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Arcadis Mayflower AR Project (Contract # B0086003.1301 and B0086003.1302) July 27, 2013 through July 31, 2013 Collection Dates

Determination of: Aliphatic Hydrocarbons (ALI), Total Petroleum Hydrocarbons (TPH), and Polycyclic Aromatic Hydrocarbons (PAHs) in Water Samples

(QC Batch ENV 3069)

August 20, 2013

Technical Report 13-3090

Arcadis Mayflower AR Project (Contract # B0086003.1301 and B0086003.1302) July 27, 2013 through July 31, 2013 Collection Date Table of Contents B&B Laboratories August 20, 2013

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Narrative

Technical Report 13-3090 Arcadis Mayflower AR Project (Contract # B0086003.1301 and B0086003.1302) Water Samples July 27, 2013 and July 31 2013 Collection Dates

August 20, 2013

Introduction

B&B Laboratories received a shipment of two (2) ice chests that were sent by Daniel Mays of Arcadis using FedEx on July 29, 2013 and arrived on July 30, 2013 in College Station, Texas. The ice chests arrived sealed and in good condition.

Cooler Number	Temperature	Samples Received	
1	7.4°C 5.1°C (Temp Blank)	Eleven (11) sediments in 8oz or 4oz jars Two (2) 1L water samples in B/R amber bottles.	
2	10.9°C 2.3°C (Temp Blank)	Sixteen (16) sediments in 8oz or 4oz jars	

B&B Laboratories received a shipment of two (2) ice chests that were sent by Daniel Mays of Arcadis using FedEx on July 30, 2013 and arrived on July 31, 2013 in College Station, Texas. The ice chests arrived sealed and in good condition.

Cooler Number	Temperature	Samples Received
1	6.6°C 2.9°C (Temp Blank)	Nineteen (19) sediments in 8oz or 4oz jars Two (2) 1L water samples in B/R amber bottles.
2	4.9°C 3.6°C (Temp Blank)	Nineteen (19) sediments in 8oz or 4oz jars Two (2) 1L water samples in B/R amber bottles.

The water and sediment samples were collected between July 29, 2013 and July 30, 2013 in support of the Mayflower AR, Project (Arcadis-US Contract # B0086003.1301 and 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 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 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. The water samples were analyzed for Total Petroleum Hydrocarbons (TPH) and C₉ to C₄₀ Aliphatic Hydrocarbons (ALI) by GC/FID, Polycyclic Aromatic Hydrocarbons (PAH) by GC/MS-SIM, and selected biological markers by GC/MS-SIM.

The analytical results for ALI, TPH, PAH, and biological markers are included in this report.

Analytical Methods

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

Matrix	Extraction	ALI/TPH	PAH
Water	B&B 1011	B&B 1016	B&B 1006

Table 1. Standard Operating Procedures for each analytical test.

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 an "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	ТРН	ALI	PAH
Water	μg/L	μ g/L	ng/L

Table 3. Data Qualifier Definitions.

Qualifier	Definition		
В	Analyte detected in the procedural blank greater than 3X MDL		
D	Diluted Value		
Ĩ	Analytical interference		
J	Analyte detected below the method detection limit		
NA	Not Applicable		
U	Analyte not detected		
х	Analyte <3X MDL		
Y	Spiked level of analyte <50% of the native concentration		
*	Outside QA limits, refer to narrative		

Aliphatics	Water MDLs
Sample size	1L, 1ml final extract volume
Unit of measure	μg/L
	×9, -
n-C9	0.288
n-C10	0.252
n-C11	0.251
n-C12	0.266
n-C13	0.258
i-c15	0.256
n-C14	0.277
i-c16	0.234
n-C15	0.256
n-C16	0.234
i-c18	0.100
n-C17	0.174
Pristane	0.190
n-C18	0.100
Phytane	0.201
n-C19	0.073
n-C20	0.077
n-C21	0.081
n-C22	0.150
n-C23	0.117
n-C24	0.069
n-C25	0.066
n-C26	0.070
n-C27	0.069
n-C28	0.077
n-C29	0.087
n-C30	0.081
n-C31	0.126
n-C32	0.083
n-C33	0.282
n-C34	0.106
n-C35	0.112
n-C36	0.112
n-C37	0.148
n-C38	0.140
n-C39	0.127
n-C40	0.144
	0.144
Total Petroleum Hydrocarbons	13
Total Resolved Hydrocarbons	13
Unresolved Complex Mixture	13
	10
Extractable Organic Matter	100
	274 5 552

Table 4. Method Detection Limits.

