TDI - BROOKS INTERNATIONAL, INC.
B&B Laboratories, Inc.
College Station, TX

Arcadis
Mayflower AR Project
(Contract # B0086003.1302)
August 6, 2013 through August 8, 2013
Collection Dates

Determination of:
Polycyclic Aromatic Hydrocarbons (PAHs)
in Soil Samples

(QC Batch ENV 3088)

September 19, 2013

Technical Report 13-3108

Arcadis
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September 19, 2013

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Narrative

Technical Report 13-3108
Arcadis
Mayflower AR Project
(Contract # B0086003.1302)
Sediment/Soil Samples
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Introduction

B&B Laboratories received a shipment of one (1) ice chest that was sent by Daniel Mays of Arcadis using FedEx on August 6, 2013 and arrived on August 7, 2013 in College Station, Texas. The ice chest arrived sealed and in good condition.

Cooler Number	Temperature	Samples Received
1	0.6°C 0.3°C (Temp Blank)	Twenty-one (21) sediments or soils in 8oz or 4oz jars Two (2) 1L water samples in B/R amber bottles.

B&B Laboratories received a shipment of two (2) ice chests that were sent by Daniel Mays of Arcadis using FedEx on August 7, 2013 and arrived on August 8, 2013 in College Station, Texas. The ice chests arrived sealed and in good condition.

Cooler Number	Temperature	Samples Received
1	0.3°C 1.1°C (Temp Blank)	Thirteen (13) soils in 8oz or 4oz jars Three (3) 1L water samples in B/R amber bottles.
2	2.2°C 4.0°C (Temp Blank)	Twenty-seven (20) soils in 8oz or 4oz jars

The water and sediment/soil samples were collected between August 2, 2013 and August 8, 2013 in support of the Mayflower AR, Project (Arcadis-US Contract # B0086003.1302). The water samples were logged in according to B&B Laboratories standard operating procedure (B&B 1009) and were stored in an access-controlled refrigerator (4.0°C) prior to analysis. The sediment/soil samples were logged in according to B&B Laboratories standard operating procedure (B&B 1009) and were stored in an access-controlled freezer (<-16.0°C) prior to analysis. Selected soil samples were analyzed for Polycyclic Aromatic Hydrocarbons (PAH) by GC/MS-SIM, and selected biological markers by GC/MS-SIM.

The analytical results for PAH, selected hopane's, and TAS compounds in the soil samples are included in this report.

Analytical Methods

The standard operating procedures for PAH, hopanes, and TAS are listed in Table 1.

Table 1. Standard Operating Procedures for each analytical test.

Matrix	Extraction	PAH
Soil	B&B 1003	B&B 1006

Data Reporting

The reporting units for each analyte are listed in Table 2. Analytes that are detected below the method detection limit are qualified as "J". Analytes that are detected in the procedural blanks greater than 3X MDL are qualified with a "B". Analytical interference's that are detected in the sample are qualified with an "I". Analytes not detected in the samples are qualified with a "U". The RPD for analytes in duplicate samples that are <3X MDL are qualified with a "X". Spiked levels of analytes in matrix spikes that are <50% of the native levels are considered invalid spikes and are qualified with a "Y". Any QC result reported to be outside the corresponding QC criteria is discussed in the QA/QC variance section of this report. Data Qualifier Definitions are listed in Table 3. The method detection limits (MDL) for each analyte are listed in Table 4.

Table 2. Analytical reporting units.

Matrix	PAH
Soil	ng/dry g

Table 3. Data Qualifier Definitions.

Qualifier	Definition
B	Analyte detected in the procedural blank greater than 3X MDL
D	Diluted Value
E	Analyte concentration exceeds the calibration range of the GC/MS for that specific analysis.
I	Analytical interference
J	Analyte detected below the method detection limit
L	Loss due to matrix effect
NA	Not Applicable
U	Analyte not detected
X	Analyte <3X MDL
Y	Spiked level of analyte <50% of the native concentration
*	Outside QA limits, refer to narrative

Table 4. Method Detection Limits.

PAH Sample size Unit of measure	**Sediment MDLs** 15.0 g, 1ml final extract volume ng/g
cis/trans Decalin	0.132
C1-Decalins	0.263
C2-Decalins	0.263
C3-Decalins	0.263
C4-Decalins	0.263
Naphthalene	0.342
C1-Naphthalenes	1.03
C2-Naphthalenes	0.684
C3-Naphthalenes	0.684
C4-Naphthalenes	0.684
Benzothiophene	0.090
C1-Benzothiophenes	0.180
C2-Benzothiophenes	0.180
C3-Benzothiophenes	0.180
C4-Benzothiophenes	0.180
Biphenyl	0.294
Acenaphthylene	0.041
Acenaphthene	0.103
Dibenzofuran	0.204
Fluorene	0.183
C1-Fluorenes	0.367
C2-Fluorenes	0.367
C3-Fluorenes	0.367
Carbazole	0.150
Anthracene	0.115
Phenanthrene	0.208
C1-Phenanthrenes/Anthracenes	0.077
C2-Phenanthrenes/Anthracenes	0.285
C3-Phenanthrenes/Anthracenes	0.285
C4-Phenanthrenes/Anthracenes	0.285
Dibenzothiophene	0.116
C1-Dibenzothiophenes	0.064
C2-Dibenzothiophenes	0.232
C3-Dibenzothiophenes	0.232
C4-Dibenzothiophenes	0.232
Fluoranthene	0.333
Pyrene	0.136
C1-Fluoranthenes/Pyrenes	0.469
C2-Fluoranthenes/Pyrenes	0.469
C3-Fluoranthenes/Pyrenes	0.469
C4-Fluoranthenes/Pyrenes	0.469
Naphthobenzothiophene	0.128
C1-Naphthobenzothiophenes	0.256
C2-Naphthobenzothiophenes	0.256
C3-Naphthobenzothiophenes	0.256
C4-Naphthobenzothiophenes	0.256
Benz(a)anthracene	0.192
Chrysene/Triphenylene	0.116
C1-Chrysenes	0.232

PAH (continued) Sample size Unit of measure	Sediment MDLs 15.0 g, 1ml final extract volume ng/g
C2-Chrysenes	0.232
C3-Chrysenes	0.232
C4-Chrysenes	0.232
Benzo(b)fluoranthene	0.203
Benzo(k,j)fluoranthene	0.098
Benzo(a)fluoranthene	0.098
Benzo(e)pyrene	0.177
Benzo(a)pyrene	0.101
Perylene	1.27
Indeno(1,2,3-c,d)pyrene	0.050
Dibenzo(a,h)anthracene	0.064
Benzo(g,h,i)perylene	0.088
Individual Alkyl Isomers, TAS, and Hopane's	
2-Methylnaphthalene	1.30
1-Methylnaphthalene	0.546
2,6-Dimethylnaphthalene	0.261
1,6,7-Trimethylnaphthalene	0.127
1-Methylfluorene	0.191
4-Methyldibenzothiophene	0.091
2/3-Methyldibenzothiophene	0.091
1-Methyldibenzothiophene	0.091
3-Methylphenanthrene	0.097
2/4-Methylphenanthrene	0.097
2-Methylanthracene	0.097
9-Methylphenanthrene	0.097
1-Methylphenanthrene	0.097
3,6-Dimethylphenanthrene	0.110
Retene	0.231
2-Methylfluoranthene	0.223
Benzo(b)fluorene	0.125
C29-Hopane	0.575
18a-Oleanane	0.575
C30-Hopane	0.575
C20-TAS	0.575
C21-TAS	0.575
C26(20S)-TAS	0.575
C26(20R)/C27(20S)-TAS	0.575
C28(20S)-TAS	0.575
C27(20R)-TAS	0.575
C28(20R)-TAS	0.575

Quality Assurance/Quality Control – Soil

Polycyclic Aromatic Hydrocarbons (PAH)

The quality assurance/quality control procedure for this program included the analyses of a procedural blank, laboratory duplicate, a matrix spike/matrix spike duplicate, and a sediment SRM (NIST SRM 1941b) of no more than 19 samples. A standard reference oil (NIST 2779) was analyzed with this data set. Procedural blanks are used to determine that sample preparation and analyses are free of contaminants. The laboratory duplicate sample is used to determine the precision of the analysis. The matrix spike/matrix spike duplicate is used to measure accuracy and precision of the analysis. A SRM is a material for which a mean and confidence interval are certified for specific analytes. SRMs are selected based on matrix similarities as well as type and level of certified analytes. All SRMs are traceable to NIST. SRMs are used to verify analytical accuracy. All QC samples are subject to the identical preparation and analysis steps as samples. The QC criterion for blanks specifies no more than 2 analytes to exceed 3x target MDL unless analyte not detected in associated sample(s) or analyte concentration >10x blank value. The QC criteria for spike recoveries are between 40-120% (except for Biphenyl which is 40% to 140%, Decalin which is 25% to 120%, and Perylene which is 10-120%). The QC criterion for RPDs for valid spiked duplicates is ≤30%. The QC criterion for RPDs for valid laboratory duplicates is ≤30%. The QC criterion for the reference sediment 1941b SRM is ± 30% the NIST certified concentration range for those compounds whose concentration is greater than the laboratory method detection limit. The QC criterion for the reference oil 2779 SRM is ± 20% the NIST reference range for those compounds whose concentration is greater than the detection limit of10 ng/g.

Surrogate solutions equivalent to 5-10X the MDL are prepared for various hydrocarbon analyses. The appropriate surrogate solution is added to every sample including quality control samples. The data are corrected based on surrogate recovery up to 100%. The QC criteria for surrogate recoveries are between 40-120%, except d12-perylene whose recovery criteria are 10-120%. Refer to Table 5 for Method Performance Criteria for PAH.

Quality Assurance/Quality Control Variances – Soil

Polycyclic Aromatic Hydrocarbons (PAH)

Initial Calibration (Six Point)

Observation

- No variances were observed.

Initial Calibration Verification

Observation

- No variances were observed.

Mass Discrimination Ratio

Observation

- No variances were observed.

Internal Standard Area Response

Observation

- No variances were observed.

Continuing Calibration Checks

Observation

- No variances were observed.

Surrogate Recoveries

Observation

- d12-Perylene was detected outside of the QC% recovery limits of 10 to 120% in thirteen (13) client submitted samples and three (3) internal QC samples (which used client submitted samples; MS, MSD, and Duplicate).

Comment

- The recovery of this surrogate outside the QC limits is due to a matrix effect and is qualified with an "L" when appropriate.

Procedural Blank

Observation

- No variances were observed.

Matrix Spike/Matrix Spike Duplicate

Observation

- Perylene was detected outside of the QC %recovery limits of 10% to 120% in ENV3088C MS (SO-DA-017 (0-0.5) MS)). Benzo(a)pyrene and perylene were detected outside of the QC %recovery limits of 40% to 120% for benzo(a)pyrene and 10-120% for perylene in ENV3088D MSD (SO-DA-017 (0-0.5) MSD)).

- Phenanthrene, Fluoranthene, Pyrene, Chrysene/Triphenylene, Benzo(b)fluoranthene, Benzo(e)pyrene, and Benzo(g,h,i)perylene were detected outside of the laboratory QC recovery limits of 40 to 120% in ENV3088C MS (SO-DA-017 (0-0.5) MS)) and ENV3088D MSD (SO-DA-017 (0-0.5) MSD)).

Comment

- It is unknown as to why Perylene and Benzo(a)pyrene were detected outside of the laboratory QC recovery limits in the MS and/or the MSD internal QC samples.

- Phenanthrene, Fluoranthene, Pyrene, Chrysene/Triphenylene, Benzo(b)fluoranthene, Benzo(e)pyrene, and Benzo(g,h,i)perylene are invalid spikes due to high native concentrations of PAH in the samples. These peaks are qualified with a "Y".

Laboratory Duplicate

Observation

- No variances were observed.

Laboratory Control Standard (Solution, Sediment, and Petroleum)

Observation

- No variances were observed

Additional QC Batch Information

Observation

- The concentrations reported for the C1-Naphthalenes, C1-Dibenzothiophenes, and the C1-Phenanthrene/Anthracenes are calculated using the RRF of the parent compound (Naphthalene, Dibenzothiophene, and Phenanthrene). The concentration of these individual isomers is based on their RRF or an individual isomer from the same family.

- Labeling of d12- Perylene outside of the laboratory recovery limits is labeled with the "L" qualifier to indicate a loss due to matrix effect was made in consultation with Dr. Ted Sauer.

- Labeling of the three compounds (Benzo(a)pyrene, Perylene, and Benzo(g,h,i)perylene) outside of the laboratory recovery limits in the matrix spike sample (MS (SO-DA-017 (0-0.5) MS))) and the matrix spike sample (MSD (SO-DA-017 (0-0.5) MSD)) internal QC samples are labeled with the "L" qualifier to indicate a loss due to matrix effect was made in consultation with Dr. Ted Sauer. These peaks are also labeled in the original sample (SO-DA-017 (0-0.5).

Table 5. Method Performance Criteria for Extended PAH (Parent and Alkyl Homologs) and Related Compounds.

Element or Sample Type	Minimum Frequency	Measurement Quality Objective/ Acceptance Criteria	Corrective Action
Tuning	Prior to every sequence	Tune as specified in laboratory SOP	Resolve before proceeding.
Initial Calibration (All parent PAH and selected alkyl homologue PAH)	Prior to every sequence, or as needed based on continuing calibration/verification check.	6-point calibration curve over two orders of magnitude RPD ≤ 20%	Resolve before proceeding.
Continuing Calibration Verification (CCV)	Every 12 hours or 6-9 field samples	RPD ≤ 25%, No more than 2 analytes can be between 25% and 35% RPD.	Perform instrument maintenance. Re-analyze affected samples.
Initial Calibration Verification (Second Source or can be met if CCV is second source)	Per initial calibration	%R target analytes 80-120%	Resolve before proceeding.
SRM 1941b for sediment; SRM 1974c for tissue If available use SRMs for appropriate matrices	One per batch/every 20 field samples	Within ±30% of NIST 95% uncertainty range for analytes within the quantitation range. No more than 2 analytes may exceed this criterion.	Resolve before proceeding.
SRM 2779 Reference Oil	One per batch/every 20 field samples	Peak resolution >70% of 4/9-methylphenanthrene from 1-methylphenanthrene (m/z 192). Within ±20% of NIST 95% uncertainty range for analytes within the quantitation range. No more than 2 analytes may exceed this criterion.	Resolve before proceeding.
Matrix Spike/Matrix Spike Duplicate (Sediments, Soils, Tissues only)	One per batch/every 20 field samples	%R 40% - 120% for target analytes, except biphenyl (40-140%), decalin (25-120%) and perylene (10-120%); RPD ≤30%, average %R 60-120% for valid spikes. No more than 2 analytes may exceed 40-120% recovery or >35% RPD.	Evaluate impact to data, discuss with lab manager to determine if corrective action is needed.
Blank Spike/Blank Spike Duplicate	One per batch/every 20 field samples	See MS/MSD criteria above.	Evaluate impact to data, discuss with lab manager to determine if corrective action is needed.
Procedural Blank	One per batch/every 20 field samples	No more than 2 analytes to exceed 3x target MDL unless analyte not detected in associated sample(s) or analyte concentration >10x blank value	Resolve before proceeding. Lab manager may be contacted to resolve issues.
Laboratory Duplicate (not required for aqueous samples)	One per batch/every 20 field samples	RPD ≤ 30% if analyte concentration is 3x greater than the MDL, no more than 2 individual analyte RPDs with conc. 3x MDL can exceed 35%.	Evaluate impact to data, discuss with lab manager, and determine if corrective action is needed.

Table 5. Continued. Method Performance Criteria for Extended PAH (Parent and Alkyl Homologs) and Related Compounds.

Element or Sample Type	Minimum Frequency	Measurement Quality Objective/ Acceptance Criteria	Corrective Action
Mass Discrimination	Initial calibration and CCVs (mid-level)	Ratio for the concentration of Benzo[g,h,i]perylene to phenanthrene ≥0.70	Resolve before proceeding.
Internal Standard (IS)	Every sample	50% - 200% of the area of the IS in the associated calibration standard	Resolve before proceeding.
Surrogates	Every sample	%R 40-120% except d12-perylene which is 10-120%	Re-extract affected samples. Evaluate impact to data, discuss with lab manager, if corrective action is needed.

We appreciate the opportunity to serve your analytical needs and please do not hesitate to contact us should you have any questions.

Juan A. Ramirez
Environmental Laboratory Manager

Donell S. Frank
Project Quality Manager

Sample/Analyses Description

B&B Laboratories
Project J13034
Report 13-3108

Arcadis - Mayflower AR
Sample Inventory

Client Project #B0086003.1302

#	File Number	Client Identification	Collection Date	Received Date	Analysis	Matrix	Comments	B&B SDG	Client Project #
1	ARC1713	SO-DA-017 (0-0.5)	08/06/13	08/07/13	PAH	Soil	44 analytes	13080701	B0086003.1302
2	ARC1714	SO-DA-017 (0-0.5) MS	08/06/13	08/07/13	PAH	Soil	44 analytes, MS	13080701	B0086003.1302
3	ARC1718	SO-DA-018 (0.5-1.0)	08/06/13	08/07/13	PAH	Soil	44 analytes	13080701	B0086003.1302
4	ARC1721	SO-DA-017 (0-0.5) MSD	08/06/13	08/07/13	PAH	Soil	44 analytes, MSD	13080701	B0086003.1302
5	ARC1722	SO-DA-020 (0-0.5)	08/07/13	08/09/13	PAH	Soil	44 analytes	13080901	B0086003.1302
6	ARC1723	SO-DA-020 (0.5-1.0)	08/07/13	08/09/13	PAH	Soil	44 analytes	13080901	B0086003.1302
7	ARC1724	SO-DA-020 (1.0-1.5)	08/07/13	08/09/13	PAH	Soil	44 analytes	13080901	B0086003.1302
8	ARC1725	SO-DA-022 (0-0.5)	08/07/13	08/09/13	PAH	Soil	44 analytes	13080901	B0086003.1302
9	ARC1726	SO-DA-022 (0.5-1.0)	08/07/13	08/09/13	PAH	Soil	44 analytes	13080901	B0086003.1302
10	ARC1727	SO-DA-022 (1.0-1.5)	08/07/13	08/09/13	PAH	Soil	44 analytes	13080901	B0086003.1302
11	ARC1728	SO-DA-025 (0-0.5)	08/07/13	08/09/13	PAH	Soil	44 analytes	13080901	B0086003.1302
12	ARC1729	SO-DA-025 (0.5-1.0)	08/07/13	08/09/13	PAH	Soil	44 analytes	13080901	B0086003.1302
13	ARC1730	SO-DA-025 (1.0-1.5)	08/07/13	08/09/13	PAH	Soil	44 analytes	13080901	B0086003.1302
14	ARC1731	SO-DA-DUP-04-080713	08/07/13	08/09/13	PAH	Soil	44 analytes	13080901	B0086003.1302
15	ARC1732	SO-DA-032 (0-0.5)	08/07/13	08/09/13	PAH	Soil	44 analytes	13080901	B0086003.1302
16	ARC1733	SO-DA-032 (0.5-1.0)	08/07/13	08/09/13	PAH	Soil	44 analytes	13080901	B0086003.1302
17	ARC1734	SO-DA-032 (1.0-1.5)	08/07/13	08/09/13	PAH	Soil	44 analytes	13080901	B0086003.1302
18	ARC1743	SO-DA-021 (0-0.5)	08/08/13	08/09/13	PAH	Soil	44 analytes	13080901	B0086003.1302
19	ARC1744	SO-DA-021 (0.5-1.0)	08/08/13	08/09/13	PAH	Soil	44 analytes	13080901	B0086003.1302
20	ARC1745	SO-DA-021 (1.0-1.5)	08/08/13	08/09/13	PAH	Soil	44 analytes	13080901	B0086003.1302
21	ARC1749	SO-DA-023 (0-0.5)	08/08/13	08/09/13	PAH	Soil	44 analytes	13080901	B0086003.1302

Sediment Samples

Polycyclic Aromatic Hydrocarbon Concentration

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1713.D	ARC1718.D	ARC1722.D	ARC1723.D	ARC1724.D
Client Name	SO-DA-017 (0-0.5)	SO-DA-018 (0.5-1.0)	SO-DA-020 (0-0.5)	SO-DA-020 (0.5-1.0)	SO-DA-020 (1.0-1.5)
Matrix	Soil	Soil	Soil	Soil	Soil
Collection Date	08/06/13	08/06/13	08/07/13	08/07/13	08/07/13
Received Date	08/07/13	08/07/13	08/09/13	08/09/13	08/09/13
Extraction Date	08/20/13	08/20/13	08/20/13	08/20/13	08/20/13
Extraction Batch	ENV 3088	ENV 3088	ENV 3088	ENV 3088	ENV 3088
Date Acquired	8/31/13 18:02	8/31/13 20:21	8/31/13 21:31	8/31/13 22:41	8/31/13 23:50
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.0	15.0	15.0	15.1
% Dry	79	81	75	78	78
% Moisture	21	19	25	22	22
Dilution	1X	1X	1X	1X	1X

Target Compounds	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q
cis/trans Decalin	NA		NA		NA		NA		NA	
C1-Decalins	NA		NA		NA		NA		NA	
C2-Decalins	NA		NA		NA		NA		NA	
C3-Decalins	NA		NA		NA		NA		NA	
C4-Decalins	NA		NA		NA		NA		NA	
Naphthalene	6.01		1.36		3.52		1.29		0.652	
C1-Naphthalenes	7.95		1.61		4.05		1.16		0.739	J
C2-Naphthalenes	14.5		<0.7	U	7.27		2.10		1.63	
C3-Naphthalenes	16.4		<0.7	U	8.63		1.59		0.785	
C4-Naphthalenes	48.1		<0.7	U	13.3		1.99		<0.7	U
Benzothiophene	NA		NA		NA		NA		NA	
C1-Benzothiophenes	NA		NA		NA		NA		NA	
C2-Benzothiophenes	NA		NA		NA		NA		NA	
C3-Benzothiophenes	NA		NA		NA		NA		NA	
C4-Benzothiophenes	NA		NA		NA		NA		NA	
Biphenyl	NA		NA		NA		NA		NA	
Acenaphthylene	1.53		0.246		1.19		0.170		0.106	
Acenaphthene	0.758		0.552		0.266		0.119		0.096	J
Dibenzofuran	NA		NA		NA		NA		NA	
Fluorene	6.39		5.67		2.23		1.17		1.14	
C1-Fluorenes	<0.4	U	<0.4	U	3.21		0.714		0.653	
C2-Fluorenes	<0.4	U	<0.4	U	10.2		<0.4	U	<0.4	U
C3-Fluorenes	<0.4	U	<0.4	U	19.7		<0.4	U	<0.4	U
Carbazole	NA		NA		NA		NA		NA	
Anthracene	1.48	L	<0.1	U	1.29		0.115	J	0.083	J
Phenanthrene	20.5		23.3		12.2		3.64		4.47	
C1-Phenanthrenes/Anthracenes	21.1		8.46		15.5		<0.1	U	<0.1	U
C2-Phenanthrenes/Anthracenes	114		9.59		35.2		<0.3	U	<0.3	U
C3-Phenanthrenes/Anthracenes	271		15.2		55.0		<0.3	U	<0.3	U
C4-Phenanthrenes/Anthracenes	292		14.4		46.2		<0.3	U	<0.3	U
Dibenzothiophene	4.97		1.74		2.61		0.492		0.486	
C1-Dibenzothiophenes	15.1		2.05		8.03		0.704		0.586	
C2-Dibenzothiophenes	100		4.51		27.7		1.10		0.734	
C3-Dibenzothiophenes	280		13.2		57.0		2.48		0.957	
C4-Dibenzothiophenes	300		21.7		54.2		3.31		1.66	
Fluoranthene	14.9		3.78		11.3		1.06		0.951	
Pyrene	18.1		0.914		9.31		0.537		0.282	
C1-Fluoranthenes/Pyrenes	57.5		3.11		14.0		0.849		0.482	
C2-Fluoranthenes/Pyrenes	84.4		6.73		20.8		1.87		0.925	
C3-Fluoranthenes/Pyrenes	75.7		5.66		18.2		1.32		0.634	
C4-Fluoranthenes/Pyrenes	129		9.58		30.6		2.38		1.28	
Naphthobenzothiophene	NA		NA		NA		NA		NA	
C1-Naphthobenzothiophenes	NA		NA		NA		NA		NA	
C2-Naphthobenzothiophenes	NA		NA		NA		NA		NA	
C3-Naphthobenzothiophenes	NA		NA		NA		NA		NA	
C4-Naphthobenzothiophenes	NA		NA		NA		NA		NA	
Benz(a)anthracene	11.5		0.280		5.11		0.480		0.321	
Chrysene/Triphenylene	34.6		2.20		17.1		0.986		0.540	
C1-Chrysenes	82.0		7.74		22.3		1.56		<0.2	U
C2-Chrysenes	120		11.2		26.2		1.97		<0.2	U
C3-Chrysenes	75.0		8.06		17.3		1.91		<0.2	U
C4-Chrysenes	52.2		4.25		7.80		<0.2	U	<0.2	U
Benzo(b)fluoranthene	29.1		1.32		17.7		1.48		0.795	
Benzo(k,j)fluoranthene	5.4		0.417		4.57		0.316		0.174	
Benzo(a)fluoranthene	NA		NA		NA		NA		NA	
Benzo(e)pyrene	21.1		1.41		9.34		0.842		0.473	
Benzo(a)pyrene	5.84	L	0.288		2.57		0.109		0.078	J
Perylene	1.55	L	<1.3	U	<1.3	U	<1.3	U	<1.3	U
Indeno(1,2,3-c,d)pyrene	7.43		0.396		5.05		0.483		0.188	
Dibenzo(a,h)anthracene	3.90		0.258		1.83		0.163		0.082	
Benzo(g,h,i)perylene	13.4	L	0.780		5.33		0.393		0.148	
Total PAHs	2365		192		635		40.8		22.1	

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1713.D	ARC1718.D	ARC1722.D	ARC1723.D	ARC1724.D
Client Name	SO-DA-017 (0-0.5)	SO-DA-018 (0.5-1.0)	SO-DA-020 (0-0.5)	SO-DA-020 (0.5-1.0)	SO-DA-020 (1.0-1.5)
Matrix	Soil	Soil	Soil	Soil	Soil
Collection Date	08/06/13	08/06/13	08/07/13	08/07/13	08/07/13
Received Date	08/07/13	08/07/13	08/09/13	08/09/13	08/09/13
Extraction Date	08/20/13	08/20/13	08/20/13	08/20/13	08/20/13
Extraction Batch	ENV 3088	ENV 3088	ENV 3088	ENV 3088	ENV 3088
Date Acquired	8/31/13 18:02	8/31/13 20:21	8/31/13 21:31	8/31/13 22:41	8/31/13 23:50
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.0	15.0	15.0	15.1
% Dry	79	81	75	78	78
% Moisture	21	19	25	22	22
Dilution	1X	1X	1X	1X	1X

Target Compounds	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q
Individual Alkyl Isomers and Hopanes										
2-Methylnaphthalene	8.75		1.76		4.39		1.21	J	0.761	J
1-Methylnaphthalene	3.71		0.763		1.96		0.607		0.401	J
2,6-Dimethylnaphthalene	NA		NA		NA		NA		NA	
1,6,7-Trimethylnaphthalene	NA		NA		NA		NA		NA	
1-Methylfluorene	NA		NA		NA		NA		NA	
4-Methyldibenzothiophene	NA		NA		NA		NA		NA	
2/3-Methyldibenzothiophene	NA		NA		NA		NA		NA	
1-Methyldibenzothiophene	NA		NA		NA		NA		NA	
3-Methylphenanthrene	NA		NA		NA		NA		NA	
2-Methylphenanthrene	NA		NA		NA		NA		NA	
2-Methylanthracene	NA		NA		NA		NA		NA	
4/9-Methylphenanthrene	NA		NA		NA		NA		NA	
1-Methylphenanthrene	NA		NA		NA		NA		NA	
3,6-Dimethylphenanthrene	NA		NA		NA		NA		NA	
Retene	NA		NA		NA		NA		NA	
2-Methylfluoranthene	NA		NA		NA		NA		NA	
Benzo(b)fluorene	NA		NA		NA		NA		NA	
C29-Hopane	NA		NA		NA		NA		NA	
18a-Oleanane	NA		NA		NA		NA		NA	
C30-Hopane	NA		NA		NA		NA		NA	
C20-TAS	NA		NA		NA		NA		NA	
C21-TAS	NA		NA		NA		NA		NA	
C26(20S)-TAS	NA		NA		NA		NA		NA	
C26(20R)/C27(20S)-TAS	NA		NA		NA		NA		NA	
C28(20S)-TAS	NA		NA		NA		NA		NA	
C27(20R)-TAS	NA		NA		NA		NA		NA	
C28(20R)-TAS	NA		NA		NA		NA		NA	
Surrogate Recovery										
Naphthalene-d8	95		77		74		72		74	
Acenaphthene-d10	84		80		80		74		59	
Phenanthrene-d10	94		89		92		85		92	
Chrysene-d12	103		95		104		92		94	
Perylene-d12	6	L	1	L	2	L	0	L	0	L

Sample Name	ARC1725.D	ARC1726.D	ARC1727.D	ARC1728.D	ARC1729.D
Client Name	SO-DA-022 (0-0.5)	SO-DA-022 (0.5-1.0)	SO-DA-022 (1.0-1.5)	SO-DA-025 (0-0.5)	SO-DA-025 (0.5-1.0)
Matrix	Soil	Soil	Soil	Soil	Soil
Collection Date	08/07/13	08/07/13	08/07/13	08/07/13	08/07/13
Received Date	08/09/13	08/09/13	08/09/13	08/09/13	08/09/13
Extraction Date	08/20/13	08/20/13	08/20/13	08/20/13	08/20/13
Extraction Batch	ENV 3088	ENV 3088	ENV 3088	ENV 3088	ENV 3088
Date Acquired	9/1/13 1:00	9/1/13 2:10	9/1/13 3:19	9/1/13 4:29	9/1/13 5:39
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.0	15.0	15.1	15.0	15.0
% Dry	85	86	91	78	79
% Moisture	15	14	9	22	21
Dilution	1X	1X	1X	1X	1X

Target Compounds	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q
cis/trans Decalin	NA		NA		NA		NA		NA	
C1-Decalins	NA		NA		NA		NA		NA	
C2-Decalins	NA		NA		NA		NA		NA	
C3-Decalins	NA		NA		NA		NA		NA	
C4-Decalins	NA		NA		NA		NA		NA	
Naphthalene	3.01		1.23		0.913		3.84		1.05	
C1-Naphthalenes	7.17		0.972	J	0.767	J	5.71		1.31	
C2-Naphthalenes	50.9		2.75		2.16		12.6		3.62	
C3-Naphthalenes	160		2.45		2.55		24.7		4.29	
C4-Naphthalenes	328		<0.7	U	<0.7	U	46.1		<0.7	U
Benzothiophene	NA		NA		NA		NA		NA	
C1-Benzothiophenes	NA		NA		NA		NA		NA	
C2-Benzothiophenes	NA		NA		NA		NA		NA	
C3-Benzothiophenes	NA		NA		NA		NA		NA	
C4-Benzothiophenes	NA		NA		NA		NA		NA	
Biphenyl	NA		NA		NA		NA		NA	
Acenaphthylene	1.99		0.131		0.101		0.824		<0	U
Acenaphthene	<0.1	U	0.191		0.183		0.304		<0.1	U
Dibenzofuran	NA		NA		NA		NA		NA	
Fluorene	4.45		<0.2	U	1.38		2.62		1.95	
C1-Fluorenes	35.3		0.866		0.881		5.53		1.03	
C2-Fluorenes	143		<0.4	U	<0.4	U	30.4		<0.4	U
C3-Fluorenes	281		<0.4	U	<0.4	U	71.0		<0.4	U
Carbazole	NA		NA		NA		NA		NA	
Anthracene	<0.1	U	<0.1	U	0.057	J	0.860		<0.1	U
Phenanthrene	32.1		4.06		3.32		15.5		5.50	
C1-Phenanthrenes/Anthracenes	143		<0.1	U	<0.1	U	38.4		<0.1	U
C2-Phenanthrenes/Anthracenes	446		<0.3	U	<0.3	U	103		<0.3	U
C3-Phenanthrenes/Anthracenes	780		<0.3	U	<0.3	U	153		<0.3	U
C4-Phenanthrenes/Anthracenes	679		<0.3	U	<0.3	U	103		<0.3	U
Dibenzothiophene	36.7		0.588		0.484		6.14		0.470	
C1-Dibenzothiophenes	176		<0.1	U	<0.1	U	32.9		0.536	
C2-Dibenzothiophenes	542		<0.2	U	<0.2	U	108		0.932	
C3-Dibenzothiophenes	954		<0.2	U	<0.2	U	183		0.954	
C4-Dibenzothiophenes	822		<0.2	U	<0.2	U	142		0.906	
Fluoranthene	13.2		0.861		0.738		8.18		0.675	
Pyrene	40.3		0.787		1.18		9.47		0.219	
C1-Fluoranthenes/Pyrenes	159		2.50		3.16		28.0		0.356	J
C2-Fluoranthenes/Pyrenes	261		5.32		6.13		45.3		<0.5	U
C3-Fluoranthenes/Pyrenes	216		4.57		5.37		43.6		<0.5	U
C4-Fluoranthenes/Pyrenes	238		6.88		<0.5	U	54.7		<0.5	U
Naphthobenzothiophene	NA		NA		NA		NA		NA	
C1-Naphthobenzothiophenes	NA		NA		NA		NA		NA	
C2-Naphthobenzothiophenes	NA		NA		NA		NA		NA	
C3-Naphthobenzothiophenes	NA		NA		NA		NA		NA	
C4-Naphthobenzothiophenes	NA		NA		NA		NA		NA	
Benz(a)anthracene	<0.2	U	0.294		0.442		2.73		0.109	J
Chrysene/Triphenylene	61.2		2.05		2.65		18.7		0.145	
C1-Chrysenes	162		5.82		<0.2	U	29.7		<0.2	U
C2-Chrysenes	223		5.44		<0.2	U	38.5		<0.2	U
C3-Chrysenes	163		4.57		<0.2	U	29.2		<0.2	U
C4-Chrysenes	115		3.19		<0.2	U	16.6		<0.2	U
Benzo(b)fluoranthene	23.0		0.989		1.03		11.0		<0.2	U
Benzo(k,j)fluoranthene	8.63		0.210		0.213		3.32		<0.1	U
Benzo(a)fluoranthene	NA		NA		NA		NA		NA	
Benzo(e)pyrene	34.1		1.10		1.46		8.48		<0.2	U
Benzo(a)pyrene	12.0		0.142		0.167		3.11		<0.1	U
Perylene	4.19		<1.3	U	<1.3	U	1.16	J	<1.3	U
Indeno(1,2,3-c,d)pyrene	6.05		0.292		0.395		2.81		<0.1	U
Dibenzo(a,h)anthracene	4.90		0.196		0.234		1.70		<0.1	U
Benzo(g,h,i)perylene	20.4		0.567		0.804		4.92		<0.1	U
Total PAHs	7389		59.0		36.8		1452		24.0	

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1725.D	ARC1726.D	ARC1727.D	ARC1728.D	ARC1729.D
Client Name	SO-DA-022 (0-0.5)	SO-DA-022 (0.5-1.0)	SO-DA-022 (1.0-1.5)	SO-DA-025 (0-0.5)	SO-DA-025 (0.5-1.0)
Matrix	Soil	Soil	Soil	Soil	Soil
Collection Date	08/07/13	08/07/13	08/07/13	08/07/13	08/07/13
Received Date	08/09/13	08/09/13	08/09/13	08/09/13	08/09/13
Extraction Date	08/20/13	08/20/13	08/20/13	08/20/13	08/20/13
Extraction Batch	ENV 3088	ENV 3088	ENV 3088	ENV 3088	ENV 3088
Date Acquired	9/1/13 1:00	9/1/13 2:10	9/1/13 3:19	9/1/13 4:29	9/1/13 5:39
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.0	15.0	15.1	15.0	15.0
% Dry	85	86	91	78	79
% Moisture	15	14	9	22	21
Dilution	1X	1X	1X	1X	1X

Target Compounds	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q
Individual Alkyl Isomers and Hopanes										
2-Methylnaphthalene	7.27		1.03	J	0.808	J	5.61		1.34	
1-Methylnaphthalene	4.02		0.501	J	0.397	J	3.39		0.717	
2,6-Dimethylnaphthalene	NA		NA		NA		NA		NA	
1,6,7-Trimethylnaphthalene	NA		NA		NA		NA		NA	
1-Methylfluorene	NA		NA		NA		NA		NA	
4-Methyldibenzothiophene	NA		NA		NA		NA		NA	
2/3-Methyldibenzothiophene	NA		NA		NA		NA		NA	
1-Methyldibenzothiophene	NA		NA		NA		NA		NA	
3-Methylphenanthrene	NA		NA		NA		NA		NA	
2-Methylphenanthrene	NA		NA		NA		NA		NA	
2-Methylanthracene	NA		NA		NA		NA		NA	
4/9-Methylphenanthrene	NA		NA		NA		NA		NA	
1-Methylphenanthrene	NA		NA		NA		NA		NA	
3,6-Dimethylphenanthrene	NA		NA		NA		NA		NA	
Retene	NA		NA		NA		NA		NA	
2-Methylfluoranthene	NA		NA		NA		NA		NA	
Benzo(b)fluorene	NA		NA		NA		NA		NA	
C29-Hopane	NA		NA		NA		NA		NA	
18a-Oleanane	NA		NA		NA		NA		NA	
C30-Hopane	NA		NA		NA		NA		NA	
C20-TAS	NA		NA		NA		NA		NA	
C21-TAS	NA		NA		NA		NA		NA	
C26(20S)-TAS	NA		NA		NA		NA		NA	
C26(20R)/C27(20S)-TAS	NA		NA		NA		NA		NA	
C28(20S)-TAS	NA		NA		NA		NA		NA	
C27(20R)-TAS	NA		NA		NA		NA		NA	
C28(20R)-TAS	NA		NA		NA		NA		NA	
Surrogate Recovery										
Naphthalene-d8	95		85		73		85		73	
Acenaphthene-d10	80		73		79		89		78	
Phenanthrene-d10	98		89		96		95		89	
Chrysene-d12	97		116		100		110		89	
Perylene-d12	15		1	L	1	L	11		0	L

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1730.D	ARC1731.D	ARC1732.D	ARC1733.D	ARC1734.D
Client Name	SO-DA-025 (1.0-1.5)	SO-DA-DUP-04-080713	SO-DA-032 (0-0.5)	SO-DA-032 (0.5-1.0)	SO-DA-032 (1.0-1.5)
Matrix	Soil	Soil	Soil	Soil	Soil
Collection Date	08/07/13	08/07/13	08/07/13	08/07/13	08/07/13
Received Date	08/09/13	08/09/13	08/09/13	08/09/13	08/09/13
Extraction Date	08/20/13	08/20/13	08/20/13	08/20/13	08/20/13
Extraction Batch	ENV 3088	ENV 3088	ENV 3088	ENV 3088	ENV 3088
Date Acquired	9/1/13 7:58	9/1/13 9:08	9/1/13 10:18	9/1/13 11:27	9/1/13 12:37
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.2	15.1	15.2	15.1	15.0
% Dry	79	73	74	78	76
% Moisture	21	27	26	22	24
Dilution	1X	1X	1X	1X	1X

Target Compounds	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q
cis/trans Decalin	NA		NA		NA		NA		NA	
C1-Decalins	NA		NA		NA		NA		NA	
C2-Decalins	NA		NA		NA		NA		NA	
C3-Decalins	NA		NA		NA		NA		NA	
C4-Decalins	NA		NA		NA		NA		NA	
Naphthalene	0.579		3.15		2.84		0.786		0.807	
C1-Naphthalenes	0.681	J	5.26		3.22		0.852	J	0.942	J
C2-Naphthalenes	1.98		31.2		7.61		2.44		2.75	
C3-Naphthalenes	2.89		115		15.8		4.75		3.35	
C4-Naphthalenes	3.38		314		30.3		4.24		3.38	
Benzothiophene	NA		NA		NA		NA		NA	
C1-Benzothiophenes	NA		NA		NA		NA		NA	
C2-Benzothiophenes	NA		NA		NA		NA		NA	
C3-Benzothiophenes	NA		NA		NA		NA		NA	
C4-Benzothiophenes	NA		NA		NA		NA		NA	
Biphenyl	NA		NA		NA		NA		NA	
Acenaphthylene	<0	U	<0	U	0.918		0.082		0.073	
Acenaphthene	<0.1	U	<0.1	U	0.322		0.078	J	0.085	J
Dibenzofuran	NA		NA		NA		NA		NA	
Fluorene	1.08		<0.2	U	3.20		1.07		1.20	
C1-Fluorenes	0.693		<0.4	U	5.41		0.653		0.770	
C2-Fluorenes	<0.4	U	<0.4	U	24.5		<0.4	U	<0.4	U
C3-Fluorenes	<0.4	U	<0.4	U	54.0		<0.4	U	<0.4	U
Carbazole	NA		NA		NA		NA		NA	
Anthracene	<0.1	U	<0.1	U	1.00		0.059	J	0.058	J
Phenanthrene	3.51		22.3		13.2		3.14		3.23	
C1-Phenanthrenes/Anthracenes	<0.1	U	98.0		26.1		<0.1	U	<0.1	U
C2-Phenanthrenes/Anthracenes	<0.3	U	369		64.0		<0.3	U	<0.3	U
C3-Phenanthrenes/Anthracenes	<0.3	U	798		110		<0.3	U	<0.3	U
C4-Phenanthrenes/Anthracenes	<0.3	U	556		82.9		<0.3	U	<0.3	U
Dibenzothiophene	0.384		23.4		4.26		0.354		0.385	
C1-Dibenzothiophenes	0.660		120		24.2		0.537		0.670	
C2-Dibenzothiophenes	1.43		460		75.5		0.832		1.23	
C3-Dibenzothiophenes	2.35		1013		117		0.944		1.56	
C4-Dibenzothiophenes	2.51		812		108		0.551		1.56	
Fluoranthene	0.572		13.6		6.57		0.505		0.447	
Pyrene	0.375		38.7		8.20		0.290		0.278	
C1-Fluoranthenes/Pyrenes	0.524		171		22.8		0.326	J	0.463	J
C2-Fluoranthenes/Pyrenes	0.814		248		36.1		<0.5	U	<0.5	U
C3-Fluoranthenes/Pyrenes	0.765		180		34.0		<0.5	U	<0.5	U
C4-Fluoranthenes/Pyrenes	1.36		218		42.1		<0.5	U	<0.5	U
Naphthobenzothiophene	NA		NA		NA		NA		NA	
C1-Naphthobenzothiophenes	NA		NA		NA		NA		NA	
C2-Naphthobenzothiophenes	NA		NA		NA		NA		NA	
C3-Naphthobenzothiophenes	NA		NA		NA		NA		NA	
C4-Naphthobenzothiophenes	NA		NA		NA		NA		NA	
Benz(a)anthracene	0.143	J	<0.2	U	2.04		0.125	J	<0.2	U
Chrysene/Triphenylene	0.262		<0.1	U	14.7		0.159		<0.1	U
C1-Chrysenes	<0.2	U	<0.2	U	25.3		<0.2	U	<0.2	U
C2-Chrysenes	<0.2	U	<0.2	U	30.6		<0.2	U	<0.2	U
C3-Chrysenes	<0.2	U	<0.2	U	24.6		<0.2	U	<0.2	U
C4-Chrysenes	<0.2	U	<0.2	U	13.9		<0.2	U	<0.2	U
Benzo(b)fluoranthene	<0.2	U	27.8		11.8		<0.2	U	<0.2	U
Benzo(k,j)fluoranthene	<0.1	U	11.1		3.68		<0.1	U	<0.1	U
Benzo(a)fluoranthene	NA		NA		NA		NA		NA	
Benzo(e)pyrene	<0.2	U	33.3		8.12		<0.2	U	<0.2	U
Benzo(a)pyrene	<0.1	U	11.7		3.22		<0.1	U	<0.1	U
Perylene	<1.3	U	<1.3	U	1.65		<1.3	U	<1.3	U
Indeno(1,2,3-c,d)pyrene	0.113		5.89		2.73		<0.1	U	<0.1	U
Dibenzo(a,h)anthracene	<0.1	U	4.71		1.52		<0.1	U	<0.1	U
Benzo(g,h,i)perylene	0.137		19.0		4.45		<0.1	U	<0.1	U
Total PAHs	27.2		5724		1073		22.8		23.2	

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1730.D	ARC1731.D	ARC1732.D	ARC1733.D	ARC1734.D
Client Name	SO-DA-025 (1.0-1.5)	SO-DA-DUP-04-080713	SO-DA-032 (0-0.5)	SO-DA-032 (0.5-1.0)	SO-DA-032 (1.0-1.5)
Matrix	Soil	Soil	Soil	Soil	Soil
Collection Date	08/07/13	08/07/13	08/07/13	08/07/13	08/07/13
Received Date	08/09/13	08/09/13	08/09/13	08/09/13	08/09/13
Extraction Date	08/20/13	08/20/13	08/20/13	08/20/13	08/20/13
Extraction Batch	ENV 3088	ENV 3088	ENV 3088	ENV 3088	ENV 3088
Date Acquired	9/1/13 7:58	9/1/13 9:08	9/1/13 10:18	9/1/13 11:27	9/1/13 12:37
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.2	15.1	15.2	15.1	15.0
% Dry	79	73	74	78	76
% Moisture	21	27	26	22	24
Dilution	1X	1X	1X	1X	1X

Target Compounds	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q
Individual Alkyl Isomers and Hopanes										
2-Methylnaphthalene	0.668	J	5.42		3.43		0.866	J	0.966	J
1-Methylnaphthalene	0.406	J	2.85		1.64		0.475	J	0.516	J
2,6-Dimethylnaphthalene	NA		NA		NA		NA		NA	
1,6,7-Trimethylnaphthalene	NA		NA		NA		NA		NA	
1-Methylfluorene	NA		NA		NA		NA		NA	
4-Methyldibenzothiophene	NA		NA		NA		NA		NA	
2/3-Methyldibenzothiophene	NA		NA		NA		NA		NA	
1-Methyldibenzothiophene	NA		NA		NA		NA		NA	
3-Methylphenanthrene	NA		NA		NA		NA		NA	
2-Methylphenanthrene	NA		NA		NA		NA		NA	
2-Methylanthracene	NA		NA		NA		NA		NA	
4/9-Methylphenanthrene	NA		NA		NA		NA		NA	
1-Methylphenanthrene	NA		NA		NA		NA		NA	
3,6-Dimethylphenanthrene	NA		NA		NA		NA		NA	
Retene	NA		NA		NA		NA		NA	
2-Methylfluoranthene	NA		NA		NA		NA		NA	
Benzo(b)fluorene	NA		NA		NA		NA		NA	
C29-Hopane	NA		NA		NA		NA		NA	
18a-Oleanane	NA		NA		NA		NA		NA	
C30-Hopane	NA		NA		NA		NA		NA	
C20-TAS	NA		NA		NA		NA		NA	
C21-TAS	NA		NA		NA		NA		NA	
C26(20S)-TAS	NA		NA		NA		NA		NA	
C26(20R)/C27(20S)-TAS	NA		NA		NA		NA		NA	
C28(20S)-TAS	NA		NA		NA		NA		NA	
C27(20R)-TAS	NA		NA		NA		NA		NA	
C28(20R)-TAS	NA		NA		NA		NA		NA	
Surrogate Recovery										
Naphthalene-d8	72		95		80		78		72	
Acenaphthene-d10	78		80		90		86		77	
Phenanthrene-d10	86		96		97		94		83	
Chrysene-d12	86		93		104		90		82	
Perylene-d12	0	L	14		11		2	L	8	L

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1743.D	ARC1744.D	ARC1745.D	ARC1749.D
Client Name	SO-DA-021 (0-0.5)	SO-DA-021 (0.5-1.0)	SO-DA-021 (1.0-1.5)	SO-DA-023 (0-0.5)
Matrix	Soil	Soil	Soil	Soil
Collection Date	08/08/13	08/08/13	08/08/13	08/08/13
Received Date	08/09/13	08/09/13	08/09/13	08/09/13
Extraction Date	08/20/13	08/20/13	08/20/13	08/20/13
Extraction Batch	ENV 3088	ENV 3088	ENV 3088	ENV 3088
Date Acquired	9/1/13 13:47	9/1/13 14:56	9/1/13 16:06	9/1/13 17:16
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.0	15.2	15.2	15.0
% Dry	81	79	78	76
% Moisture	19	21	22	24
Dilution	1X	1X	1X	1X

Target Compounds	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q
cis/trans Decalin	NA		NA		NA		NA	
C1-Decalins	NA		NA		NA		NA	
C2-Decalins	NA		NA		NA		NA	
C3-Decalins	NA		NA		NA		NA	
C4-Decalins	NA		NA		NA		NA	
Naphthalene	2.25		1.02		0.668		3.58	
C1-Naphthalenes	4.89		2.07		0.714	J	6.59	
C2-Naphthalenes	13.9		6.71		1.52		12.6	
C3-Naphthalenes	26.9		12.5		1.37		27.4	
C4-Naphthalenes	52.9		14.7		<0.7	U	93.2	
Benzothiophene	NA		NA		NA		NA	
C1-Benzothiophenes	NA		NA		NA		NA	
C2-Benzothiophenes	NA		NA		NA		NA	
C3-Benzothiophenes	NA		NA		NA		NA	
C4-Benzothiophenes	NA		NA		NA		NA	
Biphenyl	NA		NA		NA		NA	
Acenaphthylene	<0	U	0.193		<0	U	2.01	
Acenaphthene	<0.1	U	0.127		<0.1	U	0.976	
Dibenzofuran	NA		NA		NA		NA	
Fluorene	<0.2	U	1.89		1.17		5.40	
C1-Fluorenes	<0.4	U	3.16		0.790		21.7	
C2-Fluorenes	<0.4	U	9.44		<0.4	U	<0.4	U
C3-Fluorenes	<0.4	U	21.9		<0.4	U	<0.4	U
Carbazole	NA		NA		NA		NA	
Anthracene	<0.1	U	0.192		<0.1	U	<0.1	U
Phenanthrene	11.8		8.68		4.40		18.0	
C1-Phenanthrenes/Anthracenes	28.3		15.3		4.61		30.1	
C2-Phenanthrenes/Anthracenes	125		28.8		<0.3	U	174	
C3-Phenanthrenes/Anthracenes	278		39.7		<0.3	U	447	
C4-Phenanthrenes/Anthracenes	234		25.6		<0.3	U	436	
Dibenzothiophene	6.85		3.39		0.623		9.34	
C1-Dibenzothiophenes	25.4		14.3		1.46		26.4	
C2-Dibenzothiophenes	112		30.5		3.68		189	
C3-Dibenzothiophenes	270		41.7		6.70		529	
C4-Dibenzothiophenes	256		33.3		6.41		537	
Fluoranthene	8.49		2.53		0.767		12.8	
Pyrene	21.0		2.37		0.322		29.4	
C1-Fluoranthenes/Pyrenes	55.1		6.32		1.10		92.3	
C2-Fluoranthenes/Pyrenes	89.8		8.85		2.17		155	
C3-Fluoranthenes/Pyrenes	77.7		8.70		1.84		129	
C4-Fluoranthenes/Pyrenes	111		12.8		2.71		167	
Naphthobenzothiophene	NA		NA		NA		NA	
C1-Naphthobenzothiophenes	NA		NA		NA		NA	
C2-Naphthobenzothiophenes	NA		NA		NA		NA	
C3-Naphthobenzothiophenes	NA		NA		NA		NA	
C4-Naphthobenzothiophenes	NA		NA		NA		NA	
Benz(a)anthracene	4.42		0.713		<0.2	U	6.99	
Chrysene/Triphenylene	35.1		3.87		<0.1	U	47.2	
C1-Chrysenes	80.0		9.76		<0.2	U	114	
C2-Chrysenes	89.6		10.1		<0.2	U	146	
C3-Chrysenes	60.8		7.39		<0.2	U	114	
C4-Chrysenes	38.9		5.32		<0.2	U	79.7	
Benzo(b)fluoranthene	18.5		2.82		<0.2	U	27.9	
Benzo(k,j)fluoranthene	7.09		0.753		<0.1	U	12.4	
Benzo(a)fluoranthene	NA		NA		NA		NA	
Benzo(e)pyrene	21.7		2.14		<0.2	U	40.2	
Benzo(a)pyrene	6.24		0.566		<0.1	U	12.5	
Perylene	2.10		<1.3	U	<1.3	U	<1.3	U
Indeno(1,2,3-c,d)pyrene	4.60		0.560		<0.1	U	9.33	
Dibenzo(a,h)anthracene	3.13		0.310		<0.1	U	5.12	
Benzo(g,h,i)perylene	11.0		1.01		<0.1	U	22.9	
Total PAHs	2194		402		43.0		3792	

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1743.D	ARC1744.D	ARC1745.D	ARC1749.D
Client Name	SO-DA-021 (0-0.5)	SO-DA-021 (0.5-1.0)	SO-DA-021 (1.0-1.5)	SO-DA-023 (0-0.5)
Matrix	Soil	Soil	Soil	Soil
Collection Date	08/08/13	08/08/13	08/08/13	08/08/13
Received Date	08/09/13	08/09/13	08/09/13	08/09/13
Extraction Date	08/20/13	08/20/13	08/20/13	08/20/13
Extraction Batch	ENV 3088	ENV 3088	ENV 3088	ENV 3088
Date Acquired	9/1/13 13:47	9/1/13 14:56	9/1/13 16:06	9/1/13 17:16
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.0	15.2	15.2	15.0
% Dry	81	79	78	76
% Moisture	19	21	22	24
Dilution	1X	1X	1X	1X

Target Compounds	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q
Individual Alkyl Isomers and Hopanes								
2-Methylnaphthalene	5.48		2.20		0.759	J	7.56	
1-Methylnaphthalene	2.17		1.04		0.362	J	2.75	
2,6-Dimethylnaphthalene	NA		NA		NA		NA	
1,6,7-Trimethylnaphthalene	NA		NA		NA		NA	
1-Methylfluorene	NA		NA		NA		NA	
4-Methyldibenzothiophene	NA		NA		NA		NA	
2/3-Methyldibenzothiophene	NA		NA		NA		NA	
1-Methyldibenzothiophene	NA		NA		NA		NA	
3-Methylphenanthrene	NA		NA		NA		NA	
2-Methylphenanthrene	NA		NA		NA		NA	
2-Methylanthracene	NA		NA		NA		NA	
4/9-Methylphenanthrene	NA		NA		NA		NA	
1-Methylphenanthrene	NA		NA		NA		NA	
3,6-Dimethylphenanthrene	NA		NA		NA		NA	
Retene	NA		NA		NA		NA	
2-Methylfluoranthene	NA		NA		NA		NA	
Benzo(b)fluorene	NA		NA		NA		NA	
C29-Hopane	NA		NA		NA		NA	
18a-Oleanane	NA		NA		NA		NA	
C30-Hopane	NA		NA		NA		NA	
C20-TAS	NA		NA		NA		NA	
C21-TAS	NA		NA		NA		NA	
C26(20S)-TAS	NA		NA		NA		NA	
C26(20R)/C27(20S)-TAS	NA		NA		NA		NA	
C28(20S)-TAS	NA		NA		NA		NA	
C27(20R)-TAS	NA		NA		NA		NA	
C28(20R)-TAS	NA		NA		NA		NA	
Surrogate Recovery								
Naphthalene-d8	82		77		72		84	
Acenaphthene-d10	93		80		51		85	
Phenanthrene-d10	99		97		87		99	
Chrysene-d12	98		95		84		99	
Perylene-d12	26		1	L	0	L	46	

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Procedural Blank Report

Sample Name	ENV3088A.D
Client Name	Procedural Blank
Matrix	Sediment
Collection Date	NA
Received Date	NA
Extraction Date	08/20/13
Extraction Batch	ENV 3088
Date Acquired	8/31/13 12:14
Method	PAH-2012.M
Sample Dry Weight (g)	15.0
% Dry	NA
% Moisture	NA
Dilution	1X

Target Compounds	Su. Corrected Conc. (ng/dry g)	Q	3X MDL	Actual MDL
cis/trans Decalin	NA		0.395	0.132
C1-Decalins	NA		0.790	0.263
C2-Decalins	NA		0.790	0.263
C3-Decalins	NA		0.790	0.263
C4-Decalins	NA		0.790	0.263
Naphthalene	<0.3	U	1.03	0.342
C1-Naphthalenes	<1	U	3.09	1.03
C2-Naphthalenes	<0.7	U	2.05	0.684
C3-Naphthalenes	<0.7	U	2.05	0.684
C4-Naphthalenes	<0.7	U	2.05	0.684
Benzothiophene	NA		0.270	0.090
C1-Benzothiophenes	NA		0.540	0.180
C2-Benzothiophenes	NA		0.540	0.180
C3-Benzothiophenes	NA		0.540	0.180
C4-Benzothiophenes	NA		0.540	0.180
Biphenyl	NA		0.881	0.294
Acenaphthylene	<0	U	0.122	0.041
Acenaphthene	<0.1	U	0.308	0.103
Dibenzofuran	NA		0.613	0.204
Fluorene	0.062	J	0.550	0.183
C1-Fluorenes	<0.4	U	1.10	0.367
C2-Fluorenes	<0.4	U	1.10	0.367
C3-Fluorenes	<0.4	U	1.10	0.367
Carbazole	NA		0.449	0.150
Anthracene	<0.1	U	0.346	0.115
Phenanthrene	<0.2	U	0.624	0.208
C1-Phenanthrenes/Anthracenes	<0.1	U	0.232	0.077
C2-Phenanthrenes/Anthracenes	<0.3	U	0.855	0.285
C3-Phenanthrenes/Anthracenes	<0.3	U	0.855	0.285
C4-Phenanthrenes/Anthracenes	<0.3	U	0.855	0.285
Dibenzothiophene	<0.1	U	0.348	0.116
C1-Dibenzothiophenes	<0.1	U	0.191	0.064
C2-Dibenzothiophenes	<0.2	U	0.696	0.232
C3-Dibenzothiophenes	<0.2	U	0.696	0.232
C4-Dibenzothiophenes	<0.2	U	0.696	0.232
Fluoranthene	<0.3	U	1.00	0.333
Pyrene	<0.1	U	0.408	0.136
C1-Fluoranthenes/Pyrenes	<0.5	U	1.41	0.469
C2-Fluoranthenes/Pyrenes	<0.5	U	1.41	0.469
C3-Fluoranthenes/Pyrenes	<0.5	U	1.41	0.469
C4-Fluoranthenes/Pyrenes	<0.5	U	1.41	0.469
Naphthobenzothiophene	NA		0.383	0.128
C1-Naphthobenzothiophenes	NA		0.767	0.256
C2-Naphthobenzothiophenes	NA		0.767	0.256
C3-Naphthobenzothiophenes	NA		0.767	0.256
C4-Naphthobenzothiophenes	NA		0.767	0.256
Benz(a)anthracene	<0.2	U	0.577	0.192
Chrysene/Triphenylene	<0.1	U	0.347	0.116
C1-Chrysenes	<0.2	U	0.695	0.232
C2-Chrysenes	<0.2	U	0.695	0.232
C3-Chrysenes	<0.2	U	0.695	0.232
C4-Chrysenes	<0.2	U	0.695	0.232
Benzo(b)fluoranthene	<0.2	U	0.609	0.203
Benzo(k,j)fluoranthene	<0.1	U	0.294	0.098
Benzo(a)fluoranthene	NA		0.294	0.098
Benzo(e)pyrene	<0.2	U	0.530	0.177
Benzo(a)pyrene	<0.1	U	0.304	0.101
Perylene	<1.3	U	3.80	1.27
Indeno(1,2,3-c,d)pyrene	<0.1	U	0.151	0.050
Dibenzo(a,h)anthracene	<0.1	U	0.193	0.064
Benzo(g,h,i)perylene	<0.1	U	0.264	0.088
Total PAHs	0.062			

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Procedural Blank Report

Sample Name	ENV3088A.D
Client Name	Procedural Blank
Matrix	Sediment
Collection Date	NA
Received Date	NA
Extraction Date	08/20/13
Extraction Batch	ENV 3088
Date Acquired	8/31/13 12:14
Method	PAH-2012.M
Sample Dry Weight (g)	15.0
% Dry	NA
% Moisture	NA
Dilution	1X

Target Compounds	Su. Corrected Conc. (ng/dry g)	Q	3X MDL	Actual MDL
Individual Alkyl Isomers and Hopanes				
2-Methylnaphthalene	<1.3	U	3.89	1.30
1-Methylnaphthalene	<0.5	U	1.64	0.546
2,6-Dimethylnaphthalene	NA		0.782	0.261
1,6,7-Trimethylnaphthalene	NA		0.382	0.127
1-Methylfluorene	NA		0.574	0.191
4-Methyldibenzothiophene	NA		0.274	0.091
2/3-Methyldibenzothiophene	NA		0.274	0.091
1-Methyldibenzothiophene	NA		0.274	0.091
3-Methylphenanthrene	NA		0.291	0.097
2-Methylphenanthrene	NA		0.291	0.097
2-Methylanthracene	NA		0.291	0.097
4/9-Methylphenanthrene	NA		0.291	0.097
1-Methylphenanthrene	NA		0.291	0.097
3,6-Dimethylphenanthrene	NA		0.329	0.110
Retene	NA		0.694	0.231
2-Methylfluoranthene	NA		0.668	0.223
Benzo(b)fluorene	NA		0.374	0.125
C29-Hopane	NA		1.72	0.575
18a-Oleanane	NA		1.72	0.575
C30-Hopane	NA		1.72	0.575
C20-TAS	NA		1.72	0.575
C21-TAS	NA		1.72	0.575
C26(20S)-TAS	NA		1.72	0.575
C26(20R)/C27(20S)-TAS	NA		1.72	0.575
C28(20S)-TAS	NA		1.72	0.575
C27(20R)-TAS	NA		1.72	0.575
C28(20R)-TAS	NA		1.72	0.575

Surrogate Recovery	
Naphthalene-d8	87
Acenaphthene-d10	85
Phenanthrene-d10	86
Chrysene-d12	82
Perylene-d12	98

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Matrix Spike Report

Sample Name	ARC1713.D	ENV3088C.D	ENV3088D.D
Client Name	SO-DA-017 (0-0.5)	MS (SO-DA-017 (0-0.5) MS)	MSD (SO-DA-017 (0-0.5) MSD)
Matrix	Soil	Soil	Soil
Collection Date	08/06/13	08/06/13	08/06/13
Received Date	08/07/13	08/07/13	08/07/13
Extraction Date	08/20/13	08/20/13	08/20/13
Extraction Batch	ENV 3088	ENV 3088	ENV 3088
Date Acquired	8/31/13 18:02	8/31/13 14:33	8/31/13 15:43
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1	15.1
% Dry	79	79	79
% Moisture	21	21	21
Dilution	1X	1X	1X

Target Compounds	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Recovery (%)	Q	Q1	Su. Corrected Conc. (ng/dry g)	Q	Recovery (%)	Q	Q1	RPD (%)	Q	Spike Amount (ng)
cis/trans Decalin	NA		NA					NA							
C1-Decalins	NA		NA					NA							
C2-Decalins	NA		NA					NA							
C3-Decalins	NA		NA					NA							
C4-Decalins	NA		NA					NA							
Naphthalene	6.01		12.6		100			10.9		73			15		100
C1-Naphthalenes	7.95		NA					NA							
C2-Naphthalenes	14.5		NA					NA							
C3-Naphthalenes	16.4		NA					NA							
C4-Naphthalenes	48.1		NA					NA							
Benzothiophene	NA		NA					NA							
C1-Benzothiophenes	NA		NA					NA							
C2-Benzothiophenes	NA		NA					NA							
C3-Benzothiophenes	NA		NA					NA							
C4-Benzothiophenes	NA		NA					NA							
Biphenyl	NA		NA					NA							
Acenaphthylene	1.53		7.10		85			5.76		64			21		99.2
Acenaphthene	0.758		5.88		77			5.34		69			10		100
Dibenzofuran	NA		NA					NA							
Fluorene	6.39		14.2		118			12.9		97			10		100
C1-Fluorenes	<0.4	U	NA					NA							
C2-Fluorenes	<0.4	U	NA					NA							
C3-Fluorenes	<0.4	U	NA					NA							
Carbazole	NA		NA					NA							
Anthracene	1.48	L	6.25	L	72			5.08	L	54			21		100
Phenanthrene	20.5		29.5		136		Y	33.1		191		Y	11		99.1
C1-Phenanthrenes/Anthracenes	21.1		NA					NA							
C2-Phenanthrenes/Anthracenes	114		NA					NA							
C3-Phenanthrenes/Anthracenes	271		NA					NA							
C4-Phenanthrenes/Anthracenes	292		NA					NA							
Dibenzothiophene	4.97		12.3		113			12.6		117			2		98.6
C1-Dibenzothiophenes	15.1		NA					NA							
C2-Dibenzothiophenes	100		NA					NA							
C3-Dibenzothiophenes	280		NA					NA							
C4-Dibenzothiophenes	300		NA					NA							
Fluoranthene	14.9		28.3		202		Y	27.9		197		Y	1		100
Pyrene	18.1		21.3		49		Y	24.6		99		Y	14		100
C1-Fluoranthenes/Pyrenes	57.5		NA					NA							
C2-Fluoranthenes/Pyrenes	84.4		NA					NA							
C3-Fluoranthenes/Pyrenes	75.7		NA					NA							
C4-Fluoranthenes/Pyrenes	129		NA					NA							
Naphthobenzothiophene	NA		NA					NA							
C1-Naphthobenzothiophenes	NA		NA					NA							
C2-Naphthobenzothiophenes	NA		NA					NA							
C3-Naphthobenzothiophenes	NA		NA					NA							
C4-Naphthobenzothiophenes	NA		NA					NA							
Benz(a)anthracene	11.5		18.7		109			18.3		103			2		100
Chrysene/Triphenylene	34.6		47.0		187		Y	46.9		187		Y	0		99.4
C1-Chrysenes	82.0		NA					NA							
C2-Chrysenes	120		NA					NA							
C3-Chrysenes	75.0		NA					NA							
C4-Chrysenes	52.2		NA					NA							
Benzo(b)fluoranthene	29.1		47.7		279		Y	36.9		118		Y	25		100
Benzo(k,j)fluoranthene	5.4		8.9		53			9.5		62			6		100
Benzo(a)fluoranthene	NA		NA					NA							
Benzo(e)pyrene	21.1		32.6		174		Y	28.1		106		Y	15		100
Benzo(a)pyrene	5.84	L	8.89	L	46			7.15	L	20	*		22		100
Perylene	1.55	L	2.03	L	7	*		1.90	L	5	*		7		100
Indeno(1,2,3-c,d)pyrene	7.43		14.3		105			13.4		92			6		98.3
Dibenzo(a,h)anthracene	3.90		10.6		103			8.54		71			22		99.1
Benzo(g,h,i)perylene	13.4	L	23.3	L	150		Y	17.9	L	68		Y	26		99.1
Average % Recovery					113					93					

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Matrix Spike Report

Sample Name	ARC1713.D	ENV3088C.D	ENV3088D.D
Client Name	SO-DA-017 (0-0.5)	MS (SO-DA-017 (0-0.5) MS)	MSD (SO-DA-017 (0-0.5) MSD)
Matrix	Soil	Soil	Soil
Collection Date	08/06/13	08/06/13	08/06/13
Received Date	08/07/13	08/07/13	08/07/13
Extraction Date	08/20/13	08/20/13	08/20/13
Extraction Batch	ENV 3088	ENV 3088	ENV 3088
Date Acquired	8/31/13 18:02	8/31/13 14:33	8/31/13 15:43
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1	15.1
% Dry	79	79	79
% Moisture	21	21	21
Dilution	1X	1X	1X

Target Compounds	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Recovery (%)	Q	Q1	Su. Corrected Conc. (ng/dry g)	Q	Recovery (%)	Q	Q1	RPD (%)	Q	Spike Amount (ng)
Individual Alkyl Isomers and Hopanes															
2-Methylnaphthalene	8.75		16.4		116			13.9		78			16		100
1-Methylnaphthalene	3.71		10.5		103			9.06		81			15		100
2,6-Dimethylnaphthalene	NA		NA					NA							
1,6,7-Trimethylnaphthalene	NA		NA					NA							
1-Methylfluorene	NA		NA					NA							
4-Methyldibenzothiophene	NA		NA					NA							
2/3-Methyldibenzothiophene	NA		NA					NA							
1-Methyldibenzothiophene	NA		NA					NA							
3-Methylphenanthrene	NA		NA					NA							
2-Methylphenanthrene	NA		NA					NA							
2-Methylanthracene	NA		NA					NA							
4/9-Methylphenanthrene	NA		NA					NA							
1-Methylphenanthrene	NA		NA					NA							
3,6-Dimethylphenanthrene	NA		NA					NA							
Retene	NA		NA					NA							
2-Methylfluoranthene	NA		NA					NA							
Benzo(b)fluorene	NA		NA					NA							
C29-Hopane	NA		NA					NA							
18a-Oleanane	NA		NA					NA							
C30-Hopane	NA		NA					NA							
C20-TAS	NA		NA					NA							
C21-TAS	NA		NA					NA							
C26(20S)-TAS	NA		NA					NA							
C26(20R)/C27(20S)-TAS	NA		NA					NA							
C28(20S)-TAS	NA		NA					NA							
C27(20R)-TAS	NA		NA					NA							
C28(20R)-TAS	NA		NA					NA							
Surrogate Recovery															
Naphthalene-d8	95		99					106							
Acenaphthene-d10	84		89					94							
Phenanthrene-d10	94		80					94							
Chrysene-d12	103		112					119							
Perylene-d12	6	L	6	L				9	L						

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Laboratory Duplicate Report

Sample Name	ARC1733.D	ENV3088E.D
Client Name	SO-DA-032 (0.5-1.0)	Dupl. (SO-DA-032 (0.5-1.0))
Matrix	Soil	Soil
Collection Date	08/07/13	08/07/13
Received Date	08/09/13	08/09/13
Extraction Date	08/20/13	08/20/13
Extraction Batch	ENV 3088	ENV 3088
Date Acquired	9/1/13 11:27	8/31/13 16:53
Method	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1
% Dry	78	78
% Moisture	22	22
Dilution	1X	1X

Target Compounds	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	RPD %	Q	Q1	3X MDL	MDL
cis/trans Decalin	NA		NA					0.395	0.132
C1-Decalins	NA		NA					0.790	0.263
C2-Decalins	NA		NA					0.790	0.263
C3-Decalins	NA		NA					0.790	0.263
C4-Decalins	NA		NA					0.790	0.263
Naphthalene	0.786		0.867		10		X	1.03	0.342
C1-Naphthalenes	0.852	J	0.907	J	6		X	3.09	1.03
C2-Naphthalenes	2.44		2.96		19			2.05	0.684
C3-Naphthalenes	4.75		5.46		14			2.05	0.684
C4-Naphthalenes	4.24		3.76		12			2.05	0.684
Benzothiophene	NA		NA					0.270	0.090
C1-Benzothiophenes	NA		NA					0.540	0.180
C2-Benzothiophenes	NA		NA					0.540	0.180
C3-Benzothiophenes	NA		NA					0.540	0.180
C4-Benzothiophenes	NA		NA					0.540	0.180
Biphenyl	NA		NA					0.881	0.294
Acenaphthylene	0.082		0.087		6		X	0.122	0.041
Acenaphthene	0.078	J	0.076	J	3		X	0.308	0.103
Dibenzofuran	NA		NA					0.613	0.204
Fluorene	1.07		1.16		8			0.55	0.183
C1-Fluorenes	0.653		0.758		15		X	1.10	0.367
C2-Fluorenes	<0.4	U	<0.4	U				1.10	0.367
C3-Fluorenes	<0.4	U	<0.4	U				1.10	0.367
Carbazole	NA		NA					0.449	0.150
Anthracene	0.059	J	0.062	J	5		X	0.346	0.115
Phenanthrene	3.14		3.27		4			0.624	0.208
C1-Phenanthrenes/Anthracenes	<0.1	U	<0.1	U				0.232	0.077
C2-Phenanthrenes/Anthracenes	<0.3	U	<0.3	U				0.855	0.285
C3-Phenanthrenes/Anthracenes	<0.3	U	<0.3	U				0.855	0.285
C4-Phenanthrenes/Anthracenes	<0.3	U	<0.3	U				0.855	0.285
Dibenzothiophene	0.354		0.382		8			0.348	0.116
C1-Dibenzothiophenes	0.537		0.583		8			0.191	0.064
C2-Dibenzothiophenes	0.832		0.848		2			0.696	0.232
C3-Dibenzothiophenes	0.944		0.868		8			0.696	0.232
C4-Dibenzothiophenes	0.551		0.477		14		X	0.696	0.232
Fluoranthene	0.505		0.548		8		X	1.00	0.333
Pyrene	0.290		0.332		13		X	0.408	0.136
C1-Fluoranthenes/Pyrenes	0.326	J	0.306	J	6		X	1.41	0.469
C2-Fluoranthenes/Pyrenes	<0.5	U	<0.5	U				1.41	0.469
C3-Fluoranthenes/Pyrenes	<0.5	U	<0.5	U				1.41	0.469
C4-Fluoranthenes/Pyrenes	<0.5	U	<0.5	U				1.41	0.469
Naphthobenzothiophene	NA		NA					0.383	0.128
C1-Naphthobenzothiophenes	NA		NA					0.767	0.256
C2-Naphthobenzothiophenes	NA		NA					0.767	0.256
C3-Naphthobenzothiophenes	NA		NA					0.767	0.256
C4-Naphthobenzothiophenes	NA		NA					0.767	0.256
Benz(a)anthracene	0.125	J	0.161	J	26		X	0.577	0.192
Chrysene/Triphenylene	0.159		0.175		10		X	0.347	0.116
C1-Chrysenes	<0.2	U	<0.2	U				0.695	0.232
C2-Chrysenes	<0.2	U	<0.2	U				0.695	0.232
C3-Chrysenes	<0.2	U	<0.2	U				0.695	0.232
C4-Chrysenes	<0.2	U	<0.2	U				0.695	0.232
Benzo(b)fluoranthene	<0.2	U	<0.2	U				0.609	0.203
Benzo(k,j)fluoranthene	<0.1	U	<0.1	U				0.294	0.098
Benzo(a)fluoranthene	NA		NA					0.294	0.098
Benzo(e)pyrene	<0.2	U	<0.2	U				0.5302	0.1767
Benzo(a)pyrene	<0.1	U	<0.1	U				0.3039	0.1013
Perylene	<1.3	U	<1.3	U				3.8003	1.2668
Indeno(1,2,3-c,d)pyrene	<0.1	U	<0.1	U				0.1507	0.0502
Dibenzo(a,h)anthracene	<0.1	U	<0.1	U				0.193	0.064
Benzo(g,h,i)perylene	<0.1	U	<0.1	U				0.264	0.088
Total PAHs	22.8		24.0		5				

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Laboratory Duplicate Report

Sample Name	ARC1733.D	ENV3088E.D
Client Name	SO-DA-032 (0.5-1.0)	Dupl. (SO-DA-032 (0.5-1.0))
Matrix	Soil	Soil
Collection Date	08/07/13	08/07/13
Received Date	08/09/13	08/09/13
Extraction Date	08/20/13	08/20/13
Extraction Batch	ENV 3088	ENV 3088
Date Acquired	9/1/13 11:27	8/31/13 16:53
Method	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1
% Dry	78	78
% Moisture	22	22
Dilution	1X	1X

Target Compounds	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	RPD %	Q	Q1	3X MDL	MDL
Individual Alkyl Isomers and Hopanes									
2-Methylnaphthalene	0.866	J	0.947	J	9		X	3.89	1.30
1-Methylnaphthalene	0.475	J	0.478	J	1		X	1.64	0.546
2,6-Dimethylnaphthalene	NA		NA					0.782	0.261
1,6,7-Trimethylnaphthalene	NA		NA					0.382	0.127
1-Methylfluorene	NA		NA					0.574	0.191
4-Methyldibenzothiophene	NA		NA					0.274	0.091
2/3-Methyldibenzothiophene	NA		NA					0.274	0.091
1-Methyldibenzothiophene	NA		NA					0.274	0.091
3-Methylphenanthrene	NA		NA					0.291	0.097
2-Methylphenanthrene	NA		NA					0.291	0.097
2-Methylanthracene	NA		NA					0.291	0.097
4/9-Methylphenanthrene	NA		NA					0.291	0.097
1-Methylphenanthrene	NA		NA					0.291	0.097
3,6-Dimethylphenanthrene	NA		NA					0.329	0.110
Retene	NA		NA					0.694	0.231
2-Methylfluoranthene	NA		NA					0.668	0.223
Benzo(b)fluorene	NA		NA					0.374	0.125
C29-Hopane	NA		NA					1.72	0.575
18a-Oleanane	NA		NA					1.72	0.575
C30-Hopane	NA		NA					1.72	0.575
C20-TAS	NA		NA					1.72	0.575
C21-TAS	NA		NA					1.72	0.575
C26(20S)-TAS	NA		NA					1.72	0.575
C26(20R)/C27(20S)-TAS	NA		NA					1.72	0.575
C28(20S)-TAS	NA		NA					1.72	0.575
C27(20R)-TAS	NA		NA					1.72	0.575
C28(20R)-TAS	NA		NA					1.72	0.575
Surrogate Recovery									
Naphthalene-d8	78		73						
Acenaphthene-d10	86		82						
Phenanthrene-d10	94		84						
Chrysene-d12	90		93						
Perylene-d12	2	L	8	L					

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Standard Reference Material Report

Sample Name	ENV3088B.D
Client Name	SRM 1941b
Matrix	Sediment
Collection Date	NA
Received Date	NA
Extraction Date	08/20/13
Extraction Batch	ENV 3088
Date Acquired	8/31/13 13:23
Method	PAH-2012.M
Sample Dry Weight (g)	4.0
% Dry	98
% Moisture	2
Dilution	1X

Target Compounds	Su. Corrected Conc. (ng/dry g)	Q	RPD (%)	SRM 1941b Certified Conc. (ng/dry g)	-30% Certified Conc. (ng/dry g)	+30% Certified Conc. (ng/dry g)
cis/trans Decalin	47.5					
C1-Decalins	8.01					
C2-Decalins	16.4					
C3-Decalins	32.9					
C4-Decalins	48.3					
Naphthalene	745		13	848 ± 95	527	1226
C1-Naphthalenes	227					
C2-Naphthalenes	207					
C3-Naphthalenes	170					
C4-Naphthalenes	116					
Benzothiophene	29.8					
C1-Benzothiophenes	32.5					
C2-Benzothiophenes	20.8					
C3-Benzothiophenes	21.3					
C4-Benzothiophenes	14.2					
Biphenyl	70.8					
Acenaphthylene	70.5					
Acenaphthene	32.6					
Dibenzofuran	88.5					
Fluorene	52.9		47	85 ± 15	49.0	130
C1-Fluorenes	65.0					
C2-Fluorenes	189					
C3-Fluorenes	168					
Carbazole	20.1					
Anthracene	187		2	184 ± 18	116	263
Phenanthrene	426		5	406 ± 44	253	585
C1-Phenanthrenes/Anthracenes	294					
C2-Phenanthrenes/Anthracenes	324					
C3-Phenanthrenes/Anthracenes	267					
C4-Phenanthrenes/Anthracenes	206					
Dibenzothiophene	54.4					
C1-Dibenzothiophenes	80.3					
C2-Dibenzothiophenes	131					
C3-Dibenzothiophenes	141					
C4-Dibenzothiophenes	96.5					
Fluoranthene	759		15	651 ± 50	421	911
Pyrene	534		8	581 ± 39	379	806
C1-Fluoranthenes/Pyrenes	434					
C2-Fluoranthenes/Pyrenes	479					
C3-Fluoranthenes/Pyrenes	218					
C4-Fluoranthenes/Pyrenes	198					
Naphthobenzothiophene	191					
C1-Naphthobenzothiophenes	180					
C2-Naphthobenzothiophenes	182					
C3-Naphthobenzothiophenes	136					
C4-Naphthobenzothiophenes	73.2					
Benz(a)anthracene	419		22	335 ± 25	217	468
Chrysene/Triphenylene	466		15	399 ± 36	254	566
C1-Chrysenes	434					
C2-Chrysenes	236					
C3-Chrysenes	130					
C4-Chrysenes	68.8					
Benzo(b)fluoranthene	529		16	453 ± 21	302	616
Benzo(k,j)fluoranthene	328		30	442 ± 23	293	605
Benzo(a)fluoranthene	71.2					
Benzo(e)pyrene	297		9	325 ± 25	210	455
Benzo(a)pyrene	265		30	358 ± 17	239	488
Perylene	337		16	397 ± 45	246	575
Indeno(1,2,3-c,d)pyrene	279		20	341 ± 57	199	517
Dibenzo(a,h)anthracene	39.7		29	53 ± 10	30.1	81.9
Benzo(g,h,i)perylene	263		15	307 ± 45	183	458
Total PAHs	12248					

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Standard Reference Material Report

Sample Name	ENV3088B.D
Client Name	SRM 1941b
Matrix	Sediment
Collection Date	NA
Received Date	NA
Extraction Date	08/20/13
Extraction Batch	ENV 3088
Date Acquired	8/31/13 13:23
Method	PAH-2012.M
Sample Dry Weight (g)	4.0
% Dry	98
% Moisture	2
Dilution	1X

Target Compounds	Su. Corrected Conc. (ng/dry g)	Q	RPD (%)	SRM 1941b Certified Conc. (ng/dry g)	-30% Certified Conc. (ng/dry g)	+30% Certified Conc. (ng/dry g)
Individual Alkyl Isomers and Hopanes						
2-Methylnaphthalene	241					
1-Methylnaphthalene	115					
2,6-Dimethylnaphthalene	67.0					
1,6,7-Trimethylnaphthalene	22.6					
1-Methylfluorene	28.6					
4-Methyldibenzothiophene	44.7					
2/3-Methyldibenzothiophene	29.8					
1-Methyldibenzothiophene	12.5					
3-Methylphenanthrene	108		3	105 ± 13	64.4	153
2-Methylphenanthrene	110					
2-Methylanthracene	64.1					
4/9-Methylphenanthrene	64.4					
1-Methylphenanthrene	72.8		1	73.2 ± 5.9	47.1	103
3,6-Dimethylphenanthrene	28.2					
Retene	34.8					
2-Methylfluoranthene	78.4					
Benzo(b)fluorene	88.5					
C29-Hopane	261					
18a-Oleanane	42.4					
C30-Hopane	297					
C20-TAS	8.55					
C21-TAS	6.57					
C26(20S)-TAS	2.00	J				
C26(20R)/C27(20S)-TAS	7.87					
C28(20S)-TAS	1.43	J				
C27(20R)-TAS	6.51					
C28(20R)-TAS	26.5					

Surrogate Recovery	
Naphthalene-d8	62
Acenaphthene-d10	74
Phenanthrene-d10	73
Chrysene-d12	80
Perylene-d12	64

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Standard Reference Material Report

Sample Name	MS60145K.D
Client Name	AR-SRM2779-WK-4.0-002
Matrix	Gulf of Mexico Crude Oil
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3088
Date Acquired	8/31/13 9:26
Method	PAH-2012.M
Sample Weight (mg)	4.1

Target Compounds	Su. Corrected Conc. (ng/mg)	Q	Q1	RPD (%)	SRM 2779 Certified Value (ug/g)	-20% Certified Value (ug/g)	+20% Certified Value (ug/g)
cis/trans Decalin	734						
C1-Decalins	1006						
C2-Decalins	807						
C3-Decalins	834						
C4-Decalins	499						
Naphthalene	683			22	855 ± 46	647	1081
C1-Naphthalenes	1455						
C2-Naphthalenes	1760						
C3-Naphthalenes	1254						
C4-Naphthalenes	615						
Benzothiophene	8.20	J					
C1-Benzothiophenes	34.5						
C2-Benzothiophenes	31.9						
C3-Benzothiophenes	40.8						
C4-Benzothiophenes	30.7						
Biphenyl	156						
Acenaphthylene	9.44	J					
Acenaphthene	10.5						
Dibenzofuran	28.7						
Fluorene	115						
C1-Fluorenes	279						
C2-Fluorenes	406						
C3-Fluorenes	335						
Carbazole	4.52	J					
Anthracene	3.16	J		8	3.42 ± 0.59	2.26	4.81
Phenanthrene	221			15	258 ± 27	185	342
C1-Phenanthrenes/Anthracenes	488						
C2-Phenanthrenes/Anthracenes	539						
C3-Phenanthrenes/Anthracenes	407						
C4-Phenanthrenes/Anthracenes	243						
Dibenzothiophene	41.7			22	51.8 ± 2.1	39.8	64.7
C1-Dibenzothiophenes	127						
C2-Dibenzothiophenes	166						
C3-Dibenzothiophenes	138						
C4-Dibenzothiophenes	74.1						
Fluoranthene	3.26	J		29	4.36 ± 0.40	3.17	5.71
Pyrene	12.0			21	14.81 ± 0.39	11.5	18.2
C1-Fluoranthenes/Pyrenes	72.7						
C2-Fluoranthenes/Pyrenes	172						
C3-Fluoranthenes/Pyrenes	143						
C4-Fluoranthenes/Pyrenes	118						
Naphthobenzothiophene	41.8						
C1-Naphthobenzothiophenes	62.6						
C2-Naphthobenzothiophenes	92.2						
C3-Naphthobenzothiophenes	67.5						
C4-Naphthobenzothiophenes	31.2						
Benz(a)anthracene	6.63	J		6	7.03 ± 0.85	4.94	9.5
Chrysene/Triphenylene	40.4			16	47.4 ± 1.7	36.6	58.9
C1-Chrysenes	137						
C2-Chrysenes	159						
C3-Chrysenes	122						
C4-Chrysenes	68.8						
Benzo(b)fluoranthene	4.32	J		26	5.62 ± 0.34	4.22	7.15
Benzo(k,j)fluoranthene	1.02	J					
Benzo(a)fluoranthene	<10	U					
Benzo(e)pyrene	9.09	J		17	10.78 ± 0.60	8.14	13.7
Benzo(a)pyrene	1.56	J					
Perylene	0.575	J					
Indeno(1,2,3-c,d)pyrene	0.605	J					
Dibenzo(a,h)anthracene	0.649	J		12	0.574 ± 0.091	0.386	0.798
Benzo(g,h,i)perylene	1.69	J		22	2.11 ± 0.26	1.48	2.84
Total PAHs	14954						

Sample Name	MS60145K.D
Client Name	AR-SRM2779-WK-4.0-002
Matrix	Gulf of Mexico Crude Oil
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3088
Date Acquired	8/31/13 9:26
Method	PAH-2012.M
Sample Weight (mg)	4.1

Target Compounds	Su. Corrected Conc. (ng/mg)	Q	RPD (%)	SRM 2779 Certified Value (ug/g)	-20% Certified Value (ug/g)	+20% Certified Value (ug/g)
Individual Alkyl Isomers and Hopanes						
2-Methylnaphthalene	1368		17	1630 ± 50	1264	2016
1-Methylnaphthalene	931		20	1140 ± 20	896	1392
2,6-Dimethylnaphthalene	830					
1,6,7-Trimethylnaphthalene	233					
1-Methylfluorene	197					
4-Methyldibenzothiophene	78.9					
2/3-Methyldibenzothiophene	36.8					
1-Methyldibenzothiophene	22.0					
3-Methylphenanthrene	165		22	206 ± 32	139	286
2-Methylphenanthrene	180		24	230 ± 14	173	293
2-Methylanthracene	13.4					
4/9-Methylphenanthrene	207		11	232 ± 19	170	301
1-Methylphenanthrene	131		25	169 ± 10	127	215
3,6-Dimethylphenanthrene	65.2					
Retene	7.44	J				
2-Methylfluoranthene	5.24	J				
Benzo(b)fluorene	13.6					
C29-Hopane	24.0					
18a-Oleanane	<10	U				
C30-Hopane	39.4					
C20-TAS	4.29	J				
C21-TAS	4.56	J				
C26(20S)-TAS	3.25	J				
C26(20R)/C27(20S)-TAS	10.2					
C28(20S)-TAS	1.79	J				
C27(20R)-TAS	6.25	J				
C28(20R)-TAS	5.74	J				

Surrogate Recovery	
Naphthalene-d8	94
Acenaphthene-d10	93
Phenanthrene-d10	93
Chrysene-d12	98
Perylene-d12	87

Peak Resolution	
4/9-Methylphenanthrene from 1-Methylyphenanthrene (m/z 192)	84%

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Laboratory Control Material Report

Sample Name	MS60145J.D
Client Name	AR-WKCC-250-038
Matrix	Solution
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3088
Date Acquired	8/31/13 8:16
Method	PAH-2012.M
Sample Volume (mL)	1.0

Target Compounds	Concentration (ng/mL)	Q	RPD (%)	LCM Certified Conc. (ng/mL)	-15% Certified Conc. (ng/mL)	+15% Certified Conc. (ng/mL)
cis/trans Decalin	263		6.2	247	210	284
C1-Decalins	NA					
C2-Decalins	NA					
C3-Decalins	NA					
C4-Decalins	NA					
Naphthalene	256		2.5	250	213	288
C1-Naphthalenes	NA					
C2-Naphthalenes	NA					
C3-Naphthalenes	NA					
C4-Naphthalenes	NA					
Benzothiophene	255		2.7	249	211	286
C1-Benzothiophenes	NA					
C2-Benzothiophenes	NA					
C3-Benzothiophenes	NA					
C4-Benzothiophenes	NA					
Biphenyl	251		1.4	248	211	285
Acenaphthylene	244		1.6	248	211	285
Acenaphthene	245		2.4	251	213	288
Dibenzofuran	251		0.7	249	211	286
Fluorene	246		1.7	251	213	288
C1-Fluorenes	NA					
C2-Fluorenes	NA					
C3-Fluorenes	NA					
Carbazole	241		2.7	248	211	285
Anthracene	237		5.8	251	213	288
Phenanthrene	238		4.0	248	211	285
C1-Phenanthrenes/Anthracenes	NA					
C2-Phenanthrenes/Anthracenes	NA					
C3-Phenanthrenes/Anthracenes	NA					
C4-Phenanthrenes/Anthracenes	NA					
Dibenzothiophene	263		6.4	247	210	283
C1-Dibenzothiophenes	NA					
C2-Dibenzothiophenes	NA					
C3-Dibenzothiophenes	NA					
C4-Dibenzothiophenes	NA					
Fluoranthene	255		2.0	250	213	288
Pyrene	250		0.1	250	213	288
C1-Fluoranthenes/Pyrenes	NA					
C2-Fluoranthenes/Pyrenes	NA					
C3-Fluoranthenes/Pyrenes	NA					
C4-Fluoranthenes/Pyrenes	NA					
Naphthobenzothiophene	253		0.5	252	214	289
C1-Naphthobenzothiophenes	NA					
C2-Naphthobenzothiophenes	NA					
C3-Naphthobenzothiophenes	NA					
C4-Naphthobenzothiophenes	NA					
Benz(a)anthracene	251		0.5	250	212	287
Chrysene/Triphenylene	221		11.8	249	211	286
C1-Chrysenes	NA					
C2-Chrysenes	NA					
C3-Chrysenes	NA					
C4-Chrysenes	NA					
Benzo(b)fluoranthene	253		1.1	251	213	288
Benzo(k,j)fluoranthene	243		2.4	249	212	286
Benzo(a)fluoranthene	NA					
Benzo(e)pyrene	262		5.2	249	212	286
Benzo(a)pyrene	234		6.5	250	212	287
Perylene	239		4.5	250	213	288
Indeno(1,2,3-c,d)pyrene	232		5.8	246	209	283
Dibenzo(a,h)anthracene	231		6.9	248	211	285
Benzo(g,h,i)perylene	242		2.5	248	211	285

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Laboratory Control Material Report

Sample Name	MS60145J.D
Client Name	AR-WKCC-250-038
Matrix	Solution
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3088
Date Acquired	8/31/13 8:16
Method	PAH-2012.M
Sample Volume (mL)	1.0

Target Compounds	Concentration (ng/mL)	Q	RPD (%)	LCM Certified Conc. (ng/mL)	-15% Certified Conc. (ng/mL)	+15% Certified Conc. (ng/mL)
Individual Alkyl Isomers and Hopanes						
2-Methylnaphthalene	247		1.2	250	213	288
1-Methylnaphthalene	253		1.2	250	212	287
2,6-Dimethylnaphthalene	251		0.4	250	213	288
1,6,7-Trimethylnaphthalene	240		3.9	250	213	288
1-Methylfluorene	221		13.2	252	214	290
4-Methyldibenzothiophene	258		2.3	252	214	290
2/3-Methyldibenzothiophene	NA					
1-Methyldibenzothiophene	NA					
3-Methylphenanthrene	NA					
2-Methylphenanthrene	NA					
2-Methylanthracene	NA					
4/9-Methylphenanthrene	NA					
1-Methylphenanthrene	271		9.1	247	210	284
3,6-Dimethylphenanthrene	246		1.8	250	213	288
Retene	205		8.6	223	190	257
2-Methylfluoranthene	243		3.4	252	214	289
Benzo(b)fluorene	215		15.8	252	214	290
C29-Hopane	NA					
18a-Oleanane	NA					
C30-Hopane	278		10.6	250	213	288
C20-TAS	NA					
C21-TAS	NA					
C26(20S)-TAS	NA					
C26(20R)/C27(20S)-TAS	223		11.5	250	213	288
C28(20S)-TAS	NA					
C27(20R)-TAS	NA					
C28(20R)-TAS	NA					

Surrogate Recovery	
Naphthalene-d8	102
Acenaphthene-d10	98
Phenanthrene-d10	99
Chrysene-d12	95
Perylene-d12	99

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Laboratory Control Material Report

Sample Name	MS60145I.D
Client Name	AR-WKICV-250-004
Matrix	Solution
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3088
Date Acquired	8/31/13 7:06
Method	PAH-2012.M
Sample Volume (mL)	1.0

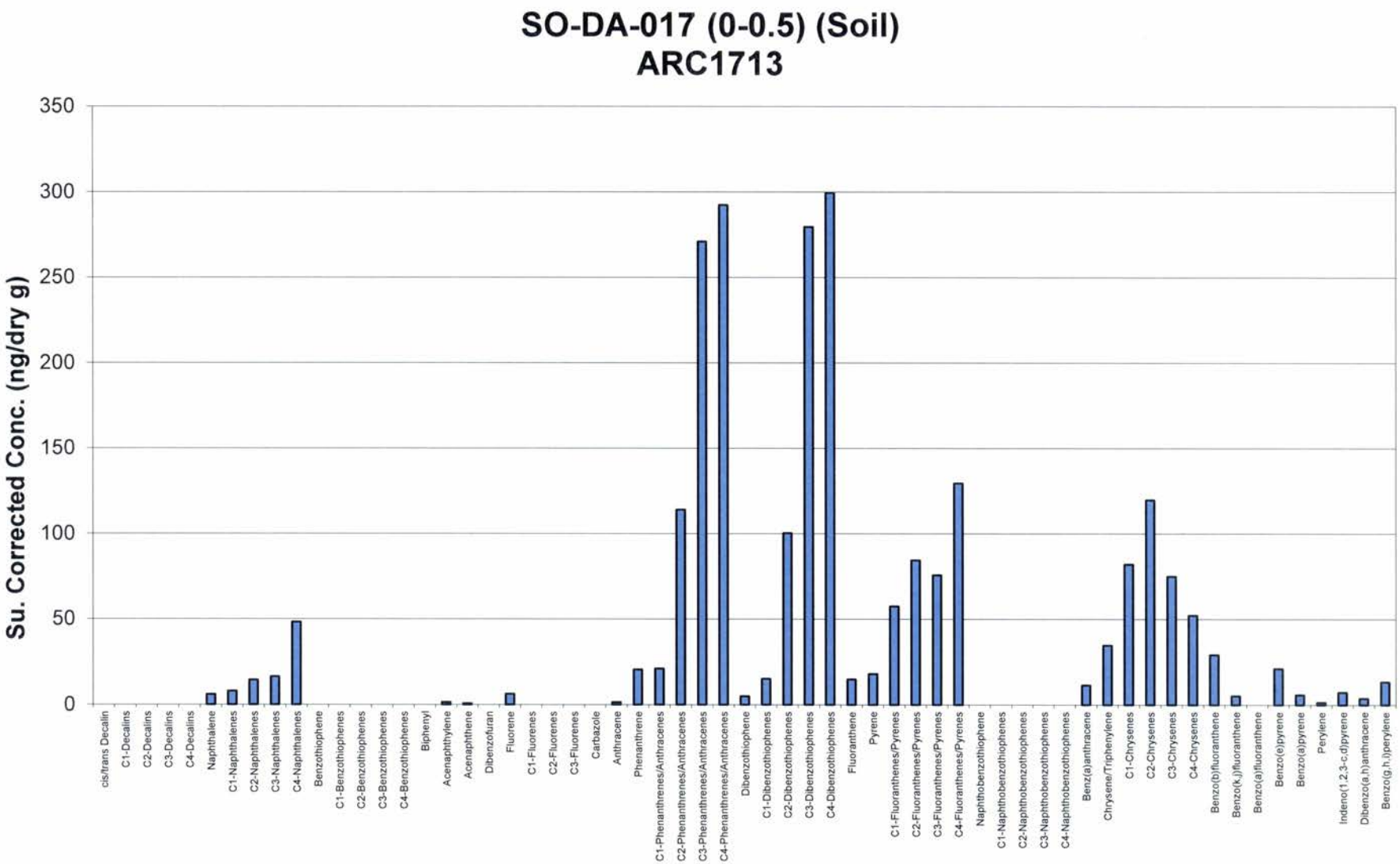
Target Compounds	Concentration (ng/mL)	Q	RPD (%)	ICV Certified Conc. (ng/mL)	-20% Certified Conc. (ng/mL)	+20% Certified Conc. (ng/mL)
cis/trans Decalin	285		12.8	250	200	300
C1-Decalins	NA					
C2-Decalins	NA					
C3-Decalins	NA					
C4-Decalins	NA					
Naphthalene	281		11.7	250	200	300
C1-Naphthalenes	NA					
C2-Naphthalenes	NA					
C3-Naphthalenes	NA					
C4-Naphthalenes	NA					
Benzothiophene	285		13.1	250	200	300
C1-Benzothiophenes	NA					
C2-Benzothiophenes	NA					
C3-Benzothiophenes	NA					
C4-Benzothiophenes	NA					
Biphenyl	278		10.2	251	201	301
Acenaphthylene	278					
Acenaphthene	283		12.3	250	200	300
Dibenzofuran	280		11.3	250	200	300
Fluorene	274		9.2	250	200	300
C1-Fluorenes	NA					
C2-Fluorenes	NA					
C3-Fluorenes	NA					
Carbazole	262		4.5	250	200	300
Anthracene	272		8.4	250	200	300
Phenanthrene	271		8.1	250	200	300
C1-Phenanthrenes/Anthracenes	NA					
C2-Phenanthrenes/Anthracenes	NA					
C3-Phenanthrenes/Anthracenes	NA					
C4-Phenanthrenes/Anthracenes	NA					
Dibenzothiophene	274		9.0	250	200	300
C1-Dibenzothiophenes	NA					
C2-Dibenzothiophenes	NA					
C3-Dibenzothiophenes	NA					
C4-Dibenzothiophenes	NA					
Fluoranthene	274		9.1	250	200	300
Pyrene	276		9.7	250	200	300
C1-Fluoranthenes/Pyrenes	NA					
C2-Fluoranthenes/Pyrenes	NA					
C3-Fluoranthenes/Pyrenes	NA					
C4-Fluoranthenes/Pyrenes	NA					
Naphthobenzothiophene	NA					
C1-Naphthobenzothiophenes	NA					
C2-Naphthobenzothiophenes	NA					
C3-Naphthobenzothiophenes	NA					
C4-Naphthobenzothiophenes	NA					
Benz(a)anthracene	284		12.8	250	200	300
Chrysene/Triphenylene	242		3.4	250	200	300
C1-Chrysenes	NA					
C2-Chrysenes	NA					
C3-Chrysenes	NA					
C4-Chrysenes	NA					
Benzo(b)fluoranthene	293		15.8	250	200	300
Benzo(k,j)fluoranthene	296		16.8	250	200	300
Benzo(a)fluoranthene	NA					
Benzo(e)pyrene	293		15.8	250	200	300
Benzo(a)pyrene	275		9.6	250	200	300
Perylene	273		8.5	251	200	301
Indeno(1,2,3-c,d)pyrene	284		12.6	250	200	300
Dibenzo(a,h)anthracene	271		8.1	250	200	300
Benzo(g,h,i)perylene	288		14.2	250	200	300

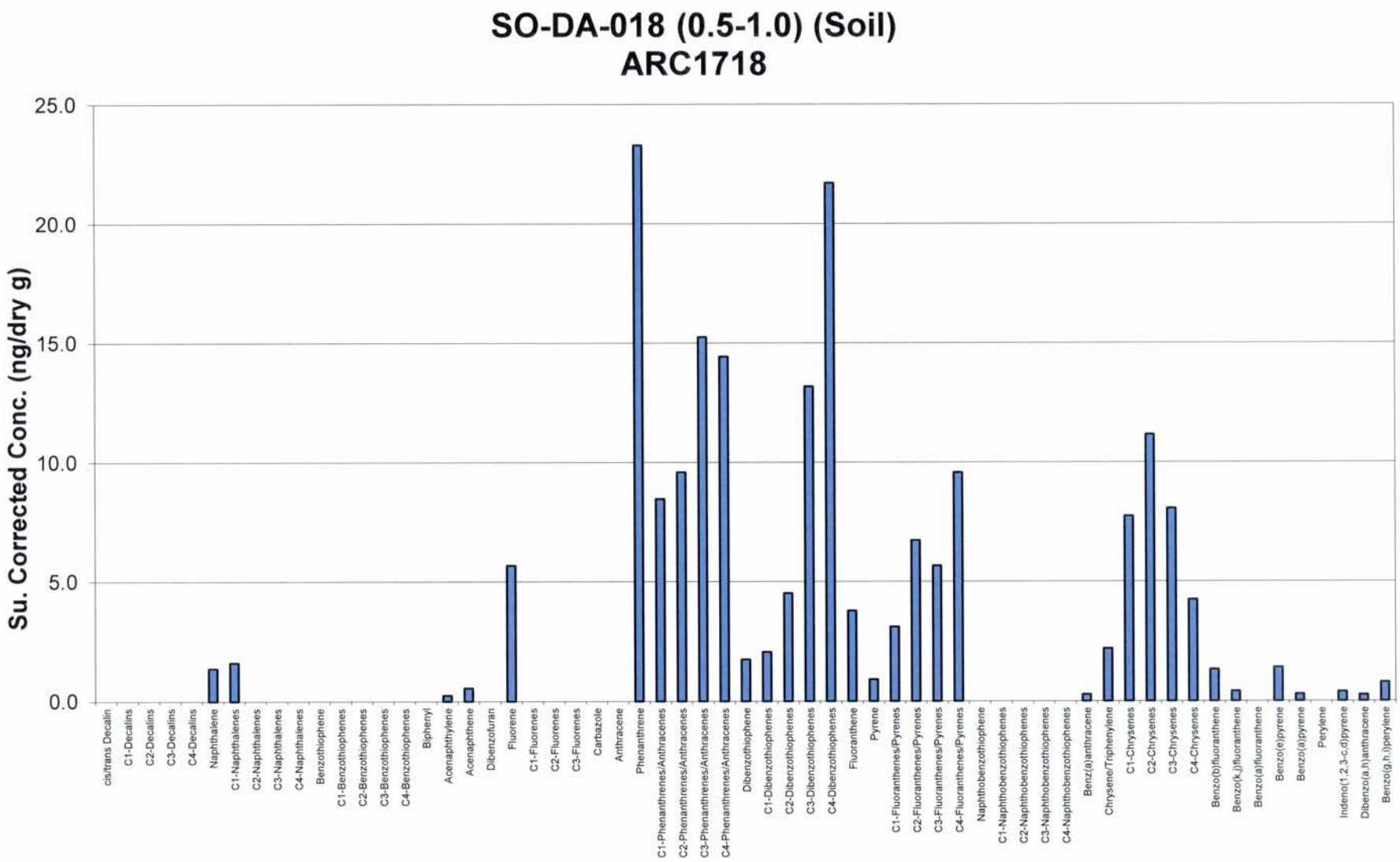
Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Laboratory Control Material Report

