

**Cleanup Action and Site Restoration
Completion Report**

Irondale Iron and Steel Plant
Irondale, Washington

for
Washington State Department of Ecology

November 4, 2015



APPENDIX E
Chemical Analytical Data
(Part 2 of 2)

Table E-1

Libby Environmental and Fremont Analytical Sample Data Group Cross-Reference

Irondale Iron and Steel Plant
Irondale, Washington

Libby Sample Data Group (Listed Chronologically)		
Libby Environmental Sample Data Group	Sample ID	Fremont Analytical Sample Data Group
L120910-30		
L120910-30	SRZ-EB0-91012	--
L120910-30	SRZ-EB2-91012	1210080
L120910-30	SRZ-NSW1.5-91012	--
L120911-30		
L120911-30	SRZ-B02-91112	--
L120911-30	SRZ-NSW01-91112	--
L120911-30	SRZ-0X1-91112	--
L120911-30	SURZ-B01-91112	--
L120911-30	SURZ-SSW3-91012	--
L120911-30	SURZ-SSW4-91012	--
L120912-30		
L120912-30	SRZ-B03-91212	--
L120912-30	SRZ-B04-91212	--
L120912-30	SRZ-ESW01-91212	1210080
L120912-30	SRZ-WSW01-91212	1210080
L120918-30		
L120918-30	DW1-091812	--
L120921-30		
L120921-30	SURZ-SB1-92112	--
L120921-30	SURZ-SB2-92112	--
L120921-30	SURZ-SB3-92112	--
L120921-30	SURZ-SB4-92112	--
L120921-30	SURZ-WSW1-92112	--
L120921-5		
--	Topsoil 091112	1209144
-	Road 091112	1209144
L120924-30		
L120924-30	IRZ-B1-92412	1209149
L120924-30	IRZ-B2-92412	--
L120924-30	IRZ-B3-92412	--
L120924-30	IRZ-B4-92412	--
L120924-30	IRZ-ESW1-92412	1209149
L120924-30	IRZ-ESW2-92412	--
L120924-30	IRZ-ESW3-92412	--
L120924-30	IRZ-SSW1-92412	--
L120925-30		
L120925-30	IRZ-B1-92512	--
L120925-30	IRZ-B2-92512	--
L120925-30	IRZ-B3-92512	--
L120925-30	IRZ-B4-92512	1209174
L120925-30	IRZ-B5-92512	1209174
L120925-30	IRZ-ESW1-92512	1209174
L120925-30	IRZ-WSW1-92512	1209174
L120925-30	DW2-92512	--
L120926-30		
L120926-30	IRZ-B1-92612	--
L120926-30	IRZ-B2-92612	--
L120926-30	IRZ-B3-92612	--
L120926-30	IRZ-DUPE1-92612	--
L120926-30	IRZ-ESW1-92612	--
L120926-30	IRZ-WSW1-92612	1209172
L120926-30	IRZ-WSW2-92612	1209172
--	Topsoil 1-92112	127454 (Twiss SDG)
L120927-30		
L120927-30	IRZ-B1-92712	--
L120927-30	IRZ-B2-92712	1209190
L120927-30	IRZ-B3-92712	1209190
L120927-30	IRZ-B4-92712	--
L120927-30	IRZ-DUPE1-92712	--
L120927-30	IRZ-ESW1-92712	1209173
L120927-30	IRZ-ESW2-92712	--
L120927-30	IRZ-ESW3-92712	--
L120927-30	IRZ-WSW1-92712	--

Libby Sample Data Group (Listed Chronologically)		
Libby Environmental Sample Data Group	Sample ID	Fremont Analytical Sample Data Group
L120928-30		
L120928-30	DW3-92812	--
L120928-30	IRZ-B1-92812	--
L120928-30	IRZ-B2-92812	1210030
L120928-30	IRZ-B3-92812	--
L120928-30	IRZ-NESW1-92812	1209190
L120928-30	IRZ-NESW2-92812	--
L120928-30	IRZ-NSW1-92812	--
L120928-30	IRZ-NSW2-92812	--
L120928-30	IRZ-NWSW1-92812	--
--	Sand Import Profile	1209188
L121001-30		
L121001-30	IMPORT-01-100112	--
L121001-30	IRZ-01-100112	--
L121001-30	IRZ-02-100112	--
L121001-30	STP-01-100112	--
L121001-30	STP-02-100112	--
L121001-30	STP-03-100112	--
L121001-30	STP-04-100112	--
L121002-30		
L121002-30	DW4-100212	--
L121002-30	F15B1-10212	--
L121002-30	F15B2-10212	1210029
L121002-30	F15NSW1-10212	--
L121002-30	IRZ-COM1-100212	--
L121002-30	SURZ-F14B1-100212	--
L121002-30	SURZ-F14B2-100212	1210029
L121002-30	SURZ-SSW1-10212	--
L121002-30	SURZ-WSW1-10212	--
L121002-30	SURZ-WSW2-10212	--
--	NRZ-NWB1-10312	1210029
--	NRZ-NWB2-10312	1210029
--	NRZ-NWSW1-10312	1210029
--	NRZ-SSW1-10312	1210029
--	NRZ-SSW2-10312	1210029
--	NRZ-NSW1-10312	1210029
--	NRZ-NSW2-10312	1210029
L121003-30		
--	F15B2-10212	1210029
--	SURZ-F14B2-100212	1210029
--	NRZ-NWB1-10312	1210029
--	NRZ-NWB2-10312	1210029
--	NRZ-NWSW1-10312	1210029
--	NRZ-SSW1-10312	1210029
--	NRZ-SSW2-10312	1210029
--	NRZ-NSW1-10312	1210029
--	NRZ-NSW2-10312	1210029
L121004-30		
L121004-30	DW5-100412	--
L121004-30	SURZ-NSW1-10412	--
L121004-30	SURZ-SSW1-10412	--
L121004-30	SURZ-WSW1-10412	--
L121008-30		
L121008-30	K08-B1-10812	--
L121008-30	K18-B1-10812	--
L121008-30	K18-WSW1-10812	--
L121008-30	SURZ-B1-10812	1210089
L121008-30	SURZ-B2-10812	--
L121008-30	SURZ-ESW1-10812	--
L121008-30	SURZ-NSW1-10812	--
L121008-30	SURZ-NSW2-10812	--
L121008-30	SURZ-SSW1-10812	--
L121008-30	SURZ-WB1-10812	--
L121008-30	SURZ-WSW2-10812	--
L121008-30	SURZ-WSW3-10812	--
--	K08-B1-10912	1210089

Libby Sample Data Group (Listed Chronologically)		
Libby Environmental Sample Data Group	Sample ID	Fremont Analytical Sample Data Group
L121009-30		
--	SURZ-B1-10812	1210089
L121009-30	DW6-10912	--
L121009-30	K08-B1-10912	1210089
L121009-30	K08-B2-10912	--
L121009-30	K08-ESW1-10912	--
L121009-30	K08-SSW1-10912	--
L121009-30	K08-SSW2-10912	--
L121009-30	K08-WSW1-10912	--
L121010-30		
L121010-30	K08-B1-101012	--
L121010-30	KILN-1-101012	--
L121011-30		
L121011-30	IRZ-B1-101112	--
L121011-30	IRZ-ESW1-101112	--
L121011-30	IRZ-SSW1-101112	--
L121011-30	SURZ-ESW1-101012	--
L121012-30		
L121012-30	K17-B1-101212	--
L121015-30		
L121015-30	K17-B1-101512	--
L121015-30	K17-B2-101512	--
L121015-30	K17-SSW1-101512	--
L121015-30	K17-WSW1-101512	--
L121015-30	SURZ-B1-101512	--
L121015-30	SURZ-B2-101512	--
L121017-30		
L121017-30	IRZ-B1-101712	--
L121017-30	IRZ-B2-101712	--
L121017-30	IRZ-ESW1-101712	--
L121017-30	SURZ-WSW1-101812	--
L121017-30	CON-01-101812	1211093
L121018-30		
L121018-30	W-BULKHEAD-101812	1210176
L121019-30		
L121019-30	DW7-101912	--
L121019-30	SURZ-SSWB-101912	--
L121019-30	IRZ-Stockpile A	--
L121023-6		
L121023-6	MRZ-B1-102212	--
L121023-6	MRZ-B1-102310	1210200
L121023-6	MRZ-B2-102212	1211095
L121023-6	MRZ-B3-102212	--
L121023-6	MRZ-B4-102212	--
L121023-6	MRZ-ESW1-102310	--
L121023-6	MRZ-NSW1-102212	--
L121023-6	MRZ-NSW1-102310	1210200
L121023-6	MRZ-NSW2-102212	--
L121023-6	MRZ-WSW1-102212	--
L121024-8		
L121024-8	MRZ-B2-102312	--
L121024-8	MRZ-B3-102312	1210223
L121024-8	MRZ-ESW2-102312	1210223
L121024-8	TP8-Stockpile	1210223
L121024-8	MRZ-B1-102412	1210223
L121024-8	MRZ-B2-102412	1210223
L121024-8	MRZ-B3-102412	1210223
L121025-3		
--	MRZ-B1-102512	1210233
--	MRZ-B2-102512	1210233
--	MRZ-B3-102512	1210233
--	MRZ-B4-102512	1210233
L121029-3		
--	MRZ-B5-102512	1210248
--	MRZ-B1-102612	1210248
--	MRZ-B2-102612	1210248
--	MRZ-B3-102612	1210248
--	MRZ-B4-102612	1210248
--	MRZ-B5-102612	1210248

Libby Sample Data Group (Listed Chronologically)		
Libby Environmental Sample Data Group	Sample ID	Fremont Analytical Sample Data Group
L121031-11		
L121031-11	DW8-103112	--
--	MRZ-B1-102912	1210265
--	MRZ-B2-102912	1210265
--	ROAD-1-103012	1210265
--	ROAD-2-103012	1210265
L121105-2		
L121105-2	TANK 1-110112	--
L121105-2	TANK 2-110112	--
--	MRZ-B1-110312	1211031
--	MRZ-B2-110312	1211031
--	MRZ-B3-110312	1211031
L121127-3		
L121127-3	SURZ-NSW-112112	--
L121127-3	SURZ-WSW-112112	--
L121127-3	SURZ-SSW-112112	--



Libby Environmental, Inc.

4139 Libby Road NE • Olympia, WA 98506-2518

November 8, 2012

Neil Morton
GeoEngineers Inc.
600 Stewart Street, Suite 1700
Seattle, WA 98101

Dear Mr. Morton:

Please find enclosed the analytical data report for the Irondale Project located in Irondale, Washington. Soil samples were analyzed for Diesel & Oil by NWTPH-Dx/Dx Extended on October 1, 2012.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. All soil samples are reported on a dry weight basis. An invoice for this analytical work is enclosed.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Jamie L. Deyman
President
Libby Environmental, Inc.



Libby Environmental, Inc.

Case Narrative

Libby Project #: L121001-30
Date: 11-8-2012

CLIENT: GeoEngineers, Inc.
PROJECT: Irondale

I. SAMPLE RECEIPT:

All samples were received intact and in good condition. See the attached Sample Receipt Check List for more information.

II. GENERAL REPORTING COMMENTS:

Final results are reported on a dry weight basis. The soil samples in the field are estimated to have a moisture content of 15%. This estimate is useful in producing data that is close to the actual value. After the sample is analyzed for soil moisture at our fixed base facility, the final data is reported based on measured soil moisture. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS), the Laboratory Control Sample Duplicate (LCSD) and the Method Blank (MB). The LCS, LCSD and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) and/or noted below.

Notes:

N/A

Libby Environmental, Inc.

Chain of Custody Record

4139 Libby Road NE
Olympia, WA 98506

Ph: 360-352-2110
Fax: 360-352-4154

Date: 10/01/12

Page: 1 of

Client: BEI

Project Manager:

Address:

Project Name: IRONDALE

Phone: Fax:

Location: WA City: IRONDALE

Client Project #

Collector: PAUL ROBIUETTE Date of Collection: 10/01/12



Sample Number	Depth	Time	Sample Type	Container Type	/											Field Notes								
					VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEM VOL 8270	NWTPH-HCID	NWTPH-Gx	NWTPH-Dx	PAH 8270	PCBs 8082	MTCAs 6 Metals										
1 IRZ-01-100112	0	715	SED	4oz																				NO PAHS
2 IMPACT-01-100112	0	830	SOIL	4oz																				✓ "
3 IRZ-02-100112	0	1020	SED	4oz																				✓ "
4 STP-01-100112	0.5	1320	SOIL	4oz																				✓ "
5 STP-02-100112	1	1321	SOIL	"																				✓ "
6 STP-03-100112	1	1322	SOIL	"																				✓ "
7 STP-04-100112	1	1323	SOIL	"																				
8																								
9																								
10																								
11																								
12																								
13																								
14																								
15																								
16																								
17																								
18																								

Relinquished by: [Signature] Date / Time: 10/01 1600

Received by: [Signature] Date / Time: 10/01/12 1600

Sample Receipt:

Remarks:

Relinquished by: Date / Time

Received by: Date / Time

Good Condition?

Cold?

Relinquished by: Date / Time

Received by: Date / Time

Seals Intact?

Total Number of Containers

Libby Environmental, Inc. Login Sample Receipt Check List

Client: GeoEngineers, Inc. **Libby Project Number:** L121001-30

Question	T / F / NA	Comment
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler temperature is acceptable.	True	
COC is present.	True	
COC is filled out in ink and is legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within the Hold Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs.	True	
VOA sample vials do not have headspace or bubble is less than 6mm (1/4 in.) in diameter.	True	
If necessary, staff has been informed of any short hold time or quick TAT needs.	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	

Libby Environmental, Inc.

4139 Libby Road NE
Olympia, WA 98506
Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@aol.com

IRONDALE PROJECT
GeoEngineers, Inc.
Irondale, Washington
Libby Project # L121001-30
Client Project # 0504-042-02

Analyses of Diesel & Oil Range (NWTPH-Dx/Dx Extended) in Soil w/ Silica Gel Cleanup

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Bunker C (mg/kg)
Method Blank	10/1/12	113	nd	nd
LCS	10/1/12	int	98%	
LCSD	10/1/12	int	102%	
IRZ-01-100112	10/1/12	107	nd	683
IMPORT-01-100112	10/1/12	121	nd	nd
IRZ-02-100112	10/1/12	128	nd	nd
IRZ-02-100112 Dup	10/1/12	86	nd	nd
STP-01-100112	10/1/12	126	nd	nd
STP-02-100112	10/1/12	93	nd	nd
STP-03-100112	10/1/12	92	nd	nd
STP-04-100112	10/1/12	int	nd	164
Practical Quantitation Limit			25	40

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

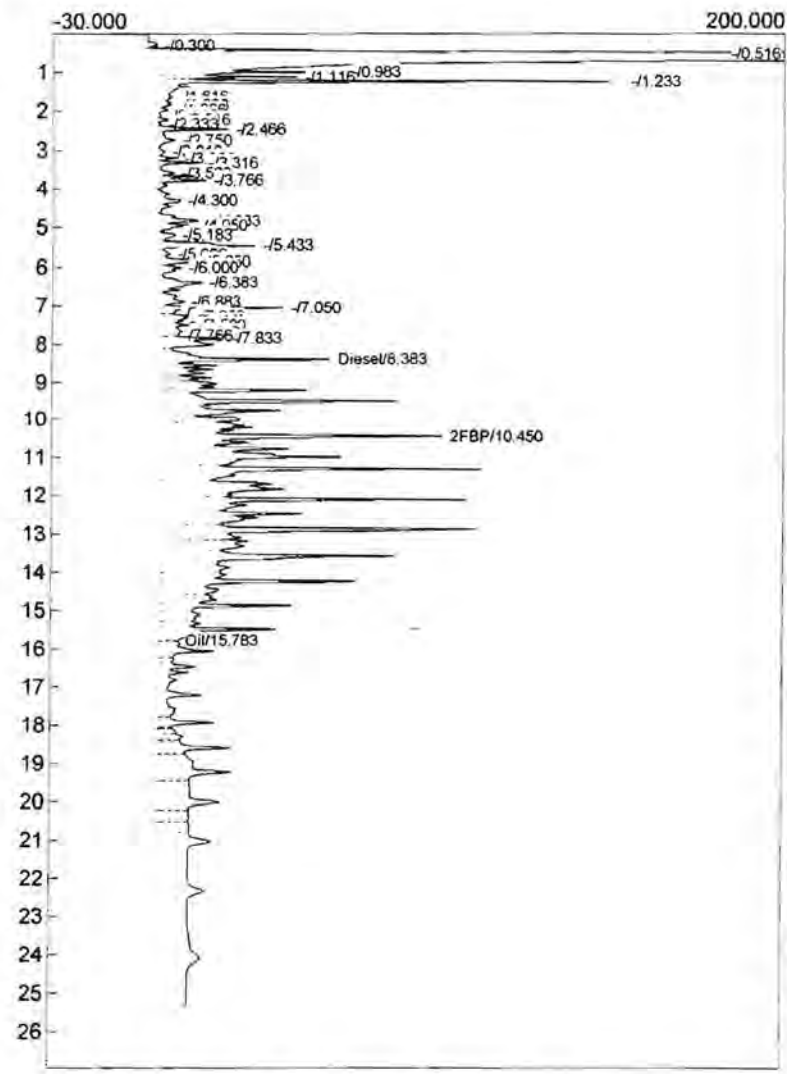
Analysis date: 10/01/2012 07:13:15
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C224.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	8.383	10369.8380	52.556	510.9897	ppm
2FBP	10.450	655.4040	87.870	26.2162	ppm
Oil	15.783	4665.5270	4.934	229.4568	ppm
		15690.7690		766.8627	

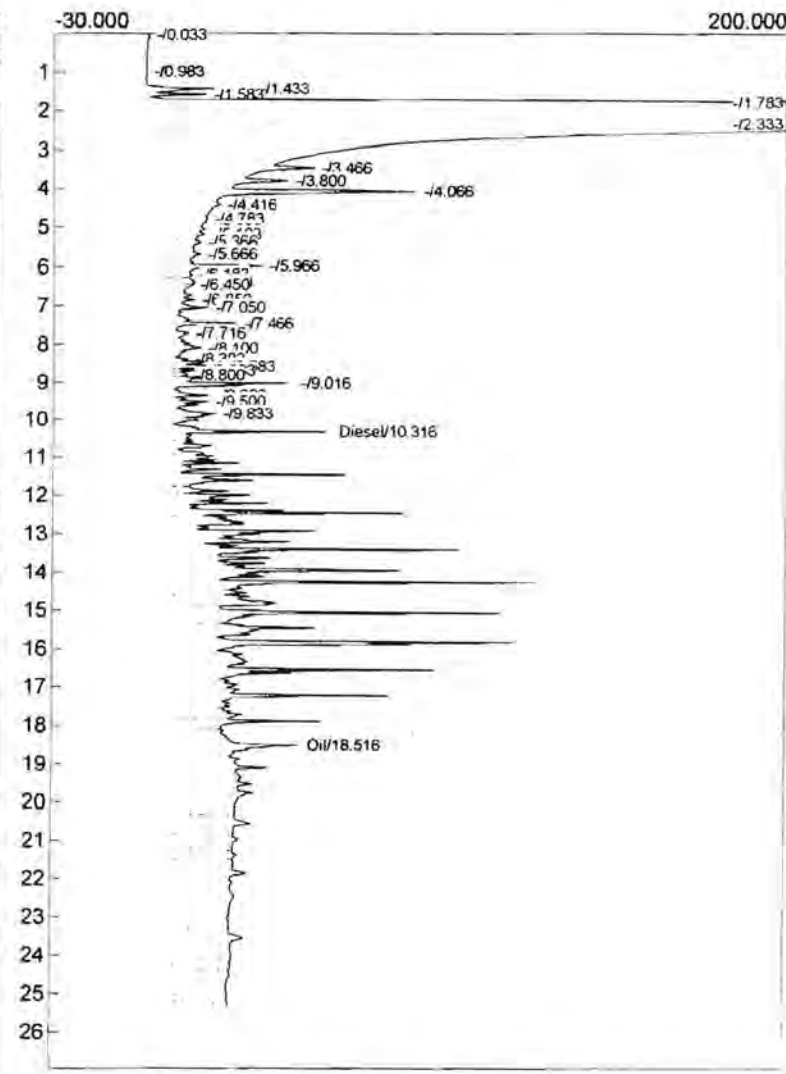
Analysis date: 10/01/2012 07:13:15
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D222.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	10.316	9567.7065	49.537	508.0528	ppm
Oil	18.516	8033.1590	39.762	425.9115	ppm
		17600.8655		933.9643	

Analysis date: 10/01/2012 07:44:32
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C225.CHR ()
 Sample: 1000 ppm LCS 343
 Operator: PB

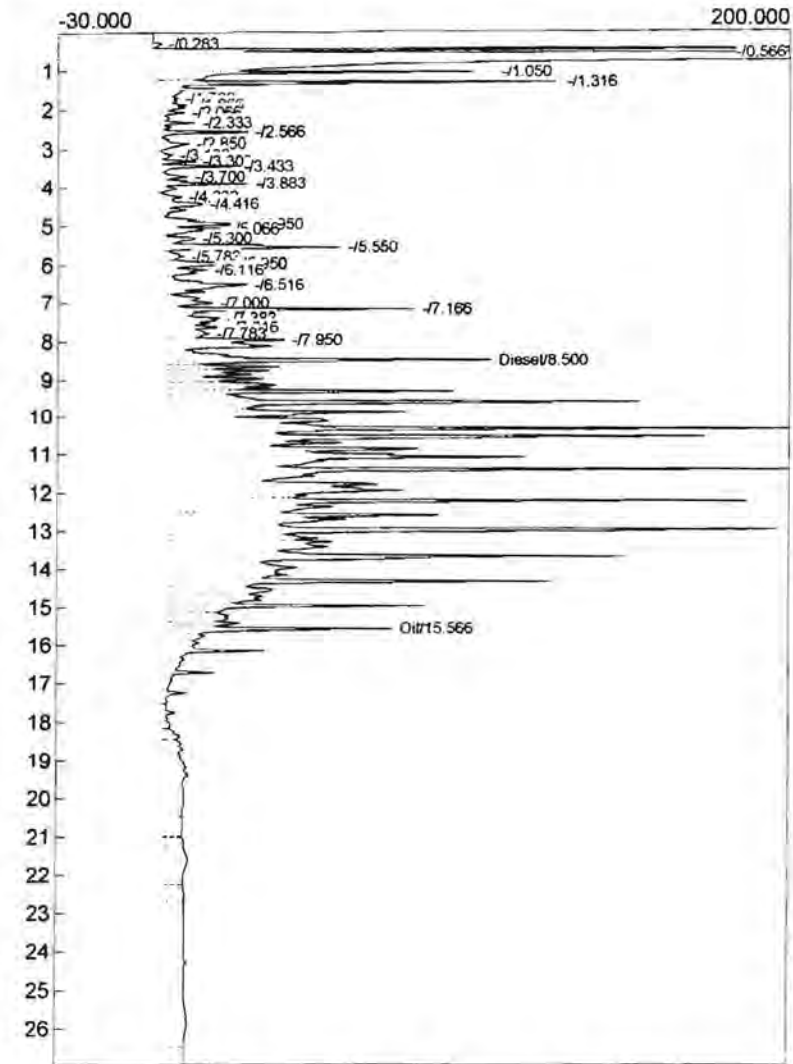
Analysis date: 10/01/2012 07:44:32
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D223.CHR ()
 Sample: 1000 ppm LCSD343
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	8.500	19913.2610	100.998	984.3777	ppm
Oil	15.566	3350.9780	69.908	164.7470	ppm
		23264.2390		1149.1247	

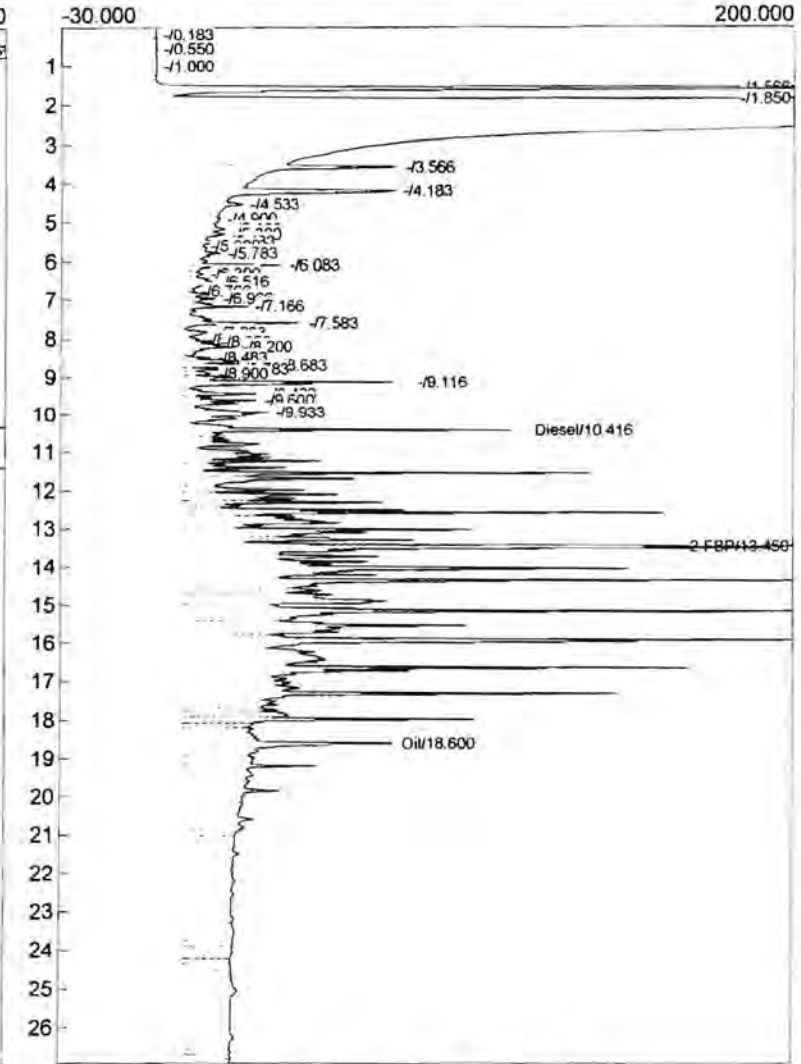
98%

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	10.416	19006.2920	107.716	1017.7311	ppm
2-FBP	13.450	1340.8580	222.221	44.6953	ppm
Oil	18.600	8446.8470	65.597	448.0554	ppm
		28793.9970		1510.4818	

102%

Lab name: Lobby Environmental
 Analysis date: 10/01/2012 08:17:18
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C226.CHR ()
 Sample: Method Blank
 Operator: PB

Analysis date: 10/01/2012 08:17:18
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D224.CHR ()
 Sample: Method Blank
 Operator: PB

Temperature program:

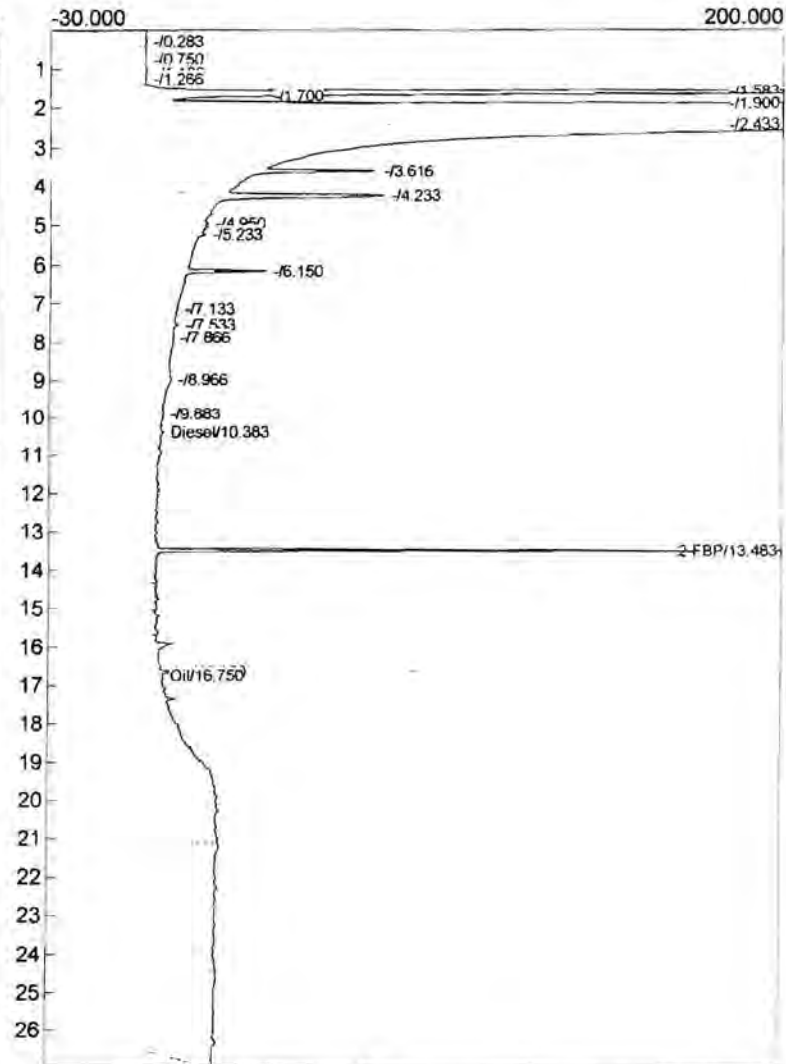
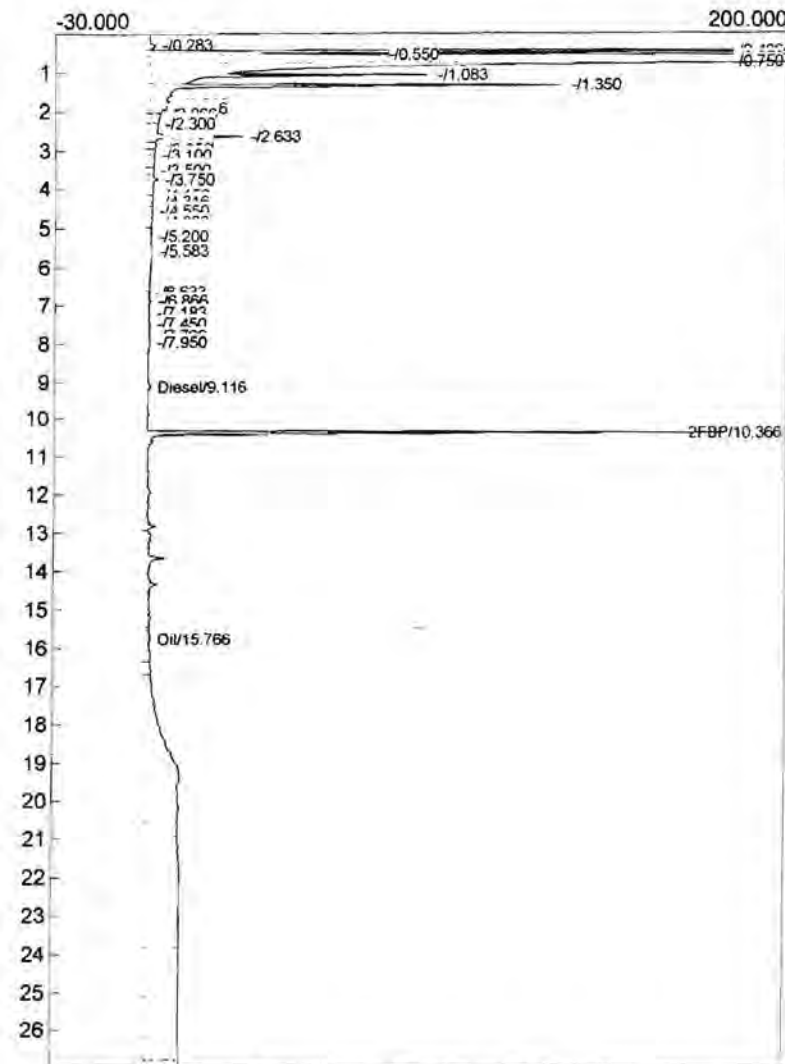
Init temp Hold Ramp Final temp

vents:
 Time Event
 0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

Events:
 Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	9.116	816.8985	0.937	40.1619	ppm
2-FBP	10.366	567.3270	191.112	22.6931	ppm
Oil	15.766	5771.7635	1.353	283.9947	ppm
		7155.9890		346.8497	

Component	Retention	Area	Height	External	Units
Diesel	10.383	759.3285	1.961	40.0990	ppm
2-FBP	13.483	495.2970	215.962	17.2277	ppm
Oil	16.750	9845.1585	2.817	522.9042	ppm
		11099.7840		580.2310	

113%

86%

Analysis date: 10/01/2012 08:17:18

Method:

Description: JAMACIA

Column: Restek Rbx-5 30x0.53x1.5

Carrier: He

Data file: C226.CHR ()

Sample: Method Blank

Operator: PB

** use for Bunker C*

Temperature program:

Air Blank only

Init temp Hold Ramp Final temp

vents:

Time Event
0.000 ZERO

Analysis date: 10/01/2012 08:17:18

Method:

Description: JAMACIA

Column: Restek Rbx-5 30x0.53x1.5

Carrier: He

Data file: D224.CHR ()

Sample: Method Blank

Operator: PB

** use for Bunker C*

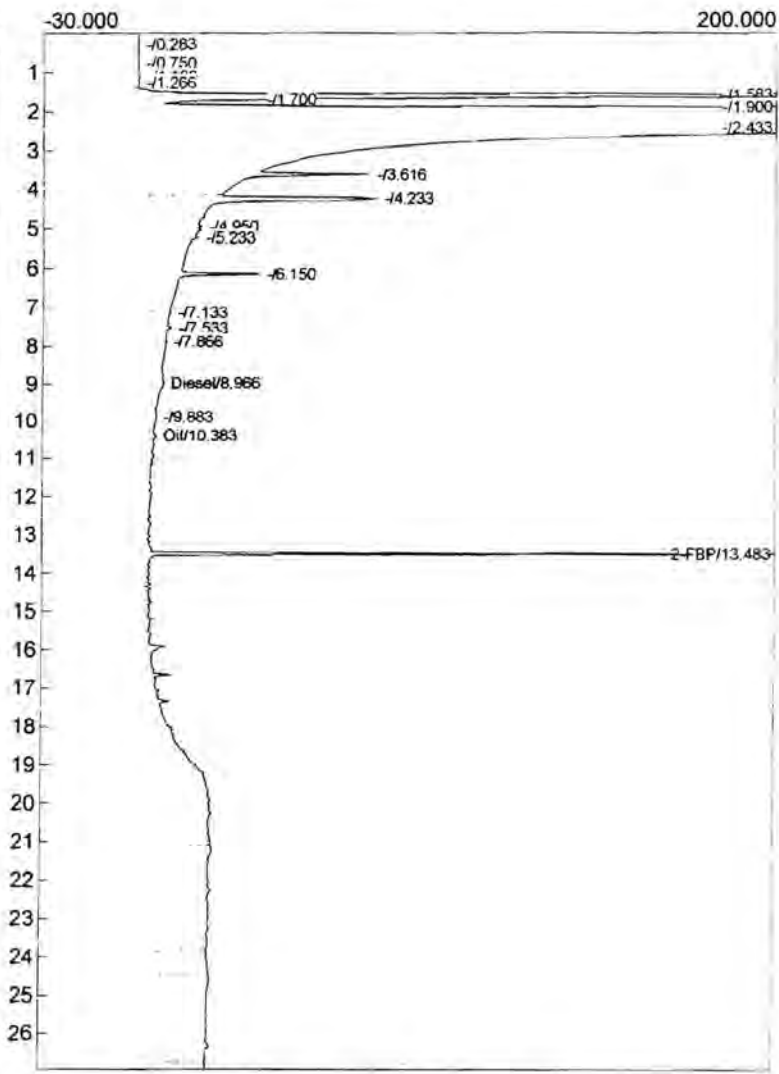
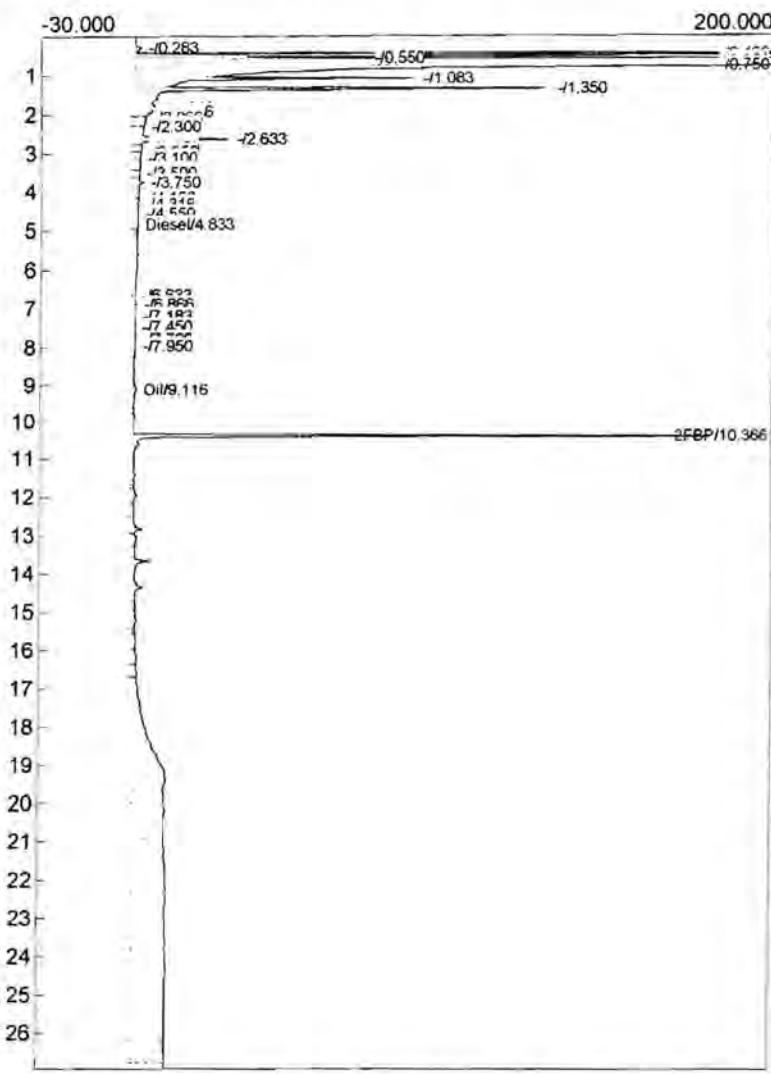
Temperature program:

air blank only.

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	4.833	82.5660	1.060	4.0593	ppm
Oil	9.116	6588.6620	0.937	324.2681	ppm
FBP	10.366	567.3270	191.112	22.6931	ppm
		7238.5550		351.0205	

113%

Component	Retention	Area	Height	External	Units
Diesel	8.966	200.3570	4.143	10.5806	ppm
Oil	10.383	10636.5100	1.961	565.2637	ppm
2-FBP	13.483	495.2970	215.962	17.2277	ppm
		11332.1640		593.0720	

86%

Analysis date: 10/01/2012 08:52:18
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C227.CHR ()
 Sample: Import-01-100112
 Operator: PB

Analysis date: 10/01/2012 08:52:18
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D225.CHR ()
 Sample: IRZ-01-100112 1:2
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

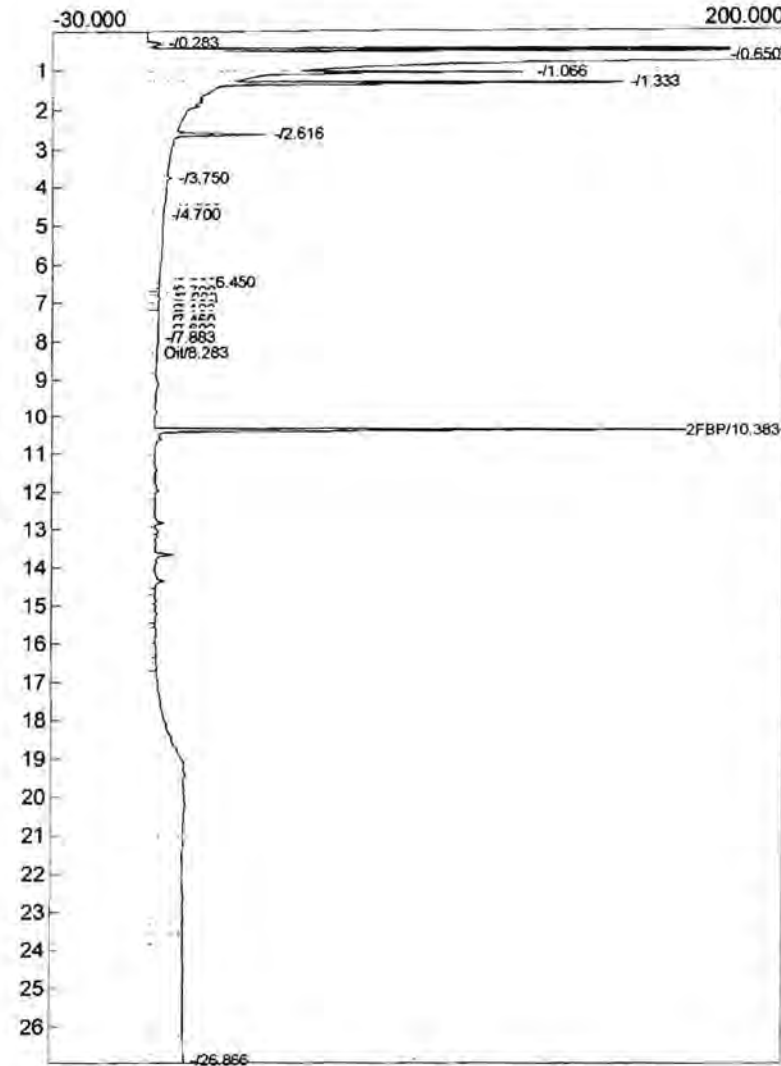
Time Event
 0.000 ZERO

Temperature program:

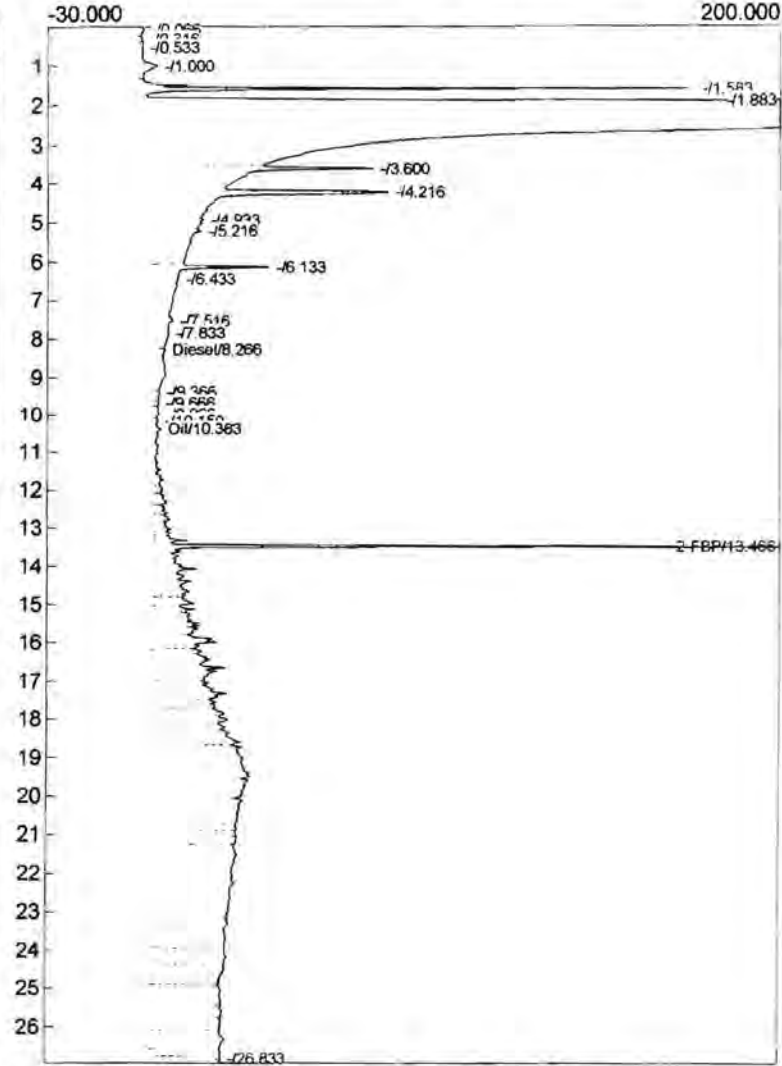
Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	6.450	5.5225	1.850	0.2715	ppm
Oil	8.283	6064.1605	1.101	298.4100	ppm
FBP	10.383	607.0865	204.808	24.2835	ppm
		8676.7695		322.9650	



Component	Retention	Area	Height	External	Units
Diesel	8.266	150.9925	3.010	7.9737	ppm
Oil	10.383	16821.4035	1.712	899.0405	ppm
2-FBP	13.466	617.6905	213.030	21.4849	ppm
		17590.0865		928.4991	

nd 121%

107%

899 - 565 = 334

moisture correction
 $\times 1.02286 = 683$

$\times 2$
 668 ppm

of Bunker C

Analysis date: 10/01/2012 10:47:14
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C228.CHR ()
 Sample: IRZ-02-100112
 Operator: PB

Analysis date: 10/01/2012 10:47:14
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D226.CHR ()
 Sample: IRZ-02-100112 Dup
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

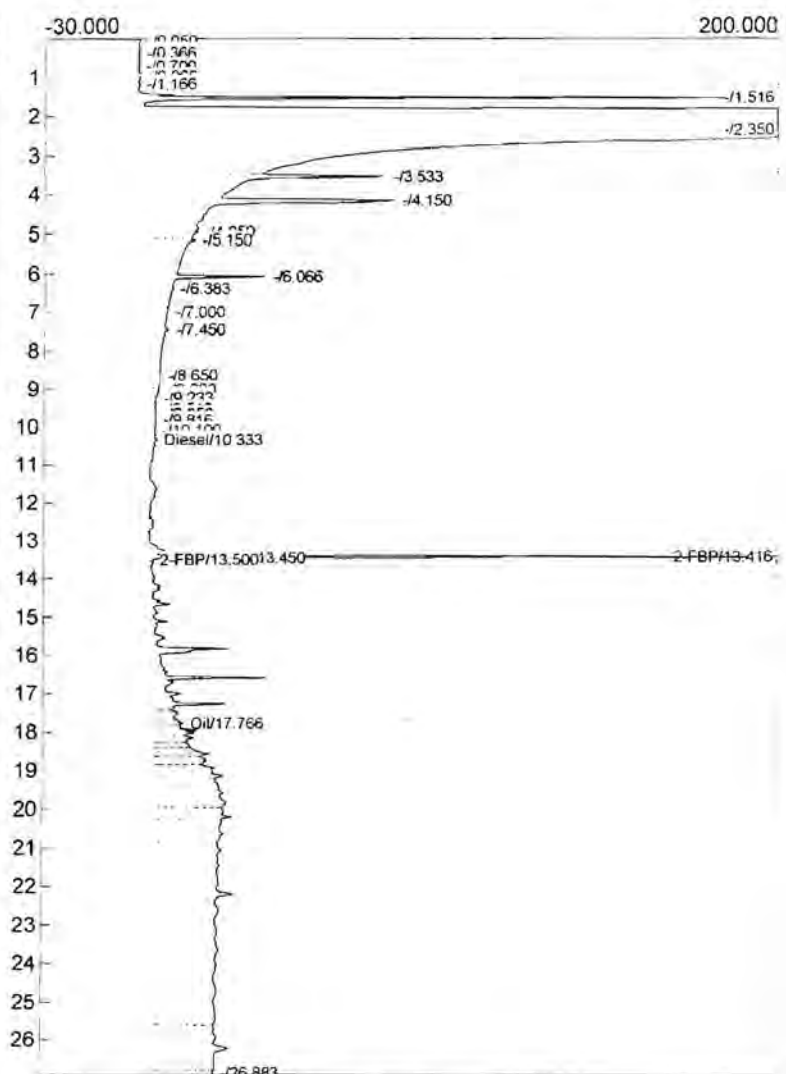
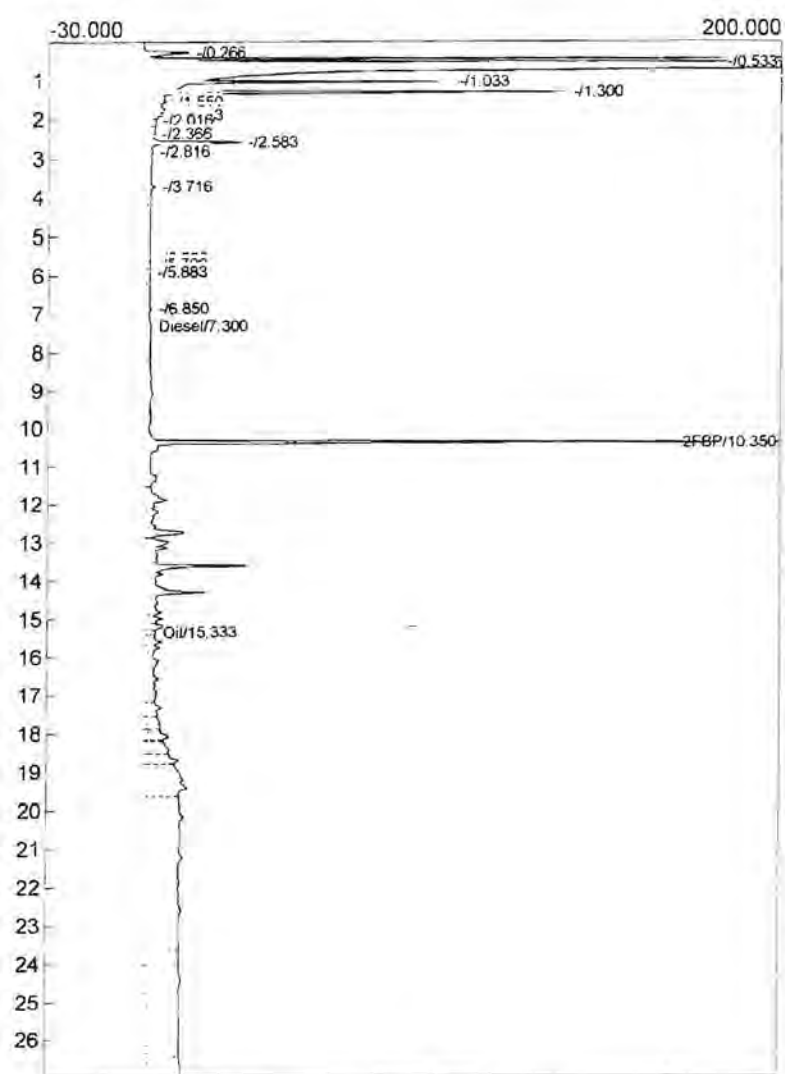
Time	Event
0.000	ZERO

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time	Event
0.000	ZERO



Component	Retention	Area	Height	External	Units
iesel	7.300	1606.3280	0.685	78.9733	ppm
2-FBP	10.350	639.8055	221.670	25.5922	ppm
Oil	15.333	5590.5145	2.362	275.0591	ppm
		7836.6480		379.6246	

Component	Retention	Area	Height	External	Units
Diesel	10.333	1388.5555	1.488	73.3275	ppm
2-FBP	13.416	495.4720	241.132	17.2338	ppm
2-FBP	13.450	19.8950	15.634	0.6920	ppm
2-FBP	13.500	1.7020	0.868	0.0592	ppm
Oil	17.766	9622.9605	7.748	511.0104	ppm
		11528.5850		602.3230	

nd 128%

nd 86%

Analysis date: 10/01/2012 13:57:29
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C229.CHR ()
 Sample: STP-01-100112
 Operator: PB

Analysis date: 10/01/2012 13:57:29
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D227.CHR ()
 Sample: STP-02-100112
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

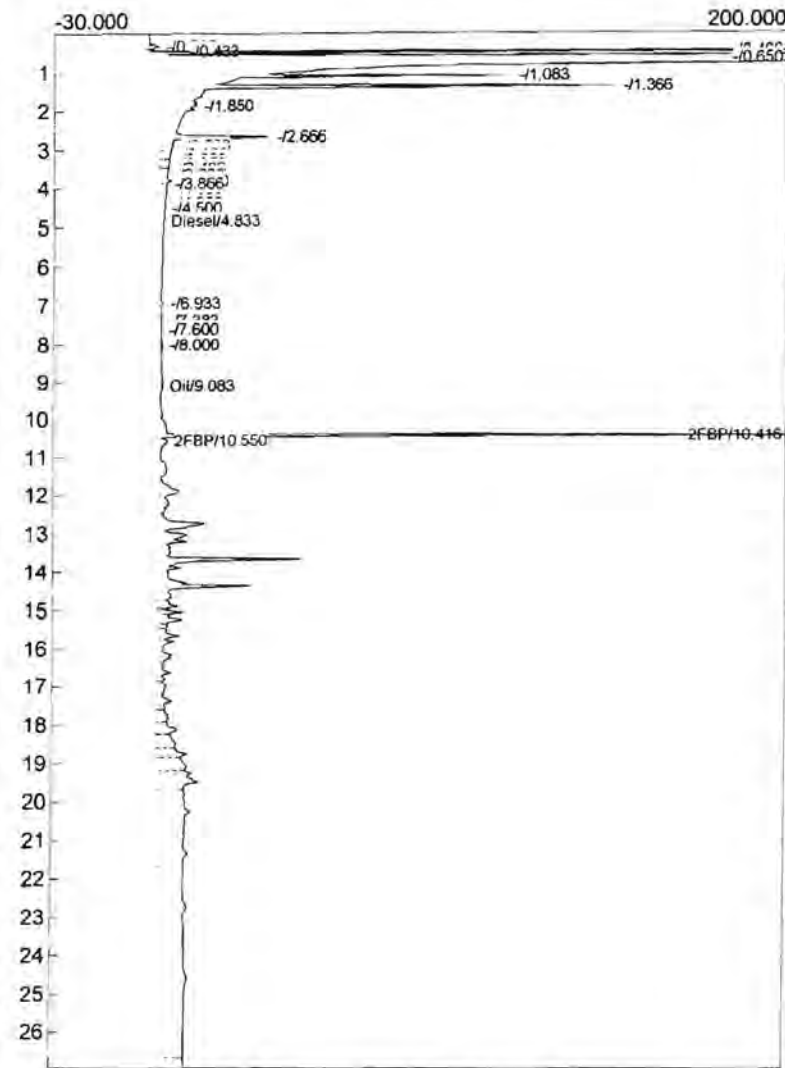
Time Event
 0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

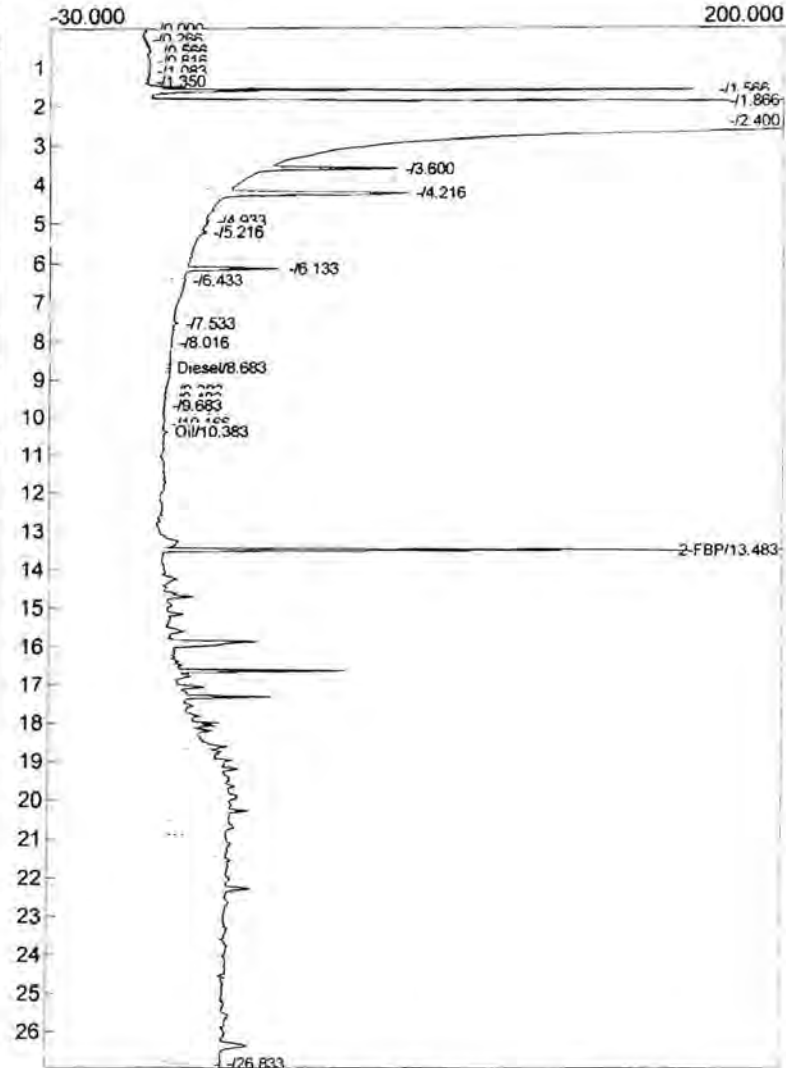
Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
iesel	4.833	24.0850	0.555	1.1841	ppm
il	9.083	6090.5315	0.538	299.7101	ppm
FBP	10.416	628.2580	236.858	25.1303	ppm
FBP	10.550	21.6580	2.047	0.8663	ppm
		6764.5325		326.8908	

nd 126%



Component	Retention	Area	Height	External	Units
Diesel	8.683	26.4990	0.843	1.3994	ppm
Oil	10.383	10931.5705	1.407	581.0577	ppm
2-FBP	13.483	535.1880	217.393	18.6152	ppm
		11493.2575		601.0723	

nd 93%

Analysis date: 10/01/2012 14:34:54
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C230.CHR ()
 Sample: STP-04-100112
 Operator: PB

Analysis date: 10/01/2012 14:34:54
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D228.CHR ()
 Sample: STP-03-100112
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

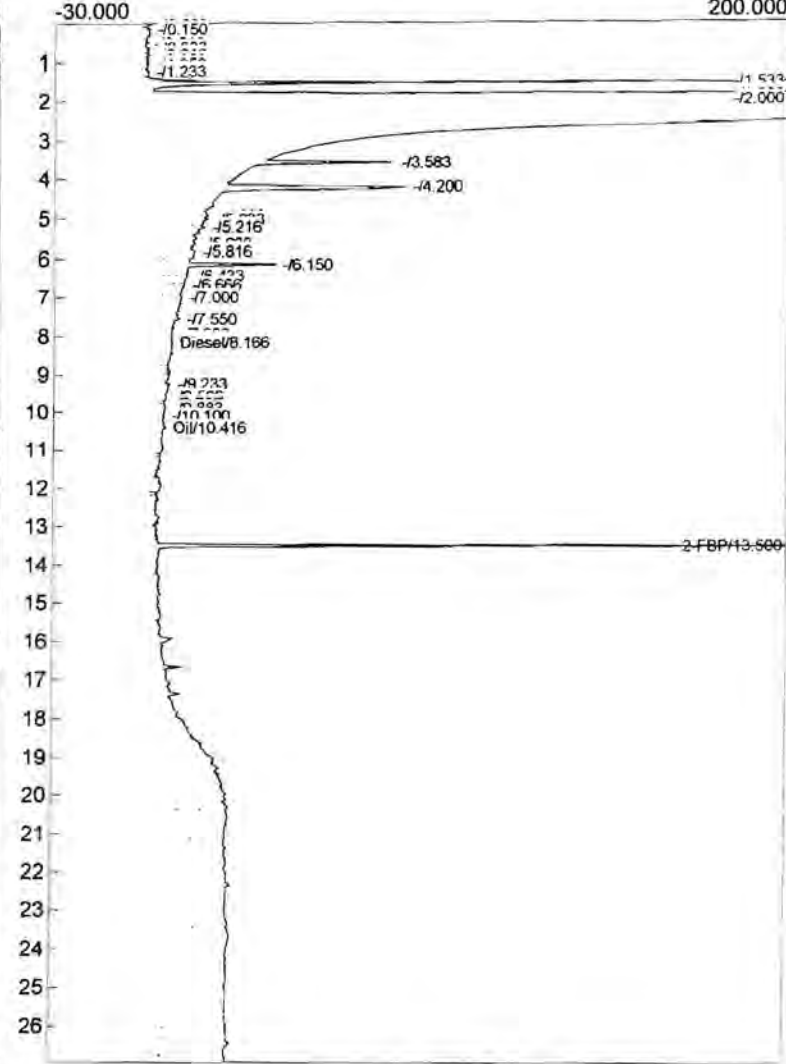
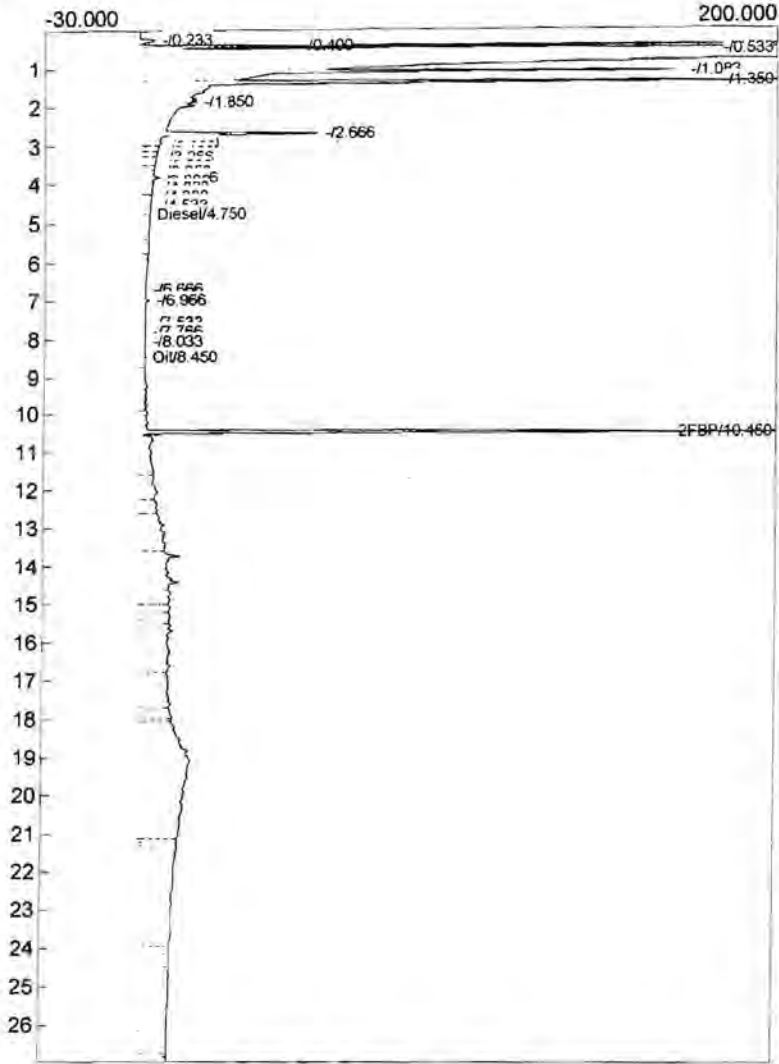
Time Event
0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	4.750	90.8120	1.324	4.4647	ppm
Oil	8.450	9547.8630	0.309	470.3532	ppm
2-FBP	10.450	968.1220	340.922	38.7249	ppm
		10606.7970		513.5427	

Component	Retention	Area	Height	External	Units
Diesel	8.166	195.8145	3.822	10.3407	ppm
Oil	10.416	10502.4645	2.421	558.0885	ppm
2-FBP	13.500	527.4690	252.889	18.3467	ppm
		11225.7480		586.7759	

int 470 - 324 = 146
 Bunker C

nd 92%

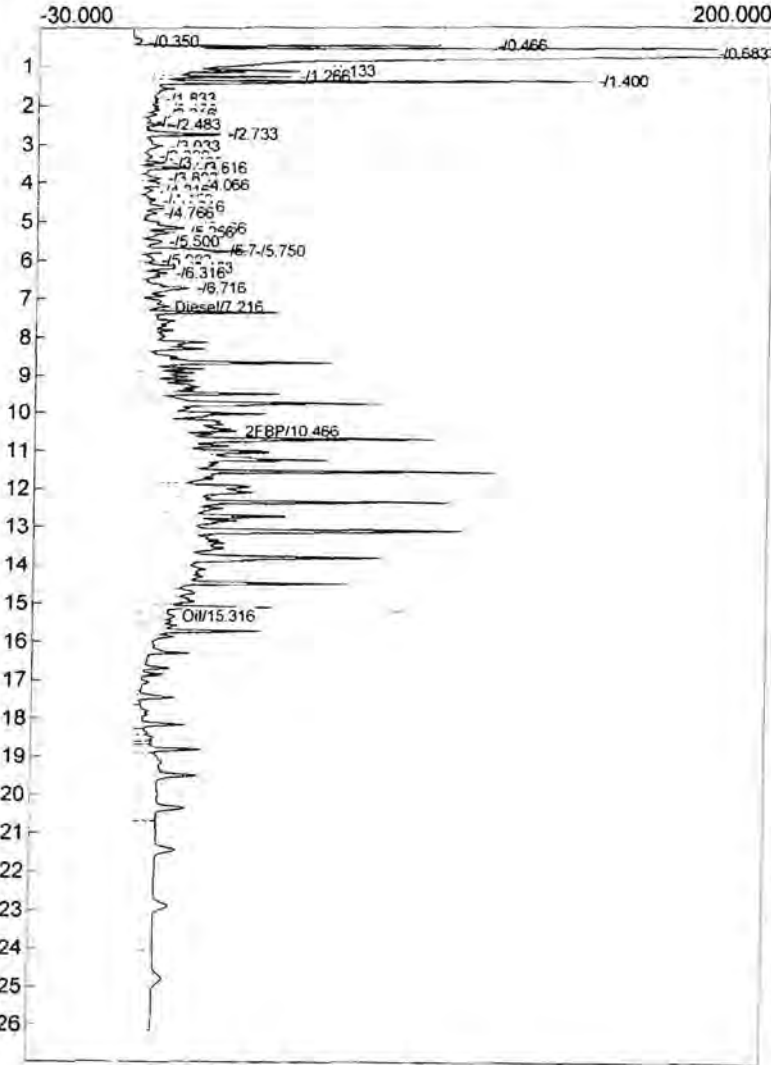
Lab Name: Lobby Environmental
 Analysis date: 10/01/2012 15:18:31
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C231.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Analysis date: 10/01/2012 15:18:31
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D229.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:
 Time Event
 0.000 ZERO

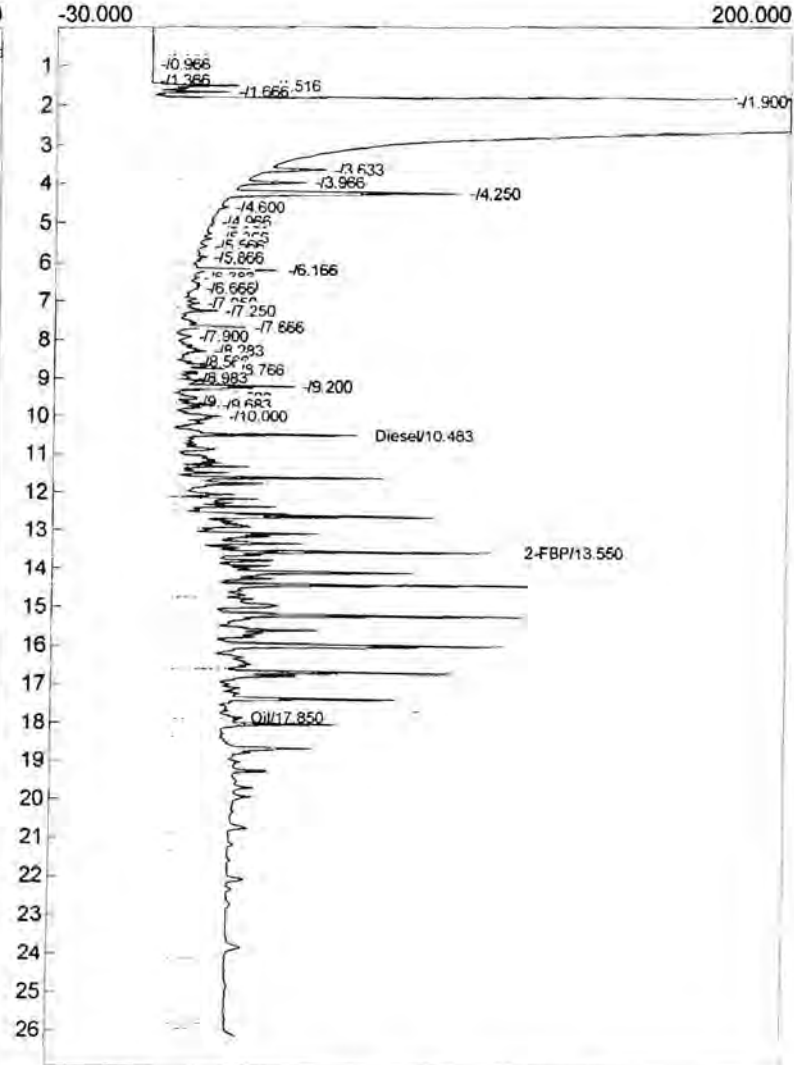


Component	Retention	Area	Height	External	Units
Diesel	7.216	10542.3690	7.902	519.5192	ppm
2-FBP	10.466	282.9320	30.716	11.3173	ppm
Oil	15.316	3957.6085	11.229	194.5713	ppm
		14782.9095		725.4078	

Temperature program:

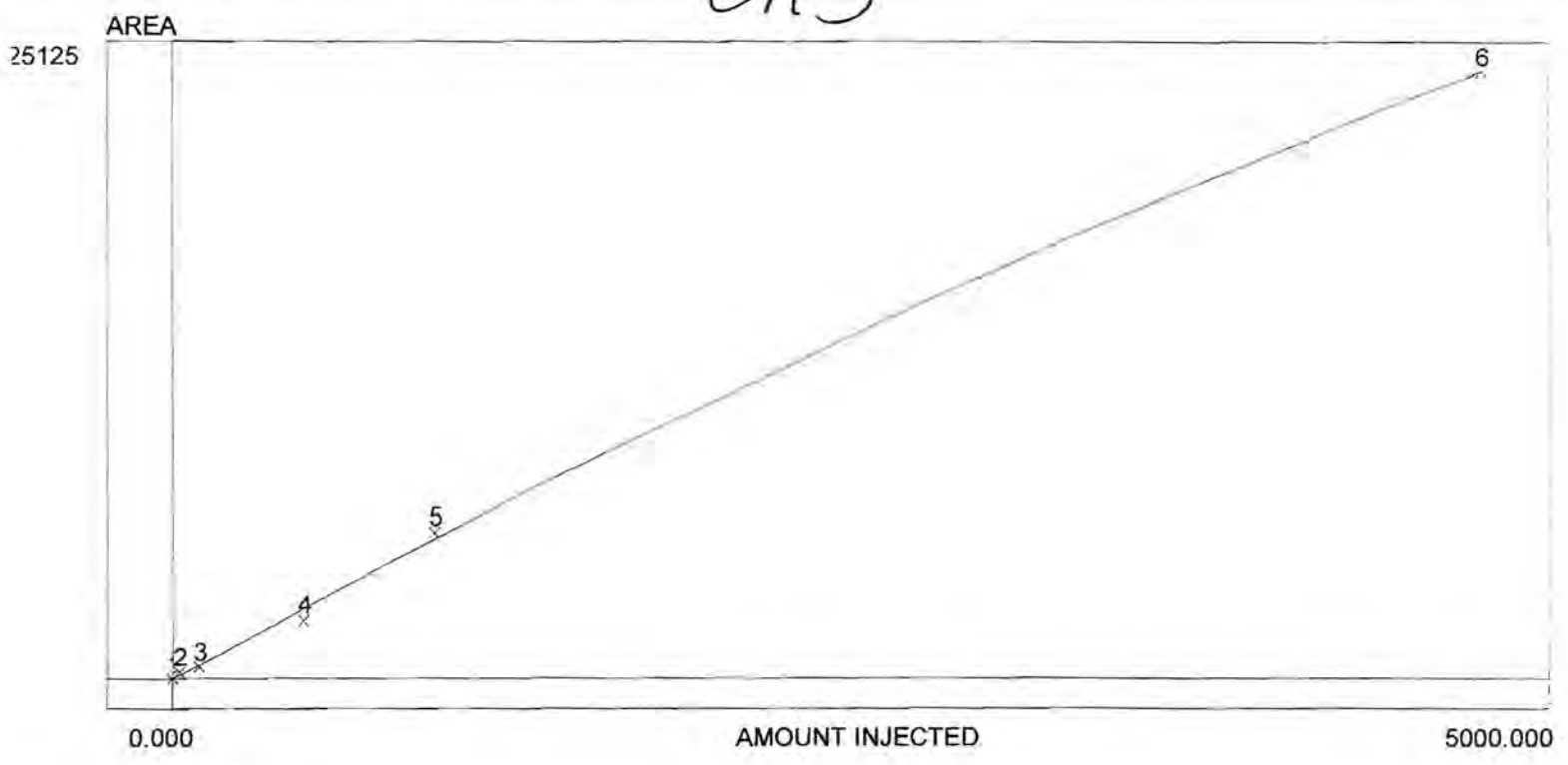
Init temp Hold Ramp Final temp

Events:
 Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	10.483	9443.3255	60.597	501.3949	ppm
2-FBP	13.550	540.6200	107.840	18.8042	ppm
Oil	17.850	9365.8005	22.446	497.2452	ppm
		19349.7460		1017.4443	

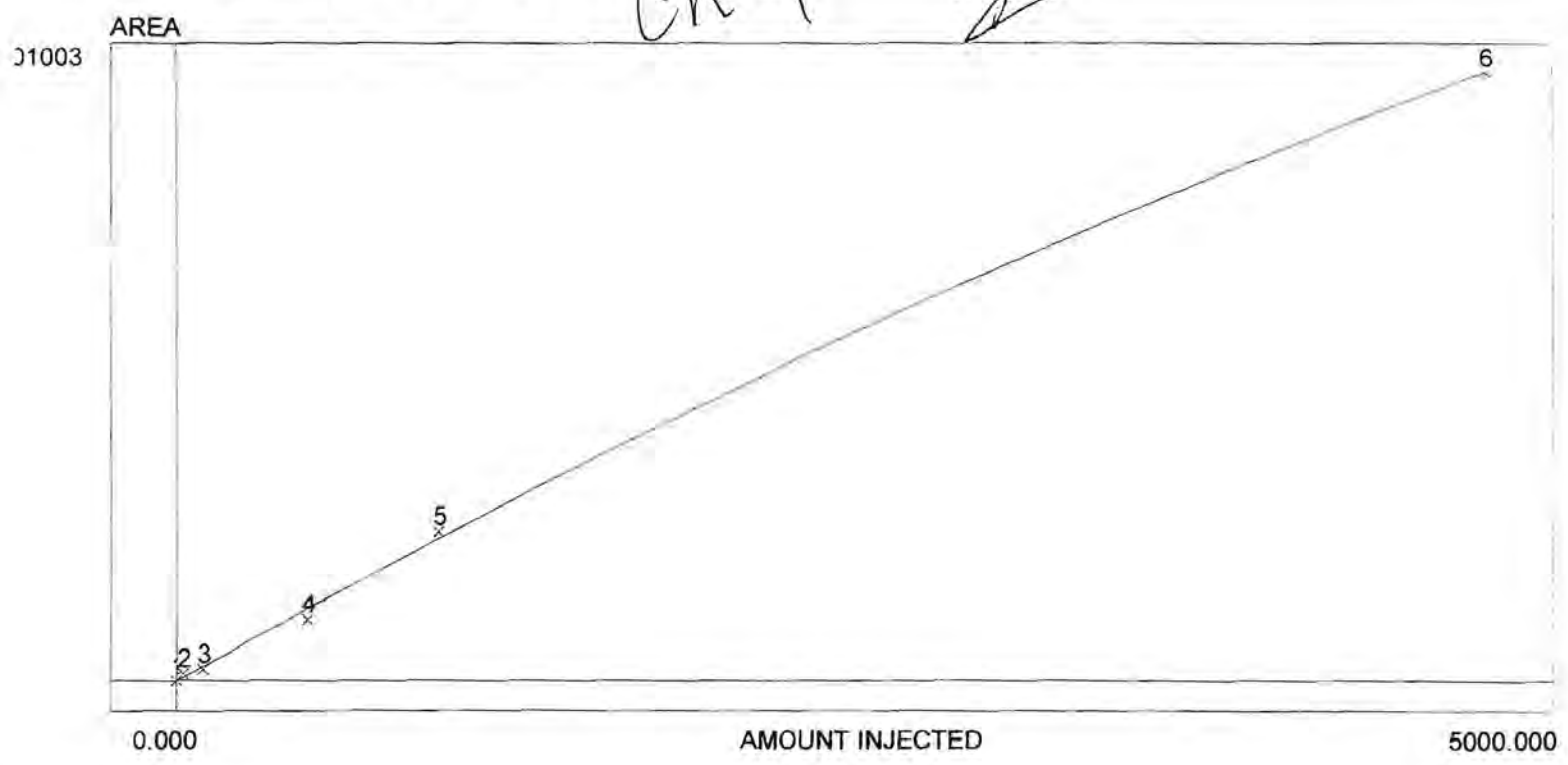
Ch3



avg slope of curve: 25.03
 y-axis intercept: 0.00
 linearity: 0.86
 number of levels: 6
 SD/rel SD of CF's: 18.0/66.9
 $y = -0.0009X^2 + 29.3544X$
 R^2: 0.9993
 last calibrated: Wed Mar 14 13:52:31 2012

Level	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	1410.471	25.000	56.419	1410.471	N/A	N/A
3	2574.179	100.000	25.742	2574.179	N/A	N/A
4	12043.265	500.000	24.087	12043.265	N/A	N/A
5	29871.863	1000.000	29.872	29871.863	N/A	N/A
6	125124.670	5000.000	25.025	125124.670	N/A	N/A

Ch 4 2

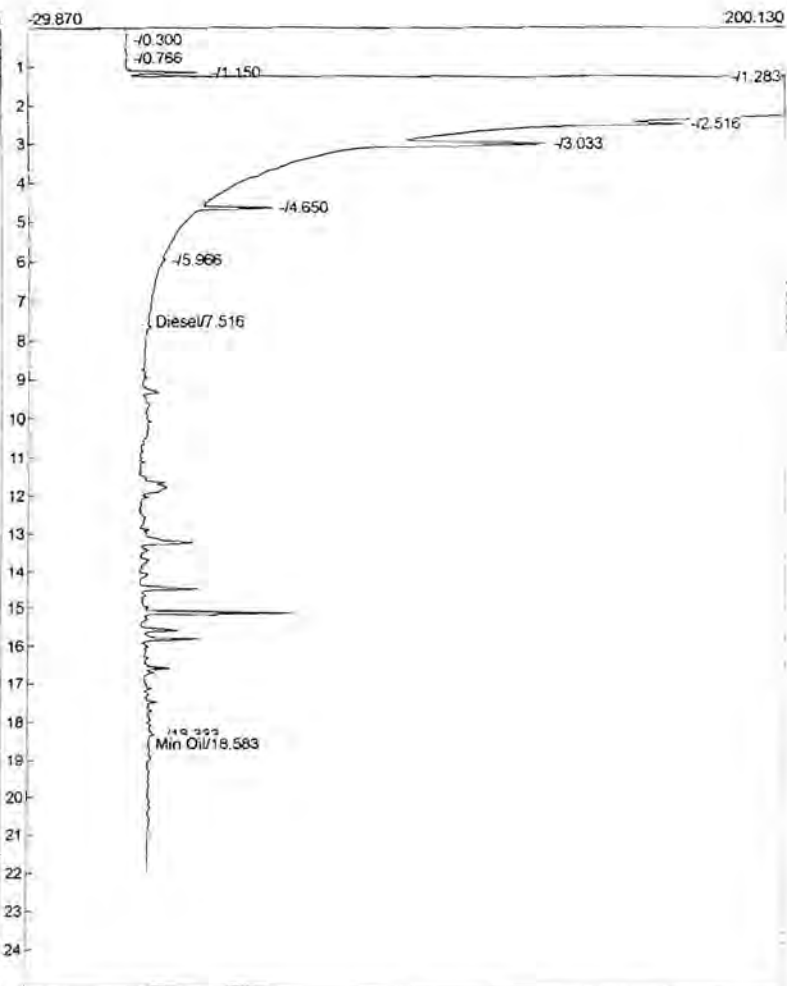
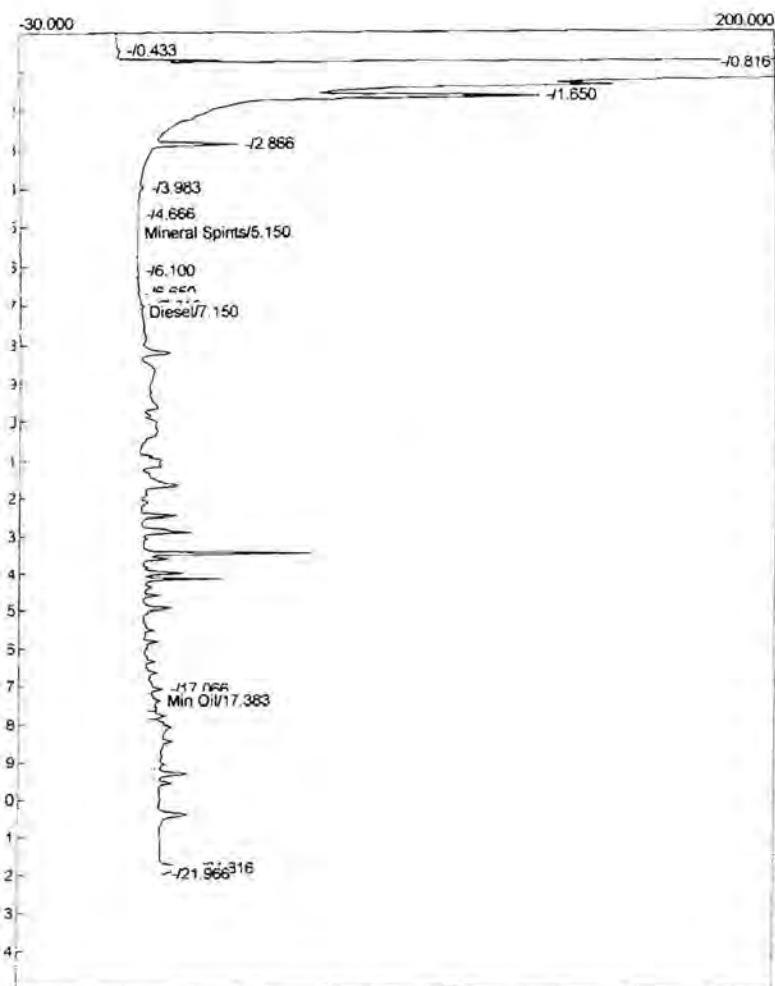


avg slope of curve: 20.21
 y-axis intercept: 0.00
 linearity: 0.84
 number of levels: 6
 ID/rel SD of CF's: 16.3/72.6
 $y = -0.0008x^2 + 24.2883x$
 R^2: 0.9993
 last calibrated: Wed Mar 14 13:57:45 2012

Level	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	1271.716	25.000	50.869	1271.716	N/A	N/A
3	1927.394	100.000	19.274	1927.394	N/A	N/A
4	10086.605	500.000	20.173	10086.605	N/A	N/A
5	24554.042	1000.000	24.554	24554.042	N/A	N/A
6	101002.720	5000.000	20.201	101002.720	N/A	N/A

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 10:39:04
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C620.CHR ()
 Sample: 25 PPM Dx 706
 Operator: KW

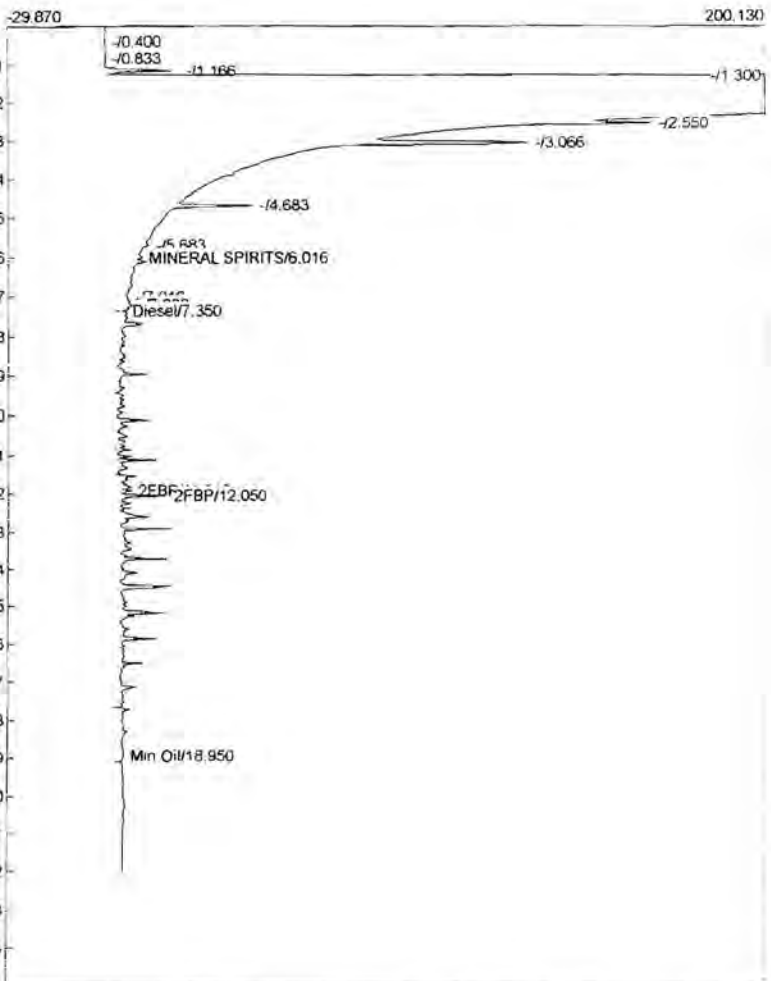
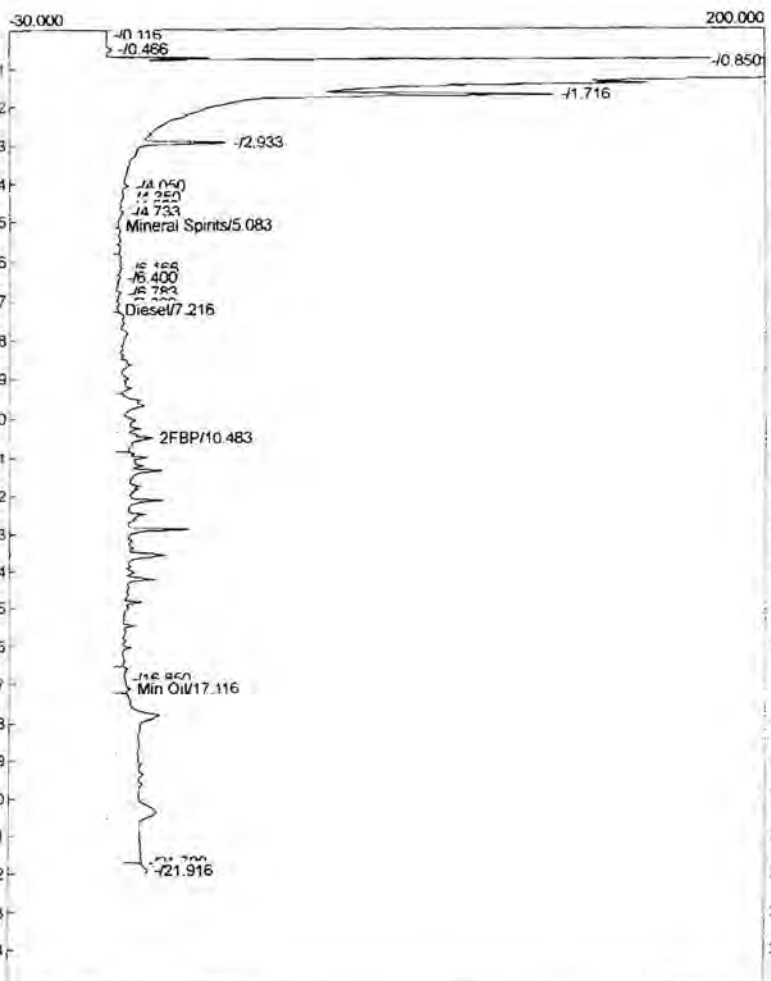
Analysis date: 03/14/2012 10:39:04
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D626.CHR ()
 Sample: 25 PPM Dx 706
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	U
Mineral Spirits	5.150	7.8080	0.195	0.3863	ppm	Diesel	7.516	1271.7155	1.965	89.4973	ppm
Diesel	7.150	1410.4710	0.518	13.6936	ppm	Min Oil	18.583	209.2665	1.582	14.7689	ppm
Min Oil	17.383	577.2305	3.576	0.0000							
		1995.5095		14.0798				1480.9820		104.2662	

Analysis date: 03/14/2012 11:07.43
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C621.CHR ()
 Sample: 100 PPM Dx 705
 Operator: KW

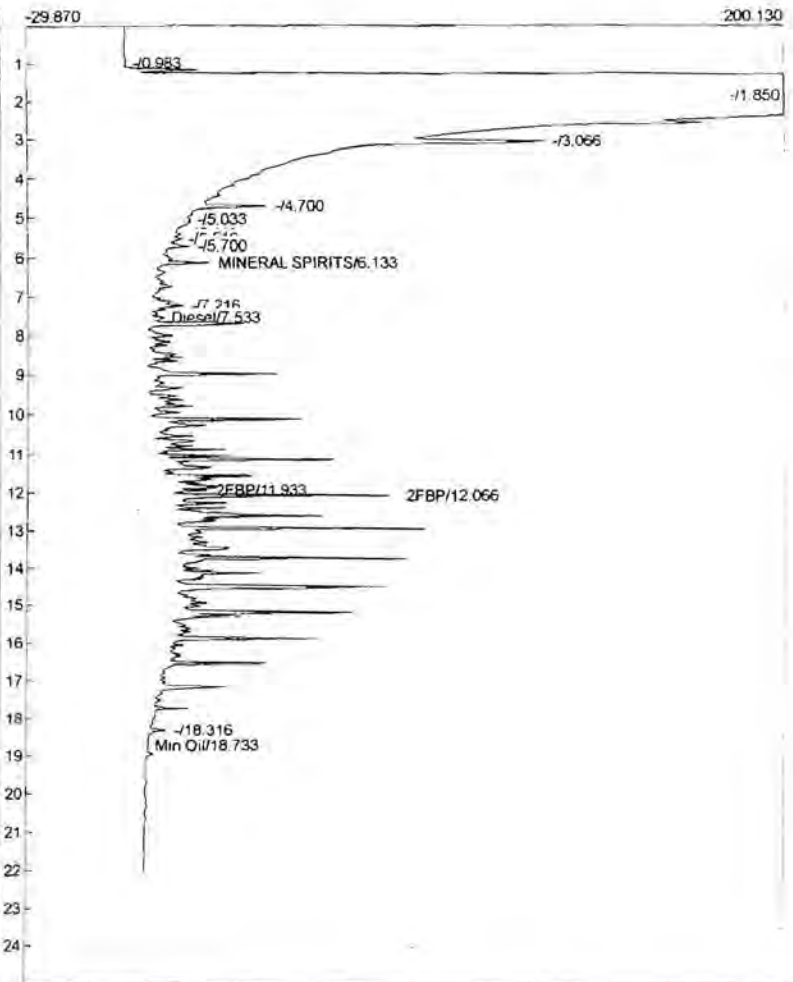
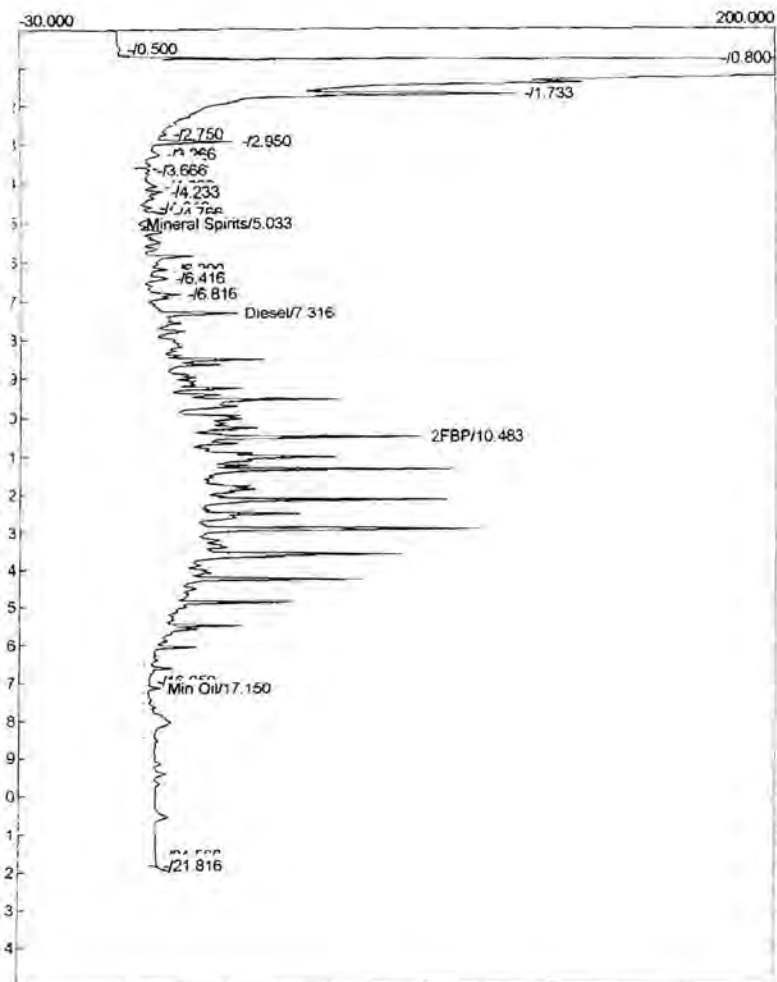
Analysis date: 03/14/2012 11:07.43
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D627.CHR ()
 Sample: 100 PPM Dx 705
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	U
Mineral Spirits	5.083	84.6325	1.090	4.1869	PPM	MINERAL SPIRITS	6.016	285.6170	7.733	20.1004	PPM
Diesel	7.216	2410.4095	0.627	119.2471	ppm	Diesel	7.350	1849.7390	2.625	130.1759	ppm
2FBP	10.483	163.7695	10.998	6.5508	ppm	2FBP	11.916	20.8250	4.775	1.0413	ppm
Min Oil	17.116	1953.3665	4.269	0.0000		2FBP	12.050	56.8300	15.516	2.8415	ppm
						Min Oil	18.950	514.9365	2.757	36.3413	ppm
		4612.1780		129.9847				2727.9475		190.5003	

Analysis date: 03/14/2012 11:45:18
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C622.CHR ()
 Sample: 500 PPM Dx 704
 Operator: KW

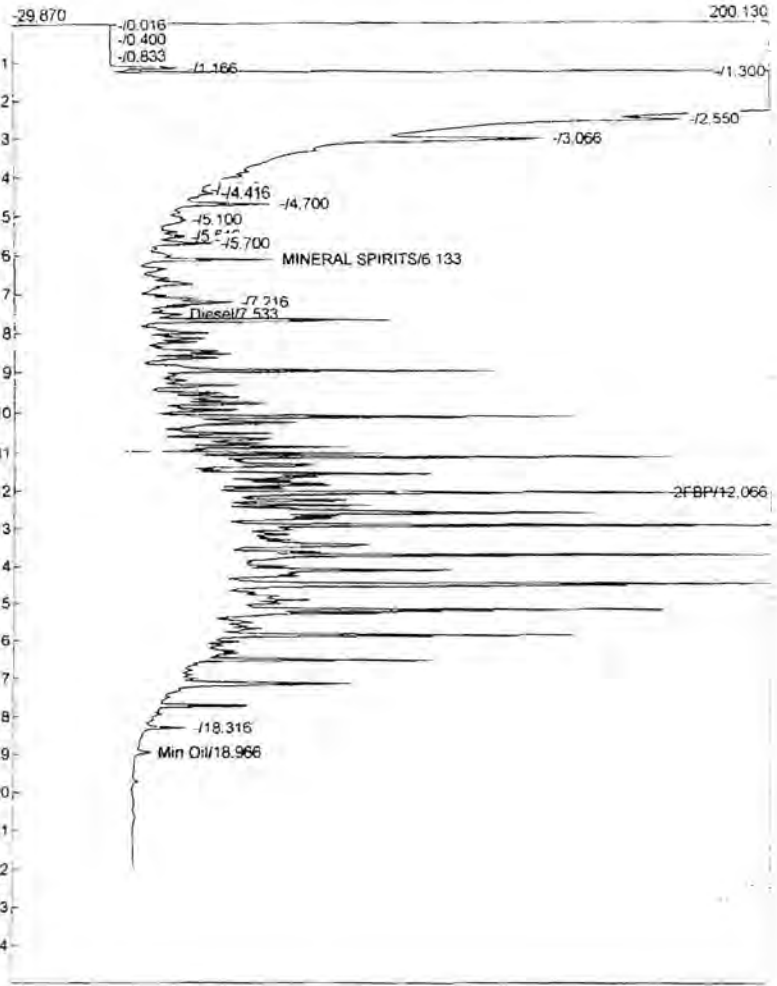
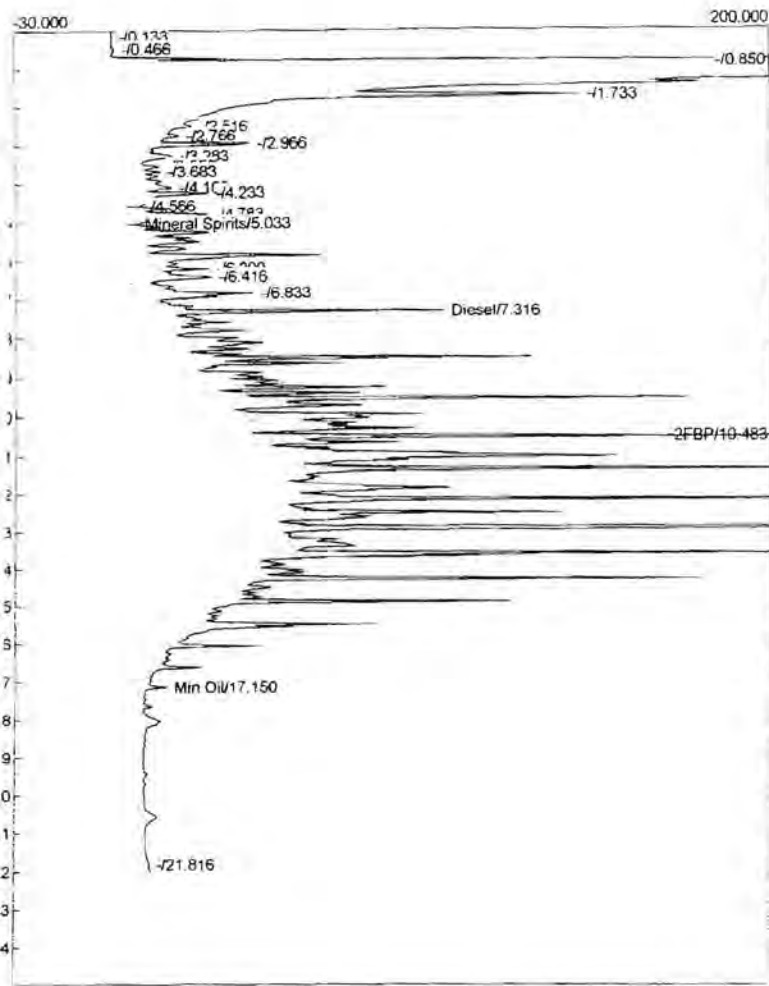
Analysis date: 03/14/2012 11:45:18
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D628.CHR ()
 Sample: 500 PPM Dx 704
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.033	323.3415	0.632	15.9963	PP	MINERAL SPIRITS	6.133	636.8190	24.452	44.8163	PP
Diesel	7.316	11375.2115	30.144	562.7511	ppn	Diesel	7.533	9651.3385	9.725	679.2156	ppn
2FBP	10.483	668.0530	86.276	26.7221	ppn	2FBP	11.933	110.1285	21.943	5.5064	ppn
Min Oil	17.150	960.9820	5.210	0.0000		2FBP	12.066	325.1375	79.999	16.2569	ppn
						Min Oil	18.733	138.4670	1.874	9.7722	ppn
		13327.5880		605.4694				10861.8905		755.5674	

Analysis date: 03/14/2012 12:13:07
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C623.CHR ()
 Sample: 1000 PPM Dx 703
 Operator: KW

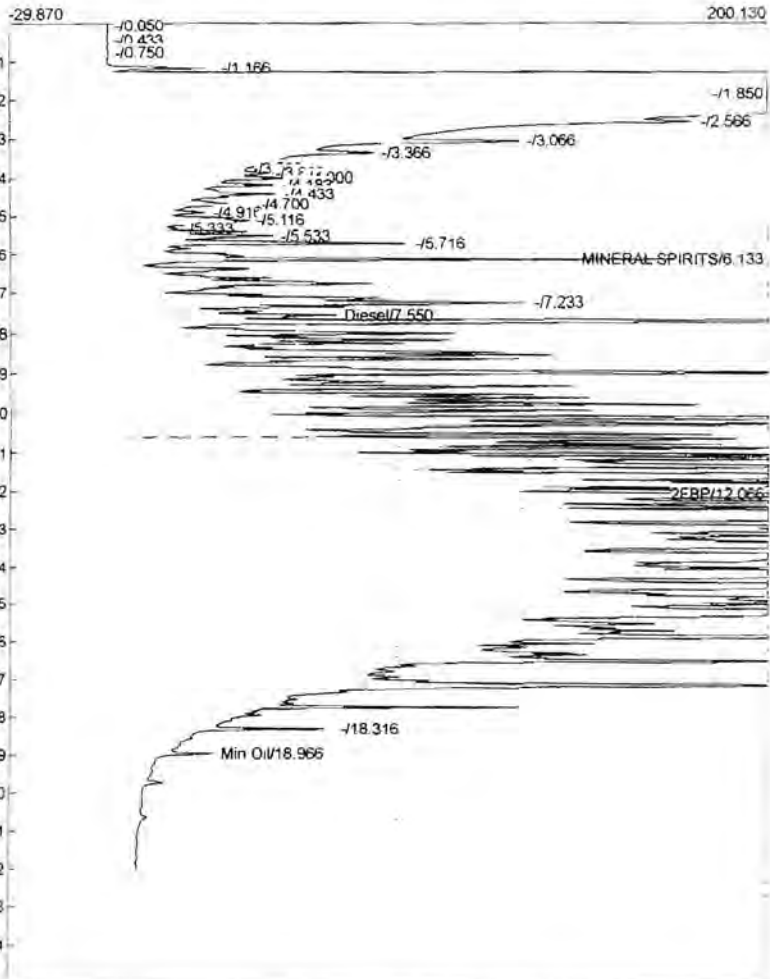
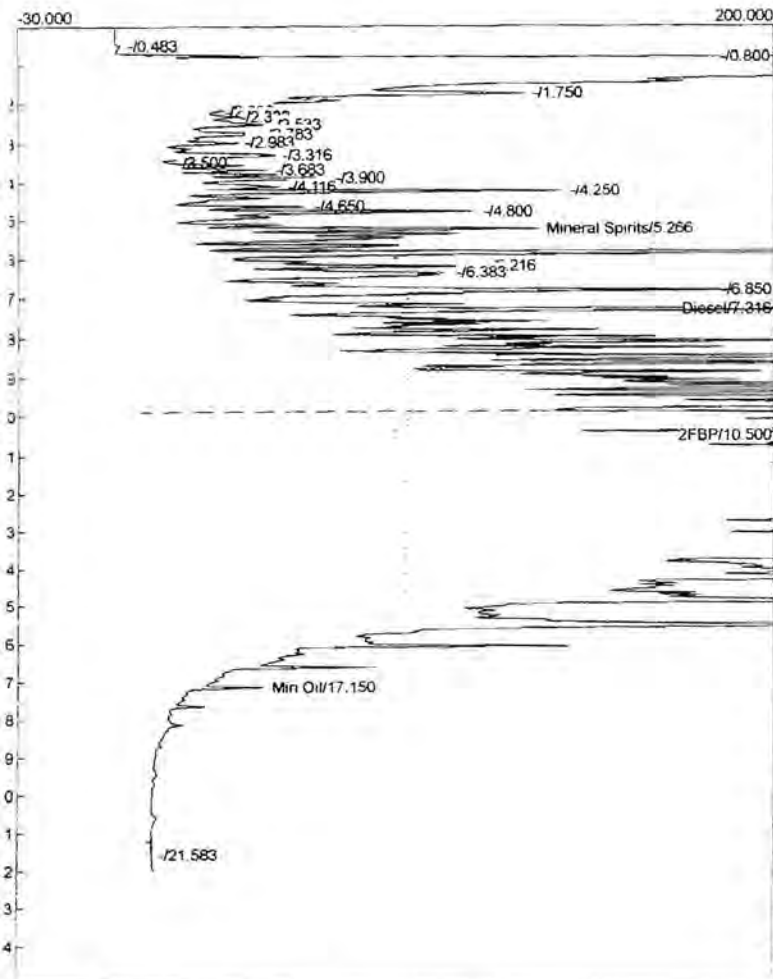
Analysis date: 03/14/2012 12:13:07
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D629.CHR ()
 Sample: 1000 PPM Dx 703
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.033	995.3365	2.641	49.2410	pp	MINERAL SPIRITS	6.133	723.8390	45.571	50.9404	pp
Diesel	7.316	28291.8845	95.034	1399.6476	pp	Diesel	7.533	23510.5725	17.032	1654.5630	pp
FBP	10.483	1579.9780	244.836	63.1991	pp	2FBP	12.066	1043.4695	193.880	52.1735	pp
Min Oil	17.150	221.1300	7.549	0.0000	pp	Min Oil	18.966	300.3670	6.980	21.1982	pp
		31088.3290		1512.0877				25578.2480		1778.8751	

Analysis date: 03/14/2012 12:41:16
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C624.CHR ()
 Sample: 5000 PPM Dx 702
 Operator: KW

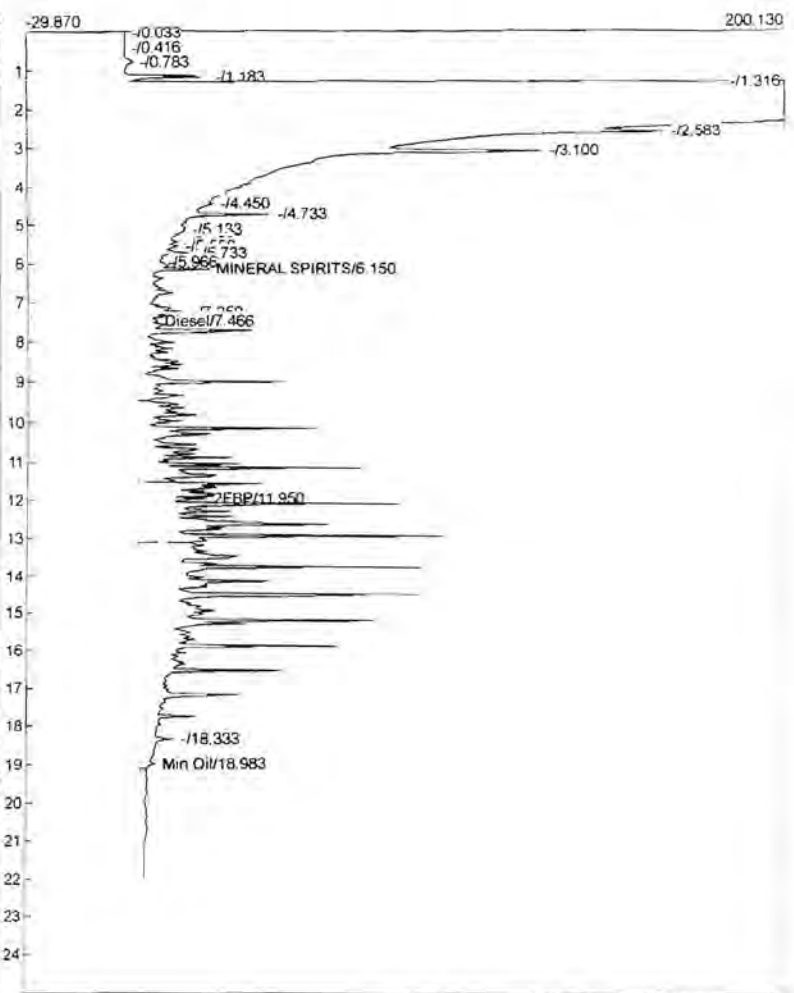
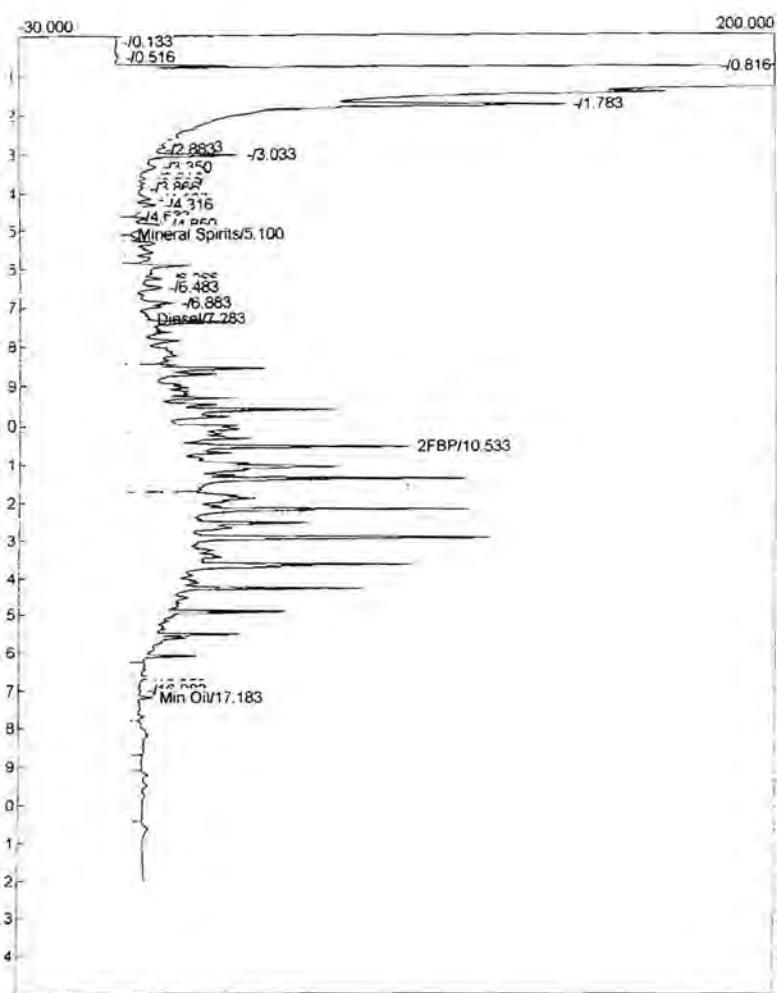
Analysis date: 03/14/2012 12:41:10
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D630.CHR ()
 Sample: 5000 PPM Dx 702
 Operator: KW



Component	Retention	Area	Height	External	UnComponent	Retention	Area	Height	External
Mineral Spirits	5.266	4030.7350	121.832	199.4073	MINERAL SPIRITS	6.133	2118.1620	172.994	149.0662
Diesel	7.316	118321.9850	479.109	5853.5897	Diesel	7.550	97612.4720	63.265	6869.5047
2FBP	10.500	6802.6800	1015.018	272.1072	2FBP	12.066	3390.2460	772.659	169.5123
Min Oil	17.150	1309.9915	36.600	0.0000	Min Oil	18.966	734.9465	24.851	51.8684
		130465.3915		6325.1043			103855.8265		7239.9516

Lab name: Esby Environmental, Inc.
 Analysis date: 03/14/2012 13:09:09
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C625.CHR ()
 Sample: 500 PPM Dx ICAL 707
 Operator: KW

Analysis date: 03/14/2012 13:09:09
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D631.CHR ()
 Sample: 500 PPM Dx ICAL 707
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	U
Mineral Spirits	5.100	454.2775	2.261	22.4739	PPMINERAL SPIRITS	6.150	431.9470	21.664	30.3984	PPM	
Diesel	7.283	12055.9145	7.302	415.8831	ppnDiesel	7.466	9633.4975	5.799	402.0800	ppn	
FBP	10.533	706.7050	85.875	28.2682	ppn2FBP	11.950	98.4805	20.159	4.9240	ppn	
Min Oil	17.183	642.7165	6.075	0.0000	Min Oil	18.983	249.4535	4.581	17.6050	ppn	
		13859.6135		466.6252			10413.3785		455.0074		



Libby Environmental, Inc.

4139 Libby Road NE • Olympia, WA 98506-2518

November 8, 2012

Neil Morton
GeoEngineers Inc.
600 Stewart Street, Suite 1700
Seattle, WA 98101

Dear Mr. Morton:

Please find enclosed the analytical data report for the Irondale Project located in Irondale, Washington. A water sample and soil samples were analyzed for Diesel & Oil by NWTPH-Dx/Dx Extended with Silica Gel Clean Up and Polyaromatic Hydrocarbons (PAH) by EPA Method 8270 SIM on October 2 & 11, 2012.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. All soil samples are reported on a dry weight basis. An invoice for this analytical work is enclosed.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Jamie L. Deyman
President
Libby Environmental, Inc.

Phone (360) 352-2110 • Fax (360) 352-4154 • libbyenv@aol.com

www.LibbyEnvironmental.com



Libby Environmental, Inc.

Case Narrative

Libby Project #: L121002-30
Date: 11-8-2012

CLIENT: GeoEngineers, Inc.
PROJECT: Irondale

I. SAMPLE RECEIPT:

All samples were received intact and in good condition. See the attached Sample Receipt Check List for more information.

II. GENERAL REPORTING COMMENTS:

Final results are reported on a dry weight basis. The soil samples in the field are estimated to have a moisture content of 15%. This estimate is useful in producing data that is close to the actual value. After the sample is analyzed for soil moisture at our fixed base facility, the final data is reported based on measured soil moisture. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS), the Laboratory Control Sample Duplicate (LCSD) and the Method Blank (MB). The LCS, LCSD and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) and/or noted below.

Notes:

For the water matrix, a Method Blank and sample duplicate were analyzed. Neither an LCS nor an LCSD were prepared or analyzed due to practical time constraints. The NWTPH-Dx method does not recommend LCS or LCSD.

The cPAH report includes Metals data results from Libby project L121003-30.

Libby Environmental, Inc.

Chain of Custody Record

4139 Libby Road NE
Olympia, WA 98506
Ph: 360-352-2110
Fax: 360-352-4154

Date: 10/02 Page: 1 of 1

Client: Geo Engineers

Project Manager:

Address:

Project Name: IRONDALE

Phone: Fax:

Location: City:

Client Project #

Collector: PAUL ROBINETTE Date of Collection: 10/02/12



Sample Number	Depth	Time	Sample Type	Container Type	Analytes										Field Notes			
					VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEMI VOL 8270	NWTPH-HCID	NWTPH-Gx	NWTPH-Dx	PAH 8270	PCB's 8082	MTCA 5 Metals				
1 IRZ-COM1-100212	0	730	SED	4oz														NO PAH
2 SURZ-F14B1-100212	4	750	SOIL	4oz														Extract & Hold PAHs
3 SURZ-F14B2-100212	6	751	SOIL	4oz														" "
4 DW4-100212	—	8:23	Water	500ml Amber														NO PAH
5 SURZ-SSW1-10212	2	810	SOIL	(2) 4oz														Extract & Hold PAHs
6 SURZ-WSW1-10212	5'	815	SOIL	(2) 4oz														" "
7 FISB1-10212	10'	1035	SOIL	(2) 4oz														" "
8 FISW1-10212	5'	1040	SOIL	(2) 4oz														" "
9 FISB2-10212	5'	1042	SOIL	(2) 4oz														" "
10 SURZ-WSW2-10212	5'	1045	SOIL	(2) 4oz														" "
11																		
12																		* Run cPAH 10-10-12
13																		per Weil via email
14																		24hr TAT
15																		
16																		
17																		
18																		

Relinquished by: <u>Paul Robinette</u>	Date / Time: <u>10/02 1350</u>	Received by: <u>Paul Robinette</u>	Date / Time: <u>10-2-12 1350</u>	Sample Receipt:	Remarks:
Relinquished by:	Date / Time:	Received by:	Date / Time:	Good Condition?	
Relinquished by:	Date / Time:	Received by:	Date / Time:	Cold?	
Relinquished by:	Date / Time:	Received by:	Date / Time:	Seals Intact?	
				Total Number of Containers	

Libby Environmental, Inc. Login Sample Receipt Check List

Client: GeoEngineers, Inc. **Libby Project Number:** L121002-30

Question	T / F / NA	Comment
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler temperature is acceptable.	True	
COC is present.	True	
COC is filled out in ink and is legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within the Hold Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs.	True	
VOA sample vials do not have headspace or bubble is less than 6mm (1/4 in.) in diameter.	True	
If necessary, staff has been informed of any short hold time or quick TAT needs.	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	

Libby Environmental, Inc.

4139 Libby Road NE
Olympia, WA 98506
Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@aol.com

IRONDALE PROJECT
GeoEngineers, Inc.
Irondale, Washington
Libby Project # L121002-30
Client Project # 0504-042-02

Analyses of Diesel & Oil Range (NWTPH-Dx/Dx Extended) in Soil w/ Silica Gel Cleanup

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Bunker C (mg/kg)
Method Blank	10/2/12	101	nd	nd
LCS	10/2/12	int	106%	
LCSD	10/2/12	int	98%	
IRZ-COM1-100212	10/2/12	113	nd	nd
SURZ-F14B1-100212	10/2/12	98	nd	nd
SURZ-F14B2-100212	10/2/12	104	nd	152
SURZ-SSW1-10212	10/2/12	94	nd	nd
SURZ-WSW1-10212	10/2/12	105	nd	nd
SURZ-WSW1-10212 Dup	10/2/12	99	nd	nd
F15B1-10212	10/2/12	122	nd	nd
F15NSW1-10212	10/2/12	101	nd	nd
F15B2-10212	10/2/12	103	nd	nd
SURZ-WSW2-10212	10/2/12	100	nd	nd
Practical Quantitation Limit			25	40

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

Libby Environmental, Inc.

4139 Libby Road NE
Olympia, WA 98506
Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@aol.com

IRONDALE PROJECT
GeoEngineers, Inc.
Irondale, Washington
Libby Project # L121002-30
Client Project # 0504-042-02

Analyses of Diesel & Oil (NWTPH-Dx/Dx Extended) in Water

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel ($\mu\text{g/l}$)	Bunker C ($\mu\text{g/l}$)
Method Blank	10/2/12	96	nd	nd
DW4-100212	10/2/12	102	nd	nd
DW4-100212 Dup	10/2/12	99	nd	nd
Practical Quantitation Limit			200	400

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

Analysis date: 10/02/2012 06:22:26

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: C232.CHR ()

Sample: 500 ppm Diesel 791

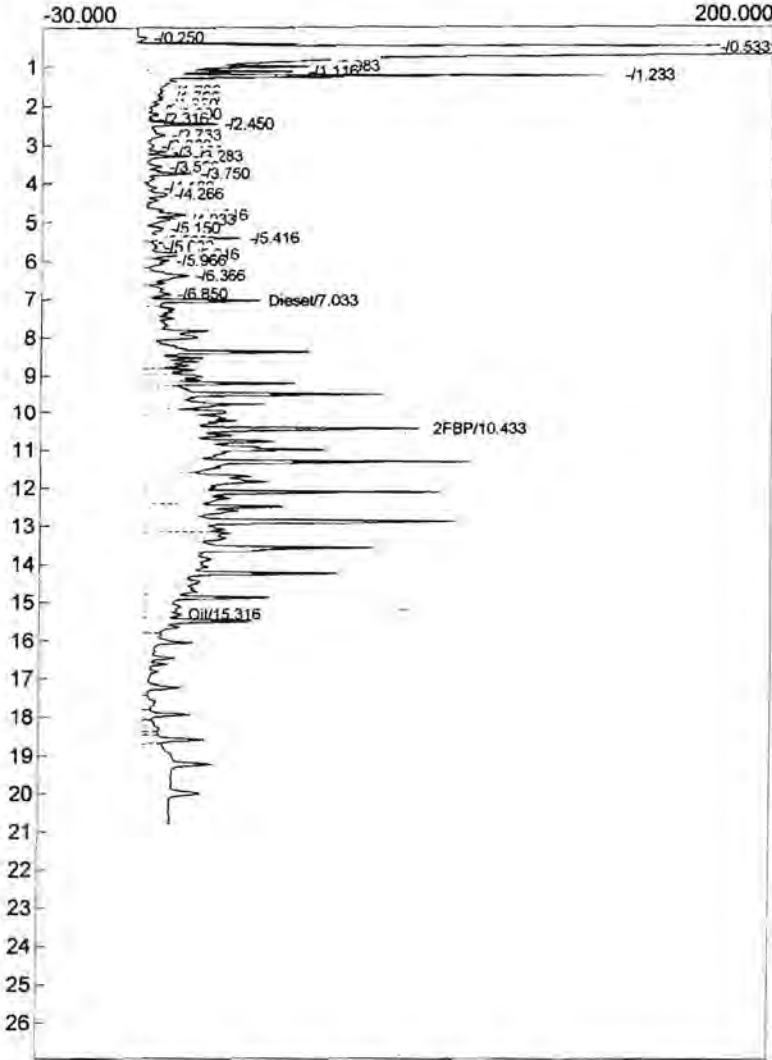
Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
iesel	7.033	10566.0700	35.943	520.6909	ppm
FBP	10.433	653.0440	88.056	26.1218	ppm
il	15.316	2070.2495	10.962	101.7814	ppm
		13289.3635		648.5941	

Analysis date: 10/02/2012 06:22:26

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: D230.CHR ()

Sample: 500 ppm Diesel 791

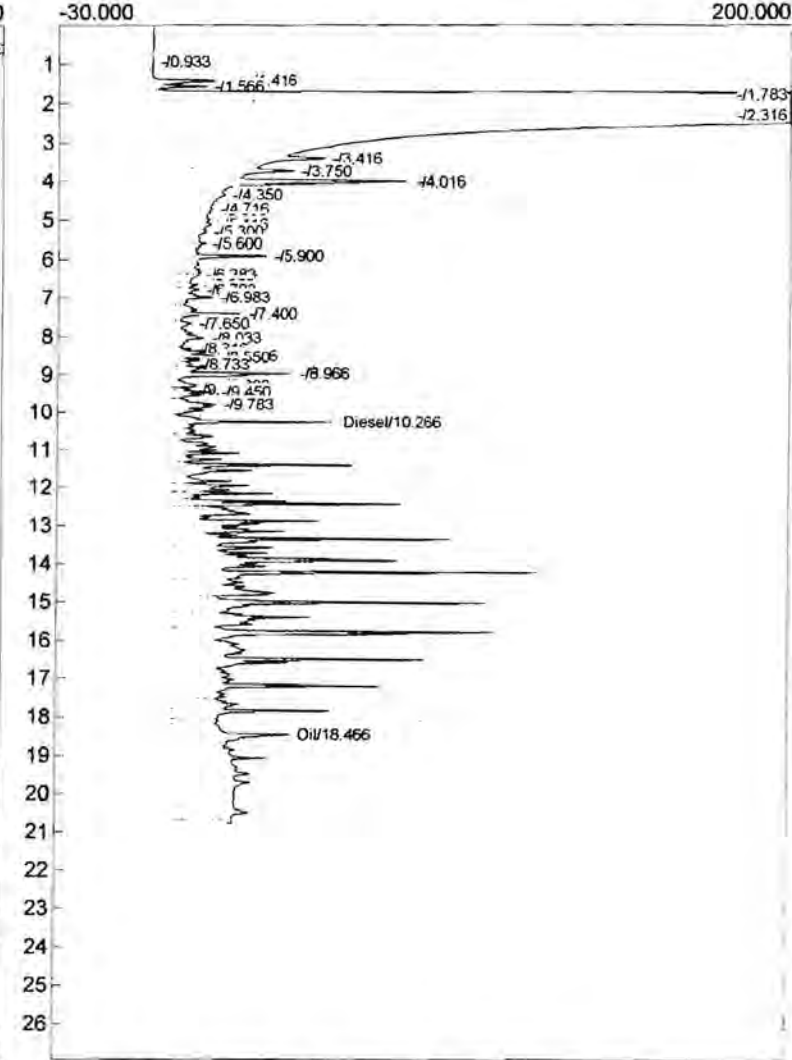
Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	10.266	9547.8650	50.829	506.9907	ppm
Oil	18.466	2984.6540	37.023	157.6151	ppm
		12532.5190		664.6058	

Analysis date: 10/02/2012 06:50:17
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C233.CHR ()
 Sample: 1000 ppm LCS 343
 Operator: PB

Analysis date: 10/02/2012 06:50:17
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D231.CHR ()
 Sample: 1000 ppm LCSD 343
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

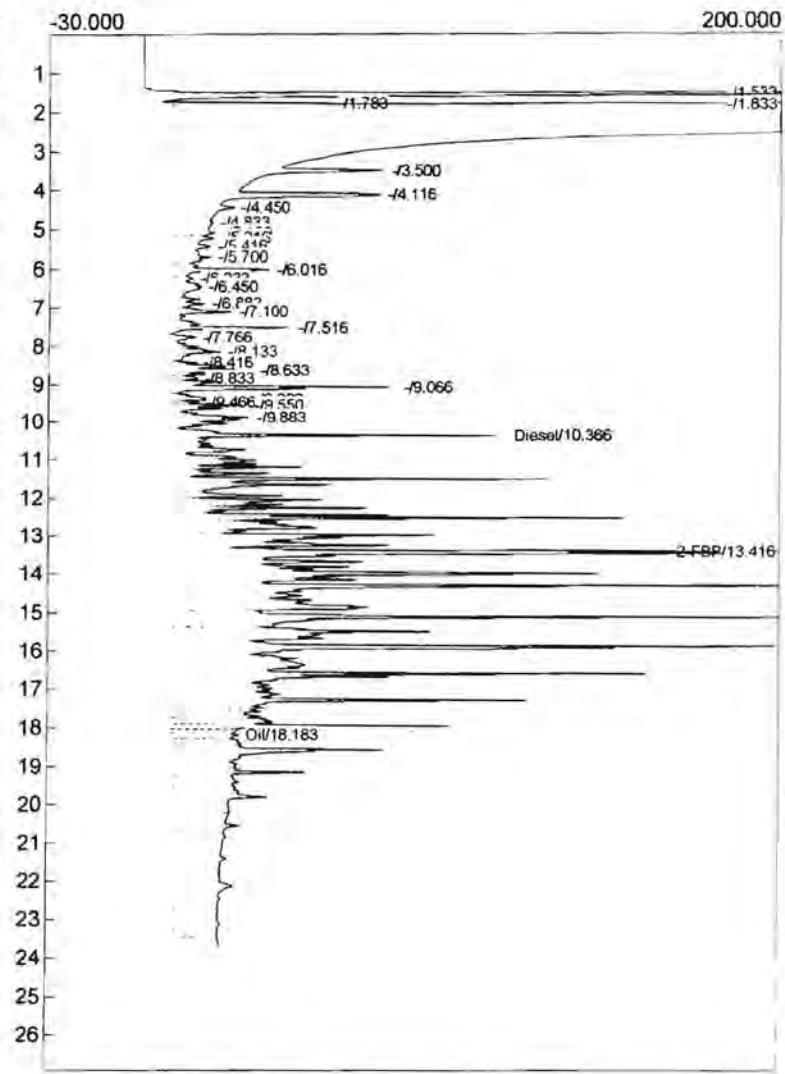
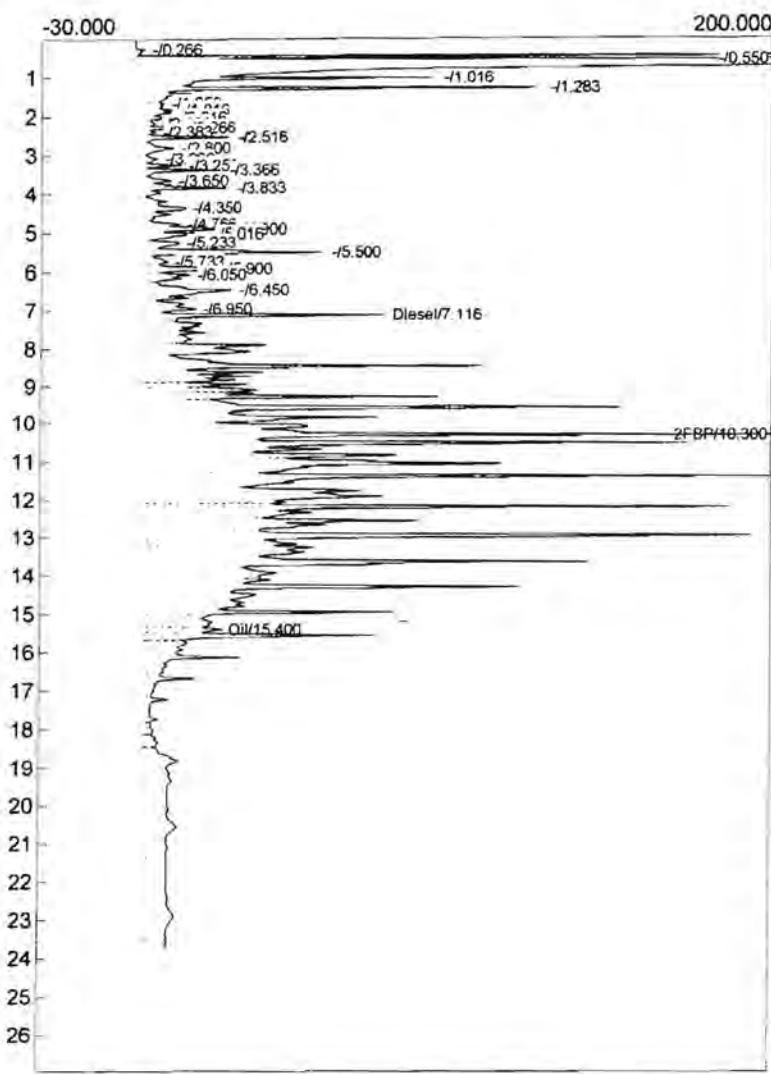
Time Event
 0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.116	21375.1315	74.491	1057.2141	ppm
FBP	10.300	1191.4740	224.294	47.6590	ppm
Oil	15.400	3360.4840	23.213	165.2143	ppm
		25927.0895		1270.0874	

106%

Component	Retention	Area	Height	External	Units
Diesel	10.366	18228.7650	105.139	975.4143	ppm
2-FBP	13.416	1289.9260	203.870	44.8670	ppm
Oil	18.183	5513.4850	20.200	291.7757	ppm
		25032.1760		1312.0570	

98%

Analysis date: 10/02/2012 07:20:16
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C234.CHR ()
 Sample: Method Blank
 Operator: PB

Analysis date: 10/02/2012 07:20:16
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D232.CHR ()
 Sample: Method Blank
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

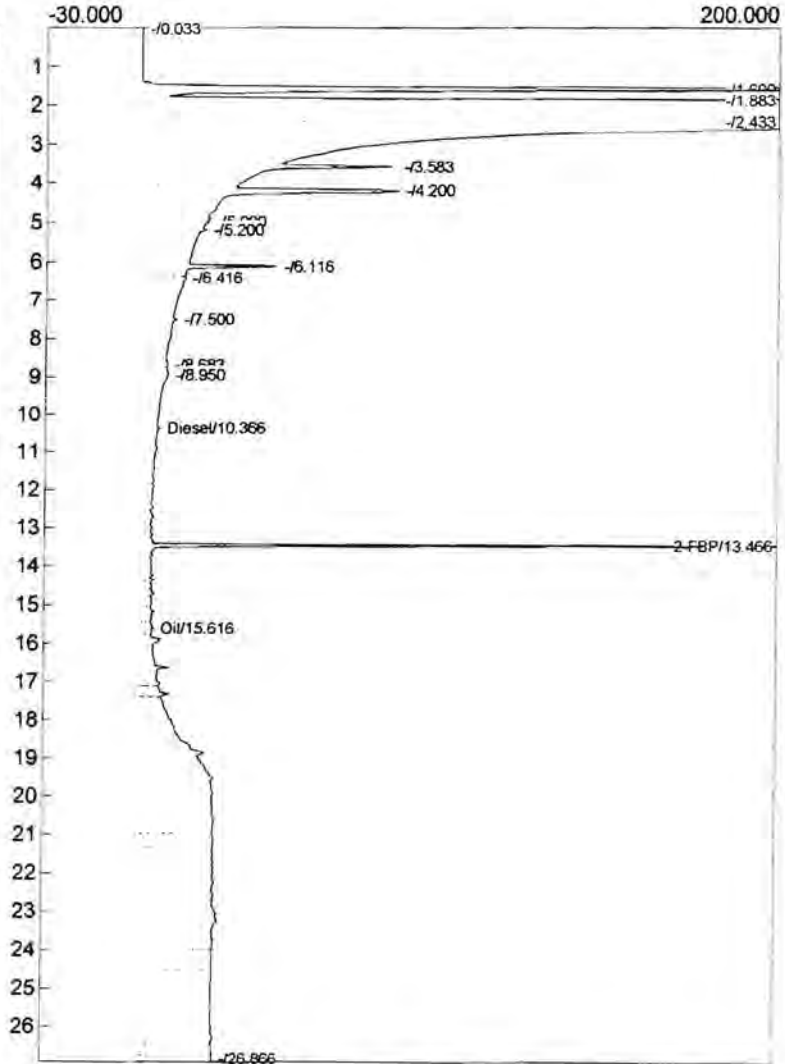
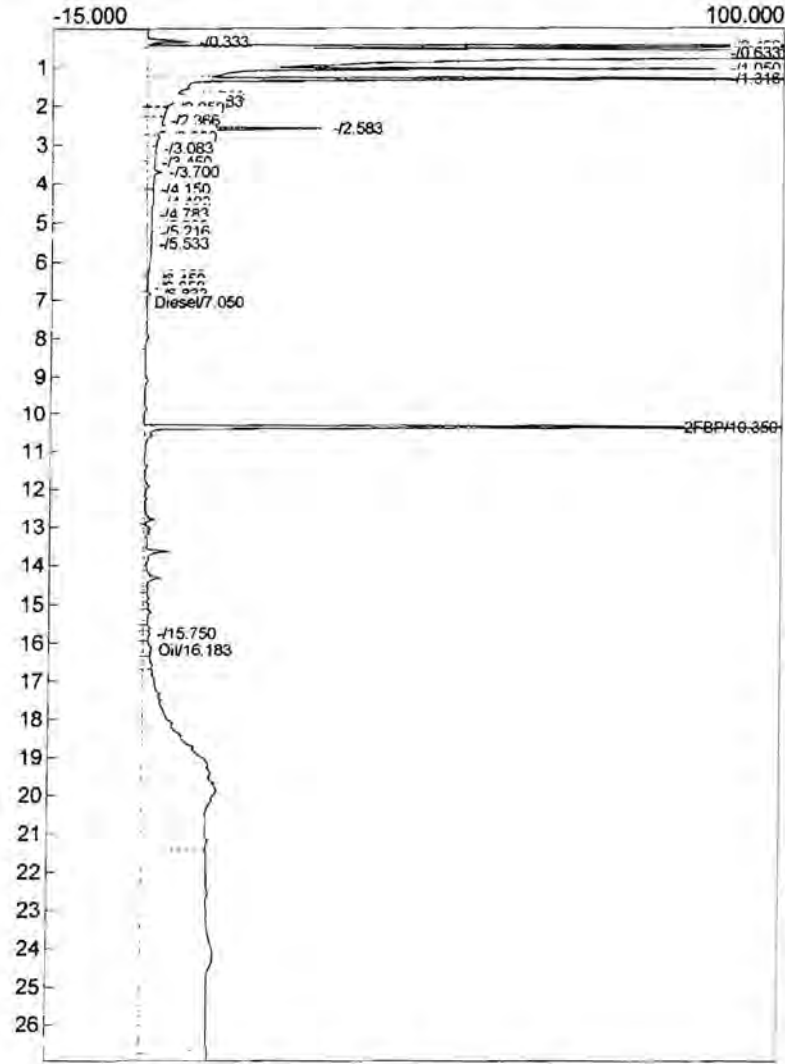
Time Event
 0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.050	706.0460	0.197	34.7119	ppm
2-FBP	10.350	504.6440	182.500	20.1858	ppm
Oil	16.183	5592.7020	1.283	275.1669	ppm
		6803.3920		330.0646	

Component	Retention	Area	Height	External	Units
Diesel	10.366	1197.7080	4.245	63.2492	ppm
2-FBP	13.466	553.2410	227.931	19.2432	ppm
Oil	15.616	11529.2565	2.537	613.1402	ppm
		13280.2055		695.6325	

101%

96%

Analysis date: 10/02/2012 07:20:16

Analysis date: 10/02/2012 07:20:16

Method: JAMACIA
Description: JAMACIA
Column: Restek Rtx-5 30x0.53x1.5
Carrier: He
Data file: C234.CHR ()
Sample: Method Blank
Operator: PB

Method: JAMACIA
Description: JAMACIA
Column: Restek Rtx-5 30x0.53x1.5
Carrier: He
Data file: D232.CHR ()
Sample: Method Blank
Operator: PB

** used for Bunker C
air blank only*

** USED for Bunker C
air blank only.*

Temperature program:

Temperature program:

Init temp Hold Ramp Final temp

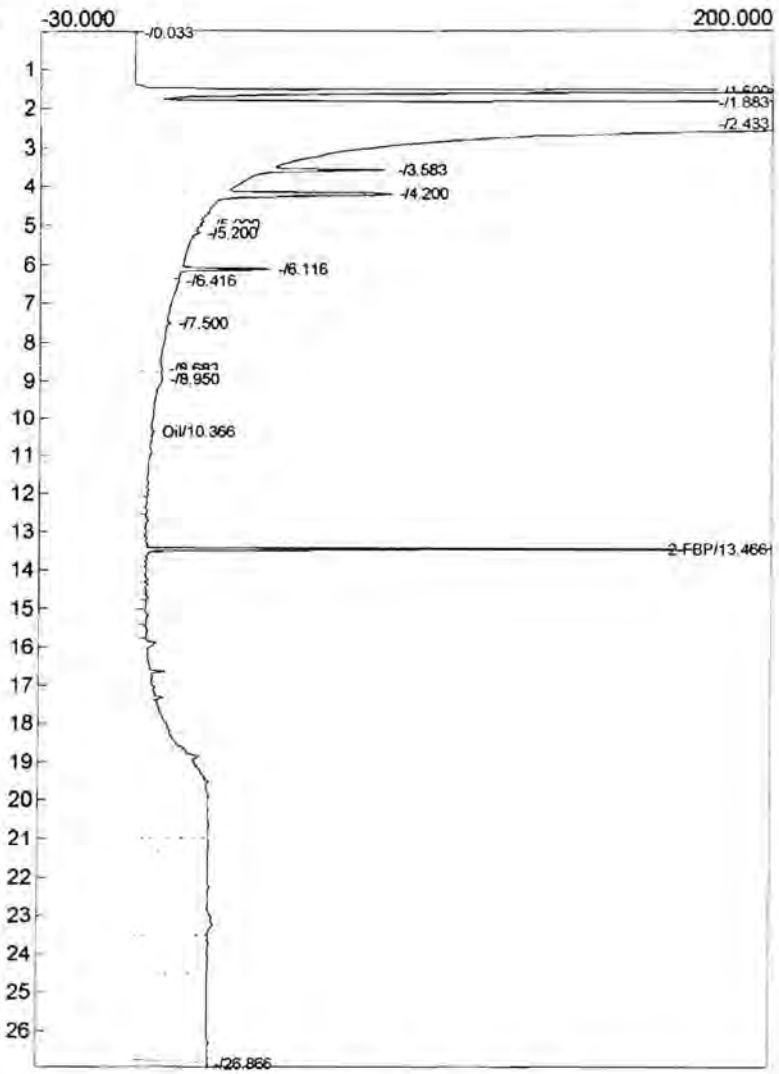
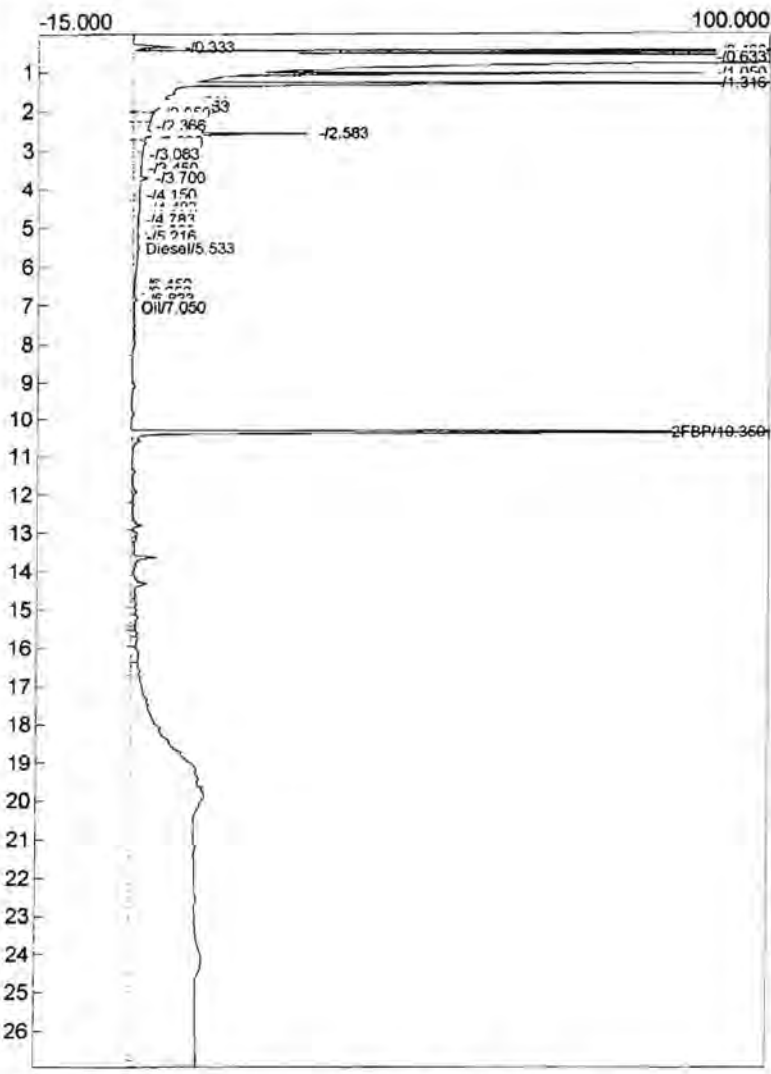
Init temp Hold Ramp Final temp

vents:

Events:

Time Event
0.000 ZERO

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
iesel	5.533	40.8530	0.831	2.0085	ppm
il	7.050	6312.8295	0.197	310.6695	ppm
FBP	10.350	504.6440	182.500	20.1858	ppm
		6858.3265		332.8637	

Component	Retention	Area	Height	External	Units
Oil	10.366	12726.9645	4.245	677.6908	ppm
2-FBP	13.466	553.2410	227.931	19.2432	ppm
		13280.2055		696.9340	

Analysis date: 10/02/2012 08:17:24
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C235.CHR ()
 Sample: IRZ-COM1100212
 Operator: PB

Analysis date: 10/02/2012 08:17:24
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D233.CHR ()
 Sample: SURZ-F14B1-100212
 Operator: PB

Temperature program:

Init temp	Hold	Ramp	Final temp
-----------	------	------	------------

Events:

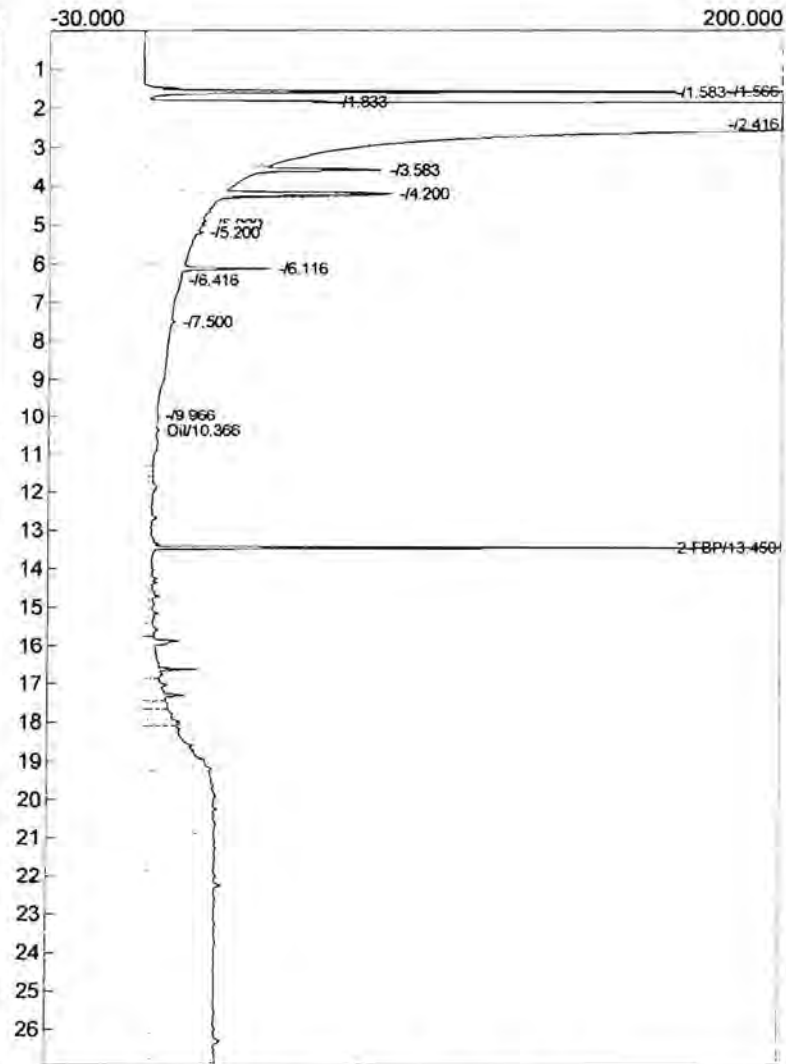
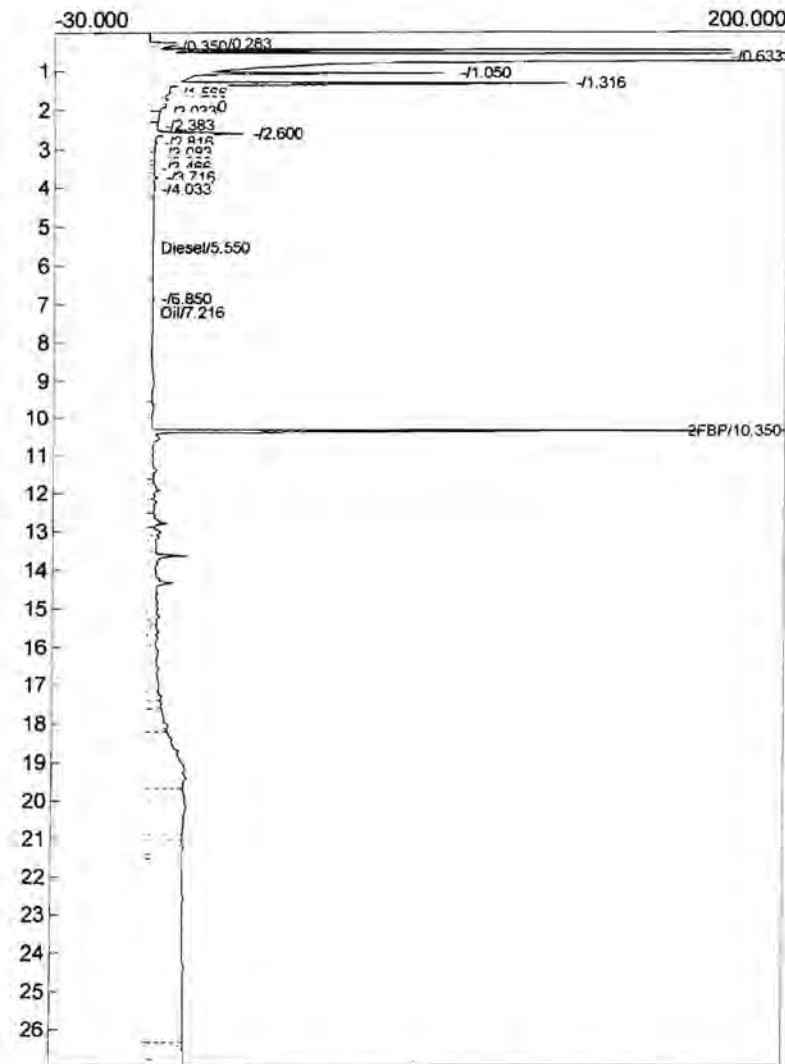
Time	Event
0.000	ZERO

Temperature program:

Init temp	Hold	Ramp	Final temp
-----------	------	------	------------

Events:

Time	Event
0.000	ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.550	3.6630	0.137	0.1801	ppm
Oil	7.216	7032.1775	0.132	346.1336	ppm
2-FBP	10.350	565.8245	207.150	22.6330	ppm
		7601.6650		368.9467	

Component	Retention	Area	Height	External	Units
Oil	10.366	12442.2860	3.295	662.3480	ppm
2-FBP	13.450	561.8360	245.416	19.5421	ppm
		13004.1220		681.8901	

nd *113%*

nd *98%*

Analysis date: 10/02/2012 08:52:38
 Method: JAMACIA
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C236.CHR ()
 Sample: DW4-100212
 Operator: PB

Analysis date: 10/02/2012 08:52:38
 Method: JAMACIA
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D234.CHR ()
 Sample: DW4-100212 Dup
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

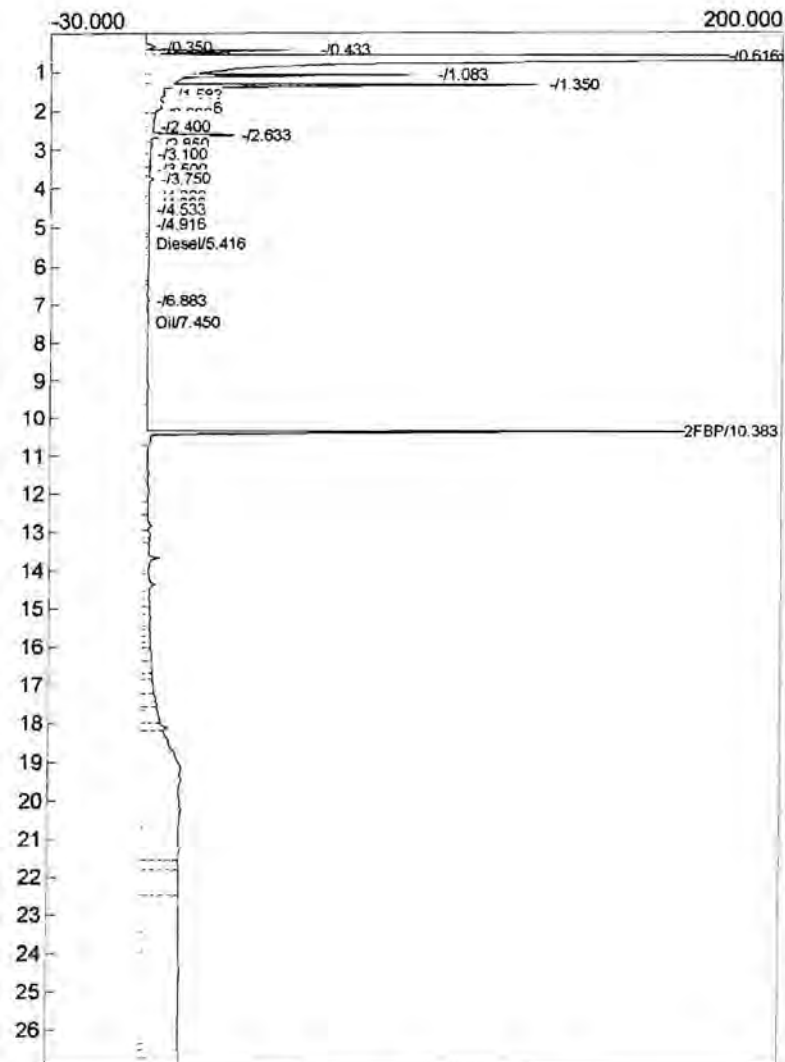
Time Event
 0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

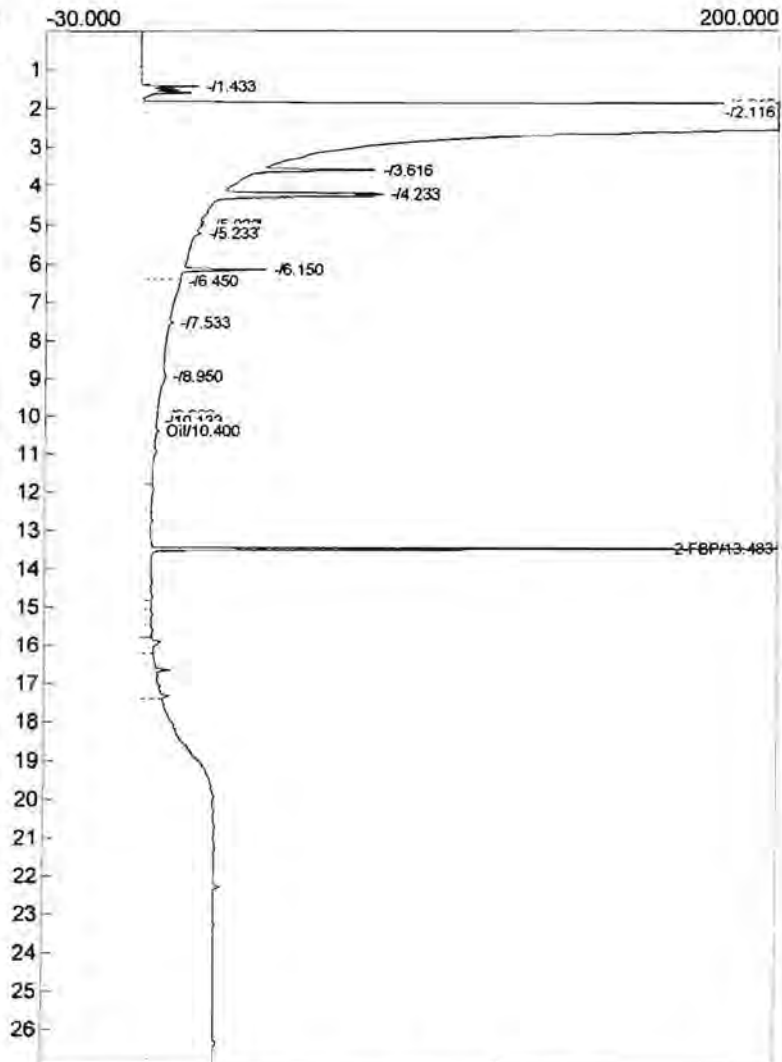
Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
iesel	5.416	8.8600	0.225	0.4356	ppm
il	7.450	6837.2530	0.146	336.5237	ppm
FBP	10.383	508.5935	188.369	20.3437	ppm
		7354.7065		357.3031	

nd 102%



Component	Retention	Area	Height	External	Units
Oil	10.400	12678.3700	4.079	675.0718	ppm
2-FBP	13.483	571.0325	243.254	19.8620	ppm
		13249.4025		694.9338	

nd 99%

Analysis date: 10/02/2012 09:25:27
 Method: JAMACIA
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C237.CHR ()
 Sample: SURZ-E14B2-100212
 Operator: PB

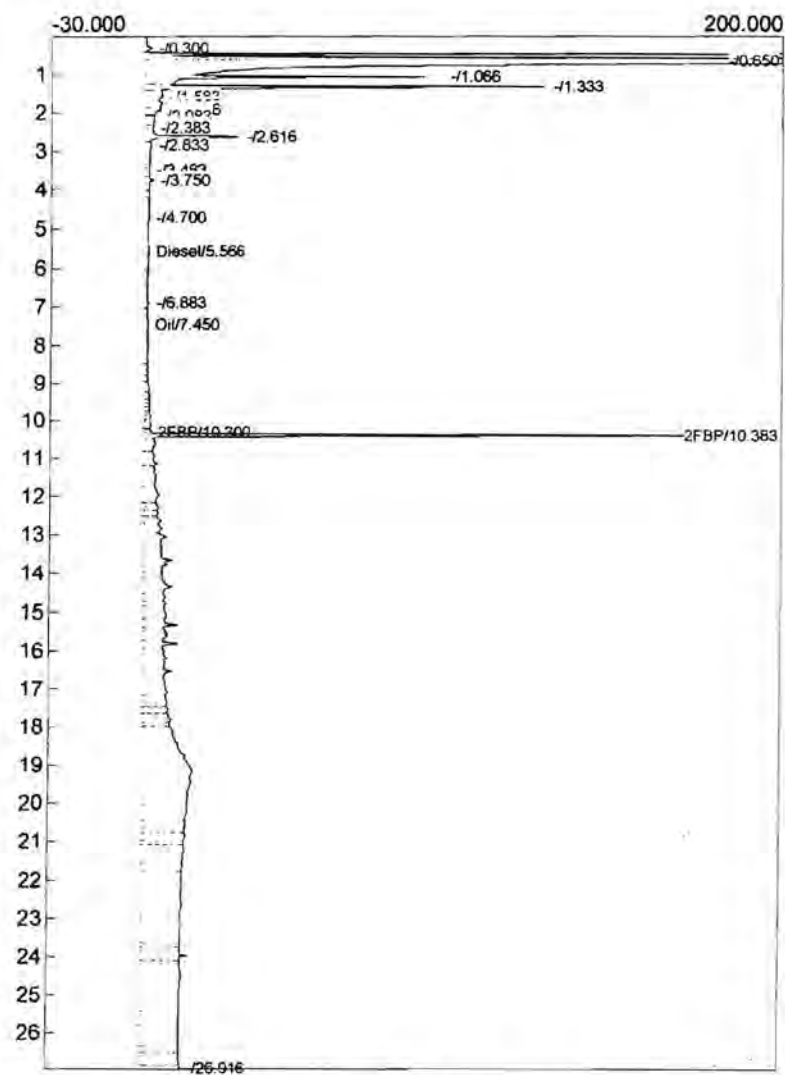
Analysis date: 10/02/2012 09:25:27
 Method: JAMACIA
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D235.CHR ()
 Sample: SURZ-SSW1-100212
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



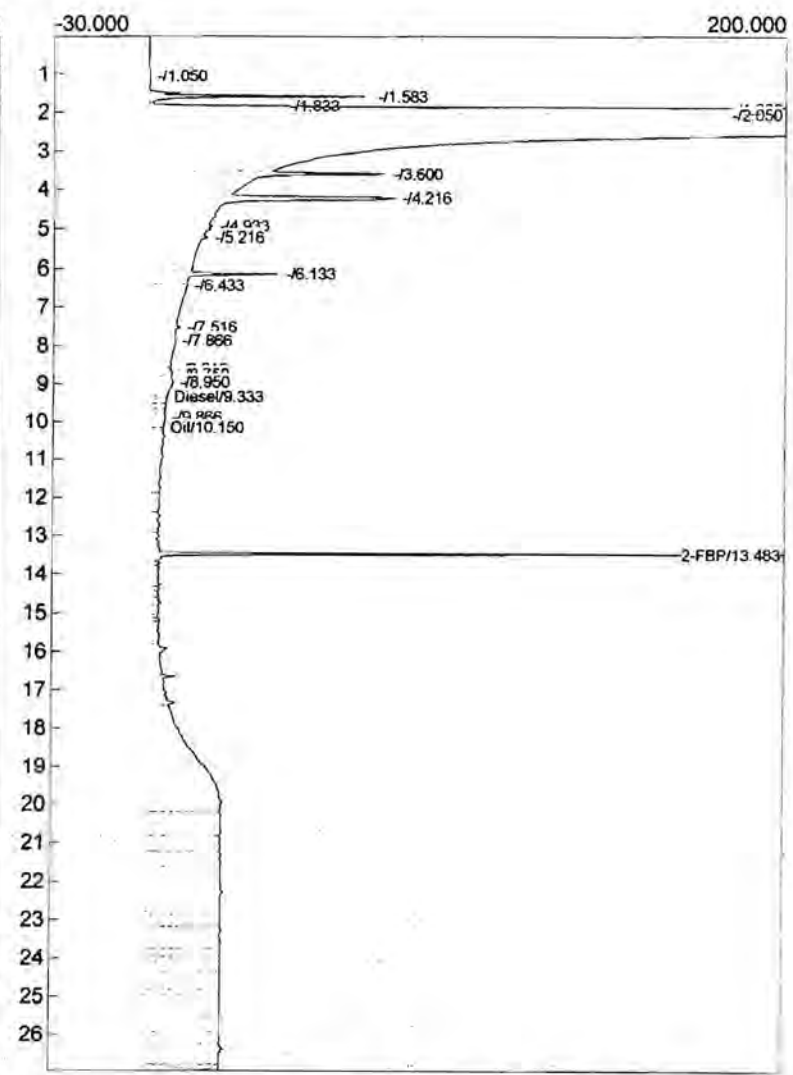
Component	Retention	Area	Height	External	Units
Diesel	5.566	5.3810	0.202	0.2636	ppm
Oil	7.450	9370.8730	0.168	461.6032	ppm
FBP	10.300	7.4920	1.391	0.2997	ppm
FBP	10.383	521.2930	196.715	20.8517	ppm
		9905.0190		483.0182	

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	9.333	82.8530	3.516	4.3753	ppm
Oil	10.150	12220.3605	2.401	650.3873	ppm
2-FBP	13.483	542.8745	207.065	18.8826	ppm
		12846.0880		673.6452	

104%
 462-311
 = 151 ppm
 Bunker C
 moisture factor * 1.1199 = 164

nd 94%

Analysis date: 10/02/2012 10:01:06
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C238.CHR ()
 Sample: SURZ-WSW1-100212
 Operator: PB

Analysis date: 10/02/2012 10:01:06
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D236.CHR ()
 Sample: SURZ-WSW1-100212 Dup
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

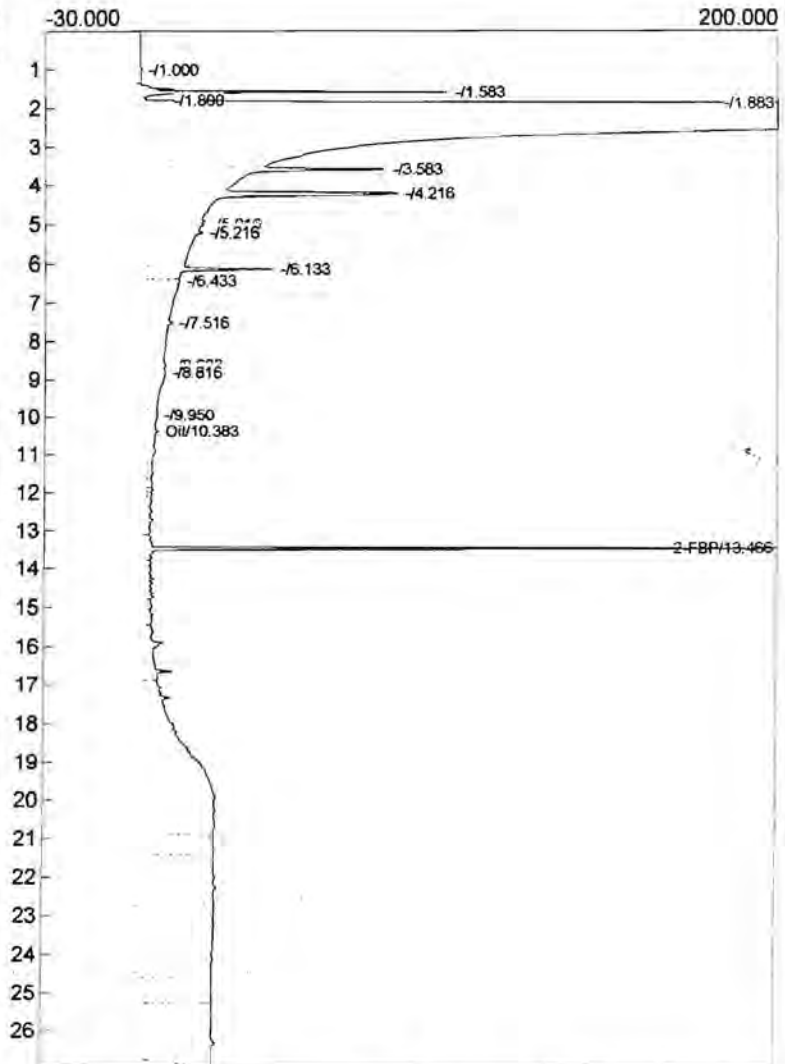
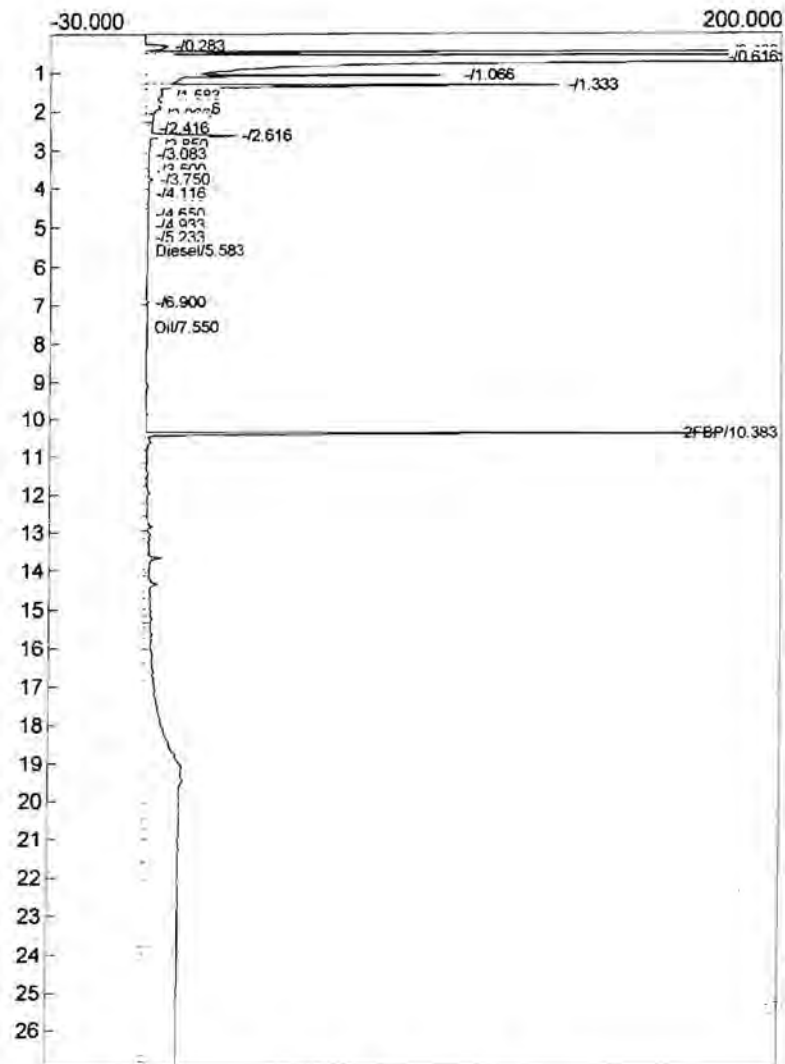
Time Event
 0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
diesel	5.583	3.8870	0.184	0.1911	ppm
oil	7.550	6783.1915	0.118	333.8585	ppm
2FBP	10.383	524.9340	191.244	20.9974	ppm
		7312.0125		355.0469	

Component	Retention	Area	Height	External	Units
Oil	10.383	12332.3450	3.329	656.4227	ppm
2-FBP	13.466	568.8110	234.815	19.7847	ppm
		12901.1560		676.2075	

~~100%~~ PB
 10-2-12
 nd 105%

nd 99%

Analysis date: 10/02/2012 11:41:56
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C239.CHR ()
 Sample: F15B1-10212
 Operator: PB

Analysis date: 10/02/2012 11:41:56
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D237.CHR ()
 Sample: F15NSW-10212
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

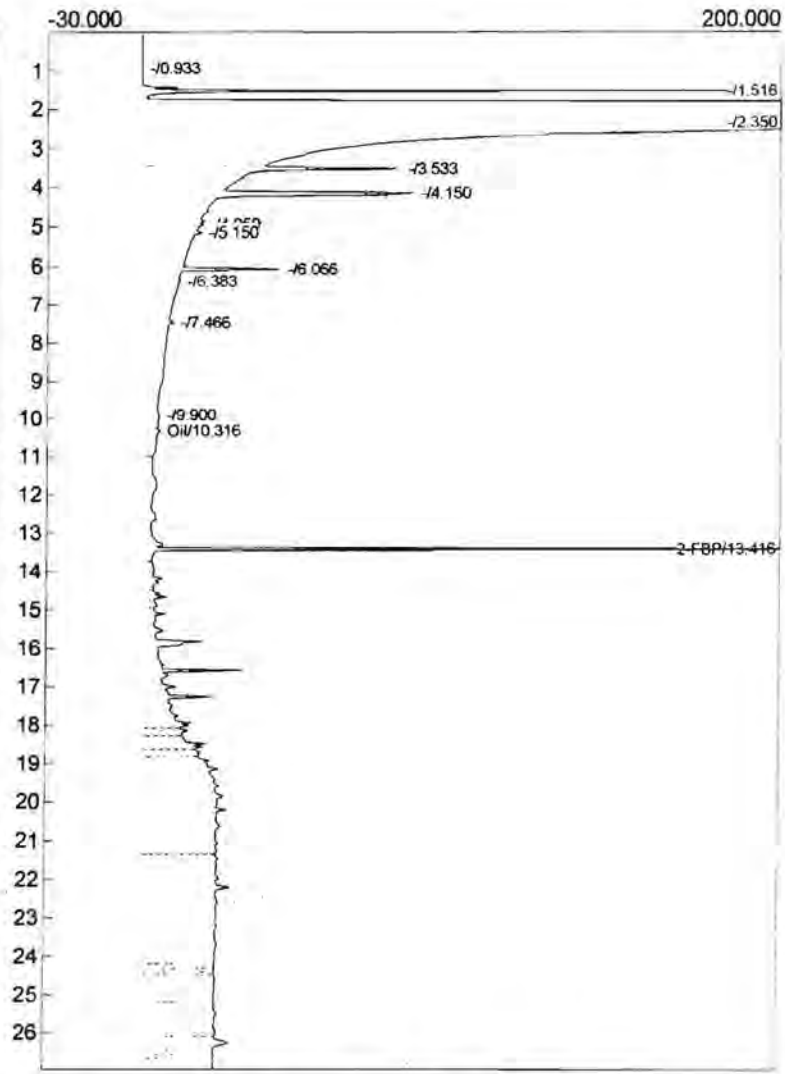
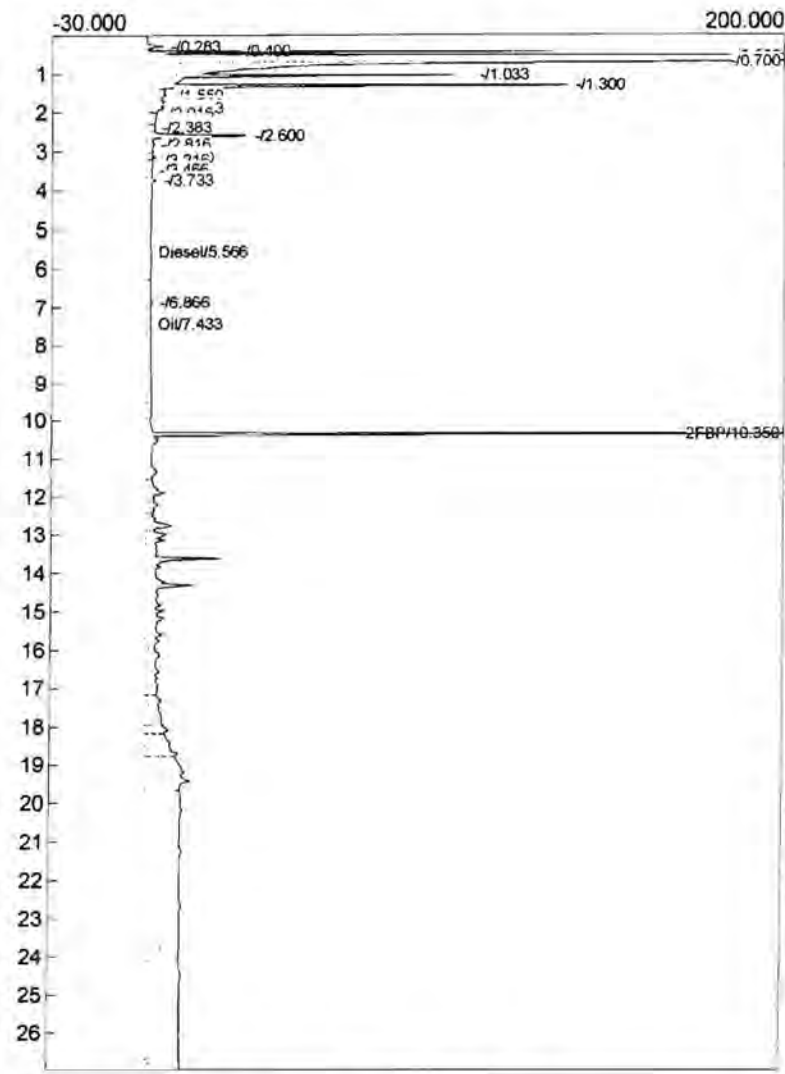
Time Event
 0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.566	4.5085	0.135	0.2217	ppm
Oil	7.433	6958.5265	0.123	342.5026	ppm
2-FBP	10.350	609.1230	219.029	24.3649	ppm
		7572.1580		367.0891	

Component	Retention	Area	Height	External	Units
Oil	10.316	12973.4660	3.032	690.9760	ppm
2-FBP	13.416	582.1840	260.802	20.2499	ppm
		13555.6500		711.2259	

nd 122%

nd 101%

Analysis date: 10/02/2012 12:17:19
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C240.CHR ()
 Sample: F15B2-10212
 Operator: PB

Analysis date: 10/02/2012 12:17:19
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D238.CHR ()
 Sample: SURZ-WSW2-10212
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

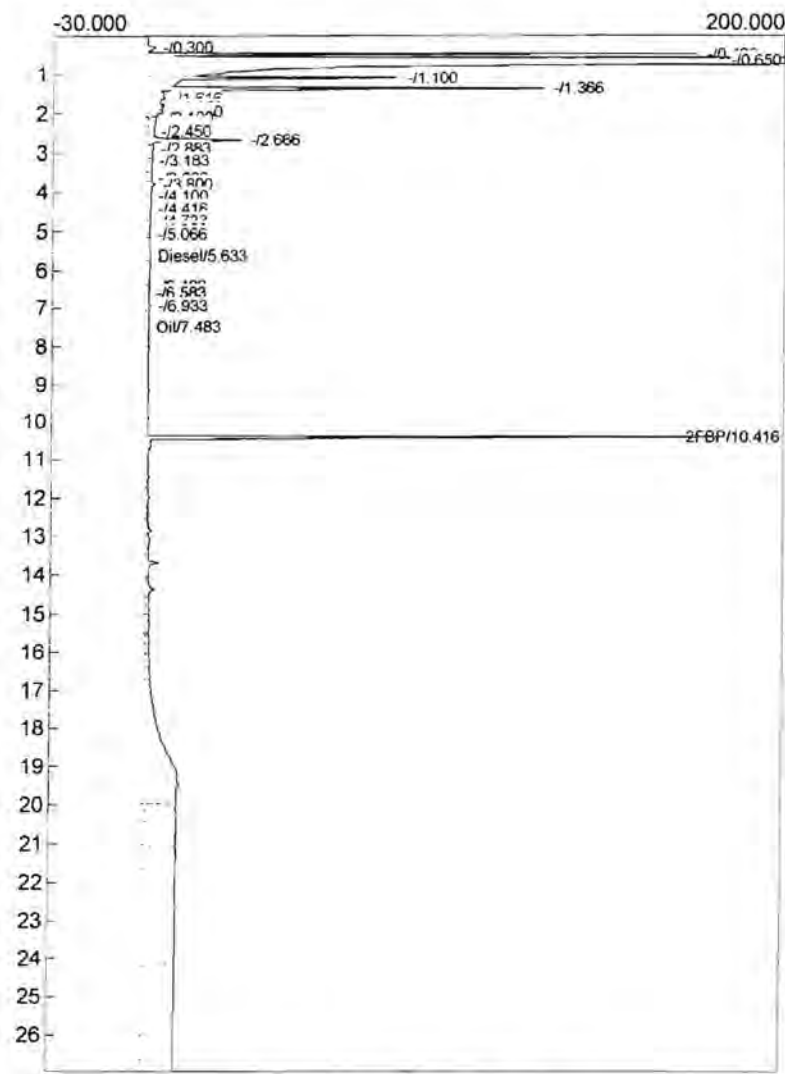
Time Event
 0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

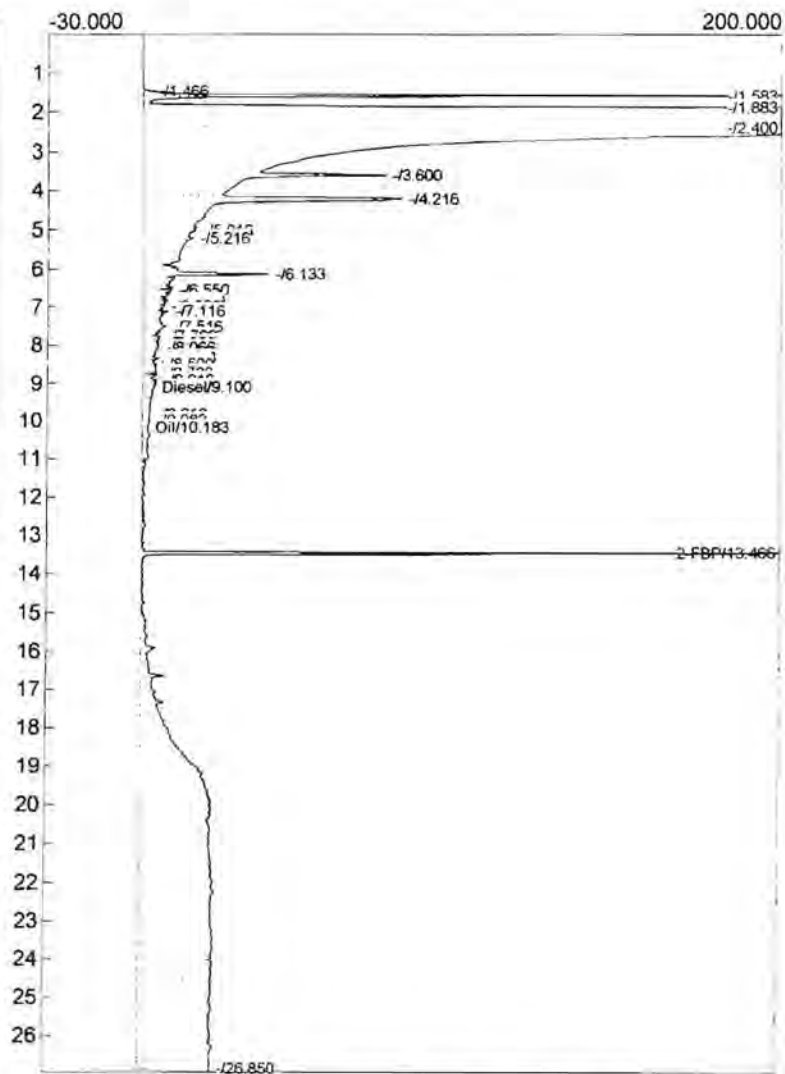
Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.633	32.2605	0.645	1.5861	ppm
Oil	7.483	5964.2960	0.230	293.4866	ppm
2-FBP	10.416	514.0200	193.140	20.5608	ppm
		6510.5765		315.6335	

nd 103%



Component	Retention	Area	Height	External	Units
Diesel	9.100	123.2470	3.957	6.5085	ppm
Oil	10.183	12726.4470	2.003	677.6629	ppm
2-FBP	13.466	577.4220	258.537	20.0842	ppm
		13427.1160		704.2556	

nd 100%

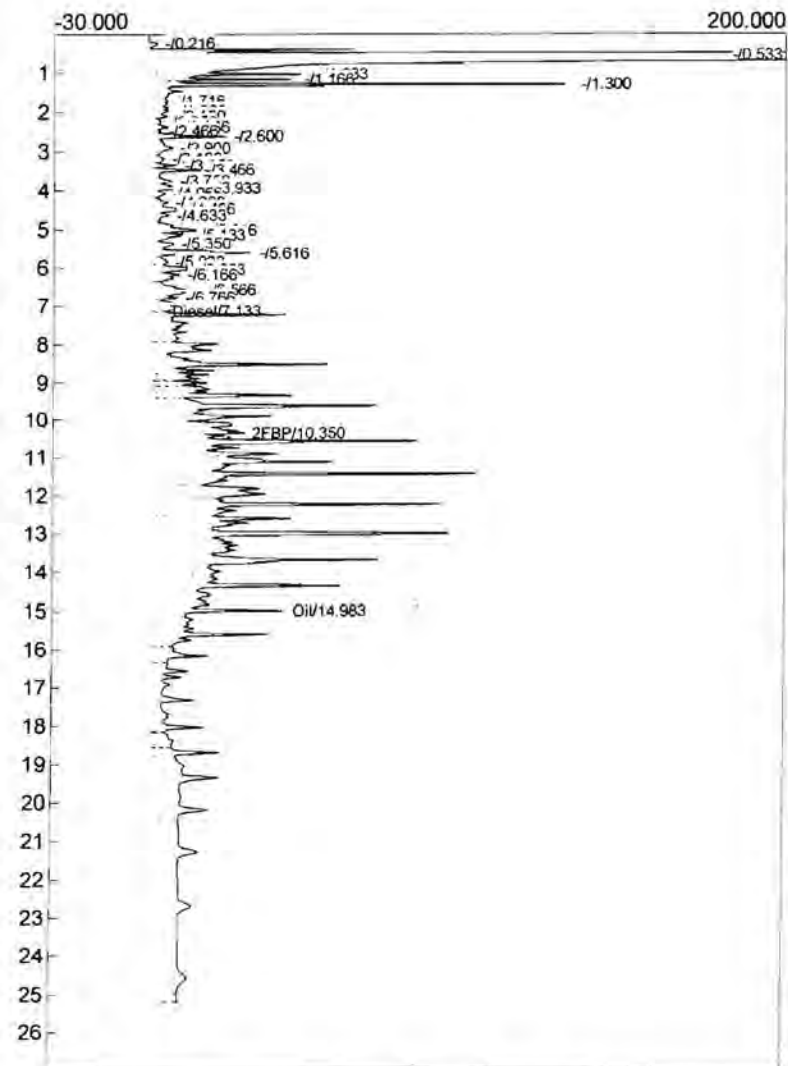
Analysis date: 10/02/2012 13:06:11
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C241.CHR ()
 Sample: F15B2-10212
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
diesel	7.133	9876.4030	2.630	486.5954	ppm
FBP	10.350	246.3115	27.909	9.8525	ppm
#	14.983	4858.2695	40.846	238.9591	ppm
		14980.9840		735.4070	

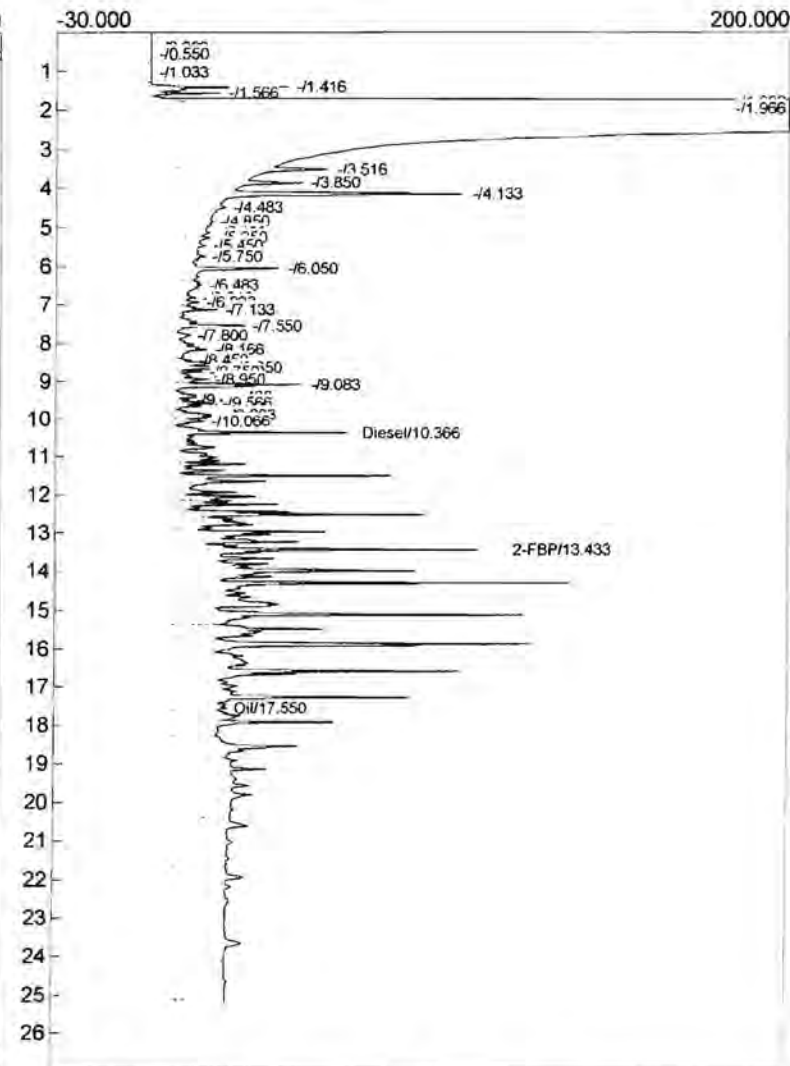
Analysis date: 10/02/2012 13:06:11
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D239.CHR ()
 Sample: SURZ-WSW2-10212
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

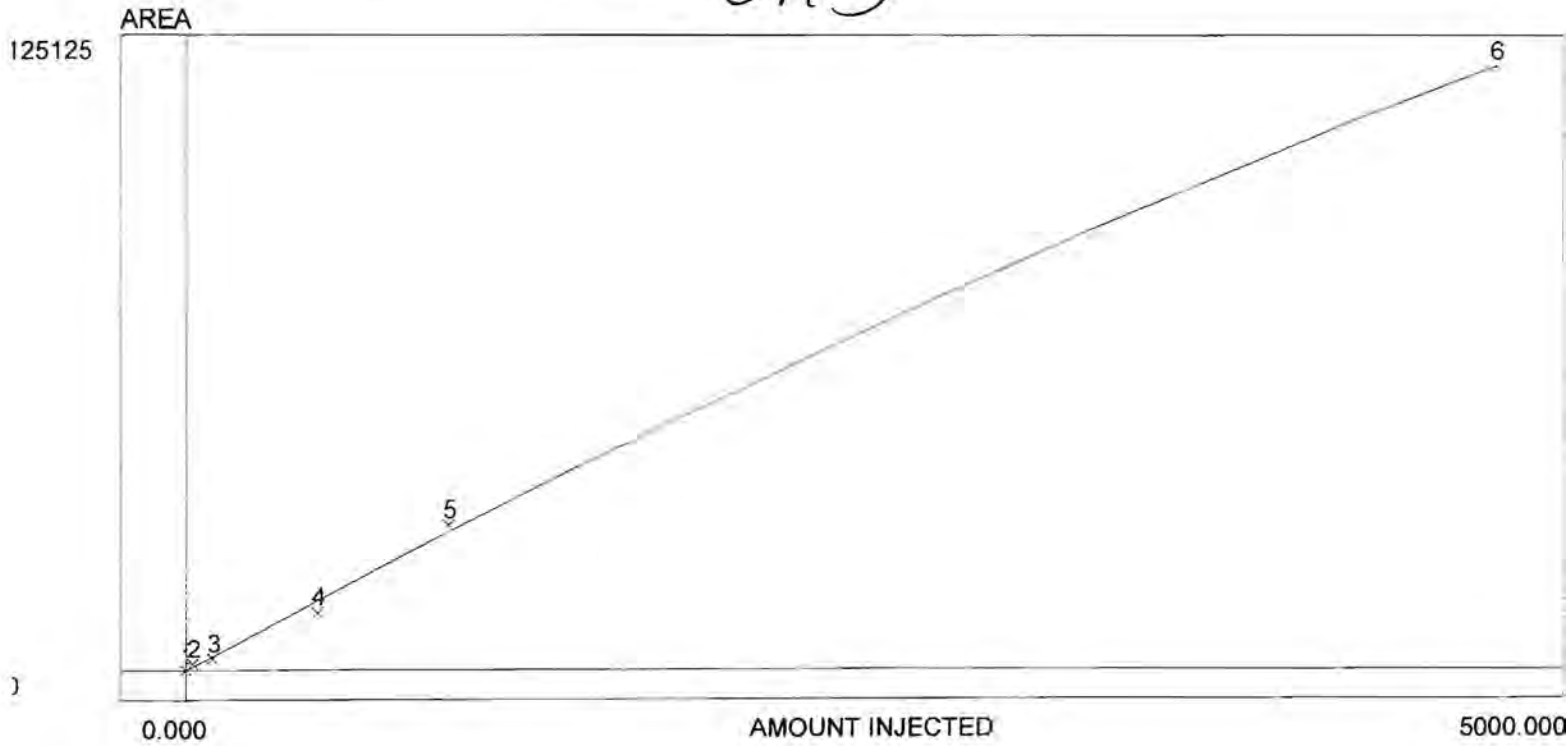
Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	10.366	9018.3910	56.539	478.6490	ppm
2-FBP	13.433	480.4000	103.886	16.7096	ppm
Oil	17.550	8240.1175	16.541	436.9896	ppm
		17738.9085		932.3482	

Ch 3



Avg slope of curve: 25.03

r-axis intercept: 0.00

Linearity: 0.86

Number of levels: 6

3D/rel SD of CF's: 18.0/66.9

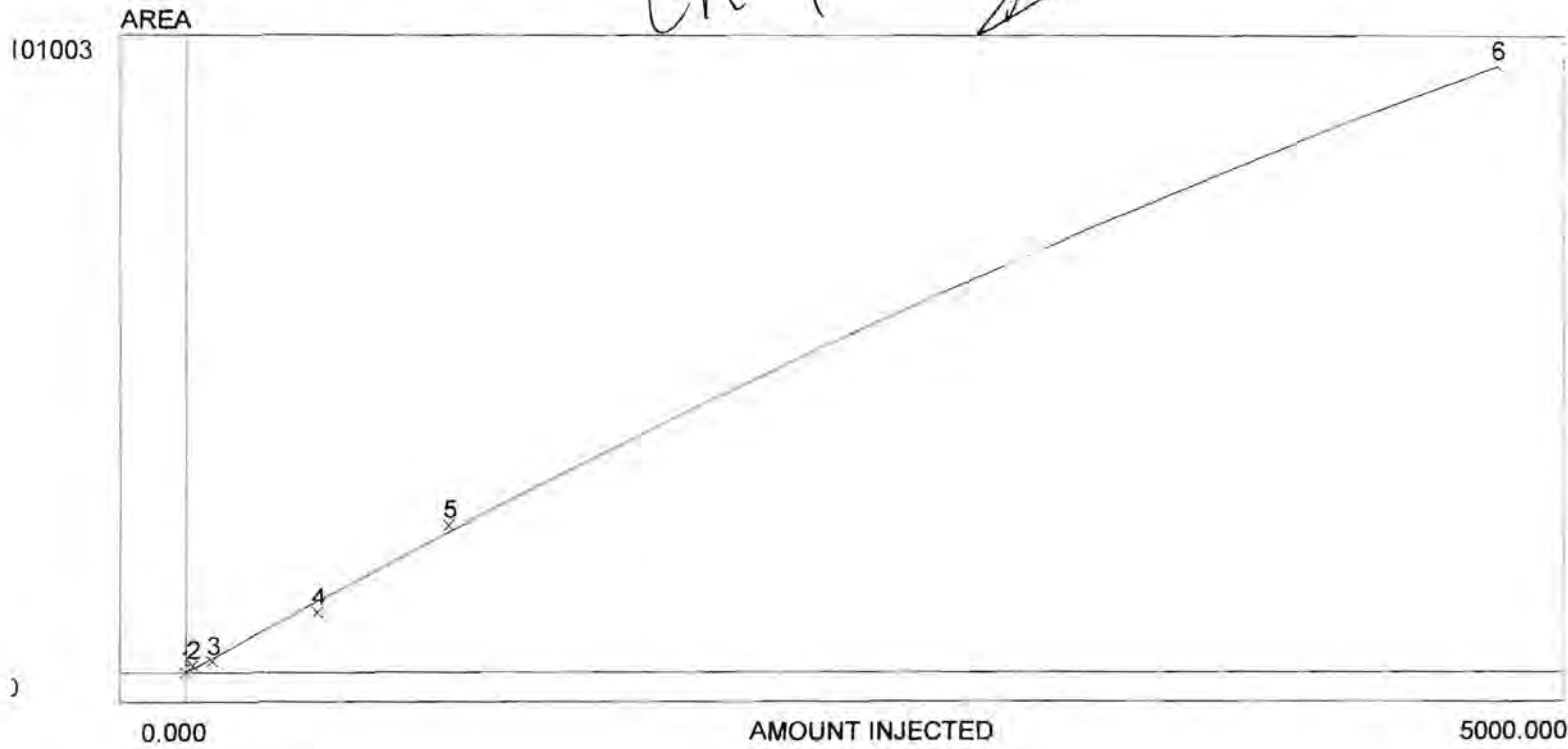
$r = -0.0009X^2 + 29.3544X$

r^2: 0.9993

Last calibrated: Wed Mar 14 13:52:31 2012

Level	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	1410.471	25.000	56.419	1410.471	N/A	N/A
3	2574.179	100.000	25.742	2574.179	N/A	N/A
4	12043.265	500.000	24.087	12043.265	N/A	N/A
5	29871.863	1000.000	29.872	29871.863	N/A	N/A
6	125124.670	5000.000	25.025	125124.670	N/A	N/A

Ch 4 2

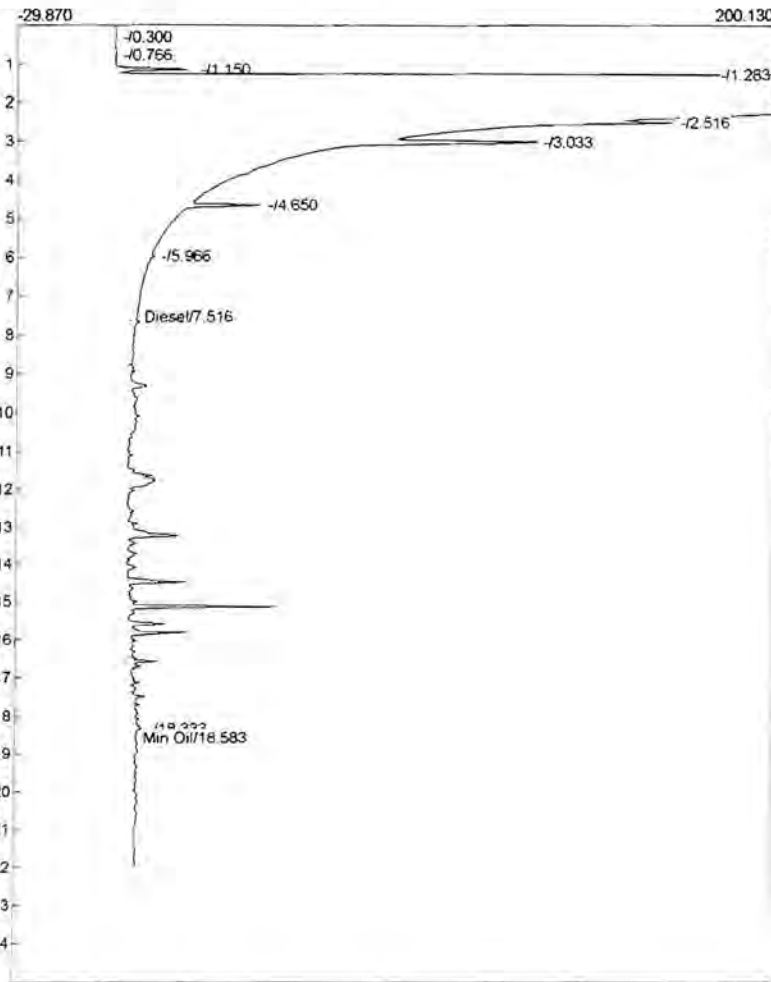
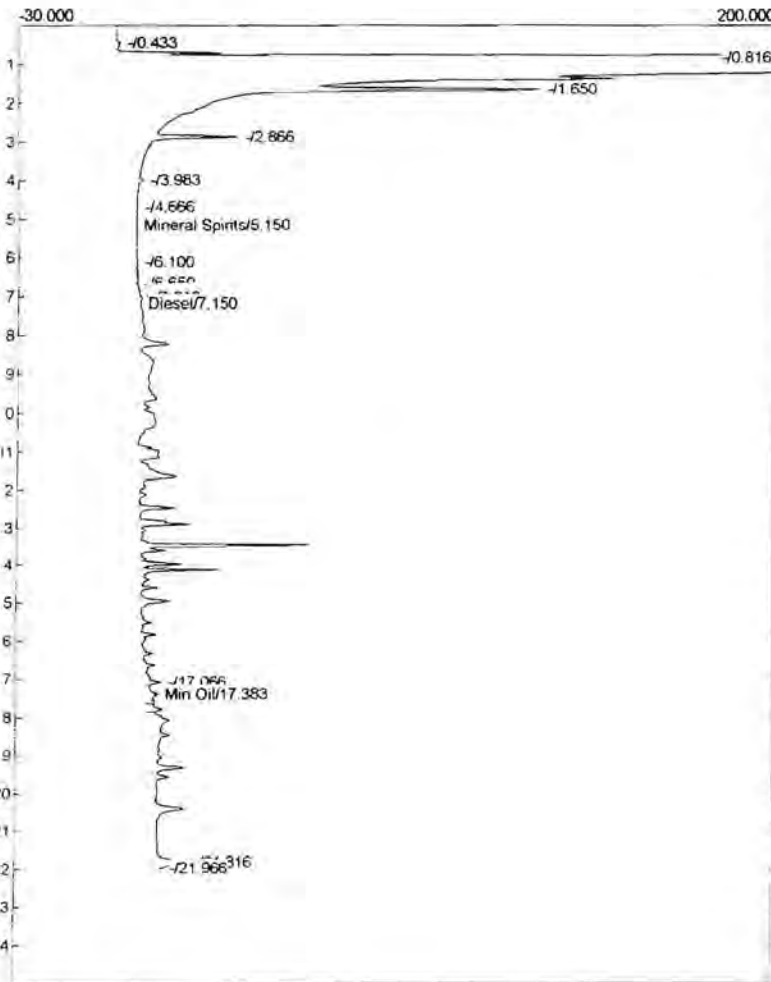


Avg slope of curve: 20.21
 Y-axis intercept: 0.00
 Linearity: 0.84
 Number of levels: 6
 SD/rel SD of CF's: 16.3/72.6
 $r^2 = -0.0008X^2 + 24.2883X$
 R: 0.9993
 Last calibrated: Wed Mar 14 13:57:45 2012

Level	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	1271.716	25.000	50.869	1271.716	N/A	N/A
3	1927.394	100.000	19.274	1927.394	N/A	N/A
4	10086.605	500.000	20.173	10086.605	N/A	N/A
5	24554.042	1000.000	24.554	24554.042	N/A	N/A
6	101002.720	5000.000	20.201	101002.720	N/A	N/A

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 10:39:04
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C620.CHR ()
 Sample: 25 PPM Dx 706
 Operator: KW

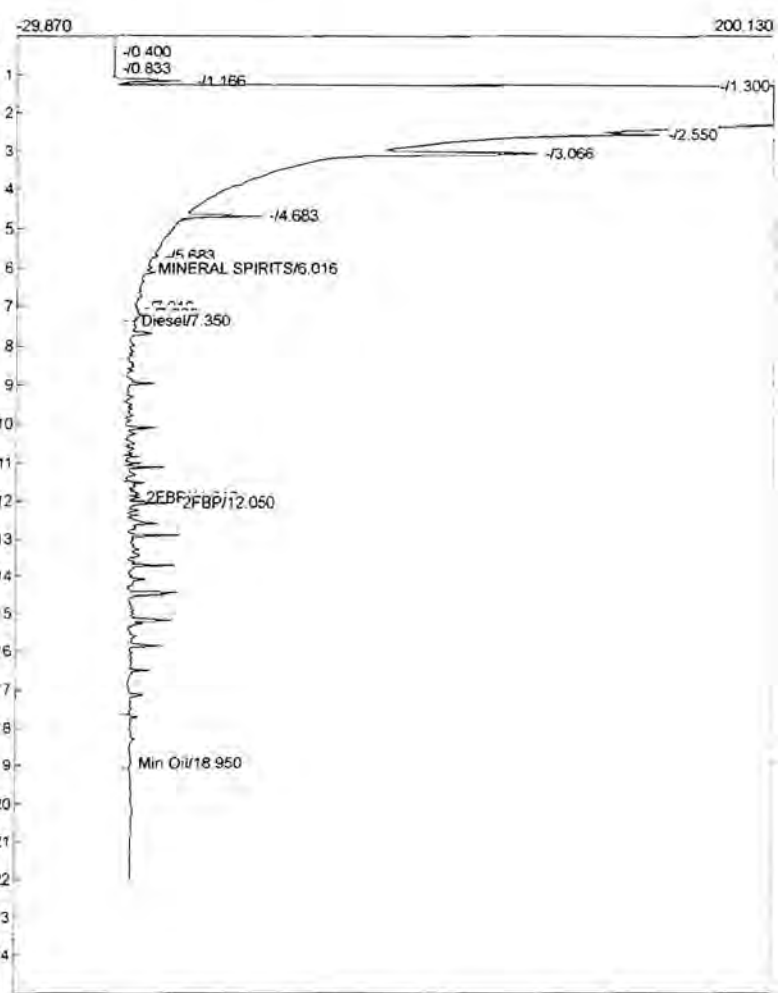
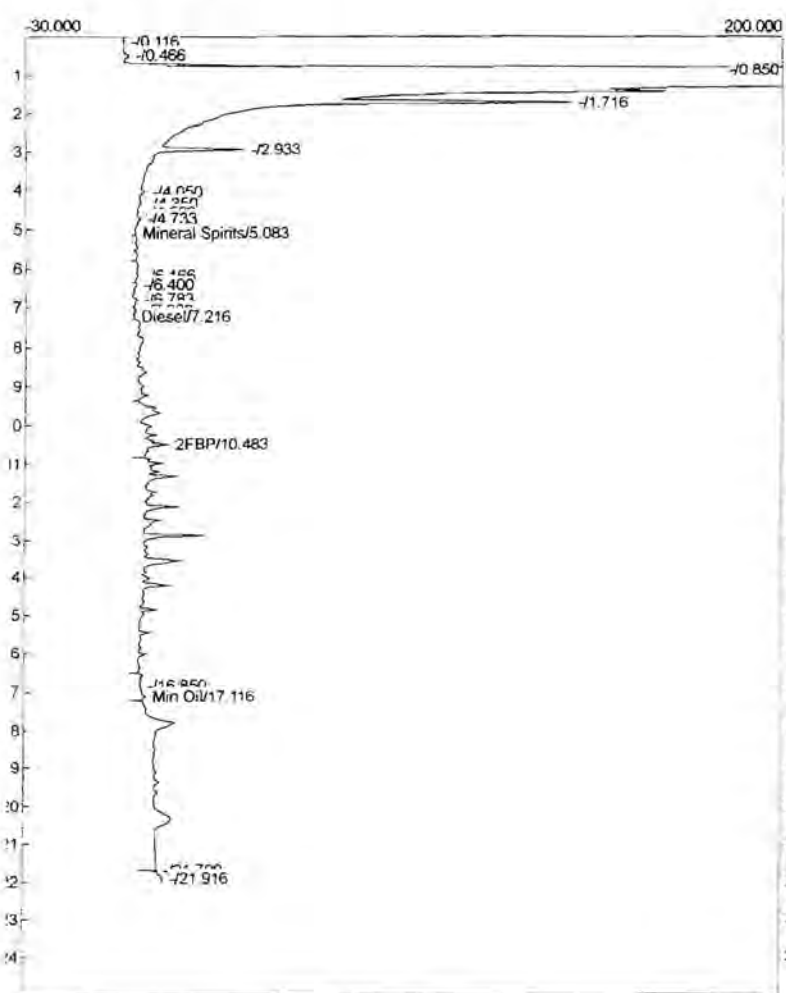
Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 10:39:04
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D626.CHR ()
 Sample: 25 PPM Dx 706
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.150	7.8080	0.195	0.3863	PPM	Diesel	7.516	1271.7155	1.965	89.4973	ppm
Diesel	7.150	1410.4710	0.518	13.6936	ppm	Min Oil	18.583	209.2665	1.582	14.7689	ppm
Min Oil	17.383	577.2305	3.576	0.0000				1480.9820		104.2662	
		1995.5095		14.0798							

Lab name: Eddy Environmental, Inc.
 Analysis date: 03/14/2012 11:07:43
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C621.CHR ()
 Sample: 100 PPM Dx 705
 Operator: KW

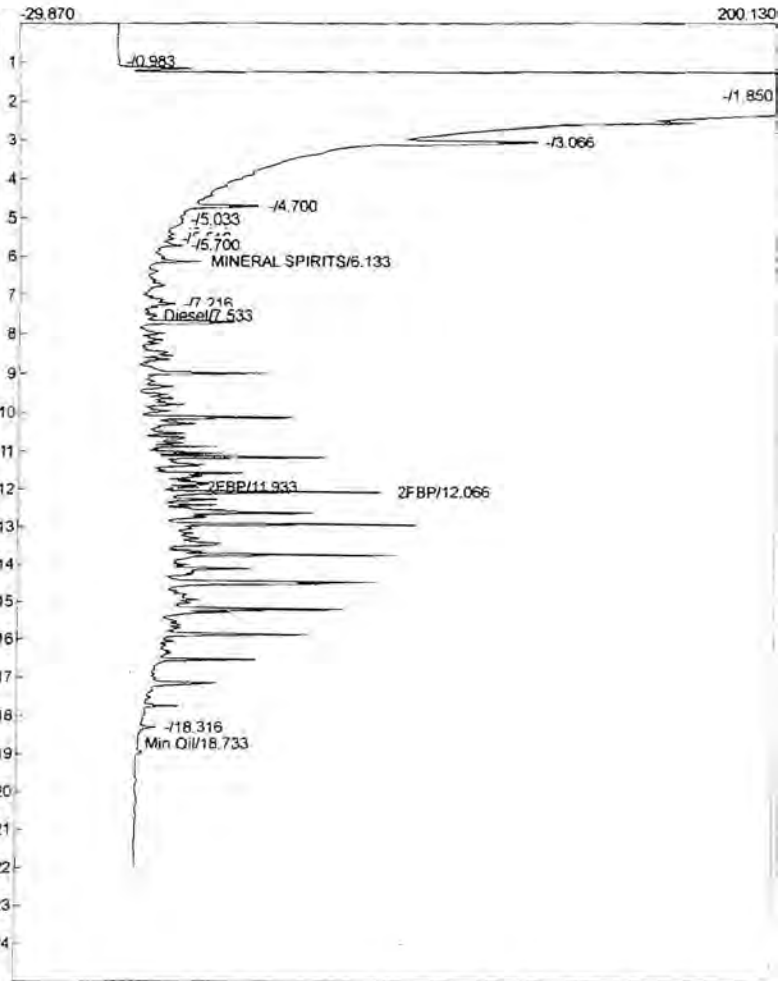
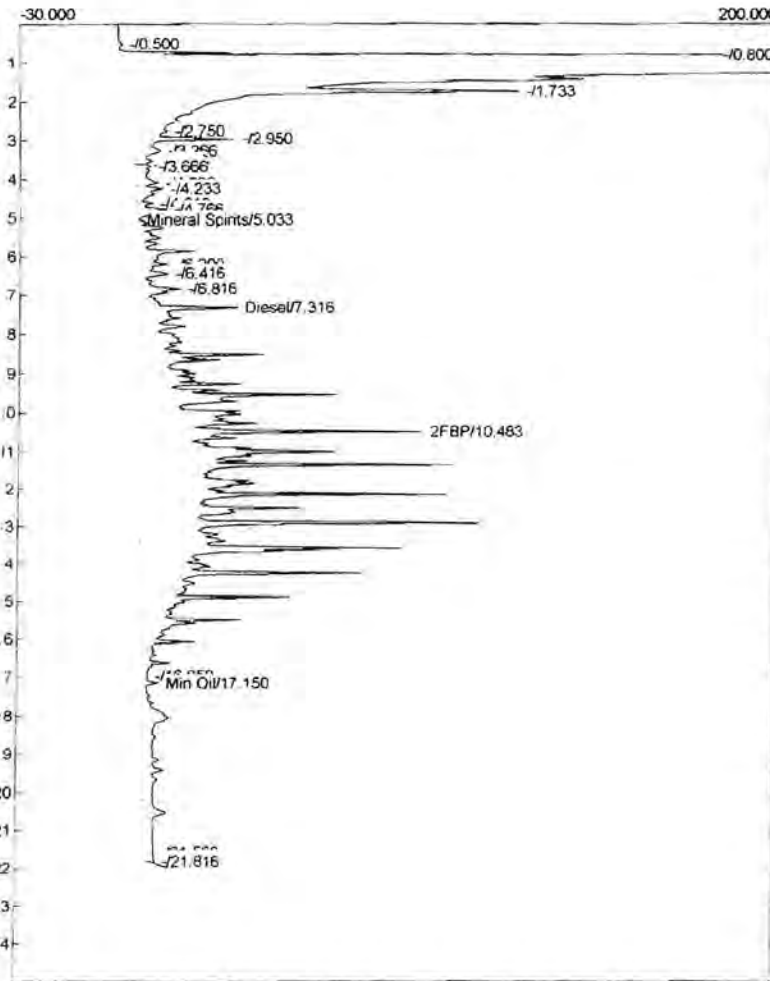
Lab name: Eddy Environmental, Inc.
 Analysis date: 03/14/2012 11:07:43
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D627.CHR ()
 Sample: 100 PPM Dx 705
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.083	84.6325	1.090	4.1869	PP	MINERAL SPIRITS	6.016	285.6170	7.733	20.1004	PPM
Diesel	7.216	2410.4095	0.627	119.2471	ppn	Diesel	7.350	1849.7390	2.625	130.1759	ppn
2FBP	10.483	163.7695	10.998	6.5508	ppn	2FBP	11.916	20.8250	4.775	1.0413	ppn
Min Oil	17.116	1953.3665	4.269	0.0000		Min Oil	18.950	514.9365	2.757	36.3413	ppn
		4612.1780		129.9847				2727.9475		190.5003	

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 11:45:18
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C622.CHR ()
 Sample: 500 PPM Dx 704
 Operator: KW

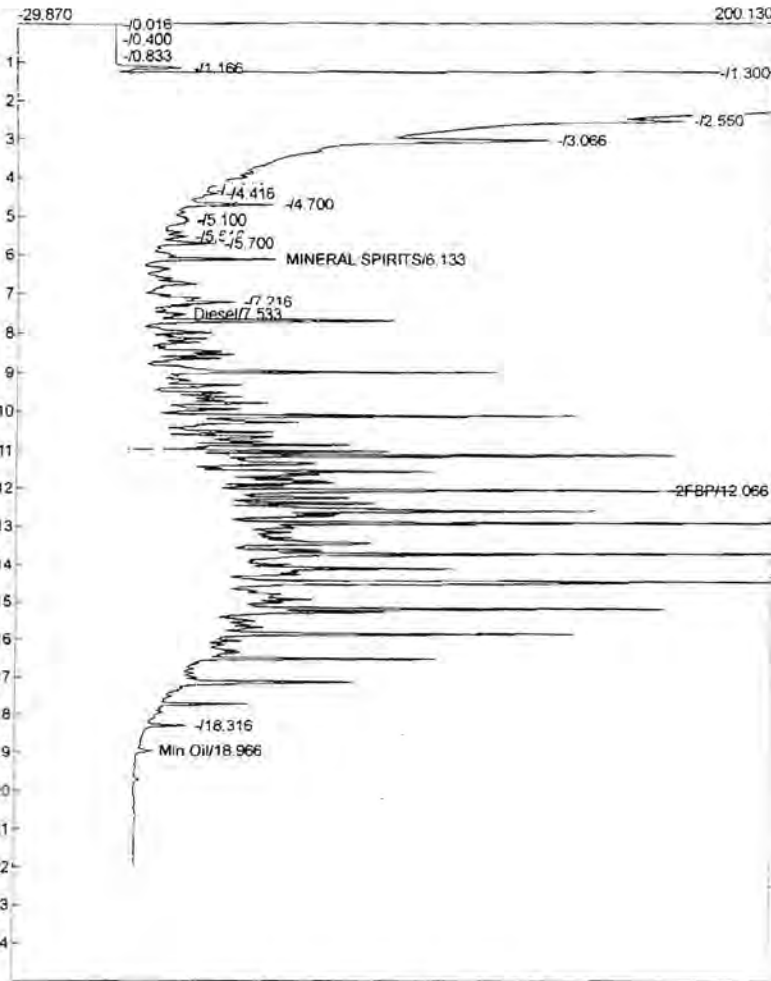
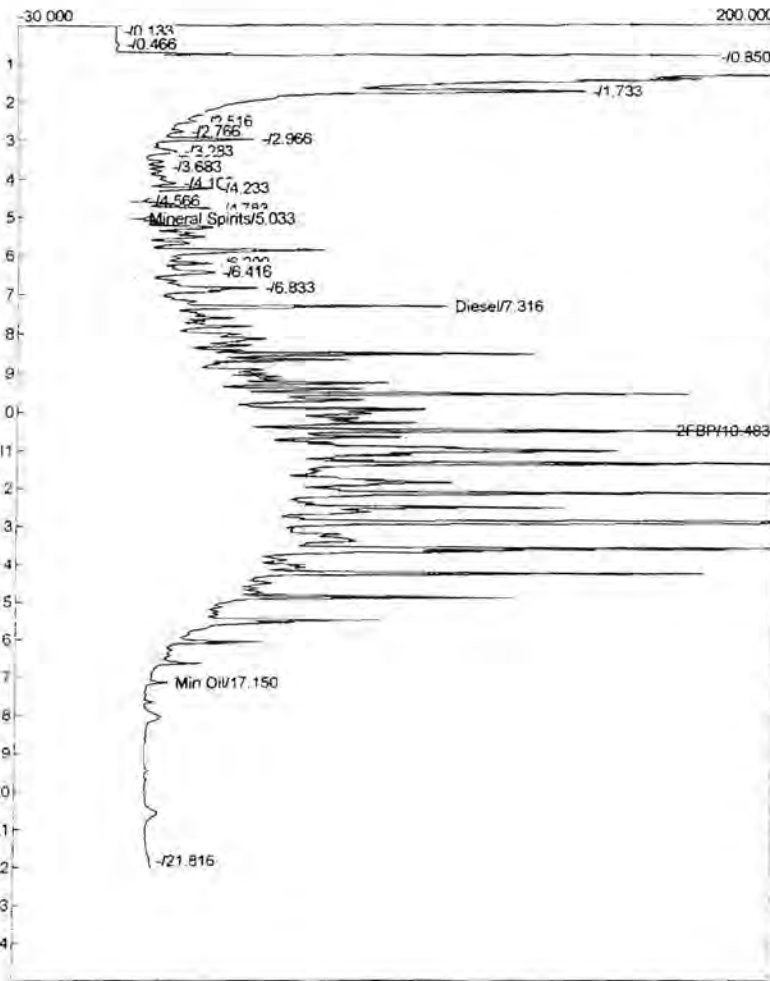
Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 11:45:18
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D628.CHR ()
 Sample: 500 PPM Dx 704
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.033	323.3415	0.632	15.9963	PPM	MINERAL SPIRITS	6.133	636.8190	24.452	44.8163	PPM
Diesel	7.316	11375.2115	30.144	562.7511	ppm	Diesel	7.533	9651.3385	9.725	679.2156	ppm
2FBP	10.483	668.0530	86.276	26.7221	ppm	2FBP	11.933	110.1285	21.943	5.5064	ppm
Min Oil	17.150	960.9820	5.210	0.0000		2FBP	12.066	325.1375	79.999	16.2569	ppm
						Min Oil	18.733	138.4670	1.874	9.7722	ppm
		13327.5880		605.4694				10861.8905		755.5674	

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 12:13:07
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C623.CHR ()
 Sample: 1000 PPM Dx 703
 Operator: KW

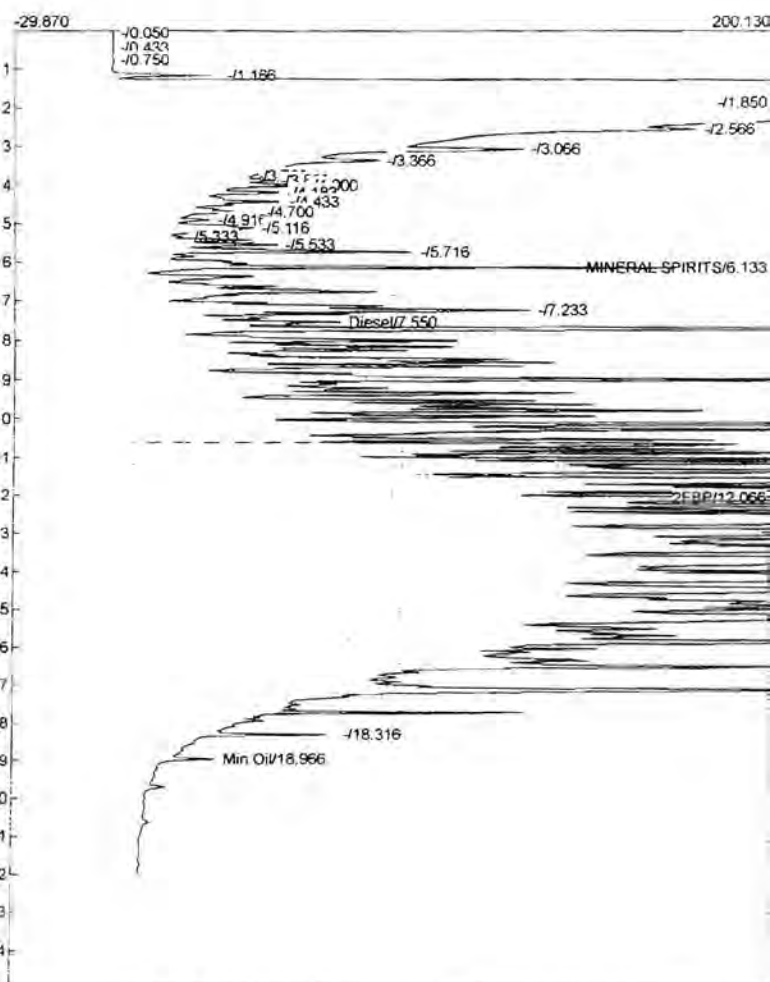
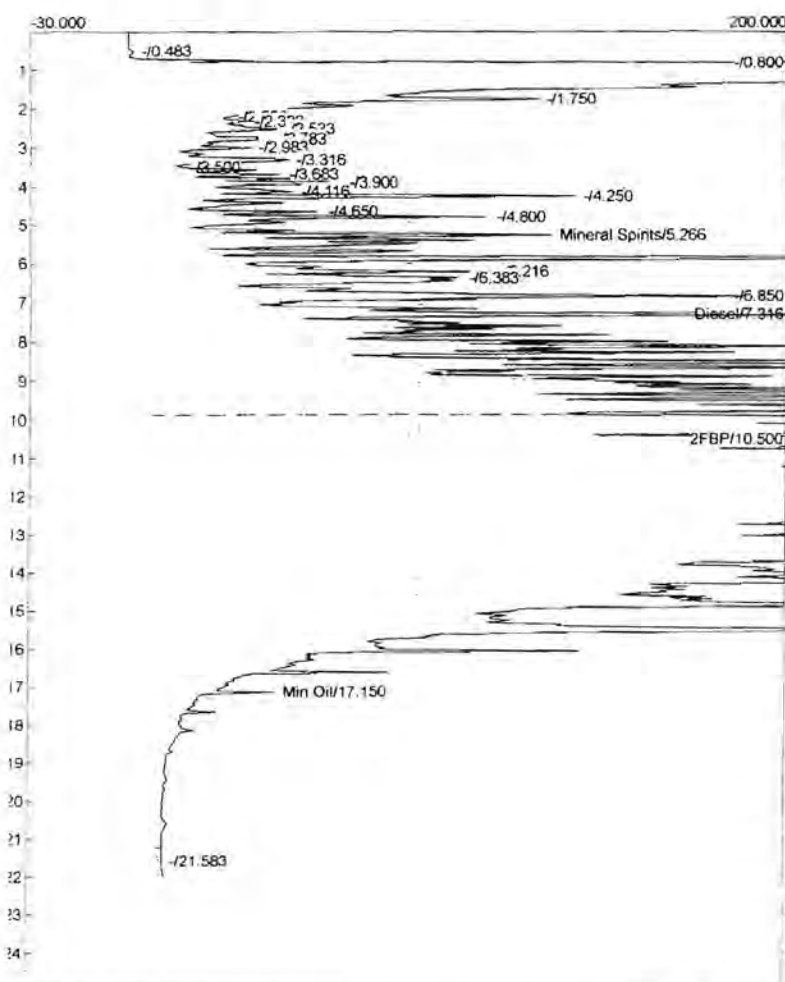
Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 12:13:07
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D629.CHR ()
 Sample: 1000 PPM Dx 703
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.033	995.3365	2.641	49.2410	ppm	MINERAL SPIRITS	6.133	723.8390	45.571	50.9404	ppm
Diesel	7.316	28291.8845	95.034	1399.6476	ppm	Diesel	7.533	23510.5725	17.032	1654.5630	ppm
2FBP	10.483	1579.9780	244.836	63.1991	ppm	2FBP	12.066	1043.4695	193.880	52.1735	ppm
Min Oil	17.150	221.1300	7.549	0.0000	ppm	Min Oil	18.966	300.3670	6.980	21.1982	ppm
		31088.3290		1512.0877				25578.2480		1778.8751	

Lab Name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 12:41:16
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C624.CHR ()
 Sample: 5000 PPM Dx 702
 Operator: KW

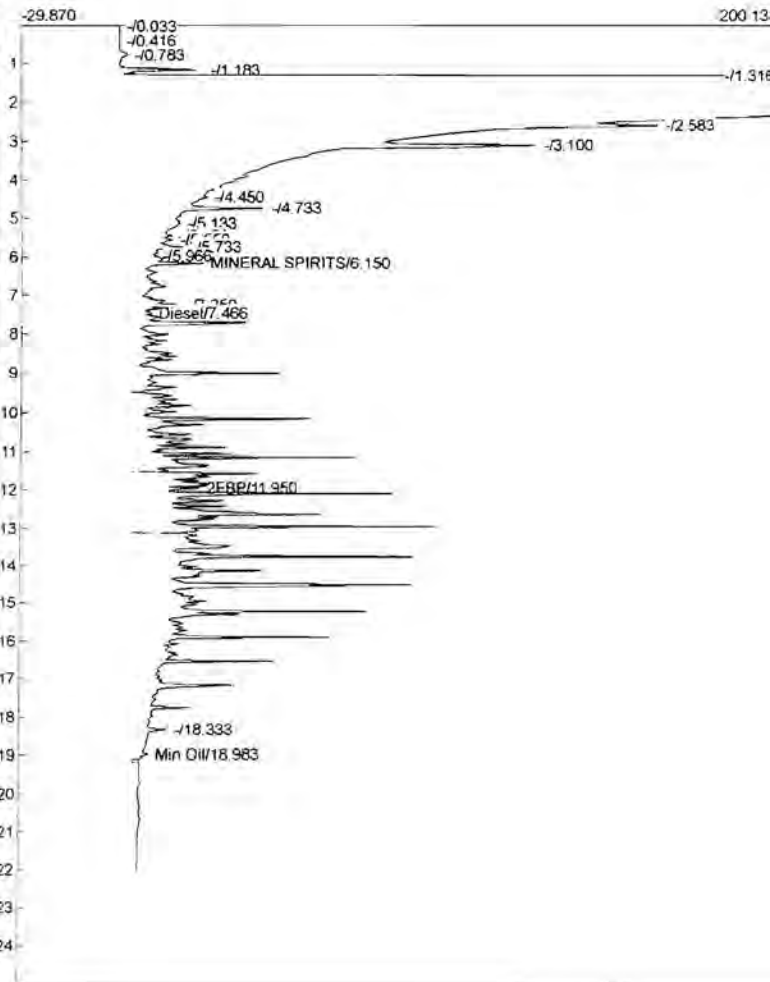
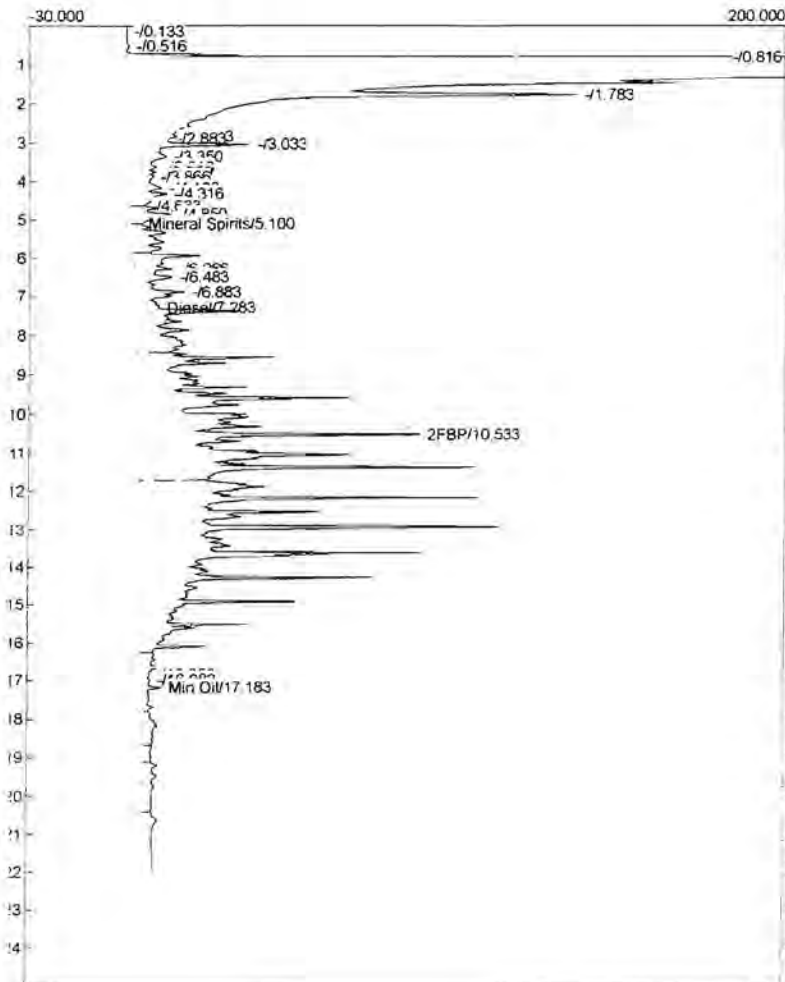
Lab Name: Libby
 Analysis date: 03/14/2012 12:41:16
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D630.CHR ()
 Sample: 5000 PPM Dx 702
 Operator: KW



Component	Retention	Area	Height	External	UnComponent	Retention	Area	Height	External	Unit
Mineral Spirits	5.266	4030.7350	121.832	199.4073	MINERAL SPIRITS	6.133	2118.1620	172.994	149.0662	PF
Diesel	7.316	118321.9850	479.109	5853.5897	Diesel	7.550	97612.4720	63.265	6869.5047	pp
2FBP	10.500	6802.6800	1015.018	272.1072	2FBP	12.066	3390.2460	772.659	169.5123	pp
Min Oil	17.150	1309.9915	36.600	0.0000	Min Oil	18.966	734.9465	24.851	51.8684	pp
		130465.3915		6325.1043			103855.8265		7239.9516	

Lab name: Eddy Environmental, Inc.
 Analysis date: 03/14/2012 13:09:09
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C625.CHR ()
 Sample: 500 PPM Dx ICAL 707
 Operator: KW

Lab name: Eddy Environmental, Inc.
 Analysis date: 03/14/2012 13:09:09
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D631.CHR ()
 Sample: 500 PPM Dx ICAL 707
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.100	454.2775	2.261	22.4739	PP	MINERAL SPIRITS	6.150	431.9470	21.664	30.3984	PP
Diesel	7.283	12055.9145	7.302	415.8831	ppn	Diesel	7.466	9633.4975	5.799	402.0800	ppn
2FBP	10.533	706.7050	85.875	28.2682	ppn	2FBP	11.950	98.4805	20.159	4.9240	ppn
Min Oil	17.183	642.7165	6.075	0.0000		Min Oil	18.983	249.4535	4.581	17.6050	ppn
		13859.6135		466.6252				10413.3785		455.0074	



1311 N. 35th St.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Libby Environmental

Jamie Deyman
4139 Libby Rd. NE
Olympia, Washington 98506

RE: Irondale
Lab ID: 1210029

October 11, 2012

Attention Jamie Deyman:

Fremont Analytical, Inc. received 15 sample(s) on 10/3/2012 for the analyses presented in the following report.

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample Moisture (Percent Moisture)

Total Metals by EPA Method 6020

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

A handwritten signature in black ink, appearing to read "M. Dee".

Michael Dee
Sr. Chemist / Principal



Date: 10/11/2012

CLIENT: Libby Environmental
Project: Irondale
Lab Order: 1210029

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1210029-001	SURZ-F14B1-100212	10/02/2012 7:50 AM	10/03/2012 3:50 PM
1210029-002	SURZ-F14B2-100212	10/02/2012 7:51 AM	10/03/2012 3:50 PM
1210029-003	SURZ-SSW1-100212	10/02/2012 8:10 AM	10/03/2012 3:50 PM
1210029-004	SURZ-WSW1-100212	10/02/2012 8:15 AM	10/03/2012 3:50 PM
1210029-005	F15B1-10212	10/02/2012 10:35 AM	10/03/2012 3:50 PM
1210029-006	F15NSW-10212	10/02/2012 10:40 AM	10/03/2012 3:50 PM
1210029-007	F15B2-10212	10/02/2012 10:42 AM	10/03/2012 3:50 PM
1210029-008	SURZ-WSW2-10212	10/02/2012 10:45 AM	10/03/2012 3:50 PM
1210029-009	NRZ-NWB1-10312	10/03/2012 12:23 PM	10/03/2012 3:50 PM
1210029-010	NRZ-NWSW1-10312	10/03/2012 12:20 PM	10/03/2012 3:50 PM
1210029-011	NRZ-SSW1-10312	10/03/2012 12:25 PM	10/03/2012 3:50 PM
1210029-012	NRZ-NSW1-10312	10/03/2012 12:26 PM	10/03/2012 3:50 PM
1210029-013	NRZ-NSW2-10312	10/03/2012 12:27 PM	10/03/2012 3:50 PM
1210029-014	NRZ-SSW2-10312	10/03/2012 12:30 PM	10/03/2012 3:50 PM
1210029-015	NRZ-NWB2-10312	10/03/2012 12:31 PM	10/03/2012 3:50 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: Libby Environmental**Project:** Irondale

I. SAMPLE RECEIPT:

All samples were received intact. The internal ice chest temperatures were measured on receipt and are recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.



Analytical Report

WO#: 1210029

Date Reported: 10/11/2012

Client: Libby Environmental

Collection Date: 10/2/2012 7:51:00 AM

Project: Irondale

Lab ID: 1210029-002

Matrix: Soil

Client Sample ID: SURZ-F14B2-100212

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 3353

Analyst: PH

Benz(a)anthracene	ND	52.6		µg/Kg-dry	1	10/11/2012 1:18:00 PM
Chrysene	ND	52.6		µg/Kg-dry	1	10/11/2012 1:18:00 PM
Benzo(b)fluoranthene	ND	52.6		µg/Kg-dry	1	10/11/2012 1:18:00 PM
Benzo(k)fluoranthene	ND	52.6		µg/Kg-dry	1	10/11/2012 1:18:00 PM
Benzo(a)pyrene	ND	52.6		µg/Kg-dry	1	10/11/2012 1:18:00 PM
Indeno(1,2,3-cd)pyrene	ND	52.6		µg/Kg-dry	1	10/11/2012 1:18:00 PM
Dibenz(a,h)anthracene	ND	52.6		µg/Kg-dry	1	10/11/2012 1:18:00 PM
Surr: 2-Fluorobiphenyl	92.9	50.4-142		%REC	1	10/11/2012 1:18:00 PM
Surr: Terphenyl-d14 (surr)	105	48.8-157		%REC	1	10/11/2012 1:18:00 PM

Sample Moisture (Percent Moisture)

Batch ID: R6072

Analyst: CM

Percent Moisture	16.0			wt%	1	10/10/2012 4:00:51 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210029

Date Reported: 10/11/2012

Client: Libby Environmental

Collection Date: 10/2/2012 10:42:00 AM

Project: Irondale

Lab ID: 1210029-007

Matrix: Soil

Client Sample ID: F15B2-10212

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 3353

Analyst: PH

Benz(a)anthracene	ND	41.1		µg/Kg-dry	1	10/11/2012 1:42:00 PM
Chrysene	ND	41.1		µg/Kg-dry	1	10/11/2012 1:42:00 PM
Benzo(b)fluoranthene	ND	41.1		µg/Kg-dry	1	10/11/2012 1:42:00 PM
Benzo(k)fluoranthene	ND	41.1		µg/Kg-dry	1	10/11/2012 1:42:00 PM
Benzo(a)pyrene	ND	41.1		µg/Kg-dry	1	10/11/2012 1:42:00 PM
Indeno(1,2,3-cd)pyrene	ND	41.1		µg/Kg-dry	1	10/11/2012 1:42:00 PM
Dibenz(a,h)anthracene	ND	41.1		µg/Kg-dry	1	10/11/2012 1:42:00 PM
Surr: 2-Fluorobiphenyl	92.0	50.4-142		%REC	1	10/11/2012 1:42:00 PM
Surr: Terphenyl-d14 (surr)	96.5	48.8-157		%REC	1	10/11/2012 1:42:00 PM

Sample Moisture (Percent Moisture)

Batch ID: R6072

Analyst: CM

Percent Moisture	8.72			wt%	1	10/10/2012 4:00:51 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210029

Date Reported: 10/11/2012

Client: Libby Environmental

Collection Date: 10/3/2012 12:23:00 PM

Project: Irondale

Lab ID: 1210029-009

Matrix: Soil

Client Sample ID: NRZ-NWB1-10312

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 3345

Analyst: SG

Arsenic	6.71	0.0930	B	mg/Kg-dry	1	10/4/2012 1:22:16 PM
Copper	60.2	0.186		mg/Kg-dry	1	10/4/2012 1:22:16 PM
Iron	9,080	5.12	E	mg/Kg-dry	1	10/4/2012 1:22:16 PM
Lead	3.20	0.186		mg/Kg-dry	1	10/4/2012 1:22:16 PM
Nickel	20.1	0.0930		mg/Kg-dry	1	10/4/2012 1:22:16 PM
Zinc	27.3	0.372		mg/Kg-dry	1	10/4/2012 1:22:16 PM

Sample Moisture (Percent Moisture)

Batch ID: R5987

Analyst: CM

Percent Moisture	22.7			wt%	1	10/4/2012 1:44:18 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210029

Date Reported: 10/11/2012

Client: Libby Environmental

Collection Date: 10/3/2012 12:20:00 PM

Project: Irondale

Lab ID: 1210029-010

Matrix: Soil

Client Sample ID: NRZ-NWSW1-10312

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 3345

Analyst: SG

Arsenic	12.9	0.0704	B	mg/Kg-dry	1	10/4/2012 1:31:54 PM
Copper	254	0.141	E	mg/Kg-dry	1	10/4/2012 1:31:54 PM
Iron	15,100	3.87	E	mg/Kg-dry	1	10/4/2012 1:31:54 PM
Lead	3.03	0.141		mg/Kg-dry	1	10/4/2012 1:31:54 PM
Nickel	27.8	0.0704	B	mg/Kg-dry	1	10/4/2012 1:31:54 PM
Zinc	44.4	0.282		mg/Kg-dry	1	10/4/2012 1:31:54 PM

Sample Moisture (Percent Moisture)

Batch ID: R5987

Analyst: CM

Percent Moisture	12.3			wt%	1	10/4/2012 1:44:18 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210029

Date Reported: 10/11/2012

Client: Libby Environmental

Collection Date: 10/3/2012 12:25:00 PM

Project: Irondale

Lab ID: 1210029-011

Matrix: Soil

Client Sample ID: NRZ-SSW1-10312

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 3345

Analyst: SG

Arsenic	3.31	0.0688	B	mg/Kg-dry	1	10/4/2012 2:48:50 PM
Copper	16.2	0.138		mg/Kg-dry	1	10/4/2012 2:48:50 PM
Iron	7,280	3.79	E	mg/Kg-dry	1	10/4/2012 2:48:50 PM
Lead	1.98	0.138		mg/Kg-dry	1	10/4/2012 2:48:50 PM
Nickel	43.8	0.0688	B	mg/Kg-dry	1	10/4/2012 2:48:50 PM
Zinc	26.8	0.275		mg/Kg-dry	1	10/4/2012 2:48:50 PM

Sample Moisture (Percent Moisture)

Batch ID: R5987

Analyst: CM

Percent Moisture	11.4			wt%	1	10/4/2012 1:44:18 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210029

Date Reported: 10/11/2012

Client: Libby Environmental

Collection Date: 10/3/2012 12:26:00 PM

Project: Irondale

Lab ID: 1210029-012

Matrix: Soil

Client Sample ID: NRZ-NSW1-10312

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 3345

Analyst: SG

Arsenic	26.9	0.0778	B	mg/Kg-dry	1	10/4/2012 2:58:28 PM
Copper	898	0.156	E	mg/Kg-dry	1	10/4/2012 2:58:28 PM
Iron	17,700	4.28	E	mg/Kg-dry	1	10/4/2012 2:58:28 PM
Lead	6.81	0.156		mg/Kg-dry	1	10/4/2012 2:58:28 PM
Nickel	14.5	0.0778		mg/Kg-dry	1	10/4/2012 2:58:28 PM
Zinc	55.4	0.311		mg/Kg-dry	1	10/4/2012 2:58:28 PM

Sample Moisture (Percent Moisture)

Batch ID: R5987

Analyst: CM

Percent Moisture	7.54			wt%	1	10/4/2012 1:44:18 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210029

Date Reported: 10/11/2012

Client: Libby Environmental

Collection Date: 10/3/2012 12:27:00 PM

Project: Irondale

Lab ID: 1210029-013

Matrix: Soil

Client Sample ID: NRZ-NSW2-10312

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 3345

Analyst: SG

Arsenic	15.2	0.0699	B	mg/Kg-dry	1	10/4/2012 3:08:06 PM
Copper	46.2	0.140		mg/Kg-dry	1	10/4/2012 3:08:06 PM
Iron	16,200	3.85	E	mg/Kg-dry	1	10/4/2012 3:08:06 PM
Lead	2.26	0.140		mg/Kg-dry	1	10/4/2012 3:08:06 PM
Nickel	38.5	0.0699	B	mg/Kg-dry	1	10/4/2012 3:08:06 PM
Zinc	37.7	0.280		mg/Kg-dry	1	10/4/2012 3:08:06 PM

Sample Moisture (Percent Moisture)

Batch ID: R5987

Analyst: CM

Percent Moisture	9.52			wt%	1	10/4/2012 1:44:18 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210029

Date Reported: 10/11/2012

Client: Libby Environmental

Collection Date: 10/3/2012 12:30:00 PM

Project: Irondale

Lab ID: 1210029-014

Matrix: Soil

Client Sample ID: NRZ-SSW2-10312

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 3345

Analyst: SG

Arsenic	2.66	0.0821	B	mg/Kg-dry	1	10/4/2012 3:17:45 PM
Copper	14.8	0.164		mg/Kg-dry	1	10/4/2012 3:17:45 PM
Iron	8,730	4.52	E	mg/Kg-dry	1	10/4/2012 3:17:45 PM
Lead	1.48	0.164		mg/Kg-dry	1	10/4/2012 3:17:45 PM
Nickel	44.5	0.0821		mg/Kg-dry	1	10/4/2012 3:17:45 PM
Zinc	26.7	0.329		mg/Kg-dry	1	10/4/2012 3:17:45 PM

Sample Moisture (Percent Moisture)

Batch ID: R5987

Analyst: CM

Percent Moisture	9.13			wt%	1	10/4/2012 1:44:18 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210029

Date Reported: 10/11/2012

Client: Libby Environmental

Collection Date: 10/3/2012 12:31:00 PM

Project: Irondale

Lab ID: 1210029-015

Matrix: Soil

Client Sample ID: NRZ-NWB2-10312

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 3345

Analyst: SG

Arsenic	36.3	0.0798	B	mg/Kg-dry	1	10/4/2012 3:27:23 PM
Copper	433	0.160	E	mg/Kg-dry	1	10/4/2012 3:27:23 PM
Iron	48,000	4.39	E	mg/Kg-dry	1	10/4/2012 3:27:23 PM
Lead	13.8	0.160		mg/Kg-dry	1	10/4/2012 3:27:23 PM
Nickel	20.2	0.0798		mg/Kg-dry	1	10/4/2012 3:27:23 PM
Zinc	60.0	0.319		mg/Kg-dry	1	10/4/2012 3:27:23 PM

Sample Moisture (Percent Moisture)

Batch ID: R5987

Analyst: CM

Percent Moisture	13.0			wt%	1	10/4/2012 1:44:18 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Work Order: 1210029
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: MB-3345	SampType: MBLK	Units: mg/Kg	Prep Date: 10/3/2012	RunNo: 5990							
Client ID: MBLKS	Batch ID: 3345	Analysis Date: 10/4/2012	SeqNo: 118684								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.221	0.100									
Copper	ND	0.200									
Lead	ND	0.200									
Nickel	ND	0.100									
Zinc	ND	0.400									

Sample ID: LCS-3345	SampType: LCS	Units: mg/Kg	Prep Date: 10/3/2012	RunNo: 5990							
Client ID: LCSS	Batch ID: 3345	Analysis Date: 10/4/2012	SeqNo: 118685								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	95.7	1.00	84.10	0	114	68.73	130.8				B
Copper	291	2.00	262.0	0	111	75.95	124.05				
Lead	315	2.00	301.0	0	105	70.1	115.61				
Nickel	116	1.00	105.0	0	111	72.76	127.62				
Zinc	640	4.00	615.0	0	104	68.29	117.89				

Sample ID: 1210029-010ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 10/3/2012	RunNo: 5990							
Client ID: NRZ-NWSW1-10312	Batch ID: 3345	Analysis Date: 10/4/2012	SeqNo: 118688								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	24.2	0.0884						12.88	61.1	30	BR
Copper	320	0.177						254.4	22.8	30	E
Lead	4.45	0.177						3.026	38.0	30	R
Nickel	34.4	0.0884						27.79	21.2	30	
Zinc	59.1	0.354						44.44	28.4	30	

NOTES:

R - High RPD noted (possible matrix interference). The method is in control as indicated by the laboratory control sample (LCS).

Qualifiers:	B Analyte detected in the associated Method Blank	D Dilution was required	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits	ND Not detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit	S Spike recovery outside accepted recovery limits



Date: 10/11/2012

Work Order: 1210029
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: 1210029-010AMS	SampType: MS	Units: mg/Kg-dry				Prep Date: 10/3/2012	RunNo: 5990				
Client ID: NRZ-NWSW1-10312	Batch ID: 3345					Analysis Date: 10/4/2012	SeqNo: 118690				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	17.7	0.0839	41.93	12.88	11.5	75	125				BS
Copper	353	0.168	41.93	254.4	235	75	125				SE
Lead	4.47	0.168	20.96	3.026	6.87	75	125				S
Nickel	32.5	0.0839	41.93	27.79	11.3	75	125				S
Zinc	56.4	0.335	41.93	44.44	28.5	75	125				S

NOTES:

S - Outlying spike recovery(ies) observed due to possible matrix effect and/or the sample concentration (too high for spike recovery). A duplicate analysis was performed with similar result. A Post Digestion Spike was included.

Sample ID: 1210029-010AMSD	SampType: MSD	Units: mg/Kg-dry				Prep Date: 10/3/2012	RunNo: 5990				
Client ID: NRZ-NWSW1-10312	Batch ID: 3345					Analysis Date: 10/4/2012	SeqNo: 118691				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	31.0	0.0820	41.02	12.88	44.2	75	125	17.68	54.8	30	BSR
Copper	3,970	0.164	41.02	254.4	9,070	75	125	353.1	167	30	SRE
Lead	7.11	0.164	20.51	3.026	19.9	75	125	4.467	45.7	30	SR
Nickel	38.6	0.0820	41.02	27.79	26.5	75	125	32.53	17.2	30	S
Zinc	94.2	0.328	41.02	44.44	121	75	125	56.38	50.3	30	R

NOTES:

S - Outlying spike recovery(ies) observed due to possible matrix effect and/or the sample concentration (too high for spike recovery). A Post Digestion Spike was included.

Sample ID: 1210029-010APDS	SampType: PDS	Units: mg/Kg-dry				Prep Date: 10/3/2012	RunNo: 5990				
Client ID: NRZ-NWSW1-10312	Batch ID: 3345					Analysis Date: 10/4/2012	SeqNo: 118692				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	141	0.0717	50.0	36.6	105	75	125				B
Copper	799	0.143	50.0	723	89.4	75	125				E
Lead	50.7	0.143	25.0	8.60	84.6	75	125				
Nickel	172	0.0717	50.0	78.9	94.9	75	125				
Zinc	211	0.287	50.0	126	87.0	75	125				

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 10/11/2012

Work Order: 1210029
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: 1210029-010APDS	SampType: PDS	Units: mg/Kg-dry	Prep Date: 10/3/2012	RunNo: 5990							
Client ID: NRZ-NWSW1-10312	Batch ID: 3345	Analysis Date: 10/4/2012	SeqNo: 118692								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:

S - Outlying spike recovery(ies) observed.

Qualifiers:	B Analyte detected in the associated Method Blank	D Dilution was required	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits	ND Not detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit	S Spike recovery outside accepted recovery limits

Work Order: 1210029
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: CCV-3353	SampType: CCV	Units: µg/Kg	Prep Date: 10/11/2012	RunNo: 6083							
Client ID: CCV	Batch ID: 3353		Analysis Date: 10/11/2012	SeqNo: 120852							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,110	50.0	1,000	0	111	80	120				
Chrysene	974	50.0	1,000	0	97.4	80	120				
Benzo(b)fluoranthene	871	50.0	1,000	0	87.1	80	120				
Benzo(k)fluoranthene	1,050	50.0	1,000	0	105	80	120				
Benzo(a)pyrene	996	50.0	1,000	0	99.6	80	120				
Indeno(1,2,3-cd)pyrene	1,040	50.0	1,000	0	104	80	120				
Dibenz(a,h)anthracene	947	50.0	1,000	0	94.7	80	120				
Surr: 2-Fluorobiphenyl	485		500.0		97.1	50.4	142				
Surr: Terphenyl-d14 (surr)	522		500.0		104	48.8	157				

Sample ID: CCB-3353	SampType: CCB	Units: µg/Kg	Prep Date: 10/11/2012	RunNo: 6083							
Client ID: CCB	Batch ID: 3353		Analysis Date: 10/11/2012	SeqNo: 120853							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Surr: 2-Fluorobiphenyl	494		500.0		98.9	50.4	142				
Surr: Terphenyl-d14 (surr)	510		500.0		102	48.8	157				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1210029
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: MB-3353	SampType: MBLK	Units: µg/Kg	Prep Date: 10/5/2012	RunNo: 6083							
Client ID: MBLKS	Batch ID: 3353		Analysis Date: 10/11/2012	SeqNo: 120854							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Surr: 2-Fluorobiphenyl	463		500.0		92.5	50.4	142				
Surr: Terphenyl-d14 (surr)	467		500.0		93.4	48.8	157				

Sample ID: LCS-3353	SampType: LCS	Units: µg/Kg	Prep Date: 10/5/2012	RunNo: 6083							
Client ID: LCSS	Batch ID: 3353		Analysis Date: 10/11/2012	SeqNo: 120855							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benz(a)anthracene	956	50.0	1,000	0	95.6	57.9	150				
Chrysene	908	50.0	1,000	0	90.8	76.1	123				
Benzo(b)fluoranthene	737	50.0	1,000	0	73.7	61.2	142				
Benzo(k)fluoranthene	968	50.0	1,000	0	96.8	68.1	134				
Benzo(a)pyrene	860	50.0	1,000	0	86.0	58.1	146				
Indeno(1,2,3-cd)pyrene	911	50.0	1,000	0	91.1	63.8	138				
Dibenz(a,h)anthracene	805	50.0	1,000	0	80.5	60.8	143				
Surr: 2-Fluorobiphenyl	491		500.0		98.2	50.4	142				
Surr: Terphenyl-d14 (surr)	506		500.0		101	48.8	157				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 10/11/2012

Work Order: 1210029
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: 1209174-006AMS	SampType: MS	Units: µg/Kg	Prep Date: 10/5/2012	RunNo: 6083							
Client ID: BATCH	Batch ID: 3353		Analysis Date: 10/11/2012	SeqNo: 120857							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benz(a)anthracene	792	42.8	856.9	0	92.4	57.5	169				
Chrysene	737	42.8	856.9	0	86.0	45.2	146				
Benzo(b)fluoranthene	607	42.8	856.9	0	70.9	42.2	168				
Benzo(k)fluoranthene	765	42.8	856.9	0	89.2	48	161				
Benzo(a)pyrene	702	42.8	856.9	0	82.0	34.4	179				
Indeno(1,2,3-cd)pyrene	741	42.8	856.9	0	86.5	41.1	165				
Dibenz(a,h)anthracene	651	42.8	856.9	0	76.0	38.1	166				
Surr: 2-Fluorobiphenyl	392		428.4		91.5	50.4	142				
Surr: Terphenyl-d14 (surr)	407		428.4		95.0	48.8	157				

Sample ID: 1210029-003ADUP	SampType: DUP	Units: µg/Kg	Prep Date: 10/5/2012	RunNo: 6083							
Client ID: SURZ-SSW1-100212	Batch ID: 3353		Analysis Date: 10/11/2012	SeqNo: 120862							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benz(a)anthracene	ND	43.0						0	0	30	
Chrysene	ND	43.0						0	0	30	
Benzo(b)fluoranthene	ND	43.0						0	0	30	
Benzo(k)fluoranthene	ND	43.0						0	0	30	
Benzo(a)pyrene	ND	43.0						0	200	30	R
Indeno(1,2,3-cd)pyrene	ND	43.0						0	0	30	
Dibenz(a,h)anthracene	ND	43.0						0	0	30	
Surr: 2-Fluorobiphenyl	413		429.6		96.2	50.4	142		0		
Surr: Terphenyl-d14 (surr)	440		429.6		102	48.8	157		0		

NOTES:

R - High RPD due to low analyte concentration. In this range, high RPD's may be expected.

Qualifiers:	B Analyte detected in the associated Method Blank	D Dilution was required	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits	ND Not detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit	S Spike recovery outside accepted recovery limits



Work Order: 1210029
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: ICB-3353	SampType: ICB	Units: µg/Kg	Prep Date: 10/10/2012	RunNo: 6083							
Client ID: ICB	Batch ID: 3353		Analysis Date: 10/10/2012	SeqNo: 121191							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Surr: 2-Fluorobiphenyl	496		500.0		99.2	50.4	142				
Surr: Terphenyl-d14 (surr)	484		500.0		96.9	48.8	157				

Sample ID: ICV-3353	SampType: ICV	Units: µg/Kg	Prep Date: 10/10/2012	RunNo: 6083							
Client ID: ICV	Batch ID: 3353		Analysis Date: 10/10/2012	SeqNo: 121192							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,180	50.0	1,000	0	118	70	130				
Chrysene	1,100	50.0	1,000	0	110	70	130				
Benzo(b)fluoranthene	998	50.0	1,000	0	99.8	70	130				
Benzo(k)fluoranthene	1,170	50.0	1,000	0	117	70	130				
Benzo(a)pyrene	1,130	50.0	1,000	0	113	70	130				
Indeno(1,2,3-cd)pyrene	1,180	50.0	1,000	0	118	70	130				
Dibenz(a,h)anthracene	1,080	50.0	1,000	0	108	70	130				
Surr: 2-Fluorobiphenyl	505		500.0		101	50.4	142				
Surr: Terphenyl-d14 (surr)	507		500.0		101	48.8	157				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Client Name: **LIBBY**

 Work Order Number: **1210029**

 Logged by: **Troy Zehr**

 Date Received: **10/3/2012 3:50:00 PM**

Chain of Custody

1. Were custodial seals present? Yes No Not Required
2. Is Chain of Custody complete? Yes No Not Present
3. How was the sample delivered? Client

Log In

4. Coolers are present? Yes No NA
5. Was an attempt made to cool the samples? Yes No NA
6. Were all coolers received at a temperature of >0° C to 10.0°C Yes No NA
7. Sample(s) in proper container(s)? Yes No
8. Sufficient sample volume for indicated test(s)? Yes No
9. Are samples properly preserved? Yes No
10. Was preservative added to bottles? Yes No NA
11. Is there headspace present in VOA vials? Yes No NA
12. Did all sample containers arrive in good condition?(unbroken) Yes No
13. Does paperwork match bottle labels? Yes No
14. Are matrices correctly identified on Chain of Custody? Yes No
15. Is it clear what analyses were requested? Yes No
16. Were all holding times able to be met? Yes No

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks/Discrepancies

Collection times not on COC. Sample times taken from sample labels.

Item Information

Item #	Temp °C	Condition
Cooler	9.8	Good

Chain of Custody Record

Libby Environmental, Inc.

4139 Libby Road NE
 Olympia, WA 98506
 Ph: 360-352-2110
 Fax: 360-352-4154

Client: *see above*

Address:

Phone:

Fax:

Client Project #

Project Manager: *Jamie Deyman*

Project Name: *Irondale*

Location:

City:

Collector:

Date of Collection: *10/2*

Date: *10-3-12* Page: *1* of *1*

Sample Number	Depth	Time	Container Sample Type	sample Container Type	VOA 802/B BTEX ONLY	VOA 802/B	SEM VOL 8270	NMTPH-ACID	NMTPH-GX	NMTPH-DX	NMTPH-DX EXT	PAH 8270	PCBS 8082	MTCA 6 Metals	Field Notes
1 SURZ-F4B1-100212			4oz Jar Soil	sample											EXTRACT & HOLD
2 SURZ-F4B2-100212			4oz Jar Soil												
3 SURZ-SSW1-100212			4oz Jar Soil												
4 SURZ-NSW1-100212			4oz Jar Soil												
5 F15B1-10212			4oz Jar Soil												
6 F15NSW-10212			4oz Jar Soil												
7 F15B2-10212			4oz Jar Soil												
8 SURZ-NSW2-10212			4oz Jar Soil												
9 NRZ-NWB1-10312			4oz Jar Soil												
10 NRZ-NSW1-10312			4oz Jar Soil												
11 NRZ-SSW1-10312			4oz Jar Soil												
12 NRZ-NSW1-10312			4oz Jar Soil												
13 NRZ-NSW2-10312			4oz Jar Soil												
14 NRZ-SSW2-10312			4oz Jar Soil												
15 NRZ-NWB2-10312			4oz Jar Soil												
16															
17															
18															

Remarks: *Metal Analysis Arsenic, Copper, Iron Lead, Nickel & Zinc - Rush -*

Relinquished by: *79pe* Date/Time: *10/3/12* 3:50PM
 Received by: *[Signature]*

Relinquished by: _____ Date/Time: _____
 Received by: _____

Relinquished by: _____ Date/Time: _____
 Received by: _____

Sample Receipt:
 Good Condition? _____
 Cold? _____
 Seals Intact? _____
 Total Number of Containers: _____

Here are the samples that we would like analyzed for cPAHs:

- 1. SURZ-F14B2-100212 (COC# 1015); TPH = 151 mg/kg (Kiln 14) 1210029-002
- 2. F15B2-10212 (COC# 1015); TPH = 40 U mg/kg (Kiln 15) 1210029-007
- 3. SURZ-B1-10812 (COC# 1018); TPH = 40.11 mg/kg (Between Kilns 8, 15, 17, and 18) 1210089-003
- 4. K08-B1-10912 (COC# 1019?); TPH = 70 mg/kg (Kiln 8) 1210087-004

Please run these samples on a 24 hour TAT.

PQLs specified in the QAPP for cPAHs are 0.05 mg/kg by EPA 8270D-SIM

Thank you,

Emily Ackerman
Office Manager
Libby Environmental, Inc.
360-352-2110 Office
360-352-4154 Fax
www.LibbyEnvironmental.com

calrpt.txt
Response Factor Report HP-MSD

Method Path : C:\msdchem\1\methods\
Method File : D:\PAH101012PHENOL.M
Title : EPA Method 8270-PAH
Last Update : Thu Oct 11 09:37:24 2012
Response Via : Initial Calibration

Calibration Files
1 =101009.D 2 =101010.D 3 =101011.D 4 =101012.D 5 =101013.D 6 =101014.D 7 =101015.D
8 =101016.D

Compound	1	2	3	4	5	6	7	8	Avg	%RSD
1) 1,4-dichlorobenz-d...										
2) s Phenol-d6	1.474	1.469	1.478	1.491	1.516	1.516	1.589	1.621	1.519	3.73
3) t 2,4-dimethylph...	0.806	0.628	0.880	0.927	1.023	1.177	1.152	1.184	0.972	20.53
4) I Naphthalene-d8 (IS)										
5) t Naphthalene	1.430	1.130	1.366	1.326	1.259	1.301	1.208	1.130	1.269	8.53
6) t 2-Methylnaphth...	0.797	0.629	0.776	0.769	0.750	0.799	0.735	0.691	0.743	7.81
7) t 1-Methylnaphth...	0.760	0.603	0.742	0.729	0.708	0.747	0.686	0.652	0.703	7.67
8) s 2-Fluorobiphen...	0.877	0.877	0.883	0.888	0.898	0.853	0.895	0.899	0.884	1.72
9) t Acenaphthylene	1.038	0.802	1.023	1.044	1.059	1.149	1.052	0.985	1.013	9.73
10) I Acenaphthene-d10 (IS)										
11) m Acenaphthene	0.786	0.603	0.725	0.702	0.668	0.678	0.630	0.588	0.673	9.77
12) t Fluorene	1.727	1.325	1.630	1.618	1.571	1.615	1.482	1.364	1.542	9.04
13) I Phenanthrene-d10 (IS)										
14) t Phenanthrene	1.620	1.212	1.455	1.433	1.368	1.352	1.287	1.192	1.365	10.27
15) t Anthracene	1.260	0.952	1.216	1.239	1.255	1.326	1.277	1.220	1.219	9.00
16) s Terphenyl-d14 ...	0.733	0.728	0.723	0.728	0.737	0.732	0.756	0.761	0.737	1.88
17) t Fluoranthene	1.204	0.923	1.185	1.223	1.273	1.435	1.323	1.263	1.229	11.93
18) t Pyrene	1.237	0.951	1.242	1.291	1.343	1.492	1.387	1.320	1.284	12.05
19) t Benzo (a) anth...	1.270	0.866	0.992	1.012	1.040	1.181	1.140	1.114	1.077	11.68
20) I Chrysene-d12 (IS)										
21) t Chrysene	1.773	1.261	1.543	1.451	1.398	1.456	1.375	1.303	1.445	11.05
22) t benzo (b) fluo...	0.595	0.444	0.577	0.689	0.778	0.986	1.006	1.063	0.767	29.94
23) t benzo (k) fluo...	1.206	0.915	1.311	1.516	1.536	1.604	1.559	1.476	1.390	16.85
24) t benzo (a) pyrene	0.589	0.449	0.634	0.733	0.858	1.057	1.090	1.260	0.833	33.81

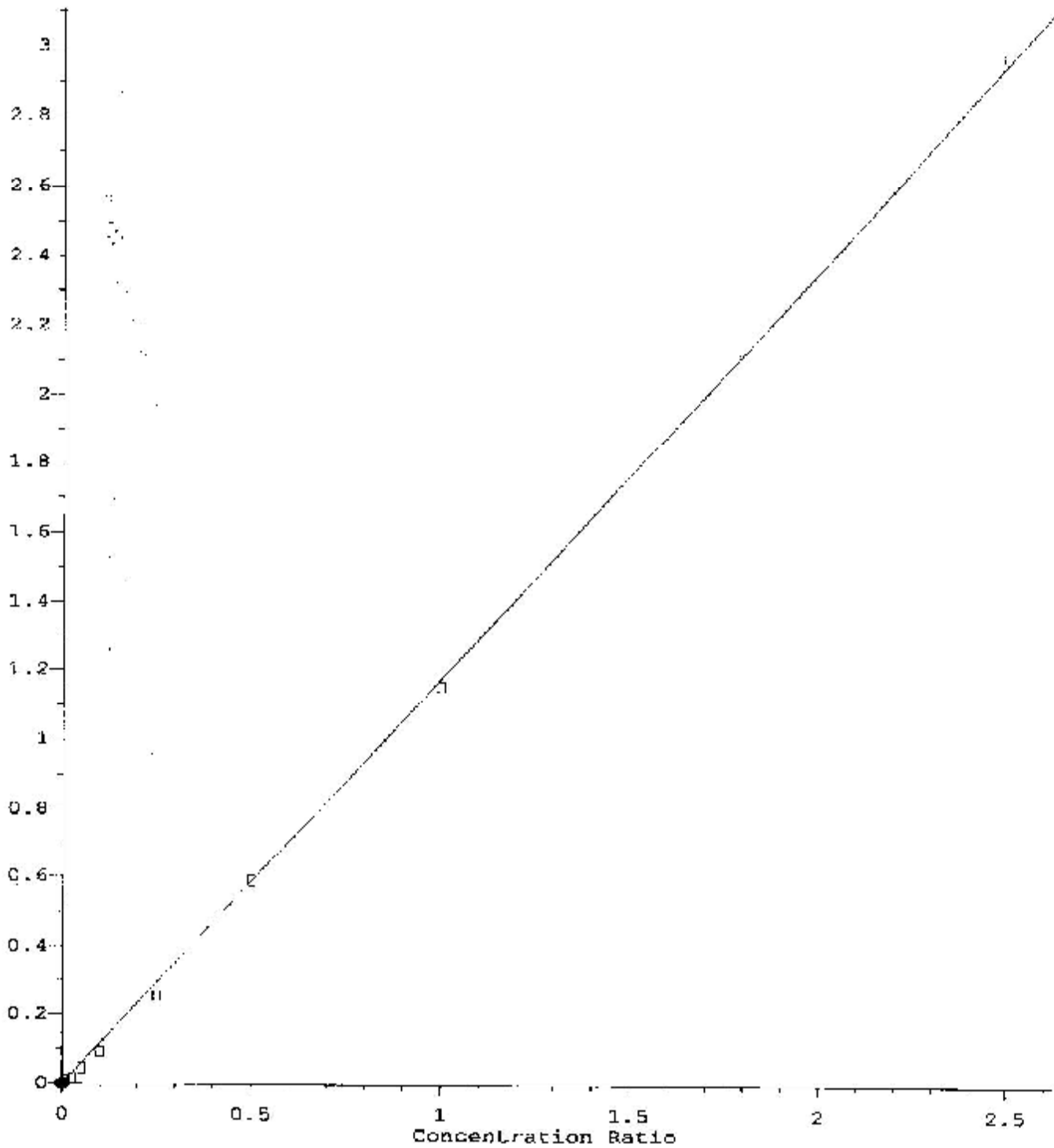
		calrpr.txt		ISTD							
25) I	perylene-d12 (IS)										
26) t	Indeno(1,2,3-c...	0.626	0.502	0.688	0.789	0.903	1.082	1.133	1.268	0.874	30.83
27) t	Dibenz (a,h) a...	0.448	0.348	0.496	0.566	0.672	0.852	0.906	0.974	0.658	35.14
28) t	Benzo (g,h,i) ...	0.813	0.644	0.883	0.990	1.066	1.221	1.222	1.175	1.002	20.95

(#) = Out of Range

DBPAH101012PHENOL.M Thu Oct 11 09:38:07 2012 PAH

2,4-Dimethylphenol

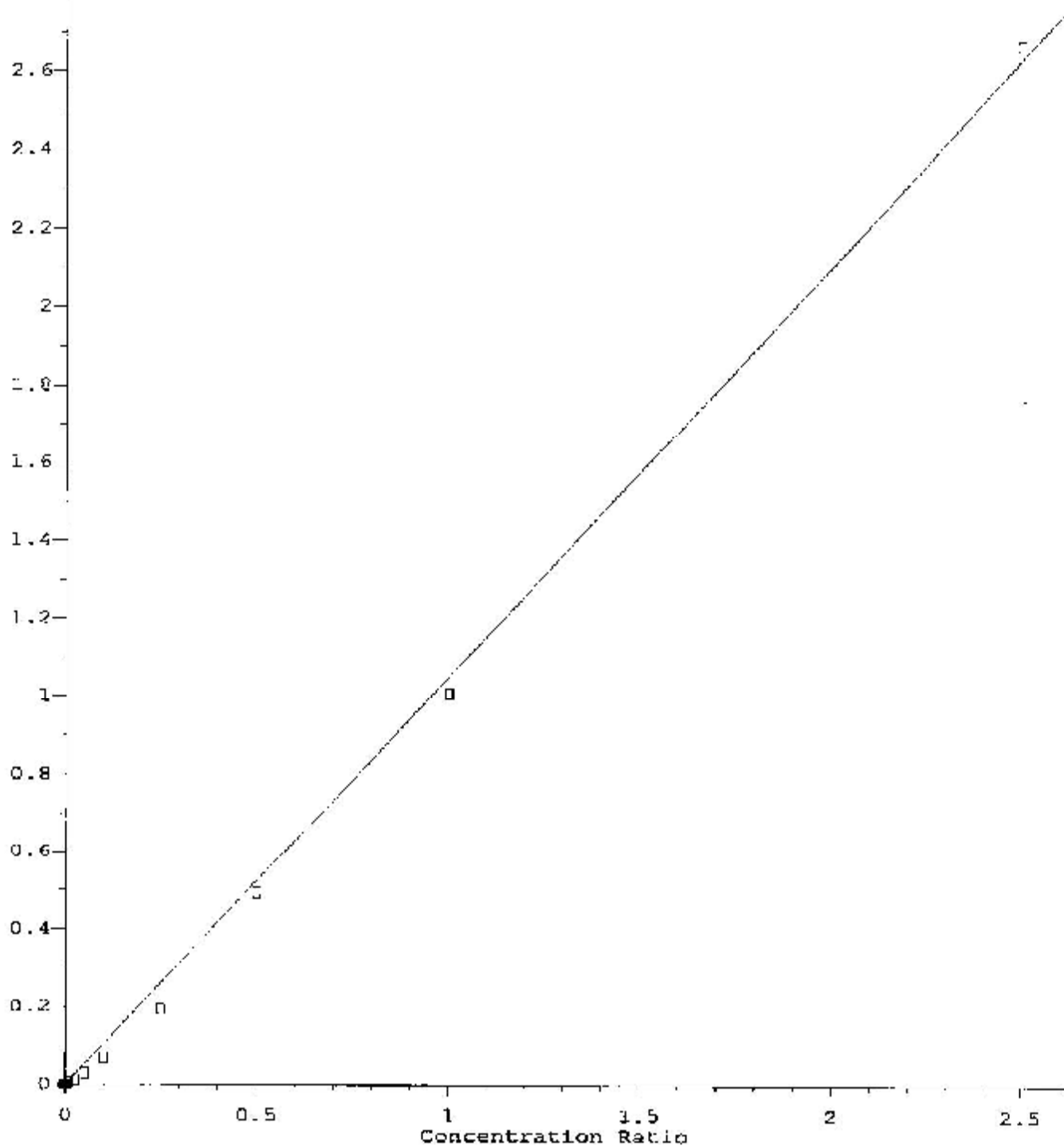
Response Ratio



Response = 1.19e+000 * Amt
Coef of Det (r^2) = 1.000 Curve Fit: Linear/(0,0)
Method Name: C:\msdchem\1\methods\DEPAH101012PHENOL.M
Calibration Table Last Updated: Thu Oct 11 14:52:26 2012

benzo (b) fluoranthene

Response Ratio



Response = 1.05e+000 * Amt

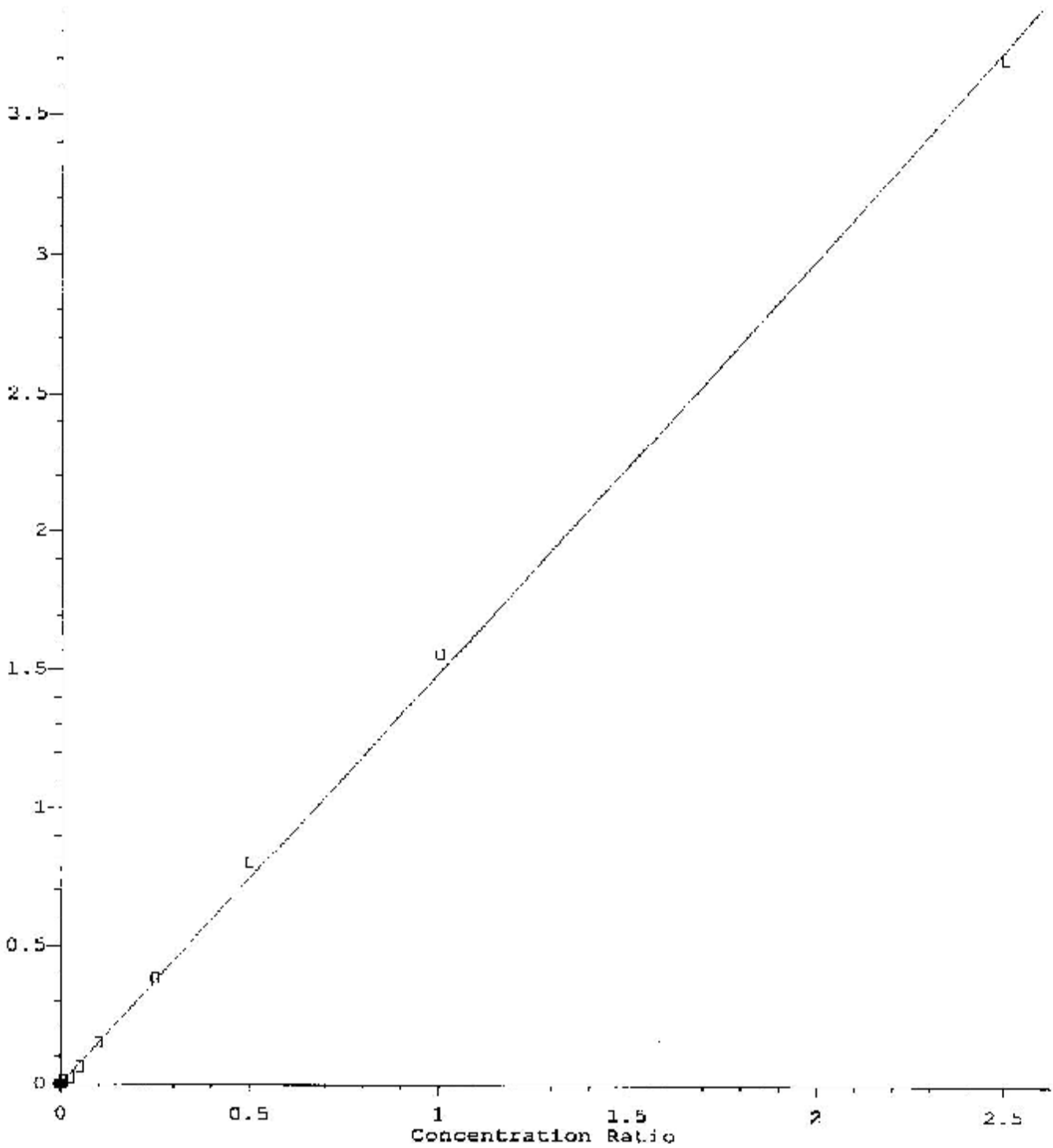
Coef of Det (r²) = 0.999 Curve Fit: Linear/(0,0)

Method Name: C:\msdchem\1\methods\BPAH101012PHENOL.M

Calibration Table Last Updated: Thu Oct 11 09:35:38 2012

benzo (k) fluoranthene

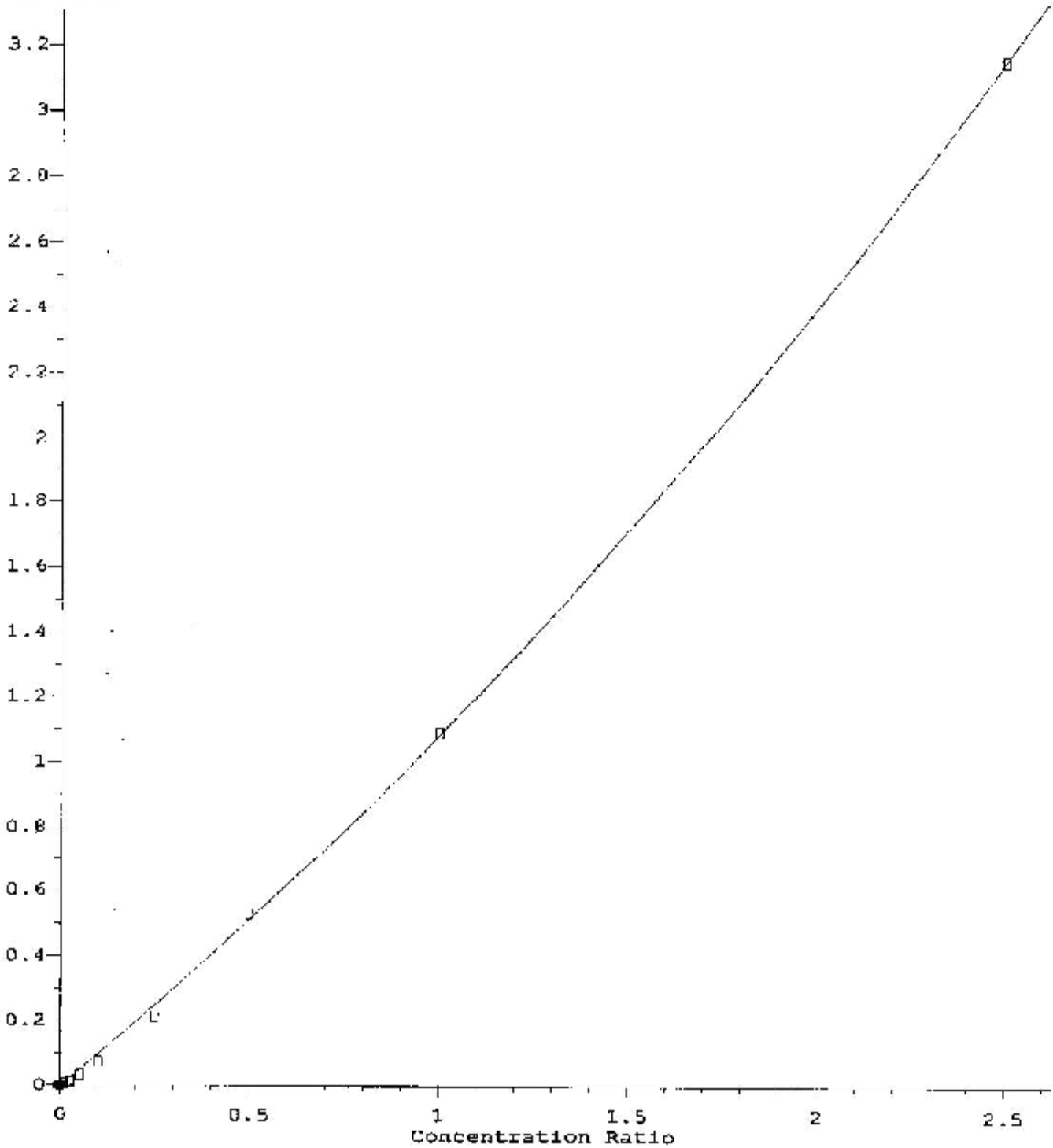
Response Ratio



Response = 1.49e+000 * Amt
Coef of Det. (r^2) = 0.999 Curve Fit: Linear/(0,0)
Method Name: C:\msdchem\1\methods\DEPAH101012PHENOL.M
Calibration Table Last Updated: Thu Oct 11 09:35:38 2012

benzo (a) pyrene

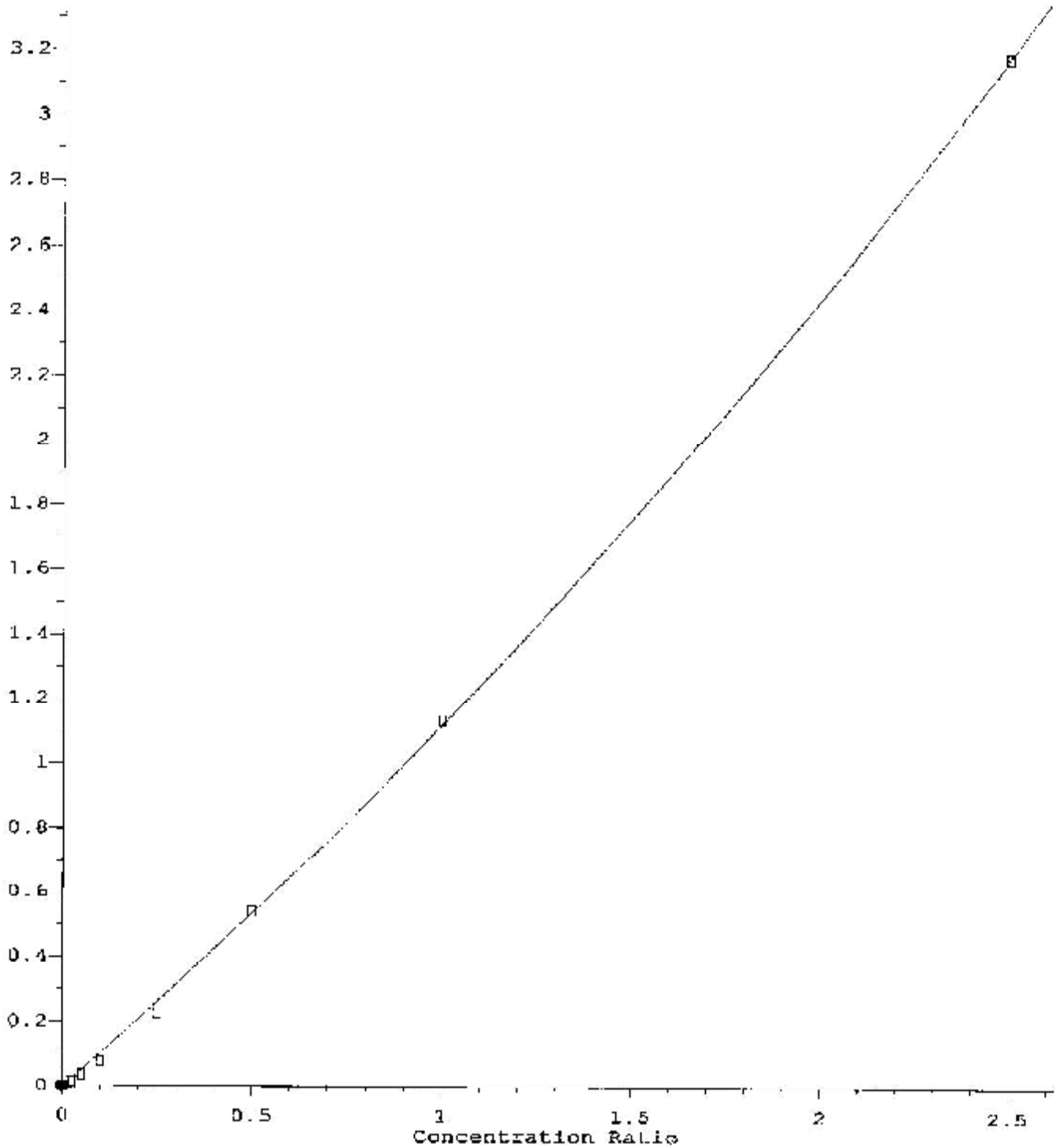
Response Ratio



$R = 1.19e-001 A^2 + 9.64e-001 A + 0.00e+000$
Coef of Det (r^2) = 1.000 Curve Fit: Quad/(0,0)
Method Name: C:\msdchem\1\methods\DEPAE101012PHENOL.M
Calibration Table Last Updated: Thu Oct 11 09:35:38 2012

Indeno (1,2,3-cd)pyrene

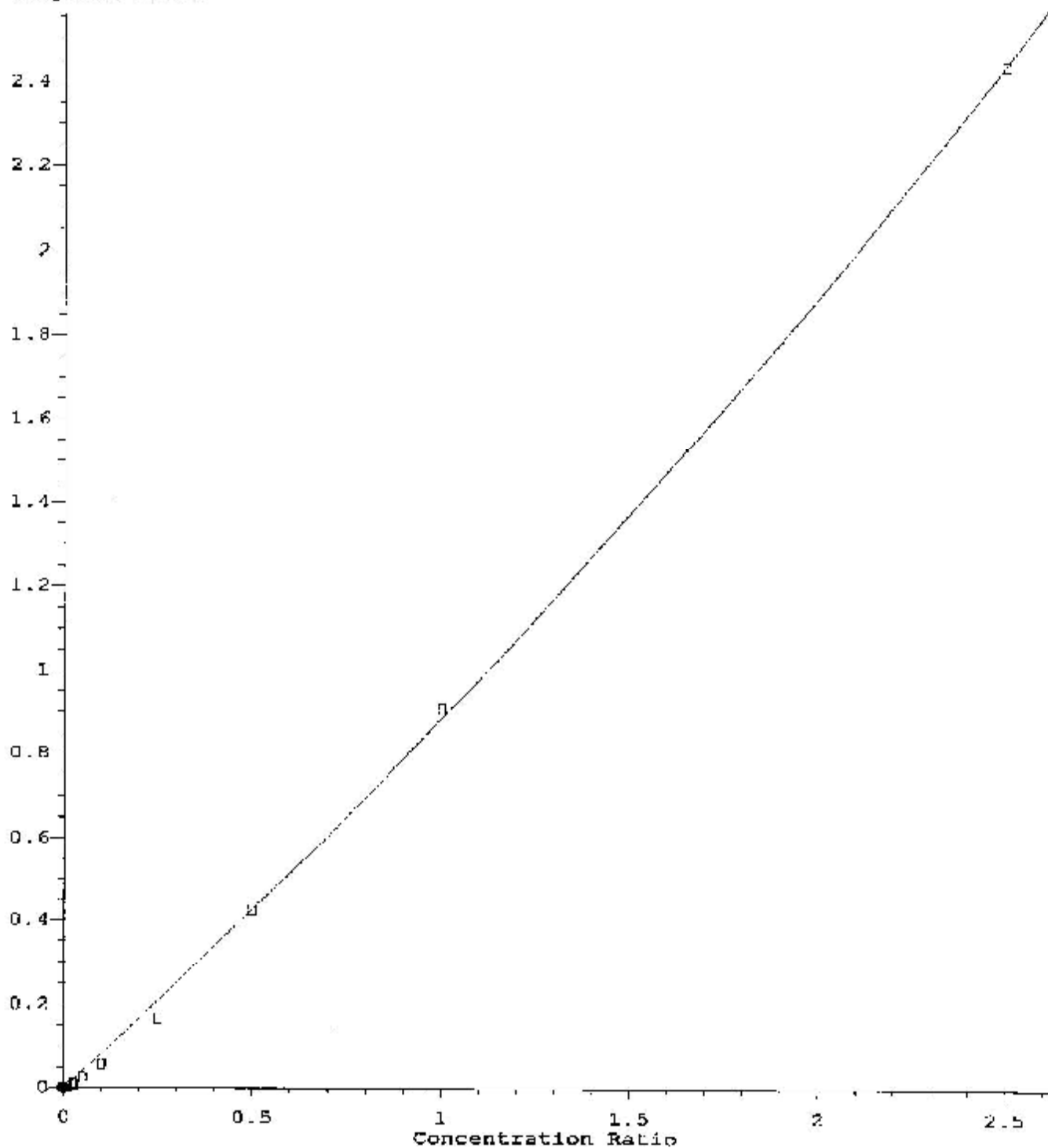
Response Ratio



R = 1.00e-001 A*A + 1.02e+000 A + 0.00e+000
Coef of Det (r^2) = 1.000 Curve Fit: Quad/(0,0)
Method Name: C:\msdchem\1\methods\DEPAH101012PHENOL.M
Calibration Table Last Updated: Thu Oct 11 09:35:38 2012

Dibenz (a,h) anthracene

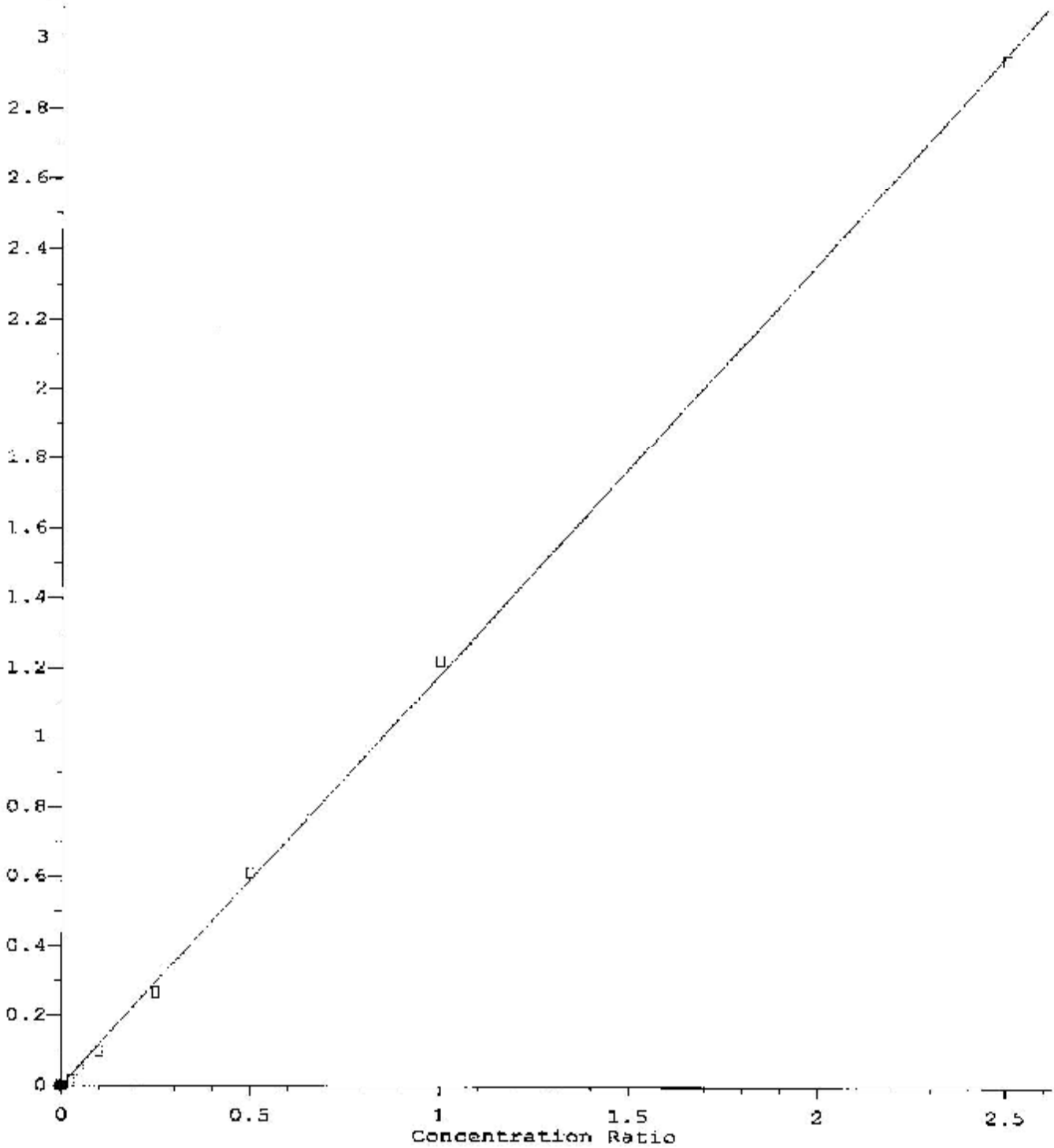
Response Ratio



$R = 6.11e-002 A^2 + 8.23e-001 A + 0.00e+000$
Coef of Det (r²) = 1.000 Curve Fit: Quad/(0,0)
Method Name: C:\msdchem\1\methods\DBPAH101012PHENOL.M
Calibration Table Last Updated: Thu Oct 11 09:35:38 2012

Benzo (g,h,i) perylene

Response Ratio



Response = 1.18e+000 * Amt

Coef of Det. (r^2) = 0.999 Curve Fit: Linear/(0,0)

Method Name: C:\msdchem\1\methods\DEPAH101012PHENOL.M

Calibration Table Last Updated: Thu Oct 11 09:35:38 2012

Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101009.D
 Acq On : 10 Oct 2012 3:42 pm
 Operator :
 Sample : 30 PPB STD
 Misc : CCV O-PAK-S-SIM-LIBBY
 ALS Vial : 101 Sample Multiplier: 1

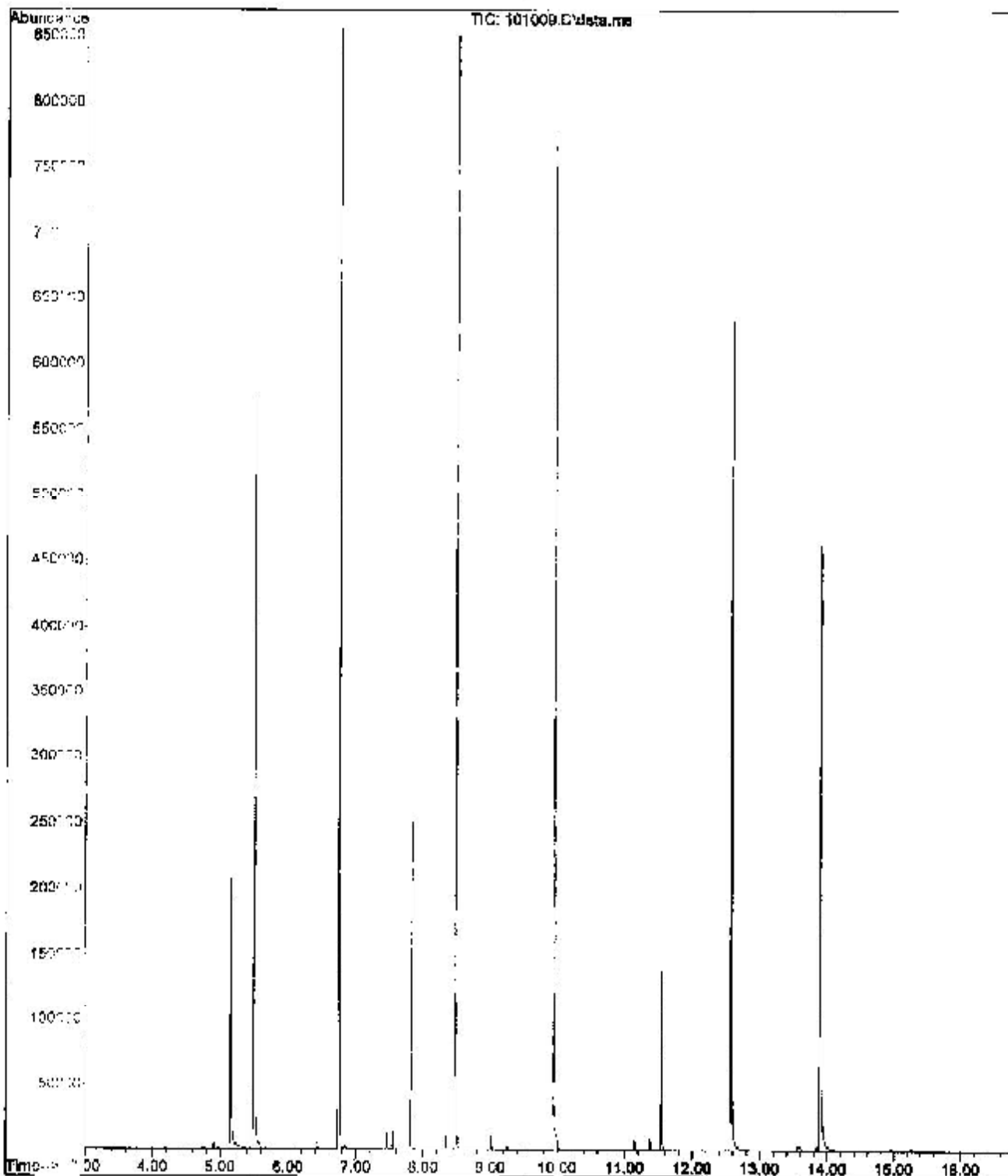
Quant Time: Oct 11 09:18:01 2012
 Quant Method : C:\msdchem\1\methods\BPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	211401	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	680290	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	338652	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	188	547010	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.566	240	493748	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.885	264	457899	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.149	99	155780	971.54	ug/L	0.00
8) 2-Fluorobiphenyl (surx)	7.822	172	149151	496.06	ug/L	0.00
16) Terphenyl-d14 (surx)	11.540	244	100270	501.63	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.430	107	1703m	13.70	ug/L	
5) Naphthalene	6.766	128	9729	22.54	ug/L	100
6) 2-Methylnaphthalene	7.455	142	5421	21.44	ug/L	100
7) 1-Methylnaphthalene	7.550	142	5172	21.59	ug/L	100
9) Acenaphthylene	8.338	152	7063	20.38	ug/L	100
11) Acenaphthene	8.508	152	2661	23.37	ug/L	99
12) Fluorene	9.021	166	5847	22.40	ug/L	97
14) Phenanthrene	9.967	178	8863	23.95	ug/L	100
15) Anthracene	10.020	178	6894	20.35	ug/L	97
17) Fluoranthene	11.145	202	6586	19.76	ug/L	# 94
18) Pyrene	11.368	202	6766	19.42	ug/L	# 85
19) Benzo (a) anthracene	12.559	228	6945	23.77	ug/L	# 100
21) Chrysene	12.592	228	8752m	25.21	ug/L	
22) benzo (b) fluoranthene	13.566	252	2936	11.32	ug/L	# 100
23) benzo (c) fluoranthene	13.579	252	5957	16.17	ug/L	99
24) benzo (a) pyrene	13.635	252	2906	12.19	ug/L	# 52
26) Indeno (1,2,3-cd)pyrene	14.543	276	2867m	14.51	ug/L	
27) Benzo (a,k) anthracene	14.567	276	2052m	14.50	ug/L	
28) Benzo (g,h,i) perylene	15.256	276	3722m	18.27	ug/L	

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

BPAH101012PHENOL.M Thu Oct 11 09:26:33 2012 PAM

File : D:\Data\SVOC\101012-1\101009.D
Operator :
Acquired : 10 Oct 2012 3:42 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 20 PBB STD
Misc Info : COV O-PAH-S-SIM-LTRBY
Vial Number: 101



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101010.F
 Acq On : 10 Oct 2012 4:07 pm
 Operator :
 Sample : 50 PPB STD
 Misc : CCV O-PAH-S-SIM-LIBBY
 ALS Vial : 202 Sample Multiplier: 1

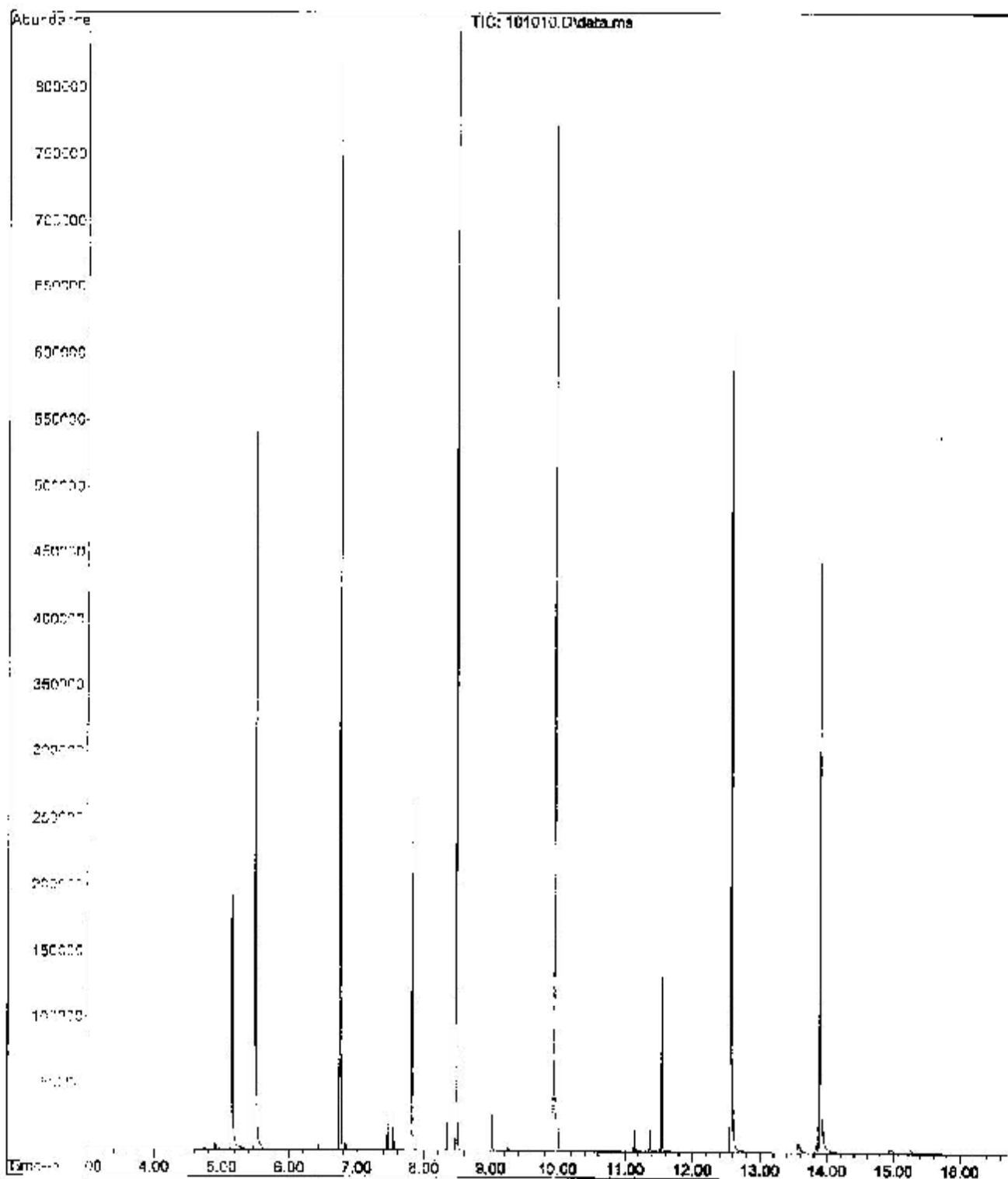
Quant Time: Oct 11 09:27:38 2012
 Quant Method : C:\msdchem\1\methods\BSPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	207698	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	671694	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.477	164	334353	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	188	539399	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.567	240	485545	2000.00	ug/L	0.00
25) Berylene-d12 (IS)	13.887	264	448984	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d5	5.151	99	152536	968.26	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	147260	496.04	ug/L	0.00
16) Biphenyl-d14 (surr)	11.543	244	98107	497.73	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,6-Dimethylphenol	6.429	107	2259m	26.69	ug/L	
5) Naphthalene	6.755	129	18380	44.53	ug/L	100
6) 2-Methylnaphthalene	7.453	142	16586	42.31	ug/L	99
7) 1-Methylnaphthalene	7.550	142	16124	42.81	ug/L	100
9) Acenaphthylene	8.338	152	14465	39.34	ug/L	100
11) Acenaphthene	8.508	152	5037	44.80	ug/L	100
12) Fluorene	9.021	166	11078	42.99	ug/L	96
14) Fluoranthene	9.966	178	16342	44.78	ug/L	99
15) Anthracene	10.019	178	12970	38.83	ug/L	97
17) Fluoranthene	11.046	204	17648	37.88	ug/L	95
18) Pyrene	11.369	204	14954	37.71	ug/L	# 91
19) Benzo (a) anthracene	12.559	228	11679	40.53	ug/L	# 100
21) Chrysene	12.591	228	15304m	44.83	ug/L	
22) Benzo (b) fluoranthene	13.554	252	8388	21.12	ug/L	# 100
23) Benzo (k) fluoranthene	13.580	252	11166	30.65	ug/L	100
24) Benzo (i) pyrene	13.825	252	5148	23.23	ug/L	# 55
26) 1,2,3,6-tetrahydro-1,2,3,6-dioxopyrene	14.943	276	6626m	29.10	ug/L	
27) Benzo (a,h) anthracene	14.964	278	1102m	28.18	ug/L	
28) Benzo (a,h,i) perylene	15.858	276	7216m	36.21	ug/L	

(#) = not filter out of range (m) = manual integration (+) = signals summed

BSPAH101012.PHENOL.M Thu Oct 11 09:27:40 2012 PAH

File : D:\Data\SVOC\101012-1\101010.D
Operator :
Acquired : 10 Oct 2012 4:07 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 50 PFB STD
Misc Info : CCV O-PAH-S-SIM-LIBBY
Vial Number: 102



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101011.D
 Acq On : 10 Oct 2012 4:33 pm
 Operator :
 Sample : 100 PPB STD
 Misc : CCV O-PAH-S-SIM LIBBY
 ALS Vial : 103 Sample Multiplier: 1

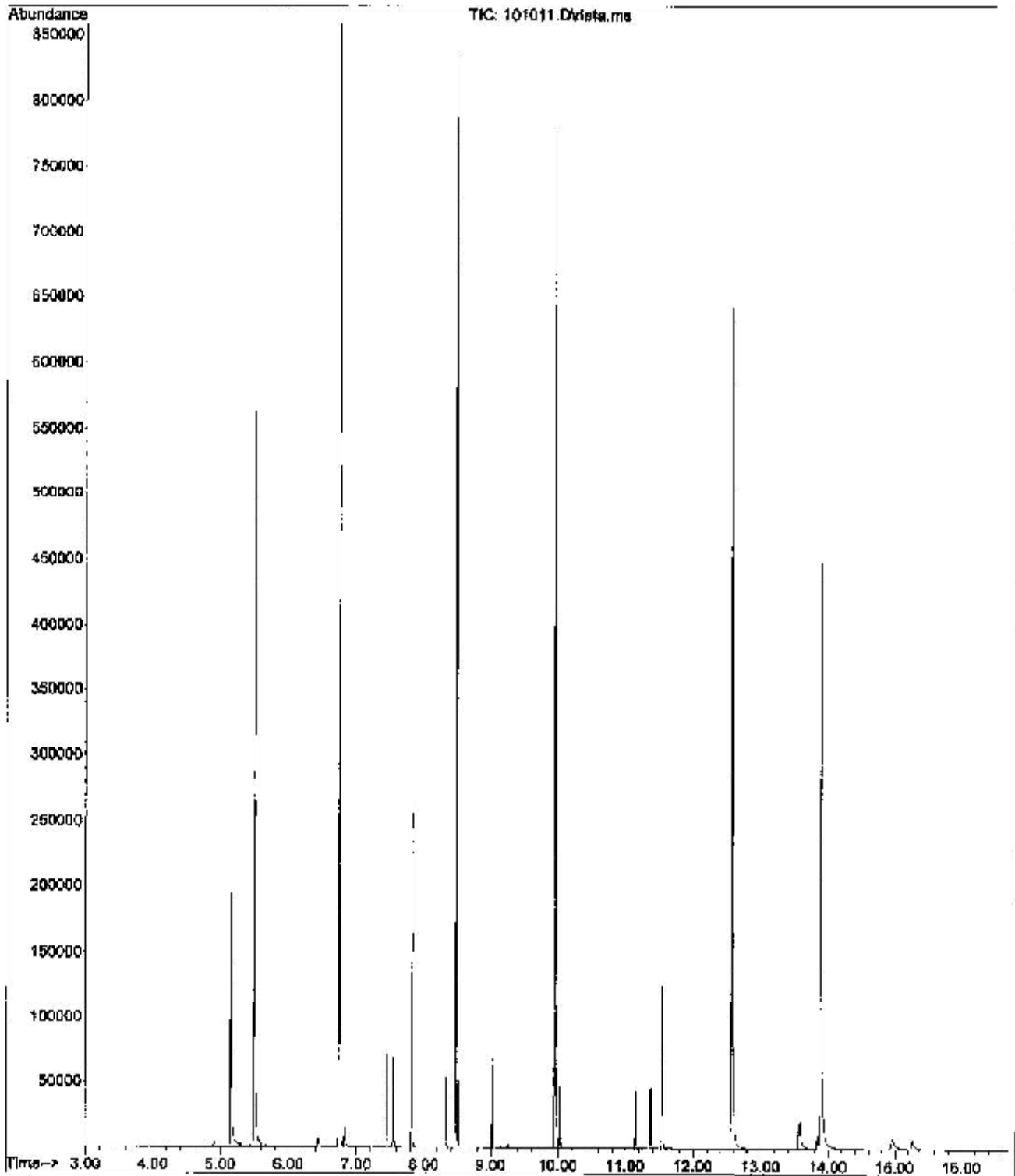
Quant Time: Oct 11 09:33:31 2012
 Quant Method : C:\msdchem\1\methods\BPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	207528	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	669585	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	334923	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	188	535335	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.568	240	483570	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	453972	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.149	99	153322	974.05	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	147736	499.21	ug/L	0.00
16) Terphenyl-d14 (surr)	11.542	244	96744	494.54	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.428	107	9134m	74.86	ug/L	
5) Naphthalene	6.766	128	45722	107.61	ug/L	100
6) 2-Methylnaphthalene	7.453	142	25990	104.41	ug/L	98
7) 1-Methylnaphthalene	7.548	142	24845	105.38	ug/L	99
9) Acenaphthylene	8.338	152	34254	100.40	ug/L	100
11) Acenaphthene	8.508	152	12144	107.84	ug/L	100
12) Fluorene	9.021	166	27298	105.76	ug/L	96
14) Phenanthrene	9.969	178	38933	107.48	ug/L	99
15) Anthracene	10.020	178	32553	98.20	ug/L	97
17) Fluoranthene	11.148	202	31709	97.22	ug/L	95
18) Pyrene	11.370	202	33247	97.51	ug/L	# 93
19) Benzo (a) anthracene	12.561	228	26561	92.88	ug/L	# 100
21) Chrysene	12.593	228	37318m	109.77	ug/L	
22) benzo (b) fluoranthene	13.557	252	13955	54.93	ug/L	# 100
23) benzo (k) fluoranthene	13.580	252	31708	87.86	ug/L	100
24) benzo (a) pyrene	13.837	252	15319	65.42	ug/L	# 72
26) Indeno(1,2,3-cd)pyrene	14.945	276	15625m	79.78	ug/L	
27) Dibenzo (a,h) anthracene	14.967	278	11260m	80.26	ug/L	
28) Benzo (g,h,i) perylene	15.257	276	28045m	99.27	ug/L	

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

DBPAH101012PHENOL.M Thu Oct 11 09:33:36 2012 PAH

File :D:\Data\SVOC\101012-1\101011.D
Operator :
Acquired : 10 Oct 2012 4:33 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 100 PPB STD
Misc Info : CCV C-PAH-S-SIM-LIBBY
Vial Number: 103



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101012.D
 Acq On : 10 Oct 2012 4:58 pm
 Operator :
 Sample : 200 PBB STD
 Misc : CCV O-PAH-S-SIM-LIBBY
 ALS Vial : 104 Sample Multiplier: 1

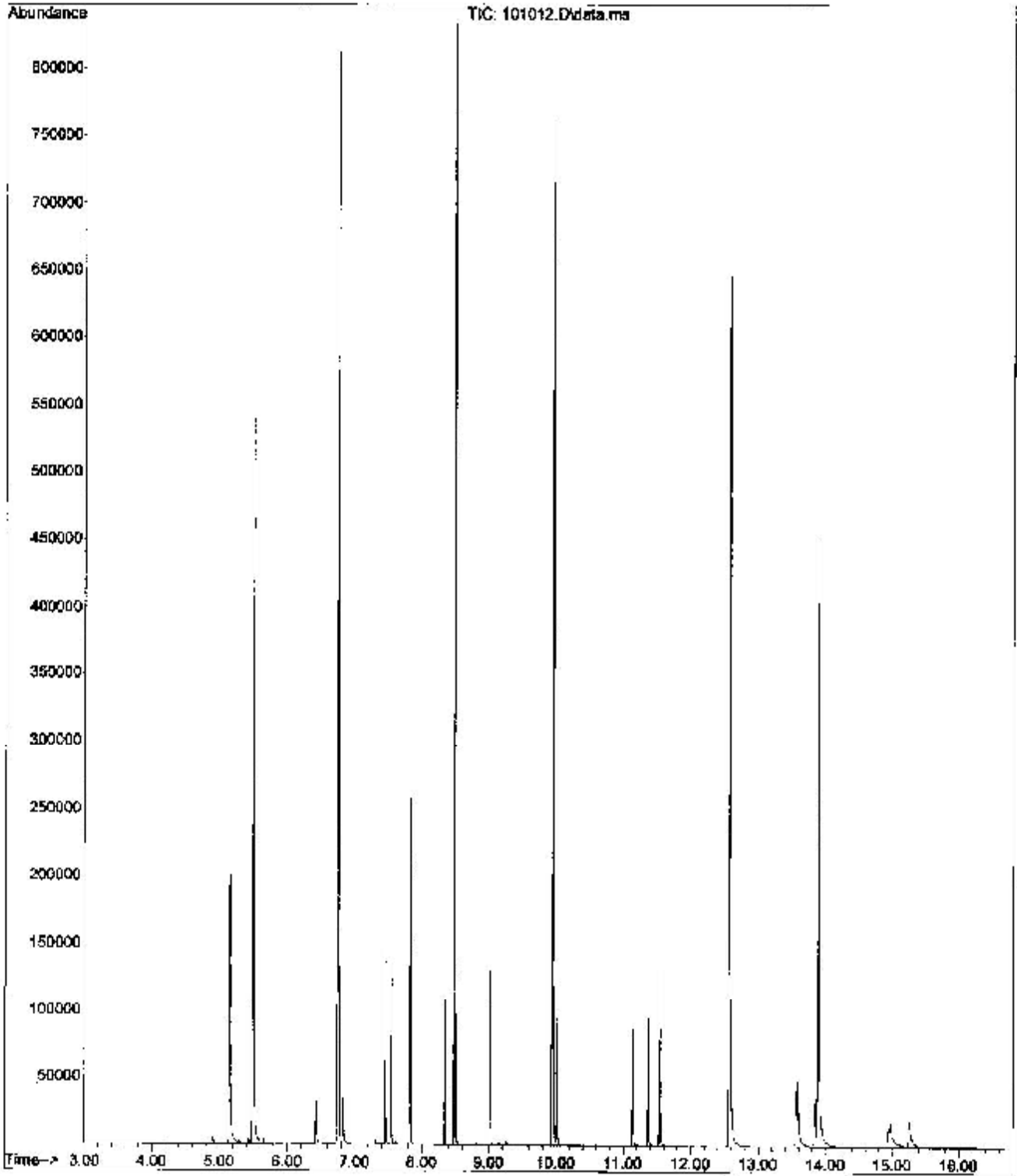
Quant Time: Oct 11 09:23:34 2012
 Quant Method : C:\msdchem\1\methods\DBPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	206282	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	666962	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	333890	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.944	188	535442	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.568	240	489283	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	461276	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.149	99	153734	982.57	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.821	172	148032	502.17	ug/L	0.00
16) Terphenyl-d14 (surr)	11.540	244	97477	498.19	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.427	107	19118m	157.63	ug/L	
5) Naphthalene	6.766	128	88440	208.97	ug/L	100
6) 2-Methylnaphthalene	7.453	142	51282	206.83	ug/L	98
7) 1-Methylnaphthalene	7.550	142	48610	207.00	ug/L	97
9) Acenaphthylene	8.337	152	69663	204.98	ug/L	100
11) Acenaphthene	8.508	152	23423	208.64	ug/L	99
12) Fluorene	9.021	166	54022	209.94	ug/L	97
14) Phenanthrene	9.968	178	76739	211.81	ug/L	100
15) Anthracene	10.019	178	66316	200.01	ug/L	98
17) Fluoranthene	11.147	202	65506	200.80	ug/L	95
18) Pyrene	11.369	202	69105	202.65	ug/L	93
19) Benzo (a) anthracene	12.559	228	54179	189.41	ug/L	# 100
21) Chrysene	12.693	228	71006	206.42	ug/L	93
22) benzo (b) fluoranthene	13.557	252	33689	131.05	ug/L	# 100
23) benzo (k) fluoranthene	13.580	252	74195m	203.20	ug/L	
24) benzo (a) pyrene	13.837	252	35842	150.50	ug/L	# 81
26) Indeno(1,2,3-cd)pyrene	14.946	276	36383m	182.83	ug/L	
27) Dibenz (a,h) anthracene	14.970	278	26113m	183.19	ug/L	
28) Benzo (g,h,i) perylene	15.258	276	45665m	222.56	ug/L	

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

DBPAH101012PHENOL.M Thu Oct 11 09:34:11 2012 PAH

File : D:\Data\SVOC\101012-2\101012.D
Operator :
Acquired : 10 Oct 2012 4:58 pm using AcqMethod DBPAR101012PHENOL.M
Instrument : HP-MSD
Sample Name: 200 PFB STD
Misc Info : CCV O-PAH-S-SIM-LIBBY
Vial Number: 104



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101013.D
 Acq On : 10 Oct 2012 5:23 pm
 Operator :
 Sample : 500 PPB STD
 Misc : CCV O-PAH-S-SIM-LIBBY
 ALS Vial : 105 Sample Multiplier: 1

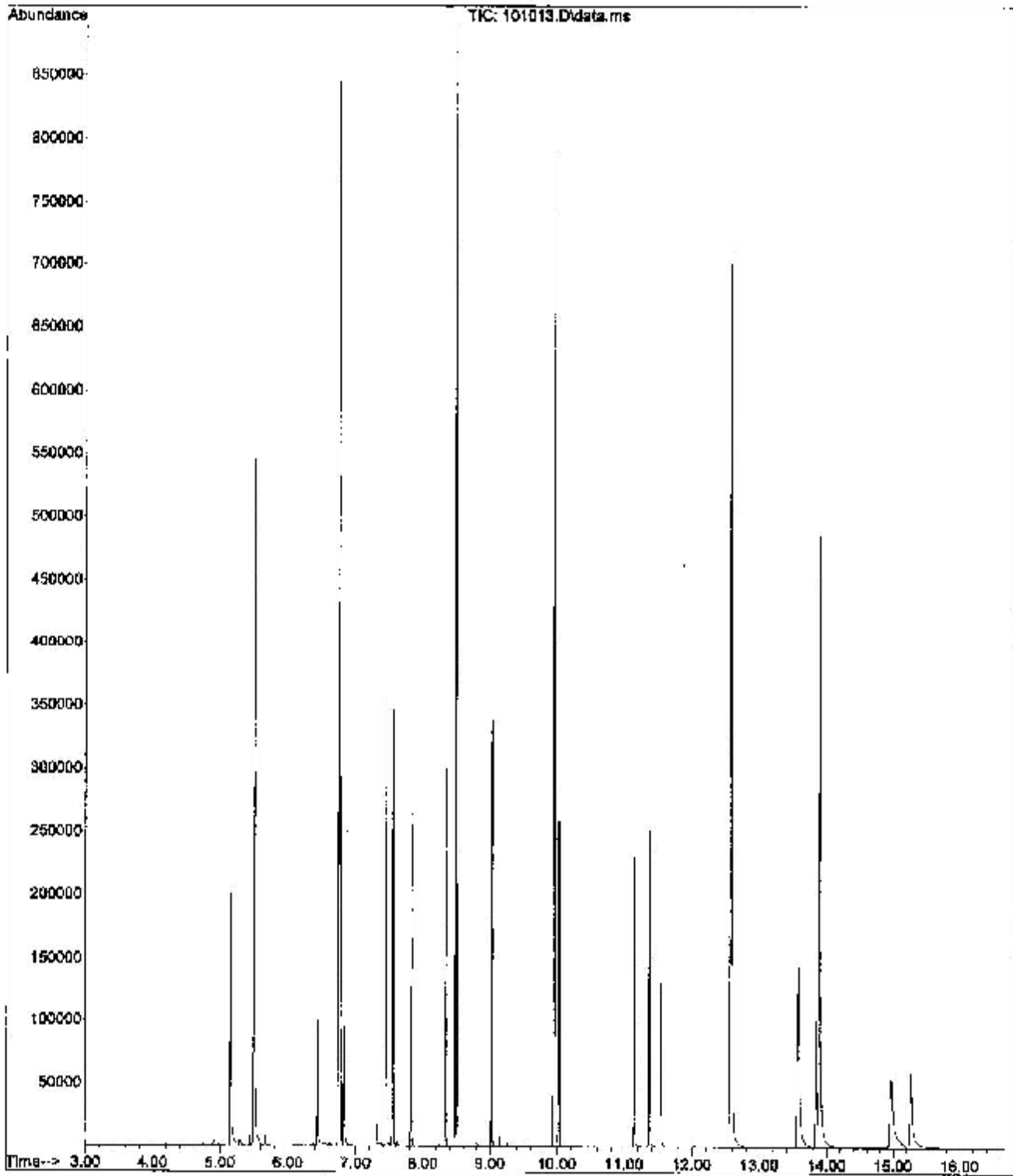
Quant Time: Oct 11 09:24:12 2012
 Quant Method : C:\msdchem\1\methods\DBPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.497	152	205479	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	662568	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.480	164	337875	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	188	540131	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.568	240	503799	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	476708	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.180	99	155773	999.49	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.821	172	150159	508.17	ug/L	0.00
16) Terphenyl-d14 (surr)	11.540	244	99538	504.31	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.427	107	52531m	434.81	ug/L	
5) Naphthalene	6.767	128	210515	496.23	ug/L	100
6) 2-Methylnaphthalene	7.453	142	125413	504.60	ug/L	98
7) 1-Methylnaphthalene	7.548	142	118399	502.97	ug/L	97
9) Acenaphthylene	8.338	152	176929	519.35	ug/L	100
11) Acenaphthene	8.509	152	56451	496.90	ug/L	99
12) Fluorene	9.022	166	132700	509.61	ug/L	97
14) Phenanthrene	9.969	178	184698	505.37	ug/L	100
15) Anthracene	10.019	178	169453	506.64	ug/L	98
17) Fluoranthene	11.146	202	171838	522.16	ug/L	95
18) Pyrene	11.368	202	181345	527.17	ug/L	94
19) Benzo (a) anthracene	12.559	228	140369	486.48	ug/L	# 100
21) Chrysene	12.593	228	176026	496.99	ug/L	95
22) benzo (b) fluoranthene	13.557	252	97963	370.10	ug/L	# 100
23) benzo (k) fluoranthene	13.582	252	193472	514.59	ug/L	99
24) benzo (a) pyrene	13.837	252	108083	433.23	ug/L	# 89
26) Indeno(1,2,3-cd)pyrene	14.950	276	107596m	523.18	ug/L	
27) Dibenz (a,h) anthracene	14.972	278	80111m	543.82	ug/L	
28) Benzo (g,h,i) perylene	15.259	276	127001m	598.94	ug/L	

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

DBPAH101012PHENOL.M Thu Oct 11 09:34:21 2012 PAH

File : D:\Data\SVOC\101012-1\101013.D
Operator :
Acquired : 10 Oct 2012 5:23 pm using AcqMethod DBFAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 500 PPB STD
Misc Info : CCV O-PAH-S-SIM-LIBBY
Vial Number: 105



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101014.C
 Acq On : 10 Oct 2012 5:48 pm
 Operator :
 Sample : 1000 PPB STD
 Misc : CCV O-PAH-S-SIM-LIBBY
 ALS Vial : 106 Sample Multiplier: 1

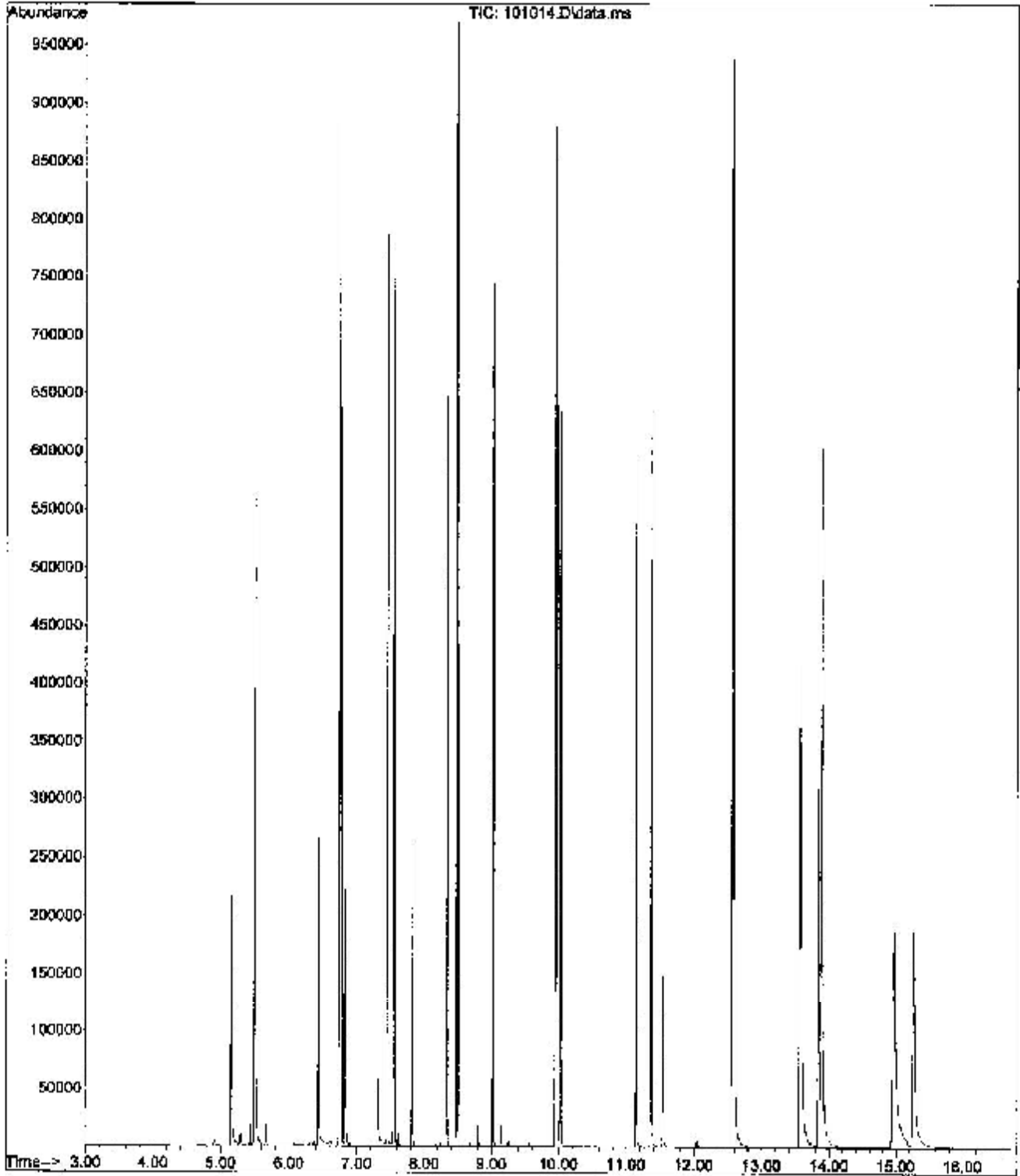
Quant Time: Oct 11 09:24:49 2012
 Quant Method : C:\msdchem\1\methods\DEPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	211091	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	703989	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.480	164	370642	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	180	614915	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.569	240	586943	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.889	264	569732	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.151	99	160048	999.62	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	150191	482.70	ug/L	0.00
16) Terphenyl-d14 (surr)	11.542	244	112537	500.83	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.427	107	124230	1000.93	ug/L	99
5) Naphthalene	6.766	128	457822	1024.89	ug/L	100
6) 2-Methylnaphthalene	7.453	142	281274	1074.77	ug/L	98
7) 1-Methylnaphthalene	7.548	142	262852	1060.43	ug/L	97
9) Acenaphthylene	8.339	152	404284	1127.02	ug/L	100
11) Acenaphthene	8.508	152	125725	1008.83	ug/L	99
12) Fluorene	9.021	166	299270	1047.68	ug/L	96
14) Phenanthrene	9.989	178	415711	999.13	ug/L	100
15) Anthracene	10.020	178	407576	1070.40	ug/L	98
17) Fluoranthene	11.146	202	411099	1177.36	ug/L	95
18) Pyrene	11.369	202	458851	1171.65	ug/L	94
19) Benzo (a) anthracene	12.560	228	363248	1105.82	ug/L	# 100
21) Chrysene	12.595	228	427345	1035.64	ug/L	97
22) benzo (b) fluoranthene	13.558	252	289328	938.23	ug/L	# 100
23) benzo (k) fluoranthene	13.583	252	470685	1074.58	ug/L	100
24) benzo (a) pyrene	13.839	252	310058	1030.12	ug/L	95
26) Indeno(1,2,3-cd)pyrene	14.950	276	308189m	1253.91	ug/L	
27) Dibenz (a,h) anthracene	14.972	278	242693m	1378.50	ug/L	
28) Benzo (g,h,i) perylene	15.261	276	347803m	1372.47	ug/L	

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

DEPAH101012PHENOL.M Thu Oct 11 09:34:34 2012 PAH

File : D:\Data\SVOC\101012-1\101014.D
Operator :
Acquired : 10 Oct 2012 5:48 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 1000 PPA STD
Misc Info : CCV C-PAH-S-SIM-LIBBY
Vial Number: 106



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101015.D
 Acq On : 10 Oct 2012 6:13 pm
 Operator :
 Sample : 2000 PFB STD
 Misc : CCV O-PAH-S-SIM-LIBBY
 ALS Vial : 107 Sample Multiplier: 1

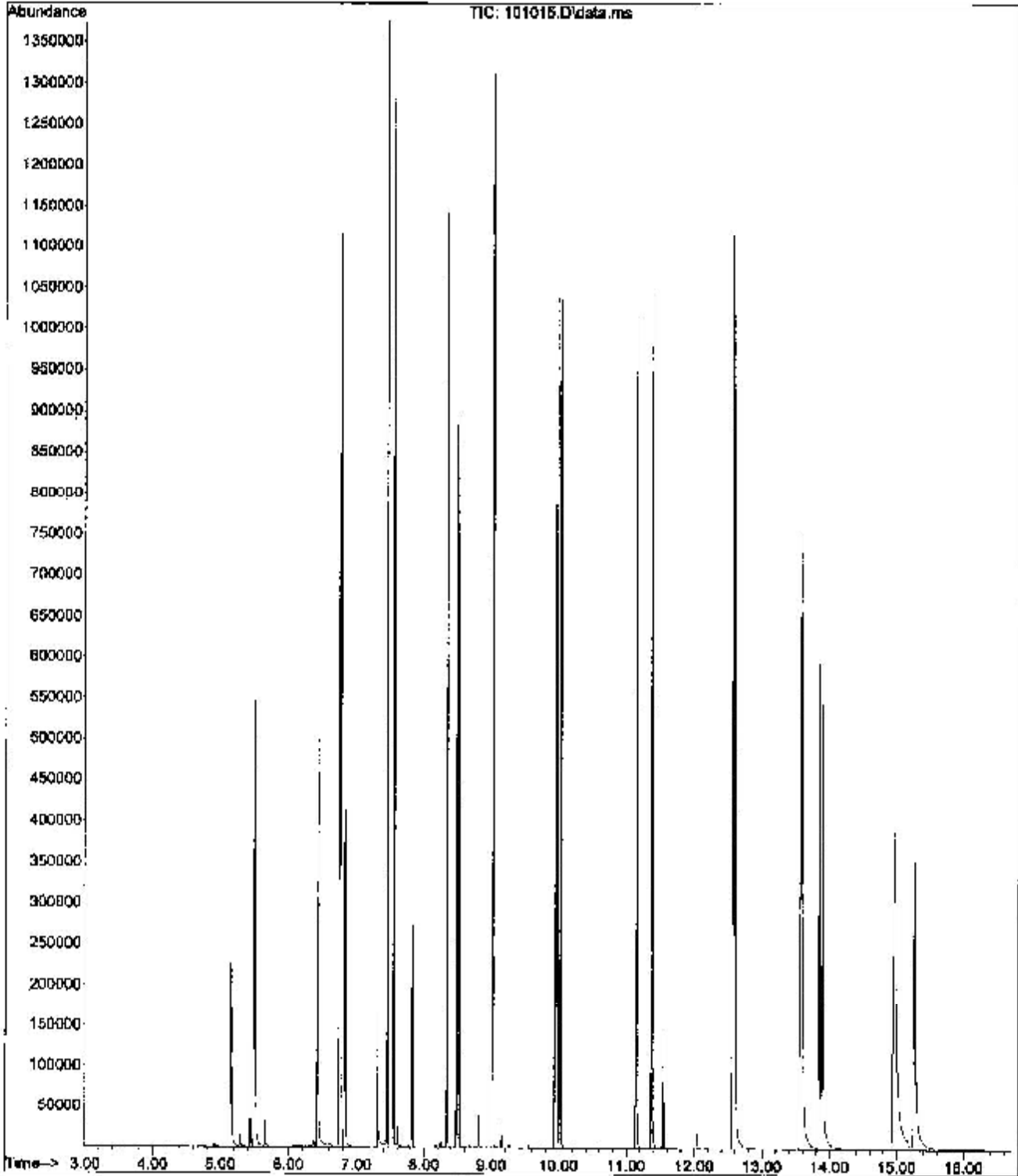
Quant Time: Oct 11 09:25:23 2012
 Quant Method : C:\msdchem\1\methods\DEPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	205990	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	675617	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.480	164	345445	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.946	188	547812	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.569	240	523147	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	509423	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.151	99	163666	1047.53	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	151229	506.45	ug/L	0.00
16) Terphenyl-d14 (surr)	11.540	244	103436	516.90	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.427	107	237390	1960.03	ug/L	99
5) Naphthalene	6.766	128	816382	1904.32	ug/L	100
6) 2-Methylnaphthalene	7.453	142	496539	1976.98	ug/L	98
7) 1-Methylnaphthalene	7.550	142	463482	1948.35	ug/L	97
9) Acenaphthylene	8.339	152	710594	2064.10	ug/L	100
11) Acenaphthene	8.511	152	217752	1874.71	ug/L	99
12) Fluorene	9.021	166	512109	1923.55	ug/L	97
14) Phenanthrene	9.970	178	704600	1901.59	ug/L	100
15) Anthracene	10.020	178	699103	2061.68	ug/L	98
17) Fluoranthene	11.148	202	724462	2171.35	ug/L	95
18) Pyrene	11.370	202	759797	2178.54	ug/L	94
19) Benzo (a) anthracene	12.561	228	624212	2133.80	ug/L	# 100
21) Chrysene	12.593	228	718133	1956.30	ug/L	98
23) benzo (b) fluoranthene	13.559	252	525321	1914.89	ug/L	# 100
23) benzo (k) fluoranthene	13.583	252	813771	2088.40	ug/L	100
24) benzo (a) pyrene	13.840	252	569097	2011.28	ug/L	97
26) Indeno(1,2,3-cd)pyrene	14.950	276	577262m	2626.67	ug/L	
27) Dibenz (a,h) anthracene	14.972	276	461582m	2932.13	ug/L	
28) Benzo (g,h,i) perylene	15.262	276	622319m	2746.42	ug/L	

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

DEPAH101012PHENOL.M Thu Oct 11 09:34:45 2012 PAH

File :D:\Data\SVOC\101012-1\101015.D
Operator :
Acquired : 10 Oct 2012 6:13 pm using AcqMethod DBPAH101012PHENCL.M
Instrument : HP-MSD
Sample Name: 2000 PPS STD
Misc Info : CCV O-PAH-S-SIM-LIBY
Vial Number: 107



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101016.D
 Acq On : 10 Oct 2012 6:44 pm
 Operator :
 Sample : 5000 PPB STD
 Misc : CCV Q-PAH-S-SIM-LIBBY
 ALS Vial : 108 Sample Multiplier: 1

Quant Time: Oct 11 09:25:45 2012
 Quant Method : C:\msdchem\1\methods\DEPAK101012PHEKOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

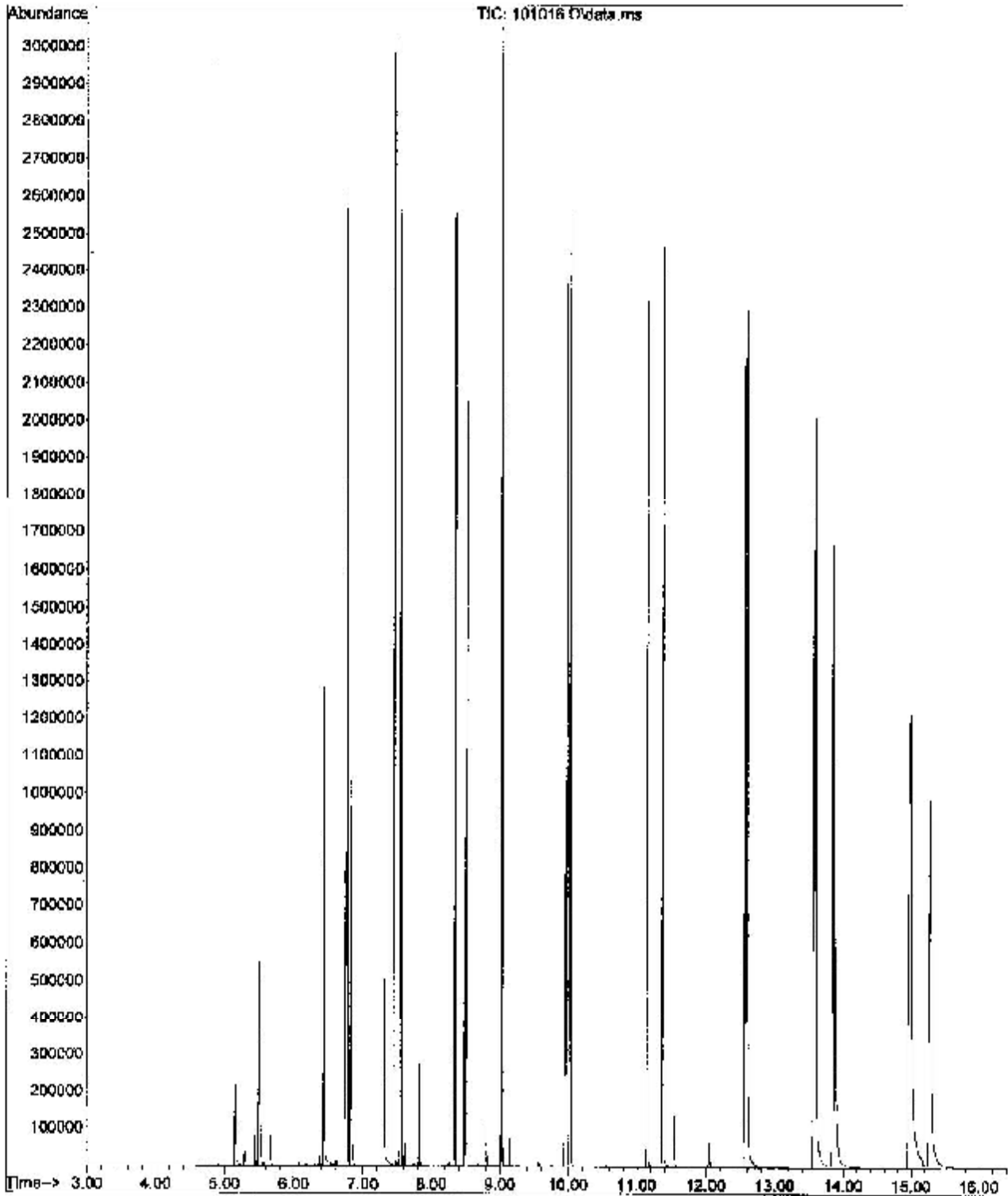
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.498	152	202347	2000.00	ug/L	# 0.00
4) Naphthalene-d8 (IS)	6.747	136	672107	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.482	164	349377	2000.00	ug/L	0.00
13) Phenanthrene d10 (IS)	9.946	198	550390	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.574	240	523717	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.892	264	532571	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.152	99	164052	1068.90	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	151033	509.43	ug/L	0.00
16) Terphenyl-d14 (surr)	11.543	244	104750	520.82	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.428	107	598900	5033.89	ug/L	100
5) Naphthalene	6.769	128	1898470	4451.56	ug/L	100
6) 2-Methylnaphthalene	7.455	142	1161315	4647.95	ug/L	98
7) 1-Methylnaphthalene	7.550	142	1095037	4627.28	ug/L	98
9) Acenaphthylene	8.342	152	1654597	4831.31	ug/L	99
11) Acenaphthene	8.513	152	512401	4374.34	ug/L	98
12) Fluorene	9.024	168	1188198	4425.46	ug/L	97
14) Phenanthrene	9.972	178	1640221	4404.33	ug/L	99
15) Anthracene	10.024	178	1678810	4925.87	ug/L	97
17) Fluoranthene	11.152	202	1738089	5183.08	ug/L	94
18) Pyrene	11.374	202	1816076	5180.90	ug/L	# 93
19) Benzo (a) anthracene	12.564	228	1533115	5214.34	ug/L	# 100
21) Chrysene	12.598	228	1705635	4632.48	ug/L	95
22) benzo (b) fluoranthene	13.564	252	1392203	5059.63	ug/L	# 100
23) benzo (k) fluoranthene	13.590	252	1932745	4945.17	ug/L	99
24) benzo (a) pyrene	13.844	252	1649238	4995.52	ug/L	97
26) Indeno(1,2,3-cd)pyrene	14.960	276	1688497	7349.09	ug/L	94
27) Dibenz (a,h) anthracene	14.981	278	1297291	7882.65	ug/L	96
28) Benzo (g,h,i) perylene	15.276	276	1563907	6601.85	ug/L	96

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

DEPAK101012PHEKOL.M Thu Oct 11 09:34:55 2012 PAH

File : D:\Data\SVOC\101012-1\101016.D
Operator :
Acquired : 10 Oct 2012 6:44 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 5000 EPB STD
Misc Info : CCV G-PAH-S-SIM-LIBRY
Vial Number: 108



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101017.D
 Acq On : 10 Oct 2012 7:10 pm
 Operator :
 Sample : ICV-
 Misc : ICV O-PAH-S-SIM-LIBBY
 ALS Vial : 109 Sample Multiplier: 1

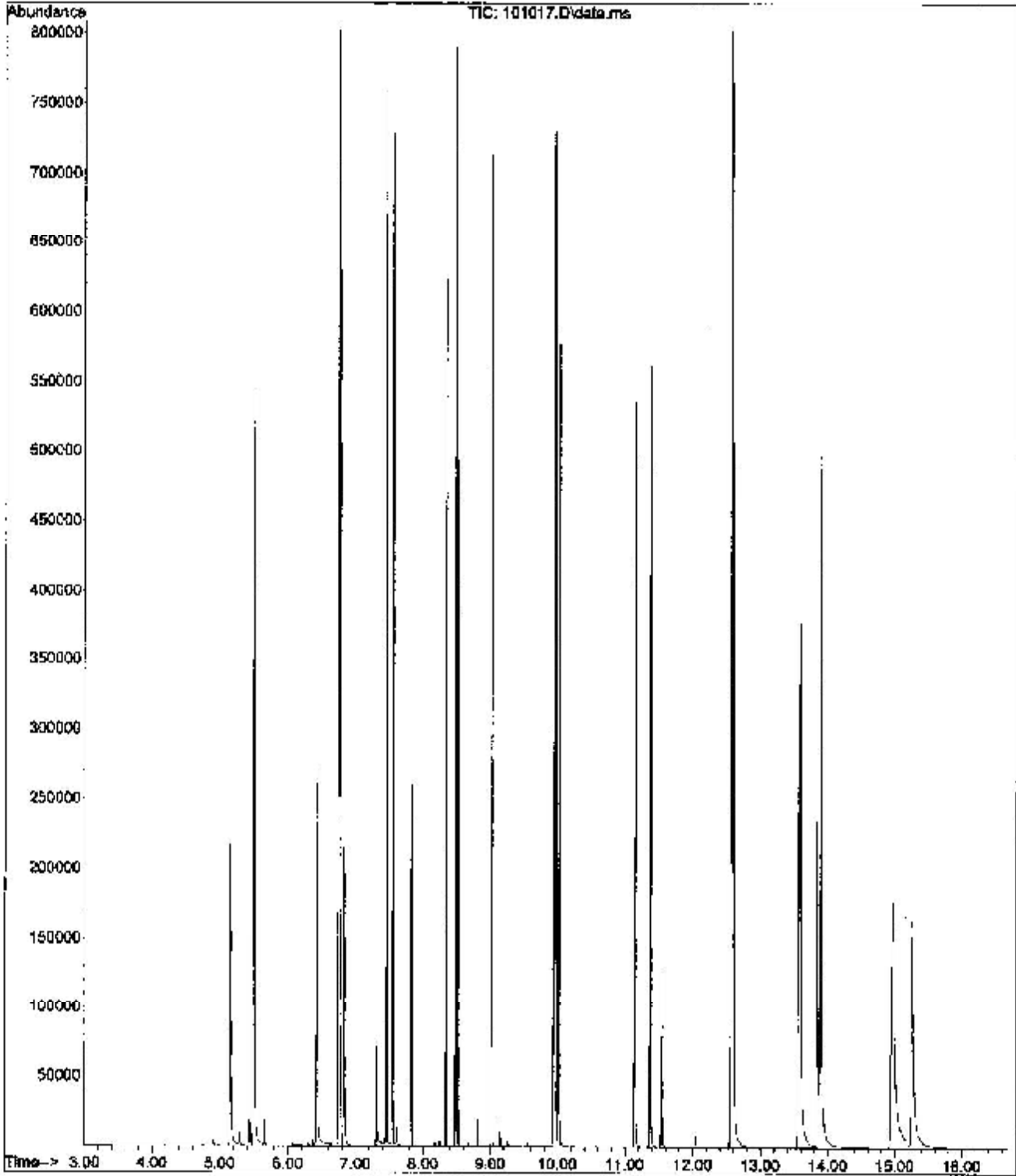
Quant Time: Oct 11 09:37:35 2012
 Quant Method : C:\msdchem\1\methods\DEPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.498	152	197741	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	642102	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.480	164	326003	2000.00	ug/L	0.00
13) Phenanthrene d10 (IS)	9.945	180	518454	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.569	240	493899	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	472138	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.151	99	158283	1053.76	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.821	172	143292	505.01	ug/L	0.00
16) Terphenyl-d14 (surr)	11.540	244	96843	506.74	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.426	107	126308	1084.75	ug/L	99
5) Naphthalene	6.766	128	450667	1106.23	ug/L	100
6) 2-Methylnaphthalene	7.453	142	273185	1144.70	ug/L	98
7) 1-Methylnaphthalene	7.550	142	256104	1134.13	ug/L	97
9) Acenaphthylene	8.338	152	389615	1191.03	ug/L	100
11) Acenaphthene	8.508	152	120464	1098.84	ug/L	98
12) Fluorene	9.021	166	284009	1130.26	ug/L	97
14) Phenanthrene	9.969	178	392404	1109.13	ug/L	100
15) Anthracene	10.020	178	377675	1194.93	ug/L	98
17) Fluoranthene	11.146	202	387257	1215.97	ug/L	94
18) Pyrene	11.368	202	408900	1228.38	ug/L	94
19) Benzo (a) anthracene	12.559	228	328403	1176.43	ug/L	# 100
21) Chrysene	12.593	228	392651	1100.37	ug/L	95
22) benzo (b) fluoranthene	13.557	252	258780	997.87	ug/L	# 100
23) benzo (k) fluoranthene	13.580	252	432230	1173.34	ug/L	100
24) benzo (a) pyrene	13.837	252	286716	1126.46	ug/L	95
26) Indeno(1,2,3-cd)pyrene	14.950	276	300569	1181.53	ug/L	95
27) Dibenz (a,h) anthracene	14.969	278	218594	1081.87	ug/L	96
28) Benzo (g,h,i) perylene	15.258	276	298015	1068.88	ug/L	96

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

DEPAH101012PHENOL.M Thu Oct 11 09:37:35 2012 PAH

File :D:\Data\SVOC\101012-1\101017.D
Operator :
Acquired : 10 Oct 2012 7:10 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: ICV-
Misc Info : ICV O-PAH-S-SIM-LIBBY
Vial Number: 109



Quantitation Report (Not Reviewed)

Data Path : O:\Data\SVOC\101012-1\
 Data File : 101018.D
 Acq On : 10 Oct 2012 7:35 pm
 Operator :
 Sample : ICB-
 Misc : ICE O-PAH-S-SIM-LIBBY
 ALS Vial : 110 Sample Multiplier: 1

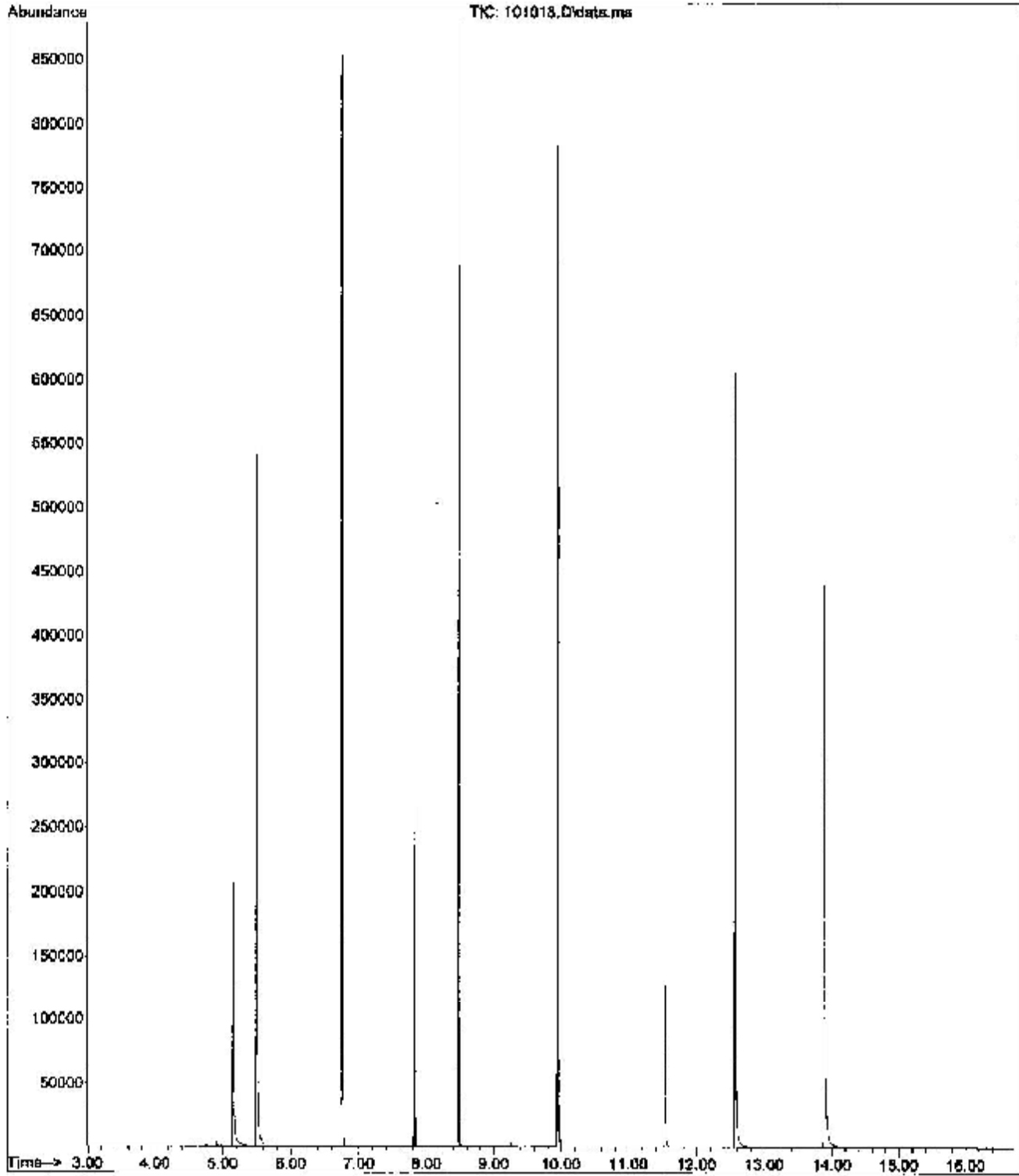
Quant Time: Oct 11 09:37:28 2012
 Quant. Method : C:\msdchem\1\methods\DEPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	208723	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	672101	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	335186	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.944	188	942903	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.567	240	483323	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.885	264	445839	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.149	99	157991	996.48	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	147351	496.14	ug/L	0.00
16) Terphenyl-d14 (surr)	11.539	244	96921	484.31	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.441	107	89			N.D.
5) Naphthalene	6.769	128	32			N.D.
6) 2-Methylnaphthalene	7.458	142	5			N.D.
7) 1-Methylnaphthalene	7.550	142	9			N.D.
9) Acenaphthylene	8.338	152	8			N.D.
11) Acenaphthene	8.511	152	13			N.D.
12) Fluorene	9.023	166	33			N.D.
14) Phenanthrene	9.968	178	94			N.D.
15) Anthracene	10.020	178	59			N.D.
17) Fluoranthene	11.150	202	54			N.D.
18) Pyrene	11.372	202	65			N.D.
19) Benzo (a) anthracene	12.566	228	1235			N.D.
21) Chrysene	12.566	228	888			N.D.
22) benzo (b) fluoranthene	13.556	252	35			N.D.
23) benzo (k) fluoranthene	13.584	252	122			N.D.
24) benzo (a) pyrene	13.835	252	68			N.D.
26) Indeno(1,2,3-cd)pyrene	14.943	276	34			N.D.
27) Dibenz (a,h) anthracene	14.960	278	7			N.D.
28) Benzo (g,h,i) perylene	15.250	276	3			N.D.

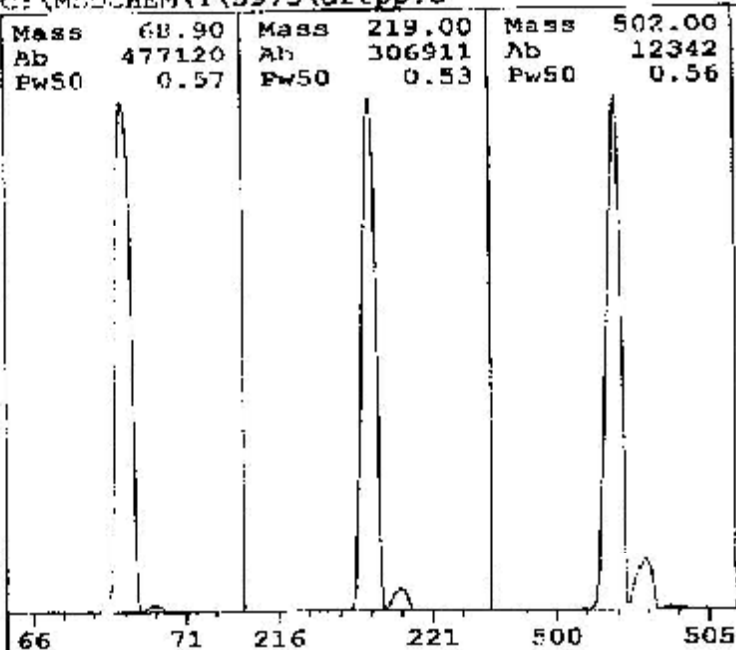
(#) = qualifier out of range (m) = manual integration (+) = signals summed

DEPAH101012PHENOL.M Thu Oct 11 09:37:56 2012 EAH

File : D:\Data\SVOC\101012-1\101018.D
Operator :
Acquired : 10 Oct 2012 7:35 pm using AcqMethod DBPAR101012PHENOL.M
Instrument : HP-MSD
Sample Name: ICS-
Misc Info : ICB O-PAR-S-STM-LIBRY
Vial Number: 110



Thu Oct 11 09:26:24 2012
C:\MSDCHEM\1\5975\dftpp.u



Mass 68.90 Mass 219.00 Mass 502.00
Ab 477120 Ab 306911 Ab 12342
Pw50 0.57 Pw50 0.53 Pw50 0.56

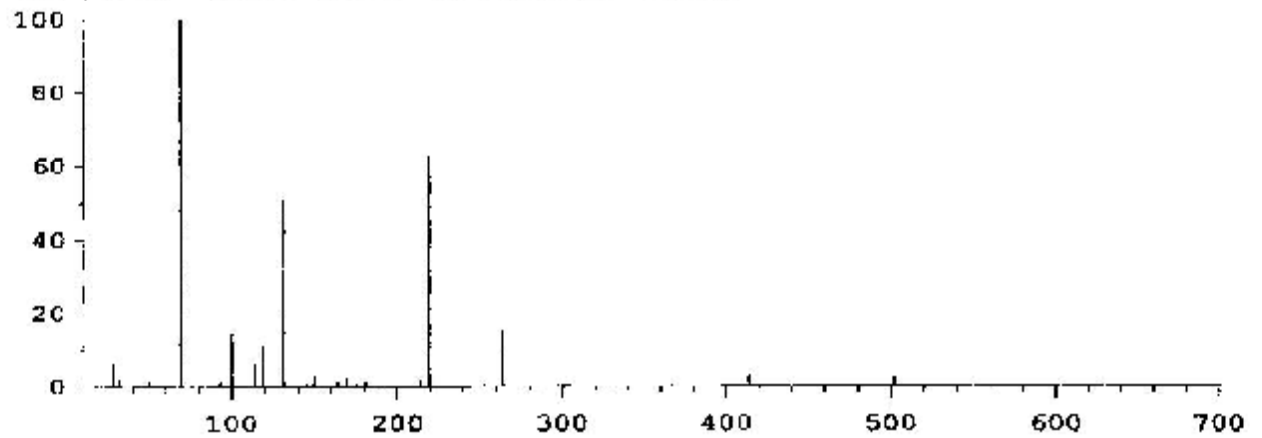
Ion Pol Pos MassGain -620
 MassOffs -40
Emission 34.6 AmuGain 2043
EIEnergy 69.9 AmuOffs 124.50
Filament 1 Wid219 -0.025
 DC Pol Pos

Repeller 20.41
IonFocus 66.4 HEDENab On
EntLens 0.0 EMVolts 1899
EntOffs Var

 Samples 8
PFTBA Open Averages 3
 Stepsize 0.10

Temperatures and Pressures:
MS Source 230 TurboSpd 100
MS Quad 150 HiVac 1.44e05

Scan: 10.00 - 701.00 Samples: 8 Thresh: 100 Step: 0.10
114 Peaks Base: 69.00 Abundance: 455488



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	455488	100.00	70.00	5054	1.11
219.00	283264	62.19	220.00	12252	4.33
502.00	11050	2.43	503.00	1163	10.52

Air/Water Check: H2O-0.56% N2-6.00% O2-1.93% CO2-0.18% N2/H2O-1063.45%

Column(1) Flow: 1.58 Column(2): -1.79769e+308 ml/min. Interface Temp: -

Ramp Criteria:

Ion Focus Maximum 90 volts using ion 502; EM Gain 123531
Repeller Maximum 35 volts using ion 502; Gain Factor 1.24

MassGain Values(Samples): -604(3) -599(2) -577(1) -529(0) -442(PS)

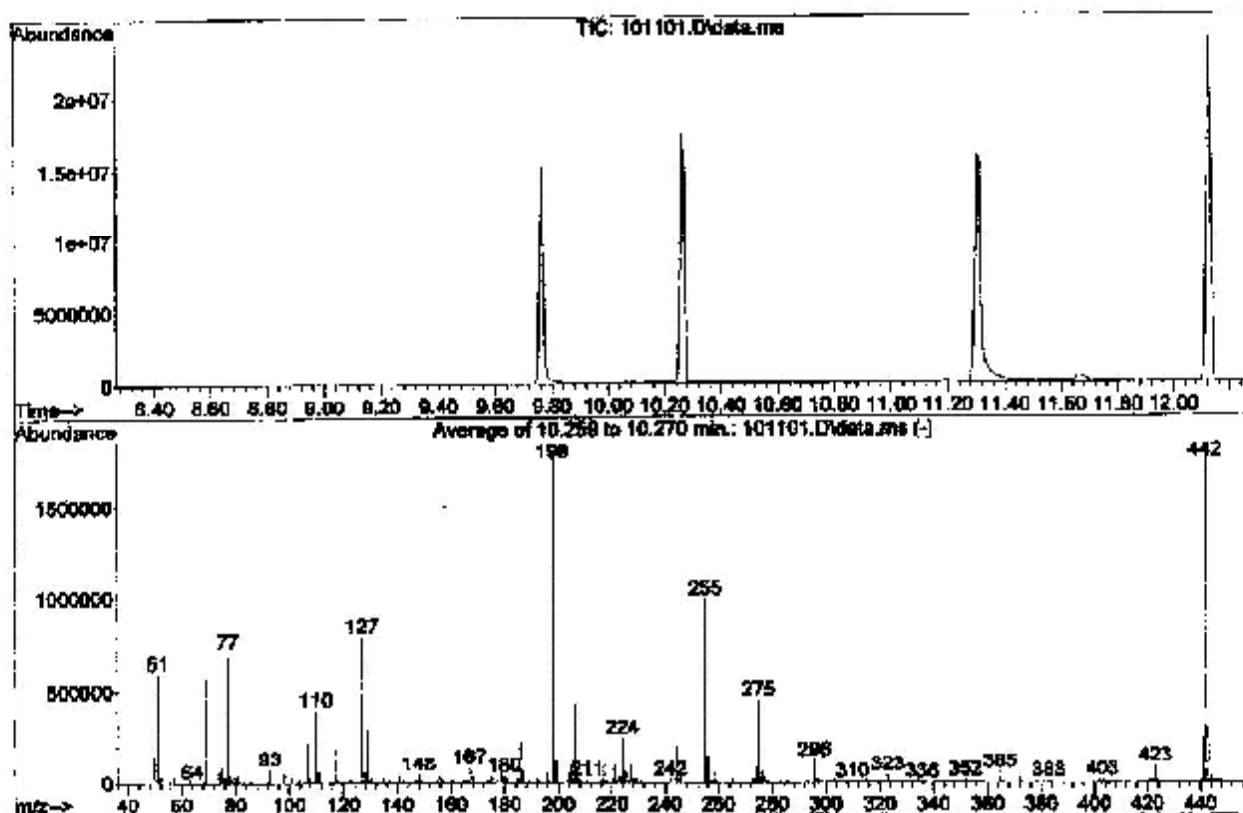
TARGET MASS:	60	69	131	219	414	502	1050
Amu Offset:	124.5	124.5	124.5	124.5	124.5	124.5	124.5
Entrance Lens Offset:	13.8	11.9	11.5	12.3	12.5	13.1	13.1
Target Abund(%):	1.0	100.0	45.0	55.0	2.4	2.0	
Actual Tune Abund(%):	1.1	100.0	50.8	62.2	2.9	2.4	

DFTPP

Data Path : D:\Data\SVOC\101112\
 Data File : 101101.D
 Acq On : 11 Oct 2012 9:32 am
 Operator :
 Sample : TONE CHECK
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 51 Sample Multiplier: 1

Integration File: RTEINTSG8270.P

Method : C:\msdchem\1\methods\QSVOC100512.M
 Title : Semivol
 Last Update : Thu Oct 04 15:27:51 2012



AutoFind: Scans 1341, 1342, 1343; Background Corrected with Scan 1333

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	33.9	594923	PASS
68	69	0.00	2	1.5	8916	PASS
69	198	0.00	100	32.9	577088	PASS
70	69	0.00	2	0.5	3049	PASS
127	198	10	80	44.9	788437	PASS
197	198	0.00	2	0.3	5802	PASS
198	198	100	100	100.0	1754795	PASS
199	198	5	9	6.7	117835	PASS
275	198	10	60	25.4	446165	PASS
365	198	1	100	3.2	55821	PASS
441	442	0.01	24	14.0	247979	PASS
442	198	50	999	100.6	1765013	PASS
443	442	15	24	19.0	335381	PASS



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Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101102.D
 Acq On : 11 Oct 2012 9:57 am
 Operator :
 Sample : CCV-
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 106 Sample Multiplier: 1

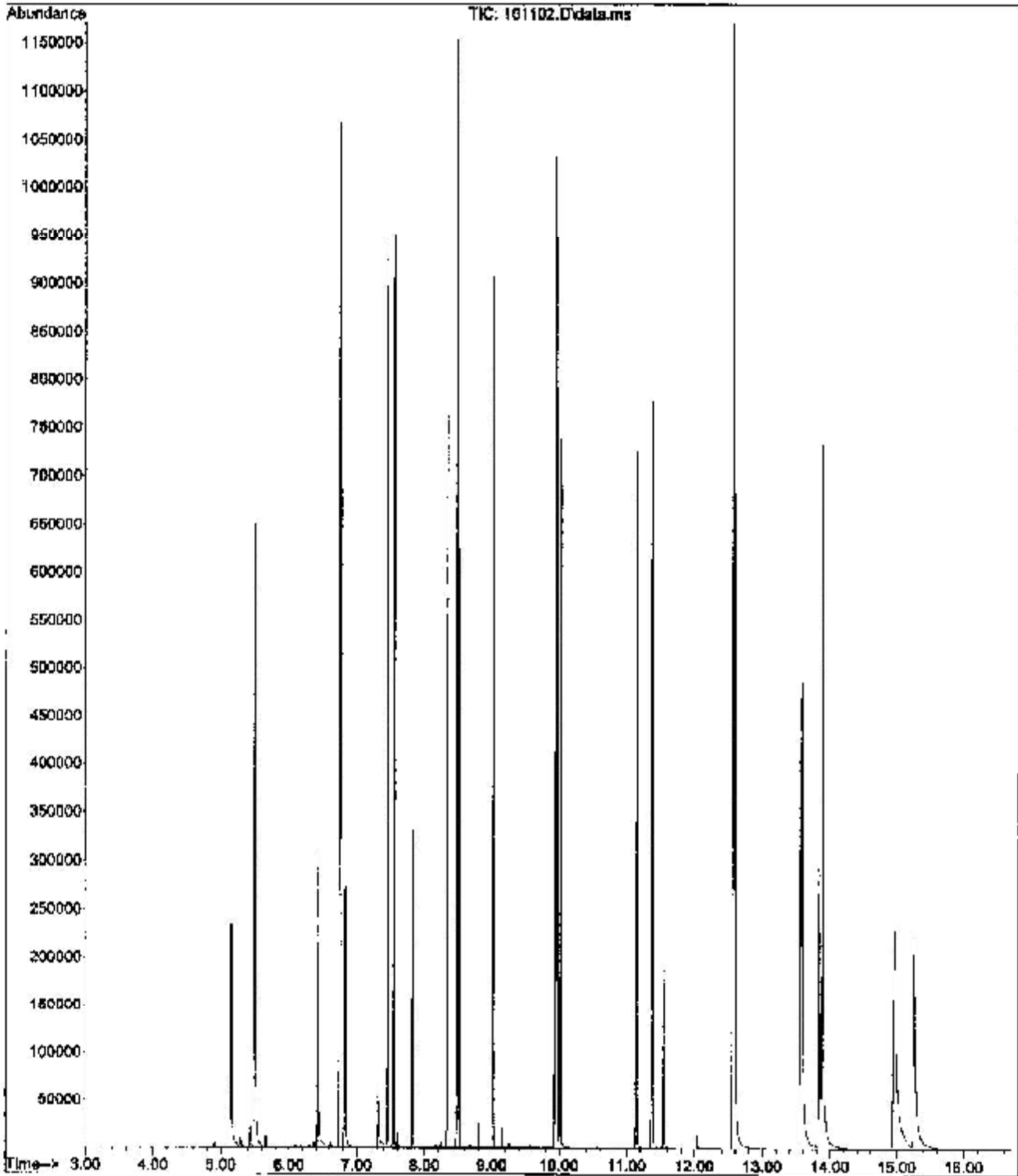
Quant Time: Oct 11 10:18:47 2012
 Quant Method : C:\msdchem\1\methods\BSPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	248623	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	835095	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	446598	2000.00	ug/L	0.00
13) Phenanthrene d10 (IS)	9.945	188	743459	2000.00	ug/L	0.00
20) Chrysene d12 (IS)	12.568	240	729868	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.885	264	702387	2000.00	ug/L	0.00
System Monitoring Compounds						
3) Phenol-d6	5.151	99	181169	959.28	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.821	172	179090	485.31	ug/L	0.00
16) Terphenyl-d14 (surr)	11.539	244	142994	521.78	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.426	107	148187	1012.19	ug/L	99
5) Naphthalene	6.766	128	544594	1027.95	ug/L	100
6) 2-Methylnaphthalene	7.453	142	333013	1072.91	ug/L	98
7) 1-Methylnaphthalene	7.548	142	310432	1057.01	ug/L	98
9) Acenaphthylene	8.338	152	480542	1129.50	ug/L	100
11) Acenaphthene	8.508	152	149723	996.95	ug/L	99
12) Fluorene	9.020	166	358083	1040.24	ug/L	96
14) Phenanthrene	9.967	178	503861	993.14	ug/L	100
15) Anthracene	10.018	178	490231	1081.63	ug/L	98
17) Fluoranthene	11.145	202	533264	1167.88	ug/L	95
18) Pyrene	11.368	202	554385	1161.39	ug/L	94
19) Benzo (a) anthracene	12.557	228	443172	1107.09	ug/L #	100
21) Chrysene	12.592	228	513400	973.60	ug/L	93
22) benzo (b) fluoranthene	13.556	252	333763	870.91	ug/L #	100
23) benzo (k) fluoranthene	13.580	252	571274	1049.42	ug/L	100
24) benzo (a) pyrene	13.835	252	371929	996.28	ug/L	94
26) Indeno(1,2,3-cd)pyrene	14.948	276	392749	1044.45	ug/L	96
27) Dibenz (a,h) anthracene	14.969	278	283366	947.26	ug/L	97
28) Benzo (g,h,i) perylene	15.258	276	403938	973.86	ug/L	97

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

BSPAH101012PHENOL.M Thu Oct 11 14:00:28 2012 PAH

File :D:\Data\SVOC\101112\101102.D
Operator :
Acquired : 11 Oct 2012 9:57 am using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: CCV-
Misc Info : CCV O-PAH-S-SIM
Vial Number: 106



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101103.D
 Acq On : 11 Oct 2012 10:22 am
 Operator :
 Sample : CCB-
 Misc : CCB O-PAH-S-SIM
 ALS Vial : 110 Sample Multiplier: 1

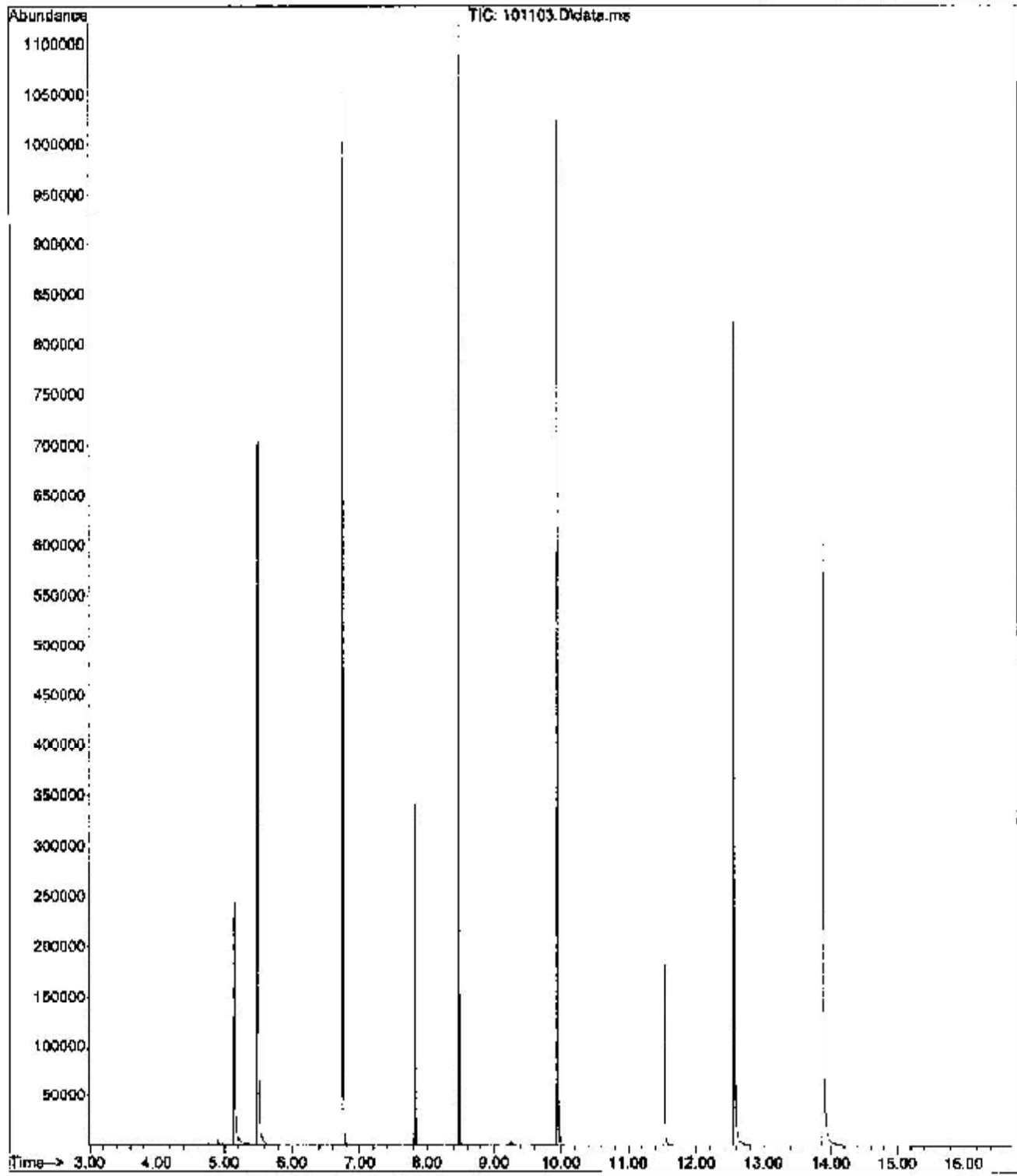
Quant Time: Oct 11 10:51:19 2012
 Quant Method : C:\msdchem\1\methods\DEPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 Qlast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	268896	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	875931	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	437548	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	188	710840	2000.00	ug/L	0.00
20) Chrysene-d12 (IS)	12.566	240	649472	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.885	264	599480	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.149	99	188579	923.24	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.820	172	191340	494.33	ug/L	0.00
16) Terphenyl-d14 (surr)	11.539	244	133750	510.45	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.432	107	54			N.D.
5) Naphthalene	6.766	128	52			N.D.
6) 2-Methylnaphthalene	7.457	142	31			N.D.
7) 1-Methylnaphthalene	7.550	142	25			N.D.
9) Acenaphthylene	8.337	152	8			N.D.
11) Acenaphthene	8.508	152	11			N.D.
12) Fluorene	9.021	166	53			N.D.
14) Phenanthrene	9.966	178	143			N.D.
15) Anthracene	10.020	178	82			N.D.
17) Fluoranthene	11.146	202	75			N.D.
18) Pyrene	11.369	202	96			N.D.
19) Benzo (a) anthracene	12.566	228	1684			N.D.
21) Chrysene	12.566	228	1176			N.D.
22) benzo (b) fluoranthene	13.554	252	83			N.D.
23) benzo (k) fluoranthene	13.579	252	163			N.D.
24) benzo (a) pyrene	13.832	252	81			N.D.
26) Indeno(1,2,3-cd)pyrene	14.945	276	49			N.D.
27) Dibenz (a,h) anthracene	14.957	278	20			N.D.
28) Benzo (g,h,i) perylene	15.250	276	24			N.D.

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

DEPAH101012PHENOL.M Thu Oct 11 14:03:19 2012 PAH

File : D:\Data\SVOC\101112\101103.D
Operator :
Acquired : 11 Oct 2012 10:22 am using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: OCB-
Misc Info : OCB O-PAH-S-SIM
Vial Number: 110



Fremont Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: 10/5/2012 9:26:04 A
 Prep End Date: 10/5/2012 9:26:04 A

Prep Factor Units:
 mL / g

Prep Batch ID: 3353 Prep Code: PREP-PAH-S Technician: Paul Ho
 Initial Temp: °C Final Temp: °C

Sample ID	ClientBatchID	Matrix	pH1	pH2	Sample	Sol	Added	Recov	Fin Vol	Factor	PrepStart	PrepEnd
MR-3353		Soil	10		0	0	0	0	10	1.000	10/5/2012	10/5/2012
109-3353		Soil	10		0	0	0	0	10	1.000	10/5/2012	10/5/2012
1209174-001A	IRZ-MSW1-92512	Sediment	12.72		0	0	0	0	10	0.782	10/5/2012	10/5/2012
1209174-002A	IRZ-B3-92512	Sediment	12.93		0	0	0	0	10	0.779	10/5/2012	10/5/2012
1209174-003A	IRZ-B3-92512	Sediment	11.25		0	0	0	0	10	0.839	10/5/2012	10/5/2012
1209174-004A	IRZ-B3-92512	Sediment	13.13		0	0	0	0	10	0.782	10/5/2012	10/5/2012
Possible double BH Surf												
1209174-005A	IRZ-B4-92512	Sediment	11.95		0	0	0	0	10	0.837	10/5/2012	10/5/2012
1209174-006A	IRZ-B5-92512	Sediment	11.74		0	0	0	0	10	0.862	10/5/2012	10/5/2012
1209174-005AMS		Sediment	11.87		0	0	0	0	10	0.807	10/5/2012	10/5/2012
1209174-007A	IRZ-BSW1-92512	Sediment	11.4		0	0	0	0	10	0.877	10/5/2012	10/5/2012
1209174-007ADUP		Sediment	11.81		0	0	0	0	10	0.847	10/5/2012	10/5/2012
1210028-001A	SURZF-1451-100212	Soil	12.36		0	0	0	0	10	0.809	10/5/2012	10/5/2012
1210028-002A	SURZF-1452-100212	Soil	11.31		0	0	0	0	10	0.894	10/5/2012	10/5/2012
1210028-003A	SURZ-SSW1-100212	Soil	11.89		0	0	0	0	10	0.847	10/5/2012	10/5/2012
1210028-003ADUP		Soil	11.64		0	0	0	0	10	0.859	10/5/2012	10/5/2012
1210028-004A	SURZ-MSW1-100212	Soil	12.44		0	0	0	0	10	0.804	10/5/2012	10/5/2012
1210028-005A	P15B1-10212	Soil	12.99		0	0	0	0	10	0.770	10/5/2012	10/5/2012
1210028-006A	P15MSW1-10212	Soil	11.01		0	0	0	0	10	0.908	10/5/2012	10/5/2012
1210028-007A	P15B2-10212	Soil	12.34		0	0	0	0	10	0.750	10/5/2012	10/5/2012
1210028-008A	SURZ-MSW2-10212	Soil	12.61		0	0	0	0	10	0.783	10/5/2012	10/5/2012

Spike ID	Chemical / Reagent ID	Spike Name	Chemical / Reagent Name	Container#	Container ID	Amount Added	Amount Unit
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INTERNAL STANDARD AREA AND RT SUMMARY

RunID: GCMS-3 121011A GCV Name: CAL MID POINT
 Run No: 8083 GCV SeqNo: 120851
 Lab File ID (Standard): 101014.D Date Analyzed: 10/10/2012
 Instrument ID: GCMS-3 Time Analyzed: 17:48
 GC Column: ID (mm): Length (M):

	IS1 (14DCBZ)		IS2 Acenaphthene-c		IS3 Chrysene-d12		IS4 Naphthalene-d8		
	AREA #	RT #	AREA #	RT #	AREA #	RT #	AREA #	RT #	
12 HOUR STD	211091	5.498	370642	8.480	568843	12.569	703929	6.747	
UPPER LIMIT	422182	5.998	741284	8.980	1173686	13.069	1407978	7.247	
LOWER LIMIT	105546	4.998	185321	7.980	283472	12.069	351895	6.247	
SAMPLE NO:									
01	CCV-3353	248623	5.498	446588	8.478	729888	12.568	835095	6.747
02	CCB-3353	268896	5.486	437548	8.478	849472	12.566	875931	6.747
03	MB-3353	229710	5.486	370285	8.478	842691	12.568	740476	6.745
04	LCS-3353	226942	5.497	382348	8.478	590336	12.568	740880	6.745
05	1209174-006A	232234	5.488	374860	8.477	560480	12.566	748895	6.747
06	1209174-006AMS	236834	5.497	396432	8.478	814892	12.566	768306	6.745
07	1210029-003A	213898	5.498	347120	8.478	817448	12.566	891579	6.745
08	1210029-003ADUP	220112	5.497	360158	8.478	844063	12.565	716090	6.745
09	1210029-002A	234483	5.496	390192	8.478	821317	12.565	758218	6.747
10	1210029-007A	237032	6.497	387685	8.478	581848	12.566	762843	6.747

IS1 (14DCBZ) = 1,4-Dichlorobenzene-d4

IS2 Acenaphthene-d10 = Acenaphthene-d10

IS3 Chrysene-d12 = Chrysene-d12

IS4 Naphthalene-d8 = Naphthalene-d8

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = -50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk

* Values outside of QC limits.