PAH	Water MDLs
Sample size	1.0L, 1mL final extract
Unit of measure	ng/L
cis/trans Decalin	1.14
C1-Decalins	2.28
C2-Decalins	2.28
C3-Decalins	2.28
C4-Decalins	2.28
Naphthalene	2.91
C1-Naphthalenes	1.36
C2-Naphthalenes	5.82
C3-Naphthalenes	5.82
C4-Naphthalenes	5.82
Benzothiophene	1.29
C1-Benzothiophenes	2.57
C2-Benzothiophenes	2.57
C3-Benzothiophenes	2.57
C4-Benzothiophenes	2.57
Biphenyl	5.09
Acenaphthylene	1.17
Acenaphthene	1.44
Dibenzofuran	1.19
Fluorene	0.81
C1-Fluorenes	1.63
C2-Fluorenes	1.63
C3-Fluorenes	1.63
Carbazole	0.83
Anthracene	0.77
Phenanthrene	2.26
C1-Phenanthrenes/Anthracenes	0.70
C2-Phenanthrenes/Anthracenes	3.03
C3-Phenanthrenes/Anthracenes	3.03
C4-Phenanthrenes/Anthracenes	3.03
Dibenzothiophene	0.82
C1-Dibenzothiophenes	0.67
C2-Dibenzothiophenes	1.34
C3-Dibenzothiophenes	1.34
C4-Dibenzothiophenes	1.34
Fluoranthene	1.09
Pyrene	1.37
C1-Fluoranthenes/Pyrenes	2.47
C2-Fluoranthenes/Pyrenes	2.47
C3-Fluoranthenes/Pyrenes	2.47
C4-Fluoranthenes/Pyrenes	2.47
Naphthobenzothiophene	1.03
C1-Naphthobenzothiophenes	2.07
C2-Naphthobenzothiophenes	2.07
C3-Naphthobenzothiophenes	2.07
C4-Naphthobenzothiophenes	2.07
Benz(a)anthracene	0.74
Chrysene/Triphenylene	0.80
C1-Chrysenes	1.60

Table 4. Continued. Method Detection Limits.

PAH (continued) Sample size	Water MDLs 1.0L, 1mL final extract
Unit of measure	ng/L
Unit of measure	ng/L
C2-Chrysenes	1.60
C3-Chrysenes	1.60
C4-Chrysenes	1.60
Benzo(b)fluoranthene	2.38
Benzo(k,j)fluoranthene	2.51
Benzo(a)fluoranthene	2.51
Benzo(e)pyrene	2.69
Benzo(a)pyrene	1.91
Perylene	0.63
Indeno(1,2,3-c,d)pyrene	1.39
Dibenzo(a,h)anthracene	1.14
Benzo(g,h,i)perylene	2.51
Individual Alkyl Isomers, TAS, and Hopanes	
2-Methylnaphthalene	1.10
1-Methylnaphthalene	1.42
2,6-Dimethylnaphthalene	0.70
1,6,7-Trimethylnaphthalene	0.67
1-Methylfluorene	1.47
4-Methyldibenzothiophene	0.97
2/3-Methyldibenzothiophene	
	0.97
1-Methyldibenzothiophene	0.97
3-Methylphenanthrene	0.94
2-Methylphenanthrene	0.94
2-Methylanthracene	0.94
4/9-Methylphenanthrene	0.94
1-Methylphenanthrene	0.94
3,6-Dimethylphenanthrene	1.67
Retene	1.59
2-Methylfluoranthene	1.15
Benzo(b)fluorene	1.37
C29-Hopane	8.19
18a-Oleanane	8.19
C30-Hopane	8.19
C20-TAS	2.60
C21-TAS	2.60
C26(20S)-TAS	2.60
C26(20R)/C27(20S)-TAS	2.60
C28(20S)-TAS	2.60
C27(20R)-TAS	2.60
C28(20R)-TAS	2.60

Quality Assurance/Quality Control - Waters

Total Petroleum Hydrocarbons (TPH) and Aliphatic Hydrocarbons (ALI)

The quality assurance/quality control procedure for this program included the analyses of a procedural blank and a blank spike/blank spike duplicate per analytical batch of no more than 20 samples. Additionally, a standard reference material (SRM) was analyzed with each data set. The SRM is a petroleum sample (NIST SRM 2779) that is analyzed with each TPH/ALI run and for which controls are established based on performance. Procedural blanks are used to determine that sample preparation and analyses are free of contaminants. The blank spike/blank spike duplicate are used to measure accuracy and precision of the analysis. 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%. The QC criterion for RPDs in valid spiked duplicates is ≤30%. The QC criterion for the NIST SRM 2779 is <20% of the laboratory determined mean.

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%. Refer to Table 5 for Method Performance Criteria for Aliphatic Hydrocarbons and TPH.

Polycyclic Aromatic Hydrocarbons (PAH)

The quality assurance/quality control procedure for this program included the analyses of a procedural blank and a blank spike/blank spike duplicate of no more than 20 samples. A standard reference oil (NIST 2779) were analyzed with this data set. Procedural blanks are used to determine that sample preparation and analyses are free of contaminants. The blank spike/blank 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 $\leq 30\%$. The QC criterion for the reference oil 2779 SRM is $\pm 20\%$ 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 6 for Method Performance Criteria for PAH.

Quality Assurance/Quality Control Variances - Waters

Aliphatic Hydrocarbons (ALI) and Total Petroleum Hydrocarbons (TPH)

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

No variances were observed.

Procedural Blank

Observation

No variances were observed.

Blank Spike/Blank Spike Duplicate

Observation

No variances were observed.

Laboratory Control Standard (Petroleum)

Observation

No variances were observed.

Additional QC Batch Information

Observation

• No variances were observed.

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

No variances were observed.

Procedural Blank

Observation

No variances were observed.

Blank Spike/Blank Spike Duplicate

Observation

No variances were observed.

Laboratory Control Standard (Solution and Petroleum)

Observation

• No variances were observed.

Additional QC Batch Information

Observation

No variances were observed.