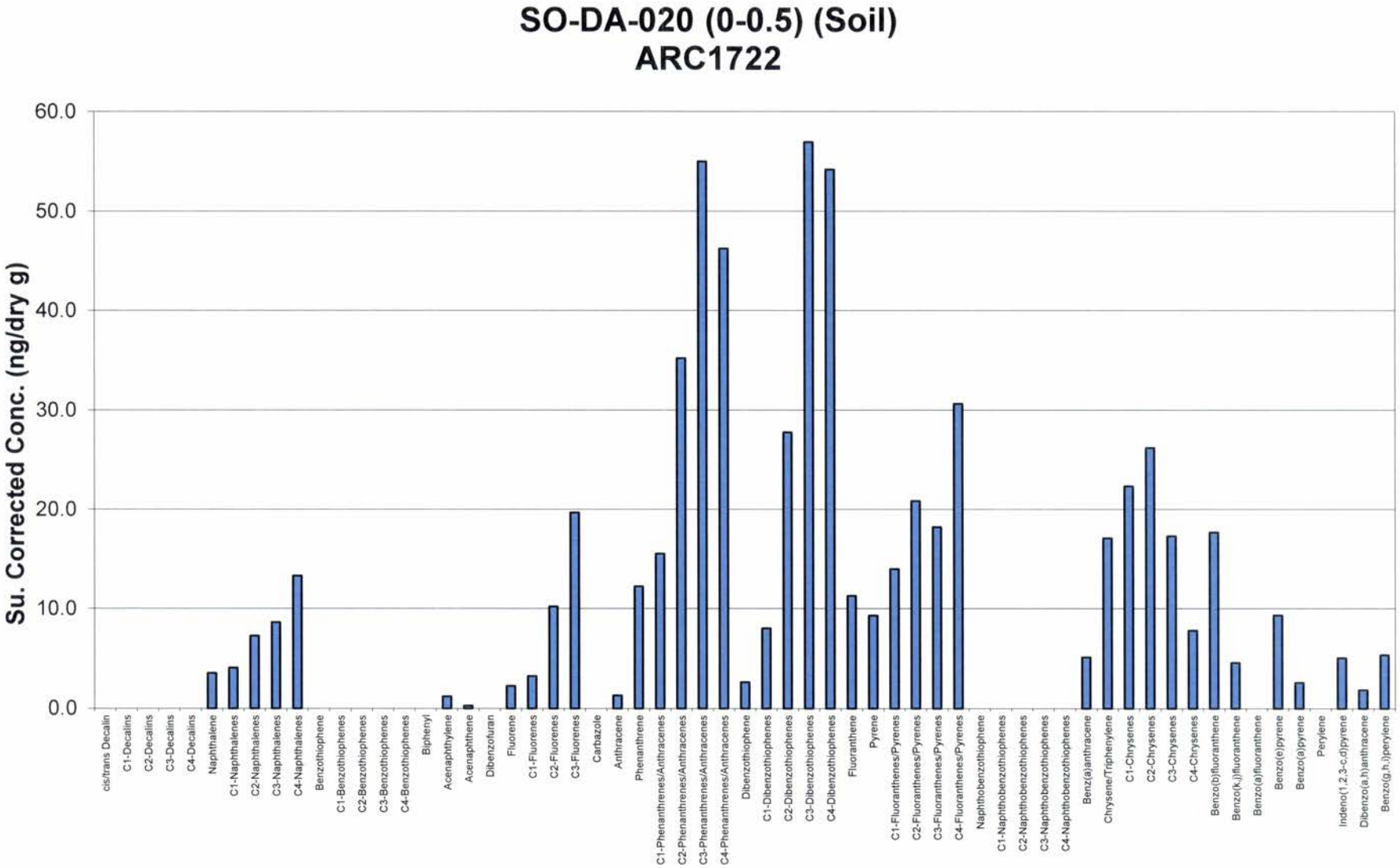
Sample Name	MS60145I.D
Client Name	AR-WKICV-250-004
Matrix	Solution
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3088
Date Acquired	8/31/13 7:06
Method	PAH-2012.M
Sample Volume (mL)	1.0

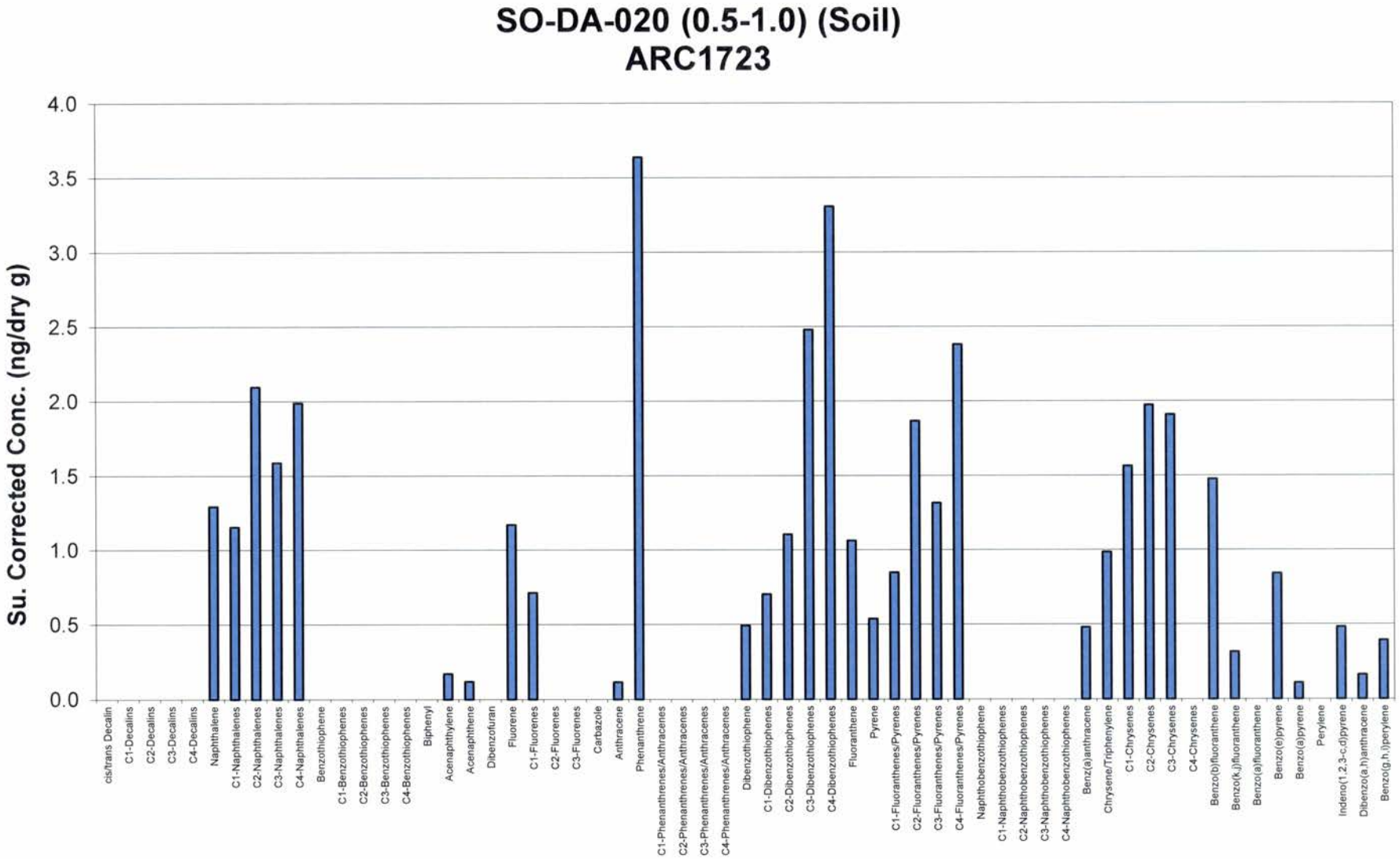
Target Compounds	Concentration (ng/mL)	Q	RPD (%)	ICV Certified Conc. (ng/mL)	-20% Certified Conc. (ng/mL)	+20% Certified Conc. (ng/mL)
Individual Alkyl Isomers and Hopanes						
2-Methylnaphthalene	292		15.2	250	200	301
1-Methylnaphthalene	291		14.9	251	200	301
2,6-Dimethylnaphthalene	279		10.9	250	200	300
1,6,7-Trimethylnaphthalene	289		14.4	250	200	301
1-Methylfluorene	NA					
4-Methyldibenzothiophene	NA					
2/3-Methyldibenzothiophene	NA					
1-Methyldibenzothiophene	NA					
3-Methylphenanthrene	NA					
2-Methylphenanthrene	NA					
2-Methylanthracene	NA					
4/9-Methylphenanthrene	NA					
1-Methylphenanthrene	279		10.7	250	200	300
3,6-Dimethylphenanthrene	NA					
Retene	NA					
2-Methylfluoranthene	NA					
Benzo(b)fluorene	NA					
C29-Hopane	NA					
18a-Oleanane	NA					
C30-Hopane	NA					
C20-TAS	NA					
C21-TAS	NA					
C26(20S)-TAS	NA					
C26(20R)/C27(20S)-TAS	NA					
C28(20S)-TAS	NA					
C27(20R)-TAS	NA					
C28(20R)-TAS	NA					
Surrogate Recovery						
Naphthalene-d8	230		8.4	250	200	300
Acenaphthene-d10	228		9.4	250	200	300
Phenanthrene-d10	225		10.7	250	200	300
Chrysene-d12	212		16.3	250	200	300
Perylene-d12	233		7.0	250	200	300

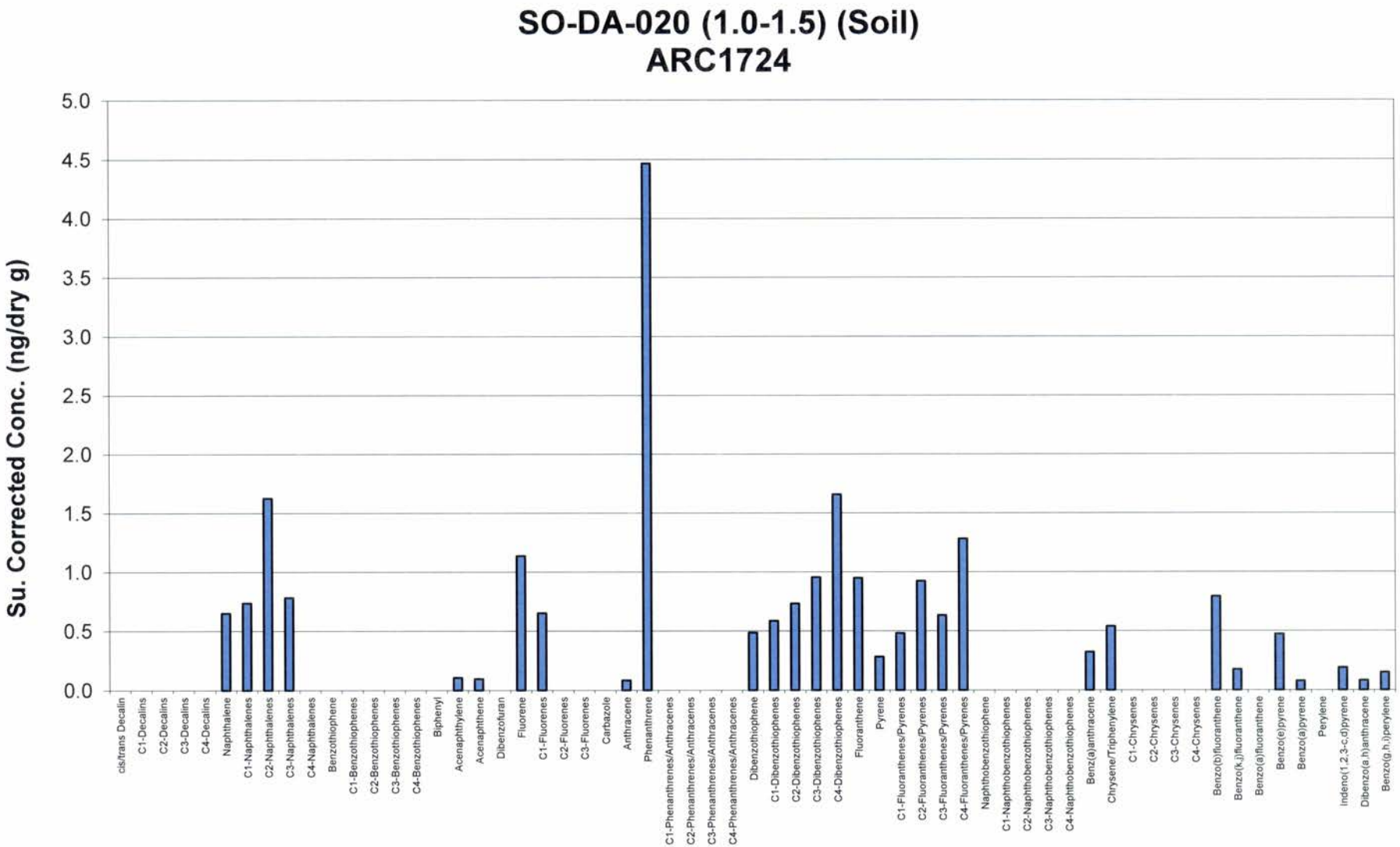
Polycyclic Aromatic Hydrocarbon Histograms

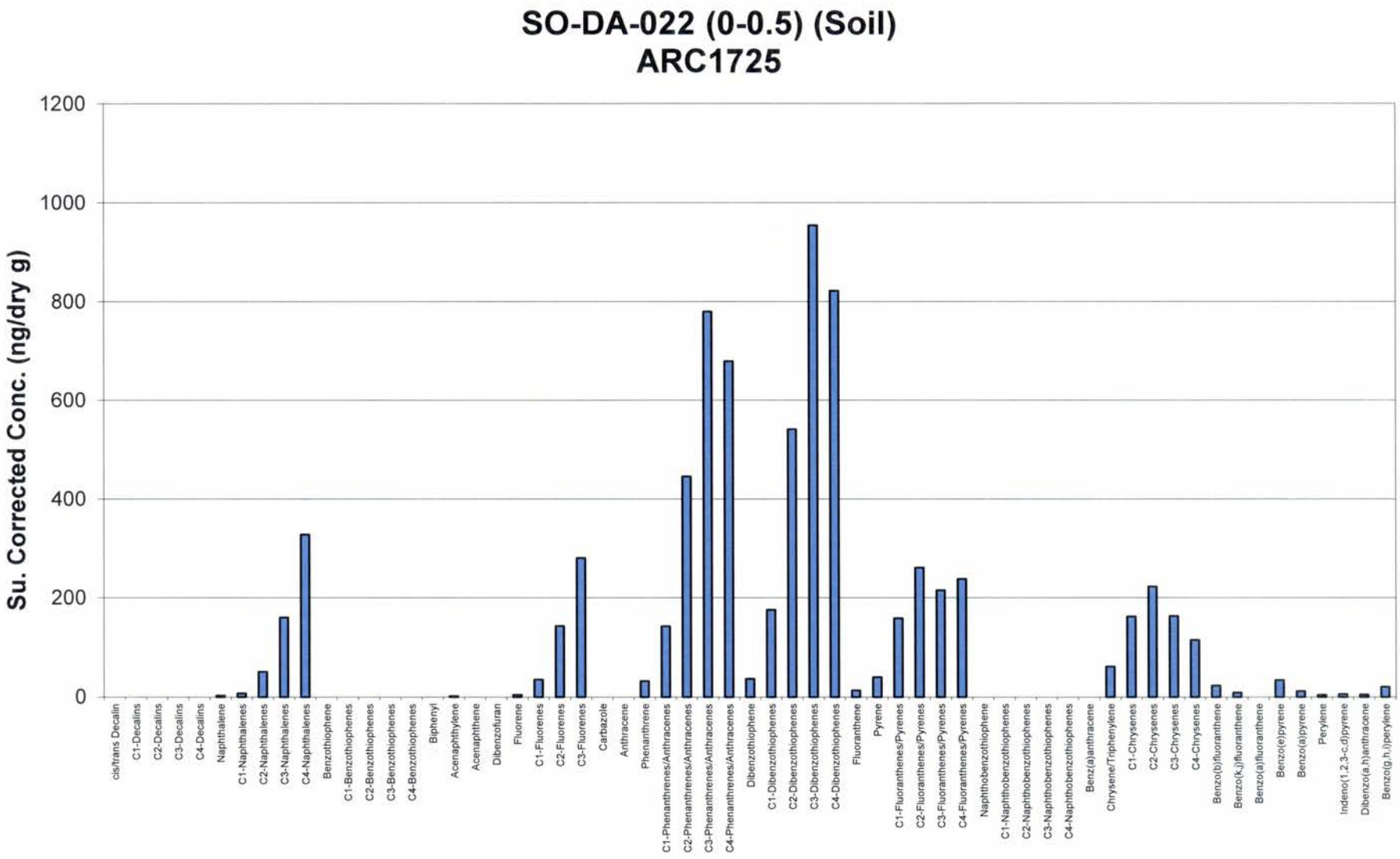

SO-DA-017 (0-0.5) (Soil)
ARC1713
Su. Corrected Conc. (ng/dry g)
350
300
250
200
150
100
50
0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

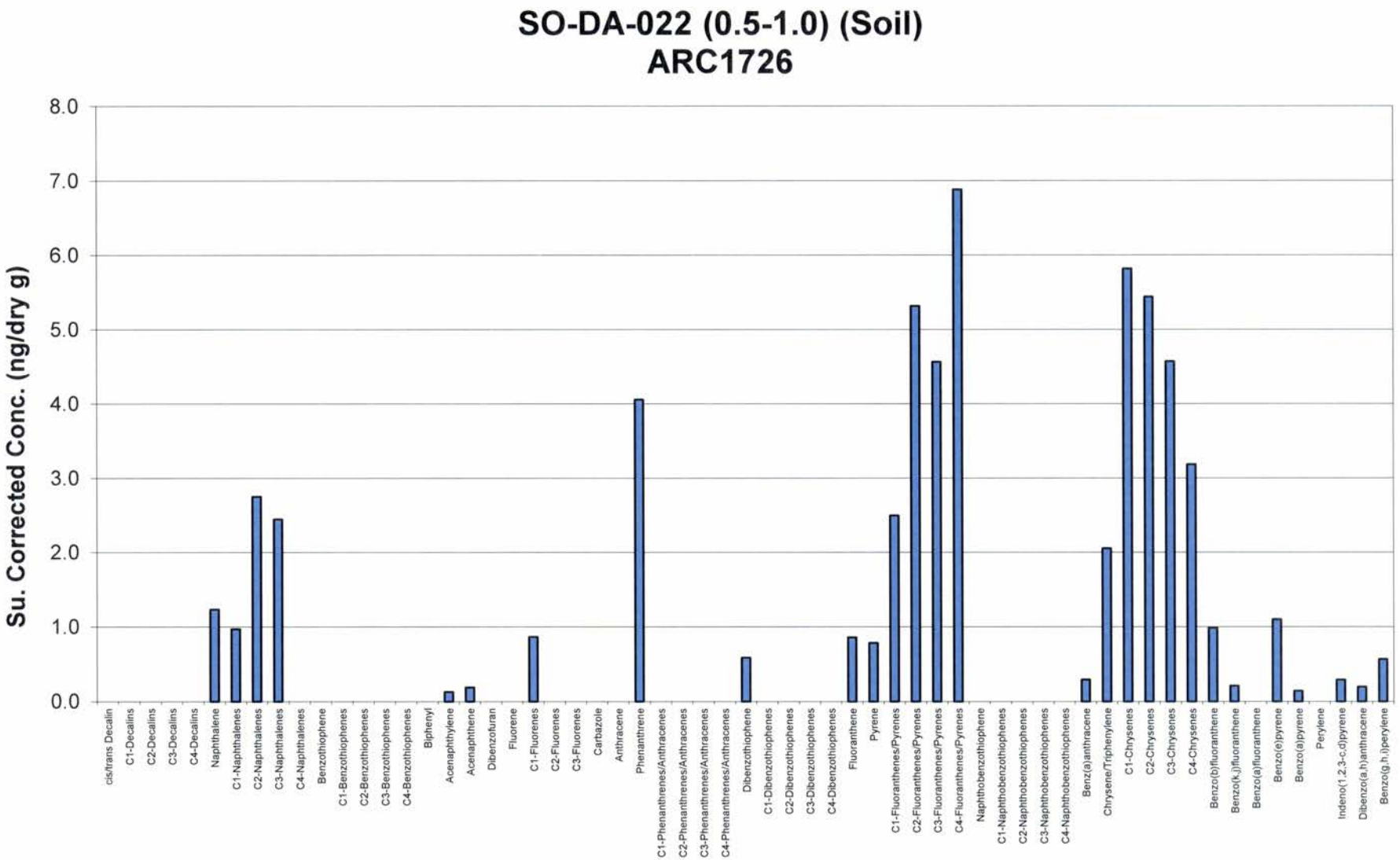

SO-DA-018 (0.5-1.0) (Soil)
ARC1718
Su. Corrected Conc. (ng/dry g)
25.0
20.0
15.0
10.0
5.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

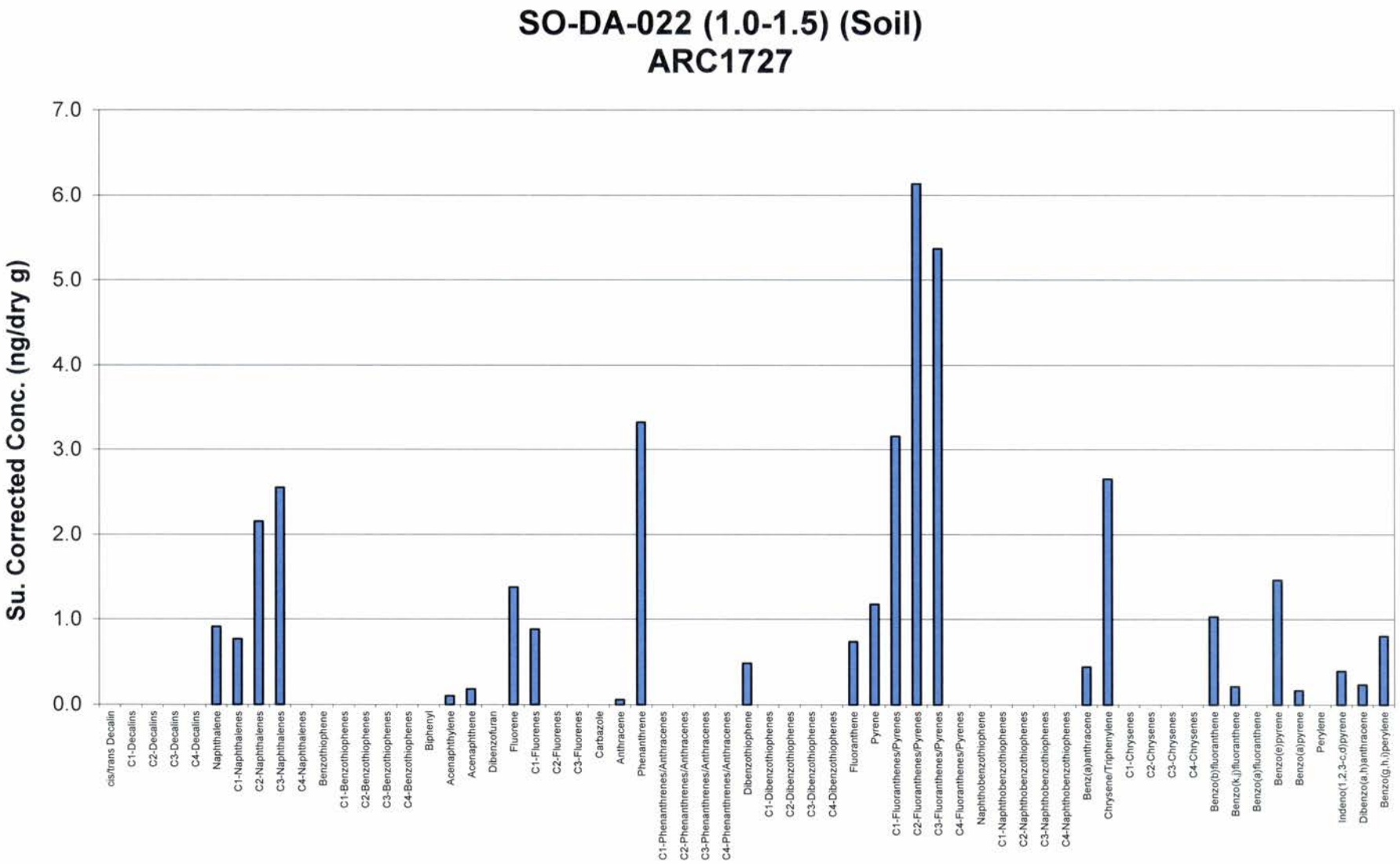

SO-DA-020 (0-0.5) (Soil)
ARC1722
Su. Corrected Conc. (ng/dry g)
60.0
50.0
40.0
30.0
20.0
10.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

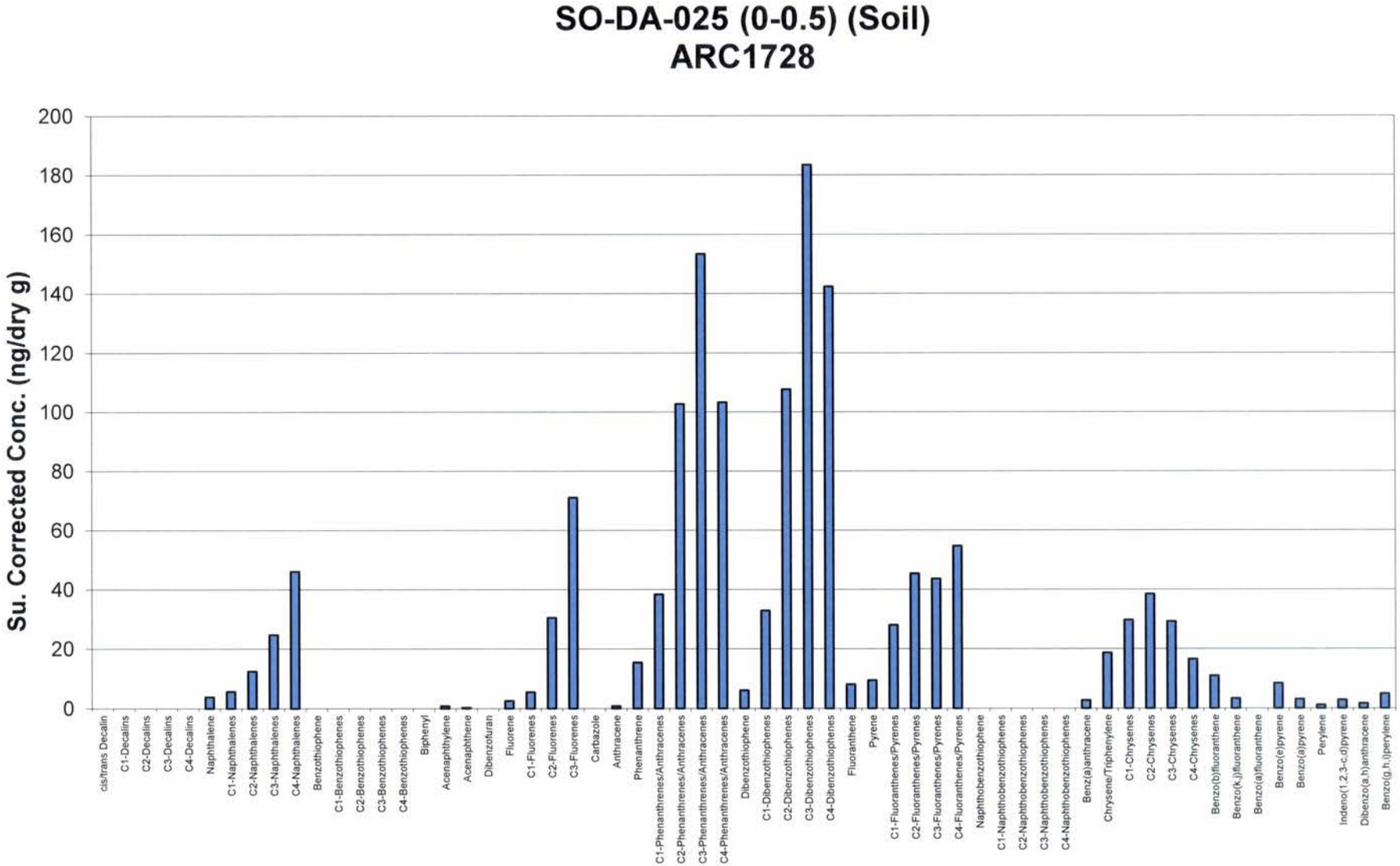

SO-DA-020 (0.5-1.0) (Soil)
ARC1723
Su. Corrected Conc. (ng/dry g)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

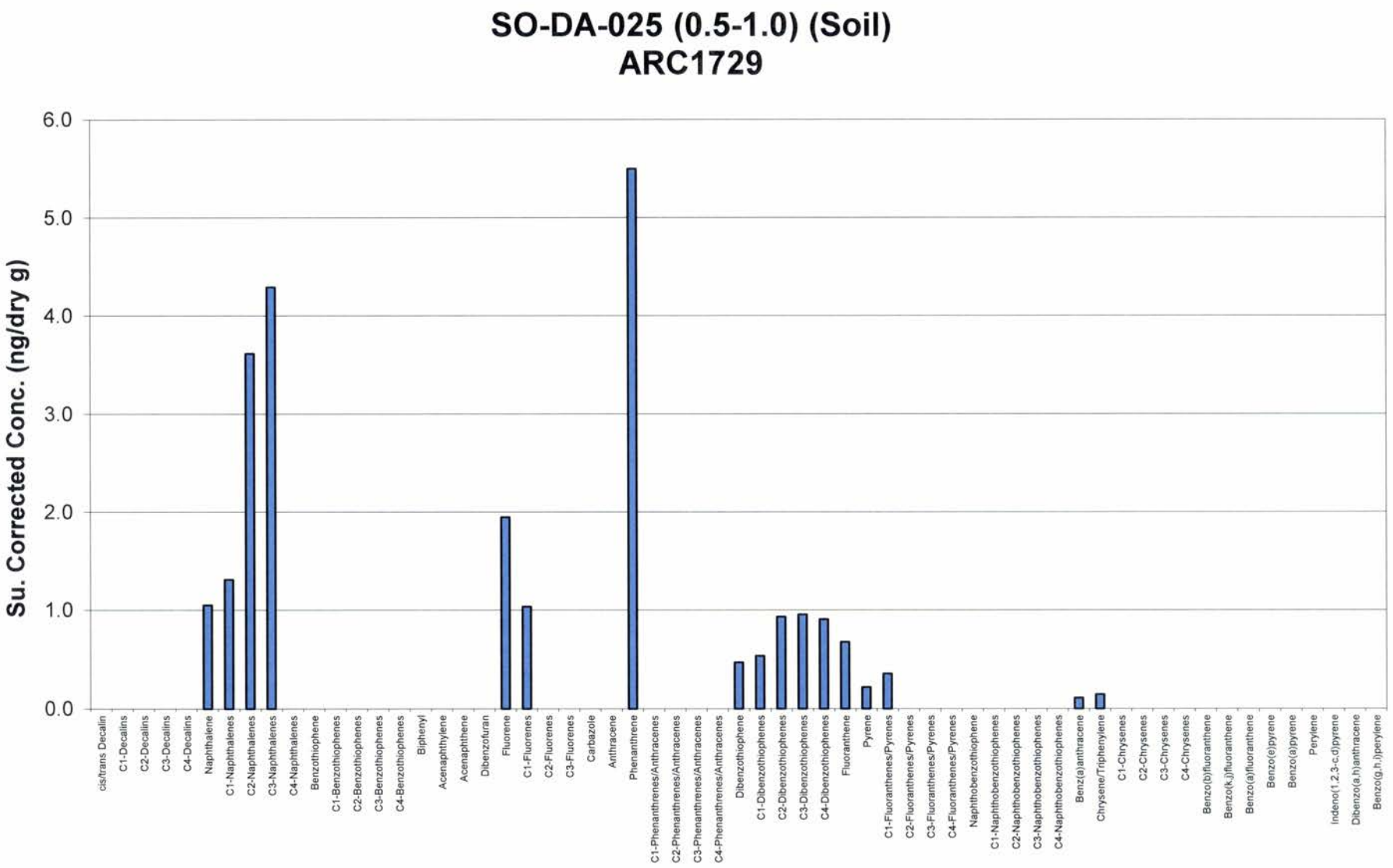

SO-DA-020 (1.0-1.5) (Soil)
ARC1724
Su. Corrected Conc. (ng/dry g)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(e)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

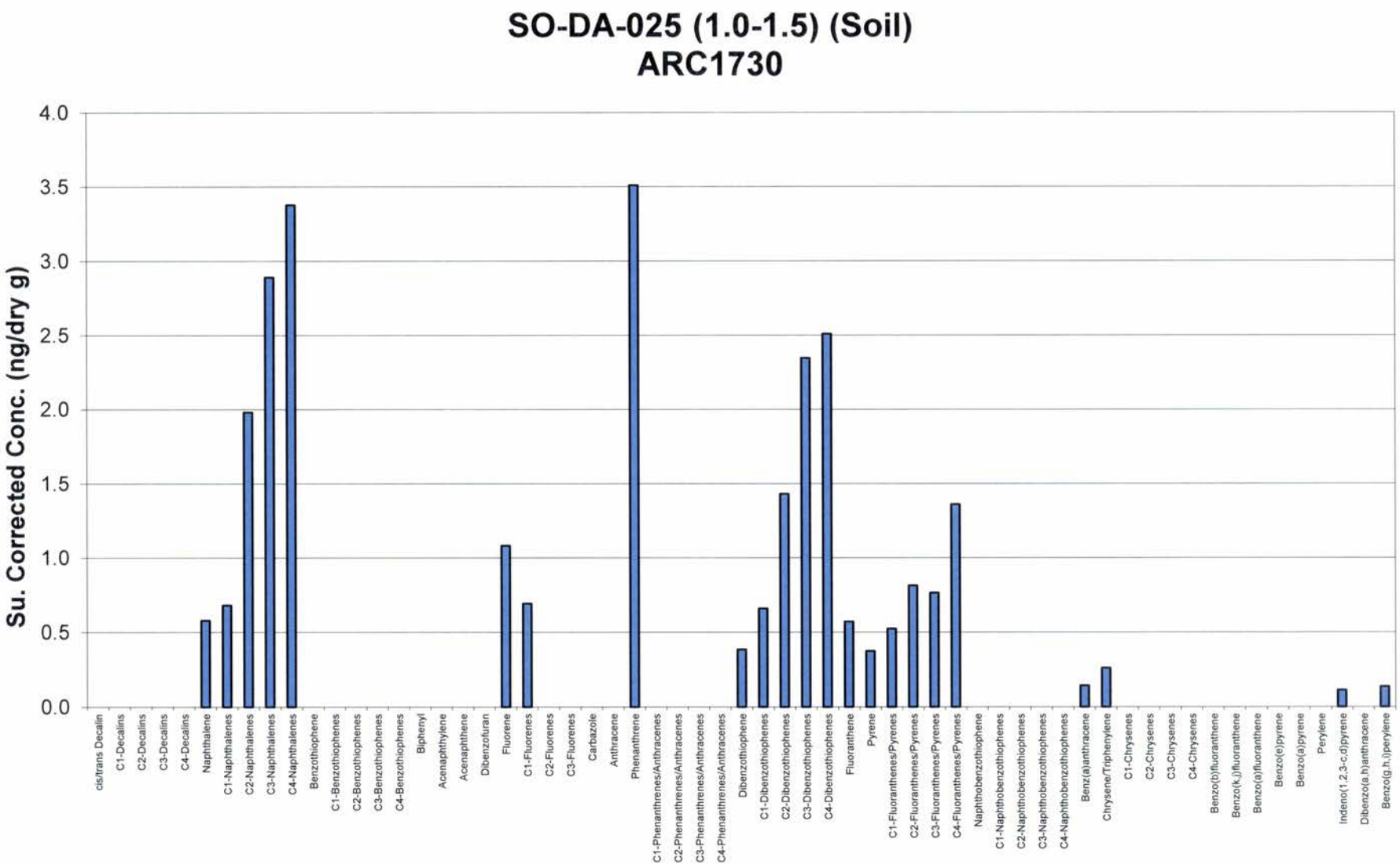

SO-DA-022 (0-0.5) (Soil)
ARC1725
Su. Corrected Conc. (ng/dry g)
1200
1000
800
600
400
200
0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

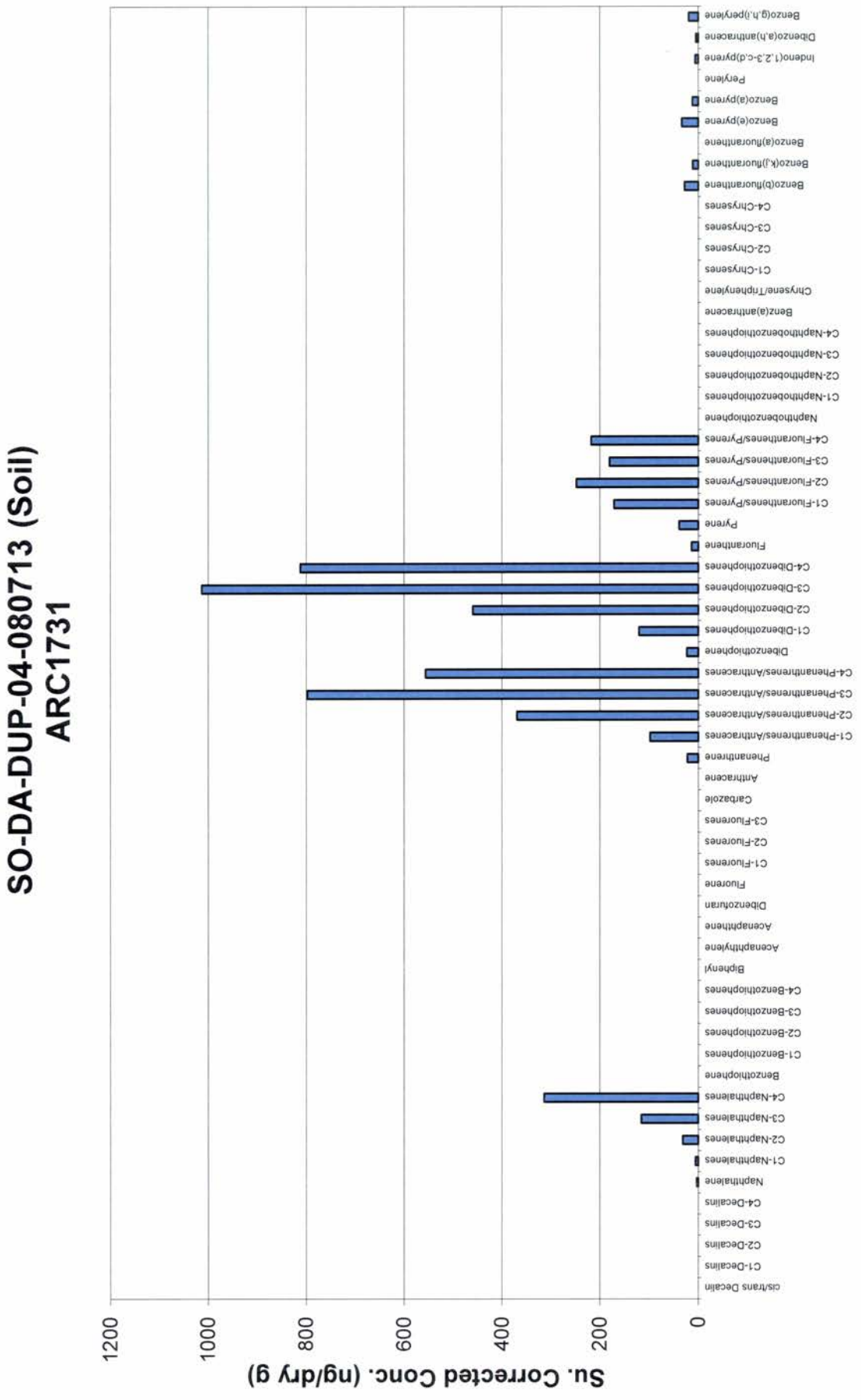

SO-DA-022 (0.5-1.0) (Soil)
ARC1726
Su. Corrected Conc. (ng/dry g)
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

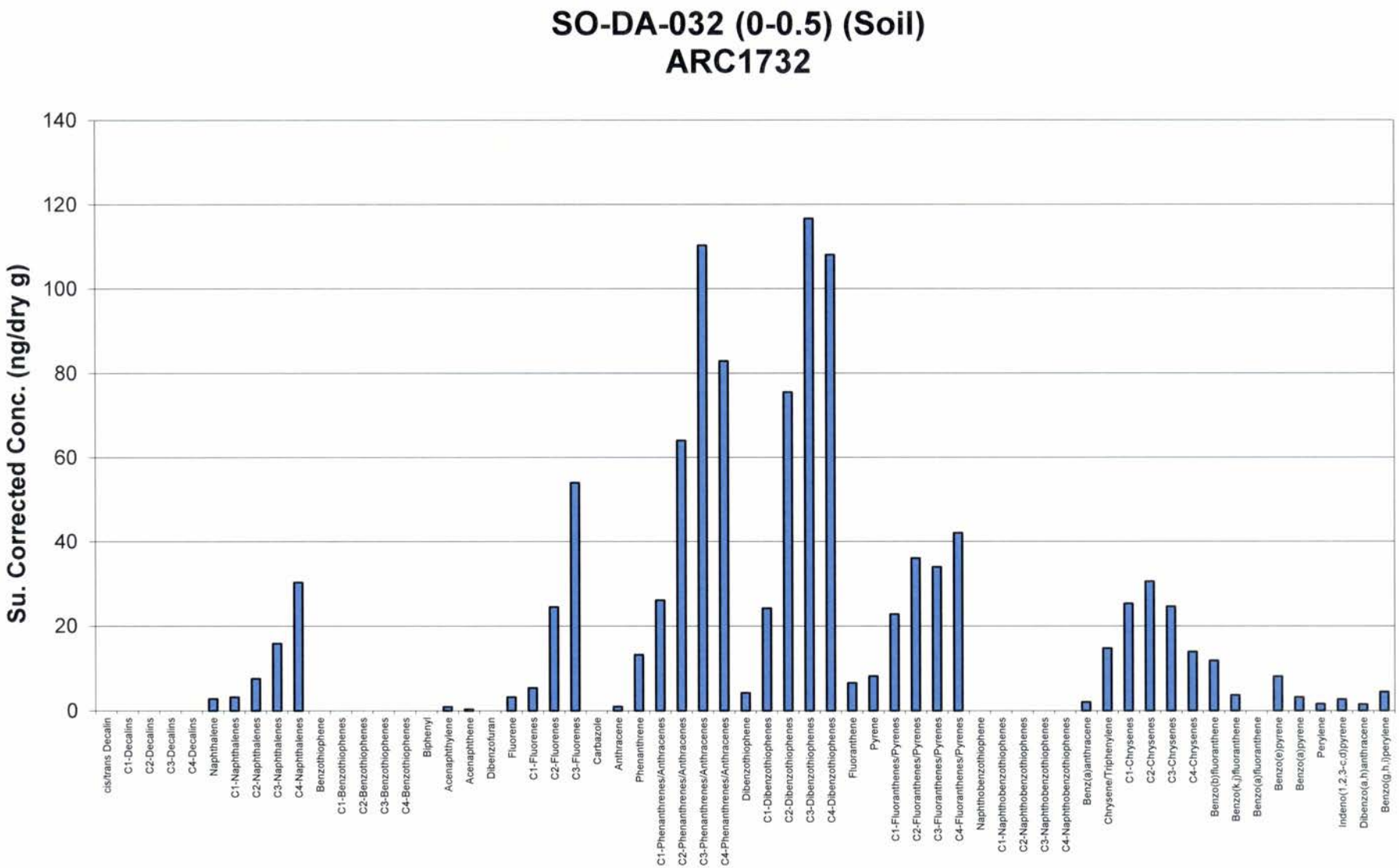

SO-DA-022 (1.0-1.5) (Soil)
ARC1727
Su. Corrected Conc. (ng/dry g)
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene


SO-DA-025 (0-0.5) (Soil)
ARC1728
Su. Corrected Conc. (ng/dry g)
200
180
160
140
120
100
80
60
40
20
0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

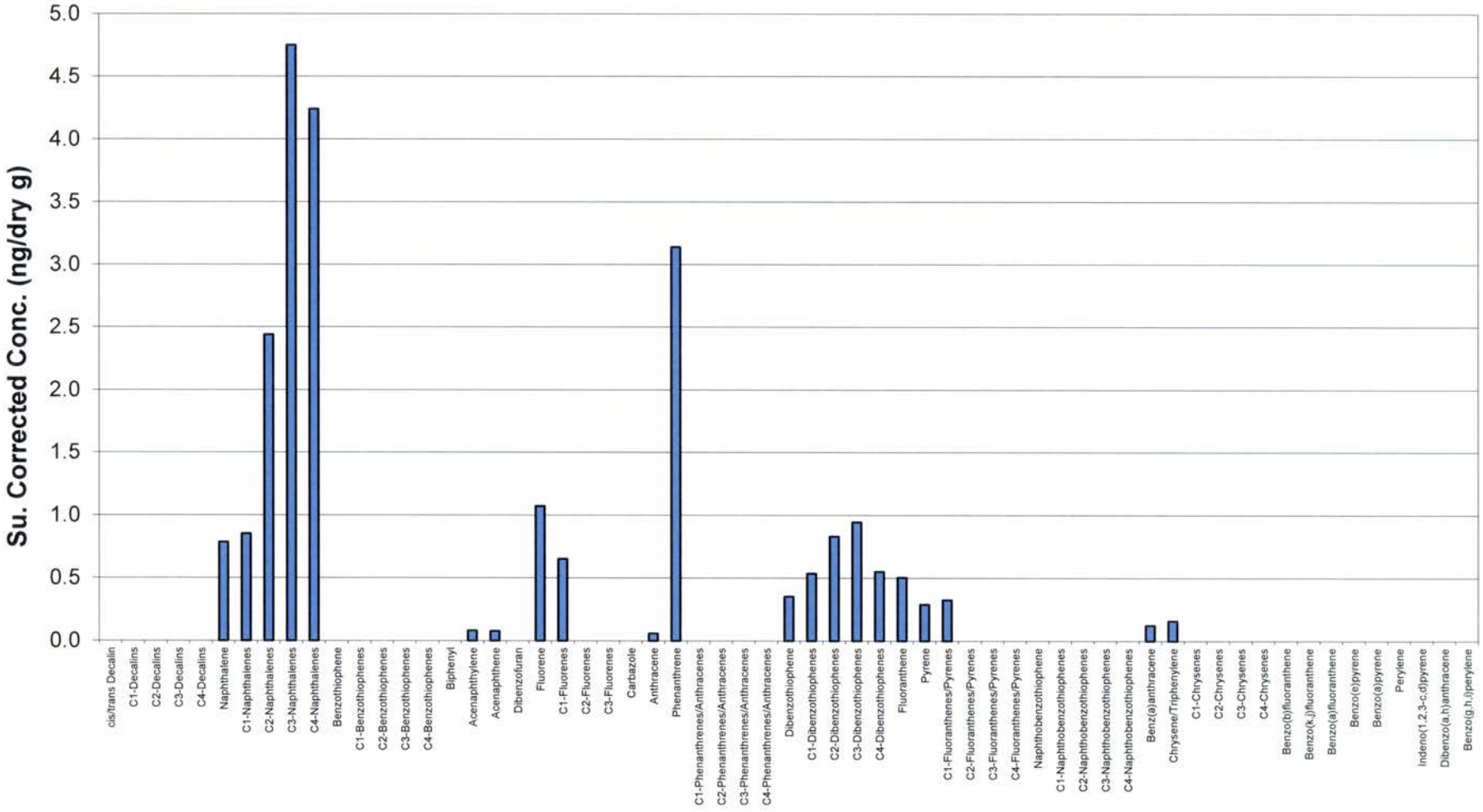

SO-DA-025 (0.5-1.0) (Soil)
ARC1729
Su. Corrected Conc. (ng/dry g)
6.0
5.0
4.0
3.0
2.0
1.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

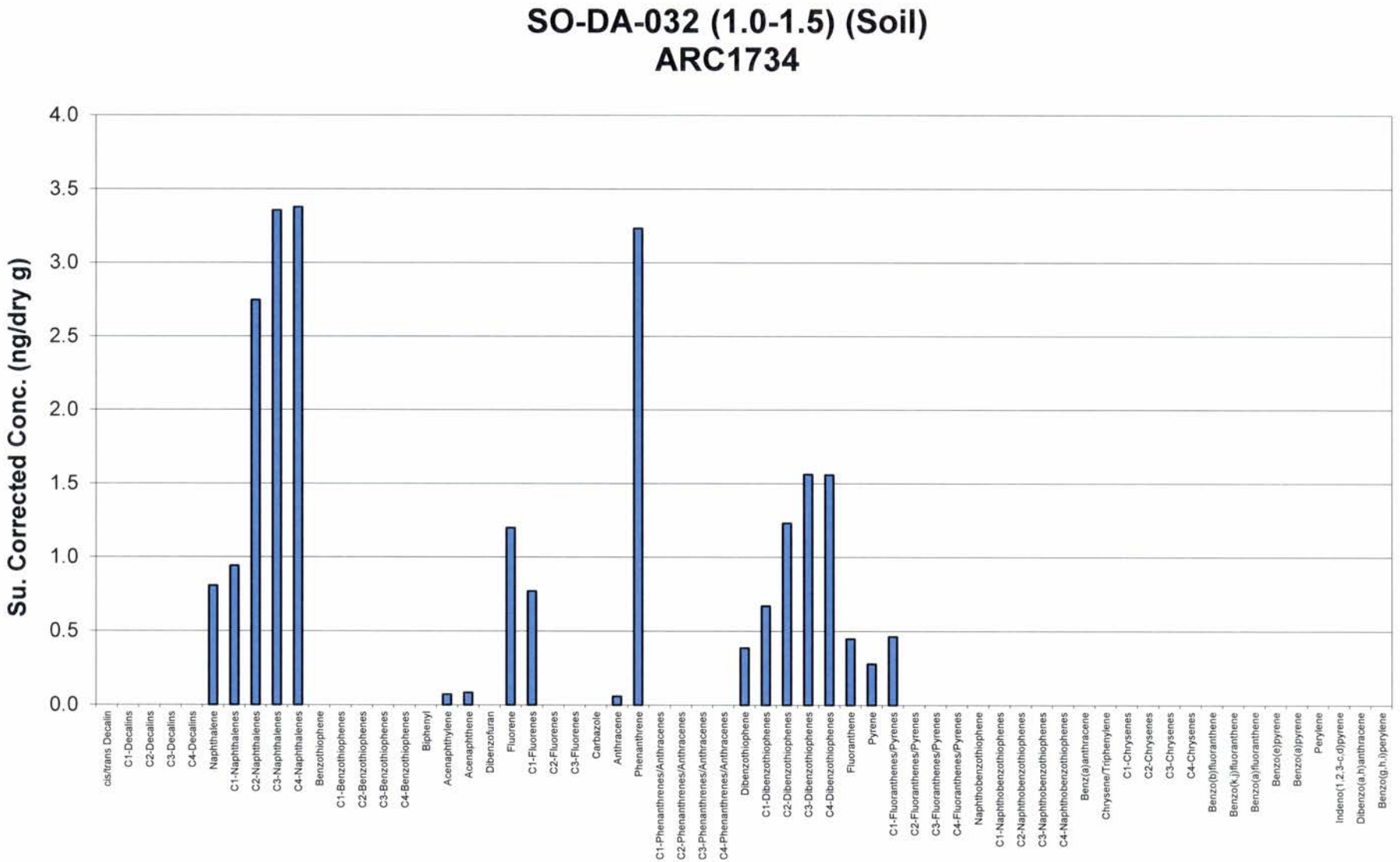

SO-DA-025 (1.0-1.5) (Soil)
ARC1730
Su. Corrected Conc. (ng/dry g)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

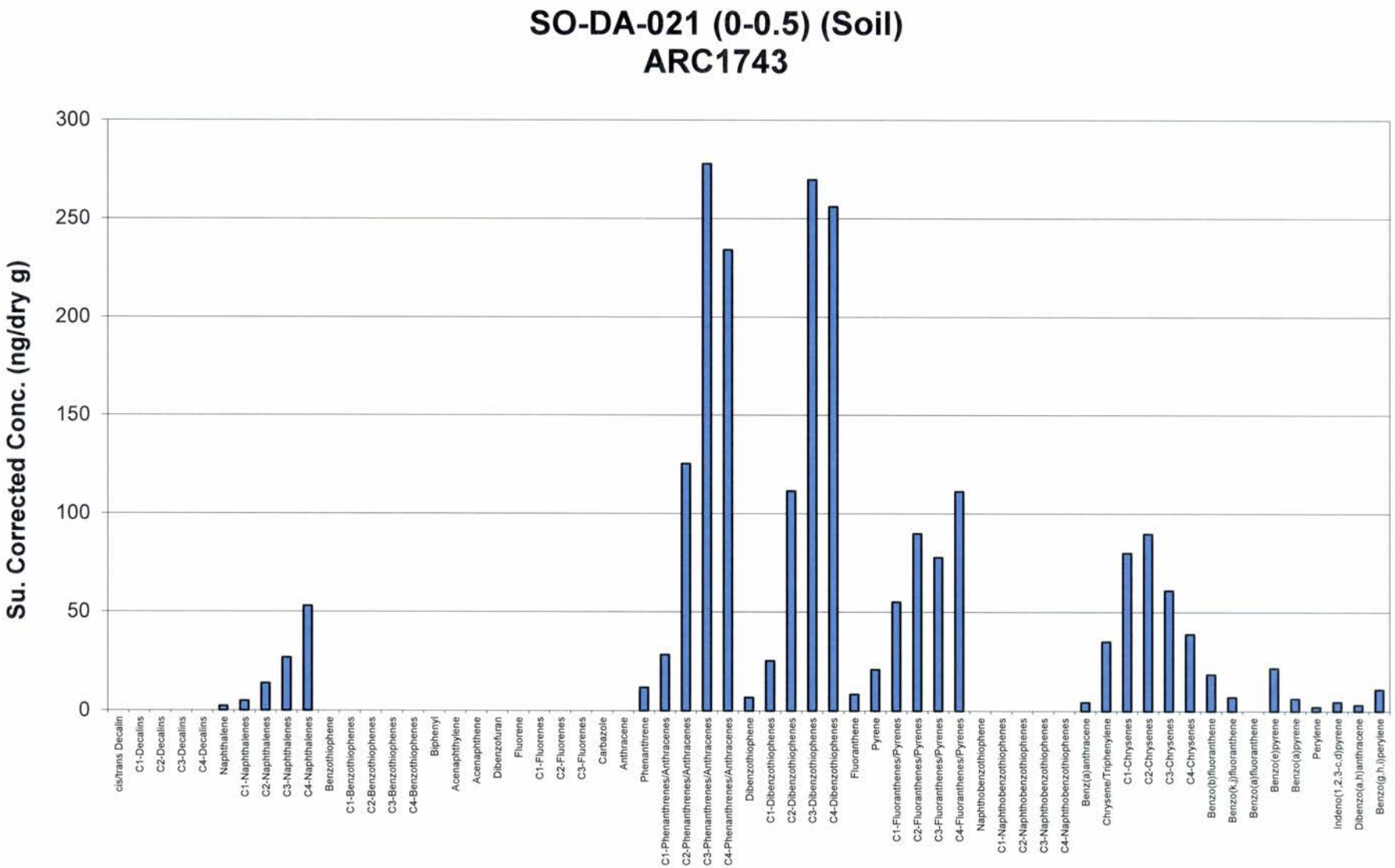

SO-DA-DUP-04-080713 (Soil)
ARC1731
Su. Corrected Conc. (ng/dry g)
0
200
400
600
800
1000
1200
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

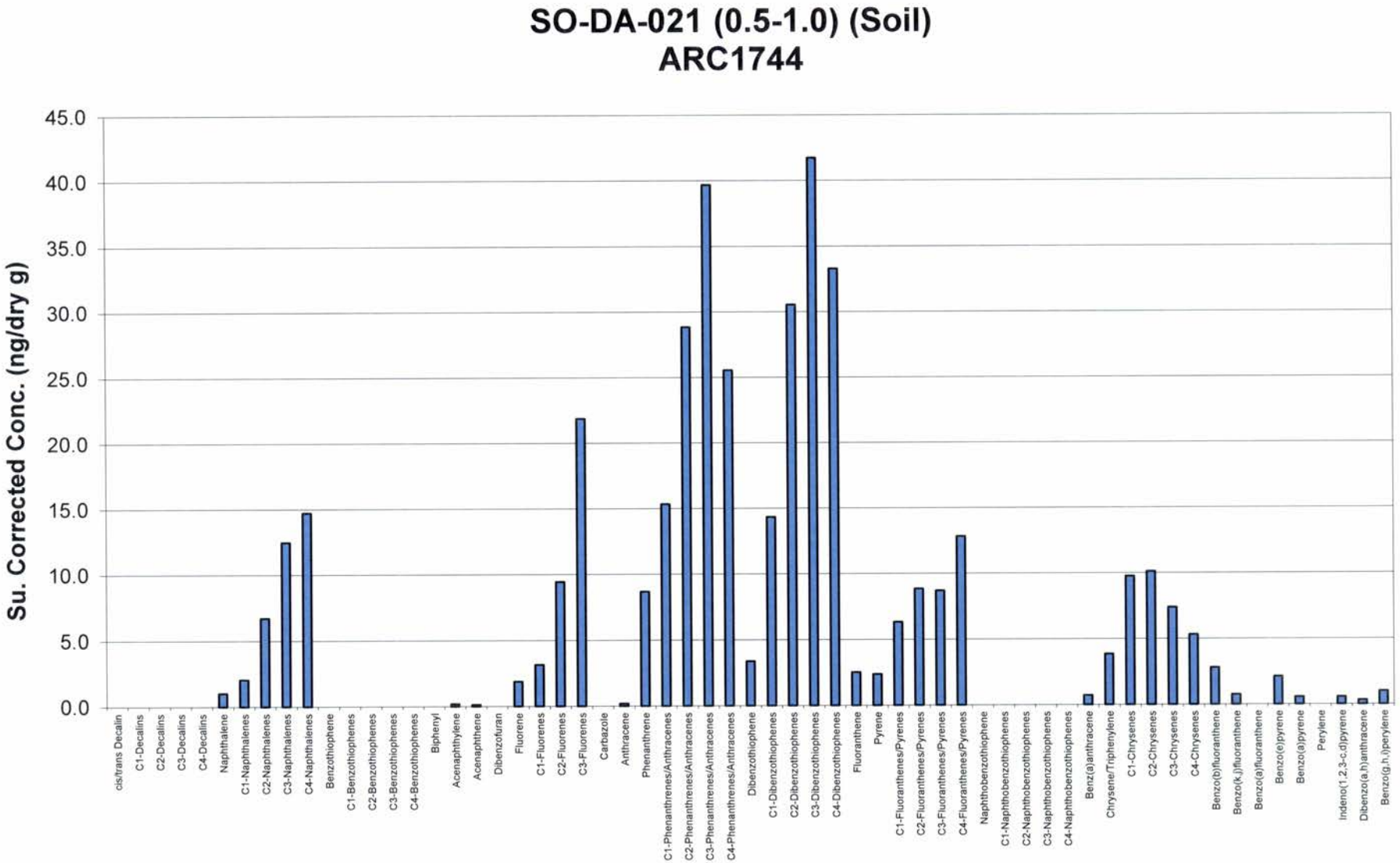

SO-DA-032 (0-0.5) (Soil)
ARC1732
Su. Corrected Conc. (ng/dry g)
0
20
40
60
80
100
120
140
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

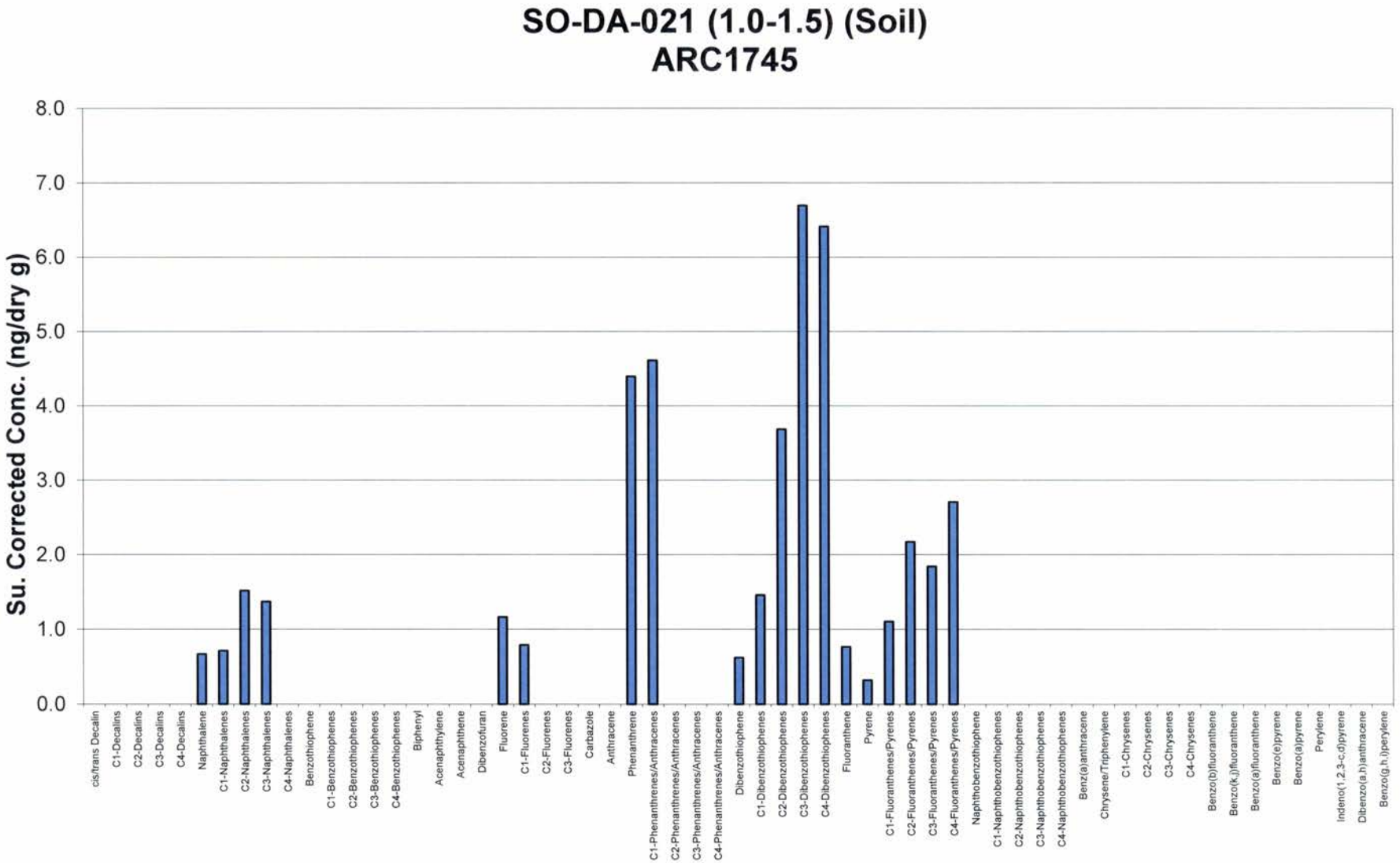
SO-DA-032 (0.5-1.0) (Soil)
ARC1733

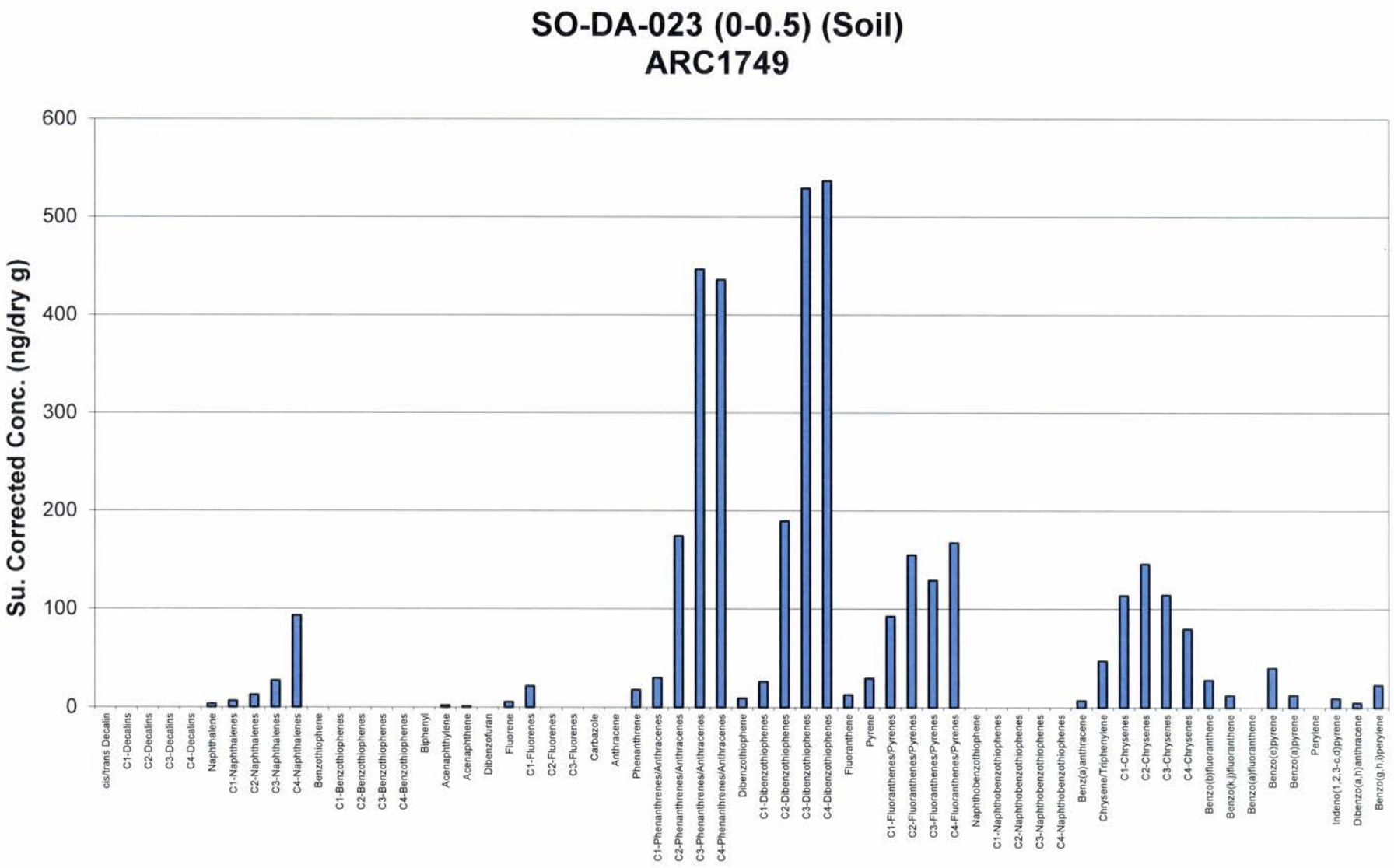



SO-DA-032 (1.0-1.5) (Soil)
ARC1734
Su. Corrected Conc. (ng/dry g)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(e)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene


SO-DA-021 (0-0.5) (Soil)
ARC1743
Su. Corrected Conc. (ng/dry g)
300
250
200
150
100
50
0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

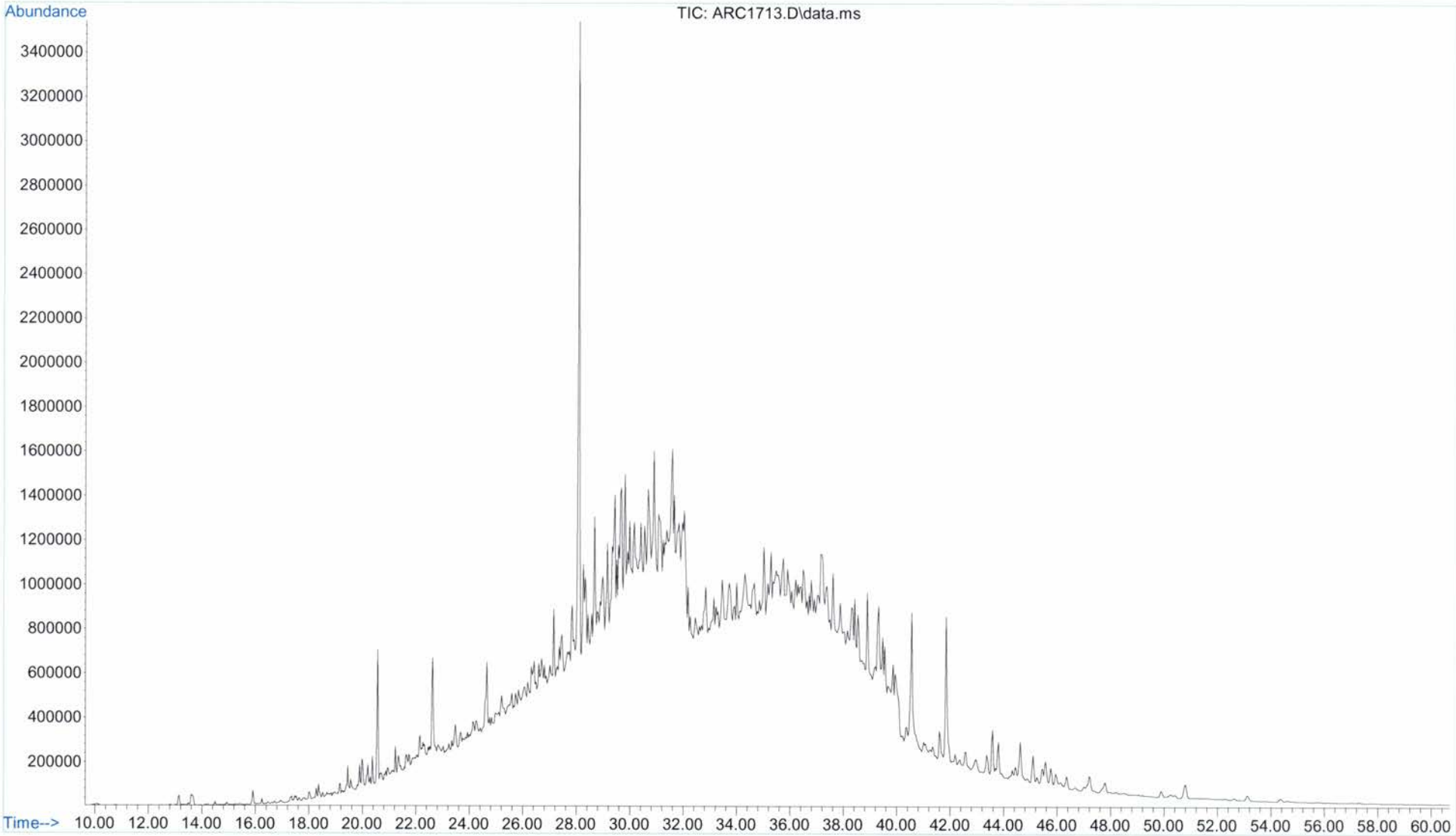

SO-DA-021 (0.5-1.0) (Soil)
ARC1744
Su. Corrected Conc. (ng/dry g)
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene


SO-DA-021 (1.0-1.5) (Soil)
ARC1745
Su. Corrected Conc. (ng/dry g)
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

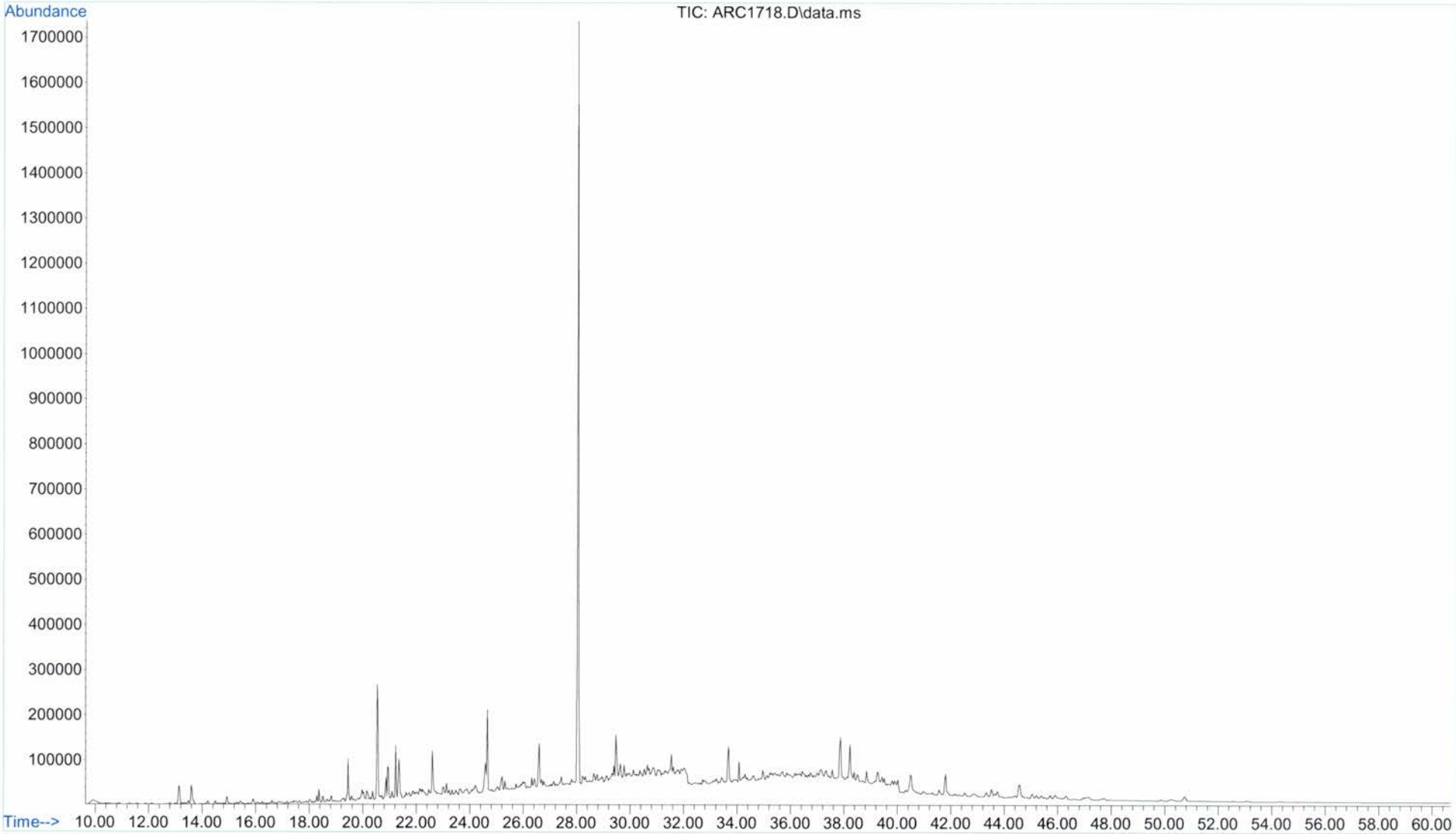

SO-DA-023 (0-0.5) (Soil)
ARC1749
Su. Corrected Conc. (ng/dry g)
600
500
400
300
200
100
0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

Polycyclic Aromatic Hydrocarbon Total Ion Chromatograms

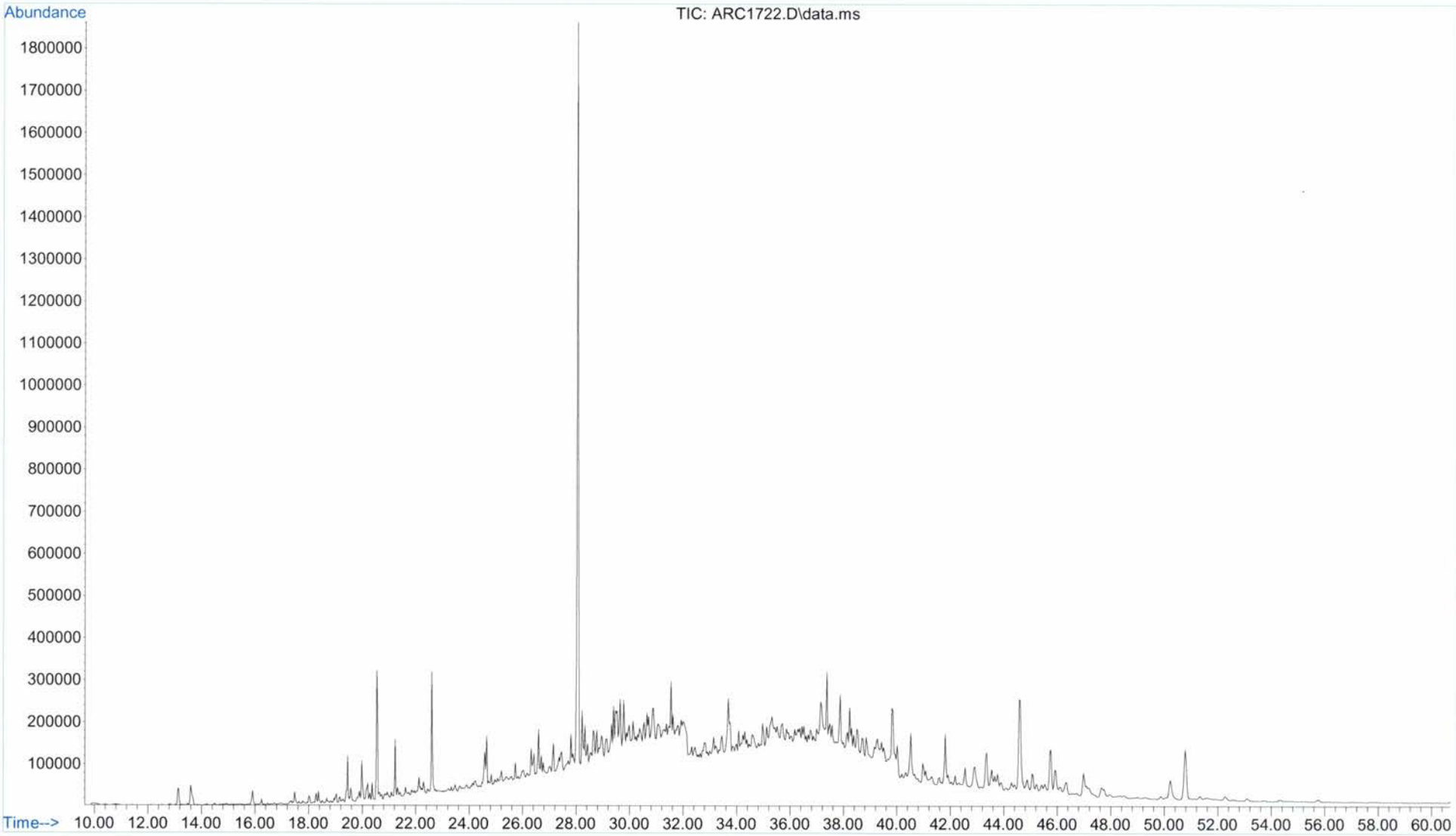
File :C:\GCMS6\MS60145\ARC1713.D
Operator : YM
Acquired : 31 Aug 2013 18:02 using AcqMethod PAH-2012.M
Instrument : GCMS6
Sample Name: SO-DA-017 (0-0.5)
Misc Info :
Vial Number: 17



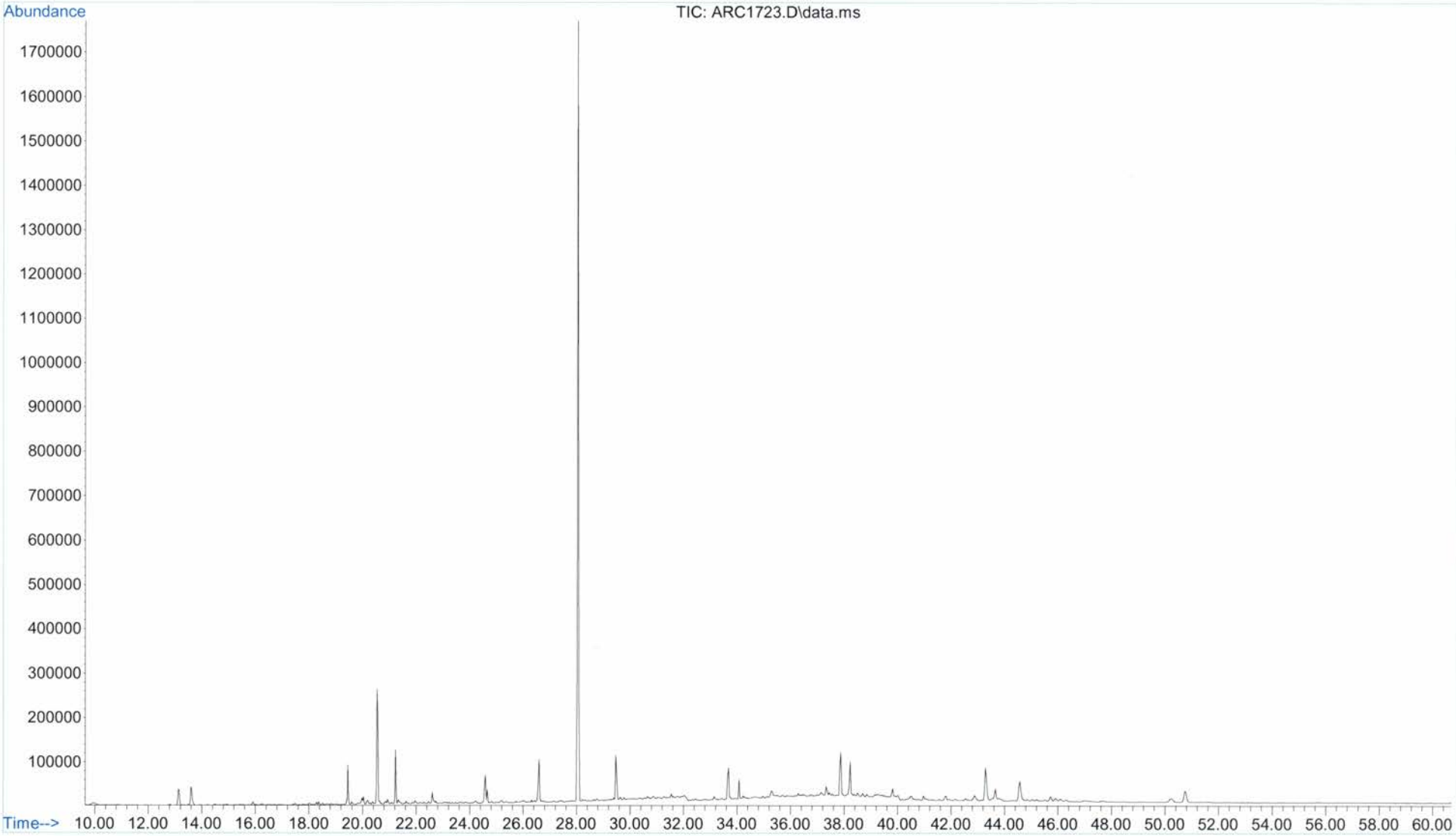
File :C:\GCMS6\MS60145\ARC1718.D
Operator : YM
Acquired : 31 Aug 2013 20:21 using AcqMethod PAH-2012.M
Instrument : GCMS6
Sample Name: SO-DA-018 (0.5-1.0)
Misc Info :
Vial Number: 18



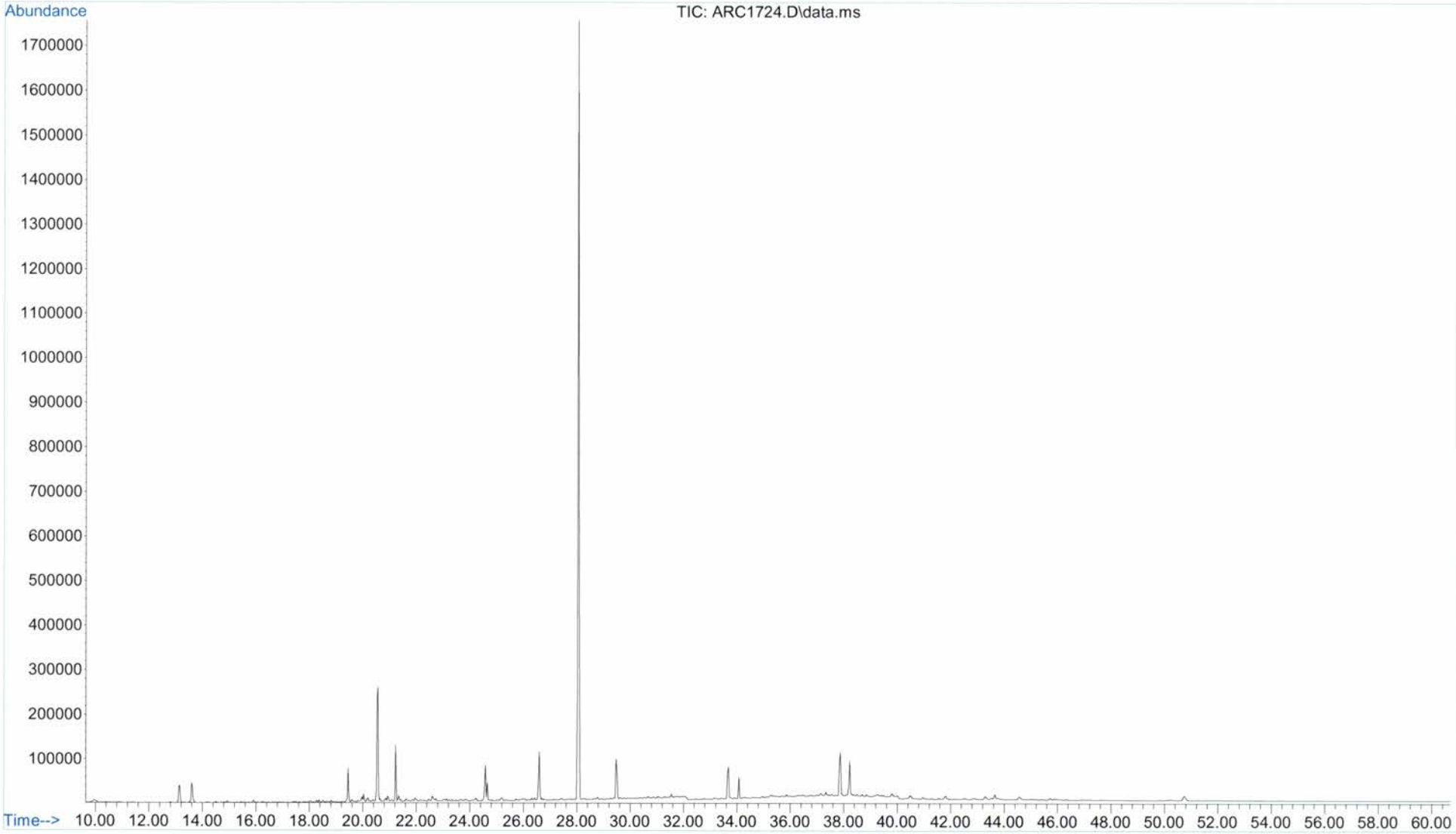
File :C:\GCMS6\MS60145\ARC1722.D
Operator : YM
Acquired : 31 Aug 2013 21:31 using AcqMethod PAH-2012.M
Instrument : GCMS6
Sample Name: SO-DA-020 (0-0.5)
Misc Info :
Vial Number: 19



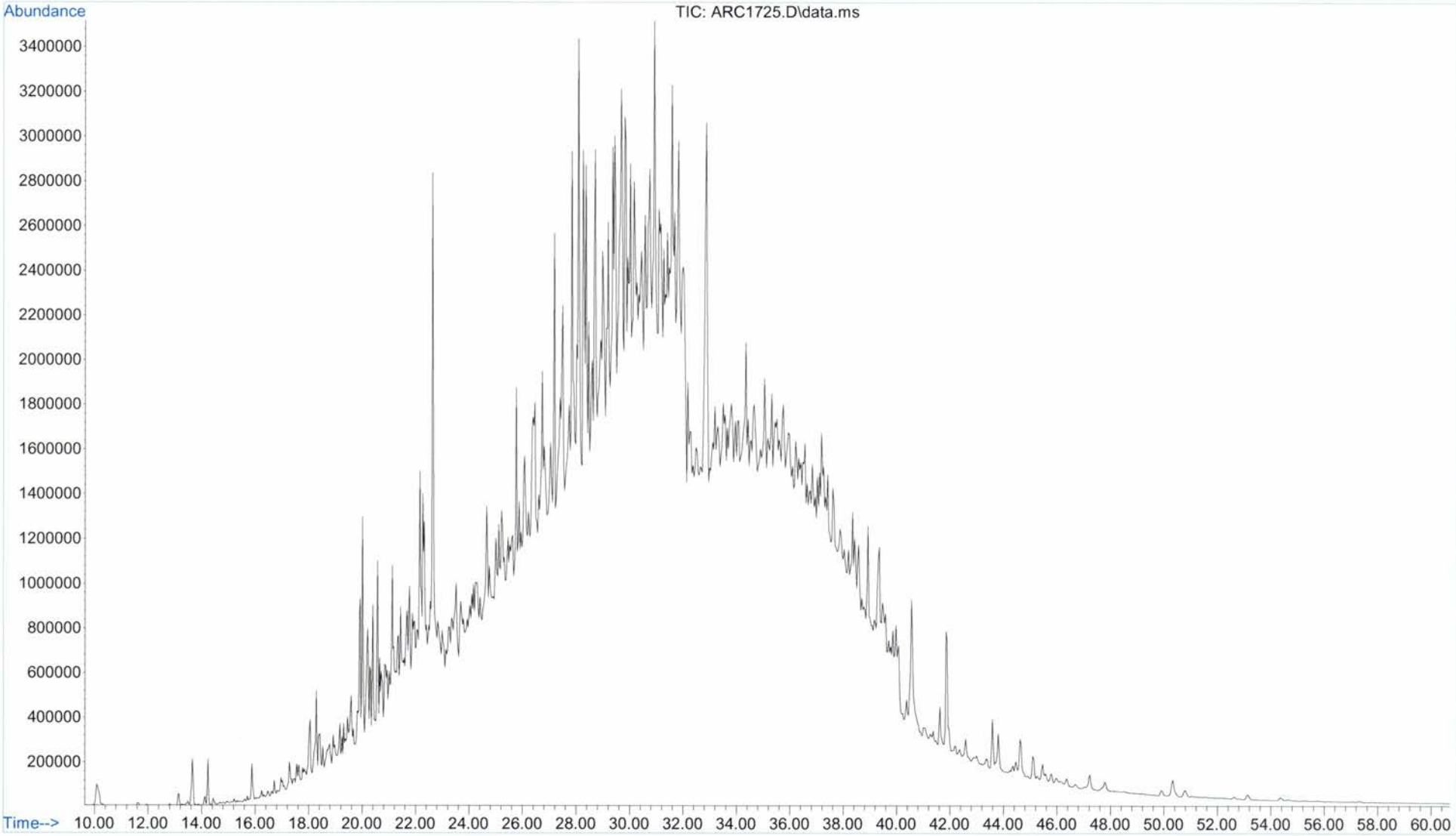
File :C:\GCMS6\MS60145\ARC1723.D
Operator : YM
Acquired : 31 Aug 2013 22:41 using AcqMethod PAH-2012.M
Instrument : GCMS6
Sample Name: SO-DA-020 (0.5-1.0)
Misc Info :
Vial Number: 21



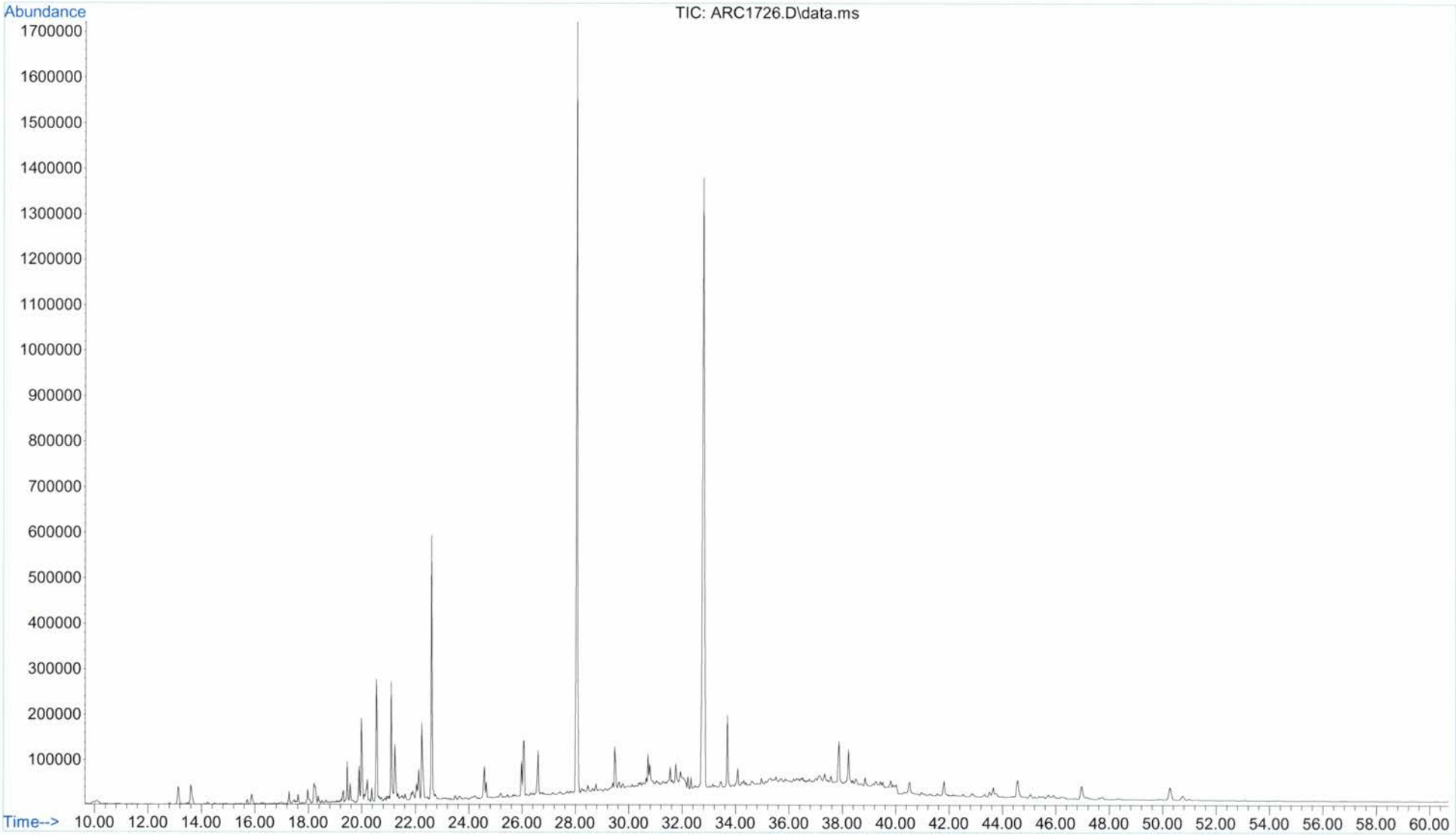
File :C:\GCMS6\MS60145\ARC1724.D
Operator : YM
Acquired : 31 Aug 2013 23:50 using AcqMethod PAH-2012.M
Instrument : GCMS6
Sample Name: SO-DA-020 (1.0-1.5)
Misc Info :
Vial Number: 22



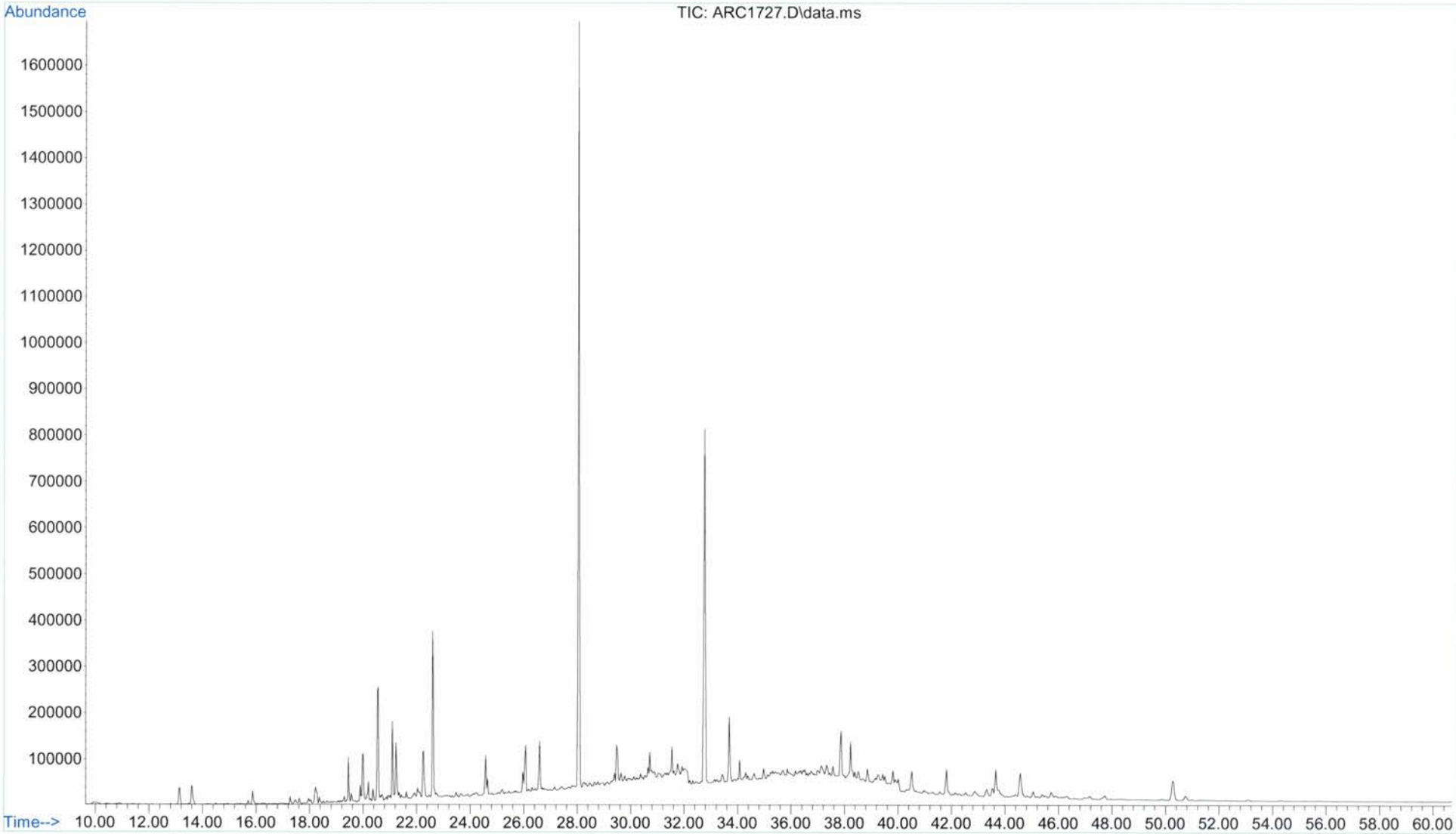
File :C:\GCMS6\MS60145\ARC1725.D
Operator : YM
Acquired : 1 Sep 2013 1:00 using AcqMethod PAH-2012.M
Instrument : GCMS6
Sample Name: SO-DA-022 (0-0.5)
Misc Info :
Vial Number: 23



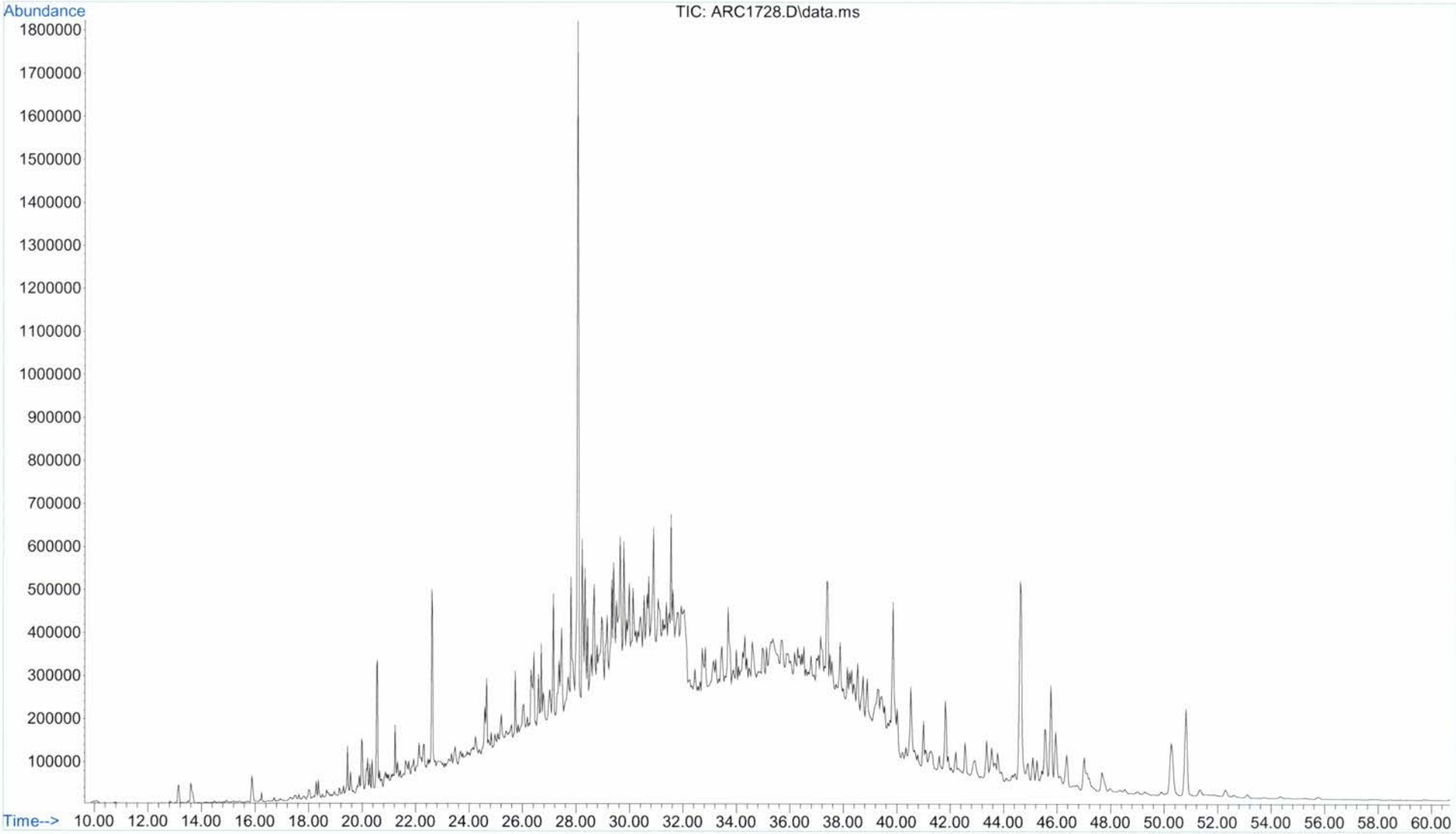
File :C:\GCMS6\MS60145\ARC1726.D
Operator : YM
Acquired : 1 Sep 2013 2:10 using AcqMethod PAH-2012.M
Instrument : GCMS6
Sample Name: SO-DA-022 (0.5-1.0)
Misc Info :
Vial Number: 24



