APPENDIX D - ACADEMY OF NATURAL SCIENCES STRIPED BASS BIOASSAY REPORT

(APPENDIX IS PENDING SUBMITTAL FROM INVESTIGATORS)

The Geochemical & Environmental Research Group
833 Graham Road, College Station, Texas 77845
(979) 862-2323 Ext.134 / fax (979) 862-2361
E-mail: terry@gerg.tamu.edu (Terry L. Wade)

Analytical Report
Striped Bass Bioassy Study
Sample Delivery Group A4137 & A5175
Analytical Report No. A5175-A
September 4, 2000

Dr. Fritz Riedel
The Academy of Natural Sciences
Estuarine Research Center
10545 Mackall Road
St. Leonard, Maryland 20685
Tel 410-586-9700
Fax 410-586-9705

1.0 Introduction

Water samples were received under chain of on April 20, 2000 (22, SDG A4137) and May 24, 2000 (10, SDG A5175). An oil sample was also received on May 24, 2000. Samples were logged in under chain of custody and stored at -4°C. The samples were extracted and analyzed for polynuclear aromatic hydrocarbons (PAHs) and aliphatic hydrocarbons.

2.0 Analytical Results/Methodology

The extraction and analyses were conducted in accordance with the standard operating procedures at GERG. Extraction of the waters was carried out using the procedures outlined in GERG SOP 8901. All data was reviewed for quality and met the QA criteria as specified in GERG SOP 9733, SOP 9377 and SOP 0008. The QA criteria for the relative percent difference (RPD) between matrix spike (MS) and matrix spike duplicate (MSD) analyses are an average RPD of less than 40%.

The GERG STD Check (REF Oil) is run on the instrument prior to each analytical batch. The sample is a solution of oil in methylene chloride with a concentration of about 800 mg/L of solution. The analysis is compared to the running average for the laboratory for all single analyte peaks, which are primarily non-alkylated PAHs and individual alkanes. The control limits for the GERG STD Check samples (REF Oil) are plus or minus 35% of the laboratory average for each single component analyte. No control limits are applied to the alkylated PAH homologue clusters (multi-peak analytes) because the variation in the analytical results (and associated uncertainty) increases with increased alkylation and increased number of homologues within the cluster. This effect can be seen in the data table that includes the laboratory average and one standard deviation for each analyte. The GERG

STD Check is used to define the retention time windows for the alkylated PAH homologue clusters; it is not a certified reference material.

The results are enclosed. The PAH concentrations are reported in nanograms per gram (ng/g), or parts per billion total petroleum hydrocarbons are reported as micrograms per gram (ug/g) or parts per million. Analytes that are below the MDL are qualified in the tables as "J". Those analytes not detected during the analysis are qualified as "ND". Measurements that are out of QA limits are qualified as "Q".

3.0 QA/QC Variances

No analytes were measured above the MDL in the procedural blanks for all analyses. No further action was required. The spike blank and spike blank duplicate had acceptable recoveries for all analytes. Several samples had interferences with the surrogate based on ratios of the quantitation and confirmation ions. In these cases a different surrogate was used for the quantification. The interference is likely from high concentrations of components in the samples. No further action was taken. One sample (C35558) had slightly high recoveries for d12-chrysene and d12 perylene surrogates. No action was taken.

No other QA variances were found for these data.

Reviewed and Approved:

Terry L. Wade Ph.D.
Deputy Director, Environmental Chemistry

Academy of Natural Sciences

Client Sample ID	SB B10 1-1	SB B10 1-2	SB B10 1-3	SB B10 1-4
Sample Descriptor				
Original Sample				
GERG ID	C34828	C34829	C34830	C34831
Sample Type	SAMP	SAMP	SAMP	SAMP
SDG	A4137	A4137	A4137	A4137
Dry Weight				
Volume	1.00	1.00	1.00	1.00
Sample Size Units	Liter	Liter	Liter	Liter
Matrix	Water	Water	Water	Water
% solid				
% Lipid				
Reporting Units	ng/L	ng/L	ng/L	ng/L
Calculation Basis (dry/wet)	Wet	Wet	Wet	Wet
QC Batch ID	M2880	M2880	M2880	M2880
Method	GCMS	GCMS	GCMS	GCMS
Collection Date	04/15/00	04/15/00	04/15/00	04/15/00
Receive Date	04/20/00	04/20/00	04/20/00	04/20/00
Extraction Date	05/08/00	05/08/00	05/08/00	05/08/00
Analysis Date (PAH)	05/22/00	05/22/00	05/22/00	05/22/00
Analysis Date (TPH)	08/23/00	08/23/00	08/23/00	08/23/00

Surrogate Compounds	**%Recovery**	**%Recovery**	**%Recovery**	**%Recovery**
d8-Naphthalene	77.4	79.8	76.3	78.3
d10-Acenaphthene	80.1	82.6	84.8	78.0
d10-Phenanthrene	82.0	90.0	87.9	83.9
d12-Chrysene	83.5	87.6	87.1	83.8
d12-Perylene	53.4	46.8	45.9	43.4

Sum of PAHs	**Concentration (ng/L)**	**Concentration (ng/L)**	**Concentration (ng/L)**	**Concentration (ng/L)**
Sum of PAHs with Perylene	220.37	176.56	2568.61	2243.17

Petroleum Hydrocarbons	**Concentration (ug/L)**	**Concentration (ug/L)**	**Concentration (ug/L)**	**Concentration (ug/L)**
Total Resolved (TR)	6.85	5.59	9.69	8.58
Unresolved Complex Mixture (UCM)	25.68	5.59	46.87	11.55
Total Petroleum Hydrocarbons (TPH)	18.83	0.00	37.18	2.97

ND Not Detected
J <MDL
NA Not Applicable
Q Results Outside QC
I Interference
B Blank Contamination >3xMDL
D Dilution

Academy of Natural Sciences

Client Sample ID	SB B10 1-1	SB B10 1-2	SB B10 1-3	SB B10 1-4
Sample Descriptor				
Original Sample				
GERG ID	C34828	C34829	C34830	C34831
Sample Type	SAMP	SAMP	SAMP	SAMP
SDG	A4137	A4137	A4137	A4137

PAH Compounds	Concentration		Concentration		Concentration		Concentration	
Naphthalene	28.2		26.1		66.6		50.8	
C1-Naphthalenes	26.7		26.2		486.2		382.0	
C2-Naphthalenes	16.0	J	15.8	J	525.0		515.0	
C3-Naphthalenes	10.0	J	10.5	J	331.9		334.4	
C4-Naphthalenes	1.0	J	1.0	J	56.2		45.3	
Biphenyl	4.5		3.1	J	32.0		32.4	
Acenaphthylene	2.7	J	1.8	J	9.2		6.6	J
Acenaphthene	11.0		7.1		35.8		27.7	
Fluorene	6.4		5.0		67.2		61.8	
C1-Fluorenes	7.1		8.2		96.6		85.3	
C2-Fluorenes	4.6	J	1.3	J	97.8		96.9	
C3-Fluorenes	2.4	J	0.4	J	34.8		8.2	
Phenanthrene	9.0		7.6		119.6		106.6	
Anthracene	4.3		4.0		14.7		13.4	
C1-Phenanthrenes/Anthracenes	7.5	J	7.8	J	146.8		138.8	
C2-Phenanthrenes/Anthracenes	8.8	J	2.7	J	104.6		87.2	
C3-Phenanthrenes/Anthracenes	5.2	J	4.3	J	64.9		56.3	
C4-Phenanthrenes/Anthracenes	1.1	J	0.7	J	14.9	J	5.1	J
Dibenzothiophene	2.8	J	2.2	J	23.6		1.1	J
C1-Dibenzothiophenes	5.2	J	3.8	J	43.8		42.4	
C2-Dibenzothiophenes	6.6	J	4.9	J	38.8		16.1	J
C3-Dibenzothiophenes	3.1	J	2.3	J	17.4	J	17.5	J
Fluoranthene	4.3	J	3.0	J	8.5		6.7	
Pyrene	9.4		7.0		27.5		25.7	
C1-Fluoranthenes/Pyrenes	19.8		11.2		34.9		36.4	
Benzo(a)anthracene	3.2	J	1.9	J	7.2		5.2	
Chrysene	2.1	J	1.5	J	12.2		8.8	
C1-Chrysenes	0.4	J	0.4	J	21.7		12.5	
C2-Chrysenes	0.1	J	0.3	J	16.2		8.8	J
C3-Chrysenes	0.1	J	0.1	J	0.7	J	0.3	J
C4-Chrysenes	0.2	J	0.1	J	0.1	J	0.1	J
Benzo(b)fluoranthene	1.0	J	0.7	J	2.1	J	1.4	J
Benzo(k)fluoranthene	0.9	J	0.2	J	0.6	J	0.9	J
Benzo(e)pyrene	1.2	J	0.7	J	3.1	J	2.1	J
Benzo(a)pyrene	1.0	J	0.8	J	2.4	J	1.7	J
Perylene	1.1	J	1.0	J	1.1	J	0.7	J
Indeno(1,2,3-c,d)pyrene	0.6	J	0.3	J	0.3	J	0.4	J
Dibenzo(a,h)anthracene	0.3	J	0.2	J	1.0	J	0.4	J
Benzo(g,h,i)perylene	0.6	J	0.4	J	0.9	J	0.3	J
2-Methylnaphthalene	13.5	J	12.4	J	268.9		208.1	
1-Methylnaphthalene	13.3		13.8		217.3		173.9	
2,6-Dimethylnaphthalene	3.2	J	3.5	J	219.1		202.5	
1,6,7-Trimethylnaphthalene	2.2	J	1.2	J	95.8		93.8	
1-Methylphenanthrene	1.8	J	1.1	J	37.4		36.8	

ND Not Detected
J <MDL
NA Not Applicable
Q Results Outside QC
I Interference
B Blank Contamination >3xMDL
D Dilution

Client Sample ID	SB B10 1-5	SB B10 1-6	SB B10 1-7	SB B10 1-8
Sample Descriptor				
Original Sample				
GERG ID	C34832	C34833	C34834	C34835
Sample Type	SAMP	SAMP	SAMP	SAMP
SDG	A4137	A4137	A4137	A4137
Dry Weight				
Volume	1.00	1.00	1.00	1.00
Sample Size Units	Liter	Liter	Liter	Liter
Matrix	Water	Water	Water	Water
% solid				
% Lipid				
Reporting Units	ng/L	ng/L	ng/L	ng/L
Calculation Basis (dry/wet)	Wet	Wet	Wet	Wet
QC Batch ID	M2880	M2880	M2880	M2880
Method	GCMS	GCMS	GCMS	GCMS
Collection Date	04/15/00	04/15/00	04/15/00	04/15/00
Receive Date	04/20/00	04/20/00	04/20/00	04/20/00
Extraction Date	05/08/00	05/08/00	05/08/00	05/08/00
Analysis Date (PAH)	05/22/00	05/23/00	05/23/00	05/23/00
Analysis Date (TPH)	08/23/00	08/23/00	08/23/00	08/23/00

Surrogate Compounds	**%Recovery**	**%Recovery**	**%Recovery**	**%Recovery**
d8-Naphthalene	76.9	81.8	67.4	71.4
d10-Acenaphthene	84.8	87.0	91.0	97.6
d10-Phenanthrene	91.3	89.8	94.7	87.8
d12-Chrysene	92.1	95.0	89.8	94.1
d12-Perylene	40.9	45.6	44.0	40.6

Sum of PAHs	**Concentration (ng/L)**	**Concentration (ng/L)**	**Concentration (ng/L)**	**Concentration (ng/L)**
Sum of PAHs with Perylene	3943.42	5153.35	18331.15	20341.26

Petroleum Hydrocarbons	**Concentration (ug/L)**	**Concentration (ug/L)**	**Concentration (ug/L)**	**Concentration (ug/L)**
Total Resolved (TR)	12.60	16.41	43.04	47.78
Unresolved Complex Mixture (UCM)	14.35	58.83	295.44	253.88
Total Petroleum Hydrocarbons (TPH)	1.75	42.42	252.40	206.10

ND Not Detected
J <MDL
NA Not Applicable
Q Results Outside QC
I Interference
B Blank Contamination >3xMDL
D Dilution

Client Sample ID	SB B10 1-5	SB B10 1-6	SB B10 1-7	SB B10 1-8
Sample Descriptor				
Original Sample				
GERG ID	C34832	C34833	C34834	C34835
Sample Type	SAMP	SAMP	SAMP	SAMP
SDG	A4137	A4137	A4137	A4137

