



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)

June 12, 2000

Mr. Mike F. Lane
Data Manager
Applied Marine Research Laboratory
Old Dominion University
Norfolk, VA 23529-0456
Phone: 757-683-4694
Fax: 757-683-5293



Dear Mike:

Enclosed are a case narrative and the data tables containing the results of our analyses of 26 sediment samples for PAHs. Dr. Guy Denoux will send this data, including the QA/QC sample results, to you and Mr. Brent W. Parolari via email as instructed by Joe Winfield.

If you (or Brent) have any questions do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink that reads 'Terry L. Wade'. The signature is written in a cursive, flowing style.

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

cc: G. Denoux, GERG
C. Miller, TAMRF

Virginia Department of Environmental Quality
Case Narrative: Polynuclear Aromatic Hydrocarbons (PAH)

I. Background

This report contains the results of the PAH analyses of 26 sediment samples. These samples were part of three sample delivery groups SDG A5154, A5154 and A5156. They were analyzed as two QC batches, M2884 and M2885. QC batch M2884 was extracted on 5/16/00 and analyzed on 5/27/00. QC batch M2885 was extracted on 5/17/00 and analyzed on 5/29/00.

II. Analytical Results/Methodology

The samples were extracted and analyzed following the procedures contained in GERG SOP 9807 and GERG SOP 9733. The analyte concentrations were determined using labeled surrogates added to the sample prior to extraction.

III. Quality Control

Calibrations

The analytes are calculated using an average response factor based on the form:

$$RRF = (A_S C_{SU}) / (A_{SU} C_S) \quad \text{Eq. 1}$$

where:

A_S = Area of the quantitation ion for the target compound.

A_{SU} = Area of the quantitation ion for the surrogate.

C_{SU} = Concentration of the surrogate (ng/ μ L).

C_S = Concentration of the target compound to be measured (ng/ μ L).

Calibration data used in the quantitation of detected analytes met the calibration criteria; no deviations beyond the control limits were observed. The average percent deviation was less than 15%, and no analyte had a percent deviation greater than 25% deviation.

Example Calculations

The concentration of the target analytes and the recovery of the labeled quantitation standards are calculated using the following equations:

$$C = \frac{(A_S)(C_{SU})}{(A_{SU})(RRF)(Sa)} \quad \text{Eq. 2}$$

where:

C	=	Concentration in sample (ng/gram or ng/liter).
Sa	=	Sample amount (grams, liters).
A _S	=	Area of the quantitation ion for the target compound to be measured.
A _{SU}	=	Area of the quantitation ion for the surrogate.
C _{SU}	=	Amount of surrogate added to each extract (ng).
RRF	=	Average response factor

Laboratory Qualifiers

All of the analytical data have been qualified based on the most recent method detection limits determined. Concentrations that were less than the MDL adjusted for sample sizes are qualified "J" and those analytes not detected are qualified "ND". Concentrations that exceeded the calibration limits are qualified "EC". The concentrations that are determined by analyses of a diluted aliquot are qualified "D". If interference is encountered with the quantification of an analyte due to high concentration of another analyte, the concentration is qualified "I" to denote this interference.

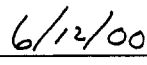
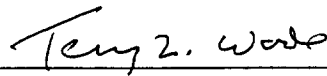
Analytical Difficulties

Surrogate recoveries were generally acceptable. Two surrogate recovery was slightly below acceptable recovery (40%) for d12-chrysene in WB-C-01 (34.3%) and d8-naphthlene in LF-B-04 (39.5%). For sample WB-C-01 the low recovery for d12-chrysene appeared to be the result of poor resolution caused by high concentrations of analytes. The concentrations of the analytes in WB-C-01 normally quantitated using d12-chrysene were quantitated using d10 phenanthrene (recovery 85.9%) and the d12-chrysene recovery was labeled "I". Seven surrogates were slightly above acceptable recovery (120%); for d8 naphthalene in the procedural blank (Q18644, 121%), for d10-acenaphthene in SB-E-04 MSD (124.1%), for d12 chrysene in EB-A-01 (122.9%), LRS (120.3%), LF-A-01 (120.2%), LF-B-01 duplicate (121.6%) and for d12-perylene in SB-D-02 (120.1%). These surrogate recoveries used for quantitation were all within 5% or less of the acceptance limit and the resulting data for the high concentrations found in these samples should not be greatly effected. No further action was taken. The blanks contained no analytes at concentrations <3xMDL. The duplicate relative percent difference was greater than the acceptable range. The high concentration in these samples and their inhomogeneity leads to the poor replicability of these duplicates and MS/MSD. The SRM (NIST 2974) had acceptable concentrations of all analytes except acenaphthylene, acenaphthene and anthracene for M2284 and acenaphthylene and anthracene for M2285. The acenaphthylene and acenaphthene are non-certified concentrations. The second ions were checked on all analytes and did not indicate any interfering compounds. No further action was taken. Two samples (EL-E-01 and EB-A-01) required a 5 times dilution so that analytes were within the calibration range. No further variances or difficulties were observed.

IV. Discussion

The PAH concentrations in these sediment samples are high and indicate inputs from industrial activities. The PAH appear to be a mixture of PAH from petroleum and combustion (e.g. creosote) source. Anthracene to phenanthrene ratios indicates sources other than petroleum and creosote or processes that preferentially preserve anthracene in the sediments. The acceptable results for all analytes with certified concentrations in the SRM indicate the method was providing reliable data for most analytes.

Reviewed and approved:



Terry L. Wade, Ph.D.

Date

Deputy Director, Environmental Sciences

Virginia Department of Environmental Quality

Client Sample ID	EL-A-01	EL-B-01	EL-E-01	LF-B-04
Sample Descriptor				
Original Sample				
GERG ID	C34902	C34903	C34904	C34905
Sample Type	SAMP	SAMP	SAMP	SAMP
SDG	A5145	A5145	A5145	A5145
<hr/>				
Dry Weight	7.63	10.43	9.21	8.04
Wet Weight	20.08	20.01	20.19	20.20
Sample Size Units	Grams	Grams	Grams	Grams
Matrix	Sediment	Sediment	Sediment	Sediment
% solid	38.0	52.1	45.6	39.8
% Lipid				
Reporting Units	ng/g	ng/g	ng/g	ng/g
Calculation Basis (dry/wet)	Dry	Dry	Dry	Dry
<hr/>				
QC Batch ID	M2885	M2885	M2885	M2885
Method	GCMS	GCMS	GCMS	GCMS
Collection Date	05/01/00	05/01/00	05/01/00	05/01/00
Receive Date	05/02/00	05/02/00	05/02/00	05/02/00
Extraction Date	05/17/00	05/17/00	05/17/00	05/17/00
Analysis Date	05/30/00	05/30/00	06/09/00	05/30/00
<hr/>				
Surrogate Compounds	%Recovery	%Recovery	%Recovery	%Recovery
d8-Naphthalene	73.8	59.9	64.9	39.5 Q
d10-Acenaphthene	85.5	71.7	96.5	72.3
d10-Phenanthrene	113.7	82.0	92.2	88.0
d12-Chrysene	112.6	96.4	117.0	69.0
d12-Perylene	93.9	78.0	101.9	65.3
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Total PAHs	Concentration	Concentration	Concentration	Concentration
Total PAHs with Perylene	1342.2	1828.5	11135.0	3975.4
Total PAHs without Perylene	1259.4	1790.9	11034.6	3891.9
Total NS&T PAHs	816.3	1104.1	7133.4	2255.7

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

Virginia Department of Environmental Quality

Client Sample ID	EL-A-01	EL-B-01	EL-E-01	LF-B-04
Sample Descriptor				
Original Sample				
GERG ID	C34902	C34903	C34904	C34905
Sample Type	SAMP	SAMP	SAMP	SAMP
SDG	A5145	A5145	A5145	A5145

PAH Compounds	Concentration	Concentration	Concentration	Concentration
Naphthalene	36.7	26.8	119.3	48.0
C1-Naphthalenes	35.0	31.0	122.0	108.2
C2-Naphthalenes	28.1	21.6	135.9	88.8
C3-Naphthalenes	20.0	19.7	115.2	69.9
C4-Naphthalenes	11.4	9.9	51.9	36.8
Biphenyl	8.0	6.2	13.9	17.1
Acenaphthylene	22.3	27.0	75.1	65.9
Acenaphthene	11.6	9.4	110.2	21.4
Fluorene	22.5	18.2	204.3	50.4
C1-Fluorenes	19.2	19.3	92.3	41.5
C2-Fluorenes	15.8	14.6	43.2	48.9
C3-Fluorenes	10.4	9.3	35.3	25.6
Phenanthrene	48.4	71.0	1088.3	142.4
Anthracene	60.0	104.7	321.7	160.4
C1-Phenanthrenes/Anthracenes	37.4	63.4	413.8	113.0
C2-Phenanthrenes/Anthracenes	29.1	41.9	218.0	83.4
C3-Phenanthrenes/Anthracenes	15.3	16.6	112.8	48.8
C4-Phenanthrenes/Anthracenes	0.2	J	18.9	2.0
Dibenzothiophene	4.5	4.6	53.4	14.3
C1-Dibenzothiophenes	6.6	6.5	36.1	15.6
C2-Dibenzothiophenes	8.4	7.6	31.4	26.0
C3-Dibenzothiophenes	6.1	4.4	20.2	22.6
Fluoranthene	120.7	200.1	1463.8	413.5
Pyrene	117.5	192.5	1274.4	364.5
C1-Fluoranthenes/Pyrenes	52.8	91.4	625.7	143.4
Benzo(a)anthracene	62.2	98.6	558.2	215.0
Chrysene	61.0	83.1	526.0	188.1
C1-Chrysenes	36.4	55.3	304.9	126.3
C2-Chrysenes	15.6	17.2	103.5	50.4
C3-Chrysenes	1.2	J	5.5	3.6
C4-Chrysenes	1.5	10.6	8.9	6.8
Benzo(b)fluoranthene	96.5	154.6	647.2	326.1
Benzo(k)fluoranthene	30.5	40.9	375.1	76.3
Benzo(e)pyrene	48.9	68.4	361.1	151.5
Benzo(a)pyrene	65.5	115.1	700.5	190.8
Perylene	82.9	37.6	100.4	83.5
Indeno(1,2,3-c,d)pyrene	42.4	60.2	334.2	169.2
Dibenzo(a,h)anthracene	8.9	14.8	51.9	39.1
Benzo(g,h,i)perylene	40.9	51.9	260.3	176.3
2-Methylnaphthalene	23.7	20.7	60.5	74.0
1-Methylnaphthalene	11.3	10.2	61.5	34.1
2,6-Dimethylnaphthalene	14.6	10.2	31.8	31.9
1,6,7-Trimethylnaphthalene	7.5	7.2	19.2	15.7
1-Methylphenanthrene	12.0	16.5	85.4	30.0