Element or Sample Type	Minimum Frequency	Measurement Quality Objective/ Acceptance Criteria	Corrective Action
Initial Calibration (all target analytes, except i-C13, i-C14, i-C15 and i-C18)	Prior to every sequence, or as needed based on continuing calibration/verification check.	6-point calibration curve %RSD ≤ 15	Resolve before proceeding.
Continuing Calibration Verification (CCV)	Every 12 hours or every 10 field samples, whichever is more frequent	%D ≤ 25	Perform Instrument Maintenance. Re-analyze affected samples.
Initial Calibration Verification (Second Source or can be met if CCAL is second source)	Per initial calibration	%R target analytes 80-120%	Resolve before proceeding.
SRM 2779 Reference Oil (Instrument SRM)	One per batch per GC sequence	Baseline resolution of n-C17 from pristane and analytes must be <20% of laboratory derived mean	Resolve before proceeding.
Performance Evaluation Mixture (PEM)	One per batch per GC sequence	%R 75-125%	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; average %R 60-120% for valid spikes, RPD ≤30%. No more than 2 analytes may exceed 40-120%	Evaluate impact to data, discuss with manager to determine if corrective action is needed.
Blank Spike/Blank Spike Duplicate	One per batch/every 20 field samples	%R 40% - 120% for target analytes; RPD ≤30%. No more than 2 analytes may exceed 40-120%	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 MDL unless analyte not detected in associated sample(s) or analyte concentration >10x blank value	Resolve before proceeding. QA coordinator may be contacted to resolve issues.
Laboratory Duplicate (not required for aqueous samples)	One per batch/every 20 field samples	$RPD \le 30\%$ 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 to determine if corrective action is needed.
Mass Discrimination	Initial calibration and CCVs (mid-level)	Ratio for the raw areas of n-C36 / n-C20 ≥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%	Re-extract affected samples. Evaluate impact to data, discuss with lab manager, determine if corrective action is needed.

Table 5. Method Performance Criteria for Alkanes/Isoprenoids Compounds and Total Petroleum Hydrocarbons

Table 6. 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 $\leq 20\%$	Resolve before proceeding.
Continuing Calibration Verification (CCV)	Every 12 hours or 6-9 field samples	$RPD \le 25\%$, 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	$RPD \le 30\%$ 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 6. 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 Manage

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Donell S. Frank Project Quality Manager

Sample/Analyses Description

Arcadis - Mayflower AR Sample Inventory

			COllection Date	Received Date	SIGUIDIN	Matrix	Matrix Comments B&B SDG	B&B SDG	Client Project #
_	ARC1564	SED-EB-01-072713	07/27/13	07/30/13	PAH, TPH, ALI	Water	1 of 2	13073001	RUNREUN3 1301
	ARC1604	SED-DA-EB-02-072913	07/29/13	07/31/13	PAH, TPH, ALI	Water	1 of 2	13073101	BUDBEND3 1307
	ARC1606	SED-DA-EB-03-073013	07/30/13	07/31/13	PAH, TPH, ALI	Water	1 of 2	13073101	BUD86003 1302
5727	ARC1609	SED-DA-EB-04-073113	07/31/13	08/01/13	PAH, TPH, ALI	Water	1 of 2	13080101	B0086003 1302

Water Samples

Aliphatic Hydrocarbons (C9 – C40)/ Total Petroleum Hydrocarbons/ Extractable Organic Matter Concentrations

Arcadis-Mayfloer AR Aliphatic Hyrdocarbon and Total Petroleum Hydrocarbon Data Client Submitted Samples

Sample Name Client Name Matrix Collection Date Received Date Extraction Date Extraction Batch Date Acquired Method Sample Volume (L) Dilution	ARC1564.D SED-EB-01-072713 Water 07/27/13 07/30/13 08/02/13 ENV 3069 06-Aug-2013, 21:53:51 ALIFRONT.M 1.0 1X		ARC1604.D SED-DA-EB-02-072913 Water 07/29/13 07/31/13 08/02/13 ENV 3069 06-Aug-2013, 23:04:08 ALIFRONT.M 1.0 1X		ARC1606.D SED-DA-EB-03-073013 Water 07/30/13 07/31/13 08/02/13 ENV 3069 07-Aug-2013, 00:14:32 ALIFRONT.M 1.0 1X		ARC1609.D SED-DA-EB-04-073113 Water 07/31/13 08/02/13 ENV 3069 07-Aug-2013, 01:25:02 ALIFRONT.M 1.0 1X	
Target Compounds	Su. Corrected Conc. (µg/L)	Q	Su. Corrected Conc. (µg/L)	Q	Su. Corrected Conc. (µg/L)	Q	Su. Corrected Conc. (µg/L)	Q
n-C9	< 0.303	n:	<0.277	п	<0.297	ne	<0.288	n
n-C10	<0.265		<0.242		<0.259		<0.252	
n-C11	<0.264		0.071		0.055		0.048	
n-C12	<0.28		0.069		0.051		0.056	
n-C13	<0.272		0.035		0.029		0.051	
i-C15	<0.27		0.065		<0.264		<0.256	
n-C14	<0.291		0.033	121	0.033		0.026	11170
i-C16	<0.246		0.010		<0.241		<0.234	
n-C15	<0.27		0.017		0.006		0.024	-
n-C16	<0.246		0.053		0.042		0.040	
i-C18	0.076		0.073	253	< 0.103		<0.1	
n-C17	0.073		0.037		0.015		0.067	1.2
Pristane	0.033		0.021		<0.196		<0.19	
n-C18	0.104	J	0.027	J	0.026	J	0.085	
Phytane	0.030	J	0.023	J	<0.207	U	<0.201	
n-C19	0.049	J	0.015	J	0.010	J	0.051	J
n-C20	0.017	J	0.017	J	0.017	J	0.026	J
n-C21	0.026	J	0.022	J	0.014	J	0.039	J
n-C22	0.074	J	0.014	J	0.013	J	0.057	J
n-C23	0.037	J	0.026		0.015	J	0.025	J
n-C24	0.073		0.022		0.016	J	0.189	
n-C25	0.036		0.029	J	0.021	J	0.038	J
n-C26	0.042		0.030		0.024		0.242	
n-C27	0.024		0.040		0.037		0.042	
n-C28	0.027		0.034		0.036		0.084	
n-C29	<0.092		0.083		0.033		0.074	
n-C30	<0.085		0.025		0.024		0.038	
n-C31	<0.133	- N	0.035		0.026		0.034	
n-C32	<0.087		0.024		0.021		0.025	
n-C33	<0.297		< 0.271		<0.291		<0.282	120
n-C34	<0.112		<0.102		< 0.11		<0.106	
n-C35	<0.118 <0.119		<0.107 <0.109		<0.115		<0.112	
n-C36 n-C37	<0.156 1		<0.142		<0.117 <0.153		<0.113	
n-C38	<0.134 (<0.122		<0.133		<0.148 <0.127	
n-C39	<0.169 (<0.154		<0.165		<0.16	
n-C40	<0.151		<0.138		<0.148		<0.144	
Total Alkanes	0.7		1.0		0.6		1.4	
Total Petroleum Hydrocarbons	597		45		11	J	41	
Total Resolved Hydrocarbons	584		2.8	J	3.1		29	
Unresolved Complex Mixture	13 .	J	42		7.4		12	
EOM (µg/L)	947		173		62		570	
Surrogate (Su)	Su Recovery (%)		Su Recovery (%)		Su Recovery (%)		Su Recovery (%)	
n-dodecane-d26	57		50		52		40	
n-eicosane-d42	98		88		86		88	
n-triacontane-d62	86		89		88		89	