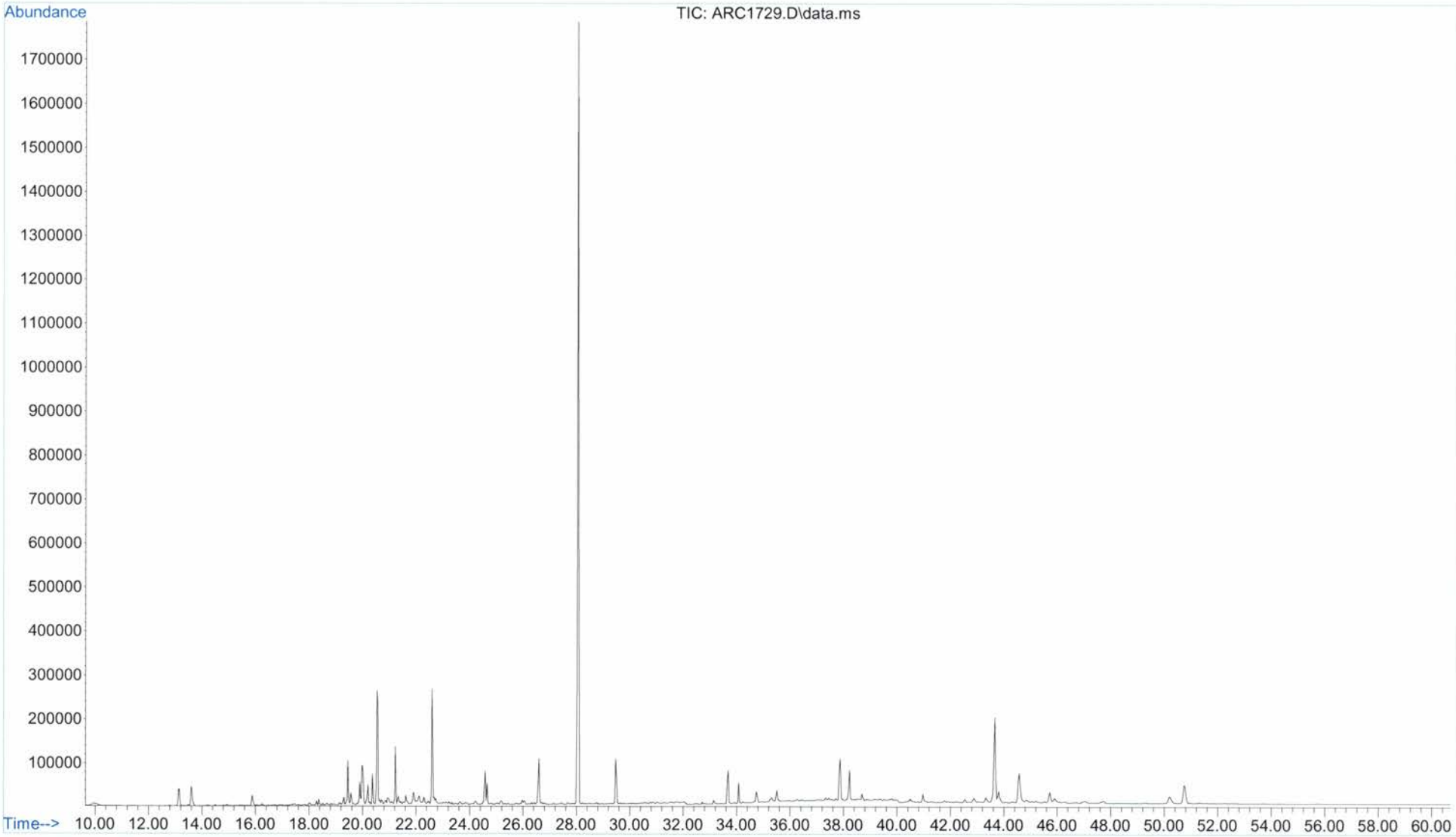
File :C:\GCMS6\MS60145\ARC1727.D
Operator : YM
Acquired : 1 Sep 2013 3:19 using AcqMethod PAH-2012.M
Instrument : GCMS6
Sample Name: SO-DA-022 (1.0-1.5)
Misc Info :
Vial Number: 25



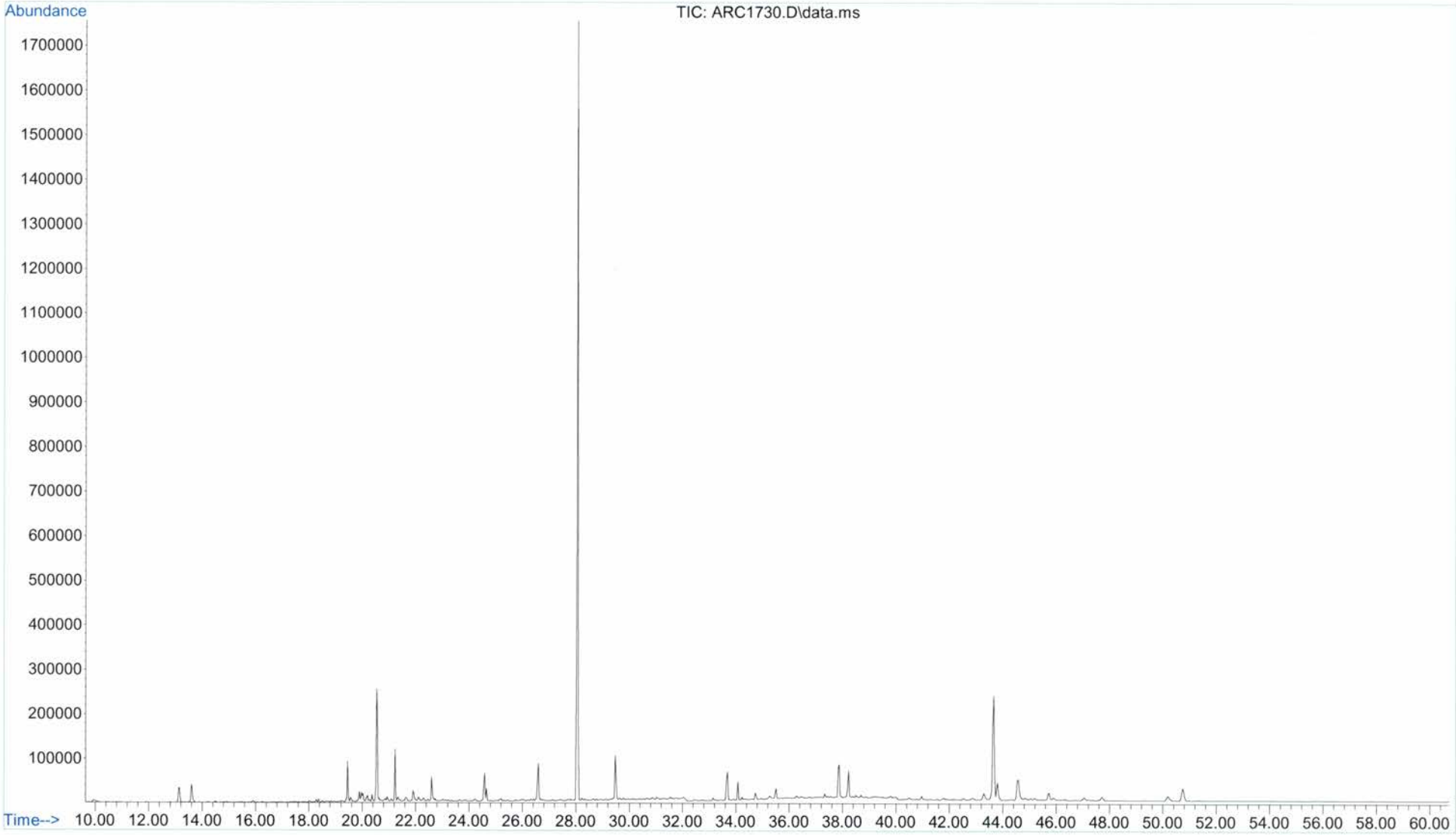
File :C:\GCMS6\MS60145\ARC1728.D
Operator : YM
Acquired : 1 Sep 2013 4:29 using AcqMethod PAH-2012.M
Instrument : GCMS6
Sample Name: SO-DA-025 (0-0.5)
Misc Info :
Vial Number: 26



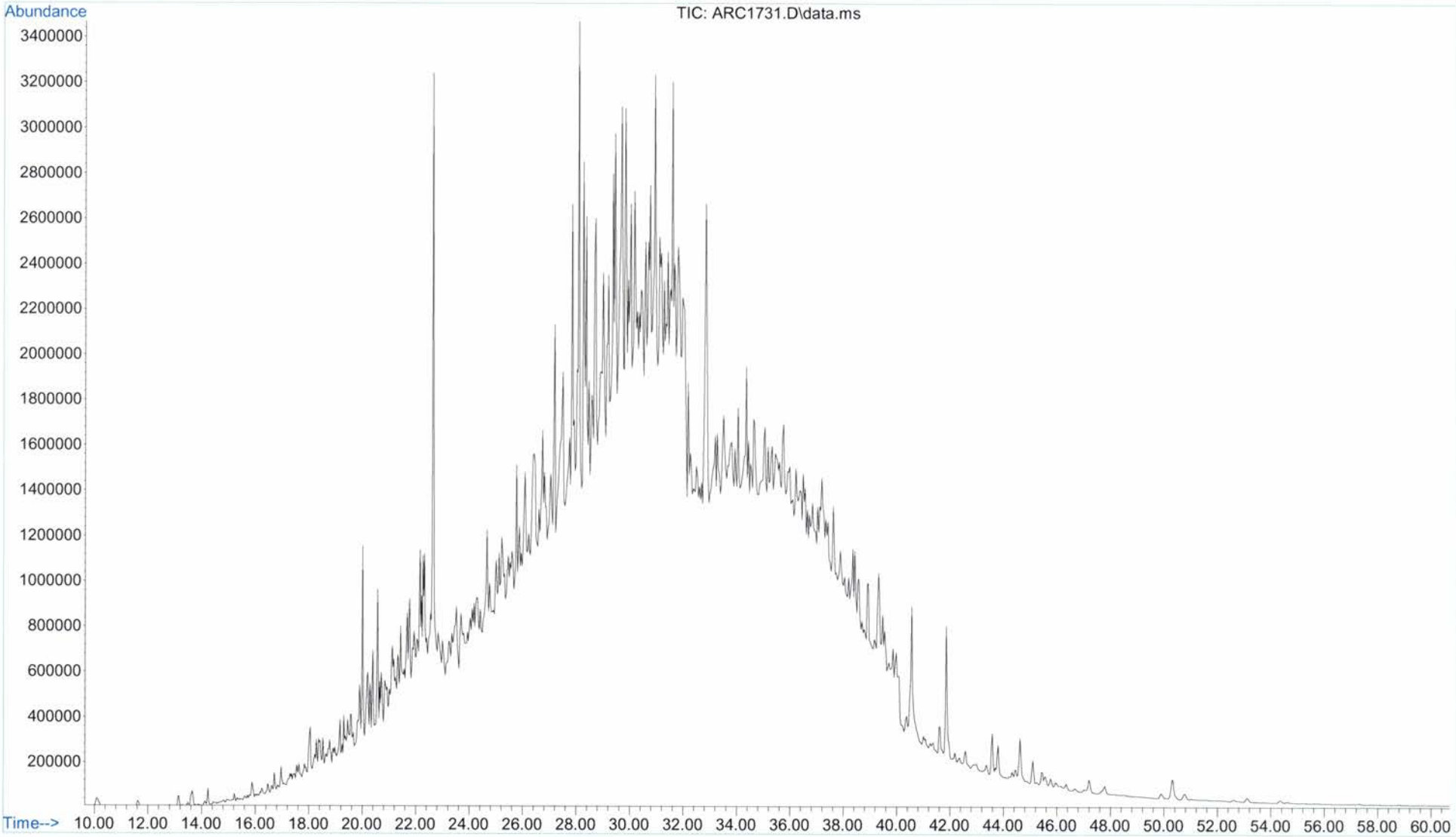
File :C:\GCMS6\MS60145\ARC1729.D
Operator : YM
Acquired : 1 Sep 2013 5:39 using AcqMethod PAH-2012.M
Instrument : GCMS6
Sample Name: SO-DA-025 (0.5-1.0)
Misc Info :
Vial Number: 27



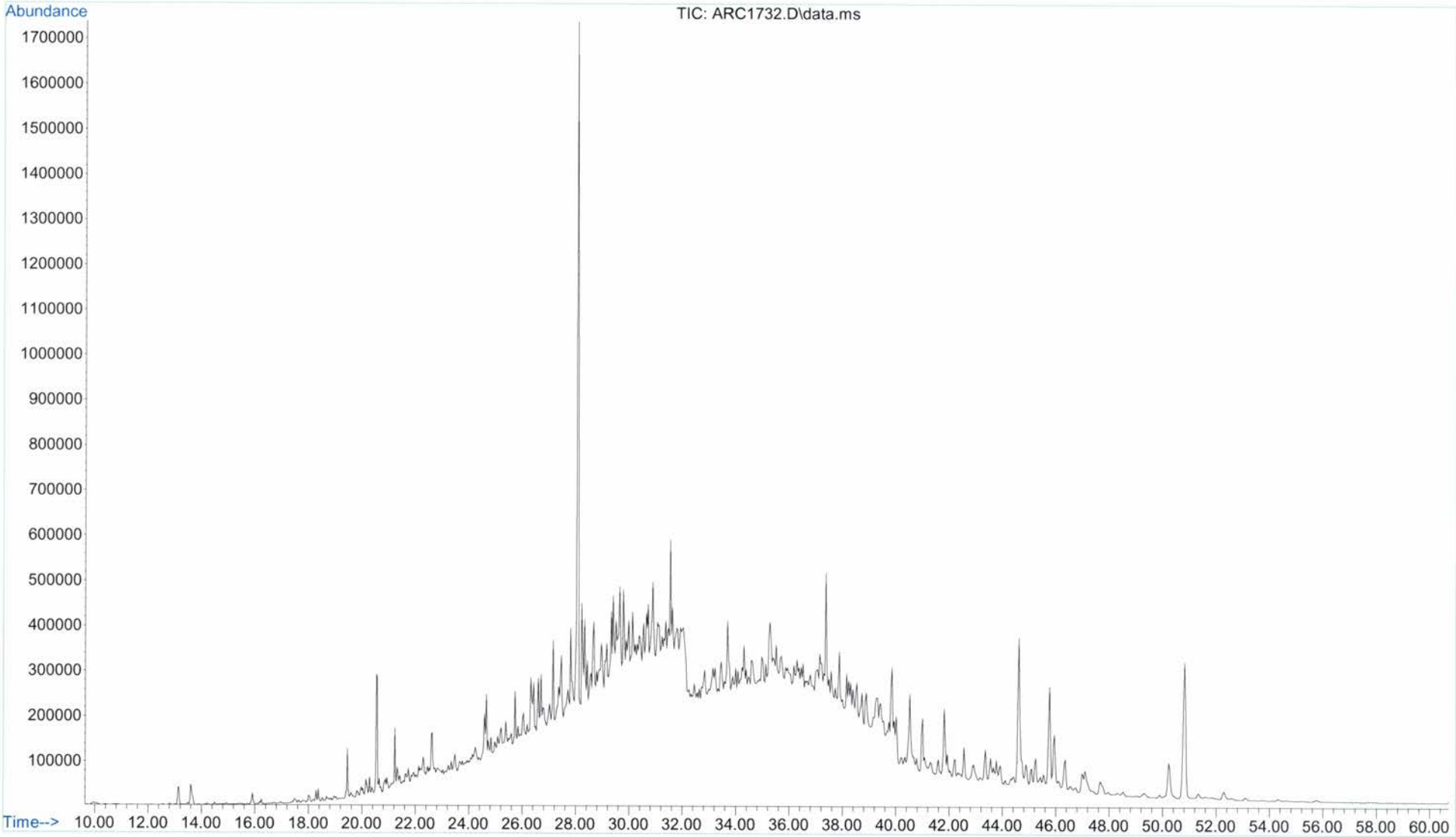
File :C:\GCMS6\MS60145\ARC1730.D
Operator : YM
Acquired : 1 Sep 2013 7:58 using AcqMethod PAH-2012.M
Instrument : GCMS6
Sample Name: SO-DA-025 (1.0-1.5)
Misc Info :
Vial Number: 28



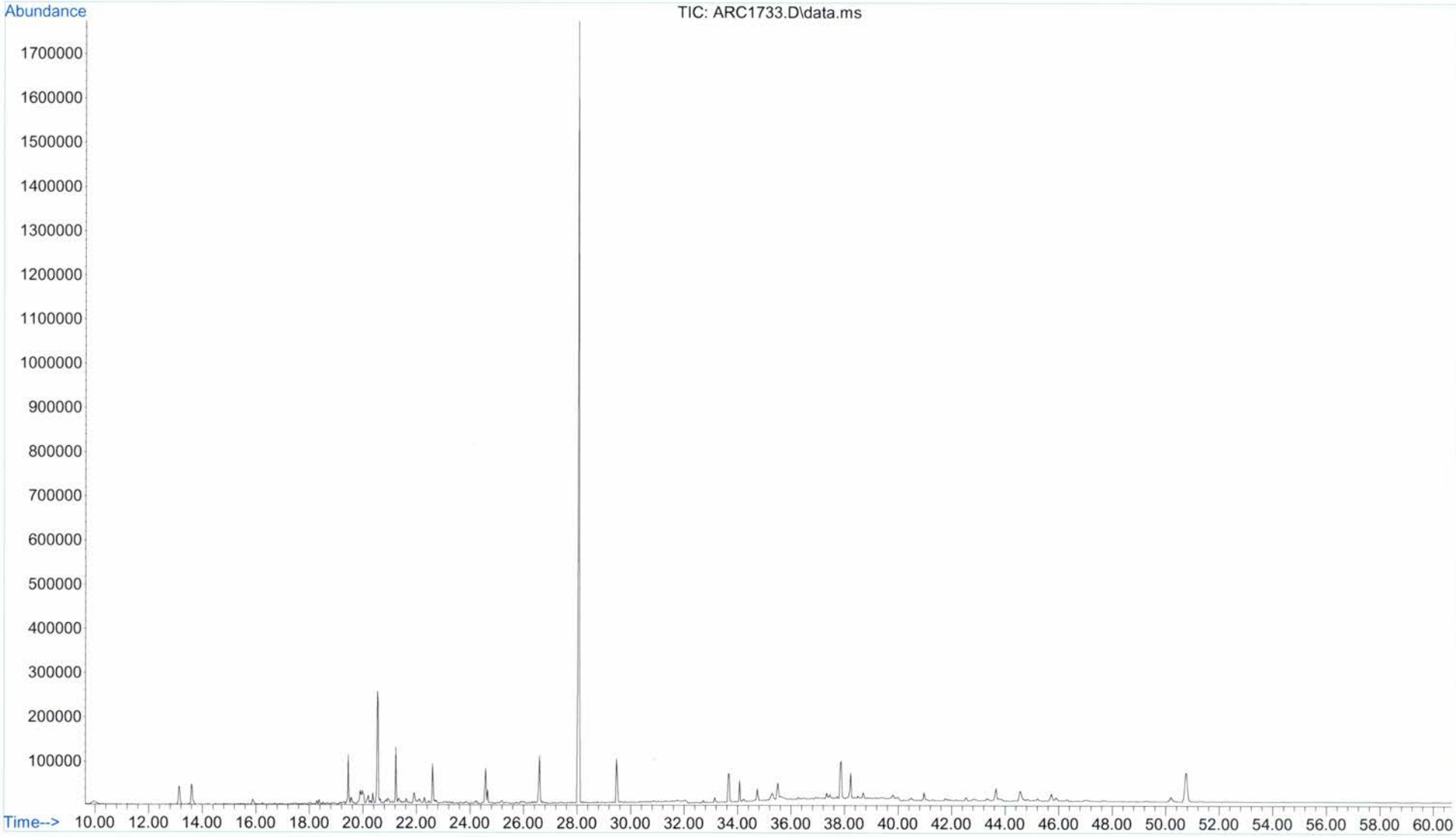
File :C:\GCMS6\MS60145\ARC1731.D
Operator : YM
Acquired : 1 Sep 2013 9:08 using AcqMethod PAH-2012.M
Instrument : GCMS6
Sample Name: SO-DA-DUP-04-080713
Misc Info :
Vial Number: 30



File :C:\GCMS6\MS60145\ARC1732.D
Operator : YM
Acquired : 1 Sep 2013 10:18 using AcqMethod PAH-2012.M
Instrument : GCMS6
Sample Name: SO-DA-032 (0-0.5)
Misc Info :
Vial Number: 31



File :C:\GCMS6\MS60145\ARC1733.D
Operator : YM
Acquired : 1 Sep 2013 11:27 using AcqMethod PAH-2012.M
Instrument : GCMS6
Sample Name: SO-DA-032 (0.5-1.0)
Misc Info :
Vial Number: 32



