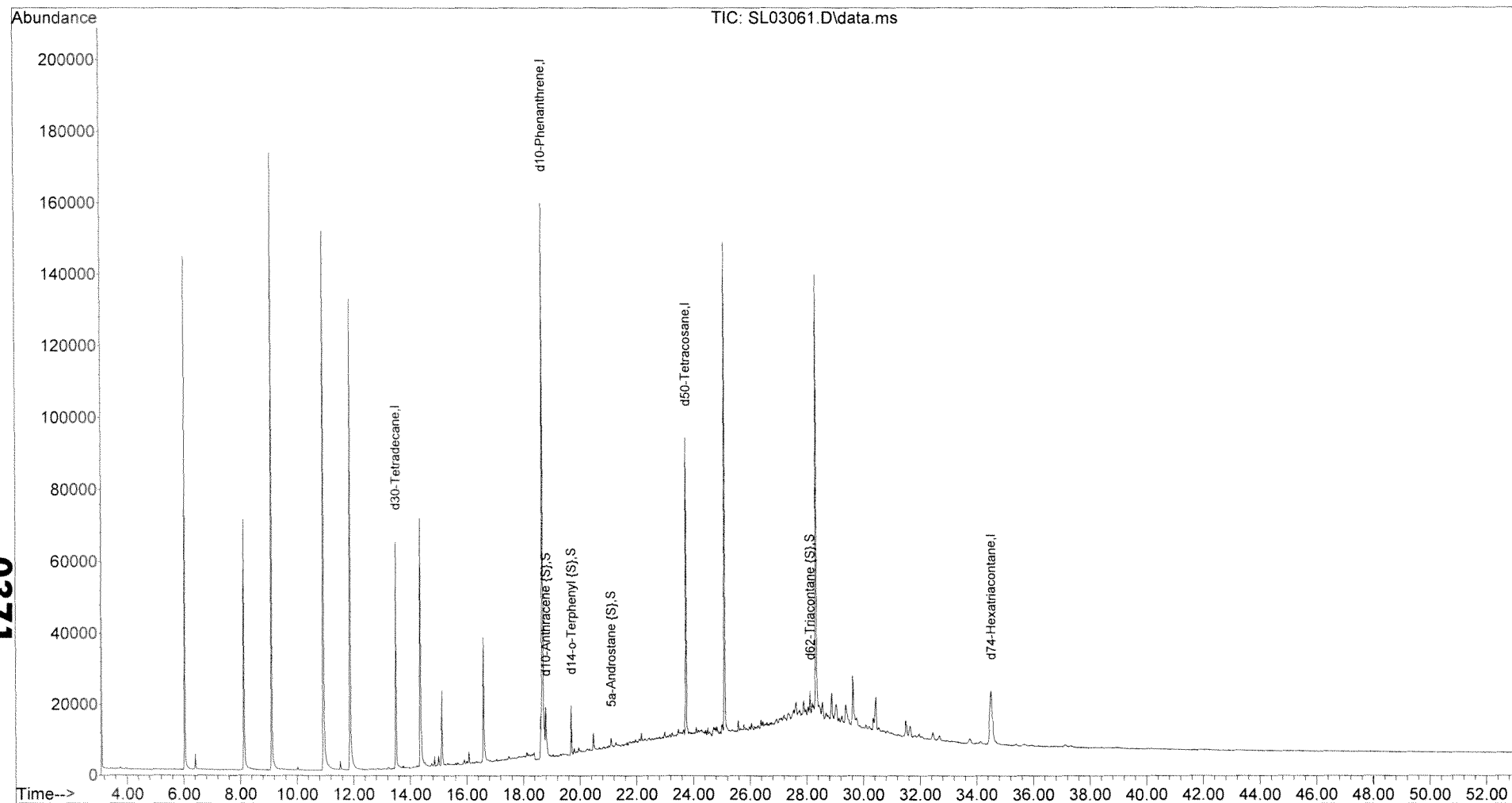
Internal Standards						
1) d10-Phenanthrene	18.677	188	295458	10.00	ug/mL	0.00
5) d30-Tetradecane	13.508	66	120123	10.00	ug/mL	0.00
6) d50-Tetracosane	23.748	66	149414	10.00	ug/mL	0.00
8) d74-Hexatriacontane	34.512	66	96319	10.00	ug/mL	0.00
System Monitoring Compounds						
2) d10-Anthracene {S}	18.795	188	34073	1.29	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	6.45%	
3) d14-o-Terphenyl {S}	19.697	244	12478	1.05	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	5.25%	
4) 5a-Androstane {S}	21.105	260	1844	1.19	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	5.95%	
7) d62-Triacontane {S}	28.122	66	10912	0.92	ug/mL	0.00
Spiked Amount 20.000			Recovery	=	4.60%	

Target Compounds Qvalue

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

Data Path : C:\msdchem\1\DATA\041812\
Data File : SL03061.D
Acq On : 19 Apr 2012 2:25
Operator : Syslo
Sample : 4xd SERAS-017-0025
Misc : 275-89-11 {5mlFV, then 4xd}
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Apr 19 14:19:15 2012
Quant Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Quant Title : Enbridge Oil ICAL: 3/22/12
QLast Update : Thu Apr 19 14:18:18 2012
Response via : Initial Calibration



Area Percent Report

Data Path : C:\msdchem\1\DATA\041812\
Data File : SL03061.D
Acq On : 19 Apr 2012 2:25
Operator : Syslo
Sample : 4xd SERAS-017-0025
Sc : 275-89-11 {5mlFV, then 4xd}
ALS Vial : 9 Sample Multiplier: 1

Integration Parameters: Oilint.P

Integrator: RTE
Smoothing : ON
Sampling : 1
Start Thrs: 0.05
Stop Thrs : 0.05
Filtering: 5
Min Area: 0.5 % of largest Peak
Max Peaks: 10
Peak Location: TOP

If leading or trailing edge < 70 prefer < Baseline drop else tangent >
Peak separation: 3

Method : C:\MSDCHEM\1\METHODS\ENOTPH032212.M
Title : Enbridge Oil ICAL: 3/22/12

Signal : EIC Ion 85.00 (84.70 to 85.70): SL03061.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	11.886	1021	1102	5676	rM 5	95824	5761321	100.00%	100.000%

Sum of corrected areas: 5761321

ENOTPH032212.M Thu Apr 19 15:18:32 2012 SLICK2

J. Sykes FOR M.I.
DATE: 4/19/12

File : C:\msdchem\1\DATA\041812\SL03061.D
Operator : Syslo
Acquired : 19 Apr 2012 2:25 using AcqMethod ENOTPH032212.M
Instrument : Slick2
Sample Name: 4xd SERAS-017-0025
Misc Info : 275-89-11 {5mlFV, then 4xd}
V Number: 9