Sample Name Client Name Matrix Collection Date Received Date Extraction Date Extraction Batch Date Acquired Method Sample Volume (L) Dilution	ENV3069A.D Procedural Blank Water NA NA 08/02/13 ENV 3069 06-Aug-2013, 18:22:53 ALIFRONT.M 1.0 1X				
Target Compounds	Su. Corrected Conc. (µg/L)	Q	Q		Actual MDL Conc. (µg/L)
n-C9	<0.288	п		0.865	0.288
n-C10	<0.252			0.755	0.252
n-C11	<0.251			0.752	0.251
n-C12	<0.266			0.799	0.266
n-C13	<0.258			0.775	0.258
i-C15	<0.256	U		0.769	0.256
n-C14	<0.277	U		0.830	0.277
i-C16	<0.234			0.702	0.234
n-C15	<0.256			0.769	0.256
n-C16	<0.234	0.200		0.702	0.234
i-C18	<0.1			0.301	0.100
n-C17 Pristono	<0.174 <0.19			0.521 0.570	0.174
Pristane n-C18	<0.1			0.301	0.190 0.100
Phytane	<0.201			0.602	0.201
n-C19	<0.073			0.220	0.073
n-C20	< 0.077			0.232	0.077
n-C21	<0.081			0.242	0.081
n-C22	<0.15	U		0.449	0.150
n-C23	<0.117			0.351	0.117
n-C24	<0.069			0.206	0.069
n-C25	<0.066			0.197	0.066
n-C26	<0.07			0.211	0.070
n-C27 n-C28	<0.069			0.206	0.069
n-C29	<0.077 <0.087			0.231	0.077 0.087
n-C30	<0.081			0.243	0.081
n-C31	<0.126			0.378	0.126
n-C32	<0.083			0.248	0.083
n-C33	<0.282	U		0.846	0.282
n-C34	<0.106	U		0.319	0.106
n-C35	<0.112			0.335	0.112
n-C36	<0.113			0.339	0.113
n-C37	<0.148			0.444	0.148
n-C38	<0.127 <0.16			0.382	0.127
n-C39 n-C40	<0.144			0.481 0.431	0.160 0.144
Total Alkanes		U			
Total Petroleum Hydrocarbons	<13	U		39.0	13.0
Total Resolved Hydrocarbons	<13			39.0	13.0
Unresolved Complex Mixture	<13			39.0	13.0
EOM (µg/L)	<100			300	100
Surrogate (Su)	Su Recovery (%)				
n-dodecane-d26	68				
n-eicosane-d42	86				
11-EICUSal1E-042	00				

Arcadis-Mayflower AR Aliphatic Hyrdocarbon and Total Petroleum Hydrocarbon Data Blank Spike Report