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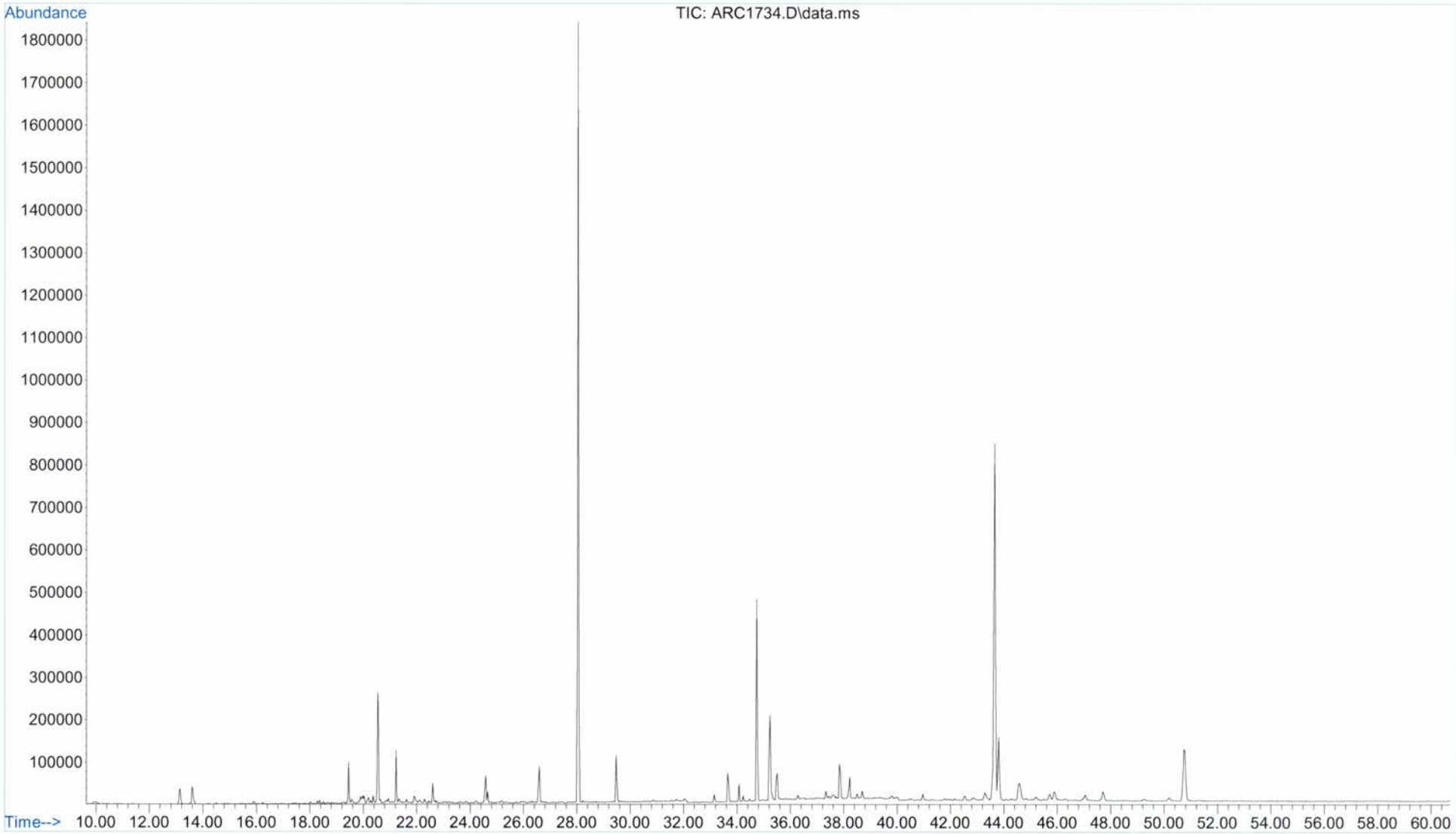
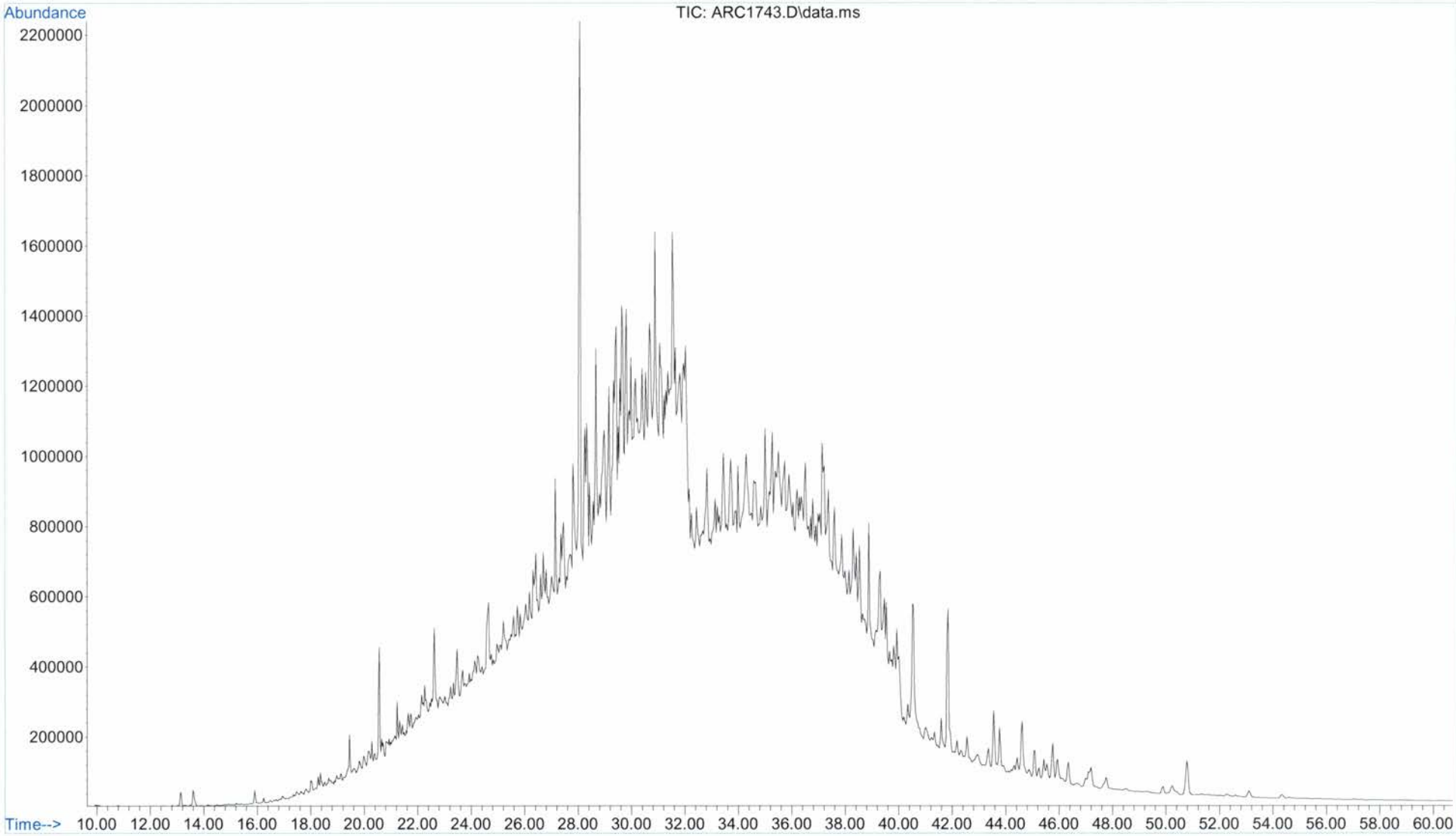
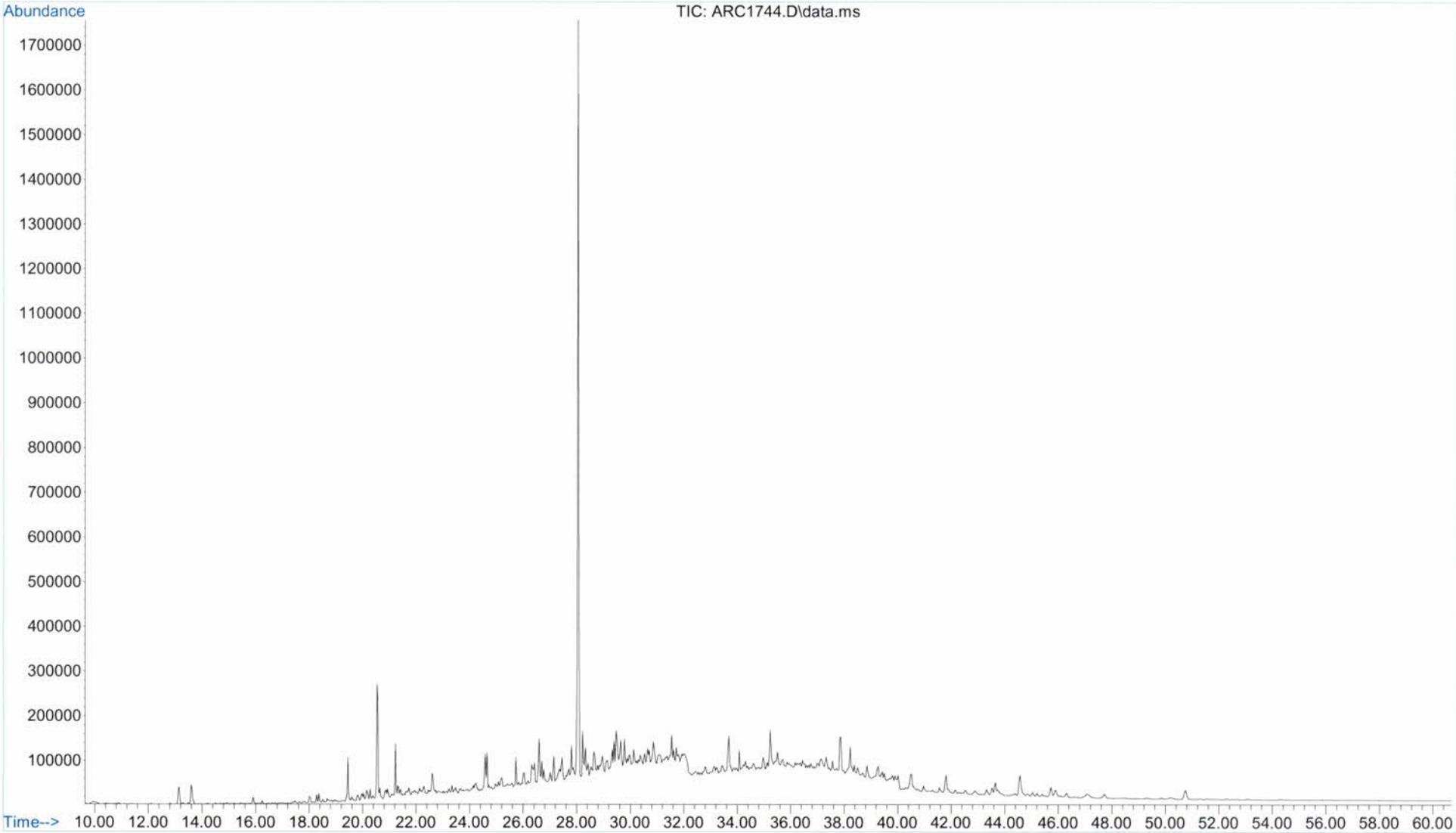
File       :C:\GCMS6\MS60145\ARC1734.D
Operator   : YM
Acquired   :  1 Sep 2013  12:37     using AcqMethod PAH-2012.M
Instrument :   GCMS6
Sample Name: SO-DA-032 (1.0-1.5)
Misc Info  :
Vial Number: 33
```



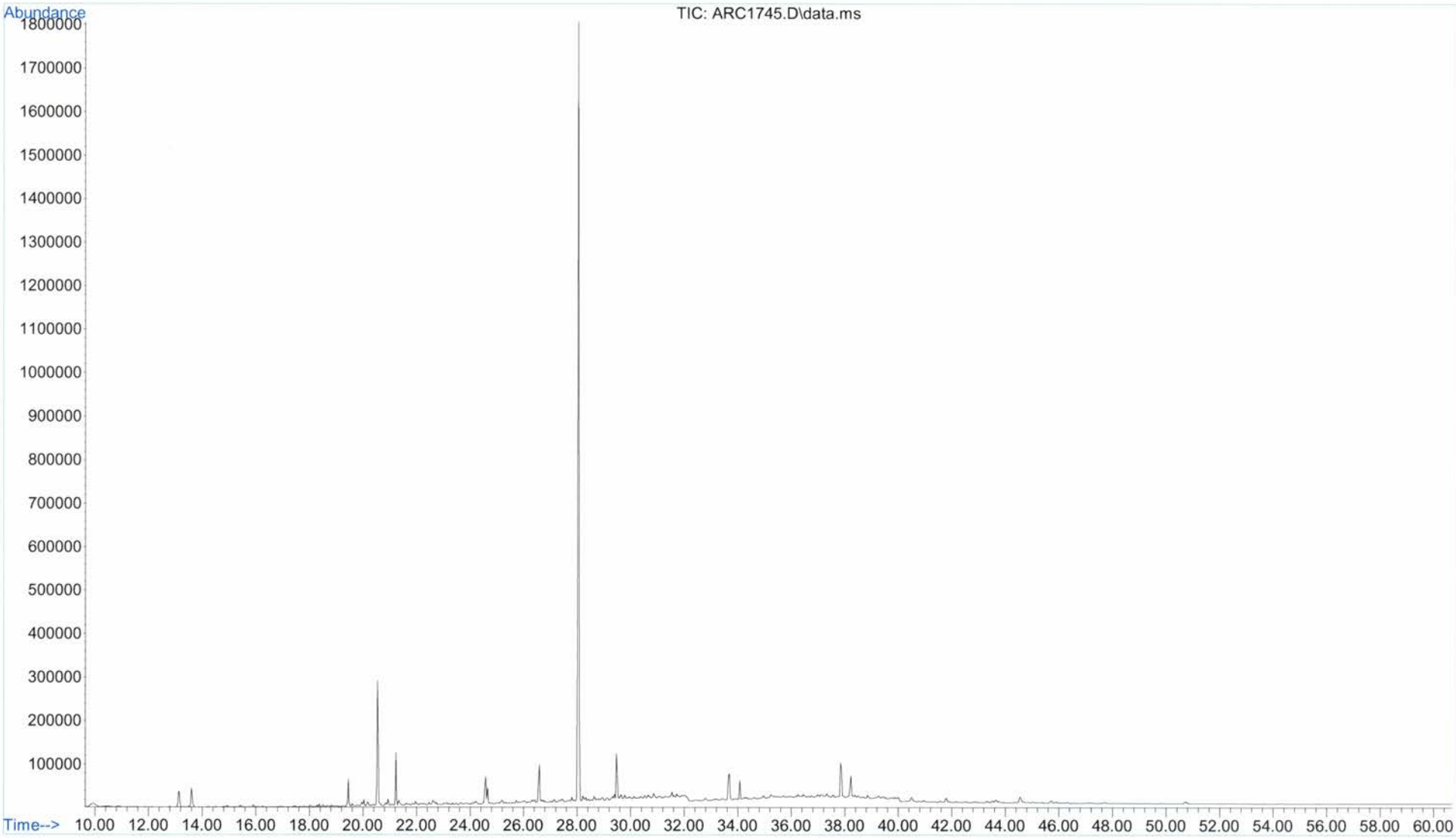
File :C:\GCMS6\MS60145\ARC1743.D
Operator : YM
Acquired : 1 Sep 2013 13:47 using AcqMethod PAH-2012.M
Instrument : GCMS6
Sample Name: SO-DA-021 (0-0.5)
Misc Info :
Vial Number: 34



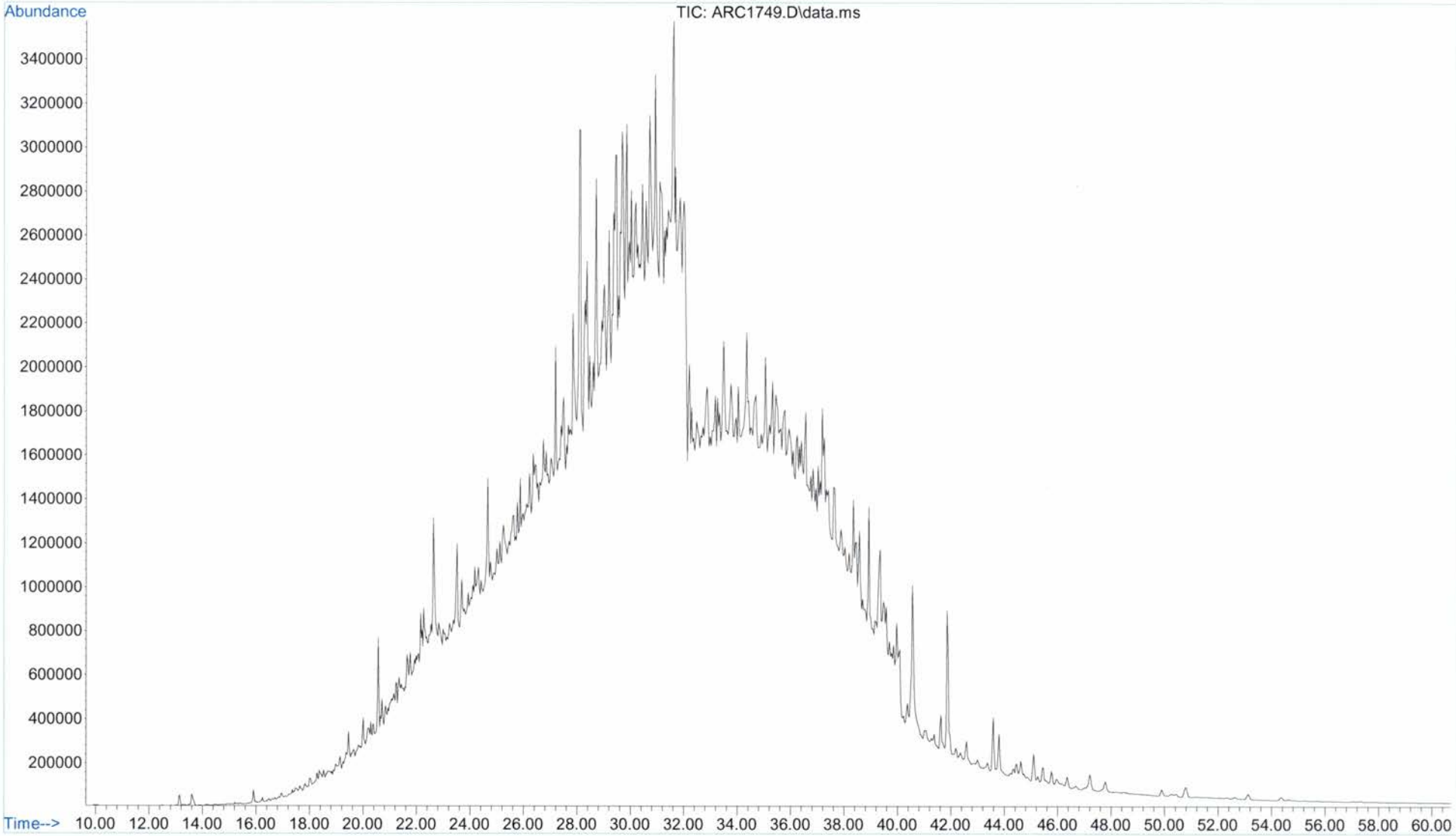
File :C:\GCMS6\MS60145\ARC1744.D
Operator : YM
Acquired : 1 Sep 2013 14:56 using AcqMethod PAH-2012.M
Instrument : GCMS6
Sample Name: SO-DA-021 (0.5-1.0)
Misc Info :
Vial Number: 35



File :C:\GCMS6\MS60145\ARC1745.D
Operator : YM
Acquired : 1 Sep 2013 16:06 using AcqMethod PAH-2012.M
Instrument : GCMS6
Sample Name: SO-DA-021 (1.0-1.5)
Misc Info :
Vial Number: 36



File :C:\GCMS6\MS60145\ARC1749.D
Operator : YM
Acquired : 1 Sep 2013 17:16 using AcqMethod PAH-2012.M
Instrument : GCMS6
Sample Name: SO-DA-023 (0-0.5)
Misc Info :
Vial Number: 37



Polycyclic Aromatic Hydrocarbon Raw Data

B&B LABORATORIES PAHs QA FORM

Extraction Page: ENV 3085	Analyst: Y. Miao
Client: Arcadis Mayflower Project	Date: September 18, 2013
Job: #: J13034	Project Quality Manager: W Juan
SDG #: 13080601 and 13080701	Date: 09/20/13

Initial Calibration: No failures	ICV No failures

Surrogate Recoveries:	d12-Perylene was outside of the laboratory %recovery limits in 13 client samples samples and three internal QC samples (soil was submitted by the client). Recoveries are qualifed with an "L"
Procedural Blank:	No failures
Blank Spike:	NA
Blank Spike Duplicate:	NA
Laboratory Duplicate:	No failures
Matrix Spike:	Benzo(a)pyrene, perylene, benzo(ghi)perylene were detected outside of the laboratory %recovery limits of 40-120%, due to a matrix effect and are labelled with an 'L' Perylene were detected outside of the laboratory %recovery limits of 40-120 Seven compounds were detected outside of the laboratory %recovery limits of 40-120%, however these compounds are outside of the limits due to high native concentrations of PAHs in the sample. Peaks are qualifed with a "Y" - invalid spike
Matirx Spike Duplicate:	Benzo(a)pyrene, perylene, benzo(ghi)perylene were detected outside of the laboratory %recovery limits of 40-120%, due to a matrix effect and are labelled with an 'L' Benzo(a)pyrene and perylene were detected outside of the laboratory %recovery limits of 40-120% Seven compounds were detected outside of the laboratory %recovery limits of 40-120%, however these compounds are outside of the limits due to high native concentrations of PAHs in the sample. Peaks are qualifed with a "Y" - invalid spike
SRM/LCS (Solution, Tissue, Sediment):	Solution no failures Sediment (1941b) no failures
CCC (from a second source):	No failures
SRM-2279 Reference Oil	No failures
Mass Discrimination Check (benzo(ghi)perylene/phenanthrene >0.7)	No failures

Sequence Name: C:\msdchem\1\sequence\MS60145.S
Comment: Arcadis-Mayflower AR-Sediments-PAH (08/30/13)
Operator: YM
Data Path: C:\MSDCHEM\1\DATA\MS60145\
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

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

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

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

Line		Sample Name/Misc Info		
1)	Sample 1	MS60145A	PAH-2012	Solvent rinse
2)	Sample 2	MS60145B	PAH-2012	AR-WKC1-020-030
3)	Sample 3	MS60145C	PAH-2012	AR-WKC2-100-030
4)	Sample 4	MS60145D	PAH-2012	AR-WKC3-250-030
5)	Sample 5	MS60145E	PAH-2012	AR-WKC4-500-030
6)	Sample 6	MS60145F	PAH-2012	AR-WKC5-1000-030
7)	Sample 7	MS60145G	PAH-2012	AR-WKC6-5000-030
8)	Sample 8	MS60145H	PAH-2012	AR-WKISSU-250-002
9)	Sample 9	MS60145I	PAH-2012	AR-WKICV-250-004
10)	Sample 10	MS60145J	PAH-2012	AR-WKCC-250-038
11)	Sample 11	MS60145K	PAH-2012	AR-SRM2779-WK-4.0-002
12)	Sample 12	ENV3088A	PAH-2012	
13)	Sample 13	ENV3088B	PAH-2012	
14)	Sample 14	ENV3088C	PAH-2012	
15)	Sample 15	ENV3088D	PAH-2012	
16)	Sample 16	ENV3088E	PAH-2012	
17)	Sample 17	ARC1713	PAH-2012	
18)	Sample 20	MS60145L	PAH-2012	AR-WKCC-250-038
19)	Sample 18	ARC1718	PAH-2012	
20)	Sample 19	ARC1722	PAH-2012	
21)	Sample 21	ARC1723	PAH-2012	
22)	Sample 22	ARC1724	PAH-2012	
23)	Sample 23	ARC1725	PAH-2012	
24)	Sample 24	ARC1726	PAH-2012	
25)	Sample 25	ARC1727	PAH-2012	
26)	Sample 26	ARC1728	PAH-2012	
27)	Sample 27	ARC1729	PAH-2012	
28)	Sample 29	MS60145M	PAH-2012	AR-WKCC-250-038
29)	Sample 28	ARC1730	PAH-2012	
30)	Sample 30	ARC1731	PAH-2012	
31)	Sample 31	ARC1732	PAH-2012	
32)	Sample 32	ARC1733	PAH-2012	
33)	Sample 33	ARC1734	PAH-2012	
34)	Sample 34	ARC1743	PAH-2012	
35)	Sample 35	ARC1744	PAH-2012	
36)	Sample 36	ARC1745	PAH-2012	
37)	Sample 37	ARC1749	PAH-2012	
38)	Sample 38	MS60145N	PAH-2012	AR-WKCC-250-038

Evaluate Continuing Calibration Report

Data Path : C:\GCMS6\MS60145\
Data File : MS60145J.D
Acq On : 31 Aug 2013 8:16 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 31 13:53:53 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Fluorene-d10	1.000	1.000	0.0	87	0.00
2	S	Naphthalene-d8	1.618	1.643	-1.5	94	0.00
3	T	cis/trans Decalin	0.281	0.299	-6.4	94	0.00
4	un	C1-Decalins	0.281	0.000	100.0#	0#	-12.12#
5	un	C2-Decalins	0.281	0.000	100.0#	0#	-14.49#
6	un	C3-Decalins	0.281	0.000	100.0#	0#	-16.19#
7	un	C4-Decalins	0.281	0.000	100.0#	0#	-18.33#
8	T	Naphthalene	1.732	1.776	-2.5	94	-0.03
9	T	2-Methylnaphthalene	1.129	1.115	1.2	93	0.00
10	T	1-Methylnaphthalene	1.048	1.060	-1.1	94	0.00
11	T	2,6-Dimethylnaphthalene	1.028	1.032	-0.4	92	0.00
12	T	1,6,7-Trimethylnaphthalene	0.991	0.952	3.9	91	0.00
13	un	C2-Naphthalenes	1.732	0.000	100.0#	0#	-18.00#
14	un	C3-Naphthalenes	1.732	0.000	100.0#	0#	-20.15#
15	un	C4-Naphthalenes	1.732	0.000	100.0#	0#	-21.65#
16	T	Benzothiophene	1.367	1.404	-2.7	94	-0.03
17	un	C1-Benzothiophenes	1.367	0.000	100.0#	0#	-15.30#
18	un	C2-Benzothiophenes	1.367	0.000	100.0#	0#	-18.47#
19	un	C3-Benzothiophenes	1.367	0.000	100.0#	0#	-20.09#
20	un	C4-Benzothiophenes	1.367	0.000	100.0#	0#	-22.07#
21	S	Acenaphthene-d10	0.956	0.940	1.7	92	0.00
22	T	Biphenyl	1.481	1.501	-1.4	93	0.00
23	T	Acenaphthylene	1.707	1.681	1.5	91	0.00
24	T	Acenaphthene	1.007	0.984	2.3	92	0.00
25	T	Dibenzofuran	1.617	1.629	-0.7	93	0.00
26	T	Fluorene	1.244	1.223	1.7	92	0.00
27	T	1-Methylfluorene	0.813	0.713	12.3	85	0.00
28	un	C1-Fluorenes	1.244	0.000	100.0#	0#	-23.34#
29	un	C2-Fluorenes	1.244	0.000	100.0#	0#	-25.00#
30	un	C3-Fluorenes	1.244	0.000	100.0#	0#	-26.52#
31	I	Pyrene-d10	1.000	1.000	0.0	82	0.00
32	S	Phenanthrene-d10	0.890	0.885	0.6	90	0.00
33	T	Carbazole	0.748	0.728	2.7	90	0.00
34	T	Dibenzothiophene	0.922	0.983	-6.6	92	0.00
35	T	4-Methyldibenzothiophene	0.850	0.870	-2.4	89	0.00
36	un	2/3-Methyldibenzothiophene	0.850	0.000	100.0#	0#	-26.04#
37	un	1-Methyldibenzothiophene	0.850	0.000	100.0#	0#	-26.35#
38	un	C2-Dibenzothiophenes	0.922	0.000	100.0#	0#	-27.15#
39	un	C3-Dibenzothiophenes	0.922	0.000	100.0#	0#	-28.46#
40	un	C4-Dibenzothiophenes	0.922	0.000	100.0#	0#	-30.30#
41	T	Phenanthrene	1.150	1.105	3.9	85	0.00
42	T	Anthracene	1.100	1.038	5.6	84	0.00
43	un	3-Methylphenanthrene	0.804	0.000	100.0#	0#	-26.77#
44	un	2-Methylphenanthrene	0.804	0.000	100.0#	0#	-26.77#
45	un	2-Methylanthracene	0.804	0.000	100.0#	0#	-26.77#
46	un	4/9-Methylphenanthrene	0.804	0.000	100.0#	0#	-26.77#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS6\MS60145\
Data File : MS60145J.D
Acq On : 31 Aug 2013 8:16 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 31 13:53:53 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
47	T	1-Methylphenanthrene	0.804	0.881	-9.6	96	0.00
48	T	3,6-Dimethylphenanthrene	0.697	0.684	1.9	89	-0.03
49	T	Retene	0.427	0.392	8.2	82	0.00
50	un	C2-Phenanthrenes/Anthracene	1.150	0.000	100.0#	0#	-28.43#
51	un	C3-Phenanthrenes/Anthracene	1.150	0.000	100.0#	0#	-29.26#
52	un	C4-Phenanthrenes/Anthracene	1.150	0.000	100.0#	0#	-31.93#
53	T	Naphthobenzothiophene	0.935	0.939	-0.4	92	0.00
54	un	C1-Naphthobenzothiophenes	0.935	0.000	100.0#	0#	-34.07#
55	un	C2-Naphthobenzothiophenes	0.935	0.000	100.0#	0#	-35.67#
56	un	C3-Naphthobenzothiophenes	0.935	0.000	100.0#	0#	-37.30#
57	un	C4-Naphthobenzothiophenes	0.935	0.000	100.0#	0#	-38.23#
58	T	Fluoranthene	1.116	1.138	-2.0	91	-0.03
59	T	Pyrene	1.473	1.474	-0.1	88	0.00
60	T	2-Methylfluoranthene	0.949	0.917	3.4	86	0.00
61	T	Benzo(b)fluorene	0.797	0.680	14.7	80	0.00
62	un	C1-Fluoranthenes/Pyrenes	1.116	0.000	100.0#	0#	-30.54#
63	un	C2-Fluoranthenes/Pyrenes	1.116	0.000	100.0#	0#	-32.03#
64	un	C3-Fluoranthenes/Pyrenes	1.116	0.000	100.0#	0#	-33.69#
65	un	C4-Fluoranthenes/Pyrenes	1.116	0.000	100.0#	0#	-34.11#
66	S	Chrysene-d12	0.902	0.860	4.7	89	-0.04
67	T	Benz(a)anthracene	0.932	0.936	-0.4	94	0.00
68	T	Chrysene/Triphenylene	1.023	0.910	11.0	85	0.00
69	un	C1-Chrysenes	1.023	0.000	100.0#	0#	-35.67#
70	un	C2-Chrysenes	1.023	0.000	100.0#	0#	-36.09#
71	un	C3-Chrysenes	1.023	0.000	100.0#	0#	-37.92#
72	un	C4-Chrysenes	1.023	0.000	100.0#	0#	-39.39#
73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	78	0.00
74	un	C29-Hopane	0.536	0.000	100.0#	0#	-40.82#
75	un	18a-Oleanane	0.536	0.000	100.0#	0#	-41.81#
76	T	C30-Hopane	0.536	0.595	-11.0	87	0.00
77	T	Benzo(b)fluoranthene	1.369	1.383	-1.0	88	0.00
78	T	Benzo(k,j)fluoranthene	1.224	1.195	2.4	83	-0.04
79	un	Benzo(a)fluoranthene	1.224	0.000	100.0#	0#	-37.14#
80	T	Benzo(e)pyrene	1.439	1.516	-5.4	88	0.00
81	T	Benzo(a)pyrene	1.297	1.216	6.2	82	0.00
82	T	Indeno(1,2,3-c,d)pyrene	1.212	1.143	5.7	83	-0.04
83	T	Dibenzo(a,h)anthracene	0.912	0.851	6.7	82	-0.04
84	un	C1-Dibenzo(a,h)anthracenes	0.912	0.000	100.0#	0#	-48.82#
85	un	C2-Dibenzo(a,h)anthracenes	0.912	0.000	100.0#	0#	-50.37#
86	un	C3-Dibenzo(a,h)anthracenes	0.912	0.000	100.0#	0#	-50.55#
87	T	Benzo(g,h,i)perylene	1.055	1.030	2.4	84	0.00
88	S	Perylene-d12	1.193	1.178	1.3	87	0.00
89	T	Perylene	1.362	1.302	4.4	82	0.00
90	S	5(b)H-Cholane	0.420	0.422	-0.5	83	0.00
91	un	C20-TAS	2.034	0.000	100.0#	0#	-33.14#
92	un	C21-TAS	2.034	0.000	100.0#	0#	-34.07#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS6\MS60145\
Data File : MS60145J.D
Acq On : 31 Aug 2013 8:16 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 31 13:53:53 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
93 un	C26(20S)-TAS	2.034	0.000	100.0#	0#	-38.54#
94 T	C26(20R)/C27(20S)-TAS	2.034	1.813	10.9	77	0.00
95 un	C28(20S)-TAS	2.034	0.000	100.0#	0#	-39.82#
96 un	C27(20R)-TAS	2.034	0.000	100.0#	0#	-40.45#
97 un	C28(20R)-TAS	2.034	0.000	100.0#	0#	-41.81#

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145J.D
Acq On : 31 Aug 2013 8:16 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 31 13:53:53 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.230	176	117104m	251.05		0.00
31) Pyrene-d10	29.468	212	190507m	250.63		0.00
73) Benzo(a)pyrene-d12	38.224	264	148554m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.595	136	191725m	254.03		0.00
21) Acenaphthene-d10	19.447	164	109680m	245.96		0.00
32) Phenanthrene-d10	24.584	188	168234m	248.72		0.00
66) Chrysene-d12	33.645	240	163447m	238.42		-0.04
88) Perylene-d12	38.496	264	174730m	246.87		0.00
90) 5(b)H-Cholane	34.072	217	62639m	251.06		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	10.976	138	34427m	262.96		
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.651	128	207057m	256.32		
9) 2-Methylnaphthalene	15.908	142	130210m	247.20		
10) 1-Methylnaphthalene	16.243	142	123504m	252.70		
11) 2,6-Dimethylnaphthalene	17.998	156	120379m	250.93		
12) 1,6,7-Trimethylnaphtha...	20.868	170	111064m	240.36		
13) C2-Naphthalenes	0.000		0	N.D.	d	
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.		
16) Benzothiophene	13.818	134	162739m	255.28		
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	17.469	154	173508m	251.21		
23) Acenaphthylene	18.945	152	194434m	244.18		
24) Acenaphthene	19.559	154	114967m	244.67		
25) Dibenzofuran	20.144	168	189015m	250.57		
26) Fluorene	21.314	166	142958m	246.38		
27) 1-Methylfluorene	23.337	180	83714m	220.66		
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	25.381	167	137095m	241.09		
34) Dibenzothiophene	24.203	184	184105m	262.79		
35) 4-Methyldibenzothiophene	25.727	198	166773m	258.05		
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.	d	
37) 1-Methyldibenzothiophene	0.000		0	N.D.	d	
38) C2-Dibenzothiophenes	0.000		0	N.D.	d	
39) C3-Dibenzothiophenes	0.000		0	N.D.	d	
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.653	178	208153m	238.06		
42) Anthracene	24.826	178	197883m	236.67		

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145J.D
Acq On : 31 Aug 2013 8:16 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 31 13:53:53 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43)	3-Methylphenanthrene	0.000		0	N.D.	d	
44)	2-Methylphenanthrene	0.000		0	N.D.	d	
45)	2-Methylanthracene	0.000		0	N.D.	d	
46)	4/9-Methylphenanthrene	0.000		0	N.D.	d	
47)	1-Methylphenanthrene	26.766	192	165541m	270.81		
48)	3,6-Dimethylphenanthrene	27.840	206	130206m	245.78		
49)	Retene	30.542	234	66523m	204.99		
50)	C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51)	C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52)	C4-Phenanthrenes/Anthr...	0.000		0	N.D.		
53)	Naphthobenzothiophene	32.791	234	179622m	252.82		
54)	C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55)	C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56)	C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57)	C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58)	Fluoranthene	28.741	202	216539m	255.28		
59)	Pyrene	29.537	202	280153m	250.18		
60)	2-Methylfluoranthene	30.299	216	175408m	243.19		
61)	Benzo(b)fluorene	30.923	216	130413m	215.28		
62)	C1-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
63)	C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64)	C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65)	C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67)	Benz(a)anthracene	33.606	228	177568m	250.78		
68)	Chrysene/Triphenylene	33.762	228	171846m	220.92		
69)	C1-Chrysenes	0.000		0	N.D.	d	
70)	C2-Chrysenes	0.000		0	N.D.	d	
71)	C3-Chrysenes	0.000		0	N.D.	d	
72)	C4-Chrysenes	0.000		0	N.D.	d	
74)	C29-Hopane	0.000		0	N.D.	d	
75)	18a-Oleanane	0.000		0	N.D.	d	
76)	C30-Hopane	42.515	191	88329m	277.85		
77)	Benzo(b)fluoranthene	37.138	252	205611m	253.15		
78)	Benzo(k,j)fluoranthene	37.215	252	176558m	243.04		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.108	252	223989m	262.23		
81)	Benzo(a)pyrene	38.302	252	179993m	233.88		
82)	Indeno(1,2,3-c,d)pyrene	42.883	276	166764m	231.81		
83)	Dibenzo(a,h)anthracene	42.957	278	125177m	231.30		
84)	C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85)	C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86)	C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87)	Benzo(g,h,i)perylene	44.248	276	151389m	241.70		
89)	Perylene	38.612	252	193368m	239.20		
91)	C20-TAS	0.000		0	N.D.	d	
92)	C21-TAS	0.000		0	N.D.	d	
93)	C26(20S)-TAS	0.000		0	N.D.	d	
94)	C26(20R)/C27(20S)-TAS	39.233	231	268995m	222.87		
95)	C28(20S)-TAS	0.000		0	N.D.		
96)	C27(20R)-TAS	0.000		0	N.D.	d	
97)	C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145J.D
Acq On : 31 Aug 2013 8:16 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 31 13:53:53 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

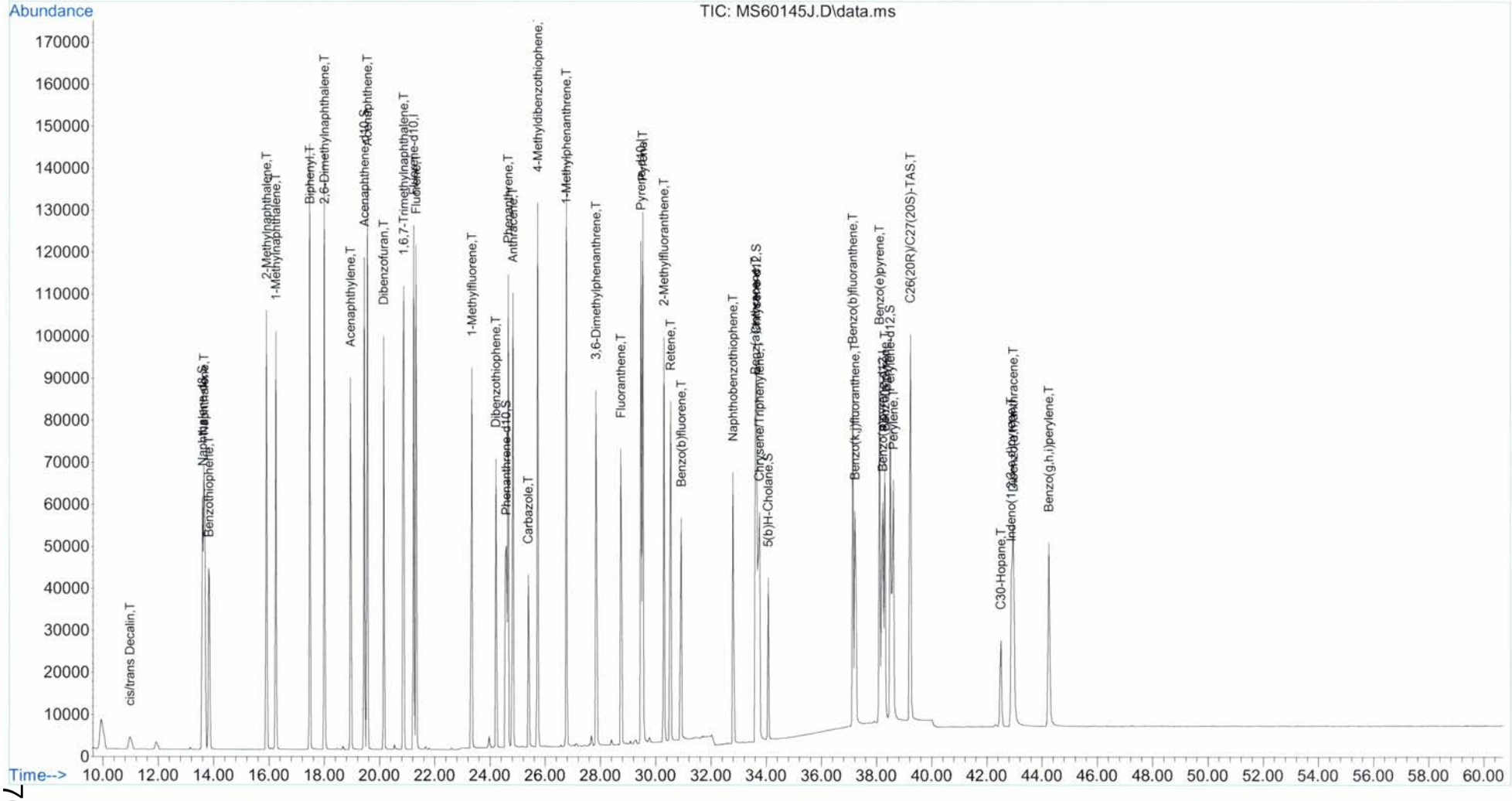
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145J.D
Acq On : 31 Aug 2013 8:16 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 31 13:53:53 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data Path : C:\GCMS6\MS60145\
Data File : MS60145L.D
Acq On : 31 Aug 2013 7:12 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Sep 01 18:15:41 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Fluorene-d10	1.000	1.000	0.0	92	0.00
2	S	Naphthalene-d8	1.618	1.378	14.8	84	0.00
3	T	cis/trans Decalin	0.281	0.266	5.3	89	0.00
4	un	C1-Decalins	0.281	0.000	100.0#	0#	-12.12#
5	un	C2-Decalins	0.281	0.000	100.0#	0#	-14.49#
6	un	C3-Decalins	0.281	0.000	100.0#	0#	-16.19#
7	un	C4-Decalins	0.281	0.000	100.0#	0#	-18.33#
8	T	Naphthalene	1.732	1.461	15.6	82	0.00
9	T	2-Methylnaphthalene	1.129	0.977	13.5	86	0.00
10	T	1-Methylnaphthalene	1.048	0.908	13.4	85	0.00
11	T	2,6-Dimethylnaphthalene	1.028	0.924	10.1	88	0.00
12	T	1,6,7-Trimethylnaphthalene	0.991	0.901	9.1	91	0.00
13	un	C2-Naphthalenes	1.732	0.000	100.0#	0#	-18.00#
14	un	C3-Naphthalenes	1.732	0.000	100.0#	0#	-20.15#
15	un	C4-Naphthalenes	1.732	0.000	100.0#	0#	-21.65#
16	T	Benzothiophene	1.367	1.158	15.3	83	0.00
17	un	C1-Benzothiophenes	1.367	0.000	100.0#	0#	-15.30#
18	un	C2-Benzothiophenes	1.367	0.000	100.0#	0#	-18.47#
19	un	C3-Benzothiophenes	1.367	0.000	100.0#	0#	-20.09#
20	un	C4-Benzothiophenes	1.367	0.000	100.0#	0#	-22.07#
21	S	Acenaphthene-d10	0.956	0.864	9.6	90	0.00
22	T	Biphenyl	1.481	1.301	12.2	85	0.00
23	T	Acenaphthylene	1.707	1.559	8.7	90	0.00
24	T	Acenaphthene	1.007	0.905	10.1	90	0.00
25	T	Dibenzofuran	1.617	1.451	10.3	88	0.00
26	T	Fluorene	1.244	1.139	8.4	91	0.00
27	T	1-Methylfluorene	0.813	0.768	5.5	97	0.00
28	un	C1-Fluorenes	1.244	0.000	100.0#	0#	-23.34#
29	un	C2-Fluorenes	1.244	0.000	100.0#	0#	-25.00#
30	un	C3-Fluorenes	1.244	0.000	100.0#	0#	-26.52#
31	I	Pyrene-d10	1.000	1.000	0.0	101	0.00
32	S	Phenanthrene-d10	0.890	0.767	13.8	96	0.00
33	T	Carbazole	0.748	0.690	7.8	104	0.03
34	T	Dibenzothiophene	0.922	0.805	12.7	93	0.00
35	T	4-Methyldibenzothiophene	0.850	0.761	10.5	96	0.00
36	un	2/3-Methyldibenzothiophene	0.850	0.000	100.0#	0#	-26.04#
37	un	1-Methyldibenzothiophene	0.850	0.000	100.0#	0#	-26.35#
38	un	C2-Dibenzothiophenes	0.922	0.000	100.0#	0#	-27.15#
39	un	C3-Dibenzothiophenes	0.922	0.000	100.0#	0#	-28.46#
40	un	C4-Dibenzothiophenes	0.922	0.000	100.0#	0#	-30.30#
41	T	Phenanthrene	1.150	0.989	14.0	94	0.00
42	T	Anthracene	1.100	0.980	10.9	98	0.00
43	un	3-Methylphenanthrene	0.804	0.000	100.0#	0#	-26.77#
44	un	2-Methylphenanthrene	0.804	0.000	100.0#	0#	-26.77#
45	un	2-Methylanthracene	0.804	0.000	100.0#	0#	-26.77#
46	un	4/9-Methylphenanthrene	0.804	0.000	100.0#	0#	-26.77#

Data Path : C:\GCMS6\MS60145\
Data File : MS60145L.D
Acq On : 31 Aug 2013 7:12 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Sep 01 18:15:41 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
47	T	1-Methylphenanthrene	0.804	0.727	9.6	97	0.00
48	T	3,6-Dimethylphenanthrene	0.697	0.635	8.9	102	0.00
49	T	Retene	0.427	0.407	4.7	104	0.00
50	un	C2-Phenanthrenes/Anthracene	1.150	0.000	100.0#	0#	-28.43#
51	un	C3-Phenanthrenes/Anthracene	1.150	0.000	100.0#	0#	-29.26#
52	un	C4-Phenanthrenes/Anthracene	1.150	0.000	100.0#	0#	-31.93#
53	T	Naphthobenzothiophene	0.935	0.976	-4.4	118	0.00
54	un	C1-Naphthobenzothiophenes	0.935	0.000	100.0#	0#	-34.07#
55	un	C2-Naphthobenzothiophenes	0.935	0.000	100.0#	0#	-35.67#
56	un	C3-Naphthobenzothiophenes	0.935	0.000	100.0#	0#	-37.30#
57	un	C4-Naphthobenzothiophenes	0.935	0.000	100.0#	0#	-38.23#
58	T	Fluoranthene	1.116	1.019	8.7	100	0.00
59	T	Pyrene	1.473	1.344	8.8	98	0.00
60	T	2-Methylfluoranthene	0.949	0.909	4.2	104	0.00
61	T	Benzo(b)fluorene	0.797	0.772	3.1	112	0.00
62	un	C1-Fluoranthenes/Pyrenes	1.116	0.000	100.0#	0#	-30.54#
63	un	C2-Fluoranthenes/Pyrenes	1.116	0.000	100.0#	0#	-32.03#
64	un	C3-Fluoranthenes/Pyrenes	1.116	0.000	100.0#	0#	-33.69#
65	un	C4-Fluoranthenes/Pyrenes	1.116	0.000	100.0#	0#	-34.11#
66	S	Chrysene-d12	0.902	0.866	4.0	110	-0.04
67	T	Benz(a)anthracene	0.932	1.007	-8.0	124	0.00
68	T	Chrysene/Triphenylene	1.023	0.914	10.7	106	0.00
69	un	C1-Chrysenes	1.023	0.000	100.0#	0#	-35.67#
70	un	C2-Chrysenes	1.023	0.000	100.0#	0#	-36.09#
71	un	C3-Chrysenes	1.023	0.000	100.0#	0#	-37.92#
72	un	C4-Chrysenes	1.023	0.000	100.0#	0#	-39.39#
73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	92	0.00
74	un	C29-Hopane	0.536	0.000	100.0#	0#	-40.82#
75	un	18a-Oleanane	0.536	0.000	100.0#	0#	-41.81#
76	T	C30-Hopane	0.536	0.491	8.4	84	0.00
77	T	Benzo(b)fluoranthene	1.369	1.477	-7.9	110	0.00
78	T	Benzo(k,j)fluoranthene	1.224	1.306	-6.7	107	-0.04
79	un	Benzo(a)fluoranthene	1.224	0.000	100.0#	0#	-37.14#
80	T	Benzo(e)pyrene	1.439	1.416	1.6	97	0.00
81	T	Benzo(a)pyrene	1.297	1.284	1.0	101	0.00
82	T	Indeno(1,2,3-c,d)pyrene	1.212	0.911	24.8	78	0.00
83	T	Dibenzo(a,h)anthracene	0.912	0.717	21.4	81	-0.04
84	un	C1-Dibenzo(a,h)anthracenes	0.912	0.000	100.0#	0#	-48.82#
85	un	C2-Dibenzo(a,h)anthracenes	0.912	0.000	100.0#	0#	-50.37#
86	un	C3-Dibenzo(a,h)anthracenes	0.912	0.000	100.0#	0#	-50.55#
87	T	Benzo(g,h,i)perylene	1.055	0.718	31.9#	69	0.00
88	S	Perylene-d12	1.193	1.124	5.8	97	0.00
89	T	Perylene	1.362	1.258	7.6	92	0.00
90	S	5(b)H-Cholane	0.420	0.444	-5.7	102	0.00
91	un	C20-TAS	2.034	0.000	100.0#	0#	-33.14#
92	un	C21-TAS	2.034	0.000	100.0#	0#	-34.07#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS6\MS60145\
Data File : MS60145L.D
Acq On : 31 Aug 2013 7:12 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Sep 01 18:15:41 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
93 un	C26(20S)-TAS	2.034	0.000	100.0#	0#	-38.54#
94 T	C26(20R)/C27(20S)-TAS	2.034	2.021	0.6	100	0.00
95 un	C28(20S)-TAS	2.034	0.000	100.0#	0#	-39.82#
96 un	C27(20R)-TAS	2.034	0.000	100.0#	0#	-40.45#
97 un	C28(20R)-TAS	2.034	0.000	100.0#	0#	-41.81#

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145L.D
Acq On : 31 Aug 2013 7:12 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Sep 01 18:15:41 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.231	176	124485m	251.05		0.00
31) Pyrene-d10	29.467	212	234162m	250.63		0.00
73) Benzo(a)pyrene-d12	38.226	264	174377m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.596	136	170887m	213.00		0.00
21) Acenaphthene-d10	19.448	164	107180m	226.10		0.00
32) Phenanthrene-d10	24.583	188	179374m	215.75		0.00
66) Chrysene-d12	33.647	240	202233m	240.00		-0.04
88) Perylene-d12	38.498	264	195835m	235.71		0.00
90) 5(b)H-Cholane	34.074	217	77317m	264.00		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	10.976	138	32566m	233.99		
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.679	128	181066m	210.85		
9) 2-Methylnaphthalene	15.909	142	121208m	216.47		
10) 1-Methylnaphthalene	16.243	142	112472m	216.48		
11) 2,6-Dimethylnaphthalene	17.999	156	114534m	224.59		
12) 1,6,7-Trimethylnaphtha...	20.869	170	111693m	227.39		
13) C2-Naphthalenes	0.000		0	N.D.	d	
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.		
16) Benzothiophene	13.847	134	142742m	210.63		
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	17.469	154	159865m	217.73		
23) Acenaphthylene	18.946	152	191675m	226.44		
24) Acenaphthene	19.559	154	112370m	224.96		
25) Dibenzofuran	20.144	168	179016m	223.24		
26) Fluorene	21.315	166	141511m	229.43		
27) 1-Methylfluorene	23.336	180	95941m	237.89		
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	25.414	167	159608m	228.35		
34) Dibenzothiophene	24.202	184	185427m	215.33		
35) 4-Methyldibenzothiophene	25.726	198	179324m	225.75		
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.	d	
37) 1-Methyldibenzothiophene	0.000		0	N.D.	d	
38) C2-Dibenzothiophenes	0.000		0	N.D.	d	
39) C3-Dibenzothiophenes	0.000		0	N.D.	d	
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.652	178	229042m	213.12		
42) Anthracene	24.825	178	229576m	223.38		

Data Path : C:\GCMS6\MS60145\
Data File : MS60145L.D
Acq On : 31 Aug 2013 7:12 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Sep 01 18:15:41 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43) 3-Methylphenanthrene	0.000		0	N.D.	d	
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	26.765	192	167940m	223.52		
48) 3,6-Dimethylphenanthrene	27.873	206	148424m	227.94		
49) Retene	30.541	234	84994m	213.08		
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	32.793	234	229408m	262.69		
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.774	202	238172m	228.44		
59) Pyrene	29.536	202	314014m	228.14		
60) 2-Methylfluoranthene	30.298	216	213747m	241.10		
61) Benzo(b)fluorene	30.922	216	181993m	244.42		
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67) Benz(a)anthracene	33.608	228	234677m	269.64		
68) Chrysene/Triphenylene	33.764	228	212311m	222.06		
69) C1-Chrysenes	0.000		0	N.D.	d	
70) C2-Chrysenes	0.000		0	N.D.	d	
71) C3-Chrysenes	0.000		0	N.D.	d	
72) C4-Chrysenes	0.000		0	N.D.	d	
74) C29-Hopane	0.000		0	N.D.		
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	42.514	191	85593m	229.37		
77) Benzo(b)fluoranthene	37.140	252	257749m	270.35		
78) Benzo(k,j)fluoranthene	37.217	252	226483m	265.60		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.110	252	245637m	244.98		
81) Benzo(a)pyrene	38.304	252	223243m	247.12		
82) Indeno(1,2,3-c,d)pyrene	42.920	276	156012m	184.75		
83) Dibenzo(a,h)anthracene	42.957	278	123795m	194.87		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.247	276	123918m	168.55		
89) Perylene	38.614	252	219330m	231.13		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	39.235	231	351962m	248.43		
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145L.D
Acq On : 31 Aug 2013 7:12 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Sep 01 18:15:41 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

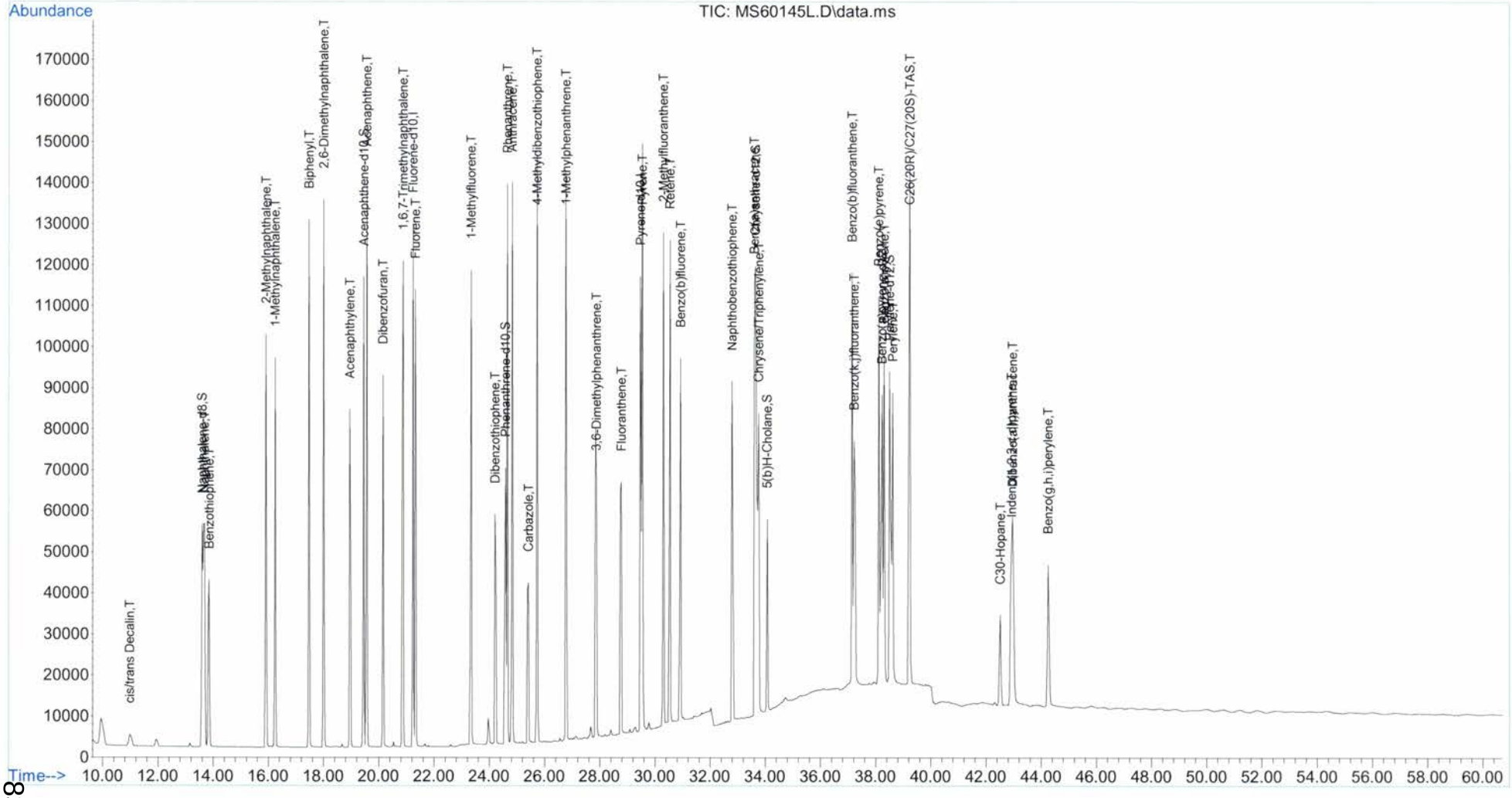
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145L.D
Acq On : 31 Aug 2013 7:12 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Sep 01 18:15:41 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data Path : C:\GCMS6\MS60145\
Data File : MS60145M.D
Acq On : 1 Sep 2013 6:48 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Sep 01 18:24:18 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Fluorene-d10	1.000	1.000	0.0	87	0.00
2	S	Naphthalene-d8	1.618	1.488	8.0	85	0.00
3	T	cis/trans Decalin	0.281	0.264	6.0	84	0.00
4	un	C1-Decalins	0.281	0.000	100.0#	0#	-12.12#
5	un	C2-Decalins	0.281	0.000	100.0#	0#	-14.49#
6	un	C3-Decalins	0.281	0.000	100.0#	0#	-16.19#
7	un	C4-Decalins	0.281	0.000	100.0#	0#	-18.33#
8	T	Naphthalene	1.732	1.588	8.3	85	0.00
9	T	2-Methylnaphthalene	1.129	1.050	7.0	88	0.00
10	T	1-Methylnaphthalene	1.048	0.985	6.0	87	0.00
11	T	2,6-Dimethylnaphthalene	1.028	0.960	6.6	86	0.00
12	T	1,6,7-Trimethylnaphthalene	0.991	0.965	2.6	92	0.00
13	un	C2-Naphthalenes	1.732	0.000	100.0#	0#	-18.00#
14	un	C3-Naphthalenes	1.732	0.000	100.0#	0#	-20.15#
15	un	C4-Naphthalenes	1.732	0.000	100.0#	0#	-21.65#
16	T	Benzothiophene	1.367	1.253	8.3	85	0.00
17	un	C1-Benzothiophenes	1.367	0.000	100.0#	0#	-15.30#
18	un	C2-Benzothiophenes	1.367	0.000	100.0#	0#	-18.47#
19	un	C3-Benzothiophenes	1.367	0.000	100.0#	0#	-20.09#
20	un	C4-Benzothiophenes	1.367	0.000	100.0#	0#	-22.07#
21	S	Acenaphthene-d10	0.956	0.916	4.2	90	0.00
22	T	Biphenyl	1.481	1.376	7.1	85	0.00
23	T	Acenaphthylene	1.707	1.646	3.6	90	0.00
24	T	Acenaphthene	1.007	0.978	2.9	92	0.00
25	T	Dibenzofuran	1.617	1.534	5.1	88	0.00
26	T	Fluorene	1.244	1.212	2.6	91	0.03
27	T	1-Methylfluorene	0.813	0.818	-0.6	98	0.00
28	un	C1-Fluorenes	1.244	0.000	100.0#	0#	-23.34#
29	un	C2-Fluorenes	1.244	0.000	100.0#	0#	-25.00#
30	un	C3-Fluorenes	1.244	0.000	100.0#	0#	-26.52#
31	I	Pyrene-d10	1.000	1.000	0.0	99	0.00
32	S	Phenanthrene-d10	0.890	0.790	11.2	97	0.00
33	T	Carbazole	0.748	0.692	7.5	103	0.03
34	T	Dibenzothiophene	0.922	0.816	11.5	93	0.00
35	T	4-Methyldibenzothiophene	0.850	0.787	7.4	97	0.00
36	un	2/3-Methyldibenzothiophene	0.850	0.000	100.0#	0#	-26.04#
37	un	1-Methyldibenzothiophene	0.850	0.000	100.0#	0#	-26.35#
38	un	C2-Dibenzothiophenes	0.922	0.000	100.0#	0#	-27.15#
39	un	C3-Dibenzothiophenes	0.922	0.000	100.0#	0#	-28.46#
40	un	C4-Dibenzothiophenes	0.922	0.000	100.0#	0#	-30.30#
41	T	Phenanthrene	1.150	1.040	9.6	97	0.00
42	T	Anthracene	1.100	1.018	7.5	100	0.00
43	un	3-Methylphenanthrene	0.804	0.000	100.0#	0#	-26.77#
44	un	2-Methylphenanthrene	0.804	0.000	100.0#	0#	-26.77#
45	un	2-Methylanthracene	0.804	0.000	100.0#	0#	-26.77#
46	un	4/9-Methylphenanthrene	0.804	0.000	100.0#	0#	-26.77#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS6\MS60145\
Data File : MS60145M.D
Acq On : 1 Sep 2013 6:48 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Sep 01 18:24:18 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
47	T	1-Methylphenanthrene	0.804	0.735	8.6	97	0.00
48	T	3,6-Dimethylphenanthrene	0.697	0.635	8.9	100	0.00
49	T	Retene	0.427	0.406	4.9	102	0.00
50	un	C2-Phenanthrenes/Anthracene	1.150	0.000	100.0#	0#	-28.43#
51	un	C3-Phenanthrenes/Anthracene	1.150	0.000	100.0#	0#	-29.26#
52	un	C4-Phenanthrenes/Anthracene	1.150	0.000	100.0#	0#	-31.93#
53	T	Naphthobenzothiophene	0.935	0.917	1.9	109	0.00
54	un	C1-Naphthobenzothiophenes	0.935	0.000	100.0#	0#	-34.07#
55	un	C2-Naphthobenzothiophenes	0.935	0.000	100.0#	0#	-35.67#
56	un	C3-Naphthobenzothiophenes	0.935	0.000	100.0#	0#	-37.30#
57	un	C4-Naphthobenzothiophenes	0.935	0.000	100.0#	0#	-38.23#
58	T	Fluoranthene	1.116	1.029	7.8	100	0.00
59	T	Pyrene	1.473	1.363	7.5	98	0.00
60	T	2-Methylfluoranthene	0.949	0.903	4.8	102	0.00
61	T	Benzo(b)fluorene	0.797	0.758	4.9	108	0.00
62	un	C1-Fluoranthenes/Pyrenes	1.116	0.000	100.0#	0#	-30.54#
63	un	C2-Fluoranthenes/Pyrenes	1.116	0.000	100.0#	0#	-32.03#
64	un	C3-Fluoranthenes/Pyrenes	1.116	0.000	100.0#	0#	-33.69#
65	un	C4-Fluoranthenes/Pyrenes	1.116	0.000	100.0#	0#	-34.11#
66	S	Chrysene-d12	0.902	0.828	8.2	104	0.00
67	T	Benz(a)anthracene	0.932	0.929	0.3	112	0.00
68	T	Chrysene/Triphenylene	1.023	0.908	11.2	103	0.00
69	un	C1-Chrysenes	1.023	0.000	100.0#	0#	-35.67#
70	un	C2-Chrysenes	1.023	0.000	100.0#	0#	-36.09#
71	un	C3-Chrysenes	1.023	0.000	100.0#	0#	-37.92#
72	un	C4-Chrysenes	1.023	0.000	100.0#	0#	-39.39#
73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	62	0.00
74	un	C29-Hopane	0.536	0.000	100.0#	0#	-40.82#
75	un	18a-Oleanane	0.536	0.000	100.0#	0#	-41.81#
76	T	C30-Hopane	0.536	0.560	-4.5	64	0.00
77	T	Benzo(b)fluoranthene	1.369	1.699	-24.1	85	0.00
78	T	Benzo(k,j)fluoranthene	1.224	1.599	-30.6#	88	0.00
79	un	Benzo(a)fluoranthene	1.224	0.000	100.0#	0#	-37.14#
80	T	Benzo(e)pyrene	1.439	1.665	-15.7	77	0.00
81	T	Benzo(a)pyrene	1.297	1.500	-15.7	80	0.00
82	T	Indeno(1,2,3-c,d)pyrene	1.212	0.940	22.4	54	0.00
83	T	Dibenzo(a,h)anthracene	0.912	0.781	14.4	60	0.00
84	un	C1-Dibenzo(a,h)anthracenes	0.912	0.000	100.0#	0#	-48.82#
85	un	C2-Dibenzo(a,h)anthracenes	0.912	0.000	100.0#	0#	-50.37#
86	un	C3-Dibenzo(a,h)anthracenes	0.912	0.000	100.0#	0#	-50.55#
87	T	Benzo(g,h,i)perylene	1.055	0.722	31.6#	47#	0.00
88	S	Perylene-d12	1.193	1.298	-8.8	75	0.00
89	T	Perylene	1.362	1.482	-8.8	73	0.00
90	S	5(b)H-Cholane	0.420	0.589	-40.2#	91	0.00
91	un	C20-TAS	2.034	0.000	100.0#	0#	-33.14#
92	un	C21-TAS	2.034	0.000	100.0#	0#	-34.07#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS6\MS60145\
Data File : MS60145M.D
Acq On : 1 Sep 2013 6:48 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Sep 01 18:24:18 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
93 un	C26(20S)-TAS	2.034	0.000	100.0#	0#	-38.54#
94 T	C26(20R)/C27(20S)-TAS	2.034	2.413	-18.6	81	0.00
95 un	C28(20S)-TAS	2.034	0.000	100.0#	0#	-39.82#
96 un	C27(20R)-TAS	2.034	0.000	100.0#	0#	-40.45#
97 un	C28(20R)-TAS	2.034	0.000	100.0#	0#	-41.81#

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145M.D
Acq On : 1 Sep 2013 6:48 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Sep 01 18:24:18 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.230	176	117680m	251.05	0.00
31) Pyrene-d10	29.468	212	230362m	250.63	0.00
73) Benzo(a)pyrene-d12	38.226	264	117230m	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8	13.595	136	174415m	229.97	0.00
21) Acenaphthene-d10	19.446	164	107366m	239.59	0.00
32) Phenanthrene-d10	24.584	188	181619m	222.06	0.00
66) Chrysene-d12	33.686	240	190271m	229.53	0.00
88) Perylene-d12	38.498	264	152003m	272.14	0.00
90) 5(b)H-Cholane	34.074	217	68962m	350.26	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	10.975	138	30640m	232.89	
4) C1-Decalins	0.000		0	N.D. d	
5) C2-Decalins	0.000		0	N.D. d	
6) C3-Decalins	0.000		0	N.D. d	
7) C4-Decalins	0.000		0	N.D. d	
8) Naphthalene	13.678	128	186125m	229.28	
9) 2-Methylnaphthalene	15.907	142	123225m	232.80	
10) 1-Methylnaphthalene	16.242	142	115358m	234.88	
11) 2,6-Dimethylnaphthalene	17.997	156	112506m	233.37	
12) 1,6,7-Trimethylnaphtha...	20.868	170	113107m	243.59	
13) C2-Naphthalenes	0.000		0	N.D. d	
14) C3-Naphthalenes	0.000		0	N.D. d	
15) C4-Naphthalenes	0.000		0	N.D.	
16) Benzothiophene	13.845	134	145989m	227.88	
17) C1-Benzothiophenes	0.000		0	N.D. d	
18) C2-Benzothiophenes	0.000		0	N.D. d	
19) C3-Benzothiophenes	0.000		0	N.D. d	
20) C4-Benzothiophenes	0.000		0	N.D. d	
22) Biphenyl	17.468	154	159798m	230.22	
23) Acenaphthylene	18.945	152	191334m	239.11	
24) Acenaphthene	19.558	154	114845m	243.21	
25) Dibenzofuran	20.143	168	178810m	235.88	
26) Fluorene	21.341	166	142290m	244.03	
27) 1-Methylfluorene	23.336	180	96560m	253.27	
28) C1-Fluorenes	0.000		0	N.D. d	
29) C2-Fluorenes	0.000		0	N.D. d	
30) C3-Fluorenes	0.000		0	N.D. d	
33) Carbazole	25.415	167	157683m	229.32	
34) Dibenzothiophene	24.202	184	184909m	218.27	
35) 4-Methyldibenzothiophene	25.727	198	182319m	233.30	
36) 2/3-Methyldibenzothiop...	0.000		0	N.D. d	
37) 1-Methyldibenzothiophene	0.000		0	N.D. d	
38) C2-Dibenzothiophenes	0.000		0	N.D. d	
39) C3-Dibenzothiophenes	0.000		0	N.D. d	
40) C4-Dibenzothiophenes	0.000		0	N.D. d	
41) Phenanthrene	24.653	178	236831m	224.00	
42) Anthracene	24.826	178	234604m	232.04	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145M.D
Acq On : 1 Sep 2013 6:48 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Sep 01 18:24:18 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43)	3-Methylphenanthrene	0.000		0	N.D.	d	
44)	2-Methylphenanthrene	0.000		0	N.D.	d	
45)	2-Methylanthracene	0.000		0	N.D.	d	
46)	4/9-Methylphenanthrene	0.000		0	N.D.	d	
47)	1-Methylphenanthrene	26.766	192	167013m	225.95		
48)	3,6-Dimethylphenanthrene	27.874	206	145985m	227.89		
49)	Retene	30.541	234	83348m	212.41		
50)	C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51)	C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52)	C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53)	Naphthobenzothiophene	32.793	234	212101m	246.88		
54)	C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55)	C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56)	C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57)	C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58)	Fluoranthene	28.775	202	236619m	230.69		
59)	Pyrene	29.537	202	313307m	231.38		
60)	2-Methylfluoranthene	30.299	216	208968m	239.60		
61)	Benzo(b)fluorene	30.922	216	175735m	239.91		
62)	C1-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
63)	C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64)	C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65)	C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67)	Benz(a)anthracene	33.608	228	212935m	248.70		
68)	Chrysene/Triphenylene	33.764	228	207283m	220.37		
69)	C1-Chrysenes	0.000		0	N.D.	d	
70)	C2-Chrysenes	0.000		0	N.D.	d	
71)	C3-Chrysenes	0.000		0	N.D.	d	
72)	C4-Chrysenes	0.000		0	N.D.	d	
74)	C29-Hopane	0.000		0	N.D.	d	
75)	18a-Oleanane	0.000		0	N.D.	d	
76)	C30-Hopane	42.514	191	65601m	261.49		
77)	Benzo(b)fluoranthene	37.140	252	199365m	311.05		
78)	Benzo(k,j)fluoranthene	37.256	252	186417m	325.18		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.110	252	194113m	287.97		
81)	Benzo(a)pyrene	38.304	252	175280m	288.61		
82)	Indeno(1,2,3-c,d)pyrene	42.920	276	108155m	190.52		
83)	Dibenzo(a,h)anthracene	42.994	278	90633m	212.22		
84)	C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85)	C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86)	C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87)	Benzo(g,h,i)perylene	44.248	276	83784m	169.51		
89)	Perylene	38.614	252	173699m	272.28		
91)	C20-TAS	0.000		0	N.D.	d	
92)	C21-TAS	0.000		0	N.D.	d	
93)	C26(20S)-TAS	0.000		0	N.D.	d	
94)	C26(20R)/C27(20S)-TAS	39.235	231	282492m	296.59		
95)	C28(20S)-TAS	0.000		0	N.D.		
96)	C27(20R)-TAS	0.000		0	N.D.	d	
97)	C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145M.D
Acq On : 1 Sep 2013 6:48 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Sep 01 18:24:18 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

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

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145M.D
Acq On : 1 Sep 2013 6:48 am
Operator : YM
Sample : AR-WKCC-250-038
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Quant Time: Sep 01 18:24:18 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
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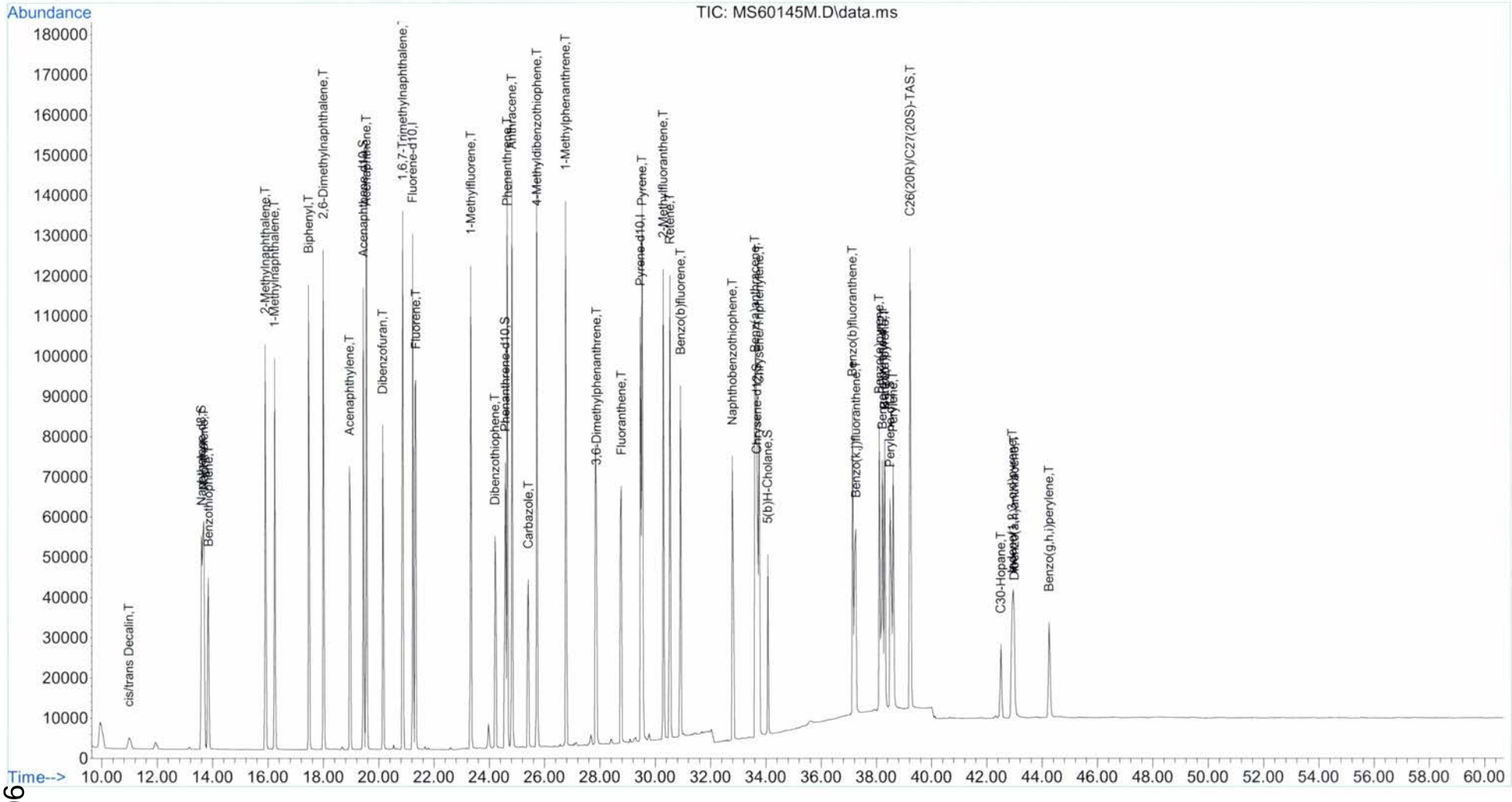


Evaluate Continuing Calibration Report

Data Path : C:\GCMS6\MS60145\
Data File : MS60145N.D
Acq On : 1 Sep 2013 6:25 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Sep 06 20:22:49 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Fluorene-d10	1.000	1.000	0.0	99	0.00
2	S	Naphthalene-d8	1.618	1.351	16.5	88	0.00
3	T	cis/trans Decalin	0.281	0.274	2.5	99	0.00
4	un	C1-Decalins	0.281	0.000	100.0#	0#	-12.12#
5	un	C2-Decalins	0.281	0.000	100.0#	0#	-14.49#
6	un	C3-Decalins	0.281	0.000	100.0#	0#	-16.19#
7	un	C4-Decalins	0.281	0.000	100.0#	0#	-18.33#
8	T	Naphthalene	1.732	1.437	17.0	87	0.00
9	T	2-Methylnaphthalene	1.129	0.970	14.1	92	0.00
10	T	1-Methylnaphthalene	1.048	0.894	14.7	90	0.00
11	T	2,6-Dimethylnaphthalene	1.028	0.921	10.4	95	0.00
12	T	1,6,7-Trimethylnaphthalene	0.991	0.893	9.9	98	0.00
13	un	C2-Naphthalenes	1.732	0.000	100.0#	0#	-18.00#
14	un	C3-Naphthalenes	1.732	0.000	100.0#	0#	-20.15#
15	un	C4-Naphthalenes	1.732	0.000	100.0#	0#	-21.65#
16	T	Benzothiophene	1.367	1.128	17.5	87	0.00
17	un	C1-Benzothiophenes	1.367	0.000	100.0#	0#	-15.30#
18	un	C2-Benzothiophenes	1.367	0.000	100.0#	0#	-18.47#
19	un	C3-Benzothiophenes	1.367	0.000	100.0#	0#	-20.09#
20	un	C4-Benzothiophenes	1.367	0.000	100.0#	0#	-22.07#
21	S	Acenaphthene-d10	0.956	0.849	11.2	95	0.00
22	T	Biphenyl	1.481	1.305	11.9	92	0.00
23	T	Acenaphthylene	1.707	1.569	8.1	98	0.00
24	T	Acenaphthene	1.007	0.892	11.4	96	0.00
25	T	Dibenzofuran	1.617	1.463	9.5	96	0.00
26	T	Fluorene	1.244	1.156	7.1	99	0.00
27	T	1-Methylfluorene	0.813	0.782	3.8	106	0.00
28	un	C1-Fluorenes	1.244	0.000	100.0#	0#	-23.34#
29	un	C2-Fluorenes	1.244	0.000	100.0#	0#	-25.00#
30	un	C3-Fluorenes	1.244	0.000	100.0#	0#	-26.52#
31	I	Pyrene-d10	1.000	1.000	0.0	109	0.00
32	S	Phenanthrene-d10	0.890	0.779	12.5	105	0.00
33	T	Carbazole	0.748	0.701	6.3	114	0.04
34	T	Dibenzothiophene	0.922	0.810	12.1	101	0.00
35	T	4-Methyldibenzothiophene	0.850	0.777	8.6	105	0.00
36	un	2/3-Methyldibenzothiophene	0.850	0.000	100.0#	0#	-26.04#
37	un	1-Methyldibenzothiophene	0.850	0.000	100.0#	0#	-26.35#
38	un	C2-Dibenzothiophenes	0.922	0.000	100.0#	0#	-27.15#
39	un	C3-Dibenzothiophenes	0.922	0.000	100.0#	0#	-28.46#
40	un	C4-Dibenzothiophenes	0.922	0.000	100.0#	0#	-30.30#
41	T	Phenanthrene	1.150	1.006	12.5	102	0.00
42	T	Anthracene	1.100	1.006	8.5	108	0.00
43	un	3-Methylphenanthrene	0.804	0.000	100.0#	0#	-26.77#
44	un	2-Methylphenanthrene	0.804	0.000	100.0#	0#	-26.77#
45	un	2-Methylanthracene	0.804	0.000	100.0#	0#	-26.77#
46	un	4/9-Methylphenanthrene	0.804	0.000	100.0#	0#	-26.77#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS6\MS60145\
Data File : MS60145N.D
Acq On : 1 Sep 2013 6:25 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Sep 06 20:22:49 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
47	T	1-Methylphenanthrene	0.804	0.755	6.1	109	0.00
48	T	3,6-Dimethylphenanthrene	0.697	0.651	6.6	112	0.00
49	T	Retene	0.427	0.413	3.3	114	0.00
50	un	C2-Phenanthrenes/Anthracene	1.150	0.000	100.0#	0#	-28.43#
51	un	C3-Phenanthrenes/Anthracene	1.150	0.000	100.0#	0#	-29.26#
52	un	C4-Phenanthrenes/Anthracene	1.150	0.000	100.0#	0#	-31.93#
53	T	Naphthobenzothiophene	0.935	0.831	11.1	108	0.04
54	un	C1-Naphthobenzothiophenes	0.935	0.000	100.0#	0#	-34.07#
55	un	C2-Naphthobenzothiophenes	0.935	0.000	100.0#	0#	-35.67#
56	un	C3-Naphthobenzothiophenes	0.935	0.000	100.0#	0#	-37.30#
57	un	C4-Naphthobenzothiophenes	0.935	0.000	100.0#	0#	-38.23#
58	T	Fluoranthene	1.116	1.041	6.7	110	0.00
59	T	Pyrene	1.473	1.328	9.8	104	0.00
60	T	2-Methylfluoranthene	0.949	0.893	5.9	110	0.00
61	T	Benzo(b)fluorene	0.797	0.771	3.3	120	0.00
62	un	C1-Fluoranthenes/Pyrenes	1.116	0.000	100.0#	0#	-30.54#
63	un	C2-Fluoranthenes/Pyrenes	1.116	0.000	100.0#	0#	-32.03#
64	un	C3-Fluoranthenes/Pyrenes	1.116	0.000	100.0#	0#	-33.69#
65	un	C4-Fluoranthenes/Pyrenes	1.116	0.000	100.0#	0#	-34.11#
66	S	Chrysene-d12	0.902	0.754	16.4	103	0.00
67	T	Benz(a)anthracene	0.932	0.800	14.2	106	0.00
68	T	Chrysene/Triphenylene	1.023	0.872	14.8	108	0.00
69	un	C1-Chrysenes	1.023	0.000	100.0#	0#	-35.67#
70	un	C2-Chrysenes	1.023	0.000	100.0#	0#	-36.09#
71	un	C3-Chrysenes	1.023	0.000	100.0#	0#	-37.92#
72	un	C4-Chrysenes	1.023	0.000	100.0#	0#	-39.39#
73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	50	0.00
74	un	C29-Hopane	0.536	0.000	100.0#	0#	-40.82#
75	un	18a-Oleanane	0.536	0.000	100.0#	0#	-41.81#
76	T	C30-Hopane	0.536	0.597	-11.4	55	0.00
77	T	Benzo(b)fluoranthene	1.369	1.666	-21.7	68	0.00
78	T	Benzo(k,j)fluoranthene	1.224	1.129	7.8	50	0.00
79	un	Benzo(a)fluoranthene	1.224	0.000	100.0#	0#	-37.14#
80	T	Benzo(e)pyrene	1.439	1.583	-10.0	59	0.00
81	T	Benzo(a)pyrene	1.297	1.498	-15.5	64	0.00
82	T	Indeno(1,2,3-c,d)pyrene	1.212	0.895	26.2#	42#	0.00
83	T	Dibenzo(a,h)anthracene	0.912	0.717	21.4	44#	0.00
84	un	C1-Dibenzo(a,h)anthracenes	0.912	0.000	100.0#	0#	-48.82#
85	un	C2-Dibenzo(a,h)anthracenes	0.912	0.000	100.0#	0#	-50.37#
86	un	C3-Dibenzo(a,h)anthracenes	0.912	0.000	100.0#	0#	-50.55#
87	T	Benzo(g,h,i)perylene	1.055	0.778	26.3#	41#	0.00
88	S	Perylene-d12	1.193	1.278	-7.1	60	0.04
89	T	Perylene	1.362	1.458	-7.0	58	0.00
90	S	5(b)H-Cholane	0.420	0.000	100.0#	0#	-34.07#
91	un	C20-TAS	2.034	0.000	100.0#	0#	-33.14#
92	un	C21-TAS	2.034	0.000	100.0#	0#	-34.07#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS6\MS60145\
Data File : MS60145N.D
Acq On : 1 Sep 2013 6:25 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Sep 06 20:22:49 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
93 un	C26(20S)-TAS	2.034	0.000	100.0#	0#	-38.54#
94 T	C26(20R)/C27(20S)-TAS	2.034	2.122	-4.3	57	0.00
95 un	C28(20S)-TAS	2.034	0.000	100.0#	0#	-39.82#
96 un	C27(20R)-TAS	2.034	0.000	100.0#	0#	-40.45#
97 un	C28(20R)-TAS	2.034	0.000	100.0#	0#	-41.81#

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145N.D
Acq On : 1 Sep 2013 6:25 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Sep 06 20:22:49 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Fluorene-d10	21.234	176	134210m	251.05			0.00
31) Pyrene-d10	29.468	212	252018	250.63			0.00
73) Benzo(a)pyrene-d12	38.225	264	95008m	250.32			0.00
System Monitoring Compounds							
2) Naphthalene-d8	13.598	136	180630	208.83			0.00
21) Acenaphthene-d10	19.450	164	113604	222.29			0.00
32) Phenanthrene-d10	24.584	188	195968	219.01			0.00
66) Chrysene-d12	33.684	240	189554	209.01			0.00
88) Perylene-d12	38.535	264	121279m	267.92			0.04
90) 5(b)H-Cholane	0.000	217	0d	0.00			
Target Compounds							Qvalue
3) cis/trans Decalin	10.979	138	36204m	241.29			
4) C1-Decalins	0.000		0	N.D.	d		
5) C2-Decalins	0.000		0	N.D.	d		
6) C3-Decalins	0.000		0	N.D.	d		
7) C4-Decalins	0.000		0	N.D.	d		
8) Naphthalene	13.682	128	192031	207.42			96
9) 2-Methylnaphthalene	15.911	142	129732	214.91			93
10) 1-Methylnaphthalene	16.246	142	119375	213.12			94
11) 2,6-Dimethylnaphthalene	18.001	156	123134	223.96		#	54
12) 1,6,7-Trimethylnaphtha...	20.871	170	119305	225.29		#	24
13) C2-Naphthalenes	0.000		0	N.D.	d		
14) C3-Naphthalenes	0.000		0	N.D.	d		
15) C4-Naphthalenes	0.000		0	N.D.			
16) Benzothiophene	13.849	134	149895m	205.16			
17) C1-Benzothiophenes	0.000		0	N.D.	d		
18) C2-Benzothiophenes	0.000		0	N.D.	d		
19) C3-Benzothiophenes	0.000		0	N.D.	d		
20) C4-Benzothiophenes	0.000		0	N.D.	d		
22) Biphenyl	17.472	154	172797	218.29			99
23) Acenaphthylene	18.949	152	207957	227.88			98
24) Acenaphthene	19.562	154	119400	221.71			93
25) Dibenzofuran	20.147	168	194577	225.06			100
26) Fluorene	21.317	166	154789	232.77			89
27) 1-Methylfluorene	23.337	180	105321	242.23		#	45
28) C1-Fluorenes	0.000		0	N.D.	d		
29) C2-Fluorenes	0.000		0	N.D.	d		
30) C3-Fluorenes	0.000		0	N.D.	d		
33) Carbazole	25.415	167	174721	232.27			100
34) Dibenzothiophene	24.203	184	200882	216.75		#	79
35) 4-Methyldibenzothiophene	25.727	198	196914	230.33			100
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.	d		
37) 1-Methyldibenzothiophene	0.000		0	N.D.	d		
38) C2-Dibenzothiophenes	0.000		0	N.D.	d		
39) C3-Dibenzothiophenes	0.000		0	N.D.	d		
40) C4-Dibenzothiophenes	0.000		0	N.D.	d		
41) Phenanthrene	24.653	178	250523	216.59			99
42) Anthracene	24.826	178	253741	229.40			95

Data Path : C:\GCMS6\MS60145\
Data File : MS60145N.D
Acq On : 1 Sep 2013 6:25 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Sep 06 20:22:49 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
43)	3-Methylphenanthrene	0.000		0	N.D.	d		
44)	2-Methylphenanthrene	0.000		0	N.D.	d		
45)	2-Methylanthracene	0.000		0	N.D.	d		
46)	4/9-Methylphenanthrene	0.000		0	N.D.	d		
47)	1-Methylphenanthrene	26.766	192	187730	232.16			99
48)	3,6-Dimethylphenanthrene	27.875	206	163771	233.68		#	67
49)	Retene	30.542	234	92866	216.32		#	31
50)	C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d		
51)	C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d		
52)	C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d		
53)	Naphthobenzothiophene	32.830	234	210285m	223.73			
54)	C1-Naphthobenzothiophenes	0.000		0	N.D.	d		
55)	C2-Naphthobenzothiophenes	0.000		0	N.D.	d		
56)	C3-Naphthobenzothiophenes	0.000		0	N.D.	d		
57)	C4-Naphthobenzothiophenes	0.000		0	N.D.	d		
58)	Fluoranthene	28.775	202	261833	233.34			100
59)	Pyrene	29.537	202	333725	225.29			100
60)	2-Methylfluoranthene	30.299	216	225970	236.83			100
61)	Benzo(b)fluorene	30.923	216	195477	243.93			100
62)	C1-Fluoranthenes/Pyrenes	0.000		0	N.D.	d		
63)	C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d		
64)	C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d		
65)	C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d		
67)	Benz(a)anthracene	33.607	228	200642m	214.20			
68)	Chrysene/Triphenylene	33.762	228	217936m	211.79			
69)	C1-Chrysenes	0.000		0	N.D.	d		
70)	C2-Chrysenes	0.000		0	N.D.	d		
71)	C3-Chrysenes	0.000		0	N.D.	d		
72)	C4-Chrysenes	0.000		0	N.D.	d		
74)	C29-Hopane	0.000		0	N.D.	d		
75)	18a-Oleanane	0.000		0	N.D.	d		
76)	C30-Hopane	42.513	191	56633m	278.55			
77)	Benzo(b)fluoranthene	37.138	252	158364m	304.87			
78)	Benzo(k,j)fluoranthene	37.254	252	106702m	229.67			
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d		
80)	Benzo(e)pyrene	38.108	252	149602m	273.85			
81)	Benzo(a)pyrene	38.302	252	141814m	288.12			
82)	Indeno(1,2,3-c,d)pyrene	42.919	276	83522m	181.54			
83)	Dibenzo(a,h)anthracene	42.993	278	67378m	194.67			
84)	C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d		
85)	C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d		
86)	C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d		
87)	Benzo(g,h,i)perylene	44.246	276	73128m	182.56			
89)	Perylene	38.613	252	138521	267.92			100
91)	C20-TAS	0.000		0	N.D.	d		
92)	C21-TAS	0.000		0	N.D.	d		
93)	C26(20S)-TAS	0.000		0	N.D.	d		
94)	C26(20R)/C27(20S)-TAS	39.233	231	201359m	260.86			
95)	C28(20S)-TAS	0.000		0	N.D.	d		
96)	C27(20R)-TAS	0.000		0	N.D.	d		
97)	C28(20R)-TAS	0.000		0	N.D.	d		

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145N.D
Acq On : 1 Sep 2013 6:25 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Sep 06 20:22:49 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

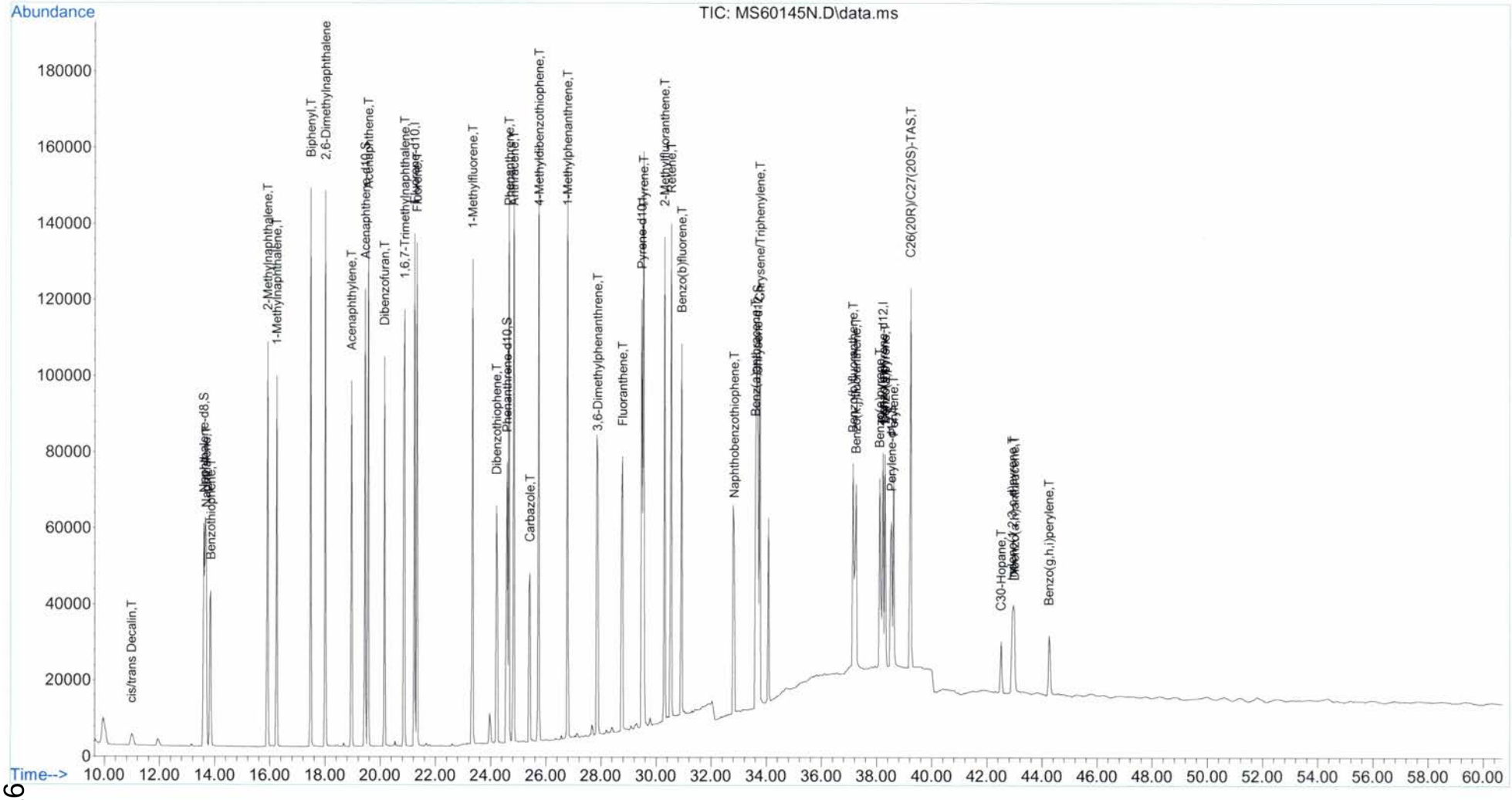
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145N.D
Acq On : 1 Sep 2013 6:25 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Sep 06 20:22:49 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name MS60145H.D
Data File Path C:\GCMS6\MS60145\
Operator YM
Date Acquired 8/31/2013 5:56
Acq. Method File PAH-2012.M
Sample Name AR-WKISSU-250-002
Misc Info 0
Instrument Name GCMS6
Vial Number 8
Sample Multiplier 1
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

MS60145H.D
AR-WKISSU-250-002
8/31/2013 5:56
PAH-2012.M
1

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	0.00	0	0.0000	0.0000
9)+10)	C1-Naphthalenes	0.00	0	0.0000	0.0000
13)	C2-Naphthalenes	0.00	0	0.0000	0.0000
14)	C3-Naphthalenes	0.00	0	0.0000	0.0000
15)	C4-Naphthalenes	0.00	0	0.0000	0.0000
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	0.00	0	0.0000	0.0000
24)	Acenaphthene	0.00	0	0.0000	0.0000
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	0.00	0	0.0000	0.0000
28)	C1-Fluorenes	0.00	0	0.0000	0.0000
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	0.00	0	0.0000	0.0000
41)	Phenanthrene	0.00	0	0.0000	0.0000
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	0.00	0	0.0000	0.0000
35)+36)+37)	C1-Dibenzothiophenes	0.00	0	0.0000	0.0000
38)	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	0.00	0	0.0000	0.0000
59)	Pyrene	0.00	0	0.0000	0.0000
62)	C1-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
64)	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	0.00	0	0.0000	0.0000
68)	Chrysene/Triphenylene	0.00	0	0.0000	0.0000
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
78)	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	0.00	0	0.0000	0.0000
81)	Benzo(a)pyrene	0.00	0	0.0000	0.0000
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
83)	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	0.00	0	0.0000	0.0000

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	0.00	0	0.0000	0.0000
10)	1-Methylnaphthalene	0.00	0	0.0000	0.0000
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	0.00	0	0.0000	0.0000
36)	2/3-Methyldibenzothiophene	0.00	0	0.0000	0.0000
37)	1-Methyldibenzothiophene	0.00	0	0.0000	0.0000
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	0.00	0	0.0000	0.0000
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.59	190107	241.81	96.67
21)	Acenaphthene-d10	19.45	106606	229.49	91.74
32)	Phenanthrene-d10	24.58	164443	226.58	90.56
66)	Chrysene-d12	33.65	141413	192.25	76.89
88)	Perylene-d12	38.50	154799	239.19	95.66
90)	5(b)H-Cholane	34.07	64562	283.00	113.20
	Internal Standards				
1)	Fluorene-d10	21.23	121988	251.05	
31)	Pyrene-d10	29.47	204411	250.63	
73)	Benzo(a)pyrene-d12	38.23	135835	250.33	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : MS60145H.D
Acq On : 31 Aug 2013 5:56 am
Operator : YM
Sample : AR-WKISSU-250-002
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 31 13:39:40 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.229	176	121988m	251.05		0.00
31) Pyrene-d10	29.467	212	204411m	250.63		0.00
73) Benzo(a)pyrene-d12	38.226	264	135835m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.594	136	190107m	241.81		0.00
21) Acenaphthene-d10	19.446	164	106606m	229.49		0.00
32) Phenanthrene-d10	24.583	188	164443m	226.58		0.00
66) Chrysene-d12	33.647	240	141413m	192.24		-0.04
88) Perylene-d12	38.497	264	154799m	239.19		0.00
90) 5(b)H-Cholane	34.073	217	64562m	283.00		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	0.000		0	N.D.	d	
9) 2-Methylnaphthalene	0.000		0	N.D.	d	
10) 1-Methylnaphthalene	0.000		0	N.D.	d	
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	0.000		0	N.D.	d	
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.	d	
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	0.000		0	N.D.	d	
24) Acenaphthene	0.000		0	N.D.	d	
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	0.000		0	N.D.	d	
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	0.000		0	N.D.	d	
35) 4-Methyldibenzothiophene	0.000		0	N.D.	d	
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.	d	
37) 1-Methyldibenzothiophene	0.000		0	N.D.	d	
38) C2-Dibenzothiophenes	0.000		0	N.D.	d	
39) C3-Dibenzothiophenes	0.000		0	N.D.	d	
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	0.000		0	N.D.	d	
42) Anthracene	0.000		0	N.D.	d	
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : MS60145H.D
Acq On : 31 Aug 2013 5:56 am
Operator : YM
Sample : AR-WKISSU-250-002
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 31 13:39:40 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	0.000		0	N.D.	d	
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	0.000		0	N.D.	d	
59) Pyrene	0.000		0	N.D.	d	
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67) Benz(a)anthracene	0.000		0	N.D.	d	
68) Chrysene/Triphenylene	0.000		0	N.D.	d	
69) C1-Chrysenes	0.000		0	N.D.	d	
70) C2-Chrysenes	0.000		0	N.D.	d	
71) C3-Chrysenes	0.000		0	N.D.	d	
72) C4-Chrysenes	0.000		0	N.D.	d	
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	0.000		0	N.D.	d	
78) Benzo(k,j)fluoranthene	0.000		0	N.D.	d	
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	0.000		0	N.D.	d	
81) Benzo(a)pyrene	0.000		0	N.D.	d	
82) Indeno(1,2,3-c,d)pyrene	0.000		0	N.D.	d	
83) Dibenzo(a,h)anthracene	0.000		0	N.D.	d	
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	0.000		0	N.D.	d	
89) Perylene	0.000		0	N.D.	d	
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : MS60145H.D
Acq On : 31 Aug 2013 5:56 am
Operator : YM
Sample : AR-WKISSU-250-002
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 31 13:39:40 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

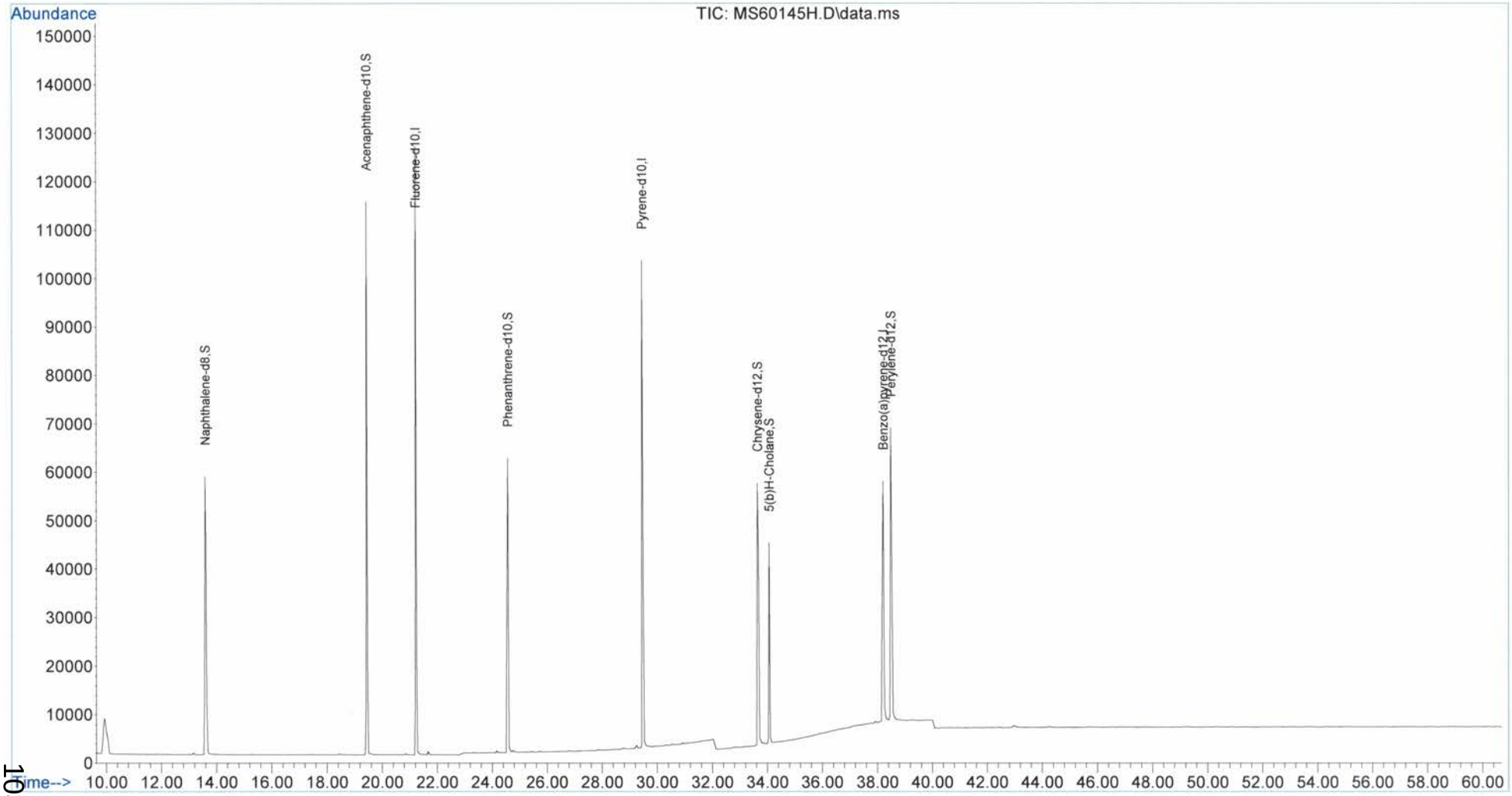
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : MS60145H.D
Acq On : 31 Aug 2013 5:56 am
Operator : YM
Sample : AR-WKISSU-250-002
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 31 13:39:40 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name MS60145K.D
Data File Path C:\GCMS6\MS60145\
Operator YM
Date Acquired 8/31/2013 9:26
Acq. Method File PAH-2012.M
Sample Name AR-SRM2779-WK-4.0-002
Misc Info 0
Instrument Name GCMS6
Vial Number 11
Sample Multiplier 0.24461
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

MS60145K.D
,R-SRM2779-WK-4.0-002
8/31/2013 9:26
PAH-2012.M
4.088140305

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	10.98	572041	685.6272	734.0391
4)	C1-Decalins	12.12	783660	939.2657	1005.5870
5)	C2-Decalins	14.52	628572	753.3841	806.5804
6)	C3-Decalins	16.47	650312	779.4400	834.4760
7)	C4-Decalins	17.50	389206	466.4884	499.4270
8)	Naphthalene	13.65	3284690	638.0505	683.1031
9)+10)	C1-Naphthalenes	16.08	6998260	1359.4109	1455.3985
13)	C2-Naphthalenes	18.28	8460740	1643.4979	1759.5448
14)	C3-Naphthalenes	20.29	6029090	1171.1511	1253.8458
15)	C4-Naphthalenes	22.63	2955120	574.0336	614.5660
16)	Benzothiophene	13.88	31101	7.6554	8.1960
17)	C1-Benzothiophenes	15.44	131084	32.2660	34.5443
18)	C2-Benzothiophenes	18.42	120892	29.7573	31.8585
19)	C3-Benzothiophenes	20.12	154706	38.0804	40.7692
20)	C4-Benzothiophenes	21.43	116443	28.6622	30.6860
22)	Biphenyl	17.47	639915	145.3808	155.6461
23)	Acenaphthylene	18.95	44744	8.8175	9.4401
24)	Acenaphthene	19.56	29486	9.8467	10.5419
25)	Dibenzofuran	20.15	128883	26.8100	28.7030
26)	Fluorene	21.32	397839	107.5932	115.1903
28)	C1-Fluorenes	23.34	964379	260.8105	279.2263
29)	C2-Fluorenes	25.17	1403310	379.5173	406.3149
30)	C3-Fluorenes	26.73	1155490	312.4966	334.5619
33)	Carbazole	25.41	17685	4.2172	4.5150
42)	Anthracene	24.83	18212	2.9535	3.1621
41)	Phenanthrene	24.65	1332900	206.7101	221.3059
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.55	2936246	455.3618	487.5148
50)	C2-Phenanthrenes/Anthracenes	28.22	3245960	503.3951	538.9397
51)	C3-Phenanthrenes/Anthracenes	29.78	2450250	379.9943	406.8256
52)	C4-Phenanthrenes/Anthracenes	31.62	1466550	227.4374	243.4967
34)	Dibenzothiophene	24.24	201295	38.9607	41.7118
35)+36)+37)	C1-Dibenzothiophenes	26.04	613040	118.6542	127.0323
38)	C2-Dibenzothiophenes	27.15	800334	154.9054	165.8432
39)	C3-Dibenzothiophenes	29.33	668311	129.3522	138.4857
40)	C4-Dibenzothiophenes	30.71	357685	69.2303	74.1186
58)	Fluoranthene	28.77	19028	3.0419	3.2567
59)	Pyrene	29.54	92645	11.2188	12.0110
62)	C1-Fluoranthenes/Pyrenes	30.68	424564	67.8719	72.6644
63)	C2-Fluoranthenes/Pyrenes	32.17	1006090	160.8360	172.1926
64)	C3-Fluoranthenes/Pyrenes	33.88	833101	133.1818	142.5858
65)	C4-Fluoranthenes/Pyrenes	35.01	686685	109.7753	117.5265
53)	Naphthobenzothiophene	32.83	204446	39.0197	41.7749
54)	C1-Naphthobenzothiophenes	34.23	306594	58.5151	62.6469
55)	C2-Naphthobenzothiophenes	35.66	451300	86.1331	92.2149
56)	C3-Naphthobenzothiophenes	37.02	330207	63.0218	67.4718
57)	C4-Naphthobenzothiophenes	38.03	152617	29.1279	31.1846
67)	Benz(a)anthracene	33.61	32350	6.1953	6.6327
68)	Chrysene/Triphenylene	33.72	216392	37.7223	40.3858
69)	C1-Chrysenes	34.97	734804	128.0937	137.1384
70)	C2-Chrysenes	36.44	853841	148.8447	159.3546
71)	C3-Chrysenes	37.84	653459	113.9134	121.9568
72)	C4-Chrysenes	39.24	368465	64.2321	68.7676
77)	Benzo(b)fluoranthene	37.14	31751	4.0317	4.3163
78)	Benzo(k,j)fluoranthene	37.26	6699	0.9511	1.0182
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.11	70334	8.4920	9.0916
81)	Benzo(a)pyrene	38.30	10857	1.4549	1.5576
89)	Perylene	38.61	4210	0.5371	0.5750
82)	Indeno(1,2,3-c,d)pyrene	42.92	3940	0.5648	0.6047
83)	Dibenzo(a,h)anthracene	42.96	3182	0.6064	0.6492
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.25	9575	1.5766	1.6879

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	15.91	4290480	1278.1802	1368.4322
10)	1-Methylnaphthalene	16.24	2707780	869.3757	930.7621
11)	2,6-Dimethylnaphthalene	18.03	2370660	775.4333	830.1864
12)	1,6,7-Trimethylnaphthalene	20.87	642150	218.0737	233.4719
27)	1-Methylfluorene	23.34	444234	183.7408	196.7146
35)	4-Methyldibenzothiophene	25.73	351265	73.7022	78.9063
36)	2/3-Methyldibenzothiophene	26.04	163877	34.3846	36.8125
37)	1-Methyldibenzothiophene	26.35	97898	20.5409	21.9913
43)	3-Methylphenanthrene	26.32	696667	154.5434	165.4556
44)	2-Methylphenanthrene	26.42	757361	168.0072	179.8701
45)	2-Methylanthracene	26.56	56221	12.4716	13.3523
46)	4/9-Methylphenanthrene	26.70	873000	193.6597	207.3340
47)	1-Methylphenanthrene	26.77	552997	122.6726	131.3345
48)	3,6-Dimethylphenanthrene	27.87	237843	60.8783	65.1769
49)	Retene	30.54	16622	6.9457	7.4361
60)	2-Methylfluoranthene	30.33	26017	4.8912	5.2366
61)	Benzo(b)fluorene	30.92	56776	12.7089	13.6063
74)	C29-Hopane	40.52	69099	22.4168	23.9997
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	41.81	113319	36.7624	39.3582
91)	C20-TAS	33.22	46937	4.0107	4.2939
92)	C21-TAS	34.31	49880	4.2622	4.5631
93)	C26(20S)-TAS	38.38	35505	3.0338	3.2481
94)	C26(20R)/C27(20S)-TAS	39.27	111862	9.5585	10.2334
95)	C28(20S)-TAS	40.01	19552	1.6707	1.7887
96)	C27(20R)-TAS	40.45	68336	5.8392	6.2515
97)	C28(20R)-TAS	41.56	62740	5.3610	5.7396
	Surrogate Standards				
2)	Naphthalene-d8	13.60	277515	57.70	94.31
21)	Acenaphthene-d10	19.45	162500	57.18	93.45
32)	Phenanthrene-d10	24.58	285140	57.16	93.40
66)	Chrysene-d12	33.69	302908	59.91	97.96
88)	Perylene-d12	38.54	366264	53.37	87.26
90)	5(b)H-Cholane	34.07	139002	57.46	93.96
	Internal Standards				
1)	Fluorene-d10	21.23	182546	61.41	
31)	Pyrene-d10	29.47	343657	61.31	
73)	Benzo(a)pyrene-d12	38.23	352340	61.23	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : MS60145K.D
Acq On : 31 Aug 2013 9:26 am
Operator : YM
Sample : AR-SRM2779-WK-4.0-002
Misc :
ALS Vial : 11 Sample Multiplier: 0.24461

Quant Time: Sep 06 20:03:54 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.233	176	182546m	251.05		0.00
31) Pyrene-d10	29.467	212	343657m	250.63		0.00
73) Benzo(a)pyrene-d12	38.226	264	352340m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.597	136	277515m	57.70		0.00
21) Acenaphthene-d10	19.449	164	162500m	57.18		0.00
32) Phenanthrene-d10	24.583	188	285140m	57.16		0.00
66) Chrysene-d12	33.686	240	302908m	59.91		0.00
88) Perylene-d12	38.536	264	366264m	53.37		0.04
90) 5(b)H-Cholane	34.074	217	139002m	57.46		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	10.978	138	572041m	685.63		
4) C1-Decalins	12.120	152	783660m	939.27		
5) C2-Decalins	14.517	166	628572m	753.38		
6) C3-Decalins	16.467	180	650312m	779.44		
7) C4-Decalins	17.498	194	389206m	466.49		
8) Naphthalene	13.653	128	3284686m	638.05		
9) 2-Methylnaphthalene	15.910	142	4290476m	1278.18		
10) 1-Methylnaphthalene	16.245	142	2707779m	869.38		
11) 2,6-Dimethylnaphthalene	18.028	156	2370664m	775.43		
12) 1,6,7-Trimethylnaphtha...	20.870	170	642150m	218.07		
13) C2-Naphthalenes	18.279	156	8460735m	1643.50		
14) C3-Naphthalenes	20.285	170	6029089m	1171.15		
15) C4-Naphthalenes	22.626	184	2955122m	574.03		
16) Benzothiophene	13.876	134	31101m	7.66		
17) C1-Benzothiophenes	15.436	148	131084m	32.27		
18) C2-Benzothiophenes	18.418	162	120892m	29.76		
19) C3-Benzothiophenes	20.118	176	154706m	38.08		
20) C4-Benzothiophenes	21.428	190	116443m	28.66		
22) Biphenyl	17.471	154	639915m	145.38		
23) Acenaphthylene	18.948	152	44744m	8.82		
24) Acenaphthene	19.561	154	29486m	9.85		
25) Dibenzofuran	20.146	168	128883m	26.81		
26) Fluorene	21.316	166	397839m	107.59		
27) 1-Methylfluorene	23.336	180	444234m	183.74		
28) C1-Fluorenes	23.336	180	964379m	260.81		
29) C2-Fluorenes	25.172	194	1403314m	379.52		
30) C3-Fluorenes	26.731	208	1155494m	312.50		
33) Carbazole	25.415	167	17685m	4.22		
34) Dibenzothiophene	24.237	184	201295m	38.96		
35) 4-Methyldibenzothiophene	25.726	198	351265m	73.70		
36) 2/3-Methyldibenzothiop...	26.038	198	163877m	34.38		
37) 1-Methyldibenzothiophene	26.350	198	97898m	20.54		
38) C2-Dibenzothiophenes	27.147	212	800334m	154.91		
39) C3-Dibenzothiophenes	29.329	226	668311m	129.35		
40) C4-Dibenzothiophenes	30.714	240	357685m	69.23		
41) Phenanthrene	24.653	178	1332895m	206.71		
42) Anthracene	24.826	178	18212m	2.95		
43) 3-Methylphenanthrene	26.315	192	696667m	154.54		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : MS60145K.D
Acq On : 31 Aug 2013 9:26 am
Operator : YM
Sample : AR-SRM2779-WK-4.0-002
Misc :
ALS Vial : 11 Sample Multiplier: 0.24461

Quant Time: Sep 06 20:03:54 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.419	192	757361m	168.01		
45) 2-Methylanthracene	26.558	192	56221m	12.47		
46) 4/9-Methylphenanthrene	26.696	192	873000m	193.66		
47) 1-Methylphenanthrene	26.765	192	552997m	122.67		
48) 3,6-Dimethylphenanthrene	27.874	206	237843m	60.88		
49) Retene	30.541	234	16622m	6.95		
50) C2-Phenanthrenes/Anthr...	28.220	206	3245959m	503.39		
51) C3-Phenanthrenes/Anthr...	29.779	220	2450248m	379.99		
52) C4-Phenanthrenes/Anthr...	31.615	234	1466547m	227.44		
53) Naphthobenzothiophene	32.832	234	204446m	39.02		
54) C1-Naphthobenzothiophenes	34.229	248	306594m	58.52		
55) C2-Naphthobenzothiophenes	35.665	262	451300m	86.13		
56) C3-Naphthobenzothiophenes	37.023	276	330207m	63.02		
57) C4-Naphthobenzothiophenes	38.032	290	152617m	29.13		
58) Fluoranthene	28.775	202	19028m	3.04		
59) Pyrene	29.537	202	92645m	11.22		
60) 2-Methylfluoranthene	30.333	216	26017m	4.89		
61) Benzo(b)fluorene	30.922	216	56776m	12.71		
62) C1-Fluoranthenes/Pyrenes	30.680	216	424564m	67.87		
63) C2-Fluoranthenes/Pyrenes	32.172	230	1006088m	160.84		
64) C3-Fluoranthenes/Pyrenes	33.880	244	833101m	133.18		
65) C4-Fluoranthenes/Pyrenes	35.005	258	686685m	109.78		
67) Benz(a)anthracene	33.608	228	32350m	6.20		
68) Chrysene/Triphenylene	33.725	228	216392m	37.72		
69) C1-Chrysenes	34.966	242	734804m	128.09		
70) C2-Chrysenes	36.441	256	853841m	148.84		
71) C3-Chrysenes	37.838	270	653459m	113.91		
72) C4-Chrysenes	39.235	284	368465m	64.23		
74) C29-Hopane	40.523	191	69099m	22.42		
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	41.814	191	113319m	36.76		
77) Benzo(b)fluoranthene	37.139	252	31751m	4.03		
78) Benzo(k,j)fluoranthene	37.256	252	6699m	0.95		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.110	252	70334m	8.49		
81) Benzo(a)pyrene	38.304	252	10857m	1.45		
82) Indeno(1,2,3-c,d)pyrene	42.920	276	3940m	0.56		
83) Dibenzo(a,h)anthracene	42.957	278	3182m	0.61		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.248	276	9575m	1.58		
89) Perylene	38.614	252	4210m	0.54		
91) C20-TAS	33.220	231	46937m	4.01		
92) C21-TAS	34.307	231	49880m	4.26		
93) C26(20S)-TAS	38.381	231	35505m	3.03		
94) C26(20R)/C27(20S)-TAS	39.274	231	111862m	9.56		
95) C28(20S)-TAS	40.011	231	19552m	1.67		
96) C27(20R)-TAS	40.449	231	68336m	5.84		
97) C28(20R)-TAS	41.555	231	62740m	5.36		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : MS60145K.D
Acq On : 31 Aug 2013 9:26 am
Operator : YM
Sample : AR-SRM2779-WK-4.0-002
Misc :
ALS Vial : 11 Sample Multiplier: 0.24461

Quant Time: Sep 06 20:03:54 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

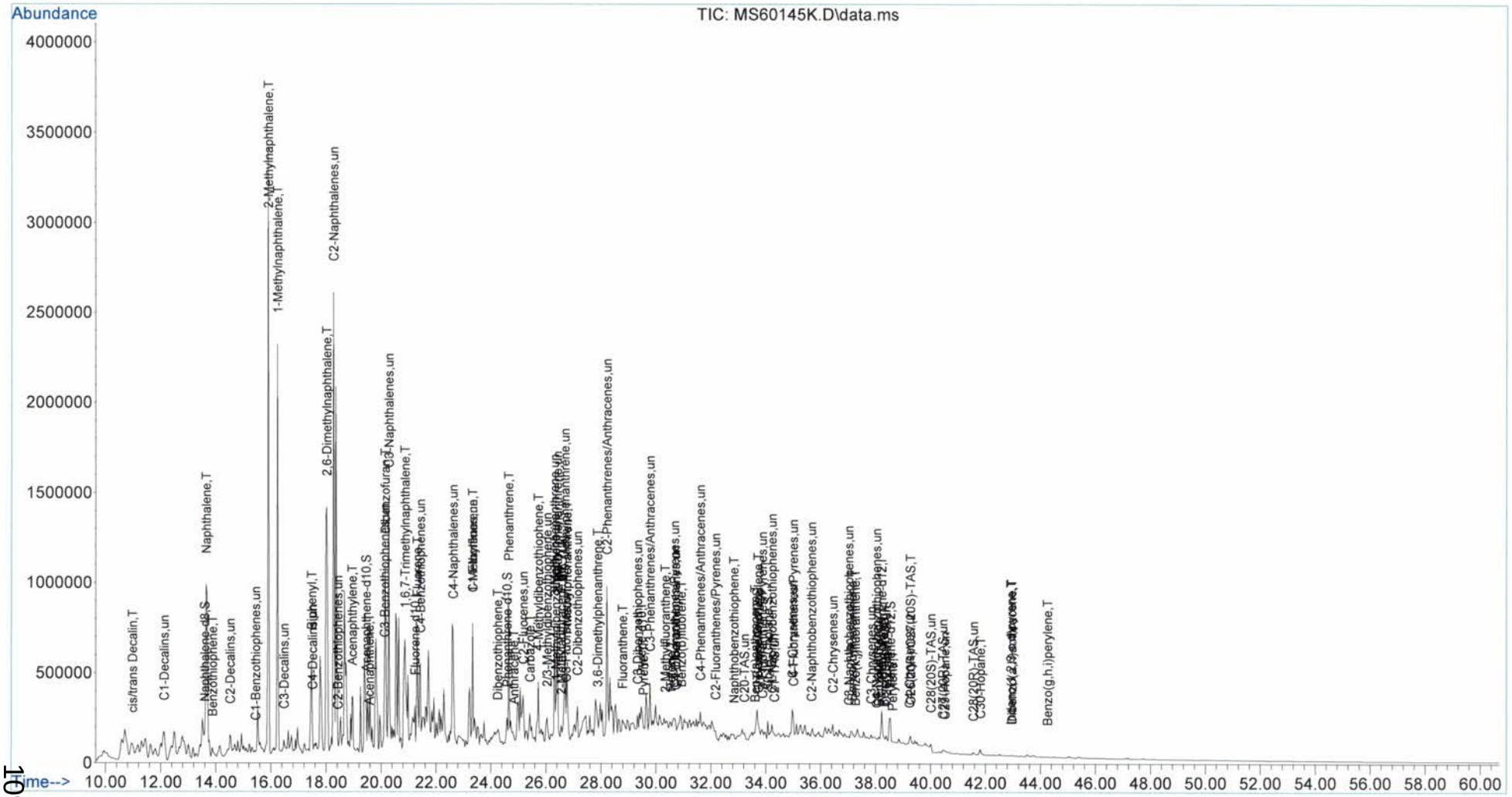
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : MS60145K.D
Acq On : 31 Aug 2013 9:26 am
Operator : YM
Sample : AR-SRM2779-WK-4.0-002
Misc :
ALS Vial : 11 Sample Multiplier: 0.24461

Quant Time: Sep 06 20:03:54 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name	ENV3088A.D
Data File Path	C:\GCMS6\MS60145\
Operator	YM
Date Acquired	8/31/2013 12:14
Acq. Method File	PAH-2012.M
Sample Name	Procedural Blank
Misc Info	0
Instrument Name	GCMS6
Vial Number	12
Sample Multiplier	0.06667
Sample Amount	0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ENV3088A.D
Procedural Blank
8/31/2013 12:14
PAH-2012.M
14.99925004

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	0.00	0	0.0000	0.0000
9)+10)	C1-Naphthalenes	0.00	0	0.0000	0.0000
13)	C2-Naphthalenes	0.00	0	0.0000	0.0000
14)	C3-Naphthalenes	0.00	0	0.0000	0.0000
15)	C4-Naphthalenes	0.00	0	0.0000	0.0000
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	17.47	863	0.0858	0.0992
23)	Acenaphthylene	0.00	0	0.0000	0.0000
24)	Acenaphthene	0.00	0	0.0000	0.0000
25)	Dibenzofuran	20.14	386	0.0351	0.0406
26)	Fluorene	21.23	456	0.0539	0.0624
28)	C1-Fluorenes	0.00	0	0.0000	0.0000
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	0.00	0	0.0000	0.0000
41)	Phenanthrene	0.00	0	0.0000	0.0000
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	0.00	0	0.0000	0.0000
35)+36)+37)	C1-Dibenzothiophenes	0.00	0	0.0000	0.0000
38)	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	0.00	0	0.0000	0.0000
59)	Pyrene	0.00	0	0.0000	0.0000
62)	C1-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
64)	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	0.00	0	0.0000	0.0000
68)	Chrysene/Triphenylene	0.00	0	0.0000	0.0000
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
78)	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	0.00	0	0.0000	0.0000
81)	Benzo(a)pyrene	0.00	0	0.0000	0.0000
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
83)	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	0.00	0	0.0000	0.0000

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	0.00	0	0.0000	0.0000
10)	1-Methylnaphthalene	0.00	0	0.0000	0.0000
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	0.00	0	0.0000	0.0000
36)	2/3-Methyldibenzothiophene	0.00	0	0.0000	0.0000
37)	1-Methyldibenzothiophene	0.00	0	0.0000	0.0000
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	0.00	0	0.0000	0.0000
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.59	160050	14.55	87.28
21)	Acenaphthene-d10	19.45	92510	14.24	85.37
32)	Phenanthrene-d10	24.58	152224	14.43	86.49
66)	Chrysene-d12	33.65	146221	13.67	82.02
88)	Perylene-d12	38.50	171408	16.37	98.19
90)	5(b)H-Cholane	34.07	60243	16.32	97.91
	Internal Standards				
1)	Fluorene-d10	21.23	113756	16.74	
31)	Pyrene-d10	29.47	198136	16.71	
73)	Benzo(a)pyrene-d12	38.23	146545	16.69	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ENV3088A.D
Acq On : 31 Aug 2013 12:14 pm
Operator : YM
Sample : Procedural Blank
Misc :
ALS Vial : 12 Sample Multiplier: 0.06667

Quant Time: Sep 06 20:08:54 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.230	176	113756m	251.05		0.00
31) Pyrene-d10	29.468	212	198136m	250.63		0.00
73) Benzo(a)pyrene-d12	38.226	264	146545m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.595	136	160050m	14.55		0.00
21) Acenaphthene-d10	19.447	164	92510m	14.24		0.00
32) Phenanthrene-d10	24.583	188	152224m	14.43		0.00
66) Chrysene-d12	33.647	240	146221m	13.67		-0.04
88) Perylene-d12	38.498	264	171408m	16.37		0.00
90) 5(b)H-Cholane	34.074	217	60243m	16.32		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	0.000		0	N.D.	d	
9) 2-Methylnaphthalene	0.000		0	N.D.	d	
10) 1-Methylnaphthalene	0.000		0	N.D.	d	
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	0.000		0	N.D.	d	
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.	d	
16) Benzothiophene	0.000		0	N.D.		
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	17.468	154	863m	0.09		
23) Acenaphthylene	0.000		0	N.D.	d	
24) Acenaphthene	0.000		0	N.D.	d	
25) Dibenzofuran	20.143	168	386m	0.04		
26) Fluorene	21.230	166	456m	0.05		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	0.000		0	N.D.	d	
35) 4-Methyldibenzothiophene	0.000		0	N.D.	d	
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.	d	
37) 1-Methyldibenzothiophene	0.000		0	N.D.	d	
38) C2-Dibenzothiophenes	0.000		0	N.D.	d	
39) C3-Dibenzothiophenes	0.000		0	N.D.	d	
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	0.000		0	N.D.	d	
42) Anthracene	0.000		0	N.D.	d	
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ENV3088A.D
Acq On : 31 Aug 2013 12:14 pm
Operator : YM
Sample : Procedural Blank
Misc :
ALS Vial : 12 Sample Multiplier: 0.06667

Quant Time: Sep 06 20:08:54 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	0.000		0	N.D.	d	
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	0.000		0	N.D.	d	
59) Pyrene	0.000		0	N.D.	d	
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67) Benz(a)anthracene	0.000		0	N.D.	d	
68) Chrysene/Triphenylene	0.000		0	N.D.	d	
69) C1-Chrysenes	0.000		0	N.D.	d	
70) C2-Chrysenes	0.000		0	N.D.	d	
71) C3-Chrysenes	0.000		0	N.D.	d	
72) C4-Chrysenes	0.000		0	N.D.	d	
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	0.000		0	N.D.	d	
78) Benzo(k,j)fluoranthene	0.000		0	N.D.	d	
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	0.000		0	N.D.	d	
81) Benzo(a)pyrene	0.000		0	N.D.	d	
82) Indeno(1,2,3-c,d)pyrene	0.000		0	N.D.	d	
83) Dibenzo(a,h)anthracene	0.000		0	N.D.	d	
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	0.000		0	N.D.	d	
89) Perylene	0.000		0	N.D.	d	
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ENV3088A.D
Acq On : 31 Aug 2013 12:14 pm
Operator : YM
Sample : Procedural Blank
Misc :
ALS Vial : 12 Sample Multiplier: 0.06667

Quant Time: Sep 06 20:08:54 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

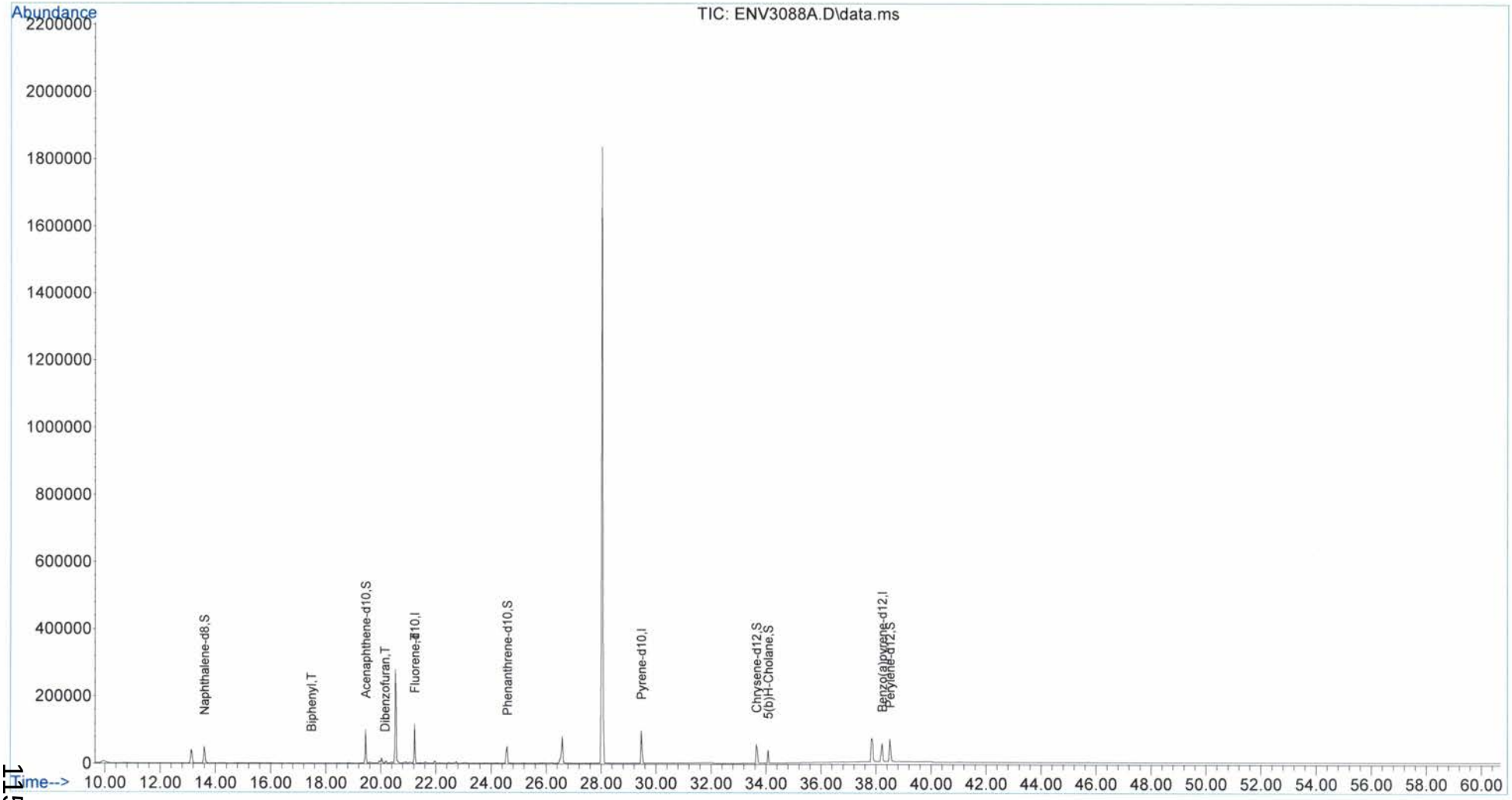
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ENV3088A.D
Acq On : 31 Aug 2013 12:14 pm
Operator : YM
Sample : Procedural Blank
Misc :
ALS Vial : 12 Sample Multiplier: 0.06667

Quant Time: Sep 06 20:08:54 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name	ENV3088B.D
Data File Path	C:\msdchem\2\data\MS60145\
Operator	YM
Date Acquired	8/31/2013 13:23
Acq. Method File	PAH-2012.M
Sample Name	SRM 1941b
Misc Info	0
Instrument Name	GCMS6
Vial Number	13
Sample Multiplier	0.24876
Sample Amount	0

Surrogate/Internal Multiplier Factor:	1.00
AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ENV3088B.D
SRM 1941b
8/31/2013 13:23
PAH-2012.M
4.019938897

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	11.20	19729	34.6082	47.5235
4)	C1-Decalins	12.15	3324	5.8309	8.0069
5)	C2-Decalins	14.51	6795	11.9196	16.3678
6)	C3-Decalins	17.08	13650	23.9445	32.8802
7)	C4-Decalins	17.39	20035	35.1448	48.2603
8)	Naphthalene	13.68	1908380	542.5480	745.0179
9)+10)	C1-Naphthalenes	16.08	580734	165.1013	226.7144
13)	C2-Naphthalenes	18.28	529998	150.6772	206.9074
14)	C3-Naphthalenes	20.28	435761	123.8860	170.1181
15)	C4-Naphthalenes	22.62	296989	84.4334	115.9425
16)	Benzothiophene	13.85	60258	21.7081	29.8092
17)	C1-Benzothiophenes	16.19	65753	23.6877	32.5275
18)	C2-Benzothiophenes	18.03	42085	15.1612	20.8191
19)	C3-Benzothiophenes	20.39	43132	15.5384	21.3371