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

Virginia Department of Environmental Quality

Client Sample ID	EB-A-01	EL-C-01	EL-D-01	LF-A-01
Sample Descriptor				
Original Sample				
GERG ID	C34906	C34907	C34908	C34909
Sample Type	SAMP	SAMP	SAMP	SAMP
SDG	A5145	A5145	A5145	A5145
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Dry Weight	11.42	11.91	13.98	11.66
Wet Weight	20.23	20.19	20.02	20.08
Sample Size Units	Grams	Grams	Grams	Grams
Matrix	Sediment	Sediment	Sediment	Sediment
% solid	56.4	59.0	69.8	58.1
% Lipid				
Reporting Units	ng/g	ng/g	ng/g	ng/g
Calculation Basis (dry/wet)	Dry	Dry	Dry	Dry
<hr/>				
QC Batch ID	M2885	M2885	M2885	M2885
Method	GCMS	GCMS	GCMS	GCMS
Collection Date	05/01/00	05/01/00	05/01/00	05/01/00
Receive Date	05/02/00	05/02/00	05/02/00	05/02/00
Extraction Date	05/17/00	05/17/00	05/17/00	05/17/00
Analysis Date	06/09/00	05/30/00	05/30/00	05/30/00
<hr/>				
Surrogate Compounds	%Recovery	%Recovery	%Recovery	%Recovery
d8-Naphthalene	78.1	60.6	46.6	47.0
d10-Acenaphthene	117.0	97.9	96.5	93.9
d10-Phenanthrene	83.5	88.6	112.2	108.3
d12-Chrysene	109.8	96.7	118.7	120.2
d12-Perylene	71.2	76.3	89.9	77.8
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Total PAHs	Concentration	Concentration	Concentration	Concentration
Total PAHs with Perylene	26408.6	830.8	470.0	808.0
Total PAHs without Perylene	26106.9	814.9	460.2	773.2
Total NS&T PAHs	14444.5	489.8	256.7	485.4

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

Virginia Department of Environmental Quality

Client Sample ID	EB-A-01	EL-C-01	EL-D-01	LF-A-01
Sample Descriptor				
Original Sample				
GERG ID	C34906	C34907	C34908	C34909
Sample Type	SAMP	SAMP	SAMP	SAMP
SDG	A5145	A5145	A5145	A5145

PAH Compounds	Concentration	Concentration	Concentration	Concentration
Naphthalene	326.5	21.9	9.8	13.4
C1-Naphthalenes	295.1	54.5	19.2	27.4
C2-Naphthalenes	424.8	47.0	17.1	22.2
C3-Naphthalenes	601.2	28.4	15.0	17.6
C4-Naphthalenes	446.3	9.2	4.8	7.3
Biphenyl	43.2	6.6	2.3	4.0
Acenaphthylene	169.4	15.1	7.5	11.8
Acenaphthene	288.7	5.7	2.7	6.0
Fluorene	302.3	10.5	5.9	12.0
C1-Fluorenes	249.0	7.8	7.1	8.0
C2-Fluorenes	361.2	7.6	8.6	8.7
C3-Fluorenes	535.2	6.2	5.8	7.9
Phenanthrene	996.9	28.0	16.5	37.4
Anthracene	840.6	51.7	20.0	35.2
C1-Phenanthrenes/Anthracenes	846.3	22.8	15.5	23.1
C2-Phenanthrenes/Anthracenes	955.0	15.8	12.2	15.9
C3-Phenanthrenes/Anthracenes	626.0	9.1	6.6	8.4
C4-Phenanthrenes/Anthracenes	173.2	0.2	0.3	0.2
Dibenzothiophene	92.4	2.7	1.4	2.7
C1-Dibenzothiophenes	125.7	3.0	2.1	3.0
C2-Dibenzothiophenes	248.9	4.0	3.0	4.0
C3-Dibenzothiophenes	244.7	2.8	1.9	3.2
Fluoranthene	3405.2	67.4	42.0	77.6
Pyrene	3069.9	63.6	41.7	69.3
C1-Fluoranthenes/Pyrenes	2078.1	37.3	20.3	31.4
Benzo(a)anthracene	1207.6	38.2	19.6	41.9
Chrysene	1191.0	38.8	19.5	39.6
C1-Chrysenes	738.1	22.2	15.9	23.4
C2-Chrysenes	273.2	11.0	7.6	9.4
C3-Chrysenes	24.3	0.7	0.4	0.5
C4-Chrysenes	11.5	0.7	0.6	1.2
Benzo(b)fluoranthene	1205.7	52.5	36.3	60.6
Benzo(k)fluoranthene	793.3	15.4	7.7	15.7
Benzo(e)pyrene	715.2	25.2	17.0	27.8
Benzo(a)pyrene	1086.2	34.7	18.8	39.6
Perylene	301.7	15.9	9.8	34.8
Indeno(1,2,3-c,d)pyrene	638.3	21.1	12.7	25.9
Dibenzo(a,h)anthracene	90.7	5.4	3.2	6.0
Benzo(g,h,i)perylene	386.4	20.0	12.1	24.0
2-Methylnaphthalene	181.5	34.3	12.3	18.8
1-Methylnaphthalene	113.6	20.2	6.9	8.5
2,6-Dimethylnaphthalene	123.1	15.7	4.4	7.0
1,6,7-Trimethylnaphthalene	101.8	6.3	2.8	3.5
1-Methylphenanthrene	160.7	6.0	4.5	6.4

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

Virginia Department of Environmental Quality

Client Sample ID	LF-B-01	WB-B-02	WB-C-01	WRM
Sample Descriptor				
Original Sample				
GERG ID	C34910	C34973	C34974	C34975
Sample Type	SAMP	SAMP	SAMP	SAMP
SDG	A5145	A5154	A5154	A5154
<hr/>				
Dry Weight	6.96	8.58	8.55	7.12
Wet Weight	20.10	20.22	20.00	20.02
Sample Size Units	Grams	Grams	Grams	Grams
Matrix	Sediment	Sediment	Sediment	Sediment
% solid	34.6	42.5	42.7	35.6
% Lipid				
Reporting Units	ng/g	ng/g	ng/g	ng/g
Calculation Basis (dry/wet)	Dry	Dry	Dry	Dry
<hr/>				
QC Batch ID	M2885	M2884	M2884	M2884
Method	GCMS	GCMS	GCMS	GCMS
Collection Date	05/01/00	05/03/00	05/03/00	05/02/00
Receive Date	05/02/00	05/04/00	05/04/00	05/04/00
Extraction Date	05/17/00	05/16/00	05/16/00	05/16/00
Analysis Date	05/30/00	05/27/00	05/27/00	05/27/00
<hr/>				
Surrogate Compounds	%Recovery	%Recovery	%Recovery	%Recovery
d8-Naphthalene	44.0	58.4	74.5	87.3
d10-Acenaphthene	69.1	69.4	80.7	78.6
d10-Phenanthrene	90.5	73.7	85.9	84.4
d12-Chrysene	102.6	65.1	34.3	83.5
d12-Perylene	65.7	75.1	70.0	87.6
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Total PAHs	Concentration	Concentration	Concentration	Concentration
Total PAHs with Perylene	1569.9	3583.8	1826.3	451.8
Total PAHs without Perylene	1549.2	3513.8	1760.1	437.2
Total NS&T PAHs	976.9	2101.8	1038.2	268.2

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

Virginia Department of Environmental Quality

Client Sample ID	LF-B-01	WB-B-02	WB-C-01	WRM
Sample Descriptor				
Original Sample				
GERG ID	C34910	C34973	C34974	C34975
Sample Type	SAMP	SAMP	SAMP	SAMP
SDG	A5145	A5154	A5154	A5154