INTERNAL STANDARD AREA AND RT SUMMARY

RunID: GCMS-3_121011A GCV Name: CAL MID POINT
 Run No: 5083 GCV SeqNo: 120851
 Lab File ID (Standard): f01Q14.D Date Analyzed: 10/10/2012
 Instrument ID: GCMS-3 Time Analyzed: 17:48
 GC Column: ID (mm): Length (M):

		IS5 Perylene-d12		IS8 Phenanthrene-d10			
		AREA #	RT #	AREA #	RT #		
12 HOUR STD		589722	13.885	614915	9.945		
UPPER LIMIT		1189444	14.389	1229830	10.445		
LOWER LIMIT		294861	13.389	307458	9.445		
SAMPLE NO.							
01	CCV-3353	702387	13.885	743459	9.945		
02	CCB-3353	589480	13.885	710840	9.945		
03	MB-3353	501236	13.885	604432	9.945		
04	LCS-3353	561221	13.887	608612	9.944		
05	1209174-006A	519311	13.887	617344	9.945		
06	1209174-006AMS	590228	13.885	631984	9.944		
07	1210029-003A	483840	13.885	586715	9.944		
08	1210029-002A	610196	13.885	649460	9.944		
09	1210029-007A	553844	13.885	634802	9.943		
10	1210029-003ADUP	512658	13.885	589833	9.945		

IS5 Perylene-d12 = Perylene-d12

IS8 Phenanthrene-d10 = Phenanthrene-d10

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = -50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.

* Values outside of QC limits.

Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101104.D
 Acq On : 11 Oct 2012 10:47 am
 Operator :
 Sample : MB-3353
 Misc : MELK O-PAH-S-SIM
 ALS Vial : 111 Sample Multiplier: 1

Quant Time: Oct 11 14:05:28 2012
 Quant Method : C:\msdchem\1\methods\BPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

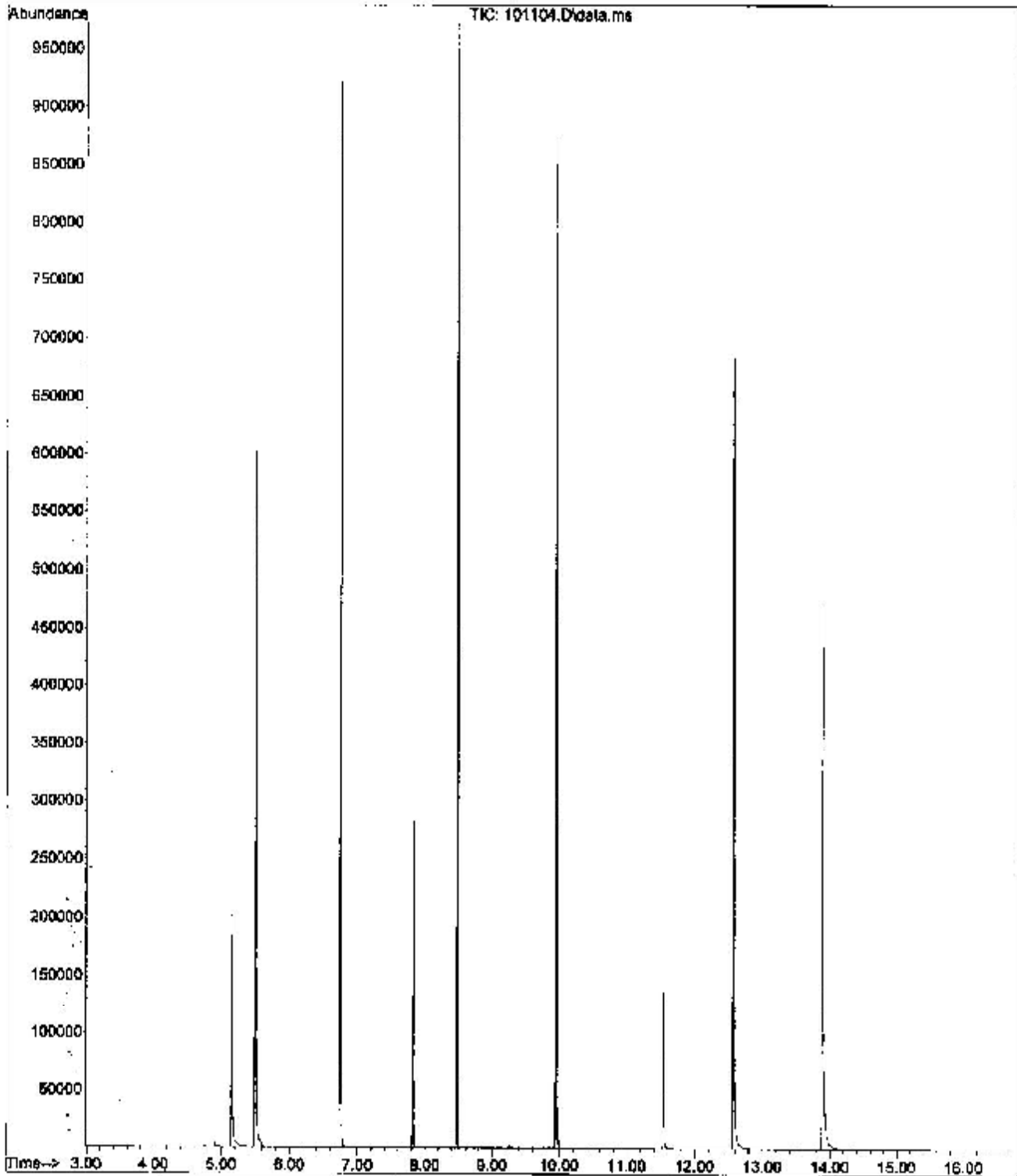
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	229710	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	740476	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	370265	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	168	604432	2000.00	ug/L	0.00
20) Chrysene-d12 (IS)	12.566	240	542591	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.885	264	501236	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.149	99	152040	871.33	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.821	172	151360	462.58	ug/L	0.00
16) Terphenyl-d14 (surr)	11.540	244	104091	467.19	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.396	107	39		N.D.	
5) Naphthalene	6.766	128	38		N.D.	
6) 2-Methylnaphthalene	7.455	142	41		N.D.	
7) 1-Methylnaphthalene	7.550	142	25		N.D.	
9) Acenaphthylene	8.338	152	3		N.D.	
11) Acenaphthene	8.508	152	2		N.D.	
12) Fluorene	9.019	166	4		N.D.	
14) Phenanthrene	9.967	178	50		N.D.	
15) Anthracene	10.020	178	1		N.D.	
17) Fluoranthene	11.146	202	2		N.D.	
18) Pyrene	11.370	202	11		N.D.	
19) Benzo (a) anthracene	12.566	228	1390		N.D.	
21) Chrysene	12.566	228	1310		N.D.	
22) benzo (b) fluoranthene	13.553	252	17		N.D.	
23) benzo (k) fluoeranthene	13.579	252	91		N.D.	
24) benzo (a) pyrene	13.885	252	1583	6.05	ug/L #	85
26) Indeno(1,2,3-cd)pyrene	14.945	276	9		N.D.	
27) Dibenz (a,h) anthracene	14.965	278	16		N.D.	
28) Benzo (g,h,i) perylene	15.255	276	14		N.D.	

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

DBPAH101012PHENOL.M Thu Oct 11 14:05:28 2012 PAH

File : D:\Data\SVQC\101112\101104.D
Operator :
Acquired : 11 Oct 2012 10:47 am using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: MB-3353
Misc info : MBLK O-PAH-S-SIM
Vial Number: 111



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101105.D
 Acq On : 11 Oct 2012 11:12 am
 Operator :
 Sample : LCS-3353
 Misc : LCS O-PAH-S-SIM
 ALS Vial : 112 Sample Multiplier: 1

Quant Time: Oct 11 14:06:11 2012
 Quant Method : C:\msdchem\1\methods\BPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

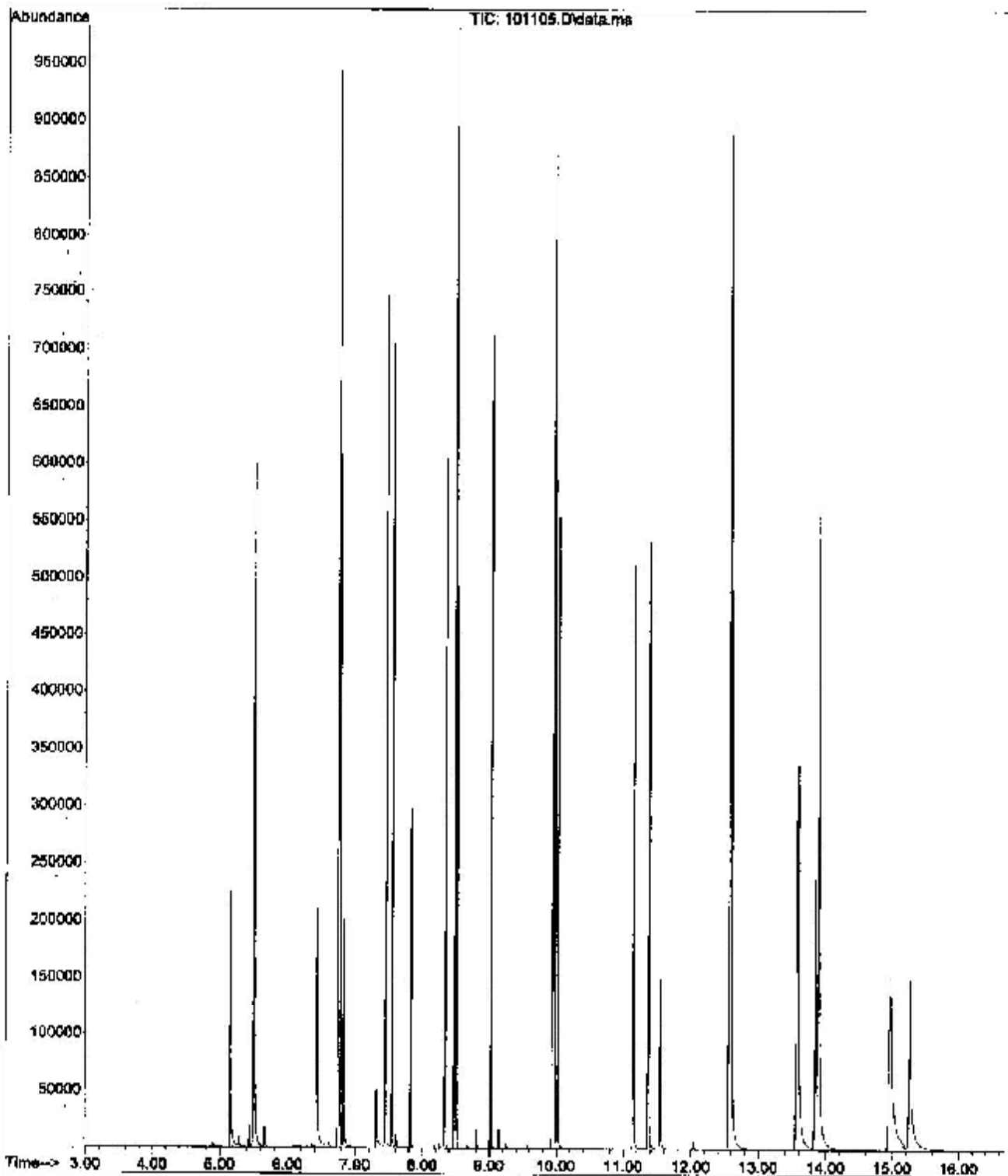
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.497	152	225942	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	740680	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	382348	2000.00	ug/L	0.00
13) Phenanthrene d10 (IS)	9.944	188	608612	2000.00	ug/L	0.00
20) Chrysene-d12 (IS)	12.568	240	590336	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	561221	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.149	99	164324	957.43	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.821	172	160695	490.97	ug/L	0.00
16) Terphenyl-d14 (surr)	11.540	244	113578	506.27	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.427	107	110984	834.17	ug/L	100
5) Naphthalene	6.766	128	442750	942.24	ug/L	100
6) 2-Methylnaphthalene	7.453	142	265620	964.87	ug/L	98
7) 1-Methylnaphthalene	7.548	142	248427	953.71	ug/L	97
9) Acenaphthylene	8.338	152	375727	995.71	ug/L	100
11) Acenaphthene	8.509	152	117927	917.18	ug/L	99
12) Fluorene	9.020	166	275280	934.08	ug/L	97
14) Phenanthrene	9.968	178	386161	929.79	ug/L	100
15) Anthracene	10.019	178	365819	985.96	ug/L	98
17) Fluoranthene	11.145	204	377469	1009.66	ug/L	95
18) Pyrene	11.370	202	398291	1019.26	ug/L	94
19) Benzo (a) anthracene	12.557	228	313333	956.17	ug/L #	100
21) Chrysene	12.592	228	387352	908.19	ug/L	93
22) benzo (b) fluoranthene	13.556	252	228353	736.70	ug/L #	100
23) benzo (k) fluoranthene	13.580	252	426400	968.43	ug/L	100
24) benzo (a) pyrene	13.837	252	257760	860.43	ug/L	92
26) Indeno(1,2,3-cd)pyrene	14.950	276	271969	910.87	ug/L	97
27) Dibenz (a,h) anthracene	14.969	278	191394	804.85	ug/L	97
28) Benzo (g,h,i) perylene	15.258	276	282288	851.76	ug/L	97

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

DBPAH101012PHENOL.M Thu Oct 11 14:06:12 2012 PAH

File : D:\Data\SVOC\101112\101105.D
Operator :
Acquired : 11 Oct 2012 11:12 am using AcqMethod DBPAH101012PHENOC.M
Instrument : HP-MSD
Sample Name: LCS-3353
Misc Info : LCS O-PAH-S-SIM
Vial Number: 112



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101105.D
 Acq On : 11 Oct 2012 11:37 am
 Operator :
 Sample : 1209174-006A
 Misc : SAMP O-PAH-S-SIM
 ALS Vial : 113 Sample Multiplier: 1

Quant Time: Oct 11 14:06:23 2012
 Quant Method : C:\msdchem\1\methods\BPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

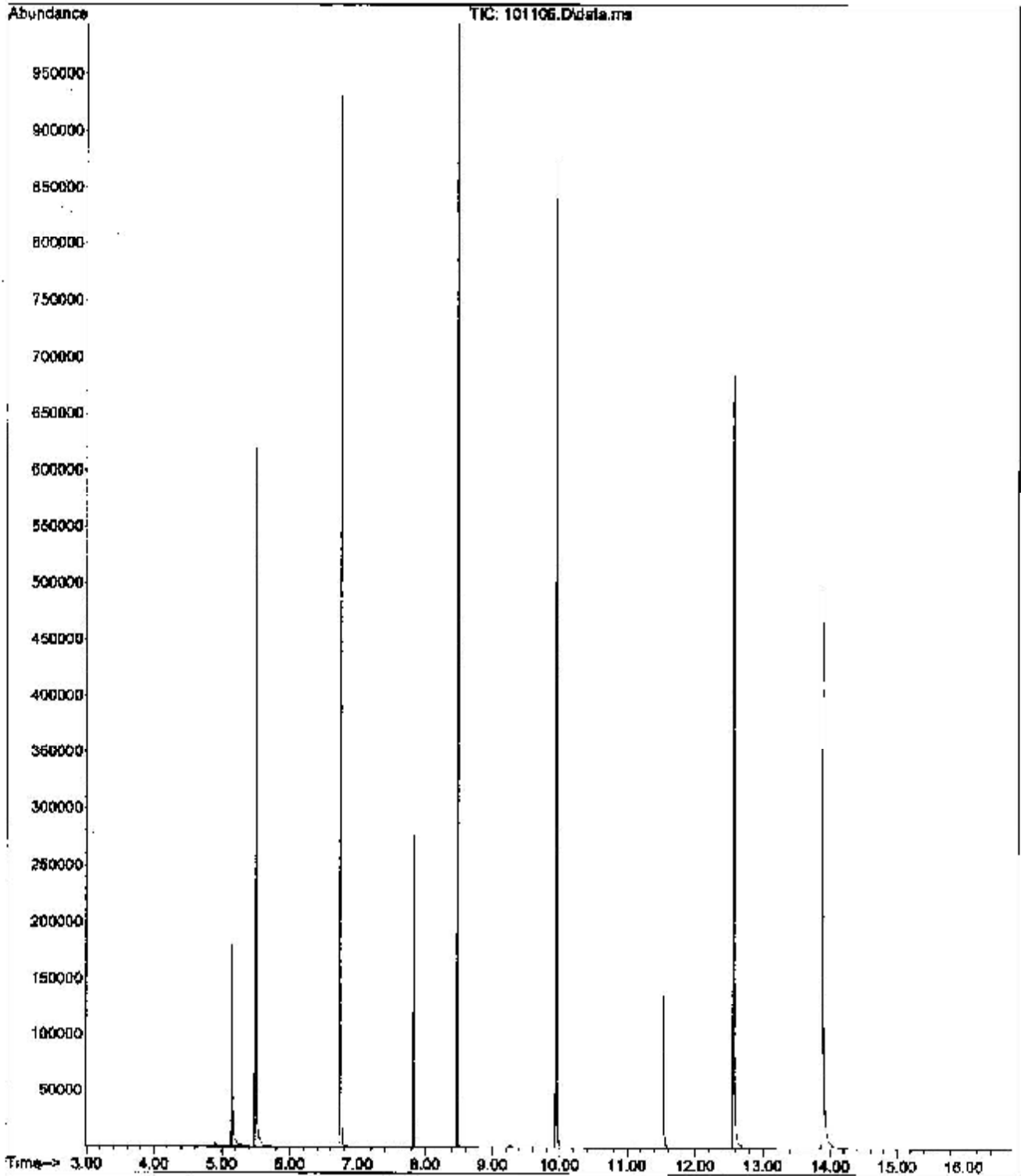
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.498	152	232234	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	748695	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.477	164	374960	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	188	617344	2000.00	ug/L	0.00
20) Chrysene-d12 (IS)	12.566	240	560480	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	519311	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.151	99	144157	817.17	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.821	172	152044	459.57	ug/L	0.00
16) Terphenyl-d14 (surr)	11.540	244	106654	468.68	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.454	107	40			N.D.
5) Naphthalene	6.756	128	95			N.D.
6) 2-Methylnaphthalene	7.457	142	54			N.D.
7) 1-Methylnaphthalene	7.548	142	44			N.D.
9) Acenaphthylene	8.338	152	2			N.D.
11) Acenaphthene	8.506	152	14			N.D.
12) Fluorene	9.025	166	18			N.D.
14) Phenanthrene	9.966	178	106			N.D.
15) Anthracene	10.018	178	7			N.D.
17) Fluoranthene	11.149	202	17			N.D.
18) Pyrene	11.357	202	2			N.D.
19) Benzo (a) anthracene	12.566	228	1489			N.D.
21) Chrysene	12.566	228	1312			N.D.
22) benzo (b) fluoranthene	13.557	252	36			N.D.
23) benzo (k) fluoranthene	13.579	252	125			N.D.
24) benzo (a) pyrene	13.832	252	63			N.D.
26) Indeno(1,2,3-cd)pyrene	14.943	276	45			N.D.
27) Dibenz (a,h) anthracene	14.969	278	4			N.D.
28) Benzo (g,h,i) perylene	15.255	276	3			N.D.

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

BPAH101012PHENOL.M Thu Oct 11 14:06:24 2012 PAH

File : D:\Data\SVOC\101112\101106.D
Operator :
Acquired : 11 Oct 2012 11:37 am using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 1209174-006A
Misc Info : SAMP O-PAH-S-SIM
Vial Number: 113



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101107.D
 Acq On : 11 Oct 2012 12:02 pm
 Operator :
 Sample : 1209174-006AMS
 Misc : MS O-PAH-S-SIM
 ALS Vial : 114 Sample Multiplier: 1

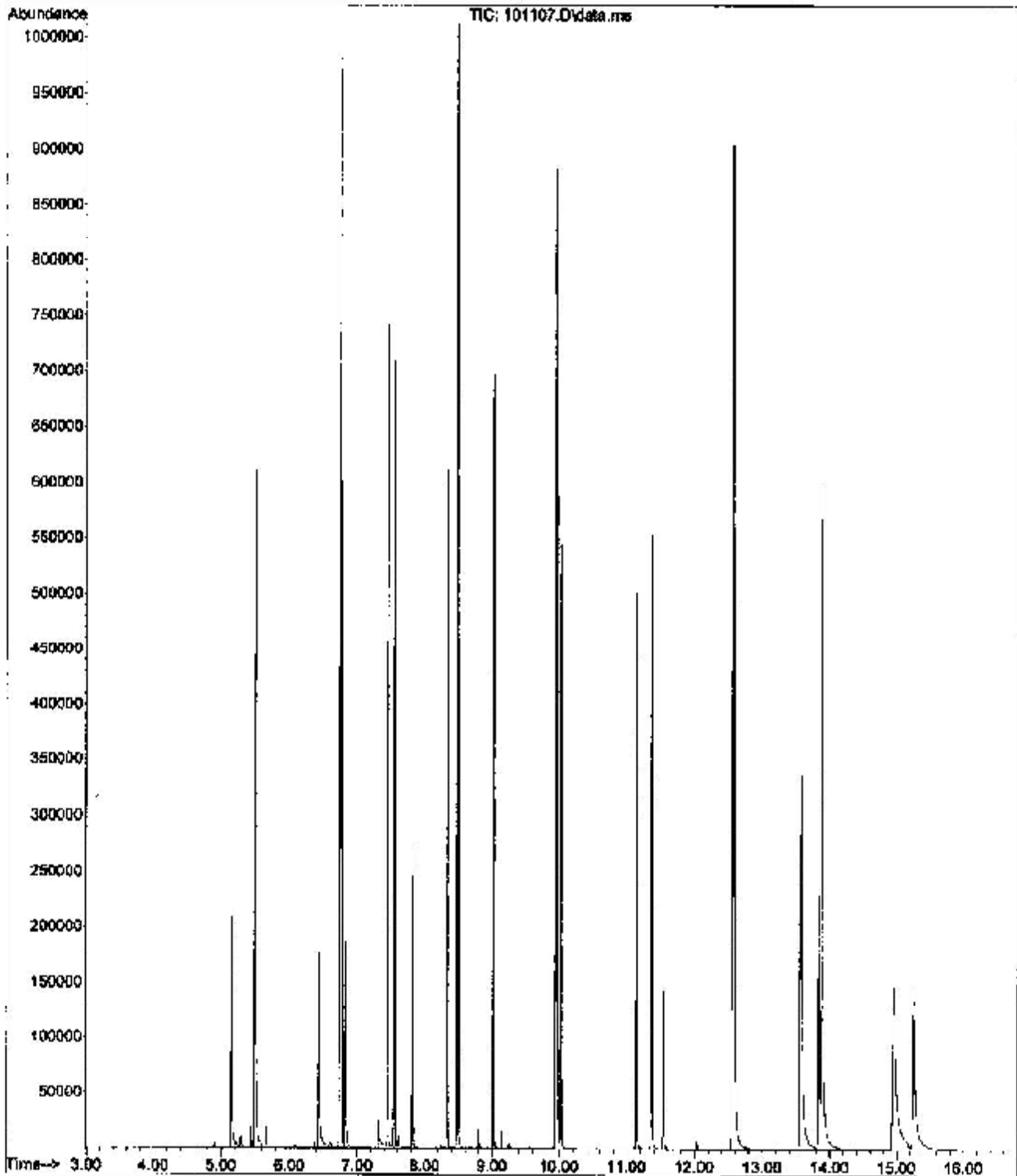
Quant Time: Oct 11 14:06:33 2012
 Quant Method : C:\msdchem\1\methods\BSPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.497	152	235834	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	768306	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	396432	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.944	188	631984	2000.00	ug/L	0.00
20) Chrysene-d12 (IS)	12.566	240	614892	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.885	264	590228	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.151	99	152381	850.61	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.821	172	155402	457.73	ug/L	0.00
16) Terphenyl-d14 (surr)	11.539	244	110649	474.97	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.428	107	107413	773.47	ug/L	100
5) Naphthalene	6.767	128	438103	898.83	ug/L	100
6) 2-Methylnaphthalene	7.453	142	259860	910.00	ug/L	99
7) 1-Methylnaphthalene	7.548	142	245139	907.25	ug/L	97
9) Acenaphthylene	8.338	152	368160	940.58	ug/L	100
11) Acenaphthene	8.509	152	115426	865.84	ug/L	99
12) Fluorene	9.020	166	270187	884.23	ug/L	97
14) Phenanthrene	9.968	178	377373	875.03	ug/L	100
15) Anthracene	10.019	178	358649	930.89	ug/L	98
17) Fluoranthene	11.145	202	372856	960.44	ug/L	95
18) Pyrene	11.367	202	392716	967.83	ug/L	94
19) Benzo (a) anthracene	12.557	228	314318	923.70	ug/L #	100
21) Chrysene	12.592	228	382247	860.43	ug/L #	73
22) benzo (b) fluoranthene	13.555	252	228754	708.52	ug/L #	100
23) benzo (k) fluoranthene	13.578	252	409224	892.30	ug/L	100
24) benzo (a) pyrene	13.835	252	255161	819.68	ug/L	91
26) Indeno(1,2,3-cd)pyrene	14.945	276	271118	865.26	ug/L	97
27) Dibenz (a,h) anthracene	14.967	276	189753	759.96	ug/L	97
28) Benzo (g,h,i) perylene	15.258	276	281386	807.31	ug/L	97

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

BSPAH101012PHENOL.M Thu Oct 11 14:06:33 2012 PAH

File : D:\Data\SVOC\101112\101107.D
Operator :
Acquired : 11 Oct 2012 12:02 pm using AcqMethod DBPAH101012PHENCL.M
Instrument : HP-MSD
Sample Name: 1209174-006AMS
Misc Info : MS O-PAH-S-SIM
Vial Number: 114



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101108.D
 Acq On : 11 Oct 2012 12:27 pm
 Operator :
 Sample : 1210029-003A
 Misc : SAMP O-PAH-S-SIM
 ALS Vial : 117 Sample Multiplier: 1

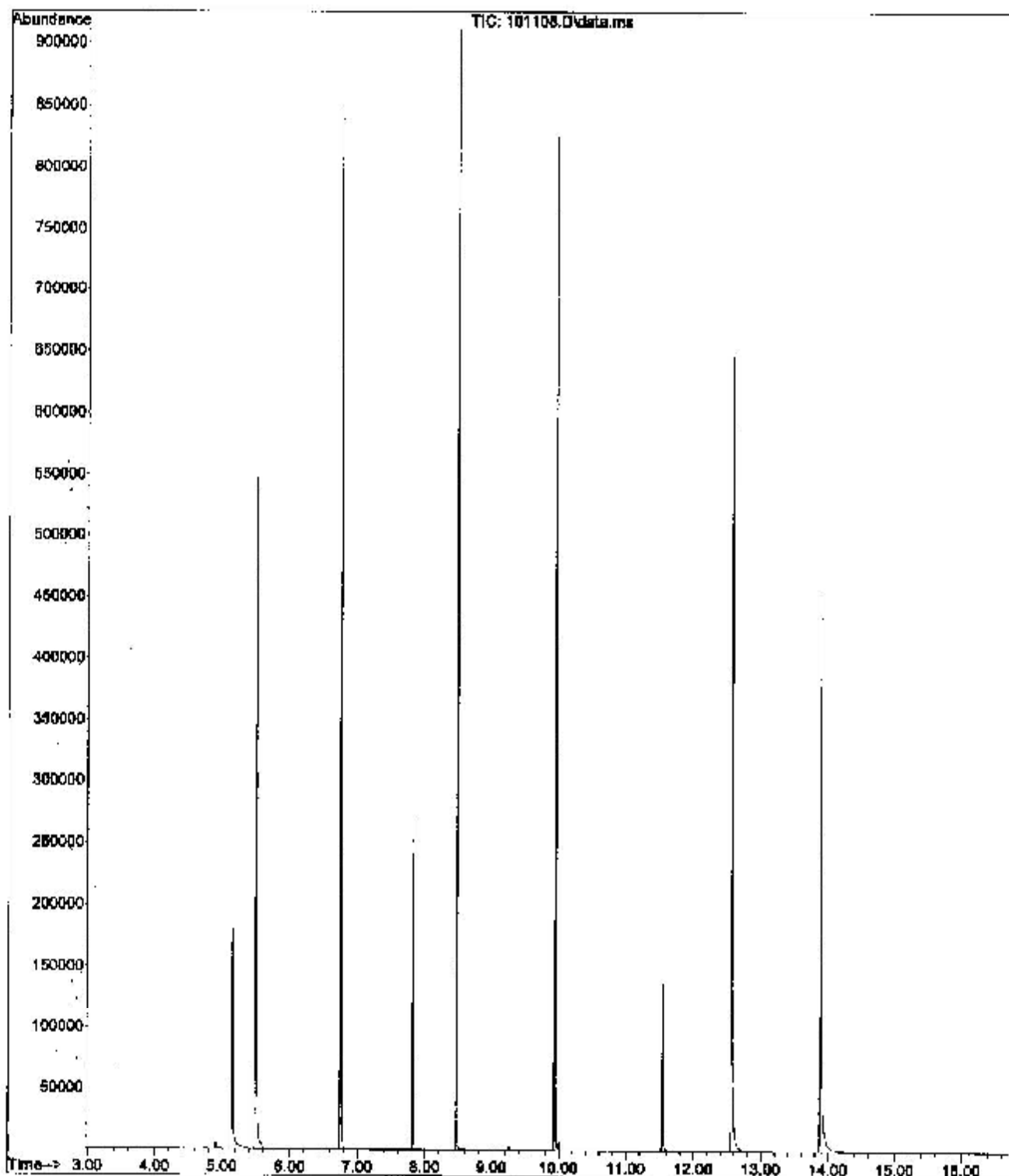
Quant Time: Oct 11 14:06:44 2012
 Quant Method : C:\msdchem\1\methods\BPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.498	152	213699	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	691579	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	347120	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.944	188	566715	2000.00	ug/L	0.00
20) Chrysene-d12 (IS)	12.566	240	517446	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.885	264	483940	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.151	99	139788	861.14	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.820	172	149875	490.42	ug/L	0.00
16) Terphenyl-d14 (surr)	11.539	244	107108	512.73	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.450	107	46			N.D.
5) Naphthalene	6.766	128	130			N.D.
6) 2-Methylnaphthalene	7.457	142	55			N.D.
7) 1-Methylnaphthalene	7.550	142	34			N.D.
9) Acenaphthylene	8.339	152	9			N.D.
11) Acenaphthene	8.508	152	7			N.D.
12) Fluorene	9.021	166	28			N.D.
14) Phenanthrene	9.958	178	180			N.D.
15) Anthracene	10.020	178	35			N.D.
17) Fluoranthene	11.148	202	47			N.D.
18) Pyrene	11.370	202	147			N.D.
19) Benzo (a) anthracene	12.566	228	1464			N.D.
21) Chrysene	12.566	228	1351			N.D.
22) benzo (b) fluoranthene	13.553	252	32			N.D.
23) benzo (k) fluoranthene	13.577	252	180			N.D.
24) benzo (a) pyrene	13.882	252	1639	6.57	ug/L #	80
26) Indeno(1,2,3-cd)pyrene	14.962	276	3			N.D.
27) Dibenz (a,h) anthracene	14.965	278	24			N.D.
28) Benzo (g,h,i) perylene	15.255	276	5			N.D.

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

DBPAH101012PHENOL.M Thu Oct 11 14:06:44 2012 PAH

File : D:\Data\SVOC\101112\101108.D
Operator :
Acquired : 11 Oct 2012 12:27 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 1210029-003A
Misc Info : SAMP O-PAH-S-SIM
Vial Number: 117



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101109.D
 Acq On : 11 Oct 2012 12:53 pm
 Operator :
 Sample : 1210029-003ADUP
 Misc : DUP O-PAH-S-SIM
 ALS Vial : 118 Sample Multiplier: 1

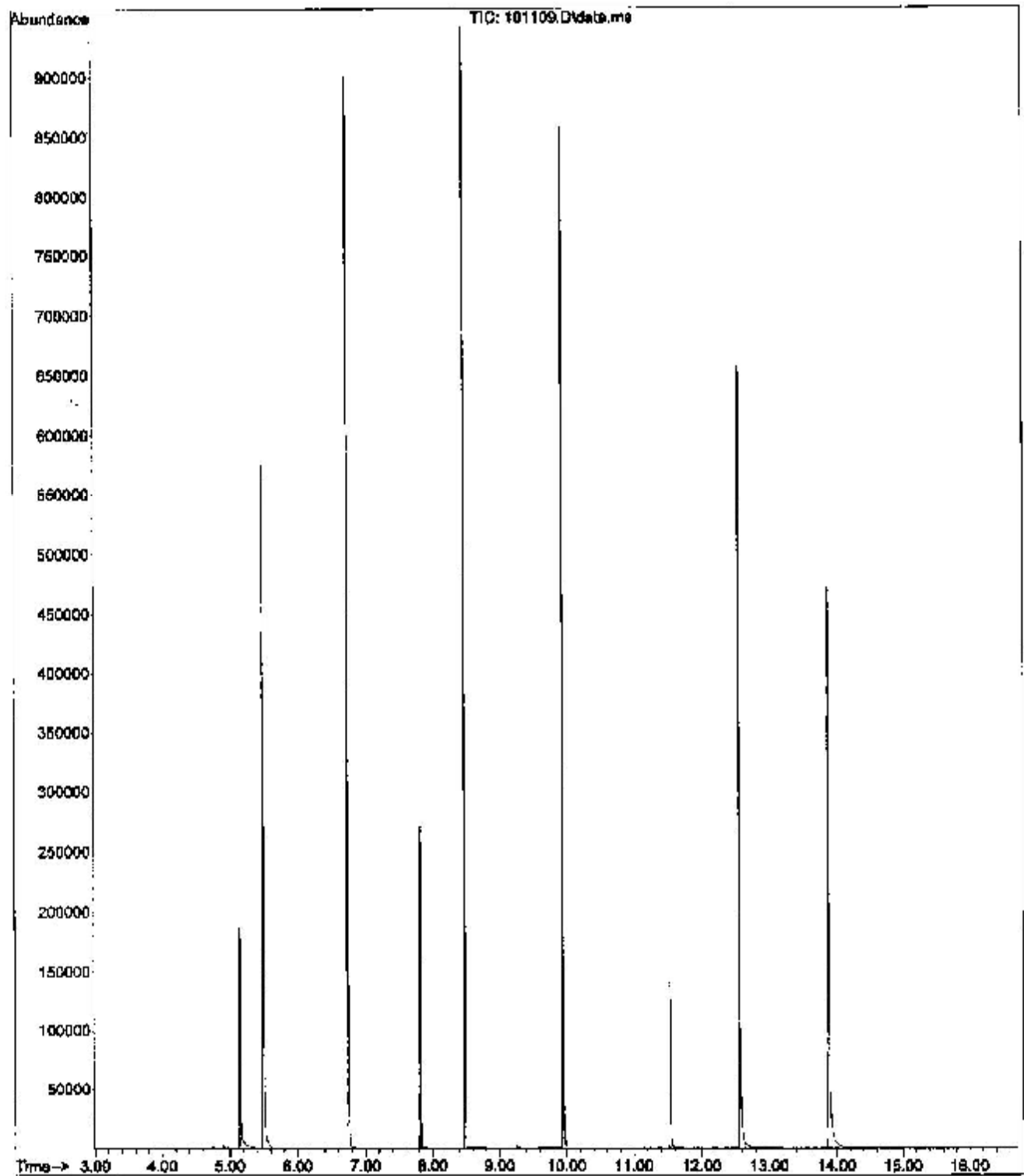
Quant Time: Oct 11 14:06:57 2012
 Quant Method : C:\msdchem\1\methods\DBPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)	
Internal Standards							
1) 1,4-Dichlorobenz-d4 (IS)	5.497	152	220112	2000.00	ug/L	0.00	
4) Naphthalene-d8 (IS)	6.745	136	715090	2000.00	ug/L	0.00	
10) Acenaphthene-d10 (IS)	8.478	164	360158	2000.00	ug/L	0.00	
13) Phenanthrene-d10 (IS)	9.945	188	589833	2000.00	ug/L	0.00	
20) Chrysene-d12 (IS)	12.565	240	544063	2000.00	ug/L	0.00	
25) Perylene-d12 (IS)	13.885	264	512659	2000.00	ug/L	0.00	
System Monitoring Compounds							
2) Phenol-d6	5.151	99	139259	832.88	ug/L	0.00	
8) 2-Fluorobiphenyl (surr)	7.821	172	152060	481.21	ug/L	0.00	
16) Terphenyl-d14 (surr)	11.539	244	111349	512.31	ug/L	0.00	
Target Compounds							
							Qvalue
3) 2,4-Dimethylphenol	6.364	107	2				N.D.
5) Naphthalene	6.745	128	29				N.D.
6) 2-Methylnaphthalene	7.457	142	61				N.D.
7) 1-Methylnaphthalene	7.550	142	33				N.D.
9) Acenaphthylene	8.338	152	18				N.D.
11) Acenaphthene	8.456	152	2				N.D.
12) Fluorene	9.024	166	39				N.D.
14) Phenanthrene	9.967	178	316				N.D.
15) Anthracene	10.020	178	57				N.D.
17) Fluoranthene	11.149	202	129				N.D.
18) Pyrene	11.368	202	239				N.D.
19) Benzo (a) anthracene	12.565	228	1418				N.D.
21) Chrysene	12.565	228	894				N.D.
22) benzo (b) fluoranthene	13.554	252	46				N.D.
23) benzo (k) fluoranthene	13.577	252	235				N.D.
24) benzo (a) pyrene	13.835	252	86				N.D.
26) Indeno(1,2,3-cd)pyrene	14.945	276	55				N.D.
27) Dibenz (a,h) anthracene	14.962	278	15				N.D.
28) Benzo (g,h,i) perylene	15.255	276	2				N.D.

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

DBPAH101012PHENOL.M Thu Oct 11 14:06:57 2012 PAH

File : D:\Data\SVOC\101112\101109.D
Operator :
Acquired : 11 Oct 2012 12:53 pm using AcqMethod DEPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 1210029-003ADUP
Misc Info : DUP C-PAH-S-SIM
Vial Number: 118



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101110.D
 Acq On : 11 Oct 2012 1:18 pm
 Operator :
 Sample : 1210029-002A
 Misc : SAMP O-PAH-S-SIM
 ALS Vial : 119 Sample Multiplier: 1

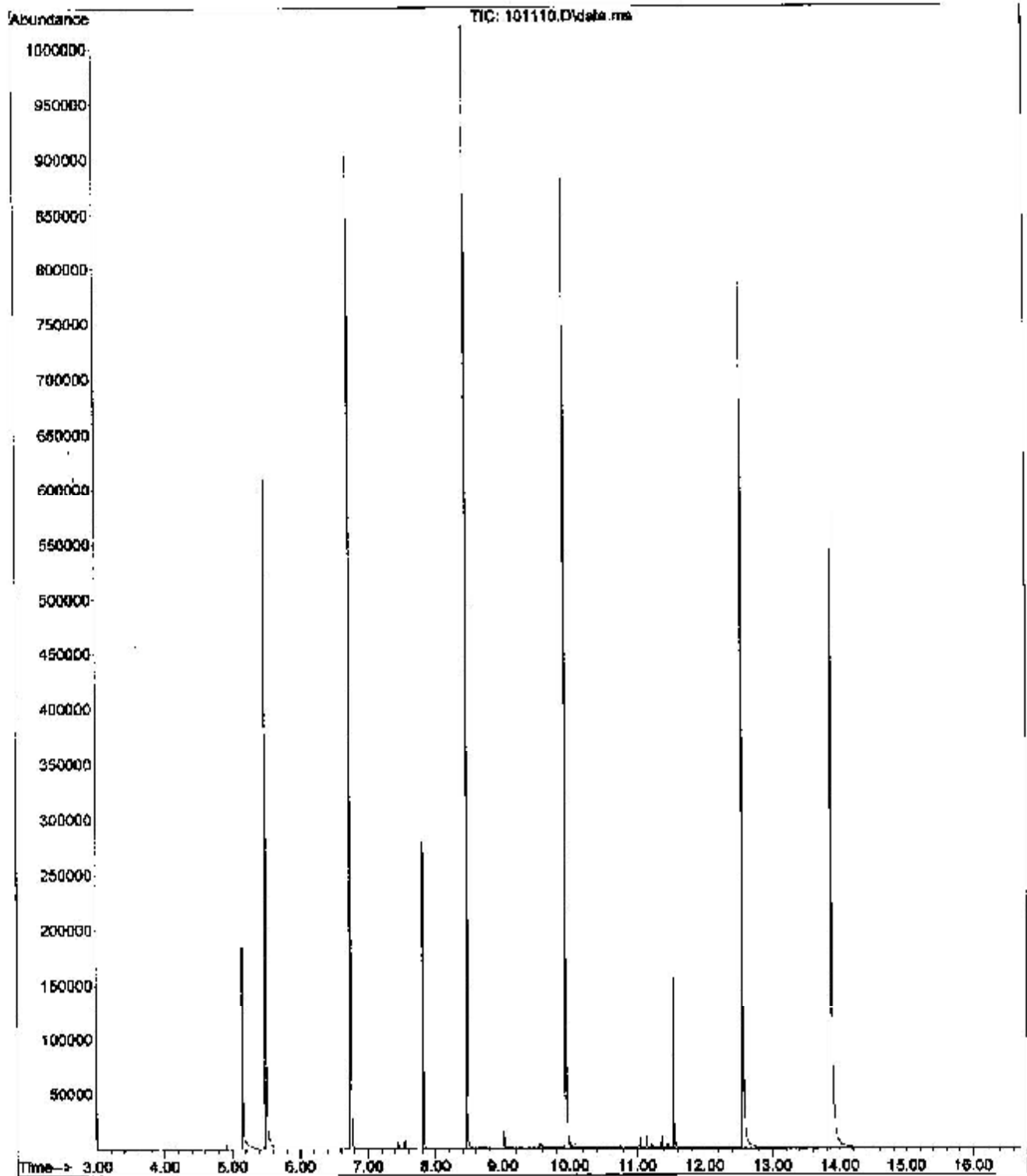
Quant Time: Oct 11 14:09:15 2012
 Quant Method : C:\msdchem\1\methods\DEPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 Quant Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	234463	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	758216	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	390192	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.944	188	649460	2000.00	ug/L	0.00
20) Chrysene-d12 (IS)	12.566	240	621317	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.885	264	610196	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.151	99	138083	775.30	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	155621	464.47	ug/L	0.00
16) Terphenyl-d14 (surr)	11.539	244	125738	525.22	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.461	107	744	5.39	ug/L #	78
5) Naphthalene	6.766	128	4217	8.77	ug/L	95
6) 2-Methylnaphthalene	7.453	142	2899	10.29	ug/L	98
7) 1-Methylnaphthalene	7.550	142	2735	10.26	ug/L #	91
9) Acenaphthylene	8.341	152	508	N.D.		
11) Acenaphthene	8.508	152	515	N.D.		
12) Fluorene	9.021	166	5775	19.20	ug/L	84
14) Phenanthrene	9.968	178	14904	33.63	ug/L	99
15) Anthracene	10.019	178	2286	5.77	ug/L #	92
17) Fluoranthene	11.146	202	8712	21.84	ug/L #	60
18) Pyrene	11.367	202	8056	19.32	ug/L #	55
19) Benzo (a) anthracene	12.563	228	3520	10.07	ug/L #	100
21) Chrysene	12.590	228	3109m	6.93	ug/L	
22) benzo (b) fluoranthene	13.556	252	559	N.D.		
23) benzo (k) fluoranthene	13.789	252	259	N.D.		
24) benzo (a) pyrene	13.833	252	345	N.D.		
26) Indeno(1,2,3-cd)pyrene	14.969	276	5	N.D.		
27) Dibenz (a,h) anthracene	14.962	278	12	N.D.		
28) Benzo (g,h,i) perylene	15.251	276	72	N.D.		

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

DEPAH101012PHENOL.M Thu Oct 11 14:09:31 2012 PAH

File :D:\Data\SVOC\101112\101110.D
Operator :
Acquired : 11 Oct 2012 1:18 pm using AcqMethod DHPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 1210029-002A
Misc Info : SAMP O-PAH-S-SIM
Vial Number: 119



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101111.D
 Acq On : 11 Oct 2012 1:42 pm
 Operator :
 Sample : 1210029-007A
 Misc : SAMP O-PAH-S-SIM
 ALS Vial : 120 Sample Multiplier: 1

Quant Time: Oct 11 14:09:52 2012
 Quant Method : C:\msdchem\1\methods\DEPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

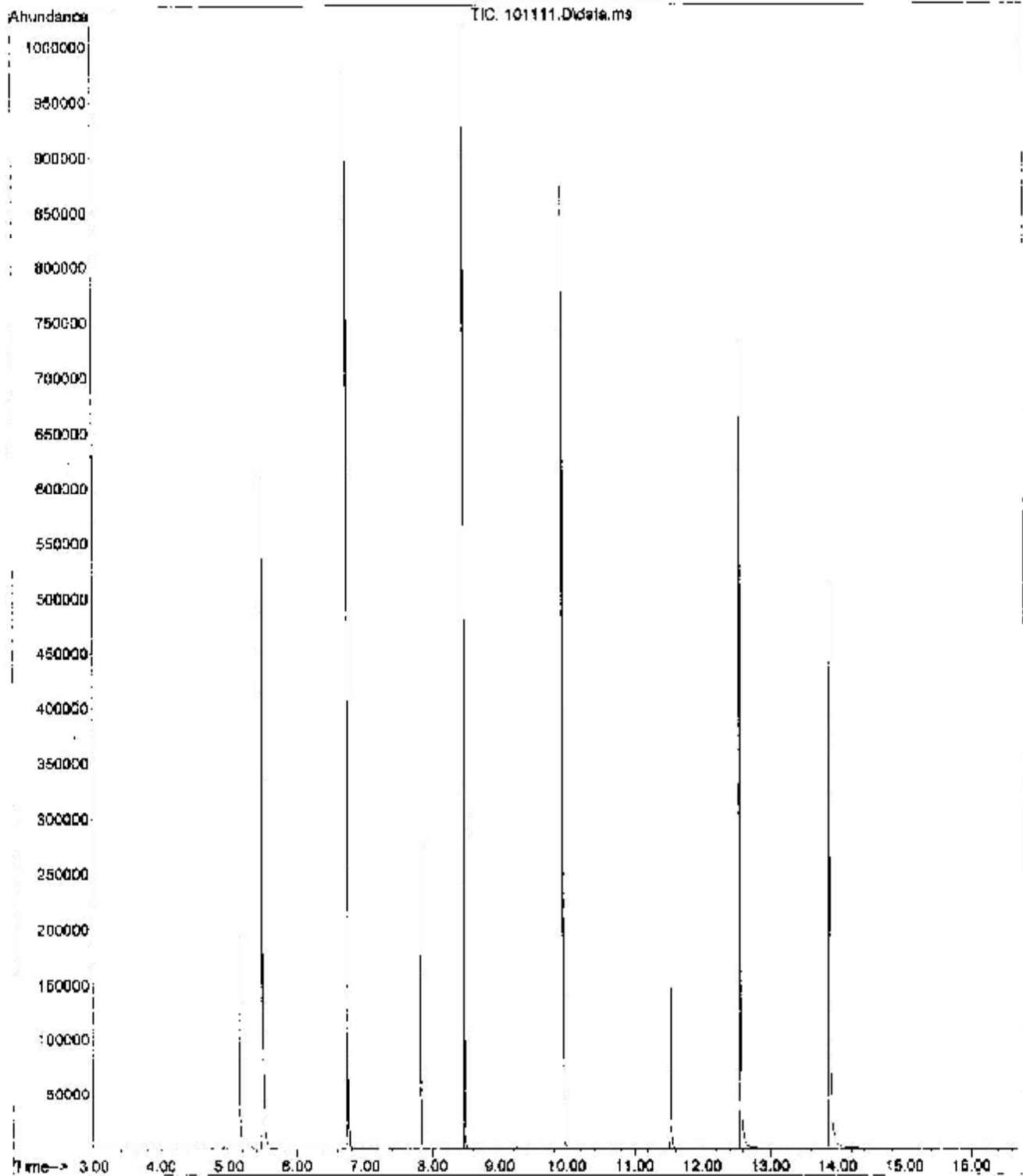
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)	

Internal Standards							
1) 1,4-Dichlorobenz-d4 (IS)	5.497	152	237032	2000.00	ug/L	0.00	
4) Naphthalene-d8 (IS)	6.747	136	762843	2000.00	ug/L	0.00	
10) Acenaphthene-d10 (IS)	8.478	164	387685	2000.00	ug/L	0.00	
13) Phenanthrene-d10 (IS)	9.940	188	634802	2000.00	ug/L	0.00	
20) Chrysene-d12 (IS)	12.566	240	581848	2000.00	ug/L	0.00	
25) Perylene-d12 (IS)	13.885	264	552944	2000.00	ug/L	0.00	
System Monitoring Compounds							
2) Phenol-d6	5.151	99	144641	803.32	ug/L	0.00	
8) 2-Fluorobiphenyl (surr)	7.821	172	154981	459.76	ug/L	0.00	
16) Terphenyl-d14 (surr)	11.538	244	112945	482.68	ug/L	0.00	
Target Compounds							
							Qvalue
3) 2,4-Dimethylphenol	6.339	107	5				N.D.
5) Naphthalene	6.747	128	28				N.D.
6) 2-Methylnaphthalene	7.455	142	240				N.D.
7) 1-Methylnaphthalene	7.550	142	144				N.D.
9) Acenaphthylene	8.340	152	11				N.D.
11) Acenaphthene	8.478	152	36				N.D.
12) Fluorene	9.023	166	102				N.D.
14) Phenanthrene	9.957	178	300				N.D.
15) Anthracene	10.020	178	36				N.D.
17) Fluoranthene	11.145	202	43				N.D.
18) Pyrene	11.367	202	196				N.D.
19) Benzo (a) anthracene	12.564	228	1591				N.D.
21) Chrysene	12.564	228	1440				N.D.
22) benzo (b) fluoranthene	13.552	252	28				N.D.
23) benzo (k) fluoranthene	13.578	252	153				N.D.
24) benzo (a) pyrene	13.835	252	72				N.D.
26) Indeno (1,2,3-cd)pyrene	14.948	276	31				N.D.
27) Dibenz (a,h) anthracene	14.965	278	14				N.D.
28) Benzo (g,h,i) perylene	15.250	276	3				N.D.

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

DEPAH101012PHENOL.M Thu Oct 11 14:09:53 2012 PAH

File : D:\Data\SVOC\101112\101111.D
Operator :
Acquired : 11 Oct 2012 1:42 pm using AcqMethod DSPAHL01072PHFNK01.M
Instrument : HP-MSD
Sample Name: 1210029-007A
Misc Info : SAMP C-PAH-S-SIM
Vial Number: 120





Libby Environmental, Inc.

4139 Libby Road NE • Olympia, WA 98506-2518

November 8, 2012

Neil Morton
GeoEngineers Inc.
600 Stewart Street, Suite 1700
Seattle, WA 98101

Dear Mr. Morton:

Please find enclosed the analytical data report for the Irondale Project located in Irondale, Washington. Soil samples were analyzed for Metals Arsenic, Copper, Iron, Lead, Nickel and Zinc by EPA Method 6020 on October 4, 2012.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. All soil samples are reported on a dry weight basis. An invoice for this analytical work is enclosed.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Jamie L. Deyman
President
Libby Environmental, Inc.



Libby Environmental, Inc.

Case Narrative

Libby Project #: L121003-30
Date: 11-8-2012

CLIENT: GeoEngineers, Inc.
PROJECT: Irondale

I. SAMPLE RECEIPT:

All samples were received intact and in good condition. See the attached Sample Receipt Check List for more information.

II. GENERAL REPORTING COMMENTS:

N/A

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) and/or noted below.

Notes:

The Metals report includes cPAH data results from Libby project L121002-30.

Libby Environmental, Inc.

Chain of Custody Record

IP16

4139 Libby Road NE
Olympia, WA 98506

Ph: 360-352-2110
Fax: 360-352-4154

Date: 10/03/12

Page: 1 of

Client: BEI

Project Manager:

Address:

Project Name: IRONDALE

Phone: Fax:

Location: WA City: IRONDALE

Client Project #

Collector: PAUL ROBIUETTE Date of Collection: 10/03/12



Sample Number	Depth	Time	Sample Type	Container Type	Analytes										Field Notes				
					VOA 8021B	VOA 8021B BTEX Only	VOA 8280	SEMI VOL 8270	NWTPH-HCID	NWTPH-GX	NWTPH-DX	PAH 8270	PCB's 8082	MTCA 5 Metals		metals			
1 NRE-NWB1-10312	3'	1223	SOIL	402													X		See below
2 NRE-NWSW1-10312	4'	1220	SOIL	402													X		
3 NRE-SSW1-10312	4'	1225															X		
4 NRE-NSW1-10312	4'	1224															X		
5 NRE-NSW2-10312	11'	1227															X		
6 NRE-SSW2-10312	4'	1230															X		
7 NRE-NWB2-10312	6'	1231															X		
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			
16																			
17																			
18																			

Relinquished by: Paul Robiutte 10/3/12 1258

Received by: Paul Bunke 10/3/12 1258

Sample Receipt:

Remarks: METALS!
Arsenic, Copper, Iron
Lead, Nickel & Zinc.

Relinquished by: Date / Time

Received by: Date / Time

Good Condition?

Cold?

Relinquished by: Date / Time

Received by: Date / Time

Seals Intact?

Total Number of Containers

RUSH 24hr

Libby Environmental, Inc. Login Sample Receipt Check List

Client: GeoEngineers, Inc. **Libby Project Number:** L121003-30

Question	T / F / NA	Comment
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler temperature is acceptable.	True	
COC is present.	True	
COC is filled out in ink and is legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within the Hold Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs.	True	
VOA sample vials do not have headspace or bubble is less than 6mm (1/4 in.) in diameter.	True	
If necessary, staff has been informed of any short hold time or quick TAT needs.	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	



1311 N. 35th St.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Libby Environmental

Jamie Deyman
4139 Libby Rd. NE
Olympia, Washington 98506

RE: Irondale
Lab ID: 1210029

October 11, 2012

Attention Jamie Deyman:

Fremont Analytical, Inc. received 15 sample(s) on 10/3/2012 for the analyses presented in the following report.

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

A handwritten signature in black ink, appearing to read "M. Dee".

Michael Dee
Sr. Chemist / Principal



Date: 10/11/2012

CLIENT: Libby Environmental
Project: Irondale
Lab Order: 1210029

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1210029-001	SURZ-F14B1-100212	10/02/2012 7:50 AM	10/03/2012 3:50 PM
1210029-002	SURZ-F14B2-100212	10/02/2012 7:51 AM	10/03/2012 3:50 PM
1210029-003	SURZ-SSW1-100212	10/02/2012 8:10 AM	10/03/2012 3:50 PM
1210029-004	SURZ-WSW1-100212	10/02/2012 8:15 AM	10/03/2012 3:50 PM
1210029-005	F15B1-10212	10/02/2012 10:35 AM	10/03/2012 3:50 PM
1210029-006	F15NSW-10212	10/02/2012 10:40 AM	10/03/2012 3:50 PM
1210029-007	F15B2-10212	10/02/2012 10:42 AM	10/03/2012 3:50 PM
1210029-008	SURZ-WSW2-10212	10/02/2012 10:45 AM	10/03/2012 3:50 PM
1210029-009	NRZ-NWB1-10312	10/03/2012 12:23 PM	10/03/2012 3:50 PM
1210029-010	NRZ-NWSW1-10312	10/03/2012 12:20 PM	10/03/2012 3:50 PM
1210029-011	NRZ-SSW1-10312	10/03/2012 12:25 PM	10/03/2012 3:50 PM
1210029-012	NRZ-NSW1-10312	10/03/2012 12:26 PM	10/03/2012 3:50 PM
1210029-013	NRZ-NSW2-10312	10/03/2012 12:27 PM	10/03/2012 3:50 PM
1210029-014	NRZ-SSW2-10312	10/03/2012 12:30 PM	10/03/2012 3:50 PM
1210029-015	NRZ-NWB2-10312	10/03/2012 12:31 PM	10/03/2012 3:50 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: Libby Environmental**Project:** Irondale

I. SAMPLE RECEIPT:

All samples were received intact. The internal ice chest temperatures were measured on receipt and are recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.



Analytical Report

WO#: 1210029

Date Reported: 10/11/2012

Client: Libby Environmental

Collection Date: 10/2/2012 7:51:00 AM

Project: Irondale

Lab ID: 1210029-002

Matrix: Soil

Client Sample ID: SURZ-F14B2-100212

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
----------	--------	----	------	-------	----	---------------

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 3353

Analyst: PH

Benz(a)anthracene	ND	52.6		µg/Kg-dry	1	10/11/2012 1:18:00 PM
Chrysene	ND	52.6		µg/Kg-dry	1	10/11/2012 1:18:00 PM
Benzo(b)fluoranthene	ND	52.6		µg/Kg-dry	1	10/11/2012 1:18:00 PM
Benzo(k)fluoranthene	ND	52.6		µg/Kg-dry	1	10/11/2012 1:18:00 PM
Benzo(a)pyrene	ND	52.6		µg/Kg-dry	1	10/11/2012 1:18:00 PM
Indeno(1,2,3-cd)pyrene	ND	52.6		µg/Kg-dry	1	10/11/2012 1:18:00 PM
Dibenz(a,h)anthracene	ND	52.6		µg/Kg-dry	1	10/11/2012 1:18:00 PM
Surr: 2-Fluorobiphenyl	92.9	50.4-142		%REC	1	10/11/2012 1:18:00 PM
Surr: Terphenyl-d14 (surr)	105	48.8-157		%REC	1	10/11/2012 1:18:00 PM

Sample Moisture (Percent Moisture)

Batch ID: R6072

Analyst: CM

Percent Moisture	16.0			wt%	1	10/10/2012 4:00:51 PM
------------------	------	--	--	-----	---	-----------------------

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210029

Date Reported: 10/11/2012

Client: Libby Environmental

Collection Date: 10/2/2012 10:42:00 AM

Project: Irondale

Lab ID: 1210029-007

Matrix: Soil

Client Sample ID: F15B2-10212

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
----------	--------	----	------	-------	----	---------------

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 3353

Analyst: PH

Benz(a)anthracene	ND	41.1		µg/Kg-dry	1	10/11/2012 1:42:00 PM
Chrysene	ND	41.1		µg/Kg-dry	1	10/11/2012 1:42:00 PM
Benzo(b)fluoranthene	ND	41.1		µg/Kg-dry	1	10/11/2012 1:42:00 PM
Benzo(k)fluoranthene	ND	41.1		µg/Kg-dry	1	10/11/2012 1:42:00 PM
Benzo(a)pyrene	ND	41.1		µg/Kg-dry	1	10/11/2012 1:42:00 PM
Indeno(1,2,3-cd)pyrene	ND	41.1		µg/Kg-dry	1	10/11/2012 1:42:00 PM
Dibenz(a,h)anthracene	ND	41.1		µg/Kg-dry	1	10/11/2012 1:42:00 PM
Surr: 2-Fluorobiphenyl	92.0	50.4-142		%REC	1	10/11/2012 1:42:00 PM
Surr: Terphenyl-d14 (surr)	96.5	48.8-157		%REC	1	10/11/2012 1:42:00 PM

Sample Moisture (Percent Moisture)

Batch ID: R6072

Analyst: CM

Percent Moisture	8.72			wt%	1	10/10/2012 4:00:51 PM
------------------	------	--	--	-----	---	-----------------------

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210029

Date Reported: 10/11/2012

Client: Libby Environmental

Collection Date: 10/3/2012 12:23:00 PM

Project: Irondale

Lab ID: 1210029-009

Matrix: Soil

Client Sample ID: NRZ-NWB1-10312

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 3345

Analyst: SG

Arsenic	6.71	0.0930	B	mg/Kg-dry	1	10/4/2012 1:22:16 PM
Copper	60.2	0.186		mg/Kg-dry	1	10/4/2012 1:22:16 PM
Iron	9,080	5.12	E	mg/Kg-dry	1	10/4/2012 1:22:16 PM
Lead	3.20	0.186		mg/Kg-dry	1	10/4/2012 1:22:16 PM
Nickel	20.1	0.0930		mg/Kg-dry	1	10/4/2012 1:22:16 PM
Zinc	27.3	0.372		mg/Kg-dry	1	10/4/2012 1:22:16 PM

Sample Moisture (Percent Moisture)

Batch ID: R5987

Analyst: CM

Percent Moisture	22.7			wt%	1	10/4/2012 1:44:18 PM
------------------	------	--	--	-----	---	----------------------

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210029

Date Reported: 10/11/2012

Client: Libby Environmental

Collection Date: 10/3/2012 12:20:00 PM

Project: Irondale

Lab ID: 1210029-010

Matrix: Soil

Client Sample ID: NRZ-NWSW1-10312

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
----------	--------	----	------	-------	----	---------------

Total Metals by EPA Method 6020

Batch ID: 3345

Analyst: SG

Arsenic	12.9	0.0704	B	mg/Kg-dry	1	10/4/2012 1:31:54 PM
Copper	254	0.141	E	mg/Kg-dry	1	10/4/2012 1:31:54 PM
Iron	15,100	3.87	E	mg/Kg-dry	1	10/4/2012 1:31:54 PM
Lead	3.03	0.141		mg/Kg-dry	1	10/4/2012 1:31:54 PM
Nickel	27.8	0.0704	B	mg/Kg-dry	1	10/4/2012 1:31:54 PM
Zinc	44.4	0.282		mg/Kg-dry	1	10/4/2012 1:31:54 PM

Sample Moisture (Percent Moisture)

Batch ID: R5987

Analyst: CM

Percent Moisture	12.3			wt%	1	10/4/2012 1:44:18 PM
------------------	------	--	--	-----	---	----------------------

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210029

Date Reported: 10/11/2012

Client: Libby Environmental

Collection Date: 10/3/2012 12:25:00 PM

Project: Irondale

Lab ID: 1210029-011

Matrix: Soil

Client Sample ID: NRZ-SSW1-10312

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
----------	--------	----	------	-------	----	---------------

Total Metals by EPA Method 6020

Batch ID: 3345

Analyst: SG

Arsenic	3.31	0.0688	B	mg/Kg-dry	1	10/4/2012 2:48:50 PM
Copper	16.2	0.138		mg/Kg-dry	1	10/4/2012 2:48:50 PM
Iron	7,280	3.79	E	mg/Kg-dry	1	10/4/2012 2:48:50 PM
Lead	1.98	0.138		mg/Kg-dry	1	10/4/2012 2:48:50 PM
Nickel	43.8	0.0688	B	mg/Kg-dry	1	10/4/2012 2:48:50 PM
Zinc	26.8	0.275		mg/Kg-dry	1	10/4/2012 2:48:50 PM

Sample Moisture (Percent Moisture)

Batch ID: R5987

Analyst: CM

Percent Moisture	11.4			wt%	1	10/4/2012 1:44:18 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210029

Date Reported: 10/11/2012

Client: Libby Environmental

Collection Date: 10/3/2012 12:26:00 PM

Project: Irondale

Lab ID: 1210029-012

Matrix: Soil

Client Sample ID: NRZ-NSW1-10312

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 3345

Analyst: SG

Arsenic	26.9	0.0778	B	mg/Kg-dry	1	10/4/2012 2:58:28 PM
Copper	898	0.156	E	mg/Kg-dry	1	10/4/2012 2:58:28 PM
Iron	17,700	4.28	E	mg/Kg-dry	1	10/4/2012 2:58:28 PM
Lead	6.81	0.156		mg/Kg-dry	1	10/4/2012 2:58:28 PM
Nickel	14.5	0.0778		mg/Kg-dry	1	10/4/2012 2:58:28 PM
Zinc	55.4	0.311		mg/Kg-dry	1	10/4/2012 2:58:28 PM

Sample Moisture (Percent Moisture)

Batch ID: R5987

Analyst: CM

Percent Moisture	7.54			wt%	1	10/4/2012 1:44:18 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210029

Date Reported: 10/11/2012

Client: Libby Environmental

Collection Date: 10/3/2012 12:27:00 PM

Project: Irondale

Lab ID: 1210029-013

Matrix: Soil

Client Sample ID: NRZ-NSW2-10312

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 3345

Analyst: SG

Arsenic	15.2	0.0699	B	mg/Kg-dry	1	10/4/2012 3:08:06 PM
Copper	46.2	0.140		mg/Kg-dry	1	10/4/2012 3:08:06 PM
Iron	16,200	3.85	E	mg/Kg-dry	1	10/4/2012 3:08:06 PM
Lead	2.26	0.140		mg/Kg-dry	1	10/4/2012 3:08:06 PM
Nickel	38.5	0.0699	B	mg/Kg-dry	1	10/4/2012 3:08:06 PM
Zinc	37.7	0.280		mg/Kg-dry	1	10/4/2012 3:08:06 PM

Sample Moisture (Percent Moisture)

Batch ID: R5987

Analyst: CM

Percent Moisture	9.52			wt%	1	10/4/2012 1:44:18 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210029

Date Reported: 10/11/2012

Client: Libby Environmental

Collection Date: 10/3/2012 12:30:00 PM

Project: Irondale

Lab ID: 1210029-014

Matrix: Soil

Client Sample ID: NRZ-SSW2-10312

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 3345

Analyst: SG

Arsenic	2.66	0.0821	B	mg/Kg-dry	1	10/4/2012 3:17:45 PM
Copper	14.8	0.164		mg/Kg-dry	1	10/4/2012 3:17:45 PM
Iron	8,730	4.52	E	mg/Kg-dry	1	10/4/2012 3:17:45 PM
Lead	1.48	0.164		mg/Kg-dry	1	10/4/2012 3:17:45 PM
Nickel	44.5	0.0821		mg/Kg-dry	1	10/4/2012 3:17:45 PM
Zinc	26.7	0.329		mg/Kg-dry	1	10/4/2012 3:17:45 PM

Sample Moisture (Percent Moisture)

Batch ID: R5987

Analyst: CM

Percent Moisture	9.13			wt%	1	10/4/2012 1:44:18 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210029

Date Reported: 10/11/2012

Client: Libby Environmental

Collection Date: 10/3/2012 12:31:00 PM

Project: Irondale

Lab ID: 1210029-015

Matrix: Soil

Client Sample ID: NRZ-NWB2-10312

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 3345

Analyst: SG

Arsenic	36.3	0.0798	B	mg/Kg-dry	1	10/4/2012 3:27:23 PM
Copper	433	0.160	E	mg/Kg-dry	1	10/4/2012 3:27:23 PM
Iron	48,000	4.39	E	mg/Kg-dry	1	10/4/2012 3:27:23 PM
Lead	13.8	0.160		mg/Kg-dry	1	10/4/2012 3:27:23 PM
Nickel	20.2	0.0798		mg/Kg-dry	1	10/4/2012 3:27:23 PM
Zinc	60.0	0.319		mg/Kg-dry	1	10/4/2012 3:27:23 PM

Sample Moisture (Percent Moisture)

Batch ID: R5987

Analyst: CM

Percent Moisture	13.0			wt%	1	10/4/2012 1:44:18 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Work Order: 1210029
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: MB-3345	SampType: MBLK	Units: mg/Kg	Prep Date: 10/3/2012	RunNo: 5990							
Client ID: MBLKS	Batch ID: 3345	Analysis Date: 10/4/2012	SeqNo: 118684								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.221	0.100									
Copper	ND	0.200									
Lead	ND	0.200									
Nickel	ND	0.100									
Zinc	ND	0.400									

Sample ID: LCS-3345	SampType: LCS	Units: mg/Kg	Prep Date: 10/3/2012	RunNo: 5990							
Client ID: LCSS	Batch ID: 3345	Analysis Date: 10/4/2012	SeqNo: 118685								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	95.7	1.00	84.10	0	114	68.73	130.8				B
Copper	291	2.00	262.0	0	111	75.95	124.05				
Lead	315	2.00	301.0	0	105	70.1	115.61				
Nickel	116	1.00	105.0	0	111	72.76	127.62				
Zinc	640	4.00	615.0	0	104	68.29	117.89				

Sample ID: 1210029-010ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 10/3/2012	RunNo: 5990							
Client ID: NRZ-NWSW1-10312	Batch ID: 3345	Analysis Date: 10/4/2012	SeqNo: 118688								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	24.2	0.0884						12.88	61.1	30	BR
Copper	320	0.177						254.4	22.8	30	E
Lead	4.45	0.177						3.026	38.0	30	R
Nickel	34.4	0.0884						27.79	21.2	30	
Zinc	59.1	0.354						44.44	28.4	30	

NOTES:

R - High RPD noted (possible matrix interference). The method is in control as indicated by the laboratory control sample (LCS).

Qualifiers:	B Analyte detected in the associated Method Blank	D Dilution was required	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits	ND Not detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit	S Spike recovery outside accepted recovery limits



Date: 10/11/2012

Work Order: 1210029
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: 1210029-010AMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 10/3/2012	RunNo: 5990							
Client ID: NRZ-NWSW1-10312	Batch ID: 3345		Analysis Date: 10/4/2012	SeqNo: 118690							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	17.7	0.0839	41.93	12.88	11.5	75	125				BS
Copper	353	0.168	41.93	254.4	235	75	125				SE
Lead	4.47	0.168	20.96	3.026	6.87	75	125				S
Nickel	32.5	0.0839	41.93	27.79	11.3	75	125				S
Zinc	56.4	0.335	41.93	44.44	28.5	75	125				S

NOTES:

S - Outlying spike recovery(ies) observed due to possible matrix effect and/or the sample concentration (too high for spike recovery). A duplicate analysis was performed with similar result. A Post Digestion Spike was included.

Sample ID: 1210029-010AMSD	SampType: MSD	Units: mg/Kg-dry	Prep Date: 10/3/2012	RunNo: 5990							
Client ID: NRZ-NWSW1-10312	Batch ID: 3345		Analysis Date: 10/4/2012	SeqNo: 118691							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	31.0	0.0820	41.02	12.88	44.2	75	125	17.68	54.8	30	BSR
Copper	3,970	0.164	41.02	254.4	9,070	75	125	353.1	167	30	SRE
Lead	7.11	0.164	20.51	3.026	19.9	75	125	4.467	45.7	30	SR
Nickel	38.6	0.0820	41.02	27.79	26.5	75	125	32.53	17.2	30	S
Zinc	94.2	0.328	41.02	44.44	121	75	125	56.38	50.3	30	R

NOTES:

S - Outlying spike recovery(ies) observed due to possible matrix effect and/or the sample concentration (too high for spike recovery). A Post Digestion Spike was included.

Sample ID: 1210029-010APDS	SampType: PDS	Units: mg/Kg-dry	Prep Date: 10/3/2012	RunNo: 5990							
Client ID: NRZ-NWSW1-10312	Batch ID: 3345		Analysis Date: 10/4/2012	SeqNo: 118692							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	141	0.0717	50.0	36.6	105	75	125				B
Copper	799	0.143	50.0	723	89.4	75	125				E
Lead	50.7	0.143	25.0	8.60	84.6	75	125				
Nickel	172	0.0717	50.0	78.9	94.9	75	125				
Zinc	211	0.287	50.0	126	87.0	75	125				

Qualifiers:	B Analyte detected in the associated Method Blank	D Dilution was required	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits	ND Not detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit	S Spike recovery outside accepted recovery limits



Date: 10/11/2012

Work Order: 1210029
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: 1210029-010APDS	SampType: PDS	Units: mg/Kg-dry	Prep Date: 10/3/2012	RunNo: 5990							
Client ID: NRZ-NWSW1-10312	Batch ID: 3345	Analysis Date: 10/4/2012	SeqNo: 118692								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:

S - Outlying spike recovery(ies) observed.

Qualifiers:	B Analyte detected in the associated Method Blank	D Dilution was required	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits	ND Not detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit	S Spike recovery outside accepted recovery limits

Work Order: 1210029
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: CCV-3353	SampType: CCV	Units: µg/Kg	Prep Date: 10/11/2012	RunNo: 6083							
Client ID: CCV	Batch ID: 3353		Analysis Date: 10/11/2012	SeqNo: 120852							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,110	50.0	1,000	0	111	80	120				
Chrysene	974	50.0	1,000	0	97.4	80	120				
Benzo(b)fluoranthene	871	50.0	1,000	0	87.1	80	120				
Benzo(k)fluoranthene	1,050	50.0	1,000	0	105	80	120				
Benzo(a)pyrene	996	50.0	1,000	0	99.6	80	120				
Indeno(1,2,3-cd)pyrene	1,040	50.0	1,000	0	104	80	120				
Dibenz(a,h)anthracene	947	50.0	1,000	0	94.7	80	120				
Surr: 2-Fluorobiphenyl	485		500.0		97.1	50.4	142				
Surr: Terphenyl-d14 (surr)	522		500.0		104	48.8	157				

Sample ID: CCB-3353	SampType: CCB	Units: µg/Kg	Prep Date: 10/11/2012	RunNo: 6083							
Client ID: CCB	Batch ID: 3353		Analysis Date: 10/11/2012	SeqNo: 120853							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Surr: 2-Fluorobiphenyl	494		500.0		98.9	50.4	142				
Surr: Terphenyl-d14 (surr)	510		500.0		102	48.8	157				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1210029
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: MB-3353	SampType: MBLK	Units: µg/Kg	Prep Date: 10/5/2012	RunNo: 6083							
Client ID: MBLKS	Batch ID: 3353		Analysis Date: 10/11/2012	SeqNo: 120854							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Surr: 2-Fluorobiphenyl	463		500.0		92.5	50.4	142				
Surr: Terphenyl-d14 (surr)	467		500.0		93.4	48.8	157				

Sample ID: LCS-3353	SampType: LCS	Units: µg/Kg	Prep Date: 10/5/2012	RunNo: 6083							
Client ID: LCSS	Batch ID: 3353		Analysis Date: 10/11/2012	SeqNo: 120855							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benz(a)anthracene	956	50.0	1,000	0	95.6	57.9	150				
Chrysene	908	50.0	1,000	0	90.8	76.1	123				
Benzo(b)fluoranthene	737	50.0	1,000	0	73.7	61.2	142				
Benzo(k)fluoranthene	968	50.0	1,000	0	96.8	68.1	134				
Benzo(a)pyrene	860	50.0	1,000	0	86.0	58.1	146				
Indeno(1,2,3-cd)pyrene	911	50.0	1,000	0	91.1	63.8	138				
Dibenz(a,h)anthracene	805	50.0	1,000	0	80.5	60.8	143				
Surr: 2-Fluorobiphenyl	491		500.0		98.2	50.4	142				
Surr: Terphenyl-d14 (surr)	506		500.0		101	48.8	157				

Qualifiers:
B Analyte detected in the associated Method Blank
D Dilution was required
E Value above quantitation range

H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not detected at the Reporting Limit

R RPD outside accepted recovery limits
RL Reporting Limit
S Spike recovery outside accepted recovery limits



Work Order: 1210029
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: 1209174-006AMS	SampType: MS	Units: µg/Kg	Prep Date: 10/5/2012	RunNo: 6083							
Client ID: BATCH	Batch ID: 3353		Analysis Date: 10/11/2012	SeqNo: 120857							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	792	42.8	856.9	0	92.4	57.5	169				
Chrysene	737	42.8	856.9	0	86.0	45.2	146				
Benzo(b)fluoranthene	607	42.8	856.9	0	70.9	42.2	168				
Benzo(k)fluoranthene	765	42.8	856.9	0	89.2	48	161				
Benzo(a)pyrene	702	42.8	856.9	0	82.0	34.4	179				
Indeno(1,2,3-cd)pyrene	741	42.8	856.9	0	86.5	41.1	165				
Dibenz(a,h)anthracene	651	42.8	856.9	0	76.0	38.1	166				
Surr: 2-Fluorobiphenyl	392		428.4		91.5	50.4	142				
Surr: Terphenyl-d14 (surr)	407		428.4		95.0	48.8	157				

Sample ID: 1210029-003ADUP	SampType: DUP	Units: µg/Kg	Prep Date: 10/5/2012	RunNo: 6083							
Client ID: SURZ-SSW1-100212	Batch ID: 3353		Analysis Date: 10/11/2012	SeqNo: 120862							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	43.0						0	0	30	
Chrysene	ND	43.0						0	0	30	
Benzo(b)fluoranthene	ND	43.0						0	0	30	
Benzo(k)fluoranthene	ND	43.0						0	0	30	
Benzo(a)pyrene	ND	43.0						0	200	30	R
Indeno(1,2,3-cd)pyrene	ND	43.0						0	0	30	
Dibenz(a,h)anthracene	ND	43.0						0	0	30	
Surr: 2-Fluorobiphenyl	413		429.6		96.2	50.4	142		0		
Surr: Terphenyl-d14 (surr)	440		429.6		102	48.8	157		0		

NOTES:

R - High RPD due to low analyte concentration. In this range, high RPD's may be expected.

Qualifiers:	B Analyte detected in the associated Method Blank	D Dilution was required	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits	ND Not detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit	S Spike recovery outside accepted recovery limits



Work Order: 1210029
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: ICB-3353	SampType: ICB	Units: µg/Kg	Prep Date: 10/10/2012	RunNo: 6083							
Client ID: ICB	Batch ID: 3353		Analysis Date: 10/10/2012	SeqNo: 121191							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Surr: 2-Fluorobiphenyl	496		500.0		99.2	50.4	142				
Surr: Terphenyl-d14 (surr)	484		500.0		96.9	48.8	157				

Sample ID: ICV-3353	SampType: ICV	Units: µg/Kg	Prep Date: 10/10/2012	RunNo: 6083							
Client ID: ICV	Batch ID: 3353		Analysis Date: 10/10/2012	SeqNo: 121192							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benz(a)anthracene	1,180	50.0	1,000	0	118	70	130				
Chrysene	1,100	50.0	1,000	0	110	70	130				
Benzo(b)fluoranthene	998	50.0	1,000	0	99.8	70	130				
Benzo(k)fluoranthene	1,170	50.0	1,000	0	117	70	130				
Benzo(a)pyrene	1,130	50.0	1,000	0	113	70	130				
Indeno(1,2,3-cd)pyrene	1,180	50.0	1,000	0	118	70	130				
Dibenz(a,h)anthracene	1,080	50.0	1,000	0	108	70	130				
Surr: 2-Fluorobiphenyl	505		500.0		101	50.4	142				
Surr: Terphenyl-d14 (surr)	507		500.0		101	48.8	157				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Client Name: **LIBBY**

 Work Order Number: **1210029**

 Logged by: **Troy Zehr**

 Date Received: **10/3/2012 3:50:00 PM**

Chain of Custody

1. Were custodial seals present? Yes No Not Required
2. Is Chain of Custody complete? Yes No Not Present
3. How was the sample delivered? Client

Log In

4. Coolers are present? Yes No NA
5. Was an attempt made to cool the samples? Yes No NA
6. Were all coolers received at a temperature of >0° C to 10.0°C Yes No NA
7. Sample(s) in proper container(s)? Yes No
8. Sufficient sample volume for indicated test(s)? Yes No
9. Are samples properly preserved? Yes No
10. Was preservative added to bottles? Yes No NA
11. Is there headspace present in VOA vials? Yes No NA
12. Did all sample containers arrive in good condition?(unbroken) Yes No
13. Does paperwork match bottle labels? Yes No
14. Are matrices correctly identified on Chain of Custody? Yes No
15. Is it clear what analyses were requested? Yes No
16. Were all holding times able to be met? Yes No

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks/Discrepancies

Collection times not on COC. Sample times taken from sample labels.

Item Information

Item #	Temp °C	Condition
Cooler	9.8	Good

Chain of Custody Record

Libby Environmental, Inc.

4139 Libby Road NE
Olympia, WA 98506
Ph: 360-352-2110
Fax: 360-352-4154

Client: *see above*

Address:

Phone:

Fax:

Client Project #

Project Manager: *Jamie Deyman*

Project Name: *Irondale*

Location:

City:

Collector:

Date of Collection: *10/2*

Date: *10-3-12* Page: *1* of *1*

Sample Number	Depth	Time	Sample Type	Container Type	Analytes										Field Notes							
					VOA 802/B	VOA 826/B	SEM VOL 8270	NMTPH-ACID	NMTPH-GX	NMTPH-DX	NMTPH-DX EXT	PAH 8270	PCBS 8082	MTCA 6 Metals								
1 SURZ-F4B1-100212			4oz Jar Soil	sample container																		Extract & Hold
2 SURZ-F4B2-100212			4oz Jar Soil																			
3 SURZ-SSW1-100212			4oz Jar Soil																			
4 SURZ-NSW1-100212			4oz Jar Soil																			
5 F15B1-10212			4oz Jar Soil																			
6 F15NSW-10212			4oz Jar Soil																			
7 F15B2-10212			4oz Jar Soil																			
8 SURZ-NSW2-10212			4oz Jar Soil																			
9 NRZ-NWB1-10312			4oz Jar Soil																			
10 NRZ-NSW1-10312			4oz Jar Soil																			
11 NRZ-SSW1-10312			4oz Jar Soil																			
12 NRZ-NSW1-10312			4oz Jar Soil																			
13 NRZ-NSW2-10312			4oz Jar Soil																			
14 NRZ-SSW2-10312			4oz Jar Soil																			
15 NRZ-NWB2-10312			4oz Jar Soil																			
16																						
17																						
18																						

Remarks: *Metal Analysis Arsenic, Copper, Iron Lead, Nickel & Zinc - Rush -*

Relinquished by: *79pe* Date/Time: *10/3/12*

Received by: *[Signature]* Date/Time: *10/3/12 3:50PM*

Relinquished by: _____ Date/Time: _____

Received by: _____ Date/Time: _____

Relinquished by: _____ Date/Time: _____

Received by: _____ Date/Time: _____

Good Condition?

Cold?

Seals Intact?

Total Number of Containers: _____

Here are the samples that we would like analyzed for cPAHs:

- 1. SURZ-F14B2-100212 (COC# 1015); TPH = 151 mg/kg (Kiln 14) 1210029-002
- 2. F15B2-10212 (COC# 1015); TPH = 40 U mg/kg (Kiln 15) 1210029-007
- 3. SURZ-B1-10812 (COC# 1018); TPH = 40.11 mg/kg (Between Kilns 8, 15, 17, and 18) 1210089-003
- 4. K08-B1-10912 (COC# 1019?); TPH = 70 mg/kg (Kiln 8) 1210087-004

Please run these samples on a 24 hour TAT.

PQLs specified in the QAPP for cPAHs are 0.05 mg/kg by EPA 8270D-SIM

Thank you,

Emily Ackerman
Office Manager
Libby Environmental, Inc.
360-352-2110 Office
360-352-4154 Fax
www.LibbyEnvironmental.com

12-100296

Chain of Custody Record

Libby Environmental, Inc.

4139 Libby Road NE
 Olympia WA 98506
 Ph: 360-352-2110
 Fax: 360-352-4154

Date: 10-3-12 Page: 1 of 1

Client: see above

Project Manager: Jamie Deyman

Project Name: Irondale

Location: _____ City: _____

Collector: _____ Date of Collection: 10/2

Sample Number	Depth	Time	Container Sample Type	sample Container Type	Field Notes
1 SURZ-F4B1-100212			4oz Jar Soil		EXTRACT & HOLD
2 SURZ-F4B2-100212			4oz Jar Soil		
3 SURZ-SSW1-100212			4oz Jar Soil		
4 SURZ-WSW1-100212			4oz Jar Soil		
5 F15B1-10212			4oz Jar Soil		
6 F15SW-10212			4oz Jar Soil		
7 F15B2-10212			4oz Jar Soil		
8 SURZ-WSW2-10212			4oz Jar Soil		
9 NRZ-NWB1-10312			4oz Jar Soil		
10 NRZ-NSW1-10312			4oz Jar Soil		
11 NRZ-SSW1-10312			4oz Jar Soil		
12 NRZ-NSW1-10312			4oz Jar Soil		
13 NRZ-NSW2-10312			4oz Jar Soil		
14 NRZ-SSW2-10312			4oz Jar Soil		
15 NRZ-NWB2-10312			4oz Jar Soil		
16					
17					
18					

SUM CPAM 21/TAT
 per Emily 10/10 cy

Refringished by: Page Date / Time: 10/3/12 3:50pm
 Date / Time: 10/3/12 3:50pm
 Received by: [Signature]
 Date / Time: _____
 Received by: _____
 Date / Time: _____

Remarks: METAL ANALYSIS
 Arsenic, Copper, Iron
 Lead, Nickel & Zinc
 - RUSH -
 for Metals only

Sample Receipt
 Good Condition?
 Cool?
 Seals Intact?
 Total Number of Containers: _____

calrpt.txt
Response Factor Report HP-MSD

Method Path : C:\msdchem\1\methods\
Method File : D:\PAH101012PHENOL.M
Title : EPA Method 8270-PAH
Last Update : Thu Oct 11 09:37:24 2012
Response Via : Initial Calibration

Calibration Files
1 =101009.D 2 =101010.D 3 =101011.D 4 =101012.D 5 =101013.D 6 =101014.D 7 =101015.D
8 =101016.D

Compound	1	2	3	4	4	5	6	7	8	Avg	%RSD
1) 1,4-dichlorobenz-d...					ISTD						
2) s Phenol-d6	1.474	1.469	1.478	1.491	1.516	1.516	1.589	1.621	1.519	3.73	
3) t 2,4-dimethylph...	0.806	0.628	0.880	0.927	1.023	1.177	1.152	1.184	0.972	20.53	
4) I Naphthalene-d8 (IS)					ISTD						
5) t Naphthalene	1.430	1.130	1.366	1.326	1.259	1.301	1.208	1.130	1.269	8.53	
6) t 2-Methylnaphth...	0.797	0.629	0.776	0.769	0.750	0.799	0.735	0.691	0.743	7.81	
7) t 1-Methylnaphth...	0.760	0.603	0.742	0.729	0.708	0.747	0.686	0.652	0.703	7.67	
8) s 2-Fluorobiphen...	0.877	0.877	0.883	0.888	0.898	0.853	0.895	0.899	0.884	1.72	
9) t Acenaphthylene	1.038	0.802	1.023	1.044	1.059	1.149	1.052	0.985	1.013	9.73	
10) I Acenaphthene-d10 (IS)					ISTD						
11) m Acenaphthene	0.786	0.603	0.725	0.702	0.668	0.678	0.630	0.588	0.673	9.77	
12) t Fluorene	1.727	1.325	1.630	1.618	1.571	1.615	1.482	1.364	1.542	9.04	
13) I Phenanthrene-d10 (IS)					ISTD						
14) t Phenanthrene	1.620	1.212	1.455	1.433	1.368	1.352	1.287	1.192	1.365	10.27	
15) t Anthracene	1.260	0.952	1.216	1.239	1.255	1.326	1.277	1.220	1.219	9.00	
16) s Terphenyl-d14 ...	0.733	0.728	0.728	0.728	0.737	0.732	0.756	0.761	0.737	1.88	
17) t Fluoranthene	1.204	0.923	1.185	1.223	1.273	1.435	1.323	1.263	1.229	11.93	
18) t Pyrene	1.237	0.951	1.242	1.291	1.343	1.492	1.387	1.320	1.284	12.05	
19) t Benzo (a) anth...	1.270	0.866	0.992	1.012	1.040	1.181	1.140	1.114	1.077	11.68	
20) I Chrysene-d12 (IS)					ISTD						
21) t Chrysene	1.773	1.261	1.543	1.451	1.398	1.456	1.375	1.303	1.445	11.05	
22) t benzo (b) fluo...	0.595	0.444	0.577	0.689	0.778	0.986	1.006	1.063	0.767	29.94	
23) t benzo (k) fluo...	1.206	0.915	1.311	1.516	1.536	1.604	1.559	1.476	1.390	16.85	
24) t benzo (a) pyrene	0.589	0.449	0.634	0.733	0.858	1.057	1.090	1.260	0.833	33.81	

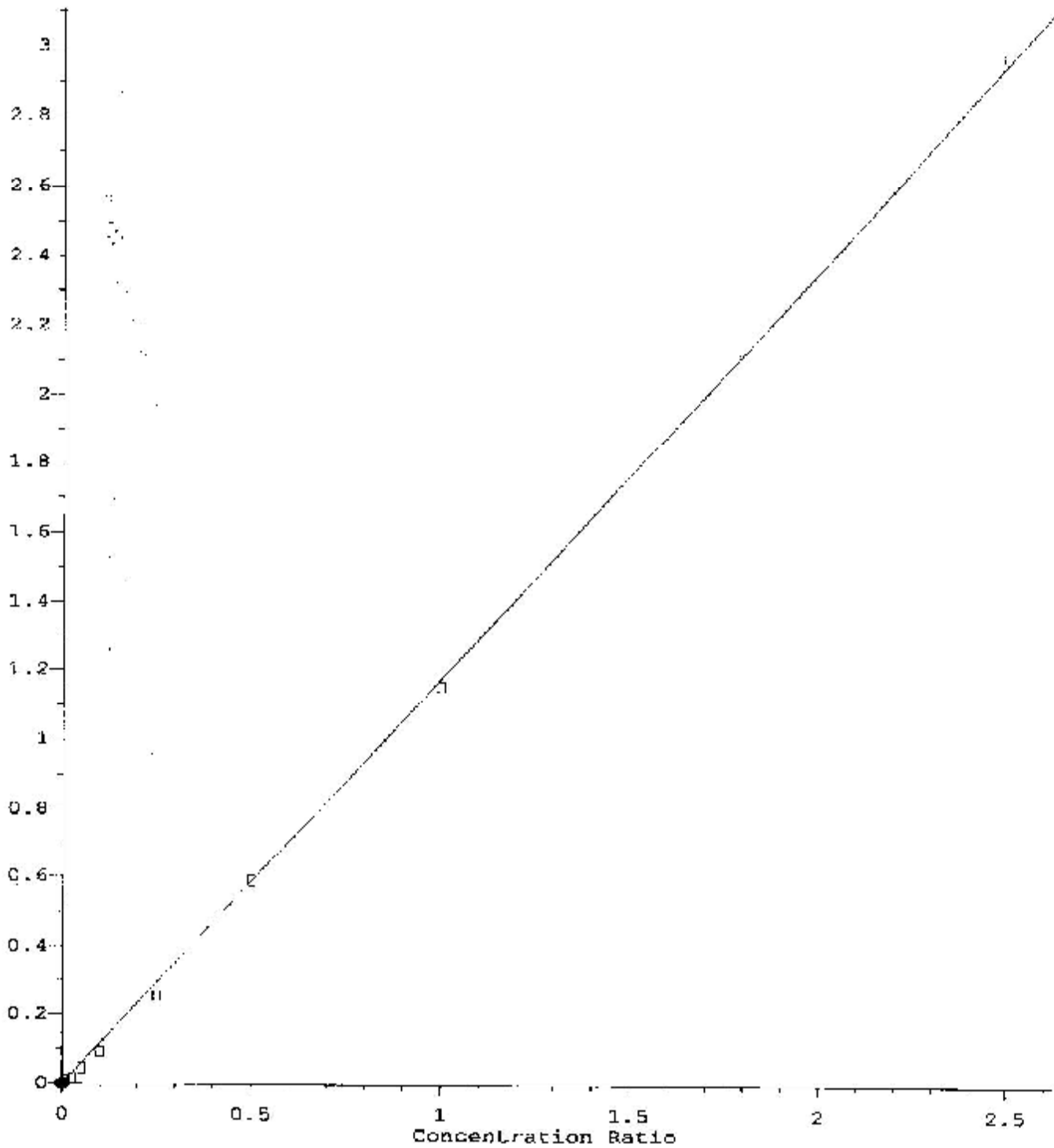
		calrpr.txt		ISTD							
25) I	perylene-d12 (IS)										
26) t	Indeno(1,2,3-c...	0.626	0.502	0.688	0.789	0.903	1.082	1.133	1.268	0.874	30.83
27) t	Dibenz (a,h) a...	0.448	0.348	0.496	0.566	0.672	0.852	0.906	0.974	0.658	35.14
28) t	Benzo (g,h,i) ...	0.813	0.644	0.883	0.990	1.066	1.221	1.222	1.175	1.002	20.95

(#) = Out of Range

DBPAH101012PHENOL.M Thu Oct 11 09:38:07 2012 PAH

2,4-Dimethylphenol

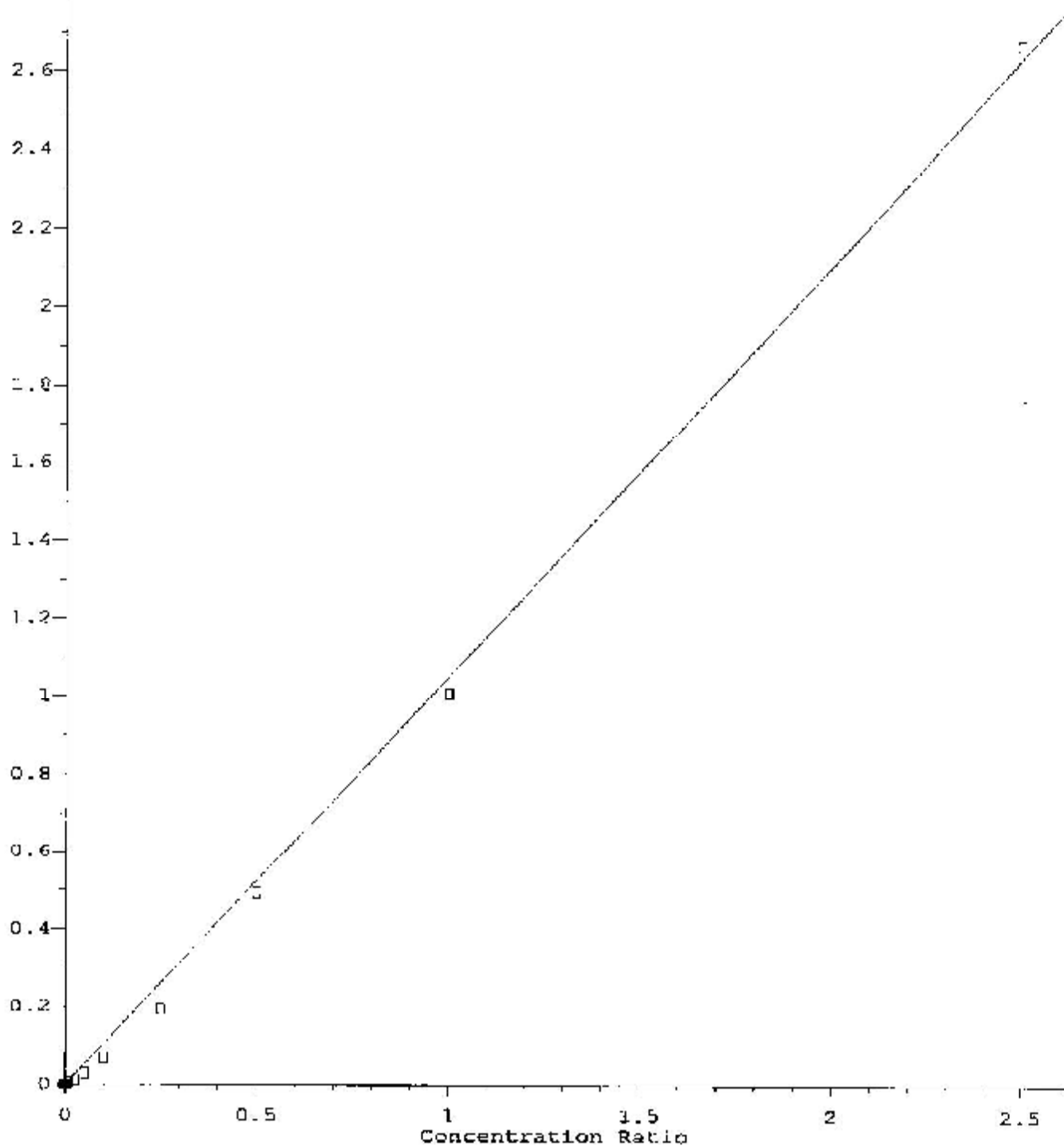
Response Ratio



Response = 1.19e+000 * Amt
Coef of Det (r^2) = 1.000 Curve Fit: Linear/(0,0)
Method Name: C:\msdchem\1\methods\DEPAH101012PHENOL.M
Calibration Table Last Updated: Thu Oct 11 14:52:26 2012

benzo (b) fluoranthene

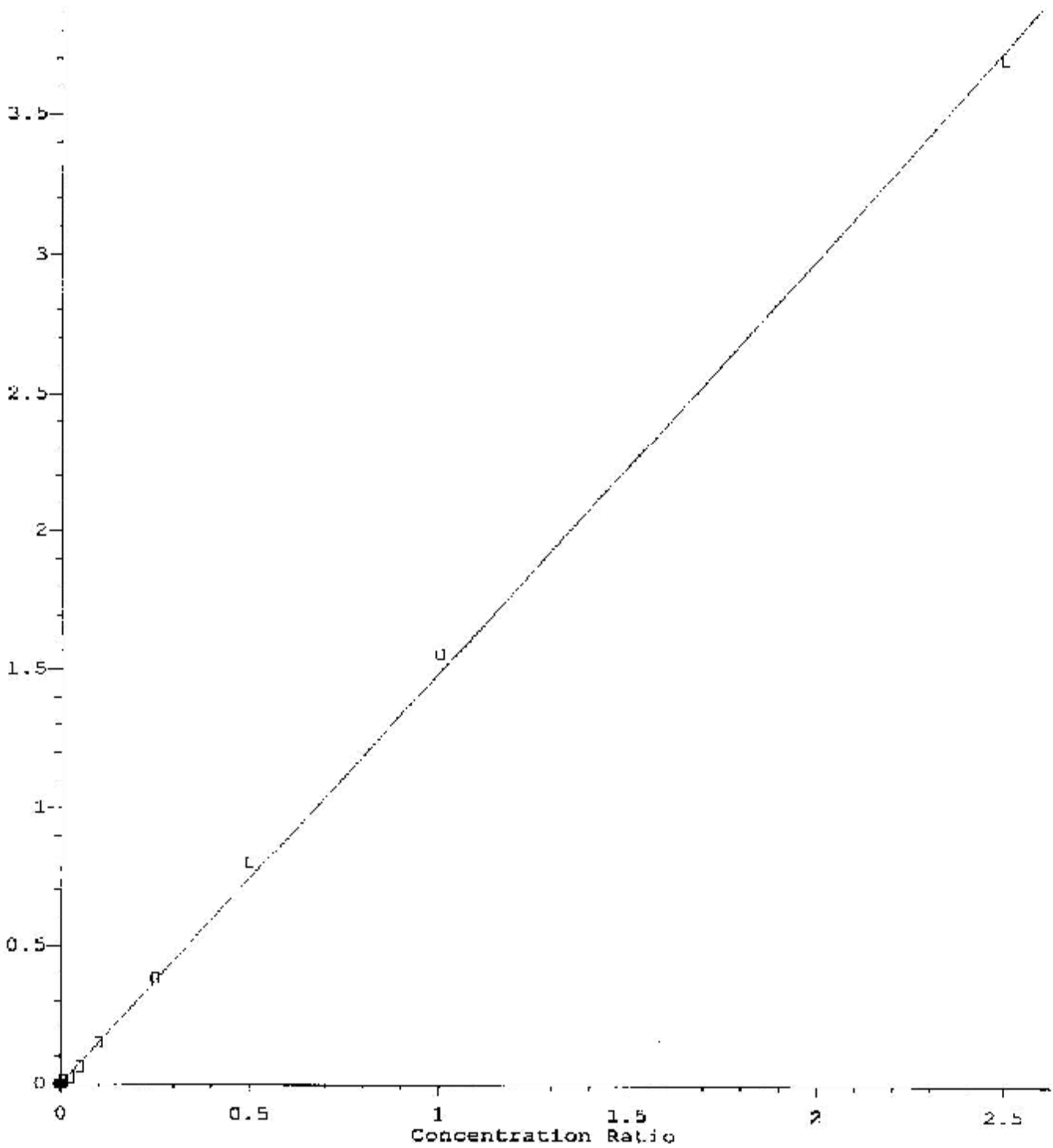
Response Ratio



Response = 1.05e+000 * Amt
Coef of Det (r²) = 0.999 Curve Fit: Linear/(0,0)
Method Name: C:\msdchem\1\methods\BSPA101012PHENOL.M
Calibration Table Last Updated: Thu Oct 11 09:35:38 2012

benzo (k) fluoranthene

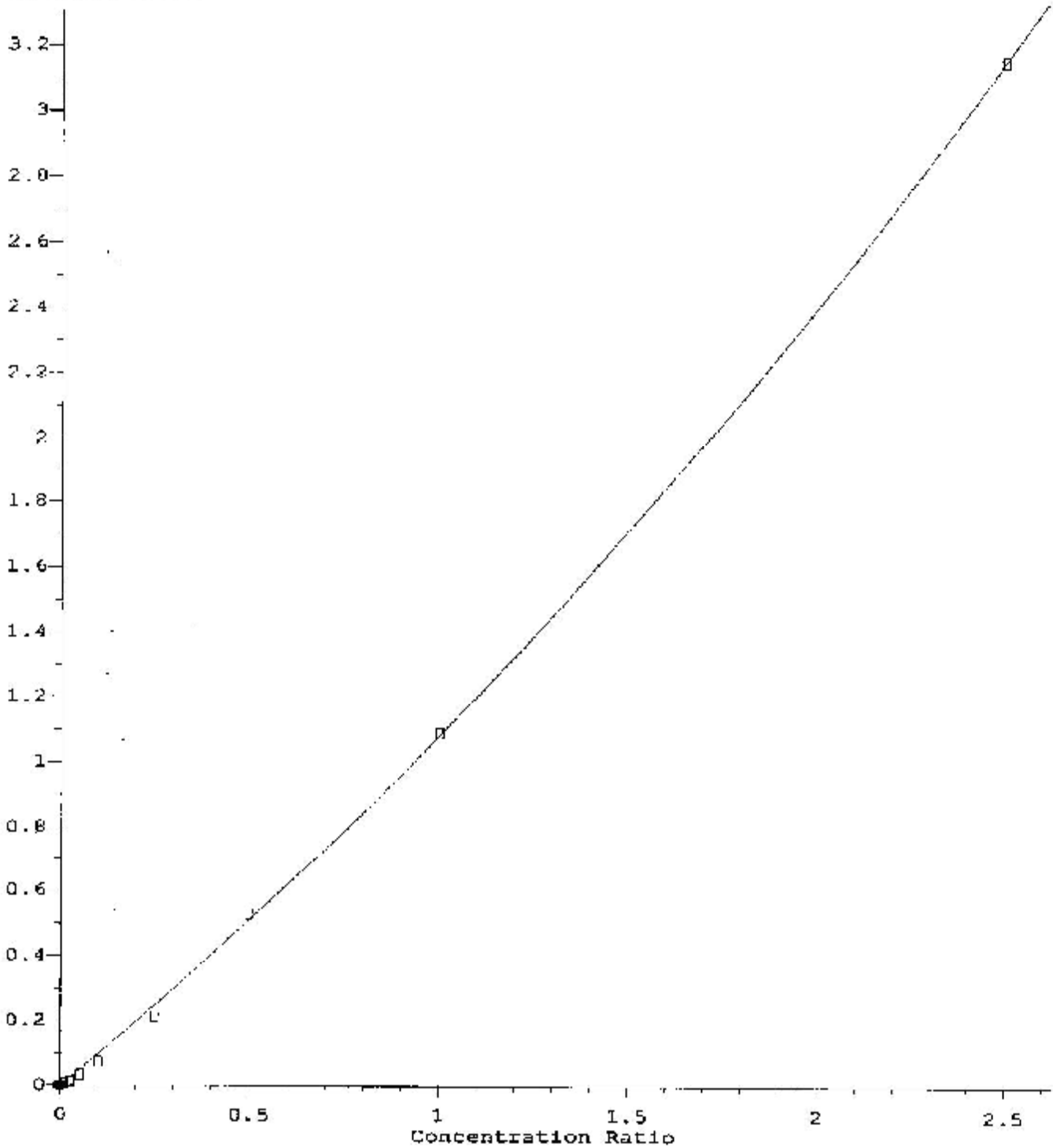
Response Ratio



Response = 1.49e+000 * Amt
Coef of Det. (r^2) = 0.999 Curve Fit: Linear/(0,0)
Method Name: C:\msdchem\1\methods\BSPAH101012PHENOL.M
Calibration Table Last Updated: Thu Oct 11 09:35:38 2012

benzo (a) pyrene

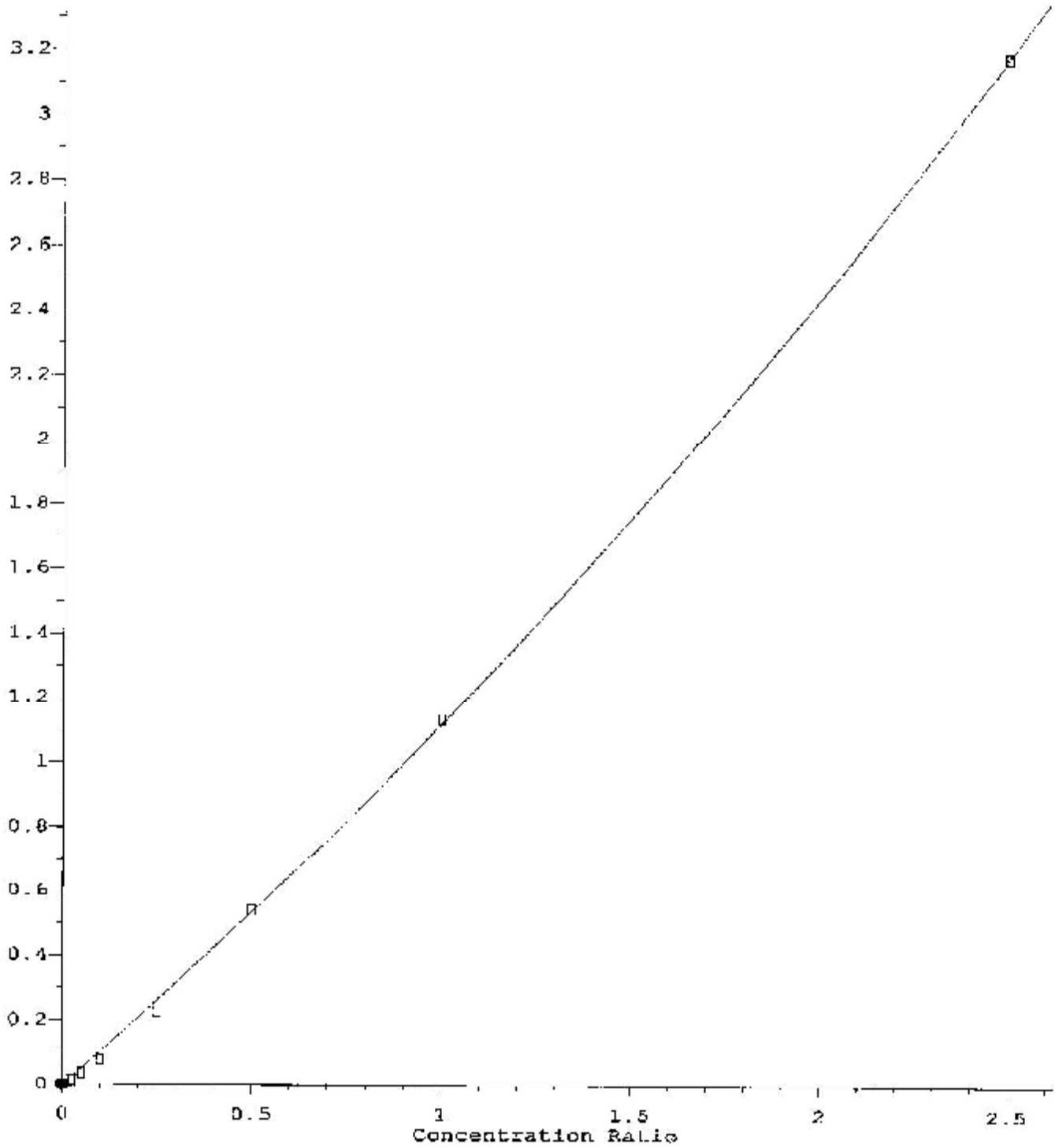
Response Ratio



R = 1.19e-001 A^2 + 9.64e-001 A + 0.00e+000
Coef of Det (r^2) = 1.000 Curve Fit: Quad/(0,0)
Method Name: C:\msdchem\1\methods\DEPAE101012PHENOL.M
Calibration Table Last Updated: Thu Oct 11 09:35:38 2012

Indeno (1,2,3-cd)pyrene

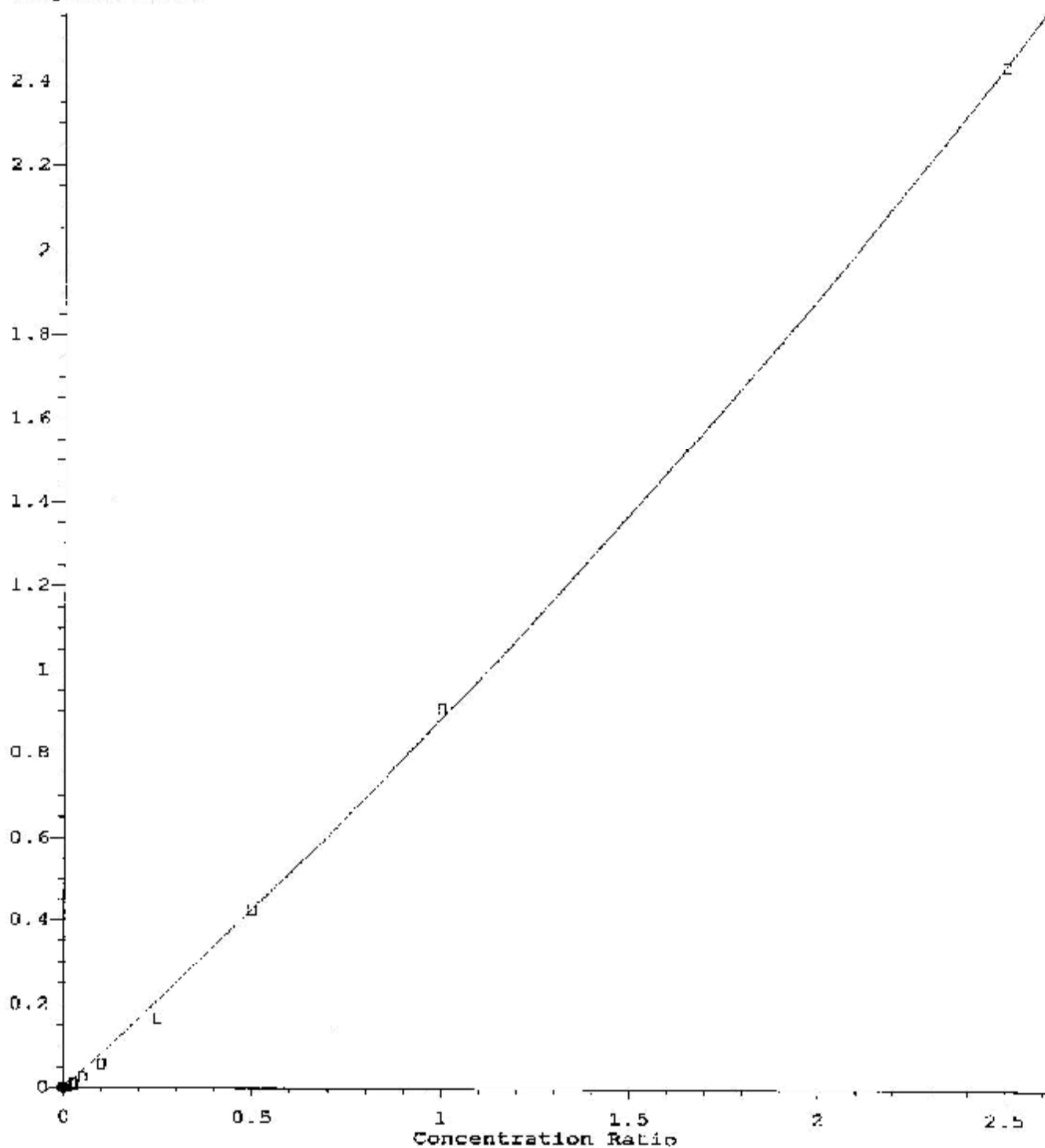
Response Ratio



R = 1.00e-001 A*A + 1.02e+000 A + 0.00e+000
Coef of Det (r^2) = 1.000 Curve Fit: Quad/(0,0)
Method Name: C:\msdchem\1\methods\DEPAH101012PHENOL.M
Calibration Table Last Updated: Thu Oct 11 09:35:38 2012

Dibenz (a,h) anthracene

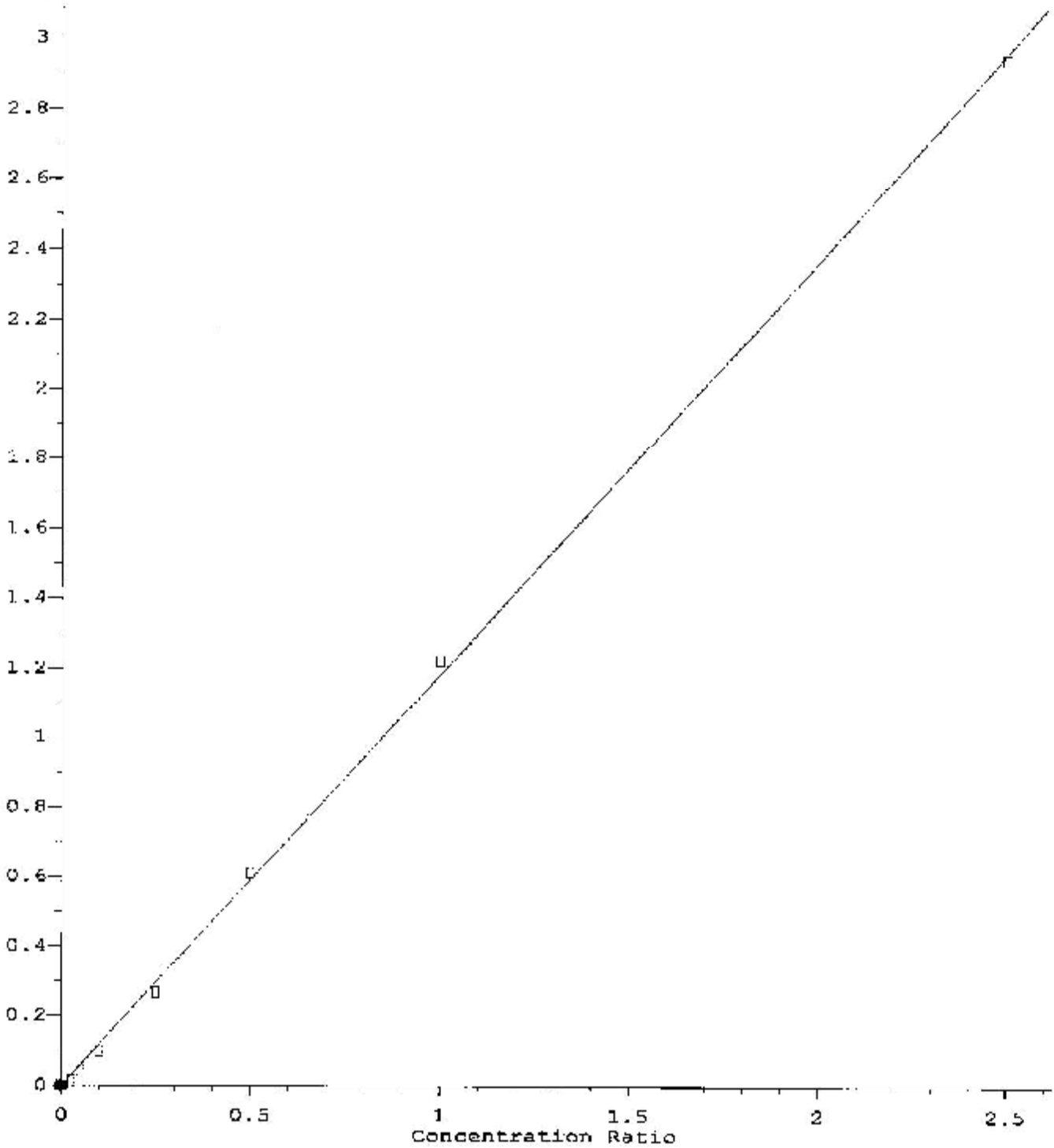
Response Ratio



R = 6.11e-002 A*A + 8.23e-001 A + 0.00e+000
Coef of Det (r^2) = 1.000 Curve Fit: Quad/(0,0)
Method Name: C:\msdchem\1\methods\DBPAH101012PHENOL.M
Calibration Table Last Updated: Thu Oct 11 09:35:38 2012

Benzo (g,h,i) perylene

Response Ratio



Response = 1.18e+000 * Amt

Coef of Det. (r^2) = 0.999 Curve Fit: Linear/(0,0)

Method Name: C:\msdchem\1\methods\DEPAH101012PHENOL.M

Calibration Table Last Updated: Thu Oct 11 09:35:38 2012

Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101009.D
 Acq On : 10 Oct 2012 3:42 pm
 Operator :
 Sample : 30 PPB STD
 Misc : CCV O-PAK-S-SIM-LIBBY
 ALS Vial : 101 Sample Multiplier: 1

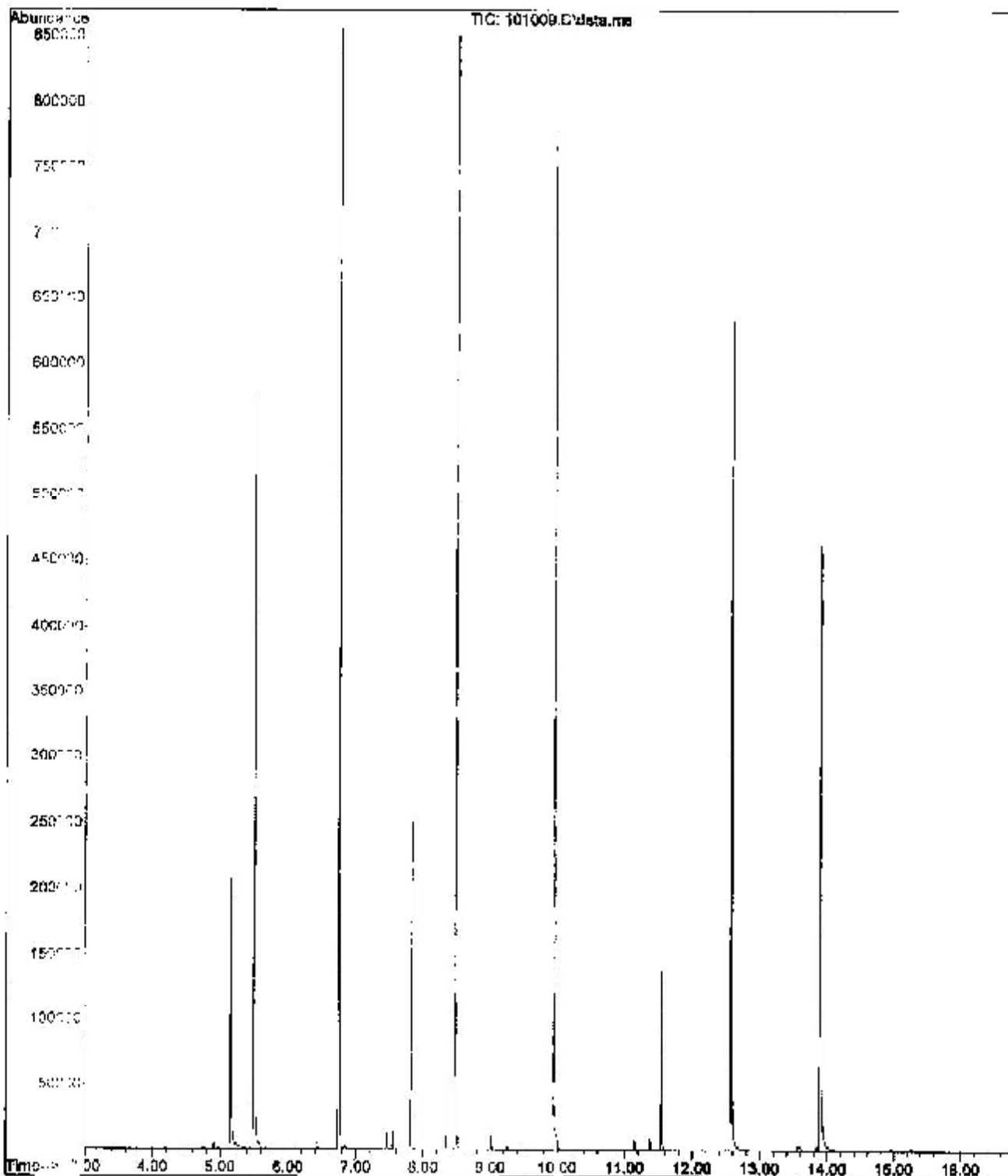
Quant Time: Oct 11 09:18:01 2012
 Quant Method : C:\msdchem\1\methods\BPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	211401	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	680290	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	338652	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	188	547010	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.566	240	493748	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.885	264	457899	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.149	99	155780	971.54	ug/L	0.00
8) 2-Fluorobiphenyl (surx)	7.822	172	149151	496.06	ug/L	0.00
16) Terphenyl-d14 (surx)	11.540	244	100270	501.63	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.430	107	1703m	13.70	ug/L	
5) Naphthalene	6.766	128	9729	22.54	ug/L	100
6) 2-Methylnaphthalene	7.455	142	5421	21.44	ug/L	100
7) 1-Methylnaphthalene	7.550	142	5172	21.59	ug/L	100
9) Acenaphthylene	8.338	152	7063	20.38	ug/L	100
11) Acenaphthene	8.508	152	2661	23.37	ug/L	99
12) Fluorene	9.021	166	5847	22.40	ug/L	97
14) Phenanthrene	9.967	178	8863	23.95	ug/L	100
15) Anthracene	10.020	178	6894	20.35	ug/L	97
17) Fluoranthene	11.145	202	6586	19.76	ug/L	# 94
18) Pyrene	11.368	202	6766	19.42	ug/L	# 85
19) Benzo (a) anthracene	12.559	228	6945	23.77	ug/L	# 100
21) Chrysene	12.592	228	8752m	25.21	ug/L	
22) benzo (b) fluoranthene	13.566	252	2936	11.32	ug/L	# 100
23) benzo (c) fluoranthene	13.579	252	5957	16.17	ug/L	99
24) benzo (a) pyrene	13.635	252	2906	12.19	ug/L	# 52
26) Indeno (1,2,3-cd)pyrene	14.543	276	2867m	14.51	ug/L	
27) Benzo (a,k) anthracene	14.567	276	2052m	14.50	ug/L	
28) Benzo (g,h,i) perylene	15.256	276	3722m	18.27	ug/L	

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

BPAH101012PHENOL.M Thu Oct 11 09:26:33 2012 PAM

File : D:\Data\SVOC\101012-1\101009.D
Operator :
Acquired : 10 Oct 2012 3:42 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 20 PBB STD
Misc Info : COV O-PAH-S-SIM-LTRBY
Vial Number: 101



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101010.F
 Acq On : 10 Oct 2012 4:07 pm
 Operator :
 Sample : 50 PPB STD
 Misc : CCV O-PAH-S-SIM-LIBBY
 ALS Vial : 202 Sample Multiplier: 1

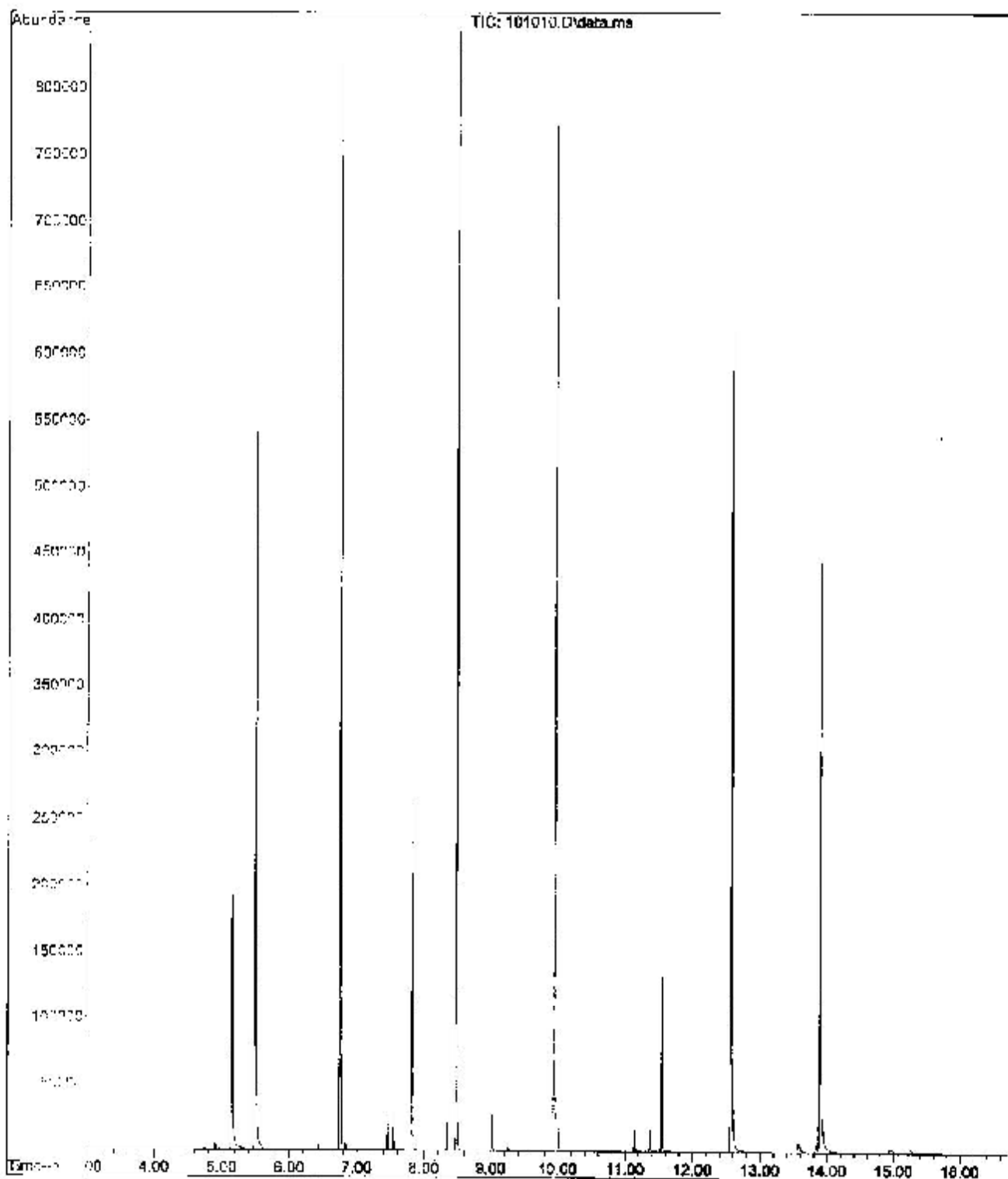
Quant Time: Oct 11 09:27:38 2012
 Quant Method : C:\medchem\1\methods\BSPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	207698	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	671694	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.477	164	334353	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	188	539399	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.567	240	485545	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	448984	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d5	5.151	99	152536	968.26	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	147260	496.04	ug/L	0.00
16) Biphenyl-d14 (surr)	11.543	244	98107	497.73	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,6-Dimethylphenol	6.429	107	2259m	26.69	ug/L	
5) Naphthalene	6.755	129	18380	44.53	ug/L	100
6) 2-Methylnaphthalene	7.453	142	16586	42.31	ug/L	99
7) 1-Methylnaphthalene	7.550	142	16124	42.81	ug/L	100
9) Acenaphthylene	8.338	152	14465	39.34	ug/L	100
11) Acenaphthene	8.508	152	5037	44.80	ug/L	100
12) Fluorene	9.021	166	11078	42.99	ug/L	96
14) Fluoranthene	9.966	178	16342	44.78	ug/L	99
15) Anthracene	10.019	178	12970	38.83	ug/L	97
17) Fluoranthene	11.046	204	17648	37.88	ug/L	95
18) Pyrene	11.369	204	14954	37.71	ug/L	# 91
19) Benzo (a) anthracene	12.559	228	11679	40.53	ug/L	# 100
21) Chrysene	12.591	228	15304m	44.83	ug/L	
22) Benzo (b) fluoranthene	13.554	252	8388	21.12	ug/L	# 100
23) Benzo (k) fluoranthene	13.580	252	11166	30.65	ug/L	100
24) Benzo (i) pyrene	13.825	252	5148	23.23	ug/L	# 55
26) 1,2,3,6-tetrahydro-1,2,3,6-dioxopyrene	14.943	276	6626m	29.10	ug/L	
27) Benzo (a,h) anthracene	14.964	278	1102m	28.18	ug/L	
28) Benzo (g,h,i) perylene	15.858	276	7216m	36.21	ug/L	

(#) = not filter out of range (m) = manual integration (+) = signals summed

BSPAH101012.PHENOL.M Thu Oct 11 09:27:40 2012 PAH

File : D:\Data\SVOC\101012-1\101010.D
Operator :
Acquired : 10 Oct 2012 4:07 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 50 PFB STD
Misc Info : CCV O-PAH-S-SIM-LIBBY
Vial Number: 102



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101011.D
 Acq On : 10 Oct 2012 4:33 pm
 Operator :
 Sample : 100 PPB STD
 Misc : CCV O-PAH-S-SIM LIBBY
 ALS Vial : 103 Sample Multiplier: 1

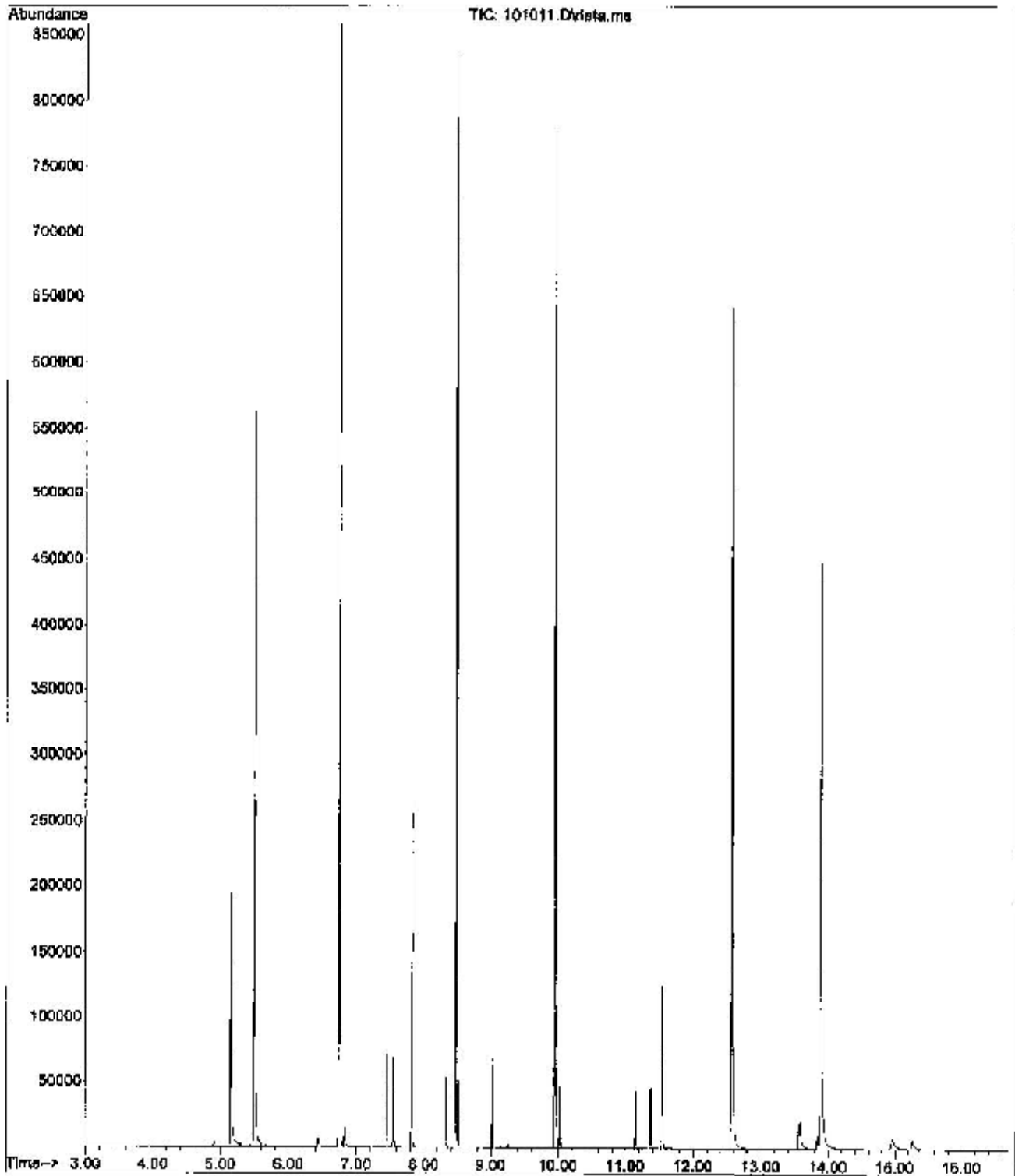
Quant Time: Oct 11 09:33:31 2012
 Quant Method : C:\msdchem\1\methods\BPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	207528	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	669585	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	334923	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	188	535335	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.568	240	483570	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	453972	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.149	99	153322	974.05	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	147736	499.21	ug/L	0.00
16) Terphenyl-d14 (surr)	11.542	244	96744	494.54	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.428	107	9134m	74.86	ug/L	
5) Naphthalene	6.766	128	45722	107.61	ug/L	100
6) 2-Methylnaphthalene	7.453	142	25990	104.41	ug/L	98
7) 1-Methylnaphthalene	7.548	142	24845	105.38	ug/L	99
9) Acenaphthylene	8.338	152	34254	100.40	ug/L	100
11) Acenaphthene	8.508	152	12144	107.84	ug/L	100
12) Fluorene	9.021	166	27298	105.76	ug/L	96
14) Phenanthrene	9.969	178	38933	107.48	ug/L	99
15) Anthracene	10.020	178	32553	98.20	ug/L	97
17) Fluoranthene	11.148	202	31709	97.22	ug/L	95
18) Pyrene	11.370	202	33247	97.51	ug/L	# 93
19) Benzo (a) anthracene	12.561	228	26561	92.88	ug/L	# 100
21) Chrysene	12.593	228	37318m	109.77	ug/L	
22) benzo (b) fluoranthene	13.557	252	13955	54.93	ug/L	# 100
23) benzo (k) fluoranthene	13.580	252	31708	87.86	ug/L	100
24) benzo (a) pyrene	13.837	252	15319	65.42	ug/L	# 72
26) Indeno(1,2,3-cd)pyrene	14.945	276	15625m	79.78	ug/L	
27) Dibenzo (a,h) anthracene	14.967	278	11260m	80.26	ug/L	
28) Benzo (g,h,i) perylene	15.257	276	28045m	99.27	ug/L	

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

BPAH101012PHENOL.M Thu Oct 11 09:33:36 2012 PAH

File :D:\Data\SVOC\101012-1\101011.D
Operator :
Acquired : 10 Oct 2012 4:33 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 100 PPB STD
Misc Info : CCV C-PAH-S-SIM-LIBBY
Vial Number: 103



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101012.D
 Acq On : 10 Oct 2012 4:58 pm
 Operator :
 Sample : 200 PBB STD
 Misc : CCV O-PAH-S-SIM-LIBBY
 ALS Vial : 104 Sample Multiplier: 1

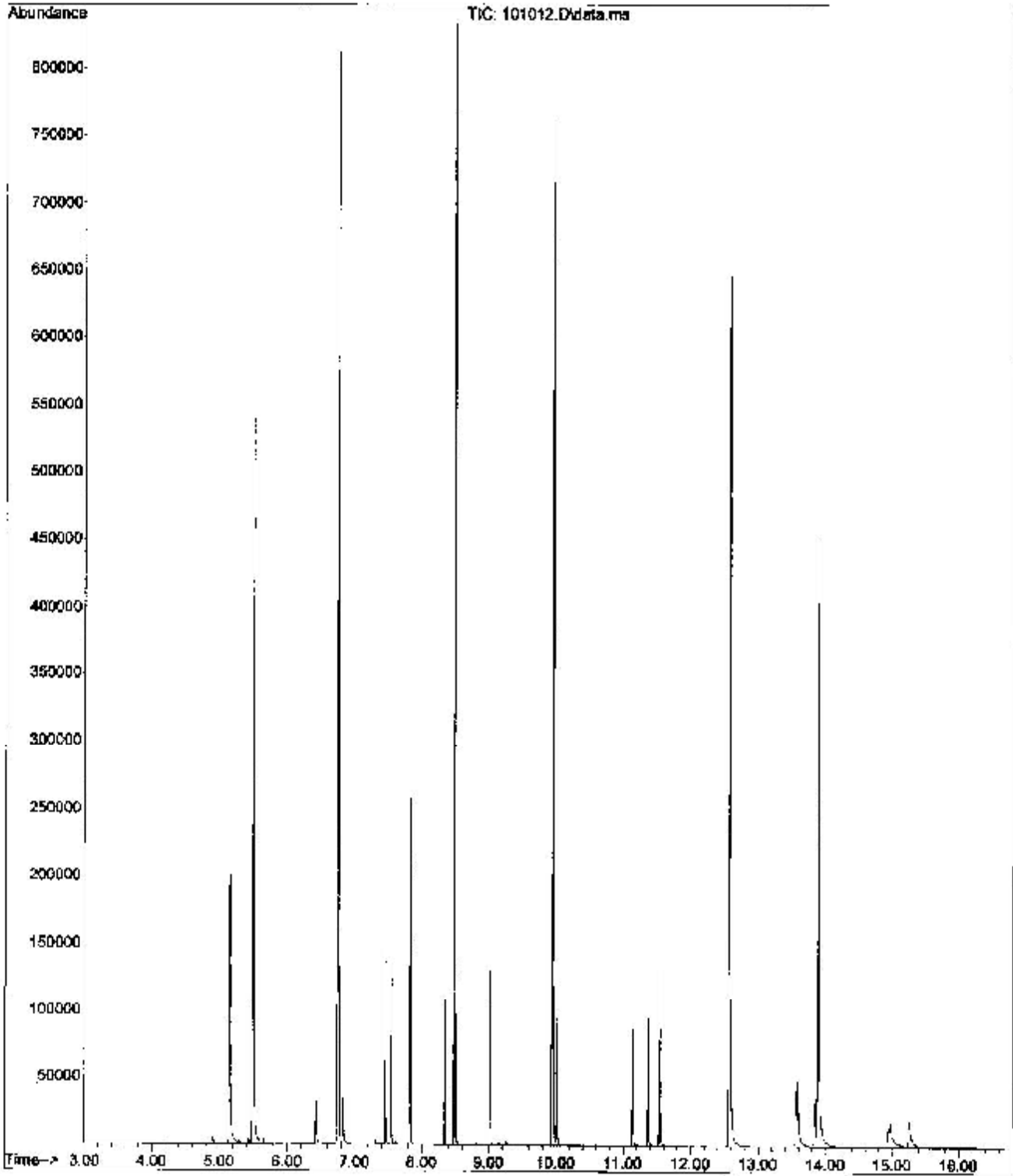
Quant Time: Oct 11 09:23:34 2012
 Quant Method : C:\msdchem\1\methods\DBPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	206282	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	666962	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	333890	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.944	188	535442	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.568	240	489283	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	461276	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.149	99	153734	982.57	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.821	172	148032	502.17	ug/L	0.00
16) Terphenyl-d14 (surr)	11.540	244	97477	498.19	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.427	107	19118m	157.63	ug/L	
5) Naphthalene	6.766	128	88440	208.97	ug/L	100
6) 2-Methylnaphthalene	7.453	142	51282	206.83	ug/L	98
7) 1-Methylnaphthalene	7.550	142	48610	207.00	ug/L	97
9) Acenaphthylene	8.337	152	69663	204.98	ug/L	100
11) Acenaphthene	8.508	152	23423	208.64	ug/L	99
12) Fluorene	9.021	166	54022	209.94	ug/L	97
14) Phenanthrene	9.968	178	76739	211.81	ug/L	100
15) Anthracene	10.019	178	66316	200.01	ug/L	98
17) Fluoranthene	11.147	202	65506	200.80	ug/L	95
18) Pyrene	11.369	202	69105	202.65	ug/L	93
19) Benzo (a) anthracene	12.559	228	54179	189.41	ug/L	# 100
21) Chrysene	12.693	228	71006	206.42	ug/L	93
22) benzo (b) fluoranthene	13.557	252	33689	131.05	ug/L	# 100
23) benzo (k) fluoranthene	13.580	252	74195m	203.20	ug/L	
24) benzo (a) pyrene	13.837	252	35842	150.50	ug/L	# 81
26) Indeno(1,2,3-cd)pyrene	14.946	276	36383m	182.83	ug/L	
27) Dibenz (a,h) anthracene	14.970	278	26113m	183.19	ug/L	
28) Benzo (g,h,i) perylene	15.258	276	45665m	222.56	ug/L	

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

DBPAH101012PHENOL.M Thu Oct 11 09:34:11 2012 PAH

File : D:\Data\SVOC\101012-2\101012.D
Operator :
Acquired : 10 Oct 2012 4:58 pm using AcqMethod DBPAR101012PHENOL.M
Instrument : HP-MSD
Sample Name: 200 PFB STD
Misc Info : CCV O-PAH-S-SIM-LIBBY
Vial Number: 104



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101013.D
 Acq On : 10 Oct 2012 5:23 pm
 Operator :
 Sample : 500 PPB STD
 Misc : CCV O-PAH-S-SIM-LIBBY
 ALS Vial : 105 Sample Multiplier: 1

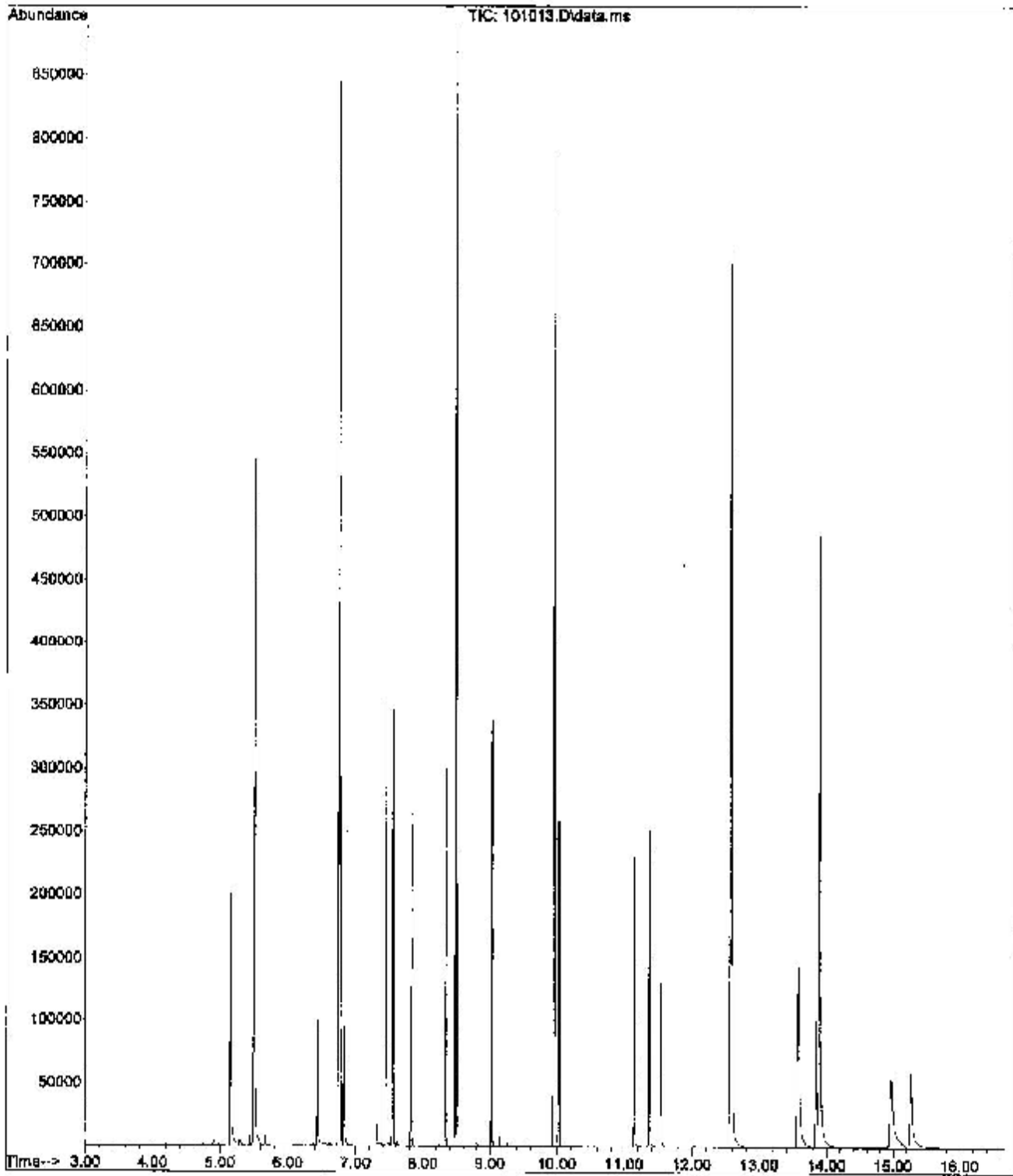
Quant Time: Oct 11 09:24:12 2012
 Quant Method : C:\msdchem\1\methods\DBPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.497	152	205479	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	662568	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.480	164	337875	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	188	540131	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.568	240	503799	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	476708	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.180	99	155773	999.49	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.821	172	150159	508.17	ug/L	0.00
16) Terphenyl-d14 (surr)	11.540	244	99538	504.31	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.427	107	52531m	434.81	ug/L	
5) Naphthalene	6.767	128	210515	496.23	ug/L	100
6) 2-Methylnaphthalene	7.453	142	125413	504.60	ug/L	98
7) 1-Methylnaphthalene	7.548	142	118399	502.97	ug/L	97
9) Acenaphthylene	8.338	152	176929	519.35	ug/L	100
11) Acenaphthene	8.509	152	56451	496.90	ug/L	99
12) Fluorene	9.022	166	132700	509.61	ug/L	97
14) Phenanthrene	9.969	178	184698	505.37	ug/L	100
15) Anthracene	10.019	178	169453	506.64	ug/L	98
17) Fluoranthene	11.146	202	171838	522.16	ug/L	95
18) Pyrene	11.368	202	181345	527.17	ug/L	94
19) Benzo (a) anthracene	12.559	228	140369	486.48	ug/L	# 100
21) Chrysene	12.593	228	176026	496.99	ug/L	95
22) benzo (b) fluoranthene	13.557	252	97963	370.10	ug/L	# 100
23) benzo (k) fluoranthene	13.582	252	193472	514.59	ug/L	99
24) benzo (a) pyrene	13.837	252	108083	433.23	ug/L	# 89
26) Indeno(1,2,3-cd)pyrene	14.950	276	107596m	523.18	ug/L	
27) Dibenz (a,h) anthracene	14.972	278	80111m	543.82	ug/L	
28) Benzo (g,h,i) perylene	15.259	276	127001m	598.94	ug/L	

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

DBPAH101012PHENOL.M Thu Oct 11 09:34:21 2012 PAH

File : D:\Data\SVOC\101012-1\101013.D
Operator :
Acquired : 10 Oct 2012 5:23 pm using AcqMethod DBFAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 500 PPB STD
Misc Info : CCV O-PAH-S-SIM-LIBBY
Vial Number: 105



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101014.C
 Acq On : 10 Oct 2012 5:48 pm
 Operator :
 Sample : 1000 PPB STD
 Misc : CCV O-PAH-S-SIM-LIBBY
 ALS Vial : 106 Sample Multiplier: 1

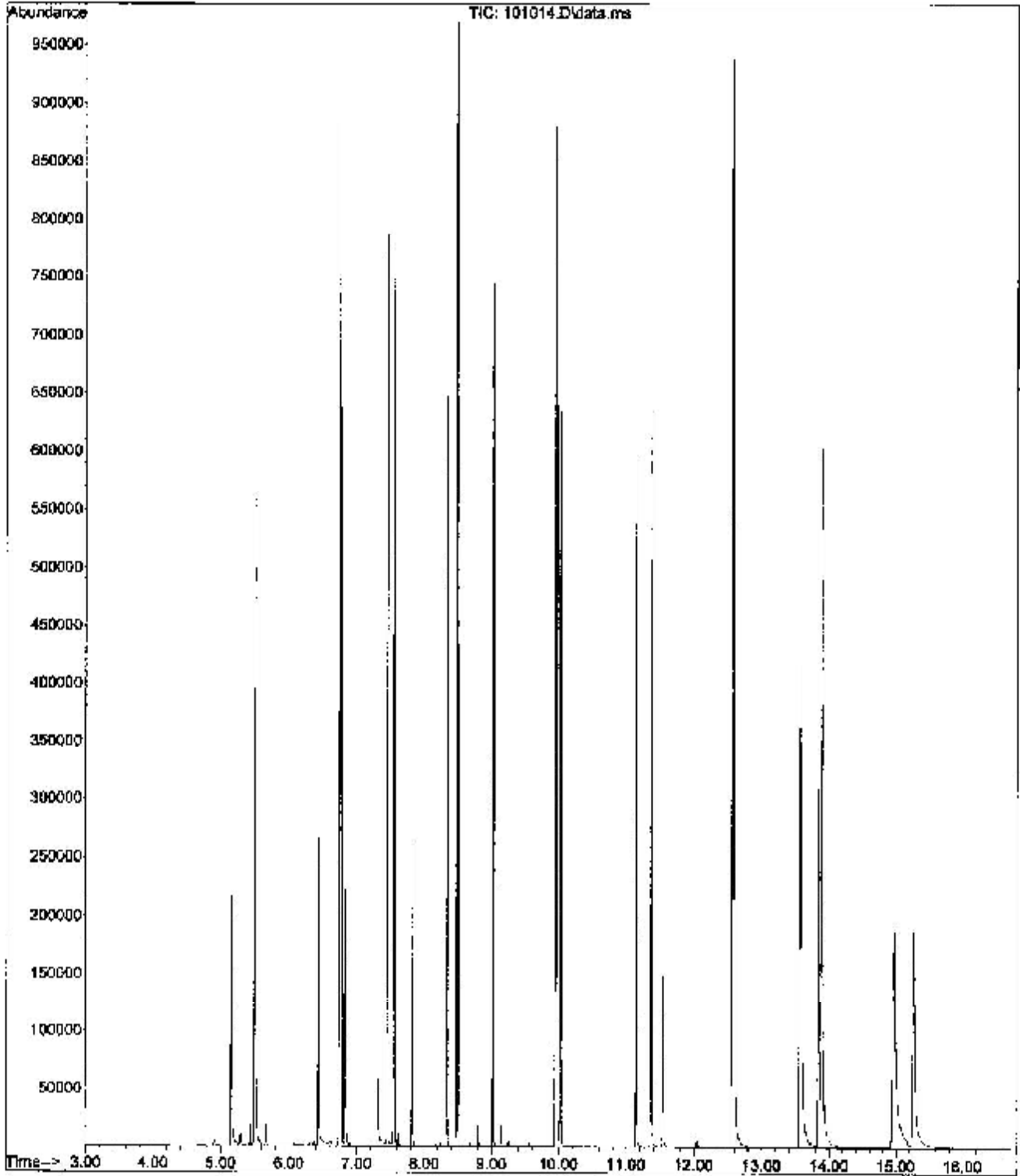
Quant Time: Oct 11 09:24:49 2012
 Quant Method : C:\msdchem\1\methods\DEPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	211091	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	703989	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.480	164	370642	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	180	614915	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.569	240	586943	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.889	264	569732	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.151	99	160048	999.62	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	150191	482.70	ug/L	0.00
16) Terphenyl-d14 (surr)	11.542	244	112537	500.83	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.427	107	124230	1000.93	ug/L	99
5) Naphthalene	6.766	128	457822	1024.89	ug/L	100
6) 2-Methylnaphthalene	7.453	142	281274	1074.77	ug/L	98
7) 1-Methylnaphthalene	7.548	142	262852	1060.43	ug/L	97
9) Acenaphthylene	8.339	152	404284	1127.02	ug/L	100
11) Acenaphthene	8.508	152	125725	1008.83	ug/L	99
12) Fluorene	9.021	166	299270	1047.68	ug/L	96
14) Phenanthrene	9.989	178	415711	999.13	ug/L	100
15) Anthracene	10.020	178	407576	1070.40	ug/L	98
17) Fluoranthene	11.146	202	411099	1177.36	ug/L	95
18) Pyrene	11.369	202	458851	1171.65	ug/L	94
19) Benzo (a) anthracene	12.560	228	363248	1105.82	ug/L	# 100
21) Chrysene	12.595	228	427345	1035.64	ug/L	97
22) benzo (b) fluoranthene	13.558	252	289328	938.23	ug/L	# 100
23) benzo (k) fluoranthene	13.583	252	470685	1074.58	ug/L	100
24) benzo (a) pyrene	13.839	252	310058	1030.12	ug/L	95
26) Indeno(1,2,3-cd)pyrene	14.950	276	308189m	1253.91	ug/L	
27) Dibenz (a,h) anthracene	14.972	278	242693m	1378.50	ug/L	
28) Benzo (g,h,i) perylene	15.261	276	347803m	1372.47	ug/L	

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

DEPAH101012PHENOL.M Thu Oct 11 09:34:34 2012 PAH

File : D:\Data\SVOC\101012-1\101014.D
Operator :
Acquired : 10 Oct 2012 5:48 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 1000 PPA STD
Misc Info : CCV C-PAH-S-SIM-LIBBY
Vial Number: 106



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101015.D
 Acq On : 10 Oct 2012 6:13 pm
 Operator :
 Sample : 2000 PFB STD
 Misc : CCV O-PAH-S-SIM-LIBBY
 ALS Vial : 107 Sample Multiplier: 1

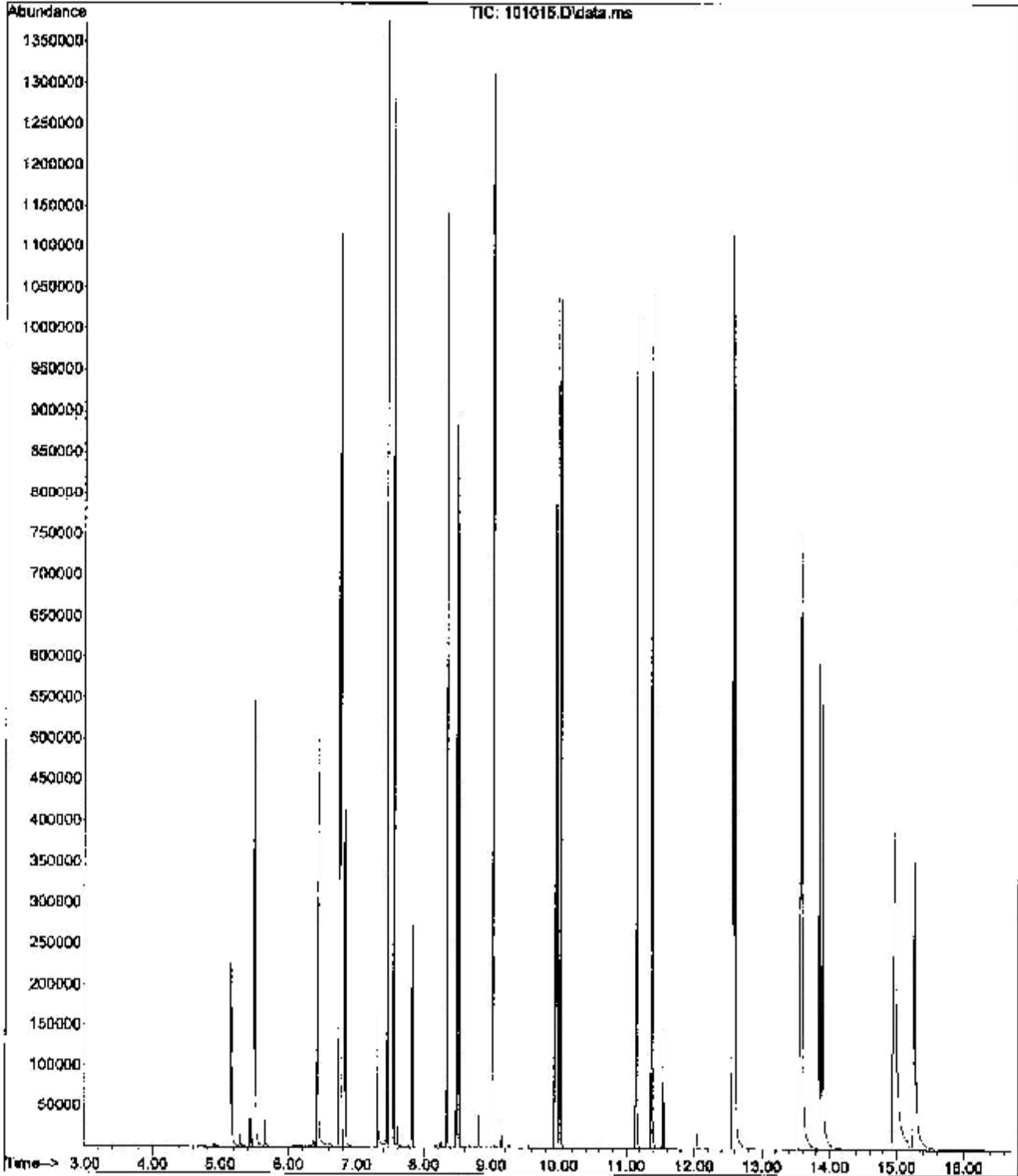
Quant Time: Oct 11 09:25:23 2012
 Quant Method : C:\msdchem\1\methods\DEPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	205990	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	675617	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.480	164	345445	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.946	188	547812	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.569	240	523147	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	509423	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.151	99	163666	1047.53	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	151229	506.45	ug/L	0.00
16) Terphenyl-d14 (surr)	11.540	244	103436	516.90	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.427	107	237390	1960.03	ug/L	99
5) Naphthalene	6.766	128	816382	1904.32	ug/L	100
6) 2-Methylnaphthalene	7.453	142	496539	1976.98	ug/L	98
7) 1-Methylnaphthalene	7.550	142	463482	1948.35	ug/L	97
9) Acenaphthylene	8.339	152	710594	2064.10	ug/L	100
11) Acenaphthene	8.511	152	217752	1874.71	ug/L	99
12) Fluorene	9.021	166	512109	1923.55	ug/L	97
14) Phenanthrene	9.970	178	704600	1901.59	ug/L	100
15) Anthracene	10.020	178	699103	2061.68	ug/L	98
17) Fluoranthene	11.148	202	724462	2171.35	ug/L	95
18) Pyrene	11.370	202	759797	2178.54	ug/L	94
19) Benzo (a) anthracene	12.561	228	624212	2133.80	ug/L	# 100
21) Chrysene	12.593	228	718133	1956.30	ug/L	98
23) benzo (b) fluoranthene	13.559	252	525321	1914.89	ug/L	# 100
23) benzo (k) fluoranthene	13.583	252	813771	2088.40	ug/L	100
24) benzo (a) pyrene	13.840	252	569097	2011.28	ug/L	97
26) Indeno(1,2,3-cd)pyrene	14.950	276	577262m	2626.67	ug/L	
27) Dibenz (a,h) anthracene	14.972	276	461582m	2932.13	ug/L	
28) Benzo (g,h,i) perylene	15.262	276	622319m	2746.42	ug/L	

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

DEPAH101012PHENOL.M Thu Oct 11 09:34:45 2012 PAH

File :D:\Data\SVOC\101012-1\101015.D
Operator :
Acquired : 10 Oct 2012 6:13 pm using AcqMethod DBPAH101012PHENCL.M
Instrument : HP-MSD
Sample Name: 2000 PPS STD
Misc Info : CCV O-PAH-S-SIM-LIBY
Vial Number: 107



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101016.D
 Acq On : 10 Oct 2012 6:44 pm
 Operator :
 Sample : 5000 PPB STD
 Misc : CCV Q-PAH-S-SIM-LIBBY
 ALS Vial : 108 Sample Multiplier: 1

Quant Time: Oct 11 09:25:45 2012
 Quant Method : C:\msdchem\1\methods\DEPAK101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

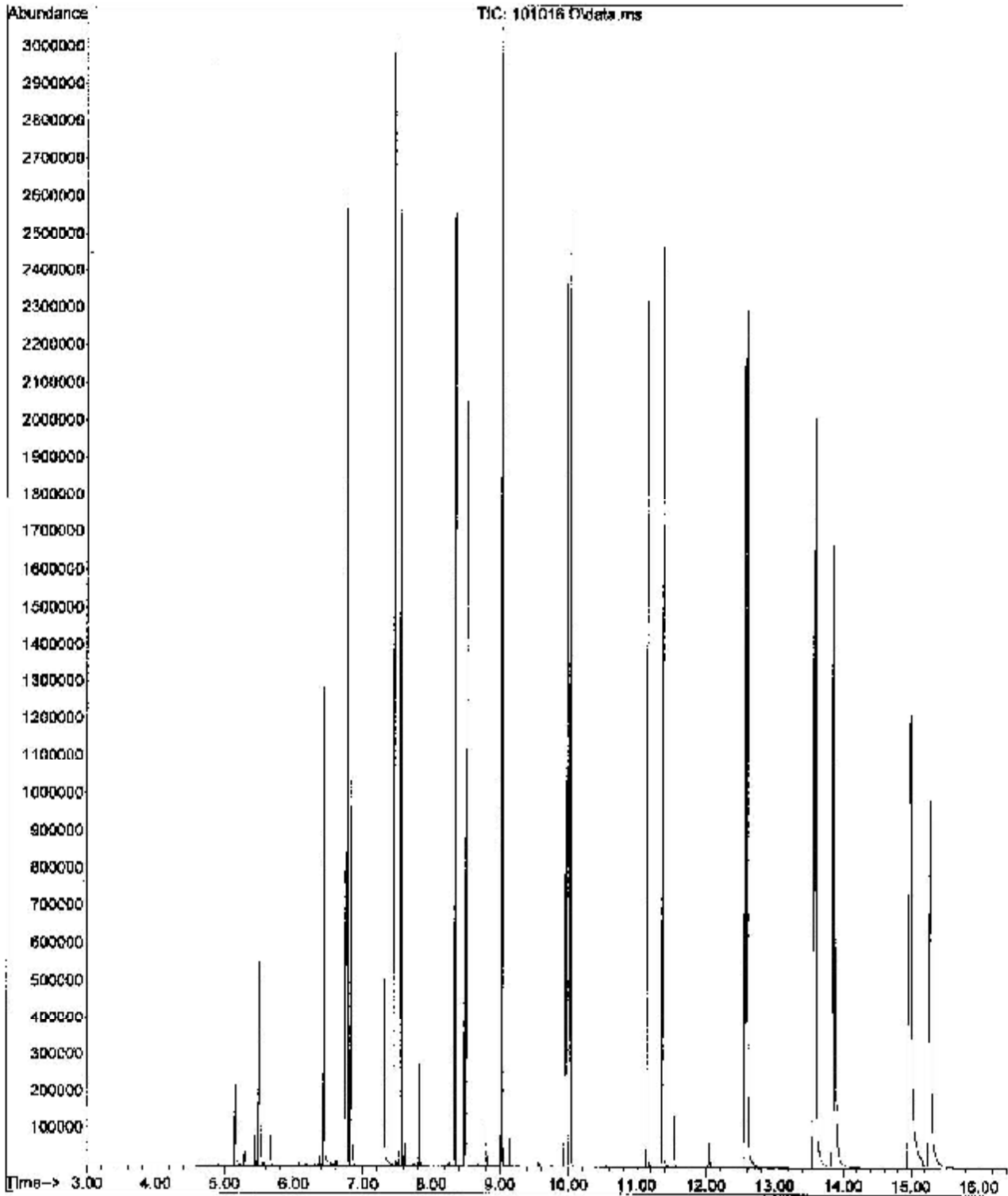
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.498	152	202347	2000.00	ug/L	# 0.00
4) Naphthalene-d8 (IS)	6.747	136	672107	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.482	164	349377	2000.00	ug/L	0.00
13) Phenanthrene d10 (IS)	9.946	198	550390	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.574	240	523717	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.892	264	532571	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.152	99	164052	1068.90	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	151033	509.43	ug/L	0.00
16) Terphenyl-d14 (surr)	11.543	244	104750	520.82	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.428	107	598900	5033.89	ug/L	100
5) Naphthalene	6.769	128	1898470	4451.56	ug/L	100
6) 2-Methylnaphthalene	7.455	142	1161315	4647.95	ug/L	98
7) 1-Methylnaphthalene	7.550	142	1095037	4627.28	ug/L	98
9) Acenaphthylene	8.342	152	1654597	4831.31	ug/L	99
11) Acenaphthene	8.513	152	512401	4374.34	ug/L	98
12) Fluorene	9.024	168	1188198	4425.46	ug/L	97
14) Phenanthrene	9.972	178	1640221	4404.33	ug/L	99
15) Anthracene	10.024	178	1678810	4925.87	ug/L	97
17) Fluoranthene	11.152	202	1738089	5183.08	ug/L	94
18) Pyrene	11.374	202	1816076	5180.90	ug/L	# 93
19) Benzo (a) anthracene	12.564	228	1533115	5214.34	ug/L	# 100
21) Chrysene	12.598	228	1705635	4632.48	ug/L	95
22) benzo (b) fluoranthene	13.564	252	1392203	5059.63	ug/L	# 100
23) benzo (k) fluoranthene	13.590	252	1932745	4945.17	ug/L	99
24) benzo (a) pyrene	13.844	252	1649238	4995.52	ug/L	97
26) Indeno(1,2,3-cd)pyrene	14.960	276	1688497	7349.09	ug/L	94
27) Dibenz (a,h) anthracene	14.981	278	1297291	7882.65	ug/L	96
28) Benzo (g,h,i) perylene	15.276	276	1563907	6601.85	ug/L	96

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

DEPAK101012PHENOL.M Thu Oct 11 09:34:55 2012 PAH

File : D:\Data\SVOC\101012-1\101016.D
Operator :
Acquired : 10 Oct 2012 6:44 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 5000 EPB STD
Misc Info : CCV G-PAH-S-SIM-LIBRY
Vial Number: 108



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101017.D
 Acq On : 10 Oct 2012 7:10 pm
 Operator :
 Sample : ICV-
 Misc : ICV O-PAH-S-SIM-LIBBY
 ALS Vial : 109 Sample Multiplier: 1

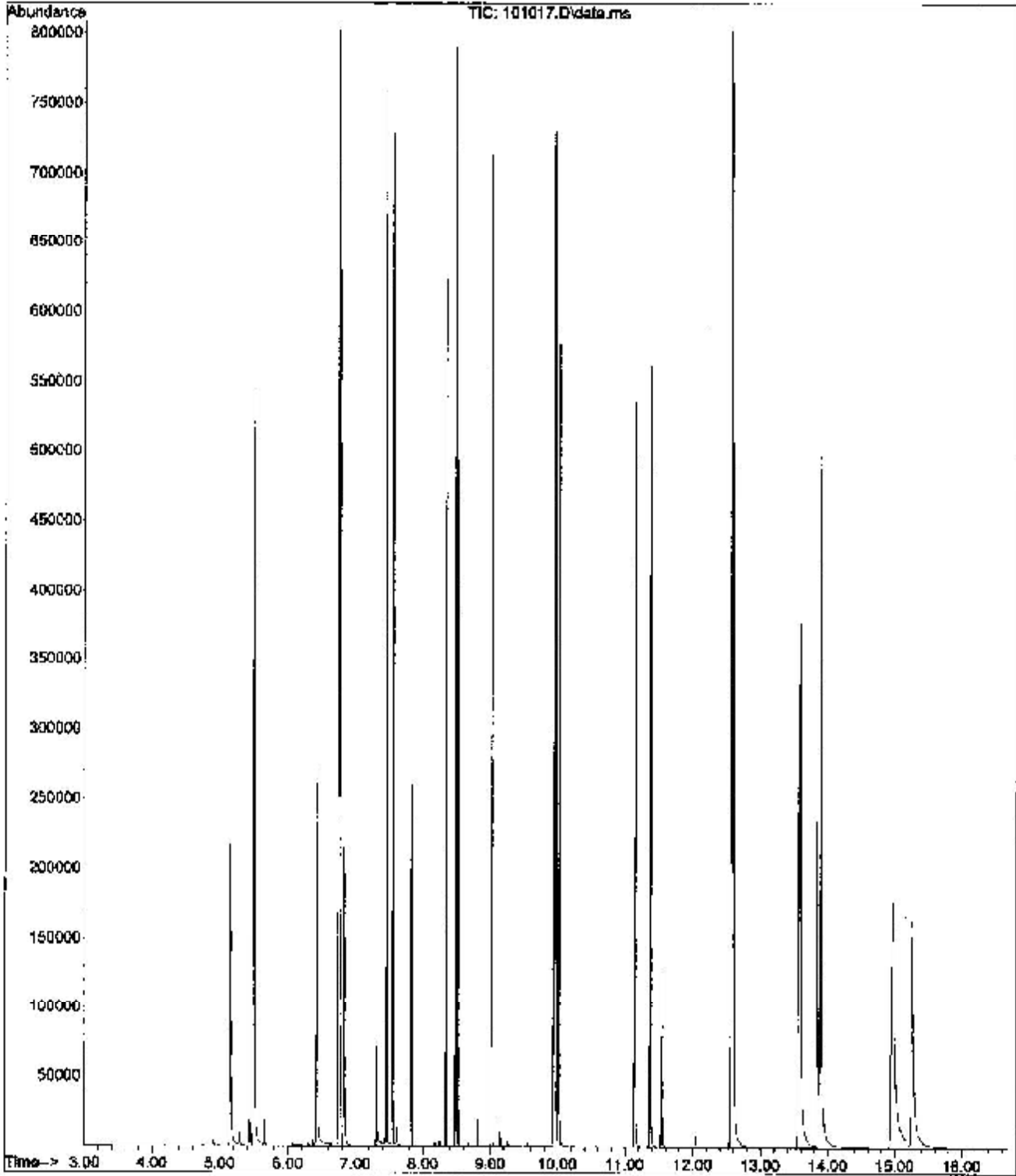
Quant Time: Oct 11 09:37:35 2012
 Quant Method : C:\msdchem\1\methods\DEPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.498	152	197741	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	642102	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.480	164	326003	2000.00	ug/L	0.00
13) Phenanthrene d10 (IS)	9.945	180	518454	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.569	240	493899	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	472138	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.151	99	158283	1053.76	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.821	172	143292	505.01	ug/L	0.00
16) Terphenyl-d14 (surr)	11.540	244	96843	506.74	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.426	107	126308	1084.75	ug/L	99
5) Naphthalene	6.766	128	450667	1106.23	ug/L	100
6) 2-Methylnaphthalene	7.453	142	273185	1144.70	ug/L	98
7) 1-Methylnaphthalene	7.550	142	256104	1134.13	ug/L	97
9) Acenaphthylene	8.338	152	389615	1191.03	ug/L	100
11) Acenaphthene	8.508	152	120464	1098.84	ug/L	98
12) Fluorene	9.021	166	284009	1130.26	ug/L	97
14) Phenanthrene	9.969	178	392404	1109.13	ug/L	100
15) Anthracene	10.020	178	377675	1194.93	ug/L	98
17) Fluoranthene	11.146	202	387257	1215.97	ug/L	94
18) Pyrene	11.368	202	408900	1228.38	ug/L	94
19) Benzo (a) anthracene	12.559	228	328403	1176.43	ug/L	# 100
21) Chrysene	12.593	228	392651	1100.37	ug/L	95
22) benzo (b) fluoranthene	13.557	252	258780	997.87	ug/L	# 100
23) benzo (k) fluoranthene	13.580	252	432230	1173.34	ug/L	100
24) benzo (a) pyrene	13.837	252	286716	1126.46	ug/L	95
26) Indeno(1,2,3-cd)pyrene	14.950	276	300569	1181.53	ug/L	95
27) Dibenz (a,h) anthracene	14.969	278	218594	1081.87	ug/L	96
28) Benzo (g,h,i) perylene	15.258	276	298015	1068.88	ug/L	96

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

DEPAH101012PHENOL.M Thu Oct 11 09:37:35 2012 PAH

File :D:\Data\SVOC\101012-1\101017.D
Operator :
Acquired : 10 Oct 2012 7:10 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: ICV-
Misc Info : ICV O-PAH-S-SIM-LIBBY
Vial Number: 109



Quantitation Report (Not Reviewed)

Data Path : O:\Data\SVOC\101012-1\
 Data File : 101018.D
 Acq On : 10 Oct 2012 7:35 pm
 Operator :
 Sample : ICB-
 Misc : ICE O-PAH-S-SIM-LIBBY
 ALS Vial : 110 Sample Multiplier: 1

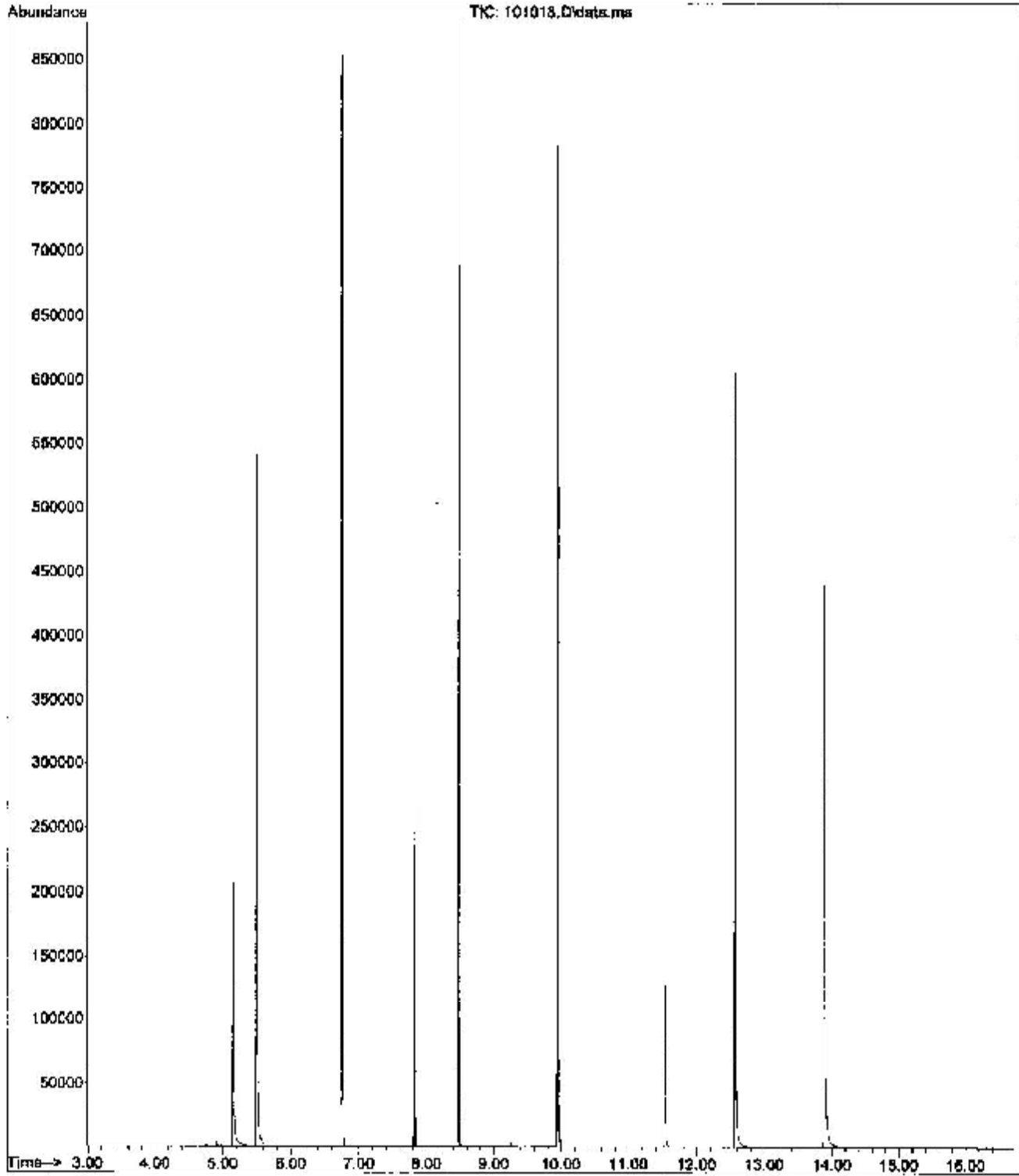
Quant Time: Oct 11 09:37:28 2012
 Quant. Method : C:\msdchem\1\methods\DEPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	208723	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	672101	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	335186	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.944	188	942903	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.567	240	483323	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.885	264	445839	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.149	99	157991	996.48	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	147351	496.14	ug/L	0.00
16) Terphenyl-d14 (surr)	11.539	244	96921	484.31	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.441	107	89			N.D.
5) Naphthalene	6.769	128	32			N.D.
6) 2-Methylnaphthalene	7.458	142	5			N.D.
7) 1-Methylnaphthalene	7.550	142	9			N.D.
9) Acenaphthylene	8.338	152	8			N.D.
11) Acenaphthene	8.511	152	13			N.D.
12) Fluorene	9.023	166	33			N.D.
14) Phenanthrene	9.968	178	94			N.D.
15) Anthracene	10.020	178	59			N.D.
17) Fluoranthene	11.150	202	54			N.D.
18) Pyrene	11.372	202	65			N.D.
19) Benzo (a) anthracene	12.566	228	1235			N.D.
21) Chrysene	12.566	228	888			N.D.
22) benzo (b) fluoranthene	13.556	252	35			N.D.
23) benzo (k) fluoranthene	13.584	252	122			N.D.
24) benzo (a) pyrene	13.835	252	68			N.D.
26) Indeno(1,2,3-cd)pyrene	14.943	276	34			N.D.
27) Dibenz (a,h) anthracene	14.960	278	7			N.D.
28) Benzo (g,h,i) perylene	15.250	276	3			N.D.

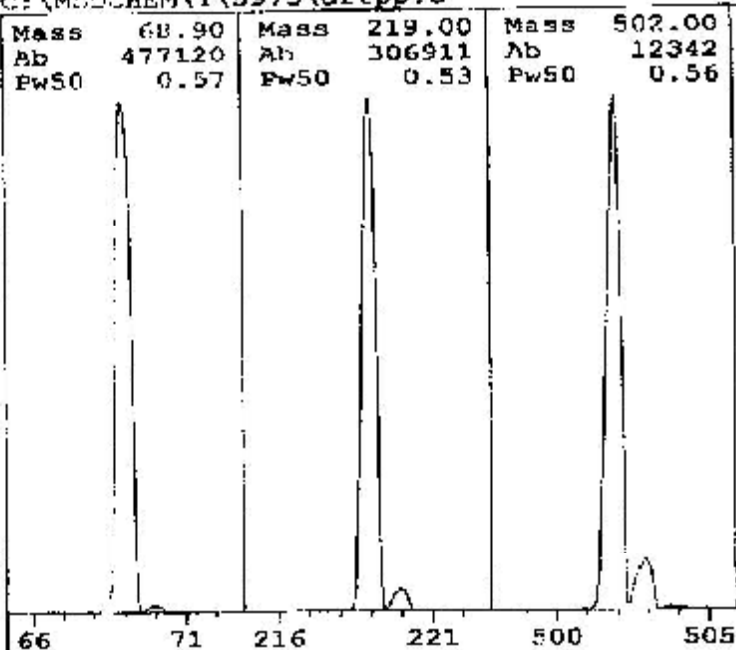
(#) = qualifier out of range (m) = manual integration (+) = signals summed

DEPAH101012PHENOL.M Thu Oct 11 09:37:56 2012 EAH

File : D:\Data\SVOC\101012-1\101018.D
Operator :
Acquired : 10 Oct 2012 7:35 pm using AcqMethod DBPAR101012PHENOL.M
Instrument : HP-MSD
Sample Name: ICS-
Misc Info : ICR O-PAR-S-STM-LIBRY
Vial Number: 110

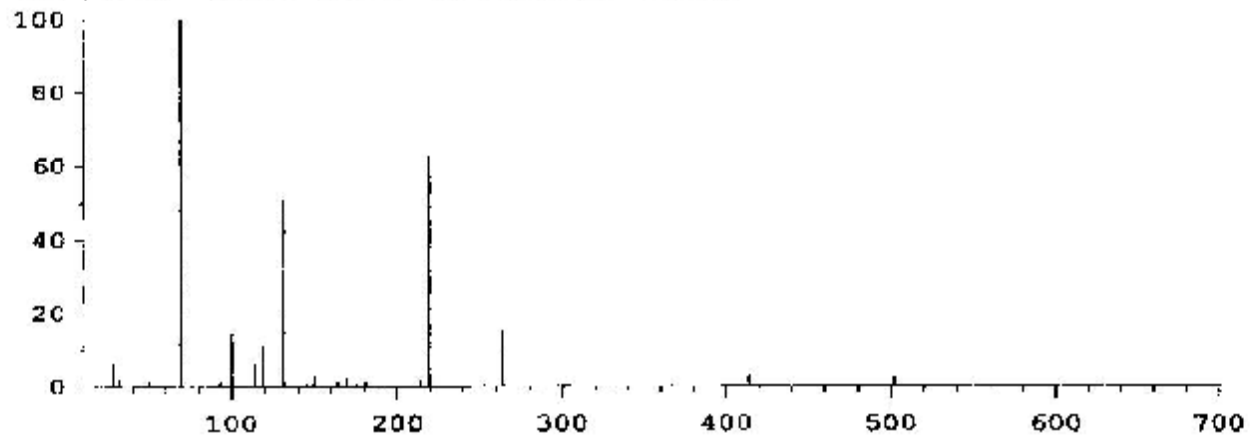


Thu Oct 11 09:26:24 2012
C:\MSDCHEM\1\5975\dftpp.u



Ion Pol Pos MassGain -620
MassOffs -40
Emission 34.6 AmuGain 2043
EI Energy 69.9 AmuOffs 124.50
Filament 1 Wid219 -0.025
DC Pol Pos
Repeller 20.41
IonFocus 66.4 HEDENab On
EntLens 0.0 EMVolts 1899
EntOffs Var
Samples 8
PFTBA Open Averages 3
Stepsize 0.10
Temperatures and Pressures:
MS Source 230 TurboSpd 100
MS Quad 150 HiVac 1.44e05

Scan: 10.00 - 701.00 Samples: 8 Thresh: 100 Step: 0.10
114 Peaks Base: 69.00 Abundance: 455488



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	455488	100.00	70.00	5054	1.11
219.00	283264	62.19	220.00	12252	4.33
502.00	11050	2.43	503.00	1163	10.52

Air/Water Check: H2O-0.56% N2-6.00% O2-1.93% CO2-0.18% N2/H2O-1063.45%

Column(1) Flow: 1.58 Column(2): -1.79769e+308 ml/min. Interface Temp: -

Ramp Criteria:

Ion Focus Maximum 90 volts using ion 502; EM Gain 123531
Repeller Maximum 35 volts using ion 502; Gain Factor 1.24

MassGain Values(Samples): -604(3) -599(2) -577(1) -529(0) -442(PS)

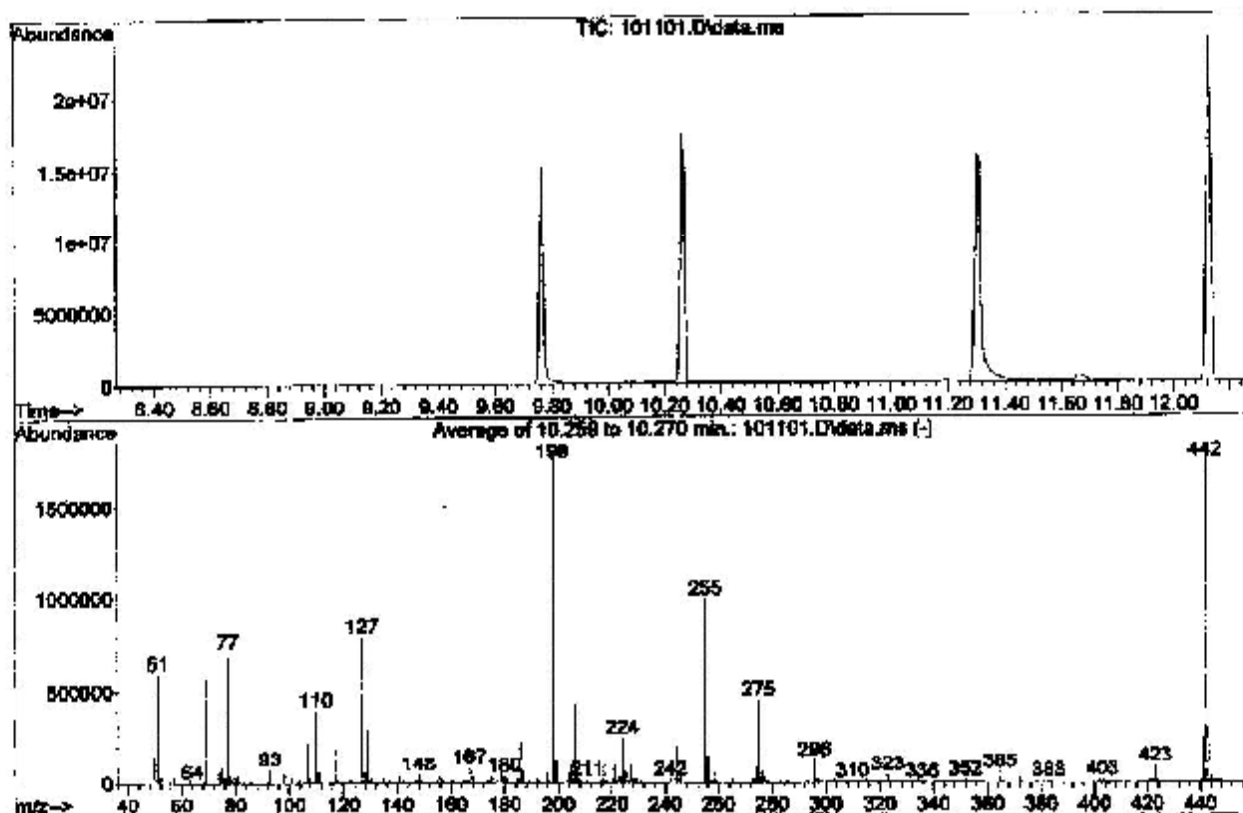
TARGET MASS:	60	69	131	219	414	502	1050
Amu Offset:	124.5	124.5	124.5	124.5	124.5	124.5	124.5
Entrance Lens Offset:	13.8	11.9	11.5	12.3	12.5	13.1	13.1
Target Abund(%):	1.0	100.0	45.0	55.0	2.4	2.0	
Actual Tune Abund(%):	1.1	100.0	50.8	62.2	2.9	2.4	

DFTPP

Data Path : D:\Data\SVOC\101112\
 Data File : 101101.D
 Acq On : 11 Oct 2012 9:32 am
 Operator :
 Sample : TONE CHECK
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 51 Sample Multiplier: 1

Integration File: RTEINTSG8270.P

Method : C:\msdchem\1\methods\QSVOC100512.M
 Title : Semivol
 Last Update : Thu Oct 04 15:27:51 2012



AutoFind: Scans 1341, 1342, 1343; Background Corrected with Scan 1333

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	33.9	594923	PASS
68	69	0.00	2	1.5	8916	PASS
69	198	0.00	100	32.9	577088	PASS
70	69	0.00	2	0.5	3049	PASS
127	198	10	80	44.9	788437	PASS
197	198	0.00	2	0.3	5802	PASS
198	198	100	100	100.0	1754795	PASS
199	198	5	9	6.7	117835	PASS
275	198	10	60	25.4	446165	PASS
365	198	1	100	3.2	55821	PASS
441	442	0.01	24	14.0	247979	PASS
442	198	50	999	100.6	1765013	PASS
443	442	15	24	19.0	335381	PASS



益盛公司 代理 各种 油漆 涂料 油墨 助剂 填料 树脂 溶剂 助剂 填料 树脂 溶剂 助剂 填料 树脂 溶剂

Block#

- 001 DBPAH1002712.M
- 002 DBPAH1002712.M
- 003 DBPAH1002712.M
- 004 DBPAH1002712.M
- 005 DBPAH1002712.M
- 006 DBPAH1002712.M
- 007 DBPAH1002712.M
- 008 DBPAH1002712.M
- 009 DBPAH1002712.M
- 010 DBPAH1002712.M
- 011 DBPAH1002712.M
- 012 DBPAH1002712.M
- 013 DBPAH1002712.M
- 014 DBPAH1002712.M
- 015 DBPAH1002712.M
- 016 DBPAH1002712.M
- 017 DBPAH1002712.M
- 018 DBPAH1002712.M
- 019 DBPAH1002712.M
- 020 DBPAH1002712.M

OLD METHODS

1.2.3.4.5.6.7.8.9.10.11.12.13.14.15.16.17.18.19.20

Start	End	Code	Contigune
50			2,4-Dichlorophenol
51			Dibenzofuran
52			2,4-Dinitrophenol
53			4-Nitrophenol
54			2,3,4,5-Tetrachlorophenol
55			2,3,5-Trichlorophenol
56			Fluorene
57			4-Chlorophenyl propyl ether
58			Diphenylmethane
59			4,6-Dichloro-2-methylphenol
60			Dibenzylidene
61			Apothezene
62			4-Bromo phenyl propyl ether
63			Tetrahydrophthalimide
64			Hexachlorobenzene
65			Pentachlorobenzene
66			Fluoranthene d10 (H5)
67			PERFLUORINE
68			LSND
69			END
70			Pre-sulfonated

Unit: 0.0125 g/L 20°C 200 MHz 4 pulses
 90.00 MHz 193.10 MHz 193.10 MHz
 100.00 MHz 193.10 MHz 193.10 MHz
 100.00 MHz 193.10 MHz 193.10 MHz

(60) F2 F1	1.333333 (4.000000)	5.000000 (25.00)	15.00 (75.00)
1.333333	5.000000	15.000000	45.000000
2.666667	10.000000	30.000000	90.000000
4.000000	15.000000	45.000000	135.000000
5.333333	20.000000	60.000000	180.000000
6.666667	30.000000	90.000000	270.000000
8.000000	40.000000	120.000000	360.000000

Unit: 0.0125 g/L 20°C 200 MHz 4 pulses
 90.00 MHz 193.10 MHz 193.10 MHz
 100.00 MHz 193.10 MHz 193.10 MHz
 100.00 MHz 193.10 MHz 193.10 MHz

Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101102.D
 Acq On : 11 Oct 2012 9:57 am
 Operator :
 Sample : CCV-
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 106 Sample Multiplier: 1

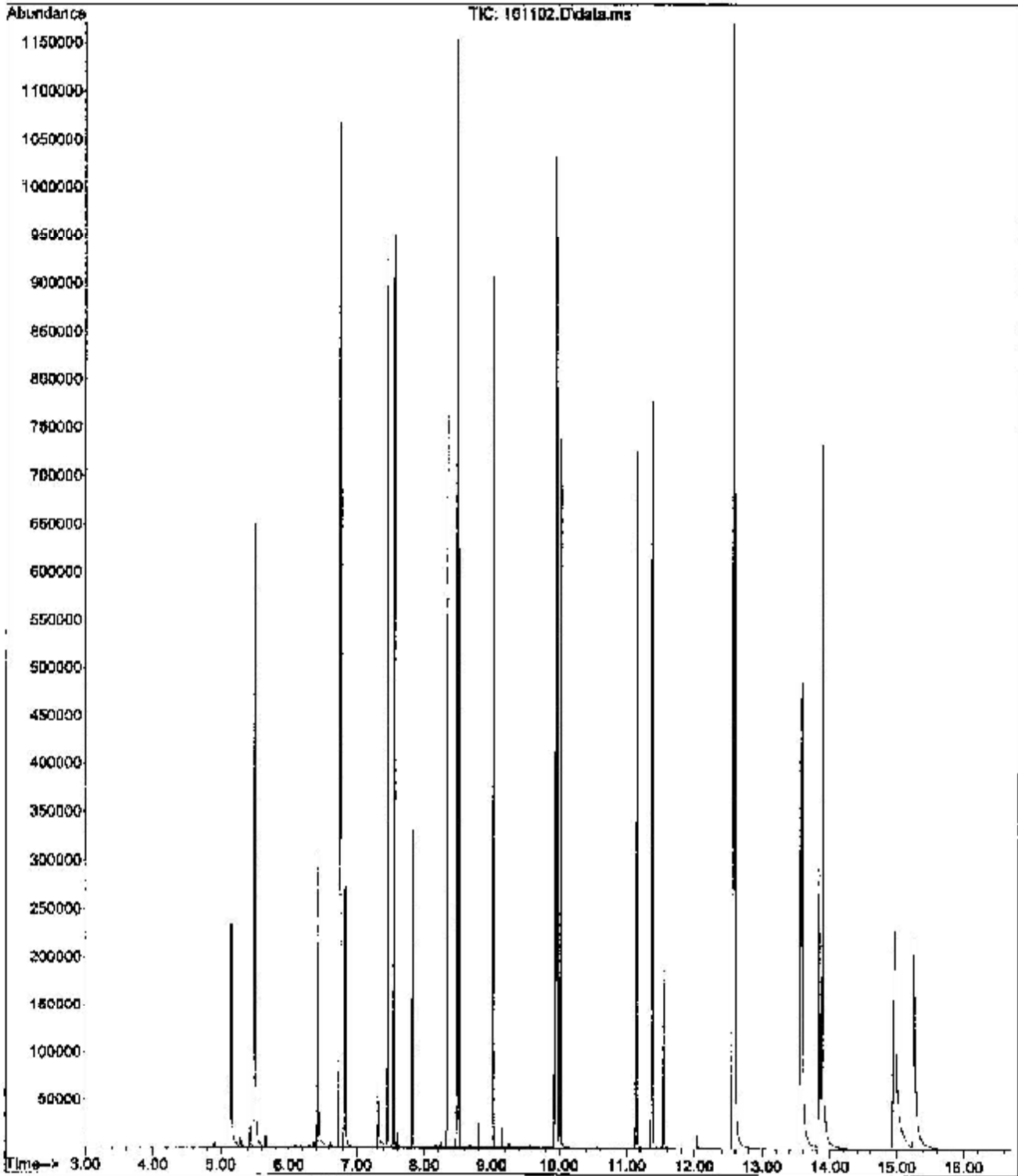
Quant Time: Oct 11 10:18:47 2012
 Quant Method : C:\msdchem\1\methods\DBPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	248623	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	835095	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	446598	2000.00	ug/L	0.00
13) Phenanthrene d10 (IS)	9.945	188	743459	2000.00	ug/L	0.00
20) Chrysene d12 (IS)	12.568	240	729868	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.885	264	702387	2000.00	ug/L	0.00
System Monitoring Compounds						
3) Phenol-d6	5.151	99	181169	959.28	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.821	172	179090	485.31	ug/L	0.00
16) Terphenyl-d14 (surr)	11.539	244	142994	521.78	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.426	107	148187	1012.19	ug/L	99
5) Naphthalene	6.766	128	544594	1027.95	ug/L	100
6) 2-Methylnaphthalene	7.453	142	333013	1072.91	ug/L	98
7) 1-Methylnaphthalene	7.548	142	310432	1057.01	ug/L	98
9) Acenaphthylene	8.338	152	480562	1129.50	ug/L	100
11) Acenaphthene	8.508	152	149723	996.95	ug/L	99
12) Fluorene	9.020	166	358083	1040.24	ug/L	96
14) Phenanthrene	9.967	178	503861	993.14	ug/L	100
15) Anthracene	10.018	178	490231	1081.63	ug/L	98
17) Fluoranthene	11.145	202	533264	1167.88	ug/L	95
18) Pyrene	11.368	202	554385	1161.39	ug/L	94
19) Benzo (a) anthracene	12.557	228	443172	1107.09	ug/L #	100
21) Chrysene	12.592	228	513400	973.60	ug/L	93
22) benzo (b) fluoranthene	13.556	252	333763	870.91	ug/L #	100
23) benzo (k) fluoranthene	13.580	252	571274	1049.42	ug/L	100
24) benzo (a) pyrene	13.835	252	371929	996.28	ug/L	94
26) Indeno(1,2,3-cd)pyrene	14.948	276	392749	1044.45	ug/L	96
27) Dibenz (a,h) anthracene	14.969	278	283366	947.26	ug/L	97
28) Benzo (g,h,i) perylene	15.258	276	403938	973.86	ug/L	97

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

DBPAH101012PHENOL.M Thu Oct 11 14:00:28 2012 PAH

File :D:\Data\SVOC\101112\101102.D
Operator :
Acquired : 11 Oct 2012 9:57 am using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: CCV-
Misc Info : CCV O-PAH-S-SIM
Vial Number: 106



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101103.D
 Acq On : 11 Oct 2012 10:22 am
 Operator :
 Sample : CCB-
 Misc : CCB O-PAH-S-SIM
 ALS Vial : 110 Sample Multiplier: 1

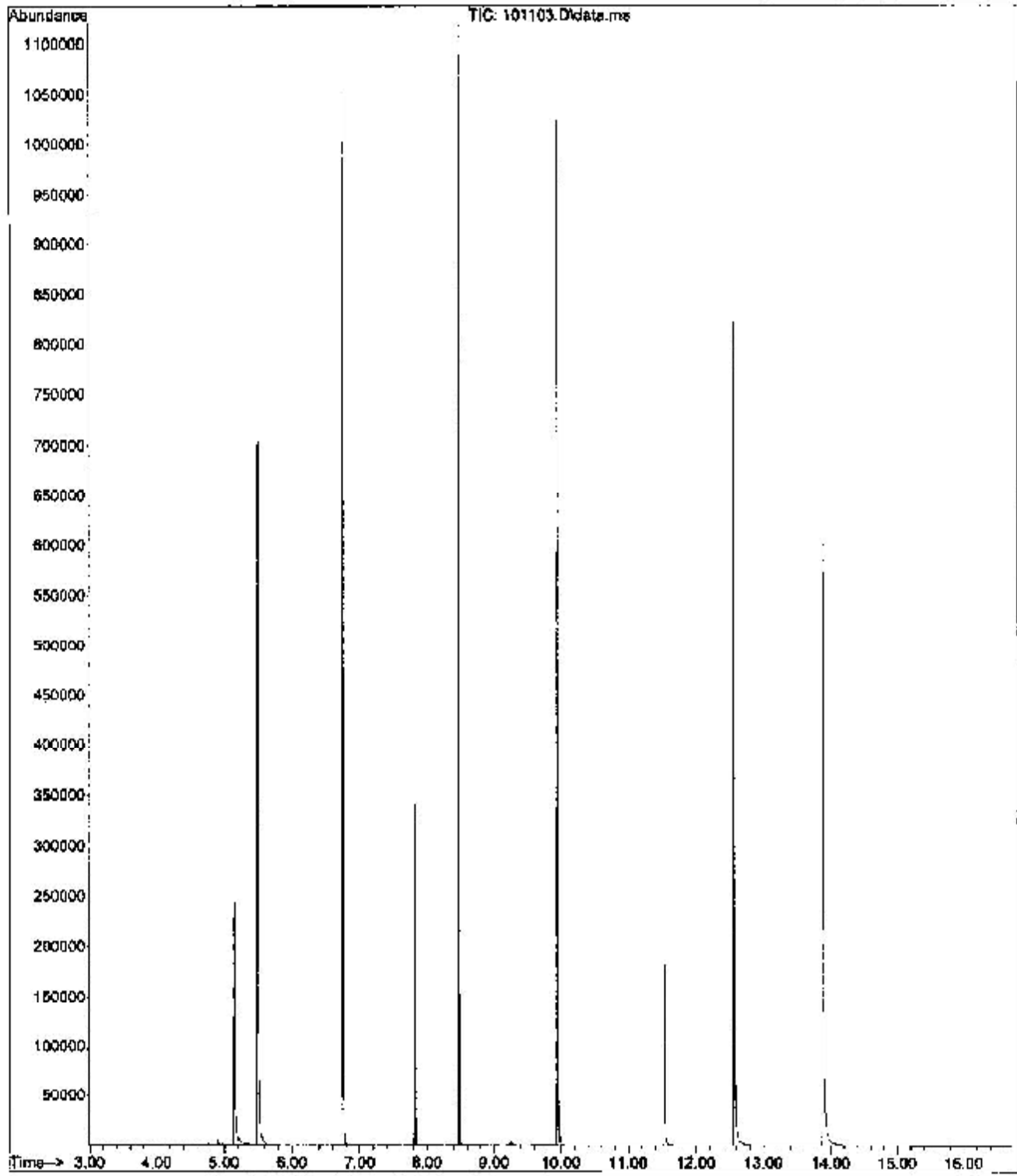
Quant Time: Oct 11 10:51:19 2012
 Quant Method : C:\msdchem\1\methods\DEPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 Qlast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	268896	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	875931	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	437548	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	188	710840	2000.00	ug/L	0.00
20) Chrysene-d12 (IS)	12.566	240	649472	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.885	264	599480	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.149	99	188579	923.24	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.820	172	191340	494.33	ug/L	0.00
16) Terphenyl-d14 (surr)	11.539	244	133750	510.45	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.432	107	54			N.D.
5) Naphthalene	6.766	128	52			N.D.
6) 2-Methylnaphthalene	7.457	142	31			N.D.
7) 1-Methylnaphthalene	7.550	142	25			N.D.
9) Acenaphthylene	8.337	152	8			N.D.
11) Acenaphthene	8.508	152	11			N.D.
12) Fluorene	9.021	166	53			N.D.
14) Phenanthrene	9.966	178	143			N.D.
15) Anthracene	10.020	178	82			N.D.
17) Fluoranthene	11.146	202	75			N.D.
18) Pyrene	11.369	202	96			N.D.
19) Benzo (a) anthracene	12.566	228	1684			N.D.
21) Chrysene	12.566	228	1176			N.D.
22) benzo (b) fluoranthene	13.554	252	83			N.D.
23) benzo (k) fluoranthene	13.579	252	163			N.D.
24) benzo (a) pyrene	13.832	252	81			N.D.
26) Indeno(1,2,3-cd)pyrene	14.945	276	49			N.D.
27) Dibenz (a,h) anthracene	14.957	278	20			N.D.
28) Benzo (g,h,i) perylene	15.250	276	24			N.D.

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

DEPAH101012PHENOL.M Thu Oct 11 14:03:19 2012 PAH

File : D:\Data\SVOC\101112\101103.D
Operator :
Acquired : 11 Oct 2012 10:22 am using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: OCB-
Misc Info : OCB O-PAH-S-SIM
Vial Number: 110



Fremont Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: 10/5/2012 9:26:04 A
 Prep End Date: 10/5/2012 9:26:04 A

Prep Factor Units:
 mL / g

Prep Batch ID: 3353 Prep Code: PREP-PAH-S Technician: Paul Ho
 Initial Temp: °C Final Temp: °C

Sample ID	ClientBatchID	Matrix	pH1	pH2	Samplmt	Sol Added	Sol Recov	Fin Vol	Factor	PrepStart	PrepEnd
MR-3353		Soil	10	0	0	0	0	10	1.000	10/5/2012	10/5/2012
109-3353		Soil	10	0	0	0	0	10	1.000	10/5/2012	10/5/2012
1209174-001A	IRZ-MSW1-92512	Sediment	12.72	0	0	0	0	10	0.782	10/5/2012	10/5/2012
1209174-002A	IRZ-B3-92512	Sediment	12.93	0	0	0	0	10	0.779	10/5/2012	10/5/2012
1209174-003A	IRZ-B3-92512	Sediment	11.25	0	0	0	0	10	0.839	10/5/2012	10/5/2012
1209174-004A	IRZ-B3-92512	Sediment	13.13	0	0	0	0	10	0.782	10/5/2012	10/5/2012
Possible double BH Surf											
1209174-005A	IRZ-B4-92512	Sediment	11.95	0	0	0	0	10	0.837	10/5/2012	10/5/2012
1209174-006A	IRZ-B5-92512	Sediment	11.74	0	0	0	0	10	0.862	10/5/2012	10/5/2012
1209174-005AMS		Sediment	11.87	0	0	0	0	10	0.807	10/5/2012	10/5/2012
1209174-007A	IRZ-BSW1-92512	Sediment	11.4	0	0	0	0	10	0.877	10/5/2012	10/5/2012
1209174-007ADUP		Sediment	11.81	0	0	0	0	10	0.847	10/5/2012	10/5/2012
1210028-001A	SURZF-1451-100212	Soil	12.36	0	0	0	0	10	0.809	10/5/2012	10/5/2012
1210028-002A	SURZF-1452-100212	Soil	11.31	0	0	0	0	10	0.894	10/5/2012	10/5/2012
1210028-003A	SURZ-SSW1-100212	Soil	11.89	0	0	0	0	10	0.847	10/5/2012	10/5/2012
1210028-003ADUP		Soil	11.64	0	0	0	0	10	0.859	10/5/2012	10/5/2012
1210028-004A	SURZ-MSW1-100212	Soil	12.44	0	0	0	0	10	0.804	10/5/2012	10/5/2012
1210028-005A	P15B1-10212	Soil	12.99	0	0	0	0	10	0.770	10/5/2012	10/5/2012
1210028-006A	P15NSW1-10212	Soil	11.01	0	0	0	0	10	0.908	10/5/2012	10/5/2012
1210028-007A	P15B2-10212	Soil	12.34	0	0	0	0	10	0.750	10/5/2012	10/5/2012
1210028-008A	SURZ-MSW2-10212	Soil	12.61	0	0	0	0	10	0.783	10/5/2012	10/5/2012

Spike ID	Chemical / Reagent ID	Spike Name	Chemical / Reagent Name	Container#	Container ID	Amount Added	Amount Unit
----------	-----------------------	------------	-------------------------	------------	--------------	--------------	-------------

INTERNAL STANDARD AREA AND RT SUMMARY

RunID: GCMS-3 121011A GCV Name: CAL MID POINT
 Run No. 8083 GCV SeqNo: 120851
 Lab File ID (Standard): 101014.D Date Analyzed: 10/10/2012
 Instrument ID: GCMS-3 Time Analyzed: 17:48
 GC Column: ID (mm): Length (M):

	IS1 (14DCBZ)		IS2 Acenaphthene-c		IS3 Chrysene-d12		IS4 Naphthalene-d8		
	AREA #	RT #	AREA #	RT #	AREA #	RT #	AREA #	RT #	
12 HOUR STD	211091	5.498	370642	8.480	568843	12.569	703929	6.747	
UPPER LIMIT	422182	5.998	741284	8.980	1173686	13.069	1407978	7.247	
LOWER LIMIT	105546	4.998	185321	7.980	283472	12.069	351895	6.247	
SAMPLE NO:									
01	CCV-3353	248623	5.498	446588	8.478	729888	12.568	835095	6.747
02	CCB-3353	268896	5.486	437548	8.478	849472	12.566	875931	6.747
03	MB-3353	229710	5.486	370285	8.478	842691	12.568	740476	6.745
04	LCS-3353	226942	5.497	382348	8.478	590336	12.568	740880	6.745
05	1209174-006A	232234	5.488	374860	8.477	560480	12.566	748895	6.747
06	1209174-006AMS	236834	5.497	396432	8.478	814892	12.566	768306	6.745
07	1210029-003A	213898	5.498	347120	8.478	817448	12.566	891579	6.745
08	1210029-003ADUP	220112	5.497	360158	8.478	844063	12.565	716090	6.745
09	1210029-002A	234483	5.496	390192	8.478	821317	12.565	758218	6.747
10	1210029-007A	237032	6.497	387685	8.478	581848	12.566	762843	6.747

IS1 (14DCBZ) = 1,4-Dichlorobenzene-d4

IS2 Acenaphthene-d10 = Acenaphthene-d10

IS3 Chrysene-d12 = Chrysene-d12

IS4 Naphthalene-d8 = Naphthalene-d8

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = -50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.

* Values outside of QC limits.

INTERNAL STANDARD AREA AND RT SUMMARY

RunID: GCMS-3_121011A GCV Name: CAL MID POINT
 Run No: 5083 GCV SeqNo: 120851
 Lab File ID (Standard): f01Q14.D Date Analyzed: 10/10/2012
 Instrument ID: GCMS-3 Time Analyzed: 17:48
 GC Column: ID (mm): Length (M):

		IS5 Perylene-d12		IS8 Phenanthrene-d10					
		AREA #	RT #	AREA #	RT #				
12 HOUR STD		589722	13.885	614915	9.945				
UPPER LIMIT		1189444	14.389	1229830	10.445				
LOWER LIMIT		294861	13.389	307458	9.445				
SAMPLE NO.									
01	CCV-3353	702387	13.885	743459	9.945				
02	CCB-3353	589480	13.885	710840	9.945				
03	MB-3353	501236	13.885	604432	9.945				
04	LCS-3353	561221	13.887	608612	9.944				
05	1209174-006A	519311	13.887	617344	9.945				
06	1209174-006AMS	590228	13.885	631984	9.944				
07	1210029-003A	483840	13.885	586715	9.944				
08	1210029-002A	610196	13.885	649460	9.944				
09	1210029-007A	553844	13.885	634802	9.943				
10	1210029-003ADUP	512658	13.885	589833	9.945				

IS5 Perylene-d12 = Perylene-d12

IS8 Phenanthrene-d10 = Phenanthrene-d10

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = -50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.

* Values outside of QC limits.

Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101104.D
 Acq On : 11 Oct 2012 10:47 am
 Operator :
 Sample : MB-3353
 Misc : MELK O-PAH-S-SIM
 ALS Vial : 111 Sample Multiplier: 1

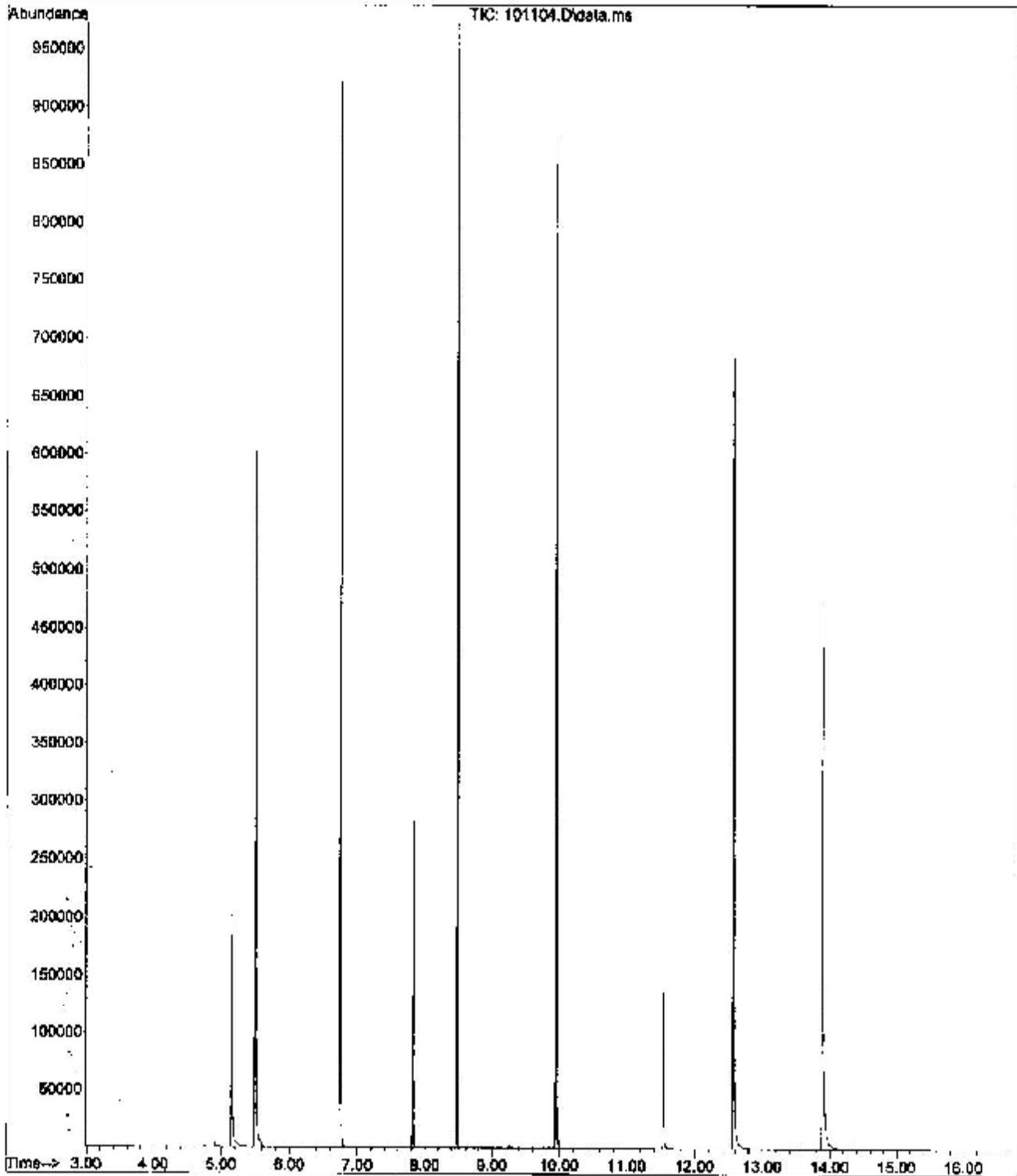
Quant Time: Oct 11 14:05:28 2012
 Quant Method : C:\msdchem\1\methods\BPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	229710	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	740476	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	370265	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	168	604432	2000.00	ug/L	0.00
20) Chrysene-d12 (IS)	12.566	240	542591	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.885	264	501236	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.149	99	152040	871.33	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.821	172	151360	462.58	ug/L	0.00
16) Terphenyl-d14 (surr)	11.540	244	104091	467.19	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.396	107	39		N.D.	
5) Naphthalene	6.766	128	38		N.D.	
6) 2-Methylnaphthalene	7.455	142	41		N.D.	
7) 1-Methylnaphthalene	7.550	142	25		N.D.	
9) Acenaphthylene	8.338	152	3		N.D.	
11) Acenaphthene	8.508	152	2		N.D.	
12) Fluorene	9.019	166	4		N.D.	
14) Phenanthrene	9.967	178	50		N.D.	
15) Anthracene	10.020	178	1		N.D.	
17) Fluoranthene	11.146	202	2		N.D.	
18) Pyrene	11.370	202	11		N.D.	
19) Benzo (a) anthracene	12.566	228	1390		N.D.	
21) Chrysene	12.566	228	1310		N.D.	
22) benzo (b) fluoranthene	13.553	252	17		N.D.	
23) benzo (k) fluoeranthene	13.579	252	91		N.D.	
24) benzo (a) pyrene	13.885	252	1583	6.05	ug/L #	85
26) Indeno(1,2,3-cd)pyrene	14.945	276	9		N.D.	
27) Dibenz (a,h) anthracene	14.965	278	16		N.D.	
28) Benzo (g,h,i) perylene	15.255	276	14		N.D.	

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

DBPAH101012PHENOL.M Thu Oct 11 14:05:28 2012 PAH

File : D:\Data\SVQC\101112\101104.D
Operator :
Acquired : 11 Oct 2012 10:47 am using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: MB-3353
Misc info : MBLK O-PAH-S-SIM
Vial Number: 111



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101105.D
 Acq On : 11 Oct 2012 11:12 am
 Operator :
 Sample : LCS-3353
 Misc : LCS O-PAH-S-SIM
 ALS Vial : 112 Sample Multiplier: 1

Quant Time: Oct 11 14:06:11 2012
 Quant Method : C:\msdchem\1\methods\BPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

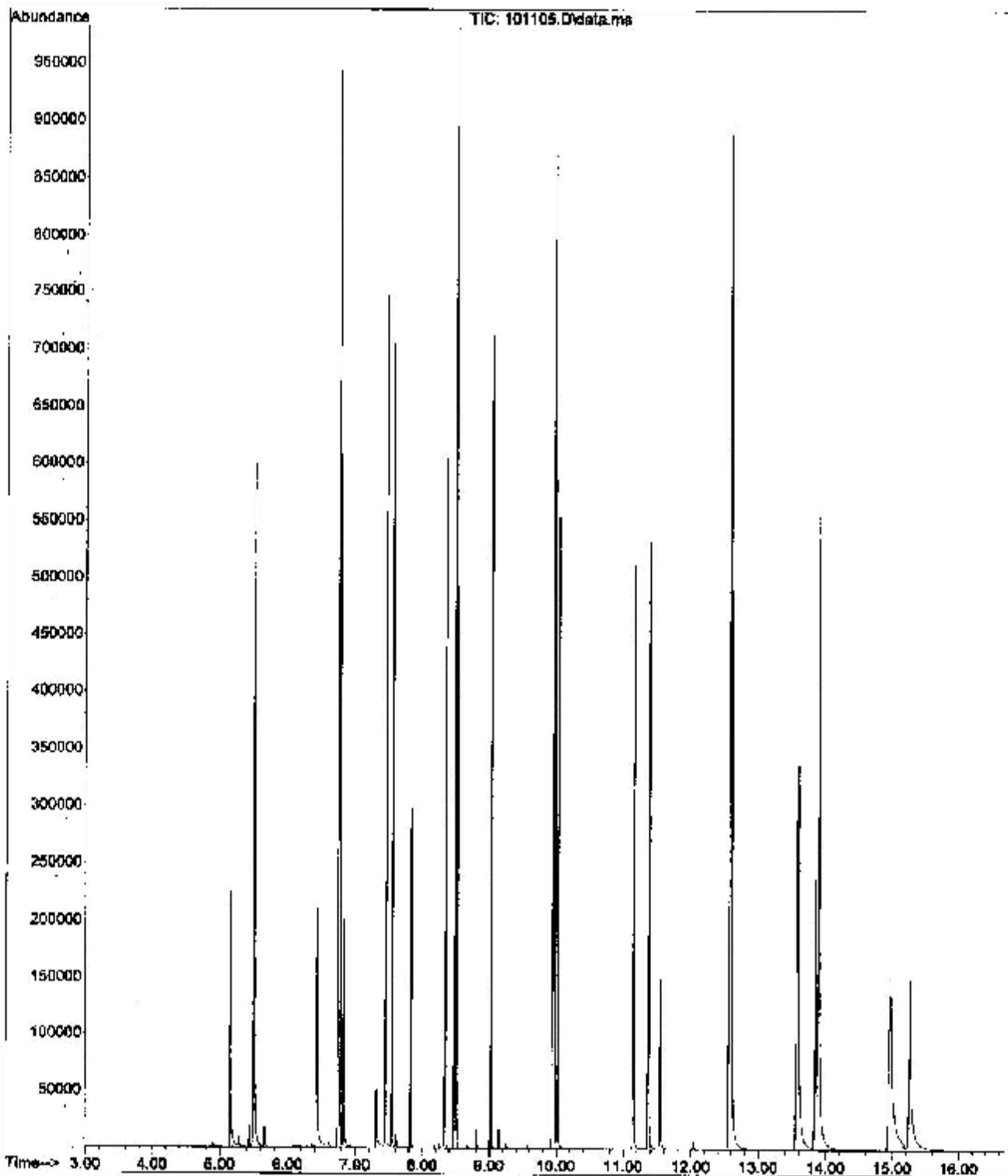
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.497	152	225942	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	740680	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	382348	2000.00	ug/L	0.00
13) Phenanthrene d10 (IS)	9.944	188	608612	2000.00	ug/L	0.00
20) Chrysene-d12 (IS)	12.568	240	590336	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	561221	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.149	99	164324	957.43	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.821	172	160695	490.97	ug/L	0.00
16) Terphenyl-d14 (surr)	11.540	244	113578	506.27	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.427	107	110984	834.17	ug/L	100
5) Naphthalene	6.766	128	442750	942.24	ug/L	100
6) 2-Methylnaphthalene	7.453	142	265620	964.87	ug/L	98
7) 1-Methylnaphthalene	7.548	142	248427	953.71	ug/L	97
9) Acenaphthylene	8.338	152	375727	995.71	ug/L	100
11) Acenaphthene	8.509	152	117927	917.18	ug/L	99
12) Fluorene	9.020	166	275280	934.08	ug/L	97
14) Phenanthrene	9.968	178	386161	929.79	ug/L	100
15) Anthracene	10.019	178	365819	985.96	ug/L	98
17) Fluoranthene	11.145	204	377469	1009.66	ug/L	95
18) Pyrene	11.370	202	398291	1019.26	ug/L	94
19) Benzo (a) anthracene	12.557	228	313333	956.17	ug/L #	100
21) Chrysene	12.592	228	387352	908.19	ug/L	93
22) benzo (b) fluoranthene	13.556	252	228353	736.70	ug/L #	100
23) benzo (k) fluoranthene	13.580	252	426400	968.43	ug/L	100
24) benzo (a) pyrene	13.837	252	257760	860.43	ug/L	92
26) Indeno(1,2,3-cd)pyrene	14.950	276	271969	910.87	ug/L	97
27) Dibenz (a,h) anthracene	14.969	278	191394	804.85	ug/L	97
28) Benzo (g,h,i) perylene	15.258	276	282288	851.76	ug/L	97

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

DBPAH101012PHENOL.M Thu Oct 11 14:06:12 2012 PAH

File : D:\Data\SVOC\101112\101105.D
Operator :
Acquired : 11 Oct 2012 11:12 am using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: LCS-3353
Misc Info : LCS O-PAH-S-SIM
Vial Number: 112



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101105.D
 Acq On : 11 Oct 2012 11:37 am
 Operator :
 Sample : 1209174-006A
 Misc : SAMP O-PAH-S-SIM
 ALS Vial : 113 Sample Multiplier: 1

Quant Time: Oct 11 14:06:23 2012
 Quant Method : C:\msdchem\1\methods\BPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

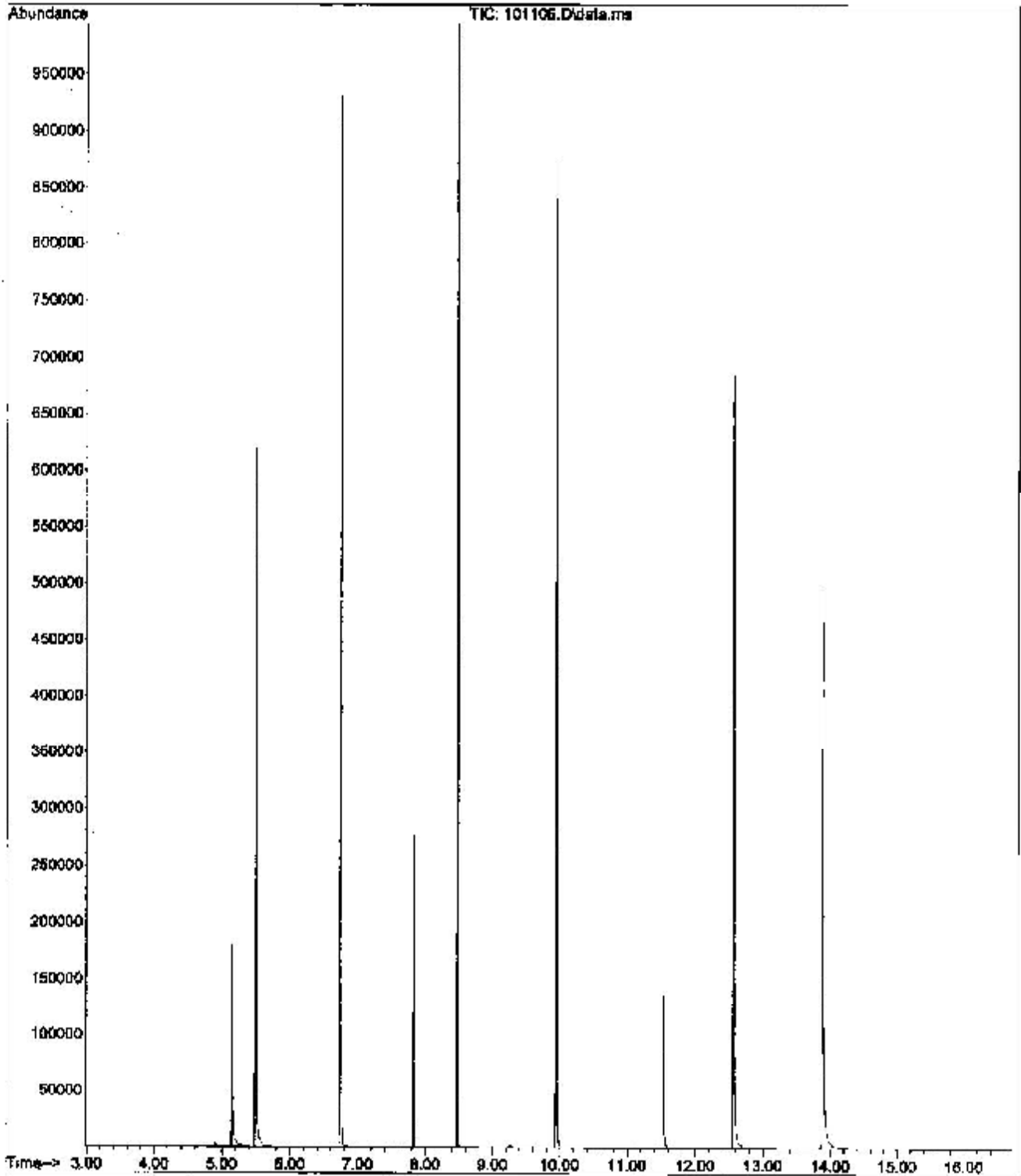
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.498	152	232234	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	748695	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.477	164	374960	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	188	617344	2000.00	ug/L	0.00
20) Chrysene-d12 (IS)	12.566	240	560480	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	519311	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.151	99	144157	817.17	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.821	172	152044	459.57	ug/L	0.00
16) Terphenyl-d14 (surr)	11.540	244	106654	468.68	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.454	107	40			N.D.
5) Naphthalene	6.756	128	95			N.D.
6) 2-Methylnaphthalene	7.457	142	54			N.D.
7) 1-Methylnaphthalene	7.548	142	44			N.D.
9) Acenaphthylene	8.338	152	2			N.D.
11) Acenaphthene	8.506	152	14			N.D.
12) Fluorene	9.025	166	18			N.D.
14) Phenanthrene	9.966	178	106			N.D.
15) Anthracene	10.018	178	7			N.D.
17) Fluoranthene	11.149	202	17			N.D.
18) Pyrene	11.357	202	2			N.D.
19) Benzo (a) anthracene	12.566	228	1489			N.D.
21) Chrysene	12.566	228	1312			N.D.
22) benzo (b) fluoranthene	13.557	252	36			N.D.
23) benzo (k) fluoranthene	13.579	252	125			N.D.
24) benzo (a) pyrene	13.832	252	63			N.D.
26) Indeno(1,2,3-cd)pyrene	14.943	276	45			N.D.
27) Dibenz (a,h) anthracene	14.969	278	4			N.D.
28) Benzo (g,h,i) perylene	15.255	276	3			N.D.

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

BPAH101012PHENOL.M Thu Oct 11 14:06:24 2012 PAH

File : D:\Data\SVOC\101112\101106.D
Operator :
Acquired : 11 Oct 2012 11:37 am using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 1209174-006A
Misc Info : SAMP O-PAH-S-SIM
Vial Number: 113



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101107.D
 Acq On : 11 Oct 2012 12:02 pm
 Operator :
 Sample : 1209174-006AMS
 Misc : MS O-PAH-S-SIM
 ALS Vial : 114 Sample Multiplier: 1

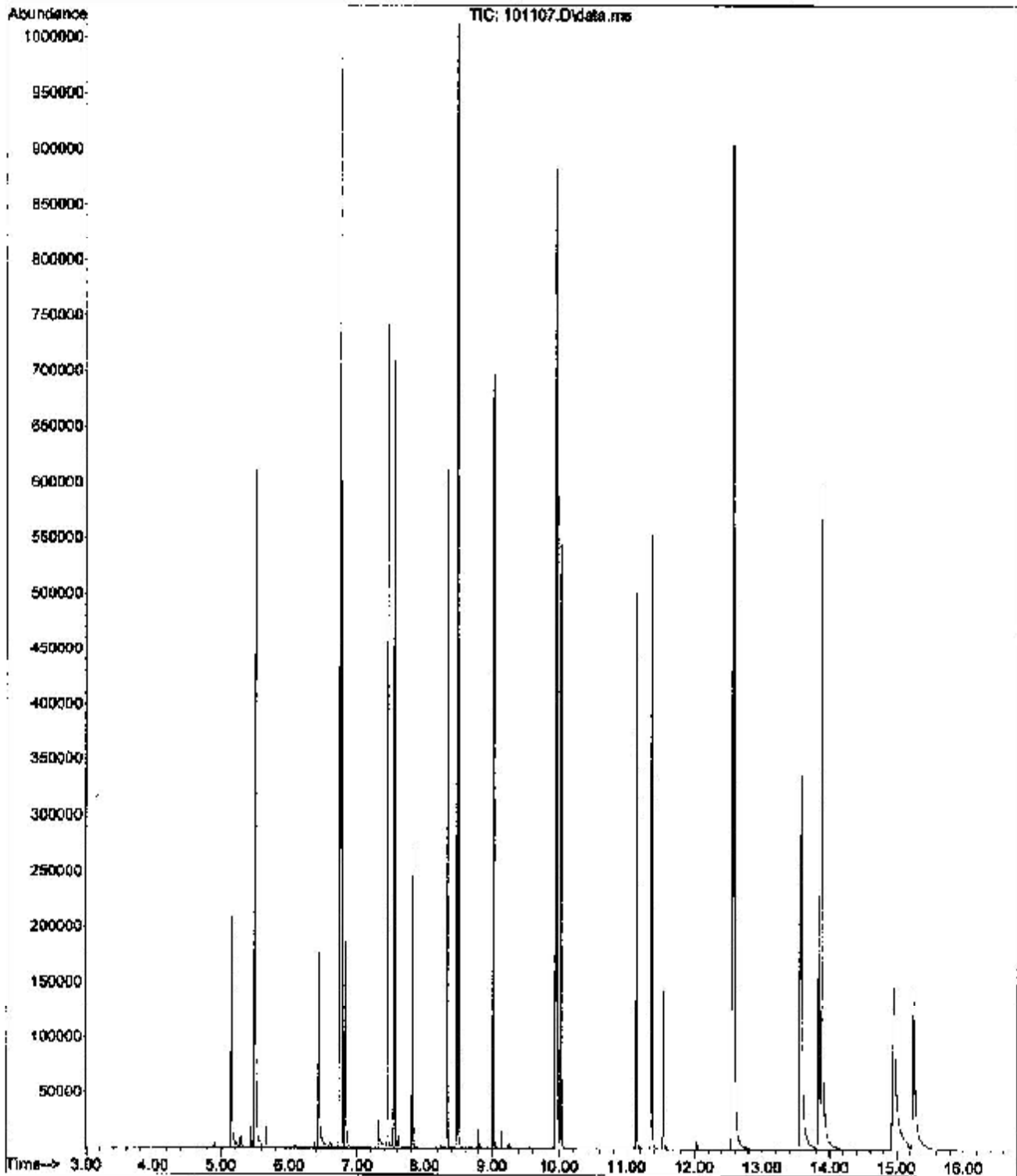
Quant Time: Oct 11 14:06:33 2012
 Quant Method : C:\msdchem\1\methods\BSPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.497	152	235834	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	768306	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	396432	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.944	188	631984	2000.00	ug/L	0.00
20) Chrysene-d12 (IS)	12.566	240	614892	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.885	264	590228	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.151	99	152381	850.61	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.821	172	155402	457.73	ug/L	0.00
16) Terphenyl-d14 (surr)	11.539	244	110649	474.97	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.428	107	107413	773.47	ug/L	100
5) Naphthalene	6.767	128	438103	898.83	ug/L	100
6) 2-Methylnaphthalene	7.453	142	259860	910.00	ug/L	99
7) 1-Methylnaphthalene	7.548	142	245139	907.25	ug/L	97
9) Acenaphthylene	8.338	152	368160	940.58	ug/L	100
11) Acenaphthene	8.509	152	115426	865.84	ug/L	99
12) Fluorene	9.020	166	270187	884.23	ug/L	97
14) Phenanthrene	9.968	178	377373	875.03	ug/L	100
15) Anthracene	10.019	178	358649	930.89	ug/L	98
17) Fluoranthene	11.145	202	372856	960.44	ug/L	95
18) Pyrene	11.367	202	392716	967.83	ug/L	94
19) Benzo (a) anthracene	12.557	228	314318	923.70	ug/L #	100
21) Chrysene	12.592	228	382247	860.43	ug/L #	73
22) benzo (b) fluoranthene	13.555	252	228754	708.52	ug/L #	100
23) benzo (k) fluoranthene	13.578	252	409224	892.30	ug/L	100
24) benzo (a) pyrene	13.835	252	255161	819.68	ug/L	91
26) Indeno(1,2,3-cd)pyrene	14.945	276	271118	865.26	ug/L	97
27) Dibenz (a,h) anthracene	14.967	276	189753	759.96	ug/L	97
28) Benzo (g,h,i) perylene	15.258	276	281386	807.31	ug/L	97

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

BSPAH101012PHENOL.M Thu Oct 11 14:06:33 2012 PAH

File : D:\Data\SVOC\101112\101107.D
Operator :
Acquired : 11 Oct 2012 12:02 pm using AcqMethod DBPAH101012PHENCL.M
Instrument : HP-MSD
Sample Name: 1209174-006AMS
Misc Info : MS O-PAH-S-SIM
Vial Number: 114



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101108.D
 Acq On : 11 Oct 2012 12:27 pm
 Operator :
 Sample : 1210029-003A
 Misc : SAMP O-PAH-S-SIM
 ALS Vial : 117 Sample Multiplier: 1

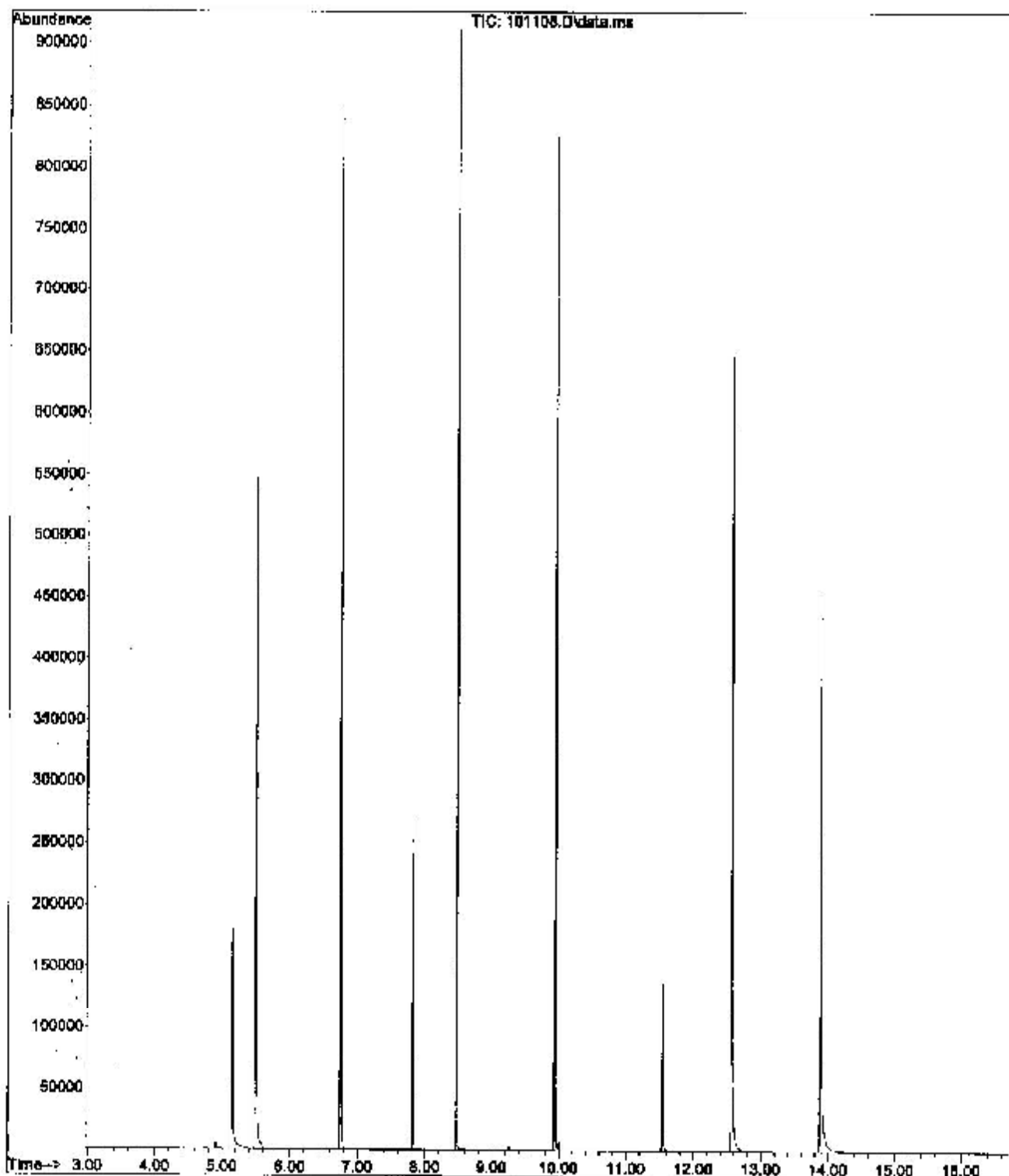
Quant Time: Oct 11 14:06:44 2012
 Quant Method : C:\msdchem\1\methods\BSPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.498	152	213699	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	691579	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	347120	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.944	188	566715	2000.00	ug/L	0.00
20) Chrysene-d12 (IS)	12.566	240	517446	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.885	264	483940	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.151	99	139788	861.14	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.820	172	149875	490.42	ug/L	0.00
16) Terphenyl-d14 (surr)	11.539	244	107108	512.73	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.450	107	46			N.D.
5) Naphthalene	6.766	128	130			N.D.
6) 2-Methylnaphthalene	7.457	142	55			N.D.
7) 1-Methylnaphthalene	7.550	142	34			N.D.
9) Acenaphthylene	8.339	152	9			N.D.
11) Acenaphthene	8.508	152	7			N.D.
12) Fluorene	9.021	166	28			N.D.
14) Phenanthrene	9.958	178	180			N.D.
15) Anthracene	10.020	178	35			N.D.
17) Fluoranthene	11.148	202	47			N.D.
18) Pyrene	11.370	202	147			N.D.
19) Benzo (a) anthracene	12.566	228	1464			N.D.
21) Chrysene	12.566	228	1351			N.D.
22) benzo (b) fluoranthene	13.553	252	32			N.D.
23) benzo (k) fluoranthene	13.577	252	180			N.D.
24) benzo (a) pyrene	13.882	252	1639	6.57	ug/L #	80
26) Indeno(1,2,3-cd)pyrene	14.962	276	3			N.D.
27) Dibenz (a,h) anthracene	14.965	278	24			N.D.
28) Benzo (g,h,i) perylene	15.255	276	5			N.D.

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

DBPAH101012PHENOL.M Thu Oct 11 14:06:44 2012 PAH

File : D:\Data\SVOC\101112\101108.D
Operator :
Acquired : 11 Oct 2012 12:27 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 1210029-003A
Misc Info : SAMP O-PAH-S-SIM
Vial Number: 117



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101109.D
 Acq On : 11 Oct 2012 12:53 pm
 Operator :
 Sample : 1210029-003ADUP
 Misc : DUP O-PAH-S-SIM
 ALS Vial : 118 Sample Multiplier: 1

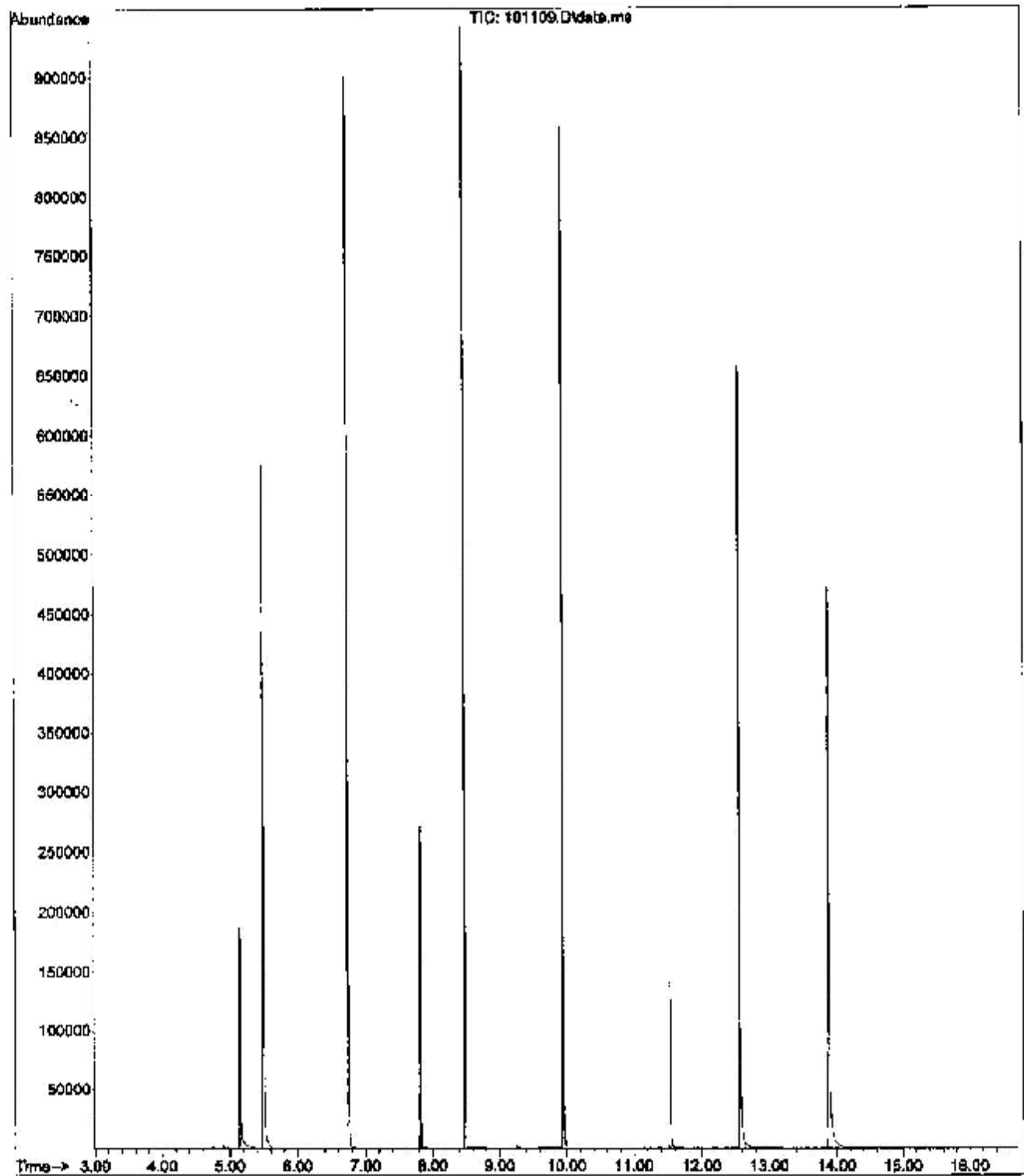
Quant Time: Oct 11 14:06:57 2012
 Quant Method : C:\msdchem\1\methods\DBPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)	
Internal Standards							
1) 1,4-Dichlorobenz-d4 (IS)	5.497	152	220112	2000.00	ug/L	0.00	
4) Naphthalene-d8 (IS)	6.745	136	715090	2000.00	ug/L	0.00	
10) Acenaphthene-d10 (IS)	8.478	164	360158	2000.00	ug/L	0.00	
13) Phenanthrene-d10 (IS)	9.945	188	589833	2000.00	ug/L	0.00	
20) Chrysene-d12 (IS)	12.565	240	544063	2000.00	ug/L	0.00	
25) Perylene-d12 (IS)	13.885	264	512659	2000.00	ug/L	0.00	
System Monitoring Compounds							
2) Phenol-d6	5.151	99	139259	832.88	ug/L	0.00	
8) 2-Fluorobiphenyl (surr)	7.821	172	152060	481.21	ug/L	0.00	
16) Terphenyl-d14 (surr)	11.539	244	111349	512.31	ug/L	0.00	
Target Compounds							
							Qvalue
3) 2,4-Dimethylphenol	6.364	107	2				N.D.
5) Naphthalene	6.745	128	29				N.D.
6) 2-Methylnaphthalene	7.457	142	61				N.D.
7) 1-Methylnaphthalene	7.550	142	33				N.D.
9) Acenaphthylene	8.338	152	18				N.D.
11) Acenaphthene	8.456	152	2				N.D.
12) Fluorene	9.024	166	39				N.D.
14) Phenanthrene	9.967	178	316				N.D.
15) Anthracene	10.020	178	57				N.D.
17) Fluoranthene	11.149	202	129				N.D.
18) Pyrene	11.368	202	239				N.D.
19) Benzo (a) anthracene	12.565	228	1418				N.D.
21) Chrysene	12.565	228	894				N.D.
22) benzo (b) fluoranthene	13.554	252	46				N.D.
23) benzo (k) fluoranthene	13.577	252	235				N.D.
24) benzo (a) pyrene	13.835	252	86				N.D.
26) Indeno(1,2,3-cd)pyrene	14.945	276	55				N.D.
27) Dibenz (a,h) anthracene	14.962	278	15				N.D.
28) Benzo (g,h,i) perylene	15.255	276	2				N.D.

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

DBPAH101012PHENOL.M Thu Oct 11 14:06:57 2012 PAH

File : D:\Data\SVOC\101112\101109.D
Operator :
Acquired : 11 Oct 2012 12:53 pm using AcqMethod DEPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 1210029-003ADUP
Misc Info : DUP C-PAH-S-SIM
Vial Number: 118



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101110.D
 Acq On : 11 Oct 2012 1:18 pm
 Operator :
 Sample : 1210029-002A
 Misc : SAMP O-PAH-S-SIM
 ALS Vial : 119 Sample Multiplier: 1

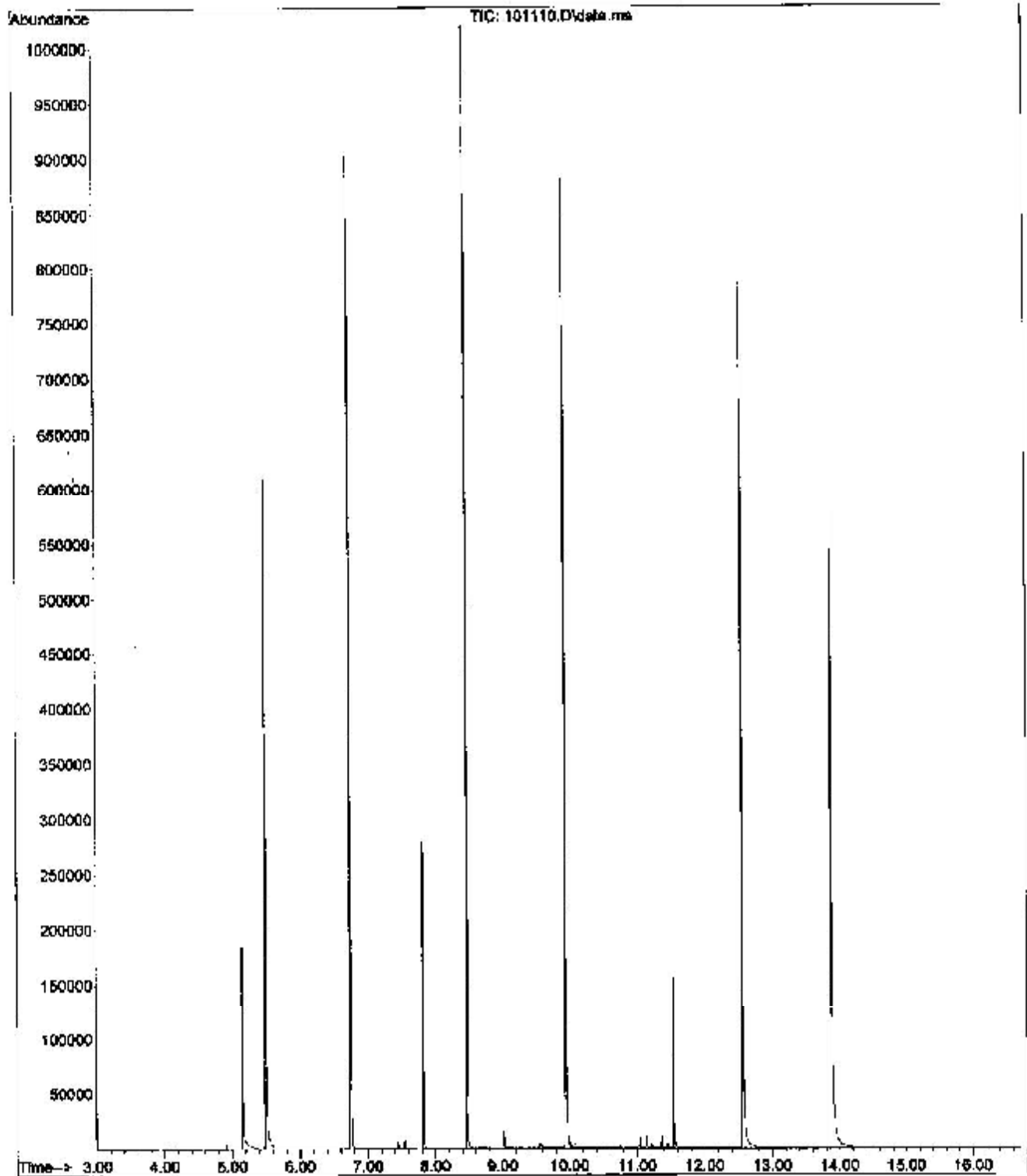
Quant Time: Oct 11 14:09:15 2012
 Quant Method : C:\msdchem\1\methods\DEPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 Quant Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	234463	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	758216	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	390192	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.944	188	649460	2000.00	ug/L	0.00
20) Chrysene-d12 (IS)	12.566	240	621317	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.885	264	610196	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.151	99	138083	775.30	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	155621	464.47	ug/L	0.00
16) Terphenyl-d14 (surr)	11.539	244	125738	525.22	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.461	107	744	5.39	ug/L #	78
5) Naphthalene	6.766	128	4217	8.77	ug/L	95
6) 2-Methylnaphthalene	7.453	142	2899	10.29	ug/L	98
7) 1-Methylnaphthalene	7.550	142	2735	10.26	ug/L #	91
9) Acenaphthylene	8.341	152	508	N.D.		
11) Acenaphthene	8.508	152	515	N.D.		
12) Fluorene	9.021	166	5775	19.20	ug/L	84
14) Phenanthrene	9.968	178	14904	33.63	ug/L	99
15) Anthracene	10.019	178	2286	5.77	ug/L #	92
17) Fluoranthene	11.146	202	8712	21.84	ug/L #	60
18) Pyrene	11.367	202	8056	19.32	ug/L #	55
19) Benzo (a) anthracene	12.563	228	3520	10.07	ug/L #	100
21) Chrysene	12.590	228	3109m	6.93	ug/L	
22) benzo (b) fluoranthene	13.556	252	559	N.D.		
23) benzo (k) fluoranthene	13.789	252	259	N.D.		
24) benzo (a) pyrene	13.833	252	345	N.D.		
26) Indeno(1,2,3-cd)pyrene	14.969	276	5	N.D.		
27) Dibenz (a,h) anthracene	14.962	278	12	N.D.		
28) Benzo (g,h,i) perylene	15.251	276	72	N.D.		

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

DEPAH101012PHENOL.M Thu Oct 11 14:09:31 2012 PAH

File :D:\Data\SVOC\101112\101110.D
Operator :
Acquired : 11 Oct 2012 1:18 pm using AcqMethod DHPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 1210029-002A
Misc Info : SAMP O-PAH-S-SIM
Vial Number: 119



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101111.D
 Acq On : 11 Oct 2012 1:42 pm
 Operator :
 Sample : 1210029-007A
 Misc : SAMP O-PAH-S-SIM
 ALS Vial : 120 Sample Multiplier: 1

Quant Time: Oct 11 14:09:52 2012
 Quant Method : C:\msdchem\1\methods\DEPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

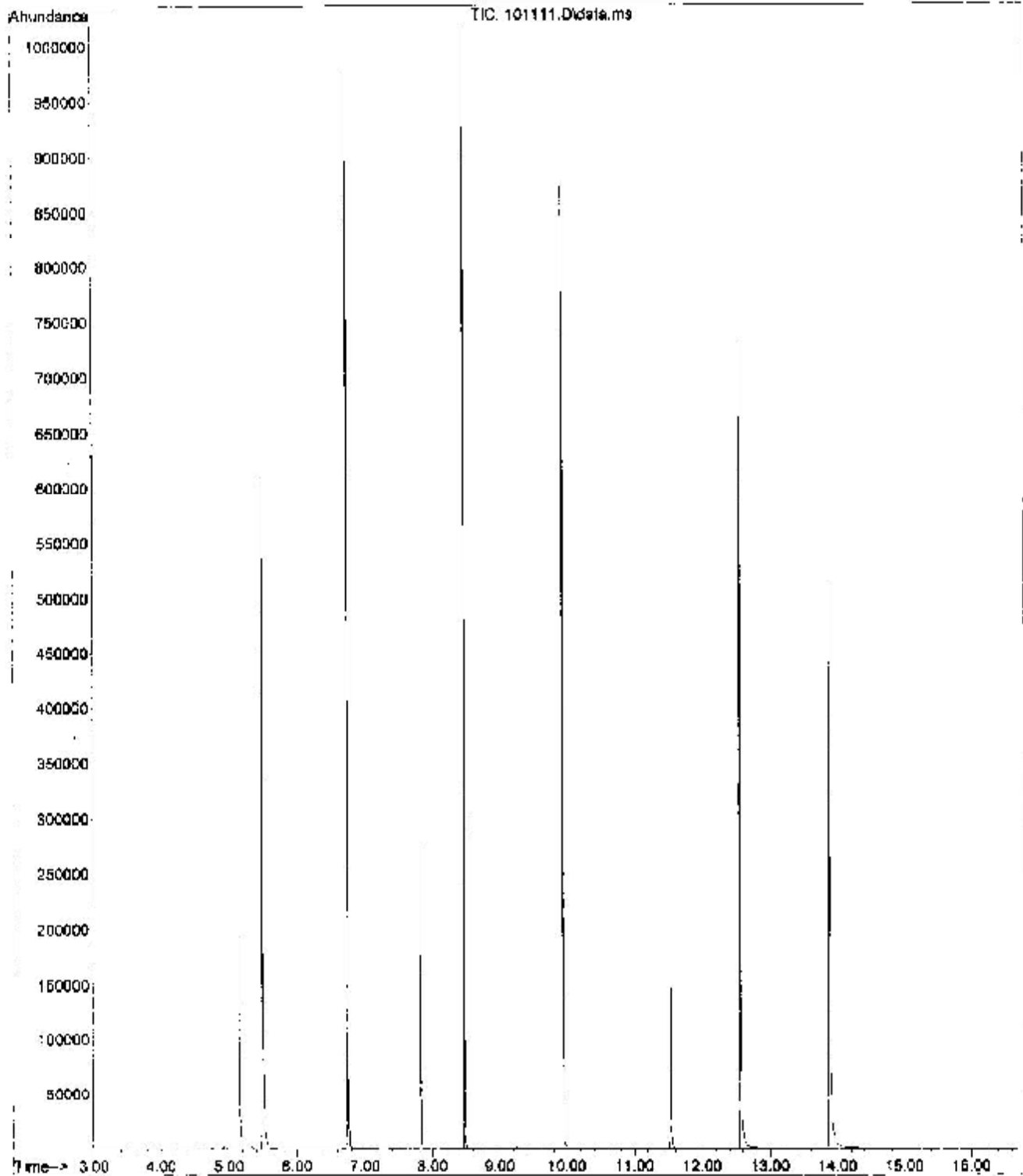
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)	

Internal Standards							
1) 1,4-Dichlorobenz-d4 (IS)	5.497	152	237032	2000.00	ug/L	0.00	
4) Naphthalene-d8 (IS)	6.747	136	762843	2000.00	ug/L	0.00	
10) Acenaphthene-d10 (IS)	8.478	164	387685	2000.00	ug/L	0.00	
13) Phenanthrene-d10 (IS)	9.940	188	634802	2000.00	ug/L	0.00	
20) Chrysene-d12 (IS)	12.566	240	581848	2000.00	ug/L	0.00	
25) Perylene-d12 (IS)	13.885	264	552944	2000.00	ug/L	0.00	
System Monitoring Compounds							
2) Phenol-d6	5.151	99	144641	803.32	ug/L	0.00	
8) 2-Fluorobiphenyl (surr)	7.821	172	154981	459.76	ug/L	0.00	
16) Terphenyl-d14 (surr)	11.538	244	112945	482.68	ug/L	0.00	
Target Compounds							
							Qvalue
3) 2,4-Dimethylphenol	6.339	107	5				N.D.
5) Naphthalene	6.747	128	28				N.D.
6) 2-Methylnaphthalene	7.455	142	240				N.D.
7) 1-Methylnaphthalene	7.550	142	144				N.D.
9) Acenaphthylene	8.340	152	11				N.D.
11) Acenaphthene	8.478	152	36				N.D.
12) Fluorene	9.023	166	102				N.D.
14) Phenanthrene	9.957	178	300				N.D.
15) Anthracene	10.020	178	36				N.D.
17) Fluoranthene	11.145	202	43				N.D.
18) Pyrene	11.367	202	196				N.D.
19) Benzo (a) anthracene	12.564	228	1591				N.D.
21) Chrysene	12.564	228	1440				N.D.
22) benzo (b) fluoranthene	13.552	252	28				N.D.
23) benzo (k) fluoranthene	13.578	252	153				N.D.
24) benzo (a) pyrene	13.835	252	72				N.D.
26) Indeno (1,2,3-cd)pyrene	14.948	276	31				N.D.
27) Dibenz (a,h) anthracene	14.965	278	14				N.D.
28) Benzo (g,h,i) perylene	15.250	276	3				N.D.

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

DEPAH101012PHENOL.M Thu Oct 11 14:09:53 2012 PAH

File : D:\Data\SVOC\101112\101111.D
Operator :
Acquired : 11 Oct 2012 1:42 pm using AcqMethod DSPAHL01072PHFNK.M
Instrument : HP-MSD
Sample Name: 1210029-007A
Misc Info : SAMP C-PAH-S-SIM
Vial Number: 120





Libby Environmental, Inc.

4139 Libby Road NE • Olympia, WA 98506-2518

November 8, 2012

Neil Morton
GeoEngineers Inc.
600 Stewart Street, Suite 1700
Seattle, WA 98101

Dear Mr. Morton:

Please find enclosed the analytical data report for the Irondale Project located in Irondale, Washington. A water sample and soil samples were analyzed for Diesel & Oil by NWTPH-Dx/Dx Extended with Silica Gel Clean Up on October 4, 2012

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. All soil samples are reported on a dry weight basis. An invoice for this analytical work is enclosed.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Jamie L. Deyman
President
Libby Environmental, Inc.

Phone (360) 352-2110 • Fax (360) 352-4154 • libbyenv@aol.com

www.LibbyEnvironmental.com



Libby Environmental, Inc.

Case Narrative

Libby Project #: L121004-30
Date: 11-8-2012

CLIENT: GeoEngineers, Inc.
PROJECT: Irondale

I. SAMPLE RECEIPT:

All samples were received intact and in good condition. See the attached Sample Receipt Check List for more information.

II. GENERAL REPORTING COMMENTS:

Final results are reported on a dry weight basis. The soil samples in the field are estimated to have a moisture content of 15%. This estimate is useful in producing data that is close to the actual value. After the sample is analyzed for soil moisture at our fixed base facility, the final data is reported based on measured soil moisture. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS), the Laboratory Control Sample Duplicate (LCSD) and the Method Blank (MB). The LCS, LCSD and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) and/or noted below.

Notes:

For the water matrix, a Method Blank and sample duplicate were analyzed. Neither an LCS nor an LCSD were prepared or analyzed due to practical time constraints. The NWTPH-Dx method does not recommend LCS or LCSD.

Libby Environmental, Inc.

Chain of Custody Record

1017

4139 Libby Road NE
Olympia, WA 98506
Ph: 360-352-2110
Fax: 360-352-4154

Date: 10/4/12 Page: 1 of 1

Client: Geo Engineers

Project Manager: Neil Morton

Address:

Project Name: Iron dale

Phone: Fax:

Location: Irondale beach City: Irondale

Client Project #

Collector: Date of Collection: 10/4/12



Sample Number	Depth	Time	Sample Type	Container Type	VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEMI VOL 8270	NWTPH-HCID	NWTPH-Gx	NWTPH-Dx	PAH 8270	PCBI's 8082	MTCA 5 Metals	Field Notes
1 <u>DW5-100412</u>			<u>Water</u>	<u>Amber</u>							<u>X</u>				<u>No PAHs</u>
2 <u>50RZ-NSWI-10412</u>	<u>4'</u>	<u>955</u>	<u>SOIL</u>	<u>4oz</u>							<u>X</u>	<u>X</u>			<u>Extract & Hold PAH</u>
3 <u>50RZ-SSWI-10412</u>	<u>4'</u>	<u>1000</u>	<u>SOIL</u>	<u>4oz</u>							<u>X</u>	<u>X</u>			<u>"</u>
4 <u>50RZ-NSWI-10412</u>	<u>7'</u>	<u>1100</u>	<u>SOIL</u>	<u>4oz</u>							<u>X</u>				<u>NO PAHs</u>
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															

Relinquished by: <u>[Signature]</u>	Date / Time: <u>10/4/12 1250</u>	Received by: <u>[Signature]</u>	Date / Time: <u>10/4/12 1350</u>	Sample Receipt:	Remarks:		
Relinquished by:	Date / Time:	Received by:	Date / Time:			Good Condition?	
Relinquished by:	Date / Time:	Received by:	Date / Time:			Cold?	
Relinquished by:	Date / Time:	Received by:	Date / Time:			Seals Intact?	
				Total Number of Containers			

Libby Environmental, Inc. Login Sample Receipt Check List

Client: GeoEngineers, Inc. **Libby Project Number:** L121004-30

Question	T / F / NA	Comment
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler temperature is acceptable.	True	
COC is present.	True	
COC is filled out in ink and is legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within the Hold Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs.	True	
VOA sample vials do not have headspace or bubble is less than 6mm (1/4 in.) in diameter.	True	
If necessary, staff has been informed of any short hold time or quick TAT needs.	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	

Libby Environmental, Inc.

4139 Libby Road NE
Olympia, WA 98506
Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@aol.com

IRONDALE PROJECT
GeoEngineers, Inc.
Irondale, Washington
Libby Project # L121004-30
Client Project # 0504-042-02

Analyses of Diesel & Oil Range (NWTPH-Dx/Dx Extended) in Soil w/ Silica Gel Cleanup

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Bunker C (mg/kg)
Method Blank	10/4/12	106	nd	nd
LCS	10/4/12	int	109%	
LCSD	10/4/12	int	101%	
SURZ-NSW1-10412	10/4/12	127	nd	nd
SURZ-SSW1-10412	10/4/12	84	nd	76
SURZ-WSW1-10412	10/4/12	103	nd	64
SURZ-WSW1-10412 Dup	10/4/12	104	nd	55
Practical Quantitation Limit			25	40

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

Libby Environmental, Inc.

4139 Libby Road NE
Olympia, WA 98506
Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@aol.com

IRONDALE PROJECT
GeoEngineers, Inc.
Irondale, Washington
Libby Project # L121004-30
Client Project # 0504-042-02

Analyses of Diesel & Oil (NWTPH-Dx/Dx Extended) in Water

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel ($\mu\text{g/l}$)	Bunker C ($\mu\text{g/l}$)
Method Blank	10/4/12	92	nd	nd
DW5-100412	10/4/12	106	nd	nd
DW5-100412 Dup	10/4/12	92	nd	nd
Practical Quantitation Limit			200	400

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

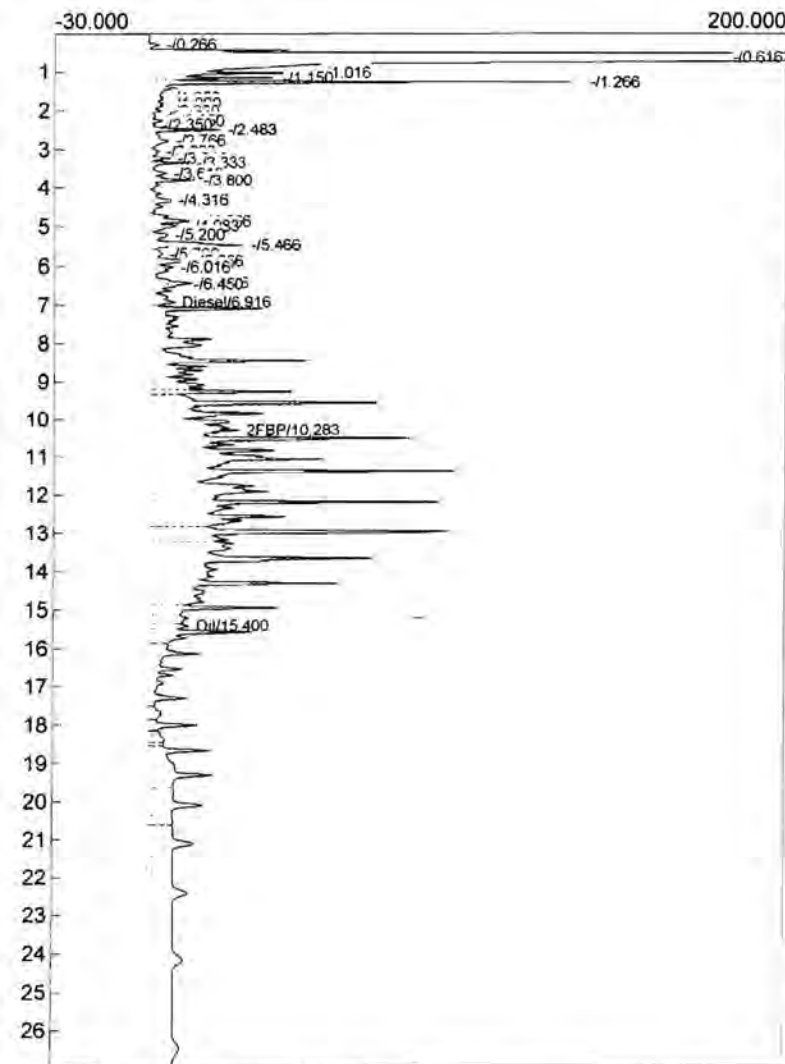
Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C245.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	6.916	10030.7400	6.244	494.2255	ppm
2-FBP	10.283	329.6520	28.718	13.1861	ppm
Oil	15.400	4425.2260	11.004	217.6099	ppm
		14785.6180		725.0215	

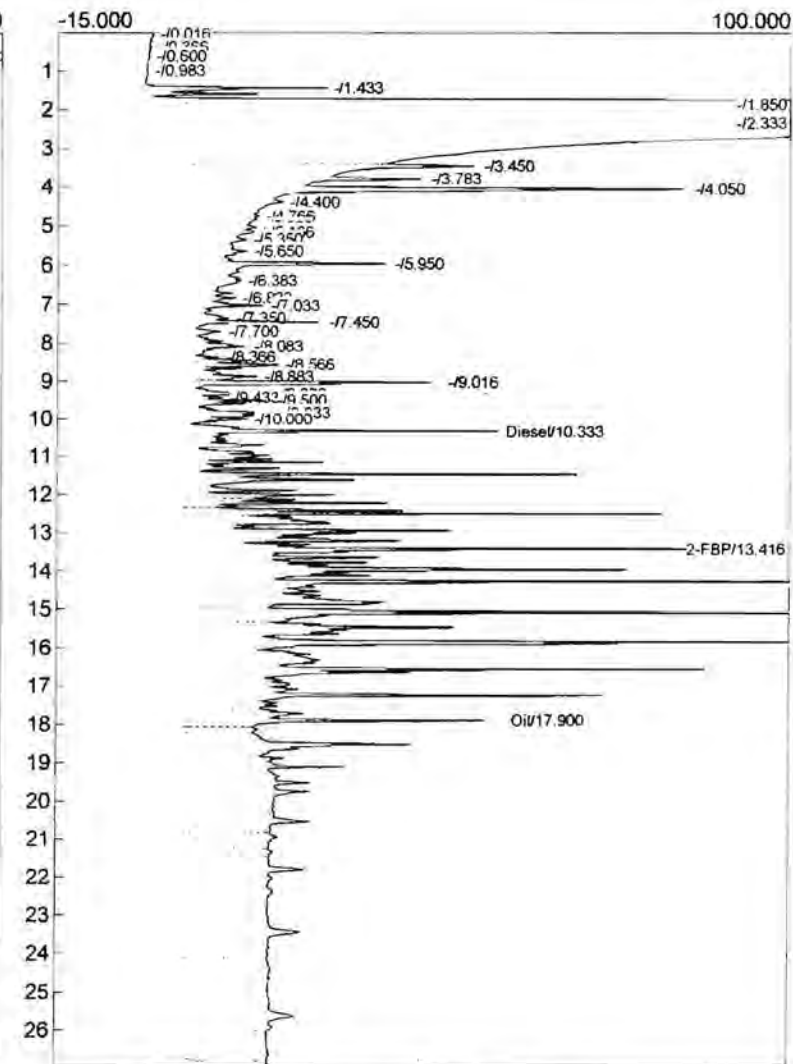
Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D243.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	10.333	8805.3065	48.994	467.2430	ppm
2-FBP	13.416	494.3590	93.180	17.1951	ppm
Oil	17.900	7377.6500	49.870	390.8855	ppm
		16677.3155		875.3237	

Analysis date: 10/04/2012 07:48:30
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C246.CHR ()
 Sample: 1000 ppm LCS 343
 Operator: PB

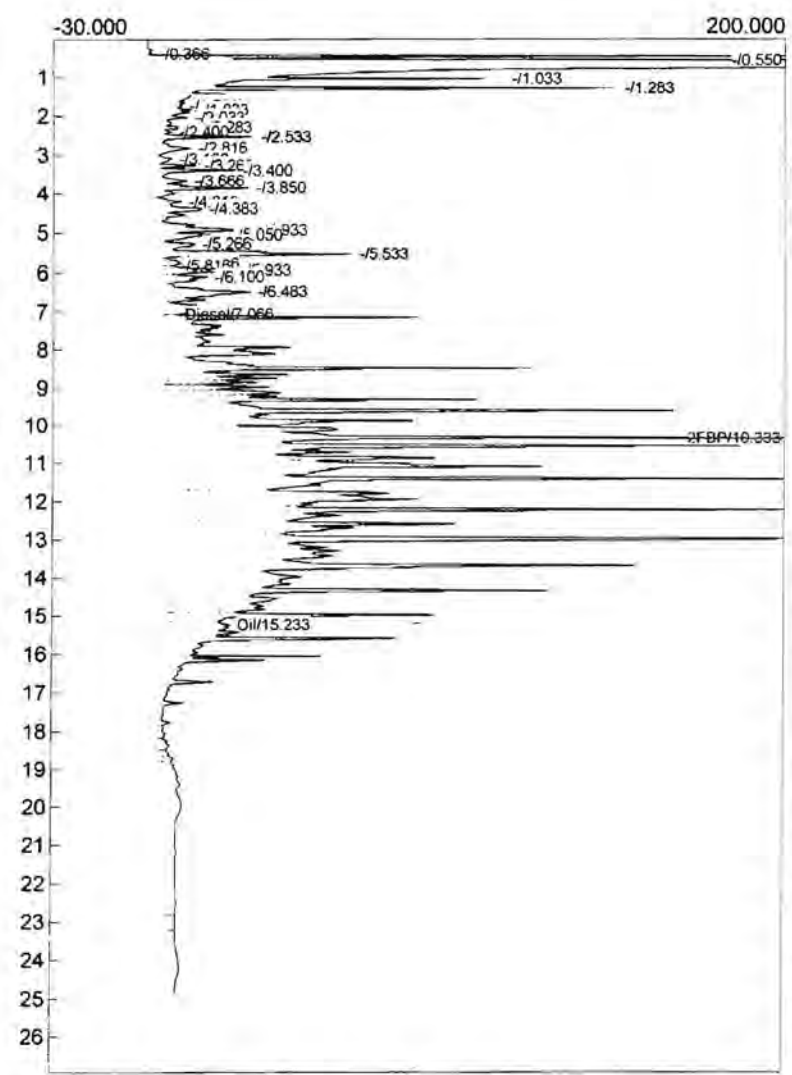
Analysis date: 10/04/2012 07:48:30
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D244.CHR ()
 Sample: 1000 ppm LCSD 343
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.066	21966.5535	3.229	1086.6989	ppm
2-FBP	10.333	1263.4415	242.243	50.5377	ppm
Oil	15.233	2340.0985	18.958	115.0483	ppm
		25570.0935		1252.2849	

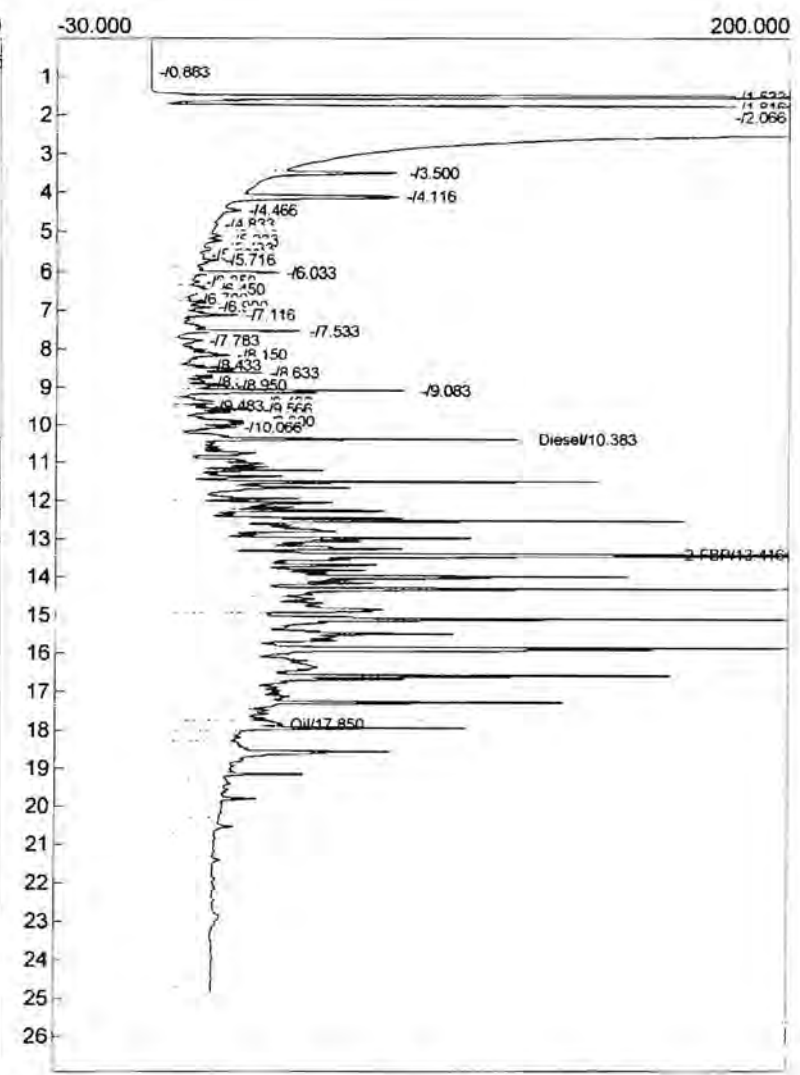
109%

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	10.383	18942.1270	111.851	1014.2249	ppm
2-FBP	13.416	1472.8350	227.239	51.2290	ppm
Oil	17.850	6773.4260	34.439	358.7615	ppm
		27188.3880		1424.2154	

101%

Analysis date: 10/04/2012 08:18:55

Analysis date: 10/04/2012 08:18:55

Method: JAMACIA
Description: JAMACIA
Column: Restek Rtx-5 30x0.53x1.5
Carrier: He
Data file: C247.CHR ()
Sample: Method Blank
Operator: PB

Method: JAMACIA
Description: JAMACIA
Column: Restek Rtx-5 30x0.53x1.5
Carrier: He
Data file: D245.CHR ()
Sample: Method Blank
Operator: PB

Temperature program:

Temperature program:

Init temp Hold Ramp Final temp

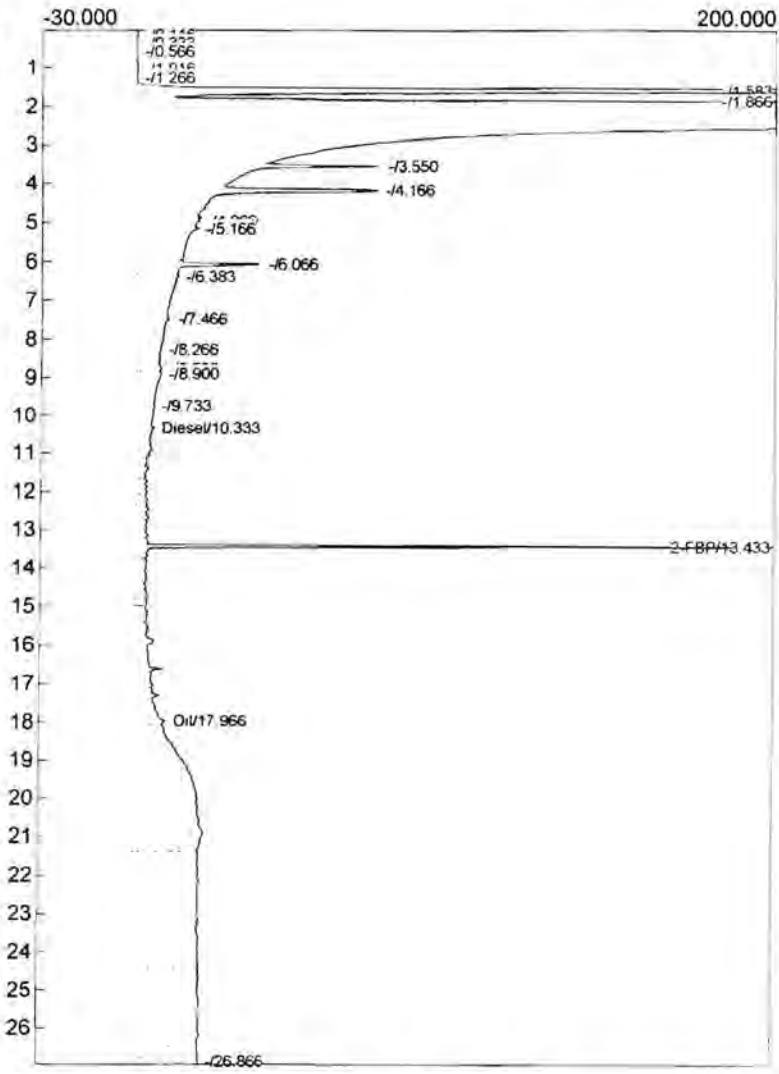
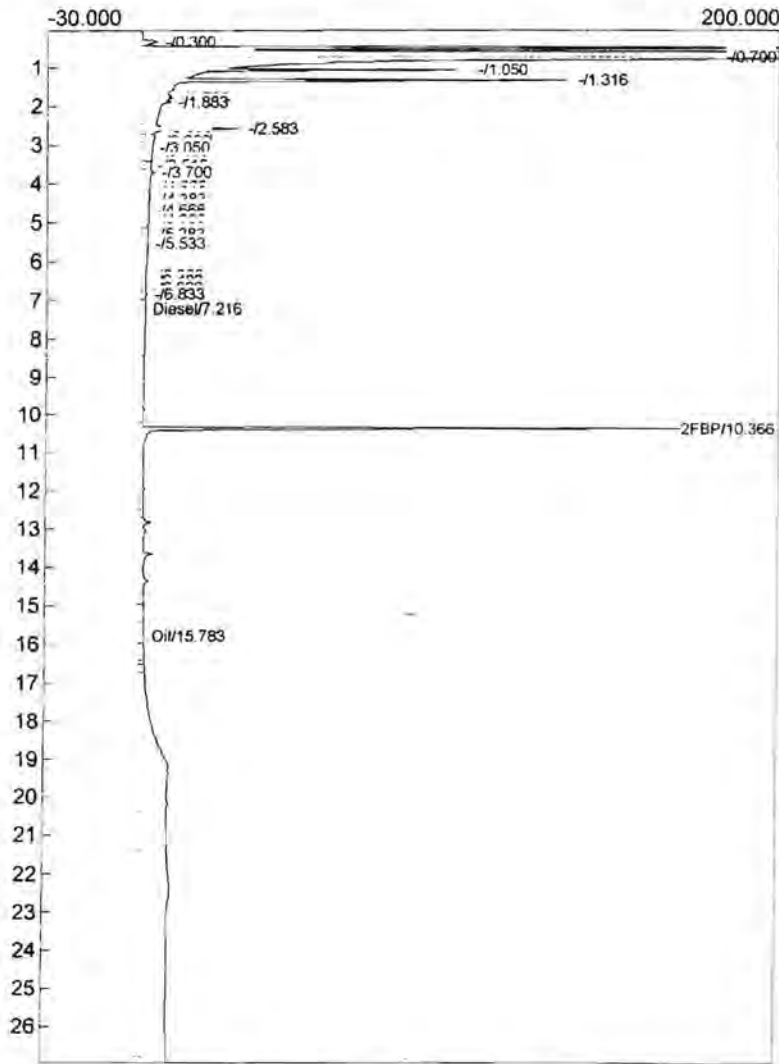
Init temp Hold Ramp Final temp

Events:

Events:

Time Event
0.000 ZERO

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.216	699.6915	0.210	34.3995	ppm
2-FBP	10.366	531.1420	174.298	21.2457	ppm
Oil	15.783	4557.6110	0.922	224.1365	ppm
		5788.4445		279.7818	

106%

Component	Retention	Area	Height	External	Units
Diesel	10.333	1704.9945	4.605	90.0382	ppm
2-FBP	13.433	530.1315	229.072	18.4394	ppm
Oil	17.966	9549.9835	8.665	507.1041	ppm
		11785.1095		615.5817	

92%

Analysis date: 10/04/2012 08:18:55

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: C247.CHR ()

Sample: Method Blank

Operator: PB

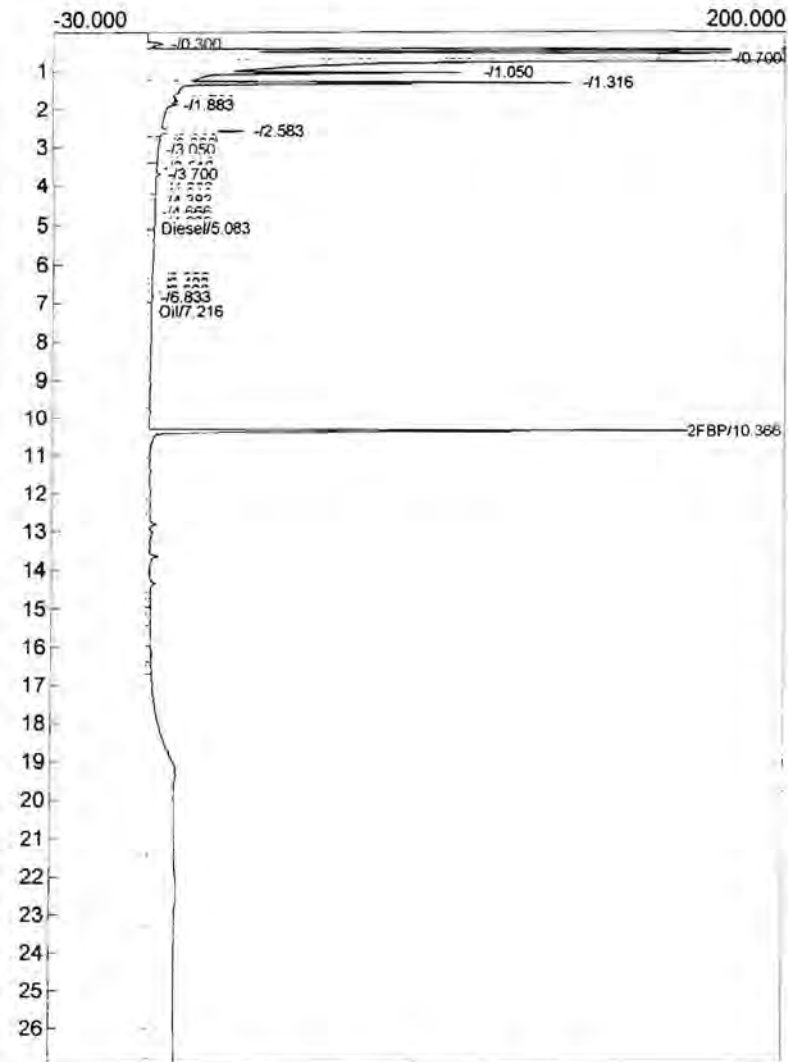
** Used for Bunker C
airblank only.*

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.083	54.2860	0.898	2.6689	ppm
Oil	7.216	5257.3025	0.210	258.6316	ppm
2-FBP	10.366	531.1420	174.298	21.2457	ppm
		5842.7305		282.5462	

Analysis date: 10/04/2012 08:18:55

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: D245.CHR ()

Sample: Method Blank

Operator: PB

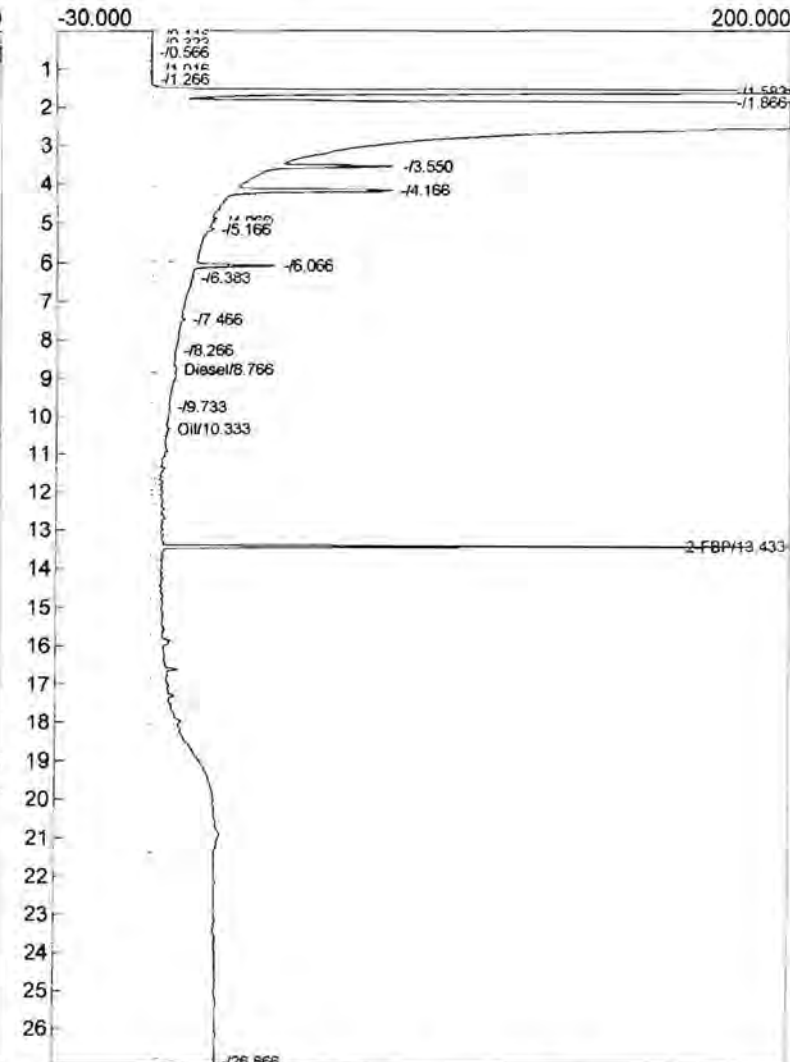
** Used for Bunker C airblank
only.*

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	8.766	335.5905	6.558	17.7220	ppm
Oil	10.333	11254.9780	4.605	598.3691	ppm
2-FBP	13.433	530.1315	229.072	18.4394	ppm
		12120.7000		634.5305	

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: C248.CHR ()

Sample: DW5-10412

Operator: PB

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: D246.CHR ()

Sample: DW5-10412

Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

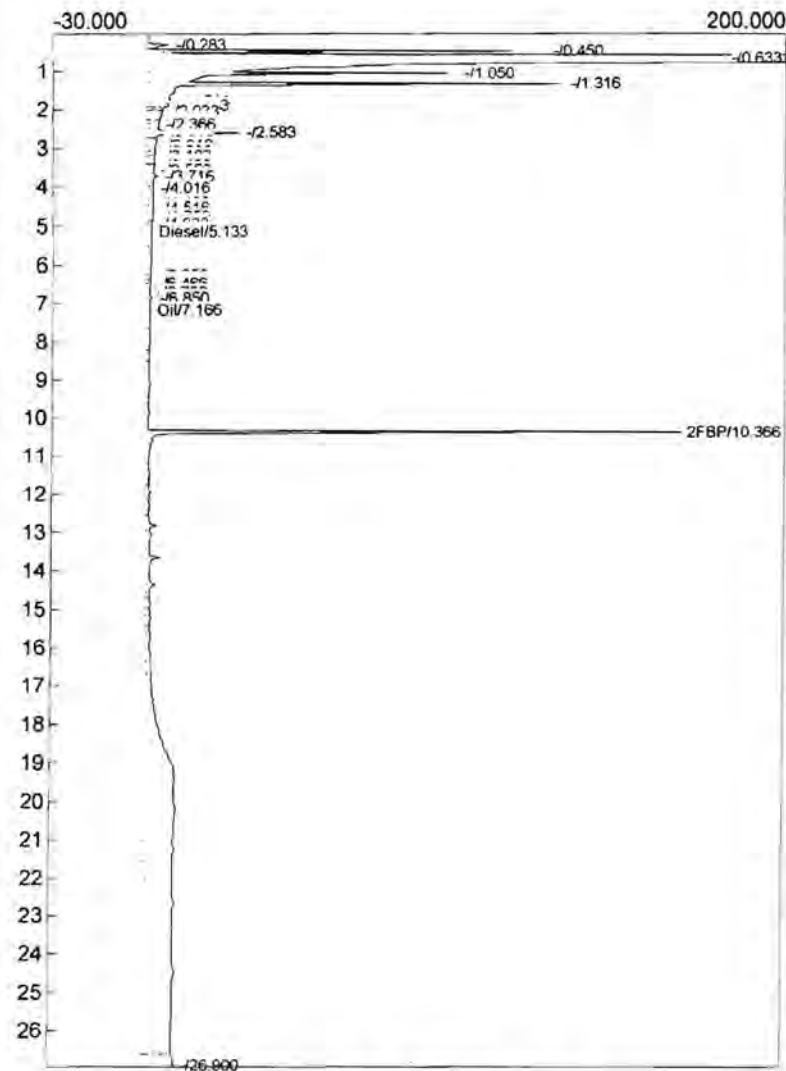
Time Event
0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

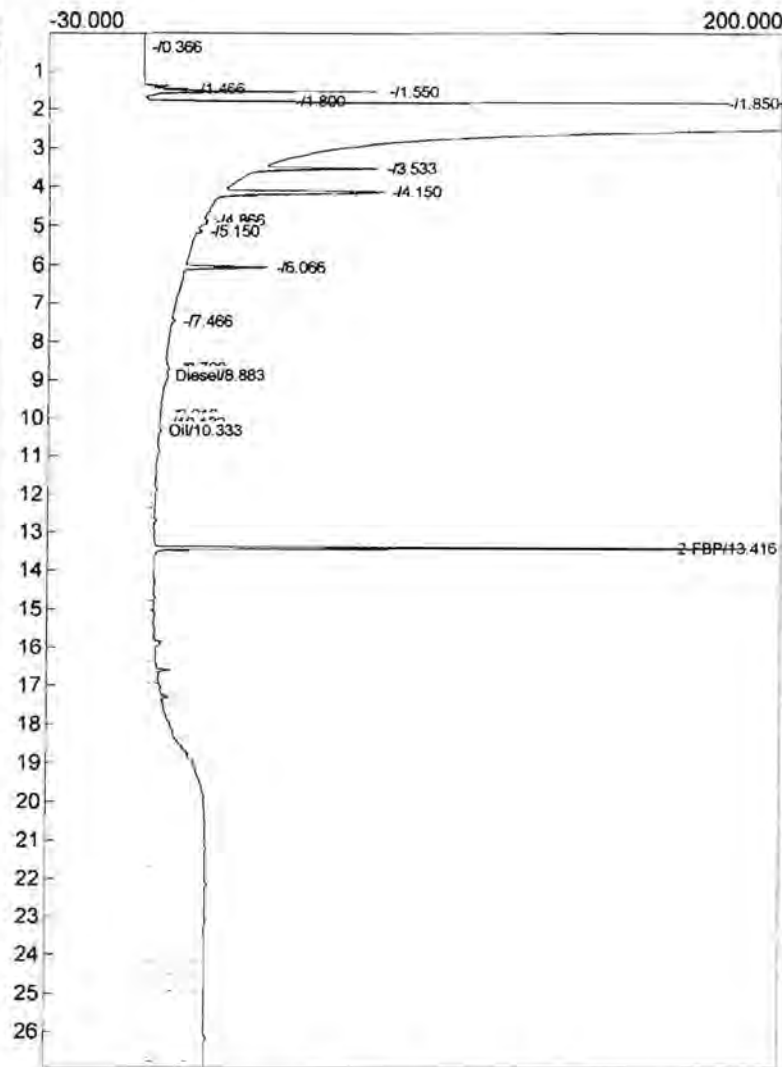
Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.133	44.7250	0.757	2.1989	ppm
Oil	7.166	5349.7910	0.285	263.1913	ppm
2FBP	10.366	529.4200	174.889	21.1768	ppm
		5923.9360		286.5670	

nd 106%



Component	Retention	Area	Height	External	Units
Diesel	8.883	253.9140	5.272	13.4088	ppm
Oil	10.333	10258.3420	3.366	545.0211	ppm
2-FBP	13.416	530.8730	187.701	18.4651	ppm
		11043.1290		576.8951	

nd 92%

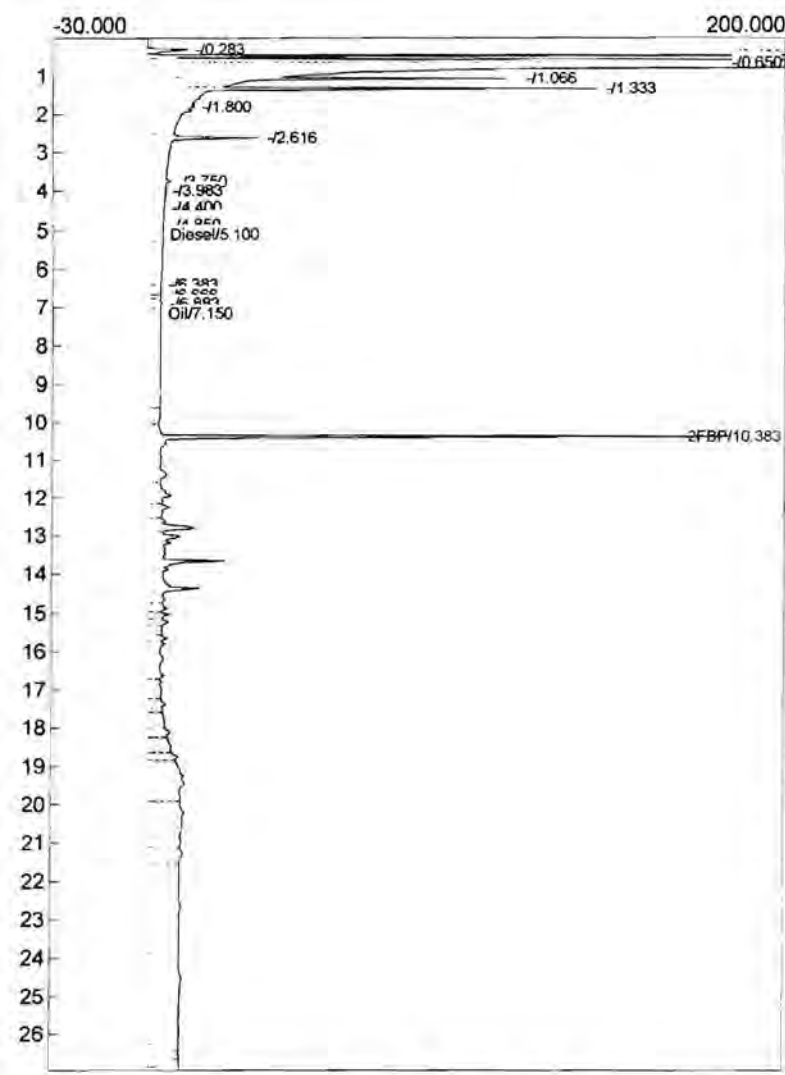
Analysis date: 10/04/2012 10:41:43
 Method: JAMACIA
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C249.CHR ()
 Sample: SURZ-SSW1-10412
 Operator: PB

Analysis date: 10/04/2012 10:41:43
 Method: JAMACIA
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D247.CHR ()
 Sample: SURZ-NSW1-10412
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:
 Time Event
 0.000 ZERO

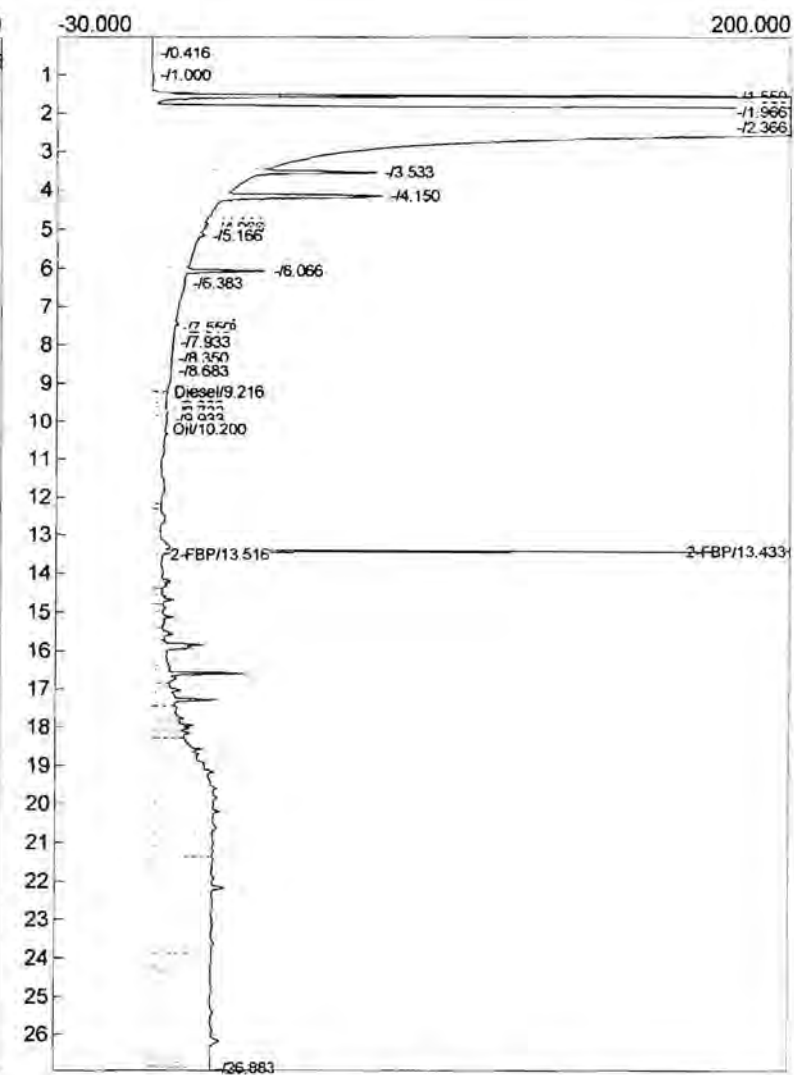


Component	Retention	Area	Height	External	Units
Diesel	5.100	180.6080	2.588	8.8794	ppm
Oil	7.150	7031.0820	1.868	346.0796	ppm
2-FBP	10.383	632.8880	199.220	25.3155	ppm
		7844.5780		380.2745	

Temperature program:

Init temp Hold Ramp Final temp

Events:
 Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	9.216	47.6760	2.967	2.5177	ppm
Oil	10.200	11192.6115	2.526	595.0307	ppm
2-FBP	13.433	485.0160	223.481	16.8701	ppm
2-FBP	13.516	4.0980	2.069	0.1425	ppm
		11729.4015		614.5611	

346 - 259 = 87 ppm 127%

nd 84%

at Bunker C
 moisture factor = 0.869 = 76%

Analysis date: 10/04/2012 11:30:57
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C250.CHR ()
 Sample: SURZ-WSW1-10412
 Operator: PB

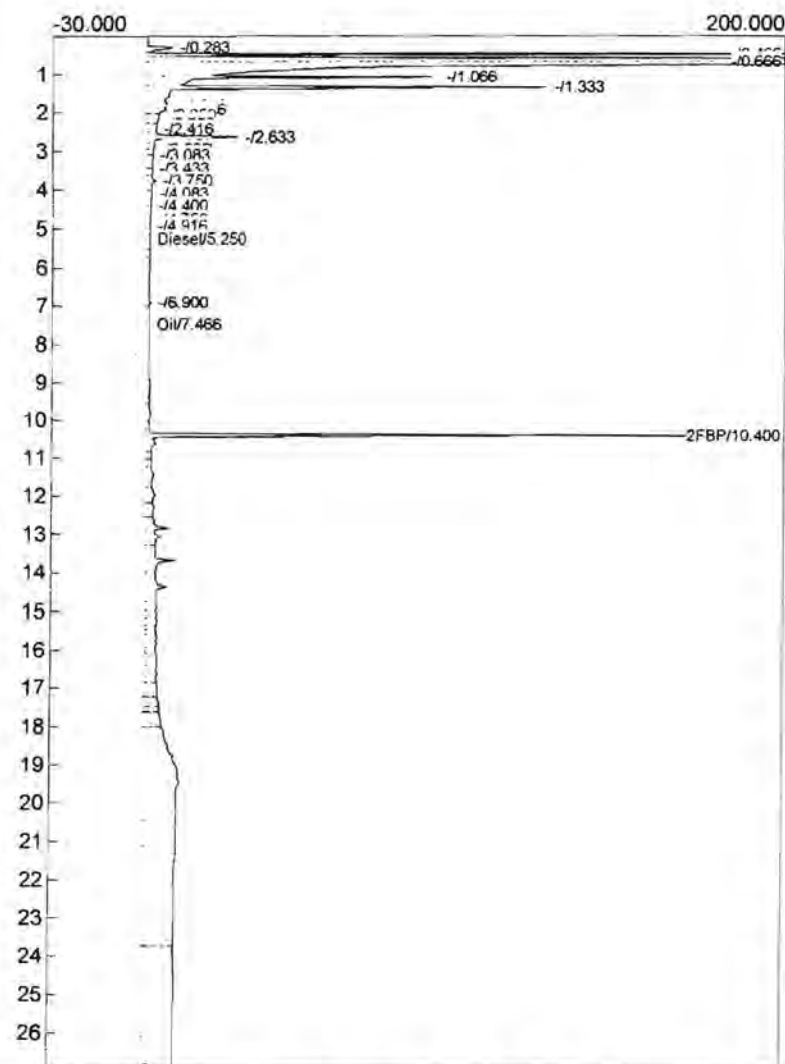
Analysis date: 10/04/2012 11:30:57
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D248.CHR ()
 Sample: SURZ-WSW1-10412 Dup
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



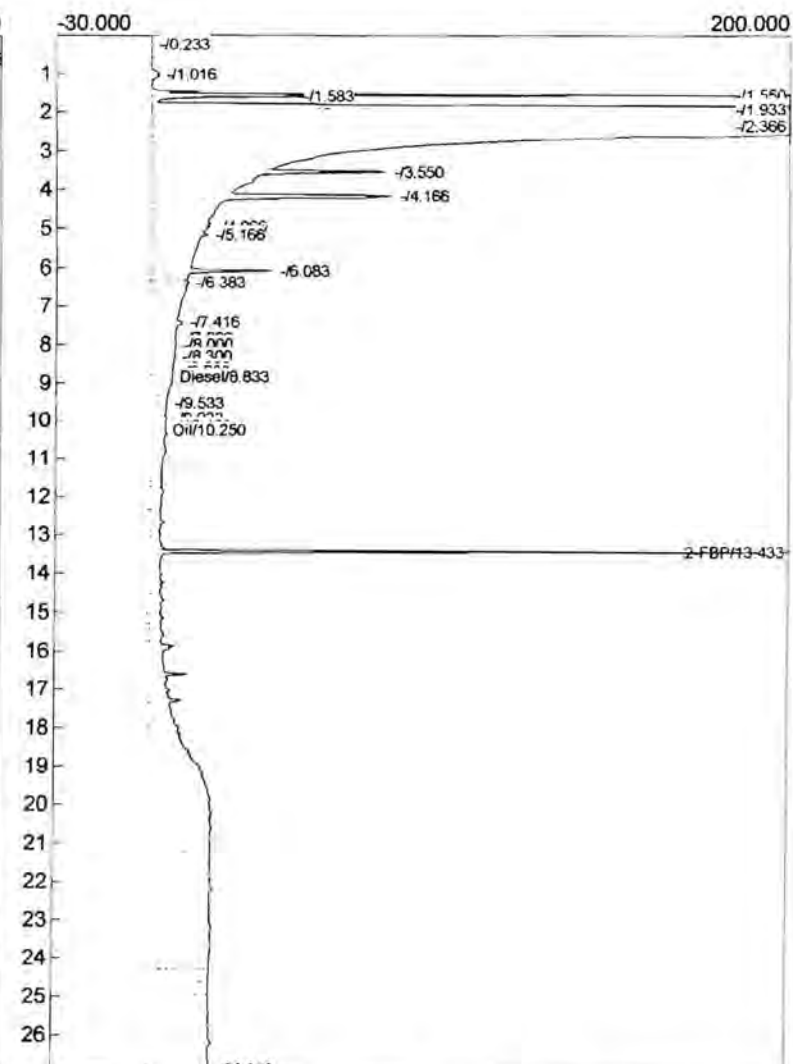
Component	Retention	Area	Height	External	Units
Diesel	5.250	12.6990	0.316	0.6243	ppm
Oil	7.466	6500.8135	0.217	319.9371	ppm
2FBP	10.400	514.8545	196.189	20.5942	ppm
		7028.3670		341.1557	

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	8.833	230.0425	6.646	12.1482	ppm
Oil	10.250	12215.6350	4.496	650.1326	ppm
2FBP	13.433	597.4700	220.464	20.7816	ppm
		13043.1475		683.0624	

320 - 259 = 61 ppm
 103% Bunker C
 moisture factor = 1.048 = 63.9

650 - 598 = 52 ppm
 104% Bunker C
 moisture factor = 1.048 = 54.5

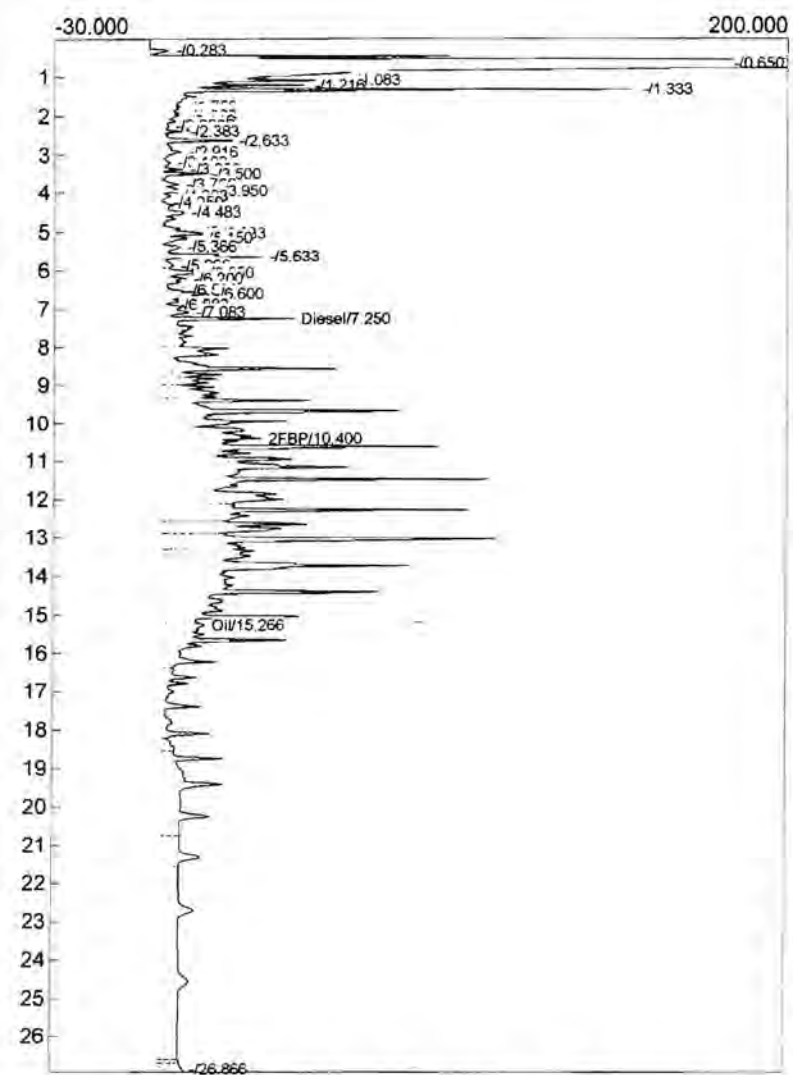
Method: JAMACIA
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C251.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.250	10658.7625	40.364	525.2734	ppm
2-FBP	10.400	261.6365	30.103	10.4655	ppm
Oil	15.266	3679.4800	12.001	180.8974	ppm
		14599.8790		716.6363	

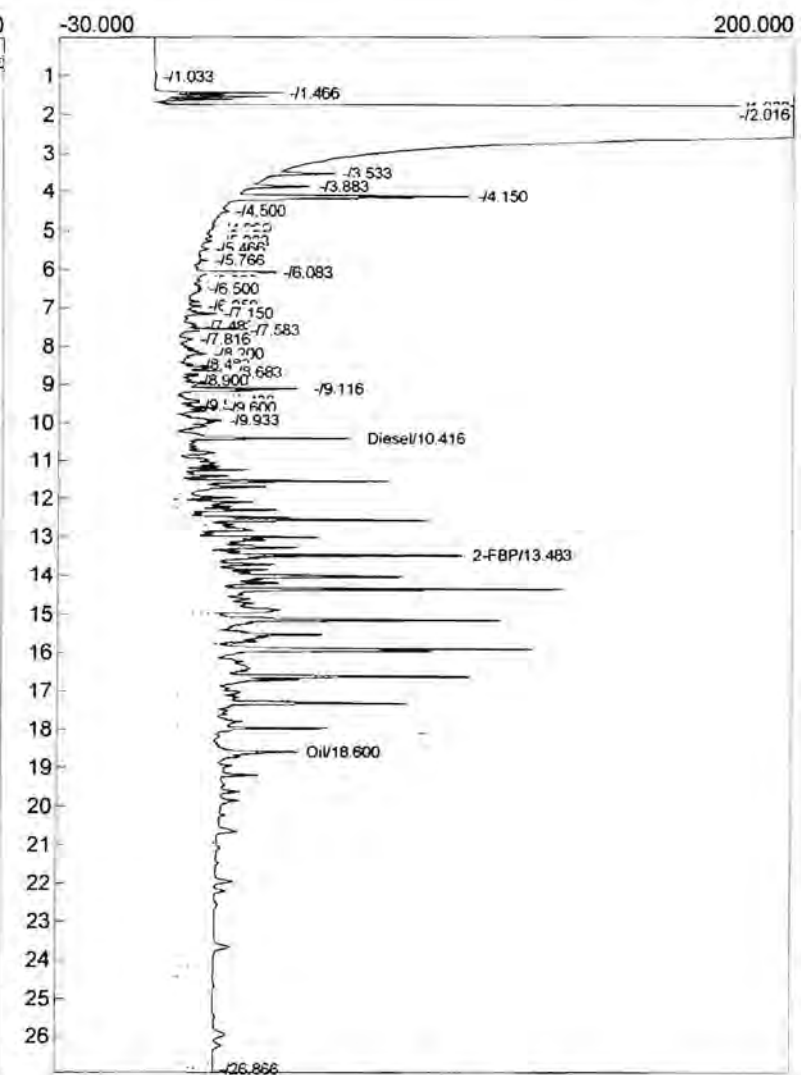
Method: JAMACIA
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D249.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

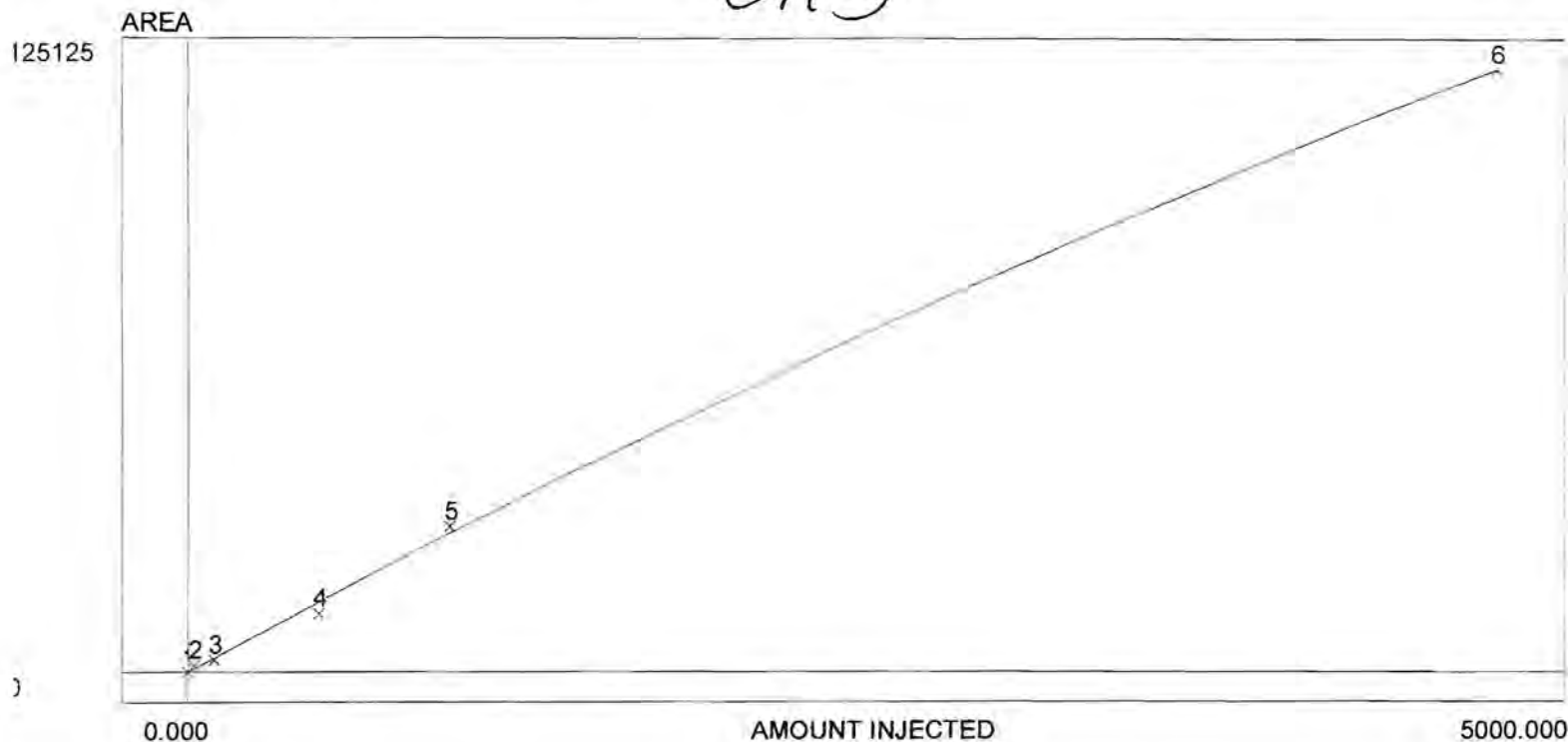
Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	10.416	9783.0930	57.300	519.5820	ppm
2-FBP	13.483	513.1920	90.526	17.8502	ppm
Oil	18.600	6558.3860	38.375	347.3287	ppm
		16854.6710		884.7609	

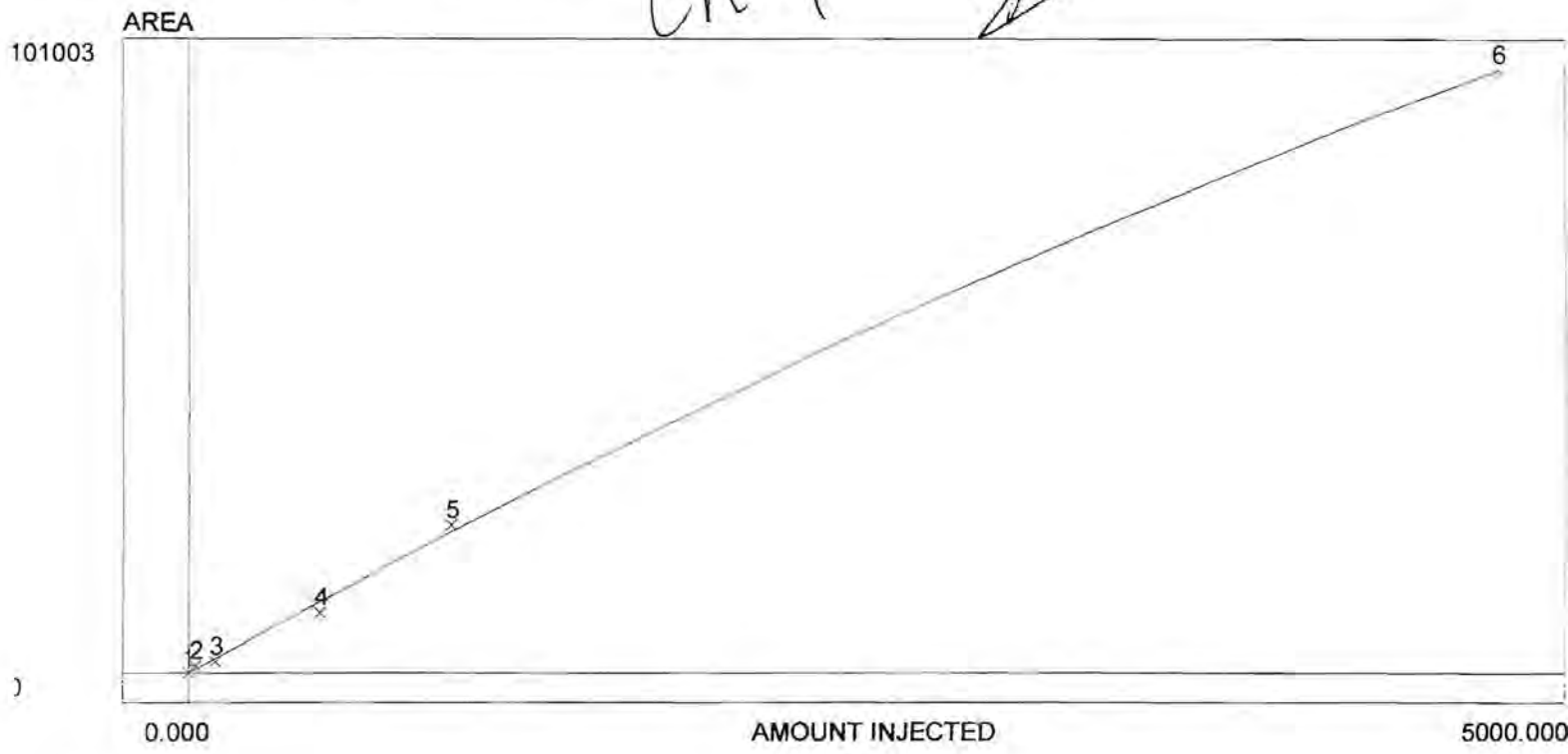
Ch 3



Avg slope of curve: 25.03
 y-axis intercept: 0.00
 Linearity: 0.86
 Number of levels: 6
 SD/rel SD of CF's: 18.0/66.9
 $y = -0.0009x^2 + 29.3544x$
 R²: 0.9993
 Last calibrated: Wed Mar 14 13:52:31 2012

Level	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	1410.471	25.000	56.419	1410.471	N/A	N/A
3	2574.179	100.000	25.742	2574.179	N/A	N/A
4	12043.265	500.000	24.087	12043.265	N/A	N/A
5	29871.863	1000.000	29.872	29871.863	N/A	N/A
6	125124.670	5000.000	25.025	125124.670	N/A	N/A

Ch 4 

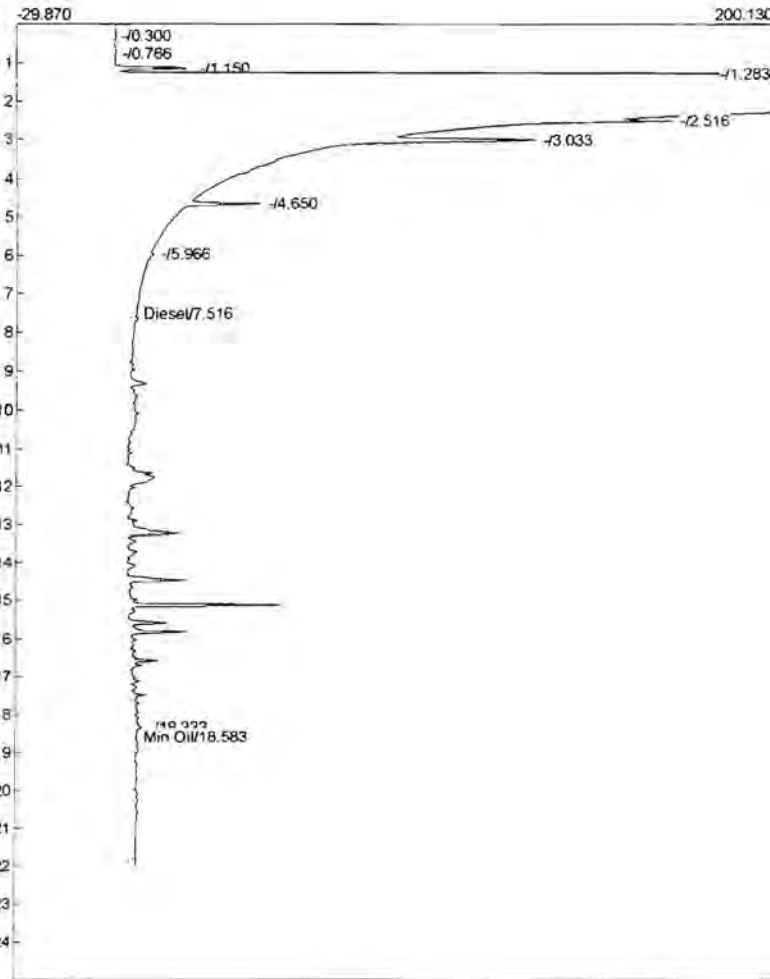
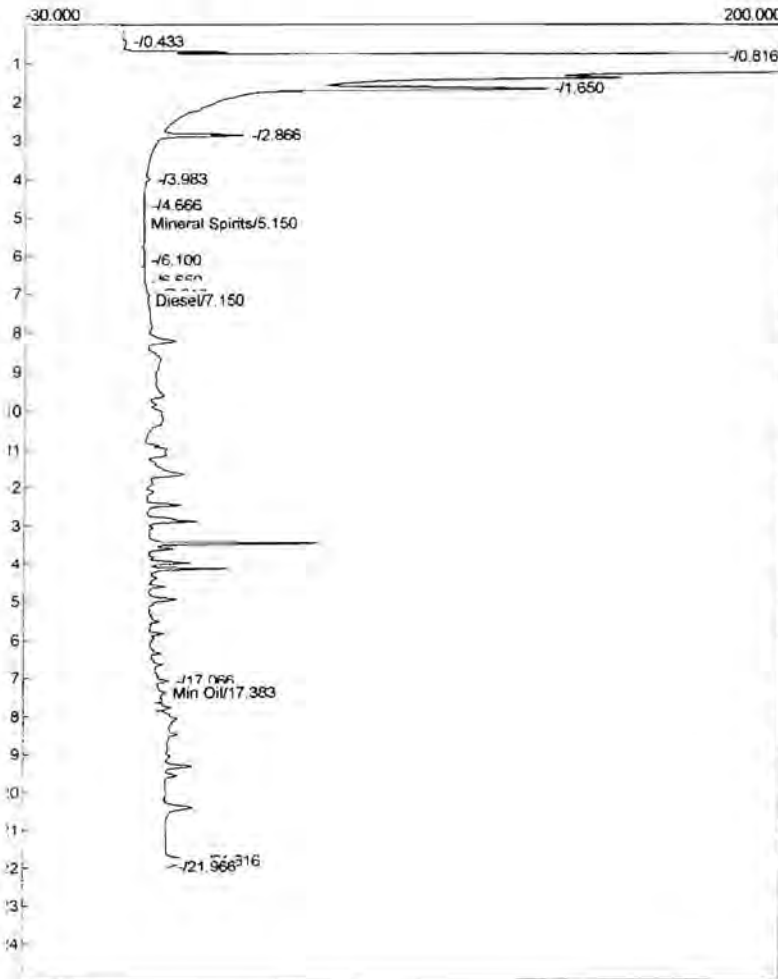


Avg slope of curve: 20.21
 Y-axis intercept: 0.00
 Linearity: 0.84
 Number of levels: 6
 SD/rel SD of CF's: 16.3/72.6
 $r = -0.0008X^2 + 24.2883X$
 $r^2: 0.9993$
 Last calibrated: Wed Mar 14 13:57:45 2012

Level	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	1271.716	25.000	50.869	1271.716	N/A	N/A
3	1927.394	100.000	19.274	1927.394	N/A	N/A
4	10086.605	500.000	20.173	10086.605	N/A	N/A
5	24554.042	1000.000	24.554	24554.042	N/A	N/A
6	101002.720	5000.000	20.201	101002.720	N/A	N/A

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 10:39:04
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C620.CHR ()
 Sample: 25 PPM Dx 706
 Operator: KW

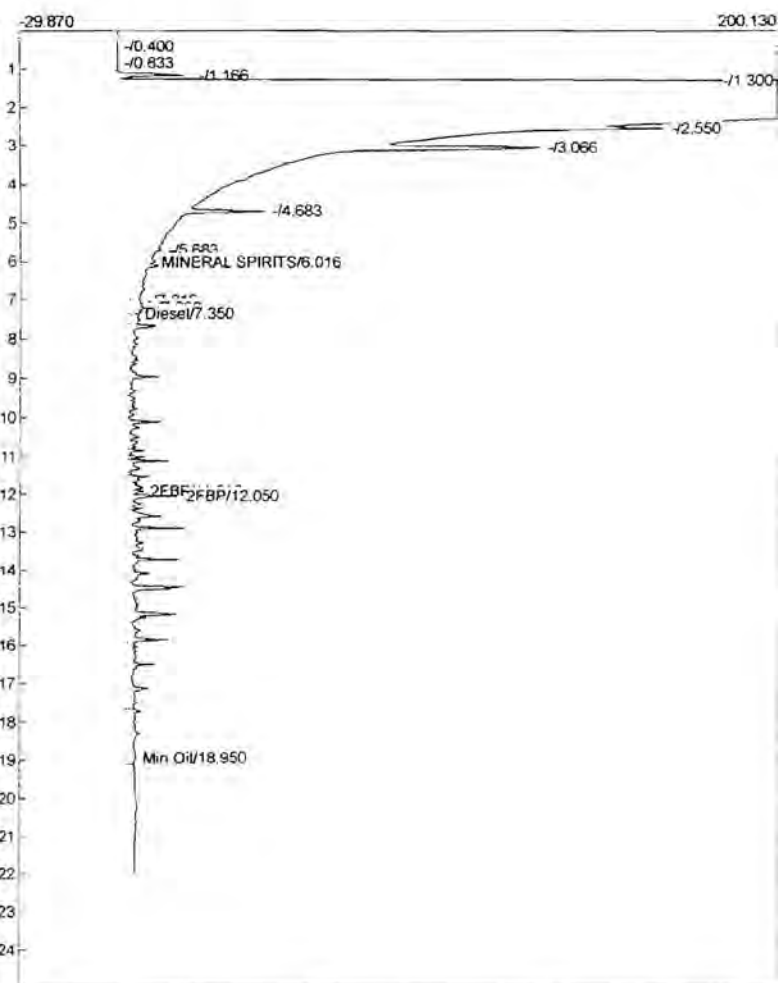
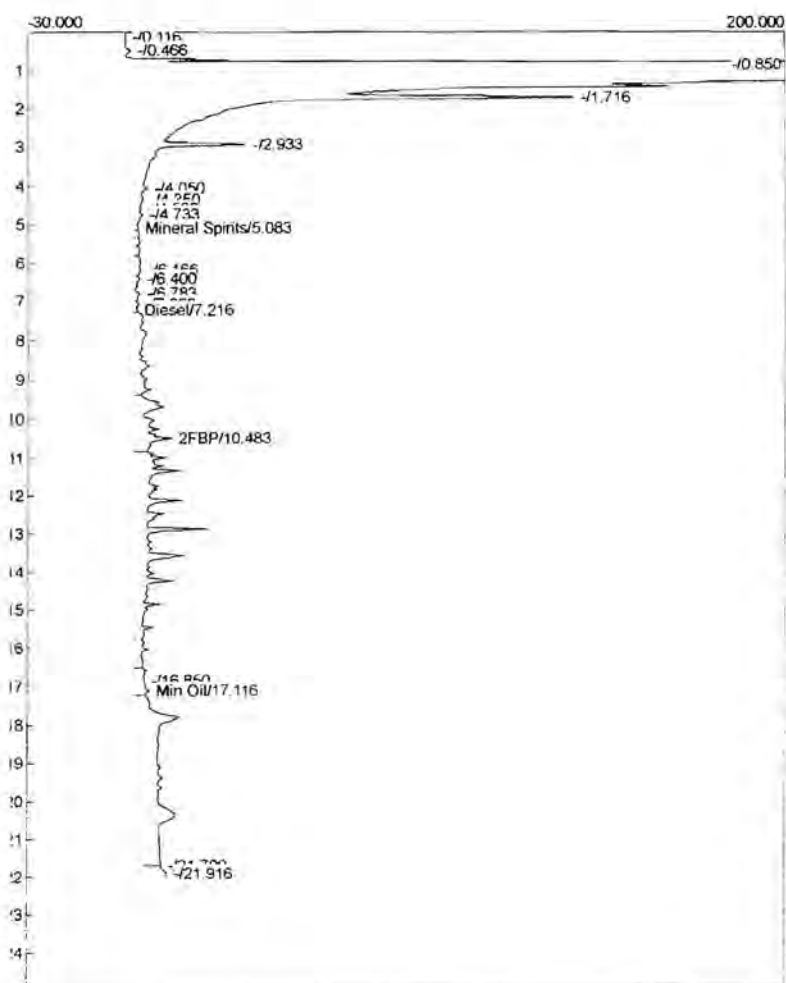
Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 10:39:04
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D626.CHR ()
 Sample: 25 PPM Dx 706
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.150	7.8080	0.195	0.3863	PP	Diesel	7.516	1271.7155	1.965	89.4973	ppm
Diesel	7.150	1410.4710	0.518	13.6936	ppm	Min Oil	18.583	209.2665	1.582	14.7689	ppm
Min Oil	17.383	577.2305	3.576	0.0000				1480.9820		104.2662	
		1995.5095		14.0798							

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 11:07:43
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C621.CHR ()
 Sample: 100 PPM Dx 705
 Operator: KW

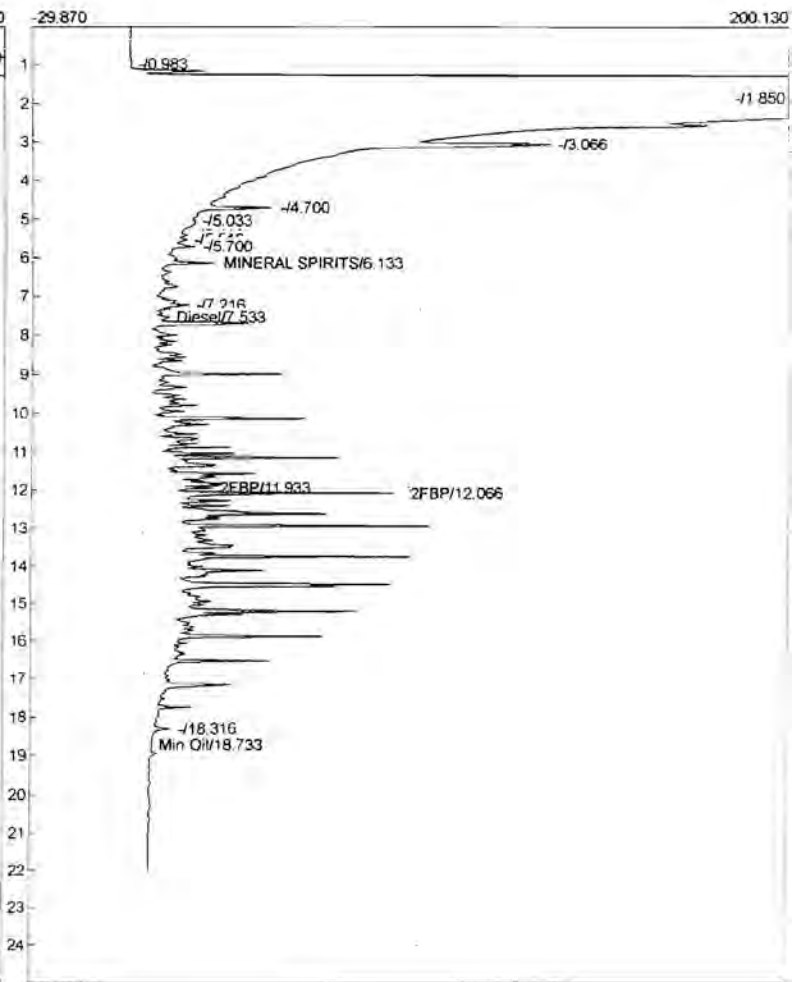
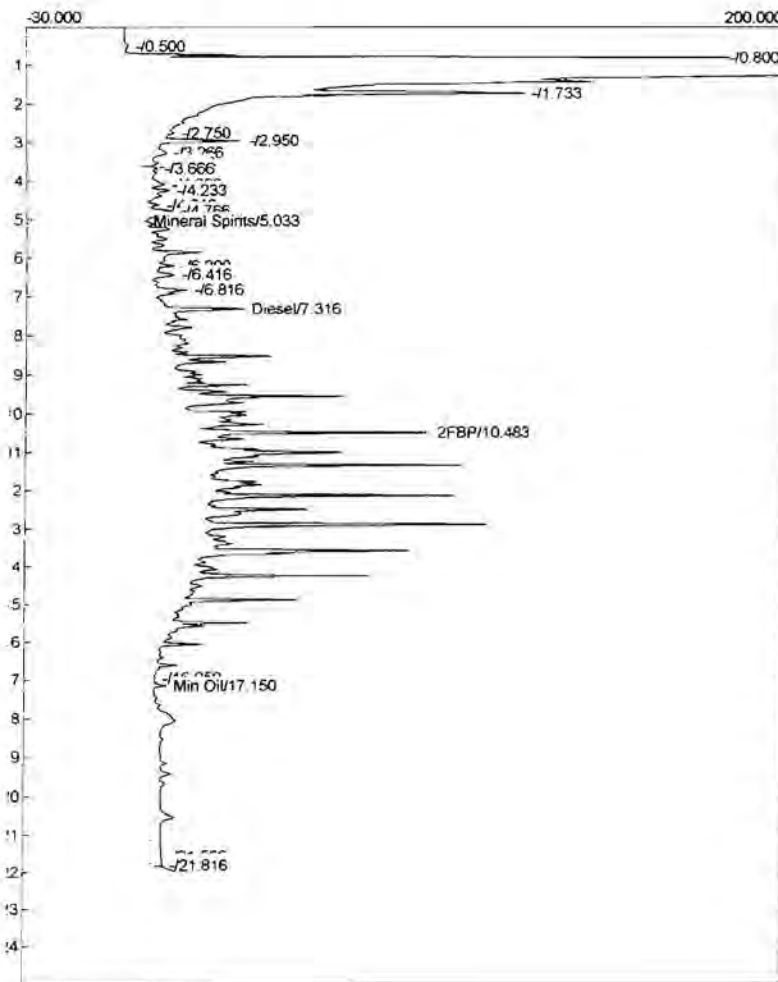
Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 11:07:43
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D627.CHR ()
 Sample: 100 PPM Dx 705
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.083	84.6325	1.090	4.1869	PPM	MINERAL SPIRITS	6.016	285.6170	7.733	20.1004	PPM
Diesel	7.216	2410.4095	0.627	119.2471	ppm	Diesel	7.350	1849.7390	2.625	130.1759	ppm
2FBP	10.483	163.7695	10.998	6.5508	ppm	2FBP	11.916	20.8250	4.775	1.0413	ppm
Min Oil	17.116	1953.3665	4.269	0.0000		Min Oil	12.050	56.8300	15.516	2.8415	ppm
		4612.1780		129.9847			18.950	514.9365	2.757	36.3413	ppm
								2727.9475		190.5003	

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 11:45:18
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C622.CHR ()
 Sample: 500 PPM Dx 704
 Operator: KW

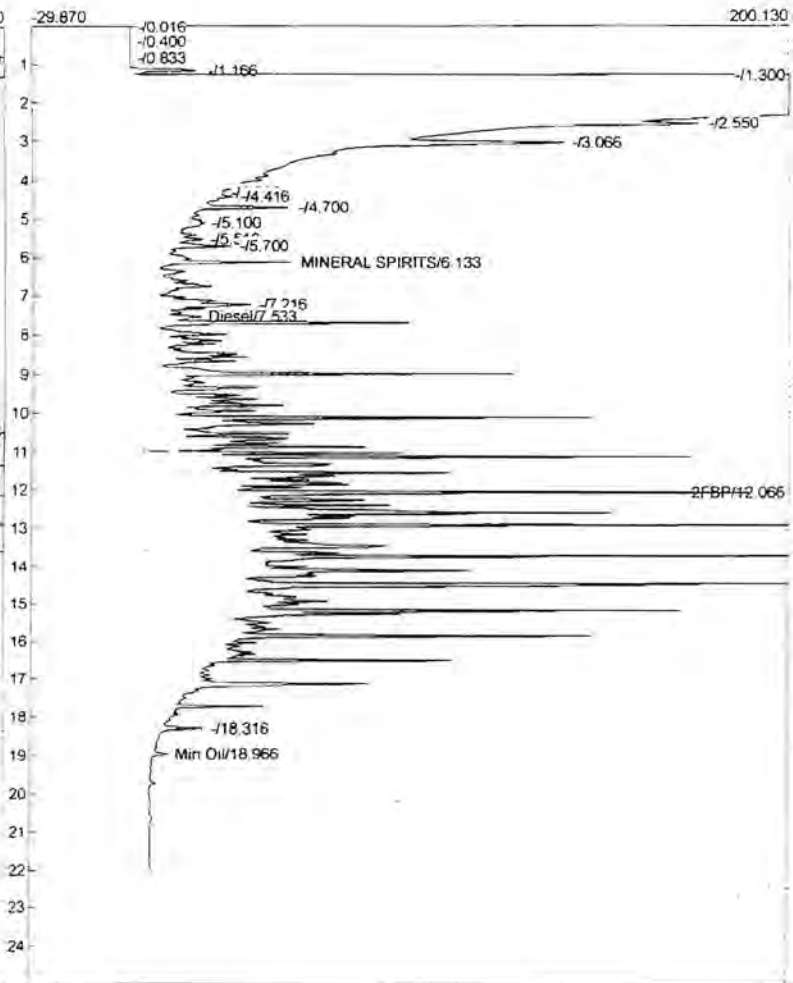
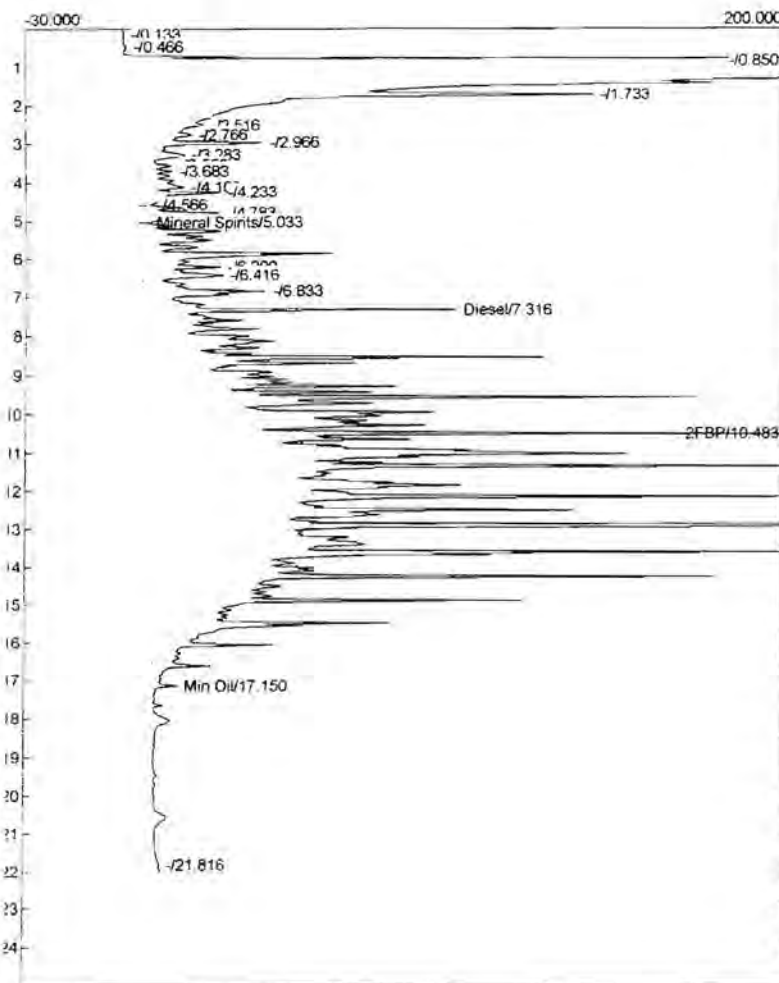
Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 11:45:18
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D628.CHR ()
 Sample: 500 PPM Dx 704
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.033	323.3415	0.632	15.9963	PPM	MINERAL SPIRITS	6.133	636.8190	24.452	44.8163	PPM
Diesel	7.316	11375.2115	30.144	562.7511	ppm	Diesel	7.533	9651.3385	9.725	679.2156	ppm
2FBP	10.483	668.0530	86.276	26.7221	ppm	2FBP	11.933	110.1285	21.943	5.5064	ppm
Min Oil	17.150	960.9820	5.210	0.0000		Min Oil	12.066	325.1375	79.999	16.2569	ppm
		13327.5880		605.4694				10861.8905		755.5674	

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 12:13:07
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C623.CHR ()
 Sample: 1000 PPM Dx 703
 Operator: KW

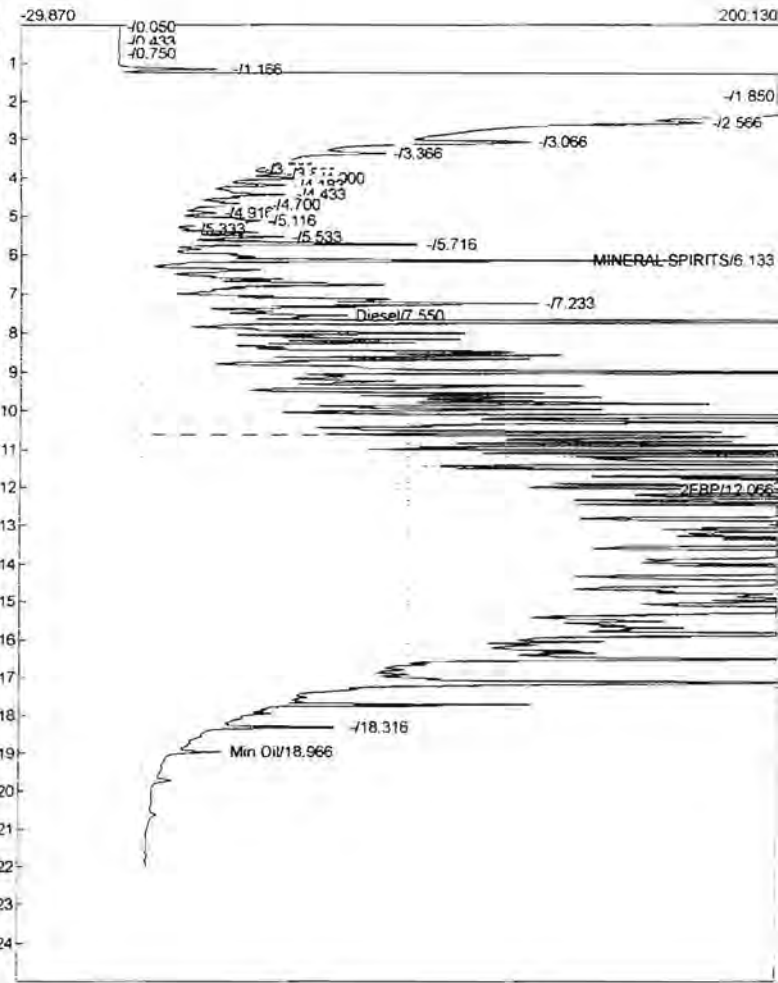
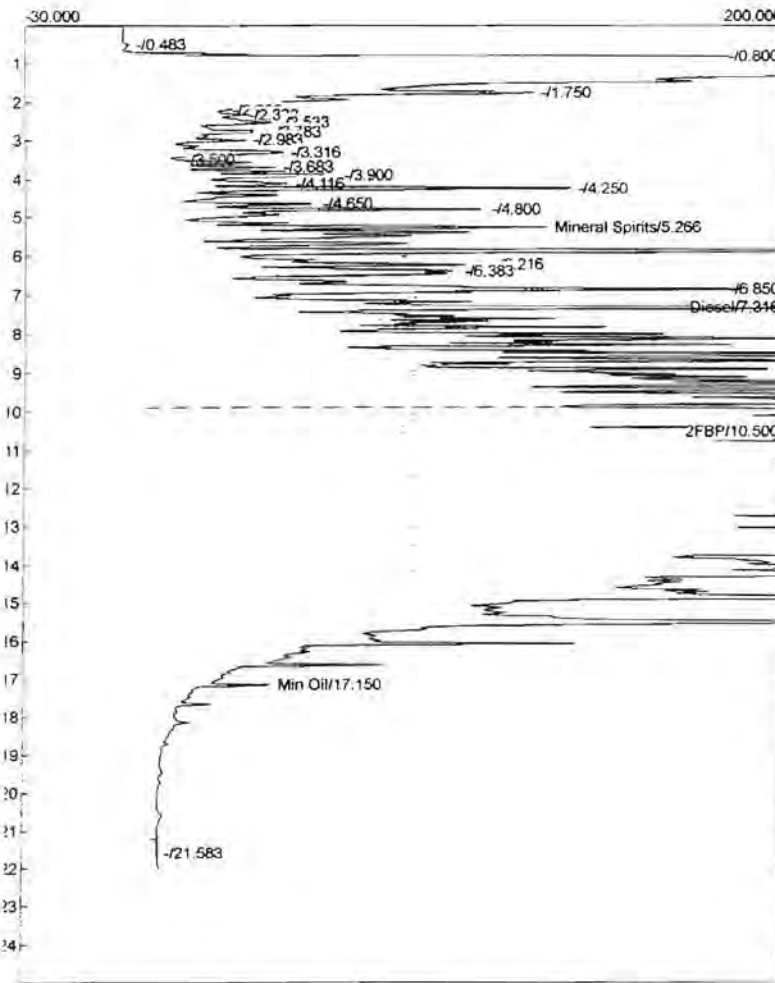
Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 12:13:07
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D629.CHR ()
 Sample: 1000 PPM Dx 703
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.033	995.3365	2.641	49.2410	PP	MINERAL SPIRITS	6.133	723.8390	45.571	50.9404	PP
Diesel	7.316	28291.8845	95.034	1399.6476	pp	Diesel	7.533	23510.5725	17.032	1654.5630	pp
2FBP	10.483	1579.9780	244.836	63.1991	pp	2FBP	12.066	1043.4695	193.880	52.1735	pp
Min Oil	17.150	221.1300	7.549	0.0000		Min Oil	18.966	300.3670	6.980	21.1982	pp
		31088.3290		1512.0877				25578.2480		1778.8751	

Lab name: Esby Environmental, Inc.
 Analysis date: 03/14/2012 12:41:16
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C624.CHR ()
 Sample: 5000 PPM Dx 702
 Operator: KW

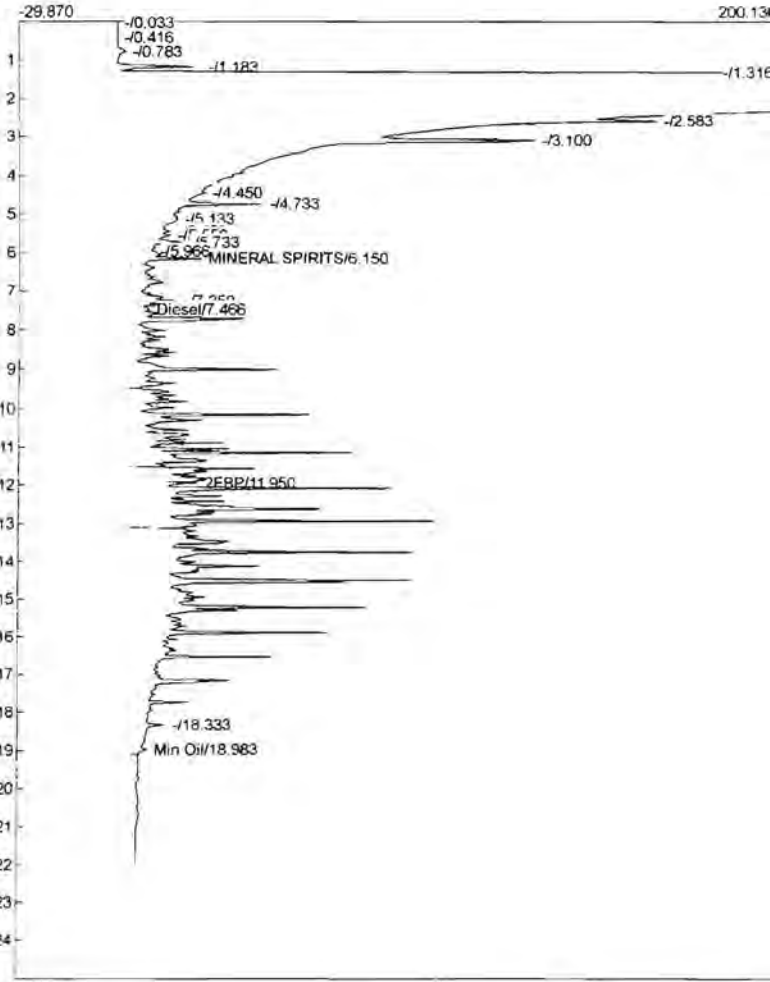
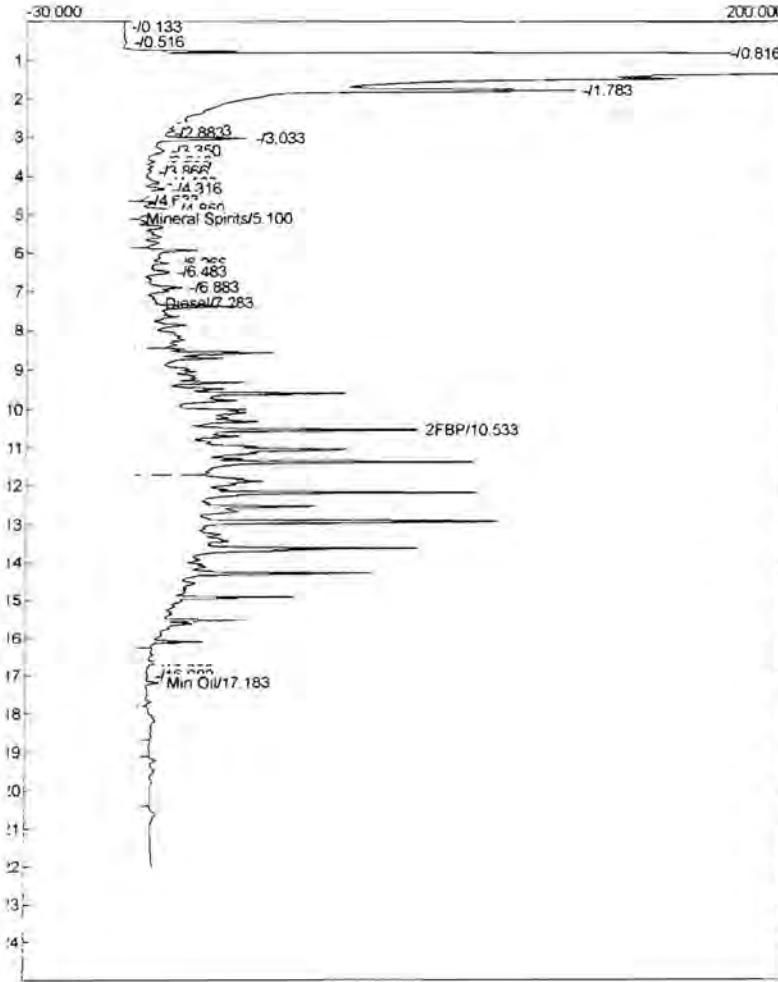
Lab name: Esby Environmental, Inc.
 Analysis date: 03/14/2012 12:41:16
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D630.CHR ()
 Sample: 5000 PPM Dx 702
 Operator: KW



Component	Retention	Area	Height	External	UnComponent	Retention	Area	Height	External	U
Mineral Spirits	5.266	4030.7350	121.832	199.4073	MINERAL SPIRITS	6.133	2118.1620	172.994	149.0662	PF
Diesel	7.316	118321.9850	479.109	5853.5897	Diesel	7.550	97612.4720	63.265	6869.5047	pp
2FBP	10.500	6802.6800	1015.018	272.1072	2FBP	12.066	3390.2460	772.659	169.5123	pp
Min Oil	17.150	1309.9915	36.600	0.0000	Min Oil	18.966	734.9465	24.851	51.8684	pp
		130465.3915		6325.1043			103855.8265		7239.9516	

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 13:09:09
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C625.CHR ()
 Sample: 500 PPM Dx ICAL 707
 Operator: KW

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 13:09:09
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D631.CHR ()
 Sample: 500 PPM Dx ICAL 707
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.100	454.2775	2.261	22.4739	PP	MINERAL SPIRITS	6.150	431.9470	21.664	30.3984	PP
Diesel	7.283	12055.9145	7.302	415.8831	ppn	Diesel	7.466	9633.4975	5.799	402.0800	ppn
2FBP	10.533	706.7050	85.875	28.2682	ppn	2FBP	11.950	98.4805	20.159	4.9240	ppn
Min Oil	17.183	642.7165	6.075	0.0000		Min Oil	18.983	249.4535	4.581	17.6050	ppn
		13859.6135		466.6252				10413.3785		455.0074	



Libby Environmental, Inc.

4139 Libby Road NE • Olympia, WA 98506-2518

November 8, 2012

Neil Morton
GeoEngineers Inc.
600 Stewart Street, Suite 1700
Seattle, WA 98101

Dear Mr. Morton:

Please find enclosed the analytical data report for the Irondale Project located in Irondale, Washington. Soil samples were analyzed for Diesel & Oil by NWTPH-Dx/Dx Extended with Silica Gel Clean Up on October 8, 2012.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. All soil samples are reported on a dry weight basis. An invoice for this analytical work is enclosed.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Jamie L. Deyman
President
Libby Environmental, Inc.

Phone (360) 352-2110 • Fax (360) 352-4154 • libbyenv@aol.com

www.LibbyEnvironmental.com



Libby Environmental, Inc.

Case Narrative

Libby Project #: L121008-30
Date: 11-8-2012

CLIENT: GeoEngineers, Inc.
PROJECT: Irondale

I. SAMPLE RECEIPT:

All samples were received intact and in good condition. See the attached Sample Receipt Check List for more information.

II. GENERAL REPORTING COMMENTS:

Final results are reported on a dry weight basis. The soil samples in the field are estimated to have a moisture content of 15%. This estimate is useful in producing data that is close to the actual value. After the sample is analyzed for soil moisture at our fixed base facility, the final data is reported based on measured soil moisture. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS), the Laboratory Control Sample Duplicate (LCSD) and the Method Blank (MB). The LCS, LCSD and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) and/or noted below.

Notes:

The cPAH report includes data results from Libby project L121009-30.

Libby Environmental, Inc.

Chain of Custody Record

4139 Libby Road NE Ph: 360-352-2110
 Olympia, WA 98506 Fax: 360-352-4154

Date: 10/8/12 Page: 1 of

Client: GEI

Project Manager: NEIL MORROW

Address:

Project Name: IRONDALE

Phone: Fax:

Location: WA City: IRONDALE

Client Project # 0504-042-02

Collector: PAUL ROBINETTE Date of Collection: 10/8/12



Sample Number	Depth	Time	Sample Type	Container Type	Analytes											Field Notes								
					VOA 8021B	VOA 8021B BTEX Only	VOA 8280	SEMI VOL 8270	NWTPH-HCID	NWTPH-GX	NWTPH-Dx	PAH 8270	PCB's 8082	MTCA 6 Metals										
1 SURZ-WSW1-10812	9	920	SOIL	(2) 40Z																				Extract & hold PAH
2 SURZ-NSW1-10812	7	925	SOIL	40Z																				
3 SURZ-SSW1-10812	7	930	SOIL	40Z																				
4 K18-B1-10812	8	955	SOIL	(2) 40Z																				
5 K18-WSW1-10812	10	1000	SOIL	40Z																				
6 SURZ-WSW2-10812	8	1115	SOIL	40Z																				
7 SURZ-B1-10812	9	1135	SOIL	40Z																				
8 K18-B1-10812	10	1210	SOIL	40Z																				10-10-12 RuncPAH per Neil via email 24hr TAT
9 SURZ-WSW3-10812	8	1250	SOIL	40Z																				
10 SURZ-ESW1-10812	8	1252	SOIL	40Z																				
11 SURZ-NSW2-10812	8	1253	SOIL	40Z																				
12 SURZ-B2-10812	9	1257	SOIL	40Z																				
13																								
14																								
15																								
16																								
17																								
18																								

Relinquished by: <i>Paul Robinette</i>	Date / Time: 10/8 1510	Received by: <i>Paul Bond</i>	Date / Time: 10/8/12 1510	Sample Receipt:	Remarks:
Relinquished by:	Date / Time:	Received by:	Date / Time:	Good Condition?	
				Cold?	
				Seals Intact?	
				Total Number of Containers	

Libby Environmental, Inc. Login Sample Receipt Check List

Client: GeoEngineers, Inc. **Libby Project Number:** L121008-30

Question	T / F / NA	Comment
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler temperature is acceptable.	True	
COC is present.	True	
COC is filled out in ink and is legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within the Hold Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs.	True	
VOA sample vials do not have headspace or bubble is less than 6mm (1/4 in.) in diameter.	True	
If necessary, staff has been informed of any short hold time or quick TAT needs.	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	

Libby Environmental, Inc.