PAH Compounds	Concentration		Concentration		Concentration		Concentration	
Naphthalene	90.9		101.1		358.7		361.6	
C1-Naphthalenes	757.7		918.5		4060.8		4327.0	
C2-Naphthalenes	887.0		1114.4		4648.4		4970.9	
C3-Naphthalenes	573.1		694.0		2703.0		2926.2	
C4-Naphthalenes	69.8		122.1		364.6		395.5	
Biphenyl	51.2		66.1		217.2		229.3	
Acenaphthylene	11.8		14.6		43.4		44.0	
Acenaphthene	51.2		72.3		202.0		210.4	
Fluorene	101.8		135.3		423.1		444.0	
C1-Fluorenes	141.0		184.6		545.9		564.7	
C2-Fluorenes	155.5		216.2		418.9		525.9	
C3-Fluorenes	43.9		75.7		219.5		256.9	
Phenanthrene	176.4		239.2		699.9		840.8	
Anthracene	14.2		16.5		37.3		45.3	
C1-Phenanthrenes/Anthracenes	237.3		303.2		834.7		1013.9	
C2-Phenanthrenes/Anthracenes	140.3		196.1		514.4		657.5	
C3-Phenanthrenes/Anthracenes	91.2		126.9		357.2		460.5	
C4-Phenanthrenes/Anthracenes	2.5	J	37.9		136.2		154.9	
Dibenzothiophene	35.6		47.9		141.3		170.8	
C1-Dibenzothiophenes	60.3		77.7		229.3		297.9	
C2-Dibenzothiophenes	57.3		71.9		202.1		232.5	
C3-Dibenzothiophenes	25.7		41.5		106.6		141.3	
Fluoranthene	11.3		14.6		31.4		37.9	
Pyrene	37.2		51.9		131.7		160.6	
C1-Fluoranthenes/Pyrenes	40.7		80.1		207.7		269.8	
Benzo(a)anthracene	9.4		13.9		45.4		55.1	
Chrysene	13.5		21.5		69.8		76.0	
C1-Chrysenes	24.0		42.5		169.4		202.8	
C2-Chrysenes	18.3		31.8		136.0		179.4	
C3-Chrysenes	1.0	J	0.5	J	7.8	J	9.6	J
C4-Chrysenes	0.2	J	0.2	J	2.6	J	1.3	J
Benzo(b)fluoranthene	2.5	J	3.9	J	13.6		13.9	
Benzo(k)fluoranthene	0.6	J	1.3	J	1.6	J	1.6	J
Benzo(e)pyrene	3.0	J	5.4		19.5		22.8	
Benzo(a)pyrene	2.6	J	4.8	J	15.2		19.1	
Perylene	1.4	J	2.6	J	5.1	J	5.8	J
Indeno(1,2,3-c,d)pyrene	0.8	J	1.5	J	2.7	J	3.2	J
Dibenzo(a,h)anthracene	0.3	J	1.5	J	2.0	J	3.1	J
Benzo(g,h,i)perylene	1.3	J	1.9	J	5.3	J	7.7	
2-Methylnaphthalene	423.2		516.8		2283.8		2447.0	
1-Methylnaphthalene	334.4		401.8		1777.0		1880.0	
2,6-Dimethylnaphthalene	342.1		427.8		1482.0		1544.5	
1,6,7-Trimethylnaphthalene	149.4		191.2		609.4		633.8	
1-Methylphenanthrene	52.5		75.4		220.8		262.0	

ND Not Detected
J <MDL
NA Not Applicable
Q Results Outside QC
I Interference
B Blank Contamination >3xMDL
D Dilution

Client Sample ID	SB B10 1-9	SB B10 1-10	SB B10 1-11	SB B10 1-12
Sample Descriptor				
Original Sample				
GERG ID	C34836	C34837	C34838	C34839
Sample Type	SAMP	SAMP	SAMP	SAMP
SDG	A4137	A4137	A4137	A4137
Dry Weight				
Volume	1.00	1.00	1.00	1.00
Sample Size Units	Liter	Liter	Liter	Liter
Matrix	Water	Water	Water	Water
% solid				
% Lipid				
Reporting Units	ng/L	ng/L	ng/L	ng/L
Calculation Basis (dry/wet)	Wet	Wet	Wet	Wet
QC Batch ID	M2880	M2880	M2880	M2880
Method	GCMS	GCMS	GCMS	GCMS
Collection Date	04/15/00	04/15/00	04/17/00	04/17/00
Receive Date	04/20/00	04/20/00	04/20/00	04/20/00
Extraction Date	05/08/00	05/08/00	05/08/00	05/08/00
Analysis Date (PAH)	05/23/00	05/23/00	05/23/00	05/23/00
Analysis Date (TPH)	08/23/00	08/23/00	08/23/00	08/23/00
Surrogate Compounds	**%Recovery**	**%Recovery**	**%Recovery**	**%Recovery**
d8-Naphthalene	57.0	48.0	86.5	77.8
d10-Acenaphthene	112.4	79.5	89.6	85.7
d10-Phenanthrene	87.0	72.1	102.3	81.9
d12-Chrysene	98.2	89.1	107.8	79.9
d12-Perylene	43.0	42.4	57.0	46.5
Sum of PAHs	**Concentration (ng/L)**	**Concentration (ng/L)**	**Concentration (ng/L)**	**Concentration (ng/L)**
Sum of PAHs with Perylene	21887.33	3160.98	154.72	1039.42
Petroleum Hydrocarbons	**Concentration (ug/L)**	**Concentration (ug/L)**	**Concentration (ug/L)**	**Concentration (ug/L)**
Total Resolved (TR)	59.95	63.75	8.57	10.69
Unresolved Complex Mixture (UCM)	262.16	278.67	43.85	88.07
Total Petroleum Hydrocarbons (TPH)	202.20	214.92	35.28	77.38

ND Not Detected
J <MDL
NA Not Applicable
Q Results Outside QC
I Interference
B Blank Contamination >3xMDL
D Dilution

Client Sample ID	SB B10 1-9	SB B10 1-10	SB B10 1-11	SB B10 1-12
Sample Descriptor				
Original Sample				
GERG ID	C34836	C34837	C34838	C34839
Sample Type	SAMP	SAMP	SAMP	SAMP
SDG	A4137	A4137	A4137	A4137

PAH Compounds	Concentration		Concentration		Concentration		Concentration	
Naphthalene	531.7		54.6		18.4		21.2	
C1-Naphthalenes	5329.5		666.4		20.0	J	101.6	
C2-Naphthalenes	5822.4		823.2		13.5	J	174.8	
C3-Naphthalenes	3203.0		391.1		14.7	J	138.5	
C4-Naphthalenes	394.7		62.2		2.2	J	27.3	
Biphenyl	200.8		31.4		2.6	J	15.2	
Acenaphthylene	36.9		6.0		2.9	J	3.5	J
Acenaphthene	215.1		31.5		8.3		25.5	
Fluorene	427.4		68.2		6.6		32.2	
C1-Fluorenes	491.7		80.9		14.2		54.8	
C2-Fluorenes	430.6		74.6		4.3	J	58.4	
C3-Fluorenes	194.9		47.4		3.2	J	28.0	
Phenanthrene	850.2		124.5		6.5		38.2	
Anthracene	64.5		11.0		3.6	J	7.6	
C1-Phenanthrenes/Anthracenes	890.9		146.7		3.5	J	70.2	
C2-Phenanthrenes/Anthracenes	541.0		107.3		0.7	J	57.0	
C3-Phenanthrenes/Anthracenes	413.7		80.7		1.2	J	30.2	
C4-Phenanthrenes/Anthracenes	135.3		32.5		0.1	J	9.1	J
Dibenzothiophene	181.4		25.5		2.4	J	11.1	
C1-Dibenzothiophenes	286.9		43.4		3.5	J	25.6	
C2-Dibenzothiophenes	236.6		38.7		4.2	J	24.4	
C3-Dibenzothiophenes	136.1		26.6		2.9	J	13.0	J
Fluoranthene	33.9		5.7		2.5	J	5.5	
Pyrene	141.1		26.0		0.1	J	18.3	
C1-Fluoranthenes/Pyrenes	204.2		43.6		7.4	J	25.0	
Benzo(a)anthracene	41.9		8.9		0.7	J	3.8	
Chrysene	66.8		13.3		0.5	J	5.3	
C1-Chrysenes	164.2		36.1		0.1	J	7.6	J
C2-Chrysenes	137.3		35.0		0.1	J	2.6	J
C3-Chrysenes	9.4	J	2.0		0.1	J	0.4	J
C4-Chrysenes	1.2	J	0.2	J	0.1	J	0.1	J
Benzo(b)fluoranthene	13.5		2.8		0.8	J	0.6	J
Benzo(k)fluoranthene	1.7	J	0.4		0.2	J	0.7	J
Benzo(e)pyrene	20.6		4.3		0.5	J	0.6	J
Benzo(a)pyrene	16.2		4.0		0.8	J	0.5	J
Perylene	5.5	J	1.0		0.7	J	0.4	J
Indeno(1,2,3-c,d)pyrene	3.0	J	0.6	J	0.4	J	0.2	J
Dibenzo(a,h)anthracene	4.0	J	1.0		0.1	J	0.1	J
Benzo(g,h,i)perylene	7.9		1.7		0.3	J	0.2	J
2-Methylnaphthalene	3005.1		370.9		9.4	J	51.8	
1-Methylnaphthalene	2324.4		295.5		10.6		49.8	
2,6-Dimethylnaphthalene	1257.0		203.3		3.7	J	61.4	
1,6,7-Trimethylnaphthalene	508.3		85.3		0.9	J	46.7	
1-Methylphenanthrene	242.4		39.7		2.2	J	18.8	

ND Not Detected
J <MDL
NA Not Applicable
Q Results Outside QC
I Interference
B Blank Contamination >3xMDL
D Dilution

Academy of Natural Sciences

Client Sample ID	SB B10 1-13	SB B10 1-14	SB B10 1-15	SB B10 1-16
Sample Descriptor				
Original Sample				
GERG ID	C34840	C34841	C34842	C34843
Sample Type	SAMP	SAMP	SAMP	SAMP
SDG	A4137	A4137	A4137	A4137
Dry Weight				
Volume	1.00	1.00	1.00	1.00
Sample Size Units	Liter	Liter	Liter	Liter
Matrix	Water	Water	Water	Water
% solid				
% Lipid				
Reporting Units	ng/L	ng/L	ng/L	ng/L
Calculation Basis (dry/wet)	Wet	Wet	Wet	Wet
QC Batch ID	M2880	M2880	M2880	M2880
Method	GCMS	GCMS	GCMS	GCMS
Collection Date	04/17/00	04/17/00	04/17/00	04/17/00
Receive Date	04/20/00	04/20/00	04/20/00	04/20/00
Extraction Date	05/08/00	05/08/00	05/08/00	05/08/00
Analysis Date (PAH)	05/23/00	05/23/00	05/23/00	05/23/00
Analysis Date (TPH)	08/23/00	08/23/00	08/23/00	08/23/00
Surrogate Compounds	**%Recovery**	**%Recovery**	**%Recovery**	**%Recovery**
d8-Naphthalene	69.2	67.8	60.3	94.8
d10-Acenaphthene	81.0	83.1	75.5	101.1
d10-Phenanthrene	86.3	88.3	83.4	73.6
d12-Chrysene	88.1	91.6	85.8	41.9
d12-Perylene	44.7	44.5	43.9	69.8
Sum of PAHs	**Concentration (ng/L)**	**Concentration (ng/L)**	**Concentration (ng/L)**	**Concentration (ng/L)**
Sum of PAHs with Perylene	1726.68	5235.25	4872.03	1619.13
Petroleum Hydrocarbons	**Concentration (ug/L)**	**Concentration (ug/L)**	**Concentration (ug/L)**	**Concentration (ug/L)**
Total Resolved (TR)	11.58	20.07	26.86	12.86
Unresolved Complex Mixture (UCM)	87.22	128.08	165.99	89.70
Total Petroleum Hydrocarbons (TPH)	75.64	108.01	139.13	76.83

ND Not Detected
J <MDL
NA Not Applicable
Q Results Outside QC
I Interference
B Blank Contamination >3xMDL
D Dilution

Client Sample ID	SB B10 1-13	SB B10 1-14	SB B10 1-15	SB B10 1-16
Sample Descriptor				
Original Sample				
GERG ID	C34840	C34841	C34842	C34843
Sample Type	SAMP	SAMP	SAMP	SAMP
SDG	A4137	A4137	A4137	A4137