PAH Compounds	Concentration	Concentration	Concentration	Concentration
Naphthalene	22.1	53.5	35.1	7.8
C1-Naphthalenes	37.0	52.3	36.6	6.4
C2-Naphthalenes	31.9	36.8	26.4	4.1
C3-Naphthalenes	22.0	29.5	17.8	3.3
C4-Naphthalenes	8.5	11.6	7.7	0.7
Biphenyl	5.2	10.8	7.7	3.4
Acenaphthylene	21.3	47.5	25.6	9.2
Acenaphthene	10.2	21.1	9.1	1.2
Fluorene	20.8	35.4	22.9	4.7
C1-Fluorenes	13.4	28.3	15.4	0.7
C2-Fluorenes	11.7	19.5	17.7	4.5
C3-Fluorenes	10.5	17.5	12.5	3.5
Phenanthrene	84.4	120.9	56.9	13.2
Anthracene	69.6	123.4	65.4	15.6
C1-Phenanthrenes/Anthracenes	47.3	91.4	43.6	9.9
C2-Phenanthrenes/Anthracenes	27.5	60.2	30.9	6.2
C3-Phenanthrenes/Anthracenes	12.3	27.4	13.7	2.5
C4-Phenanthrenes/Anthracenes	0.1	4.6	9.0	0.8
Dibenzothiophene	4.5	9.4	6.1	1.2
C1-Dibenzothiophenes	4.9	13.3	6.6	1.0
C2-Dibenzothiophenes	4.5	11.7	7.8	1.6
C3-Dibenzothiophenes	3.0	11.2	8.9	0.1
Fluoranthene	148.8	357.2	173.3	55.7
Pyrene	130.1	332.4	157.8	47.6
C1-Fluoranthenes/Pyrenes	72.3	134.7	63.4	20.3
Benzo(a)anthracene	91.9	235.5	94.2	17.4
Chrysene	156.6	196.6	80.7	27.7
C1-Chrysenes	47.4	88.4	32.9	9.4
C2-Chrysenes	11.9	25.9	20.7	3.9
C3-Chrysenes	0.8	1.7	1.3	0.3
C4-Chrysenes	1.7	5.1	3.0	0.3
Benzo(b)fluoranthene	113.0	332.2	168.3	40.3
Benzo(k)fluoranthene	41.6	95.1	48.9	11.0
Benzo(e)pyrene	53.6	162.3	84.2	18.9
Benzo(a)pyrene	89.6	239.8	99.2	24.4
Perylene	20.7	70.0	66.2	14.7
Indeno(1,2,3-c,d)pyrene	54.6	218.9	114.2	29.1
Dibenzo(a,h)anthracene	13.7	47.6	23.0	3.2
Benzo(g,h,i)perylene	49.0	203.0	111.6	26.0
2-Methylnaphthalene	23.6	34.9	24.2	4.2
1-Methylnaphthalene	13.3	17.4	12.4	2.3
2,6-Dimethylnaphthalene	8.9	17.7	14.3	3.2
1,6,7-Trimethylnaphthalene	4.7	10.5	7.0	1.7
1-Methylphenanthrene	13.7	25.3	11.7	3.1

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

Virginia Department of Environmental Quality

Client Sample ID	CCM	WB-B-01	WB-B-05	LRM
Sample Descriptor				
Original Sample				
GERG ID	C34976	C34977	C34978	C34979
Sample Type	SAMP	SAMP	SAMP	SAMP
SDG	A5154	A5154	A5154	A5154
<hr/>				
Dry Weight	7.82	7.83	8.20	14.22
Wet Weight	20.05	20.07	20.00	20.15
Sample Size Units	Grams	Grams	Grams	Grams
Matrix	Sediment	Sediment	Sediment	Sediment
% solid	39.0	39.0	41.0	70.6
% Lipid				
Reporting Units	ng/g	ng/g	ng/g	ng/g
Calculation Basis (dry/wet)	Dry	Dry	Dry	Dry
<hr/>				
QC Batch ID	M2884	M2884	M2884	M2884
Method	GCMS	GCMS	GCMS	GCMS
Collection Date	05/02/00	05/03/00	05/03/00	05/02/00
Receive Date	05/04/00	05/04/00	05/04/00	05/04/00
Extraction Date	05/16/00	05/16/00	05/16/00	05/16/00
Analysis Date	05/27/00	05/27/00	05/27/00	05/27/00
<hr/>				
Surrogate Compounds	%Recovery	%Recovery	%Recovery	%Recovery
d8-Naphthalene	91.8	67.0	81.9	114.2
d10-Acenaphthene	85.6	82.6	101.2	113.8
d10-Phenanthrene	92.9	74.2	100.2	111.6
d12-Chrysene	94.9	82.9	103.9	113.3
d12-Perylene	94.2	68.7	93.8	99.4
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Total PAHs	Concentration	Concentration	Concentration	Concentration
Total PAHs with Perylene	148.4	5423.0	2786.6	567.7
Total PAHs without Perylene	144.8	5303.8	2718.1	547.9
Total NS&T PAHs	91.5	3220.2	1613.3	377.9

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

Virginia Department of Environmental Quality

Client Sample ID	CCM	WB-B-01	WB-B-05	LRM
Sample Descriptor				
Original Sample				
GERG ID	C34976	C34977	C34978	C34979
Sample Type	SAMP	SAMP	SAMP	SAMP
SDG	A5154	A5154	A5154	A5154

PAH Compounds	Concentration		Concentration	Concentration	Concentration
Naphthalene	3.8		92.6	42.7	23.6
C1-Naphthalenes	2.2		95.7	48.0	91.0
C2-Naphthalenes	1.3	J	64.3	34.2	41.5
C3-Naphthalenes	0.3	J	48.2	27.1	11.8
C4-Naphthalenes	0.1	J	18.8	12.4	2.6
Biphenyl	1.4		19.4	9.6	9.1
Acenaphthylene	3.8		80.6	44.8	5.9
Acenaphthene	0.7	J	31.2	12.2	2.6
Fluorene	1.5		58.2	35.5	5.2
C1-Fluorenes	0.6	J	39.4	21.3	2.9
C2-Fluorenes	0.4	J	50.0	18.7	3.7
C3-Fluorenes	0.1	J	24.9	12.2	1.5
Phenanthrene	4.3		202.0	112.5	15.7
Anthracene	4.2		261.7	142.5	16.3
C1-Phenanthrenes/Anthracenes	3.9		144.0	76.2	11.5
C2-Phenanthrenes/Anthracenes	1.8		93.8	47.0	6.9
C3-Phenanthrenes/Anthracenes	0.5	J	47.7	24.4	3.7
C4-Phenanthrenes/Anthracenes	0.5	J	11.0	5.2	0.6
Dibenzothiophene	0.4	J	17.1	8.4	1.5
C1-Dibenzothiophenes	0.2	J	18.9	9.0	2.1
C2-Dibenzothiophenes	0.2	J	21.7	9.6	1.8
C3-Dibenzothiophenes	0.2	J	22.6	9.8	1.7
Fluoranthene	16.5		565.1	242.3	37.0
Pyrene	16.1		545.0	228.5	31.3
C1-Fluoranthenes/Pyrenes	5.7		242.1	119.7	15.0
Benzo(a)anthracene	7.8		280.8	143.6	18.0
Chrysene	8.4		282.4	183.5	37.4
C1-Chrysenes	2.7		148.6	76.7	10.1
C2-Chrysenes	0.4	J	48.8	29.9	4.1
C3-Chrysenes	0.2	J	3.3	1.5	0.1
C4-Chrysenes	0.5	J	8.9	0.3	0.8
Benzo(b)fluoranthene	13.0		443.9	248.7	34.2
Benzo(k)fluoranthene	3.9		128.2	69.8	9.7
Benzo(c)pyrene	6.5		222.5	119.9	15.5
Benzo(a)pyrene	9.9		307.6	150.5	21.6
Perylene	3.6	J	119.2	68.6	19.8
Indeno(1,2,3-c,d)pyrene	9.9		285.6	158.0	24.3
Dibenzo(a,h)anthracene	2.0		62.1	33.1	3.1
Benzo(g,h,i)perylene	8.9		265.4	149.0	22.7
2-Methylnaphthalene	1.5		63.2	31.0	63.2
1-Methylnaphthalene	0.7	J	32.4	17.1	27.8
2,6-Dimethylnaphthalene	1.4		31.3	17.7	27.6
1,6,7-Trimethylnaphthalene	0.6	J	15.8	8.8	4.2
1-Methylphenanthrene	1.1		43.4	22.7	3.3

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

Virginia Department of Environmental Quality

Client Sample ID	LRS	PRM	SB-C-01	SB-D-01
Sample Descriptor				
Original Sample				
GERG ID	C34980	C34981	C35437	C35438
Sample Type	SAMP	SAMP	SAMP	SAMP
SDG	A5154	A5154	A5165	A5165
<hr/>				
Dry Weight	15.78	7.43	7.11	6.93
Wet Weight	20.23	20.01	20.15	20.19
Sample Size Units	Grams	Grams	Grams	Grams
Matrix	Sediment	Sediment	Sediment	Sediment
% solid	78.0	37.1	35.3	34.3
% Lipid				
Reporting Units	ng/g	ng/g	ng/g	ng/g
Calculation Basis (dry/wet)	Dry	Dry	Dry	Dry
<hr/>				
QC Batch ID	M2884	M2884	M2884	M2884
Method	GCMS	GCMS	GCMS	GCMS
Collection Date	05/02/00	05/02/00	05/08/00	05/08/00
Receive Date	05/04/00	05/04/00	05/10/00	05/10/00
Extraction Date	05/16/00	05/16/00	05/16/00	05/16/00
Analysis Date	05/27/00	05/27/00	05/27/00	05/28/00
<hr/>				
Surrogate Compounds	%Recovery	%Recovery	%Recovery	%Recovery
d8-Naphthalene	119.0	80.9	42.8	57.8
d10-Acenaphthene	118.4	79.0	67.5	84.5
d10-Phenanthrene	115.8	87.9	65.6	87.8
d12-Chrysene	120.3	81.3	85.7	109.7
d12-Perylene	89.9	83.4	110.6	108.4
<hr/>				
Total PAHs	Concentration	Concentration	Concentration	Concentration
Total PAHs with Perylene	330.1	679.6	13119.5	12720.4
Total PAHs without Perylene	323.4	628.2	12966.2	12596.4
Total NS&T PAHs	226.7	413.0	7652.9	6998.8