4139 Libby Road NE
Olympia, WA 98506
Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@aol.com

IRONDALE PROJECT
GeoEngineers, Inc.
Irondale, Washington
Libby Project # L121008-30
Client Project # 0504-042-02

Analyses of Diesel & Oil Range (NWTPH-Dx/Dx Extended) in Soil w/ Silica Gel Cleanup

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Bunker C (mg/kg)
Method Blank	10/8/12	109	nd	nd
LCS	10/8/12	int	110%	
LCSD	10/8/12	int	106%	
SURZ-WB1-10812	10/8/12	123	nd	nd
SURZ-NSW1-10812	10/8/12	100	nd	nd
SURZ-SSW1-10812	10/8/12	119	nd	nd
K18-B1-10812	10/8/12	96	nd	nd
K18-WSW1-10812	10/8/12	105	nd	60
K18-WSW1-10812 Dup	10/8/12	98	nd	51
SURZ-WSW2-10812	10/8/12	113	nd	nd
SURZ-B1-10812	10/8/12	104	nd	nd
K08-B1-10812	10/8/12	124	nd	86
SURZ-WSW3-10812	10/8/12	119	nd	nd
SURZ-ESW1-10812	10/8/12	101	nd	nd
SURZ-NSW2-10812	10/8/12	111	nd	nd
SURZ-B2-10812	10/8/12	104	nd	nd
SURZ-B2-10812 Dup	10/8/12	96	nd	nd
Practical Quantitation Limit			25	40

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

Client: Geo Engineers

Client Project: Irondale

Date: 10/8/2012

Libby Job #: L121008-30		Instrument: Shimadzu GC14A			Analyst/s: Paul Burke		
Sample #	Time	Run	Vol	Surrogate 2FBP conc.	Diesel Conc.	Oil Conc	Bunker C Conc
500 ppm Diesel 791	7:41:53	C255	3 µl		535		
500 ppm Diesel 791	7:41:53	D253	3 µl		535		
1000 ppm LCS 343	8:14:28	C256	3 µl	int	1096		
1000 ppm LCSD 343	8:14:28	D254	3 µl	int	1064		
Method Blank	8:49:18	C257	3 µl	21.7	nd	nd	nd
Method Blank	8:49:18	D255	3 µl	18.1	nd	nd	nd
SURZ-WB1-10812	10:07:56	C258	3 µl	24.5	nd	nd	nd
SURZ-NSW1-10812	10:07:56	D256	3 µl	19.9	nd	nd	nd
SURZ-SSW1-10812	10:50:01	C259	3 µl	23.9	nd	nd	nd
K18-B1-10812	10:50:01	C257	3 µl	19.2	nd	nd	nd
K18-WSW1-10812	11:24:55	C260	3 µl	21.0	nd	nd	57
K18-WSW1-10812 Dup	11:24:55	D258	3 µl	19.6	nd	nd	48
SVRZ-WSW2-10812	12:13:47	C261	3 µl	22.6	nd	nd	nd
SURZ-B1-10812	12:13:47	D259	3 µl	20.7	nd	nd	nd
K08-B1-10812	13:06:09	C262	3 µl	24.8	nd	nd	86
No Sample	13:06:09	D260	3 µl				
500 ppm Diesel 791 (Not Used)	13:39:22	C263	3 µl				
500 ppm Diesel 791 (Not Used)	13:39:22	D261	3 µl				
SURZ-WSW3-10812	14:14:40	C264	3 µl	23.8	nd	nd	nd
SURZ-ESW1-10812	14:14:40	D262	3 µl	20.2	nd	nd	nd
SURZ-NSW2-10812	14:48:02	C265	3 µl	22.2	nd	nd	nd
SURZ-B2-10812	14:48:02	D263	3 µl	25.9	nd	nd	nd

Client: Geo Engineers

Client Project: Irondale

Date: 10/8/2012

Libby Job #: L121008-30		Instrument: Shimadzu GC14A			Analyst/s: Paul Burke		
Sample #	Time	Run	Vol	Surrogate 2FBP conc.	Diesel Conc.	Oil Conc	Bunker C Conc
No Sample	15:21:55	C266	3 µl				
SURZ-B2-10812 Dup	15:21:55	D264	3 µl	19.2	nd	nd	nd
500 ppm Diesel 791	15:57:03	C267	3 µl		483		
500 ppm Diesel 791	15:57:03	D265	3 µl		556		

Analysis date: 10/08/2012 07:41:53
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C255.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Analysis date: 10/08/2012 07:41:53
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D253.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

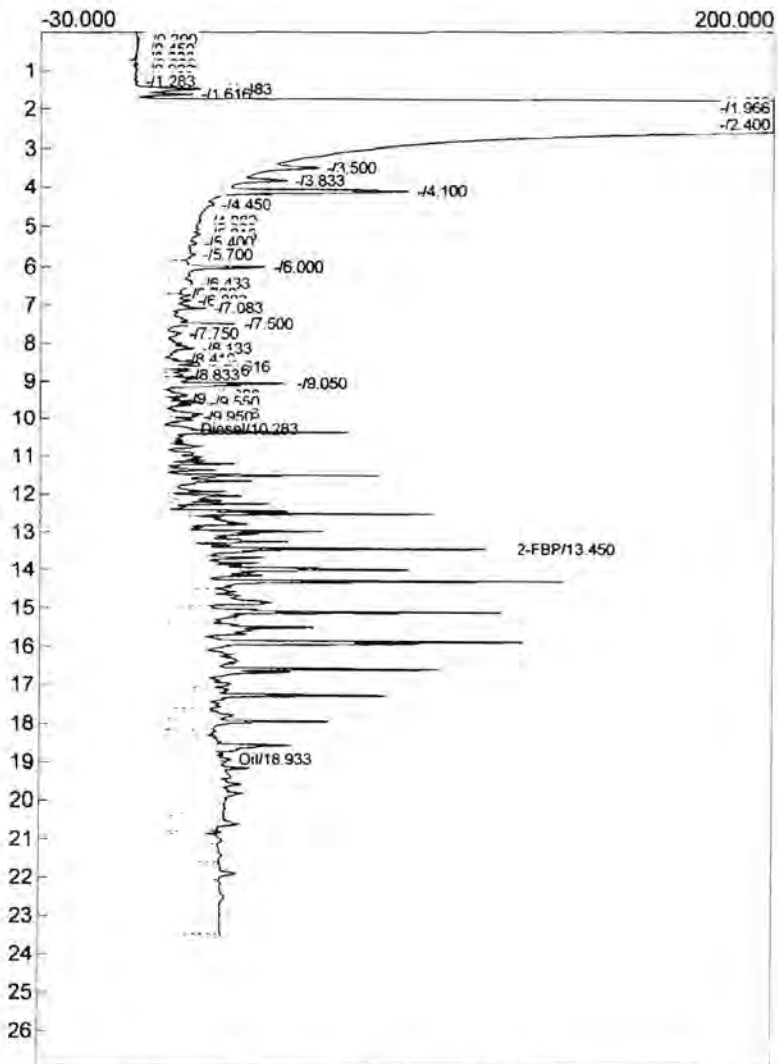
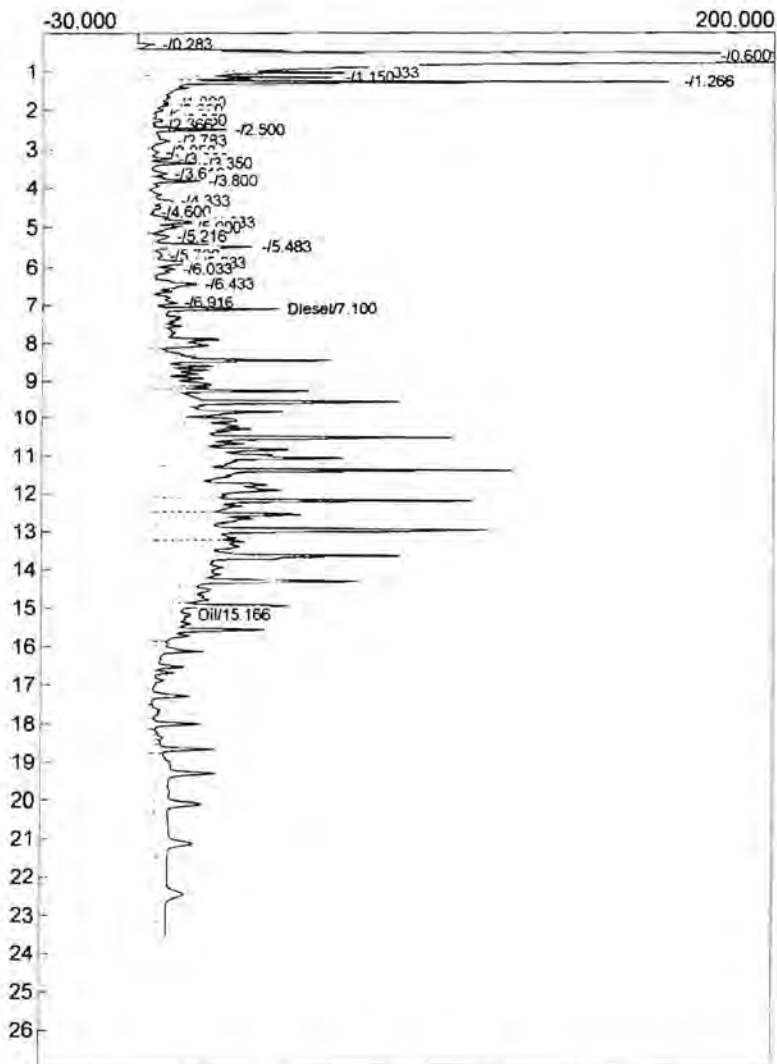
Time Event
 0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.100	10864.4835	39.550	535.4438	ppm
Oil	15.166	2399.7140	10.894	117.9792	ppm
		13264.1975		653.4230	

Component	Retention	Area	Height	External	Units
Diesel	10.283	10075.7220	8.628	535.2458	ppm
2-FBP	13.450	539.3900	107.923	18.7614	ppm
Oil	18.933	4438.8500	19.216	234.5355	ppm
		15051.9620		788.5428	

Analysis date: 10/08/2012 08:14:28

Method:

Description: JAMACIA

Column: Restek Rbx-5 30x0.53x1.5

Carrier: He

Data file: C256.CHR ()

Sample: 1000 ppb LCS 343

Operator: PB

Analysis date: 10/08/2012 08:14:28

Method:

Description: JAMACIA

Column: Restek Rbx-5 30x0.53x1.5

Carrier: He

Data file: D254.CHR ()

Sample: 1000 ppb LCSD 343

Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

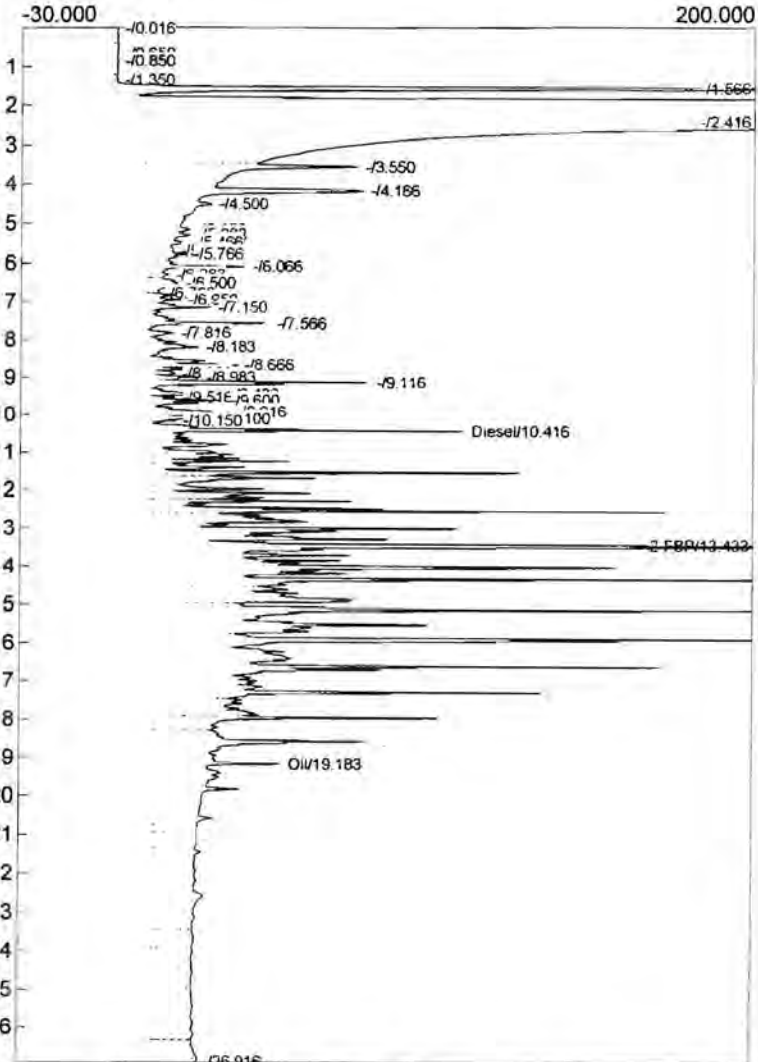
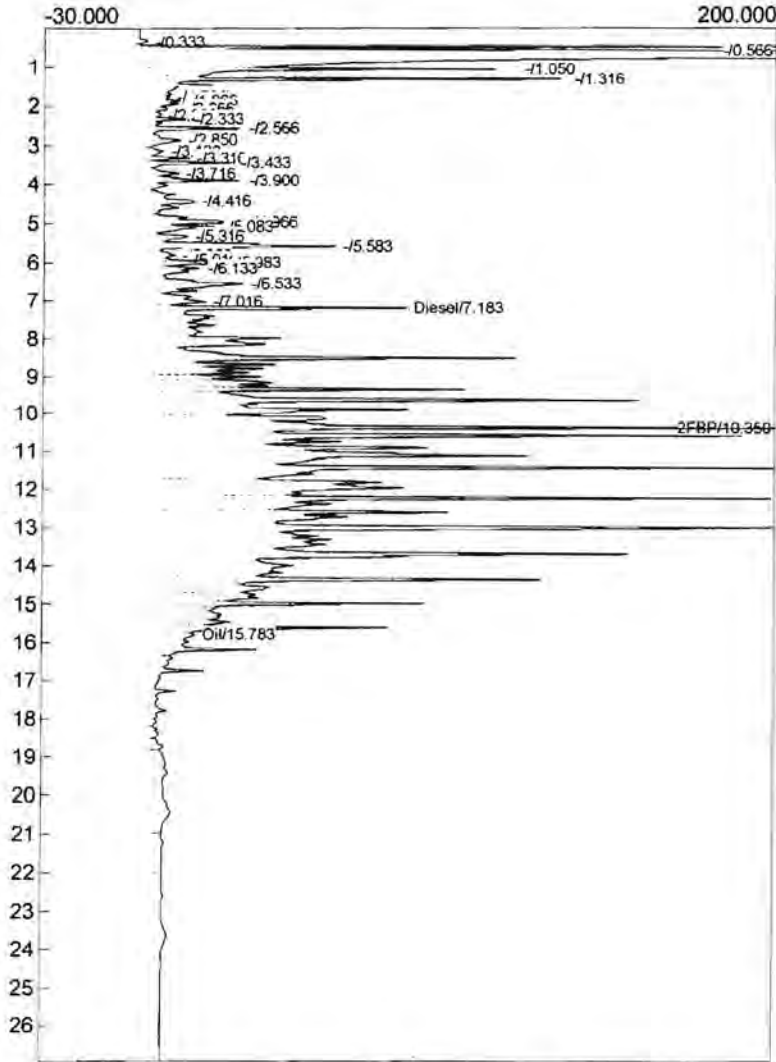
Time Event
0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.183	22158.1080	76.902	1096.2486	ppm
2-FBP	10.350	1203.1620	227.583	48.1265	ppm
Oil	15.783	1345.8655	9.594	66.1679	ppm
		24707.1335		1210.5430	

110%

Component	Retention	Area	Height	External	Units
Diesel	10.416	19857.6660	97.948	1064.2543	ppm
2-FBP	13.433	1439.9825	232.548	50.0863	ppm
Oil	19.183	6165.5315	39.983	326.4423	ppm
		27463.1800		1440.7829	

106%

Analysis date: 10/08/2012 08:49:18
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C257.CHR ()
 Sample: Method Blank
 Operator: PB

Analysis date: 10/08/2012 08:49:18
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D255.CHR ()
 Sample: Method Blank
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

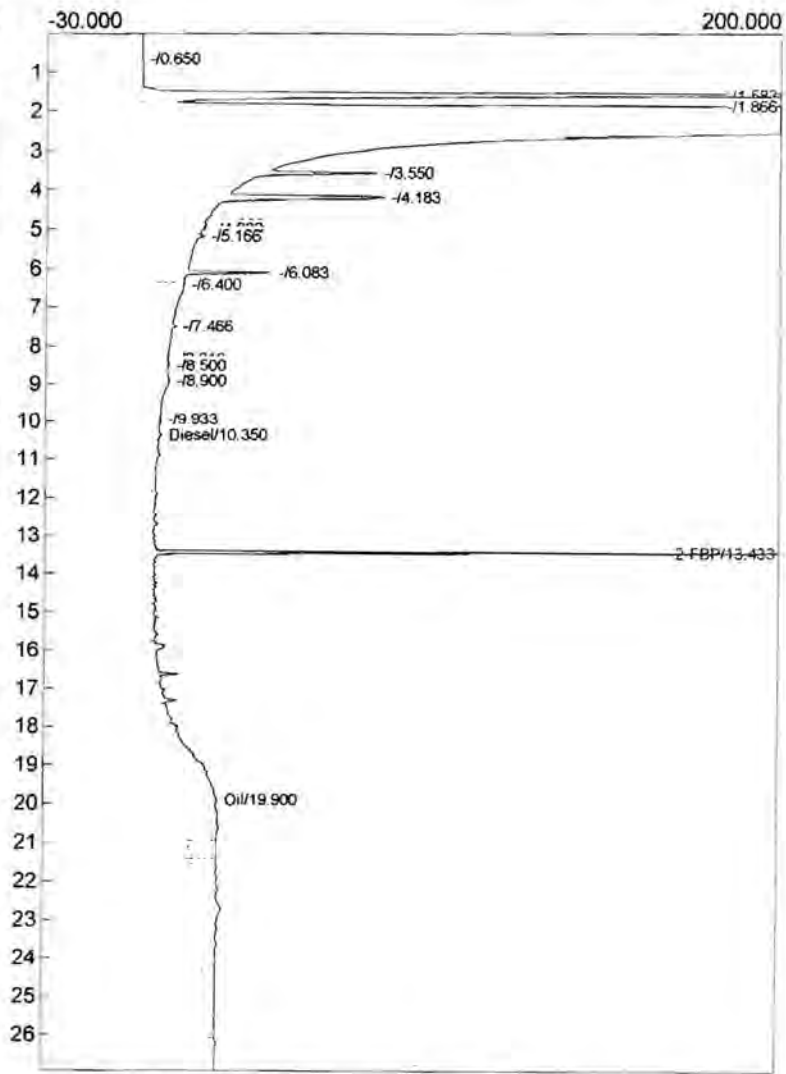
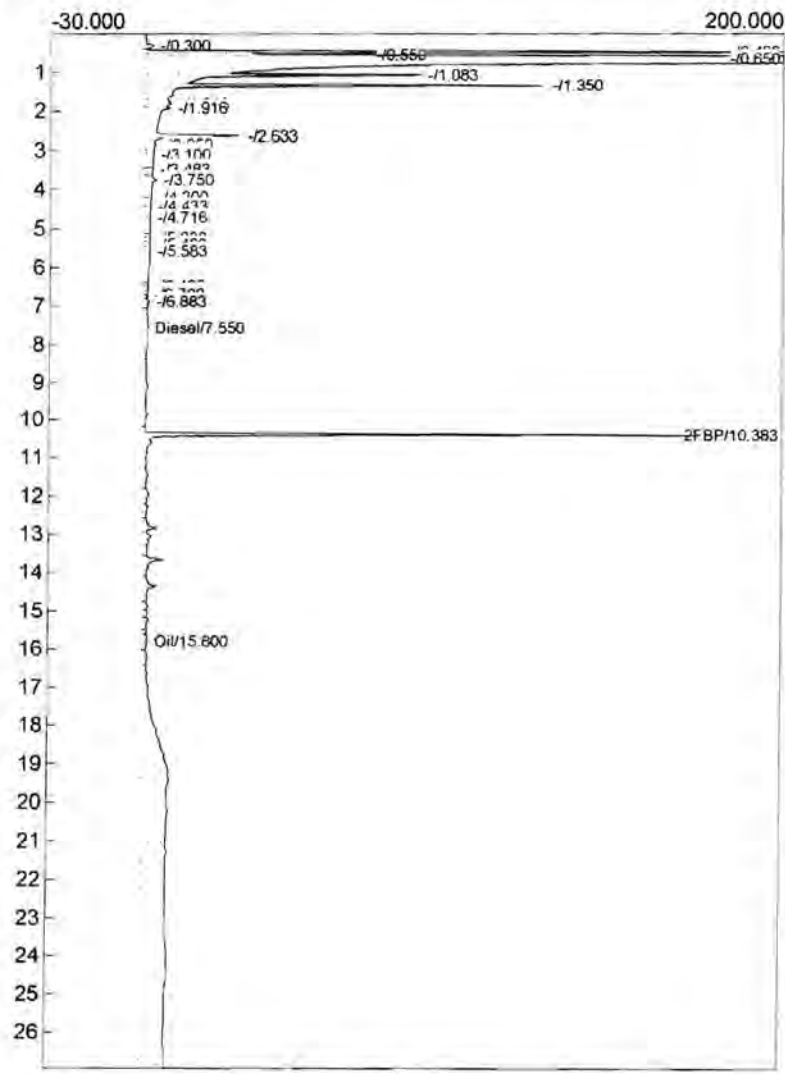
Time Event
 0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.550	838.2530	0.506	41.2117	ppm
2-FBP	10.383	543.2995	179.362	21.7320	ppm
Oil	15.800	3915.9880	1.063	192.5251	ppm
		5297.5405		255.4688	

Component	Retention	Area	Height	External	Units
Diesel	10.350	685.9510	1.059	36.2240	ppm
2-FBP	13.433	520.2340	217.888	18.0951	ppm
Oil	19.900	2914.4780	10.446	153.9092	ppm
		4120.6630		208.2284	

109%

90%

Analysis date: 10/08/2012 08:49:18

Method:
Description: JAMACIA
Column: Restek Rtx-5 30x0.53x1.5
Carrier: He
Data file: C257.CHR ()
Sample: Method Blank
Operator: PB

USED only for Bunker C airblank

Analysis date: 10/08/2012 08:49:18

Method:
Description: JAMACIA
Column: Restek Rtx-5 30x0.53x1.5
Carrier: He
Data file: D255.CHR ()
Sample: Method Blank
Operator: PB

USED for Bunker C air blank

Temperature program:

Init temp Hold Ramp Final temp

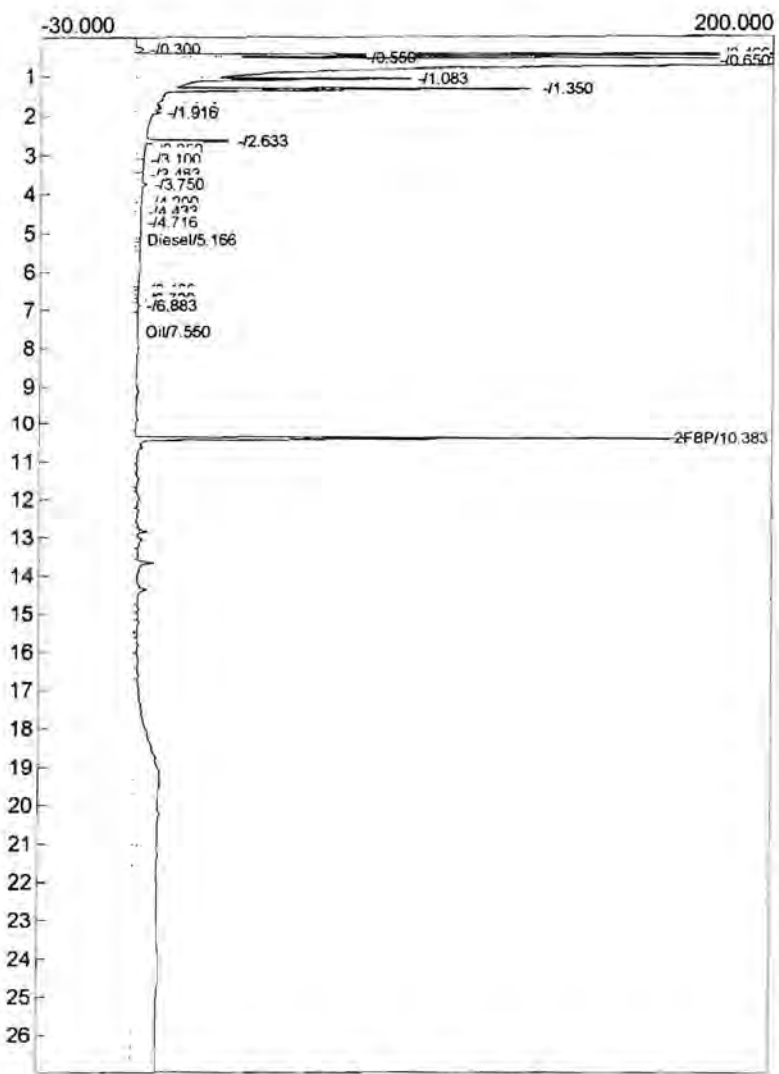
Events:

Time Event
0.000 ZERO

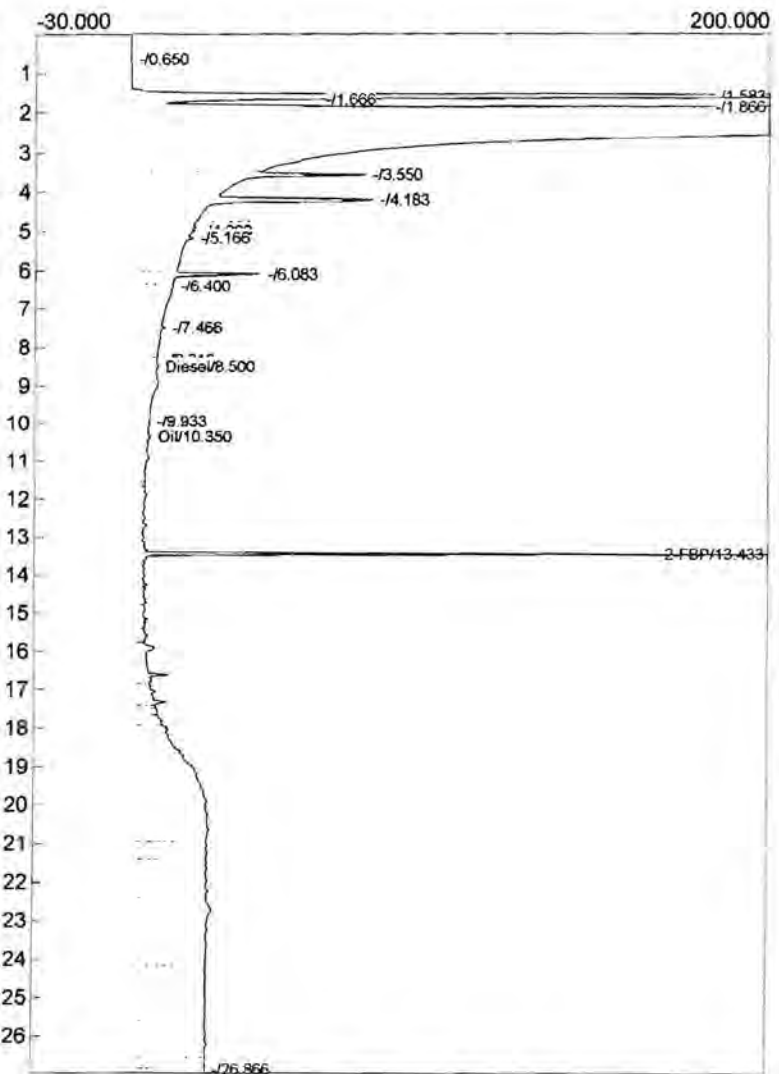
Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.166	60.2080	0.916	2.9601	ppm
Oil	7.550	4754.2410	0.506	233.8305	ppm
FBP	10.383	543.2995	179.362	21.7320	ppm
		5357.7485		258.5225	



Component	Retention	Area	Height	External	Units
Diesel	8.500	355.3015	4.915	18.7629	ppm
Oil	10.350	11685.7530	2.844	621.5746	ppm
2-FBP	13.433	532.0490	218.264	18.5061	ppm
		12573.1035		658.8436	

Analysis date: 10/08/2012 10:07:56
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C258.CHR ()
 Sample: SURZ-WB1-10812
 Operator: PB

Analysis date: 10/08/2012 10:07:56
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D256.CHR ()
 Sample: SURZ-NSW1-10812
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

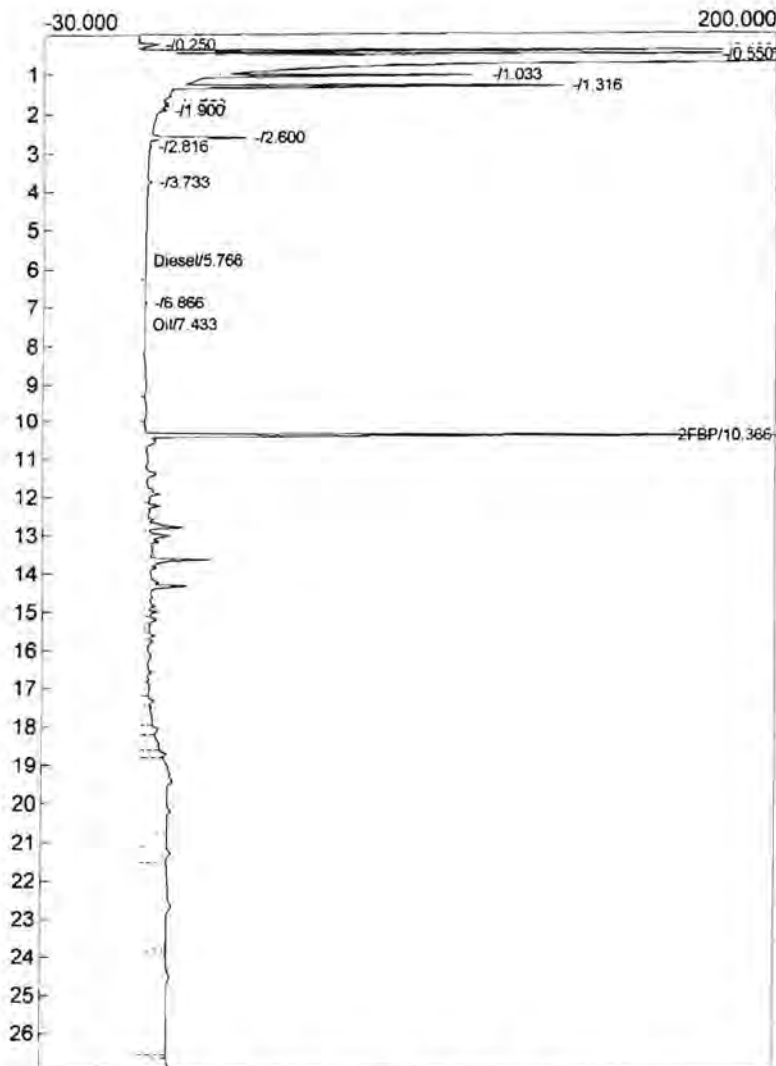
Time Event
 0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

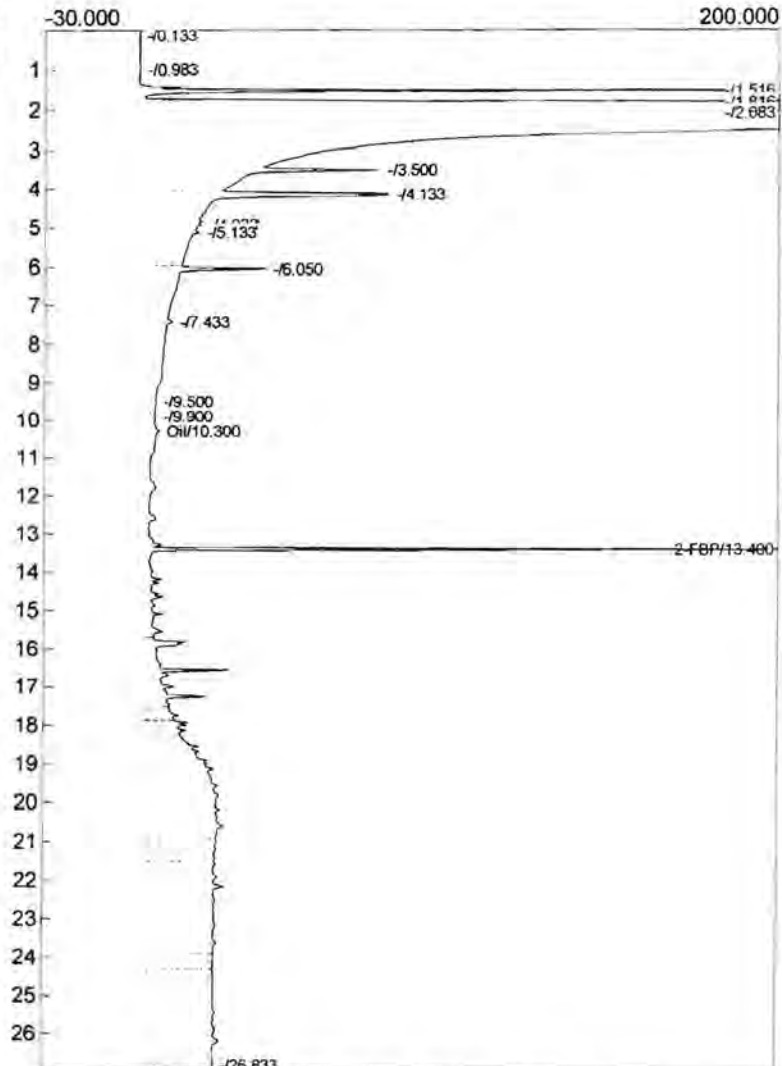
Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.766	1.8620	0.070	0.0915	ppm
Oil	7.433	5312.2535	0.117	261.3407	ppm
2-FBP	10.366	613.1900	222.015	24.5276	ppm
		5927.3055		285.9598	

nd 123%



Component	Retention	Area	Height	External	Units
Oil	10.300	12315.8940	2.818	655.5361	ppm
2-FBP	13.400	572.8680	250.578	19.9258	ppm
		12888.7620		675.4619	

nd 100%

Analysis date: 10/08/2012 10:50:01
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C259.CHR ()
 Sample: SURZ-SSW1-10812
 Operator: PB

Analysis date: 10/08/2012 10:50:01
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D257.CHR ()
 Sample: K18-B1-10812
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

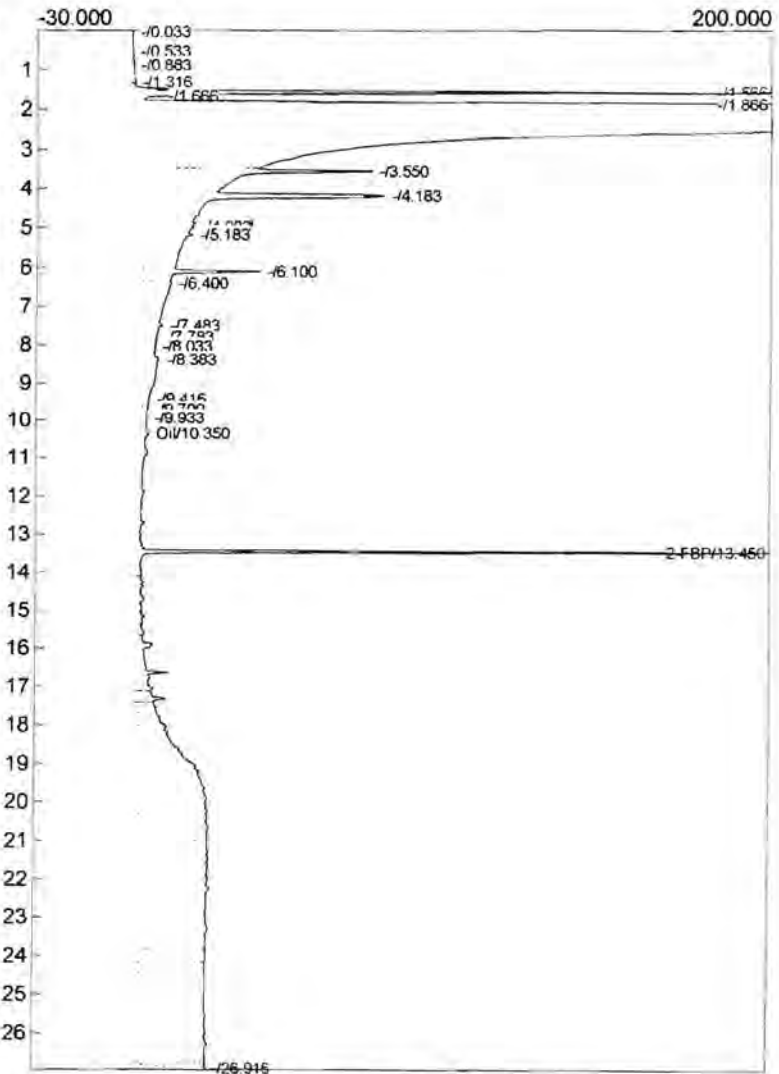
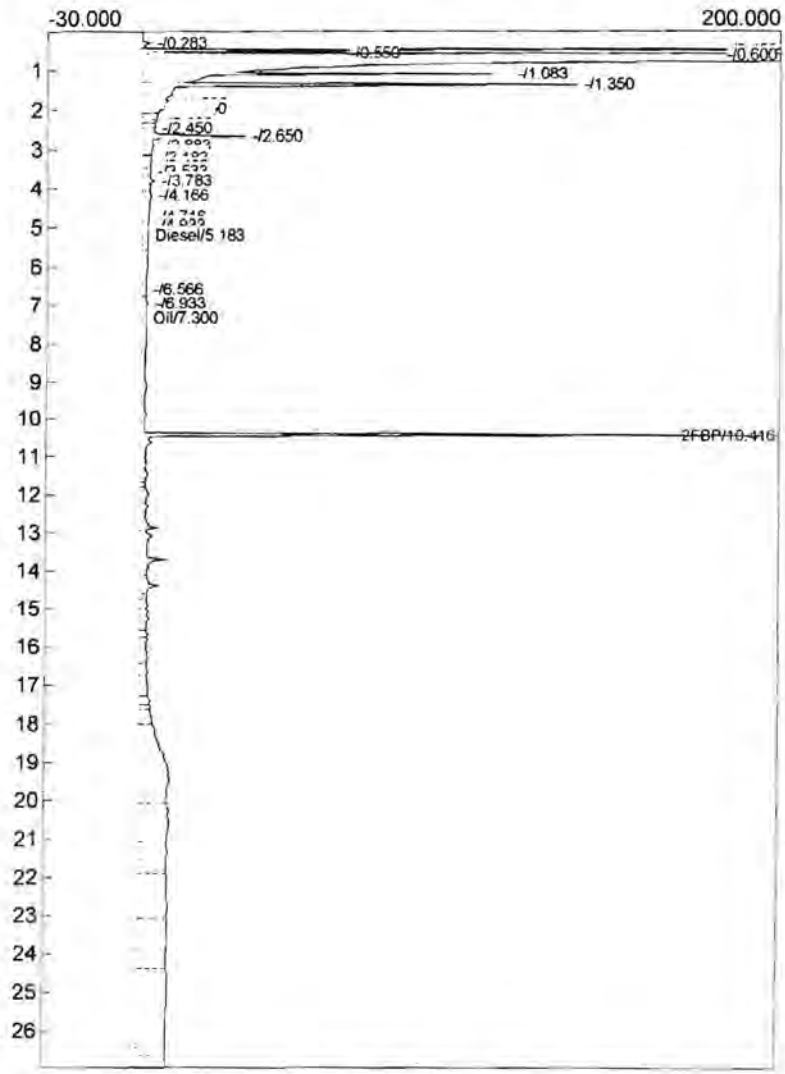
Time Event
 0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.183	38.8185	0.698	1.9085	ppm
Oil	7.300	5112.5065	0.196	251.4931	ppm
FBP	10.416	596.9370	222.336	23.8775	ppm
		5748.2620		277.2790	

nd 119%

Component	Retention	Area	Height	External	Units
Oil	10.350	11654.7625	2.215	619.9043	ppm
2-FBP	13.450	551.6060	255.777	19.1863	ppm
		12206.3685		639.0906	

nd 96%

Analysis date: 10/08/2012 11:24:55
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C260.CHR ()
 Sample: K18-WSW1-10812
 Operator: PB

Analysis date: 10/08/2012 11:24:55
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D258.CHR ()
 Sample: K18-WSW1-10812 Dup
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

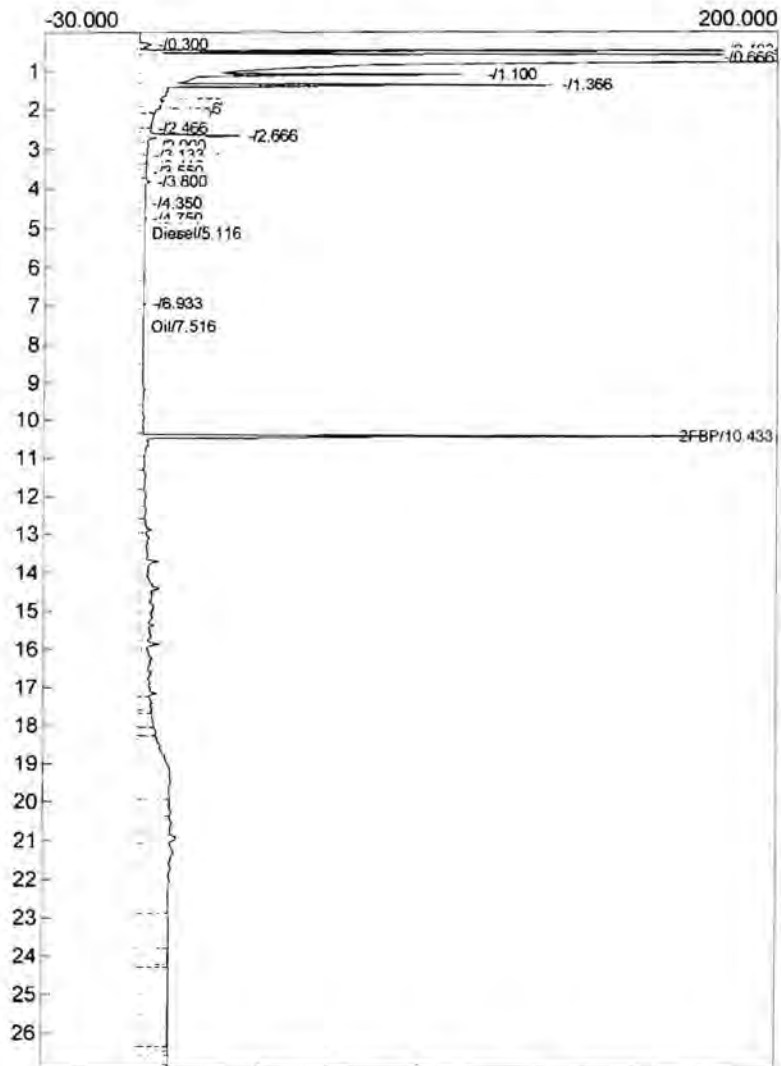
Time Event
 0.000 ZERO

Temperature program:

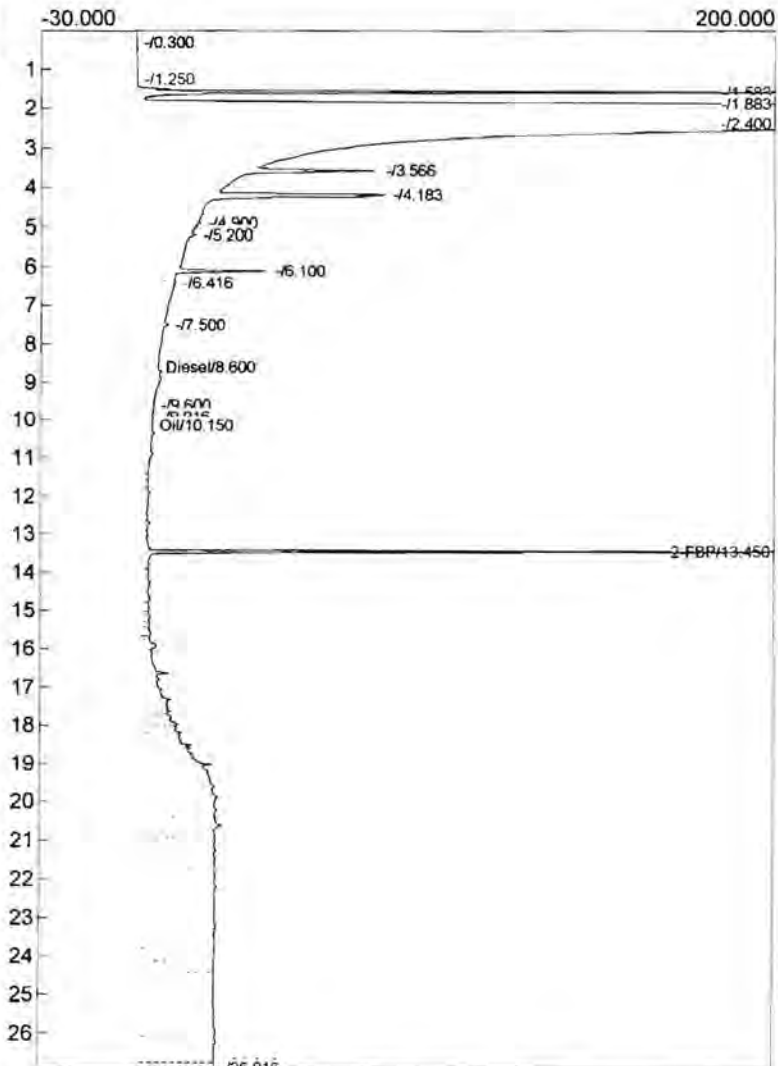
Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.116	22.0540	0.331	1.0843	ppm
Oil	7.516	5922.9745	0.172	291.4495	ppm
2-FBP	10.433	526.0895	205.900	21.0436	ppm
		6471.1180		313.5773	



Component	Retention	Area	Height	External	Units
Diesel	8.600	193.5830	3.853	10.2228	ppm
Oil	10.150	12585.7210	2.087	670.0785	ppm
2-FBP	13.450	564.6120	246.349	19.6387	ppm
		13343.9160		699.9400	

$291 - 234 = 57 \text{ ppm}$

Bunker C

105%

moisture correction $\div 1.0545 = 60.1$

98%

$670 - 622 = 48 \text{ ppm}$

Bunker C

moisture correction $\div 1.0545 = 50.6$

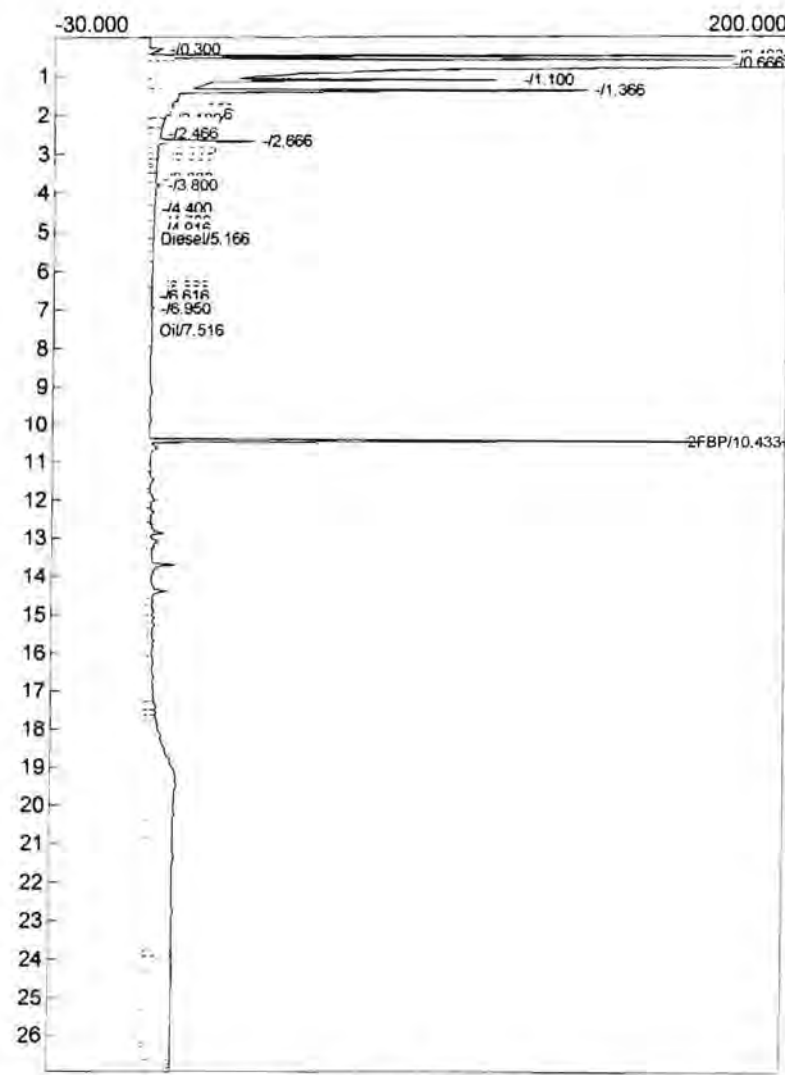
Analysis date: 10/08/2012 12:13:47
 Method: JAMACIA
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C261.CHR ()
 Sample: SURZ-WSW2-10812
 Operator: PB

Analysis date: 10/08/2012 12:13:47
 Method: JAMACIA
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D259.CHR ()
 Sample: SURZ-B1-10812
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:
 Time Event
 0.000 ZERO



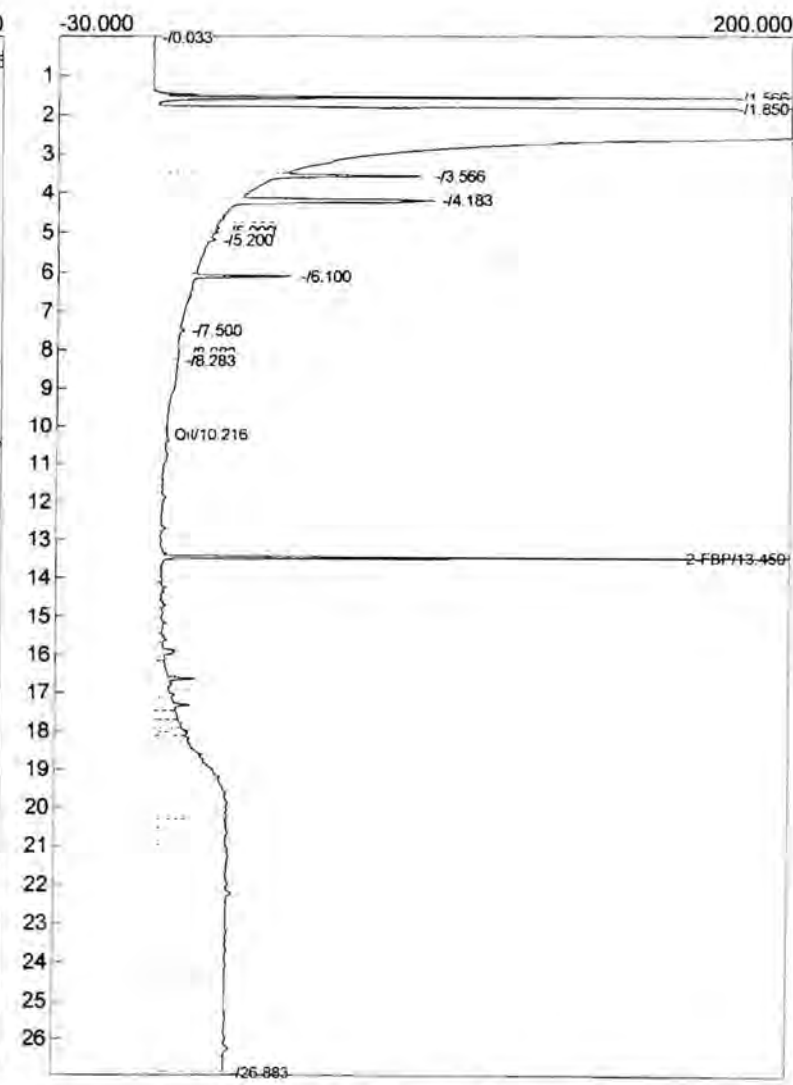
Component	Retention	Area	Height	External	Units
Diesel	5.166	42.7960	0.719	2.1040	ppm
Oil	7.516	5424.5025	0.478	266.8746	ppm
FBP	10.433	564.1940	216.433	22.5678	ppm
		6031.4925		291.5464	

nd 113%

Temperature program:

Init temp Hold Ramp Final temp

Events:
 Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Oil	10.216	11875.6350	1.732	631.8083	ppm
2-FBP	13.450	595.5380	266.882	20.7144	ppm
		12471.1730		652.5226	

nd 104%

Analysis date: 10/08/2012 13:06:09
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C262.CHR ()
 Sample: K08-B1-10812
 Operator: PB

Analysis date: 10/08/2012 13:06:09
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D260.CHR ()
 Sample: No Sample
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

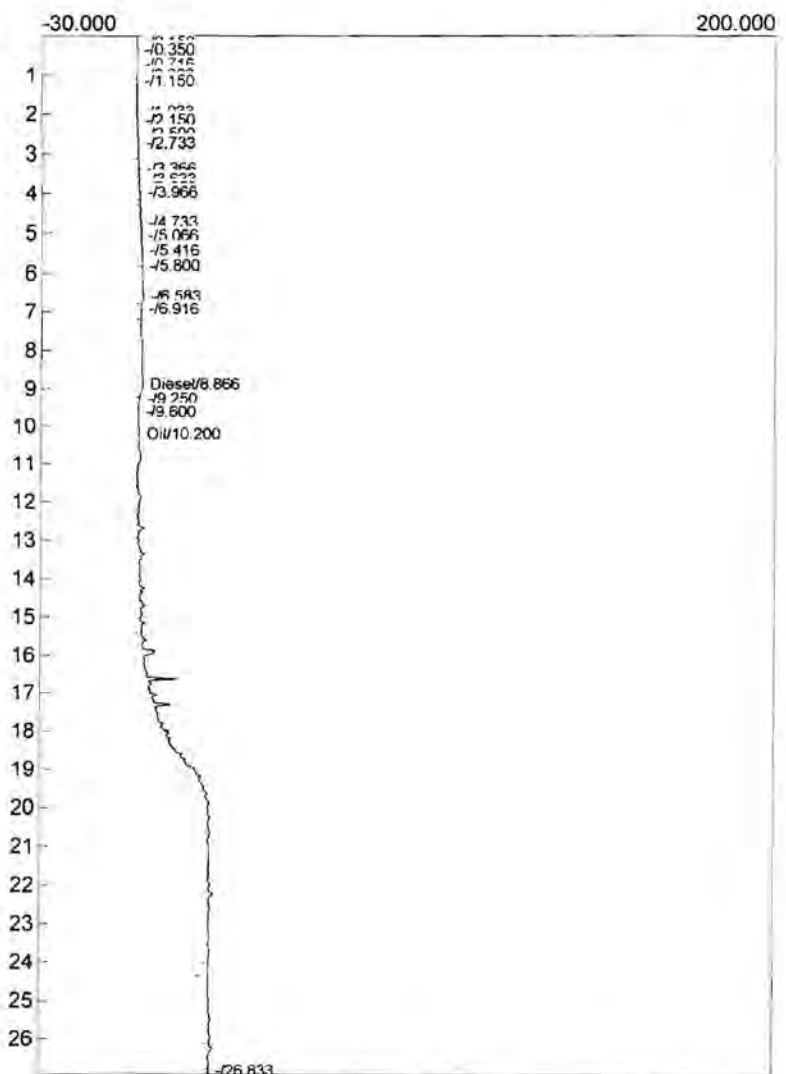
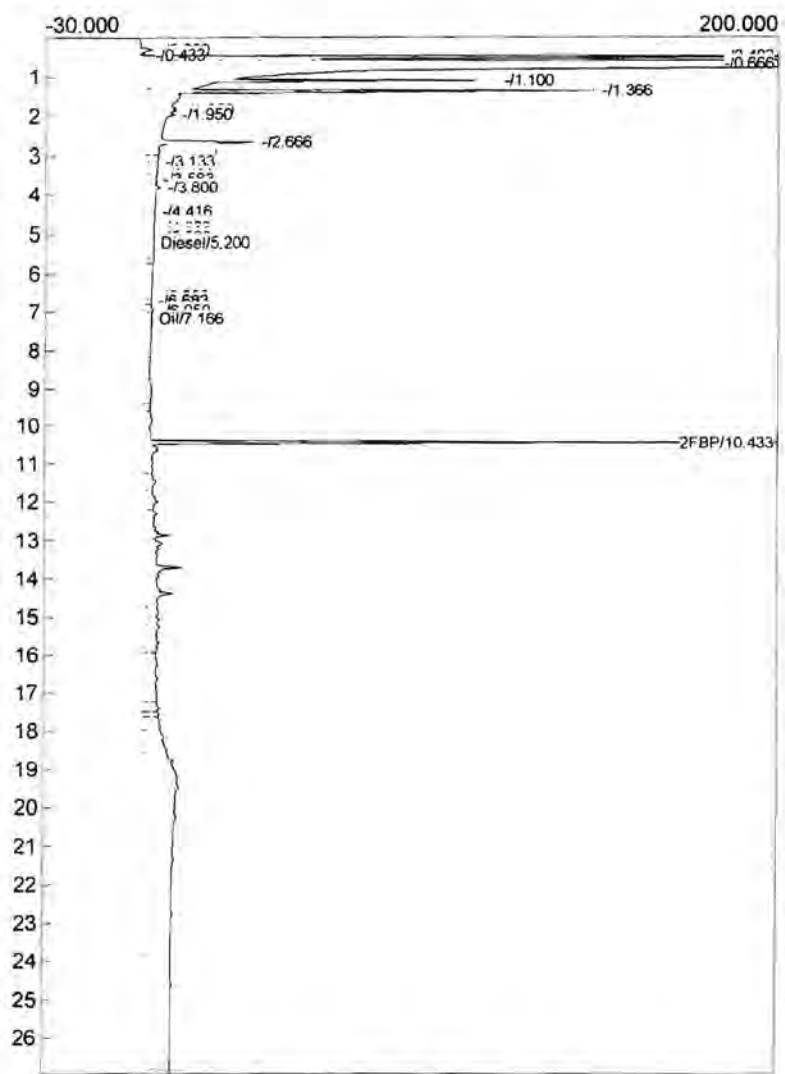
Time Event
 0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.200	108.8010	1.637	5.3491	ppm
Oil	7.166	6506.8865	1.117	320.2365	ppm
FBP	10.433	620.7500	211.011	24.8300	ppm
		7236.4375		350.4156	

Component	Retention	Area	Height	External	Units
Diesel	8.866	11.0980	0.524	0.5861	ppm
Oil	10.200	3242.6185	0.245	171.2378	ppm
		3253.7165		171.8239	

124% 320-234 = 86 ppm
 Bunker C

Analysis date: 10/08/2012 13:39:22

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: C263.CHR ()

Sample: 500 ppm Diesel 791

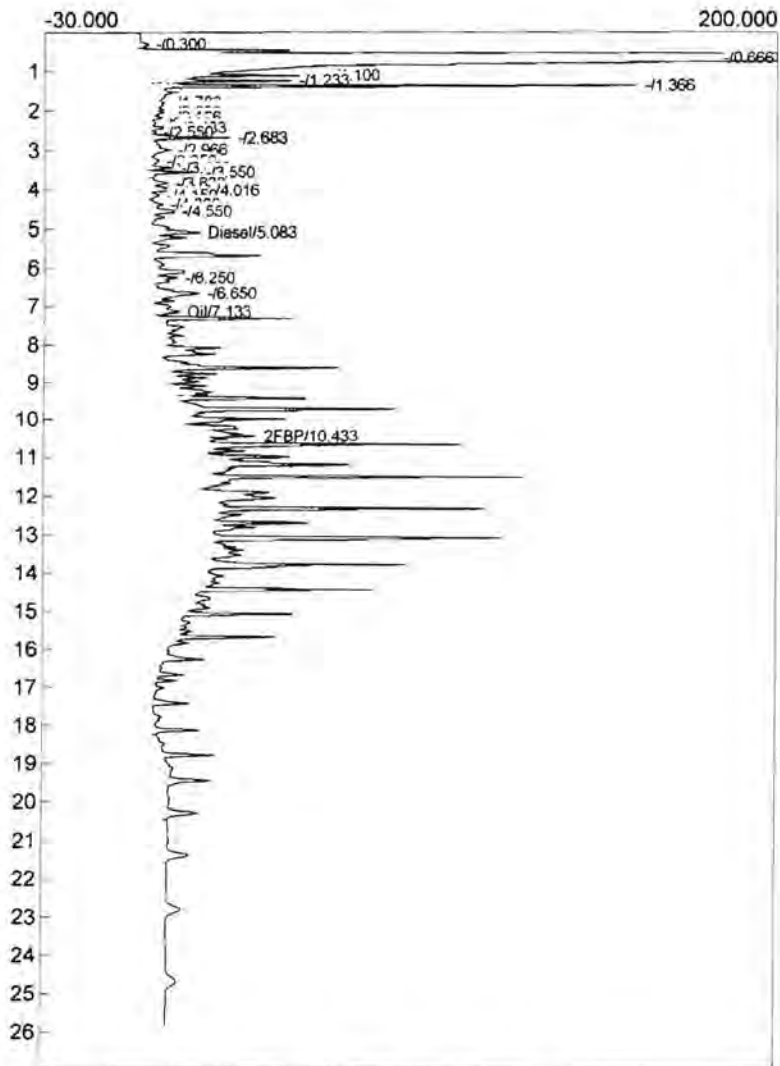
Operator: PB

Temperature program: *NOT USED*

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.083	394.5320	13.516	19.3967	ppm
Oil	7.133	5927.7295	6.948	291.6839	ppm
2-FBP	10.433	199.5730	21.389	7.9829	ppm
		6521.8345		319.0635	

Analysis date: 10/08/2012 13:39:22

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: D261.CHR ()

Sample: 500 ppm Diesel 791

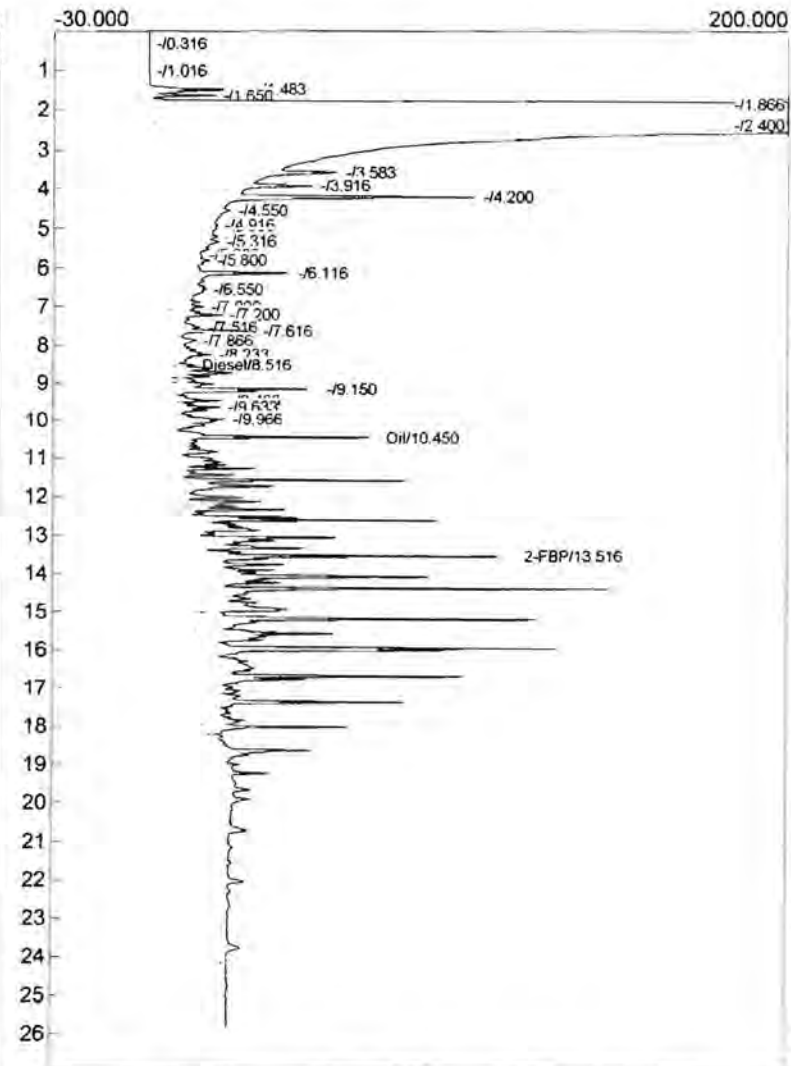
Operator: PB

Temperature program: *NOT USED*

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	8.516	231.3815	6.434	12.2189	ppm
Oil	10.450	10316.4515	62.734	548.1316	ppm
2-FBP	13.516	446.6780	102.738	15.5366	ppm
		10994.5110		575.8872	

Analysis date: 10/08/2012 14:14:40

Method:
Description: JAMACIA
Column: Restek Rtx-5 30x0.53x1.5
Carrier: He
Data file: C264.CHR ()
Sample: SURZ-WSW3-10812
Operator: PB

Analysis date: 10/08/2012 14:14:40

Method:
Description: JAMACIA
Column: Restek Rtx-5 30x0.53x1.5
Carrier: He
Data file: D262.CHR ()
Sample: SURZ-ESW1-10812
Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

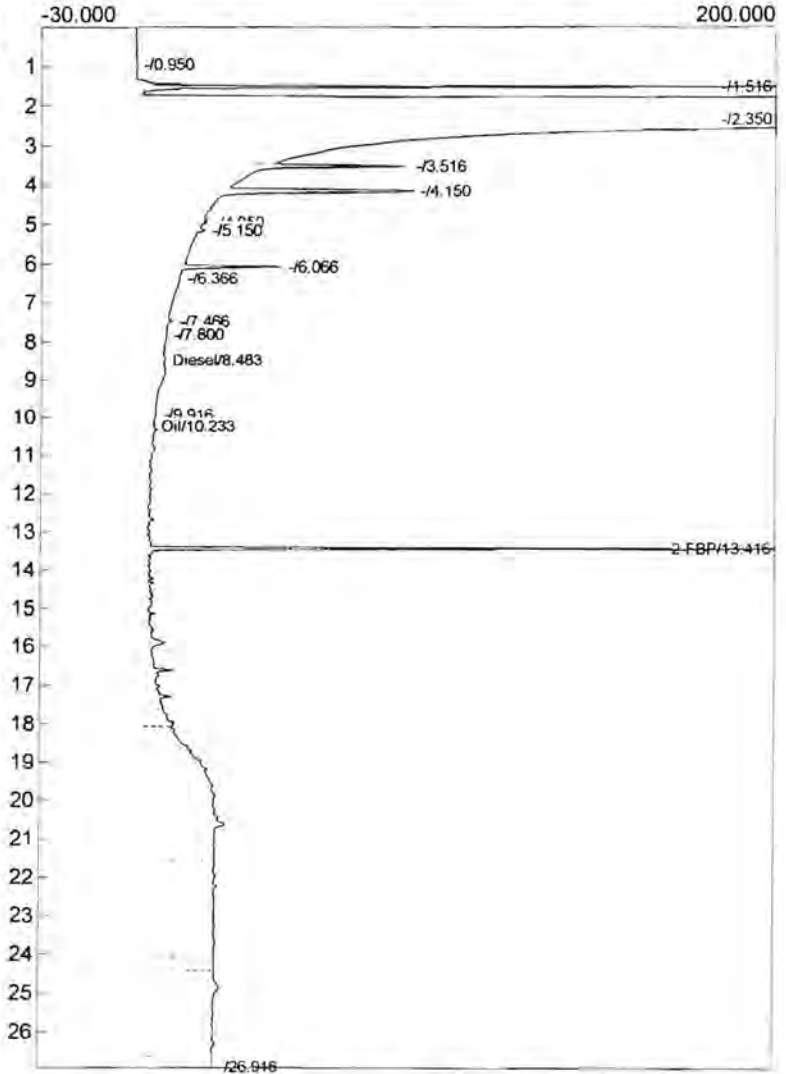
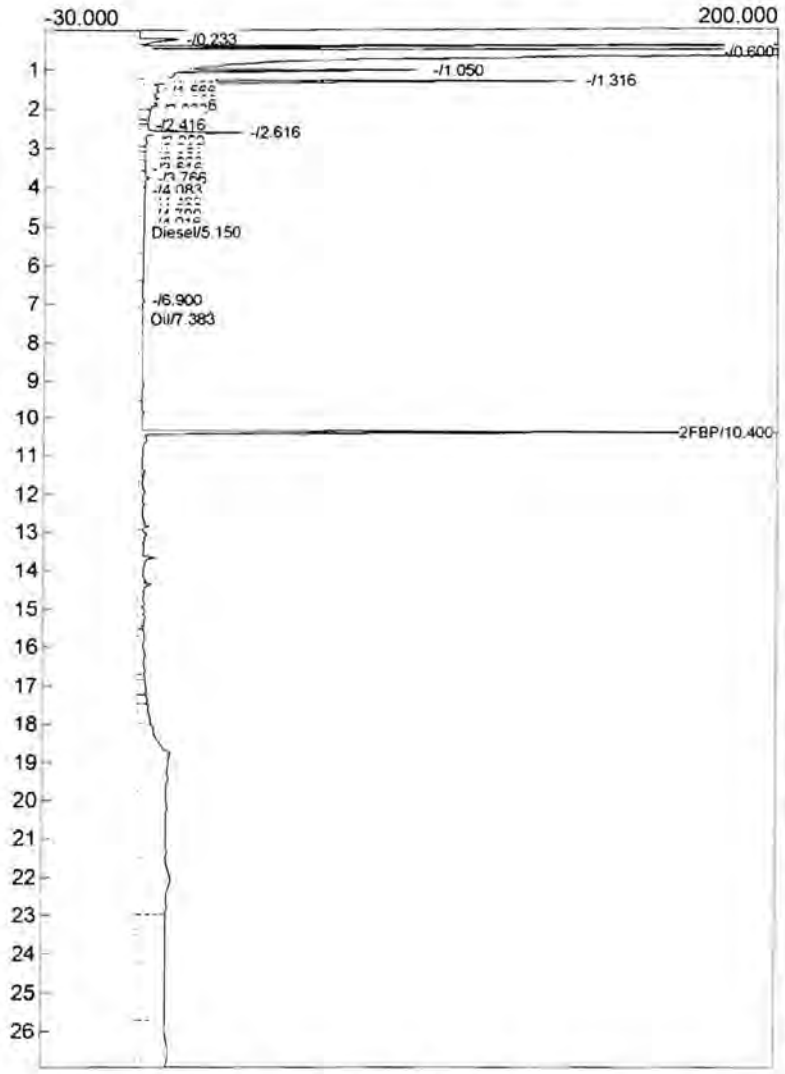
Time Event
0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.150	13.0600	0.289	0.6421	ppm
Oil	7.383	5319.6520	0.110	281.7054	ppm
2-FBP	10.400	594.1840	199.482	23.7674	ppm
		5926.8960		286.1149	

nd 119%

Component	Retention	Area	Height	External	Units
Diesel	8.483	313.3585	4.891	16.5480	ppm
Oil	10.233	11619.9970	1.486	618.0306	ppm
2-FBP	13.416	581.2460	226.630	20.2173	ppm
		12514.6015		654.7959	

nd 101%

Analysis date: 10/08/2012 14:48:02
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C265.CHR ()
 Sample: SURZ-NSW2-10812
 Operator: PB

Analysis date: 10/08/2012 14:48:02
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D263.CHR ()
 Sample: SURZ-B2-10812
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

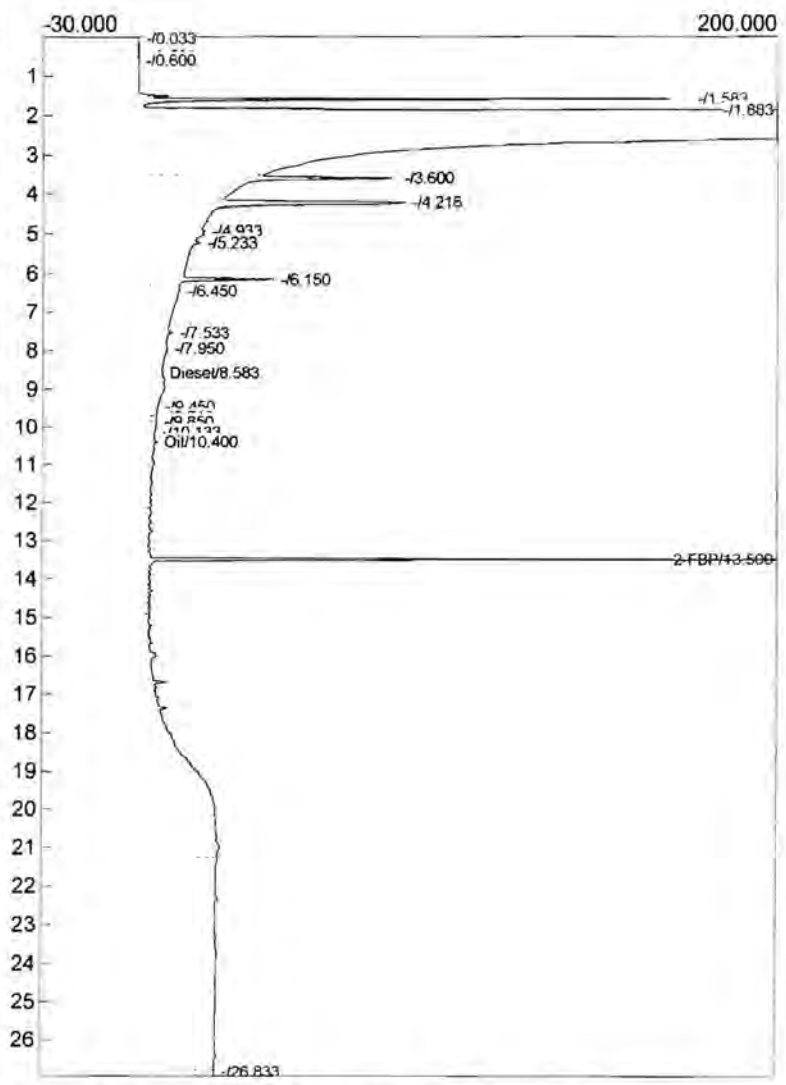
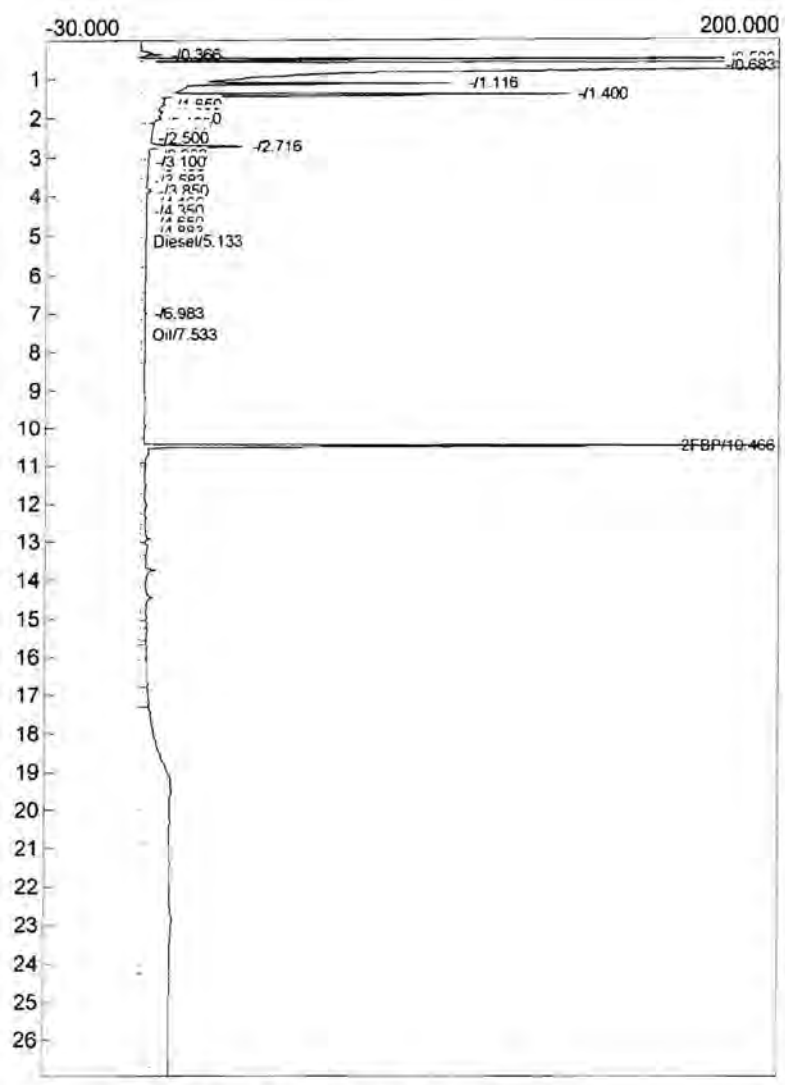
Time Event
 0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.133	21.5120	0.301	1.0576	ppm
Oil	7.533	5364.2080	0.129	283.9021	ppm
2-FBP	10.466	554.4110	211.121	22.1764	ppm
		5940.1310		287.1361	

nd 111%

Component	Retention	Area	Height	External	Units
Diesel	8.583	207.4180	3.662	10.9534	ppm
Oil	10.400	11411.9720	2.090	606.8191	ppm
2-FBP	13.500	600.6500	273.799	20.8922	ppm
		12220.0400		638.6647	

nd 104%

Analysis date: 10/08/2012 15:21:55
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C266.CHR ()
 Sample: No Sample
 Operator: PB

Analysis date: 10/08/2012 15:21:55
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D264.CHR ()
 Sample: SURZ-B2-10812 Dup
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

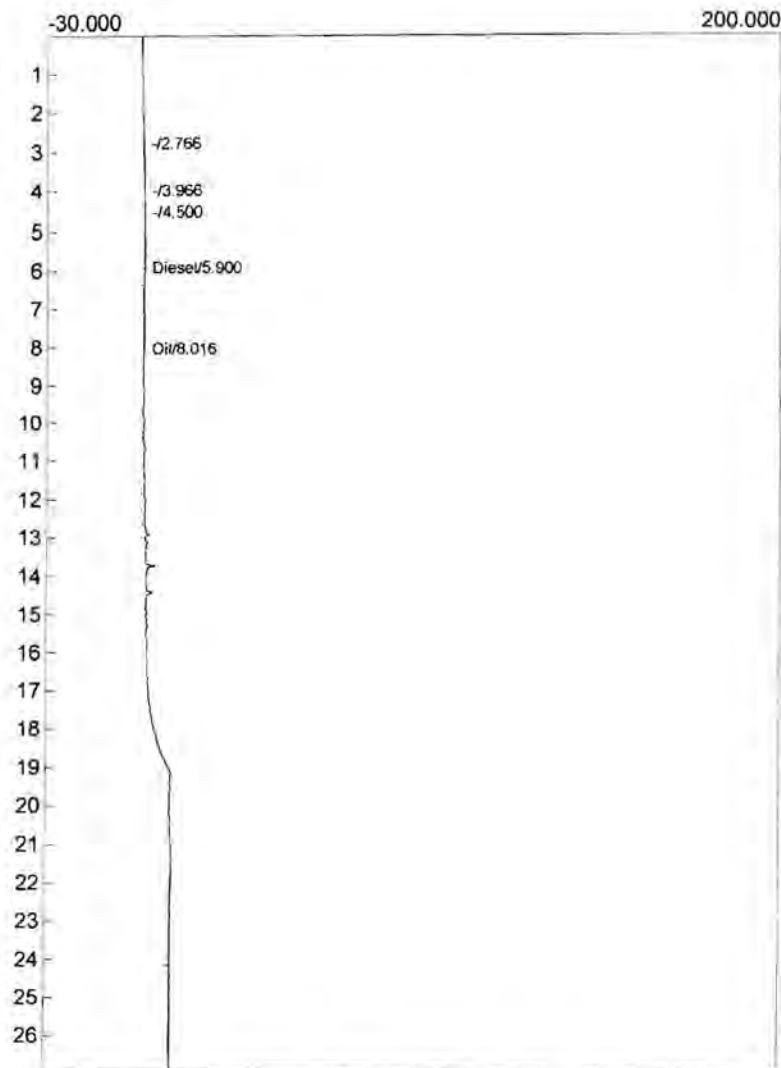
Time Event
 0.000 ZERO

Temperature program:

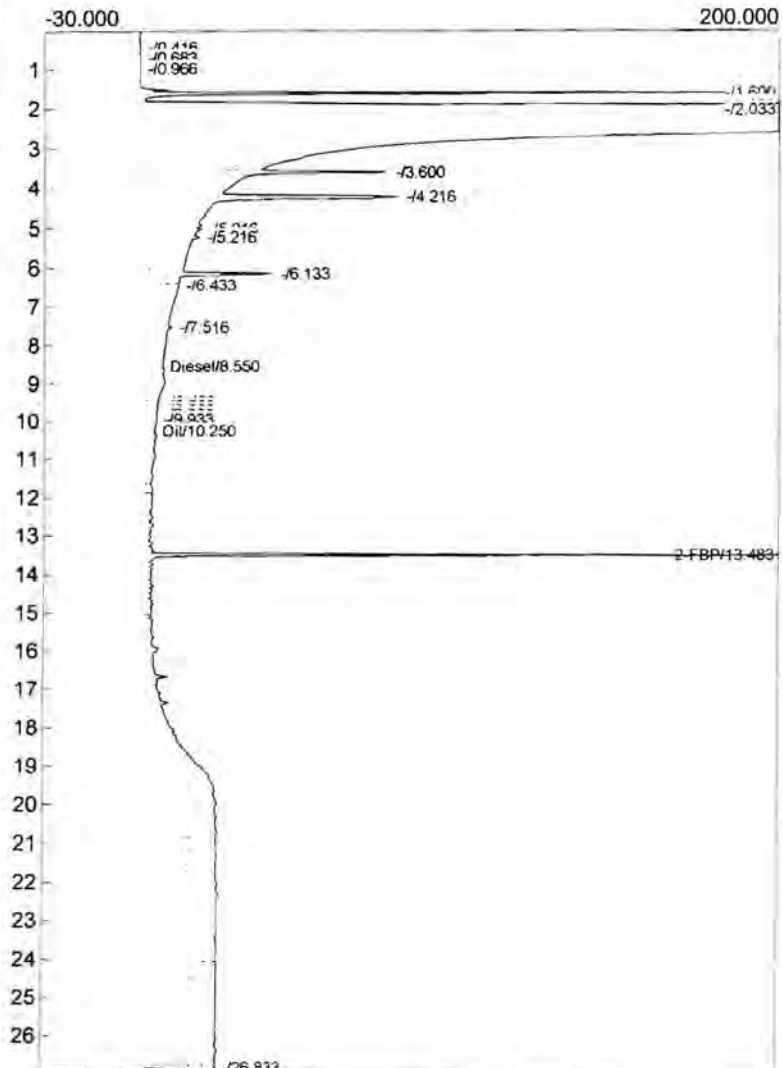
Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.900	1.4700	0.085	0.0723	ppm
Oil	8.016	1613.8755	0.272	79.3443	ppm
		1615.3455		79.4166	



Component	Retention	Area	Height	External	Units
Diesel	8.550	230.3315	4.293	12.1635	ppm
Oil	10.250	12058.6315	1.925	641.6709	ppm
2-FBP	13.483	553.2900	255.833	19.2449	ppm
		12842.2530		673.0792	

nd 96%

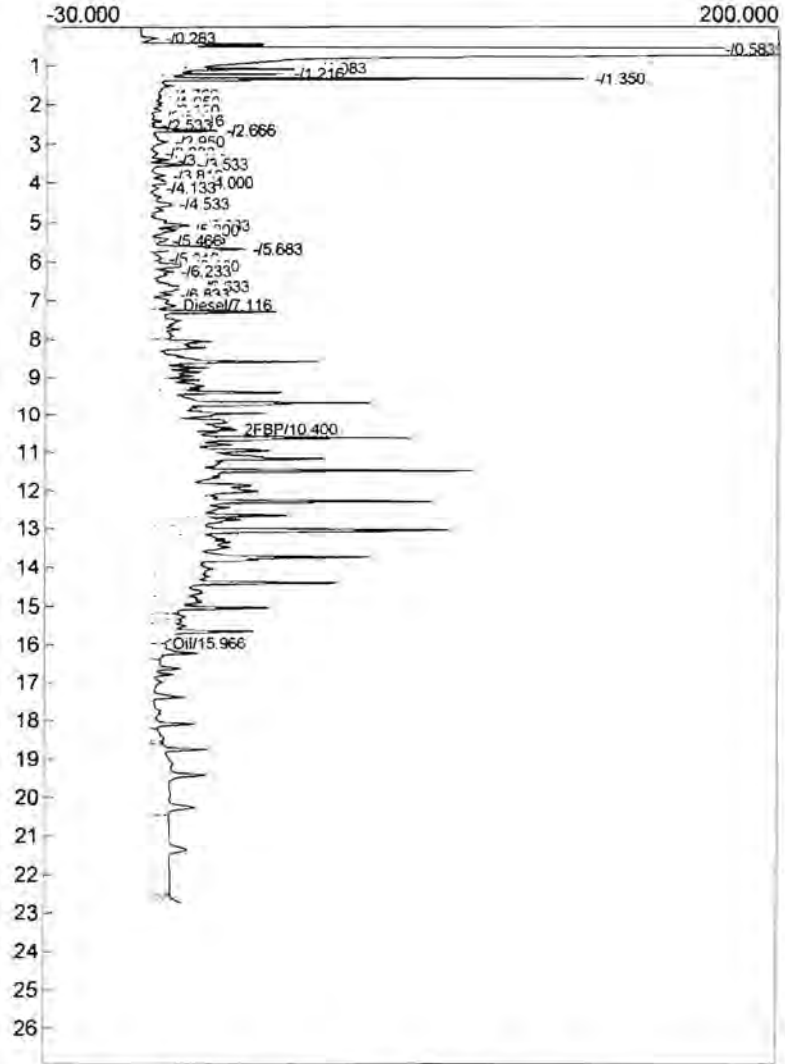
Analysis date: 10/08/2012 15:57:03
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C267.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
diesel	7.116	9797.8510	6.773	482.7120	ppm
FBP	10.400	228.7575	26.038	9.1503	ppm
il	15.966	1761.6575	3.383	86.6099	ppm
		11788.2660		578.4722	

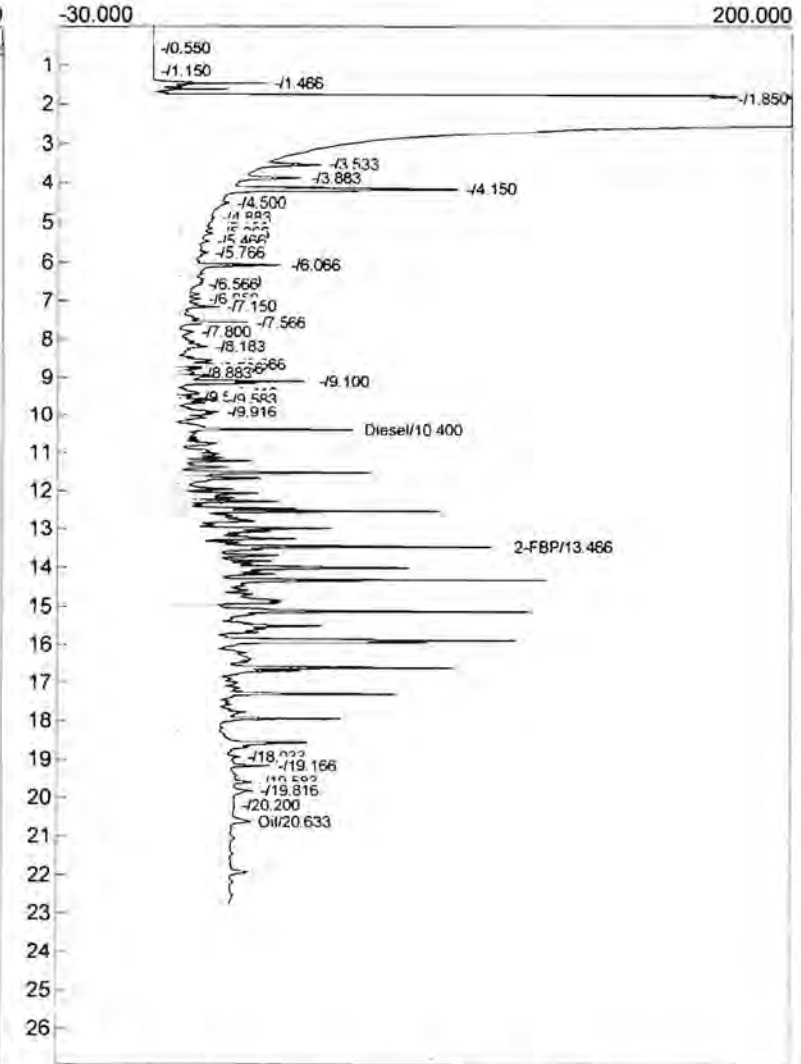
Analysis date: 10/08/2012 15:57:03
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D265.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

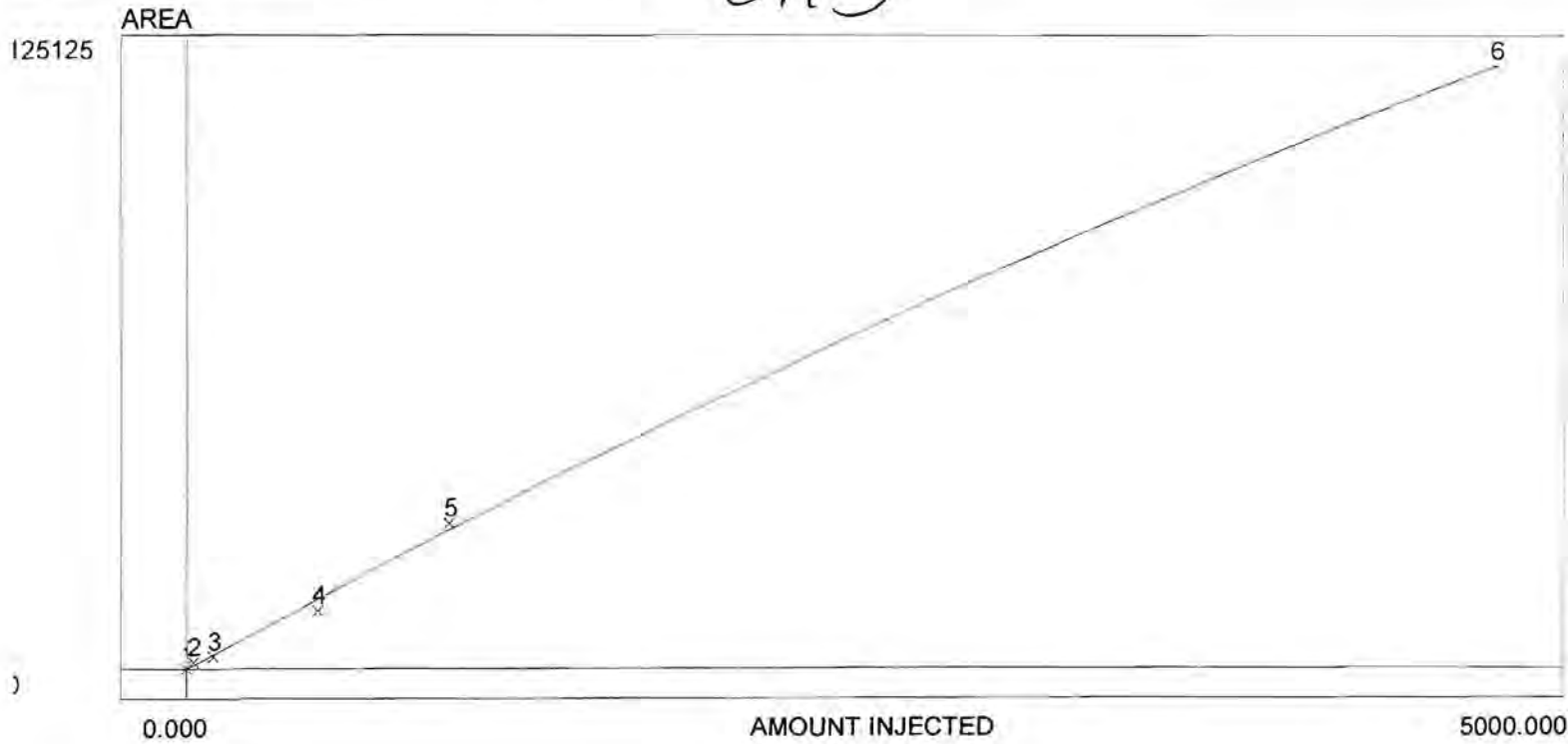
Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	10.400	10462.3555	56.506	555.9416	ppm
2-FBP	13.466	514.6560	103.481	17.9011	ppm
Oil	20.633	2330.4915	22.808	123.0698	ppm
		13307.5030		696.9124	

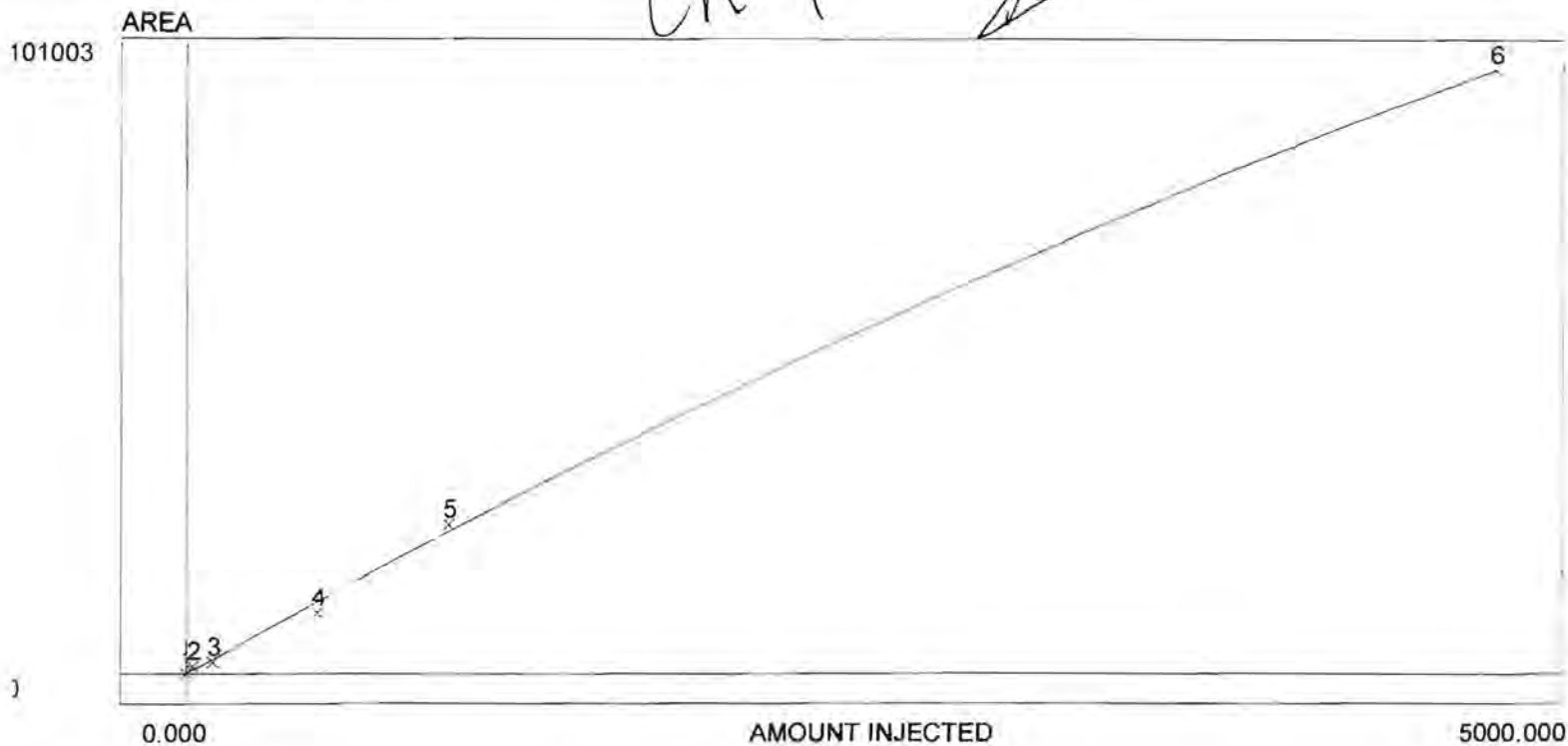
Ch 3



Avg slope of curve: 25.03
 Y-axis intercept: 0.00
 Linearity: 0.86
 Number of levels: 6
 SD/rel SD of CF's: 18.0/66.9
 $y = -0.0009x^2 + 29.3544x$
 $r^2: 0.9993$
 Last calibrated: Wed Mar 14 13:52:31 2012

Level	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	1410.471	25.000	56.419	1410.471	N/A	N/A
3	2574.179	100.000	25.742	2574.179	N/A	N/A
4	12043.265	500.000	24.087	12043.265	N/A	N/A
5	29871.863	1000.000	29.872	29871.863	N/A	N/A
6	125124.670	5000.000	25.025	125124.670	N/A	N/A

Ch 4 2

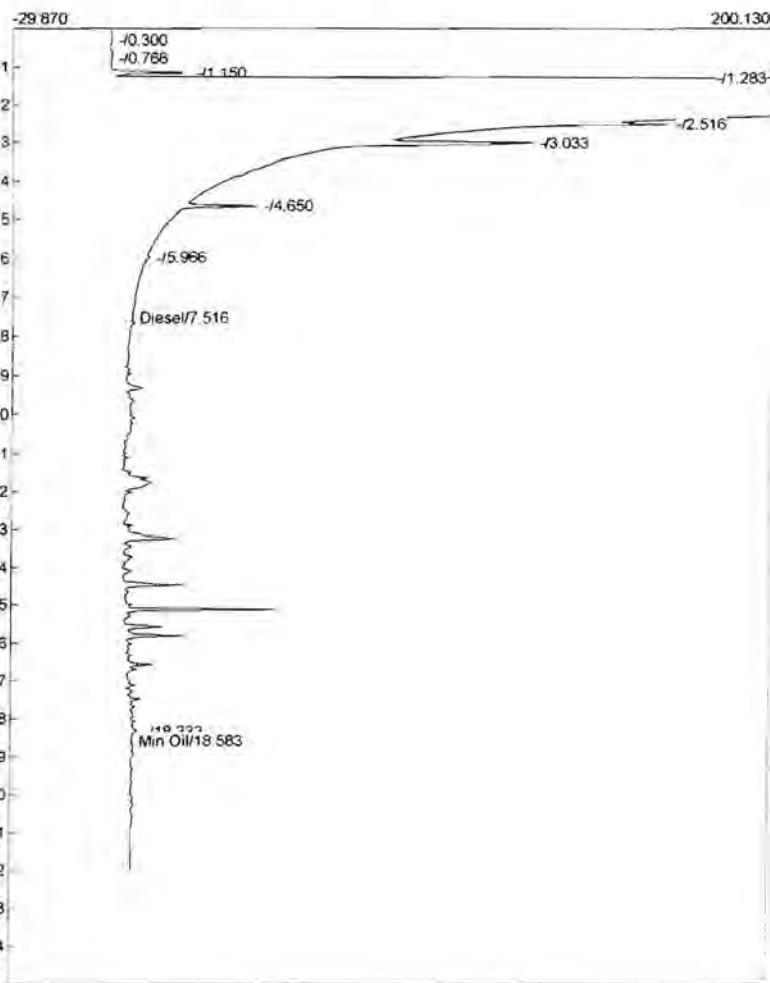
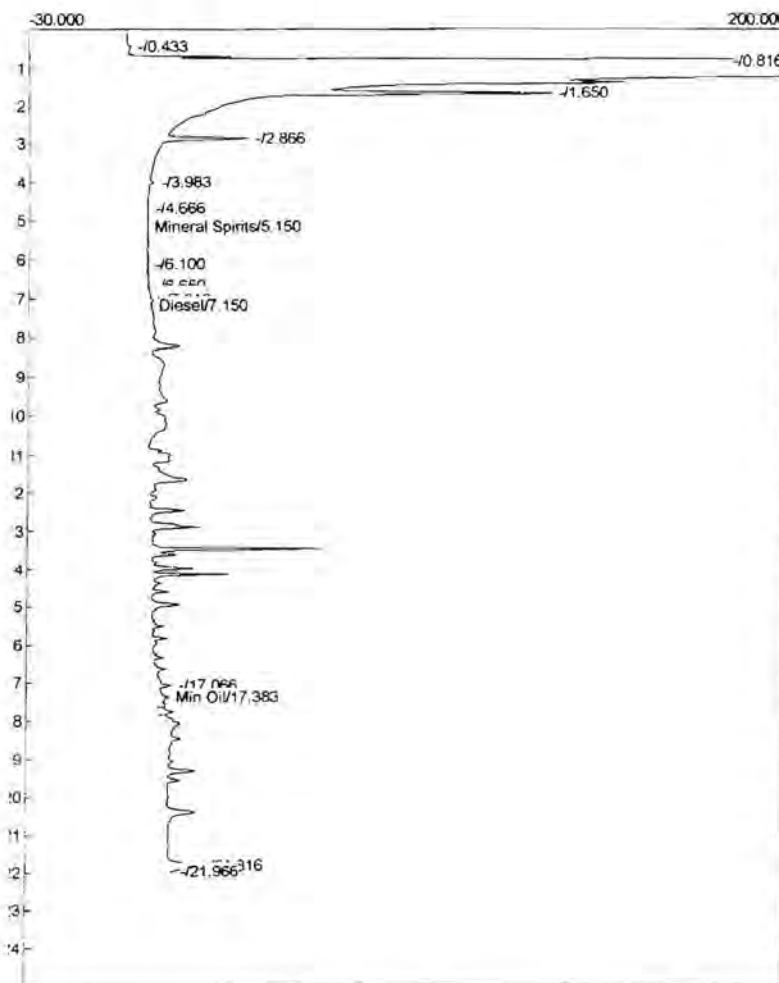


Avg slope of curve: 20.21
 Y-axis intercept: 0.00
 Linearity: 0.84
 Number of levels: 6
 SD/rel SD of CF's: 16.3/72.6
 $Y = -0.0008X^2 + 24.2883X$
 R^2: 0.9993
 Last calibrated: Wed Mar 14 13:57:45 2012

Level	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	1271.716	25.000	50.869	1271.716	N/A	N/A
3	1927.394	100.000	19.274	1927.394	N/A	N/A
4	10086.605	500.000	20.173	10086.605	N/A	N/A
5	24554.042	1000.000	24.554	24554.042	N/A	N/A
6	101002.720	5000.000	20.201	101002.720	N/A	N/A

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 10:39:04
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C620.CHR ()
 Sample: 25 PPM Dx 706
 Operator: KW

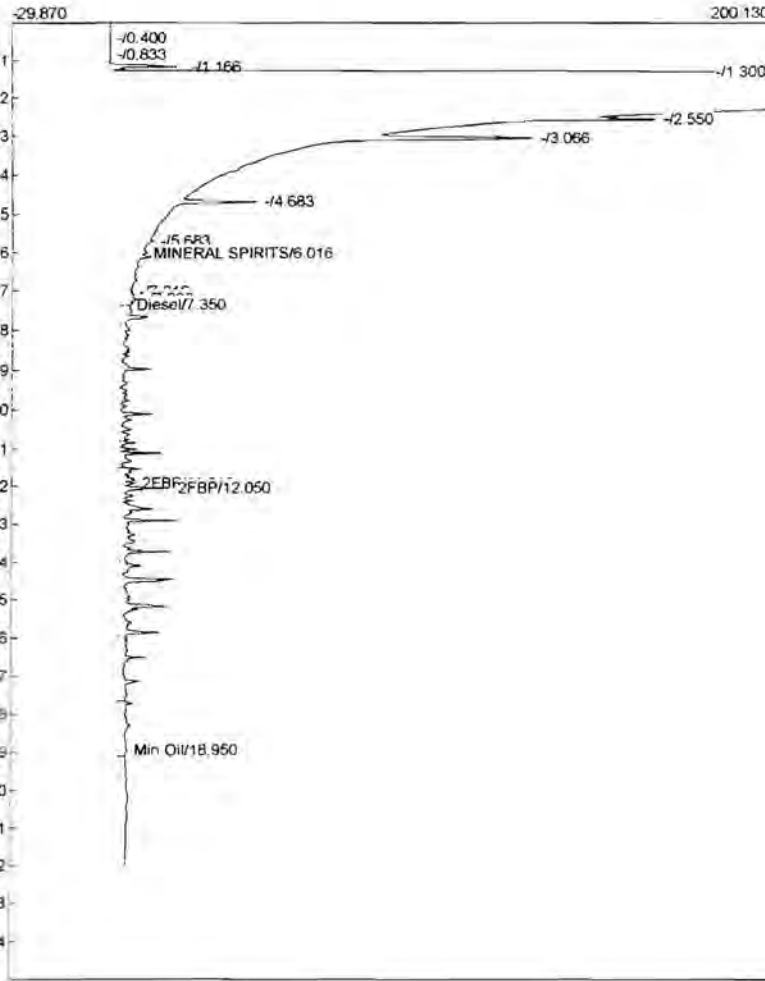
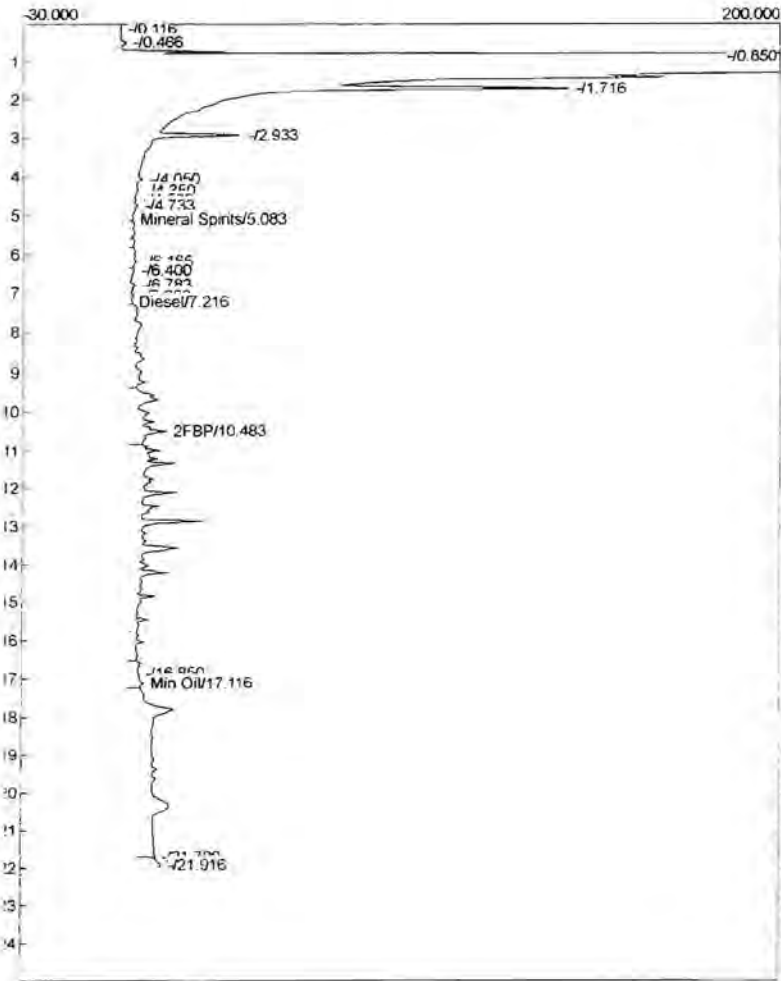
Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 10:39:04
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D626.CHR ()
 Sample: 25 PPM Dx 706
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.150	7.8080	0.195	0.3863	PPM	Diesel	7.516	1271.7155	1.965	89.4973	ppm
Diesel	7.150	1410.4710	0.518	13.6936	ppm	Min Oil	18.583	209.2665	1.582	14.7689	ppm
Min Oil	17.383	577.2305	3.576	0.0000							
		1995.5095		14.0798				1480.9820		104.2662	

Analysis date: 03/14/2012 11:07:43
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C621.CHR ()
 Sample: 100 PPM Dx 705
 Operator: KW

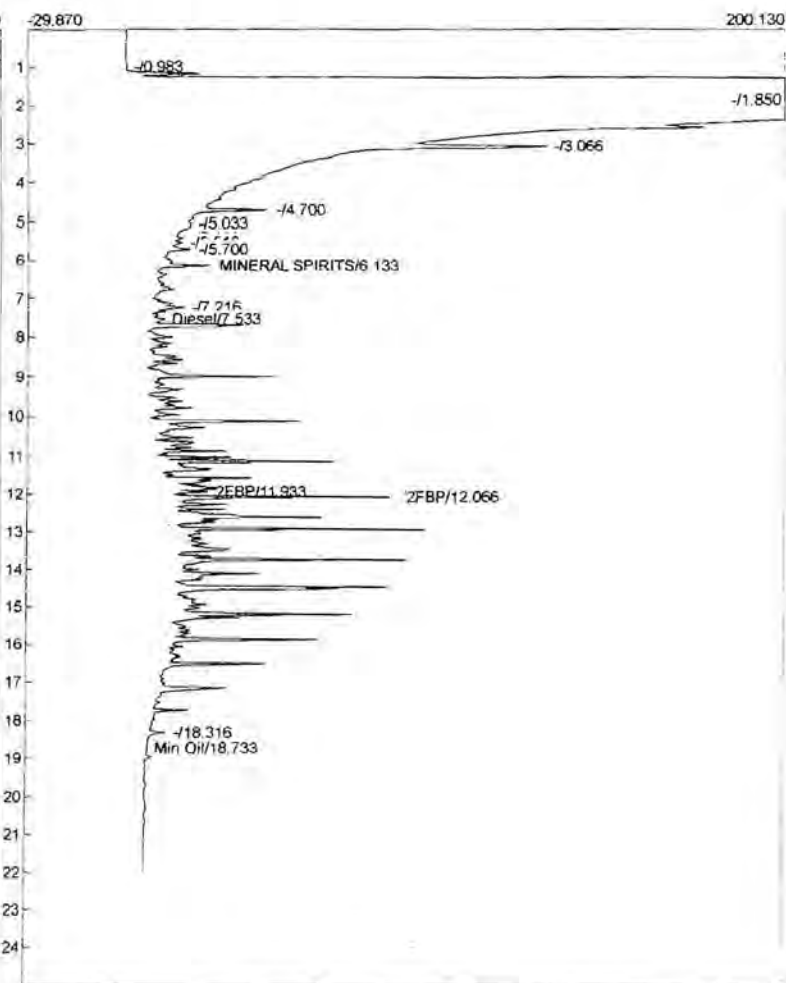
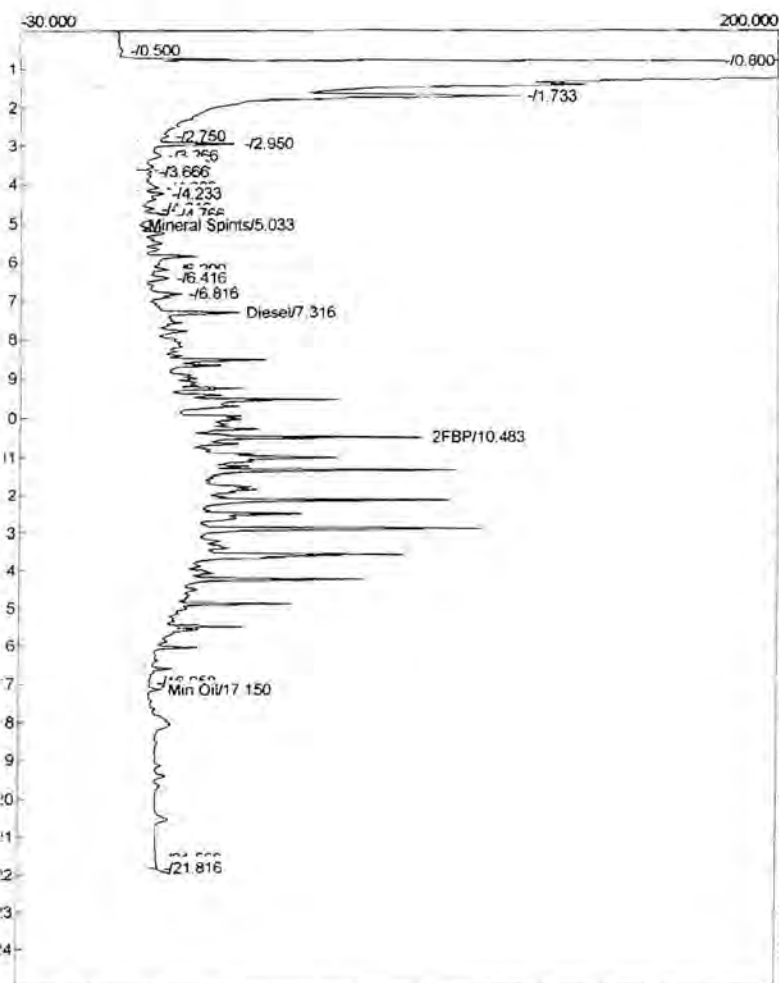
Analysis date: 03/14/2012 11:07:43
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D627.CHR ()
 Sample: 100 PPM Dx 705
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.083	84.6325	1.090	4.1869	PP	MINERAL SPIRITS	6.016	285.6170	7.733	20.1004	PP
Diesel	7.216	2410.4095	0.627	119.2471	ppm	Diesel	7.350	1849.7390	2.625	130.1759	ppm
2FBP	10.483	163.7695	10.998	6.5508	ppm	2FBP	11.916	20.8250	4.775	1.0413	ppm
Min Oil	17.116	1953.3665	4.269	0.0000		2FBP	12.050	56.8300	15.516	2.8415	ppm
						Min Oil	18.950	514.9365	2.757	36.3413	ppm
		4612.1780		129.9847				2727.9475		190.5003	

Lab name: Eddy Environmental, Inc.
 Analysis date: 03/14/2012 11:45:18
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C622.CHR ()
 Sample: 500 PPM Dx 704
 Operator: KW

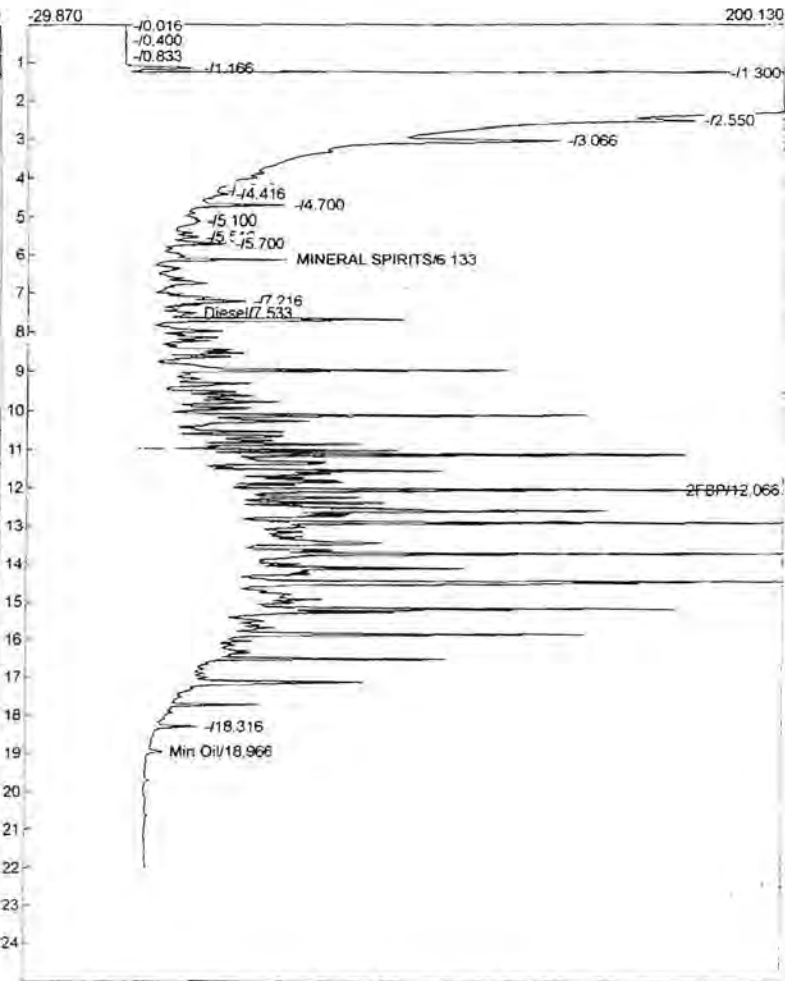
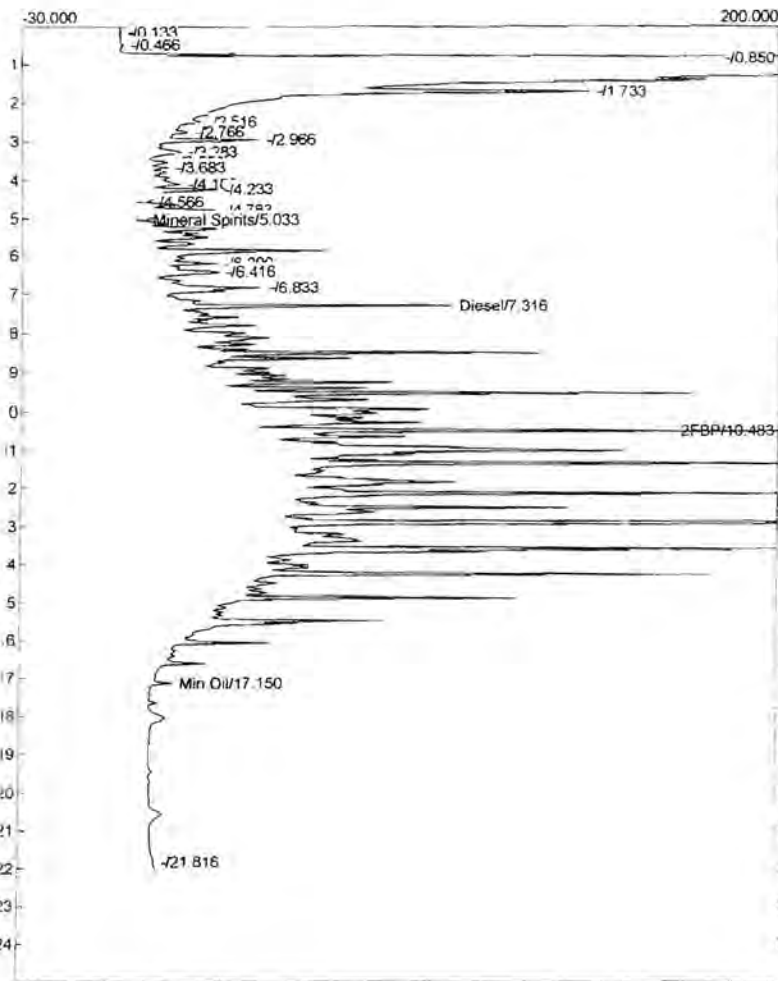
Analysis date: 03/14/2012 11:45:18
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D628.CHR ()
 Sample: 500 PPM Dx 704
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Un
Mineral Spirits	5.033	323.3415	0.632	15.9963	PP	MINERAL SPIRITS	6.133	636.8190	24.452	44.8163	PP
Diesel	7.316	11375.2115	30.144	562.7511	ppn	Diesel	7.533	9651.3385	9.725	679.2156	ppn
2FBP	10.483	668.0530	86.276	26.7221	ppn	2FBP	11.933	110.1285	21.943	5.5064	ppn
Min Oil	17.150	960.9820	5.210	0.0000		Min Oil	12.066	325.1375	79.999	16.2569	ppn
		13327.5880		605.4694			18.733	138.4670	1.874	9.7722	ppn
								10861.8905		755.5674	

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 12:13:07
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C623.CHR ()
 Sample: 1000 PPM Dx 703
 Operator: KW

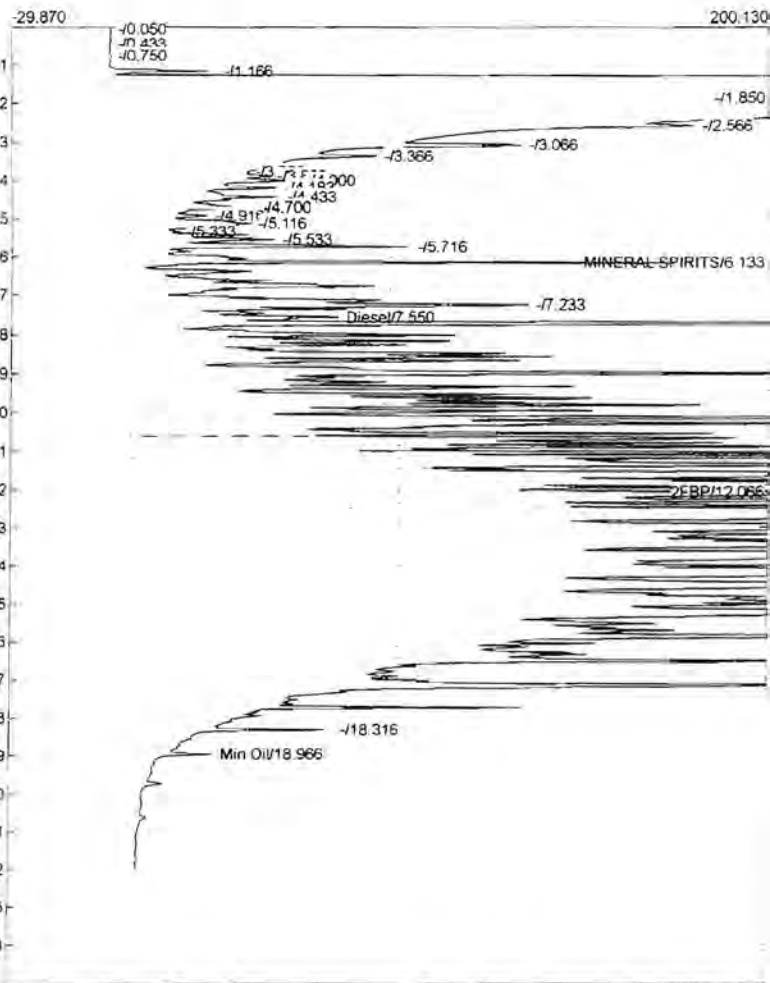
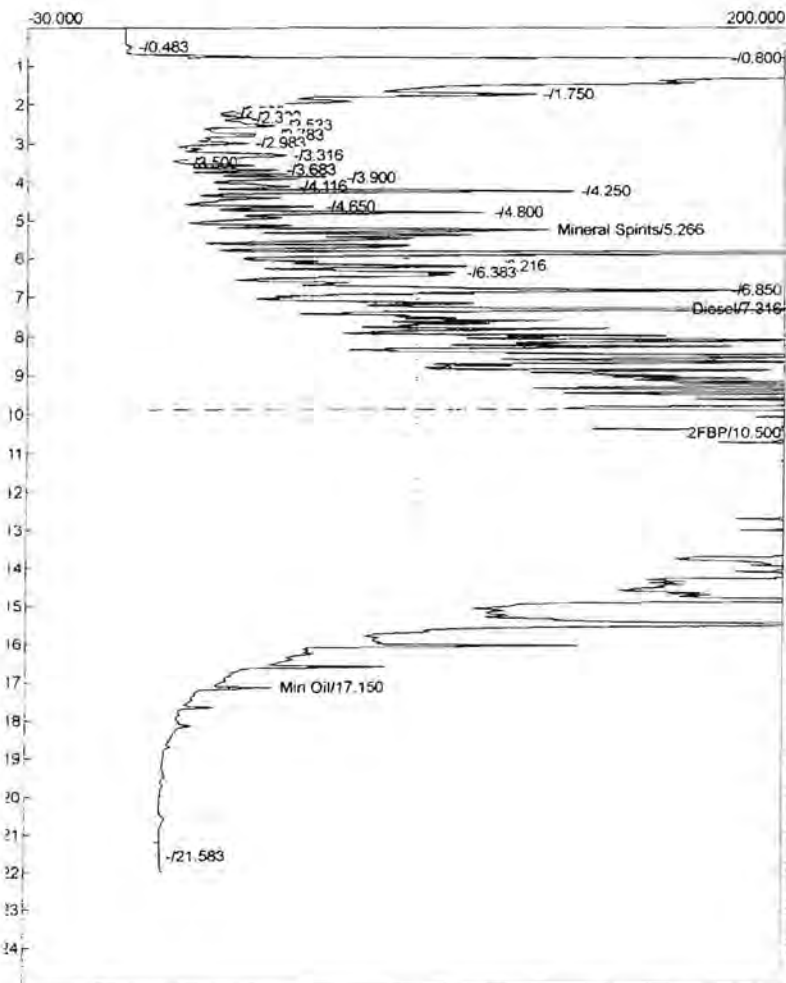
Analysis date: 03/14/2012 12:13:07
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D629.CHR ()
 Sample: 1000 PPM Dx 703
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.033	995.3365	2.641	49.2410	pp	MINERAL SPIRITS	6.133	723.8390	45.571	50.9404	pp
Diesel	7.316	28291.8845	95.034	1399.6476	pp	Diesel	7.533	23510.5725	17.032	1654.5630	pp
2FBP	10.483	1579.9780	244.836	63.1991	pp	2FBP	12.066	1043.4695	193.880	52.1735	pp
Min Oil	17.150	221.1300	7.549	0.0000	pp	Min Oil	18.966	300.3670	6.980	21.1982	pp
		31088.3290		1512.0877				25578.2480		1778.8751	

Lab name: Eddy Environmental, Inc.
 Analysis date: 03/14/2012 12:41:16
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C624.CHR ()
 Sample: 5000 PPM Dx 702
 Operator: KW

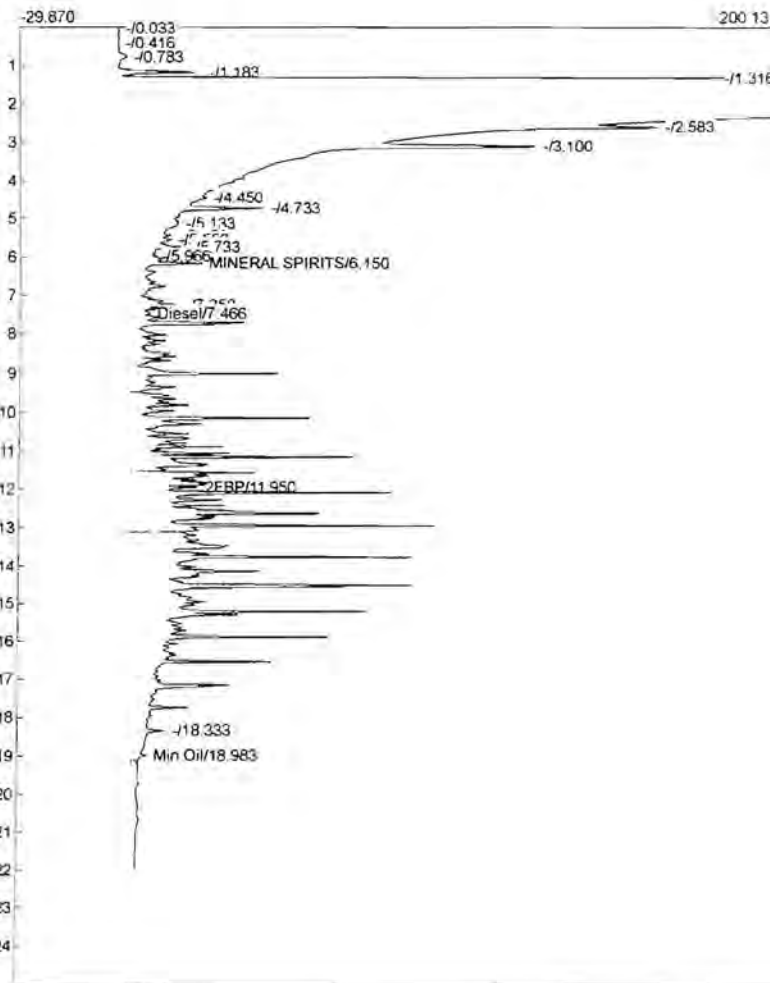
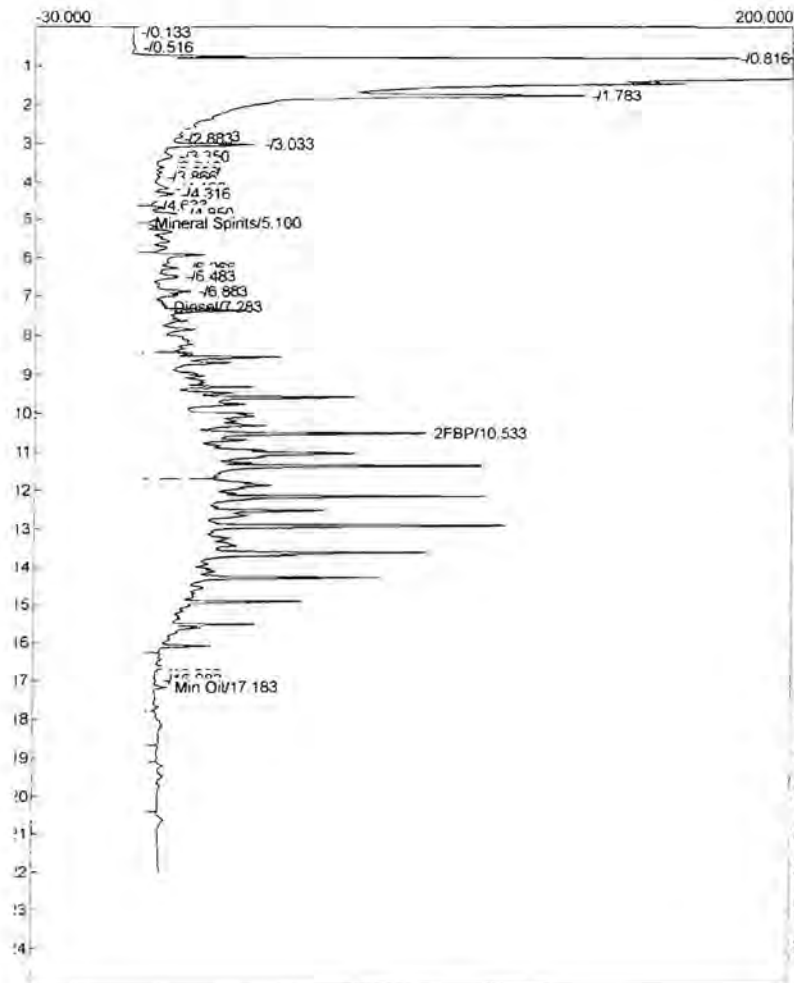
Analysis date: 03/14/2012 12:41:16
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D630.CHR ()
 Sample: 5000 PPM Dx 702
 Operator: KW



Component	Retention	Area	Height	External	UnComponent	Retention	Area	Height	External	Component
Mineral Spirits	5.266	4030.7350	121.832	199.4073	MINERAL SPIRITS	6.133	2118.1620	172.994	149.0662	PF
Diesel	7.316	118321.9850	479.109	5853.5897	Diesel	7.550	97612.4720	63.265	6869.5047	pp
2FBP	10.500	6802.6800	1015.018	272.1072	2FBP	12.066	3390.2460	772.659	169.5123	pp
Min Oil	17.150	1309.9915	36.600	0.0000	Min Oil	18.966	734.9465	24.851	51.8684	pp
		130465.3915		6325.1043			103855.8265		7239.9516	

Analysis date: 03/14/2012 13:09:09
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C625.CHR ()
 Sample: 500 PPM Dx ICAL 707
 Operator: KW

Analysis date: 03/14/2012 13:09:09
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D631.CHR ()
 Sample: 500 PPM Dx ICAL 707
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.100	454.2775	2.261	22.4739	PPMINERAL SPIRITS	6.150	431.9470	21.664	30.3984	PP	
Diesel	7.283	12055.9145	7.302	415.8831	ppnDiesel	7.466	9633.4975	5.799	402.0800	ppn	
2FBP	10.533	706.7050	85.875	28.2682	ppn2FBP	11.950	98.4805	20.159	4.9240	ppn	
Min Oil	17.183	642.7165	6.075	0.0000	Min Oil	18.983	249.4535	4.581	17.6050	ppn	
		13859.6135		466.6252			10413.3785		455.0074		



1311 N. 35th St.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Libby Environmental

Jamie Deyman
4139 Libby Rd. NE
Olympia, Washington 98506

RE: Irondale
Lab ID: 1210089

October 11, 2012

Attention Jamie Deyman:

Fremont Analytical, Inc. received 5 sample(s) on 10/10/2012 for the analyses presented in the following report.

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

A handwritten signature in black ink, appearing to read "M. Dee".

Michael Dee
Sr. Chemist / Principal



Date: 10/11/2012

CLIENT: Libby Environmental
Project: Irondale
Lab Order: 1210089

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1210089-001	SURZ-WB1-10812	10/08/2012 9:20 AM	10/10/2012 2:35 PM
1210089-002	K18-B1-10812	10/08/2012 9:55 AM	10/10/2012 2:35 PM
1210089-003	SURZ-B1-10812	10/08/2012 11:35 AM	10/10/2012 2:35 PM
1210089-004	K08-B1-10912	10/09/2012 8:55 AM	10/10/2012 2:35 PM
1210089-005	K08-B2-10912	10/09/2012 9:44 AM	10/10/2012 2:35 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: Libby Environmental

Project: Irondale

I. SAMPLE RECEIPT:

All samples were received intact. The internal ice chest temperatures were measured on receipt and are recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.



Analytical Report

WO#: 1210089

Date Reported: 10/11/2012

Client: Libby Environmental

Collection Date: 10/8/2012 11:35:00 AM

Project: Irondale

Lab ID: 1210089-003

Matrix: Soil

Client Sample ID: SURZ-B1-10812

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 3406

Analyst: PH

Benz(a)anthracene	ND	51.0		µg/Kg-dry	1	10/11/2012 2:57:00 PM
Chrysene	ND	51.0		µg/Kg-dry	1	10/11/2012 2:57:00 PM
Benzo(b)fluoranthene	ND	51.0		µg/Kg-dry	1	10/11/2012 2:57:00 PM
Benzo(k)fluoranthene	ND	51.0		µg/Kg-dry	1	10/11/2012 2:57:00 PM
Benzo(a)pyrene	ND	51.0		µg/Kg-dry	1	10/11/2012 2:57:00 PM
Indeno(1,2,3-cd)pyrene	ND	51.0		µg/Kg-dry	1	10/11/2012 2:57:00 PM
Dibenz(a,h)anthracene	ND	51.0		µg/Kg-dry	1	10/11/2012 2:57:00 PM
Surr: 2-Fluorobiphenyl	98.6	50.4-142		%REC	1	10/11/2012 2:57:00 PM
Surr: Terphenyl-d14 (surr)	110	48.8-157		%REC	1	10/11/2012 2:57:00 PM

Sample Moisture (Percent Moisture)

Batch ID: R6105

Analyst: MCR

Percent Moisture	25.5			wt%	1	10/11/2012 6:10:00 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210089

Date Reported: 10/11/2012

Client: Libby Environmental

Collection Date: 10/9/2012 8:55:00 AM

Project: Irondale

Lab ID: 1210089-004

Matrix: Soil

Client Sample ID: K08-B1-10912

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 3406

Analyst: PH

Benz(a)anthracene	ND	47.9		µg/Kg-dry	1	10/11/2012 3:22:00 PM
Chrysene	ND	47.9		µg/Kg-dry	1	10/11/2012 3:22:00 PM
Benzo(b)fluoranthene	ND	47.9		µg/Kg-dry	1	10/11/2012 3:22:00 PM
Benzo(k)fluoranthene	ND	47.9		µg/Kg-dry	1	10/11/2012 3:22:00 PM
Benzo(a)pyrene	ND	47.9		µg/Kg-dry	1	10/11/2012 3:22:00 PM
Indeno(1,2,3-cd)pyrene	ND	47.9		µg/Kg-dry	1	10/11/2012 3:22:00 PM
Dibenz(a,h)anthracene	ND	47.9		µg/Kg-dry	1	10/11/2012 3:22:00 PM
Surr: 2-Fluorobiphenyl	98.8	50.4-142		%REC	1	10/11/2012 3:22:00 PM
Surr: Terphenyl-d14 (surr)	108	48.8-157		%REC	1	10/11/2012 3:22:00 PM

Sample Moisture (Percent Moisture)

Batch ID: R6105

Analyst: MCR

Percent Moisture	8.42			wt%	1	10/11/2012 6:10:00 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits

Work Order: 1210089
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: CCV-3406	SampType: CCV	Units: µg/Kg	Prep Date: 10/11/2012	RunNo: 6085							
Client ID: CCV	Batch ID: 3406		Analysis Date: 10/11/2012	SeqNo: 120865							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,110	50.0	1,000	0	111	80	120				
Chrysene	974	50.0	1,000	0	97.4	80	120				
Benzo(b)fluoranthene	871	50.0	1,000	0	87.1	80	120				
Benzo(k)fluoranthene	1,050	50.0	1,000	0	105	80	120				
Benzo(a)pyrene	996	50.0	1,000	0	99.6	80	120				
Indeno(1,2,3-cd)pyrene	1,040	50.0	1,000	0	104	80	120				
Dibenz(a,h)anthracene	947	50.0	1,000	0	94.7	80	120				
Surr: 2-Fluorobiphenyl	485		500.0		97.1	50.4	142				
Surr: Terphenyl-d14 (surr)	522		500.0		104	48.8	157				

Sample ID: CCB-3406	SampType: CCB	Units: µg/Kg	Prep Date: 10/11/2012	RunNo: 6085							
Client ID: CCB	Batch ID: 3406		Analysis Date: 10/11/2012	SeqNo: 120866							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Surr: 2-Fluorobiphenyl	494		500.0		98.9	50.4	142				
Surr: Terphenyl-d14 (surr)	510		500.0		102	48.8	157				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1210089
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: MB-3406	SampType: MBLK	Units: µg/Kg	Prep Date: 10/10/2012	RunNo: 6085							
Client ID: MBLKS	Batch ID: 3406		Analysis Date: 10/11/2012	SeqNo: 120867							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Surr: 2-Fluorobiphenyl	470		500.0		93.9	50.4	142				
Surr: Terphenyl-d14 (surr)	485		500.0		97.0	48.8	157				

Sample ID: LCS-3406	SampType: LCS	Units: µg/Kg	Prep Date: 10/10/2012	RunNo: 6085							
Client ID: LCSS	Batch ID: 3406		Analysis Date: 10/11/2012	SeqNo: 120868							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benz(a)anthracene	920	50.0	1,000	0	92.0	57.9	150				
Chrysene	879	50.0	1,000	0	87.9	76.1	123				
Benzo(b)fluoranthene	728	50.0	1,000	0	72.8	61.2	142				
Benzo(k)fluoranthene	916	50.0	1,000	0	91.6	68.1	134				
Benzo(a)pyrene	823	50.0	1,000	0	82.3	58.1	146				
Indeno(1,2,3-cd)pyrene	842	50.0	1,000	0	84.2	63.8	138				
Dibenz(a,h)anthracene	753	50.0	1,000	0	75.3	60.8	143				
Surr: 2-Fluorobiphenyl	491		500.0		98.2	50.4	142				
Surr: Terphenyl-d14 (surr)	510		500.0		102	48.8	157				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1210089
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: 1210089-004ADUP	SampType: DUP	Units: µg/Kg-dry	Prep Date: 10/10/2012	RunNo: 6085							
Client ID: K08-B1-10912	Batch ID: 3406		Analysis Date: 10/11/2012	SeqNo: 120982							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	45.1						0	0	30	
Chrysene	ND	45.1						0	0	30	
Benzo(b)fluoranthene	ND	45.1						0	0	30	
Benzo(k)fluoranthene	ND	45.1						0	0	30	
Benzo(a)pyrene	ND	45.1						0	0	30	
Indeno(1,2,3-cd)pyrene	ND	45.1						0	0	30	
Dibenz(a,h)anthracene	ND	45.1						0	0	30	
Surr: 2-Fluorobiphenyl	424		450.8		93.9	50.4	142		0		
Surr: Terphenyl-d14 (surr)	462		450.8		102	48.8	157		0		

Sample ID: 1210089-004AMS	SampType: MS	Units: µg/Kg-dry	Prep Date: 10/10/2012	RunNo: 6085							
Client ID: K08-B1-10912	Batch ID: 3406		Analysis Date: 10/11/2012	SeqNo: 121015							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	767	43.5	869.4	0	88.2	57.5	169				
Chrysene	715	43.5	869.4	0	82.3	45.2	146				
Benzo(b)fluoranthene	586	43.5	869.4	0	67.3	42.2	168				
Benzo(k)fluoranthene	787	43.5	869.4	0	90.6	48	161				
Benzo(a)pyrene	682	43.5	869.4	6.077	77.7	34.4	179				
Indeno(1,2,3-cd)pyrene	691	43.5	869.4	0	79.5	41.1	165				
Dibenz(a,h)anthracene	625	43.5	869.4	0	71.9	38.1	166				
Surr: 2-Fluorobiphenyl	428		434.7		98.4	50.4	142				
Surr: Terphenyl-d14 (surr)	464		434.7		107	48.8	157				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1210089
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: ICB-3406	SampType: ICB	Units: µg/Kg	Prep Date: 10/10/2012	RunNo: 6085							
Client ID: ICB	Batch ID: 3406		Analysis Date: 10/10/2012	SeqNo: 121189							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Surr: 2-Fluorobiphenyl	496		500.0		99.2	50.4	142				
Surr: Terphenyl-d14 (surr)	484		500.0		96.9	48.8	157				

Sample ID: ICV-3406	SampType: ICV	Units: µg/Kg	Prep Date: 10/10/2012	RunNo: 6085							
Client ID: ICV	Batch ID: 3406		Analysis Date: 10/10/2012	SeqNo: 121190							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benz(a)anthracene	1,180	50.0	1,000	0	118	70	130				
Chrysene	1,100	50.0	1,000	0	110	70	130				
Benzo(b)fluoranthene	998	50.0	1,000	0	99.8	70	130				
Benzo(k)fluoranthene	1,170	50.0	1,000	0	117	70	130				
Benzo(a)pyrene	1,130	50.0	1,000	0	113	70	130				
Indeno(1,2,3-cd)pyrene	1,180	50.0	1,000	0	118	70	130				
Dibenz(a,h)anthracene	1,080	50.0	1,000	0	108	70	130				
Surr: 2-Fluorobiphenyl	505		500.0		101	50.4	142				
Surr: Terphenyl-d14 (surr)	507		500.0		101	48.8	157				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Client Name: **LIBBY**
 Logged by: **Clare Griggs**

 Work Order Number: **1210089**
 Date Received: **10/10/2012 2:35:00 PM**

Chain of Custody

1. Were custodial seals present? Yes No Not Required
2. Is Chain of Custody complete? Yes No Not Present
3. How was the sample delivered? Client

Log In

4. Coolers are present? Yes No NA
5. Was an attempt made to cool the samples? Yes No NA
6. Were all coolers received at a temperature of >0° C to 10.0°C Yes No NA
7. Sample(s) in proper container(s)? Yes No
8. Sufficient sample volume for indicated test(s)? Yes No
9. Are samples properly preserved? Yes No
10. Was preservative added to bottles? Yes No NA
11. Is there headspace present in VOA vials? Yes No NA
12. Did all sample containers arrive in good condition?(unbroken) Yes No
13. Does paperwork match bottle labels? Yes No
14. Are matrices correctly identified on Chain of Custody? Yes No
15. Is it clear what analyses were requested? Yes No
16. Were all holding times able to be met? Yes No

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks/Discrepancies

Item Information

Item #	Temp °C	Condition
Cooler	3.4	Good

Libby Environmental, Inc.
 4139 Libby Road NE
 Olympia, WA 98506
 Phone: 360-352-2110
 Fax: 360-352-4154

Client: *See above*
 Address: _____
 Project Manager: *Tamie Deyman*
 Project Name: *Irondale*
 Location: *WA* City: *Irondale*
 Collector: *Paul Burke* Date of Collection: *10/8-9/12*

Sample Number	Depth	Time	Sample Type	Container Type	Field Notes
1 <i>SURZ-WB1-10812</i>		<i>9:20</i>	<i>Soil</i>	<i>4oz Jar</i>	<i>Extract & Hold</i>
2 <i>K18-B1-10812</i>		<i>9:55</i>	<i>Soil</i>	<i>''</i>	<i>''</i>
3 <i>SURZ-B1-10812</i>		<i>11:35</i>	<i>Soil</i>	<i>''</i>	<i>''</i>
4 <i>K18-B1-10912</i>		<i>8:55</i>	<i>Soil</i>	<i>''</i>	<i>''</i>
5 <i>K18-B2-10912</i>		<i>9:44</i>	<i>Soil</i>	<i>''</i>	<i>''</i>
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					

Relinquished by: *Paul Burke* Date/Time: *10-10-12*
 Relinquished by: *[Signature]* Date/Time: *10-10-12 1435*
 Relinquished by: _____ Date/Time: _____
 Sample Receipt: _____
 Good Condition? _____
 Cold? _____
 Seals Intact? _____
 Total Number of Containers: _____
 Remarks: *Emily will email you which samples to run.*

Here are the samples that we would like analyzed for cPAHs:

- 1. SURZ-F14B2-100212 (COC# 1015); TPH = 151 mg/kg (Kiln 14) 1210029-002
- 2. F15B2-10212 (COC# 1015); TPH = 40 U mg/kg (Kiln 15) 1210029-007
- 3. SURZ-B1-10812 (COC# 1018); TPH = 40.11 mg/kg (Between Kilns 8, 15, 17, and 18) 1210089-003
- 4. K08-B1-10912 (COC# 1019?); TPH = 70 mg/kg (Kiln 8) 1210087-004

Please run these samples on a 24 hour TAT.

PQLs specified in the QAPP for cPAHs are 0.05 mg/kg by EPA 8270D-SIM

Thank you,

Emily Ackerman
Office Manager
Libby Environmental, Inc.
360-352-2110 Office
360-352-4154 Fax
www.LibbyEnvironmental.com

Libby Environmental, Inc.

4139 Libby Road NE
Olympia, WA 98506
Ph: 360-352-2110
Fax: 360-352-4154

Client: *See above*

Chain of Custody Record

121008901

Date: 10-10-12 Page: 1 of 1

Project Manager: *Jamie Deyman*

Project Name: *Trondale*

Location: *WA* City: *Trondale*

Collector: *Paul Burke* Date of Collection: *10/8-9/12*

Client Project #



Sample Number	Depth	Time	Sample Type	Container Type	Field Notes
1 <i>5UR2-B1-10812</i>		9:20	Soil	4oz Jar	<i>Extract & Hold</i>
2 <i>K18-B1-10812</i>		9:55	Soil	"	"
3 <i>5UR2-B1-10812</i>		11:35	Soil	"	"
4 <i>K18-B1-10912</i>		8:55	Soil	"	"
5 <i>K18-B2-10912</i>		9:44	Soil	"	"
6					"
7					"
8					"
9					"
10					"
11					"
12					"
13					"
14					"
15					"
16					"
17					"
18					"

File released by: *Paul Burke* Date / Time: *10-10-12*

Received by: *[Signature]* Date / Time: *10-10-12 1435*

Sample Receipt

Good Condition?

Code?

Seals Intact?

Total Number of Containers

Remarks: *Emily will email you which samples to Run.*

LIBBY ENVIRONMENTAL, INC. 4139 LIBBY ROAD NE, OLYMPIA, WA 98506

calrpt.txt
Response Factor Report HP-MSD

Method Path : C:\msdchem\1\methods\
Method File : D:\PAH101012PHENOL.M
Title : EPA Method 8270-PAH
Last Update : Thu Oct 11 09:37:24 2012
Response Via : Initial Calibration

Calibration Files

1 =101009.D 2 =101010.D 3 =101011.D 4 =101012.D 5 =101013.D 6 =101014.D 7 =101015.D
8 =101016.D

Compound	1	2	3	4	5	6	7	8	Avg	%RSD
1) 1,4-dichlorobenz-d...										
2) s Phenol-d6	1.474	1.469	1.478	1.491	1.516	1.516	1.589	1.621	1.519	3.73
3) t 2,4-dimethylph...	0.806	0.628	0.880	0.927	1.023	1.177	1.152	1.184	0.972	20.53
4) I Naphthalene-d8 (IS)										
5) t Naphthalene	1.430	1.130	1.366	1.326	1.259	1.301	1.208	1.130	1.269	8.53
6) t 2-Methylnaphth...	0.797	0.629	0.776	0.769	0.750	0.799	0.735	0.691	0.743	7.81
7) t 1-Methylnaphth...	0.760	0.603	0.742	0.729	0.708	0.747	0.686	0.652	0.703	7.67
8) s 2-Fluorobiphen...	0.877	0.877	0.883	0.888	0.898	0.853	0.895	0.899	0.884	1.72
9) t Acenaphthylene	1.038	0.802	1.023	1.044	1.059	1.149	1.052	0.985	1.013	9.73
10) I Acenaphthene-d10 (IS)										
11) m Acenaphthene	0.786	0.603	0.725	0.702	0.668	0.678	0.630	0.588	0.673	9.77
12) t Fluorene	1.727	1.325	1.630	1.618	1.571	1.615	1.482	1.364	1.542	9.04
13) I Phenanthrene-d10 (IS)										
14) t Phenanthrene	1.620	1.212	1.455	1.433	1.368	1.352	1.287	1.192	1.365	10.27
15) t Anthracene	1.260	0.952	1.216	1.239	1.255	1.326	1.277	1.220	1.219	9.00
16) s Terphenyl-d14 ...	0.733	0.728	0.723	0.728	0.737	0.732	0.756	0.761	0.737	1.88
17) t Fluoranthene	1.204	0.923	1.185	1.223	1.273	1.435	1.323	1.263	1.229	11.93
18) t Pyrene	1.237	0.951	1.242	1.291	1.343	1.492	1.387	1.320	1.284	12.05
19) t Benzo (a) anth...	1.270	0.866	0.992	1.012	1.040	1.181	1.140	1.114	1.077	11.68
20) I Chrysene-d12 (IS)										
21) t Chrysene	1.773	1.261	1.543	1.451	1.398	1.456	1.375	1.303	1.445	11.05
22) t benzo (b) fluo...	0.595	0.444	0.577	0.689	0.778	0.986	1.006	1.063	0.767	29.94
23) t benzo (k) fluo...	1.206	0.915	1.311	1.516	1.536	1.604	1.559	1.476	1.390	16.85
24) t benzo (a) pyrene	0.589	0.449	0.634	0.733	0.858	1.057	1.090	1.260	0.833	33.81

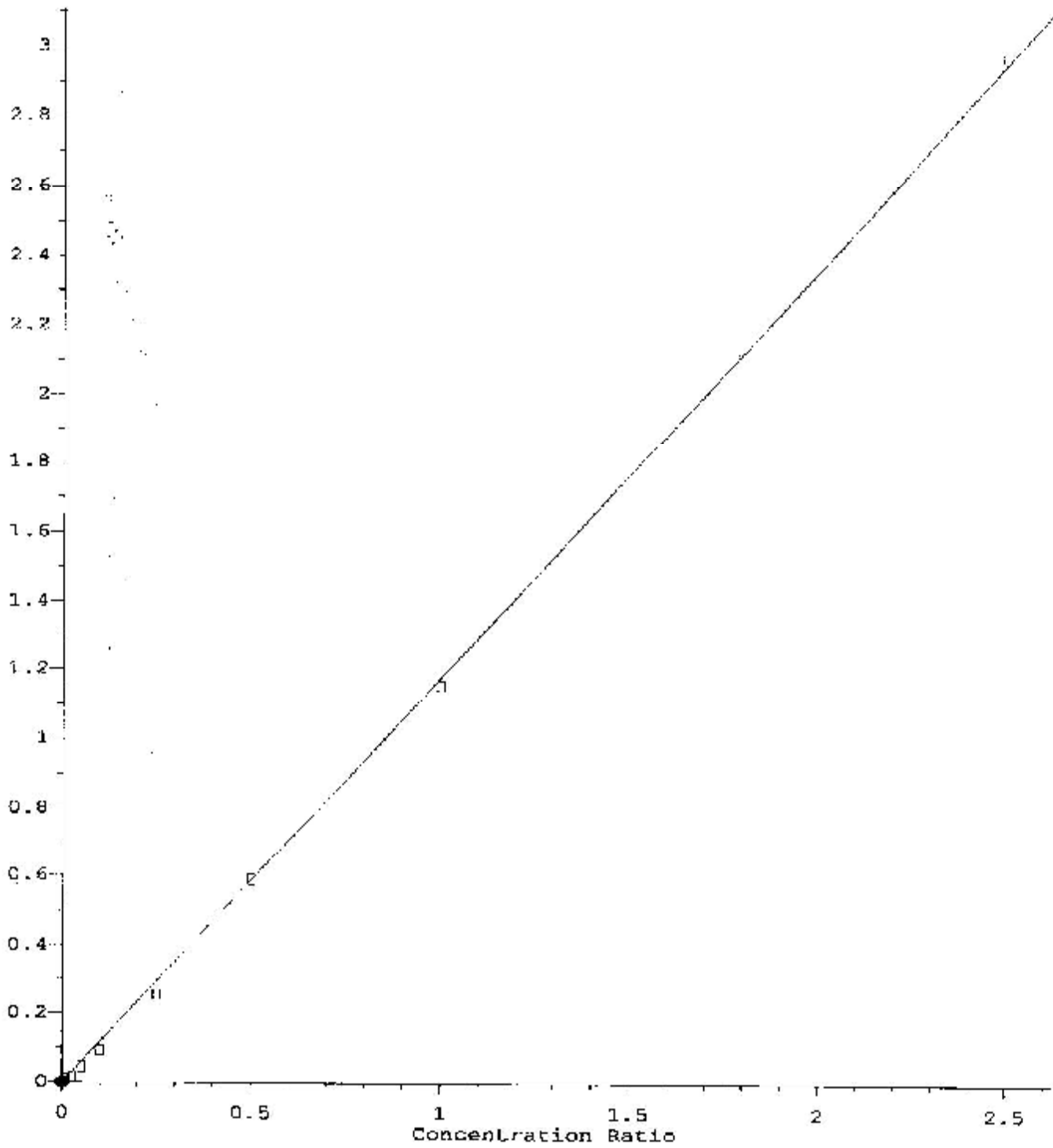
		calrpr.txt		ISTD							
25) I	perylene-d12 (IS)										
26) t	Indeno(1,2,3-c...	0.626	0.502	0.688	0.789	0.903	1.082	1.133	1.268	0.874	30.83
27) t	Dibenz (a,h) a...	0.448	0.348	0.496	0.566	0.672	0.852	0.906	0.974	0.658	35.14
28) t	Benzo (g,h,i) ...	0.813	0.644	0.883	0.990	1.066	1.221	1.222	1.175	1.002	20.95

(#) = Out of Range

DBPAH101012PHENOL.M Thu Oct 11 09:38:07 2012 PAH

2,4-Dimethylphenol

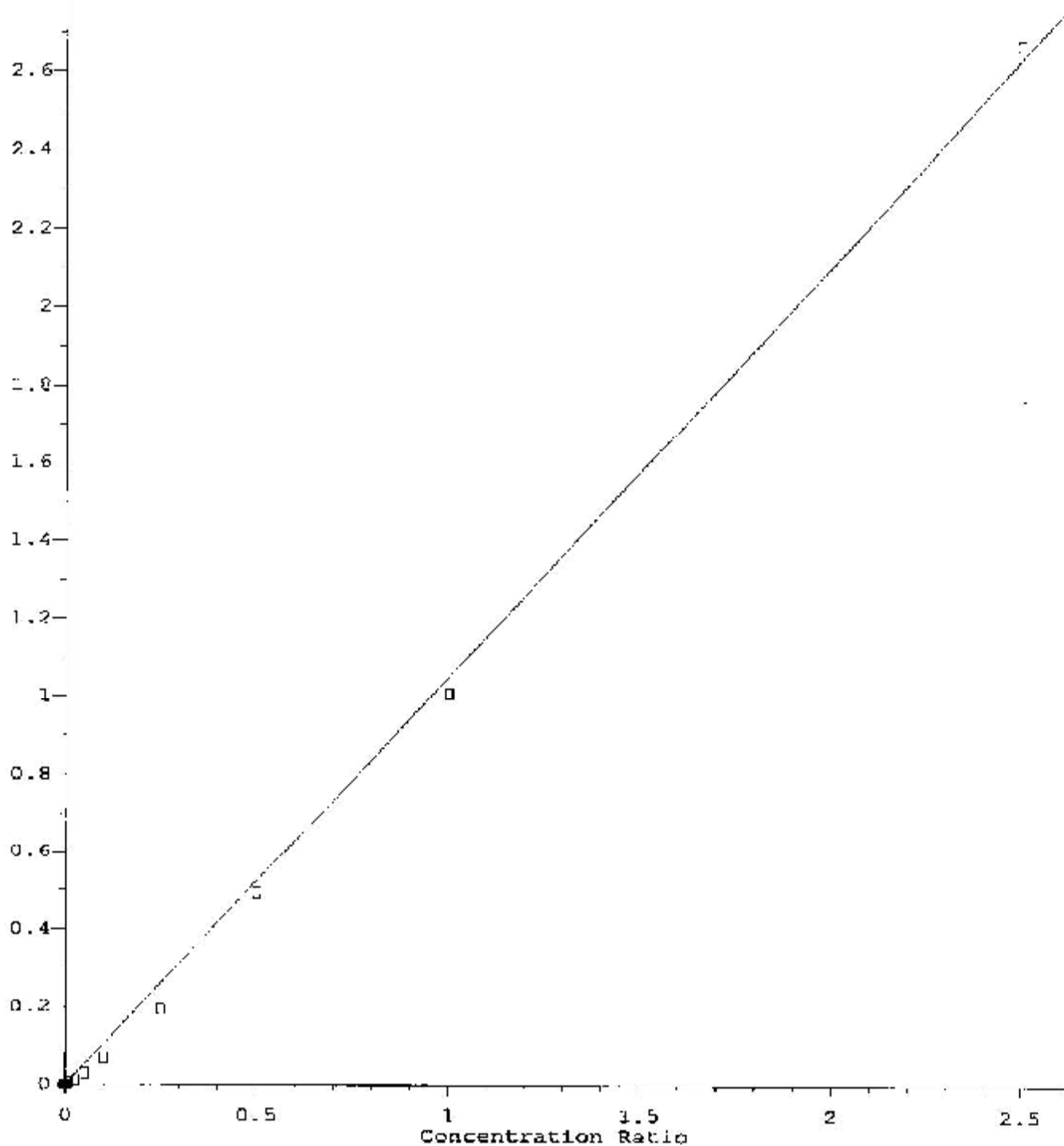
Response Ratio



Response = 1.19e+000 * Amt
Coef of Det (r^2) = 1.000 Curve Fit: Linear/(0,0)
Method Name: C:\msdchem\1\methods\DEPAH101012PHENOL.M
Calibration Table Last Updated: Thu Oct 11 14:52:26 2012

benzo (b) fluoranthene

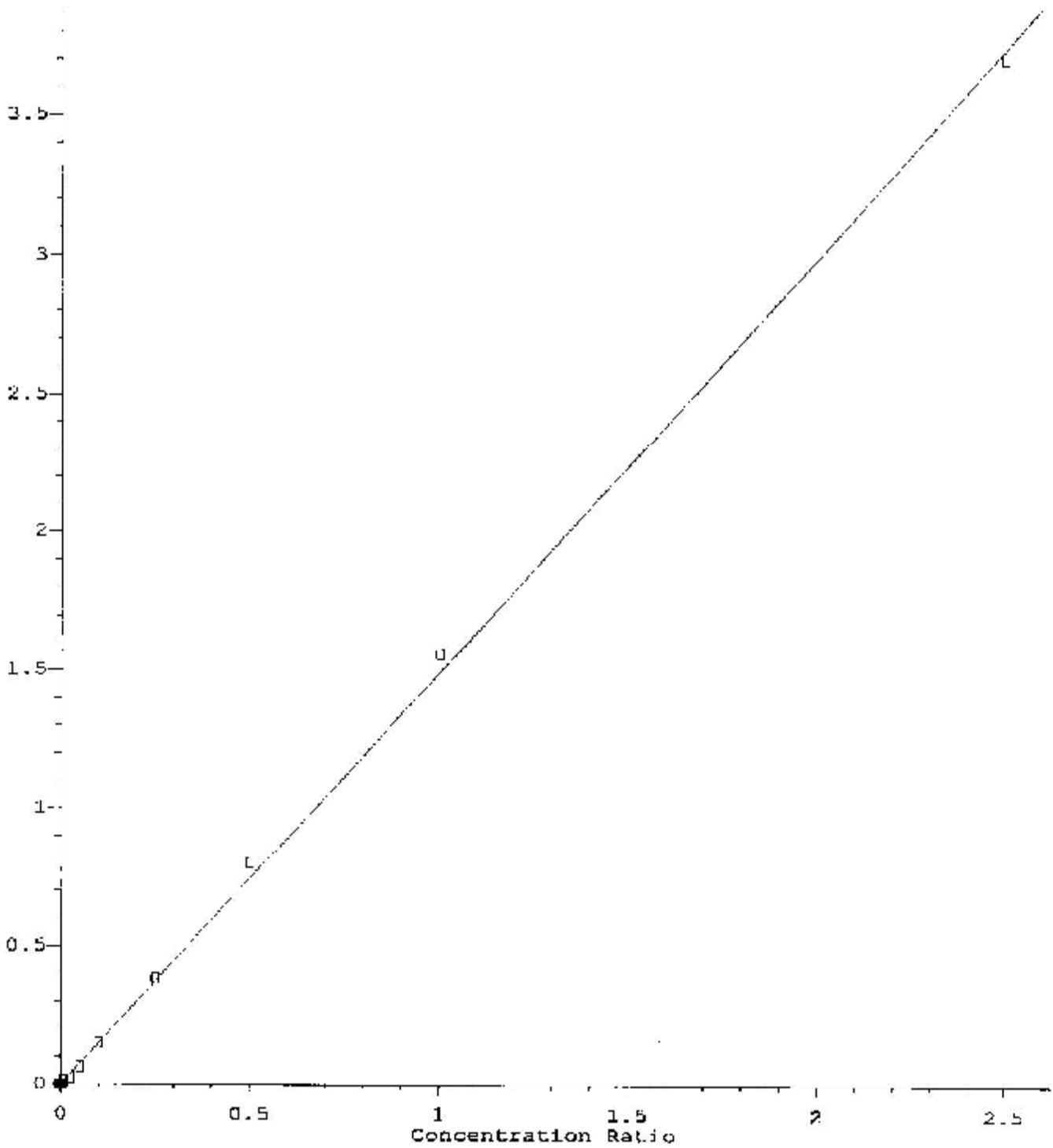
Response Ratio



Response = 1.05e+000 * Amt
Coef of Det (r²) = 0.999 Curve Fit: Linear/(0,0)
Method Name: C:\msdchem\1\methods\BSPA101012PHENOL.M
Calibration Table Last Updated: Thu Oct 11 09:35:38 2012

benzo (k) fluoranthene

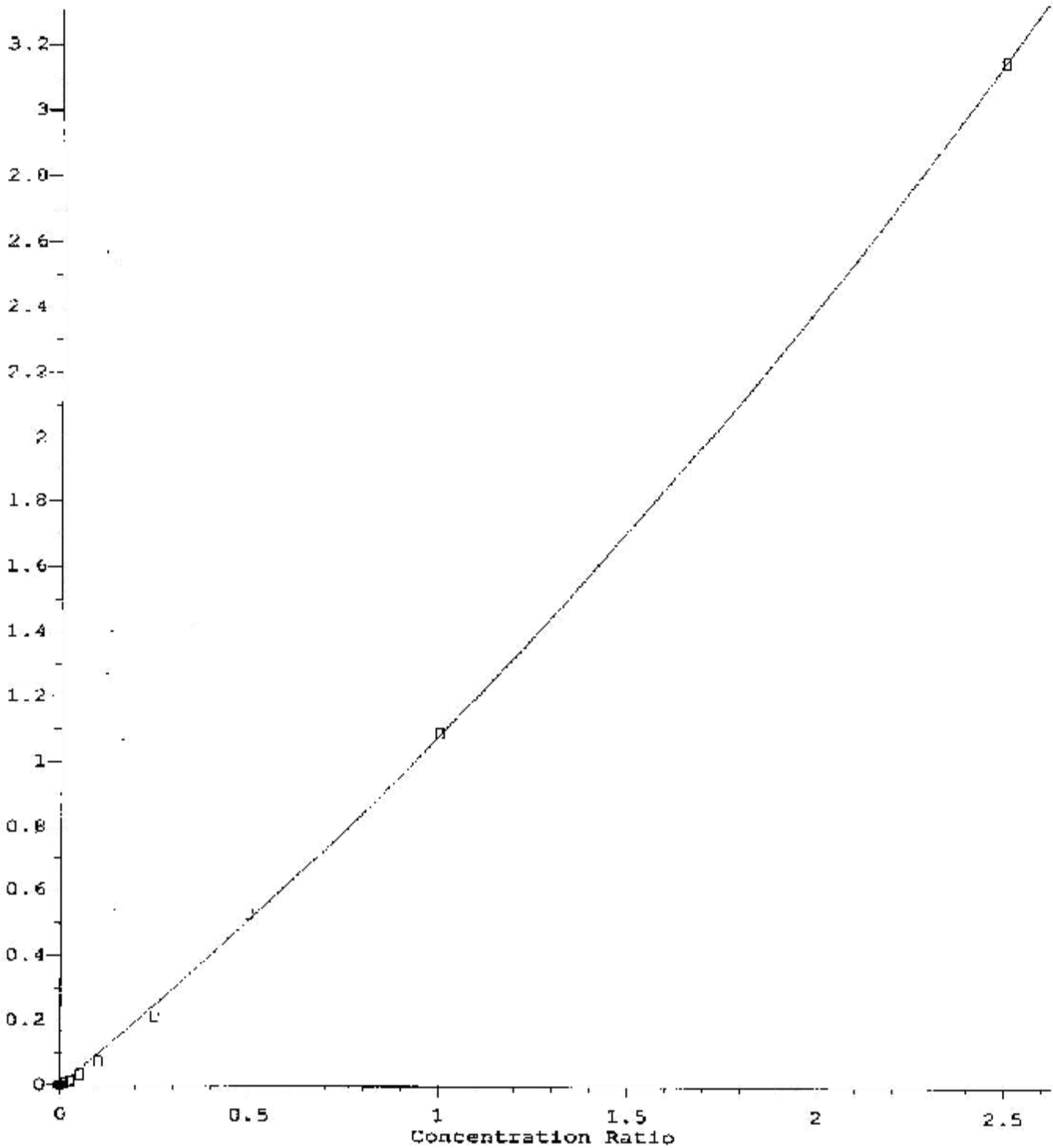
Response Ratio



Response = 1.49e+000 * Amt
Coef of Det. (r^2) = 0.999 Curve Fit: Linear/(0,0)
Method Name: C:\msdchem\1\methods\BSPAH101012PHENOL.M
Calibration Table Last Updated: Thu Oct 11 09:35:38 2012

benzo (a) pyrene

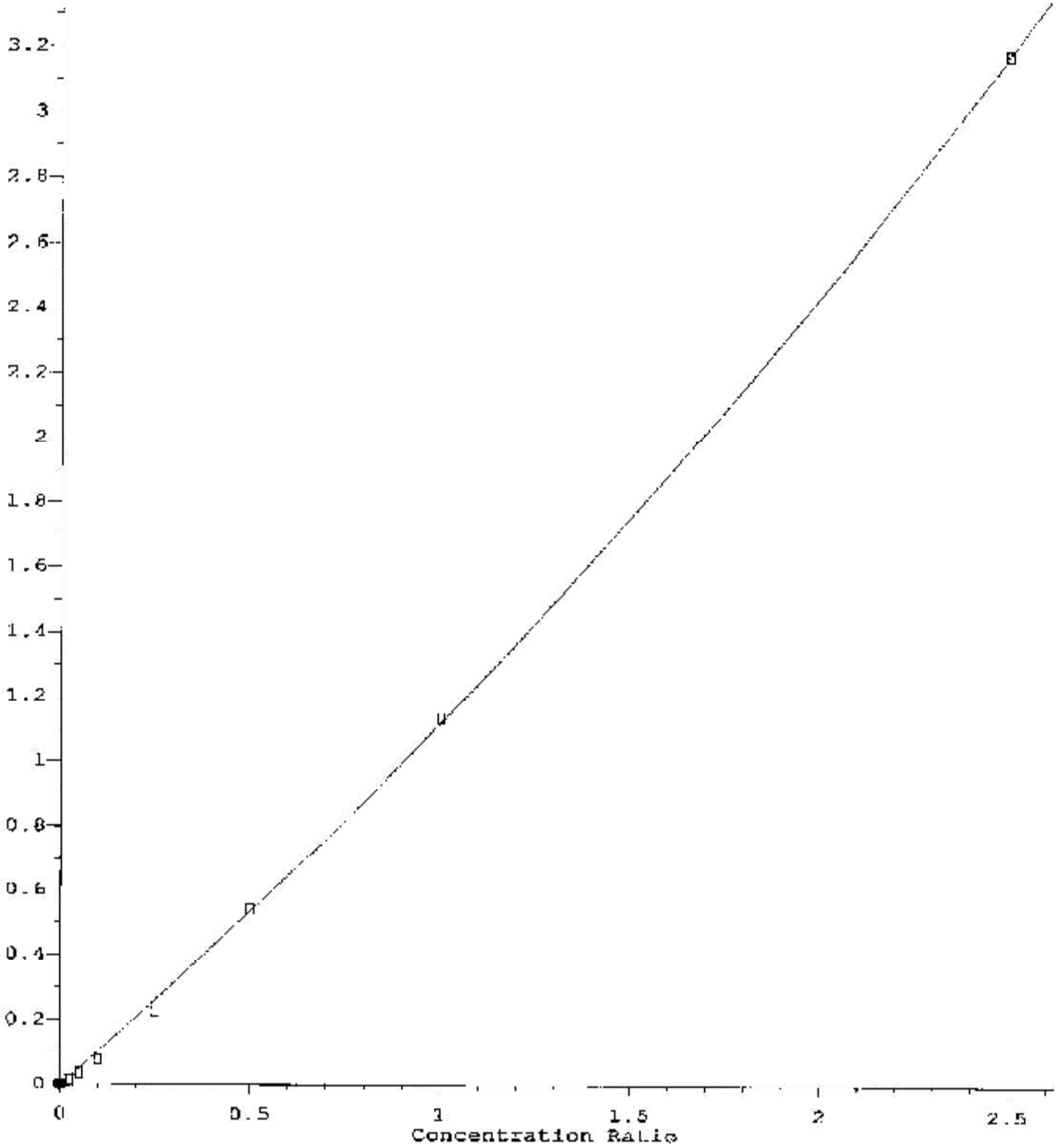
Response Ratio



R = 1.19e-001 A^2 + 9.64e-001 A + 0.00e+000
Coef of Det (r^2) = 1.000 Curve Fit: Quad/(0,0)
Method Name: C:\msdchem\1\methods\DEPAE101012PHENOL.M
Calibration Table Last Updated: Thu Oct 11 09:35:38 2012

Indeno(1,2,3-cd)pyrene

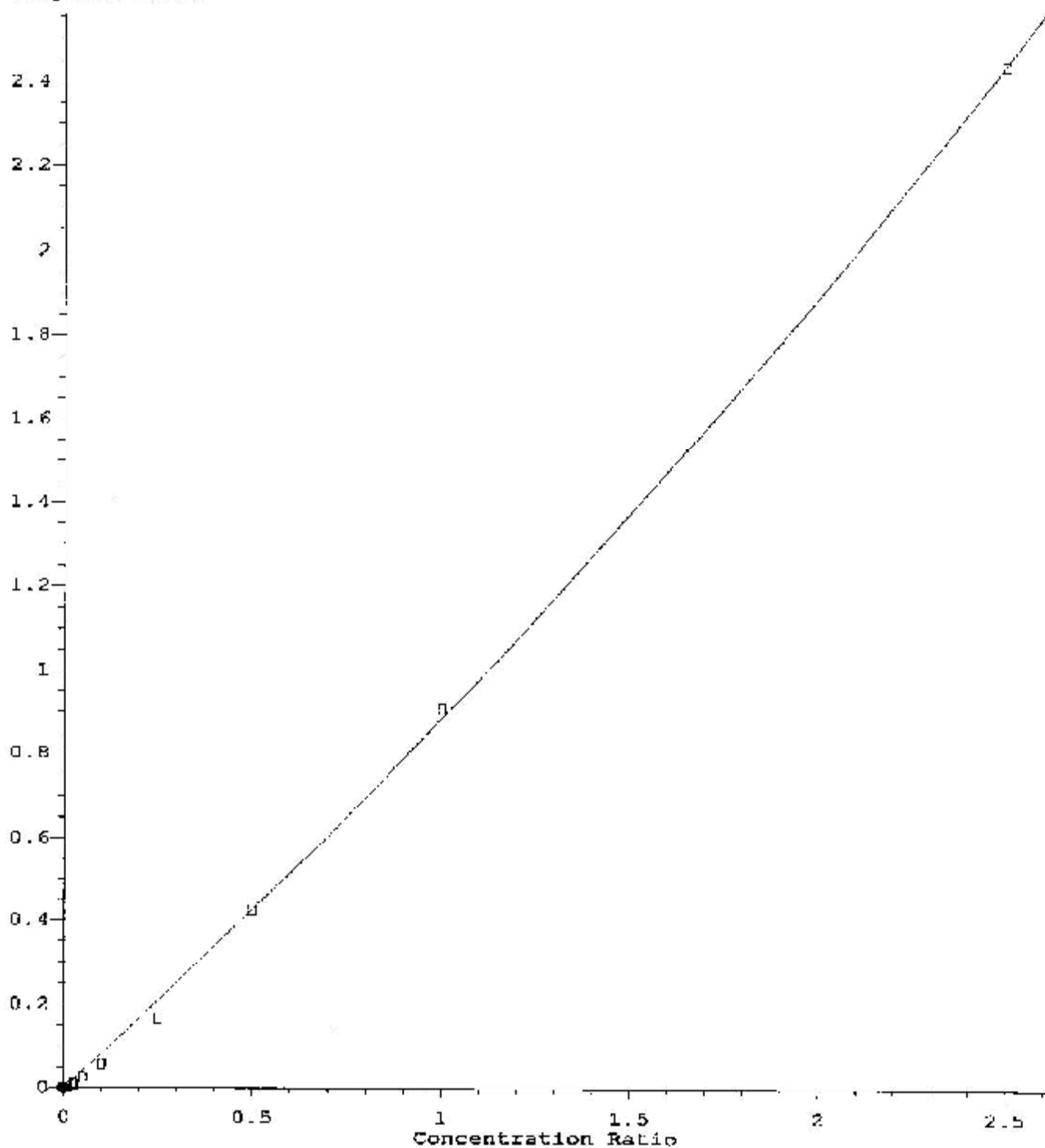
Response Ratio



R = 1.00e-001 A*A + 1.02e+000 A + 0.00e+000
Coef of Det (r^2) = 1.000 Curve Fit: Quad/(0,0)
Method Name: C:\msdchem\1\methods\DEPAH101012PHENOL.M
Calibration Table Last Updated: Thu Oct 11 09:35:38 2012

Dibenz (a,h) anthracene

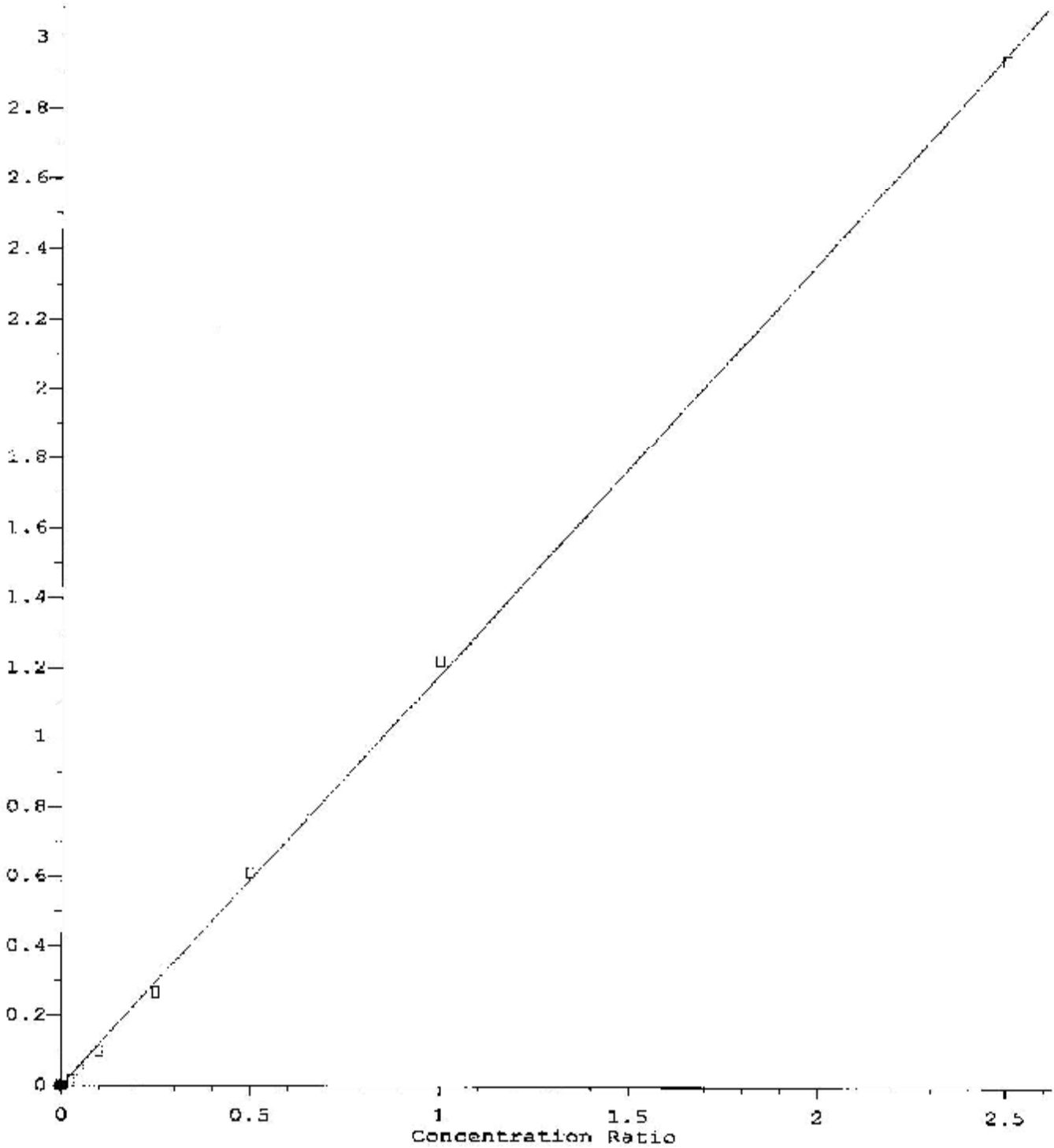
Response Ratio



$R = 6.11e-002 A^2 + 8.23e-001 A + 0.00e+000$
Coef of Det (r²) = 1.000 Curve Fit: Quad/(0,0)
Method Name: C:\msdchem\1\methods\DBPAH101012PHENOL.M
Calibration Table Last Updated: Thu Oct 11 09:35:38 2012

Benzo (g,h,i) perylene

Response Ratio



Response = 1.18e+000 * Amt
Coef of Det. (r^2) = 0.999 Curve Fit: Linear/(0,0)
Method Name: C:\msdchem\1\methods\DEPAH101012PHENOL.M
Calibration Table Last Updated: Thu Oct 11 09:35:38 2012

Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101009.D
 Acq On : 10 Oct 2012 3:42 pm
 Operator :
 Sample : 30 PPB STD
 Misc : CCV O-PAK-S-SIM-LIBBY
 ALS Vial : 101 Sample Multiplier: 1

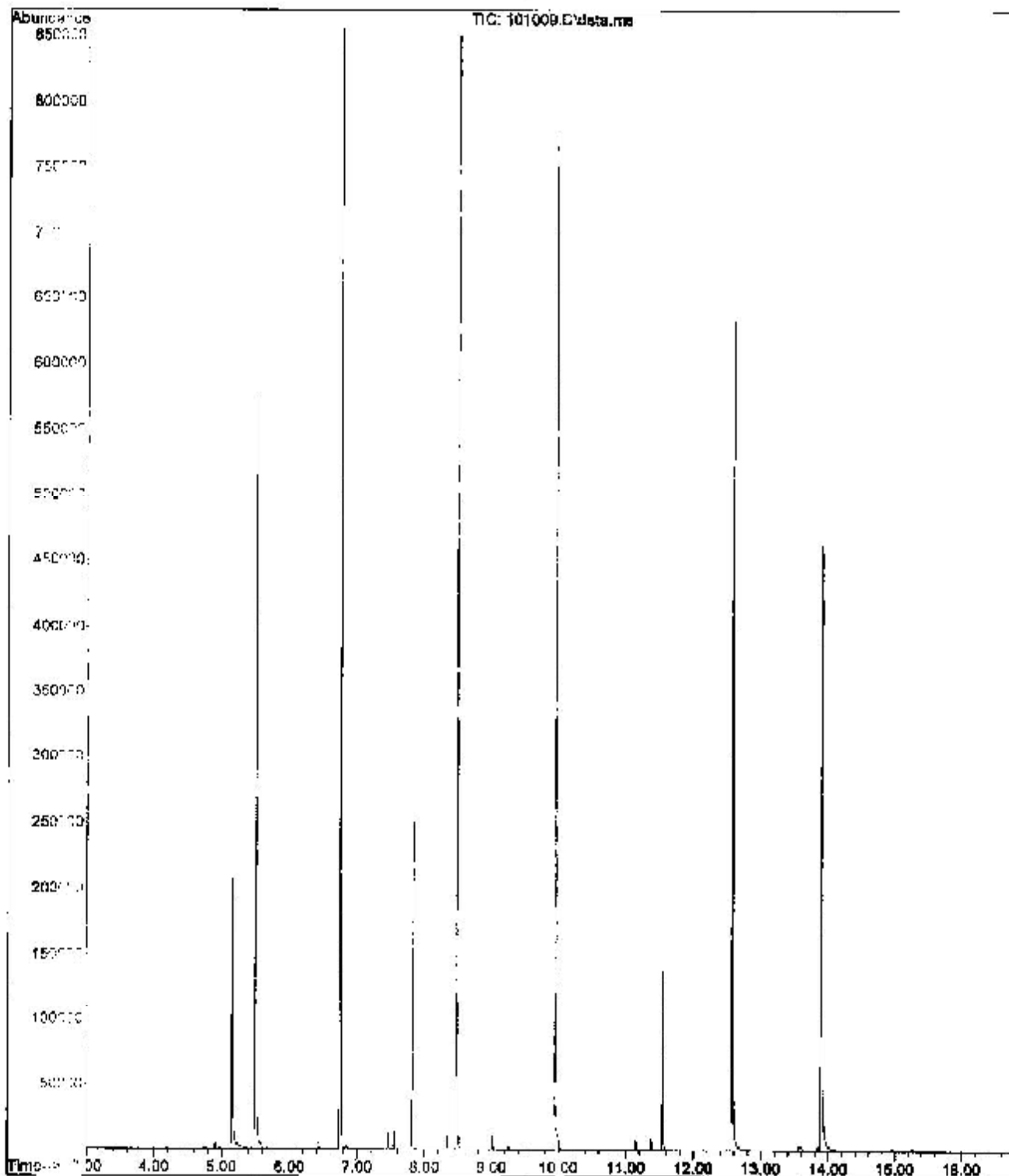
Quant Time: Oct 11 09:18:01 2012
 Quant Method : C:\msdchem\1\methods\BPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	211401	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	680290	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	338652	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	188	547010	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.566	240	493748	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.885	264	457899	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.149	99	155780	971.54	ug/L	0.00
8) 2-Fluorobiphenyl (surx)	7.822	172	149151	496.06	ug/L	0.00
16) Terphenyl-d14 (surx)	11.540	244	100270	501.63	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.430	107	1703m	13.70	ug/L	
5) Naphthalene	6.766	128	9729	22.54	ug/L	100
6) 2-Methylnaphthalene	7.455	142	5421	21.44	ug/L	100
7) 1-Methylnaphthalene	7.550	142	5172	21.59	ug/L	100
9) Acenaphthylene	8.338	152	7063	20.38	ug/L	100
11) Acenaphthene	8.508	152	2661	23.37	ug/L	99
12) Fluorene	9.021	166	5847	22.40	ug/L	97
14) Phenanthrene	9.967	178	8863	23.95	ug/L	100
15) Anthracene	10.020	178	6894	20.35	ug/L	97
17) Fluoranthene	11.145	202	6586	19.76	ug/L	# 94
18) Pyrene	11.368	202	6766	19.42	ug/L	# 85
19) Benzo (a) anthracene	12.559	228	6945	23.77	ug/L	# 100
21) Chrysene	12.592	228	8752m	25.21	ug/L	
22) benzo (b) fluoranthene	13.566	252	2936	11.32	ug/L	# 100
23) benzo (c) fluoranthene	13.579	252	5957	16.17	ug/L	99
24) benzo (a) pyrene	13.635	252	2906	12.19	ug/L	# 52
26) Indeno (1,2,3-cd)pyrene	14.543	276	2867m	14.51	ug/L	
27) Benzo (a,k) anthracene	14.567	276	2052m	14.50	ug/L	
28) Benzo (g,h,i) perylene	15.256	276	3722m	18.27	ug/L	

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

BPAH101012PHENOL.M Thu Oct 11 09:26:33 2012 PAM

File : D:\Data\SVOC\101012-1\101009.D
Operator :
Acquired : 10 Oct 2012 3:42 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 20 PBB STD
Misc Info : CCV O-PAH-S-SIM-LTRBY
View Number: 101



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101010.F
 Acq On : 10 Oct 2012 4:07 pm
 Operator :
 Sample : 50 PPB STD
 Misc : CCV O-PAH-S-SIM-LIBBY
 ALS Vial : 202 Sample Multiplier: 1

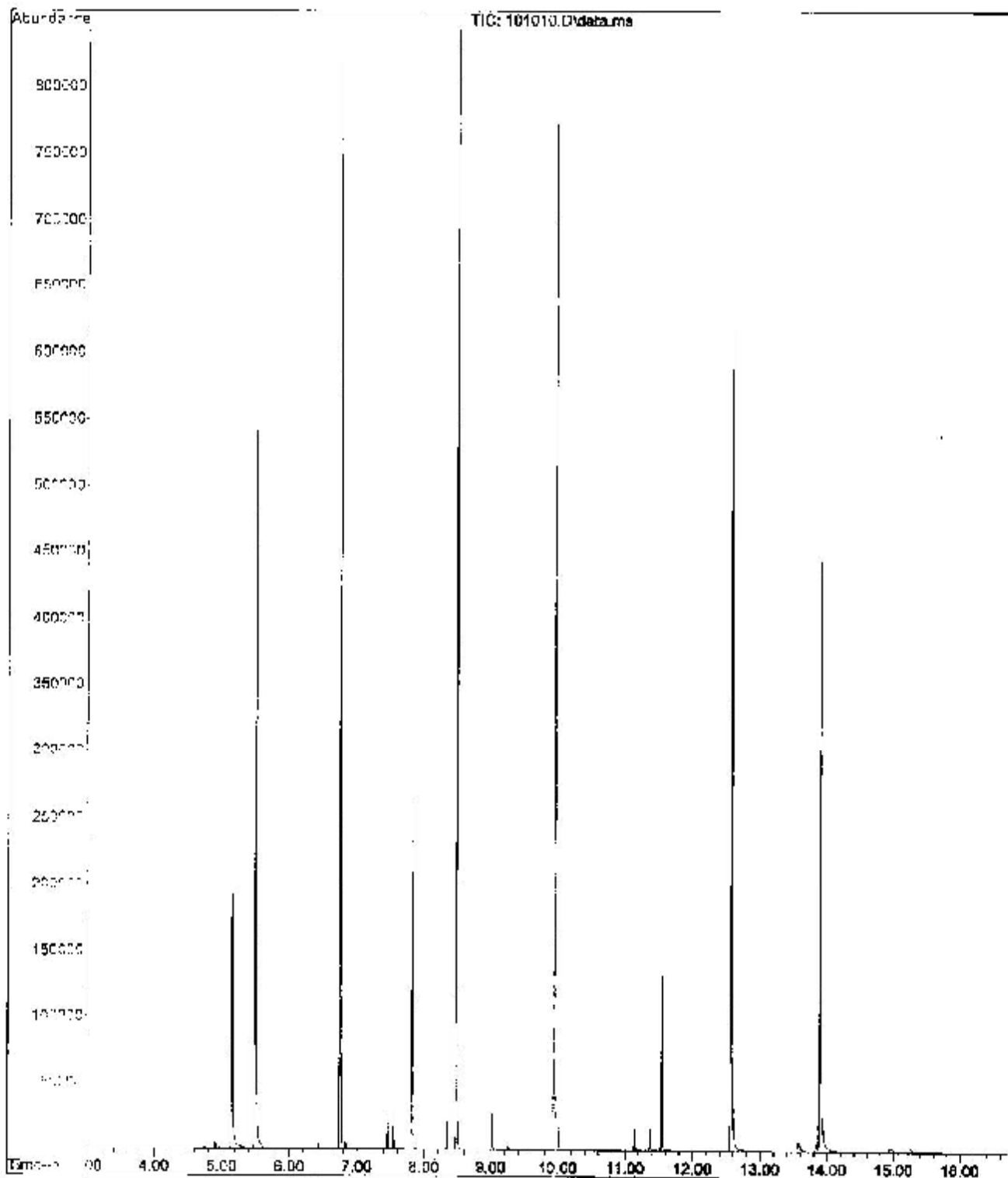
Quant Time: Oct 11 09:27:38 2012
 Quant Method : C:\medchem\1\methods\BSPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	207698	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	671694	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.477	164	334353	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	188	539399	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.567	240	485545	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	448984	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d5	5.151	99	152536	968.26	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	147260	496.04	ug/L	0.00
16) Biphenyl-d14 (surr)	11.543	244	98107	497.73	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,6-Dimethylphenol	6.429	107	3259m	26.69	ug/L	
5) Naphthalene	6.755	129	18380	44.53	ug/L	100
6) 2-Methylnaphthalene	7.453	142	16586	42.31	ug/L	99
7) 1-Methylnaphthalene	7.550	142	16124	42.81	ug/L	100
9) Acenaphthylene	8.338	152	13465	39.34	ug/L	100
11) Acenaphthene	8.508	152	5037	44.80	ug/L	100
12) Fluorene	9.021	166	11078	42.99	ug/L	96
14) Fluoranthene	9.966	178	16342	44.78	ug/L	99
15) Anthracene	10.019	178	12970	38.83	ug/L	97
17) Fluoranthene	11.046	204	17648	37.88	ug/L	95
18) Pyrene	11.369	204	14954	37.71	ug/L	# 91
19) Benzo (a) anthracene	12.559	228	11679	40.53	ug/L	# 100
21) Chrysene	12.591	228	15304m	44.83	ug/L	
22) Benzo (b) fluoranthene	13.554	252	8388	21.12	ug/L	# 100
23) Benzo (k) fluoranthene	13.580	252	11166	30.65	ug/L	100
24) Benzo (i) pyrene	13.825	252	5148	23.23	ug/L	# 55
26) 1,2,3,6-tetrahydro-1,2,3,6-dioxopyrene	14.943	276	6625m	29.10	ug/L	
27) Benzo (a,h) anthracene	14.964	276	1102m	28.18	ug/L	
28) Benzo (g,h,i) perylene	15.858	276	7216m	36.21	ug/L	

(#) = not filter out of range (m) = manual integration (+) = signals summed

BSPAH101012.PHENOL.M Thu Oct 11 09:27:40 2012 PAH

File : D:\Data\SVOC\101012-1\101010.D
Operator :
Acquired : 10 Oct 2012 4:07 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 50 PFB STD
Misc Info : CCV O-PAH-S-SIM-LIBBY
Vial Number: 102



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101011.D
 Acq On : 10 Oct 2012 4:33 pm
 Operator :
 Sample : 100 PPB STD
 Misc : CCV O-PAH-S-SIM LIBBY
 ALS Vial : 103 Sample Multiplier: 1

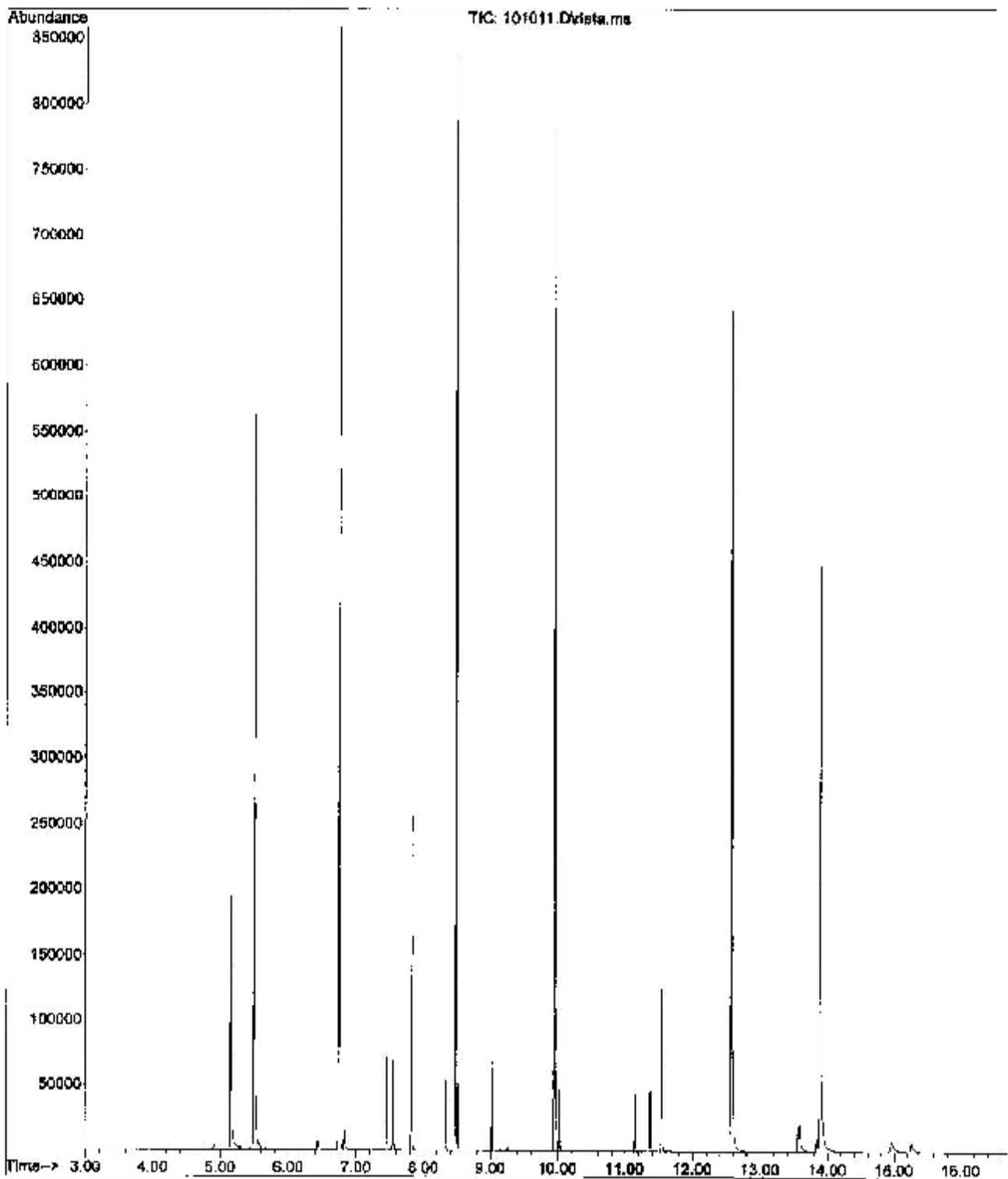
Quant Time: Oct 11 09:33:31 2012
 Quant Method : C:\msdchem\1\methods\BPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	207528	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	669585	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	334923	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	188	535335	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.568	240	483570	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	453972	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.149	99	153322	974.05	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	147736	499.21	ug/L	0.00
16) Terphenyl-d14 (surr)	11.542	244	96744	494.54	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.428	107	9134m	74.86	ug/L	
5) Naphthalene	6.766	128	45722	107.61	ug/L	100
6) 2-Methylnaphthalene	7.453	142	25990	104.41	ug/L	98
7) 1-Methylnaphthalene	7.548	142	24845	105.38	ug/L	99
9) Acenaphthylene	8.338	152	34254	100.40	ug/L	100
11) Acenaphthene	8.508	152	12144	107.84	ug/L	100
12) Fluorene	9.021	166	27298	105.76	ug/L	96
14) Phenanthrene	9.969	178	38933	107.48	ug/L	99
15) Anthracene	10.020	178	32553	98.20	ug/L	97
17) Fluoranthene	11.148	202	31709	97.22	ug/L	95
18) Pyrene	11.370	202	33247	97.51	ug/L	# 93
19) Benzo (a) anthracene	12.561	228	26561	92.88	ug/L	# 100
21) Chrysene	12.593	228	37318m	109.77	ug/L	
22) benzo (b) fluoranthene	13.557	252	13955	54.93	ug/L	# 100
23) benzo (k) fluoranthene	13.580	252	31708	87.86	ug/L	100
24) benzo (a) pyrene	13.837	252	15319	65.42	ug/L	# 72
26) Indeno(1,2,3-cd)pyrene	14.945	276	15625m	79.78	ug/L	
27) Dibenzo (a,h) anthracene	14.967	278	11260m	80.26	ug/L	
28) Benzo (g,h,i) perylene	15.257	276	20045m	99.27	ug/L	

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

BPAH101012PHENOL.M Thu Oct 11 09:33:36 2012 PAH

File :D:\Data\SVOC\101012-1\101011.D
Operator :
Acquired : 10 Oct 2012 4:33 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 100 PPB STD
Misc Info : CCV C-PAH-S-SIM-LIBBY
Vial Number: 103



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101012.D
 Acq On : 10 Oct 2012 4:58 pm
 Operator :
 Sample : 200 PBB STD
 Misc : CCV O-PAH-S-SIM-LIBBY
 ALS Vial : 104 Sample Multiplier: 1

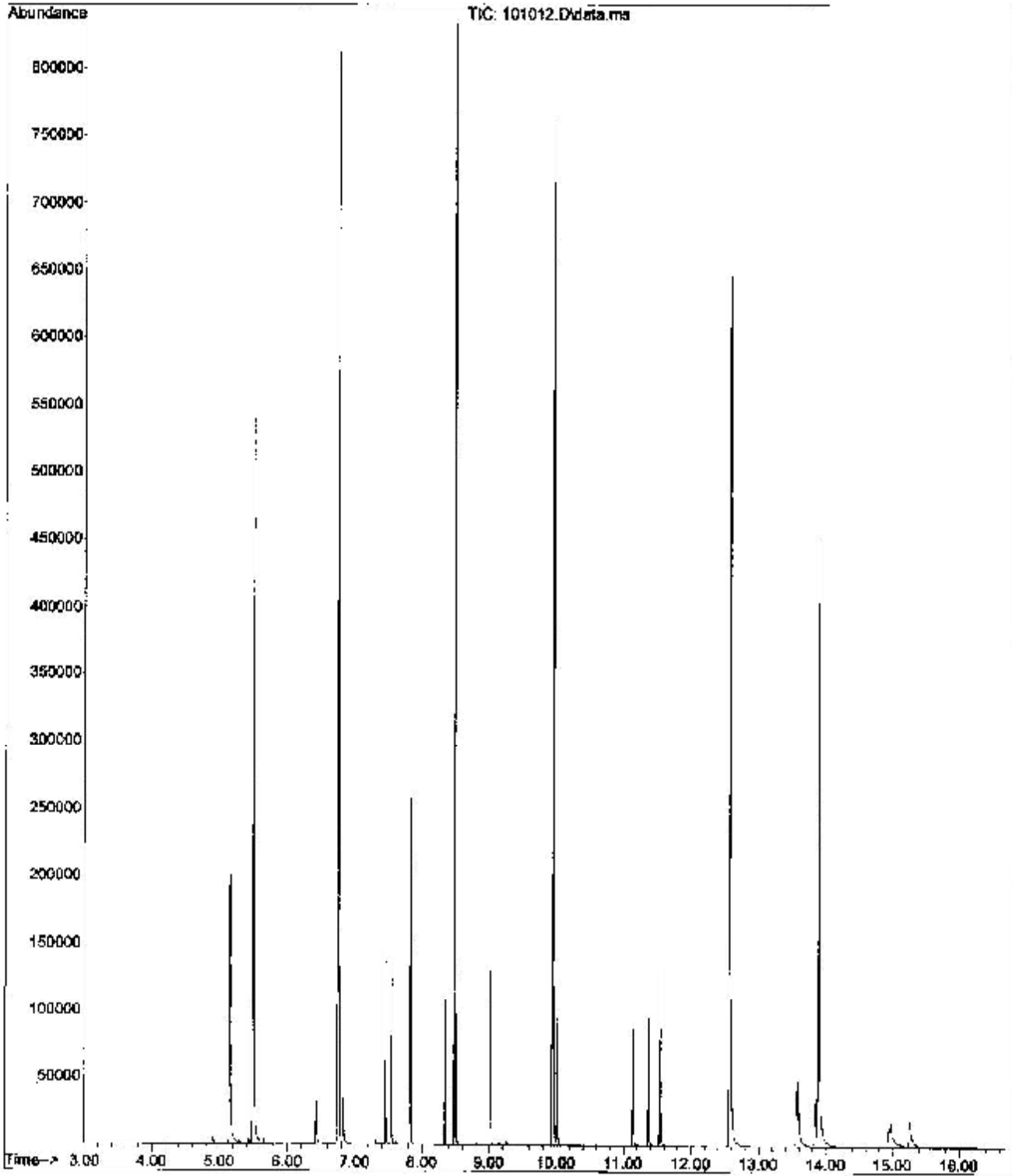
Quant Time: Oct 11 09:23:34 2012
 Quant Method : C:\msdchem\1\methods\DBPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	206282	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	666962	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	333890	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.944	188	535442	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.568	240	489283	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	461276	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.149	99	153734	982.57	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.821	172	148032	502.17	ug/L	0.00
16) Terphenyl-d14 (surr)	11.540	244	97477	498.19	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.427	107	19118m	157.63	ug/L	
5) Naphthalene	6.766	128	88440	208.97	ug/L	100
6) 2-Methylnaphthalene	7.453	142	51282	206.83	ug/L	98
7) 1-Methylnaphthalene	7.550	142	48610	207.00	ug/L	97
9) Acenaphthylene	8.337	152	69663	204.98	ug/L	100
11) Acenaphthene	8.508	152	23423	208.64	ug/L	99
12) Fluorene	9.021	166	54022	209.94	ug/L	97
14) Phenanthrene	9.968	178	76739	211.81	ug/L	100
15) Anthracene	10.019	178	66316	200.01	ug/L	98
17) Fluoranthene	11.147	202	65506	200.80	ug/L	95
18) Pyrene	11.369	202	69105	202.65	ug/L	93
19) Benzo (a) anthracene	12.559	228	54179	189.41	ug/L	# 100
21) Chrysene	12.693	228	71006	206.42	ug/L	93
22) benzo (b) fluoranthene	13.557	252	33689	131.05	ug/L	# 100
23) benzo (k) fluoranthene	13.580	252	74195m	203.20	ug/L	
24) benzo (a) pyrene	13.837	252	35842	150.50	ug/L	# 81
26) Indeno(1,2,3-cd)pyrene	14.946	276	36383m	182.83	ug/L	
27) Dibenz (a,h) anthracene	14.970	278	26113m	183.19	ug/L	
28) Benzo (g,h,i) perylene	15.258	276	45665m	222.56	ug/L	

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

DBPAH101012PHENOL.M Thu Oct 11 09:34:11 2012 PAH

File :D:\Data\SVOC\101012-1\101012.D
Operator :
Acquired : 10 Oct 2012 4:58 pm using AcqMethod DBPAR101012PHENOL.M
Instrument : HP-MSD
Sample Name: 200 PFB STD
Misc Info : CCV O-PAH-S-SIM-LIBBY
Vial Number: 104



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101013.D
 Acq On : 10 Oct 2012 5:23 pm
 Operator :
 Sample : 500 PPB STD
 Misc : CCV O-PAH-S-SIM-LIBBY
 ALS Vial : 105 Sample Multiplier: 1

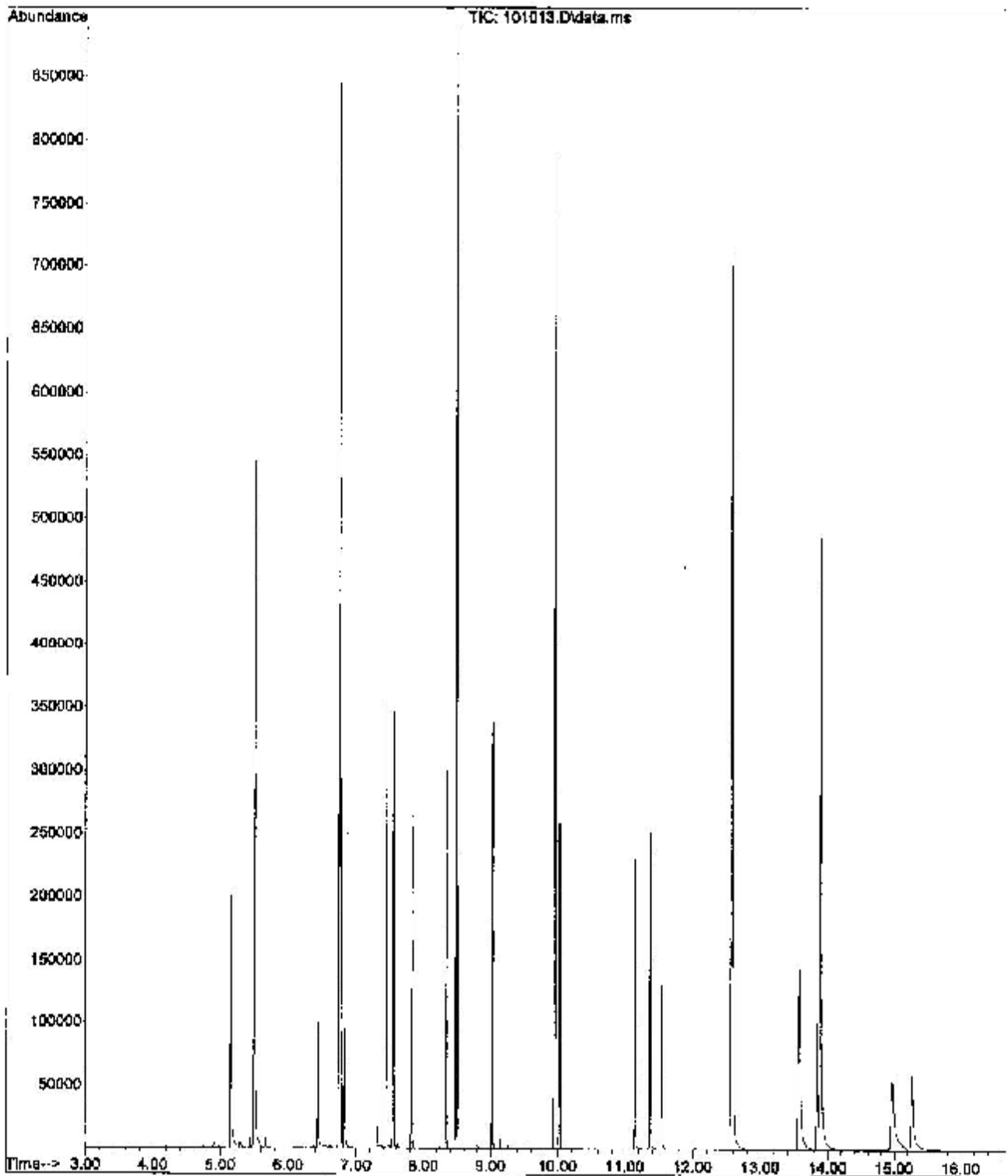
Quant Time: Oct 11 09:24:12 2012
 Quant Method : C:\msdchem\1\methods\DBPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.497	152	205479	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	662568	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.480	164	337875	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	188	540131	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.568	240	503799	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	476708	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.180	99	155773	999.49	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.821	172	150159	508.17	ug/L	0.00
16) Terphenyl-d14 (surr)	11.540	244	99538	504.31	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.427	107	52531m	434.81	ug/L	
5) Naphthalene	6.767	128	210515	496.23	ug/L	100
6) 2-Methylnaphthalene	7.453	142	125413	504.60	ug/L	98
7) 1-Methylnaphthalene	7.548	142	118399	502.97	ug/L	97
9) Acenaphthylene	8.338	152	176929	519.35	ug/L	100
11) Acenaphthene	8.509	152	56451	496.90	ug/L	99
12) Fluorene	9.022	166	132700	509.61	ug/L	97
14) Phenanthrene	9.969	178	184698	505.37	ug/L	100
15) Anthracene	10.019	178	169453	506.64	ug/L	98
17) Fluoranthene	11.146	202	171838	522.16	ug/L	95
18) Pyrene	11.368	202	181345	527.17	ug/L	94
19) Benzo (a) anthracene	12.559	228	140369	486.48	ug/L	# 100
21) Chrysene	12.593	228	176026	496.99	ug/L	95
22) benzo (b) fluoranthene	13.557	252	97963	370.10	ug/L	# 100
23) benzo (k) fluoranthene	13.582	252	193472	514.59	ug/L	99
24) benzo (a) pyrene	13.837	252	108083	433.23	ug/L	# 89
26) Indeno(1,2,3-cd)pyrene	14.950	276	107596m	523.18	ug/L	
27) Dibenz (a,h) anthracene	14.972	278	80111m	543.82	ug/L	
28) Benzo (g,h,i) perylene	15.259	276	127001m	598.94	ug/L	

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

DBPAH101012PHENOL.M Thu Oct 11 09:34:21 2012 PAH

File : D:\Data\SVOC\101012-1\101013.D
Operator :
Acquired : 10 Oct 2012 5:23 pm using AcqMethod DBFAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 500 PPB STD
Misc Info : CCV O-PAH-S-SIM-LIBBY
Vial Number: 105



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101014.C
 Acq On : 10 Oct 2012 5:48 pm
 Operator :
 Sample : 1000 PPB STD
 Misc : CCV O-PAH-S-SIM-LIBBY
 ALS Vial : 106 Sample Multiplier: 1

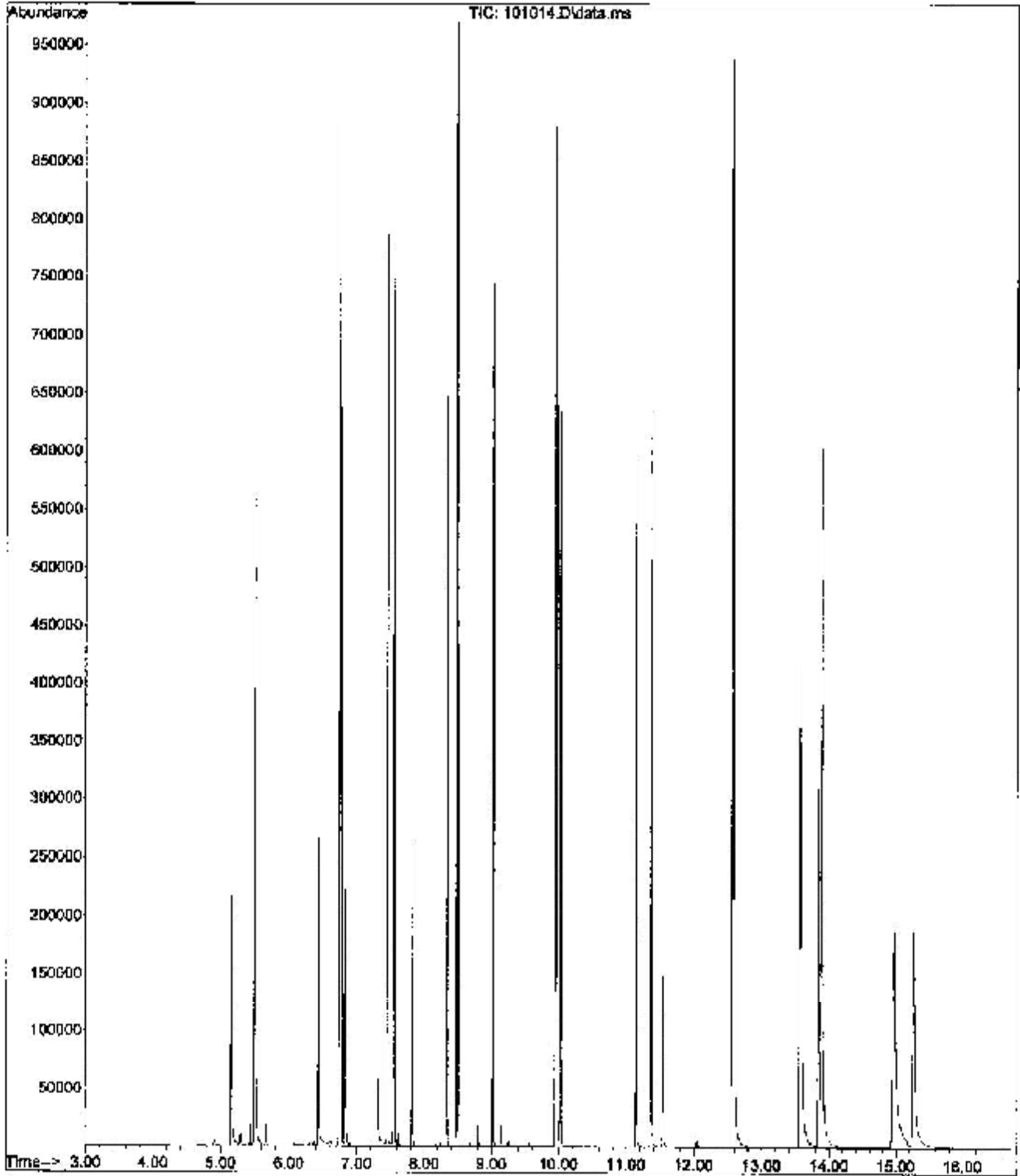
Quant Time: Oct 11 09:24:49 2012
 Quant Method : C:\msdchem\1\methods\DEPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	211091	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	703989	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.480	164	370642	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	180	614915	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.569	240	586943	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.889	264	569732	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.151	99	160048	999.62	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	150191	482.70	ug/L	0.00
16) Terphenyl-d14 (surr)	11.542	244	112537	500.83	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.427	107	124230	1000.93	ug/L	99
5) Naphthalene	6.766	128	457822	1024.89	ug/L	100
6) 2-Methylnaphthalene	7.453	142	281274	1074.77	ug/L	98
7) 1-Methylnaphthalene	7.548	142	262852	1060.43	ug/L	97
9) Acenaphthylene	8.339	152	404284	1127.02	ug/L	100
11) Acenaphthene	8.508	152	125725	1008.83	ug/L	99
12) Fluorene	9.021	166	299270	1047.68	ug/L	96
14) Phenanthrene	9.989	178	415711	999.13	ug/L	100
15) Anthracene	10.020	178	407576	1070.40	ug/L	98
17) Fluoranthene	11.146	202	411099	1177.36	ug/L	95
18) Pyrene	11.369	202	458851	1171.65	ug/L	94
19) Benzo (a) anthracene	12.560	228	363248	1105.82	ug/L	# 100
21) Chrysene	12.595	228	427345	1035.64	ug/L	97
22) benzo (b) fluoranthene	13.558	252	289328	938.23	ug/L	# 100
23) benzo (k) fluoranthene	13.583	252	470685	1074.58	ug/L	100
24) benzo (a) pyrene	13.839	252	310058	1030.12	ug/L	95
26) Indeno(1,2,3-cd)pyrene	14.950	276	308189m	1253.91	ug/L	
27) Dibenz (a,h) anthracene	14.972	278	242693m	1378.50	ug/L	
28) Benzo (g,h,i) perylene	15.261	276	347803m	1372.47	ug/L	

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

DEPAH101012PHENOL.M Thu Oct 11 09:34:34 2012 PAH

File : D:\Data\SVOC\101012-1\101014.D
Operator :
Acquired : 10 Oct 2012 5:48 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 1000 PPA STD
Misc Info : CCV C-PAH-S-SIM-LIBBY
Vial Number: 106



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101015.D
 Acq On : 10 Oct 2012 6:13 pm
 Operator :
 Sample : 2000 PFB STD
 Misc : CCV O-PAH-S-SIM-LIBBY
 ALS Vial : 107 Sample Multiplier: 1

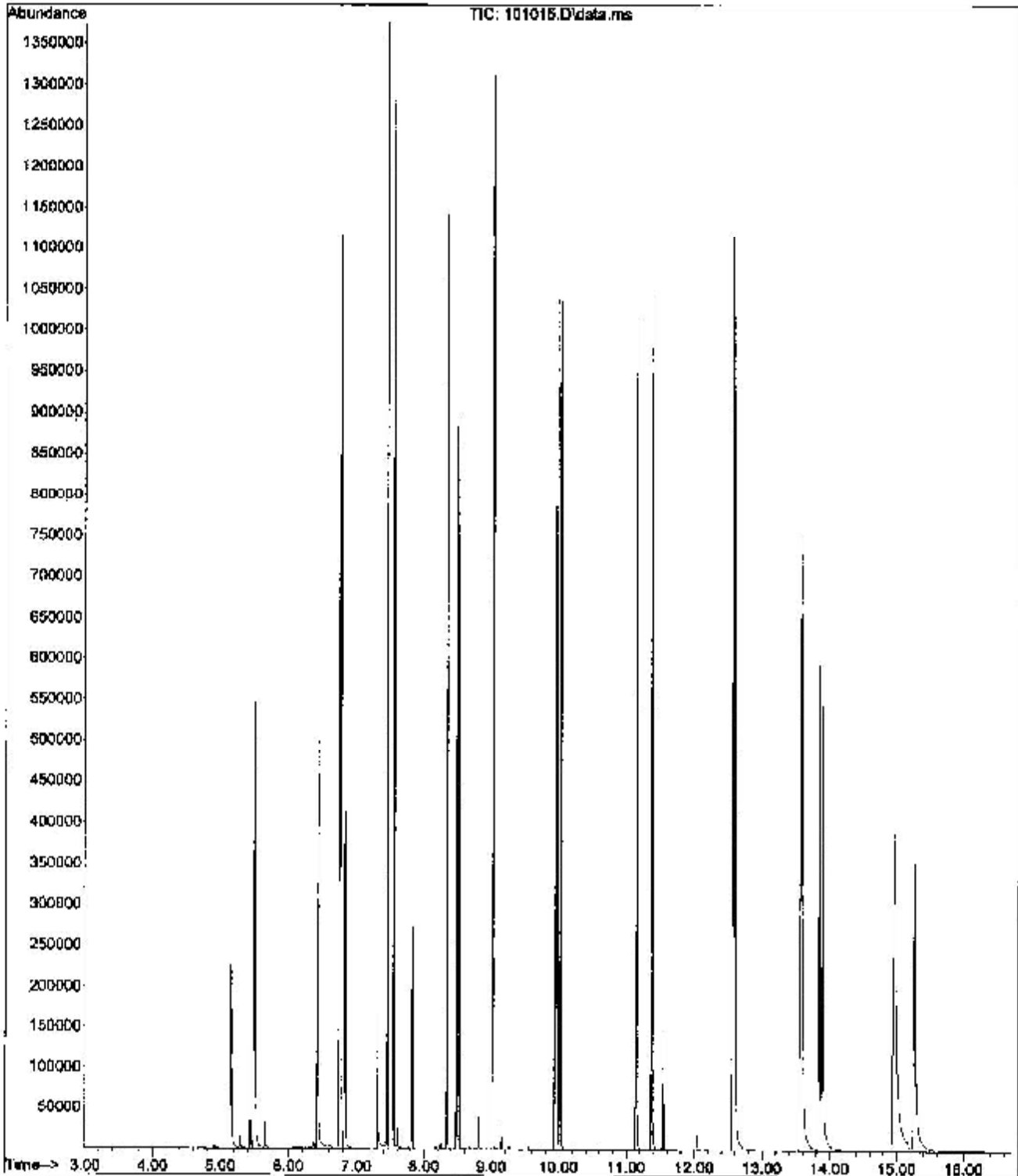
Quant Time: Oct 11 09:25:23 2012
 Quant Method : C:\msdchem\1\methods\DEPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	205990	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	675617	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.480	164	345445	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.946	188	547812	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.569	240	522147	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	509423	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.151	99	163666	1047.53	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	151229	506.45	ug/L	0.00
16) Terphenyl-d14 (surr)	11.540	244	103436	516.90	ug/L	0.00
Target Compounds						
						Qvalue
3] 2,4-Dimethylphenol	6.427	107	237390	1960.03	ug/L	99
5] Naphthalene	6.766	128	816382	1904.32	ug/L	100
6] 2-Methylnaphthalene	7.453	142	496539	1976.98	ug/L	98
7] 1-Methylnaphthalene	7.550	142	463482	1948.35	ug/L	97
9] Acenaphthylene	8.339	152	710594	2064.10	ug/L	100
11] Acenaphthene	8.511	152	217752	1874.71	ug/L	99
12] Fluorene	9.021	166	512109	1923.55	ug/L	97
14] Phenanthrene	9.970	178	704600	1901.59	ug/L	100
15] Anthracene	10.020	178	699103	2061.68	ug/L	98
17] Fluoranthene	11.148	202	724462	2171.35	ug/L	95
18] Pyrene	11.370	202	759797	2178.54	ug/L	94
19] Benzo (a) anthracene	12.561	228	624212	2133.80	ug/L	# 100
21] Chrysene	12.593	228	718133	1956.30	ug/L	98
23] benzo (b) fluoranthene	13.559	252	525321	1914.89	ug/L	# 100
23] benzo (k) fluoranthene	13.583	252	813771	2088.40	ug/L	100
24] benzo (a) pyrene	13.840	252	569097	2011.28	ug/L	97
26] Indeno(1,2,3-cd)pyrene	14.950	276	577262m	2626.67	ug/L	
27] Dibenz (a,h) anthracene	14.972	276	461582m	2932.13	ug/L	
28] Benzo (g,h,i) perylene	15.262	276	622319m	2746.42	ug/L	

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

DEPAH101012PHENOL.M Thu Oct 11 09:34:45 2012 PAH

File :D:\Data\SVOC\101012-1\101015.D
Operator :
Acquired : 10 Oct 2012 6:13 pm using AcqMethod DBPAH101012PHENCL.M
Instrument : HP-MSD
Sample Name: 2000 PPS STD
Misc Info : CCV O-PAH-S-SIM-LIBY
Vial Number: 107



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101016.D
 Acq On : 10 Oct 2012 6:44 pm
 Operator :
 Sample : 5000 PPB STD
 Misc : CCV Q-PAH-S-SIM-LIBBY
 ALS Vial : 108 Sample Multiplier: 1

Quant Time: Oct 11 09:25:45 2012
 Quant Method : C:\msdchem\1\methods\DEPAK101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

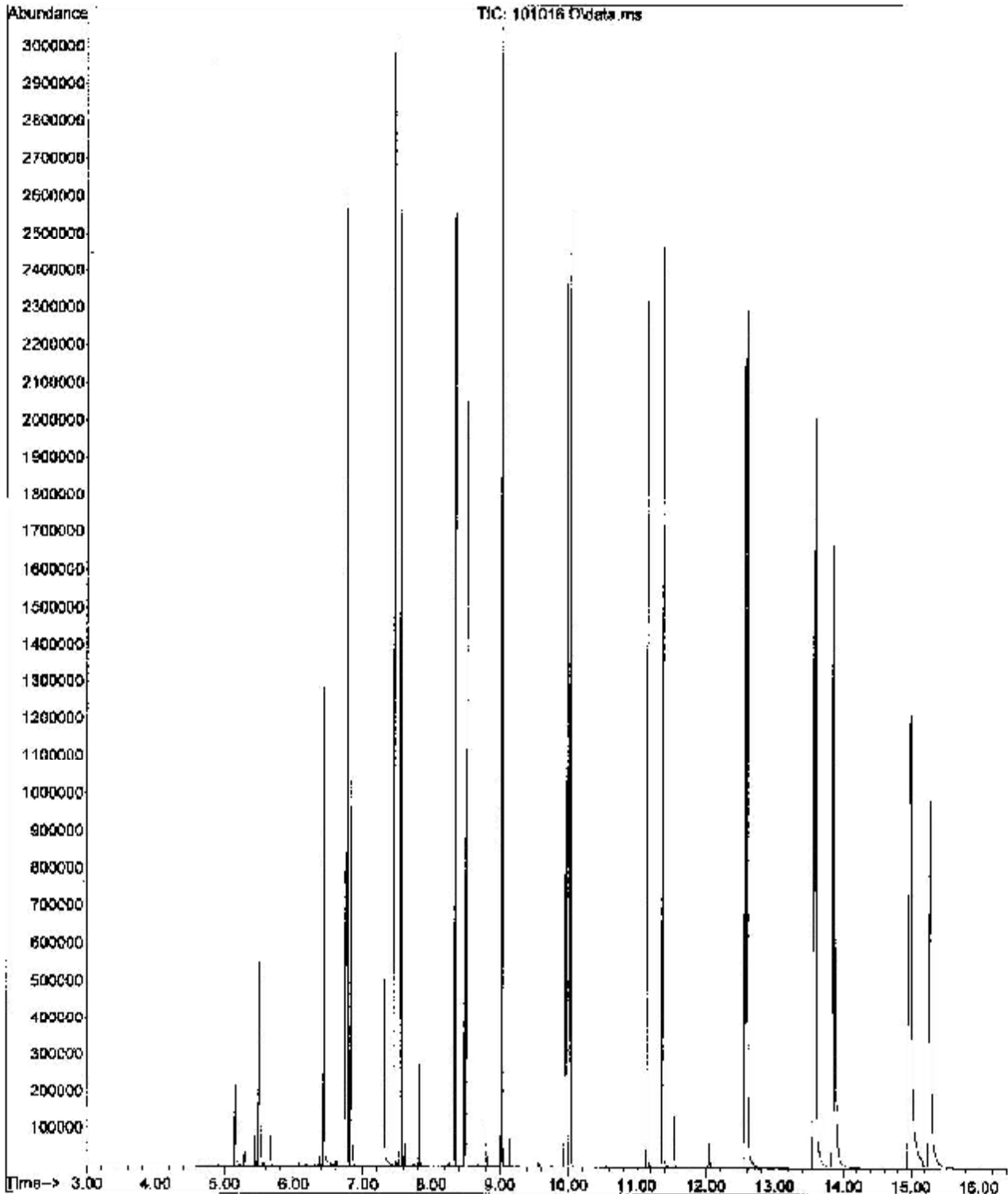
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.498	152	202347	2000.00	ug/L	# 0.00
4) Naphthalene-d8 (IS)	6.747	136	672107	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.482	164	349377	2000.00	ug/L	0.00
13) Phenanthrene d10 (IS)	9.946	198	550390	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.574	240	523717	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.892	264	532571	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.152	99	164052	1068.90	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	151033	509.43	ug/L	0.00
16) Terphenyl-d14 (surr)	11.543	244	104750	520.82	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.428	107	598900	5033.89	ug/L	100
5) Naphthalene	6.769	128	1898470	4451.56	ug/L	100
6) 2-Methylnaphthalene	7.455	142	1161315	4647.95	ug/L	98
7) 1-Methylnaphthalene	7.550	142	1095037	4627.28	ug/L	98
9) Acenaphthylene	8.342	152	1654597	4831.31	ug/L	99
11) Acenaphthene	8.513	152	512401	4374.34	ug/L	98
12) Fluorene	9.024	168	1188198	4425.46	ug/L	97
14) Phenanthrene	9.972	178	1640221	4404.33	ug/L	99
15) Anthracene	10.024	178	1678810	4925.87	ug/L	97
17) Fluoranthene	11.152	202	1738089	5183.08	ug/L	94
18) Pyrene	11.374	202	1816076	5180.90	ug/L	# 93
19) Benzo (a) anthracene	12.564	228	1533115	5214.34	ug/L	# 100
21) Chrysene	12.598	228	1705635	4632.48	ug/L	95
22) benzo (b) fluoranthene	13.564	252	1392203	5059.63	ug/L	# 100
23) benzo (k) fluoranthene	13.590	252	1932745	4945.17	ug/L	99
24) benzo (a) pyrene	13.844	252	1649238	4995.52	ug/L	97
26) Indeno(1,2,3-cd)pyrene	14.960	276	1688497	7349.09	ug/L	94
27) Dibenz (a,h) anthracene	14.981	278	1297291	7882.65	ug/L	96
28) Benzo (g,h,i) perylene	15.276	276	1563907	6601.85	ug/L	96

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

DEPAK101012PHENOL.M Thu Oct 11 09:34:55 2012 PAH

File : D:\Data\SVOC\101012-1\101016.D
Operator :
Acquired : 10 Oct 2012 6:44 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 5000 EPB STD
Misc Info : CCV G-PAH-S-SIM-LIBRY
Vial Number: 108



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101017.D
 Acq On : 10 Oct 2012 7:10 pm
 Operator :
 Sample : ICV-
 Misc : ICV O-PAH-S-SIM-LIBBY
 ALS Vial : 109 Sample Multiplier: 1

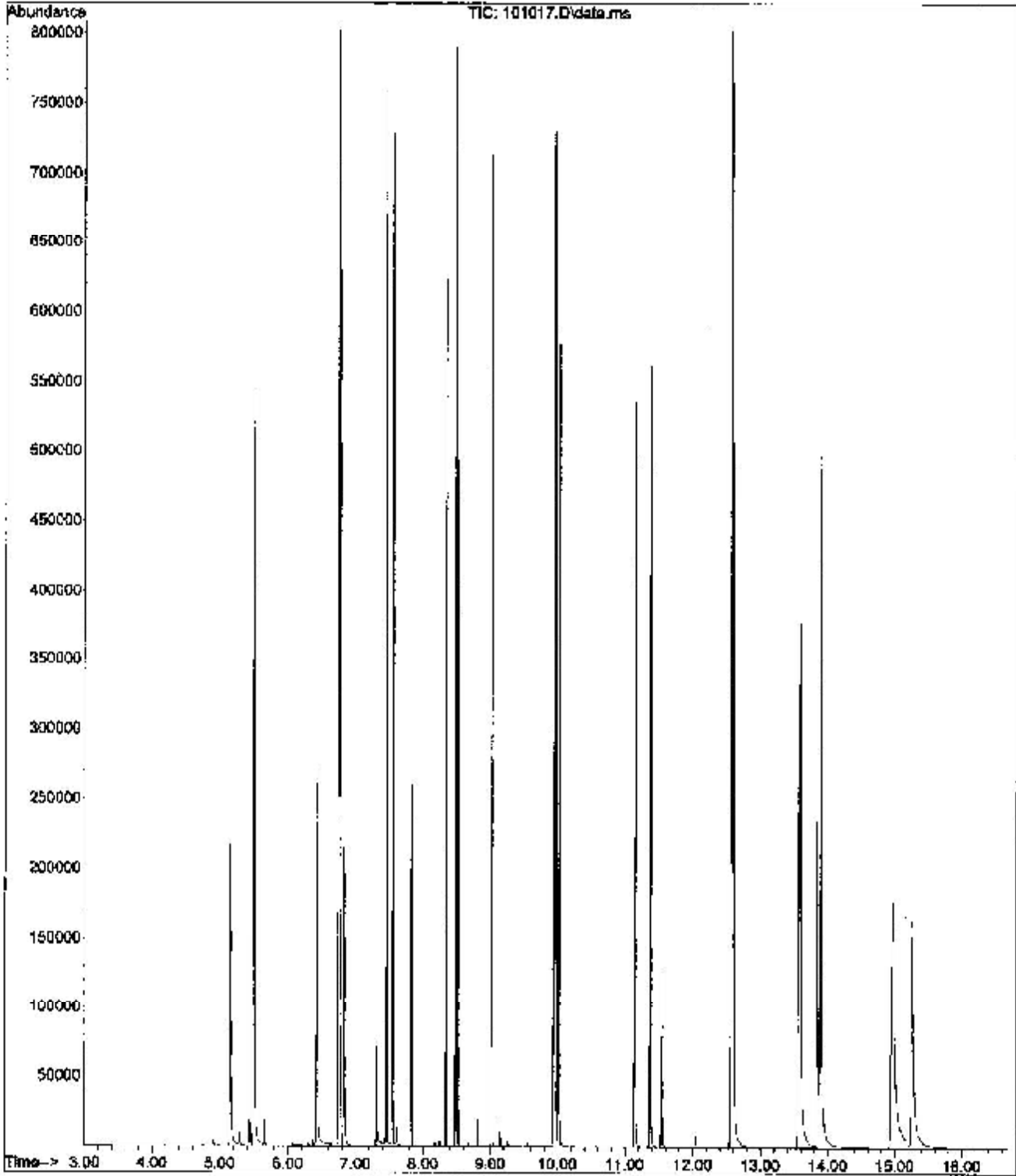
Quant Time: Oct 11 09:37:35 2012
 Quant Method : C:\msdchem\1\methods\DEPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.498	152	197741	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	642102	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.480	164	326003	2000.00	ug/L	0.00
13) Phenanthrene d10 (IS)	9.945	180	518454	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.569	240	493899	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	472138	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.151	99	158283	1053.76	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.821	172	143292	505.01	ug/L	0.00
16) Terphenyl-d14 (surr)	11.540	244	96843	506.74	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.426	107	126308	1084.75	ug/L	99
5) Naphthalene	6.766	128	450667	1106.23	ug/L	100
6) 2-Methylnaphthalene	7.453	142	273185	1144.70	ug/L	98
7) 1-Methylnaphthalene	7.550	142	256104	1134.13	ug/L	97
9) Acenaphthylene	8.338	152	389615	1191.03	ug/L	100
11) Acenaphthene	8.508	152	120464	1098.84	ug/L	98
12) Fluorene	9.021	166	284009	1130.26	ug/L	97
14) Phenanthrene	9.969	178	392404	1109.13	ug/L	100
15) Anthracene	10.020	178	377675	1194.93	ug/L	98
17) Fluoranthene	11.146	202	387257	1215.97	ug/L	94
18) Pyrene	11.368	202	408900	1228.38	ug/L	94
19) Benzo (a) anthracene	12.559	228	328403	1176.43	ug/L	# 100
21) Chrysene	12.593	228	392651	1100.37	ug/L	95
22) benzo (b) fluoranthene	13.557	252	258780	997.87	ug/L	# 100
23) benzo (k) fluoranthene	13.580	252	432230	1173.34	ug/L	100
24) benzo (a) pyrene	13.837	252	286716	1126.46	ug/L	95
26) Indeno(1,2,3-cd)pyrene	14.950	276	300569	1181.53	ug/L	95
27) Dibenz (a,h) anthracene	14.969	278	218594	1081.87	ug/L	96
28) Benzo (g,h,i) perylene	15.258	276	298015	1068.88	ug/L	96

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

DEPAH101012PHENOL.M Thu Oct 11 09:37:35 2012 PAH

File :D:\Data\SVOC\101012-1\101017.D
Operator :
Acquired : 10 Oct 2012 7:10 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: ICV-
Misc Info : ICV O-PAH-S-SIM-LIBBY
Vial Number: 109



Quantitation Report (Not Reviewed)

Data Path : O:\Data\SVOC\101012-1\
 Data File : 101018.D
 Acq On : 10 Oct 2012 7:35 pm
 Operator :
 Sample : ICB-
 Misc : ICE O-PAH-S-SIM-LIBBY
 ALS Vial : 110 Sample Multiplier: 1

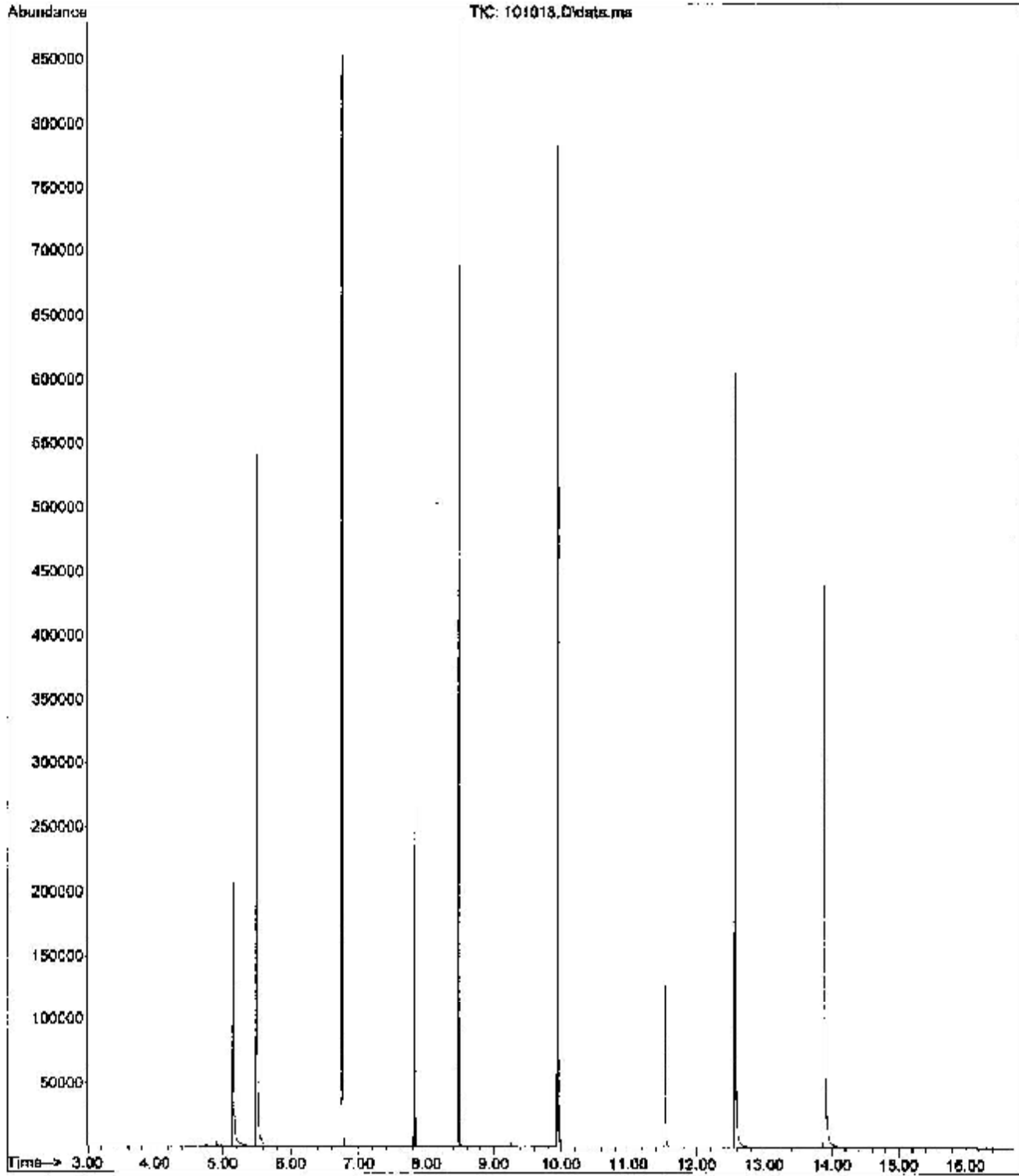
Quant Time: Oct 11 09:37:28 2012
 Quant. Method : C:\msdchem\1\methods\DEPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	208723	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	672101	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	335186	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.944	188	942903	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.567	240	483323	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.885	264	445839	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.149	99	157991	996.48	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	147351	496.14	ug/L	0.00
16) Terphenyl-d14 (surr)	11.539	244	96921	484.31	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.441	107	89			N.D.
5) Naphthalene	6.769	128	32			N.D.
6) 2-Methylnaphthalene	7.458	142	5			N.D.
7) 1-Methylnaphthalene	7.550	142	9			N.D.
9) Acenaphthylene	8.338	152	8			N.D.
11) Acenaphthene	8.511	152	13			N.D.
12) Fluorene	9.023	166	33			N.D.
14) Phenanthrene	9.968	178	94			N.D.
15) Anthracene	10.020	178	59			N.D.
17) Fluoranthene	11.150	202	54			N.D.
18) Pyrene	11.372	202	65			N.D.
19) Benzo (a) anthracene	12.566	228	1235			N.D.
21) Chrysene	12.566	228	888			N.D.
22) benzo (b) fluoranthene	13.556	252	35			N.D.
23) benzo (k) fluoranthene	13.584	252	122			N.D.
24) benzo (a) pyrene	13.835	252	68			N.D.
26) Indeno(1,2,3-cd)pyrene	14.943	276	34			N.D.
27) Dibenz (a,h) anthracene	14.960	278	7			N.D.
28) Benzo (g,h,i) perylene	15.250	276	3			N.D.

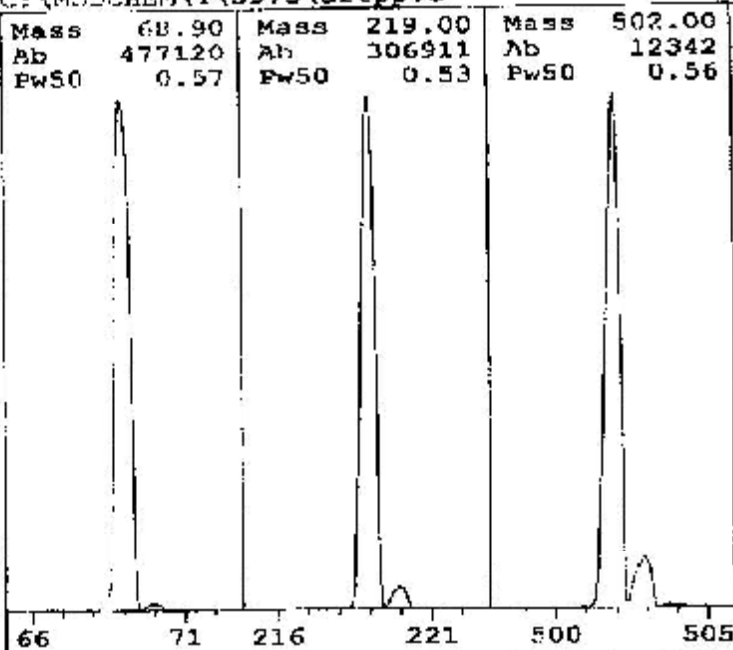
(#) = qualifier out of range (m) = manual integration (+) = signals summed

DEPAH101012PHENOL.M Thu Oct 11 09:37:56 2012 EAH

File : D:\Data\SVOC\101012-1\101018.D
Operator :
Acquired : 10 Oct 2012 7:35 pm using AcqMethod DBPAR101012PHENOL.M
Instrument : HP-MSD
Sample Name: ICS-
Misc Info : ICB O-PAR-S-STM-LIBRY
Vial Number: 110



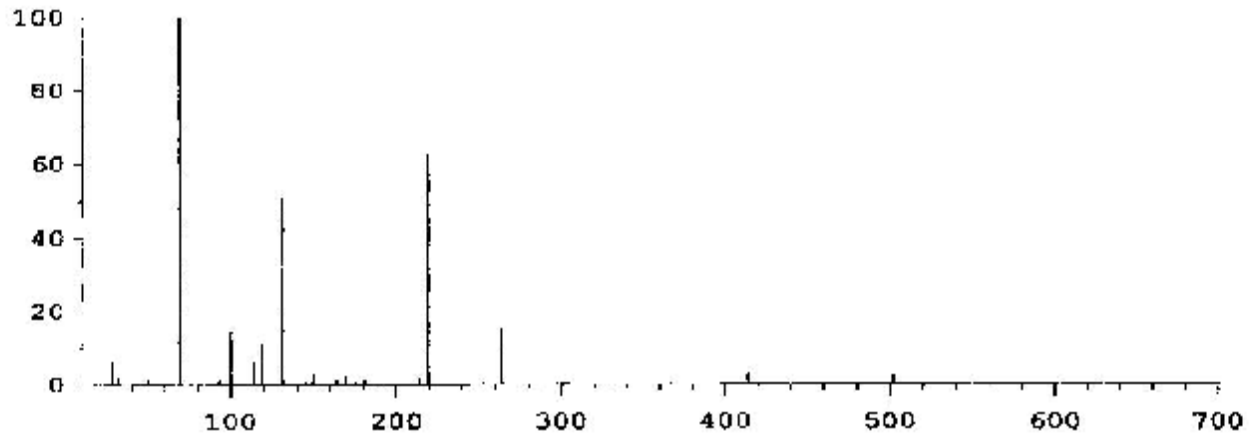
Thu Oct 11 09:26:24 2012
C:\MSDCHEM\1\5975\dftpp.u



Ion Pol Pos MassGain -620
MassOffs -40
Emission 34.6 AmuGain 2043
EI Energy 69.9 AmuOffs 124.50
Filament 1 Wid219 -0.025
DC Pol Pos
Repeller 20.41
IonFocus 66.4 HEDENab On
EntLens 0.0 EMVolts 1899
EntOffs Var

Samples 8
PFTBA Open Averages 3
Stepsize 0.10
Temperatures and Pressures:
MS Source 230 TurboSpd 100
MS Quad 150 HiVac 1.44e05

Scan: 10.00 - 701.00 Samples: 8 Thresh: 100 Step: 0.10
114 Peaks Base: 69.00 Abundance: 455488



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	455488	100.00	70.00	5054	1.11
219.00	283264	62.19	220.00	12252	4.33
502.00	11050	2.43	503.00	1163	10.52

Air/Water Check: H2O-0.56% N2-6.00% O2-1.93% CO2-0.18% N2/H2O-1063.45%

Column(1) Flow: 1.58 Column(2): -1.79769e+308 ml/min. Interface Temp: -

Ramp Criteria:

Ion Focus Maximum 90 volts using ion 502; EM Gain 123531
Repeller Maximum 35 volts using ion 502; Gain Factor 1.24

MassGain Values(Samples): -604(3) -599(2) -577(1) -529(0) -442(PS)

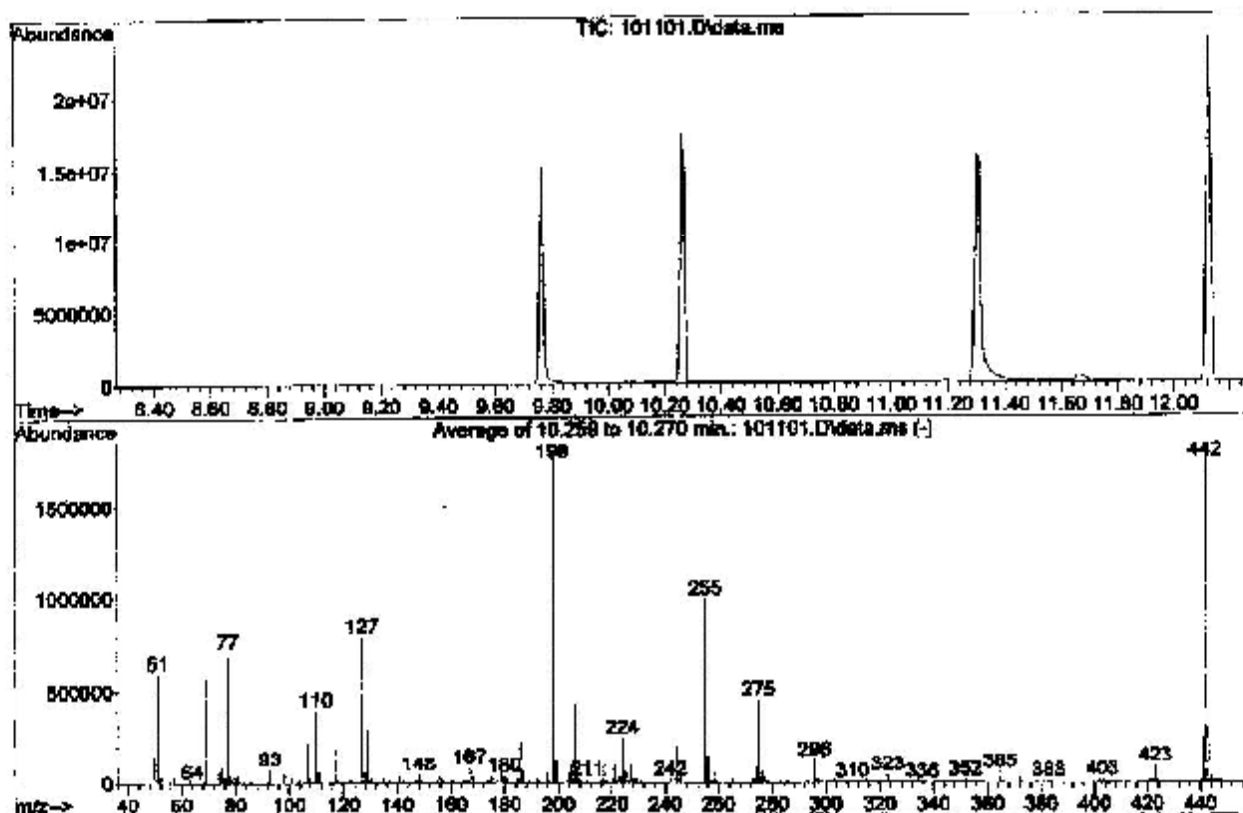
TARGET MASS:	60	69	131	219	414	502	1050
Amu Offset:	124.5	124.5	124.5	124.5	124.5	124.5	124.5
Entrance Lens Offset:	13.8	11.9	11.5	12.3	12.5	13.1	13.1
Target Abund(%):	1.0	100.0	45.0	55.0	2.4	2.0	
Actual Tune Abund(%):	1.1	100.0	50.8	62.2	2.9	2.4	

DFTPP

Data Path : D:\Data\SVOC\101112\
 Data File : 101101.D
 Acq On : 11 Oct 2012 9:32 am
 Operator :
 Sample : TONE CHECK
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 51 Sample Multiplier: 1

Integration File: RTEINTSG8270.P

Method : C:\msdchem\1\methods\QSVOC100512.M
 Title : Semivol
 Last Update : Thu Oct 04 15:27:51 2012



AutoFind: Scans 1341, 1342, 1343; Background Corrected with Scan 1333

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	33.9	594923	PASS
68	69	0.00	2	1.5	8916	PASS
69	198	0.00	100	32.9	577088	PASS
70	69	0.00	2	0.5	3049	PASS
127	198	10	80	44.9	788437	PASS
197	198	0.00	2	0.3	5802	PASS
198	198	100	100	100.0	1754795	PASS
199	198	5	9	6.7	117835	PASS
275	198	10	60	25.4	446165	PASS
365	198	1	100	3.2	55821	PASS
441	442	0.01	24	14.0	247979	PASS
442	198	50	999	100.6	1765013	PASS
443	442	15	24	19.0	335381	PASS

5000.00
 5000.00
 5000.00
 3000.00
 5000.00
 5000.00
 5000.00
 5000.00

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    01 DBPAH062512.M
    02 DBPAH062612.M
    03 DBPAH062712.M
    04 DBPAH062812.M
    05 DBPAH062912.M
    06 DBPAH100412.M
    07 DBPAH100512.M
    08 DBPAH100612.M
    09 DBPAH100712.M
    10 DBPAH100812PHENI
    11 DBPAH101012PHE