20)	C4-Benzothiophenes	21.43	28609	10.3065	14.1526
22)	Biphenyl	17.47	155171	51.5951	70.8495
23)	Acenaphthylene	18.95	178125	51.3744	70.5465
24)	Acenaphthene	19.56	48531	23.7195	32.5712
25)	Dibenzofuran	20.14	211749	64.4664	88.5242
26)	Fluorene	21.31	97352	38.5332	52.9131
28)	C1-Fluorenes	23.34	119670	47.3669	65.0434
29)	C2-Fluorenes	25.21	347422	137.5138	188.8316
30)	C3-Fluorenes	27.42	308615	122.1536	167.7393
33)	Carbazole	25.41	41673	14.6367	20.0989
42)	Anthracene	24.82	569758	136.0961	186.8849
41)	Phenanthrene	24.65	1359330	310.4973	426.3697
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.55	936317	213.8729	293.6867
50)	C2-Phenanthrenes/Anthracenes	28.22	1033480	236.0680	324.1647
51)	C3-Phenanthrenes/Anthracenes	29.78	851718	194.5495	267.1521
52)	C4-Phenanthrenes/Anthracenes	30.54	655856	149.8107	205.7176
34)	Dibenzothiophene	24.20	138849	39.5827	54.3543
35)+36)+37)	C1-Dibenzothiophenes	26.03	205033	58.4502	80.2629
38)	C2-Dibenzothiophenes	27.46	335601	95.6726	131.3760
39)	C3-Dibenzothiophenes	29.33	360176	102.6782	140.9960
40)	C4-Dibenzothiophenes	30.71	246514	70.2757	96.5014
58)	Fluoranthene	28.77	2348700	553.0233	759.4024
59)	Pyrene	29.54	2179060	388.6552	533.6948
62)	C1-Fluoranthenes/Pyrenes	30.68	1342920	316.2038	434.2058
63)	C2-Fluoranthenes/Pyrenes	33.14	1482170	348.9904	479.2278
64)	C3-Fluoranthenes/Pyrenes	33.84	674001	158.6999	217.9241
65)	C4-Fluoranthenes/Pyrenes	35.16	612616	144.2462	198.0765
53)	Naphthobenzothiophene	32.79	495245	139.2173	191.1709
54)	C1-Naphthobenzothiophenes	34.23	466375	131.1017	180.0267
55)	C2-Naphthobenzothiophenes	35.70	470668	132.3087	181.6841
56)	C3-Naphthobenzothiophenes	36.75	351112	98.7005	135.5339
57)	C4-Naphthobenzothiophenes	37.88	189694	53.3244	73.2242
67)	Benz(a)anthracene	33.61	1080910	304.8902	418.6701
68)	Chrysene/Triphenylene	33.76	1320800	339.1246	465.6802
69)	C1-Chrysenes	35.00	1231600	316.2237	434.2331
70)	C2-Chrysenes	36.44	669893	172.0006	236.1884
71)	C3-Chrysenes	37.22	367466	94.3499	129.5598
72)	C4-Chrysenes	39.27	195254	50.1331	68.8419
77)	Benzo(b)fluoranthene	37.18	2268860	385.5929	529.4898
78)	Benzo(k,j)fluoranthene	37.18	1257730	238.9890	328.1756
79)	Benzo(a)fluoranthene	37.53	272699	51.8172	71.1545
80)	Benzo(e)pyrene	38.11	1340550	216.6317	297.4750
81)	Benzo(a)pyrene	38.30	1075360	192.8746	264.8521
89)	Perylene	38.61	1437870	245.5159	337.1384
82)	Indeno(1,2,3-c,d)pyrene	42.92	1058520	203.1091	278.9060
83)	Dibenzo(a,h)anthracene	42.96	113346	28.9096	39.6982
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.28	869739	191.6773	263.2081

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	15.91	402113	175.3260	240.7548
10)	1-Methylnaphthalene	16.24	178621	83.9344	115.2573
11)	2,6-Dimethylnaphthalene	18.00	101942	48.8022	67.0144
12)	1,6,7-Trimethylnaphthalene	20.87	33186	16.4943	22.6497
27)	1-Methylfluorene	23.34	34391	20.8186	28.5877
35)	4-Methyldibenzothiophene	25.73	105311	32.5453	44.6906
36)	2/3-Methyldibenzothiophene	26.00	70320	21.7317	29.8416
37)	1-Methyldibenzothiophene	26.35	29402	9.0864	12.4773
43)	3-Methylphenanthrene	26.31	241649	78.9549	108.4196
44)	2-Methylphenanthrene	26.42	246002	80.3771	110.3725
45)	2-Methylanthracene	26.56	142801	46.6579	64.0699
46)	4/9-Methylphenanthrene	26.70	143612	46.9229	64.4337
47)	1-Methylphenanthrene	26.76	162253	53.0135	72.7972
48)	3,6-Dimethylphenanthrene	27.87	54400	20.5088	28.1623
49)	Retene	30.54	41211	25.3636	34.8288
60)	2-Methylfluoranthene	30.33	206135	57.0797	78.3809
61)	Benzo(b)fluorene	30.92	195562	64.4759	88.5372
74)	C29-Hopane	40.52	437338	189.8957	260.7616
75)	18a-Oleanane	41.59	71089	30.8674	42.3866
76)	C30-Hopane	41.81	498895	216.6242	297.4647
91)	C20-TAS	33.14	54457	6.2281	8.5523
92)	C21-TAS	34.15	41849	4.7861	6.5723
93)	C26(20S)-TAS	38.38	12727	1.4555	1.9987
94)	C26(20R)/C27(20S)-TAS	39.27	50103	5.7301	7.8685
95)	C28(20S)-TAS	40.01	9113	1.0422	1.4312
96)	C27(20R)-TAS	40.45	41437	4.7390	6.5076
97)	C28(20R)-TAS	41.92	168680	19.2914	26.4907
	Surrogate Standards				
2)	Naphthalene-d8	13.60	126957	38.63	62.09
21)	Acenaphthene-d10	19.45	89039	45.86	73.69
32)	Phenanthrene-d10	24.58	153497	45.32	72.82
66)	Chrysene-d12	33.68	170428	49.65	79.83
88)	Perylene-d12	38.54	203462	39.68	63.80
90)	5(b)H-Cholane	34.07	66723	36.92	59.36
	Internal Standards				
1)	Fluorene-d10	21.23	126843	62.45	
31)	Pyrene-d10	29.47	237281	62.35	
73)	Benzo(a)pyrene-d12	38.23	267715	62.27	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ENV3088B.D
Acq On : 31 Aug 2013 1:23 pm
Operator : YM
Sample : SRM 1941b
Misc :
ALS Vial : 13 Sample Multiplier: 0.24876

Quant Time: Sep 07 20:47:10 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.231	176	126843m	251.05		0.00
31) Pyrene-d10	29.466	212	237281m	250.63		0.00
73) Benzo(a)pyrene-d12	38.225	264	267715m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.595	136	126957m	38.63		0.00
21) Acenaphthene-d10	19.447	164	89039m	45.86		0.00
32) Phenanthrene-d10	24.582	188	153497m	45.32		0.00
66) Chrysene-d12	33.685	240	170428m	49.65		0.00
88) Perylene-d12	38.536	264	203462m	39.68		0.04
90) 5(b)H-Cholane	34.073	217	66723m	36.92		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.199	138	19729m	34.61		
4) C1-Decalins	12.146	152	3324m	5.83		
5) C2-Decalins	14.515	166	6795m	11.92		
6) C3-Decalins	17.079	180	13650m	23.94		
7) C4-Decalins	17.385	194	20035m	35.14		
8) Naphthalene	13.679	128	1908382m	542.55		
9) 2-Methylnaphthalene	15.908	142	402113m	175.33		
10) 1-Methylnaphthalene	16.243	142	178621m	83.93		
11) 2,6-Dimethylnaphthalene	17.998	156	101942m	48.80		
12) 1,6,7-Trimethylnaphtha...	20.868	170	33186m	16.49		
13) C2-Naphthalenes	18.277	156	529998m	150.68		
14) C3-Naphthalenes	20.283	170	435761m	123.89		
15) C4-Naphthalenes	22.624	184	296989m	84.43		
16) Benzothiophene	13.846	134	60258m	21.71		
17) C1-Benzothiophenes	16.187	148	65753m	23.69		
18) C2-Benzothiophenes	18.026	162	42085m	15.16		
19) C3-Benzothiophenes	20.395	176	43132m	15.54		
20) C4-Benzothiophenes	21.426	190	28609m	10.31		
22) Biphenyl	17.469	154	155171m	51.59		
23) Acenaphthylene	18.946	152	178125m	51.37		
24) Acenaphthene	19.559	154	48531m	23.72		
25) Dibenzofuran	20.144	168	211749m	64.47		
26) Fluorene	21.314	166	97352m	38.53		
27) 1-Methylfluorene	23.335	180	34391m	20.82		
28) C1-Fluorenes	23.335	180	119670m	47.37		
29) C2-Fluorenes	25.206	194	347422m	137.51		
30) C3-Fluorenes	27.423	208	308615m	122.15		
33) Carbazole	25.414	167	41673m	14.64		
34) Dibenzothiophene	24.201	184	138849m	39.58		
35) 4-Methyldibenzothiophene	25.725	198	105311m	32.55		
36) 2/3-Methyldibenzothiop...	26.002	198	70320m	21.73		
37) 1-Methyldibenzothiophene	26.349	198	29402m	9.09		
38) C2-Dibenzothiophenes	27.457	212	335601m	95.67		
39) C3-Dibenzothiophenes	29.328	226	360176m	102.68		
40) C4-Dibenzothiophenes	30.713	240	246514m	70.28		
41) Phenanthrene	24.652	178	1359329m	310.50		
42) Anthracene	24.825	178	569758m	136.10		
43) 3-Methylphenanthrene	26.314	192	241649m	78.95		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ENV3088B.D
Acq On : 31 Aug 2013 1:23 pm
Operator : YM
Sample : SRM 1941b
Misc :
ALS Vial : 13 Sample Multiplier: 0.24876

Quant Time: Sep 07 20:47:10 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.418	192	246002m	80.38		
45) 2-Methylanthracene	26.557	192	142801m	46.66		
46) 4/9-Methylphenanthrene	26.695	192	143612m	46.92		
47) 1-Methylphenanthrene	26.765	192	162253m	53.01		
48) 3,6-Dimethylphenanthrene	27.873	206	54400m	20.51		
49) Retene	30.540	234	41211m	25.36		
50) C2-Phenanthrenes/Anthr...	28.219	206	1033482m	236.07		
51) C3-Phenanthrenes/Anthr...	29.778	220	851718m	194.55		
52) C4-Phenanthrenes/Anthr...	30.540	234	655856m	149.81		
53) Naphthobenzothiophene	32.792	234	495245m	139.22		
54) C1-Naphthobenzothiophenes	34.228	248	466375m	131.10		
55) C2-Naphthobenzothiophenes	35.703	262	470668m	132.31		
56) C3-Naphthobenzothiophenes	36.750	276	351112m	98.70		
57) C4-Naphthobenzothiophenes	37.876	290	189694m	53.32		
58) Fluoranthene	28.774	202	2348697m	553.02		
59) Pyrene	29.536	202	2179064m	388.65		
60) 2-Methylfluoranthene	30.332	216	206135m	57.08		
61) Benzo(b)fluorene	30.921	216	195562m	64.48		
62) C1-Fluoranthenes/Pyrenes	30.679	216	1342922m	316.20		
63) C2-Fluoranthenes/Pyrenes	33.142	230	1482168m	348.99		
64) C3-Fluoranthenes/Pyrenes	33.840	244	674001m	158.70		
65) C4-Fluoranthenes/Pyrenes	35.159	258	612616m	144.25		
67) Benz(a)anthracene	33.607	228	1080908m	304.89		
68) Chrysene/Triphenylene	33.762	228	1320796m	339.13		
69) C1-Chrysenes	35.004	242	1231600m	316.22		
70) C2-Chrysenes	36.440	256	669893m	172.00		
71) C3-Chrysenes	37.216	270	367466m	94.35		
72) C4-Chrysenes	39.273	284	195254m	50.13		
74) C29-Hopane	40.522	191	437338m	189.90		
75) 18a-Oleanane	41.591	191	71089m	30.87		
76) C30-Hopane	41.813	191	498895m	216.62		
77) Benzo(b)fluoranthene	37.177	252	2268862m	385.59		
78) Benzo(k,j)fluoranthene	37.177	252	1257727m	238.99		
79) Benzo(a)fluoranthene	37.527	252	272699m	51.82		
80) Benzo(e)pyrene	38.109	252	1340545m	216.63		
81) Benzo(a)pyrene	38.303	252	1075356m	192.87		
82) Indeno(1,2,3-c,d)pyrene	42.919	276	1058519m	203.11		
83) Dibenzo(a,h)anthracene	42.956	278	113346m	28.91		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.283	276	869739m	191.68		
89) Perylene	38.613	252	1437865m	245.52		
91) C20-TAS	33.142	231	54457m	6.23		
92) C21-TAS	34.150	231	41849m	4.79		
93) C26(20S)-TAS	38.380	231	12727m	1.46		
94) C26(20R)/C27(20S)-TAS	39.273	231	50103m	5.73		
95) C28(20S)-TAS	40.010	231	9113m	1.04		
96) C27(20R)-TAS	40.448	231	41437m	4.74		
97) C28(20R)-TAS	41.923	231	168680m	19.29		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ENV3088B.D
Acq On : 31 Aug 2013 1:23 pm
Operator : YM
Sample : SRM 1941b
Misc :
ALS Vial : 13 Sample Multiplier: 0.24876

Quant Time: Sep 07 20:47:10 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

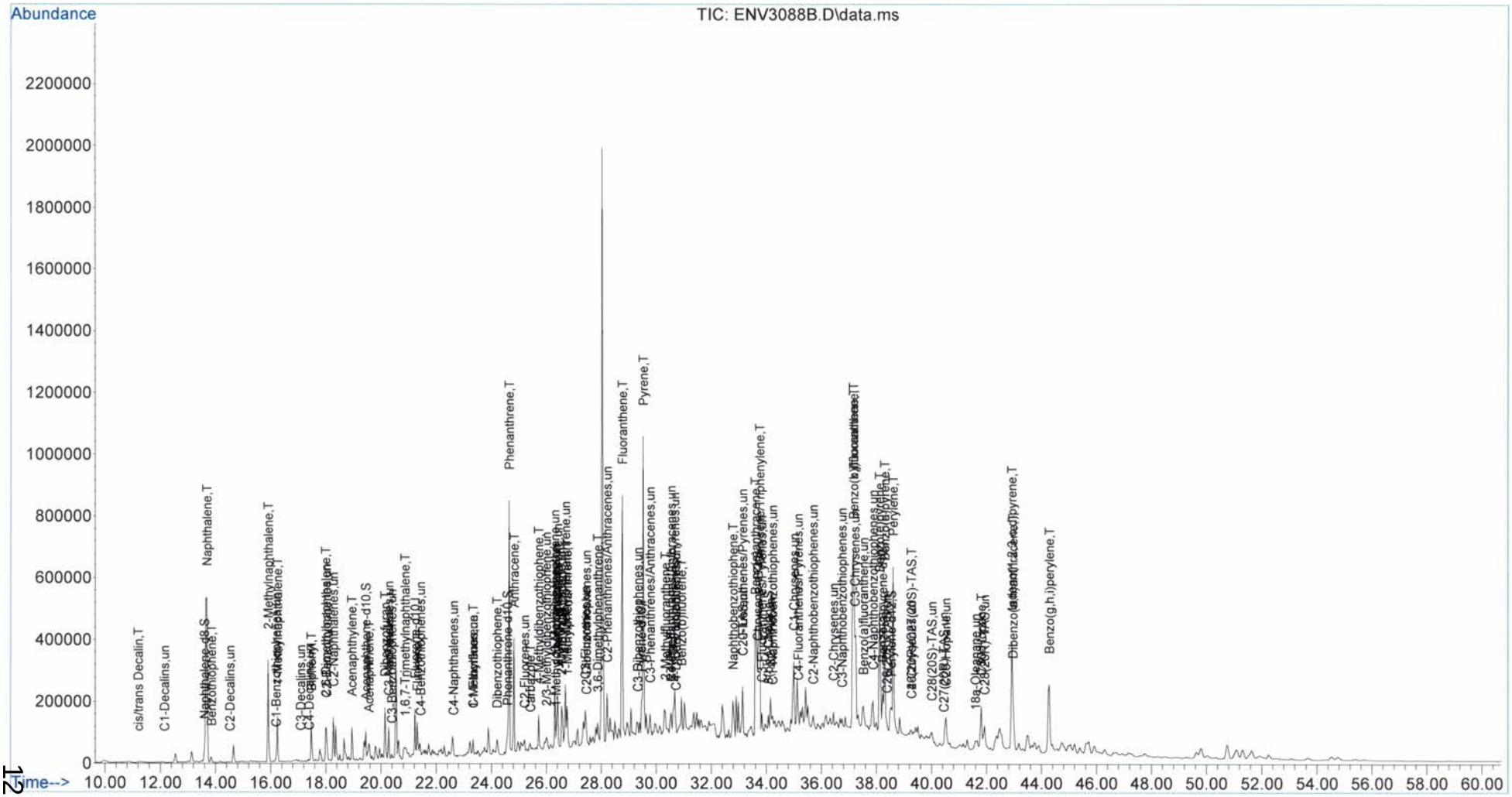
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ENV3088B.D
Acq On : 31 Aug 2013 1:23 pm
Operator : YM
Sample : SRM 1941b
Misc :
ALS Vial : 13 Sample Multiplier: 0.24876

Quant Time: Sep 07 20:47:10 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name	ENV3088C.D
Data File Path	C:\msdchem\2\data\MS60145\
Operator	YM
Date Acquired	8/31/2013 14:33
Acq. Method File	PAH-2012.M
Sample Name	MS (SO-DA-017 (0-0.5) MS)
Misc Info	0
Instrument Name	GCMS6
Vial Number	14
Sample Multiplier	0.0664
Sample Amount	0

Surrogate/Internal Multiplier Factor:	1.00
AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ENV3088C.D
S (SO-DA-017 (0-0.5) MS)
8/31/2013 14:33
PAH-2012.M
15.06024096

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.68	146362	10.1324	12.6431
9)+10)	C1-Naphthalenes	16.07	197573	13.6776	17.0669
13)	C2-Naphthalenes	0.00	0	0.0000	0.0000
14)	C3-Naphthalenes	0.00	0	0.0000	0.0000
15)	C4-Naphthalenes	0.00	0	0.0000	0.0000
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	18.94	81023	5.6903	7.1004
24)	Acenaphthene	19.56	39561	4.7083	5.8750
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.34	118202	11.3926	14.2156
28)	C1-Fluorenes	0.00	0	0.0000	0.0000
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.83	107051	5.0064	6.2470
41)	Phenanthrene	24.65	528528	23.6365	29.4935
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	5.36	111629	4.9922	6.2292
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.24	177155	9.8878	12.3379
35)+36)+37)	C1-Dibenzothiophenes	8.58	136977	7.6453	9.5397
38)	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.77	492606	22.7089	28.3360
59)	Pyrene	29.54	488221	17.0487	21.2732
62)	C1-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
64)	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.65	271408	14.9885	18.7025
68)	Chrysene/Triphenylene	33.76	748613	37.6325	46.9576
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.18	720945	38.2173	47.6873
78)	Benzo(k,j)fluoranthene	37.26	120356	7.1334	8.9010
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.15	518585	26.1394	32.6166
81)	Benzo(a)pyrene	38.34	127325	7.1231	8.8882
89)	Perylene	38.57	30573	1.6283	2.0318
82)	Indeno(1,2,3-c,d)pyrene	42.96	191423	11.4567	14.2956
83)	Dibenzo(a,h)anthracene	43.03	107255	8.5328	10.6472
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.32	271749	18.6803	23.3092

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	15.91	123935	13.1583	16.4188
10)	1-Methylnaphthalene	16.24	73638	8.4259	10.5138
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.73	136977	8.2878	10.3415
36)	2/3-Methyldibenzothiophene	0.00	0	0.0000	0.0000
37)	1-Methyldibenzothiophene	0.00	0	0.0000	0.0000
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	26.80	111629	7.1409	8.9103
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.59	221400	16.41	98.78
21)	Acenaphthene-d10	19.45	117904	14.79	89.02
32)	Phenanthrene-d10	24.58	230299	13.31	80.14
66)	Chrysene-d12	33.69	325031	18.54	111.67
88)	Perylene-d12	38.54	16754	1.02	6.14
90)	5(b)H-Cholane	34.11	103672	17.89	107.78
	Internal Standards				
1)	Fluorene-d10	21.23	139042	16.67	
31)	Pyrene-d10	29.50	323497	16.64	
73)	Benzo(a)pyrene-d12	38.26	229100	16.62	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ENV3088C.D
Acq On : 31 Aug 2013 2:33 pm
Operator : YM
Sample : MS (SO-DA-017 (0-0.5) MS)
Misc :
ALS Vial : 14 Sample Multiplier: 0.0664

Quant Time: Sep 10 09:49:04 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.230	176	139042m	251.05		0.00
31) Pyrene-d10	29.502	212	323497m	250.63		0.03
73) Benzo(a)pyrene-d12	38.264	264	229100m	250.32		0.04
System Monitoring Compounds						
2) Naphthalene-d8	13.594	136	221400m	16.41		0.00
21) Acenaphthene-d10	19.446	164	117904m	14.79		0.00
32) Phenanthrene-d10	24.583	188	230299m	13.31		0.00
66) Chrysene-d12	33.685	240	325031m	18.54		0.00
88) Perylene-d12	38.536	264	16754m	1.02		0.04
90) 5(b)H-Cholane	34.112	217	103672m	17.89		0.04
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.678	128	146362m	10.13		
9) 2-Methylnaphthalene	15.907	142	123935m	13.16		
10) 1-Methylnaphthalene	16.242	142	73638m	8.43		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	0.000		0	N.D.	d	
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.	d	
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	18.945	152	81023m	5.69		
24) Acenaphthene	19.558	154	39561m	4.71		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.341	166	118202m	11.39		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.237	184	177155m	9.89		
35) 4-Methyldibenzothiophene	25.726	198	136977m	8.29		
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.	d	
37) 1-Methyldibenzothiophene	0.000		0	N.D.	d	
38) C2-Dibenzothiophenes	0.000		0	N.D.	d	
39) C3-Dibenzothiophenes	0.000		0	N.D.	d	
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.652	178	528528m	23.64		
42) Anthracene	24.825	178	107051m	5.01		
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ENV3088C.D
Acq On : 31 Aug 2013 2:33 pm
Operator : YM
Sample : MS (SO-DA-017 (0-0.5) MS)
Misc :
ALS Vial : 14 Sample Multiplier: 0.0664

Quant Time: Sep 10 09:49:04 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	26.800	192	111629m	7.14		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.774	202	492606m	22.71		
59) Pyrene	29.536	202	488221m	17.05		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67) Benz(a)anthracene	33.646	228	271408m	14.99		
68) Chrysene/Triphenylene	33.763	228	748613m	37.63		
69) C1-Chrysenes	0.000		0	N.D.	d	
70) C2-Chrysenes	0.000		0	N.D.	d	
71) C3-Chrysenes	0.000		0	N.D.	d	
72) C4-Chrysenes	0.000		0	N.D.	d	
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	37.178	252	720945m	38.22		
78) Benzo(k,j)fluoranthene	37.255	252	120356m	7.13		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.148	252	518585m	26.14		
81) Benzo(a)pyrene	38.342	252	127325m	7.12		
82) Indeno(1,2,3-c,d)pyrene	42.956	276	191423m	11.46		
83) Dibenzo(a,h)anthracene	43.030	278	107255m	8.53		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.321	276	271749m	18.68		
89) Perylene	38.575	252	30573m	1.63		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ENV3088C.D
Acq On : 31 Aug 2013 2:33 pm
Operator : YM
Sample : MS (SO-DA-017 (0-0.5) MS)
Misc :
ALS Vial : 14 Sample Multiplier: 0.0664

Quant Time: Sep 10 09:49:04 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

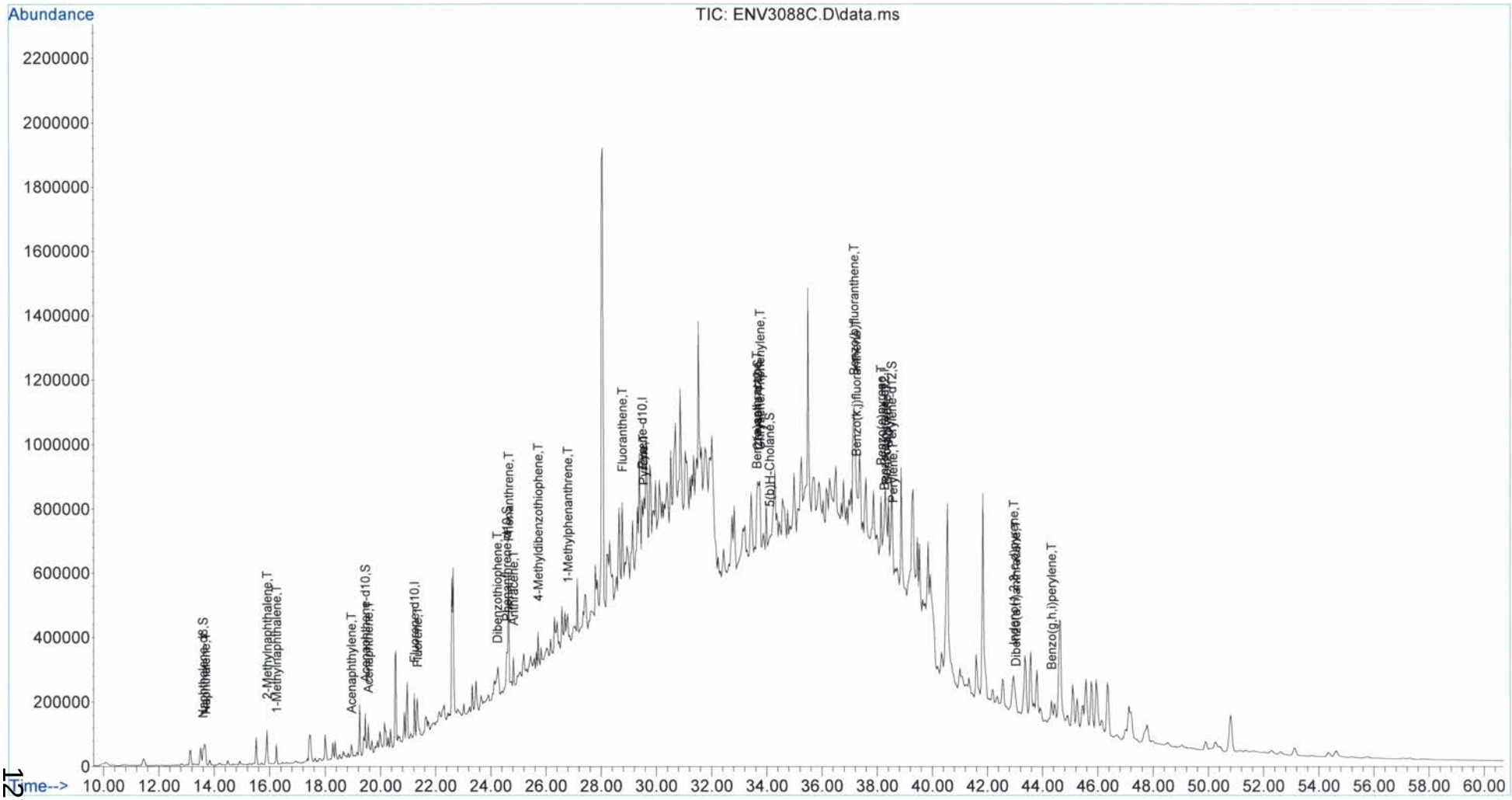
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ENV3088C.D
Acq On : 31 Aug 2013 2:33 pm
Operator : YM
Sample : MS (SO-DA-017 (0-0.5) MS)
Misc :
ALS Vial : 14 Sample Multiplier: 0.0664

Quant Time: Sep 10 09:49:04 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name	ENV3088D.D
Data File Path	C:\msdchem\2\data\MS60145\
Operator	YM
Date Acquired	8/31/2013 15:43
Acq. Method File	PAH-2012.M
Sample Name	MSD (SO-DA-017 (0-0.5) MSD)
Misc Info	0
Instrument Name	GCMS6
Vial Number	15
Sample Multiplier	0.06636
Sample Amount	0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ENV3088D.D
D (SO-DA-017 (0-0.5) MSD)
8/31/2013 15:43
PAH-2012.M
15.06931887

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.68	128495	10.2001	10.8742
9)+10)	C1-Naphthalenes	16.08	172095	13.6611	14.5639
13)	C2-Naphthalenes	0.00	0	0.0000	0.0000
14)	C3-Naphthalenes	0.00	0	0.0000	0.0000
15)	C4-Naphthalenes	0.00	0	0.0000	0.0000
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	18.95	67039	5.3988	5.7555
24)	Acenaphthene	19.56	36670	5.0043	5.3350
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.34	109178	12.0661	12.8635
28)	C1-Fluorenes	0.00	0	0.0000	0.0000
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.82	80758	4.7633	5.0781
41)	Phenanthrene	24.65	549826	31.0120	33.0616
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	5.36	125077	7.0548	7.5210
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.24	167903	11.8193	12.6004
35)+36)+37)	C1-Dibenzothiophenes	8.58	220970	15.5549	16.5829
38)	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.77	450680	26.2032	27.9350
59)	Pyrene	29.57	523322	23.0480	24.5712
62)	C1-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
64)	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.65	246537	17.1714	18.3063
68)	Chrysene/Triphenylene	33.76	693912	43.9947	46.9022
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.18	569006	34.6532	36.9434
78)	Benzo(k,j)fluoranthene	37.26	130578	8.8913	9.4789
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.15	454819	26.3380	28.0787
81)	Benzo(a)pyrene	38.34	104344	6.7065	7.1497
89)	Perylene	38.65	29085	1.7796	1.8973
82)	Indeno(1,2,3-c,d)pyrene	42.96	182916	12.5773	13.4085
83)	Dibenzo(a,h)anthracene	43.03	87618	8.0082	8.5374
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.32	212518	16.7834	17.8926

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	15.91	107321	13.0655	13.9290
10)	1-Methylnaphthalene	16.24	64774	8.4987	9.0603
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.73	220970	16.8624	17.9768
36)	2/3-Methyldibenzothiophene	0.00	0	0.0000	0.0000
37)	1-Methyldibenzothiophene	0.00	0	0.0000	0.0000
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	26.80	125077	10.0912	10.7581
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.60	206731	17.57	105.82
21)	Acenaphthene-d10	19.45	109075	15.69	94.48
32)	Phenanthrene-d10	24.58	213594	15.57	93.80
66)	Chrysene-d12	33.69	274865	19.77	119.17
88)	Perylene-d12	38.57	20914	1.46	8.81
90)	5(b)H-Cholane	0.00	0	0.00	0.00
	Internal Standards				
1)	Fluorene-d10	21.23	121185	16.66	
31)	Pyrene-d10	29.50	256341	16.63	
73)	Benzo(a)pyrene-d12	38.26	199294	16.61	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ENV3088D.D
Acq On : 31 Aug 2013 3:43 pm
Operator : YM
Sample : MSD (SO-DA-017 (0-0.5) MSD)
Misc :
ALS Vial : 15 Sample Multiplier: 0.06636

Quant Time: Sep 10 09:55:46 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.231	176	121185m	251.05		0.00
31) Pyrene-d10	29.501	212	256341m	250.63		0.03
73) Benzo(a)pyrene-d12	38.264	264	199294m	250.32		0.04
System Monitoring Compounds						
2) Naphthalene-d8	13.595	136	206731m	17.57		0.00
21) Acenaphthene-d10	19.447	164	109075m	15.69		0.00
32) Phenanthrene-d10	24.582	188	213594m	15.57		0.00
66) Chrysene-d12	33.685	240	274865m	19.77		0.00
88) Perylene-d12	38.575	264	20914m	1.46		0.08
90) 5(b)H-Cholane	0.000	217	0d	0.00		
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.679	128	128495m	10.20		
9) 2-Methylnaphthalene	15.908	142	107321m	13.07		
10) 1-Methylnaphthalene	16.243	142	64774m	8.50		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	0.000		0	N.D.	d	
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.	d	
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	18.946	152	67039m	5.40		
24) Acenaphthene	19.559	154	36670m	5.00		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.342	166	109178m	12.07		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.236	184	167903m	11.82		
35) 4-Methyldibenzothiophene	25.726	198	220970m	16.86		
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.	d	
37) 1-Methyldibenzothiophene	0.000		0	N.D.	d	
38) C2-Dibenzothiophenes	0.000		0	N.D.	d	
39) C3-Dibenzothiophenes	0.000		0	N.D.	d	
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.652	178	549826m	31.01		
42) Anthracene	24.825	178	80758m	4.76		
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ENV3088D.D
Acq On : 31 Aug 2013 3:43 pm
Operator : YM
Sample : MSD (SO-DA-017 (0-0.5) MSD)
Misc :
ALS Vial : 15 Sample Multiplier: 0.06636

Quant Time: Sep 10 09:55:46 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0		N.D.	d
45) 2-Methylanthracene	0.000		0		N.D.	d
46) 4/9-Methylphenanthrene	0.000		0		N.D.	d
47) 1-Methylphenanthrene	26.799	192	125077m	10.09		
48) 3,6-Dimethylphenanthrene	0.000		0		N.D.	d
49) Retene	0.000		0		N.D.	d
50) C2-Phenanthrenes/Anthr...	0.000		0		N.D.	d
51) C3-Phenanthrenes/Anthr...	0.000		0		N.D.	d
52) C4-Phenanthrenes/Anthr...	0.000		0		N.D.	d
53) Naphthobenzothiophene	0.000		0		N.D.	d
54) C1-Naphthobenzothiophenes	0.000		0		N.D.	d
55) C2-Naphthobenzothiophenes	0.000		0		N.D.	d
56) C3-Naphthobenzothiophenes	0.000		0		N.D.	d
57) C4-Naphthobenzothiophenes	0.000		0		N.D.	d
58) Fluoranthene	28.774	202	450680m	26.20		
59) Pyrene	29.570	202	523322m	23.05		
60) 2-Methylfluoranthene	0.000		0		N.D.	d
61) Benzo(b)fluorene	0.000		0		N.D.	d
62) C1-Fluoranthenes/Pyrenes	0.000		0		N.D.	d
63) C2-Fluoranthenes/Pyrenes	0.000		0		N.D.	d
64) C3-Fluoranthenes/Pyrenes	0.000		0		N.D.	d
65) C4-Fluoranthenes/Pyrenes	0.000		0		N.D.	d
67) Benz(a)anthracene	33.646	228	246537m	17.17		
68) Chrysene/Triphenylene	33.763	228	693912m	43.99		
69) C1-Chrysenes	0.000		0		N.D.	d
70) C2-Chrysenes	0.000		0		N.D.	d
71) C3-Chrysenes	0.000		0		N.D.	d
72) C4-Chrysenes	0.000		0		N.D.	d
74) C29-Hopane	0.000		0		N.D.	d
75) 18a-Oleanane	0.000		0		N.D.	d
76) C30-Hopane	0.000		0		N.D.	d
77) Benzo(b)fluoranthene	37.178	252	569006m	34.65		
78) Benzo(k,j)fluoranthene	37.255	252	130578m	8.89		
79) Benzo(a)fluoranthene	0.000		0		N.D.	d
80) Benzo(e)pyrene	38.148	252	454819m	26.34		
81) Benzo(a)pyrene	38.342	252	104344m	6.71		
82) Indeno(1,2,3-c,d)pyrene	42.956	276	182916m	12.58		
83) Dibenzo(a,h)anthracene	43.030	278	87618m	8.01		
84) C1-Dibenzo(a,h)anthrac...	0.000		0		N.D.	d
85) C2-Dibenzo(a,h)anthrac...	0.000		0		N.D.	d
86) C3-Dibenzo(a,h)anthrac...	0.000		0		N.D.	d
87) Benzo(g,h,i)perylene	44.321	276	212518m	16.78		
89) Perylene	38.652	252	29085m	1.78		
91) C20-TAS	0.000		0		N.D.	d
92) C21-TAS	0.000		0		N.D.	d
93) C26(20S)-TAS	0.000		0		N.D.	d
94) C26(20R)/C27(20S)-TAS	0.000		0		N.D.	d
95) C28(20S)-TAS	0.000		0		N.D.	d
96) C27(20R)-TAS	0.000		0		N.D.	d
97) C28(20R)-TAS	0.000		0		N.D.	d

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ENV3088D.D
Acq On : 31 Aug 2013 3:43 pm
Operator : YM
Sample : MSD (SO-DA-017 (0-0.5) MSD)
Misc :
ALS Vial : 15 Sample Multiplier: 0.06636

Quant Time: Sep 10 09:55:46 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

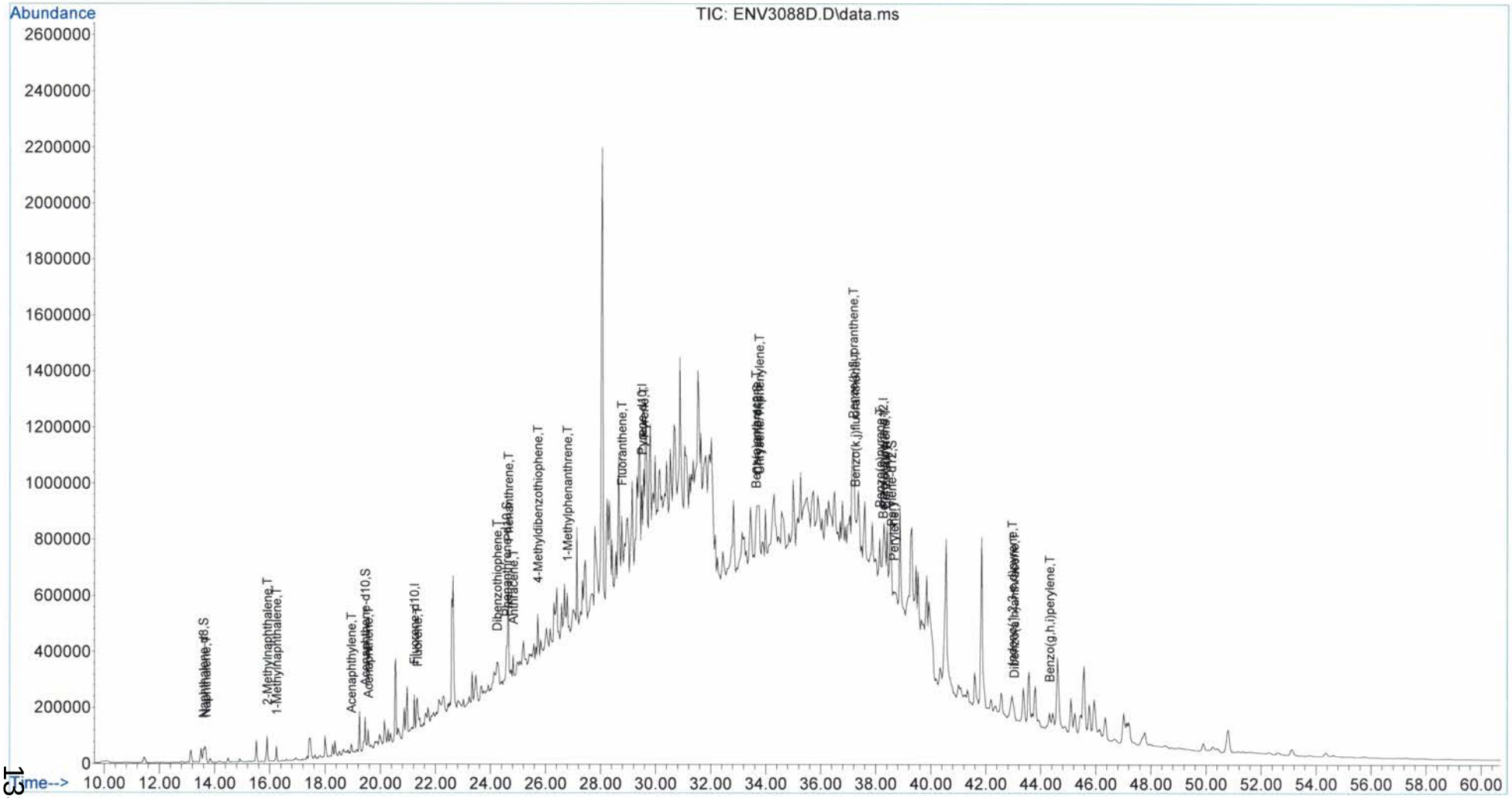
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ENV3088D.D
Acq On : 31 Aug 2013 3:43 pm
Operator : YM
Sample : MSD (SO-DA-017 (0-0.5) MSD)
Misc :
ALS Vial : 15 Sample Multiplier: 0.06636

Quant Time: Sep 10 09:55:46 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ENV3088E.D
Data File Path C:\msdchem\1\DATA\MS60145\
Operator YM
Date Acquired 8/31/2013 16:53
Acq. Method File PAH-2012.M
Sample Name Dupl. (SO-DA-032 (0.5-1.0))
Misc Info 0
Instrument Name GCMS6
Vial Number 16
Sample Multiplier 0.06605
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ENV3088E.D
Dupl. (SO-DA-032 (0.5-1.0))
8/31/2013 16:53
PAH-2012.M
15.14004542

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.68	8867	0.7285	0.8668
9)+10)	C1-Naphthalenes	16.07	9274	0.7619	0.9066
13)	C2-Naphthalenes	18.36	30301	2.4894	2.9620
14)	C3-Naphthalenes	19.92	55889	4.5916	5.4633
15)	C4-Naphthalenes	22.62	38448	3.1587	3.7584
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	18.95	874	0.0728	0.0867
24)	Acenaphthene	19.56	450	0.0636	0.0756
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.31	8497	0.9719	1.1564
28)	C1-Fluorenes	23.34	5566	0.6366	0.7575
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.83	769	0.0520	0.0619
41)	Phenanthrene	24.65	42434	2.7445	3.2656
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.20	3974	0.3208	0.3817
35)+36)+37)	C1-Dibenzothiophenes	26.03	6068	0.4898	0.5828
38)	C2-Dibenzothiophenes	27.80	8827	0.7125	0.8478
39)	C3-Dibenzothiophenes	29.33	9037	0.7295	0.8680
40)	C4-Dibenzothiophenes	30.71	4969	0.4011	0.4773
58)	Fluoranthene	28.77	6902	0.4602	0.5475
59)	Pyrene	29.54	5518	0.2787	0.3316
62)	C1-Fluoranthenes/Pyrenes	31.03	3853	0.2569	0.3057
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
64)	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.61	1696	0.1355	0.1612
68)	Chrysene/Triphenylene	33.72	2026	0.1473	0.1753
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
78)	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	0.00	0	0.0000	0.0000
81)	Benzo(a)pyrene	0.00	0	0.0000	0.0000
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
83)	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	0.00	0	0.0000	0.0000

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	15.91	6318	0.7960	0.9472
10)	1-Methylnaphthalene	16.24	2956	0.4014	0.4776
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.73	2664	0.2331	0.2774
36)	2/3-Methyldibenzothiophene	26.00	1974	0.1727	0.2055
37)	1-Methyldibenzothiophene	26.35	1430	0.1251	0.1489
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	0.00	0	0.0000	0.0000
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.59	137273	12.07	73.07
21)	Acenaphthene-d10	19.45	91094	13.56	82.05
32)	Phenanthrene-d10	24.58	166112	13.89	84.04
66)	Chrysene-d12	33.65	187176	15.44	93.49
88)	Perylene-d12	38.50	17422	1.38	8.33
90)	5(b)H-Cholane	34.07	71780	16.07	97.34
	Internal Standards				
1)	Fluorene-d10	21.23	116546	16.58	
31)	Pyrene-d10	29.47	222502	16.55	
73)	Benzo(a)pyrene-d12	38.23	175632	16.53	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ENV3088E.D
Acq On : 31 Aug 2013 4:53 pm
Operator : YM
Sample : Dupl. (SO-DA-032 (0.5-1.0))
Misc :
ALS Vial : 16 Sample Multiplier: 0.06605

Quant Time: Sep 10 10:18:52 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.230	176	116546m	251.05		0.00
31) Pyrene-d10	29.468	212	222502m	250.63		0.00
73) Benzo(a)pyrene-d12	38.226	264	175632m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.595	136	137273m	12.07		0.00
21) Acenaphthene-d10	19.447	164	91094m	13.56		0.00
32) Phenanthrene-d10	24.584	188	166112m	13.89		0.00
66) Chrysene-d12	33.647	240	187176m	15.44		-0.04
88) Perylene-d12	38.498	264	17422m	1.38		0.00
90) 5(b)H-Cholane	34.074	217	71780m	16.07		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.678	128	8867m	0.73		
9) 2-Methylnaphthalene	15.908	142	6318m	0.80		
10) 1-Methylnaphthalene	16.242	142	2956m	0.40		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.360	156	30301m	2.49		
14) C3-Naphthalenes	19.920	170	55889m	4.59		
15) C4-Naphthalenes	22.623	184	38448m	3.16		
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	18.945	152	874m	0.07		
24) Acenaphthene	19.558	154	450m	0.06		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.314	166	8497m	0.97		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.336	180	5566m	0.64		
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.202	184	3974m	0.32		
35) 4-Methyldibenzothiophene	25.727	198	2664m	0.23		
36) 2/3-Methyldibenzothiop...	26.004	198	1974m	0.17		
37) 1-Methyldibenzothiophene	26.350	198	1430m	0.13		
38) C2-Dibenzothiophenes	27.805	212	8827m	0.71		
39) C3-Dibenzothiophenes	29.329	226	9037m	0.73		
40) C4-Dibenzothiophenes	30.715	240	4969m	0.40		
41) Phenanthrene	24.653	178	42434m	2.74		
42) Anthracene	24.826	178	769m	0.05		
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ENV3088E.D
Acq On : 31 Aug 2013 4:53 pm
Operator : YM
Sample : Dupl. (SO-DA-032 (0.5-1.0))
Misc :
ALS Vial : 16 Sample Multiplier: 0.06605

Quant Time: Sep 10 10:18:52 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	0.000		0	N.D.	d	
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.		
58) Fluoranthene	28.775	202	6902m	0.46		
59) Pyrene	29.537	202	5518m	0.28		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	31.026	216	3853m	0.26		
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67) Benz(a)anthracene	33.608	228	1696m	0.14		
68) Chrysene/Triphenylene	33.725	228	2026m	0.15		
69) C1-Chrysenes	0.000		0	N.D.	d	
70) C2-Chrysenes	0.000		0	N.D.	d	
71) C3-Chrysenes	0.000		0	N.D.	d	
72) C4-Chrysenes	0.000		0	N.D.	d	
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	0.000		0	N.D.	d	
78) Benzo(k,j)fluoranthene	0.000		0	N.D.	d	
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	0.000		0	N.D.	d	
81) Benzo(a)pyrene	0.000		0	N.D.	d	
82) Indeno(1,2,3-c,d)pyrene	0.000		0	N.D.	d	
83) Dibenzo(a,h)anthracene	0.000		0	N.D.	d	
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	0.000		0	N.D.	d	
89) Perylene	0.000		0	N.D.	d	
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ENV3088E.D
Acq On : 31 Aug 2013 4:53 pm
Operator : YM
Sample : Dupl. (SO-DA-032 (0.5-1.0))
Misc :
ALS Vial : 16 Sample Multiplier: 0.06605

Quant Time: Sep 10 10:18:52 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

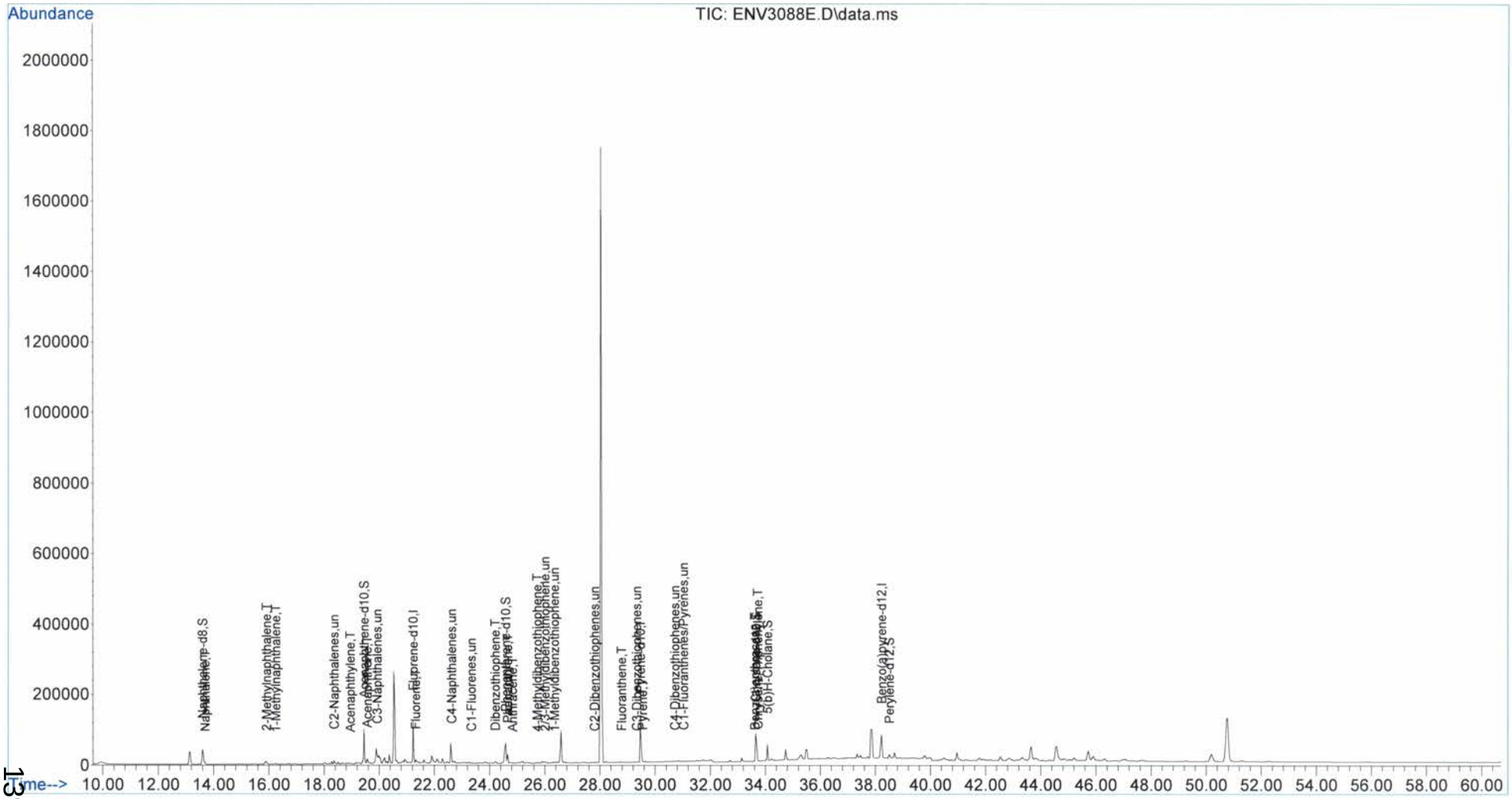
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ENV3088E.D
Acq On : 31 Aug 2013 4:53 pm
Operator : YM
Sample : Dupl. (SO-DA-032 (0.5-1.0))
Misc :
ALS Vial : 16 Sample Multiplier: 0.06605

Quant Time: Sep 10 10:18:52 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ARC1713.D
Data File Path C:\msdchem\2\data\MS60145\
Operator YM
Date Acquired 8/31/2013 18:02
Acq. Method File PAH-2012.M
Sample Name SO-DA-017 (0-0.5)
Misc Info 0
Instrument Name GCMS6
Vial Number 17
Sample Multiplier 0.06645
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC1713.D
SO-DA-017 (0-0.5)
8/31/2013 18:02
PAH-2012.M
15.04890895

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.68	78019	5.6636	6.0068
9)+10)	C1-Naphthalenes	16.08	103221	7.4931	7.9471
13)	C2-Naphthalenes	18.36	188085	13.6536	14.4809
14)	C3-Naphthalenes	20.65	212569	15.4310	16.3659
15)	C4-Naphthalenes	22.62	625220	45.3865	48.1364
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	18.95	19556	1.4402	1.5275
24)	Acenaphthene	19.50	5730	0.7151	0.7584
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.34	59625	6.0261	6.3912
28)	C1-Fluorenes	0.00	0	0.0000	0.0000
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.83	25300	1.3922	1.4765
41)	Phenanthrene	24.65	367922	19.3598	20.5328
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.56	377669	19.8727	21.0768
50)	C2-Phenanthrenes/Anthracenes	28.25	2044300	107.5693	114.0868
51)	C3-Phenanthrenes/Anthracenes	29.81	4856110	255.5248	271.0068
52)	C4-Phenanthrenes/Anthracenes	31.65	5239540	275.7011	292.4055
34)	Dibenzothiophene	24.24	71332	4.6845	4.9683
35)+36)+37)	C1-Dibenzothiophenes	26.05	217379	14.2755	15.1405
38)	C2-Dibenzothiophenes	27.15	1439970	94.5643	100.2939
39)	C3-Dibenzothiophenes	28.67	4014710	263.6510	279.6254
40)	C4-Dibenzothiophenes	29.67	4300600	282.4251	299.5370
58)	Fluoranthene	28.77	259016	14.0493	14.9005
59)	Pyrene	29.57	414268	17.0210	18.0523
62)	C1-Fluoranthenes/Pyrenes	31.06	999407	54.2087	57.4932
63)	C2-Fluoranthenes/Pyrenes	32.44	1467900	79.6204	84.4445
64)	C3-Fluoranthenes/Pyrenes	34.31	1315150	71.3347	75.6568
65)	C4-Fluoranthenes/Pyrenes	35.24	2250300	122.0580	129.4534
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.65	167009	10.8519	11.5094
68)	Chrysene/Triphenylene	33.76	552028	32.6511	34.6294
69)	C1-Chrysenes	35.00	1307370	77.3279	82.0131
70)	C2-Chrysenes	36.21	1908190	112.8640	119.7023
71)	C3-Chrysenes	37.88	1196270	70.7566	75.0437
72)	C4-Chrysenes	39.31	831331	49.1711	52.1503
77)	Benzo(b)fluoranthene	37.18	424691	27.4643	29.1283
78)	Benzo(k,j)fluoranthene	37.29	70088	5.0677	5.3747
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.15	323401	19.8863	21.0912
81)	Benzo(a)pyrene	38.34	80726	5.5095	5.8433
89)	Perylene	38.65	22526	1.4636	1.5523
82)	Indeno(1,2,3-c,d)pyrene	42.96	95956	7.0061	7.4306
83)	Dibenzo(a,h)anthracene	43.03	37876	3.6760	3.8987
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.32	150968	12.6601	13.4272

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	15.91	74070	8.2463	8.7459
10)	1-Methylnaphthalene	16.24	29151	3.4977	3.7096
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.73	81591	5.8086	6.1605
36)	2/3-Methyldibenzothiophene	26.04	74978	5.3378	5.6612
37)	1-Methyldibenzothiophene	26.38	60810	4.3291	4.5914
43)	3-Methylphenanthrene	26.31	64387	4.8462	5.1398
44)	2-Methylphenanthrene	26.42	104060	7.8323	8.3068
45)	2-Methylanthracene	26.59	55040	4.1427	4.3937
46)	4/9-Methylphenanthrene	26.70	105453	7.9371	8.4180
47)	1-Methylphenanthrene	26.80	48729	3.6677	3.8899
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.60	203360	15.80	95.07
21)	Acenaphthene-d10	19.45	106545	14.01	84.29
32)	Phenanthrene-d10	24.58	230454	15.68	94.29
66)	Chrysene-d12	33.69	255695	17.16	103.28
88)	Perylene-d12	38.57	14206	1.05	6.35
90)	5(b)H-Cholane	34.11	70819	14.91	89.75
	Internal Standards				
1)	Fluorene-d10	21.23	132697	16.68	
31)	Pyrene-d10	29.50	275148	16.65	
73)	Benzo(a)pyrene-d12	38.26	187938	16.63	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1713.D
Acq On : 31 Aug 2013 6:02 pm
Operator : YM
Sample : SO-DA-017 (0-0.5)
Misc :
ALS Vial : 17 Sample Multiplier: 0.06645

Quant Time: Sep 10 09:50:08 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.231	176	132697m	251.05		0.00
31) Pyrene-d10	29.501	212	275148m	250.63		0.03
73) Benzo(a)pyrene-d12	38.264	264	187938m	250.32		0.04
System Monitoring Compounds						
2) Naphthalene-d8	13.596	136	203360m	15.80		0.00
21) Acenaphthene-d10	19.447	164	106545m	14.01		0.00
32) Phenanthrene-d10	24.583	188	230454m	15.68		0.00
66) Chrysene-d12	33.685	240	255695m	17.16		0.00
88) Perylene-d12	38.575	264	14206m	1.05		0.08
90) 5(b)H-Cholane	34.112	217	70819m	14.91		0.04
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.679	128	78019m	5.66		
9) 2-Methylnaphthalene	15.908	142	74070m	8.25		
10) 1-Methylnaphthalene	16.243	142	29151m	3.50		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.361	156	188085m	13.65		
14) C3-Naphthalenes	20.646	170	212569m	15.43		
15) C4-Naphthalenes	22.624	184	625220m	45.39		
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	18.946	152	19556m	1.44		
24) Acenaphthene	19.503	154	5730m	0.72		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.342	166	59625m	6.03		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.236	184	71332m	4.68		
35) 4-Methyldibenzothiophene	25.726	198	81591m	5.81		
36) 2/3-Methyldibenzothiop...	26.037	198	74978m	5.34		
37) 1-Methyldibenzothiophene	26.384	198	60810m	4.33		
38) C2-Dibenzothiophenes	27.146	212	1439970m	94.56		
39) C3-Dibenzothiophenes	28.670	226	4014711m	263.65		
40) C4-Dibenzothiophenes	29.674	240	4300597m	282.43		
41) Phenanthrene	24.652	178	367922m	19.36		
42) Anthracene	24.825	178	25300m	1.39		
43) 3-Methylphenanthrene	26.314	192	64387m	4.85		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1713.D
Acq On : 31 Aug 2013 6:02 pm
Operator : YM
Sample : SO-DA-017 (0-0.5)
Misc :
ALS Vial : 17 Sample Multiplier: 0.06645

Quant Time: Sep 10 09:50:08 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.418	192	104060m	7.83		
45) 2-Methylanthracene	26.592	192	55040m	4.14		
46) 4/9-Methylphenanthrene	26.696	192	105453m	7.94		
47) 1-Methylphenanthrene	26.799	192	48729m	3.67		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	28.254	206	2044295m	107.57		
51) C3-Phenanthrenes/Anthr...	29.813	220	4856106m	255.53		
52) C4-Phenanthrenes/Anthr...	31.649	234	5239541m	275.70		
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.774	202	259016m	14.05		
59) Pyrene	29.571	202	414268m	17.02		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	31.060	216	999407m	54.21		
63) C2-Fluoranthenes/Pyrenes	32.443	230	1467903m	79.62		
64) C3-Fluoranthenes/Pyrenes	34.306	244	1315151m	71.33		
65) C4-Fluoranthenes/Pyrenes	35.237	258	2250296m	122.06		
67) Benz(a)anthracene	33.646	228	167009m	10.85		
68) Chrysene/Triphenylene	33.763	228	552028m	32.65		
69) C1-Chrysenes	35.004	242	1307370m	77.33		
70) C2-Chrysenes	36.207	256	1908185m	112.86		
71) C3-Chrysenes	37.876	270	1196270m	70.76		
72) C4-Chrysenes	39.312	284	831331m	49.17		
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	37.178	252	424691m	27.46		
78) Benzo(k,j)fluoranthene	37.294	252	70088m	5.07		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.148	252	323401m	19.89		
81) Benzo(a)pyrene	38.342	252	80726m	5.51		
82) Indeno(1,2,3-c,d)pyrene	42.956	276	95956m	7.01		
83) Dibenzo(a,h)anthracene	43.030	278	37876m	3.68		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.321	276	150968m	12.66		
89) Perylene	38.652	252	22526m	1.46		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1713.D
Acq On : 31 Aug 2013 6:02 pm
Operator : YM
Sample : SO-DA-017 (0-0.5)
Misc :
ALS Vial : 17 Sample Multiplier: 0.06645

Quant Time: Sep 10 09:50:08 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

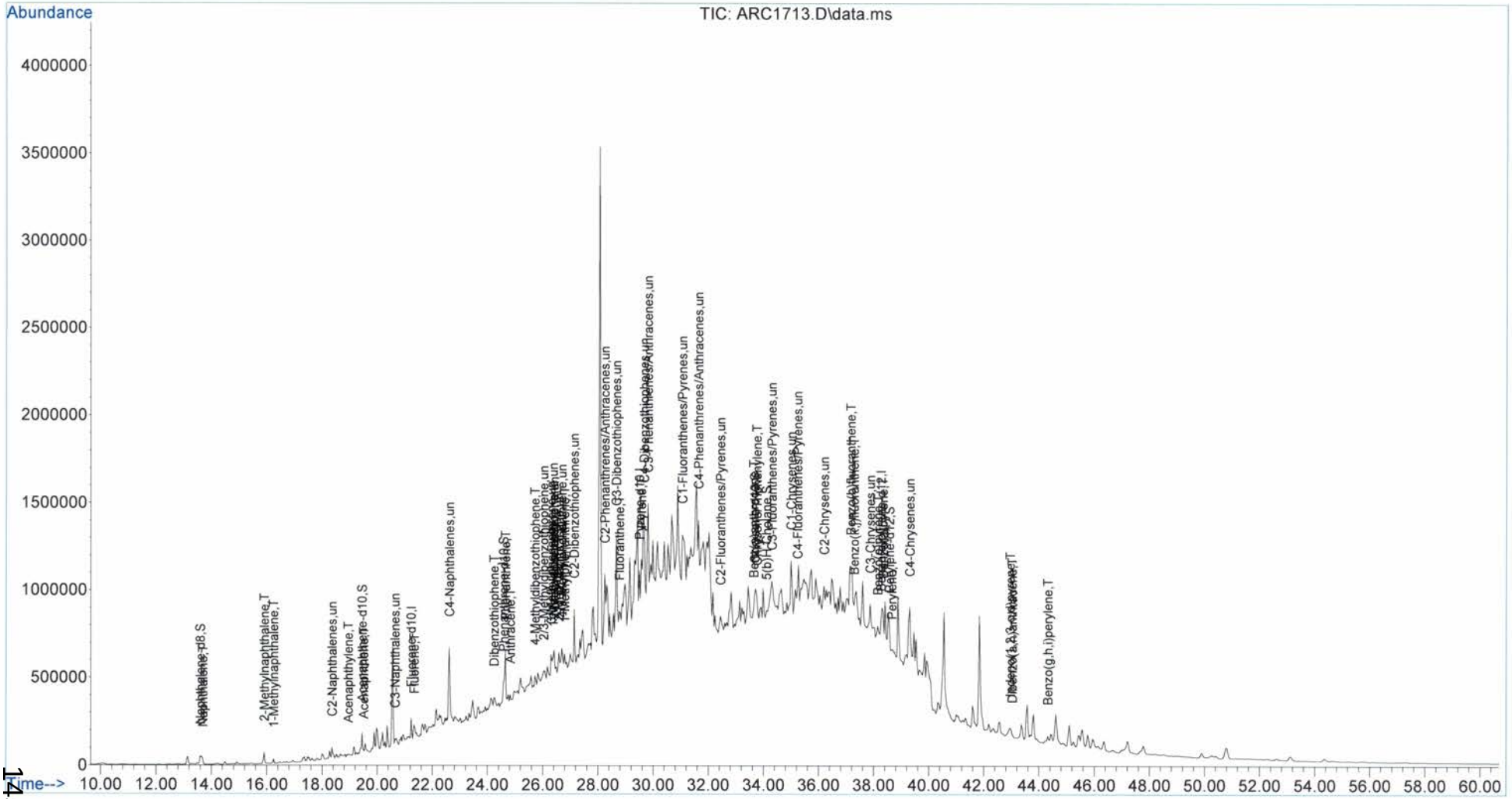
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1713.D
Acq On : 31 Aug 2013 6:02 pm
Operator : YM
Sample : SO-DA-017 (0-0.5)
Misc :
ALS Vial : 17 Sample Multiplier: 0.06645

Quant Time: Sep 10 09:50:08 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name	ARC1718.D
Data File Path	C:\msdchem\2\data\MS60145\
Operator	YM
Date Acquired	8/31/2013 20:21
Acq. Method File	PAH-2012.M
Sample Name	SO-DA-018 (0.5-1.0)
Misc Info	0
Instrument Name	GCMS6
Vial Number	18
Sample Multiplier	0.06649
Sample Amount	0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC1718.D
SO-DA-018 (0.5-1.0)
8/31/2013 20:21
PAH-2012.M
15.03985562

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.68	14219	1.2093	1.3591
9)+10)	C1-Naphthalenes	16.08	16810	1.4296	1.6067
13)	C2-Naphthalenes	0.00	0	0.0000	0.0000
14)	C3-Naphthalenes	0.00	0	0.0000	0.0000
15)	C4-Naphthalenes	0.00	0	0.0000	0.0000
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	18.95	2538	0.2190	0.2461
24)	Acenaphthene	19.50	3357	0.4908	0.5516
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.31	42643	5.0492	5.6747
28)	C1-Fluorenes	0.00	0	0.0000	0.0000
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	0.00	0	0.0000	0.0000
41)	Phenanthrene	24.65	309225	20.7196	23.2863
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.56	112406	7.5318	8.4648
50)	C2-Phenanthrenes/Anthracenes	28.05	127371	8.5345	9.5917
51)	C3-Phenanthrenes/Anthracenes	29.78	202479	13.5671	15.2477
52)	C4-Phenanthrenes/Anthracenes	31.62	191641	12.8409	14.4316
34)	Dibenzothiophene	24.20	18513	1.5482	1.7399
35)+36)+37)	C1-Dibenzothiophenes	26.04	21848	1.8270	2.0534
38)	C2-Dibenzothiophenes	27.81	48020	4.0157	4.5131
39)	C3-Dibenzothiophenes	29.33	140268	11.7299	13.1830
40)	C4-Dibenzothiophenes	29.64	230926	19.3112	21.7034
58)	Fluoranthene	28.78	48675	3.3620	3.7785
59)	Pyrene	29.54	15540	0.8131	0.9138
62)	C1-Fluoranthenes/Pyrenes	31.03	40033	2.7651	3.1076
63)	C2-Fluoranthenes/Pyrenes	32.75	86640	5.9842	6.7255
64)	C3-Fluoranthenes/Pyrenes	33.88	72939	5.0379	5.6620
65)	C4-Fluoranthenes/Pyrenes	35.24	123364	8.5208	9.5763
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.61	3013	0.2493	0.2802
68)	Chrysene/Triphenylene	33.72	25946	1.9542	2.1963
69)	C1-Chrysenes	34.96	91394	6.8836	7.7363
70)	C2-Chrysenes	36.17	131876	9.9326	11.1630
71)	C3-Chrysenes	37.91	95232	7.1727	8.0612
72)	C4-Chrysenes	39.23	50190	3.7802	4.2485
77)	Benzo(b)fluoranthene	37.14	16787	1.1784	1.3244
78)	Benzo(k,j)fluoranthene	37.25	4729	0.3712	0.4171
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.11	18734	1.2504	1.4053
81)	Benzo(a)pyrene	38.30	3462	0.2565	0.2882
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	42.92	4443	0.3521	0.3957
83)	Dibenzo(a,h)anthracene	42.96	2177	0.2293	0.2578
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.25	7622	0.6938	0.7798

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	15.91	11980	1.5626	1.7561
10)	1-Methylnaphthalene	16.24	4830	0.6790	0.7631
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.73	10299	0.9336	1.0493
36)	2/3-Methyldibenzothiophene	26.04	8539	0.7741	0.8700
37)	1-Methyldibenzothiophene	26.35	3010	0.2729	0.3067
43)	3-Methylphenanthrene	26.32	20916	2.0047	2.2530
44)	2-Methylphenanthrene	26.42	24671	2.3646	2.6575
45)	2-Methylanthracene	26.59	36846	3.5315	3.9690
46)	4/9-Methylphenanthrene	26.70	16248	1.5573	1.7502
47)	1-Methylphenanthrene	26.77	13725	1.3155	1.4784
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.60	141337	12.87	77.36
21)	Acenaphthene-d10	19.45	86822	13.38	80.42
32)	Phenanthrene-d10	24.58	170888	14.80	88.98
66)	Chrysene-d12	33.68	184276	15.75	94.73
88)	Perylene-d12	38.54	2782	0.22	1.35
90)	5(b)H-Cholane	34.07	71956	16.44	98.92
	Internal Standards				
1)	Fluorene-d10	21.23	113333	16.69	
31)	Pyrene-d10	29.47	216205	16.66	
73)	Benzo(a)pyrene-d12	38.22	173243	16.64	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1718.D
Acq On : 31 Aug 2013 8:21 pm
Operator : YM
Sample : SO-DA-018 (0.5-1.0)
Misc :
ALS Vial : 18 Sample Multiplier: 0.06649

Quant Time: Sep 07 06:42:20 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.231	176	113333m	251.05		0.00
31) Pyrene-d10	29.468	212	216205m	250.63		0.00
73) Benzo(a)pyrene-d12	38.225	264	173243m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.596	136	141337m	12.87		0.00
21) Acenaphthene-d10	19.447	164	86822m	13.38		0.00
32) Phenanthrene-d10	24.584	188	170888m	14.80		0.00
66) Chrysene-d12	33.684	240	184276m	15.75		0.00
88) Perylene-d12	38.535	264	2782m	0.22		0.04
90) 5(b)H-Cholane	34.072	217	71956m	16.44		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.679	128	14219m	1.21		
9) 2-Methylnaphthalene	15.908	142	11980m	1.56		
10) 1-Methylnaphthalene	16.243	142	4830m	0.68		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	0.000		0	N.D.	d	
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.	d	
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	18.946	152	2538m	0.22		
24) Acenaphthene	19.503	154	3357m	0.49		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.314	166	42643m	5.05		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.203	184	18513m	1.55		
35) 4-Methyldibenzothiophene	25.727	198	10299m	0.93		
36) 2/3-Methyldibenzothiop...	26.039	198	8539m	0.77		
37) 1-Methyldibenzothiophene	26.351	198	3010m	0.27		
38) C2-Dibenzothiophenes	27.806	212	48020m	4.02		
39) C3-Dibenzothiophenes	29.330	226	140268m	11.73		
40) C4-Dibenzothiophenes	29.641	240	230926m	19.31		
41) Phenanthrene	24.653	178	309225m	20.72		
42) Anthracene	0.000		0	N.D.	d	
43) 3-Methylphenanthrene	26.316	192	20916m	2.00		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1718.D
Acq On : 31 Aug 2013 8:21 pm
Operator : YM
Sample : SO-DA-018 (0.5-1.0)
Misc :
ALS Vial : 18 Sample Multiplier: 0.06649

Quant Time: Sep 07 06:42:20 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44)	2-Methylphenanthrene	26.420	192	24671m	2.36		
45)	2-Methylanthracene	26.593	192	36846m	3.53		
46)	4/9-Methylphenanthrene	26.697	192	16248m	1.56		
47)	1-Methylphenanthrene	26.766	192	13725m	1.32		
48)	3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49)	Retene	0.000		0	N.D.	d	
50)	C2-Phenanthrenes/Anthr...	28.048	206	127371m	8.53		
51)	C3-Phenanthrenes/Anthr...	29.780	220	202479m	13.57		
52)	C4-Phenanthrenes/Anthr...	31.616	234	191641m	12.84		
53)	Naphthobenzothiophene	0.000		0	N.D.	d	
54)	C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55)	C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56)	C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57)	C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58)	Fluoranthene	28.775	202	48675m	3.36		
59)	Pyrene	29.538	202	15540m	0.81		
60)	2-Methylfluoranthene	0.000		0	N.D.	d	
61)	Benzo(b)fluorene	0.000		0	N.D.	d	
62)	C1-Fluoranthenes/Pyrenes	31.027	216	40033m	2.77		
63)	C2-Fluoranthenes/Pyrenes	32.753	230	86640m	5.98		
64)	C3-Fluoranthenes/Pyrenes	33.878	244	72939m	5.04		
65)	C4-Fluoranthenes/Pyrenes	35.237	258	123364m	8.52		
67)	Benz(a)anthracene	33.607	228	3013m	0.25		
68)	Chrysene/Triphenylene	33.723	228	25946m	1.95		
69)	C1-Chrysenes	34.965	242	91394m	6.88		
70)	C2-Chrysenes	36.168	256	131876m	9.93		
71)	C3-Chrysenes	37.914	270	95232m	7.17		
72)	C4-Chrysenes	39.234	284	50190m	3.78		
74)	C29-Hopane	0.000		0	N.D.	d	
75)	18a-Oleanane	0.000		0	N.D.	d	
76)	C30-Hopane	0.000		0	N.D.	d	
77)	Benzo(b)fluoranthene	37.138	252	16787m	1.18		
78)	Benzo(k,j)fluoranthene	37.255	252	4729m	0.37		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.108	252	18734m	1.25		
81)	Benzo(a)pyrene	38.302	252	3462m	0.26		
82)	Indeno(1,2,3-c,d)pyrene	42.919	276	4443m	0.35		
83)	Dibenzo(a,h)anthracene	42.956	278	2177m	0.23		
84)	C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85)	C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86)	C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87)	Benzo(g,h,i)perylene	44.247	276	7622m	0.69		
89)	Perylene	0.000		0	N.D.	d	
91)	C20-TAS	0.000		0	N.D.	d	
92)	C21-TAS	0.000		0	N.D.	d	
93)	C26(20S)-TAS	0.000		0	N.D.	d	
94)	C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95)	C28(20S)-TAS	0.000		0	N.D.	d	
96)	C27(20R)-TAS	0.000		0	N.D.	d	
97)	C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1718.D
Acq On : 31 Aug 2013 8:21 pm
Operator : YM
Sample : SO-DA-018 (0.5-1.0)
Misc :
ALS Vial : 18 Sample Multiplier: 0.06649

Quant Time: Sep 07 06:42:20 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

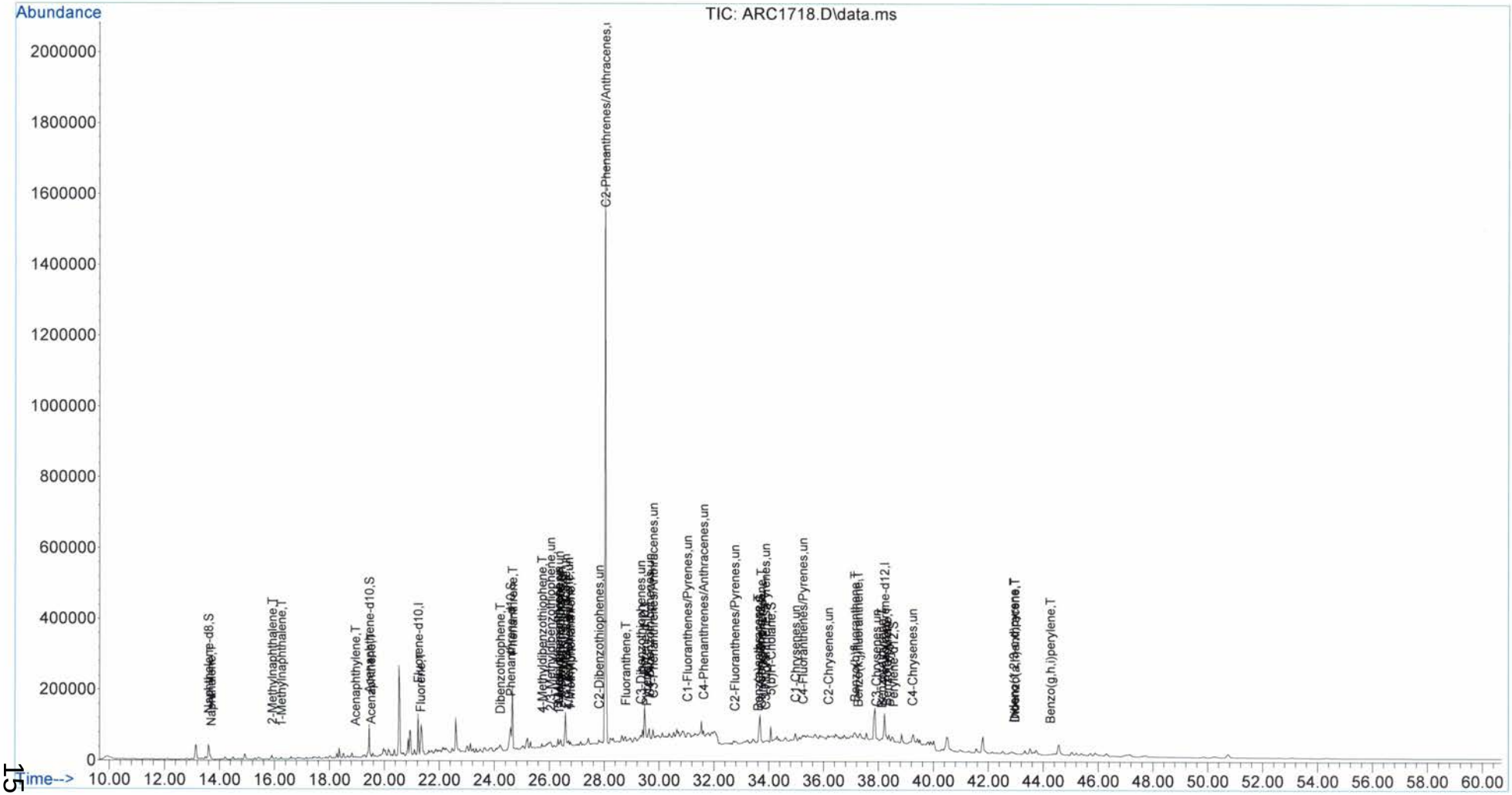
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1718.D
Acq On : 31 Aug 2013 8:21 pm
Operator : YM
Sample : SO-DA-018 (0.5-1.0)
Misc :
ALS Vial : 18 Sample Multiplier: 0.06649

Quant Time: Sep 07 06:42:20 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ARC1722.D
Data File Path C:\msdchem\2\data\MS60145\
Operator YM
Date Acquired 8/31/2013 21:31
Acq. Method File PAH-2012.M
Sample Name SO-DA-020 (0-0.5)
Misc Info 0
Instrument Name GCMS6
Vial Number 19
Sample Multiplier 0.06667
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC1722.D
SO-DA-020 (0-0.5)
8/31/2013 21:31
PAH-2012.M
14.99925004

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.68	44642	3.2509	3.5244
9)+10)	C1-Naphthalenes	16.08	51279	3.7342	4.0484
13)	C2-Naphthalenes	18.36	92050	6.7033	7.2673
14)	C3-Naphthalenes	21.23	109264	7.9569	8.6263
15)	C4-Naphthalenes	22.63	168553	12.2744	13.3072
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	18.95	14876	1.0990	1.1915
24)	Acenaphthene	19.56	1956	0.2449	0.2655
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.32	20278	2.0559	2.2289
28)	C1-Fluorenes	23.34	29234	2.9639	3.2133
29)	C2-Fluorenes	25.21	92992	9.4281	10.2214
30)	C3-Fluorenes	26.59	178962	18.1443	19.6709
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.83	18894	1.1938	1.2943
41)	Phenanthrene	24.65	187006	11.2991	12.2498
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.56	237115	14.3267	15.5322
50)	C2-Phenanthrenes/Anthracenes	28.22	537617	32.4835	35.2166
51)	C3-Phenanthrenes/Anthracenes	29.78	839633	50.7316	55.0000
52)	C4-Phenanthrenes/Anthracenes	31.61	705744	42.6419	46.2296
34)	Dibenzothiophene	24.20	31928	2.4076	2.6102
35)+36)+37)	C1-Dibenzothiophenes	26.04	98170	7.4028	8.0257
38)	C2-Dibenzothiophenes	27.15	339404	25.5939	27.7473
39)	C3-Dibenzothiophenes	29.33	696641	52.5325	56.9524
40)	C4-Dibenzothiophenes	29.64	662742	49.9762	54.1811
58)	Fluoranthene	28.77	167185	10.4128	11.2889
59)	Pyrene	29.54	182106	8.5916	9.3144
62)	C1-Fluoranthenes/Pyrenes	31.37	207232	12.9070	13.9930
63)	C2-Fluoranthenes/Pyrenes	32.44	308543	19.2170	20.8339
64)	C3-Fluoranthenes/Pyrenes	33.45	269593	16.7911	18.2039
65)	C4-Fluoranthenes/Pyrenes	35.16	453702	28.2580	30.6356
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.65	63135	4.7106	5.1070
68)	Chrysene/Triphenylene	33.76	232216	15.7715	17.0984
69)	C1-Chrysenes	34.97	303214	20.5934	22.3261
70)	C2-Chrysenes	36.17	355749	24.1615	26.1944
71)	C3-Chrysenes	37.84	235116	15.9684	17.3119
72)	C4-Chrysenes	39.27	105914	7.1934	7.7986
77)	Benzo(b)fluoranthene	37.18	268240	16.3175	17.6904
78)	Benzo(k,j)fluoranthene	37.26	61966	4.2146	4.5692
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.15	148907	8.6132	9.3379
81)	Benzo(a)pyrene	38.30	36860	2.3664	2.5655
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	42.92	67790	4.6559	5.0476
83)	Dibenzo(a,h)anthracene	42.99	18458	1.6851	1.8269
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.28	62296	4.9142	5.3276

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	15.91	36274	4.0512	4.3921
10)	1-Methylnaphthalene	16.24	15005	1.8061	1.9580
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.73	45247	3.6988	4.0100
36)	2/3-Methyldibenzothiophene	26.04	31190	2.5497	2.7642
37)	1-Methyldibenzothiophene	26.35	21733	1.7766	1.9261
43)	3-Methylphenanthrene	26.32	48703	4.2092	4.5634
44)	2-Methylphenanthrene	26.42	55240	4.7742	5.1759
45)	2-Methylanthracene	26.59	47148	4.0749	4.4177
46)	4/9-Methylphenanthrene	26.70	47735	4.1256	4.4727
47)	1-Methylphenanthrene	26.77	38289	3.3092	3.5876
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.60	157624	12.29	73.68
21)	Acenaphthene-d10	19.45	101626	13.41	80.38
32)	Phenanthrene-d10	24.58	196987	15.39	92.24
66)	Chrysene-d12	33.69	224893	17.33	103.96
88)	Perylene-d12	38.54	3719	0.26	1.56
90)	5(b)H-Cholane	34.07	80644	15.97	95.82
	Internal Standards				
1)	Fluorene-d10	21.23	132717	16.74	
31)	Pyrene-d10	29.47	240413	16.71	
73)	Benzo(a)pyrene-d12	38.23	200454	16.69	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1722.D
Acq On : 31 Aug 2013 9:31 pm
Operator : YM
Sample : SO-DA-020 (0-0.5)
Misc :
ALS Vial : 19 Sample Multiplier: 0.06667

Quant Time: Sep 07 06:52:24 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.232	176	132717m	251.05		0.00
31) Pyrene-d10	29.467	212	240413m	250.63		0.00
73) Benzo(a)pyrene-d12	38.226	264	200454m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.597	136	157624m	12.29		0.00
21) Acenaphthene-d10	19.449	164	101626m	13.41		0.00
32) Phenanthrene-d10	24.583	188	196987m	15.39		0.00
66) Chrysene-d12	33.685	240	224893m	17.33		0.00
88) Perylene-d12	38.536	264	3719m	0.26		0.04
90) 5(b)H-Cholane	34.073	217	80644m	15.97		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.681	128	44642m	3.25		
9) 2-Methylnaphthalene	15.910	142	36274m	4.05		
10) 1-Methylnaphthalene	16.244	142	15005m	1.81		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.362	156	92050m	6.70		
14) C3-Naphthalenes	21.232	170	109264m	7.96		
15) C4-Naphthalenes	22.626	184	168553m	12.27		
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	18.947	152	14876m	1.10		
24) Acenaphthene	19.560	154	1956m	0.24		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.316	166	20278m	2.06		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.336	180	29234m	2.96		
29) C2-Fluorenes	25.207	194	92992m	9.43		
30) C3-Fluorenes	26.592	208	178962m	18.14		
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.202	184	31928m	2.41		
35) 4-Methyldibenzothiophene	25.726	198	45247m	3.70		
36) 2/3-Methyldibenzothiop...	26.038	198	31190m	2.55		
37) 1-Methyldibenzothiophene	26.350	198	21733m	1.78		
38) C2-Dibenzothiophenes	27.146	212	339404m	25.59		
39) C3-Dibenzothiophenes	29.329	226	696641m	52.53		
40) C4-Dibenzothiophenes	29.640	240	662742m	49.98		
41) Phenanthrene	24.652	178	187006m	11.30		
42) Anthracene	24.826	178	18894m	1.19		
43) 3-Methylphenanthrene	26.315	192	48703m	4.21		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1722.D
Acq On : 31 Aug 2013 9:31 pm
Operator : YM
Sample : SO-DA-020 (0-0.5)
Misc :
ALS Vial : 19 Sample Multiplier: 0.06667

Quant Time: Sep 07 06:52:24 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.419	192	55240m	4.77		
45) 2-Methylanthracene	26.592	192	47148m	4.07		
46) 4/9-Methylphenanthrene	26.696	192	47735m	4.13		
47) 1-Methylphenanthrene	26.765	192	38289m	3.31		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	28.220	206	537617m	32.48		
51) C3-Phenanthrenes/Anthr...	29.779	220	839633m	50.73		
52) C4-Phenanthrenes/Anthr...	31.615	234	705744m	42.64		
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.774	202	167185m	10.41		
59) Pyrene	29.536	202	182106m	8.59		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	31.372	216	207232m	12.91		
63) C2-Fluoranthenes/Pyrenes	32.443	230	308543m	19.22		
64) C3-Fluoranthenes/Pyrenes	33.452	244	269593m	16.79		
65) C4-Fluoranthenes/Pyrenes	35.160	258	453702m	28.26		
67) Benz(a)anthracene	33.646	228	63135m	4.71		
68) Chrysene/Triphenylene	33.763	228	232216m	15.77		
69) C1-Chrysenes	34.966	242	303214m	20.59		
70) C2-Chrysenes	36.169	256	355749m	24.16		
71) C3-Chrysenes	37.838	270	235116m	15.97		
72) C4-Chrysenes	39.273	284	105914m	7.19		
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	37.178	252	268240m	16.32		
78) Benzo(k,j)fluoranthene	37.255	252	61966m	4.21		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.148	252	148907m	8.61		
81) Benzo(a)pyrene	38.303	252	36860m	2.37		
82) Indeno(1,2,3-c,d)pyrene	42.919	276	67790m	4.66		
83) Dibenzo(a,h)anthracene	42.993	278	18458m	1.69		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.284	276	62296m	4.91		
89) Perylene	0.000		0	N.D.	d	
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1722.D
Acq On : 31 Aug 2013 9:31 pm
Operator : YM
Sample : SO-DA-020 (0-0.5)
Misc :
ALS Vial : 19 Sample Multiplier: 0.06667

Quant Time: Sep 07 06:52:24 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

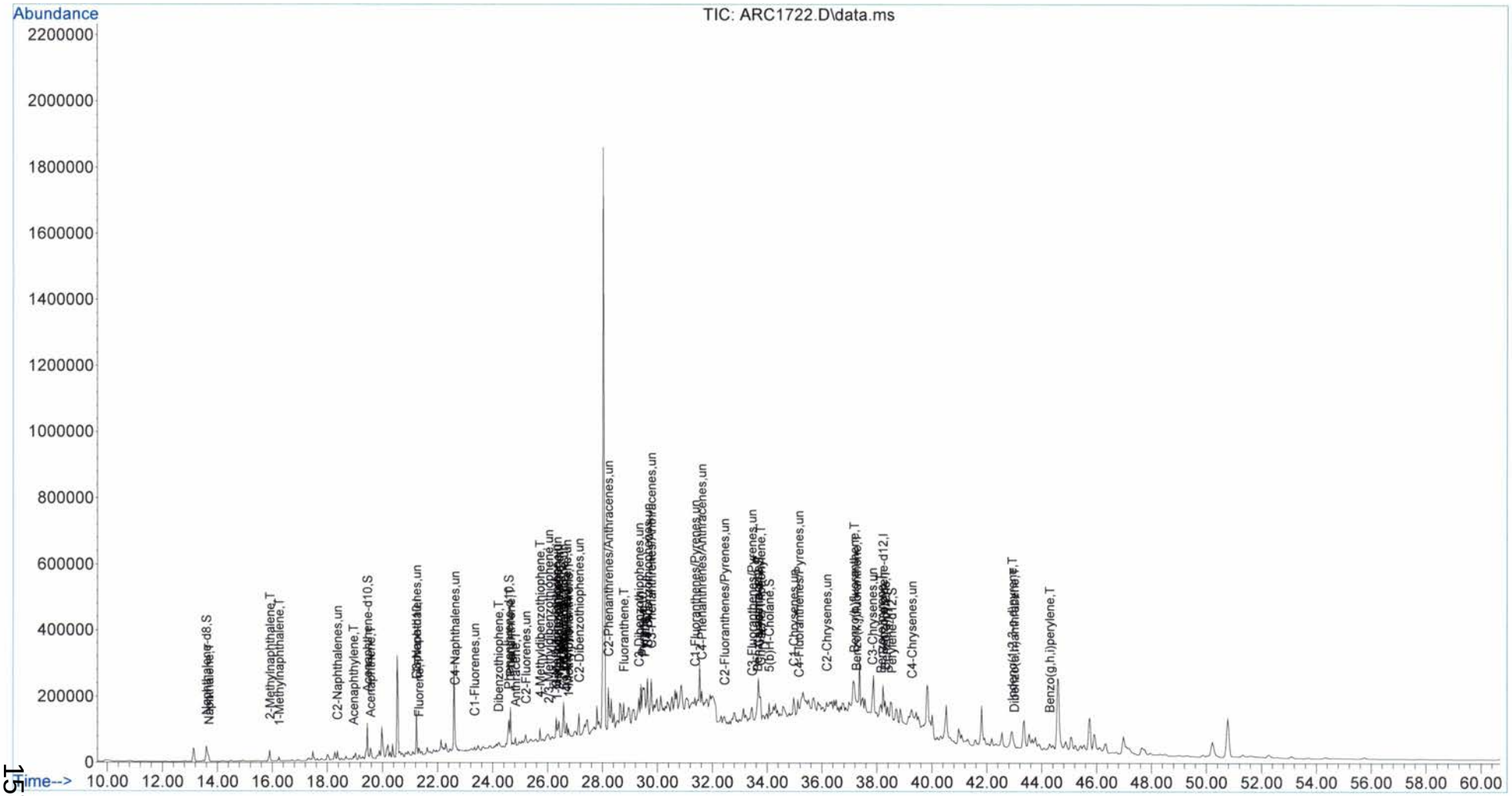
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1722.D
Acq On : 31 Aug 2013 9:31 pm
Operator : YM
Sample : SO-DA-020 (0-0.5)
Misc :
ALS Vial : 19 Sample Multiplier: 0.06667

Quant Time: Sep 07 06:52:24 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ARC1723.D
Data File Path C:\msdchem\2\data\MS60145\
Operator YM
Date Acquired 8/31/2013 22:41
Acq. Method File PAH-2012.M
Sample Name SO-DA-020 (0.5-1.0)
Misc Info 0
Instrument Name GCMS6
Vial Number 21
Sample Multiplier 0.06649
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC1723.D
SO-DA-020 (0.5-1.0)
8/31/2013 22:41
PAH-2012.M
15.03985562

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.68	13535	1.1012	1.2932
9)+10)	C1-Naphthalenes	16.08	12092	0.9838	1.1553
13)	C2-Naphthalenes	18.28	21944	1.7853	2.0966
14)	C3-Naphthalenes	20.65	16626	1.3527	1.5885
15)	C4-Naphthalenes	22.62	20808	1.6929	1.9881
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	17.47	4073	0.3876	0.4551
23)	Acenaphthylene	18.95	1755	0.1449	0.1701
24)	Acenaphthene	19.50	724	0.1013	0.1189
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.31	8795	0.9962	1.1699
28)	C1-Fluorenes	23.34	5366	0.6078	0.7138
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.83	1451	0.0982	0.1153
41)	Phenanthrene	24.65	47883	3.0981	3.6382
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.20	5184	0.4186	0.4916
35)+36)+37)	C1-Dibenzothiophenes	26.04	7424	0.5995	0.7040
38)	C2-Dibenzothiophenes	27.15	11649	0.9406	1.1047
39)	C3-Dibenzothiophenes	29.33	26158	2.1122	2.4805
40)	C4-Dibenzothiophenes	29.64	34877	2.8163	3.3073
58)	Fluoranthene	28.78	13573	0.9052	1.0631
59)	Pyrene	29.54	9055	0.4575	0.5372
62)	C1-Fluoranthenes/Pyrenes	31.37	10834	0.7226	0.8485
63)	C2-Fluoranthenes/Pyrenes	33.14	23852	1.5908	1.8682
64)	C3-Fluoranthenes/Pyrenes	33.45	16816	1.1215	1.3171
65)	C4-Fluoranthenes/Pyrenes	35.16	30399	2.0275	2.3809
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.61	5115	0.4087	0.4799
68)	Chrysene/Triphenylene	33.72	11542	0.8394	0.9858
69)	C1-Chrysenes	34.97	18313	1.3319	1.5641
70)	C2-Chrysenes	36.17	23111	1.6808	1.9739
71)	C3-Chrysenes	37.91	22357	1.6260	1.9095
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.14	18014	1.2583	1.4777
78)	Benzo(k,j)fluoranthene	37.25	3444	0.2690	0.3159
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.11	10796	0.7171	0.8421
81)	Benzo(a)pyrene	38.30	1253	0.0924	0.1085
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	42.92	5211	0.4110	0.4826
83)	Dibenzo(a,h)anthracene	42.96	1321	0.1385	0.1626
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.25	3693	0.3345	0.3928

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	15.91	8250	1.0294	1.2089
10)	1-Methylnaphthalene	16.24	3842	0.5166	0.6067
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.73	3170	0.2775	0.3259
36)	2/3-Methyldibenzothiophene	26.04	2930	0.2565	0.3012
37)	1-Methyldibenzothiophene	26.35	1324	0.1159	0.1361
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	0.00	0	0.0000	0.0000
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.60	136816	11.91	71.64
21)	Acenaphthene-d10	19.45	83225	12.27	73.74
32)	Phenanthrene-d10	24.58	169367	14.17	85.15
66)	Chrysene-d12	33.68	185166	15.28	91.91
88)	Perylene-d12	38.54	671	0.05	0.32
90)	5(b)H-Cholane	0.00	0	0.00	0.00
	Internal Standards				
1)	Fluorene-d10	21.23	118471	16.69	
31)	Pyrene-d10	29.47	223905	16.66	
73)	Benzo(a)pyrene-d12	38.22	174097	16.64	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1723.D
Acq On : 31 Aug 2013 10:41 pm
Operator : YM
Sample : SO-DA-020 (0.5-1.0)
Misc :
ALS Vial : 21 Sample Multiplier: 0.06649

Quant Time: Sep 07 07:12:02 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.231	176	118471m	251.05		0.00
31) Pyrene-d10	29.468	212	223905m	250.63		0.00
73) Benzo(a)pyrene-d12	38.225	264	174097m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.596	136	136816m	11.91		0.00
21) Acenaphthene-d10	19.448	164	83225m	12.27		0.00
32) Phenanthrene-d10	24.584	188	169367m	14.17		0.00
66) Chrysene-d12	33.685	240	185166m	15.28		0.00
88) Perylene-d12	38.535	264	671m	0.05		0.04
90) 5(b)H-Cholane	0.000	217	0d	0.00		
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.679	128	13535m	1.10		
9) 2-Methylnaphthalene	15.909	142	8250m	1.03		
10) 1-Methylnaphthalene	16.243	142	3842m	0.52		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.277	156	21944m	1.79		
14) C3-Naphthalenes	20.646	170	16626m	1.35		
15) C4-Naphthalenes	22.624	184	20808m	1.69		
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	17.469	154	4073m	0.39		
23) Acenaphthylene	18.946	152	1755m	0.14		
24) Acenaphthene	19.503	154	724m	0.10		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.315	166	8795m	1.00		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.337	180	5366m	0.61		
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.203	184	5184m	0.42		
35) 4-Methyldibenzothiophene	25.727	198	3170m	0.28		
36) 2/3-Methyldibenzothiop...	26.039	198	2930m	0.26		
37) 1-Methyldibenzothiophene	26.351	198	1324m	0.12		
38) C2-Dibenzothiophenes	27.147	212	11649m	0.94		
39) C3-Dibenzothiophenes	29.330	226	26158m	2.11		
40) C4-Dibenzothiophenes	29.641	240	34877m	2.82		
41) Phenanthrene	24.653	178	47883m	3.10		
42) Anthracene	24.827	178	1451m	0.10		
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1723.D
Acq On : 31 Aug 2013 10:41 pm
Operator : YM
Sample : SO-DA-020 (0.5-1.0)
Misc :
ALS Vial : 21 Sample Multiplier: 0.06649

Quant Time: Sep 07 07:12:02 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	0.000		0	N.D.	d	
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.775	202	13573m	0.91		
59) Pyrene	29.538	202	9055m	0.46		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	31.373	216	10834m	0.72		
63) C2-Fluoranthenes/Pyrenes	33.141	230	23852m	1.59		
64) C3-Fluoranthenes/Pyrenes	33.452	244	16816m	1.12		
65) C4-Fluoranthenes/Pyrenes	35.159	258	30399m	2.03		
67) Benz(a)anthracene	33.607	228	5115m	0.41		
68) Chrysene/Triphenylene	33.723	228	11542m	0.84		
69) C1-Chrysenes	34.965	242	18313m	1.33		
70) C2-Chrysenes	36.168	256	23111m	1.68		
71) C3-Chrysenes	37.914	270	22357m	1.63		
72) C4-Chrysenes	0.000		0	N.D.	d	
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	37.138	252	18014m	1.26		
78) Benzo(k,j)fluoranthene	37.255	252	3444m	0.27		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.108	252	10796m	0.72		
81) Benzo(a)pyrene	38.303	252	1253m	0.09		
82) Indeno(1,2,3-c,d)pyrene	42.919	276	5211m	0.41		
83) Dibenzo(a,h)anthracene	42.956	278	1321m	0.14		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.246	276	3693m	0.33		
89) Perylene	0.000		0	N.D.	d	
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1723.D
Acq On : 31 Aug 2013 10:41 pm
Operator : YM
Sample : SO-DA-020 (0.5-1.0)
Misc :
ALS Vial : 21 Sample Multiplier: 0.06649

Quant Time: Sep 07 07:12:02 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

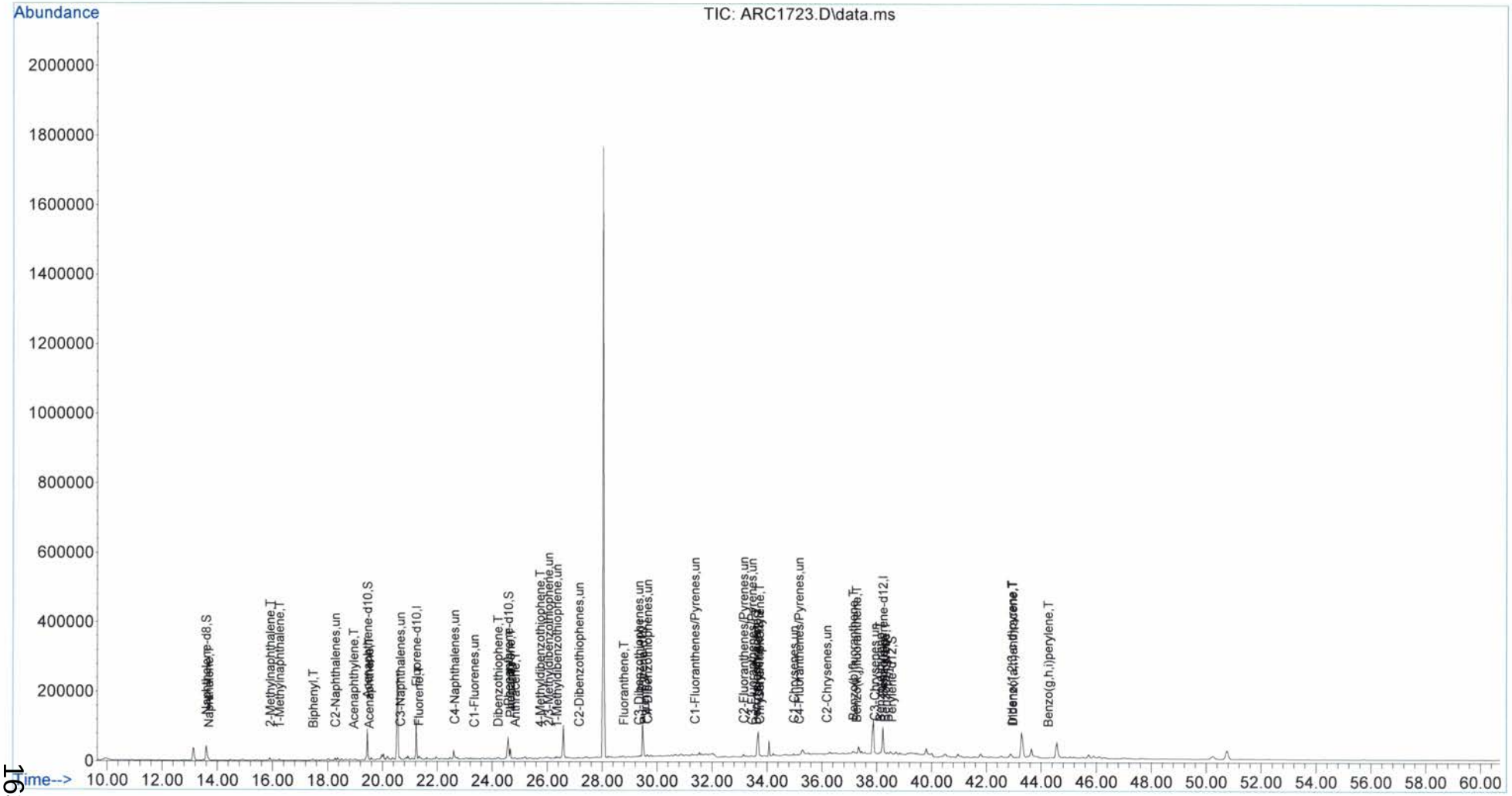
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1723.D
Acq On : 31 Aug 2013 10:41 pm
Operator : YM
Sample : SO-DA-020 (0.5-1.0)
Misc :
ALS Vial : 21 Sample Multiplier: 0.06649

Quant Time: Sep 07 07:12:02 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ARC1724.D
Data File Path C:\msdchem\2\data\MS60145\
Operator YM
Date Acquired 8/31/2013 23:50
Acq. Method File PAH-2012.M
Sample Name SO-DA-020 (1.0-1.5)
Misc Info 0
Instrument Name GCMS6
Vial Number 22
Sample Multiplier 0.06645
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC1724.D
SO-DA-020 (1.0-1.5)
8/31/2013 23:50
PAH-2012.M
15.04890895

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.68	7855	0.6007	0.6520
9)+10)	C1-Naphthalenes	16.07	8897	0.6804	0.7385
13)	C2-Naphthalenes	18.28	19578	1.4973	1.6252
14)	C3-Naphthalenes	20.64	9451	0.7228	0.7845
15)	C4-Naphthalenes	0.00	0	0.0000	0.0000
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	18.94	1257	0.0975	0.1059
24)	Acenaphthene	19.50	675	0.0887	0.0963
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.34	9850	1.0488	1.1384
28)	C1-Fluorenes	23.34	5651	0.6017	0.6531
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.83	1160	0.0764	0.0829
41)	Phenanthrene	24.65	65333	4.1142	4.4655
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.24	5693	0.4474	0.4856
35)+36)+37)	C1-Dibenzothiophenes	26.04	6871	0.5400	0.5861
38)	C2-Dibenzothiophenes	27.15	8606	0.6764	0.7341
39)	C3-Dibenzothiophenes	29.33	11215	0.8814	0.9567
40)	C4-Dibenzothiophenes	29.64	19433	1.5273	1.6577
58)	Fluoranthene	28.77	13501	0.8764	0.9512
59)	Pyrene	29.54	5276	0.2594	0.2816
62)	C1-Fluoranthenes/Pyrenes	30.68	6840	0.4440	0.4819
63)	C2-Fluoranthenes/Pyrenes	33.14	13128	0.8522	0.9250
64)	C3-Fluoranthenes/Pyrenes	33.88	9004	0.5845	0.6344
65)	C4-Fluoranthenes/Pyrenes	35.16	18222	1.1829	1.2839
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.61	3797	0.2953	0.3205
68)	Chrysene/Triphenylene	33.72	7023	0.4971	0.5396
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.14	10654	0.7325	0.7950
78)	Benzo(k,j)fluoranthene	37.26	2079	0.1598	0.1735
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.11	6664	0.4356	0.4728
81)	Benzo(a)pyrene	38.30	990	0.0718	0.0780
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	42.92	2235	0.1735	0.1883
83)	Dibenzo(a,h)anthracene	42.96	728	0.0751	0.0815
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.25	1529	0.1363	0.1480

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	15.91	5974	0.7007	0.7605
10)	1-Methylnaphthalene	16.24	2923	0.3695	0.4010
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.73	3296	0.2808	0.3048
36)	2/3-Methyldibenzothiophene	26.04	2380	0.2028	0.2201
37)	1-Methyldibenzothiophene	26.35	1195	0.1018	0.1105
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	0.00	0	0.0000	0.0000
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.59	149565	12.24	73.66
21)	Acenaphthene-d10	19.45	70418	9.76	58.69
32)	Phenanthrene-d10	24.58	188163	15.32	92.13
66)	Chrysene-d12	33.69	194148	15.59	93.85
88)	Perylene-d12	38.54	375	0.03	0.18
90)	5(b)H-Cholane	34.07	75916	16.99	102.28
	Internal Standards				
1)	Fluorene-d10	21.23	125953	16.68	
31)	Pyrene-d10	29.47	229908	16.65	
73)	Benzo(a)pyrene-d12	38.23	176782	16.63	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1724.D
Acq On : 31 Aug 2013 11:50 pm
Operator : YM
Sample : SO-DA-020 (1.0-1.5)
Misc :
ALS Vial : 22 Sample Multiplier: 0.06645

Quant Time: Sep 07 07:26:44 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.229	176	125953m	251.05		0.00
31) Pyrene-d10	29.467	212	229908m	250.63		0.00
73) Benzo(a)pyrene-d12	38.226	264	176782m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.594	136	149565m	12.24		0.00
21) Acenaphthene-d10	19.446	164	70418m	9.76		0.00
32) Phenanthrene-d10	24.583	188	188163m	15.32		0.00
66) Chrysene-d12	33.685	240	194148m	15.59		0.00
88) Perylene-d12	38.536	264	375m	0.03		0.04
90) 5(b)H-Cholane	34.073	217	75916m	16.99		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.677	128	7855m	0.60		
9) 2-Methylnaphthalene	15.907	142	5974m	0.70		
10) 1-Methylnaphthalene	16.241	142	2923m	0.37		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.275	156	19578m	1.50		
14) C3-Naphthalenes	20.644	170	9451m	0.72		
15) C4-Naphthalenes	0.000		0	N.D.	d	
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	18.944	152	1257m	0.10		
24) Acenaphthene	19.501	154	675m	0.09		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.340	166	9850m	1.05		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.336	180	5651m	0.60		
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.236	184	5693m	0.45		
35) 4-Methyldibenzothiophene	25.726	198	3296m	0.28		
36) 2/3-Methyldibenzothiop...	26.038	198	2380m	0.20		
37) 1-Methyldibenzothiophene	26.349	198	1195m	0.10		
38) C2-Dibenzothiophenes	27.146	212	8606m	0.68		
39) C3-Dibenzothiophenes	29.328	226	11215m	0.88		
40) C4-Dibenzothiophenes	29.640	240	19433m	1.53		
41) Phenanthrene	24.652	178	65333m	4.11		
42) Anthracene	24.825	178	1160m	0.08		
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1724.D
Acq On : 31 Aug 2013 11:50 pm
Operator : YM
Sample : SO-DA-020 (1.0-1.5)
Misc :
ALS Vial : 22 Sample Multiplier: 0.06645

Quant Time: Sep 07 07:26:44 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0		N.D.	d
45) 2-Methylanthracene	0.000		0		N.D.	d
46) 4/9-Methylphenanthrene	0.000		0		N.D.	d
47) 1-Methylphenanthrene	0.000		0		N.D.	d
48) 3,6-Dimethylphenanthrene	0.000		0		N.D.	d
49) Retene	0.000		0		N.D.	d
50) C2-Phenanthrenes/Anthr...	0.000		0		N.D.	d
51) C3-Phenanthrenes/Anthr...	0.000		0		N.D.	d
52) C4-Phenanthrenes/Anthr...	0.000		0		N.D.	d
53) Naphthobenzothiophene	0.000		0		N.D.	d
54) C1-Naphthobenzothiophenes	0.000		0		N.D.	d
55) C2-Naphthobenzothiophenes	0.000		0		N.D.	d
56) C3-Naphthobenzothiophenes	0.000		0		N.D.	d
57) C4-Naphthobenzothiophenes	0.000		0		N.D.	d
58) Fluoranthene	28.774	202	13501m	0.88		
59) Pyrene	29.536	202	5276m	0.26		
60) 2-Methylfluoranthene	0.000		0		N.D.	d
61) Benzo(b)fluorene	0.000		0		N.D.	d
62) C1-Fluoranthenes/Pyrenes	30.679	216	6840m	0.44		
63) C2-Fluoranthenes/Pyrenes	33.142	230	13128m	0.85		
64) C3-Fluoranthenes/Pyrenes	33.879	244	9004m	0.58		
65) C4-Fluoranthenes/Pyrenes	35.160	258	18222m	1.18		
67) Benz(a)anthracene	33.608	228	3797m	0.30		
68) Chrysene/Triphenylene	33.724	228	7023m	0.50		
69) C1-Chrysenes	0.000		0		N.D.	d
70) C2-Chrysenes	0.000		0		N.D.	d
71) C3-Chrysenes	0.000		0		N.D.	d
72) C4-Chrysenes	0.000		0		N.D.	d
74) C29-Hopane	0.000		0		N.D.	d
75) 18a-Oleanane	0.000		0		N.D.	d
76) C30-Hopane	0.000		0		N.D.	d
77) Benzo(b)fluoranthene	37.139	252	10654m	0.73		
78) Benzo(k,j)fluoranthene	37.255	252	2079m	0.16		
79) Benzo(a)fluoranthene	0.000		0		N.D.	d
80) Benzo(e)pyrene	38.109	252	6664m	0.44		
81) Benzo(a)pyrene	38.303	252	990m	0.07		
82) Indeno(1,2,3-c,d)pyrene	42.919	276	2235m	0.17		
83) Dibenzo(a,h)anthracene	42.956	278	728m	0.08		
84) C1-Dibenzo(a,h)anthrac...	0.000		0		N.D.	d
85) C2-Dibenzo(a,h)anthrac...	0.000		0		N.D.	d
86) C3-Dibenzo(a,h)anthrac...	0.000		0		N.D.	d
87) Benzo(g,h,i)perylene	44.247	276	1529m	0.14		
89) Perylene	0.000		0		N.D.	d
91) C20-TAS	0.000		0		N.D.	d
92) C21-TAS	0.000		0		N.D.	d
93) C26(20S)-TAS	0.000		0		N.D.	d
94) C26(20R)/C27(20S)-TAS	0.000		0		N.D.	d
95) C28(20S)-TAS	0.000		0		N.D.	d
96) C27(20R)-TAS	0.000		0		N.D.	d
97) C28(20R)-TAS	0.000		0		N.D.	d

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1724.D
Acq On : 31 Aug 2013 11:50 pm
Operator : YM
Sample : SO-DA-020 (1.0-1.5)
Misc :
ALS Vial : 22 Sample Multiplier: 0.06645

Quant Time: Sep 07 07:26:44 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

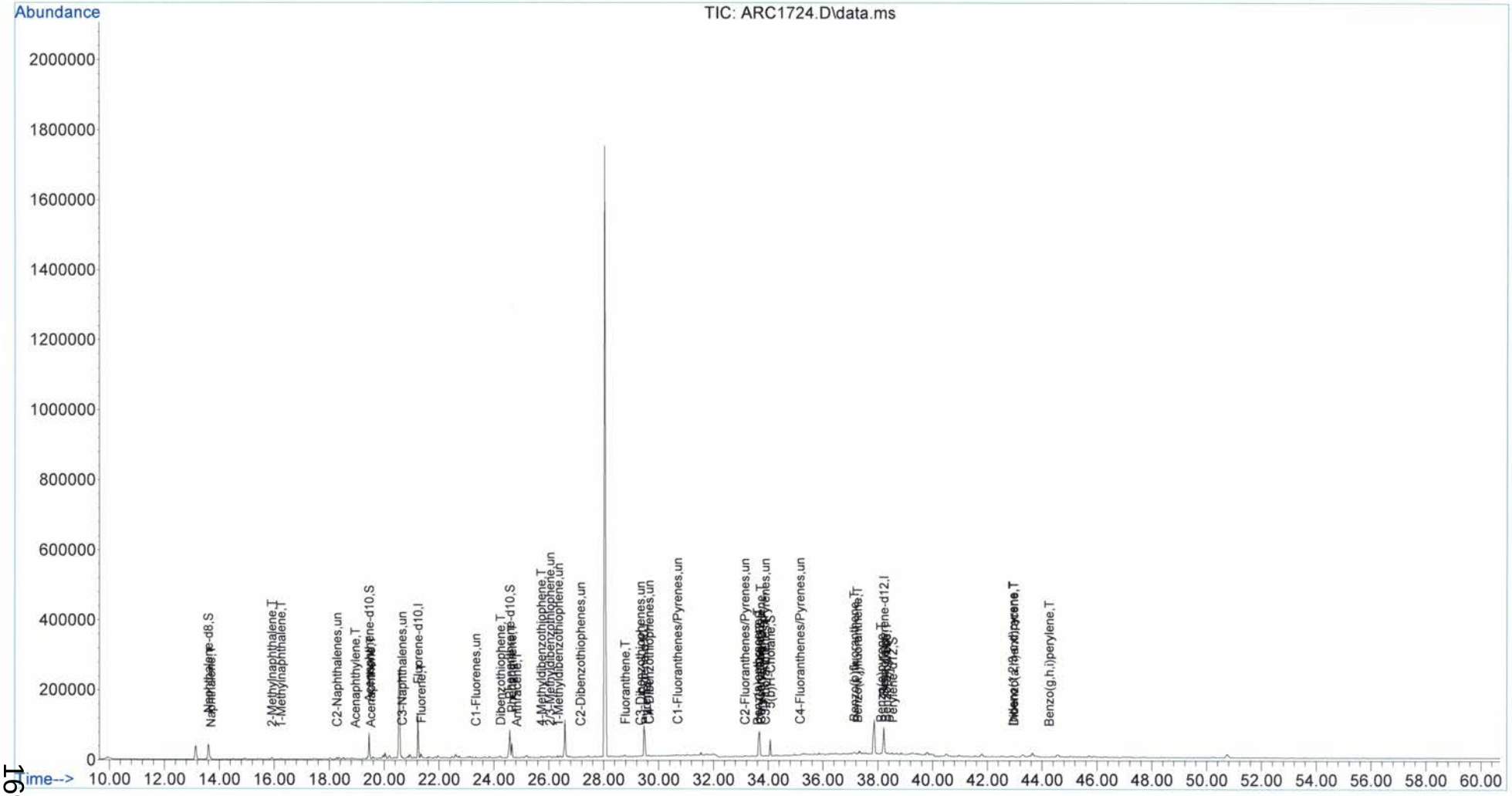
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1724.D
Acq On : 31 Aug 2013 11:50 pm
Operator : YM
Sample : SO-DA-020 (1.0-1.5)
Misc :
ALS Vial : 22 Sample Multiplier: 0.06645

Quant Time: Sep 07 07:26:44 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name	ARC1725.D
Data File Path	C:\msdchem\2\data\MS60145\
Operator	YM
Date Acquired	9/1/2013 1:00
Acq. Method File	PAH-2012.M
Sample Name	SO-DA-022 (0-0.5)
Misc Info	0
Instrument Name	GCMS6
Vial Number	23
Sample Multiplier	0.06662
Sample Amount	0

Surrogate/Internal Multiplier Factor:	1.00
AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC1725.D
SO-DA-022 (0-0.5)
9/1/2013 1:00
PAH-2012.M
15.01050736

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.68	42390	2.9399	3.0101
9)+10)	C1-Naphthalenes	16.07	100999	7.0046	7.1718
13)	C2-Naphthalenes	18.39	716952	49.7228	50.9099
14)	C3-Naphthalenes	20.31	2258920	156.6629	160.4032
15)	C4-Naphthalenes	22.65	4621630	320.5241	328.1765
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	18.97	27687	1.9480	1.9945
24)	Acenaphthene	0.00	0	0.0000	0.0000
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.34	45000	4.3450	4.4488
28)	C1-Fluorenes	23.37	356887	34.4597	35.2824
29)	C2-Fluorenes	25.21	1448770	139.8887	143.2285
30)	C3-Fluorenes	27.18	2838290	274.0554	280.5983
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	0.00	0	0.0000	0.0000
41)	Phenanthrene	24.69	480109	31.3494	32.0979
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.59	2136171	139.4845	142.8146
50)	C2-Phenanthrenes/Anthracenes	28.26	6669640	435.5043	445.9018
51)	C3-Phenanthrenes/Anthracenes	30.92	11662500	761.5199	779.7009
52)	C4-Phenanthrenes/Anthracenes	31.68	10159600	663.3840	679.2220
34)	Dibenzothiophene	24.24	439279	35.7981	36.6527
35)+36)+37)	C1-Dibenzothiophenes	26.06	2109542	171.9124	176.0167
38)	C2-Dibenzothiophenes	27.84	6493120	529.1420	541.7751
39)	C3-Dibenzothiophenes	28.71	11433800	931.7740	954.0197
40)	C4-Dibenzothiophenes	29.68	9849090	802.6311	821.7936
58)	Fluoranthene	28.81	191926	12.9183	13.2267
59)	Pyrene	29.57	771348	39.3277	40.2667
62)	C1-Fluoranthenes/Pyrenes	31.10	2303440	155.0421	158.7436
63)	C2-Fluoranthenes/Pyrenes	32.48	3781560	254.5324	260.6092
64)	C3-Fluoranthenes/Pyrenes	33.96	3128650	210.5852	215.6128
65)	C4-Fluoranthenes/Pyrenes	35.28	3453550	232.4538	238.0036
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	0.00	0	0.0000	0.0000
68)	Chrysene/Triphenylene	33.80	814449	59.7784	61.2056
69)	C1-Chrysenes	35.04	2161870	158.6748	162.4632
70)	C2-Chrysenes	36.21	2965400	217.6522	222.8486
71)	C3-Chrysenes	37.41	2171100	159.3530	163.1575
72)	C4-Chrysenes	39.31	1527810	112.1374	114.8147
77)	Benzo(b)fluoranthene	37.22	232409	22.4411	22.9769