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

Virginia Department of Environmental Quality

Client Sample ID	LRS	PRM	SB-C-01	SB-D-01
Sample Descriptor				
Original Sample				
GERG ID	C34980	C34981	C35437	C35438
Sample Type	SAMP	SAMP	SAMP	SAMP
SDG	A5154	A5154	A5165	A5165

PAH Compounds	Concentration	Concentration	Concentration	Concentration
Naphthalene	1.8	14.3	307.9	117.1
C1-Naphthalenes	3.9	14.7	204.1	62.0
C2-Naphthalenes	4.0	11.2	104.4	33.9
C3-Naphthalenes	3.6	5.9	77.2	38.5
C4-Naphthalenes	2.3	0.3	40.6	35.8
Biphenyl	0.7	4.5	29.4	11.3
Acenaphthylene	2.3	10.7	330.8	274.4
Acenaphthene	0.8	2.5	114.0	53.8
Fluorene	1.5	9.1	152.4	66.3
C1-Fluorenes	2.0	6.6	64.7	121.9
C2-Fluorenes	3.4	6.9	42.1	119.1
C3-Fluorenes	1.3	2.2	45.7	97.8
Phenanthrene	6.8	28.8	362.5	331.8
Anthracene	8.5	23.6	1172.5	774.4
C1-Phenanthrenes/Anthracenes	6.5	18.6	243.7	686.4
C2-Phenanthrenes/Anthracenes	5.8	10.7	185.5	486.4
C3-Phenanthrenes/Anthracenes	3.5	3.7	95.8	196.5
C4-Phenanthrenes/Anthracenes	1.8	0.7	10.9	39.2
Dibenzothiophene	0.8	2.8	31.6	19.4
C1-Dibenzothiophenes	1.2	3.1	21.2	53.9
C2-Dibenzothiophenes	1.3	2.6	25.1	55.5
C3-Dibenzothiophenes	2.5	1.1	31.8	42.1
Fluoranthene	77.1	63.5	1050.6	1277.1
Pyrene	69.2	56.9	1053.4	1215.9
C1-Fluoranthenes/Pyrenes	13.9	19.9	792.1	949.6
Benzo(a)anthracene	10.3	30.7	476.6	807.5
Chrysene	14.9	31.9	757.4	726.9
C1-Chrysenes	5.5	15.0	419.0	555.3
C2-Chrysenes	4.2	7.5	121.2	147.7
C3-Chrysenes	0.4	0.5	3.9	4.6
C4-Chrysenes	0.6	1.4	18.8	17.7
Benzo(b)fluoranthene	17.5	55.2	1247.4	814.8
Benzo(k)fluoranthene	4.1	15.5	361.5	253.6
Benzo(e)pyrene	8.3	25.8	596.9	382.7
Benzo(a)pyrene	10.1	34.3	858.3	701.6
Perylene	6.7	51.5	153.3	124.1
Indeno(1,2,3-c,d)pyrene	9.4	40.4	705.1	469.5
Dibenzo(a,h)anthracene	1.3	7.6	196.1	149.5
Benzo(g,h,i)perylene	10.3	37.6	614.4	405.1
2-Methylnaphthalene	2.8	9.6	136.1	40.7
1-Methylnaphthalene	1.1	5.1	68.0	21.4
2,6-Dimethylnaphthalene	2.6	6.9	43.8	12.7
1,6,7-Trimethylnaphthalene	1.0	3.1	19.9	11.8
1-Methylphenanthrene	2.2	6.5	123.5	184.4

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

Virginia Department of Environmental Quality

Client Sample ID	SB-E-02	EB-B-04	EB-C-02	SB-A-01
Sample Descriptor				
Original Sample				
GERG ID	C35439	C35440	C35441	C35442
Sample Type	SAMP	SAMP	SAMP	SAMP
SDG	A5165	A5165	A5165	A5165
<hr/>				
Dry Weight	12.61	7.48	9.62	7.24
Wet Weight	20.11	20.22	20.10	20.01
Sample Size Units	Grams	Grams	Grams	Grams
Matrix	Sediment	Sediment	Sediment	Sediment
% solid	62.7	37.0	47.9	36.2
% Lipid				
Reporting Units	ng/g	ng/g	ng/g	ng/g
Calculation Basis (dry/wet)	Dry	Dry	Dry	Dry
<hr/>				
QC Batch ID	M2884	M2884	M2884	M2884
Method	GCMS	GCMS	GCMS	GCMS
Collection Date	05/08/00	05/08/00	05/08/00	05/08/00
Receive Date	05/10/00	05/10/00	05/10/00	05/10/00
Extraction Date	05/16/00	05/16/00	05/16/00	05/16/00
Analysis Date	05/28/00	05/28/00	05/28/00	05/28/00
<hr/>				
Surrogate Compounds	%Recovery	%Recovery	%Recovery	%Recovery
d8-Naphthalene	109.1	58.5	79.0	59.0
d10-Acenaphthene	112.2	100.1	96.3	82.2
d10-Phenanthrene	109.2	78.4	88.3	83.0
d12-Chrysene	107.3	68.2	109.0	116.1
d12-Perylene	98.7	58.1	68.5	114.1
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Total PAHs	Concentration	Concentration	Concentration	Concentration
Total PAHs with Perylene	583.8	6446.6	7044.4	9853.1
Total PAHs without Perylene	553.9	6366.5	6904.1	9744.6
Total NS&T PAHs	317.8	3694.7	4564.7	5425.4

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

Virginia Department of Environmental Quality

Client Sample ID	SB-E-02	EB-B-04	EB-C-02	SB-A-01
Sample Descriptor				
Original Sample				
GERG ID	C35439	C35440	C35441	C35442
Sample Type	SAMP	SAMP	SAMP	SAMP
SDG	A5165	A5165	A5165	A5165

PAH Compounds	Concentration	Concentration	Concentration	Concentration
Naphthalene	5.2	213.8	79.3	144.9
C1-Naphthalenes	4.4	235.2	83.7	98.0
C2-Naphthalenes	3.6	181.4	56.3	67.3
C3-Naphthalenes	2.5	161.5	49.1	48.6
C4-Naphthalenes	0.2 J	82.3	27.3	22.1
Biphenyl	1.6	22.3	14.8	16.6
Acenaphthylene	15.3	57.0	56.7	265.2
Acenaphthene	1.9	78.3	57.1	49.2
Fluorene	4.0	89.5	99.8	78.3
C1-Fluorenes	2.3	52.3	40.4	55.2
C2-Fluorenes	2.2	64.7	38.6	45.8
C3-Fluorenes	0.3 J	40.5	35.0	71.5
Phenanthrene	9.6	338.3	396.3	216.0
Anthracene	37.1	232.7	276.0	906.9
C1-Phenanthrenes/Anthracenes	8.9	195.5	161.2	222.0
C2-Phenanthrenes/Anthracenes	6.7	116.9	101.2	158.8
C3-Phenanthrenes/Anthracenes	4.1	70.1	66.4	87.2
C4-Phenanthrenes/Anthracenes	0.8 J	7.0	3.8	36.6
Dibenzothiophene	1.1	31.0	35.7	15.7
C1-Dibenzothiophenes	1.8	34.8	27.0	26.3
C2-Dibenzothiophenes	1.7	38.6	33.3	23.4
C3-Dibenzothiophenes	1.6	23.8	35.9	33.9
Fluoranthene	41.7	616.4	1143.3	619.2
Pyrene	38.1	498.9	884.2	851.0
C1-Fluoranthenes/Pyrenes	24.0	165.1	274.9	688.2
Benzo(a)anthracene	26.6	252.4	261.7	433.1
Chrysene	30.1	328.0	385.8	604.6
C1-Chrysenes	16.9	144.3	137.1	343.5
C2-Chrysenes	5.2	94.2	50.8	104.6
C3-Chrysenes	0.3 J	3.0	4.3	6.3
C4-Chrysenes	1.3	9.6	13.0	28.9
Benzo(b)fluoranthene	69.7	461.6	513.8	904.7
Benzo(k)fluoranthene	21.3	149.5	145.9	217.1
Benzo(e)pyrene	34.3	230.0	253.7	446.6
Benzo(a)pyrene	40.3	301.4	332.6	640.5
Perylene	29.9	80.1	140.3	108.5
Indeno(1,2,3-c,d)pyrene	40.4	340.9	325.6	541.0
Dibenzo(a,h)anthracene	9.7	70.7	76.6	151.0
Benzo(g,h,i)perylene	37.3	333.3	326.2	475.1
2-Methylnaphthalene	2.8	151.5	56.6	67.5
1-Methylnaphthalene	1.6	83.7	27.1	30.5
2,6-Dimethylnaphthalene	2.1	60.3	32.9	29.1
1,6,7-Trimethylnaphthalene	0.9	39.7	16.4	14.2
1-Methylphenanthrene	1.2	46.4	46.7	31.9