PAH Compounds	Concentration		Concentration		Concentration		Concentration	
Naphthalene	26.4		26.9		24.1		22.0	
C1-Naphthalenes	153.9		275.4		105.8		151.9	
C2-Naphthalenes	294.8		904.1		549.3		311.9	
C3-Naphthalenes	292.9		1036.9		950.5		245.6	
C4-Naphthalenes	54.6		194.4		215.1		45.9	
Biphenyl	26.7		94.6		131.5		34.6	
Acenaphthylene	5.5	J	13.2		14.7		6.2	J
Acenaphthene	28.6		88.1		106.8		32.5	
Fluorene	54.1		184.0		184.7		57.7	
C1-Fluorenes	96.4		301.5		387.9		80.5	
C2-Fluorenes	106.4		372.3		484.1		74.2	
C3-Fluorenes	24.9		172.1		197.2		25.6	
Phenanthrene	57.1		127.9		47.7		60.8	
Anthracene	13.1		44.6		53.4		16.9	
C1-Phenanthrenes/Anthracenes	124.2		351.7		263.5		124.6	
C2-Phenanthrenes/Anthracenes	97.3		273.9		276.2		88.5	
C3-Phenanthrenes/Anthracenes	44.7		112.1		120.3		28.6	
C4-Phenanthrenes/Anthracenes	3.7	J	36.4		46.7		6.7	J
Dibenzothiophene	16.5		51.3		44.7		16.9	
C1-Dibenzothiophenes	43.8		125.2		159.3		40.2	
C2-Dibenzothiophenes	39.5		122.4		137.9		34.4	
C3-Dibenzothiophenes	18.6	J	47.9		68.0		13.0	J
Fluoranthene	8.1		23.1		23.7		8.3	
Pyrene	27.5		77.1		84.5		25.5	
C1-Fluoranthenes/Pyrenes	36.7		89.3		97.0		27.8	
Benzo(a)anthracene	5.0		12.8		13.3		4.2	
Chrysene	8.1		21.2		22.5		11.8	
C1-Chrysenes	9.5	J	29.8		29.8		9.5	J
C2-Chrysenes	4.1	J	14.6		21.7		4.6	J
C3-Chrysenes	0.4	J	0.6	J	0.6	J	0.1	J
C4-Chrysenes	0.1	J	0.5	J	0.3	J	0.2	J
Benzo(b)fluoranthene	1.0	J	1.9	J	1.9	J	1.4	J
Benzo(k)fluoranthene	0.1	J	0.3	J	0.3	J	0.4	J
Benzo(e)pyrene	0.9	J	2.9	J	3.0	J	1.5	J
Benzo(a)pyrene	0.6	J	2.2	J	1.2	J	0.9	J
Perylene	0.5	J	0.5	J	0.3	J	1.5	J
Indeno(1,2,3-c,d)pyrene	0.3	J	0.5	J	0.3	J	0.6	J
Dibenzo(a,h)anthracene	0.2	J	0.4	J	1.7	J	0.6	J
Benzo(g,h,i)perylene	0.2	J	0.8	J	0.7	J	0.9	J
2-Methylnaphthalene	77.4		120.8		42.7		74.4	
1-Methylnaphthalene	76.5		154.6		63.2		77.6	
2,6-Dimethylnaphthalene	94.5		260.3		122.1		108.6	
1,6,7-Trimethylnaphthalene	81.4		282.3		331.7		86.5	
1-Methylphenanthrene	32.5		113.1		95.9		39.2	

ND Not Detected
J <MDL
NA Not Applicable
Q Results Outside QC
I Interference
B Blank Contamination >3xMDL
D Dilution

Client Sample ID	SB B10 1-17	SB B10 1-18	SB B10 1-19	SB B10 1-20
Sample Descriptor				
Original Sample				
GERG ID	C34844	C34845	C34846	C34847
Sample Type	SAMP	SAMP	SAMP	SAMP
SDG	A4137	A4137	A4137	A4137
Dry Weight				
Volume	1.00	1.00	1.00	1.00
Sample Size Units	Liter	Liter	Liter	Liter
Matrix	Water	Water	Water	Water
% solid				
% Lipid				
Reporting Units	ng/L	ng/L	ng/L	ng/L
Calculation Basis (dry/wet)	Wet	Wet	Wet	Wet
QC Batch ID	M2880	M2880	M2880	M2880
Method	GCMS	GCMS	GCMS	GCMS
Collection Date	04/18/00	04/18/00	04/18/00	04/18/00
Receive Date	04/20/00	04/20/00	04/20/00	04/20/00
Extraction Date	05/08/00	05/08/00	05/08/00	05/08/00
Analysis Date (PAH)	05/23/00	05/23/00	05/23/00	05/23/00
Analysis Date (TPH)	08/23/00	08/23/00	08/23/00	08/23/00
Surrogate Compounds	**%Recovery**	**%Recovery**	**%Recovery**	**%Recovery**
d8-Naphthalene	69.5	69.0	77.1	60.1
d10-Acenaphthene	77.5	87.1	75.8	76.1
d10-Phenanthrene	85.8	91.5	86.3	90.3
d12-Chrysene	90.4	93.9	90.3	98.7
d12-Perylene	45.9	54.2	40.3	45.6
Sum of PAHs	**Concentration (ng/L)**	**Concentration (ng/L)**	**Concentration (ng/L)**	**Concentration (ng/L)**
Sum of PAHs with Perylene	197.00	688.09	107.19	2027.16
Petroleum Hydrocarbons	**Concentration (ug/L)**	**Concentration (ug/L)**	**Concentration (ug/L)**	**Concentration (ug/L)**
Total Resolved (TR)	9.57	9.65	6.62	37.79
Unresolved Complex Mixture (UCM)	79.87	40.24	70.97	162.41
Total Petroleum Hydrocarbons (TPH)	70.30	30.59	64.35	124.62

ND Not Detected
J <MDL
NA Not Applicable
Q Results Outside QC
I Interference
B Blank Contamination >3xMDL
D Dilution

Client Sample ID	SB B10 1-17	SB B10 1-18	SB B10 1-19	SB B10 1-20
Sample Descriptor				
Original Sample				
GERG ID	C34844	C34845	C34846	C34847
Sample Type	SAMP	SAMP	SAMP	SAMP
SDG	A4137	A4137	A4137	A4137

PAH Compounds	Concentration		Concentration		Concentration		Concentration	
Naphthalene	25.5		19.9		1.5		11.3	
C1-Naphthalenes	27.5		28.1		2.1	J	21.0	J
C2-Naphthalenes	18.4	J	49.3		4.7		36.8	
C3-Naphthalenes	8.9	J	97.7		13.0		269.4	
C4-Naphthalenes	3.2	J	35.5		5.1		131.1	
Biphenyl	4.2		11.8		2.1		28.5	
Acenaphthylene	2.9	J	2.9	J	0.4	J	3.9	J
Acenaphthene	7.5		11.6		1.4		6.6	
Fluorene	6.6		15.2		1.7		15.6	
C1-Fluorenes	15.0		46.9		8.9		161.3	
C2-Fluorenes	4.5	J	61.3		13.2		348.7	
C3-Fluorenes	0.5	J	2.7	J	5.3		91.2	
Phenanthrene	7.0		12.0		1.1		8.8	
Anthracene	4.4		7.3		1.0		14.9	
C1-Phenanthrenes/Anthracenes	6.6	J	41.5		5.9		63.1	
C2-Phenanthrenes/Anthracenes	1.5	J	58.4		9.4		185.3	
C3-Phenanthrenes/Anthracenes	0.5	J	32.9		5.7		104.2	
C4-Phenanthrenes/Anthracenes	0.0	J	4.4	J	1.6		15.0	J
Dibenzothiophene	4.0	J	7.9	J	1.1		24.5	
C1-Dibenzothiophenes	6.2	J	21.8		3.2		75.8	
C2-Dibenzothiophenes	9.0	J	27.4		4.5		108.5	
C3-Dibenzothiophenes	4.2	J	15.3	J	1.9	J	50.4	
Fluoranthene	1.6	J	5.3		0.9		17.0	
Pyrene	3.4	J	19.4		3.1		74.7	
C1-Fluoranthenes/Pyrenes	10.9		29.5		4.5		81.5	
Benzo(a)anthracene	1.4	J	3.7		0.6		12.0	
Chrysene	1.2	J	5.9		0.9		20.1	
C1-Chrysenes	1.8	J	6.3	J	1.3		19.5	
C2-Chrysenes	0.0	J	1.0	J	0.6	J	15.8	
C3-Chrysenes	0.1	J	0.7	J	0.1	J	0.2	J
C4-Chrysenes	0.5	J	0.1	J	0.0	J	0.2	J
Benzo(b)fluoranthene	0.7	J	0.5	J	0.2	J	1.9	J
Benzo(k)fluoranthene	0.7	J	0.2	J	0.1	J	0.4	J
Benzo(e)pyrene	1.1	J	1.4	J	0.2	J	2.8	J
Benzo(a)pyrene	2.0	J	1.1	J	0.1	J	2.1	J
Perylene	0.8	J	0.7	J	0.1	J	0.6	J
Indeno(1,2,3-c,d)pyrene	1.2	J	0.2	J	0.0	J	0.6	J
Dibenzo(a,h)anthracene	0.8	J	0.3	J	0.1	J	0.4	J
Benzo(g,h,i)perylene	1.0	J	0.4	J	0.0	J	1.7	J
2-Methylnaphthalene	15.3		14.2	J	0.9	J	8.1	J
1-Methylnaphthalene	12.2		13.9		1.2		12.9	
2,6-Dimethylnaphthalene	4.2	J	11.0		1.1		6.4	
1,6,7-Trimethylnaphthalene	2.4	J	28.9		5.1		88.8	
1-Methylphenanthrene	2.3	J	13.9		1.9		9.2	

ND Not Detected
J <MDL
NA Not Applicable
Q Results Outside QC
I Interference
B Blank Contamination >3xMDL
D Dilution

Academy of Natural Sciences

Client Sample ID	SB B10 1-21	SB B10 1-22	SB-B10 2-1	SB-B10 2-2
Sample Descriptor				
Original Sample				
GERG ID	C34848	C34849	C35552	C35553
Sample Type	SAMP	SAMP	SAMP	SAMP
SDG	A4137	A4137	A5175	A5175
Dry Weight				
Volume	1.00	1.00	1.02	1.02
Sample Size Units	Liter	Liter	Liter	Liter
Matrix	Water	Water	Water	Water
% solid				
% Lipid				
Reporting Units	ng/L	ng/L	ng/L	ng/L
Calculation Basis (dry/wet)	Wet	Wet	Wet	Wet
QC Batch ID	M2880	M2880	M2897	M2897
Method	GCMS	GCMS	GCMS	GCMS
Collection Date	04/18/00	04/18/00	05/15/00	05/15/00
Receive Date	04/20/00	04/20/00	05/24/00	05/24/00
Extraction Date	05/08/00	05/08/00	06/13/00	06/13/00
Analysis Date (PAH)	05/23/00	05/23/00	07/17/00	07/17/00
Analysis Date (TPH)	08/23/00	08/23/00	08/29/00	08/29/00

Surrogate Compounds	**%Recovery**	**%Recovery**	**%Recovery**	**%Recovery**
d8-Naphthalene	54.3	79.8	5167.3 I	103.2
d10-Acenaphthene	71.4	95.2	229.7 I	101.4
d10-Phenanthrene	83.8	90.0	60.1	115.5
d12-Chrysene	88.6	95.7	57.5	115.7
d12-Perylene	44.0	48.8	74.6	85.0

Sum of PAHs	**Concentration (ng/L)**	**Concentration (ng/L)**	**Concentration (ng/L)**	**Concentration (ng/L)**
Sum of PAHs with Perylene	2608.85	976.54	317679.74	239.79

Petroleum Hydrocarbons	**Concentration (ug/L)**	**Concentration (ug/L)**	**Concentration (ug/L)**	**Concentration (ug/L)**
Total Resolved (TR)	44.46	29.67	1120.02	12.89
Unresolved Complex Mixture (UCM)	157.35	77.44	3899.02	49.85
Total Petroleum Hydrocarbons (TPH)	112.89	47.78	2779.00	36.97

ND Not Detected
J <MDL
NA Not Applicable
Q Results Outside QC
I Interference
B Blank Contamination >3xMDL
D Dilution

Client Sample ID	SB B10 1-21	SB B10 1-22	SB-B10 2-1	SB-B10 2-2
Sample Descriptor				
Original Sample				
GERG ID	C34848	C34849	C35552	C35553
Sample Type	SAMP	SAMP	SAMP	SAMP
SDG	A4137	A4137	A5175	A5175