    ***** OLD METHODS *****
  
```

Job: 1029271014
 User: jlw
 Date: 12/14/2012
 Time: 13:55:01
 Job ID: 1029271014

Start	End	CDI
50	51	24-Dinitrophenol
51	52	Dibenzofuran
52	53	2,4-Dinitrochlorobenzene
53	54	4-Nitrophenol
54	55	2,3,4,6-Tetrachlorophenol
55	56	2,3,5,6-Tetrachloroquinone
56	57	Fluoranthene
57	58	4-Chloro-3-methylphenyl ether
58	59	Dibenzophenone
59	60	4,6-Difluoro-2-methylphenol
60	61	Dibenzylideneacetone
61	62	Acetophenone
62	63	4-Bromo-3-phenyl phenyl ether
63	64	Tetrachlorophenol (Fu)
64	65	Hexachlorobenzene
65	66	Pentachlorobenzene
66	67	*Fluoranthene-ct10 (HS)
67	68	REPH2 IDNAME
68	69	END
69	70	Pre-Sort Header

(60) 029

1.13191620 6 5 2553 8.60 1200

408320882 2322542

Line	Quantity	Rate	Amount
249.00	100.00	1399.07	1399.07
227.00	64.50	633.80	633.80
145.00	43.35	58.94	58.94
0.00	8.08	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101102.D
 Acq On : 11 Oct 2012 9:57 am
 Operator :
 Sample : CCV-
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 106 Sample Multiplier: 1

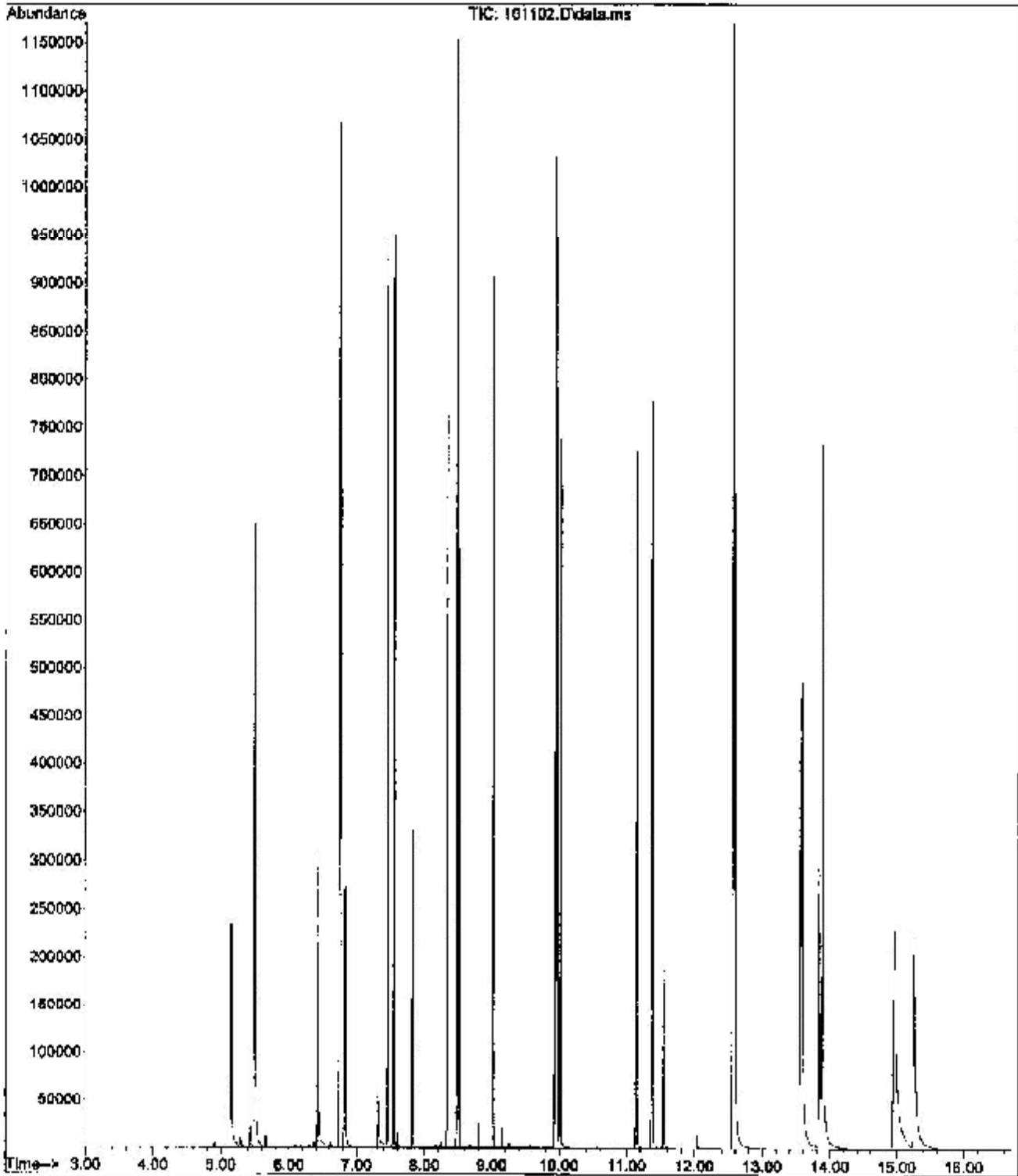
Quant Time: Oct 11 10:18:47 2012
 Quant Method : C:\msdchem\1\methods\BSPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	248623	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	835095	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	446598	2000.00	ug/L	0.00
13) Phenanthrene d10 (IS)	9.945	188	743459	2000.00	ug/L	0.00
20) Chrysene d12 (IS)	12.568	240	729868	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.885	264	702387	2000.00	ug/L	0.00
System Monitoring Compounds						
3) Phenol-d6	5.151	99	181169	959.28	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.821	172	179090	485.31	ug/L	0.00
16) Terphenyl-d14 (surr)	11.539	244	142994	521.78	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.426	107	148187	1012.19	ug/L	99
5) Naphthalene	6.766	128	544594	1027.95	ug/L	100
6) 2-Methylnaphthalene	7.453	142	333013	1072.91	ug/L	98
7) 1-Methylnaphthalene	7.548	142	310432	1057.01	ug/L	98
9) Acenaphthylene	8.338	152	480562	1129.50	ug/L	100
11) Acenaphthene	8.508	152	149723	996.95	ug/L	99
12) Fluorene	9.020	166	358083	1040.24	ug/L	96
14) Phenanthrene	9.967	178	503861	993.14	ug/L	100
15) Anthracene	10.018	178	490231	1081.63	ug/L	98
17) Fluoranthene	11.145	202	533264	1167.88	ug/L	95
18) Pyrene	11.368	202	554385	1161.39	ug/L	94
19) Benzo (a) anthracene	12.557	228	443172	1107.09	ug/L #	100
21) Chrysene	12.592	228	513400	973.60	ug/L	93
22) benzo (b) fluoranthene	13.556	252	333763	870.91	ug/L #	100
23) benzo (k) fluoranthene	13.580	252	571274	1049.42	ug/L	100
24) benzo (a) pyrene	13.835	252	371929	996.28	ug/L	94
26) Indeno(1,2,3-cd)pyrene	14.948	276	392749	1044.45	ug/L	96
27) Dibenz (a,h) anthracene	14.969	278	283366	947.26	ug/L	97
28) Benzo (g,h,i) perylene	15.258	276	403938	973.86	ug/L	97

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

DBPAH101012PHENOL.M Thu Oct 11 14:00:28 2012 PAH

File :D:\Data\SVOC\101112\101102.D
Operator :
Acquired : 11 Oct 2012 9:57 am using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: CCV-
Misc Info : CCV O-PAH-S-SIM
Vial Number: 106



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101103.D
 Acq On : 11 Oct 2012 10:22 am
 Operator :
 Sample : CCB-
 Misc : CCB O-PAH-S-SIM
 ALS Vial : 110 Sample Multiplier: 1

Quant Time: Oct 11 10:51:19 2012
 Quant Method : C:\msdchem\1\methods\DEPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 Qlast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

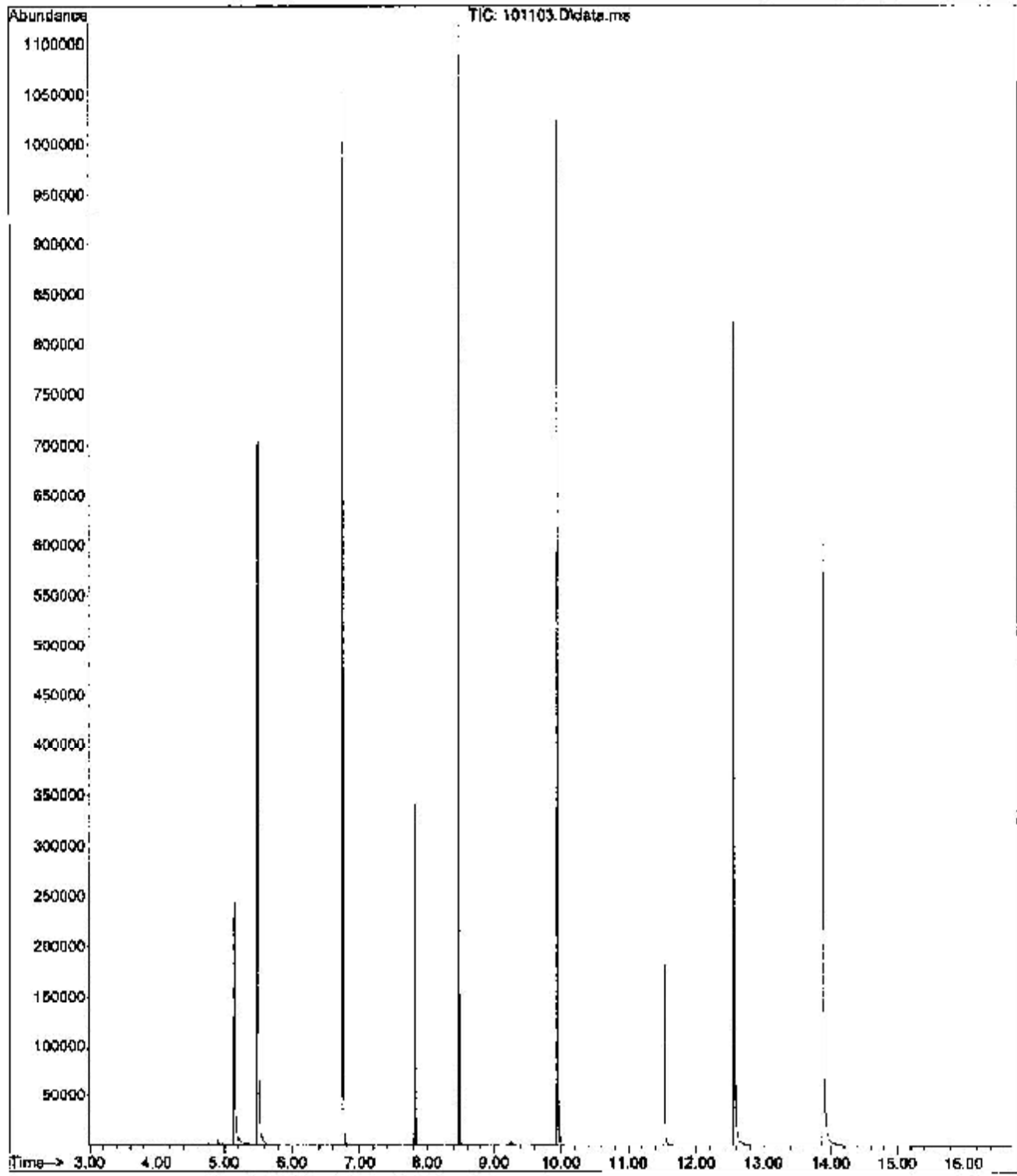
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	268896	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	875931	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	437548	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	188	710840	2000.00	ug/L	0.00
20) Chrysene-d12 (IS)	12.566	240	649472	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.885	264	599480	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.149	99	188579	923.24	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.820	172	191340	494.33	ug/L	0.00
16) Terphenyl-d14 (surr)	11.539	244	133750	510.45	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.432	107	54	N.D.		
5) Naphthalene	6.766	128	52	N.D.		
6) 2-Methylnaphthalene	7.457	142	31	N.D.		
7) 1-Methylnaphthalene	7.550	142	25	N.D.		
9) Acenaphthylene	8.337	152	8	N.D.		
11) Acenaphthene	8.508	152	11	N.D.		
12) Fluorene	9.021	166	53	N.D.		
14) Phenanthrene	9.966	178	143	N.D.		
15) Anthracene	10.020	178	82	N.D.		
17) Fluoranthene	11.146	202	75	N.D.		
18) Pyrene	11.369	202	96	N.D.		
19) Benzo (a) anthracene	12.566	228	1684	N.D.		
21) Chrysene	12.566	228	1176	N.D.		
22) benzo (b) fluoranthene	13.554	252	83	N.D.		
23) benzo (k) fluoranthene	13.579	252	163	N.D.		
24) benzo (a) pyrene	13.832	252	81	N.D.		
26) Indeno(1,2,3-cd)pyrene	14.945	276	49	N.D.		
27) Dibenz (a,h) anthracene	14.957	278	20	N.D.		
28) Benzo (g,h,i) perylene	15.250	276	24	N.D.		

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

DEPAH101012PHENOL.M Thu Oct 11 14:03:19 2012 PAH

File : D:\Data\SVOC\101112\101103.D
Operator :
Acquired : 11 Oct 2012 10:22 am using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: OCB-
Misc Info : OCB O-PAH-S-SIM
Vial Number: 110



Prep Start Date: 10/10/2012 3:59:36
 Prep End Date: 10/10/2012 3:59:36

Prep Factor Units:
 mL/g

Prep Batch ID 3406 Prep Code: PREP-PAH-S Technician: Paul Ho
 Initial Temp: °C Final Temp °C

Sample ID	ClientSampleID	Matrix	pH1	pH2	SamplAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
MR-3406		Soil	10		0	0	0	10	1.000	10/10/2012	10/10/2012
LCS-3406		Soil	10		0	0	0	10	1.000	10/10/2012	10/10/2012
1210030-001A	IR2-BS-82812	Soil	12.48		0	0	0	10	0.801	10/10/2012	10/10/2012
1210030-002A	IR2-NSW1-92812	Soil	12.67		0	0	0	10	0.798	10/10/2012	10/10/2012
1210030-003A	IR2-NSW1-02812	Soil	12.61		0	0	0	10	0.724	10/10/2012	10/10/2012
1210030-004A	IR2-NSW1-82812	Soil	13.53		0	0	0	10	0.739	10/10/2012	10/10/2012
1210030-005A	IR2-BS-82812	Soil	12.23		0	0	0	10	0.816	10/10/2012	10/10/2012
1210030-005ADUP		Soil	12.78		0	0	0	10	0.784	10/10/2012	10/10/2012
1210079-001A	SURZ-SSW1-10412	Soil	13.29		0	0	0	10	0.752	10/10/2012	10/10/2012
1210079-002A	SURZ-NSW1-10412	Soil	12.84		0	0	0	10	0.779	10/10/2012	10/10/2012
1210079-002ADUP		Soil	12.59		0	0	0	10	0.794	10/10/2012	10/10/2012
1210079-002AAS		Soil	13.48		0	0	0	10	0.742	10/10/2012	10/10/2012
1210080-001A	GRZ-WSW01-91212	Soil	12.02		0	0	0	10	0.832	10/10/2012	10/10/2012
1210080-001ADUP		Soil	11.53		0	0	0	10	0.867	10/10/2012	10/10/2012
1210080-002A	SRZ-ESW01-81212	Soil	13.32		0	0	0	10	0.791	10/10/2012	10/10/2012
1210080-003A	SRZ-EZ-91012	Soil	12.98		0	0	0	10	0.770	10/10/2012	10/10/2012
1210080-001A	SURZ-WB1-10812	Soil	13.76		0	0	0	10	0.727	10/10/2012	10/10/2012
1210080-002A	KIR-81-10812	Soil	13.31		0	0	0	10	0.761	10/10/2012	10/10/2012
1210080-003A	SURZ-81-10812	Soil	13.17		0	0	0	10	0.759	10/10/2012	10/10/2012
1210080-004A	KOS-81-10812	Soil	11.41		0	0	0	10	0.876	10/10/2012	10/10/2012
1210080-004ADUP		Soil	12.11		0	0	0	10	0.825	10/10/2012	10/10/2012
1210080-004AAS		Soil	12.86		0	0	0	10	0.796	10/10/2012	10/10/2012
1210080-006A	KOS-82-10812	Soil	13.34		0	0	0	10	0.750	10/10/2012	10/10/2012

Quantitation Report (Not Reviewed)

Data Path : D:\Data\SWOC\101112\
 Data File : 101112.D
 Acq On : 11 Oct 2012 2:07 pm
 Operator :
 Sample : MB-3406
 Misc : MBLK O-PAH-S-SIM
 ALS Vial : 121 Sample Multiplier: 1

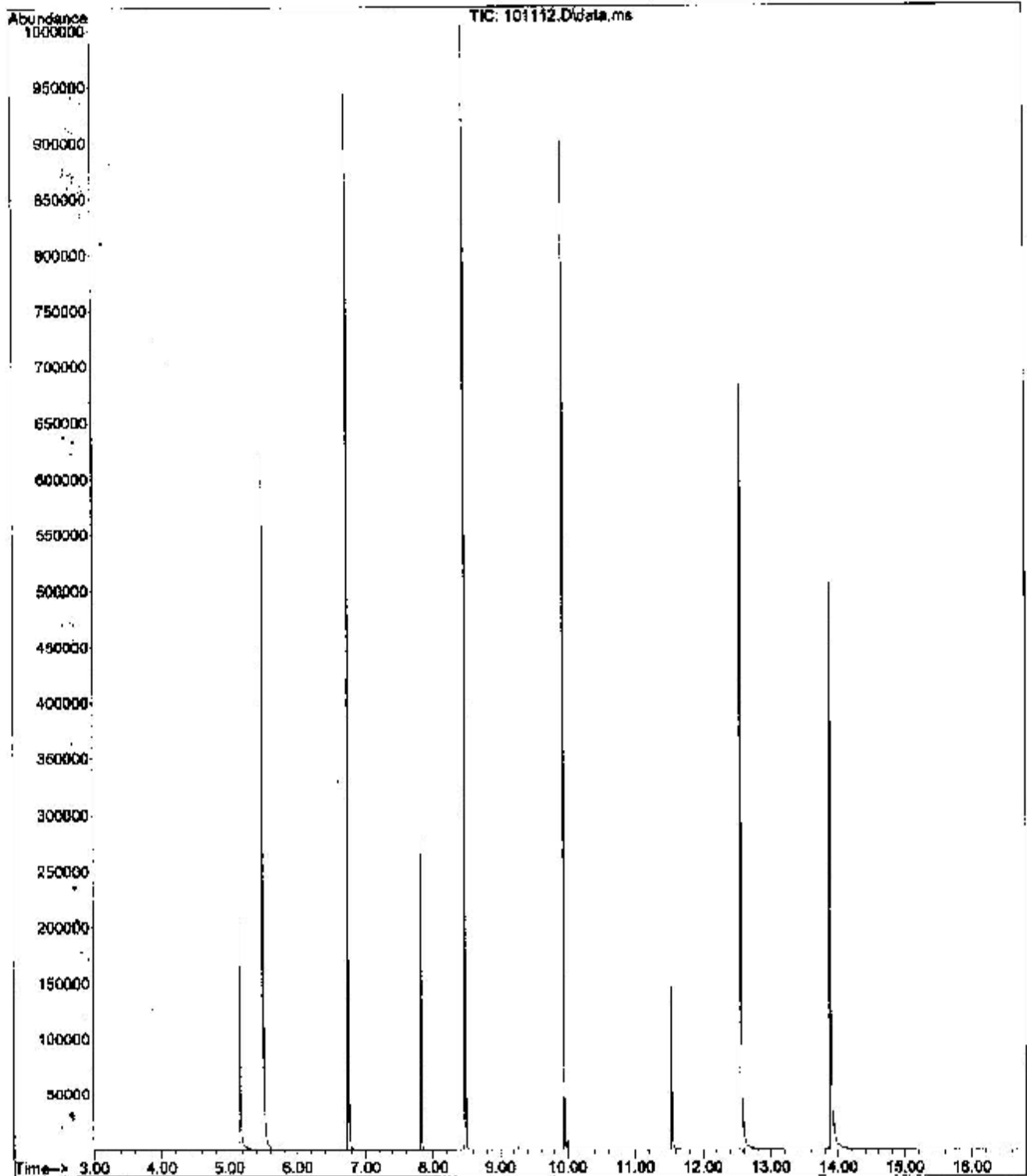
Quant Time: Oct 11 14:28:47 2012
 Quant Method : C:\msdchem\1\methods\BPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.498	152	236069	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	760891	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	382016	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.944	188	626677	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.566	240	569492	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	535333	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.149	99	155611	867.77	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.821	172	157914	469.66	ug/L	0.00
16) Terphenyl-d14 (surr)	11.539	244	112073	485.16	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.401	107	12			N.D.
5) Naphthalene	6.766	128	78			N.D.
6) 2-Methylnaphthalene	7.459	142	38			N.D.
7) 1-Methylnaphthalene	7.550	142	26			N.D.
9) Acenaphthylene	8.337	152	1			N.D.
11) Acenaphthene	8.511	152	12			N.D.
12) Fluorene	9.022	166	16			N.D.
14) Phenanthrene	9.968	178	160			N.D.
15) Anthracene	10.020	178	9			N.D.
17) Fluoranthene	11.148	202	9			N.D.
18) Pyrene	11.370	202	13			N.D.
19) Benzo (a) anthracene	12.566	228	1480			N.D.
21) Chrysene	12.566	228	1300			N.D.
22) benzo (b) fluoranthene	13.560	252	34			N.D.
23) benzo (k) fluoranthene	13.579	252	98			N.D.
24) benzo (a) pyrene	13.835	252	66			N.D.
26) Indeno (1,2,3-cd)pyrene	14.945	276	19			N.D.
27) Dibenz (a,h) anthracene	14.965	278	13			N.D.
28) Benzo (g,h,i) perylene	15.254	276	2			N.D.

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

DBPAH101012PHENOL.M Thu Oct 11 14:28:48 2012 PAH

File :D:\Data\SVOC\101112\101112.D
Operator :
Acquired : 11 Oct 2012 2:07 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: MB-3406
Misc Info : MBLK O-PAH-S-SIM
Vial Number: 121



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101113.D
 Acq On : 11 Oct 2012 2:32 pm
 Operator :
 Sample : LCS-3406
 Misc : LCS O-PAH-S-SIM
 ALS Vial : 122 Sample Multiplier: 1

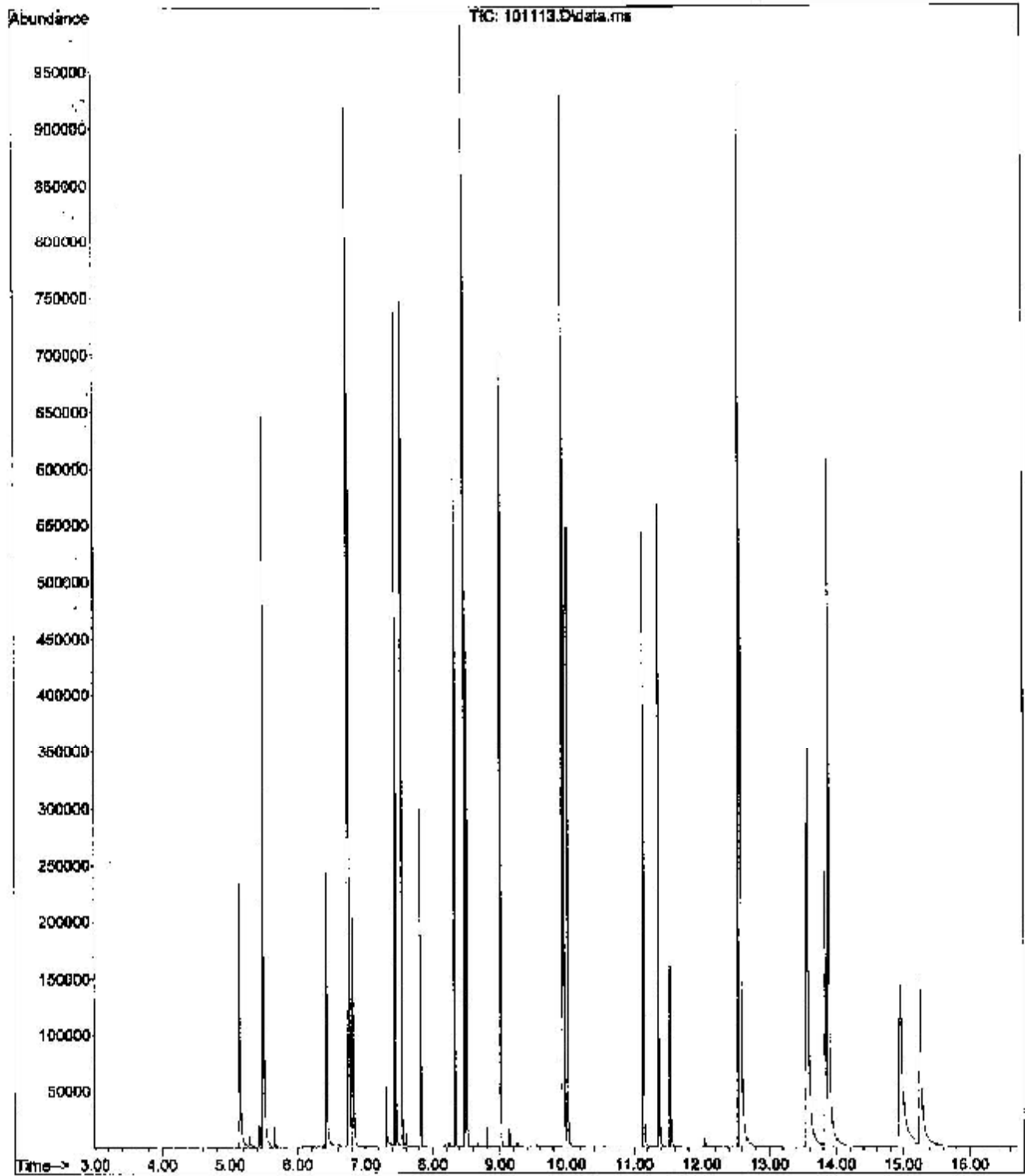
Quant Time: Oct 11 14:52:31 2012
 Quant Method : C:\msdchem\1\methods\BPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 14:52:26 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	233245	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	760779	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	395162	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	188	635812	2000.00	ug/L	0.00
20) Chrysene-d12 (IS)	12.566	240	615718	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.885	264	591424	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.149	99	165613	934.73	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	165027	490.89	ug/L	0.00
16) Terphenyl-d14 (surr)	11.539	244	119639	510.47	ug/L	0.00
Target Compounds						
						Qvalue
3] 2,4-Dimethylphenol	6.426	107	115674	849.48	ug/L	99
5] Naphthalene	6.766	128	439410	910.43	ug/L	100
6] 2-Methylnaphthalene	7.453	142	262805	929.42	ug/L	100
7] 1-Methylnaphthalene	7.548	142	246187	920.14	ug/L	100
9] Acenaphthylene	8.338	152	374755	966.90	ug/L	100
11] Acenaphthene	8.509	152	117270	882.49	ug/L	100
12] Fluorene	9.022	166	274064	899.80	ug/L	100
14] Phenanthrene	9.967	178	385884	889.38	ug/L	100
15] Anthracene	10.019	178	367321	947.66	ug/L	100
17] Fluoranthene	11.146	202	381235	976.11	ug/L	99
18] Pyrene	11.367	202	401153	982.67	ug/L	100
19] Benzo (a) anthracene	12.557	228	315122	920.49	ug/L #	100
21] Chrysene	12.590	228	391174	879.34	ug/L #	78
22] benzo (b) fluoranthene	13.555	252	235344	727.95	ug/L #	100
23] benzo (k) fluoranthene	13.579	252	420747	916.19	ug/L	100
24] benzo (a) pyrene	13.835	252	256637	823.15	ug/L	97
26] Indeno(1,2,3-cd)pyrene	14.948	276	264235	843.49	ug/L	98
27] Dibenz (a,h) anthracene	14.967	278	188469	753.47	ug/L	99
28] Benzo (g,h,i) perylene	15.257	276	285737	818.14	ug/L	99

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

DBPAH101012PHENOL.M Thu Oct 11 14:52:44 2012 PAH

File : D:\Data\SVOC\101112\101113.D
Operator :
Acquired : 11 Oct 2012 2:32 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: LCS-3406
Misc Info : LCS O-PAH-S-SIM
Vial Number: 122



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101114.D
 Acq On : 11 Oct 2012 2:57 pm
 Operator :
 Sample : 1210089-003A
 Misc : SAMP O-PAK-S-SIM
 ALS Vial : 123 Sample Multiplier: 1

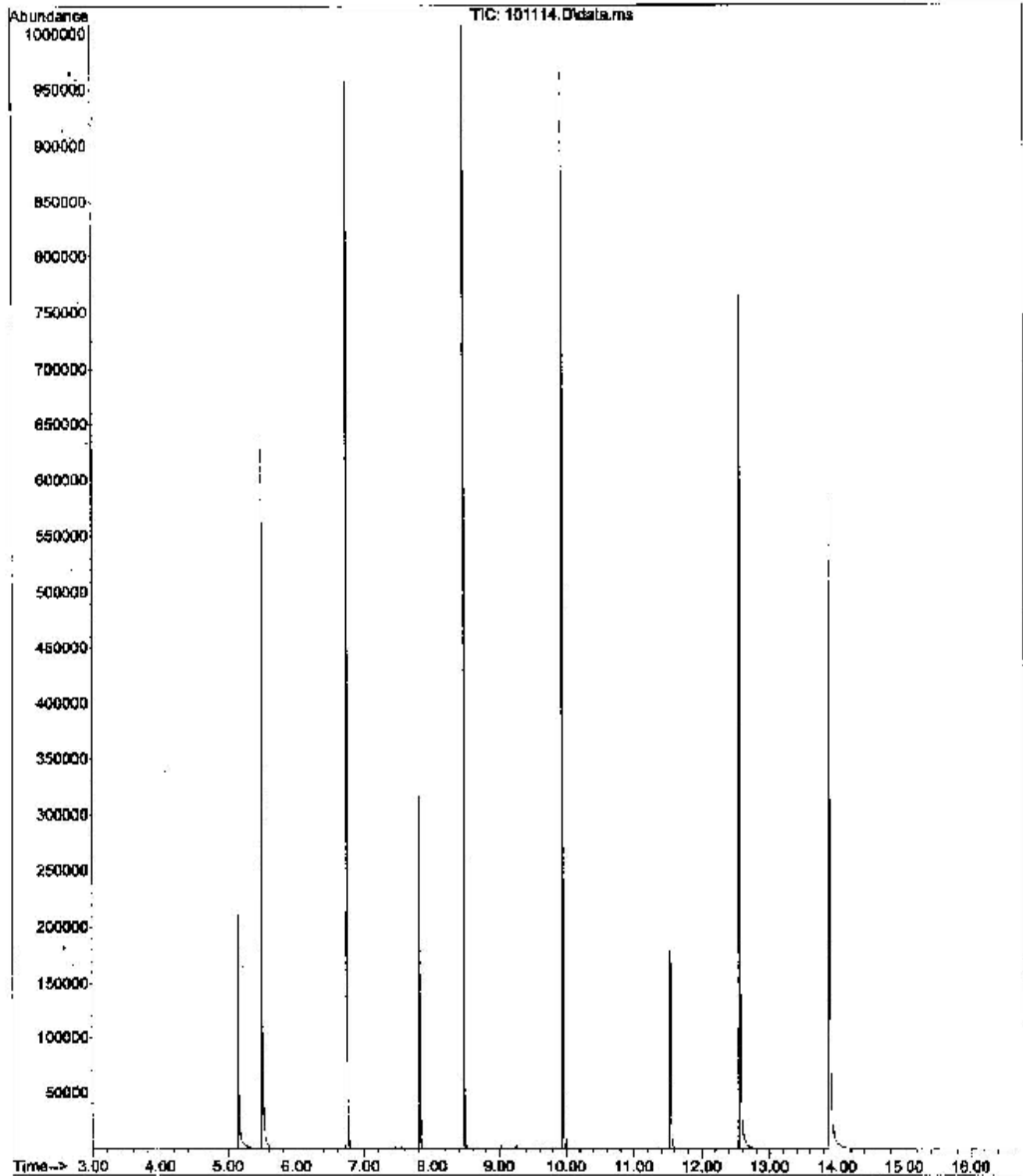
Quant Time: Oct 11 15:25:25 2012
 Quant Method : C:\msdchem\1\methods\BPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 14:52:26 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	242770	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	787077	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	406038	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	188	671496	2000.00	ug/L	0.00
20) Chrysene-d12 (IS)	12.566	240	638057	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.885	264	616450	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.151	99	153948	834.80	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	171513	493.13	ug/L	0.00
16) Terphenyl-d14 (surr)	11.540	244	136223	550.35	ug/L	0.00
Target Compounds						
3) 2,4-Dimethylphenol	6.449	107	1129	7.90	ug/L	89
5) Naphthalene	6.766	128	864	N.D.		
6) 2-Methylnaphthalene	7.455	142	516	N.D.		
7) 1-Methylnaphthalene	7.550	142	250	N.D.		
9) Acenaphthylene	8.334	152	3	N.D.		
11) Acenaphthene	8.511	152	132	N.D.		
12) Fluorene	9.023	166	1033	N.D.		
14) Phenanthrene	9.966	178	390	N.D.		
15) Anthracene	10.021	178	194	N.D.		
17) Fluoranthene	11.147	202	273	N.D.		
18) Pyrene	11.370	202	636	N.D.		
19) Benzo (a) anthracene	12.566	228	1713	N.D.		
21) Chrysene	12.566	228	1016	N.D.		
22) benzo (b) fluoranthene	13.556	252	64	N.D.		
23) benzo (k) fluoranthene	13.577	252	261	N.D.		
24) benzo (a) pyrene	13.835	252	85	N.D.		
26) Indeno(1,2,3-cd)pyrene	14.943	276	8	N.D.		
27) Dibenz (a,h) anthracene	14.964	278	6	N.D.		
28) Benzo (g,h,i) perylene	15.250	276	8	N.D.		

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

DBPAH101012PHENOL.M Thu Oct 11 15:25:26 2012 PAH

File :D:\Data\SVOC\101112\101114.D
Operator :
Acquired : 11 Oct 2012 2:57 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 1210089-003A
Misc Info : SAMP O-PAH-S-SIM
Vial Number: 123



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101115.D
 Acq On : 11 Oct 2012 3:22 pm
 Operator :
 Sample : 1210089-004A
 Misc : SAMP O-PAH-B-SIM
 ALS Vial : 124 Sample Multiplier: 1

Quant Time: Oct 11 16:21:40 2012
 Quant Method : C:\msdchem\1\methods\DBPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 14:52:26 2012
 Response via : Initial Calibration

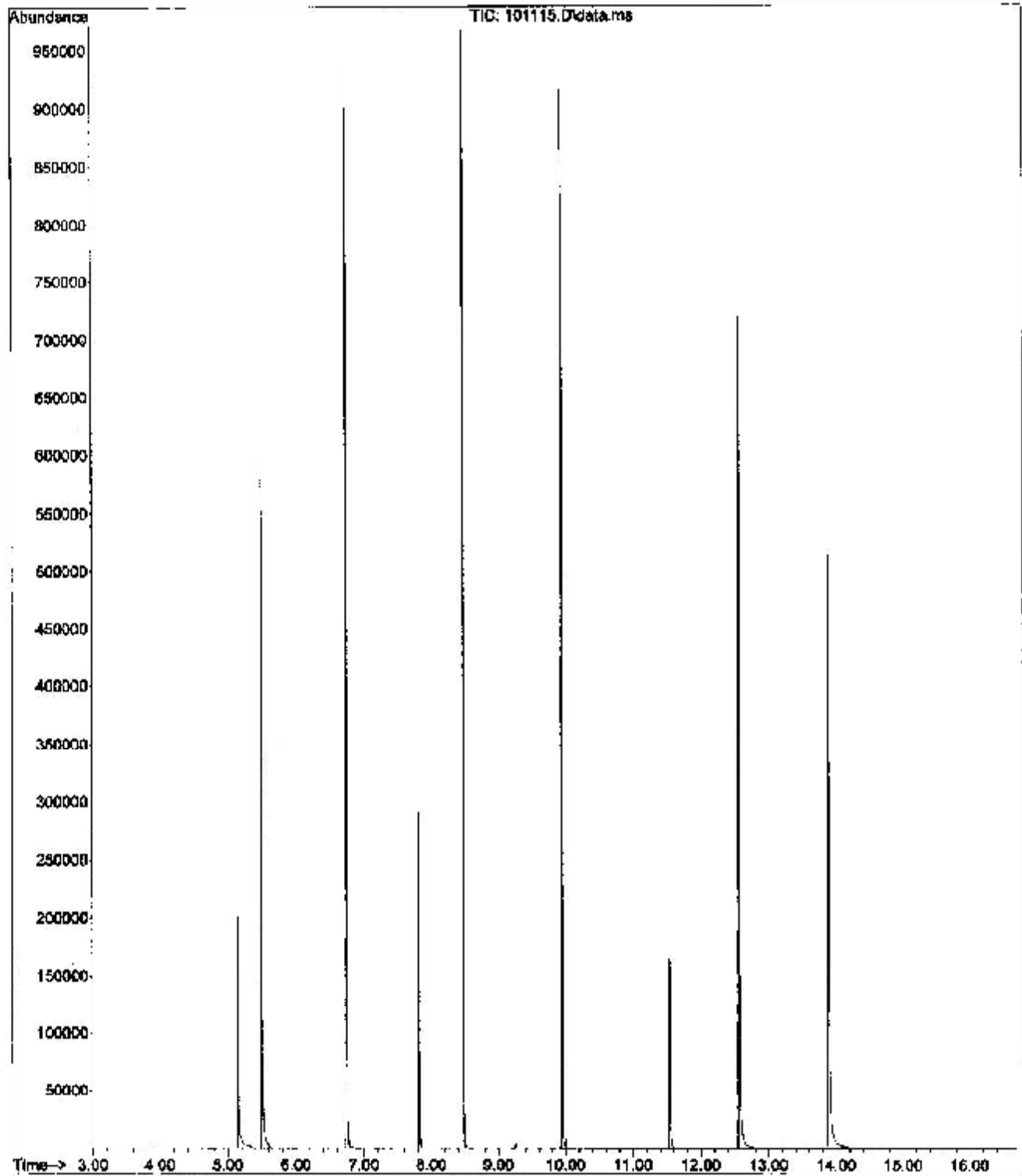
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.498	152	232562	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	757244	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.479	164	384502	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	188	636719	2000.00	ug/L	0.00
20) Chrysene-d12 (IS)	12.567	240	591122	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	560404	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.151	99	150342	851.03	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.821	172	168331	494.09	ug/L	0.00
16) Terphenyl-d14 (surr)	11.540	244	126967	540.97	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.453	107	37		N.D.	
5) Naphthalene	6.766	128	144		N.D.	
6) 2-Methylnaphthalene	7.457	142	69		N.D.	
7) 1-Methylnaphthalene	7.552	142	61		N.D.	
9) Acenaphthylene	8.341	152	5		N.D.	
11) Acenaphthene	8.512	152	16		N.D.	
12) Fluorene	9.023	166	11		N.D.	
14) Phenanthrene	9.969	178	212		N.D.	
15) Anthracene	10.021	178	4		N.D.	
17) Fluoranthene	11.149	202	54		N.D.	
18) Pyrene	11.371	202	87		N.D.	
19) Benzo (a) anthracene	12.567	228	1630		N.D.	
21) Chrysene	12.567	228	1458		N.D.	
22) benzo (b) fluoranthene	13.559	252	37		N.D.	
23) benzo (k) fluoranthene	13.579	252	156		N.D.	
24) benzo (a) pyrene	13.885	252	1811	6.35	ug/L	91
26) Indeno(1,2,3-cd)pyrene	14.883	276	2		N.D.	
27) Dibenz (a,h) anthracene	14.965	278	14		N.D.	
28) Benzo (g,h,i) perylene	15.258	276	7		N.D.	

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

DBPAH101012PHENOL.M Thu Oct 11 16:21:57 2012 PAH

File : D:\Data\SVOC\101112\101115.D
Operator :
Acquired : 11 Oct 2012 3:22 pm using AcqMethod DEPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 1210089-004A
Misc Info : SAMP O-PAH-S-SIM
Vial Number: 124



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101116.D
 Acq On : 11 Oct 2012 3:47 pm
 Operator :
 Sample : 1210089-004ADUP
 Misc : DUP O-PAH-S-SIM
 ALS Vial : 125 Sample Multiplier: 1

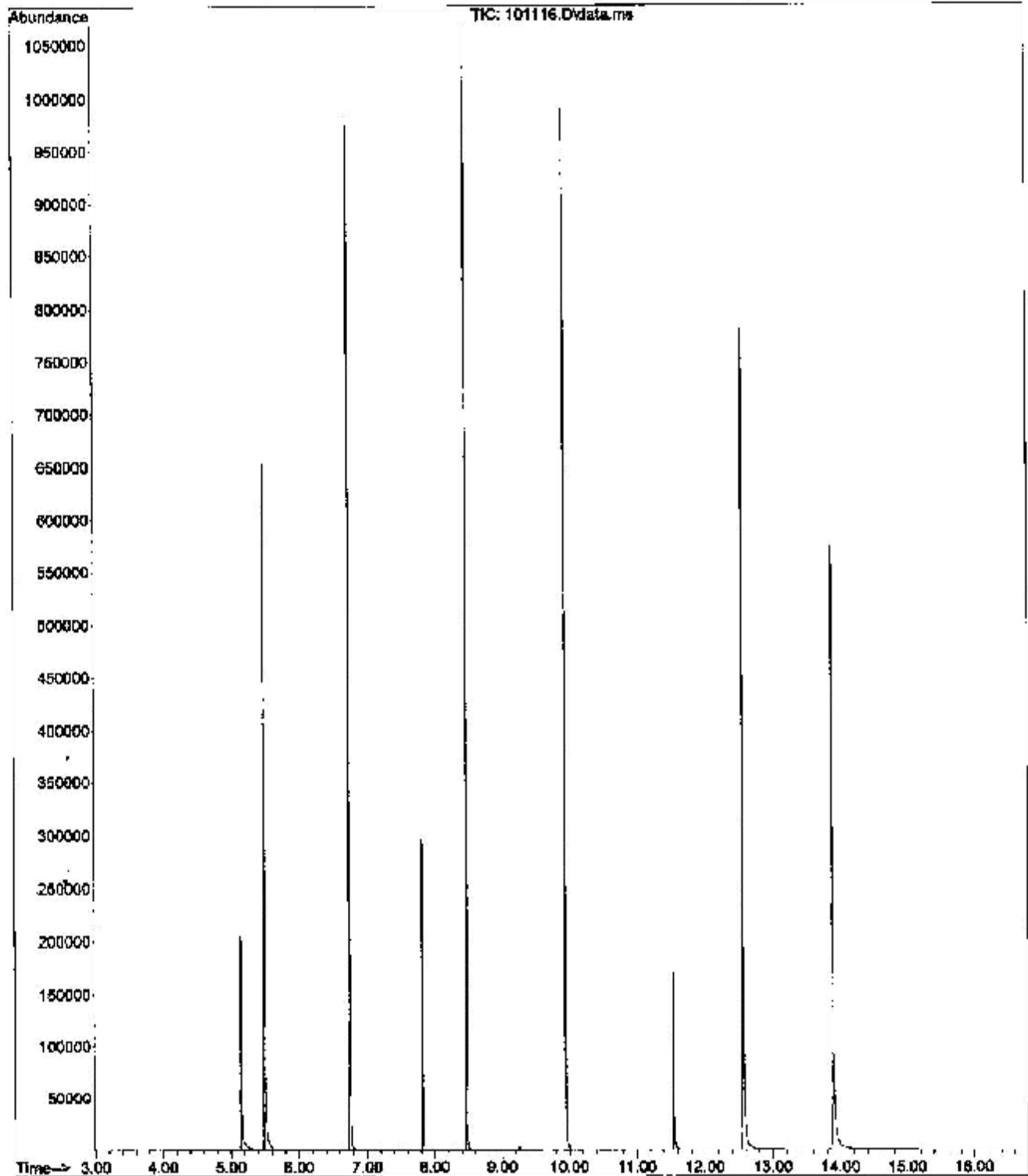
Quant Time: Oct 11 16:21:46 2012
 Quant Method : C:\msdchem\1\methods\OBPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 14:52:26 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)	
Internal Standards							
1) 1,4-Dichlorobenz-d4 (IS)	5.498	152	248460	2000.00	ug/L	0.00	
4) Naphthalene-d8 (IS)	6.747	136	806989	2000.00	ug/L	0.00	
10) Acenaphthene-d10 (IS)	8.480	164	410617	2000.00	ug/L	0.00	
13) Phenanthrene-d10 (IS)	9.945	188	680155	2000.00	ug/L	0.00	
20) Chrysene-d12 (IS)	12.568	240	628483	2000.00	ug/L	0.00	
25) Perylene-d12 (IS)	13.887	264	598140	2000.00	ug/L	0.00	
System Monitoring Compounds							
2) Phenol-d6	5.151	99	151627	803.39	ug/L	0.00	
8) 2-Fluorobiphenyl (surr)	7.822	172	167504	469.72	ug/L	0.00	
16) Terphenyl-d14 (surr)	11.540	244	128398	512.13	ug/L	0.00	
Target Compounds							
							Qvalue
3) 2,4-Dimethylphenol	6.511	107	2		N.D.		
5) Naphthalene	6.747	128	29		N.D.		
6) 2-Methylnaphthalene	7.459	142	60		N.D.		
7) 1-Methylnaphthalene	7.552	142	45		N.D.		
9) Acenaphthylene	8.340	152	1		N.D.		
11) Acenaphthene	8.509	152	13		N.D.		
12) Fluorene	9.023	166	4		N.D.		
14) Phenanthrene	9.967	178	157		N.D.		
15) Anthracene	10.020	178	6		N.D.		
17) Fluoranthene	11.148	202	27		N.D.		
18) Pyrene	11.371	202	83		N.D.		
19) Benzo (a) anthracene	12.566	228	1725		N.D.		
21) Chrysene	12.566	228	1511		N.D.		
22) benzo (b) fluoranthene	13.559	252	39		N.D.		
23) benzo (k) fluoranthene	13.583	252	169		N.D.		
24) benzo (a) pyrene	13.887	252	1959	6.46	ug/L		94
26) Indeno(1,2,3-cd)pyrene	14.945	276	27		N.D.		
27) Dibenz (a,h) anthracene	14.969	278	15		N.D.		
28) Benzo (g,h,i) perylene	15.254	276	18		N.D.		

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

OBPAH101012PHENOL.M Thu Oct 11 16:21:47 2012 PAH

File : D:\Data\SVOC\101112\101116.D
Operator :
Acquired : 11 Oct 2012 3:47 pm using AcqMethod DEPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 1210089-004ADUP
Misc Info : DUP O-PAH-S-SIM
Vial Number: 125



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101117.D
 Acq On : 11 Oct 2012 4:12 pm
 Operator :
 Sample : 1210089-004ANS
 Misc : MS O-PAH-8-SIM
 ALS Vial : 126 Sample Multiplier: 1

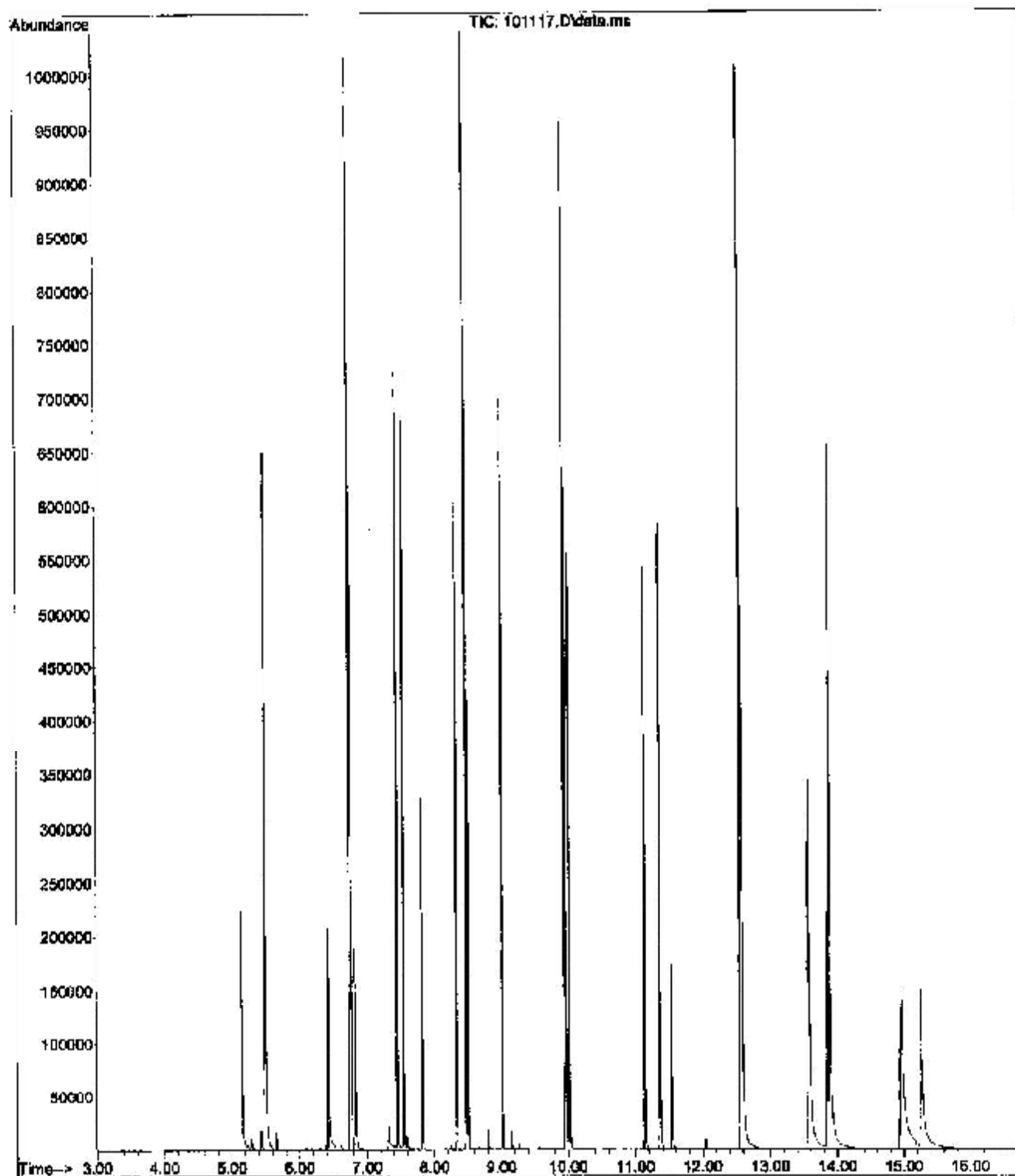
Quant Time: Oct 11 16:40:47 2012
 Quant Method : C:\msdchem\1\methods\DBPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 14:52:26 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)	
Internal Standards							
1) 1,2-Dichlorobenz-d4 (IS)	5.498	152	243558	2000.00	ug/L	0.00	
4) Naphthalene-d8 (IS)	6.747	136	803565	2000.00	ug/L	0.00	
10) Acenaphthene-d10 (IS)	8.480	164	418741	2000.00	ug/L	0.00	
13) Phenanthrene-d10 (IS)	9.945	188	678879	2000.00	ug/L	0.00	
20) Chrysene-d12 (IS)	12.568	240	659172	2000.00	ug/L	0.00	
25) Perylene-d12 (IS)	13.887	264	639673	2000.00	ug/L	0.00	
System Monitoring Compounds							
2) Phenol-d6	5.151	99	163193	882.07	ug/L	0.00	
8) 2-Fluorobiphenyl (surr)	7.822	172	174768	492.18	ug/L	0.00	
16) Terphenyl-d14 (surr)	11.540	244	133471	533.83	ug/L	0.00	
Target Compounds							
							Qvalue
3) 2,4-Dimethylphenol	6.428	107	114798	808.43	ug/L		99
5) Naphthalene	6.766	128	439108	861.36	ug/L		100
6) 2-Methylnaphthalene	7.453	142	264847	886.77	ug/L		100
7) 1-Methylnaphthalene	7.550	142	247665	876.38	ug/L		100
9) Acenaphthylene	8.338	152	375979	918.41	ug/L		100
11) Acenaphthene	8.509	152	117774	836.38	ug/L		100
12) Fluorene	9.022	166	275869	854.72	ug/L		100
14) Phenanthrene	9.969	178	387287	836.73	ug/L		100
15) Anthracene	10.020	178	372643	901.19	ug/L		100
17) Fluoranthene	11.146	202	392244	941.41	ug/L		100
18) Pyrene	11.368	202	409992	941.44	ug/L		100
19) Benzo (a) anthracene	12.559	238	322083	881.92	ug/L #		100
21) Chrysene	12.593	228	391907	822.91	ug/L		98
22) benzo (b) fluoranthene	13.557	252	233099	673.48	ug/L #		100
23) benzo (k) fluoranthene	13.580	252	445287	905.71	ug/L		99
24) benzo (a) pyrene	13.837	252	261251	784.49	ug/L		97
26) Indeno (1,2,3-cd)pyrene	14.950	276	268996m	794.77	ug/L		
27) Dibenz (a,h) anthracene	14.969	278	194160m	718.58	ug/L		
28) Benzo (g,h,i) perylene	15.260	276	305371m	808.41	ug/L		

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

DBPAH101012PHENOL.M Thu Oct 11 16:40:51 2012 PAH

File : D:\Data\SVOC\101112\101117.D
Operator :
Acquired : 11 Oct 2012 4:12 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 1210089-004AMS
Misc Info : MS O-PAH-S-SIM
Vial Number: 126





Libby Environmental, Inc.

4139 Libby Road NE • Olympia, WA 98506-2518

November 8, 2012

Neil Morton
GeoEngineers Inc.
600 Stewart Street, Suite 1700
Seattle, WA 98101

Dear Mr. Morton:

Please find enclosed the analytical data report for the Irondale Project located in Irondale, Washington. A water sample and soil samples were analyzed for Diesel & Oil by NWTPH-Dx/Dx Extended with Silica Gel Clean Up on October 9, 2012. A soil sample was analyzed for Polycyclic Aromatic Hydrocarbons (PAH) by EPA Method 8270 SIM on October 10, 2012.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. All soil samples are reported on a dry weight basis. An invoice for this analytical work is enclosed.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Jamie L. Deyman
President
Libby Environmental, Inc.

Phone (360) 352-2110 • Fax (360) 352-4154 • libbyenv@aol.com

www.LibbyEnvironmental.com



Libby Environmental, Inc.

Case Narrative

Libby Project #: L121009-30
Date: 11-8-2012

CLIENT: GeoEngineers, Inc.
PROJECT: Irondale

I. SAMPLE RECEIPT:

All samples were received intact and in good condition. See the attached Sample Receipt Check List for more information.

II. GENERAL REPORTING COMMENTS:

Final results are reported on a dry weight basis. The soil samples in the field are estimated to have a moisture content of 15%. This estimate is useful in producing data that is close to the actual value. After the sample is analyzed for soil moisture at our fixed base facility, the final data is reported based on measured soil moisture. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS), the Laboratory Control Sample Duplicate (LCSD) and the Method Blank (MB). The LCS, LCSD and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) and/or noted below.

Notes:

For the water matrix, a Method Blank and sample duplicate were analyzed. Neither an LCS nor an LCSD were prepared or analyzed due to practical time constraints. The NWTPH-Dx method does not recommend LCS or LCSD.

The cPAH report includes data results from Libby project L121008-30.

Libby Environmental, Inc.

Chain of Custody Record

4139 Libby Road NE
Olympia, WA 98506

Ph: 360-352-2110
Fax: 360-352-4154

Date: **10-9-12** Page: **1** of **1**
Project Manager: **Neil Morton / Paul R.**
Project Name: **Irondale**
Location: **WA** City, State: **Irondale**
Collector: **Paul Robinette** Date of Collection: **10-9-12**
Email:

Client: **Geo Engineers**
Address:
City: State: Zip:
Phone: Fax:
Client Project # **0504-042-02**



Sample Number	Depth	Time	Sample Type	Container Type	Analytical Methods											Field Notes			
					VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEM VOL 8270	NWTPH-HCID	NWTPH-GX	NWTPH-Dx	PAH 8270	PCBs 8082	MTCA 5 Metals					
1 DWG-10912		8:50	Water	amber															
2 KOB-B1-10912	5	855	SOIL	(2) 4oz								X							PAH Extract & HOLD
3 KOB-WSW1-10912	9	940	SOIL	4oz								X							
4 KOB-SSW2-10912	9	942	SOIL	4oz								X							
5 KOB-B2-10912	10	944	SOIL	(2) 4oz								X	X						PAH Extract & HOLD
6 KOB-BSW1-10912	9	946	SOIL	4oz								X							
7 KOB-SSW1-10912	9	948	SOIL	4oz								X							
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			
16																			
17																			

10-10-12 run cPAH
per Neil via email
24hr TAT

Relinquished by: Paul Robinette Date / Time: 10/9/12 1400	Received by: Paul Burt Date / Time: 10-9-12 1700	Sample Receipt:	Remarks:
Relinquished by:	Received by:	Good Condition?	
		Cold?	
		Seals Intact?	
		Total Number of Containers	

TAT: 24HR 48HR 5-DAY

Libby Environmental, Inc. Login Sample Receipt Check List

Client: GeoEngineers, Inc. **Libby Project Number:** L121009-30

Question	T / F / NA	Comment
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler temperature is acceptable.	True	
COC is present.	True	
COC is filled out in ink and is legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within the Hold Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs.	True	
VOA sample vials do not have headspace or bubble is less than 6mm (1/4 in.) in diameter.	True	
If necessary, staff has been informed of any short hold time or quick TAT needs.	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	

Libby Environmental, Inc.

4139 Libby Road NE
Olympia, WA 98506
Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@aol.com

IRONDALE PROJECT
GeoEngineers, Inc.
Irondale, Washington
Libby Project # L121009-30
Client Project # 0504-042-02

Analyses of Diesel & Oil Range (NWTPH-Dx/Dx Extended) in Soil w/ Silica Gel Cleanup

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Bunker C (mg/kg)
Method Blank	10/9/12	99	nd	nd
LCS	10/9/12	int	103%	
LCSD	10/9/12	int	102%	
K08-B1-10912	10/9/12	122	nd	64
K08-WSW1-10912	10/9/12	94	nd	nd
K08-SSW2-10912	10/9/12	110	nd	nd
K08-B2-10912	10/9/12	93	nd	nd
K08-ESW1-10912	10/9/12	103	nd	nd
K08-ESW1-10912 Dup	10/9/12	94	nd	nd
K08-SSW1-10912	10/9/12	115	nd	50
Practical Quantitation Limit			25	40

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

Libby Environmental, Inc.

4139 Libby Road NE
Olympia, WA 98506
Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@aol.com

IRONDALE PROJECT
GeoEngineers, Inc.
Irondale, Washington
Libby Project # L121009-30
Client Project # 0504-042-02

Analyses of Diesel & Oil (NWTPH-Dx/Dx Extended) in Water

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel ($\mu\text{g/l}$)	Bunker C ($\mu\text{g/l}$)
Method Blank	10/9/12	117	nd	nd
DW6-10912	10/9/12	97	nd	nd
DW6-10912 Dup	10/9/12	110	nd	nd
Practical Quantitation Limit			200	400

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

Analysis date: 10/09/2012 07:16:50
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C268.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Analysis date: 10/09/2012 07:16:50
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D266.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

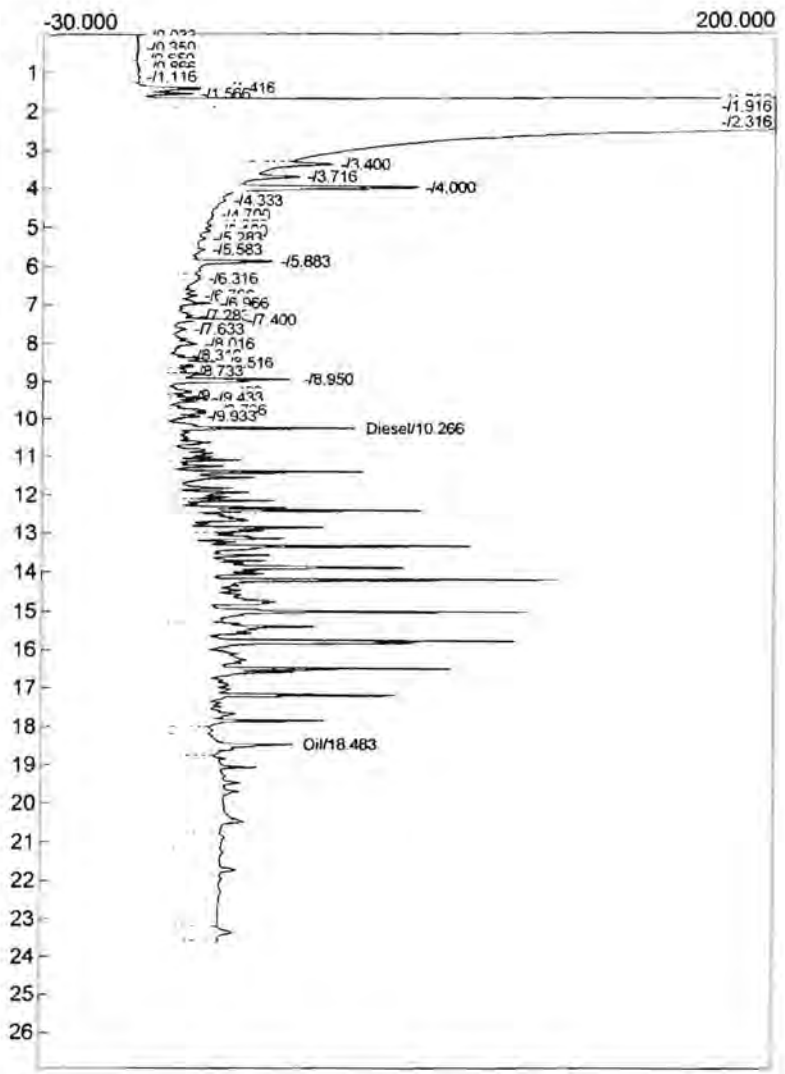
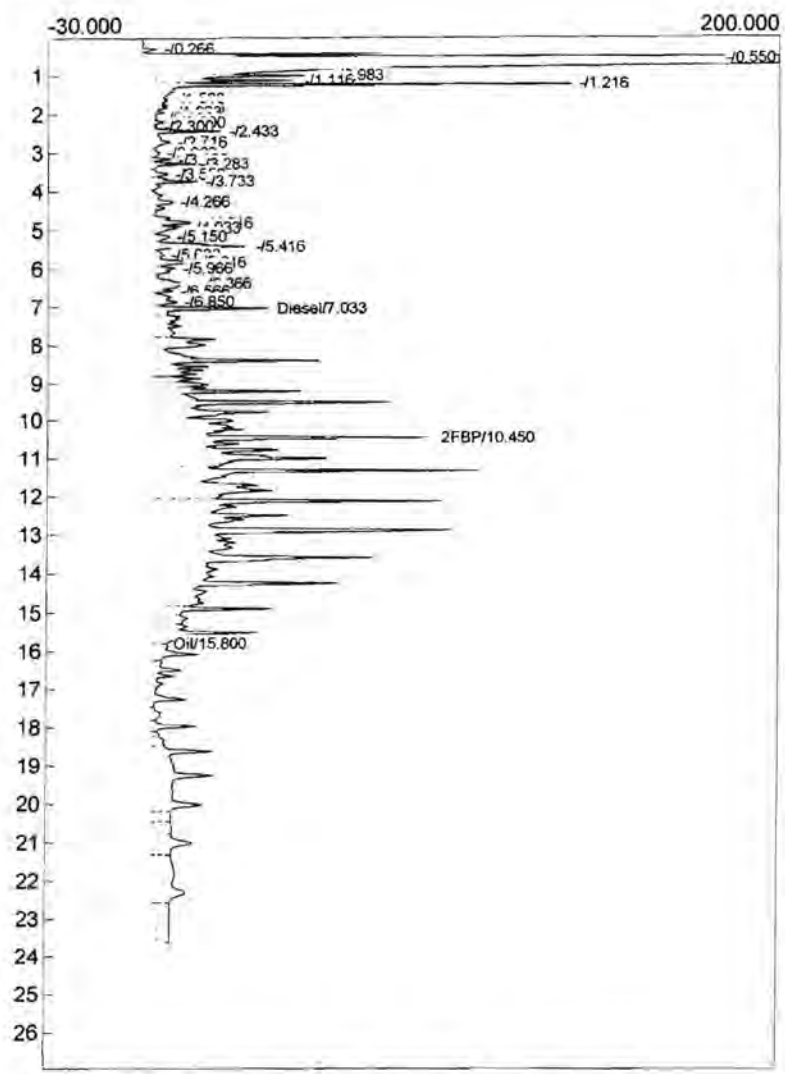
Time Event
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Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
iesel	7.033	10236.1480	35.508	504.3804	ppm
FBP	10.450	624.7820	87.332	24.9913	ppm
il	15.800	2223.0925	3.052	109.2958	ppm
		13084.0225		638.6674	

Component	Retention	Area	Height	External	Units
Diesel	10.266	9683.4750	59.712	514.2497	ppm
Oil	18.483	5050.8480	38.891	267.1792	ppm
		14734.3230		781.4289	

Analysis date: 10/09/2012 07:49:24
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C269.CHR ()
 Sample: 1000 ppm LCS 343
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO

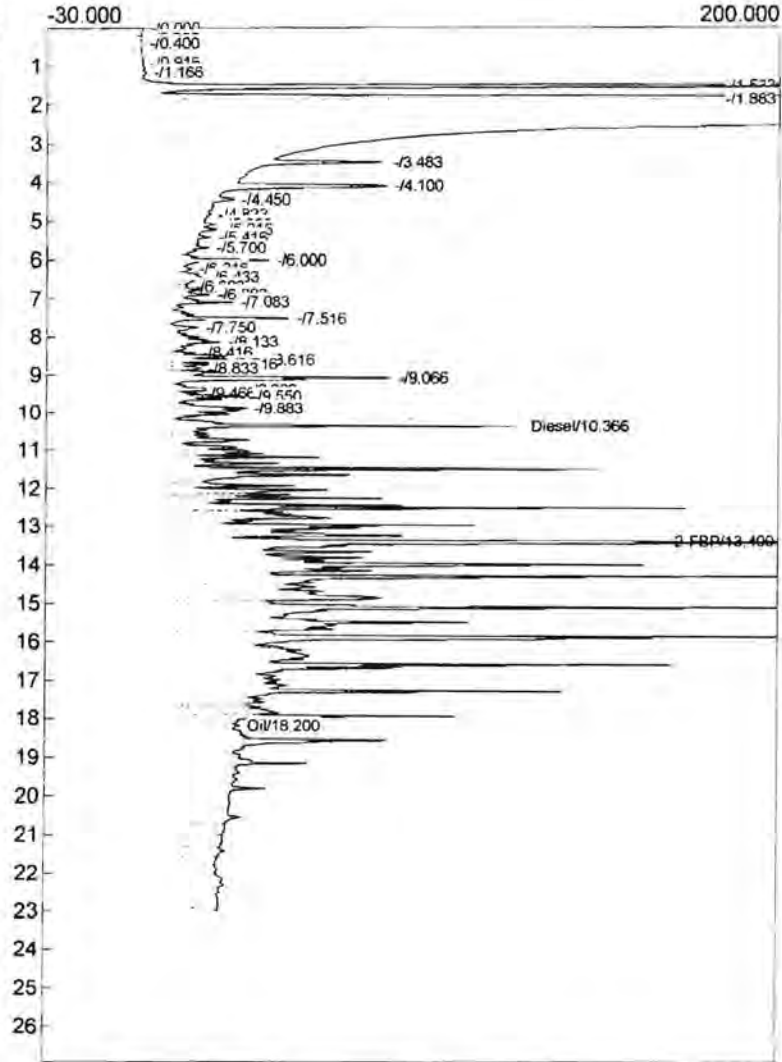
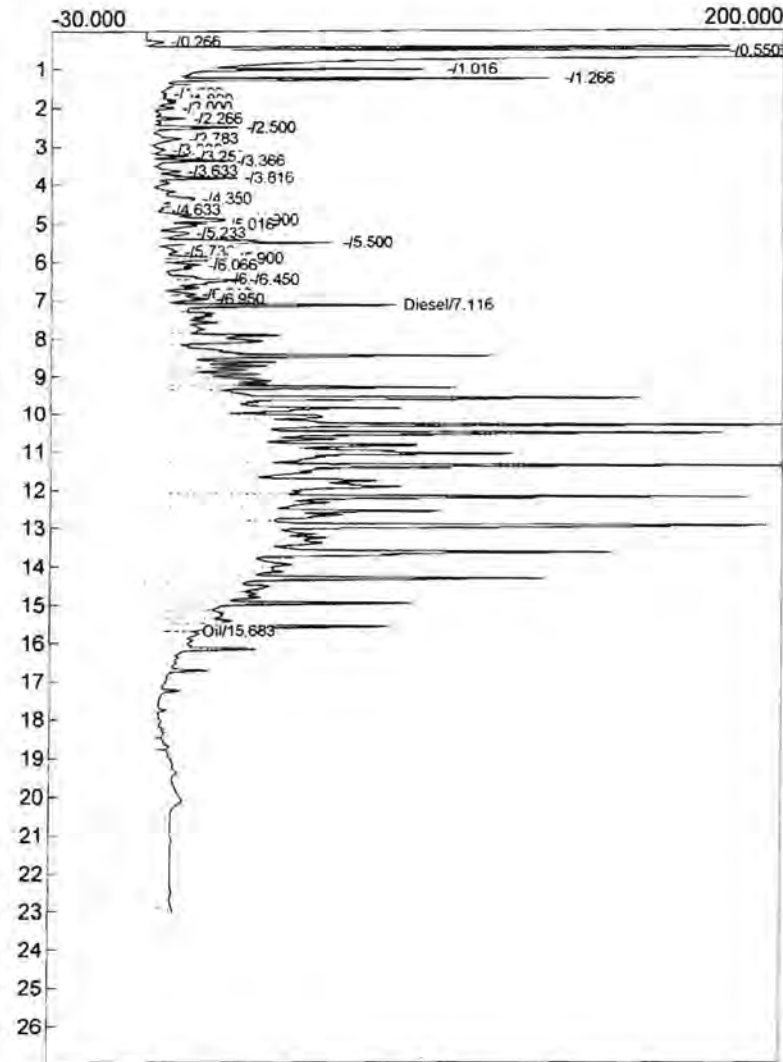
Analysis date: 10/09/2012 07:49:24
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D267.CHR ()
 Sample: 1000 ppm LCSD 343
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.116	20802.9925	70.515	1028.6906	ppm
Oil	15.683	975.3585	8.623	47.8524	ppm
		21778.3510		1076.6430	

103%

Component	Retention	Area	Height	External	Units
Diesel	10.366	19029.1885	110.478	1018.9823	ppm
2-FBP	13.400	1456.4390	236.126	50.6587	ppm
Oil	18.200	4453.4400	18.973	235.4175	ppm
		24939.0675		1305.0586	

102%

Analysis date: 10/09/2012 08:19:21
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C270.CHR ()
 Sample: Method Blank
 Operator: PB

Analysis date: 10/09/2012 08:19:21
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D268.CHR ()
 Sample: Method Blank
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

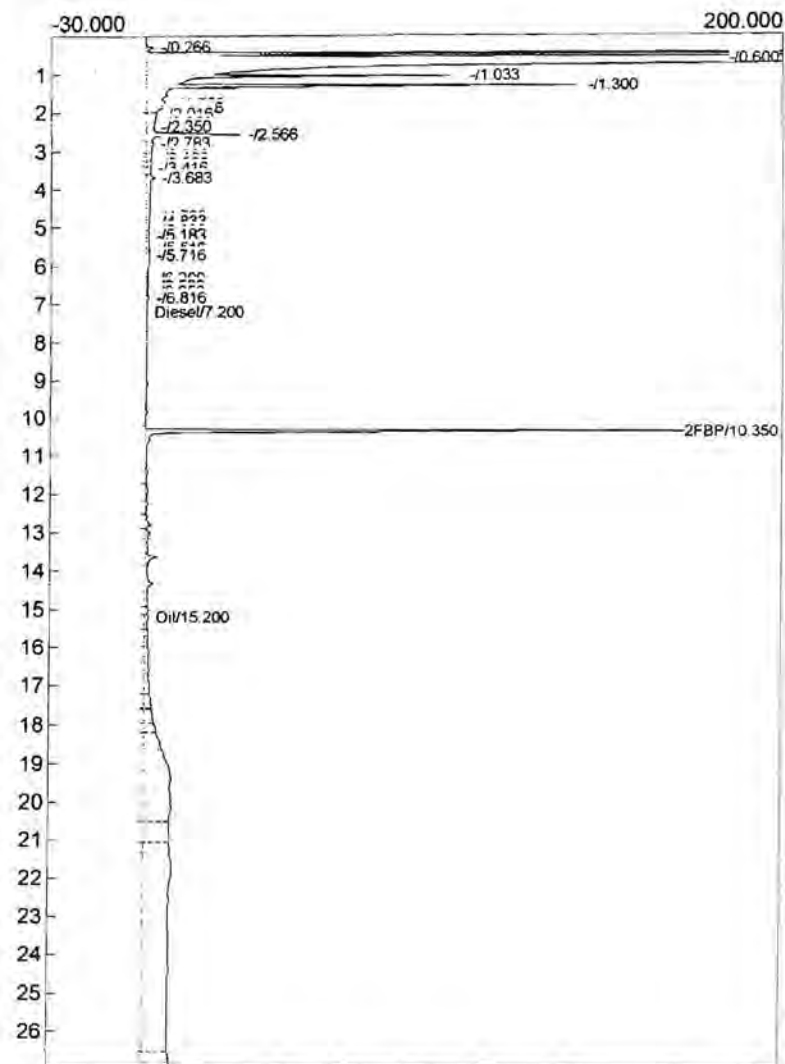
Time Event
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Temperature program:

Init temp Hold Ramp Final temp

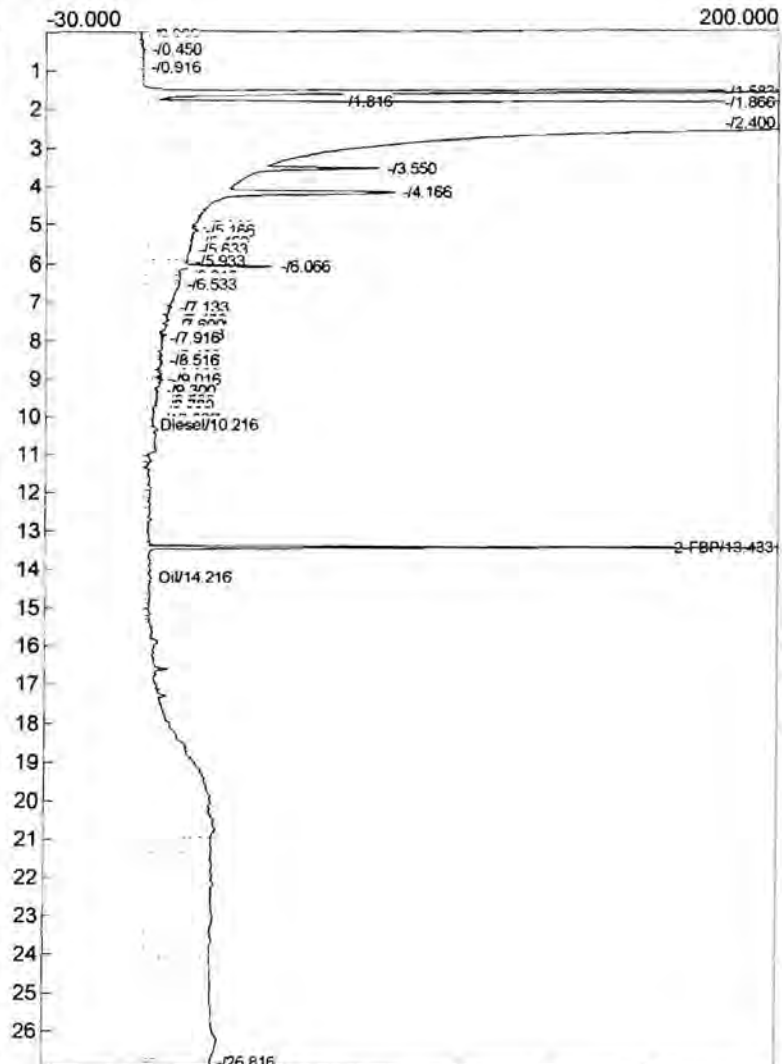
Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
iesel	7.200	801.7520	0.290	39.4172	ppm
FBP	10.350	581.4800	187.572	23.2592	ppm
il	15.200	4358.2820	1.146	214.3096	ppm
		5741.5140		276.9860	

116%



Component	Retention	Area	Height	External	Units
Diesel	10.216	799.1370	1.758	42.2012	ppm
2-FBP	13.433	564.7015	249.443	19.6418	ppm
Oil	14.216	10831.9330	1.483	575.7243	ppm
		12195.7715		637.5673	

98%

Analysis date: 10/09/2012 08:19:21

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: C270.CHR ()

Sample: Method Blank

Operator: PB

** Used only for Bunker C airblank*

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO

Analysis date: 10/09/2012 08:19:21

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: D268.CHR ()

Sample: Method Blank

Operator: PB

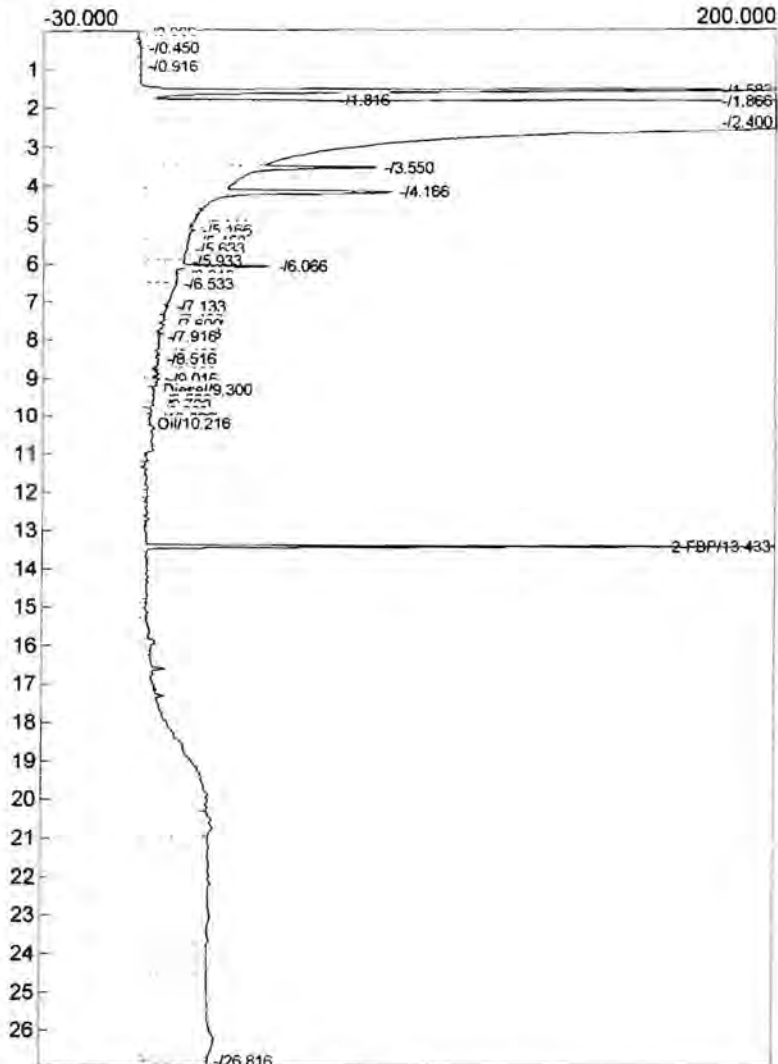
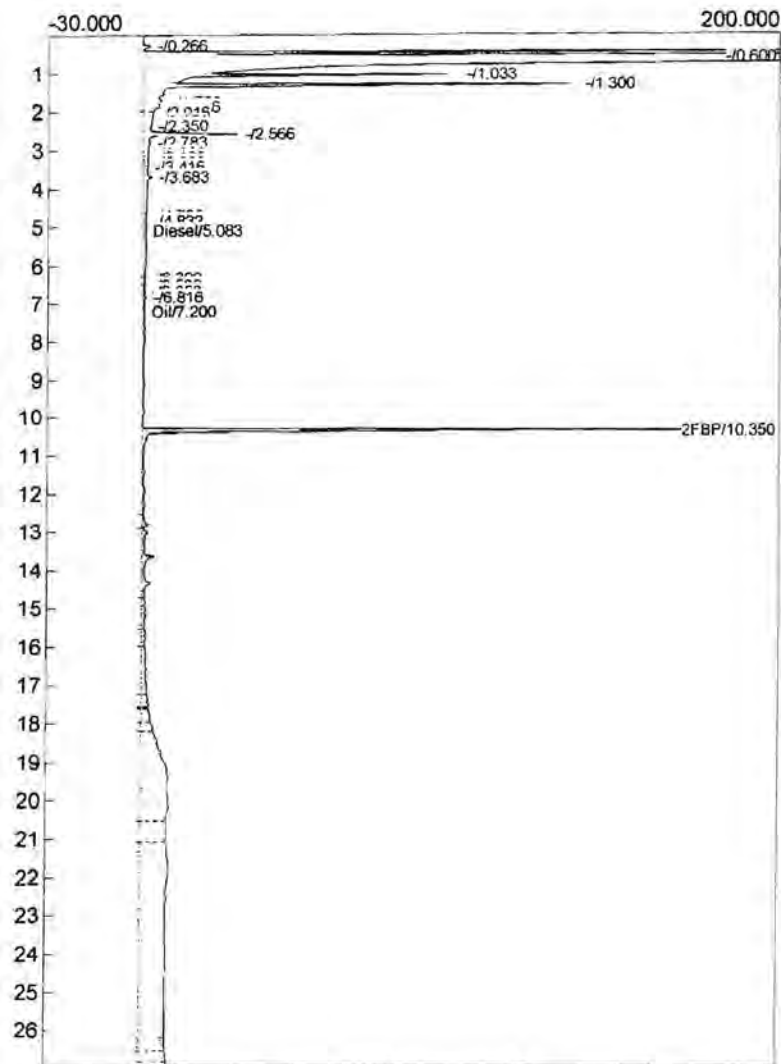
** USED For Bunker C airblank*

Temperature program: *only.*

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.083	47.2160	0.714	2.3213	ppm
Oil	7.200	5160.0340	0.290	253.8362	ppm
2FBP	10.350	581.4800	187.572	23.2592	ppm
		5788.7300		279.4167	

Component	Retention	Area	Height	External	Units
Diesel	9.300	35.5040	3.448	1.8749	ppm
Oil	10.216	11831.0700	1.758	618.6274	ppm
2-FBP	13.433	584.7015	249.443	19.6418	ppm
		12231.2755		640.1441	

Analysis date: 10/09/2012 09:04:37
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C271.CHR ()
 Sample: DW6-10912
 Operator: PB

Analysis date: 10/09/2012 09:04:37
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D269.CHR ()
 Sample: DW6-10912
 Operator: PB

Temperature program:

Temperature program:

Init temp Hold Ramp Final temp

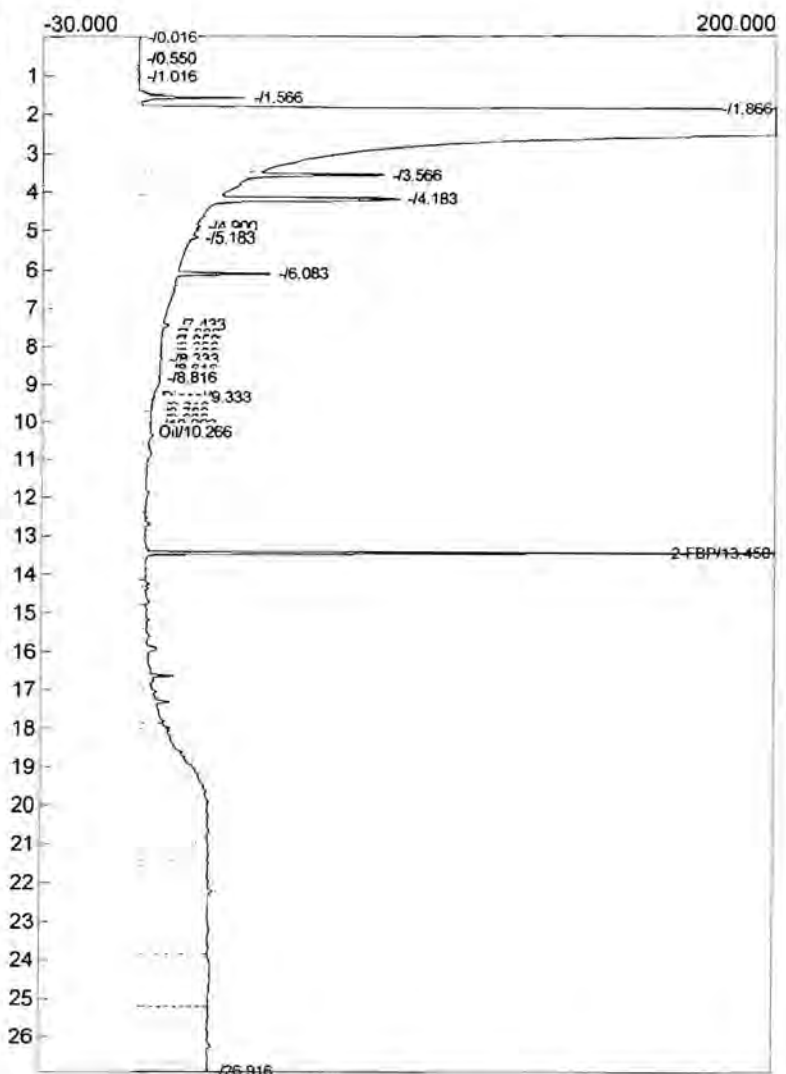
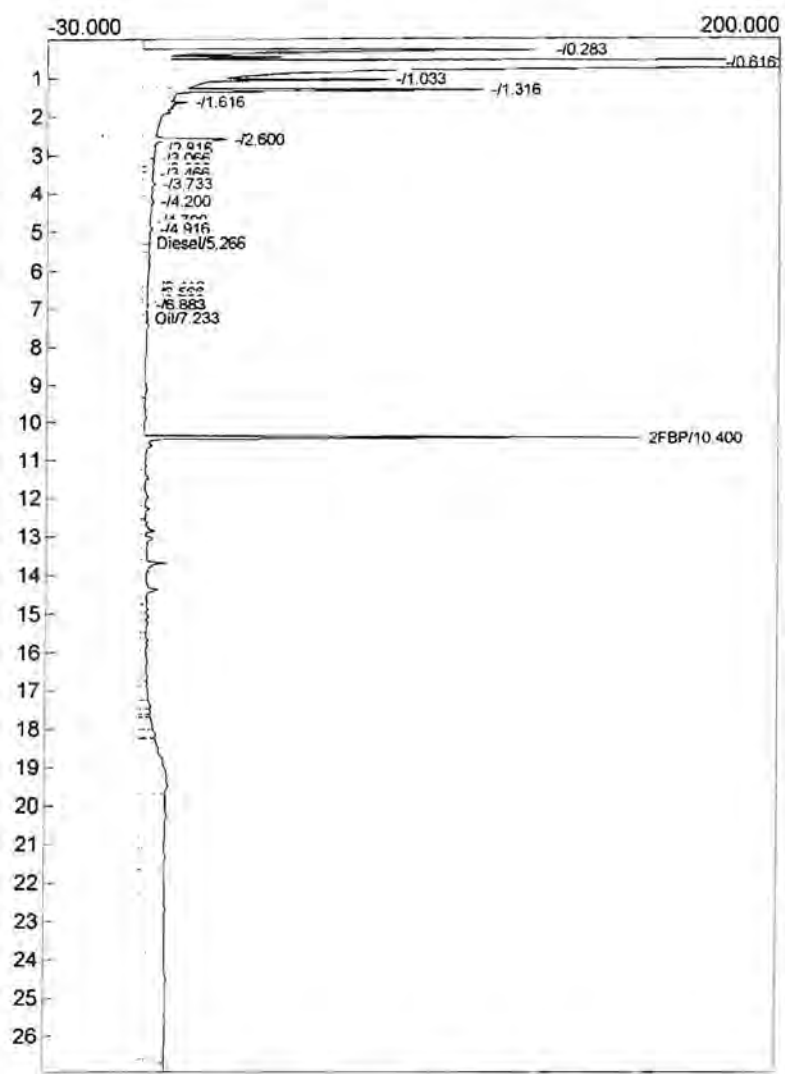
Init temp Hold Ramp Final temp

Events:

Events:

Time Event
 0.000 ZERO

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.266	59.4810	1.037	2.9243	ppm
Oil	7.233	4663.5610	0.537	229.3599	ppm
2FBP	10.400	483.3825	156.357	19.3353	ppm
		5206.4245		251.6195	

Component	Retention	Area	Height	External	Units
Diesel	9.333	53.6250	3.672	2.8319	ppm
Oil	10.266	12024.6595	2.681	839.8400	ppm
2-FBP	13.450	635.3335	285.340	22.0986	ppm
		12713.6180		864.7704	

nd 97%

nd 110%

Analysis date: 10/09/2012 10:52:07
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C272.CHR ()
 Sample: K08-B1-10912
 Operator: PB

Analysis date: 10/09/2012 10:52:07
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D270.CHR ()
 Sample: K08-WSW1-10912
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

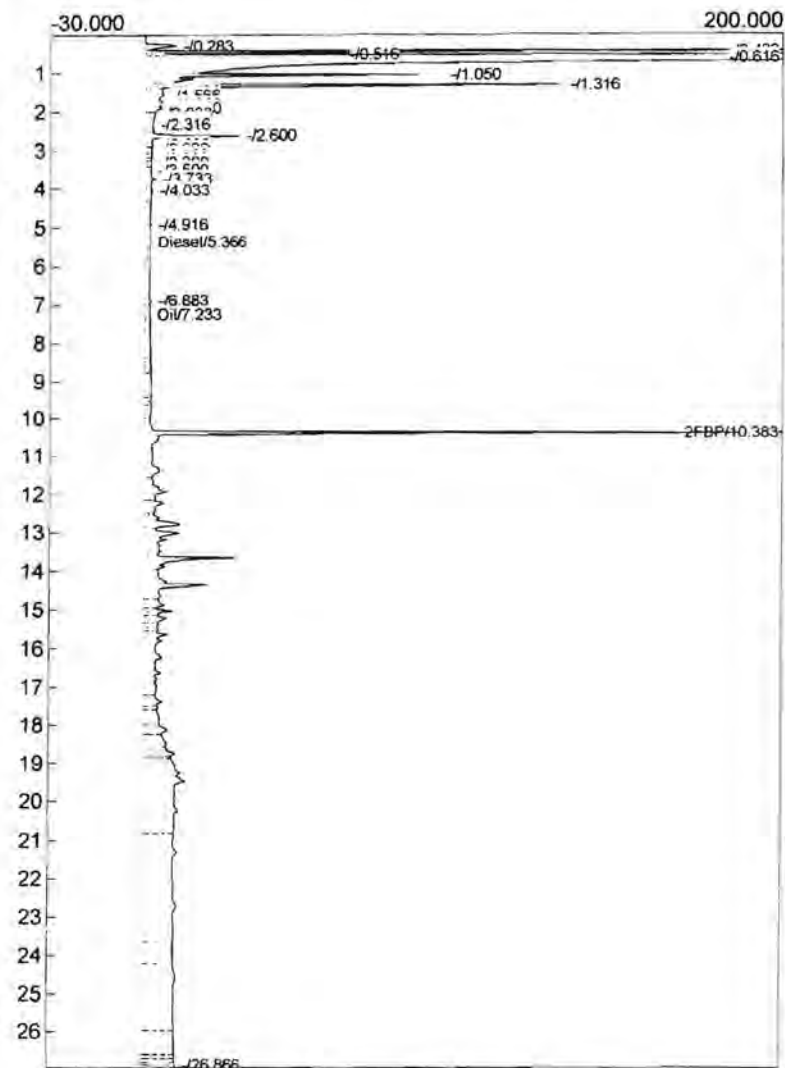
Time Event
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Temperature program:

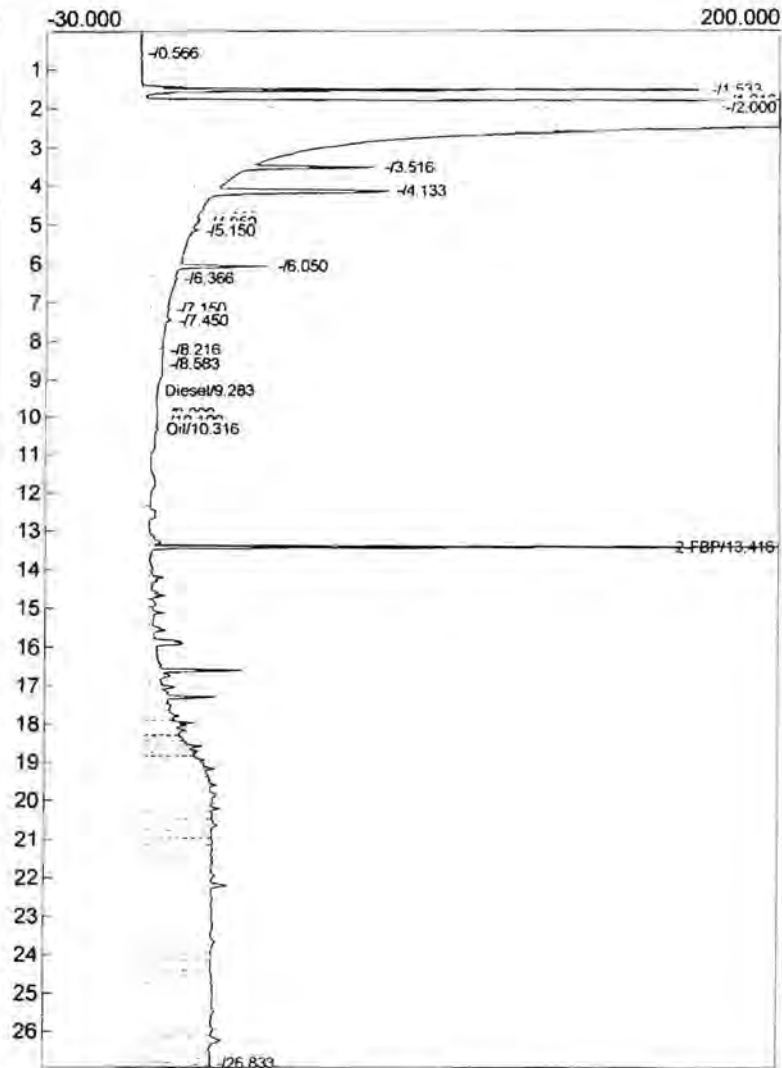
Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.366	3.5520	0.173	0.1746	ppm
Oil	7.233	6586.9260	0.231	324.1825	ppm
FBP	10.383	608.3760	214.378	24.3350	ppm
		7198.8540		348.6922	



Component	Retention	Area	Height	External	Units
Diesel	9.283	39.7990	2.325	2.1017	ppm
Oil	10.316	11875.2835	2.723	631.7893	ppm
2-FBP	13.416	539.4080	254.148	18.7620	ppm
		12454.4905		652.6531	

$324 - 254 = 70 \text{ ppm}$

122% Bunker C

$ML \times 0.91397 = 64.0$

94% rd

ML to SLL

Analysis date: 10/09/2012 11:29:52
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C273.CHR ()
 Sample: K08-SSW2-10912
 Operator: PB

Analysis date: 10/09/2012 11:29:52
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D271.CHR ()
 Sample: K08-B2-10912
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

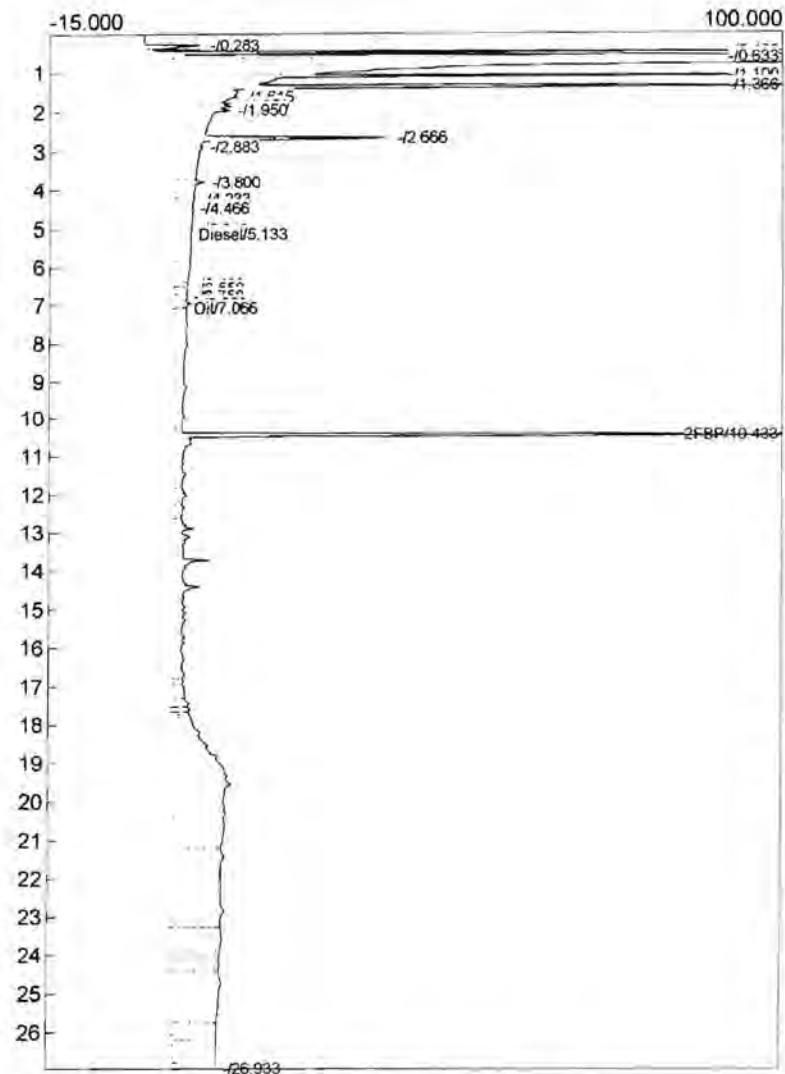
Time Event
 0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

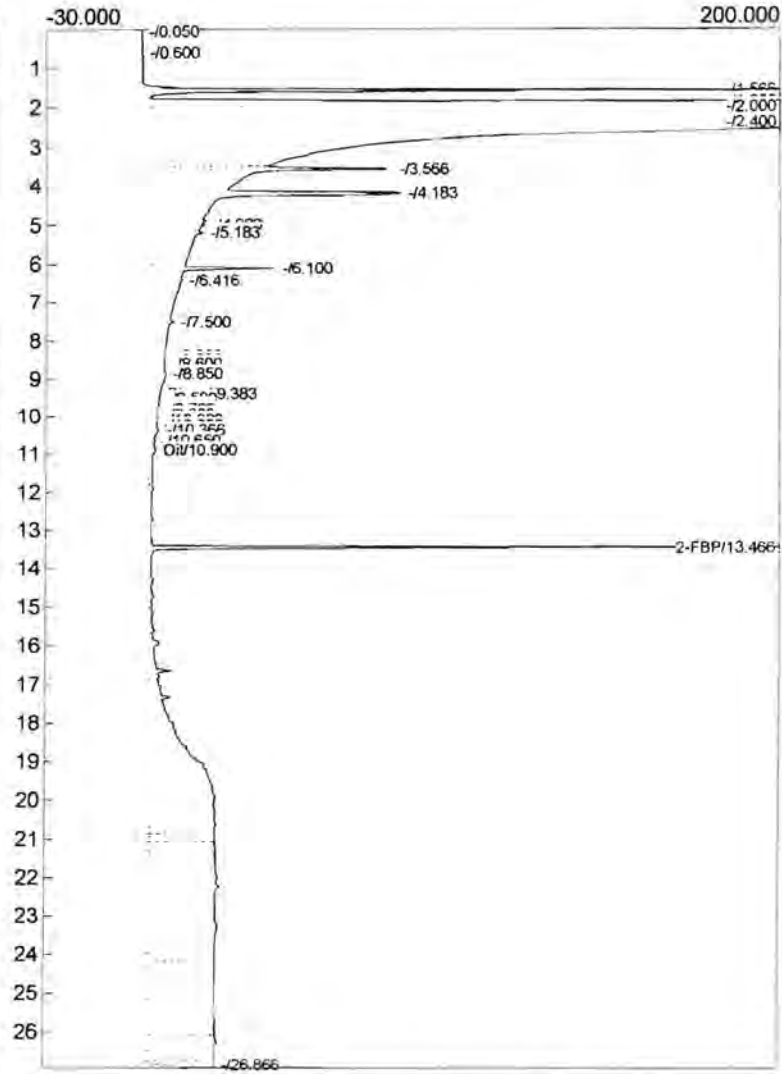
Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.133	165.1960	2.337	8.1217	ppm
Oil	7.066	5235.1200	1.581	257.5380	ppm
2-FBP	10.433	547.6850	191.987	21.9074	ppm
		5948.0010		287.5671	

nd 110%



Component	Retention	Area	Height	External	Units
Diesel	9.383	16.6110	2.816	0.8772	ppm
Oil	10.900	11141.8475	1.633	592.3134	ppm
2-FBP	13.466	534.7105	210.623	18.5986	ppm
		11693.1690		611.7892	

nd 93%

Analysis date: 10/09/2012 12:18:47
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C274.CHR ()
 Sample: K08-SSW1-10912
 Operator: PB

Analysis date: 10/09/2012 12:18:47
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D272.CHR ()
 Sample: K08-ESW1-10912
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

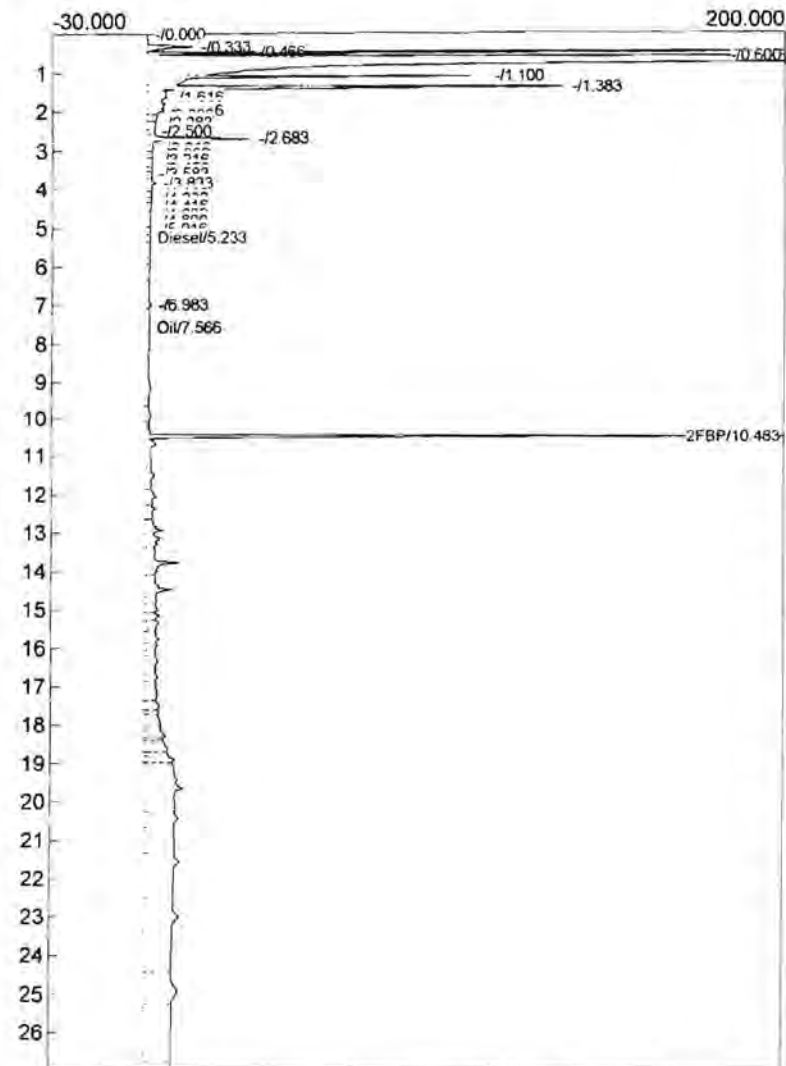
Time Event
 0.000 ZERO

Temperature program:

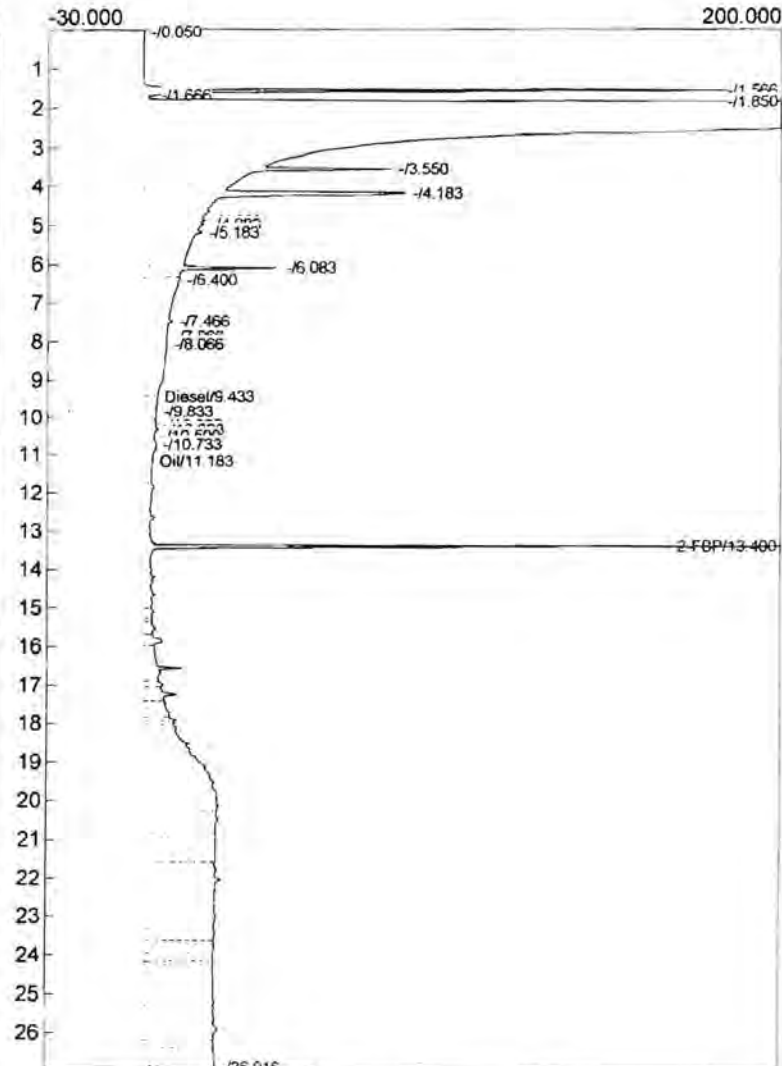
Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.233	21.3300	0.421	1.0487	ppm
Oil	7.566	6154.2340	0.366	302.8507	ppm
FBP	10.483	573.3720	208.991	22.9349	ppm
		6748.9360		326.8342	



Component	Retention	Area	Height	External	Units
Diesel	9.433	62.7840	3.031	3.3155	ppm
Oil	11.183	12185.5500	1.539	648.5112	ppm
2-FBP	13.400	593.3170	250.778	20.6371	ppm
		12841.6510		672.4638	

115%

303-254 = 49 ppm

Bunker C

ml * 1.0095 = 49.5

nd 103%

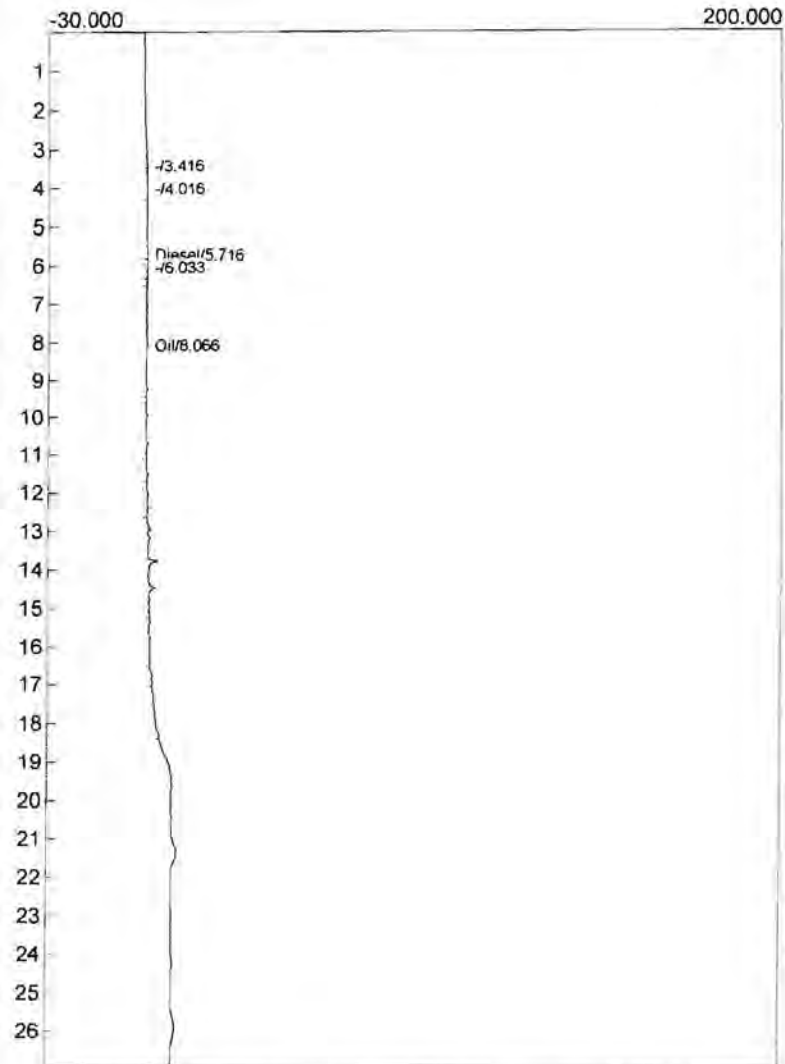
Analysis date: 10/09/2012 12:52:56
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C275.CHR ()
 Sample: No Sample
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.716	1.7390	0.112	0.0855	ppm
Oil	8.066	248.5310	0.350	12.2167	ppm
		250.2700		12.3042	

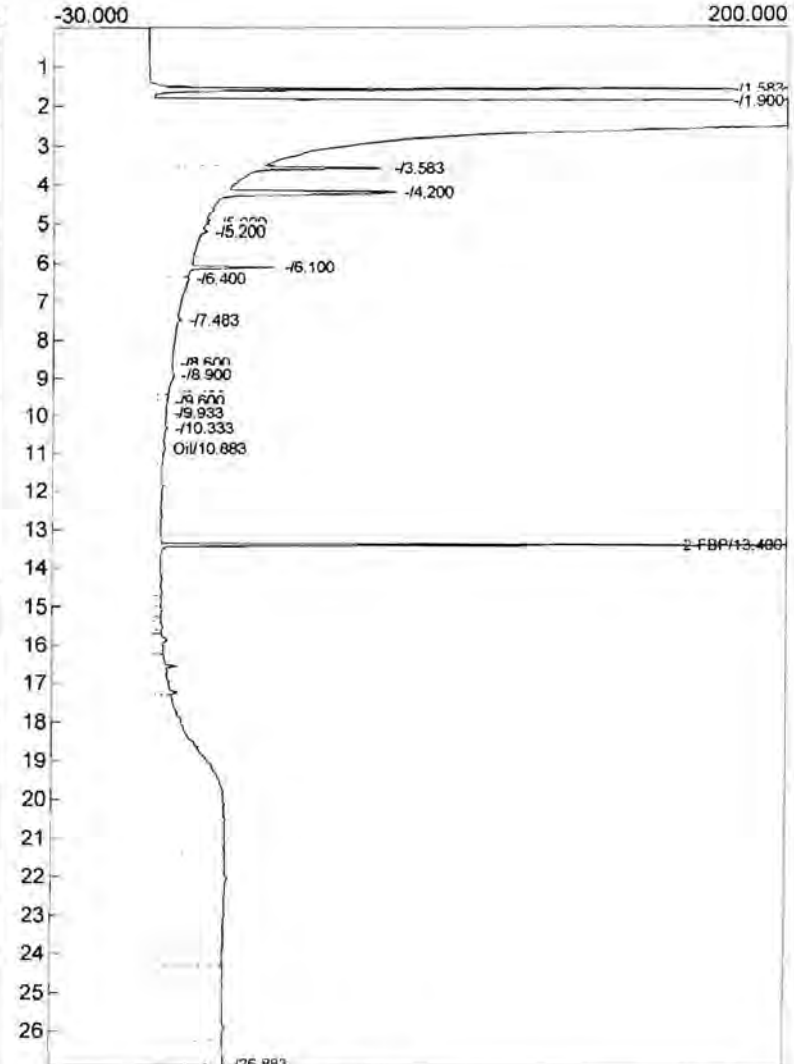
Analysis date: 10/09/2012 12:52:56
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D273.CHR ()
 Sample: K08-ESW1-10912 Dup
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Oil	10.883	12151.7740	2.584	646.6908	ppm
2-FBP	13.400	541.9720	236.692	18.8512	ppm
		12693.7460		665.5420	

nd *94%*

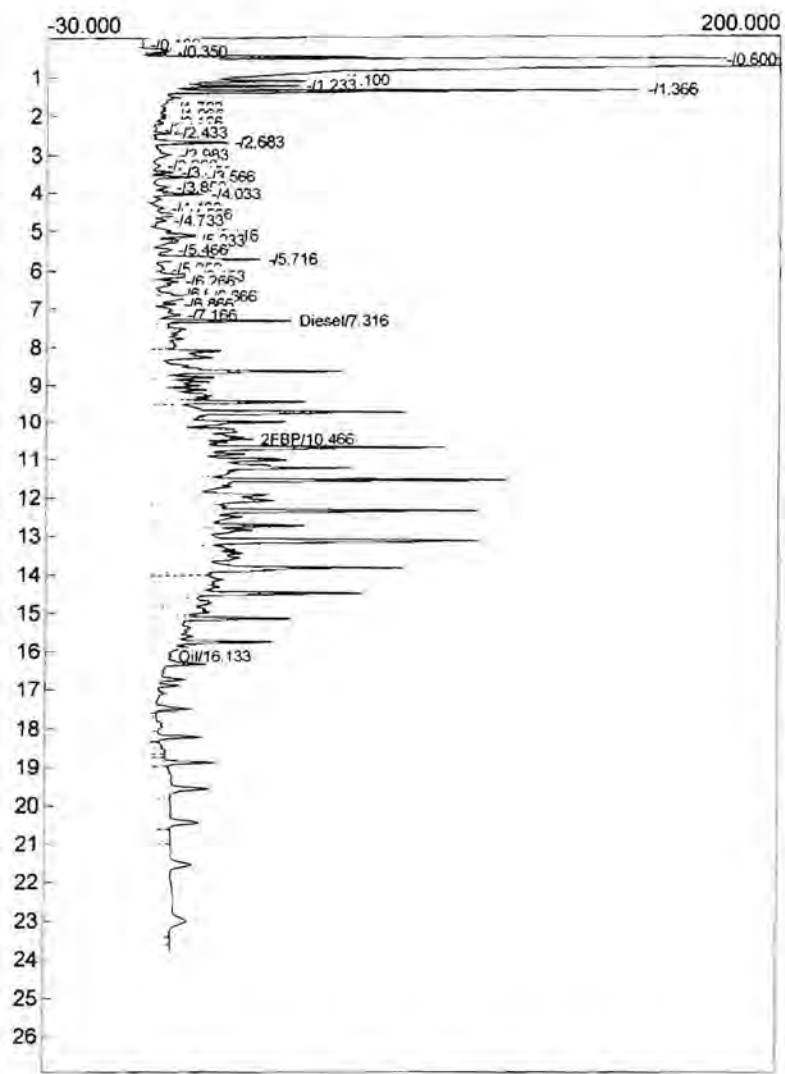
Analysis date: 10/09/2012 13:26:20
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C276.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.316	11284.8735	42.856	556.2269	ppm
FBP	10.466	265.8010	31.074	10.6320	ppm
Oil	16.133	1573.0015	5.370	77.3348	ppm
		13123.6760		644.1937	

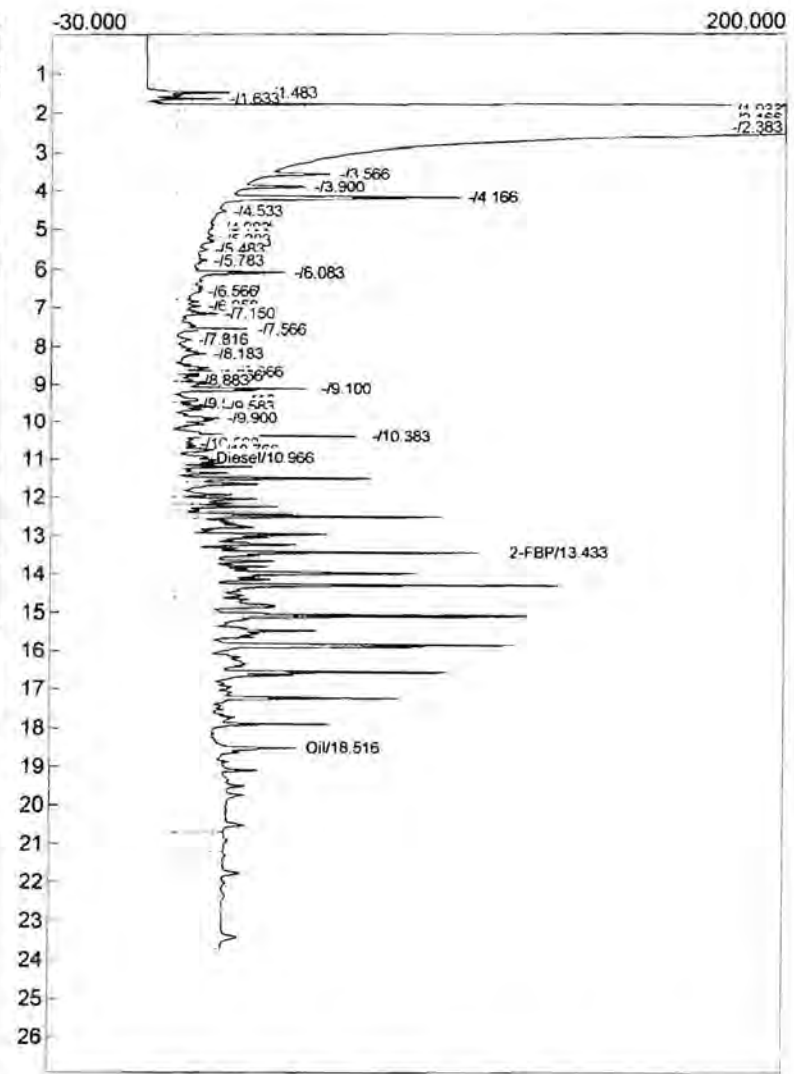
Analysis date: 10/09/2012 13:26:20
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D274.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

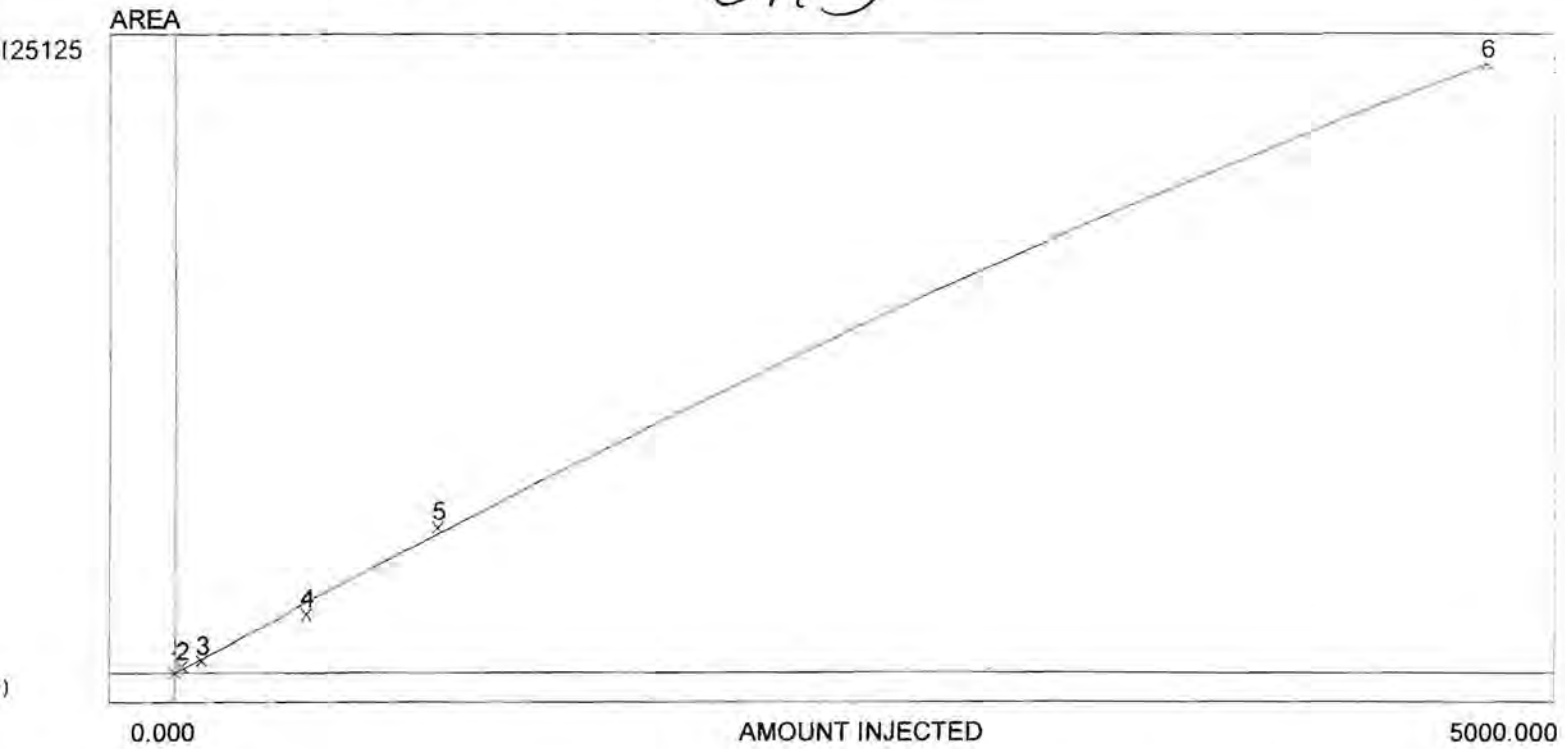
Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	10.966	9206.3290	10.754	488.7090	ppm
2-FBP	13.433	519.8955	102.882	18.0833	ppm
Oil	18.516	5273.7005	39.062	279.0274	ppm
		14999.9250		785.8197	

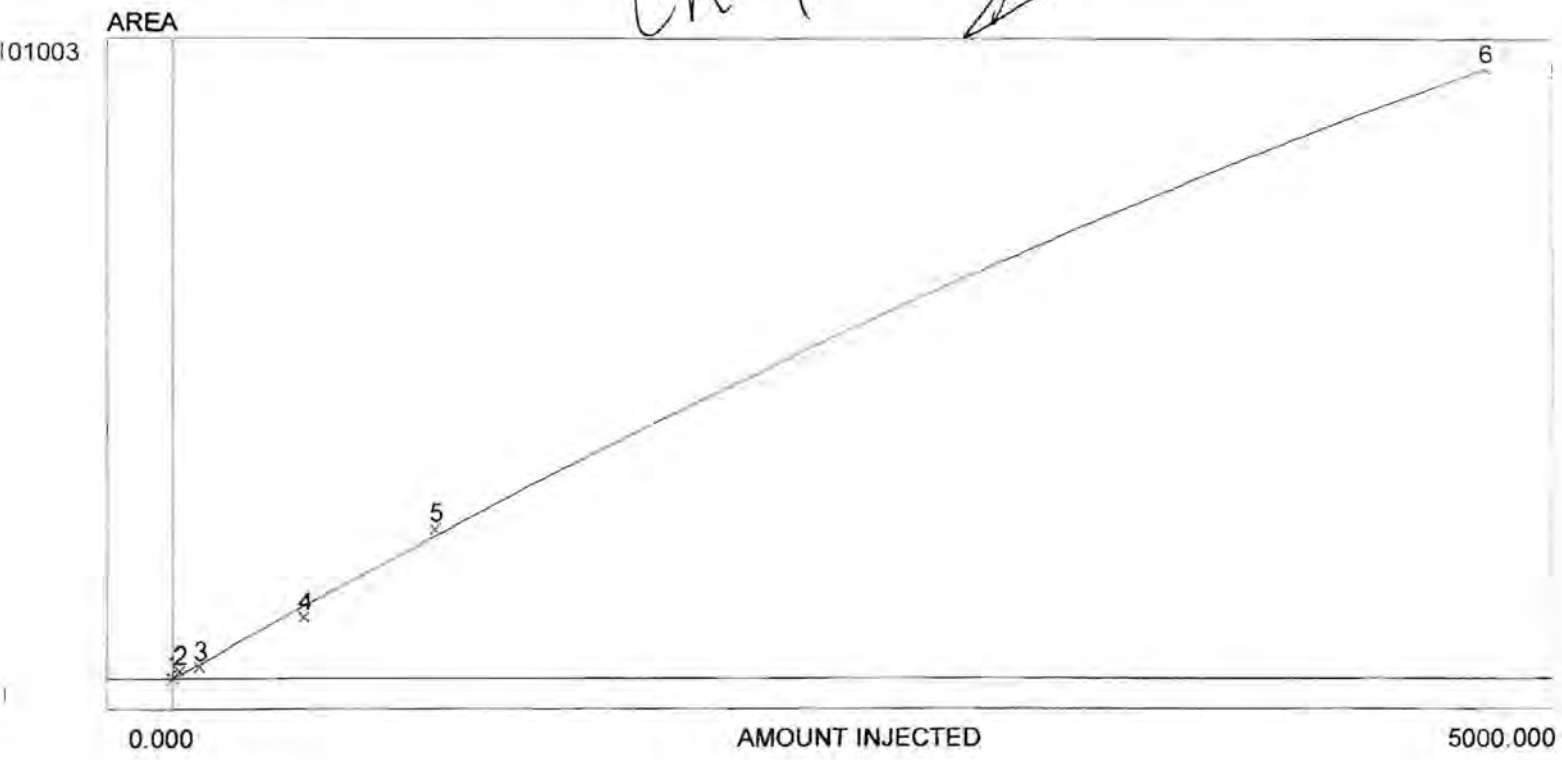
Ch3



Avg slope of curve: 25.03
 Y-axis intercept: 0.00
 Linearity: 0.86
 Number of levels: 6
 SD/rel SD of CF's: 18.0/66.9
 $y = -0.0009x^2 + 29.3544x$
 R^2: 0.9993
 Last calibrated: Wed Mar 14 13:52:31 2012

vl.	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
	0.000	0.000	0.000	0.000	N/A	N/A
	1410.471	25.000	56.419	1410.471	N/A	N/A
	2574.179	100.000	25.742	2574.179	N/A	N/A
	12043.265	500.000	24.087	12043.265	N/A	N/A
	29871.863	1000.000	29.872	29871.863	N/A	N/A
	125124.670	5000.000	25.025	125124.670	N/A	N/A

Ch 4 2



avg slope of curve: 20.21
 y-axis intercept: 0.00
 linearity: 0.84
 number of levels: 6
 ID/rel SD of CF's: 16.3/72.6
 $y = -0.0008x^2 + 24.2883x$
 R^2: 0.9993
 last calibrated: Wed Mar 14 13:57:45 2012

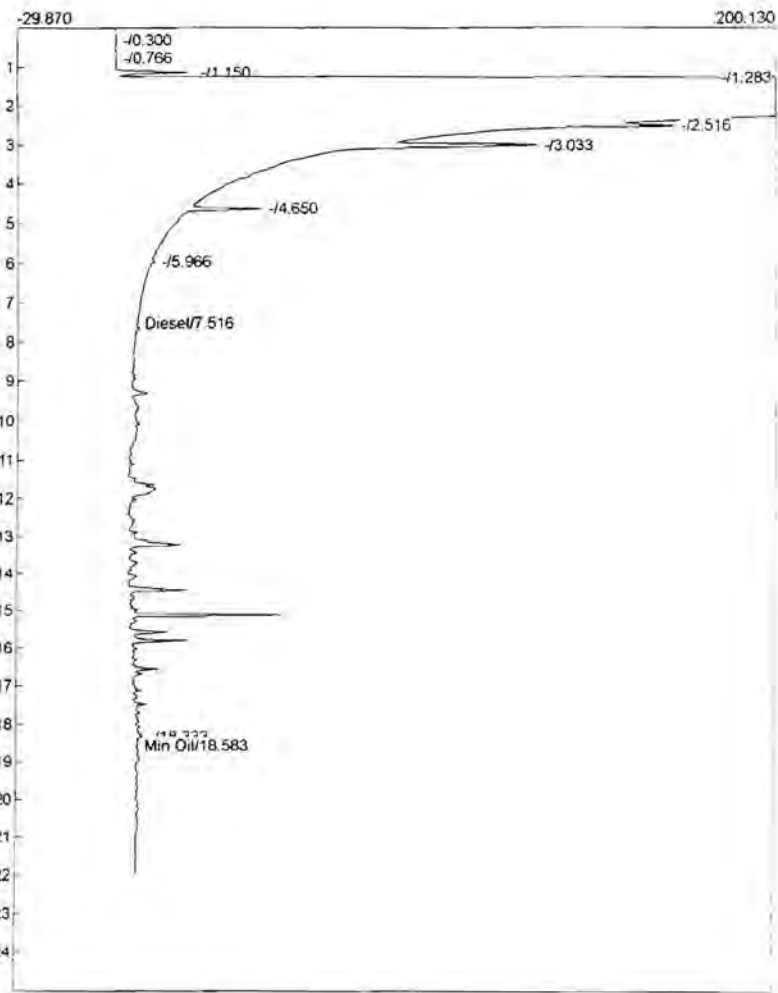
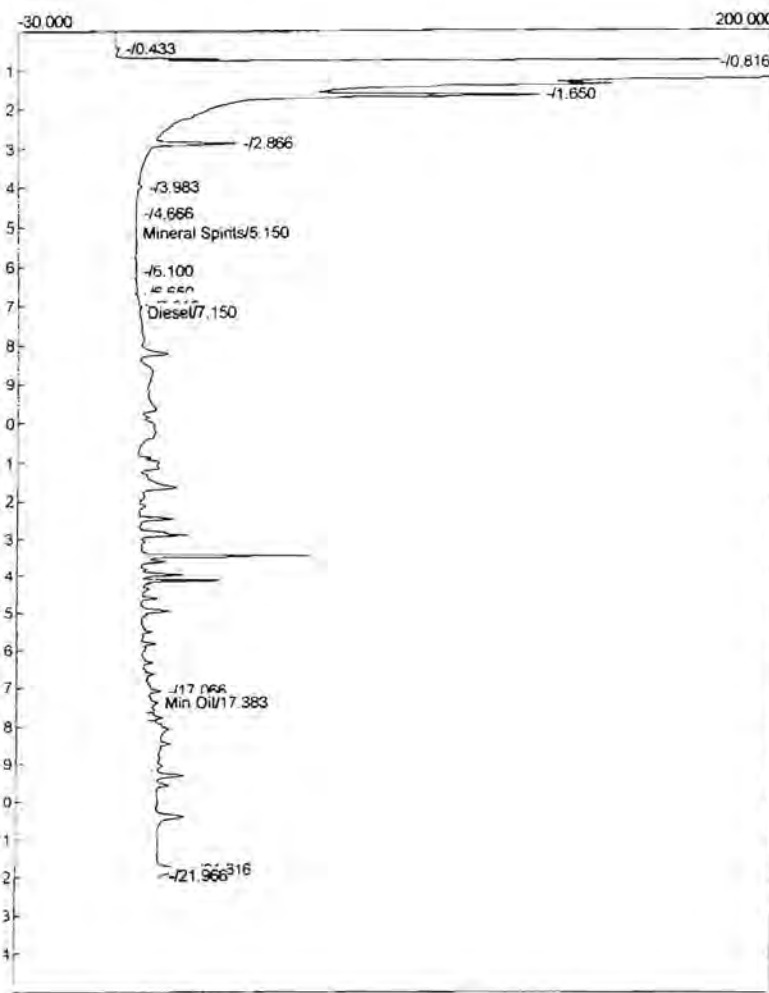
vl.	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
	0.000	0.000	0.000	0.000	N/A	N/A
	1271.716	25.000	50.869	1271.716	N/A	N/A
	1927.394	100.000	19.274	1927.394	N/A	N/A
	10086.605	500.000	20.173	10086.605	N/A	N/A
	24554.042	1000.000	24.554	24554.042	N/A	N/A
	101002.720	5000.000	20.201	101002.720	N/A	N/A

Analysis date: 03/14/2012 10:39:04

Method: Syringe Injection
Description: JAMACIA FID
Column: RESTEK 15METER MXT-1
Carrier: HELIUM AT 5 PSI
Data file: C620.CHR ()
Sample: 25 PPM Dx 706
Operator: KW

Analysis date: 03/14/2012 10:39:04

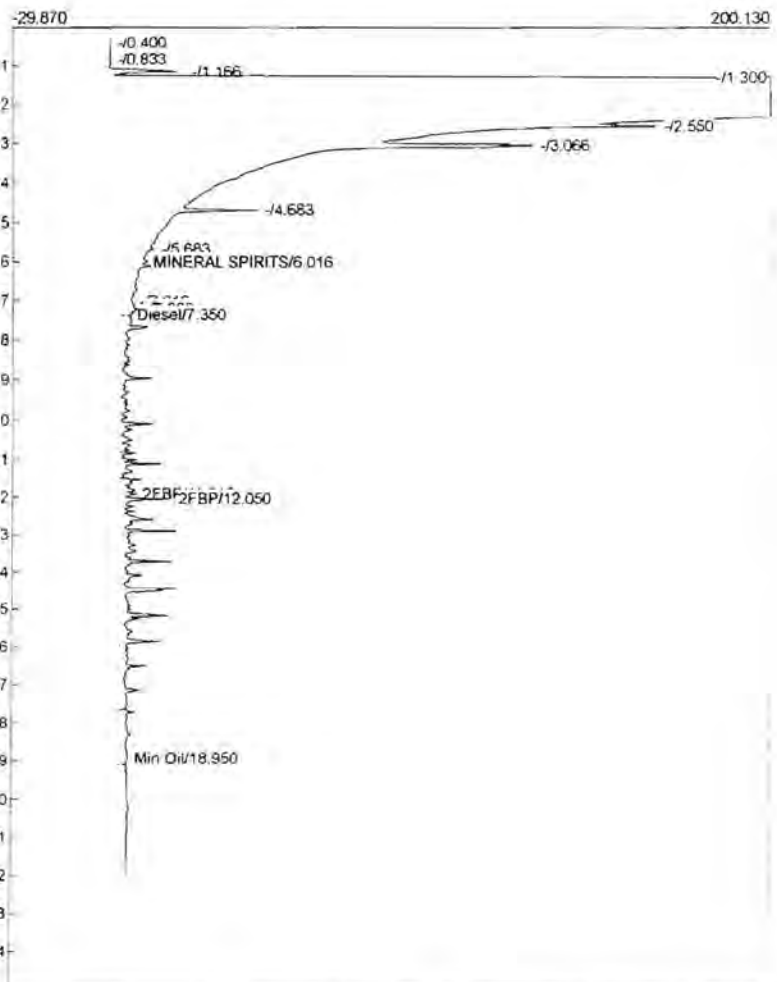
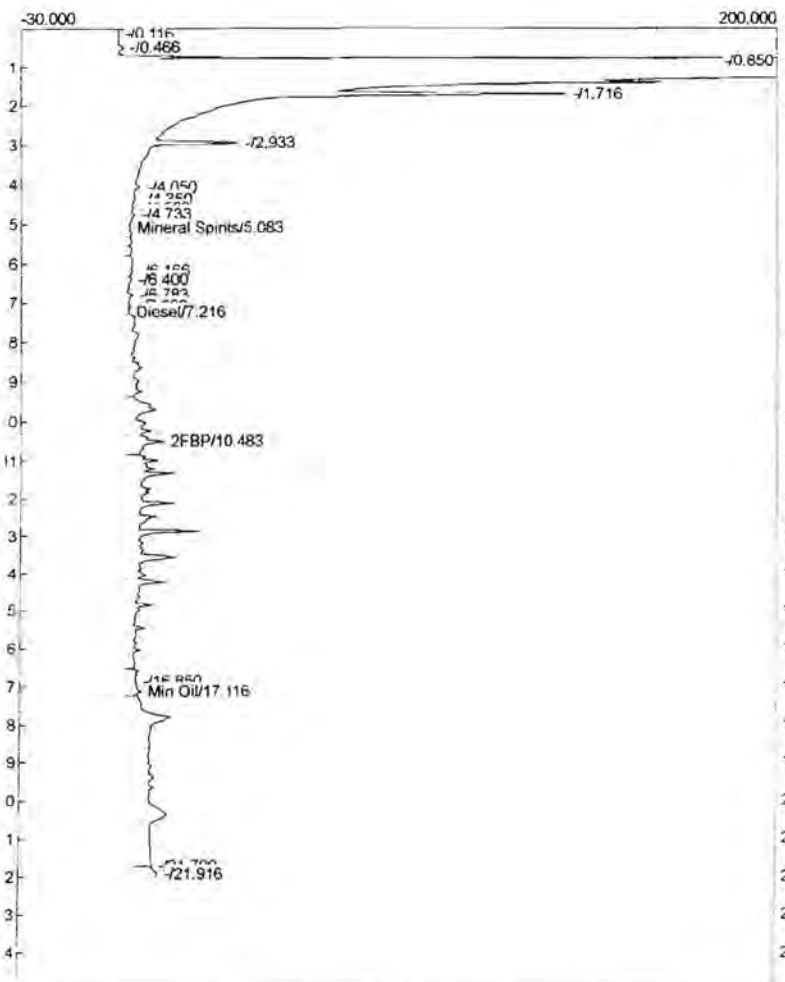
Method: Syringe Injection
Description: JAMACIA FID
Column: RESTEK 15METER MXT-1
Carrier: HELIUM AT 5 PSI
Data file: D626.CHR ()
Sample: 25 PPM Dx 706
Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	U
Mineral Spirits	5.150	7.8080	0.195	0.3863	PPM	Diesel	7.516	1271.7155	1.965	89.4973	ppm
Diesel	7.150	1410.4710	0.518	13.6936	ppm	Min Oil	18.583	209.2665	1.582	14.7689	ppm
Min Oil	17.383	577.2305	3.576	0.0000				1480.9820		104.2662	
		1995.5095		14.0798							

Analysis date: 03/14/2012 11:07:43
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C621.CHR ()
 Sample: 100 PPM Dx 705
 Operator: KW

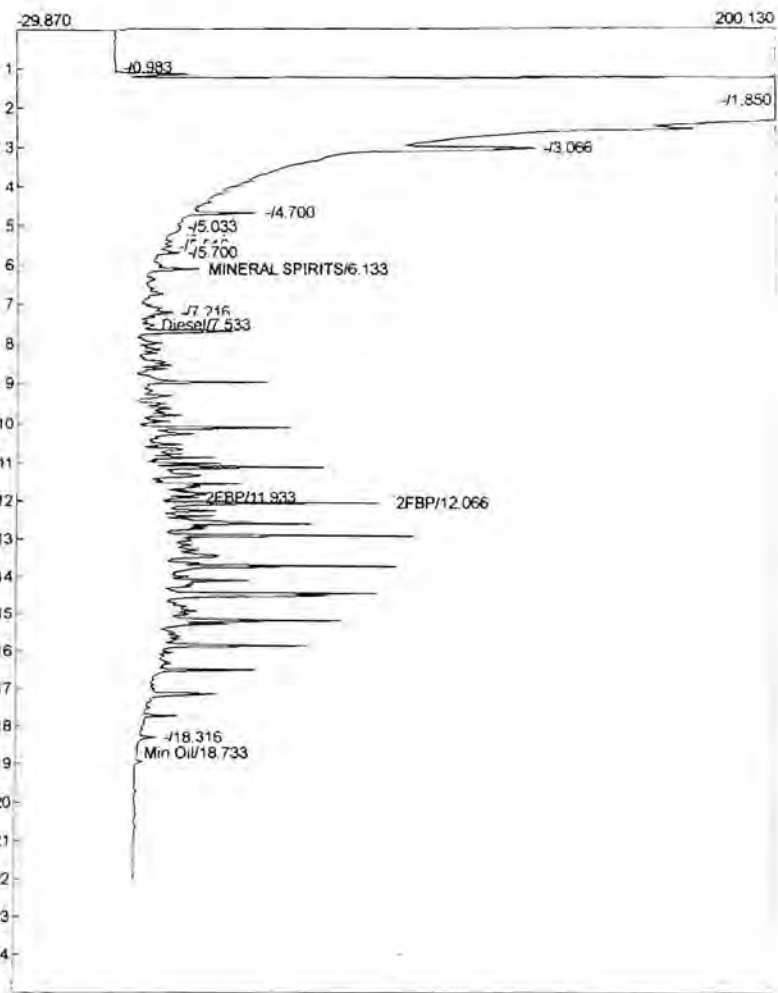
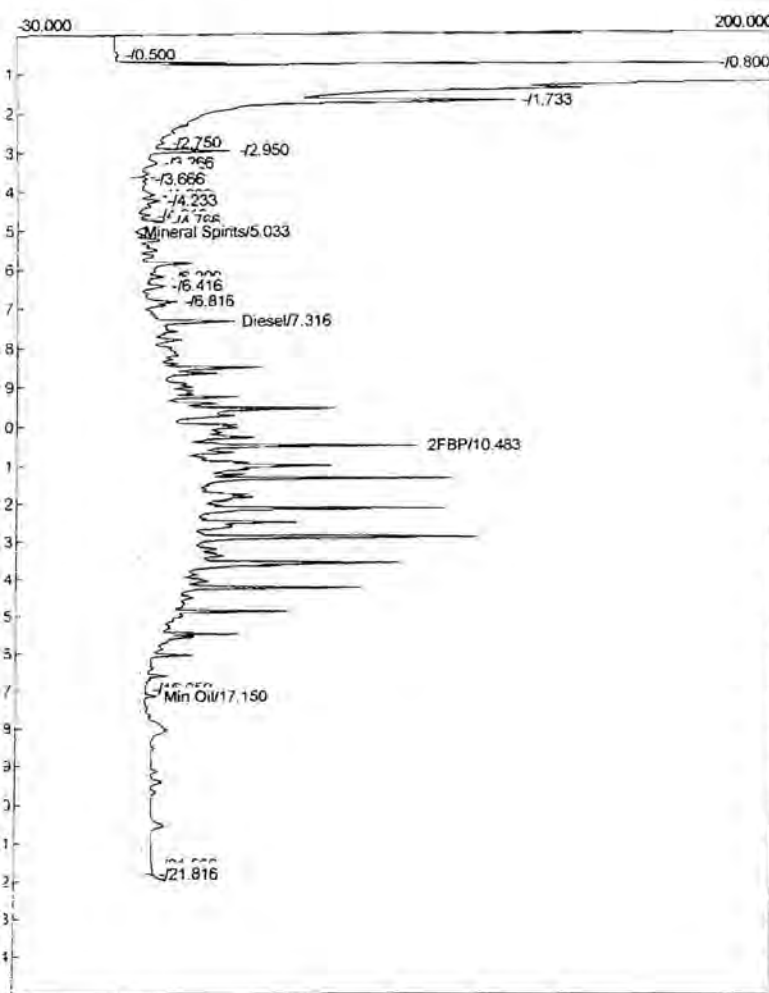
Analysis date: 03/14/2012 11:07:43
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D627.CHR ()
 Sample: 100 PPM Dx 705
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	U
Mineral Spirits	5.083	84.6325	1.090	4.1869	PPM	MINERAL SPIRITS	6.016	285.6170	7.733	20.1004	PPM
Diesel	7.216	2410.4095	0.627	119.2471	ppm	Diesel	7.350	1849.7390	2.625	130.1759	ppm
FBP	10.483	163.7695	10.998	6.5508	ppm	2FBP	11.916	20.8250	4.775	1.0413	ppm
Min Oil	17.116	1953.3665	4.269	0.0000		2FBP	12.050	56.8300	15.516	2.8415	ppm
						Min Oil	18.950	514.9365	2.757	36.3413	ppm
		4612.1780		129.9847				2727.9475		190.5003	

Analysis date: 03/14/2012 11:45:18
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C622.CHR ()
 Sample: 500 PPM Dx 704
 Operator: KW

Analysis date: 03/14/2012 11:45:18
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D628.CHR ()
 Sample: 500 PPM Dx 704
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Un
Mineral Spirits	5.033	323.3415	0.632	15.9963	PPM	MINERAL SPIRITS	6.133	636.8190	24.452	44.8163	PPM
Diesel	7.316	11375.2115	30.144	562.7511	ppm	Diesel	7.533	9651.3385	9.725	679.2156	ppm
2FBP	10.483	668.0530	86.276	26.7221	ppm	2FBP	11.933	110.1285	21.943	5.5064	ppm
Min Oil	17.150	960.9820	5.210	0.0000		2FBP	12.066	325.1375	79.999	16.2569	ppm
						Min Oil	18.733	138.4670	1.874	9.7722	ppm
		13327.5880		605.4694				10861.8905		755.5674	

Analysis date: 03/14/2012 12:13:07

Method: Syringe Injection

Description: JAMACIA FID

Column: RESTEK 15METER MXT-1

Carrier: HELIUM AT 5 PSI

Data file: C623.CHR ()

Sample: 1000 PPM Dx 703

Operator: KW

Analysis date: 03/14/2012 12:13:07

Method: Syringe Injection

Description: JAMACIA FID

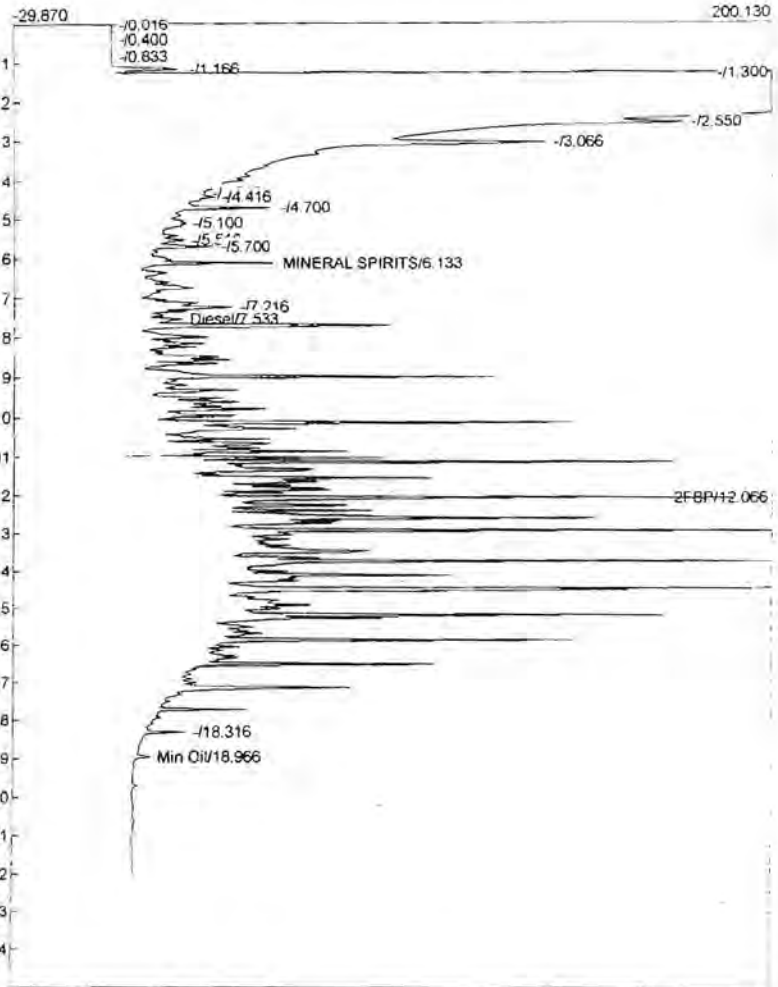
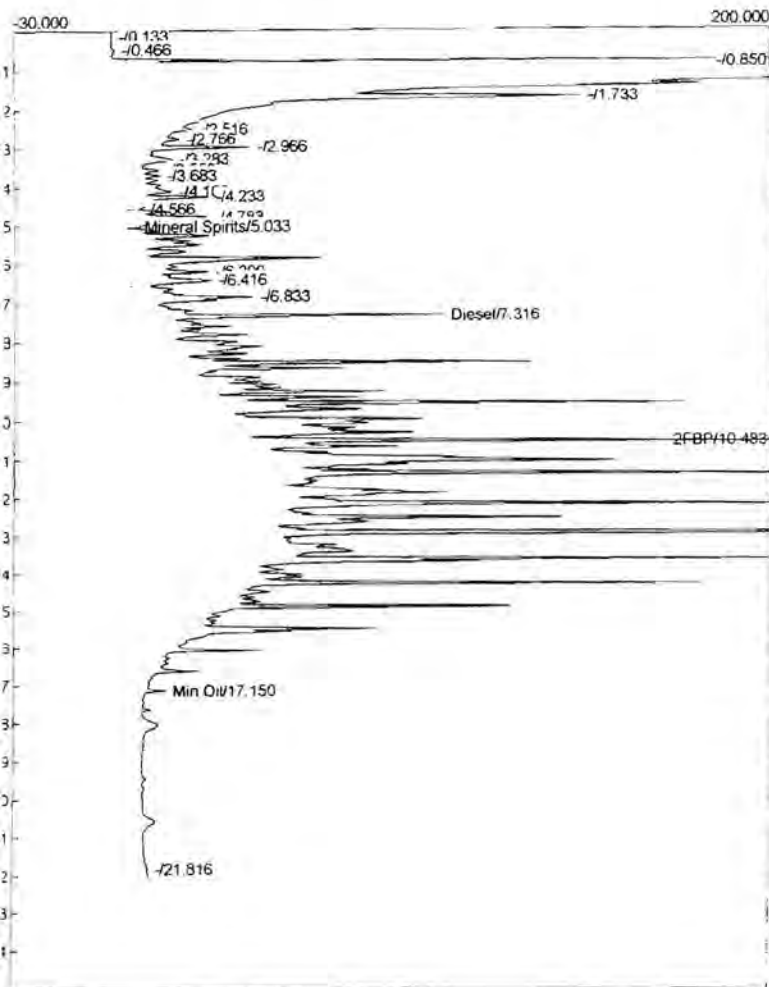
Column: RESTEK 15METER MXT-1

Carrier: HELIUM AT 5 PSI

Data file: D629.CHR ()

Sample: 1000 PPM Dx 703

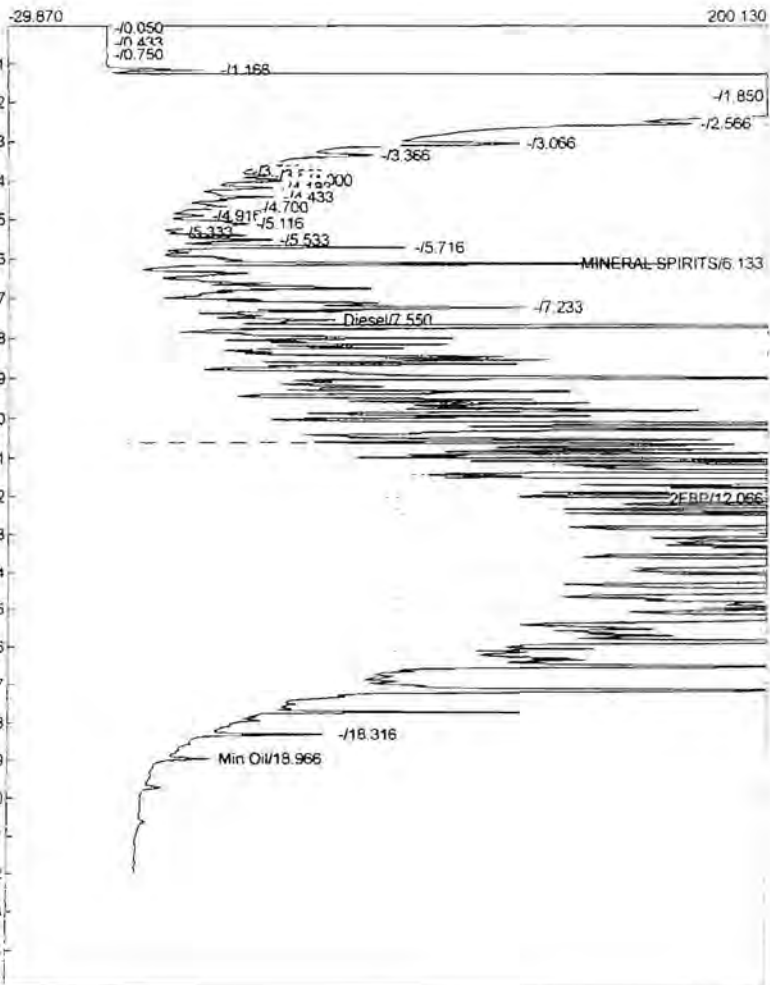
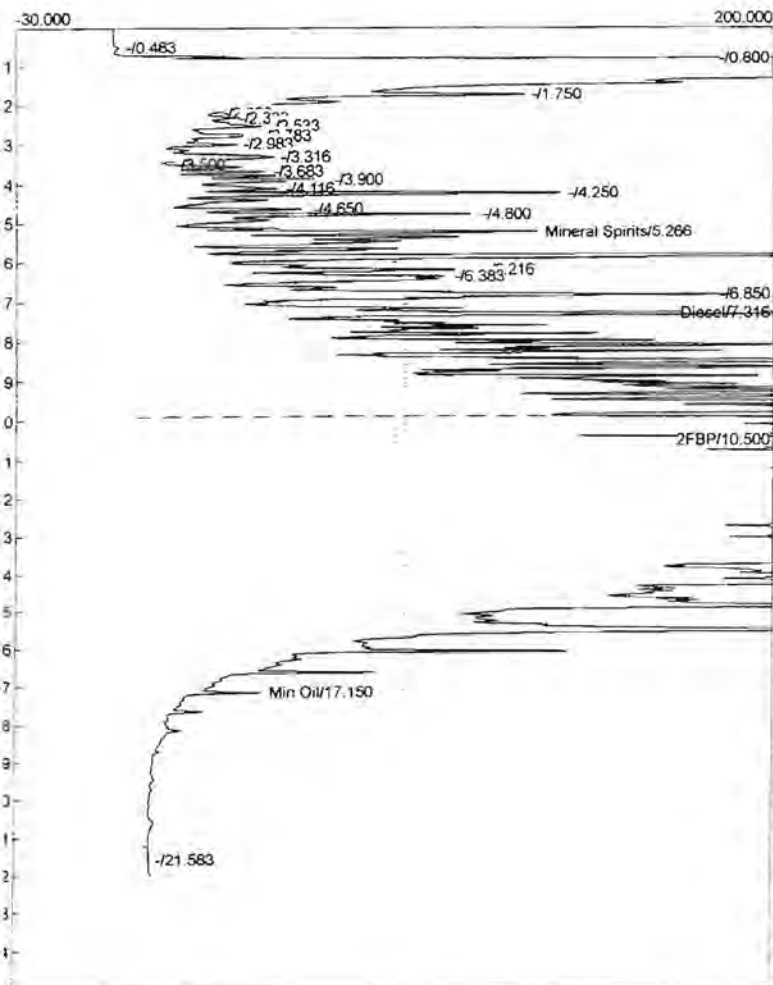
Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.033	995.3365	2.641	49.2410	ppm	MINERAL SPIRITS	6.133	723.8390	45.571	50.9404	ppm
Diesel	7.316	28291.8845	95.034	1399.6476	ppm	Diesel	7.533	23510.5725	17.032	1654.5630	ppm
2FBP	10.483	1579.9780	244.836	63.1991	ppm	2FBP	12.066	1043.4695	193.880	52.1735	ppm
Min Oil	17.150	221.1300	7.549	0.0000	ppm	Min Oil	18.966	300.3670	6.980	21.1982	ppm
		31088.3290		1512.0877				25578.2480		1778.8751	

Analysis date: 03/14/2012 12:41:16
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C624.CHR ()
 Sample: 5000 PPM Dx 702
 Operator: KW

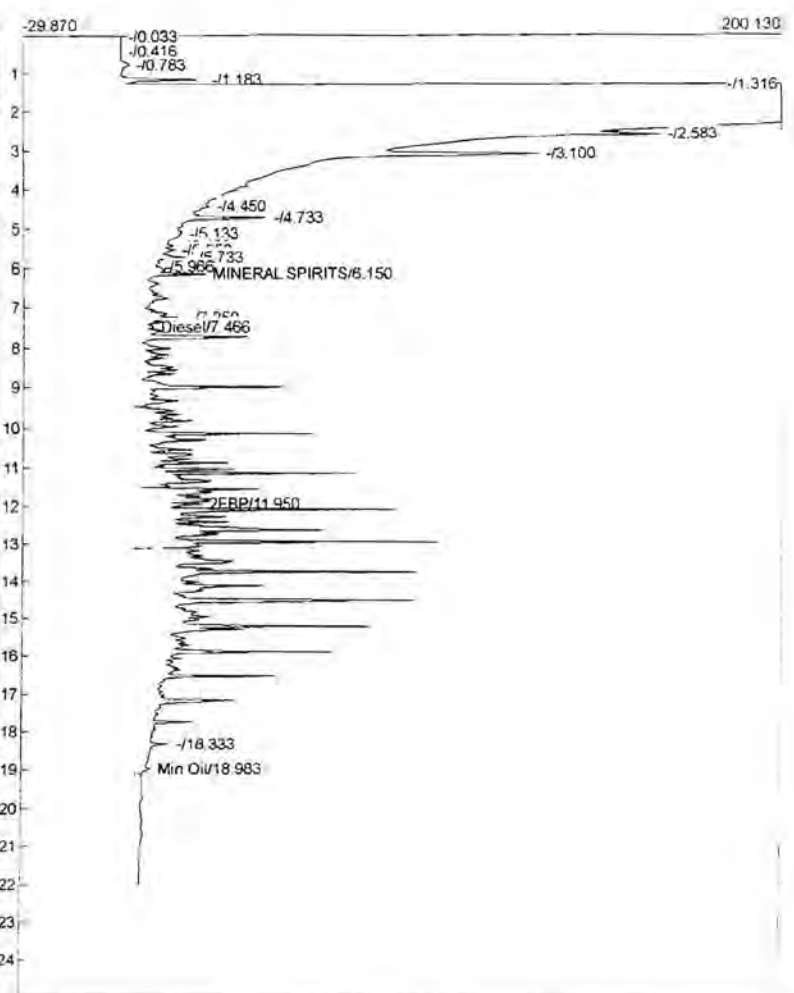
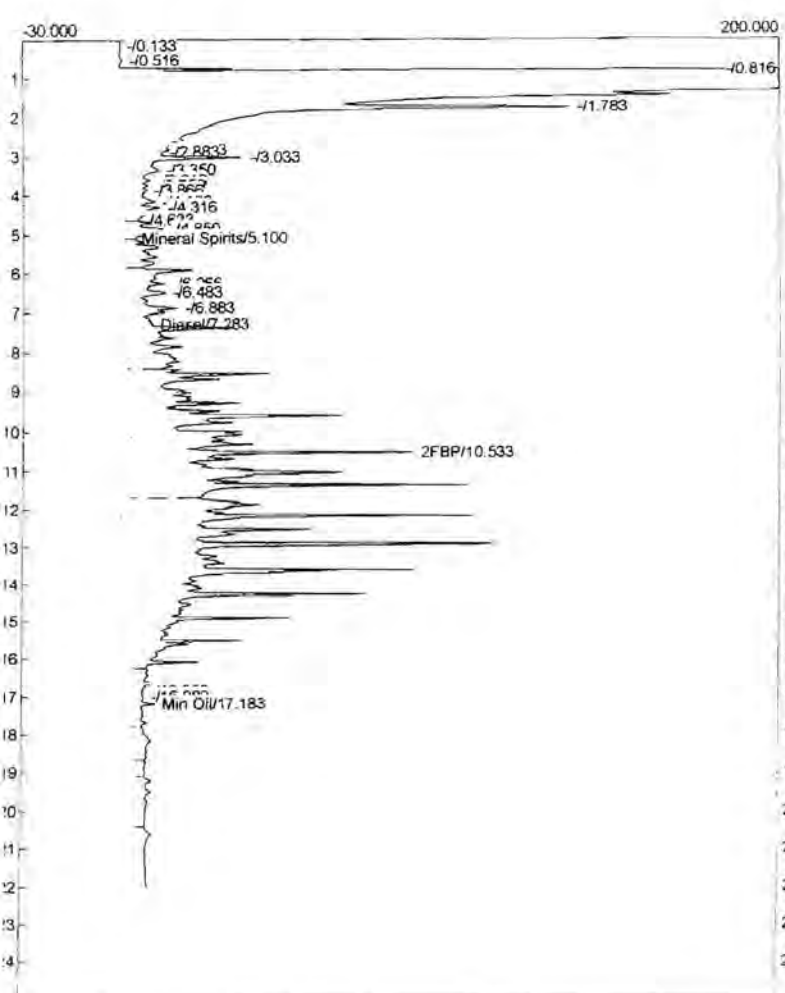
Analysis date: 03/14/2012 12:41:16
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D630.CHR ()
 Sample: 5000 PPM Dx 702
 Operator: KW



Component	Retention	Area	Height	External	UnComponent	Retention	Area	Height	External	Unit
Mineral Spirits	5.266	4030.7350	121.832	199.4073	MINERAL SPIRITS	6.133	2118.1620	172.994	149.0662	PF
Diesel	7.316	118321.9850	479.109	5853.5897	Diesel	7.550	97612.4720	63.265	6869.5047	pp
FBP	10.500	6802.6800	1015.018	272.1072	FBP	12.066	3390.2460	772.659	169.5123	pp
Min Oil	17.150	1309.9915	36.600	0.0000	Min Oil	18.966	734.9465	24.851	51.8684	pp
		130465.3915		6325.1043			103855.8265		7239.9516	

Lab name: Eddy Environmental, Inc.
 Analysis date: 03/14/2012 13:09:09
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C625.CHR ()
 Sample: 500 PPM Dx ICAL 707
 Operator: KW

Lab name: Eddy Environmental, Inc.
 Analysis date: 03/14/2012 13:09:09
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D631.CHR ()
 Sample: 500 PPM Dx ICAL 707
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	U
Mineral Spirits	5.100	454.2775	2.261	22.4739	PP	MINERAL SPIRITS	6.150	431.9470	21.664	30.3984	PPM
Diesel	7.283	12055.9145	7.302	415.8831	ppn	Diesel	7.466	9633.4975	5.799	402.0800	ppn
2FBP	10.533	706.7050	85.875	28.2682	ppn	2FBP	11.950	98.4805	20.159	4.9240	ppn
Min Oil	17.183	642.7165	6.075	0.0000		Min Oil	18.983	249.4535	4.581	17.6050	ppn
		13859.6135		466.6252				10413.3785		455.0074	



1311 N. 35th St.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Libby Environmental

Jamie Deyman
4139 Libby Rd. NE
Olympia, Washington 98506

RE: Irondale
Lab ID: 1210089

October 11, 2012

Attention Jamie Deyman:

Fremont Analytical, Inc. received 5 sample(s) on 10/10/2012 for the analyses presented in the following report.

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

A handwritten signature in black ink, appearing to read "M. Dee".

Michael Dee
Sr. Chemist / Principal



CLIENT: Libby Environmental
Project: Irondale
Lab Order: 1210089

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1210089-001	SURZ-WB1-10812	10/08/2012 9:20 AM	10/10/2012 2:35 PM
1210089-002	K18-B1-10812	10/08/2012 9:55 AM	10/10/2012 2:35 PM
1210089-003	SURZ-B1-10812	10/08/2012 11:35 AM	10/10/2012 2:35 PM
1210089-004	K08-B1-10912	10/09/2012 8:55 AM	10/10/2012 2:35 PM
1210089-005	K08-B2-10912	10/09/2012 9:44 AM	10/10/2012 2:35 PM

CLIENT: Libby Environmental**Project:** Irondale

I. SAMPLE RECEIPT:

All samples were received intact. The internal ice chest temperatures were measured on receipt and are recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.



Analytical Report

WO#: 1210089

Date Reported: 10/11/2012

Client: Libby Environmental

Collection Date: 10/8/2012 11:35:00 AM

Project: Irondale

Lab ID: 1210089-003

Matrix: Soil

Client Sample ID: SURZ-B1-10812

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 3406

Analyst: PH

Benz(a)anthracene	ND	51.0		µg/Kg-dry	1	10/11/2012 2:57:00 PM
Chrysene	ND	51.0		µg/Kg-dry	1	10/11/2012 2:57:00 PM
Benzo(b)fluoranthene	ND	51.0		µg/Kg-dry	1	10/11/2012 2:57:00 PM
Benzo(k)fluoranthene	ND	51.0		µg/Kg-dry	1	10/11/2012 2:57:00 PM
Benzo(a)pyrene	ND	51.0		µg/Kg-dry	1	10/11/2012 2:57:00 PM
Indeno(1,2,3-cd)pyrene	ND	51.0		µg/Kg-dry	1	10/11/2012 2:57:00 PM
Dibenz(a,h)anthracene	ND	51.0		µg/Kg-dry	1	10/11/2012 2:57:00 PM
Surr: 2-Fluorobiphenyl	98.6	50.4-142		%REC	1	10/11/2012 2:57:00 PM
Surr: Terphenyl-d14 (surr)	110	48.8-157		%REC	1	10/11/2012 2:57:00 PM

Sample Moisture (Percent Moisture)

Batch ID: R6105

Analyst: MCR

Percent Moisture	25.5			wt%	1	10/11/2012 6:10:00 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210089

Date Reported: 10/11/2012

Client: Libby Environmental

Collection Date: 10/9/2012 8:55:00 AM

Project: Irondale

Lab ID: 1210089-004

Matrix: Soil

Client Sample ID: K08-B1-10912

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 3406

Analyst: PH

Benz(a)anthracene	ND	47.9		µg/Kg-dry	1	10/11/2012 3:22:00 PM
Chrysene	ND	47.9		µg/Kg-dry	1	10/11/2012 3:22:00 PM
Benzo(b)fluoranthene	ND	47.9		µg/Kg-dry	1	10/11/2012 3:22:00 PM
Benzo(k)fluoranthene	ND	47.9		µg/Kg-dry	1	10/11/2012 3:22:00 PM
Benzo(a)pyrene	ND	47.9		µg/Kg-dry	1	10/11/2012 3:22:00 PM
Indeno(1,2,3-cd)pyrene	ND	47.9		µg/Kg-dry	1	10/11/2012 3:22:00 PM
Dibenz(a,h)anthracene	ND	47.9		µg/Kg-dry	1	10/11/2012 3:22:00 PM
Surr: 2-Fluorobiphenyl	98.8	50.4-142		%REC	1	10/11/2012 3:22:00 PM
Surr: Terphenyl-d14 (surr)	108	48.8-157		%REC	1	10/11/2012 3:22:00 PM

Sample Moisture (Percent Moisture)

Batch ID: R6105

Analyst: MCR

Percent Moisture	8.42			wt%	1	10/11/2012 6:10:00 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits

Work Order: 1210089
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: CCV-3406	SampType: CCV	Units: µg/Kg	Prep Date: 10/11/2012	RunNo: 6085							
Client ID: CCV	Batch ID: 3406		Analysis Date: 10/11/2012	SeqNo: 120865							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,110	50.0	1,000	0	111	80	120				
Chrysene	974	50.0	1,000	0	97.4	80	120				
Benzo(b)fluoranthene	871	50.0	1,000	0	87.1	80	120				
Benzo(k)fluoranthene	1,050	50.0	1,000	0	105	80	120				
Benzo(a)pyrene	996	50.0	1,000	0	99.6	80	120				
Indeno(1,2,3-cd)pyrene	1,040	50.0	1,000	0	104	80	120				
Dibenz(a,h)anthracene	947	50.0	1,000	0	94.7	80	120				
Surr: 2-Fluorobiphenyl	485		500.0		97.1	50.4	142				
Surr: Terphenyl-d14 (surr)	522		500.0		104	48.8	157				

Sample ID: CCB-3406	SampType: CCB	Units: µg/Kg	Prep Date: 10/11/2012	RunNo: 6085							
Client ID: CCB	Batch ID: 3406		Analysis Date: 10/11/2012	SeqNo: 120866							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Surr: 2-Fluorobiphenyl	494		500.0		98.9	50.4	142				
Surr: Terphenyl-d14 (surr)	510		500.0		102	48.8	157				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1210089
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: MB-3406	SampType: MBLK	Units: µg/Kg	Prep Date: 10/10/2012	RunNo: 6085							
Client ID: MBLKS	Batch ID: 3406		Analysis Date: 10/11/2012	SeqNo: 120867							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Surr: 2-Fluorobiphenyl	470		500.0		93.9	50.4	142				
Surr: Terphenyl-d14 (surr)	485		500.0		97.0	48.8	157				

Sample ID: LCS-3406	SampType: LCS	Units: µg/Kg	Prep Date: 10/10/2012	RunNo: 6085							
Client ID: LCSS	Batch ID: 3406		Analysis Date: 10/11/2012	SeqNo: 120868							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benz(a)anthracene	920	50.0	1,000	0	92.0	57.9	150				
Chrysene	879	50.0	1,000	0	87.9	76.1	123				
Benzo(b)fluoranthene	728	50.0	1,000	0	72.8	61.2	142				
Benzo(k)fluoranthene	916	50.0	1,000	0	91.6	68.1	134				
Benzo(a)pyrene	823	50.0	1,000	0	82.3	58.1	146				
Indeno(1,2,3-cd)pyrene	842	50.0	1,000	0	84.2	63.8	138				
Dibenz(a,h)anthracene	753	50.0	1,000	0	75.3	60.8	143				
Surr: 2-Fluorobiphenyl	491		500.0		98.2	50.4	142				
Surr: Terphenyl-d14 (surr)	510		500.0		102	48.8	157				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1210089
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: 1210089-004ADUP	SampType: DUP	Units: µg/Kg-dry	Prep Date: 10/10/2012	RunNo: 6085							
Client ID: K08-B1-10912	Batch ID: 3406		Analysis Date: 10/11/2012	SeqNo: 120982							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	45.1						0	0	30	
Chrysene	ND	45.1						0	0	30	
Benzo(b)fluoranthene	ND	45.1						0	0	30	
Benzo(k)fluoranthene	ND	45.1						0	0	30	
Benzo(a)pyrene	ND	45.1						0	0	30	
Indeno(1,2,3-cd)pyrene	ND	45.1						0	0	30	
Dibenz(a,h)anthracene	ND	45.1						0	0	30	
Surr: 2-Fluorobiphenyl	424		450.8		93.9	50.4	142		0		
Surr: Terphenyl-d14 (surr)	462		450.8		102	48.8	157		0		

Sample ID: 1210089-004AMS	SampType: MS	Units: µg/Kg-dry	Prep Date: 10/10/2012	RunNo: 6085							
Client ID: K08-B1-10912	Batch ID: 3406		Analysis Date: 10/11/2012	SeqNo: 121015							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	767	43.5	869.4	0	88.2	57.5	169				
Chrysene	715	43.5	869.4	0	82.3	45.2	146				
Benzo(b)fluoranthene	586	43.5	869.4	0	67.3	42.2	168				
Benzo(k)fluoranthene	787	43.5	869.4	0	90.6	48	161				
Benzo(a)pyrene	682	43.5	869.4	6.077	77.7	34.4	179				
Indeno(1,2,3-cd)pyrene	691	43.5	869.4	0	79.5	41.1	165				
Dibenz(a,h)anthracene	625	43.5	869.4	0	71.9	38.1	166				
Surr: 2-Fluorobiphenyl	428		434.7		98.4	50.4	142				
Surr: Terphenyl-d14 (surr)	464		434.7		107	48.8	157				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1210089
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: ICB-3406	SampType: ICB	Units: µg/Kg	Prep Date: 10/10/2012	RunNo: 6085							
Client ID: ICB	Batch ID: 3406		Analysis Date: 10/10/2012	SeqNo: 121189							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Surr: 2-Fluorobiphenyl	496		500.0		99.2	50.4	142				
Surr: Terphenyl-d14 (surr)	484		500.0		96.9	48.8	157				

Sample ID: ICV-3406	SampType: ICV	Units: µg/Kg	Prep Date: 10/10/2012	RunNo: 6085							
Client ID: ICV	Batch ID: 3406		Analysis Date: 10/10/2012	SeqNo: 121190							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benz(a)anthracene	1,180	50.0	1,000	0	118	70	130				
Chrysene	1,100	50.0	1,000	0	110	70	130				
Benzo(b)fluoranthene	998	50.0	1,000	0	99.8	70	130				
Benzo(k)fluoranthene	1,170	50.0	1,000	0	117	70	130				
Benzo(a)pyrene	1,130	50.0	1,000	0	113	70	130				
Indeno(1,2,3-cd)pyrene	1,180	50.0	1,000	0	118	70	130				
Dibenz(a,h)anthracene	1,080	50.0	1,000	0	108	70	130				
Surr: 2-Fluorobiphenyl	505		500.0		101	50.4	142				
Surr: Terphenyl-d14 (surr)	507		500.0		101	48.8	157				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Client Name: **LIBBY**
 Logged by: **Clare Griggs**

 Work Order Number: **1210089**
 Date Received: **10/10/2012 2:35:00 PM**
Chain of Custody

1. Were custodial seals present? Yes No Not Required
2. Is Chain of Custody complete? Yes No Not Present
3. How was the sample delivered? Client

Log In

4. Coolers are present? Yes No NA
5. Was an attempt made to cool the samples? Yes No NA
6. Were all coolers received at a temperature of >0° C to 10.0°C Yes No NA
7. Sample(s) in proper container(s)? Yes No
8. Sufficient sample volume for indicated test(s)? Yes No
9. Are samples properly preserved? Yes No
10. Was preservative added to bottles? Yes No NA
11. Is there headspace present in VOA vials? Yes No NA
12. Did all sample containers arrive in good condition?(unbroken) Yes No
13. Does paperwork match bottle labels? Yes No
14. Are matrices correctly identified on Chain of Custody? Yes No
15. Is it clear what analyses were requested? Yes No
16. Were all holding times able to be met? Yes No

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks/Discrepancies

Item Information

Item #	Temp °C	Condition
Cooler	3.4	Good

Libby Environmental, Inc.
 4139 Libby Road NE
 Olympia, WA 98506
 Phone: 360-352-2110
 Fax: 360-352-4154

Client: See above
 Address: _____
 Project Manager: Tamie Deyman
 Project Name: Irondale
 Location: WA City: Irondale
 Collector: Paul Burke Date of Collection: 10/8-9/12

Sample Number	Depth	Time	Sample Type	Container Type	Field Notes
1 <u>SURZ-WB1-10812</u>		<u>9:20</u>	<u>Soil</u>	<u>4oz Jar</u>	<u>Extract & Hold</u>
2 <u>K18-B1-10812</u>		<u>9:55</u>	<u>Soil</u>	<u>''</u>	<u>''</u>
3 <u>SURZ-B1-10812</u>		<u>11:35</u>	<u>Soil</u>	<u>''</u>	<u>''</u>
4 <u>K18-B1-10912</u>		<u>8:55</u>	<u>Soil</u>	<u>''</u>	<u>''</u>
5 <u>K18-B2-10912</u>		<u>9:44</u>	<u>Soil</u>	<u>''</u>	<u>''</u>
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					

Relinquished by: Paul Burke Date/Time: 10-10-12
 Relinquished by: [Signature] Date/Time: 10-10-12 1435
 Relinquished by: _____ Date/Time: _____
 Remarks: Emily will email you which samples to run.

Sample Receipt:	
Good Condition?	
Cold?	
Seals Intact?	
Total Number of Containers	

Here are the samples that we would like analyzed for cPAHs:

- 1. SURZ-F14B2-100212 (COC# 1015); TPH = 151 mg/kg (Kiln 14) 1210029-002
- 2. F15B2-10212 (COC# 1015); TPH = 40 U mg/kg (Kiln 15) 1210029-007
- 3. SURZ-B1-10812 (COC# 1018); TPH = 40.11 mg/kg (Between Kilns 8, 15, 17, and 18) 1210089-003
- 4. K08-B1-10912 (COC# 1019?); TPH = 70 mg/kg (Kiln 8) 1210087-004

Please run these samples on a 24 hour TAT.

PQLs specified in the QAPP for cPAHs are 0.05 mg/kg by EPA 8270D-SIM

Thank you,

Emily Ackerman
Office Manager
Libby Environmental, Inc.
360-352-2110 Office
360-352-4154 Fax
www.LibbyEnvironmental.com

Libby Environmental, Inc.

4139 Libby Road NE
Olympia, WA 98506
Ph: 360-352-2110
Fax: 360-352-4154

Client: *See above*

Chain of Custody Record

121008901

Date: 10-10-12 Page: 1 of 1

Project Manager: *Jamie Deyman*

Project Name: *Trondale*

Location: *WA* City: *Trondale*

Collector: *Paul Burke* Date of Collection: *10/8-9/12*

Client Project #



Sample Number	Depth	Time	Sample Type	Container Type	Field Notes
1 <i>5UR2-B1-10812</i>		9:20	Soil	4oz Jar	<i>Extract & Hold</i>
2 <i>K18-B1-10812</i>		9:55	Soil	"	"
3 <i>5UR2-B1-10812</i>		11:35	Soil	"	"
4 <i>K18-B1-10912</i>		8:55	Soil	"	"
5 <i>K18-B2-10912</i>		9:44	Soil	"	"
6					"
7					"
8					"
9					"
10					"
11					"
12					"
13					"
14					"
15					"
16					"
17					"
18					"

File released by: *Paul Burke* Date / Time: *10-10-12*

Received by: *[Signature]* Date / Time: *10-10-12 1435*

Sample Receipt

Good Condition?

Code?

Seals Intact?

Total Number of Containers

Remarks: *Emily will email you which samples to Run.*

LIBBY ENVIRONMENTAL, INC. 4139 LIBBY ROAD NE, OLYMPIA, WA 98506

calrpt.txt
Response Factor Report HP-MSD

Method Path : C:\msdchem\1\methods\
Method File : D:\PAH101012PHENOL.M
Title : EPA Method 8270-PAH
Last Update : Thu Oct 11 09:37:24 2012
Response Via : Initial Calibration

Calibration Files
1 =101009.D 2 =101010.D 3 =101011.D 4 =101012.D 5 =101013.D 6 =101014.D 7 =101015.D
8 =101016.D

Compound	1	2	3	4	5	6	7	8	Avg	%RSD
1) 1,4-dichlorobenz-d...										
2) s Phenol-d6	1.474	1.469	1.478	1.491	1.516	1.516	1.589	1.621	1.519	3.73
3) t 2,4-dimethylph...	0.806	0.628	0.880	0.927	1.023	1.177	1.152	1.184	0.972	20.53
4) I Naphthalene-d8 (IS)										
5) t Naphthalene	1.430	1.130	1.366	1.326	1.259	1.301	1.208	1.130	1.269	8.53
6) t 2-Methylnaphth...	0.797	0.629	0.776	0.769	0.750	0.799	0.735	0.691	0.743	7.81
7) t 1-Methylnaphth...	0.760	0.603	0.742	0.729	0.708	0.747	0.686	0.652	0.703	7.67
8) s 2-Fluorobiphen...	0.877	0.877	0.883	0.888	0.898	0.853	0.895	0.899	0.884	1.72
9) t Acenaphthylene	1.038	0.802	1.023	1.044	1.059	1.149	1.052	0.985	1.013	9.73
10) I Acenaphthene-d10 (IS)										
11) m Acenaphthene	0.786	0.603	0.725	0.702	0.668	0.678	0.630	0.588	0.673	9.77
12) t Fluorene	1.727	1.325	1.630	1.618	1.571	1.615	1.482	1.364	1.542	9.04
13) I Phenanthrene-d10 (IS)										
14) t Phenanthrene	1.620	1.212	1.455	1.433	1.368	1.352	1.287	1.192	1.365	10.27
15) t Anthracene	1.260	0.952	1.216	1.239	1.255	1.326	1.277	1.220	1.219	9.00
16) s Terphenyl-d14 ...	0.733	0.728	0.723	0.728	0.737	0.732	0.756	0.761	0.737	1.88
17) t Fluoranthene	1.204	0.923	1.185	1.223	1.273	1.435	1.323	1.263	1.229	11.93
18) t Pyrene	1.237	0.951	1.242	1.291	1.343	1.492	1.387	1.320	1.284	12.05
19) t Benzo (a) anth...	1.270	0.866	0.992	1.012	1.040	1.181	1.140	1.114	1.077	11.68
20) I Chrysene-d12 (IS)										
21) t Chrysene	1.773	1.261	1.543	1.451	1.398	1.456	1.375	1.303	1.445	11.05
22) t benzo (b) fluo...	0.595	0.444	0.577	0.689	0.778	0.986	1.006	1.063	0.767	29.94
23) t benzo (k) fluo...	1.206	0.915	1.311	1.516	1.536	1.604	1.559	1.476	1.390	16.85
24) t benzo (a) pyrene	0.589	0.449	0.634	0.733	0.858	1.057	1.090	1.260	0.833	33.81

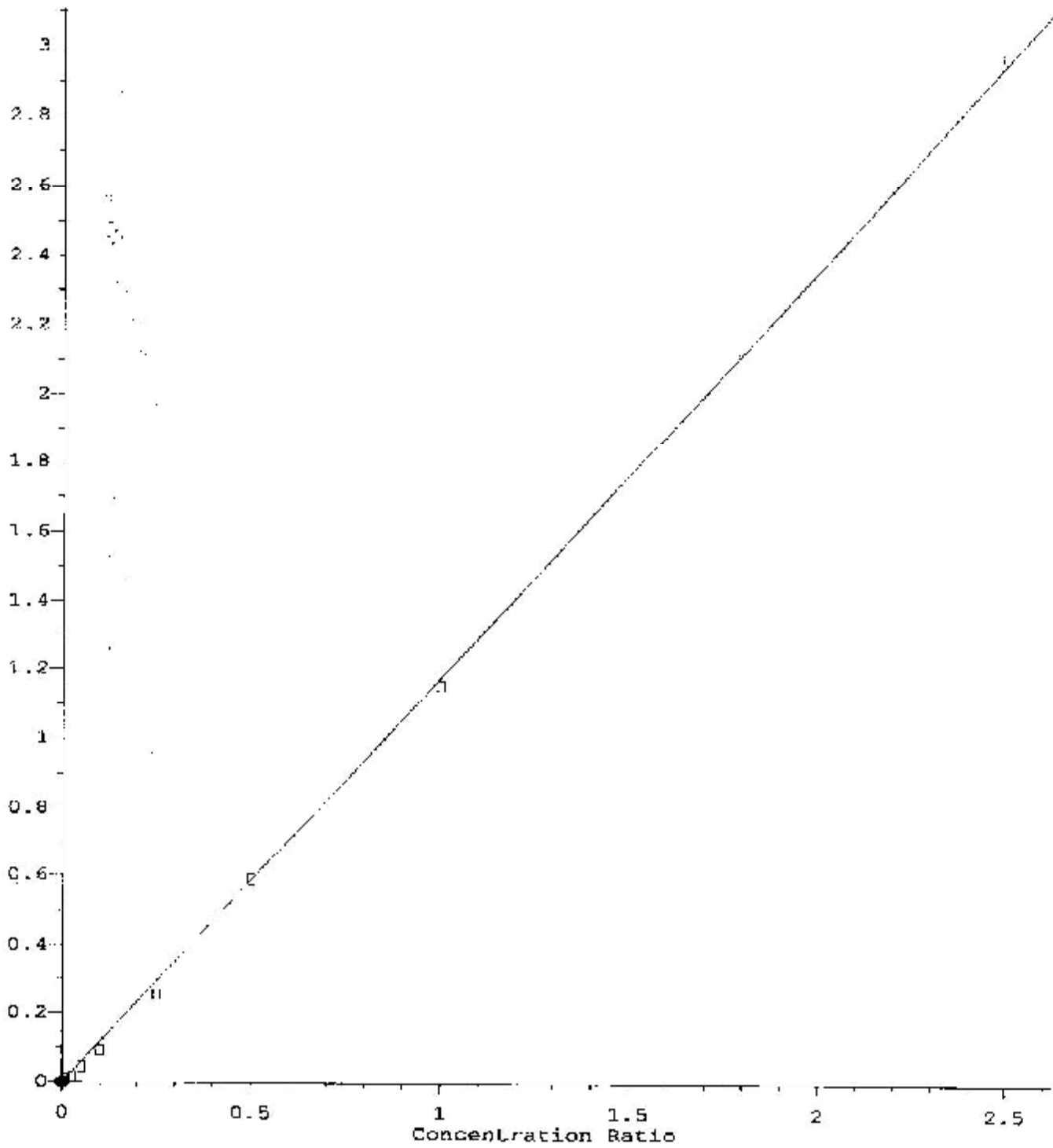
		calrpr.txt		ISTD							
25) I	perylene-d12 (IS)										
26) t	Indeno(1,2,3-c...	0.626	0.502	0.688	0.789	0.903	1.082	1.133	1.268	0.874	30.83
27) t	Dibenz (a,h) a...	0.448	0.348	0.496	0.566	0.672	0.852	0.906	0.974	0.658	35.14
28) t	Benzo (g,h,i) ...	0.813	0.644	0.883	0.990	1.066	1.221	1.222	1.175	1.002	20.95

(#) = Out of Range

DBPAH101012PHENOL.M Thu Oct 11 09:38:07 2012 PAH

2,4-Dimethylphenol

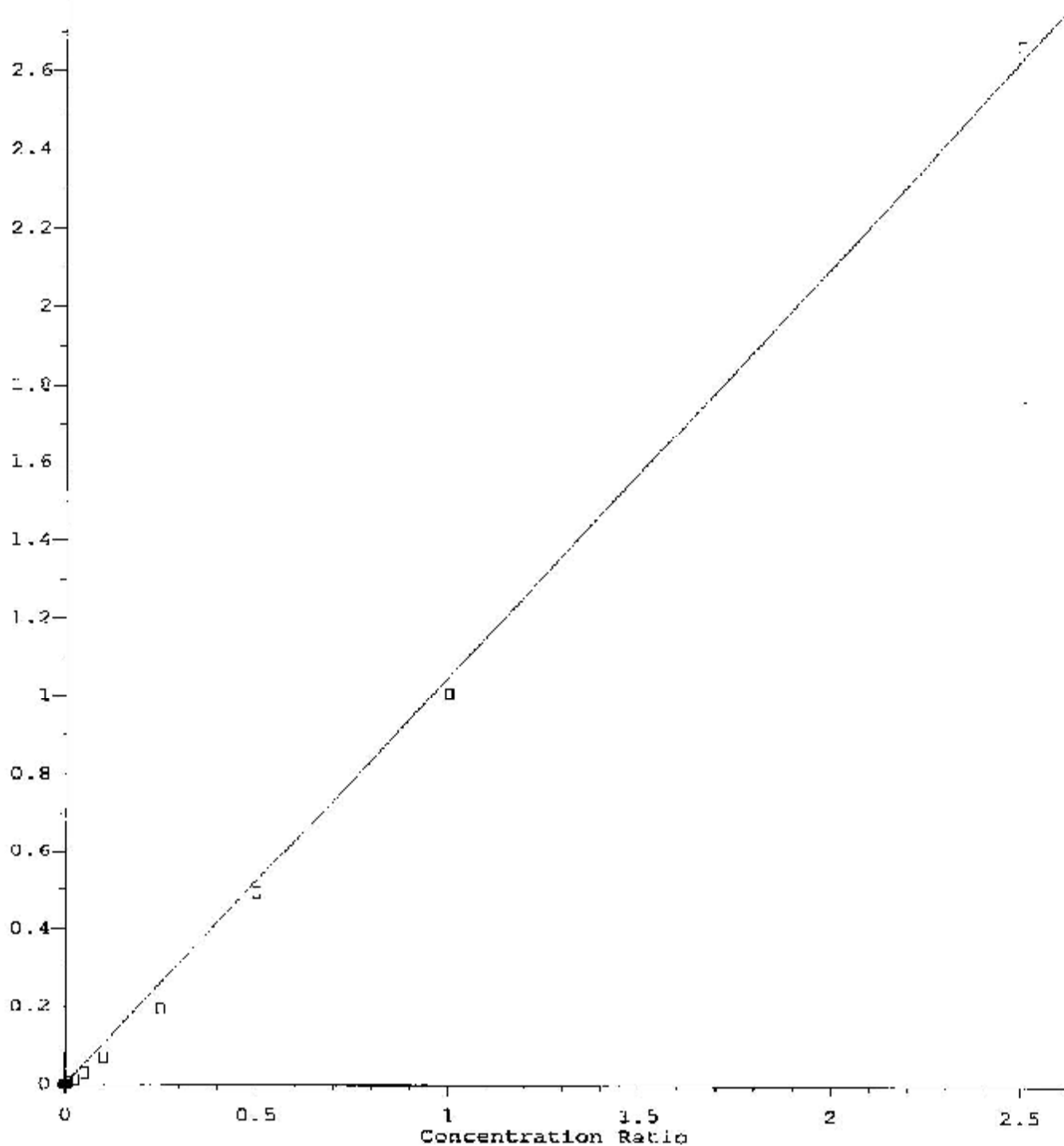
Response Ratio



Response = 1.19e+000 * Amt
Coef of Det (r^2) = 1.000 Curve Fit: Linear/(0,0)
Method Name: C:\msdchem\1\methods\DEPAH101012PHENOL.M
Calibration Table Last Updated: Thu Oct 11 14:52:26 2012

benzo (b) fluoranthene

Response Ratio



Response = 1.05e+000 * Amt

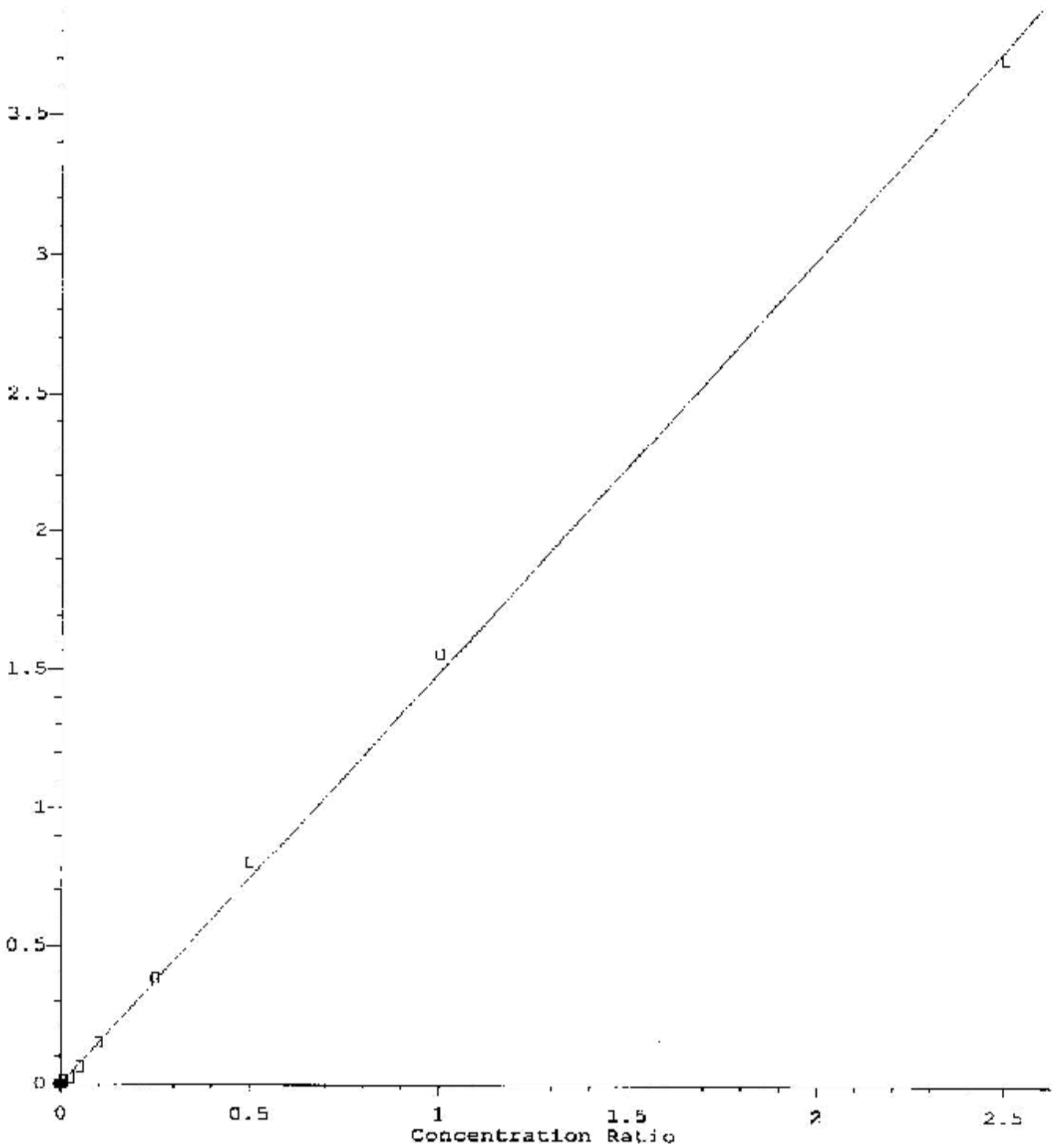
Coef of Det (r²) = 0.999 Curve Fit: Linear/(0,0)

Method Name: C:\msdchem\1\methods\BSPA101012PHENOL.M

Calibration Table Last Updated: Thu Oct 11 09:35:38 2012

benzo (k) fluoranthene

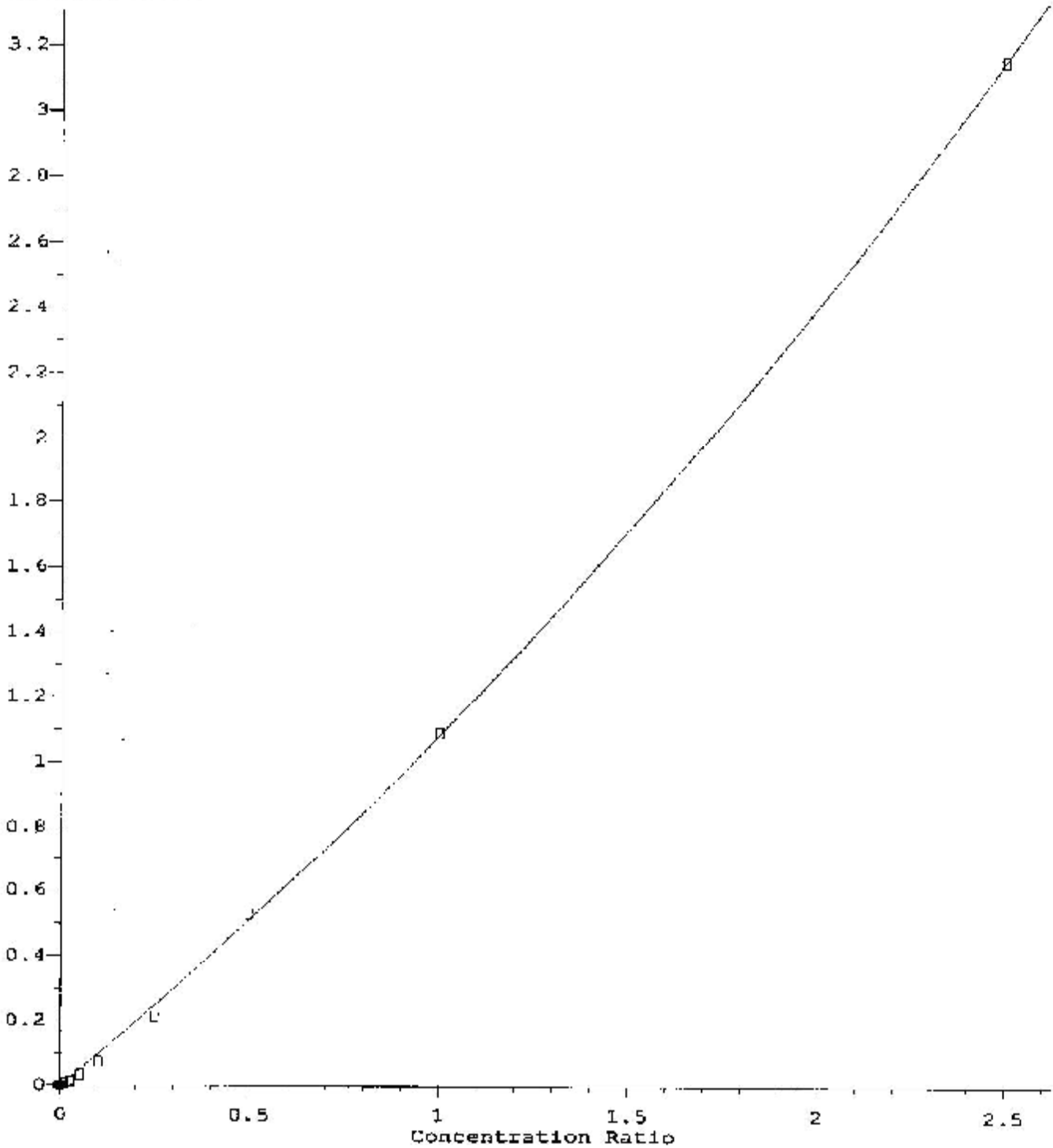
Response Ratio



Response = 1.49e+000 * Amt
Coef of Det. (r^2) = 0.999 Curve Fit: Linear/(0,0)
Method Name: C:\msdchem\1\methods\BSPAH101012PHENOL.M
Calibration Table Last Updated: Thu Oct 11 09:35:38 2012

benzo (a) pyrene

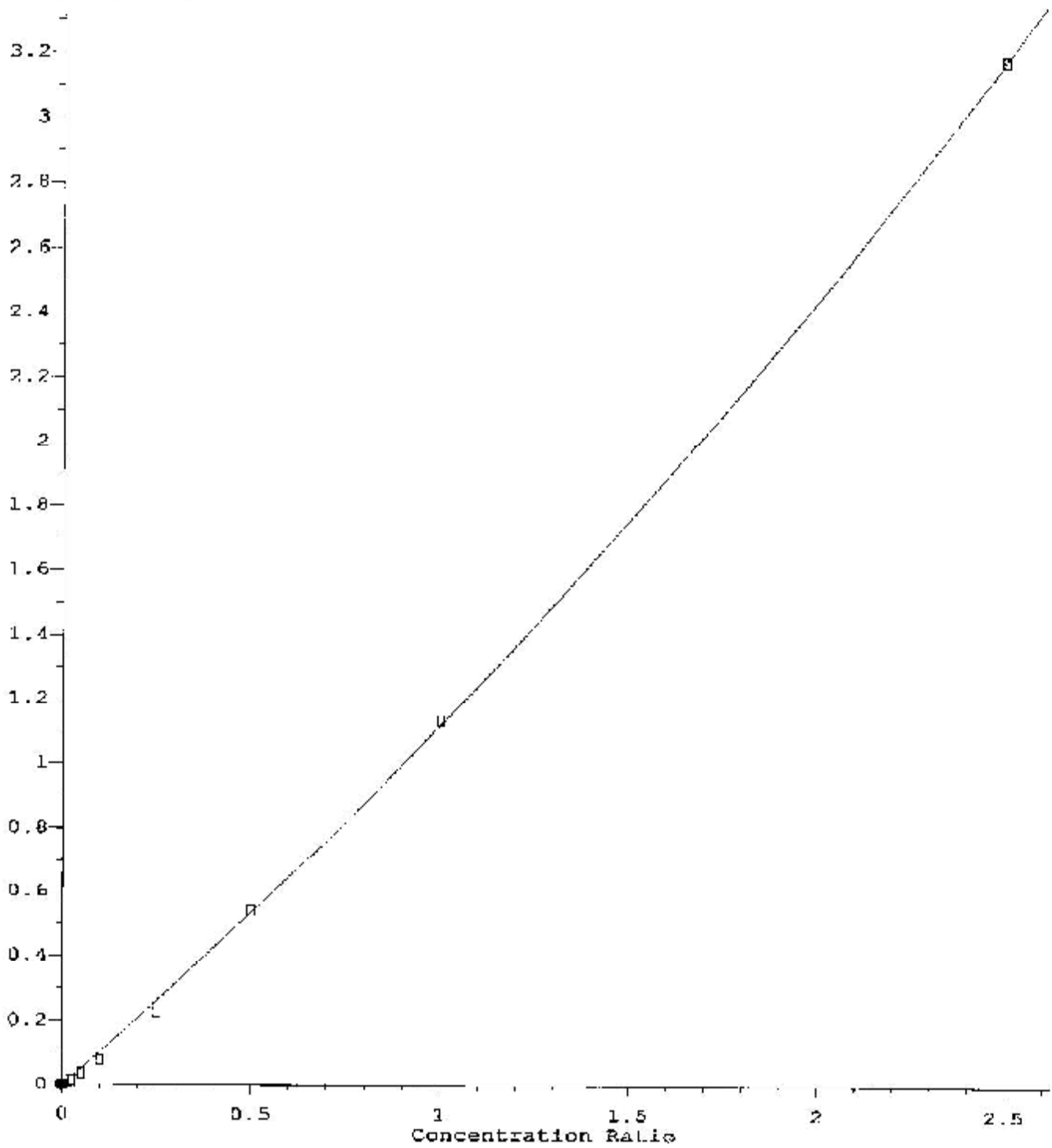
Response Ratio



R = 1.19e-001 A^2 + 9.64e-001 A + 0.00e+000
Coef of Det (r^2) = 1.000 Curve Fit: Quad/(0,0)
Method Name: C:\msdchem\1\methods\DEPAE101012PHENOL.M
Calibration Table Last Updated: Thu Oct 11 09:35:38 2012

Indeno(1,2,3-cd)pyrene

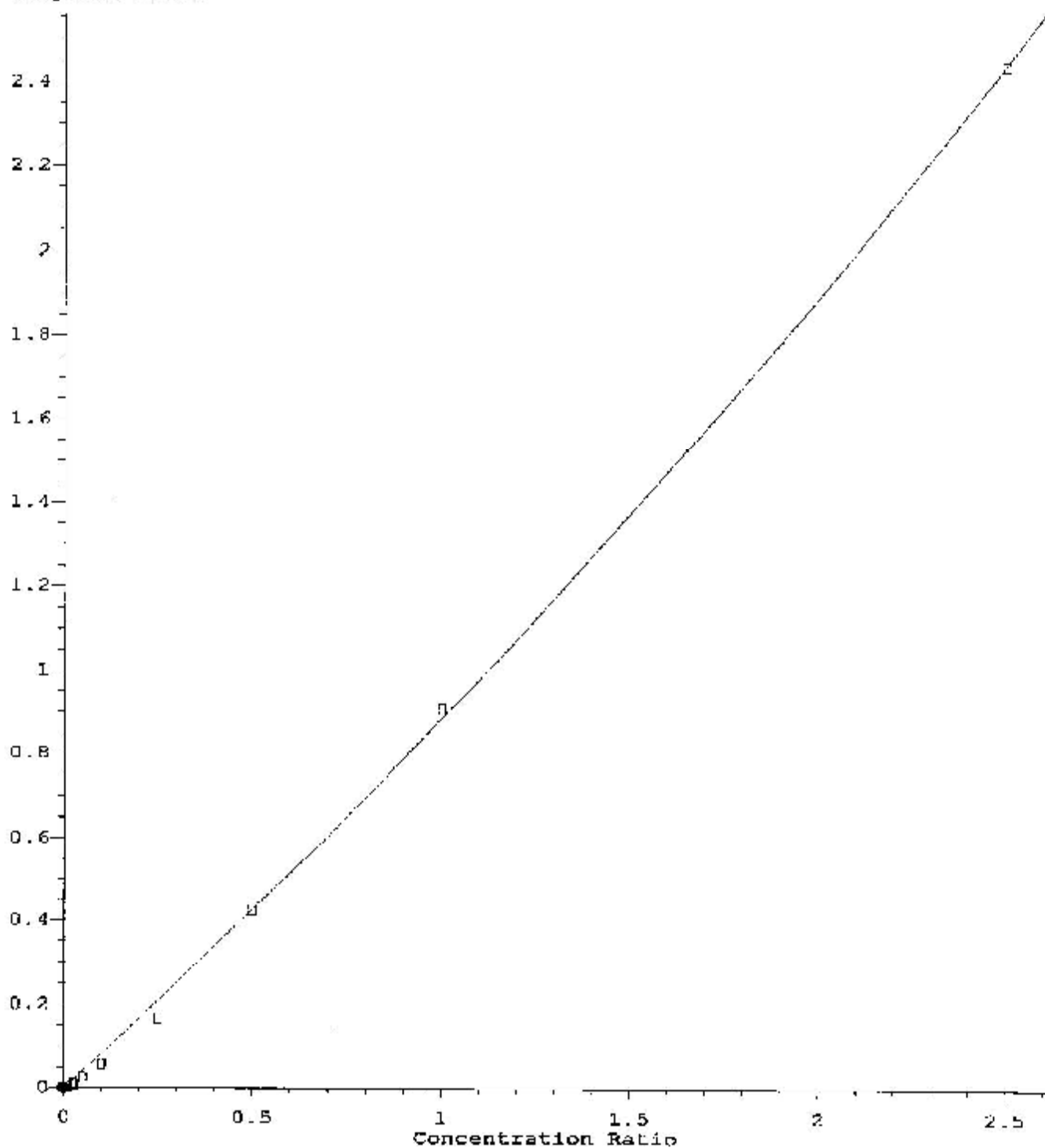
Response Ratio



R = 1.00e-001 A*A + 1.02e+000 A + 0.00e+000
Coef of Det (r^2) = 1.000 Curve Fit: Quad/(0,0)
Method Name: C:\msdchem\1\methods\DEPAH101012PHENOL.M
Calibration Table Last Updated: Thu Oct 11 09:35:38 2012

Dibenz (a,h) anthracene

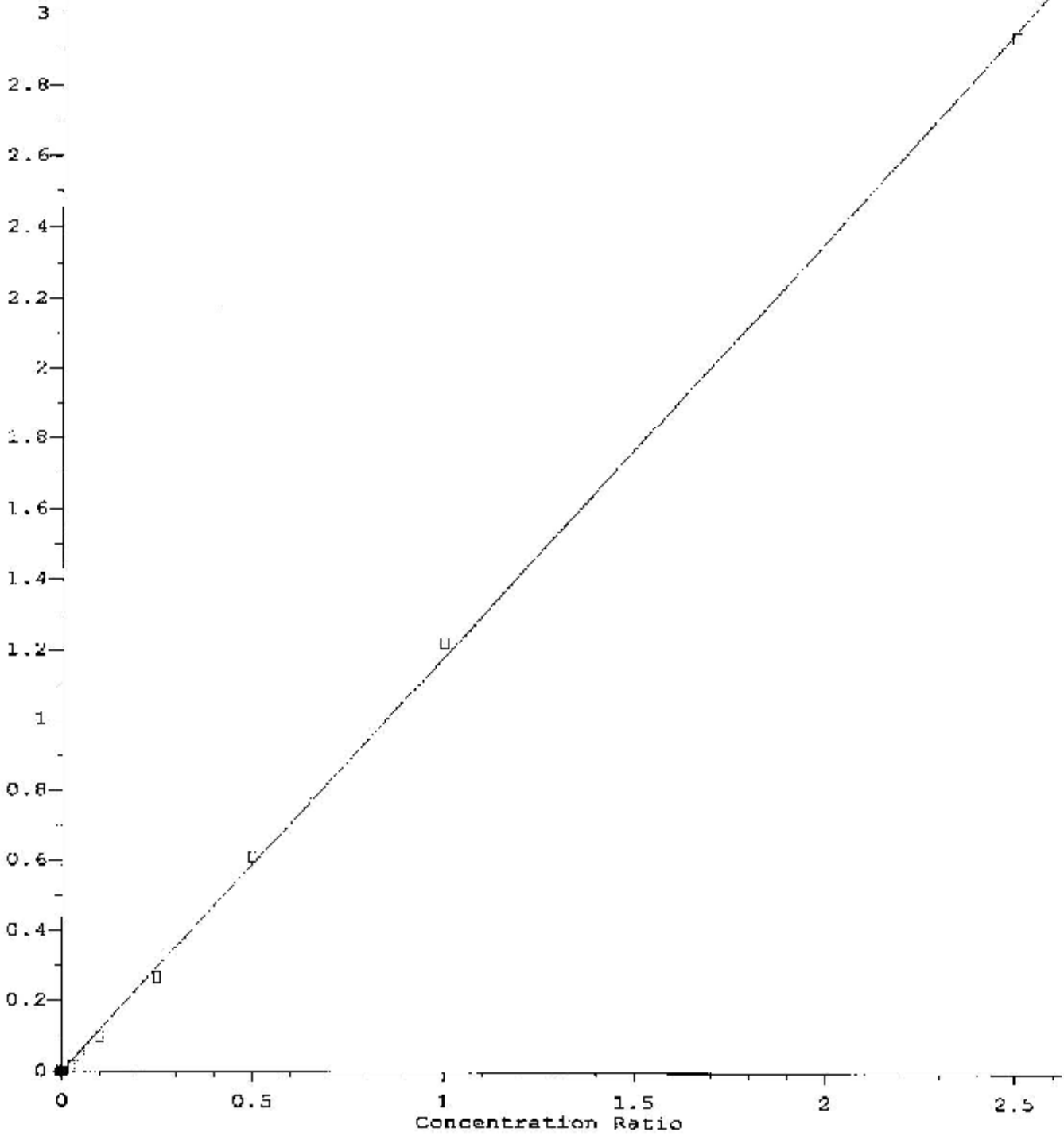
Response Ratio



$R = 6.11e-002 A^2 + 8.23e-001 A + 0.00e+000$
Coef of Det (r²) = 1.000 Curve Fit: Quad/(0,0)
Method Name: C:\msdchem\1\methods\DBPAH101012PHENOL.M
Calibration Table Last Updated: Thu Oct 11 09:35:38 2012

Benzo (g,h,i) perylene

Response Ratio



Response = 1.18e+000 * Amt

Coef of Det. (r^2) = 0.999 Curve Fit: Linear/(0,0)

Method Name: C:\msdchem\1\methods\DEPAH101012PHENOL.M

Calibration Table Last Updated: Thu Oct 11 09:35:38 2012

Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101009.D
 Acq On : 10 Oct 2012 3:42 pm
 Operator :
 Sample : 30 PPB STD
 Misc : CCV O-PAK-S-SIM-LIBBY
 ALS Vial : 101 Sample Multiplier: 1

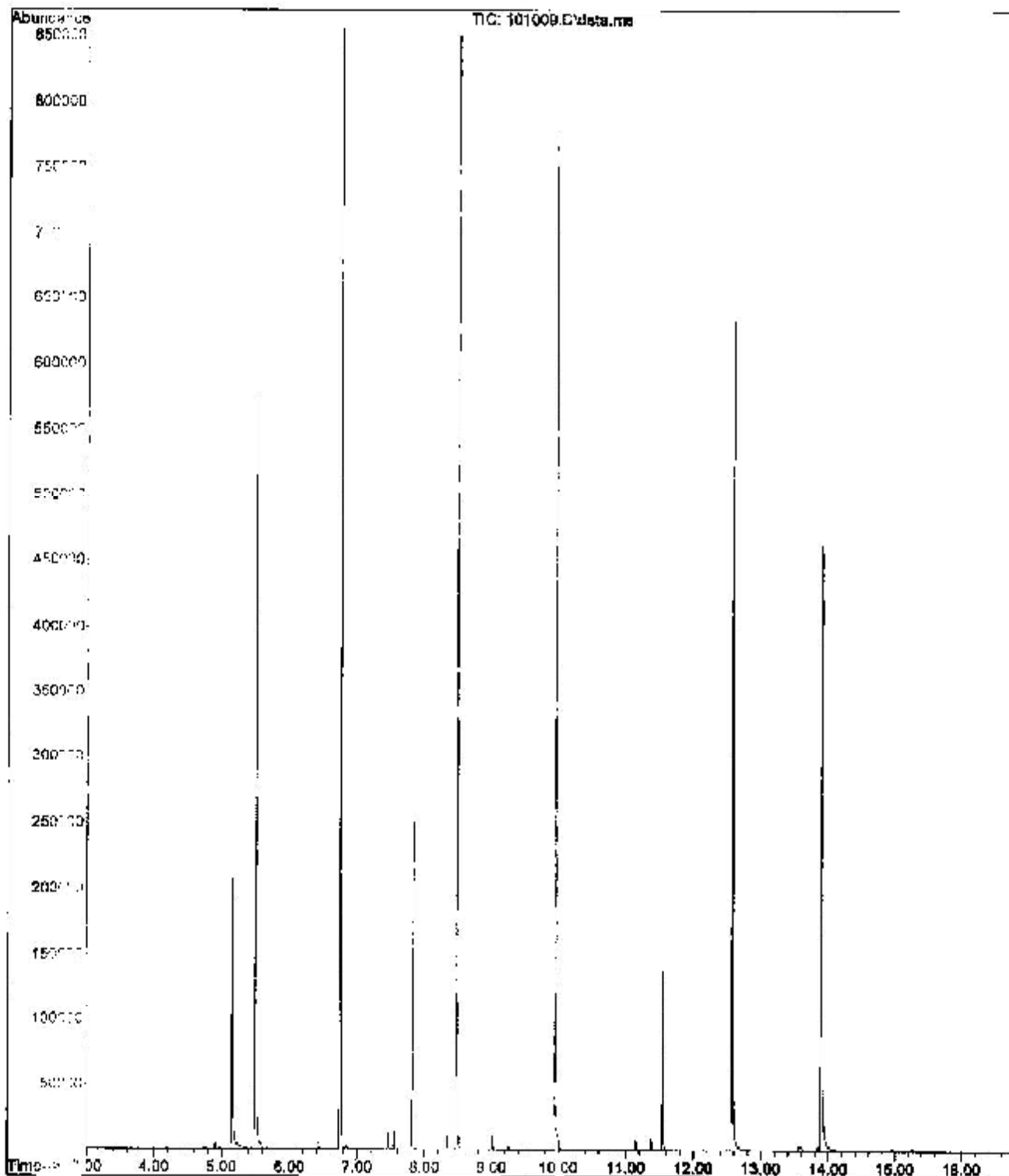
Quant Time: Oct 11 09:18:01 2012
 Quant Method : C:\msdchem\1\methods\BPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	211401	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	680290	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	338652	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	188	547010	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.566	240	493748	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.885	264	457899	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.149	99	155780	971.54	ug/L	0.00
8) 2-Fluorobiphenyl (surx)	7.822	172	149151	496.06	ug/L	0.00
16) Terphenyl-d14 (surx)	11.540	244	100270	501.63	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.430	107	1703m	13.70	ug/L	
5) Naphthalene	6.766	128	9729	22.54	ug/L	100
6) 2-Methylnaphthalene	7.455	142	5421	21.44	ug/L	100
7) 1-Methylnaphthalene	7.550	142	5172	21.59	ug/L	100
9) Acenaphthylene	8.338	152	7063	20.38	ug/L	100
11) Acenaphthene	8.508	152	2661	23.37	ug/L	99
12) Fluorene	9.021	166	5847	22.40	ug/L	97
14) Phenanthrene	9.967	178	8863	23.95	ug/L	100
15) Anthracene	10.020	178	6894	20.35	ug/L	97
17) Fluoranthene	11.145	202	6586	19.76	ug/L	# 94
18) Pyrene	11.368	202	6766	19.42	ug/L	# 85
19) Benzo (a) anthracene	12.559	228	6945	23.77	ug/L	# 100
21) Chrysene	12.592	228	8752m	25.21	ug/L	
22) benzo (b) fluoranthene	13.566	252	2936	11.32	ug/L	# 100
23) benzo (k) fluoranthene	13.579	252	5957	16.17	ug/L	99
24) benzo (a) pyrene	13.635	252	2906	12.19	ug/L	# 52
26) Indeno (1,2,3-cd)pyrene	14.543	276	2867m	14.51	ug/L	
27) Benzo (a,h,i) anthracene	14.567	276	2052m	14.50	ug/L	
28) Benzo (g,h,i) perylene	15.256	276	3722m	18.27	ug/L	

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

BPAH101012PHENOL.M Thu Oct 11 09:26:33 2012 PAM

File : D:\Data\SVOC\101012-1\101009.D
Operator :
Acquired : 10 Oct 2012 3:42 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 20 PBB STD
Misc Info : CCV O-PAH-S-SIM-LTRBY
View Number: 101



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101010.F
 Acq On : 10 Oct 2012 4:07 pm
 Operator :
 Sample : 50 PPB STD
 Misc : CCV O-PAH-S-SIM-LIBBY
 ALS Vial : 202 Sample Multiplier: 1

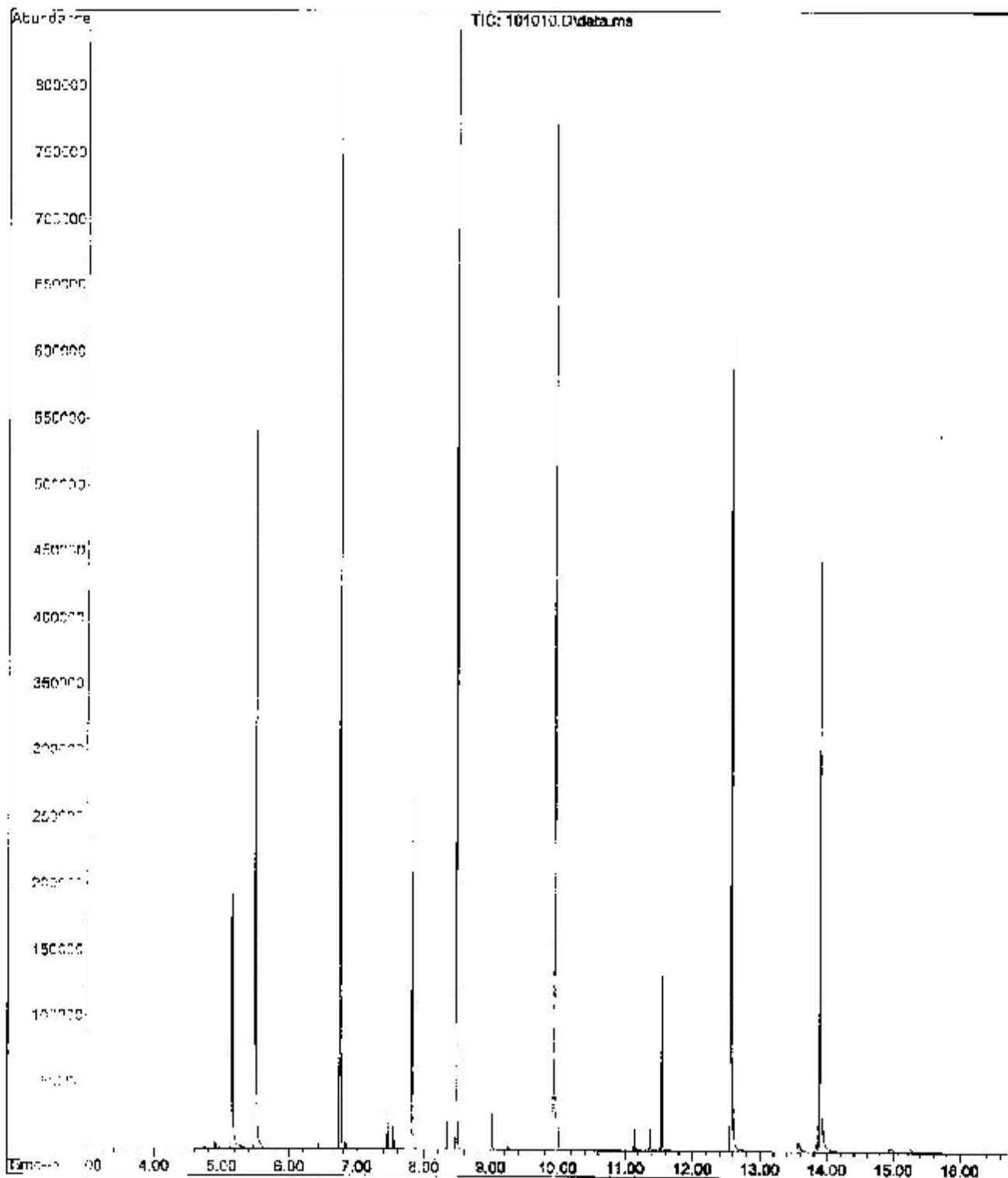
Quant Time: Oct 11 09:27:38 2012
 Quant Method : C:\medchem\1\methods\BSPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	207698	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	671694	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.477	164	334353	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	188	539399	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.567	240	485545	2000.00	ug/L	0.00
25) Benz[a]pyrene-d12 (IS)	13.887	264	448984	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d5	5.151	99	152536	968.26	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	147260	496.04	ug/L	0.00
16) Biphenyl-d14 (surr)	11.543	244	98107	497.73	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,6-Dimethylphenol	6.429	107	3259m	26.69	ug/L	
5) Naphthalene	6.755	129	18380	44.53	ug/L	100
6) 2-Methylnaphthalene	7.453	142	16586	42.31	ug/L	99
7) 1-Methylnaphthalene	7.550	142	16124	42.81	ug/L	100
9) Acenaphthylene	8.338	152	13465	39.34	ug/L	100
11) Acenaphthene	8.508	152	5037	44.80	ug/L	100
12) Fluorene	9.021	166	11078	42.99	ug/L	96
14) Fluoranthene	9.966	178	16342	44.78	ug/L	99
15) Anthracene	10.019	178	12970	38.83	ug/L	97
17) Fluoranthene	11.046	204	17648	37.88	ug/L	95
18) Pyrene	11.369	204	13954	37.71	ug/L	# 91
19) Benzo [a] anthracene	12.559	228	11679	40.53	ug/L	# 100
21) Chrysene	12.591	228	15304m	44.83	ug/L	
22) Benzo [b] fluoranthene	13.554	252	8388	21.12	ug/L	# 100
23) Benzo [k] fluoranthene	13.580	252	11166	30.65	ug/L	100
24) Benzo [a] pyrene	13.825	252	5148	23.23	ug/L	# 55
26) 1,2,3,6-tetrahydro-1,2,3,6-dihydropyrene	14.943	276	6625m	29.10	ug/L	
27) Benzo [ghi] anthracene	14.964	276	1102m	28.18	ug/L	
28) Benzo [ghi] perylene	15.858	276	7216m	36.21	ug/L	

(#) = not filter out of range (m) = manual integration (+) = signals summed

BSPAH101012.PHENOL.M Thu Oct 11 09:27:40 2012 PAH

File : D:\Data\SVOC\101012-1\101010.D
Operator :
Acquired : 10 Oct 2012 4:07 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 50 PFB STD
Misc Info : CCV O-PAH-S-SIM-LIBBY
Vial Number: 102



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101011.D
 Acq On : 10 Oct 2012 4:33 pm
 Operator :
 Sample : 100 PPB STD
 Misc : CCV O-PAH-S-SIM LIBBY
 ALS Vial : 103 Sample Multiplier: 1

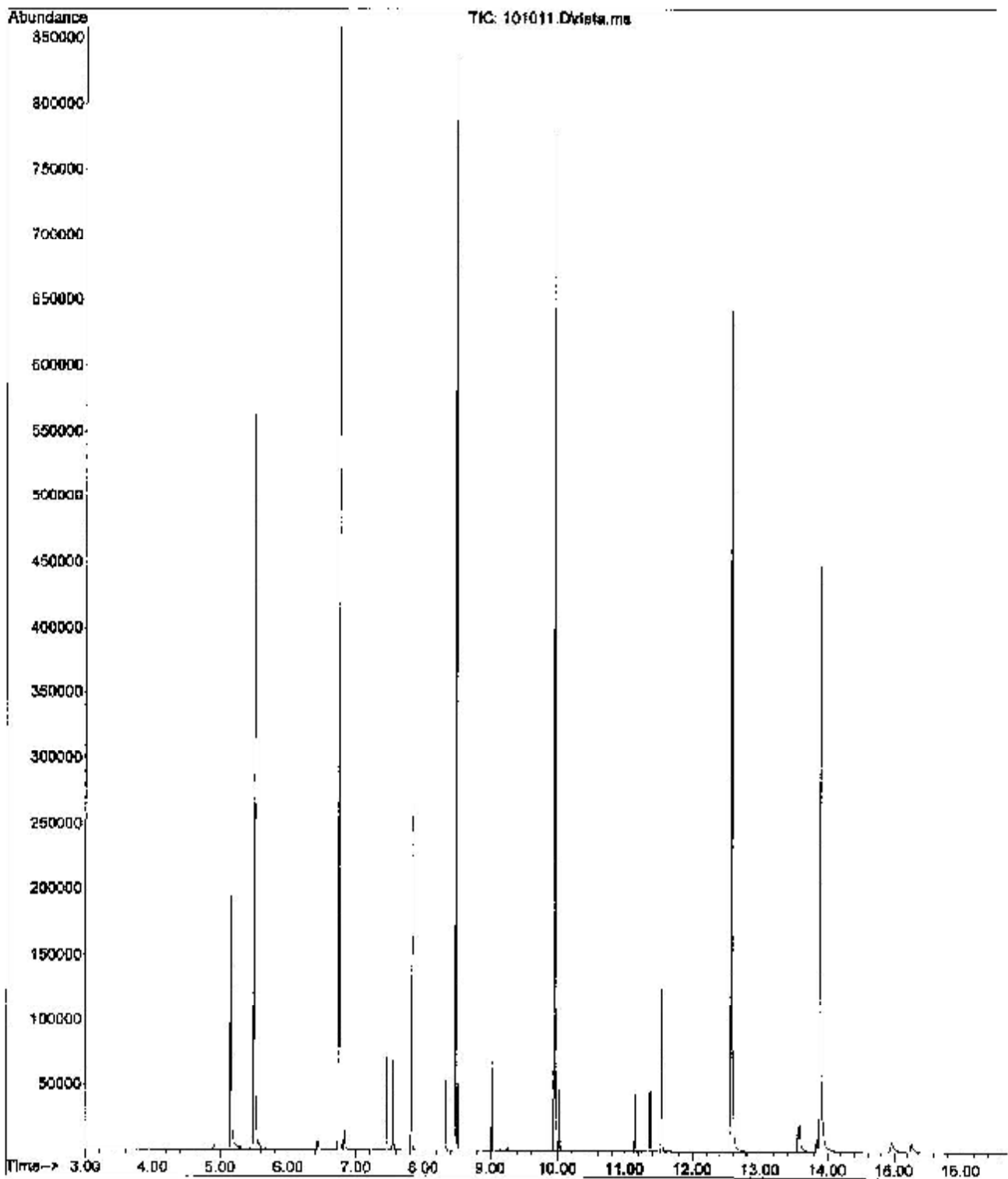
Quant Time: Oct 11 09:33:31 2012
 Quant Method : C:\msdchem\1\methods\BPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	207528	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	669585	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	334923	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	188	535335	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.568	240	483570	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	453972	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.149	99	153322	974.05	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	147736	499.21	ug/L	0.00
16) Terphenyl-d14 (surr)	11.542	244	96744	494.54	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.428	107	9134m	74.86	ug/L	
5) Naphthalene	6.766	128	45722	107.61	ug/L	100
6) 2-Methylnaphthalene	7.453	142	25990	104.41	ug/L	98
7) 1-Methylnaphthalene	7.548	142	24845	105.38	ug/L	99
9) Acenaphthylene	8.338	152	34254	100.40	ug/L	100
11) Acenaphthene	8.508	152	12144	107.84	ug/L	100
12) Fluorene	9.021	166	27298	105.76	ug/L	96
14) Phenanthrene	9.969	178	38933	107.48	ug/L	99
15) Anthracene	10.020	178	32553	98.20	ug/L	97
17) Fluoranthene	11.148	202	31709	97.22	ug/L	95
18) Pyrene	11.370	202	33247	97.51	ug/L	# 93
19) Benzo (a) anthracene	12.561	228	26561	92.88	ug/L	# 100
21) Chrysene	12.593	228	37318m	109.77	ug/L	
22) benzo (b) fluoranthene	13.557	252	13955	54.93	ug/L	# 100
23) benzo (k) fluoranthene	13.580	252	31708	87.86	ug/L	100
24) benzo (a) pyrene	13.837	252	15319	65.42	ug/L	# 72
26) Indeno(1,2,3-cd)pyrene	14.945	276	15625m	79.78	ug/L	
27) Dibenzo (a,h) anthracene	14.967	278	11260m	80.26	ug/L	
28) Benzo (g,h,i) perylene	15.257	276	20045m	99.27	ug/L	

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

BPAH101012PHENOL.M Thu Oct 11 09:33:36 2012 PAH

File :D:\Data\SVOC\101012-1\101011.D
Operator :
Acquired : 10 Oct 2012 4:33 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 100 PPB STD
Misc Info : CCV C-PAH-S-SIM-LIBBY
Vial Number: 103



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101012.D
 Acq On : 10 Oct 2012 4:58 pm
 Operator :
 Sample : 200 PBB STD
 Misc : CCV O-PAH-S-SIM-LIBBY
 ALS Vial : 104 Sample Multiplier: 1

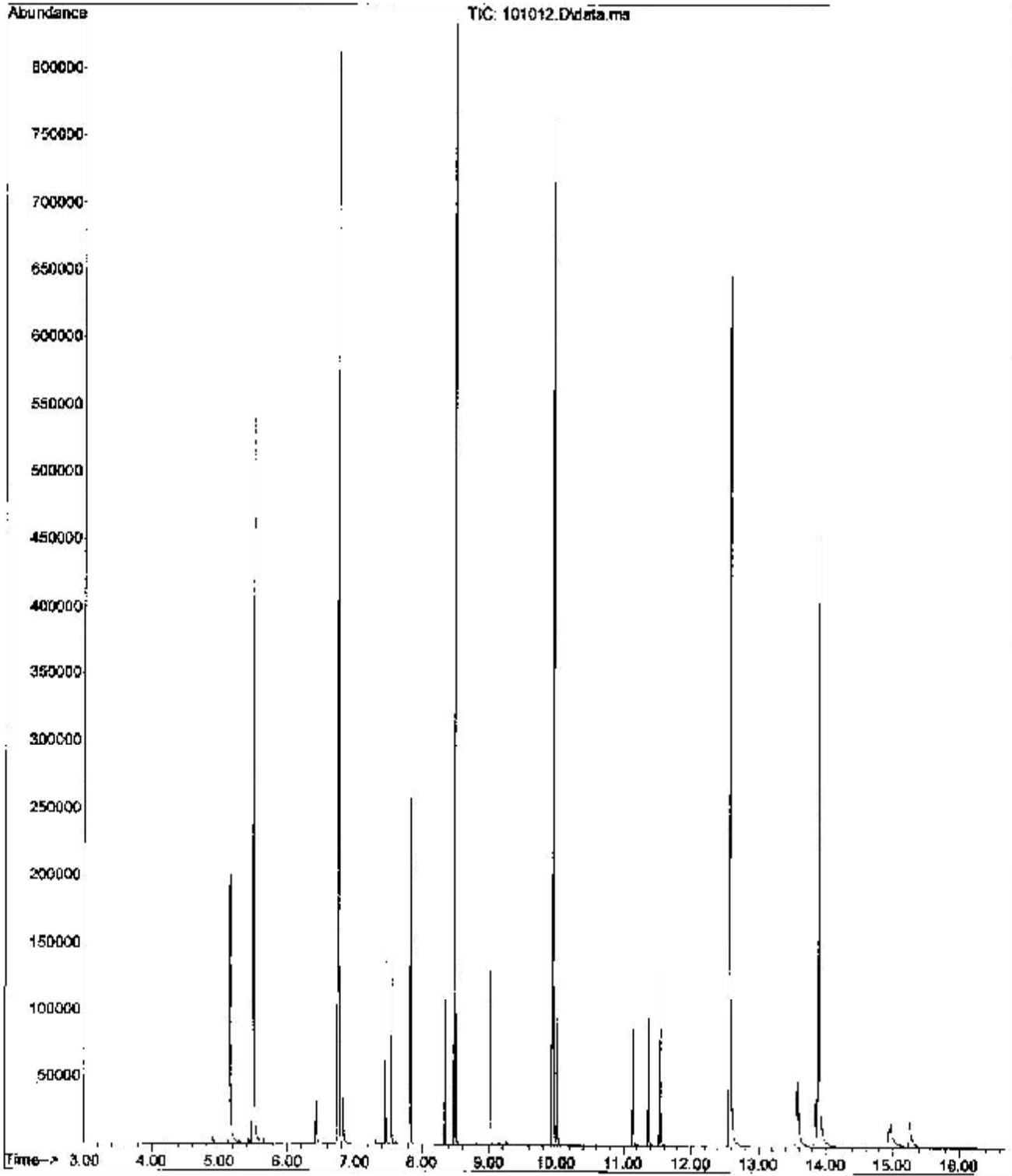
Quant Time: Oct 11 09:23:34 2012
 Quant Method : C:\msdchem\1\methods\DBPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	206282	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	666962	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	333890	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.944	188	535442	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.568	240	489283	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	461276	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.149	99	153734	982.57	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.821	172	148032	502.17	ug/L	0.00
16) Terphenyl-d14 (surr)	11.540	244	97477	498.19	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.427	107	19118m	157.63	ug/L	
5) Naphthalene	6.766	128	88440	208.97	ug/L	100
6) 2-Methylnaphthalene	7.453	142	51282	206.83	ug/L	98
7) 1-Methylnaphthalene	7.550	142	48610	207.00	ug/L	97
9) Acenaphthylene	8.337	152	69663	204.98	ug/L	100
11) Acenaphthene	8.508	152	23423	208.64	ug/L	99
12) Fluorene	9.021	166	54022	209.94	ug/L	97
14) Phenanthrene	9.968	178	76739	211.81	ug/L	100
15) Anthracene	10.019	178	66316	200.01	ug/L	98
17) Fluoranthene	11.147	202	65506	200.80	ug/L	95
18) Pyrene	11.369	202	69105	202.65	ug/L	93
19) Benzo (a) anthracene	12.559	228	54179	189.41	ug/L	# 100
21) Chrysene	12.693	228	71006	206.42	ug/L	93
22) benzo (b) fluoranthene	13.557	252	33689	131.05	ug/L	# 100
23) benzo (k) fluoranthene	13.580	252	74195m	203.20	ug/L	
24) benzo (a) pyrene	13.837	252	35842	150.50	ug/L	# 81
26) Indeno(1,2,3-cd)pyrene	14.946	276	36383m	182.83	ug/L	
27) Dibenz (a,h) anthracene	14.970	278	26113m	183.19	ug/L	
28) Benzo (g,h,i) perylene	15.258	276	45665m	222.56	ug/L	

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

DBPAH101012PHENOL.M Thu Oct 11 09:34:11 2012 PAH

File :D:\Data\SVOC\101012-1\101012.D
Operator :
Acquired : 10 Oct 2012 4:58 pm using AcqMethod DBPAR101012PHENOL.M
Instrument : HP-MSD
Sample Name: 200 PFB STD
Misc Info : CCV O-PAH-S-SIM-LIBBY
Vial Number: 104



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101013.D
 Acq On : 10 Oct 2012 5:23 pm
 Operator :
 Sample : 500 PPB STD
 Misc : CCV O-PAH-S-SIM-LIBBY
 ALS Vial : 105 Sample Multiplier: 1

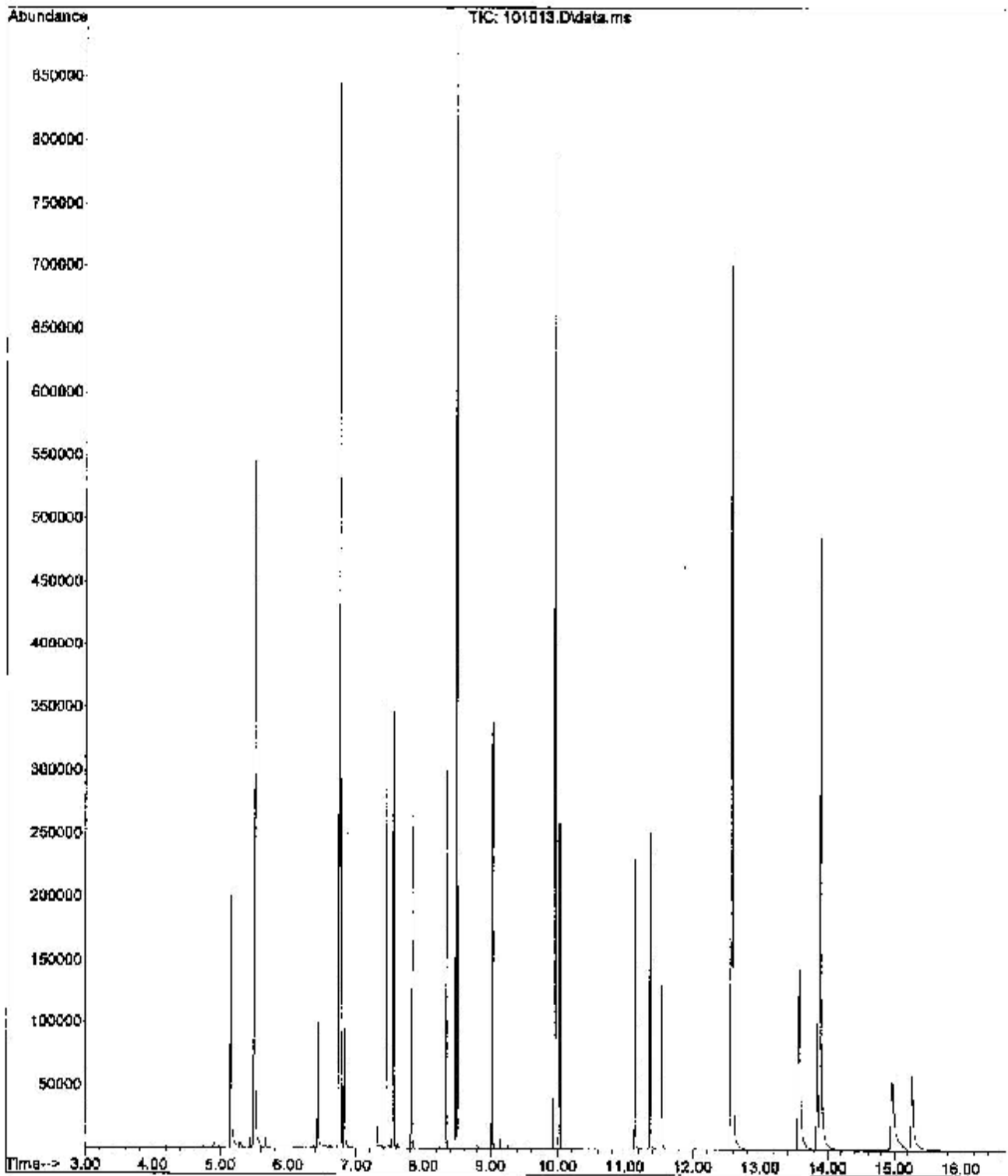
Quant Time: Oct 11 09:24:12 2012
 Quant Method : C:\msdchem\1\methods\DBPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.497	152	205479	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	662568	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.480	164	337875	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	188	540131	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.568	240	503799	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	476708	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.180	99	155773	999.49	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.821	172	150159	508.17	ug/L	0.00
16) Terphenyl-d14 (surr)	11.540	244	99538	504.31	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.427	107	52531m	434.81	ug/L	
5) Naphthalene	6.767	128	210515	496.23	ug/L	100
6) 2-Methylnaphthalene	7.453	142	125413	504.60	ug/L	98
7) 1-Methylnaphthalene	7.548	142	118399	502.97	ug/L	97
9) Acenaphthylene	8.338	152	176929	519.35	ug/L	100
11) Acenaphthene	8.509	152	56451	496.90	ug/L	99
12) Fluorene	9.022	166	132700	509.61	ug/L	97
14) Phenanthrene	9.969	178	184698	505.37	ug/L	100
15) Anthracene	10.019	178	169453	506.64	ug/L	98
17) Fluoranthene	11.146	202	171838	522.16	ug/L	95
18) Pyrene	11.368	202	181345	527.17	ug/L	94
19) Benzo (a) anthracene	12.559	228	140369	486.48	ug/L	# 100
21) Chrysene	12.593	228	176026	496.99	ug/L	95
22) benzo (b) fluoranthene	13.557	252	97963	370.10	ug/L	# 100
23) benzo (k) fluoranthene	13.582	252	193472	514.59	ug/L	99
24) benzo (a) pyrene	13.837	252	108083	433.23	ug/L	# 89
26) Indeno(1,2,3-cd)pyrene	14.950	276	107596m	523.18	ug/L	
27) Dibenz (a,h) anthracene	14.972	278	80111m	543.82	ug/L	
28) Benzo (g,h,i) perylene	15.259	276	127001m	598.94	ug/L	

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

DBPAH101012PHENOL.M Thu Oct 11 09:34:21 2012 PAH

File : D:\Data\SVOC\101012-1\101013.D
Operator :
Acquired : 10 Oct 2012 5:23 pm using AcqMethod DBFAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 500 PPB STD
Misc Info : CCV O-PAH-S-SIM-LIBBY
Vial Number: 105



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101014.C
 Acq On : 10 Oct 2012 5:48 pm
 Operator :
 Sample : 1000 PPB STD
 Misc : CCV O-PAH-S-SIM-LIBBY
 ALS Vial : 106 Sample Multiplier: 1

Quant Time: Oct 11 09:24:49 2012
 Quant Method : C:\msdchem\1\methods\DEPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

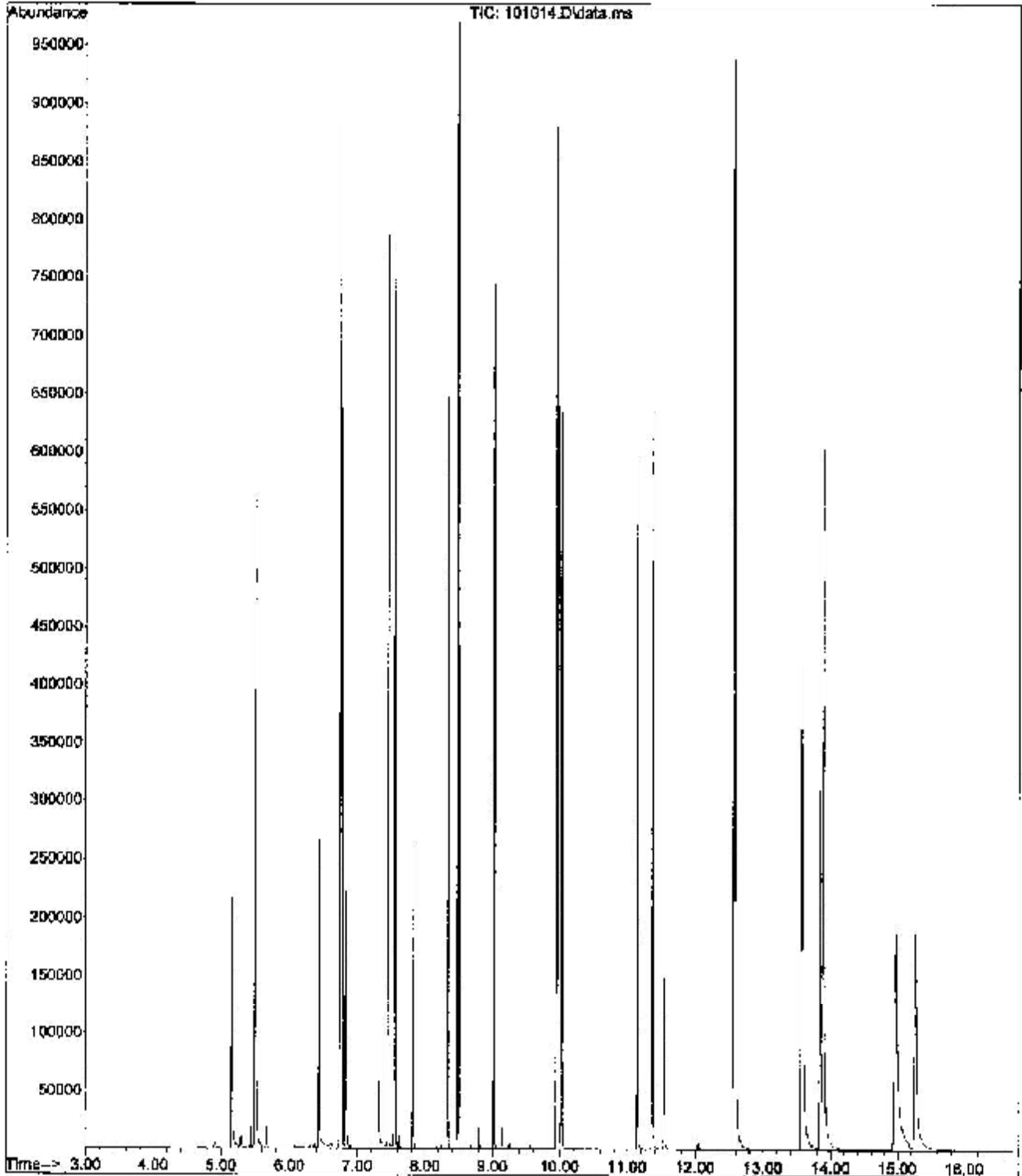
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	211091	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	703989	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.480	164	370642	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	180	614915	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.569	240	586943	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.889	264	569732	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.151	99	160048	999.62	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	150191	482.70	ug/L	0.00
16) Terphenyl-d14 (surr)	11.542	244	112537	500.83	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.427	107	124230	1000.93	ug/L	99
5) Naphthalene	6.766	128	457822	1024.89	ug/L	100
6) 2-Methylnaphthalene	7.453	142	281274	1074.77	ug/L	98
7) 1-Methylnaphthalene	7.548	142	262852	1060.43	ug/L	97
9) Acenaphthylene	8.339	152	404284	1127.02	ug/L	100
11) Acenaphthene	8.508	152	125725	1008.83	ug/L	99
12) Fluorene	9.021	166	299270	1047.68	ug/L	96
14) Phenanthrene	9.989	178	415711	999.13	ug/L	100
15) Anthracene	10.020	178	407576	1070.40	ug/L	98
17) Fluoranthene	11.146	202	411099	1177.36	ug/L	95
18) Pyrene	11.369	202	458851	1171.65	ug/L	94
19) Benzo (a) anthracene	12.560	228	363248	1105.82	ug/L	# 100
21) Chrysene	12.595	228	427345	1035.64	ug/L	97
22) benzo (b) fluoranthene	13.558	252	289328	938.23	ug/L	# 100
23) benzo (k) fluoranthene	13.583	252	470685	1074.58	ug/L	100
24) benzo (a) pyrene	13.839	252	310058	1030.12	ug/L	95
26) Indeno(1,2,3-cd)pyrene	14.950	276	308189m	1253.91	ug/L	
27) Dibenz (a,h) anthracene	14.972	278	242693m	1378.50	ug/L	
28) Benzo (g,h,i) perylene	15.261	276	347803m	1372.47	ug/L	

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

DEPAH101012PHENOL.M Thu Oct 11 09:34:34 2012 PAH

File : D:\Data\SVOC\101012-1\101014.D
Operator :
Acquired : 10 Oct 2012 5:48 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 1000 PPA STD
Misc Info : CCV C-PAH-S-SIM-LIBBY
Vial Number: 106



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101015.D
 Acq On : 10 Oct 2012 6:13 pm
 Operator :
 Sample : 2000 PFB STD
 Misc : CCV O-PAH-S-SIM-LIBBY
 ALS Vial : 107 Sample Multiplier: 1

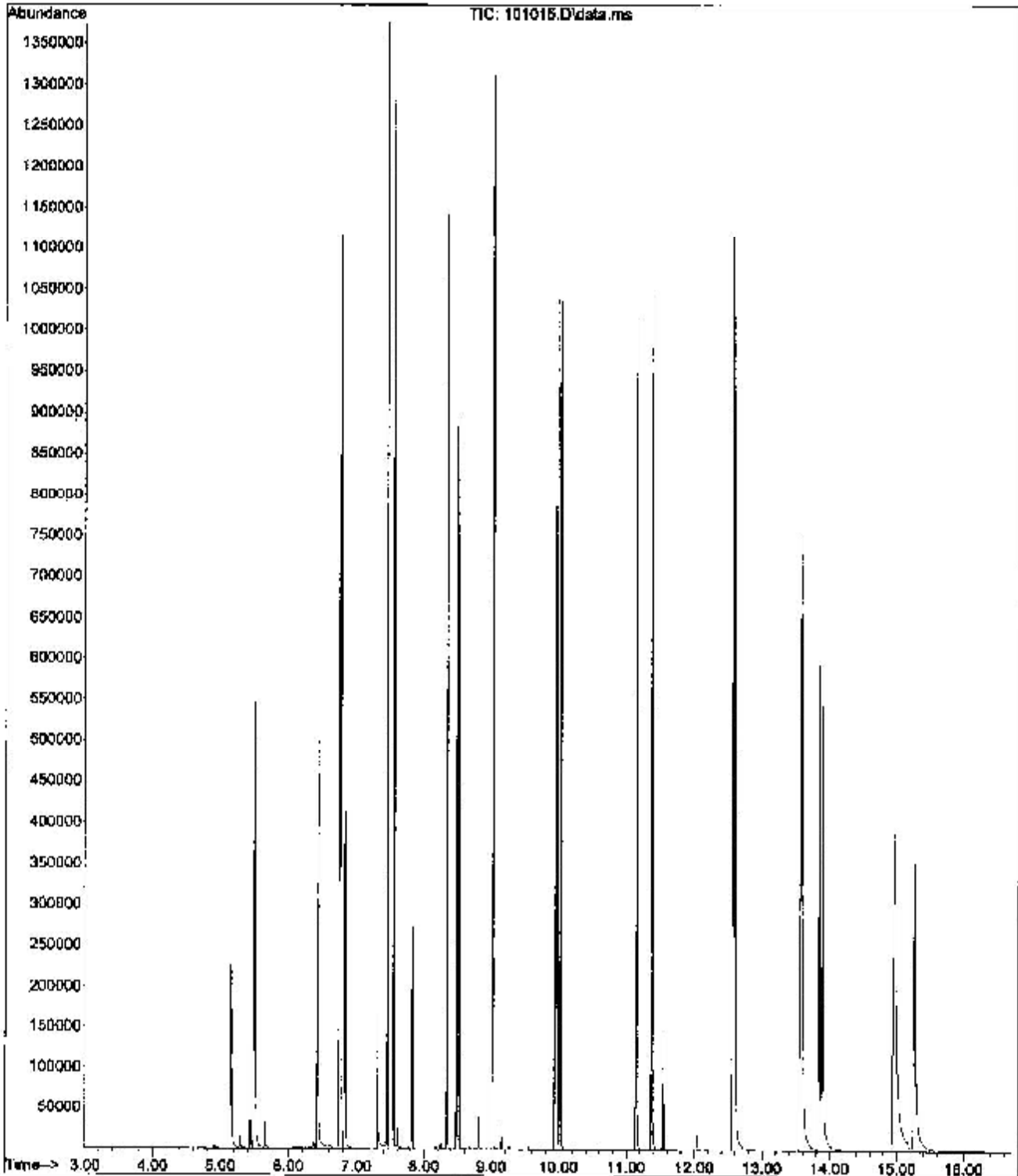
Quant Time: Oct 11 09:25:23 2012
 Quant Method : C:\msdchem\1\methods\DEPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	205990	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	675617	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.480	164	345445	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.946	188	547812	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.569	240	523147	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	509423	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.151	99	163666	1047.53	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	151229	506.45	ug/L	0.00
16) Terphenyl-d14 (surr)	11.540	244	103436	516.90	ug/L	0.00
Target Compounds						
						Qvalue
3] 2,4-Dimethylphenol	6.427	107	237390	1960.03	ug/L	99
5] Naphthalene	6.766	128	816382	1904.32	ug/L	100
6] 2-Methylnaphthalene	7.453	142	496539	1976.98	ug/L	98
7] 1-Methylnaphthalene	7.550	142	463482	1948.35	ug/L	97
9] Acenaphthylene	8.339	152	710594	2064.10	ug/L	100
11] Acenaphthene	8.511	152	217752	1874.71	ug/L	99
12] Fluorene	9.021	166	512109	1923.55	ug/L	97
14] Phenanthrene	9.970	178	704600	1901.59	ug/L	100
15] Anthracene	10.020	178	699103	2061.68	ug/L	98
17] Fluoranthene	11.148	202	724462	2171.35	ug/L	95
18] Pyrene	11.370	202	759797	2178.54	ug/L	94
19] Benzo (a) anthracene	12.561	228	624212	2133.80	ug/L	# 100
21] Chrysene	12.593	228	718133	1956.30	ug/L	98
23] benzo (b) fluoranthene	13.559	252	525321	1914.89	ug/L	# 100
23] benzo (k) fluoranthene	13.583	252	813771	2088.40	ug/L	100
24] benzo (a) pyrene	13.840	252	569097	2011.28	ug/L	97
26] Indeno(1,2,3-cd)pyrene	14.950	276	577262m	2626.67	ug/L	
27] Dibenz (a,h) anthracene	14.972	276	461582m	2932.13	ug/L	
28] Benzo (g,h,i) perylene	15.262	276	622319m	2746.42	ug/L	

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

DEPAH101012PHENOL.M Thu Oct 11 09:34:45 2012 PAH

File :D:\Data\SVOC\101012-1\101015.D
Operator :
Acquired : 10 Oct 2012 6:13 pm using AcqMethod DBPAH101012PHENCL.M
Instrument : HP-MSD
Sample Name: 2000 PPS STD
Misc Info : CCV O-PAH-S-SIM-LIBY
Vial Number: 107



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101016.D
 Acq On : 10 Oct 2012 6:44 pm
 Operator :
 Sample : 5000 PPB STD
 Misc : CCV Q-PAH-S-SIM-LIBBY
 ALS Vial : 108 Sample Multiplier: 1

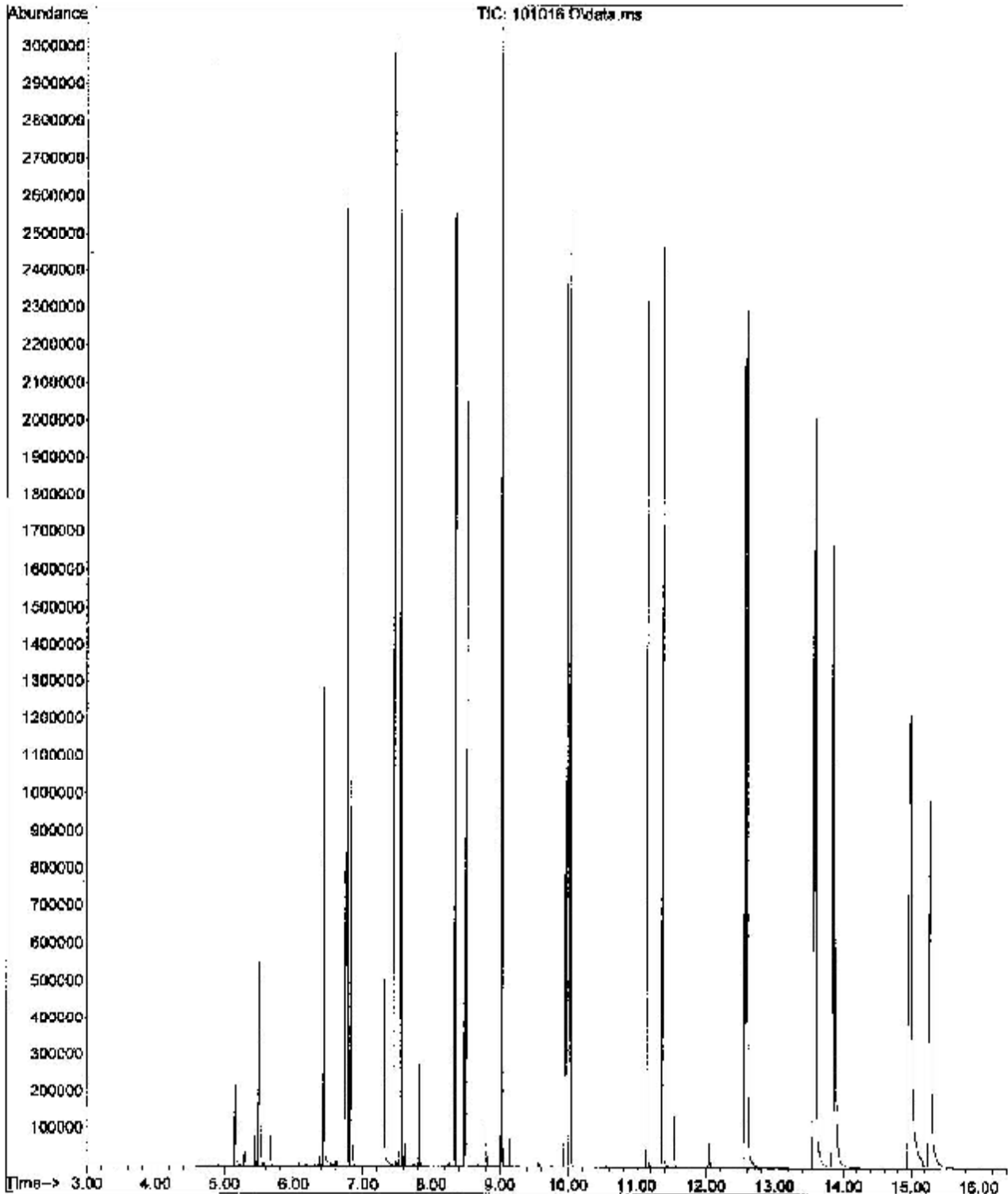
Quant Time: Oct 11 09:25:45 2012
 Quant Method : C:\msdchem\1\methods\DEPAK101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:15:52 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.498	152	202347	2000.00	ug/L	# 0.00
4) Naphthalene-d8 (IS)	6.747	136	672107	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.482	164	349377	2000.00	ug/L	0.00
13) Phenanthrene d10 (IS)	9.946	198	550390	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.574	240	523717	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.892	264	532571	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.152	99	164052	1068.90	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	151033	509.43	ug/L	0.00
16) Terphenyl-d14 (surr)	11.543	244	104750	520.82	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.428	107	598900	5033.89	ug/L	100
5) Naphthalene	6.769	128	1898470	4451.56	ug/L	100
6) 2-Methylnaphthalene	7.455	142	1161315	4647.95	ug/L	98
7) 1-Methylnaphthalene	7.550	142	1095037	4627.28	ug/L	98
9) Acenaphthylene	8.342	152	1654597	4831.31	ug/L	99
11) Acenaphthene	8.513	152	512401	4374.34	ug/L	98
12) Fluorene	9.024	168	1188198	4425.46	ug/L	97
14) Phenanthrene	9.972	178	1640221	4404.33	ug/L	99
15) Anthracene	10.024	178	1678810	4925.87	ug/L	97
17) Fluoranthene	11.152	202	1738089	5183.08	ug/L	94
18) Pyrene	11.374	202	1816076	5180.90	ug/L	# 93
19) Benzo (a) anthracene	12.564	228	1533115	5214.34	ug/L	# 100
21) Chrysene	12.598	228	1705635	4632.48	ug/L	95
22) benzo (b) fluoranthene	13.564	252	1392203	5059.63	ug/L	# 100
23) benzo (k) fluoranthene	13.590	252	1932745	4945.17	ug/L	99
24) benzo (a) pyrene	13.844	252	1649238	4995.52	ug/L	97
26) Indeno(1,2,3-cd)pyrene	14.960	276	1688497	7349.09	ug/L	94
27) Dibenz (a,h) anthracene	14.981	278	1297291	7882.65	ug/L	96
28) Benzo (g,h,i) perylene	15.276	276	1563907	6601.85	ug/L	96

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

DEPAK101012PHENOL.M Thu Oct 11 09:34:55 2012 PAH

File : D:\Data\SVOC\101012-1\101016.D
Operator :
Acquired : 10 Oct 2012 6:44 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 5000 EPB STD
Misc Info : CCV G-PAH-S-SIM-LIBRY
Vial Number: 108



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\101012-1\
 Data File : 101017.D
 Acq On : 10 Oct 2012 7:10 pm
 Operator :
 Sample : ICV-
 Misc : ICV O-PAH-S-SIM-LIBBY
 ALS Vial : 109 Sample Multiplier: 1

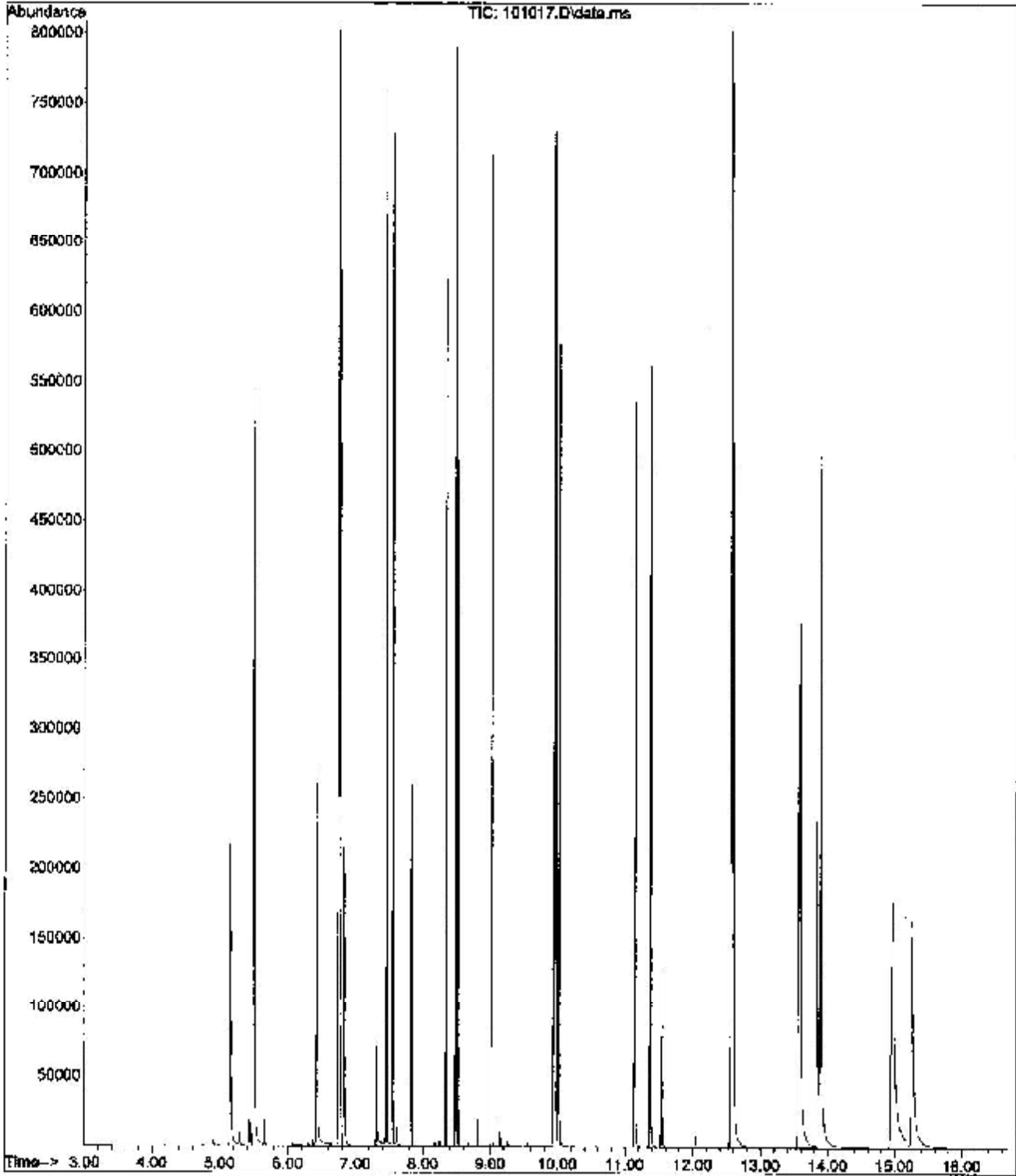
Quant Time: Oct 11 09:37:35 2012
 Quant Method : C:\msdchem\1\methods\DEPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.498	152	197741	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	642102	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.480	164	326003	2000.00	ug/L	0.00
13) Phenanthrene d10 (IS)	9.945	180	518454	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.569	240	493899	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	472138	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.151	99	158283	1053.76	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.821	172	143292	505.01	ug/L	0.00
16) Terphenyl-d14 (surr)	11.540	244	96843	506.74	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.426	107	126308	1084.75	ug/L	99
5) Naphthalene	6.766	128	450667	1106.23	ug/L	100
6) 2-Methylnaphthalene	7.453	142	273185	1144.70	ug/L	98
7) 1-Methylnaphthalene	7.550	142	256104	1134.13	ug/L	97
9) Acenaphthylene	8.338	152	389615	1191.03	ug/L	100
11) Acenaphthene	8.508	152	120464	1098.84	ug/L	98
12) Fluorene	9.021	166	284009	1130.26	ug/L	97
14) Phenanthrene	9.969	178	392404	1109.13	ug/L	100
15) Anthracene	10.020	178	377675	1194.93	ug/L	98
17) Fluoranthene	13.146	202	387257	1215.97	ug/L	94
18) Pyrene	11.368	202	408900	1228.38	ug/L	94
19) Benzo (a) anthracene	12.559	228	328403	1176.43	ug/L	# 100
21) Chrysene	12.593	228	392651	1100.37	ug/L	95
22) benzo (b) fluoranthene	13.557	252	258780	997.87	ug/L	# 100
23) benzo (k) fluoranthene	13.580	252	432230	1173.34	ug/L	100
24) benzo (a) pyrene	13.837	252	286716	1126.46	ug/L	95
26) Indeno(1,2,3-cd)pyrene	14.950	276	300569	1181.53	ug/L	95
27) Dibenz (a,h) anthracene	14.969	278	218594	1081.87	ug/L	96
28) Benzo (g,h,i) perylene	15.258	276	298015	1068.88	ug/L	96

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

DEPAH101012PHENOL.M Thu Oct 11 09:37:35 2012 PAH

File :D:\Data\SVOC\101012-1\101017.D
Operator :
Acquired : 10 Oct 2012 7:10 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: ICV-
Misc Info : ICV O-PAH-S-SIM-LIBBY
Vial Number: 109



Quantitation Report (Not Reviewed)

Data Path : O:\Data\SVOC\101012-1\
 Data File : 101018.D
 Acq On : 10 Oct 2012 7:35 pm
 Operator :
 Sample : ICB-
 Misc : ICE O-PAH-S-SIM-LIBBY
 ALS Vial : 110 Sample Multiplier: 1

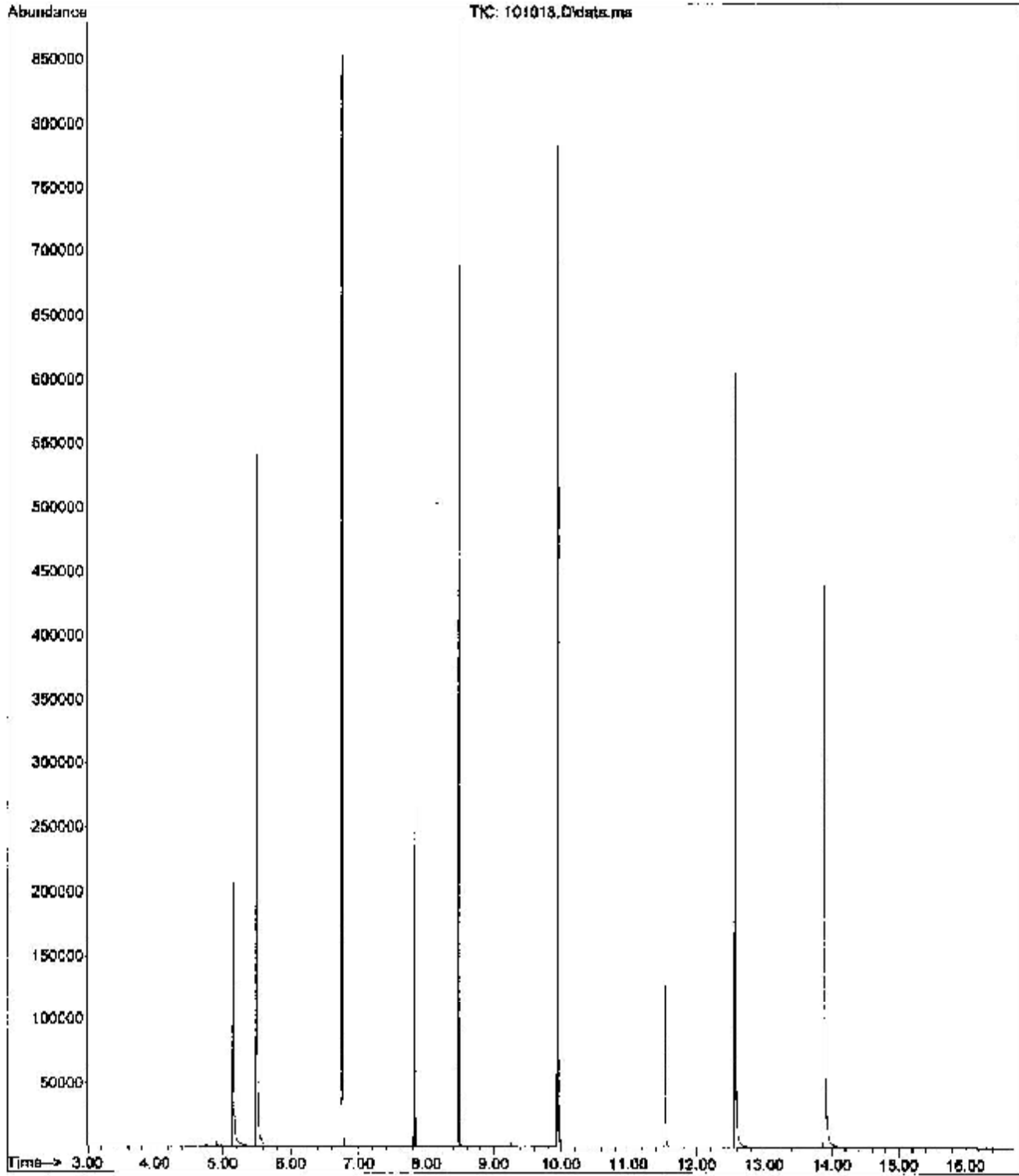
Quant Time: Oct 11 09:37:28 2012
 Quant. Method : C:\msdchem\1\methods\DEPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	208723	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	672101	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	335186	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.944	180	942903	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.567	240	483323	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.885	264	445839	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.149	99	157991	996.48	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	147351	496.14	ug/L	0.00
16) Terphenyl-d14 (surr)	11.539	244	96921	484.31	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.441	107	89			N.D.
5) Naphthalene	6.769	128	32			N.D.
6) 2-Methylnaphthalene	7.458	142	5			N.D.
7) 1-Methylnaphthalene	7.550	142	9			N.D.
9) Acenaphthylene	8.338	152	8			N.D.
11) Acenaphthene	8.511	152	13			N.D.
12) Fluorene	9.023	166	33			N.D.
14) Phenanthrene	9.968	178	94			N.D.
15) Anthracene	10.020	178	59			N.D.
17) Fluoranthene	11.150	202	54			N.D.
18) Pyrene	11.372	202	65			N.D.
19) Benzo (a) anthracene	12.566	228	1235			N.D.
21) Chrysene	12.566	228	888			N.D.
22) benzo (b) fluoranthene	13.556	252	35			N.D.
23) benzo (k) fluoranthene	13.584	252	122			N.D.
24) benzo (a) pyrene	13.835	252	68			N.D.
26) Indeno(1,2,3-cd)pyrene	14.943	276	34			N.D.
27) Dibenz (a,h) anthracene	14.960	278	7			N.D.
28) Benzo (g,h,i) perylene	15.250	276	3			N.D.

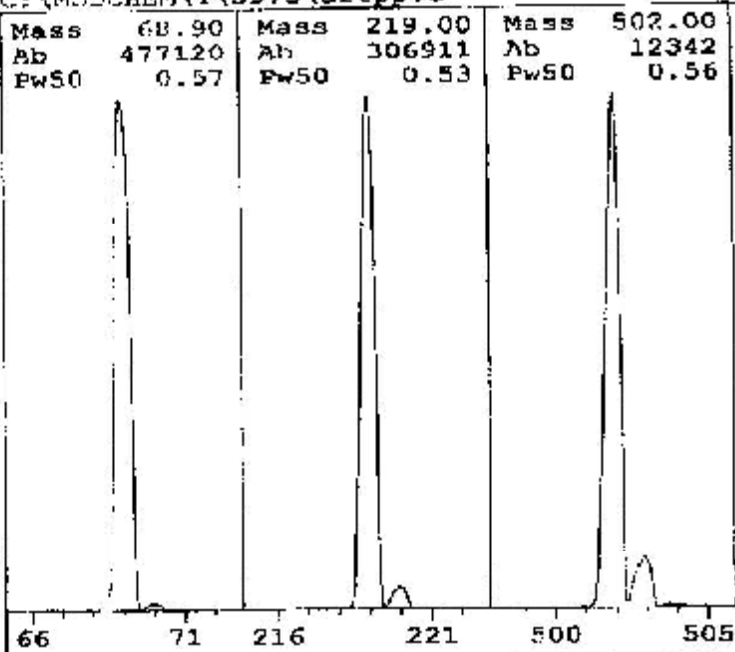
(#) = qualifier out of range (m) = manual integration (+) = signals summed

DEPAH101012PHENOL.M Thu Oct 11 09:37:56 2012 EAH

File : D:\Data\SVOC\101012-1\101018.D
Operator :
Acquired : 10 Oct 2012 7:35 pm using AcqMethod DBPAR101012PHENOL.M
Instrument : HP-MSD
Sample Name: ICS-
Misc Info : ICB O-PAH-S-STM-LIBRY
Vial Number: 110

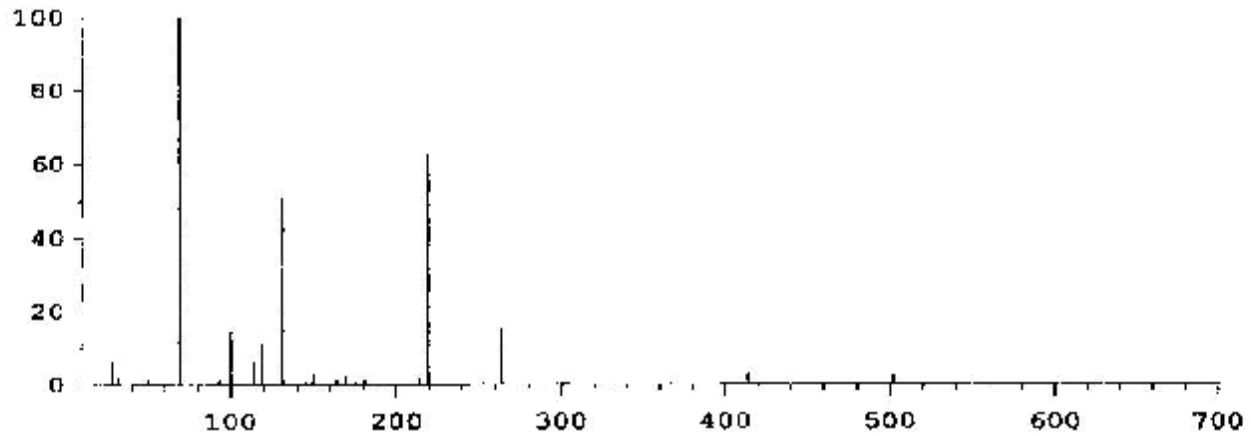


Thu Oct 11 09:26:24 2012
C:\MSDCHEM\1\5975\dftpp.u



Ion Pol Pos MassGain -620
MassOffs -40
Emission 34.6 AmuGain 2043
EI Energy 69.9 AmuOffs 124.50
Filament 1 Wid219 -0.025
DC Pol Pos
Repeller 20.41
IonFocus 66.4 HEDENab On
EntLens 0.0 EMVolts 1899
EntOffs Var
Samples 8
PFTBA Open Averages 3
Stepsize 0.10
Temperatures and Pressures:
MS Source 230 TurboSpd 100
MS Quad 150 HiVac 1.44e05

Scan: 10.00 - 701.00 Samples: 8 Thresh: 100 Step: 0.10
114 Peaks Base: 69.00 Abundance: 455488



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	455488	100.00	70.00	5054	1.11
219.00	283264	62.19	220.00	12252	4.33
502.00	11050	2.43	503.00	1163	10.52

Air/Water Check: H2O-0.56% N2-6.00% O2-1.93% CO2-0.18% N2/H2O-1063.45%

Column(1) Flow: 1.58 Column(2): -1.79769e+308 ml/min. Interface Temp: -

Ramp Criteria:

Ion Focus Maximum 90 volts using ion 502; EM Gain 123531
Repeller Maximum 35 volts using ion 502; Gain Factor 1.24

MassGain Values(Samples): -604(3) -599(2) -577(1) -529(0) -442(PS)

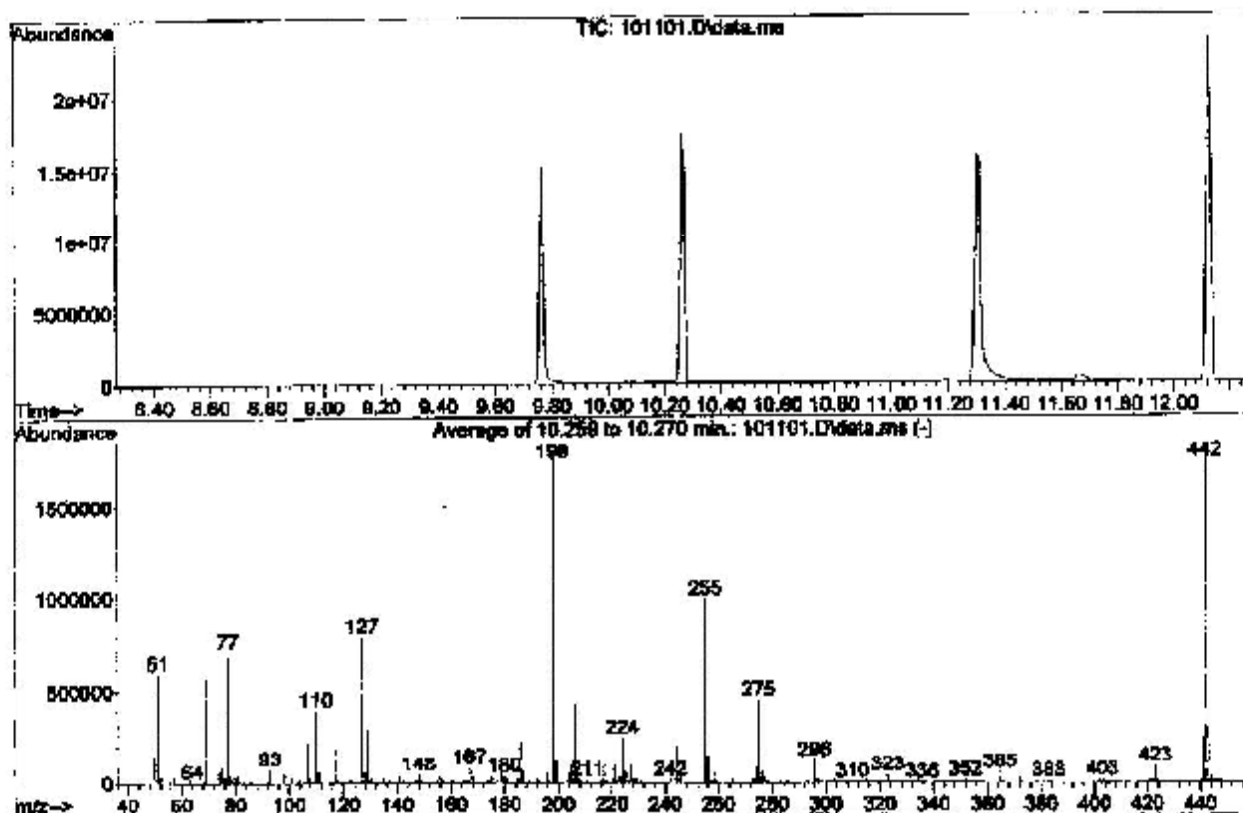
TARGET MASS:	60	69	131	219	414	502	1050
Amu Offset:	124.5	124.5	124.5	124.5	124.5	124.5	124.5
Entrance Lens Offset:	13.8	11.9	11.5	12.3	12.5	13.1	13.1
Target Abund(%):	1.0	100.0	45.0	55.0	2.4	2.0	
Actual Tune Abund(%):	1.1	100.0	50.8	62.2	2.9	2.4	

DFTPP

Data Path : D:\Data\SVOC\101112\
 Data File : 101101.D
 Acq On : 11 Oct 2012 9:32 am
 Operator :
 Sample : TONE CHECK
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 51 Sample Multiplier: 1

Integration File: RTEINTSG8270.P

Method : C:\msdchem\1\methods\QSVOC100512.M
 Title : Semivol
 Last Update : Thu Oct 04 15:27:51 2012



AutoFind: Scans 1341, 1342, 1343; Background Corrected with Scan 1333

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	33.9	594923	PASS
68	69	0.00	2	1.5	8916	PASS
69	198	0.00	100	32.9	577088	PASS
70	69	0.00	2	0.5	3049	PASS
127	198	10	80	44.9	788437	PASS
197	198	0.00	2	0.3	5802	PASS
198	198	100	100	100.0	1754795	PASS
199	198	5	9	6.7	117835	PASS
275	198	10	60	25.4	446165	PASS
365	198	1	100	3.2	55821	PASS
441	442	0.01	24	14.0	247979	PASS
442	198	50	999	100.6	1765013	PASS
443	442	15	24	19.0	335381	PASS

单据编号: 1111111111 单据日期: 2011-11-11 10:11:11

NO.	DESCRIPTION	QUANTITY	UNIT	AMOUNT	DATE
(60)	022				
100	100	100.00	KG	100.00	2011.10.20
200	200	200.00	KG	200.00	2011.10.20
300	300	300.00	KG	300.00	2011.10.20
400	400	400.00	KG	400.00	2011.10.20
500	500	500.00	KG	500.00	2011.10.20
600	600	600.00	KG	600.00	2011.10.20
700	700	700.00	KG	700.00	2011.10.20
800	800	800.00	KG	800.00	2011.10.20
900	900	900.00	KG	900.00	2011.10.20
1000	1000	1000.00	KG	1000.00	2011.10.20

NO.	DESCRIPTION	QUANTITY	UNIT	AMOUNT	DATE
50	2,4-Dichlorophenol				
51	Dinitrophenol				
52	2,4-Dinitrophenol				
53	4-Nitrophenol				
54	2,3,5-Trinitrophenol				
55	2,3,5-Trinitrophenol				
56	Fluorine				
57	4-Chloro-phenyl-pyridine				
58	Diethylmalonate				
59	4,6-Di-tert-butylphenol				
60	Dibenzylene				
61	Ascorbic acid				
62	4-Bromo-phenyl-pyridine				
63	Tetrahydrofuran				
64	Hexachlorobenzene				
65	Pentachlorobenzene				
66	Fluorobenzene c10 (HS)				
67	DEH210NAC				
68	LN90				
69	CNT				
70	Pro-butyl ester				

Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101102.D
 Acq On : 11 Oct 2012 9:57 am
 Operator :
 Sample : CCV-
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 106 Sample Multiplier: 1

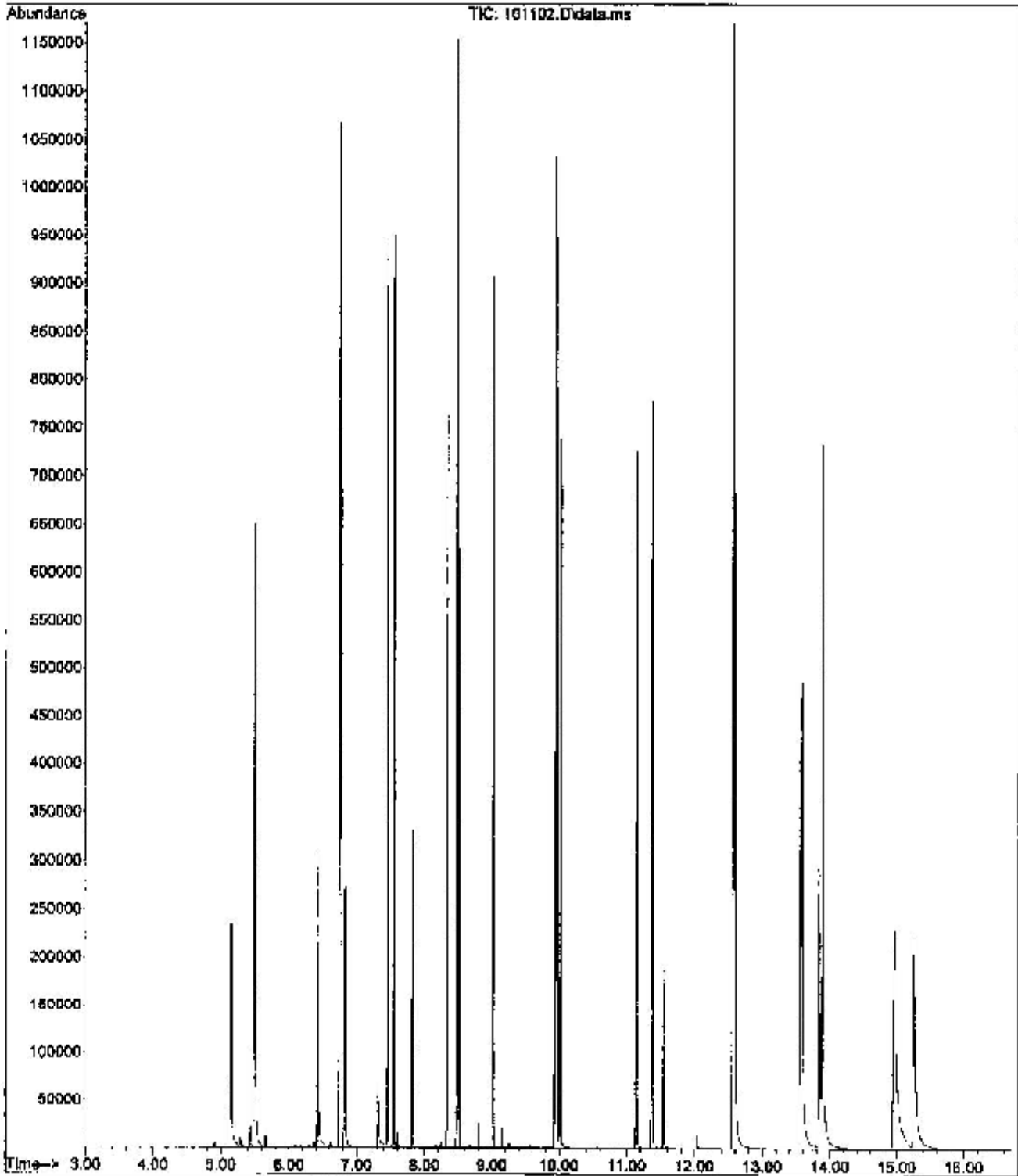
Quant Time: Oct 11 10:18:47 2012
 Quant Method : C:\msdchem\1\methods\BSPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	248623	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	835095	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	446598	2000.00	ug/L	0.00
13) Phenanthrene d10 (IS)	9.945	188	743459	2000.00	ug/L	0.00
20) Chrysene d12 (IS)	12.568	240	729868	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.885	264	702387	2000.00	ug/L	0.00
System Monitoring Compounds						
3) Phenol-d6	5.151	99	181169	959.28	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.821	172	179090	485.31	ug/L	0.00
16) Terphenyl-d14 (surr)	11.539	244	142994	521.78	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.426	107	148187	1012.19	ug/L	99
5) Naphthalene	6.766	128	544594	1027.95	ug/L	100
6) 2-Methylnaphthalene	7.453	142	333013	1072.91	ug/L	98
7) 1-Methylnaphthalene	7.548	142	310432	1057.01	ug/L	98
9) Acenaphthylene	8.338	152	480542	1129.50	ug/L	100
11) Acenaphthene	8.508	152	149723	996.95	ug/L	99
12) Fluorene	9.020	166	358083	1040.24	ug/L	96
14) Phenanthrene	9.967	178	503861	993.14	ug/L	100
15) Anthracene	10.018	178	490231	1081.63	ug/L	98
17) Fluoranthene	11.145	202	533264	1167.88	ug/L	95
18) Pyrene	11.368	202	554385	1161.39	ug/L	94
19) Benzo (a) anthracene	12.557	228	443172	1107.09	ug/L #	100
21) Chrysene	12.592	228	513400	973.60	ug/L	93
22) benzo (b) fluoranthene	13.556	252	333763	870.91	ug/L #	100
23) benzo (k) fluoranthene	13.580	252	571274	1049.42	ug/L	100
24) benzo (a) pyrene	13.835	252	371929	996.28	ug/L	94
26) Indeno(1,2,3-cd)pyrene	14.948	276	392749	1044.45	ug/L	96
27) Dibenz (a,h) anthracene	14.969	278	283366	947.26	ug/L	97
28) Benzo (g,h,i) perylene	15.258	276	403938	973.86	ug/L	97

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

BSPAH101012PHENOL.M Thu Oct 11 14:00:28 2012 PAH

File :D:\Data\SVOC\101112\101102.D
Operator :
Acquired : 11 Oct 2012 9:57 am using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: CCV-
Misc Info : CCV O-PAH-S-SIM
Vial Number: 106



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101103.D
 Acq On : 11 Oct 2012 10:22 am
 Operator :
 Sample : CCB-
 Misc : CCB O-PAH-S-SIM
 ALS Vial : 110 Sample Multiplier: 1

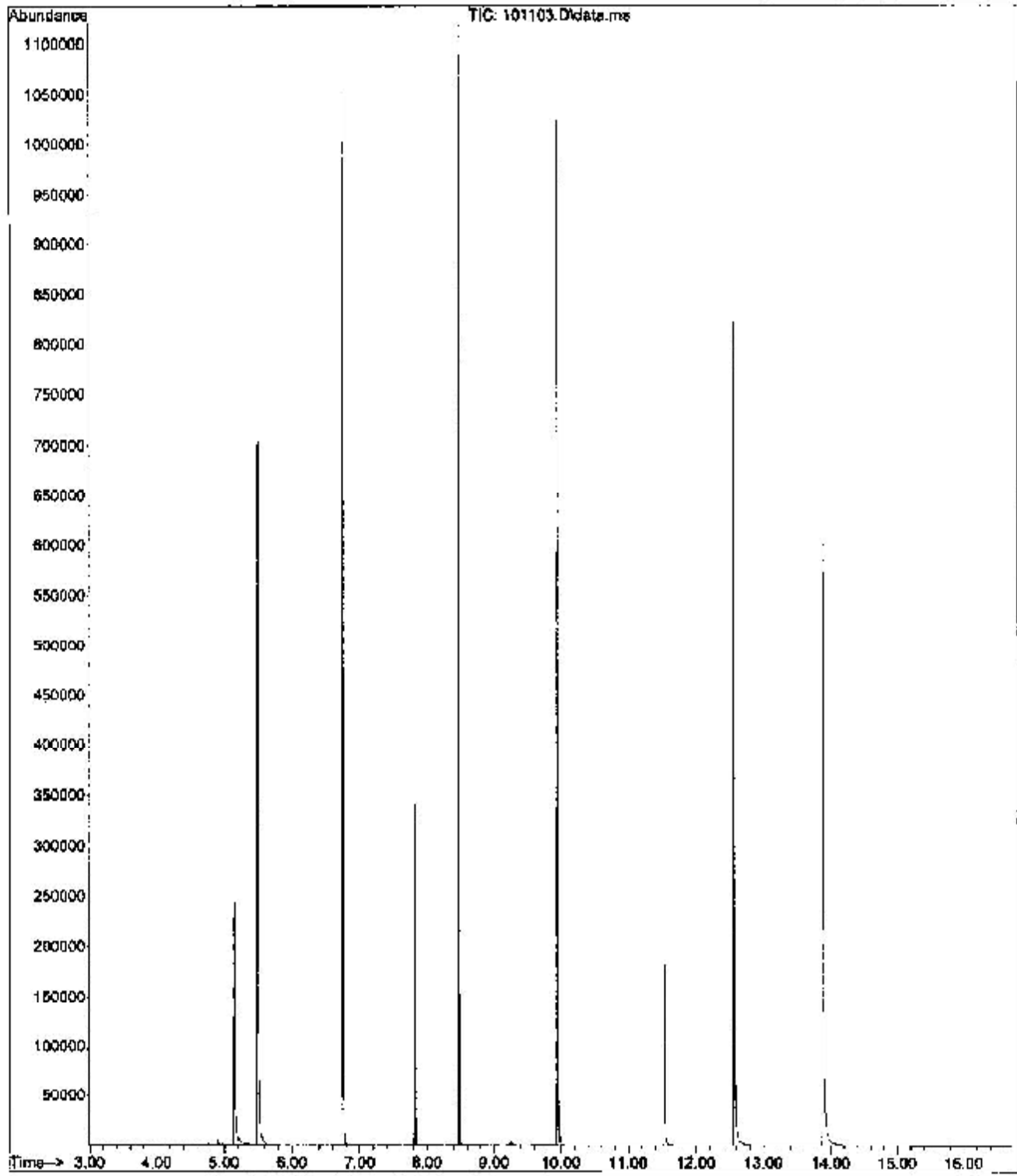
Quant Time: Oct 11 10:51:19 2012
 Quant Method : C:\msdchem\1\methods\DEPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 Qlast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	268896	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	875931	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	437548	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	188	710840	2000.00	ug/L	0.00
20) Chrysene-d12 (IS)	12.566	240	649472	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.885	264	599480	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.149	99	188579	923.24	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.820	172	191340	494.33	ug/L	0.00
16) Terphenyl-d14 (surr)	11.539	244	133750	510.45	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.432	107	54			N.D.
5) Naphthalene	6.766	128	52			N.D.
6) 2-Methylnaphthalene	7.457	142	31			N.D.
7) 1-Methylnaphthalene	7.550	142	25			N.D.
9) Acenaphthylene	8.337	152	8			N.D.
11) Acenaphthene	8.508	152	11			N.D.
12) Fluorene	9.021	166	53			N.D.
14) Phenanthrene	9.966	178	143			N.D.
15) Anthracene	10.020	178	82			N.D.
17) Fluoranthene	11.146	202	75			N.D.
18) Pyrene	11.369	202	96			N.D.
19) Benzo (a) anthracene	12.566	228	1684			N.D.
21) Chrysene	12.566	228	1176			N.D.
22) benzo (b) fluoranthene	13.554	252	83			N.D.
23) benzo (k) fluoranthene	13.579	252	163			N.D.
24) benzo (a) pyrene	13.832	252	81			N.D.
26) Indeno(1,2,3-cd)pyrene	14.945	276	49			N.D.
27) Dibenz (a,h) anthracene	14.957	278	20			N.D.
28) Benzo (g,h,i) perylene	15.250	276	24			N.D.

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

DEPAH101012PHENOL.M Thu Oct 11 14:03:19 2012 PAH

File : D:\Data\SVOC\101112\101103.D
Operator :
Acquired : 11 Oct 2012 10:22 am using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: OCB-
Misc Info : OCB O-PAH-S-SIM
Vial Number: 110



Prep Start Date: 10/10/2012 3:59:36
 Prep End Date: 10/10/2012 3:59:36

Prep Factor Units:
 mL/g

Prep Batch ID 3406 Prep Code: PREP-PAH-S Technician: Paul Ho
 Initial Temp: °C Final Temp °C

Sample ID	ClientSampleID	Matrix	pH1	pH2	SamplAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
MR-3406		Soil	10		0	0	0	10	1.000	10/10/2012	10/10/2012
LCS-3406		Soil	10		0	0	0	10	1.000	10/10/2012	10/10/2012
1210030-001A	IR2-BS-82812	Soil	12.48		0	0	0	10	0.801	10/10/2012	10/10/2012
1210030-002A	IR2-NSW1-92812	Soil	12.67		0	0	0	10	0.798	10/10/2012	10/10/2012
1210030-003A	IR2-NSW1-02812	Soil	12.61		0	0	0	10	0.724	10/10/2012	10/10/2012
1210030-004A	IR2-NSW1-82812	Soil	13.53		0	0	0	10	0.739	10/10/2012	10/10/2012
1210030-005A	IR2-BS-82812	Soil	12.23		0	0	0	10	0.816	10/10/2012	10/10/2012
1210030-005ADUP		Soil	12.78		0	0	0	10	0.784	10/10/2012	10/10/2012
1210079-001A	SURZ-SSW1-10412	Soil	13.29		0	0	0	10	0.752	10/10/2012	10/10/2012
1210079-002A	SURZ-NSW1-10412	Soil	12.84		0	0	0	10	0.779	10/10/2012	10/10/2012
1210079-002ADUP		Soil	12.59		0	0	0	10	0.794	10/10/2012	10/10/2012
1210079-002AAS		Soil	13.48		0	0	0	10	0.742	10/10/2012	10/10/2012
1210080-001A	GRZ-WSW01-91212	Soil	12.02		0	0	0	10	0.832	10/10/2012	10/10/2012
1210080-001ADUP		Soil	11.53		0	0	0	10	0.867	10/10/2012	10/10/2012
1210080-002A	SRZ-ESW01-81212	Soil	13.32		0	0	0	10	0.791	10/10/2012	10/10/2012
1210080-003A	SRZ-EZ-91012	Soil	12.98		0	0	0	10	0.770	10/10/2012	10/10/2012
1210080-001A	SURZ-WB1-10812	Soil	13.76		0	0	0	10	0.727	10/10/2012	10/10/2012
1210080-002A	KIR-81-10812	Soil	13.31		0	0	0	10	0.761	10/10/2012	10/10/2012
1210080-003A	SURZ-81-10812	Soil	13.17		0	0	0	10	0.759	10/10/2012	10/10/2012
1210080-004A	KOS-81-10812	Soil	11.41		0	0	0	10	0.876	10/10/2012	10/10/2012
1210080-004ADUP		Soil	12.11		0	0	0	10	0.825	10/10/2012	10/10/2012
1210080-004AAS		Soil	12.86		0	0	0	10	0.796	10/10/2012	10/10/2012
1210080-006A	KOS-82-10812	Soil	13.34		0	0	0	10	0.750	10/10/2012	10/10/2012

INTERNAL STANDARD AREA AND RT SUMMARY

RunID: GCMS-3 121011B GCV Name: CAL MID POINT
 Run No: 8085 GCV SeqNo: 129864
 Lab File ID (Standard): 101014.D Date Analyzed: 10/10/2012
 Instrument ID: GCMS_3 Time Analyzed: 17:48
 GC Column: ID (mm): Length (M):

	IS1 (14DCBZ)		IS2 Acenaphthene-d10		IS3 Chrycene-d12		IS4 Naphthalene-d8		
	AREA #	RT #	AREA #	RT #	AREA #	RT #	AREA #	RT #	
12 HOUR STD	211081	5.498	370642	8.480	586843	12.569	703889	6.747	
UPPER LIMIT	422162	5.996	741284	8.860	1173886	13.069	1407978	7.247	
LOWER LIMIT	105546	4.996	125321	7.980	293472	12.069	351985	6.247	
SAMPLE NO.									
01	GCV-3406	248823	5.498	446698	8.478	729898	12.568	835095	6.747
02	CCS-3406	268898	5.498	437540	8.478	649472	12.566	875931	6.747
03	MB-3406	238069	5.498	382010	8.478	569492	12.566	760891	6.745
04	LCS-3406	233245	5.498	395162	8.478	616718	12.566	780779	6.747
05	1210089-003A	242770	5.498	406038	8.478	638067	12.566	787077	6.747
06	1210089-004A	232562	5.498	384502	8.478	591122	12.567	757244	6.747
07	1210089-004ADUP	248480	5.498	410617	8.48	628483	12.568	806989	6.747
08	1210089-004AMS	243558	5.498	418741	8.48	650172	12.588	803585	6.747

IS1 (14DCBZ) = 1,4-Dichlorobenzene-d4
 IS2 Acenaphthene-d10 = Acenaphthene-d10

IS3 Chrycene-d12 = Chrycene-d12
 IS4 Naphthalene-d8 = Naphthalene-d8

AREA UPPER LIMIT = +100% of internal standard area
 AREA LOWER LIMIT = -50% of internal standard area
 RT UPPER LIMIT = +0.50 minutes of internal standard RT
 RT LOWER LIMIT = -0.50 minutes of internal standard RT

* Column used to flag values outside QC limits with an asterisk.
 * Values outside of QC limits.

INTERNAL STANDARD AREA AND RT SUMMARY

RunID:	<u>GCMS-3_121011E</u>	CCV Name:	<u>GAL MID POINT</u>
Run No:	<u>6085</u>	CCV SeqNo:	<u>120854</u>
Lab File ID (Standard):	<u>101014.D</u>	Date Analyzed:	<u>10/10/2012</u>
Instrument ID:	<u>GCMS-3</u>	Time Analyzed:	<u>17:45</u>
GC Column:	ID (mm)	Length (M):	

		IS5 Perylene-d12	RT #	IS6 Phenanthrene-d	RT #		
		AREA #		AREA #			
12 HOUR STD		589722	13.889	614916	9.945		
UPPER LIMIT		1139444	14.369	1228630	10.445		
LOWER LIMIT		284661	13.369	307458	9.445		
	SAMPLE NO.						
01	CCV-3406	702387	13.885	743458	9.945		
02	GGB-3406	599460	13.885	710640	9.945		
03	MB-3406	535333	13.887	826677	9.944		
04	LCS-3406	591424	13.885	835812	9.945		
05	1210089-003A	816450	13.885	871486	9.945		
06	1210089-004A	560404	13.887	836719	9.945		
07	1210089-004ADUP	598140	13.887	860155	9.945		
08	1210089-004AMS	638673	13.887	678278	9.945		

IS5 Perylene-d12 = Perylene-d12

IS6 Phenanthrene-d10 = Phenanthrene-d10

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = -50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.

* Values outside of QC limits.

Quantitation Report (Not Reviewed)

Data Path : D:\Data\SWOC\101112\
 Data File : 101112.D
 Acq On : 11 Oct 2012 2:07 pm
 Operator :
 Sample : MB-3406
 Misc : MBLK O-PAH-S-SIM
 ALS Vial : 121 Sample Multiplier: 1

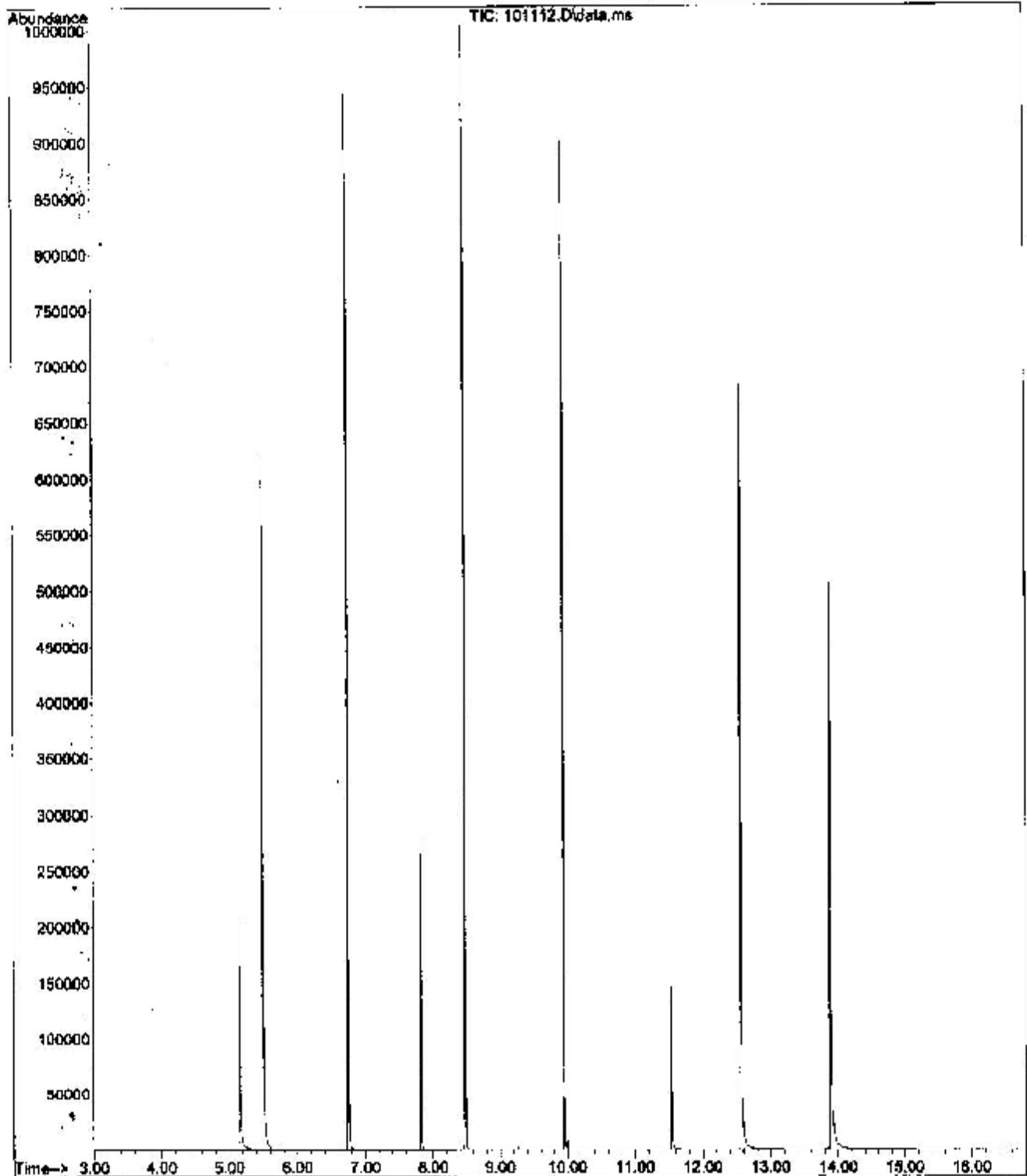
Quant Time: Oct 11 14:28:47 2012
 Quant Method : C:\msdchem\1\methods\BPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 09:37:24 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.498	152	236069	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.745	136	760891	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	382016	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.944	188	626677	2000.00	ug/L	# 0.00
20) Chrysene-d12 (IS)	12.566	240	569492	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	535333	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.149	99	155611	867.77	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.821	172	157914	469.66	ug/L	0.00
16) Terphenyl-d14 (surr)	11.539	244	112073	485.16	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.401	107	12			N.D.
5) Naphthalene	6.766	128	78			N.D.
6) 2-Methylnaphthalene	7.459	142	38			N.D.
7) 1-Methylnaphthalene	7.550	142	26			N.D.
9) Acenaphthylene	8.337	152	1			N.D.
11) Acenaphthene	8.511	152	12			N.D.
12) Fluorene	9.022	166	16			N.D.
14) Phenanthrene	9.968	178	160			N.D.
15) Anthracene	10.020	178	9			N.D.
17) Fluoranthene	11.148	202	9			N.D.
18) Pyrene	11.370	202	13			N.D.
19) Benzo (a) anthracene	12.566	228	1480			N.D.
21) Chrysene	12.566	228	1300			N.D.
22) benzo (b) fluoranthene	13.560	252	34			N.D.
23) benzo (k) fluoranthene	13.579	252	98			N.D.
24) benzo (a) pyrene	13.835	252	66			N.D.
26) Indeno (1,2,3-cd)pyrene	14.945	276	19			N.D.
27) Dibenz (a,h) anthracene	14.965	278	13			N.D.
28) Benzo (g,h,i) perylene	15.254	276	2			N.D.

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

DBPAH101012PHENOL.M Thu Oct 11 14:28:48 2012 PAH

File :D:\Data\SVOC\101112\101112.D
Operator :
Acquired : 11 Oct 2012 2:07 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: MB-3406
Misc Info : MBLK O-PAH-S-SIM
Vial Number: 121



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101113.D
 Acq On : 11 Oct 2012 2:32 pm
 Operator :
 Sample : LCS-3406
 Misc : LCS O-PAH-S-SIM
 ALS Vial : 122 Sample Multiplier: 1

Quant Time: Oct 11 14:52:31 2012
 Quant Method : C:\msdchem\1\methods\BPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 14:52:26 2012
 Response via : Initial Calibration

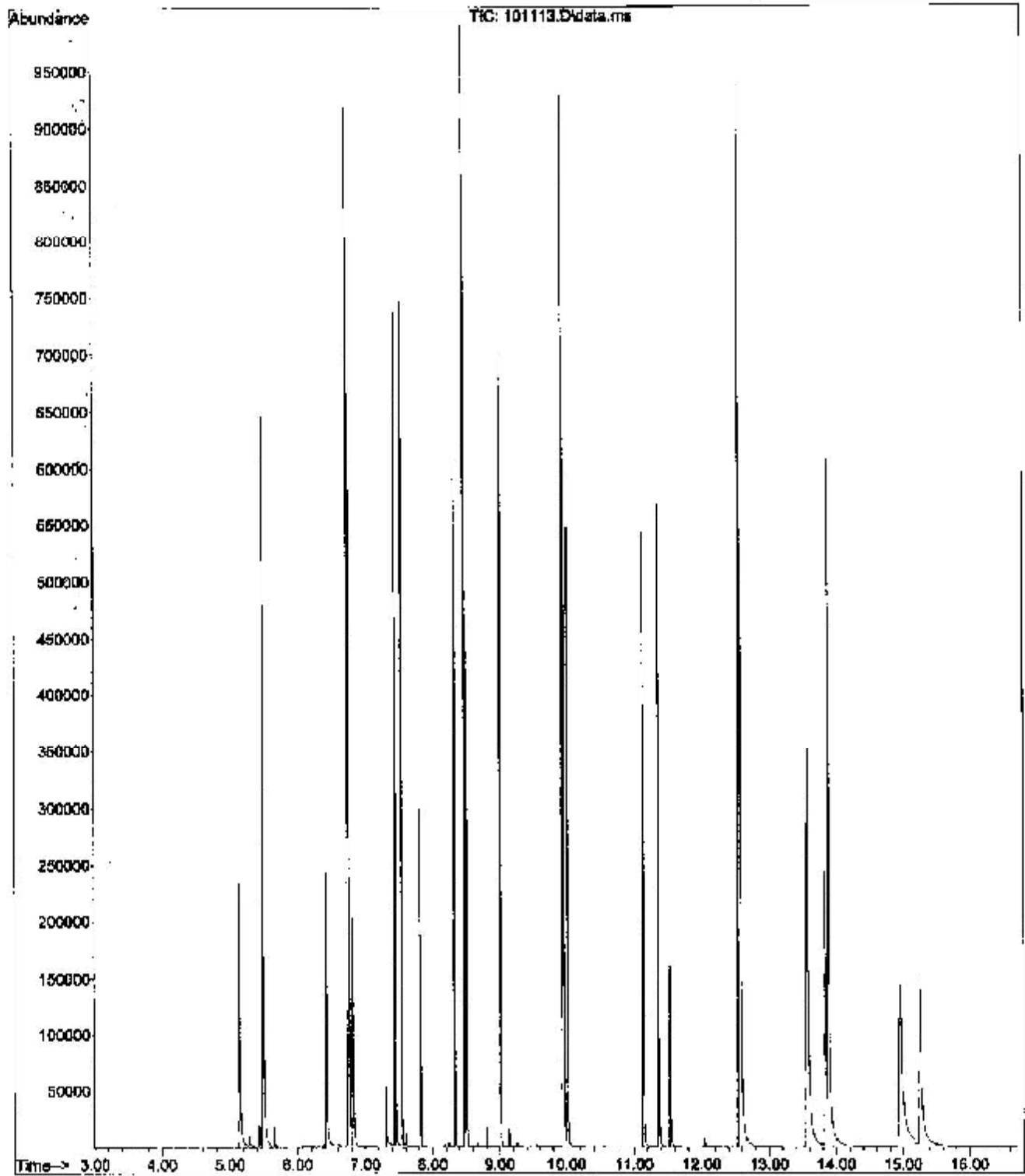
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	233245	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	760779	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	395162	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	188	635812	2000.00	ug/L	0.00
20) Chrysene-d12 (IS)	12.566	240	615718	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.885	264	591424	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d8	5.149	99	165613	934.73	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	165027	490.89	ug/L	0.00
16) Terphenyl-d14 (surr)	11.539	244	119639	510.47	ug/L	0.00
Target Compounds						
						Qvalue
3] 2,4-Dimethylphenol	6.426	107	115674	849.48	ug/L	99
5] Naphthalene	6.766	128	439410	910.43	ug/L	100
6] 2-Methylnaphthalene	7.453	142	262805	929.42	ug/L	100
7] 1-Methylnaphthalene	7.548	142	246187	920.14	ug/L	100
9] Acenaphthylene	8.338	152	374755	966.90	ug/L	100
11] Acenaphthene	8.509	152	117270	882.49	ug/L	100
12] Fluorene	9.022	166	274064	899.80	ug/L	100
14] Phenanthrene	9.967	178	385884	889.38	ug/L	100
15] Anthracene	10.019	178	367321	947.66	ug/L	100
17] Fluoranthene	11.146	202	381235	976.11	ug/L	99
18] Pyrene	11.367	202	401153	982.67	ug/L	100
19] Benzo (a) anthracene	12.557	228	315122	920.49	ug/L #	100
21] Chrysene	12.590	228	391174	879.34	ug/L #	78
22] benzo (b) fluoranthene	13.555	252	235344	727.95	ug/L #	100
23] benzo (k) fluoranthene	13.579	252	420747	916.19	ug/L	100
24] benzo (a) pyrene	13.835	252	256637	823.15	ug/L	97
26] Indeno(1,2,3-cd)pyrene	14.948	276	264235	843.49	ug/L	98
27] Dibenz (a,h) anthracene	14.967	278	188469	753.47	ug/L	99
28] Benzo (g,h,i) perylene	15.257	276	285737	818.14	ug/L	99

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

DBPAH101012PHENOL.M Thu Oct 11 14:52:44 2012 PAH

File : D:\Data\SVOC\101112\101113.D
Operator :
Acquired : 11 Oct 2012 2:32 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: LCS-3406
Misc Info : LCS O-PAH-S-SIM
Vial Number: 122



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101114.D
 Acq On : 11 Oct 2012 2:57 pm
 Operator :
 Sample : 1210089-003A
 Misc : SAMP O-PAK-S-SIM
 ALS Vial : 123 Sample Multiplier: 1

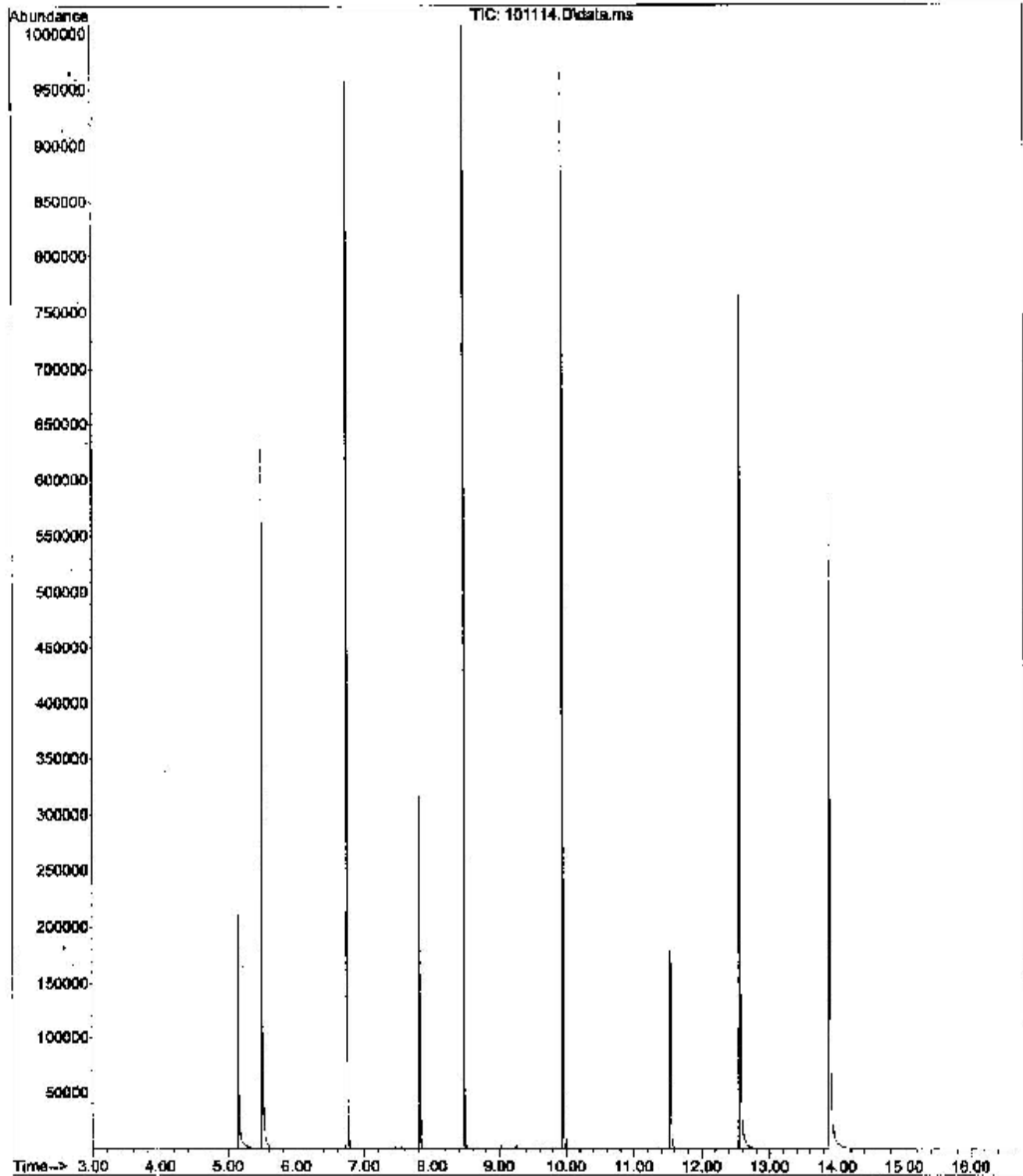
Quant Time: Oct 11 15:25:25 2012
 Quant Method : C:\msdchem\1\methods\BPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 14:52:26 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.496	152	242770	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	787077	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.478	164	406038	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	188	671496	2000.00	ug/L	0.00
20) Chrysene-d12 (IS)	12.566	240	638057	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.885	264	616450	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.151	99	153948	834.80	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	171513	493.13	ug/L	0.00
16) Terphenyl-d14 (surr)	11.540	244	136223	550.35	ug/L	0.00
Target Compounds						
3) 2,4-Dimethylphenol	6.449	107	1129	7.90	ug/L	89
5) Naphthalene	6.766	128	864	N.D.		
6) 2-Methylnaphthalene	7.455	142	516	N.D.		
7) 1-Methylnaphthalene	7.550	142	250	N.D.		
9) Acenaphthylene	8.334	152	3	N.D.		
11) Acenaphthene	8.511	152	132	N.D.		
12) Fluorene	9.023	166	1033	N.D.		
14) Phenanthrene	9.966	178	390	N.D.		
15) Anthracene	10.021	178	194	N.D.		
17) Fluoranthene	11.147	202	273	N.D.		
18) Pyrene	11.370	202	636	N.D.		
19) Benzo (a) anthracene	12.566	228	1713	N.D.		
21) Chrysene	12.566	228	1016	N.D.		
22) benzo (b) fluoranthene	13.556	252	64	N.D.		
23) benzo (k) fluoranthene	13.577	252	261	N.D.		
24) benzo (a) pyrene	13.835	252	85	N.D.		
26) Indeno(1,2,3-cd)pyrene	14.943	276	8	N.D.		
27) Dibenz (a,h) anthracene	14.964	278	6	N.D.		
28) Benzo (g,h,i) perylene	15.250	276	8	N.D.		

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

DBPAH101012PHENOL.M Thu Oct 11 15:25:26 2012 PAH

File :D:\Data\SVOC\101112\101114.D
Operator :
Acquired : 11 Oct 2012 2:57 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 1210089-003A
Misc Info : SAMP O-PAH-6-SIM
Vial Number: 123



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101115.D
 Acq On : 11 Oct 2012 3:22 pm
 Operator :
 Sample : 1210089-004A
 Misc : SAMP O-PAH-B-SIM
 ALS Vial : 124 Sample Multiplier: 1

Quant Time: Oct 11 16:21:40 2012
 Quant Method : C:\msdchem\1\methods\DBPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 14:52:26 2012
 Response via : Initial Calibration

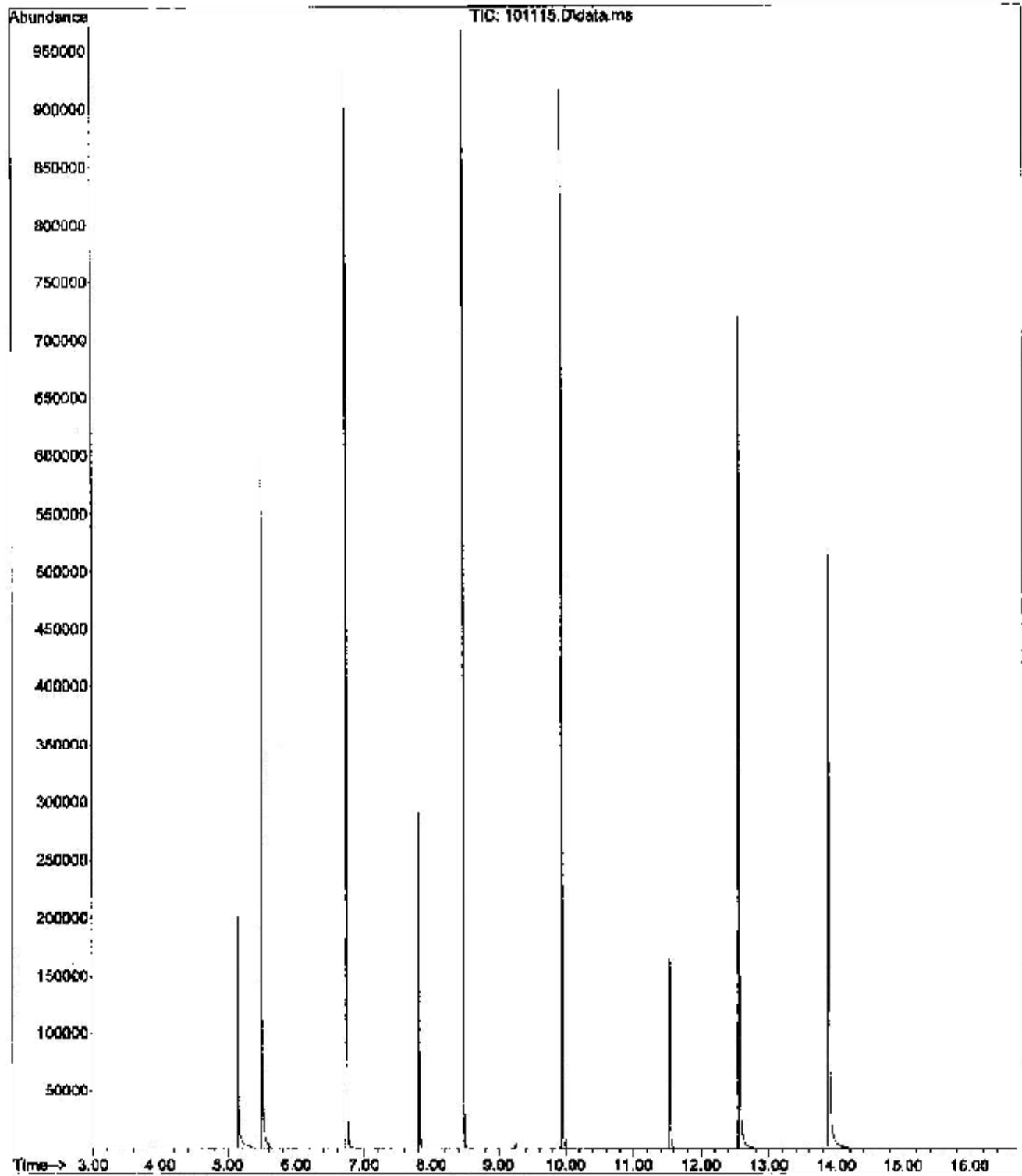
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.498	152	232562	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	757244	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.479	164	384502	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	188	636719	2000.00	ug/L	0.00
20) Chrysene-d12 (IS)	12.567	240	591122	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	560404	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.151	99	150342	851.03	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.821	172	168331	494.09	ug/L	0.00
16) Terphenyl-d14 (surr)	11.540	244	126967	540.97	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.453	107	37		N.D.	
5) Naphthalene	6.766	128	144		N.D.	
6) 2-Methylnaphthalene	7.457	142	69		N.D.	
7) 1-Methylnaphthalene	7.552	142	61		N.D.	
9) Acenaphthylene	8.341	152	5		N.D.	
11) Acenaphthene	8.512	152	16		N.D.	
12) Fluorene	9.023	166	11		N.D.	
14) Phenanthrene	9.969	178	212		N.D.	
15) Anthracene	10.021	178	4		N.D.	
17) Fluoranthene	11.149	202	54		N.D.	
18) Pyrene	11.371	202	87		N.D.	
19) Benzo (a) anthracene	12.567	228	1630		N.D.	
21) Chrysene	12.567	228	1458		N.D.	
22) benzo (b) fluoranthene	13.559	252	37		N.D.	
23) benzo (k) fluoranthene	13.579	252	156		N.D.	
24) benzo (a) pyrene	13.885	252	1811	6.35	ug/L	91
26) Indeno(1,2,3-cd)pyrene	14.883	276	2		N.D.	
27) Dibenz (a,h) anthracene	14.965	278	14		N.D.	
28) Benzo (g,h,i) perylene	15.258	276	7		N.D.	

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

DBPAH101012PHENOL.M Thu Oct 11 16:21:57 2012 PAH

File : D:\Data\SVOC\101112\101115.D
Operator :
Acquired : 11 Oct 2012 3:22 pm using AcqMethod DEPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 1210089-004A
Misc Info : SAMP O-PAH-S-SIM
Vial Number: 124



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101116.D
 Acq On : 11 Oct 2012 3:47 pm
 Operator :
 Sample : 1210089-004ADUP
 Misc : DUP O-PAH-S-SIM
 ALS Vial : 125 Sample Multiplier: 1

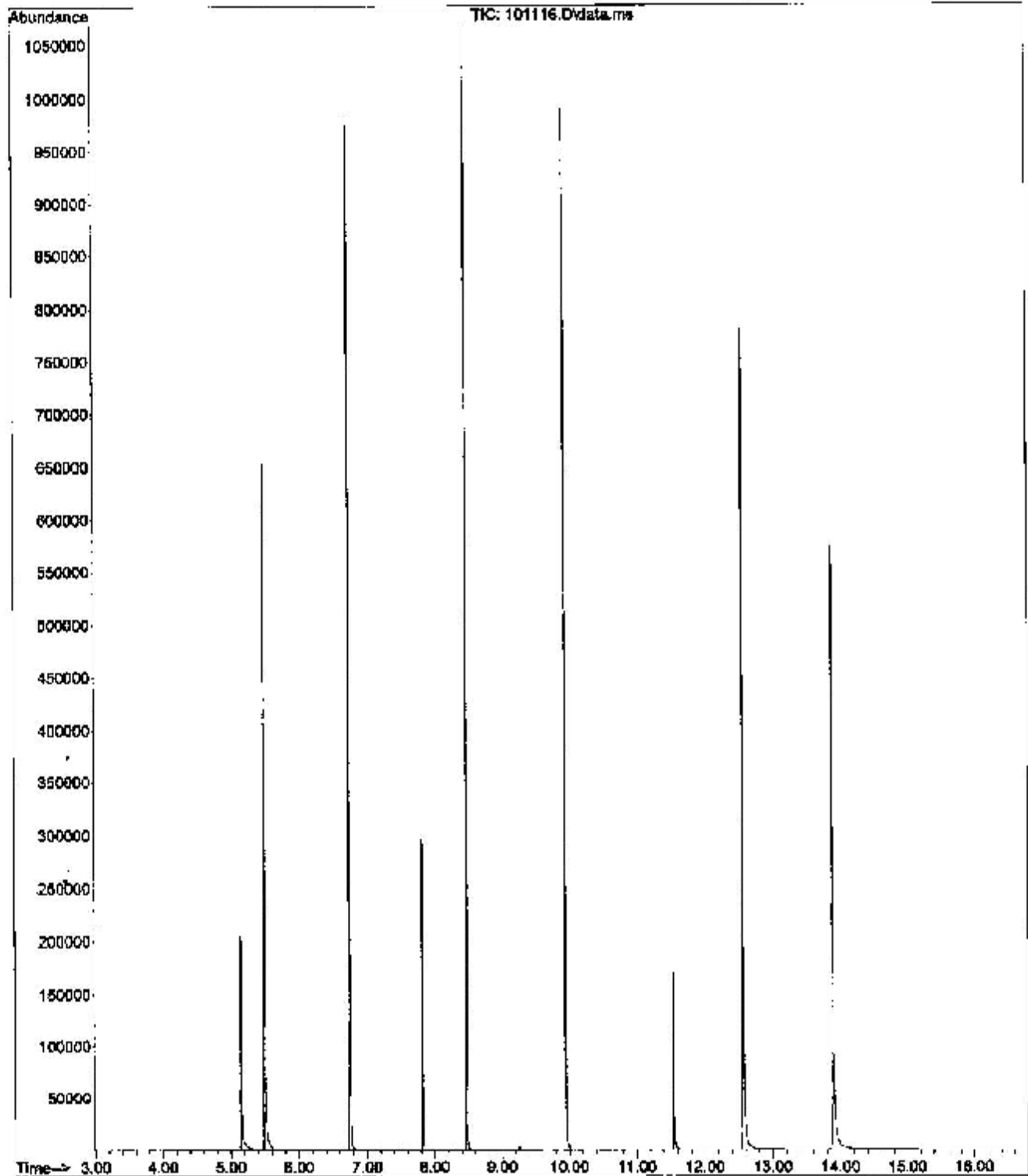
Quant Time: Oct 11 16:21:46 2012
 Quant Method : C:\msdchem\1\methods\OBPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 14:52:26 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)	
Internal Standards							
1) 1,4-Dichlorobenz-d4 (IS)	5.498	152	248460	2000.00	ug/L	0.00	
4) Naphthalene-d8 (IS)	6.747	136	806989	2000.00	ug/L	0.00	
10) Acenaphthene-d10 (IS)	8.480	164	410617	2000.00	ug/L	0.00	
13) Phenanthrene-d10 (IS)	9.945	188	680155	2000.00	ug/L	0.00	
20) Chrysene-d12 (IS)	12.568	240	628483	2000.00	ug/L	0.00	
25) Perylene-d12 (IS)	13.887	264	598140	2000.00	ug/L	0.00	
System Monitoring Compounds							
2) Phenol-d6	5.151	99	151627	803.39	ug/L	0.00	
8) 2-Fluorobiphenyl (surr)	7.822	172	167504	469.72	ug/L	0.00	
16) Terphenyl-d14 (surr)	11.540	244	128398	512.13	ug/L	0.00	
Target Compounds							
							Qvalue
3) 2,4-Dimethylphenol	6.511	107	2		N.D.		
5) Naphthalene	6.747	128	29		N.D.		
6) 2-Methylnaphthalene	7.459	142	60		N.D.		
7) 1-Methylnaphthalene	7.552	142	45		N.D.		
9) Acenaphthylene	8.340	152	1		N.D.		
11) Acenaphthene	8.509	152	13		N.D.		
12) Fluorene	9.023	166	4		N.D.		
14) Phenanthrene	9.967	178	157		N.D.		
15) Anthracene	10.020	178	6		N.D.		
17) Fluoranthene	11.148	202	27		N.D.		
18) Pyrene	11.371	202	83		N.D.		
19) Benzo (a) anthracene	12.566	228	1725		N.D.		
21) Chrysene	12.566	228	1511		N.D.		
22) benzo (b) fluoranthene	13.559	252	39		N.D.		
23) benzo (k) fluoranthene	13.583	252	169		N.D.		
24) benzo (a) pyrene	13.887	252	1959	6.46	ug/L		94
26) Indeno(1,2,3-cd)pyrene	14.945	276	27		N.D.		
27) Dibenz (a,h) anthracene	14.969	278	15		N.D.		
28) Benzo (g,h,i) perylene	15.254	276	18		N.D.		

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

OBPAH101012PHENOL.M Thu Oct 11 16:21:47 2012 PAH

File : D:\Data\SVOC\101112\101116.D
Operator :
Acquired : 11 Oct 2012 3:47 pm using AcqMethod DEPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 1210089-004ADUP
Misc Info : DUP O-PAH-S-SIM
Vial Number: 125



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\101112\
 Data File : 101117.D
 Acq On : 11 Oct 2012 4:12 pm
 Operator :
 Sample : 1210089-004ANS
 Misc : MS O-PAH-8-SIM
 ALS Vial : 126 Sample Multiplier: 1

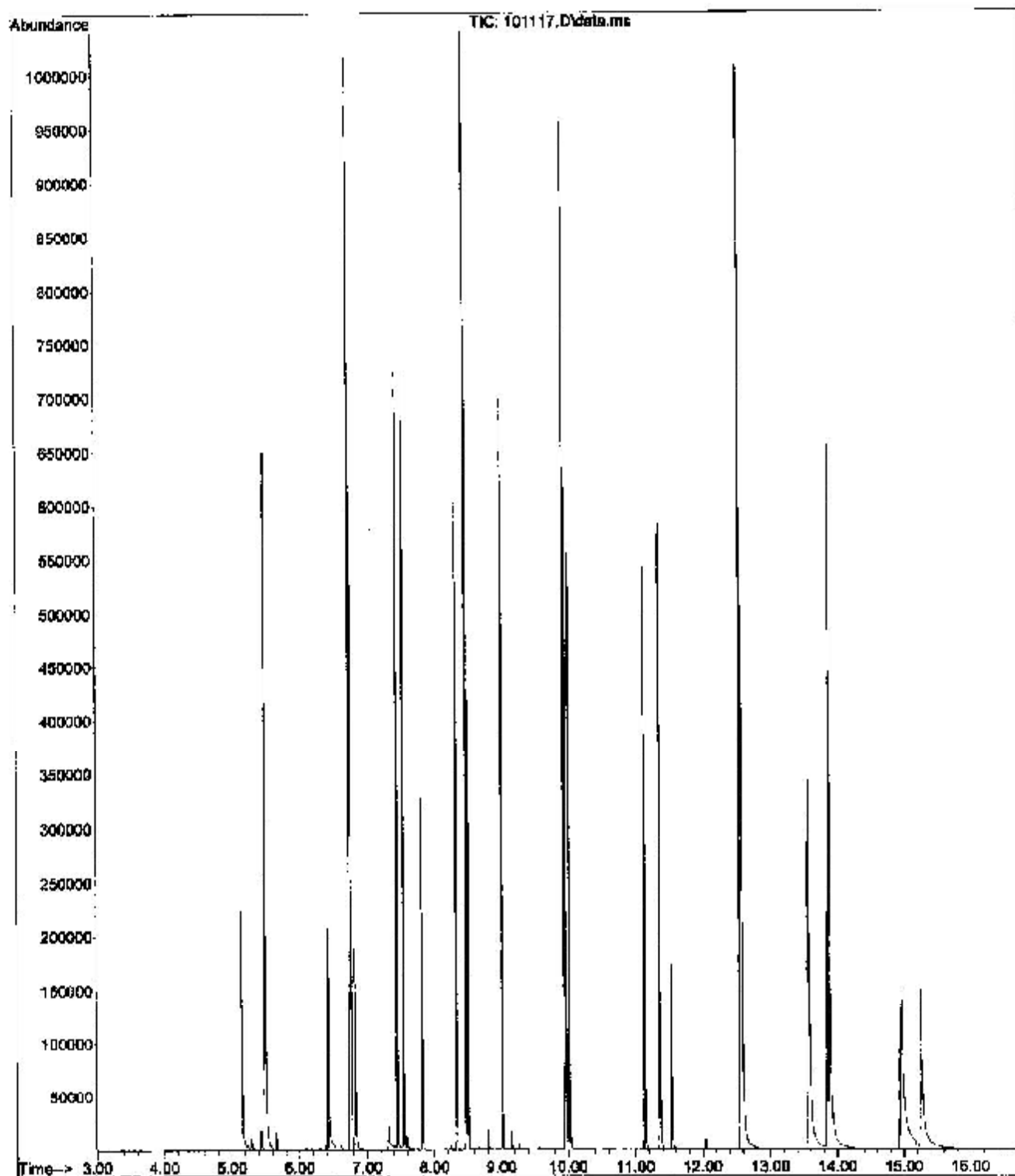
Quant Time: Oct 11 16:40:47 2012
 Quant Method : C:\msdchem\1\methods\DBPAH101012PHENOL.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Oct 11 14:52:26 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,2-Dichlorobenz-d4 (IS)	5.498	152	243558	2000.00	ug/L	0.00
4) Naphthalene-d8 (IS)	6.747	136	803565	2000.00	ug/L	0.00
10) Acenaphthene-d10 (IS)	8.480	164	418741	2000.00	ug/L	0.00
13) Phenanthrene-d10 (IS)	9.945	188	678879	2000.00	ug/L	0.00
20) Chrysene-d12 (IS)	12.568	240	659172	2000.00	ug/L	0.00
25) Perylene-d12 (IS)	13.887	264	639673	2000.00	ug/L	0.00
System Monitoring Compounds						
2) Phenol-d6	5.151	99	163193	882.07	ug/L	0.00
8) 2-Fluorobiphenyl (surr)	7.822	172	174768	492.18	ug/L	0.00
16) Terphenyl-d14 (surr)	11.540	244	133471	533.83	ug/L	0.00
Target Compounds						
						Qvalue
3) 2,4-Dimethylphenol	6.428	107	114798	808.43	ug/L	99
5) Naphthalene	6.766	128	439108	861.36	ug/L	100
6) 2-Methylnaphthalene	7.453	142	264847	886.77	ug/L	100
7) 1-Methylnaphthalene	7.550	142	247665	876.38	ug/L	100
9) Acenaphthylene	8.338	152	375979	918.41	ug/L	100
11) Acenaphthene	8.509	152	117774	836.38	ug/L	100
12) Fluorene	9.022	166	275869	854.72	ug/L	100
14) Phenanthrene	9.969	178	387287	836.73	ug/L	100
15) Anthracene	10.020	178	372643	901.19	ug/L	100
17) Fluoranthene	11.146	202	392244	941.41	ug/L	100
18) Pyrene	11.368	202	409992	941.44	ug/L	100
19) Benzo (a) anthracene	12.559	238	322083	881.92	ug/L #	100
21) Chrysene	12.593	228	391907	822.91	ug/L	98
22) benzo (b) fluoranthene	13.557	252	233099	673.48	ug/L #	100
23) benzo (k) fluoranthene	13.580	252	445287	905.71	ug/L	99
24) benzo (a) pyrene	13.837	252	261251	784.49	ug/L	97
26) Indeno (1,2,3-cd)pyrene	14.950	276	268996m	794.77	ug/L	
27) Dibenz (a,h) anthracene	14.969	278	194160m	718.58	ug/L	
28) Benzo (g,h,i) perylene	15.260	276	305371m	808.41	ug/L	

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

DBPAH101012PHENOL.M Thu Oct 11 16:40:51 2012 PAH

File : D:\Data\SVOC\101112\101117.D
Operator :
Acquired : 11 Oct 2012 4:12 pm using AcqMethod DBPAH101012PHENOL.M
Instrument : HP-MSD
Sample Name: 1210089-004AMS
Misc Info : MS O-PAH-S-SIM
Vial Number: 126





Libby Environmental, Inc.

4139 Libby Road NE • Olympia, WA 98506-2518

November 8, 2012

Neil Morton
GeoEngineers Inc.
600 Stewart Street, Suite 1700
Seattle, WA 98101

Dear Mr. Morton:

Please find enclosed the analytical data report for the Irondale Project located in Irondale, Washington. Soil samples were analyzed for Diesel & Oil by NWTPH-Dx/Dx Extended with Silica Gel Clean Up on October 10, 2012.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. All soil samples are reported on a dry weight basis. An invoice for this analytical work is enclosed.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Jamie L. Deyman
President
Libby Environmental, Inc.

Phone (360) 352-2110 • Fax (360) 352-4154 • libbyenv@aol.com

www.LibbyEnvironmental.com



Libby Environmental, Inc.

Case Narrative

Libby Project #: L121010-30
Date: 11-8-2012

CLIENT: GeoEngineers, Inc.
PROJECT: Irondale

I. SAMPLE RECEIPT:

All samples were received intact and in good condition. See the attached Sample Receipt Check List for more information.

II. GENERAL REPORTING COMMENTS:

Final results are reported on a dry weight basis. The soil samples in the field are estimated to have a moisture content of 15%. This estimate is useful in producing data that is close to the actual value. After the sample is analyzed for soil moisture at our fixed base facility, the final data is reported based on measured soil moisture. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS), the Laboratory Control Sample Duplicate (LCSD) and the Method Blank (MB). The LCS, LCSD and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) and/or noted below.

Notes:

N/A

Libby Environmental, Inc.

Chain of Custody Record

4139 Libby Road NE
Olympia, WA 98506
Ph: 360-352-2110
Fax: 360-352-4154

Date: 10/10/12 Page: 1 of 1

Client: LED Ecolite

Project Manager: NEIL MORTON

Address:

Project Name: TRONDALE

Phone: Fax:

Location: WA City: TRONDALE

Client Project #

Collector: PAUL ROBINETTE Date of Collection: 10/10/12



Sample Number	Depth	Time	Sample Type	Container Type	VOA 8021B	VOA 8021B BTEX Only	VOA 8280	SEMI VOL 8270	NWTPH-HCID	NWTPH-GX	NWTPH-Dx	PAH 8270	PCB's 8082	MTCA 5 Metals	Field Notes
1 <u>KILD-1-10/10/12</u>	<u>2</u>	<u>905</u>	<u>SOIL</u>	<u>402</u>							<u>X</u>				
2 <u>KPB-B1-10/10/12</u>	<u>10</u>	<u>850</u>	<u>SOIL</u>	<u>402</u>							<u>X</u>				
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															

Relinquished by: <u>[Signature]</u>	Date / Time: <u>10/10/12 11:30</u>	Received by: <u>[Signature]</u>	Date / Time: <u>10-10-12 11:30</u>	Sample Receipt: Good Condition? <input type="checkbox"/> Cold? <input type="checkbox"/> Seals Intact? <input type="checkbox"/> Total Number of Containers: <input type="text"/>	Remarks:
Relinquished by:	Date / Time:	Received by:	Date / Time:		
Relinquished by:	Date / Time:	Received by:	Date / Time:		
Relinquished by:	Date / Time:	Received by:	Date / Time:		

Libby Environmental, Inc. Login Sample Receipt Check List

Client: GeoEngineers, Inc. **Libby Project Number:** L121010-30

Question	T / F / NA	Comment
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler temperature is acceptable.	True	
COC is present.	True	
COC is filled out in ink and is legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within the Hold Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs.	True	
VOA sample vials do not have headspace or bubble is less than 6mm (1/4 in.) in diameter.	True	
If necessary, staff has been informed of any short hold time or quick TAT needs.	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	

Libby Environmental, Inc.

4139 Libby Road NE
Olympia, WA 98506
Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@aol.com

IRONDALE PROJECT
GeoEngineers, Inc.
Irondale, Washington
Libby Project # L121010-30
Client Project # 0504-042-02

Analyses of Diesel & Oil Range (NWTPH-Dx/Dx Extended) in Soil w/ Silica Gel Cleanup

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Bunker C (mg/kg)
Method Blank	10/10/12		nd	nd
LCS	10/10/12	int	103%	
LCSD	10/10/12	int	102%	
KILN-1-101012	10/10/12	105	nd	44
KILN-1-101012 Dup	10/10/12	95	nd	56
K08-B1-101012	10/10/12	int	nd	1800
Practical Quantitation Limit			25	40

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

Analysis date: 10/10/2012 08:25:48

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: C277.CHR ()

Sample: 500 ppm Diesel 791

Operator: PB

Analysis date: 10/10/2012 08:25:48

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: D275.CHR ()

Sample: 500 ppm Diesel 791

Operator: PB

Temperature program:

Temperature program:

Init temp Hold Ramp Final temp

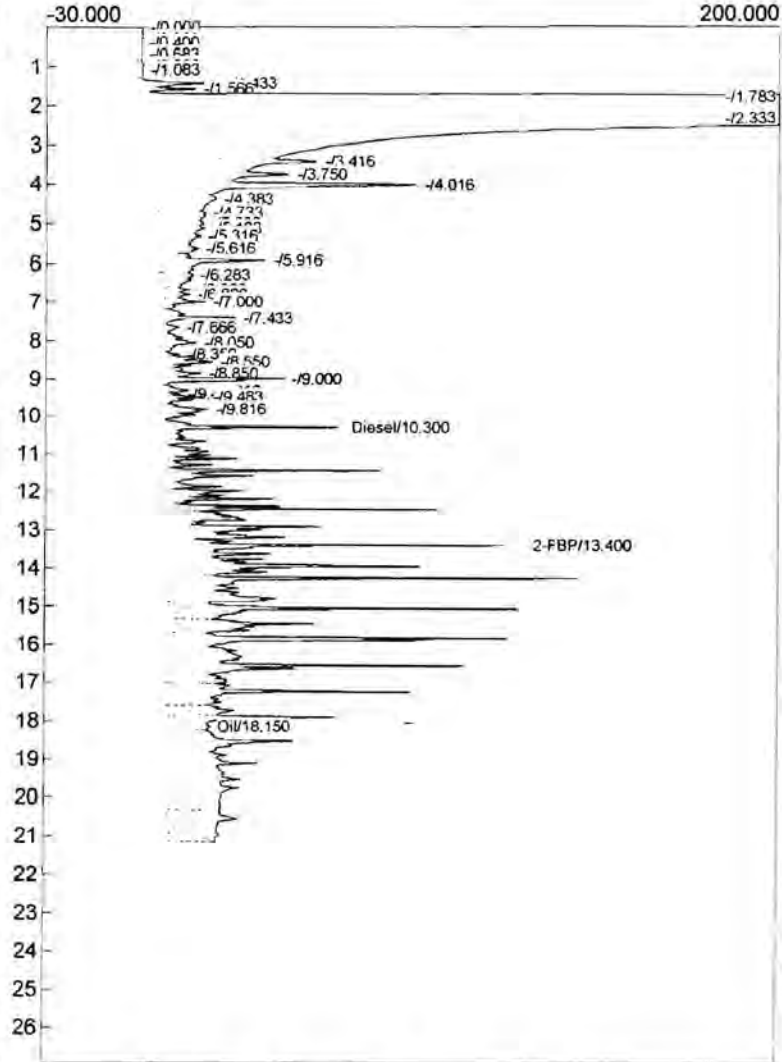
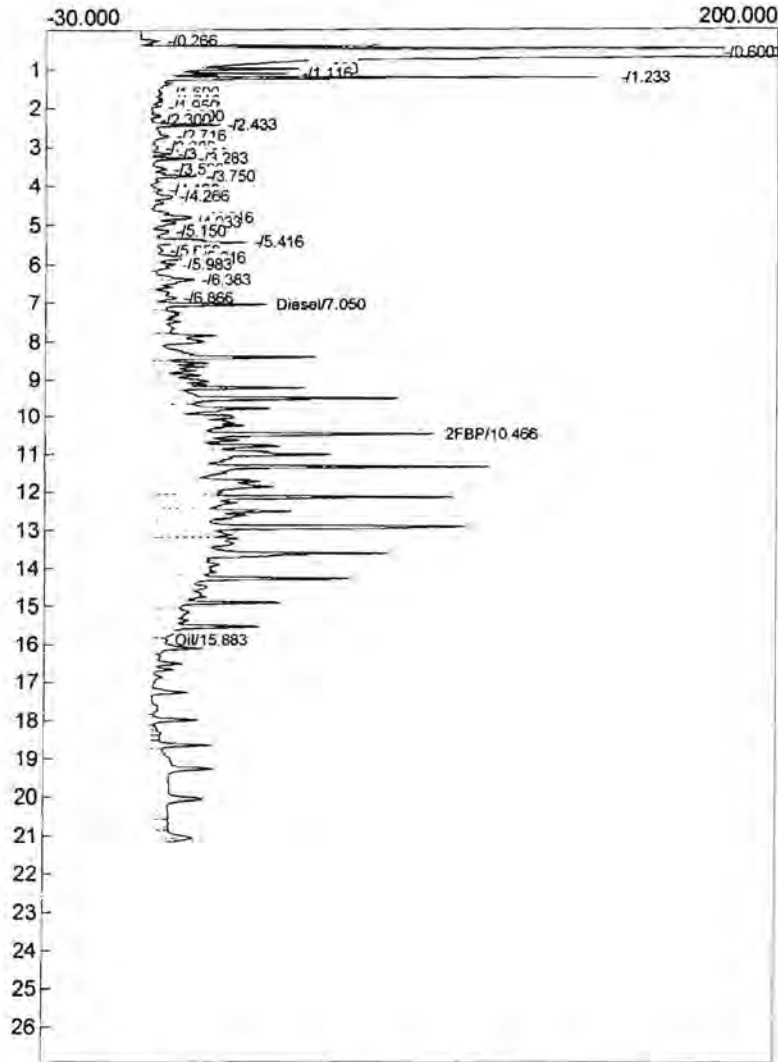
Init temp Hold Ramp Final temp

Events:

Events:

Time Event
0.000 ZERO

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.050	10394.8090	35.528	512.2242	ppm
FBP	10.466	619.4575	88.401	24.7783	ppm
Oil	15.883	1106.5340	2.782	54.4015	ppm
		12120.8005		591.4040	

Component	Retention	Area	Height	External	Units
Diesel	10.300	9515.5820	55.163	505.2627	ppm
2-FBP	13.400	531.0420	112.146	18.4710	ppm
Oil	18.150	3000.2205	12.837	158.4372	ppm
		13046.8445		682.1709	

Analysis date: 10/10/2012 08:54:14
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C278.CHR ()
 Sample: 1000 ppm LCS 343
 Operator: PB

Analysis date: 10/10/2012 08:54:14
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D276.CHR ()
 Sample: 1000 ppm LCSD 343
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

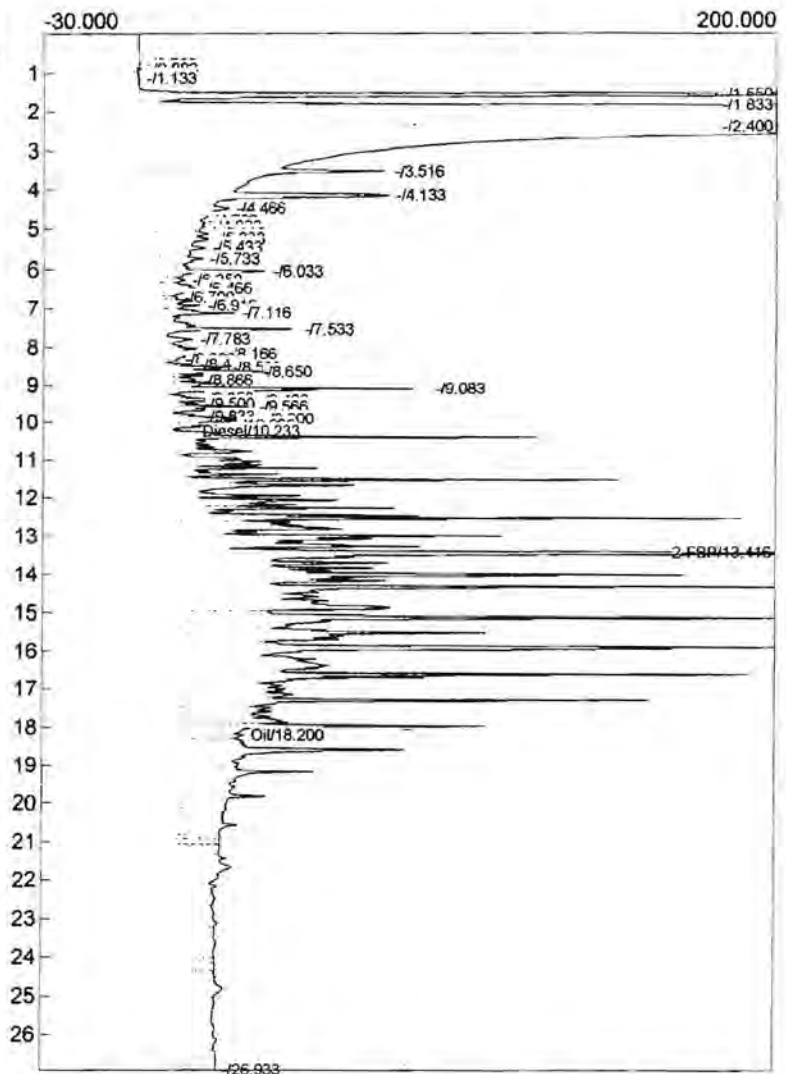
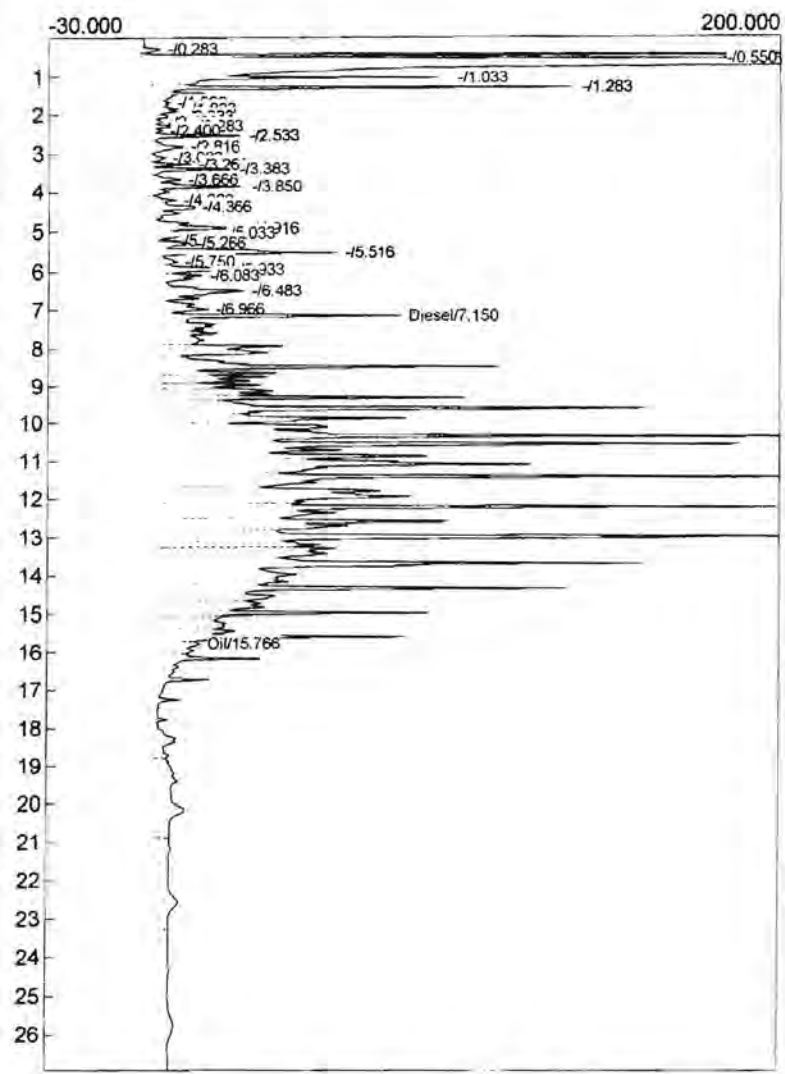
Time Event
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Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.150	22383.3810	74.425	1107.4795	ppm
Oil	15.766	2320.2815	11.461	114.0740	ppm
		24703.6625		1221.5535	

Component	Retention	Area	Height	External	Units
Diesel	10.233	19365.5425	4.847	1037.3623	ppm
2-FBP	13.416	1514.8905	252.950	52.6918	ppm
Oil	18.200	6868.2590	19.653	363.8034	ppm
		27748.6920		1453.8575	

Analysis date: 10/10/2012 09:29:32

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: C279.CHR ()

Sample: Method Blank

Operator: PB

Analysis date: 10/10/2012 09:29:32

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: D277.CHR ()

Sample: Method Blank

Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

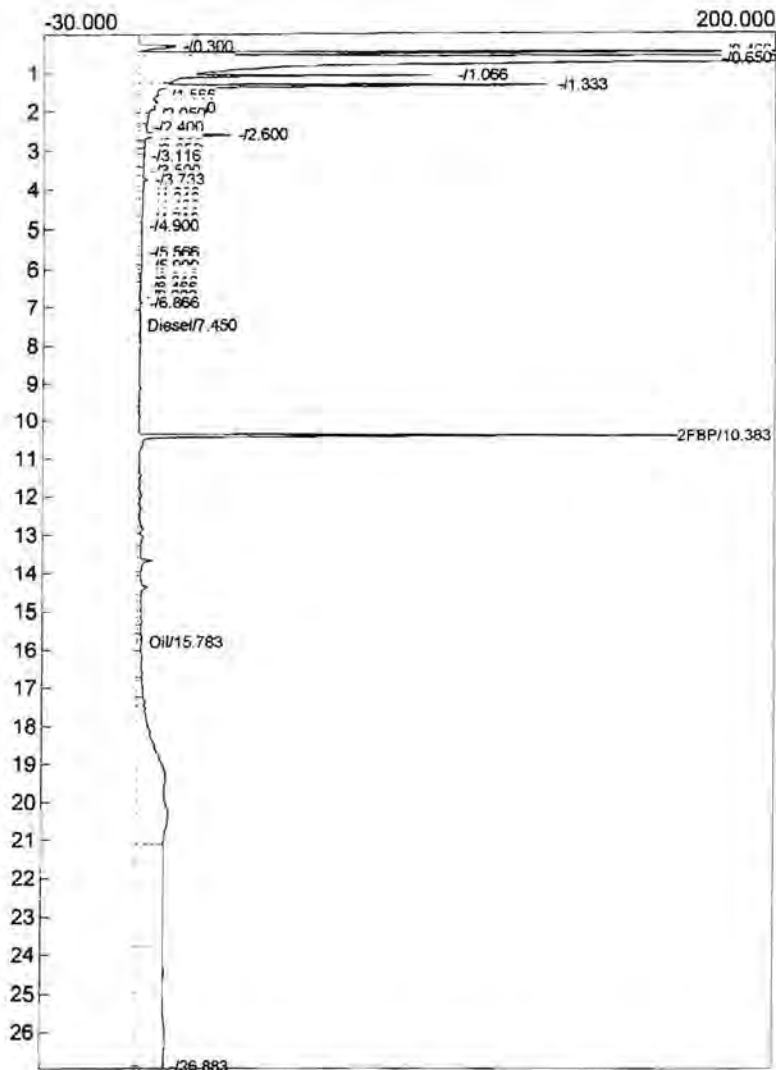
Time Event
0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

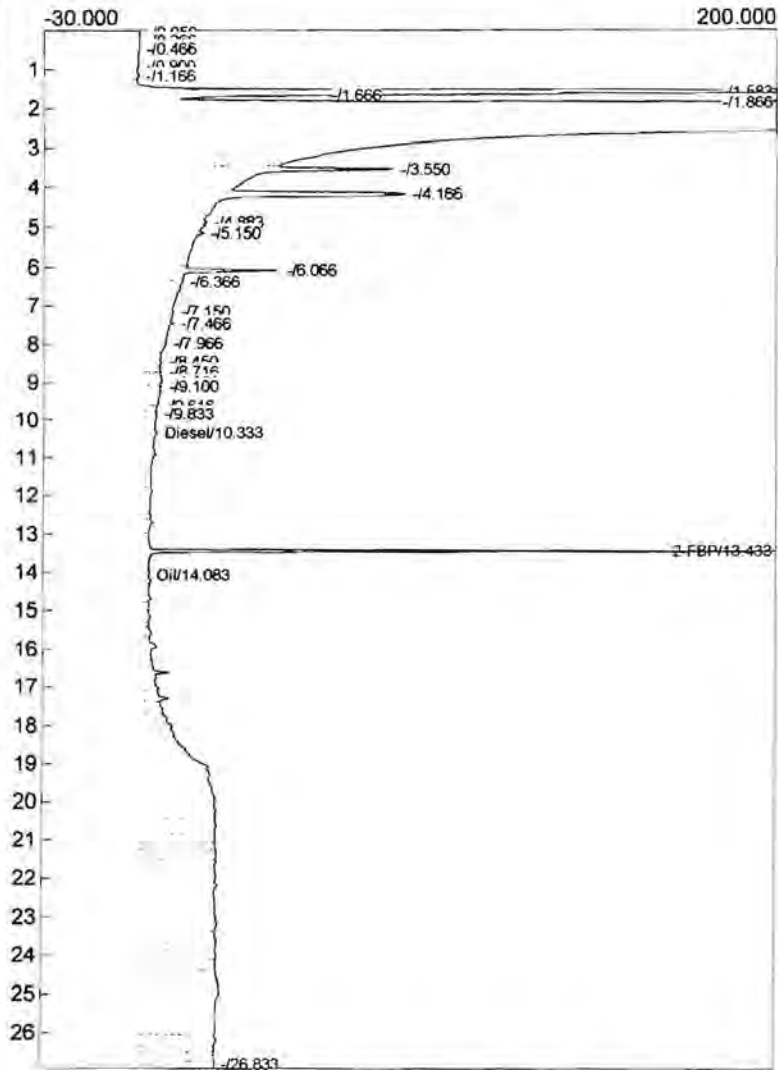
Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.450	800.2315	0.294	39.3425	ppm
2-FBP	10.383	537.1055	190.404	21.4842	ppm
Oil	15.783	4594.6370	1.341	225.9619	ppm
		5931.9740		286.7886	

107%



Component	Retention	Area	Height	External	Units
Diesel	10.333	867.1875	3.282	45.7949	ppm
2-FBP	13.433	607.9320	284.408	21.1455	ppm
Oil	14.083	11659.4120	0.880	620.1549	ppm
		13134.5315		687.0952	

106%

Analysis date: 10/10/2012 09:29:32

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: C279.CHR ()

Sample: Method Blank

Operator: PB

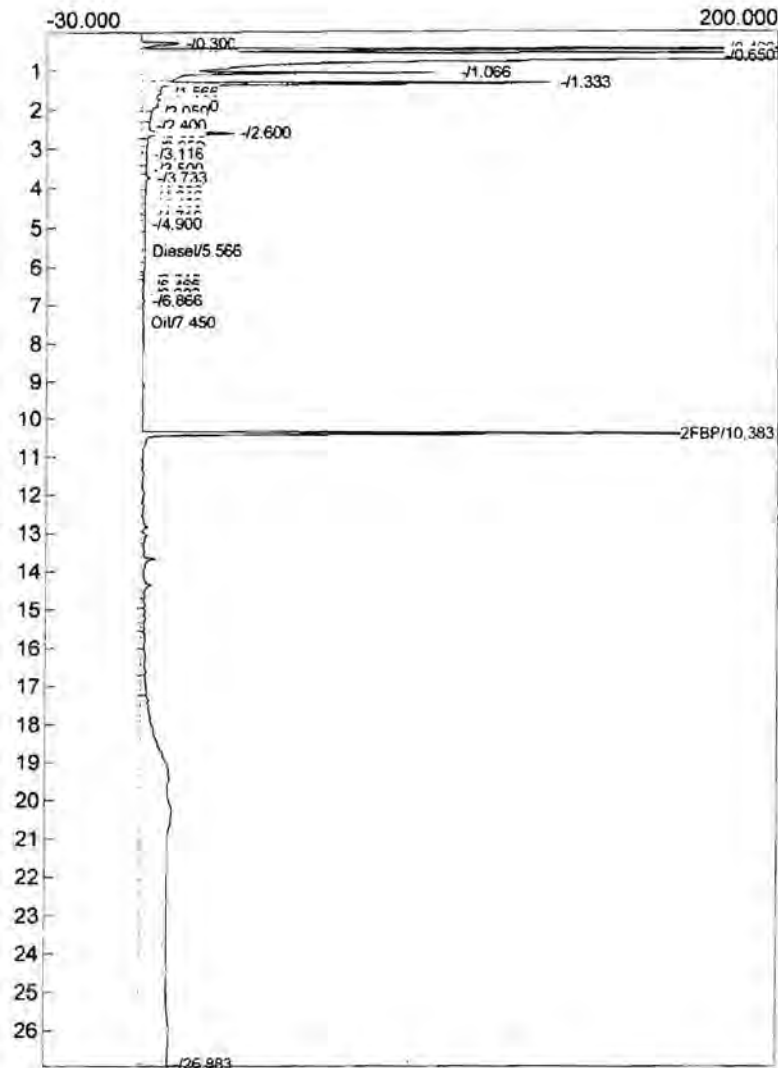
USED for Bunker C airblank

Temperature program: *only*

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.566	38.5215	0.749	1.8939	ppm
Oil	7.450	5394.8685	0.294	265.4137	ppm
2-FBP	10.383	537.1055	190.404	21.4842	ppm
		5970.4955		288.7917	

Analysis date: 10/10/2012 09:29:32

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: D277.CHR ()

Sample: Method Blank

Operator: PB

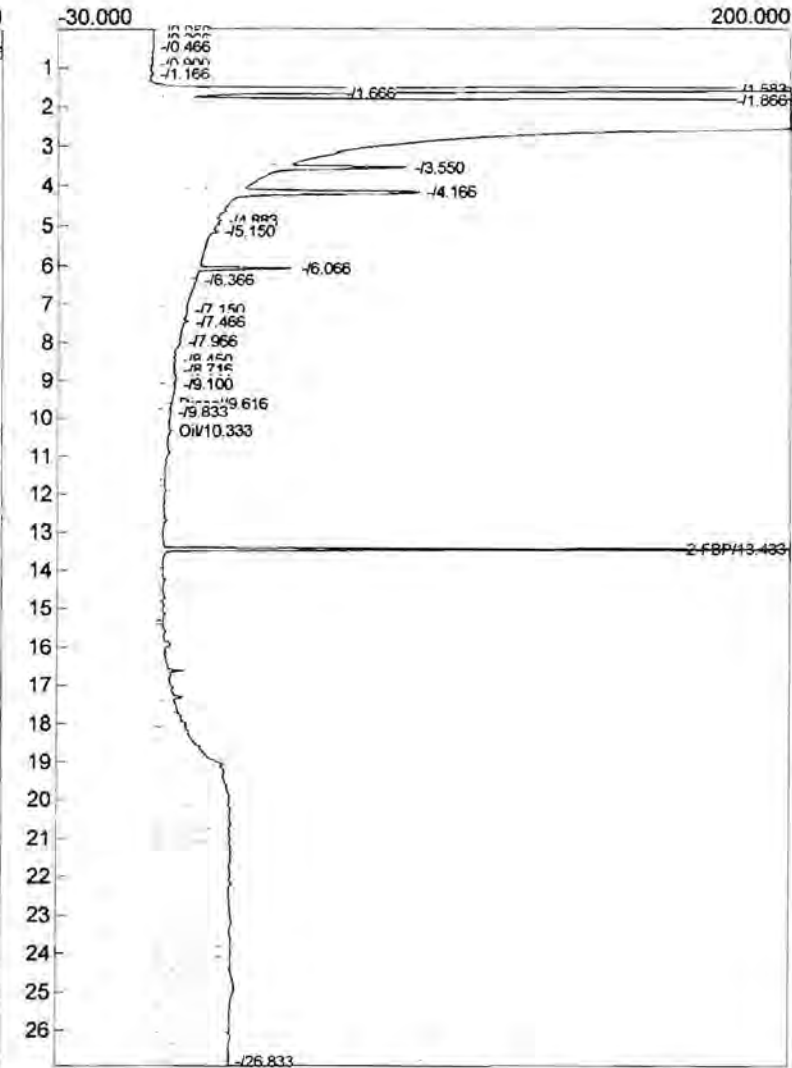
USED for Bunker C airblank

Temperature program: *only*

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	9.616	26.1355	3.159	1.3802	ppm
Oil	10.333	12526.5995	3.282	666.8921	ppm
2-FBP	13.433	607.9320	264.408	21.1455	ppm
		13160.6670		689.4177	

Analysis date: 10/10/2012 10:07:55
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C280.CHR ()
 Sample: K08-B1-101012 1:2
 Operator: PB

Analysis date: 10/10/2012 10:07:55
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D278.CHR ()
 Sample: KILN-1-101012
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

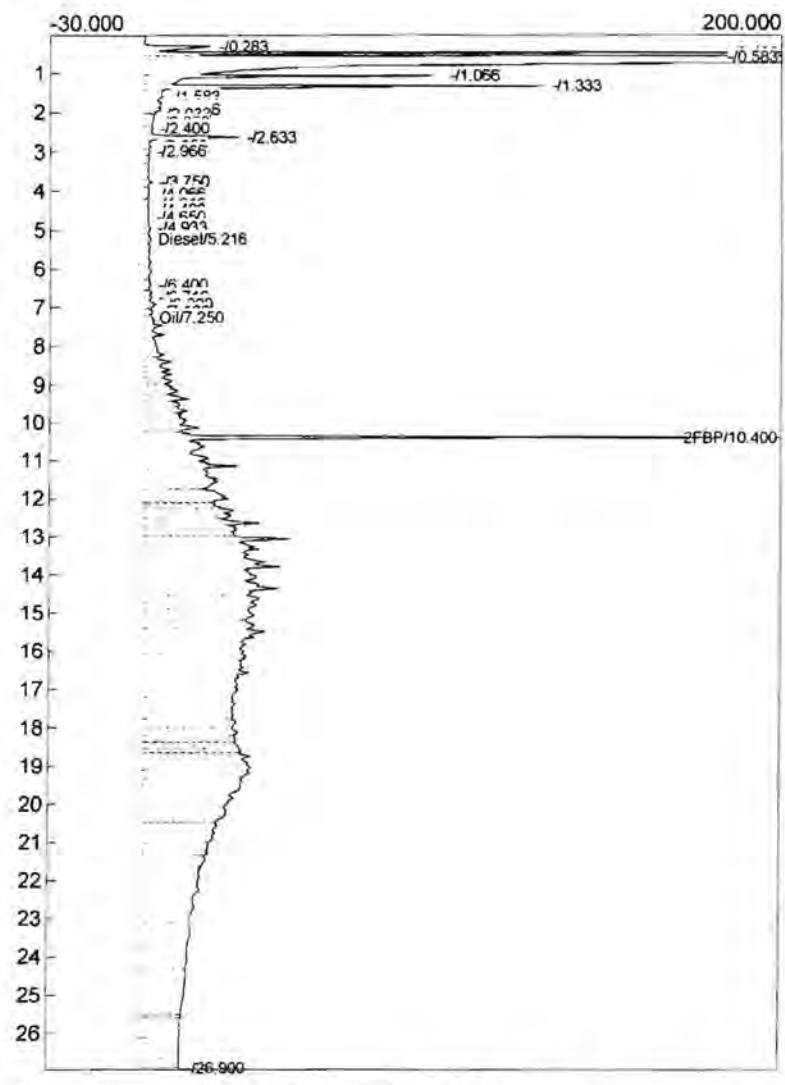
Time Event
 0.000 ZERO

Temperature program:

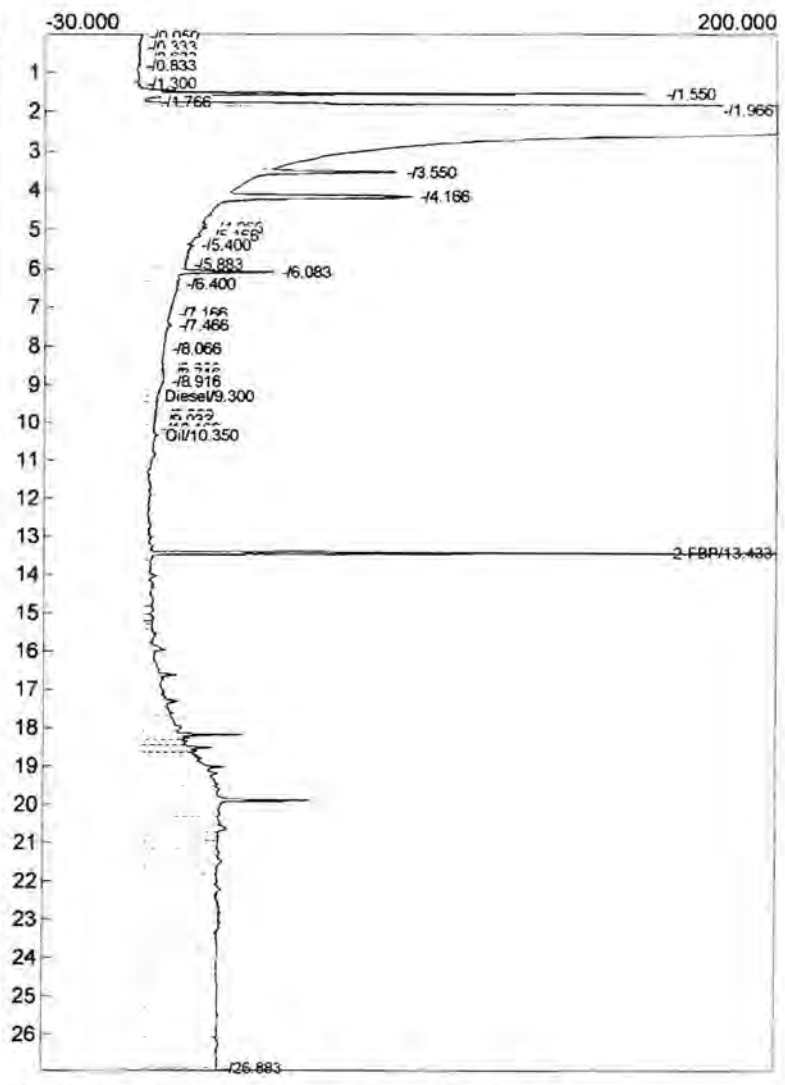
Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.216	32.2450	0.942	1.5853	ppm
Oil	7.250	24006.0745	1.321	1188.3774	ppm
2-FBP	10.400	735.9810	220.213	29.4392	ppm
		24774.3005		1219.4020	



Component	Retention	Area	Height	External	Units
Diesel	9.300	80.2370	3.075	4.2372	ppm
Oil	10.350	13325.8750	3.296	709.9692	ppm
2-FBP	13.433	606.3820	230.951	21.0915	ppm
		14012.4940		735.2979	

int $1188 - 265 = 923$
 $\frac{923}{2} = 461.5$
 $461.5 + 1846 = 2307.5$

$\approx 1850 \text{ ppm Bunker C}$
 $MC * 6.97477 = 1803$

$710 - 669 = 41 \text{ ppm}$
 Bunker C
 $MC * 1.06117 = 43.5$

Analysis date: 10/10/2012 10:43:47
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C281.CHR ()
 Sample: No Sample
 Operator: PB

Analysis date: 10/10/2012 10:43:47
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D279.CHR ()
 Sample: KILN-1-101012 Dup
 Operator: PB

Temperature program:

Temperature program:

Init temp Hold Ramp Final temp

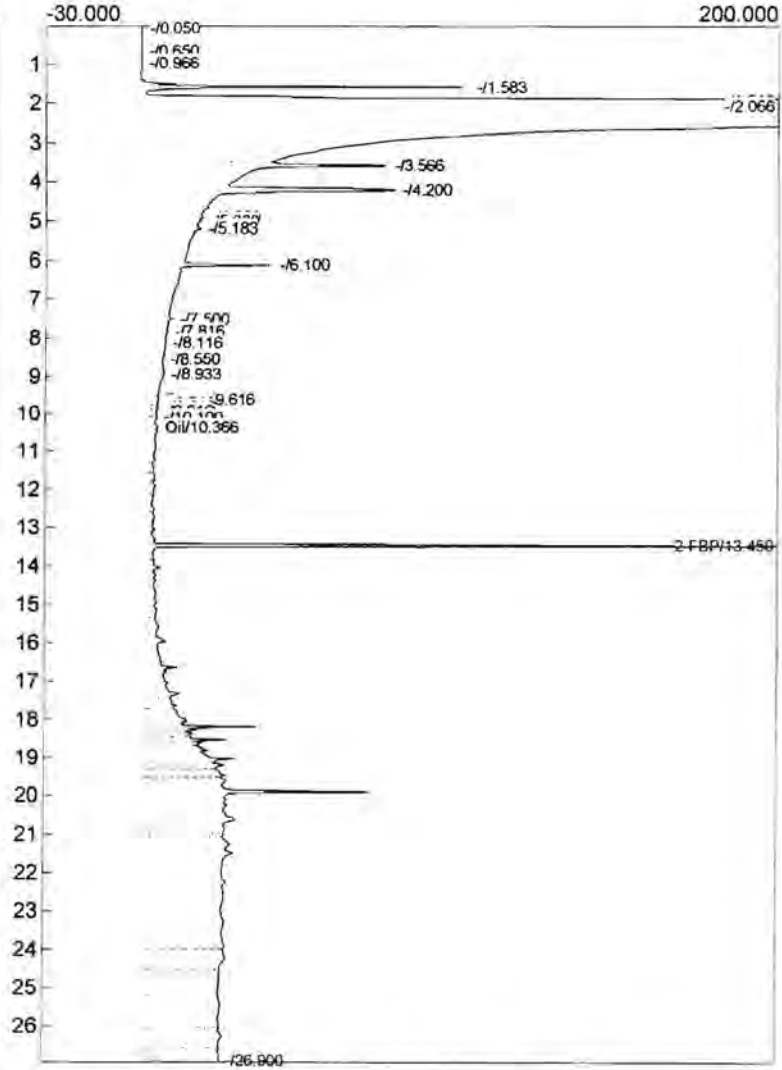
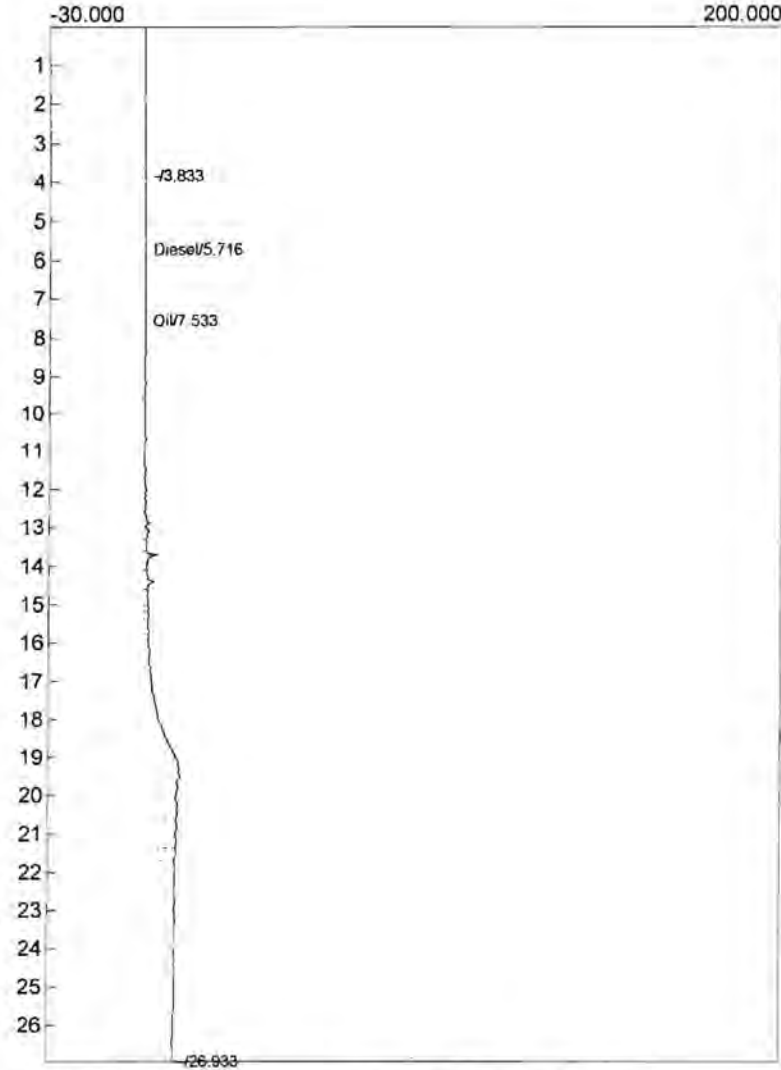
Init temp Hold Ramp Final temp

Events:

Events:

Time Event
 0.000 ZERO

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.716	10.8880	0.207	0.5353	ppm
Oil	7.533	2043.9910	0.086	100.4905	ppm
		2054.8790		101.0258	

Component	Retention	Area	Height	External	Units
Diesel	9.616	21.9240	2.408	1.1578	ppm
Oil	10.366	13535.0020	2.264	721.2401	ppm
2-FBP	13.450	546.1660	245.364	18.9971	ppm
		14103.0920		741.3950	

721 - 669 = 53 ppm
 Bun Ken C
 95%
 ml x 1.06117 * 56.2

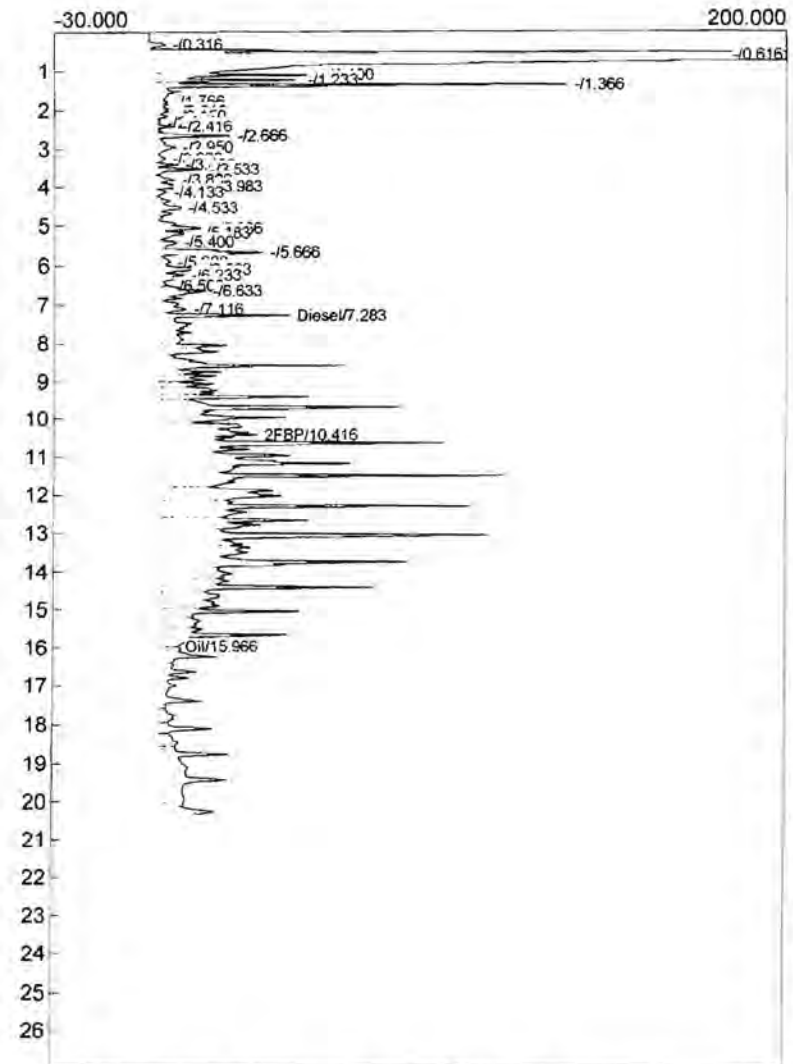
Analysis date: 10/10/2012 11:28:09
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C282.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.283	11080.8550	40.036	546.1407	ppm
2FBP	10.416	257.2010	29.876	10.2880	ppm
Oil	15.966	1286.5255	4.599	63.2505	ppm
		12624.5815		619.6793	

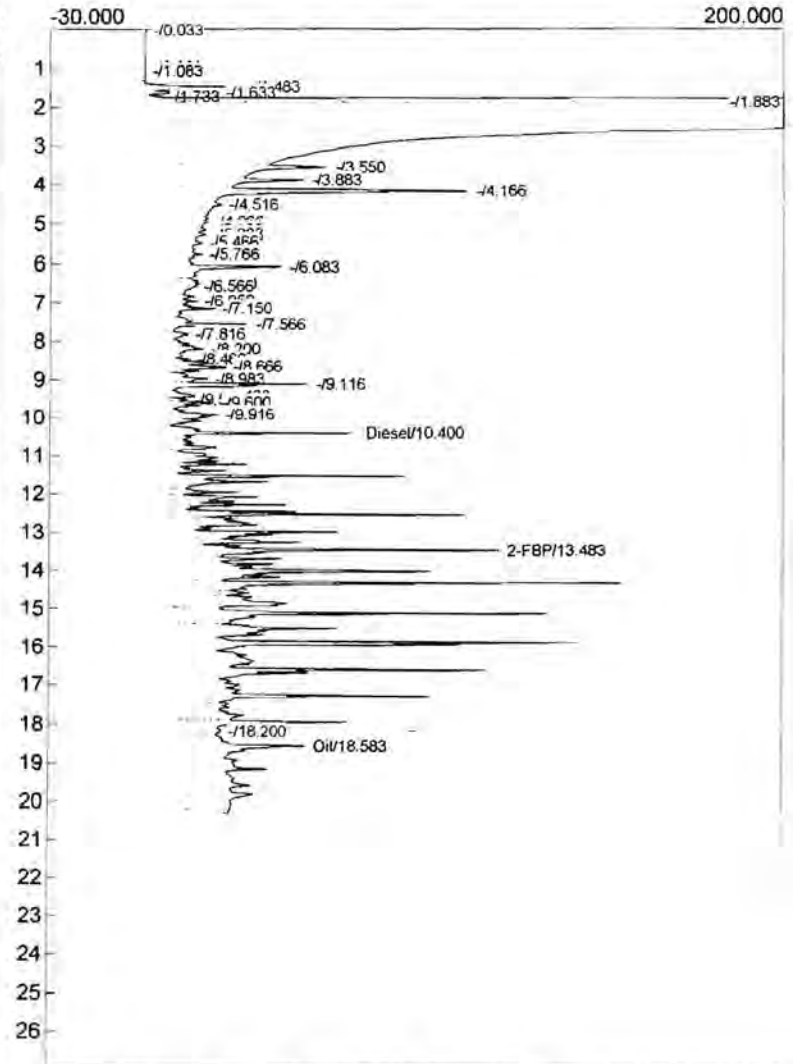
Analysis date: 10/10/2012 11:28:09
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D280.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

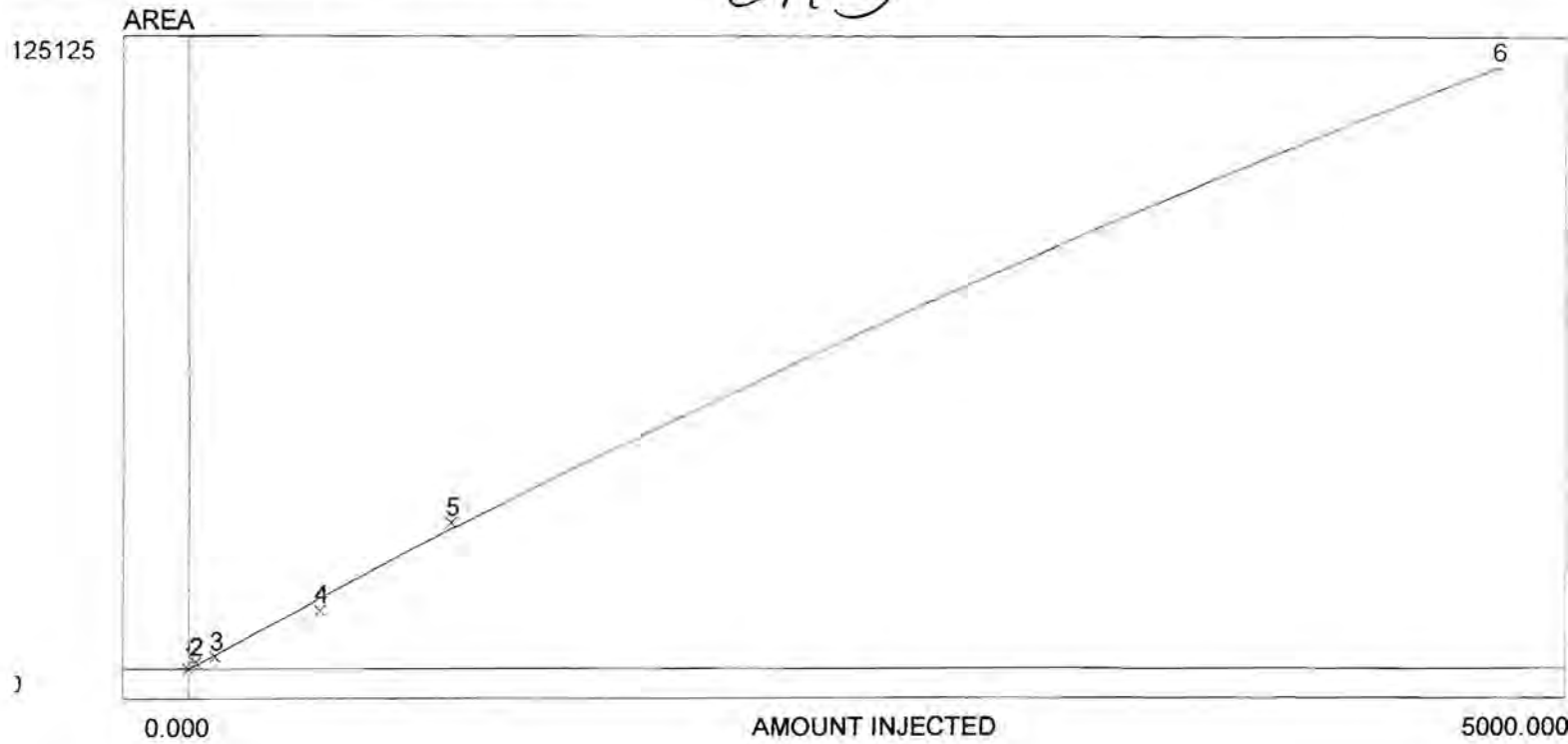
Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	10.400	10138.6535	59.092	538.6144	ppm
2-FBP	13.483	562.3950	102.261	19.5616	ppm
Oil	18.583	1988.6370	39.563	105.0169	ppm
		12689.6855		663.1930	

Ch 3



Avg slope of curve: 25.03

Y-axis intercept: 0.00

Linearity: 0.86

Number of levels: 6

SD/rel SD of CF's: 18.0/66.9

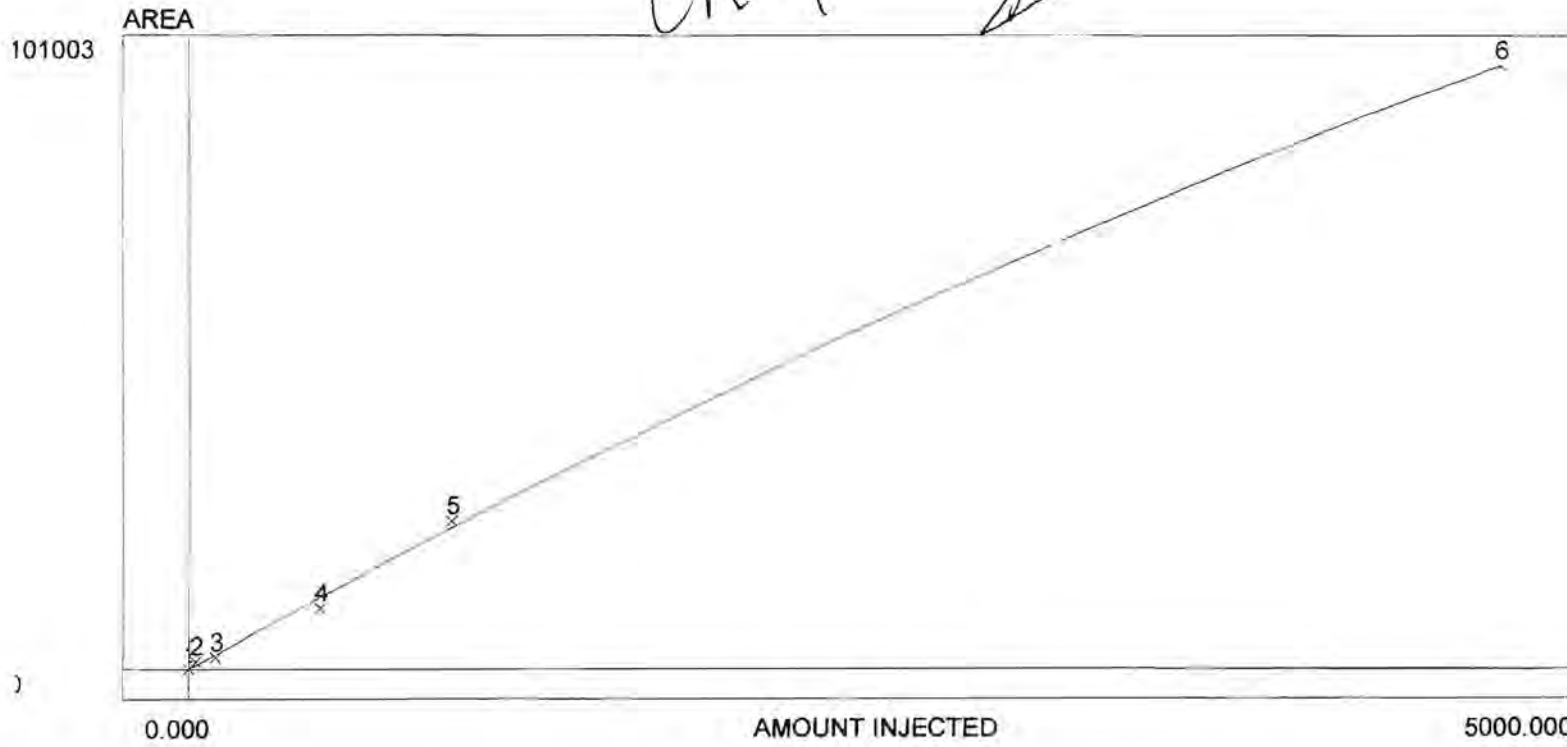
$Y = -0.0009X^2 + 29.3544X$

R²: 0.9993

Last calibrated: Wed Mar 14 13:52:31 2012

Level	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	1410.471	25.000	56.419	1410.471	N/A	N/A
3	2574.179	100.000	25.742	2574.179	N/A	N/A
4	12043.265	500.000	24.087	12043.265	N/A	N/A
5	29871.863	1000.000	29.872	29871.863	N/A	N/A
6	125124.670	5000.000	25.025	125124.670	N/A	N/A

Ch 4 2

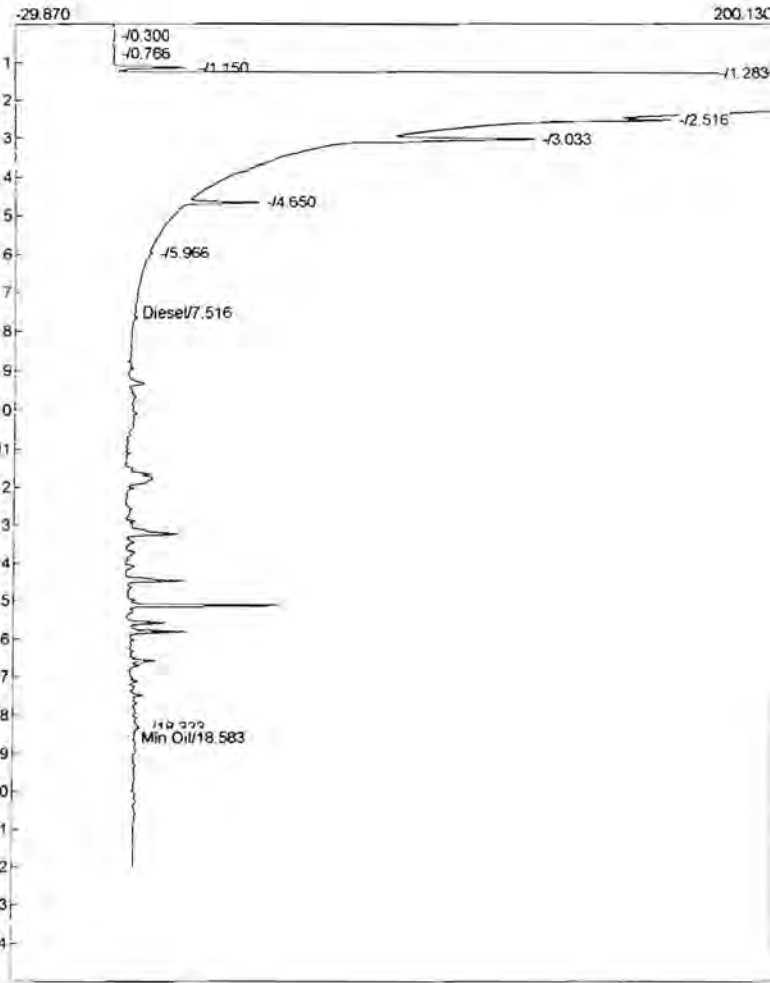
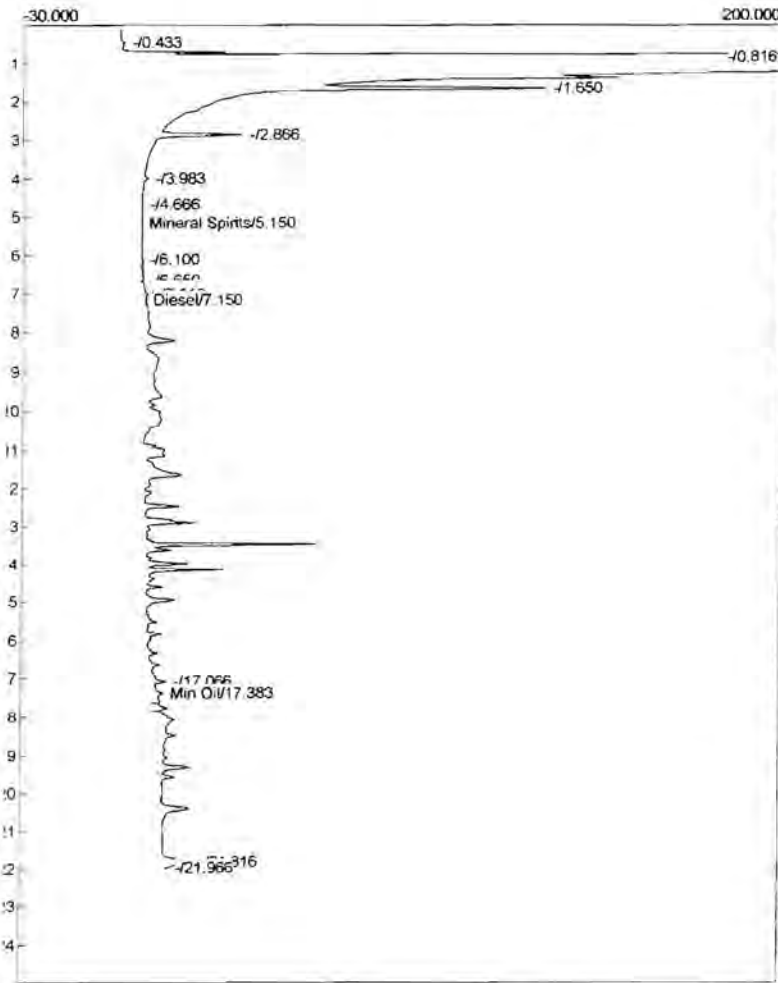


Avg slope of curve: 20.21
 y-axis intercept: 0.00
 Linearity: 0.84
 Number of levels: 6
 SD/rel SD of CF's: 16.3/72.6
 $r = -0.0008X^2 + 24.2883X$
 $r^2: 0.9993$
 Last calibrated: Wed Mar 14 13:57:45 2012

Level	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	1271.716	25.000	50.869	1271.716	N/A	N/A
3	1927.394	100.000	19.274	1927.394	N/A	N/A
4	10086.605	500.000	20.173	10086.605	N/A	N/A
5	24554.042	1000.000	24.554	24554.042	N/A	N/A
6	101002.720	5000.000	20.201	101002.720	N/A	N/A

Analysis date: 03/14/2012 10:39:04
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C620.CHR ()
 Sample: 25 PPM Dx 706
 Operator: KW

Analysis date: 03/14/2012 10:39:04
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D626.CHR ()
 Sample: 25 PPM Dx 706
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.150	7.8080	0.195	0.3863	PPM	Diesel	7.516	1271.7155	1.965	89.4973	ppm
Diesel	7.150	1410.4710	0.518	13.6936	ppm	Min Oil	18.583	209.2665	1.582	14.7689	ppm
Min Oil	17.383	577.2305	3.576	0.0000				1480.9820		104.2662	
		1995.5095		14.0798							

Analysis date: 03/14/2012 11:07:43

Method: Syringe Injection

Description: JAMACIA FID

Column: RESTEK 15METER MXT-1

Carrier: HELIUM AT 5 PSI

Data file: C621.CHR ()

Sample: 100 PPM Dx 705

Operator: KW

Analysis date: 03/14/2012 11:07:43

Method: Syringe Injection

Description: JAMACIA FID

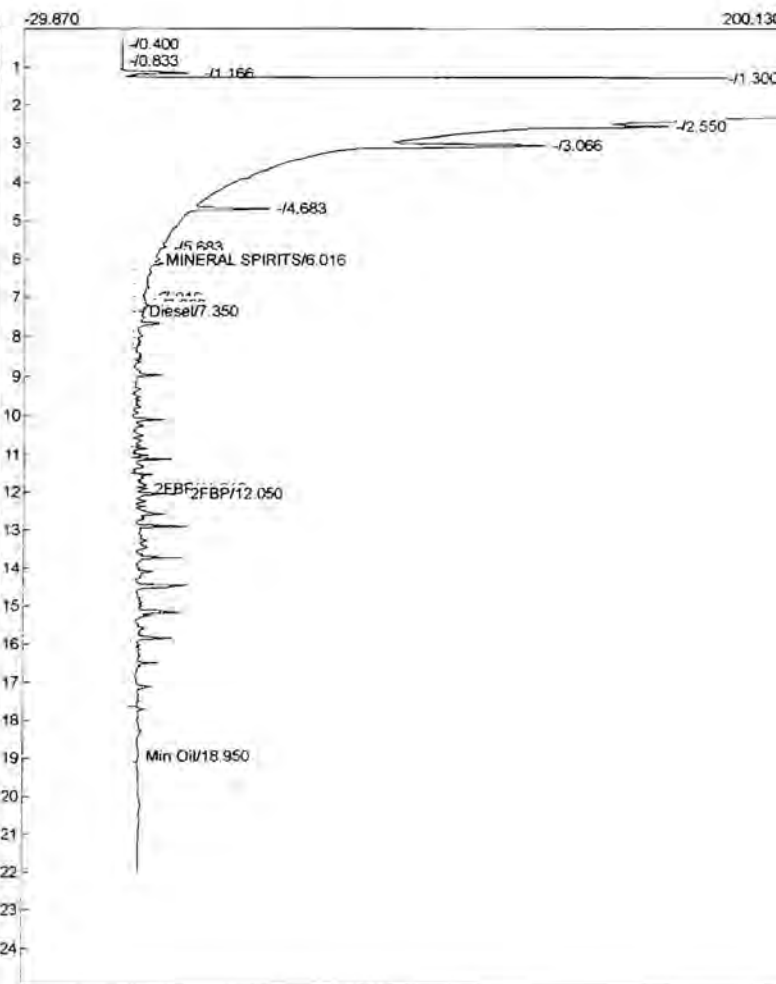
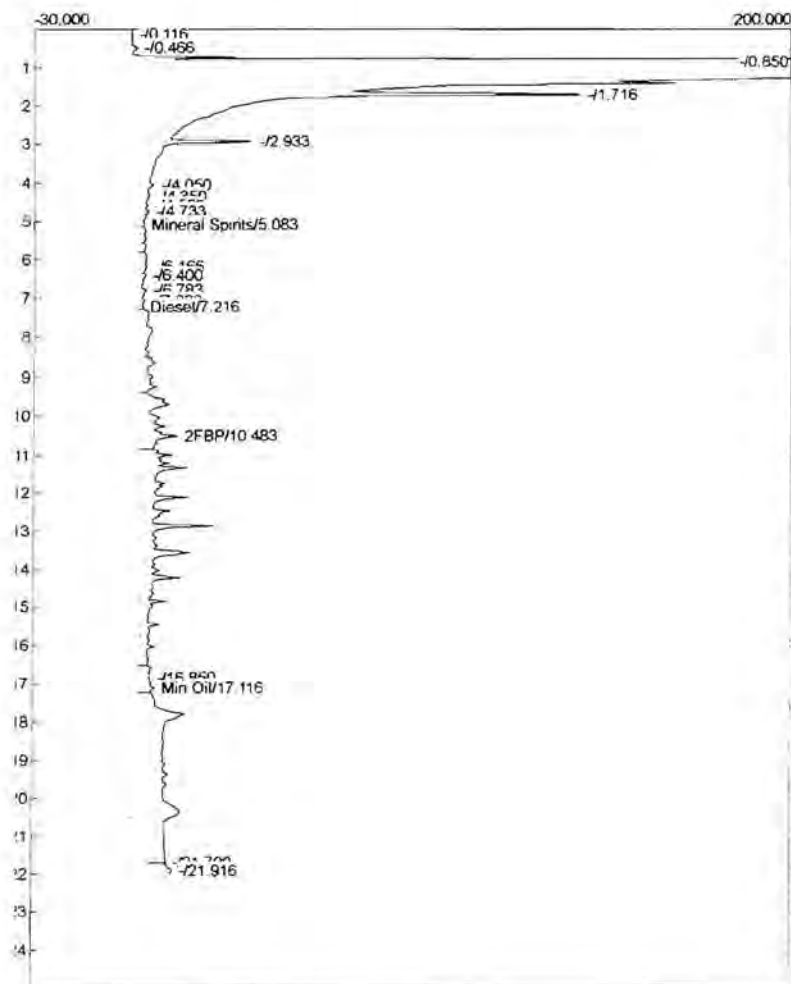
Column: RESTEK 15METER MXT-1

Carrier: HELIUM AT 5 PSI

Data file: D627.CHR ()

Sample: 100 PPM Dx 705

Operator: KW



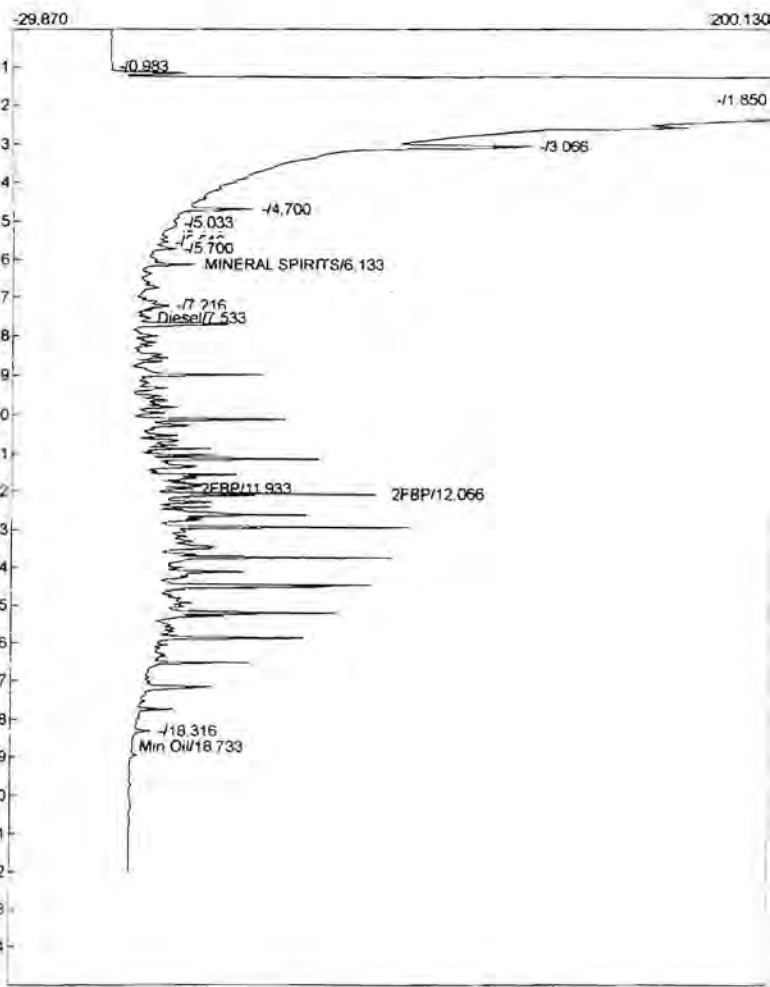
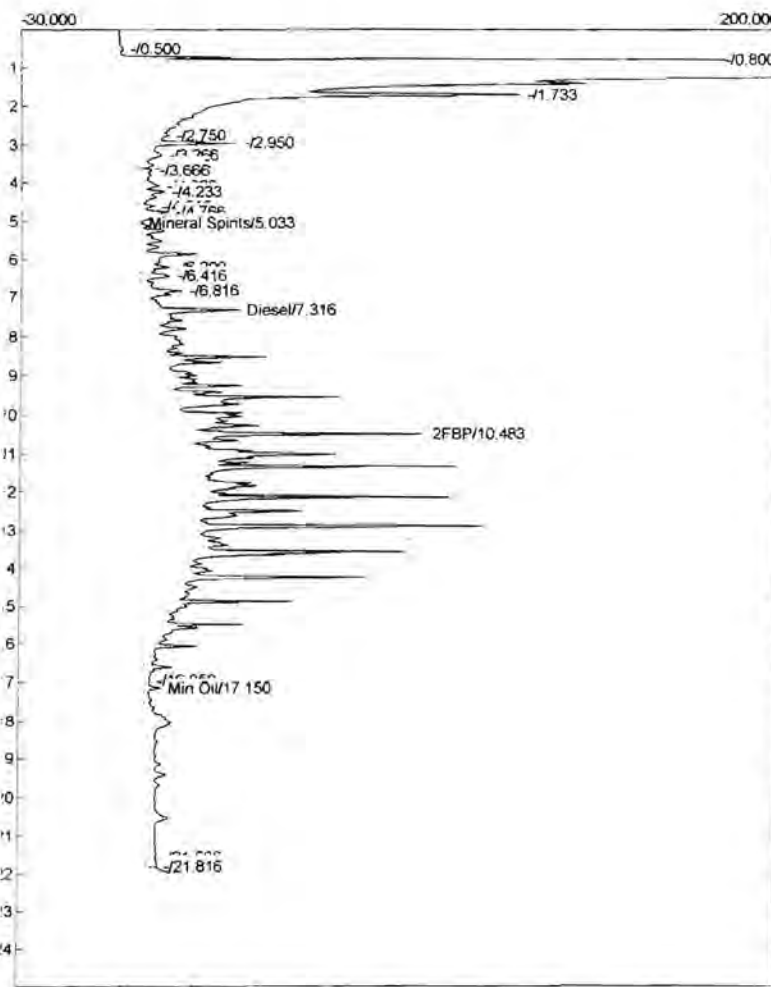
Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.083	84.6325	1.090	4.1869	PP	MINERAL SPIRITS	6.016	285.6170	7.733	20.1004	PP
Diesel	7.216	2410.4095	0.627	119.2471	ppm	Diesel	7.350	1849.7390	2.625	130.1759	ppm
2FBP	10.483	163.7695	10.998	6.5508	ppm	2FBP	11.916	20.8250	4.775	1.0413	ppm
Min Oil	17.116	1953.3665	4.269	0.0000		2FBP	12.050	56.8300	15.516	2.8415	ppm
						Min Oil	18.950	514.9365	2.757	36.3413	ppm
		4612.1780		129.9847							
								2727.9475		190.5003	

Analysis date: 03/14/2012 11:45:18

Analysis date: 03/14/2012 11:45:18

Method: Syringe Injection
Description: JAMACIA FID
Column: RESTEK 15METER MXT-1
Carrier: HELIUM AT 5 PSI
Data file: C622.CHR ()
Sample: 500 PPM Dx 704
Operator: KW

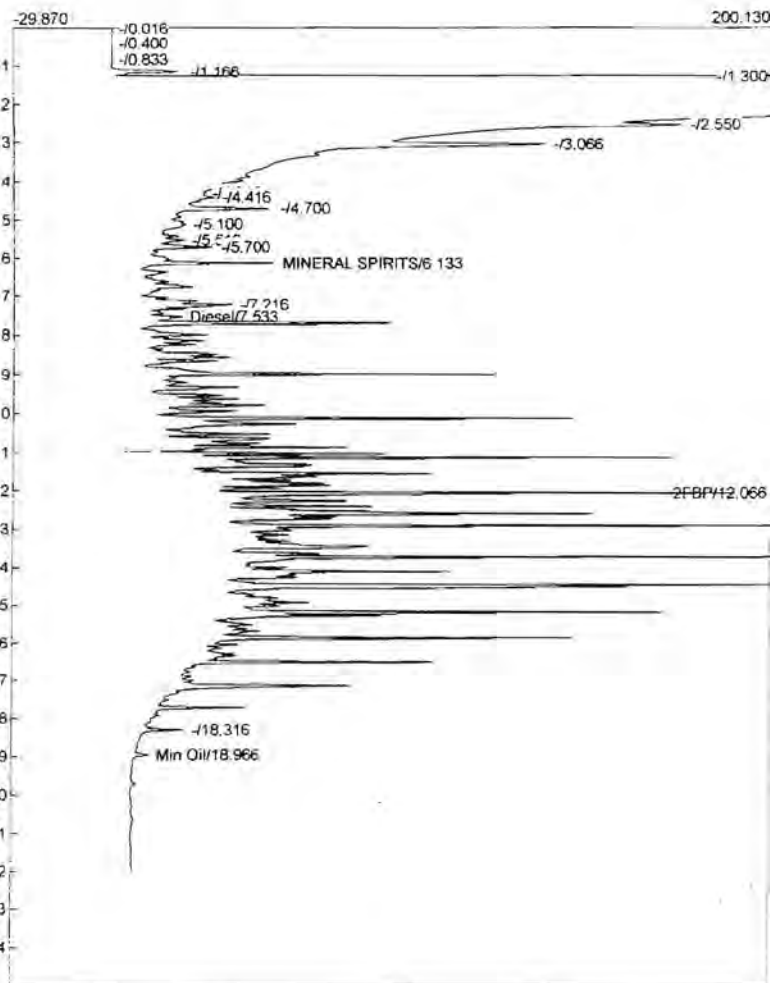
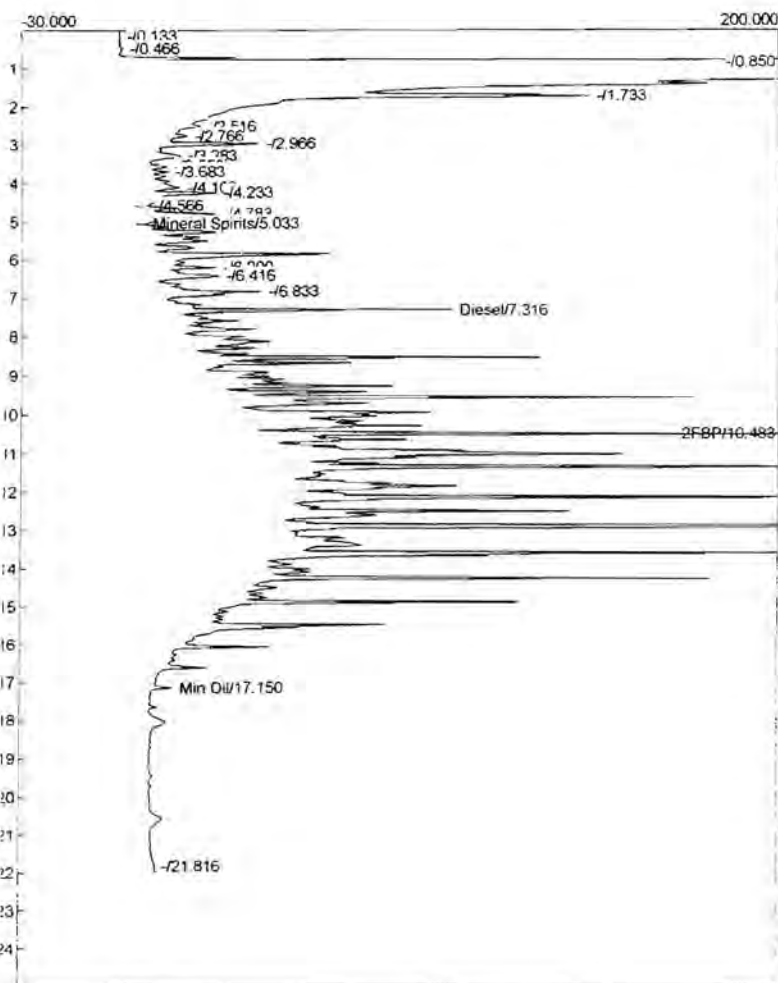
Method: Syringe Injection
Description: JAMACIA FID
Column: RESTEK 15METER MXT-1
Carrier: HELIUM AT 5 PSI
Data file: D628.CHR ()
Sample: 500 PPM Dx 704
Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.033	323.3415	0.632	15.9963	ppm	MINERAL SPIRITS	6.133	636.8190	24.452	44.8163	PPM
Diesel	7.316	11375.2115	30.144	562.7511	ppm	Diesel	7.533	9651.3385	9.725	679.2156	ppm
2FBP	10.483	668.0530	86.276	26.7221	ppm	2FBP	11.933	110.1285	21.943	5.5064	ppm
Min Oil	17.150	960.9820	5.210	0.0000	ppm	2FBP	12.066	325.1375	79.999	16.2569	ppm
						Min Oil	18.733	138.4670	1.874	9.7722	ppm
		13327.5880		605.4694				10861.8905		755.5674	

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 12:13:07
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C623.CHR ()
 Sample: 1000 PPM Dx 703
 Operator: KW

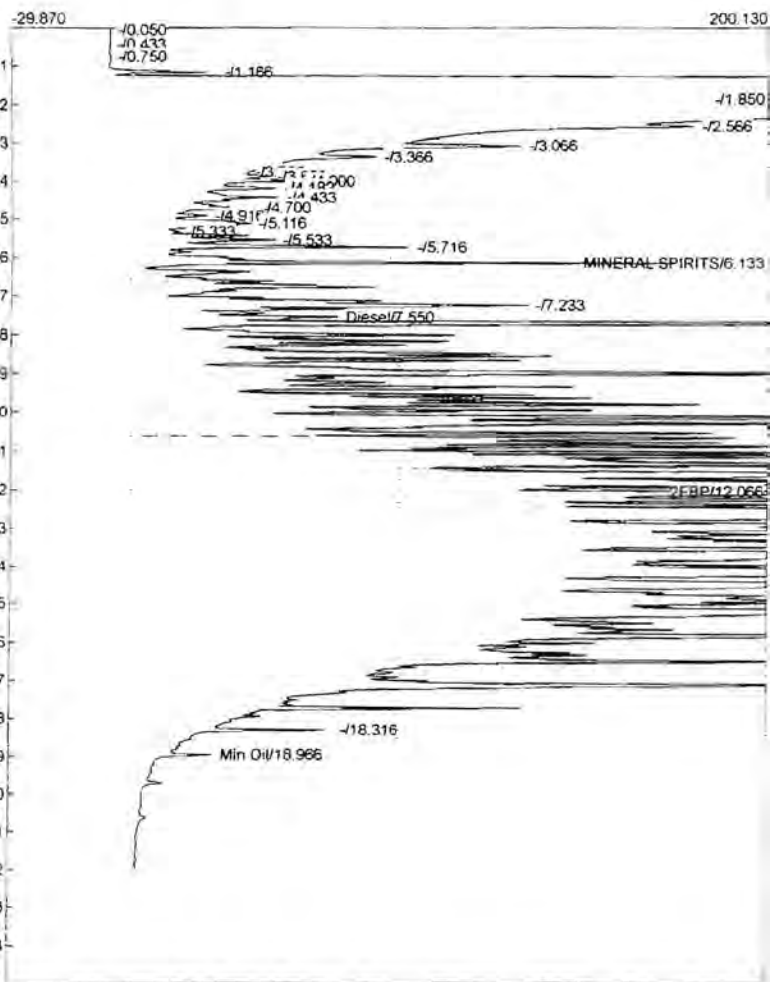
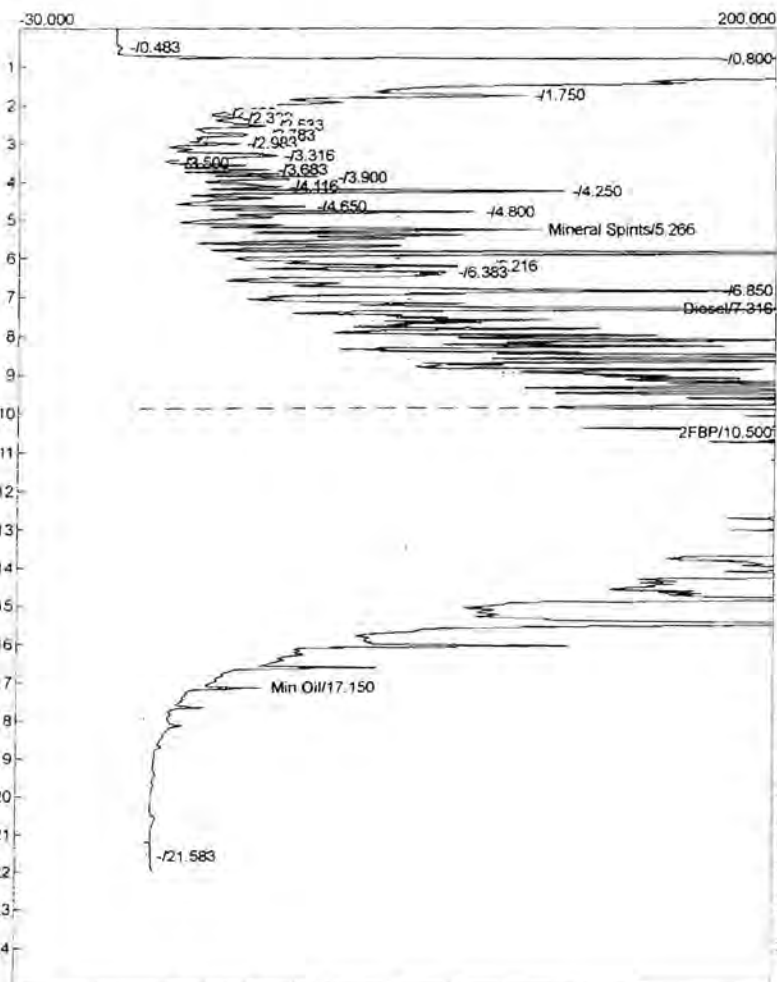
Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 12:13:07
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D629.CHR ()
 Sample: 1000 PPM Dx 703
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.033	995.3365	2.641	49.2410	pp	MINERAL SPIRITS	6.133	723.8390	45.571	50.9404	pp
Diesel	7.316	28291.8845	95.034	1399.6476	pp	Diesel	7.533	23510.5725	17.032	1654.5630	pp
2FBP	10.483	1579.9780	244.836	63.1991	pp	2FBP	12.066	1043.4695	193.880	52.1735	pp
Min Oil	17.150	221.1300	7.549	0.0000	pp	Min Oil	18.966	300.3670	6.980	21.1982	pp
		31088.3290		1512.0877				25578.2480		1778.8751	

Lab name: Eddy Environmental, Inc.
 Analysis date: 03/14/2012 12:41:16
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C624.CHR ()
 Sample: 5000 PPM Dx 702
 Operator: KW

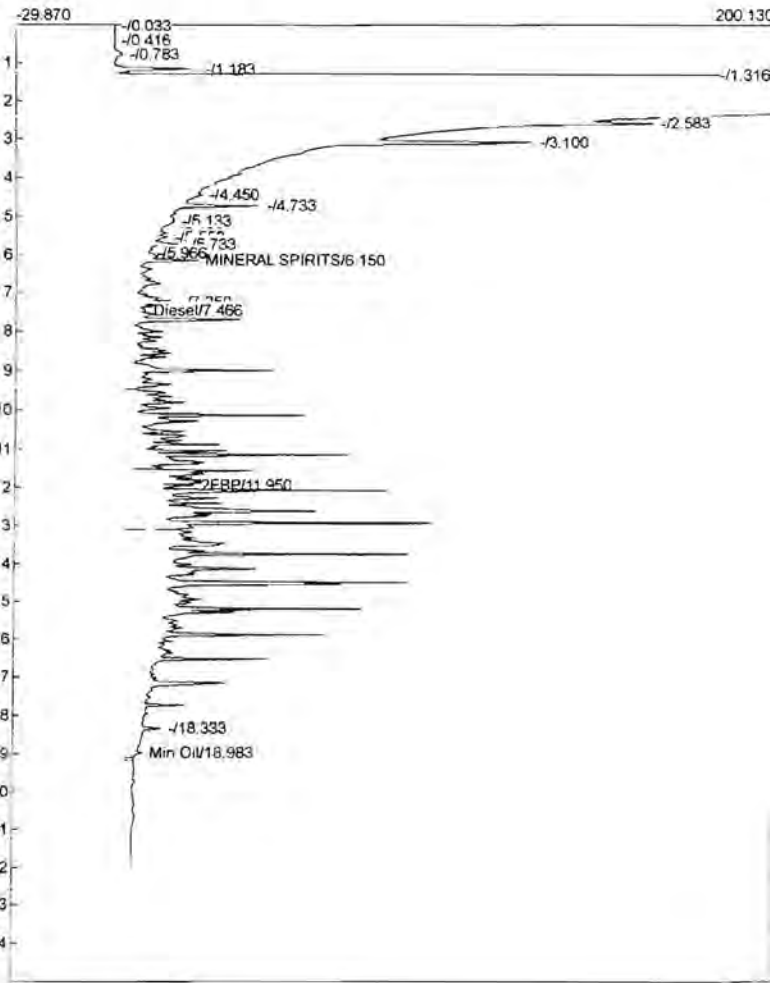
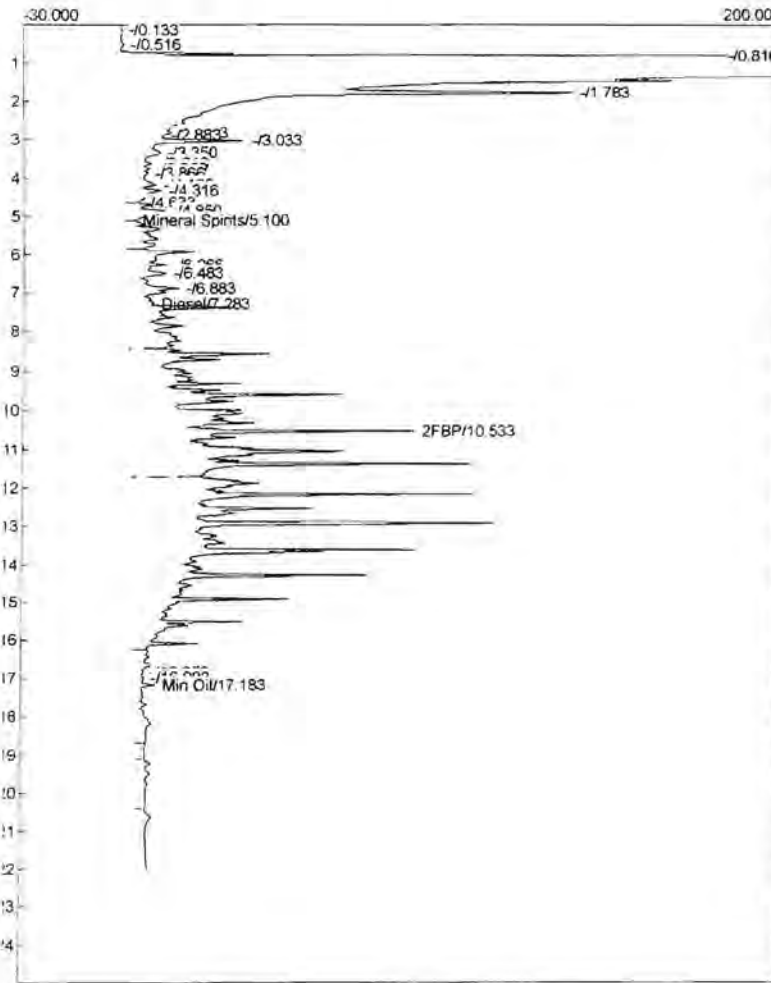
Analysis date: 03/14/2012 12:41:16
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D630.CHR ()
 Sample: 5000 PPM Dx 702
 Operator: KW



Component	Retention	Area	Height	External	UnComponent	Retention	Area	Height	External	U
Mineral Spirits	5.266	4030.7350	121.832	199.4073	MINERAL SPIRITS	6.133	2118.1620	172.994	149.0662	PF
Diesel	7.316	118321.9850	479.109	5853.5897	Diesel	7.550	97612.4720	63.265	6869.5047	pp
2FBP	10.500	6802.6800	1015.018	272.1072	2FBP	12.066	3390.2460	772.659	169.5123	pp
Min Oil	17.150	1309.9915	36.600	0.0000	Min Oil	18.966	734.9465	24.851	51.8684	pp
		130465.3915		6325.1043			103855.8265		7239.9516	

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 13:09:09
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C625.CHR ()
 Sample: 500 PPM Dx ICAL 707
 Operator: KW

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 13:09:09
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D631.CHR ()
 Sample: 500 PPM Dx ICAL 707
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.100	454.2775	2.261	22.4739	PP	MINERAL SPIRITS	6.150	431.9470	21.664	30.3984	PP
Diesel	7.283	12055.9145	7.302	415.8831	ppn	DIESEL	7.466	9633.4975	5.799	402.0800	ppn
2FBP	10.533	706.7050	85.875	28.2682	ppn	2FBP	11.950	98.4805	20.159	4.9240	ppn
Min Oil	17.183	642.7165	6.075	0.0000	Min Oil	18.983	249.4535	4.581	17.6050	ppn	
		13859.6135		466.6252				10413.3785		455.0074	



Libby Environmental, Inc.

4139 Libby Road NE • Olympia, WA 98506-2518

November 8, 2012

Neil Morton
GeoEngineers Inc.
600 Stewart Street, Suite 1700
Seattle, WA 98101

Dear Mr. Morton:

Please find enclosed the analytical data report for the Irondale Project located in Irondale, Washington. Soil samples were analyzed for Diesel & Oil by NWTPH-Dx/Dx Extended with Silica Gel Clean Up on October 11, 2012.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. All soil samples are reported on a dry weight basis. An invoice for this analytical work is enclosed.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Jamie L. Deyman
President
Libby Environmental, Inc.

Phone (360) 352-2110 • Fax (360) 352-4154 • libbyenv@aol.com

www.LibbyEnvironmental.com



Libby Environmental, Inc.

Case Narrative

Libby Project #: L121011-30
Date: 11-9-2012

CLIENT: GeoEngineers, Inc.
PROJECT: Irondale

I. SAMPLE RECEIPT:

All samples were received intact and in good condition. See the attached Sample Receipt Check List for more information.

II. GENERAL REPORTING COMMENTS:

Final results are reported on a dry weight basis. The soil samples in the field are estimated to have a moisture content of 15%. This estimate is useful in producing data that is close to the actual value. After the sample is analyzed for soil moisture at our fixed base facility, the final data is reported based on measured soil moisture. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS), the Laboratory Control Sample Duplicate (LCSD) and the Method Blank (MB). The LCS, LCSD and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) and/or noted below.

Notes:

N/A

Libby Environmental, Inc.

Chain of Custody Record

1020

4139 Libby Road NE
Olympia, WA 98506

Ph: 360-352-2110
Fax: 360-352-4154

Date: 10-11-12

Page: 1 of

Client: Geo Engineers

Project Manager: Neil Norton

Address:

Project Name: Irondale

Phone: Fax:

Location: WA

City: Irondale

Client Project #

Collector: Paul Robinette

Date of Collection: 10/10-11/12

Sample Number	Depth	Time	Sample Type	Container Type	Analytes										Field Notes									
					VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEMI VOL 8270	NWTPH-HCID	NWTPH-Gx	NWTPH-Dx	PAH 8270	PCBs 8082	MTCA 6 Metals										
1 SURZ-ESWI-101012		1205	Soil	4oz Jar																			Extract & Hold	
2 SUR IRZ-ESWI-101112		920	Soil	4oz Jar																				
3 IRZ-SSWI-101112		925	Soil	4oz Jar																				
4 IRZ-BI-101112		1345	Soil	4oz Jar																				Extract & Hold
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								
13																								
14																								
15																								
16																								
17																								
18																								

Relinquished by: <i>Paul Robinette</i>	Date / Time: 10/11/12 15:00	Received by: <i>Paul Robinette</i>	Date / Time: 10/11/12 15:10	Sample Receipt:	Remarks:
Relinquished by:	Date / Time:	Received by:	Date / Time:	Good Condition?	
				Cold?	
				Seals Intact?	
Relinquished by:	Date / Time:	Received by:	Date / Time:	Total Number of Containers:	

Libby Environmental, Inc. Login Sample Receipt Check List

Client: GeoEngineers, Inc. **Libby Project Number:** L121011-30

Question	T / F / NA	Comment
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler temperature is acceptable.	True	
COC is present.	True	
COC is filled out in ink and is legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within the Hold Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs.	True	
VOA sample vials do not have headspace or bubble is less than 6mm (1/4 in.) in diameter.	True	
If necessary, staff has been informed of any short hold time or quick TAT needs.	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	

Libby Environmental, Inc.

4139 Libby Road NE
Olympia, WA 98506
Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@aol.com

IRONDALE PROJECT
GeoEngineers, Inc.
Irondale, Washington
Libby Project # L121011-30
Client Project # 0504-042-02

Analyses of Diesel & Oil Range (NWTPH-Dx/Dx Extended) in Soil w/ Silica Gel Cleanup

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Bunker C (mg/kg)
Method Blank	10/11/12	91	nd	nd
LCS	10/11/12	int	108%	
LCSD	10/11/12	int	102%	
SURZ-ESW1-101012	10/11/12	111	nd	nd
SURZ-ESW1-101012 Dup	10/11/12	93	nd	nd
IRZ-ESW1-101112	10/11/12	94	nd	49
IRZ-SSW1-101112	10/11/12	128	nd	58
IRZ-B1-101112	10/11/12	122	nd	2340
Practical Quantitation Limit			25	40

"nd" Indicates not detected at the listed detection limits

"int" Indicates that interference prevents determination

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

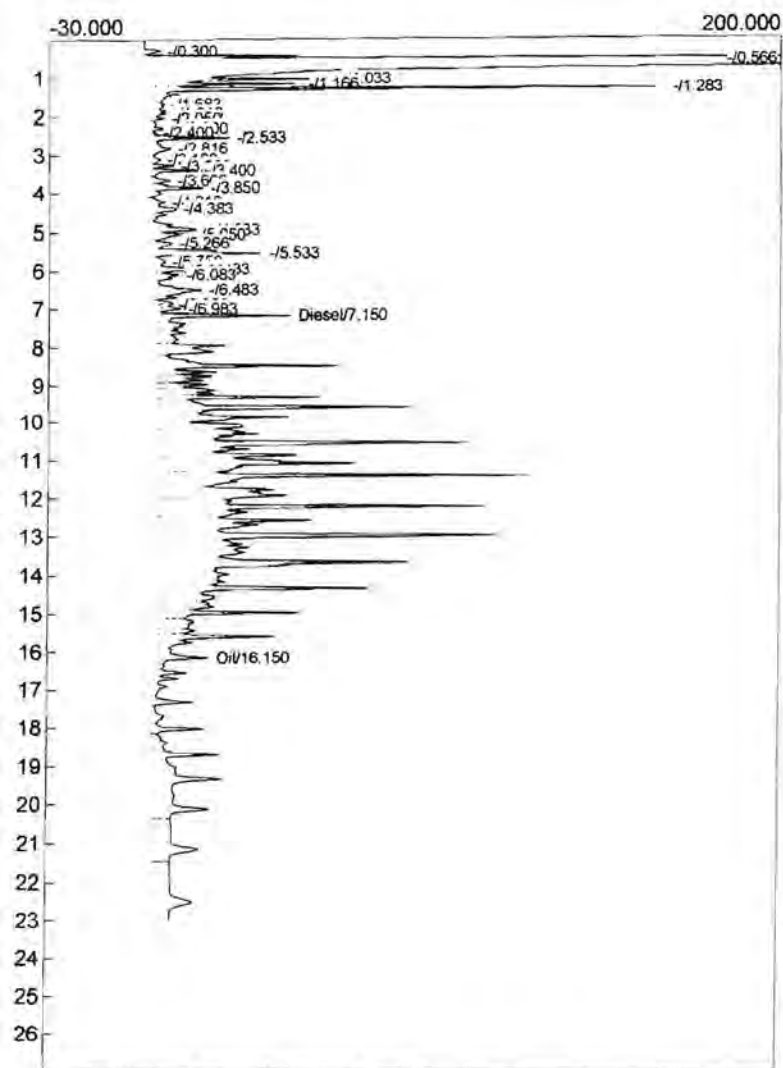
Lab name: Lobby Environmental
 Analysis date: 10/11/2012 07:10:01
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C283.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp	Hold	Ramp	Final temp
-----------	------	------	------------

Events:

Time	Event
0.000	ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.150	11403.6935	41.104	562.1011	ppm
Oil	16.150	2058.9455	15.808	101.2257	ppm
		13462.6390		663.3267	

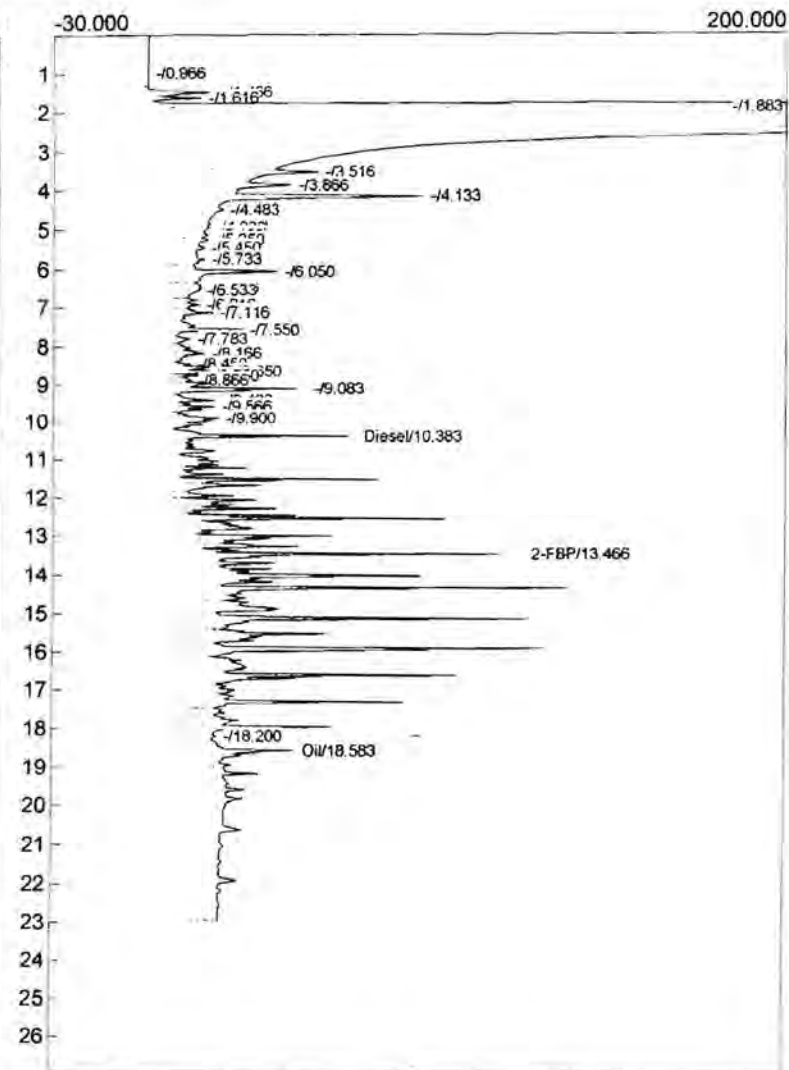
Analysis date: 10/11/2012 07:10:01
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D281.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp	Hold	Ramp	Final temp
-----------	------	------	------------

Events:

Time	Event
0.000	ZERO



Component	Retention	Area	Height	External	Units
Diesel	10.383	9802.9250	57.480	520.6436	ppm
2-FBP	13.466	536.5880	110.243	18.6632	ppm
Oil	18.583	4524.5195	38.532	239.1965	ppm
		14864.0125		778.5033	

Analysis date: 10/11/2012 07:39:00
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C284.CHR ()
 Sample: 1000 ppm LCS 343
 Operator: PB

Analysis date: 10/11/2012 07:39:00
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D282.CHR ()
 Sample: 1000 ppm LCSD 343
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

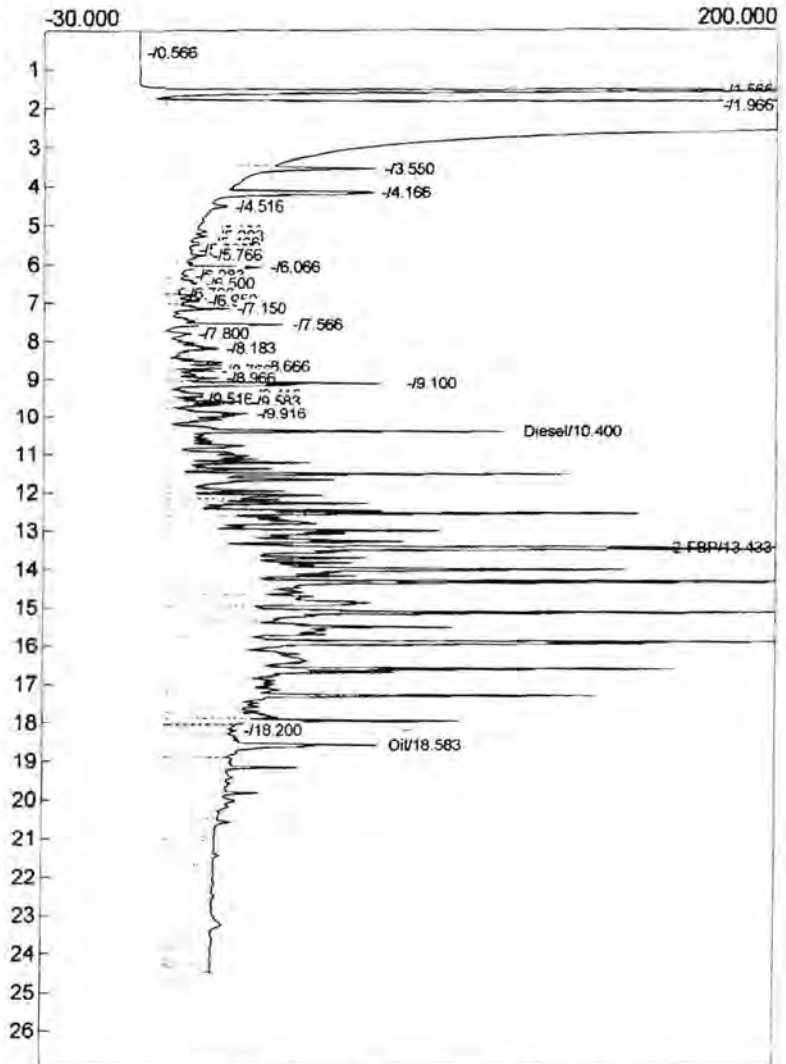
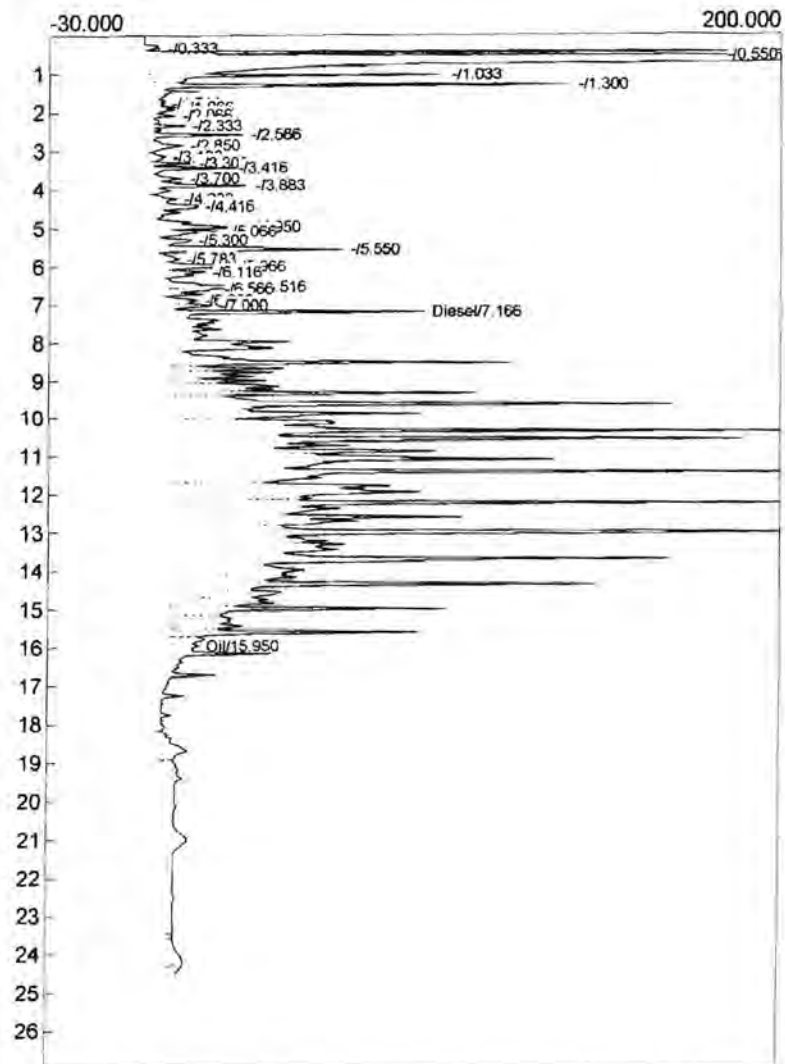
Time Event
 0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.166	21913.1075	78.829	1084.0344	ppm
Oil	15.950	1317.7720	7.822	64.7867	ppm
		23230.8795		1148.8212	

108%

Component	Retention	Area	Height	External	Units
Diesel	10.400	19122.2395	109.592	1024.0671	ppm
2-FBP	13.433	1455.3620	202.793	50.6213	ppm
Oil	18.583	6240.0300	67.226	330.4030	ppm
		26817.6315		1405.0914	

-102%

Analysis date: 10/11/2012 08:11:55

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: C285.CHR ()

Sample: Method Blank

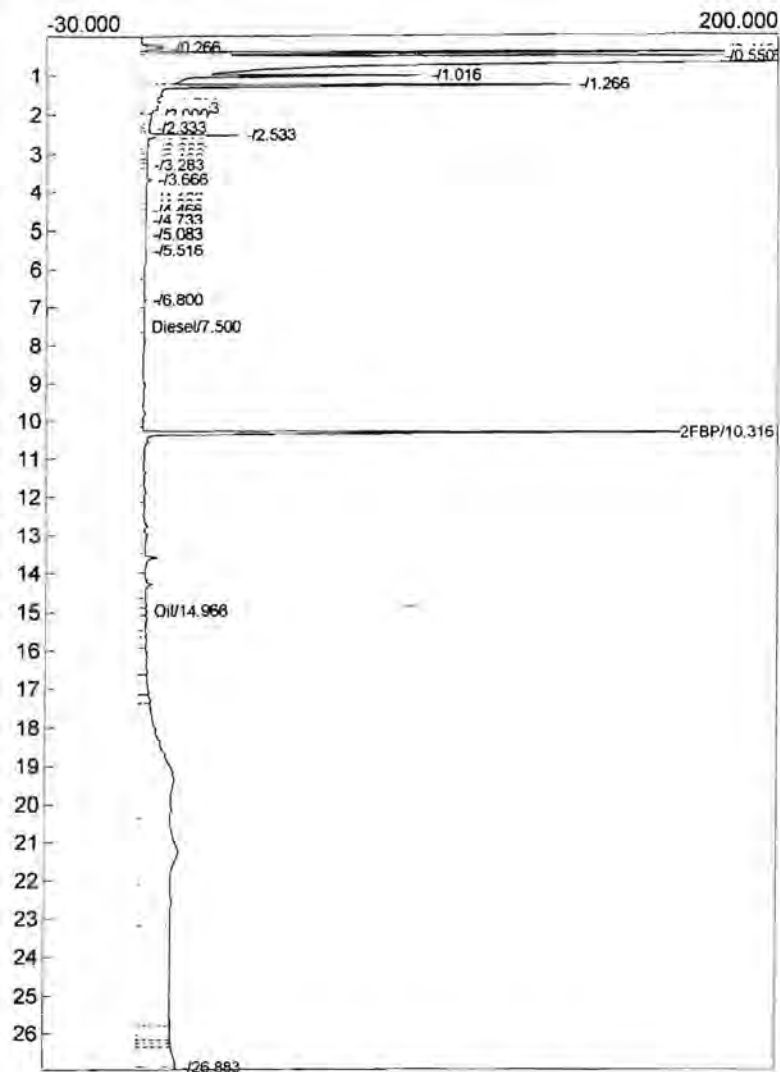
Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.500	798.7810	0.282	39.2712	ppm
2-FBP	10.316	570.7880	198.960	22.8315	ppm
Oil	14.966	5221.5660	1.400	256.8698	ppm
		6591.1350		318.9724	

114%

Analysis date: 10/11/2012 08:11:55

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: D283.CHR ()

Sample: Method Blank

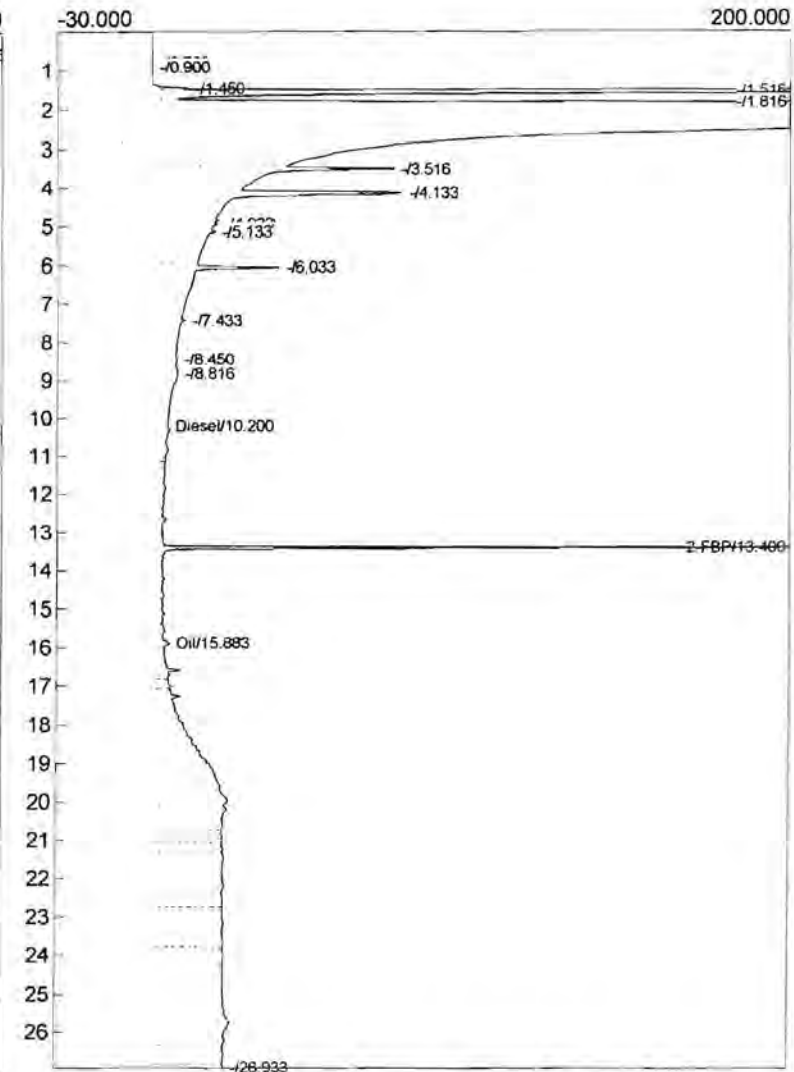
Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	10.200	791.4460	2.064	41.7951	ppm
2-FBP	13.400	525.6120	230.178	18.2822	ppm
Oil	15.883	10408.7680	2.632	553.0731	ppm
		11725.8260		613.1504	

91%

Analysis date: 10/11/2012 08:11:55

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: C285.CHR ()

Sample: Method Blank

Operator: PB

USED for Bunker C airblank only

Analysis date: 10/11/2012 08:11:55

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: D283.CHR ()

Sample: Method Blank

Operator: PB

USED for Bunker C airblank only

Temperature program:

Init temp Hold Ramp Final temp

Events:

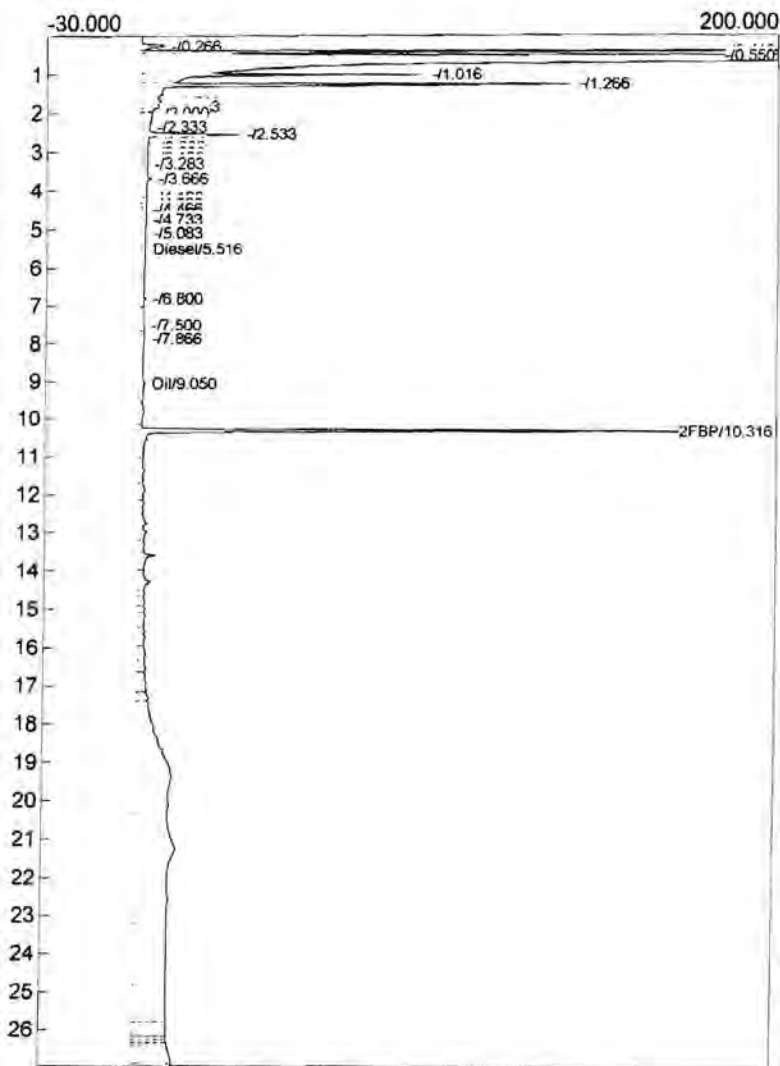
Time Event
0.000 ZERO

Temperature program:

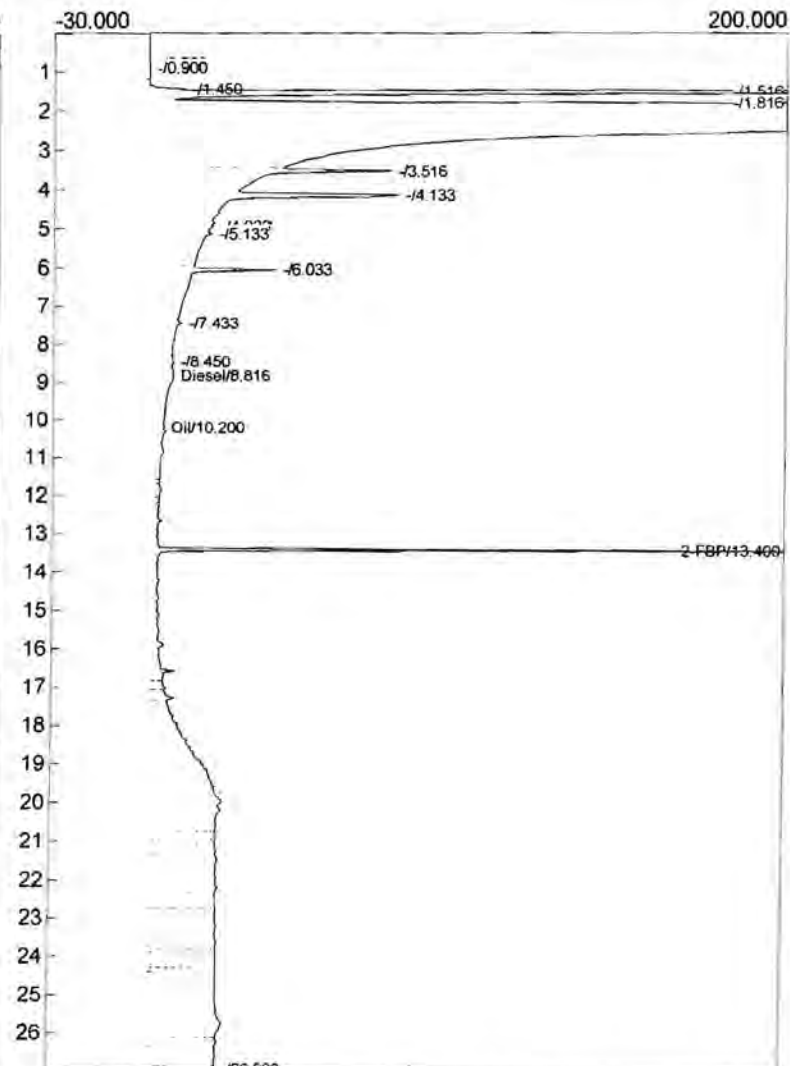
Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.516	16.9020	0.521	0.8310	ppm
Oil	9.050	6039.2545	0.601	297.1821	ppm
2-FBP	10.316	570.7880	198.960	22.8315	ppm
		6626.9445		320.8446	



Component	Retention	Area	Height	External	Units
Diesel	8.816	317.4920	4.982	16.7663	ppm
Oil	10.200	11200.2140	2.064	595.4377	ppm
2-FBP	13.400	525.6120	230.178	18.2822	ppm
		12043.3180		630.4861	

Analysis date: 10/11/2012 08:50:27
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C286.CHR ()
 Sample: SURZ-ESW1-101012
 Operator: PB

Analysis date: 10/11/2012 08:50:27
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D284.CHR ()
 Sample: SURZ-ESW1-101012 Dup
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

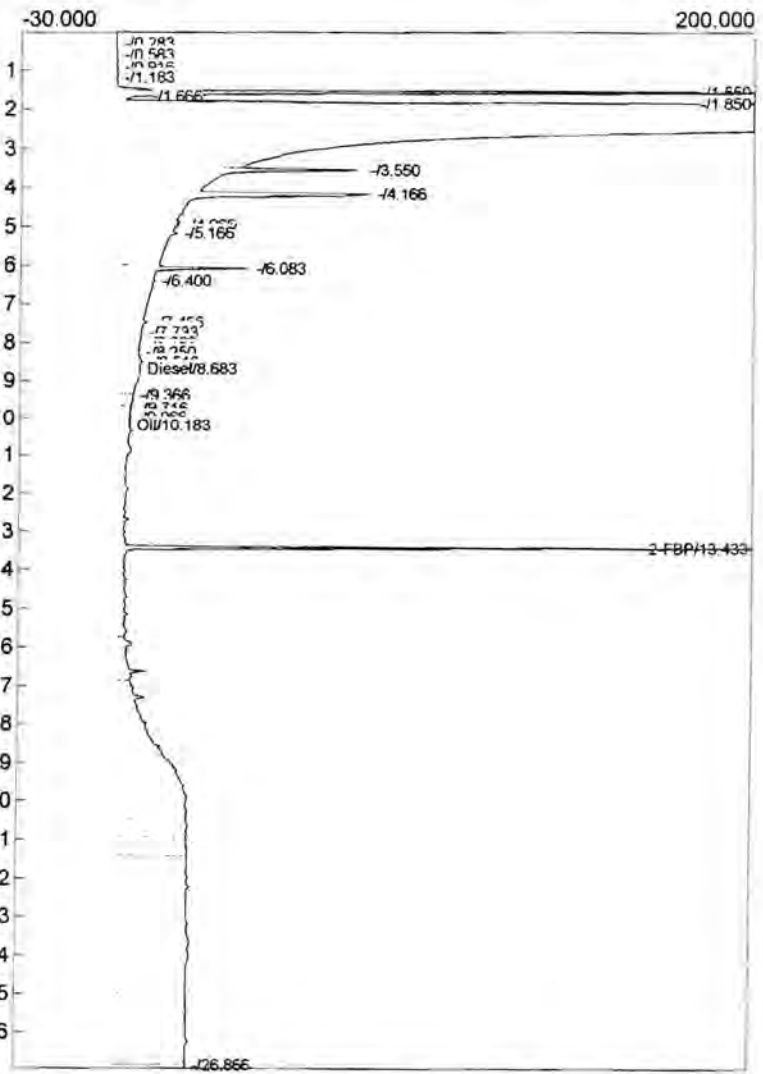
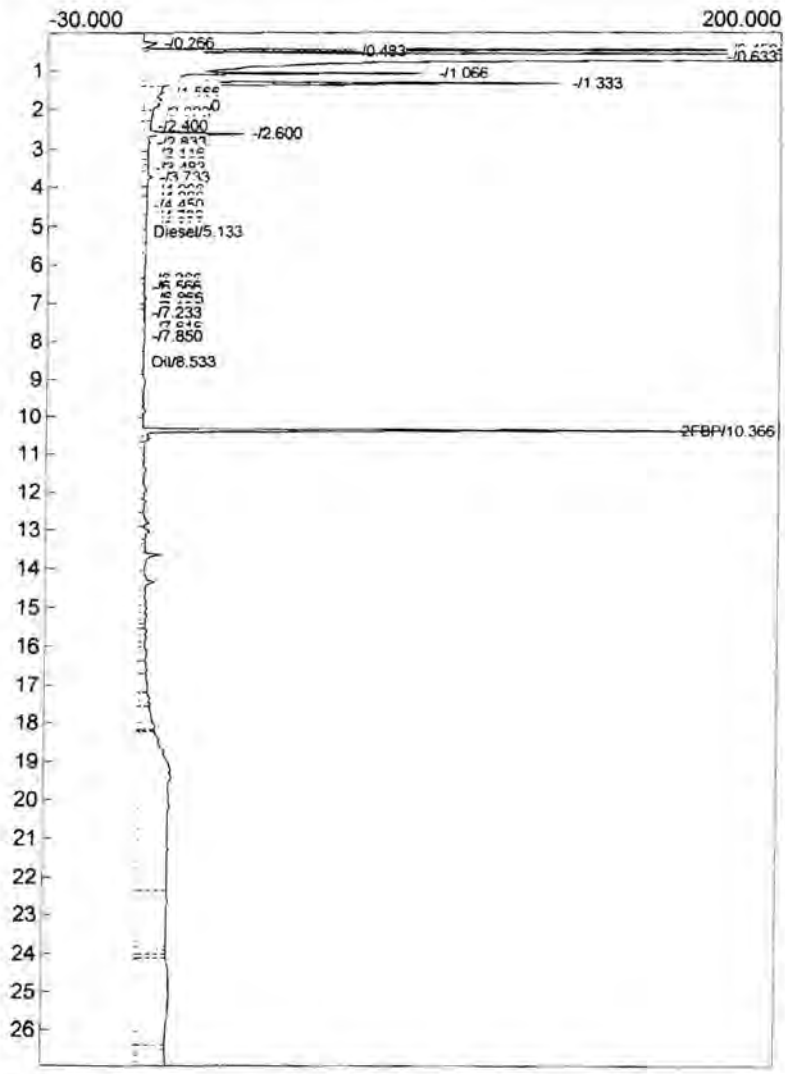
Time Event
 0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.133	38.8075	0.657	1.9079	ppm
Oil	8.533	5962.4615	0.236	293.3962	ppm
FBP	10.366	554.4700	206.946	22.1788	ppm
		6555.7390		317.4829	

Component	Retention	Area	Height	External	Units
Diesel	8.683	182.9090	4.866	9.6592	ppm
Oil	10.183	11520.3630	1.709	612.8608	ppm
2-FBP	13.433	535.9005	239.069	18.6400	ppm
		12239.1725		640.9600	

nd 111%

nd 93%

Analysis date: 10/11/2012 10:36:28
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C287.CHR ()
 Sample: IRZ-SSW1-101112
 Operator: PB

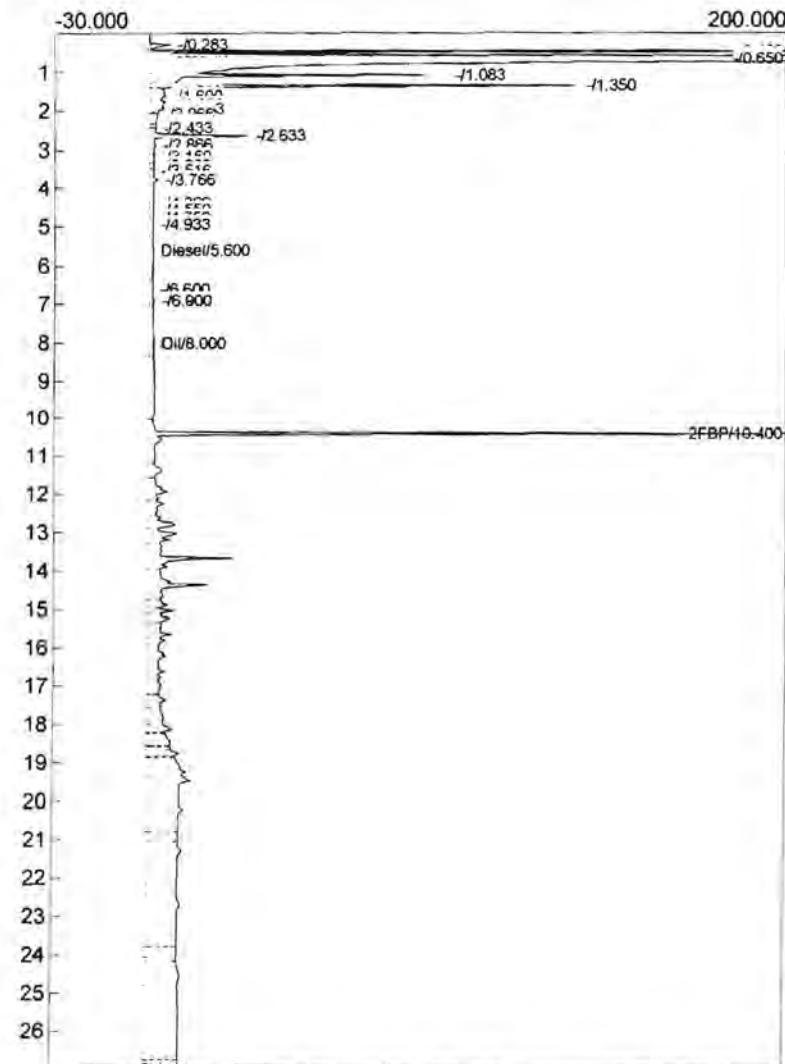
Analysis date: 10/11/2012 10:36:28
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D285.CHR ()
 Sample: IRZ-ESW1-101112
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



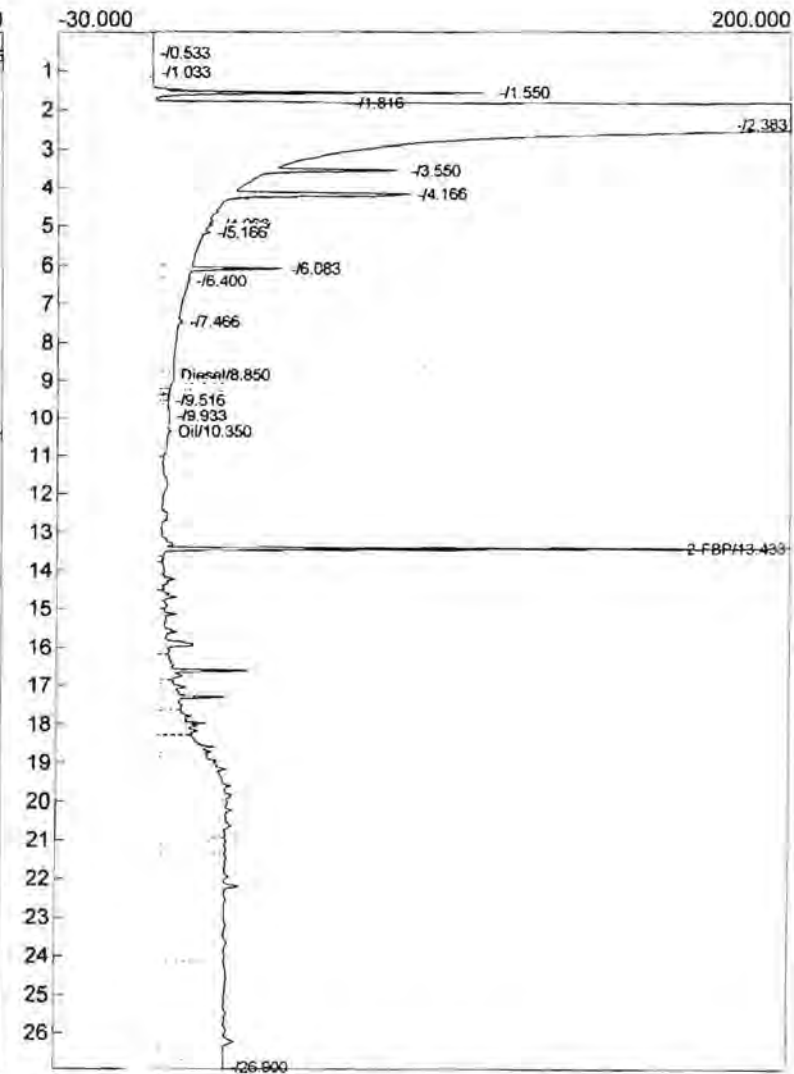
Component	Retention	Area	Height	External	Units
Diesel	5.600	18.9015	0.366	0.9293	ppm
Oil	8.000	7170.5550	0.608	352.9557	ppm
2-FBP	10.400	639.9325	230.247	25.5973	ppm
		7829.3890		379.4822	

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	8.850	76.7020	3.270	4.0505	ppm
Oil	10.350	12020.0210	2.511	639.5900	ppm
2-FBP	13.433	539.0140	240.434	18.7483	ppm
		12635.7370		662.3888	

128%
 $353 - 297 = 56 \text{ ppm}$
 Bunker C
 $MC \times \frac{1.004}{1.0378} = 58.1$

94%
 $640 - 595 = 45 \text{ ppm}$
 Bunker C
 $MC \times 1.0897 = 49.0$

Analysis date: 10/11/2012 13:18:30

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: C288.CHR ()

Sample: 500 ppm Diesel 791

Operator: PB

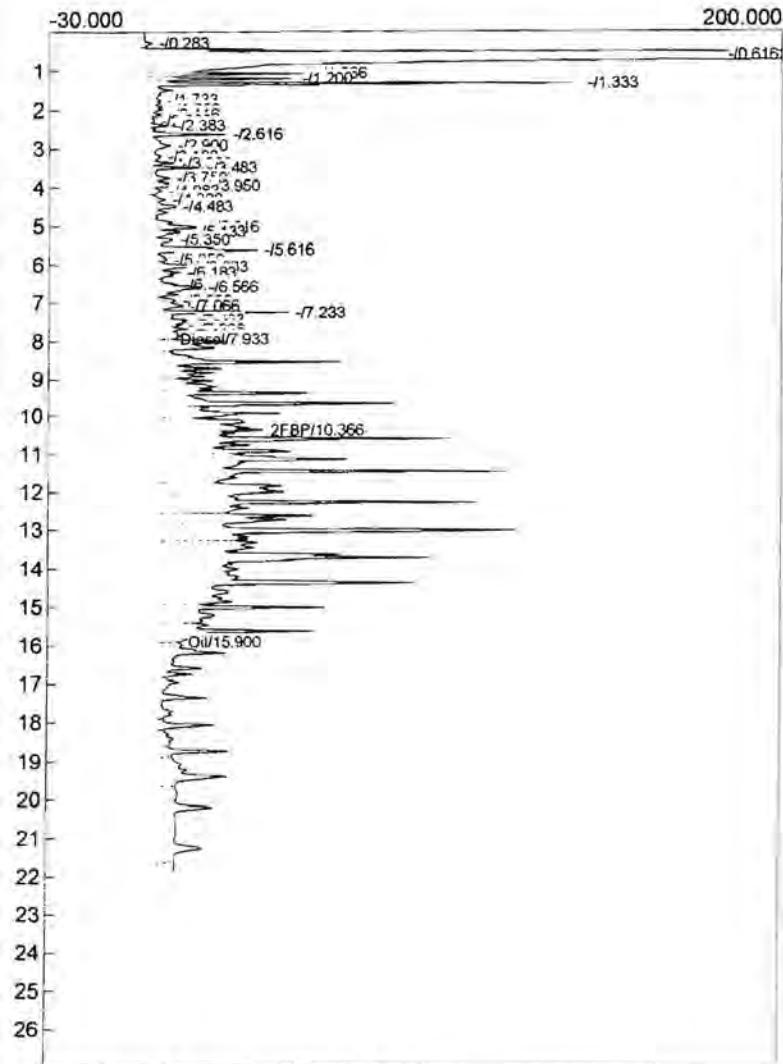
Not used

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.933	11369.9205	2.845	560.4314	ppm
2-FBP	10.366	365.3300	31.554	14.6132	ppm
Oil	15.900	1720.2515	5.519	84.5742	ppm
		13455.5020		659.6188	

Analysis date: 10/11/2012 13:18:30

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: D286.CHR ()

Sample: 500 ppm Diesel 791

Operator: PB

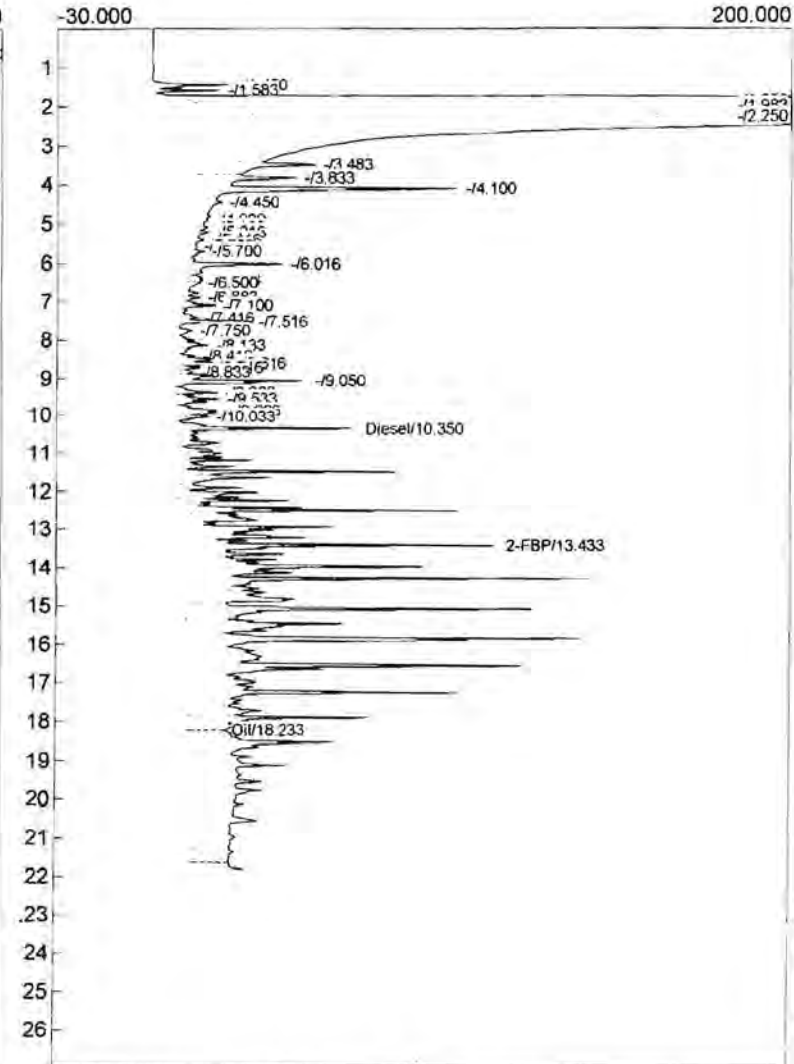
Not used

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	10.350	10136.4810	56.356	538.4982	ppm
2-FBP	13.433	474.3220	99.052	16.4982	ppm
Oil	18.233	2979.5630	10.688	157.3463	ppm
		13590.3660		712.3426	

Analysis date: 10/11/2012 14:14:35
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C289.CHR ()
 Sample: IRZ-B1-101112 1:4
 Operator: PB

Analysis date: 10/11/2012 14:14:35
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D287.CHR ()
 Sample: No Sample
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

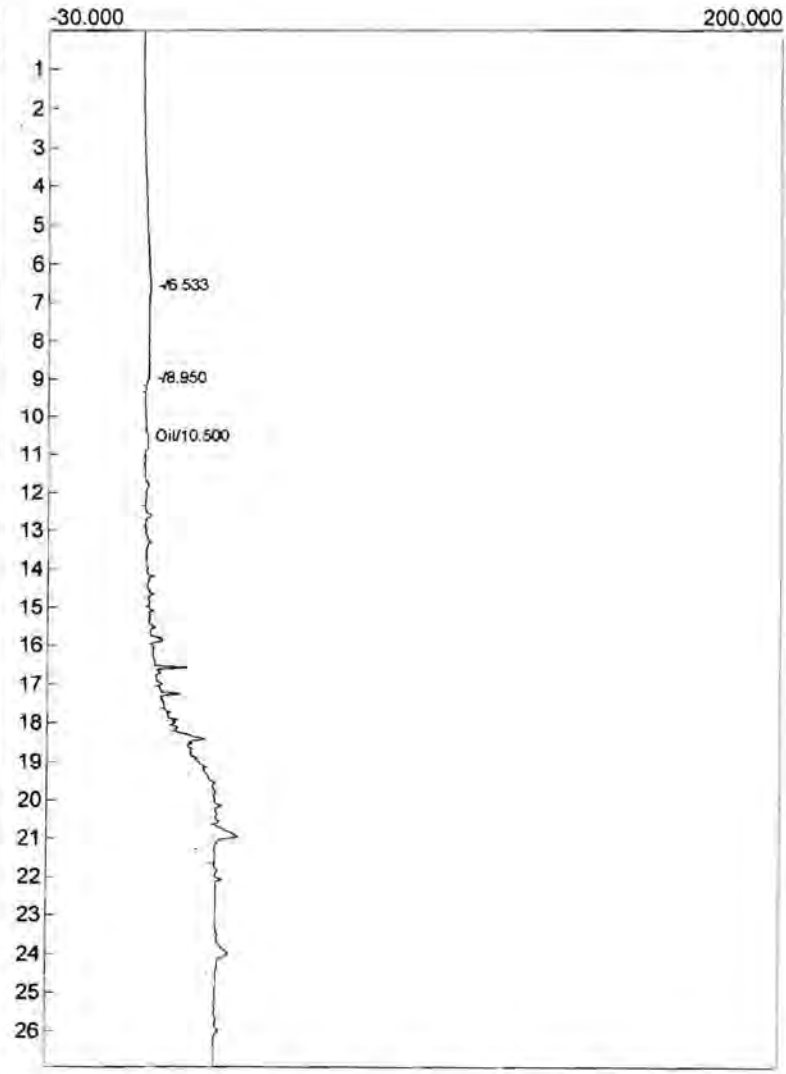
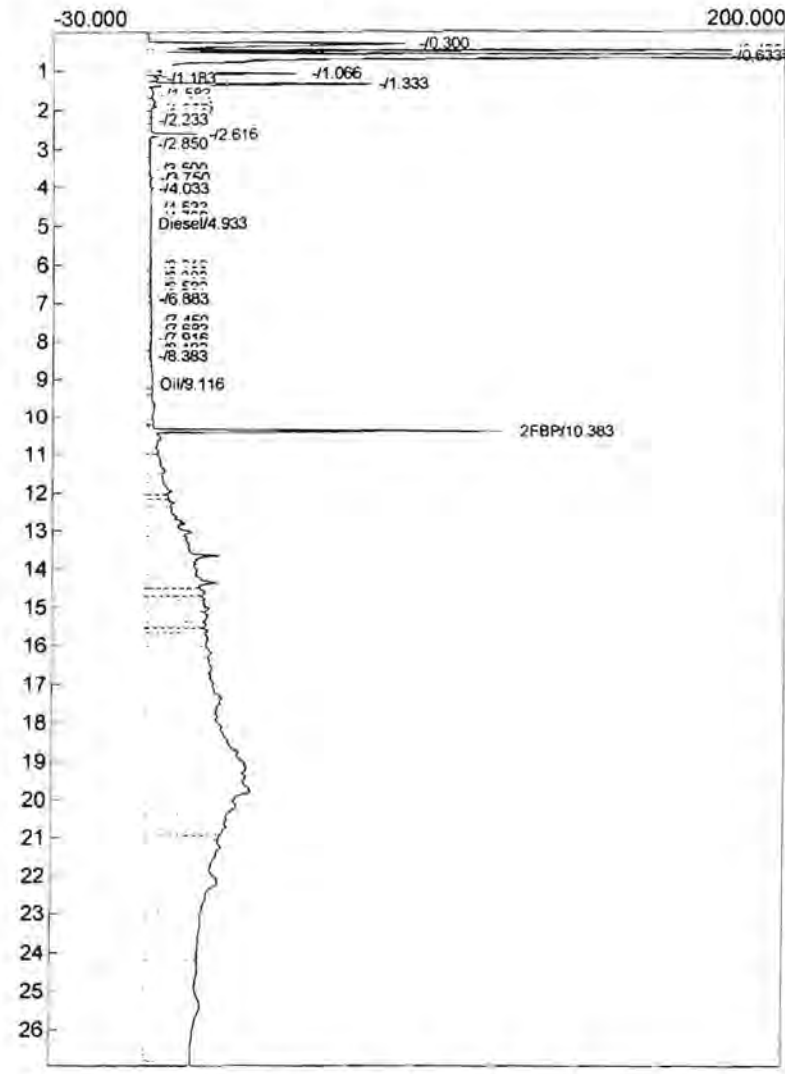
Time Event
 0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	4.933	16.8865	0.397	0.8302	ppm
Oil	9.116	17606.1760	1.168	869.6822	ppm
FBP	10.383	304.8900	114.564	12.1956	ppm
		17927.9525		882.7080	

Component	Retention	Area	Height	External	Units
Oil	10.500	2498.3000	0.852	131.9315	ppm
		2498.3000		131.9315	

$870 - 297 = 573$
 $\times 4$

 2292
 122%
 2290 ppm
 Bunker C
 $mc \times 1.0228 = 2342$

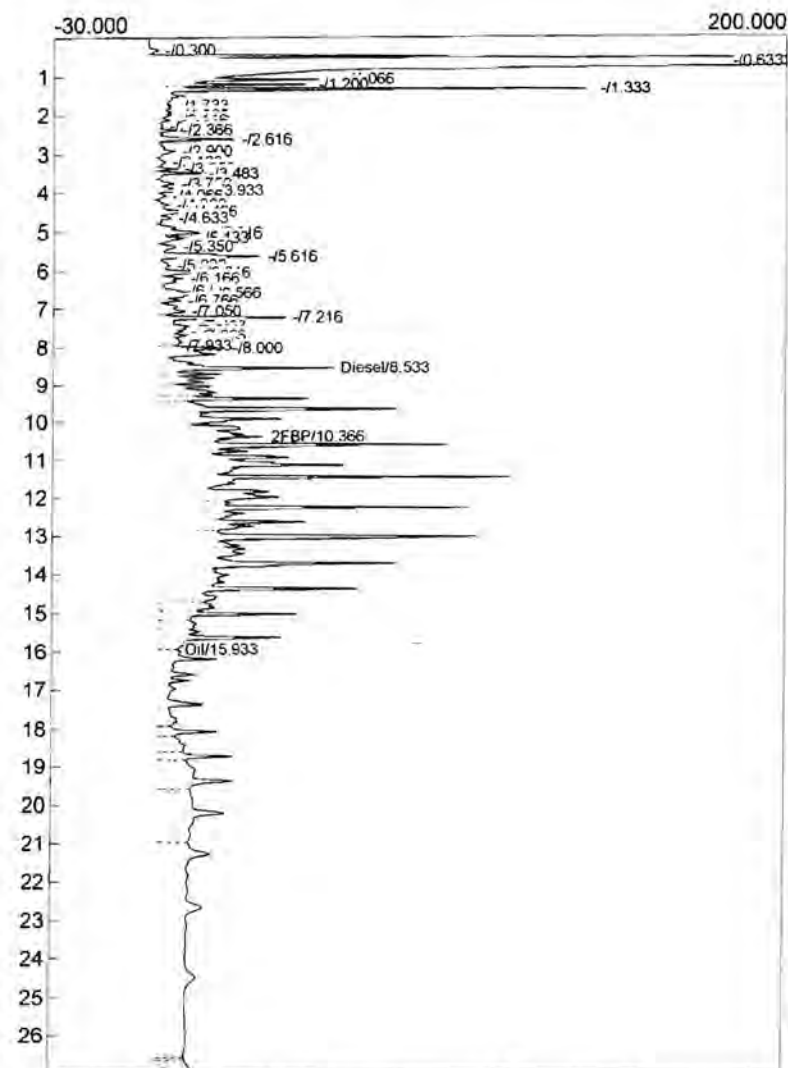
Analysis date: 10/11/2012 14:50:06
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C290.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	8.533	10366.2920	54.094	510.8144	ppm
2-FBP	10.366	360.2660	32.429	14.4106	ppm
Oil	15.933	5569.5515	5.239	274.0256	ppm
		16296.1095		799.2506	

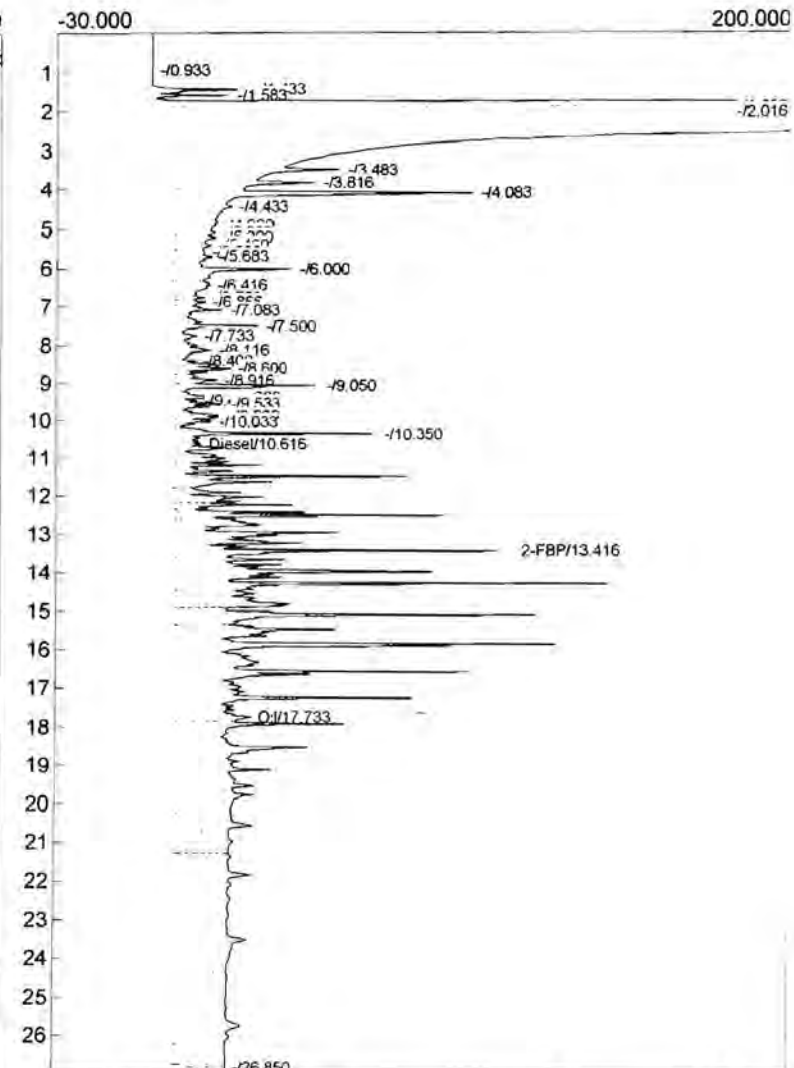
Analysis date: 10/11/2012 14:50:06
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D288.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

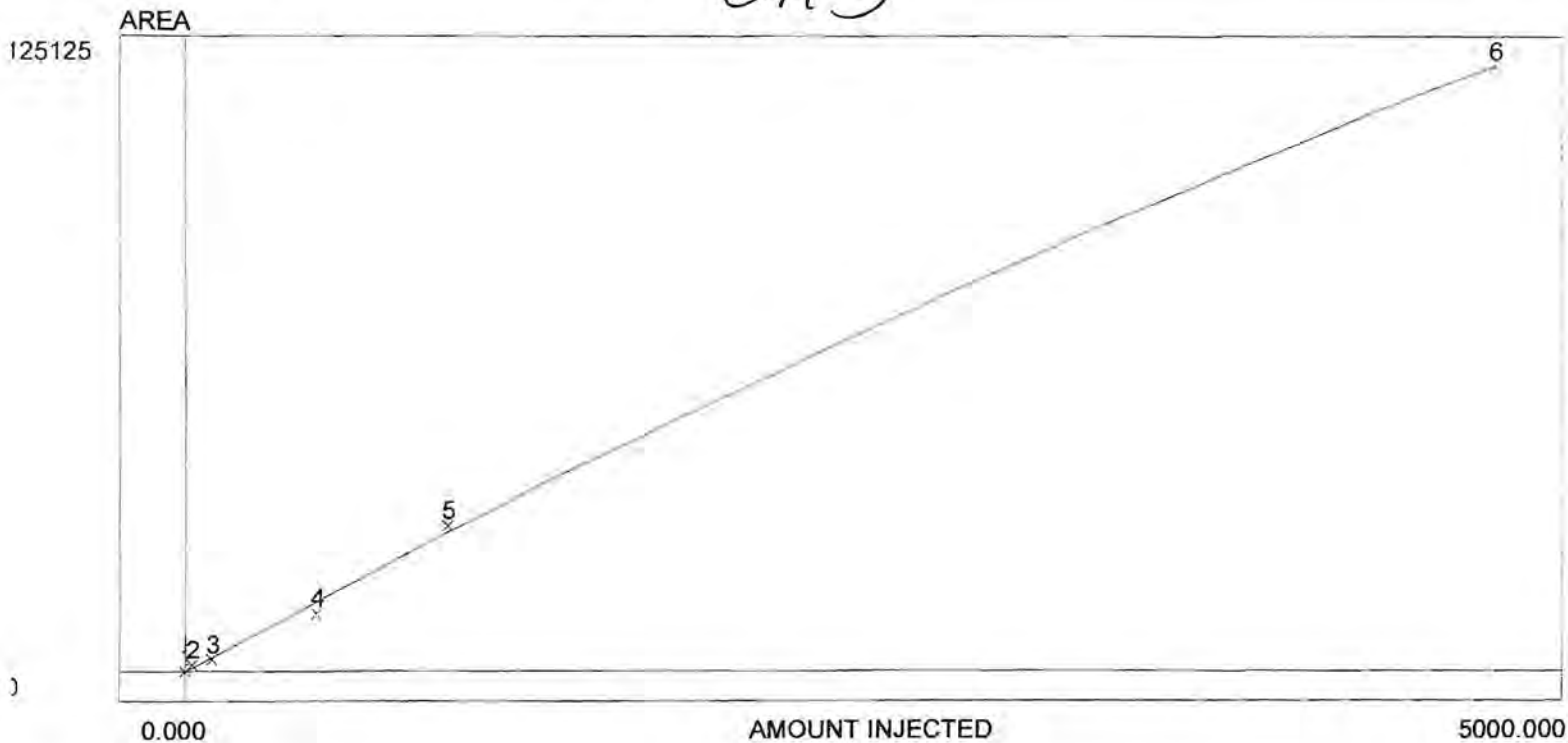
Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	10.616	9818.5970	8.077	521.4825	ppm
2-FBP	13.416	575.4240	106.050	20.0147	ppm
Oil	17.733	9651.1665	23.295	512.5202	ppm
		20045.1875		1054.0175	

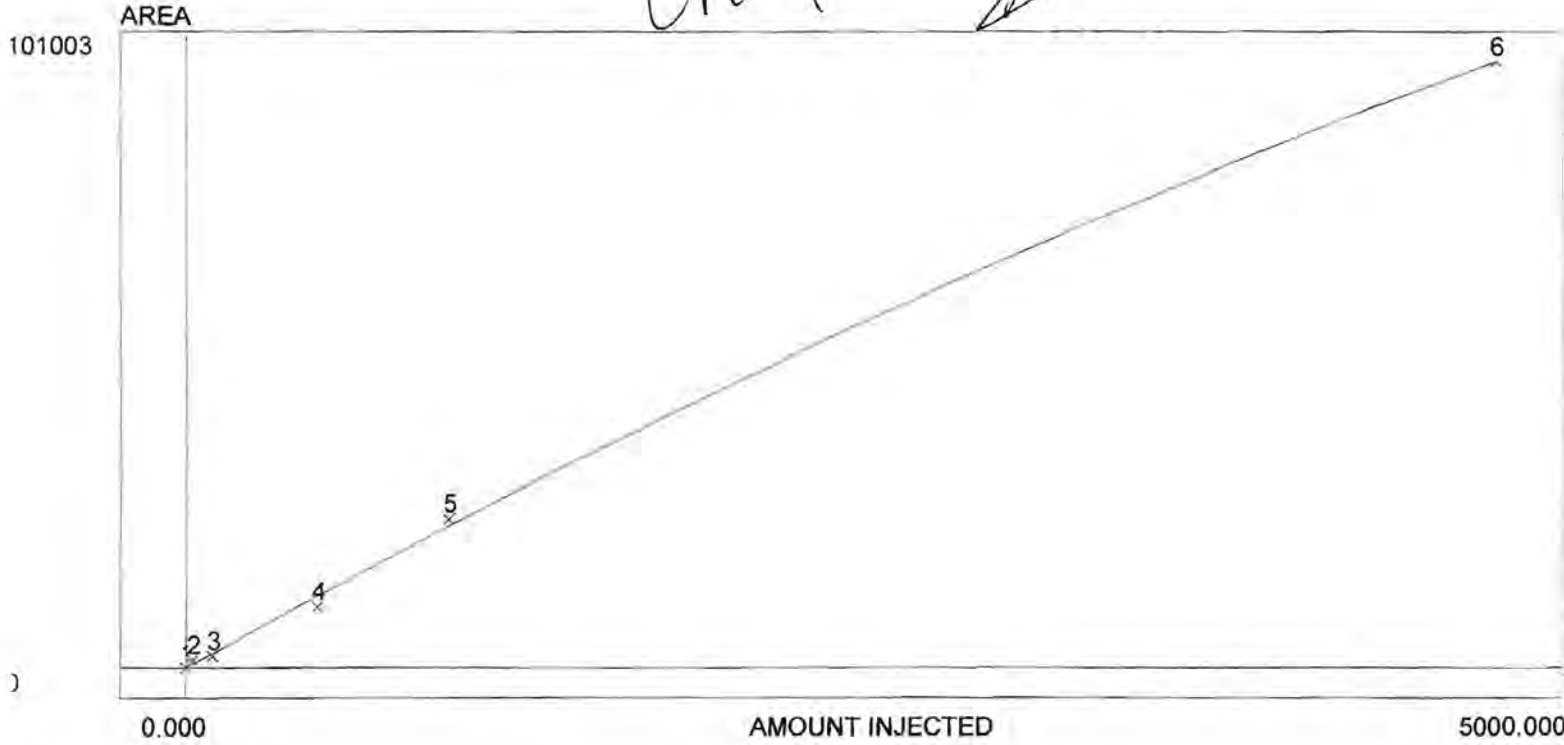
Ch 3



Avg slope of curve: 25.03
 Y-axis intercept: 0.00
 Linearity: 0.86
 Number of levels: 6
 SD/rel SD of CF's: 18.0/66.9
 $Y = -0.0009X^2 + 29.3544X$
 R²: 0.9993
 Last calibrated: Wed Mar 14 13:52:31 2012

Level	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	1410.471	25.000	56.419	1410.471	N/A	N/A
3	2574.179	100.000	25.742	2574.179	N/A	N/A
4	12043.265	500.000	24.087	12043.265	N/A	N/A
5	29871.863	1000.000	29.872	29871.863	N/A	N/A
6	125124.670	5000.000	25.025	125124.670	N/A	N/A

Ch 4 

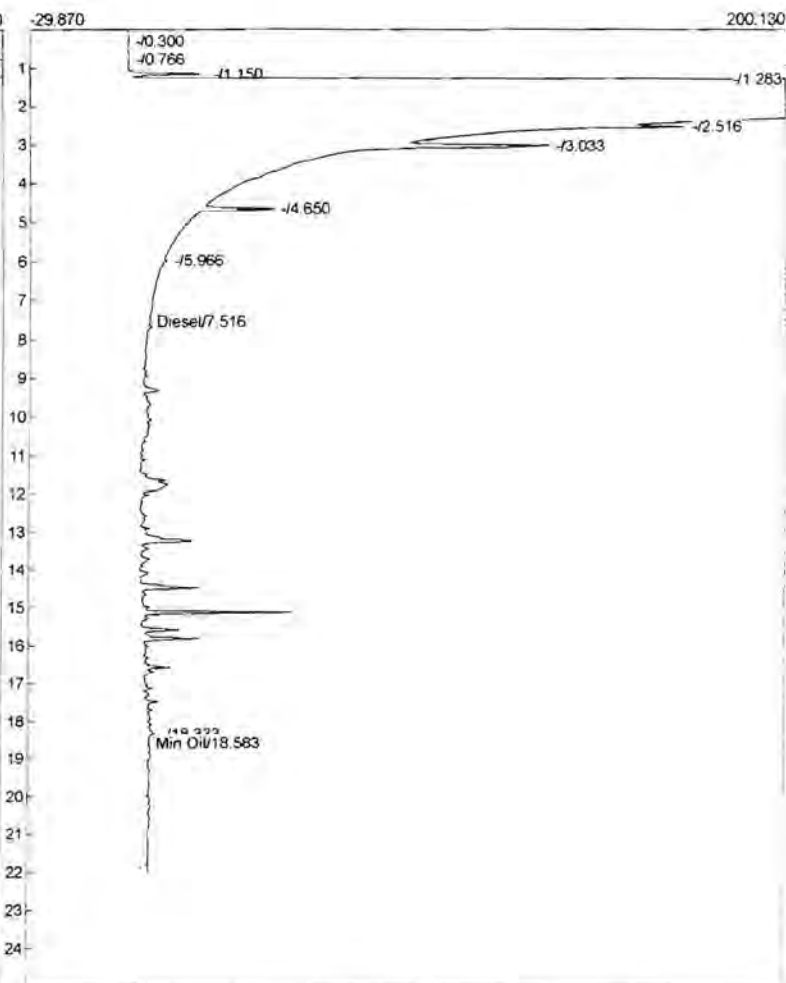
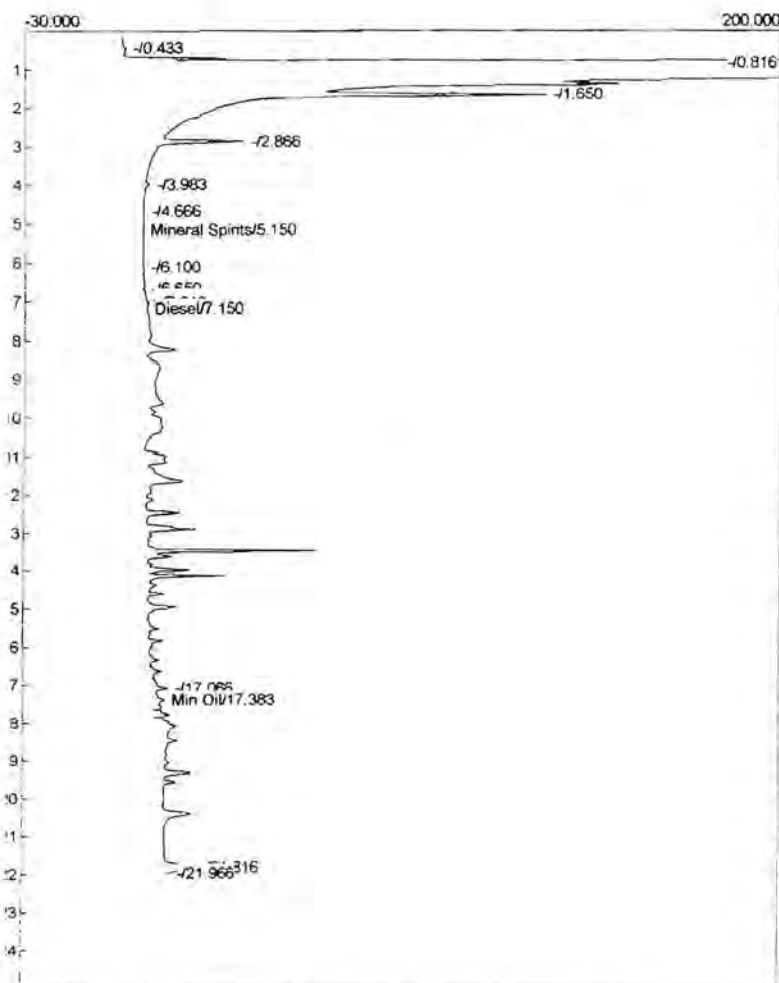


Avg slope of curve: 20.21
 y-axis intercept: 0.00
 Linearity: 0.84
 Number of levels: 6
 SD/rel SD of CF's: 16.3/72.6
 $r = -0.0008X^2 + 24.2883X$
 R^2: 0.9993
 Last calibrated: Wed Mar 14 13:57:45 2012

Level	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	1271.716	25.000	50.869	1271.716	N/A	N/A
3	1927.394	100.000	19.274	1927.394	N/A	N/A
4	10086.605	500.000	20.173	10086.605	N/A	N/A
5	24554.042	1000.000	24.554	24554.042	N/A	N/A
6	101002.720	5000.000	20.201	101002.720	N/A	N/A

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 10:39:04
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C620.CHR ()
 Sample: 25 PPM Dx 706
 Operator: KW

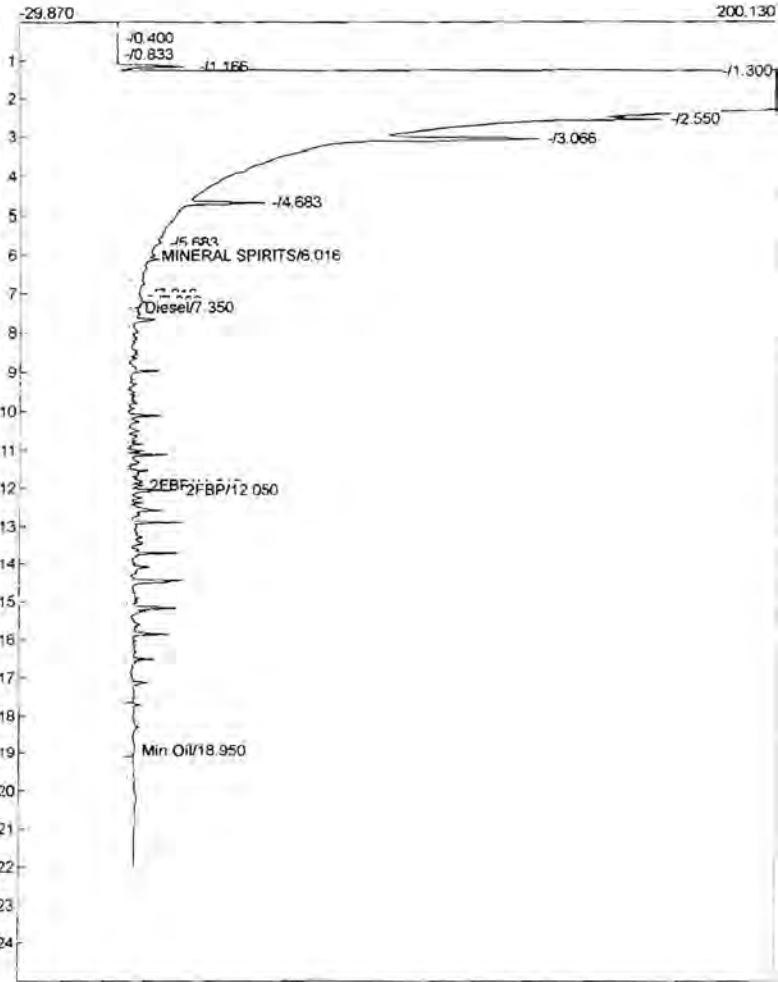
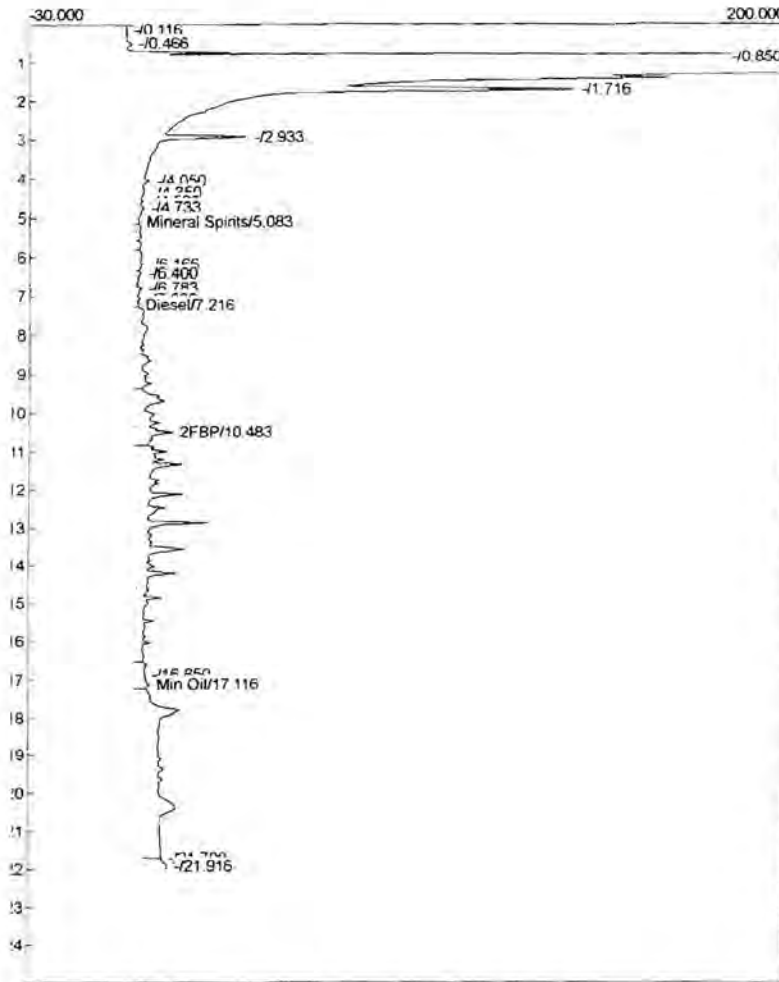
Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 10:39:04
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D626.CHR ()
 Sample: 25 PPM Dx 706
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.150	7.8080	0.195	0.3863	PPM	Diesel	7.516	1271.7155	1.965	89.4973	ppm
Diesel	7.150	1410.4710	0.518	13.6936	ppm	Min Oil	18.583	209.2665	1.582	14.7689	ppm
Min Oil	17.383	577.2305	3.576	0.0000				1480.9820		104.2662	
		1995.5095		14.0798							

Lab name: Eddy Environmental, Inc.
 Analysis date: 03/14/2012 11:07:43
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C621.CHR ()
 Sample: 100 PPM Dx 705
 Operator: KW

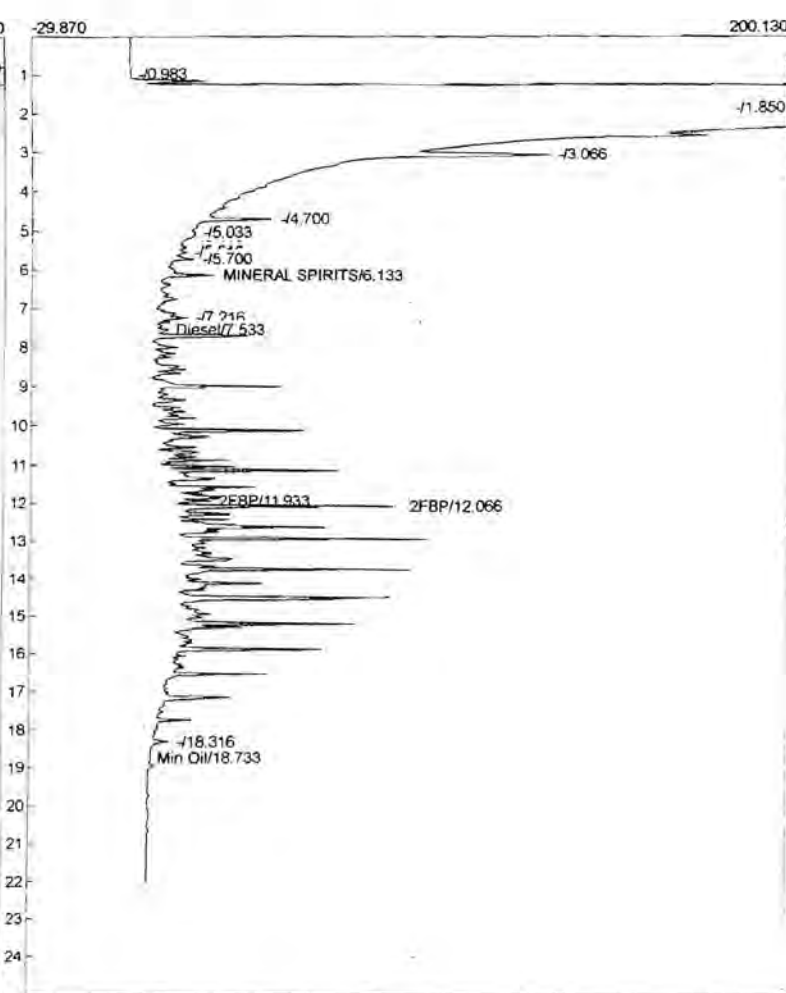
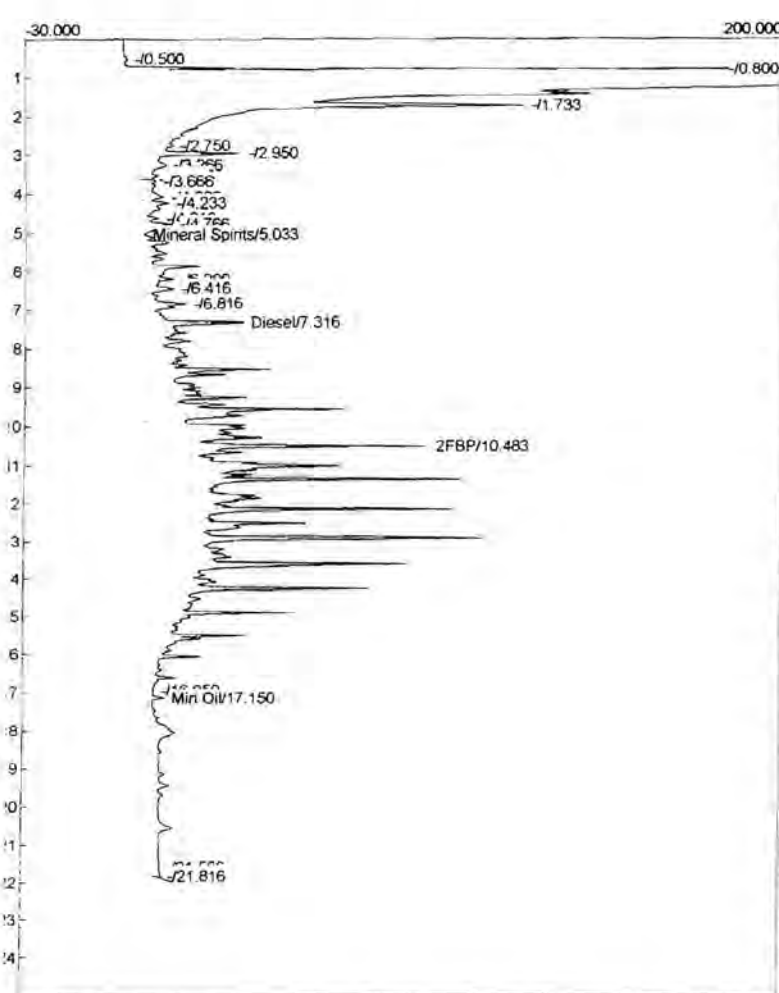
Lab name: Eddy Environmental, Inc.
 Analysis date: 03/14/2012 11:07:43
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D627.CHR ()
 Sample: 100 PPM Dx 705
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.083	84.6325	1.090	4.1869	PPM	MINERAL SPIRITS	6.016	285.6170	7.733	20.1004	PPM
Diesel	7.216	2410.4095	0.627	119.2471	ppm	Diesel	7.350	1849.7390	2.625	130.1759	ppm
2FBP	10.483	163.7695	10.998	6.5508	ppm	2FBP	11.916	20.8250	4.775	1.0413	ppm
Min Oil	17.116	1953.3665	4.269	0.0000		2FBP	12.050	56.8300	15.516	2.8415	ppm
						Min Oil	18.950	514.9365	2.757	36.3413	ppm
		4612.1780		129.9847				2727.9475		190.5003	

Lab name: Luby Environmental, Inc.
 Analysis date: 03/14/2012 11:45:18
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C622.CHR ()
 Sample: 500 PPM Dx 704
 Operator: KW

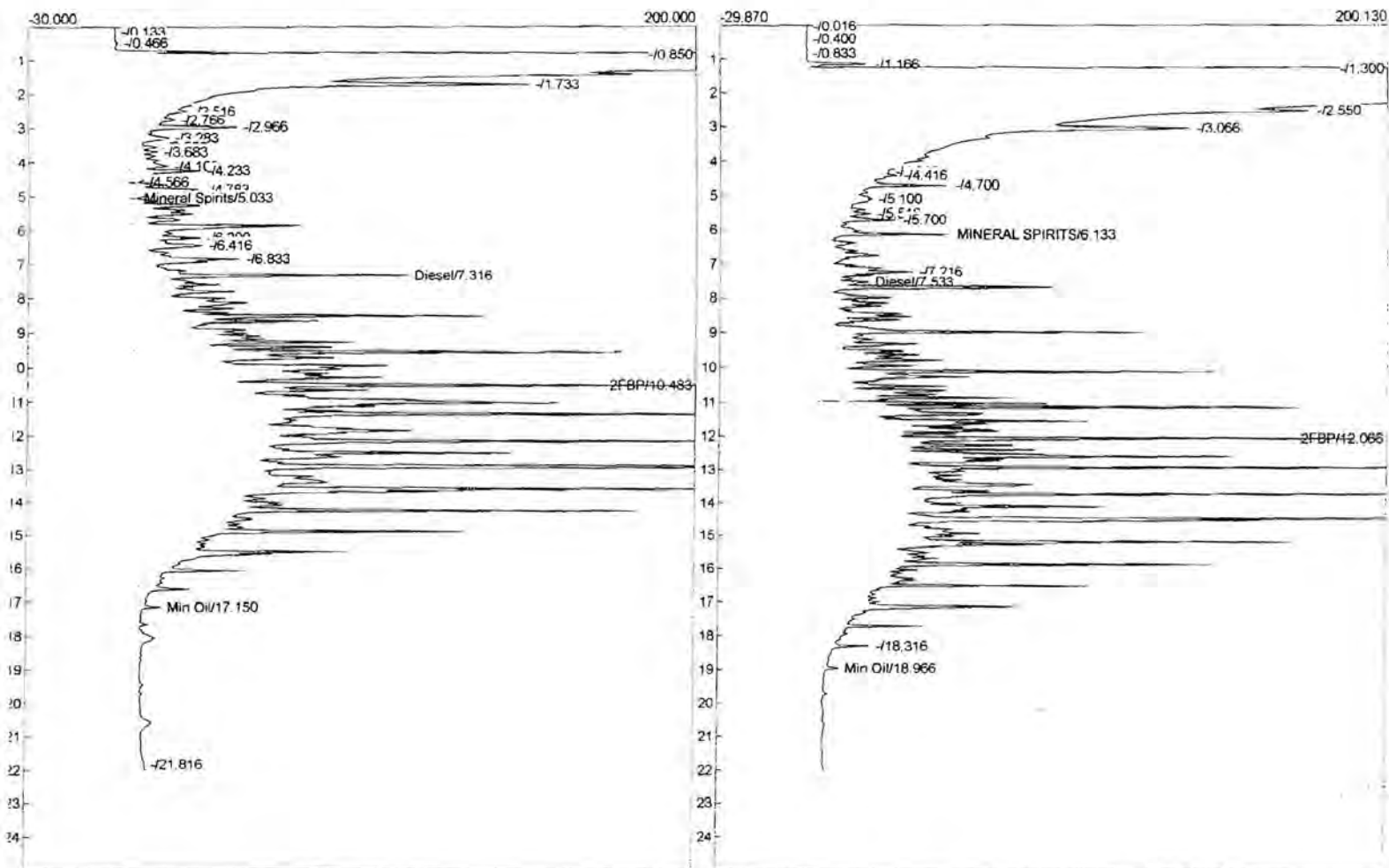
Lab name: Luby Environmental, Inc.
 Analysis date: 03/14/2012 11:45:18
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D628.CHR ()
 Sample: 500 PPM Dx 704
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Un
Mineral Spirits	5.033	323.3415	0.632	15.9963	ppm	MINERAL SPIRITS	6.133	636.8190	24.452	44.8163	ppm
Diesel	7.316	11375.2115	30.144	562.7511	ppm	Diesel	7.533	9651.3385	9.725	679.2156	ppm
2FBP	10.483	668.0530	86.276	26.7221	ppm	2FBP	11.933	110.1285	21.943	5.5064	ppm
Min Oil	17.150	960.9820	5.210	0.0000		2FBP	12.066	325.1375	79.999	16.2569	ppm
						Min Oil	18.733	138.4670	1.874	9.7722	ppm
		13327.5880		605.4694				10861.8905		755.5674	

Lab name: Lobby Environmental, Inc.
 Analysis date: 03/14/2012 12:13:07
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C623.CHR ()
 Sample: 1000 PPM Dx 703
 Operator: KW

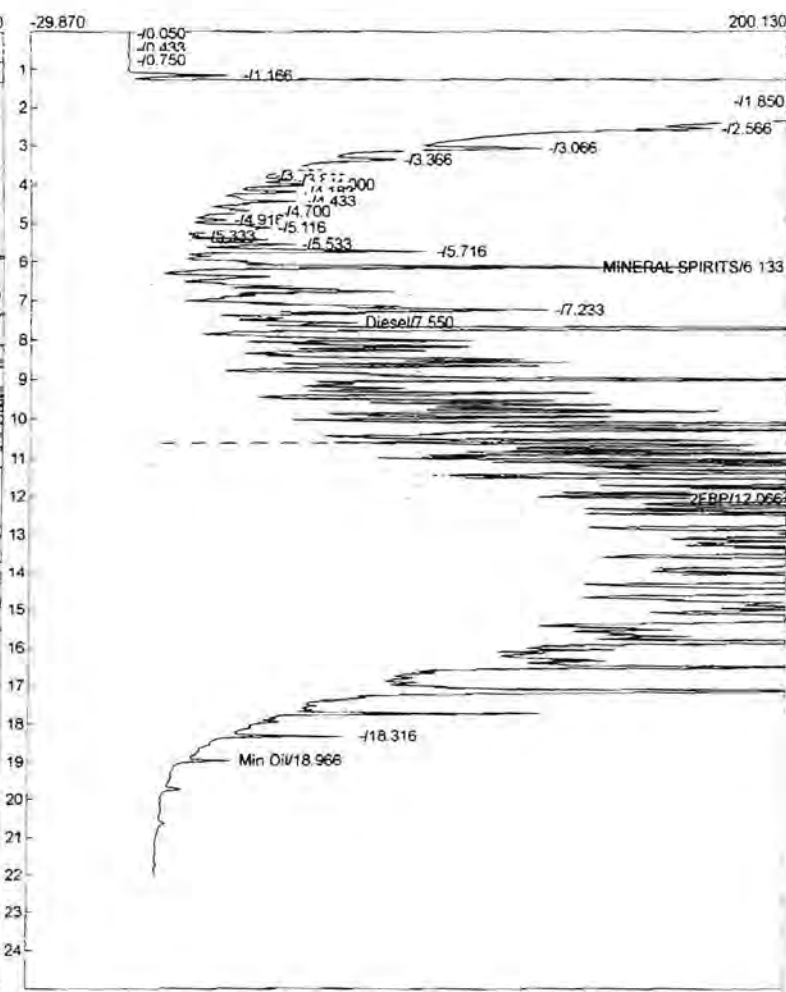
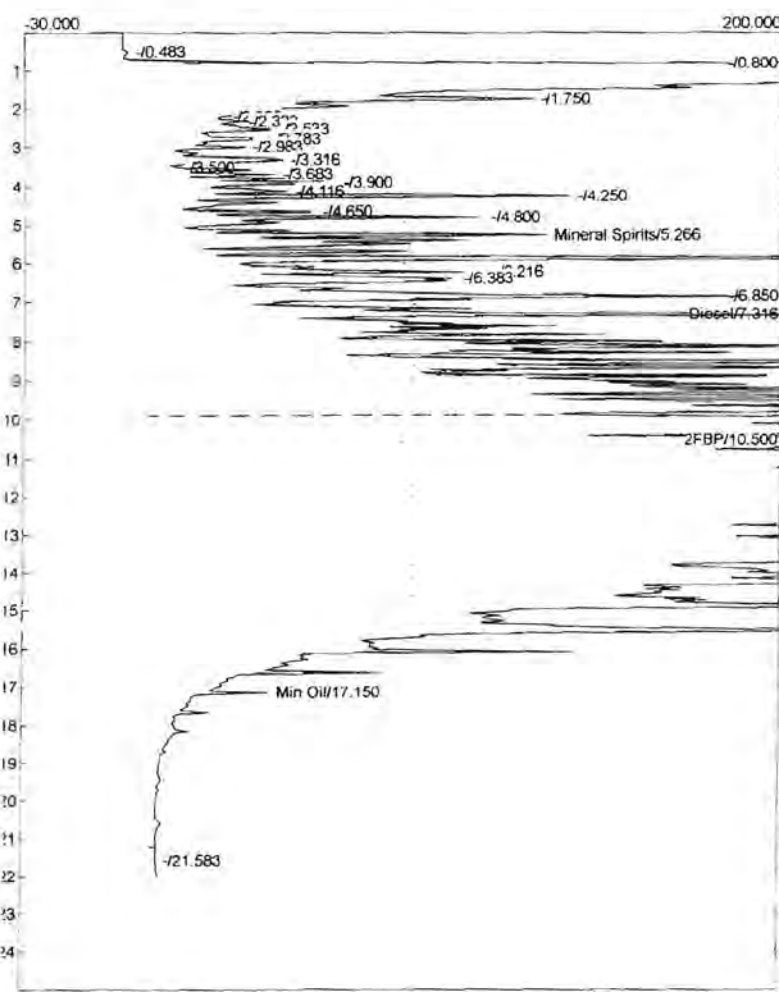
Lab name: Lobby Environmental, Inc.
 Analysis date: 03/14/2012 12:13:07
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D629.CHR ()
 Sample: 1000 PPM Dx 703
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.033	995.3365	2.641	49.2410	pp	MINERAL SPIRITS	6.133	723.8390	45.571	50.9404	pp
Diesel	7.316	28291.8845	95.034	1399.6476	pp	Diesel	7.533	23510.5725	17.032	1654.5630	pp
2FBP	10.483	1579.9780	244.836	63.1991	pp	2FBP	12.066	1043.4695	193.880	52.1735	pp
Min Oil	17.150	221.1300	7.549	0.0000	pp	Min Oil	18.966	300.3670	6.980	21.1982	pp
		31088.3290		1512.0877				25578.2480		1778.8751	

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 12:41:16
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C624.CHR ()
 Sample: 5000 PPM Dx 702
 Operator: KW

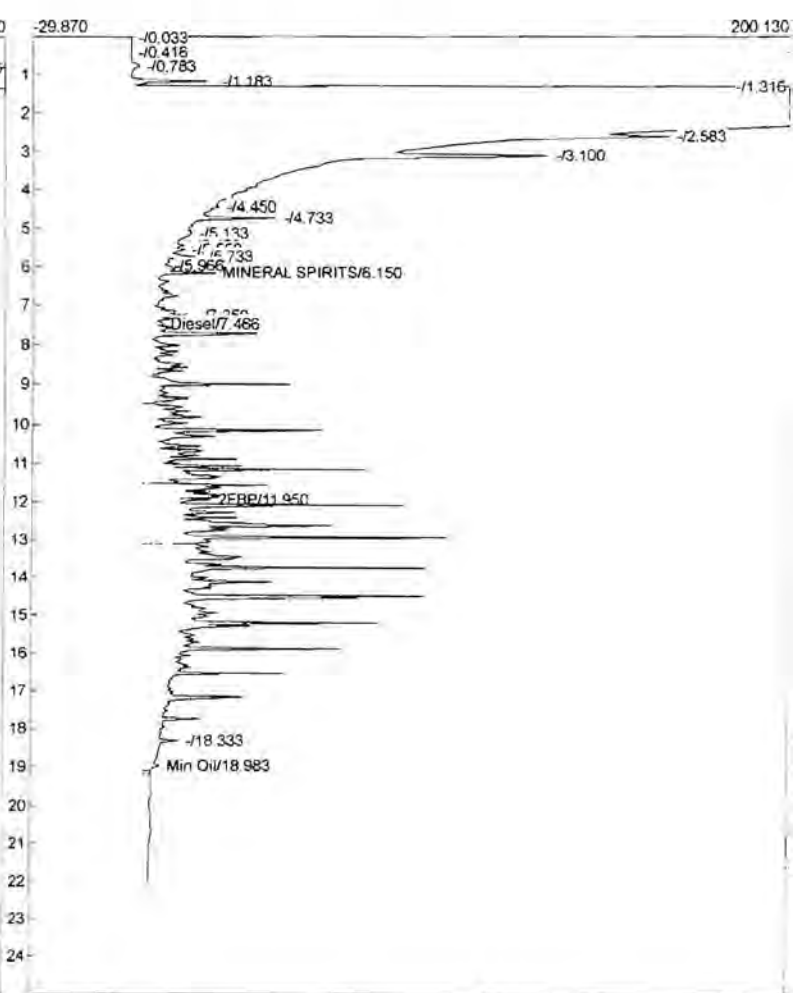
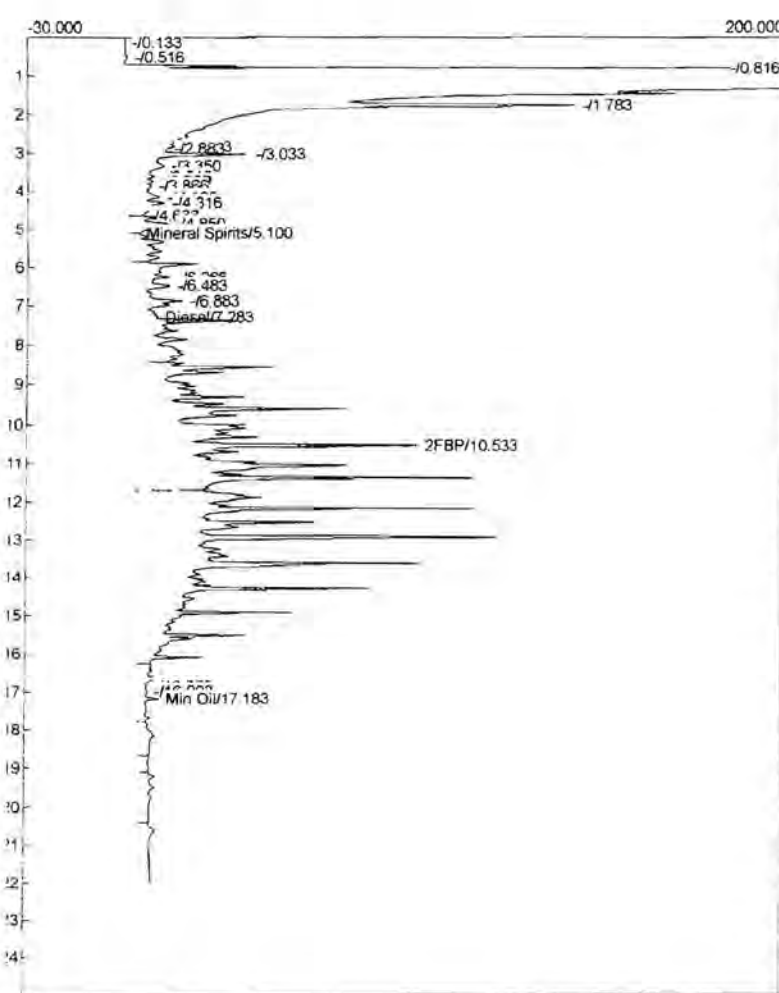
Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 12:41:16
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D630.CHR ()
 Sample: 5000 PPM Dx 702
 Operator: KW



Component	Retention	Area	Height	External	UnComponent	Retention	Area	Height	External	Unit
Mineral Spirits	5.266	4030.7350	121.832	199.4073	MINERAL SPIRITS	6.133	2118.1620	172.994	149.0662	PF
Diesel	7.316	118321.9850	479.109	5853.5897	Diesel	7.550	97612.4720	63.265	6869.5047	pp
FBP	10.500	6802.6800	1015.018	272.1072	FBP	12.066	3390.2460	772.659	169.5123	pp
Min Oil	17.150	1309.9915	36.600	0.0000	Min Oil	18.966	734.9465	24.851	51.8684	pp
		130465.3915		6325.1043			103855.8265		7239.9516	

Lab name: Lloby Environmental, Inc.
 Analysis date: 03/14/2012 13:09:09
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C625.CHR ()
 Sample: 500 PPM Dx ICAL 707
 Operator: KW

Lab name: Lloby Environmental, Inc.
 Analysis date: 03/14/2012 13:09:09
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D631.CHR ()
 Sample: 500 PPM Dx ICAL 707
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.100	454.2775	2.261	22.4739	ppm	MINERAL SPIRITS	6.150	431.9470	21.664	30.3984	ppm
Diesel	7.283	12055.9145	7.302	415.8831	ppm	Diesel	7.466	9633.4975	5.799	402.0800	ppm
2FBP	10.533	706.7050	85.875	28.2682	ppm	2FBP	11.950	98.4805	20.159	4.9240	ppm
Min Oil	17.183	642.7165	6.075	0.0000		Min Oil	18.983	249.4535	4.581	17.6050	ppm
		13859.6135		466.6252				10413.3785		455.0074	



Libby Environmental, Inc.

4139 Libby Road NE • Olympia, WA 98506-2518

November 8, 2012

Neil Morton
GeoEngineers Inc.
600 Stewart Street, Suite 1700
Seattle, WA 98101

Dear Mr. Morton:

Please find enclosed the analytical data report for the Irondale Project located in Irondale, Washington. A soil sample was analyzed for Diesel & Oil by NWTPH-Dx/Dx Extended with Silica Gel Clean Up on October 12, 2012.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. All soil samples are reported on a dry weight basis. An invoice for this analytical work is enclosed.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Jamie L. Deyman
President
Libby Environmental, Inc.



Libby Environmental, Inc.

Case Narrative

Libby Project #: L121012-30
Date: 11-9-2012

CLIENT: GeoEngineers, Inc.
PROJECT: Irondale

I. SAMPLE RECEIPT:

All samples were received intact and in good condition. See the attached Sample Receipt Check List for more information.

II. GENERAL REPORTING COMMENTS:

Final results are reported on a dry weight basis. The soil samples in the field are estimated to have a moisture content of 15%. This estimate is useful in producing data that is close to the actual value. After the sample is analyzed for soil moisture at our fixed base facility, the final data is reported based on measured soil moisture. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS), the Laboratory Control Sample Duplicate (LCSD) and the Method Blank (MB). The LCS, LCSD and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) and/or noted below.

Notes:

N/A

Libby Environmental, Inc.

Chain of Custody Record

IO21

4139 Libby Road NE
Olympia, WA 98506
Ph: 360-352-2110
Fax: 360-352-4154

Date: 10/12/12 Page: 1 of 1

Client: GeoEngineers

Project Manager: Neil Morton

Address: 1107 S. Fawcett Ave Sk200 Tacoma, WA 98402

Project Name: Ecology Irondale

Phone: 253 383 4940 Fax: 253 383 4923

Location: Irondale City: Irondale WA

Client Project # 0504-042-00

Collector: Aaron Luggoner Date of Collection: 10/12/12

Sample Number	Depth	Time	Sample Type	Container Type	Analytes										Field Notes						
					VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEMI VOL 8270	NWTPH-HCID	NWTPH-Gx	NWTPH-Dx	PAH 8270	PCB's 8082	MTCA 6 Metals							
1 K17-B1-101212	9'	1340	Soil	2-4oz Jars																	Extract/Hold PAHs
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					
16																					
17																					
18																					
Relinquished by:		Date / Time: 10/12/12/1400		Received by: Paul Burk		Date / Time: 10/12/12 1400		Sample Receipt:		Remarks:											
Relinquished by:		Date / Time:		Received by:		Date / Time:		Good Condition?													
Relinquished by:		Date / Time:		Received by:		Date / Time:		Cold?													
Relinquished by:		Date / Time:		Received by:		Date / Time:		Seals Intact?													
Relinquished by:		Date / Time:		Received by:		Date / Time:		Total Number of Containers:													

Libby Environmental, Inc. Login Sample Receipt Check List

Client: GeoEngineers, Inc. **Libby Project Number:** L121012-30

Question	T / F / NA	Comment
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler temperature is acceptable.	True	
COC is present.	True	
COC is filled out in ink and is legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within the Hold Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs.	True	
VOA sample vials do not have headspace or bubble is less than 6mm (1/4 in.) in diameter.	True	
If necessary, staff has been informed of any short hold time or quick TAT needs.	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	

Libby Environmental, Inc.

4139 Libby Road NE
Olympia, WA 98506
Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@aol.com

IRONDALE PROJECT
GeoEngineers, Inc.
Irondale, Washington
Libby Project # L121012-30
Client Project # 0504-042-02

Analyses of Diesel & Oil Range (NWTPH-Dx/Dx Extended) in Soil w/ Silica Gel Cleanup

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Bunker C (mg/kg)
Method Blank	10/12/12	105	nd	nd
LCS	10/12/12	int	111%	
LCSD	10/12/12	int	102%	
K17-B1-101212	10/12/12	126	nd	nd
K17-B1-101212 Dup	10/12/12	113	nd	nd
Practical Quantitation Limit			25	40

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

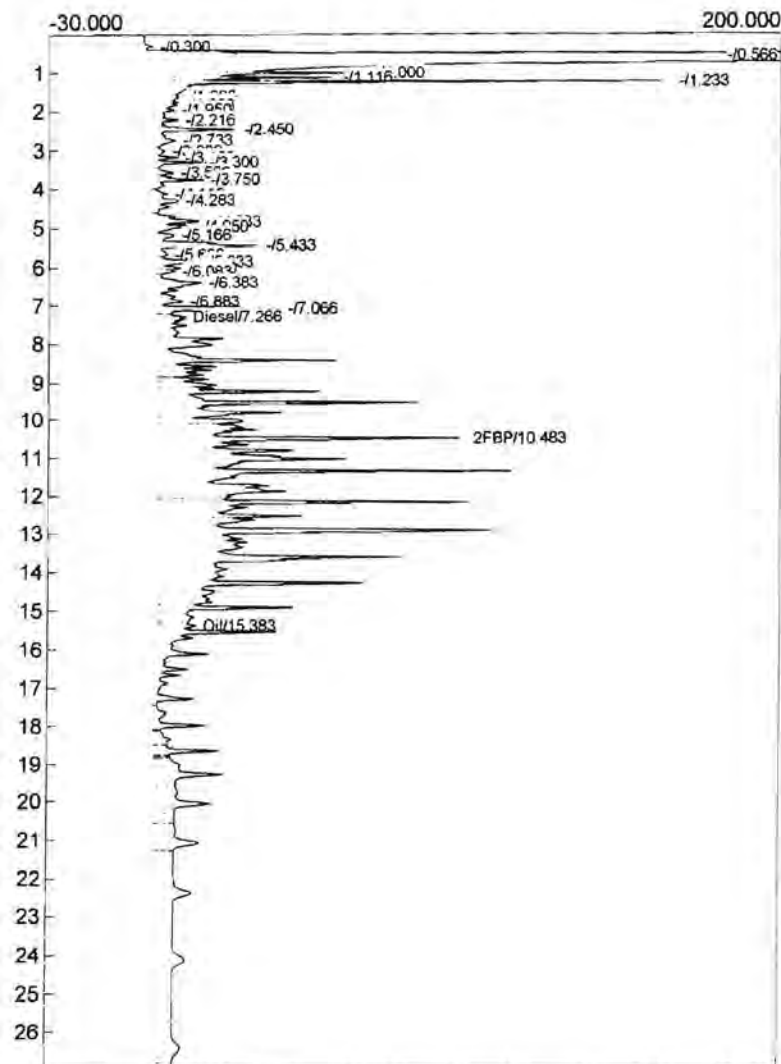
Analysis date: 10/12/2012 07:28:00
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C291.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.266	10830.1360	8.159	533.7457	ppm
2-FBP	10.483	683.9060	96.404	27.3562	ppm
Oil	15.383	3794.8740	11.429	186.5706	ppm
		15308.9160		747.6726	

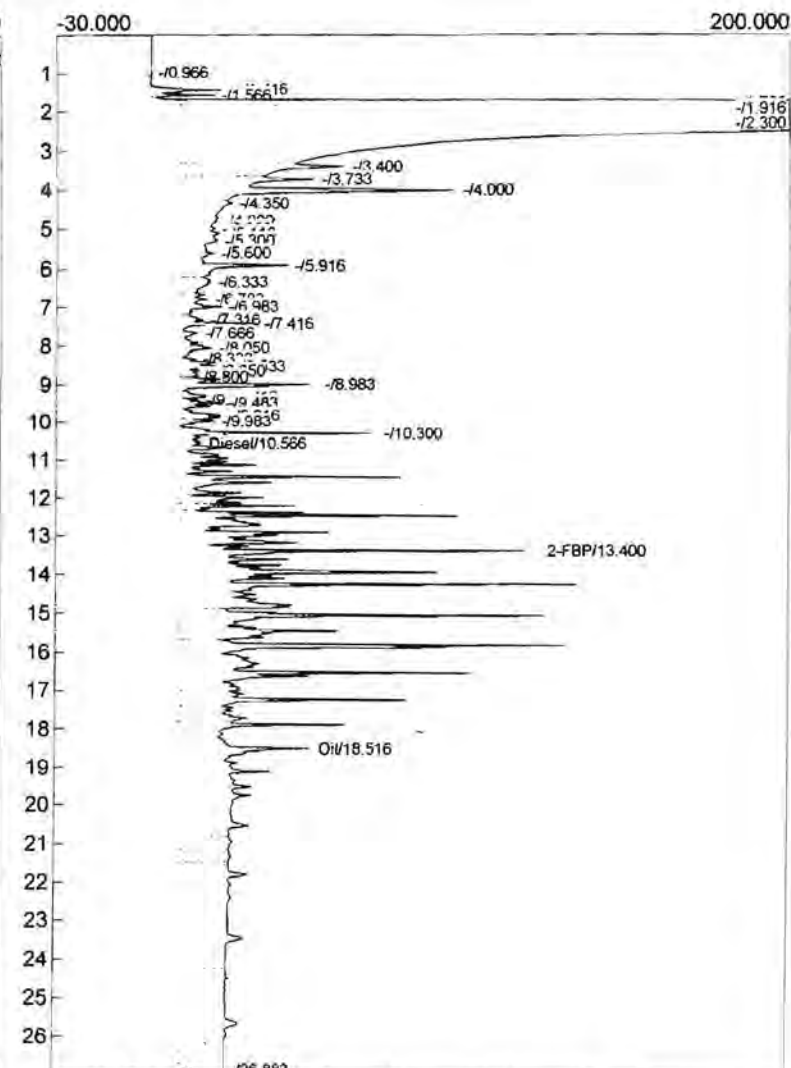
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 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D289.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	10.566	10008.5850	8.534	531.6521	
2-FBP	13.400	545.3370	112.868	18.9682	ppm
Oil	18.516	8078.9330	41.159	428.3617	ppm
		18632.8550		978.9821	

Analysis date: 10/12/2012 08:02:22
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C292.CHR ()
 Sample: 1000 ppm LCS 343
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO

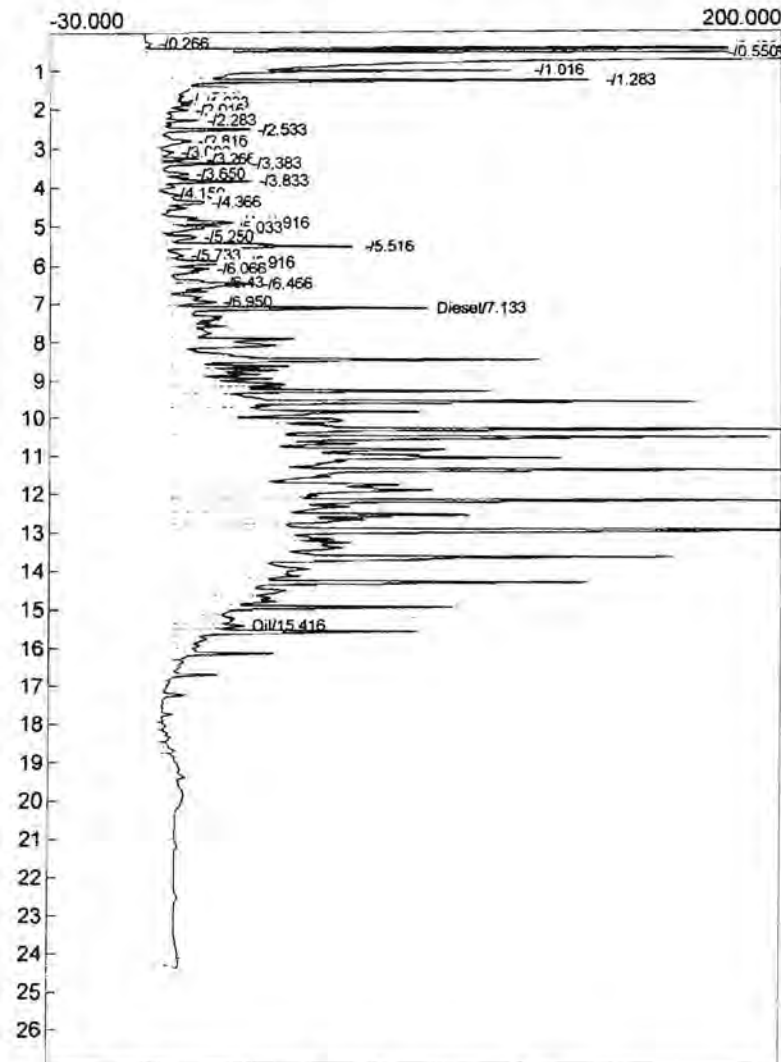
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 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D290.CHR ()
 Sample: 1000 ppm LCSD 343
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

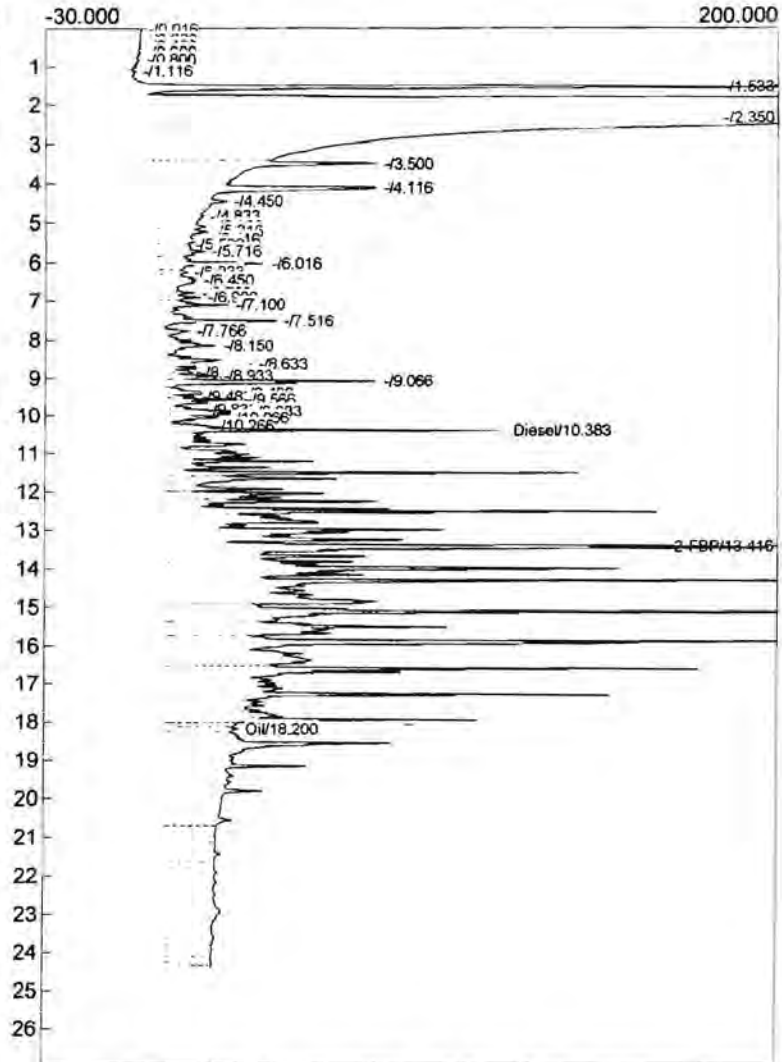
Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.133	22388.9665	81.154	1107.7580	ppm
Oil	15.416	1472.1270	21.571	72.3754	ppm
		23861.0935		1180.1334	

111%



Component	Retention	Area	Height	External	Units
Diesel	10.383	19128.4170	105.554	1024.4046	
2-FBP	13.416	1449.4680	213.168	50.4163	ppm
Oil	18.200	6277.3155	21.532	332.3854	ppm
		26855.2005		1407.2063	

102%

Analysis date: 10/12/2012 08:47:56

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: C293.CHR ()

Sample: Method Blank

Operator: PB

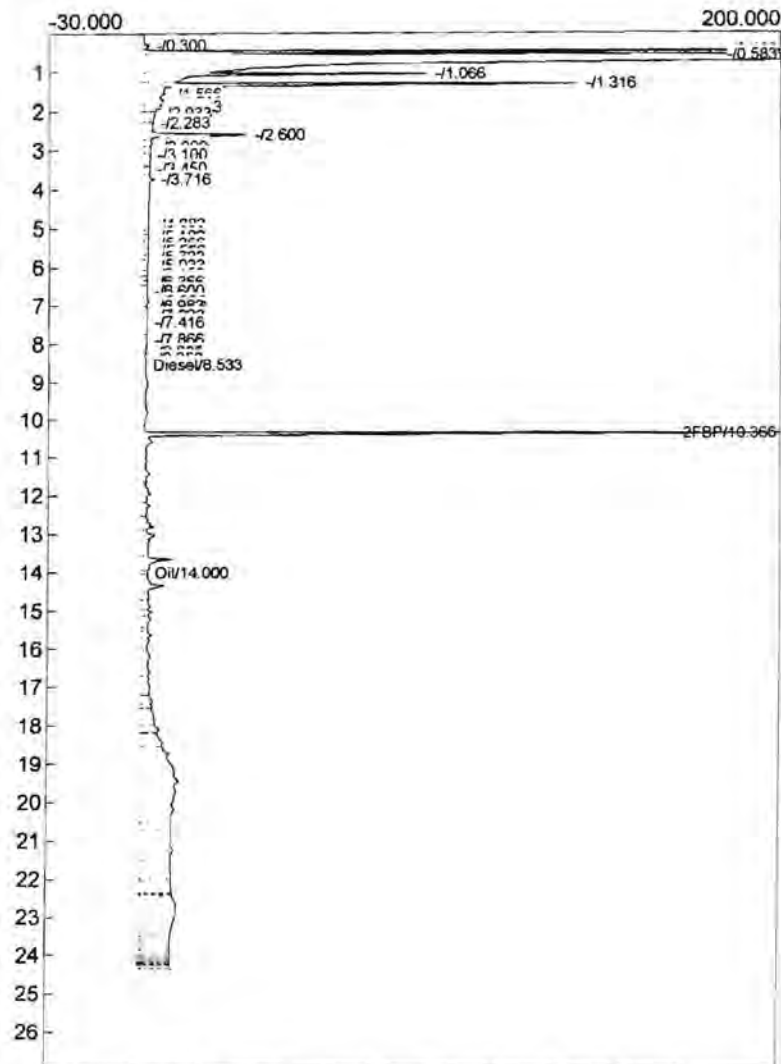
Temperature program:

NOT USED

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
diesel	8.533	864.9700	0.217	42.5253	ppm
FBP	10.366	578.5000	217.645	23.1400	ppm
oil	14.000	3856.6430	1.107	189.6074	ppm
		5300.1130		255.2727	

Analysis date: 10/12/2012 08:47:56

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: D291.CHR ()

Sample: Method Blank

Operator: PB

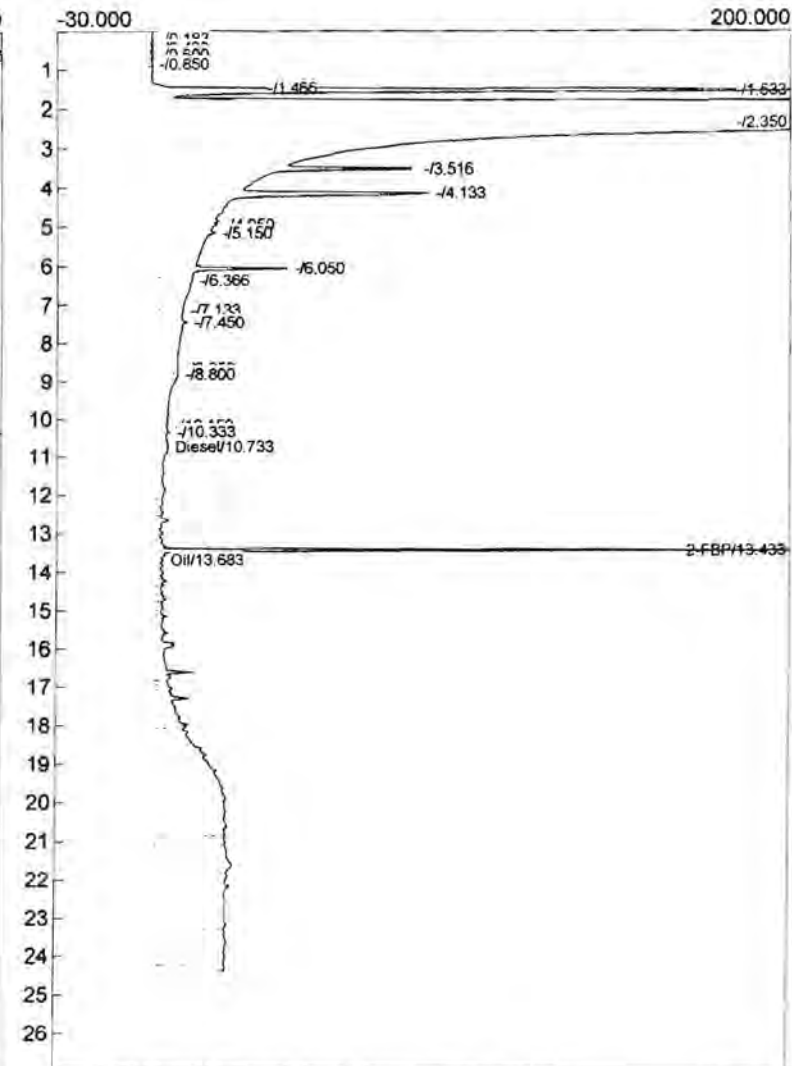
Temperature program:

NOT USED

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	10.733	868.8970	3.009	45.8851	ppm
2-FBP	13.433	613.6850	260.421	21.3456	ppm
Oil	13.683	8337.1945	1.655	442.1860	ppm
		9819.7765		509.4167	

Analysis date: 10/12/2012 09:34:12
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C294.CHR ()
 Sample: Method Blank
 Operator: PB

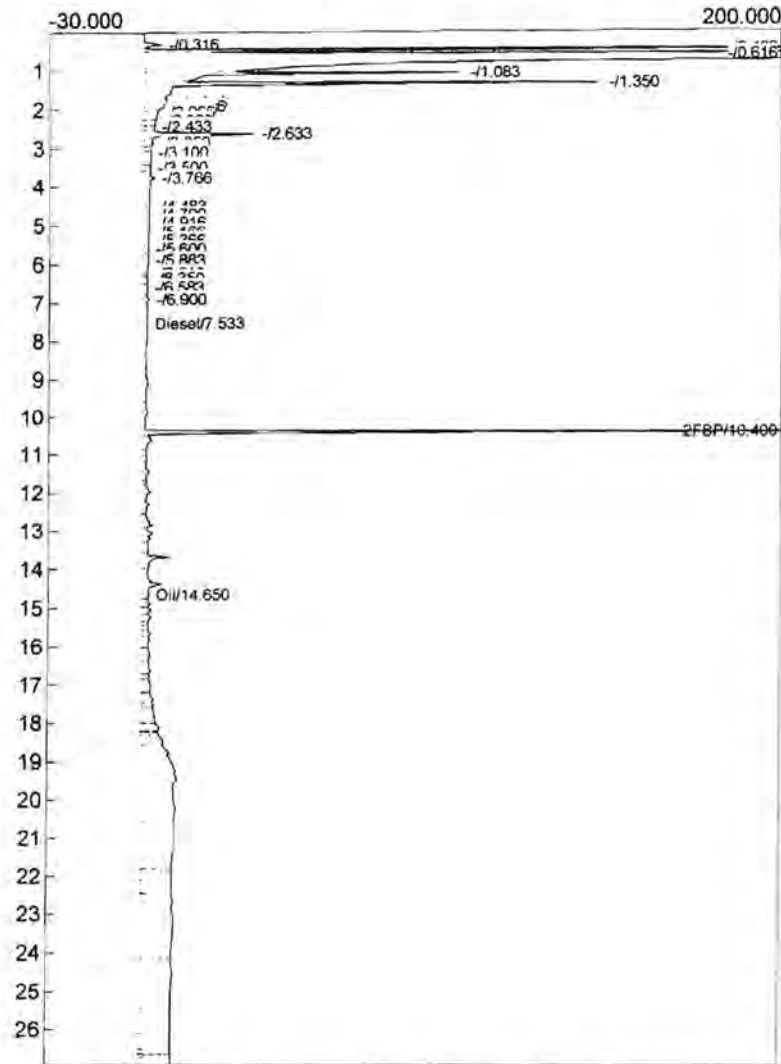
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 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D292.CHR ()
 Sample: Method Blank
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

vents:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.533	928.8290	0.669	45.6648	ppm
2-FBP	10.400	592.3470	227.305	23.6839	ppm
Oil	14.650	5072.0210	1.371	249.4972	ppm
		6593.1970		318.8558	

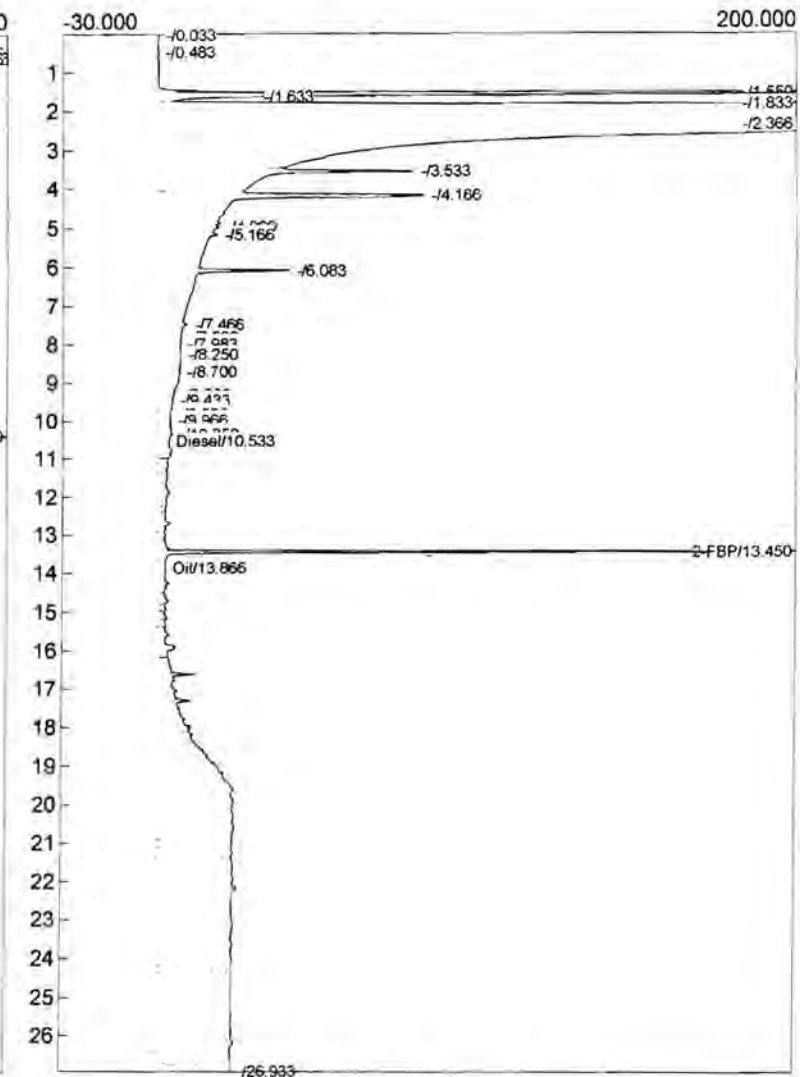
118%

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	10.533	854.0615	2.198	45.1017	
2-FBP	13.450	606.3480	228.311	21.0904	ppm
Oil	13.866	11827.1300	1.121	629.1941	ppm
		13287.5395		695.3862	

105%

Analysis date: 10/12/2012 09:34:12

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: C294.CHR ()

Sample: Method Blank

Operator: PB

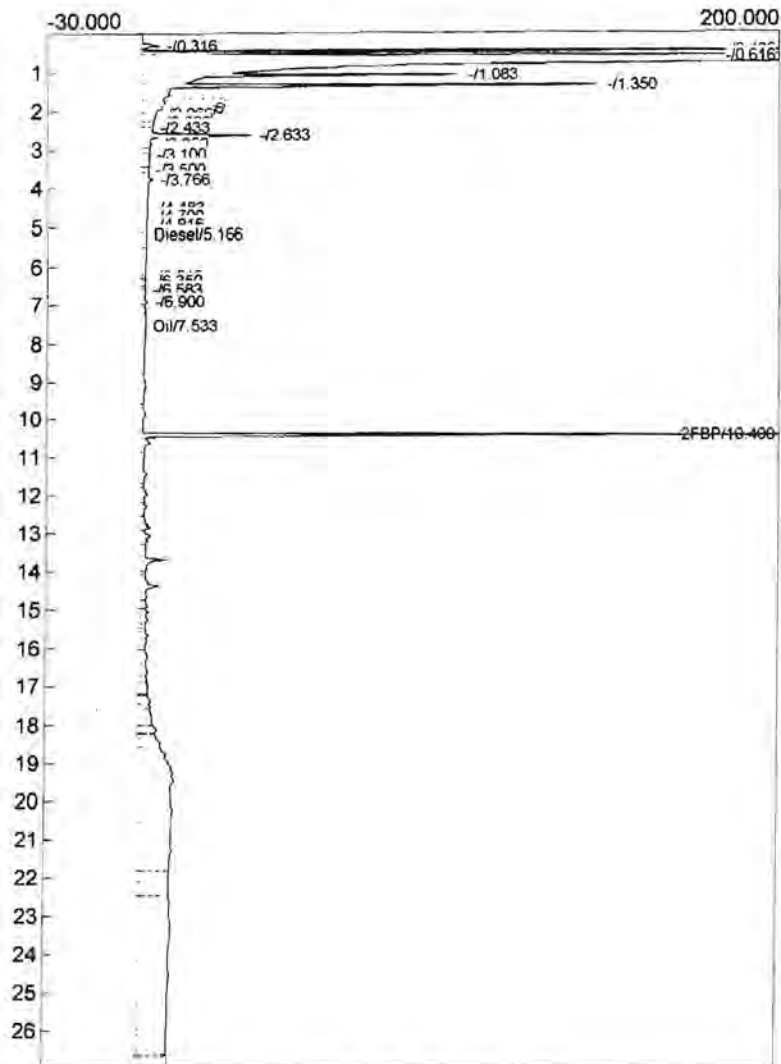
used for Bunker C airblank only.

Temperature program:

Init temp Hold Ramp Final temp

vents:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.166	48.5610	0.869	2.3874	ppm
Oil	7.533	6000.8500	0.669	295.2888	ppm
2-FBP	10.400	592.3470	227.305	23.6939	ppm
		6641.7580		321.3701	

Analysis date: 10/12/2012 09:34:12

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: D292.CHR ()

Sample: Method Blank

Operator: PB

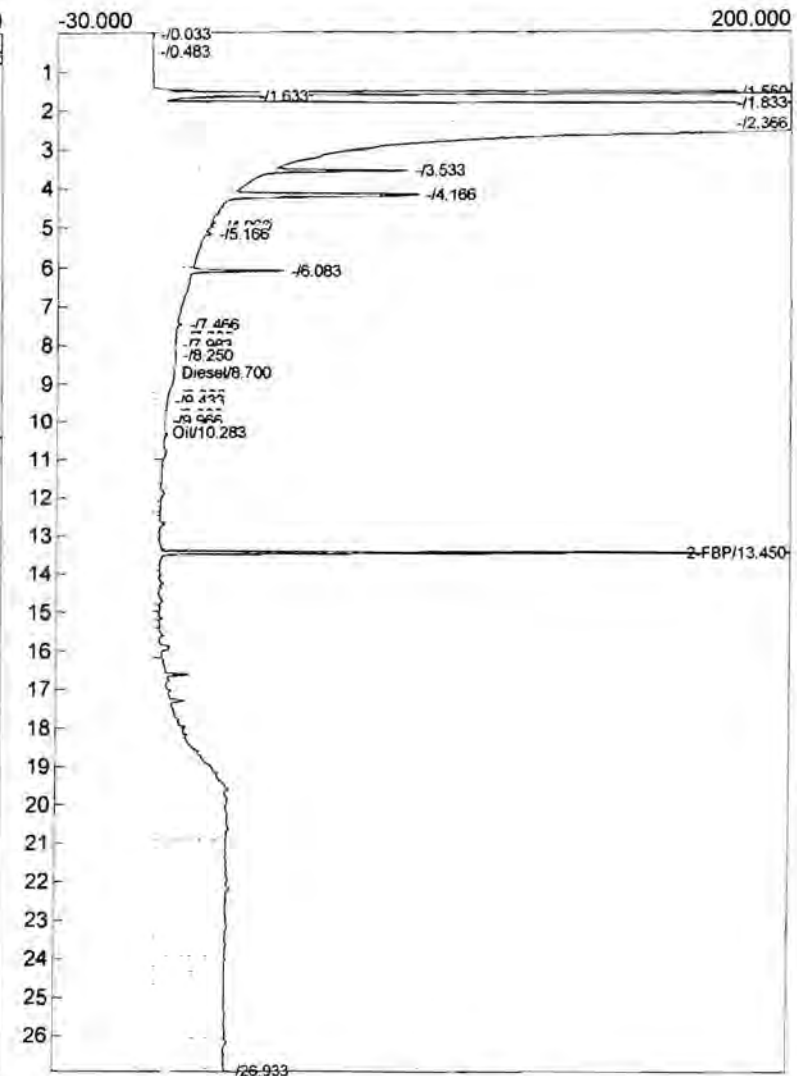
used for Bunker C airblank only.

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	8.700	151.7560	5.108	8.0140	
Oil	10.283	12633.1155	2.420	672.6328	ppm
2-FBP	13.450	595.5880	228.042	20.7161	ppm
		13380.4595		701.3629	

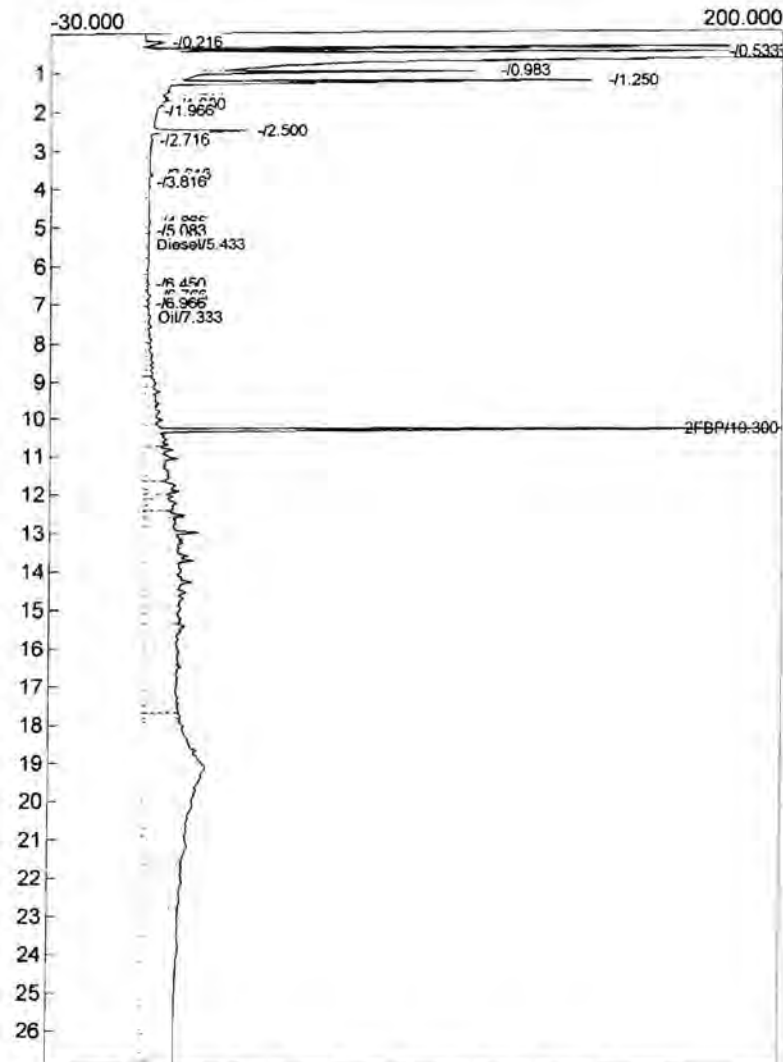
Analysis date: 10/12/2012 14:20:04
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C295.CHR ()
 Sample: K17-B1-101212 1:2
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
iesel	5.433	4.0990	0.183	0.2015	ppm
il	7.333	11657.8450	1.077	574.6657	ppm
2-FBP	10.300	631.3760	223.930	25.2550	ppm
		12293.3200		600.1223	

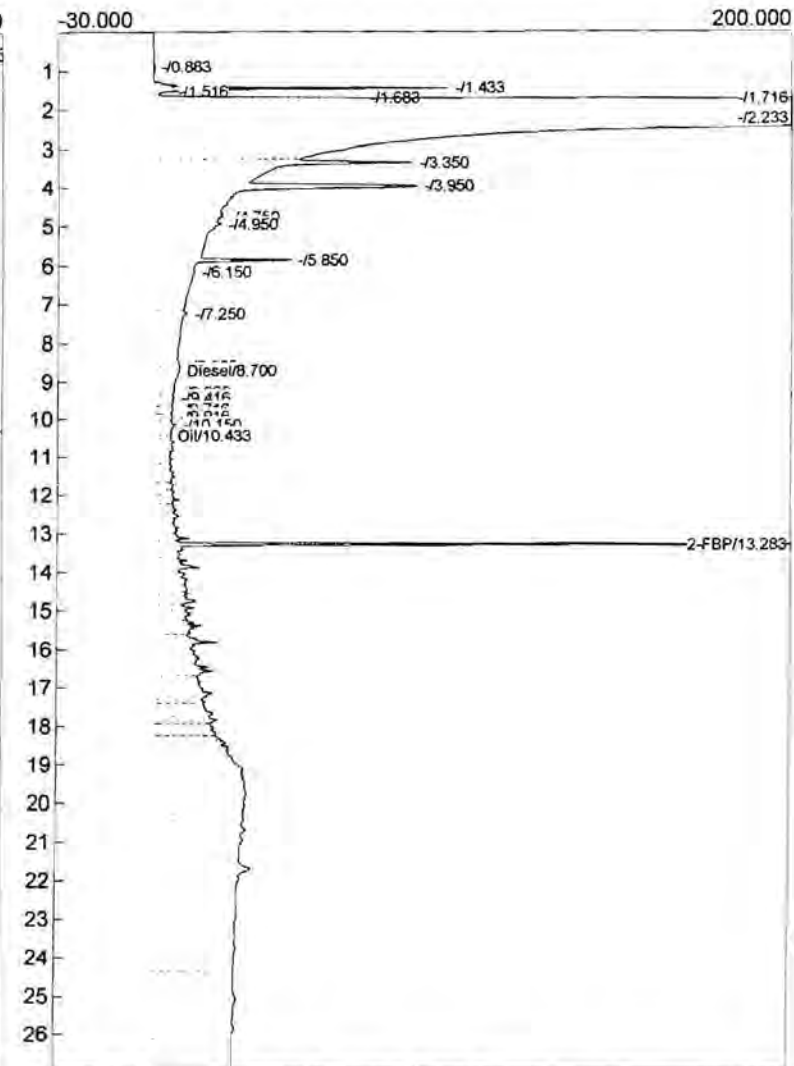
Analysis date: 10/12/2012 14:20:04
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D293.CHR ()
 Sample: K17-B1-101212 1:2 Dup
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	8.700	179.8095	6.163	9.4955	
Oil	10.433	17512.8110	3.356	936.5614	ppm
2-FBP	13.283	651.8615	224.625	22.6734	ppm
		18344.4820		968.7303	

575 - 295 = 280
 x 2
 560 ppm
 126%
 Bunker C

937 - 673 = 264
 x 2
 528 ppm
 113%
 Bunker C

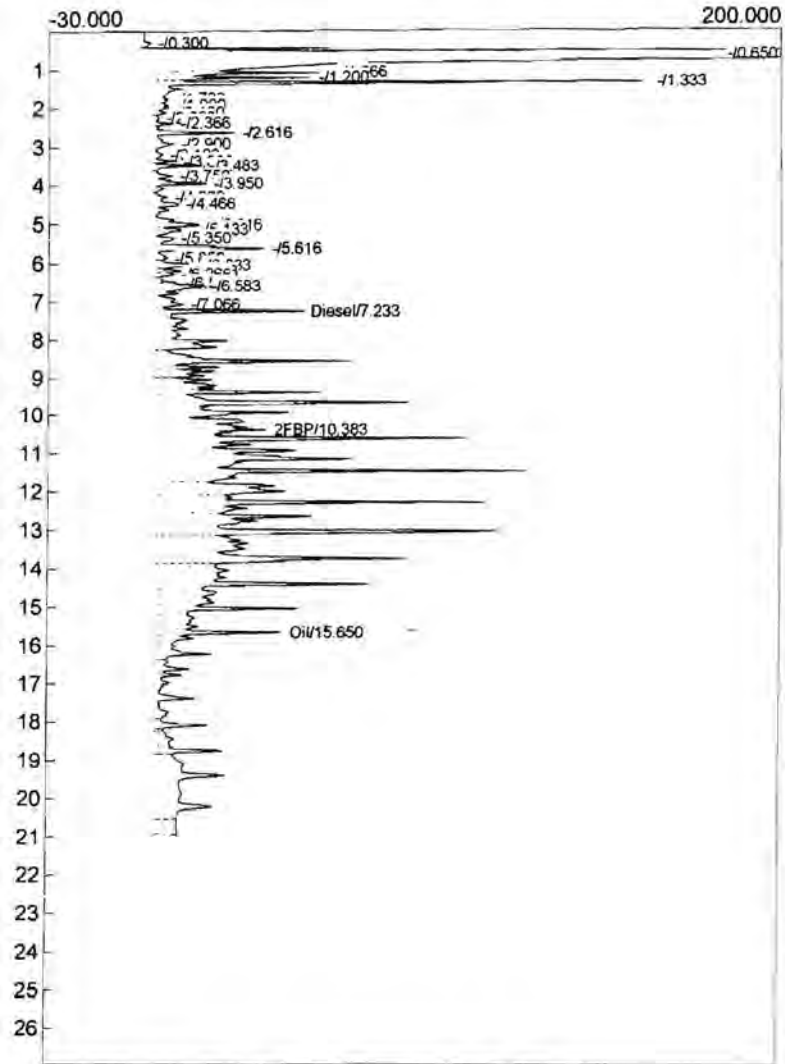
Analysis date: 10/12/2012 15:00:44
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C296.CHR ()
 Sample: K17-B1-101212 1:2
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.233	11360.0360	45.728	559.9427	ppm
FBP	10.383	380.9680	34.275	15.2387	ppm
Oil	15.650	1849.6115	38.932	90.9340	ppm
		13590.6155		666.1155	

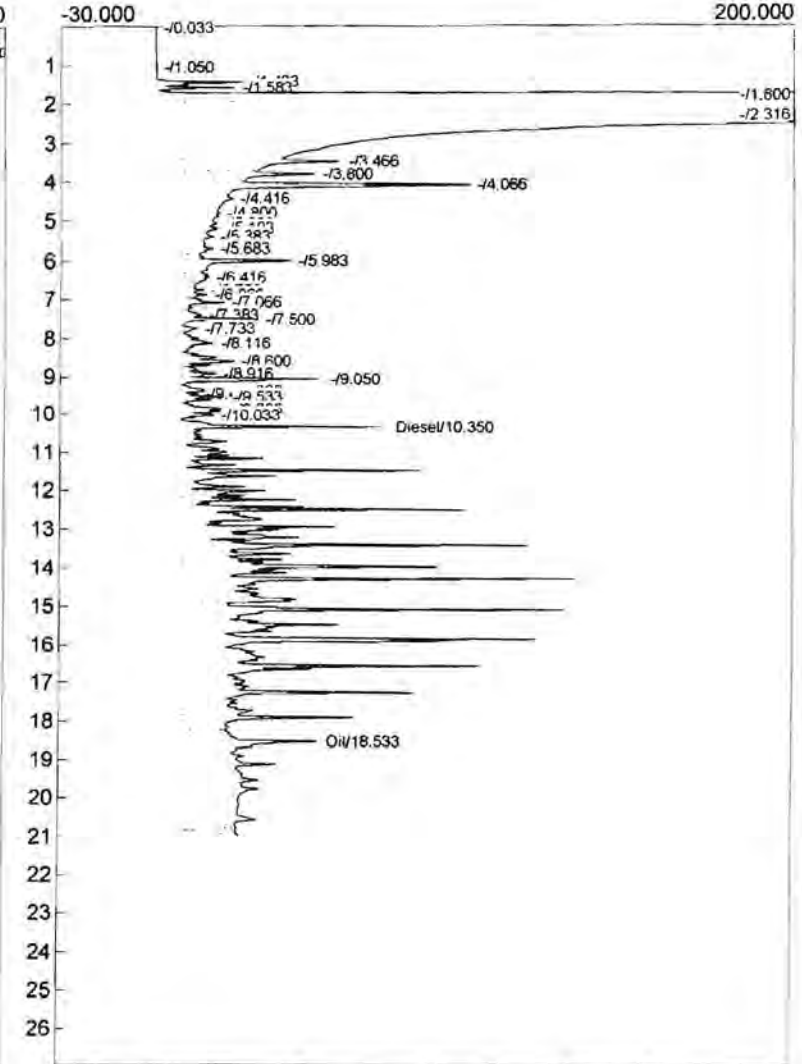
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 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D294.CHR ()
 Sample: K17-B1-101212 1:2 Dup
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

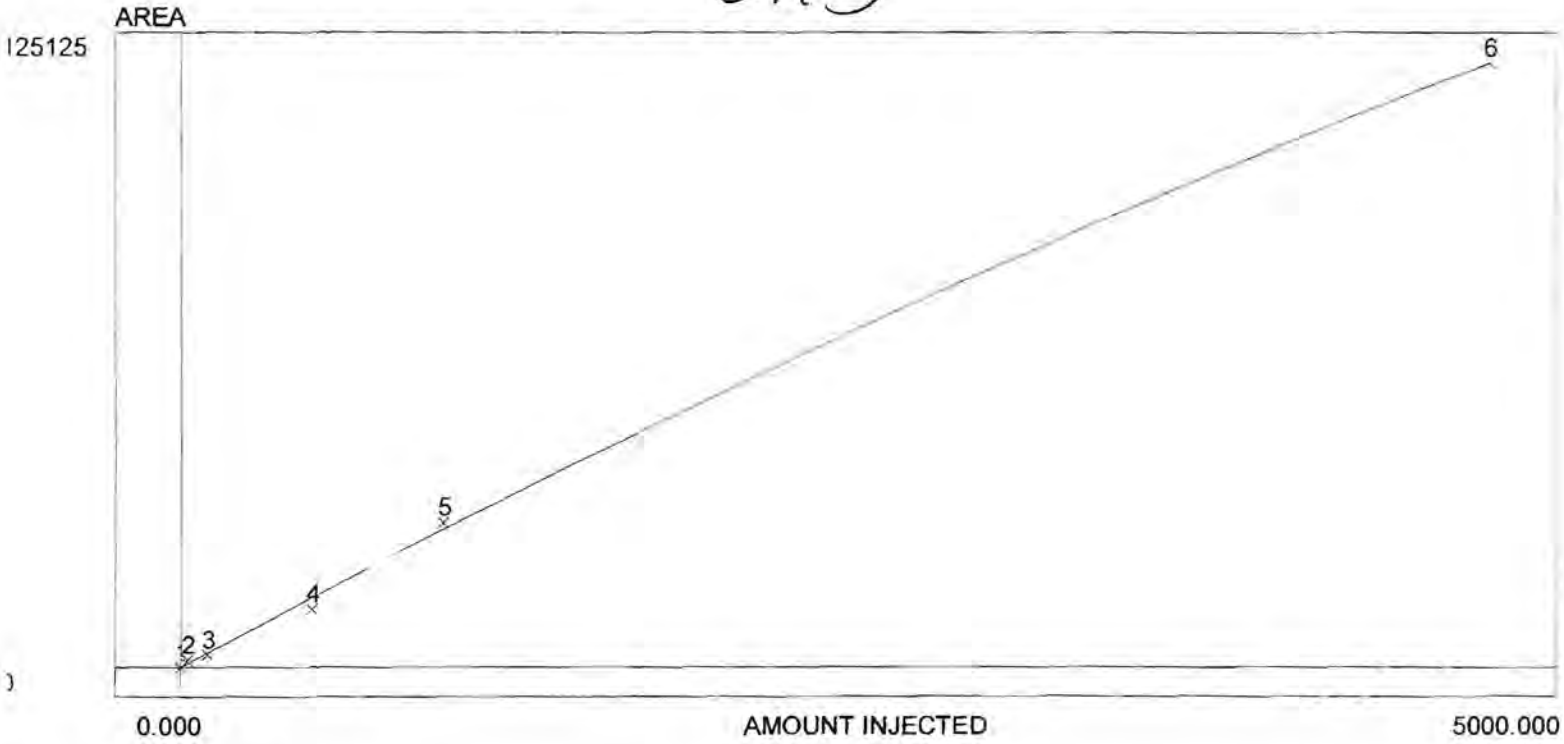
Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	10.350	10568.1895	65.027	561.6066	
Oil	18.533	2981.4820	43.096	157.4476	ppm
		13549.6715		719.0542	

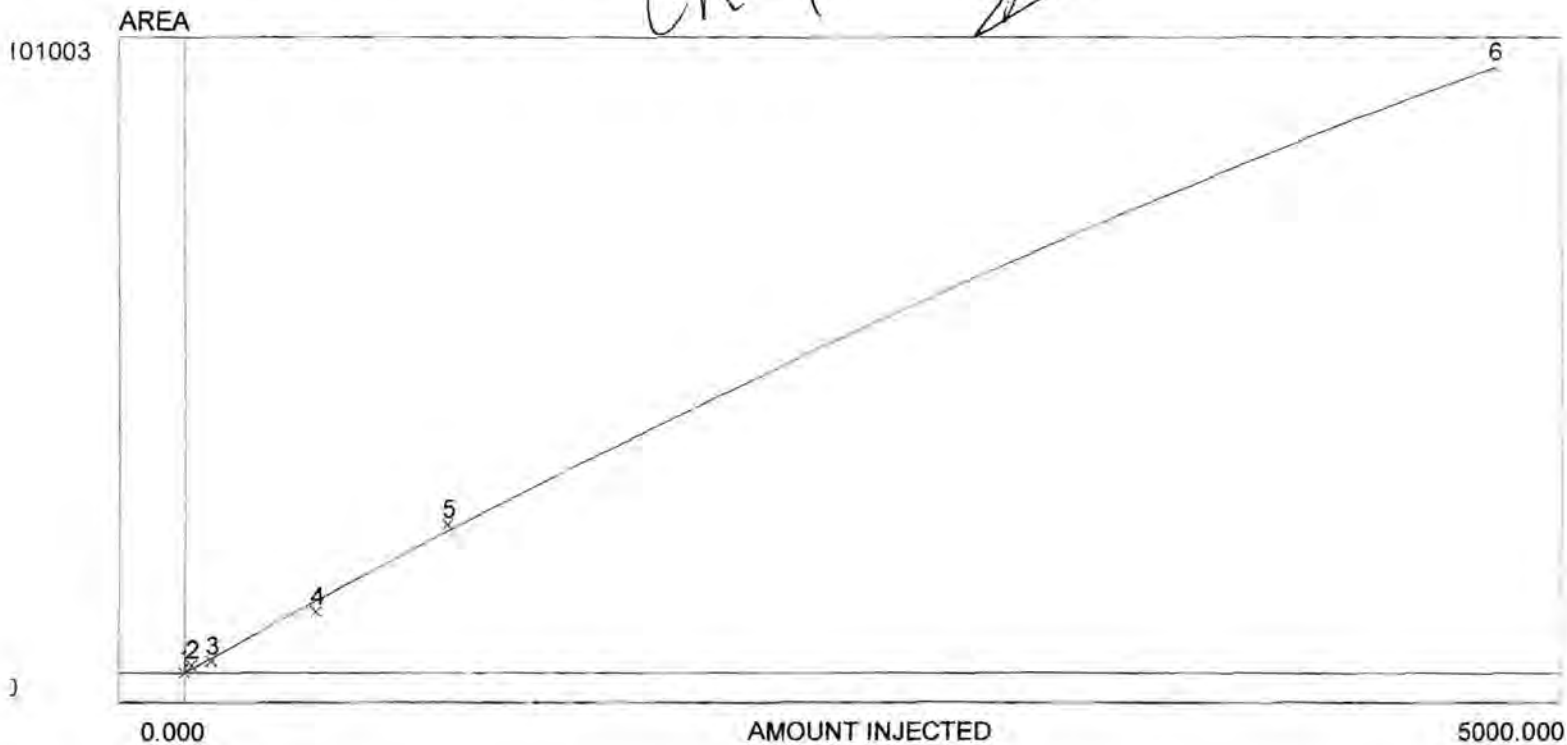
Ch3



Avg slope of curve: 25.03
 Y-axis intercept: 0.00
 Linearity: 0.86
 Number of levels: 6
 SD/rel SD of CF's: 18.0/66.9
 $Y = -0.0009X^2 + 29.3544X$
 R^2: 0.9993
 Last calibrated: Wed Mar 14 13:52:31 2012

Level	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	1410.471	25.000	56.419	1410.471	N/A	N/A
3	2574.179	100.000	25.742	2574.179	N/A	N/A
4	12043.265	500.000	24.087	12043.265	N/A	N/A
5	29871.863	1000.000	29.872	29871.863	N/A	N/A
6	125124.670	5000.000	25.025	125124.670	N/A	N/A

Ch 4 

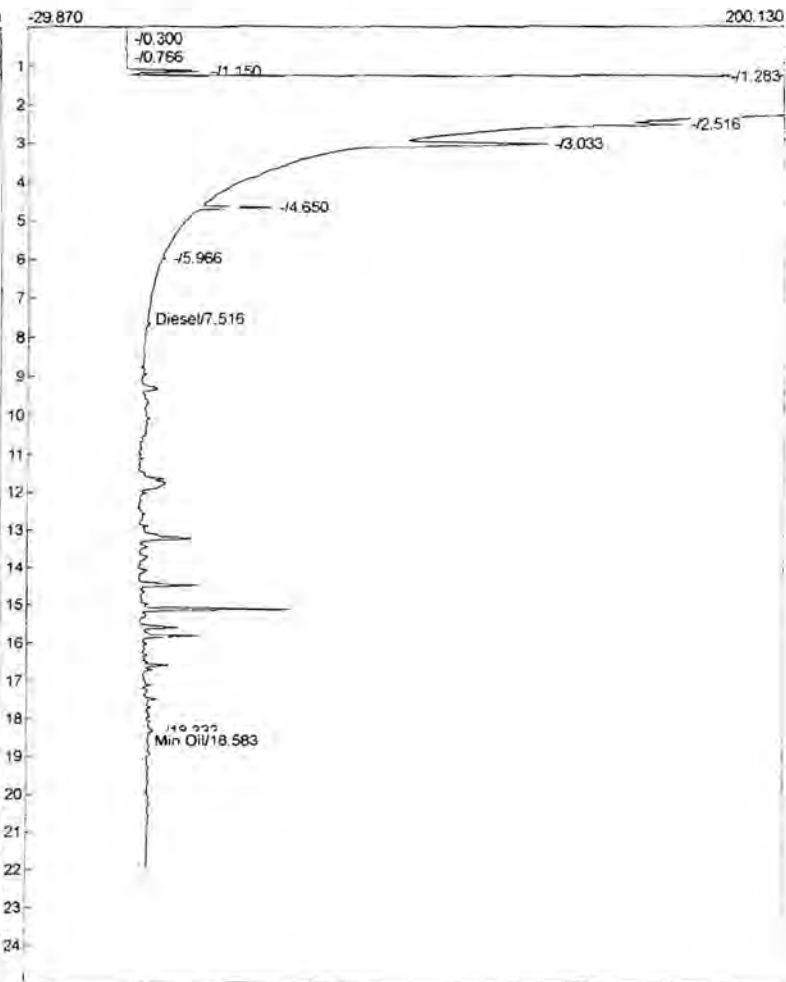
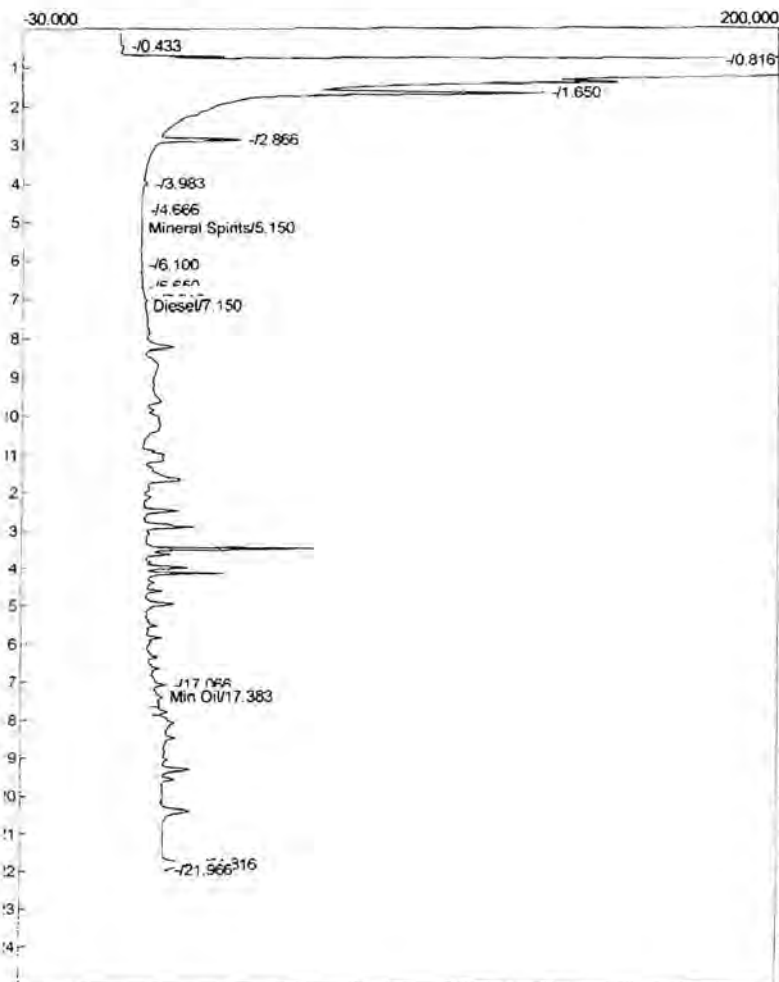


Avg slope of curve: 20.21
 Y-axis intercept: 0.00
 Linearity: 0.84
 Number of levels: 6
 SD/rel SD of CF's: 16.3/72.6
 $Y = -0.0008X^2 + 24.2883X$
 R²: 0.9993
 Last calibrated: Wed Mar 14 13:57:45 2012

Level	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	1271.716	25.000	50.869	1271.716	N/A	N/A
3	1927.394	100.000	19.274	1927.394	N/A	N/A
4	10086.605	500.000	20.173	10086.605	N/A	N/A
5	24554.042	1000.000	24.554	24554.042	N/A	N/A
6	101002.720	5000.000	20.201	101002.720	N/A	N/A

Lab Name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 10:39:04
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C620.CHR ()
 Sample: 25 PPM Dx 706
 Operator: KW

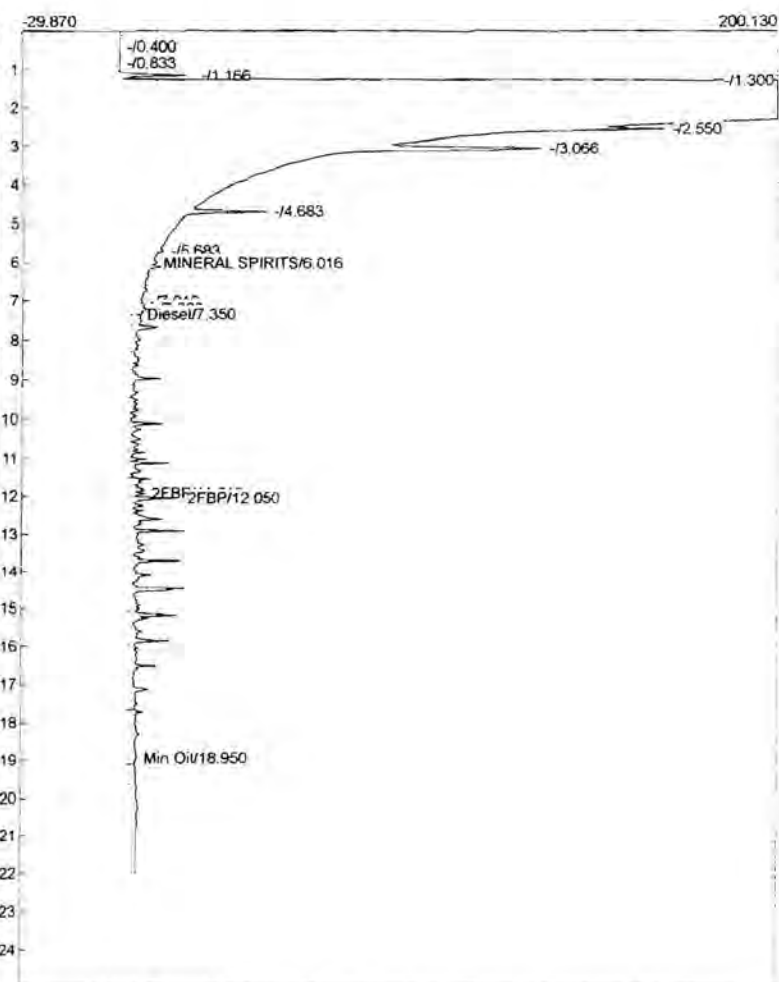
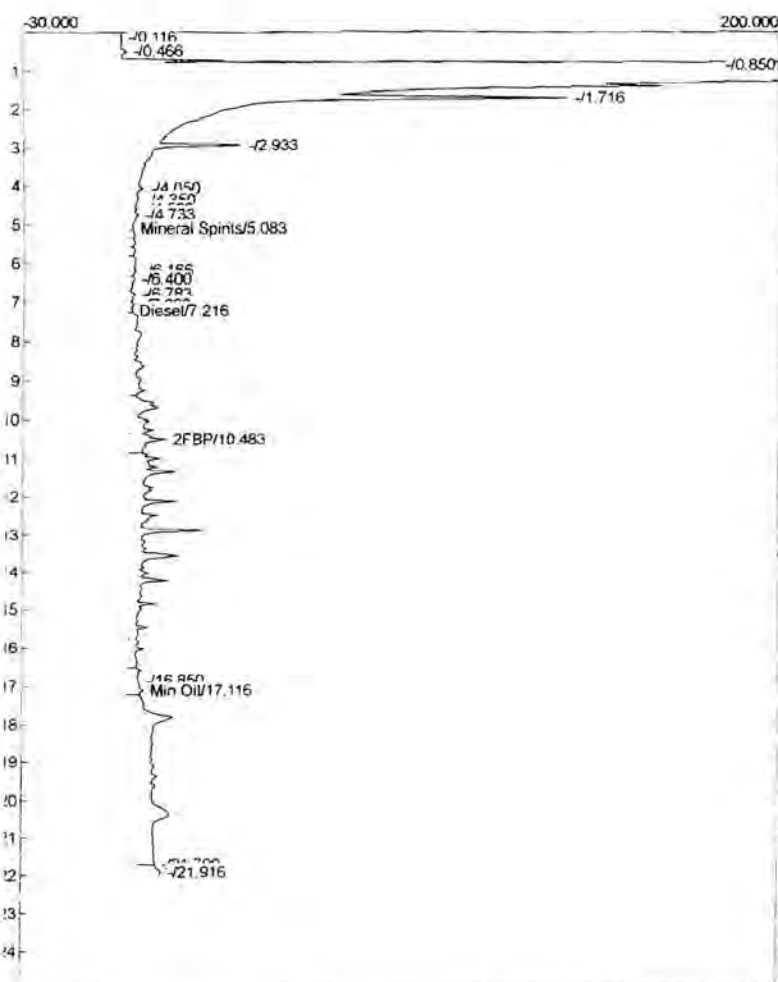
Lab Name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 10:39:04
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D626.CHR ()
 Sample: 25 PPM Dx 706
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	U
Mineral Spirits	5.150	7.8080	0.195	0.3863	PPM	Diesel	7.516	1271.7155	1.965	89.4973	ppm
Diesel	7.150	1410.4710	0.518	13.6936	ppm	Min Oil	18.583	209.2665	1.582	14.7689	ppm
Min Oil	17.383	577.2305	3.576	0.0000							
		1995.5095		14.0798				1480.9820		104.2662	

Lab name: Eddy Environmental, Inc.
 Analysis date: 03/14/2012 11:07:43
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C621.CHR ()
 Sample: 100 PPM Dx 705
 Operator: KW

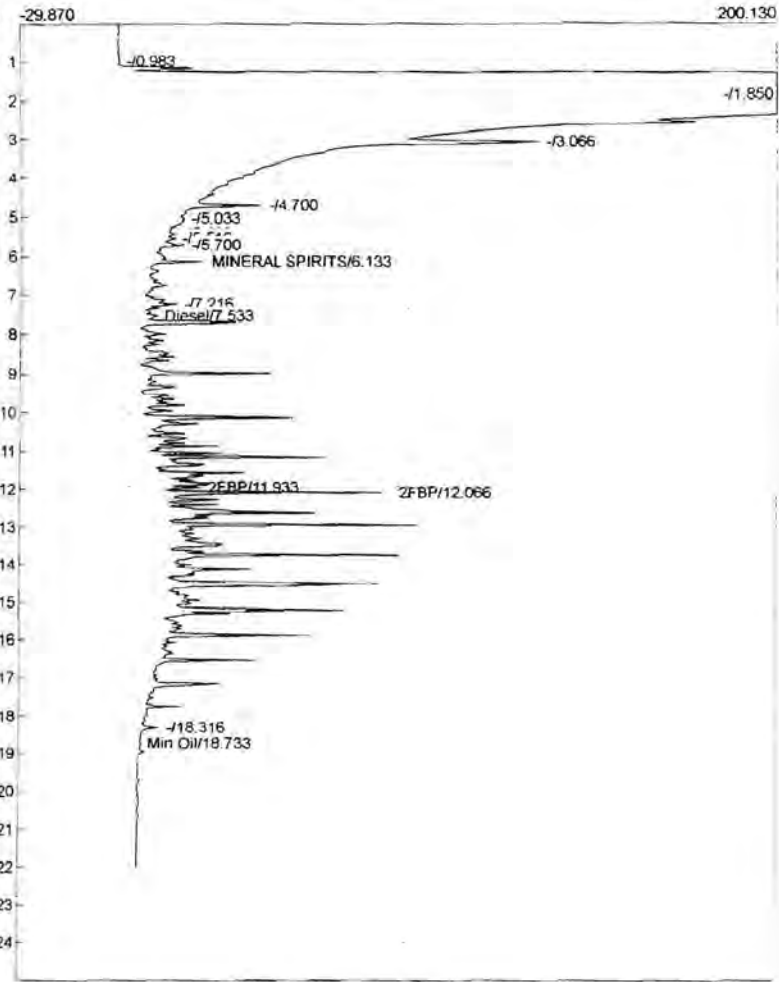
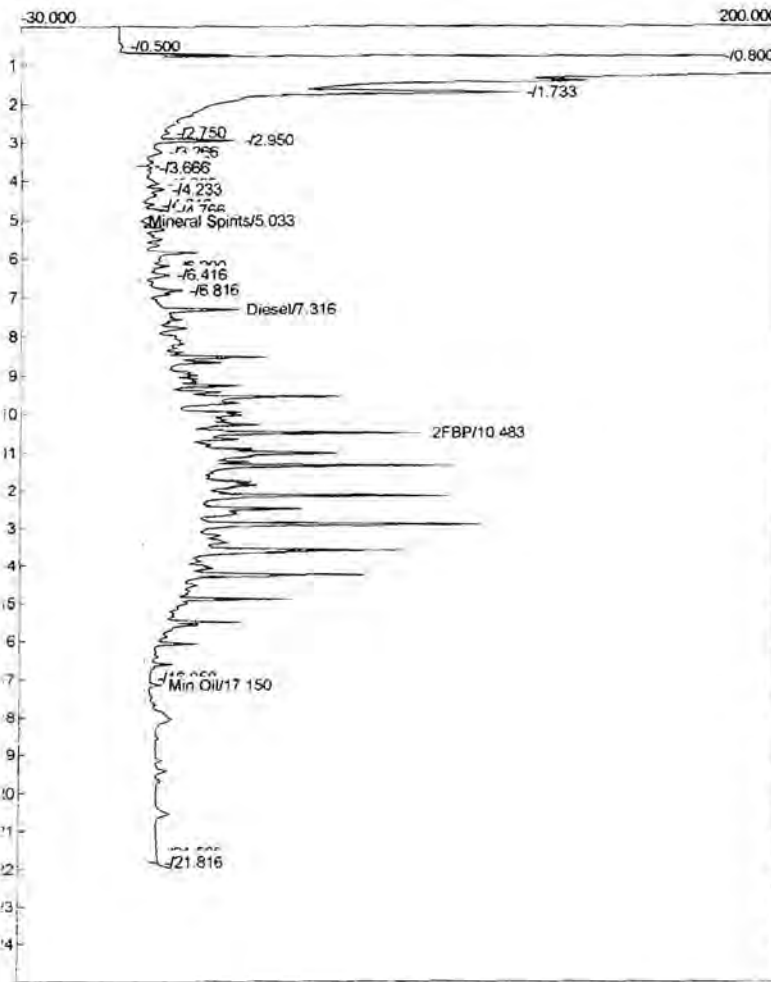
Analysis date: 03/14/2012 11:07:43
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D627.CHR ()
 Sample: 100 PPM Dx 705
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	U
Mineral Spirits	5.083	84.6325	1.090	4.1869	PP	MINERAL SPIRITS	6.016	285.6170	7.733	20.1004	PP
Diesel	7.216	2410.4095	0.627	119.2471	ppn	Diesel	7.350	1849.7390	2.625	130.1759	ppn
2FBP	10.483	163.7695	10.998	6.5508	ppn	2FBP	11.916	20.8250	4.775	1.0413	ppn
Min Oil	17.116	1953.3665	4.269	0.0000	2FBP	12.050	56.8300	15.516	2.8415	ppn	
					Min Oil	18.950	514.9365	2.757	36.3413	ppn	
		4612.1780		129.9847				2727.9475		190.5003	

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 11:45:18
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C622.CHR ()
 Sample: 500 PPM Dx 704
 Operator: KW

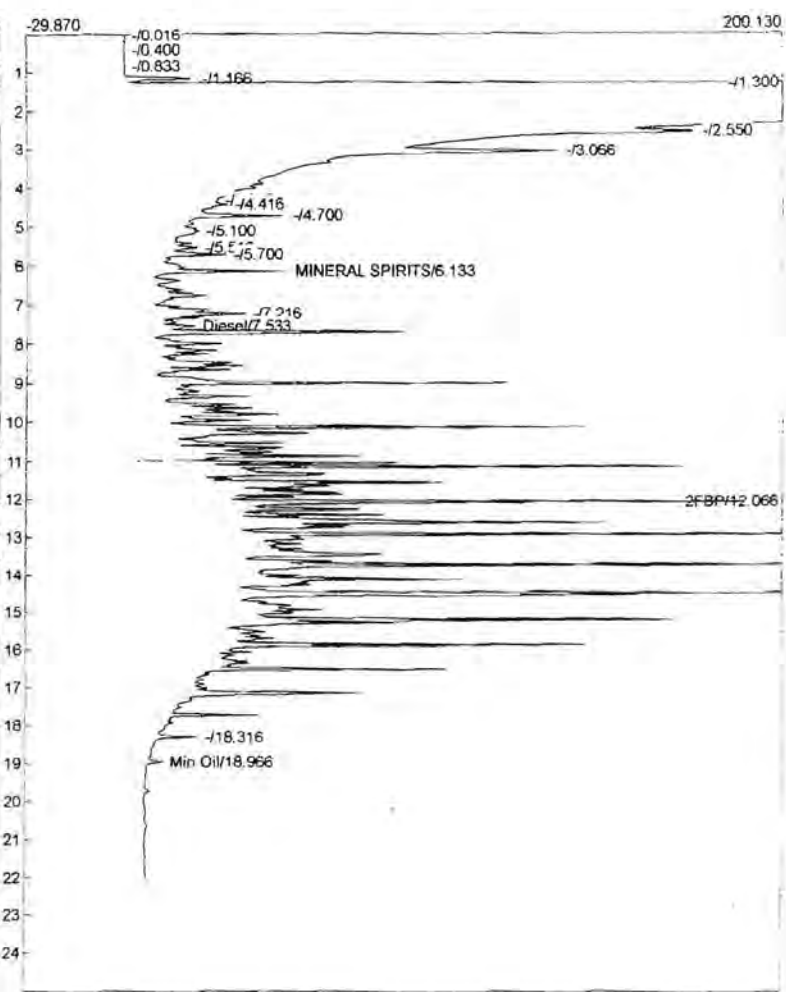
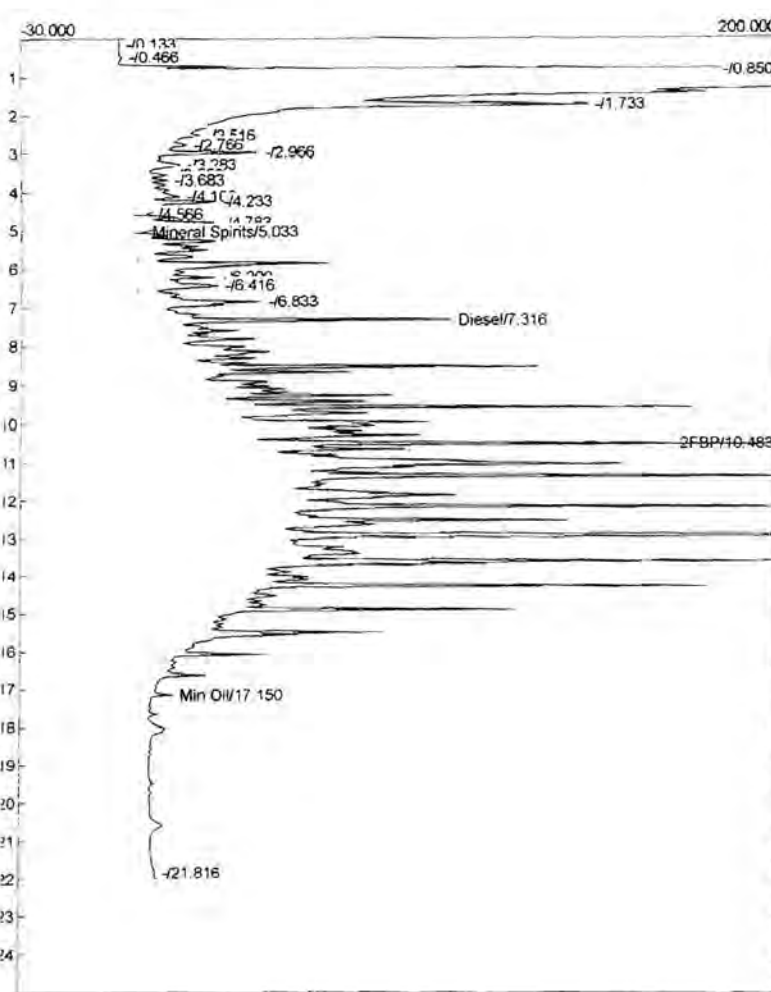
Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 11:45:18
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D628.CHR ()
 Sample: 500 PPM Dx 704
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Un
Mineral Spirits	5.033	323.3415	0.632	15.9963	ppm	MINERAL SPIRITS	6.133	636.8190	24.452	44.8163	ppm
Diesel	7.316	11375.2115	30.144	562.7511	ppm	Diesel	7.533	9651.3385	9.725	679.2156	ppm
2FBP	10.483	668.0530	86.276	26.7221	ppm	2FBP	11.933	110.1285	21.943	5.5064	ppm
Min Oil	17.150	960.9820	5.210	0.0000		2FBP	12.066	325.1375	79.999	16.2569	ppm
						Min Oil	18.733	138.4670	1.874	9.7722	ppm
		13327.5880		605.4694				10861.8905		755.5674	

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 12:13:07
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C623.CHR ()
 Sample: 1000 PPM Dx 703
 Operator: KW

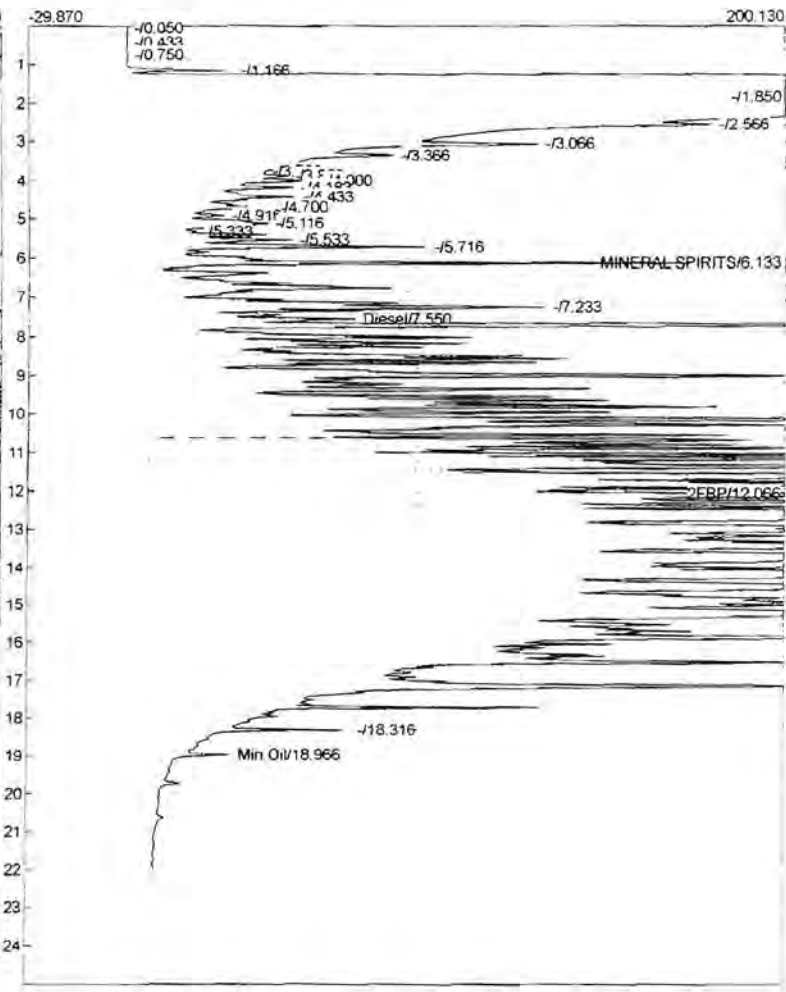
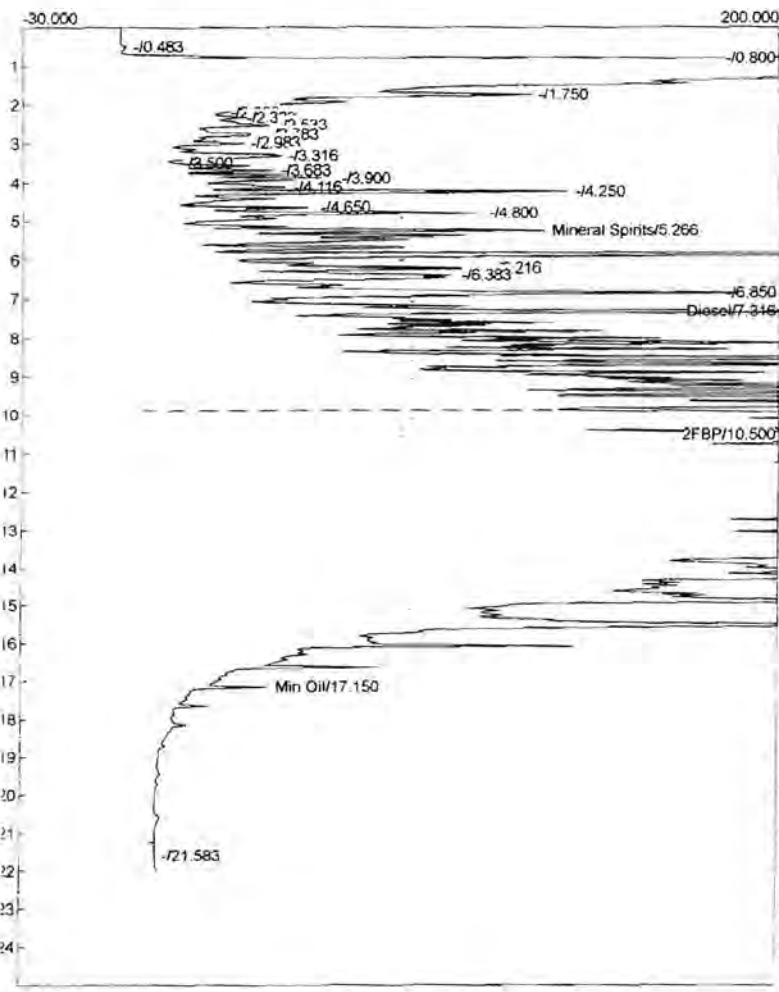
Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 12:13:07
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D629.CHR ()
 Sample: 1000 PPM Dx 703
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.033	995.3365	2.641	49.2410	pp	MINERAL SPIRITS	6.133	723.8390	45.571	50.9404	PF
Diesel	7.316	28291.8845	95.034	1399.6476	pp	Diesel	7.533	23510.5725	17.032	1654.5630	pp
2FBP	10.483	1579.9780	244.836	63.1991	pp	2FBP	12.066	1043.4695	193.880	52.1735	pp
Min Oil	17.150	221.1300	7.549	0.0000	pp	Min Oil	18.966	300.3670	6.980	21.1982	pp
		31088.3290		1512.0877				25578.2480		1778.8751	

Lab Name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 12:41:16
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C624.CHR ()
 Sample: 5000 PPM Dx 702
 Operator: KW

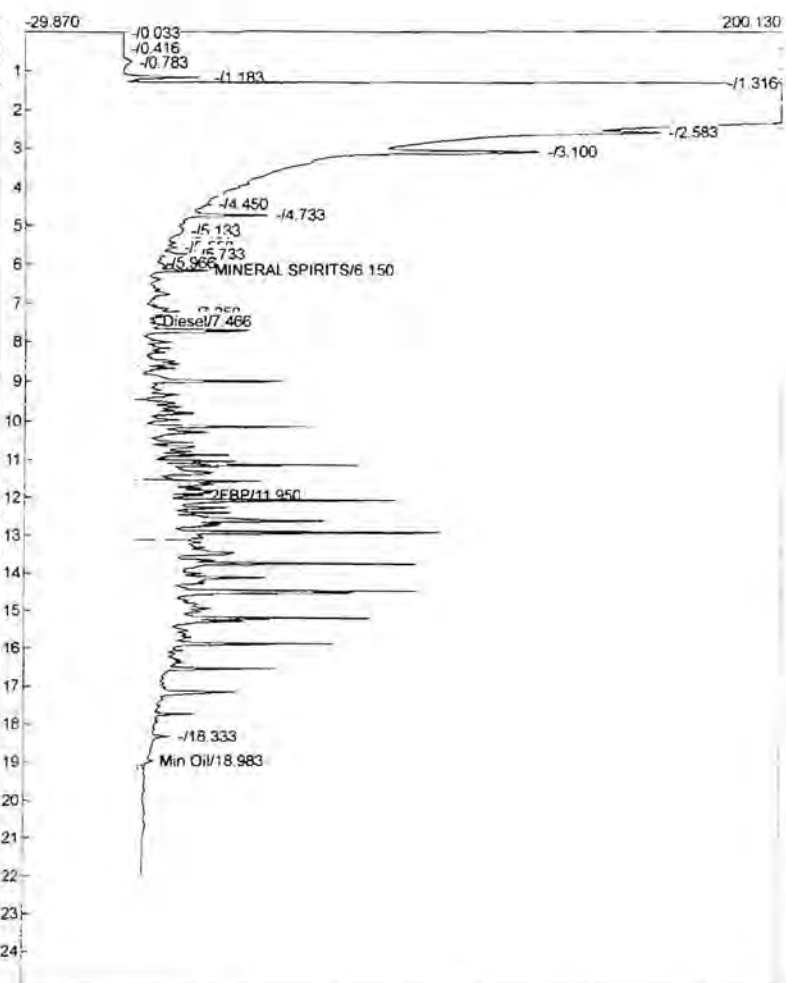
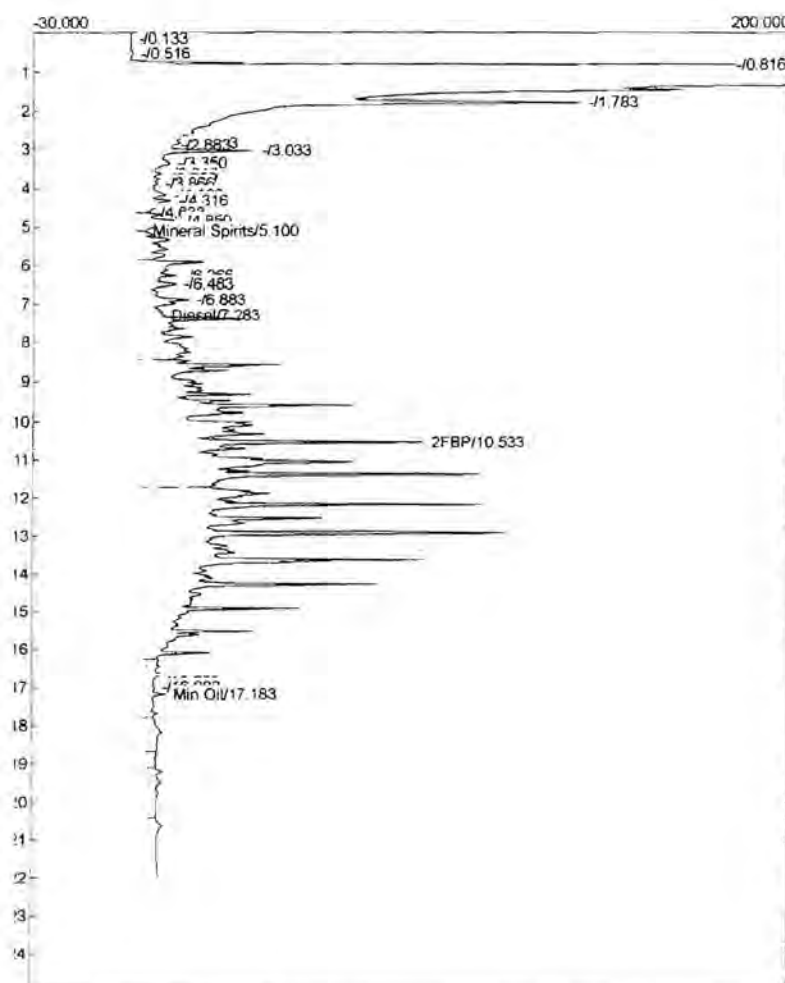
Lab Name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 12:41:16
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D630.CHR ()
 Sample: 5000 PPM Dx 702
 Operator: KW



Component	Retention	Area	Height	External	UnComponent	Retention	Area	Height	External	UnComponent
Mineral Spirits	5.266	4030.7350	121.832	199.4073	MINERAL SPIRITS	6.133	2118.1620	172.994	149.0662	PF
Diesel	7.316	118321.9850	479.109	5853.5897	Diesel	7.550	97612.4720	63.265	6869.5047	pp
2FBP	10.500	6802.6800	1015.018	272.1072	2FBP	12.066	3390.2460	772.659	169.5123	pp
Min Oil	17.150	1309.9915	36.600	0.0000	Min Oil	18.966	734.9465	24.851	51.8684	pp
		130465.3915		6325.1043			103855.8265		7239.9516	

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 13:09:09
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C625.CHR ()
 Sample: 500 PPM Dx ICAL 707
 Operator: KW

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 13:09:09
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D631.CHR ()
 Sample: 500 PPM Dx ICAL 707
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	U
Mineral Spirits	5.100	454.2775	2.261	22.4739	PPM	MINERAL SPIRITS	6.150	431.9470	21.664	30.3984	PPM
Diesel	7.283	12055.9145	7.302	415.8831	ppm	Diesel	7.466	9633.4975	5.799	402.0800	ppm
2FBP	10.533	706.7050	85.875	28.2682	ppm	2FBP	11.950	98.4805	20.159	4.9240	ppm
Min Oil	17.183	642.7165	6.075	0.0000		Min Oil	18.983	249.4535	4.581	17.6050	ppm
		13859.6135		466.6252				10413.3785		455.0074	



Libby Environmental, Inc.

4139 Libby Road NE • Olympia, WA 98506-2518

November 12, 2012

Neil Morton
GeoEngineers Inc.
600 Stewart Street, Suite 1700
Seattle, WA 98101

Dear Mr. Morton:

Please find enclosed the analytical data report for the Irondale Project located in Irondale, Washington. Soil samples were analyzed for Diesel & Oil by NWTPH-Dx/Dx Extended with Silica Gel Clean Up on October 15, 2012.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. All soil samples are reported on a dry weight basis. An invoice for this analytical work is enclosed.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Jamie L. Deyman
President
Libby Environmental, Inc.



Libby Environmental, Inc.

Case Narrative

Libby Project #: L121015-30
Date: 11-12-2012

CLIENT: GeoEngineers, Inc.
PROJECT: Irondale

I. SAMPLE RECEIPT:

All samples were received intact and in good condition. See the attached Sample Receipt Check List for more information.

II. GENERAL REPORTING COMMENTS:

Final results are reported on a dry weight basis. The soil samples in the field are estimated to have a moisture content of 15%. This estimate is useful in producing data that is close to the actual value. After the sample is analyzed for soil moisture at our fixed base facility, the final data is reported based on measured soil moisture. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS), the Laboratory Control Sample Duplicate (LCSD) and the Method Blank (MB). The LCS, LCSD and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) and/or noted below.

Notes:

N/A

Libby Environmental, Inc.

Chain of Custody Record

4139 Libby Road NE
Olympia, WA 98506

Ph: 360-352-2110
Fax: 360-352-4154

Date: 10-15-12

Page: 1 of 1

Client: Geo Engineers

Project Manager: Neil Morton

Address:

Project Name: Irondale

Phone: Fax:

Location: WA City: Irondale

Client Project #

Collector: Paul Robinette Date of Collection: 10-15-12



Sample Number	Depth	Time	container	Sample	TESTS											Field Notes		
			Sample Type	Container Type	VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEMI VOL 8270	NWTPH-HCID	NWTPH-Gx	NWTPH-Dx	PAH 8270	PCB's 8082	MTCA 5 Metals				
1 SURZ-B1-101512	10	8:30	4oz Jar	Soil							X							
2 SURZ-B2-101512	9	9:35	✓	✓							X							
3 K17-B1-101512	9	11:40	✓	✓							X							
4 K17-B2-101512	10	1246	✓	✓							X							
5 K17-WSWI-101512	5	1245	✓	✓							X							
6 K17-SSWI-101512	5	1250	✓	✓							X							
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		

Relinquished by: <i>Paul Robinette</i>	Date / Time: 10/15 1445	Received by: <i>Paul Burke</i>	Date / Time: 10/15 1445	Sample Receipt: Good Condition? <input type="checkbox"/> Cold? <input type="checkbox"/> Seals Intact? <input type="checkbox"/> Total Number of Containers	Remarks:
Relinquished by:	Date / Time:	Received by:	Date / Time:		
Relinquished by:	Date / Time:	Received by:	Date / Time:		
Relinquished by:	Date / Time:	Received by:	Date / Time:		

Libby Environmental, Inc. Login Sample Receipt Check List

Client: GeoEngineers, Inc. **Libby Project Number:** L121015-30

Question	T / F / NA	Comment
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler temperature is acceptable.	True	
COC is present.	True	
COC is filled out in ink and is legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within the Hold Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs.	True	
VOA sample vials do not have headspace or bubble is less than 6mm (1/4 in.) in diameter.	True	
If necessary, staff has been informed of any short hold time or quick TAT needs.	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	

Libby Environmental, Inc.

4139 Libby Road NE
Olympia, WA 98506
Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@aol.com

IRONDALE PROJECT
GeoEngineers, Inc.
Irondale, Washington
Libby Project # L121015-30
Client Project # 0504-042-02

Analyses of Diesel & Oil Range (NWTPH-Dx/Dx Extended) in Soil w/ Silica Gel Cleanup

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Bunker C (mg/kg)
Method Blank	10/15/12	95	nd	nd
LCS	10/15/12	int	108%	
LCSD	10/15/12	int	101%	
SURZ-B1-101512	10/15/12	111	nd	nd
SURZ-B1-101512 Dup	10/15/12	105	nd	nd
SURZ-B2-101512	10/15/12	117	nd	nd
SURZ-B12-101512 Dup	10/15/12	110	nd	nd
K17-B1-101512	10/15/12	int	nd	90
K17-B1-101512 Dup	10/15/12	102	nd	87
K17-B2-101512	10/15/12	122	nd	84
K17-WSW1-101512	10/15/12	113	nd	nd
K17-SSW1-101512	10/15/12	113	nd	nd
Practical Quantitation Limit			25	40

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

Client: Geo Engineers

Client Project: Irondale

Date: 10/15/2012

Libby Job #: L121015-30		Instrument: Shimadzu GC14A			Analyst/s: Paul Burke		
Sample #	Time	Run	Vol	Surrogate 2FBP conc.	Diesel Conc.	Oil Conc	Bunker C Conc
500 ppm Diesel 791	7:23:31	C287	3 µl		540		
500 ppm Diesel 791	7:23:31	D295	3 µl		520		
1000 ppm LCS 343	7:56:40	C298	3 µl	int	1085		
1000 ppm LCSD 343	7:56:40	D296	3 µl	int	1013		
Method Blank (Not Used)	8:30:12	C299	3 µl				
Method Blank (Not Used)	8:30:12	C297	3 µl				
Method Blank	9:04:29	C300	3 µl	23.0	nd	nd	nd
Method Blank	9:04:29	D298	3 µl	19.0	nd	nd	nd
SURZ-B1-101512	9:39:49	C301	3 µl	22.2	nd	nd	nd
SURZ-B1-101512 Dup	9:39:49	D299	3 µl	21.0	nd	nd	nd
SURZ-B2-101512	10:16:58	C302	3 µl	23.5	nd	nd	nd
SURZ-B2-101512 Dup	10:16:58	D300	3 µl	22.1	nd	nd	nd
K17-B1-101512	12:06:57	C303	3 µl	int	nd	nd	90
K17-B1-101512 Dup	12:06:57	D301	3 µl	20.3	nd	nd	87
500 ppm Diesel 791 (Not Used)	13:08:05	C304	3 µl				
500 ppm Diesel 791 (Not Used)	13:08:05	D302	3 µl				
K17-B2-101512	13:43:27	C305	3 µl	25.5	nd	nd	78
K17-WSW1-101512	13:43:27	D303	3 µl	22.6	nd	nd	nd
k17-ssw1-101512	14:17:19	C306	3 µl	22.7	nd	nd	nd
No Sample	14:17:19	D304	3 µl				
500 ppm Diesel 791	14:50:56	C307	3 µl		570		
500 ppm Diesel 791	14:50:56	D305	3 µl		502		

Analysis date: 10/15/2012 07:23:31
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C297.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Analysis date: 10/15/2012 07:23:31
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D295.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

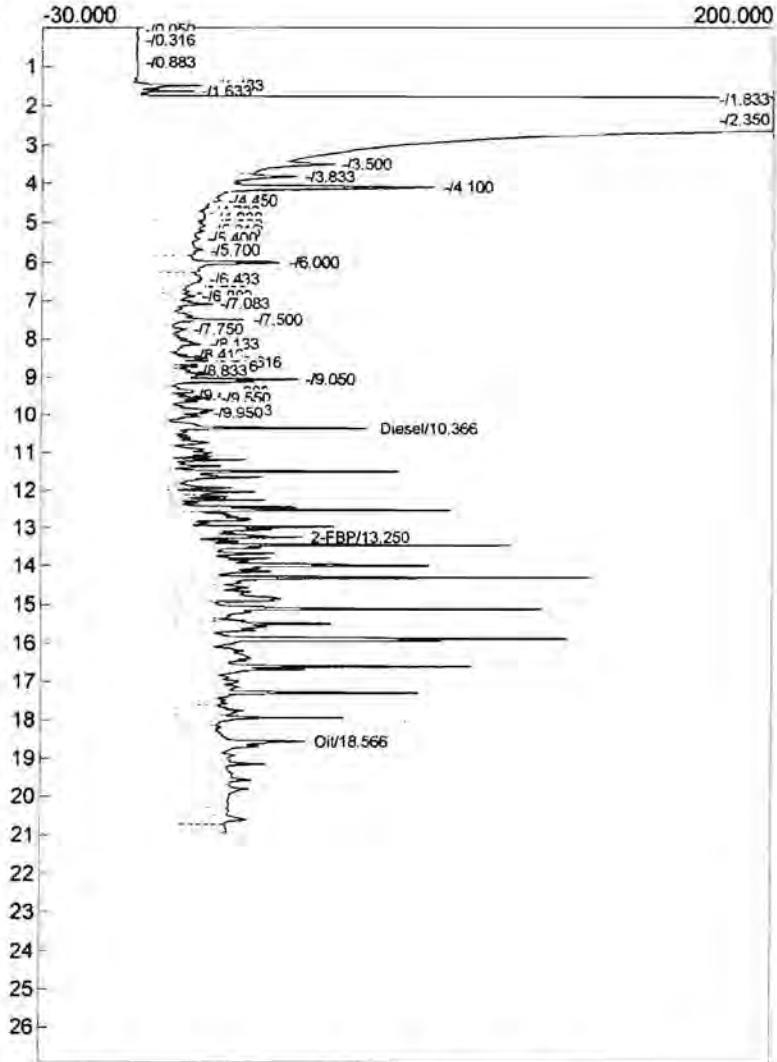
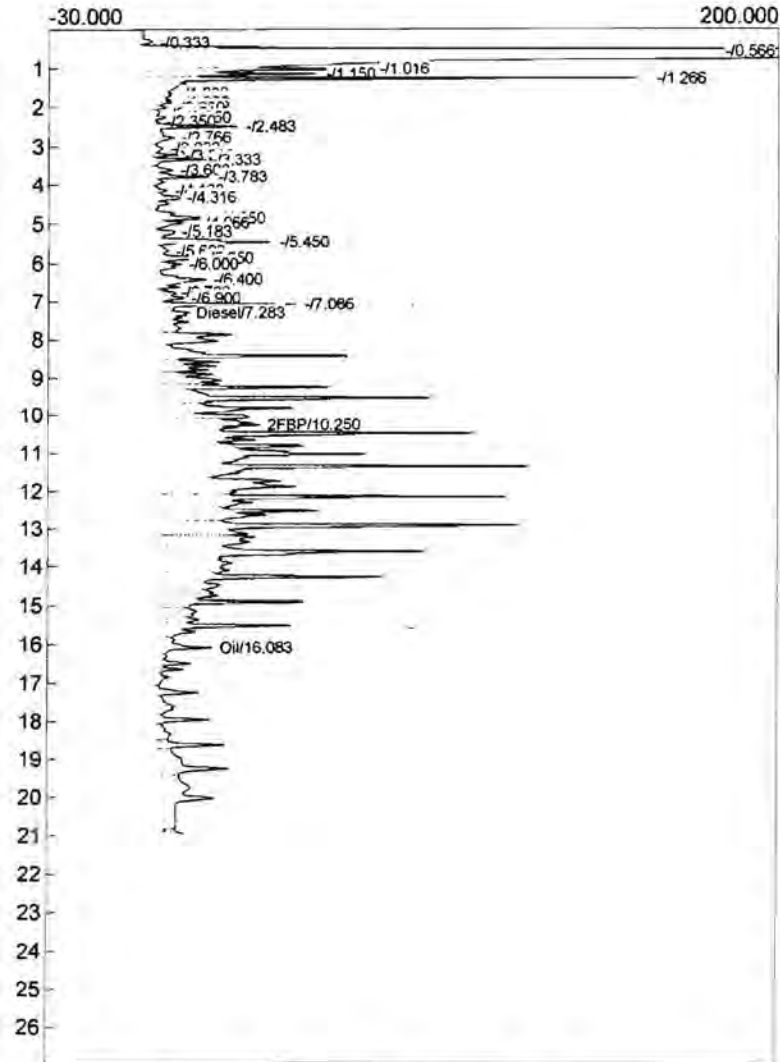
Time Event
 0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
iesel	7.283	10947.5470	6.885	539.5602	ppm
FBP	10.250	375.3590	29.533	15.0144	ppm
il	16.083	1337.5930	15.159	65.7612	ppm
		12660.4990		620.3258	

Component	Retention	Area	Height	External	Units
Diesel	10.366	9788.5580	64.038	519.8745	
2-FBP	13.250	196.6060	41.362	6.8385	ppm
Oil	18.566	2640.1270	40.219	139.4212	ppm
		12625.2910		666.1342	

Method:

Description: JAMACIA
Column: Restek Rtx-5 30x0.53x1.5
Carrier: He
Data file: C298.CHR ()
Sample: 1000 ppm LCS 343
Operator: PB

Method:

Description: JAMACIA
Column: Restek Rtx-5 30x0.53x1.5
Carrier: He
Data file: D296.CHR ()
Sample: 1000 ppm LCSD 343
Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

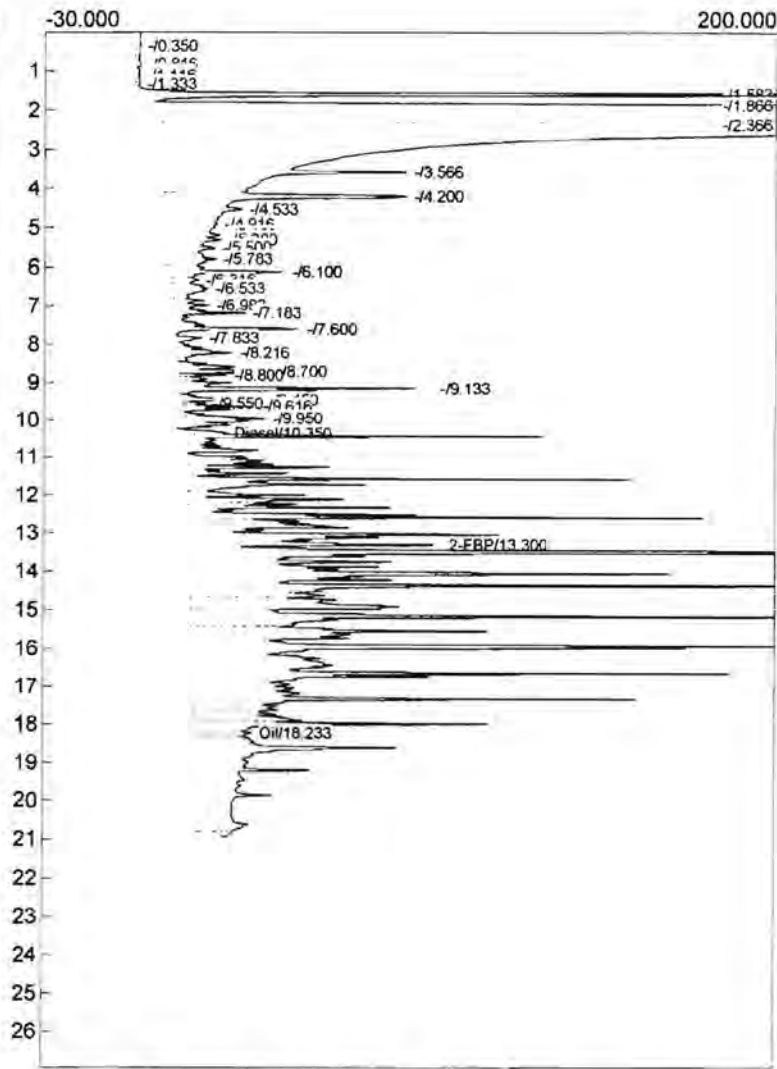
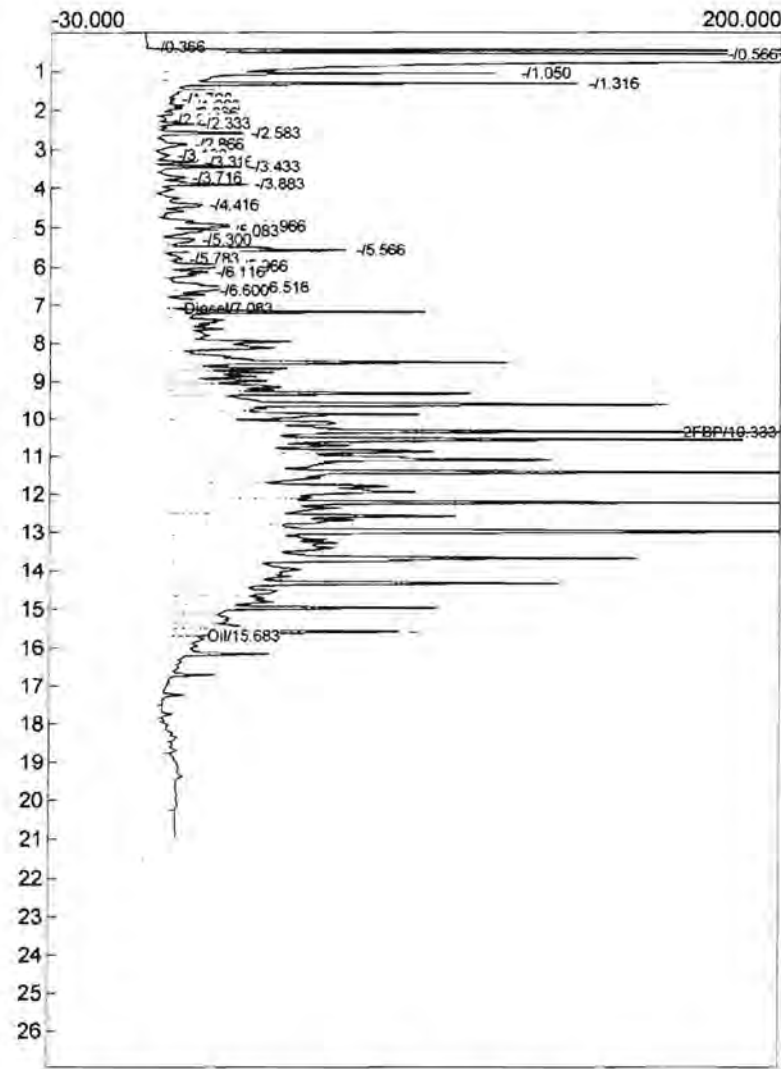
Time Event
0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.083	21925.8585	2.108	1084.6701	ppm
2-FBP	10.333	1196.7420	241.029	47.8697	ppm
Oil	15.683	669.4585	7.703	32.9132	ppm
		23792.0590		1165.4530	

108%

Component	Retention	Area	Height	External	Units
Diesel	10.350	18925.1675	11.710	1013.2981	ppm
2-FBP	13.300	402.8895	79.485	14.0135	ppm
Oil	18.233	2598.4145	18.129	137.2184	ppm
		21926.4715		1164.5300	

101%

Analysis date: 10/15/2012 08:30:12

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: C299.CHR ()

Sample: Method Blank

Operator: PB

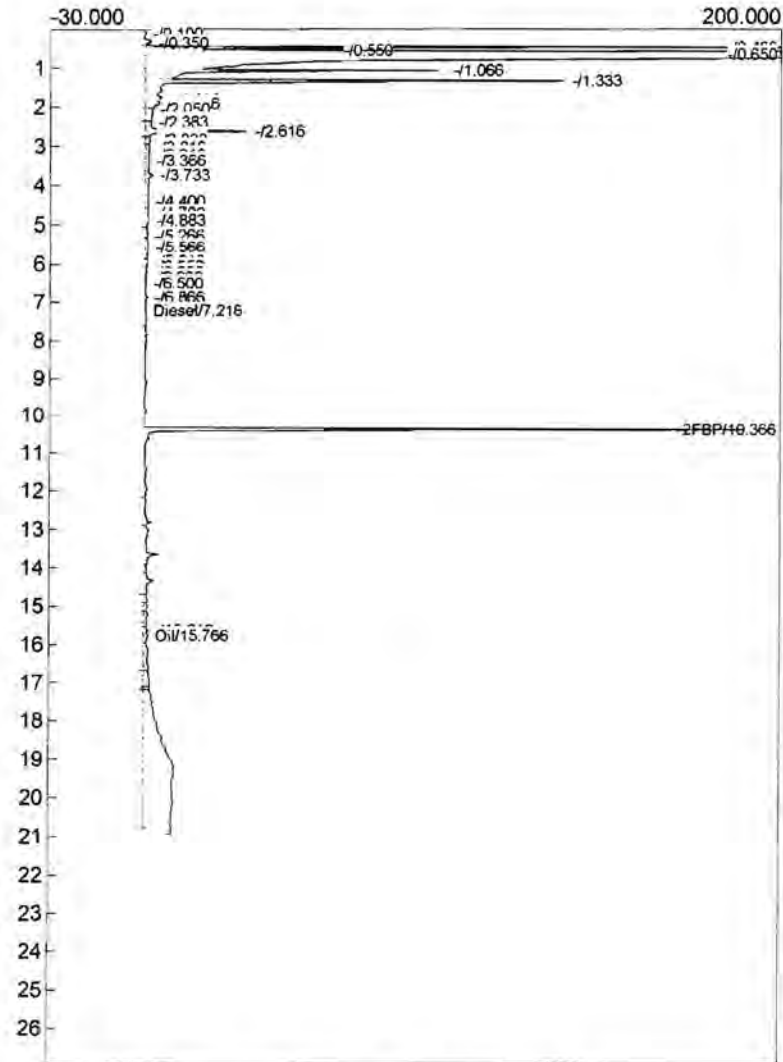
NOT used

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.216	860.2730	0.276	42.2943	ppm
FBP	10.366	581.1980	203.070	23.2479	ppm
Oil	15.766	1624.4300	1.403	79.8632	ppm
		3065.9010		145.4055	

Analysis date: 10/15/2012 08:30:12

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: D297.CHR ()

Sample: Method Blank

Operator: PB

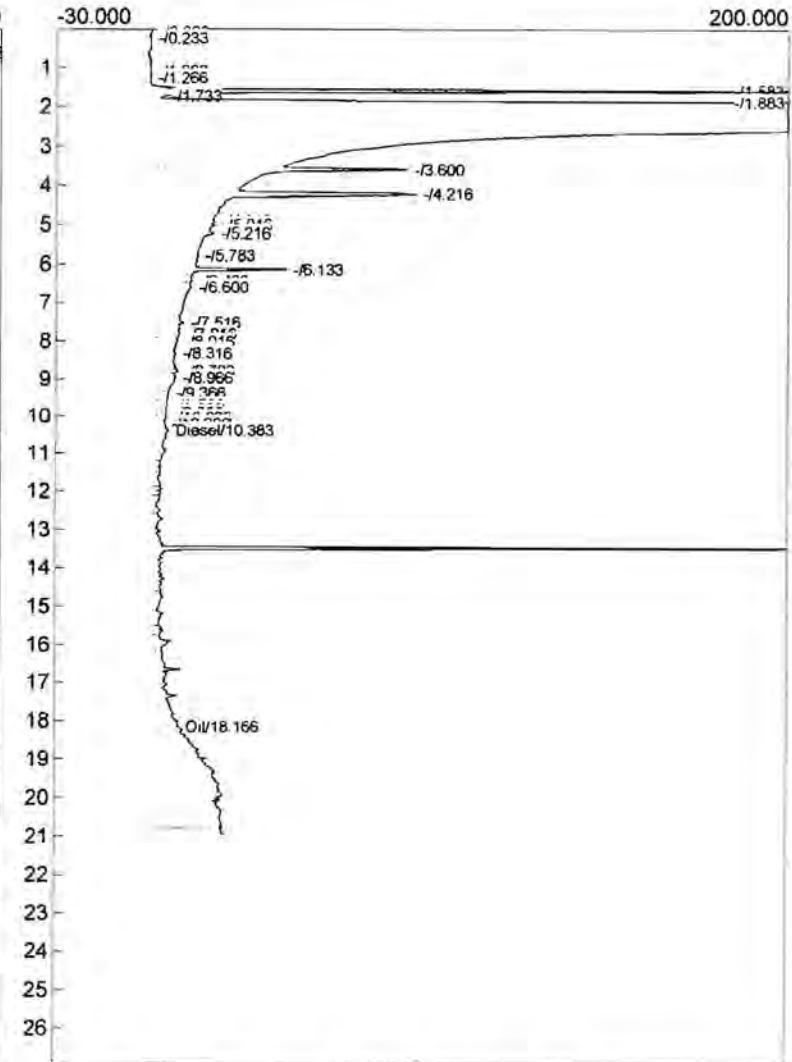
NOT used

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	10.383	1422.2510	3.616	75.1069	
Oil	18.166	2690.2300	7.116	142.0670	ppm
		4112.4810		217.1740	

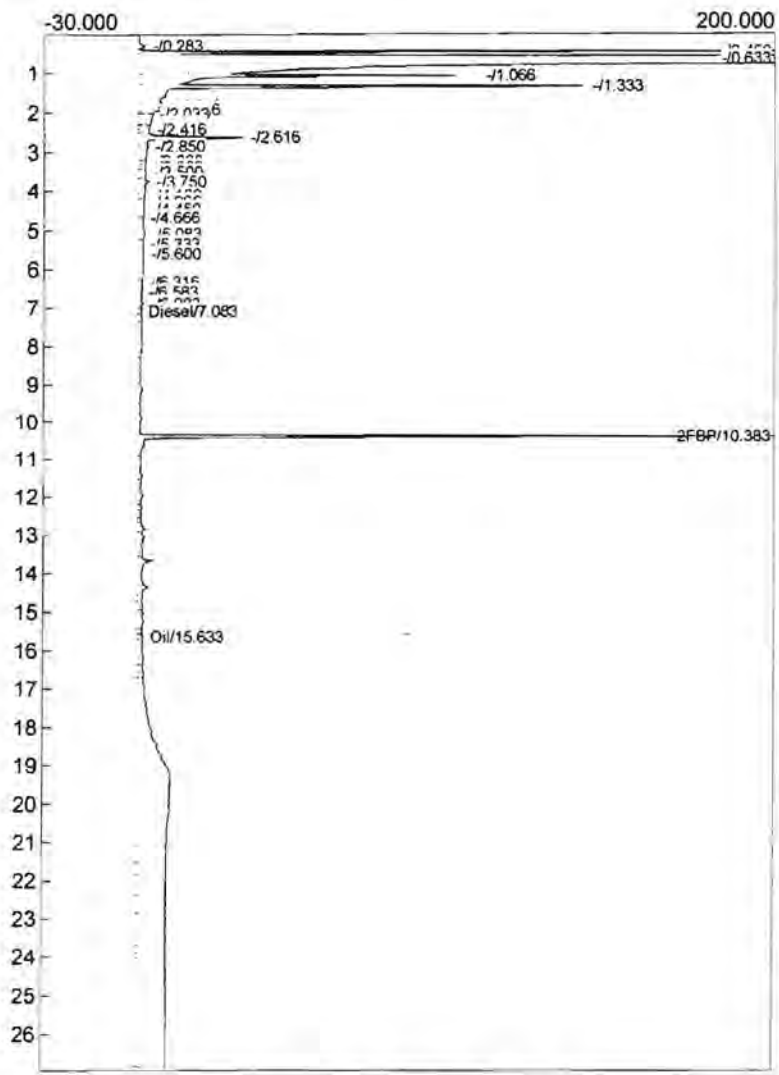
Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C300.CHR ()
 Sample: Method Blank
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time	Event
0.000	ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.083	833.5785	0.183	40.9819	ppm
FBP	10.383	574.1420	211.918	22.9657	ppm
Oil	15.633	4782.8475	1.148	235.2408	ppm
		6190.5680		299.1884	

115%

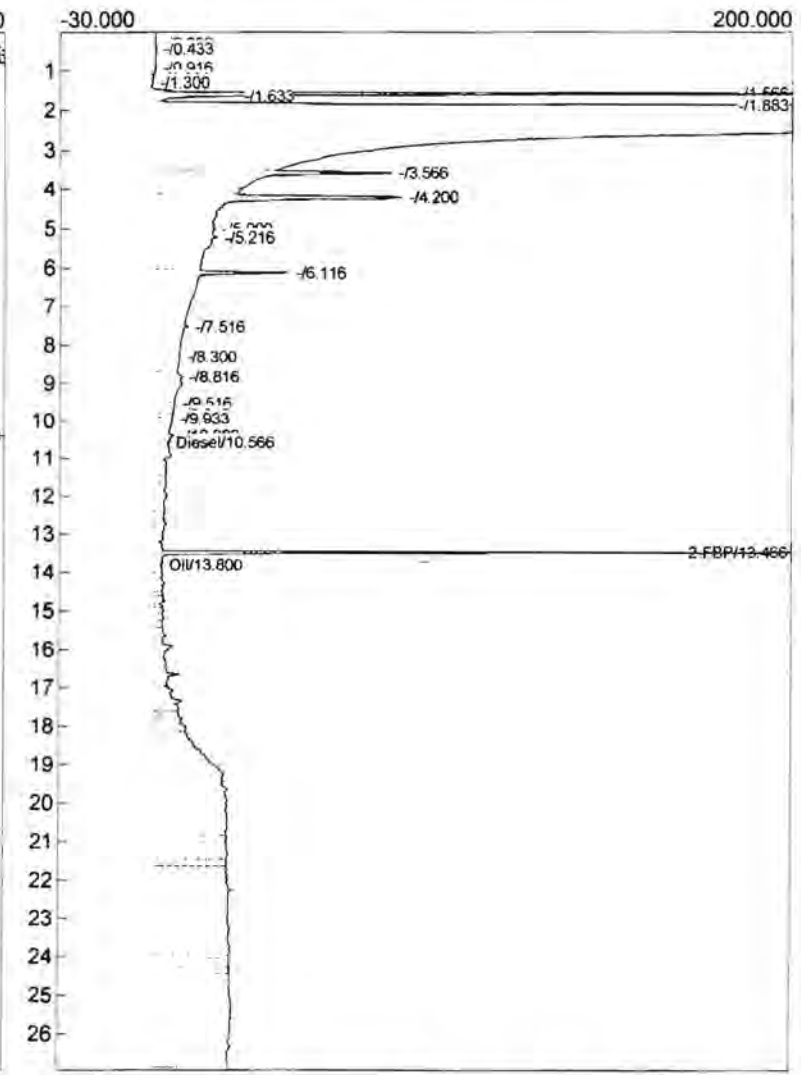
Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D298.CHR ()
 Sample: Method Blank
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time	Event
0.000	ZERO



Component	Retention	Area	Height	External	Units
Diesel	10.566	823.1270	2.823	43.4681	
2-FBP	13.466	545.4480	227.835	18.9721	ppm
Oil	13.800	11599.5630	0.979	616.9293	ppm
		12968.1380		679.3695	

95%

Method: JAMACIA
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C300.CHR ()
 Sample: Method Blank
 Operator: PB

Method: JAMACIA
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D298.CHR ()
 Sample: Method Blank
 Operator: PB

USED for Bunker C airblank only

Use for Bunker C airblank only

Temperature program:

Temperature program:

Init temp Hold Ramp Final temp

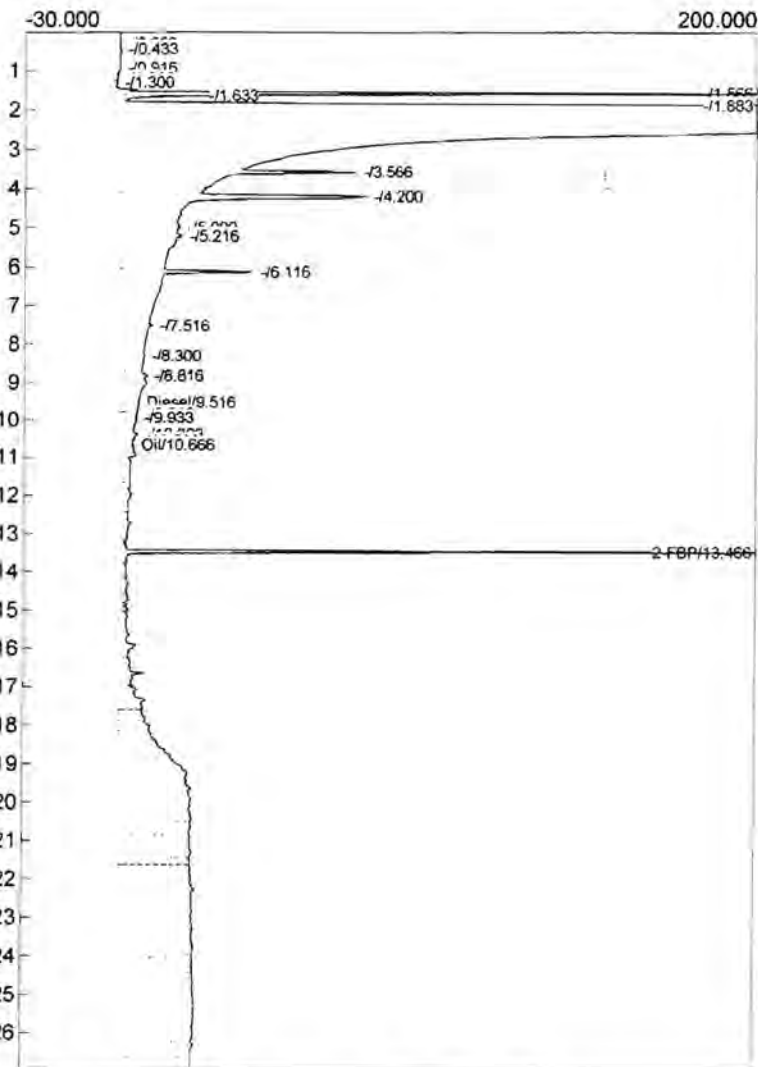
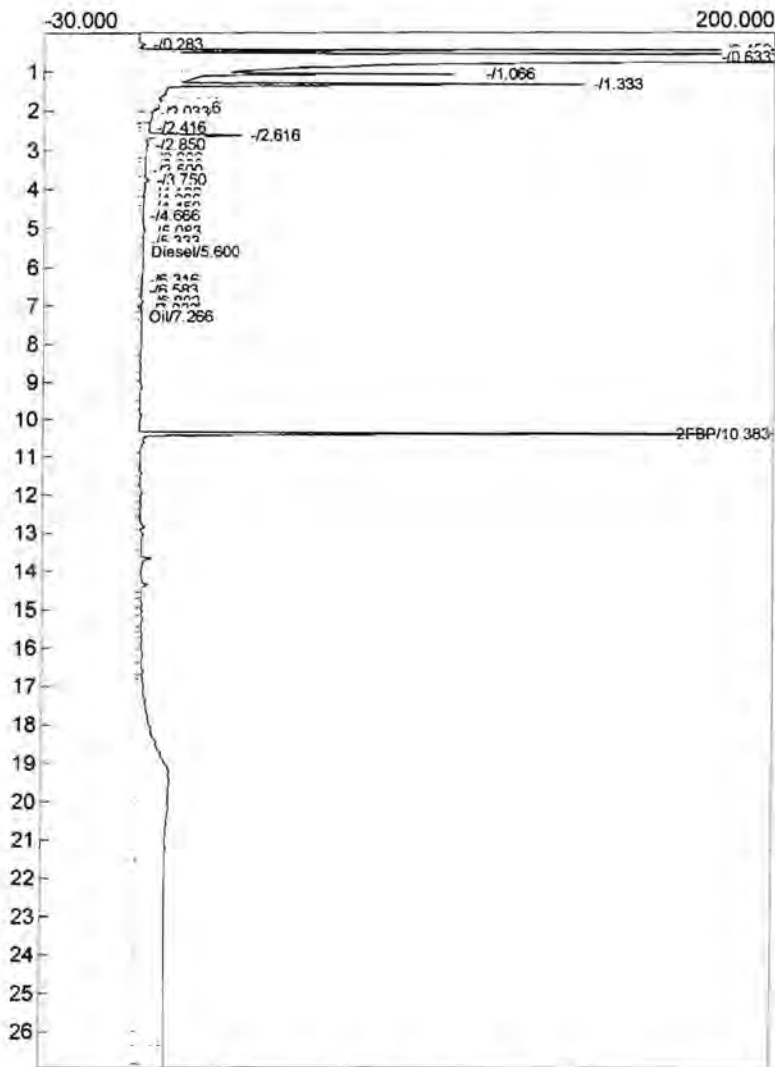
Init temp Hold Ramp Final temp

Events:

Events:

Time Event
 0.000 ZERO

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.600	35.2880	0.940	1.7349	ppm
Oil	7.266	5614.8635	0.392	276.2595	ppm
2-FBP	10.383	574.1420	211.918	22.9657	ppm
		6224.2935		300.9601	

Component	Retention	Area	Height	External	Units
Diesel	9.516	77.2440	4.592	4.0791	
Oil	10.666	12407.1210	3.076	660.4528	ppm
2-FBP	13.466	545.4480	227.835	18.9721	ppm
		13029.8130		683.5040	

Analysis date: 10/15/2012 09:39:49
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C301.CHR ()
 Sample: SURZ-B1-101512
 Operator: PB

Analysis date: 10/15/2012 09:39:49
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D299.CHR ()
 Sample: SURZ-B1-101512 Dup
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

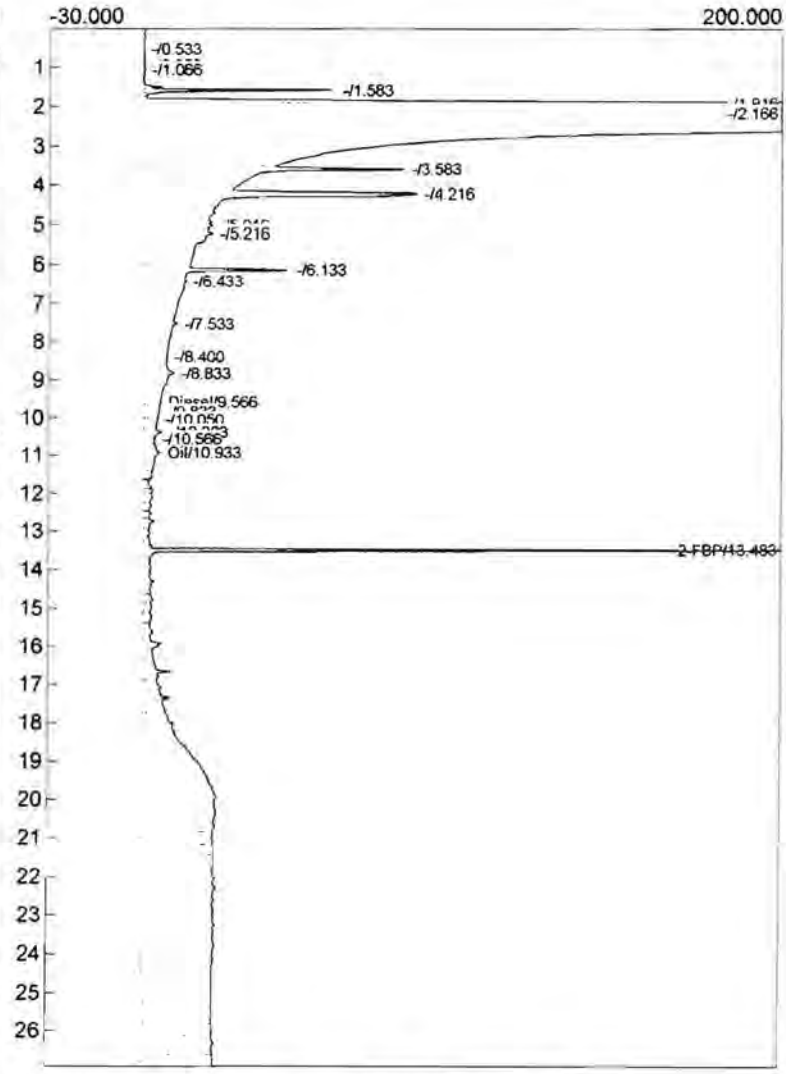
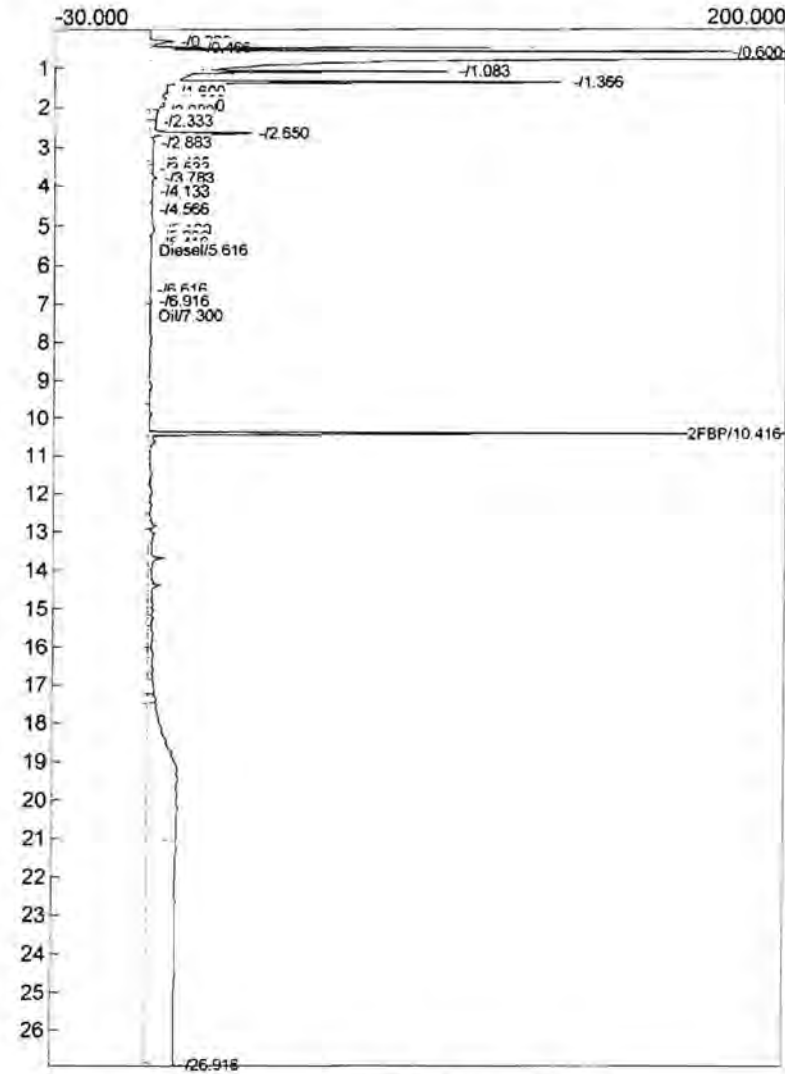
Time Event
 0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.616	15.6790	0.465	0.7708	ppm
Oil	7.300	5758.0600	0.338	283.3191	ppm
FBP	10.416	554.6510	209.674	22.1860	ppm
		6328.3900		306.2760	

Component	Retention	Area	Height	External	Units
Diesel	9.566	54.3600	4.245	2.8707	
Oil	10.933	12359.4025	4.167	657.8810	ppm
2-FBP	13.483	603.5020	250.918	20.9914	ppm
			13017.2645	681.7430	

nd 111%

nd 105%

Analysis date: 10/15/2012 10:16:58
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C302.CHR ()
 Sample: SURZ-B2-101512
 Operator: PB

Analysis date: 10/15/2012 10:16:58
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D300.CHR ()
 Sample: SURZ-B2-101512 Dup
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

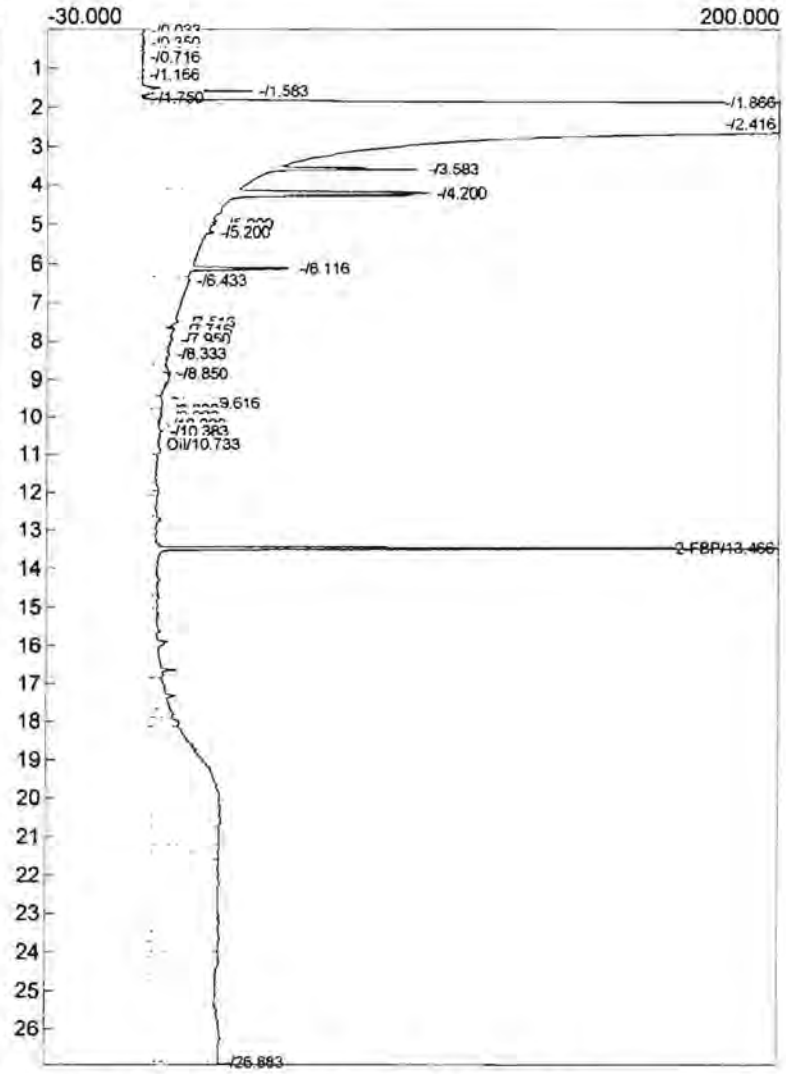
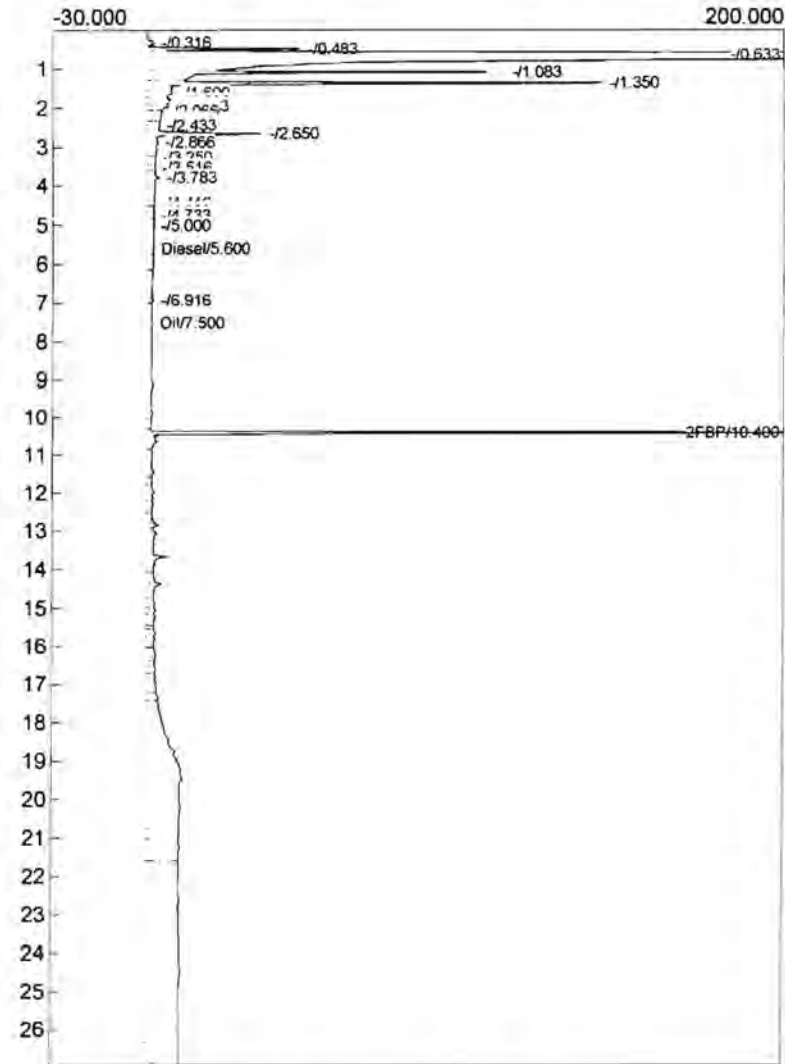
Time Event
 0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.600	30.7430	0.728	1.5114	ppm
Oil	7.500	6034.2590	0.480	296.9358	ppm
2-FBP	10.400	587.4785	209.087	23.4991	ppm
		6652.4805		321.9464	

Component	Retention	Area	Height	External	Units
Diesel	9.616	44.6190	3.091	2.3563	
Oil	10.733	12013.6100	1.909	639.2445	ppm
2-FBP	13.466	634.0250	227.125	22.0530	ppm
		12692.2540		663.6538	

nd 117%

nd 110%

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: C303.CHR ()

Sample: K17-B1-101512

Operator: PB

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: D301.CHR ()

Sample: K17-B1-101512 Dup

Operator: PB

Temperature program:

Temperature program:

Init temp Hold Ramp Final temp

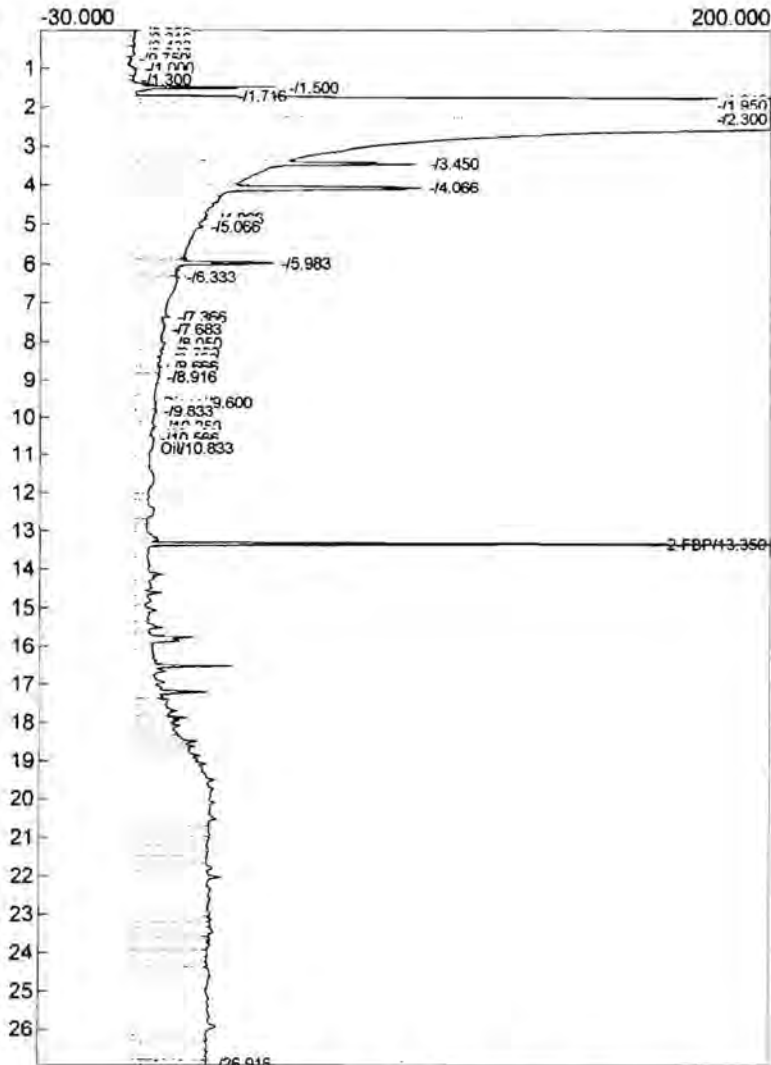
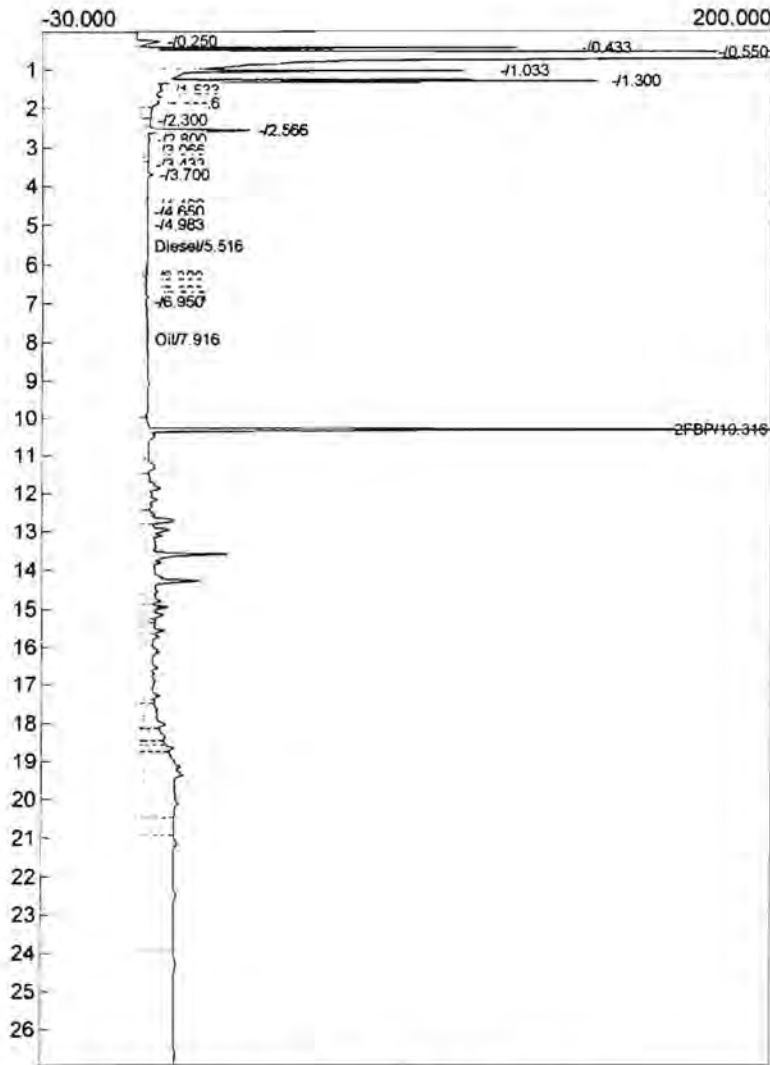
Init temp Hold Ramp Final temp

Events:

Events:

Time Event
0.000 ZERO

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.516	38.9955	0.726	1.9172	ppm
Oil	7.916	7437.5170	0.835	366.1170	ppm
FBP	10.316	694.5435	228.032	27.7817	ppm
		8171.0560		395.8159	

Component	Retention	Area	Height	External	Units
Diesel	9.600	81.7595	5.128	4.3176	
Oil	10.833	14012.7365	4.265	746.9877	ppm
2-FBP	13.350	583.4550	269.804	20.2941	ppm
		14677.9510		771.5994	

int 366 - 276 = 90 ppm
 Bunker C
 w/c * 1.00117 = 90.1

747 - 660 = 87 ppm
 Bunker C
 102%
 w/c * 1.00117 = 87.1

Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C304.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D302.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

NOT USED

NOT USED

Temperature program:

Temperature program:

Init temp Hold Ramp Final temp

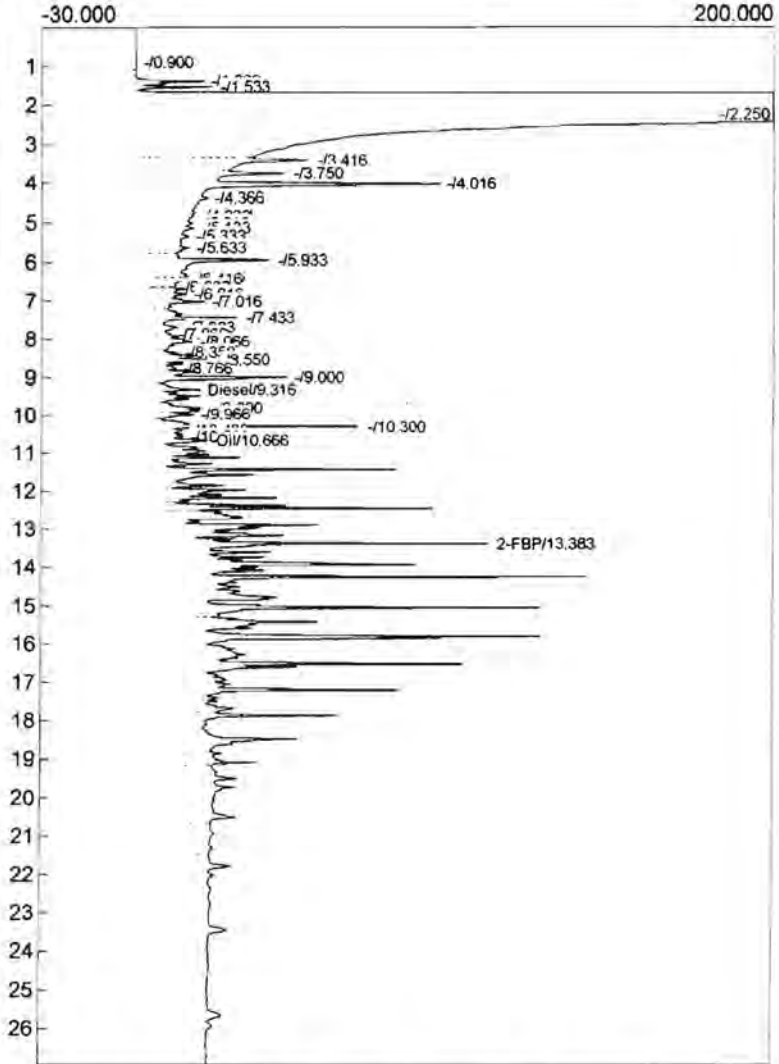
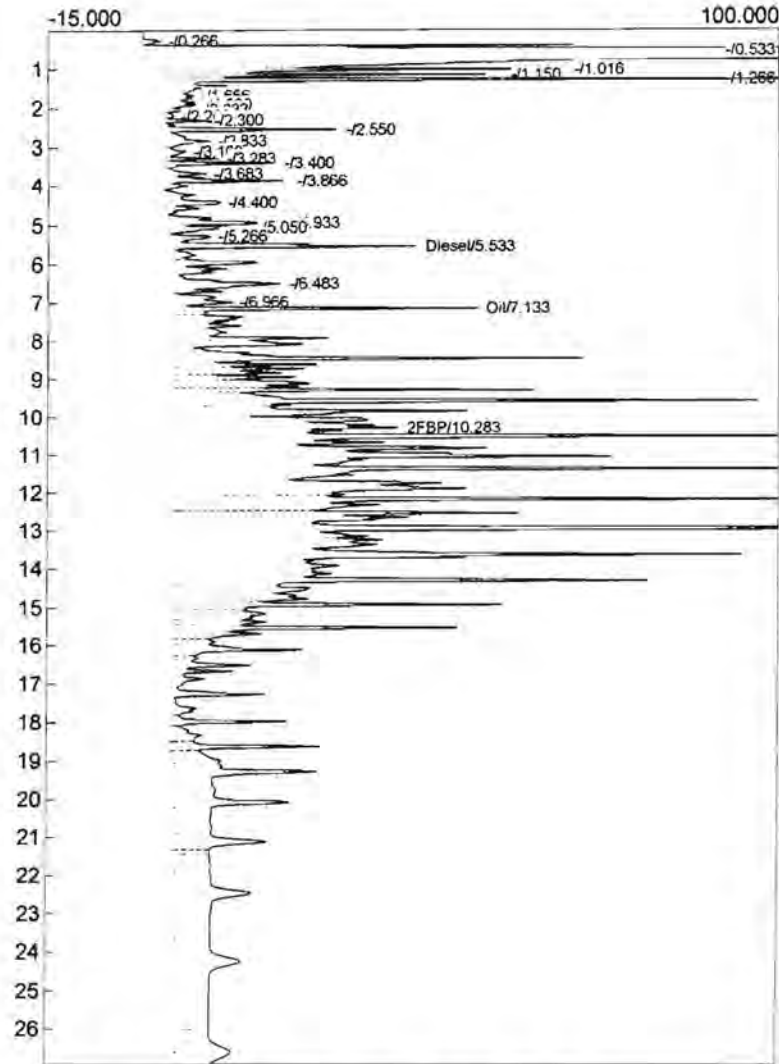
Init temp Hold Ramp Final temp

Events:

Events:

Time Event
 0.000 ZERO

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
diesel	5.533	339.2700	37.902	16.6798	ppm
oil	7.133	17130.8290	47.286	846.0505	ppm
FBP	10.283	421.7440	35.036	16.8698	ppm
		17891.8430		879.6001	

Component	Retention	Area	Height	External	Units
Diesel	9.316	143.1925	12.604	7.5618	
Oil	10.666	11477.4885	14.182	610.3501	ppm
2-FBP	13.383	488.4005	100.257	16.9878	ppm
		12109.0815		634.8997	

Analysis date: 10/19/2012 13:43:27

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: C305.CHR ()

Sample: K17-B2-101512

Operator: PB

Analysis date: 10/19/2012 13:43:27

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: D303.CHR ()

Sample: K17-WSW1-101512

Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

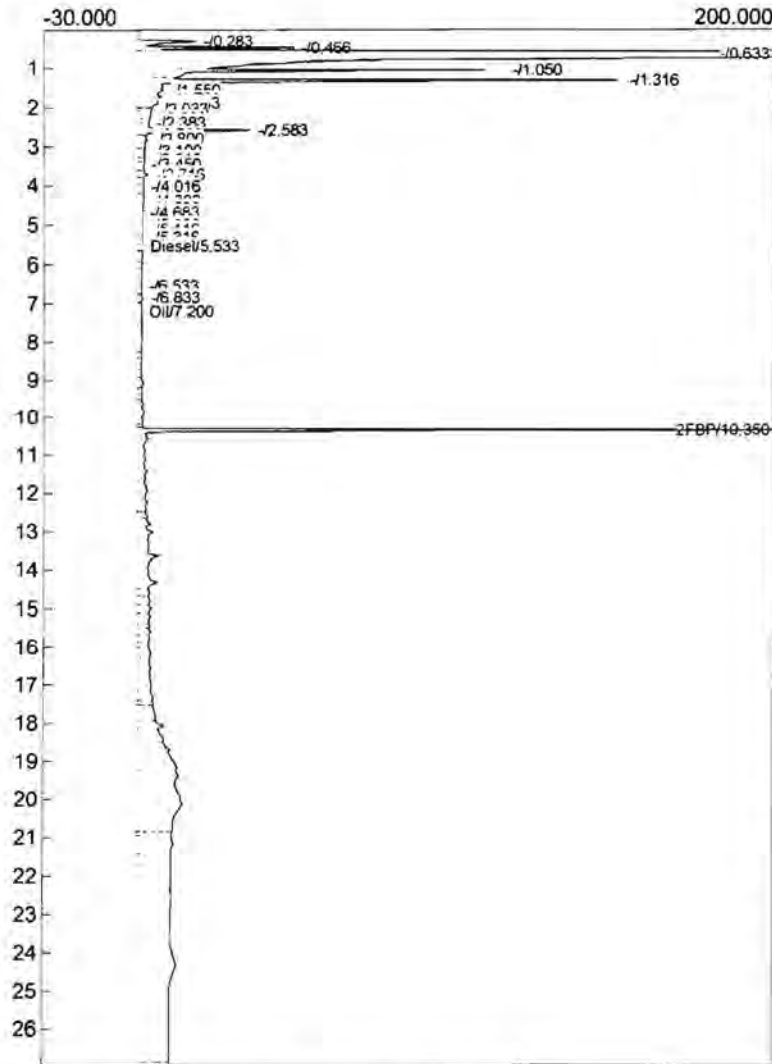
Time Event
0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



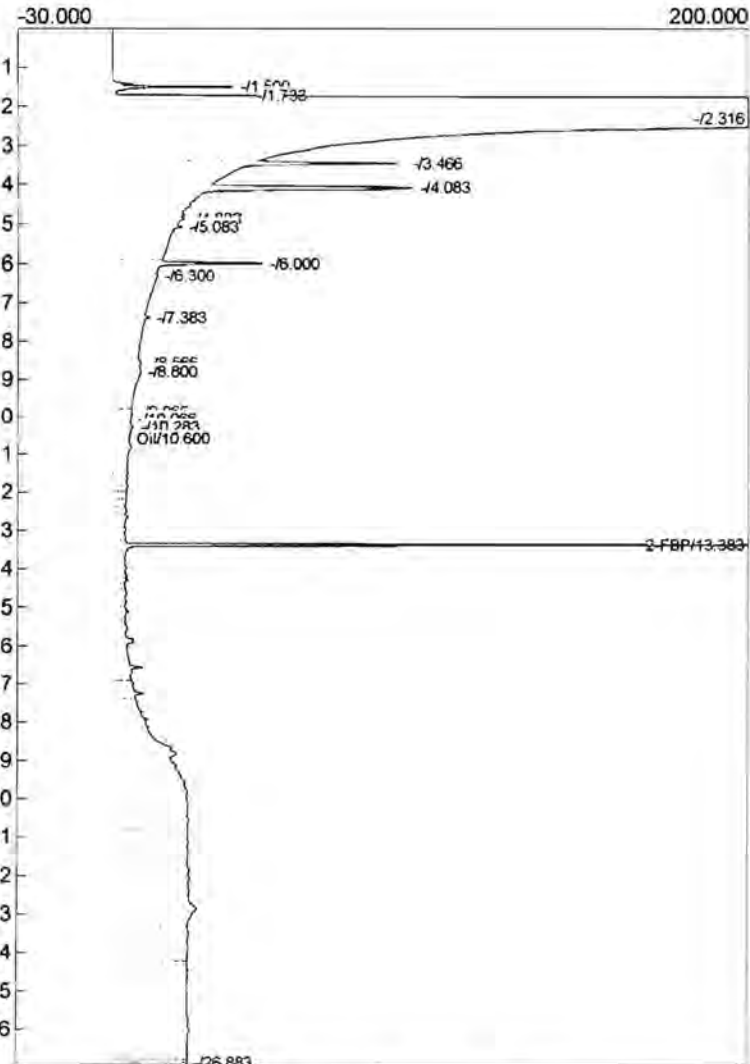
Component	Retention	Area	Height	External	Units
diesel	5.533	18.5300	0.745	0.9110	ppm
oil	7.200	7196.1010	0.295	354.3137	ppm
FBP	10.350	611.5740	236.415	24.4630	ppm
		7828.2050		379.6876	

122%

354 - 276 = 78 ppm

Bunker C

MCX 1.0705 = 83.5



Component	Retention	Area	Height	External	Units
Oil	10.600	12562.4195	2.854	668.8226	ppm
2-FBP	13.383	648.6105	284.801	22.5604	ppm
		13211.0300		691.3830	

nd

113%

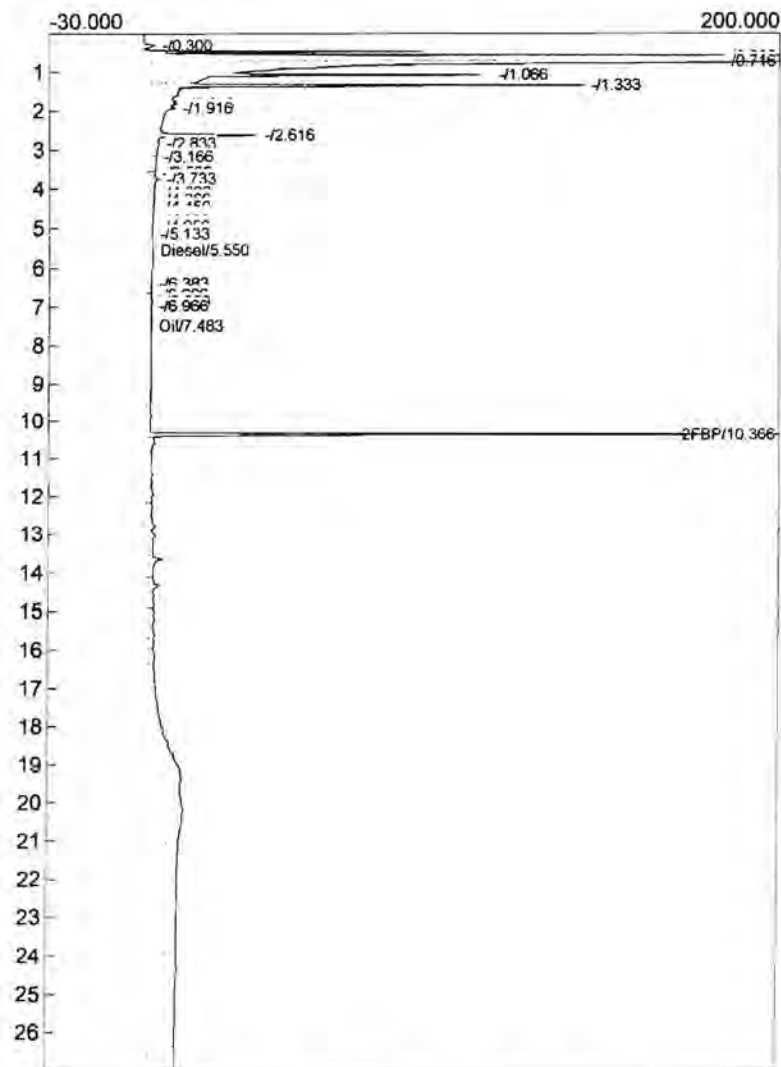
Analysis date: 10/15/2012 14:17:19
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C306.CHR ()
 Sample: K17-SSW1-101512
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.550	39.0600	0.765	1.9203	ppm
Oil	7.483	6000.9930	0.364	295.2958	ppm
FBP	10.366	566.2770	217.822	22.6511	ppm
		6606.3300		319.8672	

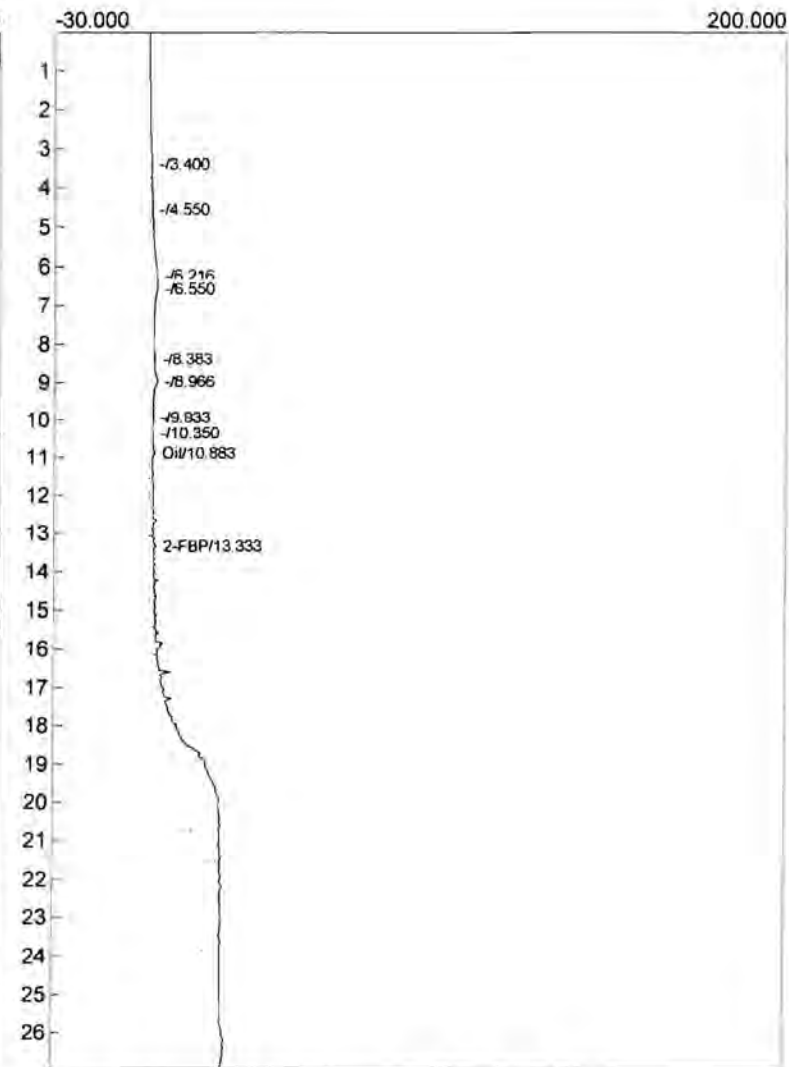
Analysis date: 10/15/2012 14:17:19
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D304.CHR ()
 Sample: No Sample
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Oil	10.883	3720.6085	0.860	196.4798	ppm
2-FBP	13.333	7.6040	0.971	0.2645	ppm
		3728.2125		196.7443	

nd 113%

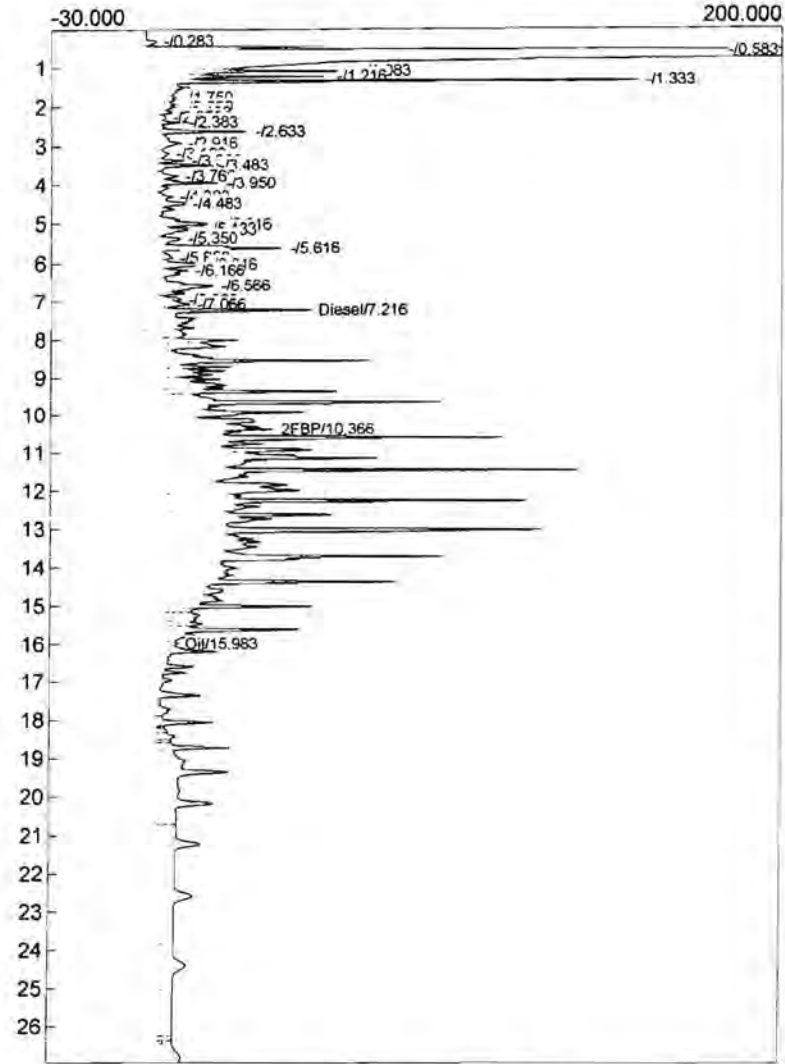
Analysis date: 10/15/2012 14:50:56
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C307.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.216	11559.1480	45.300	569.7864	ppm
FBP	10.366	396.6540	33.409	15.8662	ppm
Oil	15.983	3028.2970	2.589	148.8827	ppm
		14984.0990		734.5353	

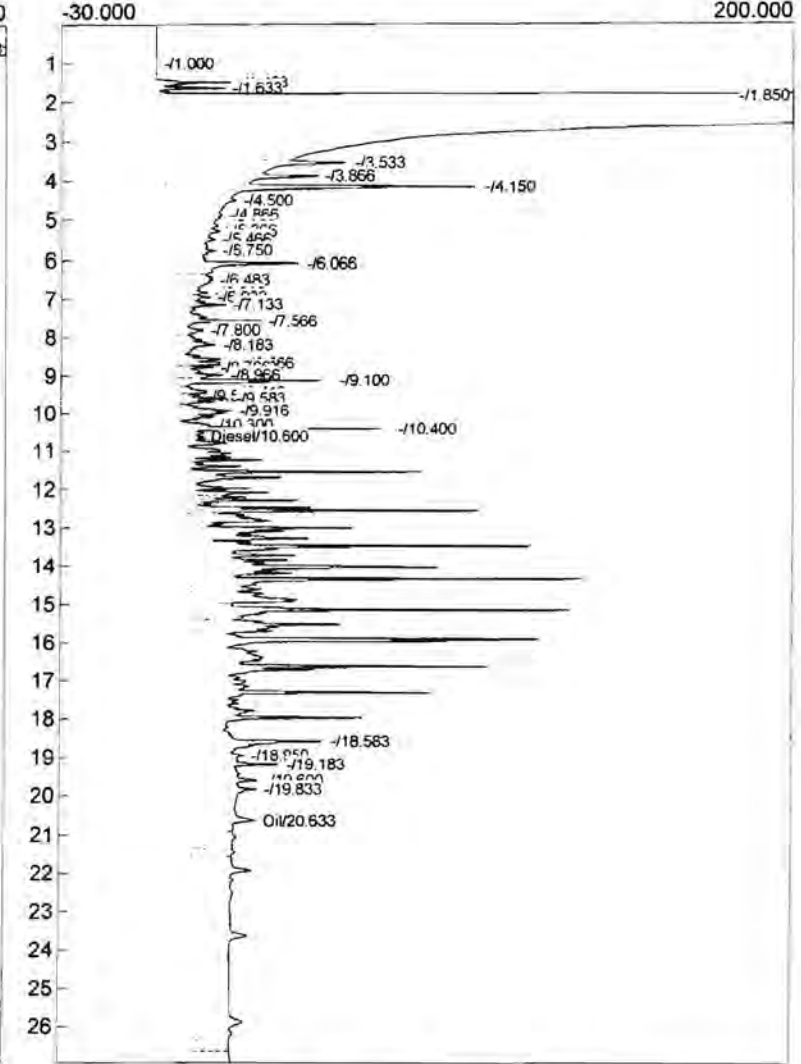
Analysis date: 10/15/2012 14:50:50
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D305.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

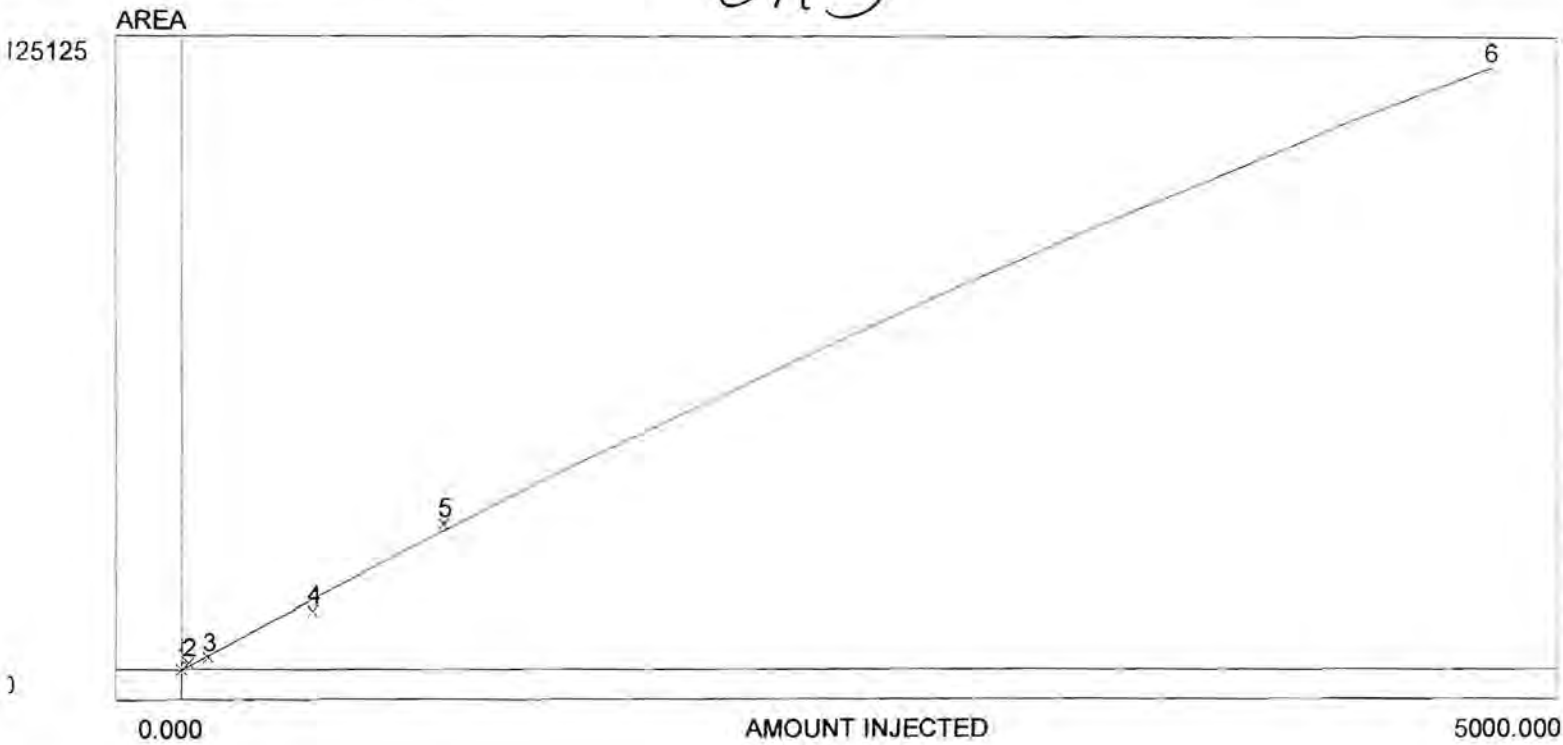
Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	10.600	9453.9965	3.360	501.9661	
Oil	20.633	4490.5080	19.376	237.3883	ppm
		13944.5045		739.3544	

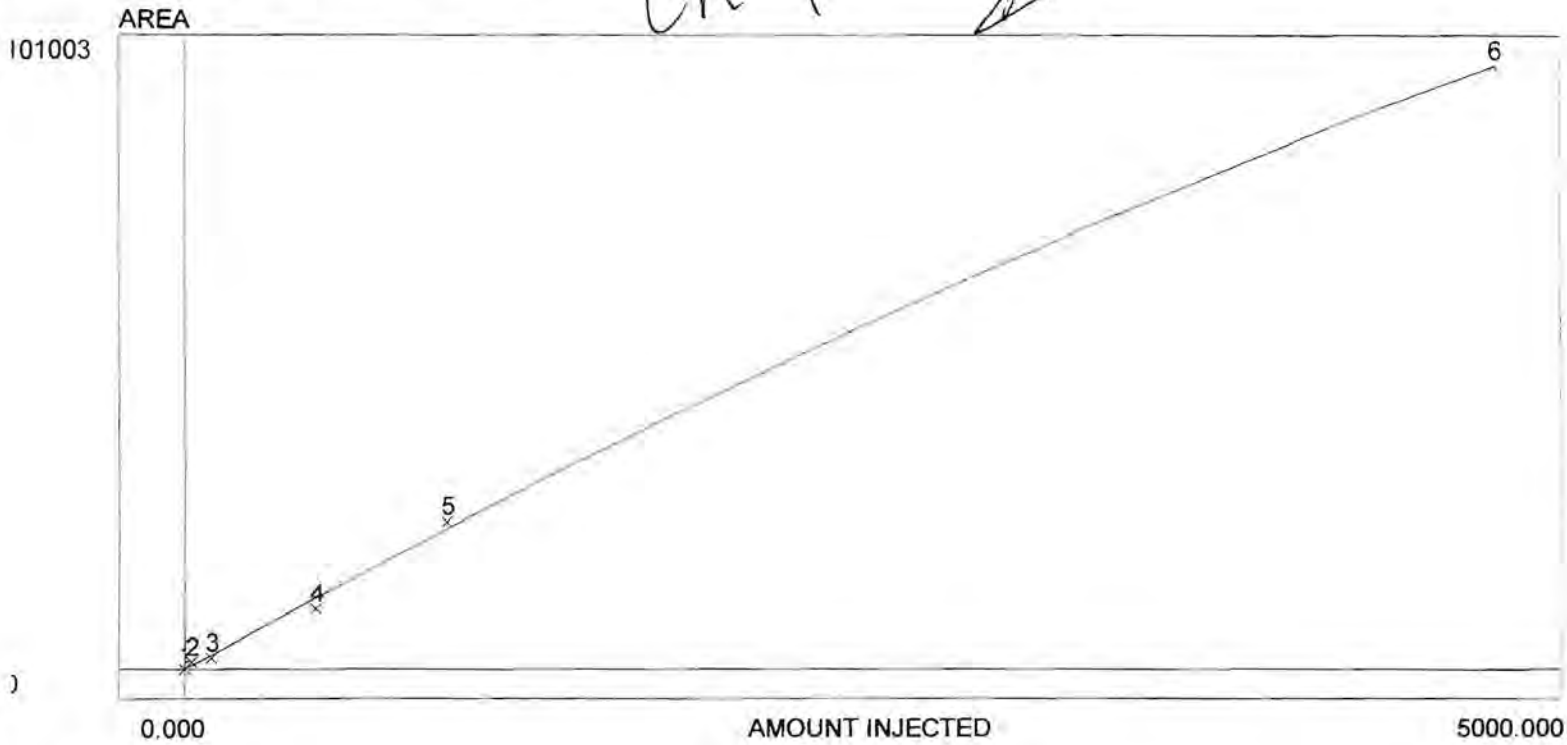
Ch 3



Avg slope of curve: 25.03
 Y-axis intercept: 0.00
 Linearity: 0.86
 Number of levels: 6
 SD/rel SD of CF's: 18.0/66.9
 $Y = -0.0009X^4 + 29.3544X$
 R^2: 0.9993
 Last calibrated: Wed Mar 14 13:52:31 2012

Level	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	1410.471	25.000	56.419	1410.471	N/A	N/A
3	2574.179	100.000	25.742	2574.179	N/A	N/A
4	12043.265	500.000	24.087	12043.265	N/A	N/A
5	29871.863	1000.000	29.872	29871.863	N/A	N/A
6	125124.670	5000.000	25.025	125124.670	N/A	N/A

Ch 4 

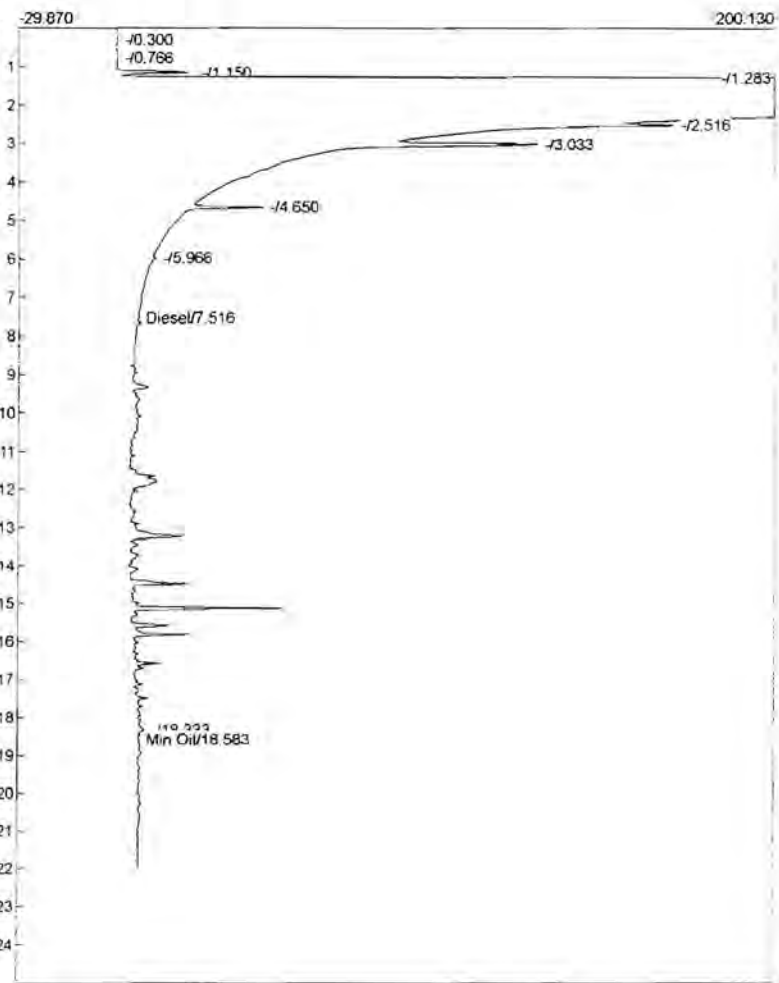
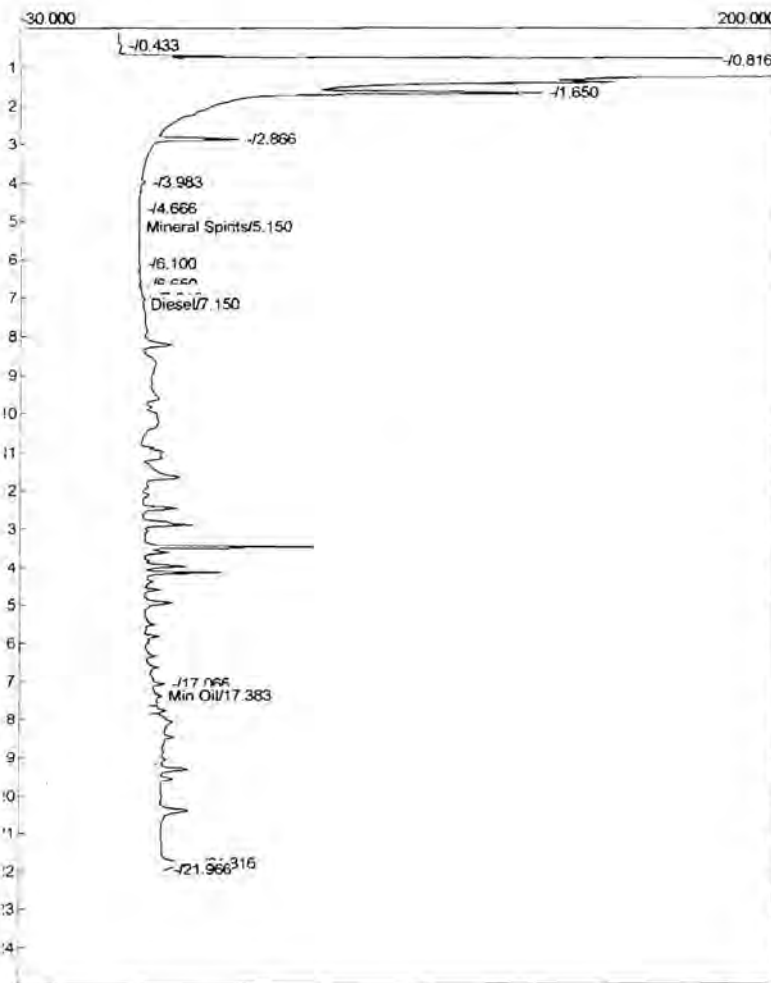


Avg slope of curve: 20.21
 Y-axis intercept: 0.00
 Linearity: 0.84
 Number of levels: 6
 SD/rel SD of CF's: 16.3/72.6
 $Y = -0.0008X^2 + 24.2883X$
 R^2: 0.9993
 Last calibrated: Wed Mar 14 13:57:45 2012

Level	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	1271.716	25.000	50.869	1271.716	N/A	N/A
3	1927.394	100.000	19.274	1927.394	N/A	N/A
4	10086.605	500.000	20.173	10086.605	N/A	N/A
5	24554.042	1000.000	24.554	24554.042	N/A	N/A
6	101002.720	5000.000	20.201	101002.720	N/A	N/A

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 10:39:04
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C620.CHR ()
 Sample: 25 PPM Dx 706
 Operator: KW

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 10:39:04
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D626.CHR ()
 Sample: 25 PPM Dx 706
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.150	7.8080	0.195	0.3863	PPM	Diesel	7.516	1271.7155	1.965	89.4973	ppm
Diesel	7.150	1410.4710	0.518	13.6936	ppm	Min Oil	18.583	209.2665	1.582	14.7689	ppm
Min Oil	17.383	577.2305	3.576	0.0000				1480.9820		104.2662	
		1995.5095		14.0798							

Analysis date: 03/14/2012 11:07:43

Method: Syringe Injection

Description: JAMACIA FID

Column: RESTEK 15METER MXT-1

Carrier: HELIUM AT 5 PSI

Data file: C621.CHR ()

Sample: 100 PPM Dx 705

Operator: KW

Analysis date: 03/14/2012 11:07:43

Method: Syringe Injection

Description: JAMACIA FID

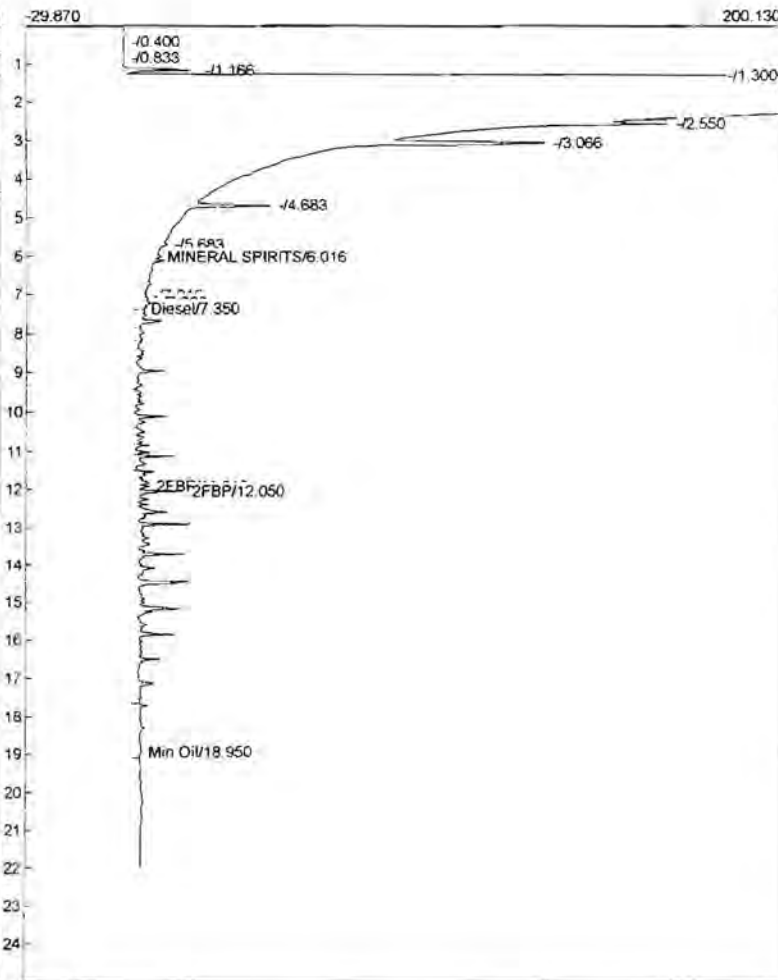
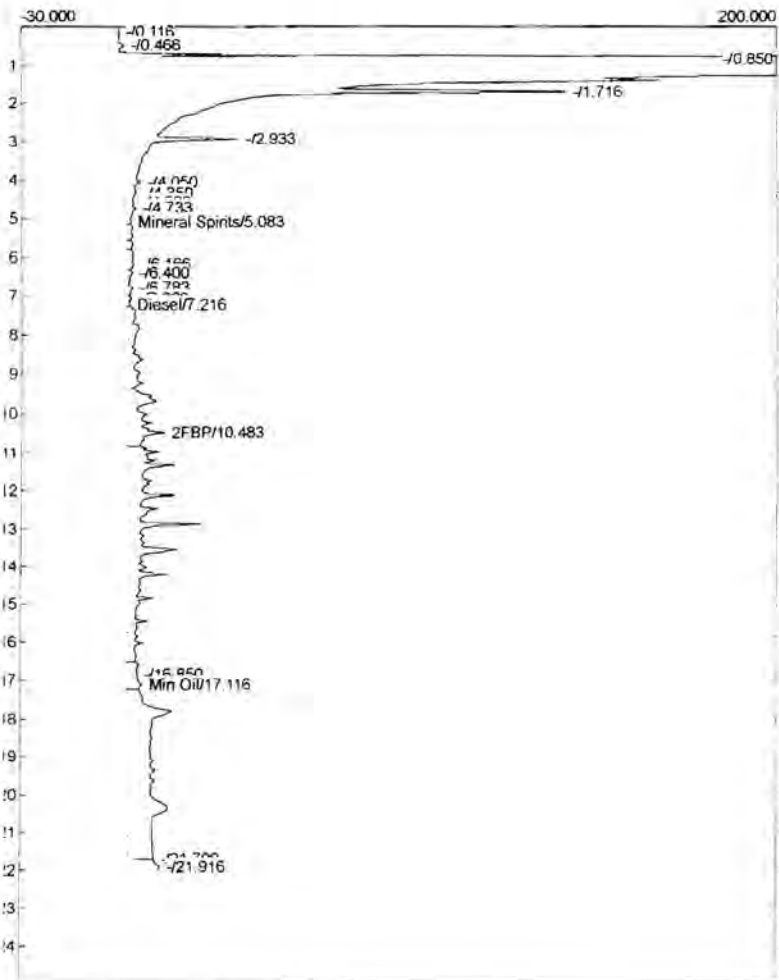
Column: RESTEK 15METER MXT-1

Carrier: HELIUM AT 5 PSI

Data file: D627.CHR ()

Sample: 100 PPM Dx 705

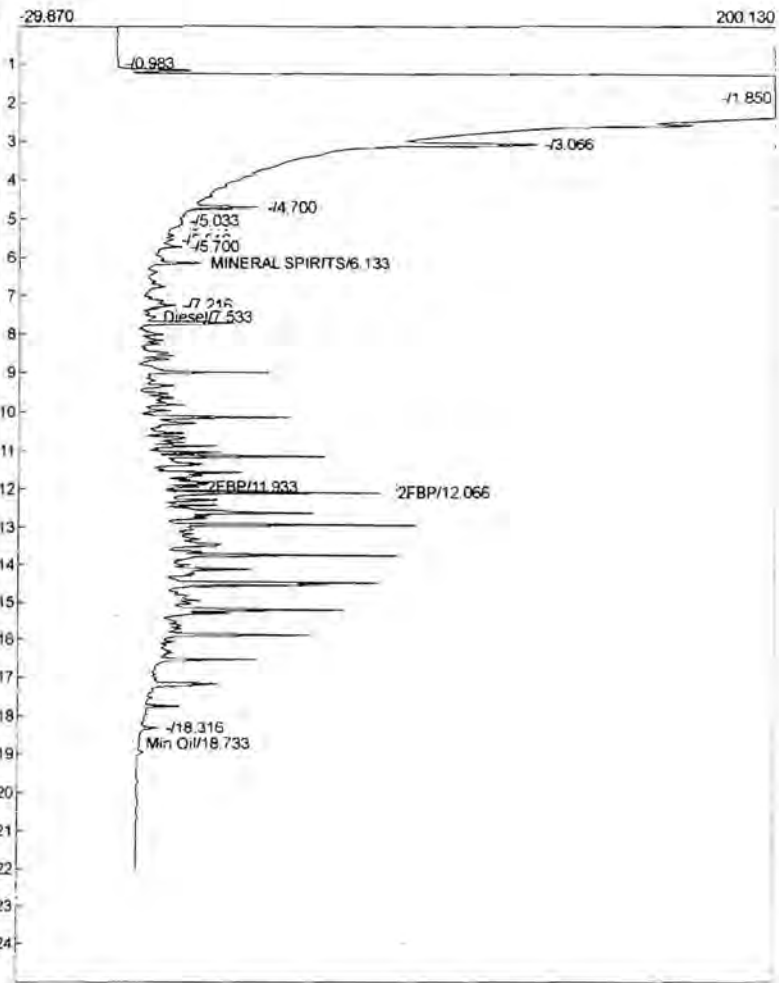
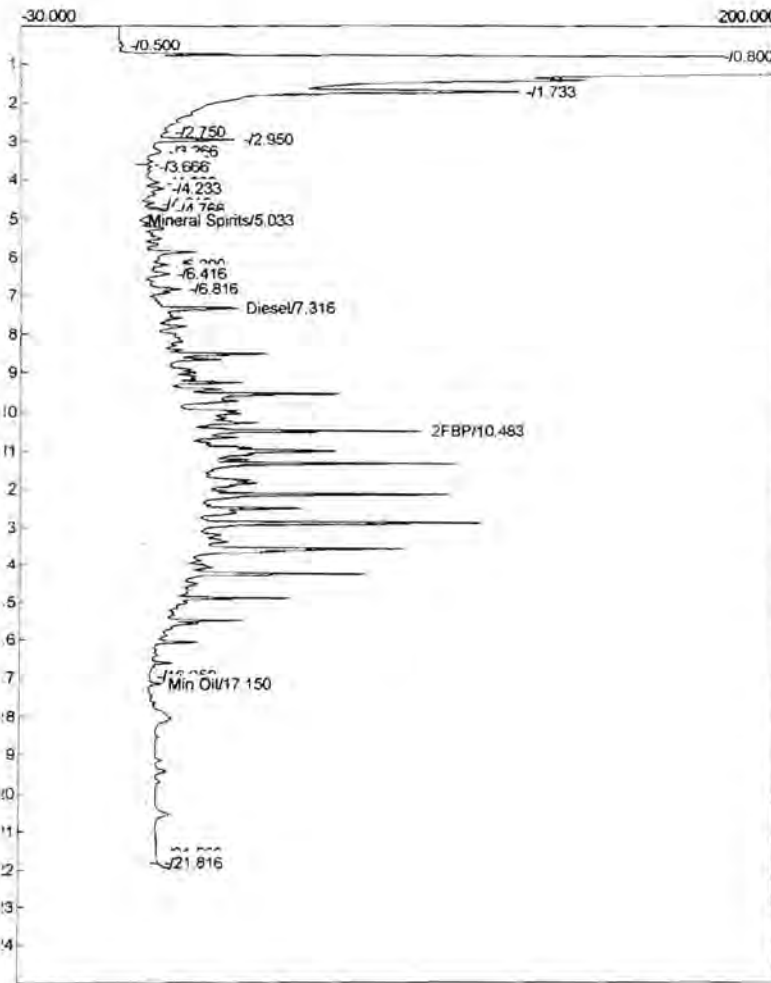
Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.083	84.6325	1.090	4.1869	PPM	MINERAL SPIRITS	6.016	285.6170	7.733	20.1004	PPM
Diesel	7.216	2410.4095	0.627	119.2471	ppn	Diesel	7.350	1849.7390	2.625	130.1759	ppn
2FBP	10.483	163.7695	10.998	6.5508	ppn	2FBP	11.916	20.8250	4.775	1.0413	ppn
Min Oil	17.116	1953.3665	4.269	0.0000		2FBP	12.050	56.8300	15.516	2.8415	ppn
						Min Oil	18.950	514.9365	2.757	36.3413	ppn
		4612.1780		129.9847				2727.9475		190.5003	

Analysis date: 03/14/2012 11:45:18
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C622.CHR ()
 Sample: 500 PPM Dx 704
 Operator: KW

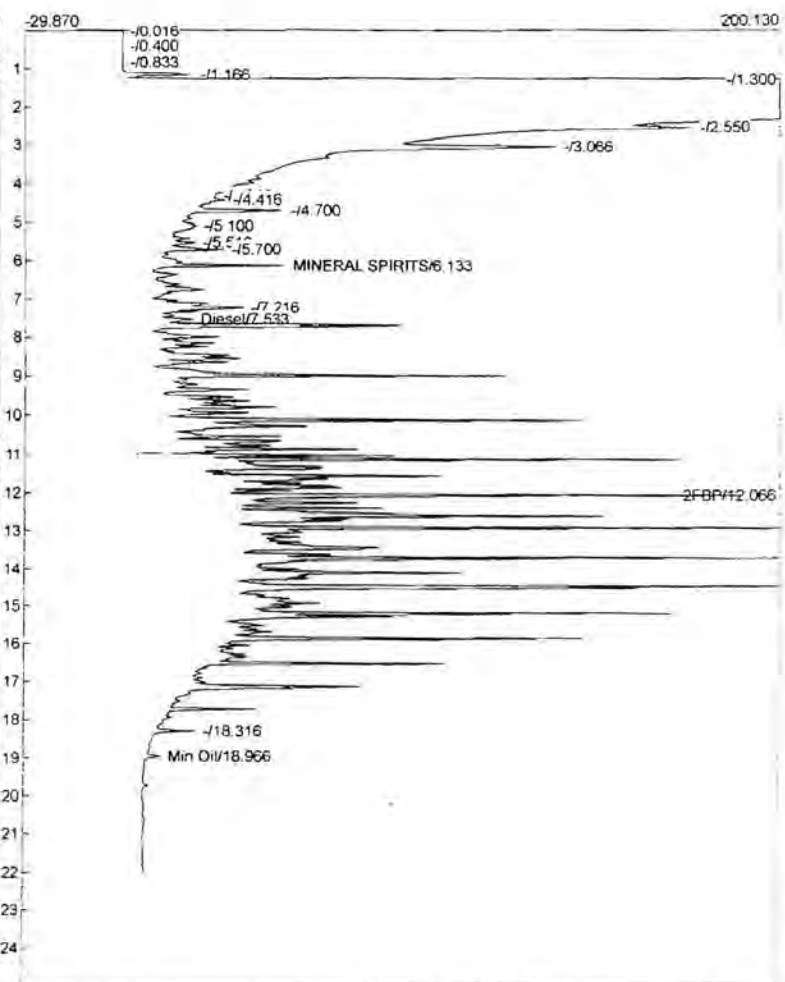
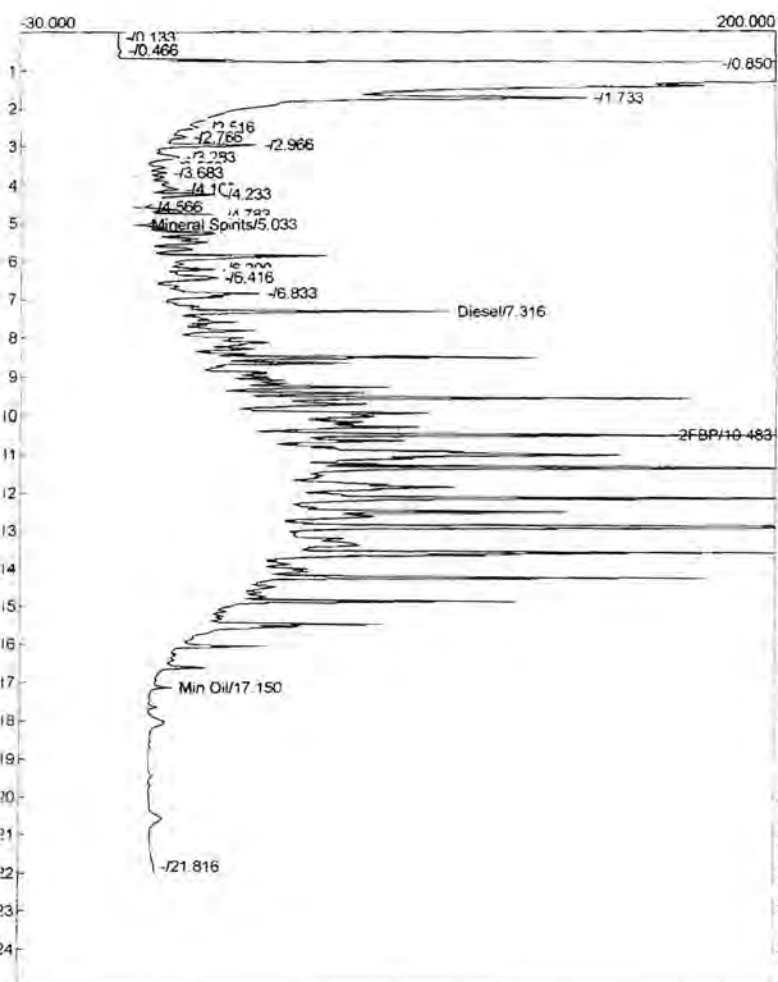
Analysis date: 03/14/2012 11:45:18
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D628.CHR ()
 Sample: 500 PPM Dx 704
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.033	323.3415	0.632	15.9963	PPM	MINERAL SPIRITS	6.133	636.8190	24.452	44.8163	PPM
Diesel	7.316	11375.2115	30.144	562.7511	ppm	Diesel	7.533	9651.3385	9.725	679.2156	ppm
2FBP	10.483	668.0530	86.276	26.7221	ppm	2FBP	11.933	110.1285	21.943	5.5064	ppm
Min Oil	17.150	960.9820	5.210	0.0000		2FBP	12.066	325.1375	79.999	16.2569	ppm
						Min Oil	18.733	138.4670	1.874	9.7722	ppm
		13327.5880		605.4694				10861.8905		755.5674	

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 12:13:07
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C623.CHR ()
 Sample: 1000 PPM Dx 703
 Operator: KW

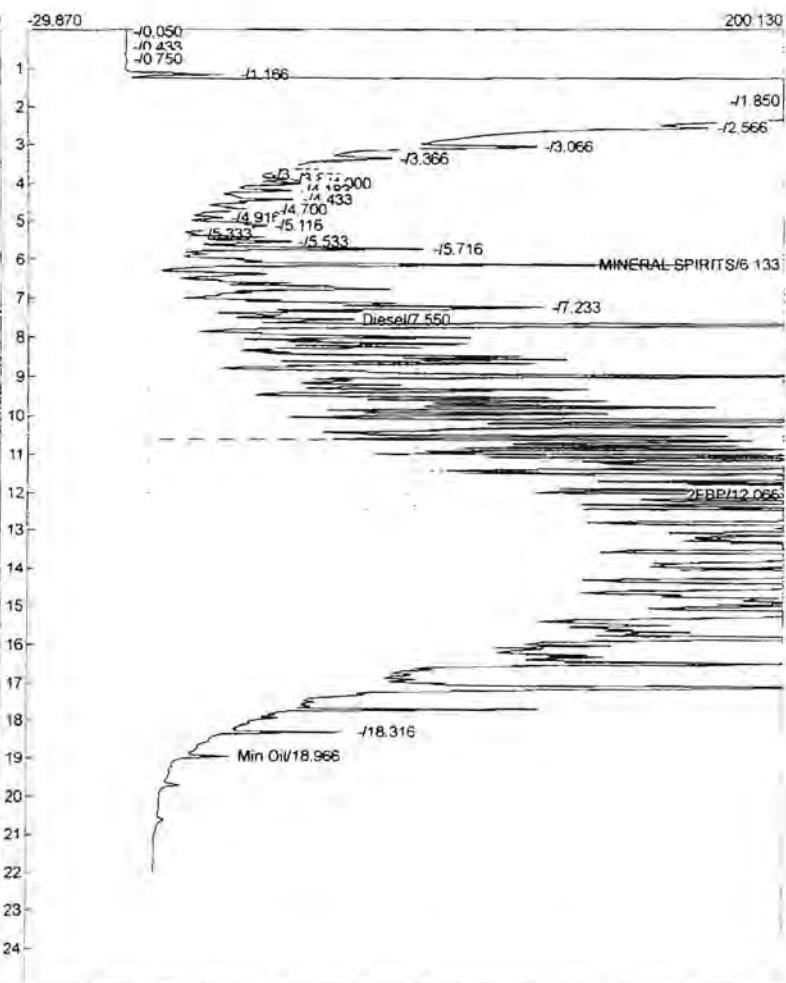
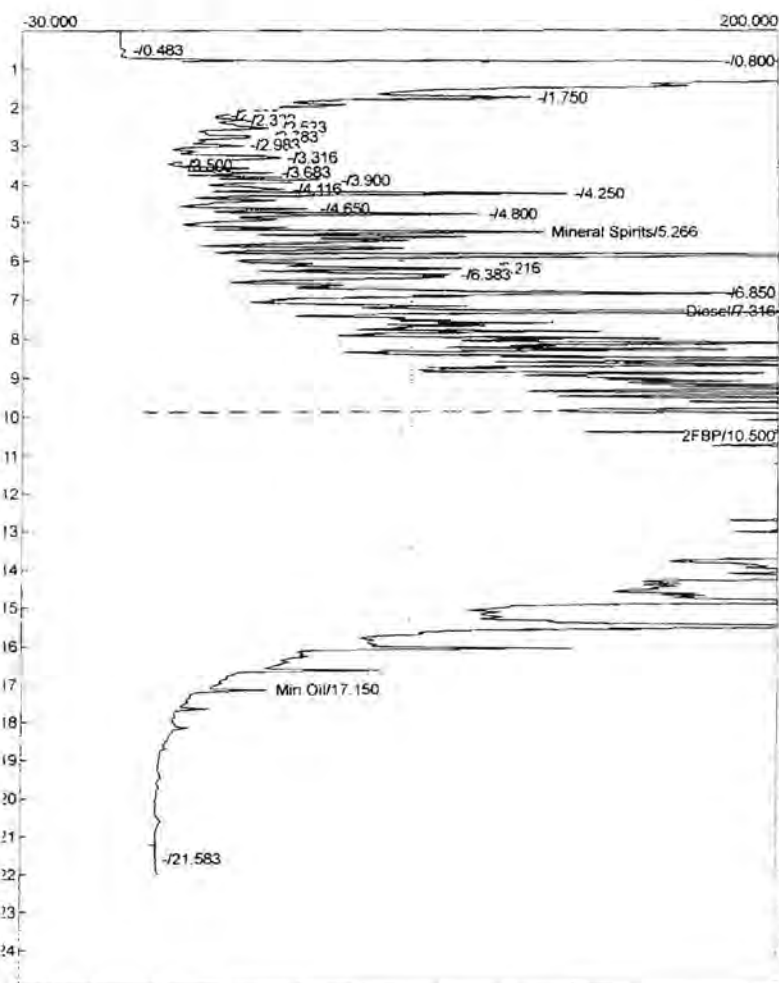
Analysis date: 03/14/2012 12:13:07
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D629.CHR ()
 Sample: 1000 PPM Dx 703
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.033	995.3365	2.641	49.2410	pp	MINERAL SPIRITS	6.133	723.8390	45.571	50.9404	pp
Diesel	7.316	28291.8845	95.034	1399.6476	pp	Diesel	7.533	23510.5725	17.032	1654.5630	pp
2FBP	10.483	1579.9780	244.836	63.1991	pp	2FBP	12.066	1043.4695	193.880	52.1735	pp
Min Oil	17.150	221.1300	7.549	0.0000	pp	Min Oil	18.966	300.3670	6.980	21.1982	pp
		31088.3290		1512.0877				25578.2480		1778.8751	

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 12:41:16
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C624.CHR ()
 Sample: 5000 PPM Dx 702
 Operator: KW

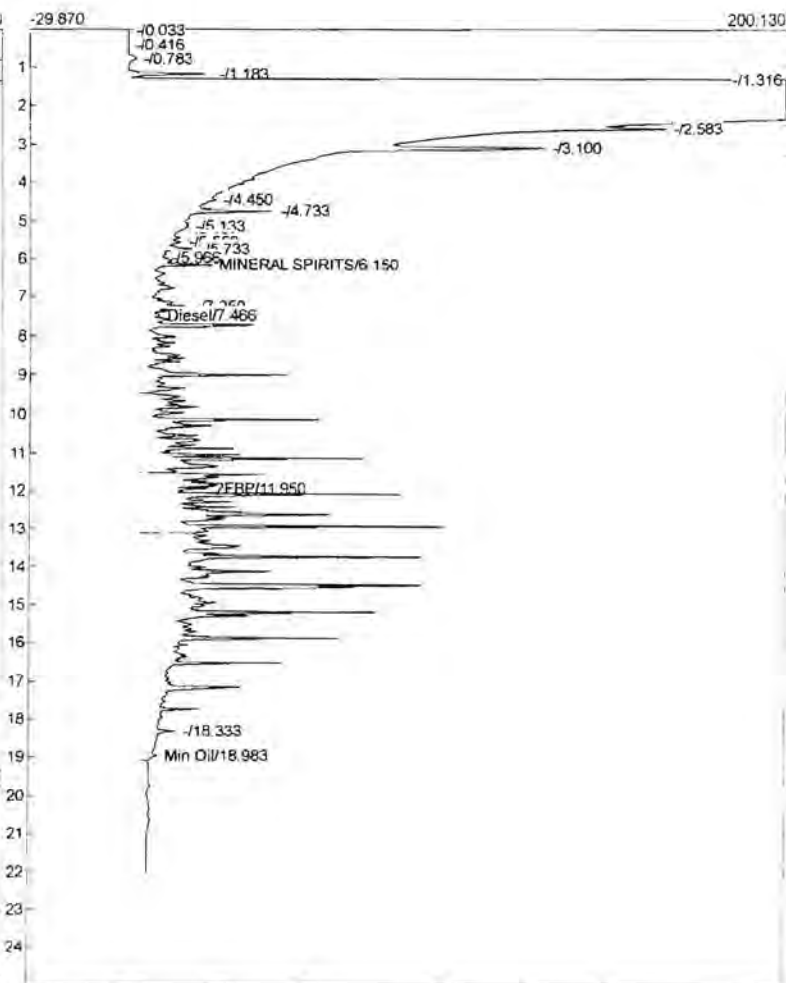
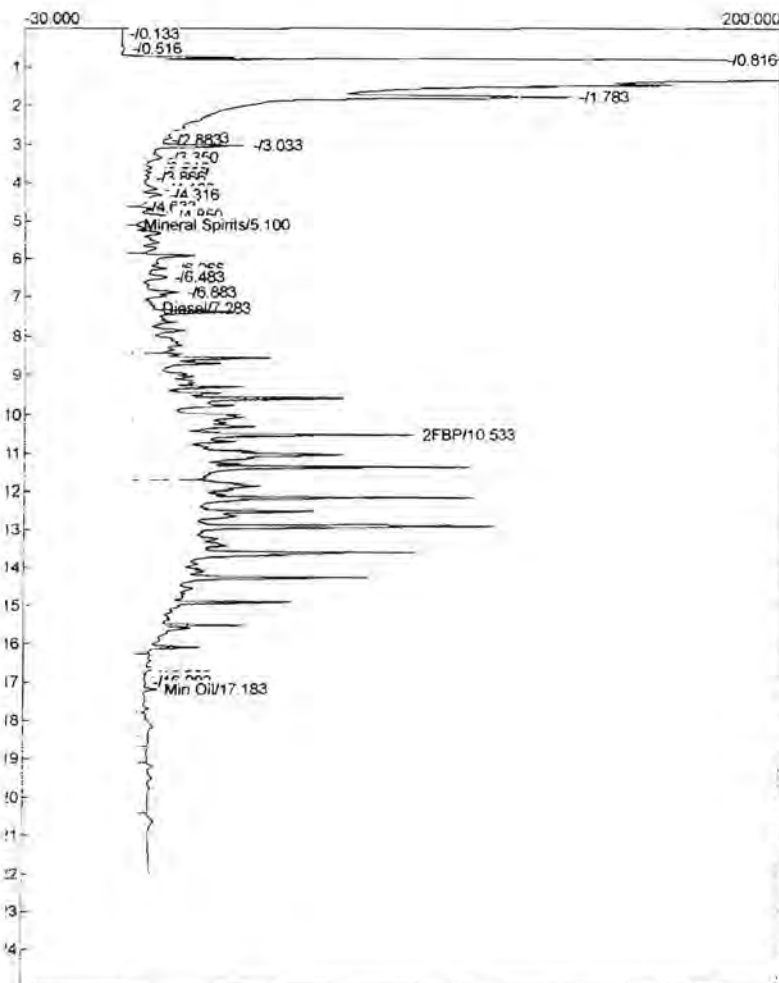
Analysis date: 03/14/2012 12:41:16
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D630.CHR ()
 Sample: 5000 PPM Dx 702
 Operator: KW



Component	Retention	Area	Height	External	UnComponent	Retention	Area	Height	External
Mineral Spirits	5.266	4030.7350	121.832	199.4073	MINERAL SPIRITS	6.133	2118.1620	172.994	149.0662
Diesel	7.316	118321.9850	479.109	5853.5897	Diesel	7.550	97612.4720	63.265	6869.5047
2FBP	10.500	6802.6800	1015.018	272.1072	2FBP	12.066	3390.2460	772.659	169.5123
Min Oil	17.150	1309.9915	36.600	0.0000	Min Oil	18.966	734.9465	24.851	51.8684
		130465.3915		6325.1043			103855.8265		7239.9516

Lab name: Eiby Environmental, Inc.
 Analysis date: 03/14/2012 13:09:09
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C625.CHR ()
 Sample: 500 PPM Dx ICAL 707
 Operator: KW

Lab name: Eiby Environmental, Inc.
 Analysis date: 03/14/2012 13:09:09
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D631.CHR ()
 Sample: 500 PPM Dx ICAL 707
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.100	454.2775	2.261	22.4739	ppm	MINERAL SPIRITS	6.150	431.9470	21.664	30.3984	ppm
Diesel	7.283	12055.9145	7.302	415.8831	ppm	Diesel	7.466	9633.4975	5.799	402.0800	ppm
2FBP	10.533	706.7050	85.875	28.2682	ppm	2FBP	11.950	98.4805	20.159	4.9240	ppm
Min Oil	17.183	642.7165	6.075	0.0000	ppm	Min Oil	18.983	249.4535	4.581	17.6050	ppm
		13859.6135		466.6252				10413.3785		455.0074	



Libby Environmental, Inc.

4139 Libby Road NE • Olympia, WA 98506-2518

November 12, 2012

Neil Morton
GeoEngineers Inc.
600 Stewart Street, Suite 1700
Seattle, WA 98101

Dear Mr. Morton:

Please find enclosed the analytical data report for the Irondale Project located in Irondale, Washington. Soil samples were analyzed for Diesel & Oil by NWTPH-Dx/Dx Extended with Silica Gel Clean Up and Polyaromatic Hydrocarbons (PAH) by EPA Method 8270 SIM on October 17, 2012 and November 16, 2012.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. All soil samples are reported on a dry weight basis. An invoice for this analytical work is enclosed.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Jamie L. Deyman
President
Libby Environmental, Inc.

Phone (360) 352-2110 • Fax (360) 352-4154 • libbyenv@aol.com

www.LibbyEnvironmental.com



Libby Environmental, Inc.

Case Narrative

Libby Project #: L121017-30
Date: 11-12-2012

CLIENT: GeoEngineers, Inc.
PROJECT: Irondale

I. SAMPLE RECEIPT:

All samples were received intact and in good condition. See the attached Sample Receipt Check List for more information.

II. GENERAL REPORTING COMMENTS:

Final results are reported on a dry weight basis. The soil samples in the field are estimated to have a moisture content of 15%. This estimate is useful in producing data that is close to the actual value. After the sample is analyzed for soil moisture at our fixed base facility, the final data is reported based on measured soil moisture. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS), the Laboratory Control Sample Duplicate (LCSD) and the Method Blank (MB). The LCS, LCSD and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) and/or noted below.

Notes:

N/A

Libby Environmental, Inc.

Chain of Custody Record

1029

4139 Libby Road NE Olympia, WA 98506
 Ph: 360-352-2110 Fax: 360-352-4154

Date: 10-17-12 Page: 1 of

Client: *Geo Engineers*

Project Manager: *Niel Morton*

Address:

Project Name: *Irondale*

Phone: Fax:

Location: *Irondale, WA* City: *Irondale, WA*

Client Project #

Collector: *Paul Robinette* Date of Collection: *10-17/18-12*



Sample Number	Depth	Time	Sample Type	Container Type	Analysis Parameters										Field Notes			
					VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEMI VOL 8270	NWTPH-HCID	NWTPH-Gx	NWTPH-Dx	PAHs 8270	PCBs 8082	MTCAs 6 Metals		PAH		
1 <i>IRZ-BI-101712</i>	10	2225	Soil	4oz Jar								X						
2 <i>IRZ-BD-101712</i>	5	2319	''	''								X						
3 <i>IRZ-ESWI-101710</i>	9	2304	''	''								X						
4 <i>SURZ-WSWI-10182</i>	8	0024	''	''								X						
5 <i>CON-01-101812</i>	2	0120	''	''								X	X					
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		

11-12-12 run cPAH per Neil via email STD

Relinquished by: <i>Paul Robinette</i>	Date / Time: 10/18/12 0145	Received by: <i>Paul Robinette</i>	Date / Time: 10/18/12 0145	Sample Receipt:	Remarks:
Relinquished by:	Date / Time:	Received by:	Date / Time:	Good Condition?	
Relinquished by:	Date / Time:	Received by:	Date / Time:	Cold?	
Relinquished by:	Date / Time:	Received by:	Date / Time:	Seals Intact?	
				Total Number of Containers:	

Libby Environmental, Inc. Login Sample Receipt Check List

Client: GeoEngineers, Inc. **Libby Project Number:** L121017-30

Question	T / F / NA	Comment
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler temperature is acceptable.	True	
COC is present.	True	
COC is filled out in ink and is legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within the Hold Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs.	True	
VOA sample vials do not have headspace or bubble is less than 6mm (1/4 in.) in diameter.	True	
If necessary, staff has been informed of any short hold time or quick TAT needs.	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	

Libby Environmental, Inc.

4139 Libby Road NE
Olympia, WA 98506
Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@aol.com

IRONDALE PROJECT
GeoEngineers, Inc.
Irondale, Washington
Libby Project # L121017-30
Client Project # 0504-042-02

Analyses of Diesel & Oil Range (NWTPH-Dx/Dx Extended) in Soil w/ Silica Gel Cleanup

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Bunker C (mg/kg)
Method Blank	10/17/12	104	nd	nd
LCS	10/17/12	int	104%	
LCSD	10/17/12	int	104%	
IRZ-B1-101712	10/17/12	104	nd	59
IRZ-B1-101712 Dup	10/17/12	110	nd	73
IRZ-B2-101712	10/17/12	108	nd	nd
IRZ-ESW1-101712	10/17/12	100	nd	nd
SURZ-WSW1-101812	10/17/12	113	nd	57
CON-01-101812	10/17/12	int	nd	1550
Practical Quantitation Limit			25	40

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

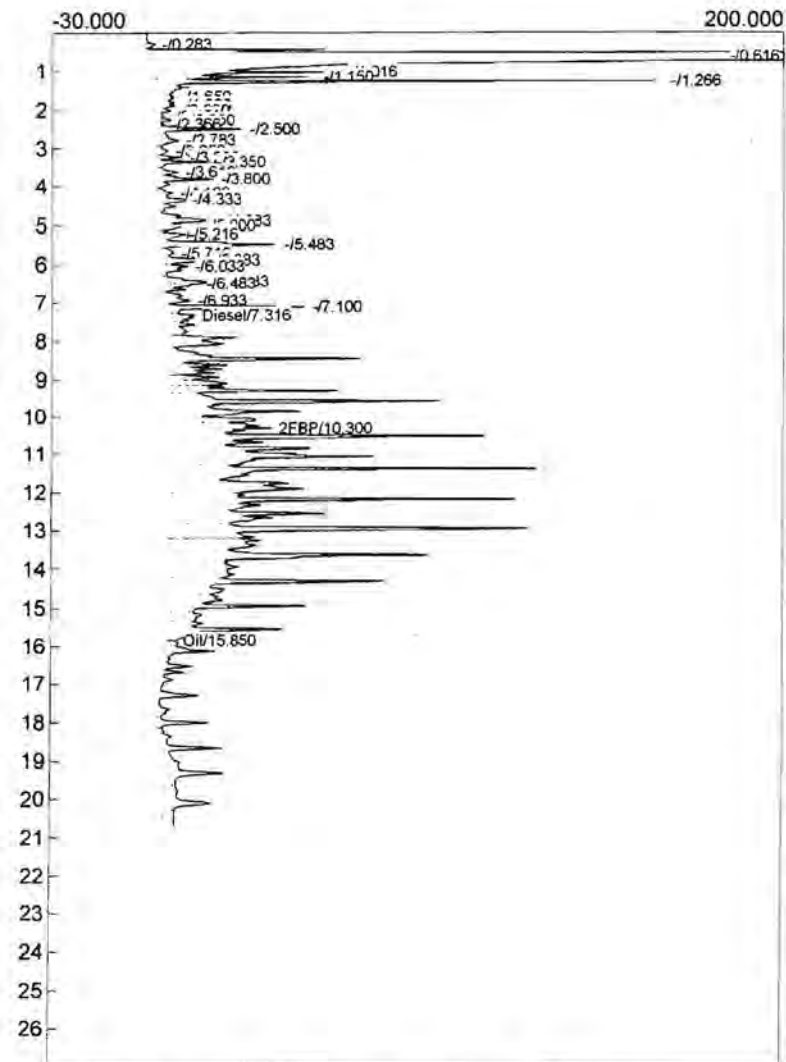
Analysis date: 10/17/2012 21:11:55
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C311.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
iesel	7.316	11030.7315	6.823	543.8627	ppm
FBP	10.300	367.5760	31.226	12.7853	ppm
il	15.850	924.9080	1.608	45.4720	ppm
		12323.2155		601.9200	

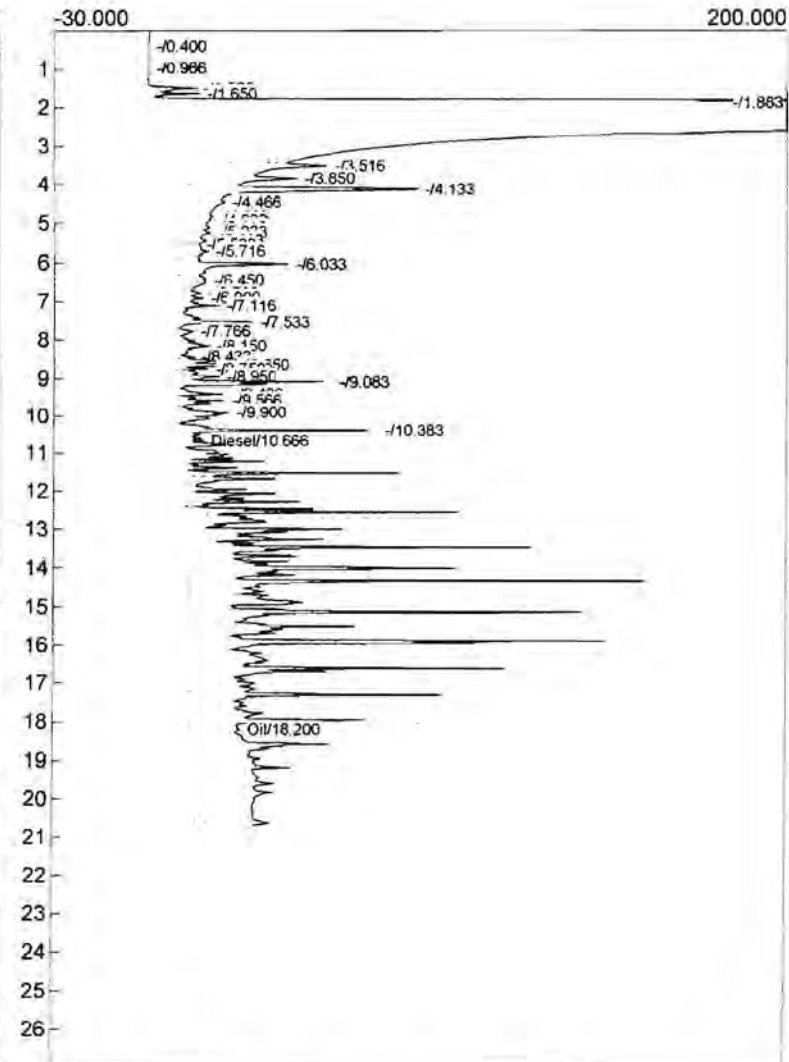
Analysis date: 10/17/2012 21:11:55
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D309.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	10.666	9959.0860	5.393	529.0026	
Oil	18.200	3135.6895	16.057	165.5911	ppm
		13094.7755		694.5936	

Analysis date: 10/17/2012 21:38:31
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C312.CHR ()
 Sample: 1000 ppm LCS 343
 Operator: PB

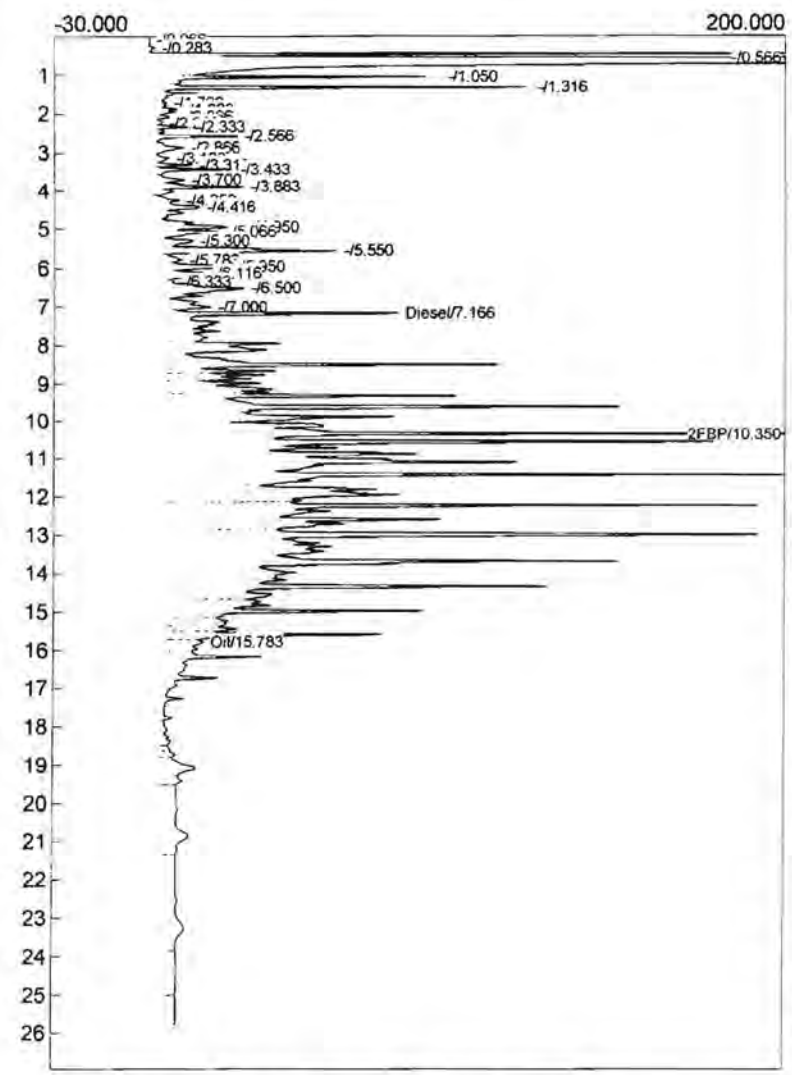
Analysis date: 10/17/2012 21:38:31
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D310.CHR ()
 Sample: 1000 ppm LCSD 343
 Operator: PB

Temperature program:

Init temp	Hold	Ramp	Final temp
-----------	------	------	------------

Events:

Time	Event
0.000	ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.166	21065.2755	71.896	1041.7665	ppm
FBP	10.350	1124.0820	203.696	39.0985	ppm
Oil	15.783	1930.5845	10.387	94.9150	ppm
		24119.9420		1175.7800	

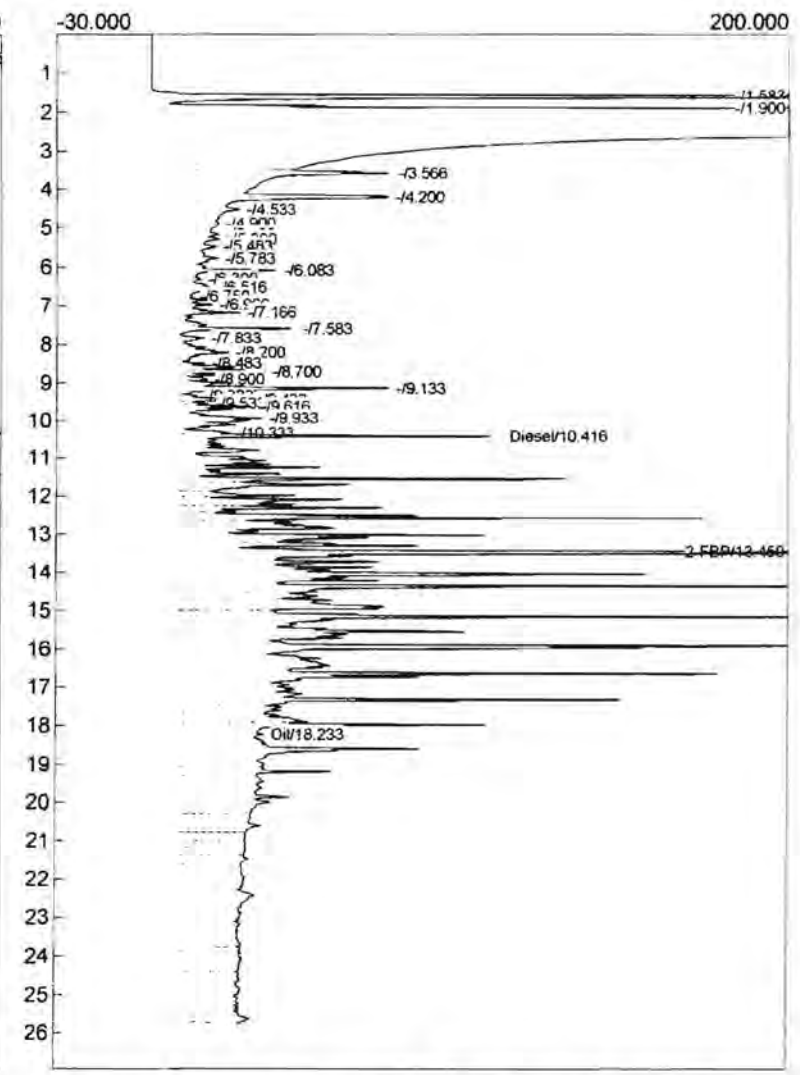
-104%

Temperature program:

Init temp	Hold	Ramp	Final temp
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Events:

Time	Event
0.000	ZERO



Component	Retention	Area	Height	External	Units
Diesel	10.416	19441.4285	100.547	1041.5091	ppm
2-FBP	13.450	1434.8165	224.711	49.9067	ppm
Oil	18.233	9368.9445	25.302	497.4135	ppm
		30245.1895		1588.8292	

104%

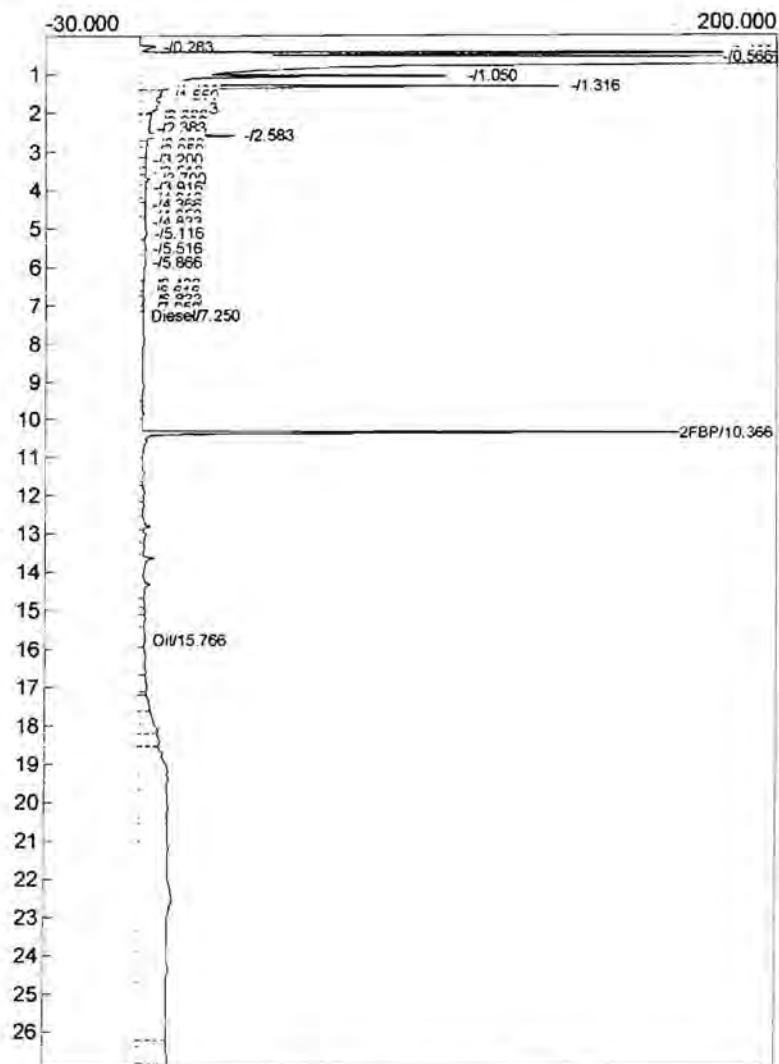
Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C313.CHR ()
 Sample: Method Blank
 Operator: PB

Temperature program:

Init temp	Hold	Ramp	Final temp
-----------	------	------	------------

Events:

Time	Event
0.000	ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.250	872.6340	0.344	42.9020	ppm
2-FBP	10.366	599.4560	193.970	20.8506	ppm
Oil	15.766	4744.4180	1.436	233.3462	ppm
		6216.5080		297.0989	

104%

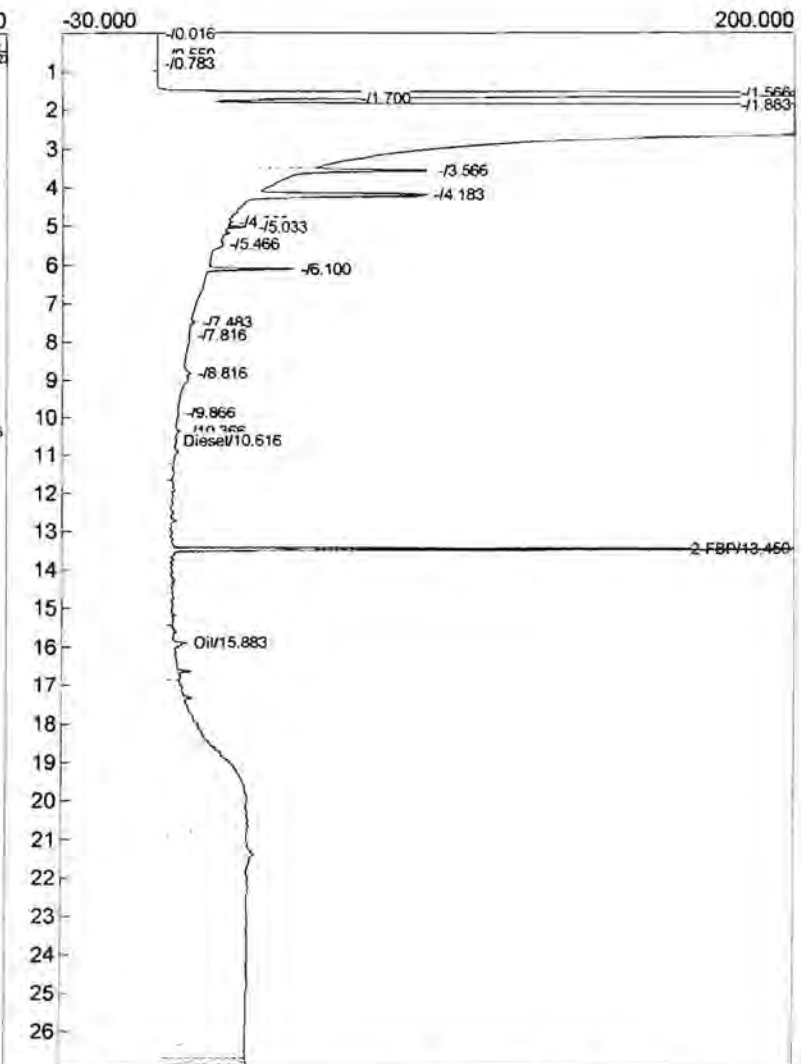
Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D311.CHR ()
 Sample: Method Blank
 Operator: PB

Temperature program:

Init temp	Hold	Ramp	Final temp
-----------	------	------	------------

Events:

Time	Event
0.000	ZERO



Component	Retention	Area	Height	External	Units
Diesel	10.616	829.2310	1.714	43.7904	
2-FBP	13.450	802.8690	244.713	20.9694	ppm
Oil	15.883	12674.2475	5.267	674.8498	ppm
		14106.3475		739.6094	

105%

Method: JAMACIA
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C313.CHR ()
 Sample: Method Blank
 Operator: PB

Method: JAMACIA
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D311.CHR ()
 Sample: Method Blank
 Operator: PB

Used for Bunker C airblank only

Used for Bunker C airblank only

Temperature program:

Temperature program:

Init temp Hold Ramp Final temp

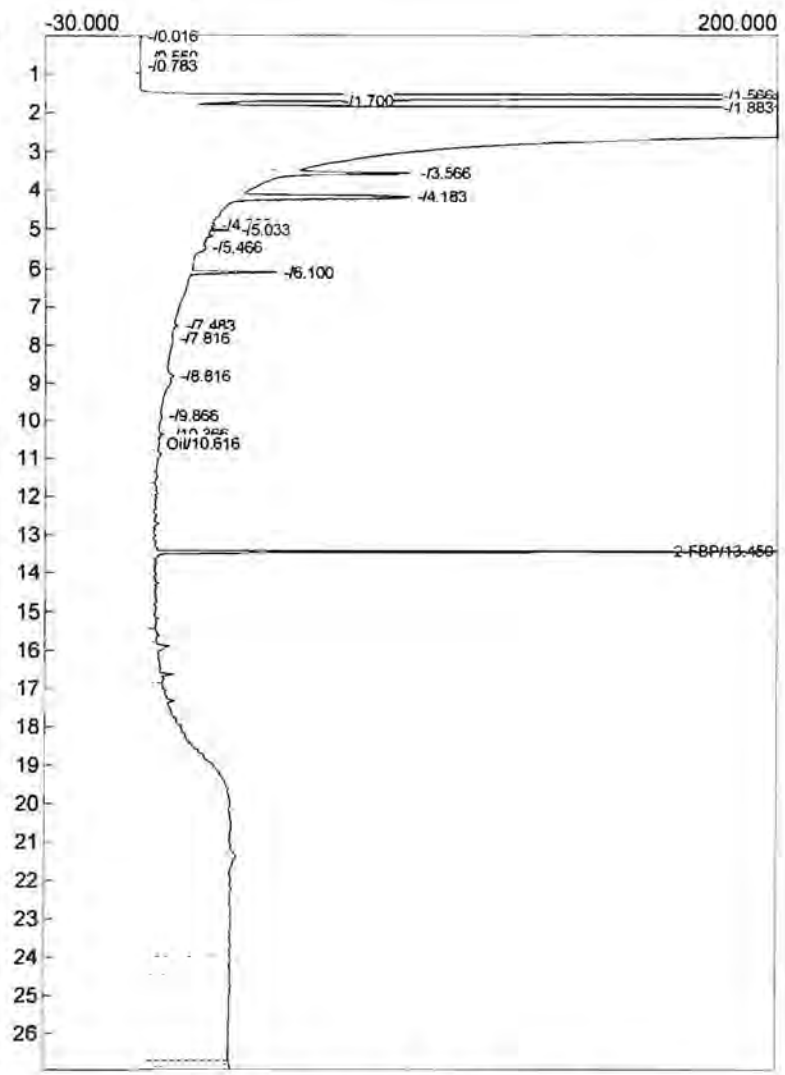
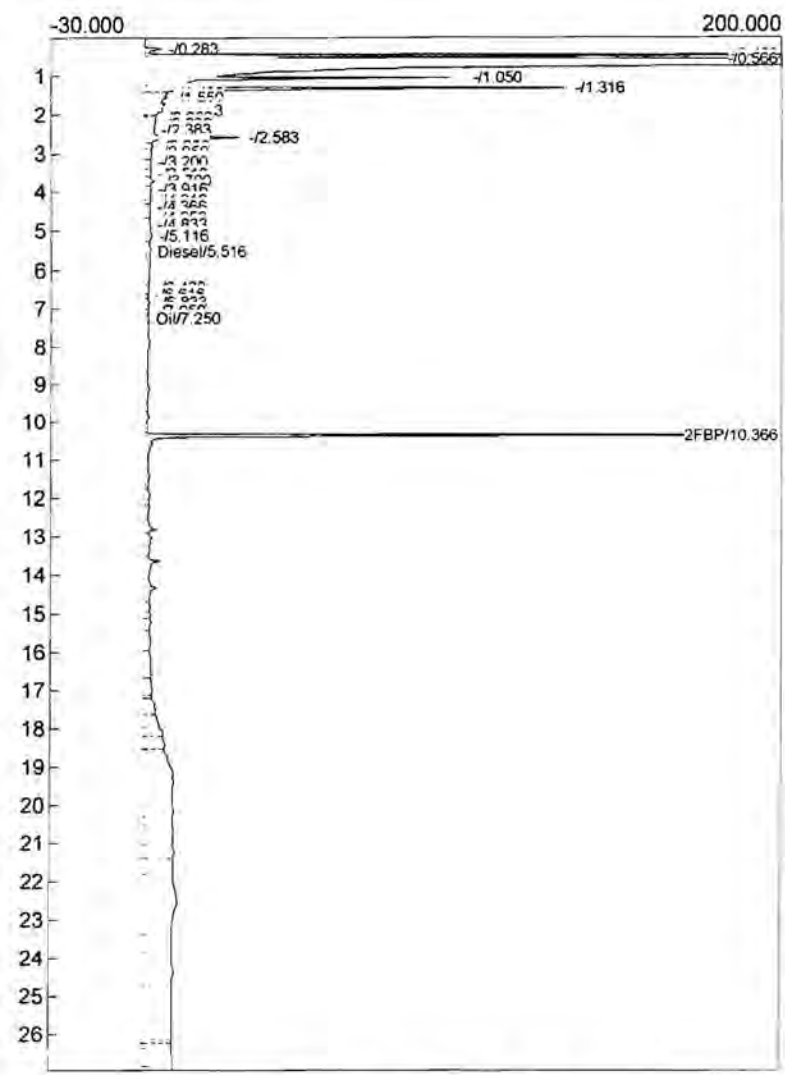
Init temp Hold Ramp Final temp

Events:

Events:

Time Event
 0.000 ZERO

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.516	41.7680	0.908	2.0535	ppm
Oil	7.250	5617.0520	0.344	276.3674	ppm
FBP	10.366	599.4560	193.970	20.8506	ppm
		6258.2760		299.2715	

Component	Retention	Area	Height	External	Units
Oil	10.616	13503.4785	1.714	719.5411	ppm
2-FBP	13.450	602.8690	244.713	20.9694	ppm
		14106.3475		740.5105	

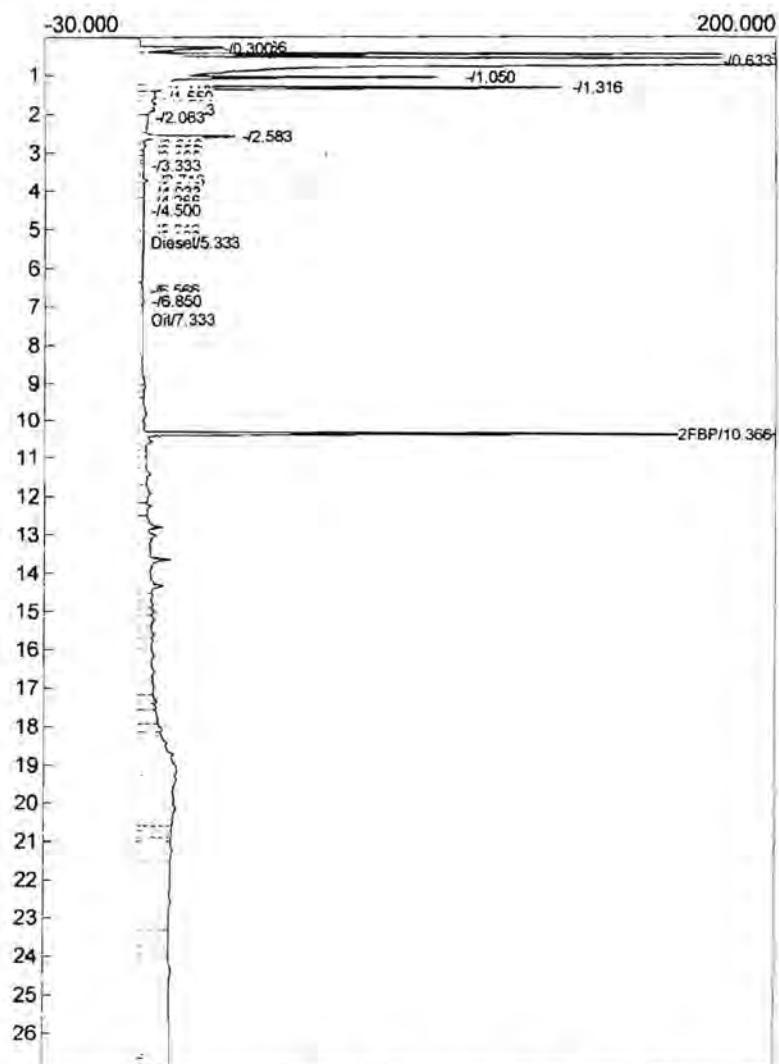
Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C314.CHR ()
 Sample: IRZ-B1-101712
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.333	9.9600	0.287	0.4897	ppm
Oil	7.333	6793.3155	0.286	334.3576	ppm
2-FBP	10.366	598.7560	208.181	20.8263	ppm
		7402.0315		355.6736	

104%

$334 - 276 = 58 \text{ ppm}$
 Bunker C

$MC \times 1.024 = 59.4$

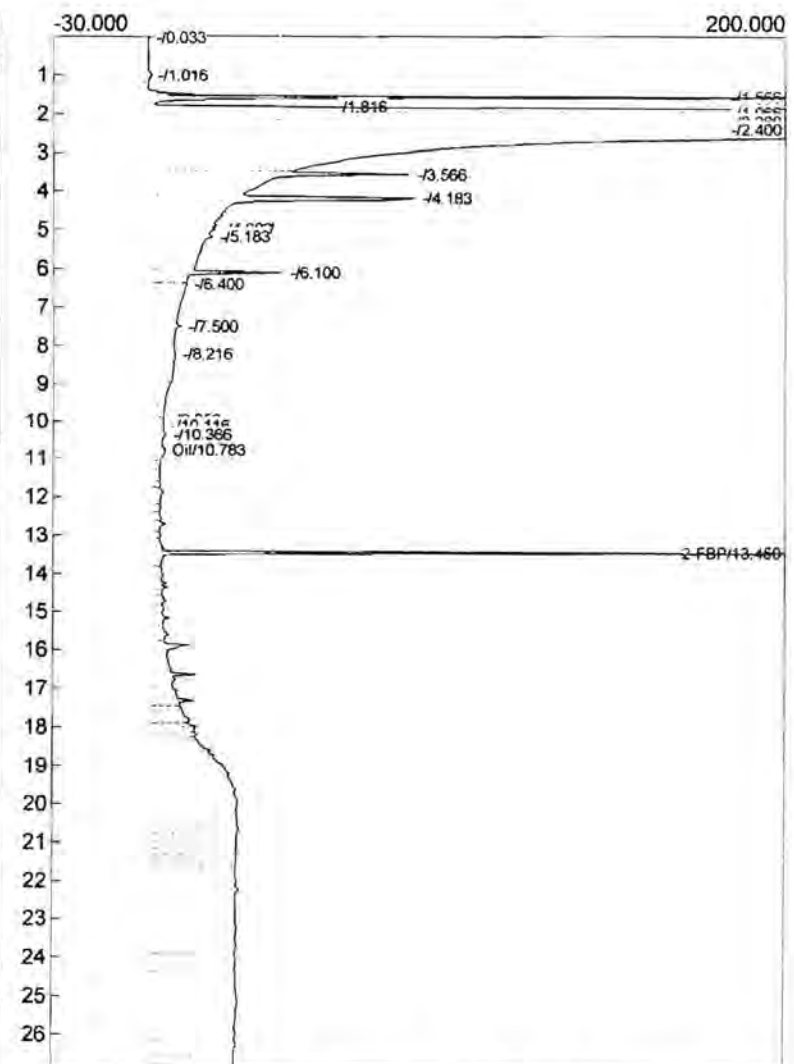
Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D312.CHR ()
 Sample: IRZ-B1-101712 Dup
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Oil	10.783	14834.9390	2.645	791.3004	ppm
2-FBP	13.450	634.5410	234.707	22.0710	ppm
		15469.4800		813.3714	

110%

$791 - 720 = 71 \text{ ppm}$
 Bunker C

$MC \times 1.024 = 72.7$

Analysis date: 10/17/2012 23:49:37
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C315.CHR ()
 Sample: IRZ-B2-101712
 Operator: PB

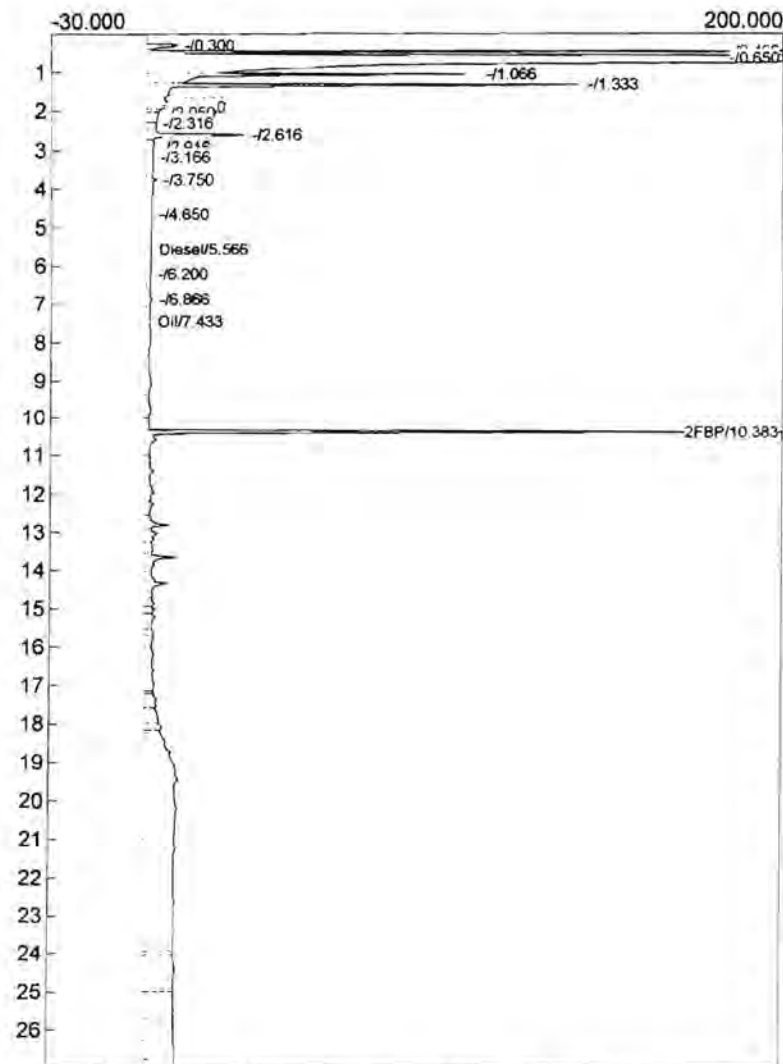
Analysis date: 10/17/2012 23:49:37
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D313.CHR ()
 Sample: IRZ-ESW1-101712
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.566	12.9445	0.366	0.6364	ppm
Oil	7.433	5775.5390	0.411	284.1808	ppm
FBP	10.383	622.2740	212.656	21.6443	ppm
		6410.7575		306.4616	

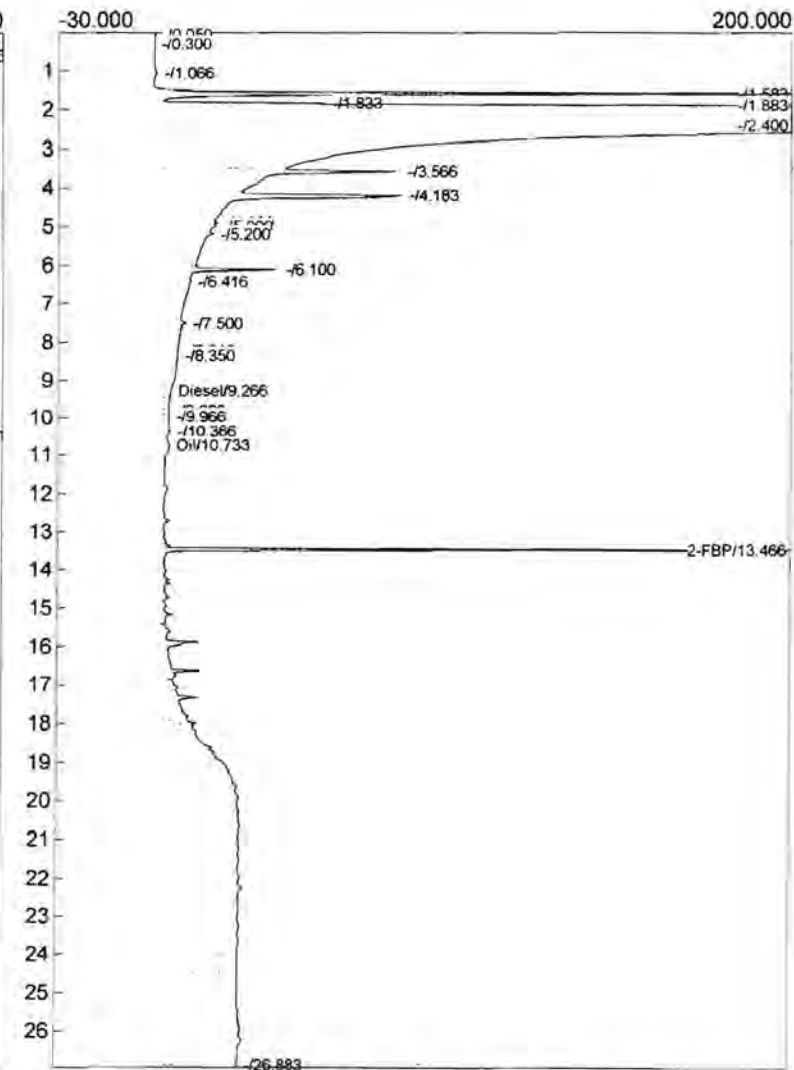
nd 108%

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	9.266	58.2130	2.177	3.0741	
Oil	10.733	13488.4770	1.725	718.7326	ppm
2-FBP	13.466	577.4310	219.079	20.0846	ppm
		14124.1210		741.8913	

nd 100%

Analysis date: 10/18/2012 01:42:23
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C316.CHR ()
 Sample: SURZ-WSW1-101812
 Operator: PB

Analysis date: 10/18/2012 01:42:23
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D314.CHR ()
 Sample: CON-01-101812 1:4
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

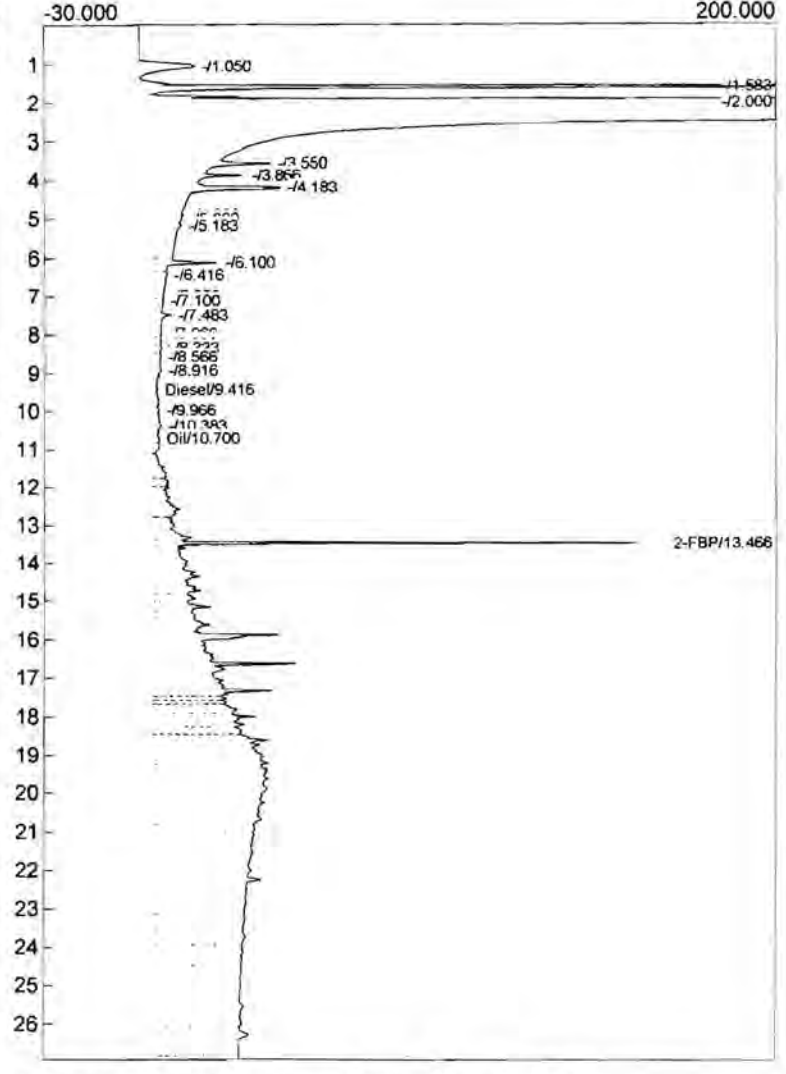
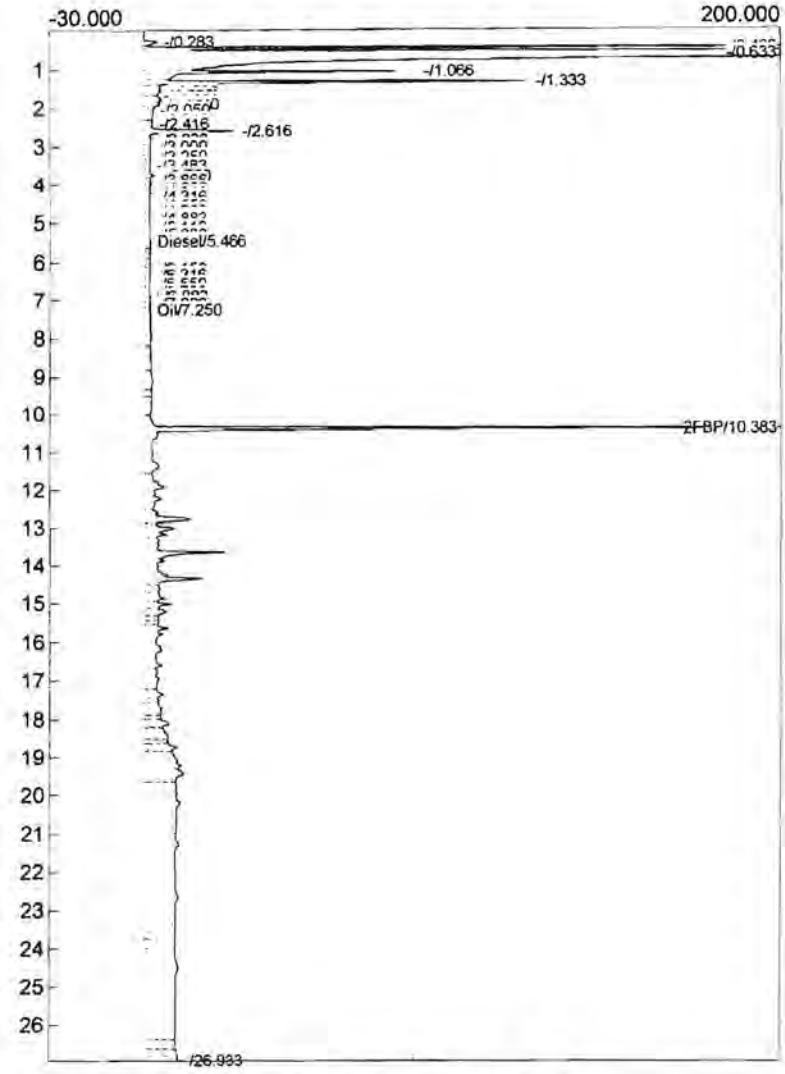
Time Event
 0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.466	13.5805	0.422	0.6677	ppm
Oil	7.250	6665.7825	0.353	328.0702	ppm
2-FBP	10.383	651.5565	218.942	22.6628	ppm
		7330.9195		351.4007	

Component	Retention	Area	Height	External	Units
Diesel	9.416	15.2705	0.541	0.8064	
Oil	10.700	20652.5300	1.011	1107.6894	ppm
2-FBP	13.466	396.5685	162.373	13.7937	ppm
		21064.3690		1122.2895	

$328 - 276 = 52$

113%

$mc \times 1.0911 = 56.7$

$1108 - 720 = 388$
 $\times 4$

int

$1552 \text{ ppm} \approx 1550$

Bunker C

$mc \times 0.9976$

1546

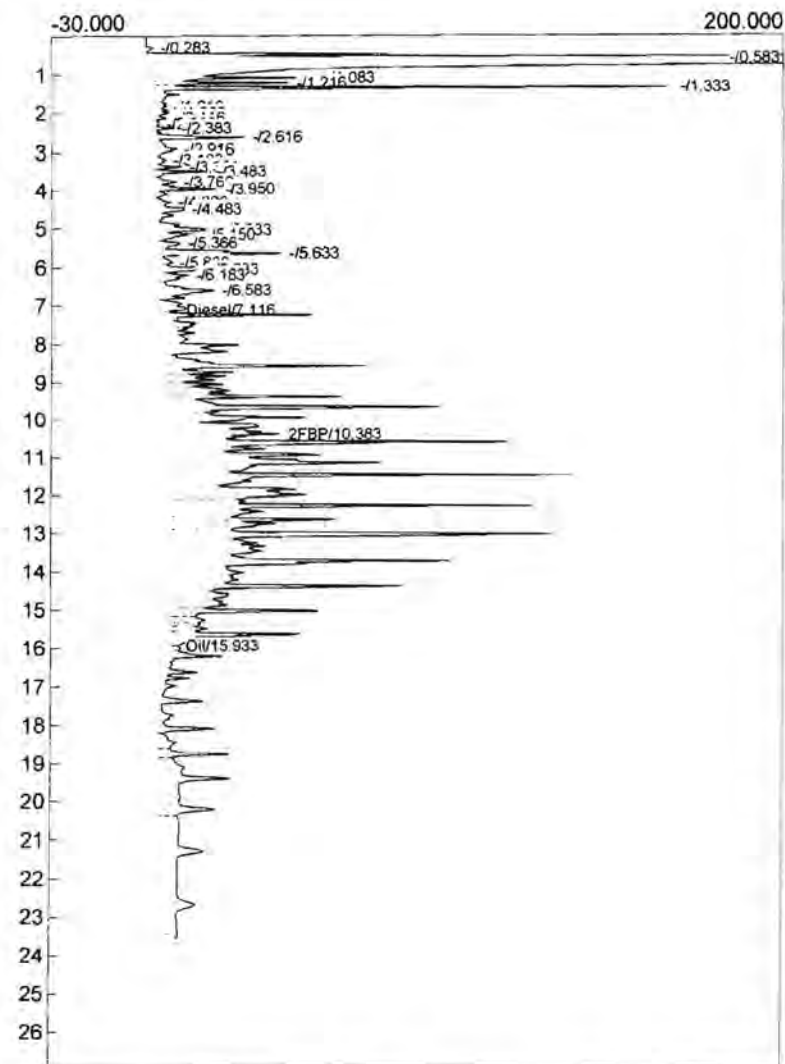
Analysis date: 10/16/2012 02:19:04
 Method: JAMACIA
 Description: JAMACIA
 Column: Restek Rbx-5 30x0.53x1.5
 Carrier: He
 Data file: C317.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.116	11389.7630	2.679	561.4124	ppm
2-FBP	10.383	377.4660	34.232	13.1293	ppm
Oil	15.933	2054.6875	1.116	101.0164	ppm
		13821.9185		675.5580	

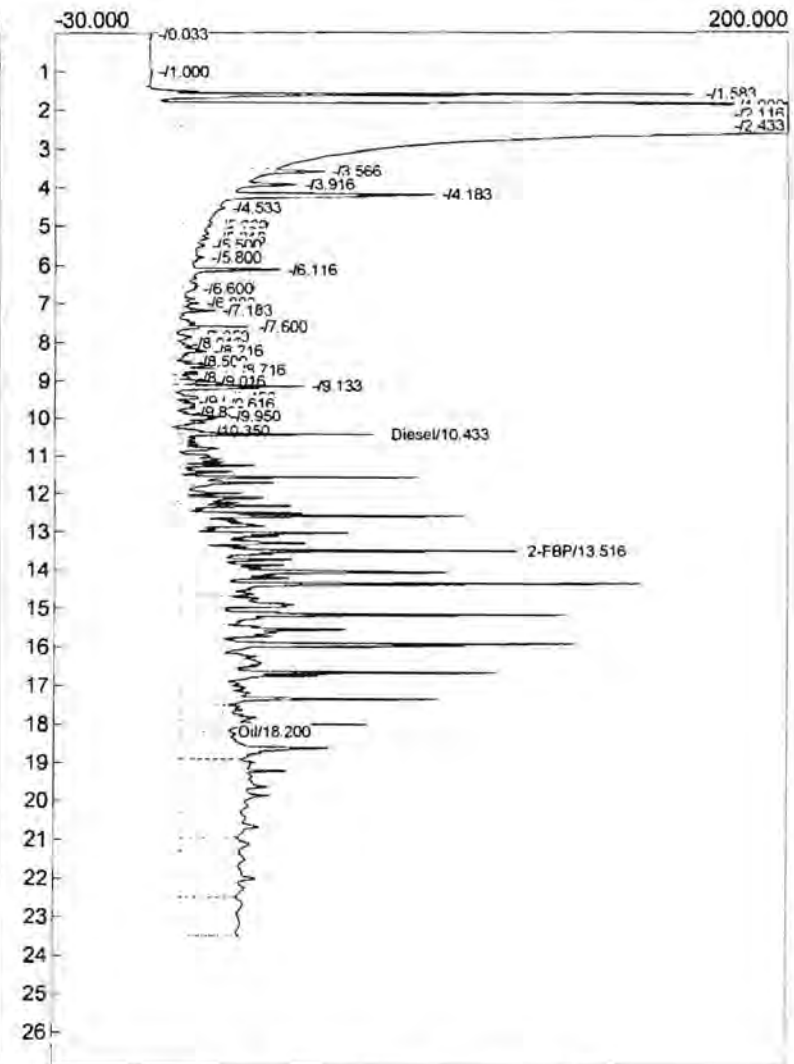
Analysis date: 10/16/2012 02:19:04
 Method: JAMACIA
 Description: JAMACIA
 Column: Restek Rbx-5 30x0.53x1.5
 Carrier: He
 Data file: D315.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

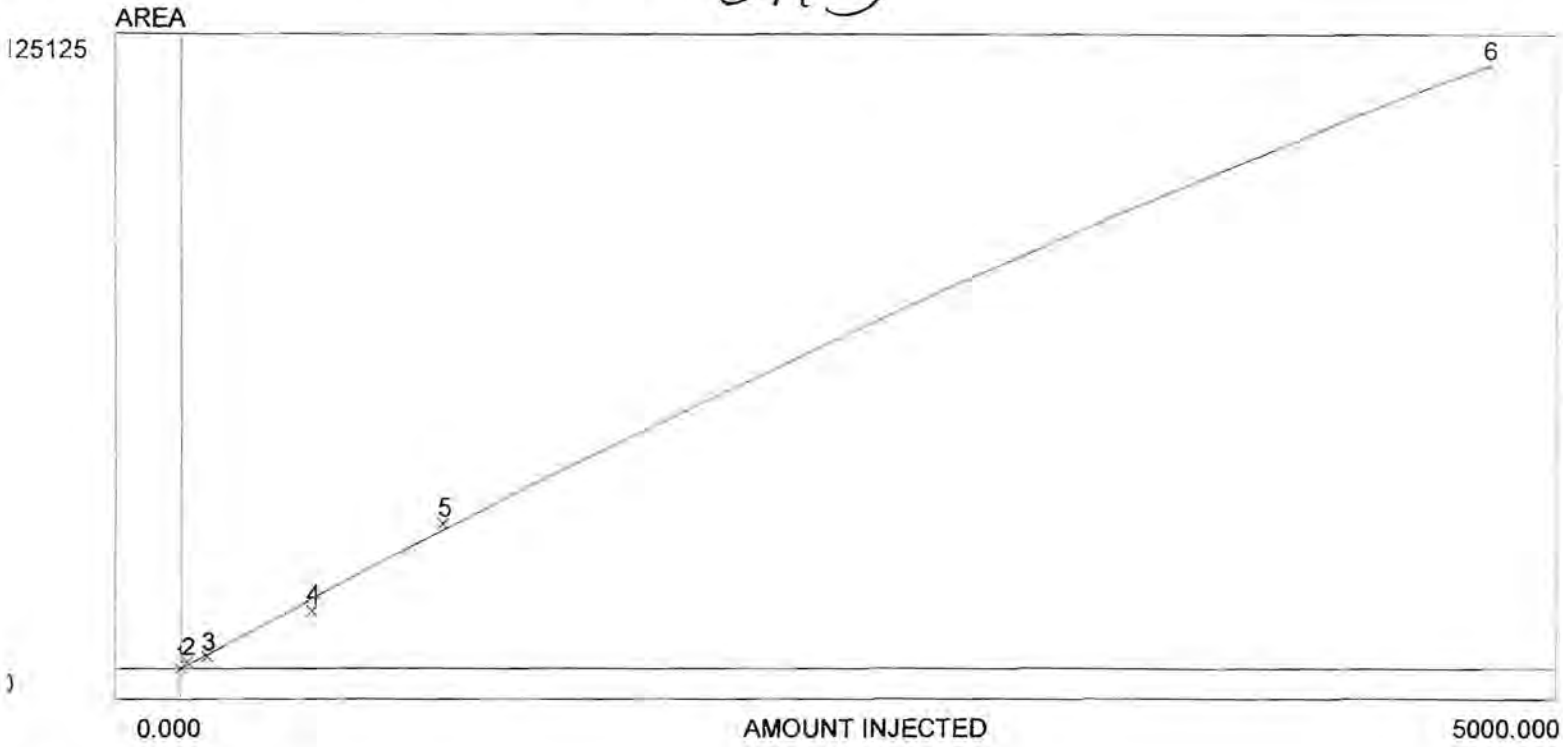
Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	10.433	10431.2350	64.087	554.2757	
2-FBP	13.516	575.0575	106.912	20.0020	ppm
Oil	18.200	6420.7240	15.577	340.0098	ppm
		17427.0165		914.2875	

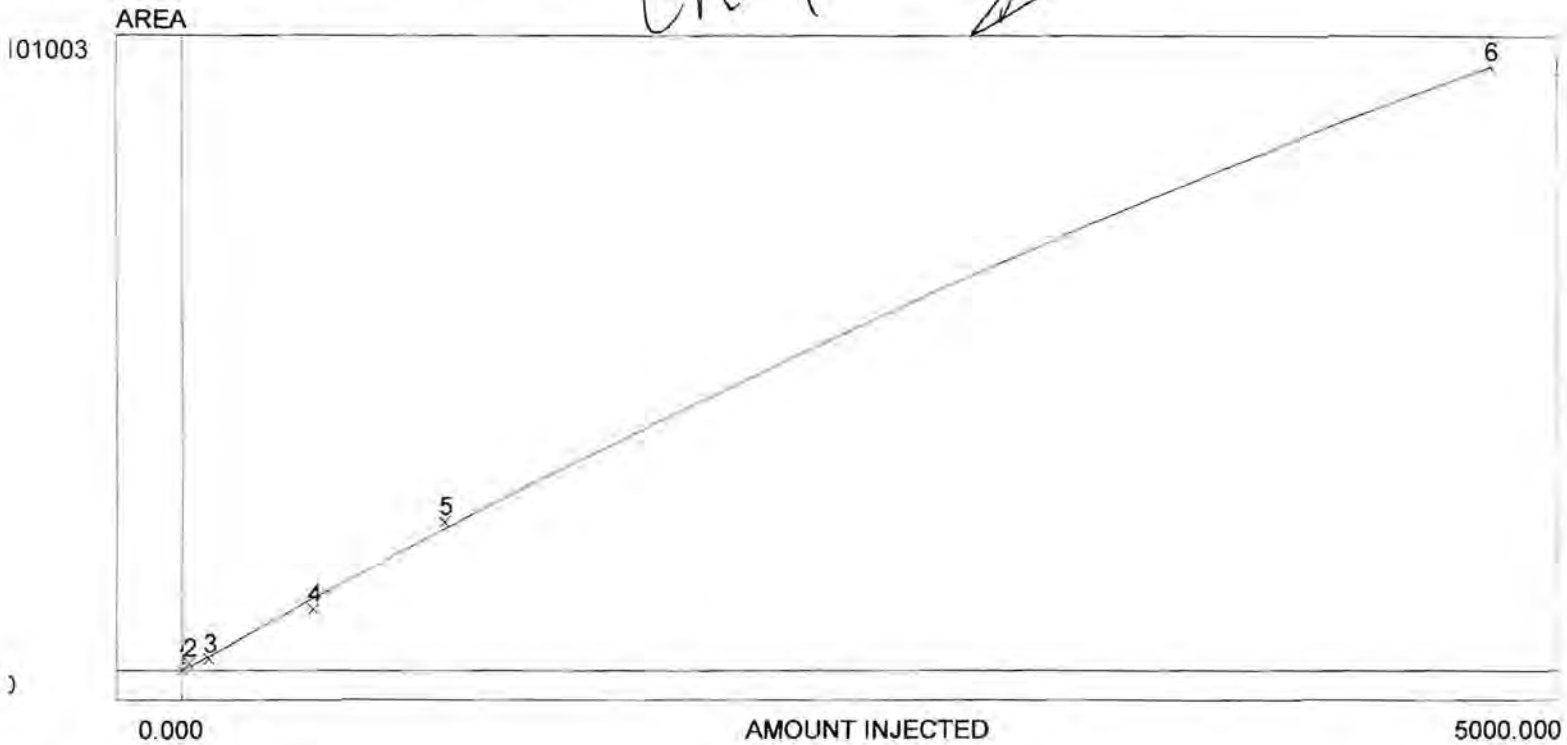
Ch 3



Avg slope of curve: 25.03
 Y-axis intercept: 0.00
 Linearity: 0.86
 Number of levels: 6
 3D/rel SD of CF's: 18.0/66.9
 $Y = -0.0009X^2 + 29.3544X$
 R^2: 0.9993
 Last calibrated: Wed Mar 14 13:52:31 2012

Level	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	1410.471	25.000	56.419	1410.471	N/A	N/A
3	2574.179	100.000	25.742	2574.179	N/A	N/A
4	12043.265	500.000	24.087	12043.265	N/A	N/A
5	29871.863	1000.000	29.872	29871.863	N/A	N/A
6	125124.670	5000.000	25.025	125124.670	N/A	N/A

Ch 4 

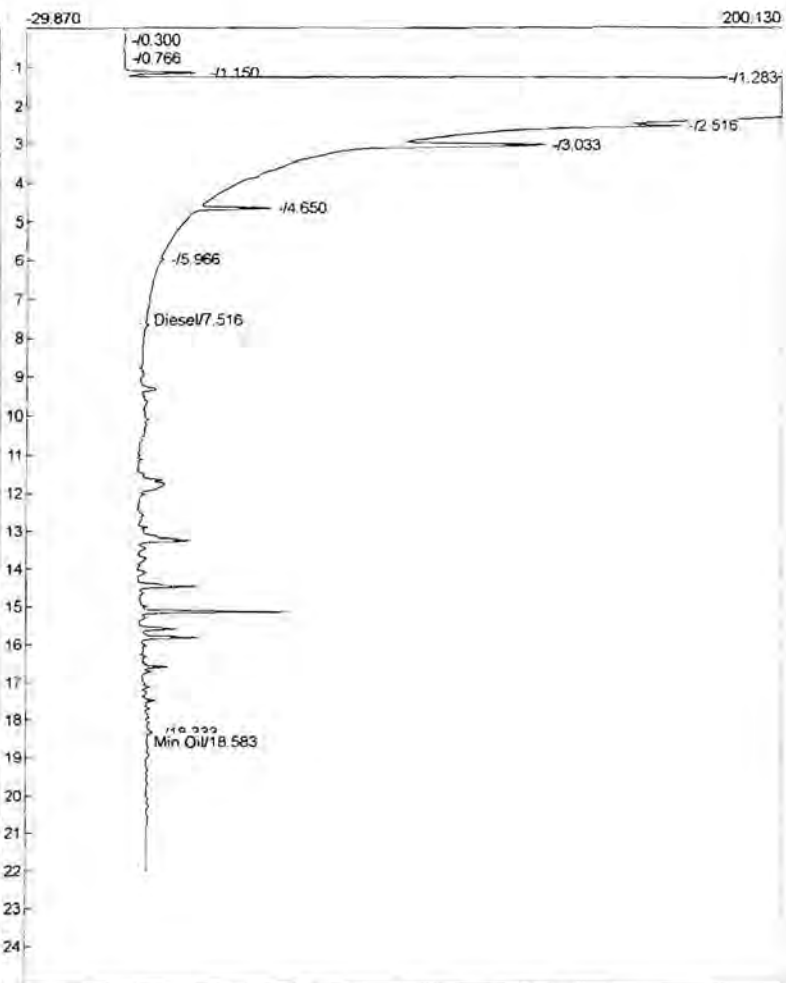
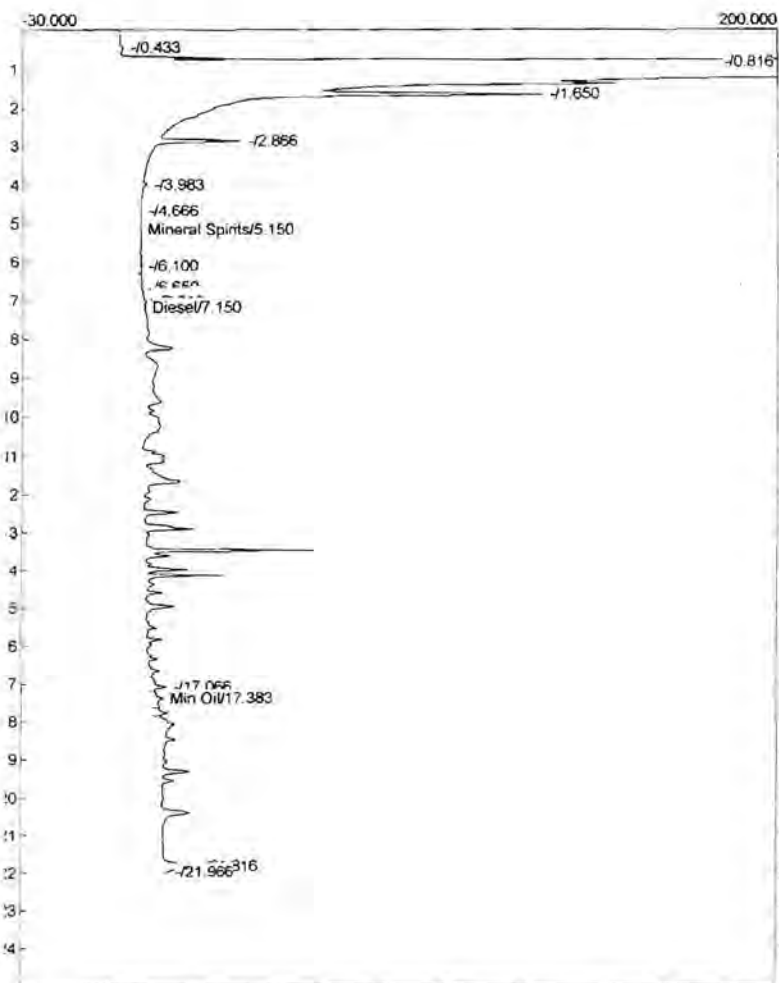


Avg slope of curve: 20.21
 Y-axis intercept: 0.00
 Linearity: 0.84
 Number of levels: 6
 SD/rel SD of CF's: 16.3/72.6
 $r = -0.0008X^2 + 24.2883X$
 R^2: 0.9993
 Last calibrated: Wed Mar 14 13:57:45 2012

Level	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	1271.716	25.000	50.869	1271.716	N/A	N/A
3	1927.394	100.000	19.274	1927.394	N/A	N/A
4	10086.605	500.000	20.173	10086.605	N/A	N/A
5	24554.042	1000.000	24.554	24554.042	N/A	N/A
6	101002.720	5000.000	20.201	101002.720	N/A	N/A

Lab Name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 10:39:04
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C620.CHR ()
 Sample: 25 PPM Dx 706
 Operator: KW

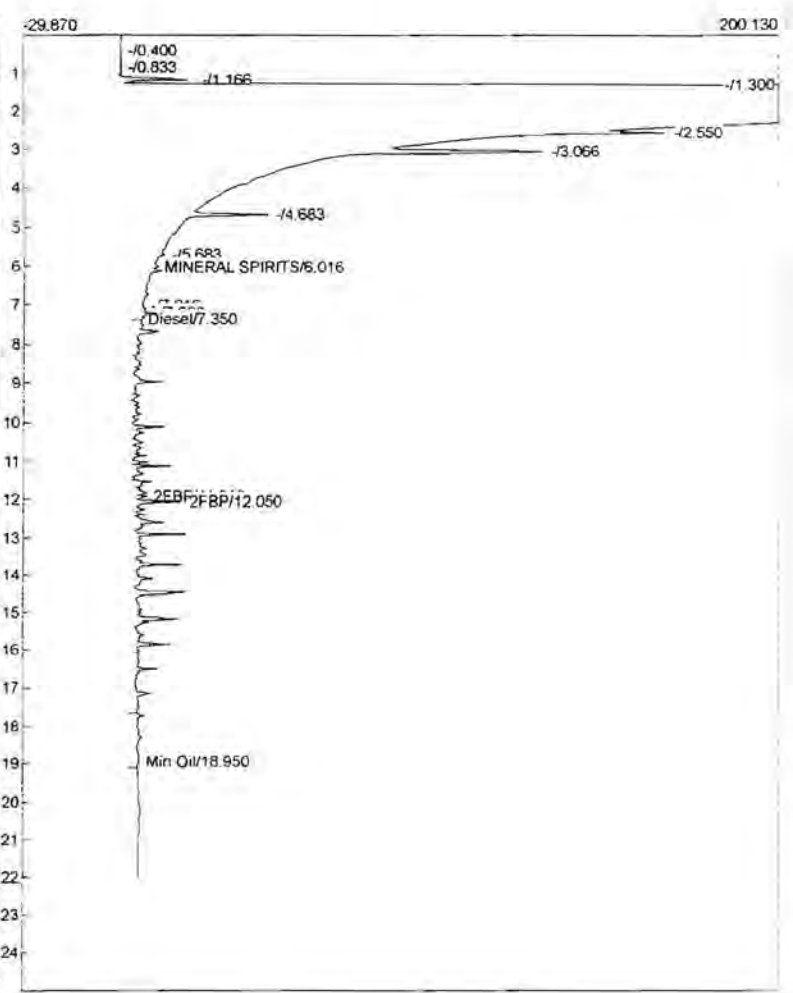
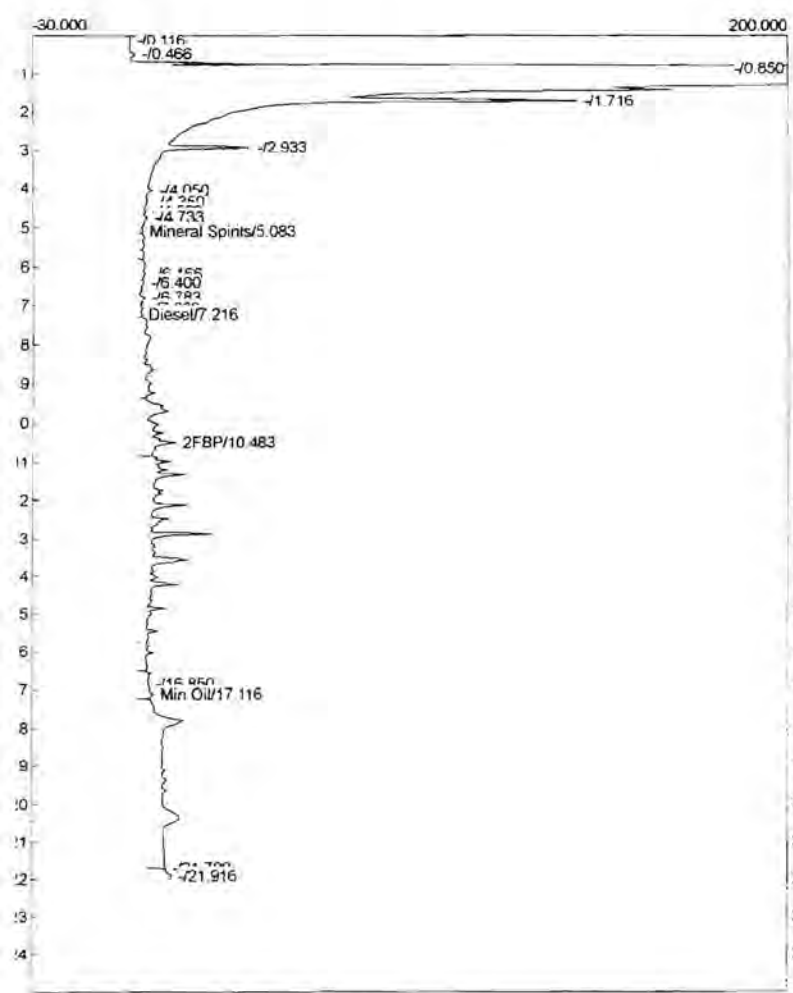
Lab Name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 10:39:04
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D626.CHR ()
 Sample: 25 PPM Dx 706
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	U
Mineral Spirits	5.150	7.8080	0.195	0.3863	PP	Diesel	7.516	1271.7155	1.965	89.4973	ppn
Diesel	7.150	1410.4710	0.518	13.6936	ppn	Min Oil	18.583	209.2665	1.582	14.7689	ppn
Min Oil	17.383	577.2305	3.576	0.0000				1480.9820		104.2662	
		1995.5095		14.0798							

Lab name: Eddy Environmental, Inc.
 Analysis date: 03/14/2012 11:07:43
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C621.CHR ()
 Sample: 100 PPM Dx 705
 Operator: KW

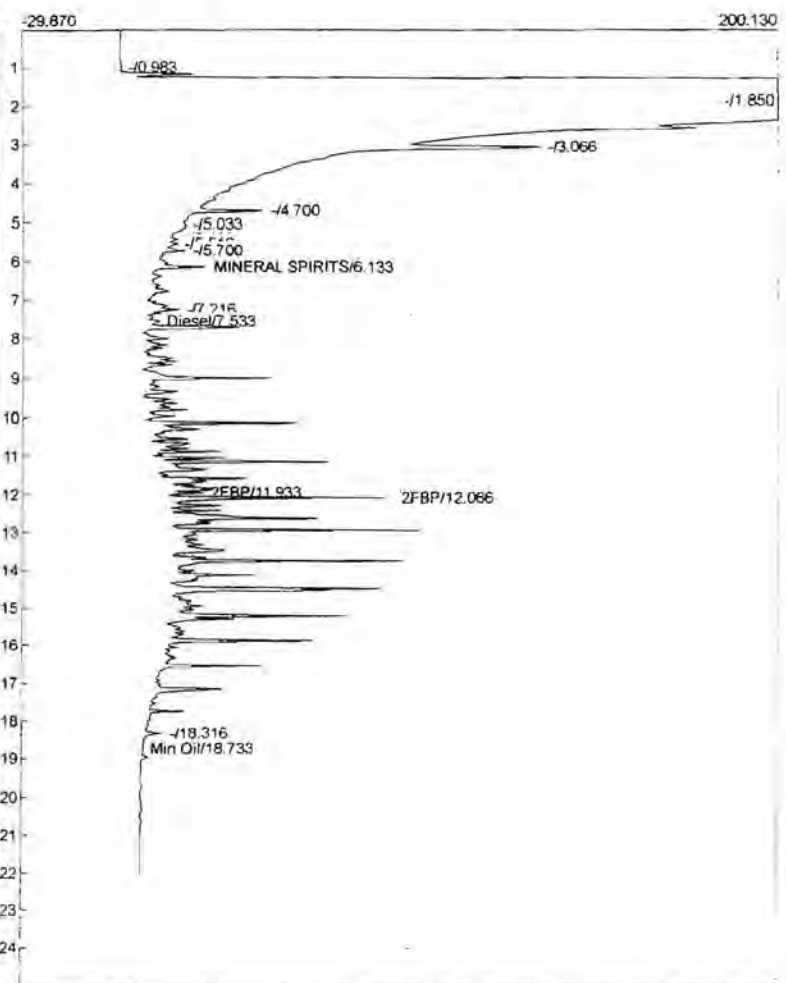
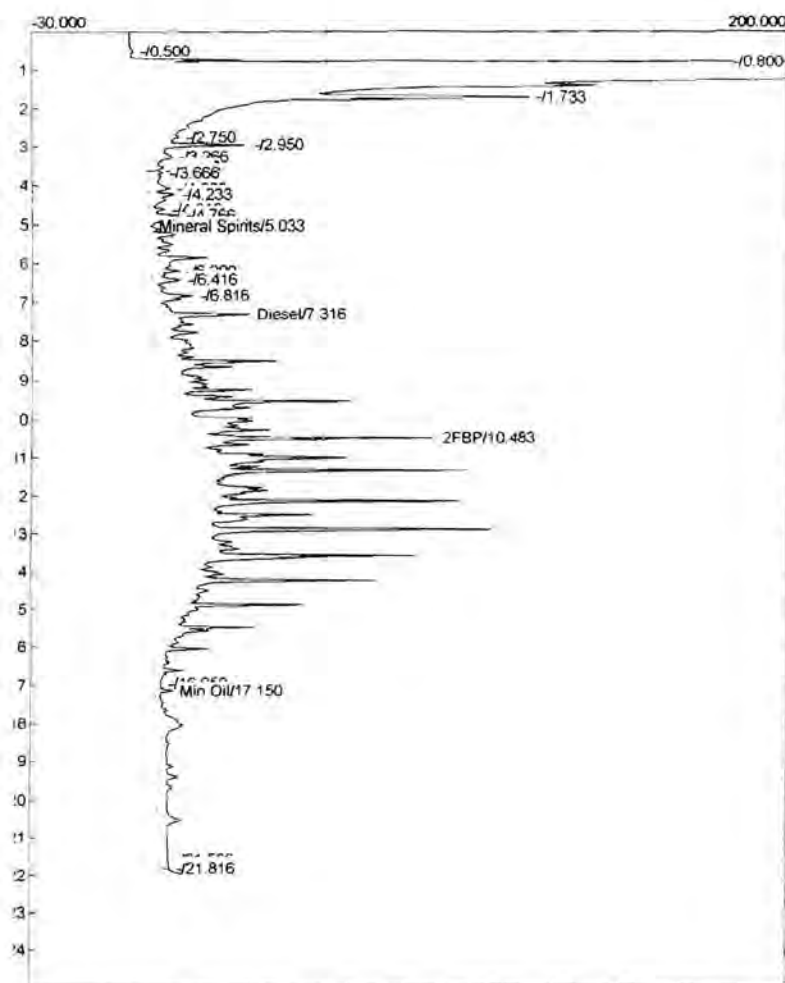
Lab name: Eddy Environmental, Inc.
 Analysis date: 03/14/2012 11:07:43
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D627.CHR ()
 Sample: 100 PPM Dx 705
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.083	84.6325	1.090	4.1869	PPM	MINERAL SPIRITS	6.016	285.6170	7.733	20.1004	PPM
Diesel	7.216	2410.4095	0.627	119.2471	ppm	Diesel	7.350	1849.7390	2.625	130.1759	ppm
2FBP	10.483	163.7695	10.998	6.5508	ppm	2FBP	11.916	20.8250	4.775	1.0413	ppm
Min Oil	17.116	1953.3665	4.269	0.0000		2FBP	12.050	56.8300	15.516	2.8415	ppm
						Min Oil	18.950	514.9365	2.757	36.3413	ppm
		4612.1780		129.9847				2727.9475		190.5003	

Lab Name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 11:45:18
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C622.CHR ()
 Sample: 500 PPM Dx 704
 Operator: KW

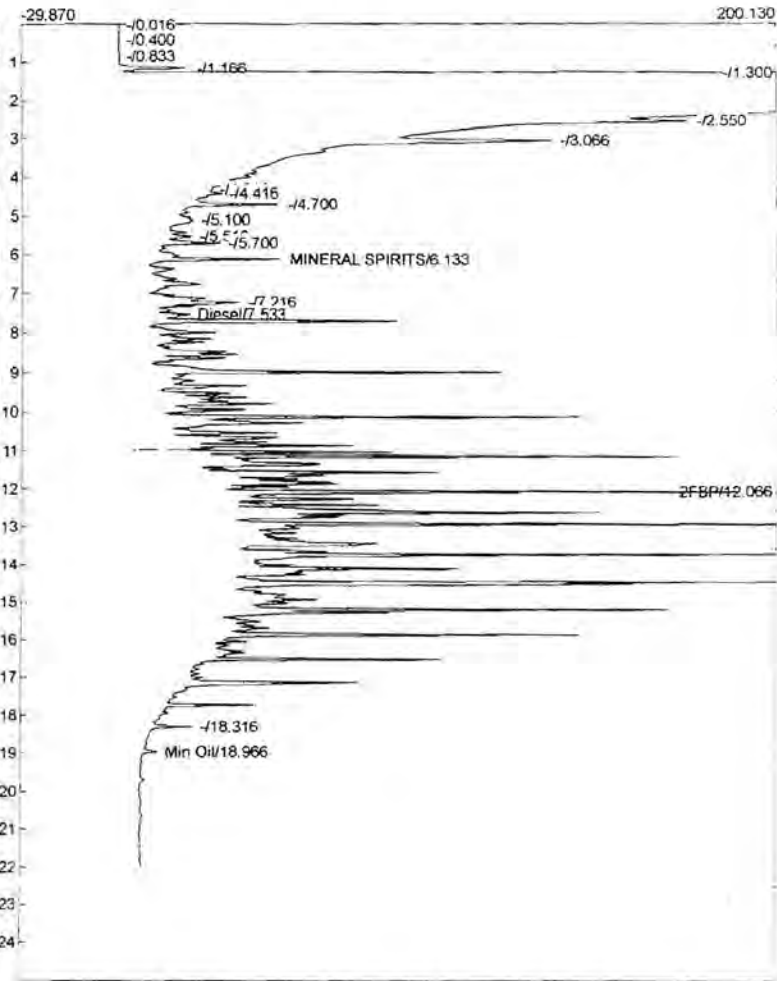
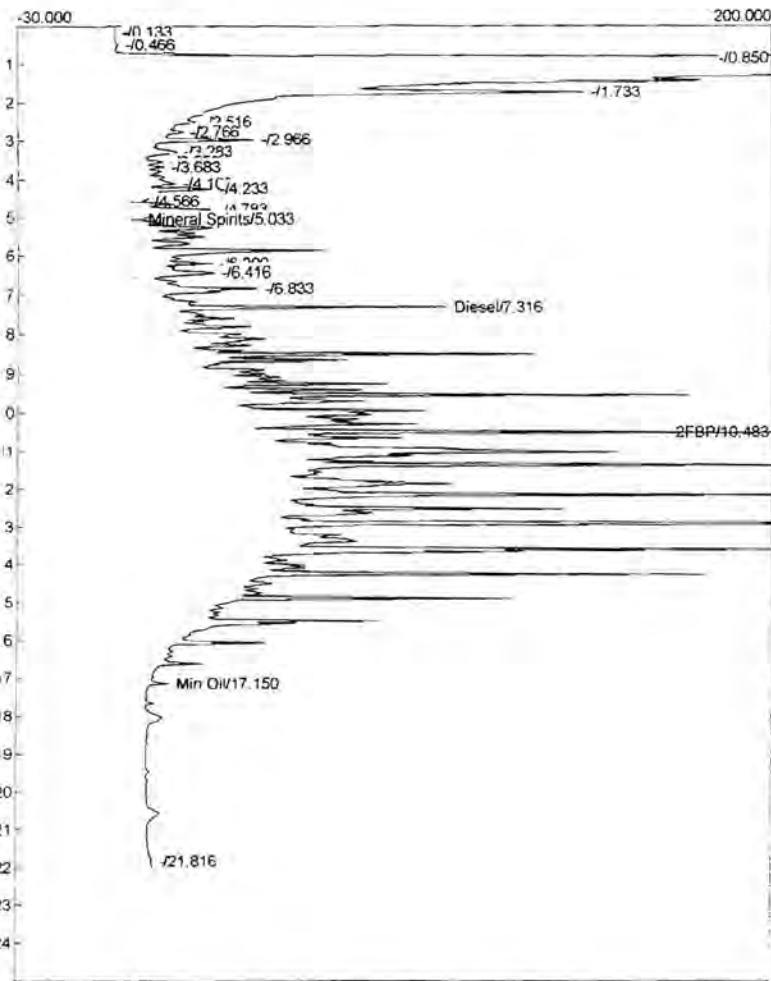
Lab Name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 11:45:18
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D628.CHR ()
 Sample: 500 PPM Dx 704
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.033	323.3415	0.632	15.9963	PPM	MINERAL SPIRITS	6.133	636.8190	24.452	44.8163	PPM
Diesel	7.316	11375.2115	30.144	562.7511	ppm	Diesel	7.533	9651.3385	9.725	679.2156	ppm
2FBP	10.483	668.0530	86.276	26.7221	ppm	2FBP	11.933	110.1285	21.943	5.5064	ppm
Min Oil	17.150	960.9820	5.210	0.0000		2FBP	12.066	325.1375	79.999	16.2569	ppm
						Min Oil	18.733	138.4670	1.874	9.7722	ppm
		13327.5880		605.4694				10861.8905		755.5674	

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 12:13:07
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C623.CHR ()
 Sample: 1000 PPM Dx 703
 Operator: KW

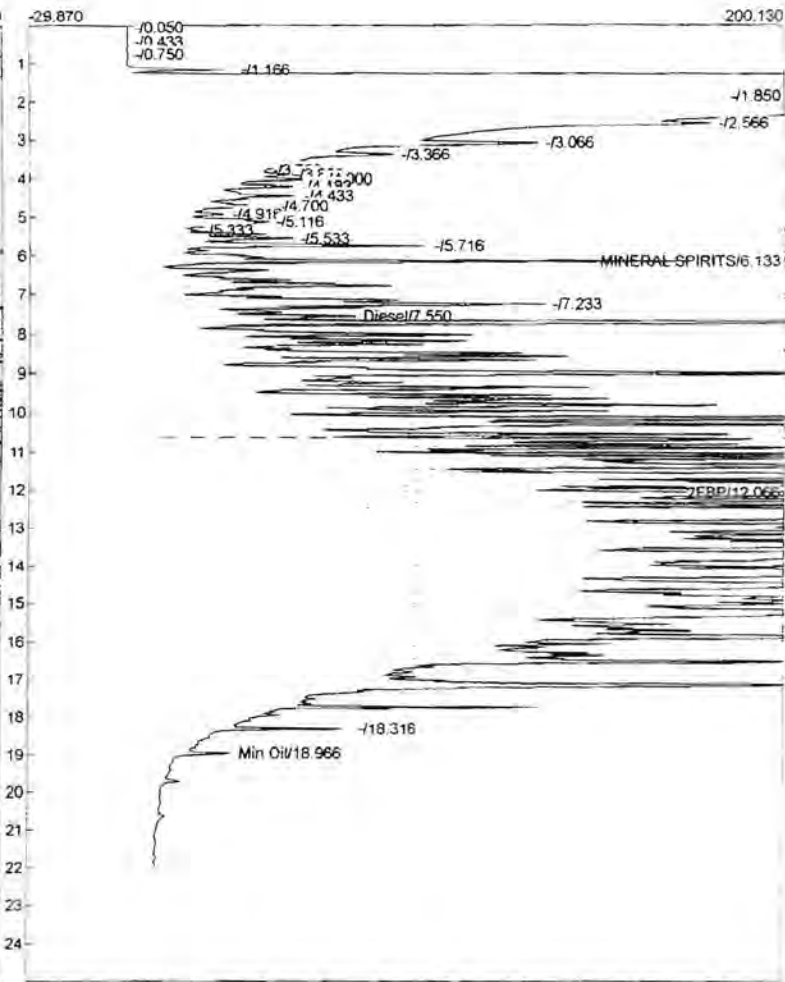
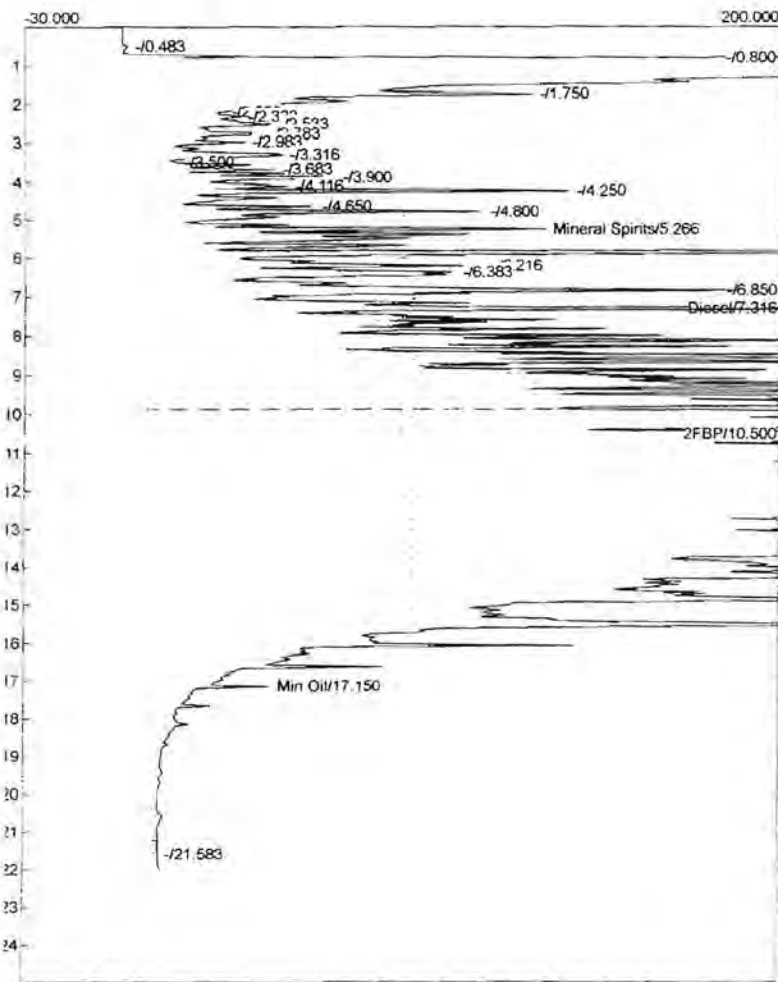
Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 12:13:07
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D629.CHR ()
 Sample: 1000 PPM Dx 703
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.033	995.3365	2.641	49.2410	pp	MINERAL SPIRITS	6.133	723.8390	45.571	50.9404	pp
Diesel	7.316	28291.8845	95.034	1399.6476	pp	Diesel	7.533	23510.5725	17.032	1654.5630	pp
2FBP	10.483	1579.9780	244.836	63.1991	pp	2FBP	12.066	1043.4695	193.880	52.1735	pp
Min Oil	17.150	221.1300	7.549	0.0000		Min Oil	18.966	300.3670	6.980	21.1982	pp
		31088.3290		1512.0877				25578.2480		1778.8751	

Lab name: Eiby Environmental, Inc.
 Analysis date: 03/14/2012 12:41:16
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C624.CHR ()
 Sample: 5000 PPM Dx 702
 Operator: KW

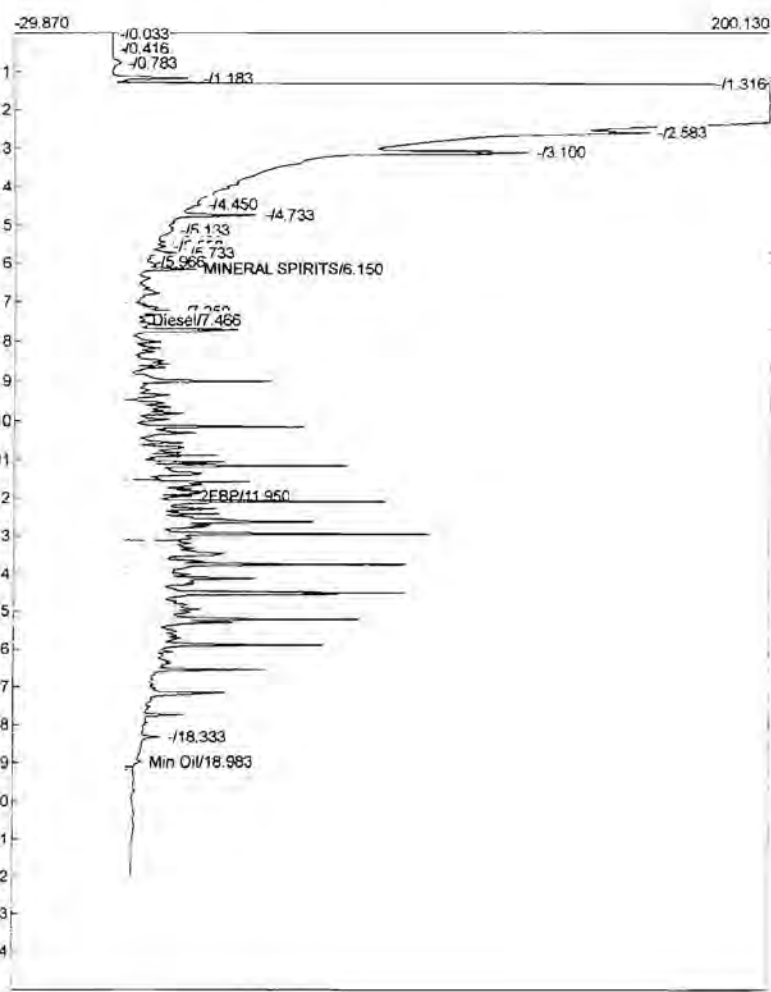
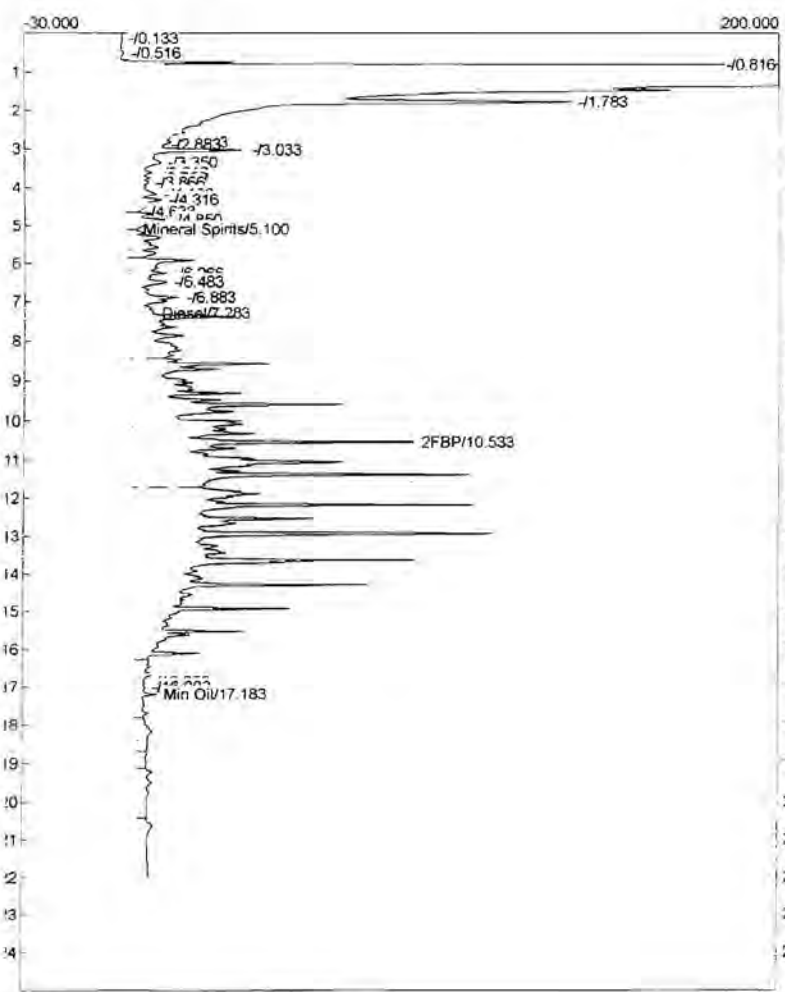
Analysis date: 03/14/2012 12:41:16
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D630.CHR ()
 Sample: 5000 PPM Dx 702
 Operator: KW



Component	Retention	Area	Height	External	UnComponent	Retention	Area	Height	External
Mineral Spirits	5.266	4030.7350	121.832	199.4073	MINERAL SPIRITS	6.133	2118.1620	172.994	149.0662
Diesel	7.316	118321.9850	479.109	5853.5897	Diesel	7.550	97612.4720	63.265	6869.5047
2FBP	10.500	6802.6800	1015.018	272.1072	2FBP	12.066	3390.2460	772.659	169.5123
Min Oil	17.150	1309.9915	36.600	0.0000	Min Oil	18.966	734.9465	24.851	51.8684
		130465.3915		6325.1043			103855.8265		7239.9516

Lab name: Eddy Environmental, Inc.
 Analysis date: 03/14/2012 13:09:09
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C625.CHR ()
 Sample: 500 PPM Dx ICAL 707
 Operator: KW

Lab name: Eddy Environmental, Inc.
 Analysis date: 03/14/2012 13:09:09
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D631.CHR ()
 Sample: 500 PPM Dx ICAL 707
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.100	454.2775	2.261	22.4739	PPM	MINERAL SPIRITS	6.150	431.9470	21.664	30.3984	PPM
Diesel	7.283	12055.9145	7.302	415.8831	ppm	Diesel	7.466	9633.4975	5.799	402.0800	ppm
2FBP	10.533	706.7050	85.875	28.2682	ppm	2FBP	11.950	98.4805	20.159	4.9240	ppm
Min Oil	17.183	642.7165	6.075	0.0000		Min Oil	18.983	249.4535	4.581	17.6050	ppm
		13859.6135		466.6252				10413.3785		455.0074	



1311 N. 35th St.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Libby Environmental

Jamie Deyman
4139 Libby Rd. NE
Olympia, Washington 98506

RE: Irondale

Lab ID: 1211093

November 20, 2012

Attention Jamie Deyman:

Fremont Analytical, Inc. received 1 sample(s) on 11/14/2012 for the analyses presented in the following report.

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

A handwritten signature in black ink, appearing to read "M. Dee", is written over a light blue horizontal line.

Michael Dee
Sr. Chemist / Principal



CLIENT: Libby Environmental
Project: Irondale
Lab Order: 1211093

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1211093-001	CON-01-101812	10/18/2012 1:00 PM	11/14/2012 10:29 AM

CLIENT: Libby Environmental**Project:** Irondale

I. SAMPLE RECEIPT:

All samples were received intact. The internal ice chest temperatures were measured on receipt and are recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.



Analytical Report

WO#: 1211093

Date Reported: 11/20/2012

Client: Libby Environmental

Collection Date: 10/18/2012 1:00:00 PM

Project: Irondale

Lab ID: 1211093-001

Matrix: Soil

Client Sample ID: CON-01-101812

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 3639

Analyst: PH

Benz(a)anthracene	ND	45.3	H	µg/Kg-dry	1	11/16/2012 5:17:00 PM
Chrysene	ND	45.3	H	µg/Kg-dry	1	11/16/2012 5:17:00 PM
Benzo(b)fluoranthene	ND	45.3	H	µg/Kg-dry	1	11/16/2012 5:17:00 PM
Benzo(k)fluoranthene	ND	45.3	H	µg/Kg-dry	1	11/16/2012 5:17:00 PM
Benzo(a)pyrene	ND	45.3	H	µg/Kg-dry	1	11/16/2012 5:17:00 PM
Indeno(1,2,3-cd)pyrene	ND	45.3	H	µg/Kg-dry	1	11/16/2012 5:17:00 PM
Dibenz(a,h)anthracene	ND	45.3	H	µg/Kg-dry	1	11/16/2012 5:17:00 PM
Surr: 2-Fluorobiphenyl	91.5	50.4-142	H	%REC	1	11/16/2012 5:17:00 PM
Surr: Terphenyl-d14 (surr)	85.9	48.8-157	H	%REC	1	11/16/2012 5:17:00 PM

Sample Moisture (Percent Moisture)

Batch ID: R6567

Analyst: AO

Percent Moisture	15.8			wt%	1	11/15/2012 1:43:22 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits

Work Order: 1211093
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: ICV-3639	SampType: ICV	Units: µg/Kg	Prep Date: 11/16/2012	RunNo: 6617							
Client ID: ICV	Batch ID: 3639		Analysis Date: 11/16/2012	SeqNo: 131571							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	936	50.0	1,000	0	93.6	70	130				
Chrysene	928	50.0	1,000	0	92.8	70	130				
Benzo(b)fluoranthene	941	50.0	1,000	0	94.1	70	130				
Benzo(k)fluoranthene	968	50.0	1,000	0	96.8	70	130				
Benzo(a)pyrene	993	50.0	1,000	0	99.3	70	130				
Indeno(1,2,3-cd)pyrene	945	50.0	1,000	0	94.5	70	130				
Dibenz(a,h)anthracene	917	50.0	1,000	0	91.7	70	130				
Surr: 2-Fluorobiphenyl	507		500.0		101	50.4	142				
Surr: Terphenyl-d14 (surr)	496		500.0		99.2	48.8	157				

Sample ID: ICB-3639	SampType: ICB	Units: µg/Kg	Prep Date: 11/16/2012	RunNo: 6617							
Client ID: ICB	Batch ID: 3639		Analysis Date: 11/16/2012	SeqNo: 131572							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Surr: 2-Fluorobiphenyl	486		500.0		97.2	50.4	142				
Surr: Terphenyl-d14 (surr)	473		500.0		94.7	48.8	157				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1211093
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: MB-3639	SampType: MBLK	Units: µg/Kg	Prep Date: 11/14/2012	RunNo: 6617							
Client ID: MBLKS	Batch ID: 3639		Analysis Date: 11/16/2012	SeqNo: 131573							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Surr: 2-Fluorobiphenyl	485		500.0		97.0	50.4	142				
Surr: Terphenyl-d14 (surr)	453		500.0		90.6	48.8	157				

Sample ID: LCS-3639	SampType: LCS	Units: µg/Kg	Prep Date: 11/14/2012	RunNo: 6617							
Client ID: LCSS	Batch ID: 3639		Analysis Date: 11/16/2012	SeqNo: 131574							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benz(a)anthracene	807	50.0	1,000	0	80.7	46.5	143				
Chrysene	805	50.0	1,000	0	80.5	63	125				
Benzo(b)fluoranthene	796	50.0	1,000	0	79.6	47.7	139				
Benzo(k)fluoranthene	825	50.0	1,000	0	82.5	60.7	136				
Benzo(a)pyrene	778	50.0	1,000	0	77.8	50.6	133				
Indeno(1,2,3-cd)pyrene	759	50.0	1,000	0	75.9	57.9	133				
Dibenz(a,h)anthracene	729	50.0	1,000	0	72.9	52.8	135				
Surr: 2-Fluorobiphenyl	461		500.0		92.3	50.4	142				
Surr: Terphenyl-d14 (surr)	428		500.0		85.5	48.8	157				

Qualifiers:	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside accepted recovery limits	D Dilution was required J Analyte detected below quantitation limits RL Reporting Limit	E Value above quantitation range ND Not detected at the Reporting Limit S Spike recovery outside accepted recovery limits
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Work Order: 1211093
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: 1210176-001AMS	SampType: MS	Units: µg/Kg-dry	Prep Date: 11/14/2012	RunNo: 6617							
Client ID: BATCH	Batch ID: 3639		Analysis Date: 11/16/2012	SeqNo: 131576							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benz(a)anthracene	735	50.2	1,003	15.27	71.7	57.5	169				H
Chrysene	868	50.2	1,003	35.69	83.0	45.2	146				H
Benzo(b)fluoranthene	898	50.2	1,003	0	89.5	42.2	168				H
Benzo(k)fluoranthene	722	50.2	1,003	0	72.0	48	161				H
Benzo(a)pyrene	852	50.2	1,003	17.51	83.2	34.4	179				H
Indeno(1,2,3-cd)pyrene	1,090	50.2	1,003	0	109	41.1	165				H
Dibenz(a,h)anthracene	1,170	50.2	1,003	0	117	38.1	166				H
Surr: 2-Fluorobiphenyl	420		501.6		83.8	50.4	142				H
Surr: Terphenyl-d14 (surr)	379		501.6		75.5	48.8	157				H

Sample ID: 1211095-001ADUP	SampType: DUP	Units: µg/Kg-dry	Prep Date: 11/14/2012	RunNo: 6617							
Client ID: BATCH	Batch ID: 3639		Analysis Date: 11/16/2012	SeqNo: 131579							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benz(a)anthracene	ND	47.5						0	0	30	H
Chrysene	ND	47.5						0	0	30	H
Benzo(b)fluoranthene	ND	47.5						0	0	30	H
Benzo(k)fluoranthene	ND	47.5						0	0	30	H
Benzo(a)pyrene	ND	47.5						0	0	30	H
Indeno(1,2,3-cd)pyrene	ND	47.5						0	0	30	H
Dibenz(a,h)anthracene	ND	47.5						0	0	30	H
Surr: 2-Fluorobiphenyl	463		475.0		97.5	50.4	142		0		H
Surr: Terphenyl-d14 (surr)	415		475.0		87.4	48.8	157		0		H

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Sample Log-In Check List

Client Name: **LIBBY**

Work Order Number: **1211093**

Logged by: **Troy Zehr**

Date Received: **11/14/2012 10:29:00 AM**

Chain of Custody

1. Were custodial seals present? Yes No Not Required
2. Is Chain of Custody complete? Yes No Not Present
3. How was the sample delivered? FedEx

Log In

4. Coolers are present? Yes No NA
5. Was an attempt made to cool the samples? Yes No NA
6. Were all coolers received at a temperature of >0° C to 10.0°C Yes No NA
7. Sample(s) in proper container(s)? Yes No
8. Sufficient sample volume for indicated test(s)? Yes No
9. Are samples properly preserved? Yes No
10. Was preservative added to bottles? Yes No NA
11. Is there headspace present in VOA vials? Yes No NA
12. Did all sample containers arrive in good condition?(unbroken) Yes No
13. Does paperwork match bottle labels? Yes No
14. Are matrices correctly identified on Chain of Custody? Yes No
15. Is it clear what analyses were requested? Yes No
16. Were all holding times able to be met? Yes No

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	Discussed with client prior to receipt.		

18. Additional remarks/Discrepancies

Item Information

Item #	Temp °C	Condition
Cooler	6.0	Good

16111402

Chain of Custody Record

Libby Environmental, Inc.

4139 Libby Road NE
Olympia, WA 98505
Ph: 360-352-2110
Fax: 360-352-4154

Client: Libby Environmental, Inc.
Address: see above
City: _____ State: _____ Zip: _____
Phone: _____ Fax: _____

www.LibbyEnvironmental.com

Date: 11-13-12 Page: 1 of 1

Project Manager: Jamie Deyman
Project Name: Irondale

Location: _____ City, State: Irondale, WA
Collector: _____ Date of Collection: 11-18-12
Email: _____

Client Project # _____



Sample Number	Depth	Time	Sample Type	Container Type	Field Notes
1	CON-01-1018Z	0150	Soil	Jar	VOA 80218 BTEX only VOA 80219 BTEX only SEM VOL 8270 NMTPH-HC10 NMTPH-CX NMTPH-DX NMTPH-DX EX PCB's 8082 MTC's 5 Metals CPAH
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					

Relinquished by: JD Date / Time: 11-13-12 10:40 Received by: Jamie Deyman Date / Time: 11/14/12 10:29

Relinquished by: _____ Date / Time: _____ Received by: _____ Date / Time: _____

Relinquished by: _____ Date / Time: _____ Received by: _____ Date / Time: _____

Remarks: Standard

Sample Receipt: _____
Good Condition? _____
Cold? _____
Seals Intact? _____
Total Number of Containers: _____

TAT: 24HR 48HR 5-DAY

Fremont Analytical, Inc.

WORK ORDER Summary

20-Nov-12

Work Order: 1211093

WO Type: Standard

Client ID: LIBBY	Contact: Jamie Deyman
Project ID: Irondale	PM: Michael Dee
	QC Level: LEVEL II
ChkList Completed On: 11/14/2012 11:15:21 AM	
Completed By: Troy Zehr	
Reviewed By:	
Reviewed On: 11/17/2012	
Reviewed By: Mike Ridgeway	

Sample ID	Client Sample ID	Date Collected	Date Received	Date Due	Matrix	Test Code	Hld	MS	SEL	Sub	Storage
1211093-001A	CON-01-101812	10/18/2012 1:00:00 PM	11/14/2012 10:29:00 AM	11/19/2012	Soil	O-PAH-S-SIM	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Walkin B5
				11/19/2012		PMOIST	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Walkin B5
				11/19/2012		PREP-PAH-S	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Walkin B5

Response Factor Report HP-MSD

Method Path : C:\msdchem\1\methods\
 Method File : DBPAH111612.M
 Title : EPA Method 8270-PAH
 Last Update : Fri Nov 16 13:53:58 2012
 Response Via : Initial Calibration

Calibration Files

2 =111602.D 3 =111603.D 4 =111604.D 5 =111605.D 6 =111606.D 7 =111607.D ;

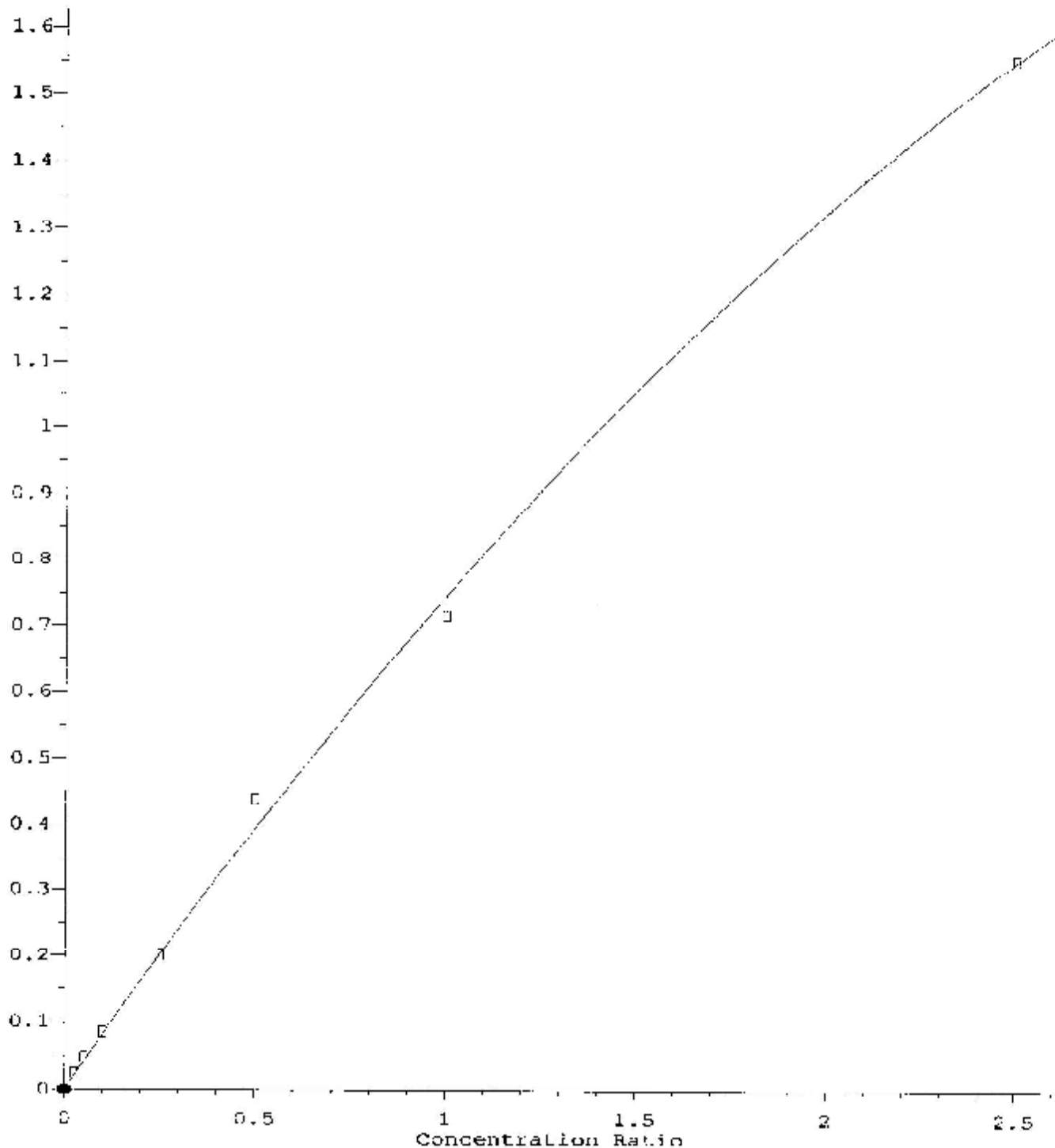
Compound	2	3	4	5	6	7	8	Avg	%RSD
1) 1,4-Dichlorobenz-d...	-----ISTD-----								
2) I Naphthalene-d8 (IS)	-----ISTD-----								
3) t Naphthalene	1.084	1.028	1.660	1.577	1.728	1.419	1.255	1.622	13.82
4) t 2-Methylnaphth...	1.098	1.087	0.973	0.955	1.057	0.871	0.765	0.972	12.56
5) t 1-Methylnaphth...	1.023	1.015	0.921	0.895	0.988	0.816	0.717	0.911	12.39
6) s 2-Fluorobiphen...	0.897	0.902	0.907	0.911	0.910	0.911	0.919	0.908	0.77
7) t Acenaphthylene	1.548	1.520	1.379	1.367	1.537	1.285	1.144	1.397	10.76
8) I Acenaphthene-d10 (IS)	-----ISTD-----								
9) m Acenaphthene	0.984	0.962	0.855	0.805	0.876	0.716	0.620	0.831	15.68
10) t Fluorene	2.268	2.247	2.035	1.944	2.135	1.750	1.524	1.986	13.68
11) I Phenanthrene-d10 (IS)	-----ISTD-----								
12) t Phenanthrene	1.733	1.722	1.532	1.477	1.705	1.352	1.159	1.526	14.18
13) t Anthracene	1.891	1.878	1.734	1.683	1.887	1.553	1.359	1.712	11.71
14) s Terphenyl-d14 ...	0.830	0.847	0.875	0.881	0.871	0.854	0.868	0.862	2.06
15) t Fluoranthene	2.014	1.998	1.815	1.786	2.008	1.654	1.451	1.819	11.59
16) t Pyrene	2.111	2.104	1.923	1.890	2.120	1.751	1.518	1.917	11.70
17) t Benzo (a) anth...	1.803	1.715	1.529	1.485	1.686	1.418	1.279	1.559	11.85
18) I Chrysene-d12 (IS)	-----ISTD-----								
19) t Chrysene	1.958	1.977	1.729	1.680	1.841	1.517	1.351	1.722	13.34
20) t benzo (b) fluo...	1.476	1.427	1.294	1.318	1.555	1.320	1.244	1.376	8.16
21) t benzo (k) fluo...	1.884	1.841	1.688	1.645	1.906	1.601	1.467	1.719	9.53
22) t benzo (a) pyrene	1.369	1.345	1.243	1.277	1.609	1.386	1.320	1.364	8.74
23) I Perylene-d12 (IS)	-----ISTD-----								
24) t Indeno(1,2,3-c...	1.220	1.180	1.117	1.195	1.445	1.285	1.284	1.246	8.46
25) t Dibenz (a,h) a...	0.892	0.874	0.807	0.848	1.043	0.948	0.983	0.913	8.98
26) t Benzo (g,h,i) ...	1.320	1.321	1.195	1.213	1.377	1.208	1.175	1.259	8.26

(#) = Out of Range

DBPAH111612.M MON NOV 19 11:46:42 2012 PAH

Acenaphthene

Response Ratio



$R = -6.47e-002 A^2 + 8.31e-001 A + 0.00e+000$
Coef of Det (r^2) = 0.998 Curve Fit: Quad/(0,0)
Method Name: C:\msdchem\1\methods\DBPAH111612.M
Calibration Table Last Updated: Fri Nov 16 13:53:20 2012

Sequence Name: C:\msdchem\1\sequence\111612.s

Comment:

Operator:

Data Path: D:\DATA\SVOC\111612\

Instrument Control Pre-Seq Cmd:

Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:

Data Analysis Post-Seq Cmd:

Method Sections To Run

Full Method

Reprocessing Only

Sequence Barcode Options

On Mismatch, Inject Anyway

On Mismatch, Don't Inject

Barcode Disabled

Line		Sample Name/Misc Info
1)	Sample	51 111601 DB8270 TUNE CHECK
2)	Sample	1 50 PPB PAH STD
	Datafile	111602
	Method	DBPAH111412
3)	Sample	2 100 PPB PAH STD
	Datafile	111603
	Method	DBPAH111412
4)	Sample	3 200 PPB PAH STD
	Datafile	111604
	Method	DBPAH111412
5)	Sample	4 500 PPB PAH STD
	Datafile	111605
	Method	DBPAH111412
6)	Sample	5 1000 PPB PAH STD
	Datafile	111606
	Method	DBPAH111412
7)	Sample	6 2000 PPB PAH STD
	Datafile	111607
	Method	DBPAH111412
8)	Sample	7 5000 PPB PAH STD
	Datafile	111608
	Method	DBPAH111412
9)	Sample	8 ICV-
	Datafile	111609
	Method	DBPAH111412
10)	Sample	9 ICB-
	Datafile	111610
	Method	DBPAH111412
11)	Sample	10 MB-3639
	Datafile	111611
	Method	DBPAH111412
12)	Sample	11 LCS-3639
	Datafile	111612
	Method	DBPAH111412
13)	Sample	12 1210176-001A 20X
	Datafile	111613
	Method	DBPAH111412
14)	Sample	13 1211093-001A 10X
	Datafile	111614
	Method	DBPAH111412
15)	Sample	14 1211095-001A 20X
	Datafile	111615
	Method	DBPAH111412
16)	Sample	15 1210176-001A
	Datafile	111616
	Method	DBPAH111412
17)	Sample	16 1210176-001AMS
	Datafile	111617
	Method	DBPAH111412
18)	Sample	17 1211093-001A
	Datafile	111618
	Method	DBPAH111412
19)	Sample	18 1211095-001A
	Datafile	111619
	Method	DBPAH111412
20)	Sample	19 1211095-001ADUP

Last Modified: Mon Nov 19 03:00:17 2012

Page: 1

Datafile
Method

111620
DBPAH111412

Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111602.D
 Acq On : 16 Nov 2012 10:41 am
 Operator :
 Sample : 50 PBB PAH STD
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 1 Sample Multiplier: 1

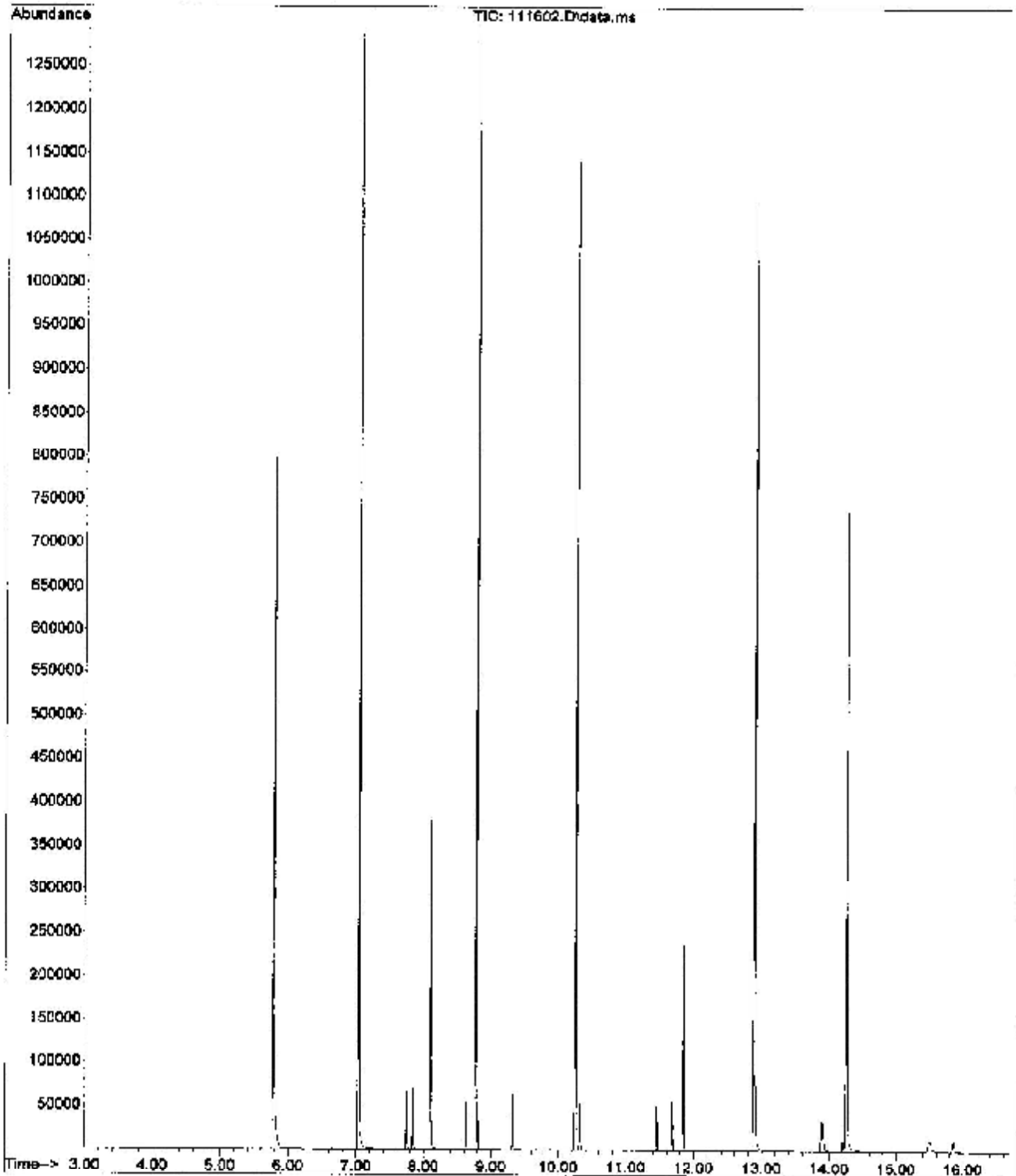
Quant Time: Nov 16 13:49:49 2012
 Quant Method : C:\msdchem\1\methods\DEPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Nov 15 10:19:28 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.781	152	308274	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.029	136	968888	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.768	164	502599	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.246	188	795743	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.884	240	767050	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.249	264	685599	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.100	172	217227	430.89	ug/L	0.00
14) Terphenyl-d14 (surr)	11.839	244	165167	446.91	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.051	128	45531	61.49	ug/L	98
4) 2-Methylnaphthalene	7.737	142	26500	59.23	ug/L	98
5) 1-Methylnaphthalene	7.833	142	24783	59.64	ug/L	97
7) Acenaphthylene	8.630	152	37499	57.16	ug/L	100
9) Acenaphthene	8.799	152	12368	59.49	ug/L	99
10) Fluorene	9.315	166	28500	55.11	ug/L	99
12) Phenanthrene	10.270	178	34467	52.24	ug/L	97
13) Anthracene	10.321	178	37615	55.76	ug/L	98
15) Fluoranthene	11.456	202	40065	57.11	ug/L	99
16) Pyrene	11.682	202	41995	57.29	ug/L	98
17) Benzo (a) anthracene	12.874	228	35873	58.83	ug/L #	49
19) Chrysene	12.908	228	37548	58.60	ug/L	95
20) benzo (b) fluoranthene	13.880	252	28311	50.29	ug/L #	58
21) benzo (k) fluoranthene	13.905	252	36132	50.19	ug/L	100
22) benzo (a) pyrene	14.192	252	26255	45.91	ug/L	93
24) Indeno(1,2,3-cd)pyrene	15.487	276	20914	37.65	ug/L	97
25) Dibenz (a,h) anthracene	15.508	278	15288m	34.92	ug/L	
26) Benzo (g,h,i) perylene	15.851	276	22621m	43.43	ug/L	

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

DEPAH111612.M Mon Nov 19 09:45:46 2012 PAH

File : D:\Data\SVOC\111612\111602.D
Operator :
Acquired : 16 Nov 2012 10:41 am using AcqMethod DRPAH111412.M
Instrument : HP-MSD
Sample Name: 50 PPB PAH STD
Misc Info : CCV O-PAH-S-SIM
Vial Number: 1



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111603.D
 Acq On : 16 Nov 2012 11:06 am
 Operator :
 Sample : 100 PPH PAH STD
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 2 Sample Multiplier: 1

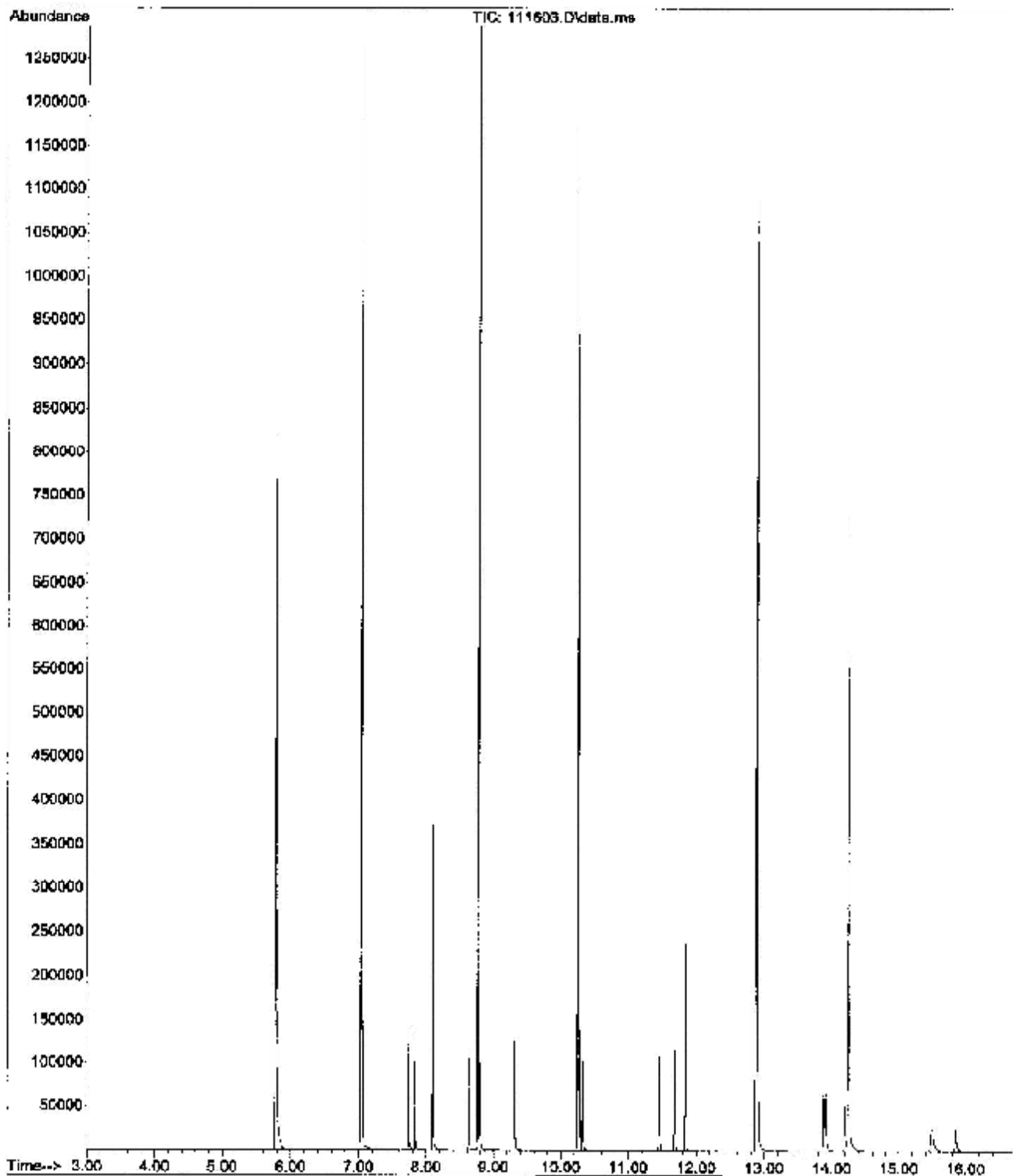
Quant Time: Nov 16 13:50:05 2012
 Quant Method : C:\msdchem\1\methods\DBPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Nov 15 10:19:28 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.780	152	305689	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.030	136	959842	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.768	164	498415	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.246	188	786074	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.882	240	759501	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.247	264	679317	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.099	172	216559	433.61	ug/L	0.00
14) Terphenyl-d14 (surr)	11.838	244	166410	455.81	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.051	128	87725	119.33	ug/L	98
4) 2-Methylnaphthalene	7.738	142	52178	117.27	ug/L	98
5) 1-Methylnaphthalene	7.834	142	48704	118.32	ug/L	97
7) Acenaphthylene	8.629	152	72942	112.24	ug/L	100
9) Acenaphthene	8.799	152	23984	116.53	ug/L	99
10) Fluorene	9.315	166	55997	109.38	ug/L	99
12) Phenanthrene	10.267	178	67694	104.05	ug/L	98
13) Anthracene	10.321	178	73818	110.77	ug/L	99
15) Fluoranthene	11.454	202	78521	113.31	ug/L	99
16) Pyrene	11.681	202	82713	114.22	ug/L	98
17) Benzo (a) anthracene	12.871	228	67406	111.90	ug/L #	49
19) Chrysene	12.905	228	75074	118.33	ug/L	99
20) benzo (b) fluoranthene	13.878	252	54177	97.20	ug/L #	54
21) benzo (k) fluoranthene	13.902	252	69915	98.08	ug/L	100
22) benzo (a) pyrene	14.196	252	51095	90.23	ug/L	95
24) Indeno(1,2,3-cd)pyrene	15.481	276	43063	72.80	ug/L	95
25) D,benz (a,h) anthracene	15.505	278	29688m	68.44	ug/L	
26) Benzo (g,h,i) perylene	15.851	276	44854m	86.90	ug/L	

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

DBPAH111612.M Mon Nov 19 09:45:56 2012 PAH

File :D:\Data\SVOC\111612\111603.D
Operator :
Acquired : 16 Nov 2012 11:06 am using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: 100 PPB PAH STD
Misc Info : CCV O-PAH-S-SIM
Vial Number: 2



Quantitation Report (QT Reviewed)

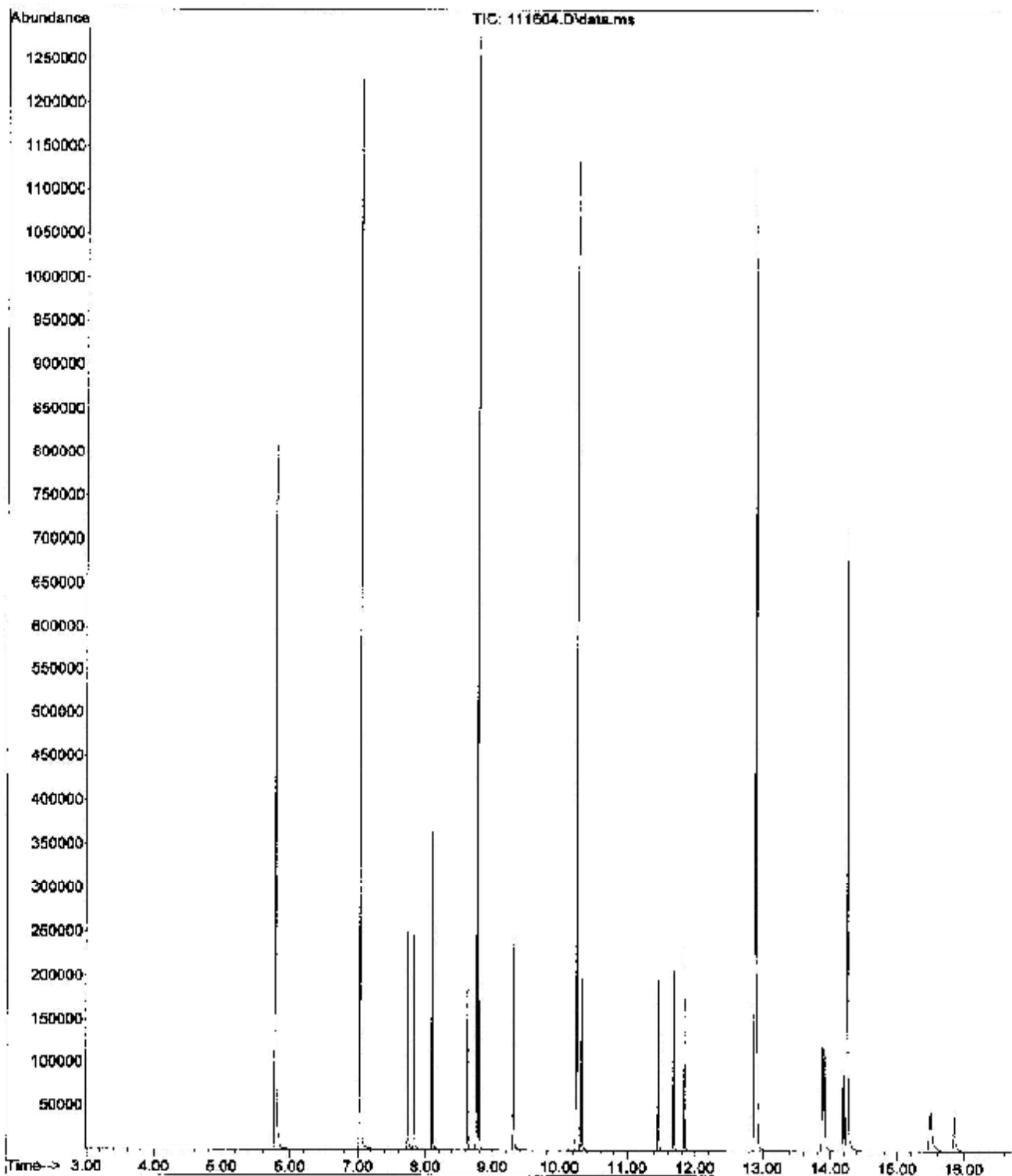
Data Path : D:\Data\SVOC\111612\
 Data File : 111604.D
 Acq On : 16 Nov 2012 11:30 am
 Operator :
 Sample : 200 PPR PAH STD
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 3 Sample Multiplier: 1

Quant Time: Nov 16 13:50:20 2012
 Quant Method : C:\msdchem\1\methods\DEPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Nov 15 10:19:28 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.781	152	303243	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.031	136	952341	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.770	164	495459	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.246	198	781817	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.881	240	756589	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.247	264	680417	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.100	172	215954	435.80	ug/L	0.00
14) Terphenyl-d14 (surr)	11.836	244	171071	471.13	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.050	128	158087	216.74	ug/L	98
4) 2-Methylnaphthalene	7.737	142	92669	209.92	ug/L	100
5) 1-Methylnaphthalene	7.834	142	87749	214.85	ug/L	97
7) Acenaphthylene	8.629	152	131366	203.73	ug/L	100
9) Acenaphthene	8.799	152	42349	207.58	ug/L	98
10) Fluorene	9.314	166	100827	198.72	ug/L	100
12) Phenanthrene	10.269	178	119791	185.65	ug/L	97
13) Anthracene	10.320	178	135585	204.57	ug/L	99
15) Fluoranthene	11.454	202	141890	205.88	ug/L	99
16) Pyrene	11.679	202	150315	208.71	ug/L	93
17) Benzo (a) anthracene	12.871	228	119527	199.51	ug/L #	49
18) Chrysene	12.906	228	130810	206.98	ug/L	97
20) benzo (b) fluoranthene	13.878	252	97905	176.33	ug/L #	54
21) benzo (k) fluoranthene	13.904	252	127692	179.82	ug/L	100
22) benzo (a) pyrene	14.190	252	94015	166.65	ug/L	97
24) Indeno(1,2,3-cd)pyrene	15.482	276	76019	137.89	ug/L	93
25) Dibenz (a,h) anthracene	15.503	278	54926m	126.42	ug/L	
26) Benzo (g,h,i) perylene	15.849	276	81317m	157.30	ug/L	

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

File :D:\Data\SVOC\111612\111604.D
Operator :
Acquired : 16 Nov 2012 11:30 am using AcqMethod DBFAH11412.M
Instrument : HP-MSD
Sample Name: 200 PPB PAH STD
Misc Info : CCV O-PAH-S-SIM
Vial Number: 3



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111605.D
 Acq On : 16 Nov 2012 11:55 am
 Operator :
 Sample : 500 PFB PAH STD
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 4 Sample Multiplier: 1

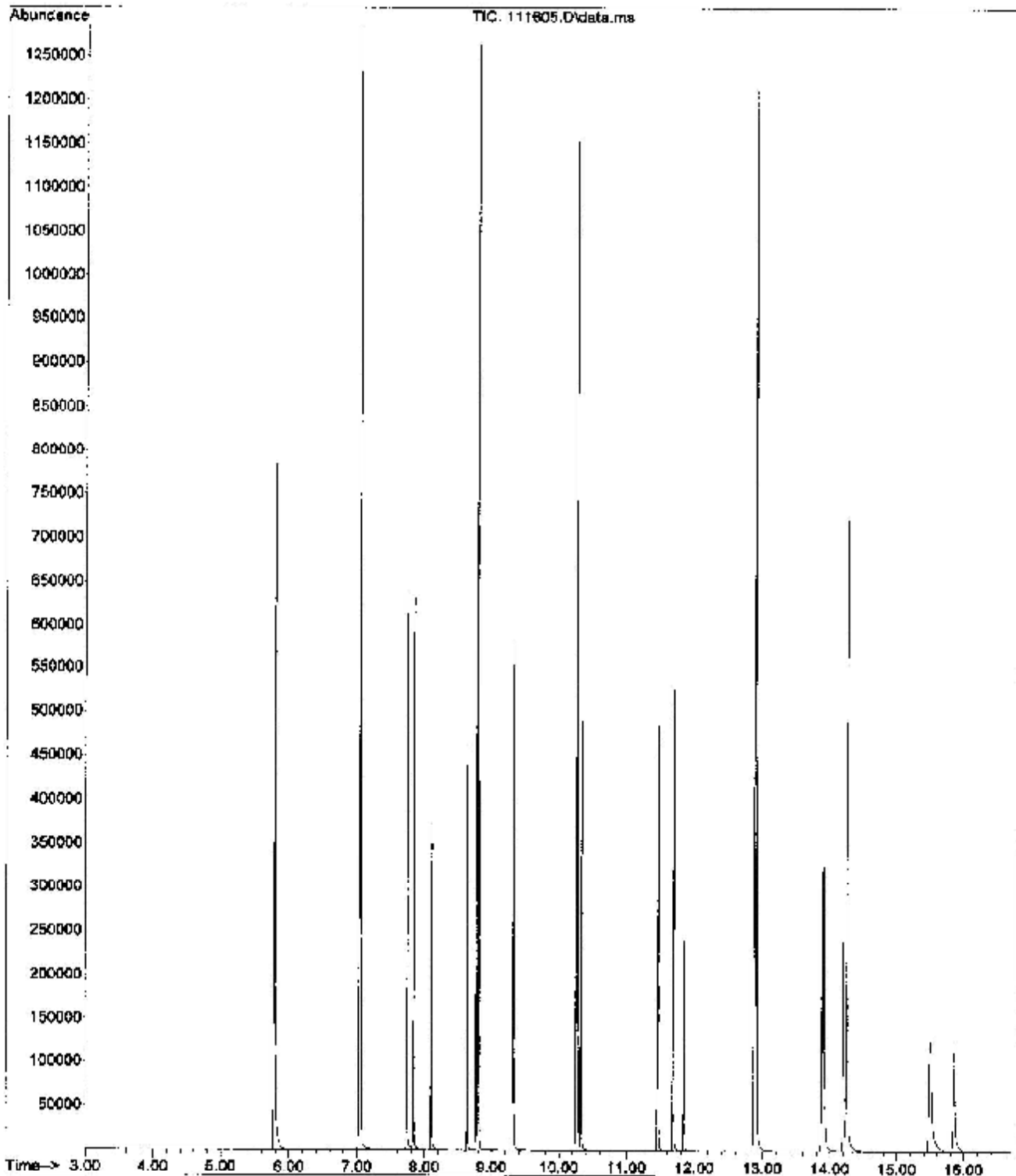
Quant Time: Nov 16 13:50:39 2012
 Quant Method : C:\msdchem\1\methods\DBPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Nov 15 10:19:28 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev (Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.781	152	302543	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.031	136	947689	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.768	164	499415	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.247	189	782382	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.882	240	765271	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.247	264	696584	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.100	172	215895	437.82	ug/L	0.00
14) Terphenyl-d14 (surr)	11.838	244	172273	474.10	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.052	128	273683	514.83	ug/L	98
4) 2-Methylnaphthalene	7.737	142	226351	515.26	ug/L	99
5) 1-Methylnaphthalene	7.835	142	212141	521.97	ug/L	98
7) Acenaphthylene	8.629	152	323815	504.67	ug/L	100
9) Acenaphthene	8.799	152	100522	493.20	ug/L	98
10) Fluorene	9.315	166	242727	479.04	ug/L	100
12) Phenanthrene	10.268	178	288813	451.41	ug/L	99
13) Anthracene	10.321	178	329283	496.45	ug/L	99
15) Fluoranthene	11.454	202	349237	506.36	ug/L	99
16) Pyrene	11.681	202	369744	513.01	ug/L	98
17) Benzo (a) anthracene	12.873	228	290374	484.34	ug/L #	49
19) Chrysene	12.907	228	321348	502.70	ug/L	99
20) benzo (b) fluoranthene	13.878	252	252129	448.93	ug/L #	54
21) benzo (k) fluoranthene	13.903	252	314624	438.03	ug/L	100
22) benzo (a) pyrene	14.190	252	244360	428.25	ug/L	98
24) Indeno(1,2,3-cd)pyrene	15.482	276	208035	368.60	ug/L	92
25) Dibenz (a,h) anthracene	15.503	278	147620m	331.88	ug/L	
26) Benzo (g,h,i) perylene	15.851	276	211236m	399.12	ug/L	

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

DBPAH111612.M Mon Nov 19 09:46:16 2012 PAH

File :D:\Data\SVOC\111612\111605.D
Operator :
Acquired : 16 Nov 2012 11:55 am using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: 500 PPB PAH STD
Misc Info : UCV O-PAH-S-SIM
Vial Number: 4



Quantitation Report (Not Reviewed)

Data Path : C:\Data\SVOC\111612\
 Data File : 111606.D
 Acq On : 16 Nov 2012 12:20 pm
 Operator :
 Sample : 1000 PPB PAH STD
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 5 Sample Multiplier: 1

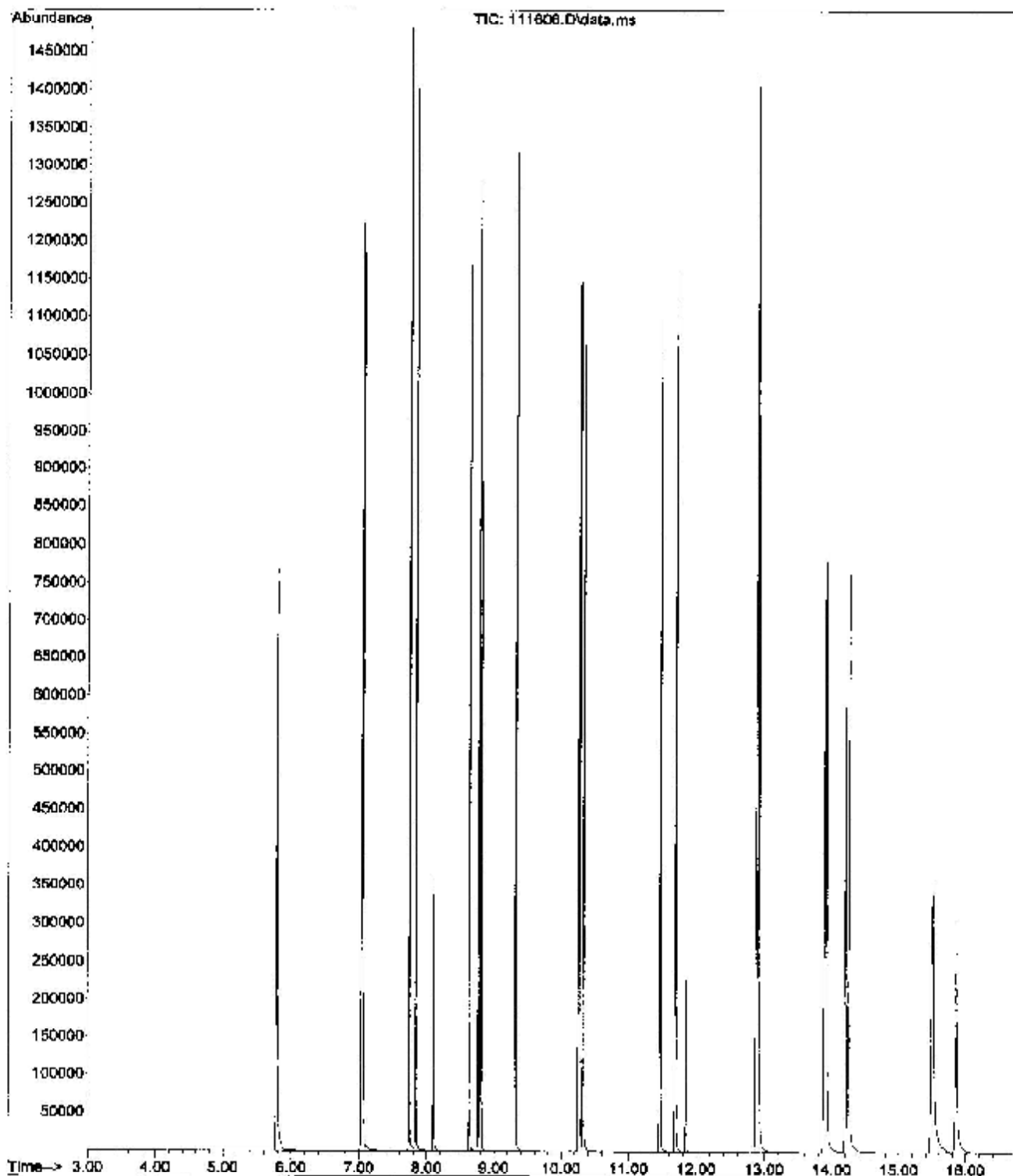
Quant Time: Nov 16 13:50:45 2012
 Quant Method : C:\msdchem\1\methods\DBPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Nov 15 10:19:28 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.781	152	298974	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.032	136	943243	2000.00	ug/L	0.00
8) Acenaphthens-d10 (IS)	8.768	164	498598	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.246	188	776989	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.882	240	765770	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.247	264	710991	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.100	172	214650	437.35	ug/L	0.00
14) Terphenyl-d14 (surr)	11.839	244	169208	468.90	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.351	128	814888	1127.98	ug/L	99
4) 2-Methylnaphthalene	7.737	142	498289	1139.64	ug/L	99
5) 1-Methylnaphthalene	7.833	142	466058	1152.13	ug/L	98
7) Accnaphthylene	8.630	152	724796	1134.92	ug/L	100
9) Acenaphthene	8.799	152	218508	1094.48	ug/L	99
10) Fluorene	9.314	166	632366	1073.71	ug/L	99
12) Phenanthrene	10.270	178	662334	1065.16	ug/L	98
13) Anthracene	10.320	178	732944	1112.71	ug/L	99
15) Fluoranthene	11.455	202	780165	1139.01	ug/L	98
16) Pyrene	11.682	202	823520	1150.55	ug/L	98
17) Benzo (a) anthracene	12.873	228	655104	1100.28	ug/L #	49
19) Chrysene	12.909	228	704868	1101.93	ug/L	99
20) benzo (b) flucranthene	13.878	252	595566	1059.75	ug/L #	54
21) benzo (k) flucranthene	13.904	252	729605	1015.12	ug/L	100
22) benzo (a) pyrene	14.192	252	616246	1079.28	ug/L	98
24) Indenc(1,2,3-cd)pyrene	15.484	276	513528	891.45	ug/L	93
25) Dibenz (a,h) anthracene	15.503	278	370780	816.69	ug/L	99
26) Benzo (g,h,i) perylene	15.851	276	483648	906.43	ug/L	94

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

DBPAH111612.M Mon Nov 19 09:46:26 2012 PAH

File : D:\Data\SVOC\111612\111606.D
Operator :
Acquired : 16 Nov 2012 12:20 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: 1000 PPB PAH STD
Misc Info : CCV O-PAH-S-SIM
Vial Number: 5



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111607.D
 Acq On : 16 Nov 2012 12:44 pm
 Operator :
 Sample : 2000 PPB PAH STD
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 6 Sample Multiplier: 1

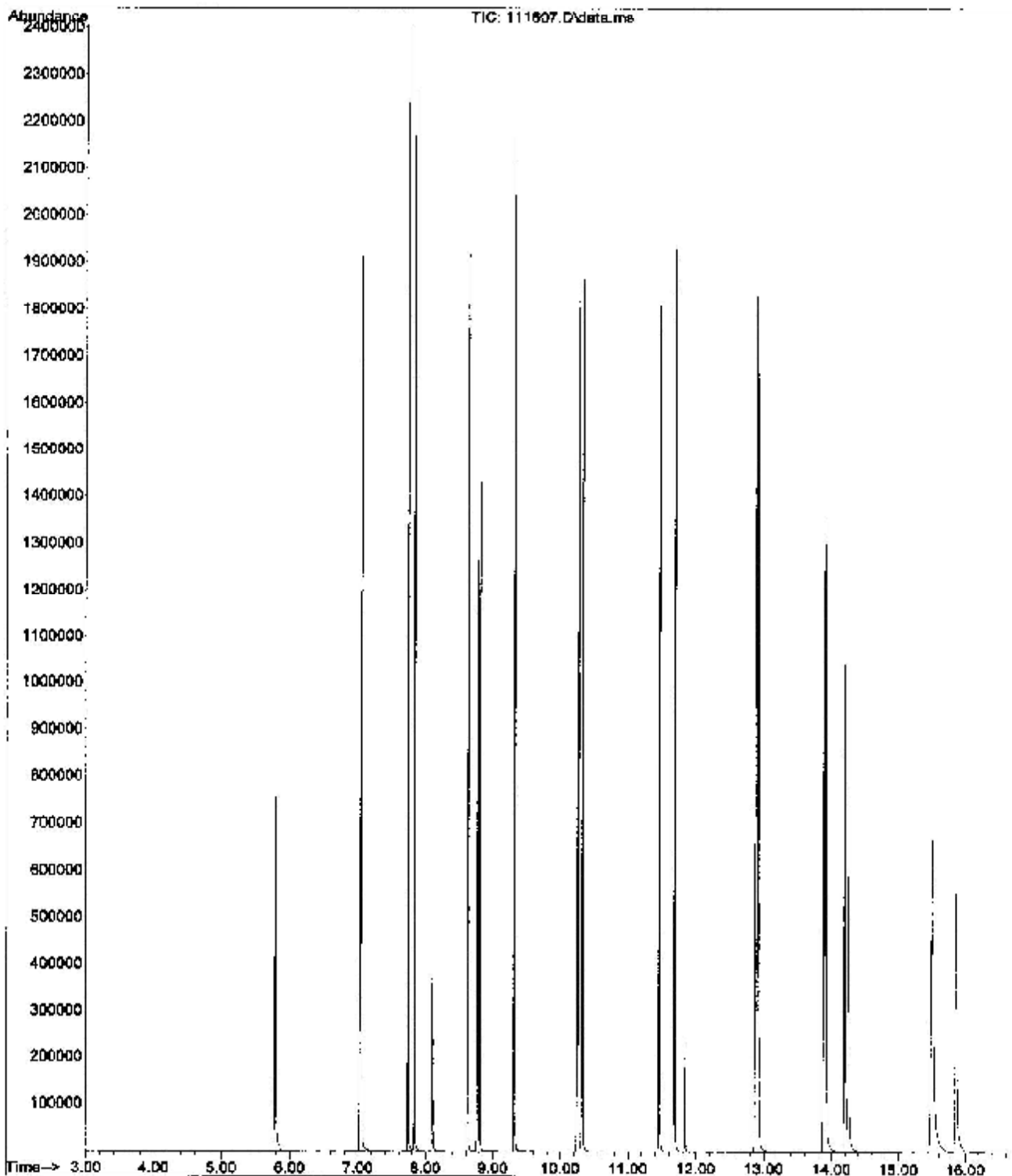
Quant Time: Nov 16 13:50:47 2012
 Quant Method : C:\msdchem\1\methods\DBPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Nov 15 10:19:28 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.781	152	296698	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.032	136	937270	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.770	164	496764	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.246	188	772429	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.884	240	764388	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.249	264	720413	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	9.101	172	213440	437.66	ug/L	0.00
14) Terphenyl-d14 (surr)	11.839	244	166899	465.23	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.051	128	1330361	1853.24	ug/L	98
4) 2-Methylnaphthalene	7.738	142	816814	1880.04	ug/L	99
5) 1-Methylnaphthalene	7.836	142	764899	1902.94	ug/L	93
7) Acenaphthylene	8.629	152	1204251	1897.69	ug/L	100
8) Acenaphthene	8.801	152	355465	1830.11	ug/L	99
10) Fluorene	9.315	166	869461	1805.04	ug/L	99
12) Phenanthrene	10.269	178	1043945	1729.63	ug/L	99
13) Anthracene	10.321	178	1199723	1832.10	ug/L	99
15) Fluoranthene	11.456	202	1285472	1887.82	ug/L	98
16) Pyrene	11.682	202	1352699	1901.03	ug/L	97
17) Benzo (a) anthracene	12.874	228	1095129	1850.19	ug/L #	49
19) Chrysene	12.908	228	1159533	1815.99	ug/L	99
20) benzo (b) fluoranthene	13.880	252	1008780	1798.27	ug/L #	54
21) benzo (k) fluoranthene	13.905	252	1223627	1705.54	ug/L	100
22) benzo (a) pyrene	14.192	252	1059326	1858.65	ug/L	98
24) Indeno(1,2,3-cd)pyrene	15.486	276	925567	1585.71	ug/L	93
25) Dibenz (a,h) anthracene	15.506	278	682658	1483.97	ug/L	100
26) Benzo (g,h,i) perylene	15.855	276	870441	1590.27	ug/L	93

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

DBPAH111612.M Mon Nov 19 09:46:39 2012 PAH

File :D:\Data\SVOC\111612\111607.D
Operator :
Acquired : 16 Nov 2012 12:44 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: 2000 PPB PAH STD
Misc Info : CCV O-PAH-E-SIM
Vial Number: 6



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111608.D
 Acq On : 16 Nov 2012 1:09 pm
 Operator :
 Sample : 5000 PPB PAH STD
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 7 Sample Multiplier: 1

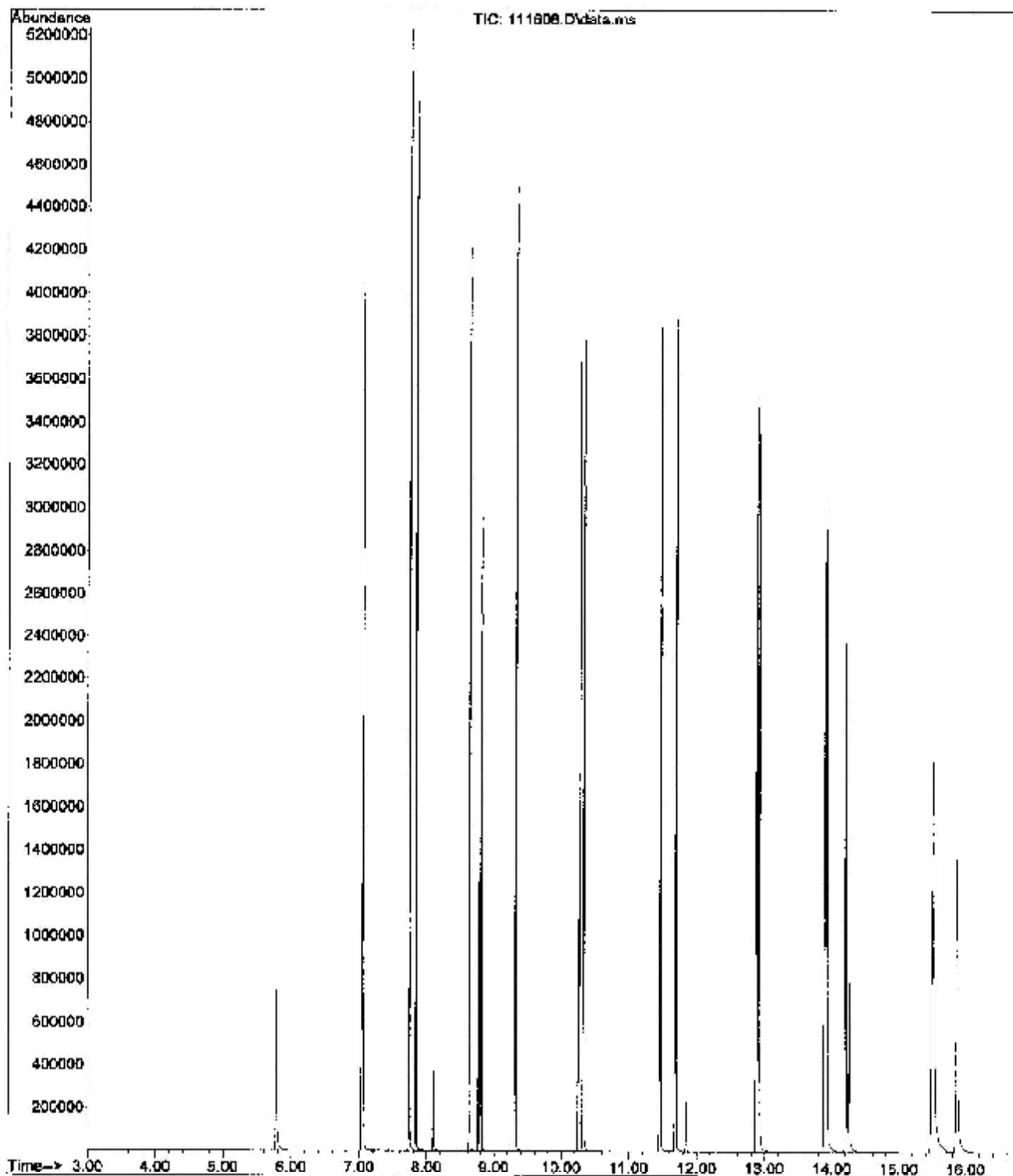
Quant Time: Nov 16 13:50:50 2012
 Quant Method : C:\msdchem\1\methods\DEPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLab Update : Thu Nov 15 10:19:28 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.781	152	291476	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.032	136	920086	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.770	164	492229	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.248	188	763102	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.886	240	736617	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.251	264	726592	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.101	172	211325	441.41	ug/L	0.00
14) Terphenyl-d14 (surr)	11.837	244	165564	467.15	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.053	128	2887103	4096.95	ug/L	98
4) 2-Methylnaphthalene	7.738	142	1759931	4126.45	ug/L	99
5) 1-Methylnaphthalene	7.836	142	1648759	4178.44	ug/L	97
7) Acenaphthylene	8.631	152	2630343	4222.38	ug/L	99
8) Acenaphthene	8.801	152	762953	4315.44	ug/L	98
10) Fluorene	9.316	166	1875763	4306.63	ug/L	99
12) Phenanthrene	10.272	178	2210873	4049.97	ug/L	100
13) Anthracene	10.324	178	2592531	4007.46	ug/L	99
15) Fluoranthene	11.457	202	2767291	4113.67	ug/L	98
16) Pyrene	11.685	202	2895502	4118.96	ug/L	97
17) Benzo (a) anthracene	12.876	228	2440402	4173.38	ug/L #	49
19) Chrysene	12.912	228	2487071	4041.95	ug/L #	66
20) benzo (b) fluoranthene	13.883	252	2290568	4237.14	ug/L #	54
21) benzo (k) fluoranthene	13.910	252	2702237	3908.48	ug/L	100
22) benzo (a) pyrene	14.197	252	2431732	4427.44	ug/L	98
24) Indeno(1,2,3-cd)pyrene	15.493	276	2332502	3962.13	ug/L	92
25) Dibenz (a,h) anthracene	15.513	278	1785278	3847.86	ug/L	99
26) Benzo (g,h,i) perylene	15.864	276	2135271	3867.91	ug/L	93

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

DEPAH111612.M Mon Nov 19 09:46:45 2012 PAH

File : D:\Data\SVOC\111612\111608.D
Operator :
Acquired : 16 Nov 2012 1:09 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: 5000 PPB PAH STD
Misc Info : CCV C-PAH-S-SIM
Vial Number: 7



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111609.D
 Acq On : 16 Nov 2012 1:34 pm
 Operator :
 Sample : ICV-
 Misc : ICV O-PAH-S-SIM
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Nov 16 13:54:04 2012
 Quant Method : C:\msdchem\1\methods\DEPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Fri Nov 16 13:53:58 2012
 Response via : Initial Calibration

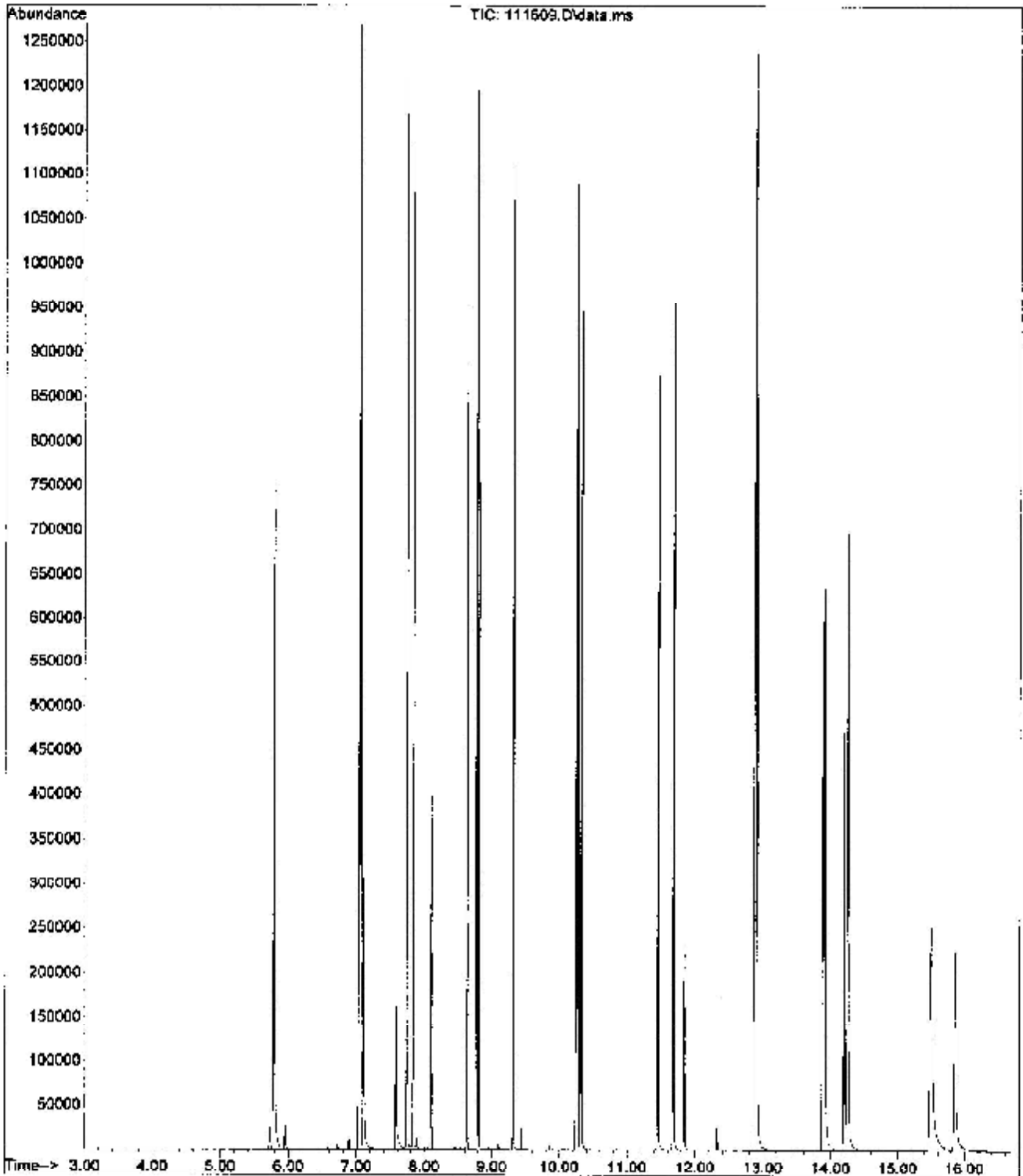
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.781	152	288529	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.031	136	915991	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.770	164	480167	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.246	188	747607	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.882	240	732015	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.247	264	670042	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.100	172	210734	506.63	ug/L	0.00
14) Terphenyl-d14 (surr)	11.838	244	159908	496.08	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.052	128	679620	915.07	ug/L	98
4) 2-Methylnaphthalene	7.737	142	410264	921.18	ug/L	99
5) 1-Methylnaphthalene	7.835	142	387102	927.95	ug/L	96
7) Acenaphthylene	8.629	152	599682	937.23	ug/L	100
9) Acenaphthene	8.799	152	181244	955.50	ug/L	98
10) Fluorene	9.315	166	436462	915.23	ug/L	99
12) Phenanthrene	10.270	178	543198	952.54	ug/L	99
13) Anthracene	10.321	178	607968	949.91	ug/L	99
15) Fluoranthene	11.455	202	640801	942.27	ug/L	98
16) Pyrene	11.681	202	671056	936.60	ug/L	98
17) Benzo (a) anthracene	12.873	228	545396	935.72	ug/L #	49
19) Chrysene	12.907	228	585054	928.42	ug/L	99
20) benzo (b) fluoranthene	13.878	252	474060	941.11	ug/L #	54
21) benzo (k) fluoranthene	13.903	252	609243	958.47	ug/L	100
22) benzo (a) pyrene	14.190	252	495903	993.09	ug/L	98
24) Indeno(1,2,3-cd)pyrene	15.482	276	394565	944.87	ug/L	92
25) Dibenz (a,h) anthracene	15.503	278	280754	917.40	ug/L	99
26) Benzo (g,h,i) perylene	15.851	276	377005	894.17	ug/L	54

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

DEPAH111612.M Mon Nov 19 09:46:55 2012 PAH

File :D:\Data\SVOC\111612\111609.D
Operator :
Acquired : 16 Nov 2012 1:34 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: ICV-
Misc Info : ICV O-PAH-S-SIM
Vial Number: 8



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111610.D
 Acq On : 16 Nov 2012 1:59 pm
 Operator :
 Sample : ICB-
 Misc : ICB O-PAH-8-STM
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 16 15:09:37 2012
 Quant Method : C:\msdchem\1\methods\DEPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Fri Nov 16 13:53:58 2012
 Response via : Initial Calibration

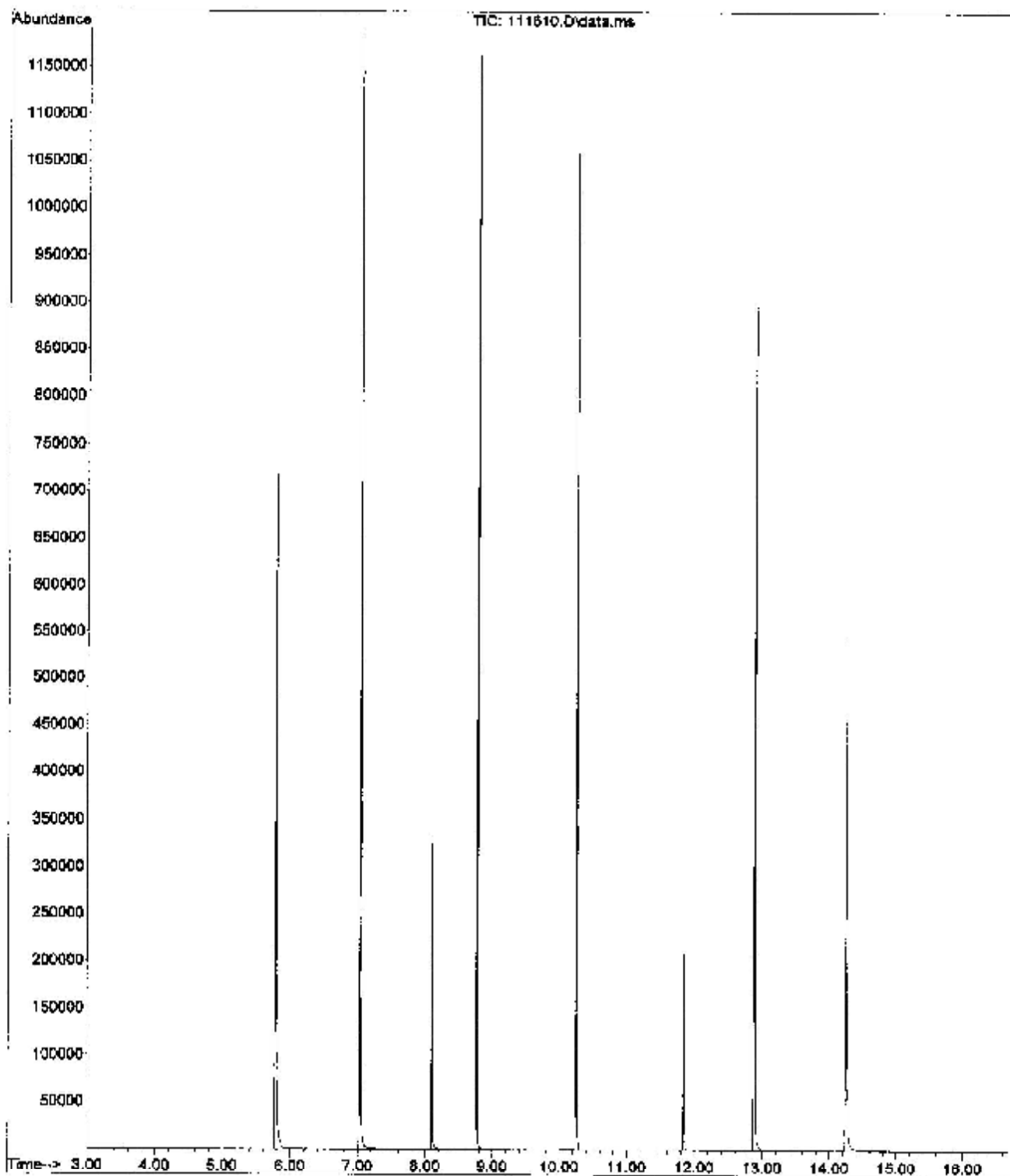
Compound	R.T.	QInn	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.781	152	283461	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.031	136	885761	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.770	164	457532	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.246	188	721921	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.882	240	666472	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.247	264	547711	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.101	172	195503	486.05	ug/L	0.00
14) Terphenyl-d14 (surr)	11.839	244	147369	473.45	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.052	128	147			N.D.
4) 2-Methylnaphthalene	7.744	142	25			N.D.
5) 1-Methylnaphthalene	7.838	142	21			N.D.
7) Acenaphthylene	8.632	152	43			N.D.
9) Acenaphthene	8.799	152	17			N.D.
10) Fluorene	9.319	166	33			N.D.
12) Phenanthrene	10.269	178	139			N.D.
13) Anthracene	10.323	178	124			N.D.
15) Fluoranthene	11.458	202	142			N.D.
16) Pyrene	11.685	202	193			N.D.
17) Benzo (a) anthracene	12.880	228	1830			N.D.
19) Chrysene	12.880	228	1330			N.D.
20) benzo (b) fluoranthene	13.882	252	199			N.D.
21) benzo (k) fluoranthene	13.903	252	354			N.D.
22) benzo (a) pyrene	14.192	252	217			N.D.
24) Indeno(1,2,3-cd)pyrene	15.481	276	46			N.D.
25) Dibenz (a,h) anthracene	15.505	278	51			N.D.
26) Benzo (g,h,i) perylene	15.848	276	17			N.D.

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

DEPAH111612.M Mon Nov 19 09:47:06 2012 PAH

File : D:\Data\SVOC\111612\111610.D
Operator :
Acquired : 16 Nov 2012 1:59 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: ICB-
Misc Info : ICB O-PAH-S-SIM
Vial Number: 9



Fremont Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: 11/14/2012 11:16:0
 Prep End Date: 11/14/2012 11:16:0

Prep Batch ID: 3639 Prep Code: PREP-PAH-S Technician: Paul Ho
 Initial Temp: °C Final Temp: °C

Prep Factor Units:
 mL / g

Sample ID	ClientSampleID	Matrix	pH1	pH2	SampAmt	Sol Added	Sol Recov	Flt Vol	Factor	PrepStart	PrepEnd
ME-3639		Soil	10	0	0	0	0	10	1.000	11/14/2012	11/14/2012
LCS-3639		Soil	10	0	0	0	0	10	1.000	11/14/2012	11/14/2012
1210176-001A	W-Subseed-101612	Soil	13.27	0	0	0	0	10	0.754	11/14/2012	11/14/2012
Prep hold time was exceeded by 14 day(s)											
1210176-001AMS		Soil	12.73	0	0	0	0	10	0.758	11/14/2012	11/14/2012
Prep hold time was exceeded by 14 day(s)											
1211080-001A	CON-01-101812	Soil	13.12	0	0	0	0	10	0.752	11/14/2012	11/14/2012
Prep hold time was exceeded by 13 day(s)											
1211085-001A	MFZ-52-102212	Soil	13.06	0	0	0	0	10	0.758	11/14/2012	11/14/2012
Prep hold time was exceeded by 10 day(s)											
1211066-001ADUP		Soil	13.26	0	0	0	0	10	0.754	11/14/2012	11/14/2012
Prep hold time was exceeded by 10 day(s)											

Type	Chemical / Reagent ID	Chemical / Reagent Name	Container#	Container ID	Amount Added	Amount Unit
Chemical	345	Dichloromethane	775	Container-04 of 04	10	mL

Spike ID	Spike Name	Samp Type	Container#	Container ID	Amount Added	Amount Unit
O-SEM-1REF-MEGAMX (B)	8270 Megamix	LCS	1057	Container-01 of 01	0.01	mL
O-SEM-1REF-MEGAMX (B)	8270 Megamix	MS	1057	Container-01 of 01	0.01	mL
O-SEM-2IS (10/1/12)	Internal Standard (10/1/12)	DUP	1113	Container-02 of 03	0.01	mL
O-SEM-2IS (10/1/12)	Internal Standard (10/1/12)	LCS	1113	Container-02 of 03	0.01	mL
O-SEM-2IS (10/1/12)	Internal Standard (10/1/12)	MELK	1113	Container-02 of 03	0.01	mL
O-SEM-2IS (10/1/12)	Internal Standard (10/1/12)	MS	1113	Container-02 of 03	0.01	mL
O-SEM-2IS (10/1/12)	Internal Standard (10/1/12)	SAMP	1113	Container-02 of 03	0.01	mL
O-SEM-2SURR-BN (11/12/12)	BN Surrogate 500 ppm	DUP	1198	Container-01 of 01	0.01	mL
O-SEM-2SURR-BN (11/12/12)	BN Surrogate 600 ppm	LCS	1198	Container-01 of 01	0.01	mL
O-SEM-2SURR-BN (11/12/12)	BN Surrogate 500 ppm	MELK	1198	Container-01 of 01	0.01	mL
O-SEM-2SURR-BN (11/12/12)	BN Surrogate 500 ppm	MS	1198	Container-01 of 01	0.01	mL

Fremont Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: 11/14/2012 11:16:0

Prep End Date: 11/14/2012 11:16:0

Prep Batch ID 3639 Prep Code: PREP-PAH-S Technician: Paul Ho

Initial Temp: °C Final Temp °C

Prep Factor Units:
mL / g

O-SE#2SURR-BN (11/12/12) 500 ppm 1198 3048 Container-01 of 31 0.01 mL

Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111611.D
 Acq On : 16 Nov 2012 2:24 pm
 Operator :
 Sample : MB-3639
 Misc : MBLK O-PAH-S-SIM
 ALS Vial : 10 Sample Multiplier: 1

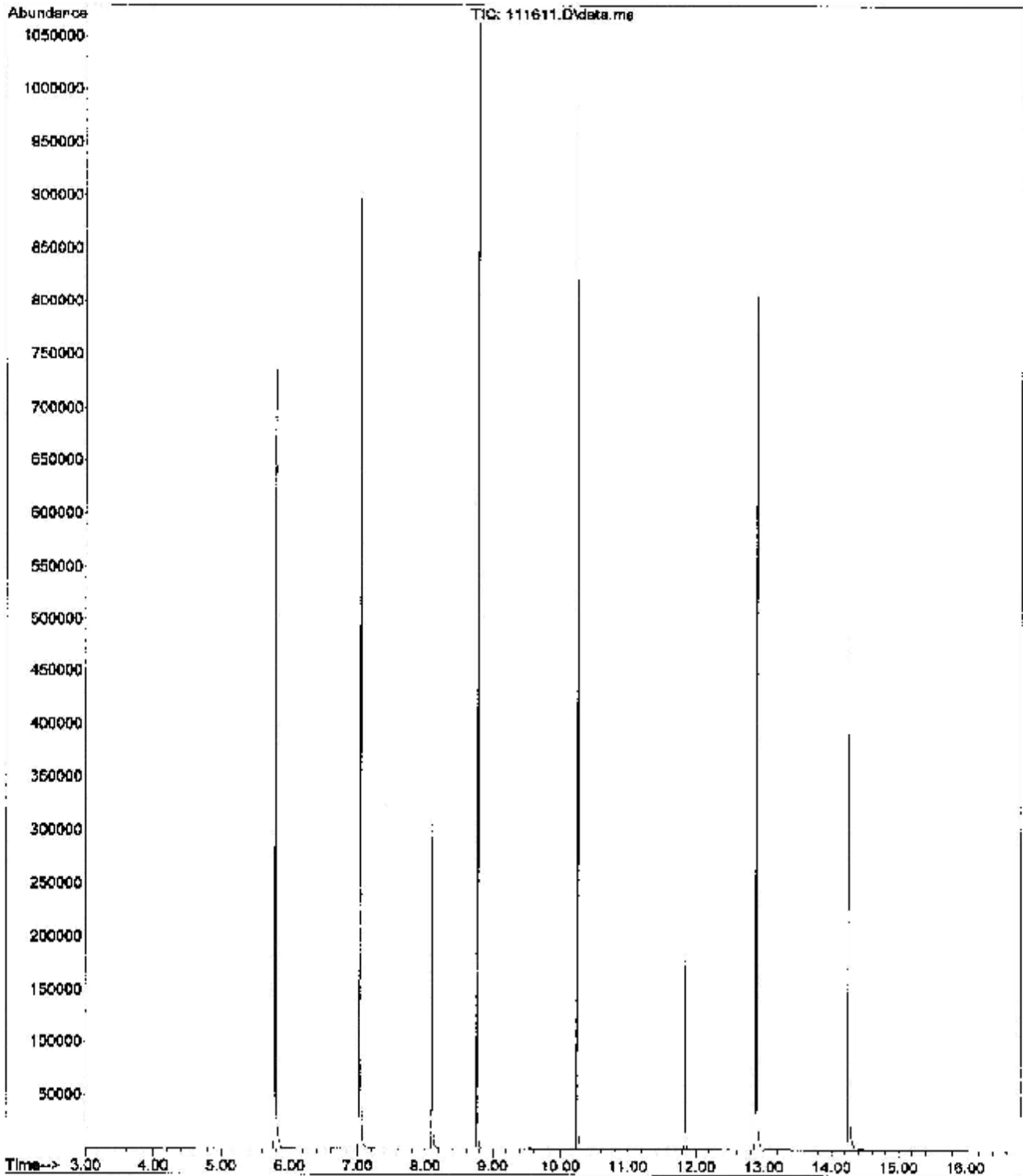
Quant Time: Nov 16 15:09:40 2012
 Quant Method : C:\msdchem\1\methods\DEPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Fri Nov 16 13:53:58 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.784	152	255244	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.028	136	804063	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.768	164	412719	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.247	168	656737	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.884	240	605954	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.247	264	492604	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.100	172	177129	485.11	ug/L	0.00
14) Terphenyl-d14 (surr)	11.839	244	128262	452.97	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.052	128	120			N.D.
4) 2-Methylnaphthalene	7.742	142	47			N.D.
5) 1-Methylnaphthalene	7.836	142	38			N.D.
7) Acenaphthylene	8.631	152	65			N.D.
9) Acenaphthene	8.801	152	13			N.D.
10) Fluorene	9.317	166	29			N.D.
12) Phenanthrene	10.268	178	111			N.D.
13) Anthracene	10.324	178	59			N.D.
15) Fluoranthene	11.461	202	100			N.D.
16) Pyrene	11.685	202	111			N.D.
17) Benzo (a) anthracene	12.882	228	1604			N.D.
19) Chrysene	12.882	228	1329			N.D.
20) benzo (b) fluoranthene	13.880	252	58			N.D.
21) benzo (k) fluoranthene	13.909	252	261			N.D.
22) benzo (a) pyrene	14.195	252	164			N.D.
24) Indeno(1,2,3-cd)pyrene	15.494	276	79			N.D.
25) Dibenz (a,h) anthracene	15.503	278	20			N.D.
26) Benzo (g,h,i) perylene	15.844	276	34			N.D.

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

DEPAH111612.M Mon Nov 19 09:47:14 2012 PAH

File : D:\Data\SVOC\111612\112611.D
Operator :
Acquired : 16 Nov 2012 2:24 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: MB-3639
Misc Info : MBLK O-PAH-S-SIM
Vial Number: 10



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111612.D
 Acq On : 16 Nov 2012 2:48 pm
 Operator :
 Sample : LCS-3639
 Misc : LCS C-PAH-S-SIM
 ALS Vial : 11 Sample Multiplier: 1

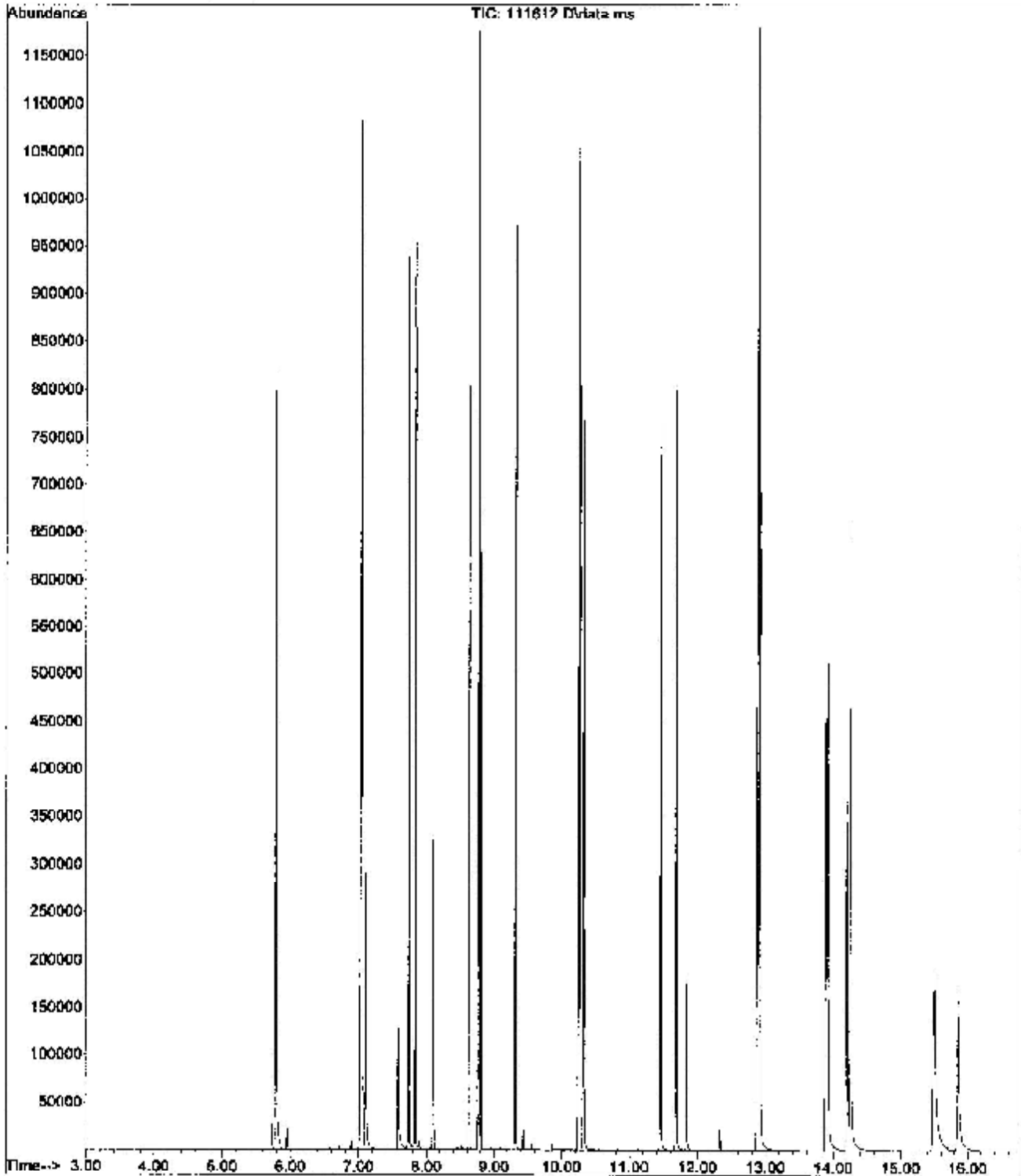
Quant Time: Nov 16 15:09:44 2012
 Quant Method : C:\msdchem\1\methods\DBPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Fri Nov 16 13:53:58 2012
 Response Via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.784	152	276368	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.029	136	886128	2000.00	ug/L	0.00
6) Acenaphthene-d10 (IS)	8.771	164	461650	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.246	188	725023	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.882	240	709202	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.249	264	636965	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.100	172	185610	461.26	ug/L	0.00
14) Terphenyl-d14 (surr)	11.839	244	133674	427.62	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.051	128	577060	803.16	ug/L	99
4) 2-Methylnaphthalene	7.737	142	347010	805.41	ug/L	100
5) 1-Methylnaphthalene	7.833	142	325412	806.35	ug/L	96
7) Acenaphthylene	8.630	152	505492	816.65	ug/L	100
9) Acenaphthene	8.799	152	153062	833.86	ug/L	99
10) Fluorene	9.315	166	267459	801.44	ug/L	99
12) Phenanthrene	10.270	178	454121	821.15	ug/L	100
13) Anthracene	10.321	178	512859	826.27	ug/L	99
15) Fluoranthene	11.455	202	539320	817.76	ug/L	98
16) Pyrene	11.682	202	566148	814.79	ug/L	97
17) Benzo (a) anthracene	12.873	228	456247	807.16	ug/L #	49
19) Chrysene	12.908	228	491560	805.15	ug/L #	72
20) benzo (b) fluoranthene	13.880	252	388381	795.82	ug/L #	54
21) benzo (k) fluoranthene	13.905	252	503107	825.48	ug/L	100
22) benzo (a) pyrene	14.192	252	376177	777.56	ug/L	99
24) Indeno (1,2,3-cd) pyrene	15.487	276	301470	759.43	ug/L	92
25) Dibenz (a,h) anthracene	15.506	276	212135	729.17	ug/L	100
26) Benzo (g,h,i) perylene	15.852	276	294249	734.13	ug/L	94

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

DBPAH111612.M Mon Nov 19 09:47:23 2012 PAH

File :D:\Data\SVOC\111612\111612.D
Operator :
Acquired : 16 Nov 2012 2:48 pm using AccMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: LCS-3639
Misc Info : LCS O-PAH-S-SIM
Vial Number: 11



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111616.D
 Acq On : 16 Nov 2012 4:37 pm
 Operator :
 Sample : 1210176-001A
 Misc : SAMP C-PAH-S-SIM
 ALS Vial : 15 Sample Multiplier: 1

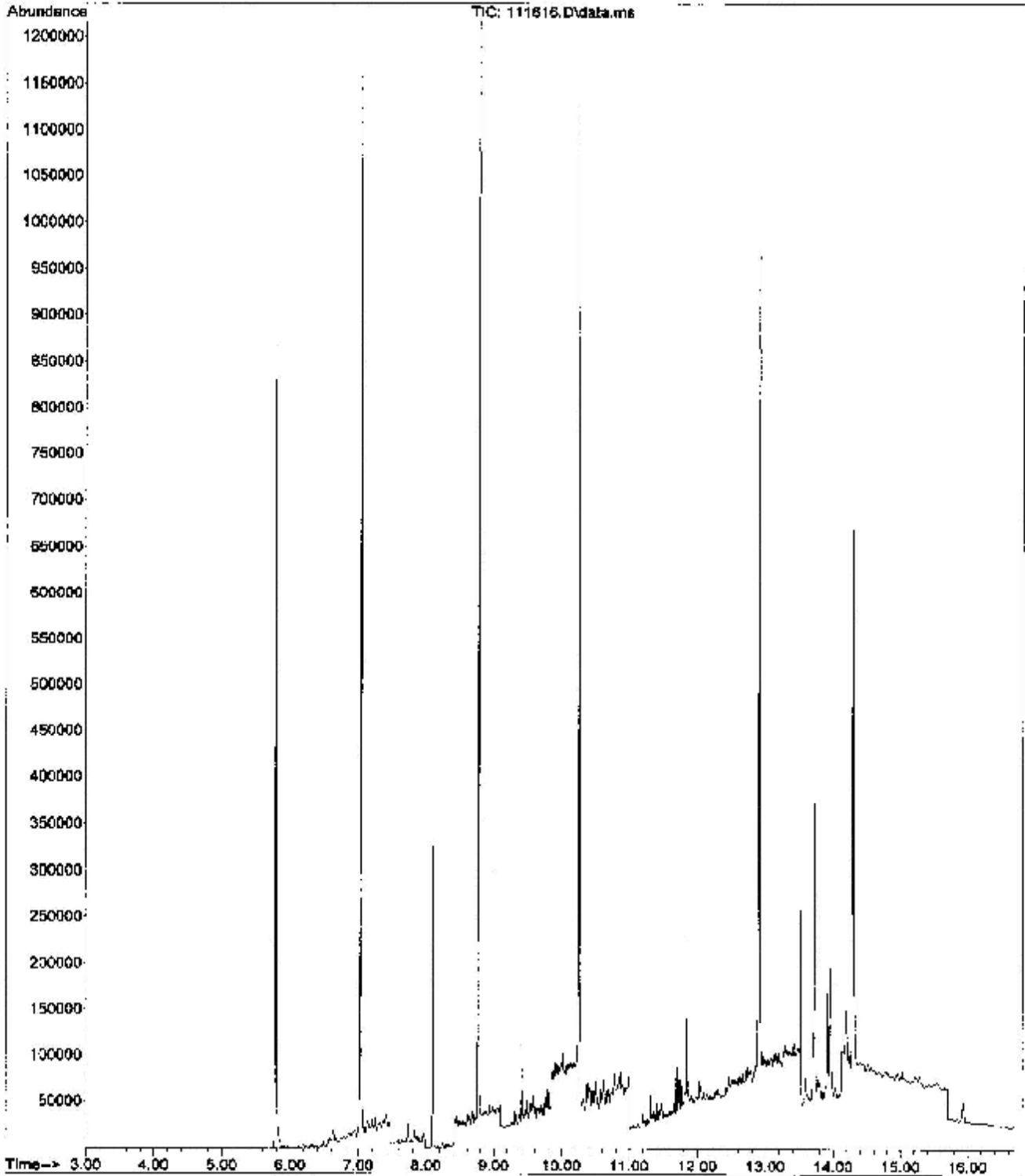
Quant Time: Nov 16 17:02:07 2012
 Quant Method : C:\msdchem\1\methods\DEPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Fri Nov 16 13:53:58 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.784	152	303536	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.032	136	929804	2000.00	ug/L	# 0.00
8) Acenaphthene-d10 (IS)	8.773	164	471252	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.253	188	711837	2000.00	ug/L	# 0.00
18) Chrysene-d12 (IS)	12.897	240	628561	2000.00	ug/L	0.01
23) Perylene-d12 (IS)	14.285	264	565557	2000.00	ug/L	0.04
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.101	172	185117	438.43	ug/L	0.00
14) Terphenyl-d14 (surr)	11.847	244	127868	416.62	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.051	128	7806	10.35	ug/L	# 10
4) 2-Methylnaphthalene	7.739	142	7006	15.50	ug/L	# 32
5) 1-Methylnaphthalene	7.835	142	4612	10.89	ug/L	# 1
7) Acenaphthylene	8.640	152	8328	12.82	ug/L	# 58
9) Acenaphthene	8.787	152	2760	14.11	ug/L	# 1
10) Fluorene	9.318	166	5971	12.76	ug/L	# 5
12) Phenanthrene	10.275	178	27476	50.60	ug/L	# 83
13) Anthracene	10.328	178	7957	13.06	ug/L	# 42
15) Fluoranthene	11.464	202	7221	11.15	ug/L	# 1
16) Pyrene	11.692	202	36441	53.42	ug/L	# 58
17) Benzo (a) anthracene	12.886	228	6809m	15.87	ug/L	
19) Chrysene	12.922	228	20071m	37.09	ug/L	
20) benzo (b) fluoranthene	13.870	252	411	N.D.		
21) benzo (k) fluoranthene	13.909	252	5323	N.D.		
22) benzo (a) pyrene	14.268	252	7800m	18.19	ug/L	
24) Indeno(1,2,3-cd)pyrene	15.494	276	700	N.D.		
25) Dibenz (a,h) anthracene	0.000		0	N.D.		
26) Benzo (g,h,i) perylene	15.929	276	29450	82.75	ug/L	# 1

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

DEPAH111612.M Mon Nov 19 15:01:47 2012 PAH

File :D:\Data\SVOC\111612\111616.D
Operator :
Acquired : 16 Nov 2012 4:27 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: 1210176-001A
Misc Info : SAMP O-PAH-S-SIM
Vial Number: 15



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111617.D
 Acq On : 16 Nov 2012 4:52 pm
 Operator :
 Sample : 1216176-001AMS
 Misc : MS O-PAH-S-SIM
 ALS Vial : 16 Sample Multiplier: 1

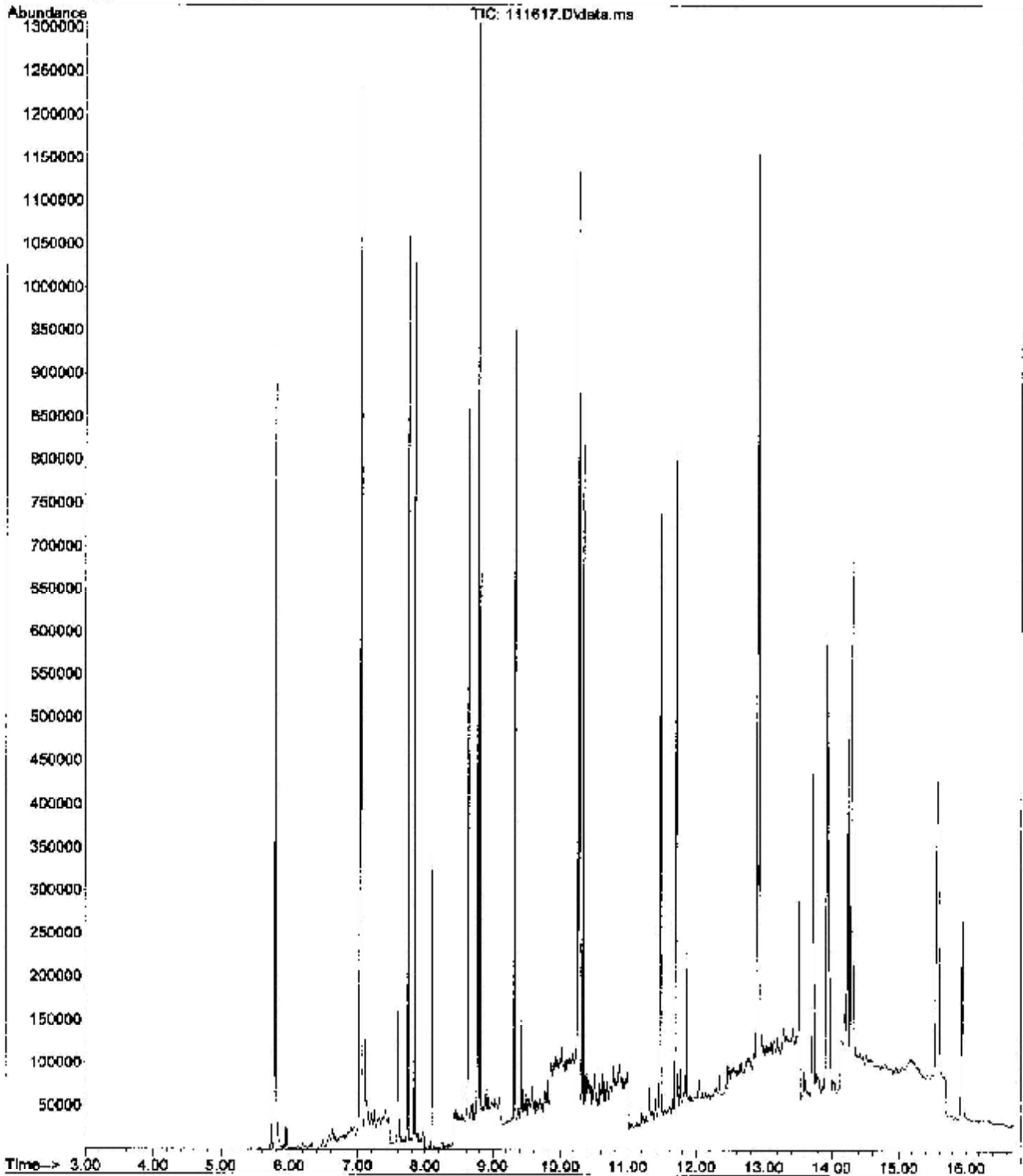
Quant Time: Nov 16 17:10:39 2012
 Quant Method : C:\msdchem\1\methods\DBPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Fri Nov 16 13:53:58 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.786	152	319661	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.033	136	1001717	2000.00	ug/L	# 0.00
8) Acenaphthene-d10 (IS)	8.775	164	508515	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.258	188	747635	2000.00	ug/L	# 0.01
18) Chrysene-d12 (IS)	12.904	240	610737	2000.00	ug/L	0.02
23) Perylene-d12 (IS)	14.294	264	556032	2000.00	ug/L	0.05
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.104	172	190627	419.07	ug/L	0.00
14) Terphenyl-d14 (surr)	11.853	244	121765	377.74	ug/L	0.01
Target Compounds						
						Qvalue
3) Naphthalene	7.054	128	610716	751.93	ug/L	99
4) 2-Methylnaphthalene	7.742	142	373495	766.86	ug/L	98
5) 1-Methylnaphthalene	7.839	142	341032	747.55	ug/L	# 92
7) Acenaphthylene	8.635	152	523351	747.94	ug/L	# 85
9) Acenaphthene	8.806	152	155086	764.18	ug/L	93
10) Fluorene	9.320	166	368531	729.71	ug/L	93
12) Phenanthrene	10.279	178	454215	796.47	ug/L	99
13) Anthracene	10.332	178	487043	760.94	ug/L	99
15) Fluoranthene	11.471	202	510399	750.49	ug/L	99
16) Pyrene	11.698	202	542814	757.58	ug/L	93
17) Benzo (a) anthracene	12.895	228	426993	732.55	ug/L	# 89
19) Chrysene	12.930	228	455061m	865.53	ug/L	
20) benzo (b) fluoranthene	13.913	252	376258m	895.28	ug/L	
21) benzo (k) fluoranthene	13.938	252	377855m	719.93	ug/L	
22) benzo (a) pyrene	14.233	252	353891m	849.43	ug/L	
24) Indeno(1,2,3-cd)pyrene	15.563	276	376431	1086.28	ug/L	93
25) Dibenz (a,h) anthracene	15.580	276	296921	1169.16	ug/L	91
26) Benzo (g,h,i) perylene	15.943	276	351903	1005.77	ug/L	93

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

DBPAH111612.M Mon Nov 19 15:01:57 2012 PAH

File :D:\Data\SVOC\111612\111617.D
Operator :
Acquired : 16 Nov 2012 4:52 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: 1210176-001AMS
Misc Info : MS O-PAH-S-SIM
Vial Number: 16



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111618.D
 Acq On : 16 Nov 2012 5:17 pm
 Operator :
 Sample : 1211093-001A
 Misc : SAMP O-PAH-S-SIM
 ALS Vial : 17 Sample Multiplier: 1

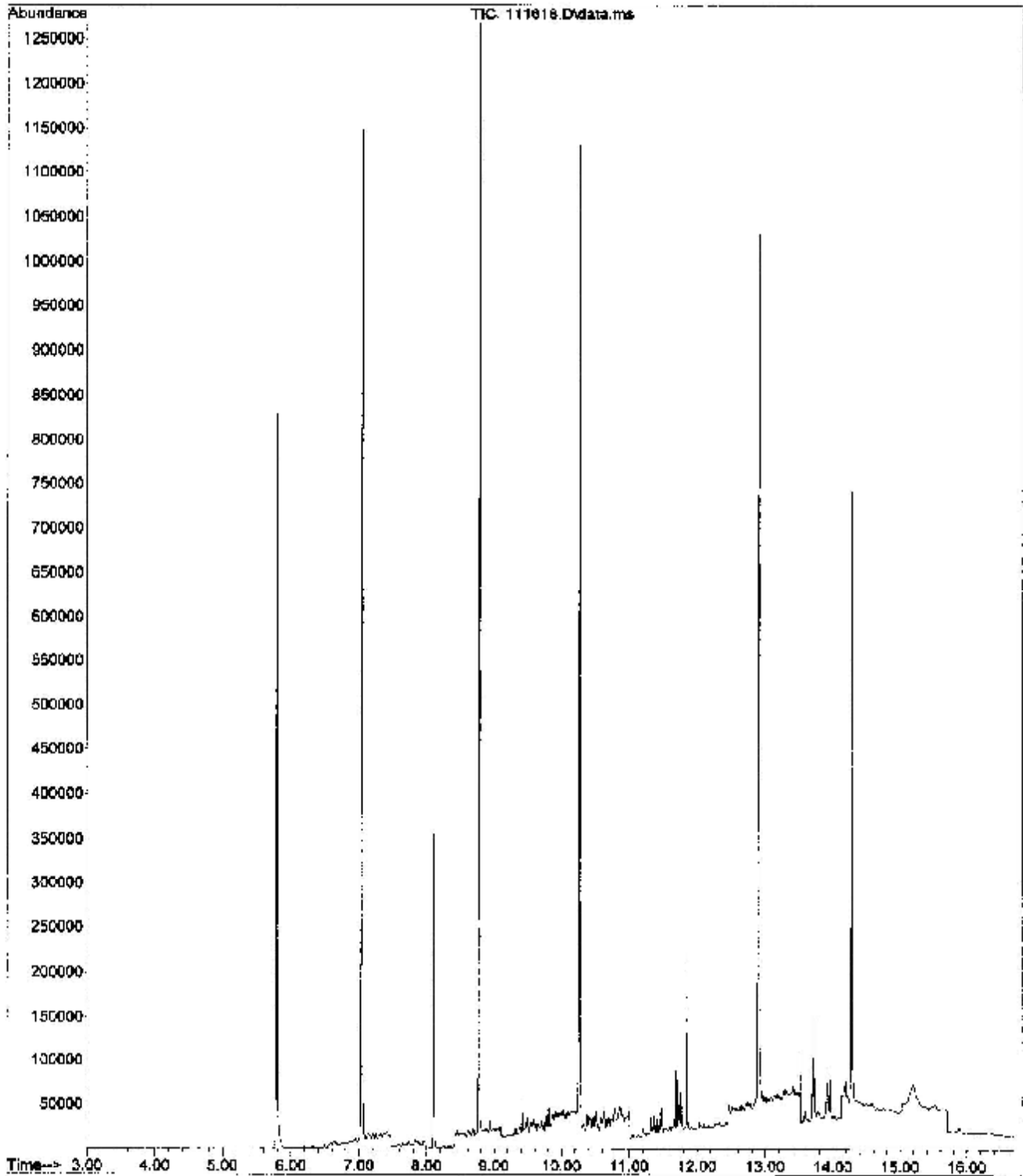
Quant Time: Nov 19 09:50:26 2012
 Quant Method : C:\msdchem\1\methods\BPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Fri Nov 16 13:53:58 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.786	152	293924	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.034	136	945879	2000.00	ug/L	0.00
6) Acenaphthene-d10 (IS)	8.775	164	491331	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.255	188	750169	2000.00	ug/L	# 0.00
18) Chrysene-d12 (IS)	12.895	240	654989	2000.00	ug/L	0.01
23) Perylene-d12 (IS)	14.268	264	596970	2000.00	ug/L	0.02
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.104	172	196450	457.36	ug/L	0.00
14) Terphenyl-d14 (surr)	11.847	244	138995	429.73	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.056	128	4382		N.D.	
4) 2-Methylnaphthalene	7.743	142	1901		N.D.	
5) 1-Methylnaphthalene	7.838	142	2118		N.D.	
7) Acenaphthylene	8.643	152	4102		N.D.	
9) Acenaphthene	8.806	152	1659		N.D.	
10) Fluorene	9.320	166	3456		N.D.	
12) Phenanthrene	10.277	178	19274	33.68	ug/L #	90
13) Anthracene	10.330	178	6361		N.D.	
15) Fluoranthene	11.466	202	19254	28.22	ug/L #	30
16) Pyrene	11.692	202	49562	68.94	ug/L #	27
17) Benzo (a) anthracene	12.985	228	10103m	17.27	ug/L	
18) Chrysene	12.920	228	19228m	34.10	ug/L	
20) benzo (b) fluoranthene	13.895	252	12886	28.59	ug/L #	1
21) benzo (k) fluoranthene	13.909	252	4797		N.D.	
22) benzo (a) pyrene	14.254	252	3828		N.D.	
24) Indenc (1,2,3-cd)pyrene	15.487	276	463		N.D.	
25) Dibenz (a,h) anthracene	0.000		0		N.D.	
26) Benzo (g,h,i) perylene	15.885	276	8058	21.45	ug/L #	1

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

DBFAH111612.M Mon Nov 19 09:50:32 2012 PAH

File :D:\Data\SVOC\111612\111618.D
Operator :
Acquired : 16 Nov 2012 5:17 pm Using AcqMethod DEPAH111412.M
Instrument : HP-MSD
Sample Name: 1211093-001A
Misc Info : SAMP O-PAH-S-SIM
Vial Number: 17



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111619.D
 Acq On : 16 Nov 2012 5:42 pm
 Operator :
 Sample : 1211095-001A
 Misc : SAMP C-PAH-S-SIM
 ALS Vial : 18 Sample Multiplier: 1

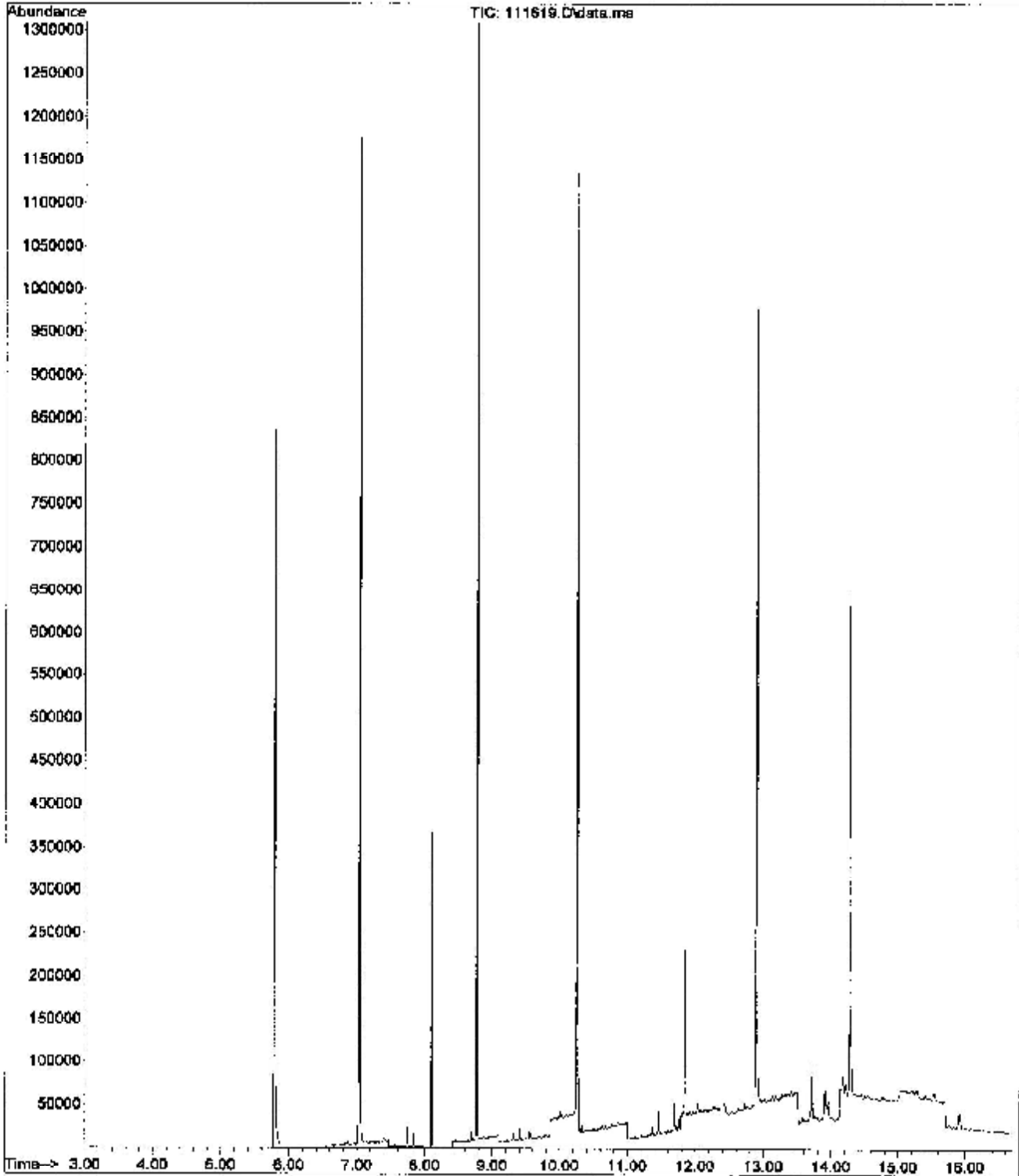
Quant Time: Nov 19 09:51:24 2012
 Quant Method : C:\msdchem\1\methods\DEPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Fri Nov 16 13:53:58 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.786	152	297033	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.034	136	960858	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.773	164	506057	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.253	188	779520	2000.00	ug/L	# 0.00
18) Chrysene-d12 (IS)	12.898	240	843962	2000.00	ug/L	0.01
23) Perylene-d12 (IS)	14.280	264	548759	2000.00	ug/L	0.03
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.103	172	202638	464.41	ug/L	0.00
14) Terphenyl-d14 (surr)	11.849	244	137967	410.49	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.053	128	10910	14.00	ug/L	# 71
4) 2-Methylnaphthalene	7.742	142	8153	17.45	ug/L	# 80
5) 1-Methylnaphthalene	7.839	142	4668	10.67	ug/L	# 58
7) Acenaphthylene	8.633	152	4932		N.D.	
9) Acenaphthene	8.802	152	466		N.D.	
10) Fluorene	9.319	166	3672		N.D.	
12) Phenanthrene	10.275	178	23108	39.37	ug/L	# 88
13) Anthracene	10.329	178	5400		N.D.	
15) Fluoranthene	11.466	202	18843	26.67	ug/L	# 70
16) Pyrene	11.692	202	23079	30.89	ug/L	# 74
17) Benzo (a) anthracene	12.888	228	12156	20.00	ug/L	# 1
19) Chrysene	12.921	228	11793m	21.27	ug/L	
20) benzo (b) fluoranthene	13.904	252	15207	34.32	ug/L	# 1
21) benzo (k) fluoranthene	13.926	252	6728m	12.16	ug/L	
22) benzo (a) pyrene	14.221	252	10609m	24.15	ug/L	
24) Indeno(1,2,3-cd)pyrene	15.539	276	8620	25.20	ug/L	# 1
25) Dibenz (a,h) anthracene	0.000		0		N.D.	
26) Benzo (g,h,i) perylene	15.917	276	27636	60.03	ug/L	# 24

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

DDPAH111612.M Mon Nov 19 09:51:32 2012 PAH

File :D:\Data\SVOC\111612\111619.D
Operator :
Acquired : 16 Nov 2012 5:42 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: 1211095-001A
Misc Info : SAMP O-PAH S-SIM
Vial Number: 18



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111623.D
 Acq On : 16 Nov 2012 6:06 pm
 Operator :
 Sample : 1211095-001ADJF
 Misc : DUF O-PAH-S-SIM
 ALS Vial : 19 Sample Multiplier: 1

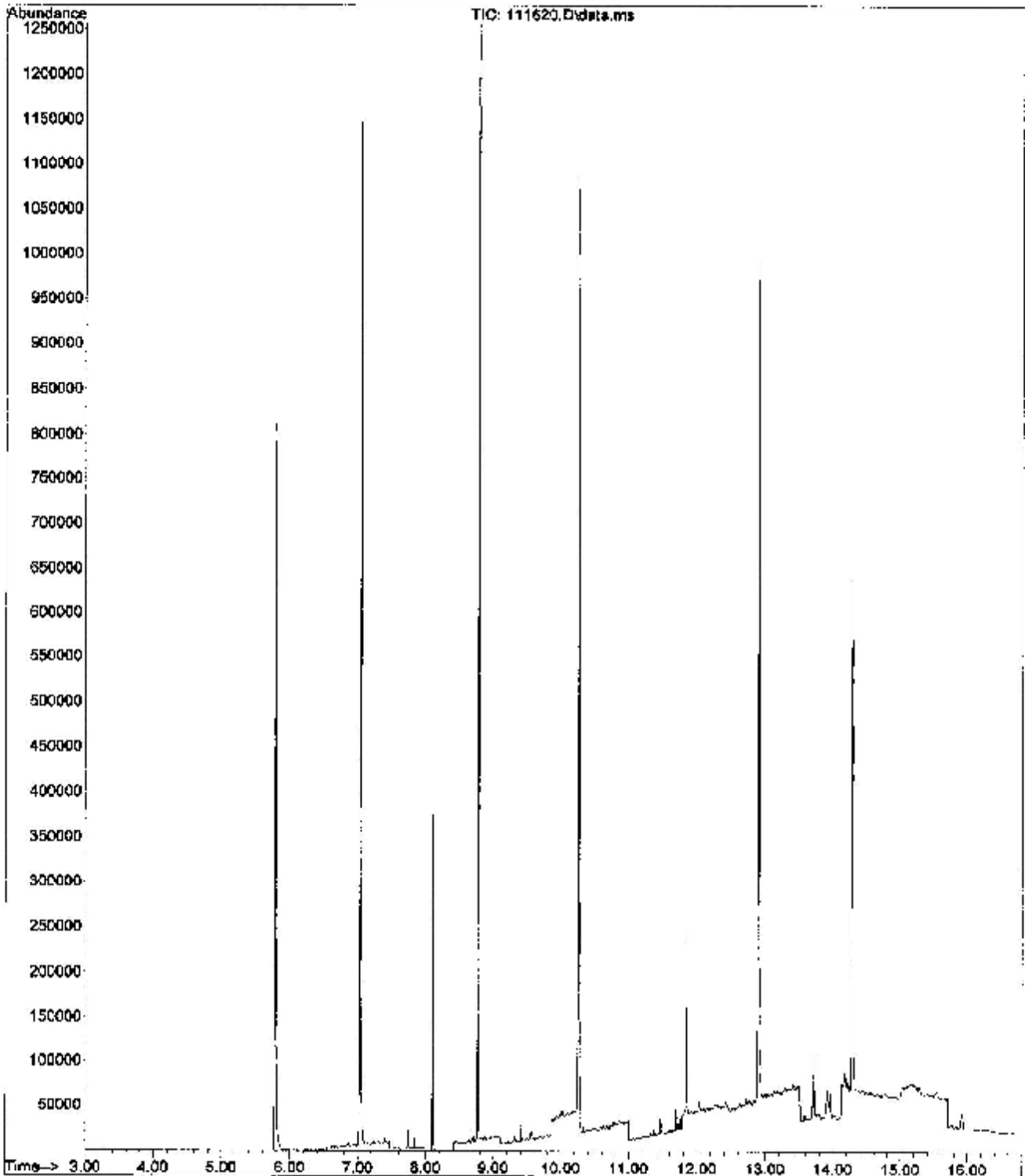
Quant Time: Nov 19 15:04:45 2012
 Quant Method : C:\msdchem\1\methods\BPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Fri Nov 16 13:53:58 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.788	152	283978	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.034	136	926480	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.775	164	489593	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.255	188	741320	2000.00	ug/L	# 0.00
18) Chrysene-d12 (IS)	12.900	240	619023	2000.00	ug/L	0.02
23) Perylene-d12 (IS)	14.283	264	520807	2000.00	ug/L	# 0.02
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.104	172	205179	487.69	ug/L	0.00
14) Terphenyl-d14 (surr)	11.850	244	139650	436.91	ug/L	0.01
Target Compounds						
						Qvalue
3) Naphthalene	7.056	128	9953	13.25	ug/L	# 70
4) 2-Methylnaphthalene	7.743	142	7859	17.45	ug/L	# 79
5) 1-Methylnaphthalene	7.838	142	4001	N.D.		
7) Accnaphthylene	8.635	152	3979	N.D.		
9) Acenaphthene	8.801	152	247	N.D.		
10) Fluorene	9.320	166	3038	N.D.		
12) Phenanthrene	10.277	178	23109	40.87	ug/L	# 89
13) Anthracene	10.330	178	4777	N.D.		
15) Fluoranthene	11.467	202	16985m	25.19	ug/L	
16) Pyrene	11.694	202	17878	25.16	ug/L	# 58
17) Benzo (a) anthracene	12.889	228	9960	17.23	ug/L	# 1
19) Chrysene	12.924	228	12735m	23.90	ug/L	
20) benzo (b) fluoranthene	13.904	252	12368	29.03	ug/L	# 1
21) benzo (k) fluoranthene	13.930	252	6490m	12.20	ug/L	
22) benzo (a) pyrene	14.221	252	8866m	21.00	ug/L	
24) Indeno(1,2,3-cd)pyrene	15.544	276	7793m	24.01	ug/L	
25) Dibenz (a,h) anthracene	0.000		0	N.D.		
26) Benzo (g,h,i) perylene	15.919	276	23657	72.19	ug/L	# 1

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

DBPAH111612.M Mon Nov 19 15:04:52 2012 PAH

File :D:\Data\SVOC\111612\111620.D
Operator :
Acquired : 16 Nov 2012 6:06 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: 1211095-OC1ADUP
Misc Info : DJP O-PAH-S-SIM
Vial Number: 19



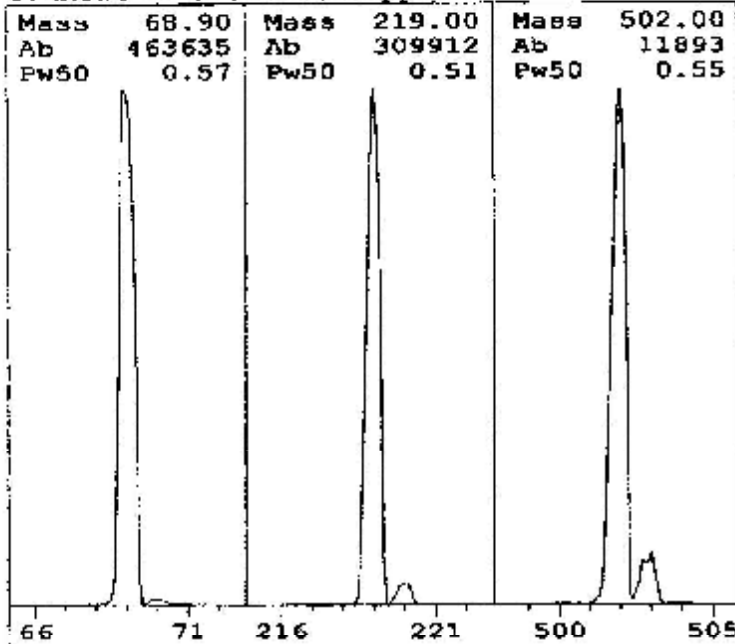
5975 DFTPP Dynamic Target Tune

Fri Nov 16 09:48:03 2012

Instrument: HP-MSD

C:\MSDCHEM\1\5975\dftpp.u

US11173714

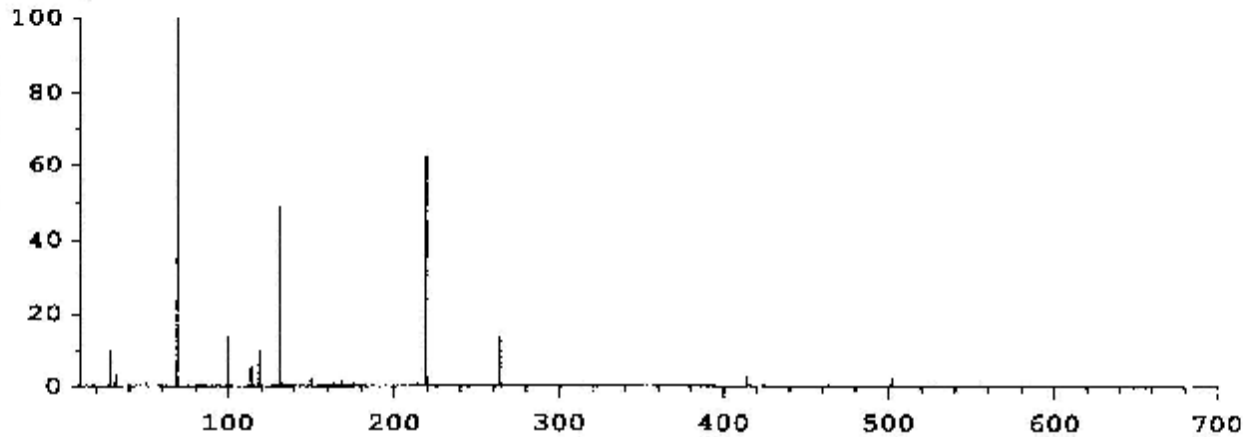


Ion Pol Pos MassGain -621
 MassOffs -40
 Emission 34.6 AmuGain 2043
 EI Energy 69.9 AmuOffs 124.06
 Filament 2 Wid219 -0.025
 DC Pol Pos
 Repeller 16.89
 IonFocus 59.8 HEDEnab On
 EntLens 0.0 EMVolts 2188
 EntOffs Var

PFTBA Open Samples 8
 Averages 3
 Stepsize 0.10

Temperatures and Pressures:
 MS Source 230 TurboSpd 100
 MS Quad 150 HiVac 1.32e05

Scan: 10.00 - 701.00 Samples: 8 Thresh: 100 Step: 0.10
 123 peaks Base: 69.00 Abundance: 447808



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	447808	100.00	70.00	4418	0.99
219.00	280640	62.67	220.00	12151	4.33
502.00	9921	2.22	503.00	1059	10.67

Air/Water Check: H2O~0.77% N2~9.88% O2~3.10% CO2~0.17% N2/H2O~1289.42%

Column(1) Flow: 1.58 Column(2): -1.79769e+308 ml/min. Interface Temp: -

Ramp Criteria:

Ion Focus Maximum 90 volts using ion 502; EM Gain 254373
 Repeller Maximum 35 volts using ion 502; Gain Factor 2.54

MassGain Values(Samples): -607(3) -596(2) -579(1) -524(0) -454(FS)

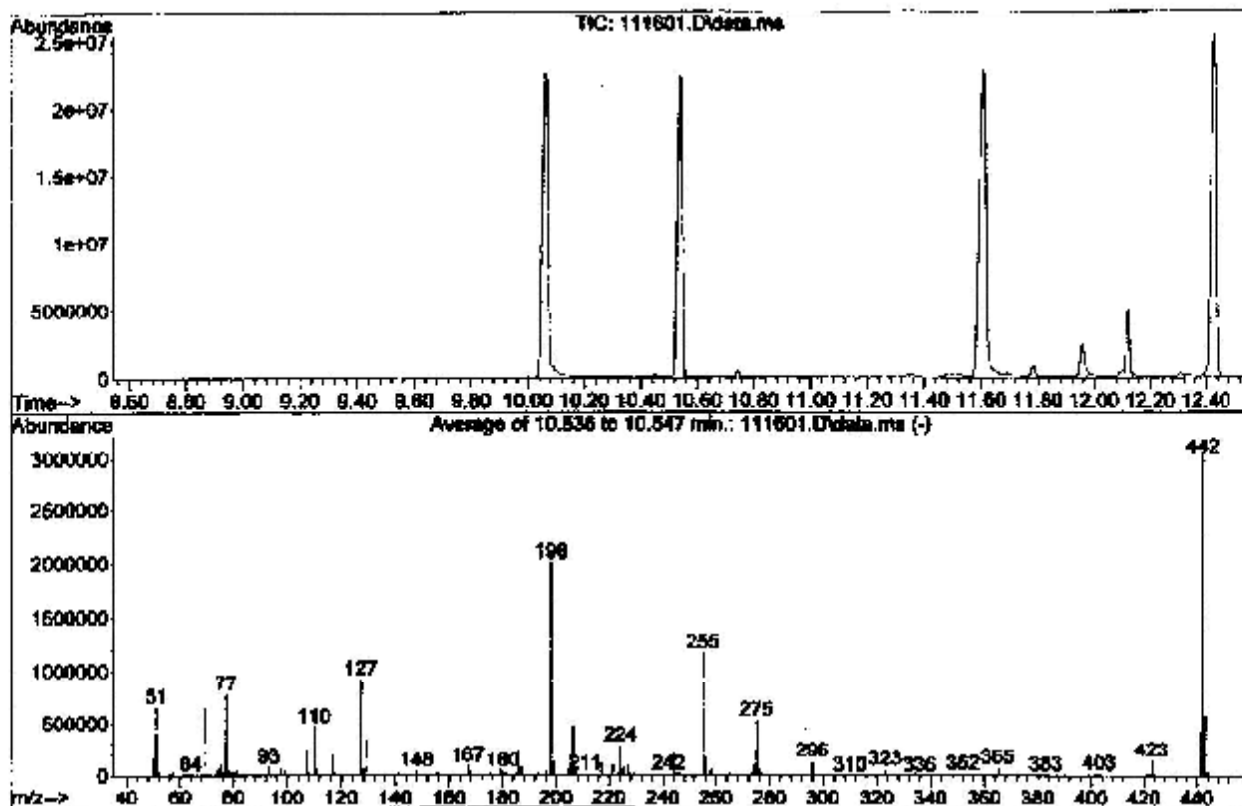
TARGET MASS:	50	69	131	219	414	502	1050
Amu Offset:	124.1	124.1	124.1	124.1	124.1	124.1	124.1
Entrance Lens Offset:	12.8	10.0	9.8	10.5	11.0	11.3	11.3
Target Abund(%):	1.0	100.0	45.0	55.0	2.4	2.0	
Actual Tune Abund(%):	1.0	100.0	48.9	62.7	2.8	2.2	

DFTPP

Data Path : D:\Data\SVOC\111612\
 Date File : 111601.D
 Acq On : 16 Nov 2012 10:06 am
 Operator :
 Sample : TUNE CHECK
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 51 Sample Multiplier: 1

Integration File: RTEINTSG8270.P

Method : C:\msdchem\1\methods\QSVOC110612.M
 Title : Semivol
 Last Update : Fri Nov 09 14:53:34 2012



AutoFind: Scans 1392, 1393, 1394; Background Corrected with Scan 1383

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn	Raw Abn	Result
51	198	10	80	32.7	657923	PASS
68	69	0.00	2	1.4	9144	PASS
69	198	0.00	100	32.4	652004	PASS
70	69	0.00	2	0.5	3244	PASS
127	198	10	80	46.1	926827	PASS
197	198	0.00	2	0.5	10036	PASS
198	198	100	100	100.0	2011989	PASS
199	198	5	9	6.8	136264	PASS
275	198	10	60	26.6	534869	PASS
365	198	1	100	4.1	81760	PASS
441	442	0.01	24	14.0	430485	PASS
442	198	50	999	152.3	3064661	PASS
443	442	15	24	19.3	592597	PASS

Navigation icons: Home, Back, Forward, Print, Refresh, Stop, etc.

Address bar: <http://www.merck.com>

Page Title: **Product Information**

1. Indications for Use

Indication	Strength	Form	Quantity
Adult	100 mg	Tablet	30
Child	50 mg	Tablet	30

2. Dosage and Administration

Adult: 100 mg orally twice daily with meals.

Child: 50 mg orally twice daily with meals.

3. Contraindications

Known hypersensitivity to any component of the formulation.

4. Warnings and Precautions

See full prescribing information for complete details.

5. Adverse Reactions

Common adverse reactions include headache, dizziness, and nausea.

6. Drug Interactions

See full prescribing information for complete details.

7. How to Use

Take with food and plenty of liquid.

8. Storage

Store at room temperature (20°C to 25°C).

9. Description

White to off-white, round, film-coated tablet.

10. Clinical Studies

See full prescribing information for complete details.

11. References

See full prescribing information for complete details.

12. Trademarks

See full prescribing information for complete details.

13. Other information

See full prescribing information for complete details.

14. How to Obtain Additional Information

Contact your healthcare provider or Merck.

SN	Task	Obj
59	Compound Balance	
60	4.5 Dyhaler - methylphenidate	
61	Diphenhydramine	
62	Acetaminophen	
63	Atenolol	
64	Hydrochlorothiazide	
65	Hydrocodone Bitartrate	
66	Hydroxyzine	
67	Hydroxyzine pamoate	
68	Hydroxyzine hydrochloride	
69	Hydroxyzine hydrochloride	
70	Hydroxyzine hydrochloride	
71	Hydroxyzine hydrochloride	
72	Hydroxyzine hydrochloride	

INTERNAL STANDARD AREA AND RT SUMMARY

RunID: GCMS-3 121119A CCV Name: CAL MID POINT
 Run No: 8617 CCV SeqNo: 131570
 Lab File ID (Standard): 111606.D Date Analyzed: 11/16/2012
 Instrument ID: GCMS-3 Time Analyzed: 12:20
 GC Column: ID (mm): Length (M):

	IS1 (14DCBZ)		IS2 Acenaphthene-d10		IS3 Chrysene-d12		IS4 Naphthalene-d8		
	AREA #	RT #	AREA #	RT #	AREA #	RT #	AREA #	RT #	
12 HOUR STD	298974	5.761	498588	8.768	765770	12.882	943243	7.032	
UPPER LIMIT	597948	5.881	997196	8.868	1531640	12.982	1886486	7.132	
LOWER LIMIT	149487	5.661	249289	8.666	382886	12.782	471822	6.932	
SAMPLE NO.									
01	ICV-3638	268629	5.761	480167	8.77	732015	12.882	915891	7.031
02	ICB-3638	283461	5.761	457532	8.77	666472	12.882	885761	7.031
03	MB-3638	255244	5.784	412719	8.788	605954	12.884	804063	7.028
04	LCS-3638	276368	5.784	461650	8.771	709202	12.882	886126	7.029
05	1210176-001A	303536	5.784	471252	8.773	628561	12.897	929804	7.032
06	1210176-001AMS	318861	5.786	508515	8.775	610737	12.904	1.00172e+006	7.033
07	1211093-001A	283824	5.786	491331	8.775	654989	12.895	945875	7.034
08	1211095-001A	287033	5.786	509057	8.773	643982	12.898	960858	7.034
09	1211095-001ADUP	283878	5.788	469593	8.778	619023	12.9	926480	7.034

IS1 (14DCBZ) = 1,4-Dichlorobenzene-d4

IS2 Acenaphthene-d10 = Acenaphthene-d10

IS3 Chrysene-d12 = Chrysene-d12

IS4 Naphthalene-d8 = Naphthalene-d8

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = -50% of internal standard area

RT UPPER LIMIT = +0.10 minutes of internal standard RT

RT LOWER LIMIT = -0.10 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.

* Values outside of QC limits.

INTERNAL STANDARD AREA AND RT SUMMARY

RunID: GCMS-3_121118A CCV Name: CAL MID POINT
 Run No: 8617 CCV SeqNo: 131878
 Lab File ID (Standard): 111806.D Date Analyzed: 11/16/2012
 Instrument ID: GCMS-3 Time Analyzed: 12:20
 GC Column: ID (mm): Length (M):

		S5 Perylene-d12		S Phenanthrene-d10					
		AREA #	RT #	AREA #	RT #				
12 HOUR STD		710991	14.247	776989	10.248				
UPPER LIMIT		1421882	14.347	1553978	10.348				
LOWER LIMIT		355495	14.147	388495	10.148				
SAMPLE NO.									
01	ICV-3839	670042	14.247	747807	10.246				
02	ICB-3639	547711	14.247	721921	10.245				
03	MB-3839	482604	14.247	658737	10.247				
04	LCS-3839	536985	14.249	725020	10.248				
05	1210176-001A	585557	14.285	711837	10.253				
06	1210176-001AMS	556032	14.284	747836	10.258				
07	1211093-001A	586970	14.288	750169	10.255				
08	1211095-001A	548759	14.28	779620	10.253				
09	1211095-001ADUP	520807	14.283	741320	10.255				

IS5 Perylene-d12 = Perylene-d12

IS6 Phenanthrene-d10 = Phenanthrene-d10

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = -50% of internal standard area

RT UPPER LIMIT = +0.10 minutes of internal standard RT

RT LOWER LIMIT = -0.10 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.

* Values outside of QC limits.

Oven
Temp (C): 105

Time in: 14:30
Time out: 17:30

Analyst
Date and Time

AO
11/15/2012
14:00

Tin #	SAMPLE ID	SAMP TYPE	Testcode	Initial Weight	Final Weight 1	Calculated wt	ANALYSIS DATE	Analyte
1	1211088-001B	SAMP	PMOIST	11.4100	10.6400	6.7485	11/15/12 13:43	Percent Moisture
2	1211088-002B	SAMP	PMOIST	11.0100	8.8000	20.0727	11/15/12 13:43	Percent Moisture
3	1211088-003B	SAMP	PMOIST	14.3600	13.0000	9.4708	11/15/12 13:43	Percent Moisture
4	1211088-004B	SAMP	PMOIST	11.6200	10.4100	10.4131	11/15/12 13:43	Percent Moisture
5	1211088-005B	SAMP	PMOIST	10.9800	10.2900	6.2842	11/15/12 13:43	Percent Moisture
6	1211088-006B	SAMP	PMOIST	10.7800	9.7100	9.9258	11/15/12 13:43	Percent Moisture
7	1211088-007B	SAMP	PMOIST	10.2600	8.3300	18.8109	11/15/12 13:43	Percent Moisture
8	1211088-008B	SAMP	PMOIST	11.3300	10.0400	11.3857	11/15/12 13:43	Percent Moisture
9	1211093-001A	SAMP	PMOIST	11.9700	10.0800	15.7895	11/15/12 13:43	Percent Moisture
10	1211095-001A	SAMP	PMOIST	10.4300	8.2800	20.6136	11/15/12 13:43	Percent Moisture
11	1211098-001B	SAMP	PMOIST	12.8400	11.9100	7.2430	11/15/12 13:43	Percent Moisture
12	1211098-002B	SAMP	PMOIST	10.7700	10.1000	6.2210	11/15/12 13:43	Percent Moisture
13	1211098-003B	SAMP	PMOIST	12.0500	11.0300	8.4647	11/15/12 13:43	Percent Moisture
14	1211098-004B	SAMP	PMOIST	13.1000	12.5300	4.3511	11/15/12 13:43	Percent Moisture
15	1211098-005B	SAMP	PMOIST	11.1600	9.6100	13.8889	11/15/12 13:43	Percent Moisture
20	1211106-001A	SAMP	PMOIST	10.2300	9.5000	7.1359	11/15/12 13:43	Percent Moisture
21	1211106-002A	SAMP	PMOIST	12.1400	11.8300	2.5535	11/15/12 13:43	Percent Moisture
22	1211106-003A	SAMP	PMOIST	12.5700	11.6900	7.0008	11/15/12 13:43	Percent Moisture
23	1211106-004A	SAMP	PMOIST	10.6100	10.0900	4.9010	11/15/12 13:43	Percent Moisture
24	1211106-005A	SAMP	PMOIST	11.4100	10.6500	6.6608	11/15/12 13:43	Percent Moisture
25	1211106-006A	SAMP	PMOIST	12.2300	11.7500	3.9248	11/15/12 13:43	Percent Moisture
26	1211106-007A	SAMP	PMOIST	11.4500	10.0800	11.9651	11/15/12 13:43	Percent Moisture
27	1211106-008A	SAMP	PMOIST	11.9000	11.1300	6.4706	11/15/12 13:43	Percent Moisture
28	1211106-009A	SAMP	PMOIST	12.2200	10.9500	10.3928	11/15/12 13:43	Percent Moisture
29	1211108-001A	SAMP	PMOIST	11.3800	10.0400	11.7750	11/15/12 13:43	Percent Moisture
30	1211108-002A	SAMP	PMOIST	10.1600	8.4700	16.6339	11/15/12 13:43	Percent Moisture

Oven Temp (C): 105

Time in: 14:30

Time out: 17:30

Analyst Date and Time

AO 11/15/2012 14:00

Tin #	SAMPLE ID	SAMP TYPE	Testcode	Initial Weight	Final Weight 1	Calculated wt	ANALYSIS DATE	Analyte
31	1211108-003A	SAMP	PMOIST	11.1300	9.7800	12.1294	11/15/12 13:43	Percent Moisture
32	1211108-004A	SAMP	PMOIST	11.5200	9.9100	13.9757	11/15/12 13:43	Percent Moisture
33	1211108-005A	SAMP	PMOIST	11.8100	10.5600	10.5843	11/15/12 13:43	Percent Moisture
34	1210141-032B	SAMP	PMOIST	11.1300	8.7500	21.3836	11/15/12 14:43	Percent Moisture



Libby Environmental, Inc.

4139 Libby Road NE • Olympia, WA 98506-2518

November 12, 2012

Neil Morton
GeoEngineers Inc.
600 Stewart Street, Suite 1700
Seattle, WA 98101

Dear Mr. Morton:

Please find enclosed the analytical data report for the Irondale Project located in Irondale, Washington. A soil sample was analyzed for Diesel & Oil by NWTPH-Dx/Dx Extended with Silica Gel Clean Up, Metals Arsenic, Copper, Iron, Lead, Nickel and Zinc by EPA Method 6020 and Polyaromatic Hydrocarbons (PAH) by EPA Method 8270 SIM on October 18 & 20, 2012 and November 16, 2012.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. All soil samples are reported on a dry weight basis. An invoice for this analytical work is enclosed.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Jamie L. Deyman
President
Libby Environmental, Inc.

Phone (360) 352-2110 • Fax (360) 352-4154 • libbyenv@aol.com

www.LibbyEnvironmental.com



Libby Environmental, Inc.

Case Narrative

Libby Project #: L121018-30
Date: 11-12-2012

CLIENT: GeoEngineers, Inc.
PROJECT: Irondale

I. SAMPLE RECEIPT:

All samples were received intact and in good condition. See the attached Sample Receipt Check List for more information.

II. GENERAL REPORTING COMMENTS:

Final results are reported on a dry weight basis. The soil samples in the field are estimated to have a moisture content of 15%. This estimate is useful in producing data that is close to the actual value. After the sample is analyzed for soil moisture at our fixed base facility, the final data is reported based on measured soil moisture. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS), the Laboratory Control Sample Duplicate (LCSD) and the Method Blank (MB). The LCS, LCSD and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) and/or noted below.

Notes:

N/A

Libby Environmental, Inc.

Chain of Custody Record

1024

4139 Libby Road NE
Olympia, WA 98506
Ph: 360-352-2110
Fax: 360-352-4154

Date: 10-18-12 Page: 1 of

Client: Geo Engineers

Project Manager: Neil Morton

Address:

Project Name: Irondale

Phone: Fax:

Location: City: Irondale, WA

Client Project #

Collector: Paul Robinette Date of Collection: 10-18-12



Sample Number	Depth	Time	Sample Type	Container Type	VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEMI VOL 8270	NWTPH-HCID	NWTPH-Gx	NWTPH-Dx	PAH 8270	PCB's 8082	MTCA 6 Metals	Field Notes
1	W-Bulkhead-10/18/12	10:30	Soil	4oz Jar						X	X	X			Extract & Hold PAH's See Below for specific Metals to analyze.
2															
3															
4															
5															
6															
7															
8															11-12-12 run cPAH per Neil via email
9															STD
10															
11															
12															
13															
14															
15															
16															
17															
18															

Relinquished by: Paul Robinette	Date / Time: 10/18/12 1200	Received by: Paul Bink	Date / Time: 10/18/12 1200	Sample Receipt:	Remarks: Analyze for following METALS: Arsenic, Copper, Iron, Lead, Nickel & Zinc.
Relinquished by:	Date / Time:	Received by:	Date / Time:	Good Condition?	
Relinquished by:	Date / Time:	Received by:	Date / Time:	Cold?	
Relinquished by:	Date / Time:	Received by:	Date / Time:	Seals Intact?	
				Total Number of Containers:	

Libby Environmental, Inc. Login Sample Receipt Check List

Client: GeoEngineers, Inc. **Libby Project Number:** L121018-30

Question	T / F / NA	Comment
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler temperature is acceptable.	True	
COC is present.	True	
COC is filled out in ink and is legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within the Hold Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs.	True	
VOA sample vials do not have headspace or bubble is less than 6mm (1/4 in.) in diameter.	True	
If necessary, staff has been informed of any short hold time or quick TAT needs.	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	

Libby Environmental, Inc.

4139 Libby Road NE
Olympia, WA 98506
Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@aol.com

IRONDALE PROJECT
GeoEngineers, Inc.
Irondale, Washington
Libby Project # L121018-30
Client Project # 0504-042-02

Analyses of Diesel & Oil Range (NWTPH-Dx/Dx Extended) in Soil w/ Silica Gel Cleanup

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Bunker C (mg/kg)
Method Blank	10/18/12	101	nd	nd
LCS	10/18/12	int	103%	
LCSD	10/18/12	int	102%	
W-Bulkhead-101812	10/18/12	121	nd	9860
W-Bulkhead-101812 Dup	10/18/12	121	nd	7530
Practical Quantitation Limit			25	40

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

Analysis date: 10/18/2012 10:03:05
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C319.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

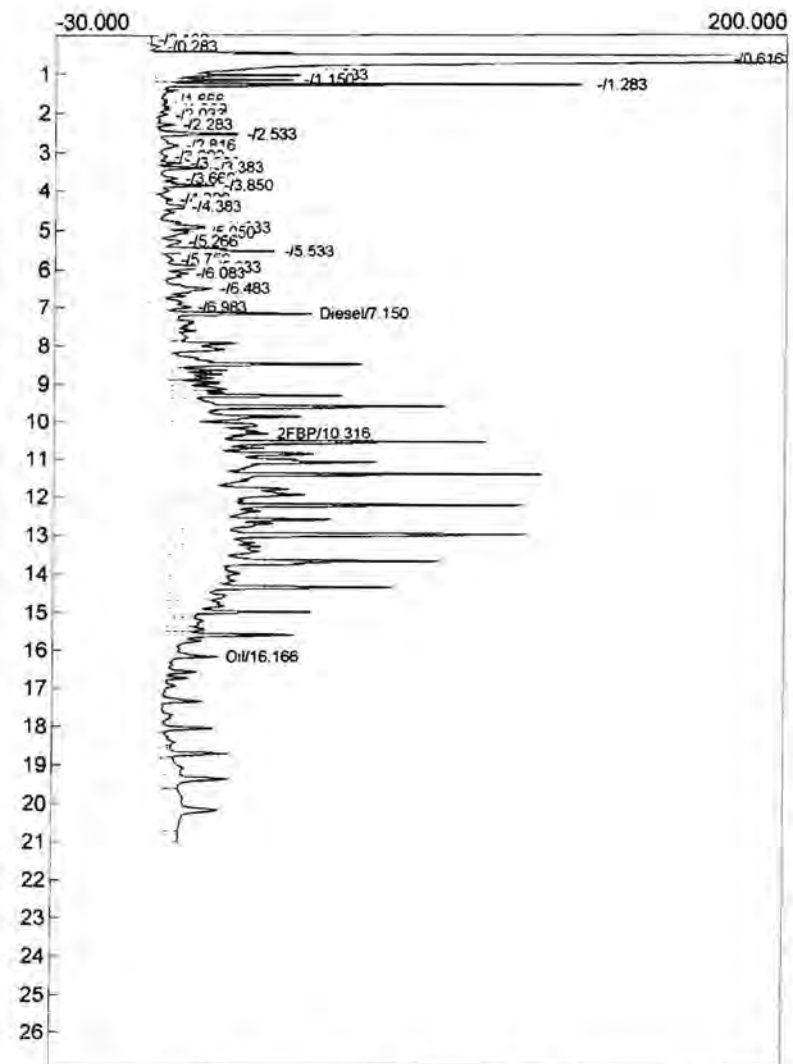
Analysis date: 10/18/2012 10:03:05
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D317.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



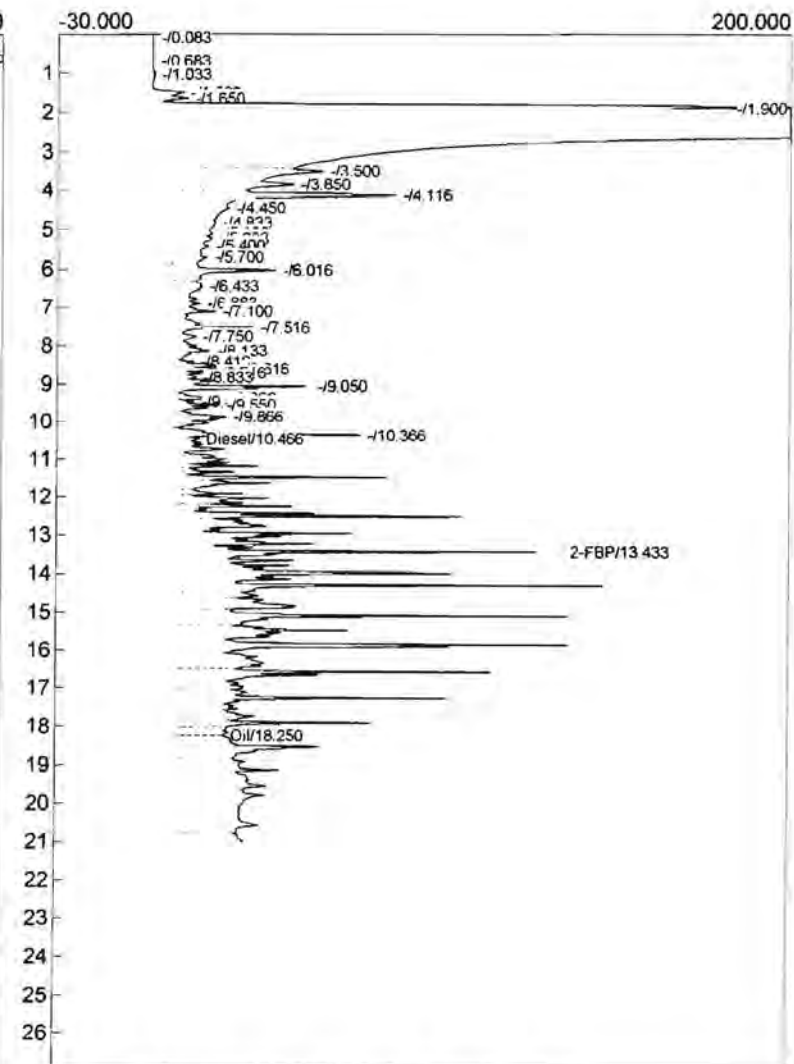
Component	Retention	Area	Height	External	Units
Diesel	7.150	11532.8255	45.046	568.4850	ppm
FBP	10.316	387.0110	30.922	13.4613	ppm
Oil	16.166	1226.3535	15.411	60.2923	ppm
		13146.1900		642.2386	

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	10.466	10423.7940	3.766	553.8774	
2-FBP	13.433	579.5080	119.829	20.1568	ppm
Oil	18.250	3127.2720	13.239	165.1466	ppm
		14130.5740		739.1808	

Analysis date: 10/18/2012 10:32:25

Analysis date: 10/18/2012 10:32:25

Method:

Method:

Description: JAMACIA

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Carrier: He

Data file: C320.CHR ()

Data file: D318.CHR ()

Sample: 1000 ppm LCS 343

Sample: 1000 ppm LCSD 343

Operator: PB

Operator: PB

Temperature program:

Temperature program:

Init temp Hold Ramp Final temp

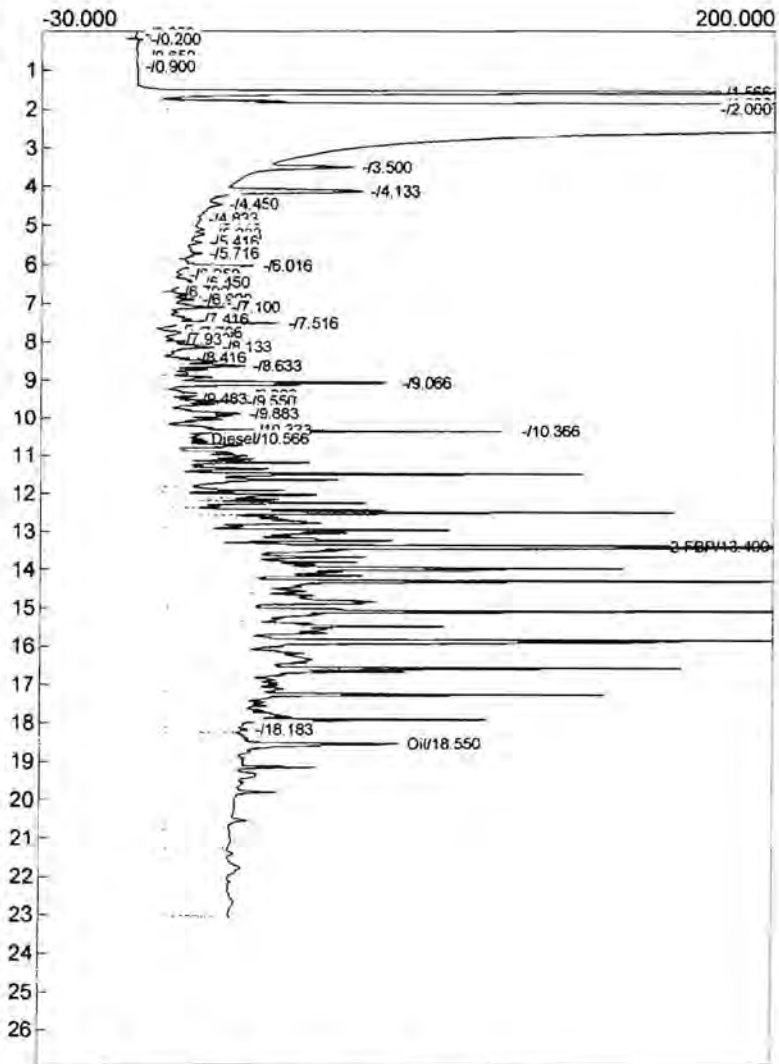
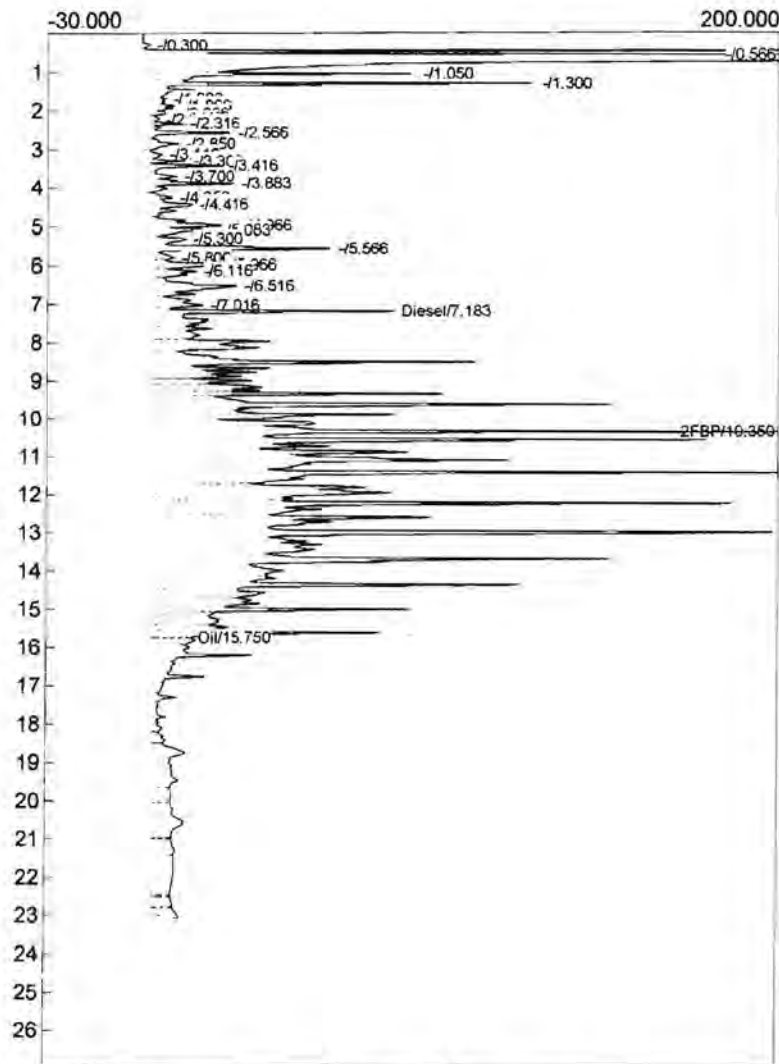
Init temp Hold Ramp Final temp

Events:

Events:

Time Event
0.000 ZERO

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.183	21674.5325	74.599	1072.1405	ppm
FBP	10.350	1138.1600	211.476	39.5882	ppm
Oil	15.750	2128.8120	10.715	104.6606	ppm
		24841.5045		1216.3893	

107%

Component	Retention	Area	Height	External	Units
Diesel	10.566	19531.9690	12.633	1046.4566	
2-FBP	13.400	1482.9800	230.507	51.5819	ppm
Oil	18.550	6609.0190	73.921	350.0207	ppm
		27623.9680		1448.0592	

105%

Analysis date: 10/18/2012 11:02:39

Method:

Description: JAMACIA

Column: Restek Rbx-5 30x0.53x1.5

Carrier: He

Data file: C321.CHR ()

Sample: Method Blank

Operator: PB

Analysis date: 10/18/2012 11:02:39

Method:

Description: JAMACIA

Column: Restek Rbx-5 30x0.53x1.5

Carrier: He

Data file: D319.CHR ()

Sample: Method Blank

Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

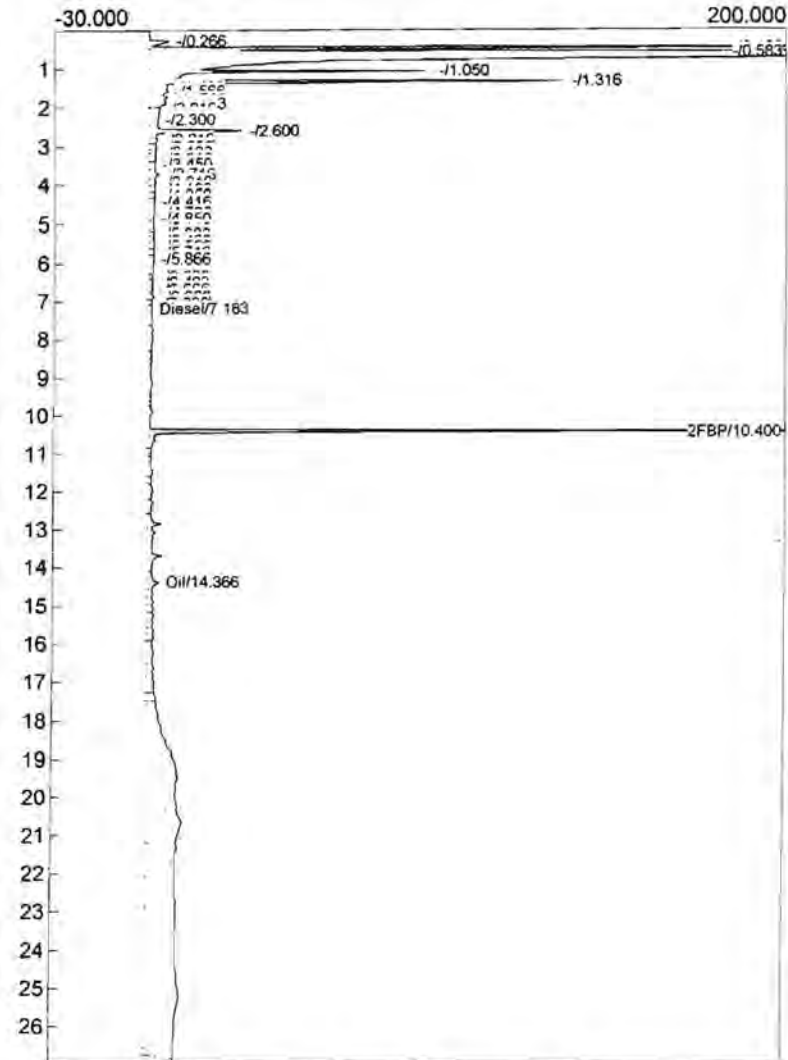
Time Event
0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

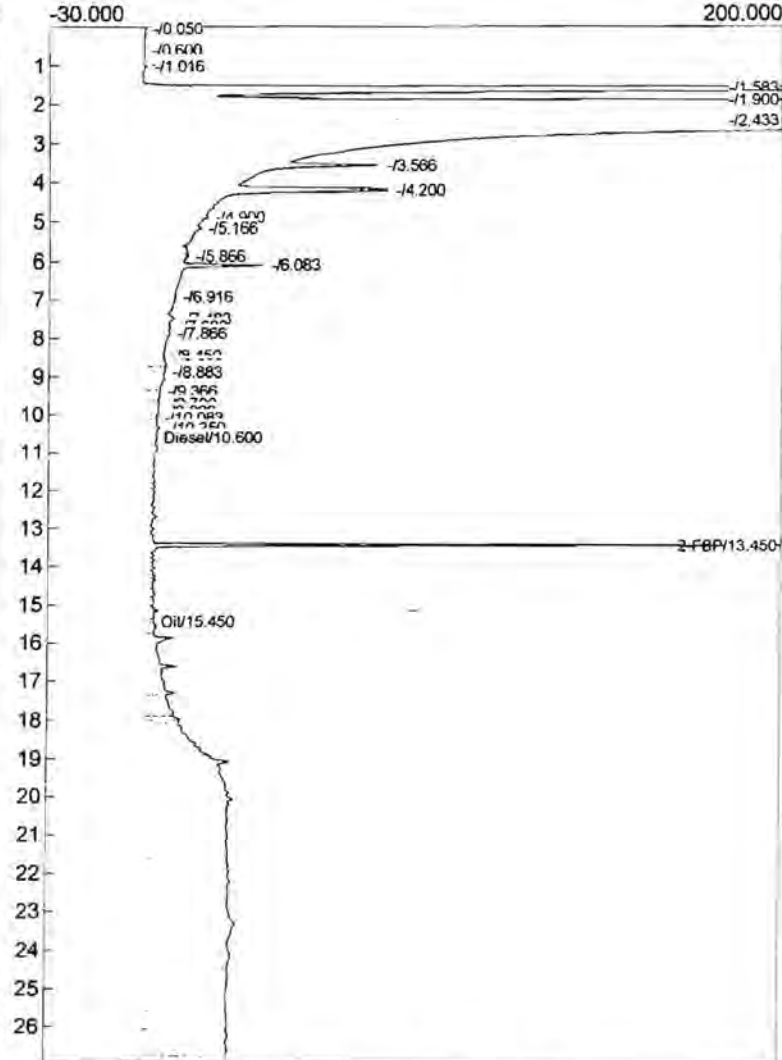
Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.183	838.5300	0.466	41.2254	ppm
FBP	10.400	582.5120	201.562	20.2613	ppm
Oil	14.366	5044.6960	3.110	248.1500	ppm
		6465.7380		309.6367	

nd 101%



Component	Retention	Area	Height	External	Units
Diesel	10.600	844.2000	1.614	44.5809	
2-FBP	13.450	605.7090	238.819	21.0681	ppm
Oil	15.450	13068.2015	1.167	696.0818	ppm
		14518.1105		761.7309	

nd 105%

Analysis date: 10/18/2012 11:02:39

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: C321.CHR ()

Sample: Method Blank

Operator: PB

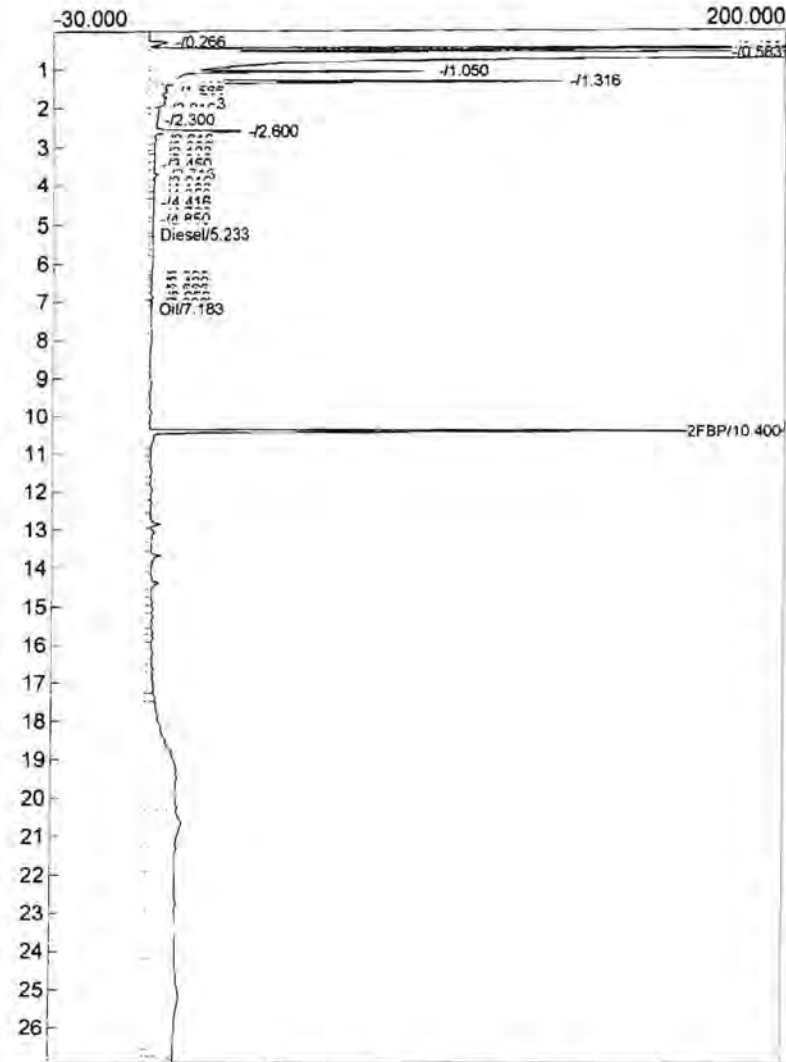
Used for Bunker C Airblank only

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.233	51.4420	0.884	2.5291	ppm
Oil	7.183	5883.2260	0.466	289.4899	ppm
2-FBP	10.400	582.5120	201.552	20.2613	ppm
		6517.1800		312.2802	

Analysis date: 10/18/2012 11:02:39

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: D319.CHR ()

Sample: Method Blank

Operator: PB

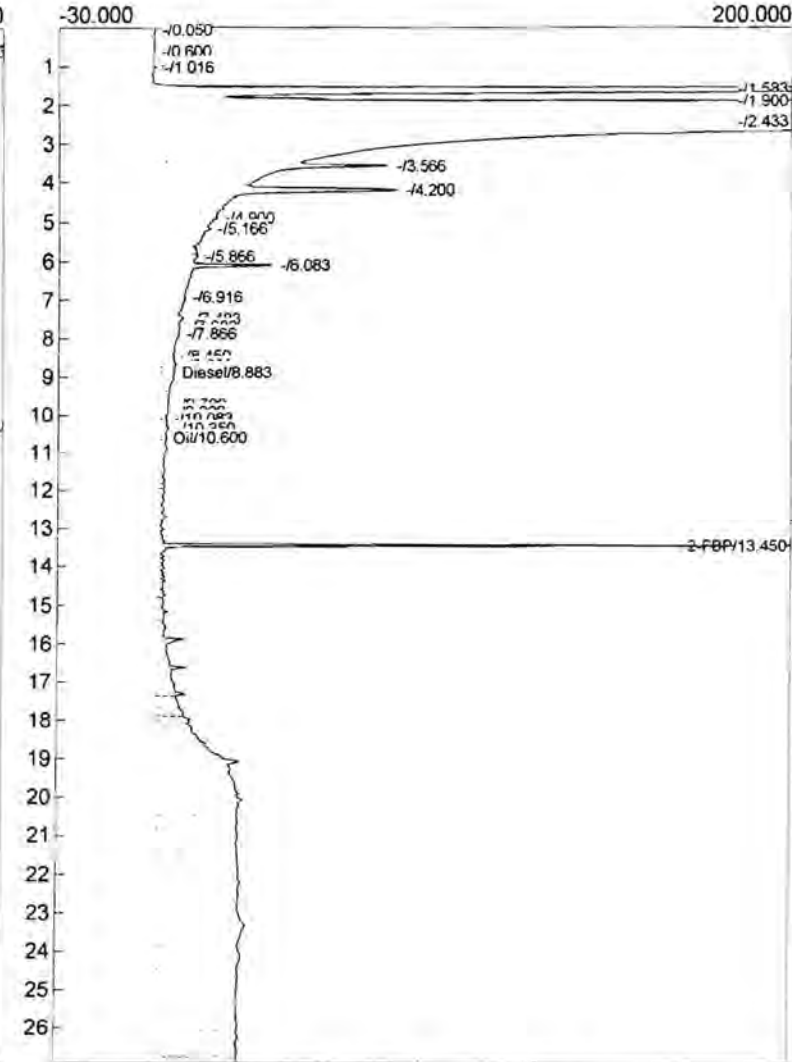
Used for Bunker C airblank only.

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	8.883	132.0390	4.163	6.9728	
Oil	10.600	13912.4015	1.614	741.5801	ppm
2-FBP	13.450	605.7090	238.819	21.0681	ppm
		14650.1495		769.6210	

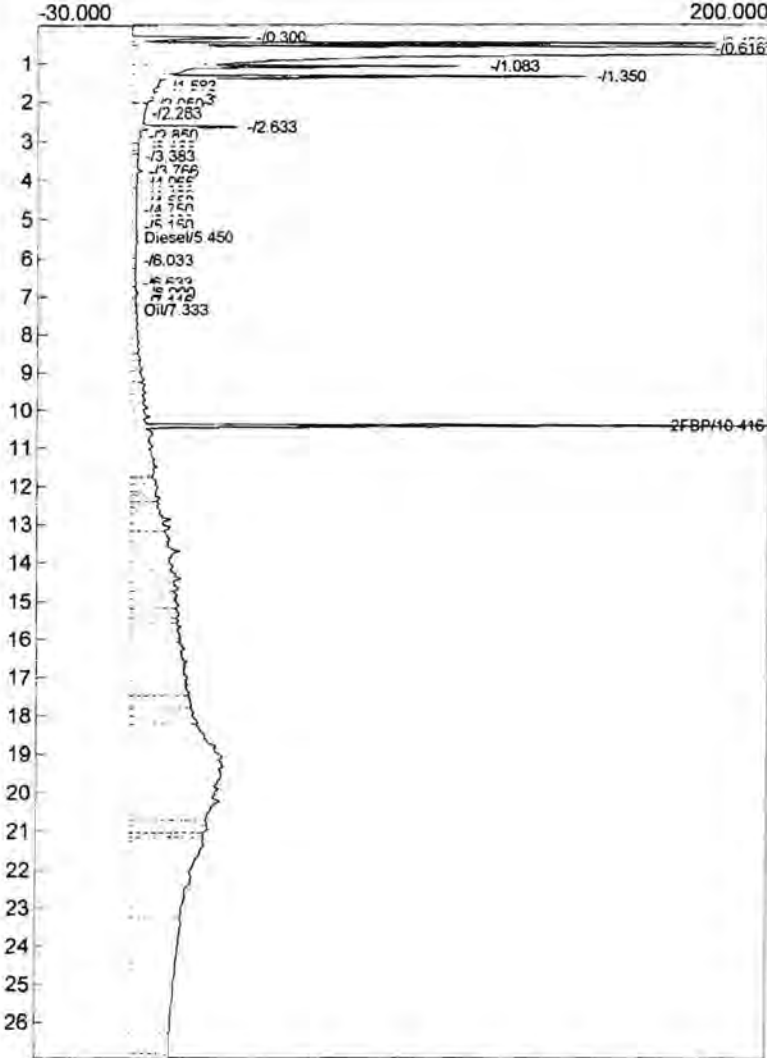
Analysis date: 10/18/2012 11:39:15
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C322.CHR ()
 Sample: W-Bulkhead-101812 1:20
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.450	14.6110	0.498	0.7183	ppm
Oil	7.333	15983.5490	0.477	789.0447	ppm
2-FBP	10.416	692.8790	250.561	24.1001	ppm
		16691.0390		813.8632	

121%
 $789 - 289 = 500$
 $\frac{\text{Bunker C} \times 20}{10,000}$
 $\text{mc} \times 0.9861 = 9861$

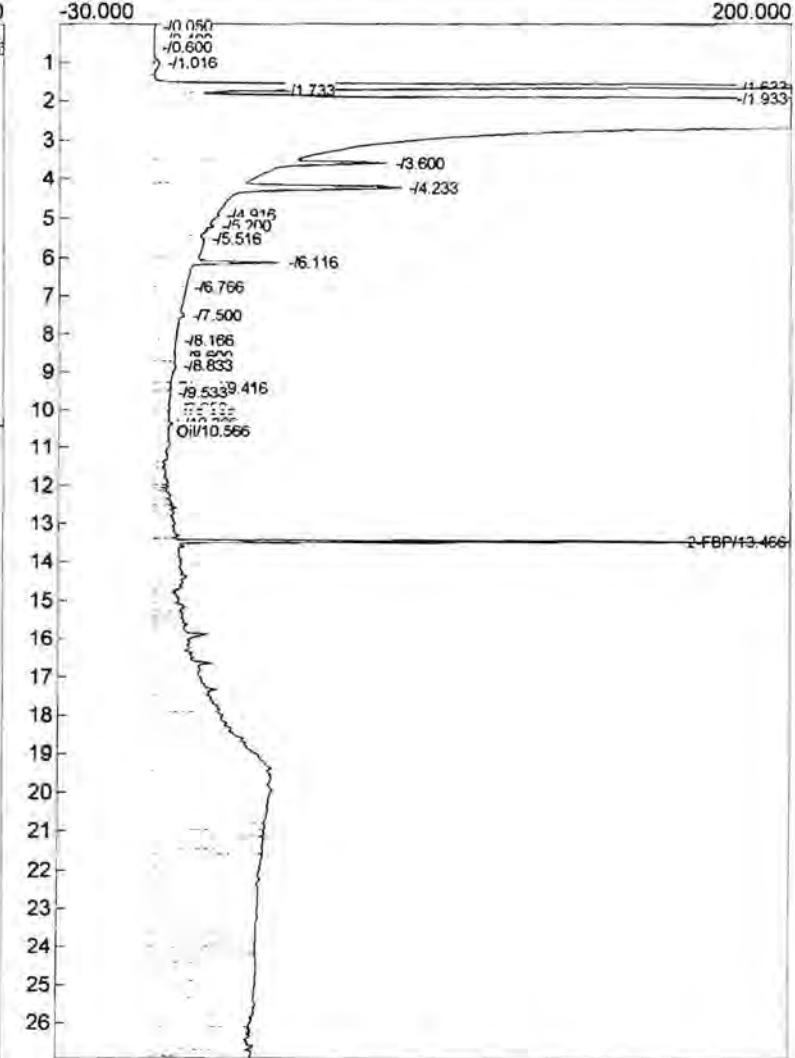
Analysis date: 10/18/2012 11:39:15
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D320.CHR ()
 Sample: W-Bulkhead-101812 1:20 Dup
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	9.416	45.6400	3.930	2.4102	
Oil	10.566	20952.7515	3.498	1124.0950	ppm
2-FBP	13.466	697.3665	272.119	24.2562	ppm
		21695.7580		1150.7614	

121%
 $1124 - 742 = 382$
 $\frac{\times 20}{7640}$
 $\text{mc} \times 0.9861 = 7534$

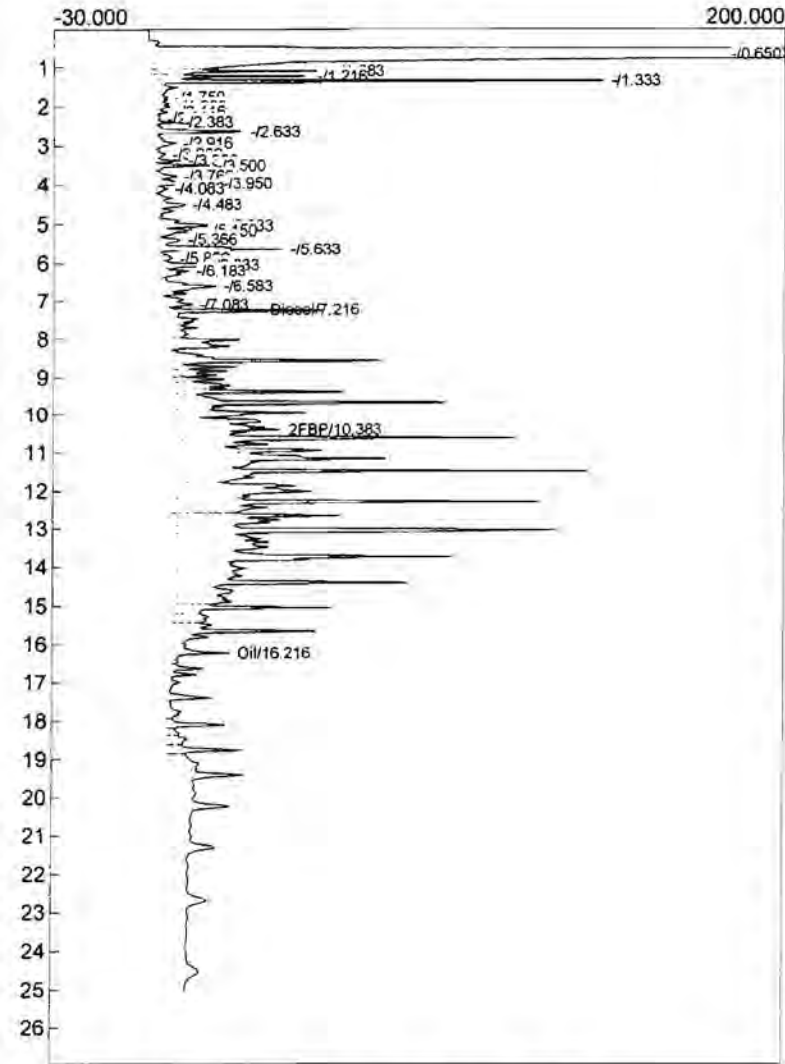
Analysis date: 10/18/2012 12:30:40
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C323.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.216	11431.1540	28.099	563.4586	ppm
2-FBP	10.383	362.9360	33.156	12.6239	ppm
Oil	16.216	2730.2335	17.358	134.2288	ppm
		14524.3235		710.3113	

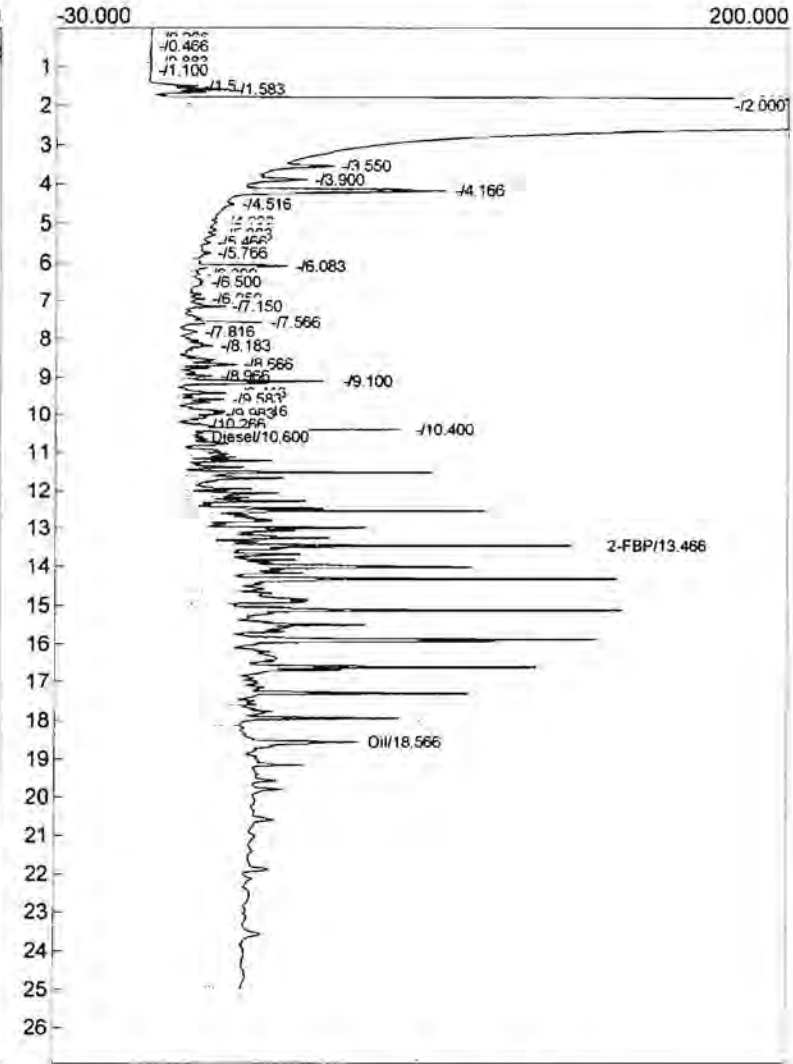
Analysis date: 10/18/2012 12:30:40
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D321.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

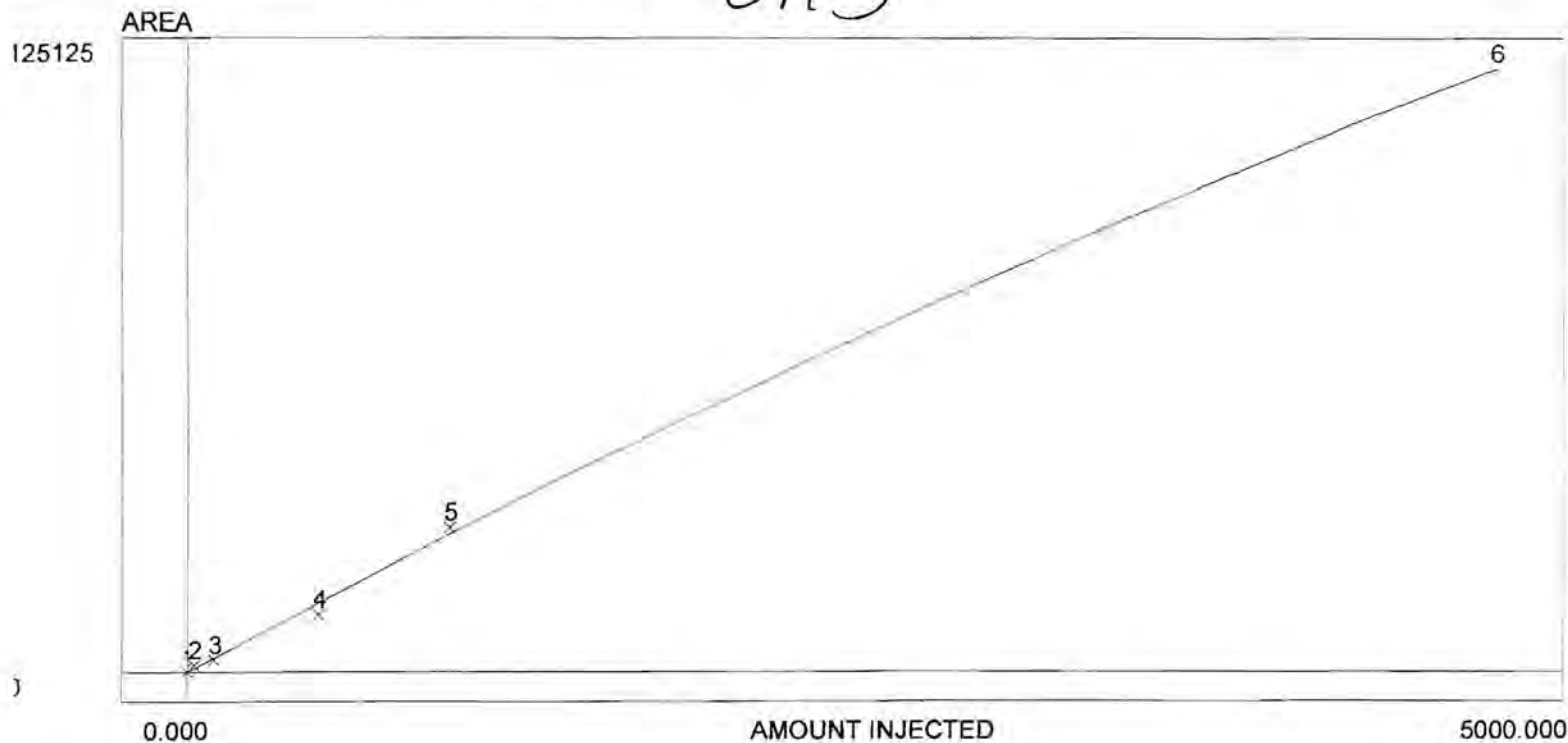
Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	10.600	10604.0355	3.551	563.5254	
2-FBP	13.466	591.3200	129.547	20.5677	ppm
Oil	18.566	6835.2380	52.242	362.0478	ppm
		18030.5935		946.1408	

Ch 3



Avg slope of curve: 25.03

Y-axis intercept: 0.00

Linearity: 0.86

Number of levels: 6

SD/rel SD of CF's: 18.0/66.9

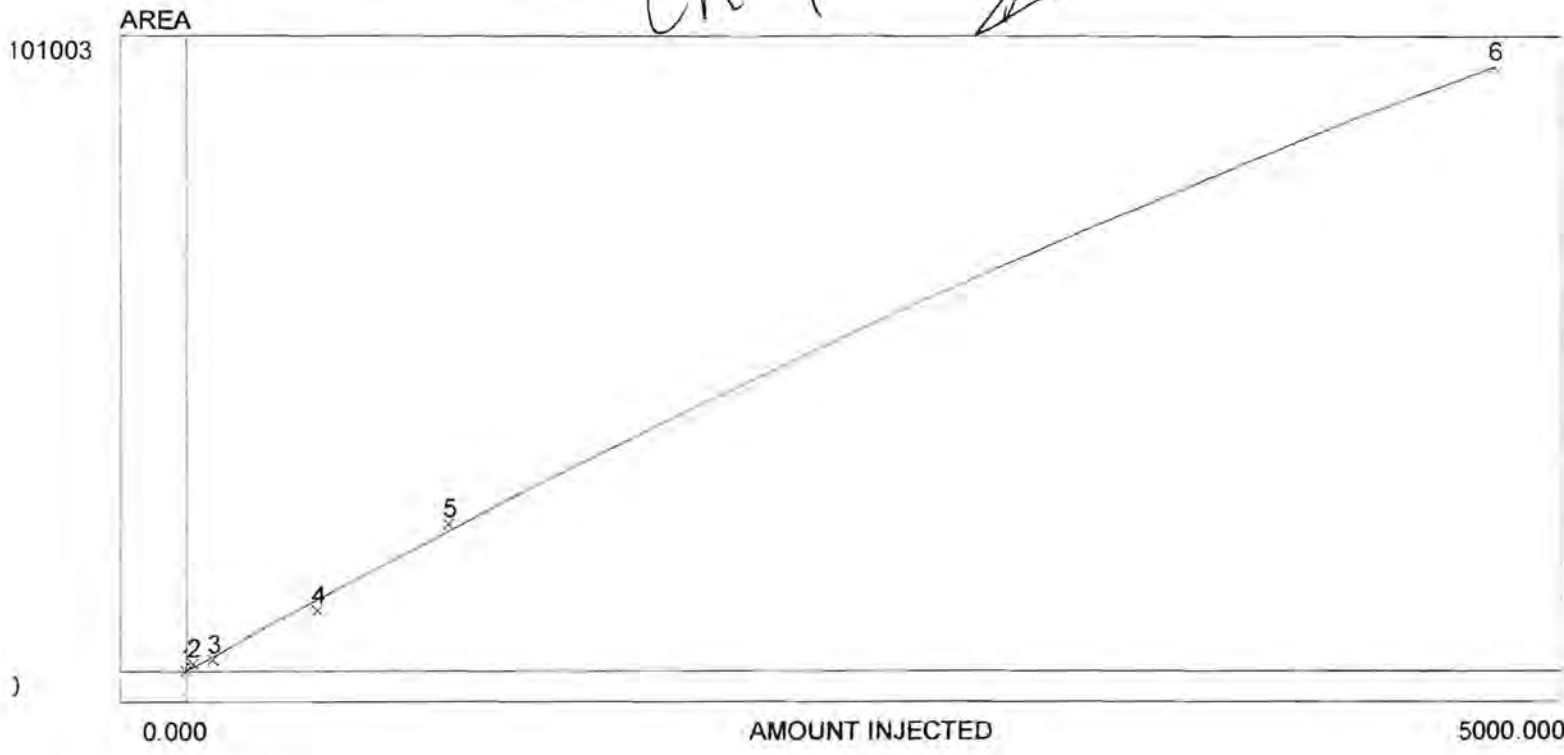
$r = -0.0009X^2 + 29.3544X$

$r^2: 0.9993$

Last calibrated: Wed Mar 14 13:52:31 2012

Level	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	1410.471	25.000	56.419	1410.471	N/A	N/A
3	2574.179	100.000	25.742	2574.179	N/A	N/A
4	12043.265	500.000	24.087	12043.265	N/A	N/A
5	29871.863	1000.000	29.872	29871.863	N/A	N/A
6	125124.670	5000.000	25.025	125124.670	N/A	N/A

Ch 4 *[Signature]*

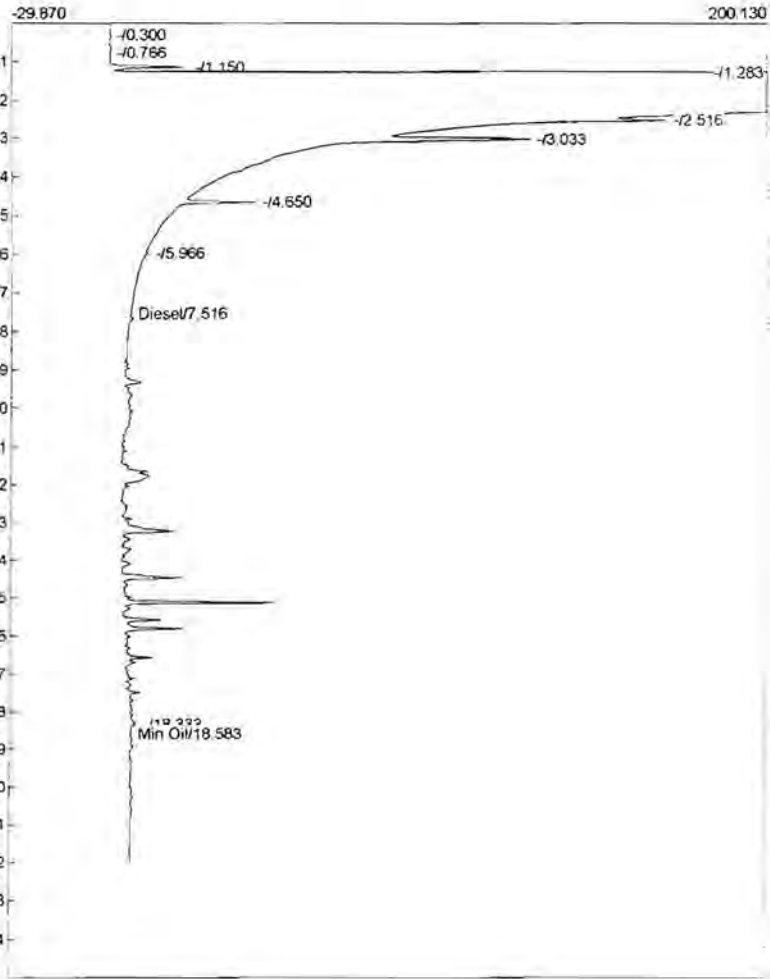
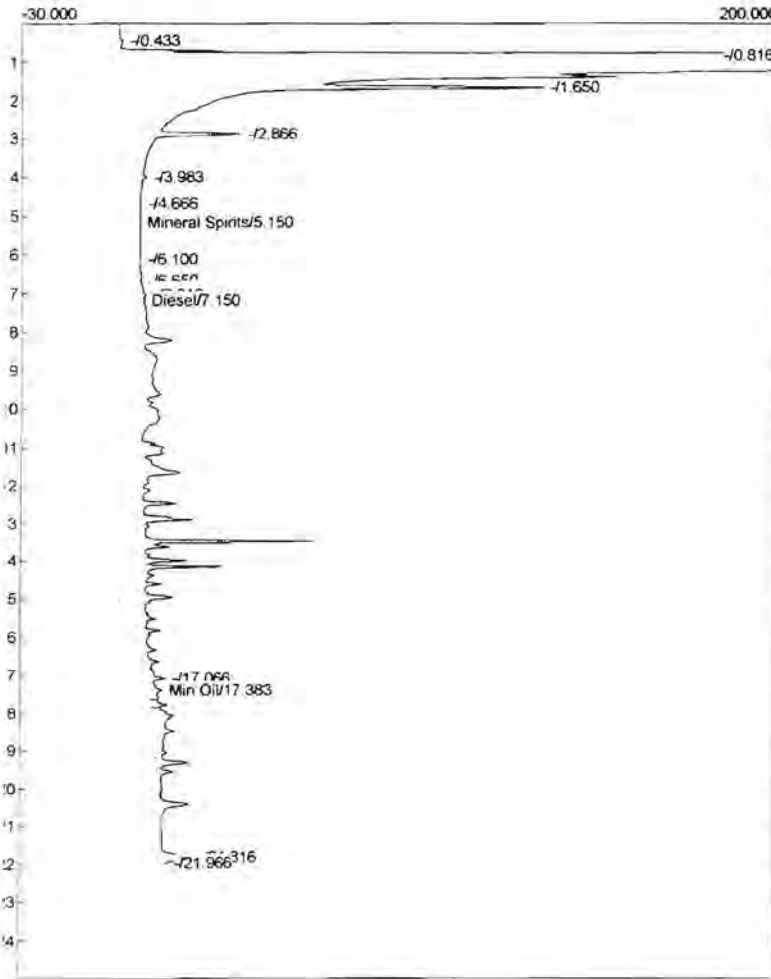


Avg slope of curve: 20.21
 Y-axis intercept: 0.00
 Linearity: 0.84
 Number of levels: 6
 3D/rel SD of CF's: 16.3/72.6
 $r = -0.0008X^2 + 24.2883X$
 $r^2: 0.9993$
 Last calibrated: Wed Mar 14 13:57:45 2012

Level	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	1271.716	25.000	50.869	1271.716	N/A	N/A
3	1927.394	100.000	19.274	1927.394	N/A	N/A
4	10086.605	500.000	20.173	10086.605	N/A	N/A
5	24554.042	1000.000	24.554	24554.042	N/A	N/A
6	101002.720	5000.000	20.201	101002.720	N/A	N/A

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 10:39:04
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C620.CHR ()
 Sample: 25 PPM Dx 706
 Operator: KW

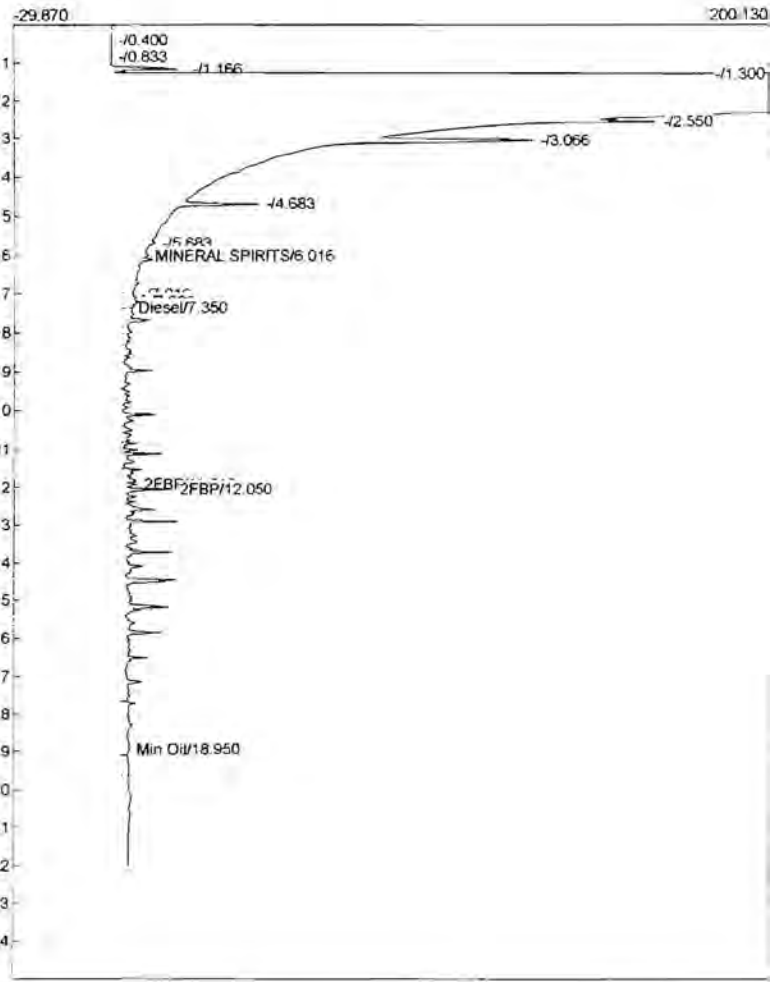
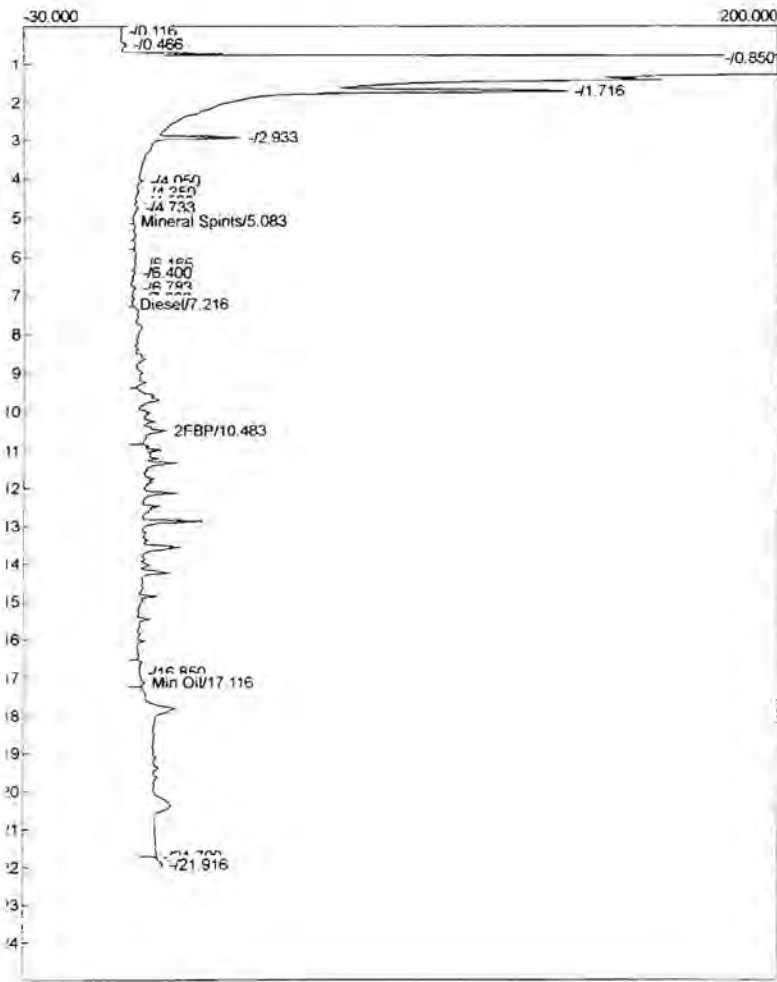
Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 10:39:04
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D626.CHR ()
 Sample: 25 PPM Dx 706
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.150	7.8080	0.195	0.3863	PPM	Diesel	7.516	1271.7155	1.965	89.4973	ppm
Diesel	7.150	1410.4710	0.518	13.6936	ppm	Min Oil	18.583	209.2665	1.582	14.7689	ppm
Min Oil	17.383	577.2305	3.576	0.0000				1480.9820		104.2662	
		1995.5095		14.0798							

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 11:07:43
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C621.CHR ()
 Sample: 100 PPM Dx 705
 Operator: KW

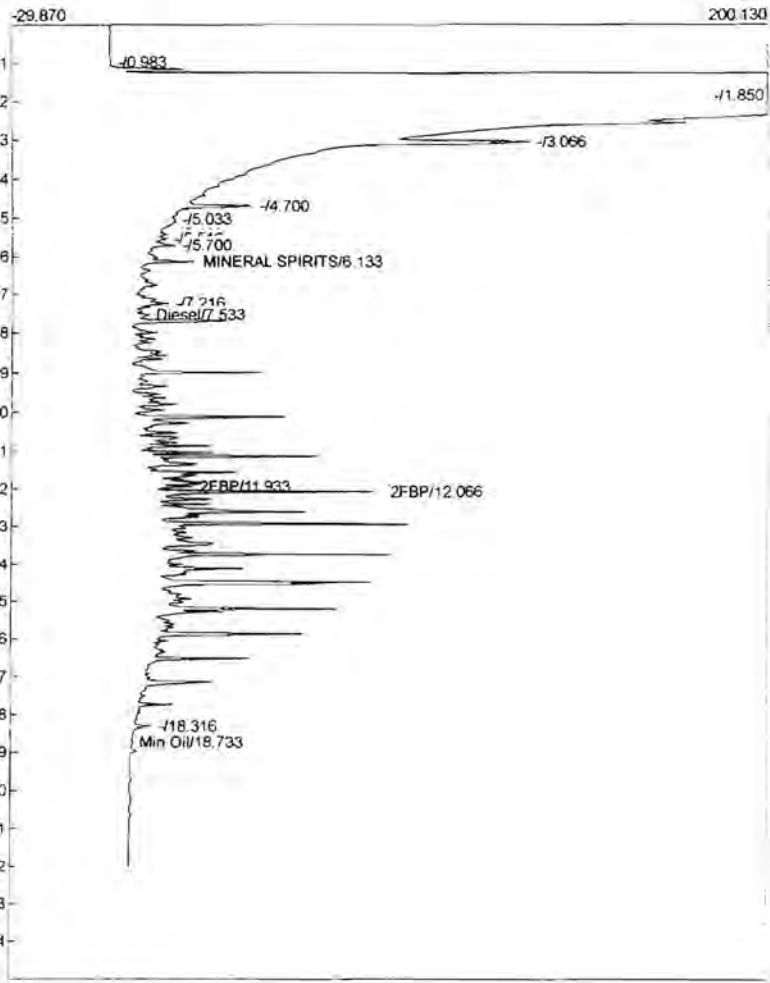
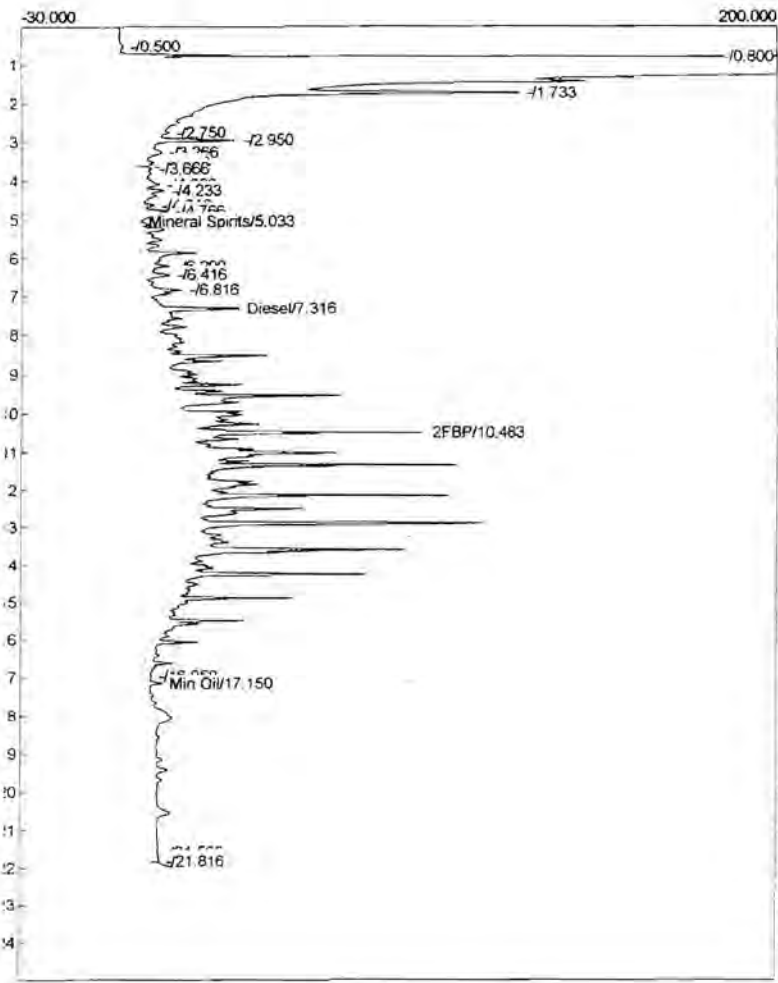
Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 11:07:43
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D627.CHR ()
 Sample: 100 PPM Dx 705
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.083	84.6325	1.090	4.1869	PPM	MINERAL SPIRITS	6.016	285.6170	7.733	20.1004	PPM
Diesel	7.216	2410.4095	0.627	119.2471	ppm	Diesel	7.350	1849.7390	2.625	130.1759	ppm
2FBP	10.483	163.7695	10.998	6.5508	ppm	2FBP	11.916	20.8250	4.775	1.0413	ppm
Min Oil	17.116	1953.3665	4.269	0.0000		2FBP	12.050	56.8300	15.516	2.8415	ppm
						Min Oil	18.950	514.9365	2.757	36.3413	ppm
		4612.1780		129.9847							
								2727.9475		190.5003	

Lab name: Eddy Environmental, Inc.
 Analysis date: 03/14/2012 11:45:18
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C622.CHR ()
 Sample: 500 PPM Dx 704
 Operator: KW

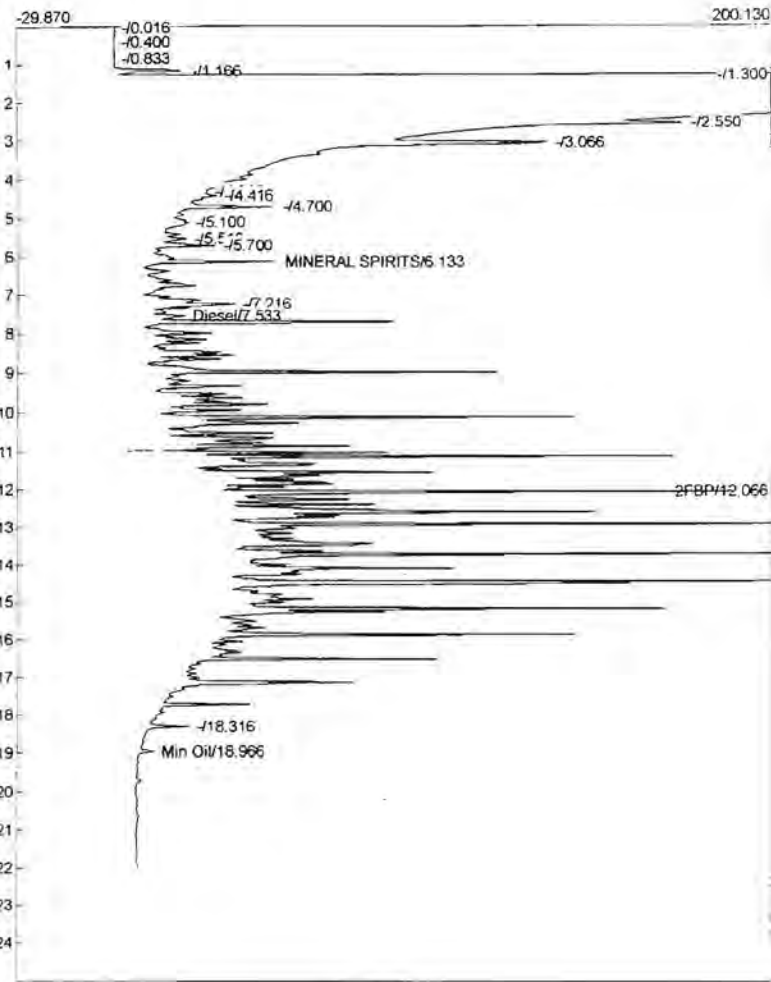
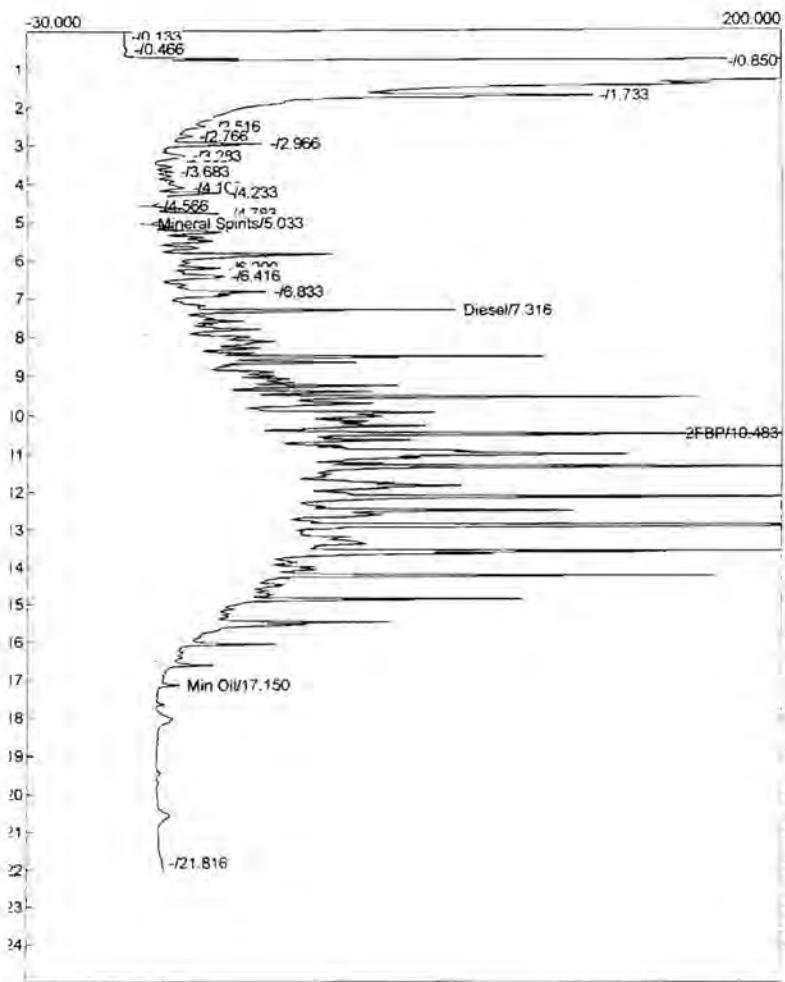
Lab name: Eddy Environmental, Inc.
 Analysis date: 03/14/2012 11:45:18
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D628.CHR ()
 Sample: 500 PPM Dx 704
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.033	323.3415	0.632	15.9963	ppm	MINERAL SPIRITS	6.133	636.8190	24.452	44.8163	ppm
Diesel	7.316	11375.2115	30.144	562.7511	ppm	Diesel	7.533	9651.3385	9.725	679.2156	ppm
2FBP	10.483	668.0530	86.276	26.7221	ppm	2FBP	11.933	110.1285	21.943	5.5064	ppm
Min Oil	17.150	960.9820	5.210	0.0000	ppm	2FBP	12.066	325.1375	79.999	16.2569	ppm
						Min Oil	18.733	138.4670	1.874	9.7722	ppm
		13327.5880		605.4694				10861.8905		755.5674	

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 12:13:07
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C623.CHR ()
 Sample: 1000 PPM Dx 703
 Operator: KW

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 12:13:07
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D629.CHR ()
 Sample: 1000 PPM Dx 703
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.033	995.3365	2.641	49.2410	pp	MINERAL SPIRITS	6.133	723.8390	45.571	50.9404	pp
Diesel	7.316	28291.8845	95.034	1399.6476	pp	Diesel	7.533	23510.5725	17.032	1654.5630	pp
2FBP	10.483	1579.9780	244.836	63.1991	pp	2FBP	12.066	1043.4695	193.880	52.1735	pp
Min Oil	17.150	221.1300	7.549	0.0000	pp	Min Oil	18.966	300.3670	6.980	21.1982	pp
		31088.3290		1512.0877				25578.2480		1778.8751	

Analysis date: 03/14/2012 12:41:16

Method: Syringe Injection

Description: JAMACIA FID

Column: RESTEK 15METER MXT-1

Carrier: HELIUM AT 5 PSI

Data file: C624.CHR ()

Sample: 5000 PPM Dx 702

Operator: KW

Analysis date: 03/14/2012 12:41:16

Method: Syringe Injection

Description: JAMACIA FID

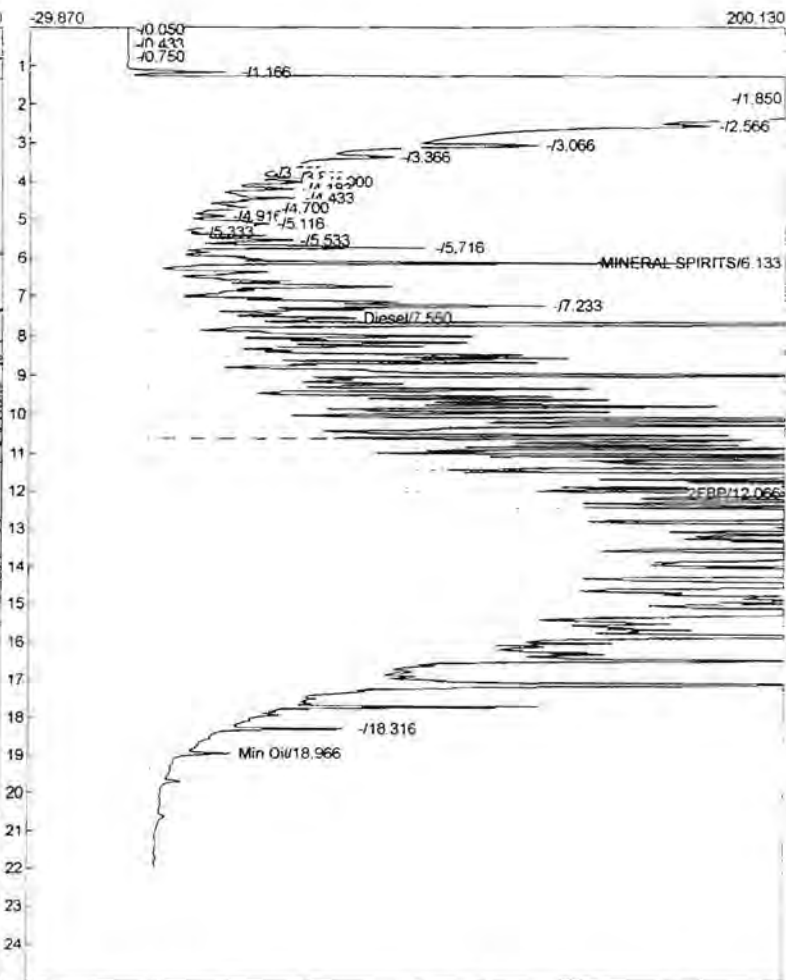
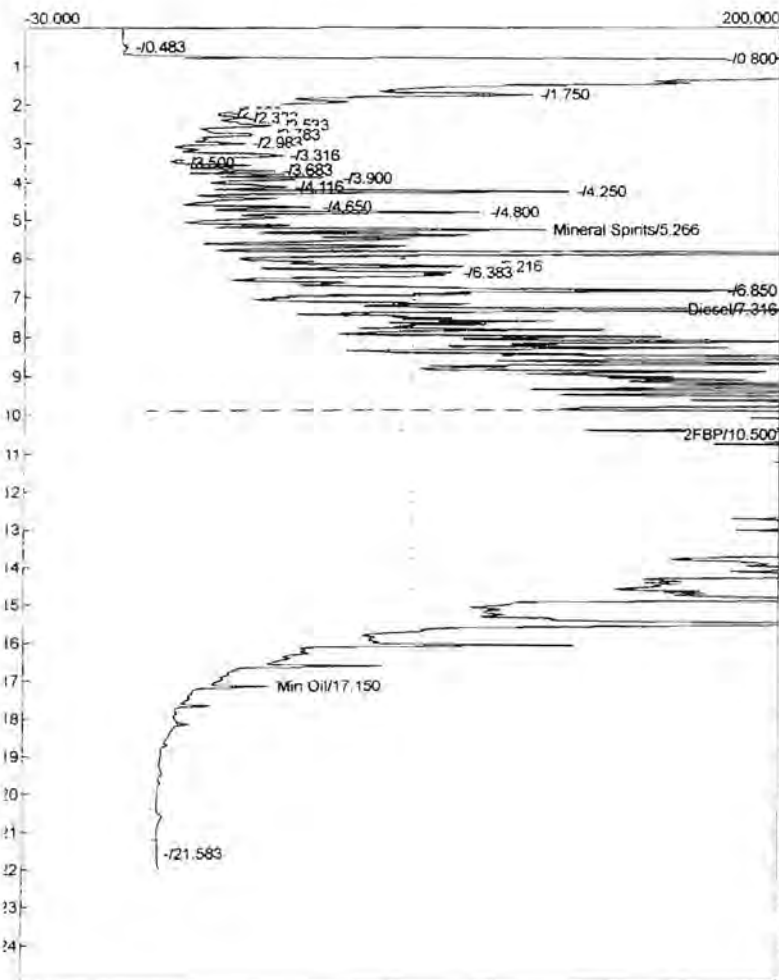
Column: RESTEK 15METER MXT-1

Carrier: HELIUM AT 5 PSI

Data file: D630.CHR ()

Sample: 5000 PPM Dx 702

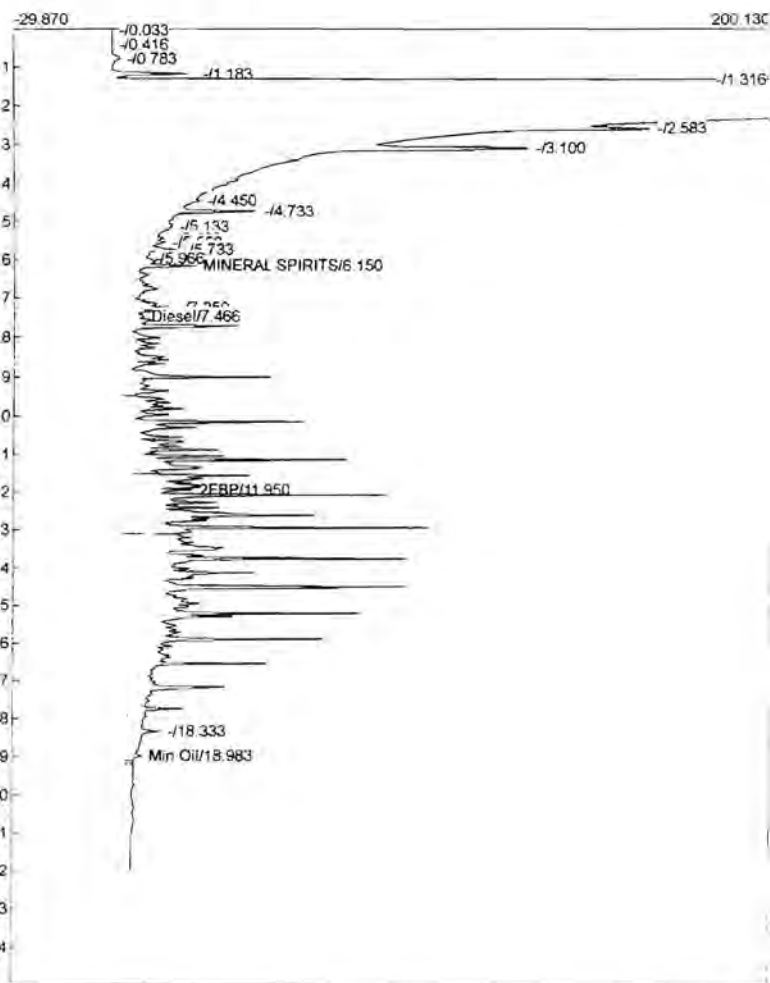
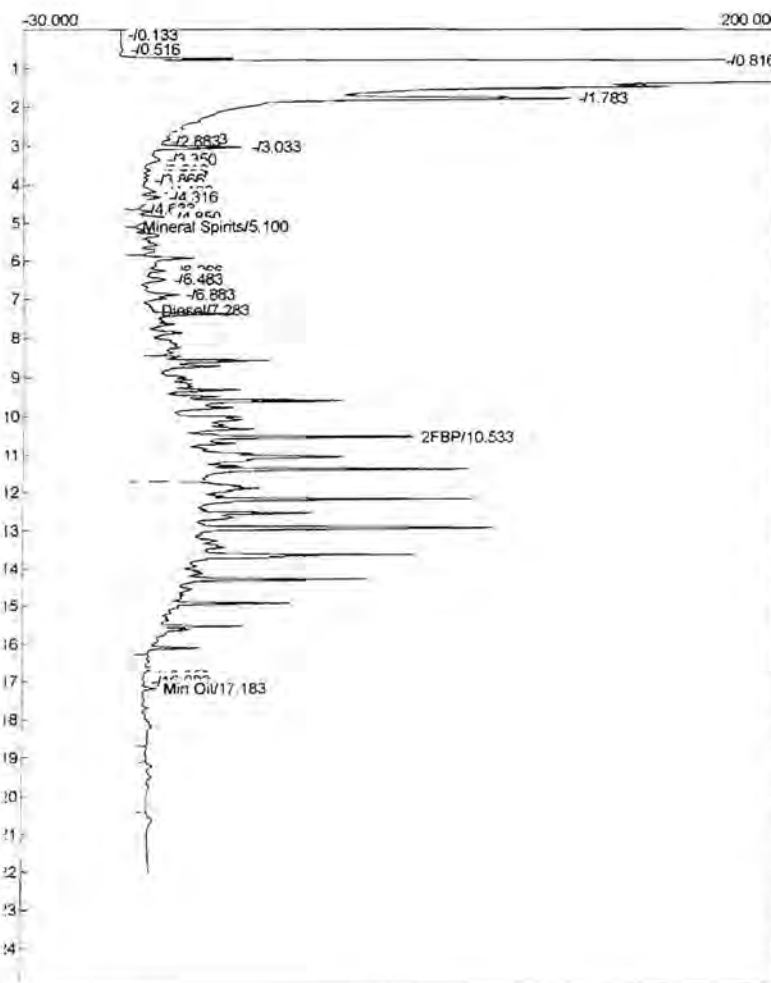
Operator: KW



Component	Retention	Area	Height	External	UnComponent	Retention	Area	Height	External
Mineral Spirits	5.266	4030.7350	121.832	199.4073	MINERAL SPIRITS	6.133	2118.1620	172.994	149.0662
Diesel	7.316	118321.9850	479.109	5853.5897	Diesel	7.550	97612.4720	63.265	6869.5047
2FBP	10.500	6802.6800	1015.018	272.1072	2FBP	12.066	3390.2460	772.659	169.5123
Min Oil	17.150	1309.9915	36.600	0.0000	Min Oil	18.966	734.9465	24.851	51.8684
		130465.3915		6325.1043			103855.8265		7239.9516

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 13:09:09
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C625.CHR ()
 Sample: 500 PPM Dx ICAL 707
 Operator: KW

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 13:09:09
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D631.CHR ()
 Sample: 500 PPM Dx ICAL 707
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.100	454.2775	2.261	22.4739	ppm	MINERAL SPIRITS	6.150	431.9470	21.664	30.3984	ppm
Diesel	7.283	12055.9145	7.302	415.8831	ppm	Diesel	7.466	9633.4975	5.799	402.0800	ppm
2FBP	10.533	706.7050	85.875	28.2682	ppm	2FBP	11.950	98.4805	20.159	4.9240	ppm
Min Oil	17.183	642.7165	6.075	0.0000		Min Oil	18.983	249.4535	4.581	17.6050	ppm
		13859.6135		466.6252				10413.3785		455.0074	



1311 N. 35th St.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Libby Environmental

Jamie Deyman
4139 Libby Rd. NE
Olympia, Washington 98506

RE: Irondale

Lab ID: 1210176

November 20, 2012

Attention Jamie Deyman:

Fremont Analytical, Inc. received 1 sample(s) on 10/19/2012 for the analyses presented in the following report.

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample Moisture (Percent Moisture)

Total Metals by EPA Method 6020

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

A handwritten signature in black ink, appearing to read "M. Dee".

Michael Dee
Sr. Chemist / Principal



Date: 11/20/2012

CLIENT: Libby Environmental
Project: Irondale
Lab Order: 1210176

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1210176-001	W-Bulkhead-101812	10/18/2012 10:30 AM	10/19/2012 2:00 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: Libby Environmental**Project:** Irondale

I. SAMPLE RECEIPT:

All samples were received intact. The internal ice chest temperatures were measured on receipt and are recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Prep Comments for PREP-PAH-S, Sample 1210176-001A: Prep hold time was exceeded by 14 day(s)



Analytical Report

WO#: 1210176

Date Reported: 11/20/2012

Client: Libby Environmental

Collection Date: 10/18/2012 10:30:00 AM

Project: Irondale

Lab ID: 1210176-001

Matrix: Soil

Client Sample ID: W-Bulkhead-101812

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 3639

Analyst: PH

Benz(a)anthracene	ND	48.1	H	µg/Kg-dry	1	11/16/2012 4:27:00 PM
Chrysene	ND	48.1	H	µg/Kg-dry	1	11/16/2012 4:27:00 PM
Benzo(b)fluoranthene	ND	48.1	H	µg/Kg-dry	1	11/16/2012 4:27:00 PM
Benzo(k)fluoranthene	ND	48.1	H	µg/Kg-dry	1	11/16/2012 4:27:00 PM
Benzo(a)pyrene	ND	48.1	H	µg/Kg-dry	1	11/16/2012 4:27:00 PM
Indeno(1,2,3-cd)pyrene	ND	48.1	H	µg/Kg-dry	1	11/16/2012 4:27:00 PM
Dibenz(a,h)anthracene	ND	48.1	H	µg/Kg-dry	1	11/16/2012 4:27:00 PM
Surr: 2-Fluorobiphenyl	87.7	50.4-142	H	%REC	1	11/16/2012 4:27:00 PM
Surr: Terphenyl-d14 (surr)	83.3	48.8-157	H	%REC	1	11/16/2012 4:27:00 PM

Total Metals by EPA Method 6020

Batch ID: 3484

Analyst: SG

Arsenic	4.59	0.0946		mg/Kg-dry	1	10/20/2012 4:07:31 AM
Copper	193	0.189		mg/Kg-dry	1	10/20/2012 4:07:31 AM
Iron	24,000	5.20		mg/Kg-dry	1	10/20/2012 4:07:31 AM
Lead	12.6	0.189		mg/Kg-dry	1	10/20/2012 4:07:31 AM
Nickel	46.1	0.0946		mg/Kg-dry	1	10/20/2012 4:07:31 AM
Zinc	45.9	0.378		mg/Kg-dry	1	10/20/2012 4:07:31 AM

Sample Moisture (Percent Moisture)

Batch ID: R6244

Analyst: CM

Percent Moisture	21.7			wt%	1	10/22/2012 10:21:44 AM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Work Order: 1210176
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: MB-3484	SampType: MBLK	Units: mg/Kg	Prep Date: 10/19/2012	RunNo: 6241							
Client ID: MBLKS	Batch ID: 3484		Analysis Date: 10/20/2012	SeqNo: 123978							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.100									
Copper	ND	0.200									
Iron	ND	5.50									
Lead	ND	0.200									
Nickel	ND	0.100									
Zinc	ND	0.400									

Sample ID: LCS-3484	SampType: LCS	Units: mg/Kg	Prep Date: 10/19/2012	RunNo: 6241							
Client ID: LCSS	Batch ID: 3484		Analysis Date: 10/20/2012	SeqNo: 123979							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	129	0.100	102.0	0	126	69.41	130.4				
Copper	260	0.200	250.0	0	104	75.6	124				
Iron	3,710	5.50	4,790	0	77.6	3.32	227.6				
Lead	79.1	0.200	72.10	0	110	68.1	131.9				
Nickel	399	0.100	384.0	0	104	74.74	125.5				
Zinc	924	0.400	831.0	0	111	74.01	126.4				

Sample ID: 1210176-001ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 10/19/2012	RunNo: 6241							
Client ID: W-Bulkhead-101812	Batch ID: 3484		Analysis Date: 10/20/2012	SeqNo: 123981							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	3.79	0.0813						4.590	19.1	30	
Copper	42.9	0.163						193.3	127	30	R
Iron	19,200	4.47						24,000	22.2	30	
Lead	10.8	0.163						12.60	15.6	30	
Nickel	43.6	0.0813						46.07	5.47	30	
Zinc	38.8	0.325						45.89	16.6	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1210176
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: 1210176-001ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 10/19/2012	RunNo: 6241							
Client ID: W-Bulkhead-101812	Batch ID: 3484		Analysis Date: 10/20/2012	SeqNo: 123981							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:

R - High Copper RPD indicates matrix interference/sample inhomogeneity. All other RPD% were within range. The method is in control as indicated by the laboratory control sample (LCS).

Sample ID: 1210176-001AMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 10/19/2012	RunNo: 6241							
Client ID: W-Bulkhead-101812	Batch ID: 3484		Analysis Date: 10/20/2012	SeqNo: 123983							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	56.0	0.0857	42.85	4.590	120	75	125				
Copper	84.7	0.171	42.85	193.3	-253	75	125				S
Iron	24,800	4.71	428.5	24,000	187	75	125				S
Lead	31.2	0.171	21.43	12.60	86.6	75	125				
Nickel	94.3	0.0857	42.85	46.07	112	75	125				
Zinc	95.8	0.343	42.85	45.89	116	75	125				

NOTES:

S - High Iron concentration prevents accurate spike recovery.

S - Outlying Copper spike recovery observed. A duplicate analysis was performed with similar results indicating a matrix effect.

Sample ID: 1210176-001AMSD	SampType: MSD	Units: mg/Kg-dry	Prep Date: 10/19/2012	RunNo: 6241							
Client ID: W-Bulkhead-101812	Batch ID: 3484		Analysis Date: 10/20/2012	SeqNo: 123984							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	54.8	0.0813	40.67	4.590	123	75	125	56.05	2.34	30	
Copper	83.1	0.163	40.67	193.3	-271	75	125	84.69	1.87	30	S
Iron	21,000	4.47	406.7	24,000	-750	75	125	24,800	16.8	30	S
Lead	37.2	0.163	20.34	12.60	121	75	125	31.15	17.8	30	
Nickel	93.1	0.0813	40.67	46.07	116	75	125	94.27	1.29	30	
Zinc	93.4	0.325	40.67	45.89	117	75	125	95.78	2.55	30	

Qualifiers:	B Analyte detected in the associated Method Blank	D Dilution was required	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits	ND Not detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit	S Spike recovery outside accepted recovery limits

Work Order: 1210176
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: 1210176-001AMSD	SampType: MSD	Units: mg/Kg-dry	Prep Date: 10/19/2012	RunNo: 6241							
Client ID: W-Bulkhead-101812	Batch ID: 3484	Analysis Date: 10/20/2012	SeqNo: 123984								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:

- S - High Iron concentration prevents accurate spike recovery.
- S - Outlying copper spike recovery observed. A duplicate analysis was performed with similar results indicating a matrix effect.

Sample ID: 1210176-001APDS	SampType: PDS	Units: mg/Kg-dry	Prep Date: 10/19/2012	RunNo: 6241							
Client ID: W-Bulkhead-101812	Batch ID: 3484	Analysis Date: 10/20/2012	SeqNo: 123985								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	125	0.0946	50.0	9.70	115	75	125				
Copper	461	0.189	50.0	409	52.1	75	125				S
Iron	48,500	5.20	500	50,700	-222	75	125				S
Lead	68.2	0.189	25.0	26.6	83.0	75	125				
Nickel	200	0.0946	50.0	97.4	102	75	125				
Zinc	203	0.378	50.0	97.0	106	75	125				

NOTES:

- S - High Iron concentration prevents accurate spike recovery.
- S - Outlying Copper spike recovery observed. These results indicate a matrix effect.

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1210176
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: ICV-3639	SampType: ICV	Units: µg/Kg	Prep Date: 11/16/2012	RunNo: 6617							
Client ID: ICV	Batch ID: 3639		Analysis Date: 11/16/2012	SeqNo: 131571							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	936	50.0	1,000	0	93.6	70	130				
Chrysene	928	50.0	1,000	0	92.8	70	130				
Benzo(b)fluoranthene	941	50.0	1,000	0	94.1	70	130				
Benzo(k)fluoranthene	968	50.0	1,000	0	96.8	70	130				
Benzo(a)pyrene	993	50.0	1,000	0	99.3	70	130				
Indeno(1,2,3-cd)pyrene	945	50.0	1,000	0	94.5	70	130				
Dibenz(a,h)anthracene	917	50.0	1,000	0	91.7	70	130				
Surr: 2-Fluorobiphenyl	507		500.0		101	50.4	142				
Surr: Terphenyl-d14 (surr)	496		500.0		99.2	48.8	157				

Sample ID: ICB-3639	SampType: ICB	Units: µg/Kg	Prep Date: 11/16/2012	RunNo: 6617							
Client ID: ICB	Batch ID: 3639		Analysis Date: 11/16/2012	SeqNo: 131572							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Surr: 2-Fluorobiphenyl	486		500.0		97.2	50.4	142				
Surr: Terphenyl-d14 (surr)	473		500.0		94.7	48.8	157				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1210176
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: MB-3639	SampType: MBLK	Units: µg/Kg	Prep Date: 11/14/2012	RunNo: 6617							
Client ID: MBLKS	Batch ID: 3639		Analysis Date: 11/16/2012	SeqNo: 131573							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Surr: 2-Fluorobiphenyl	485		500.0		97.0	50.4	142				
Surr: Terphenyl-d14 (surr)	453		500.0		90.6	48.8	157				

Sample ID: LCS-3639	SampType: LCS	Units: µg/Kg	Prep Date: 11/14/2012	RunNo: 6617							
Client ID: LCSS	Batch ID: 3639		Analysis Date: 11/16/2012	SeqNo: 131574							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	807	50.0	1,000	0	80.7	46.5	143				
Chrysene	805	50.0	1,000	0	80.5	63	125				
Benzo(b)fluoranthene	796	50.0	1,000	0	79.6	47.7	139				
Benzo(k)fluoranthene	825	50.0	1,000	0	82.5	60.7	136				
Benzo(a)pyrene	778	50.0	1,000	0	77.8	50.6	133				
Indeno(1,2,3-cd)pyrene	759	50.0	1,000	0	75.9	57.9	133				
Dibenz(a,h)anthracene	729	50.0	1,000	0	72.9	52.8	135				
Surr: 2-Fluorobiphenyl	461		500.0		92.3	50.4	142				
Surr: Terphenyl-d14 (surr)	428		500.0		85.5	48.8	157				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1210176
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: 1210176-001AMS	SampType: MS	Units: µg/Kg-dry	Prep Date: 11/14/2012	RunNo: 6617							
Client ID: W-Bulkhead-101812	Batch ID: 3639		Analysis Date: 11/16/2012	SeqNo: 131576							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benz(a)anthracene	735	50.2	1,003	15.27	71.7	57.5	169				H
Chrysene	868	50.2	1,003	35.69	83.0	45.2	146				H
Benzo(b)fluoranthene	898	50.2	1,003	0	89.5	42.2	168				H
Benzo(k)fluoranthene	722	50.2	1,003	0	72.0	48	161				H
Benzo(a)pyrene	852	50.2	1,003	17.51	83.2	34.4	179				H
Indeno(1,2,3-cd)pyrene	1,090	50.2	1,003	0	109	41.1	165				H
Dibenz(a,h)anthracene	1,170	50.2	1,003	0	117	38.1	166				H
Surr: 2-Fluorobiphenyl	420		501.6		83.8	50.4	142				H
Surr: Terphenyl-d14 (surr)	379		501.6		75.5	48.8	157				H

Sample ID: 1211095-001ADUP	SampType: DUP	Units: µg/Kg-dry	Prep Date: 11/14/2012	RunNo: 6617							
Client ID: BATCH	Batch ID: 3639		Analysis Date: 11/16/2012	SeqNo: 131579							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benz(a)anthracene	ND	47.5						0	0	30	H
Chrysene	ND	47.5						0	0	30	H
Benzo(b)fluoranthene	ND	47.5						0	0	30	H
Benzo(k)fluoranthene	ND	47.5						0	0	30	H
Benzo(a)pyrene	ND	47.5						0	0	30	H
Indeno(1,2,3-cd)pyrene	ND	47.5						0	0	30	H
Dibenz(a,h)anthracene	ND	47.5						0	0	30	H
Surr: 2-Fluorobiphenyl	463		475.0		97.5	50.4	142		0		H
Surr: Terphenyl-d14 (surr)	415		475.0		87.4	48.8	157		0		H

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Client Name: **LIBBY**

 Work Order Number: **1210176**

 Logged by: **Troy Zehr**

 Date Received: **10/19/2012 2:00:00 PM**
Chain of Custody

1. Were custodial seals present? Yes No Not Required
2. Is Chain of Custody complete? Yes No Not Present
3. How was the sample delivered? USPS

Log In

4. Coolers are present? Yes No NA

Samples received in a box

5. Was an attempt made to cool the samples? Yes No NA

Melted ice pack.

6. Were all coolers received at a temperature of >0° C to 10.0°C Yes No NA

Melted Ice pack.

7. Sample(s) in proper container(s)? Yes No
8. Sufficient sample volume for indicated test(s)? Yes No
9. Are samples properly preserved? Yes No
10. Was preservative added to bottles? Yes No NA
11. Is there headspace present in VOA vials? Yes No NA
12. Did all sample containers arrive in good condition?(unbroken) Yes No
13. Does paperwork match bottle labels? Yes No
14. Are matrices correctly identified on Chain of Custody? Yes No
15. Is it clear what analyses were requested? Yes No
16. Were all holding times able to be met? Yes No

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks/Discrepancies

Item Information

Chain of Custody Record

Libby Environmental, Inc.
 4139 Libby Road NE
 Olympia, WA 98506
 Ph: 360-352-2110
 Fax: 360-352-4154

Client: see above

Address: _____
 City: _____ State: _____ Zip: _____
 Phone: _____ Fax: _____
 Client Project #: _____

Date: 10/18/12
 Project Manager: Jamie Deyman
 Project Name: Irondale
 Location: Irondale
 City, State: WA
 Date of Collection: 10/18/12

Sample Number	Depth	Time	Sample Type	Container Type	Date / Time	Date / Time	Field Notes
1		10:30	Soil	4oz Jar	10/18/12	19:00	Extract & Hold PAHs See below for METALS to analyze
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							

Remarks: Analyze for the following METALS:
 Arsenic, Copper, Iron, Lead, Nickel & Zinc.
 RUSH!
 TAT: 24HR 48HR 5-DAY

Sample Receipt:
 Good Condition?
 Cull?
 Seals Intact?
 Total Number of Containers

Received by: Jamie Deyman
 Date / Time: 10/18/12 19:00

Received by: _____
 Date / Time: _____

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Received by: _____
 Date / Time: _____



From: [Libby Environmental](#)
To: mridgeway@fremontanalytical.com;
Subject: cPAH sample
Date: Tuesday, November 13, 2012 9:00:44 AM
Attachments: [Irontale COC.pdf](#)

Mike,

Please run sample

W-Bulkhead-101812

for cPAH analysis, standard TAT. This sample should have already been extracted.

Emily Ackerman
Office Manager
Libby Environmental, Inc.
360-352-2110 Office
360-352-4154 Fax
www.LibbyEnvironmental.com

Fremont Analytical, Inc.

WORK ORDER Summary

20-Nov-12

Work Order: 1210176

WO Type: Standard

Client ID: LIBBY	Contact: Jamie Deyman
Project ID: Irondale	PM: Michael Dee
	QC Level: LEVEL II
ChkList Completed On: 10/19/2012 5:29:33 PM	
Completed By: Troy Zehr	
Reviewed By: Mike Ridgeway	
WO Reviewed On: 10/20/2012	

Sample ID	Client Sample ID	Date Collected	Date Received	Date Due	Matrix	Test Code	Hld	MS	SEL	Sub	Storage
1210176-001A	W-Bulkhead-101812	10/18/2012 10:30:00 AM	10/19/2012 2:00:00 PM	10/22/2012	Soil	M-6020-S	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Walkin E3
SEL Analytes: AS CU FE PB NI ZN											
				10/22/2012		PMOIST	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Walkin E3
				10/22/2012		PREP-3050	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Walkin E3
				10/22/2012		PREP-PAH-S	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Walkin E3
				11/20/2012		O-PAH-S-SIM	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Walkin E3

Response Factor Report HP-MSD

Method Path : C:\msdchem\1\methods\
 Method File : DBPAH111612.M
 Title : EPA Method 8270-PAH
 Last Update : Fri Nov 16 13:53:58 2012
 Response Via : Initial Calibration

Calibration Files

2 =111602.D 3 =111603.D 4 =111604.D 5 =111605.D 6 =111606.D 7 =111607.D ;

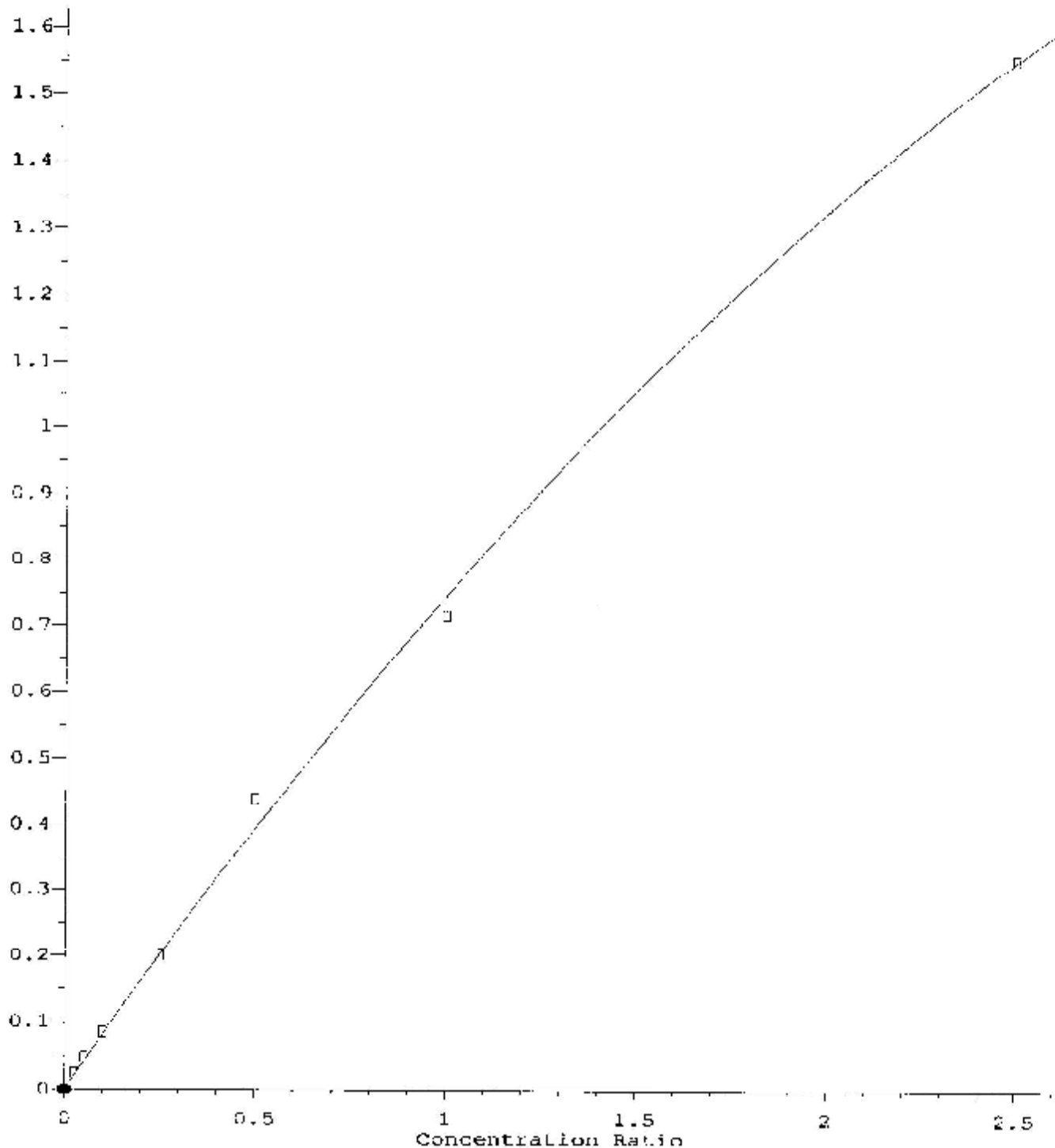
Compound	2	3	4	5	6	7	8	Avg	%RSD
1) 1,4-Dichlorobenz-d...	-----ISTD-----								
2) I Naphthalene-d8 (IS)	-----ISTD-----								
3) t Naphthalene	1.084	1.028	1.660	1.577	1.728	1.419	1.255	1.622	13.82
4) t 2-Methylnaphth...	1.098	1.087	0.973	0.955	1.057	0.871	0.765	0.972	12.56
5) t 1-Methylnaphth...	1.023	1.015	0.921	0.895	0.988	0.816	0.717	0.911	12.39
6) s 2-Fluorobiphen...	0.897	0.902	0.907	0.911	0.910	0.911	0.919	0.908	0.77
7) t Acenaphthylene	1.548	1.520	1.379	1.367	1.537	1.285	1.144	1.397	10.76
8) I Acenaphthene-d10 (IS)	-----ISTD-----								
9) m Acenaphthene	0.984	0.962	0.855	0.805	0.876	0.716	0.620	0.831	15.68
10) t Fluorene	2.268	2.247	2.035	1.944	2.135	1.750	1.524	1.986	13.68
11) I Phenanthrene-d10 (IS)	-----ISTD-----								
12) t Phenanthrene	1.733	1.722	1.532	1.477	1.705	1.352	1.159	1.526	14.18
13) t Anthracene	1.891	1.878	1.734	1.683	1.887	1.553	1.359	1.712	11.71
14) s Terphenyl-d14 ...	0.830	0.847	0.875	0.881	0.871	0.854	0.868	0.862	2.06
15) t Fluoranthene	2.014	1.998	1.815	1.786	2.008	1.654	1.451	1.819	11.59
16) t Pyrene	2.111	2.104	1.923	1.890	2.120	1.751	1.518	1.917	11.70
17) t Benzo (a) anth...	1.803	1.715	1.529	1.485	1.686	1.418	1.279	1.559	11.85
18) I Chrysene-d12 (IS)	-----ISTD-----								
19) t Chrysene	1.958	1.977	1.729	1.680	1.841	1.517	1.351	1.722	13.34
20) t benzo (b) fluo...	1.476	1.427	1.294	1.318	1.555	1.320	1.244	1.376	8.16
21) t benzo (k) fluo...	1.884	1.841	1.688	1.645	1.906	1.601	1.467	1.719	9.53
22) t benzo (a) pyrene	1.369	1.345	1.243	1.277	1.609	1.386	1.320	1.364	8.74
23) I Perylene-d12 (IS)	-----ISTD-----								
24) t Indeno(1,2,3-c...	1.220	1.180	1.117	1.195	1.445	1.285	1.284	1.246	8.46
25) t Dibenz (a,h) a...	0.892	0.874	0.807	0.848	1.043	0.948	0.983	0.913	8.98
26) t Benzo (g,h,i) ...	1.320	1.321	1.195	1.213	1.377	1.208	1.175	1.259	8.26

(#) = Out of Range

DBPAH111612.M MON NOV 19 11:46:42 2012 PAH

Acenaphthene

Response Ratio



$R = -6.47e-002 A^2 + 8.31e-001 A + 0.00e+000$
Coef of Det (r^2) = 0.998 Curve Fit: Quad/(0,0)
Method Name: C:\msdchem\1\methods\DBPAH111612.M
Calibration Table Last Updated: Fri Nov 16 13:53:20 2012

Sequence Name: C:\msdchem\1\sequence\111612.s

Comment:

Operator:

Data Path: D:\DATA\SVOC\111612\

Instrument Control Pre-Seq Cmd:

Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:

Data Analysis Post-Seq Cmd:

Method Sections To Run

(X) Full Method

() Reprocessing Only

Sequence Barcode Options

(X) On Mismatch, Inject Anyway

() On Mismatch, Don't Inject

() Barcode Disabled