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

Virginia Department of Environmental Quality

Client Sample ID	SB-D-02	SB-D-04
Sample Descriptor		
Original Sample		
GERG ID	C35443	C35444
Sample Type	SAMP	SAMP
SDG	A5165	A5165
<hr/>		
Dry Weight	9.40	13.56
Wet Weight	20.19	20.05
Sample Size Units	Grams	Grams
Matrix	Sediment	Sediment
% solid	46.5	67.5
% Lipid		
Reporting Units	ng/g	ng/g
Calculation Basis (dry/wet)	Dry	Dry
<hr/>		
QC Batch ID	M2884	M2884
Method	GCMS	GCMS
Collection Date	05/08/00	05/08/00
Receive Date	05/10/00	05/10/00
Extraction Date	05/16/00	05/16/00
Analysis Date	05/28/00	05/28/00
<hr/>		
Surrogate Compounds	%Recovery	%Recovery
d8-Naphthalene	65.4	44.5
d10-Acenaphthene	104.4	108.4
d10-Phenanthrene	111.9	114.5
d12-Chrysene	102.6	116.7
d12-Perylene	120.1	Q 112.6
<hr/>		
Total PAHs	Concentration	Concentration
Total PAHs with Perylene	9569.7	3049.2
Total PAHs without Perylene	9401.6	2991.0
Total NS&T PAHs	5836.0	1689.4

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

Virginia Department of Environmental Quality

Client Sample ID	SB-D-02	SB-D-04
Sample Descriptor		
Original Sample		
GERG ID	C35443	C35444
Sample Type	SAMP	SAMP
SDG	A5165	A5165

PAH Compounds	Concentration	Concentration
Naphthalene	57.5	17.4
C1-Naphthalenes	80.3	46.7
C2-Naphthalenes	57.5	38.3
C3-Naphthalenes	45.1	25.6
C4-Naphthalenes	29.8	12.2
Biphenyl	10.9	5.4
Acenaphthylene	200.4	84.9
Acenaphthene	83.3	16.9
Fluorene	120.0	23.2
C1-Fluorenes	98.5	14.0
C2-Fluorenes	40.6	11.8
C3-Fluorenes	30.0	3.1
Phenanthrene	321.7	89.7
Anthracene	677.1	213.1
C1-Phenanthrenes/Anthracenes	185.6	53.6
C2-Phenanthrenes/Anthracenes	131.6	35.1
C3-Phenanthrenes/Anthracenes	77.6	17.9
C4-Phenanthrenes/Anthracenes	11.4	2.5
Dibenzothiophene	27.9	5.6
C1-Dibenzothiophenes	17.9	5.0
C2-Dibenzothiophenes	19.2	4.1
C3-Dibenzothiophenes	18.4	4.9
Fluoranthene	1137.7	213.2
Pyrene	862.7	218.6
C1-Fluoranthenes/Pyrenes	494.0	126.2
Benzo(a)anthracene	617.6	144.6
Chrysene	594.2	146.6
C1-Chrysenes	300.3	66.1
C2-Chrysenes	80.9	6.6
C3-Chrysenes	2.8	1.1
C4-Chrysenes	21.3	7.0
Benzo(b)fluoranthene	820.3	346.2
Benzo(k)fluoranthene	264.2	108.5
Benzo(e)pyrene	375.4	168.0
Benzo(a)pyrene	556.0	252.1
Perylene	168.1	58.2
Indeno(1,2,3-c,d)pyrene	420.5	210.0
Dibenzo(a,h)anthracene	127.5	56.7
Benzo(g,h,i)perylene	383.8	188.7
2-Methylnaphthalene	53.5	30.7
1-Methylnaphthalene	26.8	16.0
2,6-Dimethylnaphthalene	20.6	8.8
1,6,7-Trimethylnaphthalene	12.7	4.2
1-Methylphenanthrene	25.2	10.2

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

Virginia Department of Environmental Quality

Client Sample ID		SB-D-04	SB-D-04
Sample Descriptor	Proc Blank		Duplicate
Original Sample			C35444
GERG ID	Q18644	C35444	Q18648
Sample Type	BLANK	SAMP	DUP
SDG		A5165	A5165

Dry Weight	1.00	13.56	13.30
Wet Weight		20.05	20.05
Sample Size Units	Grams	Grams	Grams
Matrix		Sediment	Sediment
% solid		67.6	66.3
% Lipid			
Reporting Units	ng/g	ng/g	ng/g
Calculation Basis (dry/wet)	Dry	Dry	Dry

QC Batch ID	M2884	M2884	M2884
Method	GCMS	GCMS	GCMS
Collection Date		05/08/00	05/08/00
Receive Date		05/10/00	05/10/00
Extraction Date	05/16/00	05/16/00	05/16/00
Analysis Date	05/27/00	05/28/00	05/27/00

Surrogate Compounds	% Recovery	% Recovery	% Recovery
d8-Naphthalene	121.0 Q	44.5	99.5
d10-Acenaphthene	109.7	108.4	103.4
d10-Phenanthrene	99.7	114.5	92.7
d12-Chrysene	85.3	116.7	99.3
d12-Perylene	66.5	112.6	84.7

Total PAHs	Concentration	Concentration	Concentration	%RPD
Total PAHs with Perylene	79.4	3049.2	3004.8	1.5
Total PAHs without Perylene	77.0	2991.0	2939.1	1.8
Total NS&T PAHs	56.2	1689.4	1626.6	3.8

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

Virginia Department of Environmental Quality

Client Sample ID		SB-D-04	SB-D-04
Sample Descriptor	Proc Blank		Duplicate
Original Sample			C35444
GERG ID	Q18644	C35444	Q18648
Sample Type	BLANK	SAMP	DUP
SDG		A5165	A5165

PAH Compounds	Concentration		Concentration	Concentration	%RPD		
Naphthalene	4.4	J	17.4	23.5	29.9		
C1-Naphthalenes	11.2	J	46.7	20.7	77.2	Q	
C2-Naphthalenes	8.8	J	38.3	12.0	104.8	Q	<10xMDL
C3-Naphthalenes	4.2	J	25.6	8.1	103.9	Q	<10xMDL
C4-Naphthalenes	1.3	J	12.2	5.8	71.6	Q	<10xMDL
Biphenyl	3.9	J	5.4	4.4	21.0		
Acenaphthylene	2.8	J	84.9	77.6	9.1		
Acenaphthene	3.1	J	16.9	13.3	23.5		
Fluorene	2.0	J	23.2	17.9	25.9		
C1-Fluorenes	0.6	J	14.0	11.7	18.2		<10xMDL
C2-Fluorenes	2.0	J	11.8	12.1	2.4		<10xMDL
C3-Fluorenes	1.3	J	3.1	3.4	9.3		<10xMDL
Phenanthrene	3.1	J	89.7	68.2	27.3		
Anthracene	1.5	J	213.1	209.8	1.6		
C1-Phenanthrenes/Anthracenes	1.2	J	53.6	51.4	4.3		
C2-Phenanthrenes/Anthracenes	0.6	J	35.1	32.9	6.4		
C3-Phenanthrenes/Anthracenes	0.6	J	17.9	19.7	9.4		
C4-Phenanthrenes/Anthracenes	0.6	J	2.5	1.8	34.5	Q	<10xMDL
Dibenzothiophene	0.7	J	5.6	4.9	12.9		
C1-Dibenzothiophenes	0.3	J	5.0	5.2	2.9		<10xMDL
C2-Dibenzothiophenes	0.3	J	4.1	7.0	52.3	Q	<10xMDL
C3-Dibenzothiophenes	0.4	J	4.9	5.1	5.4		<10xMDL
Fluoranthene	3.5	J	213.2	205.2	3.9		
Pyrene	4.4	J	218.6	215.7	1.3		
C1-Fluoranthenes/Pyrenes	0.4	J	126.2	146.8	15.1		
Benzo(a)anthracene	3.8	<3xMDL	144.6	147.6	2.0		
Chrysene	0.6	J	146.6	132.4	10.2		
C1-Chrysenes	0.3	J	66.1	73.8	11.1		
C2-Chrysenes	0.9	J	6.6	10.5	45.9	Q	<10xMDL
C3-Chrysenes	0.8	J	1.1	1.8	45.2	Q	<10xMDL
C4-Chrysenes	0.3	J	7.0	39.5	140.1	Q	<10xMDL
Benzo(b)fluoranthene	1.2	J	346.2	371.9	7.2		
Benzo(k)fluoranthene	1.0	J	108.5	92.7	15.7		
Benzo(e)pyrene	1.2	J	168.0	177.1	5.3		
Benzo(a)pyrene	0.8	J	252.1	256.0	1.5		
Perylene	2.5	J	58.2	65.7	12.2		
Indeno(1,2,3-c,d)pyrene	1.7	J	210.0	210.8	0.4		
Dibenzo(a,h)anthracene	1.0	J	56.7	54.9	3.2		
Benzo(g,h,i)perylene	0.4	J	188.7	186.5	1.2		
2-Methylnaphthalene	7.6	J	30.7	12.7	83.0	Q	
1-Methylnaphthalene	3.6	J	16.0	8.0	66.9	Q	
2,6-Dimethylnaphthalene	7.4	<3xMDL	8.8	5.8	40.4	Q	
1,6,7-Trimethylnaphthalene	1.6	J	4.2	3.2	26.6		<10xMDL
1-Methylphenanthrene	2.0	J	10.2	8.6	17.6		
				Average %RPD	27.5		