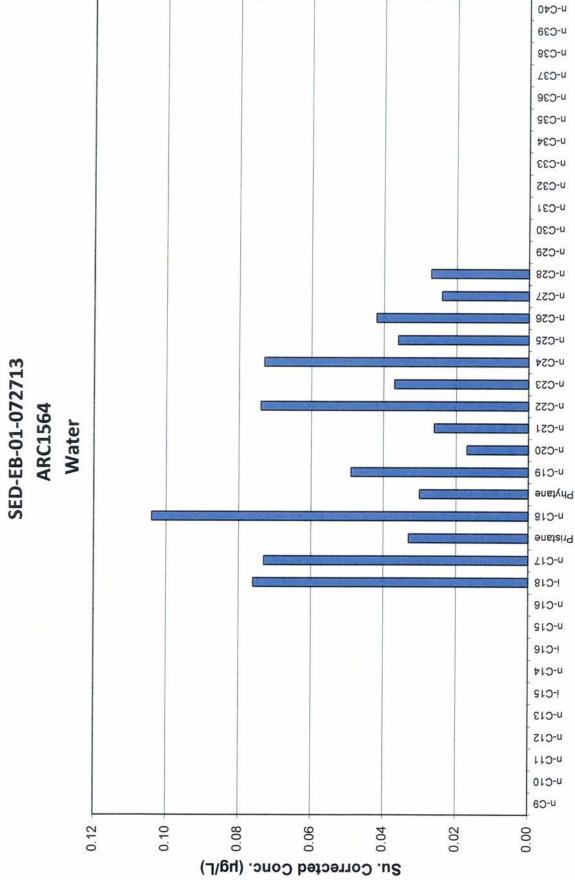
Sample Name	ENV3069B.D	ENV3069C.D	
Client Name	Blank Spike	Blank Spike Duplicate	
Matrix	Water	Water	
Collection Date	NA	NA	
Received Date	NA	NA	
Extraction Date	08/02/13	08/02/13	
Extraction Batch	ENV 3069	ENV 3069	
Date Acquired	06-Aug-2013, 19:33:16	06-Aug-2013, 20:43:33	
Method	ALIFRONT.M	ALIFRONT.M	
Sample Volume (L)	1.0	1.0	
Dilution	1X	1X	

Target Compounds	Su. Corrected	Recovery Q	Su. Corrected	1	Q RPD Q	Spike Amount
	Conc. (µg/L)	(%)	Conc. (µg/L)	(%)	(%)	(µg)
n-C9	7.2	72	6.4	64	12	10.0
n-C10	7.6	76	6.6	66	14	10.0
n-C11	8.2	83	6.9	70	17	9.90
n-C12	8.3	83	7.0	70	16	10.0
n-C13	8.3	83	7.4	74	12	10.0
n-C14	8.7	89	7.9	80	10	9.86
n-C15	9.8	98	9.2	92	6	9.98
n-C16	9.9	99	9.7	98	2	10.0
n-C17	10.1	102	10.1	101	1	9.94
Pristane	10.2	103	10.2	103	0	9.90
n-C18	10.5	105	10.6	105	1	10.0
Phytane	10.4	105	10.5	106	1	9.91
n-C19	10.6	106	10.7	107	1	10.0
n-C20	10.6	106	10.7	107	1	10.0
n-C21	10.5	105	10.7	106	2	10.0
n-C22	10.6	106	10.8	108	2	9.95
n-C23	10.5	106	10.7	108	2	9.91
n-C24	10.6	106	10.8	108	2	10.0
n-C25	10.6	106	10.7	107	1	10.0
n-C26	10.7	107	10.8	108	1	10.0
n-C27	10.7	108	10.8	109	1	9.89
n-C28	10.6	106	10.8	107	2	10.0
n-C29	10.6	106	10.8	107	1	10.0
n-C30	10.5	106	10.7	107	2	10.0
n-C31	10.6	105	10.8	108	2	10.0
n-C32	10.4	104	10.6	106	2	10.0
n-C33	10.5	105	10.7	107	2	10.0
n-C34	10.5	105	10.8	107	3	10.0
n-C35	10.4	104	10.7	107	2	10.0
n-C36	10.2	103	10.5	106	3	9,90
n-C37	10.5	105	10.8	108	3	10.0
n-C38	10.5	105	10.8	107	3	10.0
n-C39	10.7	106	10.8	108	2	10.0
n-C40	10.7	107	11.0	109	2	10.0
Average %Recovery		101		100		
Surrogate (Su)	Su Recovery (%)		Su Recovery (%)			
n-dodecane-d26	68		55			
n-eicosane-d42	84		84			
n-triacontane-d62	85		85			

Sample Name	SRM2779	
Client Name	AL-SRM2779-20-01	
Matrix	Reference Oil	
Collection Date	NA	
Received Date	NA	
Extraction Date	08/02/13	
Extraction Batch	ENV 3069	
Date Acquired	06-Aug-2013, 13:41:46	
Method	ALIFRONT.M	
Sample Dry Weight (mg)	20.0	
Sample Wet Weight (mg)	NA	
% Dry	NA	
% Moisture	NA	
% Lipid (dry)	NA	
% Lipid (wet)	NA	
Dilution	1X	