78)	Benzo(k,j)fluoranthene	37.29	78057	8.4270	8.6282
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.19	362238	33.2585	34.0525
81)	Benzo(a)pyrene	38.38	115233	11.7427	12.0231
89)	Perylene	38.69	42140	4.0881	4.1857
82)	Indeno(1,2,3-c,d)pyrene	42.99	54186	5.9073	6.0483
83)	Dibenzo(a,h)anthracene	43.03	33006	4.7830	4.8972
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.36	158752	19.8778	20.3524

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	15.91	66753	7.1000	7.2695
10)	1-Methylnaphthalene	16.24	34246	3.9256	4.0193
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.76	916724	80.9859	82.9194
36)	2/3-Methyldibenzothiophene	26.04	671510	59.3229	60.7392
37)	1-Methyldibenzothiophene	26.38	521308	46.0537	47.1532
43)	3-Methylphenanthrene	26.35	414382	38.7035	39.6275
44)	2-Methylphenanthrene	26.45	546272	51.0221	52.2402
45)	2-Methylanthracene	26.63	92762	8.6640	8.8708
46)	4/9-Methylphenanthrene	26.73	658501	61.5043	62.9727
47)	1-Methylphenanthrene	26.80	424254	39.6255	40.5716
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.62	213116	15.82	94.94
21)	Acenaphthene-d10	19.45	106366	13.36	80.18
32)	Phenanthrene-d10	24.58	192863	16.28	97.67
66)	Chrysene-d12	33.76	193196	16.09	96.59
88)	Perylene-d12	38.58	23273	2.58	15.48
90)	5(b)H-Cholane	34.07	94607	29.74	178.56
	Internal Standards				
1)	Fluorene-d10	21.26	139251	16.72	
31)	Pyrene-d10	29.54	222296	16.70	
73)	Benzo(a)pyrene-d12	38.30	126191	16.68	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1725.D
Acq On : 1 Sep 2013 1:00 am
Operator : YM
Sample : SO-DA-022 (0-0.5)
Misc :
ALS Vial : 23 Sample Multiplier: 0.06662

Quant Time: Sep 07 14:40:20 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.258	176	139251m	251.05		0.03
31) Pyrene-d10	29.537	212	222296m	250.63		0.07
73) Benzo(a)pyrene-d12	38.304	264	126191m	250.32		0.08
System Monitoring Compounds						
2) Naphthalene-d8	13.623	136	213116m	15.82		0.03
21) Acenaphthene-d10	19.447	164	106366m	13.36		0.00
32) Phenanthrene-d10	24.583	188	192863m	16.28		0.00
66) Chrysene-d12	33.764	240	193196m	16.09		0.08
88) Perylene-d12	38.576	264	23273m	2.58		0.08
90) 5(b)H-Cholane	34.074	217	94607m	29.74		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.678	128	42390m	2.94		
9) 2-Methylnaphthalene	15.908	142	66753m	7.10		
10) 1-Methylnaphthalene	16.242	142	34246m	3.93		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.388	156	716952m	49.72		
14) C3-Naphthalenes	20.311	170	2258919m	156.66		
15) C4-Naphthalenes	22.651	184	4621625m	320.52		
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	18.973	152	27687m	1.95		
24) Acenaphthene	0.000		0	N.D.	d	
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.342	166	45000m	4.35		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.371	180	356887m	34.46		
29) C2-Fluorenes	25.207	194	1448773m	139.89		
30) C3-Fluorenes	27.181	208	2838292m	274.06		
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.237	184	439279m	35.80		
35) 4-Methyldibenzothiophene	25.761	198	916724m	80.99		
36) 2/3-Methyldibenzothiop...	26.038	198	671510m	59.32		
37) 1-Methyldibenzothiophene	26.385	198	521308m	46.05		
38) C2-Dibenzothiophenes	27.840	212	6493117m	529.14		
39) C3-Dibenzothiophenes	28.706	226	11433847m	931.78		
40) C4-Dibenzothiophenes	29.675	240	9849089m	802.63		
41) Phenanthrene	24.687	178	480109m	31.35		
42) Anthracene	0.000		0	N.D.	d	
43) 3-Methylphenanthrene	26.350	192	414382m	38.70		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1725.D
Acq On : 1 Sep 2013 1:00 am
Operator : YM
Sample : SO-DA-022 (0-0.5)
Misc :
ALS Vial : 23 Sample Multiplier: 0.06662

Quant Time: Sep 07 14:40:20 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.454	192	546272m	51.02		
45) 2-Methylanthracene	26.627	192	92762m	8.66		
46) 4/9-Methylphenanthrene	26.731	192	658501m	61.50		
47) 1-Methylphenanthrene	26.800	192	424254m	39.63		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	28.255	206	6669642m	435.50		
51) C3-Phenanthrenes/Anthr...	30.922	220	11662452m	761.52		
52) C4-Phenanthrenes/Anthr...	31.684	234	10159567m	663.38		
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.809	202	191926m	12.92		
59) Pyrene	29.571	202	771348m	39.33		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	31.096	216	2303444m	155.04		
63) C2-Fluoranthenes/Pyrenes	32.483	230	3781562m	254.53		
64) C3-Fluoranthenes/Pyrenes	33.958	244	3128647m	210.59		
65) C4-Fluoranthenes/Pyrenes	35.277	258	3453549m	232.45		
67) Benz(a)anthracene	0.000		0	N.D.	d	
68) Chrysene/Triphenylene	33.802	228	814449m	59.78		
69) C1-Chrysenes	35.044	242	2161865m	158.68		
70) C2-Chrysenes	36.208	256	2965400m	217.65		
71) C3-Chrysenes	37.411	270	2171103m	159.35		
72) C4-Chrysenes	39.313	284	1527811m	112.14		
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	37.217	252	232409m	22.44		
78) Benzo(k,j)fluoranthene	37.295	252	78057m	8.43		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.187	252	362238m	33.26		
81) Benzo(a)pyrene	38.381	252	115233m	11.74		
82) Indeno(1,2,3-c,d)pyrene	42.994	276	54186m	5.91		
83) Dibenzo(a,h)anthracene	43.030	278	33006m	4.78		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.358	276	158752m	19.88		
89) Perylene	38.692	252	42140m	4.09		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1725.D
Acq On : 1 Sep 2013 1:00 am
Operator : YM
Sample : SO-DA-022 (0-0.5)
Misc :
ALS Vial : 23 Sample Multiplier: 0.06662

Quant Time: Sep 07 14:40:20 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

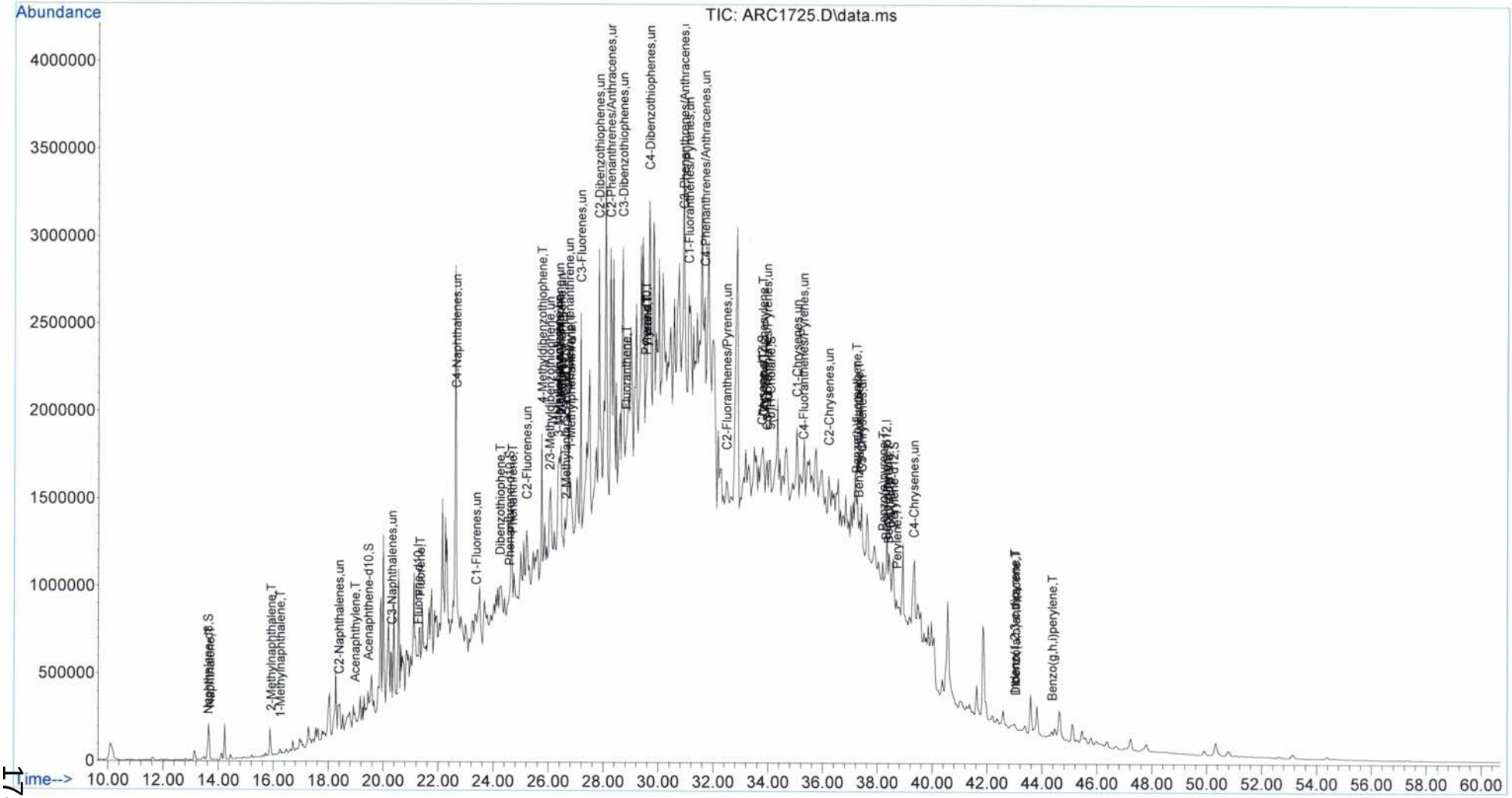
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1725.D
Acq On : 1 Sep 2013 1:00 am
Operator : YM
Sample : SO-DA-022 (0-0.5)
Misc :
ALS Vial : 23 Sample Multiplier: 0.06662

Quant Time: Sep 07 14:40:20 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ARC1726.D
Data File Path C:\msdchem\2\data\MS60145\
Operator YM
Date Acquired 9/1/2013 2:10
Acq. Method File PAH-2012.M
Sample Name SO-DA-022 (0.5-1.0)
Misc Info 0
Instrument Name GCMS6
Vial Number 24
Sample Multiplier 0.06649
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC1726.D
SO-DA-022 (0.5-1.0)
9/1/2013 2:10
PAH-2012.M
15.03985562

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.68	13802	1.0986	1.2321
9)+10)	C1-Naphthalenes	16.08	10888	0.8667	0.9719
13)	C2-Naphthalenes	18.36	30824	2.4535	2.7516
14)	C3-Naphthalenes	20.20	27412	2.1819	2.4470
15)	C4-Naphthalenes	0.00	0	0.0000	0.0000
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	18.95	1441	0.1164	0.1305
24)	Acenaphthene	19.51	1242	0.1700	0.1906
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	0.00	0	0.0000	0.0000
28)	C1-Fluorenes	23.34	6969	0.7723	0.8661
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	0.00	0	0.0000	0.0000
41)	Phenanthrene	24.65	55903	3.6170	4.0564
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.20	6491	0.5241	0.5878
35)+36)+37)	C1-Dibenzothiophenes	0.00	0	0.0000	0.0000
38)	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.78	11504	0.7673	0.8605
59)	Pyrene	29.54	13885	0.7015	0.7867
62)	C1-Fluoranthenes/Pyrenes	31.37	33383	2.2265	2.4970
63)	C2-Fluoranthenes/Pyrenes	32.75	71081	4.7407	5.3167
64)	C3-Fluoranthenes/Pyrenes	34.00	61043	4.0712	4.5659
65)	C4-Fluoranthenes/Pyrenes	35.20	91997	6.1357	6.8812
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.65	3275	0.2617	0.2935
68)	Chrysene/Triphenylene	33.72	25180	1.8313	2.0538
69)	C1-Chrysenes	34.97	71346	5.1888	5.8192
70)	C2-Chrysenes	36.17	66720	4.8524	5.4419
71)	C3-Chrysenes	37.91	56049	4.0763	4.5716
72)	C4-Chrysenes	39.23	39073	2.8417	3.1869
77)	Benzo(b)fluoranthene	37.14	11419	0.8814	0.9885
78)	Benzo(k,j)fluoranthene	37.26	2170	0.1873	0.2100
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.11	13379	0.9819	1.1012
81)	Benzo(a)pyrene	38.30	1553	0.1265	0.1419
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	42.92	2983	0.2600	0.2915
83)	Dibenzo(a,h)anthracene	42.96	1511	0.1750	0.1963
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.25	5047	0.5052	0.5665

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	15.91	7494	0.9148	1.0260
10)	1-Methylnaphthalene	16.25	3394	0.4465	0.5008
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	0.00	0	0.0000	0.0000
36)	2/3-Methyldibenzothiophene	0.00	0	0.0000	0.0000
37)	1-Methyldibenzothiophene	0.00	0	0.0000	0.0000
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	0.00	0	0.0000	0.0000
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.60	165238	14.08	84.65
21)	Acenaphthene-d10	19.45	83814	12.09	72.66
32)	Phenanthrene-d10	24.58	177350	14.83	89.17
66)	Chrysene-d12	33.68	233808	19.29	116.05
88)	Perylene-d12	38.54	999	0.09	0.53
90)	5(b)H-Cholane	34.07	60633	15.24	91.66
	Internal Standards				
1)	Fluorene-d10	21.23	121093	16.69	
31)	Pyrene-d10	29.47	223905	16.66	
73)	Benzo(a)pyrene-d12	38.23	157553	16.64	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1726.D
Acq On : 1 Sep 2013 2:10 am
Operator : YM
Sample : SO-DA-022 (0.5-1.0)
Misc :
ALS Vial : 24 Sample Multiplier: 0.06649

Quant Time: Sep 07 14:57:22 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.234	176	121093m	251.05		0.00
31) Pyrene-d10	29.469	212	223905m	250.63		0.00
73) Benzo(a)pyrene-d12	38.225	264	157553m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.599	136	165238m	14.08		0.00
21) Acenaphthene-d10	19.451	164	83814m	12.09		0.00
32) Phenanthrene-d10	24.585	188	177350m	14.83		0.00
66) Chrysene-d12	33.685	240	233808m	19.29		0.00
88) Perylene-d12	38.536	264	999m	0.09		0.04
90) 5(b)H-Cholane	34.073	217	60633m	15.24		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.682	128	13802m	1.10		
9) 2-Methylnaphthalene	15.912	142	7494m	0.91		
10) 1-Methylnaphthalene	16.246	142	3394m	0.45		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.364	156	30824m	2.45		
14) C3-Naphthalenes	20.203	170	27412m	2.18		
15) C4-Naphthalenes	0.000		0	N.D.	d	
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	18.949	152	1441m	0.12		
24) Acenaphthene	19.506	154	1242m	0.17		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	0.000		0	N.D.	d	
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.338	180	6969m	0.77		
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.204	184	6491m	0.52		
35) 4-Methyldibenzothiophene	0.000		0	N.D.	d	
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.	d	
37) 1-Methyldibenzothiophene	0.000		0	N.D.	d	
38) C2-Dibenzothiophenes	0.000		0	N.D.	d	
39) C3-Dibenzothiophenes	0.000		0	N.D.	d	
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.654	178	55903m	3.62		
42) Anthracene	0.000		0	N.D.	d	
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1726.D
Acq On : 1 Sep 2013 2:10 am
Operator : YM
Sample : SO-DA-022 (0.5-1.0)
Misc :
ALS Vial : 24 Sample Multiplier: 0.06649

Quant Time: Sep 07 14:57:22 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	0.000		0	N.D.	d	
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.776	202	11504m	0.77		
59) Pyrene	29.538	202	13885m	0.70		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	31.374	216	33383m	2.23		
63) C2-Fluoranthenes/Pyrenes	32.753	230	71081m	4.74		
64) C3-Fluoranthenes/Pyrenes	33.995	244	61043m	4.07		
65) C4-Fluoranthenes/Pyrenes	35.198	258	91997m	6.14		
67) Benz(a)anthracene	33.646	228	3275m	0.26		
68) Chrysene/Triphenylene	33.724	228	25180m	1.83		
69) C1-Chrysenes	34.965	242	71346m	5.19		
70) C2-Chrysenes	36.168	256	66720m	4.85		
71) C3-Chrysenes	37.915	270	56049m	4.08		
72) C4-Chrysenes	39.234	284	39073m	2.84		
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	37.139	252	11419m	0.88		
78) Benzo(k,j)fluoranthene	37.255	252	2170m	0.19		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.109	252	13379m	0.98		
81) Benzo(a)pyrene	38.303	252	1553m	0.13		
82) Indeno(1,2,3-c,d)pyrene	42.919	276	2983m	0.26		
83) Dibenzo(a,h)anthracene	42.956	278	1511m	0.18		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.247	276	5047m	0.51		
89) Perylene	0.000		0	N.D.	d	
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1726.D
Acq On : 1 Sep 2013 2:10 am
Operator : YM
Sample : SO-DA-022 (0.5-1.0)
Misc :
ALS Vial : 24 Sample Multiplier: 0.06649

Quant Time: Sep 07 14:57:22 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

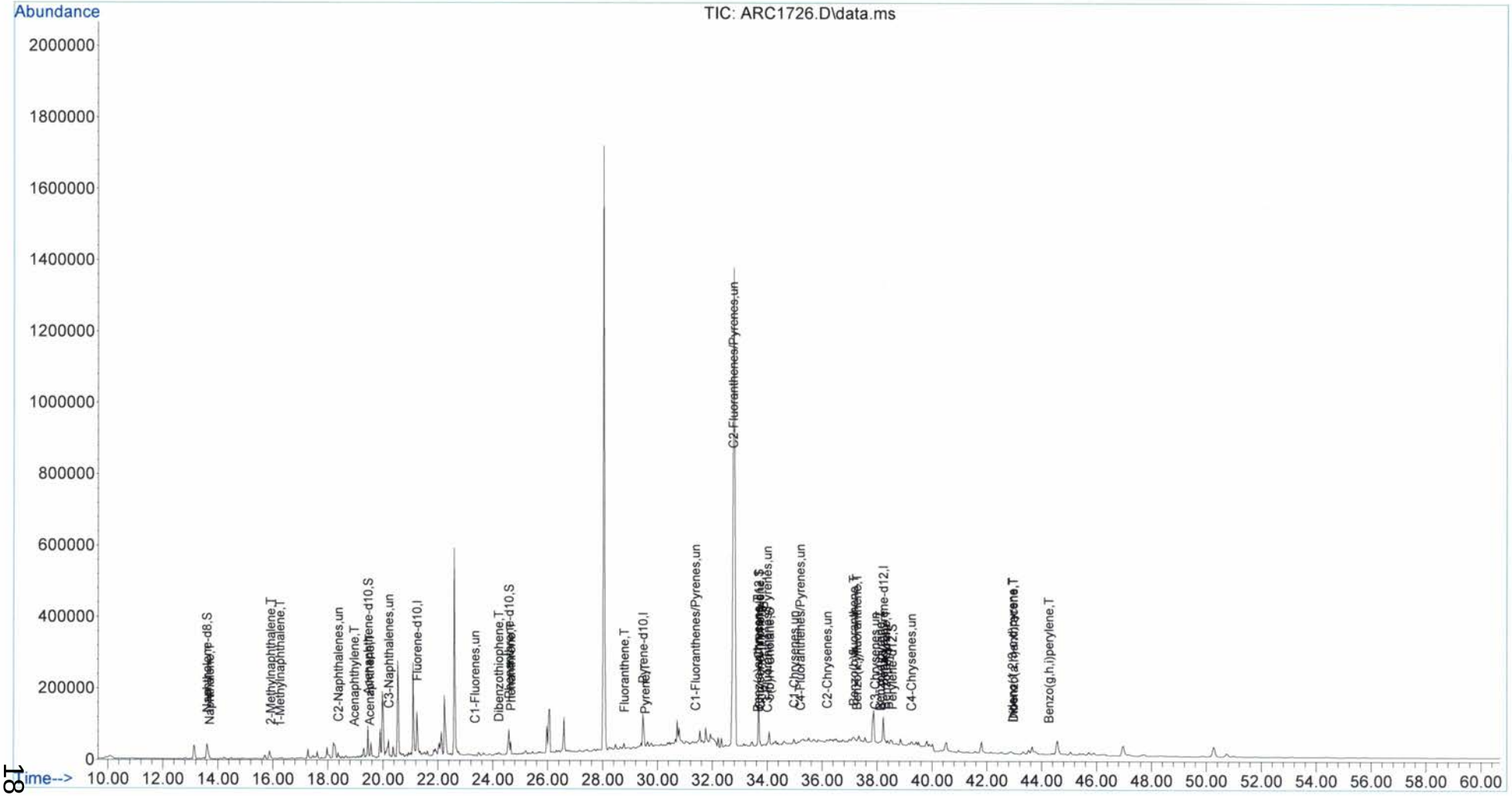
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1726.D
Acq On : 1 Sep 2013 2:10 am
Operator : YM
Sample : SO-DA-022 (0.5-1.0)
Misc :
ALS Vial : 24 Sample Multiplier: 0.06649

Quant Time: Sep 07 14:57:22 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ARC1727.D
Data File Path C:\GCMS6\MS60145\
Operator YM
Date Acquired 9/1/2013 3:19
Acq. Method File PAH-2012.M
Sample Name SO-DA-022 (1.0-1.5)
Misc Info 0
Instrument Name GCMS6
Vial Number 25
Sample Multiplier 0.06614
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC1727.D
SO-DA-022 (1.0-1.5)
9/1/2013 3:19
PAH-2012.M
15.1194436

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.68	11270	0.8740	0.9130
9)+10)	C1-Naphthalenes	16.07	9467	0.7342	0.7669
13)	C2-Naphthalenes	18.36	26613	2.0638	2.1559
14)	C3-Naphthalenes	20.64	31501	2.4429	2.5518
15)	C4-Naphthalenes	0.00	0	0.0000	0.0000
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	18.97	1234	0.0971	0.1014
24)	Acenaphthene	19.50	1311	0.1748	0.1826
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.29	12205	1.3178	1.3765
28)	C1-Fluorenes	23.34	7810	0.8432	0.8808
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.83	833	0.0545	0.0570
41)	Phenanthrene	24.65	50799	3.1806	3.3225
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.24	5932	0.4635	0.4842
35)+36)+37)	C1-Dibenzothiophenes	0.00	0	0.0000	0.0000
38)	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.77	10947	0.7065	0.7380
59)	Pyrene	29.54	23030	1.1259	1.1761
62)	C1-Fluoranthenes/Pyrenes	31.37	46821	3.0219	3.1567
63)	C2-Fluoranthenes/Pyrenes	32.75	90994	5.8729	6.1348
64)	C3-Fluoranthenes/Pyrenes	33.45	79637	5.1399	5.3691
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.69	5476	0.4234	0.4423
68)	Chrysene/Triphenylene	33.72	36078	2.5392	2.6524
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.14	13374	0.9859	1.0298
78)	Benzo(k,j)fluoranthene	37.26	2478	0.2042	0.2133
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.11	19993	1.4014	1.4638
81)	Benzo(a)pyrene	38.30	2049	0.1594	0.1665
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	42.92	4540	0.3778	0.3947
83)	Dibenzo(a,h)anthracene	42.99	2027	0.2242	0.2342
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.28	8049	0.7694	0.8037

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	15.91	6506	0.7738	0.8083
10)	1-Methylnaphthalene	16.24	2961	0.3795	0.3965
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	0.00	0	0.0000	0.0000
36)	2/3-Methyldibenzothiophene	0.00	0	0.0000	0.0000
37)	1-Methyldibenzothiophene	0.00	0	0.0000	0.0000
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	0.00	0	0.0000	0.0000
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.59	144996	12.04	72.75
21)	Acenaphthene-d10	19.45	93289	13.11	79.21
32)	Phenanthrene-d10	24.58	195721	15.84	95.73
66)	Chrysene-d12	33.69	206836	16.52	99.88
88)	Perylene-d12	38.54	1935	0.16	0.99
90)	5(b)H-Cholane	34.07	68202	16.37	98.98
	Internal Standards				
1)	Fluorene-d10	21.23	123635	16.60	
31)	Pyrene-d10	29.47	230155	16.58	
73)	Benzo(a)pyrene-d12	38.23	164107	16.56	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1727.D
Acq On : 1 Sep 2013 3:19 am
Operator : YM
Sample : SO-DA-022 (1.0-1.5)
Misc :
ALS Vial : 25 Sample Multiplier: 0.06614

Quant Time: Sep 07 17:35:54 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.229	176	123635m	251.05		0.00
31) Pyrene-d10	29.467	212	230155m	250.63		0.00
73) Benzo(a)pyrene-d12	38.226	264	164107m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.594	136	144996m	12.04		0.00
21) Acenaphthene-d10	19.446	164	93289m	13.11		0.00
32) Phenanthrene-d10	24.583	188	195721m	15.84		0.00
66) Chrysene-d12	33.686	240	206836m	16.52		0.00
88) Perylene-d12	38.537	264	1935m	0.16		0.04
90) 5(b)H-Cholane	34.074	217	68202m	16.37		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.678	128	11270m	0.87		
9) 2-Methylnaphthalene	15.907	142	6506m	0.77		
10) 1-Methylnaphthalene	16.241	142	2961m	0.38		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.359	156	26613m	2.06		
14) C3-Naphthalenes	20.644	170	31501m	2.44		
15) C4-Naphthalenes	0.000		0	N.D.	d	
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	18.972	152	1234m	0.10		
24) Acenaphthene	19.502	154	1311m	0.17		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.285	166	12205m	1.32		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.336	180	7810m	0.84		
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.237	184	5932m	0.46		
35) 4-Methyldibenzothiophene	0.000		0	N.D.	d	
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.	d	
37) 1-Methyldibenzothiophene	0.000		0	N.D.	d	
38) C2-Dibenzothiophenes	0.000		0	N.D.	d	
39) C3-Dibenzothiophenes	0.000		0	N.D.	d	
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.652	178	50799m	3.18		
42) Anthracene	24.825	178	833m	0.05		
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1727.D
Acq On : 1 Sep 2013 3:19 am
Operator : YM
Sample : SO-DA-022 (1.0-1.5)
Misc :
ALS Vial : 25 Sample Multiplier: 0.06614

Quant Time: Sep 07 17:35:54 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44)	2-Methylphenanthrene	0.000		0	N.D.	d	
45)	2-Methylanthracene	0.000		0	N.D.	d	
46)	4/9-Methylphenanthrene	0.000		0	N.D.	d	
47)	1-Methylphenanthrene	0.000		0	N.D.	d	
48)	3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49)	Retene	0.000		0	N.D.	d	
50)	C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51)	C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52)	C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53)	Naphthobenzothiophene	0.000		0	N.D.	d	
54)	C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55)	C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56)	C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57)	C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58)	Fluoranthene	28.774	202	10947m	0.71		
59)	Pyrene	29.536	202	23030m	1.13		
60)	2-Methylfluoranthene	0.000		0	N.D.	d	
61)	Benzo(b)fluorene	0.000		0	N.D.	d	
62)	C1-Fluoranthenes/Pyrenes	31.372	216	46821m	3.02		
63)	C2-Fluoranthenes/Pyrenes	32.754	230	90994m	5.87		
64)	C3-Fluoranthenes/Pyrenes	33.453	244	79637m	5.14		
65)	C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67)	Benz(a)anthracene	33.686	228	5476m	0.42		
68)	Chrysene/Triphenylene	33.725	228	36078m	2.54		
69)	C1-Chrysenes	0.000		0	N.D.	d	
70)	C2-Chrysenes	0.000		0	N.D.	d	
71)	C3-Chrysenes	0.000		0	N.D.	d	
72)	C4-Chrysenes	0.000		0	N.D.	d	
74)	C29-Hopane	0.000		0	N.D.	d	
75)	18a-Oleanane	0.000		0	N.D.	d	
76)	C30-Hopane	0.000		0	N.D.	d	
77)	Benzo(b)fluoranthene	37.140	252	13374m	0.99		
78)	Benzo(k,j)fluoranthene	37.256	252	2478m	0.20		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.110	252	19993m	1.40		
81)	Benzo(a)pyrene	38.304	252	2049m	0.16		
82)	Indeno(1,2,3-c,d)pyrene	42.919	276	4540m	0.38		
83)	Dibenzo(a,h)anthracene	42.993	278	2027m	0.22		
84)	C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85)	C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86)	C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87)	Benzo(g,h,i)perylene	44.284	276	8049m	0.77		
89)	Perylene	0.000		0	N.D.	d	
91)	C20-TAS	0.000		0	N.D.	d	
92)	C21-TAS	0.000		0	N.D.	d	
93)	C26(20S)-TAS	0.000		0	N.D.	d	
94)	C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95)	C28(20S)-TAS	0.000		0	N.D.	d	
96)	C27(20R)-TAS	0.000		0	N.D.	d	
97)	C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1727.D
Acq On : 1 Sep 2013 3:19 am
Operator : YM
Sample : SO-DA-022 (1.0-1.5)
Misc :
ALS Vial : 25 Sample Multiplier: 0.06614

Quant Time: Sep 07 17:35:54 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

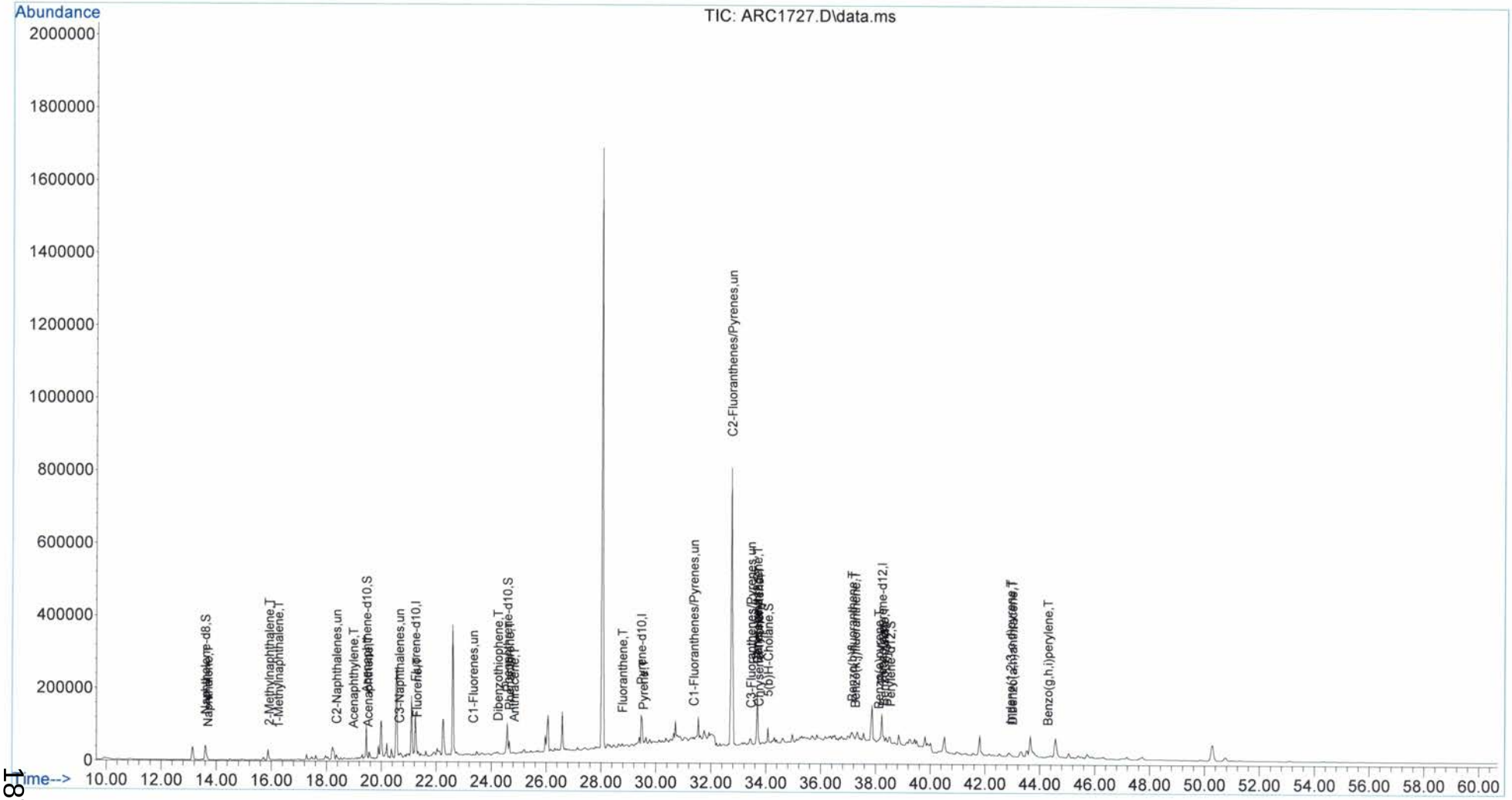
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1727.D
Acq On : 1 Sep 2013 3:19 am
Operator : YM
Sample : SO-DA-022 (1.0-1.5)
Misc :
ALS Vial : 25 Sample Multiplier: 0.06614

Quant Time: Sep 07 17:35:54 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name	ARC1728.D
Data File Path	C:\GCMS6\MS60145\
Operator	YM
Date Acquired	9/1/2013 4:29
Acq. Method File	PAH-2012.M
Sample Name	SO-DA-025 (0-0.5)
Misc Info	0
Instrument Name	GCMS6
Vial Number	26
Sample Multiplier	0.06662
Sample Amount	0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC1728.D
SO-DA-025 (0-0.5)
9/1/2013 4:29
PAH-2012.M
15.01050736

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.68	46199	3.6297	3.8396
9)+10)	C1-Naphthalenes	16.07	68703	5.3978	5.7099
13)	C2-Naphthalenes	18.28	151150	11.8754	12.5621
14)	C3-Naphthalenes	20.28	297298	23.3579	24.7085
15)	C4-Naphthalenes	22.62	554215	43.5432	46.0609
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	18.95	9768	0.7786	0.8236
24)	Acenaphthene	19.56	2125	0.2870	0.3036
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.34	22610	2.4732	2.6162
28)	C1-Fluorenes	23.34	47753	5.2235	5.5255
29)	C2-Fluorenes	25.21	263067	28.7756	30.4394
30)	C3-Fluorenes	26.42	613715	67.1310	71.0126
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.83	13447	0.8130	0.8600
41)	Phenanthrene	24.65	253434	14.6529	15.5001
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.56	627947	36.3062	38.4055
50)	C2-Phenanthrenes/Anthracenes	28.22	1679850	97.1246	102.7406
51)	C3-Phenanthrenes/Anthracenes	30.89	2508450	145.0317	153.4178
52)	C4-Phenanthrenes/Anthracenes	31.65	1689320	97.6722	103.3199
34)	Dibenzothiophene	24.24	80440	5.8044	6.1401
35)+36)+37)	C1-Dibenzothiophenes	26.04	430998	31.1002	32.8984
38)	C2-Dibenzothiophenes	27.15	1411160	101.8267	107.7145
39)	C3-Dibenzothiophenes	29.33	2403450	173.4292	183.4572
40)	C4-Dibenzothiophenes	29.64	1865830	134.6350	142.4199
58)	Fluoranthene	28.78	129740	7.7324	8.1795
59)	Pyrene	29.54	198250	8.9501	9.4676
62)	C1-Fluoranthenes/Pyrenes	31.06	444455	26.4891	28.0208
63)	C2-Fluoranthenes/Pyrenes	32.44	719021	42.8530	45.3308
64)	C3-Fluoranthenes/Pyrenes	33.45	691394	41.2064	43.5890
65)	C4-Fluoranthenes/Pyrenes	35.20	867389	51.6955	54.6847
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.65	36101	2.5775	2.7265
68)	Chrysene/Triphenylene	33.76	272180	17.6891	18.7119
69)	C1-Chrysenes	35.12	432404	28.1020	29.7270
70)	C2-Chrysenes	36.17	559548	36.3652	38.4679
71)	C3-Chrysenes	37.37	424955	27.6179	29.2149
72)	C4-Chrysenes	39.31	241349	15.6853	16.5923
77)	Benzo(b)fluoranthene	37.18	124165	10.4068	11.0085
78)	Benzo(k,j)fluoranthene	37.26	33505	3.1398	3.3213
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.15	100647	8.0211	8.4849
81)	Benzo(a)pyrene	38.34	33190	2.9358	3.1055
89)	Perylene	38.54	12990	1.0939	1.1571
82)	Indeno(1,2,3-c,d)pyrene	42.96	28047	2.6541	2.8075
83)	Dibenzo(a,h)anthracene	42.99	12750	1.6038	1.6965
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.28	42835	4.6556	4.9248

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	15.91	43994	5.3010	5.6075
10)	1-Methylnaphthalene	16.24	24709	3.2087	3.3942
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.73	190648	14.9132	15.7755
36)	2/3-Methyldibenzothiophene	26.04	121066	9.4702	10.0178
37)	1-Methyldibenzothiophene	26.35	119284	9.3308	9.8703
43)	3-Methylphenanthrene	26.32	125941	10.4156	11.0178
44)	2-Methylphenanthrene	26.42	135401	11.1980	11.8454
45)	2-Methylanthracene	26.59	50630	4.1872	4.4293
46)	4/9-Methylphenanthrene	26.70	200740	16.6016	17.5616
47)	1-Methylphenanthrene	26.77	115235	9.5302	10.0812
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.59	167956	14.12	84.76
21)	Acenaphthene-d10	19.45	104254	14.84	89.03
32)	Phenanthrene-d10	24.58	210822	15.76	94.53
66)	Chrysene-d12	33.69	247783	18.27	109.69
88)	Perylene-d12	38.54	18900	1.82	10.91
90)	5(b)H-Cholane	34.07	66721	18.20	109.31
	Internal Standards				
1)	Fluorene-d10	21.23	122920	16.72	
31)	Pyrene-d10	29.50	251052	16.70	
73)	Benzo(a)pyrene-d12	38.23	145379	16.68	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1728.D
Acq On : 1 Sep 2013 4:29 am
Operator : YM
Sample : SO-DA-025 (0-0.5)
Misc :
ALS Vial : 26 Sample Multiplier: 0.06662

Quant Time: Sep 07 17:47:48 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.230	176	122920m	251.05		0.00
31) Pyrene-d10	29.503	212	251052m	250.63		0.04
73) Benzo(a)pyrene-d12	38.227	264	145379m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.595	136	167956m	14.12		0.00
21) Acenaphthene-d10	19.447	164	104254m	14.84		0.00
32) Phenanthrene-d10	24.584	188	210822m	15.76		0.00
66) Chrysene-d12	33.686	240	247783m	18.27		0.00
88) Perylene-d12	38.537	264	18900m	1.82		0.04
90) 5(b)H-Cholane	34.074	217	66721m	18.20		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.678	128	46199m	3.63		
9) 2-Methylnaphthalene	15.908	142	43994m	5.30		
10) 1-Methylnaphthalene	16.242	142	24709m	3.21		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.276	156	151150m	11.88		
14) C3-Naphthalenes	20.283	170	297298m	23.36		
15) C4-Naphthalenes	22.623	184	554215m	43.54		
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	18.945	152	9768m	0.78		
24) Acenaphthene	19.558	154	2125m	0.29		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.342	166	22610m	2.47		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.337	180	47753m	5.22		
29) C2-Fluorenes	25.207	194	263067m	28.78		
30) C3-Fluorenes	26.420	208	613715m	67.13		
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.237	184	80440m	5.80		
35) 4-Methyldibenzothiophene	25.727	198	190648m	14.91		
36) 2/3-Methyldibenzothiop...	26.039	198	121066m	9.47		
37) 1-Methyldibenzothiophene	26.350	198	119284m	9.33		
38) C2-Dibenzothiophenes	27.147	212	1411155m	101.83		
39) C3-Dibenzothiophenes	29.329	226	2403446m	173.43		
40) C4-Dibenzothiophenes	29.641	240	1865826m	134.64		
41) Phenanthrene	24.653	178	253434m	14.65		
42) Anthracene	24.826	178	13447m	0.81		
43) 3-Methylphenanthrene	26.316	192	125941m	10.42		

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1728.D
Acq On : 1 Sep 2013 4:29 am
Operator : YM
Sample : SO-DA-025 (0-0.5)
Misc :
ALS Vial : 26 Sample Multiplier: 0.06662

Quant Time: Sep 07 17:47:48 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44)	2-Methylphenanthrene	26.420	192	135401m	11.20		
45)	2-Methylanthracene	26.593	192	50630m	4.19		
46)	4/9-Methylphenanthrene	26.697	192	200740m	16.60		
47)	1-Methylphenanthrene	26.766	192	115235m	9.53		
48)	3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49)	Retene	0.000		0	N.D.	d	
50)	C2-Phenanthrenes/Anthr...	28.221	206	1679850m	97.12		
51)	C3-Phenanthrenes/Anthr...	30.888	220	2508454m	145.03		
52)	C4-Phenanthrenes/Anthr...	31.650	234	1689322m	97.67		
53)	Naphthobenzothiophene	0.000		0	N.D.	d	
54)	C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55)	C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56)	C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57)	C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58)	Fluoranthene	28.775	202	129740m	7.73		
59)	Pyrene	29.537	202	198250m	8.95		
60)	2-Methylfluoranthene	0.000		0	N.D.	d	
61)	Benzo(b)fluorene	0.000		0	N.D.	d	
62)	C1-Fluoranthenes/Pyrenes	31.061	216	444455m	26.49		
63)	C2-Fluoranthenes/Pyrenes	32.445	230	719021m	42.85		
64)	C3-Fluoranthenes/Pyrenes	33.454	244	691394m	41.21		
65)	C4-Fluoranthenes/Pyrenes	35.200	258	867389m	51.70		
67)	Benz(a)anthracene	33.648	228	36101m	2.58		
68)	Chrysene/Triphenylene	33.764	228	272180m	17.69		
69)	C1-Chrysenes	35.122	242	432404m	28.10		
70)	C2-Chrysenes	36.170	256	559548m	36.37		
71)	C3-Chrysenes	37.373	270	424955m	27.62		
72)	C4-Chrysenes	39.313	284	241349m	15.69		
74)	C29-Hopane	0.000		0	N.D.	d	
75)	18a-Oleanane	0.000		0	N.D.	d	
76)	C30-Hopane	0.000		0	N.D.	d	
77)	Benzo(b)fluoranthene	37.179	252	124165m	10.41		
78)	Benzo(k,j)fluoranthene	37.257	252	33505m	3.14		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.149	252	100647m	8.02		
81)	Benzo(a)pyrene	38.343	252	33190m	2.94		
82)	Indeno(1,2,3-c,d)pyrene	42.957	276	28047m	2.65		
83)	Dibenzo(a,h)anthracene	42.994	278	12750m	1.60		
84)	C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85)	C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86)	C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87)	Benzo(g,h,i)perylene	44.285	276	42835m	4.66		
89)	Perylene	38.537	252	12990m	1.09		
91)	C20-TAS	0.000		0	N.D.	d	
92)	C21-TAS	0.000		0	N.D.	d	
93)	C26(20S)-TAS	0.000		0	N.D.	d	
94)	C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95)	C28(20S)-TAS	0.000		0	N.D.	d	
96)	C27(20R)-TAS	0.000		0	N.D.	d	
97)	C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1728.D
Acq On : 1 Sep 2013 4:29 am
Operator : YM
Sample : SO-DA-025 (0-0.5)
Misc :
ALS Vial : 26 Sample Multiplier: 0.06662

Quant Time: Sep 07 17:47:48 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

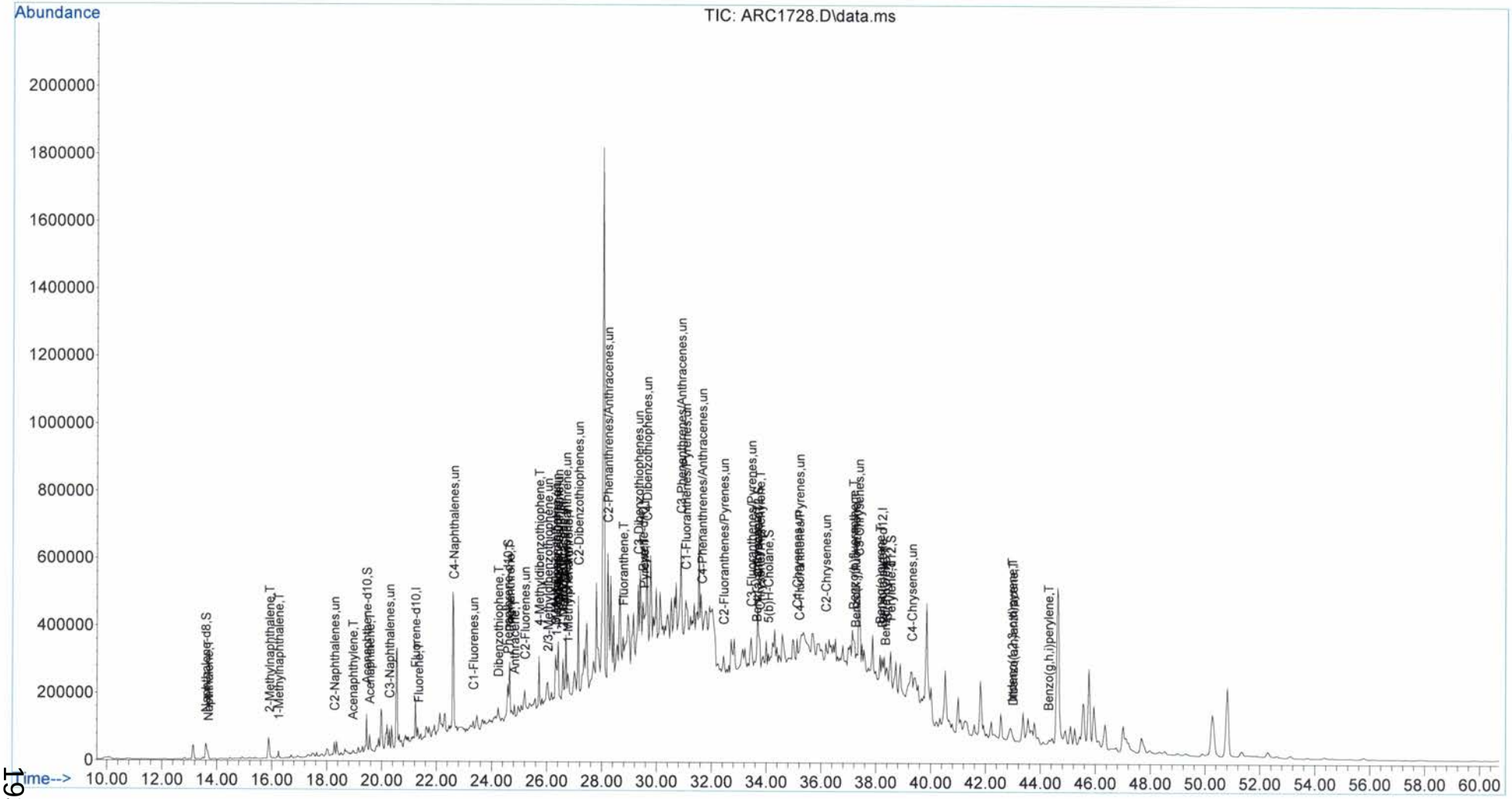
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1728.D
Acq On : 1 Sep 2013 4:29 am
Operator : YM
Sample : SO-DA-025 (0-0.5)
Misc :
ALS Vial : 26 Sample Multiplier: 0.06662

Quant Time: Sep 07 17:47:48 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ARC1729.D
Data File Path C:\GCMS6\MS60145\
Operator YM
Date Acquired 9/1/2013 5:39
Acq. Method File PAH-2012.M
Sample Name SO-DA-025 (0.5-1.0)
Misc Info 0
Instrument Name GCMS6
Vial Number 27
Sample Multiplier 0.06653
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC1729.D
SO-DA-025 (0.5-1.0)
9/1/2013 5:39
PAH-2012.M
15.03081317

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.68	12221	0.9306	1.0494
9)+10)	C1-Naphthalenes	16.08	15242	1.1606	1.3088
13)	C2-Naphthalenes	18.36	42107	3.2064	3.6157
14)	C3-Naphthalenes	21.23	49981	3.8059	4.2918
15)	C4-Naphthalenes	0.00	0	0.0000	0.0000
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	0.00	0	0.0000	0.0000
24)	Acenaphthene	0.00	0	0.0000	0.0000
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.34	16275	1.7254	1.9457
28)	C1-Fluorenes	23.34	8650	0.9170	1.0341
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	0.00	0	0.0000	0.0000
41)	Phenanthrene	24.65	78625	4.8771	5.4997
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.20	5381	0.4166	0.4698
35)+36)+37)	C1-Dibenzothiophenes	26.04	6134	0.4749	0.5355
38)	C2-Dibenzothiophenes	27.81	10677	0.8266	0.9321
39)	C3-Dibenzothiophenes	29.33	10928	0.8460	0.9540
40)	C4-Dibenzothiophenes	29.64	10373	0.8030	0.9056
58)	Fluoranthene	28.78	9359	0.5984	0.6748
59)	Pyrene	29.54	4013	0.1944	0.2192
62)	C1-Fluoranthenes/Pyrenes	31.37	4934	0.3155	0.3558
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
64)	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.65	1264	0.0968	0.1092
68)	Chrysene/Triphenylene	33.72	1842	0.1284	0.1448
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
78)	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	0.00	0	0.0000	0.0000
81)	Benzo(a)pyrene	0.00	0	0.0000	0.0000
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
83)	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	0.00	0	0.0000	0.0000

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	15.91	10193	1.1904	1.3423
10)	1-Methylnaphthalene	16.24	5049	0.6355	0.7166
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.73	2706	0.2271	0.2561
36)	2/3-Methyldibenzothiophene	26.04	2183	0.1832	0.2066
37)	1-Methyldibenzothiophene	26.35	1245	0.1045	0.1178
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	0.00	0	0.0000	0.0000
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.60	149438	12.18	73.19
21)	Acenaphthene-d10	19.45	94047	12.97	77.95
32)	Phenanthrene-d10	24.58	184084	14.76	88.68
66)	Chrysene-d12	33.68	187001	14.79	88.94
88)	Perylene-d12	38.54	754	0.07	0.42
90)	5(b)H-Cholane	34.07	73781	19.25	115.74
	Internal Standards				
1)	Fluorene-d10	21.23	126654	16.70	
31)	Pyrene-d10	29.47	233684	16.67	
73)	Benzo(a)pyrene-d12	38.22	151832	16.65	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1729.D
Acq On : 1 Sep 2013 5:39 am
Operator : YM
Sample : SO-DA-025 (0.5-1.0)
Misc :
ALS Vial : 27 Sample Multiplier: 0.06653

Quant Time: Sep 07 17:55:22 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.231	176	126654m	251.05		0.00
31) Pyrene-d10	29.468	212	233684m	250.63		0.00
73) Benzo(a)pyrene-d12	38.225	264	151832m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.596	136	149438m	12.18		0.00
21) Acenaphthene-d10	19.448	164	94047m	12.97		0.00
32) Phenanthrene-d10	24.584	188	184084m	14.76		0.00
66) Chrysene-d12	33.685	240	187001m	14.79		0.00
88) Perylene-d12	38.535	264	754m	0.07		0.04
90) 5(b)H-Cholane	34.073	217	73781m	19.25		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.679	128	12221m	0.93		
9) 2-Methylnaphthalene	15.909	142	10193m	1.19		
10) 1-Methylnaphthalene	16.243	142	5049m	0.64		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.361	156	42107m	3.21		
14) C3-Naphthalenes	21.231	170	49981m	3.81		
15) C4-Naphthalenes	0.000		0	N.D.	d	
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	0.000		0	N.D.	d	
24) Acenaphthene	0.000		0	N.D.	d	
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.342	166	16275m	1.73		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.337	180	8650m	0.92		
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.203	184	5381m	0.42		
35) 4-Methyldibenzothiophene	25.727	198	2706m	0.23		
36) 2/3-Methyldibenzothiop...	26.039	198	2183m	0.18		
37) 1-Methyldibenzothiophene	26.351	198	1245m	0.10		
38) C2-Dibenzothiophenes	27.805	212	10677m	0.83		
39) C3-Dibenzothiophenes	29.330	226	10928m	0.85		
40) C4-Dibenzothiophenes	29.641	240	10373m	0.80		
41) Phenanthrene	24.653	178	78625m	4.88		
42) Anthracene	0.000		0	N.D.	d	
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1729.D
Acq On : 1 Sep 2013 5:39 am
Operator : YM
Sample : SO-DA-025 (0.5-1.0)
Misc :
ALS Vial : 27 Sample Multiplier: 0.06653

Quant Time: Sep 07 17:55:22 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44)	2-Methylphenanthrene	0.000		0		N.D.	d
45)	2-Methylanthracene	0.000		0		N.D.	d
46)	4/9-Methylphenanthrene	0.000		0		N.D.	d
47)	1-Methylphenanthrene	0.000		0		N.D.	d
48)	3,6-Dimethylphenanthrene	0.000		0		N.D.	d
49)	Retene	0.000		0		N.D.	d
50)	C2-Phenanthrenes/Anthr...	0.000		0		N.D.	d
51)	C3-Phenanthrenes/Anthr...	0.000		0		N.D.	d
52)	C4-Phenanthrenes/Anthr...	0.000		0		N.D.	d
53)	Naphthobenzothiophene	0.000		0		N.D.	d
54)	C1-Naphthobenzothiophenes	0.000		0		N.D.	d
55)	C2-Naphthobenzothiophenes	0.000		0		N.D.	d
56)	C3-Naphthobenzothiophenes	0.000		0		N.D.	d
57)	C4-Naphthobenzothiophenes	0.000		0		N.D.	d
58)	Fluoranthene	28.775	202	9359m	0.60		
59)	Pyrene	29.537	202	4013m	0.19		
60)	2-Methylfluoranthene	0.000		0		N.D.	d
61)	Benzo(b)fluorene	0.000		0		N.D.	d
62)	C1-Fluoranthenes/Pyrenes	31.373	216	4934m	0.32		
63)	C2-Fluoranthenes/Pyrenes	0.000		0		N.D.	d
64)	C3-Fluoranthenes/Pyrenes	0.000		0		N.D.	d
65)	C4-Fluoranthenes/Pyrenes	0.000		0		N.D.	d
67)	Benz(a)anthracene	33.646	228	1264m	0.10		
68)	Chrysene/Triphenylene	33.723	228	1842m	0.13		
69)	C1-Chrysenes	0.000		0		N.D.	d
70)	C2-Chrysenes	0.000		0		N.D.	d
71)	C3-Chrysenes	0.000		0		N.D.	d
72)	C4-Chrysenes	0.000		0		N.D.	d
74)	C29-Hopane	0.000		0		N.D.	d
75)	18a-Oleanane	0.000		0		N.D.	d
76)	C30-Hopane	0.000		0		N.D.	d
77)	Benzo(b)fluoranthene	0.000		0		N.D.	d
78)	Benzo(k,j)fluoranthene	0.000		0		N.D.	d
79)	Benzo(a)fluoranthene	0.000		0		N.D.	d
80)	Benzo(e)pyrene	0.000		0		N.D.	d
81)	Benzo(a)pyrene	0.000		0		N.D.	d
82)	Indeno(1,2,3-c,d)pyrene	0.000		0		N.D.	d
83)	Dibenzo(a,h)anthracene	0.000		0		N.D.	d
84)	C1-Dibenzo(a,h)anthrac...	0.000		0		N.D.	d
85)	C2-Dibenzo(a,h)anthrac...	0.000		0		N.D.	d
86)	C3-Dibenzo(a,h)anthrac...	0.000		0		N.D.	d
87)	Benzo(g,h,i)perylene	0.000		0		N.D.	d
89)	Perylene	0.000		0		N.D.	d
91)	C20-TAS	0.000		0		N.D.	d
92)	C21-TAS	0.000		0		N.D.	d
93)	C26(20S)-TAS	0.000		0		N.D.	d
94)	C26(20R)/C27(20S)-TAS	0.000		0		N.D.	d
95)	C28(20S)-TAS	0.000		0		N.D.	d
96)	C27(20R)-TAS	0.000		0		N.D.	d
97)	C28(20R)-TAS	0.000		0		N.D.	d

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1729.D
Acq On : 1 Sep 2013 5:39 am
Operator : YM
Sample : SO-DA-025 (0.5-1.0)
Misc :
ALS Vial : 27 Sample Multiplier: 0.06653

Quant Time: Sep 07 17:55:22 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

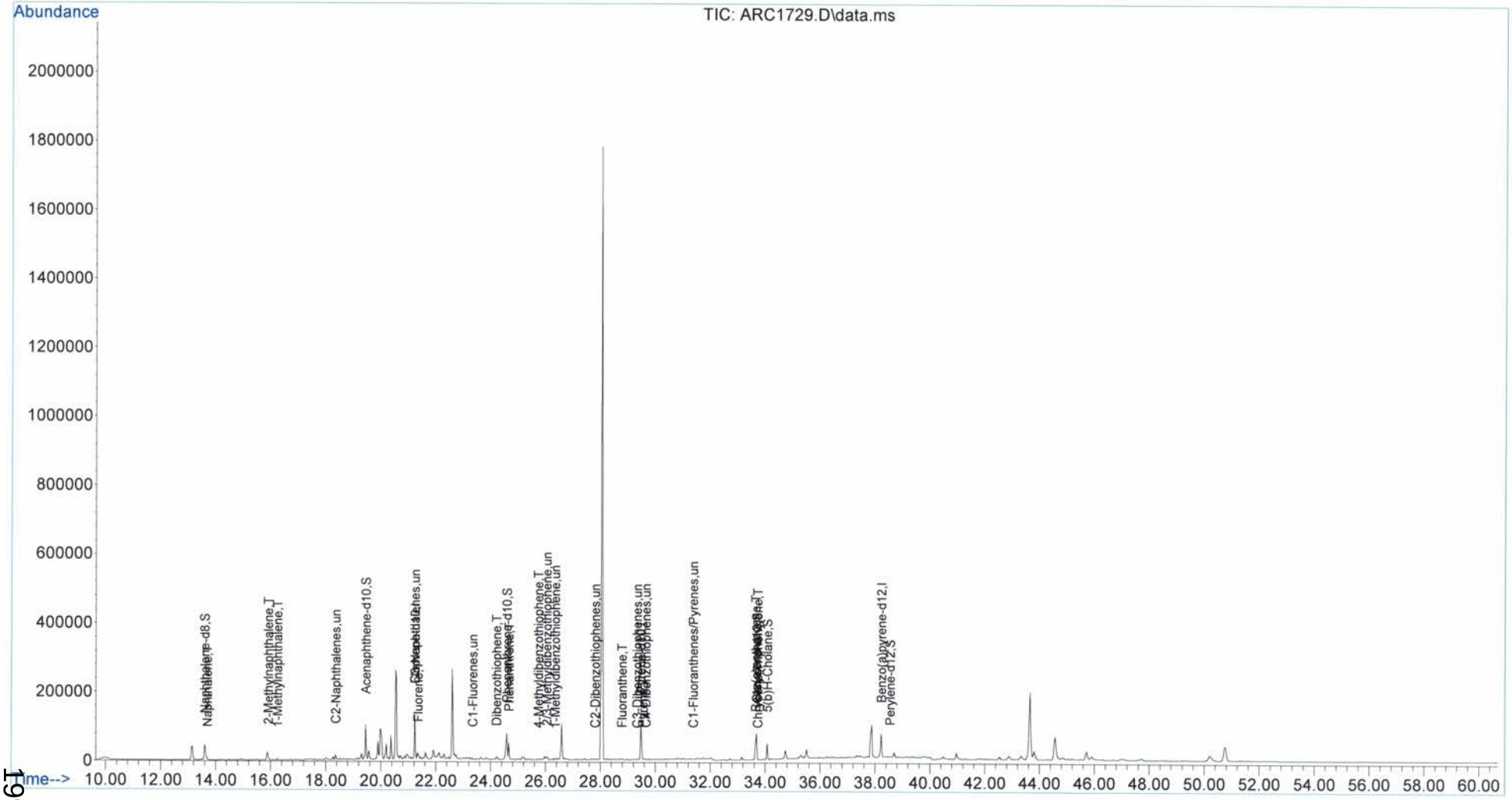
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1729.D
Acq On : 1 Sep 2013 5:39 am
Operator : YM
Sample : SO-DA-025 (0.5-1.0)
Misc :
ALS Vial : 27 Sample Multiplier: 0.06653

Quant Time: Sep 07 17:55:22 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ARC1730.D
Data File Path C:\GCMS6\MS60145\
Operator YM
Date Acquired 9/1/2013 7:58
Acq. Method File PAH-2012.M
Sample Name SO-DA-025 (1.0-1.5)
Misc Info 0
Instrument Name GCMS6
Vial Number 28
Sample Multiplier 0.06579
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC1730.D
SO-DA-025 (1.0-1.5)
9/1/2013 7:58
PAH-2012.M
15.1998784

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.68	5981	0.4984	0.5793
9)+10)	C1-Naphthalenes	16.07	7027	0.5855	0.6806
13)	C2-Naphthalenes	18.28	20449	1.7039	1.9805
14)	C3-Naphthalenes	20.28	29836	2.4861	2.8896
15)	C4-Naphthalenes	22.62	34866	2.9052	3.3768
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	0.00	0	0.0000	0.0000
24)	Acenaphthene	0.00	0	0.0000	0.0000
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.34	8031	0.9317	1.0829
28)	C1-Fluorenes	23.34	5140	0.5963	0.6931
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	0.00	0	0.0000	0.0000
41)	Phenanthrene	24.65	45006	3.0195	3.5096
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.20	3945	0.3303	0.3839
35)+36)+37)	C1-Dibenzothiophenes	26.04	6776	0.5674	0.6595
38)	C2-Dibenzothiophenes	27.81	14715	1.2321	1.4321
39)	C3-Dibenzothiophenes	29.33	24105	2.0184	2.3460
40)	C4-Dibenzothiophenes	29.64	25792	2.1596	2.5102
58)	Fluoranthene	28.78	7111	0.4918	0.5716
59)	Pyrene	29.54	6153	0.3223	0.3747
62)	C1-Fluoranthenes/Pyrenes	31.03	6516	0.4506	0.5238
63)	C2-Fluoranthenes/Pyrenes	32.44	10131	0.7006	0.8144
64)	C3-Fluoranthenes/Pyrenes	33.45	9518	0.6582	0.7651
65)	C4-Fluoranthenes/Pyrenes	35.51	16930	1.1709	1.3609
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.68	1481	0.1227	0.1426
68)	Chrysene/Triphenylene	33.72	2989	0.2254	0.2620
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
78)	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	0.00	0	0.0000	0.0000
81)	Benzo(a)pyrene	0.00	0	0.0000	0.0000
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	42.92	967	0.0975	0.1133
83)	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.25	1020	0.1181	0.1372

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	15.91	4494	0.5743	0.6675
10)	1-Methylnaphthalene	16.24	2533	0.3489	0.4055
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.73	2762	0.2507	0.2914
36)	2/3-Methyldibenzothiophene	26.04	2272	0.2062	0.2397
37)	1-Methyldibenzothiophene	26.35	1742	0.1581	0.1838
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	0.00	0	0.0000	0.0000
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.59	132846	11.85	72.00
21)	Acenaphthene-d10	19.45	85384	12.89	78.31
32)	Phenanthrene-d10	24.58	163288	14.16	86.04
66)	Chrysene-d12	33.68	165484	14.16	86.08
88)	Perylene-d12	38.53	761	0.08	0.47
90)	5(b)H-Cholane	34.07	63939	18.58	112.96
	Internal Standards				
1)	Fluorene-d10	21.23	114457	16.52	
31)	Pyrene-d10	29.47	213655	16.49	
73)	Benzo(a)pyrene-d12	38.22	134810	16.47	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1730.D
Acq On : 1 Sep 2013 7:58 am
Operator : YM
Sample : SO-DA-025 (1.0-1.5)
Misc :
ALS Vial : 28 Sample Multiplier: 0.06579

Quant Time: Sep 07 18:03:18 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.230	176	114457m	251.05		0.00
31) Pyrene-d10	29.468	212	213655m	250.63		0.00
73) Benzo(a)pyrene-d12	38.224	264	134810m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.595	136	132846m	11.85		0.00
21) Acenaphthene-d10	19.447	164	85384m	12.89		0.00
32) Phenanthrene-d10	24.584	188	163288m	14.16		0.00
66) Chrysene-d12	33.684	240	165484m	14.16		0.00
88) Perylene-d12	38.535	264	761m	0.08		0.04
90) 5(b)H-Cholane	34.072	217	63939m	18.58		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.678	128	5981m	0.50		
9) 2-Methylnaphthalene	15.908	142	4494m	0.57		
10) 1-Methylnaphthalene	16.242	142	2533m	0.35		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.276	156	20449m	1.70		
14) C3-Naphthalenes	20.283	170	29836m	2.49		
15) C4-Naphthalenes	22.623	184	34866m	2.91		
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	0.000		0	N.D.	d	
24) Acenaphthene	0.000		0	N.D.	d	
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.342	166	8031m	0.93		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.337	180	5140m	0.60		
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.203	184	3945m	0.33		
35) 4-Methyldibenzothiophene	25.727	198	2762m	0.25		
36) 2/3-Methyldibenzothiop...	26.039	198	2272m	0.21		
37) 1-Methyldibenzothiophene	26.350	198	1742m	0.16		
38) C2-Dibenzothiophenes	27.805	212	14715m	1.23		
39) C3-Dibenzothiophenes	29.329	226	24105m	2.02		
40) C4-Dibenzothiophenes	29.641	240	25792m	2.16		
41) Phenanthrene	24.653	178	45006m	3.02		
42) Anthracene	0.000		0	N.D.	d	
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1730.D
Acq On : 1 Sep 2013 7:58 am
Operator : YM
Sample : SO-DA-025 (1.0-1.5)
Misc :
ALS Vial : 28 Sample Multiplier: 0.06579

Quant Time: Sep 07 18:03:18 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44)	2-Methylphenanthrene	0.000		0	N.D.	d	
45)	2-Methylanthracene	0.000		0	N.D.	d	
46)	4/9-Methylphenanthrene	0.000		0	N.D.	d	
47)	1-Methylphenanthrene	0.000		0	N.D.	d	
48)	3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49)	Retene	0.000		0	N.D.	d	
50)	C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51)	C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52)	C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53)	Naphthobenzothiophene	0.000		0	N.D.	d	
54)	C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55)	C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56)	C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57)	C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58)	Fluoranthene	28.775	202	7111m	0.49		
59)	Pyrene	29.537	202	6153m	0.32		
60)	2-Methylfluoranthene	0.000		0	N.D.	d	
61)	Benzo(b)fluorene	0.000		0	N.D.	d	
62)	C1-Fluoranthenes/Pyrenes	31.027	216	6516m	0.45		
63)	C2-Fluoranthenes/Pyrenes	32.442	230	10131m	0.70		
64)	C3-Fluoranthenes/Pyrenes	33.451	244	9518m	0.66		
65)	C4-Fluoranthenes/Pyrenes	35.508	258	16930m	1.17		
67)	Benz(a)anthracene	33.684	228	1481m	0.12		
68)	Chrysene/Triphenylene	33.723	228	2989m	0.23		
69)	C1-Chrysenes	0.000		0	N.D.	d	
70)	C2-Chrysenes	0.000		0	N.D.	d	
71)	C3-Chrysenes	0.000		0	N.D.	d	
72)	C4-Chrysenes	0.000		0	N.D.	d	
74)	C29-Hopane	0.000		0	N.D.	d	
75)	18a-Oleanane	0.000		0	N.D.	d	
76)	C30-Hopane	0.000		0	N.D.	d	
77)	Benzo(b)fluoranthene	0.000		0	N.D.	d	
78)	Benzo(k,j)fluoranthene	0.000		0	N.D.	d	
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	0.000		0	N.D.	d	
81)	Benzo(a)pyrene	0.000		0	N.D.	d	
82)	Indeno(1,2,3-c,d)pyrene	42.920	276	967m	0.10		
83)	Dibenzo(a,h)anthracene	0.000		0	N.D.	d	
84)	C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85)	C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86)	C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87)	Benzo(g,h,i)perylene	44.248	276	1020m	0.12		
89)	Perylene	0.000		0	N.D.	d	
91)	C20-TAS	0.000		0	N.D.	d	
92)	C21-TAS	0.000		0	N.D.	d	
93)	C26(20S)-TAS	0.000		0	N.D.	d	
94)	C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95)	C28(20S)-TAS	0.000		0	N.D.	d	
96)	C27(20R)-TAS	0.000		0	N.D.	d	
97)	C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1730.D
Acq On : 1 Sep 2013 7:58 am
Operator : YM
Sample : SO-DA-025 (1.0-1.5)
Misc :
ALS Vial : 28 Sample Multiplier: 0.06579

Quant Time: Sep 07 18:03:18 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

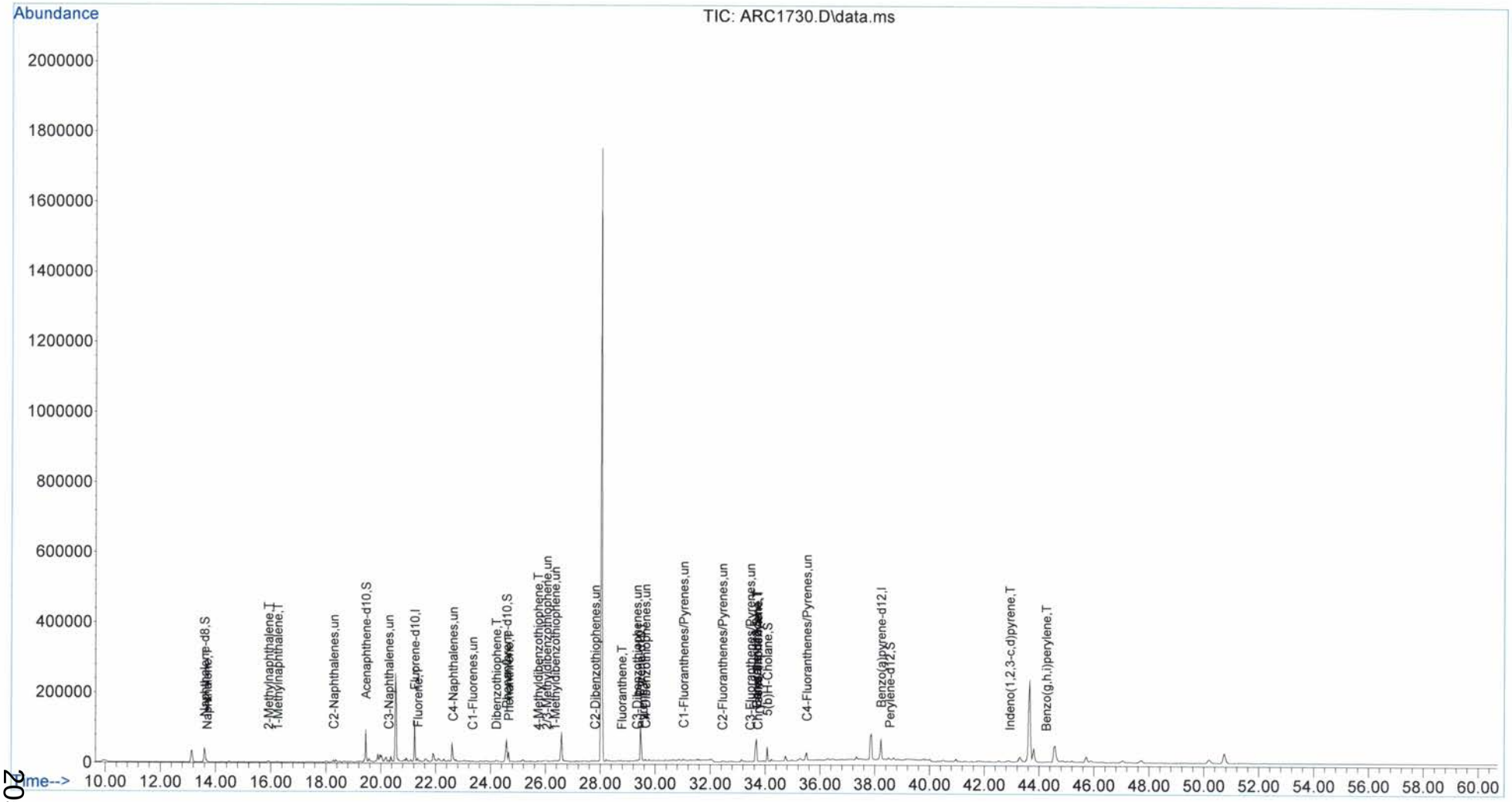
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1730.D
Acq On : 1 Sep 2013 7:58 am
Operator : YM
Sample : SO-DA-025 (1.0-1.5)
Misc :
ALS Vial : 28 Sample Multiplier: 0.06579

Quant Time: Sep 07 18:03:18 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ARC1731.D
Data File Path C:\msdchem\2\data\MS60145\
Operator YM
Date Acquired 9/1/2013 9:08
Acq. Method File PAH-2012.M
Sample Name SO-DA-DUP-04-080713
Misc Info 0
Instrument Name GCMS6
Vial Number 30
Sample Multiplier 0.06623
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC1731.D
SO-DA-DUP-04-080713
9/1/2013 9:08
PAH-2012.M
15.09889778

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.68	42765	3.0227	3.1465
9)+10)	C1-Naphthalenes	16.07	71477	5.0521	5.2590
13)	C2-Naphthalenes	18.39	423940	29.9650	31.1919
14)	C3-Naphthalenes	20.31	1568620	110.8730	115.4126
15)	C4-Naphthalenes	22.65	4261960	301.2438	313.5780
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	0.00	0	0.0000	0.0000
24)	Acenaphthene	0.00	0	0.0000	0.0000
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	0.00	0	0.0000	0.0000
28)	C1-Fluorenes	0.00	0	0.0000	0.0000
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	0.00	0	0.0000	0.0000
41)	Phenanthrene	24.69	339128	21.4395	22.3173
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.59	1489867	94.1887	98.0451
50)	C2-Phenanthrenes/Anthracenes	28.26	5609550	354.6325	369.1526
51)	C3-Phenanthrenes/Anthracenes	30.92	12125500	766.5659	797.9521
52)	C4-Phenanthrenes/Anthracenes	31.68	8453220	534.4085	556.2893
34)	Dibenzothiophene	24.24	284954	22.4830	23.4036
35)+36)+37)	C1-Dibenzothiophenes	26.06	1464410	115.5428	120.2736
38)	C2-Dibenzothiophenes	27.84	5597780	441.6687	459.7523
39)	C3-Dibenzothiophenes	29.36	12336300	973.3426	1013.1951
40)	C4-Dibenzothiophenes	29.68	9886900	780.0834	812.0231
58)	Fluoranthene	28.81	200892	13.0917	13.6277
59)	Pyrene	29.57	753882	37.2146	38.7384
62)	C1-Fluoranthenes/Pyrenes	31.10	2523850	164.4736	171.2078
63)	C2-Fluoranthenes/Pyrenes	32.48	3657260	238.3353	248.0937
64)	C3-Fluoranthenes/Pyrenes	34.04	2660490	173.3782	180.4770
65)	C4-Fluoranthenes/Pyrenes	35.28	3210740	209.2371	217.8041
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	0.00	0	0.0000	0.0000
68)	Chrysene/Triphenylene	0.00	0	0.0000	0.0000
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.22	244666	26.6796	27.7719
78)	Benzo(k,j)fluoranthene	37.30	87095	10.6187	11.0534
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.19	308856	32.0243	33.3355
81)	Benzo(a)pyrene	38.38	97553	11.2266	11.6862
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	42.99	45954	5.6577	5.8893
83)	Dibenzo(a,h)anthracene	43.03	27675	4.5291	4.7145
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.32	129254	18.2772	19.0255

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	15.91	48035	5.2070	5.4202
10)	1-Methylnaphthalene	16.24	23442	2.7387	2.8508
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.76	600423	51.3557	53.4584
36)	2/3-Methyldibenzothiophene	26.04	463203	39.6190	41.2411
37)	1-Methyldibenzothiophene	26.38	400784	34.2801	35.6837
43)	3-Methylphenanthrene	26.35	302302	27.3370	28.4563
44)	2-Methylphenanthrene	26.45	352189	31.8483	33.1523
45)	2-Methylanthracene	26.63	73516	6.6480	6.9202
46)	4/9-Methylphenanthrene	26.73	423878	38.3311	39.9006
47)	1-Methylphenanthrene	26.80	337982	30.5636	31.8149
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.65	207495	15.70	94.76
21)	Acenaphthene-d10	19.45	102965	13.18	79.57
32)	Phenanthrene-d10	24.58	194786	15.92	96.07
66)	Chrysene-d12	33.73	191021	15.40	93.01
88)	Perylene-d12	38.58	19004	2.38	14.36
90)	5(b)H-Cholane	0.00	0	0.00	0.00
	Internal Standards				
1)	Fluorene-d10	21.26	135833	16.63	
31)	Pyrene-d10	29.54	228255	16.60	
73)	Benzo(a)pyrene-d12	38.27	111087	16.58	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1731.D
Acq On : 1 Sep 2013 9:08 am
Operator : YM
Sample : SO-DA-DUP-04-080713
Misc :
ALS Vial : 30 Sample Multiplier: 0.06623

Quant Time: Sep 07 18:14:20 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.258	176	135833m	251.05		0.03
31) Pyrene-d10	29.537	212	228255m	250.63		0.07
73) Benzo(a)pyrene-d12	38.266	264	111087m	250.32		0.04
System Monitoring Compounds						
2) Naphthalene-d8	13.650	136	207495m	15.70		0.06
21) Acenaphthene-d10	19.447	164	102965m	13.18		0.00
32) Phenanthrene-d10	24.584	188	194786m	15.92		0.00
66) Chrysene-d12	33.725	240	191021m	15.40		0.04
88) Perylene-d12	38.576	264	19004m	2.38		0.08
90) 5(b)H-Cholane	0.000	217	0d	0.00		
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.678	128	42765m	3.02		
9) 2-Methylnaphthalene	15.908	142	48035m	5.21		
10) 1-Methylnaphthalene	16.242	142	23442m	2.74		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.388	156	423940m	29.96		
14) C3-Naphthalenes	20.310	170	1568615m	110.87		
15) C4-Naphthalenes	22.651	184	4261957m	301.24		
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	0.000		0	N.D.	d	
24) Acenaphthene	0.000		0	N.D.	d	
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	0.000		0	N.D.	d	
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.237	184	284954m	22.48		
35) 4-Methyldibenzothiophene	25.761	198	600423m	51.36		
36) 2/3-Methyldibenzothiop...	26.038	198	463203m	39.62		
37) 1-Methyldibenzothiophene	26.385	198	400784m	34.28		
38) C2-Dibenzothiophenes	27.840	212	5597780m	441.67		
39) C3-Dibenzothiophenes	29.364	226	12336326m	973.34		
40) C4-Dibenzothiophenes	29.676	240	9886902m	780.08		
41) Phenanthrene	24.688	178	339128m	21.44		
42) Anthracene	0.000		0	N.D.	d	
43) 3-Methylphenanthrene	26.350	192	302302m	27.34		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1731.D
Acq On : 1 Sep 2013 9:08 am
Operator : YM
Sample : SO-DA-DUP-04-080713
Misc :
ALS Vial : 30 Sample Multiplier: 0.06623

Quant Time: Sep 07 18:14:20 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.454	192	352189m	31.85		
45) 2-Methylanthracene	26.627	192	73516m	6.65		
46) 4/9-Methylphenanthrene	26.731	192	423878m	38.33		
47) 1-Methylphenanthrene	26.801	192	337982m	30.56		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	28.255	206	5609545m	354.63		
51) C3-Phenanthrenes/Anthr...	30.923	220	12125489m	766.57		
52) C4-Phenanthrenes/Anthr...	31.685	234	8453222m	534.41		
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.810	202	200892m	13.09		
59) Pyrene	29.572	202	753882m	37.21		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	31.096	216	2523850m	164.47		
63) C2-Fluoranthenes/Pyrenes	32.483	230	3657261m	238.34		
64) C3-Fluoranthenes/Pyrenes	34.036	244	2660487m	173.38		
65) C4-Fluoranthenes/Pyrenes	35.278	258	3210742m	209.24		
67) Benz(a)anthracene	0.000		0	N.D.	d	
68) Chrysene/Triphenylene	0.000		0	N.D.	d	
69) C1-Chrysenes	0.000		0	N.D.	d	
70) C2-Chrysenes	0.000		0	N.D.	d	
71) C3-Chrysenes	0.000		0	N.D.	d	
72) C4-Chrysenes	0.000		0	N.D.	d	
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	37.218	252	244666m	26.68		
78) Benzo(k,j)fluoranthene	37.295	252	87095m	10.62		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.188	252	308856m	32.02		
81) Benzo(a)pyrene	38.382	252	97553m	11.23		
82) Indeno(1,2,3-c,d)pyrene	42.994	276	45954m	5.66		
83) Dibenzo(a,h)anthracene	43.031	278	27675m	4.53		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.322	276	129254m	18.28		
89) Perylene	0.000		0	N.D.	d	
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1731.D
Acq On : 1 Sep 2013 9:08 am
Operator : YM
Sample : SO-DA-DUP-04-080713
Misc :
ALS Vial : 30 Sample Multiplier: 0.06623

Quant Time: Sep 07 18:14:20 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

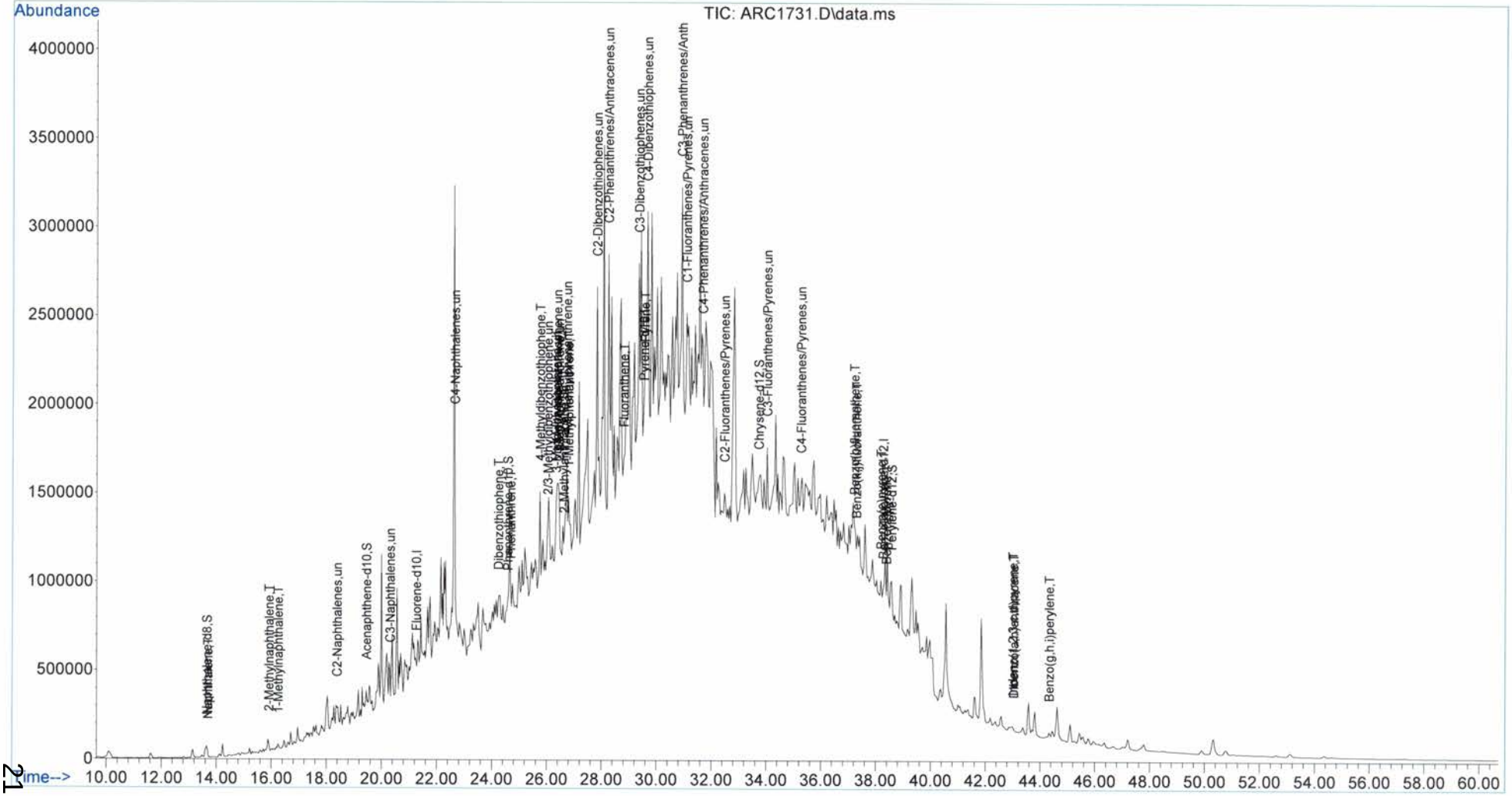
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1731.D
Acq On : 1 Sep 2013 9:08 am
Operator : YM
Sample : SO-DA-DUP-04-080713
Misc :
ALS Vial : 30 Sample Multiplier: 0.06623

Quant Time: Sep 07 18:14:20 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ARC1732.D
Data File Path C:\msdchem\2\data\MS60145\
Operator YM
Date Acquired 9/1/2013 10:18
Acq. Method File PAH-2012.M
Sample Name SO-DA-032 (0-0.5)
Misc Info 0
Instrument Name GCMS6
Vial Number 31
Sample Multiplier 0.06601
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC1732.D
SO-DA-032 (0-0.5)
9/1/2013 10:18
PAH-2012.M
15.14921982

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.68	34957	2.7463	2.8413
9)+10)	C1-Naphthalenes	16.08	39667	3.1163	3.2241
13)	C2-Naphthalenes	18.28	93687	7.3602	7.6147
14)	C3-Naphthalenes	20.28	194975	15.3177	15.8473
15)	C4-Naphthalenes	22.62	373062	29.3086	30.3221
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	18.95	11131	0.8871	0.9178
24)	Acenaphthene	19.56	2302	0.3109	0.3217
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.34	28315	3.0970	3.2041
28)	C1-Fluorenes	23.34	47796	5.2278	5.4086
29)	C2-Fluorenes	25.21	216621	23.6936	24.5128
30)	C3-Fluorenes	27.15	477250	52.2007	54.0057
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.83	15075	0.9624	0.9956
41)	Phenanthrene	24.65	208891	12.7521	13.1930
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.56	412894	25.2058	26.0773
50)	C2-Phenanthrenes/Anthracenes	28.22	1013340	61.8609	63.9999
51)	C3-Phenanthrenes/Anthracenes	29.78	1746570	106.6213	110.3081
52)	C4-Phenanthrenes/Anthracenes	31.62	1312080	80.0979	82.8675
34)	Dibenzothiophene	24.24	54047	4.1178	4.2601
35)+36)+37)	C1-Dibenzothiophenes	26.04	307522	23.4297	24.2398
38)	C2-Dibenzothiophenes	27.15	957641	72.9615	75.4844
39)	C3-Dibenzothiophenes	29.33	1479900	112.7517	116.6504
40)	C4-Dibenzothiophenes	29.64	1370920	104.4483	108.0599
58)	Fluoranthene	28.78	100845	6.3459	6.5654
59)	Pyrene	29.54	166258	7.9250	8.1991
62)	C1-Fluoranthenes/Pyrenes	31.37	350643	22.0652	22.8281
63)	C2-Fluoranthenes/Pyrenes	32.44	554411	34.8878	36.0941
64)	C3-Fluoranthenes/Pyrenes	33.88	522624	32.8876	34.0247
65)	C4-Fluoranthenes/Pyrenes	35.24	646174	40.6622	42.0682
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.65	26207	1.9756	2.0439
68)	Chrysene/Triphenylene	33.72	207403	14.2320	14.7241
69)	C1-Chrysenes	34.97	356852	24.4872	25.3339
70)	C2-Chrysenes	36.17	431036	29.5777	30.6004
71)	C3-Chrysenes	37.84	346865	23.8019	24.6249
72)	C4-Chrysenes	39.27	195596	13.4218	13.8859
77)	Benzo(b)fluoranthene	37.18	122091	11.4465	11.8423
78)	Benzo(k,j)fluoranthene	37.25	33933	3.5570	3.6800
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.15	88033	7.8479	8.1192
81)	Benzo(a)pyrene	38.30	31432	3.1100	3.2175
89)	Perylene	38.61	16976	1.5991	1.6544
82)	Indeno(1,2,3-c,d)pyrene	42.96	24932	2.6391	2.7303
83)	Dibenzo(a,h)anthracene	42.99	10411	1.4649	1.5155
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.28	35411	4.3051	4.4540

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	15.91	27478	3.3107	3.4252
10)	1-Methylnaphthalene	16.24	12189	1.5828	1.6375
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.73	133664	11.0396	11.4214
36)	2/3-Methyldibenzothiophene	26.04	100458	8.2971	8.5840
37)	1-Methyldibenzothiophene	26.35	73400	6.0623	6.2719
43)	3-Methylphenanthrene	26.32	93007	8.1215	8.4023
44)	2-Methylphenanthrene	26.42	94101	8.2170	8.5011
45)	2-Methylanthracene	26.59	45825	4.0015	4.1399
46)	4/9-Methylphenanthrene	26.70	114107	9.9639	10.3085
47)	1-Methylphenanthrene	26.77	65854	5.7505	5.9493
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.60	157312	13.23	80.12
21)	Acenaphthene-d10	19.45	103853	14.78	89.50
32)	Phenanthrene-d10	24.58	202287	15.96	96.66
66)	Chrysene-d12	33.68	220981	17.21	104.24
88)	Perylene-d12	38.54	16889	1.82	11.01
90)	5(b)H-Cholane	34.07	67219	20.52	124.32
	Internal Standards				
1)	Fluorene-d10	21.23	121802	16.57	
31)	Pyrene-d10	29.50	235595	16.54	
73)	Benzo(a)pyrene-d12	38.22	128776	16.52	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1732.D
Acq On : 1 Sep 2013 10:18 am
Operator : YM
Sample : SO-DA-032 (0-0.5)
Misc :
ALS Vial : 31 Sample Multiplier: 0.06601

Quant Time: Sep 07 18:31:16 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.231	176	121802m	251.05		0.00
31) Pyrene-d10	29.503	212	235595m	250.63		0.04
73) Benzo(a)pyrene-d12	38.225	264	128776m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.595	136	157312m	13.23		0.00
21) Acenaphthene-d10	19.447	164	103853m	14.78		0.00
32) Phenanthrene-d10	24.584	188	202287m	15.96		0.00
66) Chrysene-d12	33.685	240	220981m	17.21		0.00
88) Perylene-d12	38.535	264	16889m	1.82		0.04
90) 5(b)H-Cholane	34.073	217	67219m	20.52		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.679	128	34957m	2.75		
9) 2-Methylnaphthalene	15.908	142	27478m	3.31		
10) 1-Methylnaphthalene	16.243	142	12189m	1.58		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.277	156	93687m	7.36		
14) C3-Naphthalenes	20.283	170	194975m	15.32		
15) C4-Naphthalenes	22.624	184	373062m	29.31		
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	18.946	152	11131m	0.89		
24) Acenaphthene	19.559	154	2302m	0.31		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.342	166	28315m	3.10		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.337	180	47796m	5.23		
29) C2-Fluorenes	25.208	194	216621m	23.69		
30) C3-Fluorenes	27.147	208	477250m	52.20		
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.238	184	54047m	4.12		
35) 4-Methyldibenzothiophene	25.727	198	133664m	11.04		
36) 2/3-Methyldibenzothiop...	26.039	198	100458m	8.30		
37) 1-Methyldibenzothiophene	26.351	198	73400m	6.06		
38) C2-Dibenzothiophenes	27.147	212	957641m	72.96		
39) C3-Dibenzothiophenes	29.330	226	1479903m	112.75		
40) C4-Dibenzothiophenes	29.641	240	1370919m	104.45		
41) Phenanthrene	24.653	178	208891m	12.75		
42) Anthracene	24.827	178	15075m	0.96		
43) 3-Methylphenanthrene	26.316	192	93007m	8.12		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1732.D
Acq On : 1 Sep 2013 10:18 am
Operator : YM
Sample : SO-DA-032 (0-0.5)
Misc :
ALS Vial : 31 Sample Multiplier: 0.06601

Quant Time: Sep 07 18:31:16 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44)	2-Methylphenanthrene	26.420	192	94101m	8.22		
45)	2-Methylanthracene	26.593	192	45825m	4.00		
46)	4/9-Methylphenanthrene	26.697	192	114107m	9.96		
47)	1-Methylphenanthrene	26.766	192	65854m	5.75		
48)	3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49)	Retene	0.000		0	N.D.	d	
50)	C2-Phenanthrenes/Anthr...	28.221	206	1013341m	61.86		
51)	C3-Phenanthrenes/Anthr...	29.780	220	1746565m	106.62		
52)	C4-Phenanthrenes/Anthr...	31.616	234	1312081m	80.10		
53)	Naphthobenzothiophene	0.000		0	N.D.	d	
54)	C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55)	C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56)	C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57)	C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58)	Fluoranthene	28.775	202	100845m	6.35		
59)	Pyrene	29.538	202	166258m	7.93		
60)	2-Methylfluoranthene	0.000		0	N.D.	d	
61)	Benzo(b)fluorene	0.000		0	N.D.	d	
62)	C1-Fluoranthenes/Pyrenes	31.373	216	350643m	22.07		
63)	C2-Fluoranthenes/Pyrenes	32.443	230	554411m	34.89		
64)	C3-Fluoranthenes/Pyrenes	33.879	244	522624m	32.89		
65)	C4-Fluoranthenes/Pyrenes	35.237	258	646174m	40.66		
67)	Benz(a)anthracene	33.646	228	26207m	1.98		
68)	Chrysene/Triphenylene	33.723	228	207403m	14.23		
69)	C1-Chrysenes	34.965	242	356852m	24.49		
70)	C2-Chrysenes	36.168	256	431036m	29.58		
71)	C3-Chrysenes	37.837	270	346865m	23.80		
72)	C4-Chrysenes	39.273	284	195596m	13.42		
74)	C29-Hopane	0.000		0	N.D.	d	
75)	18a-Oleanane	0.000		0	N.D.	d	
76)	C30-Hopane	0.000		0	N.D.	d	
77)	Benzo(b)fluoranthene	37.177	252	122091m	11.45		
78)	Benzo(k,j)fluoranthene	37.255	252	33933m	3.56		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.147	252	88033m	7.85		
81)	Benzo(a)pyrene	38.303	252	31432m	3.11		
82)	Indeno(1,2,3-c,d)pyrene	42.956	276	24932m	2.64		
83)	Dibenzo(a,h)anthracene	42.993	278	10411m	1.46		
84)	C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85)	C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86)	C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87)	Benzo(g,h,i)perylene	44.284	276	35411m	4.31		
89)	Perylene	38.613	252	16976m	1.60		
91)	C20-TAS	0.000		0	N.D.	d	
92)	C21-TAS	0.000		0	N.D.	d	
93)	C26(20S)-TAS	0.000		0	N.D.	d	
94)	C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95)	C28(20S)-TAS	0.000		0	N.D.	d	
96)	C27(20R)-TAS	0.000		0	N.D.	d	
97)	C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1732.D
Acq On : 1 Sep 2013 10:18 am
Operator : YM
Sample : SO-DA-032 (0-0.5)
Misc :
ALS Vial : 31 Sample Multiplier: 0.06601

Quant Time: Sep 07 18:31:16 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

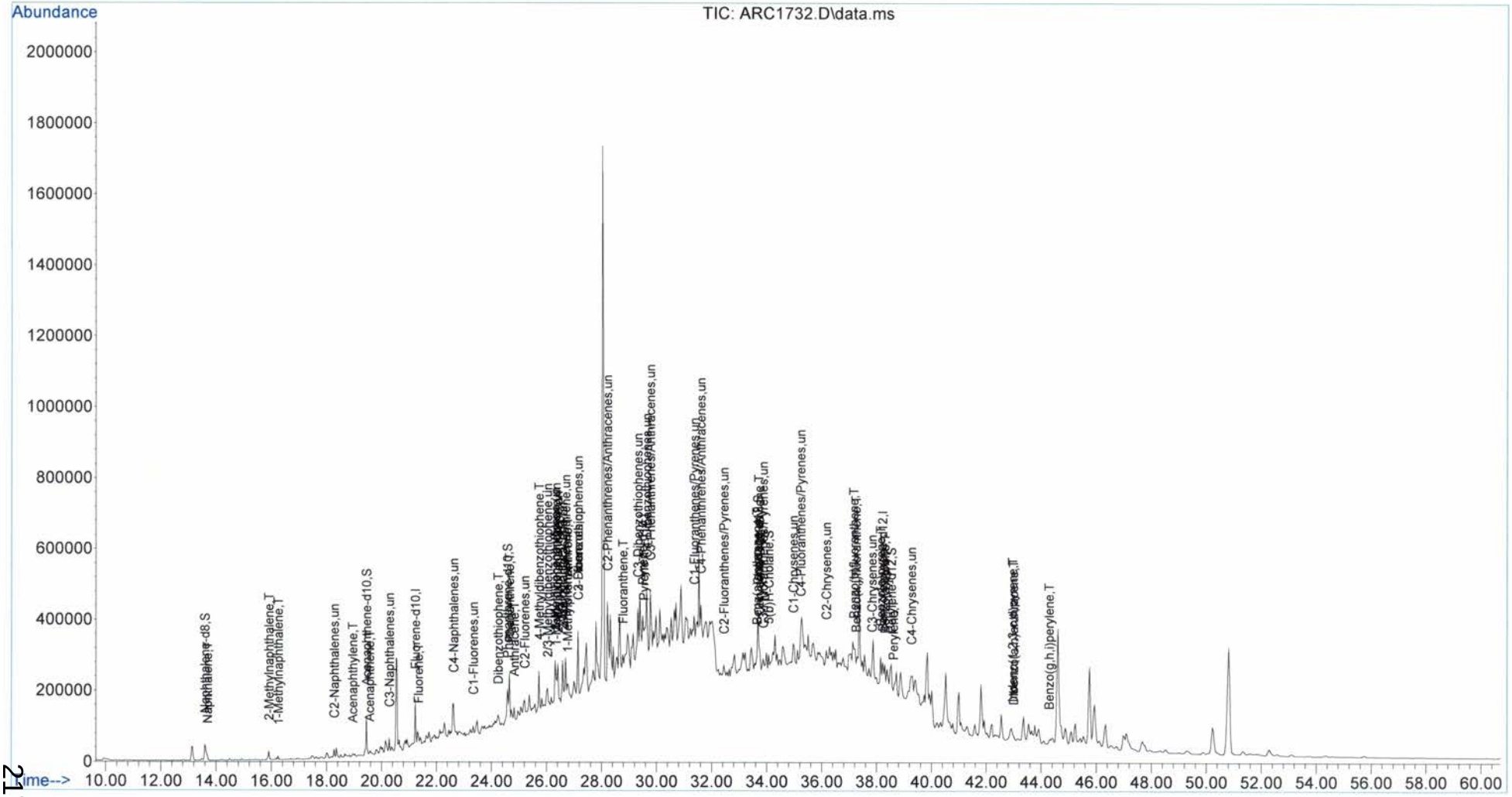
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1732.D
Acq On : 1 Sep 2013 10:18 am
Operator : YM
Sample : SO-DA-032 (0-0.5)
Misc :
ALS Vial : 31 Sample Multiplier: 0.06601

Quant Time: Sep 07 18:31:16 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name	ARC1733.D
Data File Path	C:\msdchem\2\data\MS60145\
Operator	YM
Date Acquired	9/1/2013 11:27
Acq. Method File	PAH-2012.M
Sample Name	SO-DA-032 (0.5-1.0)
Misc Info	0
Instrument Name	GCMS6
Vial Number	32
Sample Multiplier	0.06623
Sample Amount	0

Surrogate/Internal Multiplier Factor:	1.00
AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC1733.D
SO-DA-032 (0.5-1.0)
9/1/2013 11:27
PAH-2012.M
15.09889778

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.68	9649	0.7389	0.7856
9)+10)	C1-Naphthalenes	16.08	10461	0.8011	0.8517
13)	C2-Naphthalenes	18.36	29978	2.2957	2.4406
14)	C3-Naphthalenes	19.95	58368	4.4698	4.7519
15)	C4-Naphthalenes	22.62	52065	3.9871	4.2388
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	18.95	988	0.0768	0.0816
24)	Acenaphthene	19.56	558	0.0735	0.0781
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.34	9459	1.0085	1.0722
28)	C1-Fluorenes	23.34	5759	0.6140	0.6528
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.83	864	0.0553	0.0588
41)	Phenanthrene	24.65	48244	2.9544	3.1409
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.24	4352	0.3326	0.3536
35)+36)+37)	C1-Dibenzothiophenes	26.04	6609	0.5051	0.5370
38)	C2-Dibenzothiophenes	27.80	10236	0.7823	0.8317
39)	C3-Dibenzothiophenes	29.33	11618	0.8880	0.9440
40)	C4-Dibenzothiophenes	29.64	6782	0.5183	0.5511
58)	Fluoranthene	28.77	7521	0.4748	0.5047
59)	Pyrene	29.54	5711	0.2731	0.2903
62)	C1-Fluoranthenes/Pyrenes	31.03	4855	0.3065	0.3258
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
64)	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.65	1551	0.1173	0.1247
68)	Chrysene/Triphenylene	33.73	2177	0.1499	0.1593
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
78)	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	0.00	0	0.0000	0.0000
81)	Benzo(a)pyrene	0.00	0	0.0000	0.0000
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
83)	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	0.00	0	0.0000	0.0000

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	15.91	6935	0.8145	0.8659
10)	1-Methylnaphthalene	16.24	3526	0.4463	0.4745
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.73	2633	0.2182	0.2319
36)	2/3-Methyldibenzothiophene	26.04	2521	0.2089	0.2221
37)	1-Methyldibenzothiophene	26.35	1455	0.1206	0.1282
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	0.00	0	0.0000	0.0000
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.60	157675	12.92	78.02
21)	Acenaphthene-d10	19.45	103284	14.33	86.48
32)	Phenanthrene-d10	24.58	196889	15.59	94.06
66)	Chrysene-d12	33.69	190320	14.87	89.77
88)	Perylene-d12	38.54	2864	0.31	1.84
90)	5(b)H-Cholane	34.07	74545	22.53	136.04
	Internal Standards				
1)	Fluorene-d10	21.23	125372	16.63	
31)	Pyrene-d10	29.47	235635	16.60	
73)	Benzo(a)pyrene-d12	38.23	130505	16.58	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1733.D
Acq On : 1 Sep 2013 11:27 am
Operator : YM
Sample : SO-DA-032 (0.5-1.0)
Misc :
ALS Vial : 32 Sample Multiplier: 0.06623

Quant Time: Sep 10 10:19:50 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.230	176	125372m	251.05		0.00
31) Pyrene-d10	29.467	212	235635m	250.63		0.00
73) Benzo(a)pyrene-d12	38.227	264	130505m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.595	136	157675m	12.92		0.00
21) Acenaphthene-d10	19.447	164	103284m	14.33		0.00
32) Phenanthrene-d10	24.583	188	196889m	15.59		0.00
66) Chrysene-d12	33.686	240	190320m	14.87		0.00
88) Perylene-d12	38.537	264	2864m	0.31		0.04
90) 5(b)H-Cholane	34.075	217	74545m	22.53		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.679	128	9649m	0.74		
9) 2-Methylnaphthalene	15.908	142	6935m	0.81		
10) 1-Methylnaphthalene	16.242	142	3526m	0.45		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.360	156	29978m	2.30		
14) C3-Naphthalenes	19.948	170	58368m	4.47		
15) C4-Naphthalenes	22.624	184	52065m	3.99		
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	18.945	152	988m	0.08		
24) Acenaphthene	19.558	154	558m	0.07		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.342	166	9459m	1.01		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.336	180	5759m	0.61		
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.237	184	4352m	0.33		
35) 4-Methyldibenzothiophene	25.726	198	2633m	0.22		
36) 2/3-Methyldibenzothiop...	26.038	198	2521m	0.21		
37) 1-Methyldibenzothiophene	26.350	198	1455m	0.12		
38) C2-Dibenzothiophenes	27.805	212	10236m	0.78		
39) C3-Dibenzothiophenes	29.329	226	11618m	0.89		
40) C4-Dibenzothiophenes	29.641	240	6782m	0.52		
41) Phenanthrene	24.653	178	48244m	2.95		
42) Anthracene	24.826	178	864m	0.06		
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1733.D
Acq On : 1 Sep 2013 11:27 am
Operator : YM
Sample : SO-DA-032 (0.5-1.0)
Misc :
ALS Vial : 32 Sample Multiplier: 0.06623

Quant Time: Sep 10 10:19:50 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44)	2-Methylphenanthrene	0.000		0	N.D.	d	
45)	2-Methylanthracene	0.000		0	N.D.	d	
46)	4/9-Methylphenanthrene	0.000		0	N.D.	d	
47)	1-Methylphenanthrene	0.000		0	N.D.	d	
48)	3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49)	Retene	0.000		0	N.D.	d	
50)	C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51)	C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52)	C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53)	Naphthobenzothiophene	0.000		0	N.D.	d	
54)	C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55)	C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56)	C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57)	C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58)	Fluoranthene	28.775	202	7521m	0.47		
59)	Pyrene	29.537	202	5711m	0.27		
60)	2-Methylfluoranthene	0.000		0	N.D.	d	
61)	Benzo(b)fluorene	0.000		0	N.D.	d	
62)	C1-Fluoranthenes/Pyrenes	31.026	216	4855m	0.31		
63)	C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64)	C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65)	C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67)	Benz(a)anthracene	33.648	228	1551m	0.12		
68)	Chrysene/Triphenylene	33.725	228	2177m	0.15		
69)	C1-Chrysenes	0.000		0	N.D.	d	
70)	C2-Chrysenes	0.000		0	N.D.	d	
71)	C3-Chrysenes	0.000		0	N.D.	d	
72)	C4-Chrysenes	0.000		0	N.D.	d	
74)	C29-Hopane	0.000		0	N.D.	d	
75)	18a-Oleanane	0.000		0	N.D.	d	
76)	C30-Hopane	0.000		0	N.D.	d	
77)	Benzo(b)fluoranthene	0.000		0	N.D.	d	
78)	Benzo(k,j)fluoranthene	0.000		0	N.D.	d	
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	0.000		0	N.D.	d	
81)	Benzo(a)pyrene	0.000		0	N.D.	d	
82)	Indeno(1,2,3-c,d)pyrene	0.000		0	N.D.	d	
83)	Dibenzo(a,h)anthracene	0.000		0	N.D.	d	
84)	C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85)	C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86)	C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87)	Benzo(g,h,i)perylene	0.000		0	N.D.	d	
89)	Perylene	0.000		0	N.D.	d	
91)	C20-TAS	0.000		0	N.D.	d	
92)	C21-TAS	0.000		0	N.D.	d	
93)	C26(20S)-TAS	0.000		0	N.D.	d	
94)	C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95)	C28(20S)-TAS	0.000		0	N.D.	d	
96)	C27(20R)-TAS	0.000		0	N.D.	d	
97)	C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1733.D
Acq On : 1 Sep 2013 11:27 am
Operator : YM
Sample : SO-DA-032 (0.5-1.0)
Misc :
ALS Vial : 32 Sample Multiplier: 0.06623

Quant Time: Sep 10 10:19:50 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

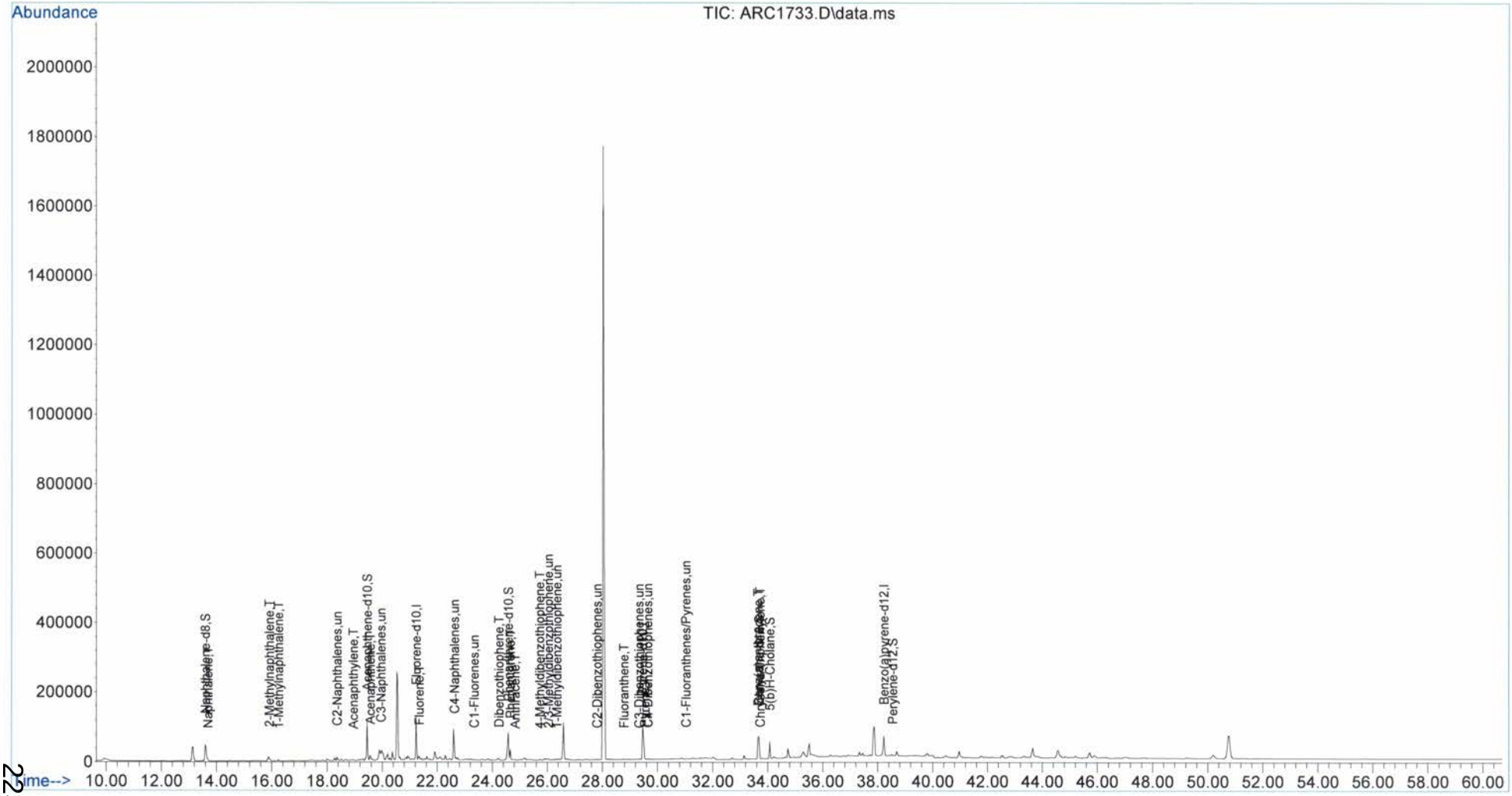
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1733.D
Acq On : 1 Sep 2013 11:27 am
Operator : YM
Sample : SO-DA-032 (0.5-1.0)
Misc :
ALS Vial : 32 Sample Multiplier: 0.06623

Quant Time: Sep 10 10:19:50 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ARC1734.D
Data File Path C:\msdchem\2\data\MS60145\
Operator YM
Date Acquired 9/1/2013 12:37
Acq. Method File PAH-2012.M
Sample Name SO-DA-032 (1.0-1.5)
Misc Info 0
Instrument Name GCMS6
Vial Number 33
Sample Multiplier 0.06667
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC1734.D
SO-DA-032 (1.0-1.5)
9/1/2013 12:37
PAH-2012.M
14.99925004

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.68	8404	0.6676	0.8067
9)+10)	C1-Naphthalenes	16.07	9811	0.7794	0.9418
13)	C2-Naphthalenes	18.28	28611	2.2728	2.7464
14)	C3-Naphthalenes	19.95	34949	2.7763	3.3548
15)	C4-Naphthalenes	22.62	35171	2.7939	3.3761
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	18.94	744	0.0600	0.0725
24)	Acenaphthene	19.56	512	0.0699	0.0845
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.34	8975	0.9926	1.1995
28)	C1-Fluorenes	23.34	5761	0.6371	0.7699
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.83	730	0.0479	0.0579
41)	Phenanthrene	24.65	42578	2.6738	3.2310
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.20	4063	0.3184	0.3848
35)+36)+37)	C1-Dibenzothiophenes	26.04	7077	0.5547	0.6702
38)	C2-Dibenzothiophenes	27.80	13004	1.0192	1.2316
39)	C3-Dibenzothiophenes	29.33	16504	1.2935	1.5630
40)	C4-Dibenzothiophenes	29.50	16461	1.2901	1.5590
58)	Fluoranthene	28.77	5715	0.3699	0.4470
59)	Pyrene	29.54	4689	0.2299	0.2778
62)	C1-Fluoranthenes/Pyrenes	31.03	5915	0.3829	0.4627
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
64)	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	0.00	0	0.0000	0.0000
68)	Chrysene/Triphenylene	0.00	0	0.0000	0.0000
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
78)	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	0.00	0	0.0000	0.0000
81)	Benzo(a)pyrene	0.00	0	0.0000	0.0000
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
83)	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	0.00	0	0.0000	0.0000

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	15.91	6561	0.7993	0.9659
10)	1-Methylnaphthalene	16.24	3250	0.4267	0.5156
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.73	3093	0.2628	0.3175
36)	2/3-Methyldibenzothiophene	26.04	2201	0.1870	0.2260
37)	1-Methyldibenzothiophene	26.35	1783	0.1515	0.1831
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	0.00	0	0.0000	0.0000
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.59	140675	11.96	71.73
21)	Acenaphthene-d10	19.45	89738	12.91	77.43
32)	Phenanthrene-d10	24.58	170044	13.80	82.75
66)	Chrysene-d12	33.65	170016	13.62	81.69
88)	Perylene-d12	38.50	11526	1.29	7.73
90)	5(b)H-Cholane	34.07	61218	19.42	116.50
	Internal Standards				
1)	Fluorene-d10	21.23	121665	16.74	
31)	Pyrene-d10	29.47	231316	16.71	
73)	Benzo(a)pyrene-d12	38.23	125157	16.69	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1734.D
Acq On : 1 Sep 2013 12:37 pm
Operator : YM
Sample : SO-DA-032 (1.0-1.5)
Misc :
ALS Vial : 33 Sample Multiplier: 0.06667

Quant Time: Sep 07 18:45:14 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.230	176	121665m	251.05	0.00
31) Pyrene-d10	29.467	212	231316m	250.63	0.00
73) Benzo(a)pyrene-d12	38.226	264	125157m	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8	13.595	136	140675m	11.96	0.00
21) Acenaphthene-d10	19.447	164	89738m	12.91	0.00
32) Phenanthrene-d10	24.583	188	170044m	13.80	0.00
66) Chrysene-d12	33.647	240	170016m	13.62	-0.04
88) Perylene-d12	38.498	264	11526m	1.29	0.00
90) 5(b)H-Cholane	34.074	217	61218m	19.42	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	0.000		0	N.D. d	
4) C1-Decalins	0.000		0	N.D. d	
5) C2-Decalins	0.000		0	N.D. d	
6) C3-Decalins	0.000		0	N.D. d	
7) C4-Decalins	0.000		0	N.D. d	
8) Naphthalene	13.678	128	8404m	0.67	
9) 2-Methylnaphthalene	15.908	142	6561m	0.80	
10) 1-Methylnaphthalene	16.242	142	3250m	0.43	
11) 2,6-Dimethylnaphthalene	0.000		0	N.D. d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D. d	