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

Virginia Department of Environmental Quality

Client Sample ID	SB-D-04	SB-D-04	SB-D-04
Sample Descriptor		Matrix Spike	MS Duplicate
Original Sample		C35444	C35444
GERG ID	C35444	Q18646	Q18647
Sample Type	SAMP	MS	MSD
SDG	A5165	A5165	A5165
<hr/>			
Dry Weight	13.56	13.01	13.50
Wet Weight	20.05	20.10	20.04
Sample Size Units	Grams	Grams	Grams
Matrix	Sediment	Sediment	Sediment
% solid	67.6	64.7	67.3
% Lipid			
Reporting Units	ng/g	%	%
Calculation Basis (dry/wet)	Dry	Dry	Dry
<hr/>			
QC Batch ID	M2884	M2884	M2884
Method	GCMS	GCMS	GCMS
Collection Date	05/08/00	05/08/00	05/08/00
Receive Date	05/10/00	05/10/00	05/10/00
Extraction Date	05/16/00	05/16/00	05/16/00
Analysis Date	05/28/00	05/27/00	05/27/00
<hr/>			
Surrogate Compounds	% Recovery	% Recovery	% Recovery
d8-Naphthalene	44.5	66.7	109.8
d10-Acenaphthene	108.4	77.6	124.1 Q
d10-Phenanthrene	114.5	73.3	92.5
d12-Chrysene	116.7	96.0	88.5
d12-Perylene	112.6	103.8	117.0
<hr/>			
Total PAHs	Concentration	Concentration	Concentration
Total PAHs with Perylene	3049.2	NA	NA
Total PAHs without Perylene	2991.0	NA	NA
Total NS&T PAHs	1689.4	NA	NA

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

Virginia Department of Environmental Quality

Client Sample ID	SB-D-04	SB-D-04	SB-D-04
Sample Descriptor		Matrix Spike	MS Duplicate
Original Sample		C35444	C35444
GERG ID	C35444	Q18646	Q18647
Sample Type	SAMP	MS	MSD
SDG	A5165	A5165	A5165

PAH Compounds	Concentration	% Recovery		% Recovery		%RPD	
Naphthalene	17.4	179.0	Q	1057.6	Q	142.1	Q
C1-Naphthalenes	46.7		NA		NA		
C2-Naphthalenes	38.3		NA		NA		
C3-Naphthalenes	25.6		NA		NA		
C4-Naphthalenes	12.2		NA		NA		
Biphenyl	5.4	69.7		273.6	Q	118.7	Q
Acenaphthylene	84.9	11.4	I	0.0	I		I
Acenaphthene	16.9	110.6		99.6		10.4	
Fluorene	23.2	52.3		20.4	Q	87.6	Q
C1-Fluorenes	14.0		NA		NA		
C2-Fluorenes	11.8		NA		NA		
C3-Fluorenes	3.1		NA		NA		
Phenanthrene	89.7	0.0	I	0.0	I		I
Anthracene	213.1	0.0	I	0.0	I		I
C1-Phenanthrenes/Anthracenes	53.6		NA		NA		
C2-Phenanthrenes/Anthracenes	35.1		NA		NA		
C3-Phenanthrenes/Anthracenes	17.9		NA		NA		
C4-Phenanthrenes/Anthracenes	2.5		NA		NA		
Dibenzothiophene	5.6	57.1		67.5		16.7	
C1-Dibenzothiophenes	5.0		NA		NA		
C2-Dibenzothiophenes	4.1		NA		NA		
C3-Dibenzothiophenes	4.9		NA		NA		
Fluoranthene	213.2	108.1	I	0.0	I		I
Pyrene	218.6	55.8	I	0.0	I		I
C1-Fluoranthenes/Pyrenes	126.2		NA		NA		
Benzo(a)anthracene	144.6	0.0	I	1022.2	I		I
Chrysene	146.6	0.0	I	611.3	I		I
C1-Chrysenes	66.1		NA		NA		
C2-Chrysenes	6.6		NA		NA		
C3-Chrysenes	1.1		NA		NA		
C4-Chrysenes	7.0		NA		NA		
Benzo(b)fluoranthene	346.2	0.0	I	1302.6	I		I
Benzo(k)fluoranthene	108.5	0.0	I	3314.3	I		I
Benzo(e)pyrene	168.0	0.0	I	120.7	I		I
Benzo(a)pyrene	252.1	0.0	I	0.0	I		I
Perylene	58.2	0.0	I	0.0	I		I
Indeno(1,2,3-c,d)pyrene	210.0	0.0	I	0.0	I		I
Dibenzo(a,h)anthracene	56.7	0.0	I	88.4	I		I
Benzo(g,h,i)perylene	188.7	0.0	I	23.2	I		I
2-Methylnaphthalene	30.7	0.0	Q	2589.6	Q	200.0	Q
1-Methylnaphthalene	16.0	5.3	Q	1306.2	Q	198.4	Q
2,6-Dimethylnaphthalene	8.8	45.5		733.7	Q	176.6	Q
1,6,7-Trimethylnaphthalene	4.2	68.6		99.3		36.5	Q
1-Methylphenanthrene	10.2	229.0	Q	251.4	Q	9.3	
	Average %Recovery	81.7		649.9		83.0	

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

Virginia Department of Environmental Quality

Client Sample ID
Sample Descriptor NSIT 1941a
Original Sample
GERG ID Q18645
Sample Type SRM
SDG

Dry Weight 1.52
Wet Weight
Sample Size Units Grams
Matrix Sediment
% solid
% Lipid
Reporting Units ng/g
Calculation Basis (dry/wet) Dry

QC Batch ID M2884
Method GCMS
Collection Date
Receive Date
Extraction Date 05/16/00
Analysis Date 05/27/00

Surrogate Compounds	% Recovery
d8-Naphthalene	100.4
d10-Acenaphthene	110.1
d10-Phenanthrene	108.3
d12-Chrysene	95.7
d12-Perylene	101.5

Total PAHs	Concentration
Total PAHs with Perylene	10338.7
Total PAHs without Perylene	10027.2
Total NS&T PAHs	6058.4

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

Virginia Department of Environmental Quality

Client Sample ID
 Sample Descriptor NSIT 1941a
 Original Sample
 GERG ID Q18645
 Sample Type SRM
 SDG

PAH Compounds	Concentration	SRM Qual	QC Acceptance Range			Certificate Values		C/NC
			-35% to +35%			Concentration	2σ	
Naphthalene	741.5	OK	565.5	to	1552.5	1010.0	140	
C1-Naphthalenes	439.3							
C2-Naphthalenes	213.0							
C3-Naphthalenes	140.9							
C4-Naphthalenes	64.9							
Biphenyl	81.1	Q	102.1	to	260.6	175	18	NC
Acenaphthylene	97.8	Q	15.0	to	68.9	37	14	NC
Acenaphthene	42.7	OK	20.2	to	68.9	41	10	NC
Fluorene	93.3	OK	57.7	to	143.0	97.3	8.6	C
C1-Fluorenes	69.0							
C2-Fluorenes	99.4							
C3-Fluorenes	80.0							
Phenanthrene	425.7	OK	302.9	to	691.2	489	23	C
Anthracene	325.7	Q	110.5	to	267.3	184	14	C
C1-Phenanthrenes/Anthracenes	282.8							
C2-Phenanthrenes/Anthracenes	122.4							
C3-Phenanthrenes/Anthracenes	66.5							
C4-Phenanthrenes/Anthracenes	45.1							
Dibenzothiophene	45.2	OK	39.4	to	107.2	70.0	9.4	NC
C1-Dibenzothiophenes	55.5							
C2-Dibenzothiophenes	75.8							
C3-Dibenzothiophenes	61.1							
Fluoranthene	730.6	OK	587.0	to	1429.7	981	78	C
Pyrene	587.3	OK	511.6	to	1127.3	811	24	C
C1-Fluoranthenes/Pyrenes	259.3							
Benzo(a)anthracene	389.7	OK	261.3	to	610.2	427	25	C
Chrysene	525.9	OK	362.1	to	846.5	592	35	NC ^a
C1-Chrysenes	74.4							
C2-Chrysenes	109.1							
C3-Chrysenes	5.9	J						
C4-Chrysenes	1.8	J						
Benzo(b)fluoranthene	912.3	OK	583.1	to	1432.4	979	82	NC ^b
Benzo(k)fluoranthene	242.3	OK	223.0	to	511.7	361	18	C
Benzo(e)pyrene	481.3	OK	321.1	to	826.2	553	59	C
Benzo(a)pyrene	532.6	OK	374.4	to	918.0	628	52	C
Perylene	311.5	OK	256.1	to	688.5	432	58	C
Indeno(1,2,3-c,d)pyrene	678.2	OK	278.9	to	773.6	501	72	C
Dibenzo(a,h)anthracene	145.2	OK	73.5	to	179.6	123	10	NC ^c
Benzo(g,h,i)perylene	682.7	OK	297.7	to	799.2	525	67	C
2-Methylnaphthalene	299.0							
1-Methylnaphthalene	140.3							
2,6-Dimethylnaphthalene	115.5							
1,6,7-Trimethylnaphthalene	49.0							
1-Methylphenanthrene	89.6	OK	48.1	to	172.8	101	27	NC

a Concentration is the sum of chrysene and triphenylene.