PAH Compounds	Concentration		Concentration		Concentration	Concentration	
Naphthalene	14.2		12.6		63129.1	40.2	
C1-Naphthalenes	24.9		19.2		96784.7	56.6	
C2-Naphthalenes	49.6		36.1		61969.2	33.4	
C3-Naphthalenes	328.5		111.4	J	22920.2	17.5	J
C4-Naphthalenes	205.1		47.6		3764.2	0.1	J
Biphenyl	25.2		15.1		5563.7	4.5	
Acenaphthylene	4.3	J	2.6		722.7	1.5	J
Acenaphthene	7.8		7.4		4310.7	5.9	
Fluorene	14.5		12.1	J	6249.1	7.6	
C1-Fluorenes	239.3		67.6		5966.1	12.9	
C2-Fluorenes	372.4		114.1		5091.8	1.8	J
C3-Fluorenes	165.8		63.3		3224.8	3.0	J
Phenanthrene	11.3		8.9		5289.5	10.7	
Anthracene	16.2		9.6		1017.0	2.9	J
C1-Phenanthrenes/Anthracenes	67.9		49.8		7032.8	6.1	J
C2-Phenanthrenes/Anthracenes	192.3		89.2		5582.3	5.2	J
C3-Phenanthrenes/Anthracenes	146.7		55.3		3333.9	0.8	J
C4-Phenanthrenes/Anthracenes	38.4		17.0		1332.9	0.3	J
Dibenzothiophene	36.4		11.7		1023.2	2.1	J
C1-Dibenzothiophenes	97.0		33.8		2107.1	2.5	J
C2-Dibenzothiophenes	140.2		47.4		1505.1	3.8	J
C3-Dibenzothiophenes	69.8		22.5		777.8	2.2	J
Fluoranthene	20.2		8.2		310.1	1.6	J
Pyrene	91.4		33.6		1022.4	1.8	J
C1-Fluoranthenes/Pyrenes	109.8		44.9		1743.7	2.9	J
Benzo(a)anthracene	16.9		5.6		412.7	1.1	J
Chrysene	28.9		9.6		721.5	1.3	J
C1-Chrysenes	37.4		8.8		1976.2	1.6	J
C2-Chrysenes	23.0		5.2		1956.0	1.1	J
C3-Chrysenes	0.5	J	0.4	J	76.4	0.6	J
C4-Chrysenes	0.1	J	1.7	J	14.9	0.1	J
Benzo(b)fluoranthene	2.5	J	0.7	J	101.3	0.6	J
Benzo(k)fluoranthene	0.6	J	0.2	J	17.7	0.4	J
Benzo(e)pyrene	3.9	J	1.3	J	208.5	0.7	J
Benzo(a)pyrene	2.5	J	1.0	J	227.1	1.4	J
Perylene	1.0	J	0.6	J	51.6	0.8	J
Indeno(1,2,3-c,d)pyrene	0.6	J	0.2	J	24.8	0.5	J
Dibenzo(a,h)anthracene	0.7	J	0.1	J	48.6	0.4	J
Benzo(g,h,i)perylene	1.2	J	0.3	J	68.5	1.4	J
				J			
2-Methylnaphthalene	8.8	J	8.5	J	55652.4	29.9	
1-Methylnaphthalene	16.1		10.8		41132.3	26.7	
2,6-Dimethylnaphthalene	8.9		8.1	J	23372.9	10.3	
1,6,7-Trimethylnaphthalene	117.4		37.4		6163.1	3.5	J
1-Methylphenanthrene	9.0		10.0		1201.2	3.1	J

ND Not Detected
J <MDL
NA Not Applicable
Q Results Outside QC
I Interference
B Blank Contamination >3xMDL
D Dilution

Client Sample ID	SB-B10 2-3	SB-B10 2-4	SB-B10 2-5	SB-B10 2-6
Sample Descriptor				
Original Sample				
GERG ID	C35554	C35555	C35556	C35557
Sample Type	SAMP	SAMP	SAMP	SAMP
SDG	A5175	A5175	A5175	A5175
Dry Weight				
Volume	1.02	1.02	1.02	1.02
Sample Size Units	Liter	Liter	Liter	Liter
Matrix	Water	Water	Water	Water
% solid				
% Lipid				
Reporting Units	ng/L	ng/L	ng/L	ng/L
Calculation Basis (dry/wet)	Wet	Wet	Wet	Wet
QC Batch ID	M2897	M2897	M2897	M2897
Method	GCMS	GCMS	GCMS	GCMS
Collection Date	05/16/00	05/16/00	05/16/00	05/16/00
Receive Date	05/24/00	05/24/00	05/24/00	05/24/00
Extraction Date	06/13/00	06/13/00	06/13/00	06/13/00
Analysis Date (PAH)	07/17/00	07/17/00	07/17/00	07/17/00
Analysis Date (TPH)	08/29/00	08/29/00	08/29/00	08/29/00

Surrogate Compounds	**%Recovery**		**%Recovery**		**%Recovery**		**%Recovery**	
d8-Naphthalene	2307.4	I	758.6	I	480.3	I	809.6	I
d10-Acenaphthene	190.0	I	94.4		95.8		84.5	
d10-Phenanthrene	67.6		88.2		107.2		66.4	
d12-Chrysene	47.9		86.4		107.6		63.4	
d12-Perylene	101.1		83.7		86.8		94.1	

Sum of PAHs	**Concentration (ng/L)**	**Concentration (ng/L)**	**Concentration (ng/L)**	**Concentration (ng/L)**
Sum of PAHs with Perylene	81983.38	24149.64	13495.43	28184.20

Petroleum Hydrocarbons	**Concentration (ug/L)**	**Concentration (ug/L)**	**Concentration (ug/L)**	**Concentration (ug/L)**
Total Resolved (TR)	491.60	90.19	51.92	85.11
Unresolved Complex Mixture (UCM)	1416.94	289.15	153.23	263.66
Total Petroleum Hydrocarbons (TPH)	925.34	198.96	101.31	178.54

ND Not Detected
J <MDL
NA Not Applicable
Q Results Outside QC
I Interference
B Blank Contamination >3xMDL
D Dilution

Client Sample ID	SB-B10 2-3	SB-B10 2-4	SB-B10 2-5	SB-B10 2-6
Sample Descriptor				
Original Sample				
GERG ID	C35554	C35555	C35556	C35557
Sample Type	SAMP	SAMP	SAMP	SAMP
SDG	A5175	A5175	A5175	A5175

PAH Compounds	Concentration		Concentration		Concentration		Concentration	
Naphthalene	16554.5		5320.5		2740.1		6599.3	
C1-Naphthalenes	29636.3		9158.0		4877.9		11282.7	
C2-Naphthalenes	14324.3		3365.1		2093.2		4029.2	
C3-Naphthalenes	5049.9		1413.7		699.5		1358.0	
C4-Naphthalenes	755.5		231.3		109.2		240.5	
Biphenyl	1244.2		327.4		207.5		333.9	
Acenaphthylene	167.8		50.4		28.9		42.0	
Acenaphthene	1054.6		274.5		182.2		288.4	
Fluorene	1623.3		419.3		294.9		421.8	
C1-Fluorenes	1673.0		390.7		266.8		355.5	
C2-Fluorenes	1482.4		590.8		550.0		506.9	
C3-Fluorenes	773.8		131.2		91.5		215.2	
Phenanthrene	1520.6		453.3		264.7		486.7	
Anthracene	309.9		82.4		41.7		85.1	
C1-Phenanthrenes/Anthracenes	1842.1		558.8		332.8		599.1	
C2-Phenanthrenes/Anthracenes	987.9		369.1		199.0		357.5	
C3-Phenanthrenes/Anthracenes	448.2		150.7		73.0		141.2	
C4-Phenanthrenes/Anthracenes	135.8		36.6		29.2		46.6	
Dibenzothiophene	285.4		87.0		50.9		91.7	
C1-Dibenzothiophenes	645.8		179.1		78.1		181.4	
C2-Dibenzothiophenes	145.3		98.7		39.2		97.7	
C3-Dibenzothiophenes	54.0		53.3		21.5		38.7	
Fluoranthene	93.2		33.8		18.7		33.2	
Pyrene	218.4		78.2		44.9		77.6	
C1-Fluoranthenes/Pyrenes	272.9		104.2		59.4		105.9	
Benzo(a)anthracene	71.2		18.3		9.6		17.5	
Chrysene	121.0		38.2		21.8		35.2	
C1-Chrysenes	231.5		63.9		35.3		60.1	
C2-Chrysenes	162.9		36.0		21.3		34.2	
C3-Chrysenes	12.8		2.0	J	0.1	J	0.4	J
C4-Chrysenes	3.3	J	0.4	J	0.1	J	0.2	J
Benzo(b)fluoranthene	11.8		4.6	J	1.9	J	2.9	J
Benzo(k)fluoranthene	1.7	J	2.2	J	0.6	J	0.9	J
Benzo(e)pyrene	23.8		7.4		3.1	J	5.9	
Benzo(a)pyrene	26.1		7.4		3.0	J	5.8	J
Perylene	4.8	J	2.7	J	1.1	J	1.3	J
Indeno(1,2,3-c,d)pyrene	2.0	J	2.5	J	0.7	J	0.8	J
Dibenzo(a,h)anthracene	4.2	J	2.7	J	0.9	J	1.1	J
Benzo(g,h,i)perylene	6.9	J	3.5	J	1.5	J	2.1	J
2-Methylnaphthalene	16071.5		5204.4		2772.3		6431.3	
1-Methylnaphthalene	13564.8		3953.7		2105.6		4851.4	
2,6-Dimethylnaphthalene	5371.1		1373.8		866.2		1382.7	
1,6,7-Trimethylnaphthalene	1359.7		346.3		224.3		331.8	
1-Methylphenanthrene	366.0		75.0		68.1		86.4	

ND Not Detected
J <MDL
NA Not Applicable
Q Results Outside QC
I Interference
B Blank Contamination >3xMDL
D Dilution

Client Sample ID	SB-B10 2-7	SB-B10 2-8	SB-B10 2-9	SB-B10 2-10
Sample Descriptor				
Original Sample				
GERG ID	C35558	C35559	C35560	C35561
Sample Type	SAMP	SAMP	SAMP	SAMP
SDG	A5175	A5175	A5175	A5175
Dry Weight				
Volume	1.02	1.02	1.02	1.02
Sample Size Units	Liter	Liter	Liter	Liter
Matrix	Water	Water	Water	Water
% solid				
% Lipid				
Reporting Units	ng/L	ng/L	ng/L	ng/L
Calculation Basis (dry/wet)	Wet	Wet	Wet	Wet
QC Batch ID	M2897	M2897	M2897	M2897
Method	GCMS	GCMS	GCMS	GCMS
Collection Date	05/17/00	05/17/00	05/19/00	05/19/00
Receive Date	05/24/00	05/24/00	05/24/00	05/24/00
Extraction Date	06/13/00	06/13/00	06/13/00	06/13/00
Analysis Date (PAH)	07/17/00	07/17/00	07/17/00	07/17/00
Analysis Date (TPH)	08/29/00	08/29/00	08/29/00	08/29/00

Surrogate Compounds	**%Recovery**		**%Recovery**	**%Recovery**		**%Recovery**	
d8-Naphthalene	259.6	I	69.1	1545.8	I	143.9	I
d10-Acenaphthene	116.8		102.0	874.9	I	93.1	
d10-Phenanthrene	40.3		118.0	91.4		109.4	
d12-Chrysene	137.7	Q	115.5	74.9		115.0	
d12-Perylene	131.9	Q	86.5	85.6		81.9	

Sum of PAHs	**Concentration (ng/L)**	**Concentration (ng/L)**	**Concentration (ng/L)**	**Concentration (ng/L)**
Sum of PAHs with Perylene	41308.18	631.51	22663.21	388.14

Petroleum Hydrocarbons	**Concentration (ug/L)**	**Concentration (ug/L)**	**Concentration (ug/L)**	**Concentration (ug/L)**
Total Resolved (TR)	268.29	13.96	174.00	14.61
Unresolved Complex Mixture (UCM)	1123.90	62.88	862.29	34.92
Total Petroleum Hydrocarbons (TPH)	855.61	48.92	688.29	20.31

ND Not Detected
J <MDL
NA Not Applicable
Q Results Outside QC
I Interference
B Blank Contamination >3xMDL
D Dilution

Client Sample ID	SB-B10 2-7	SB-B10 2-8	SB-B10 2-9	SB-B10 2-10
Sample Descriptor				
Original Sample				
GERG ID	C35558	C35559	C35560	C35561
Sample Type	SAMP	SAMP	SAMP	SAMP
SDG	A5175	A5175	A5175	A5175