13) C2-Naphthalenes	18.276	156	28611m	2.27	
14) C3-Naphthalenes	19.948	170	34949m	2.78	
15) C4-Naphthalenes	22.623	184	35171m	2.79	
16) Benzothiophene	0.000		0	N.D. d	
17) C1-Benzothiophenes	0.000		0	N.D. d	
18) C2-Benzothiophenes	0.000		0	N.D. d	
19) C3-Benzothiophenes	0.000		0	N.D. d	
20) C4-Benzothiophenes	0.000		0	N.D. d	
22) Biphenyl	0.000		0	N.D. d	
23) Acenaphthylene	18.945	152	744m	0.06	
24) Acenaphthene	19.558	154	512m	0.07	
25) Dibenzofuran	0.000		0	N.D. d	
26) Fluorene	21.341	166	8975m	0.99	
27) 1-Methylfluorene	0.000		0	N.D. d	
28) C1-Fluorenes	23.336	180	5761m	0.64	
29) C2-Fluorenes	0.000		0	N.D. d	
30) C3-Fluorenes	0.000		0	N.D. d	
33) Carbazole	0.000		0	N.D. d	
34) Dibenzothiophene	24.202	184	4063m	0.32	
35) 4-Methyldibenzothiophene	25.726	198	3093m	0.26	
36) 2/3-Methyldibenzothiop...	26.038	198	2201m	0.19	
37) 1-Methyldibenzothiophene	26.350	198	1783m	0.15	
38) C2-Dibenzothiophenes	27.804	212	13004m	1.02	
39) C3-Dibenzothiophenes	29.329	226	16504m	1.29	
40) C4-Dibenzothiophenes	29.502	240	16461m	1.29	
41) Phenanthrene	24.652	178	42578m	2.67	
42) Anthracene	24.825	178	730m	0.05	
43) 3-Methylphenanthrene	0.000		0	N.D. d	

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1734.D
Acq On : 1 Sep 2013 12:37 pm
Operator : YM
Sample : SO-DA-032 (1.0-1.5)
Misc :
ALS Vial : 33 Sample Multiplier: 0.06667

Quant Time: Sep 07 18:45:14 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	0.000		0	N.D.	d	
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.774	202	5715m	0.37		
59) Pyrene	29.536	202	4689m	0.23		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	31.026	216	5915m	0.38		
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67) Benz(a)anthracene	0.000		0	N.D.	d	
68) Chrysene/Triphenylene	0.000		0	N.D.	d	
69) C1-Chrysenes	0.000		0	N.D.	d	
70) C2-Chrysenes	0.000		0	N.D.	d	
71) C3-Chrysenes	0.000		0	N.D.	d	
72) C4-Chrysenes	0.000		0	N.D.	d	
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	0.000		0	N.D.	d	
78) Benzo(k,j)fluoranthene	0.000		0	N.D.	d	
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	0.000		0	N.D.	d	
81) Benzo(a)pyrene	0.000		0	N.D.	d	
82) Indeno(1,2,3-c,d)pyrene	0.000		0	N.D.	d	
83) Dibenzo(a,h)anthracene	0.000		0	N.D.	d	
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	0.000		0	N.D.	d	
89) Perylene	0.000		0	N.D.	d	
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1734.D
Acq On : 1 Sep 2013 12:37 pm
Operator : YM
Sample : SO-DA-032 (1.0-1.5)
Misc :
ALS Vial : 33 Sample Multiplier: 0.06667

Quant Time: Sep 07 18:45:14 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

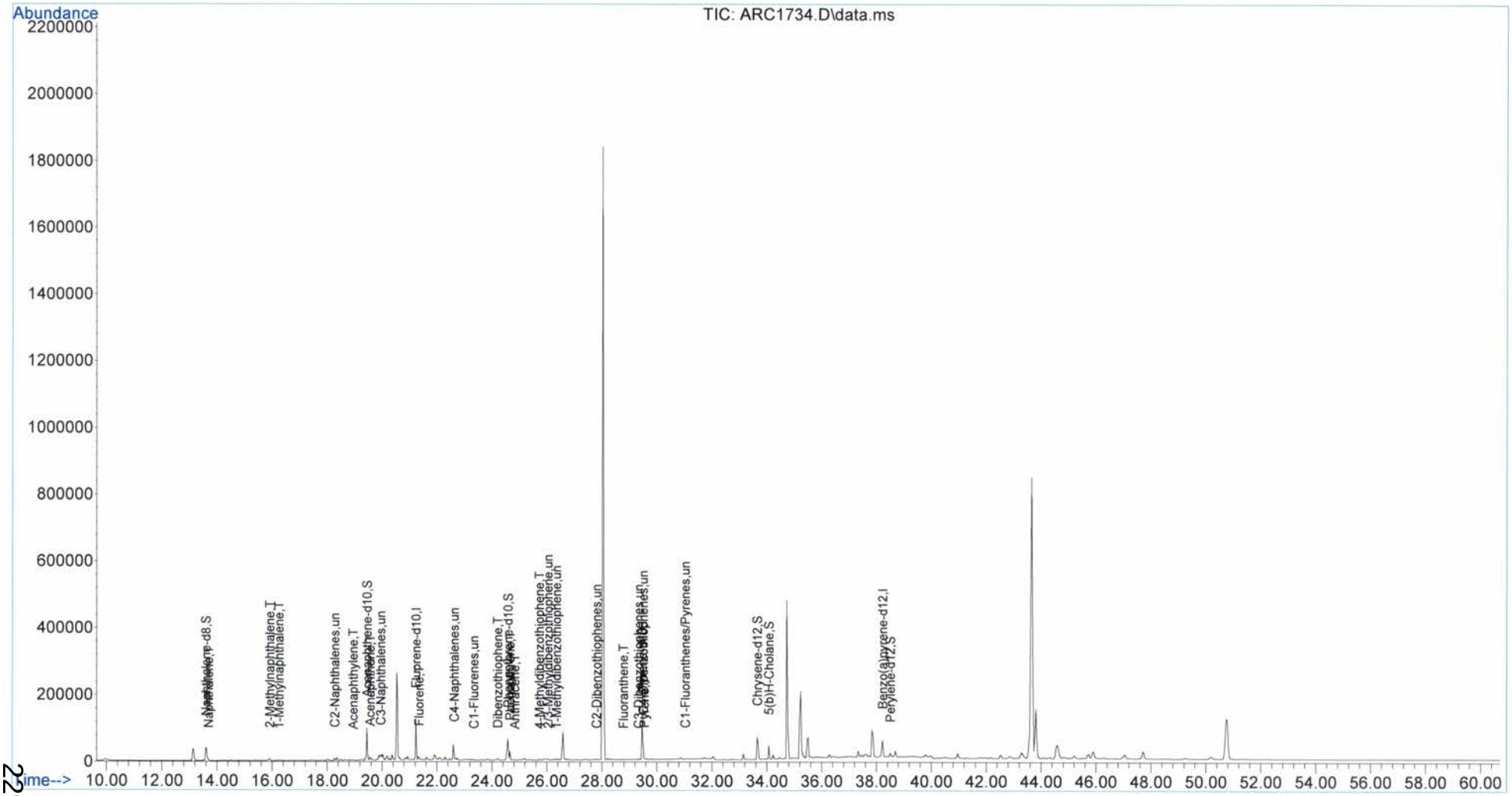
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1734.D
Acq On : 1 Sep 2013 12:37 pm
Operator : YM
Sample : SO-DA-032 (1.0-1.5)
Misc :
ALS Vial : 33 Sample Multiplier: 0.06667

Quant Time: Sep 07 18:45:14 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name	ARC1743.D
Data File Path	C:\msdchem\2\data\MS60145\
Operator	YM
Date Acquired	9/1/2013 13:47
Acq. Method File	PAH-2012.M
Sample Name	SO-DA-021 (0-0.5)
Misc Info	0
Instrument Name	GCMS6
Vial Number	34
Sample Multiplier	0.06667
Sample Amount	0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC1743.D
SO-DA-021 (0-0.5)
9/1/2013 13:47
PAH-2012.M
14.99925004

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.68	28053	2.2325	2.2541
9)+10)	C1-Naphthalenes	16.07	60834	4.8412	4.8881
13)	C2-Naphthalenes	18.28	173303	13.7916	13.9251
14)	C3-Naphthalenes	20.64	335014	26.6606	26.9187
15)	C4-Naphthalenes	22.62	658959	52.4403	52.9480
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	0.00	0	0.0000	0.0000
24)	Acenaphthene	0.00	0	0.0000	0.0000
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	0.00	0	0.0000	0.0000
28)	C1-Fluorenes	0.00	0	0.0000	0.0000
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	0.00	0	0.0000	0.0000
41)	Phenanthrene	24.65	208124	11.7298	11.8433
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.57	498172	28.0768	28.3486
50)	C2-Phenanthrenes/Anthracenes	28.26	2200700	124.0309	125.2317
51)	C3-Phenanthrenes/Anthracenes	30.89	4879930	275.0318	277.6944
52)	C4-Phenanthrenes/Anthracenes	31.65	4113070	231.8116	234.0558
34)	Dibenzothiophene	24.24	96428	6.7827	6.8483
35)+36)+37)	C1-Dibenzothiophenes	26.05	357957	25.1784	25.4222
38)	C2-Dibenzothiophenes	27.15	1570260	110.4509	111.5202
39)	C3-Dibenzothiophenes	28.67	3797830	267.1374	269.7236
40)	C4-Dibenzothiophenes	29.68	3604980	253.5713	256.0263
58)	Fluoranthene	28.78	144683	8.4056	8.4869
59)	Pyrene	29.57	472345	20.7868	20.9880
62)	C1-Fluoranthenes/Pyrenes	31.06	939492	54.5813	55.1097
63)	C2-Fluoranthenes/Pyrenes	32.44	1530860	88.9378	89.7988
64)	C3-Fluoranthenes/Pyrenes	33.49	1324490	76.9485	77.6935
65)	C4-Fluoranthenes/Pyrenes	35.20	1897800	110.2555	111.3229
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.65	62851	4.3742	4.4166
68)	Chrysene/Triphenylene	33.73	549023	34.7816	35.1183
69)	C1-Chrysenes	35.01	1250070	79.1940	79.9607
70)	C2-Chrysenes	36.17	1401470	88.7858	89.6453
71)	C3-Chrysenes	37.37	950855	60.2384	60.8216
72)	C4-Chrysenes	38.30	607686	38.4981	38.8708
77)	Benzo(b)fluoranthene	37.18	185875	18.3449	18.5225
78)	Benzo(k,j)fluoranthene	37.22	63664	7.0252	7.0932
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.15	228498	21.4435	21.6511
81)	Benzo(a)pyrene	38.34	59305	6.1771	6.2369
89)	Perylene	38.65	21010	2.0833	2.1035
82)	Indeno(1,2,3-c,d)pyrene	42.96	40907	4.5583	4.6024
83)	Dibenzo(a,h)anthracene	42.99	20904	3.0963	3.1263
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.32	85213	10.9059	11.0115

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	15.91	44472	5.4277	5.4803
10)	1-Methylnaphthalene	16.24	16362	2.1522	2.1730
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.73	140591	10.7203	10.8241
36)	2/3-Methyldibenzothiophene	26.04	126663	9.6583	9.7518
37)	1-Methyldibenzothiophene	26.39	90703	6.9163	6.9832
43)	3-Methylphenanthrene	26.32	91704	7.3929	7.4645
44)	2-Methylphenanthrene	26.42	138208	11.1420	11.2498
45)	2-Methylanthracene	26.59	49024	3.9522	3.9904
46)	4/9-Methylphenanthrene	26.70	149748	12.0723	12.1891
47)	1-Methylphenanthrene	26.80	69488	5.6019	5.6562
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.59	159888	13.62	81.67
21)	Acenaphthene-d10	19.45	107690	15.52	93.08
32)	Phenanthrene-d10	24.58	226756	16.52	99.04
66)	Chrysene-d12	33.69	227613	16.36	98.15
88)	Perylene-d12	38.58	38534	4.36	26.18
90)	5(b)H-Cholane	34.11	57299	18.41	110.45
	Internal Standards				
1)	Fluorene-d10	21.23	121446	16.74	
31)	Pyrene-d10	29.50	257738	16.71	
73)	Benzo(a)pyrene-d12	38.27	123552	16.69	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1743.D
Acq On : 1 Sep 2013 1:47 pm
Operator : YM
Sample : SO-DA-021 (0-0.5)
Misc :
ALS Vial : 34 Sample Multiplier: 0.06667

Quant Time: Sep 07 18:56:30 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.230	176	121446m	251.05		0.00
31) Pyrene-d10	29.503	212	257738m	250.63		0.04
73) Benzo(a)pyrene-d12	38.265	264	123552m	250.32		0.04
System Monitoring Compounds						
2) Naphthalene-d8	13.595	136	159888m	13.62		0.00
21) Acenaphthene-d10	19.447	164	107690m	15.52		0.00
32) Phenanthrene-d10	24.584	188	226756m	16.52		0.00
66) Chrysene-d12	33.686	240	227613m	16.36		0.00
88) Perylene-d12	38.576	264	38534m	4.36		0.08
90) 5(b)H-Cholane	34.113	217	57299m	18.41		0.04
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.678	128	28053m	2.23		
9) 2-Methylnaphthalene	15.908	142	44472m	5.43		
10) 1-Methylnaphthalene	16.242	142	16362m	2.15		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.276	156	173303m	13.79		
14) C3-Naphthalenes	20.645	170	335014m	26.66		
15) C4-Naphthalenes	22.623	184	658959m	52.44		
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	0.000		0	N.D.	d	
24) Acenaphthene	0.000		0	N.D.	d	
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	0.000		0	N.D.	d	
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.238	184	96428m	6.78		
35) 4-Methyldibenzothiophene	25.727	198	140591m	10.72		
36) 2/3-Methyldibenzothiop...	26.039	198	126663m	9.66		
37) 1-Methyldibenzothiophene	26.385	198	90703m	6.92		
38) C2-Dibenzothiophenes	27.147	212	1570255m	110.45		
39) C3-Dibenzothiophenes	28.671	226	3797834m	267.14		
40) C4-Dibenzothiophenes	29.676	240	3604975m	253.57		
41) Phenanthrene	24.653	178	208124m	11.73		
42) Anthracene	0.000		0	N.D.	d	
43) 3-Methylphenanthrene	26.316	192	91704m	7.39		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1743.D
Acq On : 1 Sep 2013 1:47 pm
Operator : YM
Sample : SO-DA-021 (0-0.5)
Misc :
ALS Vial : 34 Sample Multiplier: 0.06667

Quant Time: Sep 07 18:56:30 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.420	192	138208m	11.14		
45) 2-Methylanthracene	26.593	192	49024m	3.95		
46) 4/9-Methylphenanthrene	26.697	192	149748m	12.07		
47) 1-Methylphenanthrene	26.801	192	69488m	5.60		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	28.256	206	2200702m	124.03		
51) C3-Phenanthrenes/Anthr...	30.888	220	4879931m	275.03		
52) C4-Phenanthrenes/Anthr...	31.650	234	4113073m	231.81		
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.775	202	144683m	8.41		
59) Pyrene	29.572	202	472345m	20.79		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	31.062	216	939492m	54.58		
63) C2-Fluoranthenes/Pyrenes	32.444	230	1530862m	88.94		
64) C3-Fluoranthenes/Pyrenes	33.492	244	1324491m	76.95		
65) C4-Fluoranthenes/Pyrenes	35.200	258	1897802m	110.26		
67) Benz(a)anthracene	33.647	228	62851m	4.37		
68) Chrysene/Triphenylene	33.725	228	549023m	34.78		
69) C1-Chrysenes	35.006	242	1250070m	79.19		
70) C2-Chrysenes	36.170	256	1401468m	88.79		
71) C3-Chrysenes	37.373	270	950855m	60.24		
72) C4-Chrysenes	38.304	284	607686m	38.50		
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	37.179	252	185875m	18.34		
78) Benzo(k,j)fluoranthene	37.218	252	63664m	7.03		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.149	252	228498m	21.44		
81) Benzo(a)pyrene	38.343	252	59305m	6.18		
82) Indeno(1,2,3-c,d)pyrene	42.958	276	40907m	4.56		
83) Dibenzo(a,h)anthracene	42.994	278	20904m	3.10		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.322	276	85213m	10.91		
89) Perylene	38.653	252	21010m	2.08		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1743.D
Acq On : 1 Sep 2013 1:47 pm
Operator : YM
Sample : SO-DA-021 (0-0.5)
Misc :
ALS Vial : 34 Sample Multiplier: 0.06667

Quant Time: Sep 07 18:56:30 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

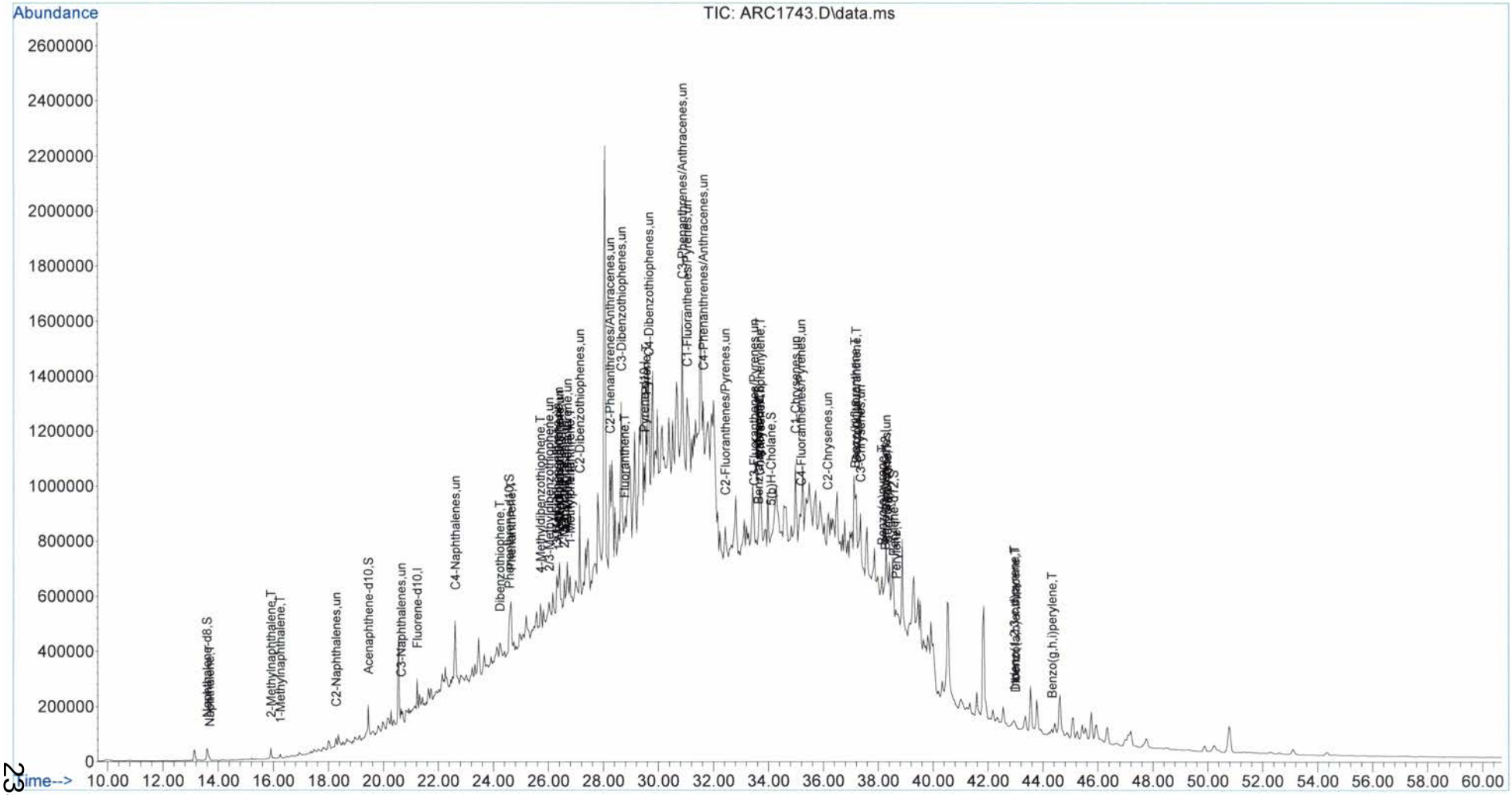
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1743.D
Acq On : 1 Sep 2013 1:47 pm
Operator : YM
Sample : SO-DA-021 (0-0.5)
Misc :
ALS Vial : 34 Sample Multiplier: 0.06667

Quant Time: Sep 07 18:56:30 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name	ARC1744.D
Data File Path	C:\msdchem\2\data\MS60145\
Operator	YM
Date Acquired	9/1/2013 14:56
Acq. Method File	PAH-2012.M
Sample Name	SO-DA-021 (0.5-1.0)
Misc Info	0
Instrument Name	GCMS6
Vial Number	35
Sample Multiplier	0.06592
Sample Amount	0

Surrogate/Internal Multiplier Factor:	1.00
AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC1744.D
SO-DA-021 (0.5-1.0)
9/1/2013 14:56
PAH-2012.M
15.16990291

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.68	12426	0.9914	1.0234
9)+10)	C1-Naphthalenes	16.07	25095	2.0022	2.0668
13)	C2-Naphthalenes	18.28	81468	6.5000	6.7097
14)	C3-Naphthalenes	20.64	151380	12.0781	12.4676
15)	C4-Naphthalenes	22.62	178779	14.2641	14.7241
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	18.94	2306	0.1867	0.1927
24)	Acenaphthene	19.50	895	0.1228	0.1267
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.34	16496	1.8324	1.8915
28)	C1-Fluorenes	23.34	27532	3.0583	3.1569
29)	C2-Fluorenes	25.21	82328	9.1451	9.4401
30)	C3-Fluorenes	26.59	190747	21.1886	21.8720
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.83	2693	0.1856	0.1916
41)	Phenanthrene	24.65	127599	8.4086	8.6797
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.56	225452	14.8569	15.3361
50)	C2-Phenanthrenes/Anthracenes	28.22	423944	27.9371	28.8381
51)	C3-Phenanthrenes/Anthracenes	29.78	583298	38.4383	39.6780
52)	C4-Phenanthrenes/Anthracenes	31.61	375840	24.7671	25.5659
34)	Dibenzothiophene	24.24	39907	3.2821	3.3879
35)+36)+37)	C1-Dibenzothiophenes	26.04	168899	13.8909	14.3389
38)	C2-Dibenzothiophenes	27.80	359718	29.5846	30.5387
39)	C3-Dibenzothiophenes	29.33	491376	40.4126	41.7159
40)	C4-Dibenzothiophenes	29.64	392025	32.2416	33.2814
58)	Fluoranthene	28.77	36041	2.4482	2.5272
59)	Pyrene	29.54	44711	2.3006	2.3748
62)	C1-Fluoranthenes/Pyrenes	31.37	90131	6.1225	6.3200
63)	C2-Fluoranthenes/Pyrenes	32.44	126246	8.5757	8.8523
64)	C3-Fluoranthenes/Pyrenes	33.45	124067	8.4277	8.6995
65)	C4-Fluoranthenes/Pyrenes	35.24	183021	12.4324	12.8334
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.61	8485	0.6905	0.7127
68)	Chrysene/Triphenylene	33.72	50591	3.7475	3.8683
69)	C1-Chrysenes	34.97	127699	9.4591	9.7642
70)	C2-Chrysenes	36.17	132287	9.7990	10.1150
71)	C3-Chrysenes	37.92	96604	7.1558	7.3866
72)	C4-Chrysenes	39.24	69557	5.1523	5.3185
77)	Benzo(b)fluoranthene	37.14	28802	2.7283	2.8163
78)	Benzo(k,j)fluoranthene	37.26	6885	0.7292	0.7527
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.11	23011	2.0726	2.1395
81)	Benzo(a)pyrene	38.30	5488	0.5486	0.5663
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	42.92	5074	0.5427	0.5602
83)	Dibenzo(a,h)anthracene	42.96	2113	0.3004	0.3101
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.28	7954	0.9770	1.0086

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	15.91	17436	2.1335	2.2024
10)	1-Methylnaphthalene	16.24	7659	1.0100	1.0426
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.73	74063	6.6032	6.8162
36)	2/3-Methyldibenzothiophene	26.04	54548	4.8633	5.0202
37)	1-Methyldibenzothiophene	26.35	40288	3.5919	3.7078
43)	3-Methylphenanthrene	26.31	41656	3.9265	4.0532
44)	2-Methylphenanthrene	26.42	48716	4.5920	4.7401
45)	2-Methylanthracene	26.59	41970	3.9561	4.0837
46)	4/9-Methylphenanthrene	26.70	55338	5.2162	5.3845
47)	1-Methylphenanthrene	26.77	37772	3.5604	3.6753
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.59	148026	12.64	76.67
21)	Acenaphthene-d10	19.45	90853	13.13	79.63
32)	Phenanthrene-d10	24.58	187560	15.98	96.88
66)	Chrysene-d12	33.69	185657	15.60	94.67
88)	Perylene-d12	38.54	2042	0.22	1.35
90)	5(b)H-Cholane	0.00	0	0.00	0.00
	Internal Standards				
1)	Fluorene-d10	21.23	119770	16.55	
31)	Pyrene-d10	29.47	217952	16.52	
73)	Benzo(a)pyrene-d12	38.23	127281	16.50	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1744.D
Acq On : 1 Sep 2013 2:56 pm
Operator : YM
Sample : SO-DA-021 (0.5-1.0)
Misc :
ALS Vial : 35 Sample Multiplier: 0.06592

Quant Time: Sep 07 19:08:36 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.230	176	119770m	251.05		0.00
31) Pyrene-d10	29.467	212	217952m	250.63		0.00
73) Benzo(a)pyrene-d12	38.226	264	127281m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.594	136	148026m	12.64		0.00
21) Acenaphthene-d10	19.446	164	90853m	13.13		0.00
32) Phenanthrene-d10	24.583	188	187560m	15.98		0.00
66) Chrysene-d12	33.686	240	185657m	15.60		0.00
88) Perylene-d12	38.537	264	2042m	0.22		0.04
90) 5(b)H-Cholane	0.000	217	0d	0.00		
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.678	128	12426m	0.99		
9) 2-Methylnaphthalene	15.907	142	17436m	2.13		
10) 1-Methylnaphthalene	16.242	142	7659m	1.01		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.276	156	81468m	6.50		
14) C3-Naphthalenes	20.644	170	151380m	12.08		
15) C4-Naphthalenes	22.623	184	178779m	14.26		
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	18.945	152	2306m	0.19		
24) Acenaphthene	19.502	154	895m	0.12		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.341	166	16496m	1.83		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.336	180	27532m	3.06		
29) C2-Fluorenes	25.206	194	82328m	9.15		
30) C3-Fluorenes	26.592	208	190747m	21.19		
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.237	184	39907m	3.28		
35) 4-Methyldibenzothiophene	25.726	198	74063m	6.60		
36) 2/3-Methyldibenzothiop...	26.038	198	54548m	4.86		
37) 1-Methyldibenzothiophene	26.350	198	40288m	3.59		
38) C2-Dibenzothiophenes	27.804	212	359718m	29.58		
39) C3-Dibenzothiophenes	29.328	226	491376m	40.41		
40) C4-Dibenzothiophenes	29.640	240	392025m	32.24		
41) Phenanthrene	24.652	178	127599m	8.41		
42) Anthracene	24.825	178	2693m	0.19		
43) 3-Methylphenanthrene	26.315	192	41656m	3.93		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1744.D
Acq On : 1 Sep 2013 2:56 pm
Operator : YM
Sample : SO-DA-021 (0.5-1.0)
Misc :
ALS Vial : 35 Sample Multiplier: 0.06592

Quant Time: Sep 07 19:08:36 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.419	192	48716m	4.59		
45) 2-Methylanthracene	26.592	192	41970m	3.96		
46) 4/9-Methylphenanthrene	26.696	192	55338m	5.22		
47) 1-Methylphenanthrene	26.765	192	37772m	3.56		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	28.220	206	423944m	27.94		
51) C3-Phenanthrenes/Anthr...	29.779	220	583298m	38.44		
52) C4-Phenanthrenes/Anthr...	31.615	234	375840m	24.77		
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.774	202	36041m	2.45		
59) Pyrene	29.536	202	44711m	2.30		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	31.372	216	90131m	6.12		
63) C2-Fluoranthenes/Pyrenes	32.444	230	126246m	8.58		
64) C3-Fluoranthenes/Pyrenes	33.453	244	124067m	8.43		
65) C4-Fluoranthenes/Pyrenes	35.238	258	183021m	12.43		
67) Benz(a)anthracene	33.608	228	8485m	0.69		
68) Chrysene/Triphenylene	33.725	228	50591m	3.75		
69) C1-Chrysenes	34.966	242	127699m	9.46		
70) C2-Chrysenes	36.169	256	132287m	9.80		
71) C3-Chrysenes	37.916	270	96604m	7.16		
72) C4-Chrysenes	39.235	284	69557m	5.15		
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	37.139	252	28802m	2.73		
78) Benzo(k,j)fluoranthene	37.256	252	6885m	0.73		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.110	252	23011m	2.07		
81) Benzo(a)pyrene	38.304	252	5488m	0.55		
82) Indeno(1,2,3-c,d)pyrene	42.919	276	5074m	0.54		
83) Dibenzo(a,h)anthracene	42.956	278	2113m	0.30		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.284	276	7954m	0.98		
89) Perylene	0.000		0	N.D.	d	
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1744.D
Acq On : 1 Sep 2013 2:56 pm
Operator : YM
Sample : SO-DA-021 (0.5-1.0)
Misc :
ALS Vial : 35 Sample Multiplier: 0.06592

Quant Time: Sep 07 19:08:36 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

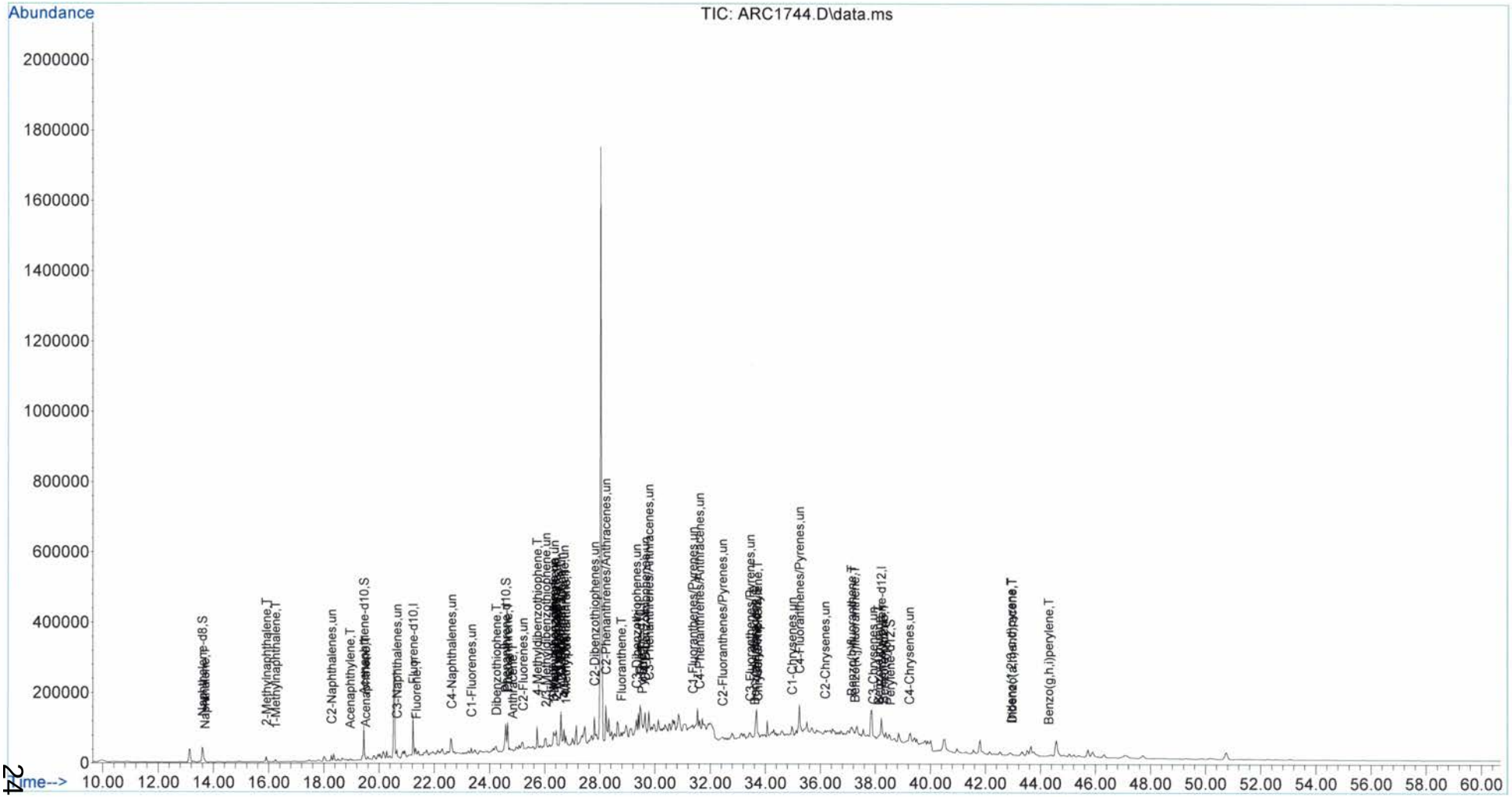
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1744.D
Acq On : 1 Sep 2013 2:56 pm
Operator : YM
Sample : SO-DA-021 (0.5-1.0)
Misc :
ALS Vial : 35 Sample Multiplier: 0.06592

Quant Time: Sep 07 19:08:36 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ARC1745.D
Data File Path C:\GCMS6\MS60145\
Operator YM
Date Acquired 9/1/2013 16:06
Acq. Method File PAH-2012.M
Sample Name SO-DA-021 (1.0-1.5)
Misc Info 0
Instrument Name GCMS6
Vial Number 36
Sample Multiplier 0.06592
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC1745.D
SO-DA-021 (1.0-1.5)
9/1/2013 16:06
PAH-2012.M
15.16990291

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.68	7165	0.5802	0.6681
9)+10)	C1-Naphthalenes	16.08	7660	0.6203	0.7142
13)	C2-Naphthalenes	18.36	16268	1.3174	1.5168
14)	C3-Naphthalenes	20.65	14687	1.1893	1.3694
15)	C4-Naphthalenes	0.00	0	0.0000	0.0000
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	0.00	0	0.0000	0.0000
24)	Acenaphthene	0.00	0	0.0000	0.0000
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.32	8979	1.0123	1.1656
28)	C1-Fluorenes	23.34	6085	0.6860	0.7899
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	0.00	0	0.0000	0.0000
41)	Phenanthrene	24.65	59617	3.8210	4.3995
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.56	62534	4.0080	4.6148
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.20	6762	0.5409	0.6228
35)+36)+37)	C1-Dibenzothiophenes	26.03	15831	1.2663	1.4580
38)	C2-Dibenzothiophenes	27.81	39989	3.1987	3.6830
39)	C3-Dibenzothiophenes	29.33	72692	5.8147	6.6950
40)	C4-Dibenzothiophenes	29.64	69615	5.5685	6.4116
58)	Fluoranthene	28.78	10082	0.6661	0.7669
59)	Pyrene	29.54	5590	0.2798	0.3221
62)	C1-Fluoranthenes/Pyrenes	31.03	14515	0.9590	1.1042
63)	C2-Fluoranthenes/Pyrenes	32.40	28561	1.8870	2.1726
64)	C3-Fluoranthenes/Pyrenes	33.45	24196	1.5986	1.8406
65)	C4-Fluoranthenes/Pyrenes	35.24	35601	2.3521	2.7082
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	0.00	0	0.0000	0.0000
68)	Chrysene/Triphenylene	0.00	0	0.0000	0.0000
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
78)	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	0.00	0	0.0000	0.0000
81)	Benzo(a)pyrene	0.00	0	0.0000	0.0000
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
83)	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	0.00	0	0.0000	0.0000

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	15.91	5309	0.6593	0.7592
10)	1-Methylnaphthalene	16.24	2351	0.3147	0.3623
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.73	7065	0.6126	0.7054
36)	2/3-Methyldibenzothiophene	26.00	4913	0.4260	0.4905
37)	1-Methyldibenzothiophene	26.35	3853	0.3341	0.3847
43)	3-Methylphenanthrene	26.32	5809	0.5326	0.6132
44)	2-Methylphenanthrene	26.42	7810	0.7160	0.8244
45)	2-Methylanthracene	26.59	37312	3.4207	3.9386
46)	4/9-Methylphenanthrene	26.70	6014	0.5514	0.6348
47)	1-Methylphenanthrene	26.77	5589	0.5124	0.5900
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.60	137186	11.89	72.12
21)	Acenaphthene-d10	19.45	57763	8.47	51.38
32)	Phenanthrene-d10	24.58	172888	14.32	86.85
66)	Chrysene-d12	33.68	170256	13.92	84.44
88)	Perylene-d12	38.50	671	0.08	0.47
90)	5(b)H-Cholane	34.07	66176	21.89	132.80
	Internal Standards				
1)	Fluorene-d10	21.23	118006	16.55	
31)	Pyrene-d10	29.47	224092	16.52	
73)	Benzo(a)pyrene-d12	38.22	118680	16.50	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1745.D
Acq On : 1 Sep 2013 4:06 pm
Operator : YM
Sample : SO-DA-021 (1.0-1.5)
Misc :
ALS Vial : 36 Sample Multiplier: 0.06592

Quant Time: Sep 07 19:18:38 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.232	176	118006m	251.05		0.00
31) Pyrene-d10	29.468	212	224092m	250.63		0.00
73) Benzo(a)pyrene-d12	38.225	264	118680m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.597	136	137186m	11.89		0.00
21) Acenaphthene-d10	19.449	164	57763m	8.47		0.00
32) Phenanthrene-d10	24.584	188	172888m	14.32		0.00
66) Chrysene-d12	33.685	240	170256m	13.92		0.00
88) Perylene-d12	38.497	264	671m	0.08		0.00
90) 5(b)H-Cholane	34.073	217	66176m	21.89		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.681	128	7165m	0.58		
9) 2-Methylnaphthalene	15.910	142	5309m	0.66		
10) 1-Methylnaphthalene	16.244	142	2351m	0.31		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.362	156	16268m	1.32		
14) C3-Naphthalenes	20.647	170	14687m	1.19		
15) C4-Naphthalenes	0.000		0	N.D.	d	
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	0.000		0	N.D.	d	
24) Acenaphthene	0.000		0	N.D.	d	
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.316	166	8979m	1.01		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.337	180	6085m	0.69		
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.203	184	6762m	0.54		
35) 4-Methyldibenzothiophene	25.727	198	7065m	0.61		
36) 2/3-Methyldibenzothiop...	26.004	198	4913m	0.43		
37) 1-Methyldibenzothiophene	26.350	198	3853m	0.33		
38) C2-Dibenzothiophenes	27.805	212	39989m	3.20		
39) C3-Dibenzothiophenes	29.329	226	72692m	5.81		
40) C4-Dibenzothiophenes	29.641	240	69615m	5.57		
41) Phenanthrene	24.653	178	59617m	3.82		
42) Anthracene	0.000		0	N.D.	d	
43) 3-Methylphenanthrene	26.316	192	5809m	0.53		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1745.D
Acq On : 1 Sep 2013 4:06 pm
Operator : YM
Sample : SO-DA-021 (1.0-1.5)
Misc :
ALS Vial : 36 Sample Multiplier: 0.06592

Quant Time: Sep 07 19:18:38 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.420	192	7810m	0.72		
45) 2-Methylanthracene	26.593	192	37312m	3.42		
46) 4/9-Methylphenanthrene	26.697	192	6014m	0.55		
47) 1-Methylphenanthrene	26.766	192	5589m	0.51		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.775	202	10082m	0.67		
59) Pyrene	29.537	202	5590m	0.28		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	31.027	216	14515m	0.96		
63) C2-Fluoranthenes/Pyrenes	32.404	230	28561m	1.89		
64) C3-Fluoranthenes/Pyrenes	33.452	244	24196m	1.60		
65) C4-Fluoranthenes/Pyrenes	35.237	258	35601m	2.35		
67) Benz(a)anthracene	0.000		0	N.D.	d	
68) Chrysene/Triphenylene	0.000		0	N.D.	d	
69) C1-Chrysenes	0.000		0	N.D.	d	
70) C2-Chrysenes	0.000		0	N.D.	d	
71) C3-Chrysenes	0.000		0	N.D.	d	
72) C4-Chrysenes	0.000		0	N.D.	d	
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	0.000		0	N.D.	d	
78) Benzo(k,j)fluoranthene	0.000		0	N.D.	d	
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	0.000		0	N.D.	d	
81) Benzo(a)pyrene	0.000		0	N.D.	d	
82) Indeno(1,2,3-c,d)pyrene	0.000		0	N.D.	d	
83) Dibenzo(a,h)anthracene	0.000		0	N.D.	d	
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	0.000		0	N.D.	d	
89) Perylene	0.000		0	N.D.	d	
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1745.D
Acq On : 1 Sep 2013 4:06 pm
Operator : YM
Sample : SO-DA-021 (1.0-1.5)
Misc :
ALS Vial : 36 Sample Multiplier: 0.06592

Quant Time: Sep 07 19:18:38 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

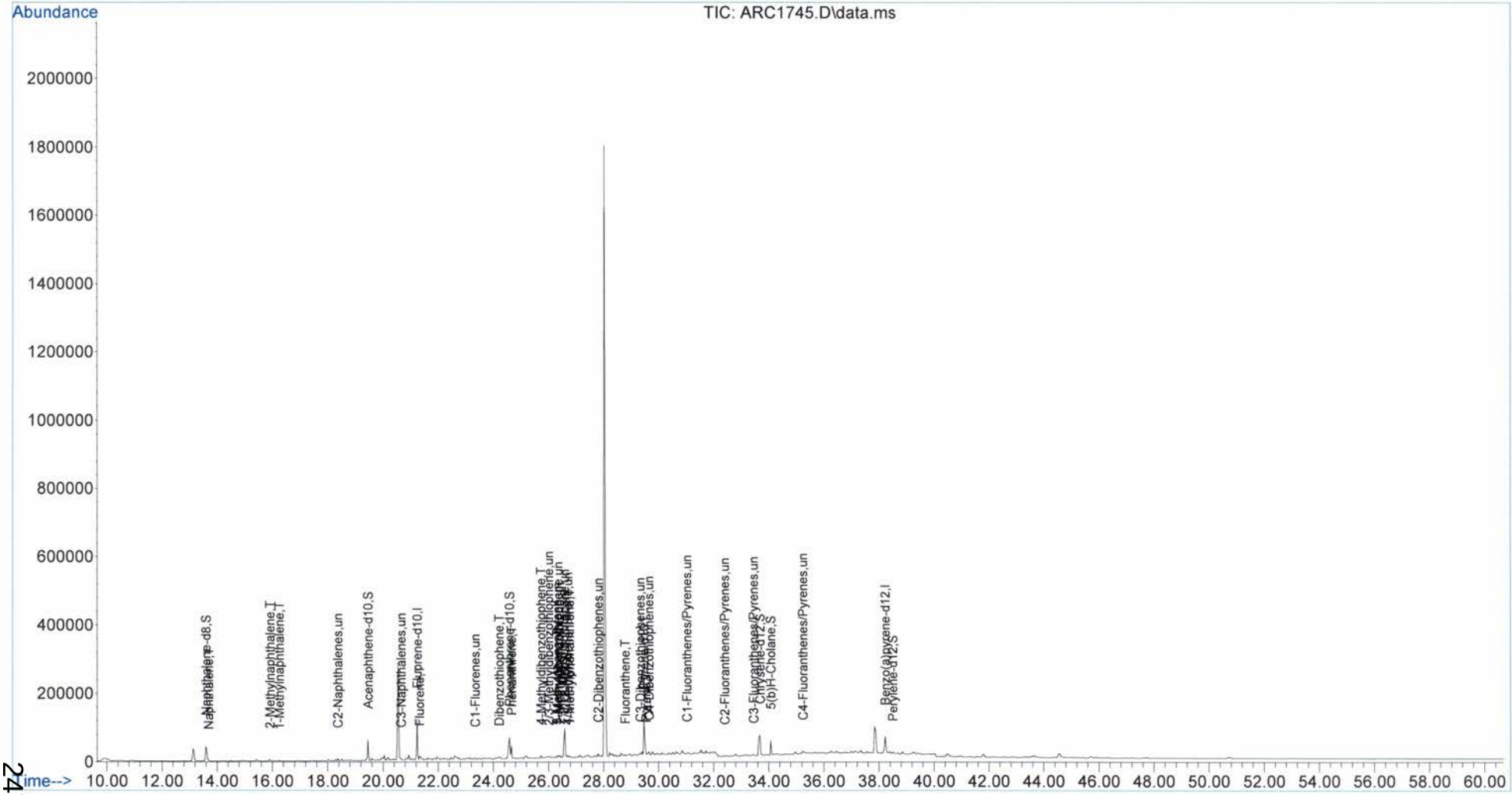
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1745.D
Acq On : 1 Sep 2013 4:06 pm
Operator : YM
Sample : SO-DA-021 (1.0-1.5)
Misc :
ALS Vial : 36 Sample Multiplier: 0.06592

Quant Time: Sep 07 19:18:38 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ARC1749.D
Data File Path C:\msdchem\2\data\MS60145\
Operator YM
Date Acquired 9/1/2013 17:16
Acq. Method File PAH-2012.M
Sample Name SO-DA-023 (0-0.5)
Misc Info 0
Instrument Name GCMS6
Vial Number 37
Sample Multiplier 0.06653
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC1749.D
SO-DA-023 (0-0.5)
9/1/2013 17:16
PAH-2012.M
15.03081317

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.68	52564	3.5466	3.5783
9)+10)	C1-Naphthalenes	16.07	96826	6.5331	6.5915
13)	C2-Naphthalenes	18.03	185528	12.5180	12.6299
14)	C3-Naphthalenes	20.64	401894	27.1168	27.3591
15)	C4-Naphthalenes	22.65	1368550	92.3396	93.1648
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	18.97	29068	1.9897	2.0075
24)	Acenaphthene	19.67	8343	0.9677	0.9764
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.34	57002	5.3547	5.4025
28)	C1-Fluorenes	23.68	229427	21.5519	21.7445
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	0.00	0	0.0000	0.0000
41)	Phenanthrene	24.69	300393	17.8318	17.9912
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.60	503310	29.8773	30.1443
50)	C2-Phenanthrenes/Anthracenes	28.29	2904090	172.3919	173.9324
51)	C3-Phenanthrenes/Anthracenes	29.85	7458290	442.7365	446.6929
52)	C4-Phenanthrenes/Anthracenes	31.68	7281400	432.2361	436.0987
34)	Dibenzothiophene	24.24	124938	9.2561	9.3388
35)+36)+37)	C1-Dibenzothiophenes	26.07	352556	26.1194	26.3528
38)	C2-Dibenzothiophenes	27.18	2532750	187.6412	189.3180
39)	C3-Dibenzothiophenes	28.71	7075020	524.1593	528.8433
40)	C4-Dibenzothiophenes	29.71	7177620	531.7610	536.5129
58)	Fluoranthene	28.81	207519	12.6983	12.8118
59)	Pyrene	29.61	629637	29.1847	29.4455
62)	C1-Fluoranthenes/Pyrenes	31.10	1495290	91.4980	92.3157
63)	C2-Fluoranthenes/Pyrenes	32.83	2506080	153.3497	154.7200
64)	C3-Fluoranthenes/Pyrenes	34.34	2091530	127.9831	129.1268
65)	C4-Fluoranthenes/Pyrenes	35.27	2709790	165.8154	167.2972
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.68	94467	6.9248	6.9867
68)	Chrysene/Triphenylene	33.76	700645	46.7514	47.1692
69)	C1-Chrysenes	35.04	1688980	112.6992	113.7063
70)	C2-Chrysenes	36.21	2163830	144.3841	145.6743
71)	C3-Chrysenes	37.41	1696610	113.2088	114.2204
72)	C4-Chrysenes	38.34	1183860	78.9944	79.7003
77)	Benzo(b)fluoranthene	37.22	229618	27.6479	27.8950
78)	Benzo(k,j)fluoranthene	37.25	91564	12.3268	12.4370
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.19	348008	39.8442	40.2002
81)	Benzo(a)pyrene	38.38	97507	12.3906	12.5013
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	42.99	68021	9.2471	9.3298
83)	Dibenzo(a,h)anthracene	43.03	28109	5.0795	5.1249
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.36	145419	22.7058	22.9087

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	15.91	72368	7.4886	7.5555
10)	1-Methylnaphthalene	16.24	24458	2.7276	2.7520
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.76	154603	12.4166	12.5276
36)	2/3-Methyldibenzothiophene	26.07	108138	8.6849	8.7625
37)	1-Methyldibenzothiophene	26.38	89815	7.2133	7.2778
43)	3-Methylphenanthrene	26.35	93331	7.9249	7.9957
44)	2-Methylphenanthrene	26.45	106274	9.0239	9.1045
45)	2-Methylanthracene	26.63	67710	5.7493	5.8007
46)	4/9-Methylphenanthrene	26.73	138340	11.7466	11.8516
47)	1-Methylphenanthrene	26.84	97655	8.2920	8.3661
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.59	194512	14.05	84.42
21)	Acenaphthene-d10	19.45	115318	14.10	84.69
32)	Phenanthrene-d10	24.58	214995	16.50	99.11
66)	Chrysene-d12	33.72	218264	16.52	99.34
88)	Perylene-d12	38.61	55174	7.62	45.83
90)	5(b)H-Cholane	0.00	0	0.00	0.00
	Internal Standards				
1)	Fluorene-d10	21.26	142939	16.70	
31)	Pyrene-d10	29.54	244190	16.67	
73)	Benzo(a)pyrene-d12	38.30	101059	16.65	

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1749.D
Acq On : 1 Sep 2013 5:16 pm
Operator : YM
Sample : SO-DA-023 (0-0.5)
Misc :
ALS Vial : 37 Sample Multiplier: 0.06653

Quant Time: Sep 07 19:48:08 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.258	176	142939m	251.05		0.03
31) Pyrene-d10	29.537	212	244190m	250.63		0.07
73) Benzo(a)pyrene-d12	38.302	264	101059m	250.32		0.08
System Monitoring Compounds						
2) Naphthalene-d8	13.595	136	194512m	14.05		0.00
21) Acenaphthene-d10	19.447	164	115318m	14.10		0.00
32) Phenanthrene-d10	24.584	188	214995m	16.50		0.00
66) Chrysene-d12	33.723	240	218264m	16.53		0.04
88) Perylene-d12	38.612	264	55174m	7.62		0.11
90) 5(b)H-Cholane	0.000	217	0d	0.00		
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0		N.D. d	
4) C1-Decalins	0.000		0		N.D. d	
5) C2-Decalins	0.000		0		N.D. d	
6) C3-Decalins	0.000		0		N.D. d	
7) C4-Decalins	0.000		0		N.D. d	
8) Naphthalene	13.678	128	52564m	3.55		
9) 2-Methylnaphthalene	15.908	142	72368m	7.49		
10) 1-Methylnaphthalene	16.242	142	24458m	2.73		
11) 2,6-Dimethylnaphthalene	0.000		0		N.D. d	
12) 1,6,7-Trimethylnaphtha...	0.000		0		N.D. d	
13) C2-Naphthalenes	18.025	156	185528m	12.52		
14) C3-Naphthalenes	20.645	170	401894m	27.12		
15) C4-Naphthalenes	22.651	184	1368552m	92.34		
16) Benzothiophene	0.000		0		N.D. d	
17) C1-Benzothiophenes	0.000		0		N.D. d	
18) C2-Benzothiophenes	0.000		0		N.D. d	
19) C3-Benzothiophenes	0.000		0		N.D. d	
20) C4-Benzothiophenes	0.000		0		N.D. d	
22) Biphenyl	0.000		0		N.D. d	
23) Acenaphthylene	18.973	152	29068m	1.99		
24) Acenaphthene	19.669	154	8343m	0.97		
25) Dibenzofuran	0.000		0		N.D. d	
26) Fluorene	21.341	166	57002m	5.35		
27) 1-Methylfluorene	0.000		0		N.D. d	
28) C1-Fluorenes	23.683	180	229427m	21.55		
29) C2-Fluorenes	0.000		0		N.D. d	
30) C3-Fluorenes	0.000		0		N.D. d	
33) Carbazole	0.000		0		N.D. d	
34) Dibenzothiophene	24.237	184	124938m	9.26		
35) 4-Methyldibenzothiophene	25.761	198	154603m	12.42		
36) 2/3-Methyldibenzothiop...	26.073	198	108138m	8.68		
37) 1-Methyldibenzothiophene	26.385	198	89815m	7.21		
38) C2-Dibenzothiophenes	27.182	212	2532754m	187.64		
39) C3-Dibenzothiophenes	28.706	226	7075019m	524.16		
40) C4-Dibenzothiophenes	29.710	240	7177623m	531.76		
41) Phenanthrene	24.688	178	300393m	17.83		
42) Anthracene	0.000		0		N.D. d	
43) 3-Methylphenanthrene	26.350	192	93331m	7.92		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1749.D
Acq On : 1 Sep 2013 5:16 pm
Operator : YM
Sample : SO-DA-023 (0-0.5)
Misc :
ALS Vial : 37 Sample Multiplier: 0.06653

Quant Time: Sep 07 19:48:08 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44)	2-Methylphenanthrene	26.454	192	106274m	9.02		
45)	2-Methylanthracene	26.627	192	67710m	5.75		
46)	4/9-Methylphenanthrene	26.731	192	138340m	11.75		
47)	1-Methylphenanthrene	26.835	192	97655m	8.29		
48)	3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49)	Retene	0.000		0	N.D.	d	
50)	C2-Phenanthrenes/Anthr...	28.290	206	2904087m	172.39		
51)	C3-Phenanthrenes/Anthr...	29.849	220	7458286m	442.74		
52)	C4-Phenanthrenes/Anthr...	31.685	234	7281400m	432.24		
53)	Naphthobenzothiophene	0.000		0	N.D.	d	
54)	C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55)	C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56)	C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57)	C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58)	Fluoranthene	28.810	202	207519m	12.70		
59)	Pyrene	29.606	202	629637m	29.18		
60)	2-Methylfluoranthene	0.000		0	N.D.	d	
61)	Benzo(b)fluorene	0.000		0	N.D.	d	
62)	C1-Fluoranthenes/Pyrenes	31.096	216	1495289m	91.50		
63)	C2-Fluoranthenes/Pyrenes	32.830	230	2506075m	153.35		
64)	C3-Fluoranthenes/Pyrenes	34.344	244	2091531m	127.98		
65)	C4-Fluoranthenes/Pyrenes	35.275	258	2709794m	165.82		
67)	Benz(a)anthracene	33.684	228	94467m	6.92		
68)	Chrysene/Triphenylene	33.761	228	700645m	46.75		
69)	C1-Chrysenes	35.042	242	1688975m	112.70		
70)	C2-Chrysenes	36.206	256	2163829m	144.38		
71)	C3-Chrysenes	37.409	270	1696613m	113.21		
72)	C4-Chrysenes	38.341	284	1183857m	78.99		
74)	C29-Hopane	0.000		0	N.D.	d	
75)	18a-Oleanane	0.000		0	N.D.	d	
76)	C30-Hopane	0.000		0	N.D.	d	
77)	Benzo(b)fluoranthene	37.215	252	229618m	27.65		
78)	Benzo(k,j)fluoranthene	37.254	252	91564m	12.33		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.185	252	348008m	39.84		
81)	Benzo(a)pyrene	38.379	252	97507m	12.39		
82)	Indeno(1,2,3-c,d)pyrene	42.994	276	68021m	9.25		
83)	Dibenzo(a,h)anthracene	43.031	278	28109m	5.08		
84)	C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85)	C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86)	C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87)	Benzo(g,h,i)perylene	44.359	276	145419m	22.71		
89)	Perylene	0.000		0	N.D.	d	
91)	C20-TAS	0.000		0	N.D.	d	
92)	C21-TAS	0.000		0	N.D.	d	
93)	C26(20S)-TAS	0.000		0	N.D.	d	
94)	C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95)	C28(20S)-TAS	0.000		0	N.D.	d	
96)	C27(20R)-TAS	0.000		0	N.D.	d	
97)	C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1749.D
Acq On : 1 Sep 2013 5:16 pm
Operator : YM
Sample : SO-DA-023 (0-0.5)
Misc :
ALS Vial : 37 Sample Multiplier: 0.06653

Quant Time: Sep 07 19:48:08 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

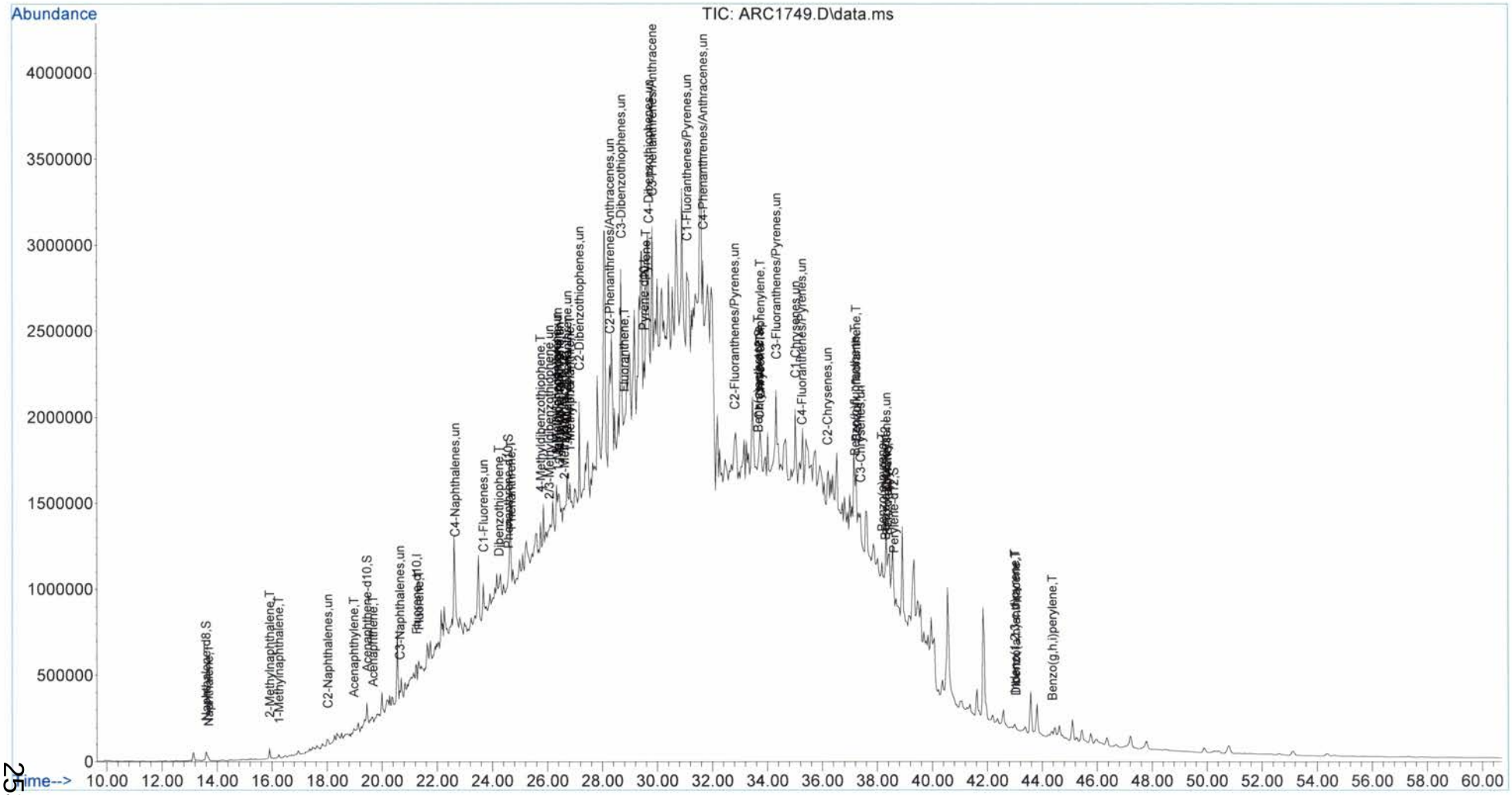
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS60145\
Data File : ARC1749.D
Acq On : 1 Sep 2013 5:16 pm
Operator : YM
Sample : SO-DA-023 (0-0.5)
Misc :
ALS Vial : 37 Sample Multiplier: 0.06653

Quant Time: Sep 07 19:48:08 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



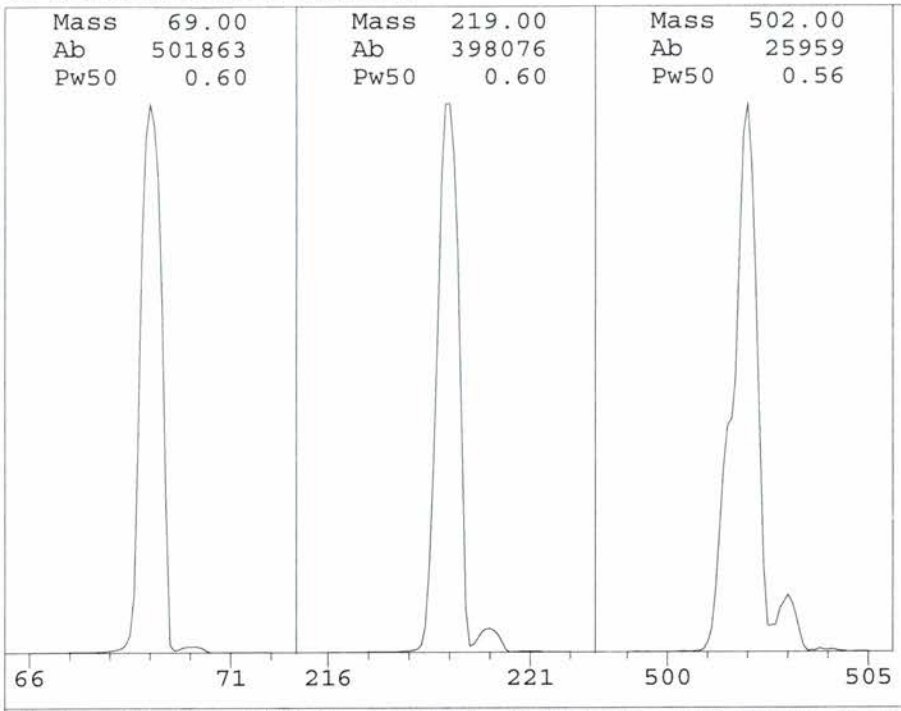
Polycyclic Aromatic Hydrocarbon
Initial Calibration Data
and
Initial Calibration Verification Data

PAH ICAL
AR 60145.M

GC/MS 6
(PAH-2012)

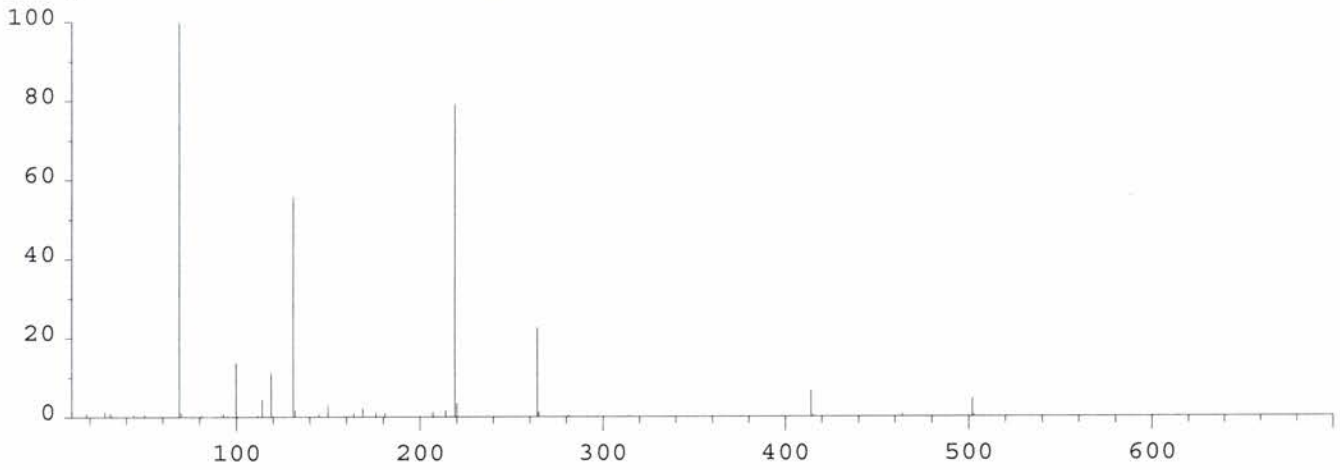
5973 Autotune

Fri Aug 30 17:59:10 2013 Instrument: GCMS6
C:\MSDCHEM\1\5973\atune.u



Ion Pol	POS	MassGain	218
		MassOffs	-10
Emission	34.6	AmuGain	2310
EIEnrgy	69.9	AmuOffs	124
Filament	1	Wid219	-0.032
		DC Pol	POS
Repeller	30.12		
IonFcus	81.6	HEDEnab	ON
EntLens	16.5	EMVolts	1529
EntOffs	20.08		
		Samples	8
PFTBA	OPEN	Averages	3
		Stepsize	0.10
Zones:			
MS Source	290	TurboSpd	100
MS Quad	180		

Scan: 10.00 - 700.00 Samples: 8 Thresh: 100 Step: 0.10
144 peaks Base: 69.00 Abundance: 455936



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	455936	100.00	70.00	5084	1.12
219.00	361216	79.23	220.00	16023	4.44
502.00	21760	4.77	503.00	2620	12.04

Air/Water Check: H20~0.95% N2~1.40% O2~0.40% CO2~0.56% N2/H2O~147.56%

Column Flow: Front: 1.266 Back: 0 ml/min. Interface Temp: GCCF 4,0

Ramp Criteria:
Ion Focus Maximum 90 volts using ion 502; EM Gain 56537
Repeller Maximum 35 volts using ion 219;

MassGain Values @Samples: 218@3 218@2 218@1 218@0 218@FS

TARGET MASS:	50	69	131	219	414	502	800
Amu Offset:	124.0	124.0	124.0	124.0	124.0	124.0	124.0
Entrance Lens Offset:	20.1	20.1	20.1	20.1	20.1	20.1	20.1

MS60145256
YM

Method Path : C:\GCMS6\MS60145\
Method File : AR60145.M
Title : PAH Calibration Table-2013A
Last Update : Sat Aug 31 13:33:52 2013
Response Via : Initial Calibration

Calibration Files
1 =MS60145B.D 2 =MS60145C.D 3 =MS60145D.D 4 =MS60145E.D 5 =MS60145F.D
6 =MS60145G.D

		Compound	1	2	3	4	5	6	Avg	%RSD
1)	I	Fluorene-d10	ISTD							
2)	S	Naphthalene-d8	1.919	1.610	1.516	1.572	1.575	1.516	1.618	9.40
3)	T	cis/trans Decalin	0.295	0.300	0.274	0.275	0.276	0.265	0.281	4.86
4)	un	C1-Decalins	0.295	0.300	0.274	0.275	0.276	0.265	0.281	4.86
5)	un	C2-Decalins	0.295	0.300	0.274	0.275	0.276	0.265	0.281	4.86
6)	un	C3-Decalins	0.295	0.300	0.274	0.275	0.276	0.265	0.281	4.86
7)	un	C4-Decalins	0.295	0.300	0.274	0.275	0.276	0.265	0.281	4.86
8)	T	Naphthalene	2.046	1.743	1.630	1.680	1.678	1.613	1.732	9.27
9)	T	2-Methylnaphth...	1.316	1.112	1.043	1.101	1.113	1.090	1.129	8.44
10)	T	1-Methylnaphth...	1.230	1.051	0.980	1.008	1.019	1.000	1.048	8.80
11)	T	2,6-Dimethylna...	1.190	1.015	0.967	0.982	1.007	1.010	1.028	7.88
12)	T	1,6,7-Trimethy...	1.131	0.963	0.907	0.951	0.979	1.012	0.991	7.77
13)	un	C2-Naphthalenes	2.046	1.743	1.630	1.680	1.678	1.613	1.732	9.27
14)	un	C3-Naphthalenes	2.046	1.743	1.630	1.680	1.678	1.613	1.732	9.27
15)	un	C4-Naphthalenes	2.046	1.743	1.630	1.680	1.678	1.613	1.732	9.27
16)	T	Benzothiophene	1.586	1.384	1.289	1.324	1.328	1.288	1.367	8.26
17)	un	C1-Benzothioph...	1.586	1.384	1.289	1.324	1.328	1.288	1.367	8.26
18)	un	C2-Benzothioph...	1.586	1.384	1.289	1.324	1.328	1.288	1.367	8.26
19)	un	C3-Benzothioph...	1.586	1.384	1.289	1.324	1.328	1.288	1.367	8.26
20)	un	C4-Benzothioph...	1.586	1.384	1.289	1.324	1.328	1.288	1.367	8.26
21)	S	Acenaphthene-d10	1.126	0.941	0.883	0.915	0.936	0.935	0.956	8.98
22)	T	Biphenyl	1.729	1.462	1.401	1.416	1.446	1.431	1.481	8.34
23)	T	Acenaphthylene	1.980	1.667	1.593	1.621	1.676	1.706	1.707	8.18
24)	T	Acenaphthene	1.160	0.997	0.922	0.972	0.988	1.004	1.007	7.99
25)	T	Dibenzofuran	1.898	1.582	1.515	1.540	1.571	1.597	1.617	8.70
26)	T	Fluorene	1.493	1.217	1.152	1.171	1.198	1.232	1.244	10.08
27)	T	1-Methylfluorene	0.912	0.757	0.729	0.767	0.813	0.903	0.813	9.59
28)	un	C1-Fluorenes	1.493	1.217	1.152	1.171	1.198	1.232	1.244	10.08
29)	un	C2-Fluorenes	1.493	1.217	1.152	1.171	1.198	1.232	1.244	10.08
30)	un	C3-Fluorenes	1.493	1.217	1.152	1.171	1.198	1.232	1.244	10.08
31)	I	Pyrene-d10	ISTD							
32)	S	Phenanthrene-d10	1.013	0.855	0.808	0.846	0.843	0.974	0.890	9.27
33)	T	Carbazole	0.822	0.714	0.667	0.704	0.718	0.864	0.748	10.29
34)	T	Dibenzothiophene	1.051	0.909	0.873	0.891	0.887	0.919	0.922	7.13
35)	T	4-Methyldibenz...	0.973	0.843	0.804	0.839	0.843	0.799	0.850	7.47
36)	un	2/3-Methyldibe...	0.973	0.843	0.804	0.839	0.843	0.799	0.850	7.47
37)	un	1-Methyldibenz...	0.973	0.843	0.804	0.839	0.843	0.799	0.850	7.47
38)	un	C2-Dibenzothio...	1.051	0.909	0.873	0.891	0.887	0.919	0.922	7.13
39)	un	C3-Dibenzothio...	1.051	0.909	0.873	0.891	0.887	0.919	0.922	7.13
40)	un	C4-Dibenzothio...	1.051	0.909	0.873	0.891	0.887	0.919	0.922	7.13
41)	T	Phenanthrene	1.263	1.104	1.067	1.115	1.102	1.251	1.150	7.33
42)	T	Anthracene	1.184	1.061	1.009	1.058	1.060	1.227	1.100	7.76
43)	un	3-Methylphenan...	0.926	0.804	0.755	0.809	0.784	0.748	0.804	8.04
44)	un	2-Methylphenan...	0.926	0.804	0.755	0.809	0.784	0.748	0.804	8.04
45)	un	2-Methylanthra...	0.926	0.804	0.755	0.809	0.784	0.748	0.804	8.04
46)	un	4/9-Methylphen...	0.926	0.804	0.755	0.809	0.784	0.748	0.804	8.04
47)	T	1-Methylphenan...	0.926	0.804	0.755	0.809	0.784	0.748	0.804	8.04
48)	T	3,6-Dimethylph...	0.773	0.670	0.629	0.657	0.663	0.790	0.697	9.64
49)	T	Retene	0.482	0.420	0.394	0.412	0.419	0.435	0.427	6.99
50)	un	C2-Phenanthren...	1.263	1.104	1.067	1.115	1.102	1.251	1.150	7.33
51)	un	C3-Phenanthren...	1.263	1.104	1.067	1.115	1.102	1.251	1.150	7.33
52)	un	C4-Phenanthren...	1.263	1.104	1.067	1.115	1.102	1.251	1.150	7.33
53)	T	Naphthobenzoth...	0.998	0.875	0.835	0.932	0.932	1.037	0.935	8.00

Method Path : C:\GCMS6\MS60145\
Method File : AR60145.M
Title : PAH Calibration Table-2013A

54)	un	C1-Naphthobenz...	0.998	0.875	0.835	0.932	0.932	1.037	0.935	8.00
55)	un	C2-Naphthobenz...	0.998	0.875	0.835	0.932	0.932	1.037	0.935	8.00
56)	un	C3-Naphthobenz...	0.998	0.875	0.835	0.932	0.932	1.037	0.935	8.00
57)	un	C4-Naphthobenz...	0.998	0.875	0.835	0.932	0.932	1.037	0.935	8.00
58)	T	Fluoranthene	1.226	1.077	1.025	1.069	1.073	1.227	1.116	7.85
59)	T	Pyrene	1.774	1.480	1.379	1.431	1.425	1.350	1.473	10.46
60)	T	2-Methylfluora...	1.089	0.940	0.879	0.930	0.942	0.913	0.949	7.65
61)	T	Benzo(b)fluorene	0.861	0.715	0.694	0.734	0.765	1.013	0.797	15.14
62)	un	C1-Fluoranthen...	1.226	1.077	1.025	1.069	1.073	1.227	1.116	7.85
63)	un	C2-Fluoranthen...	1.226	1.077	1.025	1.069	1.073	1.227	1.116	7.85
64)	un	C3-Fluoranthen...	1.226	1.077	1.025	1.069	1.073	1.227	1.116	7.85
65)	un	C4-Fluoranthen...	1.226	1.077	1.025	1.069	1.073	1.227	1.116	7.85
66)	S	Chrysene-d12	0.909	0.816	0.793	0.867	0.888	1.140	0.902	13.79
67)	T	Benz(a)anthracene	0.942	0.860	0.821	0.918	0.918	1.131	0.932	11.53
68)	T	Chrysene/Triph...	1.032	0.900	0.873	0.937	1.007	1.392	1.023	18.63
69)	un	C1-Chrysenes	1.032	0.900	0.873	0.937	1.007	1.392	1.023	18.63
70)	un	C2-Chrysenes	1.032	0.900	0.873	0.937	1.007	1.392	1.023	18.63
71)	un	C3-Chrysenes	1.032	0.900	0.873	0.937	1.007	1.392	1.023	18.63
72)	un	C4-Chrysenes	1.032	0.900	0.873	0.937	1.007	1.392	1.023	18.63
73)	I	Benzo(a)pyrene-d12	----------ISTD----------							
74)	un	C29-Hopane	0.597	0.587	0.538	0.537	0.499	0.456	0.536	9.95
75)	un	18a-Oleanane	0.597	0.587	0.538	0.537	0.499	0.456	0.536	9.95
76)	T	C30-Hopane	0.597	0.587	0.538	0.537	0.499	0.456	0.536	9.95
77)	T	Benzo(b)fluora...	1.555	1.369	1.231	1.352	1.246	1.459	1.369	9.08
78)	T	Benzo(k,j)fluo...	1.393	1.225	1.121	1.214	1.190	1.202	1.224	7.41
79)	un	Benzo(a)fluora...	1.393	1.225	1.121	1.214	1.190	1.202	1.224	7.41
80)	T	Benzo(e)pyrene	1.732	1.518	1.342	1.442	1.347	1.255	1.439	11.80
81)	T	Benzo(a)pyrene	1.481	1.269	1.165	1.257	1.284	1.327	1.297	8.08
82)	T	Indeno(1,2,3-c...	1.395	1.188	1.076	1.153	1.155	1.307	1.212	9.63
83)	T	Dibenzo(a,h)an...	1.034	0.858	0.809	0.884	0.843	1.044	0.912	11.11
84)	un	C1-Dibenzo(a,h...	1.034	0.858	0.809	0.884	0.843	1.044	0.912	11.11
85)	un	C2-Dibenzo(a,h...	1.034	0.858	0.809	0.884	0.843	1.044	0.912	11.11
86)	un	C3-Dibenzo(a,h...	1.034	0.858	0.809	0.884	0.843	1.044	0.912	11.11
87)	T	Benzo(g,h,i)pe...	1.265	1.070	0.958	1.013	0.954	1.071	1.055	10.89
88)	S	Perylene-d12	1.381	1.193	1.064	1.143	1.110	1.265	1.193	9.69
89)	T	Perylene	1.566	1.336	1.249	1.303	1.335	1.384	1.362	8.01
90)	S	5(b)H-Cholane	0.534	0.456	0.400	0.405	0.383	0.346	0.420	15.67
91)	un	C20-TAS	2.703	2.139	1.847	1.865	1.802	1.849	2.034	17.18
92)	un	C21-TAS	2.703	2.139	1.847	1.865	1.802	1.849	2.034	17.18
93)	un	C26(20S)-TAS	2.703	2.139	1.847	1.865	1.802	1.849	2.034	17.18
94)	T	C26(20R)/C27(2...	2.703	2.139	1.847	1.865	1.802	1.849	2.034	17.18
95)	un	C28(20S)-TAS	2.703	2.139	1.847	1.865	1.802	1.849	2.034	17.18
96)	un	C27(20R)-TAS	2.703	2.139	1.847	1.865	1.802	1.849	2.034	17.18
97)	un	C28(20R)-TAS	2.703	2.139	1.847	1.865	1.802	1.849	2.034	17.18

(#) = Out of Range

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145B.D
Acq On : 30 Aug 2013 10:56 pm
Operator : YM
Sample : AR-WKC1-020-030
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 31 13:32:56 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 11:36:32 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.230	176	133068m	251.05		0.00
31) Pyrene-d10	29.468	212	232260m	250.63		0.00
73) Benzo(a)pyrene-d12	38.225	264	181946m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.595	136	20355m	23.81		0.00
21) Acenaphthene-d10	19.447	164	11943m	23.73		0.00
32) Phenanthrene-d10	24.584	188	18783m	22.96		0.00
66) Chrysene-d12	33.685	240	16845m	19.73		0.00
88) Perylene-d12	38.535	264	20083m	23.28		0.00
90) 5(b)H-Cholane	34.073	217	7758m	25.14		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	10.976	138	3091m	29.84		
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.679	128	21691m	23.74		
9) 2-Methylnaphthalene	15.908	142	13970m	23.37		
10) 1-Methylnaphthalene	16.242	142	13023m	23.56		
11) 2,6-Dimethylnaphthalene	17.998	156	12610m	23.26		
12) 1,6,7-Trimethylnaphtha...	20.868	170	11992m	22.83		
13) C2-Naphthalenes	0.000		0	N.D.	d	
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.	d	
16) Benzothiophene	13.846	134	16710m	23.09		
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	17.469	154	18164m	23.20		
23) Acenaphthylene	18.945	152	20821m	23.09		
24) Acenaphthene	19.558	154	12324m	23.06		
25) Dibenzofuran	20.144	168	20021m	23.45		
26) Fluorene	21.314	166	15854m	23.90		
27) 1-Methylfluorene	23.337	180	9745m	22.59		
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	25.381	167	15107m	21.92		
34) Dibenzothiophene	24.203	184	19215m	22.60		
35) 4-Methyldibenzothiophene	25.727	198	18189m	23.21		
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.	d	
37) 1-Methyldibenzothiophene	0.000		0	N.D.	d	
38) C2-Dibenzothiophenes	0.000		0	N.D.	d	
39) C3-Dibenzothiophenes	0.000		0	N.D.	d	
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.653	178	23192m	22.02		
42) Anthracene	24.827	178	22019m	21.75		

Data Path : C:\GCMS6\MS60145\
Data File : MS60145B.D
Acq On : 30 Aug 2013 10:56 pm
Operator : YM
Sample : AR-WKC1-020-030
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 31 13:32:56 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 11:36:32 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43) 3-Methylphenanthrene	0.000		0	N.D.	d	
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	26.766	192	16976m	22.74		
48) 3,6-Dimethylphenanthrene	27.875	206	14342m	22.27		
49) Retene	30.542	234	7974m	20.18		
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	32.831	234	18611m	21.58		
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.776	202	22741m	22.03		
59) Pyrene	29.538	202	32882m	24.13		
60) 2-Methylfluoranthene	30.300	216	20326m	23.19		
61) Benzo(b)fluorene	30.923	216	16096m	21.92		
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67) Benz(a)anthracene	33.607	228	17425m	20.66		
68) Chrysene/Triphenylene	33.762	228	19006m	20.31		
69) C1-Chrysenes	0.000		0	N.D.	d	
70) C2-Chrysenes	0.000		0	N.D.	d	
71) C3-Chrysenes	0.000		0	N.D.	d	
72) C4-Chrysenes	0.000		0	N.D.	d	
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	42.514	191	8680m	20.79		
77) Benzo(b)fluoranthene	37.138	252	22652m	13.10		
78) Benzo(k,j)fluoranthene	37.255	252	20174m	11.60		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.109	252	25083m	24.23		
81) Benzo(a)pyrene	38.303	252	21485m	22.84		
82) Indeno(1,2,3-c,d)pyrene	42.919	276	19928m	22.34		
83) Dibenzo(a,h)anthracene	42.993	278	14890m	21.76		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.247	276	18230m	23.31		
89) Perylene	38.613	252	22784m	22.99		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	39.234	231	39289m	26.27		
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Data Path : C:\GCMS6\MS60145\
Data File : MS60145B.D
Acq On : 30 Aug 2013 10:56 pm
Operator : YM
Sample : AR-WKC1-020-030
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 31 13:32:56 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 11:36:32 2013
Response via : Initial Calibration

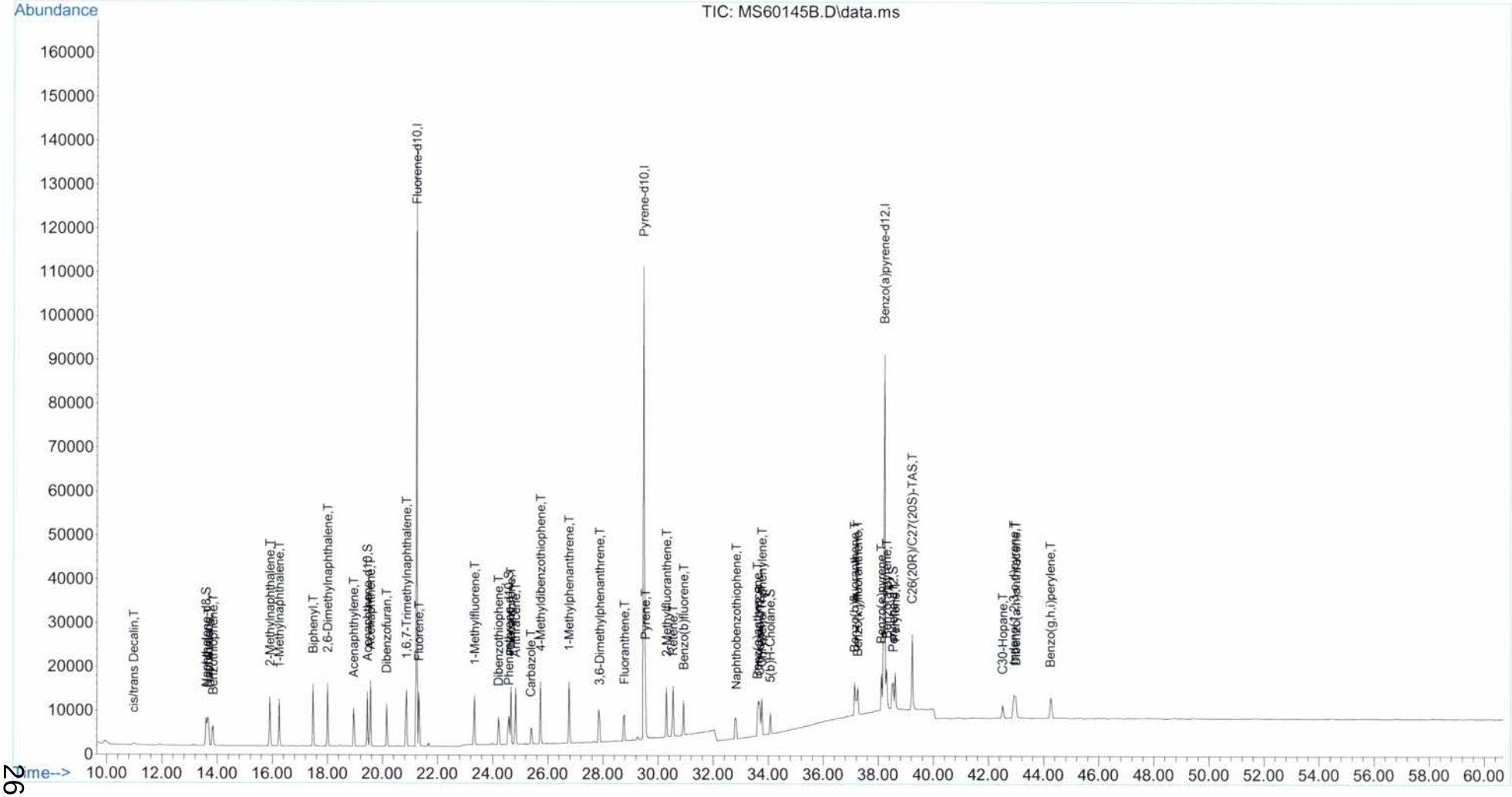
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145B.D
Acq On : 30 Aug 2013 10:56 pm
Operator : YM
Sample : AR-WKC1-020-030
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 31 13:32:56 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 11:36:32 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145C.D
Acq On : 31 Aug 2013 12:06 am
Operator : YM
Sample : AR-WKC2-100-030
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 31 13:33:46 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 12:05:05 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.230	176	134034m	251.05		0.00
31) Pyrene-d10	29.467	212	228804m	250.63		0.00
73) Benzo(a)pyrene-d12	38.226	264	176609m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.594	136	85978m	99.48		0.00
21) Acenaphthene-d10	19.446	164	50254m	98.54		0.00
32) Phenanthrene-d10	24.583	188	78102m	96.69		0.00
66) Chrysene-d12	33.686	240	74476m	88.30		0.00
88) Perylene-d12	38.498	264	84155m	99.56		-0.04
90) 5(b)H-Cholane	34.074	217	32144m	107.74		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	10.975	138	15845m	145.64		
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.678	128	93059m	100.71		
9) 2-Methylnaphthalene	15.907	142	59434m	98.62		
10) 1-Methylnaphthalene	16.241	142	56047m	100.40		
11) 2,6-Dimethylnaphthalene	17.997	156	54211m	98.81		
12) 1,6,7-Trimethylnaphtha...	20.867	170	51414m	97.21		
13) C2-Naphthalenes	0.000		0	N.D.	d	
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.		
16) Benzothiophene	13.845	134	73467m	100.75		
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	17.468	154	77335m	97.86		
23) Acenaphthylene	18.945	152	88284m	96.89		
24) Acenaphthene	19.558	154	53343m	98.97		
25) Dibenzofuran	20.143	168	84027m	97.38		
26) Fluorene	21.313	166	65125m	98.04		
27) 1-Methylfluorene	23.336	180	40699m	93.65		
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	25.380	167	64604m	95.08		
34) Dibenzothiophene	24.202	184	81810m	97.66		
35) 4-Methyldibenzothiophene	25.726	198	77639m	100.30		
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.	d	
37) 1-Methyldibenzothiophene	0.000		0	N.D.	d	
38) C2-Dibenzothiophenes	0.000		0	N.D.	d	
39) C3-Dibenzothiophenes	0.000		0	N.D.	d	
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.652	178	99843m	95.68		
42) Anthracene	24.826	178	97146m	97.34		

Data Path : C:\GCMS6\MS60145\
Data File : MS60145C.D
Acq On : 31 Aug 2013 12:06 am
Operator : YM
Sample : AR-WKC2-100-030
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 31 13:33:46 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 12:05:05 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43)	3-Methylphenanthrene	0.000		0		N.D.	d
44)	2-Methylphenanthrene	0.000		0		N.D.	d
45)	2-Methylanthracene	0.000		0		N.D.	d
46)	4/9-Methylphenanthrene	0.000		0		N.D.	d
47)	1-Methylphenanthrene	26.765	192	72549m	98.73		
48)	3,6-Dimethylphenanthrene	27.874	206	61237m	96.46		
49)	Retene	30.541	234	34266m	87.98		
50)	C2-Phenanthrenes/Anthr...	0.000		0		N.D.	d
51)	C3-Phenanthrenes/Anthr...	0.000		0		N.D.	d
52)	C4-Phenanthrenes/Anthr...	0.000		0		N.D.	d
53)	Naphthobenzothiophene	32.793	234	80377m	94.33		
54)	C1-Naphthobenzothiophenes	0.000		0		N.D.	d
55)	C2-Naphthobenzothiophenes	0.000		0		N.D.	d
56)	C3-Naphthobenzothiophenes	0.000		0		N.D.	d
57)	C4-Naphthobenzothiophenes	0.000		0		N.D.	d
58)	Fluoranthene	28.775	202	98401m	96.79		
59)	Pyrene	29.537	202	135075m	100.60		
60)	2-Methylfluoranthene	30.299	216	86441m	100.06		
61)	Benzo(b)fluorene	30.922	216	65853m	90.70		
62)	C1-Fluoranthenes/Pyrenes	0.000		0		N.D.	d
63)	C2-Fluoranthenes/Pyrenes	0.000		0		N.D.	d
64)	C3-Fluoranthenes/Pyrenes	0.000		0		N.D.	d
65)	C4-Fluoranthenes/Pyrenes	0.000		0		N.D.	d
67)	Benz(a)anthracene	33.608	228	78313m	93.52		
68)	Chrysene/Triphenylene	33.763	228	81638m	88.15		
69)	C1-Chrysenes	0.000		0		N.D.	d
70)	C2-Chrysenes	0.000		0		N.D.	d
71)	C3-Chrysenes	0.000		0		N.D.	d
72)	C4-Chrysenes	0.000		0		N.D.	d
74)	C29-Hopane	0.000		0		N.D.	d
75)	18a-Oleanane	0.000		0		N.D.	d
76)	C30-Hopane	42.514	191	41440m	103.17		
77)	Benzo(b)fluoranthene	37.139	252	96803m	64.29		
78)	Benzo(k,j)fluoranthene	37.256	252	86059m	57.58		
79)	Benzo(a)fluoranthene	0.000		0		N.D.	d
80)	Benzo(e)pyrene	38.110	252	106683m	105.46		
81)	Benzo(a)pyrene	38.304	252	89317m	97.53		
82)	Indeno(1,2,3-c,d)pyrene	42.920	276	82395m	95.11		
83)	Dibenzo(a,h)anthracene	42.994	278	60005m	90.53		
84)	C1-Dibenzo(a,h)anthrac...	0.000		0		N.D.	d
85)	C2-Dibenzo(a,h)anthrac...	0.000		0		N.D.	d
86)	C3-Dibenzo(a,h)anthrac...	0.000		0		N.D.	d
87)	Benzo(g,h,i)perylene	44.248	276	74795m	98.71		
89)	Perylene	38.614	252	94350m	98.01		
91)	C20-TAS	0.000		0		N.D.	d
92)	C21-TAS	0.000		0		N.D.	d
93)	C26(20S)-TAS	0.000		0		N.D.	d
94)	C26(20R)/C27(20S)-TAS	39.235	231	150887m	104.18		
95)	C28(20S)-TAS	0.000		0		N.D.	d
96)	C27(20R)-TAS	0.000		0		N.D.	d
97)	C28(20R)-TAS	0.000		0		N.D.	d

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145C.D
Acq On : 31 Aug 2013 12:06 am
Operator : YM
Sample : AR-WKC2-100-030
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 31 13:33:46 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 12:05:05 2013
Response via : Initial Calibration

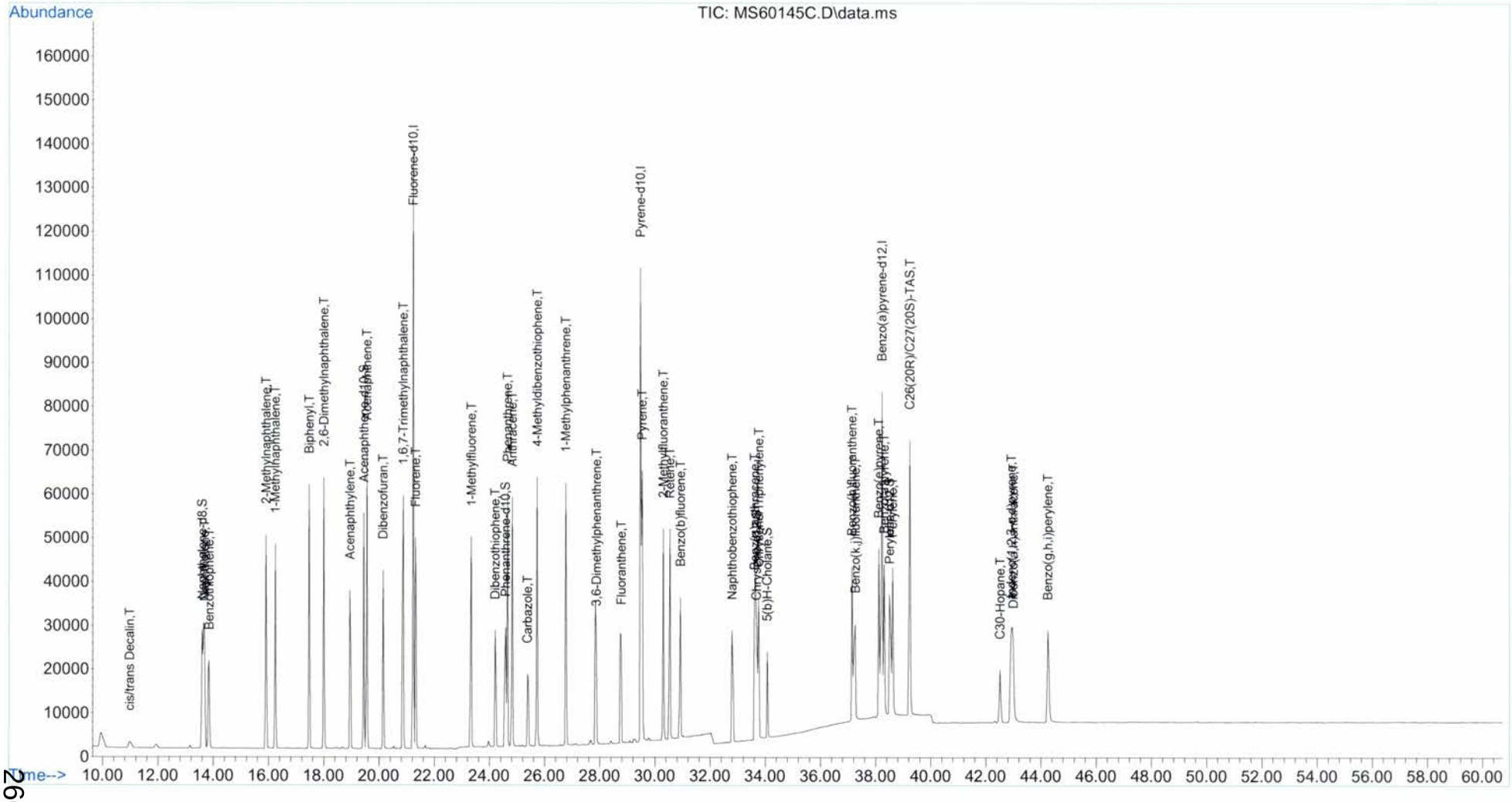
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145C.D
Acq On : 31 Aug 2013 12:06 am
Operator : YM
Sample : AR-WKC2-100-030
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 31 13:33:46 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 12:05:05 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145D.D
Acq On : 31 Aug 2013 1:16 am
Operator : YM
Sample : AR-WKC3-250-030
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 31 12:49:05 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 12:35:28 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.232	176	135350m	251.05		0.00
31) Pyrene-d10	29.467	212	232185m	250.63		0.00
73) Benzo(a)pyrene-d12	38.225	264	189928m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.597	136	204410m	234.12		0.00
21) Acenaphthene-d10	19.449	164	119150m	231.31		0.00
32) Phenanthrene-d10	24.583	188	187329m	227.90		0.00
66) Chrysene-d12	33.685	240	183583m	213.90		0.00
88) Perylene-d12	38.497	264	201826m	221.28		0.00
90) 5(b)H-Cholane	34.073	217	75793m	236.19		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	10.977	138	36469m	305.80		
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.653	128	219749m	235.41		
9) 2-Methylnaphthalene	15.910	142	140699m	231.14		
10) 1-Methylnaphthalene	16.244	142	131943m	233.76		
11) 2,6-Dimethylnaphthalene	18.000	156	130279m	235.13		
12) 1,6,7-Trimethylnaphtha...	20.870	170	122282m	228.96		
13) C2-Naphthalenes	0.000		0	N.D.	d	
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.		
16) Benzothiophene	13.820	134	172748m	234.53		
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	17.470	154	187070m	234.37		
23) Acenaphthylene	18.947	152	212998m	231.32		
24) Acenaphthene	19.560	154	124534m	228.93		
25) Dibenzofuran	20.145	168	203203m	233.21		
26) Fluorene	21.316	166	155603m	232.08		
27) 1-Methylfluorene	23.336	180	98941m	225.57		
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	25.380	167	153069m	221.19		
34) Dibenzothiophene	24.202	184	199261m	233.76		
35) 4-Methyldibenzothiophene	25.726	198	187711m	238.36		
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.	d	
37) 1-Methyldibenzothiophene	0.000		0	N.D.	d	
38) C2-Dibenzothiophenes	0.000		0	N.D.	d	
39) C3-Dibenzothiophenes	0.000		0	N.D.	d	
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.652	178	244940m	230.61		
42) Anthracene	24.825	178	234416m	230.75		

Data Path : C:\GCMS6\MS60145\
Data File : MS60145D.D
Acq On : 31 Aug 2013 1:16 am
Operator : YM
Sample : AR-WKC3-250-030
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 31 12:49:05 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 12:35:28 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43) 3-Methylphenanthrene	0.000		0	N.D.	d	
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	26.765	192	172899m	231.25		
48) 3,6-Dimethylphenanthrene	27.874	206	145783m	225.82		
49) Retene	30.541	234	81536m	205.75		
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	32.792	234	194488m	224.42		
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.774	202	237585m	229.73		
59) Pyrene	29.536	202	319468m	234.02		
60) 2-Methylfluoranthene	30.298	216	204886m	233.05		
61) Benzo(b)fluorene	30.922	216	162291m	219.87		
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67) Benz(a)anthracene	33.607	228	189668m	222.09		
68) Chrysene/Triphenylene	33.763	228	201049m	212.37		
69) C1-Chrysenes	0.000		0	N.D.	d	
70) C2-Chrysenes	0.000		0	N.D.	d	
71) C3-Chrysenes	0.000		0	N.D.	d	
72) C4-Chrysenes	0.000		0	N.D.	d	
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	42.514	191	102092m	237.93		
77) Benzo(b)fluoranthene	37.139	252	233917m	160.28		
78) Benzo(k,j)fluoranthene	37.255	252	211693m	148.33		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.109	252	253448m	232.00		
81) Benzo(a)pyrene	38.303	252	220451m	223.44		
82) Indeno(1,2,3-c,d)pyrene	42.919	276	200566m	215.32		
83) Dibenzo(a,h)anthracene	42.993	278	152144m	214.98		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.247	276	180102m	221.50		
89) Perylene	38.613	252	237239m	229.16		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	39.234	231	350274m	225.13		
95) C28(20S)-TAS	0.000		0	N.D.		
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145D.D
Acq On : 31 Aug 2013 1:16 am
Operator : YM
Sample : AR-WKC3-250-030
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 31 12:49:05 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 12:35:28 2013
Response via : Initial Calibration

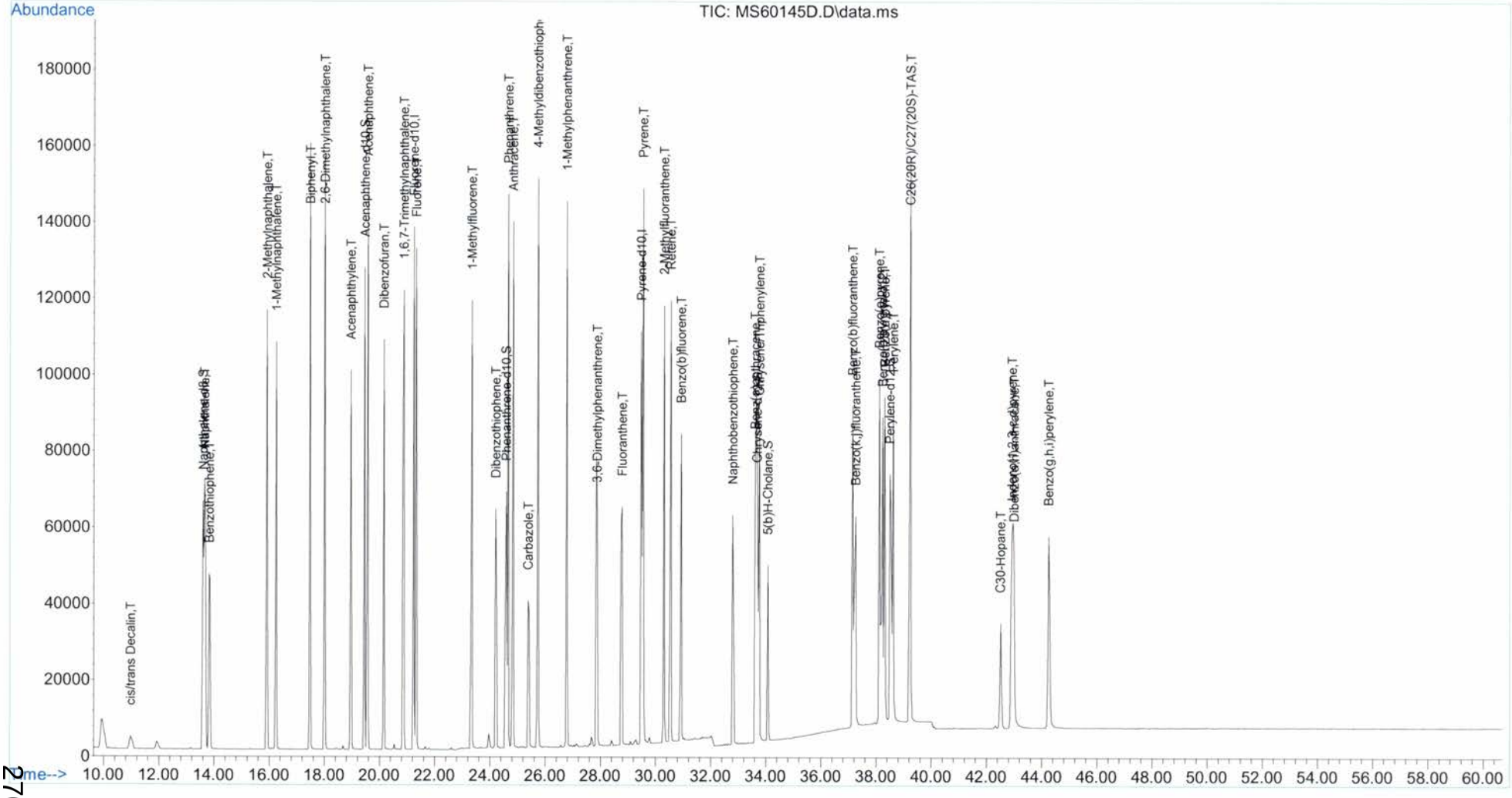
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145D.D
Acq On : 31 Aug 2013 1:16 am
Operator : YM
Sample : AR-WKC3-250-030
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 31 12:49:05 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 12:35:28 2013
Response via : Initial Calibration



Data Path : C:\GCMS6\MS60145\
Data File : MS60145E.D
Acq On : 31 Aug 2013 2:25 am
Operator : YM
Sample : AR-WKC4-500-030
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 31 13:14:38 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 12:49:29 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.229	176	141088m	251.05		0.00
31) Pyrene-d10	29.467	212	243710m	250.63		0.00
73) Benzo(a)pyrene-d12	38.226	264	204198m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.594	136	442027m	485.51		0.00
21) Acenaphthene-d10	19.446	164	257309m	479.15		0.00
32) Phenanthrene-d10	24.583	188	411853m	476.69		0.00
66) Chrysene-d12	33.647	240	421637m	467.61		-0.04
88) Perylene-d12	38.497	264	466227m	475.77		0.00
90) 5(b)H-Cholane	34.074	217	165107m	479.04		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	10.975	138	76303m	573.20		
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.678	128	472149m	485.19		
9) 2-Methylnaphthalene	15.907	142	309781m	488.20		
10) 1-Methylnaphthalene	16.241	142	282879m	480.54		
11) 2,6-Dimethylnaphthalene	17.997	156	276039m	477.91		
12) 1,6,7-Trimethylnaphtha...	20.867	170	267349m	480.26		
13) C2-Naphthalenes	0.000		0	N.D.	d	
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.		
16) Benzothiophene	13.845	134	369905m	481.74		
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	17.467	154	394263m	473.86		
23) Acenaphthylene	18.944	152	451719m	470.70		
24) Acenaphthene	19.557	154	273683m	482.86		
25) Dibenzofuran	20.143	168	430560m	473.92		
26) Fluorene	21.341	166	329610m	471.65		
27) 1-Methylfluorene	23.336	180	217067m	474.79		
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	25.380	167	338981m	466.21		
34) Dibenzothiophene	24.202	184	427123m	476.84		
35) 4-Methyldibenzothiophene	25.726	198	411142m	496.79		
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.	d	
37) 1-Methyldibenzothiophene	0.000		0	N.D.	d	
38) C2-Dibenzothiophenes	0.000		0	N.D.	d	
39) C3-Dibenzothiophenes	0.000		0	N.D.	d	
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.652	178	537049m	480.98		
42) Anthracene	24.825	178	516179m	483.39		

Data Path : C:\GCMS6\MS60145\
Data File : MS60145E.D
Acq On : 31 Aug 2013 2:25 am
Operator : YM
Sample : AR-WKC4-500-030
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 31 13:14:38 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 12:49:29 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43) 3-Methylphenanthrene	0.000		0	N.D.	d	
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	26.765	192	388829m	495.40		
48) 3,6-Dimethylphenanthrene	27.874	206	319716m	471.53		
49) Retene	30.541	234	178984m	429.91		
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.		
53) Naphthobenzothiophene	32.793	234	455906m	500.85		
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.740	202	520051m	478.86		
59) Pyrene	29.536	202	695626m	484.85		
60) 2-Methylfluoranthene	30.298	216	455328m	492.84		
61) Benzo(b)fluorene	30.922	216	360061m	464.51		
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67) Benz(a)anthracene	33.608	228	445480m	495.20		
68) Chrysene/Triphenylene	33.763	228	452663m	453.57		
69) C1-Chrysenes	0.000		0	N.D.	d	
70) C2-Chrysenes	0.000		0	N.D.	d	
71) C3-Chrysenes	0.000		0	N.D.	d	
72) C4-Chrysenes	0.000		0	N.D.	d	
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	42.513	191	218857m	473.64		
77) Benzo(b)fluoranthene	37.139	252	552350m	391.78		
78) Benzo(k,j)fluoranthene	37.217	252	493014m	362.96		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.109	252	585727m	498.41		
81) Benzo(a)pyrene	38.303	252	511604m	482.72		
82) Indeno(1,2,3-c,d)pyrene	42.919	276	462409m	462.75		
83) Dibenzo(a,h)anthracene	42.956	278	357198m	470.67		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.		
87) Benzo(g,h,i)perylene	44.247	276	409611m	469.42		
89) Perylene	38.614	252	531872m	477.24		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	39.235	231	760504m	455.58		
95) C28(20S)-TAS	0.000		0	N.D.		
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145E.D
Acq On : 31 Aug 2013 2:25 am
Operator : YM
Sample : AR-WKC4-500-030
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 31 13:14:38 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 12:49:29 2013
Response via : Initial Calibration

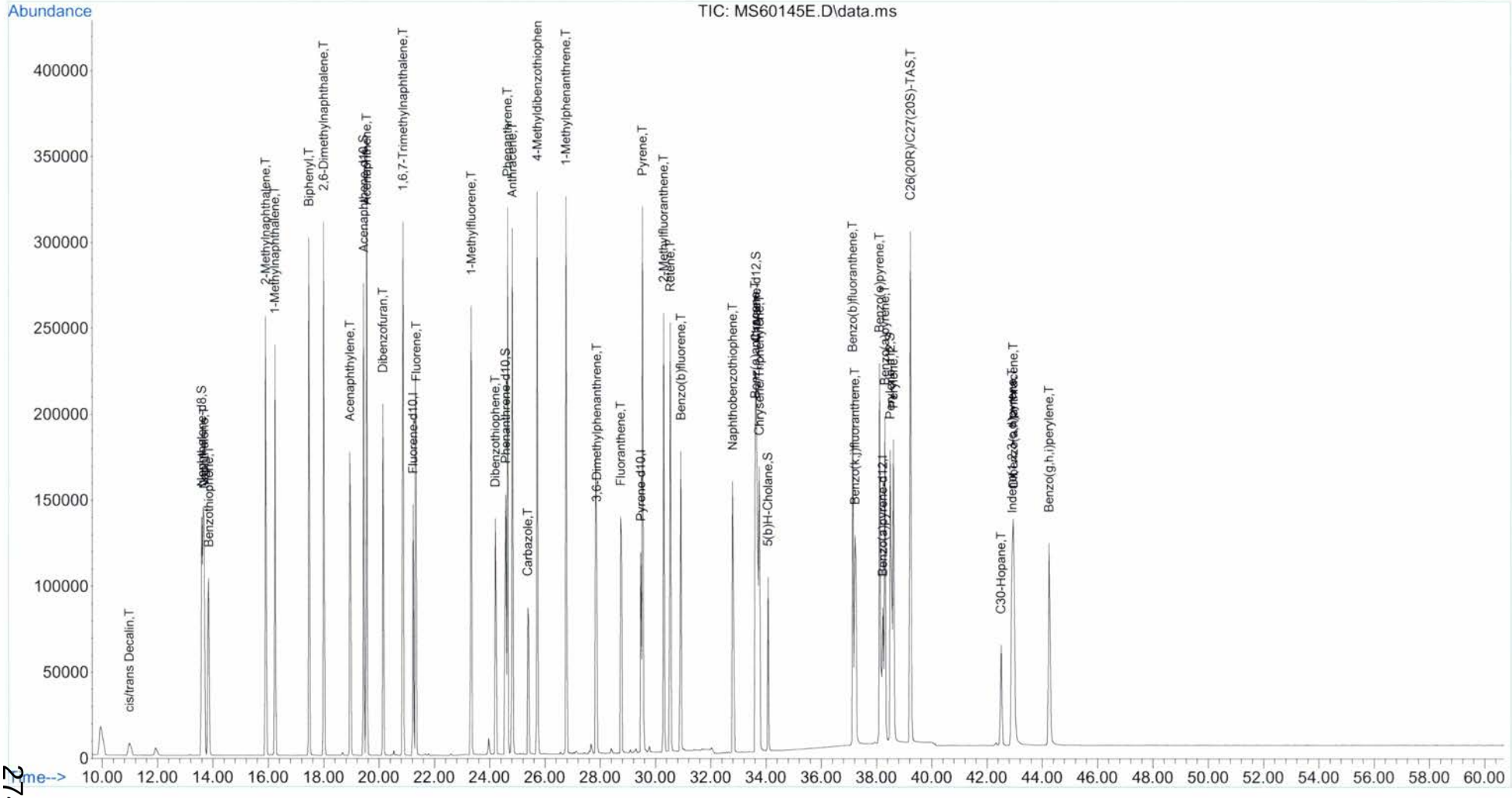
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145E.D
Acq On : 31 Aug 2013 2:25 am
Operator : YM
Sample : AR-WKC4-500-030
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 31 13:14:38 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 12:49:29 2013
Response via : Initial Calibration



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Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145F.D
Acq On : 31 Aug 2013 3:35 am
Operator : YM
Sample : AR-WKC5-1000-030
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 31 13:19:29 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:14:46 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.231	176	136296m	251.05		0.00
31) Pyrene-d10	29.468	212	245761m	250.63		0.00
73) Benzo(a)pyrene-d12	38.225	264	218809m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.595	136	855579m	972.69		0.00
21) Acenaphthene-d10	19.447	164	508315m	979.68		0.00
32) Phenanthrene-d10	24.584	188	827661m	949.59		0.00
66) Chrysene-d12	33.685	240	870606m	957.59		0.04
88) Perylene-d12	38.535	264	970263m	926.00		0.04
90) 5(b)H-Cholane	34.073	217	334741m	907.86		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	10.976	138	148147m	1083.98		
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.679	128	911002m	969.05		
9) 2-Methylnaphthalene	15.908	142	604812m	986.62		
10) 1-Methylnaphthalene	16.243	142	552399m	971.26		
11) 2,6-Dimethylnaphthalene	17.998	156	546843m	979.65		
12) 1,6,7-Trimethylnaphtha...	20.868	170	531432m	988.22		
13) C2-Naphthalenes	0.000		0	N.D.	d	
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.		
16) Benzothiophene	13.846	134	716790m	966.20		
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	17.469	154	778137m	968.10		
23) Acenaphthylene	18.946	152	902895m	974.09		
24) Acenaphthene	19.559	154	537581m	982.14		
25) Dibenzofuran	20.144	168	848883m	967.05		
26) Fluorene	21.314	166	651782m	965.38		
27) 1-Methylfluorene	23.337	180	444493m	1006.63		
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	25.381	167	697372m	951.13		
34) Dibenzothiophene	24.203	184	857552m	949.28		
35) 4-Methyldibenzothiophene	25.727	198	833676m	998.78		
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.	d	
37) 1-Methyldibenzothiophene	0.000		0	N.D.	d	
38) C2-Dibenzothiophenes	0.000		0	N.D.	d	
39) C3-Dibenzothiophenes	0.000		0	N.D.	d	
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.653	178	1071238m	950.89		
42) Anthracene	24.826	178	1042399m	967.61		

Data Path : C:\GCMS6\MS60145\
Data File : MS60145F.D
Acq On : 31 Aug 2013 3:35 am
Operator : YM
Sample : AR-WKC5-1000-030
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 31 13:19:29 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:14:46 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43) 3-Methylphenanthrene	0.000		0	N.D.	d	
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	26.766	192	760712m	962.18		
48) 3,6-Dimethylphenanthrene	27.875	206	650938m	952.08		
49) Retene	30.542	234	367236m	874.67		
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.		
53) Naphthobenzothiophene	32.792	234	919767m	1002.81		
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.775	202	1052841m	961.80		
59) Pyrene	29.537	202	1397409m	965.59		
60) 2-Methylfluoranthene	30.299	216	929903m	997.89		
61) Benzo(b)fluorene	30.923	216	756971m	968.69		
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67) Benz(a)anthracene	33.607	228	898481m	987.80		
68) Chrysene/Triphenylene	33.762	228	981262m	970.79		
69) C1-Chrysenes	0.000		0	N.D.	d	
70) C2-Chrysenes	0.000		0	N.D.	d	
71) C3-Chrysenes	0.000		0	N.D.	d	
72) C4-Chrysenes	0.000		0	N.D.	d	
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	42.515	191	436473m	879.90		
77) Benzo(b)fluoranthene	37.138	252	1091636m	823.27		
78) Benzo(k,j)fluoranthene	37.255	252	1036071m	829.96		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.108	252	1172800m	931.42		
81) Benzo(a)pyrene	38.302	252	1119844m	987.31		
82) Indeno(1,2,3-c,d)pyrene	42.921	276	992414m	929.91		
83) Dibenzo(a,h)anthracene	42.958	278	729870m	900.63		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.248	276	826811m	886.22		
89) Perylene	38.613	252	1168148m	978.21		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	39.234	231	1574774m	882.14		
95) C28(20S)-TAS	0.000		0	N.D.		
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145F.D
Acq On : 31 Aug 2013 3:35 am
Operator : YM
Sample : AR-WKC5-1000-030
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 31 13:19:29 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:14:46 2013
Response via : Initial Calibration

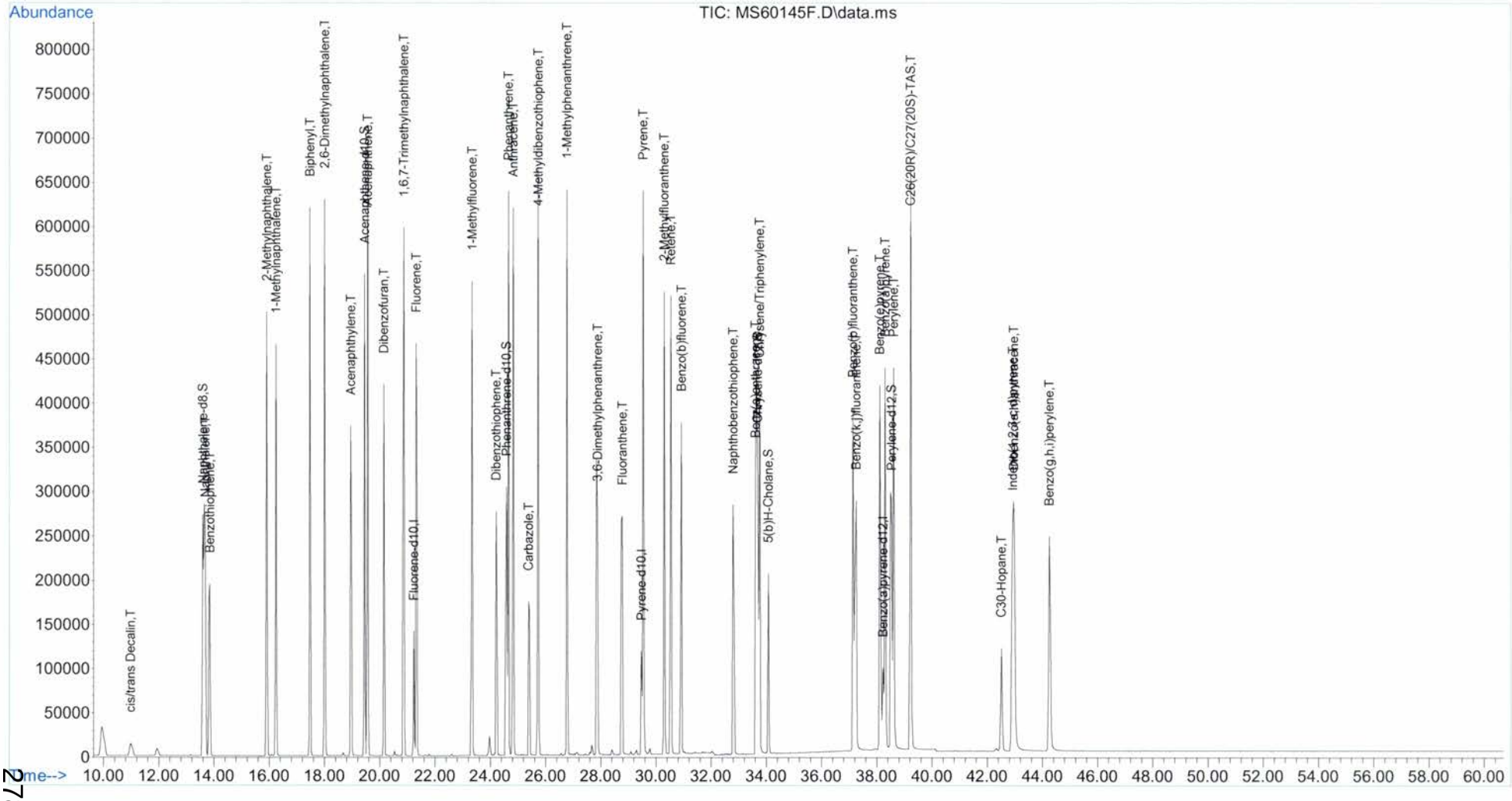
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145F.D
Acq On : 31 Aug 2013 3:35 am
Operator : YM
Sample : AR-WKC5-1000-030
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 31 13:19:29 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:14:46 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145G.D
Acq On : 31 Aug 2013 4:45 am
Operator : YM
Sample : AR-WKC6-5000-030
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 31 13:31:57 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:19:36 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.233	176	148666m	251.05		0.00
31) Pyrene-d10	29.467	212	266679m	250.63		0.00
73) Benzo(a)pyrene-d12	38.226	264	278084m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.598	136	4490729m	4682.09		0.00
21) Acenaphthene-d10	19.449	164	2770865m	4895.38		0.00
32) Phenanthrene-d10	24.583	188	5183802m	5478.71		0.00
66) Chrysene-d12	33.686	240	6064277m	6152.64		0.00
88) Perylene-d12	38.537	264	7028931m	5304.03		0.00
90) 5(b)H-Cholane	34.074	217	1921130m	4116.00		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	10.978	138	776219m	4919.95		
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.653	128	4776009m	4657.42		
9) 2-Methylnaphthalene	15.910	142	3229338m	4829.65		
10) 1-Methylnaphthalene	16.245	142	2957875m	4767.48		
11) 2,6-Dimethylnaphthalene	18.000	156	2989503m	4909.36		
12) 1,6,7-Trimethylnaphtha...	20.871	170	2995781m	5107.35		
13) C2-Naphthalenes	0.000		0	N.D.	d	
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.		
16) Benzothiophene	13.821	134	3790499m	4684.07		
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	17.471	154	4199131m	4789.46		
23) Acenaphthylene	18.948	152	5009499m	4955.43		
24) Acenaphthene	19.561	154	2980117m	4993.70		
25) Dibenzofuran	20.146	168	4704020m	4912.71		
26) Fluorene	21.316	166	3656575m	4965.14		
27) 1-Methylfluorene	23.336	180	2693618m	5593.16		
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	25.415	167	4554825m	5724.81		
34) Dibenzothiophene	24.237	184	4822519m	4919.05		
35) 4-Methyldibenzothiophene	25.726	198	4285754m	4730.92		
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.	d	
37) 1-Methyldibenzothiophene	0.000		0	N.D.	d	
38) C2-Dibenzothiophenes	0.000		0	N.D.	d	
39) C3-Dibenzothiophenes	0.000		0	N.D.	d	
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.653	178	6597687m	5394.52		
42) Anthracene	24.826	178	6548106m	5599.15		

Data Path : C:\GCMS6\MS60145\
Data File : MS60145G.D
Acq On : 31 Aug 2013 4:45 am
Operator : YM
Sample : AR-WKC6-5000-030
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 31 13:31:57 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:19:36 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43) 3-Methylphenanthrene	0.000		0	N.D.	d	
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	26.765	192	3933501m	4594.74		
48) 3,6-Dimethylphenanthrene	27.874	206	4207681m	5673.75		
49) Retene	30.541	234	2066738m	4536.10		
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.		
53) Naphthobenzothiophene	32.832	234	5548931m	5577.56		
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.775	202	6534301m	5503.17		
59) Pyrene	29.537	202	7182963m	4572.62		
60) 2-Methylfluoranthene	30.299	216	4892695m	4837.28		
61) Benzo(b)fluorene	30.922	216	5435853m	6412.06		
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67) Benz(a)anthracene	33.647	228	6003940m	6065.72		
68) Chrysene/Triphenylene	33.764	228	7361776m	6680.65		
69) C1-Chrysenes	0.000		0	N.D.	d	
70) C2-Chrysenes	0.000		0	N.D.	d	
71) C3-Chrysenes	0.000		0	N.D.	d	
72) C4-Chrysenes	0.000		0	N.D.	d	
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	42.515	191	2530109m	4013.33		
77) Benzo(b)fluoranthene	37.140	252	8118524m	5623.03		
78) Benzo(k,j)fluoranthene	37.256	252	6651943m	4994.48		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.110	252	6943493m	4349.27		
81) Benzo(a)pyrene	38.304	252	7353405m	5117.17		
82) Indeno(1,2,3-c,d)pyrene	42.920	276	7134583m	5294.73		
83) Dibenzo(a,h)anthracene	42.994	278	5747831m	5658.27		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.285	276	5897307m	5023.53		
89) Perylene	38.614	252	7697064m	5092.08		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	39.235	231	10268204m	4545.02		
95) C28(20S)-TAS	0.000		0	N.D.		
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145G.D
Acq On : 31 Aug 2013 4:45 am
Operator : YM
Sample : AR-WKC6-5000-030
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 31 13:31:57 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:19:36 2013
Response via : Initial Calibration

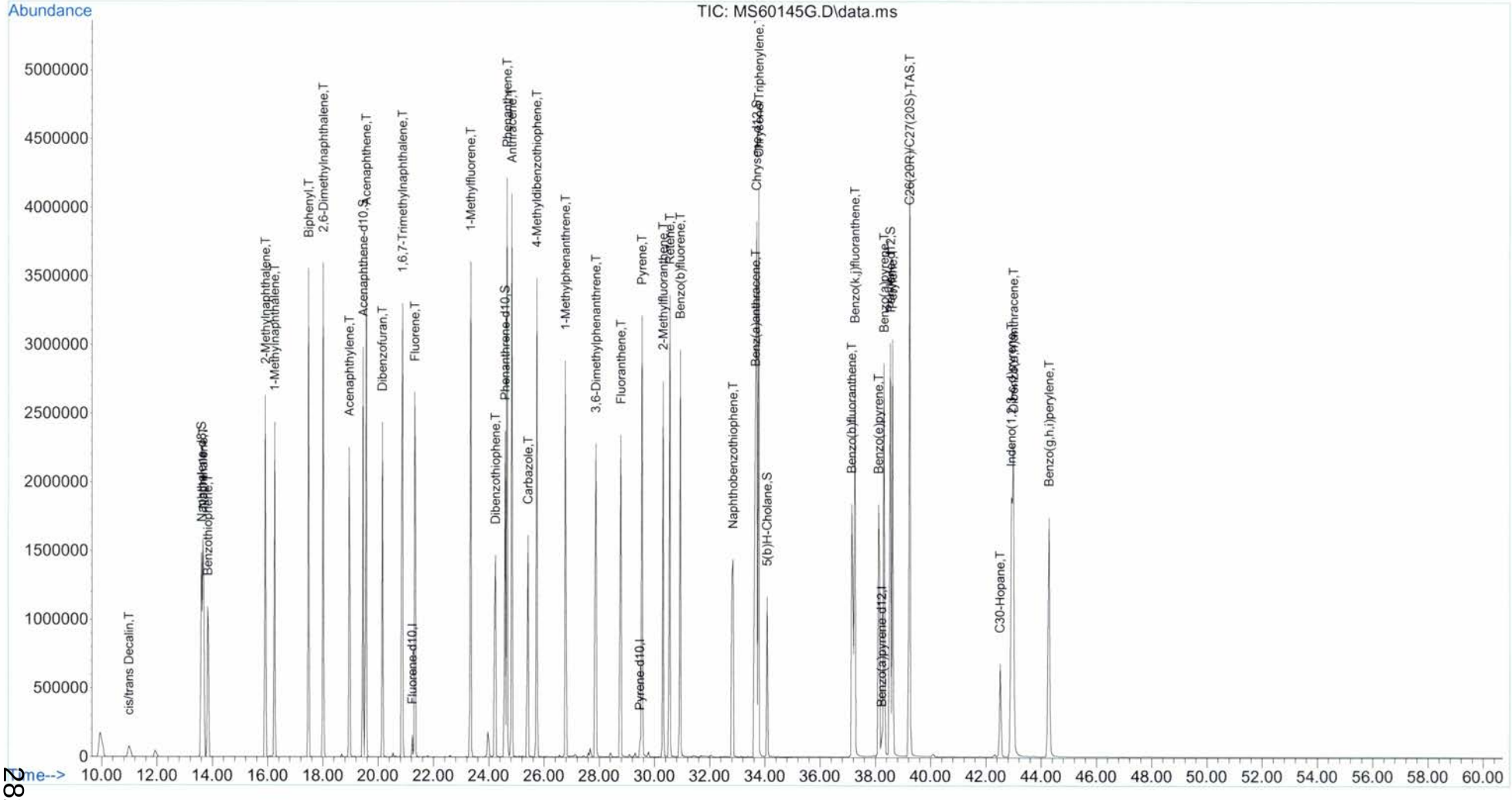
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145G.D
Acq On : 31 Aug 2013 4:45 am
Operator : YM
Sample : AR-WKC6-5000-030
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 31 13:31:57 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:19:36 2013
Response via : Initial Calibration



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Evaluate Continuing Calibration Report

Data Path : C:\GCMS6\MS60145\
Data File : MS60145I.D
Acq On : 31 Aug 2013 7:06 am
Operator : YM
Sample : AR-WKICV-250-004
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 31 13:44:15 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Fluorene-d10	1.000	1.000	0.0	111	0.00