Average %Recovery

b Concentration is the sum of benzo[b]fluoranthene and benzo[j]fluoranthene.

c Concentration is the sum of dibenz[a,c]anthracene and dibenz[a,k]anthracene.

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

Virginia Department of Environmental Quality

Client Sample ID
 Sample Descriptor NSIT 1941a
 Original Sample
 GERG ID Q18645
 Sample Type SRM
 SDG

PAH Compounds	Concentration	SRM Qual	QC Acceptance Range			Certificate Values		C/NC
			-35% to +35%			Concentration	2σ	
Naphthalene	741.5	OK	565.5	to	1552.5	1010.0	140	
C1-Naphthalenes	439.3							
C2-Naphthalenes	213.0							
C3-Naphthalenes	140.9							
C4-Naphthalenes	64.9							
Biphenyl	81.1	Q	102.1	to	260.6	175	18	NC
Acenaphthylene	97.8	Q	15.0	to	68.9	37	14	NC
Acenaphthene	42.7	OK	20.2	to	68.9	41	10	NC
Fluorene	93.3	OK	57.7	to	143.0	97.3	8.6	C
C1-Fluorenes	69.0							
C2-Fluorenes	99.4							
C3-Fluorenes	80.0							
Phenanthrene	425.7	OK	302.9	to	691.2	489	23	C
Anthracene	325.7	Q	110.5	to	267.3	184	14	C
C1-Phenanthrenes/Anthracenes	282.8							
C2-Phenanthrenes/Anthracenes	122.4							
C3-Phenanthrenes/Anthracenes	66.5							
C4-Phenanthrenes/Anthracenes	45.1							
Dibenzothiophene	45.2	OK	39.4	to	107.2	70.0	9.4	NC
C1-Dibenzothiophenes	55.5							
C2-Dibenzothiophenes	75.8							
C3-Dibenzothiophenes	61.1							
Fluoranthene	730.6	OK	587.0	to	1429.7	981	78	C
Pyrene	587.3	OK	511.6	to	1127.3	811	24	C
C1-Fluoranthenes/Pyrenes	259.3							
Benzo(a)anthracene	389.7	OK	261.3	to	610.2	427	25	C
Chrysene	525.9	OK	362.1	to	846.5	592	35	NC ^a
C1-Chrysenes	74.4							
C2-Chrysenes	109.1							
C3-Chrysenes	5.9	J						
C4-Chrysenes	1.8	J						
Benzo(b)fluoranthene	912.3	OK	583.1	to	1432.4	979	82	NC ^b
Benzo(k)fluoranthene	242.3	OK	223.0	to	511.7	361	18	C
Benzo(e)pyrene	481.3	OK	321.1	to	826.2	553	59	C
Benzo(a)pyrene	532.6	OK	374.4	to	918.0	628	52	C
Perylene	311.5	OK	256.1	to	688.5	452	58	C
Indeno(1,2,3-c,d)pyrene	678.2	OK	278.9	to	773.6	501	72	C
Dibenzo(a,h)anthracene	145.2	OK	73.5	to	179.6	123	10	NC ^c
Benzo(g,h,i)perylene	682.7	OK	297.7	to	799.2	525	67	C
2-Methylnaphthalene	299.0							
1-Methylnaphthalene	140.3							
2,6-Dimethylnaphthalene	115.5							
1,6,7-Trimethylnaphthalene	49.0							
1-Methylphenanthrene	89.6	OK	48.1	to	172.8	101	27	NC

- a Concentration is the sum of chrysene and triphenylene.
 b Concentration is the sum of benzo[b]fluoranthene and benzo[j]fluoranthene.
 c Concentration is the sum of dibenz[a,c]anthracene and dibenz[a,h]anthracene.

Average %Recovery

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

Virginia Department of Environmental Quality

Client Sample ID		LF-B-01	LF-B-01	LF-B-01
Sample Descriptor	Proc Blank		Duplicate	
Original Sample			C34910	
GERG ID	Q18655	C34910	Q18659	C34910
Sample Type	BLANK	SAMP	DUP	SAMP
SDG		A5145	A5145	A5145

Dry Weight	10.00	6.96	7.03	6.96
Wet Weight		20.10	20.08	20.10
Sample Size Units	Grams	Grams	Grams	Grams
Matrix	Sediment	Sediment	Sediment	Sediment
% solid		34.6	35.0	34.6
% Lipid				
Reporting Units	ng/g	ng/g	ng/g	ng/g
Calculation Basis (dry/wet)	Dry	Dry	Dry	Dry

QC Batch ID	M2885	M2885	M2885	M2885
Method	GCMS	GCMS	GCMS	GCMS
Collection Date		05/01/00		05/01/00
Receive Date		05/02/00		05/02/00
Extraction Date	05/17/00	05/17/00	05/17/00	05/17/00
Analysis Date	05/29/00	05/30/00	05/29/00	05/30/00

Surrogate Compounds	% Recovery	% Recovery	% Recovery	% Recovery
d8-Naphthalene	48.6	44.0	42.5	44.0
d10-Acenaphthene	58.0	69.1	113.3	69.1
d10-Phenanthrene	50.8	90.5	99.8	90.5
d12-Chrysene	48.2	102.6	121.6	102.6
d12-Perylene	47.5	65.7	76.8	65.7

Total PAHs	Concentration	Concentration	Concentration	%RPD	Concentration
Total PAHs with Perylene	7.2	1569.9	2240.6	35.2 Q	1569.9
Total PAHs without Perylene	7.0	1549.2	2217.9	35.5 Q	1549.2
Total NS&T PAHs	5.1	976.9	1037.6	6.0	976.9

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

Virginia Department of Environmental Quality

Client Sample ID		LF-B-01	LF-B-01	LF-B-01
Sample Descriptor	Proc Blank		Duplicate	
Original Sample			C34910	
GERG ID	Q18655	C34910	Q18659	C34910
Sample Type	BLANK	SAMP	DUP	SAMP
SDG		A5145	A5145	A5145

PAH Compounds	Concentration		Concentration	Concentration	%RPD	Concentration
Naphthalene	0.8	J	22.1	25.9	16.1	<10xMDL 22.1
C1-Naphthalenes	0.4	J	37.0	175.6	130.4	Q 37.0
C2-Naphthalenes	0.1	J	31.9	408.9	171.0	Q 31.9
C3-Naphthalenes	0.0	J	22.0	257.3	168.5	Q <10xMDL 22.0
C4-Naphthalenes	0.1	J	8.5	67.2	155.2	Q <10xMDL 8.5
Biphenyl	0.5	<3xMDL	5.2	12.6	83.5	Q <10xMDL 5.2
Acenaphthylene	0.1	J	21.3	18.1	16.5	21.3
Acenaphthene	0.0	J	10.2	8.1	23.5	<10xMDL 10.2
Fluorene	0.1	J	20.8	26.7	24.8	20.8
C1-Fluorenes	0.0	J	13.4	13.5	0.7	<10xMDL 13.4
C2-Fluorenes	0.0	J	11.7	13.3	13.4	<10xMDL 11.7
C3-Fluorenes	0.1	J	10.5	10.9	3.6	<10xMDL 10.5
Phenanthrene	0.4	J	84.4	59.8	34.1	Q 84.4
Anthracene	0.4	J	69.6	56.4	21.0	69.6
C1-Phenanthrenes/Anthracenes	0.0	J	47.3	36.0	27.1	47.3
C2-Phenanthrenes/Anthracenes	0.0	J	27.5	31.4	13.4	27.5
C3-Phenanthrenes/Anthracenes	0.0	J	12.3	17.0	32.1	Q <10xMDL 12.3
C4-Phenanthrenes/Anthracenes	0.0	J	0.1	14.2		0.1 J
Dibenzothiophene	0.0	J	4.5	6.3	34.3	Q <10xMDL 4.5
C1-Dibenzothiophenes	0.0	J	4.9	8.4	53.3	Q <10xMDL 4.9
C2-Dibenzothiophenes	0.0	J	4.5	8.7	63.5	Q <10xMDL 4.5
C3-Dibenzothiophenes	0.0	J	3.0	5.2	53.1	Q <10xMDL 3.0
Fluoranthene	0.4	J	148.8	132.9	11.3	148.8
Pyrene	0.4	J	130.1	123.6	5.1	130.1
C1-Fluoranthenes/Pyrenes	0.1	J	72.3	60.9	17.1	72.3
Benzo(a)anthracene	0.3	<3xMDL	91.9	86.4	6.2	91.9
Chrysene	0.3	J	156.6	76.9	68.3	Q 156.6
C1-Chrysenes	0.0	J	47.4	47.8	0.8	47.4
C2-Chrysenes	0.0	J	11.9	24.8	70.5	Q <10xMDL 11.9
C3-Chrysenes	0.1	J	0.8	1.3		0.8 J
C4-Chrysenes	0.0	J	1.7	8.4	131.3	Q <10xMDL 1.7
Benzo(b)fluoranthene	0.5	<3xMDL	113.0	111.4	1.4	113.0
Benzo(k)fluoranthene	0.3	<3xMDL	41.6	27.5	40.7	Q 41.6
Benzo(e)pyrene	0.3	J	53.6	52.7	1.8	53.6
Benzo(a)pyrene	0.3	J	89.6	74.4	18.5	89.6
Perylene	0.2	J	20.7	22.7	9.2	<10xMDL 20.7
Indeno(1,2,3-c,d)pyrene	0.3	J	54.6	49.9	9.0	54.6
Dibenzo(a,h)anthracene	0.1	J	13.7	10.5	26.7	13.7
Benzo(g,h,i)perylene	0.3	J	49.0	47.0	4.2	49.0
2-Methylnaphthalene	0.3	J	23.6	112.1	130.4	Q 23.6
1-Methylnaphthalene	0.2	J	13.3	63.5	130.6	Q 13.3
2,6-Dimethylnaphthalene	0.1	J	8.9	79.7	159.9	Q <10xMDL 8.9
1,6,7-Trimethylnaphthalene	0.0	J	4.7	37.0	154.6	Q <10xMDL 4.7
1-Methylphenanthrene	0.1	J	13.7	12.8	7.2	13.7
Average %RPD					51.0	Average %Recovery