```
-----  
Line          Sample Name/Misc Info  
1) Sample      51  111601  DB8270  TUNE CHECK  
2) Sample      1   50 PPB PAH STD  
   Datafile    111602  
   Method      DBPAH111412  
3) Sample      2   100 PPB PAH STD  
   Datafile    111603  
   Method      DBPAH111412  
4) Sample      3   200 PPB PAH STD  
   Datafile    111604  
   Method      DBPAH111412  
5) Sample      4   500 PPB PAH STD  
   Datafile    111605  
   Method      DBPAH111412  
6) Sample      5   1000 PPB PAH STD  
   Datafile    111606  
   Method      DBPAH111412  
7) Sample      6   2000 PPB PAH STD  
   Datafile    111607  
   Method      DBPAH111412  
8) Sample      7   5000 PPB PAH STD  
   Datafile    111608  
   Method      DBPAH111412  
9) Sample      8   ICB-  
   Datafile    111609  
   Method      DBPAH111412  
10) Sample     9   ICB-  
   Datafile    111610  
   Method      DBPAH111412  
11) Sample    10  MB-3639  
   Datafile    111611  
   Method      DBPAH111412  
12) Sample    11  LCS-3639  
   Datafile    111612  
   Method      DBPAH111412  
13) Sample    12  1210176-001A 20X  
   Datafile    111613  
   Method      DBPAH111412  
14) Sample    13  1211093-001A 10X  
   Datafile    111614  
   Method      DBPAH111412  
15) Sample    14  1211095-001A 20X  
   Datafile    111615  
   Method      DBPAH111412  
16) Sample    15  1210176-001A  
   Datafile    111616  
   Method      DBPAH111412  
17) Sample    16  1210176-001AMS  
   Datafile    111617  
   Method      DBPAH111412  
18) Sample    17  1211093-001A  
   Datafile    111618  
   Method      DBPAH111412  
19) Sample    18  1211095-001A  
   Datafile    111619  
   Method      DBPAH111412  
20) Sample    19  1211095-001ADUP
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Last Modified: Mon Nov 19 03:00:17 2012