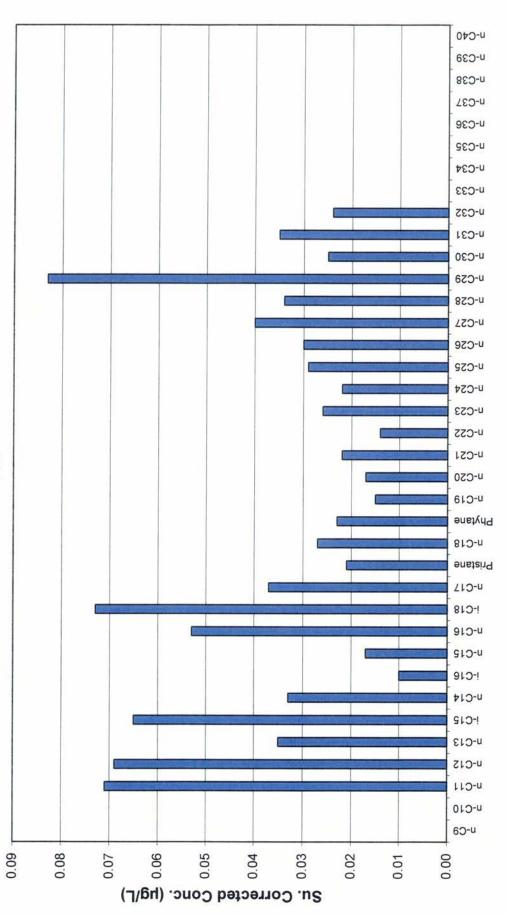
Target Compounds	Su. Corrected Conc. (µg/mg)	Q	Q	RPD (%)	B&B Average	-20% Conc.	+20% Conc.
				(10)		(µg/mg)	(µg/mg
n-C9	14.1			5	13.5	10.8	16.2
n-C10	12.9			7	12.0	9.60	14.4
n-C11	11.2			4	10.8	8.64	13.0
n-C12	10.3			5	9.82	7.86	11.8
n-C13	8.42			0	8.41	6.73	10.1
i-C15	2.04			4	1.95	1.56	2.34
n-C14	7.56			2	7.70	6.16	9.24
i-C16	3.07			4	2.95	2.36	3.54
n-C15	7.51			4	7.23	5.78	8.68
n-C16	6.46			5	6.15	4.92	7.38
i-C18	1.48			5	1.56	1.25	1.87
n-C17	4.78			2	4.69	3.75	5.63
Pristane	2.41			0	2.42	1.94	2.90
n-C18	3.71			3	3.84	3.07	4.61
Phytane	1.48			2	1.51	1.21	1.81
n-C19	3.38			3	3.47	2.78	4.16
n-C20	2.77			3	2.84	2.27	3.41
n-C21	2.29			3	2.37	1.90	2.84
n-C22	2.12			4	2.04	1.63	2.45
n-C23	1.93			5	1.84	1.47	2.21
n-C24	1.81			9	1.66	1.33	1.99
n-C25	1.48			8	1.37	1.10	1.64
n-C26	1.16			3	1.13	0.904	1.36
n-C27	0.896			0	0.892	0.714	1.07
n-C28	0.791			2	0.776	0.621	0.931
n-C29	0.730			1	0.739	0.591	0.887
n-C30	0.694			4	0,666	0.533	0.799
n-C31	0.588			9	0.539	0.431	0.647
n-C32	0.479			8	0.443	0.354	0.532
n-C33	0.488			4	0.467	0.374	0.560
n-C34	0.410			4	0.428	0.342	0.514
n-C35	0.350			2	0.342	0.274	0.410
n-C36	0.208	J		1	0.211	0.169	0.253
n-C37	0.212			3	0.206	0.165	0.247
n-C38	0.178			3	0.172	0.138	0.206
n-C39	0.159			6	0.169	0.135	0.203
n-C40	0.170			3	0.176	0.141	0.211
Total Petroleum Hydrocarbons	610			0	607	484	726
Surrogate (Su)	Su Recovery (%)						
n-dodecane-d26	96						
n-eicosane-d42	98						
n-triacontane-d62	98						