PAH Compounds	Concentration		Concentration		Concentration		Concentration	
Naphthalene	9904.7		112.5		134.4		48.2	
C1-Naphthalenes	15734.6		162.3		858.2		87.8	
C2-Naphthalenes	4481.7		72.1		4773.0		56.4	
C3-Naphthalenes	794.2		106.3		2888.2		28.1	
C4-Naphthalenes	766.4		38.2		590.0		0.7	J
Biphenyl	201.8		6.1		131.3		7.4	
Acenaphthylene	21.1		1.9	J	96.9		1.8	J
Acenaphthene	93.8		13.9		465.2		12.7	
Fluorene	156.4		14.3		614.3		11.0	
C1-Fluorenes	369.5		29.2		1057.3		33.2	
C2-Fluorenes	496.5		0.3	J	1342.7		12.6	
C3-Fluorenes	1201.5		7.0		891.8		10.5	
Phenanthrene	167.8		13.9		917.1		13.0	
Anthracene	121.9		2.2	J	255.4		2.6	J
C1-Phenanthrenes/Anthracenes	793.0		8.1	J	1899.0		19.1	
C2-Phenanthrenes/Anthracenes	747.3		7.6	J	1423.3		8.0	J
C3-Phenanthrenes/Anthracenes	774.7		3.9	J	734.0		4.0	J
C4-Phenanthrenes/Anthracenes	619.2		1.5	J	267.6		0.8	J
Dibenzothiophene	90.5		2.6	J	112.9		2.8	J
C1-Dibenzothiophenes	511.0		3.8	J	573.0		4.6	J
C2-Dibenzothiophenes	546.0		6.1	J	422.4		6.8	J
C3-Dibenzothiophenes	896.4		6.1	J	150.4		2.9	J
Fluoranthene	6.4		1.7	J	119.9		1.6	J
Pyrene	21.9		1.5	J	309.9		2.3	J
C1-Fluoranthenes/Pyrenes	794.3		3.2	J	461.7		4.0	J
Benzo(a)anthracene	9.1		0.4	J	112.6		0.5	J
Chrysene	20.3		0.4	J	188.3		0.7	J
C1-Chrysenes	167.0		1.2	J	412.5		0.3	J
C2-Chrysenes	206.3		0.3	J	317.1		0.5	J
C3-Chrysenes	103.8		0.2	J	14.4		0.3	J
C4-Chrysenes	301.7		0.1	J	3.6	J	0.1	J
Benzo(b)fluoranthene	10.5		0.3	J	18.5		0.1	J
Benzo(k)fluoranthene	33.4		0.2	J	1.9	J	0.2	J
Benzo(e)pyrene	26.5		0.4	J	41.6		0.3	J
Benzo(a)pyrene	61.1		0.3	J	31.9		0.7	J
Perylene	7.3		0.3	J	9.8		0.2	J
Indeno(1,2,3-c,d)pyrene	23.7		0.4	J	3.2	J	0.1	J
Dibenzo(a,h)anthracene	15.0		0.0	J	6.8		0.3	J
Benzo(g,h,i)perylene	9.8		0.8	J	11.3		0.8	J
2-Methylnaphthalene	7674.9		92.4		101.5		44.8	
1-Methylnaphthalene	8059.8		69.9		756.7		43.1	
2,6-Dimethylnaphthalene	176.5		19.2		2372.5		20.8	
1,6,7-Trimethylnaphthalene	33.0		19.5		823.3		7.0	
1-Methylphenanthrene	13.9		3.4	J	360.7		5.6	J

ND Not Detected
J <MDL
NA Not Applicable
Q Results Outside QC
I Interference
B Blank Contamination >3xMDL
D Dilution

Client Sample ID				
Sample Descriptor	Proc. Blank	Blank Spike	BS Duplicate	
Original Sample				
GERG ID	Q18620	Q18621	Q18622	Q18621
Sample Type	BLANK	LBS	LBSD	LBSRPD
SDG				
Dry Weight				
Wet Weight	1.00	1.00	1.00	
Sample Size Units	Liter	Liter	Liter	
Matrix		Water	Water	
% solid				
% Lipid				
Reporting Units	ng/L	%	%	
Calculation Basis (dry/wet)	Wet	Wet	Wet	
QC Batch ID	M2880	M2880	M2880	
Method	GCMS	GCMS	GCMS	
Collection Date				
Receive Date				
Extraction Date	05/08/00	05/08/00	05/08/00	
Analysis Date (PAH)	05/22/00	05/22/00	05/22/00	
Analysis Date (TPH)	08/23/00	08/23/00	08/23/00	

Surrogate Compounds	**% Recovery**	**% Recovery**	**% Recovery**
d8-Naphthalene	76.2	80.2	81.9
d10-Acenaphthene	74.6	83.0	84.2
d10-Phenanthrene	74.5	79.2	86.3
d12-Chrysene	57.2	76.1	82.3
d12-Perylene	65.0	51.1	58.6

Sum of PAHs	**Concentration (ng/L)**	**Concentration (ng/L)**	**Concentration (ng/L)**
Sum of PAHs with Perylene	22.7	NA	NA

Petroleum Hydrocarbons	**Concentration (ug/L)**	**% Recovery**	**% Recovery**
Total Resolved (TR)	5.07	94.79%	93.94%
Unresolved Complex Mixture (UCM)	5.07	NA	NA
Total Petroleum Hydrocarbons (TPH)	0.00	NA	NA

ND	Not Detected
J	<MDL
NA	Not Applicable
Q	Results Outside QC
I	Interference
B	Blank Contamination >3xMDL
D	Dilution

Client Sample ID				
Sample Descriptor	Proc. Blank		Blank Spike	BS Duplicate	
Original Sample					
GERG ID	Q18620		Q18621	Q18622	Q18621
Sample Type	BLANK		LBS	LBSD	LBSRPD
SDG					

PAH Compounds	Concentration		% Recovery	% Recovery	%RPD
Naphthalene	2.6	J	102.7	102.6	0.2
C1-Naphthalenes	1.9	J			
C2-Naphthalenes	0.3	J			
C3-Naphthalenes	0.0	J			
C4-Naphthalenes	0.6	J			
Biphenyl	1.8	J	100.4	101.4	1.1
Acenaphthylene	0.3	J	97.1	101.6	4.5
Acenaphthene	0.5	J	99.3	100.3	0.9
Fluorene	0.9	J	95.1	96.4	1.3
C1-Fluorenes	1.5	J			
C2-Fluorenes	0.1	J			
C3-Fluorenes	0.3	J			
Phenanthrene	1.1	J	103.1	100.7	2.4
Anthracene	0.3	J	103.0	96.5	6.5
C1-Phenanthrenes/Anthracenes	0.1	J			
C2-Phenanthrenes/Anthracenes	0.1	J			
C3-Phenanthrenes/Anthracenes	0.1	J			
C4-Phenanthrenes/Anthracenes	0.1	J			
Dibenzothiophene	0.5	J	99.0	96.6	2.4
C1-Dibenzothiophenes	0.1	J			
C2-Dibenzothiophenes	0.0	J			
C3-Dibenzothiophenes	0.1	J			
Fluoranthene	0.7	J	101.4	101.1	0.3
Pyrene	2.8	J	103.6	101.9	1.7
C1-Fluoranthenes/Pyrenes	0.1	J			
Benzo(a)anthracene	0.5	J	104.8	99.7	5.0
Chrysene	0.5	J	102.9	98.8	4.1
C1-Chrysenes	0.5	J			
C2-Chrysenes	0.0	J			
C3-Chrysenes	0.1	J			
C4-Chrysenes	0.1	J			
Benzo(b)fluoranthene	0.4	J	109.8	110.7	0.8
Benzo(k)fluoranthene	0.1	J	106.3	104.0	2.2
Benzo(e)pyrene	0.4	J	105.1	101.5	3.5
Benzo(a)pyrene	1.0	J	100.7	90.8	10.4
Perylene	0.5	J	106.0	98.1	7.7
Indeno(1,2,3-c,d)pyrene	0.5	J	108.2	113.6	4.9
Dibenzo(a,h)anthracene	0.3	J	108.8	98.3	10.1
Benzo(g,h,i)perylene	0.9	J	106.0	99.5	6.4
2-Methylnaphthalene	1.2	J	97.1	99.3	2.2
1-Methylnaphthalene	0.7	J	96.2	97.2	1.0
2,6-Dimethylnaphthalene	0.7	J	95.1	97.5	2.5
1,6,7-Trimethylnaphthalene	0.3	J	100.2	104.2	3.9
1-Methylphenanthrene	0.5	J	99.0	97.1	1.9
		Average %Recovery	**102.0**	**100.4**	**3.5**

ND Not Detected
J <MDL
NA Not Applicable
Q Results Outside QC
I Interference
B Blank Contamination >3xMDL
D Dilution

Client Sample ID	
Sample Descriptor	
Original Sample	
GERG ID	Q18623
Sample Type	APAC
SDG	

Dry Weight	
Wet Weight	1.00
Sample Size Units	Liter
Matrix	
% solid	
% Lipid	
Reporting Units	%
Calculation Basis (dry/wet)	Wet

QC Batch ID	M2880
Method	GCMS
Collection Date	
Receive Date	
Extraction Date	05/08/00
Analysis Date (PAH)	05/22/00
Analysis Date (TPH)	08/23/00

Surrogate Compounds	**% Recovery**
d8-Naphthalene	84.1
d10-Acenaphthene	86.8
d10-Phenanthrene	83.5
d12-Chrysene	79.1
d12-Perylene	59.0

Sum of PAHs	**Concentration (ng/L)**
Sum of PAHs with Perylene	NA

Petroleum Hydrocarbons	**% Recovery**
Total Resolved (TR)	100.00%
Unresolved Complex Mixture (UCM)	NA
Total Petroleum Hydrocarbons (TPH)	NA

ND	Not Detected
J	<MDL
NA	Not Applicable
Q	Results Outside QC
I	Interference
B	Blank Contamination >3xMDL
D	Dilution

Client Sample ID	
Sample Descriptor	
Original Sample	
GERG ID	Q18623
Sample Type	APAC
SDG	

PAH Compounds	% Recovery
Naphthalene	100.0
C1-Naphthalenes	
C2-Naphthalenes	
C3-Naphthalenes	
C4-Naphthalenes	
Biphenyl	100.0
Acenaphthylene	100.0
Acenaphthene	100.0
Fluorene	100.0
C1-Fluorenes	
C2-Fluorenes	
C3-Fluorenes	
Phenanthrene	100.0
Anthracene	100.0
C1-Phenanthrenes/Anthracenes	
C2-Phenanthrenes/Anthracenes	
C3-Phenanthrenes/Anthracenes	
C4-Phenanthrenes/Anthracenes	
Dibenzothiophene	100.0
C1-Dibenzothiophenes	
C2-Dibenzothiophenes	
C3-Dibenzothiophenes	
Fluoranthene	100.0
Pyrene	100.0
C1-Fluoranthenes/Pyrenes	
Benzo(a)anthracene	100.0
Chrysene	100.0
C1-Chrysenes	
C2-Chrysenes	
C3-Chrysenes	
C4-Chrysenes	
Benzo(b)fluoranthene	100.0
Benzo(k)fluoranthene	100.0
Benzo(e)pyrene	100.0
Benzo(a)pyrene	100.0
Perylene	100.0
Indeno(1,2,3-c,d)pyrene	100.0
Dibenzo(a,h)anthracene	100.0
Benzo(g,h,i)perylene	100.0
2-Methylnaphthalene	100.0
1-Methylnaphthalene	100.0
2,6-Dimethylnaphthalene	100.0
1,6,7-Trimethylnaphthalene	100.0
1-Methylphenanthrene	100.0
Average %Recovery	**100.0**

ND Not Detected
J <MDL
NA Not Applicable
Q Results Outside QC
I Interference
B Blank Contamination >3xMDL
D Dilution

Client Sample ID	
Sample Descriptor	GERG STD CHK
Original Sample	
GERG ID	W41217
Sample Type	REF
SDG	

Dry Weight	1.00
Wet Weight	
Sample Size Units	Milliliter
Matrix	Oil
% solid	
% Lipid	
Reporting Units	ng/mL
Calculation Basis (dry/wet)	

QC Batch ID	
Method	GCMS
Collection Date	
Receive Date	
Extraction Date	
Analysis Date (PAH)	05/22/00
Analysis Date (TPH)	08/23/00

Surrogate Compounds	**% Recovery**
d8-Naphthalene	102.7
d10-Acenaphthene	111.6
d10-Phenanthrene	92.4
d12-Chrysene	91.8
d12-Perylene	53.3

Sum of PAHs	**Concentration (ng/L)**
Sum of PAHs with Perylene	13850.3

Petroleum Hydrocarbons	**Concentration (ug/L)**
Total Resolved (TR)	119.54
Unresolved Complex Mixture (UCM)	763.53
Total Petroleum Hydrocarbons (TPH)	643.99

ND Not Detected
J <MDL
NA Not Applicable
Q Results Outside QC
I Interference
B Blank Contamination >3xMDL
D Dilution

Client Sample ID	
Sample Descriptor	GERG STD CHK
Original Sample	
GERG ID	W41217
Sample Type	REF
SDG	