Page: 1

Datafile
Method

111620
DBPAH111412

Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111602.D
 Acq On : 16 Nov 2012 10:41 am
 Operator :
 Sample : 50 PBB PAH STD
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 1 Sample Multiplier: 1

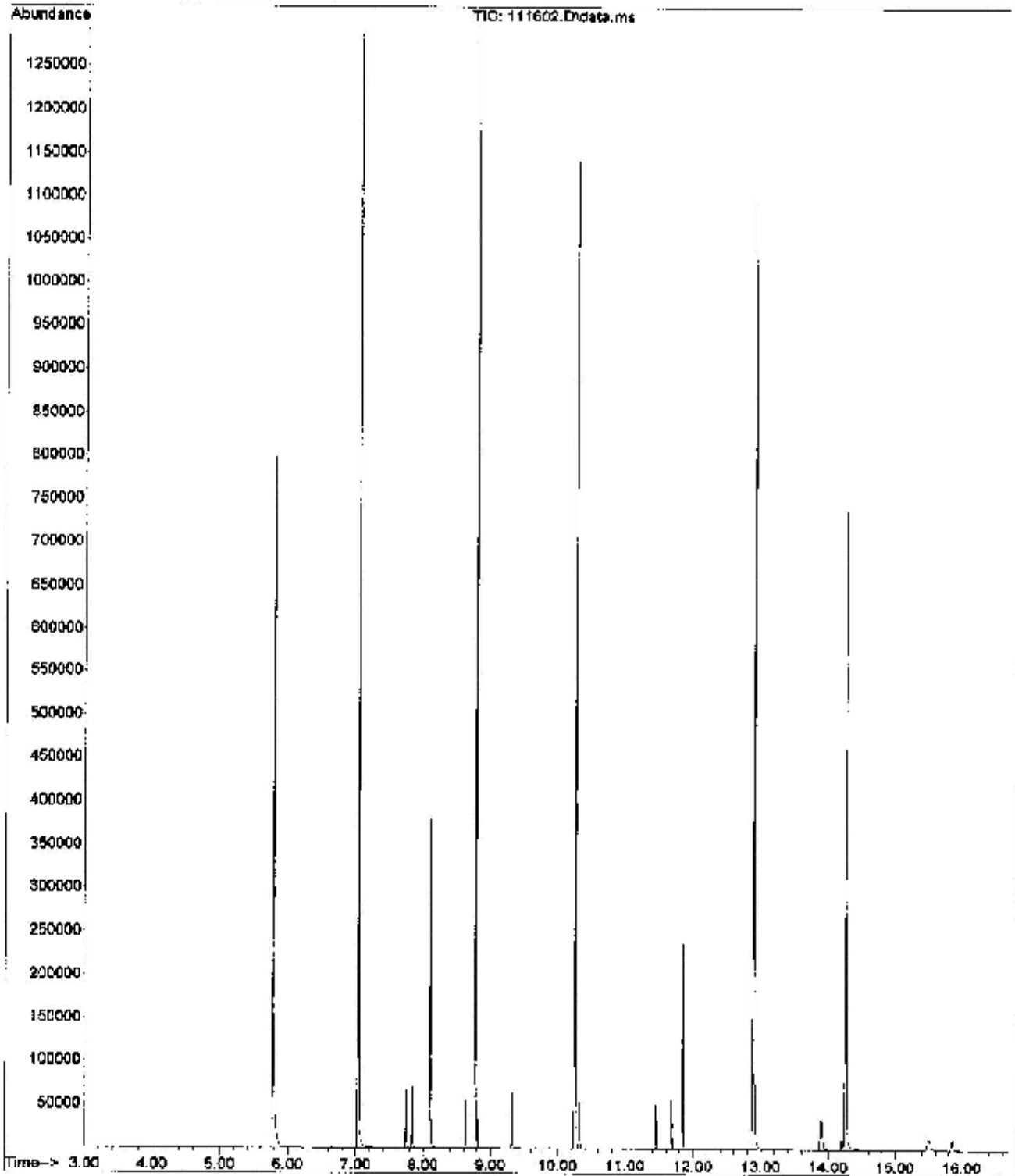
Quant Time: Nov 16 13:49:49 2012
 Quant Method : C:\msdchem\1\methods\BPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Nov 15 10:19:28 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.781	152	308274	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.029	136	968888	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.768	164	502599	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.246	188	795743	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.884	240	767050	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.249	264	685599	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.100	172	217227	430.89	ug/L	0.00
14) Terphenyl-d14 (surr)	11.839	244	165167	446.91	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.051	128	45531	61.49	ug/L	98
4) 2-Methylnaphthalene	7.737	142	26500	59.23	ug/L	98
5) 1-Methylnaphthalene	7.833	142	24783	59.64	ug/L	97
7) Acenaphthylene	8.630	152	37499	57.16	ug/L	100
9) Acenaphthene	8.799	152	12368	59.49	ug/L	99
10) Fluorene	9.315	166	28500	55.11	ug/L	99
12) Phenanthrene	10.270	178	34467	52.24	ug/L	97
13) Anthracene	10.321	178	37615	55.76	ug/L	98
15) Fluoranthene	11.456	202	40065	57.11	ug/L	99
16) Pyrene	11.682	202	41995	57.29	ug/L	98
17) Benzo (a) anthracene	12.874	228	35873	58.83	ug/L #	49
19) Chrysene	12.908	228	37548	58.60	ug/L	95
20) benzo (b) fluoranthene	13.880	252	28311	50.29	ug/L #	58
21) benzo (k) fluoranthene	13.905	252	36132	50.19	ug/L	100
22) benzo (a) pyrene	14.192	252	26255	45.91	ug/L	93
24) Indeno(1,2,3-cd)pyrene	15.487	276	20914	37.65	ug/L	97
25) Dibenz (a,h) anthracene	15.508	278	15288m	34.92	ug/L	
26) Benzo (g,h,i) perylene	15.851	276	22621m	43.43	ug/L	

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

DBPAH111612.M Mon Nov 19 09:45:46 2012 PAH

File : D:\Data\SVOC\111612\111602.D
Operator :
Acquired : 16 Nov 2012 10:41 am using AcqMethod DRPAH111412.M
Instrument : HP-MSD
Sample Name: 50 PPB PAH STD
Misc Info : CCV O-PAH-S-SIM
Vial Number: 1



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111603.D
 Acq On : 16 Nov 2012 11:06 am
 Operator :
 Sample : 100 PPH PAH STD
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 2 Sample Multiplier: 1

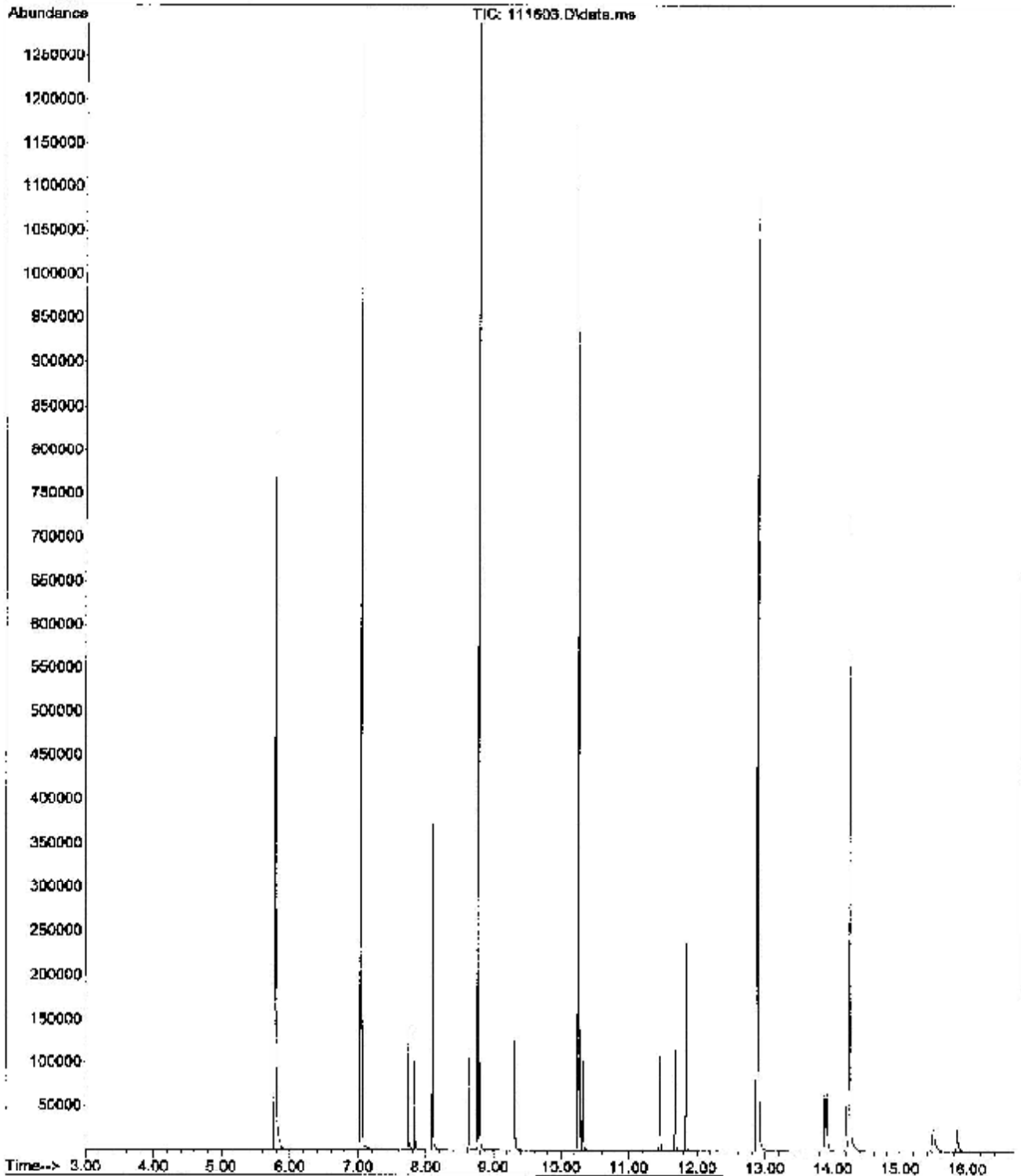
Quant Time: Nov 16 13:50:05 2012
 Quant Method : C:\msdchem\1\methods\DBPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Nov 15 10:19:28 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.780	152	305689	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.030	136	959842	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.768	164	498415	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.246	188	786074	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.882	240	759501	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.247	264	679317	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.099	172	216559	433.61	ug/L	0.00
14) Terphenyl-d14 (surr)	11.838	244	166410	455.81	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.051	128	87725	119.33	ug/L	98
4) 2-Methylnaphthalene	7.738	142	52178	117.27	ug/L	98
5) 1-Methylnaphthalene	7.834	142	48704	118.32	ug/L	97
7) Acenaphthylene	8.629	152	72942	112.24	ug/L	100
9) Acenaphthene	8.799	152	23984	116.53	ug/L	99
10) Fluorene	9.315	166	55997	109.38	ug/L	99
12) Phenanthrene	10.267	178	67694	104.05	ug/L	98
13) Anthracene	10.321	178	73818	110.77	ug/L	99
15) Fluoranthene	11.454	202	78521	113.31	ug/L	99
16) Pyrene	11.681	202	82713	114.22	ug/L	98
17) Benzo (a) anthracene	12.871	228	67406	111.90	ug/L #	49
19) Chrysene	12.905	228	75074	118.33	ug/L	99
20) benzo (b) fluoranthene	13.878	252	54177	97.20	ug/L #	54
21) benzo (k) fluoranthene	13.902	252	69915	98.08	ug/L	100
22) benzo (a) pyrene	14.196	252	51095	90.23	ug/L	95
24) Indeno(1,2,3-cd)pyrene	15.481	276	40069	72.80	ug/L	95
25) D,benz (a,h) anthracene	15.505	278	29688m	68.44	ug/L	
26) Benzo (g,h,i) perylene	15.851	276	44854m	86.90	ug/L	

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

DBPAH111612.M Mon Nov 19 09:45:56 2012 PAH

File :D:\Data\SVOC\111612\111603.D
Operator :
Acquired : 16 Nov 2012 11:06 am using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: 100 PPB PAH STD
Misc Info : CCV O-PAH-S-SIM
Vial Number: 2



Quantitation Report (QT Reviewed)

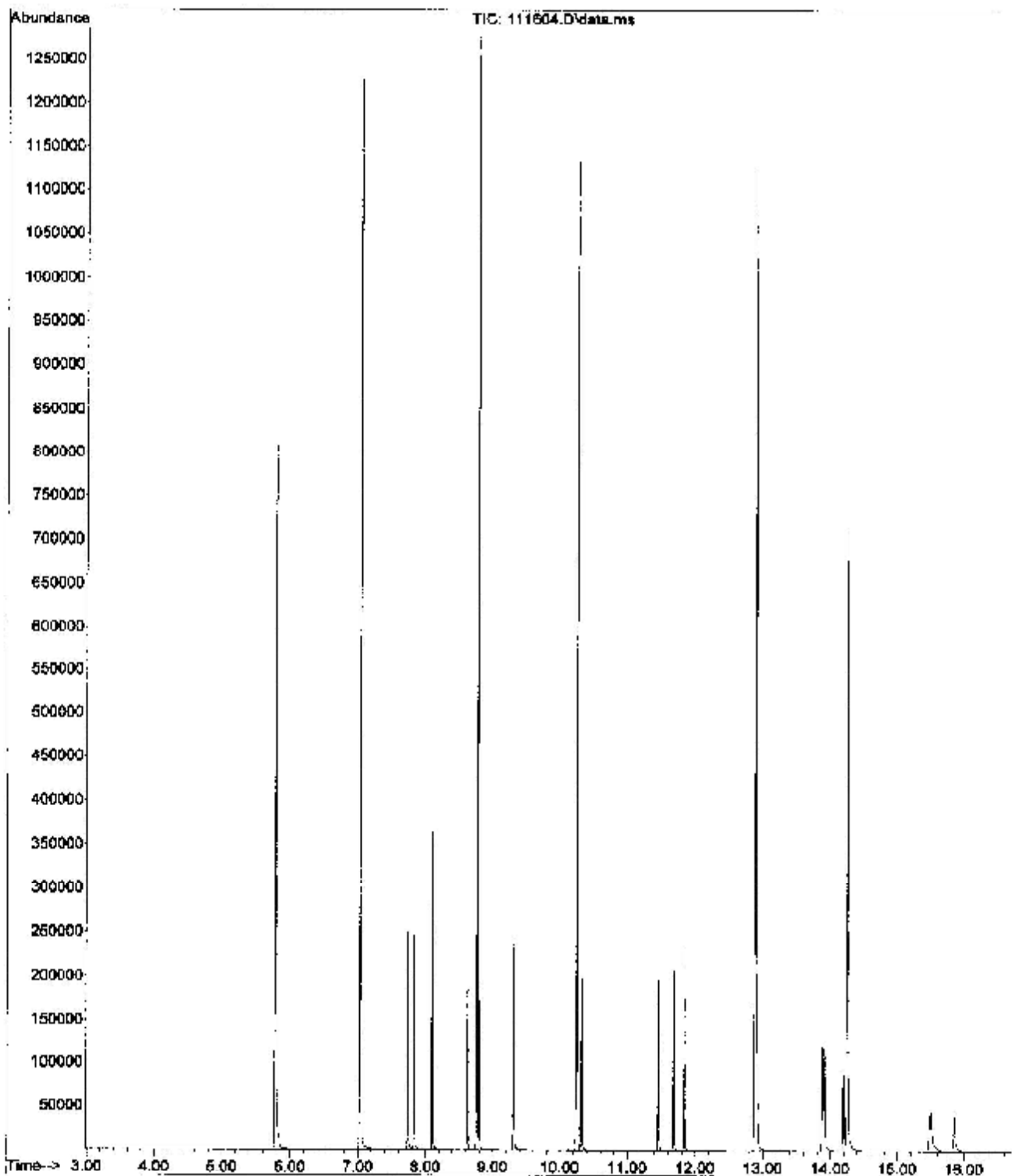
Data Path : D:\Data\SVOC\111612\
 Data File : 111604.D
 Acq On : 16 Nov 2012 11:30 am
 Operator :
 Sample : 200 PPR PAH STD
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 3 Sample Multiplier: 1

Quant Time: Nov 16 13:50:20 2012
 Quant Method : C:\msdchem\1\methods\DEPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Nov 15 10:19:28 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.781	152	303243	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.031	136	952341	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.770	164	495459	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.246	198	781817	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.881	240	756589	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.247	264	680417	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.100	172	215954	435.80	ug/L	0.00
14) Terphenyl-d14 (surr)	11.836	244	171071	471.13	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.050	128	158087	216.74	ug/L	98
4) 2-Methylnaphthalene	7.737	142	92669	209.92	ug/L	100
5) 1-Methylnaphthalene	7.834	142	87749	214.85	ug/L	97
7) Acenaphthylene	8.629	152	131366	203.73	ug/L	100
9) Acenaphthene	8.799	152	42349	207.58	ug/L	98
10) Fluorene	9.314	166	100827	198.72	ug/L	100
12) Phenanthrene	10.269	178	119791	185.65	ug/L	97
13) Anthracene	10.320	178	135585	204.57	ug/L	99
15) Fluoranthene	11.454	202	141890	205.88	ug/L	99
16) Pyrene	11.679	202	150315	208.71	ug/L	93
17) Benzo (a) anthracene	12.871	228	119527	199.51	ug/L #	49
18) Chrysene	12.906	228	130810	206.98	ug/L	97
20) benzo (b) fluoranthene	13.878	252	97905	176.33	ug/L #	54
21) benzo (k) fluoranthene	13.904	252	127692	179.82	ug/L	100
22) benzo (a) pyrene	14.190	252	94015	166.65	ug/L	97
24) Indeno(1,2,3-cd)pyrene	15.482	276	76019	137.89	ug/L	93
25) Dibenz (a,h) anthracene	15.503	278	54926m	126.42	ug/L	
26) Benzo (g,h,i) perylene	15.849	276	81317m	157.30	ug/L	

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

File :D:\Data\SVOC\111612\111604.D
Operator :
Acquired : 16 Nov 2012 11:30 am using AcqMethod DBFAH11412.M
Instrument : HP-MSD
Sample Name: 200 PPB PAH STD
Misc Info : CCV O-PAH-S-SIM
Vial Number: 3



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111605.D
 Acq On : 16 Nov 2012 11:55 am
 Operator :
 Sample : 500 PFB PAH STD
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 4 Sample Multiplier: 1

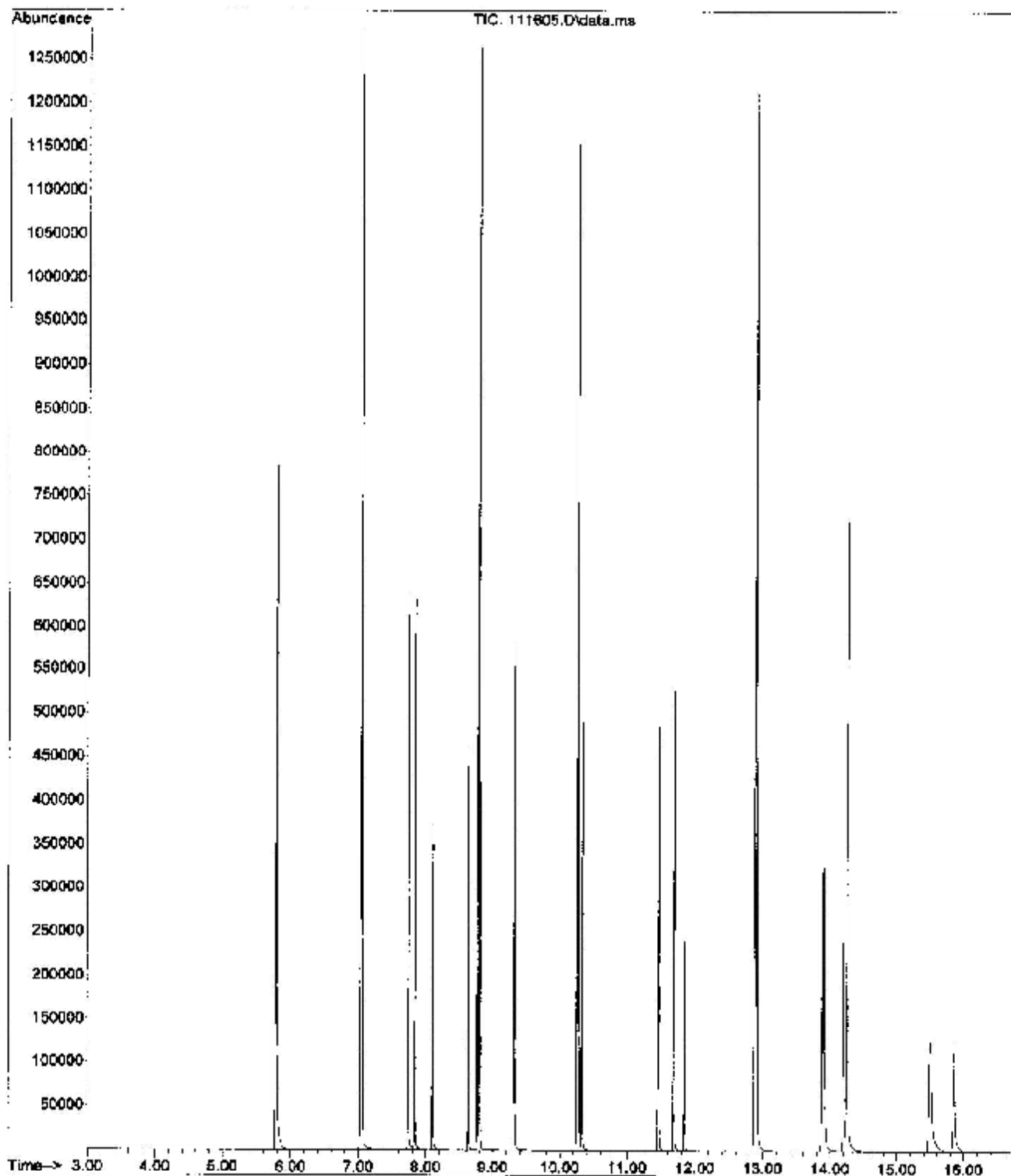
Quant Time: Nov 16 13:50:39 2012
 Quant Method : C:\msdchem\1\methods\DBPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Nov 15 10:19:28 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev (Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.781	152	302543	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.031	136	947689	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.768	164	499415	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.247	189	782382	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.882	240	765271	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.247	264	696584	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.100	172	215895	437.82	ug/L	0.00
14) Terphenyl-d14 (surr)	11.838	244	172273	474.10	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.052	128	273683	514.83	ug/L	98
4) 2-Methylnaphthalene	7.737	142	226351	515.26	ug/L	99
5) 1-Methylnaphthalene	7.835	142	212141	521.97	ug/L	98
7) Acenaphthylene	8.629	152	323815	504.67	ug/L	100
9) Acenaphthene	8.799	152	100522	493.20	ug/L	98
10) Fluorene	9.315	166	242727	479.04	ug/L	100
12) Phenanthrene	10.268	178	288813	451.41	ug/L	99
13) Anthracene	10.321	178	329283	496.45	ug/L	99
15) Fluoranthene	11.454	202	349237	506.36	ug/L	99
16) Pyrene	11.681	202	369744	513.01	ug/L	98
17) Benzo (a) anthracene	12.873	228	290374	484.34	ug/L #	49
19) Chrysene	12.907	228	321348	502.70	ug/L	99
20) benzo (b) fluoranthene	13.878	252	252129	448.93	ug/L #	54
21) benzo (k) fluoranthene	13.903	252	314624	438.03	ug/L	100
22) benzo (a) pyrene	14.190	252	244360	428.25	ug/L	98
24) Indeno(1,2,3-cd)pyrene	15.482	276	208035	368.60	ug/L	92
25) Dibenz (a,h) anthracene	15.503	278	147620m	331.88	ug/L	
26) Benzo (g,h,i) perylene	15.851	276	211236m	399.12	ug/L	

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

DBPAH111612.M Mon Nov 19 09:46:16 2012 PAH

File :D:\Data\SVOC\111612\111605.D
Operator :
Acquired : 16 Nov 2012 11:55 am using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: 500 PPB PAH STD
Misc Info : UV O-PAH-S-SIM
Vial Number: 4



Quantitation Report (Not Reviewed)

Data Path : C:\Data\SVOC\111612\
 Data File : 111606.D
 Acq On : 16 Nov 2012 12:20 pm
 Operator :
 Sample : 1000 PPB PAH STD
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 16 13:50:45 2012
 Quant Method : C:\msdchem\1\methods\DBPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Nov 15 10:19:28 2012
 Response via : Initial Calibration

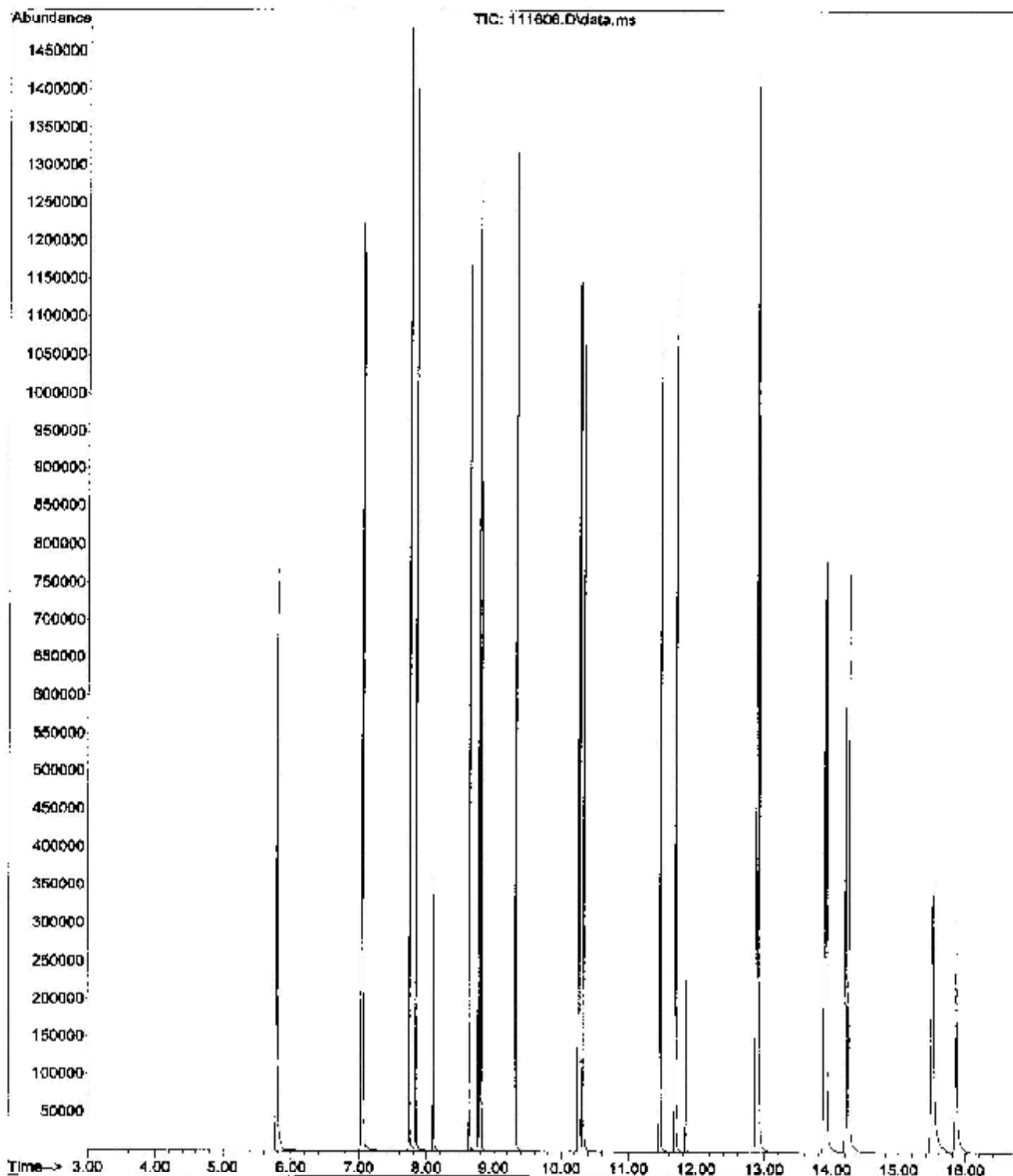
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)	

Internal Standards							
1) 1,4-Dichlorobenz-d4 (IS)	5.781	152	298974	2000.00	ug/L	0.00	
2) Naphthalene-d8 (IS)	7.032	136	943243	2000.00	ug/L	0.00	
8) Acenaphthens-d10 (IS)	8.768	164	498598	2000.00	ug/L	0.00	
11) Phenanthrene-d10 (IS)	10.246	188	776989	2000.00	ug/L	0.00	
18) Chrysene-d12 (IS)	12.882	240	765770	2000.00	ug/L	0.00	
23) Perylene-d12 (IS)	14.247	264	710991	2000.00	ug/L	0.00	
System Monitoring Compounds							
6) 2-Fluorobiphenyl (surr)	8.100	172	214650	437.35	ug/L	0.00	
14) Terphenyl-d14 (surr)	11.839	244	169208	468.90	ug/L	0.00	
Target Compounds							
							Qvalue
3) Naphthalene	7.351	128	814888	1127.98	ug/L		99
4) 2-Methylnaphthalene	7.737	142	498289	1139.64	ug/L		99
5) 1-Methylnaphthalene	7.833	142	466058	1152.13	ug/L		98
7) Accnaphthylene	8.630	152	724796	1134.92	ug/L		100
9) Acenaphthene	8.799	152	218508	1094.48	ug/L		99
10) Fluorene	9.314	166	532365	1073.71	ug/L		99
12) Phenanthrene	10.270	178	562334	1065.16	ug/L		98
13) Anthracene	10.320	178	732944	1112.71	ug/L		99
15) Fluoranthene	11.455	202	780165	1139.01	ug/L		98
16) Pyrene	11.682	202	823520	1150.55	ug/L		98
17) Benzo (a) anthracene	12.873	228	655104	1100.28	ug/L #		49
19) Chrysene	12.909	228	704869	1101.93	ug/L		99
20) benzo (b) flucranthene	13.878	252	595566	1059.75	ug/L #		54
21) benzo (k) flucranthene	13.904	252	729605	1015.12	ug/L		100
22) benzo (a) pyrene	14.192	252	616246	1079.28	ug/L		98
24) Indenc(1,2,3-cd)pyrene	15.484	276	513528	891.45	ug/L		93
25) Dibenz (a,h) anthracene	15.503	278	370780	816.69	ug/L		99
26) Benzo (g,h,i) perylene	15.851	276	483648	906.43	ug/L		94

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

DBPAH111612.M Mon Nov 19 09:46:26 2012 PAH

File : D:\Data\SVOC\111612\111606.D
Operator :
Acquired : 16 Nov 2012 12:20 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: 1000 PPB PAH STD
Misc Info : CCV O-PAH-S-SIM
Vial Number: 5



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111607.D
 Acq On : 16 Nov 2012 12:44 pm
 Operator :
 Sample : 2000 PPB PAH STD
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 6 Sample Multiplier: 1

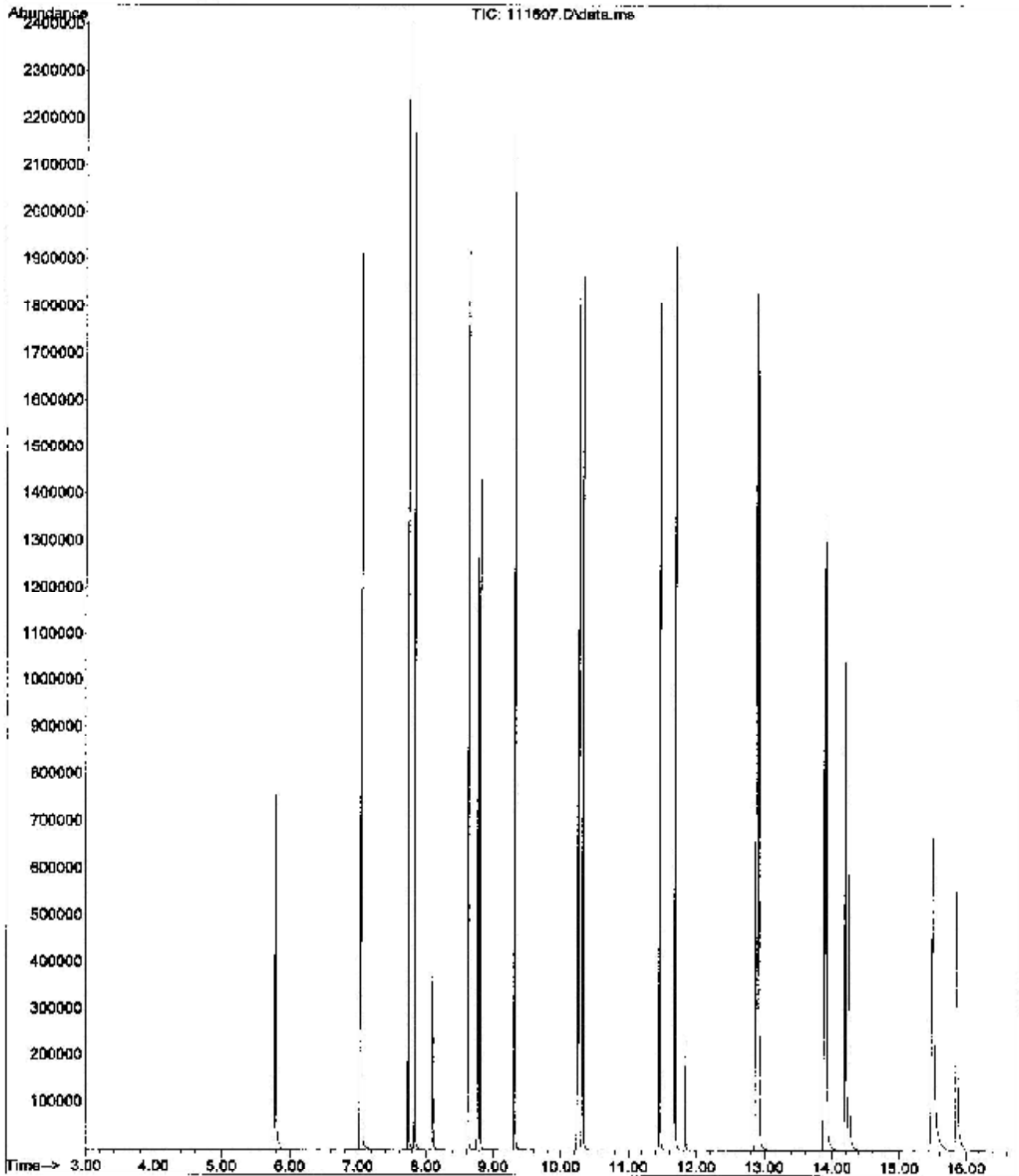
Quant Time: Nov 16 13:50:47 2012
 Quant Method : C:\msdchem\1\methods\DBPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Nov 15 10:19:28 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.781	152	296698	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.032	136	937270	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.770	164	496764	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.246	188	772429	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.884	240	764388	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.249	264	720413	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	9.101	172	213440	437.66	ug/L	0.00
14) Terphenyl-d14 (surr)	11.839	244	166899	465.23	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.051	128	1330361	1853.24	ug/L	98
4) 2-Methylnaphthalene	7.738	142	816814	1880.04	ug/L	99
5) 1-Methylnaphthalene	7.836	142	764899	1902.94	ug/L	93
7) Acenaphthylene	8.629	152	1204251	1897.69	ug/L	100
8) Acenaphthene	8.801	152	355465	1830.11	ug/L	99
10) Fluorene	9.315	166	869461	1805.04	ug/L	99
12) Phenanthrene	10.269	178	1043945	1729.63	ug/L	99
13) Anthracene	10.321	178	1199723	1832.10	ug/L	99
15) Fluoranthene	11.456	202	1285472	1887.82	ug/L	98
16) Pyrene	11.682	202	1352699	1901.03	ug/L	97
17) Benzo (a) anthracene	12.874	228	1095129	1850.19	ug/L #	49
19) Chrysene	12.908	228	1159533	1815.99	ug/L	99
20) benzo (b) fluoranthene	13.880	252	1008780	1798.27	ug/L #	54
21) benzo (k) fluoranthene	13.905	252	1223627	1705.54	ug/L	100
22) benzo (a) pyrene	14.192	252	1059326	1858.65	ug/L	98
24) Indeno(1,2,3-cd)pyrene	15.486	276	925567	1585.71	ug/L	93
25) Dibenz (a,h) anthracene	15.506	278	682658	1483.97	ug/L	100
26) Benzo (g,h,i) perylene	15.855	276	870441	1590.27	ug/L	93

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

DBPAH111612.M Mon Nov 19 09:46:39 2012 PAH

File :D:\Data\SVOC\111612\111607.D
Operator :
Acquired : 16 Nov 2012 12:44 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: 2000 PPB PAH STD
Misc Info : CCV O-PAH-E-SIM
Vial Number: 6



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111608.D
 Acq On : 16 Nov 2012 1:09 pm
 Operator :
 Sample : 5000 PPB PAH STD
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 7 Sample Multiplier: 1

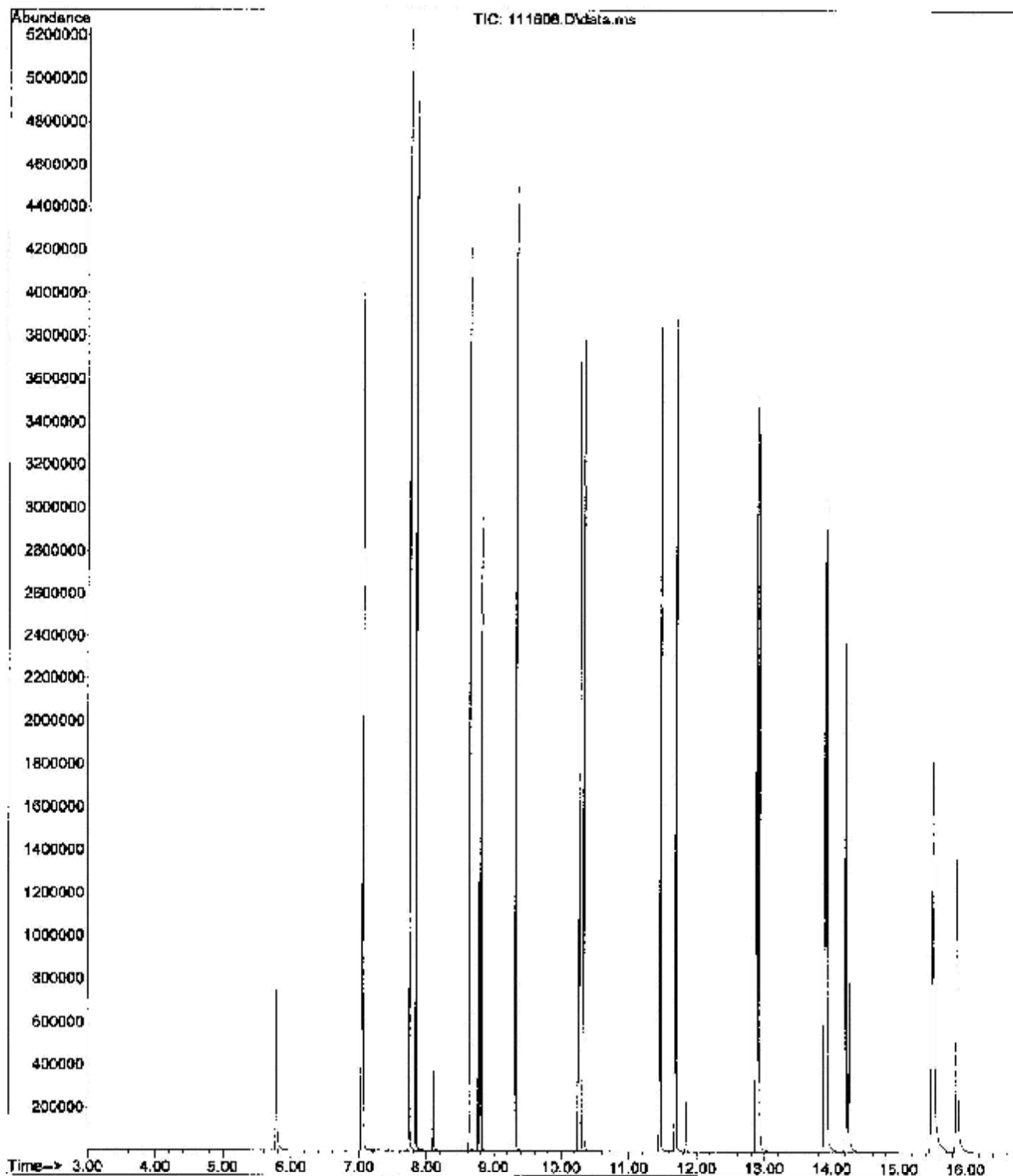
Quant Time: Nov 16 13:50:50 2012
 Quant Method : C:\msdchem\1\methods\DEPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLab Update : Thu Nov 15 10:19:28 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.781	152	291476	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.032	136	920086	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.770	164	492229	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.248	188	763102	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.886	240	736617	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.251	264	726592	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.101	172	211325	441.41	ug/L	0.00
14) Terphenyl-d14 (surr)	11.837	244	165564	467.15	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.053	128	2887103	4096.95	ug/L	98
4) 2-Methylnaphthalene	7.738	142	1759931	4126.45	ug/L	99
5) 1-Methylnaphthalene	7.836	142	1648759	4178.44	ug/L	97
7) Acenaphthylene	8.631	152	2630343	4222.38	ug/L	99
8) Acenaphthene	8.801	152	762953	4315.44	ug/L	98
10) Fluorene	9.316	166	1875763	4306.63	ug/L	99
12) Phenanthrene	10.272	178	2210873	4049.97	ug/L	100
13) Anthracene	10.324	178	2592531	4007.46	ug/L	99
15) Fluoranthene	11.457	202	2767291	4113.67	ug/L	98
16) Pyrene	11.685	202	2895502	4118.96	ug/L	97
17) Benzo (a) anthracene	12.876	228	2440402	4173.38	ug/L #	49
19) Chrysene	12.912	228	2487071	4041.95	ug/L #	66
20) benzo (b) fluoranthene	13.883	252	2290568	4237.14	ug/L #	54
21) benzo (k) fluoranthene	13.910	252	2702237	3908.48	ug/L	100
22) benzo (a) pyrene	14.197	252	2431732	4427.44	ug/L	98
24) Indeno(1,2,3-cd)pyrene	15.493	276	2332502	3962.13	ug/L	92
25) Dibenz (a,h) anthracene	15.513	278	1785278	3847.86	ug/L	99
26) Benzo (g,h,i) perylene	15.864	276	2135271	3867.91	ug/L	93

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

DEPAH111612.M Mon Nov 19 09:46:45 2012 PAH

File : D:\Data\SVOC\111612\111608.D
Operator :
Acquired : 16 Nov 2012 1:09 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: 5000 PPB PAH STD
Misc Info : CCV C-PAH-S-SIM
Vial Number: 7



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111609.D
 Acq On : 16 Nov 2012 1:34 pm
 Operator :
 Sample : ICV-
 Misc : ICV O-PAH-S-SIM
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Nov 16 13:54:04 2012
 Quant Method : C:\msdchem\1\methods\DEPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Fri Nov 16 13:53:58 2012
 Response via : Initial Calibration

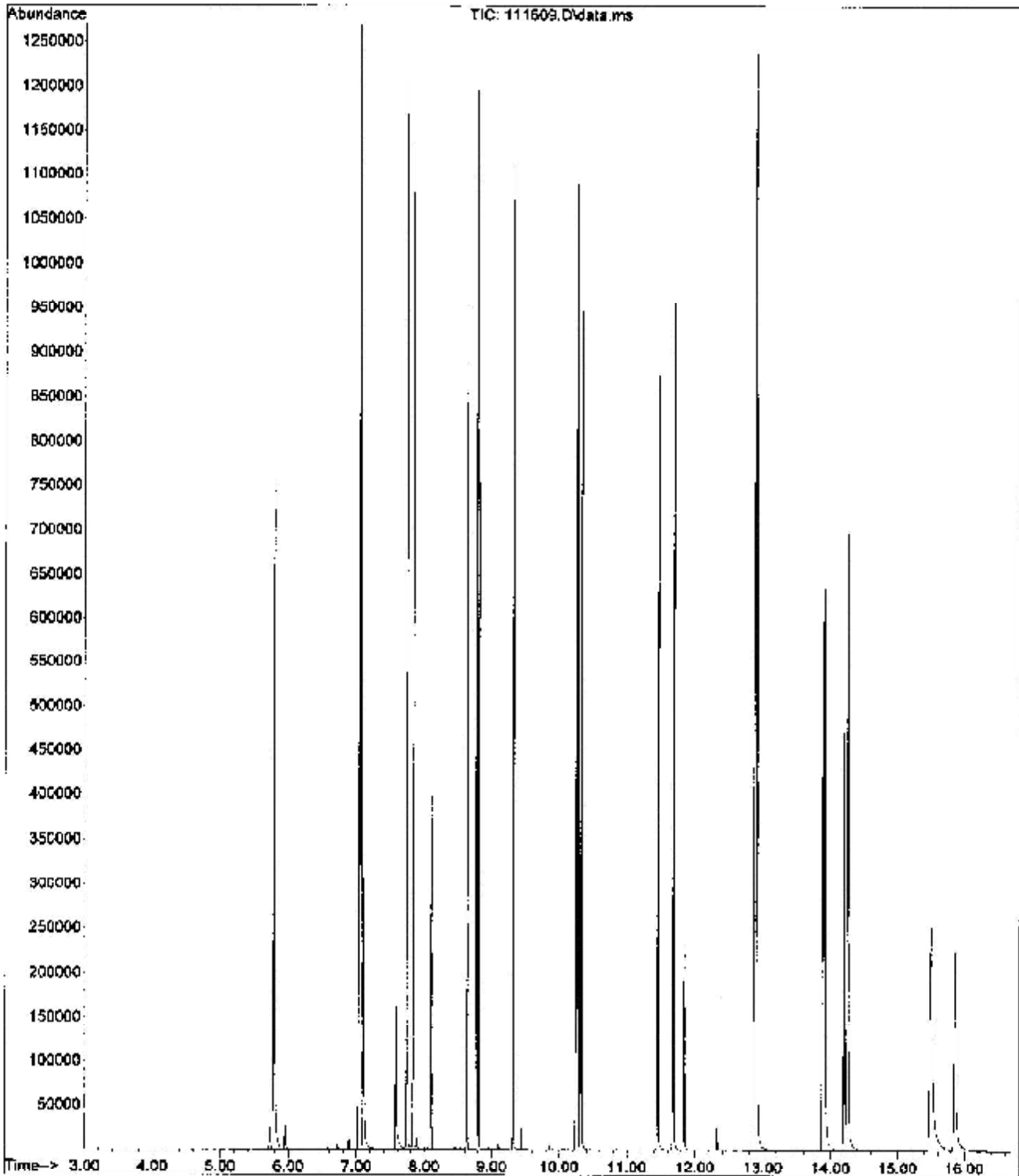
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.781	152	288829	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.031	136	915991	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.770	164	480167	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.246	188	747607	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.882	240	732015	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.247	264	670042	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.100	172	210734	506.63	ug/L	0.00
14) Terphenyl-d14 (surr)	11.838	244	159908	496.08	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.052	128	679620	915.07	ug/L	98
4) 2-Methylnaphthalene	7.737	142	410264	921.18	ug/L	99
5) 1-Methylnaphthalene	7.835	142	387102	927.95	ug/L	96
7) Acenaphthylene	8.629	152	599682	937.23	ug/L	100
9) Acenaphthene	8.799	152	181244	955.50	ug/L	98
10) Fluorene	9.315	166	436462	915.23	ug/L	99
12) Phenanthrene	10.270	178	543198	952.54	ug/L	99
13) Anthracene	10.321	178	607968	949.91	ug/L	99
15) Fluoranthene	11.455	202	640801	942.27	ug/L	98
16) Pyrene	11.681	202	671056	936.60	ug/L	98
17) Benzo (a) anthracene	12.873	228	545396	935.72	ug/L #	49
19) Chrysene	12.907	228	585054	928.42	ug/L	99
20) benzo (b) fluoranthene	13.878	252	474060	941.11	ug/L #	54
21) benzo (k) fluoranthene	13.903	252	609243	968.47	ug/L	100
22) benzo (a) pyrene	14.190	252	495903	993.09	ug/L	98
24) Indeno(1,2,3-cd)pyrene	15.482	276	394565	944.87	ug/L	92
25) Dibenz (a,h) anthracene	15.503	278	280754	917.40	ug/L	99
26) Benzo (g,h,i) perylene	15.851	276	377005	894.17	ug/L	54

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

DEPAH111612.M Mon Nov 19 09:46:55 2012 PAH

File :D:\Data\SVOC\111612\111609.D
Operator :
Acquired : 16 Nov 2012 1:34 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: ICV-
Misc Info : ICV O-PAH-S-SIM
Vial Number: 8



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111610.D
 Acq On : 16 Nov 2012 1:59 pm
 Operator :
 Sample : ICB-
 Misc : ICB O-PAH-S-STM
 ALS Vial : 9 Sample Multiplier: 1

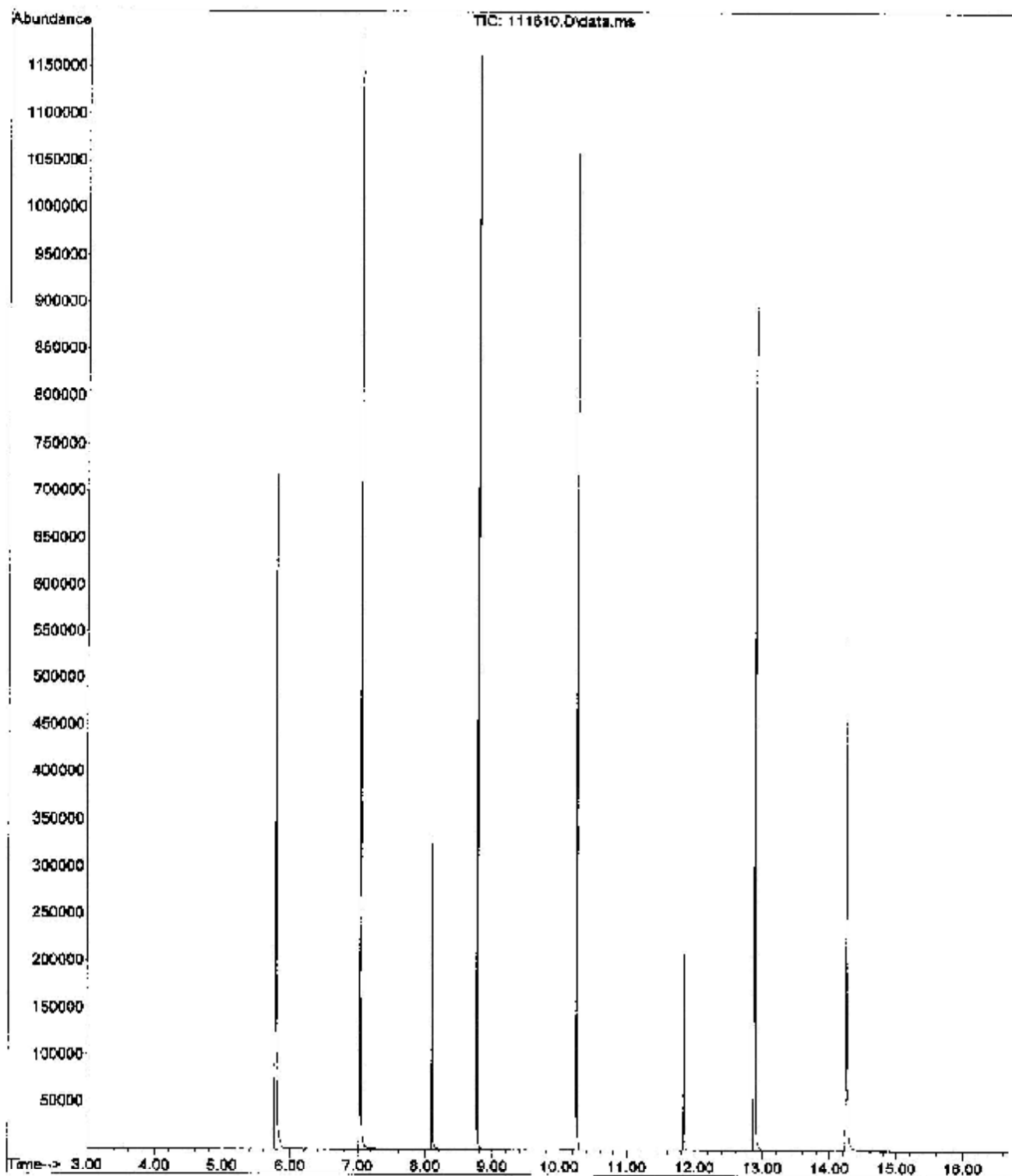
Quant Time: Nov 16 15:09:37 2012
 Quant Method : C:\msdchem\1\methods\DEPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Fri Nov 16 13:53:58 2012
 Response via : Initial Calibration

Compound	R.T.	QInn	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.781	152	283461	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.031	136	885761	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.770	164	457532	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.246	188	721921	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.882	240	666472	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.247	264	547711	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.101	172	195503	486.05	ug/L	0.00
14) Terphenyl-d14 (surr)	11.839	244	147369	473.45	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.052	128	147			N.D.
4) 2-Methylnaphthalene	7.744	142	25			N.D.
5) 1-Methylnaphthalene	7.838	142	21			N.D.
7) Acenaphthylene	8.632	152	43			N.D.
9) Acenaphthene	8.799	152	17			N.D.
10) Fluorene	9.319	166	33			N.D.
12) Phenanthrene	10.269	178	139			N.D.
13) Anthracene	10.323	178	124			N.D.
15) Fluoranthene	11.458	202	142			N.D.
16) Pyrene	11.685	202	193			N.D.
17) Benzo (a) anthracene	12.880	228	1830			N.D.
19) Chrysene	12.880	228	1330			N.D.
20) benzo (b) fluoranthene	13.882	252	199			N.D.
21) benzo (k) fluoranthene	13.903	252	354			N.D.
22) benzo (a) pyrene	14.192	252	217			N.D.
24) Indeno(1,2,3-cd)pyrene	15.481	276	46			N.D.
25) Dibenz (a,h) anthracene	15.505	278	51			N.D.
26) Benzo (g,h,i) perylene	15.848	276	17			N.D.

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

DEPAH111612.M Mon Nov 19 09:47:06 2012 PAH

File : D:\Data\SVOC\111612\111610.D
Operator :
Acquired : 16 Nov 2012 1:59 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: ICB-
Misc Info : ICB O-PAH-S-SIM
Vial Number: 9



Fremont Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: 11/14/2012 11:16:0
 Prep End Date: 11/14/2012 11:16:0

Prep Batch ID: 3639 Prep Code: PREP-PAH-S Technician: Paul Ho
 Initial Temp: °C Final Temp: °C

Prep Factor Units:
 mL / g

Sample ID	ClientSampleID	Matrix	pH1	pH2	SampAmt	Sol Added	Sol Recov	Flt Vol	Factor	PrepStart	PrepEnd
ME-3639		Soil	10	0	0	0	0	10	1.000	11/14/2012	11/14/2012
LCS-3639		Soil	10	0	0	0	0	10	1.000	11/14/2012	11/14/2012
1210176-001A	W-Subseed-101612	Soil	13.27	0	0	0	0	10	0.754	11/14/2012	11/14/2012
Prep hold time was exceeded by 14 day(s)											
1210176-001AMS		Soil	12.73	0	0	0	0	10	0.758	11/14/2012	11/14/2012
Prep hold time was exceeded by 14 day(s)											
1211080-001A	CON-01-101812	Soil	13.12	0	0	0	0	10	0.752	11/14/2012	11/14/2012
Prep hold time was exceeded by 13 day(s)											
1211085-001A	MFZ-52-102212	Soil	13.06	0	0	0	0	10	0.758	11/14/2012	11/14/2012
Prep hold time was exceeded by 10 day(s)											
1211066-001ADUP		Soil	13.26	0	0	0	0	10	0.754	11/14/2012	11/14/2012
Prep hold time was exceeded by 10 day(s)											

Type	Chemical / Reagent ID	Chemical / Reagent Name	Container#	Container ID	Amount Added	Amount Unit
Chemical	345	Dichloromethane	775	Container-04 of 04	10	mL

Spike ID	Spike Name	Samp Type	Container#	Container ID	Amount Added	Amount Unit
O-SEM-1REF-MEGAMX (B)	8270 Megamix	LCS	1057	Container-01 of 01	0.01	mL
O-SEM-1REF-MEGAMX (B)	8270 Megamix	MS	1057	Container-01 of 01	0.01	mL
O-SEM-2IS (10/1/12)	Internal Standard (10/1/12)	DUP	1113	Container-02 of 03	0.01	mL
O-SEM-2IS (10/1/12)	Internal Standard (10/1/12)	LCS	1113	Container-02 of 03	0.01	mL
O-SEM-2IS (10/1/12)	Internal Standard (10/1/12)	MELK	1113	Container-02 of 03	0.01	mL
O-SEM-2IS (10/1/12)	Internal Standard (10/1/12)	MS	1113	Container-02 of 03	0.01	mL
O-SEM-2IS (10/1/12)	Internal Standard (10/1/12)	SAMP	1113	Container-02 of 03	0.01	mL
O-SEM-2SURR-BN (11/12/12)	BN Surrogate 500 ppm	DUP	1198	Container-01 of 01	0.01	mL
O-SEM-2SURR-BN (11/12/12)	BN Surrogate 600 ppm	LCS	1198	Container-01 of 01	0.01	mL
O-SEM-2SURR-BN (11/12/12)	BN Surrogate 500 ppm	MELK	1198	Container-01 of 01	0.01	mL
O-SEM-2SURR-BN (11/12/12)	BN Surrogate 500 ppm	MS	1198	Container-01 of 01	0.01	mL

Fremont Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: 11/14/2012 11:16:0

Prep End Date: 11/14/2012 11:16:0

Prep Batch ID 3639 Prep Code: PREP-PAH-S Technician: Paul Ho

Initial Temp: °C Final Temp °C

Prep Factor Units:
mL / g

O-SE#2SURR-BN (11/12/12) 500 ppm 1198 3049 Container-01 of 31 0.01 mL

Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111611.D
 Acq On : 16 Nov 2012 2:24 pm
 Operator :
 Sample : MB-3639
 Misc : MBLK O-PAH-S-SIM
 ALS Vial : 10 Sample Multiplier: 1

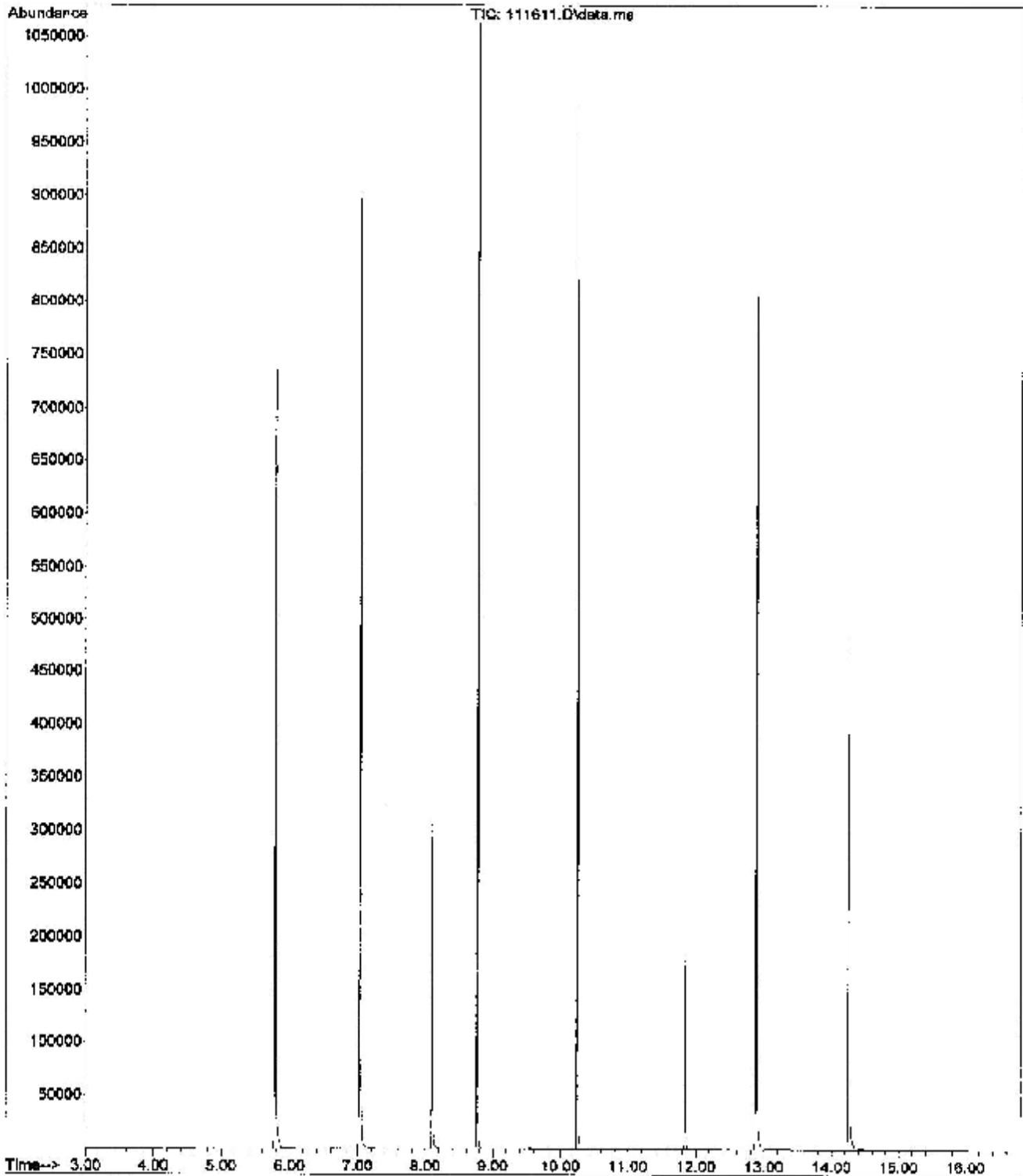
Quant Time: Nov 16 15:09:40 2012
 Quant Method : C:\msdchem\1\methods\DEPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Fri Nov 16 13:53:58 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.784	152	255244	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.028	136	804063	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.768	164	412719	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.247	188	656737	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.884	240	605954	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.247	264	492604	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.100	172	177129	485.11	ug/L	0.00
14) Terphenyl-d14 (surr)	11.839	244	128262	452.97	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.052	128	120			N.D.
4) 2-Methylraphthalene	7.742	142	47			N.D.
5) 1-Methylraphthalene	7.836	142	38			N.D.
7) Acenaphthylene	8.631	152	65			N.D.
9) Acenaphthene	8.801	152	13			N.D.
10) Fluorene	9.317	166	29			N.D.
12) Phenanthrene	10.268	178	111			N.D.
13) Anthracene	10.324	178	59			N.D.
15) Fluoranthene	11.461	202	100			N.D.
16) Pyrene	11.685	202	111			N.D.
17) Benzo (a) anthracene	12.882	228	1604			N.D.
19) Chrysene	12.882	228	1329			N.D.
20) benzo (b) fluoranthene	13.880	252	58			N.D.
21) benzo (k) fluoranthene	13.909	252	261			N.D.
22) benzo (a) pyrene	14.195	252	164			N.D.
24) Indeno(1,2,3-cd)pyrene	15.494	276	79			N.D.
25) Dibenz (a,h) anthracene	15.503	278	20			N.D.
26) Benzo (g,h,i) perylene	15.844	276	34			N.D.

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

DEPAH111612.M Mon Nov 19 09:47:14 2012 PAH

File : D:\Data\SVOC\111612\112611.D
Operator :
Acquired : 16 Nov 2012 2:24 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: MB-3639
Misc Info : MBLK O-PAH-S-SIM
Vial Number: 10



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111612.D
 Acq On : 16 Nov 2012 2:48 pm
 Operator :
 Sample : LCS-3639
 Misc : LCS C-PAH-S-SIM
 ALS Vial : 11 Sample Multiplier: 1

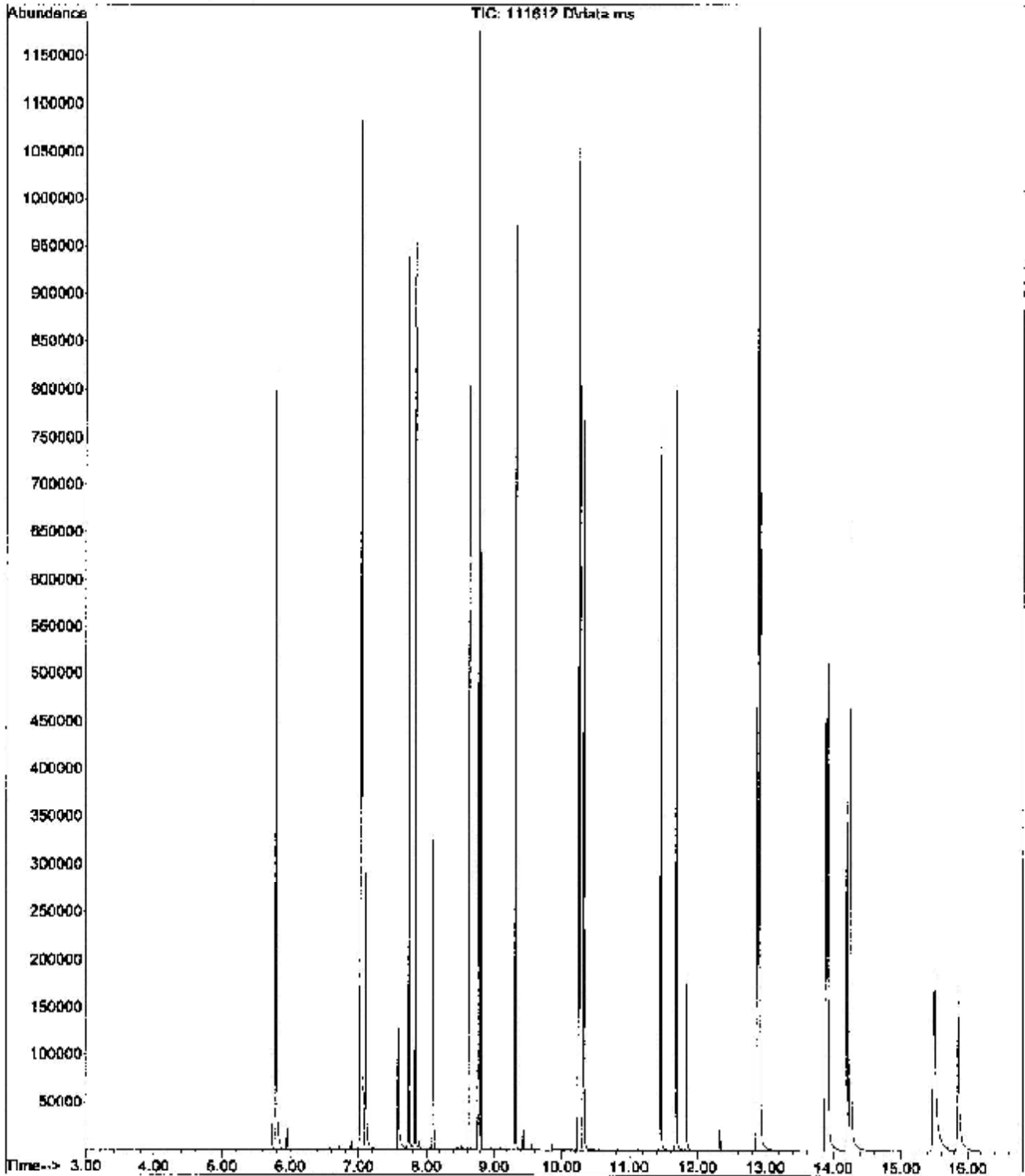
Quant Time: Nov 16 15:09:44 2012
 Quant Method : C:\msdchem\1\methods\DBPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Fri Nov 16 13:53:58 2012
 Response Via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.784	152	276368	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.029	136	886128	2000.00	ug/L	0.00
6) Acenaphthene-d10 (IS)	8.771	164	461650	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.246	188	725023	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.882	240	709202	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.249	264	636965	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.100	172	185610	461.26	ug/L	0.00
14) Terphenyl-d14 (surr)	11.839	244	133674	427.62	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.051	128	577060	803.16	ug/L	99
4) 2-Methylnaphthalene	7.737	142	347010	805.41	ug/L	100
5) 1-Methylnaphthalene	7.833	142	325412	806.35	ug/L	96
7) Acenaphthylene	8.630	152	505492	816.65	ug/L	100
9) Acenaphthene	8.799	152	153062	833.86	ug/L	99
10) Fluorene	9.315	166	267459	801.44	ug/L	99
12) Phenanthrene	10.270	178	454121	821.15	ug/L	100
13) Anthracene	10.321	178	512859	826.27	ug/L	99
15) Fluoranthene	11.455	202	539320	817.76	ug/L	98
16) Pyrene	11.682	202	566148	814.79	ug/L	97
17) Benzo (a) anthracene	12.873	228	456247	807.16	ug/L #	49
19) Chrysene	12.908	228	491560	805.15	ug/L #	72
20) benzo (b) fluoranthene	13.880	252	388381	795.82	ug/L #	54
21) benzo (k) fluoranthene	13.905	252	503107	825.48	ug/L	100
22) benzo (a) pyrene	14.192	252	376177	777.56	ug/L	99
24) Indeno (1,2,3-cd) pyrene	15.487	276	301470	759.43	ug/L	92
25) Dibenz (a,h) anthracene	15.506	276	212135	729.17	ug/L	100
26) Benzo (g,h,i) perylene	15.852	276	294249	734.13	ug/L	94

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

DBPAH111612.M Mon Nov 19 09:47:23 2012 PAH

File :D:\Data\SVOC\111612\111612.D
Operator :
Acquired : 16 Nov 2012 2:48 pm using AccMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: LCS-3639
Misc Info : LCS O-PAH-S-SIM
Vial Number: 11



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111616.D
 Acq On : 16 Nov 2012 4:37 pm
 Operator :
 Sample : 1210176-001A
 Misc : SAMP C-PAH-S-SIM
 ALS Vial : 15 Sample Multiplier: 1

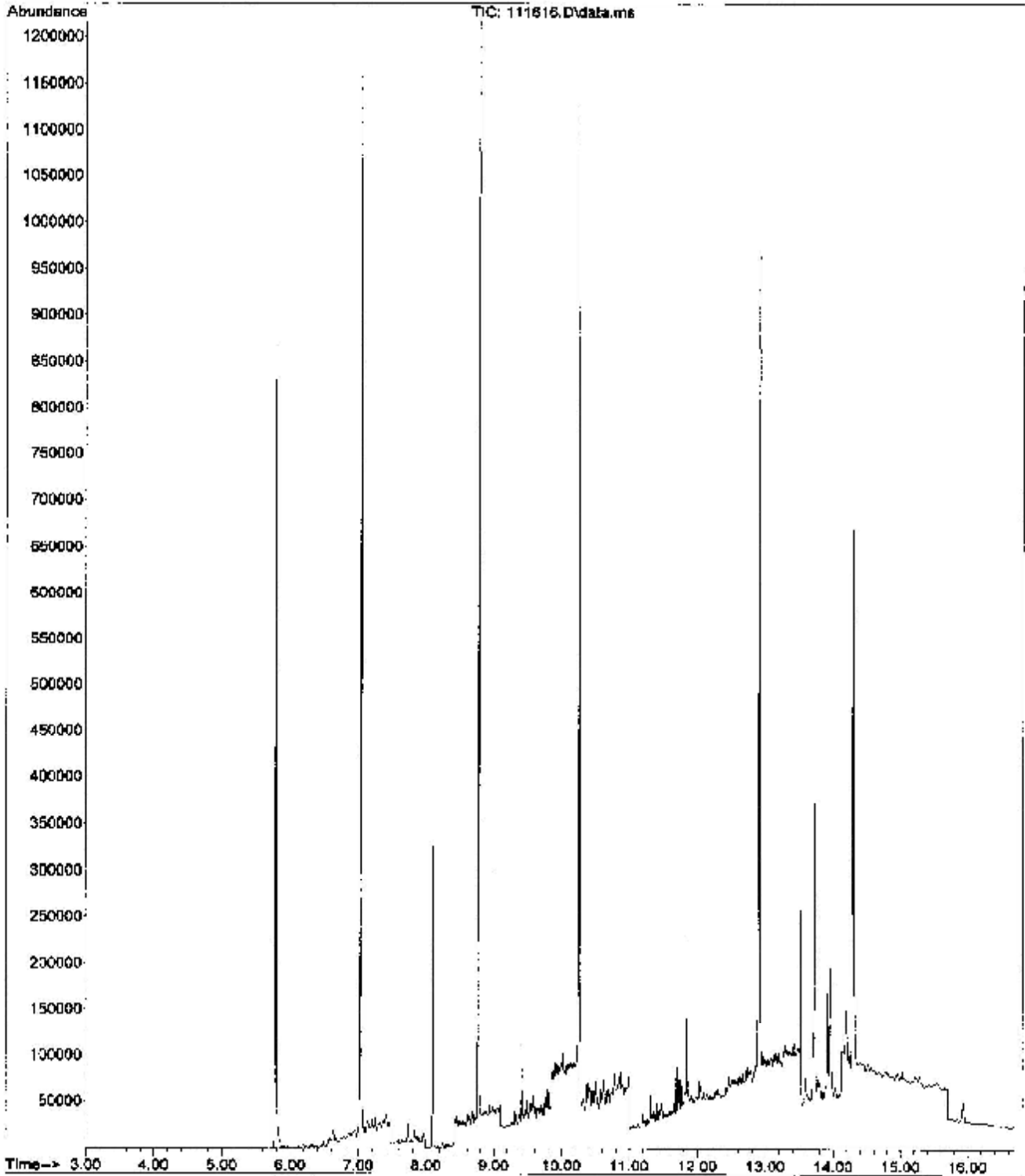
Quant Time: Nov 16 17:02:07 2012
 Quant Method : C:\msdchem\1\methods\DEPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Fri Nov 16 13:53:58 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.784	152	303536	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.032	136	929804	2000.00	ug/L	# 0.00
8) Acenaphthene-d10 (IS)	8.773	164	471252	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.253	188	711837	2000.00	ug/L	# 0.00
18) Chrysene-d12 (IS)	12.897	240	628561	2000.00	ug/L	0.01
23) Perylene-d12 (IS)	14.285	264	565557	2000.00	ug/L	0.04
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.101	172	185117	438.43	ug/L	0.00
14) Terphenyl-d14 (surr)	11.847	244	127868	416.62	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.051	128	7806	10.35	ug/L	# 10
4) 2-Methylnaphthalene	7.739	142	7006	15.50	ug/L	# 32
5) 1-Methylnaphthalene	7.835	142	4612	10.89	ug/L	# 1
7) Acenaphthylene	8.640	152	8328	12.82	ug/L	# 58
9) Acenaphthene	8.787	152	2760	14.11	ug/L	# 1
10) Fluorene	9.318	166	5971	12.76	ug/L	# 5
12) Phenanthrene	10.275	178	27476	50.60	ug/L	# 83
13) Anthracene	10.328	178	7957	13.06	ug/L	# 42
15) Fluoranthene	11.464	202	7221	11.15	ug/L	# 1
16) Pyrene	11.692	202	36441	53.42	ug/L	# 58
17) Benzo (a) anthracene	12.886	228	6809m	15.87	ug/L	
19) Chrysene	12.922	228	20071m	37.09	ug/L	
20) benzo (b) fluoranthene	13.870	252	411	N.D.		
21) benzo (k) fluoranthene	13.909	252	5323	N.D.		
22) benzo (a) pyrene	14.268	252	7800m	18.19	ug/L	
24) Indeno(1,2,3-cd)pyrene	15.494	276	700	N.D.		
25) Dibenz (a,h) anthracene	0.000		0	N.D.		
26) Benzo (g,h,i) perylene	15.929	276	29450	82.75	ug/L	# 1

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

DEPAH111612.M Mon Nov 19 15:01:47 2012 PAH

File :D:\Data\SVOC\111612\111616.D
Operator :
Acquired : 16 Nov 2012 4:27 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: 1210176-001A
Misc Info : SAMP O-PAH-S-SIM
Vial Number: 15



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111617.D
 Acq On : 16 Nov 2012 4:52 pm
 Operator :
 Sample : 1216176-001AMS
 Misc : MS O-PAH-S-SIM
 ALS Vial : 16 Sample Multiplier: 1

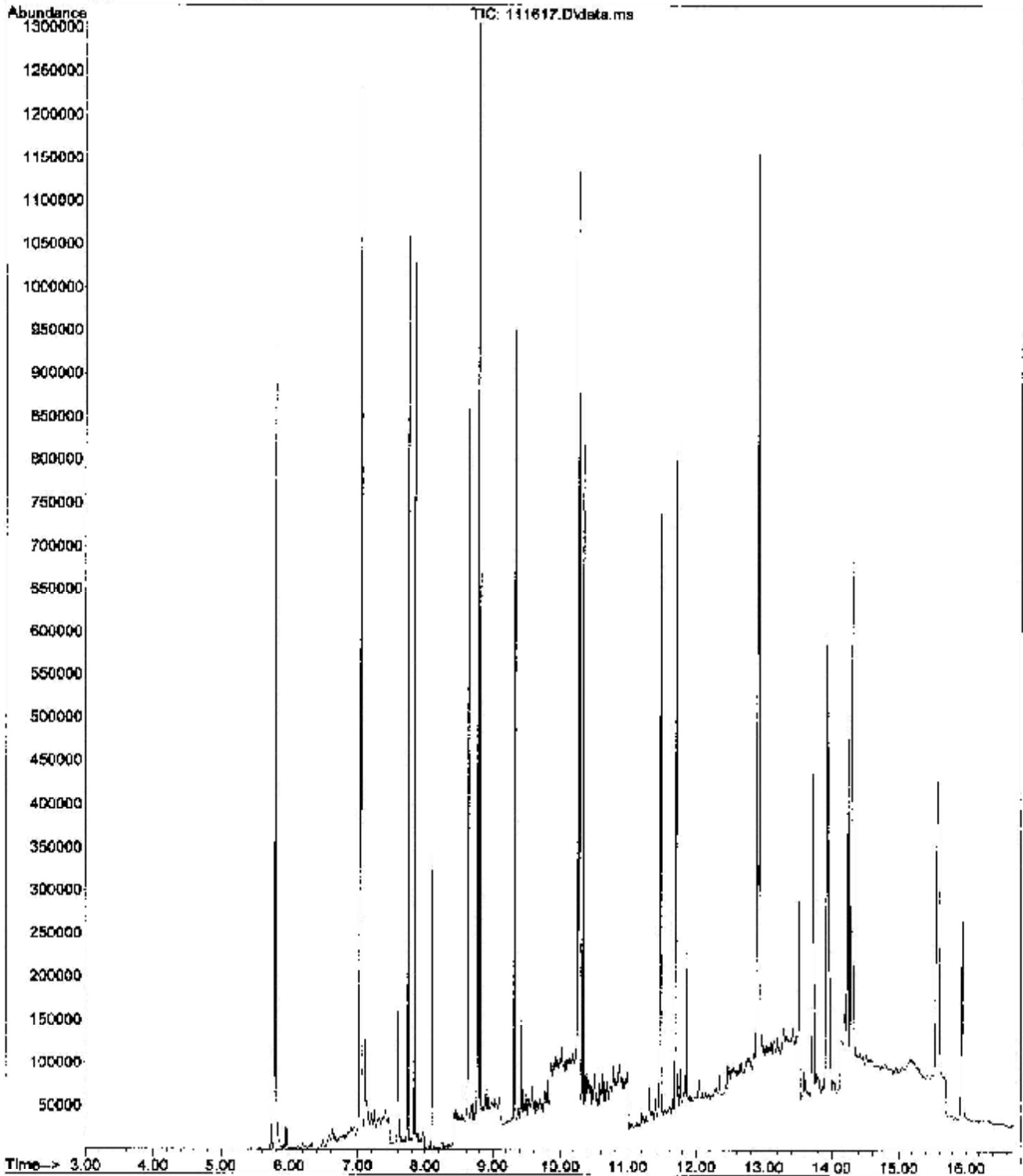
Quant Time: Nov 16 17:10:39 2012
 Quant Method : C:\msdchem\1\methods\DBPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Fri Nov 16 13:53:58 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.786	152	319661	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.033	136	1001717	2000.00	ug/L	# 0.00
8) Acenaphthene-d10 (IS)	8.775	164	508515	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.258	188	747635	2000.00	ug/L	# 0.01
18) Chrysene-d12 (IS)	12.904	240	610737	2000.00	ug/L	0.02
23) Perylene-d12 (IS)	14.294	264	556032	2000.00	ug/L	0.05
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.104	172	190627	419.07	ug/L	0.00
14) Terphenyl-d14 (surr)	11.853	244	121765	377.74	ug/L	0.01
Target Compounds						
						Qvalue
3) Naphthalene	7.054	128	610716	751.93	ug/L	99
4) 2-Methylnaphthalene	7.742	142	373495	766.86	ug/L	98
5) 1-Methylnaphthalene	7.839	142	341032	747.55	ug/L	# 92
7) Acenaphthylene	8.635	152	523351	747.94	ug/L	# 85
9) Acenaphthene	8.806	152	155086	764.18	ug/L	93
10) Fluorene	9.320	166	368531	729.71	ug/L	93
12) Phenanthrene	10.279	178	454215	796.47	ug/L	99
13) Anthracene	10.332	178	487043	760.94	ug/L	99
15) Fluoranthene	11.471	202	510399	750.49	ug/L	99
16) Pyrene	11.698	202	542814	757.58	ug/L	93
17) Benzo (a) anthracene	12.895	228	426993	732.55	ug/L	# 89
19) Chrysene	12.930	228	455061m	865.53	ug/L	
20) benzo (b) fluoranthene	13.913	252	376258m	895.28	ug/L	
21) benzo (k) fluoranthene	13.938	252	377855m	719.93	ug/L	
22) benzo (a) pyrene	14.233	252	353891m	849.43	ug/L	
24) Indeno(1,2,3-cd)pyrene	15.563	276	376431	1086.28	ug/L	93
25) Dibenz (a,h) anthracene	15.580	276	296921	1169.16	ug/L	91
26) Benzo (g,h,i) perylene	15.943	276	351903	1005.77	ug/L	93

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

DBPAH111612.M Mon Nov 19 15:01:57 2012 PAH

File :D:\Data\SVOC\111612\111617.D
Operator :
Acquired : 16 Nov 2012 4:52 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: 1210176-001AMS
Misc Info : MS O-PAH-S-SIM
Vial Number: 16



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111618.D
 Acq On : 16 Nov 2012 5:17 pm
 Operator :
 Sample : 1211093-001A
 Misc : SAMP O-PAH-S-SIM
 ALS Vial : 17 Sample Multiplier: 1

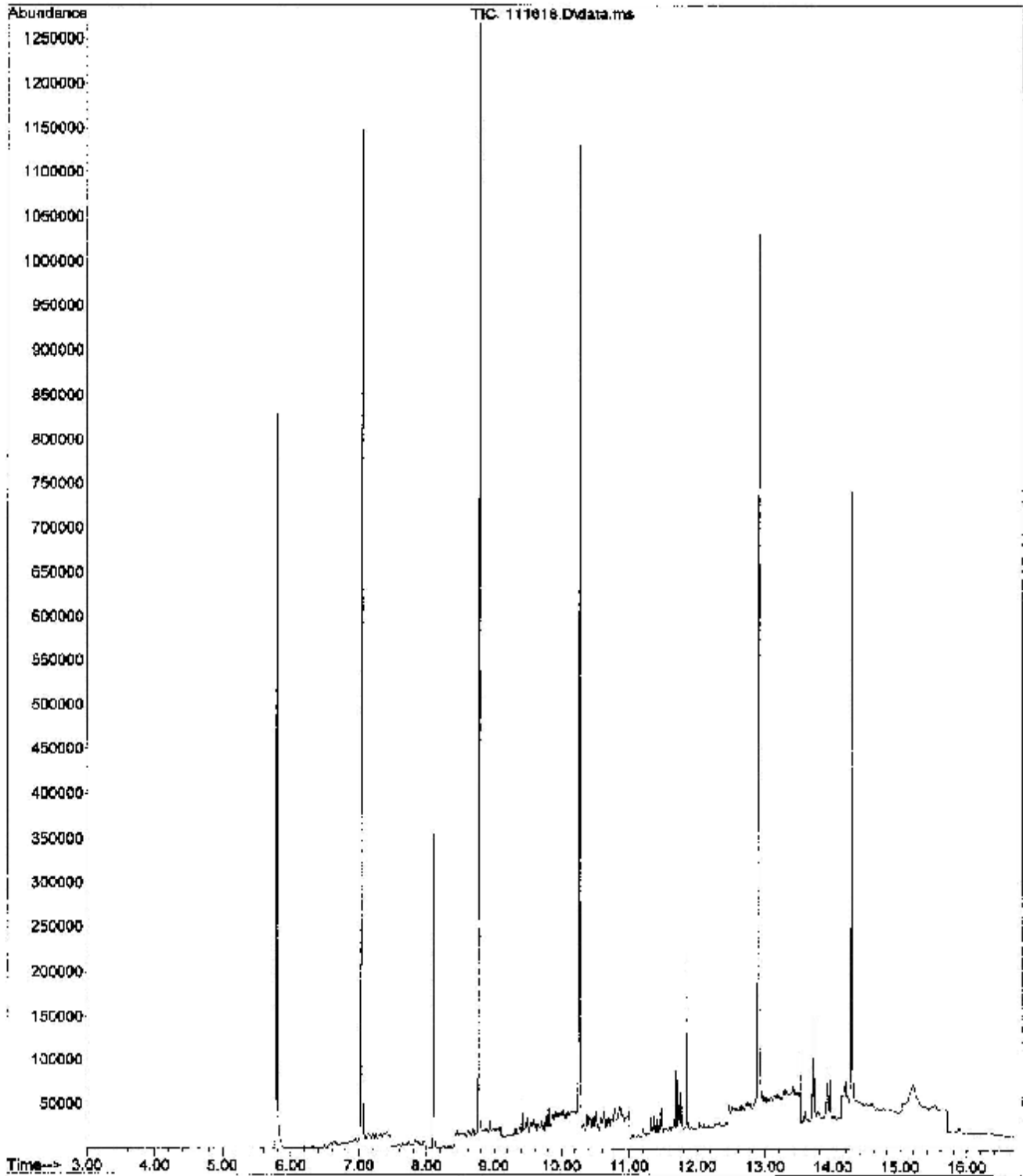
Quant Time: Nov 19 09:50:26 2012
 Quant Method : C:\msdchem\1\methods\DEPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Fri Nov 16 13:53:58 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.786	152	293924	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.034	136	945879	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.775	164	491331	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.255	188	750169	2000.00	ug/L	# 0.00
18) Chrysene-d12 (IS)	12.895	240	654989	2000.00	ug/L	0.01
23) Perylene-d12 (IS)	14.268	264	596970	2000.00	ug/L	0.02
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.104	172	196450	457.36	ug/L	0.00
14) Terphenyl-d14 (surr)	11.847	244	138995	429.73	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.056	128	4382		N.D.	
4) 2-Methylnaphthalene	7.743	142	1901		N.D.	
5) 1-Methylnaphthalene	7.838	142	2118		N.D.	
7) Acenaphthylene	8.643	152	4102		N.D.	
9) Acenaphthene	8.806	152	1659		N.D.	
10) Fluorene	9.320	166	3456		N.D.	
12) Phenanthrene	10.277	178	19274	33.68	ug/L #	90
13) Anthracene	10.330	178	6361		N.D.	
15) Fluoranthene	11.466	202	19254	28.22	ug/L #	30
16) Pyrene	11.692	202	49562	68.94	ug/L #	27
17) Benzo (a) anthracene	12.985	228	10103m	17.27	ug/L	
19) Chrysene	12.920	228	19228m	34.10	ug/L	
20) benzo (b) fluoranthene	13.895	252	12886	28.59	ug/L #	1
21) benzo (k) fluoranthene	13.909	252	4797		N.D.	
22) benzo (a) pyrene	14.254	252	3828		N.D.	
24) Indenc (1,2,3-cd)pyrene	15.487	276	463		N.D.	
25) Dibenz (a,h) anthracene	0.000		0		N.D.	
26) Benzo (g,h,i) perylene	15.885	276	8058	21.45	ug/L #	1

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

DEPAH111612.M Mon Nov 19 09:50:32 2012 PAH

File :D:\Data\SVOC\111612\111618.D
Operator :
Acquired : 16 Nov 2012 5:17 pm Using AcqMethod DEPAH111412.M
Instrument : HP-MSD
Sample Name: 1211093-001A
Misc Info : SAMP O-PAH-S-SIM
Vial Number: 17



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111619.D
 Acq On : 16 Nov 2012 5:42 pm
 Operator :
 Sample : 1211095-001A
 Misc : SAMP C-PAH-S-SIM
 ALS Vial : 18 Sample Multiplier: 1

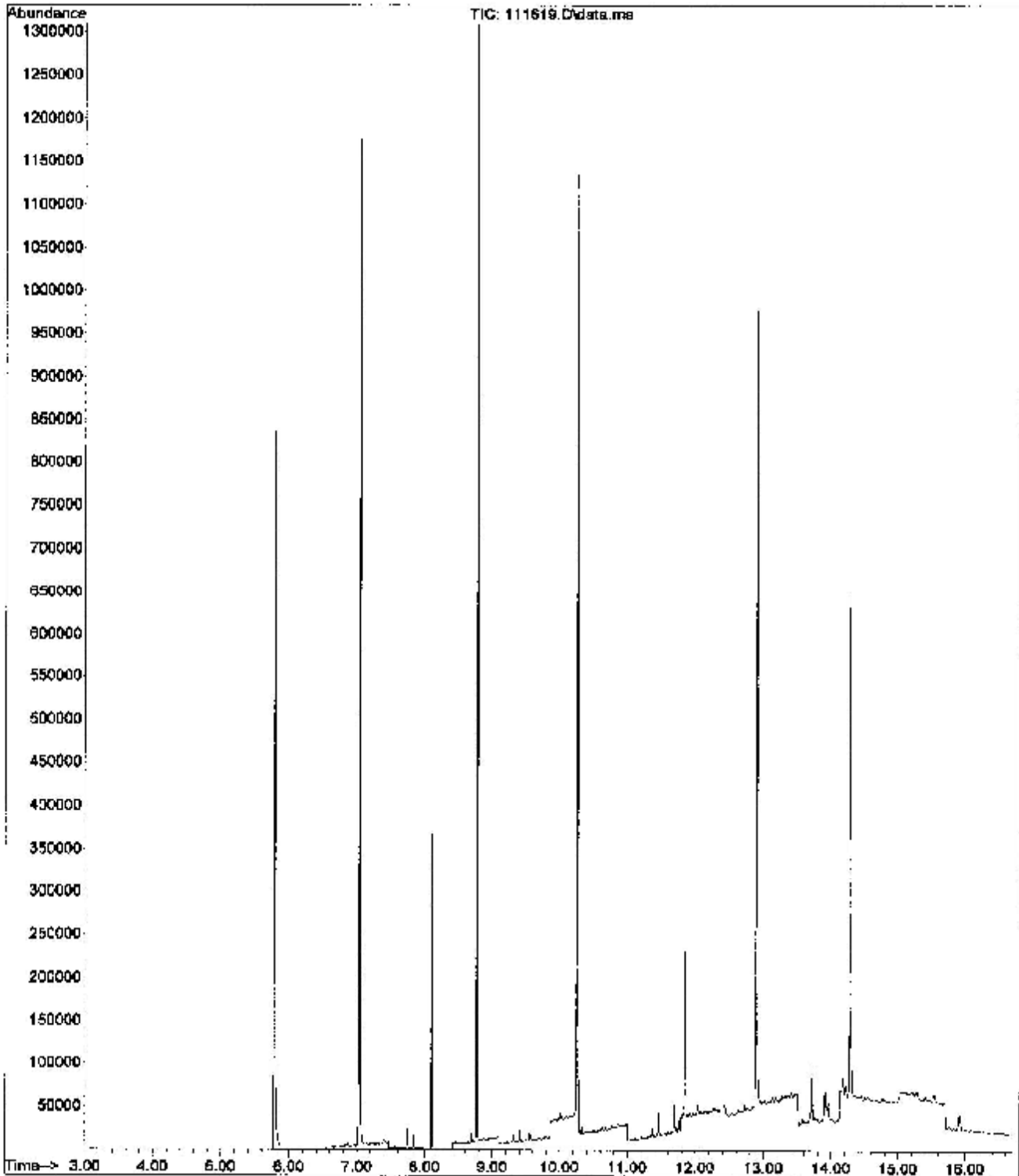
Quant Time: Nov 19 09:51:24 2012
 Quant Method : C:\msdchem\1\methods\DEPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Fri Nov 16 13:53:58 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.786	152	297033	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.034	136	960858	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.773	164	506057	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.253	188	779520	2000.00	ug/L	# 0.00
18) Chrysene-d12 (IS)	12.898	240	843962	2000.00	ug/L	0.01
23) Perylene-d12 (IS)	14.280	264	548759	2000.00	ug/L	0.03
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.103	172	202638	464.41	ug/L	0.00
14) Terphenyl-d14 (surr)	11.849	244	137967	410.49	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.053	128	10910	14.00	ug/L	# 71
4) 2-Methylnaphthalene	7.742	142	8153	17.45	ug/L	# 80
5) 1-Methylnaphthalene	7.839	142	4668	10.67	ug/L	# 58
7) Acenaphthylene	8.633	152	4932	N.D.		
9) Acenaphthene	8.802	152	466	N.D.		
10) Fluorene	9.319	166	3672	N.D.		
12) Phenanthrene	10.275	178	23108	39.37	ug/L	# 88
13) Anthracene	10.329	178	5400	N.D.		
15) Fluoranthene	11.466	202	18843	26.67	ug/L	# 70
16) Pyrene	11.692	202	23079	30.89	ug/L	# 74
17) Benzo (a) anthracene	12.888	228	12156	20.00	ug/L	# 1
19) Chrysene	12.921	228	11793m	21.27	ug/L	
20) benzo (b) fluoranthene	13.904	252	15207	34.32	ug/L	# 1
21) benzo (k) fluoranthene	13.926	252	6728m	12.16	ug/L	
22) benzo (a) pyrene	14.221	252	10609m	24.15	ug/L	
24) Indeno(1,2,3-cd)pyrene	15.539	276	8620	25.20	ug/L	# 1
25) Dibenz (a,h) anthracene	0.000		0	N.D.		
26) Benzo (g,h,i) perylene	15.917	276	27636	60.03	ug/L	# 24

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

DDPAH111612.M Mon Nov 19 09:51:32 2012 PAH

File :D:\Data\SVOC\111612\111619.D
Operator :
Acquired : 16 Nov 2012 5:42 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: 1211095-001A
Misc Info : SAMP O-PAH S-SIM
Vial Number: 18



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111623.D
 Acq On : 16 Nov 2012 6:06 pm
 Operator :
 Sample : 1211095-001ADJF
 Misc : DUF O-PAH-S-SIM
 ALS Vial : 19 Sample Multiplier: 1

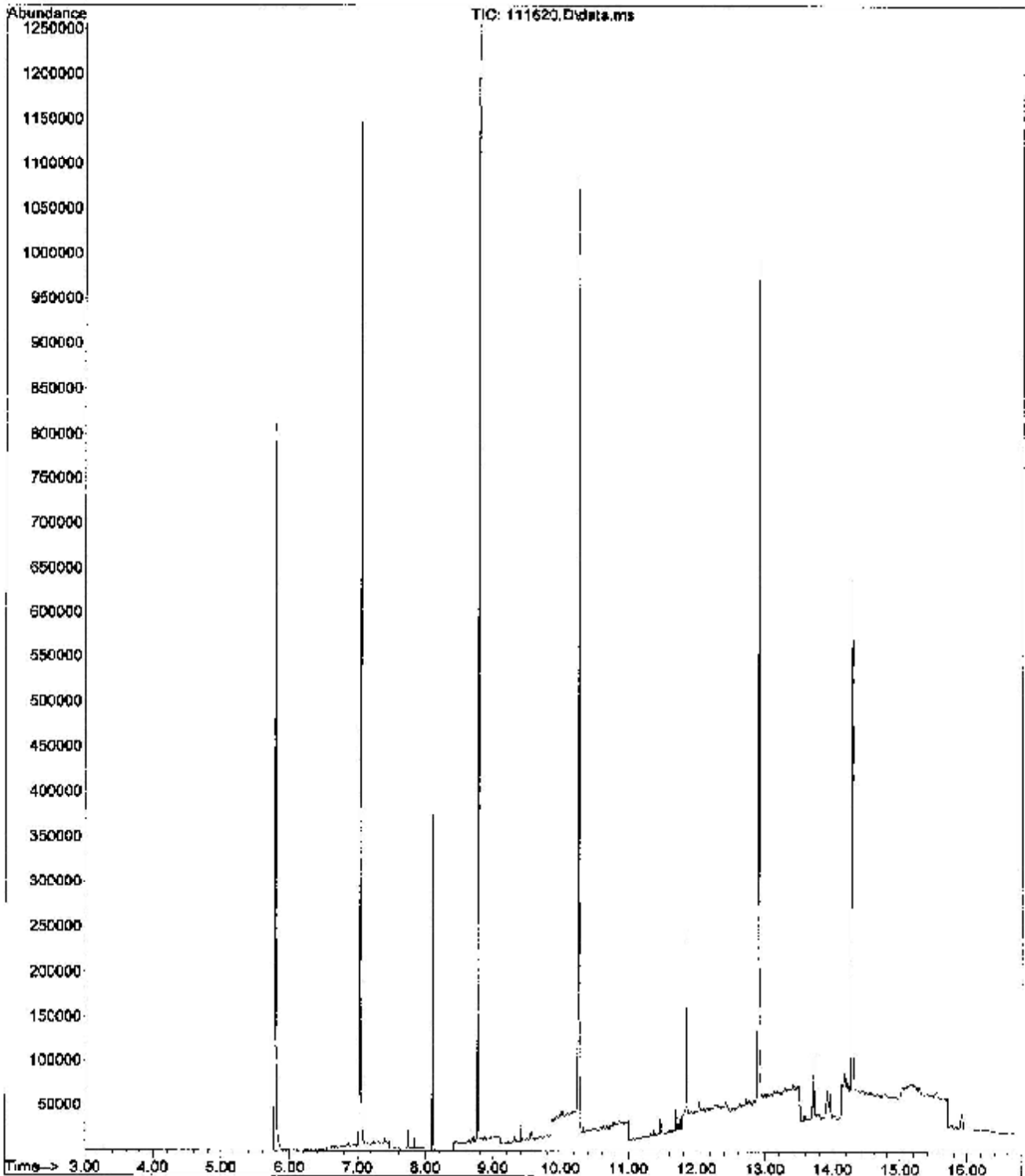
Quant Time: Nov 19 15:04:45 2012
 Quant Method : C:\msdchem\1\methods\BPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Fri Nov 16 13:53:58 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.788	152	283978	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.034	136	926480	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.775	164	489593	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.255	188	741320	2000.00	ug/L	# 0.00
18) Chrysene-d12 (IS)	12.900	240	619023	2000.00	ug/L	0.02
23) Perylene-d12 (IS)	14.283	264	520807	2000.00	ug/L	# 0.02
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.104	172	205179	487.69	ug/L	0.00
14) Terphenyl-d14 (surr)	11.850	244	139650	436.91	ug/L	0.01
Target Compounds						
						Qvalue
3) Naphthalene	7.056	128	9953	13.25	ug/L	# 70
4) 2-Methylnaphthalene	7.743	142	7859	17.45	ug/L	# 79
5) 1-Methylnaphthalene	7.838	142	4001	N.D.		
7) Accnaphthylene	8.635	152	3979	N.D.		
9) Acenaphthene	8.801	152	247	N.D.		
10) Fluorene	9.320	166	3038	N.D.		
12) Phenanthrene	10.277	178	23109	40.87	ug/L	# 89
13) Anthracene	10.330	178	4777	N.D.		
15) Fluoranthene	11.467	202	16985m	25.19	ug/L	
16) Pyrene	11.694	202	17878	25.16	ug/L	# 58
17) Benzo (a) anthracene	12.889	228	9960	17.23	ug/L	# 1
19) Chrysene	12.924	228	12735m	23.90	ug/L	
20) benzo (b) fluoranthene	13.904	252	12368	29.03	ug/L	# 1
21) benzo (k) fluoranthene	13.930	252	6490m	12.20	ug/L	
22) benzo (a) pyrene	14.221	252	8866m	21.00	ug/L	
24) Indeno(1,2,3-cd)pyrene	15.544	276	7793m	24.01	ug/L	
25) Dibenz (a,h) anthracene	0.000		0	N.D.		
26) Benzo (g,h,i) perylene	15.919	276	23657	72.19	ug/L	# 1

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

DBPAH111612.M Mon Nov 19 15:04:52 2012 PAH

File :D:\Data\SVOC\111612\111620.D
Operator :
Acquired : 16 Nov 2012 6:06 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: 1211095-OC1ADUP
Misc Info : DJP O-PAH-S-SIM
Vial Number: 19



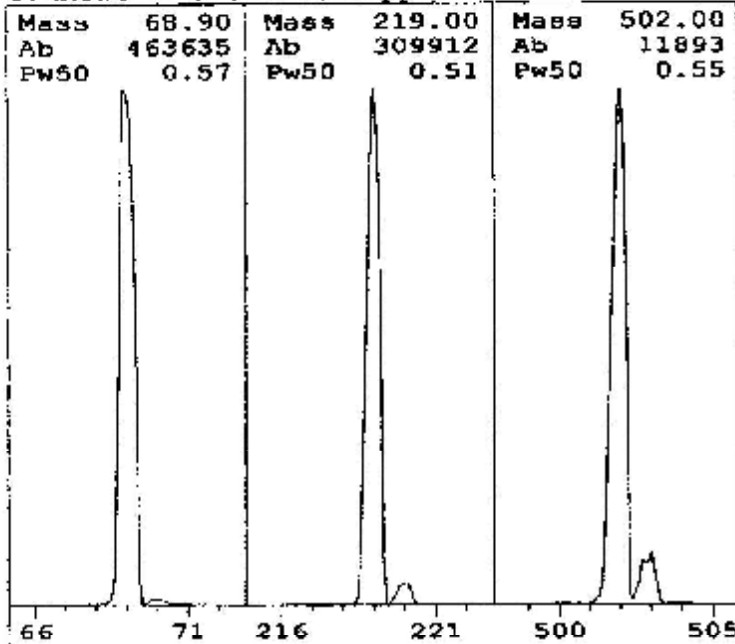
5975 DFTPP Dynamic Target Tune

Fri Nov 16 09:48:03 2012

Instrument: HP-MSD

C:\MSDCHEM\1\5975\dftpp.u

US11173714

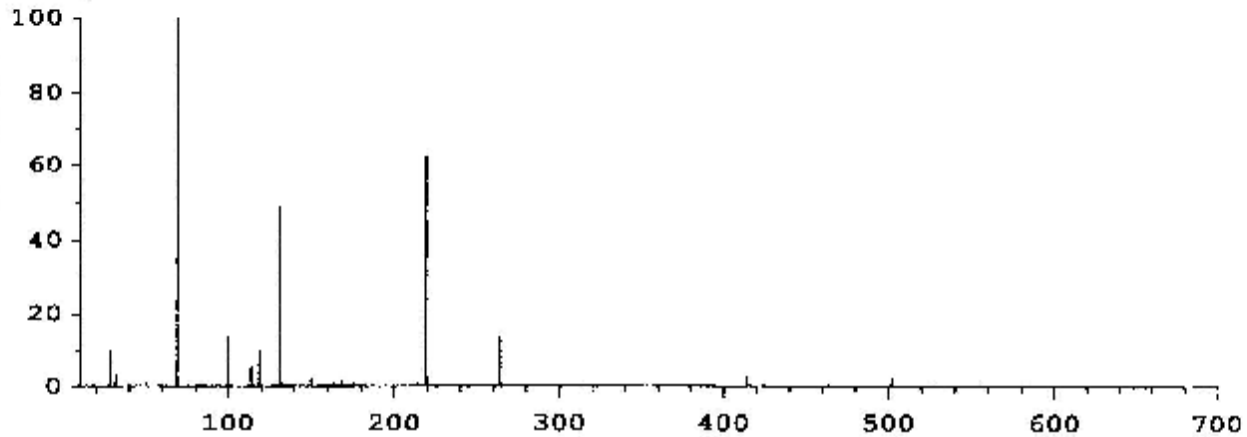


Ion Pol Pos MassGain -621
 MassOffs -40
 Emission 34.6 AmuGain 2043
 EI Energy 69.9 AmuOffs 124.06
 Filament 2 Wid219 -0.025
 DC Pol Pos
 Repeller 16.89
 IonFocus 59.8 HEDEnab On
 EntLens 0.0 EMVolts 2188
 EntOffs Var

PFTBA Open Samples 8
 Averages 3
 Stepsize 0.10

Temperatures and Pressures:
 MS Source 230 TurboSpd 100
 MS Quad 150 HiVac 1.32e05

Scan: 10.00 - 701.00 Samples: 8 Thresh: 100 Step: 0.10
 123 peaks Base: 69.00 Abundance: 447808



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	447808	100.00	70.00	4418	0.99
219.00	280640	62.67	220.00	12151	4.33
502.00	9921	2.22	503.00	1059	10.67

Air/Water Check: H2O~0.77% N2~9.88% O2~3.10% CO2~0.17% N2/H2O~1289.42%

Column(1) Flow: 1.58 Column(2): -1.79769e+308 ml/min. Interface Temp: -

Ramp Criteria:

Ion Focus Maximum 90 volts using ion 502; EM Gain 254373
 Repeller Maximum 35 volts using ion 502; Gain Factor 2.54

MassGain Values(Samples): -607(3) -596(2) -579(1) -524(0) -454(FS)

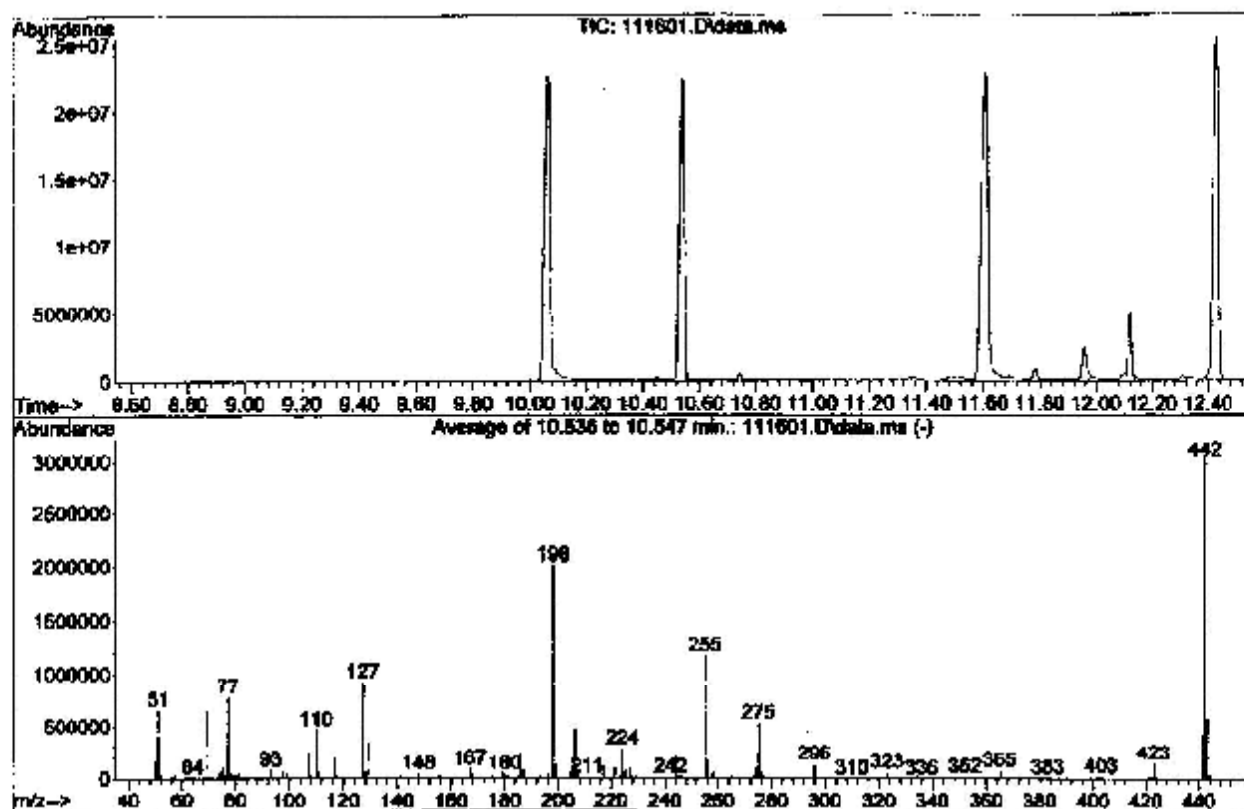
TARGET MASS:	50	69	131	219	414	502	1050
Amu Offset:	124.1	124.1	124.1	124.1	124.1	124.1	124.1
Entrance Lens Offset:	12.8	10.0	9.8	10.5	11.0	11.3	11.3
Target Abund(%):	1.0	100.0	45.0	55.0	2.4	2.0	
Actual Tune Abund(%):	1.0	100.0	48.9	62.7	2.8	2.2	

DFTPP

Data Path : D:\Data\SVOC\111612\
 Date File : 111601.D
 Acq On : 16 Nov 2012 10:06 am
 Operator :
 Sample : TUNE CHECK
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 51 Sample Multiplier: 1

Integration File: RTEINTSG8270.P

Method : C:\msdchem\1\methods\QSVOC110612.M
 Title : Semivol
 Last Update : Fri Nov 09 14:53:34 2012



AutoFind: Scans 1392, 1393, 1394; Background Corrected with Scan 1383

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn	Raw Abn	Result Pass/Fail
51	198	10	80	32.7	657923	PASS
68	69	0.00	2	1.4	9144	PASS
69	198	0.00	100	32.4	652004	PASS
70	69	0.00	2	0.5	3244	PASS
127	198	10	80	46.1	926827	PASS
197	198	0.00	2	0.5	10036	PASS
198	198	100	100	100.0	2011989	PASS
199	198	5	9	6.8	136264	PASS
275	198	10	60	26.6	534869	PASS
365	198	1	100	4.1	81760	PASS
441	442	0.01	24	14.0	430485	PASS
442	198	50	999	152.3	3064661	PASS
443	442	15	24	19.3	592597	PASS

File Edit View Options Database Help

File Edit View Options Database Help

Microsoft Access 2003

Microsoft Access 2003

File Edit View Options Database Help

File Edit View Options Database Help

Table Name	Field Name	Field Type	Field Size	Field Description
Table1	Field1	Text	255	
	Field2	Text	255	
	Field3	Text	255	
	Field4	Text	255	
	Field5	Text	255	
	Field6	Text	255	
	Field7	Text	255	
	Field8	Text	255	
	Field9	Text	255	
	Field10	Text	255	

Table Name	Field Name	Field Type	Field Size	Field Description
Table2	Field1	Text	255	
	Field2	Text	255	
	Field3	Text	255	
	Field4	Text	255	
	Field5	Text	255	
	Field6	Text	255	
	Field7	Text	255	
	Field8	Text	255	
	Field9	Text	255	
	Field10	Text	255	

Table Name	Field Name	Field Type	Field Size	Field Description
Table3	Field1	Text	255	
	Field2	Text	255	
	Field3	Text	255	
	Field4	Text	255	
	Field5	Text	255	
	Field6	Text	255	
	Field7	Text	255	
	Field8	Text	255	
	Field9	Text	255	
	Field10	Text	255	

Table Name	Field Name	Field Type	Field Size	Field Description
Table4	Field1	Text	255	
	Field2	Text	255	
	Field3	Text	255	
	Field4	Text	255	
	Field5	Text	255	
	Field6	Text	255	
	Field7	Text	255	
	Field8	Text	255	
	Field9	Text	255	
	Field10	Text	255	

INTERNAL STANDARD AREA AND RT SUMMARY

RunID: GCMS-3 121119A CCV Name: CAL MID POINT
 Run No: 8617 CCV SeqNo: 131570
 Lab File ID (Standard): 111606.D Date Analyzed: 11/16/2012
 Instrument ID: GCMS-3 Time Analyzed: 12:20
 GC Column: ID (mm): Length (M):

	IS1 (14DCBZ)		IS2 Acenaphthene-d10		IS3 Chrysene-d12		IS4 Naphthalene-d8		
	AREA #	RT #	AREA #	RT #	AREA #	RT #	AREA #	RT #	
12 HOUR STD	298974	5.761	498588	8.768	765770	12.882	943243	7.032	
UPPER LIMIT	597948	5.881	997196	8.868	1531640	12.982	1886486	7.132	
LOWER LIMIT	149487	5.661	249299	8.666	382886	12.782	471822	6.932	
SAMPLE NO.									
01	ICV-3638	268629	5.761	480167	8.77	732015	12.882	915891	7.031
02	ICB-3638	283461	5.761	457532	8.77	666472	12.882	885761	7.031
03	MB-3638	255244	5.784	412719	8.788	605954	12.884	804063	7.028
04	LCS-3638	276368	5.784	461650	8.771	709202	12.882	886126	7.029
05	1210178-001A	303536	5.784	471252	8.773	628561	12.897	929804	7.032
06	1210178-001AMS	318861	5.786	508515	8.775	610737	12.904	1.00172e+006	7.033
07	1211093-001A	283824	5.786	491331	8.775	654989	12.895	945875	7.034
08	1211095-001A	287033	5.786	509057	8.773	643982	12.898	960858	7.034
09	1211095-001ADUP	283878	5.788	469593	8.778	619023	12.9	926480	7.034

IS1 (14DCBZ) = 1,4-Dichlorobenzene-d4

IS2 Acenaphthene-d10 = Acenaphthene-d10

IS3 Chrysene-d12 = Chrysene-d12

IS4 Naphthalene-d8 = Naphthalene-d8

AREA UPPER LIMIT = +100% of Internal standard area

AREA LOWER LIMIT = -50% of Internal standard area

RT UPPER LIMIT = +0.10 minutes of internal standard RT

RT LOWER LIMIT = -0.10 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.

* Values outside of QC limits.

INTERNAL STANDARD AREA AND RT SUMMARY

RunID: GCMS-3_121118A CCV Name: CAL MID POINT
 Run No: 8617 CCV SeqNo: 131878
 Lab File ID (Standard): 111806.D Date Analyzed: 11/16/2012
 Instrument ID: GCMS-3 Time Analyzed: 12:20
 GC Column: ID (mm): Length (M):

		S5 Perylene-d12		5 Phenanthrene-d10					
		AREA #	RT #	AREA #	RT #				
12 HOUR STD		710991	14.247	776989	10.248				
UPPER LIMIT		1421882	14.347	1553978	10.348				
LOWER LIMIT		355495	14.147	388495	10.148				
SAMPLE NO.									
01	ICV-3839	670042	14.247	747807	10.246				
02	ICB-3639	547711	14.247	721921	10.245				
03	MB-3839	482604	14.247	658737	10.247				
04	LCS-3839	536985	14.249	725020	10.248				
05	1210176-001A	585557	14.285	711837	10.253				
06	1210176-001AMS	556032	14.294	747835	10.258				
07	1211093-001A	586970	14.288	750169	10.255				
08	1211095-001A	548759	14.28	779620	10.253				
09	1211095-001ADUP	520807	14.283	741320	10.255				

IS5 Perylene-d12 = Perylene-d12

IS6 Phenanthrene-d10 = Phenanthrene-d10

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = -50% of internal standard area

RT UPPER LIMIT = +0.10 minutes of internal standard RT

RT LOWER LIMIT = -0.10 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.

* Values outside of QC limits.

Oven Temp (C): 105

Time in: 3:15 PM
Time out: 5:30 PM

Analyst Date and Time CM 10/22/2012 2:30:00 PM

Tin #	Sample ID	SAMP TYPE	Testcode	Initial Weight	Final Weight 1	Calculated wt	ANALYSIS DATE	Analyte
1	1210020-062B	SAMP	PMOIST	10.57	8.11	23.27	10/22/12 14:30	Percent Moisture
2	1210046-027A	SAMP	PMOIST	14.32	14.25	0.49	10/22/12 14:30	Percent Moisture
3	1210144-001A	SAMP	PMOIST	14.83	11.98	19.22	10/22/12 14:30	Percent Moisture
4	1210144-002A	SAMP	PMOIST	16.08	14.81	7.90	10/22/12 14:30	Percent Moisture
5	1210144-003A	SAMP	PMOIST	19.47	16.43	15.61	10/22/12 14:30	Percent Moisture
6	1210160-001A	SAMP	PMOIST	13.86	7.40	46.61	10/22/12 14:30	Percent Moisture
7	1210160-002A	SAMP	PMOIST	18.72	14.51	22.49	10/22/12 14:30	Percent Moisture
8	1210160-003A	SAMP	PMOIST	21.62	19.01	12.07	10/22/12 14:30	Percent Moisture
9	1210160-004A	SAMP	PMOIST	18.69	11.86	36.54	10/22/12 14:30	Percent Moisture
10	1210160-005A	SAMP	PMOIST	23.04	19.40	15.80	10/22/12 14:30	Percent Moisture
11	1210160-006A	SAMP	PMOIST	21.55	18.93	12.16	10/22/12 14:30	Percent Moisture
12	1210160-007A	SAMP	PMOIST	22.57	20.97	7.09	10/22/12 14:30	Percent Moisture
13	1210160-008A	SAMP	PMOIST	19.53	15.15	22.43	10/22/12 14:30	Percent Moisture
14	1210160-009A	SAMP	PMOIST	18.68	13.81	26.07	10/22/12 14:30	Percent Moisture
15	1210170-001A	SAMP	PMOIST	18.57	16.45	11.42	10/22/12 14:30	Percent Moisture
16	1210170-004A	SAMP	PMOIST	22.92	18.79	18.02	10/22/12 14:30	Percent Moisture
17	1210170-005A	SAMP	PMOIST	24.26	16.47	32.11	10/22/12 14:30	Percent Moisture
18	1210170-006A	SAMP	PMOIST	13.32	11.19	15.99	10/22/12 14:30	Percent Moisture
19	1210170-009A	SAMP	PMOIST	15.19	11.79	22.38	10/22/12 14:30	Percent Moisture
20	1210170-012A	SAMP	PMOIST	15.96	12.83	19.61	10/22/12 14:30	Percent Moisture
21	1210170-015A	SAMP	PMOIST	24.74	20.45	17.34	10/22/12 14:30	Percent Moisture
22	1210176-001A	SAMP	PMOIST	15.35	12.02	21.69	10/22/12 14:30	Percent Moisture
23	1210178-001B	SAMP	PMOIST	9.13	8.31	8.98	10/22/12 14:30	Percent Moisture
24	1210178-003B	SAMP	PMOIST	15.95	14.85	6.90	10/22/12 14:30	Percent Moisture
25	1210178-007B	SAMP	PMOIST	21.13	19.00	10.08	10/22/12 14:30	Percent Moisture
26	1210178-008B	SAMP	PMOIST	24.58	23.19	5.66	10/22/12 14:30	Percent Moisture

Oven Temp (C): 105

Time in: 3:15 PM
Time out: 5:30 PM

Analyst Date and Time CM 10/22/2012 2:30:00 PM

Tin #	Sample ID	SAMP TYPE	Testcode	Initial Weight	Final Weight 1	Calculated wt	ANALYSIS DATE	Analyte
27	1210178-010B	SAMP	PMOIST	24.06	21.05	12.51	10/22/12 14:30	Percent Moisture
28	1210178-012B	SAMP	PMOIST	18.94	17.47	7.76	10/22/12 14:30	Percent Moisture
29	1210177-001A	SAMP	PMOIST	14.69	13.02	11.37	10/22/12 14:30	Percent Moisture
30	1210177-002A	SAMP	PMOIST	13.26	11.76	11.31	10/22/12 14:30	Percent Moisture



Libby Environmental, Inc.

4139 Libby Road NE • Olympia, WA 98506-2518

November 12, 2012

Neil Morton
GeoEngineers Inc.
600 Stewart Street, Suite 1700
Seattle, WA 98101

Dear Mr. Morton:

Please find enclosed the analytical data report for the Irondale Project located in Irondale, Washington. A water sample and soil samples were analyzed for Diesel & Oil by NWTPH-Dx/Dx Extended with Silica Gel Clean Up on October 19, 2012. A soil sample was analyzed for Loose Density on October 22, 2012.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. All soil samples are reported on a dry weight basis. An invoice for this analytical work is enclosed.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Jamie L. Deyman
President
Libby Environmental, Inc.

Phone (360) 352-2110 • Fax (360) 352-4154 • libbyenv@aol.com

www.LibbyEnvironmental.com



Libby Environmental, Inc.

Case Narrative

Libby Project #: L121019-30
Date: 11-12-2012

CLIENT: GeoEngineers, Inc.
PROJECT: Irondale

I. SAMPLE RECEIPT:

All samples were received intact and in good condition. See the attached Sample Receipt Check List for more information.

II. GENERAL REPORTING COMMENTS:

Final results are reported on a dry weight basis. The soil samples in the field are estimated to have a moisture content of 15%. This estimate is useful in producing data that is close to the actual value. After the sample is analyzed for soil moisture at our fixed base facility, the final data is reported based on measured soil moisture. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS), the Laboratory Control Sample Duplicate (LCSD) and the Method Blank (MB). The LCS, LCSD and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) and/or noted below.

Notes:

For the water matrix, a Method Blank and sample duplicate were analyzed. Neither an LCS nor an LCSD were prepared or analyzed due to practical time constraints. The NWTPH-Dx method does not recommend LCS or LCSD.

Libby Environmental, Inc.

Chain of Custody Record

4139 Libby Road NE Ph: 360-352-2110
 Olympia, WA 98506 Fax: 360-352-4154

Date: 10-19-12 Page: 1 of 1

Client: Geo Engineers

Project Manager: Neil Morton

Address:

Project Name: Irondale

Phone: Fax:

Location: City: Irondale, WA

Client Project #

Collector: Paul Robinette Date of Collection: 10-19-12

Sample Number	Depth	Time	Sample Type	Container Type	Analytes											Field Notes								
					VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEMI VOL 8270	NWTPH-HCID	NWTPH-GX	NWTPH-DX	PAH 8270	PCB's 8082	MTCA 5 Metals	Loose Density									
1 DW7-101912	-	8:31	Water	Amber																				
2 SURZ-SSWB-101912	9	12:15	Soil	4oz Jar																				
3 IRZ-Stockpile-A	3	10:30	Soil	large bag																				
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								
13																								
14																								
15																								
16																								
17																								
18																								

Relinquished by: <u>Paul Robinette</u>	Date / Time: <u>10/19/12 1400</u>	Received by: <u>Paul Bunk</u>	Date / Time: <u>10/19/12 1400</u>	Sample Receipt:	Remarks:	
Relinquished by:	Date / Time:	Received by:	Date / Time:			Good Condition?
Relinquished by:	Date / Time:	Received by:	Date / Time:			Cold?
Relinquished by:	Date / Time:	Received by:	Date / Time:			Seals Intact?
				Total Number of Containers		

Libby Environmental, Inc. Login Sample Receipt Check List

Client: GeoEngineers, Inc. **Libby Project Number:** L121019-30

Question	T / F / NA	Comment
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler temperature is acceptable.	True	
COC is present.	True	
COC is filled out in ink and is legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within the Hold Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs.	True	
VOA sample vials do not have headspace or bubble is less than 6mm (1/4 in.) in diameter.	True	
If necessary, staff has been informed of any short hold time or quick TAT needs.	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	

Libby Environmental, Inc.

IRONDALE PROJECT

GeoEngineers, Inc.

Irondale, Washington

Libby Project # L121019-30

Client Project # 0504-042-02

4139 Libby Road NE

Olympia, WA 98506

Phone: (360) 352-2110

FAX: (360) 352-4154

Email: libbyenv@aol.com

Analyses of Diesel & Oil Range (NWTPH-Dx/Dx Extended) in Water

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel ($\mu\text{g/l}$)	Bunker C ($\mu\text{g/l}$)
Method Blank	10/19/12	105	nd	nd
DW7-101912	10/19/12	103	nd	nd
DW7-101912 Dup	10/19/12	112	nd	nd
Practical Quantitation Limit			200	400

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

Libby Environmental, Inc.

IRONDALE PROJECT

GeoEngineers, Inc.

Irondale, Washington

Libby Project # L121019-30

Client Project # 0504-042-02

4139 Libby Road NE

Olympia, WA 98506

Phone: (360) 352-2110

FAX: (360) 352-4154

Email: libbyenv@aol.com

Analyses of Diesel & Oil Range (NWTPH-Dx/Dx Extended) in Soil w/ Silica Gel Cleanup

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Bunker C (mg/kg)
Method Blank	10/19/12	99	nd	nd
LCS	10/19/12	int	103%	
LCSD	10/19/12	int	102%	
SURZ-SSWB-101912	10/19/12	129	nd	nd
SURZ-SSWB-101912 Dup	10/19/12	118	nd	nd
Practical Quantitation Limit			25	40

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

Libby Environmental, Inc.

4139 Libby Road NE
Olympia, WA 98506
Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@aol.com

IRONDALE PROJECT
GeoEngineers, Inc.
Irondale, Washington
Libby Project # L121019-30
Client Project # 0504-042-02

Loose Density Test - Soil

Sample Number	Date Collected	Date Tested	Wet Density (kg/l)
IRZ-STOCKPILE A	10/18/12	10/22/12	1.25

ANALYSES PERFORMED BY: Paul Burke

Lab name: Lobby Environmental
 Analysis date: 10/19/2012 08:02:49
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C324.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Analysis date: 10/19/2012 08:02:49
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D322.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

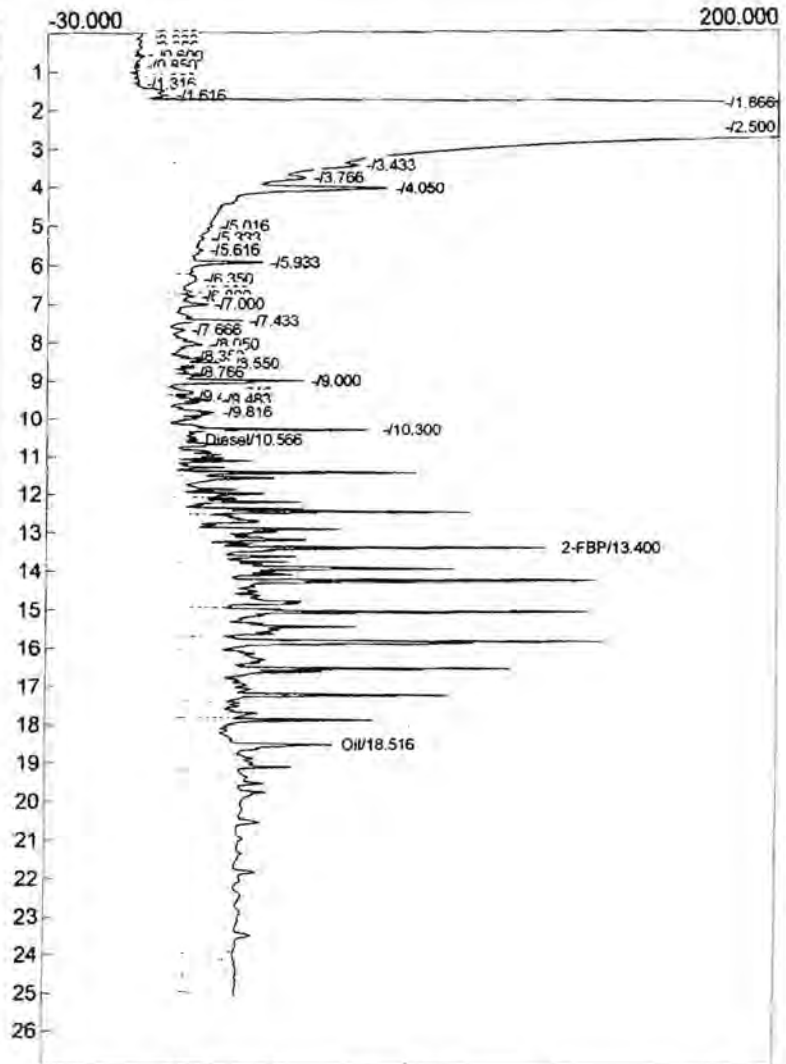
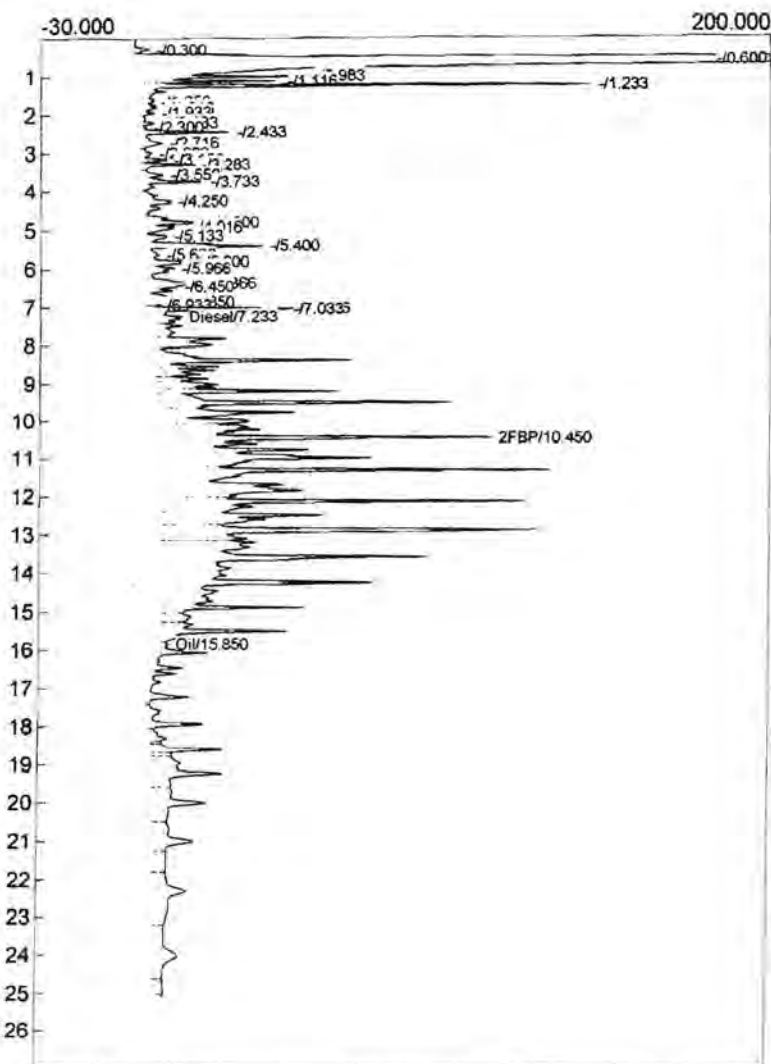
Time Event
 0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.233	11404.8080	7.018	562.1562	ppm
2FBP	10.450	743.0380	104.061	25.8448	ppm
Oil	15.850	2213.9230	1.000	108.8450	ppm
		14361.7690		696.8459	

Component	Retention	Area	Height	External	Units
Diesel	10.566	10722.1280	5.409	569.8467	
2-FBP	13.400	597.0920	118.867	20.7684	ppm
Oil	18.516	7418.5070	48.536	393.0577	ppm
		18737.7270		983.6728	

Analysis date: 10/19/2012 08:36:03
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C325.CHR ()
 Sample: 1000 ppm LCS 343
 Operator: PB

Analysis date: 10/19/2012 08:36:03
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D323.CHR ()
 Sample: 1000 ppm LCSD 343
 Operator: PB

Temperature program:

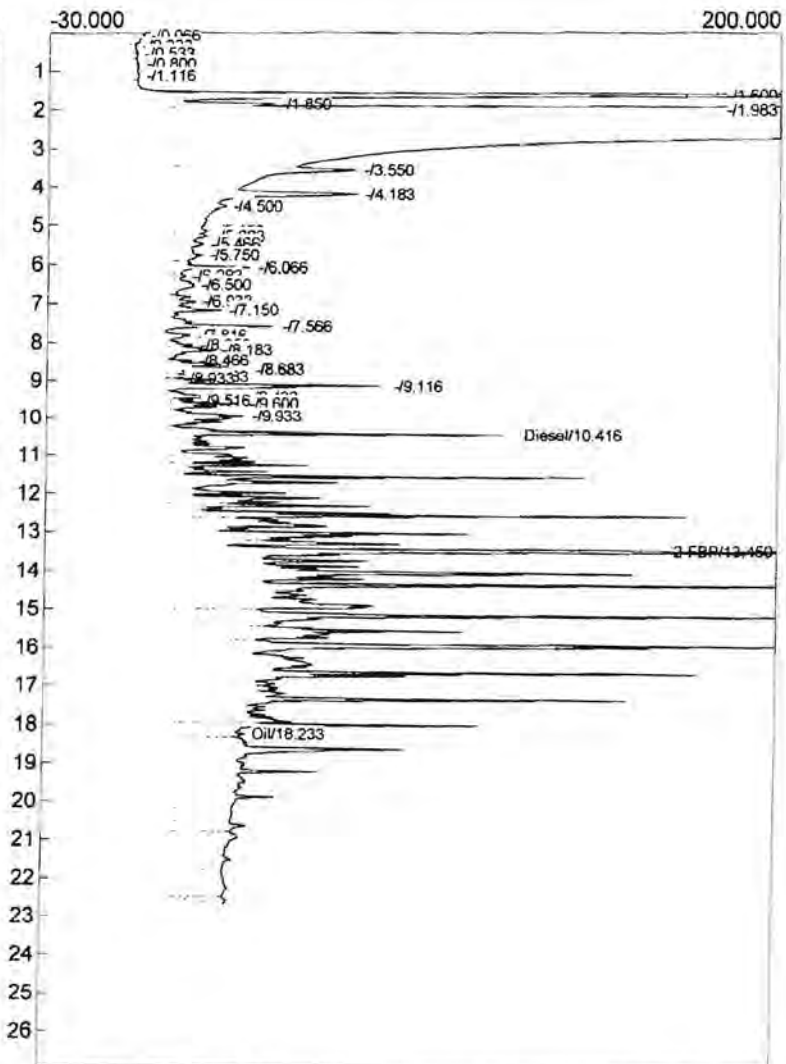
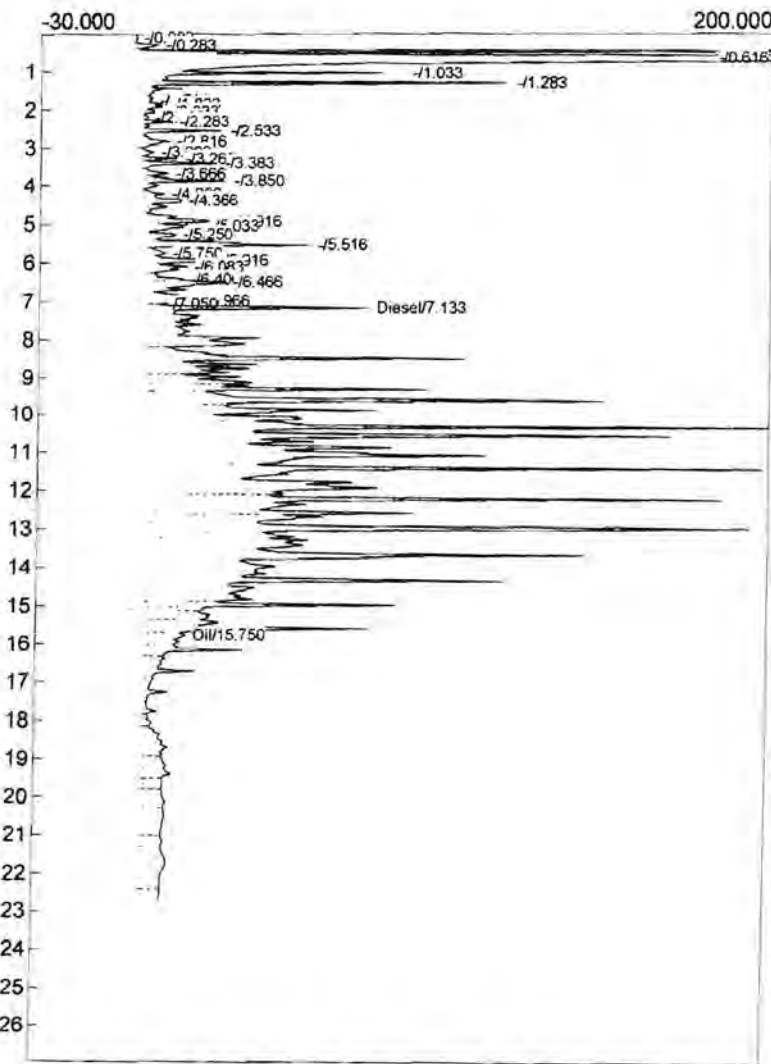
Init temp Hold Ramp Final temp

Events:
 Time Event
 0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

Events:
 Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.133	20870.6615	68.110	1032.0642	ppm
Oil	15.750	2184.3885	11.909	107.3930	ppm
		23055.0500		1139.4572	

103%

Component	Retention	Area	Height	External	Units
Diesel	10.416	19024.6760	109.116	1018.7357	
2-FBP	13.450	1440.3895	234.121	50.1005	ppm
Oil	18.233	5145.1800	22.147	272.1945	ppm
		25610.2455		1341.0307	

102%

Analysis date: 10/19/2012 09:05:15

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: C326.CHR ()

Sample: Method Blank

Operator: PB

Analysis date: 10/19/2012 09:05:15

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: D324.CHR ()

Sample: Method Blank

Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

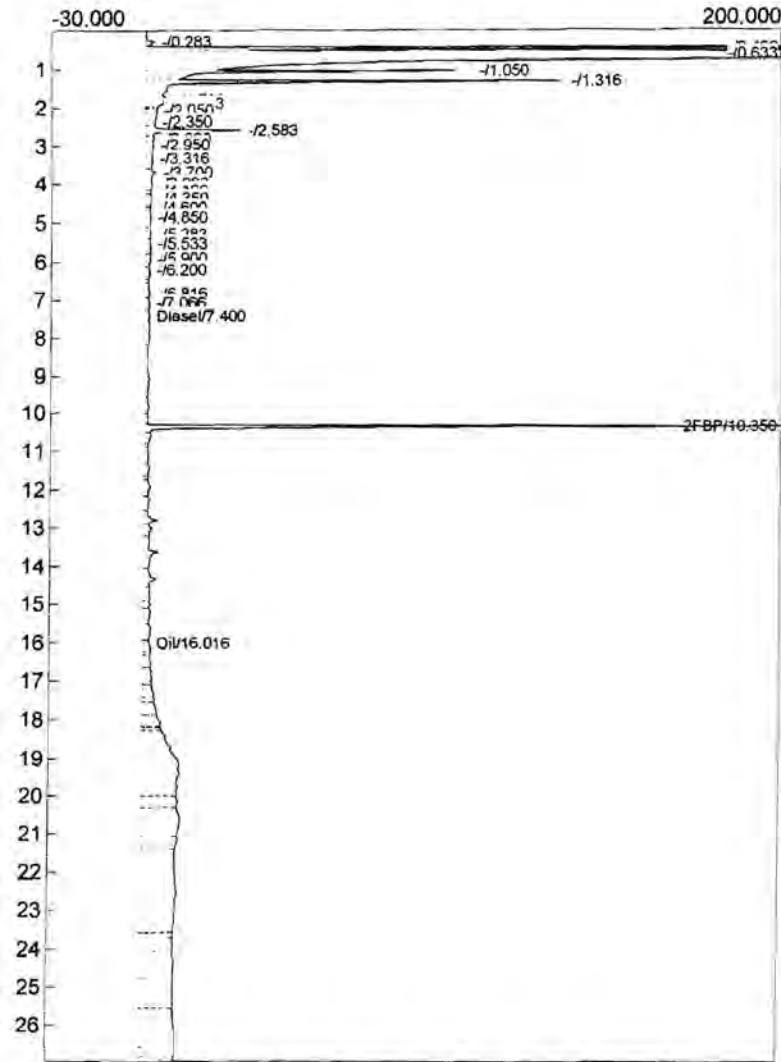
Time Event
0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

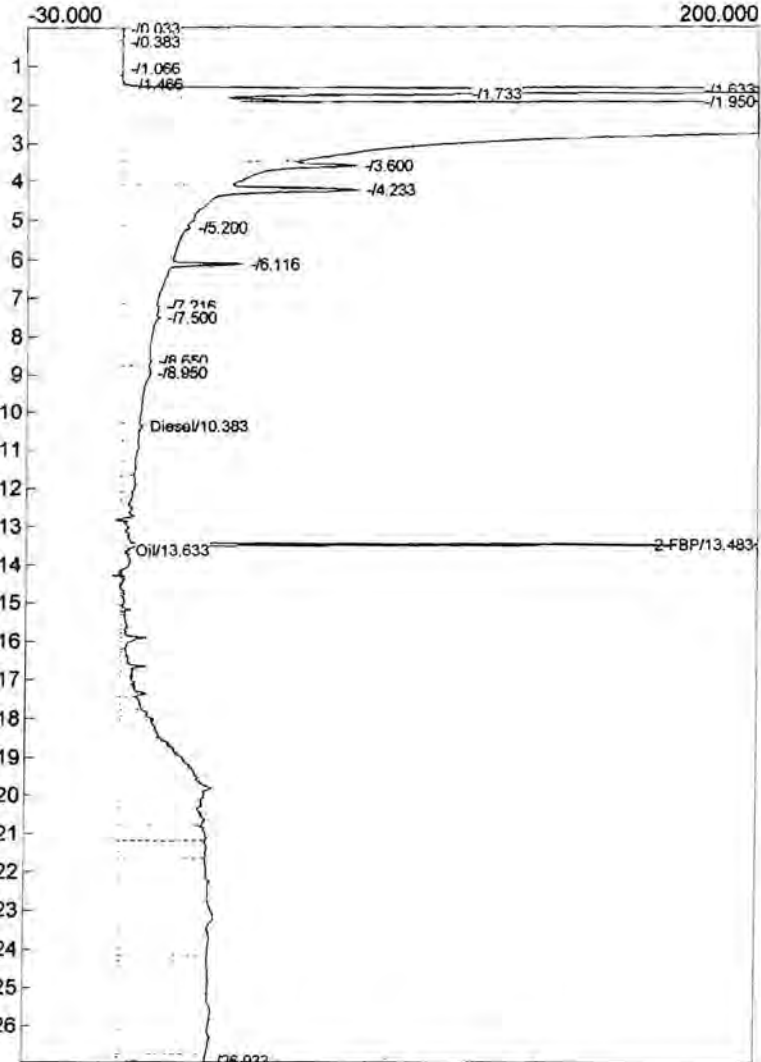
Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.400	921.0590	0.366	45.2828	ppm
2-FBP	10.350	599.5570	215.907	20.8542	ppm
Oil	16.016	5341.3740	0.984	262.7764	ppm
		6861.9900		328.9133	

104%



Component	Retention	Area	Height	External	Units
Diesel	10.383	571.0350	5.959	30.1555	
2-FBP	13.483	566.3630	226.804	19.8996	ppm
Oil	13.633	14156.7285	0.620	754.7481	ppm
		15294.1265		804.6032	

99%

Analysis date: 10/19/2012 09:05:15

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: C326.CHR ()

Sample: Method Blank

Operator: PB

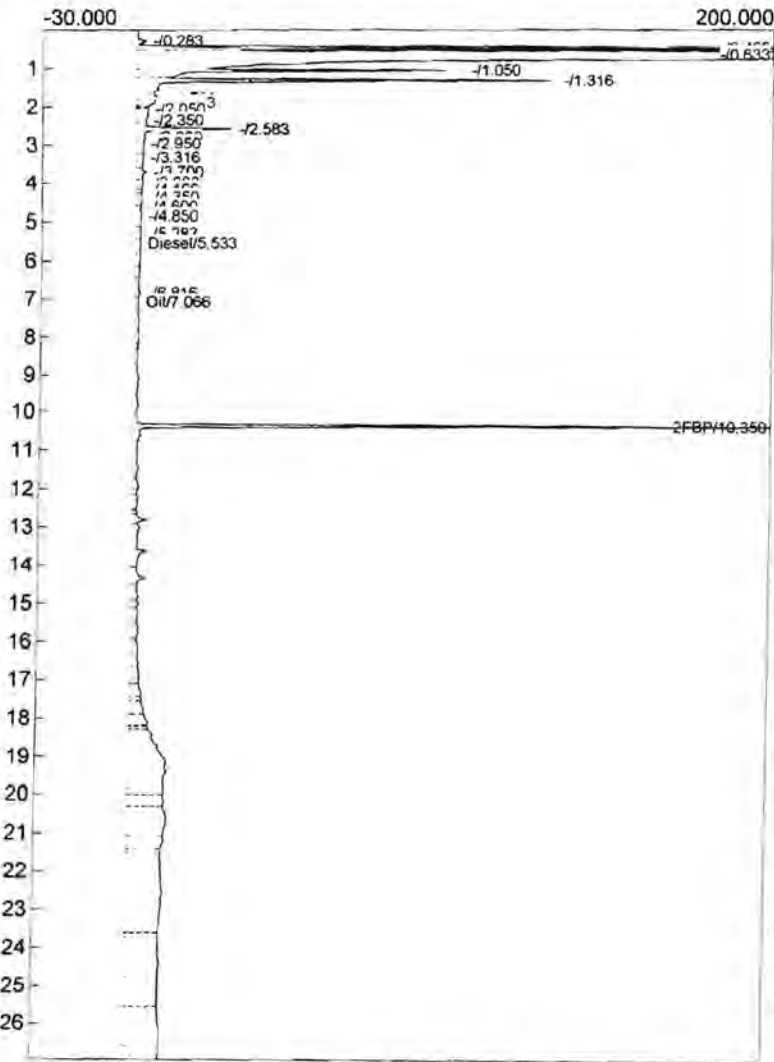
USED For Bunker C Airblank only

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.533	28.6120	0.632	1.4067	ppm
Oil	7.066	6265.9145	0.237	308.3565	ppm
2-FBP	10.350	599.5570	215.907	20.8542	ppm
		6894.0835		330.6174	

Analysis date: 10/19/2012 09:05:15

Method:

Description: JAMACIA

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: D324.CHR ()

Sample: Method Blank

Operator: PB

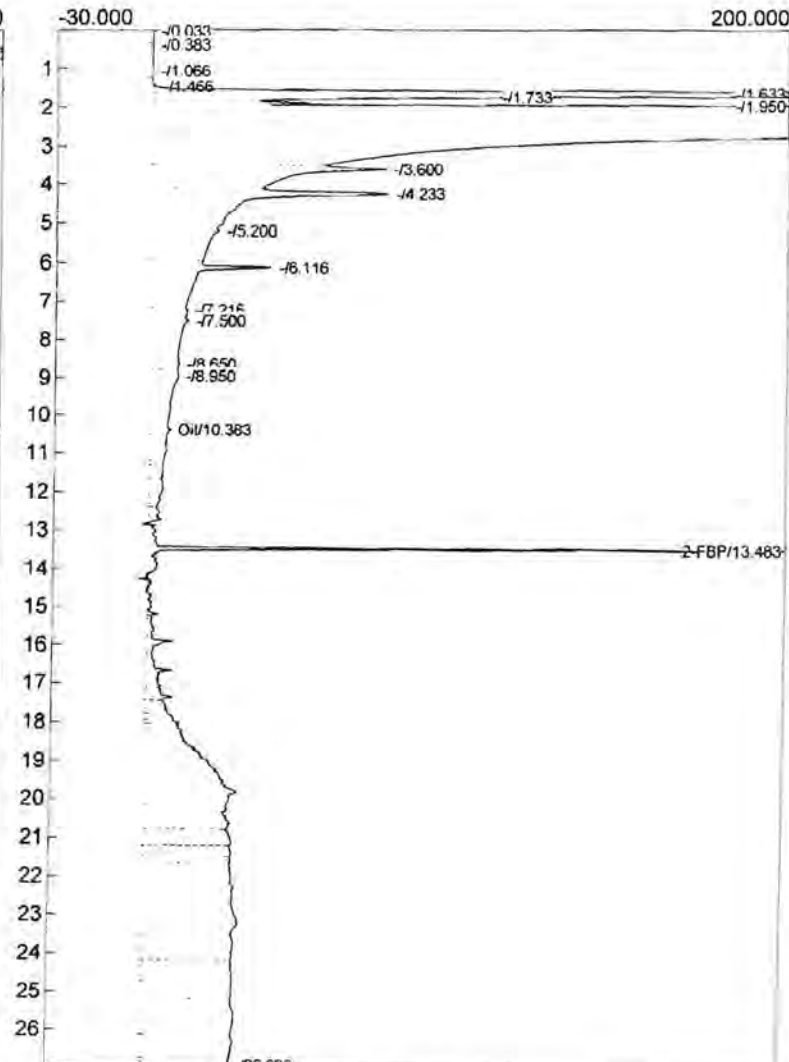
used For Bunker C airblank only

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Oil	10.383	15294.1265	5.959	816.1592	ppm
2-FBP	13.483	566.3630	226.804	19.6996	ppm
		15860.4895		835.8588	

Lab name: Libby Environmental
 Analysis date: 10/19/2012 09:43:56
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C327.CHR ()
 Sample: DW7-101912
 Operator: PB

Analysis date: 10/19/2012 09:43:00
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D325.CHR ()
 Sample: DW7-101912
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

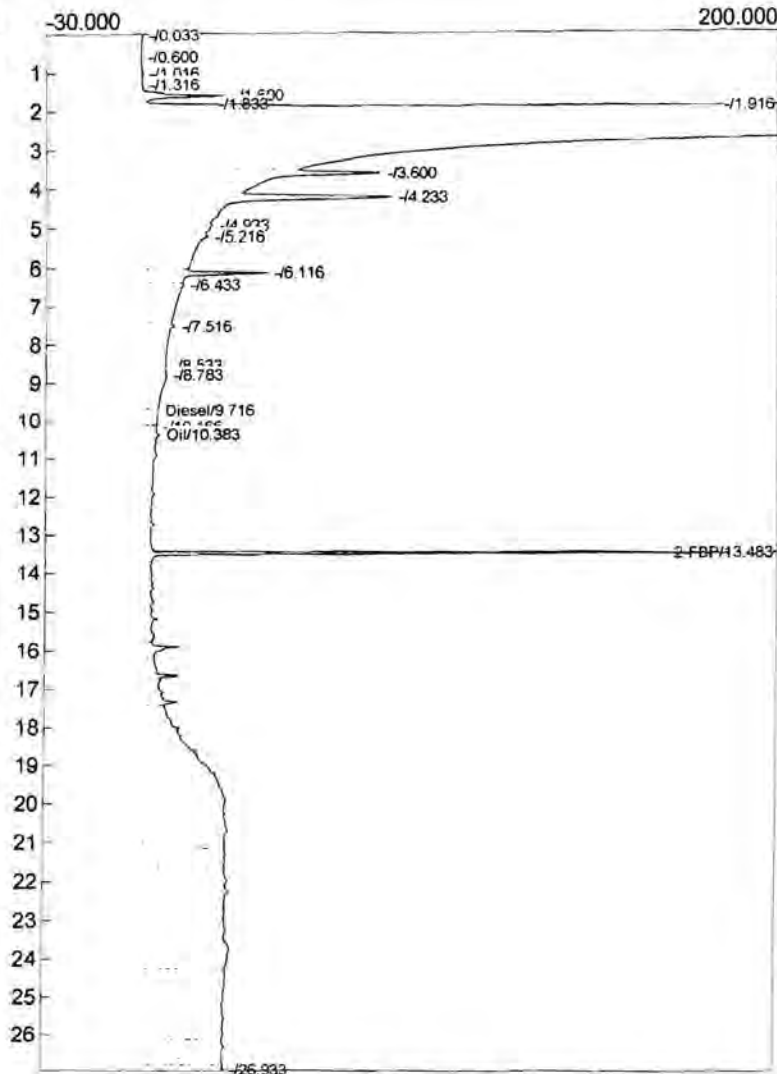
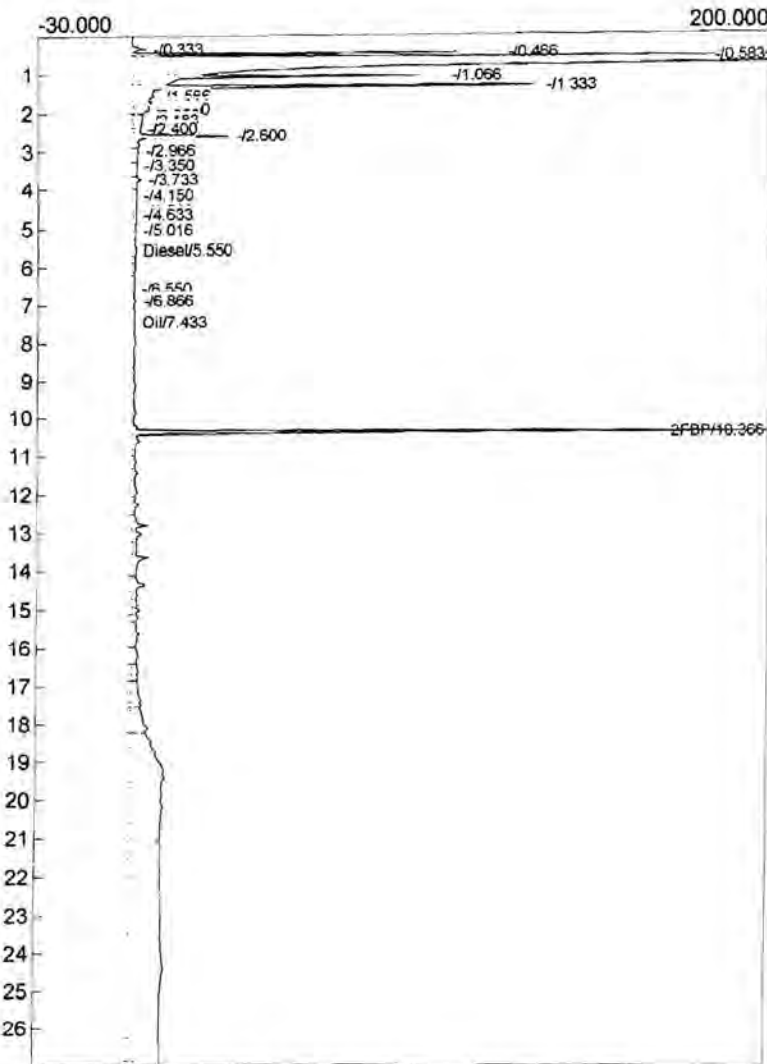
Time Event
 0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	5.550	19.0020	0.601	0.9342	ppm
Oil	7.433	6255.6480	0.353	307.8504	ppm
2FBP	10.366	589.4990	222.114	20.5043	ppm
		6864.1490		329.2889	

Component	Retention	Area	Height	External	Units
Diesel	9.716	66.1220	2.712	3.4918	
Oil	10.383	13754.5355	3.146	733.0719	ppm
2-FBP	13.483	645.6060	241.289	22.4559	ppm
		14466.2635		759.0196	

nd 103%

nd 112%

Lab name: Lobby Environmental
 Analysis date: 10/19/2012 13:09:13
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C328.CHR ()
 Sample: SURZ-SSWB-101912
 Operator: PB

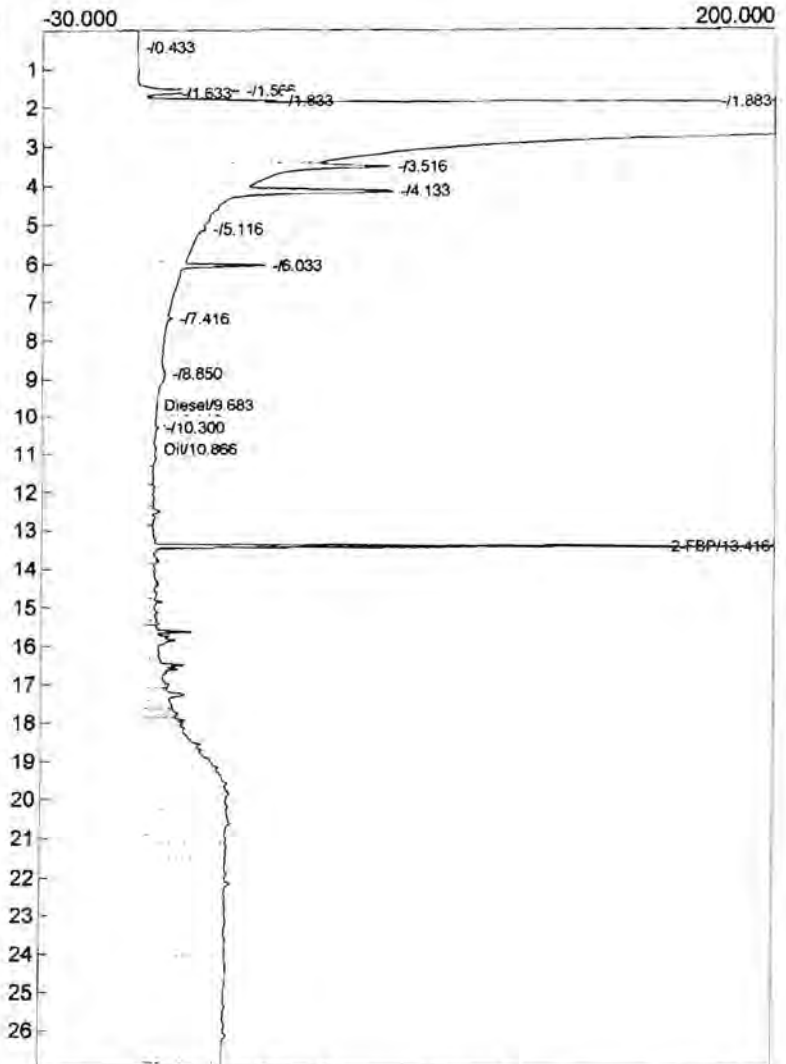
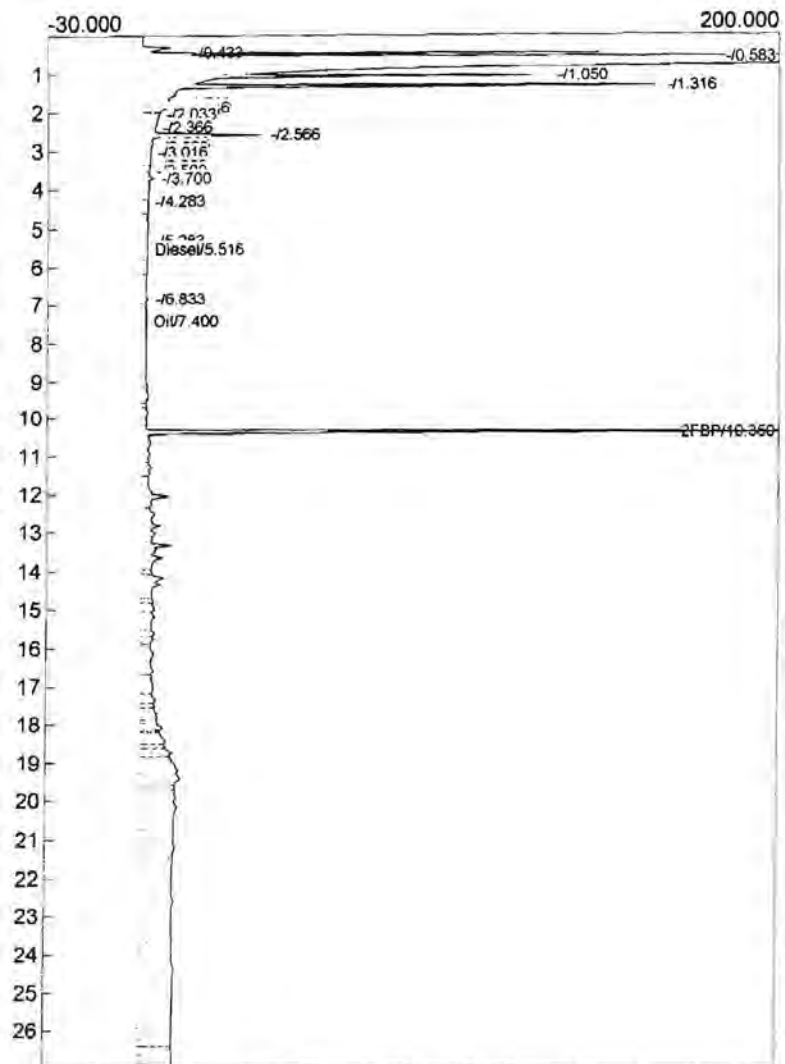
Analysis date: 10/19/2012 13:09:13
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D326.CHR ()
 Sample: SURZ-SSWB-101912 Dup
 Operator: PB

Temperature program:

Init temp	Hold	Ramp	Final temp
0.000			

Temperature program:

Init temp	Hold	Ramp	Final temp
0.000			



Component	Retention	Area	Height	External	Units
Diesel	5.516	3.1320	0.162	0.1540	ppm
Oil	7.400	6598.9450	0.190	324.7751	ppm
2-FBP	10.350	742.2885	282.465	25.8187	ppm
		7344.3655		350.7478	

Component	Retention	Area	Height	External	Units
Diesel	9.683	40.2990	1.819	2.1281	
Oil	10.866	14051.8570	1.742	749.0986	ppm
2-FBP	13.416	677.0300	278.931	23.5489	ppm
		14769.1960		774.7736	

nd 129%

nd 1184%

Lab name: Eddy Environmental
 Analysis date: 10/19/2012 14:02:35
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C329.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

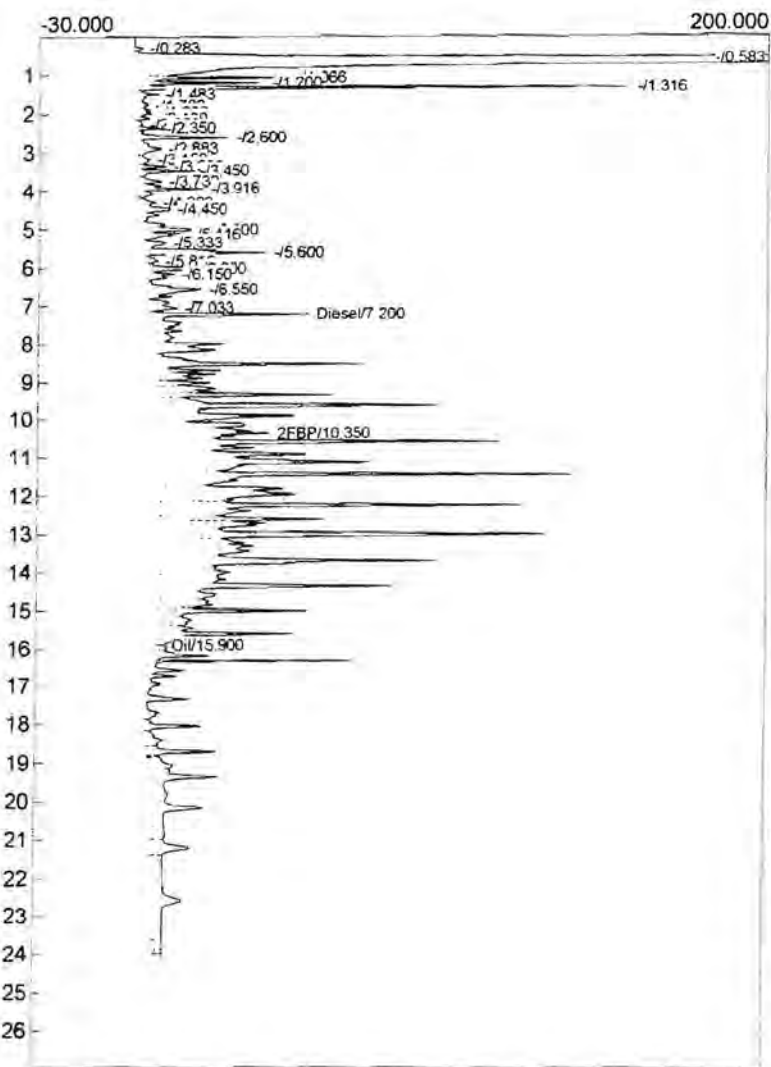
Analysis date: 10/19/2012 14:02:35
 Method:
 Description: JAMACIA
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D327.CHR ()
 Sample: 500 ppm Diesel 791
 Operator: PB

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



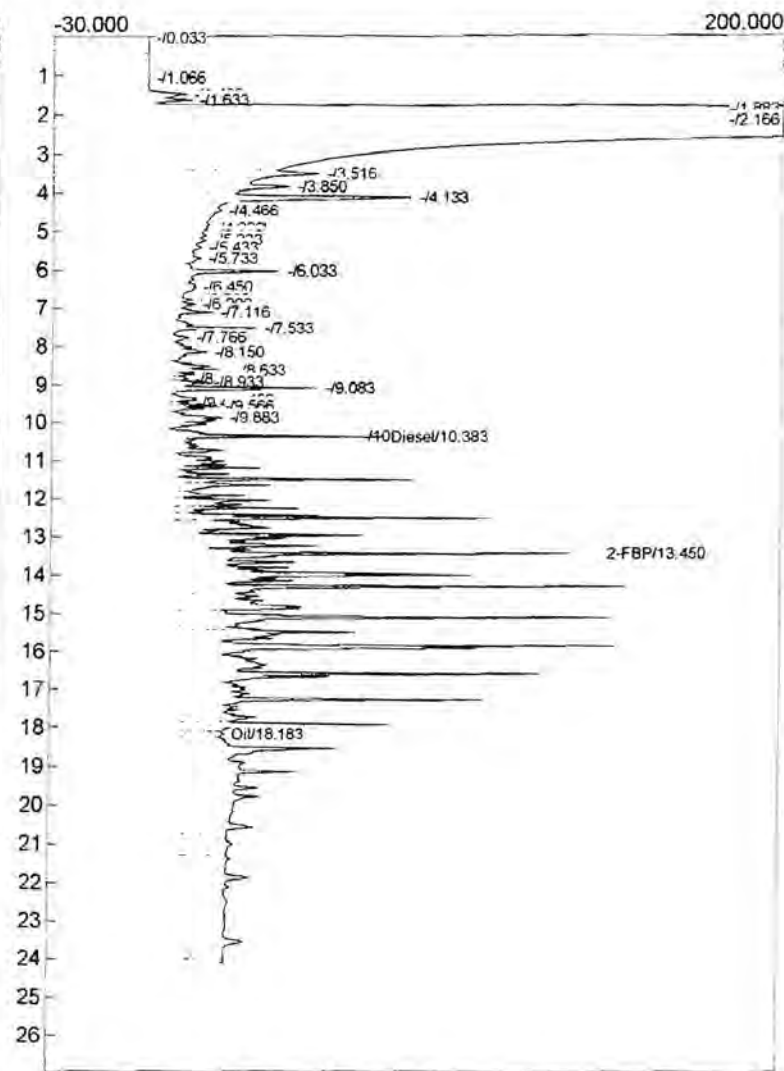
Component	Retention	Area	Height	External	Units
Diesel	7.200	11406.4650	48.012	562.2381	ppm
2-FBP	10.350	370.7780	34.186	12.8966	ppm
Oil	15.900	2045.8550	1.357	100.5821	ppm
		13823.0980		675.7168	

Temperature program:

Init temp Hold Ramp Final temp

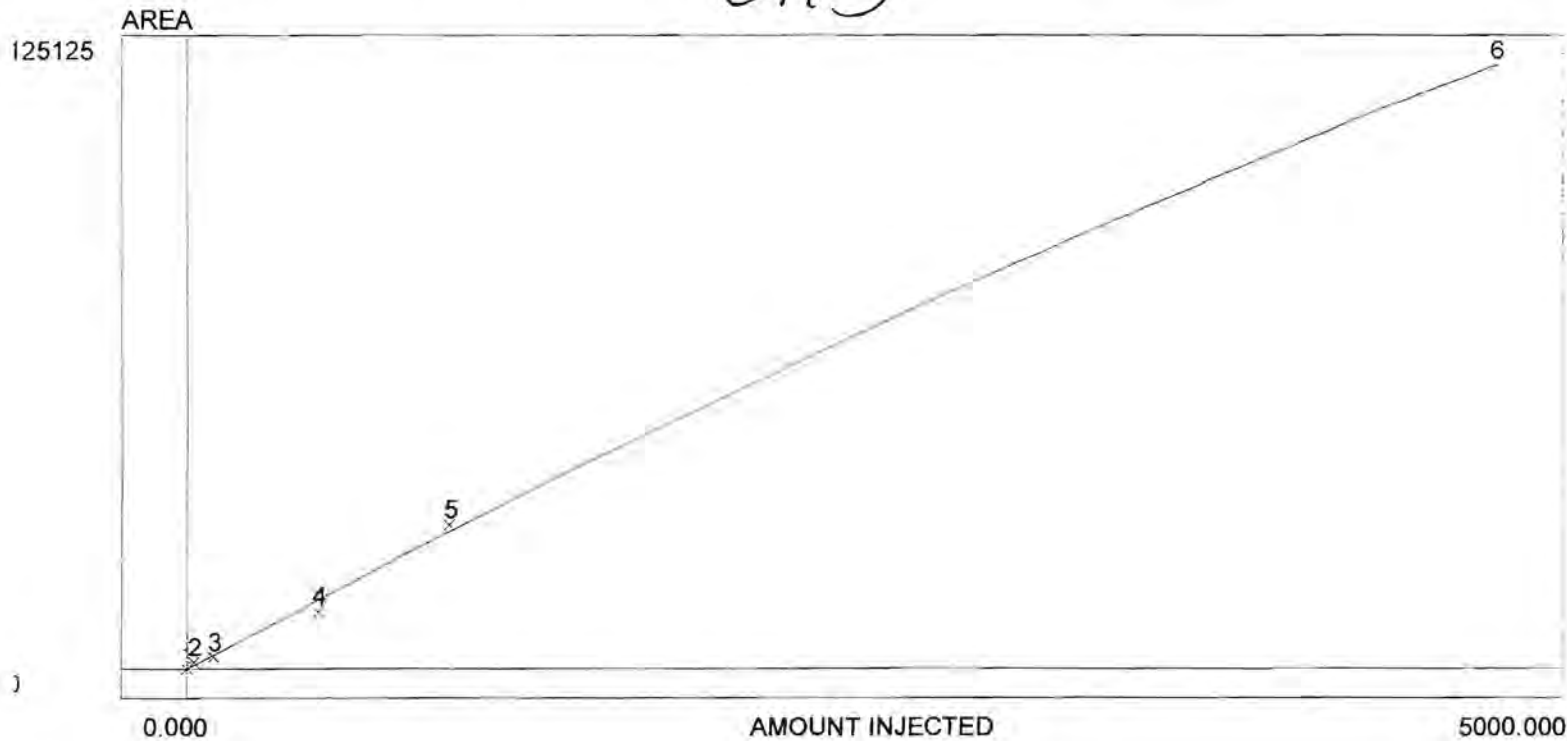
Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	10.383	10756.3680	61.533	571.6795	
2-FBP	13.450	606.2900	132.929	21.0883	ppm
Oil	18.183	5463.6400	13.332	289.1256	ppm
		16826.2980		881.8935	

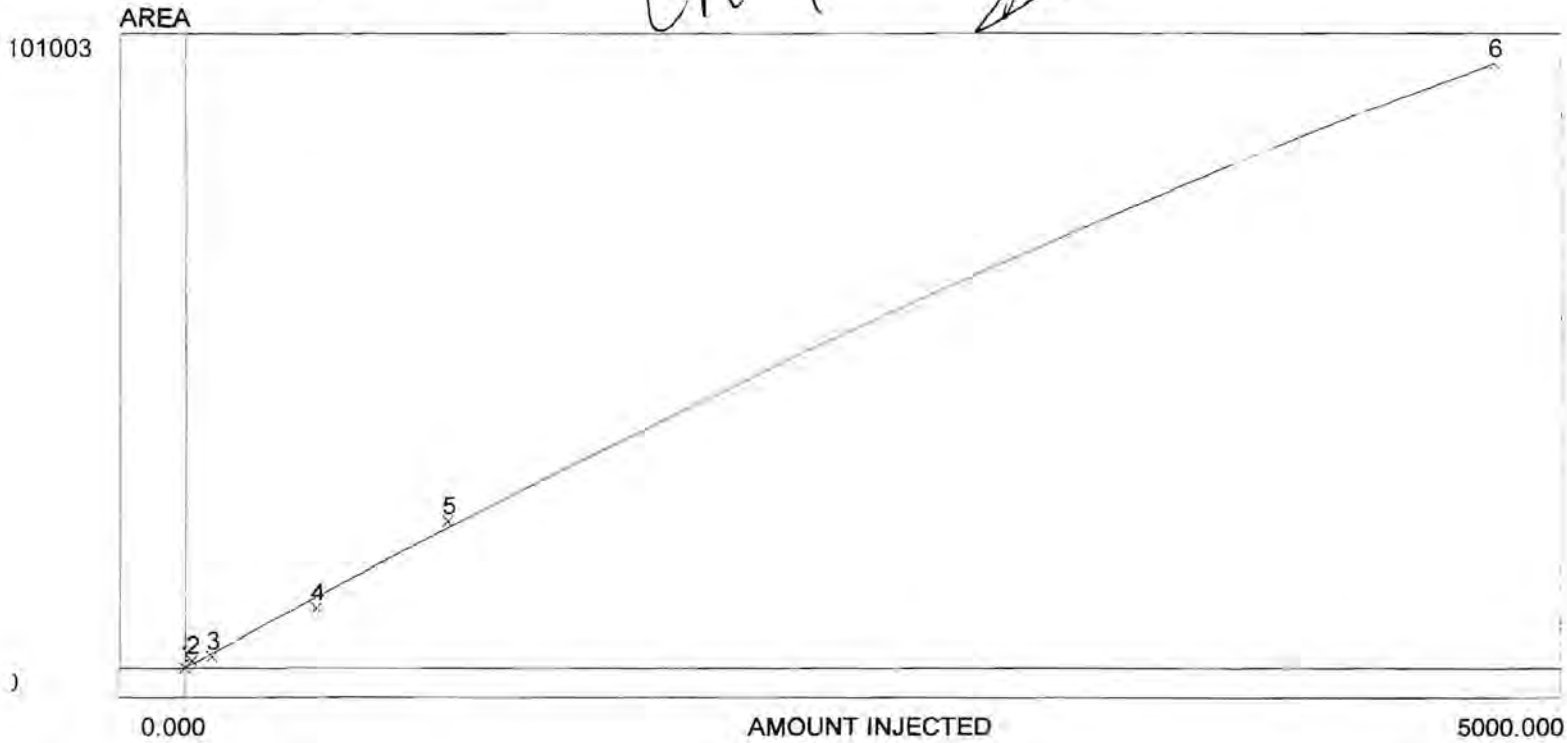
Ch 3



Avg slope of curve: 25.03
 Y-axis intercept: 0.00
 Linearity: 0.86
 Number of levels: 6
 SD/rel SD of CF's: 18.0/66.9
 $y = -0.0009x^2 + 29.3544x$
 R^2: 0.9993
 Last calibrated: Wed Mar 14 13:52:31 2012

Level	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	1410.471	25.000	56.419	1410.471	N/A	N/A
3	2574.179	100.000	25.742	2574.179	N/A	N/A
4	12043.265	500.000	24.087	12043.265	N/A	N/A
5	29871.863	1000.000	29.872	29871.863	N/A	N/A
6	125124.670	5000.000	25.025	125124.670	N/A	N/A

Ch 4 ~~2~~

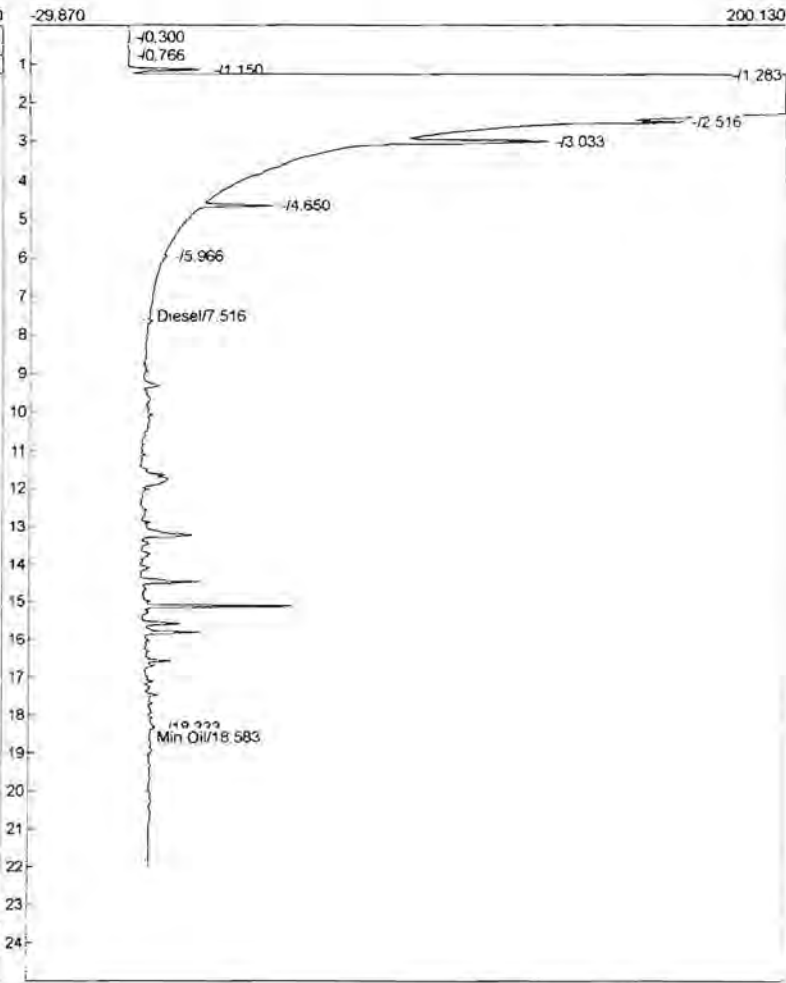
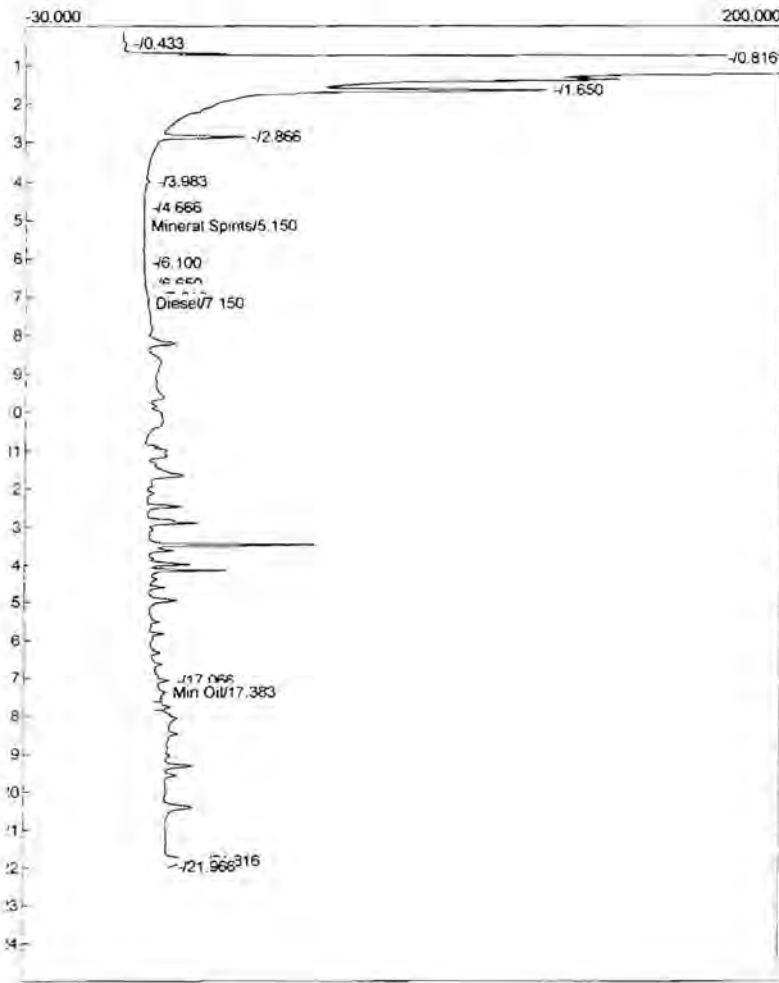


Avg slope of curve: 20.21
 Y-axis intercept: 0.00
 Linearity: 0.84
 Number of levels: 6
 3D/rel SD of CF's: 16.3/72.6
 $Y = -0.0008X^2 + 24.2883X$
 R^2: 0.9993
 Last calibrated: Wed Mar 14 13:57:45 2012

Level	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	1271.716	25.000	50.869	1271.716	N/A	N/A
3	1927.394	100.000	19.274	1927.394	N/A	N/A
4	10086.605	500.000	20.173	10086.605	N/A	N/A
5	24554.042	1000.000	24.554	24554.042	N/A	N/A
6	101002.720	5000.000	20.201	101002.720	N/A	N/A

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 10:39:04
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C620.CHR ()
 Sample: 25 PPM Dx 706
 Operator: KW

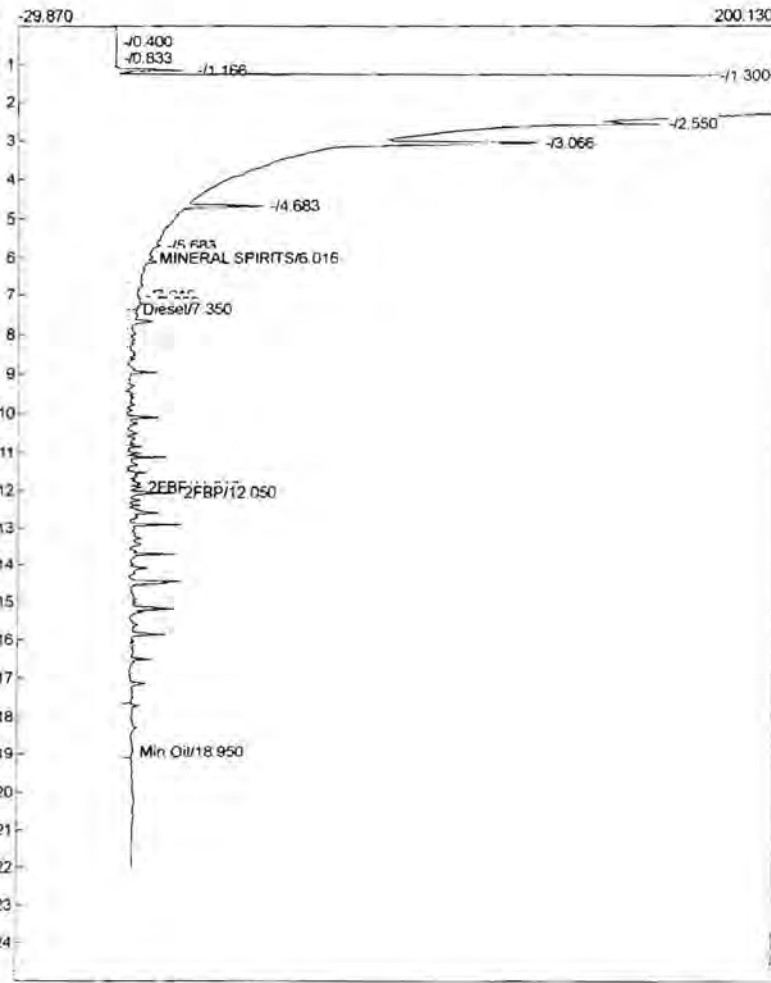
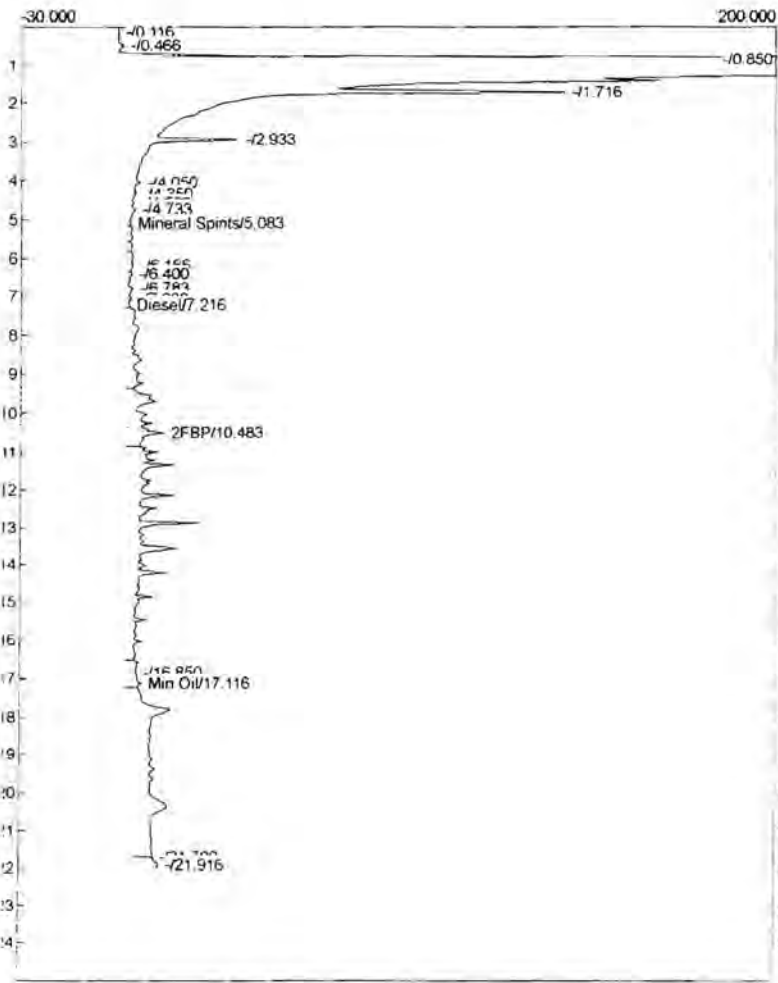
Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 10:39:04
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D626.CHR ()
 Sample: 25 PPM Dx 706
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.150	7.8080	0.195	0.3863	PPM	Diesel	7.516	1271.7155	1.965	89.4973	ppm
Diesel	7.150	1410.4710	0.518	13.6936	ppm	Min Oil	18.583	209.2665	1.582	14.7689	ppm
Min Oil	17.383	577.2305	3.576	0.0000				1480.9820		104.2662	
		1995.5095		14.0798							

Lab name: Eddy Environmental, Inc.
 Analysis date: 03/14/2012 11:07:43
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C621.CHR ()
 Sample: 100 PPM Dx 705
 Operator: KW

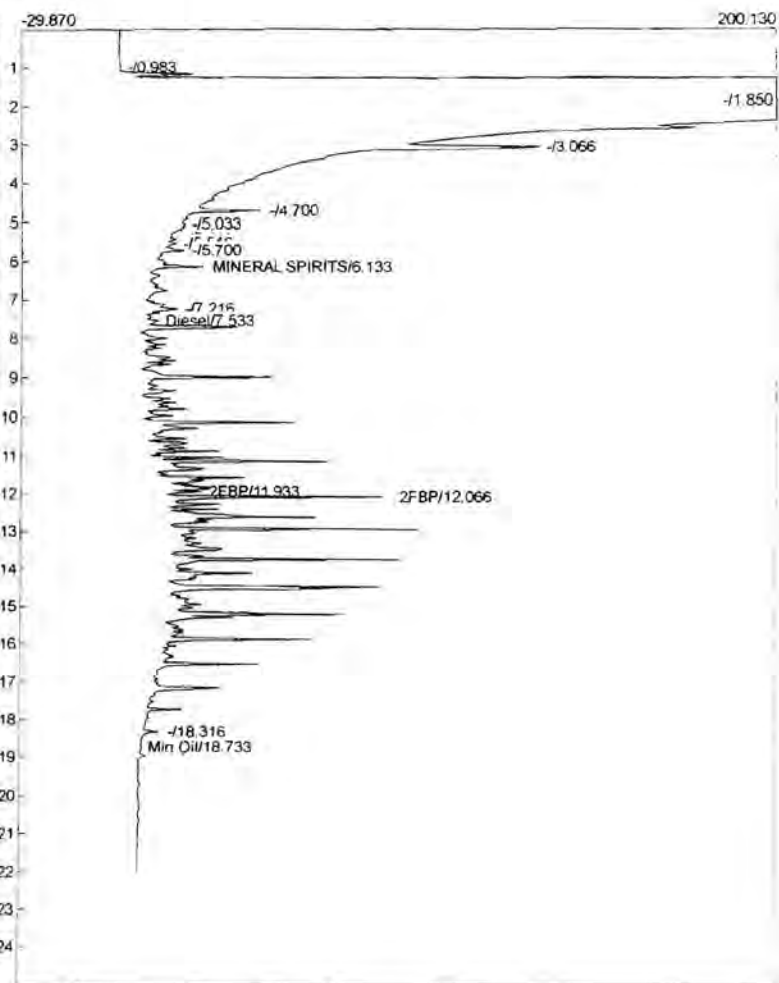
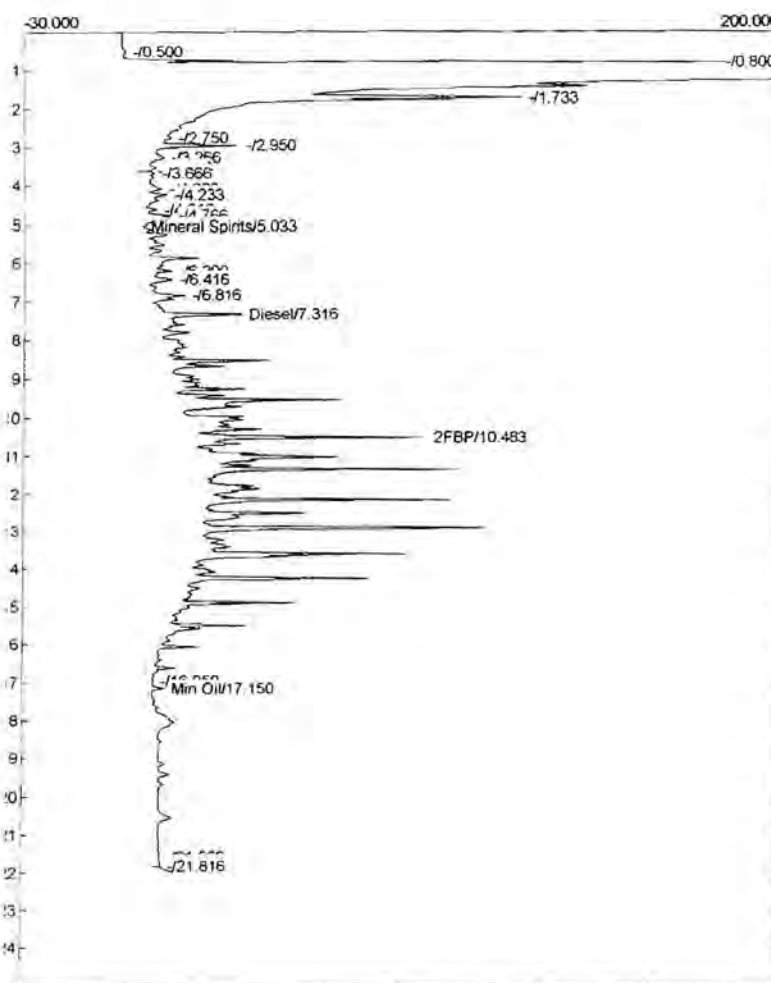
Lab name: Eddy Environmental, Inc.
 Analysis date: 03/14/2012 11:07:43
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D627.CHR ()
 Sample: 100 PPM Dx 705
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.083	84.6325	1.090	4.1869	ppm	MINERAL SPIRITS	6.016	285.6170	7.733	20.1004	ppm
Diesel	7.216	2410.4095	0.627	119.2471	ppm	Diesel	7.350	1849.7390	2.625	130.1759	ppm
FBP	10.483	163.7695	10.998	6.5508	ppm	2FBP	11.916	20.8250	4.775	1.0413	ppm
Min Oil	17.116	1953.3665	4.269	0.0000	ppm	2FBP	12.050	56.8300	15.516	2.8415	ppm
						Min Oil	18.950	514.9365	2.757	36.3413	ppm
		4612.1780		129.9847				2727.9475		190.5003	

Lab Name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 11:45:18
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C622.CHR ()
 Sample: 500 PPM Dx 704
 Operator: KW

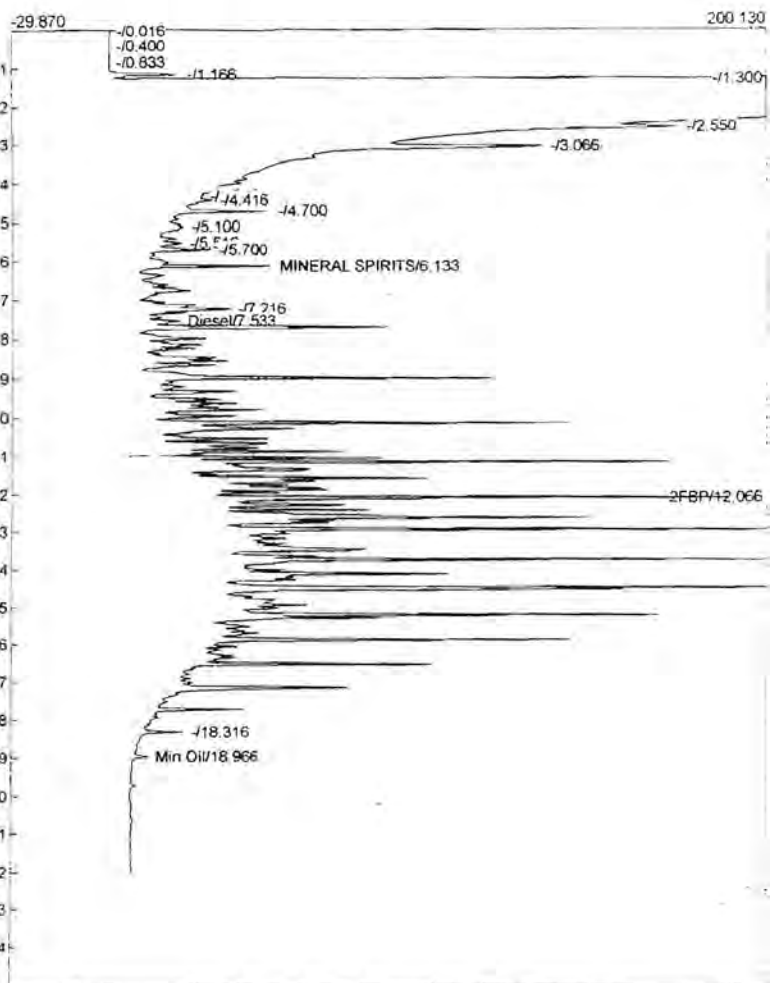
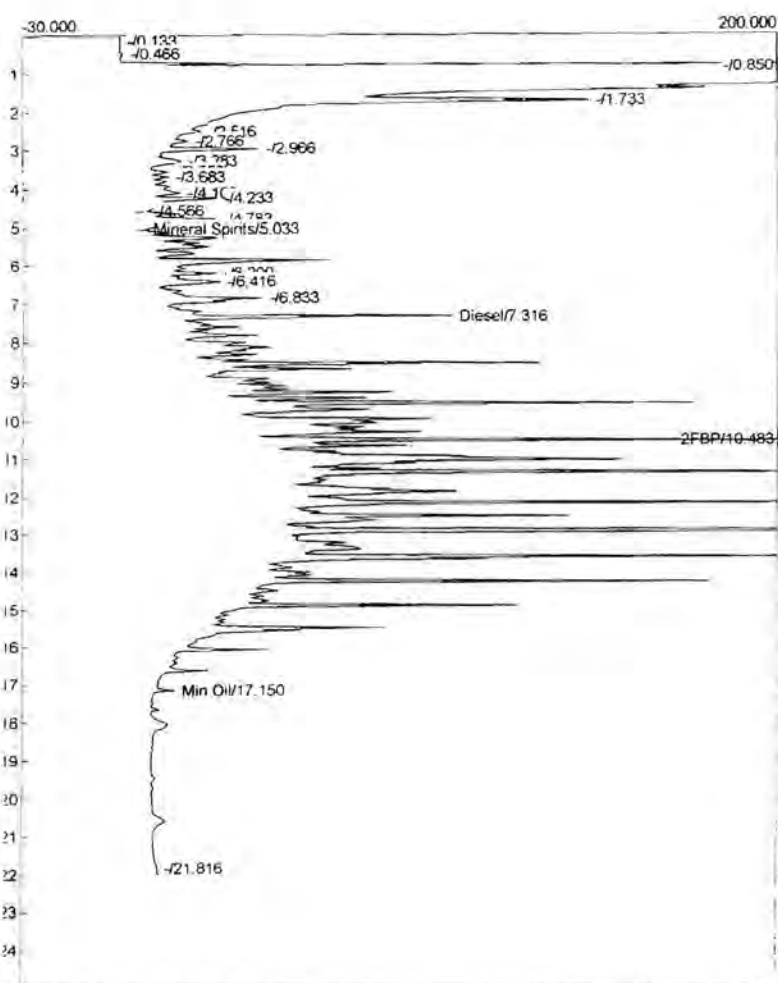
Analysis date: 03/14/2012 11:45:18
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D628.CHR ()
 Sample: 500 PPM Dx 704
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.033	323.3415	0.632	15.9963	PP	MINERAL SPIRITS	6.133	636.8190	24.452	44.8163	PPM
Diesel	7.316	11375.2115	30.144	562.7511	ppm	Diesel	7.533	9651.3385	9.725	679.2156	ppm
2FBP	10.483	668.0530	86.276	26.7221	ppm	2FBP	11.933	110.1285	21.943	5.5064	ppm
Min Oil	17.150	960.9820	5.210	0.0000		Min Oil	12.066	325.1375	79.999	16.2569	ppm
		13327.5880		605.4694			18.733	138.4670	1.874	9.7722	ppm
								10861.8905		755.5674	

Lab Name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 12:13:07
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C623.CHR ()
 Sample: 1000 PPM Dx 703
 Operator: KW

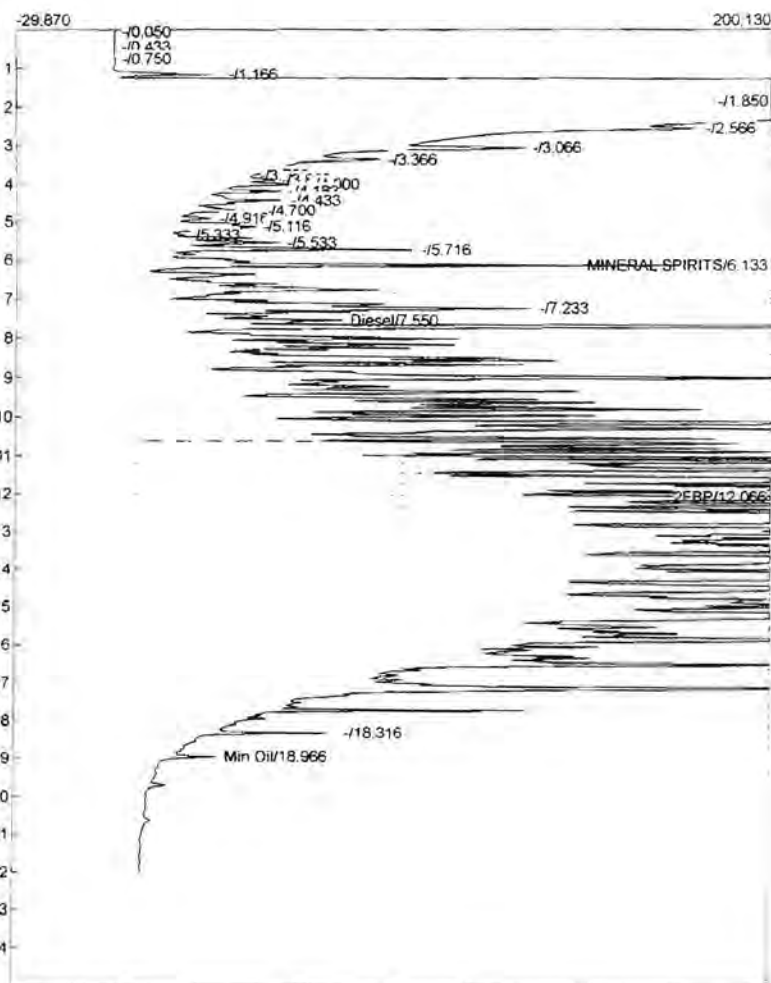
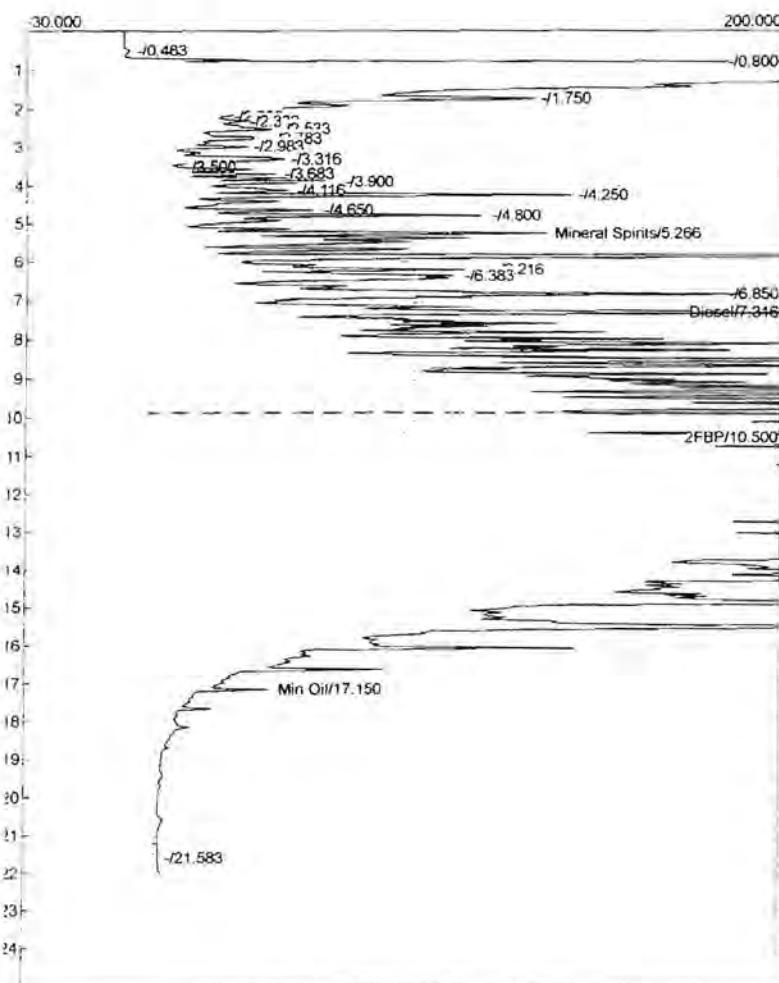
Lab Name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 12:13:07
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D629.CHR ()
 Sample: 1000 PPM Dx 703
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.033	995.3365	2.641	49.2410	pp	MINERAL SPIRITS	6.133	723.8390	45.571	50.9404	pp
Diesel	7.316	28291.8845	95.034	1399.6476	pp	Diesel	7.533	23510.5725	17.032	1654.5630	pp
2FBP	10.483	1579.9780	244.836	63.1991	pp	2FBP	12.066	1043.4695	193.880	52.1735	pp
Min Oil	17.150	221.1300	7.549	0.0000	pp	Min Oil	18.966	300.3670	6.980	21.1982	pp
		31088.3290		1512.0877				25578.2480		1778.8751	

Lab Name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 12:41:16
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C624.CHR ()
 Sample: 5000 PPM Dx 702
 Operator: KW

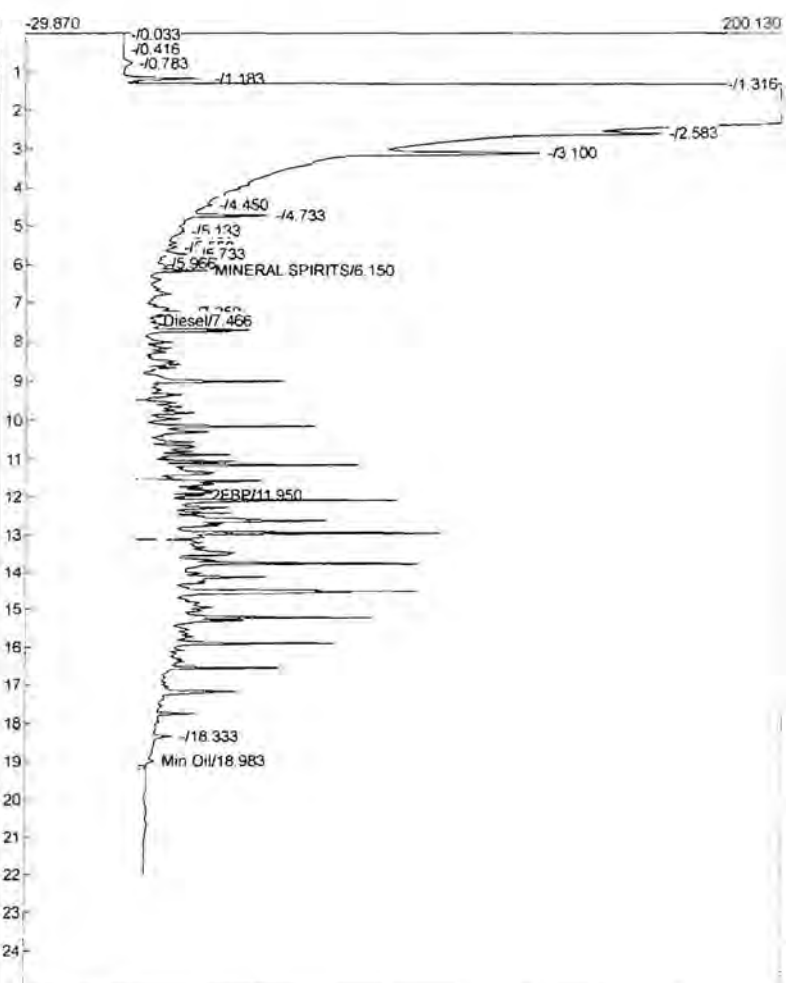
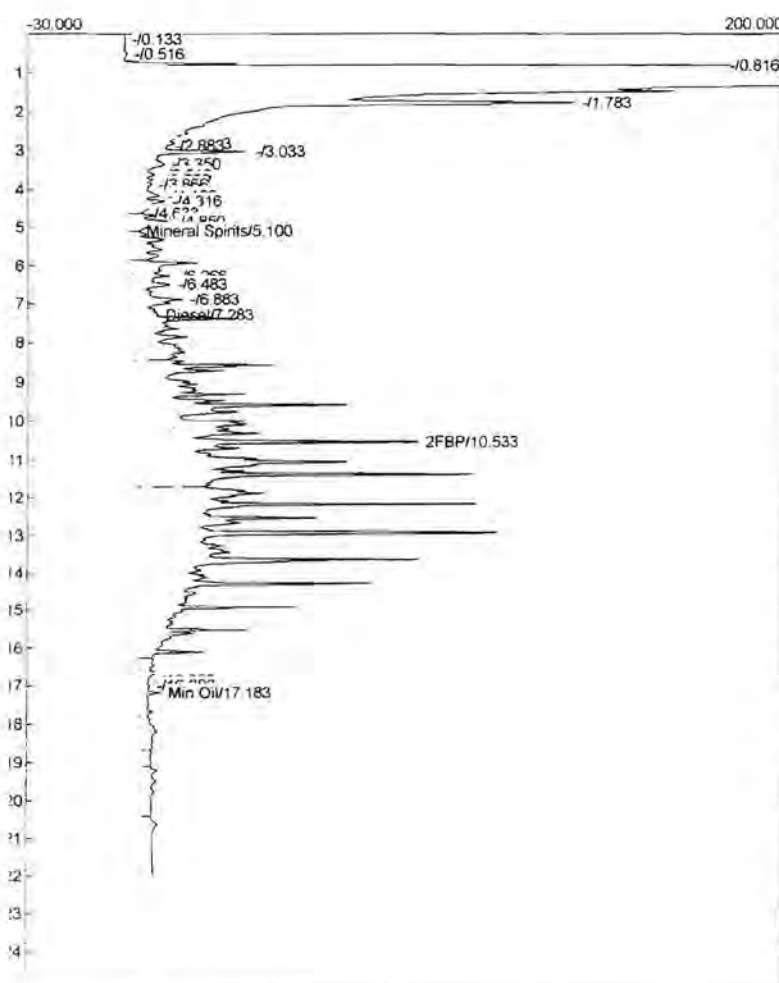
Lab Name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 12:41:16
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D630.CHR ()
 Sample: 5000 PPM Dx 702
 Operator: KW



Component	Retention	Area	Height	External	UnComponent	Retention	Area	Height	External	Unit
Mineral Spirits	5.266	4030.7350	121.832	199.4073	MINERAL SPIRITS	6.133	2118.1620	172.994	149.0662	ppb
Diesel	7.316	118321.9850	479.109	5853.5897	Diesel	7.550	97612.4720	63.265	6869.5047	ppb
2FBP	10.500	6802.6800	1015.018	272.1072	2FBP	12.066	3390.2460	772.659	169.5123	ppb
Min Oil	17.150	1309.9915	36.600	0.0000	Min Oil	18.966	734.9465	24.851	51.8684	ppb
		130465.3915		6325.1043			103855.8265		7239.9516	

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 13:09:09
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C625.CHR ()
 Sample: 500 PPM Dx ICAL 707
 Operator: KW

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 13:09:09
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D631.CHR ()
 Sample: 500 PPM Dx ICAL 707
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.100	454.2775	2.261	22.4739	PPM	MINERAL SPIRITS	6.150	431.9470	21.664	30.3984	PPM
Diesel	7.283	12055.9145	7.302	415.8831	ppm	Diesel	7.466	9633.4975	5.799	402.0800	ppm
2FBP	10.533	706.7050	85.875	28.2682	ppm	2FBP	11.950	98.4805	20.159	4.9240	ppm
Min Oil	17.183	642.7165	6.075	0.0000		Min Oil	18.983	249.4535	4.581	17.6050	ppm
		13859.6135		466.6252				10413.3785		455.0074	



Libby Environmental, Inc.