2	S	Naphthalene-d8	1.618	1.487	8.1	109	0.00
3	T	cis/trans Decalin	0.281	0.323	-14.9	131	0.00
4	un	C1-Decalins	0.281	0.000	100.0#	0#	-12.12#
5	un	C2-Decalins	0.281	0.000	100.0#	0#	-14.49#
6	un	C3-Decalins	0.281	0.000	100.0#	0#	-16.19#
7	un	C4-Decalins	0.281	0.000	100.0#	0#	-18.33#
8	T	Naphthalene	1.732	1.948	-12.5	133	0.00
9	T	2-Methylnaphthalene	1.129	1.315	-16.5	140	0.00
10	T	1-Methylnaphthalene	1.048	1.220	-16.4	138	0.00
11	T	2,6-Dimethylnaphthalene	1.028	1.148	-11.7	132	0.00
12	T	1,6,7-Trimethylnaphthalene	0.991	1.146	-15.6	140	0.00
13	un	C2-Naphthalenes	1.732	0.000	100.0#	0#	-18.00#
14	un	C3-Naphthalenes	1.732	0.000	100.0#	0#	-20.15#
15	un	C4-Naphthalenes	1.732	0.000	100.0#	0#	-21.65#
16	T	Benzothiophene	1.367	1.569	-14.8	135	0.00
17	un	C1-Benzothiophenes	1.367	0.000	100.0#	0#	-15.30#
18	un	C2-Benzothiophenes	1.367	0.000	100.0#	0#	-18.47#
19	un	C3-Benzothiophenes	1.367	0.000	100.0#	0#	-20.09#
20	un	C4-Benzothiophenes	1.367	0.000	100.0#	0#	-22.07#
21	S	Acenaphthene-d10	0.956	0.870	9.0	109	0.00
22	T	Biphenyl	1.481	1.660	-12.1	132	0.00
23	T	Acenaphthylene	1.707	1.911	-12.0	133	0.00
24	T	Acenaphthene	1.007	1.138	-13.0	137	0.00
25	T	Dibenzofuran	1.617	1.821	-12.6	133	0.00
26	T	Fluorene	1.244	1.361	-9.4	131	0.00
27	T	1-Methylfluorene	0.813	0.000	100.0#	0#	-23.34#
28	un	C1-Fluorenes	1.244	0.000	100.0#	0#	-23.34#
29	un	C2-Fluorenes	1.244	0.000	100.0#	0#	-25.00#
30	un	C3-Fluorenes	1.244	0.000	100.0#	0#	-26.52#
31	I	Pyrene-d10	1.000	1.000	0.0	109	0.00
32	S	Phenanthrene-d10	0.890	0.799	10.2	108	0.00
33	T	Carbazole	0.748	0.790	-5.6	130	0.00
34	T	Dibenzothiophene	0.922	1.024	-11.1	128	0.00
35	T	4-Methyldibenzothiophene	0.850	0.000	100.0#	0#	-25.73#
36	un	2/3-Methyldibenzothiophene	0.850	0.000	100.0#	0#	-26.04#
37	un	1-Methyldibenzothiophene	0.850	0.000	100.0#	0#	-26.35#
38	un	C2-Dibenzothiophenes	0.922	0.000	100.0#	0#	-27.15#
39	un	C3-Dibenzothiophenes	0.922	0.000	100.0#	0#	-28.46#
40	un	C4-Dibenzothiophenes	0.922	0.000	100.0#	0#	-30.30#
41	T	Phenanthrene	1.150	1.260	-9.6	129	0.00
42	T	Anthracene	1.100	1.193	-8.5	129	0.00
43	un	3-Methylphenanthrene	0.804	0.000	100.0#	0#	-26.77#
44	un	2-Methylphenanthrene	0.804	0.000	100.0#	0#	-26.77#
45	un	2-Methylanthracene	0.804	0.000	100.0#	0#	-26.77#
46	un	4/9-Methylphenanthrene	0.804	0.000	100.0#	0#	-26.77#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS6\MS60145\
Data File : MS60145I.D
Acq On : 31 Aug 2013 7:06 am
Operator : YM
Sample : AR-WKICV-250-004
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 31 13:44:15 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
47	T	1-Methylphenanthrene	0.804	0.906	-12.7	131	0.00
48	T	3,6-Dimethylphenanthrene	0.697	0.000	100.0#	0#	-27.87#
49	T	Retene	0.427	0.000	100.0#	0#	-30.54#
50	un	C2-Phenanthrenes/Anthracene	1.150	0.000	100.0#	0#	-28.43#
51	un	C3-Phenanthrenes/Anthracene	1.150	0.000	100.0#	0#	-29.26#
52	un	C4-Phenanthrenes/Anthracene	1.150	0.000	100.0#	0#	-31.93#
53	T	Naphthobenzothiophene	0.935	0.000	100.0#	0#	-32.79#
54	un	C1-Naphthobenzothiophenes	0.935	0.000	100.0#	0#	-34.07#
55	un	C2-Naphthobenzothiophenes	0.935	0.000	100.0#	0#	-35.67#
56	un	C3-Naphthobenzothiophenes	0.935	0.000	100.0#	0#	-37.30#
57	un	C4-Naphthobenzothiophenes	0.935	0.000	100.0#	0#	-38.23#
58	T	Fluoranthene	1.116	1.222	-9.5	130	-0.03
59	T	Pyrene	1.473	1.624	-10.3	129	0.00
60	T	2-Methylfluoranthene	0.949	0.000	100.0#	0#	-30.30#
61	T	Benzo(b)fluorene	0.797	0.000	100.0#	0#	-30.92#
62	un	C1-Fluoranthenes/Pyrenes	1.116	0.000	100.0#	0#	-30.54#
63	un	C2-Fluoranthenes/Pyrenes	1.116	0.000	100.0#	0#	-32.03#
64	un	C3-Fluoranthenes/Pyrenes	1.116	0.000	100.0#	0#	-33.69#
65	un	C4-Fluoranthenes/Pyrenes	1.116	0.000	100.0#	0#	-34.11#
66	S	Chrysene-d12	0.902	0.766	15.1	106	-0.04
67	T	Benz(a)anthracene	0.932	1.062	-13.9	142	0.00
68	T	Chrysene/Triphenylene	1.023	0.996	2.6	125	0.00
69	un	C1-Chrysenes	1.023	0.000	100.0#	0#	-35.67#
70	un	C2-Chrysenes	1.023	0.000	100.0#	0#	-36.09#
71	un	C3-Chrysenes	1.023	0.000	100.0#	0#	-37.92#
72	un	C4-Chrysenes	1.023	0.000	100.0#	0#	-39.39#
73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	101	0.00
74	un	C29-Hopane	0.536	0.000	100.0#	0#	-40.82#
75	un	18a-Oleanane	0.536	0.000	100.0#	0#	-41.81#
76	T	C30-Hopane	0.536	0.000	100.0#	0#	-42.51#
77	T	Benzo(b)fluoranthene	1.369	1.602	-17.0	131	0.00
78	T	Benzo(k,j)fluoranthene	1.224	1.456	-19.0	131	-0.04
79	un	Benzo(a)fluoranthene	1.224	0.000	100.0#	0#	-37.14#
80	T	Benzo(e)pyrene	1.439	1.695	-17.8	128	0.00
81	T	Benzo(a)pyrene	1.297	1.432	-10.4	124	0.00
82	T	Indeno(1,2,3-c,d)pyrene	1.212	1.399	-15.4	131	-0.04
83	T	Dibenzo(a,h)anthracene	0.912	0.998	-9.4	125	-0.04
84	un	C1-Dibenzo(a,h)anthracenes	0.912	0.000	100.0#	0#	-48.82#
85	un	C2-Dibenzo(a,h)anthracenes	0.912	0.000	100.0#	0#	-50.37#
86	un	C3-Dibenzo(a,h)anthracenes	0.912	0.000	100.0#	0#	-50.55#
87	T	Benzo(g,h,i)perylene	1.055	1.229	-16.5	130	0.00
88	S	Perylene-d12	1.193	1.112	6.8	106	0.00
89	T	Perylene	1.362	1.484	-9.0	120	0.00
90	S	5(b)H-Cholane	0.420	0.409	2.6	103	0.00
91	un	C20-TAS	2.034	0.000	100.0#	0#	-33.14#
92	un	C21-TAS	2.034	0.000	100.0#	0#	-34.07#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS6\MS60145\
Data File : MS60145I.D
Acq On : 31 Aug 2013 7:06 am
Operator : YM
Sample : AR-WKICV-250-004
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 31 13:44:15 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev Area%	Dev(min)
93 un	C26(20S)-TAS	2.034	0.000	100.0#	0# -38.54#
94 T	C26(20R)/C27(20S)-TAS	2.034	0.000	100.0#	0# -39.23#
95 un	C28(20S)-TAS	2.034	0.000	100.0#	0# -39.82#
96 un	C27(20R)-TAS	2.034	0.000	100.0#	0# -40.45#
97 un	C28(20R)-TAS	2.034	0.000	100.0#	0# -41.81#

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145I.D
Acq On : 31 Aug 2013 7:06 am
Operator : YM
Sample : AR-WKICV-250-004
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 31 13:44:15 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.229	176	150292m	251.05		0.00
31) Pyrene-d10	29.467	212	253874m	250.63		0.00
73) Benzo(a)pyrene-d12	38.226	264	191760m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.594	136	222719m	229.94		0.00
21) Acenaphthene-d10	19.446	164	130254m	227.59		0.00
32) Phenanthrene-d10	24.583	188	202540m	224.70		0.00
66) Chrysene-d12	33.646	240	193918m	212.26		-0.04
88) Perylene-d12	38.497	264	213033m	233.17		0.00
90) 5(b)H-Cholane	34.073	217	78257m	242.99		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	10.974	138	47804m	284.50		
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.677	128	291475m	281.14		
9) 2-Methylnaphthalene	15.907	142	197074m	291.53		
10) 1-Methylnaphthalene	16.241	142	182434m	290.85		
11) 2,6-Dimethylnaphthalene	17.997	156	171882m	279.17		
12) 1,6,7-Trimethylnaphtha...	20.867	170	171581m	289.33		
13) C2-Naphthalenes	0.000		0	N.D.	d	
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.		
16) Benzothiophene	13.845	134	233485m	285.37		
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	17.467	154	246240m	277.78		
23) Acenaphthylene	18.944	152	283758m	277.66		
24) Acenaphthene	19.557	154	170659m	282.99		
25) Dibenzofuran	20.142	168	271157m	280.08		
26) Fluorene	21.313	166	204150m	274.15		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	25.380	167	198312m	261.70		
34) Dibenzothiophene	24.202	184	255627m	273.80		
35) 4-Methyldibenzothiophene	0.000		0	N.D.	d	
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.	d	
37) 1-Methyldibenzothiophene	0.000		0	N.D.	d	
38) C2-Dibenzothiophenes	0.000		0	N.D.	d	
39) C3-Dibenzothiophenes	0.000		0	N.D.	d	
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.652	178	316129m	271.31		
42) Anthracene	24.826	178	303052m	271.98		

Data Path : C:\GCMS6\MS60145\
Data File : MS60145I.D
Acq On : 31 Aug 2013 7:06 am
Operator : YM
Sample : AR-WKICV-250-004
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 31 13:44:15 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43)	3-Methylphenanthrene	0.000		0	N.D.	d	
44)	2-Methylphenanthrene	0.000		0	N.D.	d	
45)	2-Methylanthracene	0.000		0	N.D.	d	
46)	4/9-Methylphenanthrene	0.000		0	N.D.	d	
47)	1-Methylphenanthrene	26.765	192	226892m	278.53		
48)	3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49)	Retene	0.000		0	N.D.	d	
50)	C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51)	C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52)	C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53)	Naphthobenzothiophene	0.000		0	N.D.	d	
54)	C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55)	C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56)	C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57)	C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58)	Fluoranthene	28.740	202	309753m	274.03		
59)	Pyrene	29.537	202	411221m	275.57		
60)	2-Methylfluoranthene	0.000		0	N.D.	d	
61)	Benzo(b)fluorene	0.000		0	N.D.	d	
62)	C1-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
63)	C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64)	C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65)	C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67)	Benz(a)anthracene	33.608	228	268387m	284.43		
68)	Chrysene/Triphenylene	33.763	228	250701m	241.85		
69)	C1-Chrysenes	0.000		0	N.D.	d	
70)	C2-Chrysenes	0.000		0	N.D.	d	
71)	C3-Chrysenes	0.000		0	N.D.	d	
72)	C4-Chrysenes	0.000		0	N.D.	d	
74)	C29-Hopane	0.000		0	N.D.	d	
75)	18a-Oleanane	0.000		0	N.D.	d	
76)	C30-Hopane	0.000		0	N.D.	d	
77)	Benzo(b)fluoranthene	37.139	252	307353m	293.15		
78)	Benzo(k,j)fluoranthene	37.217	252	277805m	296.25		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.109	252	323312m	293.22		
81)	Benzo(a)pyrene	38.303	252	273635m	275.44		
82)	Indeno(1,2,3-c,d)pyrene	42.883	276	263450m	283.70		
83)	Dibenzo(a,h)anthracene	42.956	278	189485m	271.24		
84)	C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85)	C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86)	C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87)	Benzo(g,h,i)perylene	44.247	276	233233m	288.47		
89)	Perylene	38.614	252	284514m	272.65		
91)	C20-TAS	0.000		0	N.D.	d	
92)	C21-TAS	0.000		0	N.D.	d	
93)	C26(20S)-TAS	0.000		0	N.D.	d	
94)	C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95)	C28(20S)-TAS	0.000		0	N.D.	d	
96)	C27(20R)-TAS	0.000		0	N.D.	d	
97)	C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145I.D
Acq On : 31 Aug 2013 7:06 am
Operator : YM
Sample : AR-WKICV-250-004
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 31 13:44:15 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration

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

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS6\MS60145\
Data File : MS60145I.D
Acq On : 31 Aug 2013 7:06 am
Operator : YM
Sample : AR-WKICV-250-004
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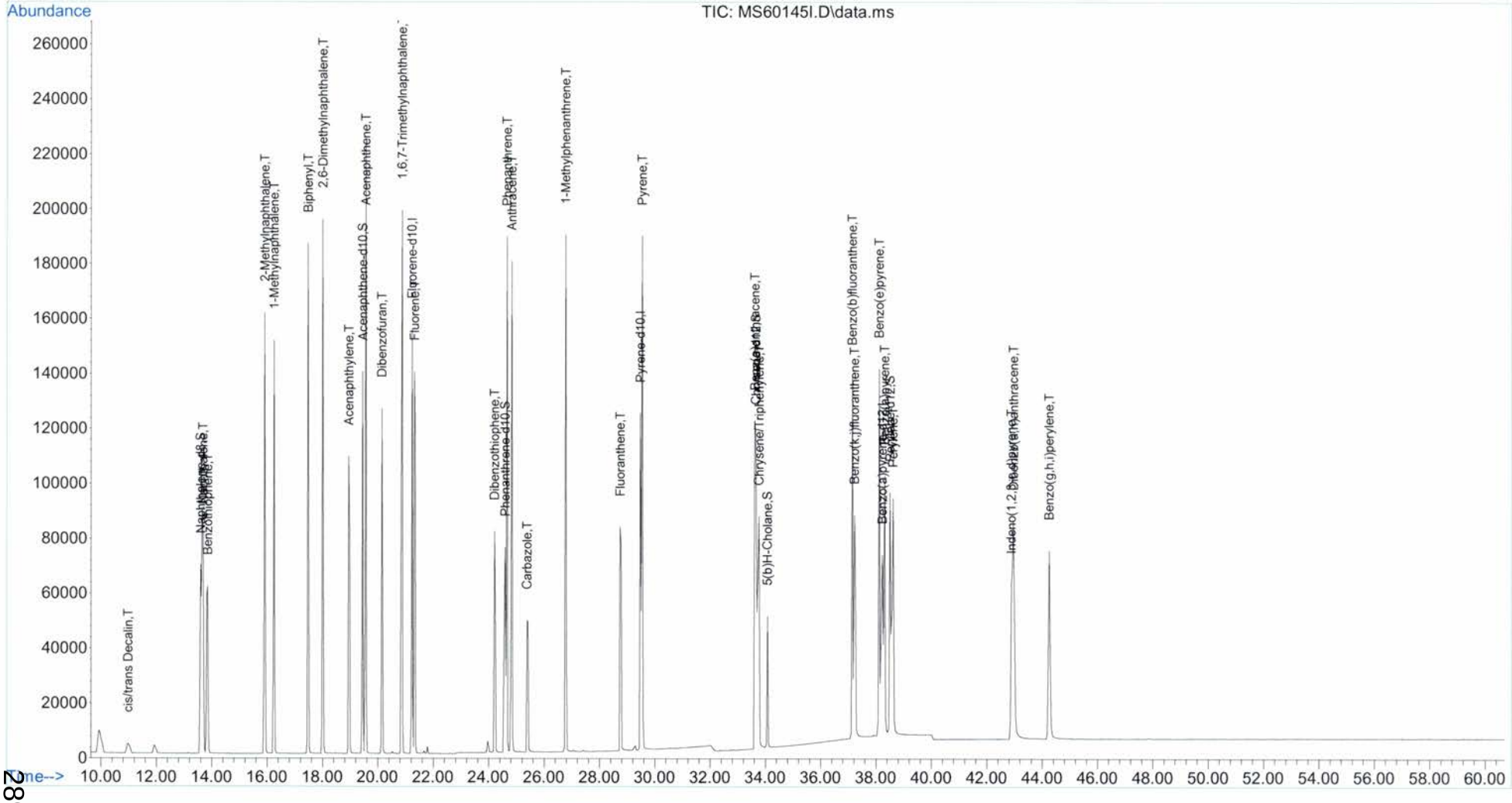
Quant Time: Aug 31 13:44:15 2013
Quant Method : C:\GCMS6\MS60145\AR60145.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 31 13:33:52 2013
Response via : Initial Calibration



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PAH Mass Discrimination Ratio

B&B Laboratories
Project J13034
Report 13-3108

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Mass Discrimination Sheet

Client Project #B0086003.1302

File Name	Sample Name	Benzo(g,h,i)perylene Concentration (ng/mL)	Phenanthrene Concentration (ng/mL)	Benzo(g,h,i)perylene/ Phenanthrene ratio	Q
MS60145B.D	AR-WKC1-020-030	23.3	22.0	1.06	
MS60145C.D	AR-WKC2-100-030	98.7	95.7	1.03	
MS60145D.D	AR-WKC3-250-030	222	231	0.96	
MS60145E.D	AR-WKC4-500-030	469	481	0.98	
MS60145F.D	AR-WKC5-1000-030	886	951	0.93	
MS60145G.D	AR-WKC6-5000-030	5024	5395	0.93	
MS60145I.D	AR-WKICV-250-004	288	271	1.06	
MS60145J.D	AR-WKCC-250-038	242	238	1.02	
MS60145L.D	AR-WKCC-250-038	169	213	0.79	
MS60145M.D	AR-WKCC-250-038	170	224	0.76	
MS60145N.D	AR-WKCC-250-038	183	217	0.84	

Qualifiers (Q): Ratio of Benzo(g,h,i)perylene to Phenanthrene needs to be ≥ 0.70

PAH Internal Standard Area Data

B&B Laboratories
Project J13034
Report 13-3108

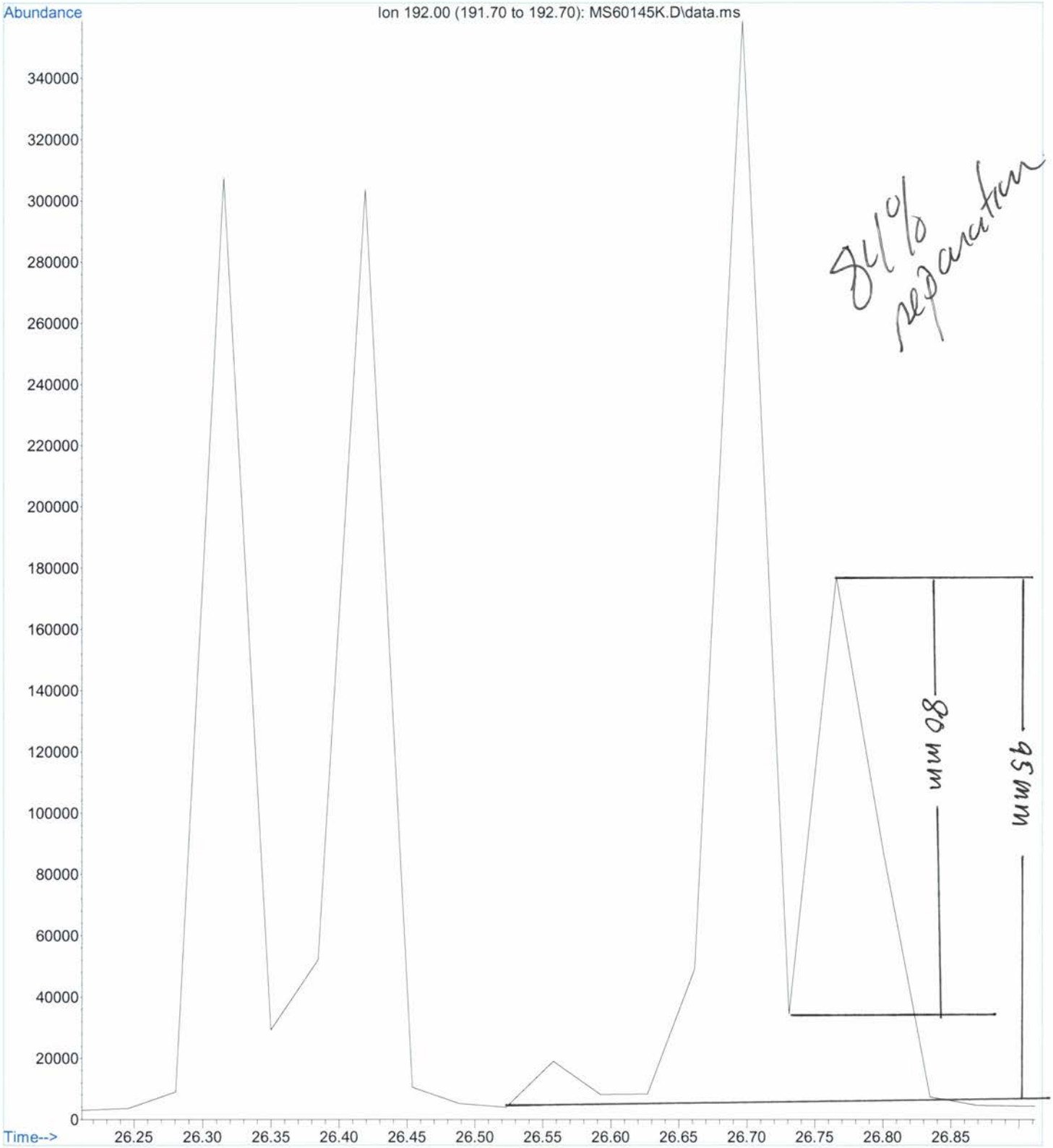
Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
The Area of the Internal Standards in the Associated Calibration Standard

Client Project #B0086003.1302

File Name	Sample Name	Internal Standard 1 Fluorene-d10			Internal Standard 2 Pyrene-d10			Internal Standard 3 Benzo(a)pyrene-d12		
		Response (Area)	50% (Area)	200% (Area)	Response (Area)	50% (Area)	200% (Area)	Response (Area)	50% (Area)	200% (Area)
MS60145D.D	**AR-WKC3-250-030**	**135350**	**67675**	**270700**	**232185**	**116093**	**464370**	**189928**	**94964**	**379856**
MS60145I.D	**AR-WKICV-250-004**	**150292**			**253874**			**191760**		
MS60145J.D	**AR-WKCC-250-038**	**117104**	**58552**	**234208**	**190507**	**95254**	**381014**	**148554**	**74277**	**297108**
ENV3088A.D	Procedural Blank	113756			198136			146545		
ENV3088B.D	SRM 1941b	126843			237281			267715		
ENV3088C.D	MS (SO-DA-017 (0-0.5) MS)	139042			323497			229100		
ENV3088D.D	MSD (SO-DA-017 (0-0.5) MSD)	121185			256341			199294		
ENV3088E.D	Dupl. (SO-DA-032 (0.5-1.0))	116546			222502			175632		
ARC1713.D	SO-DA-017 (0-0.5)	132697			275148			187938		
MS60145L.D	**AR-WKCC-250-038**	**124485**	**62243**	**248970**	**234162**	**117081**	**468324**	**174377**	**87189**	**348754**
ARC1718.D	SO-DA-018 (0.5-1.0)	113333			216205			173243		
ARC1722.D	SO-DA-020 (0-0.5)	132717			240413			200454		
ARC1723.D	SO-DA-020 (0.5-1.0)	118471			223905			174097		
ARC1724.D	SO-DA-020 (1.0-1.5)	125953			229908			176782		
ARC1725.D	SO-DA-022 (0-0.5)	139251			222296			126191		
ARC1726.D	SO-DA-022 (0.5-1.0)	121093			223905			157553		
ARC1727.D	SO-DA-022 (1.0-1.5)	123635			230155			164107		
ARC1728.D	SO-DA-025 (0-0.5)	122920			251052			145379		
ARC1729.D	SO-DA-025 (0.5-1.0)	126654			233684			151832		
MS60145M.D	**AR-WKCC-250-038**	**117680**	**58840**	**235360**	**230362**	**115181**	**460724**	**117230**	**58615**	**234460**
ARC1730.D	SO-DA-025 (1.0-1.5)	114457			213655			134810		
ARC1731.D	SO-DA-DUP-04-080713	135833			228255			111087		
ARC1732.D	SO-DA-032 (0-0.5)	121802			235595			128776		
ARC1733.D	SO-DA-032 (0.5-1.0)	125372			235635			130505		
ARC1734.D	SO-DA-032 (1.0-1.5)	121665			231316			125157		
ARC1743.D	SO-DA-021 (0-0.5)	121446			257738			123552		
ARC1744.D	SO-DA-021 (0.5-1.0)	119770			217952			127281		
ARC1745.D	SO-DA-021 (1.0-1.5)	118006			224092			118680		
ARC1749.D	SO-DA-023 (0-0.5)	142939			244190			101059		
MS60145N.D	**AR-WKCC-250-038**	**134210**	**67105**	**268420**	**252018**	**126009**	**504036**	**95008**	**47504**	**190016**

SRM-2779 Reference Oil
PAH
Resolution Check

File :C:\GCMS6\MS60145\MS60145K.D
Operator : YM
Acquired : 31 Aug 2013 9:26 am using AcqMethod PAH-2012.M
Instrument : GCMS6
Sample Name: AR-SRM2779-WK-4.0-002
Misc Info :
Vial Number: 11



Supporting Documents

Shipping, Sample Receiving, and Project Initiation Documents

B&B LABORATORIES RECEIVING/INTEGRITY REPORT

Job: J13034 Date Received: 8/07/13 SDG#: 13080701

Sender: Arcadis- Mayflower AR

1. Number of Shipping Containers: 1 Arcadis: Daniel Mays

Comments: large blue cooler

2. Airbill Present? (Yes)/No Shipping Company: Fed Ex

Airbill Number: 8022 2781 5891 Comments: PON

3. Custody Seals on Container?
No (Yes) (Intact) Not Intact Comments: on top of duct tape

4. Chain of Custody Records?
No (Yes) Comments None

5. General Sample Conditions:
Frozen (Cool) Unrefrigerated
Dry Ice Blue Ice (Ice)

Temperature/Comments: 0.6°C / temp blank 0.3°C (T4

6. List of Broken Containers:

None

7. Number of Samples Expected: 1 cooler Number of Samples Received: 21 sed/soil
2 water

8. Problems/Discrepancies:

None

9. Resolutions:

N/A

10. Checked in by: Amanda Brewster Date: 8/07/13

large blue cooler

Ice type: wet Ice
Cooler temp: 0.6
Temp blank: yes 0.3
Thermometer: 4
Custody seal:

Sdg 13080701
Cooler 1 of 1

eurofins | Lancaster Laboratories

486707
CUSTODY SEAL
2425 New Holland Pike, Lancaster, PA 17601-5994 (717) 656-2300

DATE: 2-6-13
SIGNATURE: Paul Mays

FedEx Express NEW Package US Airbill

FedEx Tracking Number 8022 2781 5891

0200

1 From
Date 9-5-213
Sender's Name Paul Mays Phone
Company AIR ADIS
Address 101
Dept/Floor/Suite/Room
City Kil State ZIP

2 Your Internal Billing Reference

3 To
Recipient's Name Phone
Company B+R Labs
Address 1431 S South
We cannot deliver to P.O. boxes or P.O. ZIP codes. Dept/Floor/Suite/Room
Address
Use this line for the HOLD location address or for continuation of your shipping address.
City State ZIP

HOLD Weekday
FedEx location address REQUIRED. NOT available for FedEx First Overnight.
HOLD Saturday
FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

4 Express Package Service * To most locations.
NOTE: Service order has changed. Please select carefully.
Packages up to 150 lbs.
For packages over 150 lbs., use the new FedEx Express Freight US Airbill.

Next Business Day
- FedEx First Overnight — Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

2 or 3 Business Days
- FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.
- FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.
- FedEx Envelope*
- FedEx Pak*
- FedEx Box
- FedEx Tube
- Other

6 Special Handling and Delivery Signature Options
- SATURDAY Delivery — NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.
- No Signature Required — Package may be left without obtaining a signature for delivery.
- Direct Signature — Someone at recipient's address may sign for delivery. Fee applies.
- Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. Fee applies.

Does this shipment contain dangerous goods?
- No
- Yes — As per attached Shipper's Declaration
- Yes — Shipper's Declaration not required.
- Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.
- Cargo Aircraft Only

7 Payment Bill to:
Enter FedEx Acct. No. or Credit Card No. below.
- Sender — Acct. No. in Section 1 will be billed
- Recipient
- Third Party
- Credit Card
- Cash/Check

Total Packages Total Weight
Credit Card Auth.
lbs.

Your liability is limited to $100 unless you declare a higher value. See the current FedEx Service Guide for details.

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PS lot 3

CHAIN OF CUSTODY RECORD

B&B Laboratories, Inc.

Home Office 14391B South Dowling Road College Station TX 77845 phone (979) 693-3446 fax (979) 693-6389 http://www.tdi-bi.com

TDI Brooks

Client: ARCADIS

Project ID: Mayflower Pipeline Incident B0086003.1301

B&B Contact: Juan Ramirez

Sampler Signature:

Analyses

Other Instructions: Sdg 1308 0701 Cooler 1 of 1 (1)

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	PAHs by 8270 SIM	TEH by mod 8015	Comments
SED-DA-039 (0-0.5)	8/6/13	840		none	8oz	1	X	X	Full List
SED-DA-039 (0-0.5)ms		800			8oz	1		X	Full List
SED-DA-039 (0-0.5)msd		800			8oz	1		X	Full list
SED-DA-039 (0.5-1.0)		805			4oz	1			44 PAHs list
SED-DA-039 (1.0-1.5)		810			4oz	1			44 PAHs List
SED-DA-040 (0-0.5)		900			8oz	1		X	Full List
SED-DA-040 (0.5-1.0)		905			4oz	1			44 PAH List
SED-DA-040 (1.0-1.5)		910			4oz	1			44 PAH List
SED-DA-Dup-05-080613					8oz	1		X	Full List
SED-DA-EB-06 080613		800	Water		LAG	2		X	Full list
					Total # of Containers	11			

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Jonathan Flomerfelt	ARCADIS	8/6/13	1630	Printed Name: Amanda Brewster	B&B Labs	8/7/13	11:00
Signature:				Signature: Amanda Brewster			
Printed Name:				Printed Name:			
Signature:				Signature:			

Matrix:

T=Tissue G=Gas
S=Soil/Sediment Ws=Waste
R=Rinseate HW=Hazardous Waste
P=Product W=Water

Sample Container: Vol/material

G=Glass C=Core
P=Plastic B=Bag

CHAIN OF CUSTODY RECORD

B&B Laboratories, Inc.
Home Office 14391B South Dowling Road College Station TX 77845 phone (979) 693-3446 fax (979) 693-6389 http://www.tdi-bi.com

TDI Brooks

Client: ARCADIS

Project ID: Mayflower Pipeline Incident B0086083.1301

B&B Contact: Juan Ramirez

Sampler Signature: Daniel Mayo

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	Analyses: PAHs + 8270 SIM	Other Instructions	Comments
								Sdg 130807 01 cooler 1 of 1 (2)	
So-DA-016 (0-0.5)	8/6/13	1045	Soil	None	4 oz	1	X		44 PAH List
So-DA-016 (0.5-1.0)		1050			4 oz				
So-DA-016 (1.0-1.5)		1055			4 oz				
So-DA-017 (0-0.5)		1120			4 oz				
So-DA-017 (0-0.5) MS		1120			4 oz				
So-DA-017 (0.5-1.0)		1125			4 oz				
So-DA-017 (1.0-1.5)		1130			4 oz				
So-DA-018 (0-0.5)		1330			4 oz				
So-DA-018 (0.5-1.0)		1335			4 oz				
So-DA-018 (1.0-1.5)		1340			4 oz				
					Total # of Containers	10			

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Jonathan Flowerhill	ARCADIS	8/6/13	1630	Printed Name: Amanda Brewster	B&B Labs	8/7/13	11:00
Signature:				Signature:			
Printed Name:				Printed Name:			
Signature:				Signature:			

Matrix:

T=Tissue G=Gas
S=Soil/Sediment Ws=Waste
R=Rinseate HW=Hazardous Waste
P=Product W=Water

Sample Container: Vol/material

G=Glass C=Core
P=Plastic B=Bag

B&B Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Home Office 14391B South Dowling Road College Station TX 77845 phone (979) 693-3446 fax (979) 693-6389 http://www.tdi-bi.com

TDI Brooks

PS 3 of 3

Client: ARCADIS

Project ID: Mayflower Pipeline Incident B008600 3.1301

B&B Contact: Dana Ramirez

Sampler Signature: Daniel Mays

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	Analyses: PAHs + 8270 SIM	Other Instructions	Comments
SO-DA-Dup-03-080613	8/6/13		S...l	none	4 oz	1	X	Soil 13080701 Cooler 1 of 1 (3)	44 PAH List
SO-DA-017 (0-0.5)MSD	↓	1120	↓	↓	↓	1	X		44 PA List

Total # of Containers: 2

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Jonathan Flowerfelt	ARCADIS	8/6/13	1630	Printed Name: Amanda Brewster	B&B Labs	8/7/13	11:00
Signature:	↓	↓	↓	Signature:			
Printed Name:				Printed Name:			
Signature:				Signature:			

Matrix:

T=Tissue G=Gas
S=Soil/Sediment Ws=Waste
R=Rinseate HW=Hazardous Waste
P=Product W=Water

Sample Container: Vol/material

G=Glass C=Core
P=Plastic B=Bag

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	Project #
64384	J13034	Arcadis - Mayflower AR	ARC1699	SED-DA-EB-06-080613	08/06/13	08/07/13	PAH, TPH, ALI	WATER	1 of 2	13080701	Cooler 1	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302
64385	J13034	Arcadis - Mayflower AR	ARC1700	SED-DA-EB-06-080613	08/06/13	08/07/13	HOLD	WATER	2 of 2	13080701	Cooler 1	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302
64386	J13034	Arcadis - Mayflower AR	ARC1701	SED-DA-039 (0-0.5)	08/06/13	08/07/13	PAH, TPH, ALI	SED		13080701	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64387	J13034	Arcadis - Mayflower AR	ARC1702	SED-DA-039 (0-0.5) MS	08/06/13	08/07/13	PAH, TPH, ALI	SED	MS	13080701	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64388	J13034	Arcadis - Mayflower AR	ARC1703	SED-DA-039 (0-0.5) MSD	08/06/13	08/07/13	PAH, TPH, ALI	SED	MSD	13080701	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64389	J13034	Arcadis - Mayflower AR	ARC1704	SED-DA-039 (0.5-1.0)	08/06/13	08/07/13	PAH	SED	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64390	J13034	Arcadis - Mayflower AR	ARC1705	SED-DA-039 (1.0-1.5)	08/06/13	08/07/13	PAH	SED	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64391	J13034	Arcadis - Mayflower AR	ARC1706	SED-DA-040 (0-0.5)	08/06/13	08/07/13	PAH, TPH, ALI	SED		13080701	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64392	J13034	Arcadis - Mayflower AR	ARC1707	SED-DA-040 (0.5-1.0)	08/06/13	08/07/13	PAH	SED	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64393	J13034	Arcadis - Mayflower AR	ARC1708	SED-DA-040 (1.0-1.5)	08/06/13	08/07/13	PAH	SED	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64394	J13034	Arcadis - Mayflower AR	ARC1709	SED-DA-DUP-05-080613	08/06/13	08/07/13	PAH, TPH, ALI	SED		13080701	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64395	J13034	Arcadis - Mayflower AR	ARC1710	SO-DA-016 (0-0.5)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64396	J13034	Arcadis - Mayflower AR	ARC1711	SO-DA-016 (0.5-1.0)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64397	J13034	Arcadis - Mayflower AR	ARC1712	SO-DA-016 (1.0-1.5)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64398	J13034	Arcadis - Mayflower AR	ARC1713	SO-DA-017 (0-0.5)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64399	J13034	Arcadis - Mayflower AR	ARC1714	SO-DA-017 (0-0.5) MS	08/06/13	08/07/13	PAH	SOIL	44 analytes, MS	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64400	J13034	Arcadis - Mayflower AR	ARC1715	SO-DA-017 (0.5-1.0)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64401	J13034	Arcadis - Mayflower AR	ARC1716	SO-DA-017 (1.0-1.5)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64402	J13034	Arcadis - Mayflower AR	ARC1717	SO-DA-018 (0-0.5)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64403	J13034	Arcadis - Mayflower AR	ARC1718	SO-DA-018 (0.5-1.0)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64404	J13034	Arcadis - Mayflower AR	ARC1719	SO-DA-018 (1.0-1.5)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64405	J13034	Arcadis - Mayflower AR	ARC1720	SO-DA-DUP-03-080613	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64406	J13034	Arcadis - Mayflower AR	ARC1721	SO-DA-017 (0-0.5) MSD	08/06/13	08/07/13	PAH	SOIL	44 analytes, MSD	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302

B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034
SDG: 13080701
Client: Arcadis-Mayflower AR
Initiation Date: 8/07/13

Number of Samples: 1
Matrix: water
Due Date: 45 days: 9/20/13
Comments: collected 8/06/13
extract by 8/12/13
received 8/06/13

Analyses

☑	PAHs	☐	OCs/PCBs	☑	Aliphatics/TPH	☑	EOM
☐	Dry Wt.	☐	%Lipid	☐	TOC/TIC	☐	_____
☑	Short Columns	☐	Long Columns	☐	_____	☐	_____

Requested QA/QC (per batch of _____ Client Samples)

☑ Blank	☐ SRM/LCS_____	☑	Blank Spike
☑	Blank Spike Duplicate	☐	Matrix Spike _____
☐	Matrix Spike Duplicate _____	☐	Duplicate_____

SEE BACK FOR SPECIFIC STANDARDS TO USE

Surrogate(s): PAH, ACI Volume(s): 100ul

Spike Standard(s): PAH, ACI Volume(s): 100ul

Internal Standard(s): PAH, ACI Volume(s): 100ul

Final Extract Volume (ml): 1.0 Final Solvent: DCM

Comments:

Sample Custodian Signature: Amanda Brewster Date: 8/07/13

Laboratory Manager Signature: _____ Date: 8/7/13

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	a	Project #
64384	J13034	Arcadis - Mayflower AR	ARC1699	SED-DA-EB-06-080613	08/06/13	08/07/13	PAH, TPH, ALI	WATER	1 of 2	13080701	Cooler 1	Arcadis: Daniel Mays	1L amber glass BR bottle		B0086003.1302

B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034
SDG: 13080701
Client: Arcadis-Mayflower AR
Initiation Date: 8/07/13

Number of Samples: 5
Matrix: sediments
Due Date: 45 days: 9/20/13
Comments: PAH, TPH, ALI
received 8/07/13

Analyses

☒	PAHs	☐	OCs/PCBs	☒	Aliphatics/TPH	☒	EOM
☒	Dry Wt.	☐	%Lipid	☐	TOC/TIC	☐	_____
☒	Short Columns	☐	Long Columns	☐	_____	☐	_____

Requested QA/QC (per batch of _____ Client Samples)

☒	Blank	☒ SRM/LCS NIST	☐ Blank Spike
☐	Blank Spike Duplicate	☒	Matrix Spike _____
☒	Matrix Spike Duplicate _____	☒	Duplicate _____

SEE BACK FOR SPECIFIC STANDARDS TO USE

Surrogate(s): PAH, ALI Volume(s): 100ml
Spike Standard(s): PAH, ALI Volume(s): 100ml
Internal Standard(s): PAH, ALI Volume(s): 100ml
Final Extract Volume (ml): 1.0 Final Solvent: DCM

Comments: USE AS
ARC A02 - MS
ARC1203 - MSD

Sample Custodian Signature: amanda Brewster Date: 8/07/13
Laboratory Manager Signature: _____ Date: 8/7/13

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	Project #
64386	J13034	Arcadis - Mayflower AR	ARC1701	SED-DA-039 (0-0.5)	08/06/13	08/07/13	PAH, TPH, ALI	SED		13080701	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64387	J13034	Arcadis - Mayflower AR	ARC1702	SED-DA-039 (0-0.5) MS	08/06/13	08/07/13	PAH, TPH, ALI	SED	MS	13080701	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64388	J13034	Arcadis - Mayflower AR	ARC1703	SED-DA-039 (0-0.5) MSD	08/06/13	08/07/13	PAH, TPH, ALI	SED	MSD	13080701	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64391	J13034	Arcadis - Mayflower AR	ARC1706	SED-DA-040 (0-0.5)	08/06/13	08/07/13	PAH, TPH, ALI	SED		13080701	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64394	J13034	Arcadis - Mayflower AR	ARC1709	SED-DA-DUP-05-080613	08/06/13	08/07/13	PAH, TPH, ALI	SED		13080701	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302

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B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034
SDG: 13080701
Client: Arcadis - Mayflower AR
Initiation Date: 8/07/13

Number of Samples: 16
Matrix: Soil / sediment
Due Date: 45 days: 9/20/13
Comments: PAH: 44 analytes
received 8/07/13

Analyses

☑	PAHs	☐	OCs/PCBs	☑	Aliphatics/TPH	☐	EOM
☑	Dry Wt.	☐	%Lipid	☐	TOC/TIC	☐	_____
☑	Short Columns	☐	Long Columns	☐	_____	☐	_____

Requested QA/QC (per batch of _____ Client Samples)

☑ Blank	☐ SRM/LCS SVL	☐ Blank Spike	
☐ Blank Spike Duplicate		☑ Matrix Spike _____	
☑ Matrix Spike Duplicate _____		☑ Duplicate _____	

SEE BACK FOR SPECIFIC STANDARDS TO USE

Surrogate(s): PAH, ACI — Volume(s): 100ml

Spike Standard(s): PAH, ACI — Volume(s): 100ml

Internal Standard(s): PAH, ACI — Volume(s): 100ml

Final Extract Volume (ml): 1.0 — Final Solvent: DCM

Comments:

use ARC174 as MS
ARC171 as MSD

Sample Custodian Signature: Amanda Brewster — Date: 8/07/13

Laboratory Manager Signature: _____ — Date: 8/7/13

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	Project #
64389	J13034	Arcadis - Mayflower AR	ARC1704	SED-DA-039 (0.5-1.0)	08/06/13	08/07/13	PAH	SED	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64390	J13034	Arcadis - Mayflower AR	ARC1705	SED-DA-039 (1.0-1.5)	08/06/13	08/07/13	PAH	SED	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64392	J13034	Arcadis - Mayflower AR	ARC1707	SED-DA-040 (0.5-1.0)	08/06/13	08/07/13	PAH	SED	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64393	J13034	Arcadis - Mayflower AR	ARC1708	SED-DA-040 (1.0-1.5)	08/06/13	08/07/13	PAH	SED	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64395	J13034	Arcadis - Mayflower AR	ARC1710	SO-DA-016 (0-0.5)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64396	J13034	Arcadis - Mayflower AR	ARC1711	SO-DA-016 (0.5-1.0)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64397	J13034	Arcadis - Mayflower AR	ARC1712	SO-DA-016 (1.0-1.5)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64398	J13034	Arcadis - Mayflower AR	ARC1713	SO-DA-017 (0-0.5)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64399	J13034	Arcadis - Mayflower AR	ARC1714	SO-DA-017 (0-0.5) MS	08/06/13	08/07/13	PAH	SOIL	44 analytes, MS	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64400	J13034	Arcadis - Mayflower AR	ARC1715	SO-DA-017 (0.5-1.0)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64401	J13034	Arcadis - Mayflower AR	ARC1716	SO-DA-017 (1.0-1.5)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64402	J13034	Arcadis - Mayflower AR	ARC1717	SO-DA-018 (0-0.5)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64403	J13034	Arcadis - Mayflower AR	ARC1718	SO-DA-018 (0.5-1.0)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64404	J13034	Arcadis - Mayflower AR	ARC1719	SO-DA-018 (1.0-1.5)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64405	J13034	Arcadis - Mayflower AR	ARC1720	SO-DA-DUP-03-080613	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64406	J13034	Arcadis - Mayflower AR	ARC1721	SO-DA-017 (0-0.5) MSD	08/06/13	08/07/13	PAH	SOIL	44 analytes, MSD	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302

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amanda brewster

From: amanda brewster <amandabrewster@tdi-bi.com>
Sent: Wednesday, August 07, 2013 11:28 AM
To: 'Mays, Daniel'; Parmelee, Rhiannon (Rhiannon.Parmelee@arcadis-us.com); 'Jennifer.Chandler@arcadis-us.com'; 'Dennis.Capria@arcadis-us.com'; Mott, Lyndi (Lyndi.Mott@arcadis-us.com)
Cc: Juan Ramirez (juanramirez@tdi-bi.com); Donell Frank; 'tommcdonald@tdi-bi.com' (tommcdonald@tdi-bi.com)
Subject: Samples Received 8/07/13
Attachments: COC 8-07-13.pdf

Hi Daniel,

We received your samples today in good condition.
The internal temperature of the cooler was 0.6ºC and the temperature blank was 0.3ºC.
A PDF of the COC is attached for your records.

Regards,
Amanda

From: Mays, Daniel [mailto:Daniel.Mays@arcadis-us.com]
Sent: Tuesday, August 06, 2013 6:16 PM
To: amanda brewster
Subject: B+B Laboratories Cooler Shipment

Good Evening Amanda,

We shipped 1 cooler to B+B tracking # 8022 2781 5891.

Regards,
Danny Mays | Environmental Specialist, E.I. | daniel.mays@arcadis-us.com
ARCADIS U.S., Inc. | 801 Corporate Center Drive, Suite 300 | Raleigh, North Carolina 27607
T: 919-415-2281 | M: 919-812-1417 | F: 919-854-5448
Professional Affiliate/ARCADIS G&M of North Carolina, Inc.
Please consider the environment before printing this email.

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B&B LABORATORIES RECEIVING/INTEGRITY REPORT

Job: J13034 Date Received: 8/09/13 SDG#: 13080901

Sender: Arcadis- Mayflower, AR

1. Number of Shipping Containers: 2 Arcadis: Daniel Mays

Comments: 1 of 2, large blue cooler

2. Airbill Present? (Yes) No Shipping Company: Fed Ex

Airbill Number: 8022 2781 5917

Comments: PON

3. Custody Seals on Container?
No (Yes) (Intact) Not Intact

Comments: on top of duct tape

4. Chain of Custody Records?
No (Yes)

Comments: COC for all coolers in cooler 1

5. General Sample Conditions:
Frozen (Cool) Unrefrigerated
Dry Ice Blue Ice (Ice)

Temperature/Comments: 0.3°C / temp blank 1.1°C (T6

6. List of Broken Containers:

None

7. Number of Samples Expected: 2 coolers Number of Samples Received: _____

8. Problems/Discrepancies:

None

Cooler 1:
13 seds
3 waters

9. Resolutions:

N/A

10. Checked in by: amanda Brewster Date: 8/09/13

large blue cooler

Ice type: wet Ice
Cooler Temp: 0.3
Thermometer: 6
Temp blank: 1.1
Custody Seal:

Sdg 13080901
Cooler 1 of 2

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486727
CUSTODY SEAL
2425 New Holland Pike, Lancaster, PA 17601-5994 (717) 656-2300

DATE: 8-8-13
SIGNATURE:

FedEx Express NEW Package US Airbill

FedEx Tracking Number 8022 2781 5917

Form ID No. 0200

1 From
Date
Sender's Name Phone
Company
Address Dept./Floor/Suite/Room
City State ZIP

2 Your Internal Billing Reference

3 To
Recipient's Name Phone
Company
Address Dept./Floor/Suite/Room
We cannot deliver to P.O. boxes or P.O. ZIP codes.
Address
Use this line for the HOLD location address or for continuation of your shipping address.
City State ZIP

HOLD Weekday
FedEx location address REQUIRED. NOT available for FedEx First Overnight.
HOLD Saturday
FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

4 Express Package Service * To most locations.
NOTE: Service order has changed. Please select carefully.
Packages up to 150 lbs.
For packages over 150 lbs., use the new FedEx Express Freight US Airbill.

Next Business Day
- FedEx First Overnight — Earliest next business morning* delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

2 or 3 Business Days
- FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.
- FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.
FedEx Envelope* FedEx Pak* FedEx Box FedEx Tube Other

6 Special Handling and Delivery Signature Options
SATURDAY Delivery NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.
No Signature Required — Package may be left without obtaining a signature for delivery.
Direct Signature — Someone at recipient's address may sign for delivery. Fee applies.
Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?
No Yes As per attached Shipper's Declaration Yes Shipper's Declaration not required Dry Ice Dry Ice, 9, UN 1845 ____ x ____ kg
Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.
Cargo Aircraft Only

7 Payment Bill to:
Enter FedEx Acct. No. or Credit Card No. below.
Sender Acct. No. in Section 1 will be billed Recipient Third Party Credit Card Cash/Check
Total Packages Total Weight lbs. Credit Card Auth.

Our liability is limited to $100 unless you declare a higher value. See the current FedEx Service Guide for details.

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8022 2781 5917

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B&B LABORATORIES RECEIVING/INTEGRITY REPORT

Job: J13034 Date Received: 8/09/13 SDG#: 13080901

Sender: Arcadis- Mayflower, AR

1. Number of Shipping Containers: 2 Arcadis: Daniel Mays

Comments: 2 of 2, large blue cooler

2. Airbill Present? (Yes)/No Shipping Company: Fed Ex

Airbill Number: 7958 0860 4666

Comments: PON

3. Custody Seals on Container?
No (Yes) (Intact) Not Intact

Comments: on top of duct tape

4. Chain of Custody Records?
(No) Yes

Comments: in Cooler 1

5. General Sample Conditions:
Frozen (Cool) Unrefrigerated
Dry Ice Blue Ice (Ice)

Temperature/Comments: 2.20c/temp blank 4.0°C (TB

6. List of Broken Containers:

None

7. Number of Samples Expected: 2 coolers Number of Samples Received: _____

8. Problems/Discrepancies:

None

Cooler 2: 27 seds

9. Resolutions:

N/A

10. Checked in by: Amanda Brewster Date: 8/09/13

large blue cooler

Ice type: wet Ice
Cooler temp: 2.2
Temp blank: 4.0
Custody seal:
Thermometer: 6

Sdg 13080901
Cooler 2 of 2

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486684

CUSTODY SEAL

DATE: 8-8-13

SIGNATURE:

2425 New Holland Pike, Lancaster, PA 17601-5994 (717) 656-2300

ORIGIN ID:MPJA (979) 693-3446
B & B LABORATORIES

14391 S DOWLING RD STE B

COLLEGE STATION, TX 778453473
UNITED STATES US

SHIP DATE: 08AUG13
ACTWGT: 57.0 LB
CAD: /POS1400
DIMS: 24x13x13 IN

BILL SENDER

TO

B AND B LABS
14391 S DOWLING RD
B
COLLEGE STATION TX 77845
(979) 693-3446 REF:
INV:
PO: DEPT:

FedEx Express

2 of 2
MPS# 0681 7958 0860 4666
Mstr# 8022 2781 5917

0200

XH CLLA

FRI - 09 AUG 10:30A
PRIORITY OVERNIGHT

77845
TX-US IAH

B&B Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Home Office 14391B South Dowling Road College Station TX 77845 phone (979) 693-3446 fax (979) 693-6389 http://www.tdi-bi.com

TDI Brooks

Client: ARCADIS

Project ID: Mayflower Pipeline Incident - B0086003.1301

B&B Contact: Juan Ramirez

Sampler Signature: Daniel Mays

Analyses

Other Instructions: Sdg 13080901 Cooler 1 of 1 (1)

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	PAHs + 8270 S.im				Cooler #		Comments
SO-DA-020 (0-0.5)	8/7/13	730	Soil	none	4oz	1	X				1		44 PAHs List
SO-DA-020 (0.5-1)		735									1		
SO-DA-020 (1.0-1.5)		740									1		
SO-DA-022 (0-0.5)		815									1		
SO-DA-022 (0.5-1.0)		820									1		
SO-DA-022 (1.0-1.5)		825									1		
SO-DA-025 (0-0.5)		840									1		
SO-DA-025 (0.5-1.0)		845									1		
SO-DA-025 (1.0-1.5)		850									1		
SO-DA-Dup-04-080713											1		

Total # of Containers: 10

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Jonathan Flamerfelt	ARCADIS	8/8/13	1600	Printed Name: Amanda Brewster	B&B Labs	8/09/13	11:00
Signature:				Signature: Amanda Brewster			
Printed Name:				Printed Name:			
Signature:				Signature:			

Matrix

T=Tissue S=Soil/Sediment R=Rinseate P=Product G=Gas Ws=Waste HW=Hazardous Waste W=Water

Sample Container: Vol/material

G=Glass P=Plastic C=Core B=Bag

Pg 2/5

CHAIN OF CUSTODY RECORD

B&B Laboratories, Inc

Home Office 14391B South Dowling Road College Station TX 77845 phone (979) 693-3446 fax (979) 693-6389 http://www.tdi-bi.com

TDI Brooks

Client: ARCADIS

Project ID: Mayflower Pipeline Incident - B00560071301

B&B Contact: Jesus Ramirez

Sampler Signature: Daniel Mays

Analyses

Other Instructions: Sdg 13080901 Cooler 1 of 1 (2)

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	PAHs + 8270 SIM				Cooler #		Comments
SO-DA-032 (0-0.5)	8/7/13	1000	Soil	none	4 oz	1	X				1		44 PAHs List
SO-DA-032 (0.5-1.0)	↓	1005	↓	↓	↓	1	X				1		↓
SO-DA-032 (1.0-1.5)	↓	1010	↓	↓	↓	1	X				1		↓
SO-DA-EB-20130807	13 ↓	1110	Water	none	1 L AG	1	X				1		↓
SO-DA-019 (0-0.5)	8/8/13	745	Soil	none	4 oz	1	X				2		↓
SO-DA-019 (0-0.5) MS		745			↓	1	X				2		
SO-DA-019 (0-0.5) MSD		745				1	X				2		
SO-DA-019 (0.5-1.0)		750				1	X				2		
SO-DA-019 (1.0-1.5)		755				1	X				2		
SO-DA-019 (1.5-2.0)	↓	800	↓	↓	↓	1	X				2		Extract + Hold
					Total # of Containers	11							

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Jonathan Flemetelt	ARCADIS	8/8/13	1600	Printed Name: Amanda Brewster	B&B Labs	8/09/13	11:00
Signature:	↓	↓	↓	Signature: Amanda Brewster			
Printed Name:				Printed Name:			
Signature:				Signature:			

Matrix:

T=Tissue G=Gas
S=Soil/Sediment Ws=Waste
R=Rinseate HW=Hazardous Waste
P=Product W=Water

Sample Container: Vol/material

G=Glass C=Core
P=Plastic B=Bag

B&B Laboratories, Inc.

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TDI Brooks

Client: ARCADIS

Project ID: Mayflower Pipeline Incident

B&B Contact: Juan Ramirez

Sampler Signature: Daniel Mays Daniel Mays

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	Analyses: PAHs + 8270 SIM				Cooler #		Other Instructions / Comments
SO-DA-019 (2.0-3.0)	8/8/13	805	Soil	none	4oz	1	X				2		Extract + Hold
SO-DA-019 (3.0-4.0)		810									2		Extract + Hold
SO-DA-021 (0-0.5)		910									2		44 PAHs List
SO-DA-021 (0.5-1.0)		915									2		"
SO-DA-021 (1.0-1.5)		920									2		"
SO-DA-021 (1.5-2.0)		925									2		Extract + Hold
SO-DA-021 (2.0-3.0)		930									2		Extract + Hold
SO-DA-021 (3.0-4.0)		935									2		Extract + Hold
SO-DA-023 (0-0.5)		1000									2		44 PAHs List
SO-DA-023 (0.5-1.0)		1005									2		44 PAHs List

Total # of Containers: 10

Other Instructions: SDG 13080901 Cooler 1 of 1 (1) (3) 98 8/09/13 10:30

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Jonathan Flowerdew	ARCADIS	8/8/13	1600	Printed Name: Amanda Brewster	B: B Labs	8/09/13	11:00
Signature:	↓	↓		Signature: Amanda Brewster			
Printed Name:				Printed Name:			
Signature:				Signature:			

Matrix:

T=Tissue G=Gas
S=Soil/Sediment Ws=Waste
R=Rinseate HW=Hazardous Waste
P=Product W=Water

Sample Container: Vol/material

G=Glass C=Core
P=Plastic B=Bag

B&B Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Home Office 14391B South Dowling Road College Station TX 77845 phone (979) 693-3446 fax (979) 693-6389 http://www.tdi-bi.com

TDI Brooks

Client: ARCADIS

Project ID: Mayflower Pipeline Incident B0086003.1301

B&B Contact: Juan Ramirez

Sampler Signature: Daniel Mays Daniel Mays

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	Analyses: PAHs + 8270 SIM				Cooler #	Other Instructions / Comments
SO-DA-023 (1.0-1.5)	8/8/13	1010	Soil	none	4/oz	1	X				2	44 PAHs List
SO-DA-023 (1.5-2.0)		1015									2	Extract + Hold
SO-DA-023 (2.0-3.0)		1020									2	Extract + Hold
SO-DA-023 (3.0-4.0)		1025									2	Extract + Hold
SO-DA-024 (0-0.5)		1050									2	44 PAHs List
SO-DA-024 (0.5-1.0)		1055									2	
SO-DA-024 (1.0-1.5)		1100									2	
SO-DA-027 (0-0.5)		1130									2	
SO-DA-027 (0.5-1.0)		1135									2	
SO-DA-027 (1.0-1.5)		1146									2	

Other Instructions: Sdg 13080901 Cooler 1 of 1 (3) (4) AB 8/09/13 10:40

Total # of Containers: 10

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Jonathan Flomerfelt	ARCADIS	8/8/13	1600	Printed Name: Amanda Brewster	B&B Labs	8/09/13	11:00
Signature:				Signature: Amanda Brewster			
Printed Name:				Printed Name:			
Signature:				Signature:			

Matrix:

T=Tissue G=Gas
S=Soil/Sediment Ws=Waste
R=Rinseate HW=Hazardous Waste
P=Product W=Water

Sample Container: Vol/material

G=Glass C=Core
P=Plastic B=Bag

B&B Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Home Office 14391B South Dowling Road College Station TX 77845 phone (979) 693-3446 fax (979) 693-6389 http://www.tdi-bi.com

TDI Brooks

Client: ARCADIS

Project ID: Mayflower Pipeline Incident - B0086003.1301

B&B Contact: Juan Ramirez

Sampler Signature: Daniel Mayo

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	Analyses: PAHs + 8270 SIM	Analyses: Cooler #	Comments
SO-OA-Dup-05-080813	8/8/13		Soil	none	4/oz	1		2	44 PAH List
SO-OA-EB-03-080813	↓	1400	Water	none	LAG	2		1,1	↓
					Total # of Containers				

Other Instructions: sdg 13080901 Cooler 1 of 1 (5)

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Jonathan Flonefelt	ARCADIS	8/8/13	1600	Printed Name: Amanda Brewster	B&B Labs	8/09/13	11:00
Signature:	↓	↓	↓	Signature: Amanda Brewster			
Printed Name:				Printed Name:			
Signature:				Signature:			

Matrix:

T=Tissue G=Gas
S=Soil/Sediment Ws=Waste
R=Rinsate HW=Hazardous Waste
P=Product W=Water

Sample Container: Vol/material

G=Glass C=Core
P=Plastic B=Bag

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	Project #
64407	J13034	Arcadis - Mayflower AR	ARC1722	SO-DA-020 (0-0.5)	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64408	J13034	Arcadis - Mayflower AR	ARC1723	SO-DA-020 (0.5-1.0)	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64409	J13034	Arcadis - Mayflower AR	ARC1724	SO-DA-020 (1.0-1.5)	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64410	J13034	Arcadis - Mayflower AR	ARC1725	SO-DA-022 (0-0.5)	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64411	J13034	Arcadis - Mayflower AR	ARC1726	SO-DA-022 (0.5-1.0)	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64412	J13034	Arcadis - Mayflower AR	ARC1727	SO-DA-022 (1.0-1.5)	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64413	J13034	Arcadis - Mayflower AR	ARC1728	SO-DA-025 (0-0.5)	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64414	J13034	Arcadis - Mayflower AR	ARC1729	SO-DA-025 (0.5-1.0)	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64415	J13034	Arcadis - Mayflower AR	ARC1730	SO-DA-025 (1.0-1.5)	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64416	J13034	Arcadis - Mayflower AR	ARC1731	SO-DA-DUP-04-080713	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64417	J13034	Arcadis - Mayflower AR	ARC1732	SO-DA-032 (0-0.5)	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64418	J13034	Arcadis - Mayflower AR	ARC1733	SO-DA-032 (0.5-1.0)	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64419	J13034	Arcadis - Mayflower AR	ARC1734	SO-DA-032 (1.0-1.5)	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64420	J13034	Arcadis - Mayflower AR	ARC1735	SO-DA-019 (0-0.5)	08/08/13	08/09/13	extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64421	J13034	Arcadis - Mayflower AR	ARC1736	SO-DA-019 (0-0.5) MS	08/08/13	08/09/13	extract & HOLD	SOIL	MS	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64422	J13034	Arcadis - Mayflower AR	ARC1737	SO-DA-019 (0-0.5) MSD	08/08/13	08/09/13	extract & HOLD	SOIL	MSD	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64423	J13034	Arcadis - Mayflower AR	ARC1738	SO-DA-019 (0.5-1.0)	08/08/13	08/09/13	extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64424	J13034	Arcadis - Mayflower AR	ARC1739	SO-DA-019 (1.0-1.5)	08/08/13	08/09/13	extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64425	J13034	Arcadis - Mayflower AR	ARC1740	SO-DA-019 (1.5-2.0)	08/08/13	08/09/13	extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64426	J13034	Arcadis - Mayflower AR	ARC1741	SO-DA-019 (2.0-3.0)	08/08/13	08/09/13	extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64427	J13034	Arcadis - Mayflower AR	ARC1742	SO-DA-019 (3.0-4.0)	08/08/13	08/09/13	extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64428	J13034	Arcadis - Mayflower AR	ARC1743	SO-DA-021 (0-0.5)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64429	J13034	Arcadis - Mayflower AR	ARC1744	SO-DA-021 (0.5-1.0)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64430	J13034	Arcadis - Mayflower AR	ARC1745	SO-DA-021 (1.0-1.5)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64431	J13034	Arcadis - Mayflower AR	ARC1746	SO-DA-021 (1.5-2.0)	08/08/13	08/09/13	extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64432	J13034	Arcadis - Mayflower AR	ARC1747	SO-DA-021 (2.0-3.0)	08/08/13	08/09/13	extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64433	J13034	Arcadis - Mayflower AR	ARC1748	SO-DA-021 (3.0-4.0)	08/08/13	08/09/13	extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64434	J13034	Arcadis - Mayflower AR	ARC1749	SO-DA-023 (0-0.5)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64435	J13034	Arcadis - Mayflower AR	ARC1750	SO-DA-023 (0.5-1.0)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64436	J13034	Arcadis - Mayflower AR	ARC1751	SO-DA-023 (1.0-1.5)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64437	J13034	Arcadis - Mayflower AR	ARC1752	SO-DA-023 (1.5-2.0)	08/08/13	08/09/13	extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64438	J13034	Arcadis - Mayflower AR	ARC1753	SO-DA-023 (2.0-3.0)	08/08/13	08/09/13	extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64439	J13034	Arcadis - Mayflower AR	ARC1754	SO-DA-023 (3.0-4.0)	08/08/13	08/09/13	extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64440	J13034	Arcadis - Mayflower AR	ARC1755	SO-DA-024 (0-0.5)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64441	J13034	Arcadis - Mayflower AR	ARC1756	SO-DA-024 (0.5-1.0)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64442	J13034	Arcadis - Mayflower AR	ARC1757	SO-DA-024 (1.0-1.5)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64443	J13034	Arcadis - Mayflower AR	ARC1758	SO-DA-027 (0-0.5)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64444	J13034	Arcadis - Mayflower AR	ARC1759	SO-DA-027 (0.5-1.0)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64445	J13034	Arcadis - Mayflower AR	ARC1760	SO-DA-027 (1.0-1.5)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64446	J13034	Arcadis - Mayflower AR	ARC1761	SO-DA-DUP-05-080813	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64447	J13034	Arcadis - Mayflower AR	ARC1762	SO-DA-EB-02-080713	08/07/13	08/09/13	PAH	WATER	44 analytes, 1 of 1	13080901	Cooler 1	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302
64448	J13034	Arcadis - Mayflower AR	ARC1763	SO-DA-EB-03-080813	08/08/13	08/09/13	PAH	WATER	44 analytes, 1 of 2	13080901	Cooler 1	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302
64449	J13034	Arcadis - Mayflower AR	ARC1764	SO-DA-EB-03-080813	08/08/13	08/09/13	PAH	WATER	44 analytes, 2 of 2	13080901	Cooler 1	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302

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B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034
SDG: 13080901
Client: Arcadis-Mayflower AR
Initiation Date: 8/09/13

Number of Samples: 2
Matrix: Waters
Due Date: 45 days: 9/22/13
Comments: collected 8/07-8/08
extract by 8/13-8/14
received 8/09/13

Analyses

☑	PAHs	☐	OCs/PCBs	☑	Aliphatics/TPH	☑	EOM
☐	Dry Wt.	☐	%Lipid	☐	TOC/TIC	☐	
☑	Short Columns	☐	Long Columns	☐		☐	

Requested QA/QC (per batch of _____ Client Samples)

☑ Blank	☐ SRM/LCS _____	☑ Blank Spike	
☑ Blank Spike Duplicate		☐ Matrix Spike _____	
☐ Matrix Spike Duplicate _____		☐ Duplicate _____	

SEE BACK FOR SPECIFIC STANDARDS TO USE

Surrogate(s): PAH, ALI — Volume(s): 100 µl
Spike Standard(s): PAH, ALI — Volume(s): 100 µl
Internal Standard(s): PAH, ALI — Volume(s): 100 µl
Final Extract Volume (ml): 1.0 — Final Solvent: DCM

Comments:

Sample Custodian Signature: Amanda Brewster — Date: 8/09/13
Laboratory Manager Signature: _____ — Date: 8/9/13

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	Project #
64447	J13034	Arcadis - Mayflower AR	ARC1762	SO-DA-EB-02-080713	08/07/13	08/09/13	PAH	WATER	44 analytes, 1 of 1	13080901	Cooler 1	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302
64448	J13034	Arcadis - Mayflower AR	ARC1763	SO-DA-EB-03-080813	08/08/13	08/09/13	PAH	WATER	44 analytes, 1 of 2	13080901	Cooler 1	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302

B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034
SDG: 13080901
Client: Arcadis- Mayflower AR
Initiation Date: 8/09/13

Number of Samples: 14
Matrix: Soil
Due Date: 45 days: 9/22/13
Comments: extract & hold

Analyses

☑	PAHs	☐	OCs/PCBs	☑	Aliphatics/TPH	☐	EOM
☑	Dry Wt.	☐	%Lipid	☐	TOC/TIC	☐	
☑	Short Columns	☐	Long Columns	☐		☐	

Requested QA/QC (per batch of _____ Client Samples)

☑	Blank	☑ SRM/LCS 1941b	☐ Blank Spike
☐	Blank Spike Duplicate	☑	Matrix Spike
☑	Matrix Spike Duplicate	☐	Duplicate

SEE BACK FOR SPECIFIC STANDARDS TO USE

Surrogate(s): PAH, ALI — Volume(s): 100ml
Spike Standard(s): PAH, ALI — Volume(s): 100ml
Internal Standard(s): PAH, ALI — Volume(s): 100ml
Final Extract Volume (ml): 1.0 — Final Solvent: DCM

Comments:

Sample Custodian Signature: Amanda Brewster — Date: 8/09/13
Laboratory Manager Signature: _____ — Date: 8/9/13

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	a	Project #
64420	J13034	Arcadis - Mayflower AR	ARC1735	SO-DA-019 (0-0.5)	08/08/13	08/09/13	extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64421	J13034	Arcadis - Mayflower AR	ARC1736	SO-DA-019 (0-0.5) MS	08/08/13	08/09/13	extract & HOLD	SOIL	MS	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64422	J13034	Arcadis - Mayflower AR	ARC1737	SO-DA-019 (0-0.5) MSD	08/08/13	08/09/13	extract & HOLD	SOIL	MSD	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64423	J13034	Arcadis - Mayflower AR	ARC1738	SO-DA-019 (0.5-1.0)	08/08/13	08/09/13	extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64424	J13034	Arcadis - Mayflower AR	ARC1739	SO-DA-019 (1.0-1.5)	08/08/13	08/09/13	extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64425	J13034	Arcadis - Mayflower AR	ARC1740	SO-DA-019 (1.5-2.0)	08/08/13	08/09/13	extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64426	J13034	Arcadis - Mayflower AR	ARC1741	SO-DA-019 (2.0-3.0)	08/08/13	08/09/13	extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64427	J13034	Arcadis - Mayflower AR	ARC1742	SO-DA-019 (3.0-4.0)	08/08/13	08/09/13	extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64431	J13034	Arcadis - Mayflower AR	ARC1746	SO-DA-021 (1.5-2.0)	08/08/13	08/09/13	extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64432	J13034	Arcadis - Mayflower AR	ARC1747	SO-DA-021 (2.0-3.0)	08/08/13	08/09/13	extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64433	J13034	Arcadis - Mayflower AR	ARC1748	SO-DA-021 (3.0-4.0)	08/08/13	08/09/13	extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64437	J13034	Arcadis - Mayflower AR	ARC1752	SO-DA-023 (1.5-2.0)	08/08/13	08/09/13	extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64438	J13034	Arcadis - Mayflower AR	ARC1753	SO-DA-023 (2.0-3.0)	08/08/13	08/09/13	extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64439	J13034	Arcadis - Mayflower AR	ARC1754	SO-DA-023 (3.0-4.0)	08/08/13	08/09/13	extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302

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B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034
SDG: 13080901
Client: Arcadis - Mayflower AR
Initiation Date: 8/09/13

Number of Samples: 26
Matrix: soil
Due Date: 45 days: 9/22/13
Comments: PAH: 44 analytes received 8/09/13

Analyses

☒	PAHs	☐	OCs/PCBs	☒	Aliphatics/TPH	☐	EOM
☒	Dry Wt.	☐	%Lipid	☐	TOC/TIC	☐	
☐	Short Columns	☐	Long Columns	☐		☐	

Requested QA/QC (per batch of _____ Client Samples)

☒	Blank	☒ SRM/LCS 1941b	☐ Blank Spike
☐	Blank Spike Duplicate	☒	Matrix Spike
☐	Matrix Spike Duplicate	☐	Duplicate

SEE BACK FOR SPECIFIC STANDARDS TO USE

Surrogate(s): PAH, ACI — Volume(s): 100ml
Spike Standard(s): PAH, ACI — Volume(s): 100ml
Internal Standard(s): PAH, ACI — Volume(s): 100ml
Final Extract Volume (ml): 1.0 — Final Solvent: DCM

Comments:

Sample Custodian Signature: Amanda Brewster Date: 8/09/13
Laboratory Manager Signature: _____ Date: 8/9/13

Sample Initialton - general Rev 1.doc
Rev 1

cc: COC Book
Extraction Lab

Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	a	Project #
J13034	Arcadis - Mayflower AR	ARC1722	SO-DA-020 (0-0.5)	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
J13034	Arcadis - Mayflower AR	ARC1723	SO-DA-020 (0.5-1.0)	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
J13034	Arcadis - Mayflower AR	ARC1724	SO-DA-020 (1.0-1.5)	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
J13034	Arcadis - Mayflower AR	ARC1725	SO-DA-022 (0-0.5)	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
J13034	Arcadis - Mayflower AR	ARC1726	SO-DA-022 (0.5-1.0)	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
J13034	Arcadis - Mayflower AR	ARC1727	SO-DA-022 (1.0-1.5)	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
J13034	Arcadis - Mayflower AR	ARC1728	SO-DA-025 (0-0.5)	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
J13034	Arcadis - Mayflower AR	ARC1729	SO-DA-025 (0.5-1.0)	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
J13034	Arcadis - Mayflower AR	ARC1730	SO-DA-025 (1.0-1.5)	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
J13034	Arcadis - Mayflower AR	ARC1731	SO-DA-DUP-04-080713	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
J13034	Arcadis - Mayflower AR	ARC1732	SO-DA-032 (0-0.5)	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
J13034	Arcadis - Mayflower AR	ARC1733	SO-DA-032 (0.5-1.0)	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
J13034	Arcadis - Mayflower AR	ARC1734	SO-DA-032 (1.0-1.5)	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
J13034	Arcadis - Mayflower AR	ARC1743	SO-DA-021 (0-0.5)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
J13034	Arcadis - Mayflower AR	ARC1744	SO-DA-021 (0.5-1.0)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
J13034	Arcadis - Mayflower AR	ARC1745	SO-DA-021 (1.0-1.5)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
J13034	Arcadis - Mayflower AR	ARC1749	SO-DA-023 (0-0.5)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
J13034	Arcadis - Mayflower AR	ARC1750	SO-DA-023 (0.5-1.0)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
J13034	Arcadis - Mayflower AR	ARC1751	SO-DA-023 (1.0-1.5)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
J13034	Arcadis - Mayflower AR	ARC1755	SO-DA-024 (0-0.5)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
J13034	Arcadis - Mayflower AR	ARC1756	SO-DA-024 (0.5-1.0)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
J13034	Arcadis - Mayflower AR	ARC1757	SO-DA-024 (1.0-1.5)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
J13034	Arcadis - Mayflower AR	ARC1758	SO-DA-027 (0-0.5)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
J13034	Arcadis - Mayflower AR	ARC1759	SO-DA-027 (0.5-1.0)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
J13034	Arcadis - Mayflower AR	ARC1760	SO-DA-027 (1.0-1.5)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
J13034	Arcadis - Mayflower AR	ARC1761	SO-DA-DUP-05-080813	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302

26

326

amanda brewster

From: amanda brewster <amandabrewster@tdi-bi.com>
Sent: Friday, August 09, 2013 11:20 AM
To: 'Mays, Daniel'; Parmelee, Rhiannon (Rhiannon.Parmelee@arcadis-us.com); 'Jennifer.Chandler@arcadis-us.com'; 'Dennis.Capria@arcadis-us.com'; Mott, Lyndi (Lyndi.Mott@arcadis-us.com)
Cc: Juan Ramirez (juanramirez@tdi-bi.com); Donell Frank; 'tommcdonald@tdi-bi.com' (tommcdonald@tdi-bi.com)
Subject: Samples Received 8/09/13
Attachments: COC 8-09-13.pdf

Hi Daniel,

We received your samples this morning in good condition.
The internal temperature of Cooler 1 was 0.3ºC and the temperature blank was 1.1ºC
The internal temperature of Cooler 2 was 2.2ºC and the temperature blank was 4.0ºC

A PDF of the COC is attached for your records.

Regards,
Amanda

From: Mays, Daniel [mailto:Daniel.Mays@arcadis-us.com]
Sent: Thursday, August 08, 2013 5:44 PM
To: amanda brewster
Subject: Tracking number for coolers shipped 8-8-2013

Good Evening Amanda,

We shipped two coolers to B+B Labs today tracking # 8022 2781 5891.

Regards,

Danny Mays | Environmental Specialist, E.I. | daniel.mays@arcadis-us.com
ARCADIS U.S., Inc. | 801 Corporate Center Drive, Suite 300 | Raleigh, North Carolina 27607
T: 919-415-2281 | M: 919-812-1417 | F: 919-854-5448
Professional Affiliate/ARCADIS G&M of North Carolina, Inc.
Please consider the environment before printing this email.

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Laboratory Bench Sheet Logs

B&B LABORATORIES ENVIRONMENTAL EXTRACTION LOG

MATRIX: ☐ OTHER ☐ WATER ☒ SEDIMENT ☐ TISSUE

Job #: J13034 SDG #: 13080701, 13080901

Client: Arcadis - ~~Exxo~~ 3/20 CK Mayflower AR

Analysis: ☒ PAH ☐ PESTS ☐ PCB ☐ ALI

Other: 44 analytes

Extraction Solvent: DCM

Final Solvent: DCM Final Volume: 1.0 mL

Lipids Y / (N)
Dry Wt. (Y) / N
Copper (Y) / N
EOM (Y) / N
Columns (Y) / N
Long / (Short)

Surrogate: 100 µL
PAH: AR-WKSU-2500-002
Pest/PCB: —
Aliphatic: AL-WKSU-200-001
Other: —

Spike: 100 µL
PAH: AR-WKSK-1000-020
Pest/PCB: —
Aliphatic: AL-WKSK-100-020
Other: —

GC Int Std: 100 µL
PAH: AR-WKIS-2500-002
Pest/PCB: —
Aliphatic: AL-WKIS-500-001
Other: —

Turbo Vap II
Bath T (C):
Pressure (>20psi):
Check Water Level:
Turbo Vap Date:

General Comments:

Report 13-3108 ASE 2
Add both PAH & ALI Standards - CK
Only PAH short list for analysis

	Added	Witness
Surrogate:	8/20/13 CK	8-20-13 EN
Spike:	8/20/13 CK	8-20-13 EN
Internal:	8/22/13	8/24/13

	Sample Name	Client ID	Wet Wt. (g or L)	Dry Wt. %	Dry Wt. (g)	Extraction Comments
1	ENV3088A	Procedural Blank	—	—	—	
2	ENV3088B	SRM 1941b	4.12	97.61	4.02	
3	ENV3088C	Matrix Spike (ARC1714)	19.17	78.57	15.06	
4	ENV3088D	Matrix Spike Dup (ARC1721)	18.99	79.34	15.07	
5	ENV3088E	Duplicate (ARC1733)	19.33	78.34	15.14	
6	ARC1713	SO-DA-017 (0-0.5)	18.96	79.39	15.05	original for MS/MSD
7	ARC1718	SO-DA-018 (0.5-1.0)	18.62	80.79	15.04	
8	ARC1722	SO-DA-020 (0-0.5)	20.00	75.00	15.00	
9	ARC1723	SO-DA-020 (0.5-1.0)	19.25	77.94	15.04	
10	ARC1724	SO-DA-020 (1.0-1.5)	19.34	77.82	15.05	
11	ARC1725	SO-DA-022 (0-0.5)	17.64	85.07	15.01	
12	ARC1726	SO-DA-022 (0.5-1.0)	17.57	85.62	15.04	

Internal Chain of Custody

	Date	Initials
Extraction Prep	8/20/13	CK
	8/20/13	CK
Extraction	8/20/13	CK
	8-21-13	EN
Concentration	8-21-13	EN
	8-21-13	EN
Short Columns	8-21-13	EN
	8-21-13	EN

ENV 3088

B&B LABORATORIES ENVIRONMENTAL EXTRACTION LOG

	Sample Name	Client ID	Wet Wt. (g or L)	Dry Wt. %	Dry Wt. (g)	Extraction Comments
13	ARC1727	SO-DA-022 (1.0-1.5)	16.53	91.45	15.12	
14	ARC1728	SO-DA-025 (0-0.5)	19.16	78.36	15.01	
15	ARC1729	SO-DA-025 (0.5-1.0)	19.14	78.52	15.03	
16	ARC1730	SO-DA-025 (1.0-1.5)	19.15	79.36	15.20	
17	ARC1731	SO-DA-DUP-04-080713	20.69	72.97	15.10	
18	ARC1732	SO-DA-032 (0-0.5)	20.34	74.47	15.15	
19	ARC1733	SO-DA-032 (0.5-1.0)	19.28	78.34	15.10	
20	ARC1734	SO-DA-032 (1.0-1.5)	19.75	76.15	15.04	
21	ARC1743	SO-DA-021 (0-0.5)	18.58	80.73	15.00	
22	ARC1744	SO-DA-021 (0.5-1.0)	19.10	79.41	15.17	
23	ARC1745	SO-DA-021 (1.0-1.5)	19.46	77.95	15.17	
24	ARC1749	SO-DA-023 (0-0.5)	19.68	76.39	15.03	

Internal Chain of Custody

Concentration Short Columns — Date: 8-22-13 / Date: 8-22-13; Initials: EM / EM

Columns SA1 — Date: / Date:; Initials: / Initials:

Concentration SA1 — Date: / Date:; Initials: / Initials:

Columns SA2 — Date: / Date:; Initials: / Initials:

Concentration SA2 — Date: / Date:; Initials: / Initials:

Transfer for HPLC — Date: / Date:; Initials: / Initials:

HPLC — Date: / Date:; Initials: / Initials:

Post-HPLC Concentration — Date: / Date:; Initials: / Initials:

Final Extract Transfer — Date: 8/22/13; Initials: HA

Dry Weight Page

DRY 1359, 1360

Lipid/EOM Page

EOM 1027

Clean-up/Separation/Other Columns

—

Lot Numbers

DCM: 52314
Hexane: —
Hydromatrix: —
Water: DI514-F
Silica: BCBJ9493V
Alumina: TG14B2EMS
Sodium Sulfate: 2092C525
Pentane: —
Copper: 115050-AV
Hydrochloric Acid: —
SPE Columns: —
Other: —

Sample Storage Box #

J13034-3

HPLC Storage Box #

—

QC Review

Date	Initials
8/23/13	

Copied to Folders

8/26/13 CK

B&B LABORATORIES % DRY WEIGHT LOGBOOK

MATRIX
- ☐ OTHER
- ☒ SEDIMENT
- ☐ TISSUE

Type: _____

Job #: J13034 SDG #: 13080701, 2

Client: Arcadis - Mayflower AR

General comments:

Lab Mananger Date:	Lab Mananger Init:	Date/Init: ☑ Bal. Cal.	Beaker + Dry Smpl (g) Date/Init: ☑ Bal. Cal.	Beaker + Dry Smpl (g) Date/Init: ☑ Bal. Cal.	Date/Init:
8/14/13	JT	8/9/13 CK	8/12/13 CK	8/13/13 CK	8/14/13 CK

	Sample Name	Client ID	Beaker Wt (g)	Beaker + Wet Smpl (g)	1	2	(%) Dry Weight	Comments
1	ARC1701	SED-DA-039 (0-0.5)	1.28	3.08	2.59	2.58	72.22	
2	ARC1702	SED-DA-039 (0-0.5) MS	1.30	3.99	3.24	3.24	72.12	
3	ARC1703	SED-DA-039 (0-0.5) MSD	1.31	2.77	~~2.37~~ CK 8/12	2.42	76.03	2.42
4	ARC1704	SED-DA-039 (0.5-1.0)	1.30	2.43	2.10	2.09	69.91	
5	ARC1705	SED-DA-039 (1.0-1.5)	1.30	2.64	2.20	2.19	66.42	
6	ARC1706	SED-DA-040 (0-0.5)	1.29	3.48	3.04	3.03	79.45	
7	ARC1707	SED-DA-040 (0.5-1.0)	1.31	4.07	3.51	3.50	79.35	
8	ARC1708	SED-DA-040 (1.0-1.5)	1.30	3.10	CK 8/12 2.78	2.77	81.67	
9	ARC1709	SED-DA-DUP-05-080613	1.31	4.57	3.91	3.90	79.45	
10	ARC1710	SO-DA-016 (0-0.5)	1.31	2.67	2.31	2.30	72.79	
11	ARC1711	SO-DA-016 (0.5-1.0)	1.31	2.86	2.53	2.52	78.06	
12	ARC1712	SO-DA-016 (1.0-1.5)	1.32	2.68	2.45	2.43	81.62	
13	ARC1713	SO-DA-017 (0-0.5)	1.29	2.94	2.61	2.60	79.39	
14	ARC1714	SO-DA-017 (0-0.5) MS	1.30	2.56	2.31	2.29	78.57	
15	ARC1715	SO-DA-017 (0.5-1.0) ~~MSD~~ OK	1.30	2.76	2.48	2.46	79.45	
16	ARC1716	SO-DA-017 (1.0-1.5)	1.33	2.97	2.66	~~2.68~~ CK 2.66 8/13	81.10	

DRY 1359

B&B LABORATORIES % DRY WEIGHT LOGBOOK

	Sample Name	Client ID	Beaker Wt (g)	Beaker + Wet Smpl (g)	Beaker + Dry Smpl (g) Date/Init: 8/12/13 CK ☑ Bal. Cal.	Beaker + Dry Smpl (g) Date/Init: 8/13/13 CK ☑ Bal. Cal.	(%) Dry Weight	Comments
17	ARC1717	SO-DA-018 (0-0.5)	1.31	3.21	2.85	2.85	81.05	
18	ARC1718	SO-DA-018 (0.5-1.0)	1.32	2.83	2.53	2.54	80.79	
19	ARC1719	SO-DA-018 (1.0-1.5)	1.30	2.52	2.29	2.30	81.97	
20	ARC1720	SO-DA-DUP-03-080613	1.30	2.42	2.17	2.18	78.57	
21	ARC1721	SO-DA-017 (0-0.5) MSD	1.31	2.52	2.27	2.27	79.34	
22	ARC1720 Dup	Duplicate	1.32	2.43	2.17	2.17	76.58	
23								
24								

$$\%\ \text{Dry Weight} = \frac{[\text{Beaker + Dry SMPL (g)}] - [\text{Beaker Weight (g)}]}{[\text{Beaker + Wet SMPL (g)}] - [\text{Beaker Weight (g)}]} \times 100$$

$$\text{RPD} = \frac{[\text{Original \% Dry Weight Value} - \text{Duplicate \% Dry Weight Value}]}{[\text{Original \% Dry Weight Value} + \text{Duplicate \% Dry Weight Value}] \times 0.5} \times 100$$

The Relative Percent Difference (RPD) between duplicates must be ≤ 25%.

Date / Init.	RPD
8/14/13 CK	2.572%
Sample # ARC1720	
Duplicate # ARC1720 Dup	

DRY 1359

B&B LABORATORIES % DRY WEIGHT LOGBOOK

MATRIX
- ☐ OTHER
- ☒ SEDIMENT
- ☐ TISSUE Type

Job #: J13034 SDG #: 13080901

Client: Arcadis - Mayflower AR

General comments:

Lab Mananger		Date/Init: ☒ Bal. Cal.	Beaker + Dry Smpl (g)		Date/Init:
Date:	Init:		Date/Init: ☒ Bal. Cal.	Date/Init: ☒ Bal. Cal.	
8/19/13		8/13/13 CKS	8/14/13 CKS	8/15/13 CKS	8/15/13 CK

	Sample Name	Client ID	Beaker Wt (g)	Beaker + Wet Smpl (g)	1	2	(%) Dry Weight	Comments
1	ARC1722	SO-DA-020 (0-0.5)	1.29	2.45	2.16	2.16	75.00	
2	ARC1723	SO-DA-020 (0.5-1.0)	1.30	2.66	2.37	2.36	77.94	
3	ARC1724	SO-DA-020 (1.0-1.5)	1.30	4.05	3.46	3.44	77.82	
4	ARC1725	SO-DA-022 (0-0.5)	1.29	2.63	2.43	2.43	85.07	
5	ARC1726	SO-DA-022 (0.5-1.0)	1.29	2.75	2.55	2.54	85.62	
6	ARC1727	SO-DA-022 (1.0-1.5)	1.30	2.47	2.38	2.37	91.45	
7	ARC1728	SO-DA-025 (0-0.5)	1.30	2.64	2.35	2.35	78.36	
8	ARC1729	SO-DA-025 (0.5-1.0)	1.30	2.79	~~3.04~~	2.47	78.52	2.47g
9	ARC1730	SO-DA-025 (1.0-1.5)	1.30	~~2.74~~ 8/13/13	3.04	3.03	79.36	3.48g
10	ARC1731	SO-DA-DUP-04-080713	1.29	2.77	2.37	2.37	72.97	
11	ARC1732	SO-DA-032 (0-0.5)	1.32	3.47	3.08	3.07	74.47	
12	ARC1733	SO-DA-032 (0.5-1.0)	1.31	4.68	3.96	3.95	78.34	
13	ARC1734	SO-DA-032 (1.0-1.5)	1.30	2.60	2.29	2.29	76.15	
14	ARC1735 ~~43~~	SO-DA-021 (0-0.5)	1.29	3.21	2.85	2.84	80.73	
15	ARC1736 ~~44~~	SO-DA-021 (0.5-1.0)	1.30	3.68	3.20	3.19	79.41	
16	ARC1737 ~~45~~	SO-DA-021 (1.0-1.5)	1.30	3.25	2.84	2.82	77.95	

DRY 1360

B&B LABORATORIES % DRY WEIGHT LOGBOOK

					Beaker + Dry Smpl (g) Date/Init: 8/14/13 CB [X] Bal. Cal.	Beaker + Dry Smpl (g) Date/Init: 8/15/13 CB [X] Bal. Cal.		
	Sample Name	Client ID	Beaker Wt (g)	Beaker + Wet Smpl (g)	1	2	(%) Dry Weight	Comments
17	ARC1749	SO-DA-023 (0-0.5)	1.31	2.75	2.42	2.41	76.39	
18	ARC1750	SO-DA-023 (0.5-1.0)	1.30	3.60	3.17	3.16	80.87	
19	ARC1751	SO-DA-023 (1.0-1.5)	1.31	2.62	2.40	2.36	80.15	
20	ARC1755	SO-DA-024 (0-0.5)	1.30	2.53	2.28	2.28	79.67	
21	ARC1756	SO-DA-024 (0.5-1.0)	1.34	3.38	3.07	3.07	84.80	
22	ARC1756 Dup	Duplicate	1.32	2.87	2.61	2.61	83.23	
23								
24								

$$\%\ \text{Dry Weight} = \frac{[\text{Beaker + Dry SMPL (g)}] - [\text{Beaker Weight (g)}]}{[\text{Beaker + Wet SMPL (g)}] - [\text{Beaker Weight (g)}]} \times 100$$

$$\text{RPD} = \frac{[\text{Original \% Dry Weight Value} - \text{Duplicate \% Dry Weight Value}]}{[\text{Original \% Dry Weight Value} + \text{Duplicate \% Dry Weight Value}] \times 0.5} \times 100$$

The Relative Percent Difference (RPD) between duplicates must be ≤ 25%.

Date / Init.	RPD
8/15/13 CK	1.878 %
Sample # ARC1756	
Duplicate # ARC1756 Dup	

DRY 1360

B&B LABORATORIES EOM LOGBOOK

MATRIX: OTHER / (SEDIMENT) / WATER

Job #: J13034 SDG #: 13080901, 1308130l

Client: Arcadis - Mayflower AR

General comments:

Lab Manager Date/Int: 8/20/13

Transferred by Date/Int: 8/22/13 CK
From ENV Pg: ENV3088
From DRY Pg: DRY 1359, 1360

Date/Int: 8-21-13 ER Bal. Cal. ✓

Date/Int: 8/22/13 CK

	Sample Name	Client ID	Smpl Wt./Vol (g/L) Wet Wt. (Dry Wt.)	Dry Wt. (%)	Final Extract Vol (mL)	Initial Filter Wt (mg)	Filter & Sample Wt (mg)	Wt. of 100 µl EOM Wt. (mg)	EOM µg/g (Wet Wt. Basis)	EOM µg/g (Dry Wt. Basis)	Comments
1	ENV3088A	Procedural Blank	—	—	3	30.275	30.275	0.000	—	—	
2	ENV3088B	SRM 1941b	4.02	97.61	3	30.000	30.134	0.134	976	1000	
3	ENV3088C	Matrix Spike (ARC1714)	15.06	78.57	3	30.064	30.721	0.657	1028	1309	
4	ENV3088D	Matrix Spike Dup (ARC1721)	15.07	79.34	3	29.860	30.459	0.599	946	1192	
5	ENV3088E	Duplicate (ARC1733)	15.14	78.34	3	30.500	30.527	0.027	42	54	
6	ARC1713	SO-DA-017 (0-0.5)	15.05	79.39	3	30.597	31.312	0.715	1132	1425	
7	ARC1718	SO-DA-018 (0.5-1.0)	15.04	80.79	3	30.155	30.207	0.052	84	104	
8	ARC1722	SO-DA-020 (0-0.5)	15.00	75.00	3	30.000	30.240	0.240	360	480	
9	ARC1723	SO-DA-020 (0.5-1.0)	15.00	77.94	3	30.054	30.099	0.045	70	90	
10	ARC1724	SO-DA-020 (1.0-1.5)	15.05	77.82	3	30.852	30.870	0.018	28	36	
11	ARC1725	SO-DA-022 (0-0.5)	15.01	85.07	3	30.621	31.766	1.145	1947	2288	
12	ARC1726	SO-DA-022 (0.5-1.0)	15.04	85.62	3	31.103	31.190	0.087	149	174	

EOM 1027

B&B LABORATORIES EOM LOGBOOK

	Sample Name	Client ID	Smpl Wt./Vol (g/L) Wet Wt. Dry Wt	Dry Wt. (%)	Final Extract Vol (mL)	Initial Filter Wt (mg)	Filter & Sample Wt (mg)	Wt. of 100 µl EOM Wt. (mg)	EOM µg/g (Wet Wt. Basis)	EOM µg/g (Dry Wt. Basis)	Comments
13	ARC1727	SO-DA-022(1.0-1.5)	15.12	91.45	3	30.167	30.245	0.078	142	155	
14	ARC1728	SO-DA-025 (0-0.5)	15.01	78.36	3	29.898	30.398	0.500	783	999	
15	ARC1729	SO-DA-025(0.5-1.0)	15.03	78.52	3	29.879	29.919	0.040	63	80	
16	ARC1730	SO-DA-025(1.0-1.5)	15.20	79.36	3	29.817	29.836	0.019	30	37	
17	ARC1731	SO-DA-DUP-04-080713	15.10	72.97	3	29.897	31.051	1.154	1673	2293	
18	ARC1732	SO-DA-032(0-0.5)	15.15	74.47	3	30.038	30.457	0.419	618	830	
19	ARC1733	SO-DA-032(0.5-1.0)	15.10	78.34	3	30.220	30.251	0.031	48	62	
20	ARC1734	SO-DA-032(1.0-1.5)	15.04	76.15	3	30.220	30.257	0.037	56	74	
21	ARC1743	SO-DA-021 (0-0.5)	15.00	80.73	3	30.489	31.232	0.763	1232	1526	
22	ARC1744	SO-DA-021 (0.5-1.0)	15.17	79.41	3	29.967	30.021	0.054	85	107	
23	ARC1745	SO-DA-021 (1.0-1.5)	15.17	77.95	3	29.830	29.846	0.016	25	32	
24	ARC1749	SO-DA-023 (0-0.5)	15.03	76.39	3	30.665	32.330	1.665	2539	3323	

$$EOM = \frac{(EOM\ Wt.\ (mg))\ (Final\ Extract\ Vol.\ (ml))}{(Smpl\ Wt/Vol.\ (g/L))\ (0.10\ ml)} \times 1000$$

$$\%RPD = \frac{(EOM_1 - EOM_2)}{(EOM_1 + EOM_2) \times 0.5} \times 100\%$$

	Initial Filter Wt (mg)	Filter & Sample Wt (mg)	Wt. of 100 µl Lipid Wt. (mg)
Solvent Blank	30.158	30.158	0.000
EOM Standard	29.480	39.616	10.136

EOM-WI-LC-10-004

The Relative Percent Difference (RPD) between duplicates must be ≤ 25%.

Date/Int:	RPD
8/22/13 CK	14.056 %
Sample: ARC1733	
Duplicate: ENV388E	

Last Page