PAH Compounds	Concentration			-35% to +35%			Concentratio	SD
Naphthalene	581.9		OK	308.5	to	748.2	514.4	39.8
C1-Naphthalenes	2270.3		OK	1350.1	to	3289.1	2256.7	179.6
C2-Naphthalenes	1907.2		OK	1103.7	to	2789.2	1882.1	184.0
C3-Naphthalenes	1432.2		OK	851.3	to	2468.9	1569.2	259.6
C4-Naphthalenes	511.7		OK	438.7	to	1477.5	884.7	209.8
Biphenyl	208.7		OK	120.2	to	292.5	200.8	15.9
Acenaphthylene	19.9	J	<MDL	0.1	to	5.3	2.1	1.9
Acenaphthene	16.3	J	<MDL	7.5	to	24.0	14.6	3.1
Fluorene	132.5		<10xMDL	55.1	to	136.0	92.8	8.0
C1-Fluorenes	281.0		OK	44.2	to	603.2	257.4	189.4
C2-Fluorenes	402.9		OK	76.4	to	981.1	422.1	304.7
C3-Fluorenes	283.0		OK	-31.7	to	1250.5	438.8	487.5
Phenanthrene	362.5		OK	165.8	to	399.2	275.4	20.3
Anthracene	13.4	J	<MDL	1.8	to	13.7	6.5	3.7
C1-Phenanthrenes/Anthracenes	729.5		OK	352.6	to	946.0	621.6	79.1
C2-Phenanthrenes/Anthracenes	774.8		OK	387.7	to	1130.0	716.8	120.3
C3-Phenanthrenes/Anthracenes	682.9		OK	307.5	to	939.6	584.6	111.5
C4-Phenanthrenes/Anthracenes	374.1		OK	113.5	to	425.7	245.0	70.4
Dibenzothiophene	310.2		OK	120.9	to	336.9	217.8	31.8
C1-Dibenzothiophenes	571.0		OK	238.8	to	676.8	434.3	67.0
C2-Dibenzothiophenes	731.3		OK	331.9	to	992.9	623.0	112.4
C3-Dibenzothiophenes	640.9		OK	277.3	to	935.4	559.8	133.1
Fluoranthene	6.1	J	<MDL	1.6	to	9.7	4.8	2.4
Pyrene	15.0	J	<MDL	6.2	to	22.4	13.1	3.5
C1-Fluoranthenes/Pyrenes	131.3		<10xMDL	50.9	to	161.2	98.8	20.6
Benzo(a)anthracene	10.9	J	<MDL	-0.3	to	16.5	5.9	6.4
Chrysene	68.9		<10xMDL	28.2	to	78.3	50.7	7.3
C1-Chrysenes	159.1		<10xMDL	47.2	to	159.6	95.4	22.8
C2-Chrysenes	142.5		<10xMDL	59.0	to	210.7	123.4	32.6
C3-Chrysenes	23.2		<10xMDL	12.1	to	42.6	25.1	6.4
C4-Chrysenes	10.6	J	<MDL	7.1	to	33.6	17.9	7.0
Benzo(b)fluoranthene	8.7	J	<MDL	2.6	to	10.5	5.9	1.9
Benzo(k)fluoranthene	1.8	J	<MDL	0.4	to	4.4	2.0	1.3
Benzo(e)pyrene	17.1	J	<MDL	6.4	to	18.2	11.6	1.8
Benzo(a)pyrene	3.3	J	<MDL	0.7	to	6.3	2.8	1.8
Perylene	5.2	J	<MDL	0.5	to	3.3	1.7	0.8
Indeno(1,2,3-c,d)pyrene	1.5	J	<MDL	0.1	to	3.0	1.2	1.1
Dibenzo(a,h)anthracene	1.9	J	<MDL	0.5	to	3.3	1.6	0.8
Benzo(g,h,i)perylene	5.3	J	<MDL	1.8	to	7.0	4.0	1.2
2-Methylnaphthalene	1246.8		OK	747.9	to	1816.5	1248.1	97.5
1-Methylnaphthalene	1023.5		OK	601.3	to	1474.5	1008.7	83.6
2,6-Dimethylnaphthalene	794.7		OK	466.5	to	1154.1	786.3	68.6
1,6,7-Trimethylnaphthalene	416.0		OK	261.2	to	639.8	437.9	36.1
1-Methylphenanthrene	272.1		OK	103.1	to	274.2	180.8	22.3

ND Not Detected
J <MDL
NA Not Applicable
Q Results Outside QC
I Interference
B Blank Contamination >3xMDL
D Dilution

Client Sample ID				
Sample Descriptor	Procedure Blank	Blank Spike	Blank Spike Dup	
Original Sample				
GERG ID	Q18750	Q18751	Q18752	Q18751
Sample Type	Blank	LBS	LBSD	LBSRPD
SDG		A5175	A5175	
Dry Weight				
Volume	1.00	1.00	1.00	
Sample Size Units	Liter	Liter	Liter	
Matrix	Water	Water	Water	
% solid				
% Lipid				
Reporting Units	ng/L	%	%	
Calculation Basis (dry/wet)	Wet	Wet	Wet	
QC Batch ID	M2897	M2897	M2897	
Method	GCMS	GCMS	GCMS	
Collection Date				
Receive Date		05/24/00	05/24/00	
Extraction Date	06/13/00	06/13/00	06/13/00	
Analysis Date (PAH)	07/17/00	07/17/00	07/17/00	
Analysis Date (TPH)	08/29/00	08/29/00	08/29/00	
Surrogate Compounds	**% Recovery**	**% Recovery**	**% Recovery**	
d8-Naphthalene	76.4	83.7	104.8	
d10-Acenaphthene	73.8	97.1	101.6	
d10-Phenanthrene	79.0	106.1	114.5	
d12-Chrysene	59.1	89.3	93.6	
d12-Perylene	98.2	96.7	92.4	
Sum of PAHs	**Concentration (ng/L)**	**Concentration (ng/L)**	**Concentration (ng/L)**	
Sum of PAHs with Perylene	33.5	NA	NA	
Petroleum Hydrocarbons	**Concentration (ug/L)**	**% Recovery**	**% Recovery**	
Total Resolved (TR)	4.15	89.68%	87.97%	
Unresolved Complex Mixture (UCM)	67.29	NA	NA	
Total Petroleum Hydrocarbons (TPH)	63.13	NA	NA	

ND Not Detected
J <MDL
NA Not Applicable
Q Results Outside QC
I Interference
B Blank Contamination >3xMDL
D Dilution

Client Sample ID					
Sample Descriptor	Procedure Blank		Blank Spike	Blank Spike Dup	
Original Sample					
GERG ID	Q18750		Q18751	Q18752	Q18751
Sample Type	Blank		LBS	LBSD	LBSRPD
SDG			A5175	A5175	
PAH Compounds	**Concentration**		**% Recovery**	**% Recovery**	**%RPD**
Naphthalene	5.1	J	113.4	101.8	10.8
C1-Naphthalenes	4.1	J			
C2-Naphthalenes	1.6	J			
C3-Naphthalenes	2.5	J			
C4-Naphthalenes	0.1	J			
Biphenyl	1.7	J	96.6	95.6	1.0
Acenaphthylene	0.3	J	119.7	119.1	0.5
Acenaphthene	0.7	J	93.1	94.4	1.4
Fluorene	0.8	J	99.5	102.4	2.9
C1-Fluorenes	1.0	J			
C2-Fluorenes	0.5	J			
C3-Fluorenes	1.4	J			
Phenanthrene	1.4	J	96.9	90.4	6.9
Anthracene	0.5	J	96.1	94.3	1.9
C1-Phenanthrenes/Anthracenes	1.9	J			
C2-Phenanthrenes/Anthracenes	2.3	J			
C3-Phenanthrenes/Anthracenes	0.2	J			
C4-Phenanthrenes/Anthracenes	0.2	J			
Dibenzothiophene	0.3	J	86.0	83.1	3.4
C1-Dibenzothiophenes	0.2	J			
C2-Dibenzothiophenes	1.0	J			
C3-Dibenzothiophenes	0.1	J			
Fluoranthene	0.7	J	101.5	94.8	6.8
Pyrene	0.5	J	103.6	98.3	5.3
C1-Fluoranthenes/Pyrenes	0.2	J			
Benzo(a)anthracene	0.2	J	91.2	88.5	3.0
Chrysene	0.2	J	97.7	93.4	4.4
C1-Chrysenes	0.2	J			
C2-Chrysenes	0.1	J			
C3-Chrysenes	0.1	J			
C4-Chrysenes	0.1	J			
Benzo(b)fluoranthene	0.4	J	89.3	85.7	4.2
Benzo(k)fluoranthene	0.4	J	73.6	104.1	34.4 Q
Benzo(e)pyrene	0.4	J	103.1	99.4	3.6
Benzo(a)pyrene	0.9	J	113.2	109.1	3.8
Perylene	0.2	J	113.6	108.8	4.3
Indeno(1,2,3-c,d)pyrene	0.2	J	65.5	59.6	9.5
Dibenzo(a,h)anthracene	0.6	J	77.3	70.2	9.5
Benzo(g,h,i)perylene	0.5	J	84.0	79.1	6.0
2-Methylnaphthalene	2.4	J	117.7	92.0	24.5
1-Methylnaphthalene	1.7	J	114.3	95.9	17.5
2,6-Dimethylnaphthalene	0.8	J	101.4	98.6	2.8
1,6,7-Trimethylnaphthalene	0.9	J	105.8	108.5	2.5
1-Methylphenanthrene	0.4	J	99.7	93.7	6.2
			98.2	**94.4**	**7.1**

ND Not Detected
J <MDL
NA Not Applicable
Q Results Outside QC
I Interference
B Blank Contamination >3xMDL
D Dilution

Client Sample ID	
Sample Descriptor	
Original Sample	
GERG ID	Q18753
Sample Type	APAC
SDG	

Dry Weight	
Volume	1.00
Sample Size Units	Liter
Matrix	
% solid	
% Lipid	
Reporting Units	ng/L
Calculation Basis (dry/wet)	Wet

QC Batch ID	M2897
Method	GCMS
Collection Date	
Receive Date	
Extraction Date	06/13/00
Analysis Date (PAH)	07/17/00
Analysis Date (TPH)	08/29/00

Surrogate Compounds	**% Recovery**
d8-Naphthalene	NA
d10-Acenaphthene	NA
d10-Phenanthrene	NA
d12-Chrysene	NA
d12-Perylene	NA

Sum of PAHs	**Concentration (ng/L)**
Sum of PAHs with Perylene	NA

Petroleum Hydrocarbons	**% Recovery**
Total Resolved (TR)	100.00%
Unresolved Complex Mixture (UCM)	NA
Total Petroleum Hydrocarbons (TPH)	NA

ND Not Detected
J <MDL
NA Not Applicable
Q Results Outside QC
I Interference
B Blank Contamination >3xMDL
D Dilution

Client Sample ID	
Sample Descriptor	
Original Sample	
GERG ID	Q18753
Sample Type	APAC
SDG	

PAH Compounds	% Recovery
Naphthalene	107.6
C1-Naphthalenes	
C2-Naphthalenes	
C3-Naphthalenes	
C4-Naphthalenes	
Biphenyl	100.2
Acenaphthylene	117.6
Acenaphthene	100.0
Fluorene	100.0
C1-Fluorenes	
C2-Fluorenes	
C3-Fluorenes	
Phenanthrene	93.6
Anthracene	100.0
C1-Phenanthrenes/Anthracenes	
C2-Phenanthrenes/Anthracenes	
C3-Phenanthrenes/Anthracenes	
C4-Phenanthrenes/Anthracenes	
Dibenzothiophene	85.8
C1-Dibenzothiophenes	
C2-Dibenzothiophenes	
C3-Dibenzothiophenes	
Fluoranthene	94.7
Pyrene	99.9
C1-Fluoranthenes/Pyrenes	
Benzo(a)anthracene	88.2
Chrysene	94.2
C1-Chrysenes	
C2-Chrysenes	
C3-Chrysenes	
C4-Chrysenes	
Benzo(b)fluoranthene	84.7
Benzo(k)fluoranthene	104.2
Benzo(e)pyrene	99.8
Benzo(a)pyrene	112.0
Perylene	115.5
Indeno(1,2,3-c,d)pyrene	62.4
Dibenzo(a,h)anthracene	72.4
Benzo(g,h,i)perylene	81.2
2-Methylnaphthalene	96.8
1-Methylnaphthalene	102.1
2,6-Dimethylnaphthalene	103.0
1,6,7-Trimethylnaphthalene	101.4
1-Methylphenanthrene	96.5
Average %Recovery	**96.6**

ND Not Detected
J <MDL
NA Not Applicable
Q Results Outside QC
I Interference
B Blank Contamination >3xMDL
D Dilution

Client Sample ID	
Sample Descriptor	GERG STD CHK
Original Sample	
GERG ID	W41388
Sample Type	REF
SDG	

Dry Weight	
Volume	
Sample Size Units	Milliliter
Matrix	Oil
% solid	
% Lipid	
Reporting Units	ng/mL
Calculation Basis (dry/wet)	

QC Batch ID	
Method	GCMS
Collection Date	
Receive Date	
Extraction Date	
Analysis Date (PAH)	07/17/00
Analysis Date (TPH)	08/29/00

Surrogate Compounds	**% Recovery**
d8-Naphthalene	107.4
d10-Acenaphthene	105.4
d10-Phenanthrene	91.1
d12-Chrysene	86.1
d12-Perylene	92.4

Sum of PAHs	**Concentration (ng/L)**
Sum of PAHs with Perylene	12952.3

Petroleum Hydrocarbons	**% Recovery**
Total Resolved (TR)	138.40
Unresolved Complex Mixture (UCM)	844.95
Total Petroleum Hydrocarbons (TPH)	706.54