4139 Libby Road NE • Olympia, WA 98506-2518

November 12, 2012

Neil Morton
GeoEngineers Inc.
600 Stewart Street, Suite 1700
Seattle, WA 98101

Dear Mr. Morton:

Please find enclosed the analytical data report for the Irondale Project located in Irondale, Washington. Soil samples were analyzed for Diesel & Oil by NWTPH-Dx/Dx Extended with Silica Gel Clean Up, Metals Arsenic, Copper, Iron, Lead, Nickel and Zinc by EPA Method 6020 and Polyaromatic Hydrocarbons (PAH) by EPA Method 8270 SIM on October 24, 25 & 26, 2012 and November 16, 2012.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. All soil samples are reported on a dry weight basis. An invoice for this analytical work is enclosed.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Jamie L. Deyman
President
Libby Environmental, Inc.

Phone (360) 352-2110 • Fax (360) 352-4154 • libbyenv@aol.com

www.LibbyEnvironmental.com



Libby Environmental, Inc.

Case Narrative

Libby Project #: L121023-6
Date: 11-12-2012

CLIENT: GeoEngineers, Inc.
PROJECT: Irondale

I. SAMPLE RECEIPT:

All samples were received intact and in good condition. See the attached Sample Receipt Check List for more information.

II. GENERAL REPORTING COMMENTS:

Final results are reported on a dry weight basis. The soil samples in the field are estimated to have a moisture content of 15%. This estimate is useful in producing data that is close to the actual value. After the sample is analyzed for soil moisture at our fixed base facility, the final data is reported based on measured soil moisture. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS), the Laboratory Control Sample Duplicate (LCSD) and the Method Blank (MB). The LCS, LCSD and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) and/or noted below.

Notes:

The Chain of Custody did not indicate Silica Gel clean up and our staff did not recognize the oversight until the data was in review. Silica Gel clean up was performed on all soil extracts and all samples were analyzed on 10-26-2012. All results were substantially the same and the Silica Gel data will be reported as the final data.

Libby Environmental, Inc.

Chain of Custody Record

J026

www.LibbyEnvironmental.com

4139 Libby Road NE Olympia, WA 98506
 Ph: 360-352-2110 Fax: 360-352-4154

Date: 10/22 Page: 1 of

Client: GEO ENGINEERS

Project Manager: NEIL MORTON

Address: 1101 S Fawcett Ave Suite 210

Project Name: IRONDALE

City: TACOMA State: WA Zip: 98402

Location: IRONDALE City, State: IRONDALE, WA

Phone: 253-383-4940 Fax:

Collector: PAUL ROBINETTE Date of Collection: 10/22

Client Project # 0504-042-02

Email: nmorton@gcoengineers.com



Sample Number	Depth	Time	Sample Type	Container Type	VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEMI VOL 8270	NWTPH-HCID	NWTPH-GX	NWTPH-DX	PAH 8270	PCB's 8082	MTCA 5 Metals	CPAH	METALS	Field Notes
1 MRZ-B1-102212	11	0900	SOIL	4oz							X						
2 MRZ-NSW1-102212	9	0905	"	"							X						
3 MRZ-WSW1-102212	9	0910	"	"							X						
4 MRZ-B2-102212	11	0920	"	"							X						11-12-12 run CPAH per Neil via email
5 MRZ-B3-102212	11	1120	"	"							X						STD
6 MRZ-B4-102212	10	1132	"	"							X						
7 MRZ-NSW2-102212	9	1135	"	"							X						
8 MRZ-B1-102310	10	925	"	2 4oz							X		X				See below for
9 MRZ-NSW1-102310	9	927	"	2 4oz							X		X				metals
10 MRZ-ESW1-102310	8	930	"	4oz							X						
11																	
12																	
13																	
14																	
15																	
16																	
17																	

Relinquished by: <i>Paul Robinette</i>	Date / Time: 10/23/12 1255	Received by: <i>Neil Morton</i>	Date / Time: 10/23/12 1255	Sample Receipt:	Remarks: Analyze for metals: Arsenic, Copper, Iron, lead, nickel, zinc
Relinquished by:	Date / Time:	Received by:	Date / Time:	Good Condition? <input checked="" type="checkbox"/>	TAT: 24HR 48HR 5-DAY
Relinquished by:	Date / Time:	Received by:	Date / Time:	Cold? 6.80 <input checked="" type="checkbox"/>	
Relinquished by:	Date / Time:	Received by:	Date / Time:	Seals Intact? <input checked="" type="checkbox"/>	
				Total Number of Containers:	

Libby Environmental, Inc. Login Sample Receipt Check List

Client: GeoEngineers, Inc. **Libby Project Number:** L121023-6

Question	T / F / NA	Comment
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler temperature is acceptable.	True	
Cooler temperature is recorded.	True	6.8°C
COC is present.	True	
COC is filled out in ink and is legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within the Hold Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs.	True	
VOA sample vials do not have headspace or bubble is less than 6mm (1/4 in.) in diameter.	True	
If necessary, staff has been informed of any short hold time or quick TAT needs.	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	

Libby Environmental, Inc.

4139 Libby Road NE
Olympia, WA 98506
Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@aol.com

IRONDALE PROJECT
GeoEngineers, Inc.
Irondale, Washington
Libby Project # L121023-6
Client Project # 0405-042-02

Analyses of Diesel & Oil Range (NWTPH-Dx/Dx Extended) in Soil w/ Silica Gel Cleanup

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Bunker C (mg/kg)
Method Blank	10/26/12	94	nd	nd
LCS	10/26/12	int	114%	
LCSD	10/26/12	int	98%	
MRZ-B1-102212	10/26/12	95	nd	nd
MRZ-B1-102212 Dup	10/26/12	102	nd	nd
MRZ-NSW1-102212	10/26/12	93	nd	nd
MRZ-WSW1-102212	10/26/12	103	nd	nd
MRZ-B2-102212	10/26/12	97	nd	545
MRZ-B3-102212	10/26/12	99	nd	nd
MRZ-B4-102212	10/26/12	96	nd	nd
MRZ-NSW2-102212	10/26/12	86	nd	nd
MRZ-B1-102310	10/26/12	81	nd	nd
MRZ-NSW1-102310	10/26/12	77	nd	nd
MRZ-ESW1-102310	10/26/12	79	nd	nd
Practical Quantitation Limit			25	40

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Kyle Williams

LIBBY ENVIRONMENTAL Diesel Oil Analysis Log

1 of 1

Client: Geo Engineers

Client Project: Irondale

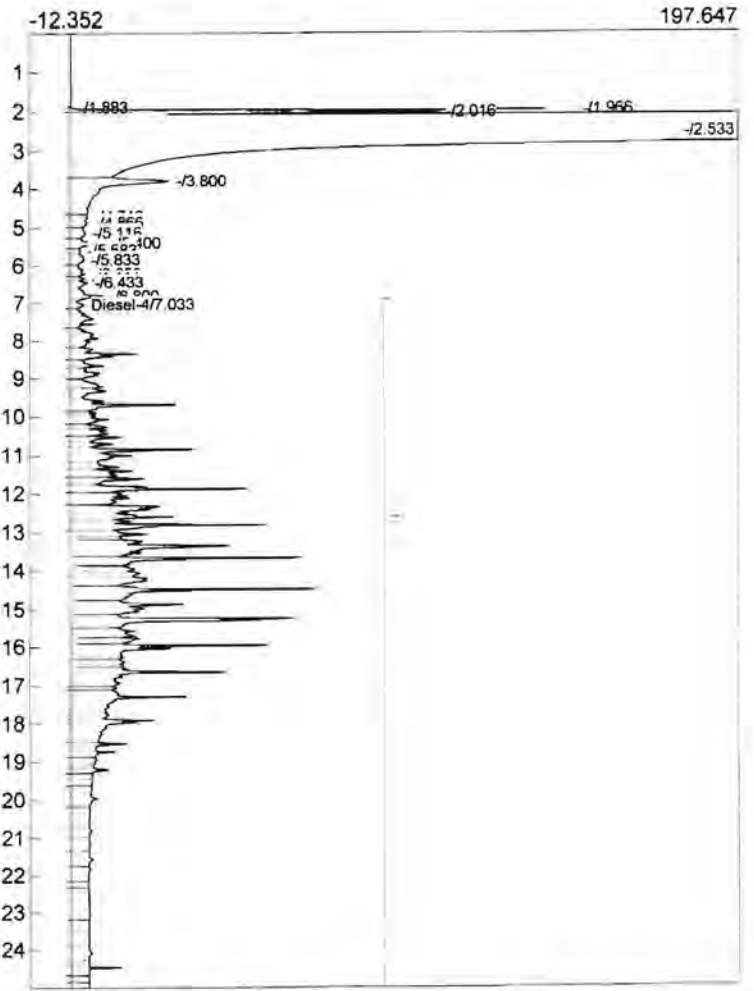
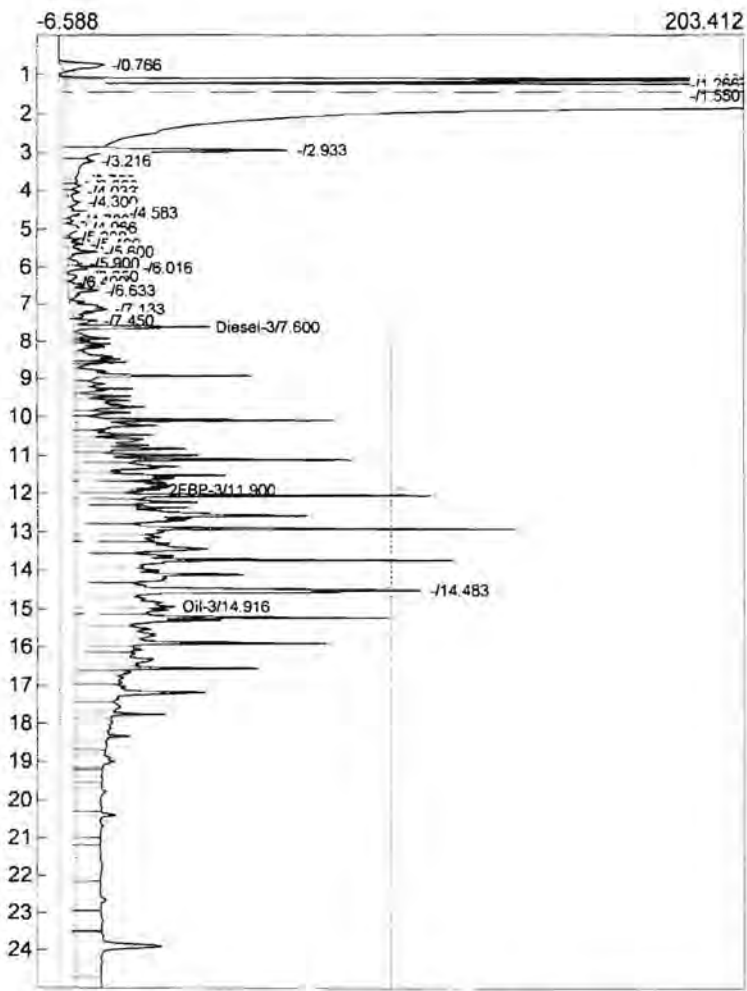
Date: 10/30/2012

Libby Job #: L121023-6		Instrument: Shimadzu GC14A Elmer			Analyst/s: Kyle Williams		
Sample #	Time	Run	Vol	Surrogate 2FBP conc.	Diesel Conc.	Oil Conc	Bunker C Conc
500 ppm Diesel 791	10:26:57	C131	3 µl		557		
500 ppm Diesel 791	10:26:57	D131	3 µl		433		
Method Blank	11:01:29	C132	3 µl	18.7	nd	nd	nd
Method Blank	11:01:29	D132	3 µl	20.3	nd	nd	nd
LCS	11:34:16	C133	3 µl	int	1142		
LCSD	11:34:16	D133	3 µl	int	975		
MRZ-B1-102212	12:11:22	C134	3 µl	19.0	nd	nd	nd
MRZ-B1-102212 DUP	12:11:22	D134	3 µl	20.4	nd	nd	nd
MRZ-NSW1-102212	12:44:39	C135	3 µl	18.6	nd	nd	nd
MRZ-WSW1-102212	12:44:39	D135	3 µl	20.5	nd	nd	nd
MRZ-B2-102212	13:31:20	C136	3 µl	19.3	nd	nd	493 nd
MRZ-B3-102212	13:31:20	D136	3 µl	19.7	nd	nd	493 nd
MRZ-B4-102212	14:04:05	C137	3 µl	19.2	nd	nd	nd
500 ppm Diesel 791	14:38:25	C138	3 µl		535		
500 ppm Diesel 791	14:38:25	D138	3 µl		443		

PB
10/26/12

Lab name: Libby Environmental
 Analysis date: 10/26/2012 10:26:57
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: C131.CHR ()
 Sample: 500 ppm Dx 791
 Operator: KW

Lab name: Libby Environmental
 Analysis date: 10/26/2012 10:26:57
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: D131.CHR ()
 Sample: 500 ppm Dx 791
 Operator: KW

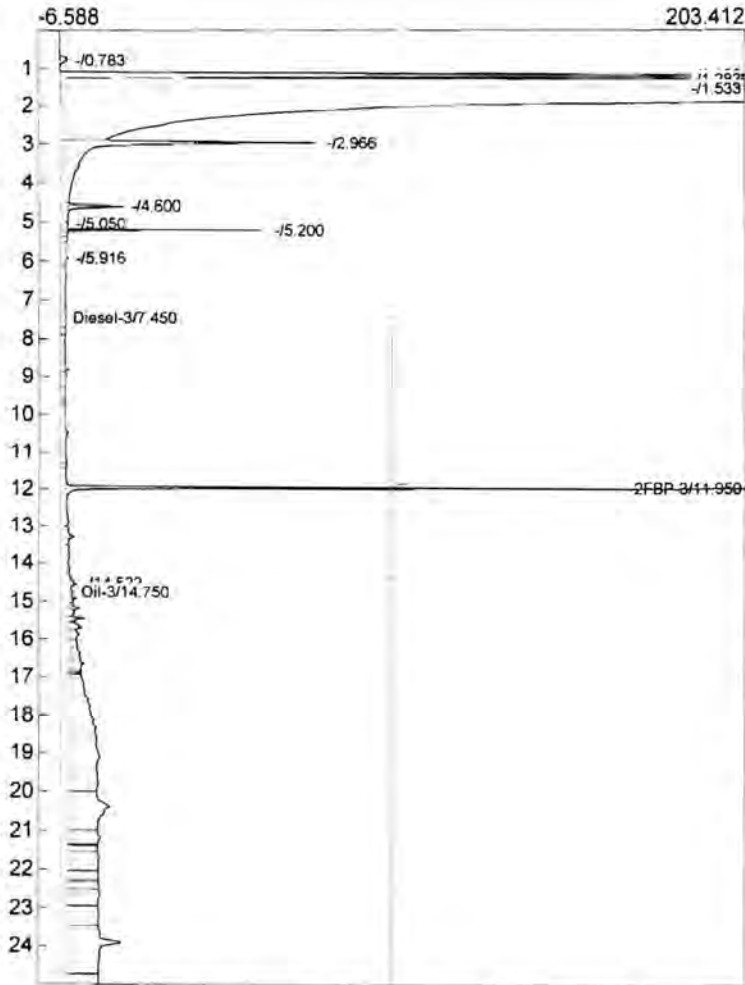


Component	Retention	Area	Height	External	Units
Diesel-3	7.600	7649.0280	39.983	556.6766	ppm
2FBP-3	11.900	132.5075	25.135	4.8185	ppm
Oil-3	14.916	8303.9815	29.070	604.3424	ppm
		16085.5170		1165.8375	

Component	Retention	Area	Height	External	Units
Diesel-4	7.033	12588.5245	4.377	432.6096	ppm
Oil-4	26.450	219.8775	5.772	7.5562	ppm
		12808.4020		440.1658	

Lab name: Libby Environmental
 Analysis date: 10/26/2012 11:01:29
 Description: Elmer CH 3

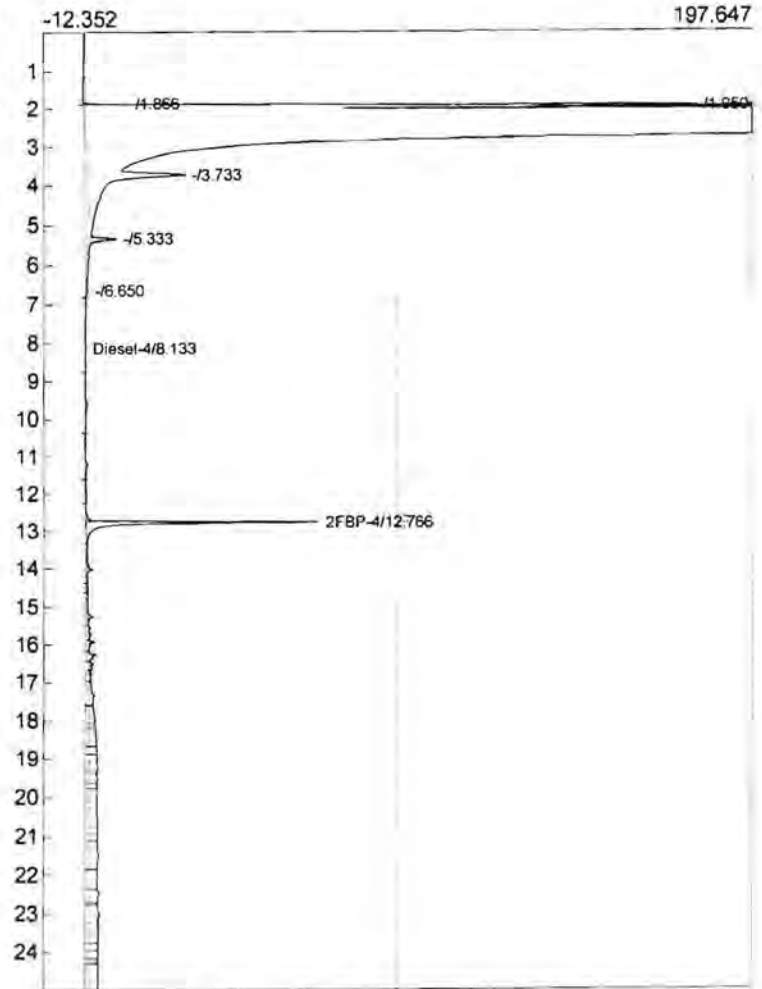
Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: C132.CHR ()
 Sample: MB
 Operator: KW



Component	Retention	Area	Height	External	Units
Diesel-3	7.450	553.7350	0.158	40.2994	ppm
2FBP-3	11.950	513.7690	224.209	18.6825	ppm
Oil-3	14.750	4730.4265	0.829	344.2683	ppm
		5797.9305		403.2502	

Lab name: Libby Environmental
 Analysis date: 10/26/2012 11:01:29
 Description: Elmer Ch 4

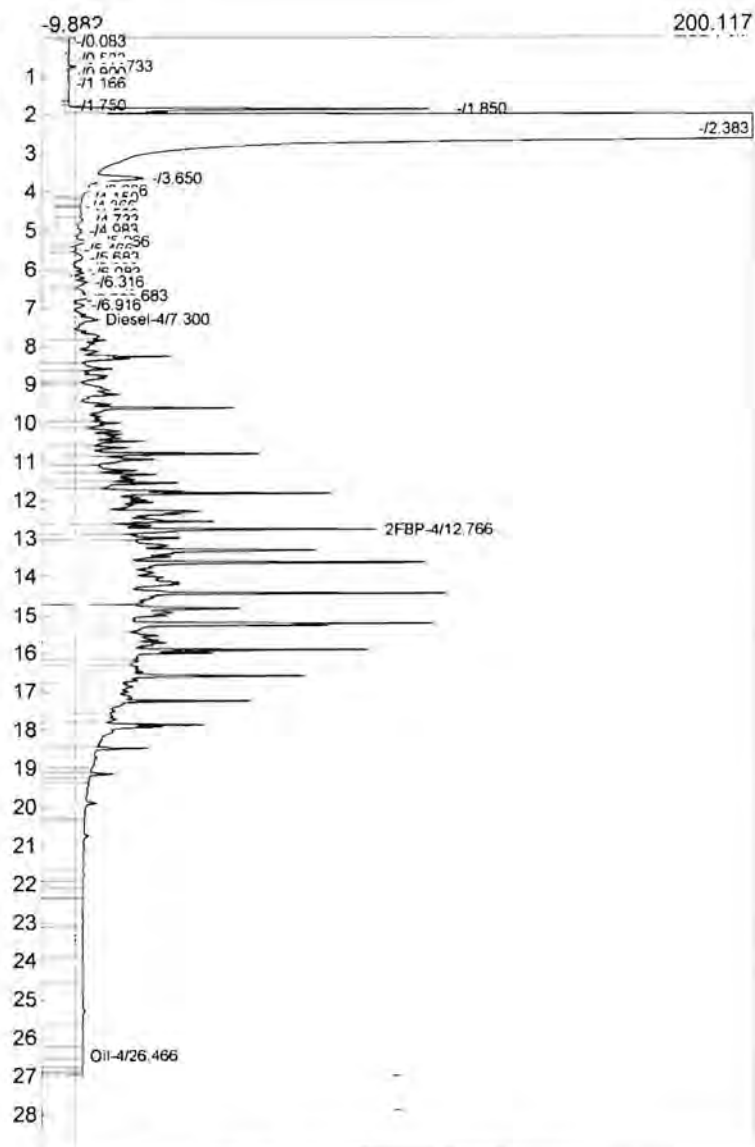
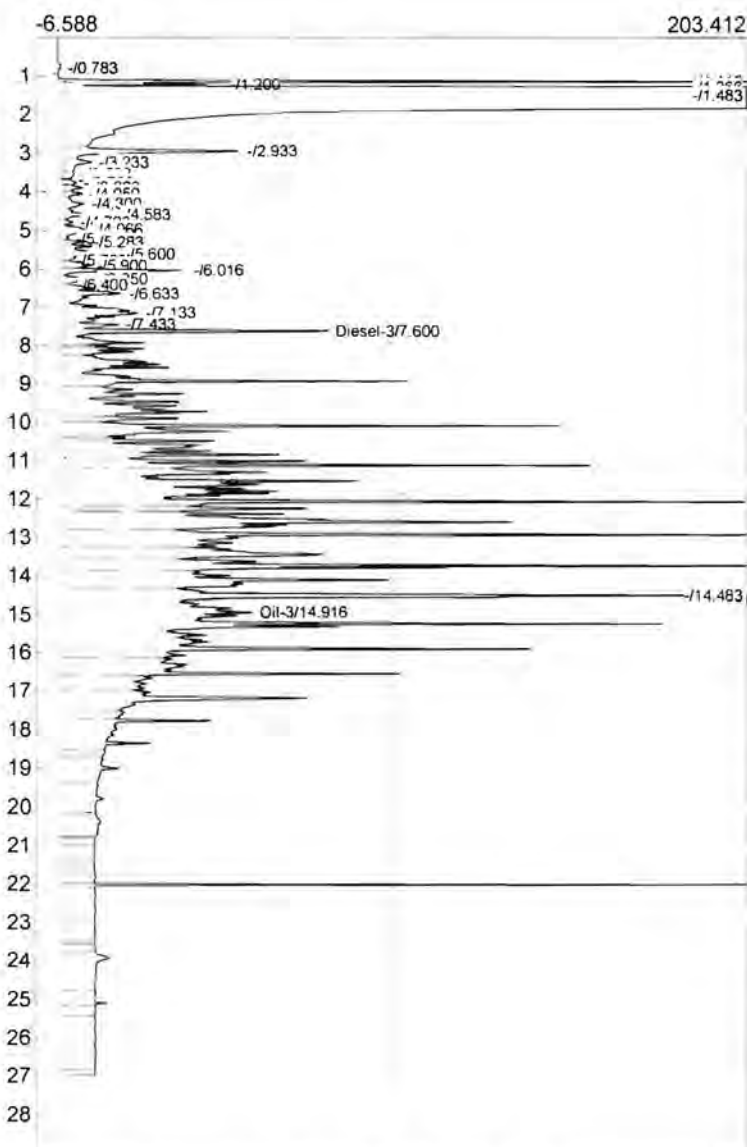
Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: D132.CHR ()
 Sample: MB
 Operator: KW



Component	Retention	Area	Height	External	Units
Diesel-4	8.133	1738.7305	0.172	59.7522	ppm
2FBP-4	12.766	273.2700	69.053	20.3178	ppm
Oil-4	26.633	68.3490	2.715	2.3488	ppm
		2080.3495		82.4188	

Lab name: Libby Environmental
 Analysis date: 10/26/2012 11:34:16
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: C133.CHR ()
 Sample: LCS
 Operator: KW

Lab name: Libby Environmental
 Analysis date: 10/26/2012 11:34:16
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: D133.CHR ()
 Sample: LCSD
 Operator: KW

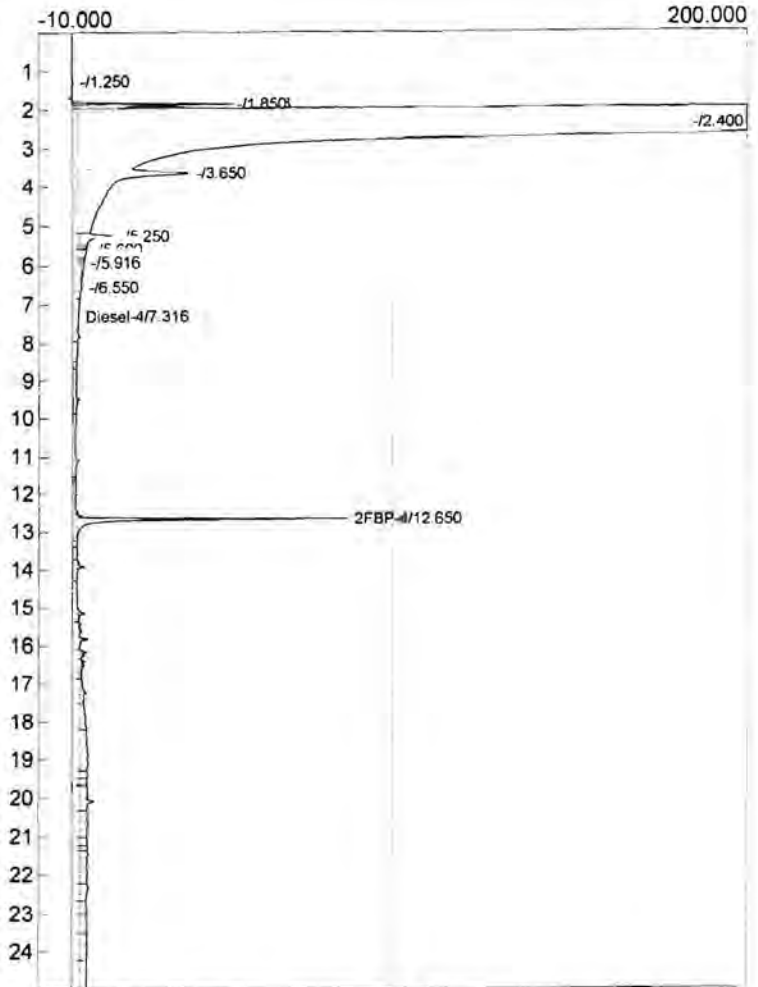
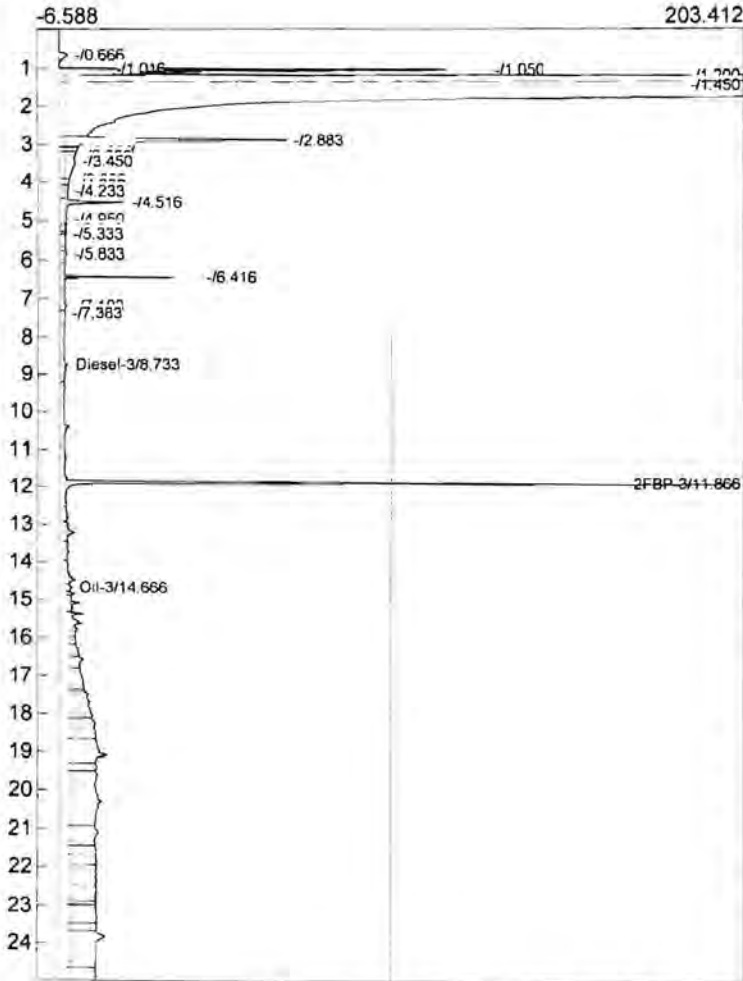


Component	Retention	Area	Height	External	Units
Diesel-3	7.600	15699.5780	77.806	1142.5750	ppm
Oil-3	14.916	12612.5090	55.352	917.9060	ppm
		28312.0870		2060.4810	

Component	Retention	Area	Height	External	Units
Diesel-4	7.300	28359.3775	18.567	974.5812	ppm
2FBP-4	12.766	679.9300	101.980	50.5532	ppm
Oil-4	26.466	500.8800	16.979	17.2129	ppm
		29540.1875		1042.3473	

Lab name: Libby Environmental
 Analysis date: 10/26/2012 12:11:22
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: C134.CHR ()
 Sample: MRZ-B1-102212
 Operator: KW

Lab name: Libby Environmental
 Analysis date: 10/26/2012 12:11:22
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: D134.CHR ()
 Sample: MRZ-B1-102212 Dup
 Operator: KW

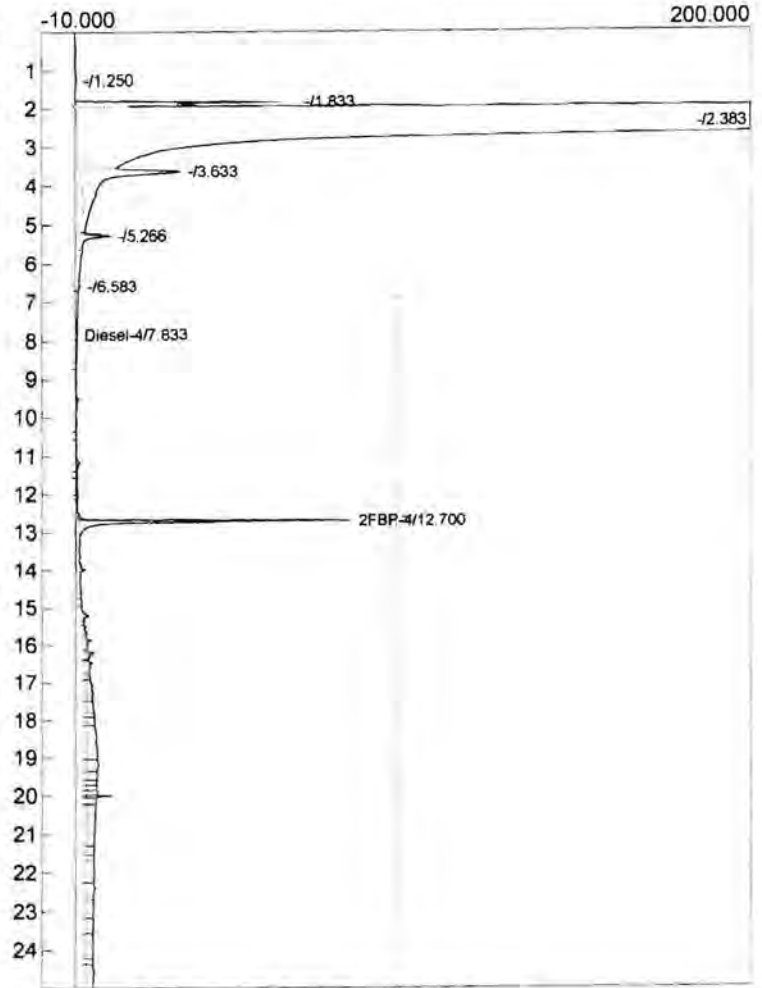
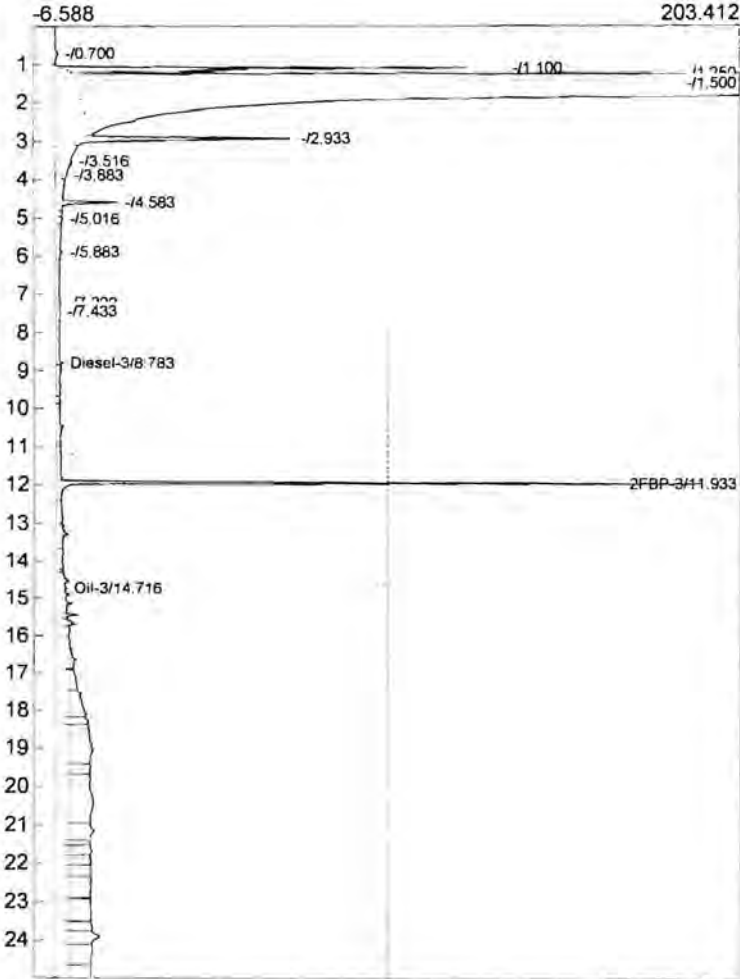


Component	Retention	Area	Height	External	Units
Diesel-3	8.733	583.1970	1.263	42.4436	ppm
2FBP-3	11.866	523.5320	195.768	19.0375	ppm
Oil-3	14.666	4311.8025	0.795	313.8019	ppm
		5418.5315		375.2830	

Component	Retention	Area	Height	External	Units
Diesel-4	7.316	1462.2915	0.056	50.2522	ppm
2FBP-4	12.650	274.6680	80.651	20.4217	ppm
Oil-4	26.583	54.5275	1.910	1.8739	ppm
		1791.4870		72.5478	

Lab name: Libby Environmental
 Analysis date: 10/26/2012 12:44:39
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: C135.CHR ()
 Sample: MRZ-NSW1-102212
 Operator: KW

Lab name: Libby Environmental
 Analysis date: 10/26/2012 12:44:39
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: D135.CHR ()
 Sample: MRZ-ESW1-102212
 Operator: KW



Component	Retention	Area	Height	External	Units
Diesel-3	8.783	558.4010	1.134	40.6390	ppm
2FBP-3	11.933	512.7170	208.888	18.6443	ppm
Oil-3	14.716	3670.7845	0.775	267.1503	ppm
		4741.9025		326.4335	

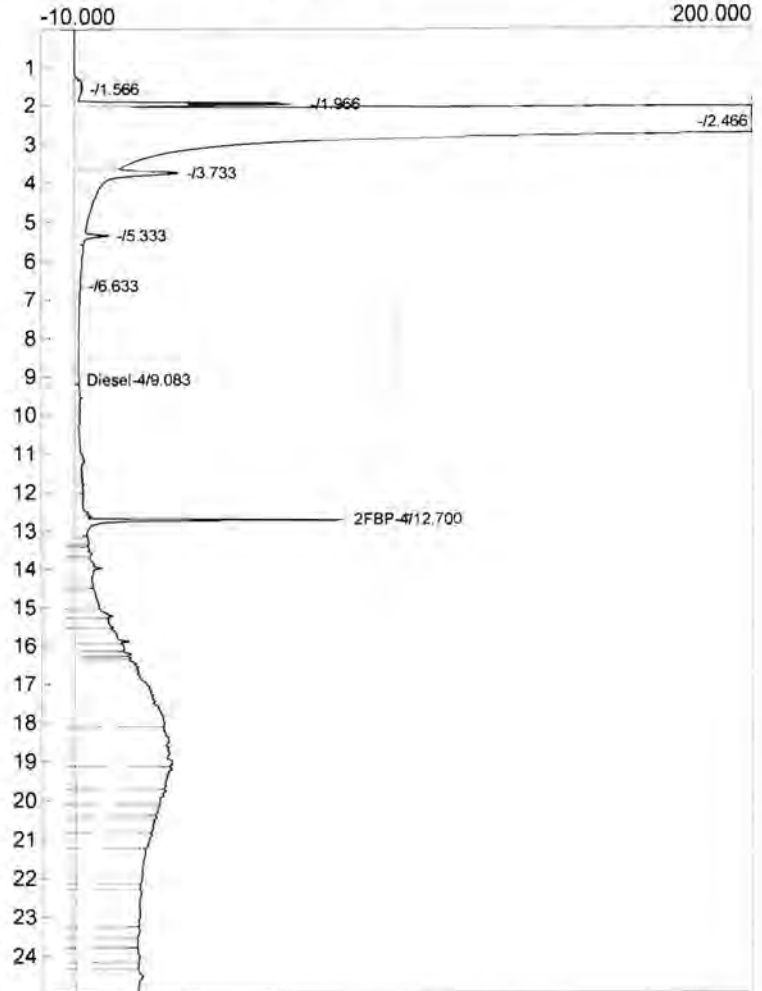
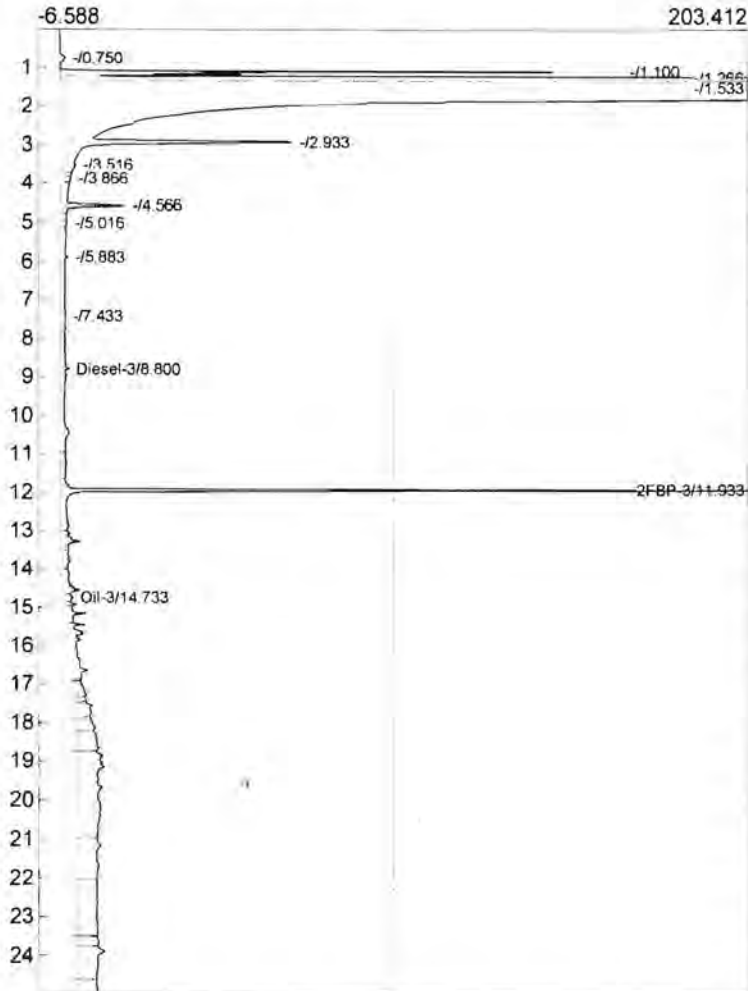
Component	Retention	Area	Height	External	Units
Diesel-4	7.833	1725.3400	0.176	59.2920	ppm
2FBP-4	12.700	276.1380	81.202	20.5310	ppm
Oil-4	26.450	65.3605	1.979	2.2461	ppm
		2066.8385		82.0691	

Lab name: Libby Environmental
 Analysis date: 10/26/2012 13:31:20
 Description: Elmer CH 3

Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: C136.CHR ()
 Sample: MRZ-B7-102212
 Operator: KW ¹/₃ PB 10/26/12

Lab name: Libby Environmental
 Analysis date: 10/26/2012 13:31:20
 Description: Elmer Ch 4

Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: D136.CHR ()
 Sample: MRZ-B7-102212
 Operator: KW ²/₁₈ 10/26/12



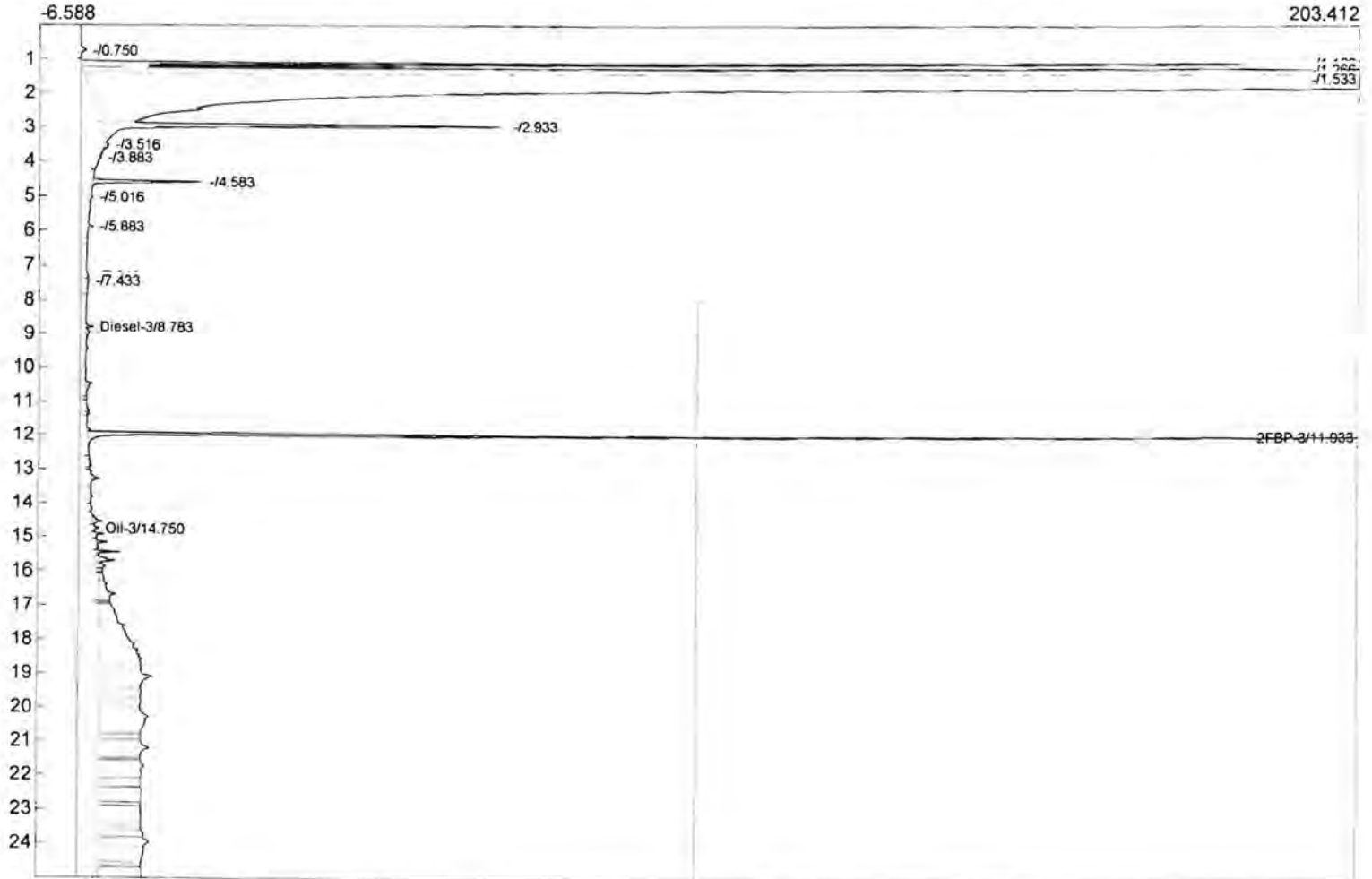
Component	Retention	Area	Height	External	Units
Diesel-3	8.800	611.0790	1.172	44.4728	ppm
2FBP-3	11.933	529.8800	207.033	19.2684	ppm
Oil-3	14.733	3591.5005	0.765	261.3802	ppm
		4732.4595		325.1213	

Component	Retention	Area	Height	External	Units
Diesel-4	9.083	16099.3410	0.252	553.2602	ppm
2FBP-4	12.700	265.5940	77.591	19.7471	ppm
Oil-4	26.633	554.4745	20.287	19.0547	ppm
		16919.4095		592.0620	

-60 = 493

mc x 1.105 = (545)

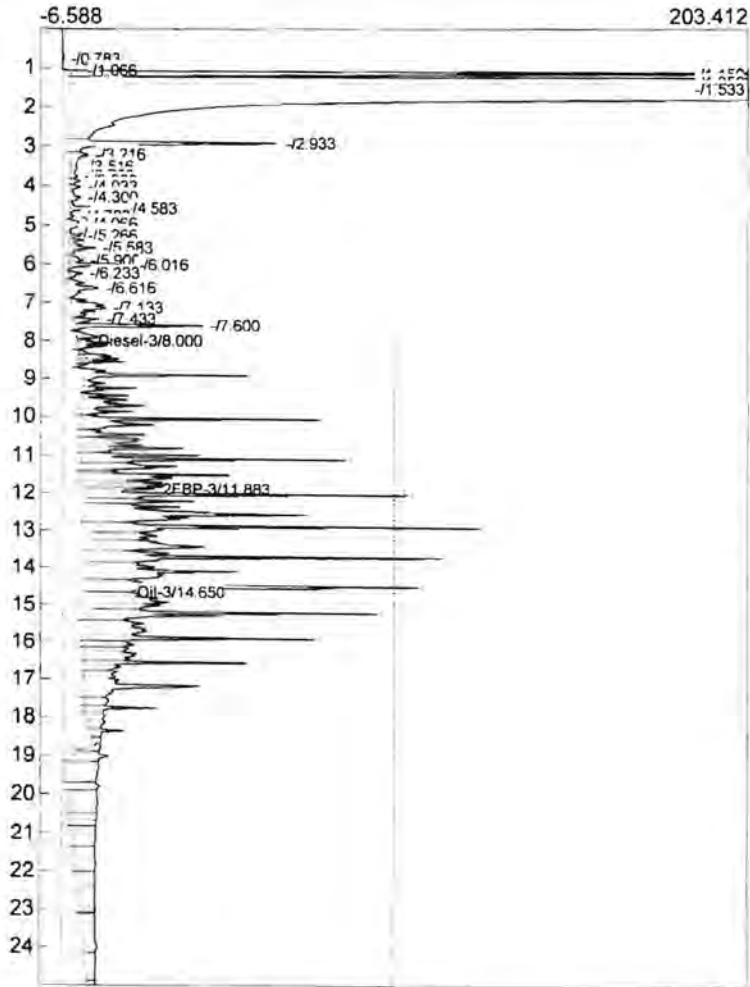
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 Analysis date: 10/26/2012 14:04:05
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: C137.CHR ()
 Sample: MRZ-B4-102212
 Operator: KW



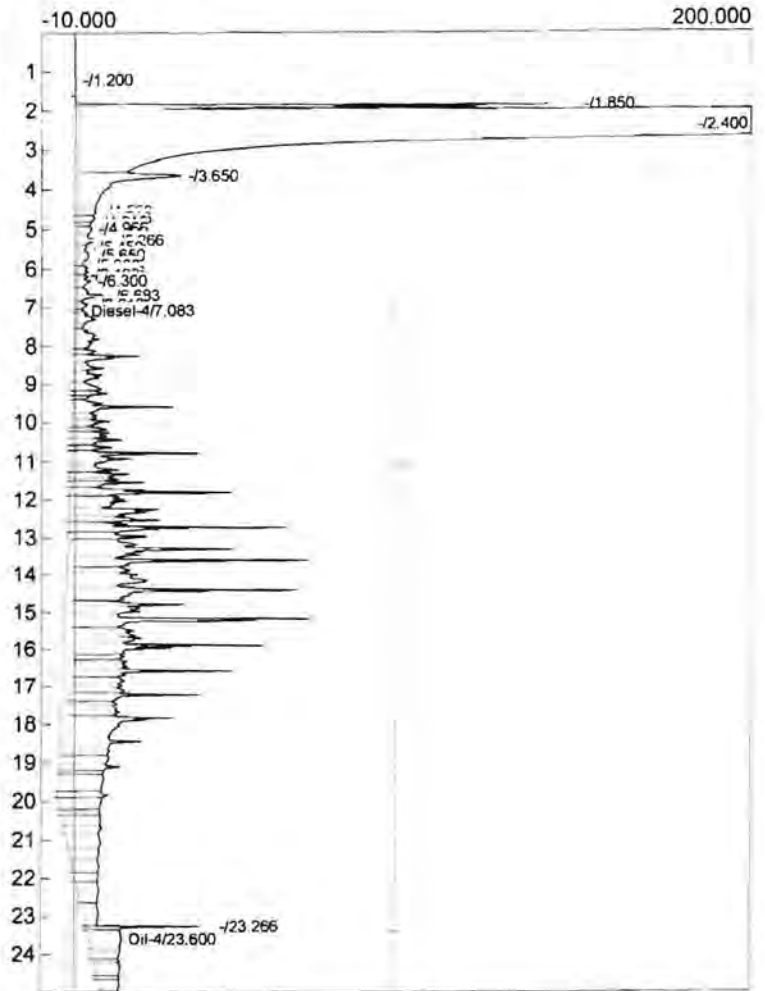
Component	Retention	Area	Height	External	Units
Diesel-3	8.783	575.9390	1.187	41.9154	ppm
2FBP-3	11.933	528.2300	227.835	19.2084	ppm
Oil-3	14.750	4002.6870	0.802	291.3053	ppm
		5106.8560		352.4290	

Lab name: Libby Environmental
 Analysis date: 10/26/2012 14:38:25
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: C138.CHR ()
 Sample: 500 ppm Dx 791
 Operator: KW

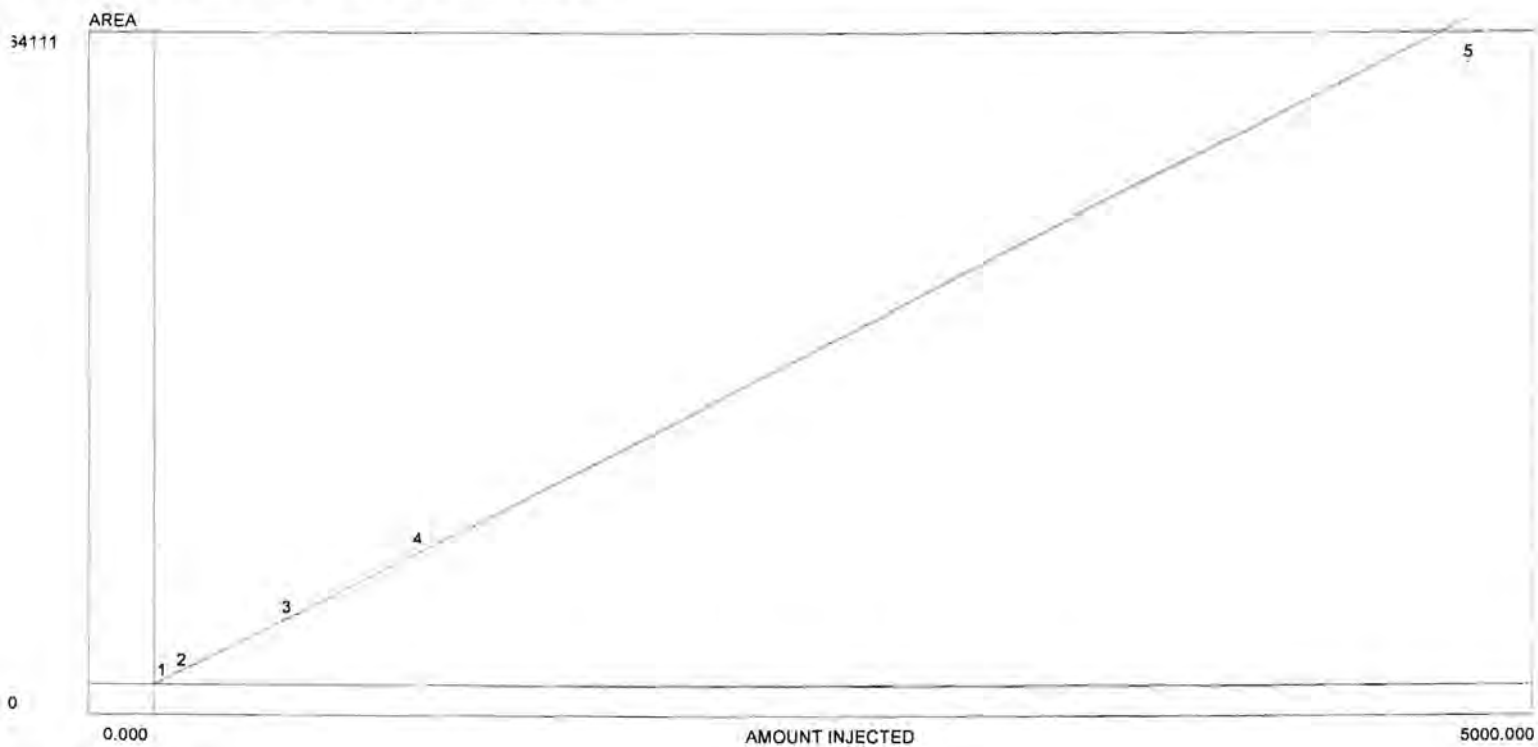
Lab name: Libby Environmental
 Analysis date: 10/26/2012 14:38:25
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: D138.chr ()
 Sample: 500 ppm Dx 791
 Operator: KW



Component	Retention	Area	Height	External	Units
Diesel-3	8.000	7345.9250	3.985	534.6176	ppm
2FBP-3	11.883	109.6740	21.979	27.4185	ppm
Oil-3	14.650	5643.4885	14.051	410.7186	ppm
		13099.0875		972.7547	



Component	Retention	Area	Height	External	Units
Diesel-4	7.083	12894.6420	1.912	443.1295	ppm
Oil-4	23.600	1124.7955	9.707	38.6540	ppm
		14019.4375		481.7835	



Avg slope of curve: 13.74

Y-axis intercept: -0.00

Linearity: 1.00

Number of levels: 5

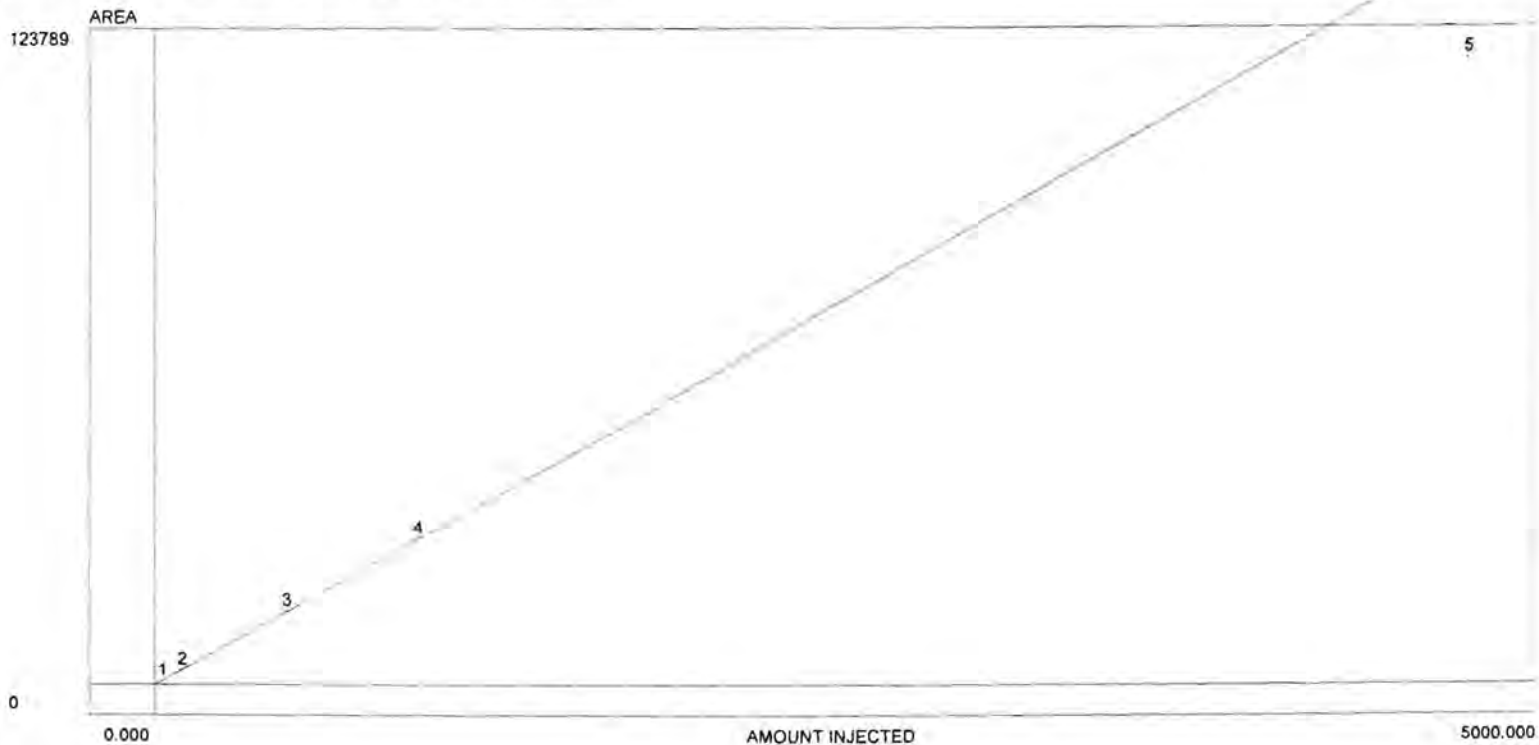
SD/rel SD of CF's: 0.7/5.1

Y=13.7405X

r2: 0.9996

Last calibrated: Wed Jun 20 21:18:26 2012

Lvl.	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	329.087	25.000	13.163	329.087	N/A	N/A
2	1442.910	100.000	14.429	1442.910	N/A	N/A
3	7053.939	500.000	14.108	7053.939	N/A	N/A
4	14179.915	1000.000	14.180	14179.915	N/A	N/A
5	64111.245	5000.000	12.822	64111.245	N/A	N/A

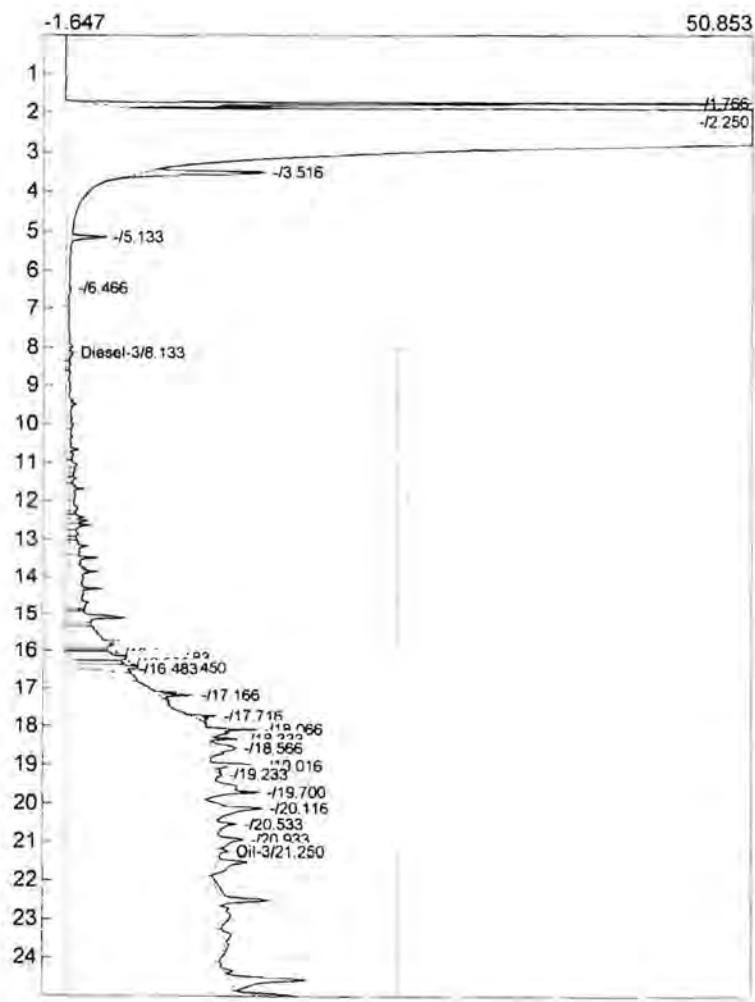


Avg slope of curve: 29.10
 Y-axis intercept: -0.00
 Linearity: 1.00
 Number of levels: 5
 SD/rel SD of CF's: 2.6/8.9
 Y=29.0990X
 r2: 0.9986
 Last calibrated: Wed Jun 20 21:19:11 2012

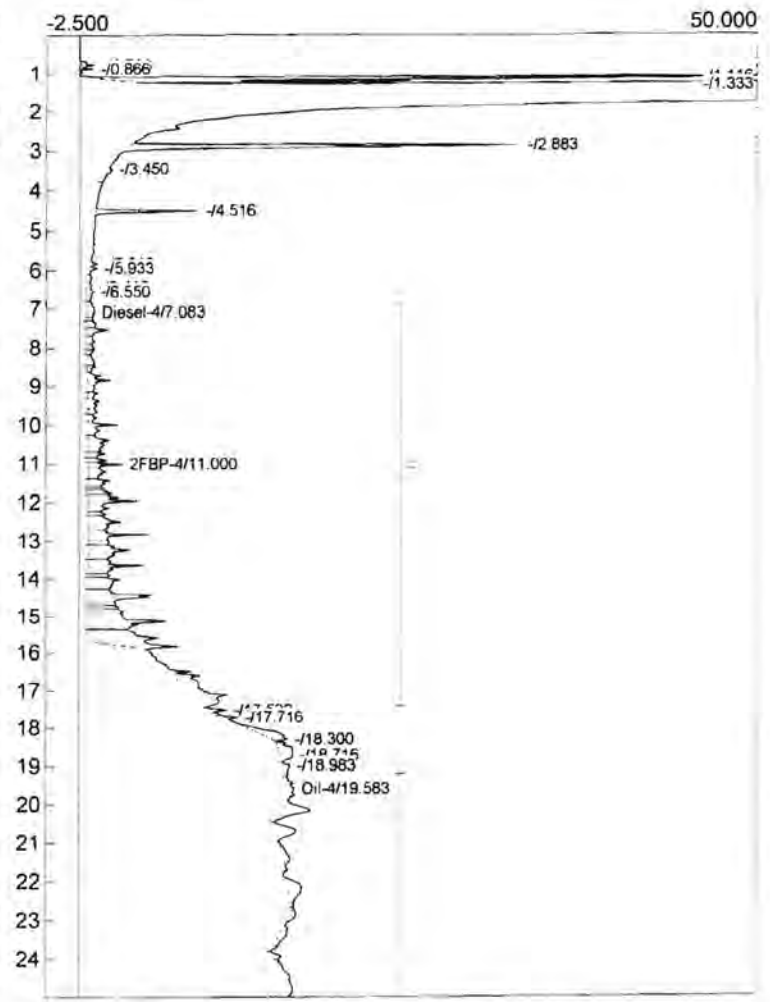
Lvl	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	792.519	25.000	31.701	792.519	N/A	N/A
2	3024.632	100.000	30.246	3024.632	N/A	N/A
3	14692.487	500.000	29.385	14692.487	N/A	N/A
4	29405.412	1000.000	29.405	29405.412	N/A	N/A
5	123788.676	5000.000	24.758	123788.676	N/A	N/A

Lab name: Libby Environmental
 Analysis date: 06/20/2012 20:47:50
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH3_C06.CHR ()
 Sample: 25 PPM DIESEL #775
 Operator: JD

Lab name: Libby Environmental
 Analysis date: 06/20/2012 20:47:50
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH4_D06.CHR ()
 Sample: 25 PPM DIESEL #775
 Operator: JD



Component	Retention	Area	Height	External	Units
Diesel-3	8.133	329.0870	0.378	23.9501	ppm
Oil-3	21.250	201.0590	0.576	7.8798	ppm
		530.1460		31.8299	



Component	Retention	Area	Height	External	Units
Diesel-4	7.083	792.5190	0.570	27.2352	ppm
2FBP-4	11.000	11.2495	2.541	0.4284	ppm
Oil-4	19.583	225.9680	0.250	10.8687	ppm
		1029.7365		38.5323	

Lab name: Libby Environmental

Analysis date: 06/20/2012 20:13:11

Description: Elmer CH 3

Column: Restek Rxi-5ms 30x0.53x1.0

Carrier: He

Data file: CH3_C05.CHR ()

Sample: 100 PPM DIESEL #774

Operator: JD

Lab name: Libby Environmental

Analysis date: 06/20/2012 20:13:11

Description: Elmer Ch 4

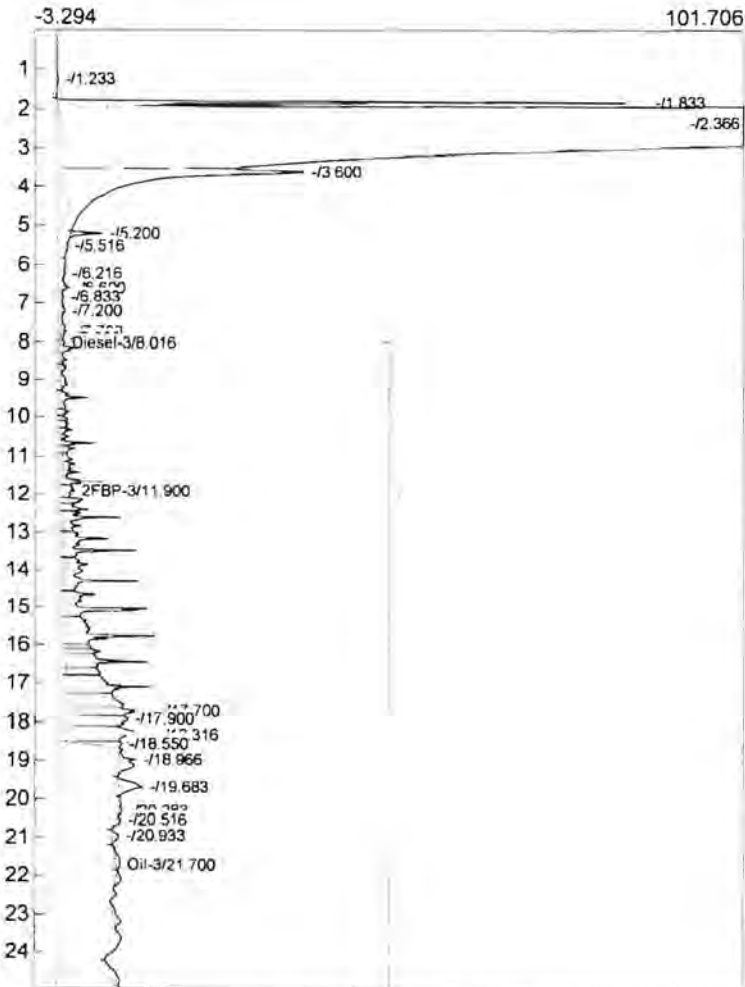
Column: Restek Rxi-5ms 30x0.53x1.0

Carrier: He

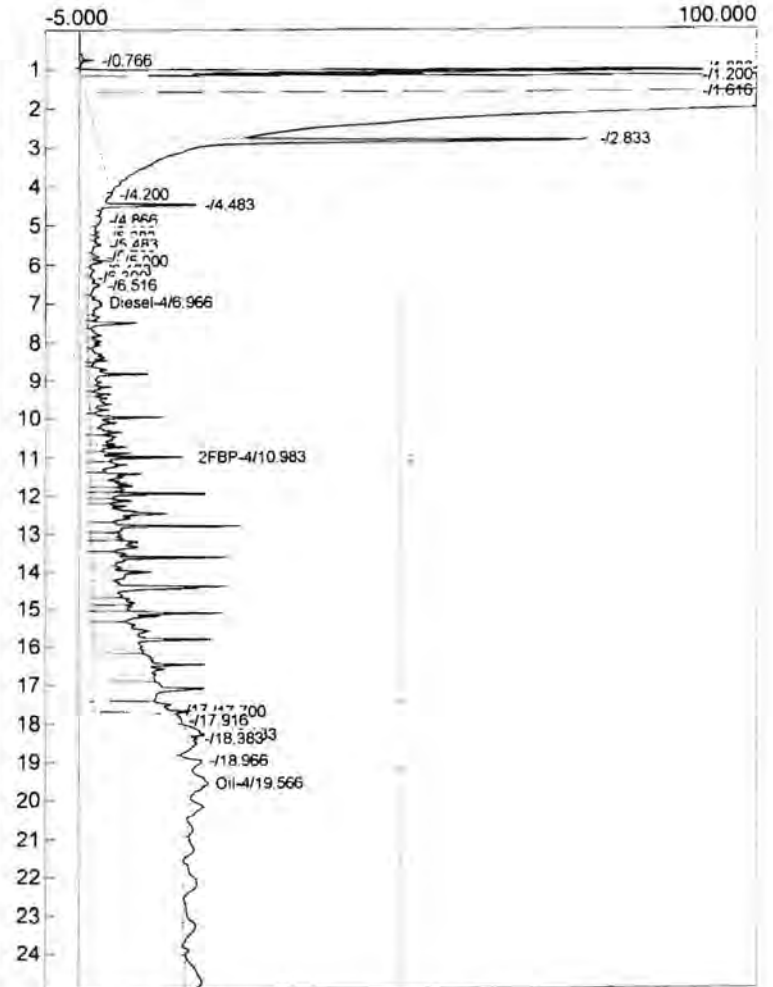
Data file: CH4_D05.CHR ()

Sample: 100 PPM DIESEL #774

Operator: JD



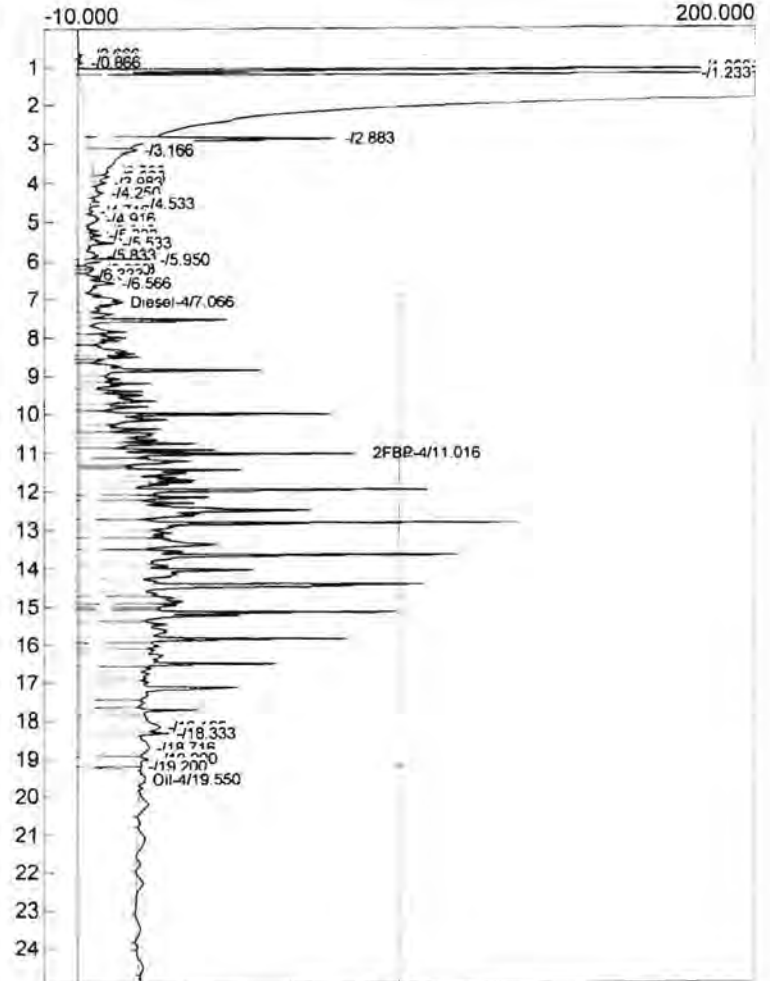
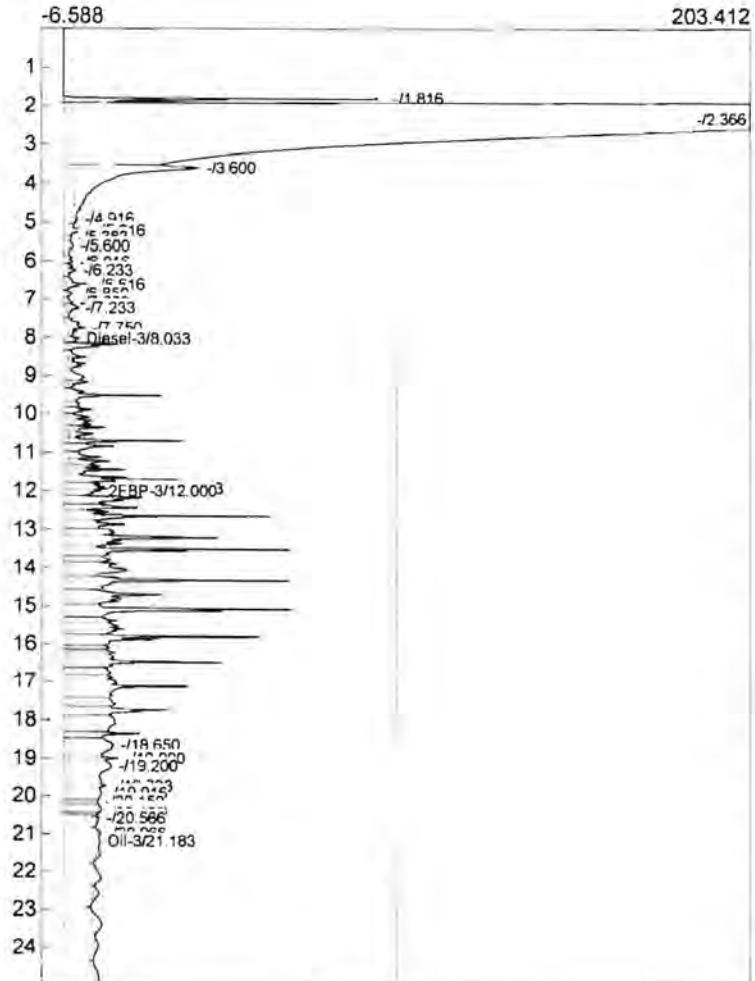
Component	Retention	Area	Height	External	Units
Diesel-3	8.016	1442.9095	0.639	100.2292	ppm
2FBP-3	11.900	23.0560	1.769	5.7640	ppm
Oil-3	21.700	144.1580	0.577	5.6498	ppm
		1610.1235		111.6430	



Component	Retention	Area	Height	External	Units
Diesel-4	6.966	3024.6315	2.135	100.2466	ppm
2FBP-4	10.983	74.0540	14.953	2.8204	ppm
Oil-4	19.566	348.5360	2.470	16.7640	ppm
		3447.2215		119.8309	

Lab name: Libby Environmental
 Analysis date: 06/20/2012 19:30:52
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH3_C04.CHR ()
 Sample: 500 PPM DIESEL #773
 Operator: JD

Lab name: Libby Environmental
 Analysis date: 06/20/2012 19:30:52
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH4_D04.CHR ()
 Sample: 500 PPM DIESEL #773
 Operator: JD

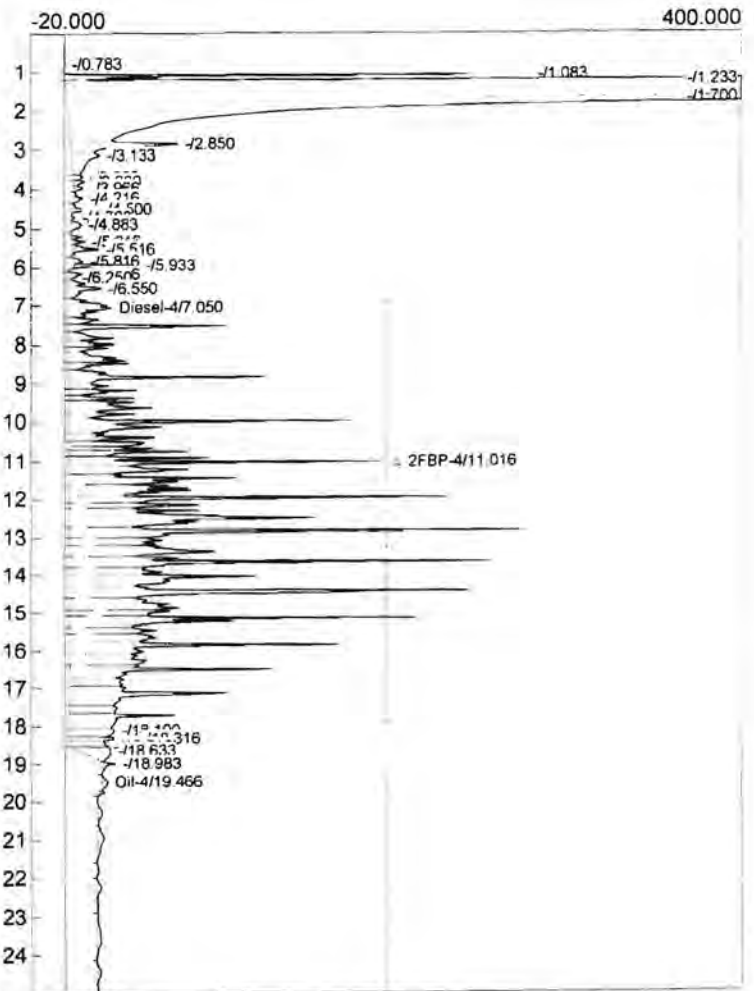
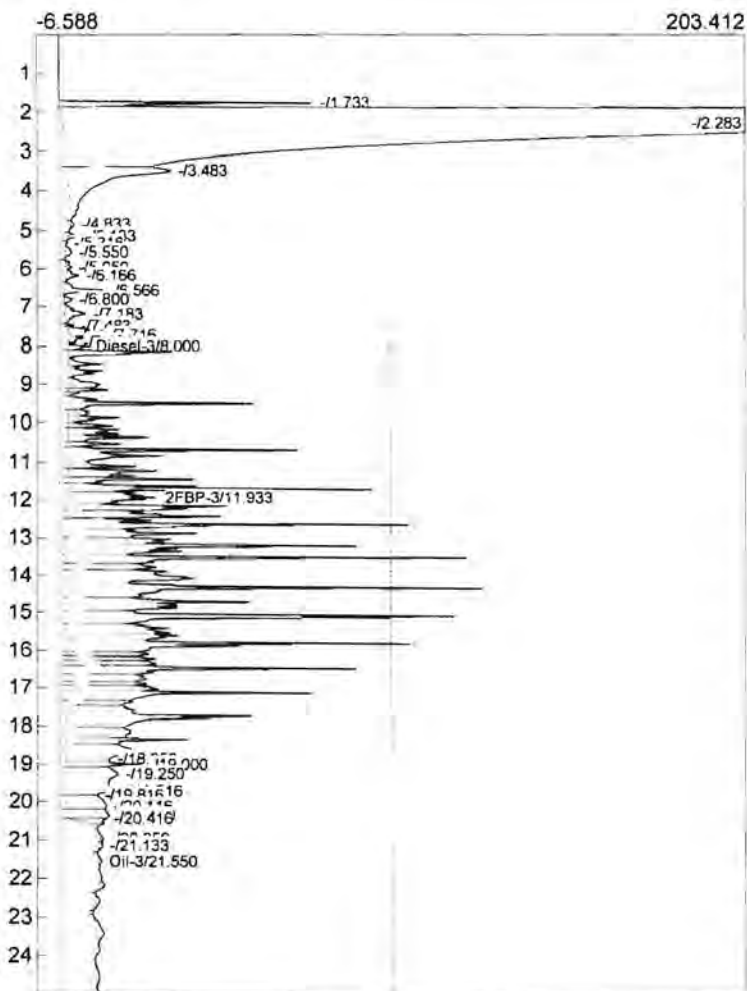


Component	Retention	Area	Height	External	Units
Diesel-3	8.033	7053.9390	3.363	491.2034	ppm
2FBP-3	11.933	100.3650	11.957	25.0912	ppm
2FBP-3	12.000	66.9750	10.007	16.7437	ppm
Oil-3	21.183	231.1530	0.329	9.0592	ppm
		7452.4320		542.0977	

Component	Retention	Area	Height	External	Units
Diesel-4	7.066	14692.4865	13.088	494.6276	ppm
2FBP-4	11.016	468.5260	84.693	17.8441	ppm
Oil-4	19.550	338.8790	1.772	16.2995	ppm
		15499.8915		528.7712	

Lab name: Libby Environmental
 Analysis date: 06/20/2012 18:55:03
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH3_C03.CHR ()
 Sample: 1000 PPM DIESEL #772
 Operator: JD

Lab name: Libby Environmental
 Analysis date: 06/20/2012 18:55:03
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH4_D03.CHR ()
 Sample: 1000 PPM DIESEL #772
 Operator: JD

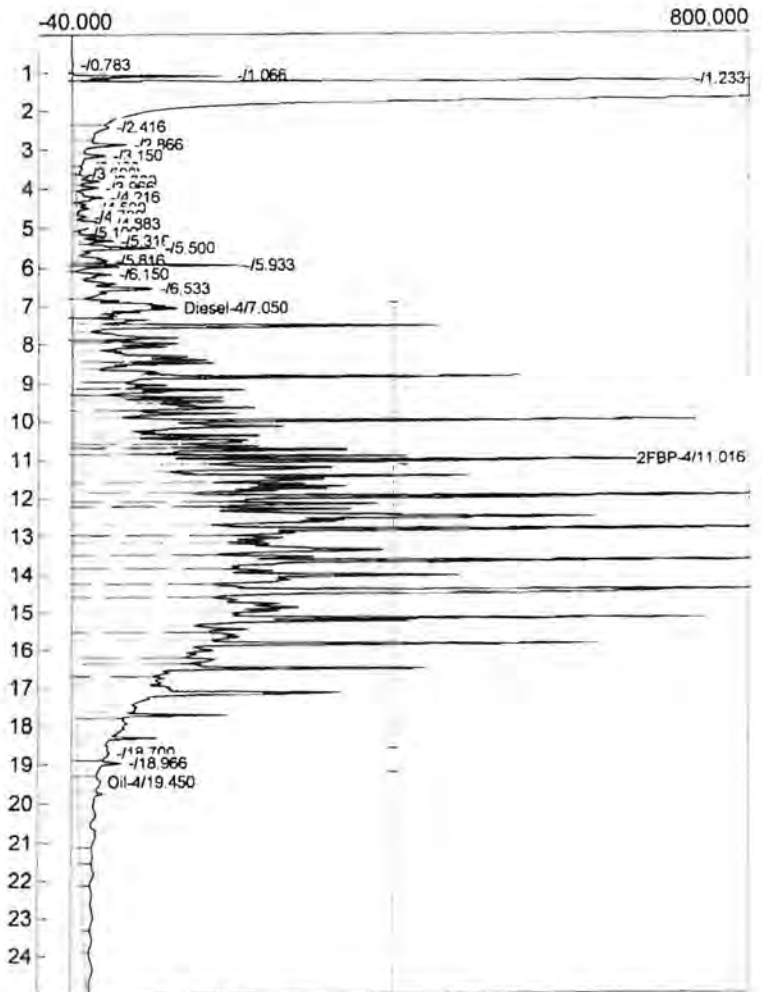
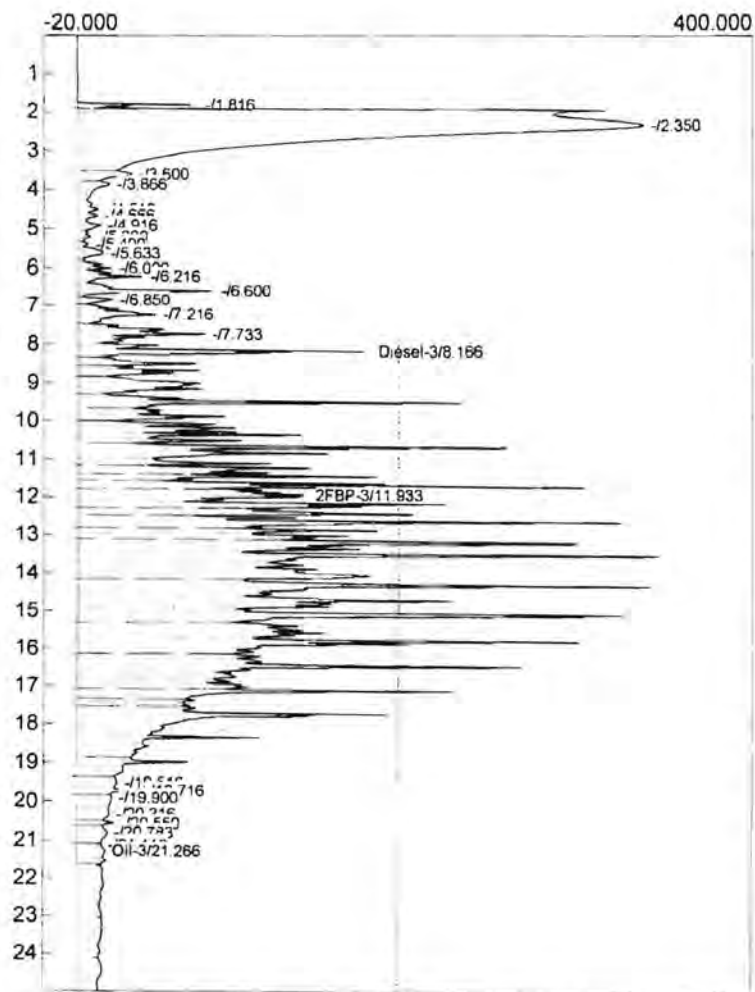


Component	Retention	Area	Height	External	Units
Diesel-3	8.000	14179.9150	6.009	543.3903	ppm
2FBP-3	11.933	344.8200	26.898	86.2050	ppm
Oil-3	21.550	217.1280	1.164	8.5096	ppm
		14741.8630		638.1048	

Component	Retention	Area	Height	External	Units
Diesel-4	7.050	29405.4115	26.447	1274.1433	ppm
2FBP-4	11.016	952.7000	197.007	36.2842	ppm
Oil-4	19.466	475.4740	3.482	22.8694	ppm
		30833.5855		1333.2969	

Lab name: Libby Environmental
 Analysis date: 06/20/2012 18:20:41
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH3_C02.CHR ()
 Sample: 5000 PPM DIESEL #771
 Operator: JD

Lab name: Libby Environmental
 Analysis date: 06/20/2012 18:20:41
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH4_D02.CHR ()
 Sample: 5000 PPM DIESEL #771
 Operator: JD

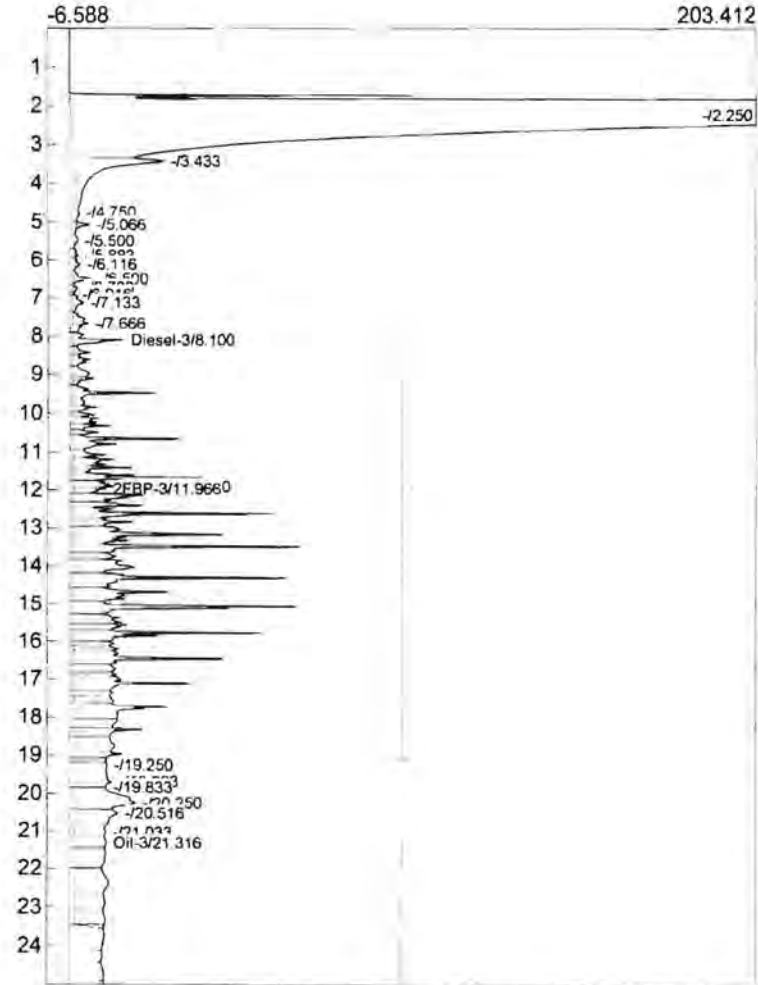


Component	Retention	Area	Height	External	Units
Diesel-3	8.166	64111.2450	172.813	4300.1858	ppm
2FBP-3	11.933	1934.6430	135.821	483.6608	ppm
Oil-3	21.266	690.3790	17.299	27.0569	ppm
		66736.2670		4810.9035	

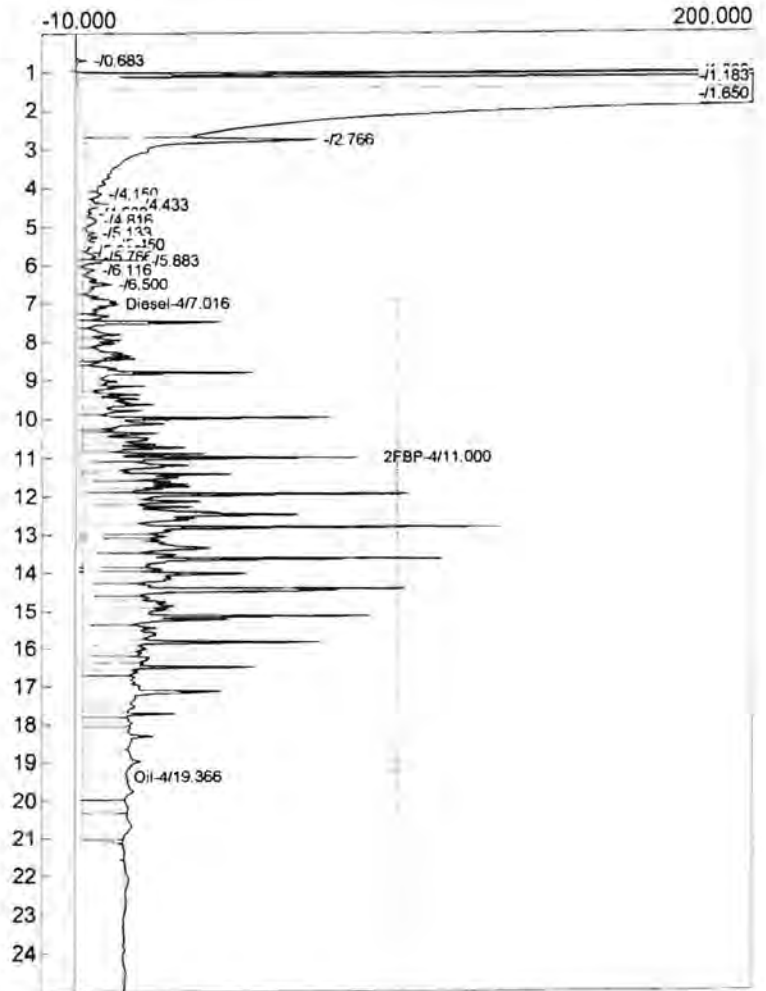
Component	Retention	Area	Height	External	Units
Diesel-4	7.050	123788.6755	124.193	4999.9922	ppm
2FBP-4	11.016	4304.1015	803.930	163.9246	ppm
Oil-4	19.450	4574.3355	27.993	220.0173	ppm
		132667.1125		5383.9341	

Lab name: Libby Environmental
 Analysis date: 06/20/2012 21:21:53
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH3_C07.CHR ()
 Sample: 500 PPM DIESEL #704ICAL
 Operator: JD

Lab name: Libby Environmental
 Analysis date: 06/20/2012 21:21:53
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH4_D07.CHR ()
 Sample: 500 PPM DIESEL #704ICAL
 Operator: JD



Component	Retention	Area	Height	External	Units
Diesel-3	8.100	7401.3870	15.026	538.6539	ppm
2FBP-3	11.900	100.5155	12.538	25.1289	ppm
2FBP-3	11.966	65.8305	9.677	16.4576	ppm
Oil-3	21.316	1407.3545	9.526	102.4236	ppm
		8975.0875		682.6641	



Component	Retention	Area	Height	External	Units
Diesel-4	7.016	14007.5970	10.800	481.3766	ppm
2FBP-4	11.000	428.5980	86.853	16.3234	ppm
Oil-4	19.366	1497.1540	12.916	51.4503	ppm
		15933.3490		549.1503	

Analysis date: 10/26/2012 12:05:06
 Method:
 Description: Jamaica Ch 3
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C360.CHR ()
 Sample: 500 ppm Dx 791
 Operator: KW

Analysis date: 10/26/2012 12:05:06
 Method:
 Description: Jamaica Ch 4
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D358.CHR ()
 Sample: 500 ppm Dx 791
 Operator: KW

Temperature program:

Init temp Hold Ramp Final temp

Events:

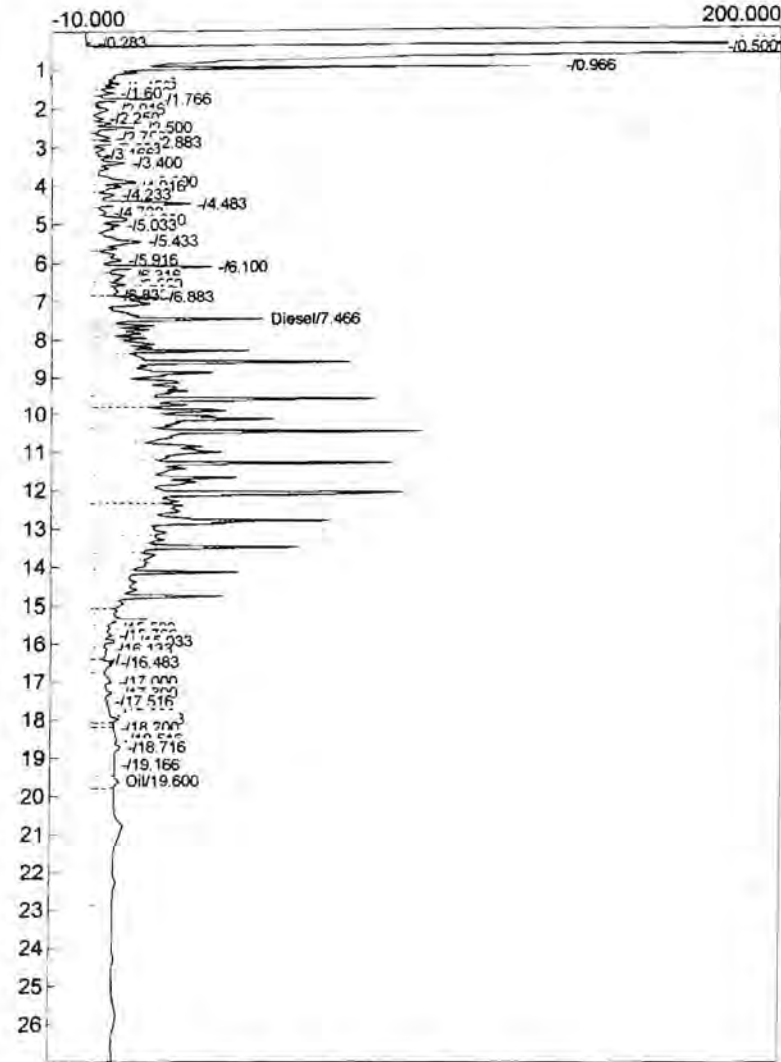
Time Event
 0.000 ZERO

Temperature program:

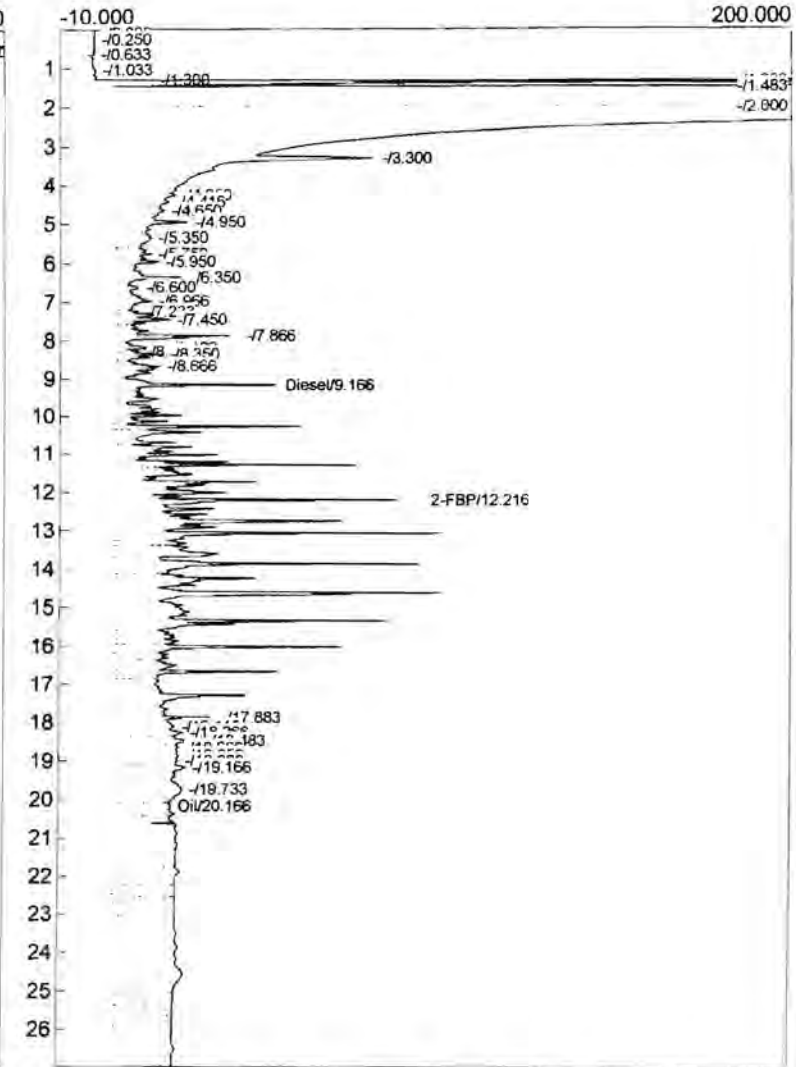
Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.466	10618.4480	48.821	523.2803	ppm
Oil	19.600	2722.3890	7.274	133.8431	ppm
		13340.8350		657.1234	



Component	Retention	Area	Height	External	Units
Diesel	9.166	9492.5540	46.200	504.0300	
2-FBP	12.216	421.1705	88.347	14.6494	ppm
Oil	20.166	7059.4435	15.797	373.9678	ppm
		16973.1680		892.6473	

Analysis date: 10/26/2012 12:40:17
 Method:
 Description: Jamaica Ch 3
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C361.CHR ()
 Sample: MB
 Operator: KW

Analysis date: 10/26/2012 12:40:17
 Method:
 Description: Jamaica Ch 4
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D359.CHR ()
 Sample: MB
 Operator: KW

Temperature program:

Init temp Hold Ramp Final temp

Events:

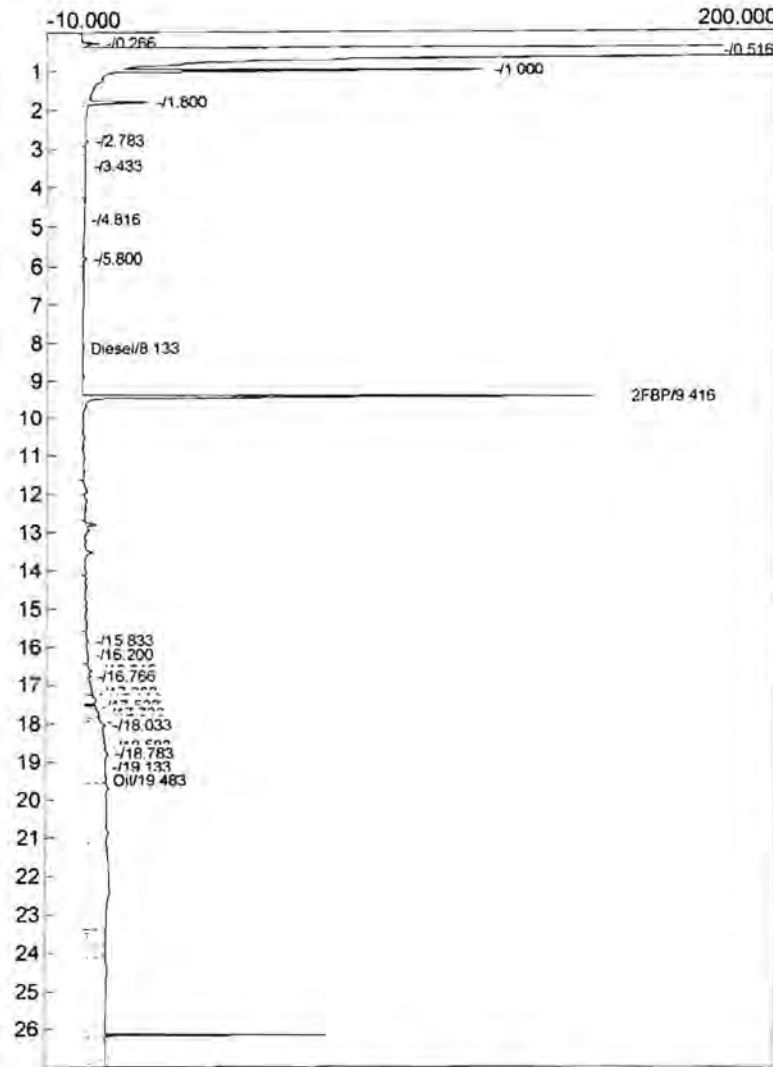
Time Event
 0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

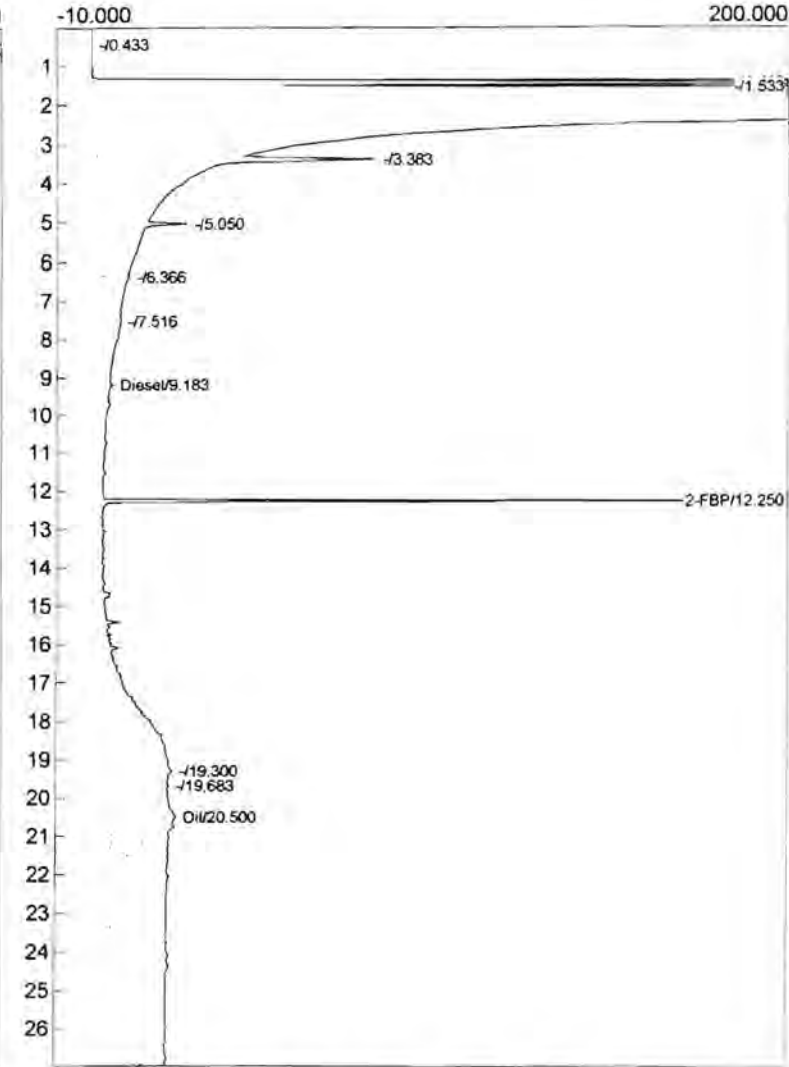
Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	8.133	553.4490	0.289	27.2097	ppm
FBP	9.416	463.7530	155.972	16.1305	ppm
Oil	19.483	2726.6230	5.228	134.0513	ppm
		3743.8250		177.3915	

81%



Component	Retention	Area	Height	External	Units
Diesel	9.183	505.6890	0.944	26.7047	
2-FBP	12.250	403.6460	188.170	14.0399	ppm
Oil	20.500	7077.5750	18.637	374.9318	ppm
		7986.9100		415.6764	

70%

Method: Description: Jamaica Ch 3 Column: Restek Rtx-5 30x0.53x1.5 Carrier: He Data file: C362.CHR () Sample: LCS Operator: KW

Method: Description: Jamaica Ch 4 Column: Restek Rtx-5 30x0.53x1.5 Carrier: He Data file: D360.CHR () Sample: LCSD Operator: KW

Temperature program:

Init temp Hold Ramp Final temp

Events:

Table with 2 columns: Time, Event. Row 1: 0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

Events:

Table with 2 columns: Time, Event. Row 1: 0.000 ZERO

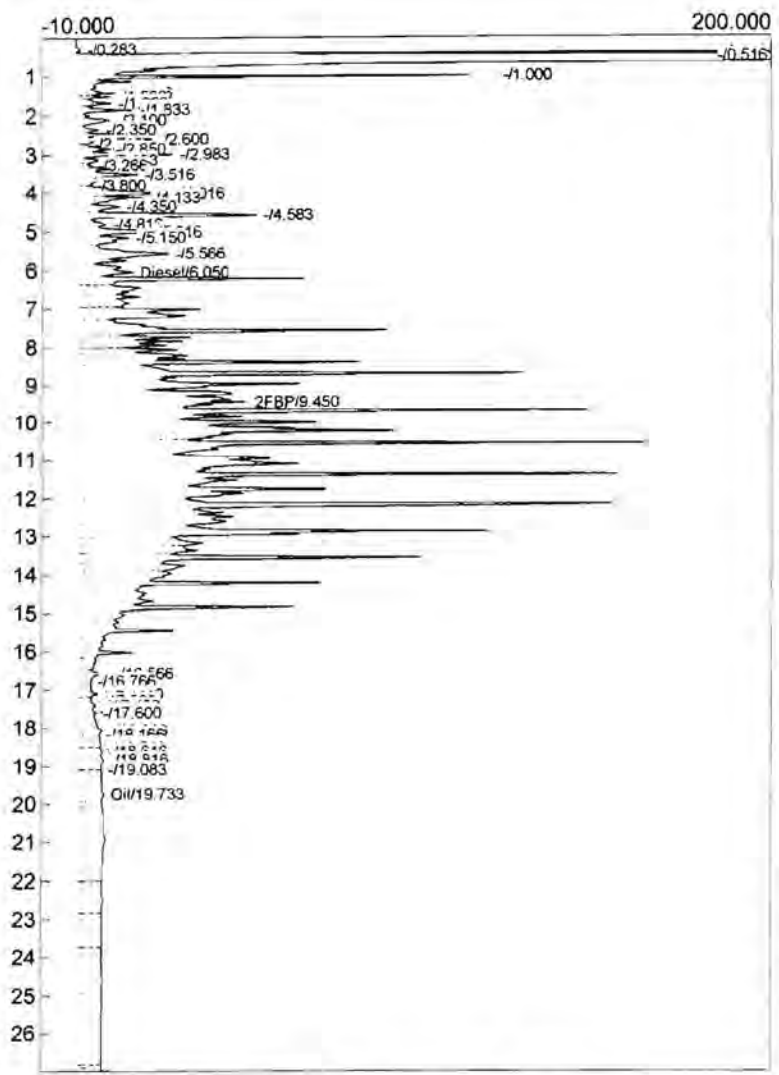


Table with 6 columns: Component, Retention, Area, Height, External, Units. Rows include Diesel, 2-FBP, and Oil with their respective values.

99%

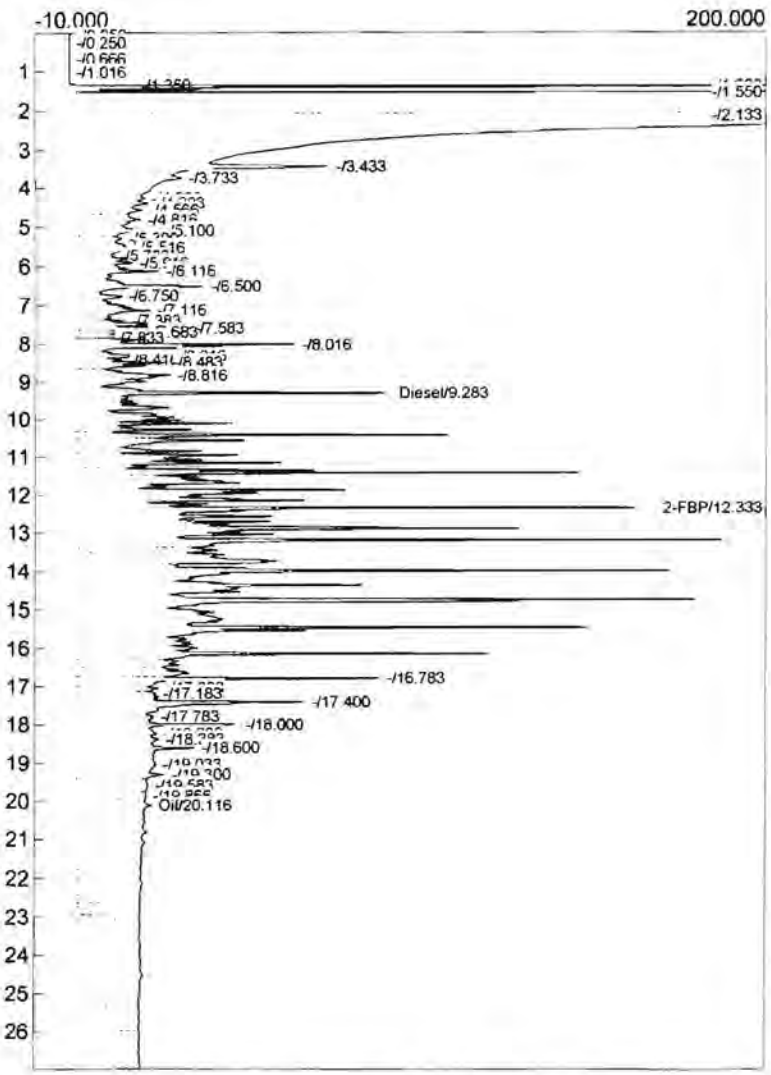


Table with 6 columns: Component, Retention, Area, Height, External, Units. Rows include Diesel, 2-FBP, and Oil with their respective values.

96%

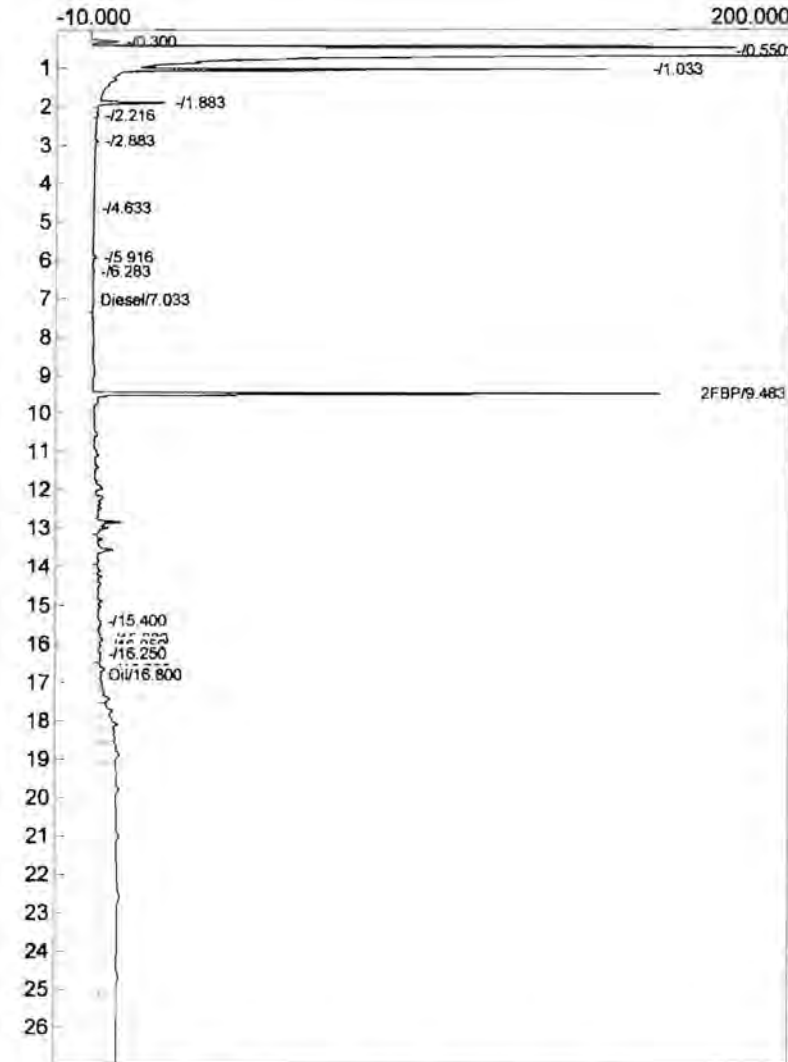
Analysis date: 10/26/2012 14:07:09
 Method:
 Description: Jamaica Ch 3
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C363.CHR ()
 Sample: MRZ-NSW2-102212
 Operator: KW

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.033	660.9220	0.122	32.4935	ppm
2FBP	9.483	496.7280	177.669	17.2775	ppm
Oil	16.800	2773.2015	0.367	136.3413	ppm
		3930.8515		186.1122	

86%
 NO

Analysis date: 10/26/2012 14:07:09
 Method:
 Description: Jamaica Ch 4
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D361.CHR ()
 Sample: MRZ-NSW2-102212-Dup
 Operator: KW

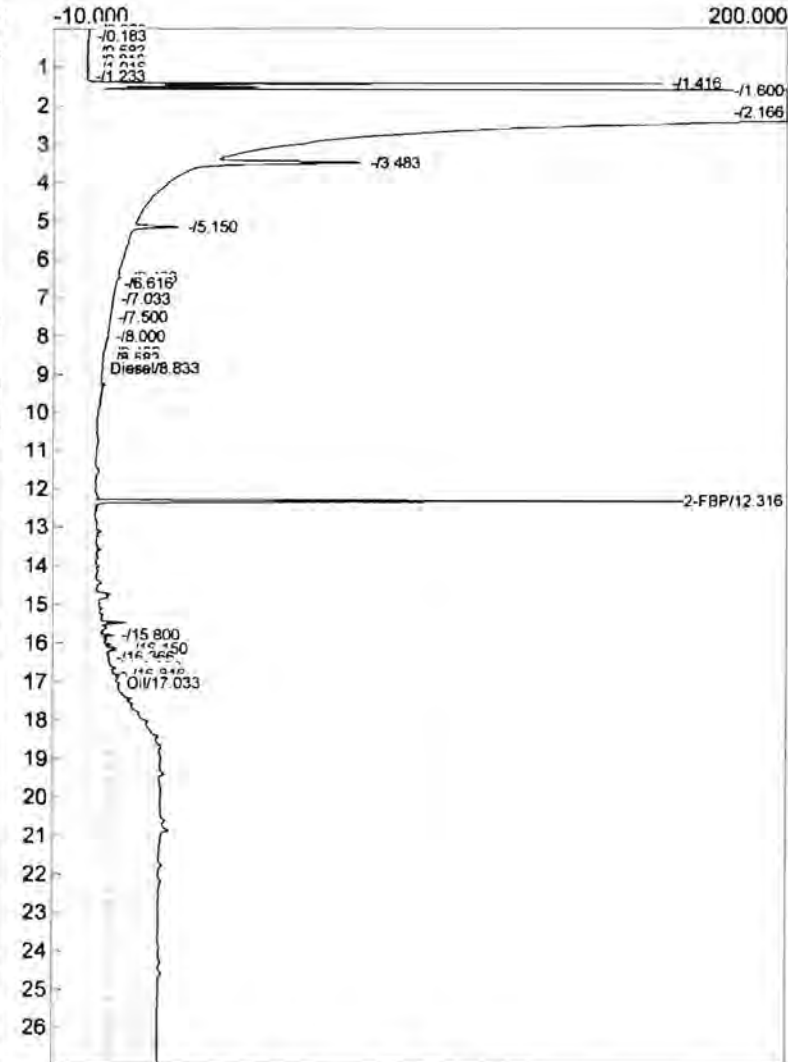
MRZ-B2-102312 dup

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	8.833	579.0270	0.267	30.5775	
2-FBP	12.318	415.2980	174.502	14.4451	ppm
Oil	17.033	8071.7770	3.126	427.9787	ppm
		9086.1020		473.0014	

72%
 NO

Analysis date: 10/26/2012 14:39:50

Method:

Description: Jamaica Ch 3

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: C364.CHR ()

Sample: MRZ-B1-102312

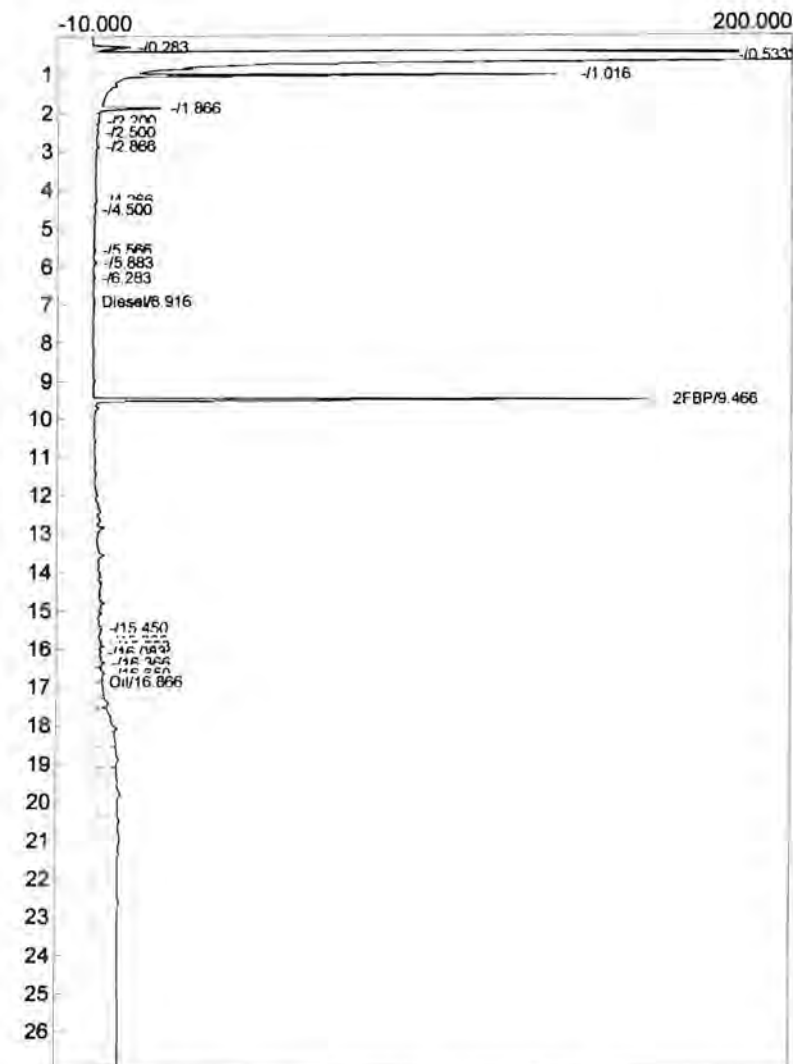
Operator: KW

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	6.916	570.4250	0.282	28.0443	ppm
2FBP	9.466	464.4730	163.629	16.1556	ppm
Oil	16.866	3216.5330	1.004	158.1372	ppm
		4251.4310		202.3370	

817
ND

Analysis date: 10/26/2012 14:39:50

Method:

Description: Jamaica Ch 4

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: D362.CHR ()

Sample: MRZ-NSW1-102312

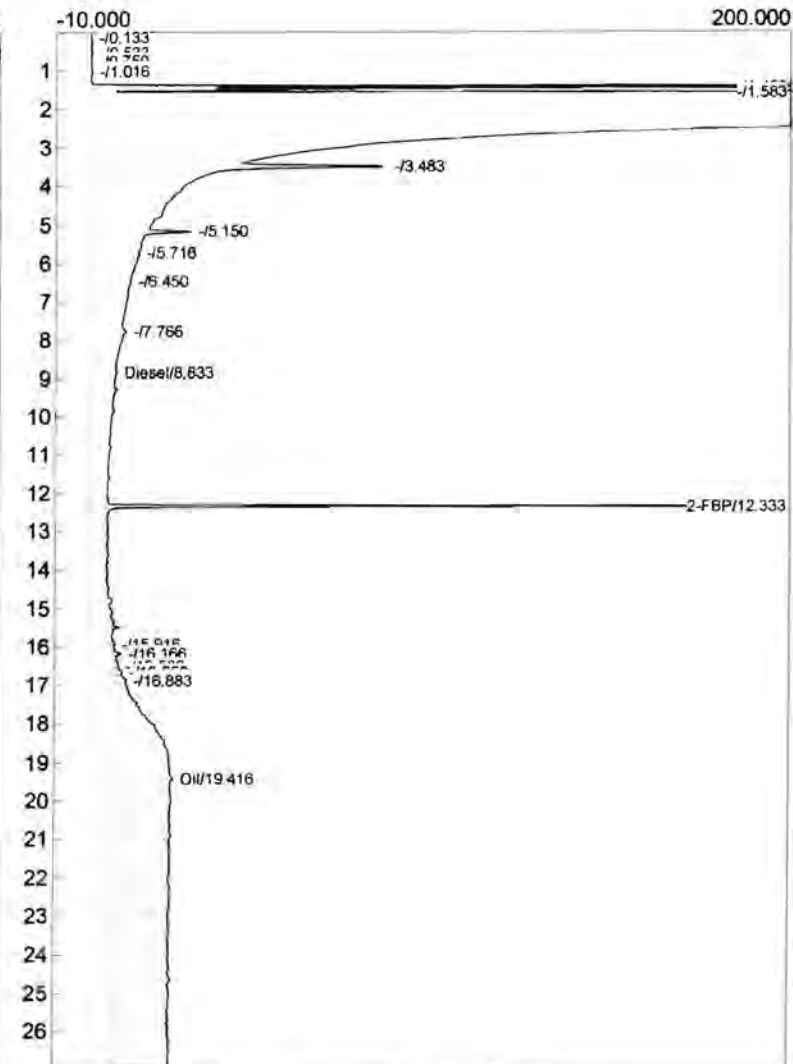
Operator: KW

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	8.833	533.7075	0.589	28.1843	
2-FBP	12.333	439.9820	180.605	15.3037	ppm
Oil	19.416	8775.4810	16.840	465.6455	ppm
		9749.1505		509.1335	

77%
ND

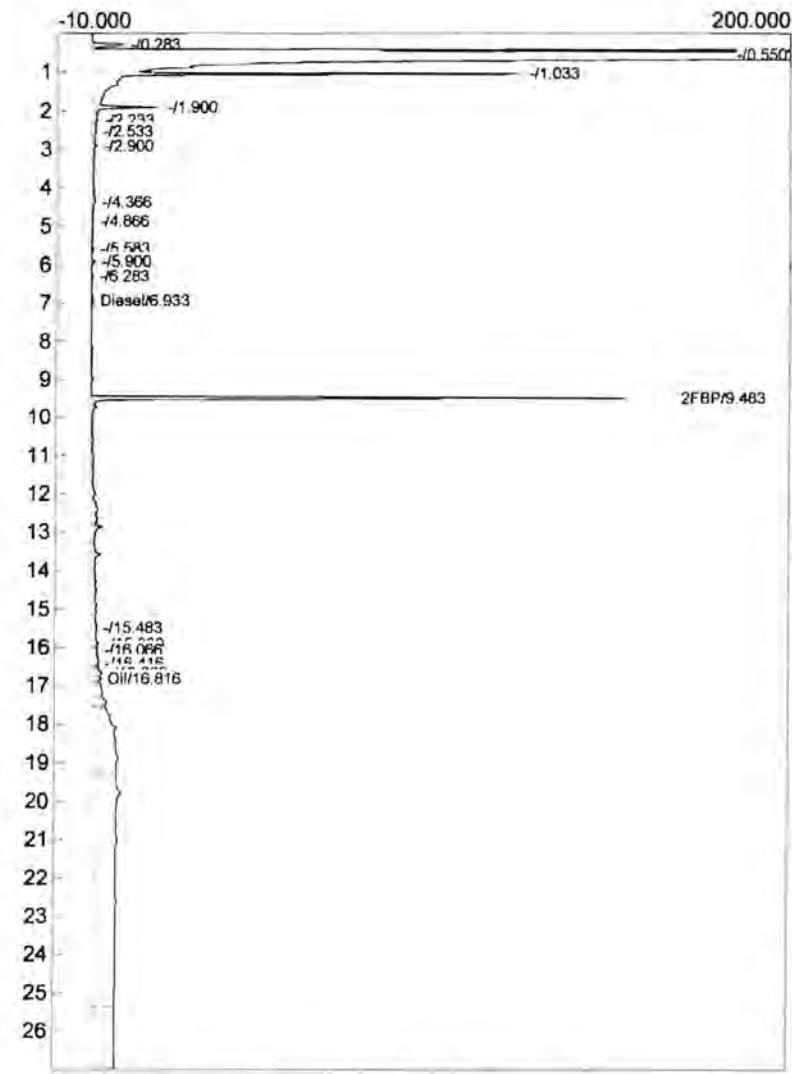
Analysis date: 10/26/2012 15:12:12
 Method:
 Description: Jamaica Ch 3
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C365.CHR ()
 Sample: MRZ-ESW1-102312
 Operator: KW

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	6.933	533.3440	0.391	26.2212	ppm
2FBP	9.483	454.4030	166.577	15.8053	ppm
Oil	16.816	3406.7105	1.275	167.4870	ppm
		4394.4575		209.5136	

797.
 NO

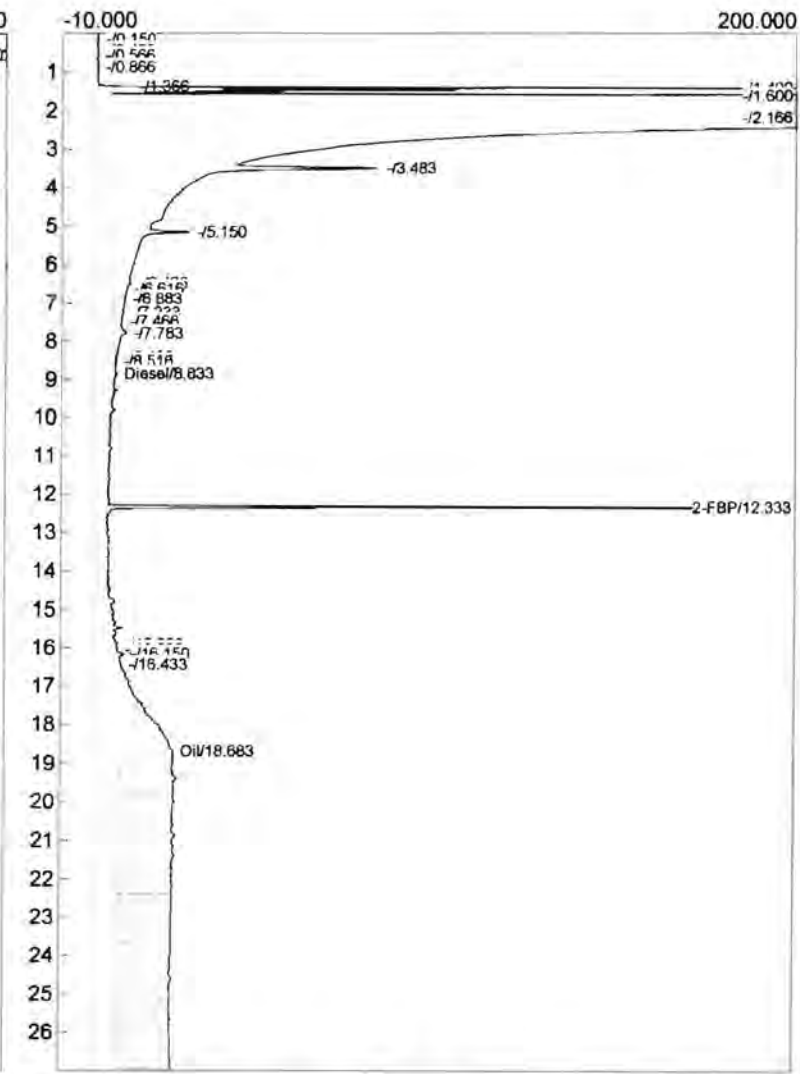
Analysis date: 10/26/2012 15:12:12
 Method:
 Description: Jamaica Ch 4
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D363.CHR ()
 Sample: MRZ-B2-102312
 Operator: KW

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	8.833	543.1260	0.651	28.6817	
2-FBP	12.333	428.4860	191.517	14.9039	ppm
Oil	16.683	8497.8595	15.422	450.7860	ppm
		9469.4715		494.3716	

756
 NO

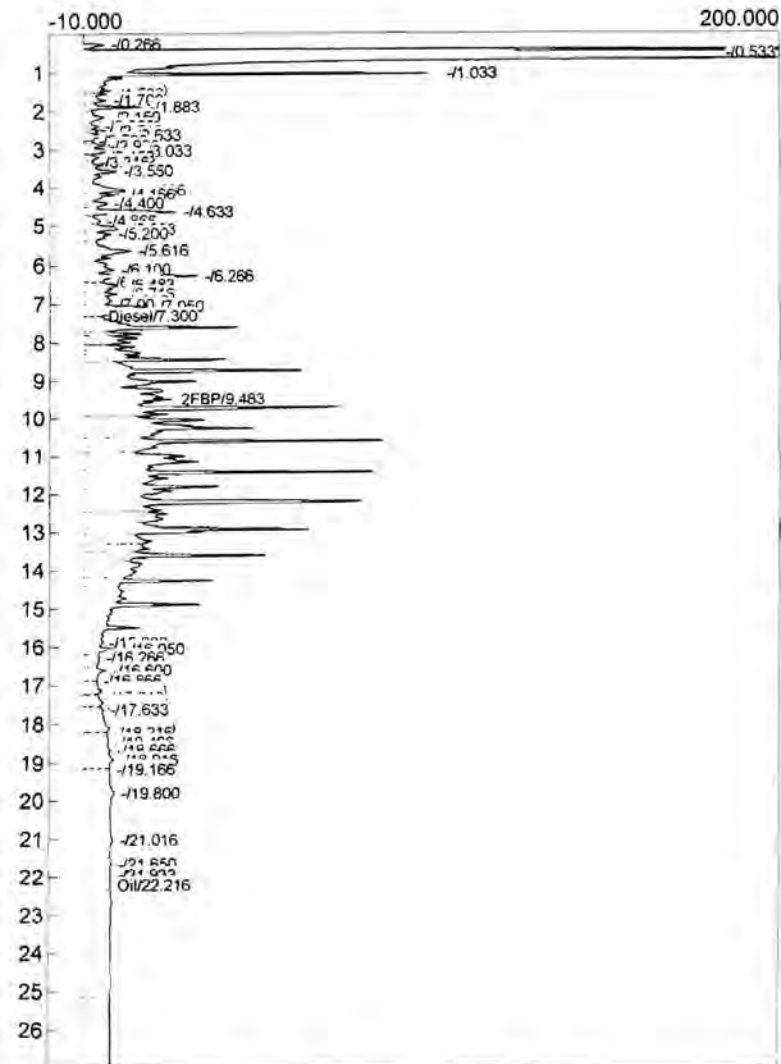
Analysis date: 10/20/2012 10:20:10
 Method:
 Description: Jamaica Ch 3
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C367.CHR ()
 Sample: 500 ppm Dx 791
 Operator: KW

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
diesel	7.300	9507.7480	4.030	468.3700	ppm
FBP	9.483	323.6960	25.122	11.2590	ppm
il	22.216	2186.5640	7.158	107.4999	ppm
		12018.0080		587.1289	

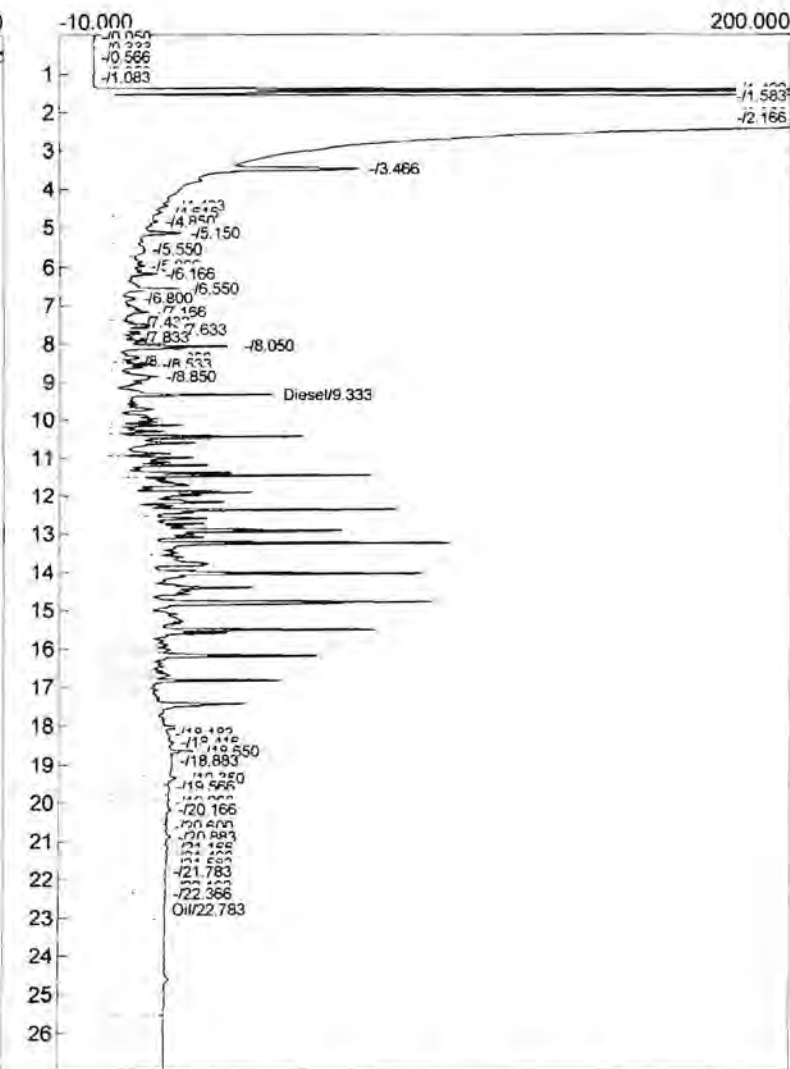
Analysis date: 10/20/2012 10:20:10
 Method:
 Description: Jamaica Ch 4
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D365.CHR ()
 Sample: 500 ppm Dx 791
 Operator: KW

Temperature program:

Init temp Hold Ramp Final temp

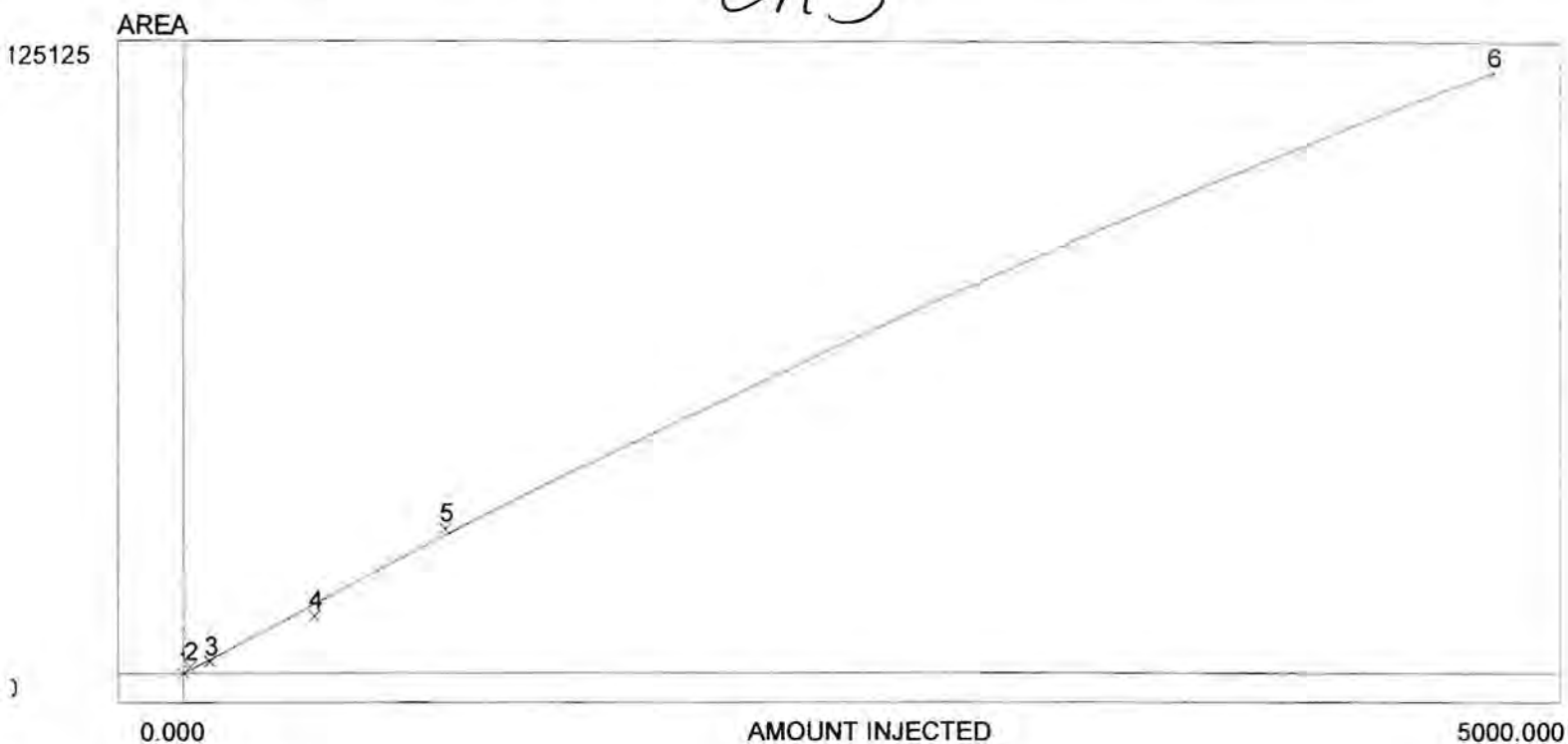
Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	9.333	9728.3550	47.271	516.6520	
Oil	22.783	4007.2040	15.743	211.6930	ppm
		13735.5590		728.3450	

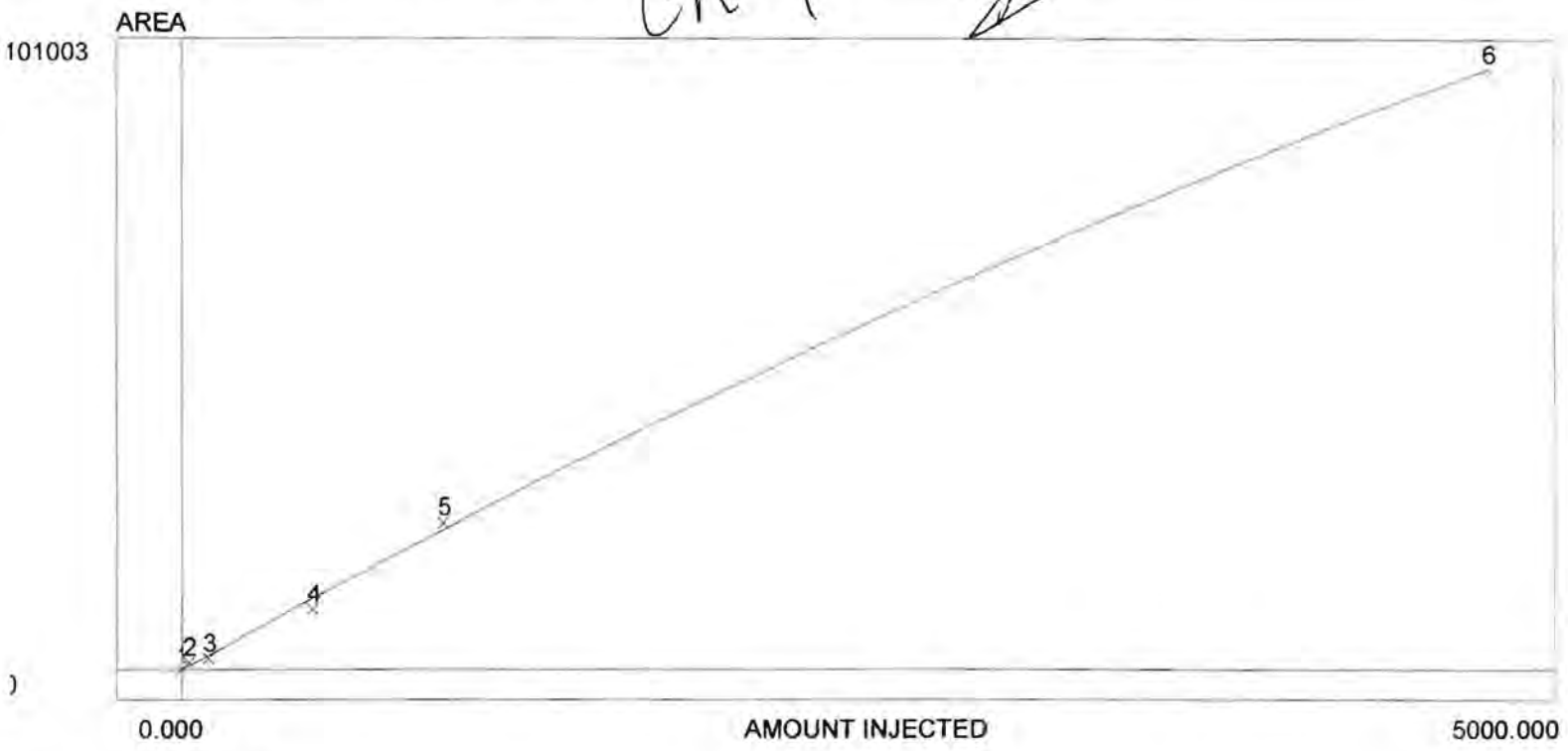
Ch 3



Avg slope of curve: 25.03
 y-axis intercept: 0.00
 Linearity: 0.86
 Number of levels: 6
 3D/rel SD of CF's: 18.0/66.9
 $r = -0.0009X^2 + 29.3544X$
 $r^2: 0.9993$
 Last calibrated: Wed Mar 14 13:52:31 2012

Level	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	1410.471	25.000	56.419	1410.471	N/A	N/A
3	2574.179	100.000	25.742	2574.179	N/A	N/A
4	12043.265	500.000	24.087	12043.265	N/A	N/A
5	29871.863	1000.000	29.872	29871.863	N/A	N/A
6	125124.670	5000.000	25.025	125124.670	N/A	N/A

Ch 4 



Avg slope of curve: 20.21
 Y-axis intercept: 0.00
 Linearity: 0.84
 Number of levels: 6
 3D/rel SD of CF's: 16.3/72.6
 $Y = -0.0008X^2 + 24.2883X$
 R^2: 0.9993
 Last calibrated: Wed Mar 14 13:57:45 2012

Level	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	1271.716	25.000	50.869	1271.716	N/A	N/A
3	1927.394	100.000	19.274	1927.394	N/A	N/A
4	10086.605	500.000	20.173	10086.605	N/A	N/A
5	24554.042	1000.000	24.554	24554.042	N/A	N/A
6	101002.720	5000.000	20.201	101002.720	N/A	N/A

Analysis date: 03/14/2012 10:39:04

Method: Syringe Injection

Description: JAMACIA FID

Column: RESTEK 15METER MXT-1

Carrier: HELIUM AT 5 PSI

Data file: C620.CHR ()

Sample: 25 PPM Dx 706

Operator: KW

Analysis date: 03/14/2012 10:39:04

Method: Syringe Injection

Description: JAMACIA FID

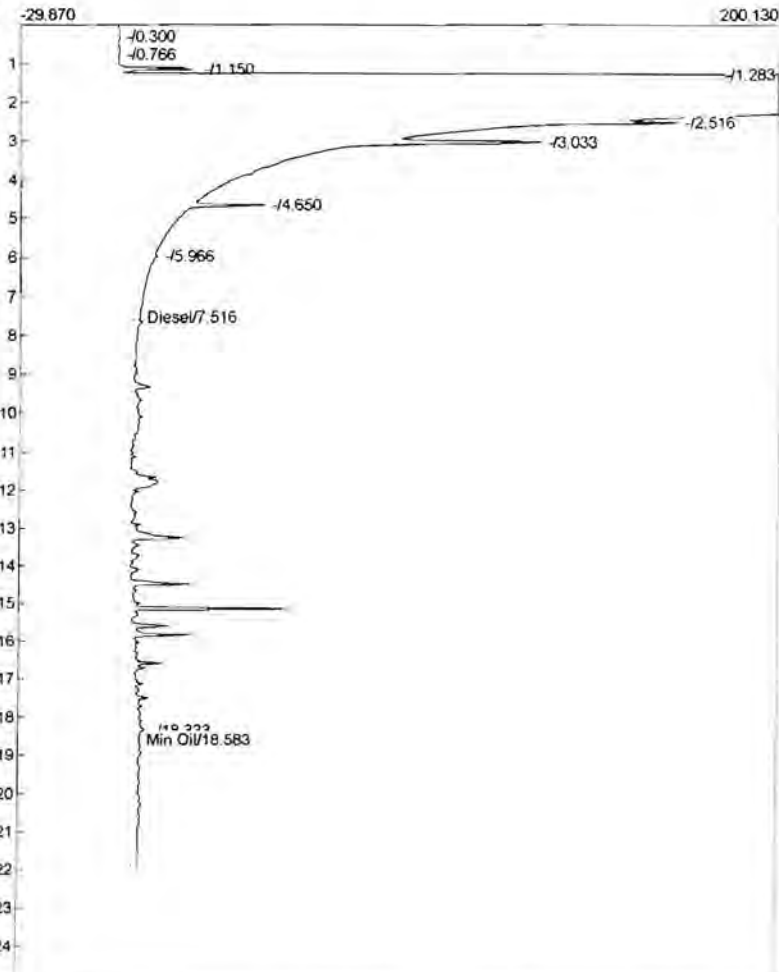
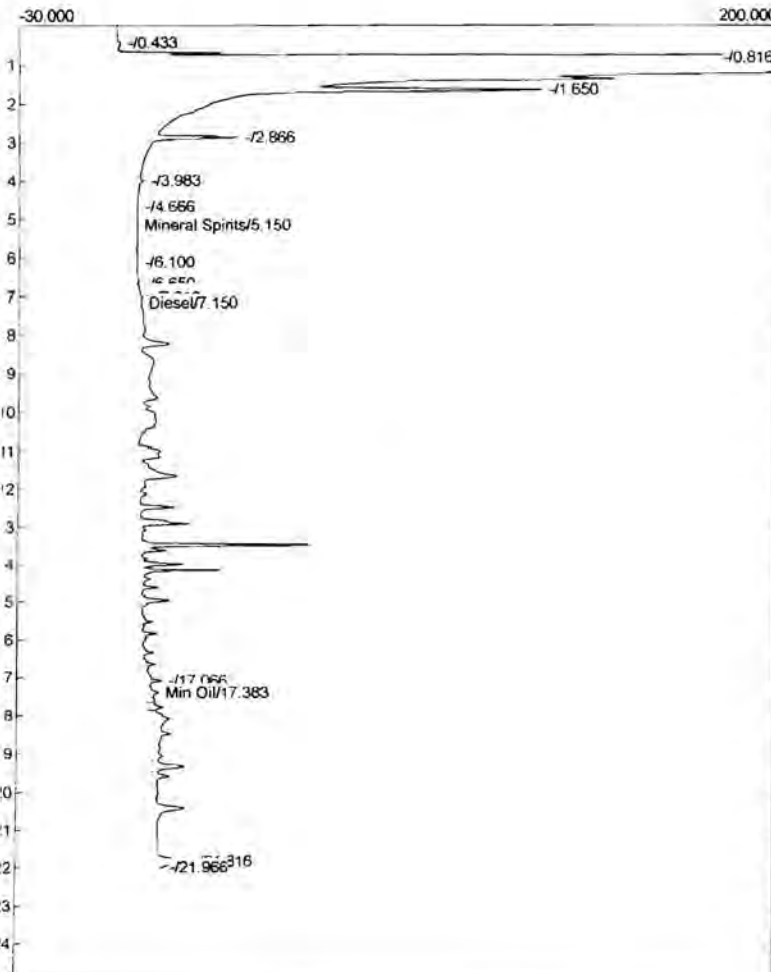
Column: RESTEK 15METER MXT-1

Carrier: HELIUM AT 5 PSI

Data file: D626.CHR ()

Sample: 25 PPM Dx 706

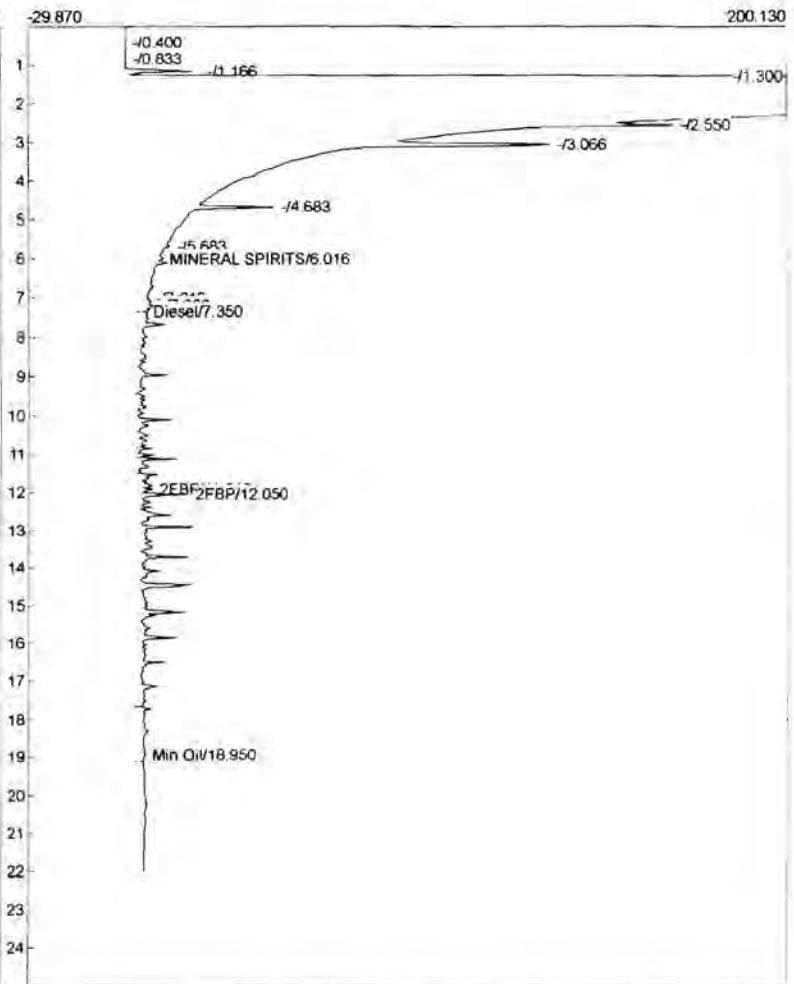
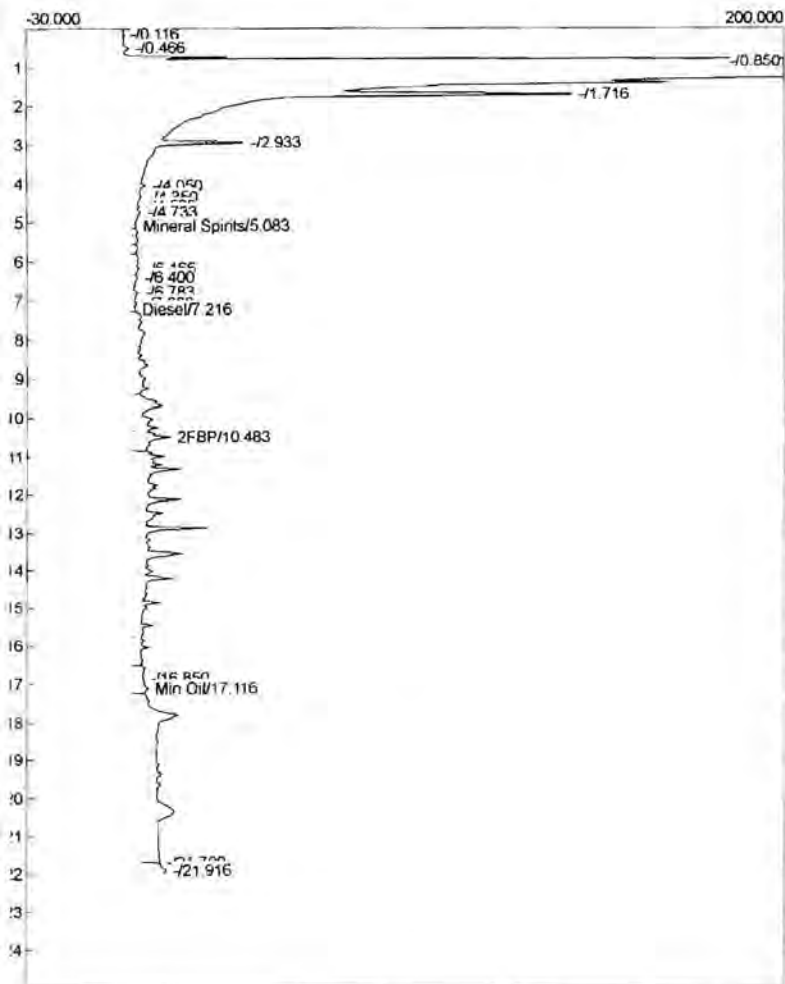
Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	U
Mineral Spirts	5.150	7.8080	0.195	0.3863	PPM	Diesel	7.516	1271.7155	1.965	89.4973	ppm
Diesel	7.150	1410.4710	0.518	13.6936	ppm	Min Oil	18.583	209.2665	1.582	14.7689	ppm
Min Oil	17.383	577.2305	3.576	0.0000				1480.9820		104.2662	
		1995.5095		14.0798							

Analysis date: 03/14/2012 11:07:43
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C621.CHR ()
 Sample: 100 PPM Dx 705
 Operator: KW

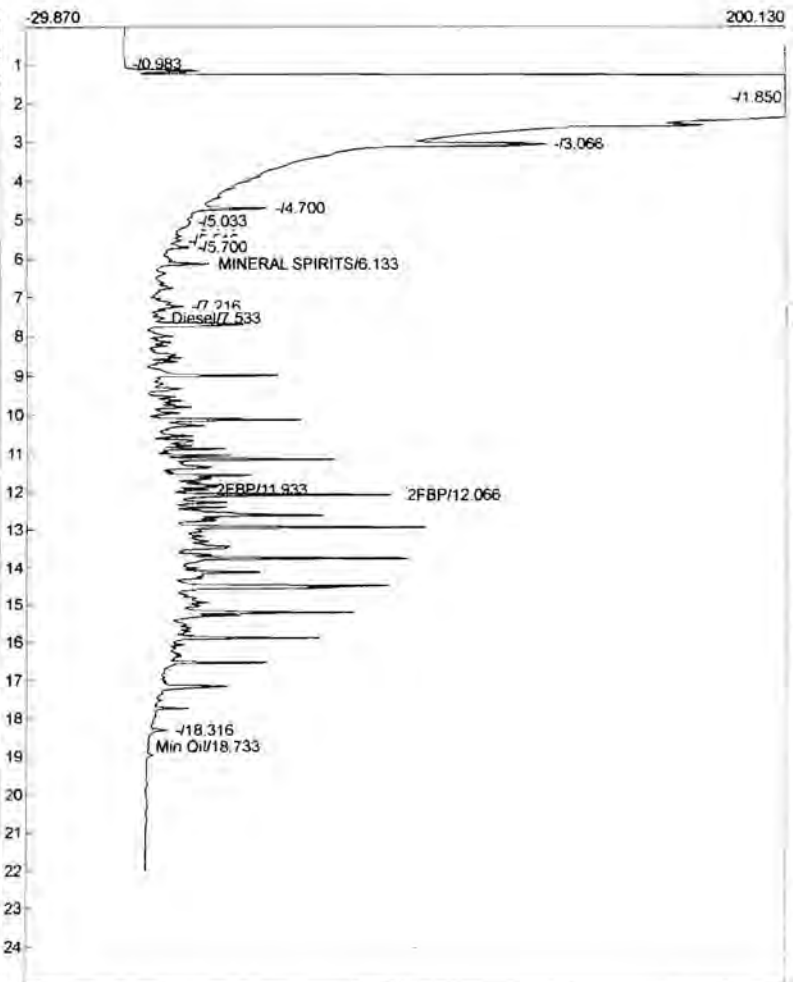
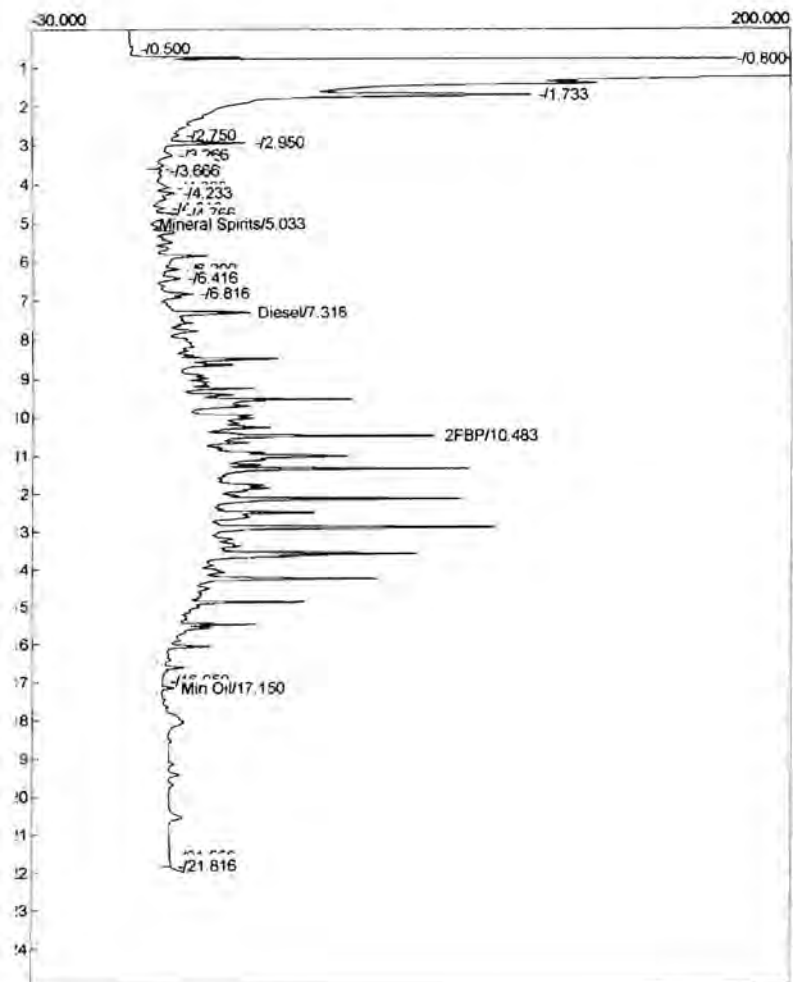
Analysis date: 03/14/2012 11:07:43
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D627.CHR ()
 Sample: 100 PPM Dx 705
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	U
Mineral Spirits	5.083	84.6325	1.090	4.1869	PPM	MINERAL SPIRITS	6.016	285.6170	7.733	20.1004	PPM
Diesel	7.216	2410.4095	0.627	119.2471	ppm	Diesel	7.350	1849.7390	2.625	130.1759	ppm
2FBP	10.483	163.7695	10.998	6.5508	ppm	2FBP	11.916	20.8250	4.775	1.0413	ppm
Min Oil	17.116	1953.3665	4.269	0.0000		2FBP	12.050	56.8300	15.516	2.8415	ppm
						Min Oil	18.950	514.9365	2.757	36.3413	ppm
		4612.1780		129.9847				2727.9475		190.5003	

Analysis date: 03/14/2012 11:45:18
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C622.CHR ()
 Sample: 500 PPM Dx 704
 Operator: KW

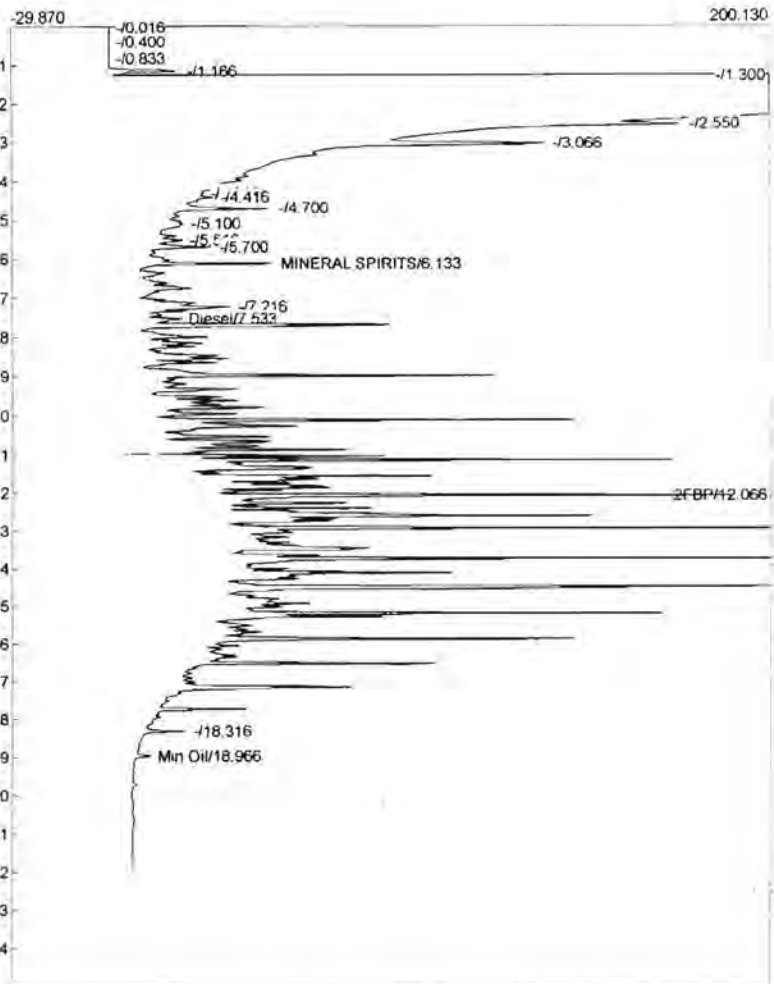
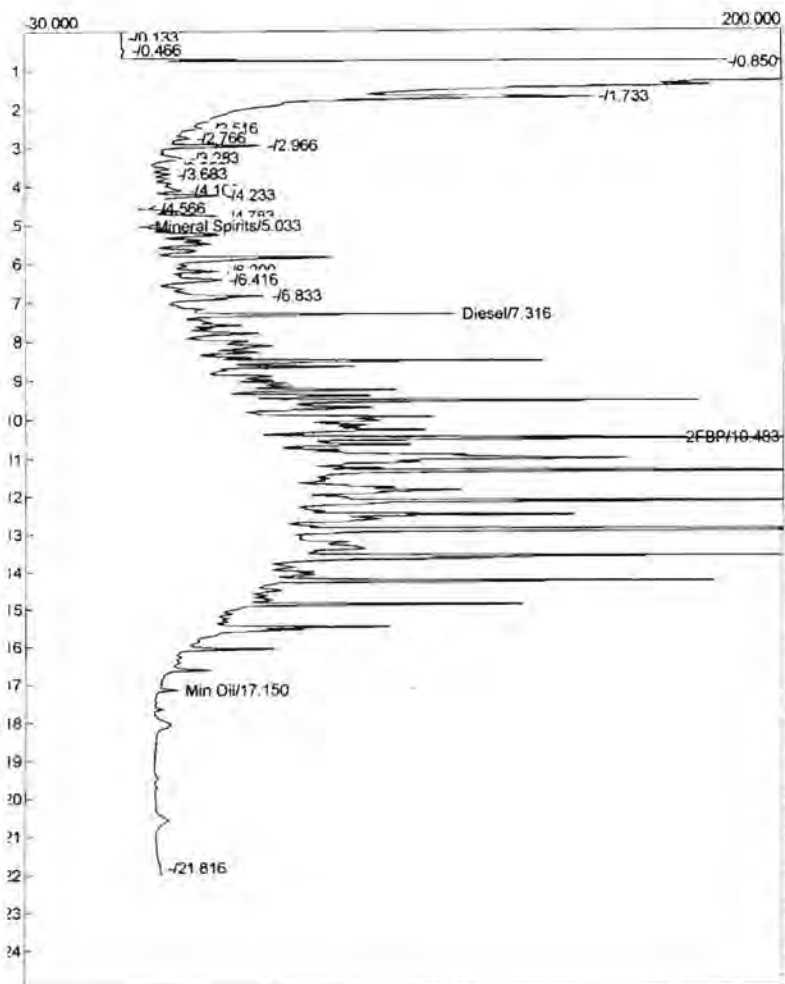
Analysis date: 03/14/2012 11:45:18
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D628.CHR ()
 Sample: 500 PPM Dx 704
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.033	323.3415	0.632	15.9963	ppm	MINERAL SPIRITS	6.133	636.8190	24.452	44.8163	ppm
Diesel	7.316	11375.2115	30.144	562.7511	ppm	Diesel	7.533	9651.3385	9.725	679.2156	ppm
2FBP	10.483	668.0530	86.276	26.7221	ppm	2FBP	11.933	110.1285	21.943	5.5064	ppm
Min Oil	17.150	960.9820	5.210	0.0000	ppm	2FBP	12.066	325.1375	79.999	16.2569	ppm
						Min Oil	18.733	138.4670	1.874	9.7722	ppm
		13327.5880		605.4694				10861.8905		755.5674	

Analysis date: 03/14/2012 12:13:07
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C623.CHR ()
 Sample: 1000 PPM Dx 703
 Operator: KW

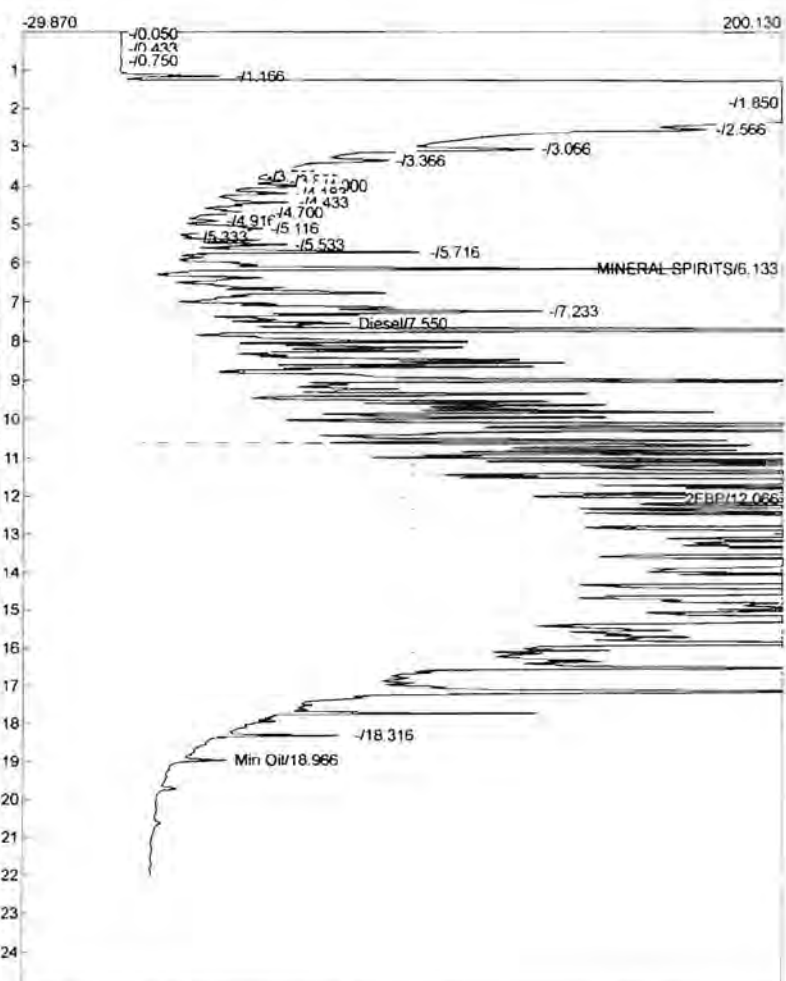
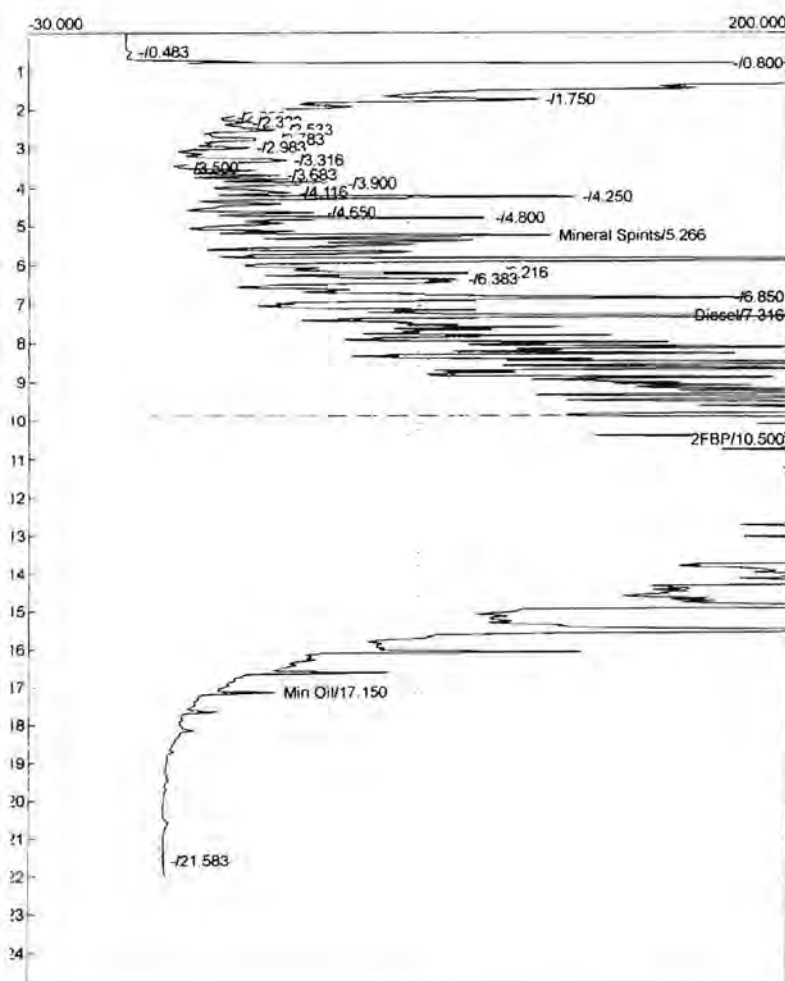
Analysis date: 03/14/2012 12:13:07
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D629.CHR ()
 Sample: 1000 PPM Dx 703
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.033	995.3365	2.641	49.2410	pp	MINERAL SPIRITS	6.133	723.8390	45.571	50.9404	pp
Diesel	7.316	28291.8845	95.034	1399.6476	pp	Diesel	7.533	23510.5725	17.032	1654.5630	pp
2FBP	10.483	1579.9780	244.836	63.1991	pp	2FBP	12.066	1043.4695	193.880	52.1735	pp
Min Oil	17.150	221.1300	7.549	0.0000	pp	Min Oil	18.966	300.3670	6.980	21.1982	pp
		31088.3290		1512.0877				25578.2480		1778.8751	

Analysis date: 03/14/2012 12:41:16
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C624.CHR ()
 Sample: 5000 PPM Dx 702
 Operator: KW

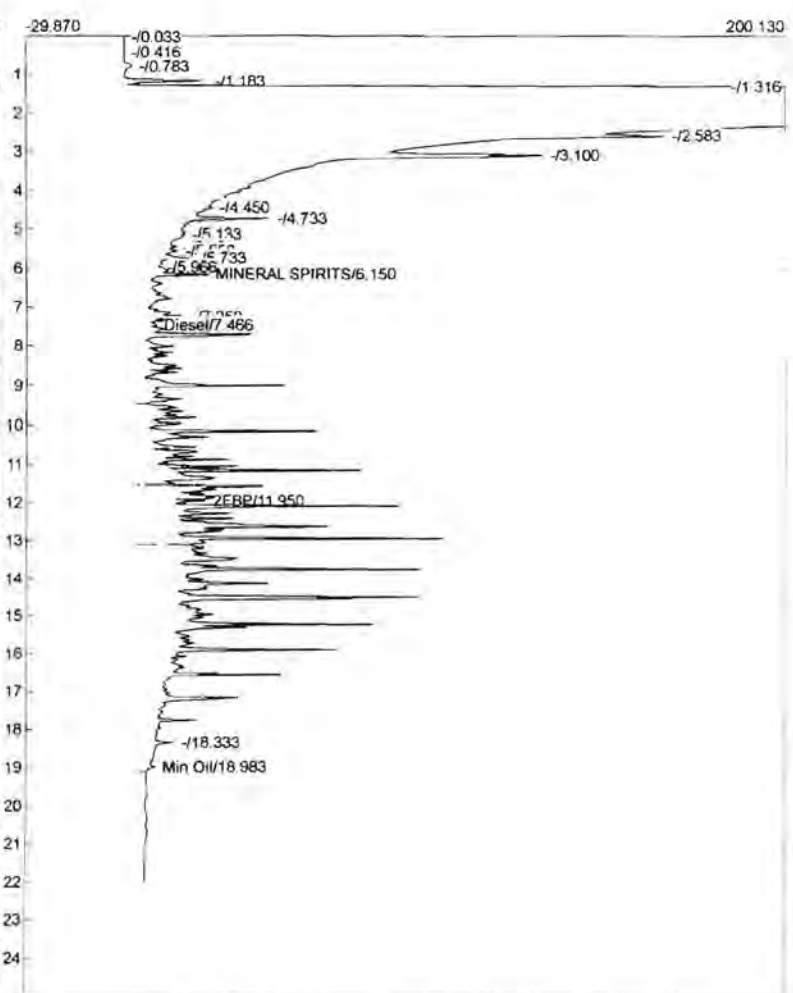
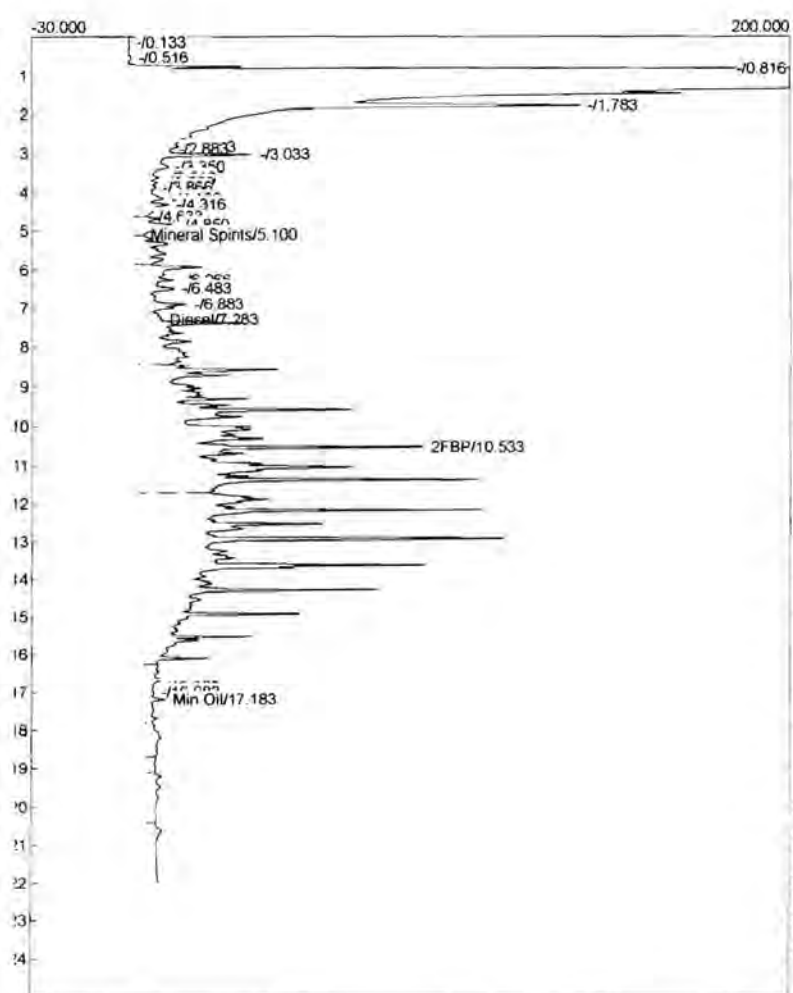
Analysis date: 03/14/2012 12:41:16
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D630.CHR ()
 Sample: 5000 PPM Dx 702
 Operator: KW



Component	Retention	Area	Height	External	UnComponent	Retention	Area	Height	External
Mineral Spirits	5.266	4030.7350	121.832	199.4073	MINERAL SPIRITS	6.133	2118.1620	172.994	149.0662
Diesel	7.316	118321.9850	479.109	5853.5897	Diesel	7.550	97612.4720	63.265	6869.5047
2FBP	10.500	6802.6800	1015.018	272.1072	2FBP	12.066	3390.2460	772.659	169.5123
Min Oil	17.150	1309.9915	36.600	0.0000	Min Oil	18.966	734.9465	24.851	51.8684
		130465.3915		6325.1043			103855.8265		7239.9516

Analysis date: 03/14/2012 13:09:09
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C625.CHR ()
 Sample: 500 PPM Dx ICAL 707
 Operator: KW

Analysis date: 03/14/2012 13:09:09
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D631.CHR ()
 Sample: 500 PPM Dx ICAL 707
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.100	454.2775	2.261	22.4739	PPM	MINERAL SPIRITS	6.150	431.9470	21.664	30.3984	PPM
Diesel	7.283	12055.9145	7.302	415.8831	ppn	Diesel	7.466	9633.4975	5.799	402.0800	ppn
2FBP	10.533	706.7050	85.875	28.2682	ppn	2FBP	11.950	98.4805	20.159	4.9240	ppn
Min Oil	17.183	642.7165	6.075	0.0000		Min Oil	18.983	249.4535	4.581	17.6050	ppn
		13859.6135		466.6252				10413.3785		455.0074	



1311 N. 35th St.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Libby Environmental

Jamie Deyman
4139 Libby Rd. NE
Olympia, Washington 98506

RE: Irondale
Lab ID: 1210200

October 25, 2012

Attention Jamie Deyman:

Fremont Analytical, Inc. received 2 sample(s) on 10/23/2012 for the analyses presented in the following report.

Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

A handwritten signature in black ink, appearing to read "M. Dee".

Michael Dee
Sr. Chemist / Principal



CLIENT: Libby Environmental
Project: Irondale
Lab Order: 1210200

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1210200-001	MRZ-B1-102312	10/23/2012 9:25 AM	10/23/2012 2:50 PM
1210200-002	MRZ-NSW1-102312	10/23/2012 9:27 AM	10/23/2012 2:50 PM

CLIENT: Libby Environmental

Project: Irondale

I. SAMPLE RECEIPT:

All samples were received intact. The internal ice chest temperatures were measured on receipt and are recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.



Analytical Report

WO#: 1210200

Date Reported: 10/25/2012

Client: Libby Environmental

Collection Date: 10/23/2012 9:25:00 AM

Project: Irondale

Lab ID: 1210200-001

Matrix: Soil

Client Sample ID: MRZ-B1-102312

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Total Metals by EPA Method 6020</u>					Batch ID: 3500	Analyst: SG
Arsenic	9.04	0.0500		mg/Kg-dry	1	10/24/2012 11:15:24 AM
Copper	68.1	0.100		mg/Kg-dry	1	10/24/2012 11:15:24 AM
Iron	40,500	275	D	mg/Kg-dry	100	10/25/2012 12:29:23 PM
Lead	5.53	0.100		mg/Kg-dry	1	10/24/2012 11:15:24 AM
Nickel	24.4	0.0500		mg/Kg-dry	1	10/24/2012 11:15:24 AM
Zinc	30.8	0.200		mg/Kg-dry	1	10/24/2012 11:15:24 AM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R6275	Analyst: CM
Percent Moisture	21.0			wt%	1	10/24/2012 8:32:33 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210200

Date Reported: 10/25/2012

Client: Libby Environmental

Collection Date: 10/23/2012 9:27:00 AM

Project: Irondale

Lab ID: 1210200-002

Matrix: Soil

Client Sample ID: MRZ-NSW1-102312

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Total Metals by EPA Method 6020</u>				Batch ID: 3500		Analyst: SG
Arsenic	2.19	0.0724		mg/Kg-dry	1	10/24/2012 11:24:20 AM
Copper	19.3	0.145		mg/Kg-dry	1	10/24/2012 11:24:20 AM
Iron	15,700	39.8	D	mg/Kg-dry	10	10/25/2012 12:38:19 PM
Lead	3.89	0.145		mg/Kg-dry	1	10/24/2012 11:24:20 AM
Nickel	31.4	0.0724		mg/Kg-dry	1	10/24/2012 11:24:20 AM
Zinc	35.2	0.290		mg/Kg-dry	1	10/24/2012 11:24:20 AM
<u>Sample Moisture (Percent Moisture)</u>				Batch ID: R6275		Analyst: CM
Percent Moisture	15.2			wt%	1	10/24/2012 8:32:33 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Work Order: 1210200
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: ICV-3500	SampType: ICV	Units: µg/L				Prep Date: 10/23/2012	RunNo: 6283				
Client ID: ICV	Batch ID: 3500					Analysis Date: 10/23/2012	SeqNo: 124671				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	97.0	1.00	100.0	0	97.0	90	110				
Copper	95.9	2.00	100.0	0	95.9	90	110				
Iron	1,490	55.0	1,500	0	99.1	90	110				
Lead	50.1	2.00	50.00	0	100	90	110				
Nickel	96.4	1.00	100.0	0	96.4	90	110				
Zinc	106	4.00	100.0	0	106	90	110				

Sample ID: MB-3500	SampType: MBLK	Units: mg/Kg				Prep Date: 10/23/2012	RunNo: 6283				
Client ID: MBLKS	Batch ID: 3500					Analysis Date: 10/24/2012	SeqNo: 124707				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.100									
Copper	ND	0.200									
Lead	ND	0.200									
Nickel	ND	0.100									
Zinc	ND	0.400									

Sample ID: LCS-3500	SampType: LCS	Units: mg/Kg				Prep Date: 10/23/2012	RunNo: 6283				
Client ID: LCSS	Batch ID: 3500					Analysis Date: 10/24/2012	SeqNo: 124708				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	114	0.100	102.0	0	112	69.41	130.4				
Copper	273	0.200	250.0	0	109	75.6	124				
Lead	78.5	0.200	72.10	0	109	68.1	131.9				
Nickel	384	0.100	384.0	0	99.9	74.74	125.5				
Zinc	814	0.400	831.0	0	98.0	74.01	126.4				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 10/25/2012

Work Order: 1210200
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: 1210183-006BDUP	SampType: DUP	Units: mg/Kg-dry		Prep Date: 10/23/2012	RunNo: 6283						
Client ID: BATCH	Batch ID: 3500			Analysis Date: 10/24/2012	SeqNo: 124715						
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	4.60	0.0704						3.879	16.9	30	
Copper	21.2	0.141						20.36	4.21	30	
Lead	11.6	0.141						10.74	7.34	30	
Nickel	44.2	0.0704						39.54	11.0	30	
Zinc	57.1	0.282						49.37	14.6	30	

Sample ID: 1210183-006BMS	SampType: MS	Units: mg/Kg-dry		Prep Date: 10/23/2012	RunNo: 6283						
Client ID: BATCH	Batch ID: 3500			Analysis Date: 10/24/2012	SeqNo: 124716						
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	45.9	0.0723	36.13	3.879	116	75	125				
Copper	57.9	0.145	36.13	20.36	104	75	125				
Lead	30.8	0.145	18.06	10.74	111	75	125				
Nickel	78.8	0.0723	36.13	39.54	109	75	125				
Zinc	92.1	0.289	36.13	49.37	118	75	125				

Sample ID: 1210183-006BMSD	SampType: MSD	Units: mg/Kg-dry		Prep Date: 10/23/2012	RunNo: 6283						
Client ID: BATCH	Batch ID: 3500			Analysis Date: 10/24/2012	SeqNo: 124717						
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	44.1	0.0691	34.53	3.879	116	75	125	45.87	3.95	30	
Copper	57.0	0.138	34.53	20.36	106	75	125	57.87	1.44	30	
Lead	30.6	0.138	17.26	10.74	115	75	125	30.77	0.582	30	
Nickel	81.8	0.0691	34.53	39.54	122	75	125	78.85	3.63	30	
Zinc	88.8	0.276	34.53	49.37	114	75	125	92.08	3.58	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1210200
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: MB-3500B	SampType: MBLK	Units: mg/Kg	Prep Date: 10/23/2012	RunNo: 6295							
Client ID: MBLKS	Batch ID: 3500	Analysis Date: 10/24/2012	SeqNo: 124825								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron ND 5.50

Sample ID: LCS-3500B	SampType: LCS	Units: mg/Kg	Prep Date: 10/23/2012	RunNo: 6295							
Client ID: LCSS	Batch ID: 3500	Analysis Date: 10/24/2012	SeqNo: 124826								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 4,170 5.50 4,790 0 87.0 3.32 227.6

Sample ID: 1210183-006BDUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 10/23/2012	RunNo: 6295							
Client ID: BATCH	Batch ID: 3500	Analysis Date: 10/24/2012	SeqNo: 124834								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 20,800 3.87 18,220 13.4 30

Sample ID: 1210183-006BMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 10/23/2012	RunNo: 6295							
Client ID: BATCH	Batch ID: 3500	Analysis Date: 10/24/2012	SeqNo: 124835								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 21,800 3.97 361.3 18,220 989 75 125 S

NOTES:

S - High analyte concentration prevents accurate spike recovery.

Sample ID: 1210183-006BMSD	SampType: MSD	Units: mg/Kg-dry	Prep Date: 10/23/2012	RunNo: 6295							
Client ID: BATCH	Batch ID: 3500	Analysis Date: 10/24/2012	SeqNo: 124836								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 19,200 3.80 345.3 18,220 273 75 125 21,790 12.8 30 S

Qualifiers:	B Analyte detected in the associated Method Blank	D Dilution was required	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits	ND Not detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit	S Spike recovery outside accepted recovery limits



Work Order: 1210200
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: 1210183-006BMSD	SampType: MSD	Units: mg/Kg-dry	Prep Date: 10/23/2012	RunNo: 6295							
Client ID: BATCH	Batch ID: 3500	Analysis Date: 10/24/2012	SeqNo: 124836								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:

S - High analyte concentration prevents accurate spike recovery.

Sample ID: 1210183-006BPDS	SampType: PDS	Units: mg/Kg-dry	Prep Date: 10/23/2012	RunNo: 6295							
Client ID: BATCH	Batch ID: 3500	Analysis Date: 10/24/2012	SeqNo: 124837								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron	19,400	4.20	382	18,200	297	75	125				S
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NOTES:

S - High analyte concentration prevents accurate spike recovery.

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Client Name: **LIBBY**
 Logged by: **Clare Griggs**

Work Order Number: **1210200**
 Date Received: **10/23/2012 2:50:00 PM**

Chain of Custody

1. Were custodial seals present? Yes No Not Required
 2. Is Chain of Custody complete? Yes No Not Present
 3. How was the sample delivered? Client

Log In

4. Coolers are present? Yes No NA
 5. Was an attempt made to cool the samples? Yes No NA
 6. Were all coolers received at a temperature of >0° C to 10.0°C Yes No NA
 7. Sample(s) in proper container(s)? Yes No
 8. Sufficient sample volume for indicated test(s)? Yes No
 9. Are samples properly preserved? Yes No
 10. Was preservative added to bottles? Yes No NA
 11. Is there headspace present in VOA vials? Yes No NA
 12. Did all sample containers arrive in good condition?(unbroken) Yes No
 13. Does paperwork match bottle labels? Yes No
 14. Are matrices correctly identified on Chain of Custody? Yes No
 15. Is it clear what analyses were requested? Yes No
 16. Were all holding times able to be met? Yes No

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks/Discrepancies

COC says MRZ-B1-102310 and the sample label reads MRZ-B1-102312, will use label name because it accurately represents the date. Also the sample date on the COC is incorrect based on the sample labels which reads 10/23 instead on 10/22.

Item Information

Item #	Temp °C	Condition
Cooler	9.7	Good

Chain of Custody Record 120200

Date: 10/23/12 Page: 1 of 1

Project Manager: JAMIE DEITMAN
Project Name: IRONDALE

Location: City, State: Date of Collection: 10/22

Collector: Email:

Client Project #



Sample Number	Depth	Time	Sample Type	Container Type	Field Notes
1 MRZ-61-102310	10	925	SOIL	402 JAR	VOL 80218 BTEX ONLY VOL 80218 BTEX ONLY SEM VOL 8270 NMT PH-HCID NMT PH-GX NMT PH-DX NMT PH-DX EXL PAH 8270 PCB'S 8082 MTCA'S Metals *** METALS *
2 MRZ-NSWI-102310	9	927	SOIL	402 JAR	
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					

Relinquished by: *[Signature]* Date / Time: 10/23/12 2:50pm
 Received by: *[Signature]* Date / Time: 10/23/12 2:50pm

Relinquished by: *[Signature]* Date / Time:
 Received by: *[Signature]* Date / Time:
 Relinquished by: *[Signature]* Date / Time:
 Received by: *[Signature]* Date / Time:

Remarks: *METALS*
 ARGENT, COPPER, IRON
 LEAD, NICKEL, ZINC

TAT: (24HR) 48HR 5-DAY
 Distribution: White, Yellow, Pink, Orange



1311 N. 35th St.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Libby Environmental

Jamie Deyman
4139 Libby Rd. NE
Olympia, Washington 98506

RE: Irondale

Lab ID: 1211095

November 20, 2012

Attention Jamie Deyman:

Fremont Analytical, Inc. received 1 sample(s) on 11/14/2012 for the analyses presented in the following report.

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

A handwritten signature in black ink, appearing to read "M. Dee".

Michael Dee
Sr. Chemist / Principal



Date: 11/20/2012

CLIENT: Libby Environmental
Project: Irondale
Lab Order: 1211095

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1211095-001	MRZ-B2-102212	10/22/2012 9:20 AM	11/14/2012 10:29 AM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: Libby Environmental

Project: Irondale

I. SAMPLE RECEIPT:

All samples were received intact. The internal ice chest temperatures were measured on receipt and are recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.



Analytical Report

WO#: 1211095

Date Reported: 11/20/2012

Client: Libby Environmental

Collection Date: 10/22/2012 9:20:00 AM

Project: Irondale

Lab ID: 1211095-001

Matrix: Soil

Client Sample ID: MRZ-B2-102212

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 3639

Analyst: PH

Benz(a)anthracene	ND	48.2	H	µg/Kg-dry	1	11/16/2012 5:42:00 PM
Chrysene	ND	48.2	H	µg/Kg-dry	1	11/16/2012 5:42:00 PM
Benzo(b)fluoranthene	ND	48.2	H	µg/Kg-dry	1	11/16/2012 5:42:00 PM
Benzo(k)fluoranthene	ND	48.2	H	µg/Kg-dry	1	11/16/2012 5:42:00 PM
Benzo(a)pyrene	ND	48.2	H	µg/Kg-dry	1	11/16/2012 5:42:00 PM
Indeno(1,2,3-cd)pyrene	ND	48.2	H	µg/Kg-dry	1	11/16/2012 5:42:00 PM
Dibenz(a,h)anthracene	ND	48.2	H	µg/Kg-dry	1	11/16/2012 5:42:00 PM
Surr: 2-Fluorobiphenyl	92.9	50.4-142	H	%REC	1	11/16/2012 5:42:00 PM
Surr: Terphenyl-d14 (surr)	82.1	48.8-157	H	%REC	1	11/16/2012 5:42:00 PM

Sample Moisture (Percent Moisture)

Batch ID: R6567

Analyst: AO

Percent Moisture	20.6			wt%	1	11/15/2012 1:43:22 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits

Work Order: 1211095
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: ICV-3639	SampType: ICV	Units: µg/Kg	Prep Date: 11/16/2012	RunNo: 6617							
Client ID: ICV	Batch ID: 3639		Analysis Date: 11/16/2012	SeqNo: 131571							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	936	50.0	1,000	0	93.6	70	130				
Chrysene	928	50.0	1,000	0	92.8	70	130				
Benzo(b)fluoranthene	941	50.0	1,000	0	94.1	70	130				
Benzo(k)fluoranthene	968	50.0	1,000	0	96.8	70	130				
Benzo(a)pyrene	993	50.0	1,000	0	99.3	70	130				
Indeno(1,2,3-cd)pyrene	945	50.0	1,000	0	94.5	70	130				
Dibenz(a,h)anthracene	917	50.0	1,000	0	91.7	70	130				
Surr: 2-Fluorobiphenyl	507		500.0		101	50.4	142				
Surr: Terphenyl-d14 (surr)	496		500.0		99.2	48.8	157				

Sample ID: ICB-3639	SampType: ICB	Units: µg/Kg	Prep Date: 11/16/2012	RunNo: 6617							
Client ID: ICB	Batch ID: 3639		Analysis Date: 11/16/2012	SeqNo: 131572							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Surr: 2-Fluorobiphenyl	486		500.0		97.2	50.4	142				
Surr: Terphenyl-d14 (surr)	473		500.0		94.7	48.8	157				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1211095
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: MB-3639	SampType: MBLK	Units: µg/Kg	Prep Date: 11/14/2012	RunNo: 6617							
Client ID: MBLKS	Batch ID: 3639		Analysis Date: 11/16/2012	SeqNo: 131573							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Surr: 2-Fluorobiphenyl	485		500.0		97.0	50.4	142				
Surr: Terphenyl-d14 (surr)	453		500.0		90.6	48.8	157				

Sample ID: LCS-3639	SampType: LCS	Units: µg/Kg	Prep Date: 11/14/2012	RunNo: 6617							
Client ID: LCSS	Batch ID: 3639		Analysis Date: 11/16/2012	SeqNo: 131574							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	807	50.0	1,000	0	80.7	46.5	143				
Chrysene	805	50.0	1,000	0	80.5	63	125				
Benzo(b)fluoranthene	796	50.0	1,000	0	79.6	47.7	139				
Benzo(k)fluoranthene	825	50.0	1,000	0	82.5	60.7	136				
Benzo(a)pyrene	778	50.0	1,000	0	77.8	50.6	133				
Indeno(1,2,3-cd)pyrene	759	50.0	1,000	0	75.9	57.9	133				
Dibenz(a,h)anthracene	729	50.0	1,000	0	72.9	52.8	135				
Surr: 2-Fluorobiphenyl	461		500.0		92.3	50.4	142				
Surr: Terphenyl-d14 (surr)	428		500.0		85.5	48.8	157				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1211095
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: 1210176-001AMS	SampType: MS	Units: µg/Kg-dry	Prep Date: 11/14/2012	RunNo: 6617							
Client ID: BATCH	Batch ID: 3639		Analysis Date: 11/16/2012	SeqNo: 131576							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	735	50.2	1,003	15.27	71.7	57.5	169				H
Chrysene	868	50.2	1,003	35.69	83.0	45.2	146				H
Benzo(b)fluoranthene	898	50.2	1,003	0	89.5	42.2	168				H
Benzo(k)fluoranthene	722	50.2	1,003	0	72.0	48	161				H
Benzo(a)pyrene	852	50.2	1,003	17.51	83.2	34.4	179				H
Indeno(1,2,3-cd)pyrene	1,090	50.2	1,003	0	109	41.1	165				H
Dibenz(a,h)anthracene	1,170	50.2	1,003	0	117	38.1	166				H
Surr: 2-Fluorobiphenyl	420		501.6		83.8	50.4	142				H
Surr: Terphenyl-d14 (surr)	379		501.6		75.5	48.8	157				H

Sample ID: 1211095-001ADUP	SampType: DUP	Units: µg/Kg-dry	Prep Date: 11/14/2012	RunNo: 6617							
Client ID: MRZ-B2-102212	Batch ID: 3639		Analysis Date: 11/16/2012	SeqNo: 131579							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	47.5						0	0	30	H
Chrysene	ND	47.5						0	0	30	H
Benzo(b)fluoranthene	ND	47.5						0	0	30	H
Benzo(k)fluoranthene	ND	47.5						0	0	30	H
Benzo(a)pyrene	ND	47.5						0	0	30	H
Indeno(1,2,3-cd)pyrene	ND	47.5						0	0	30	H
Dibenz(a,h)anthracene	ND	47.5						0	0	30	H
Surr: 2-Fluorobiphenyl	463		475.0		97.5	50.4	142		0		H
Surr: Terphenyl-d14 (surr)	415		475.0		87.4	48.8	157		0		H

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Client Name: **LIBBY**

 Work Order Number: **1211095**

 Logged by: **Troy Zehr**

 Date Received: **11/14/2012 10:29:00 AM**

Chain of Custody

1. Were custodial seals present? Yes No Not Required
2. Is Chain of Custody complete? Yes No Not Present
3. How was the sample delivered? FedEx

Log In

4. Coolers are present? Yes No NA
5. Was an attempt made to cool the samples? Yes No NA
6. Were all coolers received at a temperature of >0° C to 10.0°C Yes No NA
7. Sample(s) in proper container(s)? Yes No
8. Sufficient sample volume for indicated test(s)? Yes No
9. Are samples properly preserved? Yes No
10. Was preservative added to bottles? Yes No NA
11. Is there headspace present in VOA vials? Yes No NA
12. Did all sample containers arrive in good condition?(unbroken) Yes No
13. Does paperwork match bottle labels? Yes No
14. Are matrices correctly identified on Chain of Custody? Yes No
15. Is it clear what analyses were requested? Yes No
16. Were all holding times able to be met? Yes No

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	Discussed with client prior to receipt.		

18. Additional remarks/Discrepancies
 Samples received from Libby.

Item Information

Item #	Temp °C	Condition
Cooler	6.0	Good

1211095

www.LibbyEnvironmental.com

Chain of Custody Record

Libby Environmental, Inc.
 4139 Libby Road NE
 Olympia, WA 98506
 Ph: 360-352-2110
 Fax: 360-352-4154

Client: Libby Environmental, Inc.
 Address: see above
 City: _____ State: _____ Zip: _____
 Phone: _____ Fax: _____
 Client Project # _____

Date: 11-13-12 Page: 1 of 1
 Project Manager: Jamie Deyman
 Project Name: Irandale
 Location: _____ City, State: Irandale, WA
 Collector: _____ Date of Collection: 10-22-12
 Email: _____

Sample Number	Depth	Time	Sample Type	Container Type	Field Notes
1	MRZ-82-10222	11	Soil	Soil	VOA 80215 VOA 80218 BTEX Only SEM VOL 8270 NWTPH-HCID NWTPH-GX NWTPH-DX NWTPH-DX EX PCB's 8270 CPAH MTCAS Metals
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					

Relinquished by: 191e Date / Time: 11-13-12 10:46
 Relinquished by: _____ Date / Time: _____
 Relinquished by: _____ Date / Time: _____

Received by: Jamie Deyman Date / Time: 11/14/12 10:29
 Received by: _____ Date / Time: _____
 Received by: _____ Date / Time: _____

Sample Receipt:
 Cold Condition? _____
 Cold? _____
 Seals Intact? _____
 Total Number of Containers: _____

Remarks: Standard

TAT: 24HR 48HR 5-DAY

Fremont Analytical, Inc.

WORK ORDER Summary

20-Nov-12

Work Order: 1211095

WO Type: Standard

Client ID: LIBBY	Contact: Jamie Deyman
Project ID: Irondale	PM: Michael Dee
	QC Level: LEVEL II
ChkList Completed On: 11/14/2012 11:13:07 AM	
Completed By: Troy Zehr	
Reviewed By: Mike Ridgeway	
WO Reviewed On: 11/17/2012	

Sample ID	Client Sample ID	Date Collected	Date Received	Date Due	Matrix	Test Code	Hld	MS	SEL	Sub	Storage
1211095-001A	MRZ-B2-102212	10/22/2012 9:20:00 AM	11/14/2012 10:29:00 AM	11/19/2012	Soil	O-PAH+S-SIM	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Walkin B5
				11/19/2012		PMOIST	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Walkin B5
				11/19/2012		PREP-PAH-S	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Walkin B5

Response Factor Report HP-MSD

Method Path : C:\msdchem\1\methods\
 Method File : DBPAH111612.M
 Title : EPA Method 8270-PAH
 Last Update : Fri Nov 16 13:53:58 2012
 Response Via : Initial Calibration

Calibration Files

2 =111602.D 3 =111603.D 4 =111604.D 5 =111605.D 6 =111606.D 7 =111607.D ;

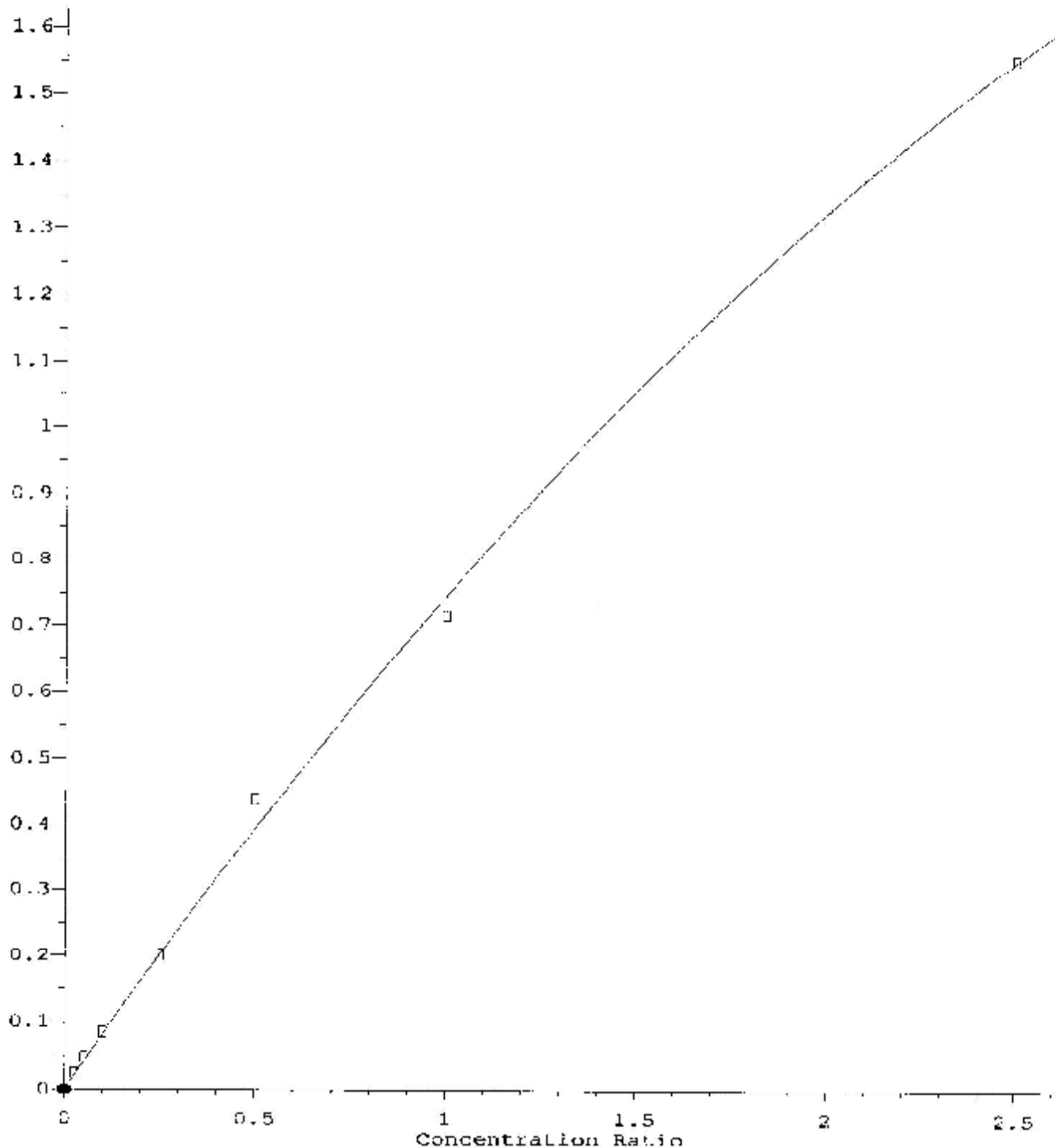
Compound	2	3	4	5	6	7	8	Avg	%RSD
1) 1,4-Dichlorobenz-d...	-----ISTD-----								
2) I Naphthalene-d8 (IS)	-----ISTD-----								
3) t Naphthalene	1.084	1.028	1.660	1.577	1.728	1.419	1.255	1.622	13.82
4) t 2-Methylnaphth...	1.098	1.087	0.973	0.955	1.057	0.871	0.765	0.972	12.56
5) t 1-Methylnaphth...	1.023	1.015	0.921	0.895	0.988	0.816	0.717	0.911	12.39
6) s 2-Fluorobiphen...	0.897	0.902	0.907	0.911	0.910	0.911	0.919	0.908	0.77
7) t Acenaphthylene	1.548	1.520	1.379	1.367	1.537	1.285	1.144	1.397	10.76
8) I Acenaphthene-d10 (IS)	-----ISTD-----								
9) m Acenaphthene	0.984	0.962	0.855	0.805	0.876	0.716	0.620	0.831	15.68
10) t Fluorene	2.268	2.247	2.035	1.944	2.135	1.750	1.524	1.986	13.68
11) I Phenanthrene-d10 (IS)	-----ISTD-----								
12) t Phenanthrene	1.733	1.722	1.532	1.477	1.705	1.352	1.159	1.526	14.18
13) t Anthracene	1.891	1.878	1.734	1.683	1.887	1.553	1.359	1.712	11.71
14) s Terphenyl-d14 ...	0.830	0.847	0.875	0.881	0.871	0.854	0.868	0.862	2.06
15) t Fluoranthene	2.014	1.998	1.815	1.786	2.008	1.654	1.451	1.819	11.59
16) t Pyrene	2.111	2.104	1.923	1.890	2.120	1.751	1.518	1.917	11.70
17) t Benzo (a) anth...	1.803	1.715	1.529	1.485	1.686	1.418	1.279	1.559	11.85
18) I Chrysene-d12 (IS)	-----ISTD-----								
19) t Chrysene	1.958	1.977	1.729	1.680	1.841	1.517	1.351	1.722	13.34
20) t benzo (b) fluo...	1.476	1.427	1.294	1.318	1.555	1.320	1.244	1.376	8.16
21) t benzo (k) fluo...	1.884	1.841	1.688	1.645	1.906	1.601	1.467	1.719	9.53
22) t benzo (a) pyrene	1.369	1.345	1.243	1.277	1.609	1.386	1.320	1.364	8.74
23) I Perylene-d12 (IS)	-----ISTD-----								
24) t Indeno(1,2,3-c...	1.220	1.180	1.117	1.195	1.445	1.285	1.284	1.246	8.46
25) t Dibenz (a,h) a...	0.892	0.874	0.807	0.848	1.043	0.948	0.983	0.913	8.98
26) t Benzo (g,h,i) ...	1.320	1.321	1.195	1.213	1.377	1.208	1.175	1.259	8.26

(#) = Out of Range

DBPAH111612.M MON NOV 19 11:46:42 2012 PAH

Acenaphthene

Response Ratio



$R = -6.47e-002 A^2 + 8.31e-001 A + 0.00e+000$
Coef of Det (r^2) = 0.998 Curve Fit: Quad/(0,0)
Method Name: C:\msdchem\1\methods\DBPAH111612.M
Calibration Table Last Updated: Fri Nov 16 13:53:20 2012

Sequence Name: C:\msdchem\1\sequence\111612.s

Comment:

Operator:

Data Path: D:\DATA\SVOC\111612\

Instrument Control Pre-Seq Cmd:

Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:

Data Analysis Post-Seq Cmd:

Method Sections To Run

Full Method

Reprocessing Only

Sequence Barcode Options

On Mismatch, Inject Anyway

On Mismatch, Don't Inject

Barcode Disabled

Line		Sample Name/Misc Info
1)	Sample	51 111601 DB8270 TUNE CHECK
2)	Sample	1 50 PPB PAH STD
	Datafile	111602
	Method	DBPAH111412
3)	Sample	2 100 PPB PAH STD
	Datafile	111603
	Method	DBPAH111412
4)	Sample	3 200 PPB PAH STD
	Datafile	111604
	Method	DBPAH111412
5)	Sample	4 500 PPB PAH STD
	Datafile	111605
	Method	DBPAH111412
6)	Sample	5 1000 PPB PAH STD
	Datafile	111606
	Method	DBPAH111412
7)	Sample	6 2000 PPB PAH STD
	Datafile	111607
	Method	DBPAH111412
8)	Sample	7 5000 PPB PAH STD
	Datafile	111608
	Method	DBPAH111412
9)	Sample	8 ICV-
	Datafile	111609
	Method	DBPAH111412
10)	Sample	9 ICB-
	Datafile	111610
	Method	DBPAH111412
11)	Sample	10 MB-3639
	Datafile	111611
	Method	DBPAH111412
12)	Sample	11 LCS-3639
	Datafile	111612
	Method	DBPAH111412
13)	Sample	12 1210176-001A 20X
	Datafile	111613
	Method	DBPAH111412
14)	Sample	13 1211093-001A 10X
	Datafile	111614
	Method	DBPAH111412
15)	Sample	14 1211095-001A 20X
	Datafile	111615
	Method	DBPAH111412
16)	Sample	15 1210176-001A
	Datafile	111616
	Method	DBPAH111412
17)	Sample	16 1210176-001AMS
	Datafile	111617
	Method	DBPAH111412
18)	Sample	17 1211093-001A
	Datafile	111618
	Method	DBPAH111412
19)	Sample	18 1211095-001A
	Datafile	111619
	Method	DBPAH111412
20)	Sample	19 1211095-001ADUP

Last Modified: Mon Nov 19 03:00:17 2012

Page: 1

Datafile
Method

111620
DBPAH111412

Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111602.D
 Acq On : 16 Nov 2012 10:41 am
 Operator :
 Sample : 50 PBB PAH STD
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 1 Sample Multiplier: 1

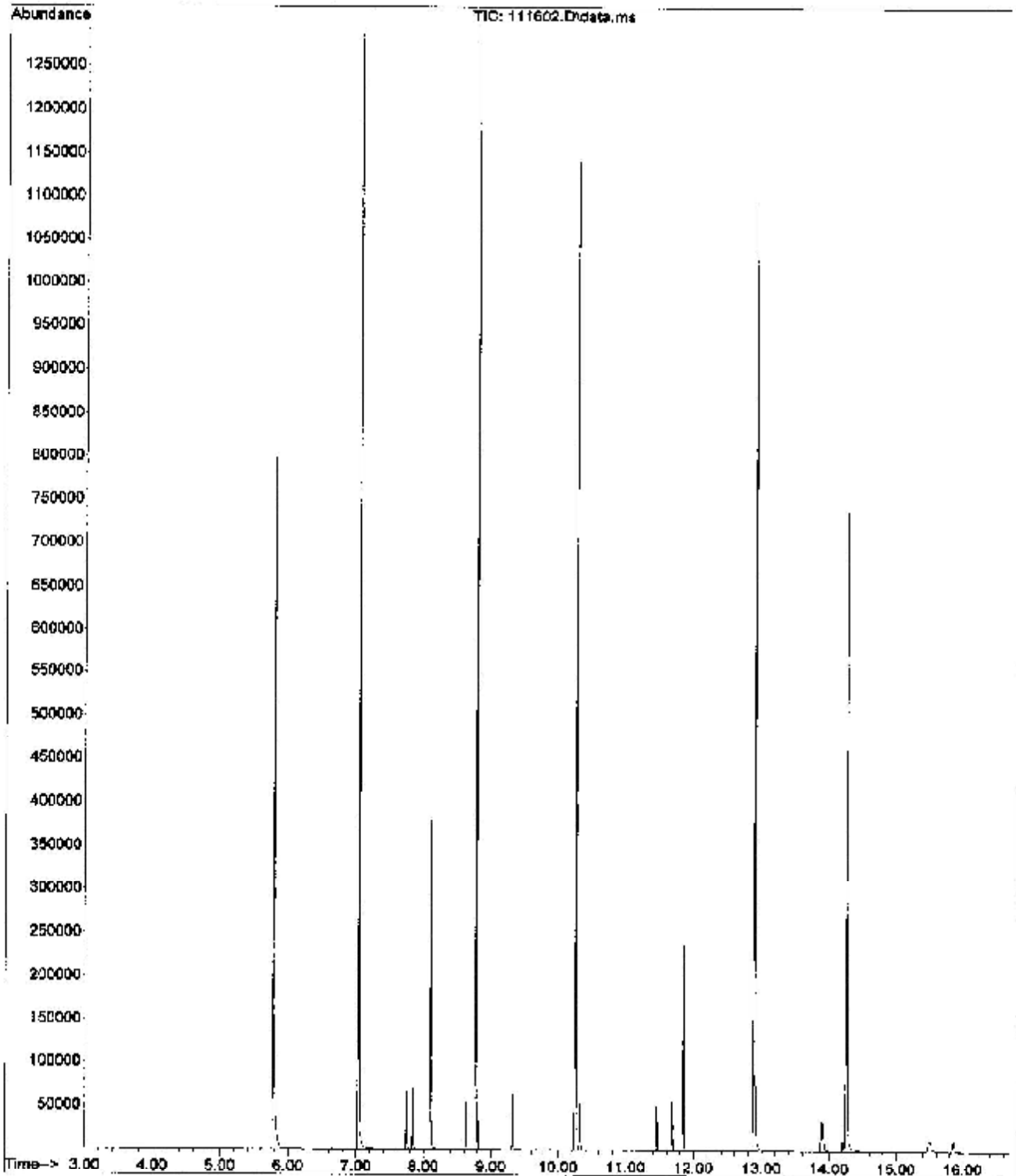
Quant Time: Nov 16 13:49:49 2012
 Quant Method : C:\msdchem\1\methods\DEPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Nov 15 10:19:28 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.781	152	308274	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.029	136	968888	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.768	164	502599	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.246	188	795743	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.884	240	767050	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.249	264	685599	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.100	172	217227	430.89	ug/L	0.00
14) Terphenyl-d14 (surr)	11.839	244	165167	446.91	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.051	128	45531	61.49	ug/L	98
4) 2-Methylnaphthalene	7.737	142	26500	59.23	ug/L	98
5) 1-Methylnaphthalene	7.833	142	24783	59.64	ug/L	97
7) Acenaphthylene	8.630	152	37499	57.16	ug/L	100
9) Acenaphthene	8.799	152	12368	59.49	ug/L	99
10) Fluorene	9.315	166	28500	55.11	ug/L	99
12) Phenanthrene	10.270	178	34467	52.24	ug/L	97
13) Anthracene	10.321	178	37615	55.76	ug/L	98
15) Fluoranthene	11.456	202	40065	57.11	ug/L	99
16) Pyrene	11.682	202	41995	57.29	ug/L	98
17) Benzo (a) anthracene	12.874	228	35873	58.83	ug/L #	49
19) Chrysene	12.908	228	37548	58.60	ug/L	95
20) benzo (b) fluoranthene	13.880	252	28311	50.29	ug/L #	58
21) benzo (k) fluoranthene	13.905	252	36132	50.19	ug/L	100
22) benzo (a) pyrene	14.192	252	26255	45.91	ug/L	93
24) Indeno(1,2,3-cd)pyrene	15.487	276	20914	37.65	ug/L	97
25) Dibenz (a,h) anthracene	15.508	278	15288m	34.92	ug/L	
26) Benzo (g,h,i) perylene	15.851	276	22621m	43.43	ug/L	

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

DEPAH111612.M Mon Nov 19 09:45:46 2012 PAH

File : D:\Data\SVOC\111612\111602.D
Operator :
Acquired : 16 Nov 2012 10:41 am using AcqMethod DRPAH111412.M
Instrument : HP-MSD
Sample Name: 50 PPB PAH STD
Misc Info : CCV O-PAH-S-SIM
Vial Number: 1



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111603.D
 Acq On : 16 Nov 2012 11:06 am
 Operator :
 Sample : 100 PPH PAH STD
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 2 Sample Multiplier: 1

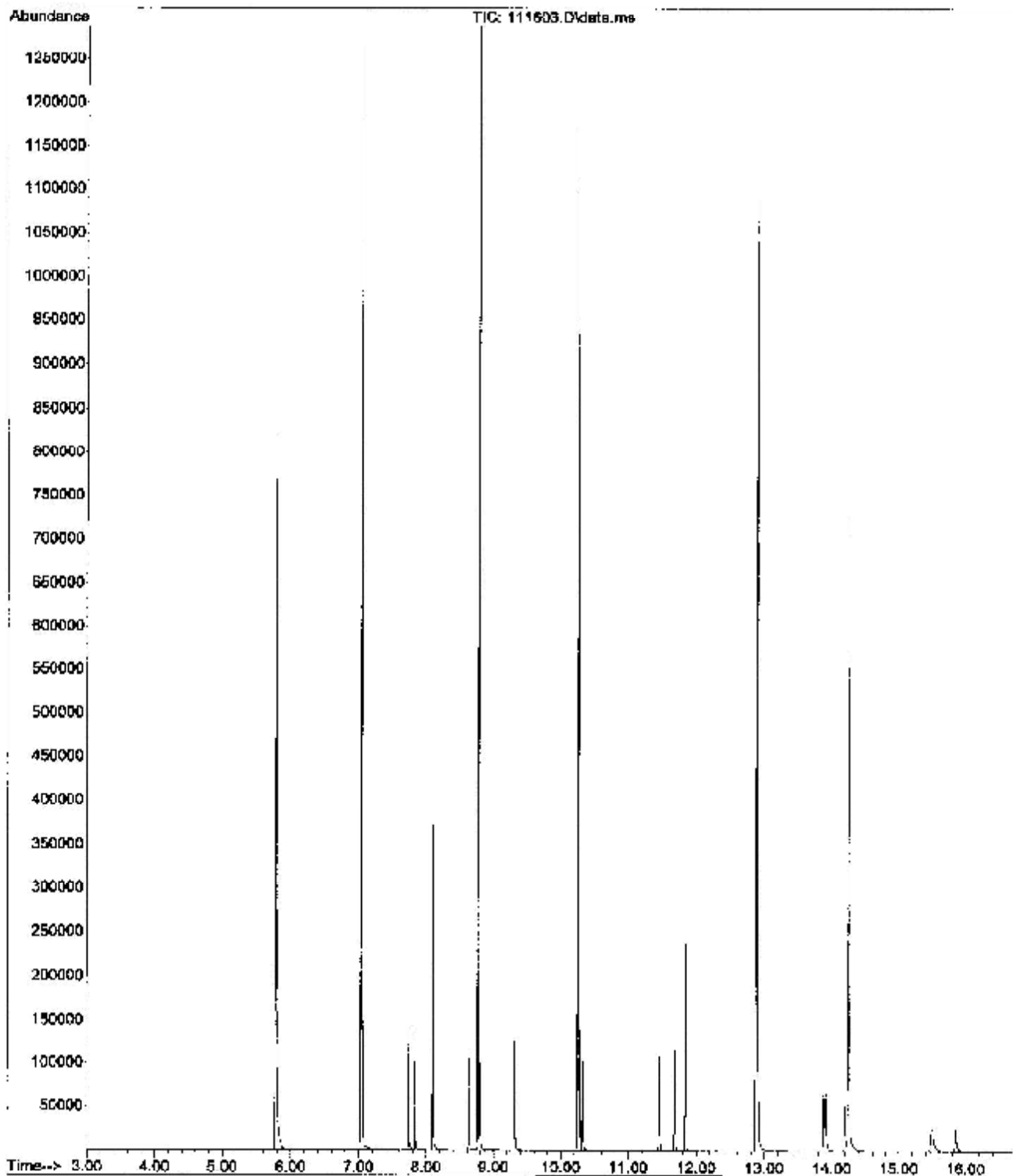
Quant Time: Nov 16 13:50:05 2012
 Quant Method : C:\msdchem\1\methods\DBPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Nov 15 10:19:28 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.780	152	305689	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.030	136	959842	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.768	164	498415	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.246	188	786074	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.882	240	759501	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.247	264	679317	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.099	172	216559	433.61	ug/L	0.00
14) Terphenyl-d14 (surr)	11.838	244	166410	455.81	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.051	128	87725	119.33	ug/L	98
4) 2-Methylnaphthalene	7.738	142	52178	117.27	ug/L	98
5) 1-Methylnaphthalene	7.834	142	48704	118.32	ug/L	97
7) Acenaphthylene	8.629	152	72942	112.24	ug/L	100
9) Acenaphthene	8.799	152	23984	116.53	ug/L	99
10) Fluorene	9.315	166	55997	109.38	ug/L	99
12) Phenanthrene	10.267	178	67694	104.05	ug/L	98
13) Anthracene	10.321	178	73818	110.77	ug/L	99
15) Fluoranthene	11.454	202	78521	113.31	ug/L	99
16) Pyrene	11.681	202	82713	114.22	ug/L	98
17) Benzo (a) anthracene	12.871	228	67406	111.90	ug/L #	49
19) Chrysene	12.905	228	75074	118.33	ug/L	99
20) benzo (b) fluoranthene	13.878	252	54177	97.20	ug/L #	54
21) benzo (k) fluoranthene	13.902	252	69915	98.08	ug/L	100
22) benzo (a) pyrene	14.196	252	51095	90.23	ug/L	95
24) Indeno(1,2,3-cd)pyrene	15.481	276	43063	72.80	ug/L	95
25) D,benz (a,h) anthracene	15.505	278	29688m	68.44	ug/L	
26) Benzo (g,h,i) perylene	15.851	276	44854m	86.90	ug/L	

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

DBPAH111612.M Mon Nov 19 09:45:56 2012 PAH

File :D:\Data\SVOC\111612\111603.D
Operator :
Acquired : 16 Nov 2012 11:06 am using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: 100 PPB PAH STD
Misc Info : CCV O-PAH-S-SIM
Vial Number: 2



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111604.D
 Acq On : 16 Nov 2012 11:30 am
 Operator :
 Sample : 200 PPR PAH STD
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 3 Sample Multiplier: 1

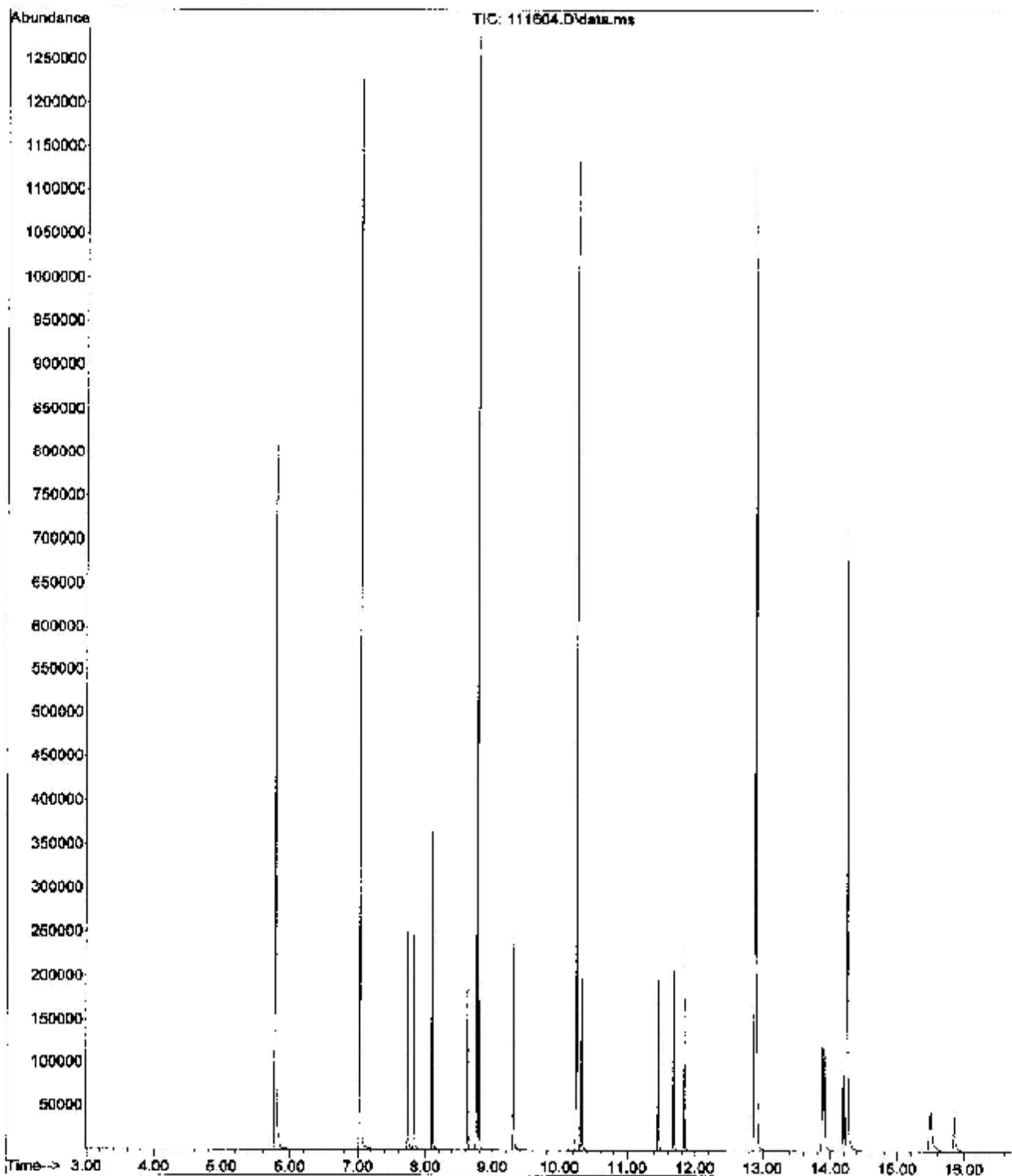
Quant Time: Nov 16 13:50:20 2012
 Quant Method : C:\msdchem\1\methods\DEPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Nov 15 10:19:28 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.781	152	303243	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.031	136	952341	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.770	164	495459	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.246	198	781817	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.881	240	756589	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.247	264	680417	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.100	172	215954	435.80	ug/L	0.00
14) Terphenyl-d14 (surr)	11.836	244	171071	471.13	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.050	128	158087	216.74	ug/L	98
4) 2-Methylnaphthalene	7.737	142	92669	209.92	ug/L	100
5) 1-Methylnaphthalene	7.834	142	87749	214.85	ug/L	97
7) Acenaphthylene	8.629	152	131366	203.73	ug/L	100
9) Acenaphthene	8.799	152	42349	207.58	ug/L	98
10) Fluorene	9.314	166	100827	198.72	ug/L	100
12) Phenanthrene	10.269	178	119791	185.65	ug/L	97
13) Anthracene	10.320	178	135585	204.57	ug/L	99
15) Fluoranthene	11.454	202	141890	205.88	ug/L	99
16) Pyrene	11.679	202	150315	208.71	ug/L	93
17) Benzo (a) anthracene	12.871	228	119527	199.51	ug/L #	49
18) Chrysene	12.906	228	130810	206.98	ug/L	97
20) benzo (b) fluoranthene	13.878	252	97905	176.33	ug/L #	54
21) benzo (k) fluoranthene	13.904	252	127692	179.82	ug/L	100
22) benzo (a) pyrene	14.190	252	94015	166.65	ug/L	97
24) Indeno(1,2,3-cd)pyrene	15.482	276	76019	137.89	ug/L	93
25) Dibenz (a,h) anthracene	15.503	278	54926m	126.42	ug/L	
26) Benzo (g,h,i) perylene	15.849	276	81317m	157.30	ug/L	

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

DEPAH111612.M Mon Nov 19 09:46:06 2012 PAH

File :D:\Data\SVOC\111612\111604.D
Operator :
Acquired : 16 Nov 2012 11:30 am using AcqMethod DBFAH11412.M
Instrument : HP-MSD
Sample Name: 200 PPB PAH STD
Misc Info : CCV O-PAH-S-SIM
Vial Number: 3



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111605.D
 Acq On : 16 Nov 2012 11:55 am
 Operator :
 Sample : 500 PFB PAH STD
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 4 Sample Multiplier: 1

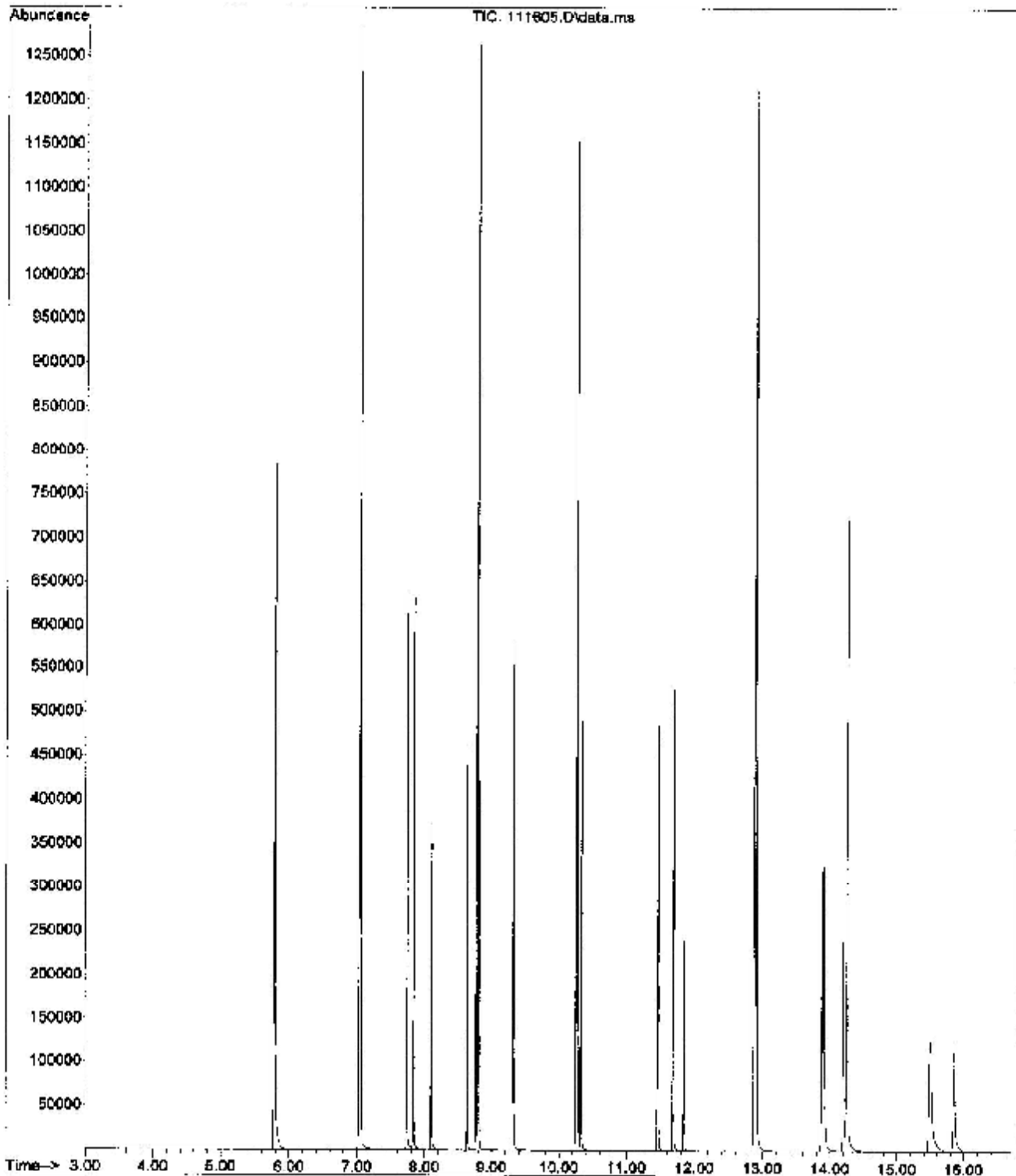
Quant Time: Nov 16 13:50:39 2012
 Quant Method : C:\msdchem\1\methods\BPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Nov 15 10:19:28 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev (Min)	
Internal Standards							
1) 1,4-Dichlorobenz-d4 (IS)	5.781	152	302543	2000.00	ug/L	0.00	
2) Naphthalene-d8 (IS)	7.031	136	947689	2000.00	ug/L	0.00	
8) Acenaphthene-d10 (IS)	8.768	164	499415	2000.00	ug/L	0.00	
11) Phenanthrene-d10 (IS)	10.247	189	782382	2000.00	ug/L	0.00	
18) Chrysene-d12 (IS)	12.882	240	765271	2000.00	ug/L	0.00	
23) Perylene-d12 (IS)	14.247	264	696584	2000.00	ug/L	0.00	
System Monitoring Compounds							
6) 2-Fluorobiphenyl (surr)	8.100	172	215895	437.82	ug/L	0.00	
14) Terphenyl-d14 (surr)	11.838	244	172273	474.10	ug/L	0.00	
Target Compounds							
							Qvalue
3) Naphthalene	7.052	128	273683	514.83	ug/L		98
4) 2-Methylnaphthalene	7.737	142	226351	515.26	ug/L		99
5) 1-Methylnaphthalene	7.835	142	212141	521.97	ug/L		98
7) Acenaphthylene	8.629	152	323815	504.67	ug/L		100
9) Acenaphthene	8.799	152	100522	493.20	ug/L		98
10) Fluorene	9.315	166	242727	479.04	ug/L		100
12) Phenanthrene	10.268	178	288813	451.41	ug/L		99
13) Anthracene	10.321	178	329283	496.45	ug/L		99
15) Fluoranthene	11.454	202	349237	506.36	ug/L		99
16) Pyrene	11.681	202	369744	513.01	ug/L		98
17) Benzo (a) anthracene	12.873	228	290374	484.34	ug/L #		49
19) Chrysene	12.907	228	321348	502.70	ug/L		99
20) benzo (b) fluoranthene	13.878	252	252129	448.93	ug/L #		54
21) benzo (k) fluoranthene	13.903	252	314624	438.03	ug/L		100
22) benzo (a) pyrene	14.190	252	244360	428.25	ug/L		98
24) Indeno(1,2,3-cd)pyrene	15.482	276	208035	368.60	ug/L		92
25) Dibenz (a,h) anthracene	15.503	278	147620m	331.88	ug/L		
26) Benzo (g,h,i) perylene	15.851	276	211236m	399.12	ug/L		

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

DBPAH111612.M Mon Nov 19 09:46:16 2012 PAH

File :D:\Data\SVOC\111612\111605.D
Operator :
Acquired : 16 Nov 2012 11:55 am using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: 500 PPB PAH STD
Misc Info : UV O-PAH-S-SIM
Vial Number: 4



Quantitation Report (Not Reviewed)

Data Path : C:\Data\SVOC\111612\
 Data File : 111606.D
 Acq On : 16 Nov 2012 12:20 pm
 Operator :
 Sample : 1000 PPB PAH STD
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 16 13:50:45 2012
 Quant Method : C:\msdchem\1\methods\DBPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Nov 15 10:19:28 2012
 Response via : Initial Calibration

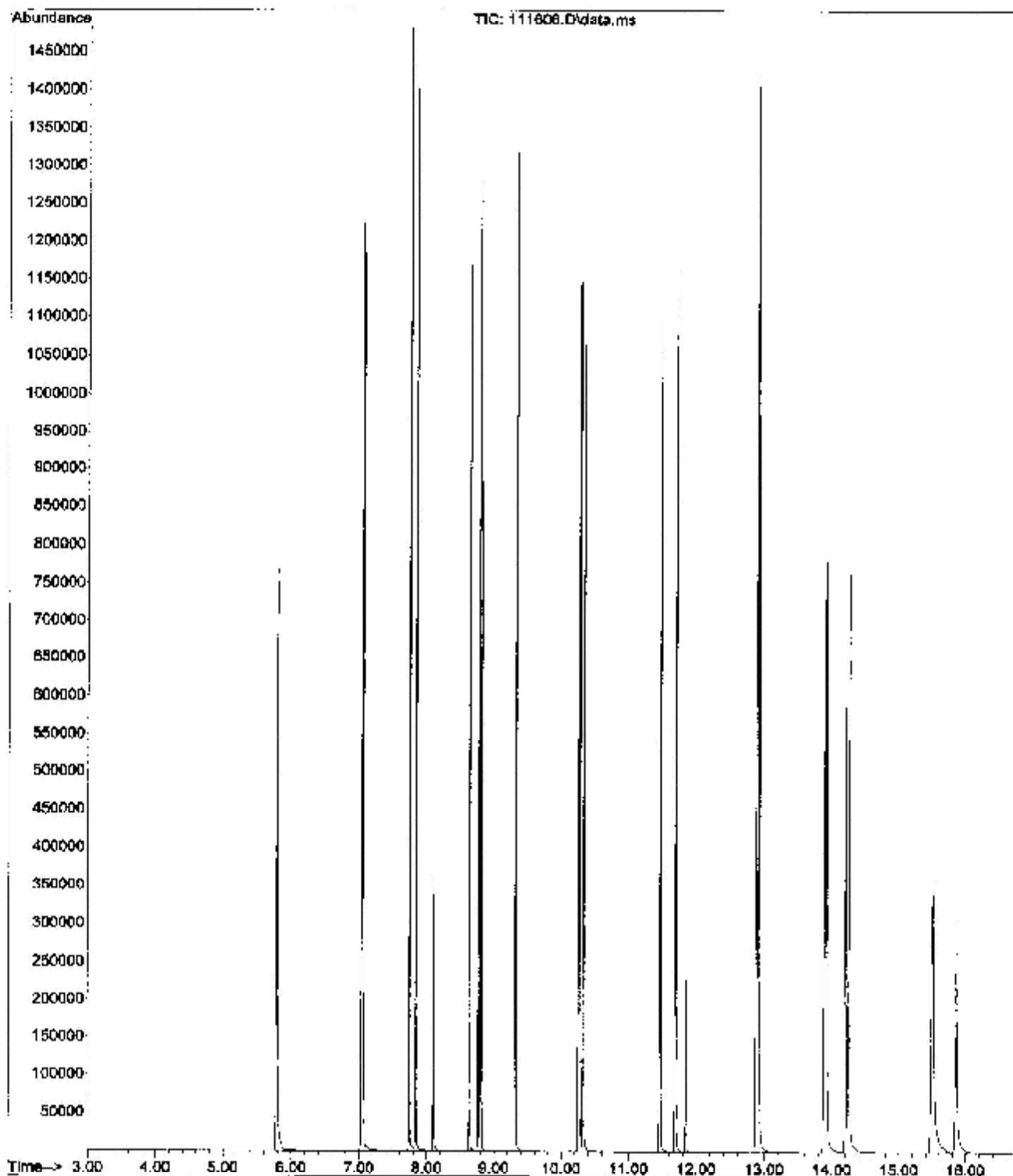
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)	

Internal Standards							
1) 1,4-Dichlorobenz-d4 (IS)	5.781	152	298974	2000.00	ug/L	0.00	
2) Naphthalene-d8 (IS)	7.032	136	943243	2000.00	ug/L	0.00	
8) Acenaphthens-d10 (IS)	8.768	164	498598	2000.00	ug/L	0.00	
11) Phenanthrene-d10 (IS)	10.246	188	776989	2000.00	ug/L	0.00	
18) Chrysene-d12 (IS)	12.882	240	765770	2000.00	ug/L	0.00	
23) Perylene-d12 (IS)	14.247	264	710991	2000.00	ug/L	0.00	
System Monitoring Compounds							
6) 2-Fluorobiphenyl (surr)	8.100	172	214650	437.35	ug/L	0.00	
14) Terphenyl-d14 (surr)	11.839	244	169208	468.90	ug/L	0.00	
Target Compounds							
							Qvalue
3) Naphthalene	7.351	128	814888	1127.98	ug/L		99
4) 2-Methylnaphthalene	7.737	142	498289	1139.64	ug/L		99
5) 1-Methylnaphthalene	7.833	142	466058	1152.13	ug/L		98
7) Accnaphthylene	8.630	152	724796	1134.92	ug/L		100
9) Acenaphthene	8.799	152	218508	1094.48	ug/L		99
10) Fluorene	9.314	166	632366	1073.71	ug/L		99
12) Phenanthrene	10.270	178	662334	1065.16	ug/L		98
13) Anthracene	10.320	178	732944	1112.71	ug/L		99
15) Fluoranthene	11.455	202	780165	1139.01	ug/L		98
16) Pyrene	11.682	202	823520	1150.55	ug/L		98
17) Benzo (a) anthracene	12.873	228	655104	1100.28	ug/L #		49
19) Chrysene	12.909	228	704869	1101.93	ug/L		99
20) benzo (b) flucranthene	13.878	252	595566	1059.75	ug/L #		54
21) benzo (k) flucranthene	13.904	252	729605	1015.12	ug/L		100
22) benzo (a) pyrene	14.192	252	616246	1079.28	ug/L		98
24) Indenc(1,2,3-cd)pyrene	15.484	276	513528	891.45	ug/L		93
25) Dibenz (a,h) anthracene	15.503	278	370780	816.69	ug/L		99
26) Benzo (g,h,i) perylene	15.851	276	483648	906.43	ug/L		94

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

DBPAH111612.M Mon Nov 19 09:46:26 2012 PAH

File : D:\Data\SVOC\111612\111606.D
Operator :
Acquired : 16 Nov 2012 12:20 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: 1000 PPB PAH STD
Misc Info : CCV O-PAH-S-SIM
Vial Number: 5



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111607.D
 Acq On : 16 Nov 2012 12:44 pm
 Operator :
 Sample : 2000 PPB PAH STD
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 6 Sample Multiplier: 1

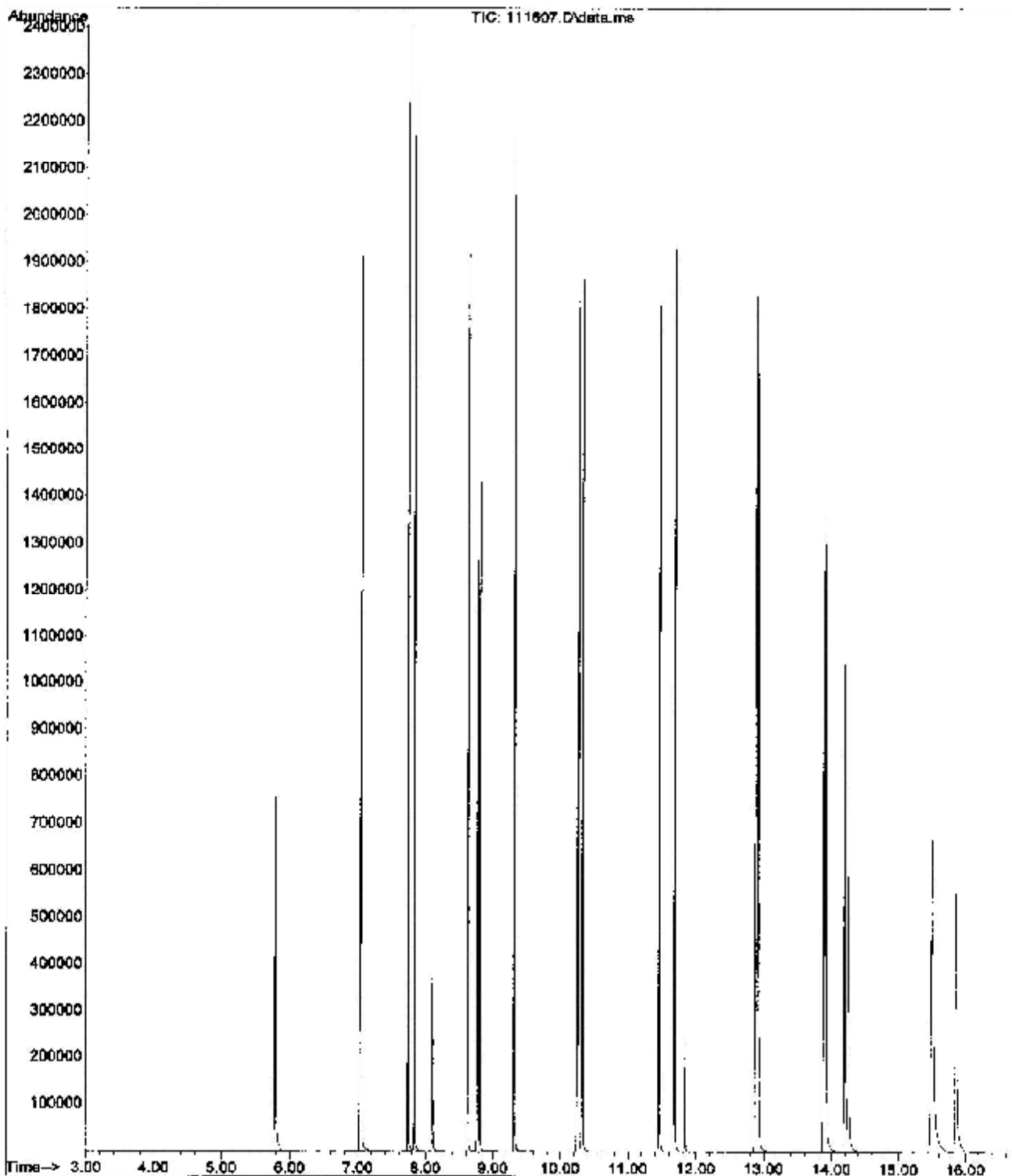
Quant Time: Nov 16 13:50:47 2012
 Quant Method : C:\msdchem\1\methods\DBPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Thu Nov 15 10:19:28 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.781	152	296698	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.032	136	937270	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.770	164	496764	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.246	188	772429	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.884	240	764388	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.249	264	720413	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	9.101	172	213440	437.66	ug/L	0.00
14) Terphenyl-d14 (surr)	11.839	244	166899	465.23	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.051	128	1330361	1853.24	ug/L	98
4) 2-Methylnaphthalene	7.738	142	816814	1880.04	ug/L	99
5) 1-Methylnaphthalene	7.836	142	764899	1902.94	ug/L	93
7) Acenaphthylene	8.629	152	1204251	1897.69	ug/L	100
8) Acenaphthene	8.801	152	355465	1830.11	ug/L	99
10) Fluorene	9.315	166	869461	1805.04	ug/L	99
12) Phenanthrene	10.269	178	1043945	1729.63	ug/L	99
13) Anthracene	10.321	178	1199723	1832.10	ug/L	99
15) Fluoranthene	11.456	202	1285472	1887.82	ug/L	98
16) Pyrene	11.682	202	1352699	1901.03	ug/L	97
17) Benzo (a) anthracene	12.874	228	1095129	1850.19	ug/L #	49
19) Chrysene	12.908	228	1159533	1815.99	ug/L	99
20) benzo (b) fluoranthene	13.880	252	1008780	1798.27	ug/L #	54
21) benzo (k) fluoranthene	13.905	252	1223627	1705.54	ug/L	100
22) benzo (a) pyrene	14.192	252	1059326	1858.65	ug/L	98
24) Indeno(1,2,3-cd)pyrene	15.486	276	925567	1585.71	ug/L	93
25) Dibenz (a,h) anthracene	15.506	278	682658	1483.97	ug/L	100
26) Benzo (g,h,i) perylene	15.855	276	870441	1590.27	ug/L	93

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

DBPAH111612.M Mon Nov 19 09:46:39 2012 PAH

File :D:\Data\SVOC\111612\111607.D
Operator :
Acquired : 16 Nov 2012 12:44 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: 2000 PPB PAH STD
Misc Info : CCV O-PAH-E-SIM
Vial Number: 6



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111608.D
 Acq On : 16 Nov 2012 4:09 pm
 Operator :
 Sample : 5000 PPB PAH STD
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 7 Sample Multiplier: 1

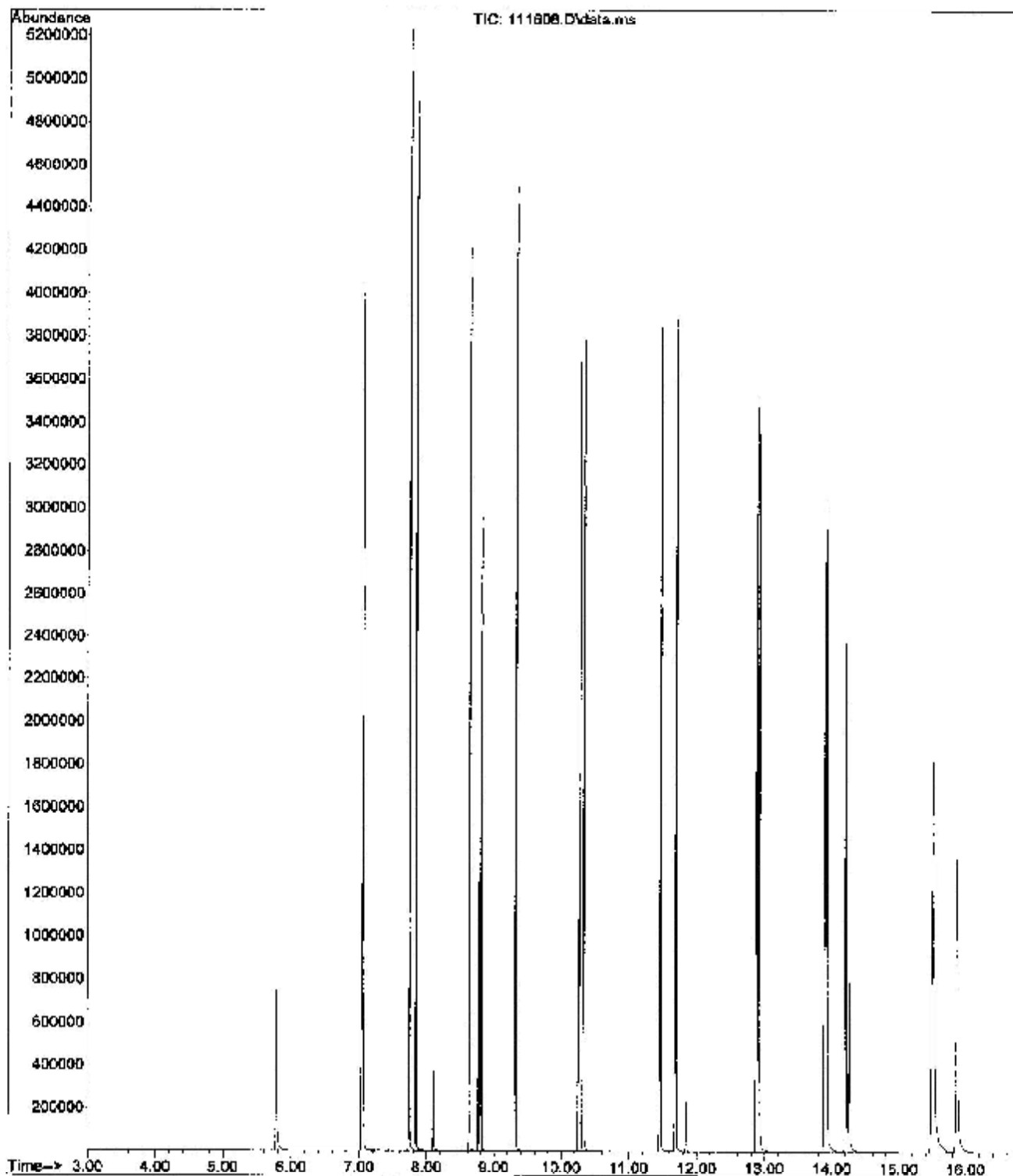
Quant Time: Nov 16 13:50:50 2012
 Quant Method : C:\msdchem\1\methods\DEPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLab Update : Thu Nov 15 10:19:28 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.781	152	291476	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.032	136	920086	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.770	164	492229	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.248	188	763102	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.886	240	736617	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.251	264	726592	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.101	172	211325	441.41	ug/L	0.00
14) Terphenyl-d14 (surr)	11.837	244	165564	467.15	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.053	128	2887103	4096.95	ug/L	98
4) 2-Methylnaphthalene	7.738	142	1759931	4126.45	ug/L	99
5) 1-Methylnaphthalene	7.836	142	1648759	4178.44	ug/L	97
7) Acenaphthylene	8.631	152	2630343	4222.38	ug/L	99
8) Acenaphthene	8.801	152	762953	4315.44	ug/L	98
10) Fluorene	9.316	166	1875763	4306.63	ug/L	99
12) Phenanthrene	10.272	178	2210873	4049.97	ug/L	100
13) Anthracene	10.324	178	2592531	4007.46	ug/L	99
15) Fluoranthene	11.457	202	2767291	4113.67	ug/L	98
16) Pyrene	11.685	202	2895502	4118.96	ug/L	97
17) Benzo (a) anthracene	12.876	228	2440402	4173.38	ug/L #	49
19) Chrysene	12.912	228	2487071	4041.95	ug/L #	66
20) benzo (b) fluoranthene	13.883	252	2290568	4237.14	ug/L #	54
21) benzo (k) fluoranthene	13.910	252	2702237	3908.48	ug/L	100
22) benzo (a) pyrene	14.197	252	2431732	4427.44	ug/L	98
24) Indeno(1,2,3-cd)pyrene	15.493	276	2332502	3962.13	ug/L	92
25) Dibenz (a,h) anthracene	15.513	278	1785278	3847.86	ug/L	99
26) Benzo (g,h,i) perylene	15.864	276	2135271	3867.91	ug/L	93

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

DEPAH111612.M Mon Nov 19 09:46:45 2012 PAH

File : D:\Data\SVOC\111612\111608.D
Operator :
Acquired : 16 Nov 2012 1:09 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: 5000 PPB PAH STD
Misc Info : CCV C-PAH-S-SIM
Vial Number: 7



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111609.D
 Acq On : 16 Nov 2012 1:34 pm
 Operator :
 Sample : ICV-
 Misc : ICV O-PAH-S-SIM
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Nov 16 13:54:04 2012
 Quant Method : C:\msdchem\1\methods\DEPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Fri Nov 16 13:53:58 2012
 Response via : Initial Calibration

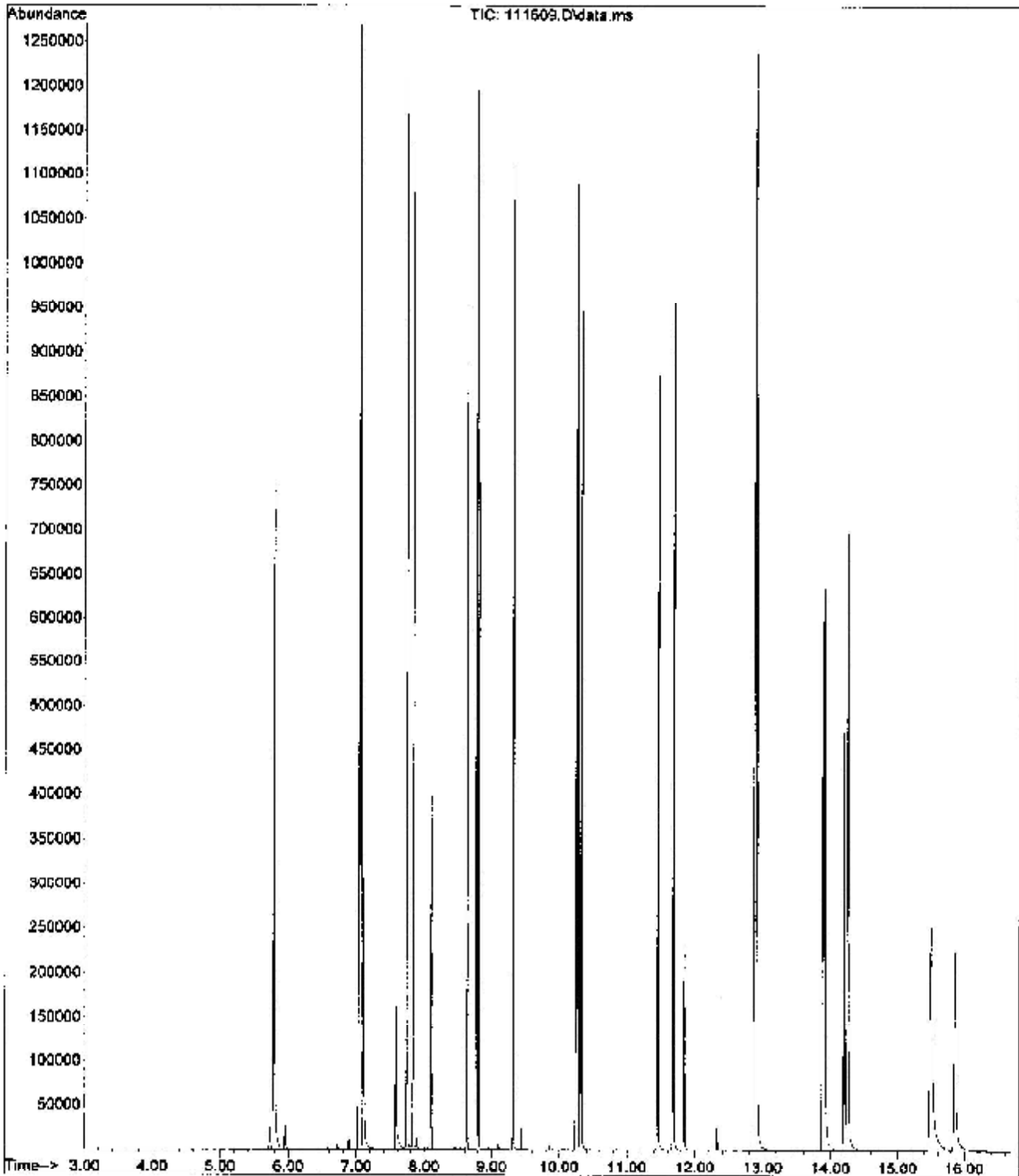
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.781	152	288529	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.031	136	915991	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.770	164	480167	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.246	188	747607	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.882	240	732015	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.247	264	670042	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.100	172	210734	506.63	ug/L	0.00
14) Terphenyl-d14 (surr)	11.838	244	159908	496.08	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.052	128	679620	915.07	ug/L	98
4) 2-Methylnaphthalene	7.737	142	410264	921.18	ug/L	99
5) 1-Methylnaphthalene	7.835	142	387102	927.95	ug/L	96
7) Acenaphthylene	8.629	152	599682	937.23	ug/L	100
9) Acenaphthene	8.799	152	181244	955.50	ug/L	98
10) Fluorene	9.315	166	436462	915.23	ug/L	99
12) Phenanthrene	10.270	178	543198	952.54	ug/L	99
13) Anthracene	10.321	178	607968	949.91	ug/L	99
15) Fluoranthene	11.455	202	640801	942.27	ug/L	98
16) Pyrene	11.681	202	671056	936.60	ug/L	98
17) Benzo (a) anthracene	12.873	228	545396	935.72	ug/L #	49
19) Chrysene	12.907	228	585054	928.42	ug/L	99
20) benzo (b) fluoranthene	13.878	252	474060	941.11	ug/L #	54
21) benzo (k) fluoranthene	13.903	252	609243	968.47	ug/L	100
22) benzo (a) pyrene	14.190	252	495903	993.09	ug/L	98
24) Indeno(1,2,3-cd)pyrene	15.482	276	394565	944.87	ug/L	92
25) Dibenz (a,h) anthracene	15.503	278	280754	917.40	ug/L	99
26) Benzo (g,h,i) perylene	15.851	276	377005	894.17	ug/L	54

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

DEPAH111612.M Mon Nov 19 09:46:55 2012 PAH

File :D:\Data\SVOC\111612\111609.D
Operator :
Acquired : 16 Nov 2012 1:34 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: ICV-
Misc Info : ICV O-PAH-S-SIM
Vial Number: 8



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111610.D
 Acq On : 16 Nov 2012 1:59 pm
 Operator :
 Sample : ICB-
 Misc : ICB O-PAH-S-STM
 ALS Vial : 9 Sample Multiplier: 1

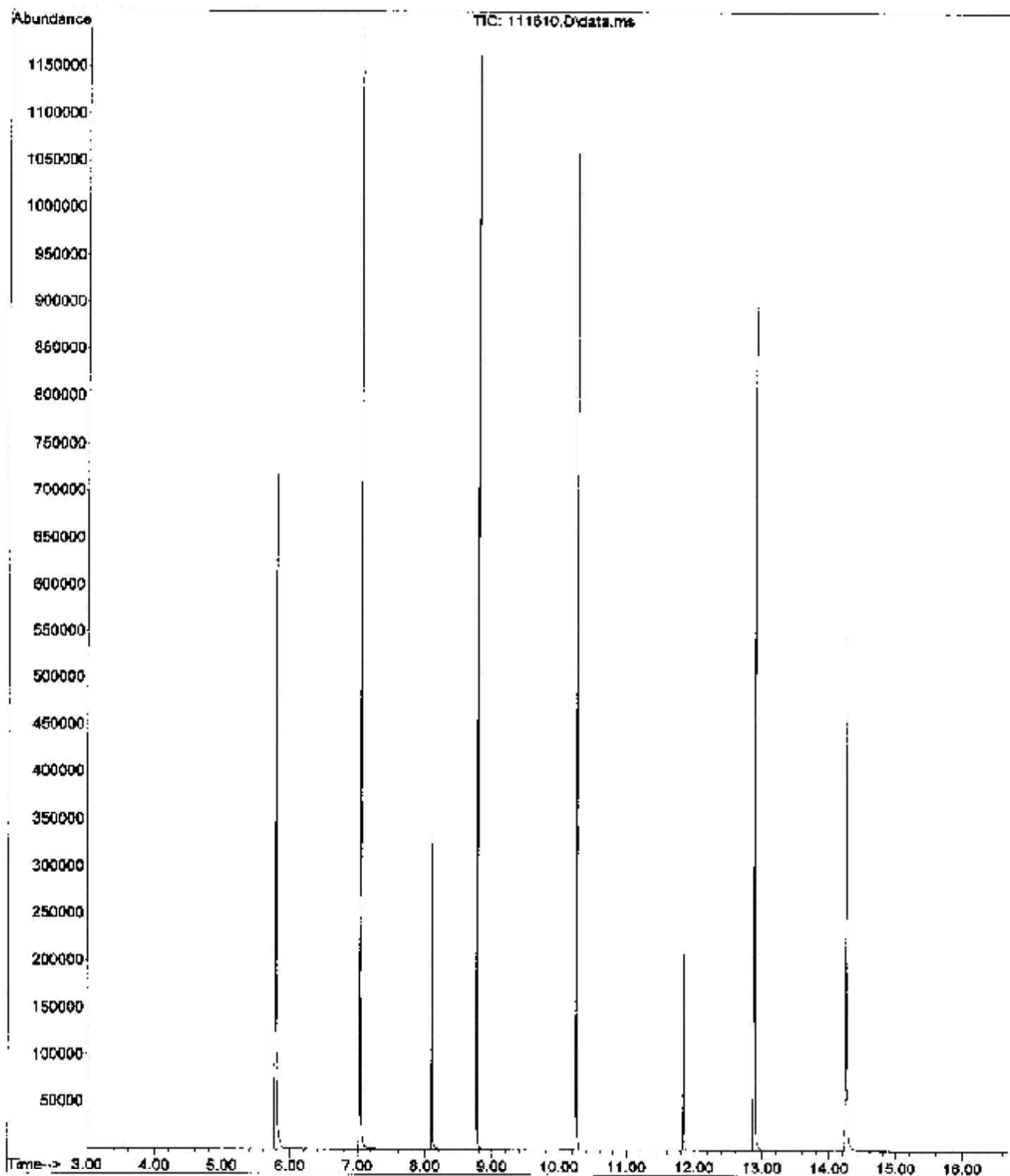
Quant Time: Nov 16 15:09:37 2012
 Quant Method : C:\msdchem\1\methods\DEPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Fri Nov 16 13:53:58 2012
 Response via : Initial Calibration

Compound	R.T.	QInn	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.781	152	283461	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.031	136	885761	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.770	164	457532	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.246	188	721921	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.882	240	666472	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.247	264	547711	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.101	172	195503	486.05	ug/L	0.00
14) Terphenyl-d14 (surr)	11.839	244	147369	473.45	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.052	128	147			N.D.
4) 2-Methylnaphthalene	7.744	142	25			N.D.
5) 1-Methylnaphthalene	7.838	142	21			N.D.
7) Acenaphthylene	8.632	152	43			N.D.
9) Acenaphthene	8.799	152	17			N.D.
10) Fluorene	9.319	166	33			N.D.
12) Phenanthrene	10.269	178	139			N.D.
13) Anthracene	10.323	178	124			N.D.
15) Fluoranthene	11.458	202	142			N.D.
16) Pyrene	11.685	202	193			N.D.
17) Benzo (a) anthracene	12.880	228	1830			N.D.
19) Chrysene	12.880	228	1330			N.D.
20) benzo (b) fluoranthene	13.882	252	199			N.D.
21) benzo (k) fluoranthene	13.903	252	354			N.D.
22) benzo (a) pyrene	14.192	252	217			N.D.
24) Indeno(1,2,3-cd)pyrene	15.481	276	46			N.D.
25) Dibenz (a,h) anthracene	15.505	278	51			N.D.
26) Benzo (g,h,i) perylene	15.848	276	17			N.D.

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

DEPAH111612.M Mon Nov 19 09:47:06 2012 PAH

File : D:\Data\SVOC\111612\111610.D
Operator :
Acquired : 16 Nov 2012 1:59 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: ICB-
Misc Info : ICB O-PAH-S-SIM
Vial Number: 9



Fremont Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: 11/14/2012 11:16:0
 Prep End Date: 11/14/2012 11:16:0

Prep Batch ID: 3639 Prep Code: PREP-PAH-S Technician: Paul Ho
 Initial Temp: °C Final Temp: °C

Prep Factor Units:
 mL / g

Sample ID	ClientSampleID	Matrix	pH1	pH2	SampAmt	Sol Added	Sol Recov	Flt Vol	Factor	PrepStart	PrepEnd
ME-3639		Soil			10	0	0	10	1.000	11/14/2012	11/14/2012
LCS-3639		Soil			10	0	0	10	1.000	11/14/2012	11/14/2012
1210176-001A	W-Subseed-101612	Soil			13.27	0	0	10	0.754	11/14/2012	11/14/2012
Prep hold time was exceeded by 14 day(s)											
1210176-001AMS		Soil			12.73	0	0	10	0.758	11/14/2012	11/14/2012
Prep hold time was exceeded by 14 day(s)											
1211080-001A	CON-01-101812	Soil			13.12	0	0	10	0.752	11/14/2012	11/14/2012
Prep hold time was exceeded by 13 day(s)											
1211085-001A	MFZ-52-102212	Soil			13.06	0	0	10	0.758	11/14/2012	11/14/2012
Prep hold time was exceeded by 10 day(s)											
1211066-001ADUP		Soil			13.26	0	0	10	0.754	11/14/2012	11/14/2012
Prep hold time was exceeded by 10 day(s)											

Type	Chemical / Reagent ID	Chemical / Reagent Name	Container#	Container ID	Amount Added	Amount Unit
Chemical	345	Dichloromethane	775	Container-04 of 04	10	mL

Spike ID	Spike Name	Samp Type	Container#	Container ID	Amount Added	Amount Unit
O-SEM-1REF-MEGAMX (B)	8270 Megamix	LCS	1057	Container-01 of 01	0.01	mL
O-SEM-1REF-MEGAMX (B)	8270 Megamix	MS	1057	Container-01 of 01	0.01	mL
O-SEM-2IS (10/1/12)	Internal Standard (10/1/12)	DUP	1113	Container-02 of 03	0.01	mL
O-SEM-2IS (10/1/12)	Internal Standard (10/1/12)	LCS	1113	Container-02 of 03	0.01	mL
O-SEM-2IS (10/1/12)	Internal Standard (10/1/12)	MELK	1113	Container-02 of 03	0.01	mL
O-SEM-2IS (10/1/12)	Internal Standard (10/1/12)	MS	1113	Container-02 of 03	0.01	mL
O-SEM-2IS (10/1/12)	Internal Standard (10/1/12)	SAMP	1113	Container-02 of 03	0.01	mL
O-SEM-2SURR-BN (11/12/12)	BN Surrogate 500 ppm	DUP	1198	Container-01 of 01	0.01	mL
O-SEM-2SURR-BN (11/12/12)	BN Surrogate 600 ppm	LCS	1198	Container-01 of 01	0.01	mL
O-SEM-2SURR-BN (11/12/12)	BN Surrogate 500 ppm	MELK	1198	Container-01 of 01	0.01	mL
O-SEM-2SURR-BN (11/12/12)	BN Surrogate 500 ppm	MS	1198	Container-01 of 01	0.01	mL

Fremont Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: 11/14/2012 11:16:0

Prep End Date: 11/14/2012 11:16:0

Prep Batch ID 3639 Prep Code: PREP-PAH-S Technician: Paul Ho

Initial Temp: °C Final Temp °C

Prep Factor Units:
mL / g

O-SE#2SURR-BN (11/12/12) 600 Surrogate 500 ppm 1198 3639 Container-01 of 31 0.01 mL

Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111611.D
 Acq On : 16 Nov 2012 2:24 pm
 Operator :
 Sample : MB-3639
 Misc : MBLK O-PAH-S-SIM
 ALS Vial : 10 Sample Multiplier: 1

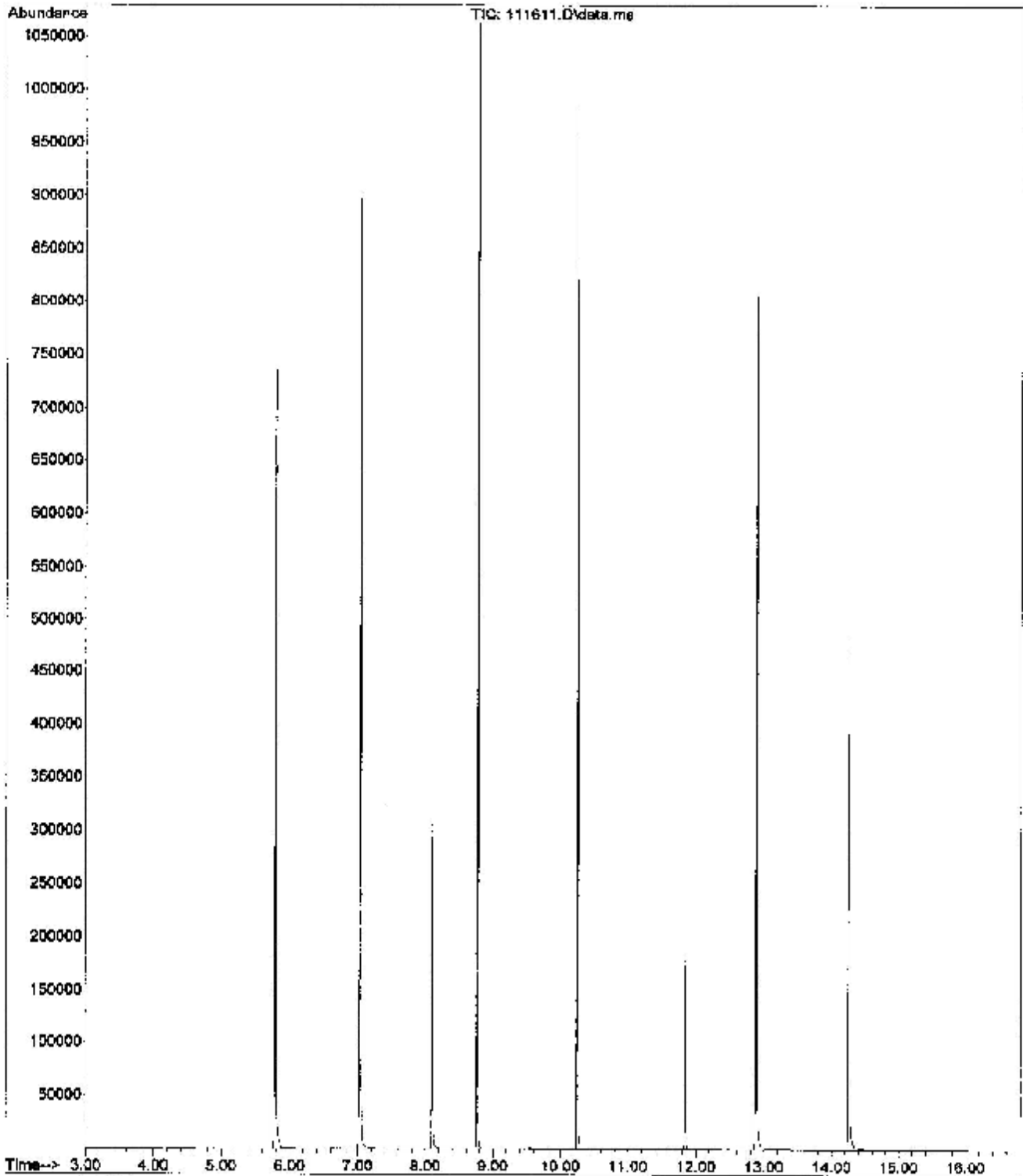
Quant Time: Nov 16 15:09:40 2012
 Quant Method : C:\msdchem\1\methods\DEPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Fri Nov 16 13:53:58 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.784	152	255244	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.028	136	804063	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.768	164	412719	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.247	168	656737	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.884	240	605954	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.247	264	492604	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.100	172	177129	485.11	ug/L	0.00
14) Terphenyl-d14 (surr)	11.839	244	128262	452.97	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.052	128	120			N.D.
4) 2-Methylnaphthalene	7.742	142	47			N.D.
5) 1-Methylnaphthalene	7.836	142	38			N.D.
7) Acenaphthylene	8.631	152	65			N.D.
9) Acenaphthene	8.801	152	13			N.D.
10) Fluorene	9.317	166	29			N.D.
12) Phenanthrene	10.268	178	111			N.D.
13) Anthracene	10.324	178	59			N.D.
15) Fluoranthene	11.461	202	100			N.D.
16) Pyrene	11.685	202	111			N.D.
17) Benzo (a) anthracene	12.882	228	1604			N.D.
19) Chrysene	12.882	228	1329			N.D.
20) benzo (b) fluoranthene	13.880	252	58			N.D.
21) benzo (k) fluoranthene	13.909	252	261			N.D.
22) benzo (a) pyrene	14.195	252	164			N.D.
24) Indeno(1,2,3-cd)pyrene	15.494	276	79			N.D.
25) Dibenz (a,h) anthracene	15.503	278	20			N.D.
26) Benzo (g,h,i) perylene	15.844	276	34			N.D.

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

DEPAH111612.M Mon Nov 19 09:47:14 2012 PAH

File : D:\Data\SVOC\111612\112611.D
Operator :
Acquired : 16 Nov 2012 2:24 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: MB-3639
Misc Info : MBLK O-PAH-S-SIM
Vial Number: 10



Quantitation Report (Not Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111612.D
 Acq On : 16 Nov 2012 2:48 pm
 Operator :
 Sample : LCS-3639
 Misc : LCS C-PAH-S-SIM
 ALS Vial : 11 Sample Multiplier: 1

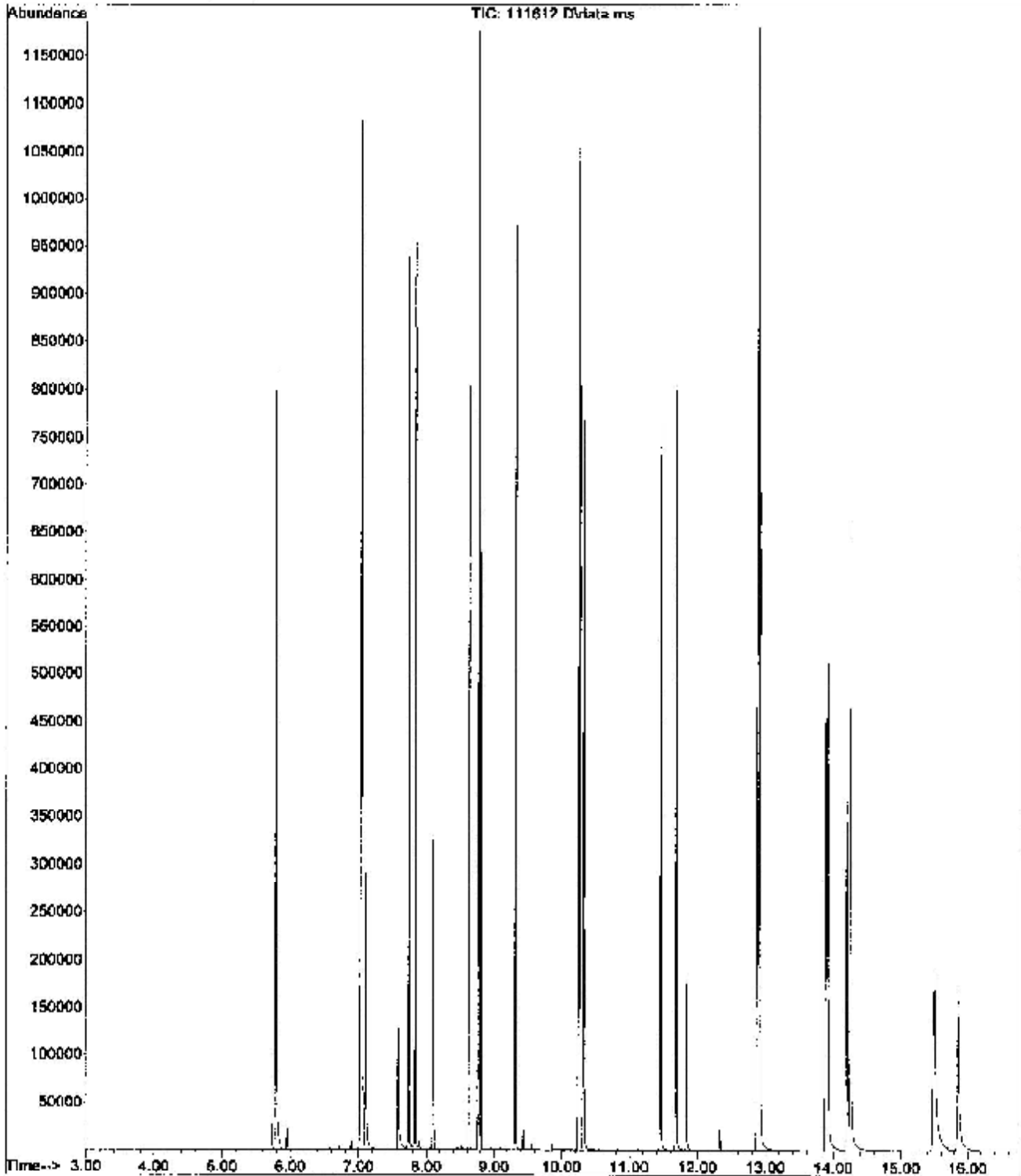
Quant Time: Nov 16 15:09:44 2012
 Quant Method : C:\msdchem\1\methods\DBPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Fri Nov 16 13:53:58 2012
 Response Via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.784	152	276368	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.029	136	886128	2000.00	ug/L	0.00
6) Acenaphthene-d10 (IS)	8.771	164	461650	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.246	188	725023	2000.00	ug/L	0.00
18) Chrysene-d12 (IS)	12.882	240	709202	2000.00	ug/L	0.00
23) Perylene-d12 (IS)	14.249	264	636965	2000.00	ug/L	0.00
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.100	172	185610	461.26	ug/L	0.00
14) Terphenyl-d14 (surr)	11.839	244	133674	427.62	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.051	128	577060	803.16	ug/L	99
4) 2-Methylnaphthalene	7.737	142	347010	805.41	ug/L	100
5) 1-Methylnaphthalene	7.833	142	325412	806.35	ug/L	96
7) Acenaphthylene	8.630	152	505492	816.65	ug/L	100
9) Acenaphthene	8.799	152	153062	833.86	ug/L	99
10) Fluorene	9.315	166	267459	801.44	ug/L	99
12) Phenanthrene	10.270	178	454121	821.15	ug/L	100
13) Anthracene	10.321	178	512859	826.27	ug/L	99
15) Fluoranthene	11.455	202	539320	817.76	ug/L	98
16) Pyrene	11.682	202	566148	814.79	ug/L	97
17) Benzo (a) anthracene	12.873	228	456247	807.16	ug/L #	49
19) Chrysene	12.908	228	491560	805.15	ug/L #	72
20) benzo (b) fluoranthene	13.880	252	388381	795.82	ug/L #	54
21) benzo (k) fluoranthene	13.905	252	503107	825.48	ug/L	100
22) benzo (a) pyrene	14.192	252	376177	777.56	ug/L	99
24) Indeno (1,2,3-cd) pyrene	15.487	276	301470	759.43	ug/L	92
25) Dibenz (a,h) anthracene	15.506	276	212135	729.17	ug/L	100
26) Benzo (g,h,i) perylene	15.852	276	294249	734.13	ug/L	94

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

DBPAH111612.M Mon Nov 19 09:47:23 2012 PAH

File :D:\Data\SVOC\111612\111612.D
Operator :
Acquired : 16 Nov 2012 2:48 pm using AccMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: LCS-3639
Misc Info : LCS O-PAH-S-SIM
Vial Number: 11



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111616.D
 Acq On : 16 Nov 2012 4:37 pm
 Operator :
 Sample : 1210176-001A
 Misc : SAMP C-PAH-S-SIM
 ALS Vial : 15 Sample Multiplier: 1

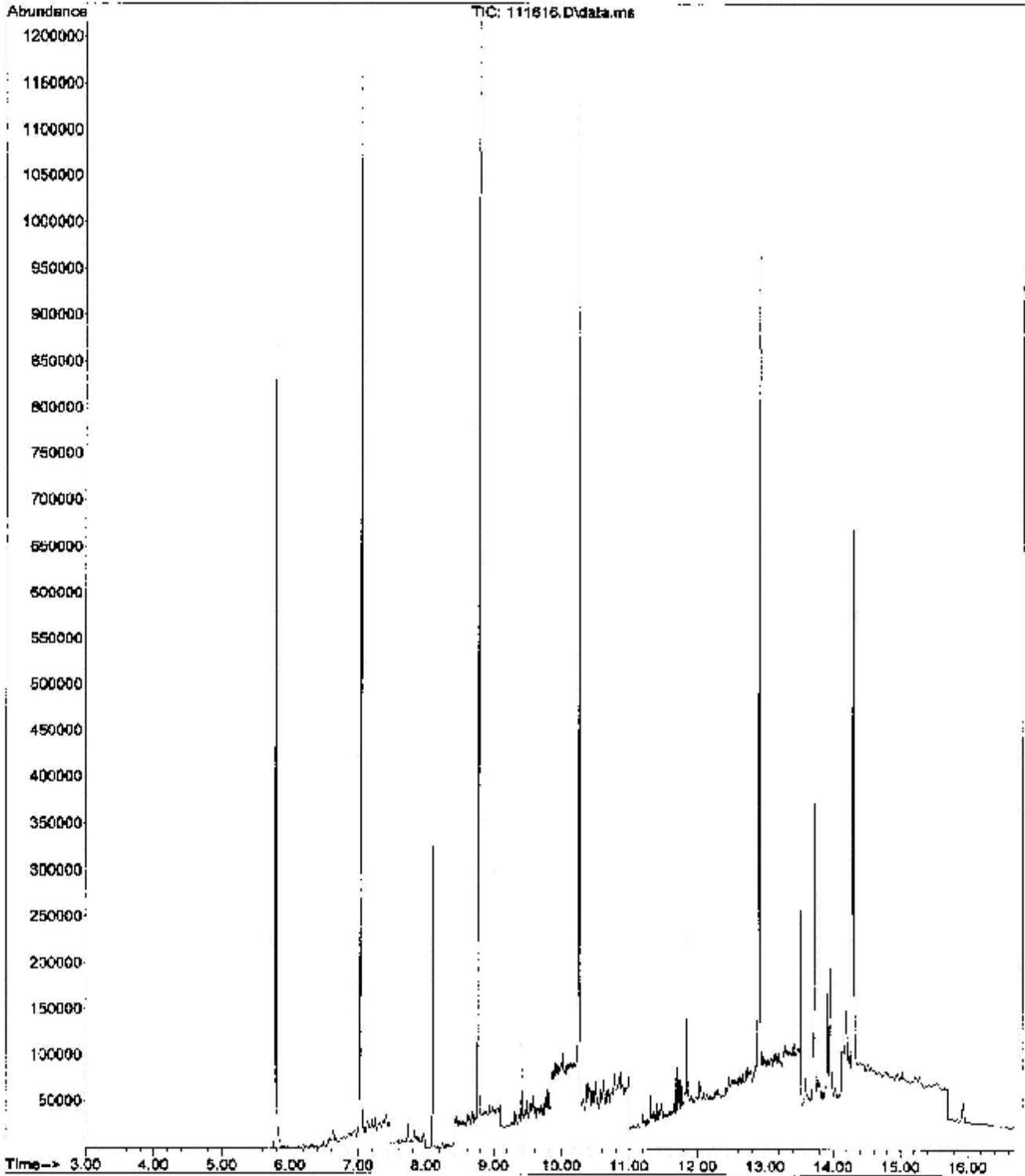
Quant Time: Nov 16 17:02:07 2012
 Quant Method : C:\msdchem\1\methods\DEPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Fri Nov 16 13:53:58 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.784	152	303536	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.032	136	929804	2000.00	ug/L	# 0.00
8) Acenaphthene-d10 (IS)	8.773	164	471252	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.253	188	711837	2000.00	ug/L	# 0.00
18) Chrysene-d12 (IS)	12.897	240	628561	2000.00	ug/L	0.01
23) Perylene-d12 (IS)	14.285	264	565557	2000.00	ug/L	0.04
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.101	172	185117	438.43	ug/L	0.00
14) Terphenyl-d14 (surr)	11.847	244	127868	416.62	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.051	128	7806	10.35	ug/L	# 10
4) 2-Methylnaphthalene	7.739	142	7006	15.50	ug/L	# 32
5) 1-Methylnaphthalene	7.835	142	4612	10.89	ug/L	# 1
7) Acenaphthylene	8.640	152	8328	12.82	ug/L	# 58
9) Acenaphthene	8.787	152	2760	14.11	ug/L	# 1
10) Fluorene	9.318	166	5971	12.76	ug/L	# 5
12) Phenanthrene	10.275	178	27476	50.60	ug/L	# 83
13) Anthracene	10.328	178	7957	13.06	ug/L	# 42
15) Fluoranthene	11.464	202	7221	11.15	ug/L	# 1
16) Pyrene	11.692	202	36441	53.42	ug/L	# 58
17) Benzo (a) anthracene	12.886	228	6809m	15.87	ug/L	
19) Chrysene	12.922	228	20071m	37.09	ug/L	
20) benzo (b) fluoranthene	13.870	252	411	N.D.		
21) benzo (k) fluoranthene	13.909	252	5323	N.D.		
22) benzo (a) pyrene	14.268	252	7800m	18.19	ug/L	
24) Indeno(1,2,3-cd)pyrene	15.494	276	700	N.D.		
25) Dibenz (a,h) anthracene	0.000		0	N.D.		
26) Benzo (g,h,i) perylene	15.929	276	29450	82.75	ug/L	# 1

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

DEPAH111612.M Mon Nov 19 15:01:47 2012 PAH

File :D:\Data\SVOC\111612\111616.D
Operator :
Acquired : 16 Nov 2012 4:27 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: 1210176-001A
Misc Info : SAMP O-PAH-S-SIM
Vial Number: 15



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111617.D
 Acq On : 16 Nov 2012 4:52 pm
 Operator :
 Sample : 1216176-001AMS
 Misc : MS O-PAH-S-SIM
 ALS Vial : 16 Sample Multiplier: 1

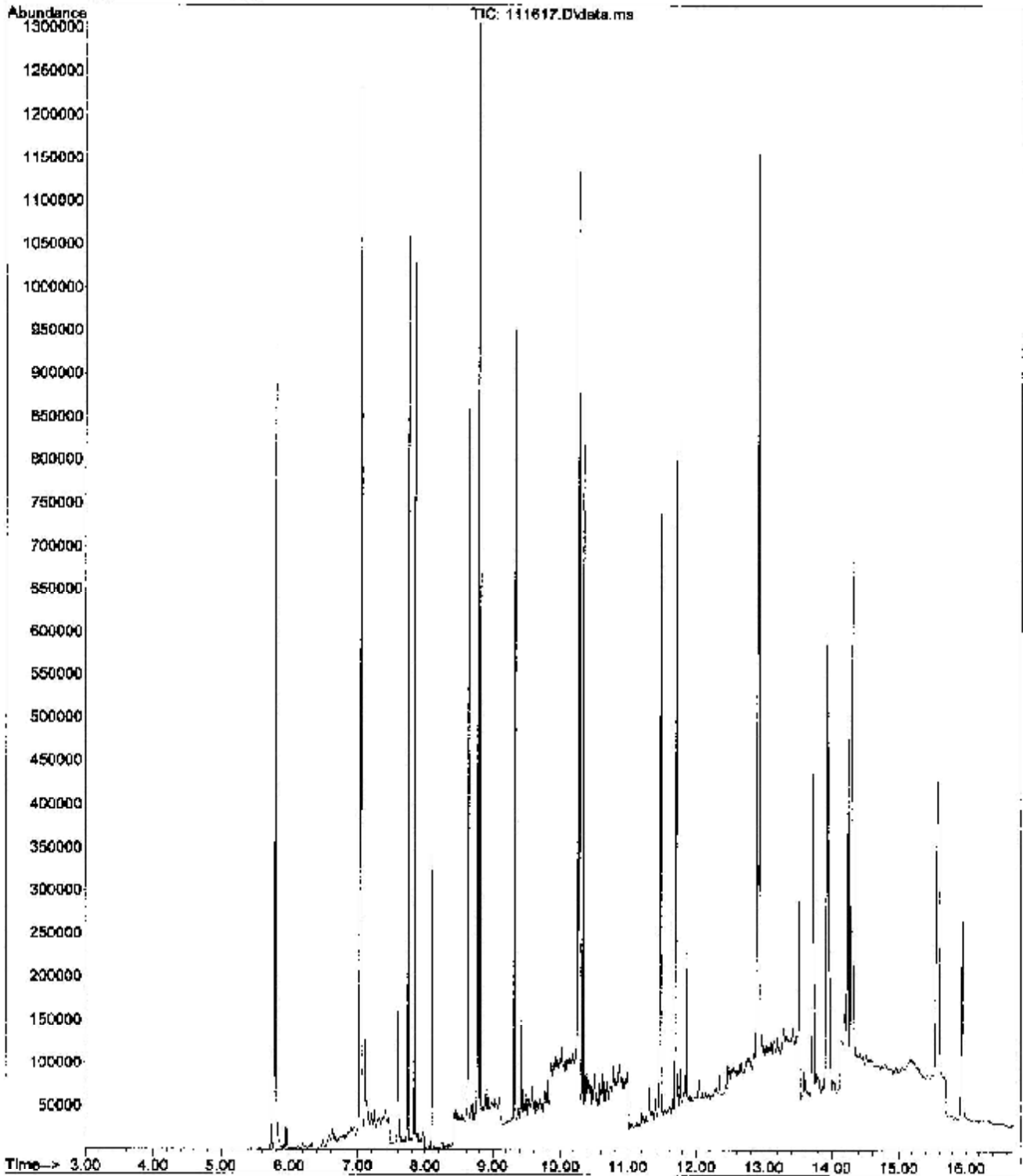
Quant Time: Nov 16 17:10:39 2012
 Quant Method : C:\msdchem\1\methods\DBPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Fri Nov 16 13:53:58 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.786	152	319661	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.033	136	1001717	2000.00	ug/L	# 0.00
8) Acenaphthene-d10 (IS)	8.775	164	508515	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.258	188	747635	2000.00	ug/L	# 0.01
18) Chrysene-d12 (IS)	12.904	240	610737	2000.00	ug/L	0.02
23) Perylene-d12 (IS)	14.294	264	556032	2000.00	ug/L	0.05
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.104	172	190627	419.07	ug/L	0.00
14) Terphenyl-d14 (surr)	11.853	244	121765	377.74	ug/L	0.01
Target Compounds						
						Qvalue
3) Naphthalene	7.054	128	610716	751.93	ug/L	99
4) 2-Methylnaphthalene	7.742	142	373495	766.86	ug/L	98
5) 1-Methylnaphthalene	7.839	142	341032	747.55	ug/L	# 92
7) Acenaphthylene	8.635	152	523351	747.94	ug/L	# 85
9) Acenaphthene	8.806	152	155086	764.18	ug/L	93
10) Fluorene	9.320	166	368531	729.71	ug/L	93
12) Phenanthrene	10.279	178	454215	796.47	ug/L	99
13) Anthracene	10.332	178	487043	760.94	ug/L	99
15) Fluoranthene	11.471	202	510399	750.49	ug/L	99
16) Pyrene	11.698	202	542814	757.58	ug/L	93
17) Benzo (a) anthracene	12.895	228	426993	732.55	ug/L	# 89
19) Chrysene	12.930	228	455061m	865.53	ug/L	
20) benzo (b) fluoranthene	13.913	252	376258m	895.28	ug/L	
21) benzo (k) fluoranthene	13.938	252	377855m	719.93	ug/L	
22) benzo (a) pyrene	14.233	252	353891m	849.43	ug/L	
24) Indeno(1,2,3-cd)pyrene	15.563	276	376431	1086.28	ug/L	93
25) Dibenz (a,h) anthracene	15.580	276	296921	1169.16	ug/L	91
26) Benzo (g,h,i) perylene	15.943	276	351903	1005.77	ug/L	93

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

DBPAH111612.M Mon Nov 19 15:01:57 2012 PAH

File :D:\Data\SVOC\111612\111617.D
Operator :
Acquired : 16 Nov 2012 4:52 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: 1210176-001AMS
Misc Info : MS O-PAH-S-SIM
Vial Number: 16



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111618.D
 Acq On : 16 Nov 2012 5:17 pm
 Operator :
 Sample : 1211093-001A
 Misc : SAMP O-PAH-S-SIM
 ALS Vial : 17 Sample Multiplier: 1

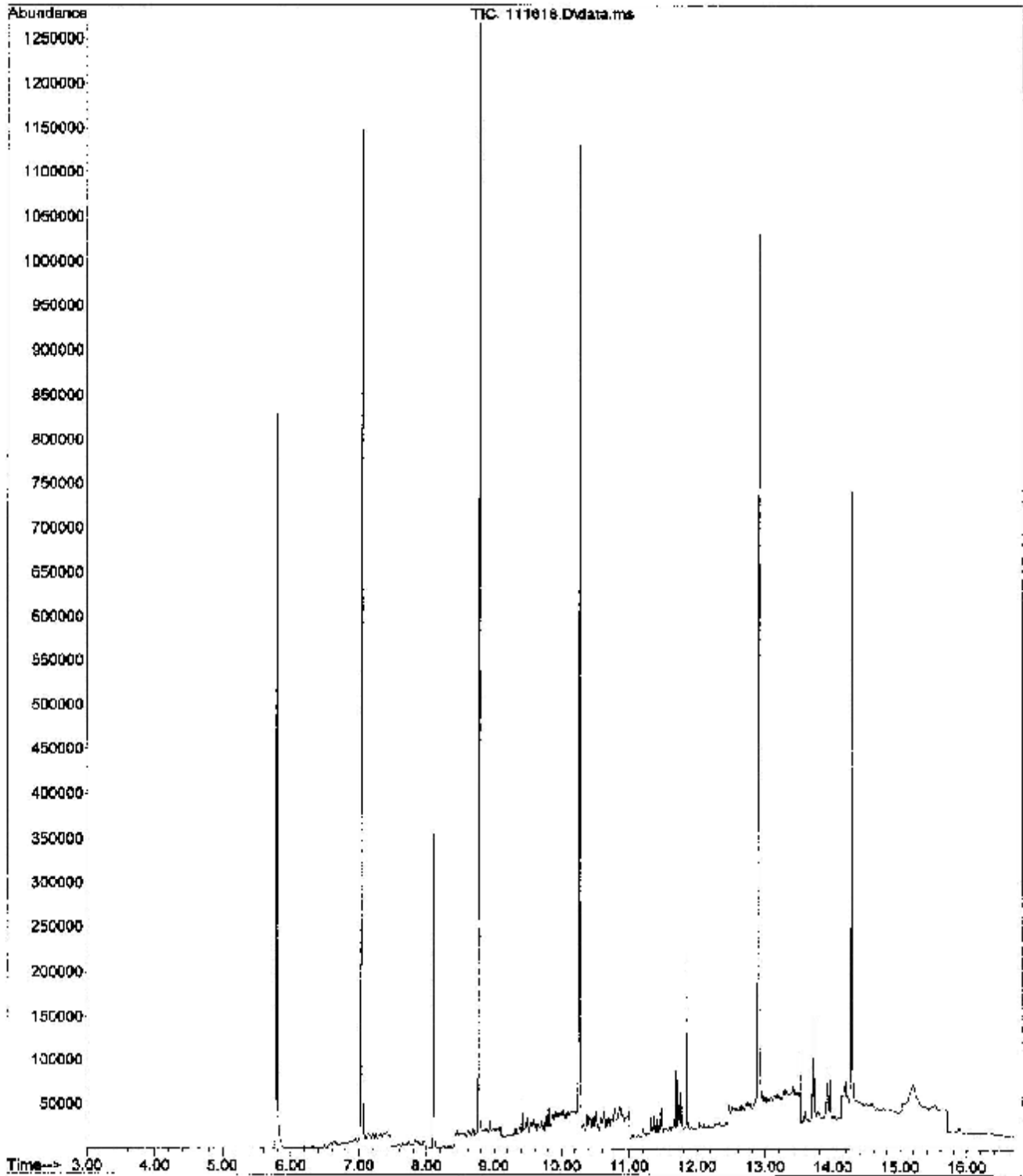
Quant Time: Nov 19 09:50:26 2012
 Quant Method : C:\msdchem\1\methods\BPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Fri Nov 16 13:53:58 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.786	152	293924	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.034	136	945879	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.775	164	491331	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.255	188	750169	2000.00	ug/L	# 0.00
18) Chrysene-d12 (IS)	12.895	240	654989	2000.00	ug/L	0.01
23) Perylene-d12 (IS)	14.268	264	596970	2000.00	ug/L	0.02
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.104	172	196450	457.36	ug/L	0.00
14) Terphenyl-d14 (surr)	11.847	244	138995	429.73	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.056	128	4382		N.D.	
4) 2-Methylnaphthalene	7.743	142	1901		N.D.	
5) 1-Methylnaphthalene	7.838	142	2118		N.D.	
7) Acenaphthylene	8.643	152	4102		N.D.	
9) Acenaphthene	8.806	152	1659		N.D.	
10) Fluorene	9.320	166	3456		N.D.	
12) Phenanthrene	10.277	178	19274	33.68	ug/L #	90
13) Anthracene	10.330	178	6361		N.D.	
15) Fluoranthene	11.466	202	19254	28.22	ug/L #	30
16) Pyrene	11.692	202	49562	68.94	ug/L #	27
17) Benzo (a) anthracene	12.985	228	10103m	17.27	ug/L	
19) Chrysene	12.920	228	19228m	34.10	ug/L	
20) benzo (b) fluoranthene	13.895	252	12886	28.59	ug/L #	1
21) benzo (k) fluoranthene	13.909	252	4797		N.D.	
22) benzo (a) pyrene	14.254	252	3828		N.D.	
24) Indenc (1,2,3-cd)pyrene	15.487	276	463		N.D.	
25) Dibenz (a,h) anthracene	0.000		0		N.D.	
26) Benzo (g,h,i) perylene	15.885	276	8058	21.45	ug/L #	1

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

DBFAH111612.M Mon Nov 19 09:50:32 2012 PAH

File :D:\Data\SVOC\111612\111618.D
Operator :
Acquired : 16 Nov 2012 5:17 pm Using AcqMethod DEPAH111412.M
Instrument : HP-MSD
Sample Name: 1211093-001A
Misc Info : SAMP O-PAH-S-SIM
Vial Number: 17



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111619.D
 Acq On : 16 Nov 2012 5:42 pm
 Operator :
 Sample : 1211095-001A
 Misc : SAMP C-PAH-S-SIM
 ALS Vial : 18 Sample Multiplier: 1

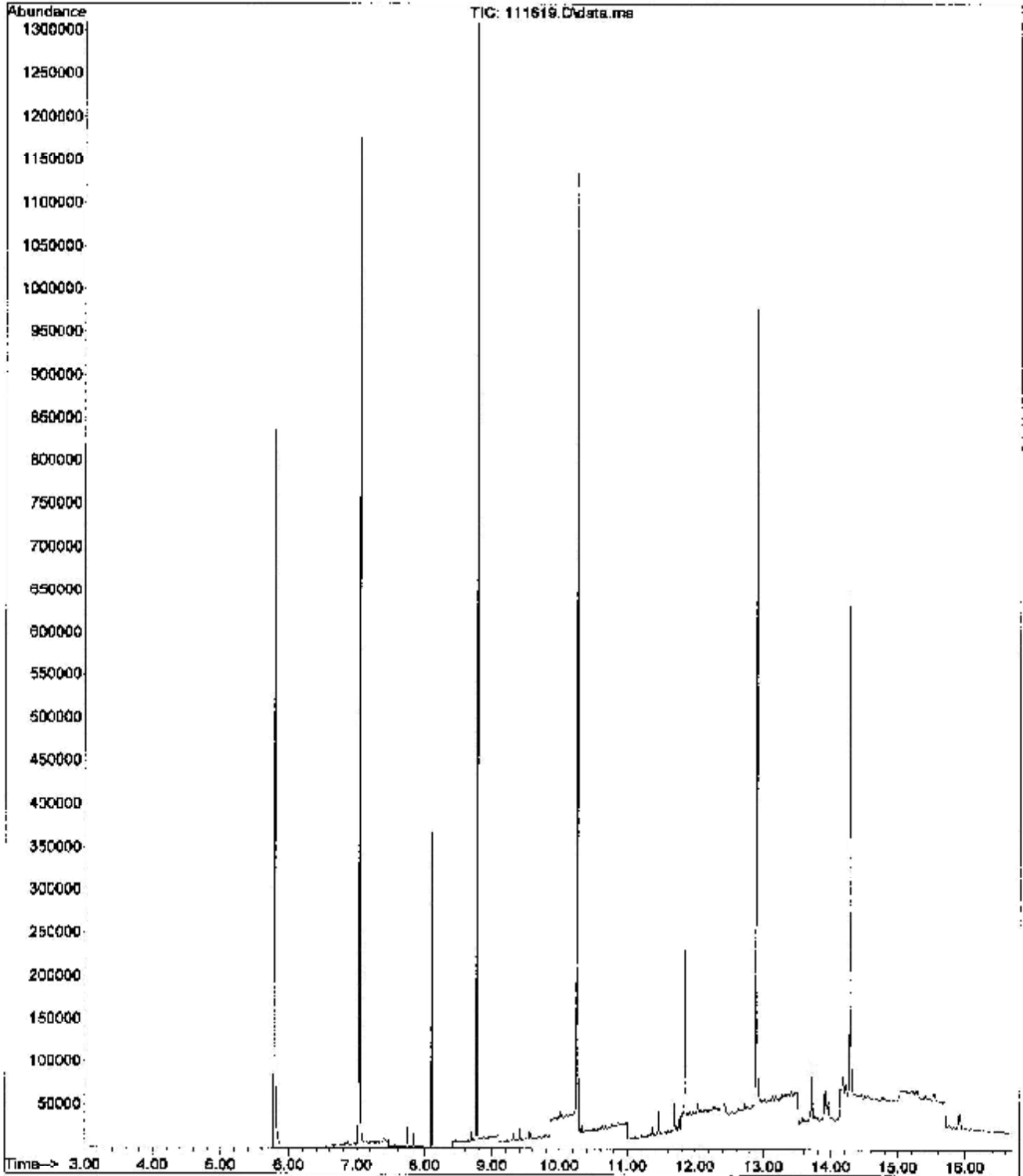
Quant Time: Nov 19 09:51:24 2012
 Quant Method : C:\msdchem\1\methods\DEPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Fri Nov 16 13:53:58 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.786	152	297033	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.034	136	960858	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.773	164	506057	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.253	188	779520	2000.00	ug/L	# 0.00
18) Chrysene-d12 (IS)	12.898	240	843962	2000.00	ug/L	0.01
23) Perylene-d12 (IS)	14.280	264	548759	2000.00	ug/L	0.03
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.103	172	202638	464.41	ug/L	0.00
14) Terphenyl-d14 (surr)	11.849	244	137967	410.49	ug/L	0.00
Target Compounds						
						Qvalue
3) Naphthalene	7.053	128	10910	14.00	ug/L	# 71
4) 2-Methylnaphthalene	7.742	142	8153	17.45	ug/L	# 80
5) 1-Methylnaphthalene	7.839	142	4668	10.67	ug/L	# 58
7) Acenaphthylene	8.633	152	4932		N.D.	
9) Acenaphthene	8.802	152	466		N.D.	
10) Fluorene	9.319	166	3672		N.D.	
12) Phenanthrene	10.275	178	23108	39.37	ug/L	# 88
13) Anthracene	10.329	178	5400		N.D.	
15) Fluoranthene	11.466	202	18843	26.67	ug/L	# 70
16) Pyrene	11.692	202	23079	30.89	ug/L	# 74
17) Benzo (a) anthracene	12.888	228	12156	20.00	ug/L	# 1
19) Chrysene	12.921	228	11793m	21.27	ug/L	
20) benzo (b) fluoranthene	13.904	252	15207	34.32	ug/L	# 1
21) benzo (k) fluoranthene	13.926	252	6728m	12.16	ug/L	
22) benzo (a) pyrene	14.221	252	10609m	24.15	ug/L	
24) Indeno(1,2,3-cd)pyrene	15.539	276	8620	25.20	ug/L	# 1
25) Dibenz (a,h) anthracene	0.000		0		N.D.	
26) Benzo (g,h,i) perylene	15.917	276	27636	60.03	ug/L	# 24

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

DDPAH111612.M Mon Nov 19 09:51:32 2012 PAH

File :D:\Data\SVOC\111612\111619.D
Operator :
Acquired : 16 Nov 2012 5:42 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: 1211095-001A
Misc Info : SAMP O-PAH S-SIM
Vial Number: 18



Quantitation Report (QT Reviewed)

Data Path : D:\Data\SVOC\111612\
 Data File : 111623.D
 Acq On : 16 Nov 2012 6:06 pm
 Operator :
 Sample : 1211095-001ADJF
 Misc : DUF O-PAH-S-SIM
 ALS Vial : 19 Sample Multiplier: 1

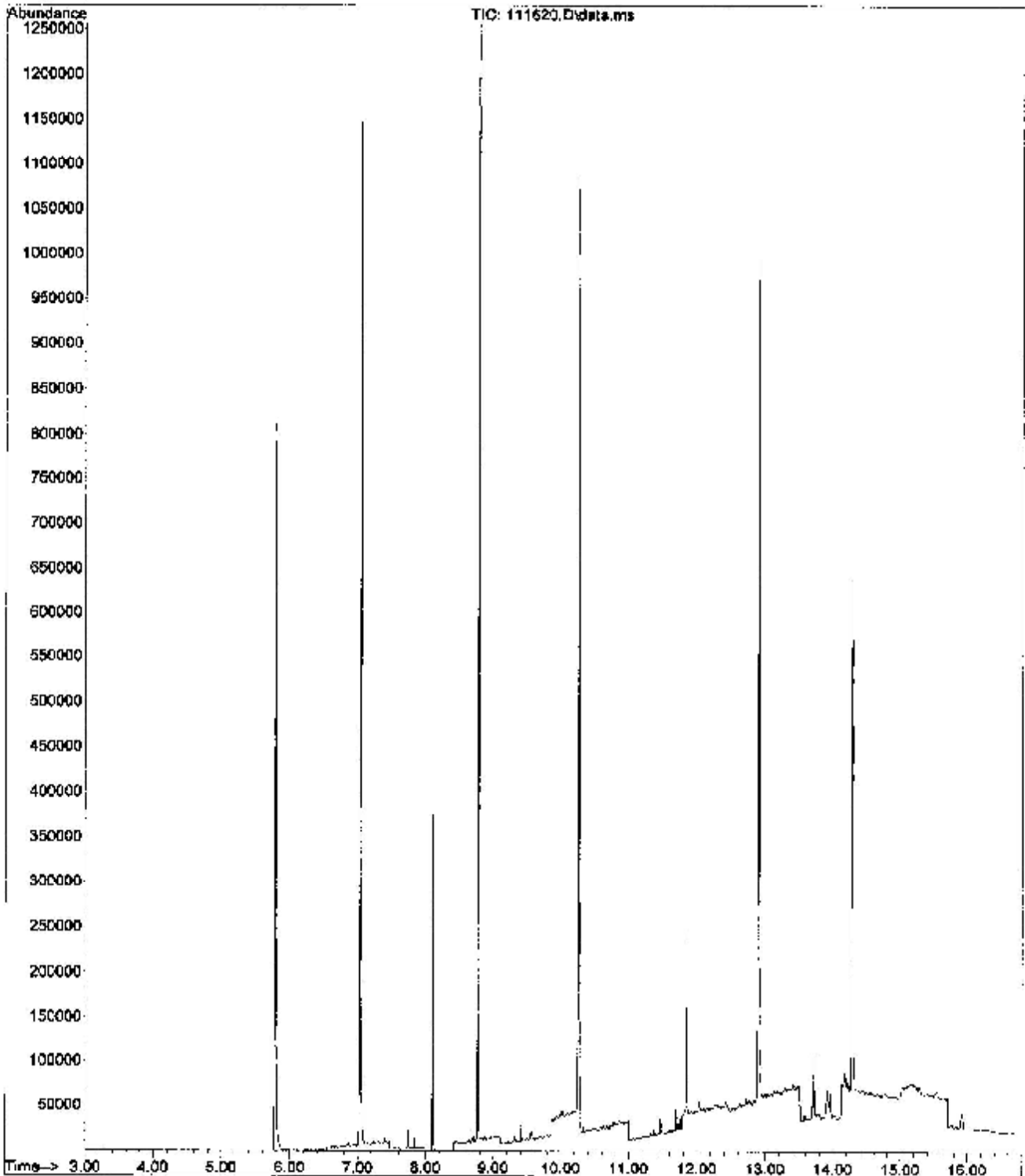
Quant Time: Nov 19 15:04:45 2012
 Quant Method : C:\msdchem\1\methods\BPAH111612.M
 Quant Title : EPA Method 8270-PAH
 QLast Update : Fri Nov 16 13:53:58 2012
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenz-d4 (IS)	5.788	152	283978	2000.00	ug/L	0.00
2) Naphthalene-d8 (IS)	7.034	136	926480	2000.00	ug/L	0.00
8) Acenaphthene-d10 (IS)	8.775	164	489593	2000.00	ug/L	0.00
11) Phenanthrene-d10 (IS)	10.255	188	741320	2000.00	ug/L	# 0.00
18) Chrysene-d12 (IS)	12.900	240	619023	2000.00	ug/L	0.02
23) Perylene-d12 (IS)	14.283	264	520807	2000.00	ug/L	# 0.02
System Monitoring Compounds						
6) 2-Fluorobiphenyl (surr)	8.104	172	205179	487.69	ug/L	0.00
14) Terphenyl-d14 (surr)	11.850	244	139650	436.91	ug/L	0.01
Target Compounds						
						Qvalue
3) Naphthalene	7.056	128	9953	13.25	ug/L	# 70
4) 2-Methylnaphthalene	7.743	142	7859	17.45	ug/L	# 79
5) 1-Methylnaphthalene	7.838	142	4001	N.D.		
7) Accnaphthylene	8.635	152	3979	N.D.		
9) Acenaphthene	8.801	152	247	N.D.		
10) Fluorene	9.320	166	3038	N.D.		
12) Phenanthrene	10.277	178	23109	40.87	ug/L	# 89
13) Anthracene	10.330	178	4777	N.D.		
15) Fluoranthene	11.467	202	16985m	25.19	ug/L	
16) Pyrene	11.694	202	17878	25.16	ug/L	# 58
17) Benzo (a) anthracene	12.889	228	9960	17.23	ug/L	# 1
19) Chrysene	12.924	228	12735m	23.90	ug/L	
20) benzo (b) fluoranthene	13.904	252	12368	29.03	ug/L	# 1
21) benzo (k) fluoranthene	13.930	252	6490m	12.20	ug/L	
22) benzo (a) pyrene	14.221	252	8866m	21.00	ug/L	
24) Indeno(1,2,3-cd)pyrene	15.544	276	7793m	24.01	ug/L	
25) Dibenz (a,h) anthracene	0.000		0	N.D.		
26) Benzo (g,h,i) perylene	15.919	276	23657	72.19	ug/L	# 1

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

DBPAH111612.M Mon Nov 19 15:04:52 2012 PAH

File :D:\Data\SVOC\111612\111620.D
Operator :
Acquired : 16 Nov 2012 6:06 pm using AcqMethod DBPAH111412.M
Instrument : HP-MSD
Sample Name: 1211095-OC1ADUP
Misc Info : DJP O-PAH-S-SIM
Vial Number: 19



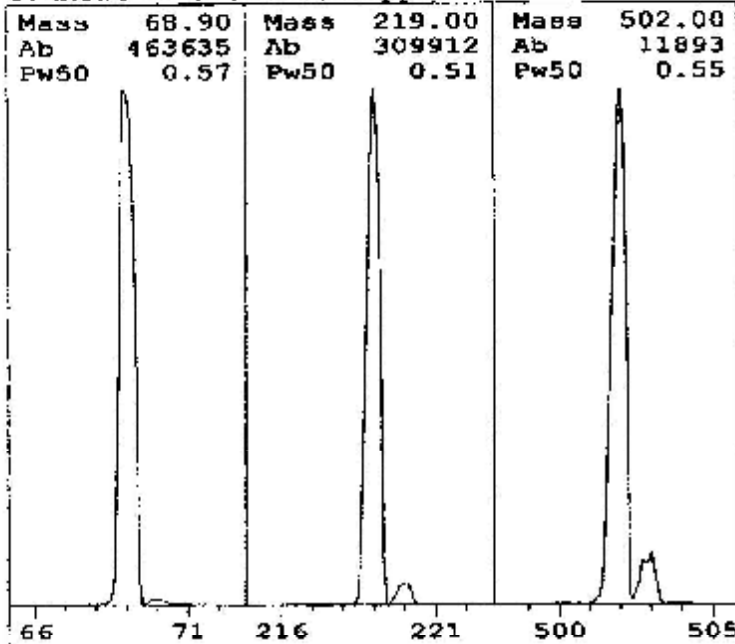
5975 DFTPP Dynamic Target Tune

Fri Nov 16 09:48:03 2012

Instrument: HP-MSD

C:\MSDCHEM\1\5975\dftpp.u

US11173714

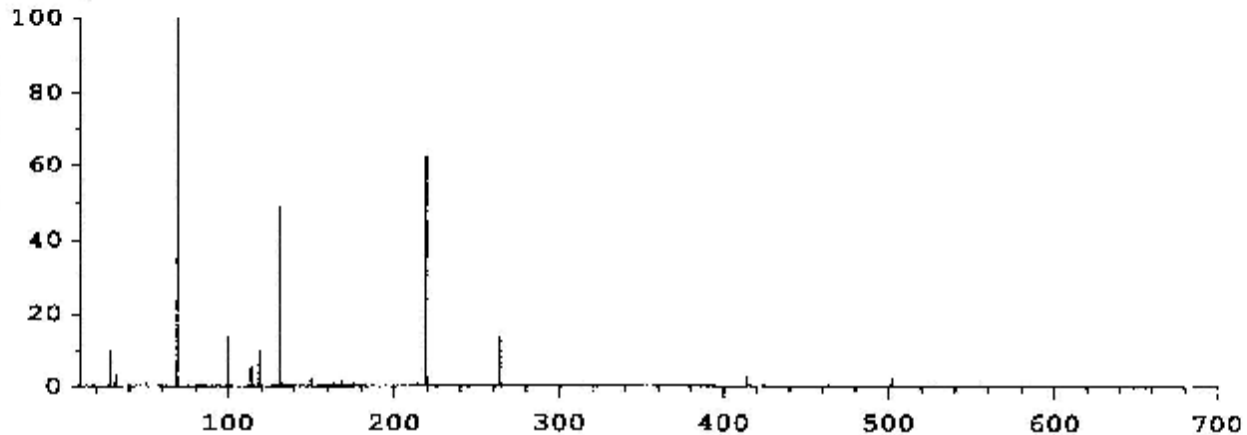


Ion Pol Pos MassGain -621
 MassOffs -40
 Emission 34.6 AmuGain 2043
 EI Energy 69.9 AmuOffs 124.06
 Filament 2 Wid219 -0.025
 DC Pol Pos
 Repeller 16.89
 IonFocus 59.8 HEDENab On
 EntLens 0.0 EMVolts 2188
 EntOffs Var

PFTBA Open Samples 8
 Averages 3
 Stepsize 0.10

Temperatures and Pressures:
 MS Source 230 TurboSpd 100
 MS Quad 150 HiVac 1.32e05

Scan: 10.00 - 701.00 Samples: 8 Thresh: 100 Step: 0.10
 123 peaks Base: 69.00 Abundance: 447808



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	447808	100.00	70.00	4418	0.99
219.00	280640	62.67	220.00	12151	4.33
502.00	9921	2.22	503.00	1059	10.67

Air/Water Check: H2O~0.77% N2~9.88% O2~3.10% CO2~0.17% N2/H2O~1289.42%

Column(1) Flow: 1.58 Column(2): -1.79769e+308 ml/min. Interface Temp: -

Ramp Criteria:

Ion Focus Maximum 90 volts using ion 502; EM Gain 254373
 Repeller Maximum 35 volts using ion 502; Gain Factor 2.54

MassGain Values(Samples): -607(3) -596(2) -579(1) -524(0) -454(FS)

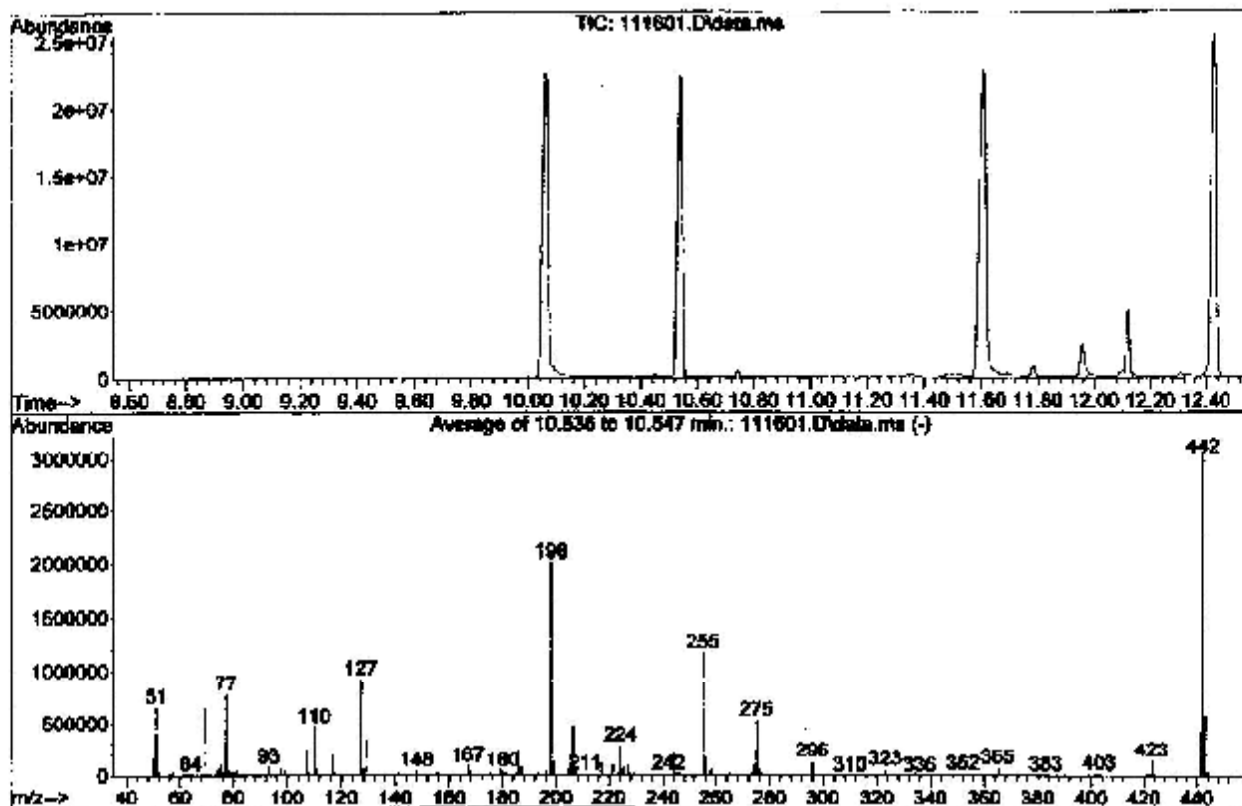
TARGET MASS:	50	69	131	219	414	502	1050
Amu Offset:	124.1	124.1	124.1	124.1	124.1	124.1	124.1
Entrance Lens Offset:	12.8	10.0	9.8	10.5	11.0	11.3	11.3
Target Abund(%):	1.0	100.0	45.0	55.0	2.4	2.0	
Actual Tune Abund(%):	1.0	100.0	48.9	62.7	2.8	2.2	

DFTPP

Data Path : D:\Data\SVOC\111612\
 Date File : 111601.D
 Acq On : 16 Nov 2012 10:06 am
 Operator :
 Sample : TUNE CHECK
 Misc : CCV O-PAH-S-SIM
 ALS Vial : 51 Sample Multiplier: 1

Integration File: RTEINTSG8270.P

Method : C:\msdchem\1\methods\QSVOC110612.M
 Title : Semivol
 Last Update : Fri Nov 09 14:53:34 2012



AutoFind: Scans 1392, 1393, 1394; Background Corrected with Scan 1383

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn	Raw Abn	Result Pass/Fail
51	198	10	80	32.7	657923	PASS
68	69	0.00	2	1.4	9144	PASS
69	198	0.00	100	32.4	652004	PASS
70	69	0.00	2	0.5	3244	PASS
127	198	10	80	46.1	926827	PASS
197	198	0.00	2	0.5	10036	PASS
198	198	100	100	100.0	2011989	PASS
199	198	5	9	6.8	136264	PASS
275	198	10	60	26.6	534869	PASS
365	198	1	100	4.1	81760	PASS
441	442	0.01	24	14.0	430485	PASS
442	198	50	999	152.3	3064661	PASS
443	442	15	24	19.3	592597	PASS

文件 编辑 格式 工具 窗口 帮助 数据库

数据库:

名称	格式	EM	BDel
111900D			
111901D			
111902D			
111903D			
111907D			
111908D			
111910D			
111912D			
111913D			
111914D			
111916D			
111917D			
111918D			

选择数据:

数据库:

名称:

格式:

EM:

BDel:

数据库:

#	Compound Name
59	4-(2-amino-2-methylpropano-
60	Diphenylene
61	Agatharose
62	4-thiomo-phenyl-pyridyl-ethin
63	Tubamethanol (S-ep)
64	Hexaethylcobaltane
65	Proteinoliphenol
66	Phenylamine-ethin (118)
67	BEAETHINE
68	DOD
69	DOD
70	Phenylacetic
71	Anthracene
72	Cocaine
73	Dimethyl-pyridane
74	Fluorethene

数据库:

名称:

格式:

EM:

BDel:

数据库:

名称:

格式:

EM:

BDel:

数据库:

名称:

格式:

EM:

BDel:

数据库:

160: [unclear] 1.101

1.1758at 8 14 1241 1.1758

ready-428

1st Day 4248

225.42 182.60 1.17

271.60 92.60 0.372

287.00 87.12 1.112

241.22 83.89 2.116

160: [unclear] 1.101

1.1758at 8 14 1241 1.1758

ready-428

1st Day 4248

225.42 182.60 1.17

271.60 92.60 0.372

287.00 87.12 1.112

241.22 83.89 2.116

Subc	Task	Robot
59		
60		
61		
62		
63		
64		
65		
66		
67		
68		
69		
70		
71		
72		
73		

Subc	Task	Robot
59		
60		
61		
62		
63		
64		
65		
66		
67		
68		
69		
70		
71		
72		
73		

160: [unclear] 1.101

1.1758at 8 14 1241 1.1758

ready-428

1st Day 4248

225.42 182.60 1.17

271.60 92.60 0.372

287.00 87.12 1.112

241.22 83.89 2.116

160: [unclear] 1.101

1.1758at 8 14 1241 1.1758

ready-428

1st Day 4248

225.42 182.60 1.17

271.60 92.60 0.372

287.00 87.12 1.112

241.22 83.89 2.116

INTERNAL STANDARD AREA AND RT SUMMARY

RunID: GCMS-3_121119A CCV Name: CAL MID POINT
 Run No: 8617 CCV SeqNo: 131570
 Lab File ID (Standard): 111606.D Date Analyzed: 11/16/2012
 Instrument ID: GCMS-3 Time Analyzed: 12:20
 GC Column: ID (mm): Length (M):

	IS1 (14DCBZ)		IS2 Acenaphthene-d10		IS3 Chrysene-d12		IS4 Naphthalene-d8		
	AREA #	RT #	AREA #	RT #	AREA #	RT #	AREA #	RT #	
12 HOUR STD	298974	5.761	498588	8.768	765770	12.882	943243	7.032	
UPPER LIMIT	597948	5.881	997196	8.868	1531640	12.982	1886486	7.132	
LOWER LIMIT	149487	5.661	249289	8.666	382886	12.782	471822	6.932	
SAMPLE NO.									
01	ICV-3638	268629	5.761	480167	8.77	732015	12.882	915891	7.031
02	ICB-3638	283461	5.761	457532	8.77	666472	12.882	885761	7.031
03	MB-3638	255244	5.784	412719	8.788	605954	12.884	804063	7.028
04	LCS-3638	276368	5.784	461650	8.771	709202	12.882	886126	7.029
05	1210178-001A	303536	5.784	471252	8.773	628561	12.897	929804	7.032
06	1210178-001AMS	318861	5.786	508515	8.775	610737	12.904	1.00172e+006	7.033
07	1211093-001A	283824	5.786	491331	8.775	654989	12.895	945875	7.034
08	1211095-001A	287033	5.786	509057	8.773	643982	12.898	960858	7.034
09	1211095-001ADUP	283878	5.788	469593	8.778	619023	12.9	926480	7.034

IS1 (14DCBZ) = 1,4-Dichlorobenzene-d4

IS2 Acenaphthene-d10 = Acenaphthene-d10

IS3 Chrysene-d12 = Chrysene-d12

IS4 Naphthalene-d8 = Naphthalene-d8

AREA UPPER LIMIT = +100% of Internal standard area

AREA LOWER LIMIT = -50% of Internal standard area

RT UPPER LIMIT = +0.10 minutes of internal standard RT

RT LOWER LIMIT = -0.10 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.

* Values outside of QC limits.

INTERNAL STANDARD AREA AND RT SUMMARY

RunID: GCMS-3_121118A CCV Name: CAL MID POINT
 Run No: 8617 CCV SeqNo: 131878
 Lab File ID (Standard): 111806.D Date Analyzed: 11/16/2012
 Instrument ID: GCMS-3 Time Analyzed: 12:20
 GC Column: ID (mm): Length (M):

		S5 Perylene-d12		5 Phenanthrene-d10					
		AREA #	RT #	AREA #	RT #				
12 HOUR STD		710991	14.247	776989	10.248				
UPPER LIMIT		1421862	14.347	1553978	10.348				
LOWER LIMIT		355495	14.147	388495	10.148				
SAMPLE NO.									
01	ICV-3839	670042	14.247	747607	10.246				
02	ICB-3639	547711	14.247	721921	10.245				
03	MB-3839	482604	14.247	658737	10.247				
04	LCS-3839	536985	14.249	725020	10.248				
05	1210176-001A	585557	14.285	711837	10.253				
06	1210176-001AMS	556032	14.294	747835	10.258				
07	1211093-001A	586970	14.288	750169	10.255				
08	1211095-001A	548759	14.28	779620	10.253				
09	1211095-001ADUP	520807	14.283	741320	10.255				

IS5 Perylene-d12 = Perylene-d12

IS6 Phenanthrene-d10 = Phenanthrene-d10

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = -50% of internal standard area

RT UPPER LIMIT = +0.10 minutes of internal standard RT

RT LOWER LIMIT = -0.10 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.

* Values outside of QC limits.

Oven
Temp (C): 105

Time in: 14:30
Time out: 17:30

Analyst
Date and Time

AO
11/15/2012
14:00

Tin #	SAMPLE ID	SAMP TYPE	Testcode	Initial Weight	Final Weight 1	Calculated wt	ANALYSIS DATE	Analyte
1	1211088-001B	SAMP	PMOIST	11.4100	10.6400	6.7485	11/15/12 13:43	Percent Moisture
2	1211088-002B	SAMP	PMOIST	11.0100	8.8000	20.0727	11/15/12 13:43	Percent Moisture
3	1211088-003B	SAMP	PMOIST	14.3600	13.0000	9.4708	11/15/12 13:43	Percent Moisture
4	1211088-004B	SAMP	PMOIST	11.6200	10.4100	10.4131	11/15/12 13:43	Percent Moisture
5	1211088-005B	SAMP	PMOIST	10.9800	10.2900	6.2842	11/15/12 13:43	Percent Moisture
6	1211088-006B	SAMP	PMOIST	10.7800	9.7100	9.9258	11/15/12 13:43	Percent Moisture
7	1211088-007B	SAMP	PMOIST	10.2600	8.3300	18.8109	11/15/12 13:43	Percent Moisture
8	1211088-008B	SAMP	PMOIST	11.3300	10.0400	11.3857	11/15/12 13:43	Percent Moisture
9	1211093-001A	SAMP	PMOIST	11.9700	10.0800	15.7895	11/15/12 13:43	Percent Moisture
10	1211095-001A	SAMP	PMOIST	10.4300	8.2800	20.6136	11/15/12 13:43	Percent Moisture
11	1211098-001B	SAMP	PMOIST	12.8400	11.9100	7.2430	11/15/12 13:43	Percent Moisture
12	1211098-002B	SAMP	PMOIST	10.7700	10.1000	6.2210	11/15/12 13:43	Percent Moisture
13	1211098-003B	SAMP	PMOIST	12.0500	11.0300	8.4647	11/15/12 13:43	Percent Moisture
14	1211098-004B	SAMP	PMOIST	13.1000	12.5300	4.3511	11/15/12 13:43	Percent Moisture
15	1211098-005B	SAMP	PMOIST	11.1600	9.6100	13.8889	11/15/12 13:43	Percent Moisture
20	1211106-001A	SAMP	PMOIST	10.2300	9.5000	7.1359	11/15/12 13:43	Percent Moisture
21	1211106-002A	SAMP	PMOIST	12.1400	11.8300	2.5535	11/15/12 13:43	Percent Moisture
22	1211106-003A	SAMP	PMOIST	12.5700	11.6900	7.0008	11/15/12 13:43	Percent Moisture
23	1211106-004A	SAMP	PMOIST	10.6100	10.0900	4.9010	11/15/12 13:43	Percent Moisture
24	1211106-005A	SAMP	PMOIST	11.4100	10.6500	6.6608	11/15/12 13:43	Percent Moisture
25	1211106-006A	SAMP	PMOIST	12.2300	11.7500	3.9248	11/15/12 13:43	Percent Moisture
26	1211106-007A	SAMP	PMOIST	11.4500	10.0800	11.9651	11/15/12 13:43	Percent Moisture
27	1211106-008A	SAMP	PMOIST	11.9000	11.1300	6.4706	11/15/12 13:43	Percent Moisture
28	1211106-009A	SAMP	PMOIST	12.2200	10.9500	10.3928	11/15/12 13:43	Percent Moisture
29	1211108-001A	SAMP	PMOIST	11.3800	10.0400	11.7750	11/15/12 13:43	Percent Moisture
30	1211108-002A	SAMP	PMOIST	10.1600	8.4700	16.6339	11/15/12 13:43	Percent Moisture

Oven Temp (C): 105

Time in: 14:30

Time out: 17:30

Analyst Date and Time

AO 11/15/2012 14:00

Tin #	SAMPLE ID	SAMP TYPE	Testcode	Initial Weight	Final Weight 1	Calculated wt	ANALYSIS DATE	Analyte
31	1211108-003A	SAMP	PMOIST	11.1300	9.7800	12.1294	11/15/12 13:43	Percent Moisture
32	1211108-004A	SAMP	PMOIST	11.5200	9.9100	13.9757	11/15/12 13:43	Percent Moisture
33	1211108-005A	SAMP	PMOIST	11.8100	10.5600	10.5843	11/15/12 13:43	Percent Moisture
34	1210141-032B	SAMP	PMOIST	11.1300	8.7500	21.3836	11/15/12 14:43	Percent Moisture



Libby Environmental, Inc.

4139 Libby Road NE • Olympia, WA 98506-2518

November 12, 2012

Neil Morton
GeoEngineers Inc.
600 Stewart Street, Suite 1700
Seattle, WA 98101

Dear Mr. Morton:

Please find enclosed the analytical data report for the Irondale Project located in Irondale, Washington. Soil samples were analyzed for Diesel & Oil by NWTPH-Dx/Dx Extended with Silica Gel Clean Up, Metals Arsenic, Copper, Iron, Lead, Nickel and Zinc by EPA Method 6020 and Metals Arsenic and Lead by EPA Method 6020 with EPA Method 1311 Extraction (TCLP) on October 25 & 26, 2012.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. All soil samples are reported on a dry weight basis. An invoice for this analytical work is enclosed.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Jamie L. Deyman
President
Libby Environmental, Inc.

Phone (360) 352-2110 • Fax (360) 352-4154 • libbyenv@aol.com

www.LibbyEnvironmental.com



Libby Environmental, Inc.

Case Narrative

Libby Project #: L121024-8
Date: 11-12-2012

CLIENT: GeoEngineers, Inc.
PROJECT: Irondale

I. SAMPLE RECEIPT:

All samples were received intact and in good condition. See the attached Sample Receipt Check List for more information.

II. GENERAL REPORTING COMMENTS:

Final results are reported on a dry weight basis. The soil samples in the field are estimated to have a moisture content of 15%. This estimate is useful in producing data that is close to the actual value. After the sample is analyzed for soil moisture at our fixed base facility, the final data is reported based on measured soil moisture. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS), the Laboratory Control Sample Duplicate (LCSD) and the Method Blank (MB). The LCS, LCSD and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) and/or noted below.

Notes:

The Chain of Custody did not indicate Silica Gel clean up and our staff did not recognize the oversight until the data was in review. Silica Gel clean up was performed on all soil extracts and all samples were analyzed on 10-26-2012. All results were substantially the same and the Silica Gel data will be reported as the final data.

1027

Libby Environmental, Inc.

Chain of Custody Record

4139 Libby Road NE Olympia, WA 98506
 Ph: 360-352-2110 Fax: 360-352-4154

Date: 10/23 Page: 1 of 1

Client: GEOENGINEERS

Project Manager: NEIL MORTON

Address: 1101 S Fawcett Ave Suite 200

Project Name: IRONDALE

City: TACOMA State: WA Zip: 98402

Location: IRONDALE City, State: IRONDALE WA

Phone: 253 383 4940 Fax: _____

Collector: PAUL ROBOLETTE Date of Collection: 10/23 - 10/24

Client Project # 0504-042-02

Email: nmorton@ggeengineers.com

Sample Number	Depth	Time	Sample Type	Container Type	Analytes													Field Notes	
					VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEMI VOL 8270	NWTPH-HCID	NWTPH-GX	NWTPH-DX	PAH 8270	PCB's 8082	MTCA 5 Metals	MEALS	TCLP Arsenic, Lead			
1 MRZ-B2-102312	11	1244	SOIL	4oz															
2 MRZ-B3-102312	11	1300	SOIL	2 4oz															
3 MRZ-ES02-102312	9	1307	SOIL	2 4oz															
4 TP8-stockpile	1	1100	SOIL	4oz															
5 MRZ-B1-102412	7	1120	"	"										X					Arsenic, Lead, TCLP
6 MRZ-B2-102412	7	1125	"	"									X						
7 MRZ-B3-102412	7	1130	"	"									X						
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			
16																			
17																			

Relinquished by: <u>[Signature]</u> Date / Time: <u>11/24 1130</u>	Received by: <u>[Signature]</u> Date / Time: <u>10/24/12 11:37am</u>	Sample Receipt: <u>Y</u>	Remarks: Analyze for: ARSENIC, COPPER, IRON, LEAD, NICKEL, ZINC TAT: <u>24HR</u> 48HR 5-DAY
Relinquished by: _____ Date / Time: _____	Received by: _____ Date / Time: _____	Good Condition? <u>Y</u>	
Relinquished by: _____ Date / Time: _____	Received by: _____ Date / Time: _____	Cold? <u>7.7°</u> <u>Y</u>	
Relinquished by: _____ Date / Time: _____	Received by: _____ Date / Time: _____	Seals Intact? <u>N/A</u>	

Libby Environmental, Inc. Login Sample Receipt Check List

Client: GeoEngineers, Inc. **Libby Project Number:** L121024-8

Question	T / F / NA	Comment
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler temperature is acceptable.	True	
Cooler temperature is recorded.	True	7.7°C
COC is present.	True	
COC is filled out in ink and is legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within the Hold Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs.	True	
VOA sample vials do not have headspace or bubble is less than 6mm (1/4 in.) in diameter.	True	
If necessary, staff has been informed of any short hold time or quick TAT needs.	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	

Libby Environmental, Inc.