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

Virginia Department of Environmental Quality

Client Sample ID	LF-B-01	LF-B-01
Sample Descriptor	Matrix Spike	MS Duplicate
Original Sample	C34910	C34910
GERG ID	Q18657	Q18658
Sample Type	MS	MSD
SDG	A5145	A5145

Dry Weight	7.13	6.24
Wet Weight	20.00	20.07
Sample Size Units	Grams	Grams
Matrix	Sediment	Sediment
% solid	35.6	31.1
% Lipid		
Reporting Units	%	%
Calculation Basis (dry/wet)	Dry	Dry

QC Batch ID	M2885	M2885
Method	GCMS	GCMS
Collection Date		
Receive Date		
Extraction Date	05/17/00	05/17/00
Analysis Date	05/29/00	05/29/00

Surrogate Compounds	% Recovery	% Recovery
d8-Naphthalene	74.2	44.3
d10-Acenaphthene	96.6	78.3
d10-Phenanthrene	107.0	87.5
d12-Chrysene	119.6	94.5
d12-Perylene	109.5	81.8

Total PAHs	Concentration	Concentration
Total PAHs with Perylene	NA	NA
Total PAHs without Perylene	NA	NA
Total NS&T PAHs	NA	NA

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

Virginia Department of Environmental Quality

Client Sample ID	LF-B-01	LF-B-01
Sample Descriptor	Matrix Spike	MS Duplicate
Original Sample	C34910	C34910
GERG ID	Q18657	Q18658
Sample Type	MS	MSD
SDG	A5145	A5145

PAH Compounds	% Recovery		% Recovery		%RPD
Napthalene	162.6	Q	132.6	Q	20.3
C1-Napthalenes		NA		NA	
C2-Napthalenes		NA		NA	
C3-Napthalenes		NA		NA	
C4-Napthalenes		NA		NA	
Biphenyl	96.8		124.4	Q	25.0
Acenaphthylene	110.0		112.5		2.2
Acenaphthene	146.4	Q	159.0	Q	8.3
Fluorene	143.7	Q	147.2	Q	2.4
C1-Fluorenes		NA		NA	
C2-Fluorenes		NA		NA	
C3-Fluorenes		NA		NA	
Phenanthrene	58.1	I	42.3	I	I
Anthracene	217.9	I	212.0	I	I
C1-Phenanthrenes/Anthracenes		NA		NA	
C2-Phenanthrenes/Anthracenes		NA		NA	
C3-Phenanthrenes/Anthracenes		NA		NA	
C4-Phenanthrenes/Anthracenes		NA		NA	
Dibenzothiophene	81.1		70.8		13.5
C1-Dibenzothiophenes		NA		NA	
C2-Dibenzothiophenes		NA		NA	
C3-Dibenzothiophenes		NA		NA	
Fluoranthene	359.5	I	287.5	I	I
Pyrene	423.4	I	326.1	I	I
C1-Fluoranthenes/Pyrenes		NA		NA	
Benzo(a)anthracene	81.1	I	172.4	I	I
Chrysene	-323.7	I	-210.3	I	I
C1-Chrysenes		NA		NA	
C2-Chrysenes		NA		NA	
C3-Chrysenes		NA		NA	
C4-Chrysenes		NA		NA	
Benzo(b)fluoranthene	332.7	I	276.6	I	I
Benzo(k)fluoranthene	61.5		68.4		10.7
Benzo(e)pyrene	234.8	I	206.7	I	I
Benzo(a)pyrene	210.9	I	199.1	I	I
Perylene	227.2	I	246.4	I	I
Indeno(1,2,3-c,d)pyrene	174.3	I	171.3	I	I
Dibenzo(a,h)anthracene	89.0	I	87.6	I	I
Benzo(g,h,i)perylene	227.9	I	205.0	I	I
2-Methylnaphthalene	123.3	Q	190.3	Q	42.8 Q
1-Methylnaphthalene	78.6		129.4	Q	48.8 Q
2,6-Dimethylnaphthalene	109.6		91.1		18.5
1,6,7-Trimethylnaphthalene	98.3		94.1		4.4
1-Methylphenanthrene	109.1		89.7		19.5
	110.1		117.5		18.0

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

Virginia Department of Environmental Quality

Client Sample ID
Sample Descriptor NIST 1941A
Original Sample
GERG ID Q18656
Sample Type SRM
SDG

Dry Weight 1.00
Wet Weight
Sample Size Units Grams
Matrix Sediment
% solid
% Lipid
Reporting Units ng/g
Calculation Basis (dry/wet) Dry

QC Batch ID M2885
Method GCMS
Collection Date
Receive Date
Extraction Date 05/17/00
Analysis Date 05/29/00

Surrogate Compounds	% Recovery
d8-Naphthalene	66.2
d10-Acenaphthene	89.6
d10-Phenanthrene	106.9
d12-Chrysene	102.2
d12-Perylene	96.1

Total PAHs	Concentration
Total PAHs with Perylene	15096.5
Total PAHs without Perylene	14636.7
Total NS&T PAHs	8287.5

ND Not Detected
J <MDL
NA Not Applicable
Q Results Outside QC
I Interference
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Virginia Department of Environmental Quality

Client Sample ID
 Sample Descriptor NIST 1941A
 Original Sample
 GERG ID Q18656
 Sample Type SRM
 SDG

PAH Compounds	Concentration	SRM Qual	QC Acceptance Range		Certificate Values		C/NC
			-35% to	+35%	Concentration	2σ	
Naphthalene	1008.3	OK	565.5	to 1552.5	1010.0	140	
C1-Naphthalenes	716.6						
C2-Naphthalenes	247.5						
C3-Naphthalenes	211.0						
C4-Naphthalenes	104.6						
Biphenyl	112.7	OK	102.1	to 260.6	175	18	NC
Acenaphthylene	157.7	Q	15.0	to 68.9	37	14	NC
Acenaphthene	61.9	<10xMDL	20.2	to 68.9	41	10	NC
Fluorene	131.9	OK	57.7	to 143.0	97.3	8.6	C
C1-Fluorenes	312.0						
C2-Fluorenes	273.8						
C3-Fluorenes	408.1						
Phenanthrene	521.6	OK	302.9	to 691.2	489	23	C
Anthracene	436.8	Q	110.5	to 267.3	184	14	C
C1-Phenanthrenes/Anthracenes	290.6						
C2-Phenanthrenes/Anthracenes	263.4						
C3-Phenanthrenes/Anthracenes	171.0						
C4-Phenanthrenes/Anthracenes	152.1						
Dibenzothiophene	55.2	OK	39.4	to 107.2	70.0	9.4	NC
C1-Dibenzothiophenes	67.0						
C2-Dibenzothiophenes	100.5						
C3-Dibenzothiophenes	72.2						
Fluoranthene	988.7	OK	587.0	to 1429.7	981	78	C
Pyrene	784.3	OK	511.6	to 1127.3	811	24	C
C1-Fluoranthenes/Pyrenes	407.5						
Benzo(a)anthracene	554.2	OK	261.3	to 610.2	427	25	C
Chrysene	714.4	OK	362.1	to 846.5	592	35	NC ^a
C1-Chrysenes	464.1						
C2-Chrysenes	248.2						
C3-Chrysenes	20.4						
C4-Chrysenes	90.6						
Benzo(b)fluoranthene	1350.0	OK	583.1	to 1432.4	979	82	NC ^b
Benzo(k)fluoranthene	348.7	OK	223.0	to 511.7	361	18	C
Benzo(c)pyrene	643.6	OK	321.1	to 826.2	553	59	C
Benzo(a)pyrene	735.1	OK	374.4	to 918.0	628	52	C
Perylene	459.8	OK	256.1	to 688.5	452	58	C
Indeno(1,2,3-c,d)pyrene	666.8	OK	278.9	to 773.6	501	72	C
Dibenzo(a,h)anthracene	135.1	OK	73.5	to 179.6	123	10	NC ^c
Benzo(g,h,i)perylene	608.8	OK	297.7	to 799.2	525	67	C
2-Methylnaphthalene	497.6						
1-Methylnaphthalene	219.0						
2,6-Dimethylnaphthalene	166.8						
1,6,7-Trimethylnaphthalene	74.5						
1-Methylphenanthrene	116.0	OK	48.1	to 172.8	101	27	NC

a Concentration is the sum of chrysene and triphenylene.

b Concentration is the sum of benzo[b]fluoranthene and benzo[k]fluoranthene.

c Concentration is the sum of dibenz[a,c]anthracene and dibenz[a,h]anthracene.

Average %Rec

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