ND Not Detected
J <MDL
NA Not Applicable
Q Results Outside QC
I Interference
B Blank Contamination >3xMDL
D Dilution

Client Sample ID	
Sample Descriptor	GERG STD CHK
Original Sample	
GERG ID	W41388
Sample Type	REF
SDG	

PAH Compounds	Concentration			-35% to +35%			Concentratio	SD
Naphthalene	616.1		OK	308.5	to	748.2	514.4	39.8
C1-Naphthalenes	2358.7		OK	1350.1	to	3289.1	2256.7	179.6
C2-Naphthalenes	1769.2		OK	1103.7	to	2789.2	1882.1	184.0
C3-Naphthalenes	1295.0		OK	851.3	to	2468.9	1569.2	259.6
C4-Naphthalenes	558.5		OK	438.7	to	1477.5	884.7	209.8
Biphenyl	229.4		OK	120.2	to	292.5	200.8	15.9
Acenaphthylene	23.5		<10xMDL	0.1	to	5.3	2.1	1.9
Acenaphthene	17.0	J	<MDL	7.5	to	24.0	14.6	3.1
Fluorene	166.4		<10xMDL	55.1	to	136.0	92.8	8.0
C1-Fluorenes	358.3		OK	44.2	to	603.2	257.4	189.4
C2-Fluorenes	439.1		OK	76.4	to	981.1	422.1	304.7
C3-Fluorenes	439.0		OK	-31.7	to	1250.5	438.8	487.5
Phenanthrene	347.2		OK	165.8	to	399.2	275.4	20.3
Anthracene	12.6	J	<MDL	1.8	to	13.7	6.5	3.7
C1-Phenanthrenes/Anthracenes	524.2		OK	352.6	to	946.0	621.6	79.1
C2-Phenanthrenes/Anthracenes	745.5		OK	387.7	to	1130.0	716.8	120.3
C3-Phenanthrenes/Anthracenes	540.1		OK	307.5	to	939.6	584.6	111.5
C4-Phenanthrenes/Anthracenes	229.2		OK	113.5	to	425.7	245.0	70.4
Dibenzothiophene	240.5		OK	120.9	to	336.9	217.8	31.8
C1-Dibenzothiophenes	440.8		OK	238.8	to	676.8	434.3	67.0
C2-Dibenzothiophenes	573.1		OK	331.9	to	992.9	623.0	112.4
C3-Dibenzothiophenes	453.4		OK	277.3	to	935.4	559.8	133.1
Fluoranthene	5.5	J	<MDL	1.6	to	9.7	4.8	2.4
Pyrene	14.6	J	<MDL	6.2	to	22.4	13.1	3.5
C1-Fluoranthenes/Pyrenes	114.5		<10xMDL	50.9	to	161.2	98.8	20.6
Benzo(a)anthracene	7.5	J	<MDL	-0.3	to	16.5	5.9	6.4
-- Chrysene	72.2		<10xMDL	28.2	to	78.3	50.7	7.3
C1-Chrysenes	121.1		<10xMDL	47.2	to	159.6	95.4	22.8
C2-Chrysenes	160.2		<10xMDL	59.0	to	210.7	123.4	32.6
C3-Chrysenes	22.1		<10xMDL	12.1	to	42.6	25.1	6.4
C4-Chrysenes	12.3	J	<MDL	7.1	to	33.6	17.9	7.0
Benzo(b)fluoranthene	8.3	J	<MDL	2.6	to	10.5	5.9	1.9
Benzo(k)fluoranthene	1.2	J	<MDL	0.4	to	4.4	2.0	1.3
Benzo(e)pyrene	14.7	J	<MDL	6.4	to	18.2	11.6	1.8
Benzo(a)pyrene	4.9	J	<MDL	0.7	to	6.3	2.8	1.8
Perylene	9.0	J	<MDL	0.5	to	3.3	1.7	0.8
Indeno(1,2,3-c,d)pyrene	0.7	J	<MDL	0.1	to	3.0	1.2	1.1
Dibenzo(a,h)anthracene	2.1	J	<MDL	0.5	to	3.3	1.6	0.8
Benzo(g,h,i)perylene	5.1	J	<MDL	1.8	to	7.0	4.0	1.2
2-Methylnaphthalene	1287.6		OK	747.9	to	1816.5	1248.1	97.5
1-Methylnaphthalene	1071.0		OK	601.3	to	1474.5	1008.7	83.6
2,6-Dimethylnaphthalene	862.9		OK	466.5	to	1154.1	786.3	68.6
1,6,7-Trimethylnaphthalene	470.4		OK	261.2	to	639.8	437.9	36.1
1-Methylphenanthrene	252.1		OK	103.1	to	274.2	180.8	22.3

ND Not Detected
J <MDL
NA Not Applicable
Q Results Outside QC
I Interference
B Blank Contamination >3xMDL
D Dilution

Lab Sample ID: C35614
Sample Descriptor: SB OIL SAMPLE
Analysis Date: 06/06/2000

Normal Alkane Compounds	% Composition
n-C3	0.3
n-C4	1.8
n-C5	2.5
n-C6	2.8
n-C7	3.3
n-C8	3.6
n-C9	3.3
i-C9	0.9
n-C10	3.6
i-C10	1.8
n-C11	4.8
n-C12	6.2
i-C13	1.6
i-C14	1.6
n-C13	7.4
i-C15	1.3
n-C14	6.4
i-C16	2.0
n-C15	5.4
n-C16	4.9
i-C18	1.5
n-C17	3.9
i-C19	2.5
n-C18	3.0
i-C20	1.1
n-C19	2.9
n-C20	2.7
n-C21	2.5
n-C22	2.2
n-C23	2.1
n-C24	1.9
n-C25	1.8
n-C26	1.5
n-C27	1.2
n-C28	1.1
n-C29	0.9
n-C30	0.7
n-C31	0.6
n-C32	0.4

Lab Sample ID: C35614
Sample Descriptor: SB OIL SAMPLE
Analysis Date: 06/06/2000

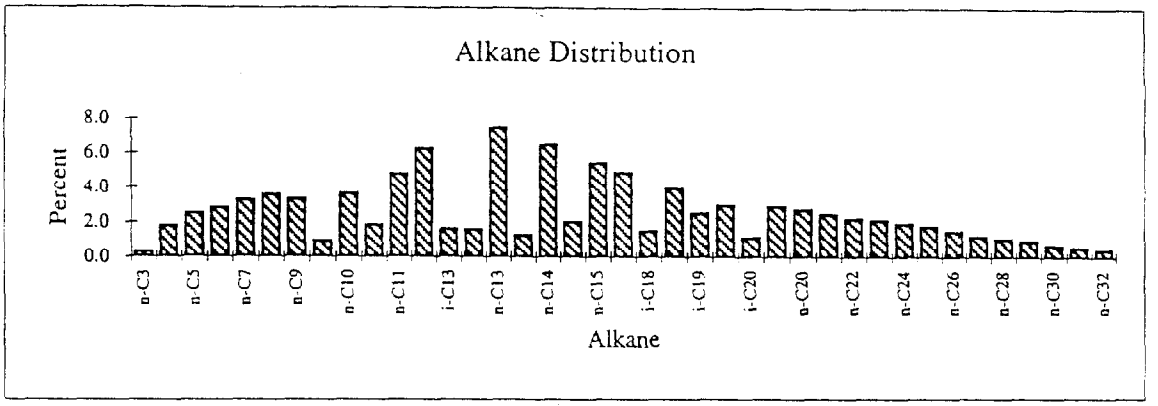
Gasoline Range Compounds	Peak #	% Composition
Propane	1	0.7
iso-Butane	2	1.8
n-Butane	3	4.1
iso-Pentane	4	6.8
n-Pentane	5	5.7
2,2-Dimethylbutane	6	0.7
Cyclopentane	7	1.0
2-Methylpentane	8	4.7
3-Methylpentane	9	3.1
n-Hexane	10	6.5
Methylcyclopentane	11	3.8
Dimethylpentane	12	0.7
Cyclohexane	13	3.7
Benzene	14	2.4
Unknown #1	15	0.9
2-Methylhexane	16	4.0
3-Methylhexane	17	3.7
1,3-Dimethyl(cis)cyclopentane	18	1.1
1,3-Dimethyl(trans)cyclopentane	19	1.1
1,2-Dimethyl(trans)cyclopentane	20	2.0
n-Heptane	21	7.5
Methylcyclohexane	22	8.9
Toluene	23	6.6
n-Octane	24	8.2
Ethylbenzene	25	1.4
m- & p-Xylene	26	6.5
o-Xylene	27	2.6

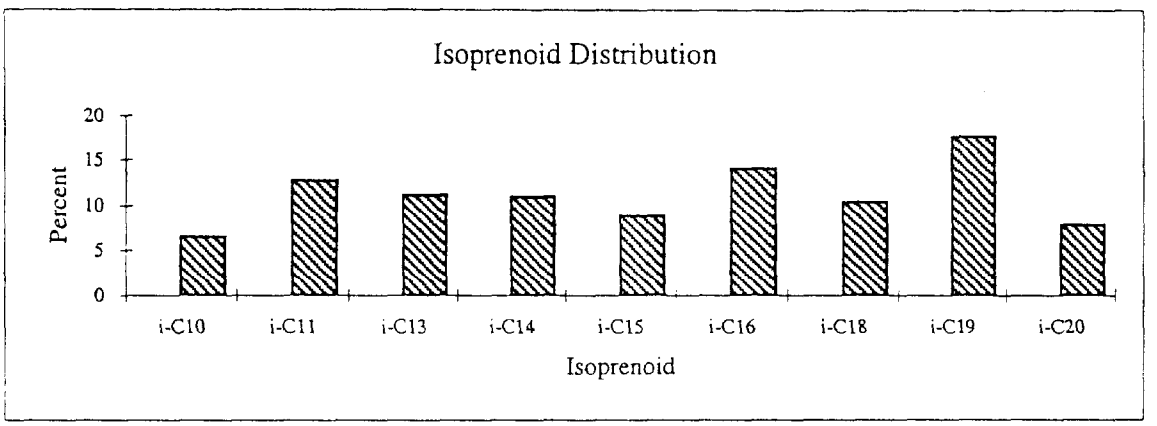
Lab Sample ID: C35614
Sample Descriptor: SB OIL SAMPLE
Analysis Date: 06/06/2000

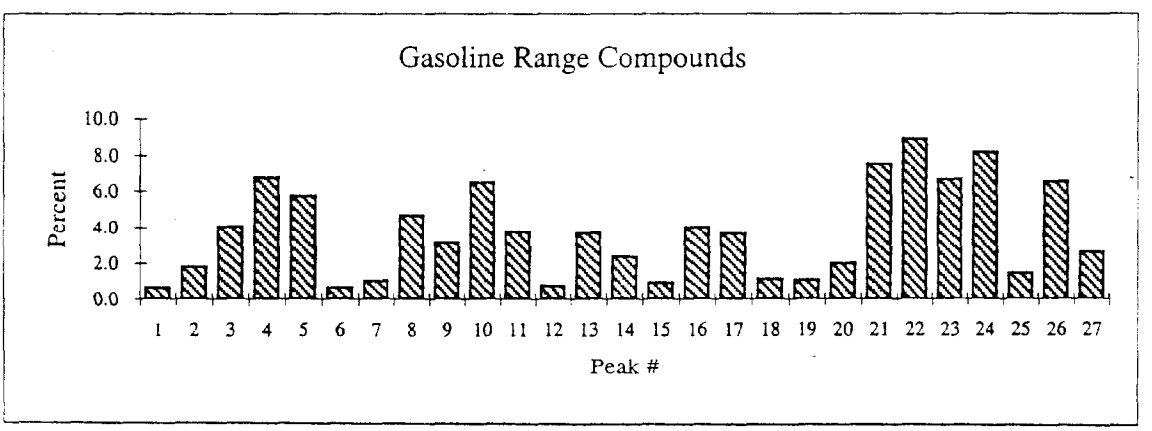
Isoprenoid Compounds	% Composition
i-C10	6.5
i-C11	12.7
i-C13	11.1
i-C14	10.9
i-C15	8.8
i-C16	14.0
i-C18	10.4
i-C19	17.7
i-C20	7.8

Parameters		
Based on Gasoline Range Compounds		
AROMATICITY	A	0.37
	B	0.81
	X	0.80
PARAFFINICITY	C	1.11
	I	1.84
	F	0.84
	H	22.85
NORMALITY	R	1.88
	U	0.98
Based on Higher Molecular Weight Compounds		
Dominant Alkane		13
n-C9/n-C19		1.14
n-C15/n-C25		3.05
n-C17/i-C19		1.56
n-C18/i-C20		2.67
i-C19/i-C20		2.26
Isoprenoid Index		0.35
Odd Even Ratio		1.07
CPI (<n-C23)		1.15
CPI (>n-C23)		1.17