4139 Libby Road NE
Olympia, WA 98506
Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@aol.com

IRONDALE PROJECT
GeoEngineers, Inc.
Irondale, Washington
Libby Project # L121024-8
Client Project # 0405-042-02

Analyses of Diesel & Oil Range (NWTPH-Dx/Dx Extended) in Soil w/ Silica Gel Cleanup

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Bunker C (mg/kg)
Method Blank	10/26/12	81	nd	nd
LCS	10/26/12	int	97%	nd
LCSD	10/26/12	int	92%	nd
MRZ-B2-102312	10/26/12	75	nd	nd
MRZ-B2-102312 Dup	10/26/12	72	nd	nd
MRZ-B3-102312	10/26/12	77	nd	nd
MRZ-ESW2-102312	10/26/12	76	nd	nd
Practical Quantitation Limit			25	40

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Kyle Williams

Analysis date: 10/26/2012 12:05:06
 Method:
 Description: Jamaica Ch 3
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C360.CHR ()
 Sample: 500 ppm Dx 791
 Operator: KW

Analysis date: 10/26/2012 12:05:00
 Method:
 Description: Jamaica Ch 4
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D358.CHR ()
 Sample: 500 ppm Dx 791
 Operator: KW

Temperature program:

Init temp Hold Ramp Final temp

Events:

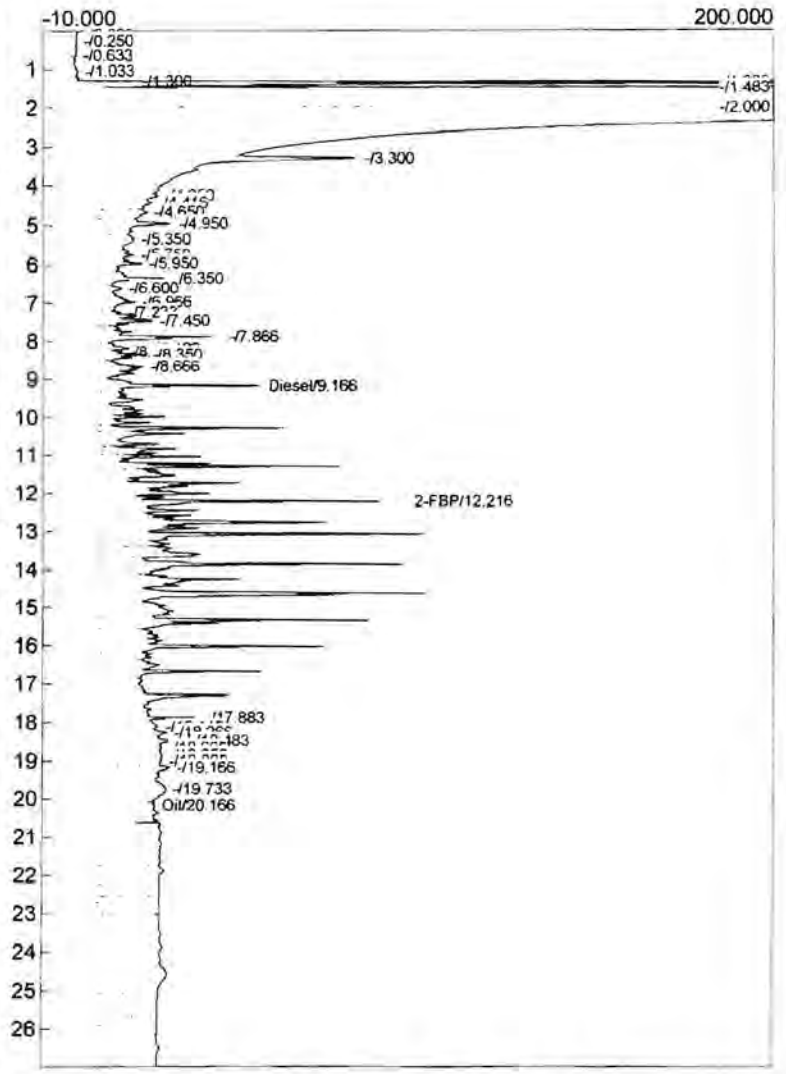
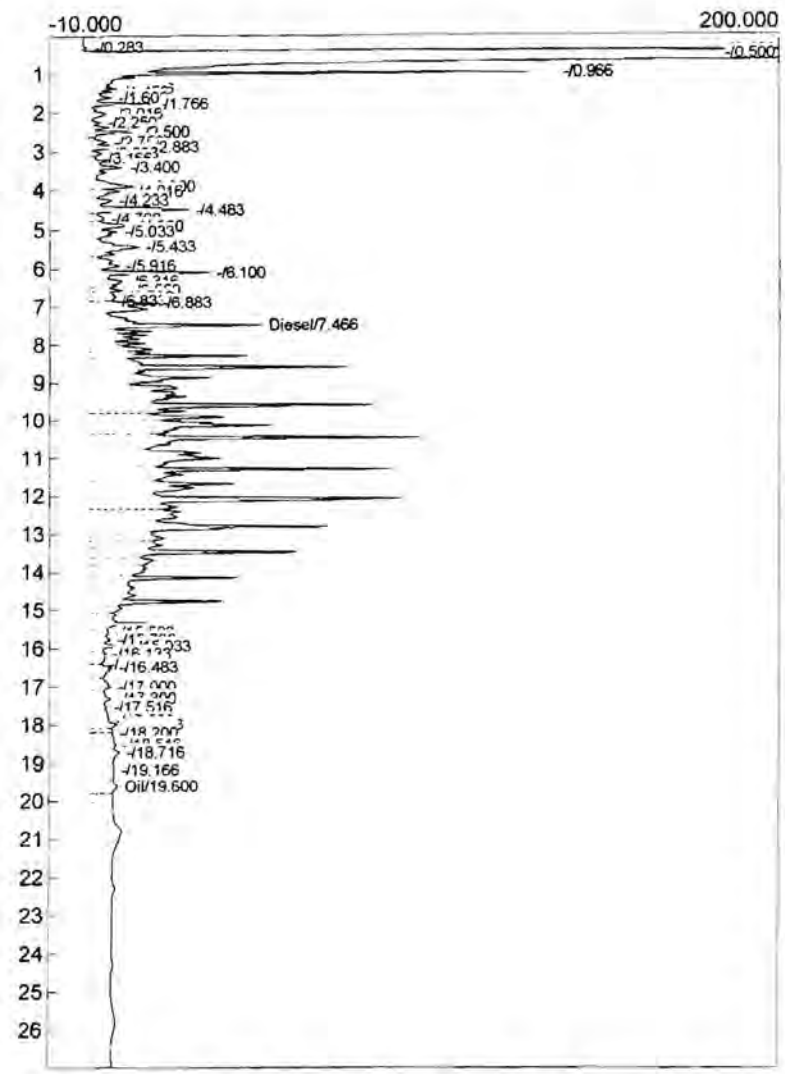
Time Event
 0.000 ZERO

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
iesel	7.466	10618.4460	48.821	523.2803	ppm
il	19.600	2722.3890	7.274	133.8431	ppm
		13340.8350		657.1234	

Component	Retention	Area	Height	External	Units
Diesel	9.166	9492.5540	46.200	504.0300	
2-FBP	12.216	421.1705	88.347	14.8494	ppm
Oil	20.166	7059.4435	15.797	373.9678	ppm
		16973.1680		892.6473	

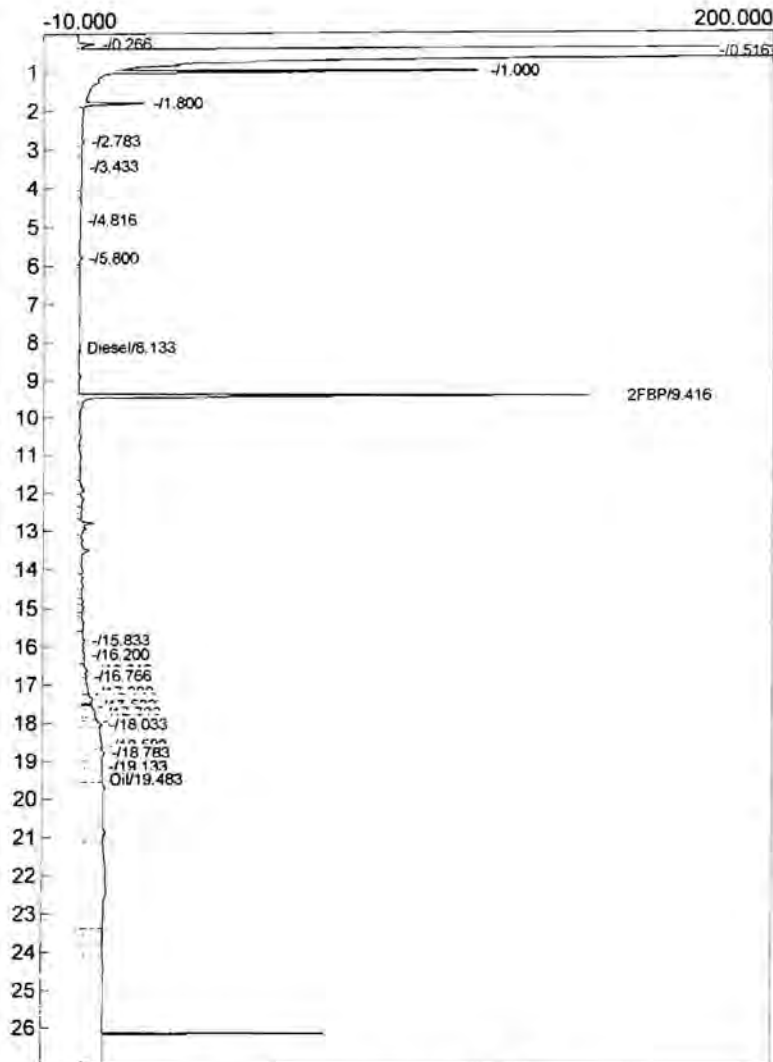
Method:
 Description: Jamaica Ch 3
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C361.CHR ()
 Sample: MB
 Operator: KW

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
iesel	8.133	553.4490	0.289	27.2097	ppm
2-BP	9.416	463.7530	155.972	16.1305	ppm
il	19.483	2726.8230	5.228	134.0513	ppm
		3743.8250		177.3915	

81%

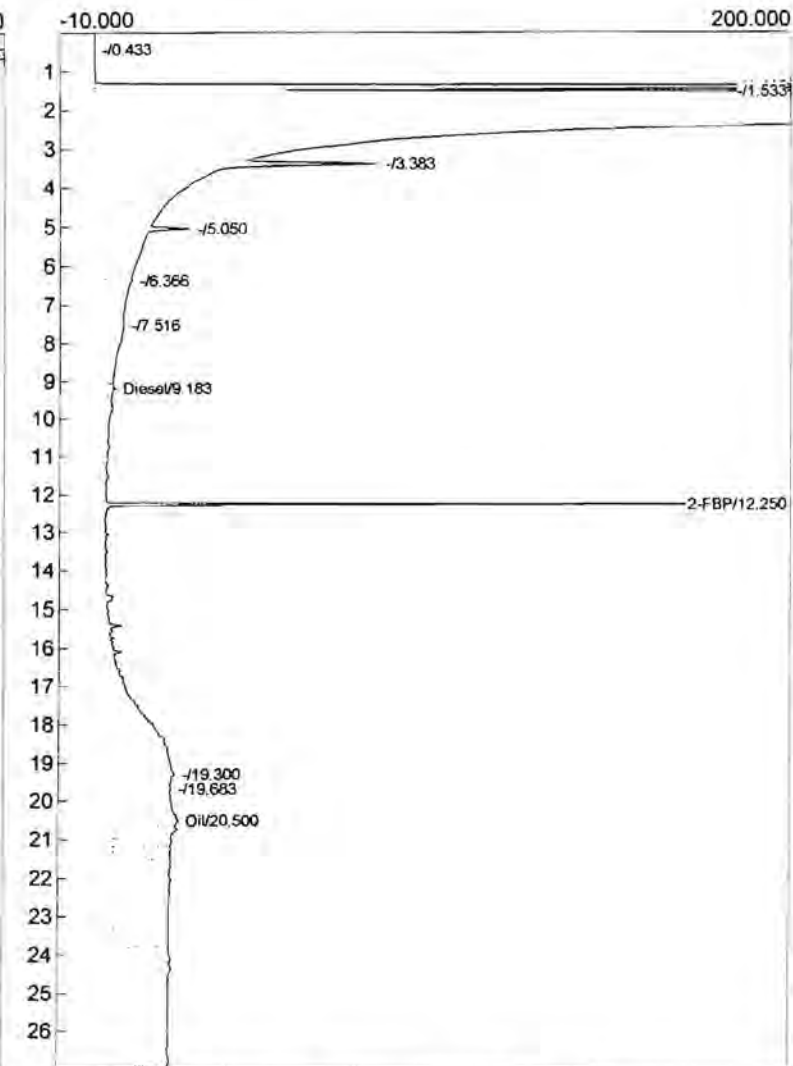
Method:
 Description: Jamaica Ch 4
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D359.CHR ()
 Sample: MB
 Operator: KW

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	9.183	505.6890	0.944	26.7047	
2-FBP	12.250	403.8460	188.170	14.0399	ppm
Oil	20.500	7077.5750	18.637	374.9318	ppm
		7986.9100		415.6764	

70%

Analysis date: 10/26/2012 13:17:38

Method:

Description: Jamaica Ch 3

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: C362.CHR ()

Sample: LCS

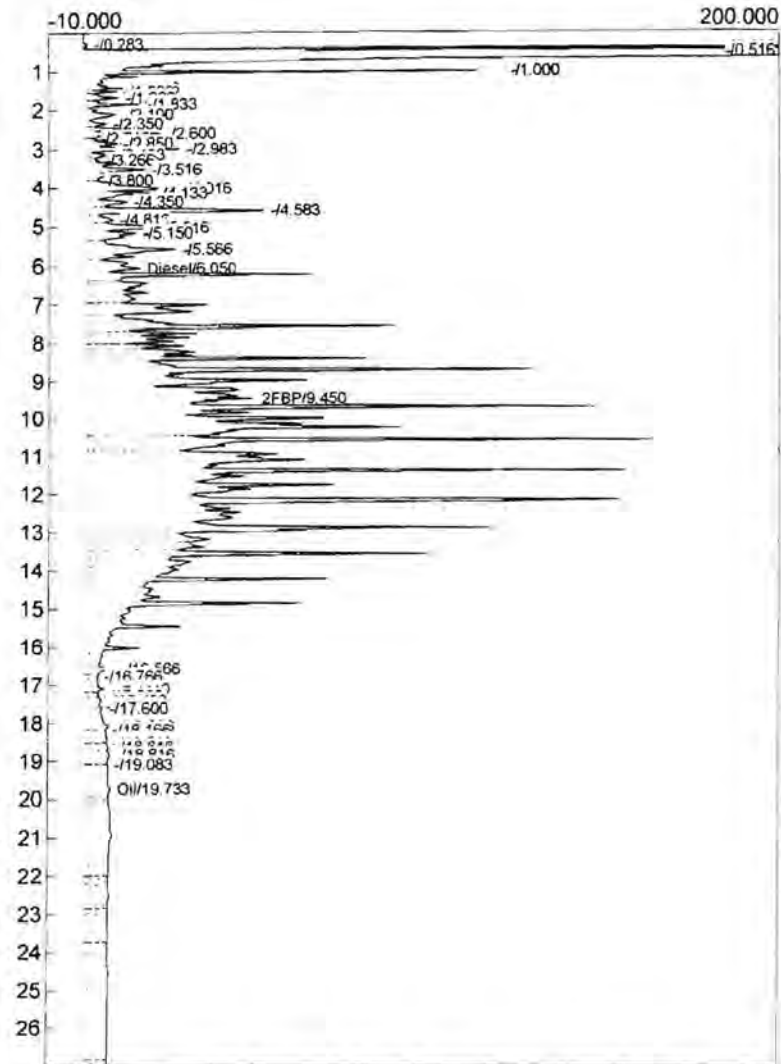
Operator: KW

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
0.00 ZERO



Component	Retention	Area	Height	External	Units
iesel	6.050	19581.5390	14.431	967.8864	ppm
2FBP	9.450	632.3645	47.659	21.9953	ppm
Oil	19.733	2798.0720	6.320	137.5640	ppm
		23011.9755		1127.4456	

99%

Analysis date: 10/26/2012 13:17:38

Method:

Description: Jamaica Ch 4

Column: Restek Rtx-5 30x0.53x1.5

Carrier: He

Data file: D360.CHR ()

Sample: LCSD

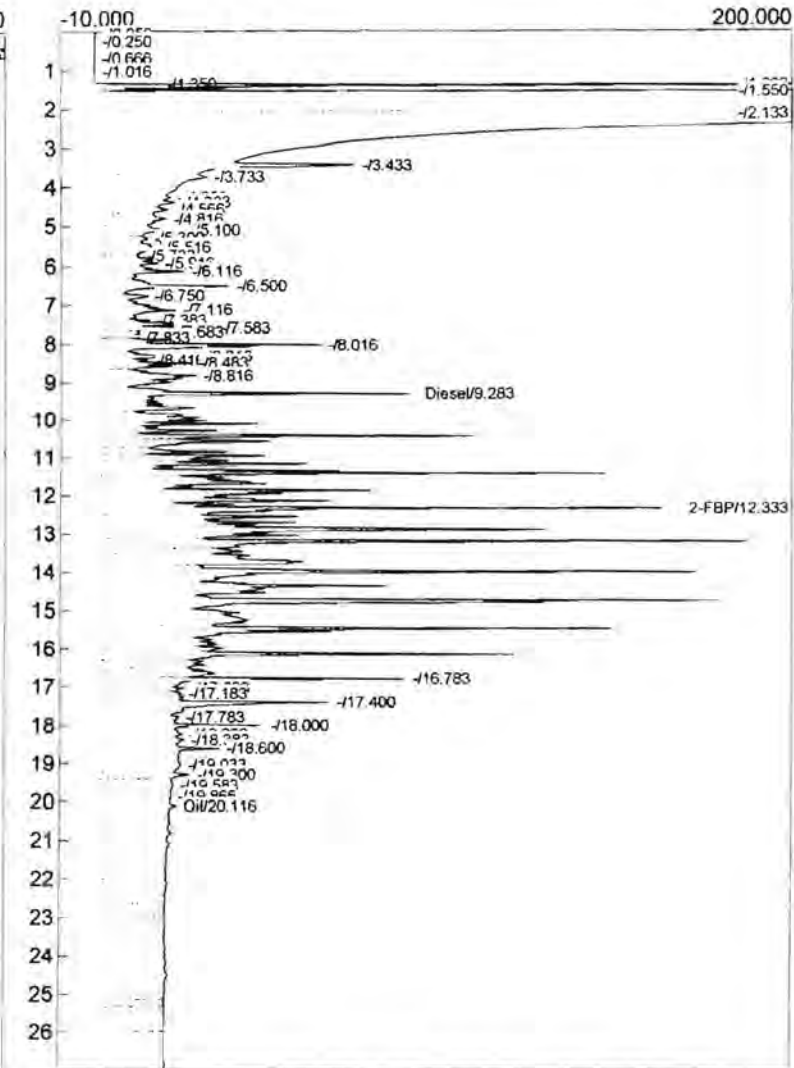
Operator: KW

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	9.283	17263.0840	90.097	923.0094	
2-FBP	12.333	943.7820	173.874	32.8272	ppm
Oil	20.116	7617.9950	21.071	403.6886	ppm
		25824.8610		1359.5252	

96%

Lab Name: Lobby Environmental
 Analysis date: 10/26/2012 14:07:09
 Method:
 Description: Jamaica Ch 3
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C363.CHR ()
 Sample: MRZ-NSW2-102212
 Operator: KW

Analysis date: 10/26/2012 14:07:09
 Method:
 Description: Jamaica Ch 4
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D361.CHR ()
 Sample: MRZ-NSW2-102212 Dup
 Operator: KW

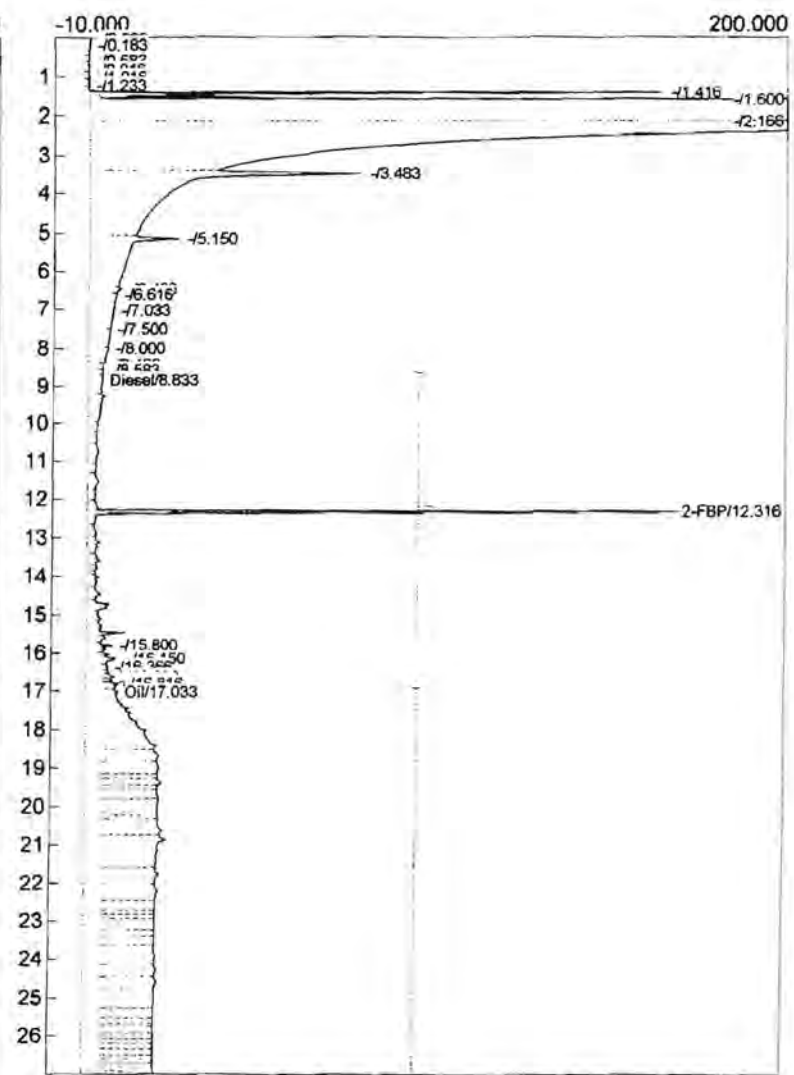
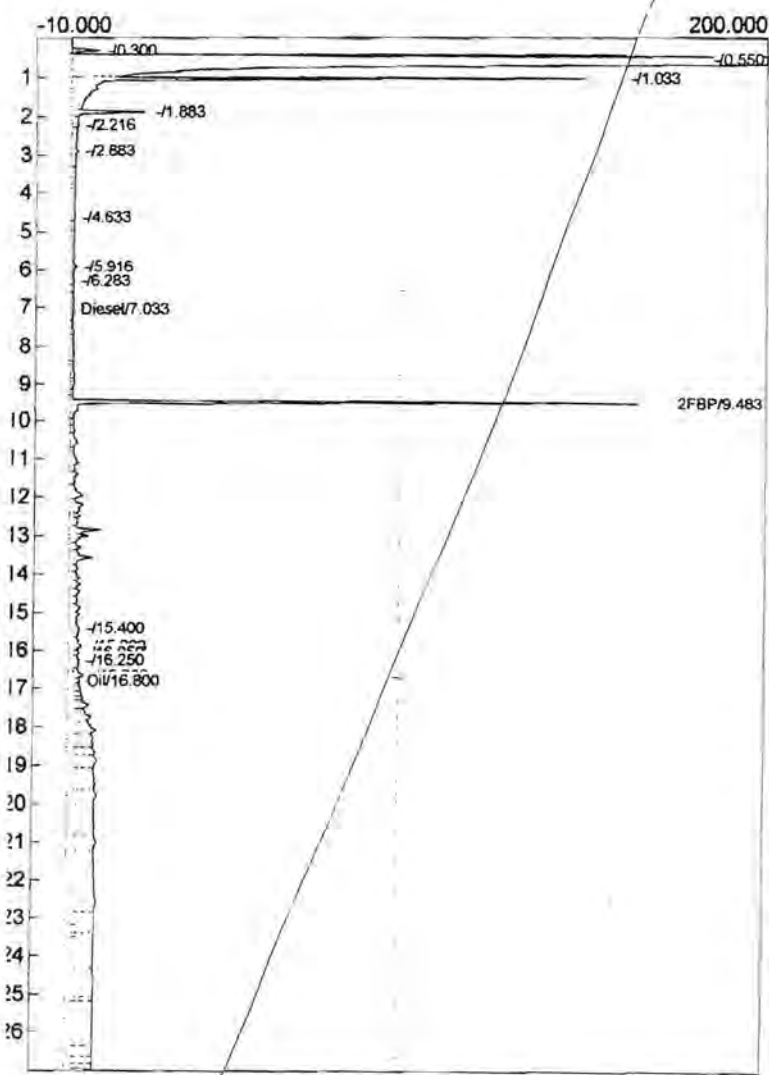
MRZ-B2-102312 dup

Temperature program:

temp	Hold	Ramp	Final temp
0			
00			
Event			
ZERO			

Temperature program:

Init temp	Hold	Ramp	Final temp
0			
0.000			
Event			
ZERO			



Component	Retention	Area	Height	External	Units
sel	7.033	660.9220	0.122	32.4935	ppm
3P	9.483	496.7280	177.669	17.2775	ppm
	16.800	2773.2015	0.367	136.3413	ppm
		3930.8515		186.1122	

Component	Retention	Area	Height	External	Units
Diesel	8.833	579.0270	0.267	30.5775	
2-FBP	12.316	415.2980	174.502	14.4451	ppm
Oil	17.033	8071.7770	3.126	427.9787	ppm
		9066.1020		473.0014	

86%

NO

72%

NO

Lab Name: Libby Environmental
 Analysis date: 10/26/2012 15:12:12
 Method:
 Description: Jamaica Ch 3
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C365.CHR ()
 Sample: MRZ-ESW1-102312
 Operator: KW

Lab Name: Libby Environmental
 Analysis date: 10/26/2012 15:12:12
 Method:
 Description: Jamaica Ch 4
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D363.CHR ()
 Sample: MRZ-B2-102312
 Operator: KW

Temperature program:

Temperature program:

temp Hold Ramp Final temp

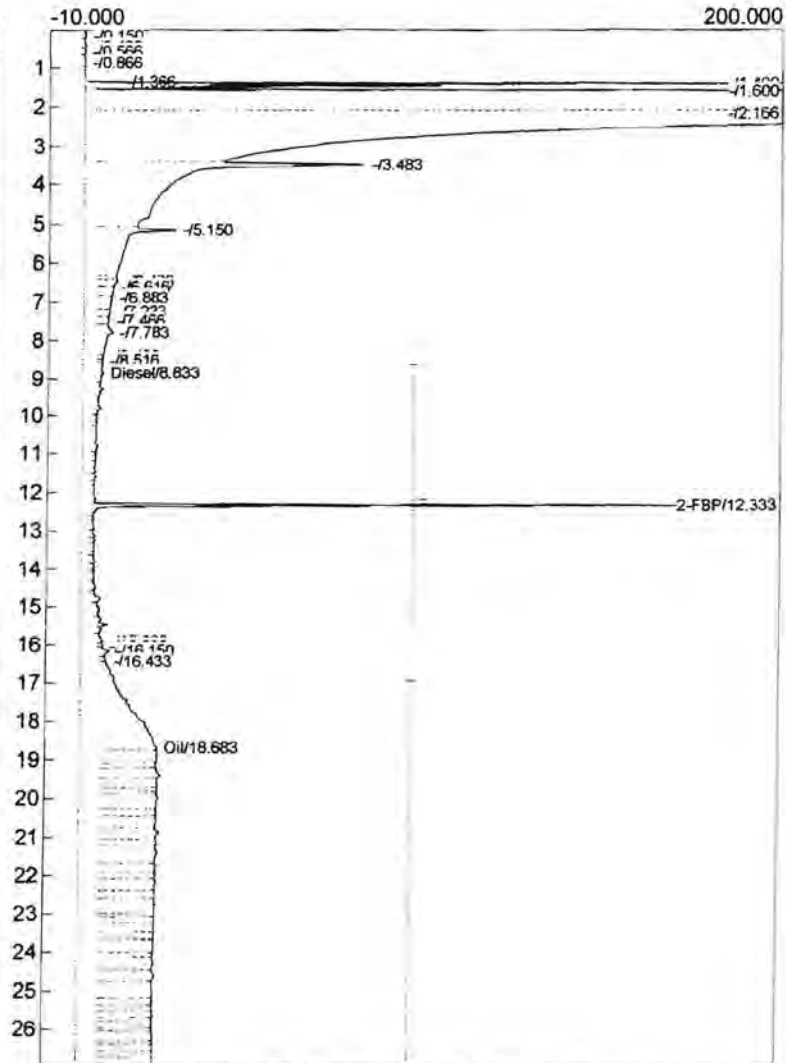
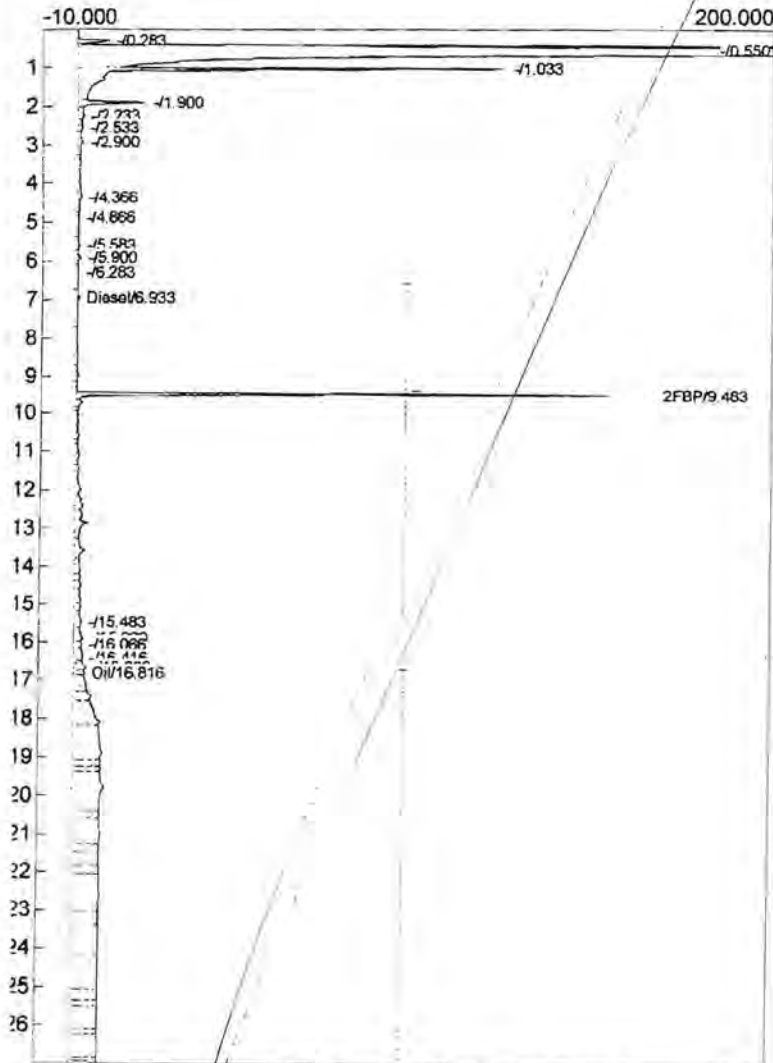
Init temp Hold Ramp Final temp

Events:

Events:

Time Event
 0.000 ZERO

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
3F	6.933	533.3440	0.391	26.2212	ppm
	9.483	454.4030	166.577	15.8053	ppm
	16.816	3406.7105	1.275	167.4870	ppm
		4394.4575		209.5136	

Component	Retention	Area	Height	External	Units
Diesel	8.833	543.1260	0.651	28.6817	
2-FBP	12.333	428.4860	191.517	14.9039	ppm
Oil	18.683	8497.8595	15.422	450.7860	ppm
		9469.4715		494.3716	

797.
 NO

757
 NO

Analysis date: 10/26/2012 15:50:56
 Method:
 Description: Jamaica Ch 3
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C366.CHR ()
 Sample: MRZ-B3-102312
 Operator: KW

Analysis date: 10/26/2012 15:50:56
 Method:
 Description: Jamaica Ch 4
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D364.CHR ()
 Sample: MRZ-ESW2-102312
 Operator: KW

Temperature program:

Temperature program:

Init temp Hold Ramp Final temp

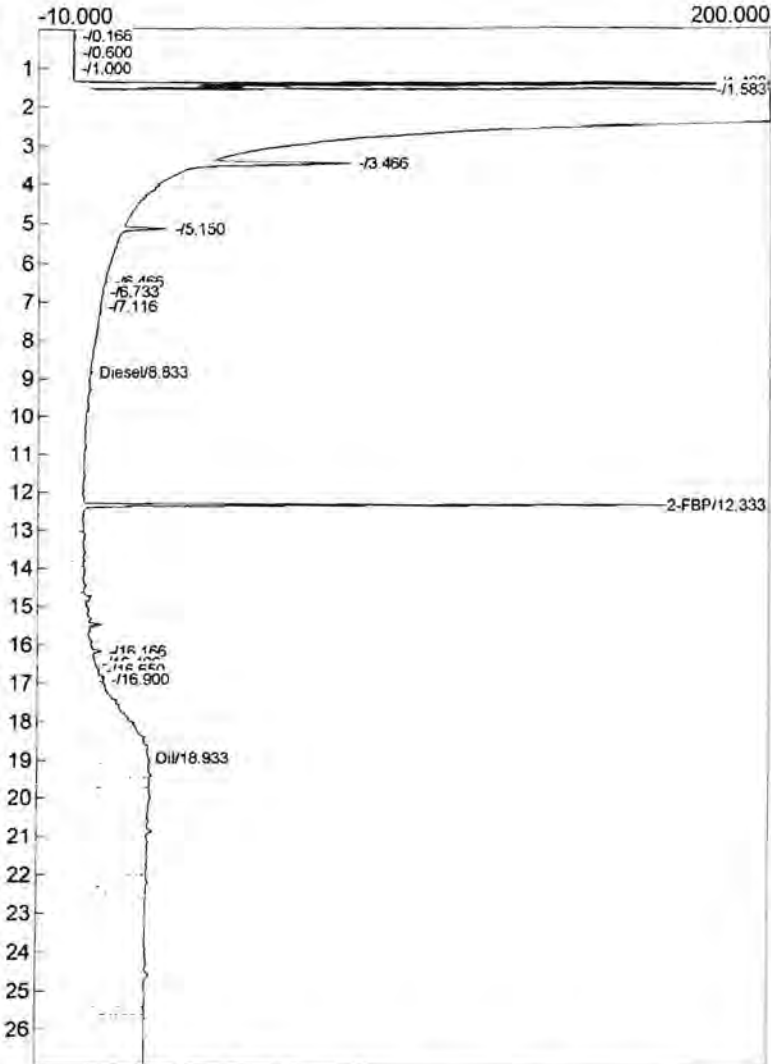
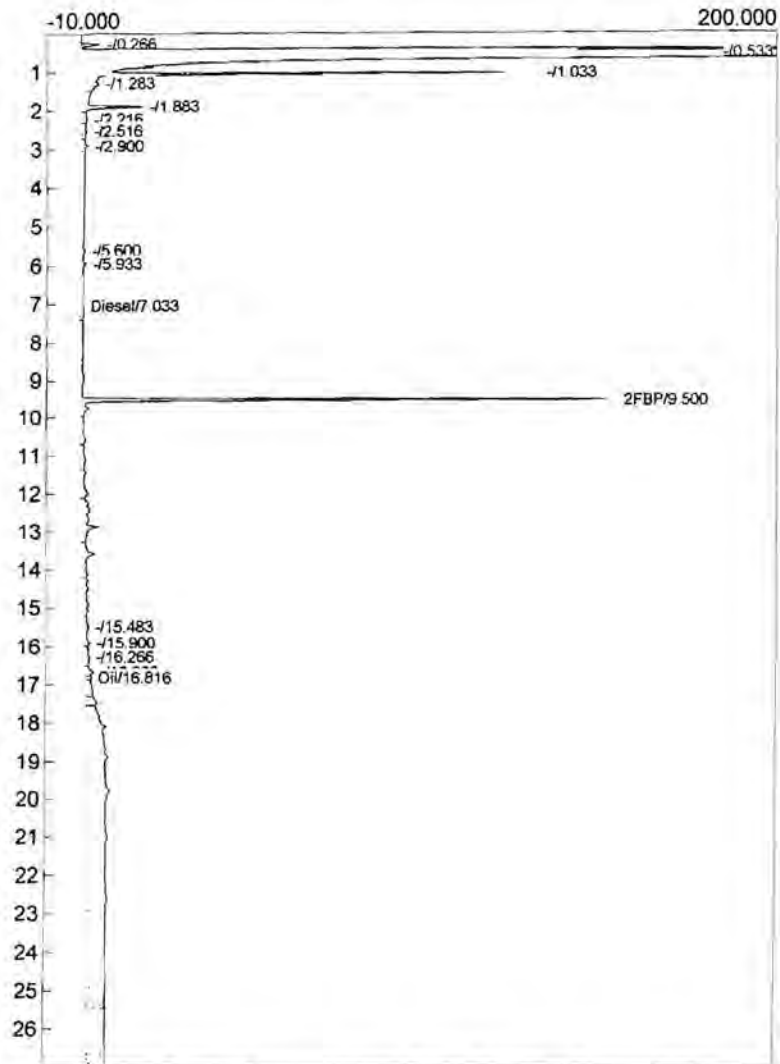
Init temp Hold Ramp Final temp

Events:

Events:

Time Event
 0.000 ZERO

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	7.033	546.0890	0.120	26.8478	ppm
FBP	9.500	442.0780	153.327	15.3766	ppm
Oil	16.816	2819.8610	0.453	138.6352	ppm
		3808.0280		180.8597	

Component	Retention	Area	Height	External	Units
Diesel	8.833	527.0920	0.621	27.8349	
2-FBP	12.333	439.5860	172.061	15.2899	ppm
Oil	18.933	7567.4245	14.117	400.9817	ppm
		8534.1025		444.1066	

77%
 ND

76%
 ND

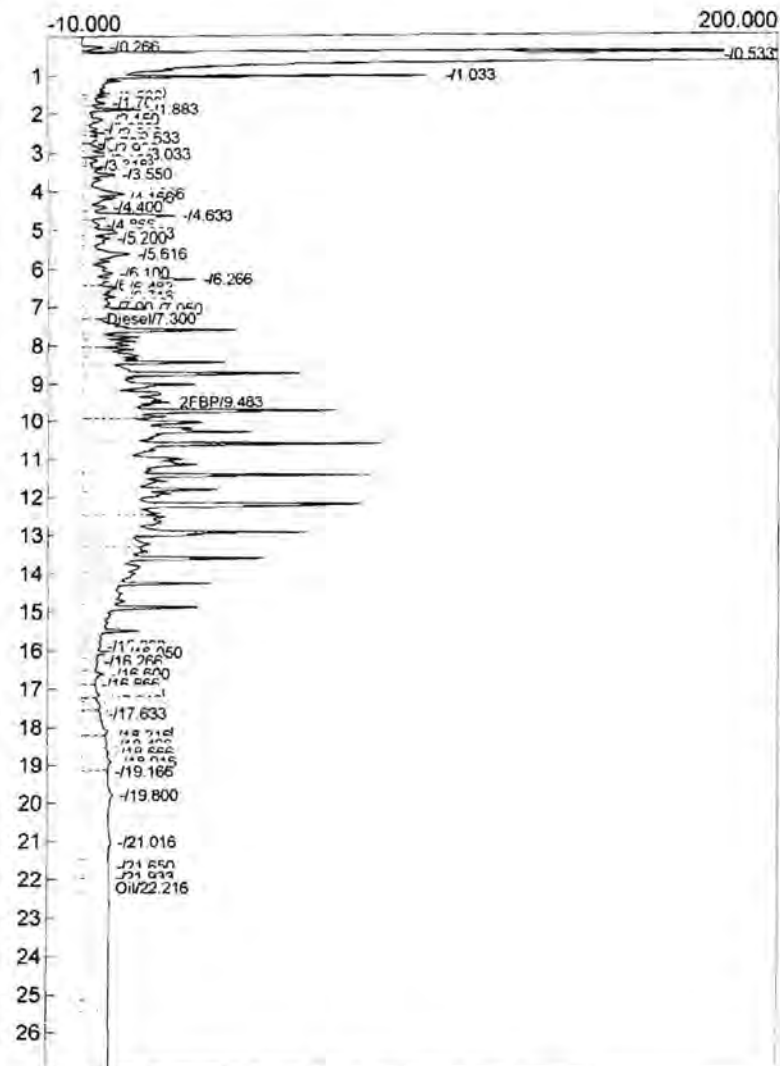
Analysis date: 10/26/2012 16:26:10
 Method:
 Description: Jamaica Ch 3
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: C367.CHR ()
 Sample: 500 ppm Dx 791
 Operator: KW

Temperature program:

Init temp Hold Ramp Final temp

Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
iesel	7.300	9507.7480	4.030	468.3700	ppm
2FBP	9.483	323.6960	25.122	11.2590	ppm
il	22.216	2186.5640	7.158	107.4999	ppm
		12018.0080		587.1289	

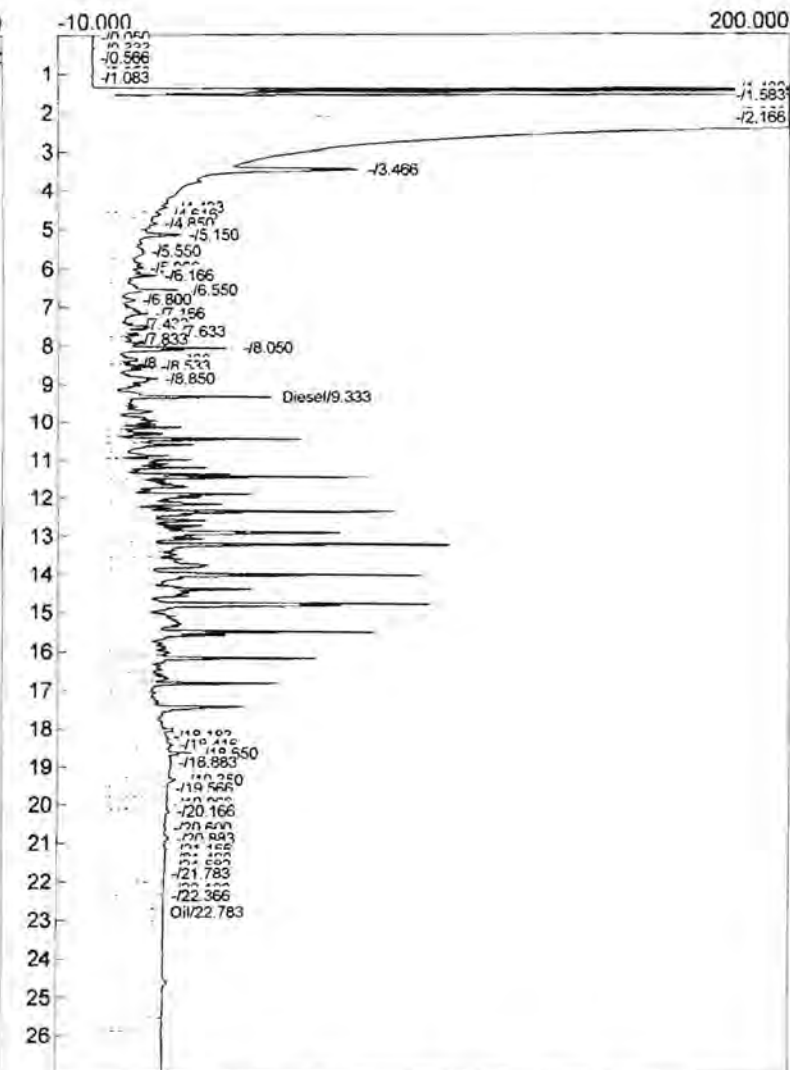
Analysis date: 10/26/2012 16:26:10
 Method:
 Description: Jamaica Ch 4
 Column: Restek Rtx-5 30x0.53x1.5
 Carrier: He
 Data file: D365.CHR ()
 Sample: 500 ppm Dx 791
 Operator: KW

Temperature program:

Init temp Hold Ramp Final temp

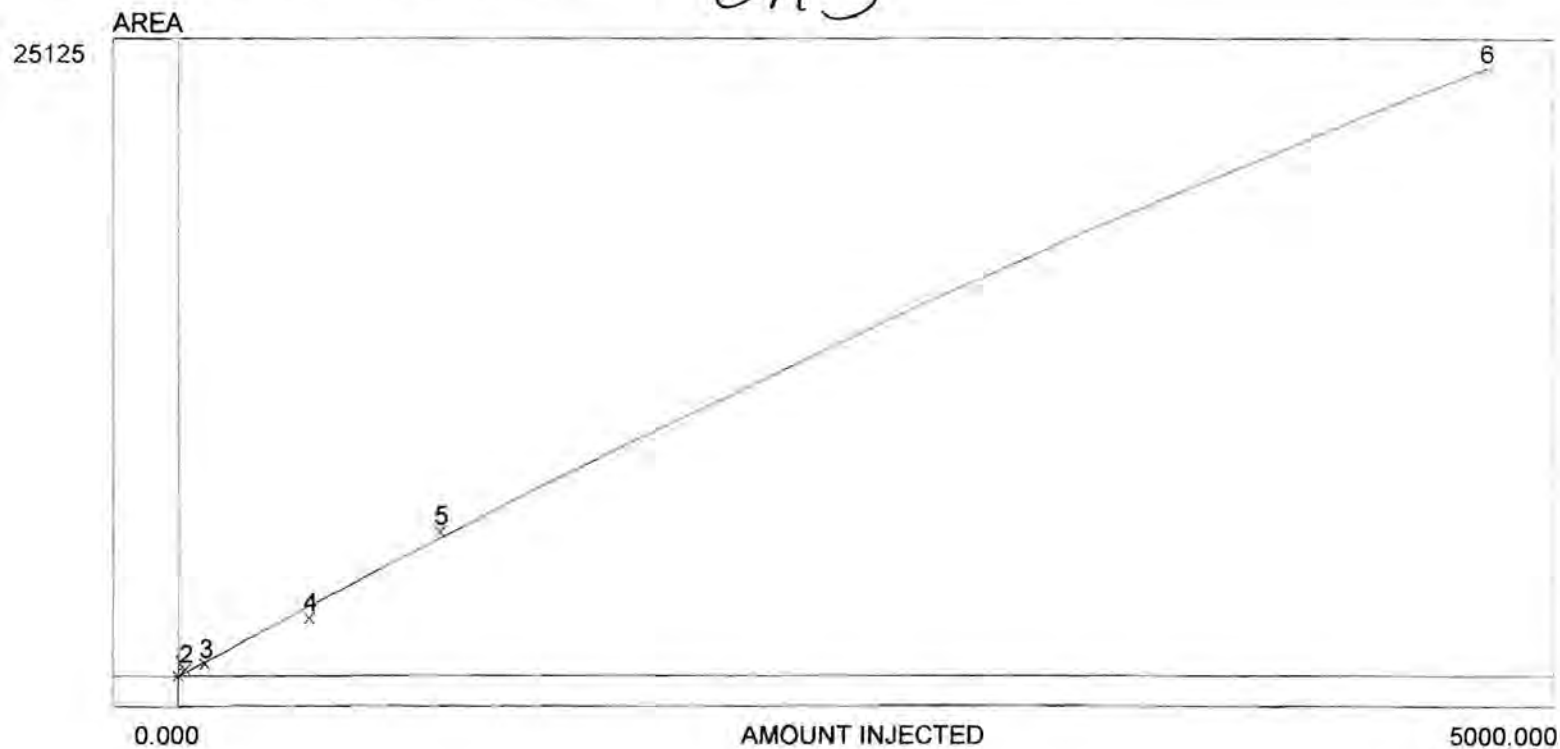
Events:

Time Event
 0.000 ZERO



Component	Retention	Area	Height	External	Units
Diesel	9.333	9728.3550	47.271	516.6520	
Oil	22.783	4007.2040	15.743	211.6930	ppm
		13735.5590		728.3450	

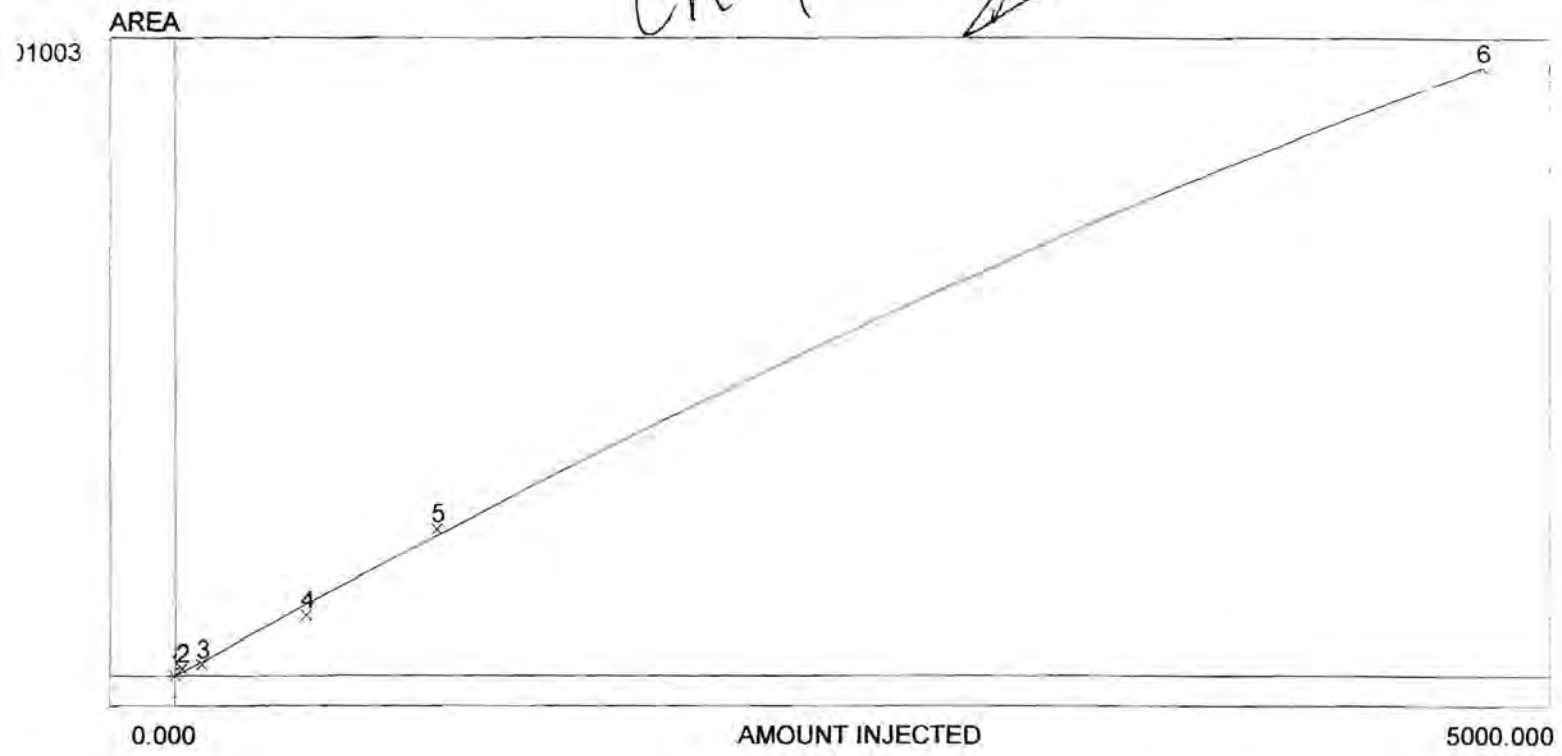
Ch3



avg slope of curve: 25.03
 y-axis intercept: 0.00
 linearity: 0.86
 number of levels: 6
 ID/rel SD of CF's: 18.0/66.9
 $y = -0.0009X^2 + 29.3544X$
 $r^2: 0.9993$
 last calibrated: Wed Mar 14 13:52:31 2012

vl	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
	0.000	0.000	0.000	0.000	N/A	N/A
1	1410.471	25.000	56.419	1410.471	N/A	N/A
2	2574.179	100.000	25.742	2574.179	N/A	N/A
3	12043.265	500.000	24.087	12043.265	N/A	N/A
4	29871.863	1000.000	29.872	29871.863	N/A	N/A
5	125124.670	5000.000	25.025	125124.670	N/A	N/A

Ch 4 2



avg slope of curve: 20.21
 y-axis intercept: 0.00
 nearity: 0.84
 number of levels: 6
 D/rel SD of CF's: 16.3/72.6
 $y = -0.0008x^2 + 24.2883x$
 $r^2: 0.9993$
 last calibrated: Wed Mar 14 13:57:45 2012

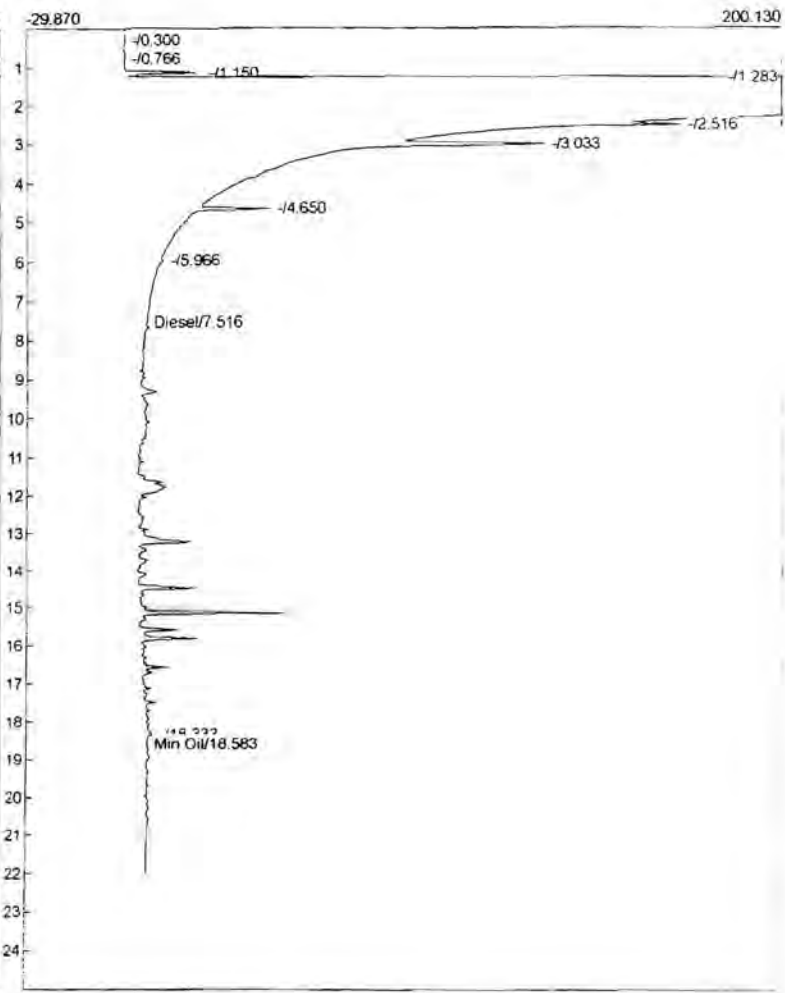
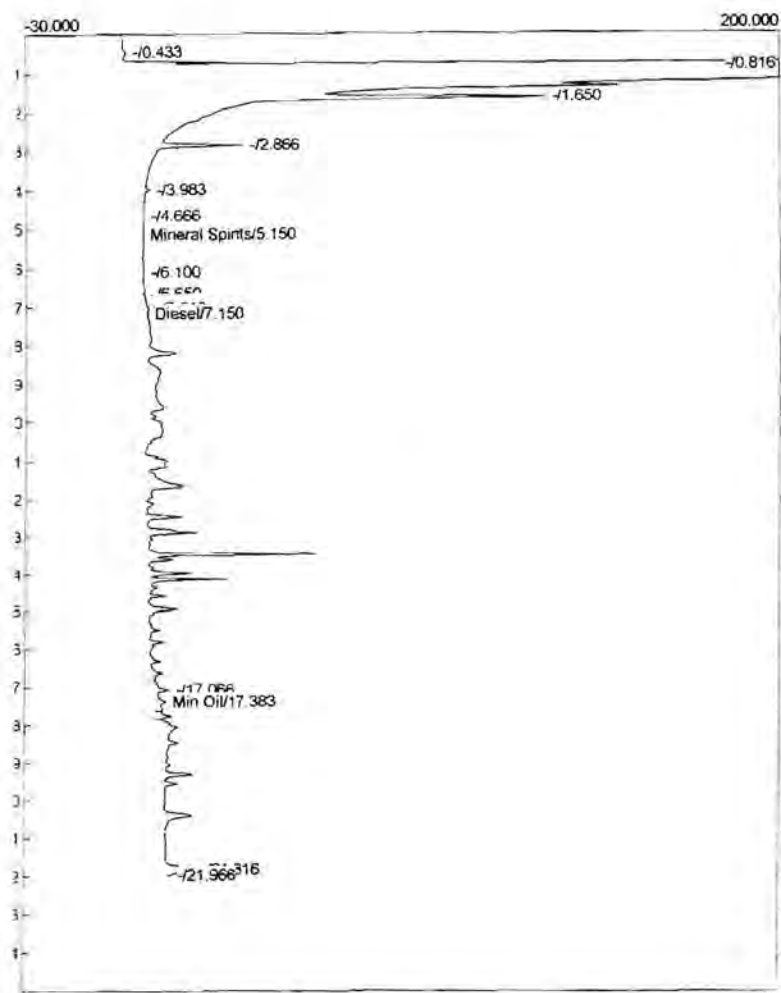
Area/ht.	Amount	CF	Current	Previous #1	Previous #2
0.000	0.000	0.000	0.000	N/A	N/A
1271.716	25.000	50.869	1271.716	N/A	N/A
1927.394	100.000	19.274	1927.394	N/A	N/A
10086.605	500.000	20.173	10086.605	N/A	N/A
24554.042	1000.000	24.554	24554.042	N/A	N/A
101002.720	5000.000	20.201	101002.720	N/A	N/A

Analysis date: 03/14/2012 10:39:04

Analysis date: 03/14/2012 10:39:04

Method: Syringe Injection
Description: JAMACIA FID
Column: RESTEK 15METER MXT-1
Carrier: HELIUM AT 5 PSI
Data file: C620.CHR ()
Sample: 25 PPM Dx 706
Operator: KW

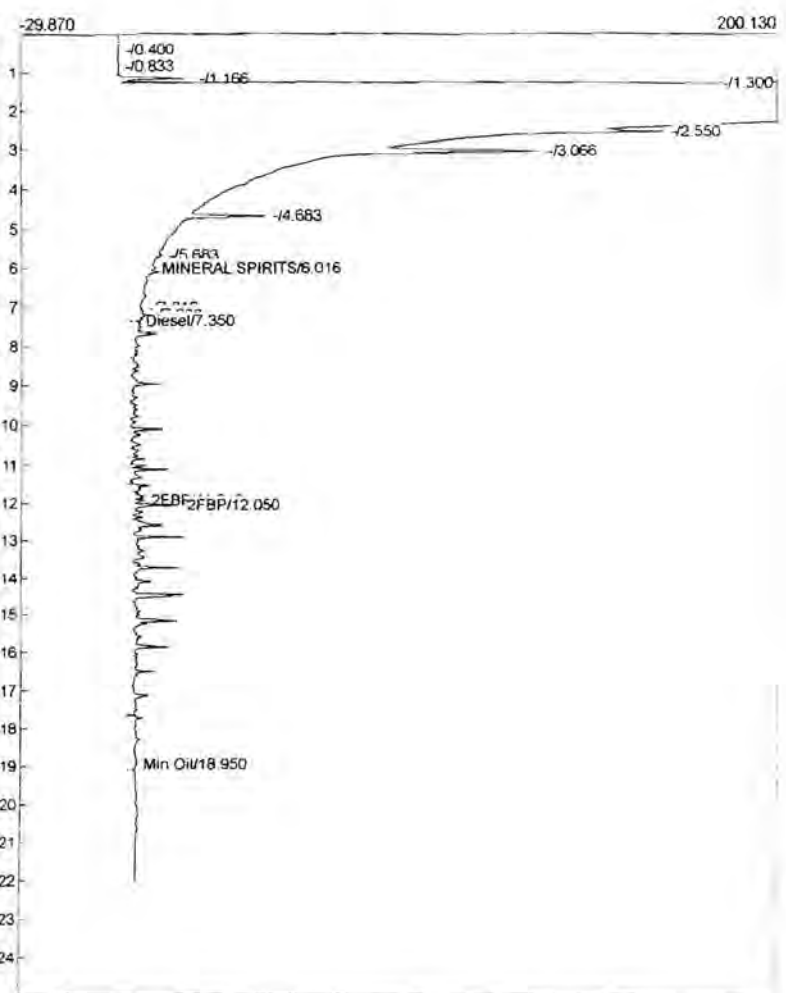
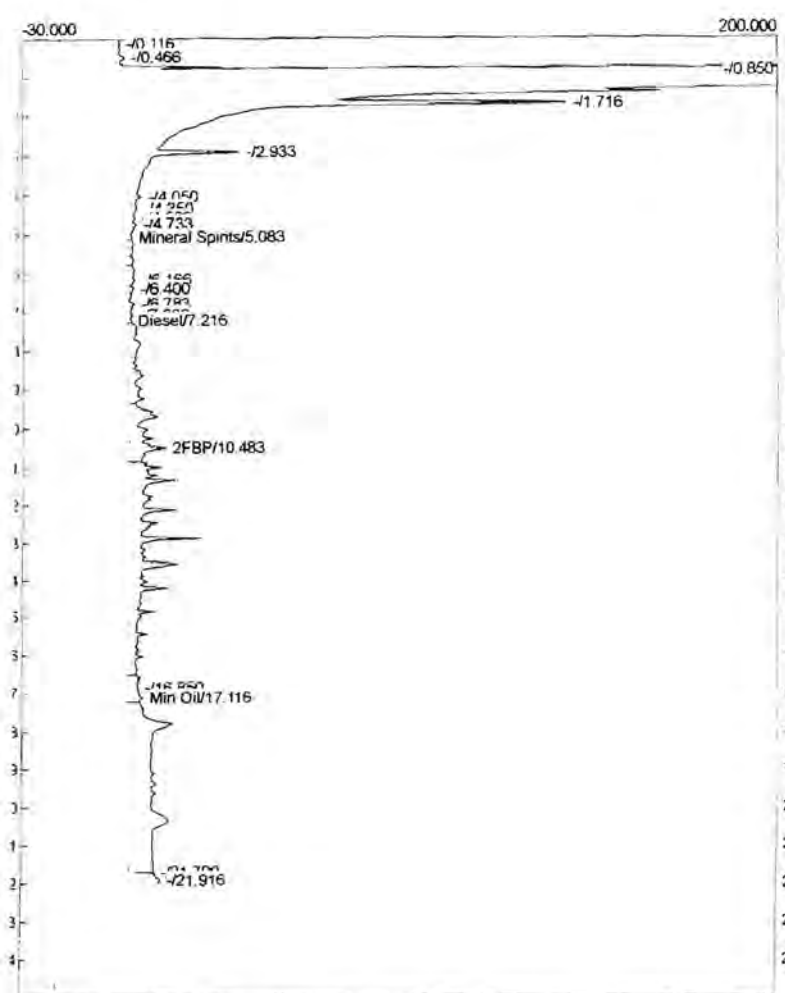
Method: Syringe Injection
Description: JAMACIA FID
Column: RESTEK 15METER MXT-1
Carrier: HELIUM AT 5 PSI
Data file: D626.CHR ()
Sample: 25 PPM Dx 706
Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	U
Mineral Spirits	5.150	7.8080	0.195	0.3863	ppm	Diesel	7.516	1271.7155	1.965	89.4973	ppm
Diesel	7.150	1410.4710	0.518	13.6936	ppm	Min Oil	18.583	209.2665	1.582	14.7689	ppm
Min Oil	17.383	577.2305	3.576	0.0000				1480.9820		104.2662	
		1995.5095		14.0798							

Analysis date: 03/14/2012 11:07:43
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C621.CHR ()
 Sample: 100 PPM Dx 705
 Operator: KW

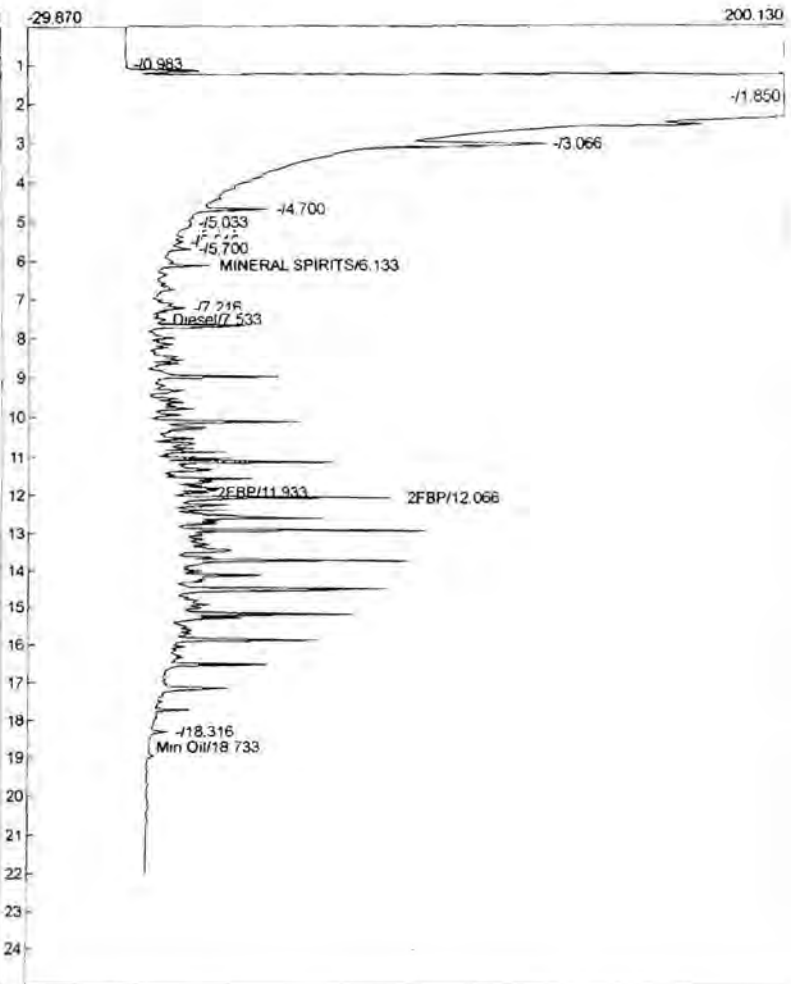
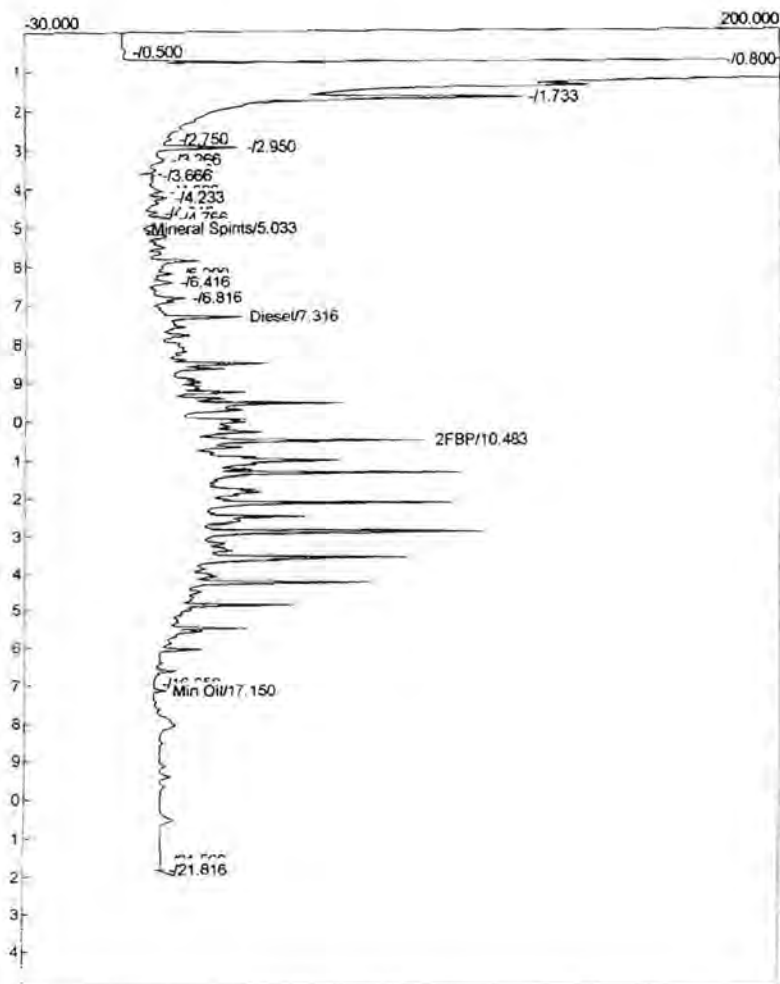
Analysis date: 03/14/2012 11:07:43
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D627.CHR ()
 Sample: 100 PPM Dx 705
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	U
Mineral Spirits	5.083	84.6325	1.090	4.1869	PP	MINERAL SPIRITS	6.016	285.6170	7.733	20.1004	PPM
Diesel	7.216	2410.4095	0.627	119.2471	ppn	Diesel	7.350	1849.7390	2.625	130.1759	ppn
FBP	10.483	163.7695	10.998	6.5508	ppn	2FBP	11.916	20.8250	4.775	1.0413	ppn
Min Oil	17.116	1953.3665	4.269	0.0000		Min Oil	18.950	514.9365	2.757	36.3413	ppn
		4612.1780		129.9847				2727.9475		190.5003	

Analysis date: 03/14/2012 11:45:18
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C622.CHR ()
 Sample: 500 PPM Dx 704
 Operator: KW

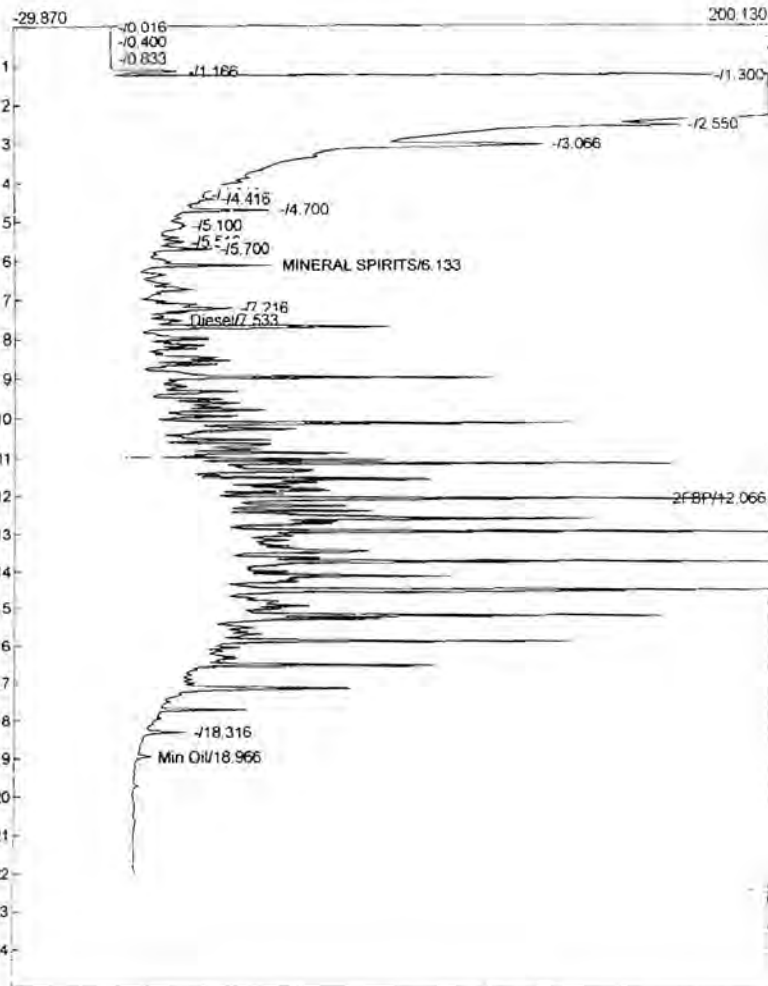
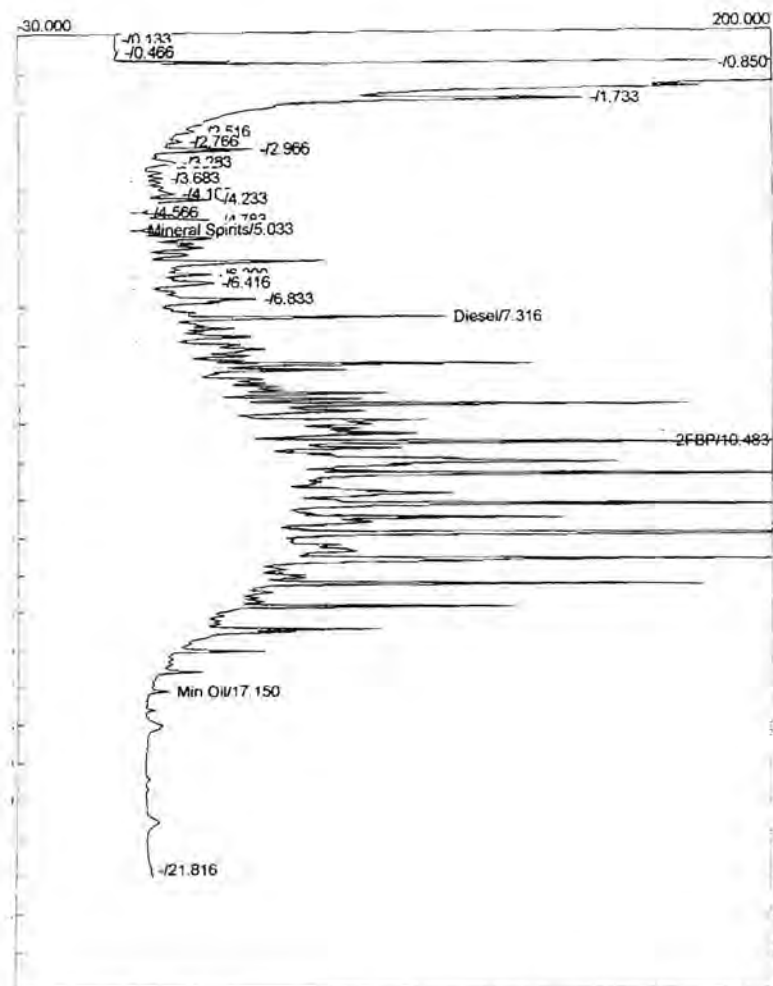
Analysis date: 03/14/2012 11:45:10
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D628.CHR ()
 Sample: 500 PPM Dx 704
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.033	323.3415	0.632	15.9963	PPM	MINERAL SPIRITS	6.133	636.8190	24.452	44.8163	PPM
Diesel	7.316	11375.2115	30.144	562.7511	ppm	Diesel	7.533	9651.3385	9.725	679.2156	ppm
FBP	10.483	668.0530	86.276	26.7221	ppm	2FBP	11.933	110.1285	21.943	5.5064	ppm
Min Oil	17.150	960.9820	5.210	0.0000		2FBP	12.066	325.1375	79.999	16.2569	ppm
						Min Oil	18.733	138.4670	1.874	9.7722	ppm
		13327.5880		605.4694				10861.8905		755.5674	

Analysis date: 03/14/2012 12:13:07
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C623.CHR ()
 Sample: 1000 PPM Dx 703
 Operator: KW

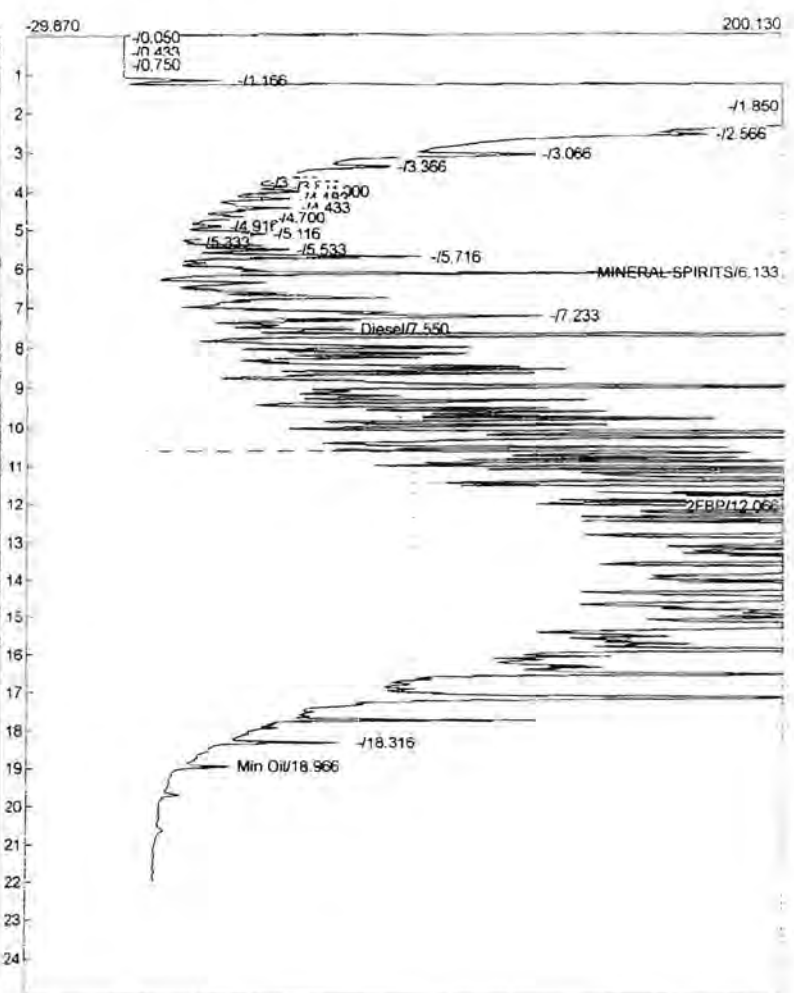
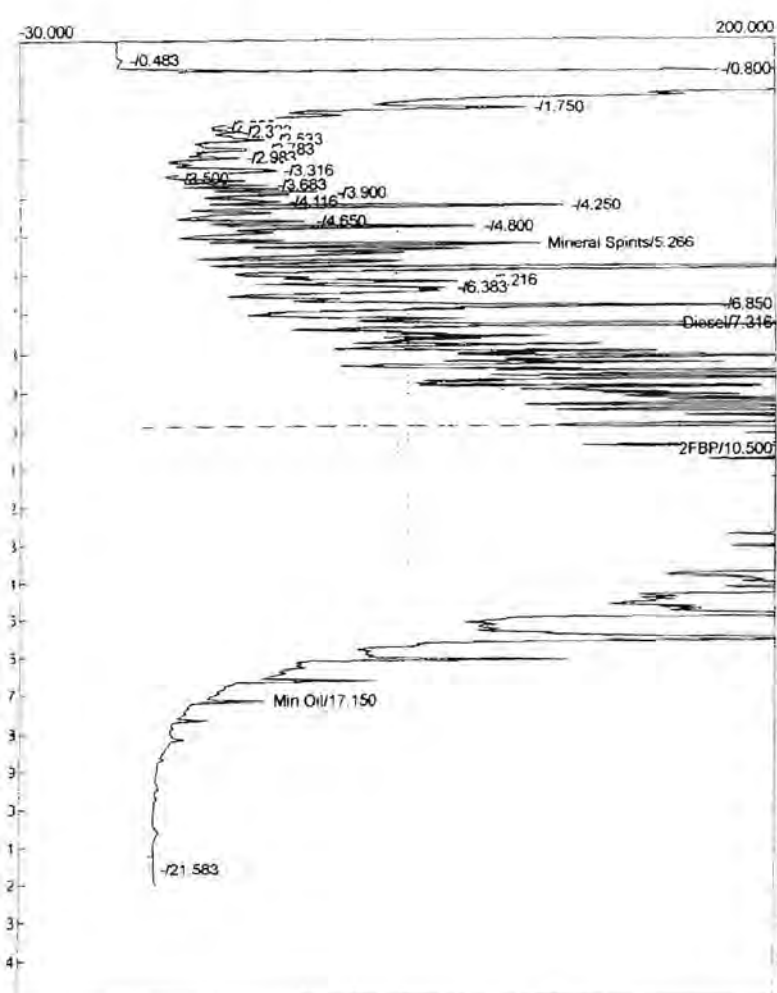
Analysis date: 03/14/2012 12:13:07
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D629.CHR ()
 Sample: 1000 PPM Dx 703
 Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	Units
Mineral Spirits	5.033	995.3365	2.641	49.2410	pp	MINERAL SPIRITS	6.133	723.8390	45.571	50.9404	pp
Diesel	7.316	28291.8845	95.034	1399.6476	pp	Diesel	7.533	23510.5725	17.032	1654.5630	pp
2FBP	10.483	1579.9780	244.836	63.1991	pp	2FBP	12.066	1043.4695	193.880	52.1735	pp
Min Oil	17.150	221.1300	7.549	0.0000	pp	Min Oil	18.966	300.3670	6.980	21.1982	pp
		31088.3290		1512.0877				25578.2480		1778.8751	

Lab name: Libby Environmental, Inc.
 Analysis date: 03/14/2012 12:41:16
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: C624.CHR ()
 Sample: 5000 PPM Dx 702
 Operator: KW

Analysis date: 03/14/2012 12:41:16
 Method: Syringe Injection
 Description: JAMACIA FID
 Column: RESTEK 15METER MXT-1
 Carrier: HELIUM AT 5 PSI
 Data file: D630.CHR ()
 Sample: 5000 PPM Dx 702
 Operator: KW



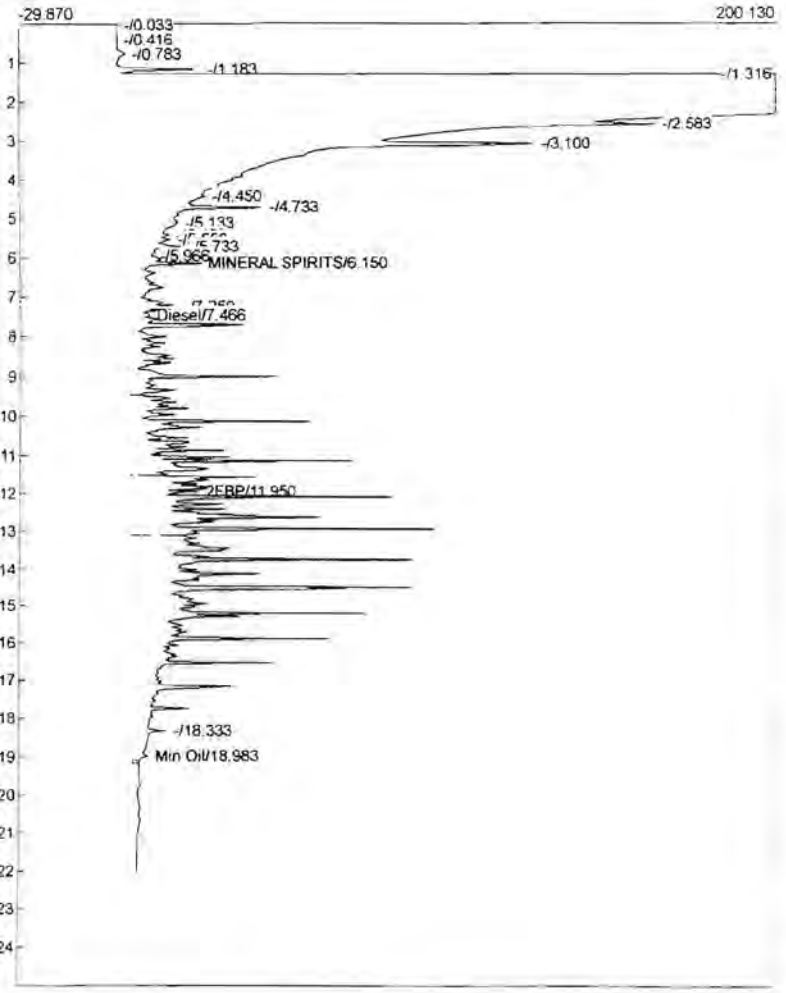
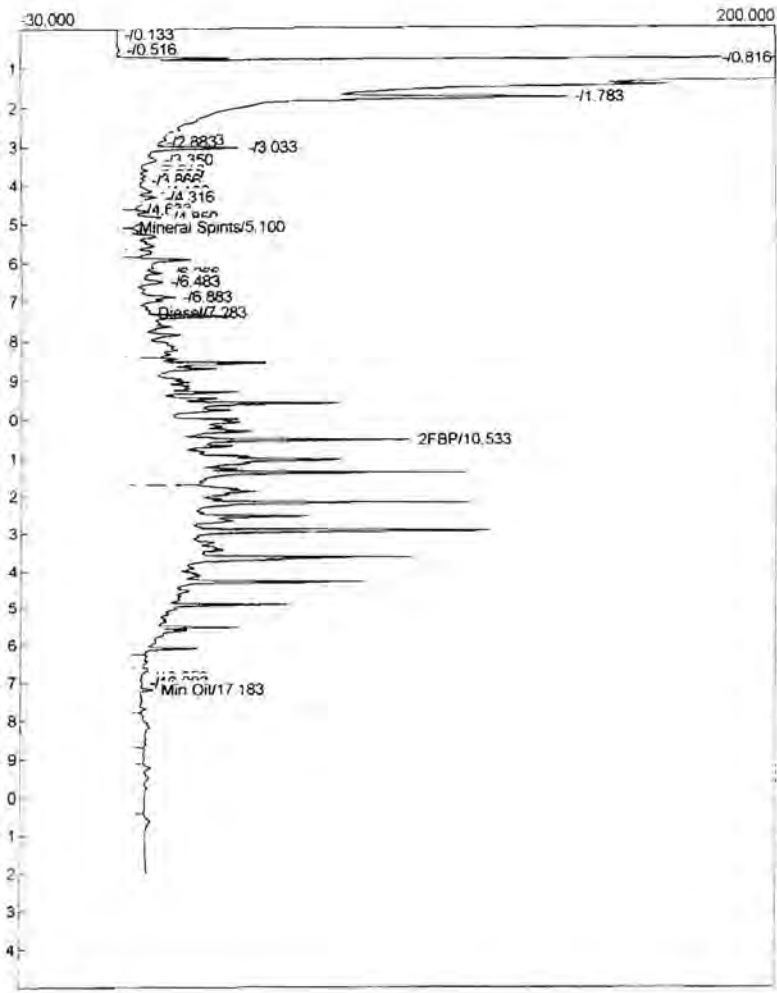
Component	Retention	Area	Height	External	UnComponent	Retention	Area	Height	External	Unit
Mineral Spirits	5.266	4030.7350	121.832	199.4073	MINERAL SPIRITS	6.133	2118.1620	172.994	149.0662	PF
Diesel	7.316	118321.9850	479.109	5853.5897	Diesel	7.550	97612.4720	63.265	6869.5047	pp
FBP	10.500	6802.6800	1015.018	272.1072	FBP	12.066	3390.2460	772.659	169.5123	pp
Min Oil	17.150	1309.9915	36.600	0.0000	Min Oil	18.966	734.9465	24.851	51.8684	pp
		130465.3915		6325.1043			103855.8265		7239.9516	

Analysis date: 03/14/2012 13:09:09

Method: Syringe Injection
Description: JAMACIA FID
Column: RESTEK 15METER MXT-1
Carrier: HELIUM AT 5 PSI
Data file: C625.CHR ()
Sample: 500 PPM Dx ICAL 707
Operator: KW

Analysis date: 03/14/2012 13:09:09

Method: Syringe Injection
Description: JAMACIA FID
Column: RESTEK 15METER MXT-1
Carrier: HELIUM AT 5 PSI
Data file: D631.CHR ()
Sample: 500 PPM Dx ICAL 707
Operator: KW



Component	Retention	Area	Height	External	Units	Component	Retention	Area	Height	External	U
Mineral Spirits	5.100	454.2775	2.261	22.4739	PP	MINERAL SPIRITS	6.150	431.9470	21.664	30.3984	PP
Diesel	7.283	12055.9145	7.302	415.8831	ppn	Diesel	7.466	9633.4975	5.799	402.0800	ppr
FBP	10.533	706.7050	85.875	28.2682	ppn	2FBP	11.950	98.4805	20.159	4.9240	ppr
Min Oil	17.183	642.7165	6.075	0.0000		Min Oil	18.983	249.4535	4.581	17.6050	ppr
		13859.6135		466.6252				10413.3785		455.0074	



1311 N. 35th St.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Libby Environmental

Jamie Deyman
4139 Libby Rd. NE
Olympia, Washington 98506

RE: Irondale

Lab ID: 1210223

October 25, 2012

Attention Jamie Deyman:

Fremont Analytical, Inc. received 6 sample(s) on 10/24/2012 for the analyses presented in the following report.

Metals (SW6020) with TCLP Extraction (EPA 1311)

Sample Moisture (Percent Moisture)

Total Metals by EPA Method 6020

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

A handwritten signature in black ink, appearing to read "Michelle Clements".

Michelle Clements
Sr. Chemist / Lab Manager



Date: 10/25/2012

CLIENT: Libby Environmental
Project: Irondale
Lab Order: 1210223

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1210223-001	MRZ-B3-102312	10/23/2012 1:00 PM	10/24/2012 2:15 PM
1210223-002	MRZ-ESWZ-102312	10/23/2012 1:07 PM	10/24/2012 2:15 PM
1210223-003	TP8-Stockpile	10/24/2012 11:00 AM	10/24/2012 2:15 PM
1210223-004	MRZ-B2-102412	10/24/2012 11:25 AM	10/24/2012 2:15 PM
1210223-005	MRZ-B3-102412	10/24/2012 11:30 AM	10/24/2012 2:15 PM
1210223-006	MRZ-B1-102412	10/24/2012 11:20 AM	10/24/2012 2:15 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: Libby Environmental**Project:** Irondale

I. SAMPLE RECEIPT:

All samples were received intact. The internal ice chest temperatures were measured on receipt and are recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.



Analytical Report

WO#: 1210223

Date Reported: 10/25/2012

Client: Libby Environmental

Collection Date: 10/23/2012 1:00:00 PM

Project: Irondale

Lab ID: 1210223-001

Matrix: Soil

Client Sample ID: MRZ-B3-102312

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Total Metals by EPA Method 6020</u>			Batch ID: 3509		Analyst: SG	
Arsenic	8.09	0.0820		mg/Kg-dry	1	10/25/2012 4:13:26 AM
Copper	177	0.164		mg/Kg-dry	1	10/25/2012 4:13:26 AM
Iron	35,900	4.51		mg/Kg-dry	1	10/25/2012 4:13:26 AM
Lead	15.3	0.164		mg/Kg-dry	1	10/25/2012 4:13:26 AM
Nickel	19.0	0.0820		mg/Kg-dry	1	10/25/2012 4:13:26 AM
Zinc	51.1	0.328		mg/Kg-dry	1	10/25/2012 4:13:26 AM
<u>Sample Moisture (Percent Moisture)</u>			Batch ID: R6300		Analyst: CM	
Percent Moisture	14.1			wt%	1	10/25/2012 8:40:44 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210223

Date Reported: 10/25/2012

Client: Libby Environmental

Collection Date: 10/23/2012 1:07:00 PM

Project: Irondale

Lab ID: 1210223-002

Matrix: Soil

Client Sample ID: MRZ-ESWZ-102312

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 3509

Analyst: SG

Arsenic	1.71	0.0733		mg/Kg-dry	1	10/25/2012 5:07:02 AM
Copper	21.2	0.147		mg/Kg-dry	1	10/25/2012 5:07:02 AM
Iron	16,800	4.03		mg/Kg-dry	1	10/25/2012 5:07:02 AM
Lead	5.85	0.147		mg/Kg-dry	1	10/25/2012 5:07:02 AM
Nickel	43.2	0.0733		mg/Kg-dry	1	10/25/2012 5:07:02 AM
Zinc	38.6	0.293		mg/Kg-dry	1	10/25/2012 5:07:02 AM

Sample Moisture (Percent Moisture)

Batch ID: R6300

Analyst: CM

Percent Moisture	17.3			wt%	1	10/25/2012 8:40:44 AM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210223

Date Reported: 10/25/2012

Client: Libby Environmental

Collection Date: 10/24/2012 11:00:00 A

Project: Irondale

Lab ID: 1210223-003

Matrix: Soil

Client Sample ID: TP8-Stockpile

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Metals (SW6020) with TCLP Extraction (EPA 1311)				Batch ID: 3513		Analyst: SG
Arsenic	ND	0.500		mg/L	1	10/25/2012 2:06:40 PM
Lead	ND	0.500		mg/L	1	10/25/2012 2:06:40 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210223

Date Reported: 10/25/2012

Client: Libby Environmental

Collection Date: 10/24/2012 11:25:00 A

Project: Irondale

Lab ID: 1210223-004

Matrix: Soil

Client Sample ID: MRZ-B2-102412

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 3509

Analyst: SG

Arsenic	3.77	0.0781		mg/Kg-dry	1	10/25/2012 5:36:53 AM
Copper	30.7	0.156		mg/Kg-dry	1	10/25/2012 5:36:53 AM
Iron	18,200	4.29		mg/Kg-dry	1	10/25/2012 5:36:53 AM
Lead	18.7	0.156		mg/Kg-dry	1	10/25/2012 5:36:53 AM
Nickel	40.9	0.0781		mg/Kg-dry	1	10/25/2012 5:36:53 AM
Zinc	54.6	0.312		mg/Kg-dry	1	10/25/2012 5:36:53 AM

Sample Moisture (Percent Moisture)

Batch ID: R6300

Analyst: CM

Percent Moisture	15.2			wt%	1	10/25/2012 8:40:44 AM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210223

Date Reported: 10/25/2012

Client: Libby Environmental

Collection Date: 10/24/2012 11:30:00 A

Project: Irondale

Lab ID: 1210223-005

Matrix: Soil

Client Sample ID: MRZ-B3-102412

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Total Metals by EPA Method 6020</u>					Batch ID: 3509	Analyst: SG
Arsenic	1.91	0.0706		mg/Kg-dry	1	10/25/2012 5:45:53 AM
Copper	10.8	0.141		mg/Kg-dry	1	10/25/2012 5:45:53 AM
Iron	13,300	3.88		mg/Kg-dry	1	10/25/2012 5:45:53 AM
Lead	1.75	0.141		mg/Kg-dry	1	10/25/2012 5:45:53 AM
Nickel	42.4	0.0706		mg/Kg-dry	1	10/25/2012 5:45:53 AM
Zinc	25.5	0.282		mg/Kg-dry	1	10/25/2012 5:45:53 AM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R6300	Analyst: CM
Percent Moisture	13.6			wt%	1	10/25/2012 8:40:44 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210223

Date Reported: 10/25/2012

Client: Libby Environmental

Collection Date: 10/24/2012 11:20:00 A

Project: Irondale

Lab ID: 1210223-006

Matrix: Soil

Client Sample ID: MRZ-B1-102412

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Total Metals by EPA Method 6020</u>					Batch ID: 3509	Analyst: SG
Arsenic	21.7	0.0746		mg/Kg-dry	1	10/25/2012 5:54:52 AM
Copper	777	0.149		mg/Kg-dry	1	10/25/2012 5:54:52 AM
Iron	33,800	4.10		mg/Kg-dry	1	10/25/2012 5:54:52 AM
Lead	6.05	0.149		mg/Kg-dry	1	10/25/2012 5:54:52 AM
Nickel	7.43	0.0746		mg/Kg-dry	1	10/25/2012 5:54:52 AM
Zinc	48.0	0.298		mg/Kg-dry	1	10/25/2012 5:54:52 AM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R6300	Analyst: CM
Percent Moisture	12.4			wt%	1	10/25/2012 8:40:44 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Work Order: 1210223
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: MB-3509	SampType: MBLK	Units: mg/Kg	Prep Date: 10/24/2012	RunNo: 6298							
Client ID: MBLKS	Batch ID: 3509	Analysis Date: 10/25/2012	SeqNo: 124887								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.100									
Copper	ND	0.200									
Iron	ND	5.50									
Lead	ND	0.200									
Nickel	ND	0.100									
Zinc	ND	0.400									

Sample ID: LCS-3509	SampType: LCS	Units: mg/Kg	Prep Date: 10/24/2012	RunNo: 6298							
Client ID: LCSS	Batch ID: 3509	Analysis Date: 10/25/2012	SeqNo: 124888								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	107	0.100	102.0	0	105	69.41	130.4				
Copper	249	0.200	250.0	0	99.8	75.6	124				
Iron	2,880	5.50	4,790	0	60.1	3.32	227.6				
Lead	73.1	0.200	72.10	0	101	68.1	131.9				
Nickel	355	0.100	384.0	0	92.6	74.74	125.5				
Zinc	708	0.400	831.0	0	85.1	74.01	126.4				

Sample ID: 1210223-001ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 10/24/2012	RunNo: 6298							
Client ID: MRZ-B3-102312	Batch ID: 3509	Analysis Date: 10/25/2012	SeqNo: 124891								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	7.84	0.0741						8.085	3.08	30	
Copper	191	0.148						176.7	7.52	30	
Iron	28,400	4.08						35,940	23.5	30	
Lead	5.22	0.148						15.28	98.2	30	R
Nickel	18.2	0.0741						18.99	4.40	30	
Zinc	30.2	0.297						51.11	51.4	30	R

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1210223
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: 1210223-001ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 10/24/2012	RunNo: 6298							
Client ID: MRZ-B3-102312	Batch ID: 3509		Analysis Date: 10/25/2012	SeqNo: 124891							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:

R - High RPD due to sample matrix. The method is in control as indicated by the laboratory control sample (LCS).

Sample ID: 1210223-001AMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 10/24/2012	RunNo: 6298							
Client ID: MRZ-B3-102312	Batch ID: 3509		Analysis Date: 10/25/2012	SeqNo: 124893							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	51.5	0.0895	44.76	8.085	97.1	75	125				
Copper	222	0.179	44.76	176.7	102	75	125				
Iron	31,100	4.92	447.6	35,940	-1,070	75	125				S
Lead	31.7	0.179	22.38	15.28	73.5	75	125				S
Nickel	63.3	0.0895	44.76	18.99	99.0	75	125				
Zinc	80.2	0.358	44.76	51.11	64.9	75	125				S

NOTES:

S - High Iron concentration prevents accurate spike recovery.

S - Outlying spike recoveries observed. A duplicate analysis was performed with similar results indicating a matrix effect.

Sample ID: 1210223-001AMSD	SampType: MSD	Units: mg/Kg-dry	Prep Date: 10/24/2012	RunNo: 6298							
Client ID: MRZ-B3-102312	Batch ID: 3509		Analysis Date: 10/25/2012	SeqNo: 124894							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	48.7	0.0831	41.56	8.085	97.7	75	125	51.53	5.69	30	
Copper	229	0.166	41.56	176.7	125	75	125	222.4	2.71	30	
Iron	33,500	4.57	415.6	35,940	-582	75	125	31,150	7.35	30	S
Lead	29.5	0.166	20.78	15.28	68.5	75	125	31.72	7.20	30	S
Nickel	57.8	0.0831	41.56	18.99	93.4	75	125	63.30	9.03	30	
Zinc	73.9	0.333	41.56	51.11	54.7	75	125	80.17	8.21	30	S

Qualifiers:	B Analyte detected in the associated Method Blank	D Dilution was required	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits	ND Not detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit	S Spike recovery outside accepted recovery limits

Work Order: 1210223
 CLIENT: Libby Environmental
 Project: Irondale

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: 1210223-001AMSD	SampType: MSD	Units: mg/Kg-dry	Prep Date: 10/24/2012	RunNo: 6298							
Client ID: MRZ-B3-102312	Batch ID: 3509		Analysis Date: 10/25/2012	SeqNo: 124894							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:

- S - High Iron concentration prevents accurate spike recovery.
- S - Outlying spike recoveries observed. A duplicate analysis was performed with similar results indicating a matrix effect.

Sample ID: 1210223-001APDS	SampType: PDS	Units: mg/Kg-dry	Prep Date: 10/24/2012	RunNo: 6298							
Client ID: MRZ-B3-102312	Batch ID: 3509		Analysis Date: 10/25/2012	SeqNo: 124895							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	118	0.0820	50.0	19.7	98.1	75	125				
Copper	532	0.164	50.0	431	100	75	125				
Iron	89,200	4.51	500	87,700	149	75	125				S
Lead	84.0	0.164	25.0	37.3	93.3	75	125				
Nickel	142	0.0820	50.0	46.3	95.3	75	125				
Zinc	194	0.328	50.0	125	68.9	75	125				S

NOTES:

- S - High Iron concentration prevents accurate spike recovery.
- S - Outlying Zn spike recovery observed due to matrix interference.

Qualifiers:	B Analyte detected in the associated Method Blank	D Dilution was required	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits	ND Not detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit	S Spike recovery outside accepted recovery limits



Work Order: 1210223
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Metals (SW6020) with TCLP Extraction (EPA 1311)

Sample ID: MB-3513	SampType: MBLK	Units: mg/L	Prep Date: 10/25/2012	RunNo: 6307							
Client ID: MBLKS	Batch ID: 3513		Analysis Date: 10/25/2012	SeqNo: 125101							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	ND	0.500									
Lead	ND	0.500									

Sample ID: LCS-3513	SampType: LCS	Units: mg/L	Prep Date: 10/25/2012	RunNo: 6307							
Client ID: LCSS	Batch ID: 3513		Analysis Date: 10/25/2012	SeqNo: 125102							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	11.3	0.500	12.50	0	90.5	65	135				
Lead	6.39	0.500	6.250	0	102	65	135				

Sample ID: 1210202-001ADUP	SampType: DUP	Units: mg/L	Prep Date: 10/25/2012	RunNo: 6307							
Client ID: BATCH	Batch ID: 3513		Analysis Date: 10/25/2012	SeqNo: 125104							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	ND	0.500						0	0	30	R
Lead	ND	0.500						0	0	30	

NOTES:

R - High RPD due to low analyte concentration. In this range, high RPD's may be expected.

Sample ID: 1210202-001AMS	SampType: MS	Units: mg/L	Prep Date: 10/25/2012	RunNo: 6307							
Client ID: BATCH	Batch ID: 3513		Analysis Date: 10/25/2012	SeqNo: 125105							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	11.8	0.500	12.50	0.04353	94.1	65	135				
Lead	6.17	0.500	6.250	0	98.8	65	135				

Qualifiers:	B Analyte detected in the associated Method Blank	D Dilution was required	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits	ND Not detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit	S Spike recovery outside accepted recovery limits



Date: 10/25/2012

Work Order: 1210223
 CLIENT: Libby Environmental
 Project: Irondale

QC SUMMARY REPORT
Metals (SW6020) with TCLP Extraction (EPA 1311)

Sample ID: 1210202-001AMSD	SampType: MSD	Units: mg/L				Prep Date: 10/25/2012	RunNo: 6307				
Client ID: BATCH	Batch ID: 3513					Analysis Date: 10/25/2012	SeqNo: 125106				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	12.4	0.500	12.50	0.04353	99.2	65	135	11.81	5.23	30	
Lead	6.32	0.500	6.250	0	101	65	135	6.174	2.26	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Sample Log-In Check List

Client Name: **LIBBY**
 Logged by: **Troy Zehr**

Work Order Number: **1210223**
 Date Received: **10/24/2012 2:15:00 PM**

Chain of Custody

1. Were custodial seals present? Yes No Not Required
2. Is Chain of Custody complete? Yes No Not Present
3. How was the sample delivered? Client

Log In

4. Coolers are present? Yes No NA
5. Was an attempt made to cool the samples? Yes No NA
6. Were all coolers received at a temperature of >0° C to 10.0°C Yes No NA
7. Sample(s) in proper container(s)? Yes No
8. Sufficient sample volume for indicated test(s)? Yes No
9. Are samples properly preserved? Yes No
10. Was preservative added to bottles? Yes No NA
11. Is there headspace present in VOA vials? Yes No NA
12. Did all sample containers arrive in good condition?(unbroken) Yes No
13. Does paperwork match bottle labels? Yes No
14. Are matrices correctly identified on Chain of Custody? Yes No
15. Is it clear what analyses were requested? Yes No
16. Were all holding times able to be met? Yes No

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks/Discrepancies

Item Information

Item #	Temp °C	Condition
Sample Temp	9.8	

12-11-12

Libby Environmental, Inc.

4139 Libby Road NE
Olympia WA 98506
Ph: 360-352-2110
Fax: 360-352-4154

Chain of Custody Record

www.LibbyEnvironmental.com

Date: 2-1 Oct 2012 Page: 1 of 1

Client: Libby Environmental

Project Manager: Jamie Dayman

Address: See above

Project Name: Inadale

City: State: Zip:

Location: City, State:

Phone: Fax:

Collector: Date of Collection: 10/23/12

Client Project #

Email:

Sample Number	Depth	Time	Sample Type	Container Type	Field Notes
1 MR 2-B2-102312	11	1300	Soil	402	
2 MR 2-F5WZ-102309	9	1307	Soil	402	
3 TPO-Stackpile	1	1100	Soil	402	
4 MR 2-B2-102412	7	1125	Soil	402	
5 MR 2-B3-102412	7	1130	"	"	
6 MR 2-B3-102412	7	1120	"	"	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					

Relinquished by: [Signature] Date / Time: 10/23/12 14:15

Received by: [Signature] Date / Time: 10/24/12 14:15

Remarks: Analyzed for:
* Arsenic, copper, iron
Lead, Nickel, Zinc

TAT: 24HR 48HR 5-DAY



Libby Environmental, Inc.

4139 Libby Road NE • Olympia, WA 98506-2518

November 12, 2012

Neil Morton
GeoEngineers Inc.
600 Stewart Street, Suite 1700
Seattle, WA 98101

Dear Mr. Morton:

Please find enclosed the analytical data report for the Irondale Project located in Irondale, Washington. Soil samples were analyzed for Metals Arsenic, Copper, Iron, Lead, Nickel and Zinc by EPA Method 6020 on October 26, 2012.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. All soil samples are reported on a dry weight basis. An invoice for this analytical work is enclosed.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Jamie L. Deyman
President
Libby Environmental, Inc.

Phone (360) 352-2110 • Fax (360) 352-4154 • libbyenv@aol.com

www.LibbyEnvironmental.com



Libby Environmental, Inc.

Case Narrative

Libby Project #: L121025-3
Date: 11-12-2012

CLIENT: GeoEngineers, Inc.
PROJECT: Irondale

I. SAMPLE RECEIPT:

All samples were received intact and in good condition. See the attached Sample Receipt Check List for more information.

II. GENERAL REPORTING COMMENTS:

N/A

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) and/or noted below.

Notes:

N/A

Libby Environmental, Inc.

Chain of Custody Record

4139 Libby Road NE
Olympia, WA 98506

Ph: 360-352-2110
Fax: 360-352-4154

Date: 10/25/12 Page: 1 of 1

Client: GEO ENGINEERS

Project Manager: NEIL MORTON

Address: 1101 S. FAURET AVENUE SUITE 200

Project Name: IRONDALE

City: TACOMA State: WA Zip: 98402

Location: IRONDALE City, State: IRONDALE, WA

Phone: 253 383 4940 Fax:

Collector: PAUL ROBINETTE Date of Collection: 10/25

Client Project # 0504-042-02

Email: nmorton@ggeengineers.com



Sample Number	Depth	Time	Sample Type	Container Type	ANALYSIS METHODS											Field Notes		
					VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEMI VOL 8270	NWTPH-HCID	NWTPH-GX	NWTPH-DX	PAH 8270	PCB's 8082	MTCA 5 Metals	METALS			
1 MRZ-B1-102512	5	810	SOIL	4oz												X		See below for metals
2 MRZ-B2-102512	6	815	SOIL	4oz												X		
3 MRZ-B3-102512	6	820	SOIL	4oz												X		
4 MRZ-B4-102512	4	1130	SOIL	4oz												X		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		

Relinquished by: <u>[Signature]</u>	Date / Time: <u>10/25 1330</u>	Received by: <u>[Signature]</u>	Date / Time: <u>10/25/12 1330</u>	Sample Receipt:	Remarks: <u>Analyze for: Arsenic, Copper, Iron, Lead, Nickel, Zinc</u>
Relinquished by: <u>[Signature]</u>	Date / Time: <u>10/25 1330</u>	Received by: <u>[Signature]</u>	Date / Time: <u>10/25/12 15:30</u>	Good Condition?	
Relinquished by: <u>[Signature]</u>	Date / Time: <u>10/25 1330</u>	Received by: <u>[Signature]</u>	Date / Time: <u>10/25/12 15:30</u>	Cold?	
Relinquished by: <u>[Signature]</u>	Date / Time: <u>10/25 1330</u>	Received by: <u>[Signature]</u>	Date / Time: <u>10/25/12 15:30</u>	Seals Intact?	
				Total Number of Containers	TAT: <u>24HR</u> 48HR 5-DAY

Libby Environmental, Inc. Login Sample Receipt Check List

Client: GeoEngineers, Inc. **Libby Project Number:** L121025-3

Question	T / F / NA	Comment
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler temperature is acceptable.	True	
COC is present.	True	
COC is filled out in ink and is legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within the Hold Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs.	True	
VOA sample vials do not have headspace or bubble is less than 6mm (1/4 in.) in diameter.	True	
If necessary, staff has been informed of any short hold time or quick TAT needs.	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	



1311 N. 35th St.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Libby Environmental

Jamie Deyman
4139 Libby Rd. NE
Olympia, Washington 98506

RE: Irondale
Lab ID: 1210233

October 26, 2012

Attention Jamie Deyman:

Fremont Analytical, Inc. received 4 sample(s) on 10/25/2012 for the analyses presented in the following report.

Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

A handwritten signature in black ink, appearing to read "Michelle Clements".

Michelle Clements
Sr. Chemist / Lab Manager



CLIENT: Libby Environmental
Project: Irondale
Lab Order: 1210233

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1210233-001	MRZ-B1-102512	10/25/2012 8:10 AM	10/25/2012 3:30 PM
1210233-002	MRZ-B2-102512	10/25/2012 8:15 AM	10/25/2012 3:30 PM
1210233-003	MRZ-B3-102512	10/25/2012 8:20 AM	10/25/2012 3:30 PM
1210233-004	MRZ-B4-102512	10/25/2012 11:30 AM	10/25/2012 3:30 PM

CLIENT: Libby Environmental**Project:** Irondale

I. SAMPLE RECEIPT:

All samples were received intact. The internal ice chest temperatures were measured on receipt and are recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.



Analytical Report

WO#: 1210233

Date Reported: 10/26/2012

Client: Libby Environmental

Collection Date: 10/25/2012 8:10:00 AM

Project: Irondale

Lab ID: 1210233-001

Matrix: Soil

Client Sample ID: MRZ-B1-102512

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Total Metals by EPA Method 6020</u>					Batch ID: 3517	Analyst: SG
Arsenic	42.9	0.0997		mg/Kg-dry	1	10/26/2012 2:34:36 AM
Copper	343	0.199		mg/Kg-dry	1	10/26/2012 2:34:36 AM
Iron	37,900	110	D	mg/Kg-dry	20	10/26/2012 11:19:10 AM
Lead	3.10	0.199		mg/Kg-dry	1	10/26/2012 2:34:36 AM
Nickel	20.3	0.0997		mg/Kg-dry	1	10/26/2012 2:34:36 AM
Zinc	27.2	0.399		mg/Kg-dry	1	10/26/2012 2:34:36 AM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R6313	Analyst: CM
Percent Moisture	16.4			wt%	1	10/26/2012 8:33:26 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210233

Date Reported: 10/26/2012

Client: Libby Environmental

Collection Date: 10/25/2012 8:15:00 AM

Project: Irondale

Lab ID: 1210233-002

Matrix: Soil

Client Sample ID: MRZ-B2-102512

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Total Metals by EPA Method 6020</u>					Batch ID: 3517	Analyst: SG
Arsenic	2.87	0.0852		mg/Kg-dry	1	10/26/2012 3:34:43 AM
Copper	27.8	0.170		mg/Kg-dry	1	10/26/2012 3:34:43 AM
Iron	13,900	93.7	D	mg/Kg-dry	20	10/26/2012 11:28:07 AM
Lead	4.67	0.170		mg/Kg-dry	1	10/26/2012 3:34:43 AM
Nickel	32.1	0.0852		mg/Kg-dry	1	10/26/2012 3:34:43 AM
Zinc	66.7	0.341		mg/Kg-dry	1	10/26/2012 3:34:43 AM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R6313	Analyst: CM
Percent Moisture	12.4			wt%	1	10/26/2012 8:33:26 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210233

Date Reported: 10/26/2012

Client: Libby Environmental

Collection Date: 10/25/2012 8:20:00 AM

Project: Irondale

Lab ID: 1210233-003

Matrix: Soil

Client Sample ID: MRZ-B3-102512

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Total Metals by EPA Method 6020</u>				Batch ID: 3517		Analyst: SG
Arsenic	92.3	0.0989		mg/Kg-dry	1	10/26/2012 3:43:42 AM
Copper	503	0.198		mg/Kg-dry	1	10/26/2012 3:43:42 AM
Iron	124,000	109	D	mg/Kg-dry	20	10/26/2012 11:37:06 AM
Lead	324	0.198		mg/Kg-dry	1	10/26/2012 3:43:42 AM
Nickel	61.3	0.0989		mg/Kg-dry	1	10/26/2012 3:43:42 AM
Zinc	1,120	0.396		mg/Kg-dry	1	10/26/2012 3:43:42 AM
<u>Sample Moisture (Percent Moisture)</u>				Batch ID: R6313		Analyst: CM
Percent Moisture	17.1			wt%	1	10/26/2012 8:33:26 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210233

Date Reported: 10/26/2012

Client: Libby Environmental

Collection Date: 10/25/2012 11:30:00 A

Project: Irondale

Lab ID: 1210233-004

Matrix: Soil

Client Sample ID: MRZ-B4-102512

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Total Metals by EPA Method 6020</u>					Batch ID: 3517	Analyst: SG
Arsenic	2.72	0.0822		mg/Kg-dry	1	10/26/2012 4:13:33 AM
Copper	17.6	0.164		mg/Kg-dry	1	10/26/2012 4:13:33 AM
Iron	7,520	90.4	D	mg/Kg-dry	20	10/26/2012 11:46:05 AM
Lead	4.30	0.164		mg/Kg-dry	1	10/26/2012 4:13:33 AM
Nickel	14.0	0.0822		mg/Kg-dry	1	10/26/2012 4:13:33 AM
Zinc	26.6	0.329		mg/Kg-dry	1	10/26/2012 4:13:33 AM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R6313	Analyst: CM
Percent Moisture	9.21			wt%	1	10/26/2012 8:33:26 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Work Order: 1210233
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: MB-3517	SampType: MBLK	Units: mg/Kg	Prep Date: 10/25/2012	RunNo: 6315							
Client ID: MBLKS	Batch ID: 3517		Analysis Date: 10/26/2012	SeqNo: 125207							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.100									
Copper	ND	0.200									
Iron	ND	5.50									
Lead	ND	0.200									
Nickel	ND	0.100									
Zinc	ND	0.400									

Sample ID: LCS-3517	SampType: LCS	Units: mg/Kg	Prep Date: 10/25/2012	RunNo: 6315							
Client ID: LCSS	Batch ID: 3517		Analysis Date: 10/26/2012	SeqNo: 125208							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	124	0.100	102.0	0	121	69.41	130.4				
Copper	242	0.200	250.0	0	96.8	75.6	124				
Iron	4,830	5.50	4,790	0	101	3.32	227.6				
Lead	72.1	0.200	72.10	0	100	68.1	131.9				
Nickel	396	0.100	384.0	0	103	74.74	125.5				
Zinc	836	0.400	831.0	0	101	74.01	126.4				

Sample ID: 1210233-001ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 10/25/2012	RunNo: 6315							
Client ID: MRZ-B1-102512	Batch ID: 3517		Analysis Date: 10/26/2012	SeqNo: 125210							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	39.8	0.0900						42.88	7.40	30	
Copper	316	0.180						342.7	8.24	30	
Iron	33,900	4.95						36,920	8.51	30	E
Lead	2.94	0.180						3.100	5.32	30	
Nickel	18.5	0.0900						20.27	8.89	30	
Zinc	24.5	0.360						27.20	10.3	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1210233
CLIENT: Libby Environmental
Project: Irontale

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: 1210233-001ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 10/25/2012	RunNo: 6315							
Client ID: MRZ-B1-102512	Batch ID: 3517	Analysis Date: 10/26/2012	SeqNo: 125210								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 1210233-001AMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 10/25/2012	RunNo: 6315							
Client ID: MRZ-B1-102512	Batch ID: 3517	Analysis Date: 10/26/2012	SeqNo: 125212								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	83.9	0.0893	44.65	42.88	91.9	75	125				
Copper	341	0.179	44.65	342.7	-3.53	75	125				S
Iron	32,100	4.91	446.5	36,920	-1,090	75	125				SE
Lead	21.6	0.179	22.32	3.100	82.9	75	125				
Nickel	63.1	0.0893	44.65	20.27	95.8	75	125				
Zinc	71.1	0.357	44.65	27.20	98.4	75	125				

NOTES:

S - High Iron and Copper concentration prevents accurate spike recovery.

Sample ID: 1210233-001AMSD	SampType: MSD	Units: mg/Kg-dry	Prep Date: 10/25/2012	RunNo: 6315							
Client ID: MRZ-B1-102512	Batch ID: 3517	Analysis Date: 10/26/2012	SeqNo: 125213								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	81.0	0.0861	43.04	42.88	88.6	75	125	83.90	3.50	30	
Copper	324	0.172	43.04	342.7	-43.8	75	125	341.1	5.20	30	S
Iron	31,100	4.73	430.4	36,920	-1,350	75	125	32,060	3.01	30	SE
Lead	20.9	0.172	21.52	3.100	82.5	75	125	21.60	3.48	30	
Nickel	60.1	0.0861	43.04	20.27	92.6	75	125	63.06	4.74	30	
Zinc	68.5	0.344	43.04	27.20	96.0	75	125	71.14	3.74	30	

NOTES:

High Iron and Copper concentration prevents accurate spike recovery.

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 10/26/2012

Work Order: 1210233
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: 1210233-001APDS	SampType: PDS	Units: mg/Kg-dry	Prep Date: 10/25/2012	RunNo: 6315							
Client ID: MRZ-B1-102512	Batch ID: 3517		Analysis Date: 10/26/2012	SeqNo: 125214							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	208	0.0997	50.0	86.0	122	75	125				
Copper	795	0.199	50.0	687	108	75	125				
Iron	37,600	5.48	499	36,900	131	75	125				SE
Lead	55.1	0.199	25.0	6.22	97.8	75	125				
Nickel	150	0.0997	50.0	40.7	110	75	125				
Zinc	170	0.399	50.0	54.6	115	75	125				

NOTES:
 High Iron concentration prevents accurate spike recovery.

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Client Name: **LIBBY**

 Work Order Number: **1210233**

 Logged by: **Troy Zehr**

 Date Received: **10/25/2012 3:30:00 PM**

Chain of Custody

1. Were custodial seals present? Yes No Not Required
2. Is Chain of Custody complete? Yes No Not Present
3. How was the sample delivered? Client

Log In

4. Coolers are present? Yes No NA
5. Was an attempt made to cool the samples? Yes No NA
6. Were all coolers received at a temperature of >0° C to 10.0°C Yes No NA
7. Sample(s) in proper container(s)? Yes No
8. Sufficient sample volume for indicated test(s)? Yes No
9. Are samples properly preserved? Yes No
10. Was preservative added to bottles? Yes No NA
11. Is there headspace present in VOA vials? Yes No NA
12. Did all sample containers arrive in good condition?(unbroken) Yes No
13. Does paperwork match bottle labels? Yes No
14. Are matrices correctly identified on Chain of Custody? Yes No
15. Is it clear what analyses were requested? Yes No
16. Were all holding times able to be met? Yes No

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks/Discrepancies

Item Information

Item #	Temp °C	Condition
Cooler	8.5	Good

Libby Environmental, Inc.

4139 Libby Road NE
 Olympia, WA 98506
 Phone: 360-352-2110
 Fax: 360-352-4154

Client: GED ENGINEERS

Address: 1101 S. Fawcett Ave Site 200

City: Tacoma State: WA Zip: 98402

Phone: 253 383 4940 Fax: 0514-042-02

Client Project # 0514-042-02



Chain of Custody Record

www.LibbyEnvironmental.com

Date: 10/25/12 Page: 1 of 1

Project Manager: NEIL WORTON

Project Name: TROUBLE

Location: TROUBLE City/State: TROUBLE, WA

Collector: PAUL ROBLINER Date of Collection: 10/25

Email: nworton@gedengineers.com

Sample Number	Depth	Time	Sample Type	Container Type	Field Notes
1 MRZ-B1-102512	5	810	SOIL	402	
2 MRZ-B2-102512	6	815	SOIL	402	
3 MRZ-B3-102512	6	820	SOIL	402	
4 MRZ-B4-102512	4	1130	SOIL	1102	
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					

Analysis Method	Result
VOA 8021B	
VOA 8021B BTEX OMV	
SEM VOL 8210	
NMTPH-GX	
NMTPH-FDID	
NMTPH-DX	
NMTPH-DX EXT	
PCB 8270	
PCB 8082	
MTCAS Metals	

Remarks: Analyze for: Arsenic, Copper, Lead, Nickel, Zinc

Sample Receipt: Good Condition? Seals Intact?

Relinquished by: Paul S. Smith Date/Time: 10/25 1330

Received by: [Signature] Date/Time: 10/25/12 1330

Relinquished by: [Signature] Date/Time: 10/25 1530

Received by: [Signature] Date/Time: 10/25/12 1530

TAT: 24HR 48HR 5-DA



Libby Environmental, Inc.

4139 Libby Road NE • Olympia, WA 98506-2518

November 12, 2012

Neil Morton
GeoEngineers Inc.
600 Stewart Street, Suite 1700
Seattle, WA 98101

Dear Mr. Morton:

Please find enclosed the analytical data report for the Irondale Project located in Irondale, Washington. Soil samples were analyzed for Metals Arsenic, Copper, Iron, Lead, Nickel and Zinc by EPA Method 6020 on October 30, 2012.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. All soil samples are reported on a dry weight basis. An invoice for this analytical work is enclosed.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Jamie L. Deyman
President
Libby Environmental, Inc.

Phone (360) 352-2110 • Fax (360) 352-4154 • libbyenv@aol.com

www.LibbyEnvironmental.com



Libby Environmental, Inc.

Case Narrative

Libby Project #: L121029-2
Date: 11-12-2012

CLIENT: GeoEngineers, Inc.
PROJECT: Irondale

I. SAMPLE RECEIPT:

All samples were received intact and in good condition. See the attached Sample Receipt Check List for more information.

II. GENERAL REPORTING COMMENTS:

N/A

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) and/or noted below.

Notes:

N/A

Libby Environmental, Inc.

Chain of Custody Record

1029

4139 Libby Road NE
Olympia, WA 98506
Ph: 360-352-2110
Fax: 360-352-4154

Date: 10/26 Page: 1 of

Client: GEODESIANS

Project Manager: NEIL MORTON

Address: 1101 S. Fawcett Ave Tacoma WA

Project Name: TRANDALE

Phone: 253-383-4940 Fax:

Location: TRANDALE City: TRANDALE

Client Project # 0504-042-02

Collector: PAUL ROBINETTE Date of Collection: 10/25-10/26

Sample Number	Depth	Time	Sample Type	Container Type	TESTS											Field Notes		
					VOA 802-1B	VOA 802-1B BTEX Only	VOA 8260	SEMI VOL 8270	NWTPH-HCID	NWTPH-Gx	NWTPH-Dx	PAH 8270	PCB's 8082	MTCA 5 Metals	METALS			
1 MRI-B5-102512	6	1330	Soil	402													X	See below for metals
2 MRI-B1-102612	8	0700	Soil	402													X	
3 MRI-B2-102612	7	0815	"	"													X	
4 MRI-B3-102612	4	823	"	"													X	
5 MRI-B4-102612	6	1100	"	"													X	
6 MRI-B5-102612	6	1115	Soil	402													X	
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		

Relinquished by: <u>[Signature]</u>	Date / Time: <u>10/24/12 1210</u>	Received by: <u>[Signature]</u>	Date / Time: <u>10/29/12 1210</u>	Sample Receipt:	Remarks: <u>metals analyzed for: Arsenic, Copper, Iron, Lead, nickel, zinc</u> <u>24hr Rush</u>
Relinquished by:	Date / Time:	Received by:	Date / Time:	Good Condition?	
Relinquished by:	Date / Time:	Received by:	Date / Time:	Cold?	
Relinquished by:	Date / Time:	Received by:	Date / Time:	Seals Intact?	
				Total Number of Containers	

Libby Environmental, Inc. Login Sample Receipt Check List

Client: GeoEngineers, Inc. **Libby Project Number:** L121029-2

Question	T / F / NA	Comment
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler temperature is acceptable.	True	
COC is present.	True	
COC is filled out in ink and is legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within the Hold Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs.	True	
VOA sample vials do not have headspace or bubble is less than 6mm (1/4 in.) in diameter.	True	
If necessary, staff has been informed of any short hold time or quick TAT needs.	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	



1311 N. 35th St.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Libby Environmental

Jamie Deyman
4139 Libby Rd. NE
Olympia, Washington 98506

RE: Irondale
Lab ID: 1210248

October 30, 2012

Attention Jamie Deyman:

Fremont Analytical, Inc. received 6 sample(s) on 10/29/2012 for the analyses presented in the following report.

Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

A handwritten signature in black ink, appearing to read "Michelle Clements".

Michelle Clements
Sr. Chemist / Lab Manager



Date: 10/30/2012

CLIENT: Libby Environmental
Project: Irondale
Lab Order: 1210248

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1210248-001	MRZ-B5-102512	10/25/2012 1:30 PM	10/29/2012 3:10 PM
1210248-002	MRZ-B1-102612	10/26/2012 7:00 AM	10/29/2012 3:10 PM
1210248-003	MRZ-B2-102612	10/26/2012 8:15 AM	10/29/2012 3:10 PM
1210248-004	MRZ-B3-102612	10/26/2012 8:23 AM	10/29/2012 3:10 PM
1210248-005	MRZ-B4-102612	10/26/2012 11:00 AM	10/29/2012 3:10 PM
1210248-006	MRZ-B5-102612	10/26/2012 11:15 AM	10/29/2012 3:10 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: Libby Environmental**Project:** Irondale

I. SAMPLE RECEIPT:

All samples were received intact. The internal ice chest temperatures were measured on receipt and are recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.



Analytical Report

WO#: 1210248

Date Reported: 10/30/2012

Client: Libby Environmental

Collection Date: 10/25/2012 1:30:00 PM

Project: Irondale

Lab ID: 1210248-001

Matrix: Soil

Client Sample ID: MRZ-B5-102512

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Total Metals by EPA Method 6020</u>					Batch ID: 3529	Analyst: SG
Arsenic	18.7	0.104		mg/Kg-dry	1	10/30/2012 12:37:49 AM
Copper	336	0.208		mg/Kg-dry	1	10/30/2012 12:37:49 AM
Iron	31,700	5.73		mg/Kg-dry	1	10/30/2012 12:37:49 AM
Lead	24.0	0.208		mg/Kg-dry	1	10/30/2012 12:37:49 AM
Nickel	41.5	0.104		mg/Kg-dry	1	10/30/2012 12:37:49 AM
Zinc	470	0.417		mg/Kg-dry	1	10/30/2012 12:37:49 AM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R6352	Analyst: SG
Percent Moisture	33.4			wt%	1	10/30/2012 1:09:12 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210248

Date Reported: 10/30/2012

Client: Libby Environmental

Collection Date: 10/26/2012 7:00:00 AM

Project: Irondale

Lab ID: 1210248-002

Matrix: Soil

Client Sample ID: MRZ-B1-102612

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Total Metals by EPA Method 6020</u>			Batch ID: 3529		Analyst: SG	
Arsenic	1.87	0.0888		mg/Kg-dry	1	10/30/2012 12:46:48 AM
Copper	14.9	0.178		mg/Kg-dry	1	10/30/2012 12:46:48 AM
Iron	15,500	4.88		mg/Kg-dry	1	10/30/2012 12:46:48 AM
Lead	2.50	0.178		mg/Kg-dry	1	10/30/2012 12:46:48 AM
Nickel	45.1	0.0888		mg/Kg-dry	1	10/30/2012 12:46:48 AM
Zinc	37.5	0.355		mg/Kg-dry	1	10/30/2012 12:46:48 AM
<u>Sample Moisture (Percent Moisture)</u>			Batch ID: R6352		Analyst: SG	
Percent Moisture	17.2			wt%	1	10/30/2012 1:09:12 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210248

Date Reported: 10/30/2012

Client: Libby Environmental

Collection Date: 10/26/2012 8:15:00 AM

Project: Irondale

Lab ID: 1210248-003

Matrix: Soil

Client Sample ID: MRZ-B2-102612

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Total Metals by EPA Method 6020</u>					Batch ID: 3529	Analyst: SG
Arsenic	52.2	0.0847		mg/Kg-dry	1	10/30/2012 12:55:47 AM
Copper	1,580	0.169		mg/Kg-dry	1	10/30/2012 12:55:47 AM
Iron	55,400	233	D	mg/Kg-dry	50	10/30/2012 11:49:12 AM
Lead	2.09	0.169		mg/Kg-dry	1	10/30/2012 12:55:47 AM
Nickel	7.48	0.0847		mg/Kg-dry	1	10/30/2012 12:55:47 AM
Zinc	66.8	0.339		mg/Kg-dry	1	10/30/2012 12:55:47 AM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R6352	Analyst: SG
Percent Moisture	7.73			wt%	1	10/30/2012 1:09:12 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210248

Date Reported: 10/30/2012

Client: Libby Environmental

Collection Date: 10/26/2012 8:23:00 AM

Project: Irondale

Lab ID: 1210248-004

Matrix: Soil

Client Sample ID: MRZ-B3-102612

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Total Metals by EPA Method 6020</u>					Batch ID: 3529	Analyst: SG
Arsenic	9.10	0.0615		mg/Kg-dry	1	10/30/2012 1:38:39 AM
Copper	254	0.123		mg/Kg-dry	1	10/30/2012 1:38:39 AM
Iron	20,300	3.38		mg/Kg-dry	1	10/30/2012 1:38:39 AM
Lead	7.49	0.123		mg/Kg-dry	1	10/30/2012 1:38:39 AM
Nickel	51.4	0.0615		mg/Kg-dry	1	10/30/2012 1:38:39 AM
Zinc	51.5	0.246		mg/Kg-dry	1	10/30/2012 1:38:39 AM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R6352	Analyst: SG
Percent Moisture	21.1			wt%	1	10/30/2012 1:09:12 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210248

Date Reported: 10/30/2012

Client: Libby Environmental

Collection Date: 10/26/2012 11:00:00 A

Project: Irondale

Lab ID: 1210248-005

Matrix: Soil

Client Sample ID: MRZ-B4-102612

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 3529

Analyst: SG

Arsenic	5.60	0.0937		mg/Kg-dry	1	10/30/2012 1:47:38 AM
Copper	71.0	0.187		mg/Kg-dry	1	10/30/2012 1:47:38 AM
Iron	17,800	5.15		mg/Kg-dry	1	10/30/2012 1:47:38 AM
Lead	4.86	0.187		mg/Kg-dry	1	10/30/2012 1:47:38 AM
Nickel	48.7	0.0937		mg/Kg-dry	1	10/30/2012 1:47:38 AM
Zinc	50.0	0.375		mg/Kg-dry	1	10/30/2012 1:47:38 AM

Sample Moisture (Percent Moisture)

Batch ID: R6352

Analyst: SG

Percent Moisture	17.3			wt%	1	10/30/2012 1:09:12 PM
------------------	------	--	--	-----	---	-----------------------

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210248

Date Reported: 10/30/2012

Client: Libby Environmental

Collection Date: 10/26/2012 11:15:00 A

Project: Irondale

Lab ID: 1210248-006

Matrix: Soil

Client Sample ID: MRZ-B5-102612

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Total Metals by EPA Method 6020</u>			Batch ID: 3529		Analyst: SG	
Arsenic	1.13	0.0838		mg/Kg-dry	1	10/30/2012 1:56:37 AM
Copper	15.0	0.168		mg/Kg-dry	1	10/30/2012 1:56:37 AM
Iron	5,390	4.61		mg/Kg-dry	1	10/30/2012 1:56:37 AM
Lead	0.907	0.168		mg/Kg-dry	1	10/30/2012 1:56:37 AM
Nickel	12.2	0.0838		mg/Kg-dry	1	10/30/2012 1:56:37 AM
Zinc	12.9	0.335		mg/Kg-dry	1	10/30/2012 1:56:37 AM
<u>Sample Moisture (Percent Moisture)</u>			Batch ID: R6352		Analyst: SG	
Percent Moisture	7.51			wt%	1	10/30/2012 1:09:12 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Work Order: 1210248
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: MB-3529	SampType: MBLK	Units: mg/Kg	Prep Date: 10/29/2012	RunNo: 6345							
Client ID: MBLKS	Batch ID: 3529		Analysis Date: 10/29/2012	SeqNo: 125866							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.100									
Copper	ND	0.200									
Iron	ND	5.50									
Lead	ND	0.200									
Nickel	ND	0.100									
Zinc	ND	0.400									

Sample ID: LCS-3529	SampType: LCS	Units: mg/Kg	Prep Date: 10/29/2012	RunNo: 6345							
Client ID: LCSS	Batch ID: 3529		Analysis Date: 10/29/2012	SeqNo: 125867							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	116	0.100	102.0	0	113	69.41	130.4				
Copper	262	0.200	250.0	0	105	75.6	124				
Iron	3,720	5.50	4,790	0	77.7	3.32	227.6				
Lead	77.6	0.200	72.10	0	108	68.1	131.9				
Nickel	430	0.100	384.0	0	112	74.74	125.5				
Zinc	922	0.400	831.0	0	111	74.01	126.4				

Sample ID: 1210212-047BDUP	SampType: DUP	Units: mg/Kg	Prep Date: 10/29/2012	RunNo: 6345							
Client ID: BATCH	Batch ID: 3529		Analysis Date: 10/29/2012	SeqNo: 125869							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	8.68	0.0893						8.577	1.19	30	
Copper	43.0	0.179						38.41	11.3	30	
Iron	32,000	4.91						29,650	7.68	30	
Lead	5.43	0.179						5.158	5.14	30	
Nickel	91.5	0.0893						83.68	8.91	30	
Zinc	86.0	0.357						93.08	7.86	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1210248
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: 1210212-047BDUP	SampType: DUP	Units: mg/Kg	Prep Date: 10/29/2012	RunNo: 6345							
Client ID: BATCH	Batch ID: 3529	Analysis Date: 10/29/2012	SeqNo: 125869								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 1210212-047BMS	SampType: MS	Units: mg/Kg	Prep Date: 10/29/2012	RunNo: 6345							
Client ID: BATCH	Batch ID: 3529	Analysis Date: 10/29/2012	SeqNo: 125871								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	54.2	0.0769	38.46	8.577	119	75	125				
Copper	76.6	0.154	38.46	38.41	99.2	75	125				
Iron	29,900	4.23	384.6	29,650	61.4	75	125				SE
Lead	23.0	0.154	19.23	5.158	92.9	75	125				
Nickel	124	0.0769	38.46	83.68	104	75	125				
Zinc	129	0.308	38.46	93.08	93.0	75	125				

NOTES:

S - Outlying spike recovery(ies) observed. Analyte concentration is too high for accurate MS/MSD recoveries.

Sample ID: 1210212-047BMSD	SampType: MSD	Units: mg/Kg	Prep Date: 10/29/2012	RunNo: 6345							
Client ID: BATCH	Batch ID: 3529	Analysis Date: 10/29/2012	SeqNo: 125872								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	53.8	0.0820	40.98	8.577	110	75	125	54.16	0.671	30	
Copper	85.0	0.164	40.98	38.41	114	75	125	76.57	10.5	30	
Iron	32,800	4.51	409.8	29,650	763	75	125	29,880	9.23	30	SE
Lead	25.1	0.164	20.49	5.158	97.3	75	125	23.03	8.54	30	
Nickel	135	0.0820	40.98	83.68	125	75	125	123.8	8.58	30	
Zinc	143	0.328	40.98	93.08	123	75	125	128.8	10.7	30	

NOTES:

S - Outlying spike recovery(ies) observed. Analyte concentration is too high for accurate MS/MSD recoveries.

Qualifiers:	B Analyte detected in the associated Method Blank	D Dilution was required	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits	ND Not detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit	S Spike recovery outside accepted recovery limits

Work Order: 1210248
 CLIENT: Libby Environmental
 Project: Irondale

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: 1210212-047BPDS	SampType: PDS	Units: mg/Kg	Prep Date: 10/29/2012	RunNo: 6345							
Client ID: BATCH	Batch ID: 3529	Analysis Date: 10/29/2012	SeqNo: 125873								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	29,700	4.30	391	29,600	6.78	75	125				SE

NOTES:

S - High analyte concentration prevents accurate spike recovery.

Sample ID: CCV-3529D	SampType: CCV	Units: µg/L	Prep Date: 10/29/2012	RunNo: 6345							
Client ID: CCV	Batch ID: 3529	Analysis Date: 10/30/2012	SeqNo: 126005								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	1,360	55.0	1,500	0	90.8	90	110				

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Client Name: **LIBBY**

 Work Order Number: **1210248**

 Logged by: **Troy Zehr**

 Date Received: **10/29/2012 3:10:00 PM**

Chain of Custody

1. Were custodial seals present? Yes No Not Required
2. Is Chain of Custody complete? Yes No Not Present
3. How was the sample delivered? Client

Log In

4. Coolers are present? Yes No NA
5. Was an attempt made to cool the samples? Yes No NA
6. Were all coolers received at a temperature of >0° C to 10.0°C Yes No NA
7. Sample(s) in proper container(s)? Yes No
8. Sufficient sample volume for indicated test(s)? Yes No
9. Are samples properly preserved? Yes No
10. Was preservative added to bottles? Yes No NA
11. Is there headspace present in VOA vials? Yes No NA
12. Did all sample containers arrive in good condition?(unbroken) Yes No
13. Does paperwork match bottle labels? Yes No
14. Are matrices correctly identified on Chain of Custody? Yes No
15. Is it clear what analyses were requested? Yes No
16. Were all holding times able to be met? Yes No

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks/Discrepancies

Item Information

Item #	Temp °C	Condition
Cooler	9.1	Good

Chain of Custody Record

Libby Environmental, Inc.
 4139 Libby Road NE
 Olympia, WA 98506
 Ph: 360-352-2110
 Fax: 360-352-4154

Client: Libby Environmental
 Address: SEE ABOVE
 City: _____ State: _____ Zip: _____
 Phone: _____ Fax: _____
 Client Project # _____

Date: 10/29/12 Page: 1 of 1
 Project Manager: JAMIE DEYMAN
 Project Name: IRONDALE
 Location: _____ City, State: _____
 Collector: _____ Date of Collection: 10/23-10/26
 Email: _____

Sample Number	Depth	Time	Sample Type	Container Type	Field Notes
1	MARZ-05-102412	13:30	Soil	462 JAL	<div style="border: 1px solid black; padding: 5px; transform: rotate(-45deg); display: inline-block;"> METALS MTCX 5 Metals PCBs 8082 PAH 8270 NMTPH-DX EX NMTPH-DX NMTPH-GX NMTPH-HCID NMTPH-VOL 8270 SEM VOL 8270 VOA 8218 BTEX ONLY VOA 8218 </div>
2	MARZ-01-102412	1:00			
3	MARZ-07-102412	8:15			
4	MARZ-03-102412	8:23			
5	MARZ-04-102412	11:00			
6	MARZ-05-102412	11:15			
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					

Relinquished by: [Signature] Date / Time: 10/29/12 15:10
 Relinquished by: [Signature] Date / Time: 10/29/12 15:10
 Relinquished by: _____ Date / Time: _____

Received by: [Signature] Date / Time: 10/29/12 15:10
 Received by: _____ Date / Time: _____
 Received by: _____ Date / Time: _____

Sample Receipt:
 Good Condition? _____
 Cold? _____
 Seals Intact? _____
 Total Number of Containers: _____

Remarks: * ARSENIC, COPPER, IRON, LEAD, NICKEL, ZINC

TAT: 24HR 48HR 5-DAY



Libby Environmental, Inc.

4139 Libby Road NE • Olympia, WA 98506-2518

November 23, 2012

Neil Morton
GeoEngineers Inc.
600 Stewart Street, Suite 1700
Seattle, WA 98101

Dear Mr. Morton:

Please find enclosed the analytical data report for the Irondale Project located in Irondale, Washington. A water sample was analyzed for Diesel & Oil by NWTPH-Dx/Dx Extended and soil samples were analyzed for Metals Arsenic, Copper, Iron, Lead, Nickel and Zinc by EPA Method 6020 on November 1, 2012.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. All soil samples are reported on a dry weight basis. An invoice for this analytical work is enclosed.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Jamie L. Deyman
President
Libby Environmental, Inc.

Phone (360) 352-2110 • Fax (360) 352-4154 • libbyenv@aol.com

www.LibbyEnvironmental.com



Libby Environmental, Inc.

Case Narrative

Libby Project #: L121031-11
Date: 11-23-2012

CLIENT: GeoEngineers, Inc.
PROJECT: Irondale

I. SAMPLE RECEIPT:

All samples were received intact and in good condition. See the attached Sample Receipt Check List for more information.

II. GENERAL REPORTING COMMENTS:

N/A

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) and/or noted below.

Notes:

For the water matrix, a Method Blank and sample duplicate were analyzed. Neither an LCS nor an LCSD were prepared or analyzed due to practical time constraints. The NWTPH-Dx method does not recommend LCS or LCSD.

Libby Environmental, Inc.

Chain of Custody Record

4139 Libby Road NE
Olympia, WA 98506
Ph: 360-352-2110
Fax: 360-352-4154

Date: 10/29 Page: 1 of 1

Client: GEDE ENVIRONMENTALS

Project Manager: NEIL MORTON

Address: 1101 S FAUCETT AVE SUITE 200 TACOMA WA

Project Name: TROWDALE

Phone: 253 383 4940 Fax:

Location: TROWDALE City: TROWDALE

Client Project # 0504-042-02

Collector: PAUL ROBINETTE Date of Collection: 10/29 - 10/30



Sample Number	Depth	Time	Sample Type	Container Type	Analytes											Field Notes			
					VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEMI VOL 8270	NWTPH-HCID	NWTPH-GX	NWTPH-DX	PAH 8270	PCB's 8082	MTCA 5 Metals	Metals				
1 MRZ-B1-102712	8	1244	SOIL	4oz														X	See below
2 MRZ-B2-102712	9	1310	SOIL	4oz														X	
3 ROAD-1-103012	3	1135	SOIL	4oz														X	
4 ROAD-2-103012	1	1145	SOIL	4oz														X	
5 DW8-103112	-	0700	WATER	500 ml						X									RUSH DX
6																			
7																			
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			
16																			
17																			
18																			

Relinquished by: <u>Paul Robinette</u>	Date / Time: <u>10/31/12 1230</u>	Received by: <u>[Signature]</u>	Date / Time: <u>10/31/12 1230</u>	Sample Receipt:	Remarks: Analyze metals for: Arsenic, Copper, IRON, LEAD, NICKEL, ZINC 24 hr
Relinquished by:	Date / Time:	Received by:	Date / Time:	Good Condition?	
Relinquished by:	Date / Time:	Received by:	Date / Time:	Cold? <u>8.0°C</u>	
Relinquished by:	Date / Time:	Received by:	Date / Time:	Seals Intact?	
				Total Number of Containers:	

Libby Environmental, Inc. Login Sample Receipt Check List

Client: GeoEngineers, Inc. **Libby Project Number:** L121031-11

Question	T / F / NA	Comment
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler temperature is acceptable.	True	
Cooler temperature is recorded.	True	8.0°C
COC is present.	True	
COC is filled out in ink and is legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within the Hold Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs.	True	
VOA sample vials do not have headspace or bubble is less than 6mm (1/4 in.) in diameter.	True	
If necessary, staff has been informed of any short hold time or quick TAT needs.	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	

Libby Environmental, Inc.

IRONDALE PROJECT

GeoEngineers, Inc.

Irondale, Washington

Libby Project # L121031-11

Client Project # 0504-042-02

4139 Libby Road NE

Olympia, WA 98506

Phone: (360) 352-2110

FAX: (360) 352-4154

Email: libbyenv@aol.com

Analyses of Diesel & Oil Range (NWTPH-Dx/Dx Extended) in Water

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel ($\mu\text{g/l}$)	Bunker C ($\mu\text{g/l}$)
Method Blank	11/1/12	109	nd	nd
DW8-103112	11/1/12	117	nd	nd
DW8-103112 Dup	11/1/12	118	nd	nd
Practical Quantitation Limit			200	400

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Jamie Deyman

Client: Geo Engineers

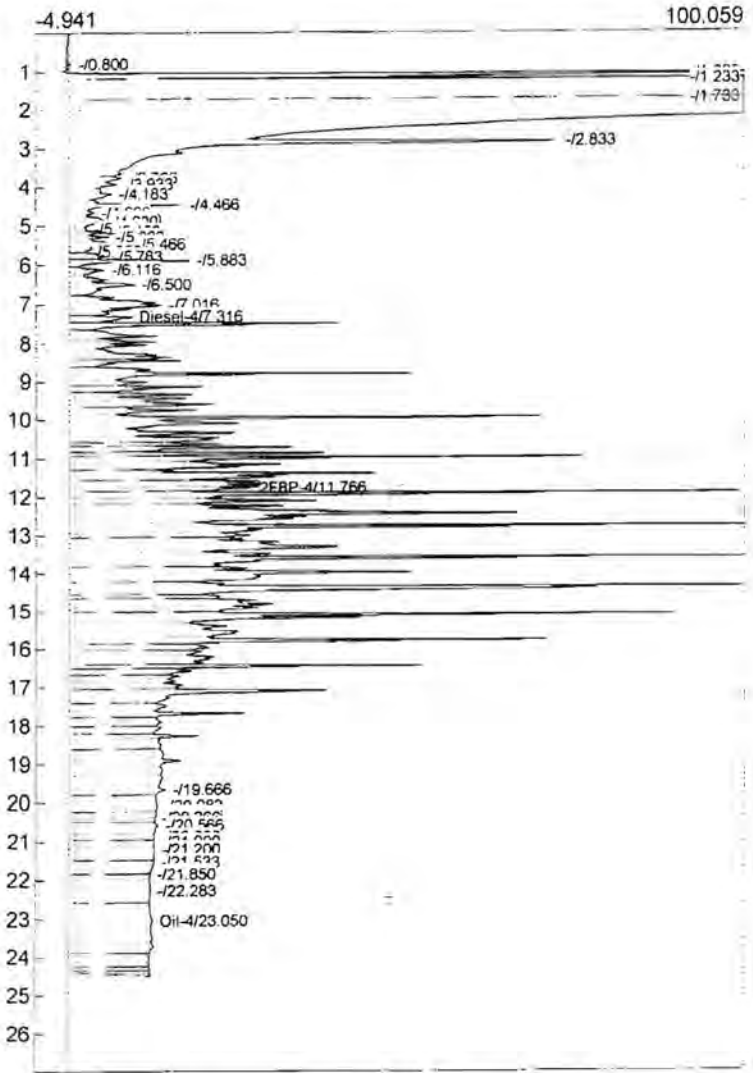
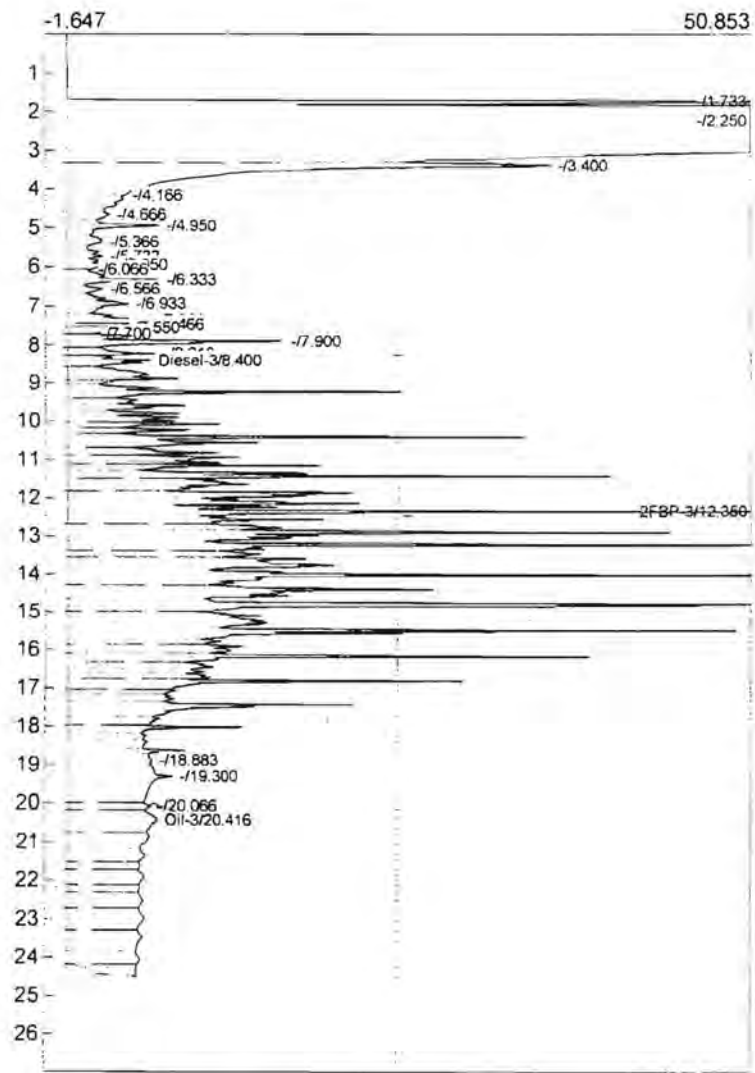
Client Project: Irondale

Date: 1/11/2013

Libby Job #: L121023-6		Instrument: Shimadzu GC14A Elmer			Analyst/s: Kyle Williams		
Sample #	Time	Run	Vol	Surrogate 2FBP conc.	Diesel Conc.	Oil Conc	Bunker C Conc
500 ppm Diesel 806	10:00:10	C158	3 µl		514		
500 ppm Diesel 806	10:00:10	D157	3 µl		503		
Method Blank	10:29:24	D158	3 µl	21.8	nd	nd	nd
DW8-103112	11:19:59	D159	3 µl	23.3	nd	nd	nd
DW8-103112 Dup	11:50:14	D160	3 µl	23.7	nd	nd	nd
500 ppm Diesel 806	13:32:30	D161	3 µl		477		

Lab name: Libby Environmental
 Analysis date: 11/01/2012 10:00:10
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: C158.CHR ()
 Sample: 500 PPM DX 806
 Operator: JD

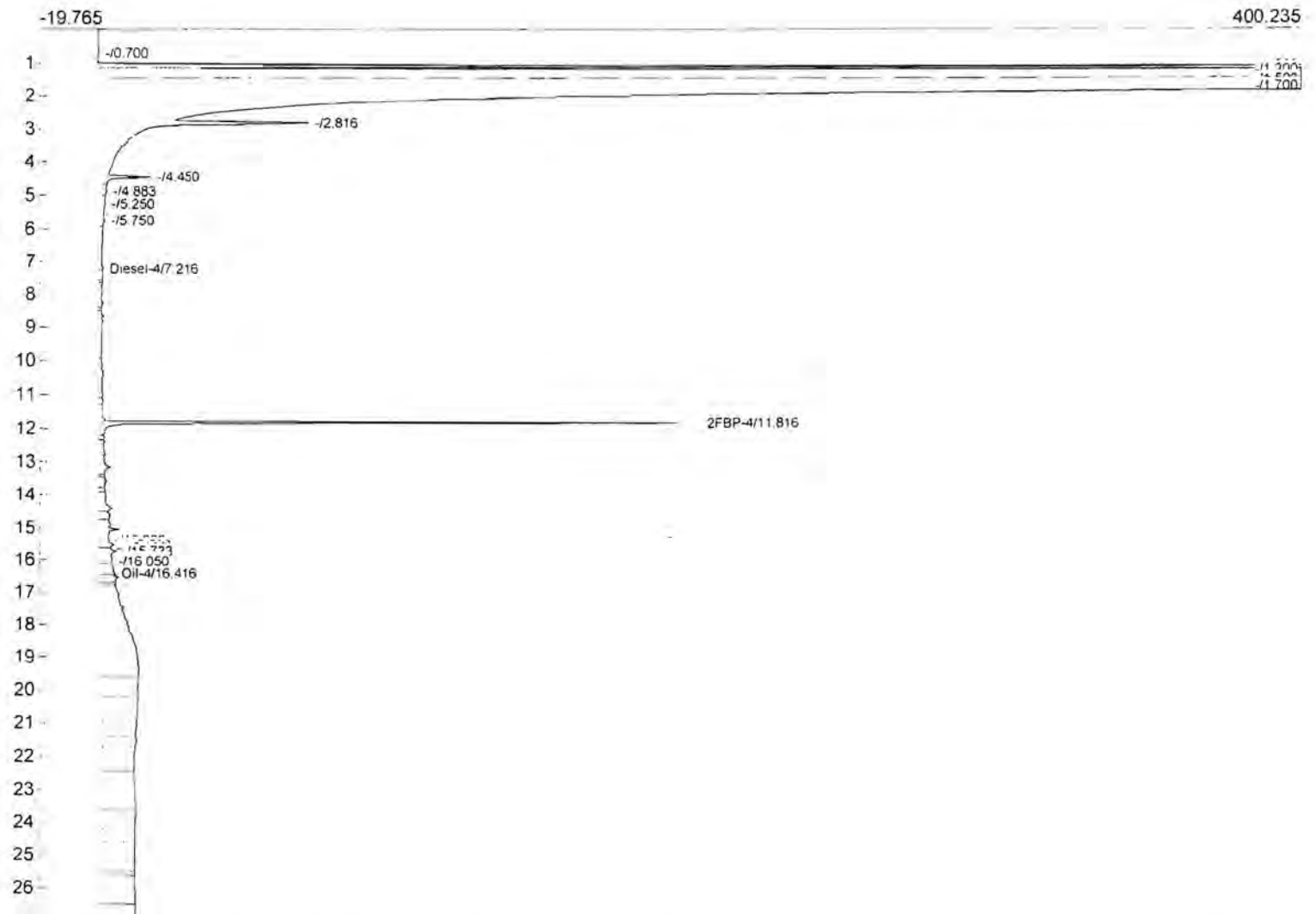
Lab name: Libby Environmental
 Analysis date: 11/01/2012 10:00:10
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: D157.CHR ()
 Sample: 500 PPM DX 806
 Operator: JD



Component	Retention	Area	Height	External	Units
Diesel-3	8.400	7065.4455	6.252	514.2050	ppm
2FBP-3	12.350	288.8920	52.122	19.2595	ppm
Oil-3	20.416	1381.8805	6.589	100.5697	ppm
		8736.2180		634.0342	

Component	Retention	Area	Height	External	Units
Diesel-4	7.316	14644.9040	8.673	503.2779	ppm
2FBP-4	11.766	157.1450	26.382	6.2858	ppm
Oil-4	23.050	1255.9475	11.523	43.1611	ppm
		16057.9965		552.7249	

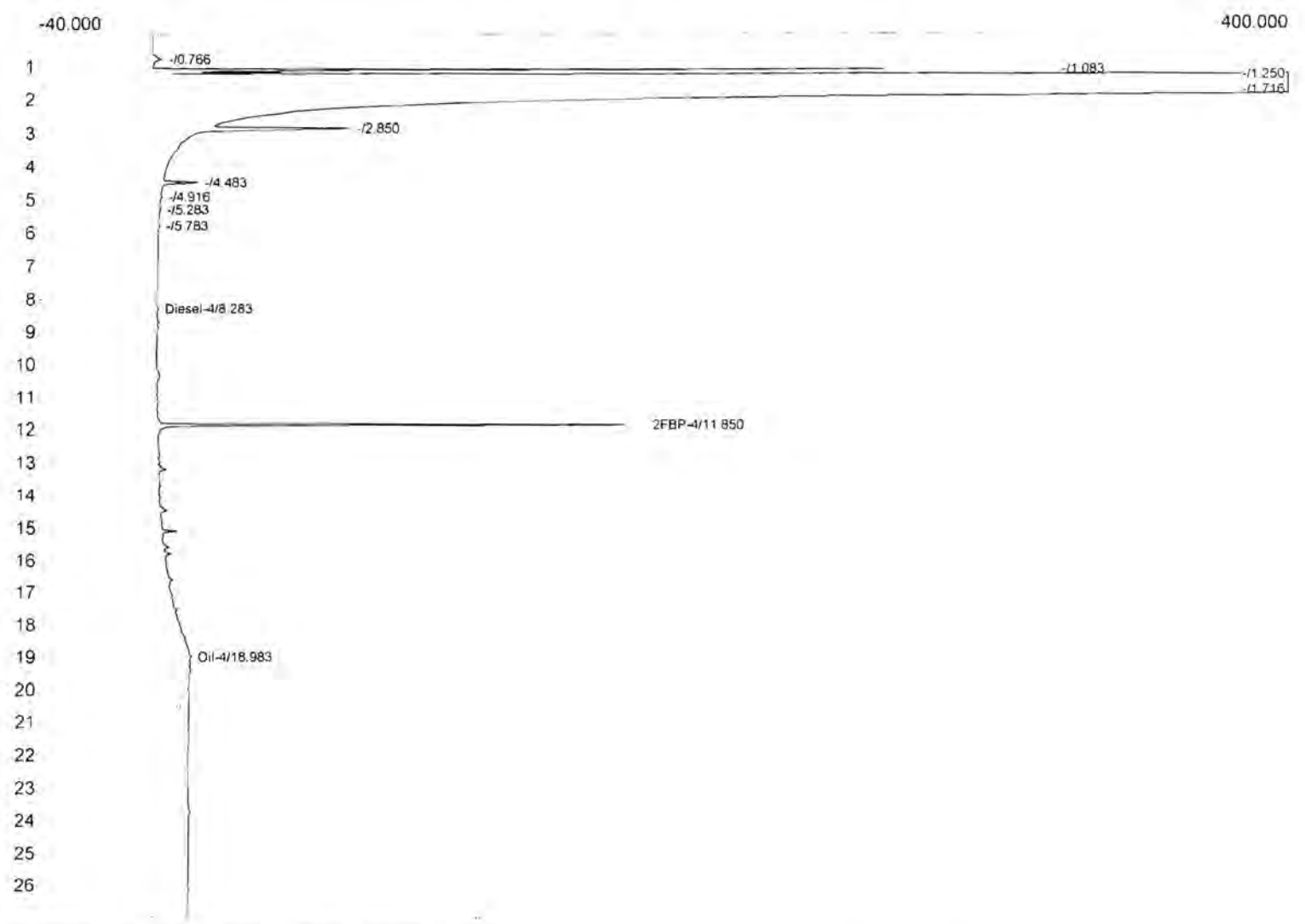
Lab name: Libby Environmental
 Analysis date: 11/01/2012 10:29:24
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: D158.CHR ()
 Sample: MBLANK
 Operator: JD



Component	Retention	Area	Height	External	Units
Diesel-4	7.216	848.0620	0.485	29.1440	ppm
2FBP-4	11.816	545.1900	199.742	21.8076	ppm
Oil-4	16.416	6227.3375	4.275	214.0049	ppm
		7620.5895		264.9565	

1092

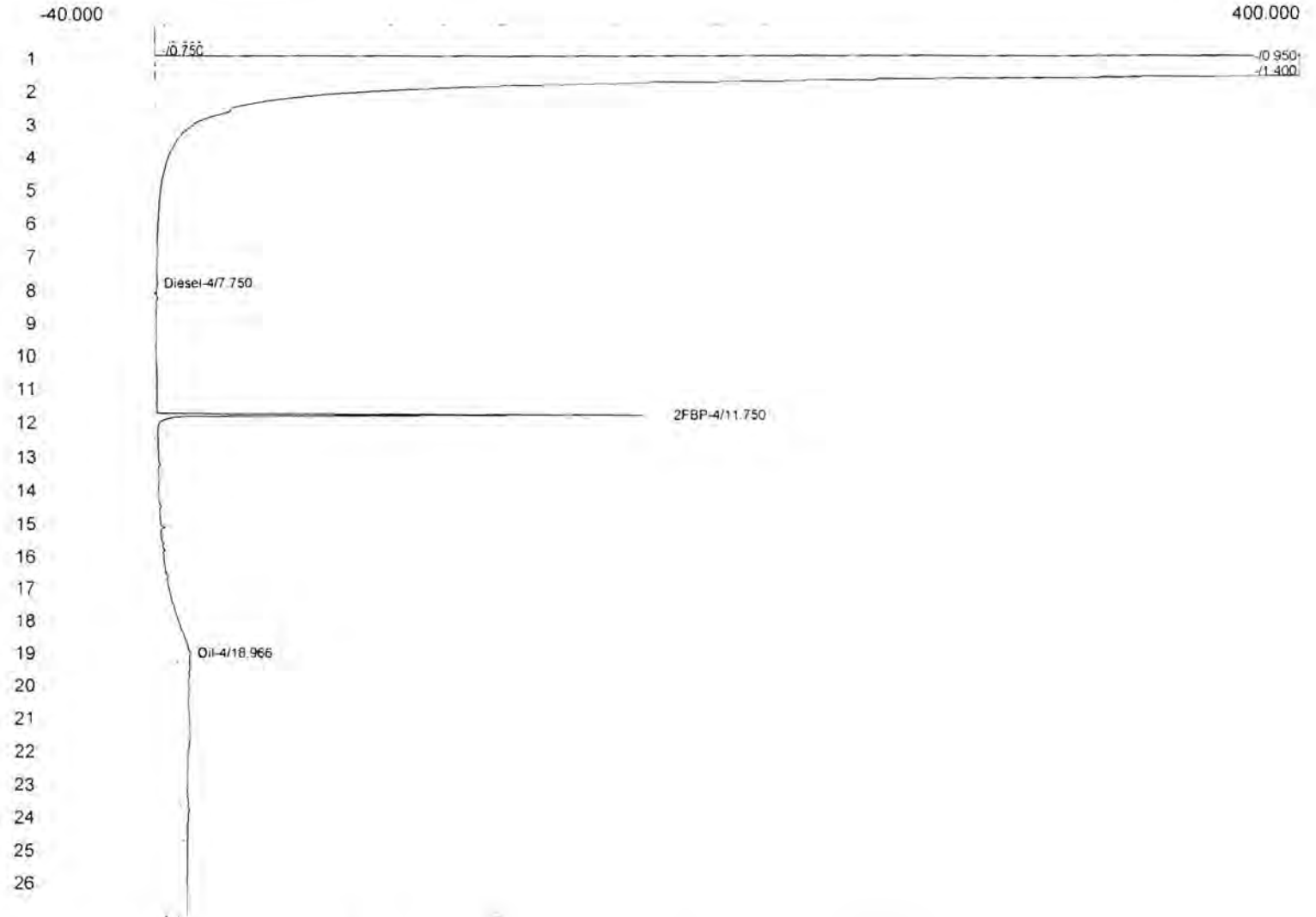
Lab name: Libby Environmental
 Analysis date: 11/01/2012 11 19:59
 Description: Elmer Ch 4
 Data file: D159.chr ()
 Sample: DW8-103112
 Operator: JD



Component	Retention	Area	Height	External	Units
Diesel-4	8.283	579.7210	0.656	19.2081	ppm
2FBP-4	11.850	458.4840	172.590	23.3151	ppm
Oil-4	18.983	1746.7655	6.568	17.1982	ppm
		2784.9705		59.7214	

117%
 nd

Lab name: Libby Environmental
 Analysis date: 11/01/2012 11:50:14
 Description: Elmer Ch 4
 Data file: D160.chr ()
 Sample: DW8-103112 DUP
 Operator: JD

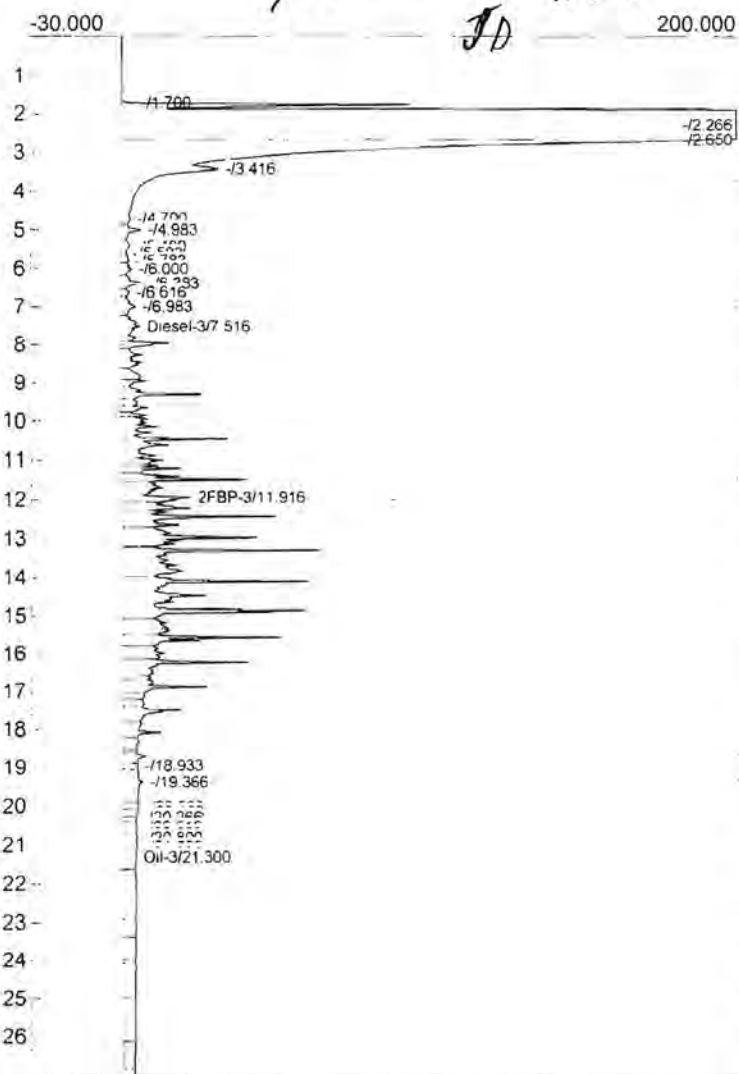


Component	Retention	Area	Height	External	Units
Diesel-4	7.750	508.9720	0.499	16.8639	ppm
2FBP-4	11.750	465.6200	178.803	23.6780	ppm
Oil-4	18.966	1895.0535	6.934	18.6582	ppm
		2869.6455		59.2001	

118%
 nd

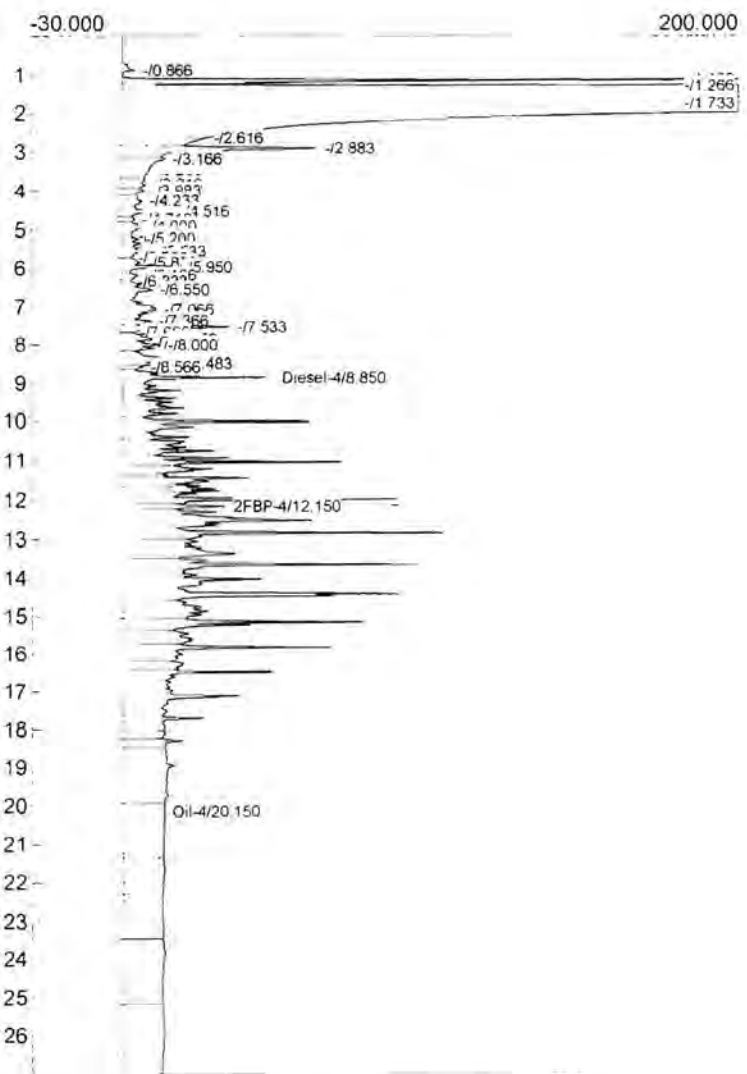
Lab name: Libby Environmental
 Analysis date: 11/01/2012 13:32:30
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: C163.CHR ()
 Sample: 500 PPM DX 806
 Operator: JD

NOT USED
JD 11-1-12

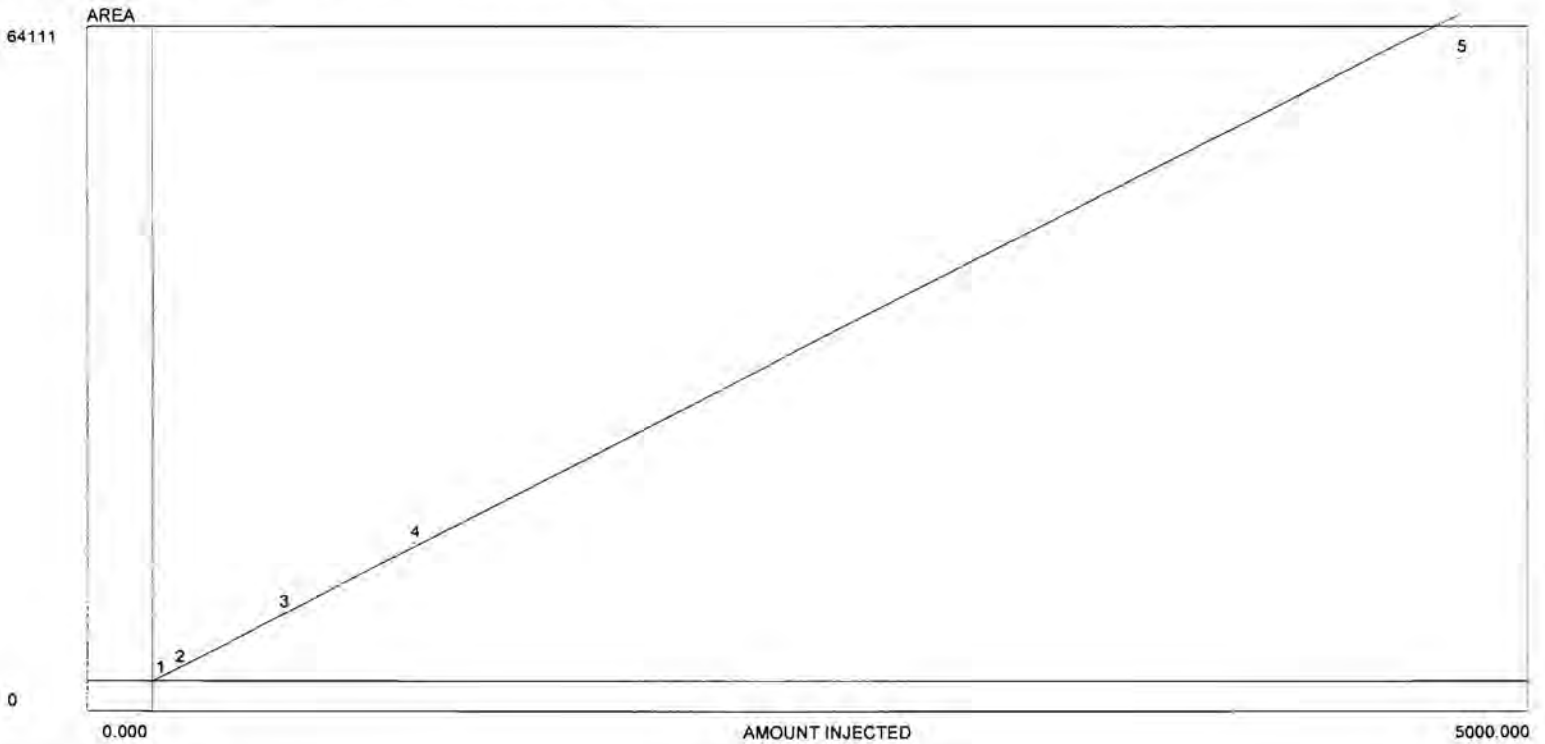


Component	Retention	Area	Height	External	Units
Diesel-3	7.516	6852.9950	5.420	281.9748	ppm
2FBP-3	11.916	160.1395	21.669	4.9274	ppm
Oil-3	21.300	1204.5430	3.670	62.7863	ppm
		8217.6775		349.6885	

Lab name: Libby Environmental
 Analysis date: 11/01/2012 12:32:11
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: D161.CHR ()
 Sample: 500 DX 806
 Operator: JD

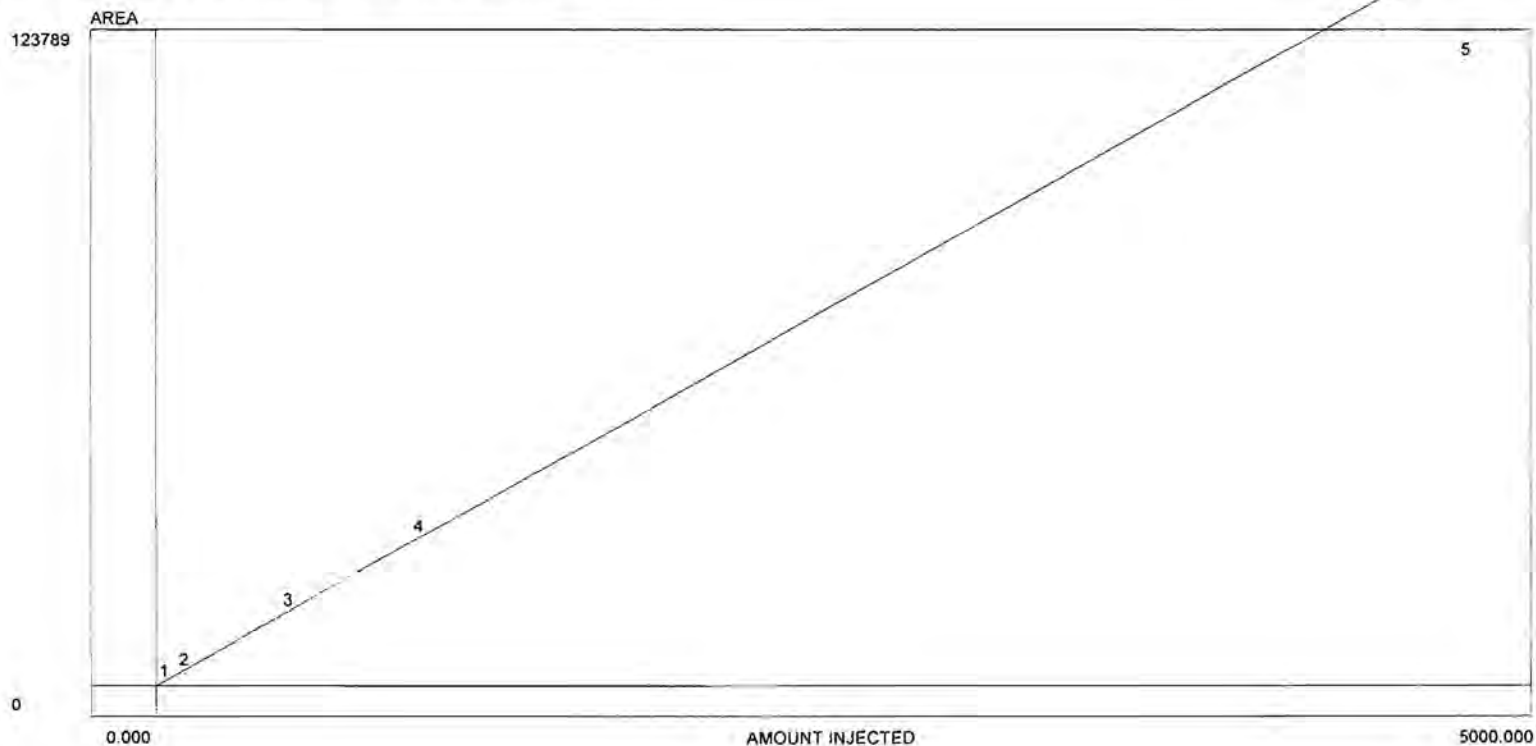


Component	Retention	Area	Height	External	Units
Diesel-4	8.850	13880.4020	49.974	477.0055	ppm
2FBP-4	12.150	191.4660	33.904	6.9624	ppm
Oil-4	20.150	5572.9740	13.800	191.5175	ppm
		19644.8420		675.4854	



Avg slope of curve: 13.74
 Y-axis intercept: -0.00
 Linearity: 1.00
 Number of levels: 5
 SD/rel SD of CF's: 0.7/5.1
 Y=13.7405X
 r2: 0.9996
 Last calibrated: Wed Jun 20 21:18:26 2012

Lvl.	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	329.087	25.000	13.163	329.087	N/A	N/A
2	1442.910	100.000	14.429	1442.910	N/A	N/A
3	7053.939	500.000	14.108	7053.939	N/A	N/A
4	14179.915	1000.000	14.180	14179.915	N/A	N/A
5	64111.245	5000.000	12.822	64111.245	N/A	N/A

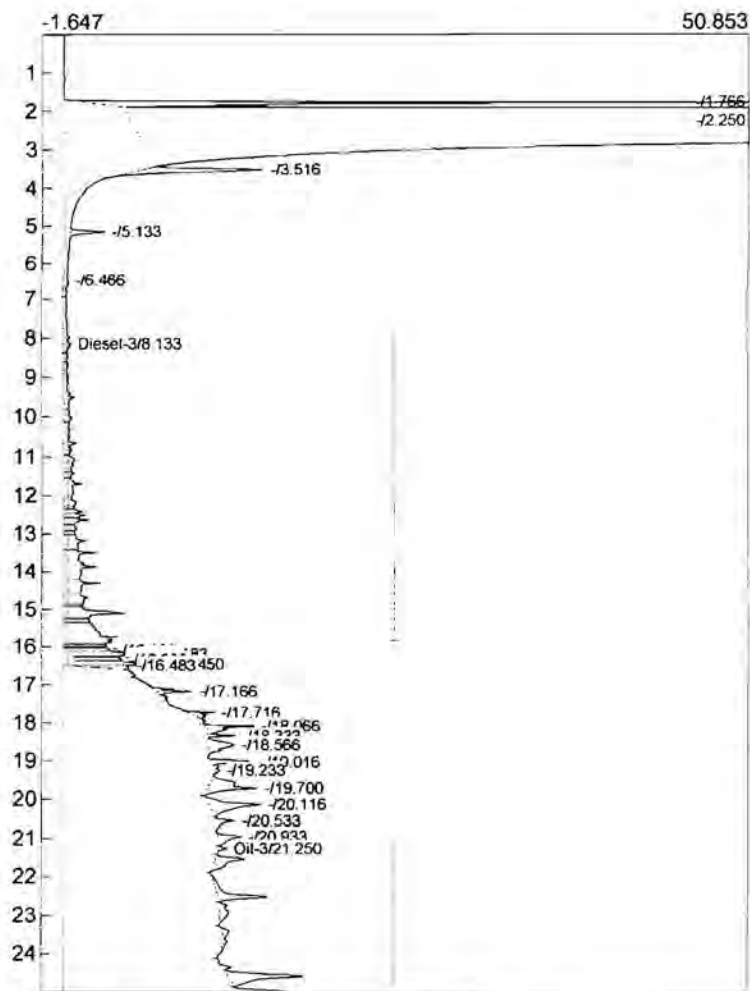


Avg slope of curve: 29.10
 Y-axis intercept: -0.00
 Linearity: 1.00
 Number of levels: 5
 SD/rel SD of CF's: 2.6/8.9
 Y=29.0990X
 r²: 0.9986
 Last calibrated: Wed Jun 20 21:19:11 2012

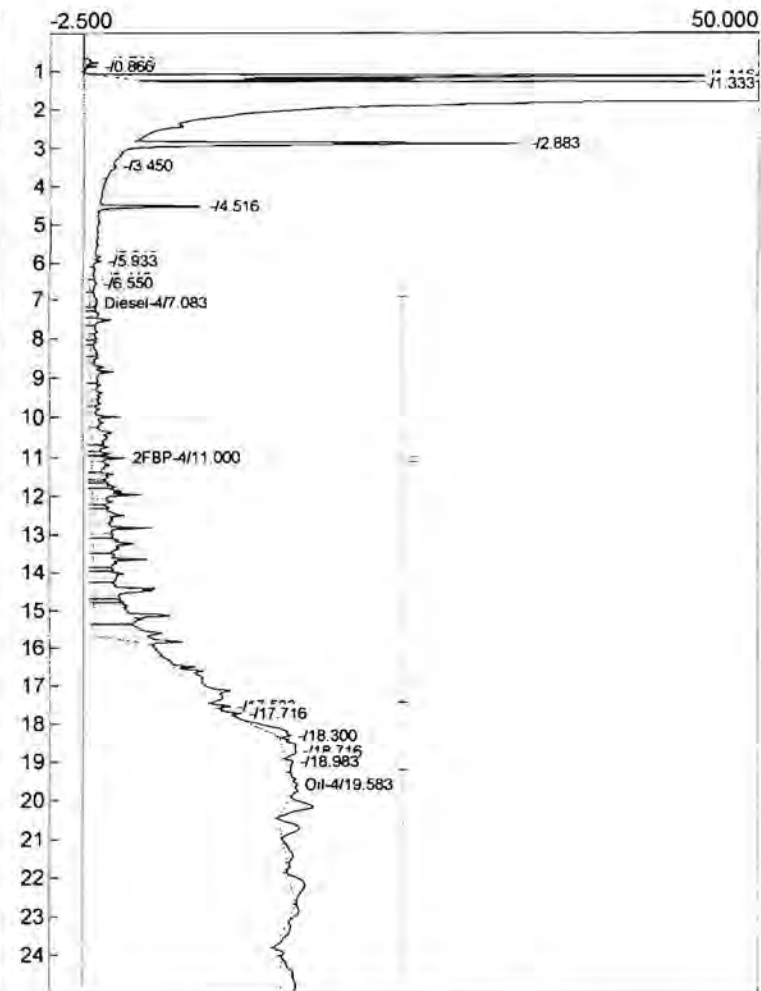
Lvl.	Area/ht	Amount	CF	Current	Previous #1	Previous #2
1	792.519	25.000	31.701	792.519	N/A	N/A
2	3024.632	100.000	30.246	3024.632	N/A	N/A
3	14692.487	500.000	29.385	14692.487	N/A	N/A
4	29405.412	1000.000	29.405	29405.412	N/A	N/A
5	123788.676	5000.000	24.758	123788.676	N/A	N/A

Lab name: Libby Environmental
 Analysis date: 06/20/2012 20:47:50
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH3_C06.CHR ()
 Sample: 25 PPM DIESEL #775
 Operator: JD

Lab name: Libby Environmental
 Analysis date: 06/20/2012 20:47:50
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH4_D06.CHR ()
 Sample: 25 PPM DIESEL #775
 Operator: JD



Component	Retention	Area	Height	External	Units
Diesel-3	8.133	329.0870	0.378	23.9501	ppm
Oil-3	21.250	201.0590	0.576	7.8798	ppm
		530.1460		31.8299	



Component	Retention	Area	Height	External	Units
Diesel-4	7.083	792.5190	0.570	27.2352	ppm
2FBP-4	11.000	11.2495	2.541	0.4284	ppm
Oil-4	19.583	225.9680	0.250	10.8687	ppm
		1029.7365		38.5323	

Lab name: Libby Environmental

Analysis date: 06/20/2012 20:13:11

Description: Elmer CH 3

Column: Restek Rxi-5ms 30x0.53x1.0

Carrier: He

Data file: CH3_C05.CHR ()

Sample: 100 PPM DIESEL #774

Operator: JD

Lab name: Libby Environmental

Analysis date: 06/20/2012 20:13:11

Description: Elmer Ch 4

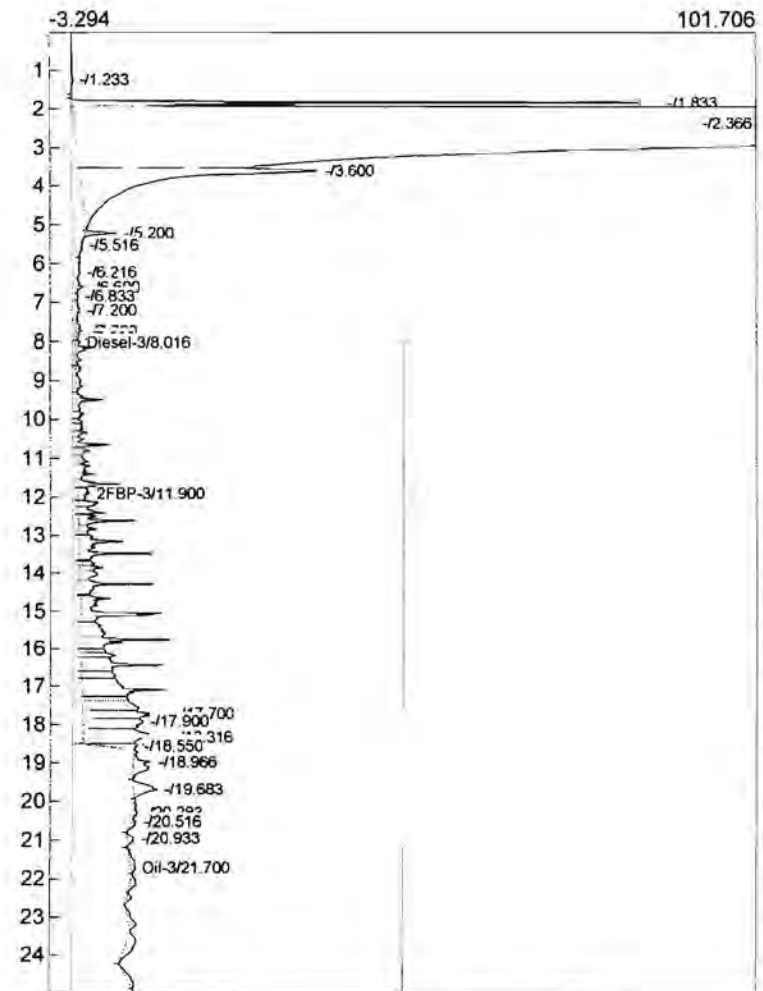
Column: Restek Rxi-5ms 30x0.53x1.0

Carrier: He

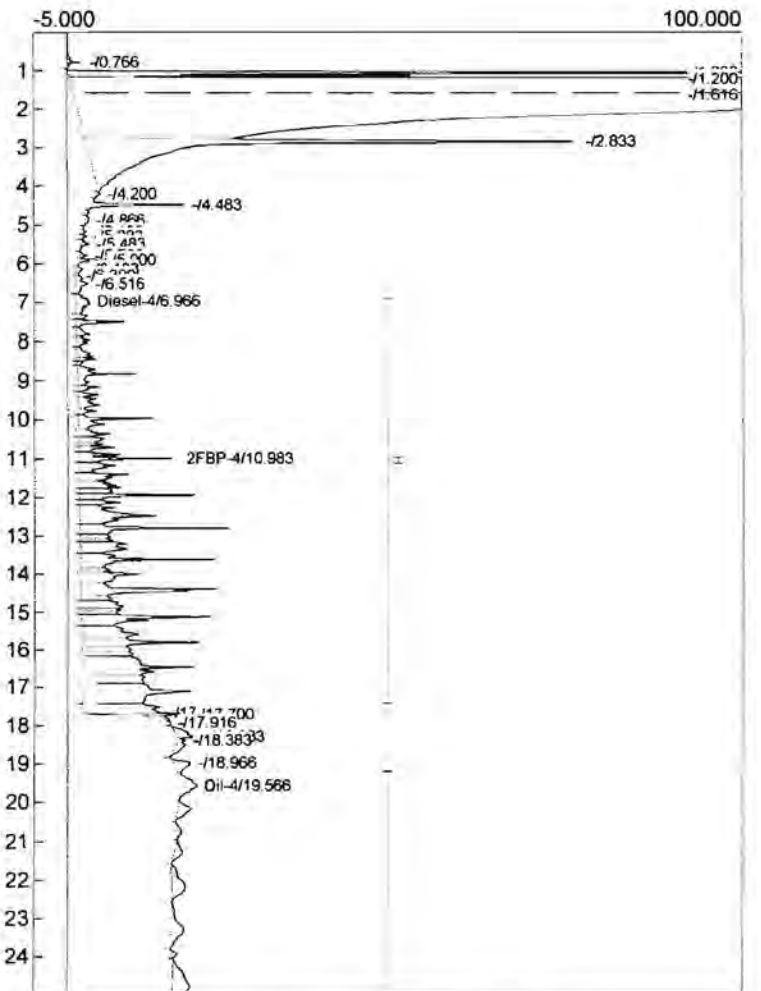
Data file: CH4_D05.CHR ()

Sample: 100 PPM DIESEL #774

Operator: JD



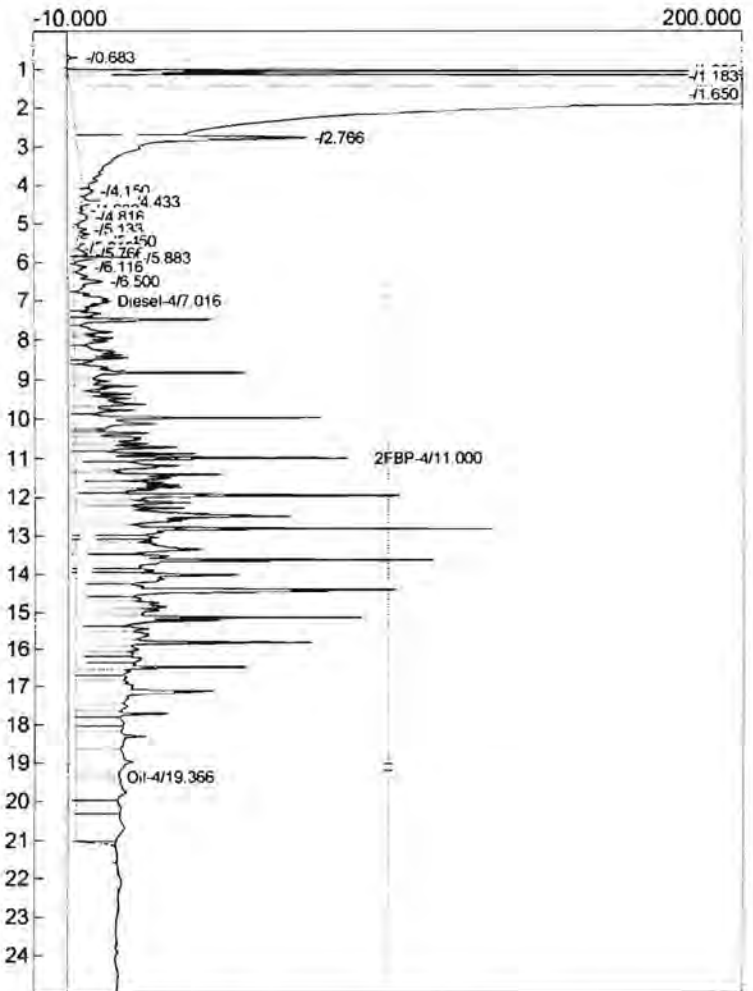
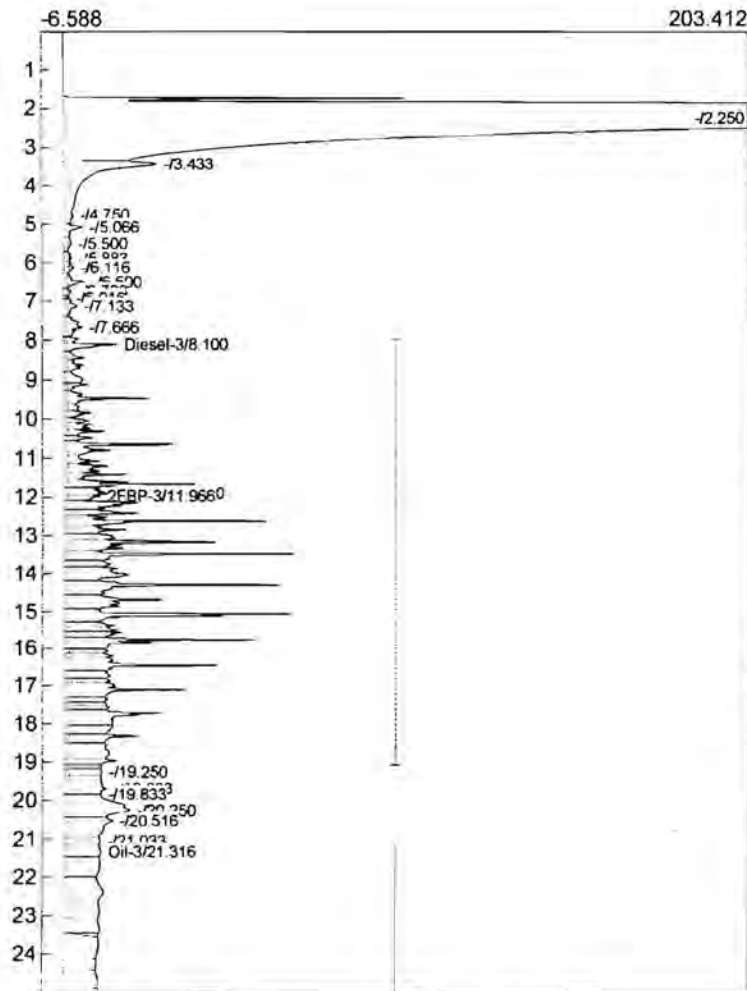
Component	Retention	Area	Height	External	Units
Diesel-3	8.016	1442.9095	0.639	100.2292	ppm
2FBP-3	11.900	23.0560	1.769	5.7640	ppm
Oil-3	21.700	144.1580	0.577	5.6498	ppm
		1610.1235		111.6430	



Component	Retention	Area	Height	External	Units
Diesel-4	6.966	3024.6315	2.135	100.2466	ppm
2FBP-4	10.983	74.0540	14.953	2.8204	ppm
Oil-4	19.566	348.5360	2.470	16.7640	ppm
		3447.2215		119.8309	

Lab name: Libby Environmental
 Analysis date: 06/20/2012 21:21:53
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH3_C07.CHR ()
 Sample: 500 PPM DIESEL #704ICAL
 Operator: JD

Lab name: Libby Environmental
 Analysis date: 06/20/2012 21:21:53
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH4_D07.CHR ()
 Sample: 500 PPM DIESEL #704ICAL
 Operator: JD

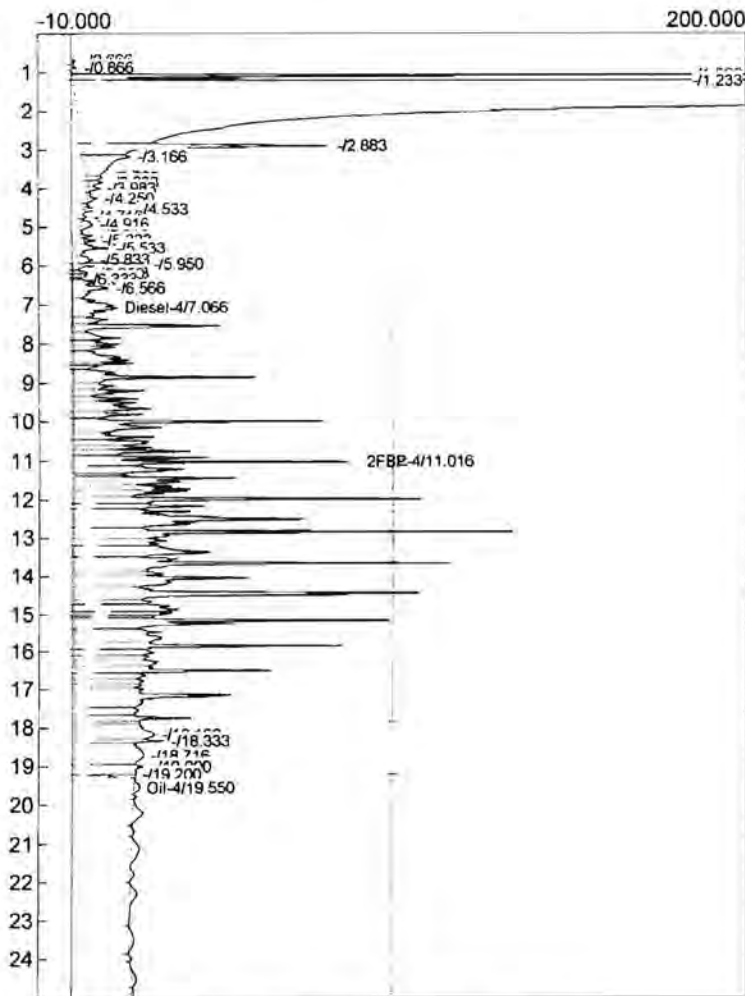
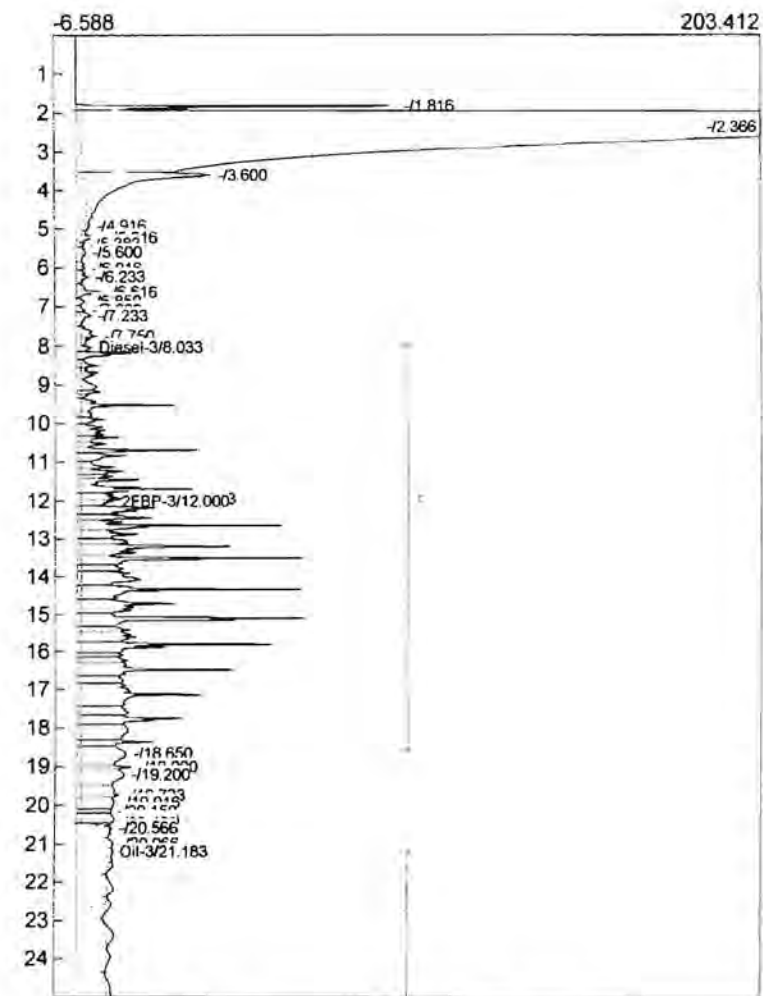


Component	Retention	Area	Height	External	Units
Diesel-3	8.100	7401.3870	15.026	538.6539	ppm
2FBP-3	11.900	100.5155	12.538	25.1289	ppm
2FBP-3	11.966	65.8305	9.677	16.4576	ppm
Oil-3	21.316	1407.3545	9.526	102.4236	ppm
		8975.0875		682.6641	

Component	Retention	Area	Height	External	Units
Diesel-4	7.016	14007.5970	10.800	481.3766	ppm
2FBP-4	11.000	428.5980	86.853	16.3234	ppm
Oil-4	19.366	1497.1540	12.916	51.4503	ppm
		15933.3490		549.1503	

Lab name: Libby Environmental
 Analysis date: 06/20/2012 19:30:52
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH3_C04.CHR ()
 Sample: 500 PPM DIESEL #773
 Operator: JD

Lab name: Libby Environmental
 Analysis date: 06/20/2012 19:30:52
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH4_D04.CHR ()
 Sample: 500 PPM DIESEL #773
 Operator: JD

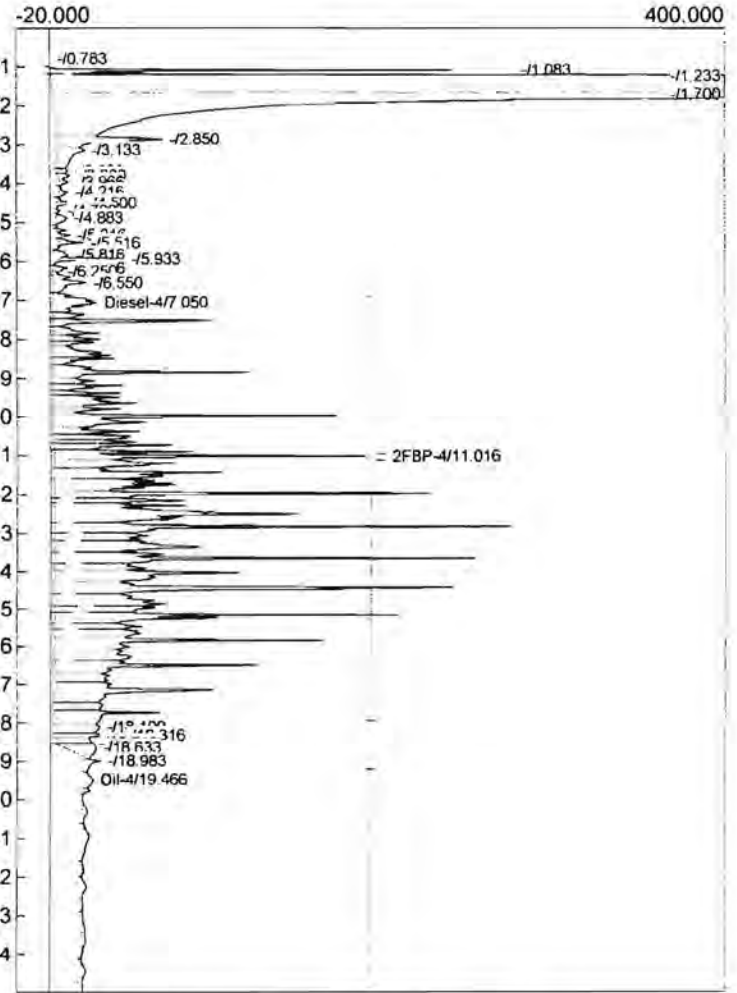
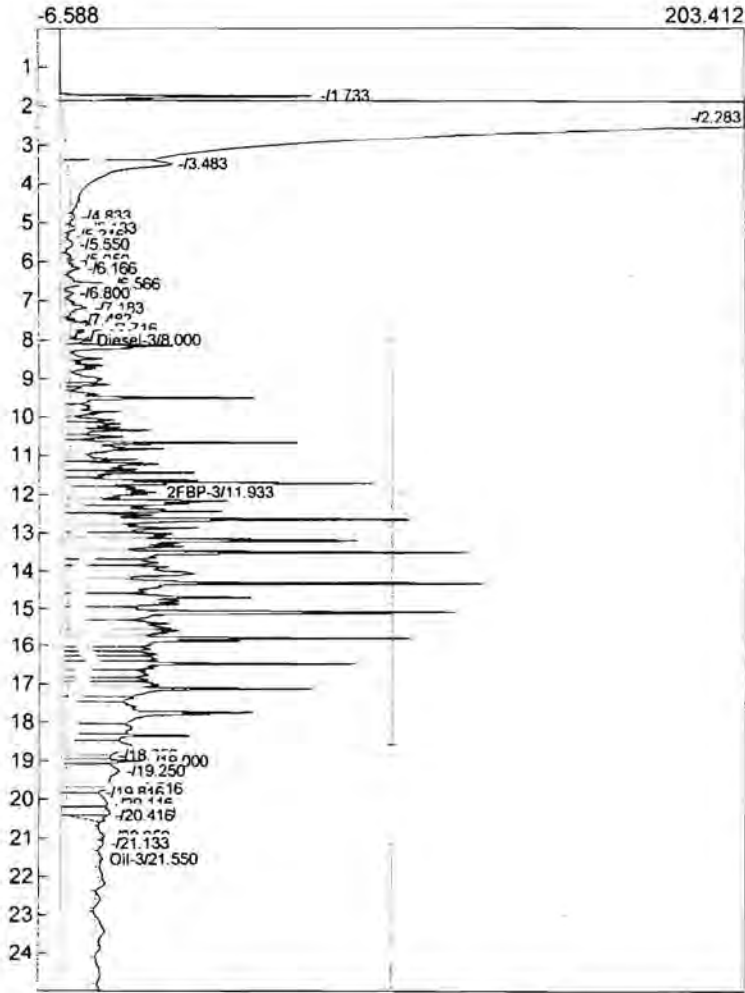


Component	Retention	Area	Height	External	Units
Diesel-3	8.033	7053.9390	3.363	491.2034	ppm
2FBP-3	11.933	100.3650	11.957	25.0912	ppm
2FBP-3	12.000	66.9750	10.007	16.7437	ppm
Oil-3	21.183	231.1530	0.329	9.0592	ppm
		7452.4320		542.0977	

Component	Retention	Area	Height	External	Units
Diesel-4	7.066	14692.4865	13.088	494.6276	ppm
2FBP-4	11.016	468.5260	84.693	17.8441	ppm
Oil-4	19.550	338.8790	1.772	16.2995	ppm
		15499.8915		528.7712	

Lab name: Libby Environmental
 Analysis date: 06/20/2012 18:55:03
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH3_C03.CHR ()
 Sample: 1000 PPM DIESEL #772
 Operator: JD

Lab name: Libby Environmental
 Analysis date: 06/20/2012 18:55:03
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH4_D03.CHR ()
 Sample: 1000 PPM DIESEL #772
 Operator: JD

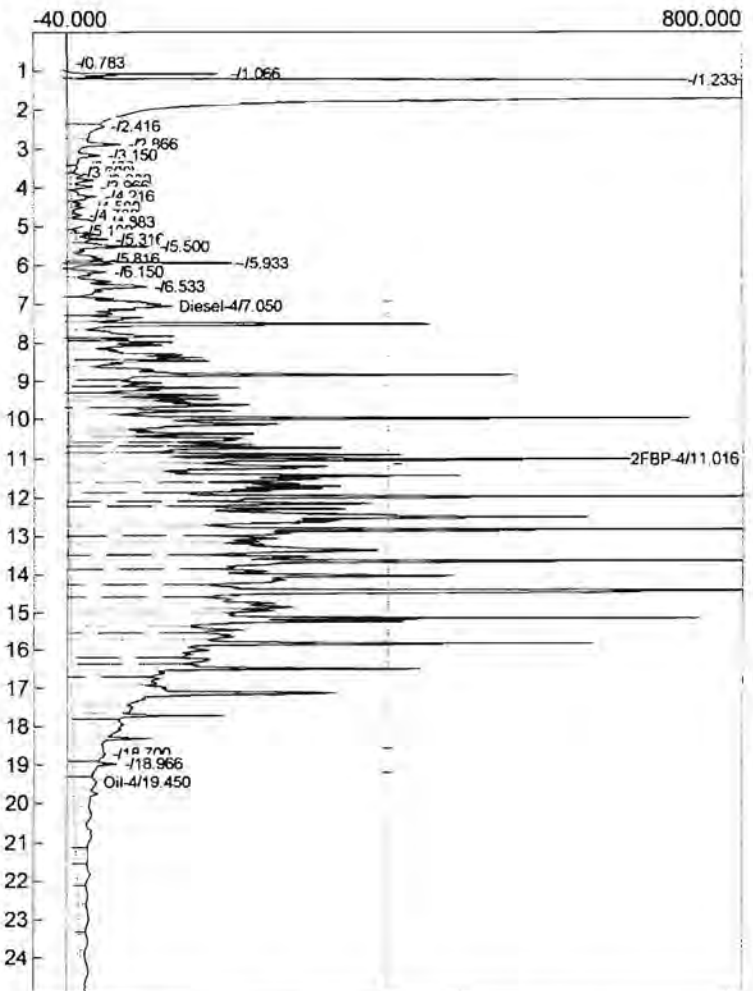
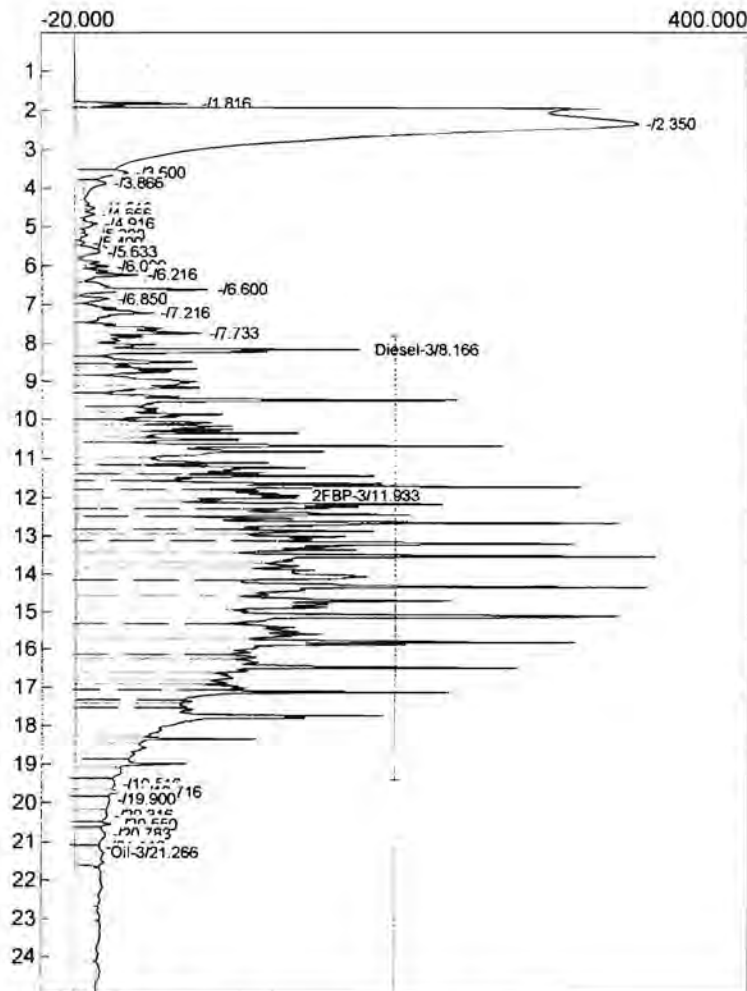


Component	Retention	Area	Height	External	Units
Diesel-3	8.000	14179.9150	6.009	543.3903	ppm
2FBP-3	11.933	344.8200	26.898	86.2050	ppm
Oil-3	21.550	217.1280	1.164	8.5096	ppm
		14741.8630		638.1048	

Component	Retention	Area	Height	External	Units
Diesel-4	7.050	29405.4115	26.447	1274.1433	ppm
2FBP-4	11.016	952.7000	197.007	36.2842	ppm
Oil-4	19.466	475.4740	3.482	22.8694	ppm
		30833.5855		1333.2969	

Lab name: Libby Environmental
 Analysis date: 06/20/2012 18:20:41
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH3_C02.CHR ()
 Sample: 5000 PPM DIESEL #771
 Operator: JD

Lab name: Libby Environmental
 Analysis date: 06/20/2012 18:20:41
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH4_D02.CHR ()
 Sample: 5000 PPM DIESEL #771
 Operator: JD



Component	Retention	Area	Height	External	Units
Diesel-3	8.166	64111.2450	172.813	4300.1858	ppm
2FBP-3	11.933	1934.6430	135.821	483.6608	ppm
Oil-3	21.266	690.3790	17.299	27.0569	ppm
		66736.2670		4810.9035	

Component	Retention	Area	Height	External	Units
Diesel-4	7.050	123788.6755	124.193	4999.9922	ppm
2FBP-4	11.016	4304.1015	803.930	163.9246	ppm
Oil-4	19.450	4574.3355	27.993	220.0173	ppm
		132667.1125		5383.9341	



1311 N. 35th St.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Libby Environmental

Jamie Deyman
4139 Libby Rd. NE
Olympia, Washington 98506

RE: Irondale
Lab ID: 1210265

November 01, 2012

Attention Jamie Deyman:

Fremont Analytical, Inc. received 4 sample(s) on 10/31/2012 for the analyses presented in the following report.

Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

A handwritten signature in black ink, appearing to read "M. Dee".

Michael Dee
Sr. Chemist / Principal



Date: 11/01/2012

CLIENT: Libby Environmental
Project: Irondale
Lab Order: 1210265

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1210265-001	MRZ-B1-102912	10/29/2012 12:44 PM	10/31/2012 3:05 PM
1210265-002	MRZ-B2-102912	10/29/2012 1:10 PM	10/31/2012 3:05 PM
1210265-003	ROAD-1-103012	10/30/2012 11:35 AM	10/31/2012 3:05 PM
1210265-004	ROAD-2-103012	10/30/2012 11:45 AM	10/31/2012 3:05 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: Libby Environmental**Project:** Irondale

I. SAMPLE RECEIPT:

All samples were received intact. The internal ice chest temperatures were measured on receipt and are recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.



Analytical Report

WO#: 1210265

Date Reported: 11/1/2012

Client: Libby Environmental

Collection Date: 10/29/2012 12:44:00 P

Project: Irondale

Lab ID: 1210265-001

Matrix: Soil

Client Sample ID: MRZ-B1-102912

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 3548

Analyst: SG

Arsenic	3.61	0.100		mg/Kg-dry	1	11/1/2012 7:18:23 AM
Copper	43.6	0.200		mg/Kg-dry	1	11/1/2012 7:18:23 AM
Iron	16,800	276	D	mg/Kg-dry	50	11/1/2012 10:36:37 AM
Lead	2.27	0.200		mg/Kg-dry	1	11/1/2012 7:18:23 AM
Nickel	29.4	0.100		mg/Kg-dry	1	11/1/2012 7:18:23 AM
Zinc	68.8	0.401		mg/Kg-dry	1	11/1/2012 7:18:23 AM

Sample Moisture (Percent Moisture)

Batch ID: R6370

Analyst: PH

Percent Moisture	20.8			wt%	1	10/31/2012 4:40:40 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210265

Date Reported: 11/1/2012

Client: Libby Environmental

Collection Date: 10/29/2012 1:10:00 PM

Project: Irondale

Lab ID: 1210265-002

Matrix: Soil

Client Sample ID: MRZ-B2-102912

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Total Metals by EPA Method 6020</u>				Batch ID: 3548		Analyst: SG
Arsenic	52.9	0.0991		mg/Kg-dry	1	11/1/2012 7:28:01 AM
Copper	263	0.198		mg/Kg-dry	1	11/1/2012 7:28:01 AM
Iron	137,000	545	D	mg/Kg-dry	100	11/1/2012 10:46:16 AM
Lead	222	0.198		mg/Kg-dry	1	11/1/2012 7:28:01 AM
Nickel	43.9	0.0991		mg/Kg-dry	1	11/1/2012 7:28:01 AM
Zinc	780	0.396		mg/Kg-dry	1	11/1/2012 7:28:01 AM
<u>Sample Moisture (Percent Moisture)</u>				Batch ID: R6370		Analyst: PH
Percent Moisture	22.4			wt%	1	10/31/2012 4:40:40 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210265

Date Reported: 11/1/2012

Client: Libby Environmental

Collection Date: 10/30/2012 11:35:00 A

Project: Irondale

Lab ID: 1210265-003

Matrix: Soil

Client Sample ID: ROAD-1-103012

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 3548

Analyst: SG

Arsenic	6.73	0.0892		mg/Kg-dry	1	11/1/2012 7:37:40 AM
Copper	58.7	0.178		mg/Kg-dry	1	11/1/2012 7:37:40 AM
Iron	27,700	245	D	mg/Kg-dry	50	11/1/2012 10:55:55 AM
Lead	6.19	0.178		mg/Kg-dry	1	11/1/2012 7:37:40 AM
Nickel	59.9	0.0892		mg/Kg-dry	1	11/1/2012 7:37:40 AM
Zinc	49.2	0.357		mg/Kg-dry	1	11/1/2012 7:37:40 AM

Sample Moisture (Percent Moisture)

Batch ID: R6370

Analyst: PH

Percent Moisture	13.1			wt%	1	10/31/2012 4:40:40 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1210265

Date Reported: 11/1/2012

Client: Libby Environmental

Collection Date: 10/30/2012 11:45:00 A

Project: Irondale

Lab ID: 1210265-004

Matrix: Soil

Client Sample ID: ROAD-2-103012

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 3548

Analyst: SG

Arsenic	14.8	0.0871		mg/Kg-dry	1	11/1/2012 7:47:19 AM
Copper	155	0.174		mg/Kg-dry	1	11/1/2012 7:47:19 AM
Iron	44,300	240	D	mg/Kg-dry	50	11/1/2012 11:05:34 AM
Lead	38.4	0.174		mg/Kg-dry	1	11/1/2012 7:47:19 AM
Nickel	54.2	0.0871		mg/Kg-dry	1	11/1/2012 7:47:19 AM
Zinc	44.6	0.348		mg/Kg-dry	1	11/1/2012 7:47:19 AM

Sample Moisture (Percent Moisture)

Batch ID: R6370

Analyst: PH

Percent Moisture	10.3			wt%	1	10/31/2012 4:40:40 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Work Order: 1210265
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: MB-3548	SampType: MBLK	Units: mg/Kg	Prep Date: 10/31/2012	RunNo: 6372							
Client ID: MBLKS	Batch ID: 3548	Analysis Date: 11/1/2012	SeqNo: 126457								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.100									
Copper	ND	0.200									
Iron	ND	5.50									
Lead	ND	0.200									
Nickel	ND	0.100									
Zinc	ND	0.400									

Sample ID: LCS-3548	SampType: LCS	Units: mg/Kg	Prep Date: 10/31/2012	RunNo: 6372							
Client ID: LCSS	Batch ID: 3548	Analysis Date: 11/1/2012	SeqNo: 126460								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	133	0.100	102.0	0	130	69.41	130.4				
Copper	276	0.200	250.0	0	110	75.6	124				
Iron	3,820	5.50	4,790	0	79.7	3.32	227.6				
Lead	78.1	0.200	72.10	0	108	68.1	131.9				
Nickel	438	0.100	384.0	0	114	74.74	125.5				
Zinc	930	0.400	831.0	0	112	74.01	126.4				

Sample ID: 1210265-004ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 10/31/2012	RunNo: 6372							
Client ID: ROAD-2-103012	Batch ID: 3548	Analysis Date: 11/1/2012	SeqNo: 126465								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	17.2	0.0864						14.85	14.6	30	
Copper	169	0.173						155.2	8.78	30	
Iron	40,100	4.75						41,430	3.18	30	E
Lead	30.6	0.173						38.44	22.7	30	
Nickel	60.6	0.0864						54.20	11.2	30	
Zinc	46.4	0.346						44.57	4.02	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 11/1/2012

Work Order: 1210265
CLIENT: Libby Environmental
Project: Irontdale

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: 1210265-004ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 10/31/2012	RunNo: 6372							
Client ID: ROAD-2-103012	Batch ID: 3548	Analysis Date: 11/1/2012	SeqNo: 126465								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 1210265-004AMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 10/31/2012	RunNo: 6372							
Client ID: ROAD-2-103012	Batch ID: 3548	Analysis Date: 11/1/2012	SeqNo: 126467								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	44.2	0.0885	44.24	14.85	66.4	75	125				S
Copper	126	0.177	44.24	155.2	-66.7	75	125				S
Iron	29,100	4.87	442.4	41,430	-2,800	75	125				SE
Lead	32.6	0.177	22.12	38.44	-26.4	75	125				S
Nickel	72.8	0.0885	44.24	54.20	41.9	75	125				S
Zinc	87.4	0.354	44.24	44.57	96.8	75	125				

NOTES:

- S - High Iron concentration prevents accurate spike recovery.
- S - Low Matrix spike recoveries were observed. A duplicate analysis was performed with the same result, indicating a matrix effect .

Sample ID: 1210265-004AMSD	SampType: MSD	Units: mg/Kg-dry	Prep Date: 10/31/2012	RunNo: 6372							
Client ID: ROAD-2-103012	Batch ID: 3548	Analysis Date: 11/1/2012	SeqNo: 126468								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	47.4	0.0858	42.88	14.85	75.8	75	125	44.22	6.88	30	
Copper	119	0.172	42.88	155.2	-83.3	75	125	125.7	5.06	30	S
Iron	27,500	4.72	428.8	41,430	-3,250	75	125	29,060	5.54	30	SE
Lead	44.1	0.172	21.44	38.44	26.6	75	125	32.59	30.1	30	SR
Nickel	76.2	0.0858	42.88	54.20	51.3	75	125	72.76	4.63	30	S
Zinc	86.5	0.343	42.88	44.57	97.9	75	125	87.41	0.992	30	

NOTES:

- S - High Iron concentration prevents accurate spike recovery.
- S - Low Matrix spike recoveries were observed. A duplicate analysis was performed with the same result, indicating a matrix effect .

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 11/1/2012

Work Order: 1210265
 CLIENT: Libby Environmental
 Project: Irondale

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: 1210265-004APDS	SampType: PDS	Units: mg/Kg-dry	Prep Date: 10/31/2012	RunNo: 6372
Client ID: ROAD-2-103012	Batch ID: 3548	Analysis Date: 11/1/2012	SeqNo: 126469	

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	150	0.0871	50.0	34.1	116	75	125				
Copper	453	0.174	50.0	356	97.1	75	125				
Iron	42,600	4.79	436	41,400	263	75	125				SE
Lead	136	0.174	25.0	88.3	95.8	75	125				
Nickel	230	0.0871	50.0	124	106	75	125				
Zinc	215	0.348	50.0	102	113	75	125				

NOTES:

S - High Iron concentration prevents accurate spike recovery.

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Client Name: **LIBBY**

 Work Order Number: **1210265**

 Logged by: **Clare Griggs**

 Date Received: **10/31/2012 3:05:00 PM**

Chain of Custody

1. Were custodial seals present? Yes No Not Required
2. Is Chain of Custody complete? Yes No Not Present
3. How was the sample delivered? Client

Log In

4. Coolers are present? Yes No NA
5. Was an attempt made to cool the samples? Yes No NA
- Cooler did not contain ice.**
6. Were all coolers received at a temperature of >0° C to 10.0°C Yes No NA
- Unknown. Cooler was taken back before temp was taken**
7. Sample(s) in proper container(s)? Yes No
8. Sufficient sample volume for indicated test(s)? Yes No
9. Are samples properly preserved? Yes No
10. Was preservative added to bottles? Yes No NA
11. Is there headspace present in VOA vials? Yes No NA
12. Did all sample containers arrive in good condition?(unbroken) Yes No
13. Does paperwork match bottle labels? Yes No
14. Are matrices correctly identified on Chain of Custody? Yes No
15. Is it clear what analyses were requested? Yes No
16. Were all holding times able to be met? Yes No

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks/Discrepancies

Item Information

Libby Environmental, Inc.

4139 Libby Road NE
 Olympia, WA 98506
 Ph: 360-352-2110
 Fax: 360-352-4154

Chain of Custody Record

www.LibbyEnvironmental.com

210265

Date: 10/3/12 Page: 1 of 7

Client: Libby Environmental

Address: SEE ABOVE

Project Manager: JAMIE DEYMAN

Project Name: IRON DAIR

City: State: Zip:

City, State:

Phone: Fax:

Collector:

Date of Collection: 10/29/10/30

Client Project #

Sample Number	Depth	Time	Sample Type	Container Type	Field Notes
1 MRZ-01-102912	0	1244	SOIL	402	SEE BELOW
2 MRZ-02-102912	9	1310			
3 ROAD-1-103012	3	1135			
4 ROAD-2-103012	1	1145			
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					

VOA 80218 BTEX ONLY
 VOA 80218 BTEX ONLY
 SEM VOL B370
 NWTPH-HClO
 NWTPH-GX
 NWTPH-DX
 NWTPH-DX EX
 PAH 8270
 PCBs 8082
 MTCA 5 Metals
 METALS

Relinquished by: *[Signature]* Date / Time: 10/3/12 3:05pm
 Received by: *[Signature]* Date / Time: 10/3/12 15:05

Relinquished by: *[Signature]* Date / Time:
 Received by: *[Signature]* Date / Time:
 Relinquished by: *[Signature]* Date / Time:
 Received by: *[Signature]* Date / Time:

Remarks: * Metals
 Arsenic, Copper
 Iron Pb, Nickel
 ZINC
 TAT: (24HR) 48HR 5-DAY

Sample Receipt:
 Good Condition?
 Cold?
 Seals Intact?
 Total Number of Containers



Libby Environmental, Inc.

4139 Libby Road NE • Olympia, WA 98506-2518

November 23, 2012

Neil Morton
GeoEngineers Inc.
600 Stewart Street, Suite 1700
Seattle, WA 98101

Dear Mr. Morton:

Please find enclosed the analytical data report for the Irondale Project located in Irondale, Washington. Soil samples were analyzed for Diesel & Oil by NWTPH-Dx/Dx Extended and Metals Arsenic, Copper, Iron, Lead, Nickel and Zinc by EPA Method 6020 on November 7 & 8, 2012.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. All soil samples are reported on a dry weight basis. An invoice for this analytical work is enclosed.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Jamie L. Deyman
President
Libby Environmental, Inc.

Phone (360) 352-2110 • Fax (360) 352-4154 • libbyenv@aol.com

www.LibbyEnvironmental.com



Libby Environmental, Inc.

Case Narrative

Libby Project #: L121105-2
Date: 11-23-2012

CLIENT: GeoEngineers, Inc.
PROJECT: Irondale

I. SAMPLE RECEIPT:

All samples were received intact and in good condition. See the attached Sample Receipt Check List for more information.

II. GENERAL REPORTING COMMENTS:

Final results are reported on a dry weight basis. The soil samples in the field are estimated to have a moisture content of 15%. This estimate is useful in producing data that is close to the actual value. After the sample is analyzed for soil moisture at our fixed base facility, the final data is reported based on measured soil moisture. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS), the Laboratory Control Sample Duplicate (LCSD) and the Method Blank (MB). The LCS, LCSD and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) and/or noted below.

Notes:

N/A

CHAIN OF CUSTODY RECORD

GEOENGINEERS, INC.
8410 154TH AVENUE N.E.
REDMOND, WASHINGTON 98052
(425) 861-6000



IØ31

DATE 11/5
 PAGE 1 OF 1
 LAB Libby
 LAB NO. _____

PROJECT NAME/LOCATION						ANALYSIS REQUIRED										NOTES/COMMENTS	
PROJECT NUMBER																(Preserved, filtered, etc.)	
PROJECT MANAGER																	
SAMPLED BY																	
SAMPLE IDENTIFICATION		SAMPLE COLLECTION			# OF	MUSTY-PH EST.	Metals										
LAB	GEOENGINEERS	DATE	TIME	MATRIX	JARS												
	TANK-1-110112	11/1	800	SOIL	402	X											
	TANK-2-110112	11/1	805	SOIL	402	X											
	MRZ-A-110312	11/3	940	SOIL	402												See comments
	MRZ-B-110312	11/3	945	SOIL	402												
	MRZ-BB-110312	11/3	957	SOIL	402												

RELINQUISHED BY SIGNATURE <u>[Signature]</u> PRINTED NAME <u>PAUL ROBIWETTE</u> DATE <u>11/5</u> TIME <u>11:55</u>	RELINQUISHED BY SIGNATURE _____ PRINTED NAME _____ DATE _____ TIME _____	RELINQUISHED BY SIGNATURE _____ PRINTED NAME _____ DATE _____ TIME _____
RECEIVED BY SIGNATURE _____ PRINTED NAME _____ DATE _____ TIME _____	RECEIVED BY SIGNATURE <u>[Signature]</u> PRINTED NAME <u>RAMESH OSURIO</u> DATE <u>11/5/12</u> TIME <u>11:55</u>	RECEIVED BY SIGNATURE _____ PRINTED NAME _____ DATE _____ TIME _____

ADDITIONAL COMMENTS: TEST METALS FOR: ARSENIC, COPPER, IRON, LEAD, NICKEL, ZINC
Normal Turnaround for all.

Libby Environmental, Inc. Login Sample Receipt Check List

Client: GeoEngineers, Inc. **Libby Project Number:** L121105-2

Question	T / F / NA	Comment
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler temperature is acceptable.	True	
COC is present.	True	
COC is filled out in ink and is legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within the Hold Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs.	True	
VOA sample vials do not have headspace or bubble is less than 6mm (1/4 in.) in diameter.	True	
If necessary, staff has been informed of any short hold time or quick TAT needs.	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	

Libby Environmental, Inc.

4139 Libby Road NE
Olympia, WA 98506
Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@aol.com

IRONDALE PROJECT
GeoEngineers, Inc.
Irondale, Washington
Libby Project # L121105-2
Client Project # 0504-042-02

Analyses of Diesel & Oil Range (NWTPH-Dx/Dx Extended) in Soil

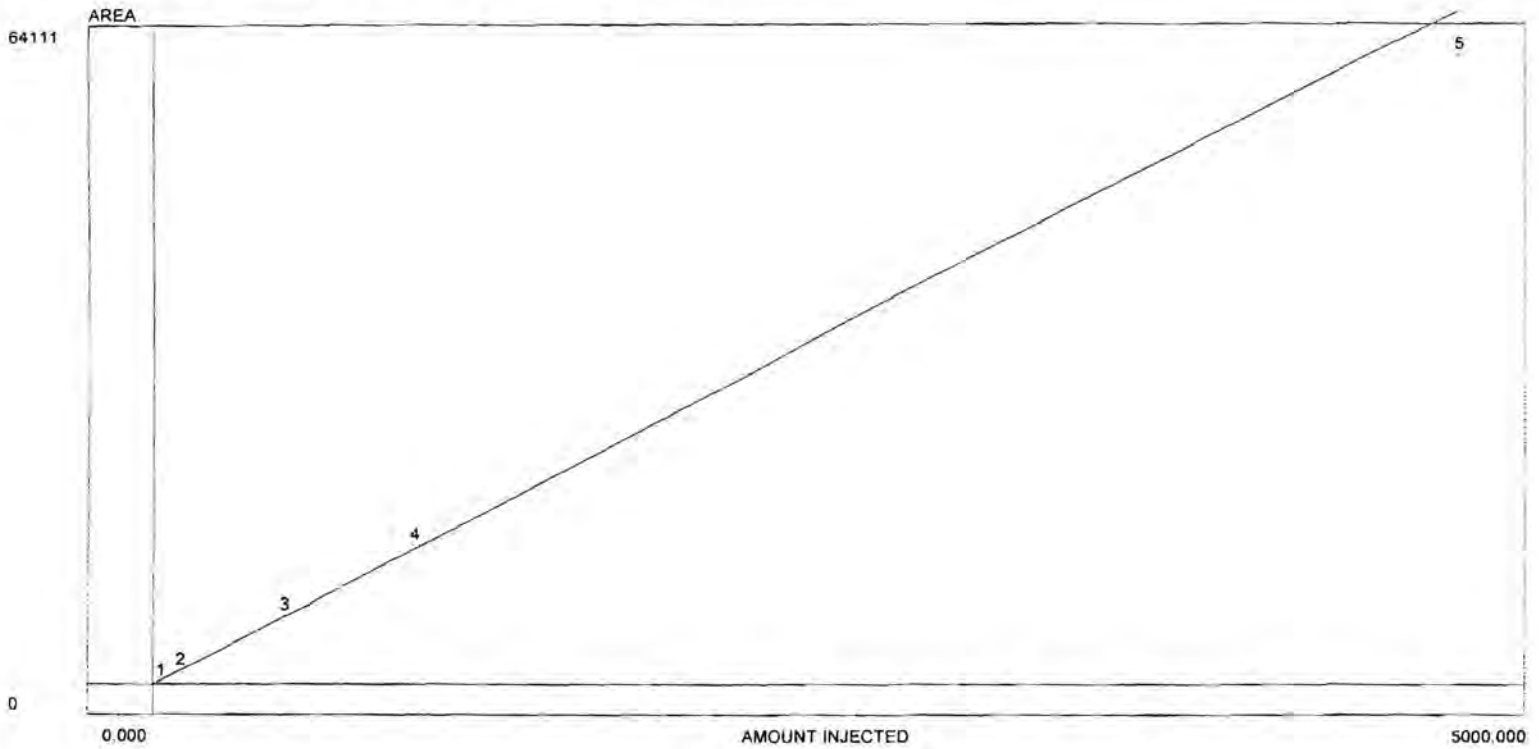
Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Bunker C (mg/kg)
Method Blank	11/8/12	85	nd	nd
LCS	11/8/12	int	109%	
LCS Dup	11/8/12	int	110%	
Tank 1-110112	11/8/12	92	nd	nd
Tank 2-110112	11/8/12	86	nd	nd
Tank 2-110112 Dup	11/8/12	87	nd	nd
Practical Quantitation Limit			25	40

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination

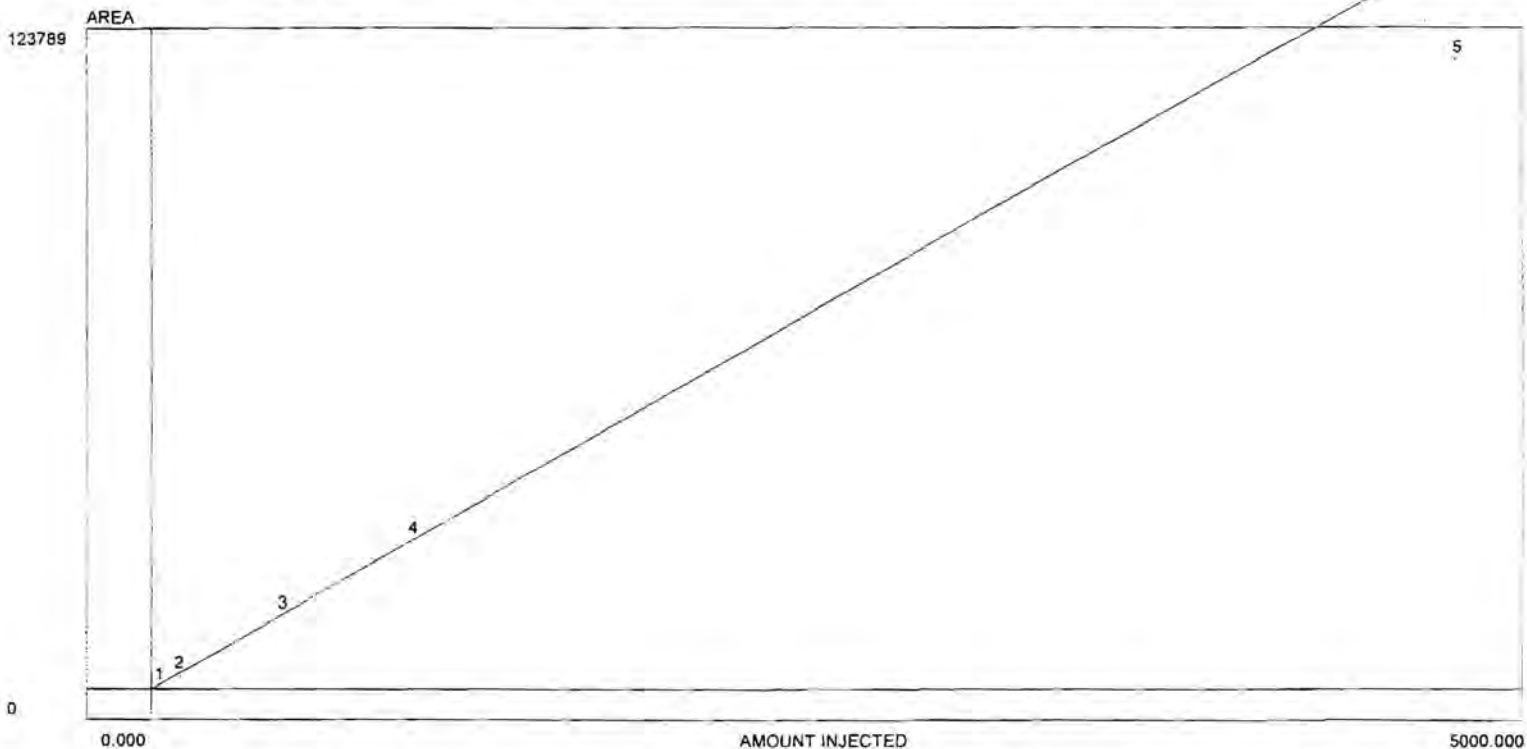
ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Jamie Deymar



Avg slope of curve: 13.74
 Y-axis intercept: -0.00
 Linearity: 1.00
 Number of levels: 5
 SD/rel SD of CF's: 0.7/5.1
 Y=13.7405X
 r2: 0.9996
 Last calibrated: Wed Jun 20 21:18:26 2012

Lvl.	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	329.087	25.000	13.163	329.087	N/A	N/A
2	1442.910	100.000	14.429	1442.910	N/A	N/A
3	7053.939	500.000	14.108	7053.939	N/A	N/A
4	14179.915	1000.000	14.180	14179.915	N/A	N/A
5	64111.245	5000.000	12.822	64111.245	N/A	N/A

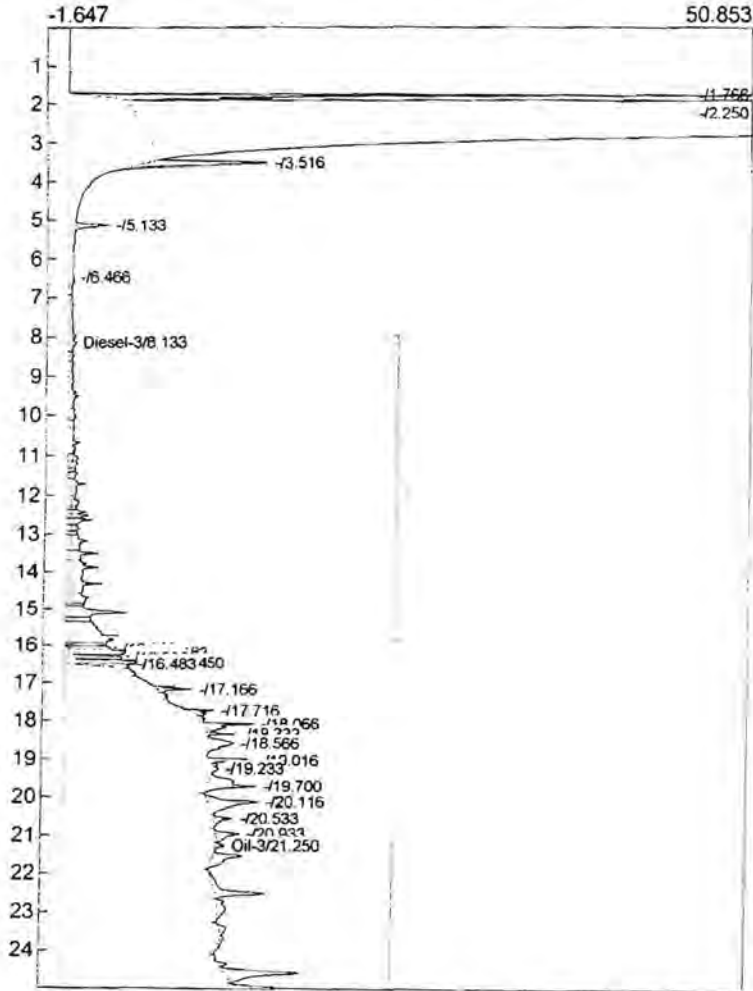


Avg slope of curve: 29.10
 Y-axis intercept: -0.00
 Linearity: 1.00
 Number of levels: 5
 SD/rel SD of CF's: 2.6/8.9
 Y=29.0990X
 r2: 0.9986
 Last calibrated: Wed Jun 20 21:19:11 2012

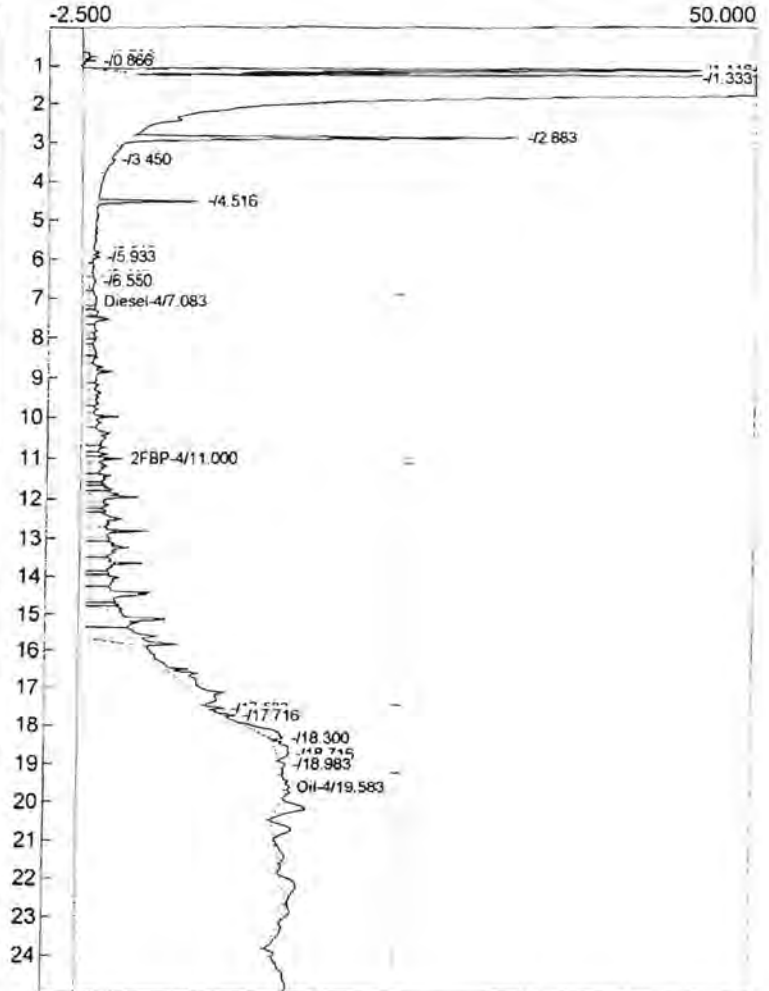
Lvl.	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	792.519	25.000	31.701	792.519	N/A	N/A
2	3024.632	100.000	30.246	3024.632	N/A	N/A
3	14692.487	500.000	29.385	14692.487	N/A	N/A
4	29405.412	1000.000	29.405	29405.412	N/A	N/A
5	123788.676	5000.000	24.758	123788.676	N/A	N/A

Lab name: Libby Environmental
 Analysis date: 06/20/2012 20:47:50
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH3_C06.CHR ()
 Sample: 25 PPM DIESEL #775
 Operator: JD

Lab name: Libby Environmental
 Analysis date: 06/20/2012 20:47:50
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH4_D06.CHR ()
 Sample: 25 PPM DIESEL #775
 Operator: JD



Component	Retention	Area	Height	External	Units
Diesel-3	8.133	329.0870	0.378	23.9501	ppm
Oil-3	21.250	201.0590	0.576	7.8798	ppm
		530.1460		31.8289	



Component	Retention	Area	Height	External	Units
Diesel-4	7.083	792.5190	0.570	27.2352	ppm
2FBP-4	11.000	11.2495	2.541	0.4284	ppm
Oil-4	19.583	225.9680	0.250	10.8687	ppm
		1029.7365		38.5323	

Lab name: Libby Environmental

Analysis date: 06/20/2012 20:13:11

Description: Elmer CH 3

Column: Restek Rxi-5ms 30x0.53x1.0

Carrier: He

Data file: CH3_C05.CHR ()

Sample: 100 PPM DIESEL #774

Operator: JD

Lab name: Libby Environmental

Analysis date: 06/20/2012 20:13:11

Description: Elmer Ch 4

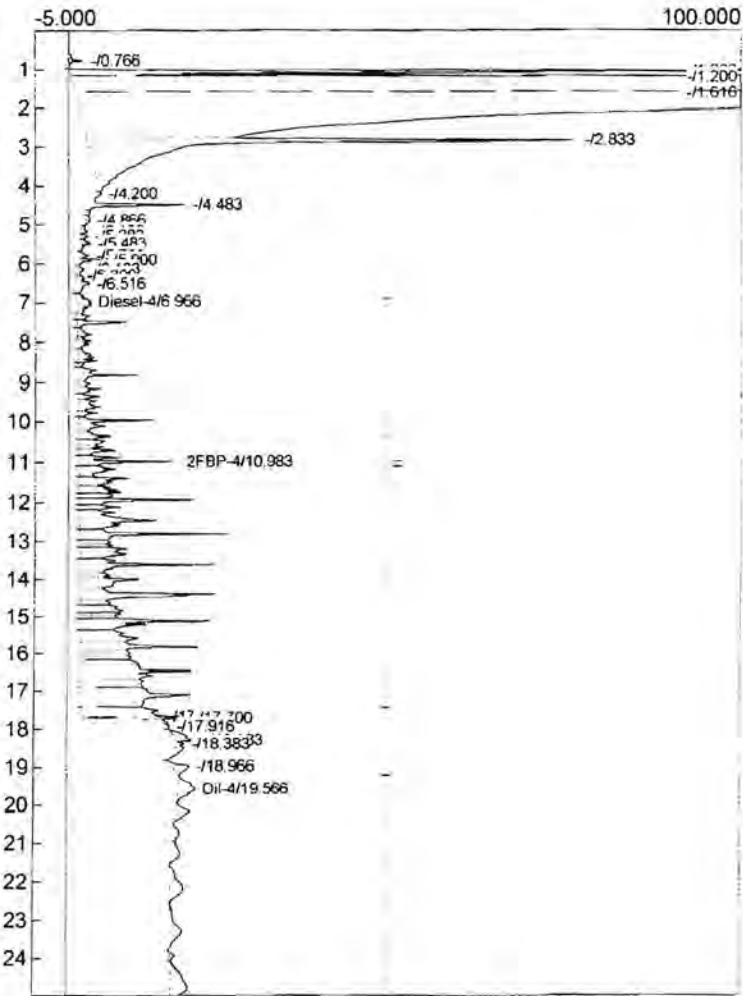
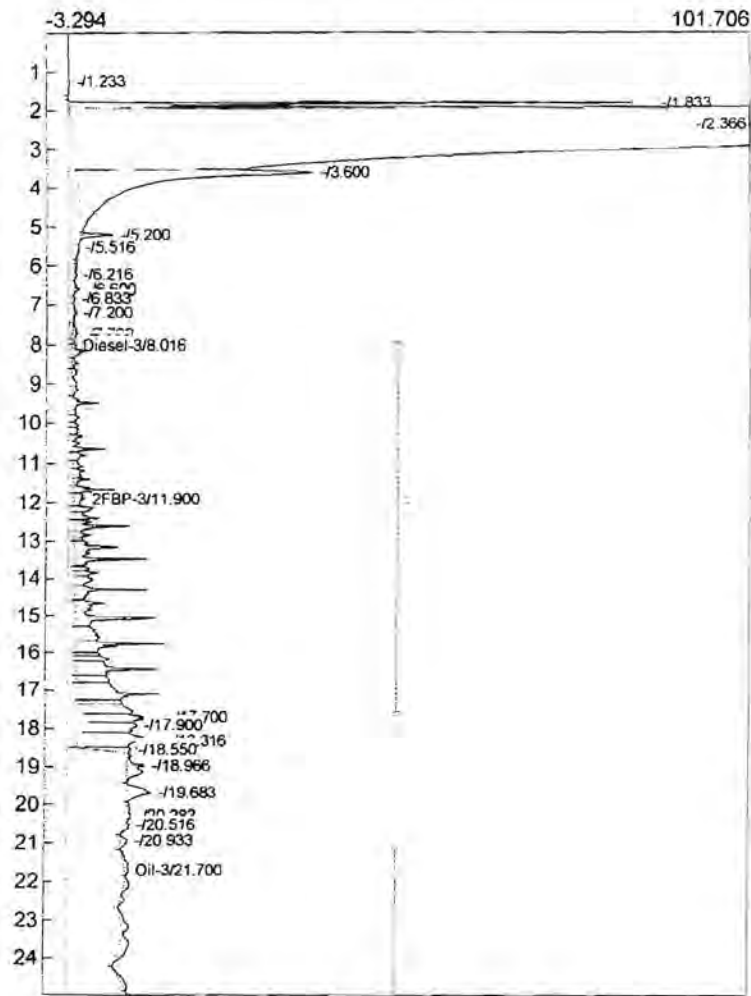
Column: Restek Rxi-5ms 30x0.53x1.0

Carrier: He

Data file: CH4_D05.CHR ()

Sample: 100 PPM DIESEL #774

Operator: JD

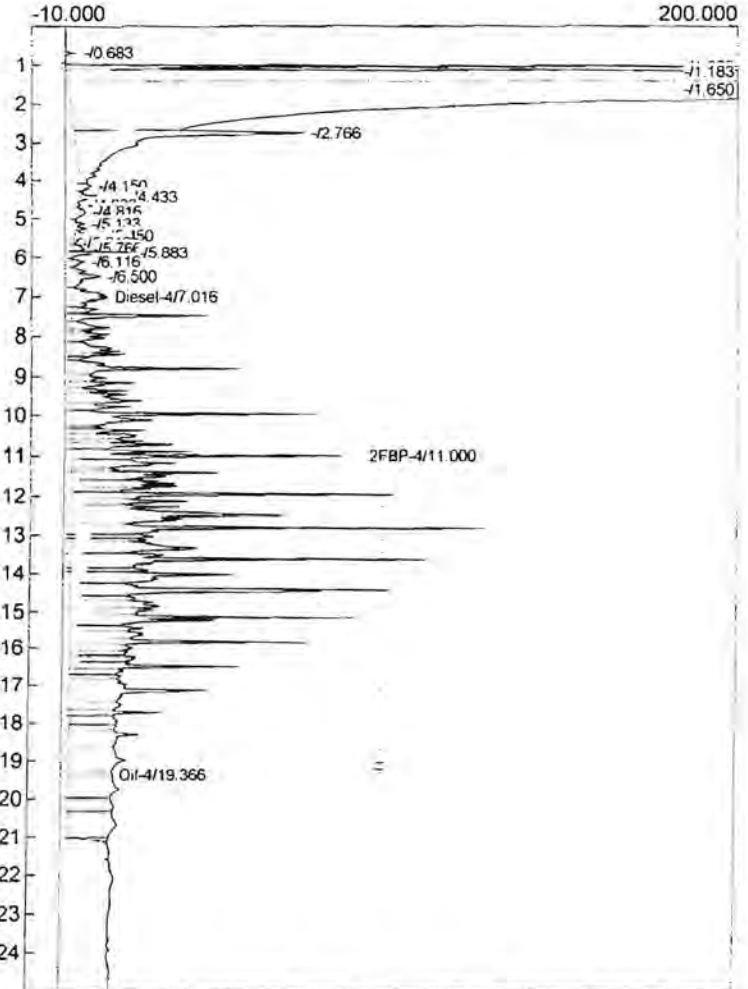
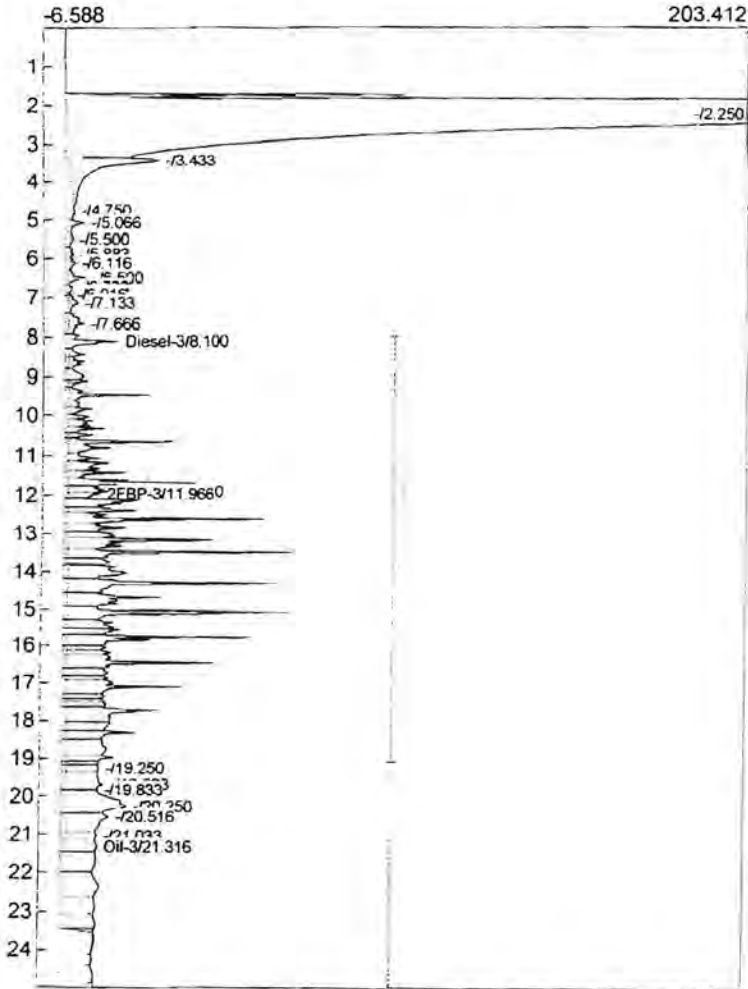


Component	Retention	Area	Height	External	Units
Diesel-3	8.016	1442.9095	0.639	100.2292	ppm
2FBP-3	11.900	23.0560	1.769	5.7640	ppm
Oil-3	21.700	144.1580	0.577	5.6498	ppm
		1610.1235		111.6430	

Component	Retention	Area	Height	External	Units
Diesel-4	6.966	3024.6315	2.135	100.2466	ppm
2FBP-4	10.983	74.0540	14.953	2.8204	ppm
Oil-4	19.566	348.5360	2.470	16.7640	ppm
		3447.2215		119.8309	

Lab name: Libby Environmental
 Analysis date: 06/20/2012 21:21:53
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH3_C07.CHR ()
 Sample: 500 PPM DIESEL #704ICAL
 Operator: JD

Lab name: Libby Environmental
 Analysis date: 06/20/2012 21:21:53
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH4_D07.CHR ()
 Sample: 500 PPM DIESEL #704ICAL
 Operator: JD

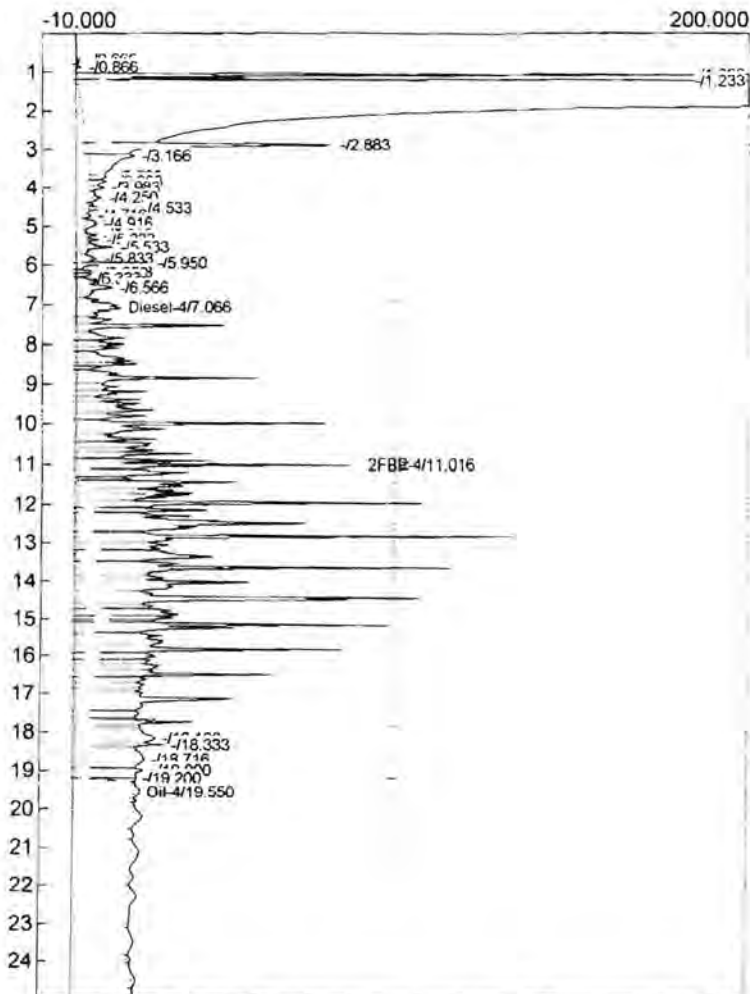
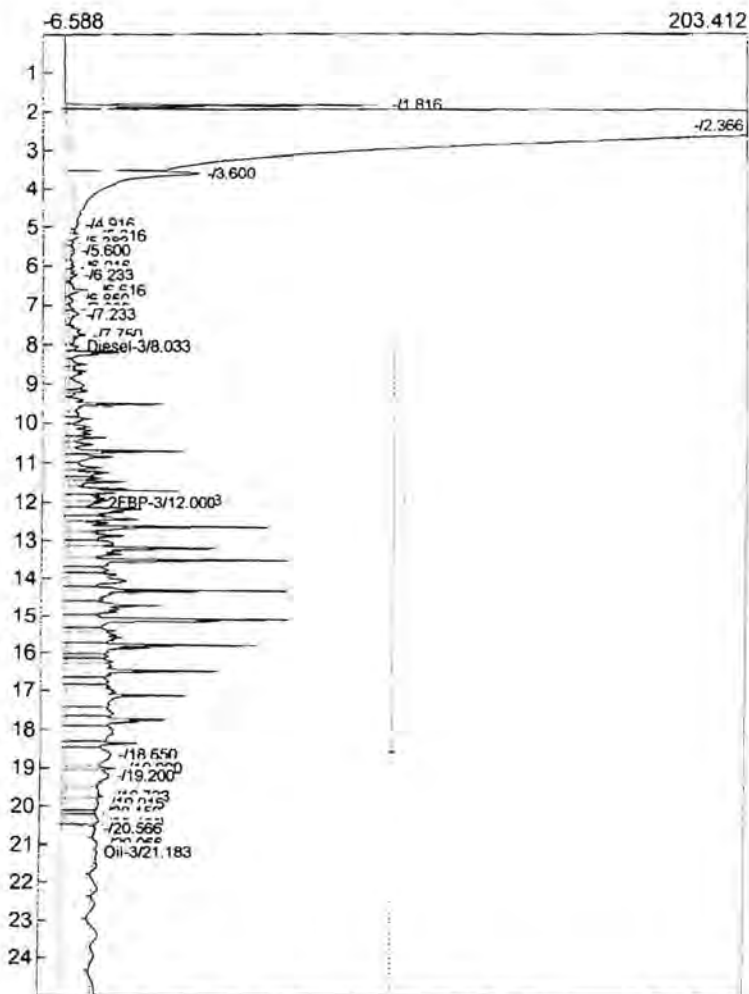


Component	Retention	Area	Height	External	Units
Diesel-3	8.100	7401.3870	15.026	538.6539	ppm
2FBP-3	11.900	100.5155	12.538	25.1289	ppm
2FBP-3	11.966	65.8305	9.677	16.4576	ppm
Oil-3	21.316	1407.3545	9.526	102.4238	ppm
		8975.0875		682.6641	

Component	Retention	Area	Height	External	Units
Diesel-4	7.016	14007.5970	10.800	481.3766	ppm
2FBP-4	11.000	428.5980	86.853	16.3234	ppm
Oil-4	19.366	1497.1540	12.916	51.4503	ppm
		15933.3490		549.1503	

Lab name: Libby Environmental
 Analysis date: 06/20/2012 19:30:52
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH3_C04.CHR ()
 Sample: 500 PPM DIESEL #773
 Operator: JD

Lab name: Libby Environmental
 Analysis date: 06/20/2012 19:30:52
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH4_D04.CHR ()
 Sample: 500 PPM DIESEL #773
 Operator: JD

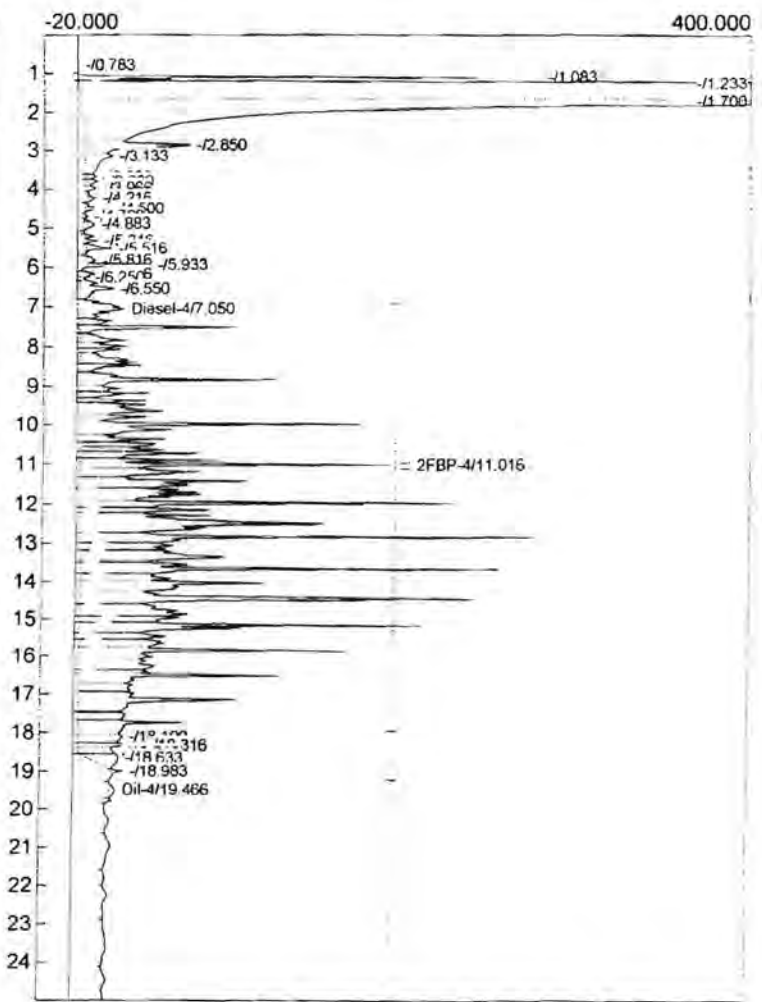
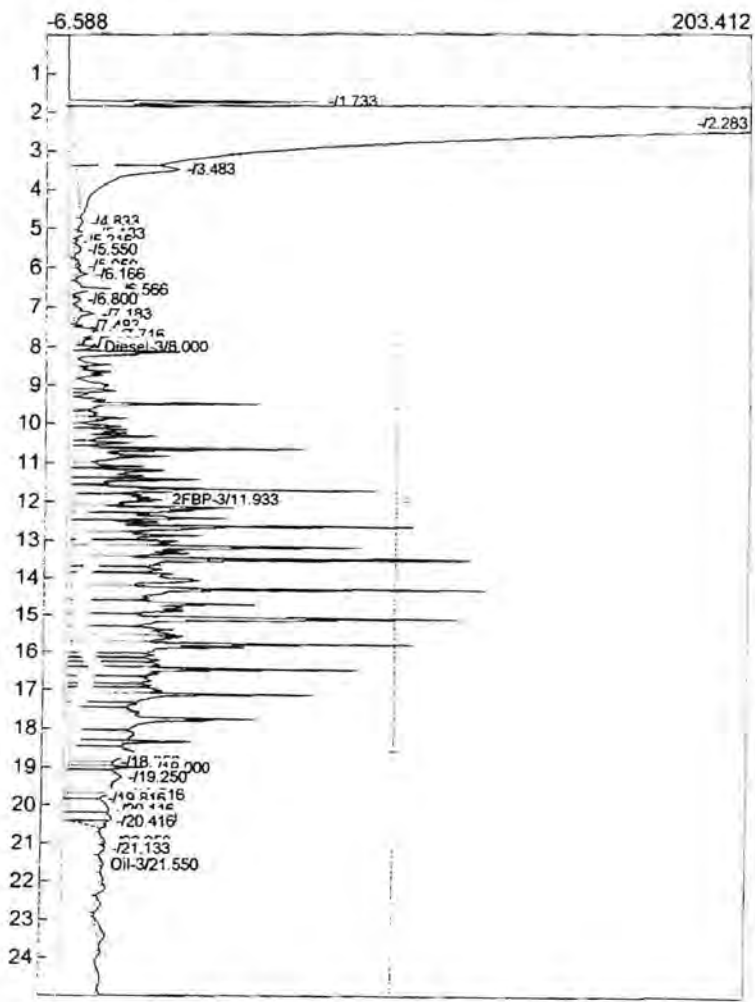


Component	Retention	Area	Height	External	Units
Diesel-3	8.033	7053.9390	3.363	491.2034	ppm
2FBP-3	11.933	100.3650	11.957	25.0912	ppm
2FBP-3	12.000	66.9750	10.007	16.7437	ppm
Oil-3	21.183	231.1530	0.329	9.0592	ppm
		7452.4320		542.0977	

Component	Retention	Area	Height	External	Units
Diesel-4	7.066	14692.4865	13.088	494.6276	ppm
2FBP-4	11.016	468.5260	84.693	17.8441	ppm
Oil-4	19.550	338.8790	1.772	16.2995	ppm
		15499.8915		528.7712	

Lab name: Libby Environmental
 Analysis date: 06/20/2012 18:55:03
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH3_C03.CHR ()
 Sample: 1000 PPM DIESEL #772
 Operator: JD

Lab name: Libby Environmental
 Analysis date: 06/20/2012 18:55:03
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH4_D03.CHR ()
 Sample: 1000 PPM DIESEL #772
 Operator: JD

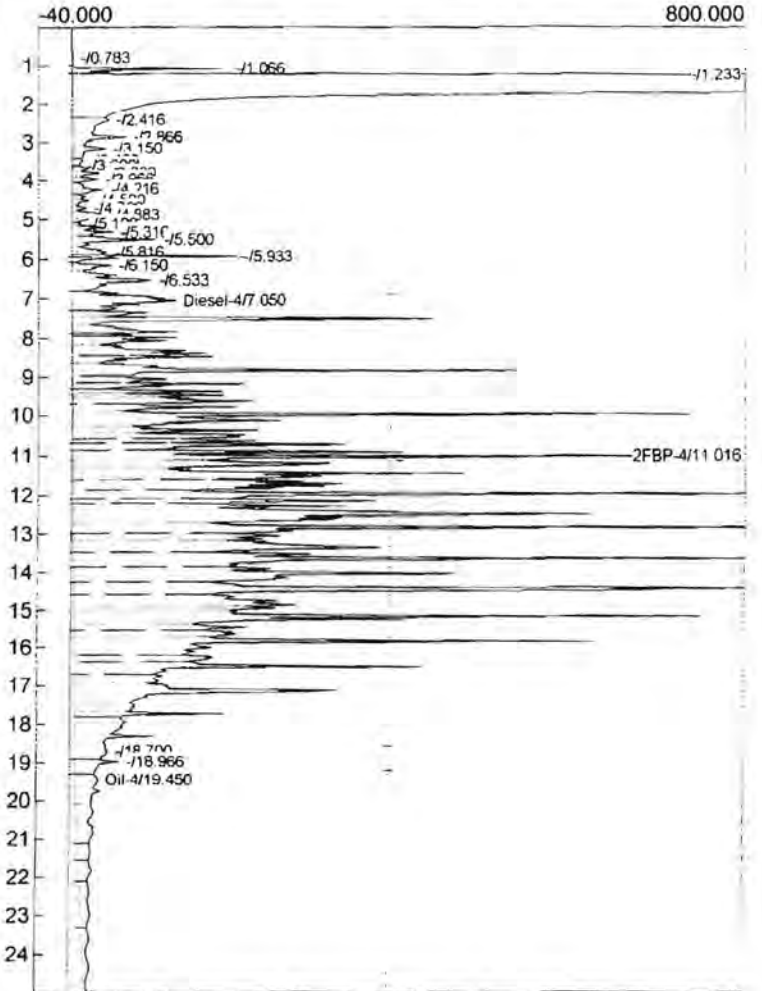
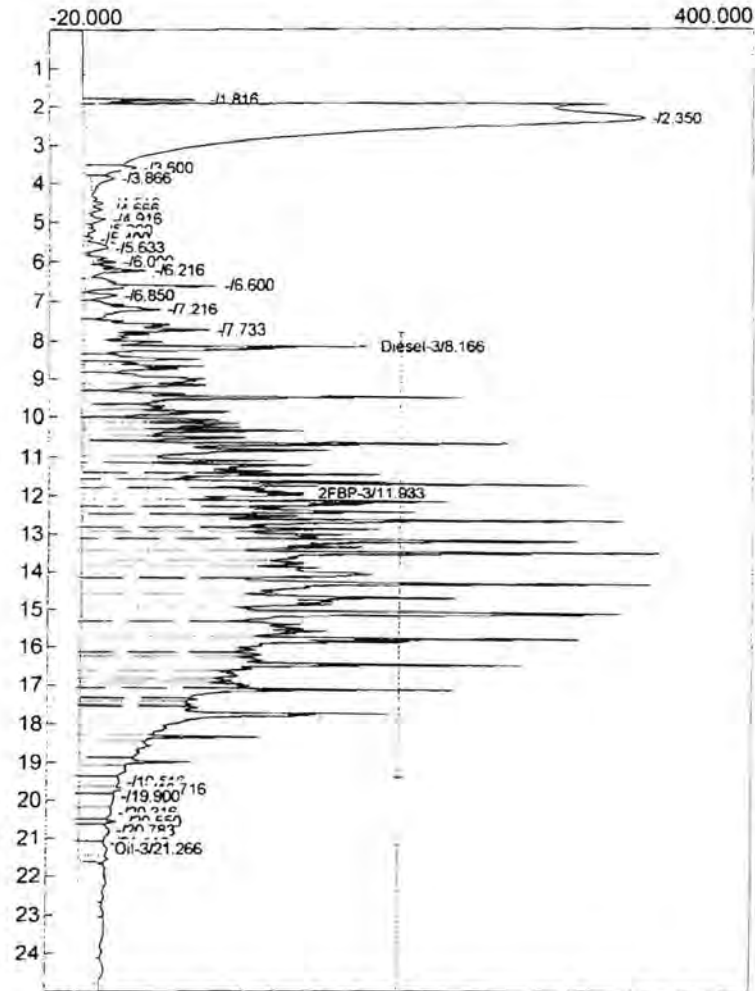


Component	Retention	Area	Height	External	Units
Diesel-3	8.000	14179.9150	6.009	543.3903	ppm
2FBP-3	11.933	344.8200	26.898	86.2050	ppm
Oil-3	21.550	217.1280	1.164	8.5096	ppm
		14741.8630		638.1048	

Component	Retention	Area	Height	External	Units
Diesel-4	7.050	29405.4115	26.447	1274.1433	ppm
2FBP-4	11.016	952.7000	197.007	36.2842	ppm
Oil-4	19.466	475.4740	3.482	22.8694	ppm
		30833.5855		1333.2969	

Lab name: Libby Environmental
 Analysis date: 06/20/2012 18:20:41
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH3_C02.CHR ()
 Sample: 5000 PPM DIESEL #771
 Operator: JD

Lab name: Libby Environmental
 Analysis date: 06/20/2012 18:20:41
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH4_D02.CHR ()
 Sample: 5000 PPM DIESEL #771
 Operator: JD

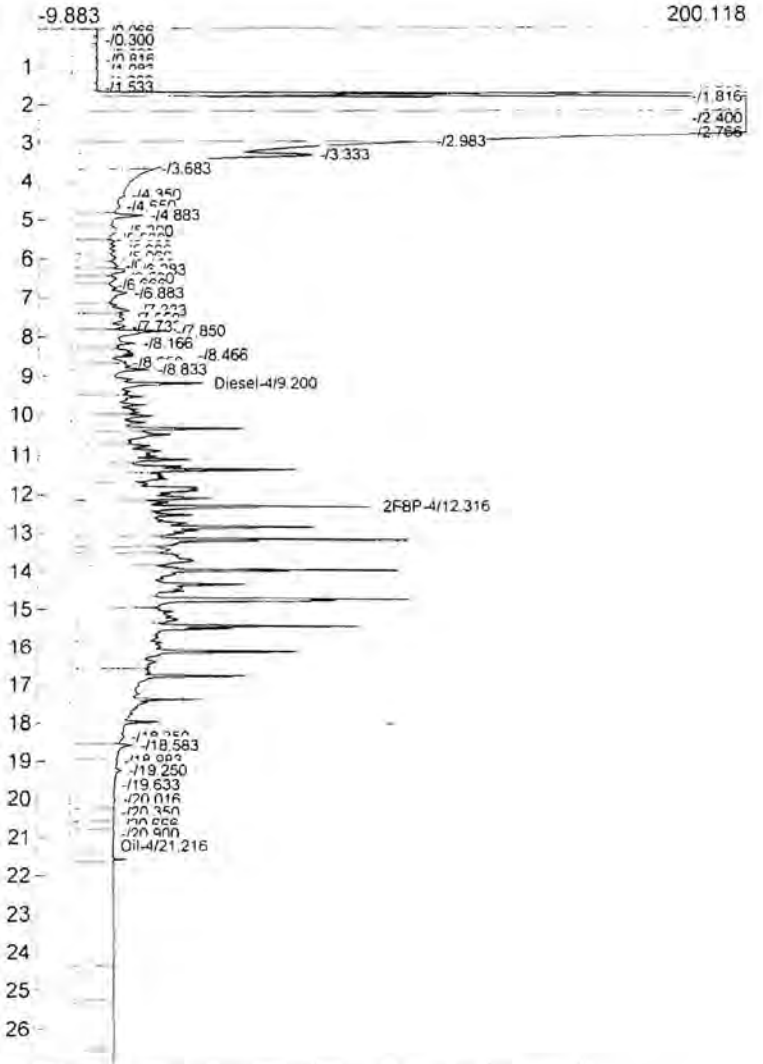
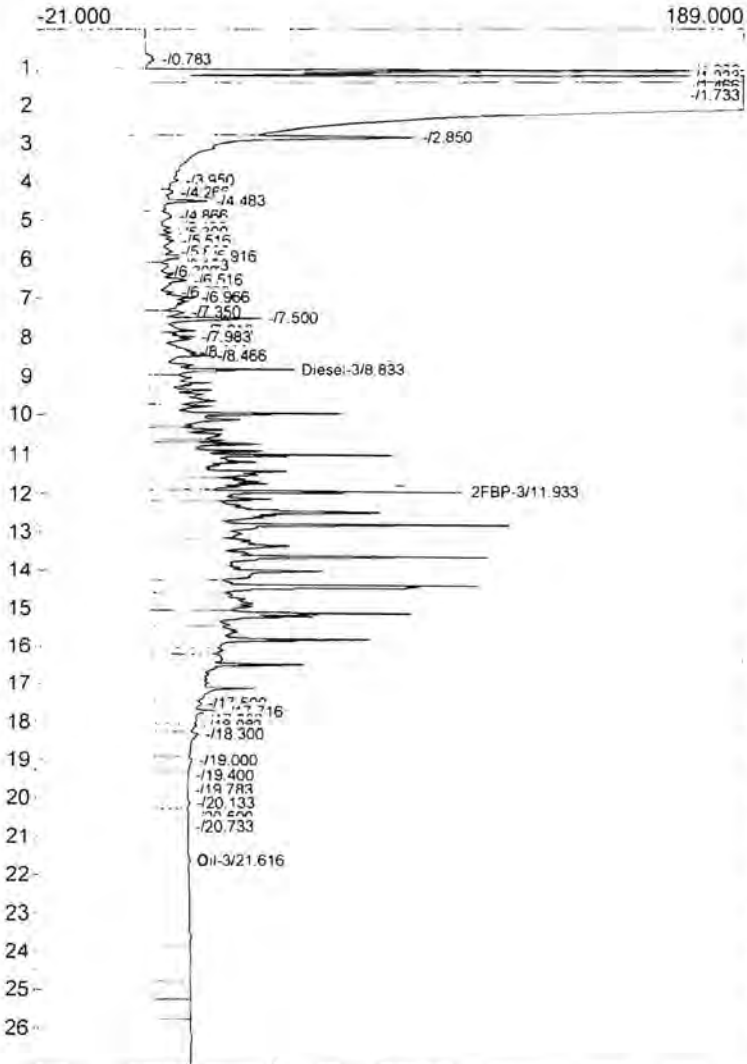


Component	Retention	Area	Height	External	Units
Diesel-3	8.166	64111.2450	172.813	4300.1858	ppm
2FBP-3	11.933	1934.6430	135.821	483.6608	ppm
Oil-3	21.266	690.3790	17.299	27.0569	ppm
		66736.2670		4810.9035	

Component	Retention	Area	Height	External	Units
Diesel-4	7.050	123788.6755	124.193	4999.9922	ppm
2FBP-4	11.016	4304.1015	803.930	163.9246	ppm
Oil-4	19.450	4574.3355	27.993	220.0173	ppm
		132667.1125		5383.9341	

Lab name: Libby Environmental
 Analysis date: 11/08/2012 14:15:48
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: C174.CHR ()
 Sample: 500 ppm dx 806
 Operator: JD

Lab name: Libby Environmental
 Analysis date: 11/08/2012 14:15:48
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: D173.CHR ()
 Sample: 500 ppm dx 806
 Operator: JD

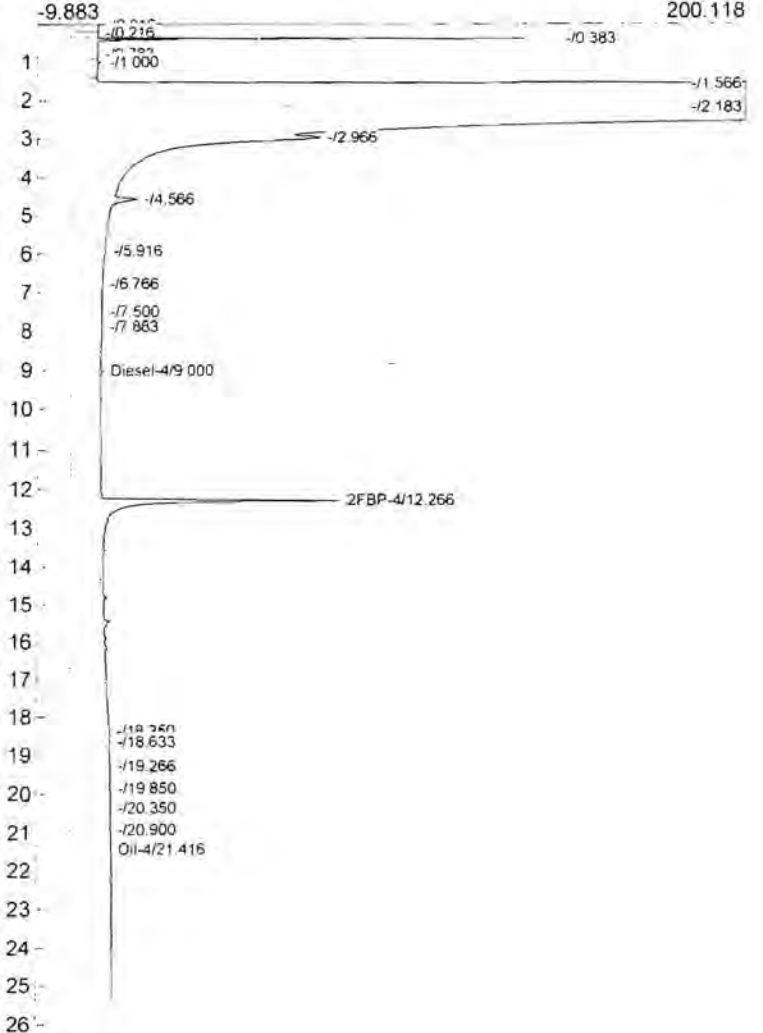
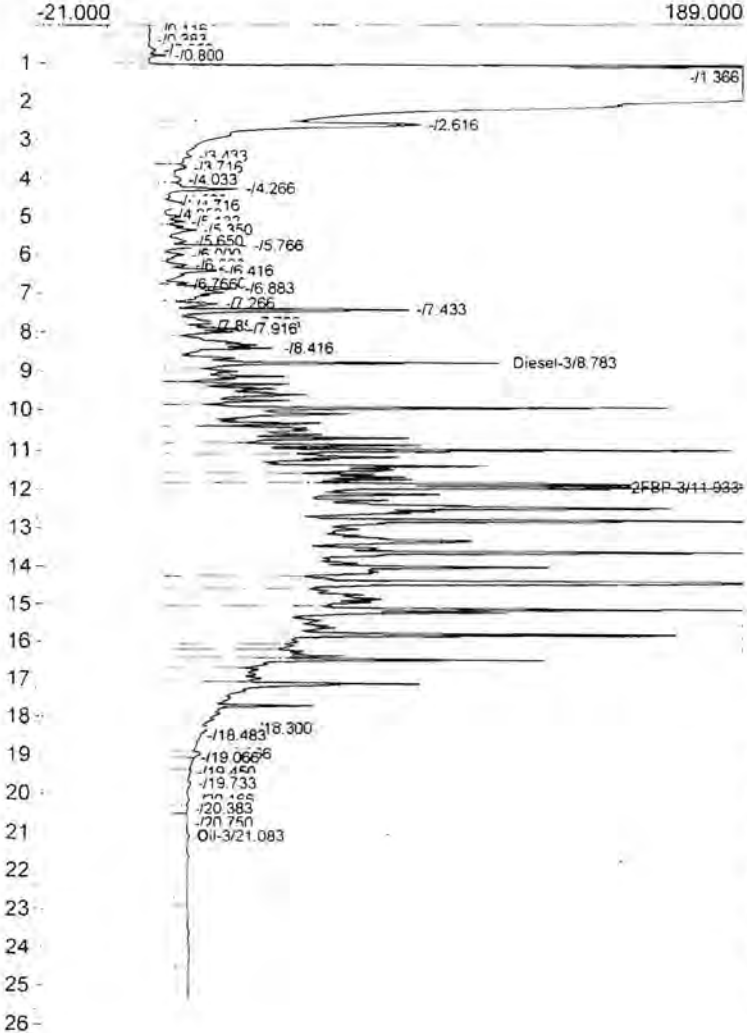


Component	Retention	Area	Height	External	Units
Diesel-3	8.833	12883.0345	43.036	515.9708	ppm
2FBP-3	11.933	436.9695	92.948	17.4788	ppm
Oil-3	21.616	3119.6430	9.540	227.0396	ppm
		16439.6470		760.4892	

Component	Retention	Area	Height	External	Units
Diesel-4	9.200	13992.2180	38.139	480.8481	ppm
2FBP-4	12.316	570.0210	88.449	22.8008	ppm
Oil-4	21.216	3726.4625	10.921	128.0614	ppm
		18288.7015		631.7103	

Lab name: Libby Environmental
 Analysis date: 11/08/2012 14:47:54
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: C175.CHR ()
 Sample: 1000 ppm lcs 343
 Operator: JD

Lab name: Libby Environmental
 Analysis date: 11/08/2012 14:47:54
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: D174.CHR ()
 Sample: Tank 1-110112
 Operator: JD



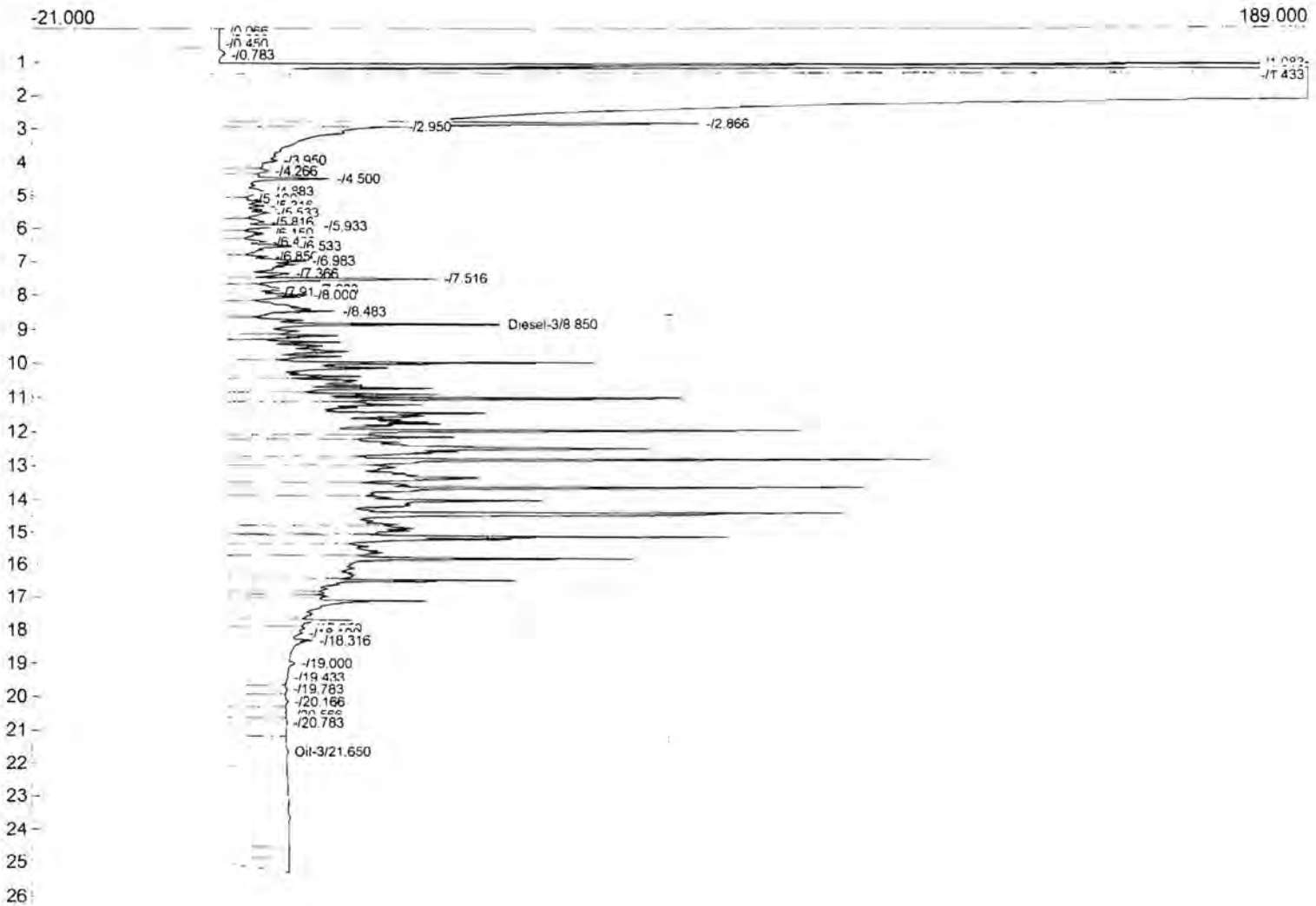
Component	Retention	Area	Height	External	Units
Diesel-3	8.783	27764.6875	101.533	1093.4542	ppm
2FBP-3	11.933	1608.1240	240.228	64.3250	ppm
Oil-3	21.083	1034.3705	5.074	56.1828	ppm
		30407.1820		1213.9619	

Component	Retention	Area	Height	External	Units
Diesel-4	9.000	492.4990	0.770	16.9249	ppm
2FBP-4	12.266	421.5130	71.026	16.8605	ppm
Oil-4	21.416	45.1375	0.226	1.5512	ppm
		959.1495		35.3366	

109%
 not JD

84%
 n d

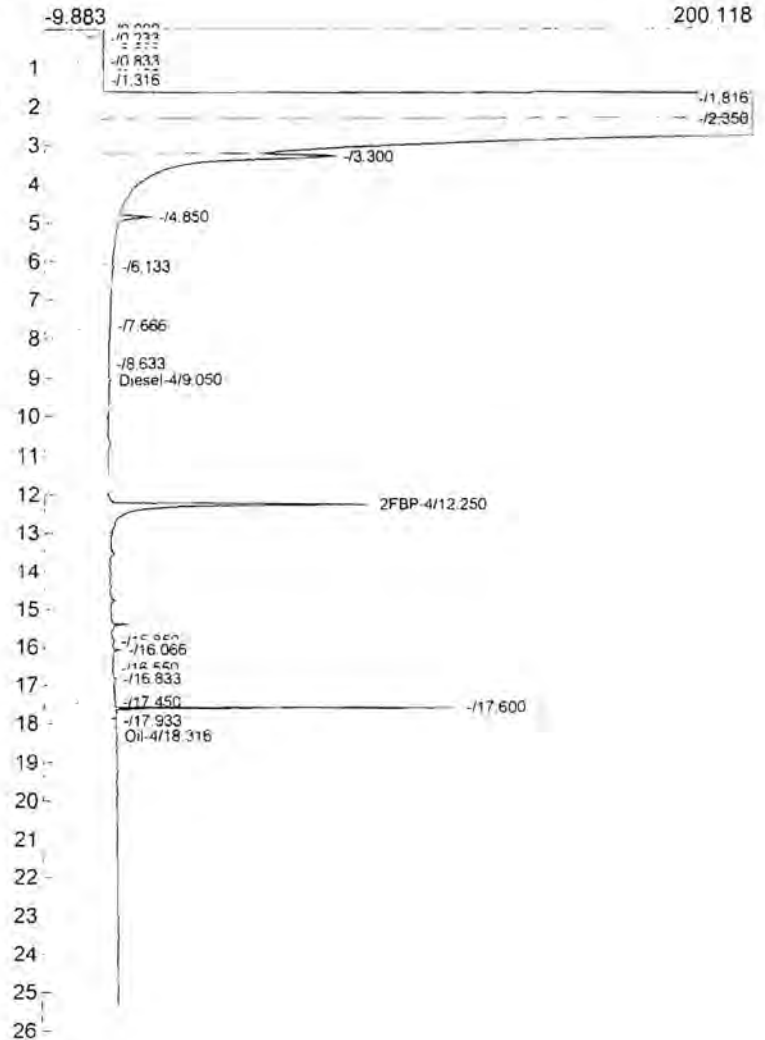
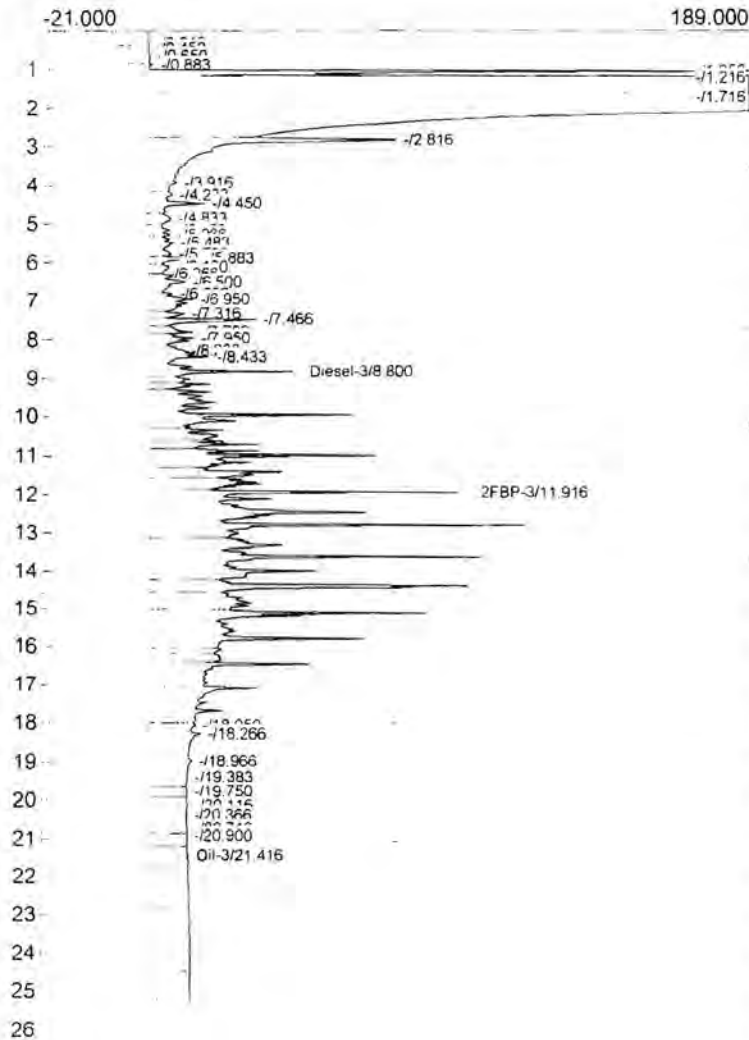
Lab name: Libby Environmental
 Analysis date: 11/08/2012 16:47:10
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: C178.CHR ()
 Sample: 500 ppm dx 806
 Operator: JD



Component	Retention	Area	Height	External	Units
Diesel-3	8.850	13261.9250	44.932	530.6737	ppm
Oil-3	21.650	2221.4960	9.367	102.2492	ppm
		15483.4210		632.9229	

Lab name: Libby Environmental
 Analysis date: 11/08/2012 16:08:55
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: C177.CHR ()
 Sample: 500 ppm dx 806
 Operator: JD

Lab name: Libby Environmental
 Analysis date: 11/08/2012 16:08:55
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: D176.CHR ()
 Sample: tank 2-110112 dup
 Operator: JD



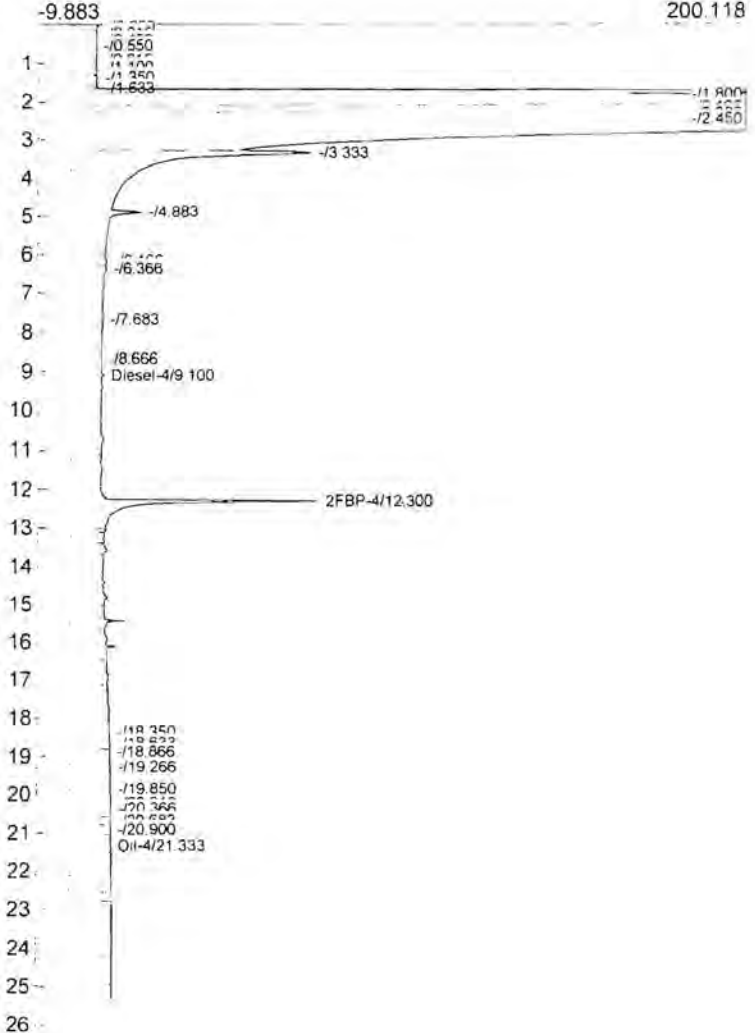
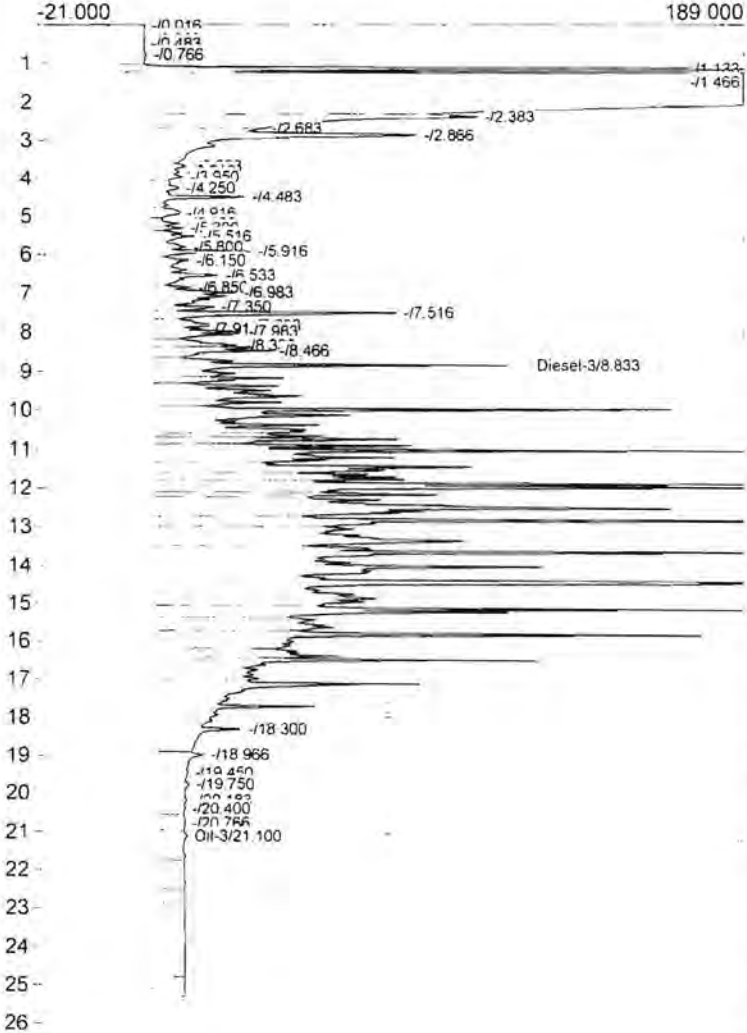
Component	Retention	Area	Height	External	Units
Diesel-3	8.800	12880.1470	44.947	515.8588	ppm
2FBP-3	11.916	419.1645	95.687	16.7666	ppm
Oil-3	21.416	2525.2985	10.489	114.0383	ppm
		15824.6100		646.6637	

Component	Retention	Area	Height	External	Units
Diesel-4	9.050	510.0850	0.974	17.5293	ppm
2FBP-4	12.250	435.0240	78.403	17.4010	ppm
Oil-4	18.316	146.1965	0.753	5.0241	ppm
		1091.3055		39.9543	

ESG
hd

Lab name: Libby Environmental
 Analysis date: 11/08/2012 15:26:11
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: C176.CHR ()
 Sample: 1000 ppm lcs 343 dup
 Operator: JD

Lab name: Libby Environmental
 Analysis date: 11/08/2012 15:26:11
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: D175.CHR ()
 Sample: tank 2-110112
 Operator: JD



Component	Retention	Area	Height	External	Units
Diesel-3	8.833	28272.7465	110.967	1113.1695	ppm
Oil-3	21.100	1593.4805	7.326	77.8791	ppm
		29866.2270		1191.0485	

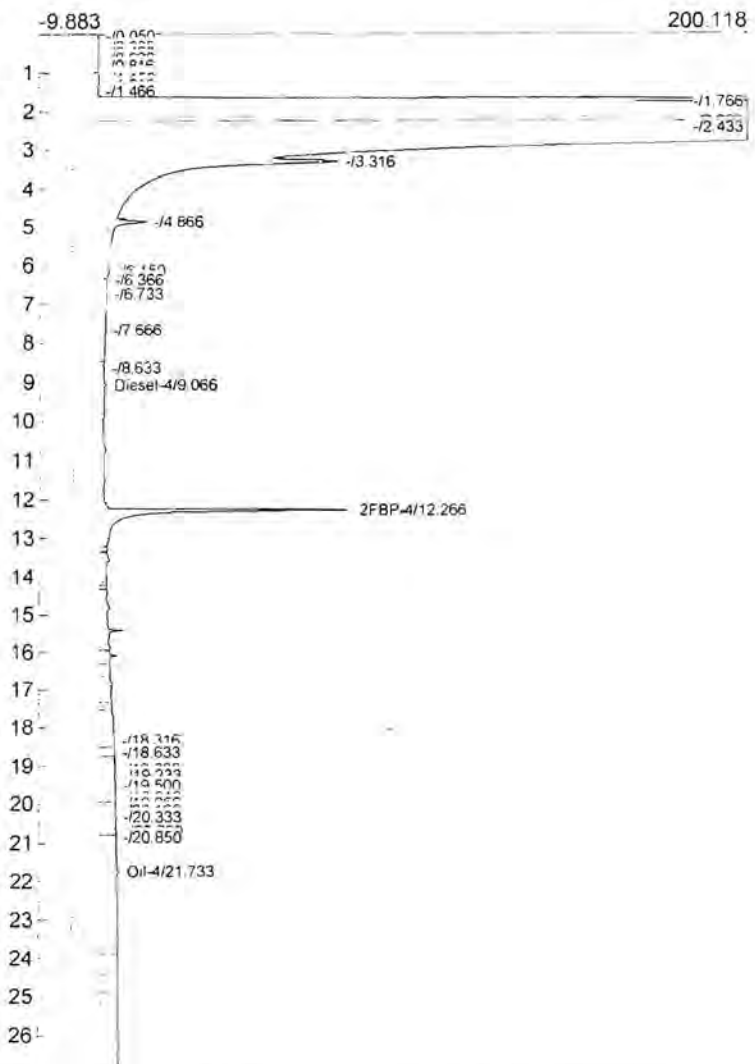
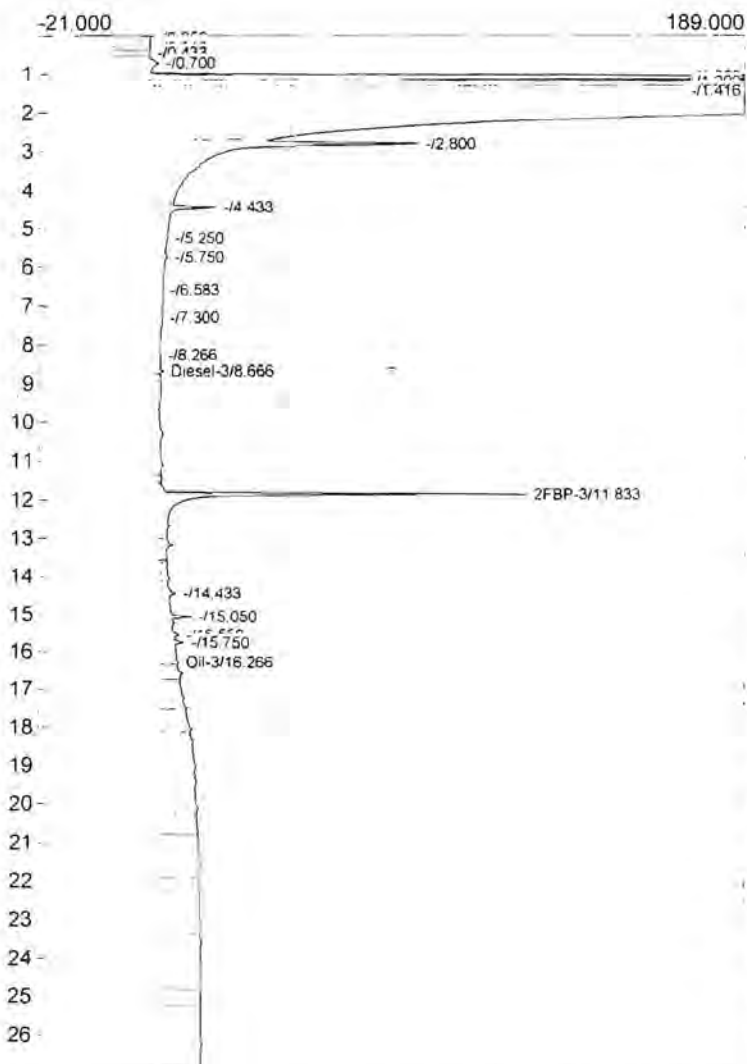
Component	Retention	Area	Height	External	Units
Diesel-4	9.100	873.9585	0.919	30.0339	ppm
2FBP-4	12.300	427.5595	64.903	17.1024	ppm
Oil-4	21.333	542.3175	2.395	18.6370	ppm
		1843.8355		65.7733	

1112

86%
n.d.

Lab name: Libby Environmental
 Analysis date: 11/11/2012 12:50:11
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: C172.CHR ()
 Sample: mblank
 Operator: JD

Lab name: Libby Environmental
 Analysis date: 11/08/2012 13:30:30
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: D172.CHR ()
 Sample: mblank
 Operator: JD



Component	Retention	Area	Height	External	Units
Diesel-3	8.666	763.5875	1.138	45.6750	ppm
2FBP-3	11.833	544.3700	108.874	21.7748	ppm
Oil-3	16.266	6065.6290	4.901	251.4210	ppm
		7373.5865		318.8709	

Component	Retention	Area	Height	External	Units
Diesel-4	9.066	1032.4320	0.947	35.4799	ppm
2FBP-4	12.266	459.0960	74.032	18.3638	ppm
Oil-4	21.733	1779.8645	5.602	61.1657	ppm
		3271.3925		115.0095	

922e
hd



1311 N. 35th St.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Libby Environmental

Jamie Deyman
4139 Libby Rd. NE
Olympia, Washington 98506

RE: Irondale
Lab ID: 1211031

November 08, 2012

Attention Jamie Deyman:

Fremont Analytical, Inc. received 3 sample(s) on 11/6/2012 for the analyses presented in the following report.

Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

A handwritten signature in black ink, appearing to read "M. Dee".

Michael Dee
Sr. Chemist / Principal



Date: 11/08/2012

CLIENT: Libby Environmental
Project: Irondale
Lab Order: 1211031

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1211031-001	MRZ-B1-110312	11/03/2012 9:40 AM	11/06/2012 9:15 AM
1211031-002	MRZ-B2-110312	11/03/2012 9:45 AM	11/06/2012 9:15 AM
1211031-003	MRZ-B3-110312	11/03/2012 9:57 AM	11/06/2012 9:15 AM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: Libby Environmental**Project:** Irondale

I. SAMPLE RECEIPT:

All samples were received intact. The internal ice chest temperatures were measured on receipt and are recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.



Analytical Report

WO#: 1211031

Date Reported: 11/8/2012

Client: Libby Environmental

Collection Date: 11/3/2012 9:40:00 AM

Project: Irondale

Lab ID: 1211031-001

Matrix: Soil

Client Sample ID: MRZ-B1-110312

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
----------	--------	----	------	-------	----	---------------

Total Metals by EPA Method 6020

Batch ID: 3578

Analyst: SG

Arsenic	57.8	0.0943		mg/Kg-dry	1	11/7/2012 7:34:13 AM
Copper	1,090	0.189		mg/Kg-dry	1	11/7/2012 7:34:13 AM
Iron	38,100	5.19		mg/Kg-dry	1	11/7/2012 7:34:13 AM
Lead	15.4	0.189		mg/Kg-dry	1	11/7/2012 7:34:13 AM
Nickel	26.0	0.0943		mg/Kg-dry	1	11/7/2012 7:34:13 AM
Zinc	79.6	0.377		mg/Kg-dry	1	11/7/2012 7:34:13 AM

Sample Moisture (Percent Moisture)

Batch ID: R6452

Analyst: AO

Percent Moisture	22.0			wt%	1	11/6/2012 4:43:04 PM
------------------	------	--	--	-----	---	----------------------

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1211031

Date Reported: 11/8/2012

Client: Libby Environmental

Collection Date: 11/3/2012 9:45:00 AM

Project: Irondale

Lab ID: 1211031-002

Matrix: Soil

Client Sample ID: MRZ-B2-110312

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 3578

Analyst: SG

Arsenic	10.7	0.0867		mg/Kg-dry	1	11/7/2012 7:43:50 AM
Copper	194	0.173		mg/Kg-dry	1	11/7/2012 7:43:50 AM
Iron	12,400	4.77		mg/Kg-dry	1	11/7/2012 7:43:50 AM
Lead	7.37	0.173		mg/Kg-dry	1	11/7/2012 7:43:50 AM
Nickel	32.3	0.0867		mg/Kg-dry	1	11/7/2012 7:43:50 AM
Zinc	50.6	0.347		mg/Kg-dry	1	11/7/2012 7:43:50 AM

Sample Moisture (Percent Moisture)

Batch ID: R6452

Analyst: AO

Percent Moisture	13.9			wt%	1	11/6/2012 4:43:04 PM
------------------	------	--	--	-----	---	----------------------

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1211031

Date Reported: 11/8/2012

Client: Libby Environmental

Collection Date: 11/3/2012 9:57:00 AM

Project: Irondale

Lab ID: 1211031-003

Matrix: Soil

Client Sample ID: MRZ-B3-110312

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 3578

Analyst: SG

Arsenic	29.6	0.0879		mg/Kg-dry	1	11/7/2012 7:53:28 AM
Copper	608	0.176		mg/Kg-dry	1	11/7/2012 7:53:28 AM
Iron	23,800	4.83		mg/Kg-dry	1	11/7/2012 7:53:28 AM
Lead	8.39	0.176		mg/Kg-dry	1	11/7/2012 7:53:28 AM
Nickel	30.9	0.0879		mg/Kg-dry	1	11/7/2012 7:53:28 AM
Zinc	101	0.352		mg/Kg-dry	1	11/7/2012 7:53:28 AM

Sample Moisture (Percent Moisture)

Batch ID: R6452

Analyst: AO

Percent Moisture	8.23			wt%	1	11/6/2012 4:43:04 PM
------------------	------	--	--	-----	---	----------------------

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits

Work Order: 1211031
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: MB-3578	SampType: MBLK	Units: mg/Kg	Prep Date: 11/6/2012	RunNo: 6457							
Client ID: MBLKS	Batch ID: 3578		Analysis Date: 11/7/2012	SeqNo: 128133							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.100									
Copper	ND	0.200									
Iron	ND	5.50									
Lead	ND	0.200									
Nickel	ND	0.100									
Zinc	ND	0.400									

Sample ID: LCS-3578	SampType: LCS	Units: mg/Kg	Prep Date: 11/6/2012	RunNo: 6457							
Client ID: LCSS	Batch ID: 3578		Analysis Date: 11/7/2012	SeqNo: 128134							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	132	0.100	102.0	0	130	69.41	130.4				
Copper	307	0.200	250.0	0	123	75.6	124				
Iron	3,850	5.50	4,790	0	80.5	3.32	227.6				
Lead	87.8	0.200	72.10	0	122	68.1	131.9				
Nickel	457	0.100	384.0	0	119	74.74	125.5				
Zinc	1,030	0.400	831.0	0	124	74.01	126.4				

Sample ID: 1210268-002ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 11/6/2012	RunNo: 6457							
Client ID: BATCH	Batch ID: 3578		Analysis Date: 11/7/2012	SeqNo: 128138							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.3	0.110						12.13	8.99	30	
Copper	33.0	0.220						29.37	11.5	30	
Iron	22,600	6.06						20,210	11.2	30	E
Lead	5.25	0.220						4.785	9.28	30	
Nickel	65.5	0.110						59.20	10.0	30	
Zinc	54.4	0.441						52.05	4.42	30	

Qualifiers:
B Analyte detected in the associated Method Blank
D Dilution was required
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not detected at the Reporting Limit
R RPD outside accepted recovery limits
RL Reporting Limit
S Spike recovery outside accepted recovery limits



Work Order: 1211031
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: 1210268-002ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 11/6/2012	RunNo: 6457							
Client ID: BATCH	Batch ID: 3578	Analysis Date: 11/7/2012	SeqNo: 128138								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:

R - High RPD due to low analyte concentration. In this range, high RPD's may be expected.

Sample ID: 1210268-002AMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 11/6/2012	RunNo: 6457							
Client ID: BATCH	Batch ID: 3578	Analysis Date: 11/7/2012	SeqNo: 128140								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	66.0	0.101	50.58	12.13	107	75	125				
Copper	75.1	0.202	50.58	29.37	90.4	75	125				
Iron	17,900	5.56	505.8	20,210	-456	75	125				SE
Lead	27.0	0.202	25.29	4.785	87.7	75	125				
Nickel	107	0.101	50.58	59.20	94.2	75	125				
Zinc	102	0.405	50.58	52.05	97.9	75	125				

NOTES:

S - Outlying spike recoveries observed. A duplicate analysis was performed with similar results indicating a matrix effect. Post digestion spike (PDS) shows recoveries in range.

Sample ID: 1210268-002AMSD	SampType: MSD	Units: mg/Kg-dry	Prep Date: 11/6/2012	RunNo: 6457							
Client ID: BATCH	Batch ID: 3578	Analysis Date: 11/7/2012	SeqNo: 128141								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	62.3	0.0948	47.39	12.13	106	75	125	66.04	5.87	30	
Copper	70.4	0.190	47.39	29.37	86.5	75	125	75.07	6.49	30	
Iron	16,800	5.21	473.9	20,210	-723	75	125	17,900	6.46	30	SE
Lead	25.5	0.190	23.70	4.785	87.5	75	125	26.96	5.48	30	
Nickel	101	0.0948	47.39	59.20	87.4	75	125	106.9	6.00	30	
Zinc	96.3	0.379	47.39	52.05	93.3	75	125	101.5	5.33	30	

NOTES:

S - Outlying spike recoveries observed. A duplicate analysis was performed with similar results indicating a matrix effect. Post digestion spike (PDS) shows recoveries in range.

Qualifiers:	B Analyte detected in the associated Method Blank	D Dilution was required	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits	ND Not detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit	S Spike recovery outside accepted recovery limits



Date: 11/8/2012

Work Order: 1211031
CLIENT: Libby Environmental
Project: Irondale

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: 1210268-002APDS	SampType: PDS	Units: mg/Kg-dry	Prep Date: 11/6/2012	RunNo: 6457							
Client ID: BATCH	Batch ID: 3578	Analysis Date: 11/7/2012	SeqNo: 128142								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	69.7	0.102	51.0	12.1	113	75	125				
Copper	79.6	0.204	51.0	29.4	98.5	75	125				
Iron	20,700	5.61	510	20,200	88.1	75	125				E
Lead	27.1	0.204	25.5	4.78	87.5	75	125				
Nickel	116	0.102	51.0	59.2	112	75	125				
Zinc	105	0.408	51.0	52.0	104	75	125				

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Client Name: **LIBBY**
 Logged by: **Clare Griggs**

 Work Order Number: **1211031**
 Date Received: **11/6/2012 9:15:00 AM**

Chain of Custody

1. Were custodial seals present? Yes No Not Required
2. Is Chain of Custody complete? Yes No Not Present
3. How was the sample delivered? FedEx

Log In

4. Coolers are present? Yes No NA
5. Was an attempt made to cool the samples? Yes No NA
6. Were all coolers received at a temperature of >0° C to 10.0°C Yes No NA
7. Sample(s) in proper container(s)? Yes No
8. Sufficient sample volume for indicated test(s)? Yes No
9. Are samples properly preserved? Yes No
10. Was preservative added to bottles? Yes No NA
11. Is there headspace present in VOA vials? Yes No NA
12. Did all sample containers arrive in good condition?(unbroken) Yes No
13. Does paperwork match bottle labels? Yes No
14. Are matrices correctly identified on Chain of Custody? Yes No
15. Is it clear what analyses were requested? Yes No
16. Were all holding times able to be met? Yes No

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text" value="Libby Env"/>	Date:	<input type="text" value="11/6/2012"/>
By Whom:	<input type="text" value="Clare Griggs"/>	Via:	<input checked="" type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text" value="COC and sample labels not matching up."/>		
Client Instructions:	<input type="text" value="See below."/>		

18. Additional remarks/Discrepancies

Client would like the samples to be labeled as follows: MRZ-B1-110312, MRZ-B2-110312, MRZ-B3-110312.

Item Information

Item #	Temp °C	Condition
Cooler	8.8	Good
Sample	8.3	Good

Libby Environmental, Inc.

4139 Libby Road NE
 Olympia, WA 98506
 Client: Libby Environmental

Chain of Custody Record 1211031

Date: 11/5/12 Page: 1 of 1

Project Manager: Jamie Deyman

Project Name: IRONDALE

Address: SEE ABOVE

City: State: Zip:

City, State:

Phone: Fax:

Date of Collection: 11/3

Client Project #

Email:

Sample Number	Depth	Time	Sample Type	Container Type	Field Notes
1 MRZ-1-110312		9:46	SOIL	4 oz JAR	VOA 8021B VOA 8021B BTEX ONLY SEM VOL 8270 NMTPH-HOLD NMTPH-GX NMTPH-DX NMTPH-DX EXL PAP 8270 PGBs 8082 MTCAs 8168 METALS
2 MRZ-2-110312		9:45	SOIL	4 oz JAR	
3 MRZ-3-110312		9:57	SOIL	4 oz JAR	
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					

Relinquished by: *[Signature]* Date / Time: 11/5/12 1:52 Received by: *[Signature]* Date / Time: 11-6-12 9:15

Remarks: * Arsenic, Copper, IRON, LEAD, NICKEL, ZINC

Sample Receipt: Good Condition? Skals Intact?

Total Number of Containers: TAT: 24HR 48HR 5-DAY

Clare Griggs

From: Libby Environmental [libbyenv@aol.com]
Sent: Tuesday, November 06, 2012 11:23 AM
To: cgriggs@fremontanalytical.com
Subject: Re: Irondale

Clare,

Please use the following sample names in place of what is listed on the chain of custody as well as the labels

MRZ-B1-110312
MRZ-B2-110312
MRZ-B3-110312

If you have any questions let me know

Emily Ackerman
Office Manager
Libby Environmental, Inc.
360-352-2110 Office
360-352-4154 Fax
www.LibbyEnvironmental.com

-----Original Message-----

From: Clare Griggs <cgriggs@fremontanalytical.com>
To: libbyenv <libbyenv@aol.com>
Sent: Tue, Nov 6, 2012 10:14 am
Subject: Irondale

Hi there,

I am receiving the latest Irondale soil samples (for metals analysis) that we received this morning and the COC and the sample labels are not matching up. I just need to know which version you would like me to use.

The COC reads (all being sampled on 11/3)

1. MRZ-1-110312
2. MRZ-2-110312
3. MRZ-3-110312

The jar labels read:

1. MRZ-B1-110112 (sampled 11/1)
2. MRZ-B2-110112 (sampled 11/1)
3. MRZ-3-110312 (sampled 11/3 @ 9:57)

Thanks!

Clare Griggs
Project Coordinator



1311 N. 35th St.
Seattle, WA 98103



Libby Environmental, Inc.

4139 Libby Road NE • Olympia, WA 98506-2518

December 5, 2012

Neil Morton
GeoEngineers Inc.
600 Stewart Street, Suite 1700
Seattle, WA 98101

Dear Mr. Morton:

Please find enclosed the analytical data report for the Irondale Project located in Irondale, Washington. Soil samples were analyzed for Diesel & Oil by NWTPH-Dx/Dx Extended with Silica Gel Clean Up on November 29, 2012.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. All soil samples are reported on a dry weight basis. An invoice for this analytical work is enclosed.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Jamie L. Deyman
President
Libby Environmental, Inc.

Phone (360) 352-2110 • Fax (360) 352-4154 • libbyenv@aol.com

www.LibbyEnvironmental.com



Libby Environmental, Inc.

Case Narrative

Libby Project #: L121018-30
Date: 12-05-2012

CLIENT: GeoEngineers, Inc.
PROJECT: Irondale

I. SAMPLE RECEIPT:

All samples were received intact and in good condition. See the attached Sample Receipt Check List for more information.

II. GENERAL REPORTING COMMENTS:

Final results are reported on a dry weight basis. The soil samples in the field are estimated to have a moisture content of 15%. This estimate is useful in producing data that is close to the actual value. After the sample is analyzed for soil moisture at our fixed base facility, the final data is reported based on measured soil moisture. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS), the Laboratory Control Sample Duplicate (LCSD) and the Method Blank (MB). The LCS, LCSD and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) and/or noted below.

Notes:

N/A

GEOENGINEERS, INC.
 8410 154TH AVENUE N.E.
 REDMOND, WASHINGTON 98052
 (425) 861-6000

CHAIN OF CUSTODY RECORD



DATE 11/21
 PAGE 7 OF 1
 LAB Libby
 LAB NO.

PROJECT NAME/LOCATION						ANALYSIS REQUIRED										NOTES/COMMENTS							
PROJECT NUMBER																(Preserved, filtered, etc.)							
PROJECT MANAGER																							
SAMPLED BY																							
SAMPLE IDENTIFICATION		SAMPLE COLLECTION			# OF JARS																		
LAB	GEOENGINEERS	DATE	TIME	MATRIX	JARS																		
SURZ-NSW-112112		11/21	1445	S	1 4oz	X																	
SURZ-WSW-112112		11/21	1447	S	1 4oz	X																	
SURZ-SSW-112112		11/21	1450	S	1 4oz	X																	

RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM
SIGNATURE		SIGNATURE		SIGNATURE	
PRINTED NAME		PRINTED NAME		PRINTED NAME	
DATE	TIME	DATE	TIME	DATE	TIME
RECEIVED BY	FIRM	RECEIVED BY	FIRM	RECEIVED BY	FIRM
SIGNATURE		SIGNATURE		SIGNATURE	
PRINTED NAME		PRINTED NAME		PRINTED NAME	
DATE	TIME	DATE	TIME	DATE	TIME

ADDITIONAL COMMENTS: Normal Test

Libby Environmental, Inc. Login Sample Receipt Check List

Client: GeoEngineers, Inc. **Libby Project Number:** L121127-3

Question	T / F / NA	Comment
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler temperature is acceptable.	True	
COC is present.	True	
COC is filled out in ink and is legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within the Hold Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs.	True	
VOA sample vials do not have headspace or bubble is less than 6mm (1/4 in.) in diameter.	True	
If necessary, staff has been informed of any short hold time or quick TAT needs.	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	

Libby Environmental, Inc.

4139 Libby Road NE
Olympia, WA 98506
Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@aol.com

IRONDALE PROJECT
GeoEngineers, Inc.
Irondale, Washington
Libby Project # L121127-3
Client Project # 0504-042-02

Analyses of Diesel & Oil Range (NWTPH-Dx/Dx Extended) in Soil w/ Silica Gel Cleanup

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Bunker C (mg/kg)
Method Blank	11/29/12	110	nd	nd
LCS	11/29/12	int	110%	
LCSD	11/29/12	int	99%	
SURZ-NSW-112112	11/29/12	101	nd	nd
SURZ-WSW-112112	11/29/12	101	nd	nd
SURZ-SSW-112112	11/29/12	115	nd	nd
SURZ-SSW-112112 Dup	11/29/12	106	nd	nd
Practical Quantitation Limit			25	40

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

LIBBY ENVIRONMENTAL Diesel Oil Analysis Log

Client: Geo Engineers

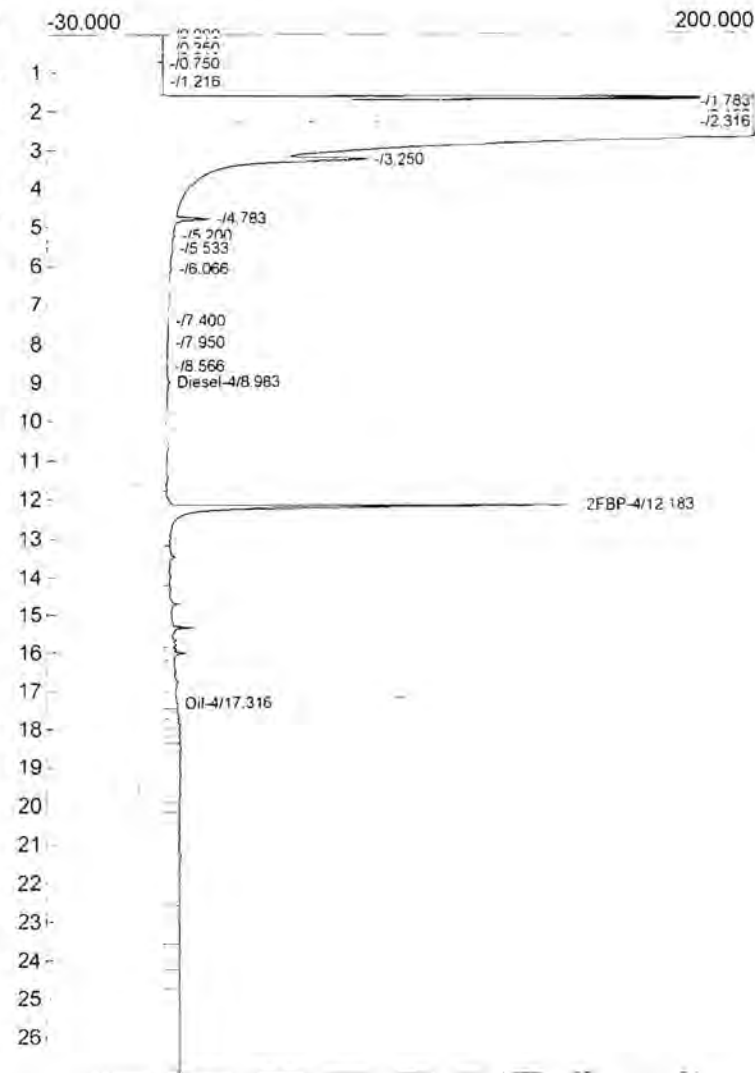
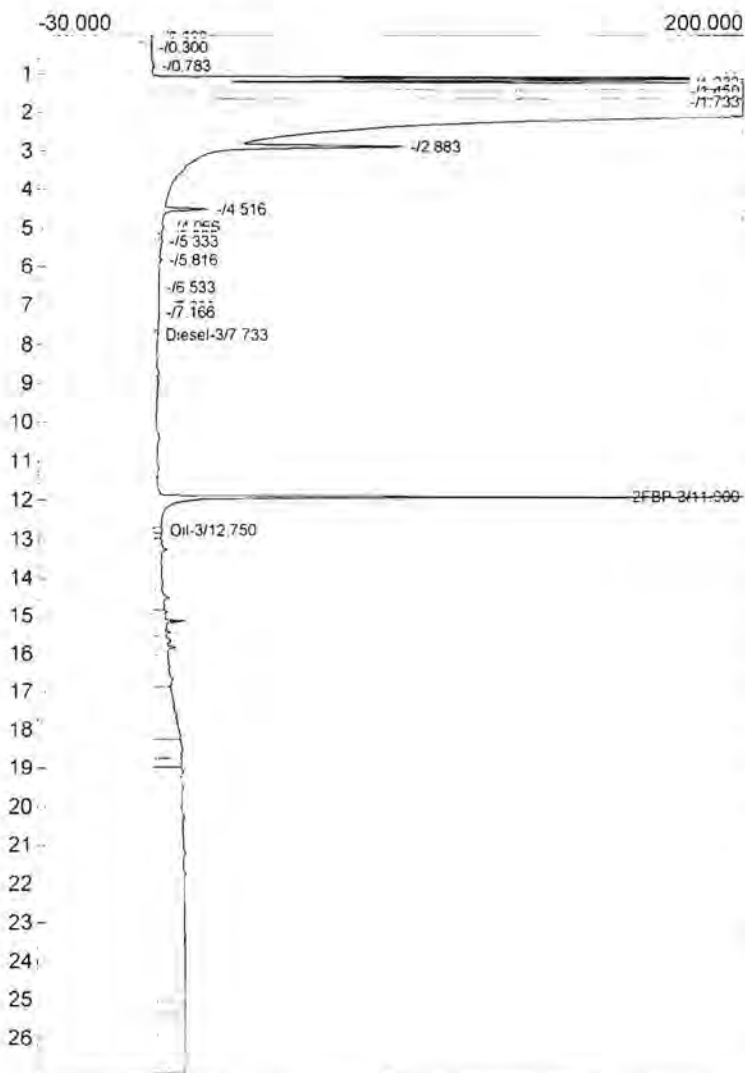
Client Project: Irondale

Date: 11/29/2012

Libby Job #: L121127-3		Instrument: Shimadzu GC14A			Analyst/s: Jamie Deyman		
Sample #	Time	Run	Vol	Surrogate 2FBP conc.	Diesel Conc.	Oil Conc	Bunker C Conc
500 ppm Diesel 806	9:27:57	C191	3 µl		528		
500 ppm Diesel 806	9:27:57	D190	3 µl		480		
1000 ppm LCS 343	9:59:59	C192	3 µl	int	1100		
1000 ppm LCSD 343	9:59:59	D191	3 µl	int	993		
Method Blank	10:35:50	C193	3 µl	22.7	nd	nd	nd
Method Blank	10:35:50	D192	3 µl	22.1	nd	nd	nd
SURZ-NSW-112112	11:11:54	C194	3 µl	20.2	nd	nd	nd
SURZ-WSW-112112	11:11:54	D193	3 µl	20.2	nd	nd	nd
SURZ-SSW-112112	11:59:24	C195	3 µl	22.9	nd	nd	nd
SURZ-SSW-112112 Dup	11:59:24	D194	3 µl	21.2	nd	nd	nd
500 ppm Diesel 806	16:20:50	C201	3 µl		524		
500 ppm Diesel 806	16:20:50	D200	3 µl		519		

Lab name: Libby Environmental
 Analysis date: 11/29/2012 11:59:25
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: C195.CHR ()
 Sample: SSW
 Operator: *JP PB 11-29-12*

Lab name: Libby Environmental
 Analysis date: 11/29/2012 11:59:25
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: D194.CHR ()
 Sample: SSW Dup
 Operator: *JP PB 11-29-12*



Component	Retention	Area	Height	External	Units
Diesel-3	7.733	807.2740	0.388	47.3703	ppm
2FBP-3	11.900	745.2695	229.527	22.9314	ppm
Oil-3	12.750	5987.1450	2.461	248.3755	ppm
		7539.6885		318.6771	

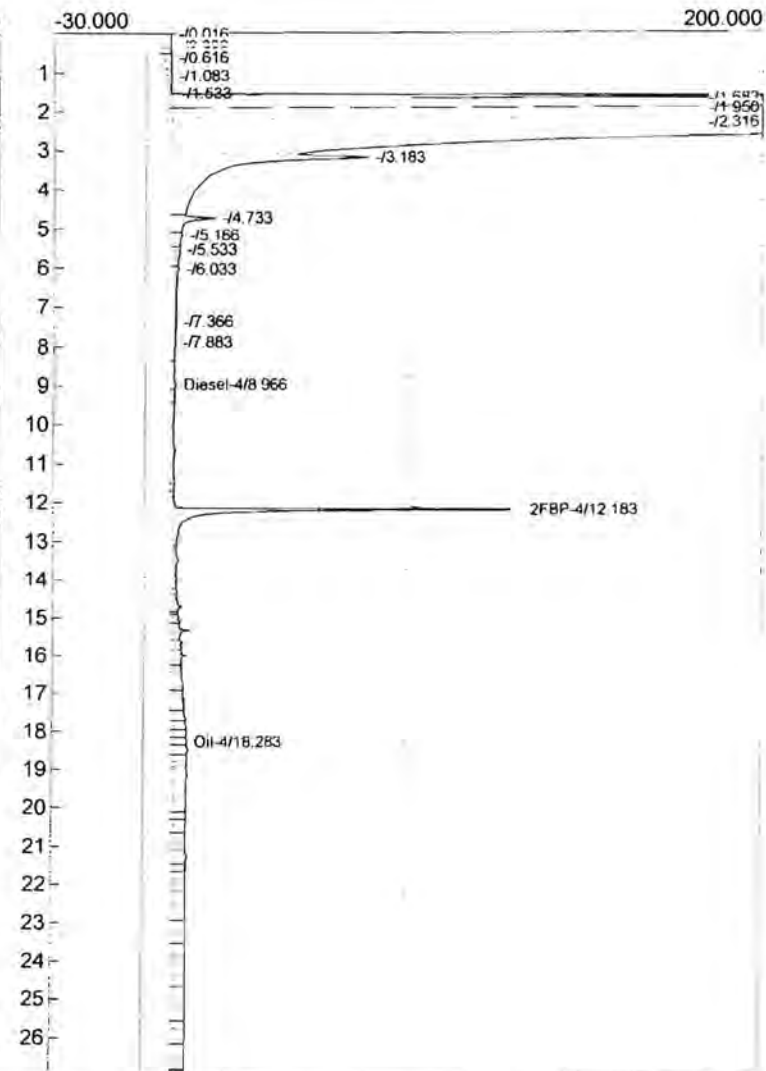
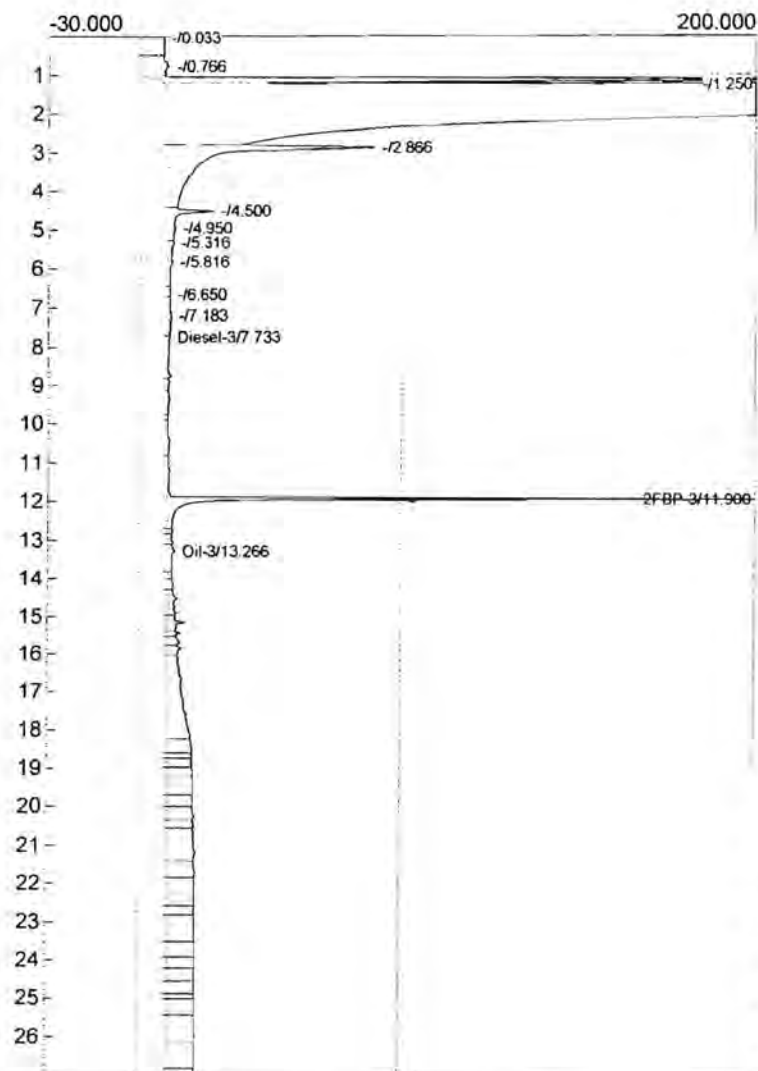
Component	Retention	Area	Height	External	Units
Diesel-4	8.983	1172.1520	1.031	40.2815	ppm
2FBP-4	12.183	582.9040	134.735	21.1965	ppm
Oil-4	17.316	2548.0575	3.779	87.5650	ppm
		4303.1135		149.0430	

nd 115%

nd 106%

Lab name: Libby Environmental
 Analysis date: 11/29/2012 11:11:54
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: C194.CHR ()
 Sample: NSW
 Operator: PB

Lab name: Libby Environmental
 Analysis date: 11/29/2012 11:11:54
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: D193.CHR ()
 Sample: WSW
 Operator: PB



Component	Retention	Area	Height	External	Units
Diesel-3	7.733	723.1990	0.516	44.1077	ppm
2FBP-3	11.900	655.9770	206.063	20.1839	ppm
Oil-3	13.266	5478.7350	2.386	228.6466	ppm
		6657.9110		292.9382	

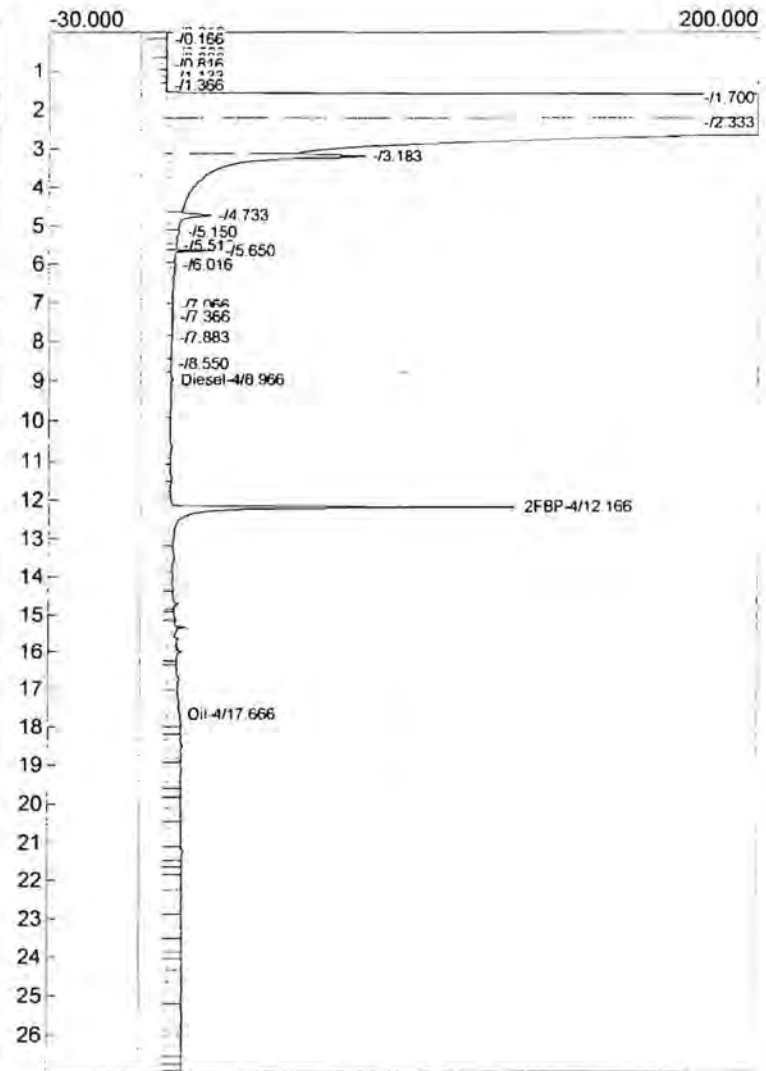
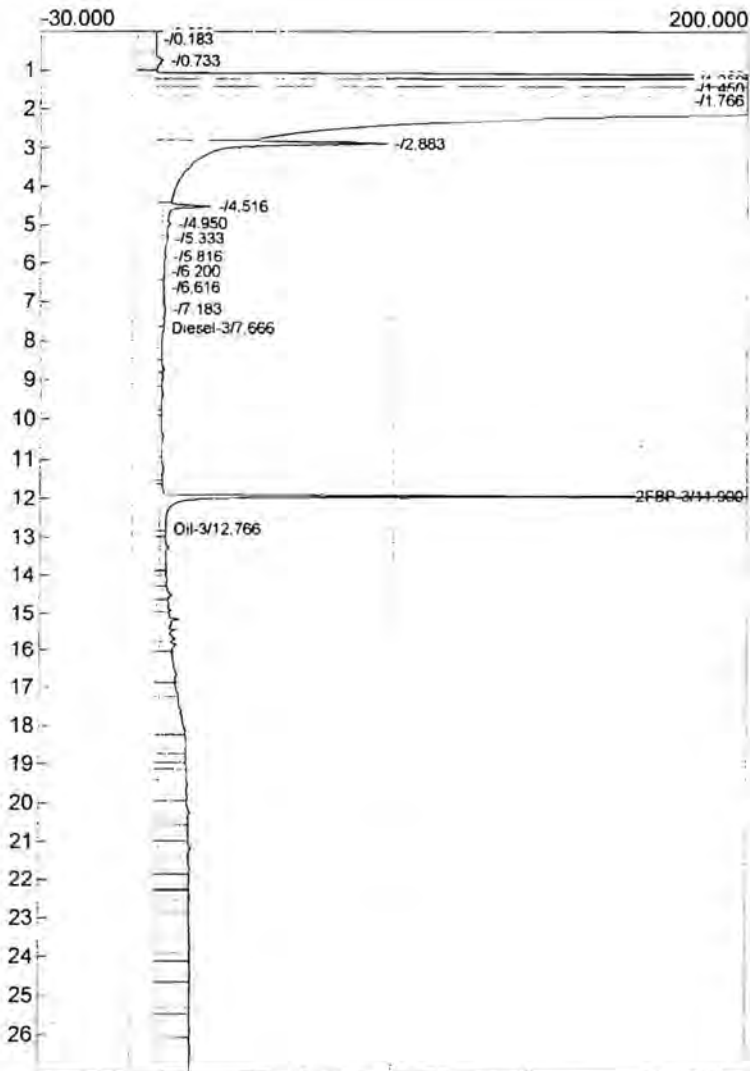
nd 101%

Component	Retention	Area	Height	External	Units
Diesel-4	8.966	1246.0380	0.890	42.8206	ppm
2FBP-4	12.183	554.9975	113.574	20.1817	ppm
Oil-4	18.283	1979.9260	4.293	68.0409	ppm
		3780.9615		131.0433	

nd 101%

Lab name: Libby Environmental
 Analysis date: 11/29/2012 10:35:50
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: C193.CHR ()
 Sample: M BLANK
 Operator: PB

Lab name: Libby Environmental
 Analysis date: 11/29/2012 10:35:50
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: D192.CHR ()
 Sample: M BLANK
 Operator: PB



Component	Retention	Area	Height	External	Units
Diesel-3	7.666	795.9440	0.579	46.9306	ppm
2FBP-3	11.900	737.3180	222.314	22.6867	ppm
Oil-3	12.766	6509.4955	2.209	268.6453	ppm
		8042.7575		338.2626	

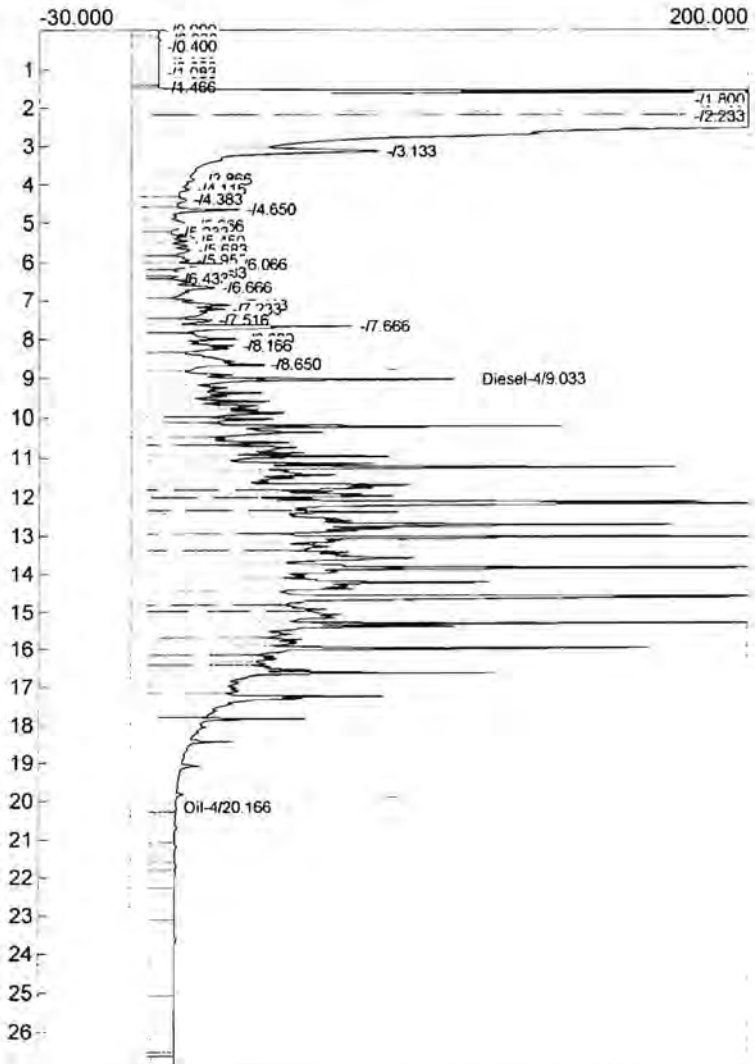
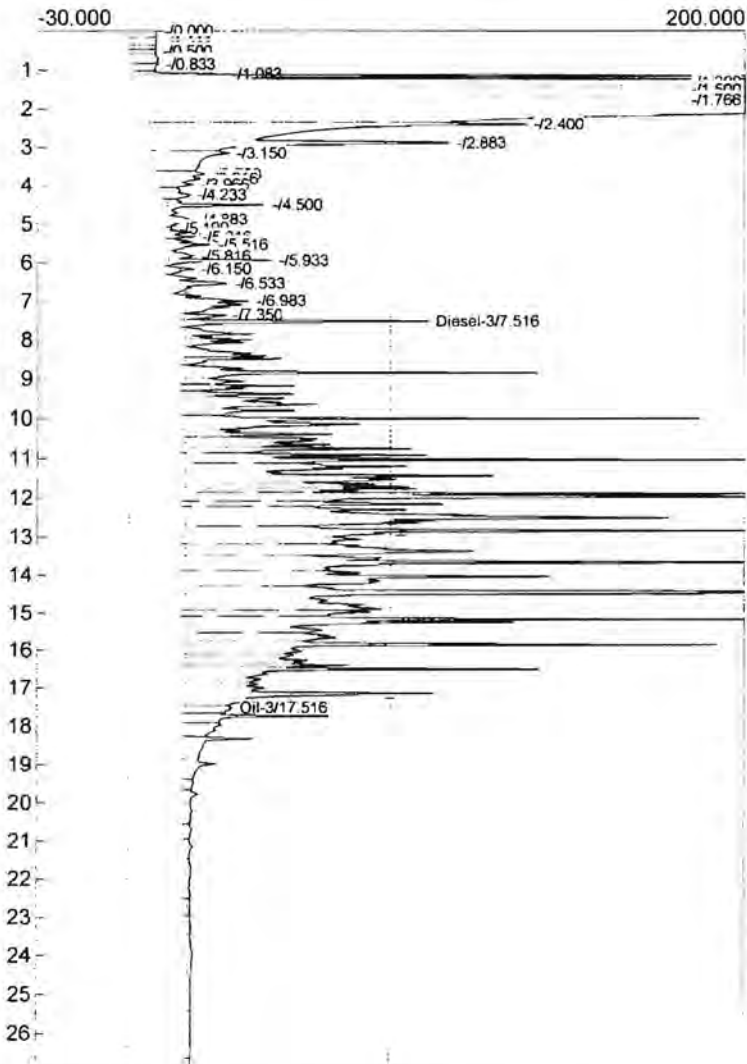
113%

Component	Retention	Area	Height	External	Units
Diesel-4	8.966	1306.6045	0.947	44.9020	ppm
2FBP-4	12.166	606.8565	113.532	22.0675	ppm
Oil-4	17.666	2638.7085	4.230	90.6803	ppm
		4552.1695		157.6498	

110%

Lab name: Libby Environmental
 Analysis date: 11/29/2012 09:59:59
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: C192.CHR ()
 Sample: 1000 PPM LCS 343
 Operator: PB

Lab name: Libby Environmental
 Analysis date: 11/29/2012 09:59:59
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: D191.CHR ()
 Sample: 1000 PPM LCSD 343
 Operator: PB



Component	Retention	Area	Height	External	Units
Diesel-3	7.516	27949.9515	79.678	1100.6434	ppm
Oil-3	17.516	1401.6885	15.204	70.4366	ppm
		29351.6400		1171.0799	

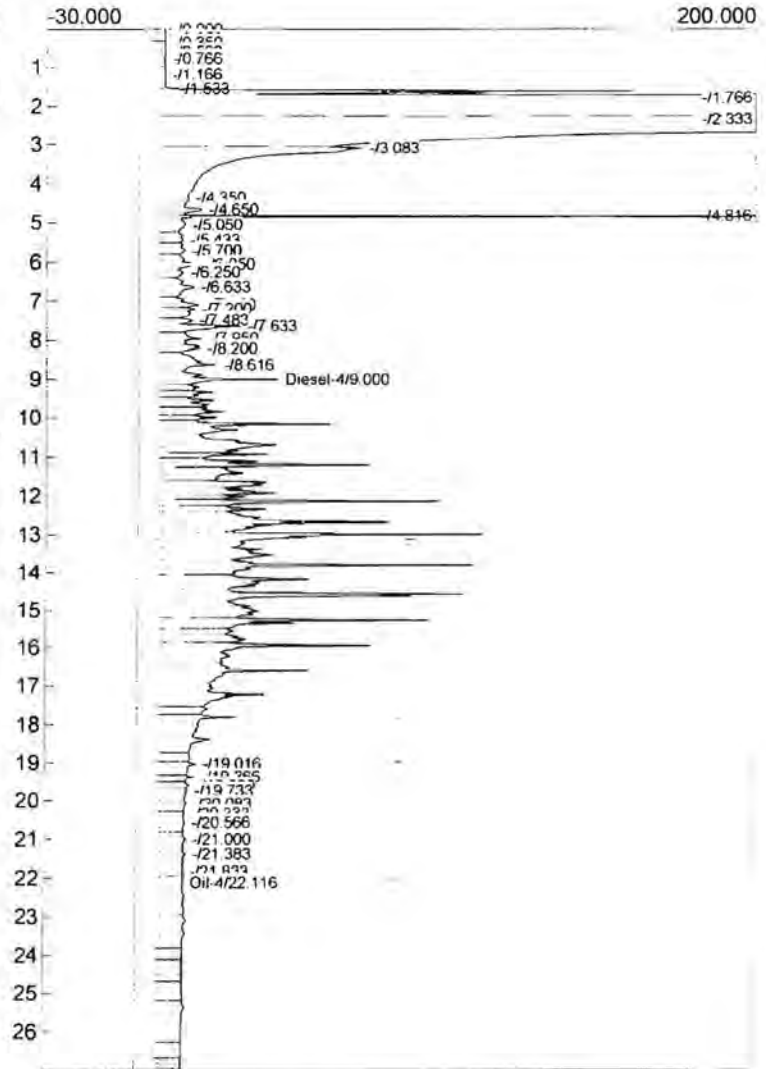
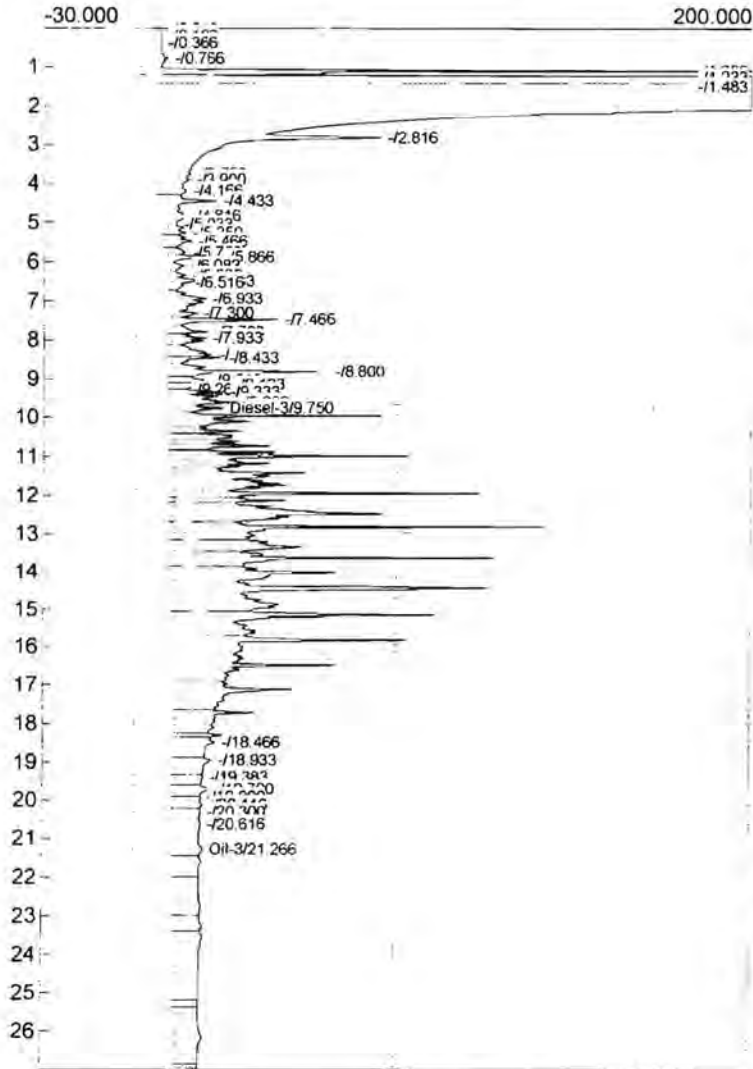
110%

Component	Retention	Area	Height	External	Units
Diesel-4	9.033	28906.3875	105.411	993.3795	ppm
Oil-4	20.166	3139.2935	8.176	107.8831	ppm
		32045.6810		1101.2625	

99%

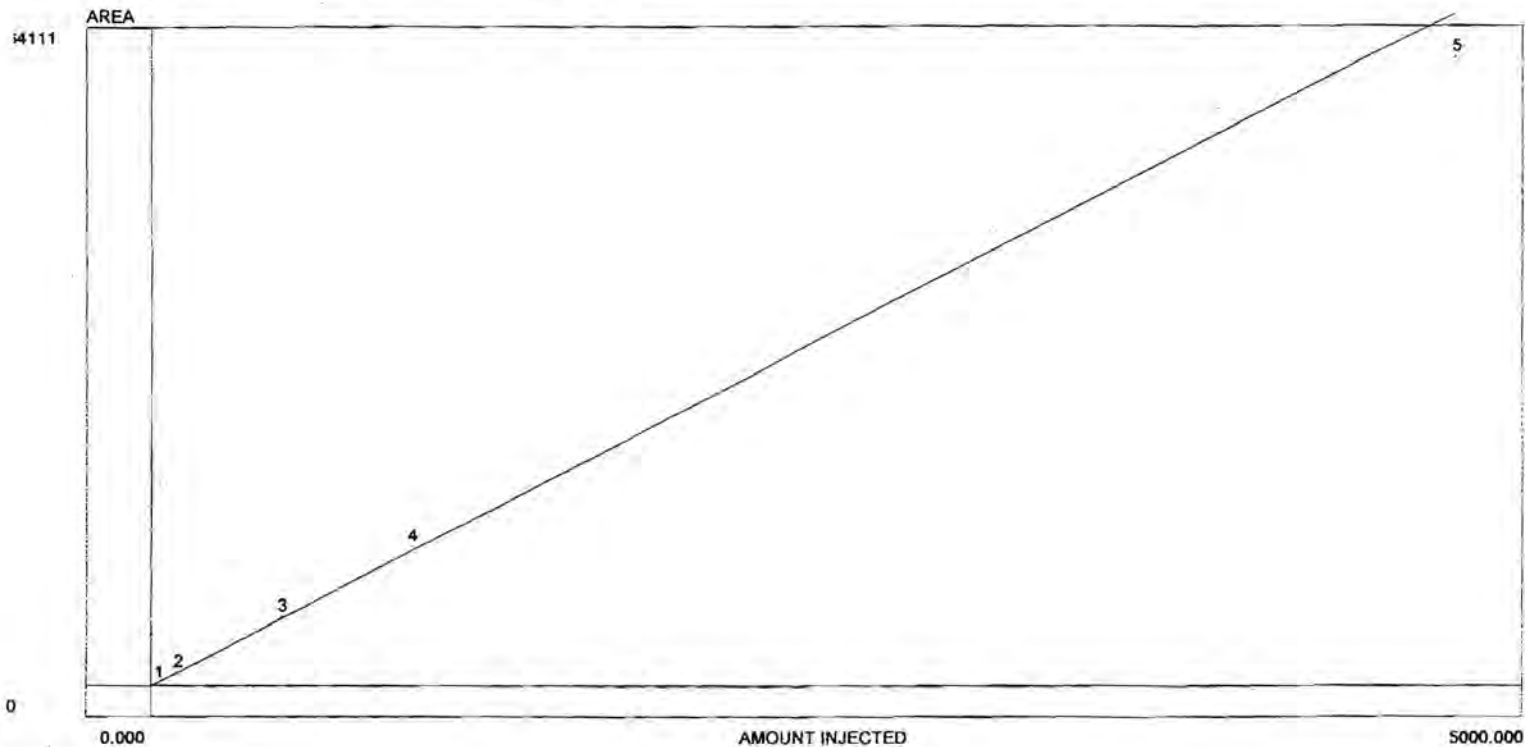
Lab name: Libby Environmental
 Analysis date: 11/29/2012 09:27:57
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: C191.CHR ()
 Sample: 500 PPM DIESEL 806
 Operator: PB

Lab name: Libby Environmental
 Analysis date: 11/29/2012 09:27:57
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: D190.CHR ()
 Sample: 500 PPM DIESEL 806
 Operator: PB



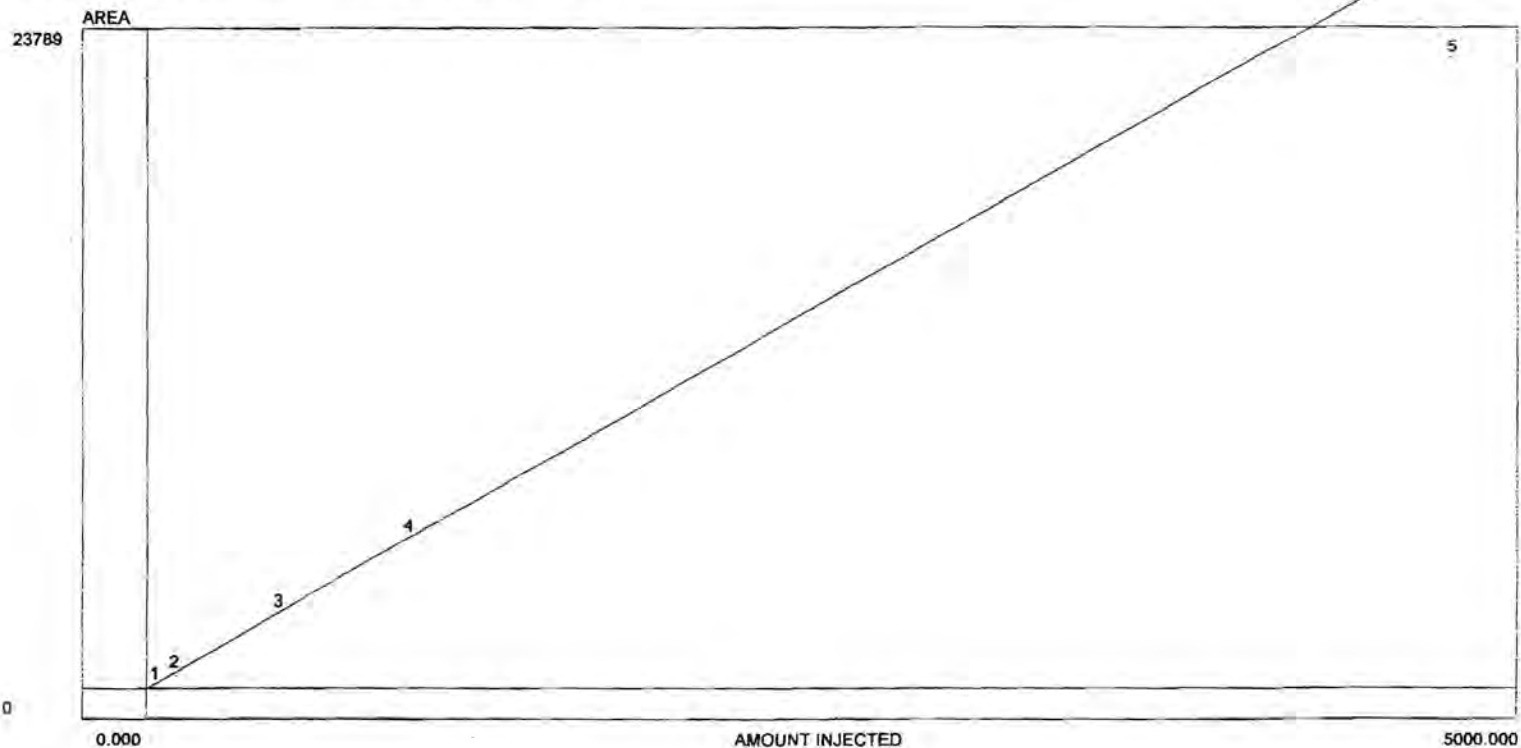
Component	Retention	Area	Height	External	Units
Diesel-3	9.750	13200.0315	16.347	528.2719	ppm
Oil-3	21.266	2764.4670	8.983	123.3193	ppm
		15964.4985		651.5912	

Component	Retention	Area	Height	External	Units
Diesel-4	9.000	13973.4680	37.590	480.2038	ppm
Oil-4	22.116	2221.9430	7.412	76.3580	ppm
		16195.4110		556.5617	



Avg slope of curve: 13.74
 Y-axis intercept: -0.00
 Linearity: 1.00
 Number of levels: 5
 SD/rel SD of CF's: 0.7/5.1
 Y=13.7405X
 r2: 0.9996
 Last calibrated: Wed Jun 20 21:18:26 2012

Lvl.	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	329.087	25.000	13.163	329.087	N/A	N/A
2	1442.910	100.000	14.429	1442.910	N/A	N/A
3	7053.939	500.000	14.108	7053.939	N/A	N/A
4	14179.915	1000.000	14.180	14179.915	N/A	N/A
5	64111.245	5000.000	12.822	64111.245	N/A	N/A



Avg slope of curve: 29.10

Y-axis intercept: -0.00

Linearity: 1.00

Number of levels: 5

SD/rel SD of CF's: 2.6/8.9

Y=29.0990X

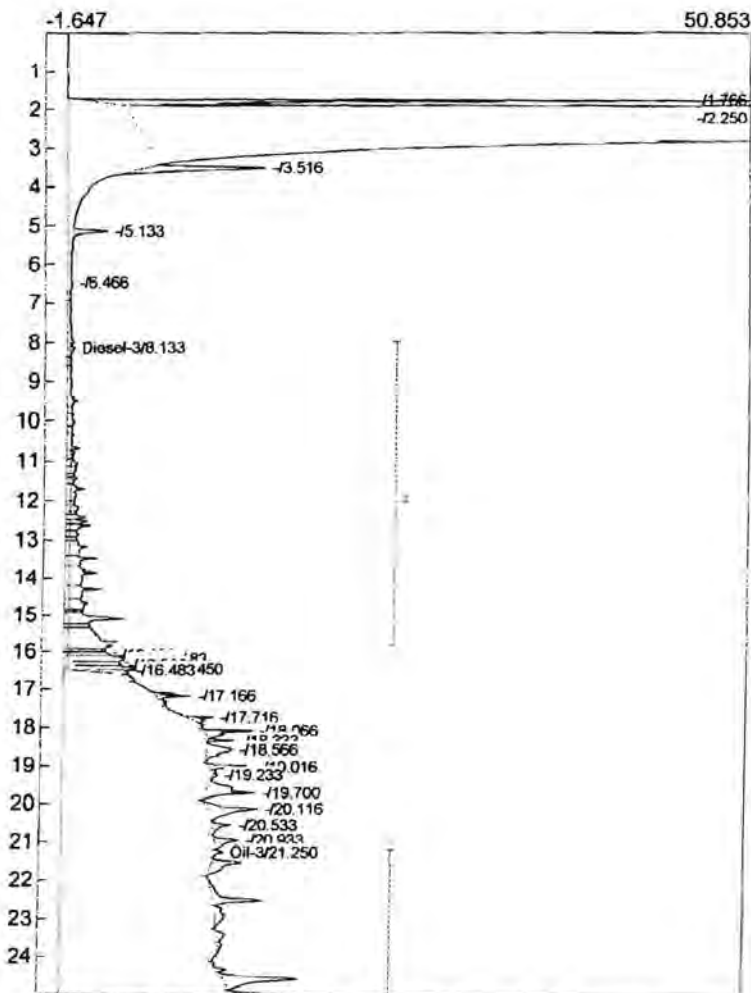
r2: 0.9986

Last calibrated: Wed Jun 20 21:19:11 2012

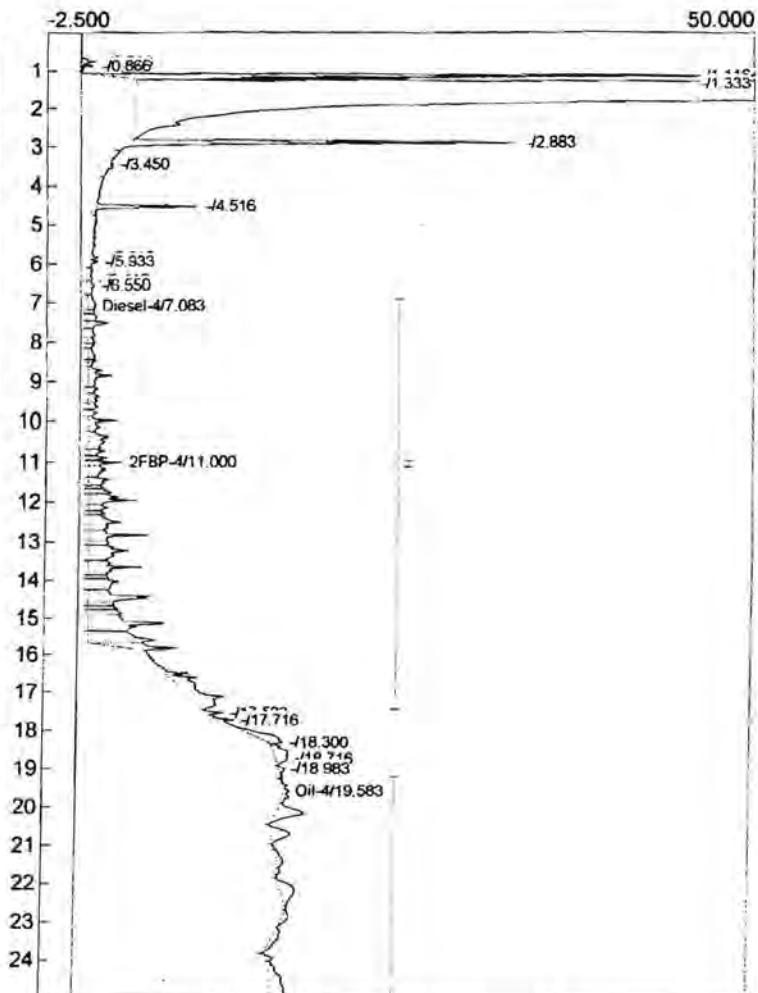
Lvl	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	792.519	25.000	31.701	792.519	N/A	N/A
2	3024.632	100.000	30.246	3024.632	N/A	N/A
3	14692.487	500.000	29.385	14692.487	N/A	N/A
4	29405.412	1000.000	29.405	29405.412	N/A	N/A
5	123788.676	5000.000	24.758	123788.676	N/A	N/A

Lab name: Libby Environmental
 Analysis date: 06/20/2012 20:47:50
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH3_C06.CHR ()
 Sample: 25 PPM DIESEL #775
 Operator: JD

Lab name: Libby Environmental
 Analysis date: 06/20/2012 20:47:50
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH4_D06.CHR ()
 Sample: 25 PPM DIESEL #775
 Operator: JD



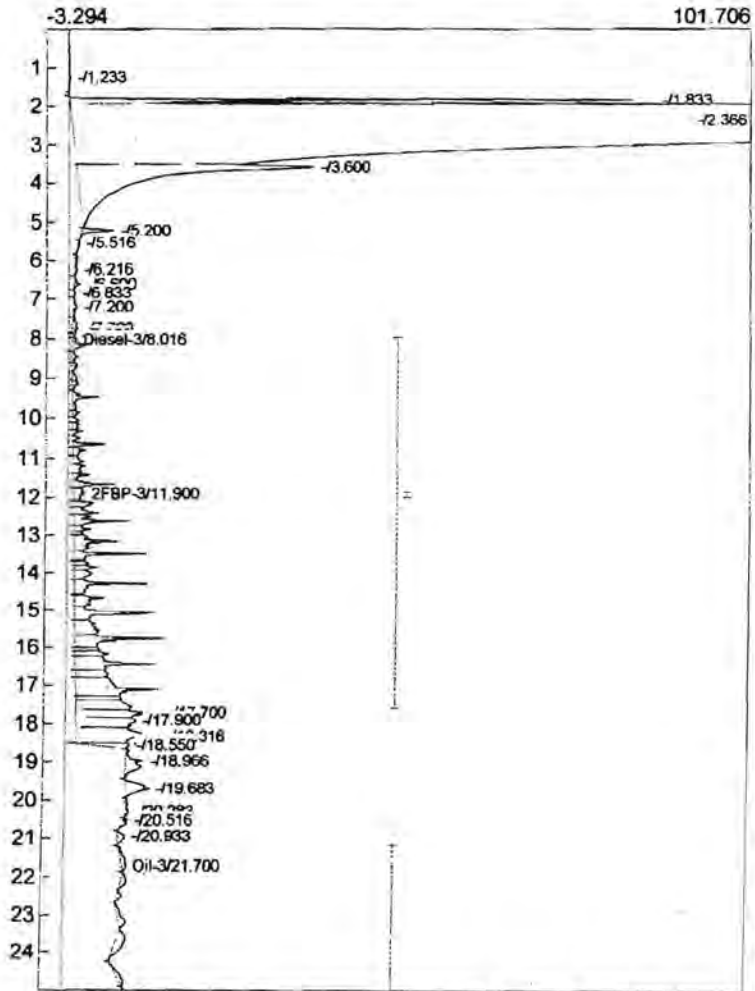
Component	Retention	Area	Height	External	Units
Diesel-3	8.133	329.0870	0.378	23.9501	ppm
Oil-3	21.250	201.0590	0.576	7.8798	ppm
		530.1460		31.8299	



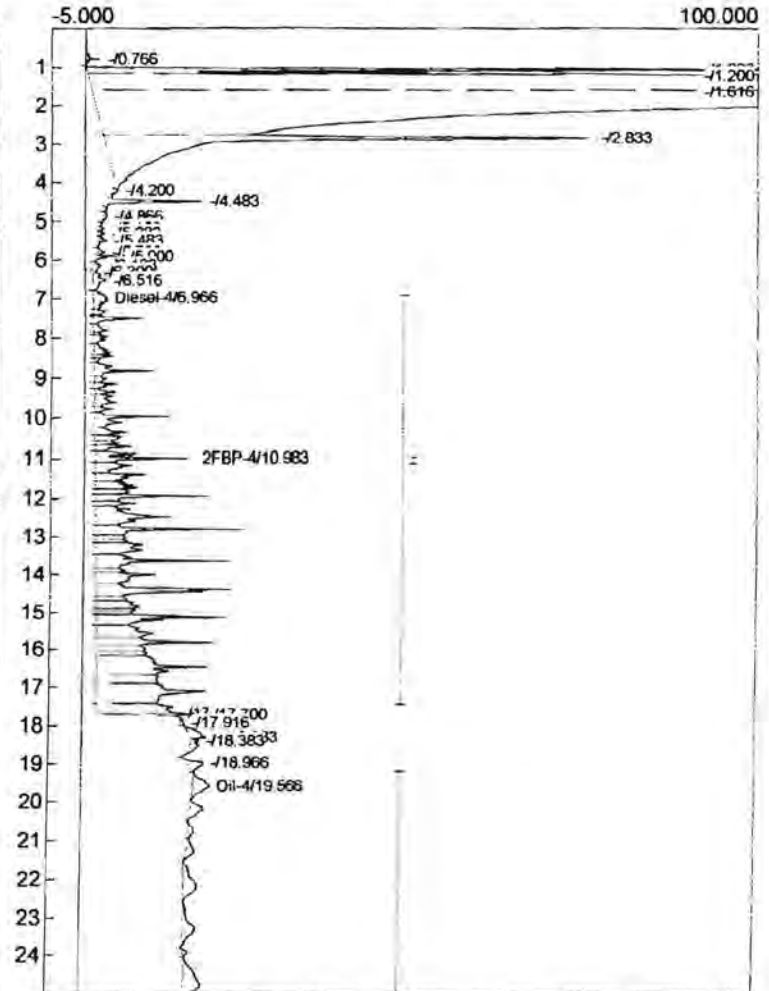
Component	Retention	Area	Height	External	Units
Diesel-4	7.083	792.5190	0.570	27.2352	ppm
2FBP-4	11.000	11.2495	2.541	0.4284	ppm
Oil-4	19.583	225.9680	0.250	10.8687	ppm
		1029.7365		38.5323	

Lab name: Libby Environmental
 Analysis date: 06/20/2012 20:13:11
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH3_C05.CHR ()
 Sample: 100 PPM DIESEL #774
 Operator: JD

Lab name: Libby Environmental
 Analysis date: 06/20/2012 20:13:11
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH4_D05.CHR ()
 Sample: 100 PPM DIESEL #774
 Operator: JD



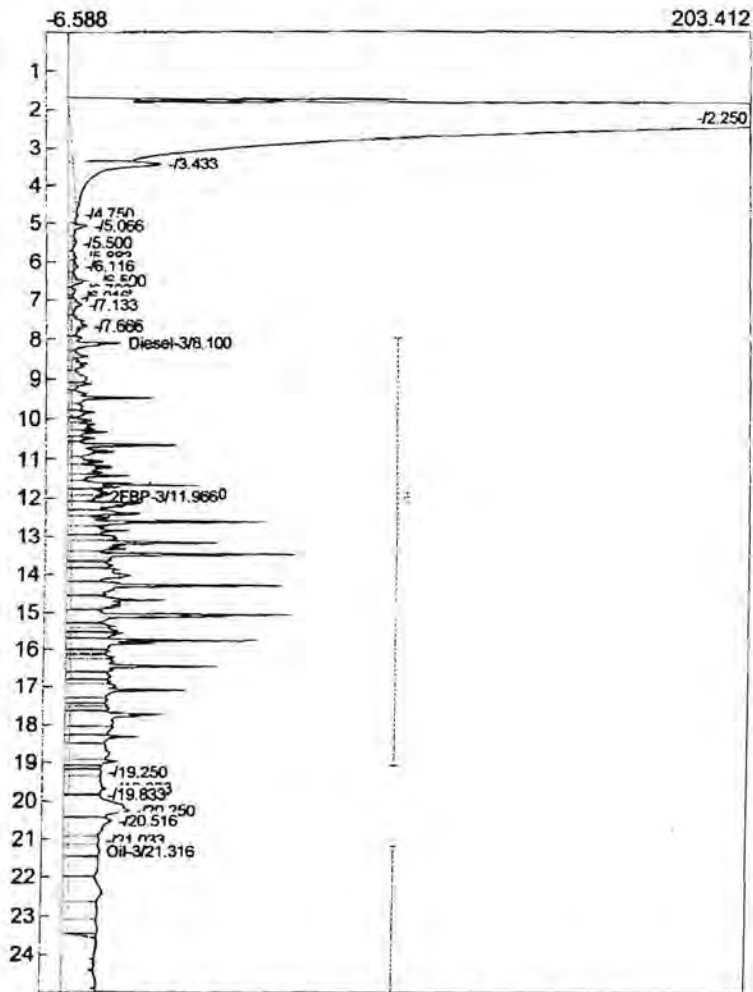
Component	Retention	Area	Height	External	Units
Diesel-3	8.016	1442.9095	0.639	100.2292	ppm
2FBP-3	11.900	23.0560	1.769	5.7640	ppm
Oil-3	21.700	144.1580	0.577	5.6498	ppm
		1610.1235		111.6430	



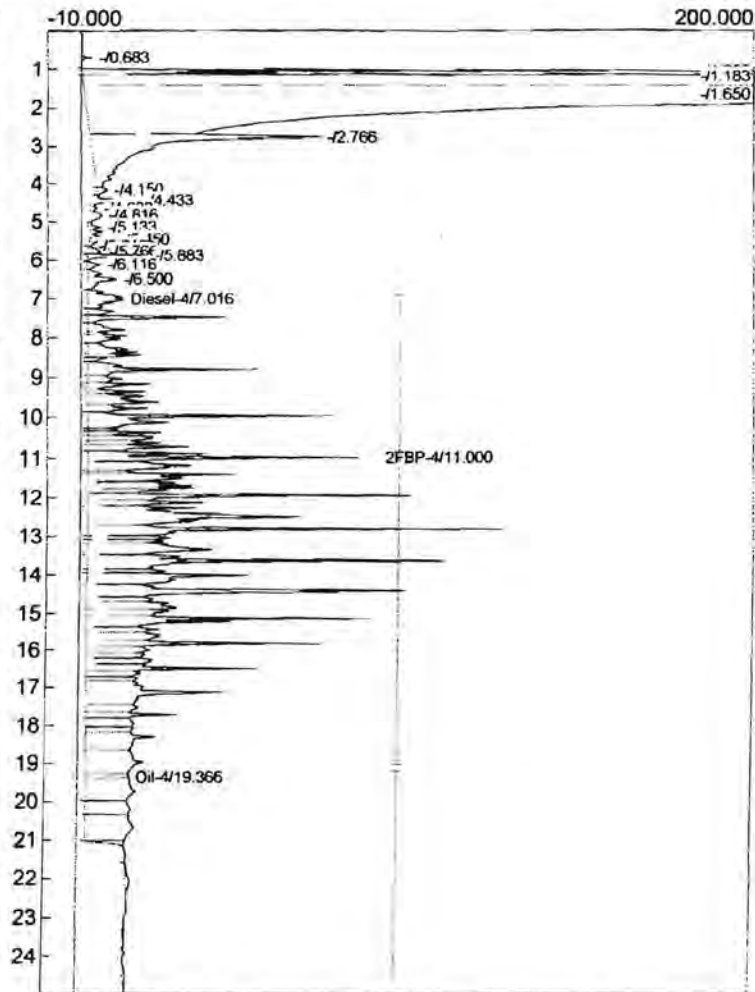
Component	Retention	Area	Height	External	Units
Diesel-4	6.966	3024.6315	2.135	100.2466	ppm
2FBP-4	10.983	74.0540	14.953	2.8204	ppm
Oil-4	19.566	348.5360	2.470	16.7640	ppm
		3447.2215		119.8309	

Lab name: Libby Environmental
 Analysis date: 06/20/2012 21:21:53
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH3_C07.CHR ()
 Sample: 500 PPM DIESEL #704ICAL
 Operator: JD

Lab name: Libby Environmental
 Analysis date: 06/20/2012 21:21:53
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH4_D07.CHR ()
 Sample: 500 PPM DIESEL #704ICAL
 Operator: JD



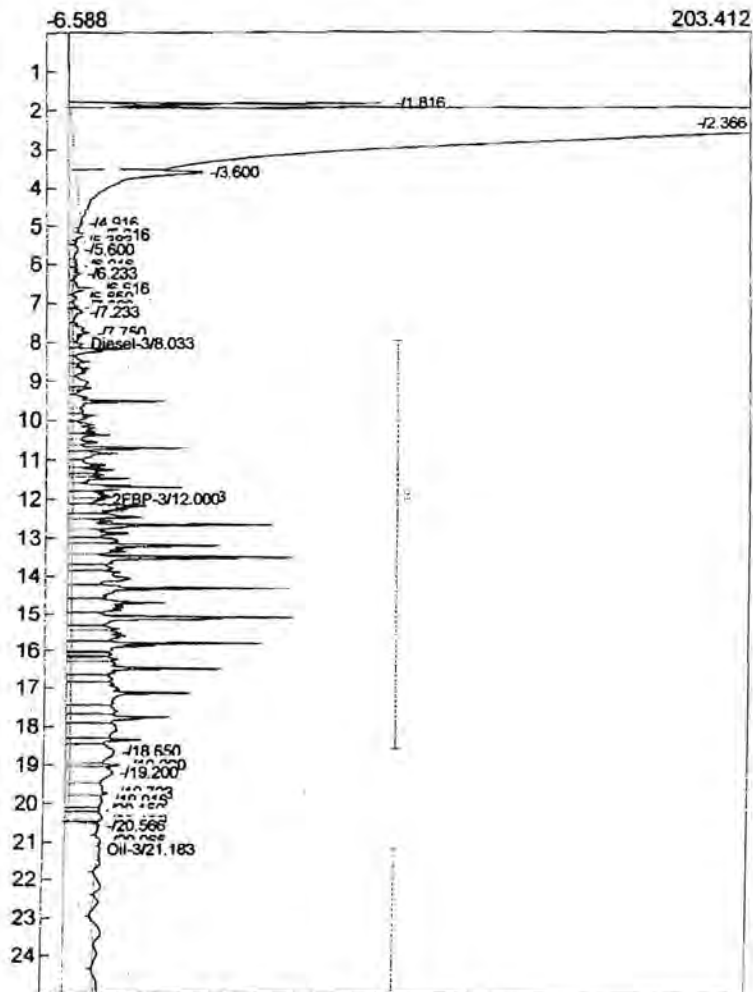
Component	Retention	Area	Height	External	Units
Diesel-3	8.100	7401.3870	15.026	538.6539	ppm
2FBP-3	11.900	100.5155	12.538	25.1289	ppm
2FBP-3	11.966	65.8305	9.677	16.4576	ppm
Oil-3	21.316	1407.3545	9.526	102.4236	ppm
		8975.0875		682.6641	



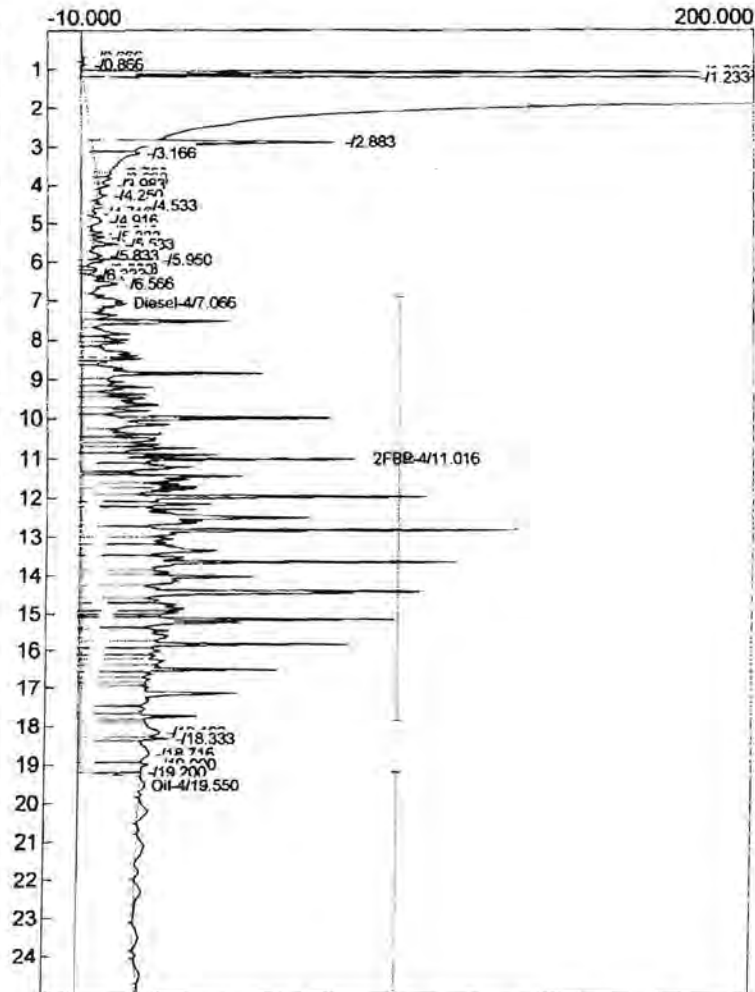
Component	Retention	Area	Height	External	Units
Diesel-4	7.016	14007.5970	10.800	481.3766	ppm
2FBP-4	11.000	428.5980	86.853	16.3234	ppm
Oil-4	19.366	1497.1540	12.916	51.4503	ppm
		15933.3490		549.1503	

Lab name: Libby Environmental
 Analysis date: 06/20/2012 19:30:52
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH3_C04.CHR ()
 Sample: 500 PPM DIESEL #773
 Operator: JD

Lab name: Libby Environmental
 Analysis date: 06/20/2012 19:30:52
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH4_D04.CHR ()
 Sample: 500 PPM DIESEL #773
 Operator: JD



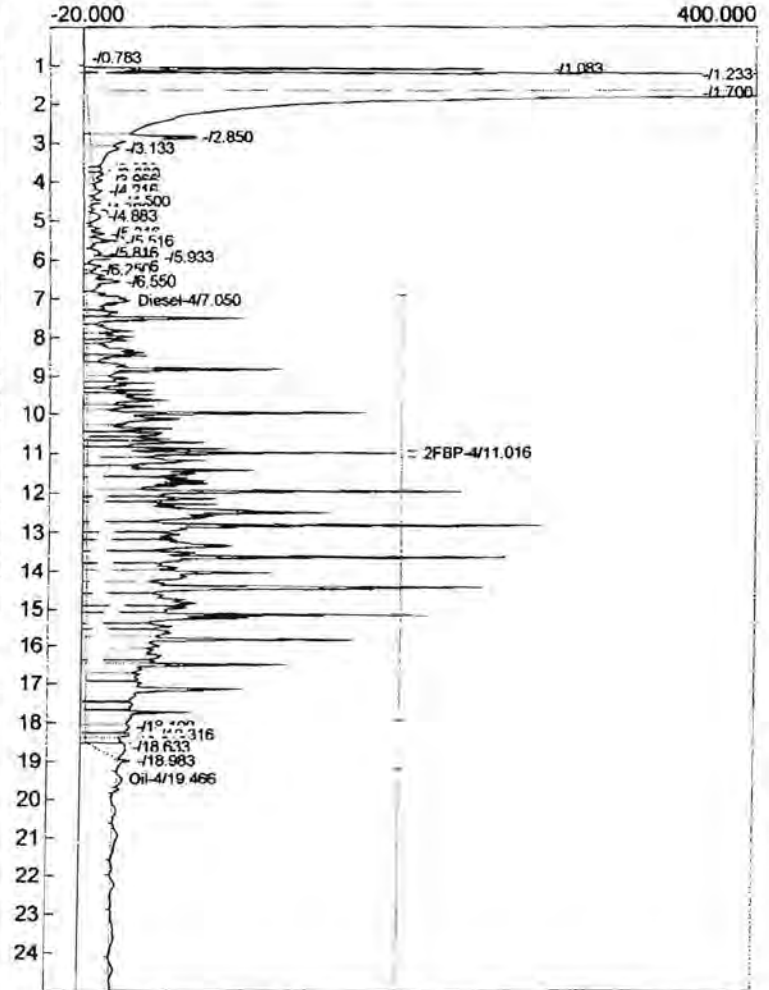
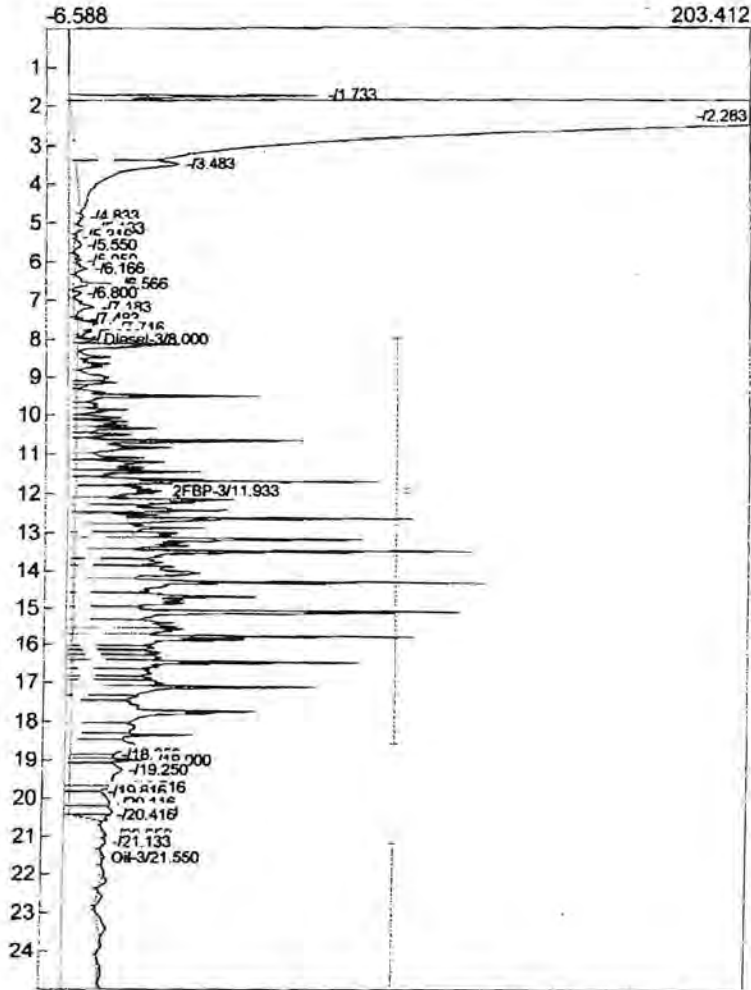
Component	Retention	Area	Height	External	Units
Diesel-3	8.033	7053.9390	3.363	491.2034	ppm
2FBP-3	11.933	100.3650	11.957	25.0912	ppm
2FBP-3	12.000	66.9750	10.007	16.7437	ppm
Oil-3	21.183	231.1530	0.329	9.0592	ppm
		7452.4320		542.0977	



Component	Retention	Area	Height	External	Units
Diesel-4	7.066	14692.4865	13.088	494.6276	ppm
2FBP-4	11.016	468.5260	84.693	17.8441	ppm
Oil-4	19.550	338.8790	1.772	16.2995	ppm
		15499.8915		528.7712	

Lab name: Libby Environmental
 Analysis date: 06/20/2012 18:55:03
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH3_C03.CHR ()
 Sample: 1000 PPM DIESEL #772
 Operator: JD

Lab name: Libby Environmental
 Analysis date: 06/20/2012 18:55:03
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH4_D03.CHR ()
 Sample: 1000 PPM DIESEL #772
 Operator: JD

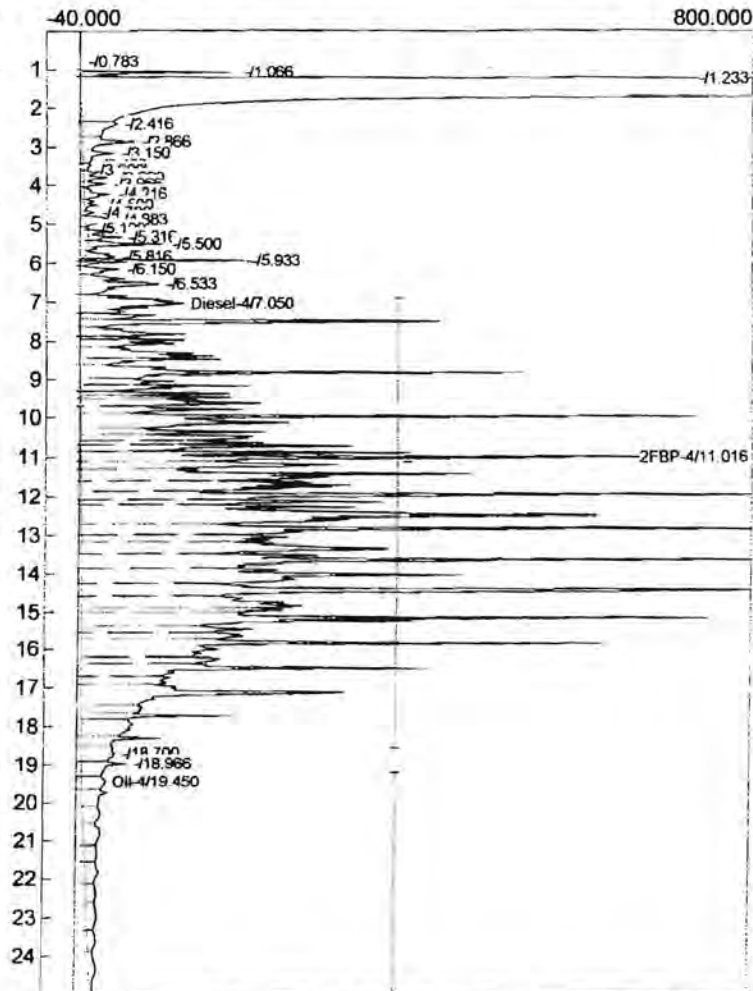
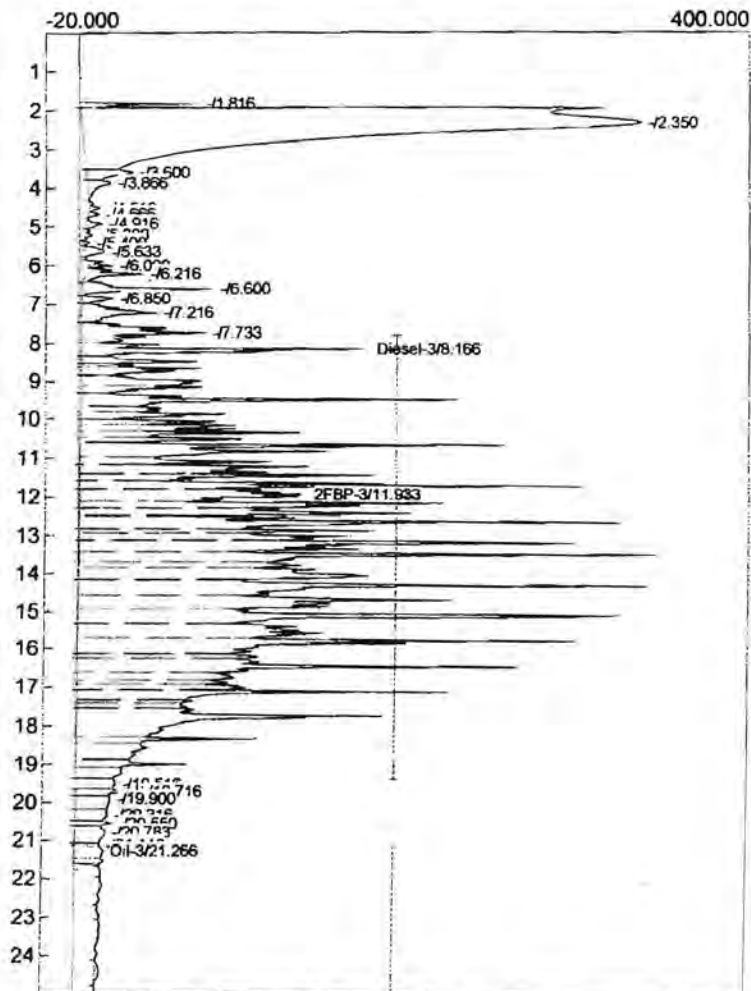


Component	Retention	Area	Height	External	Units
Diesel-3	8.000	14179.9150	6.009	543.3903	ppm
2FBP-3	11.933	344.8200	26.898	86.2050	ppm
Oil-3	21.550	217.1280	1.164	8.5096	ppm
		14741.8630		638.1048	

Component	Retention	Area	Height	External	Units
Diesel-4	7.050	29405.4115	26.447	1274.1433	ppm
2FBP-4	11.016	952.7000	197.007	36.2842	ppm
Oil-4	19.466	475.4740	3.482	22.8694	ppm
		30833.5855		1333.2969	

Lab name: Libby Environmental
 Analysis date: 06/20/2012 18:20:41
 Description: Elmer CH 3
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH3_C02.CHR ()
 Sample: 5000 PPM DIESEL #771
 Operator: JD

Lab name: Libby Environmental
 Analysis date: 06/20/2012 18:20:41
 Description: Elmer Ch 4
 Column: Restek Rxi-5ms 30x0.53x1.0
 Carrier: He
 Data file: CH4_D02.CHR ()
 Sample: 5000 PPM DIESEL #771
 Operator: JD



Component	Retention	Area	Height	External	Units
Diesel-3	8.166	64111.2450	172.813	4300.1858	ppm
2FBP-3	11.933	1934.6430	135.821	483.6608	ppm
Oil-3	21.266	690.3790	17.299	27.0569	ppm
		66736.2670		4810.9035	

Component	Retention	Area	Height	External	Units
Diesel-4	7.050	123788.6755	124.193	4999.9922	ppm
2FBP-4	11.016	4304.1015	803.930	163.9246	ppm
Oil-4	19.450	4574.3355	27.993	220.0173	ppm
		132667.1125		5383.9341	