Lab Sample ID: C35614
Sample Descriptor: SB OIL SAMPLE
Analysis Date: 06/06/2000







Lab Sample ID: D35614
Sample Descriptor: SB OIL SAMPLE
Analysis Date: 06/06/2000

Normal Alkane Compounds	% Composition
n-C3	0.1
n-C4	0.6
n-C5	0.9
n-C6	1.0
n-C7	1.1
n-C8	1.3
n-C9	1.7
i-C9	0.5
n-C10	2.5
i-C10	1.7
n-C11	4.5
n-C12	6.0
i-C13	1.9
i-C14	1.8
n-C13	7.7
i-C15	1.6
n-C14	7.2
i-C16	2.3
n-C15	6.6
n-C16	5.8
i-C18	1.7
n-C17	4.6
i-C19	3.3
n-C18	3.7
i-C20	1.4
n-C19	3.6
n-C20	3.4
n-C21	3.0
n-C22	2.8
n-C23	2.7
n-C24	2.6
n-C25	2.4
n-C26	1.9
n-C27	1.6
n-C28	1.3
n-C29	1.2
n-C30	0.9
n-C31	0.8
n-C32	0.6

Lab Sample ID: D35614
Sample Descriptor: SB OIL SAMPLE
Analysis Date: 06/06/2000

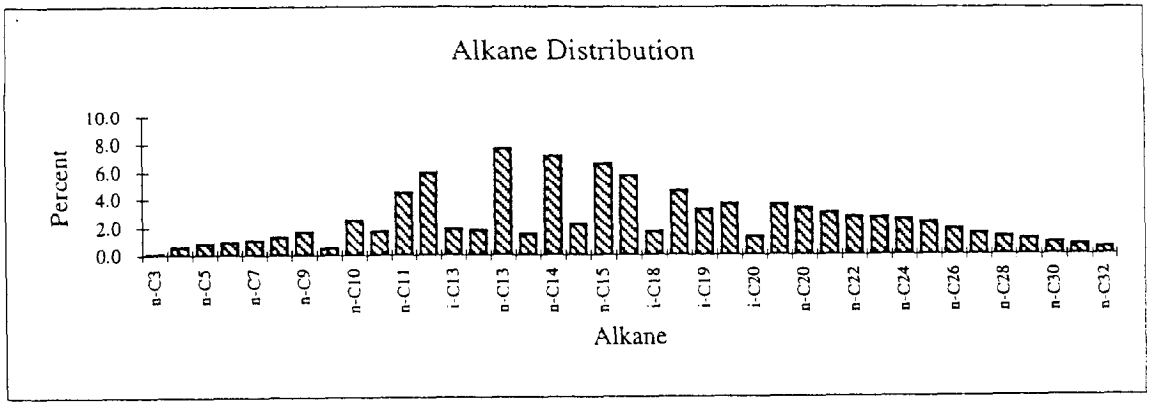
Gasoline Range Compounds	Peak #	% Composition
Propane	1	0.4
iso-Butane	2	1.5
n-Butane	3	3.6
iso-Pentane	4	6.5
n-Pentane	5	5.5
2,2-Dimethylbutane	6	0.6
Cyclopentane	7	1.0
2-Methylpentane	8	4.4
3-Methylpentane	9	3.0
n-Hexane	10	6.1
Methylcyclopentane	11	3.7
Dimethylpentane	12	0.7
Cyclohexane	13	3.5
Benzene	14	2.0
Unknown #1	15	0.9
2-Methylhexane	16	3.8
3-Methylhexane	17	3.5
1,3-Dimethyl(cis)cyclopentane	18	1.2
1,3-Dimethyl(trans)cyclopentane	19	1.1
1,2-Dimethyl(trans)cyclopentane	20	1.9
n-Heptane	21	7.0
Methylcyclohexane	22	9.0
Toluene	23	5.9
n-Octane	24	8.5
Ethylbenzene	25	2.1
m- & p-Xylene	26	8.8
o-Xylene	27	3.9

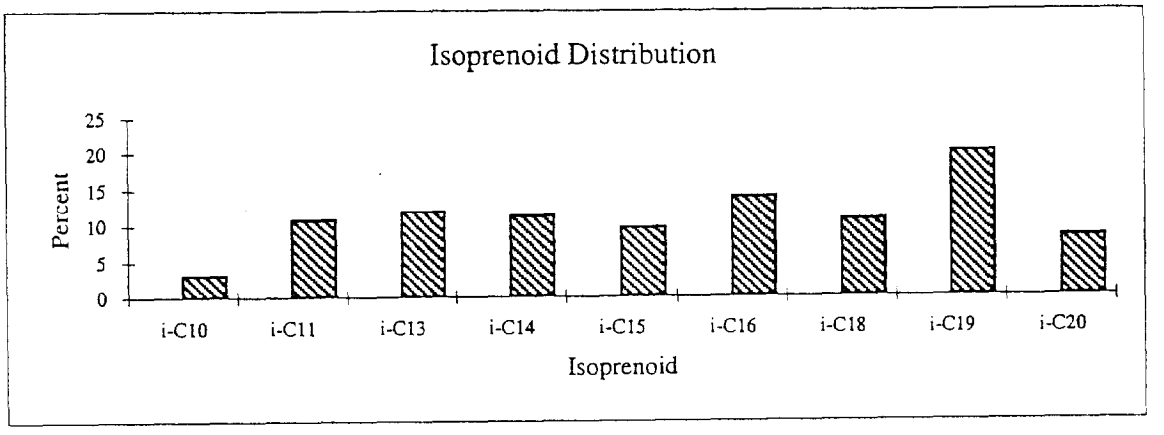
Lab Sample ID: D35614
Sample Descriptor: SB OIL SAMPLE
Analysis Date: 06/06/2000

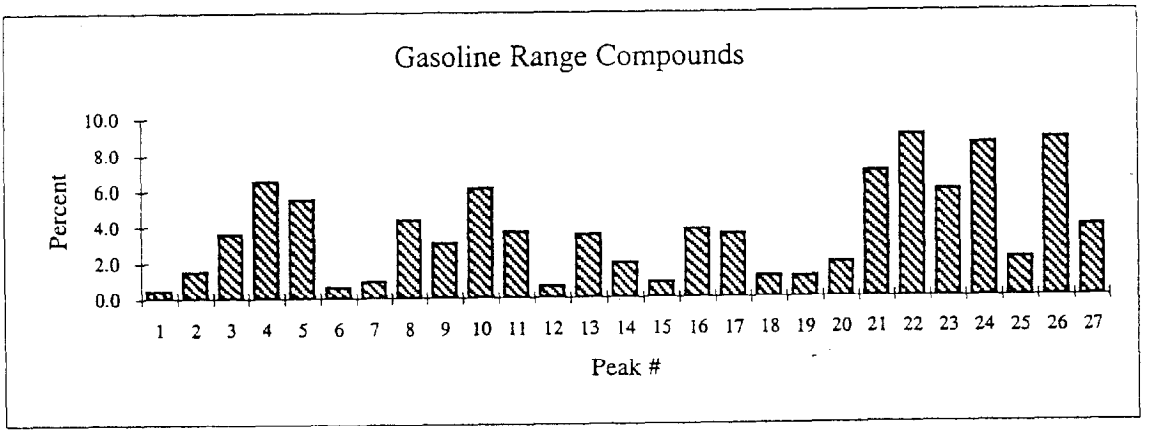
Isoprenoid Compounds	% Composition
i-C10	3.1
i-C11	10.8
i-C13	11.9
i-C14	11.3
i-C15	9.6
i-C16	13.9
i-C18	10.8
i-C19	20.2
i-C20	8.3

Parameters		
Based on Gasoline Range Compounds		
AROMATICITY	A	0.32
	B	0.70
	X	1.03
PARAFFINICITY	C	1.05
	I	1.74
	F	0.77
	H	21.82
NORMALITY	R	1.83
	U	0.96
Based on Higher Molecular Weight Compounds		
Dominant Alkane		13
n-C9/n-C19		0.47
n-C15/n-C25		2.79
n-C17/i-C19		1.41
n-C18/i-C20		2.71
i-C19/i-C20		2.42
Isoprenoid Index		0.26
Odd Even Ratio		1.06
CPI (<n-C23)		1.15
CPI (>n-C23)		1.18

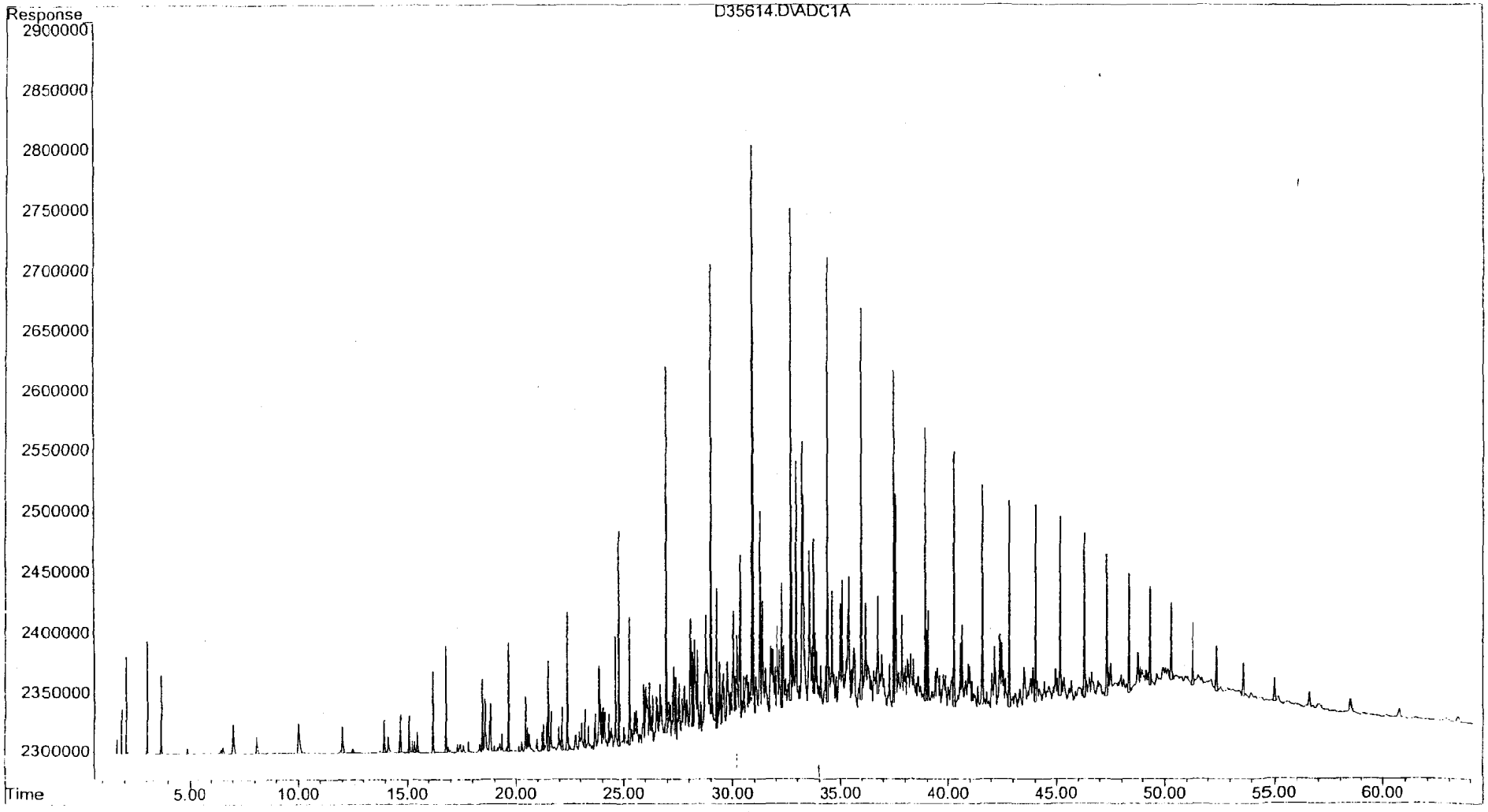
Lab Sample ID: D35614
Sample Descriptor: SB OIL SAMPLE
Analysis Date: 06/06/2000







File : C:\HPCHEM\3\DATA\S7060500\D35614.D
Operator : CINDY
Acquired : 7 Jun 2000 10:45 using AcqMethod SHORTOIL.M
Instrument : M8 GC 587
Sample Name: SB OIL SAMPLE
Misc Info : A1283
Vial Number: 16



File : C:\HPCHEM\3\DATA\L7060500\C35614.D
Operator : CINDY
Acquired : 8 Jun 2000 19:08 using AcqMethod LONGOIL.M
Instrument : M8 GC 587
Sample Name: SB OIL SAMPLE
Misc Info : A1283
Vial Number: 14