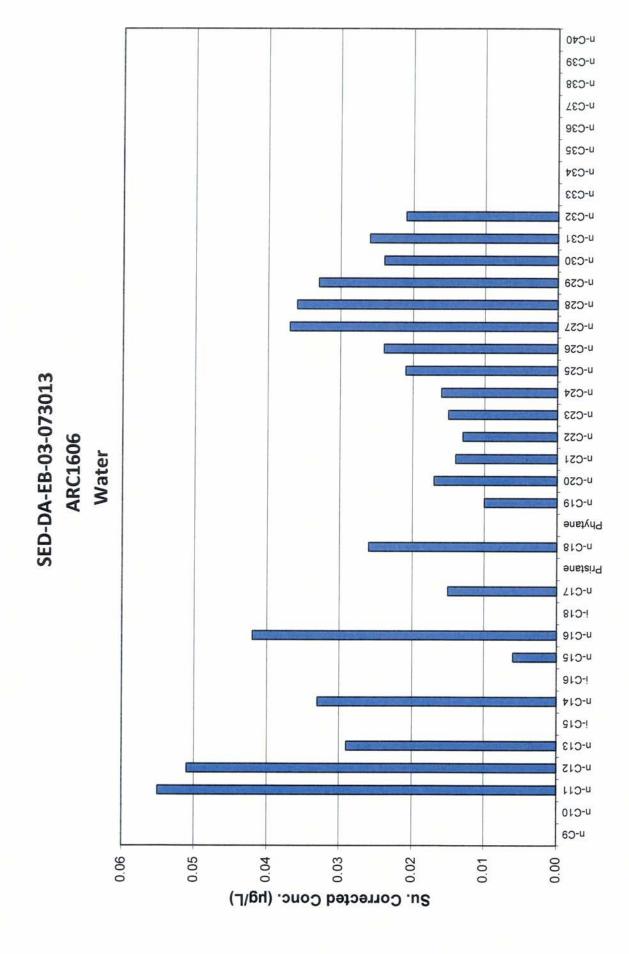
Aliphatic Hydrocarbon Histograms



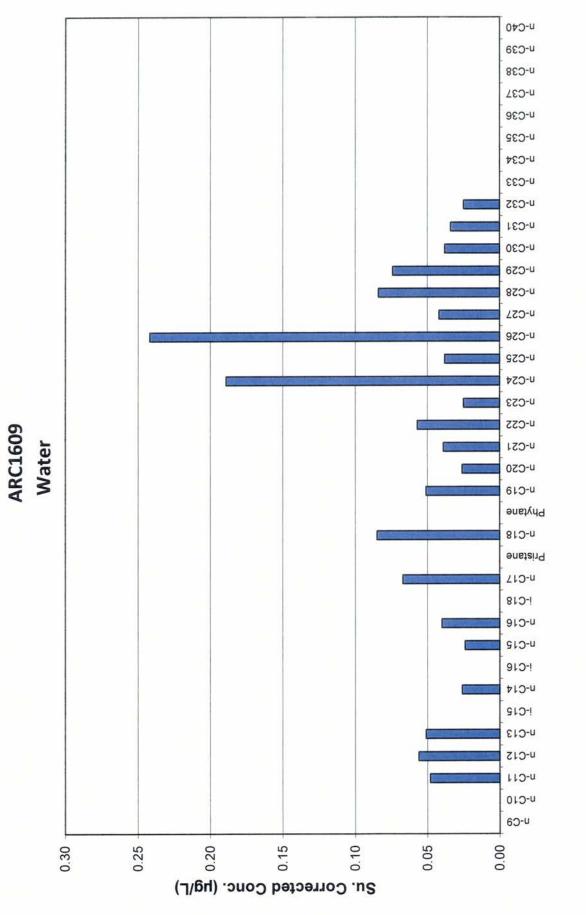
SED-DA-EB-02-072913 ARC1604 Water



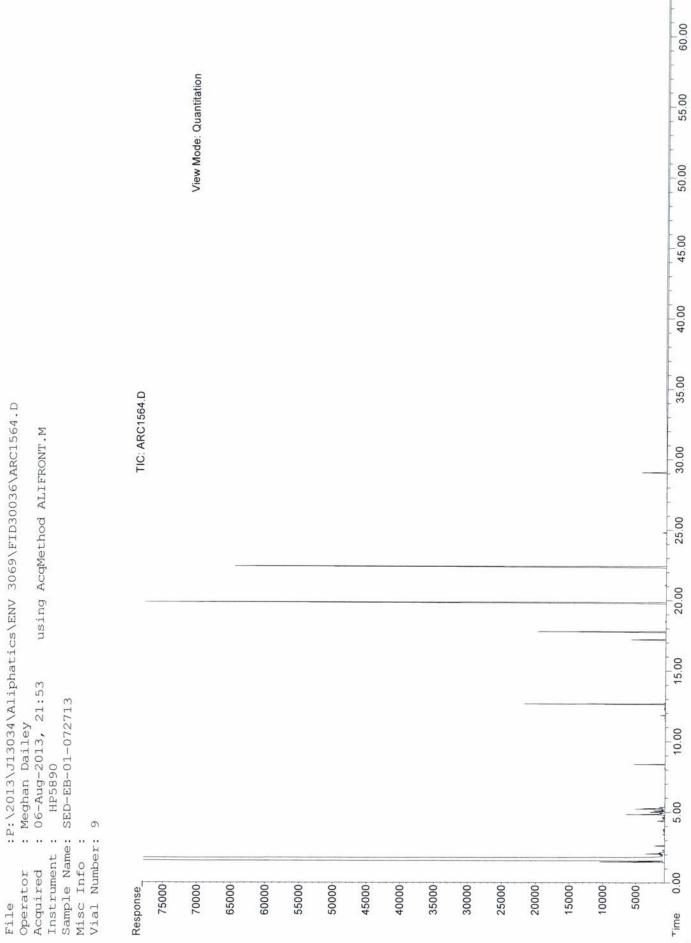


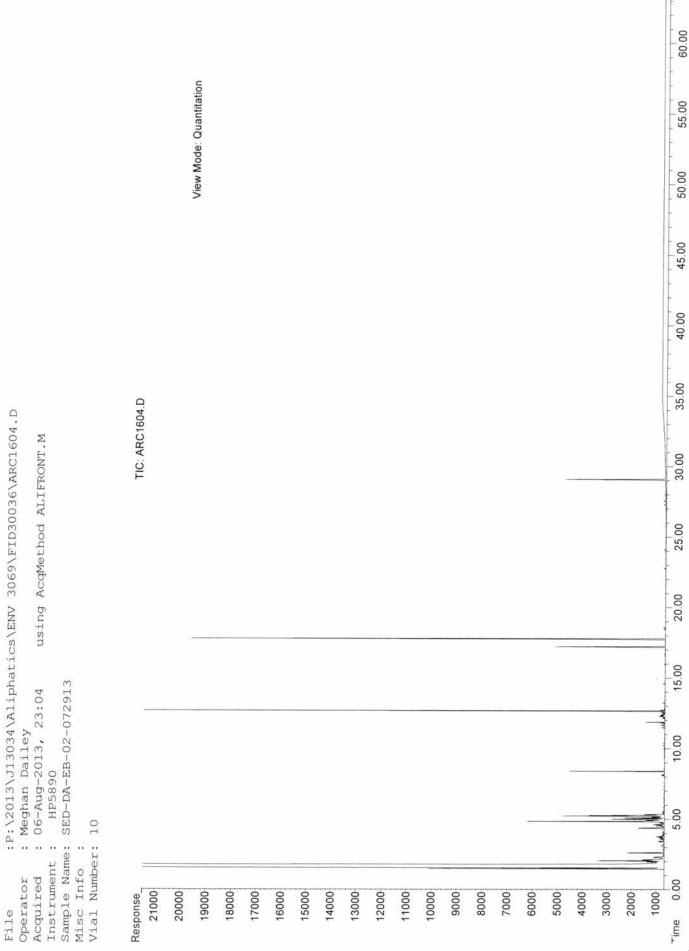


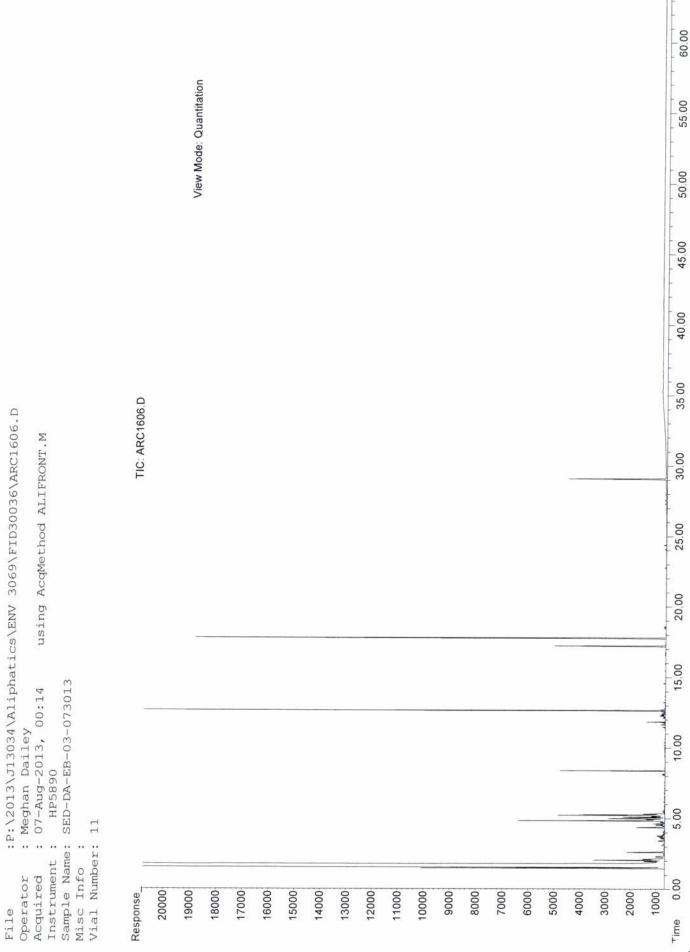
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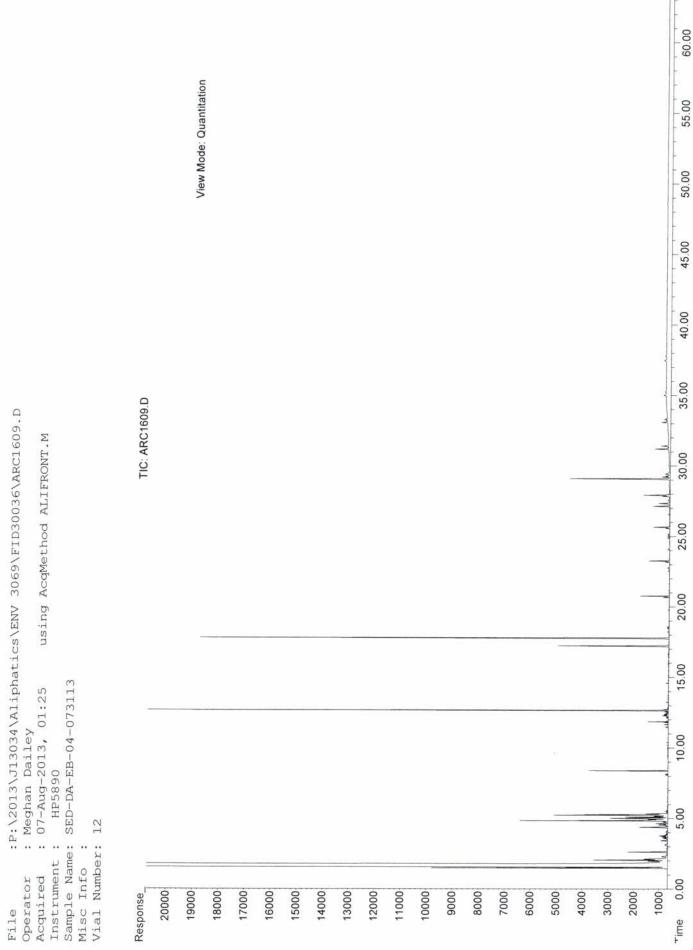


Total Petroleum Hydrocarbons Chromatograms









Polycyclic Aromatic Hydrocarbon Concentration

Arcadis - Mayflower AR Polycyclic Aromatic Hydrocarbon Data Client Submitted Samples

Sample Name Client Name Matrix Collection Date Received Date Extraction Date Extraction Batch Date Acquired Method Sample Volume (L) % Dry % Moisture Dilution	ARC1564.D SED-EB-01-072713 Water 07/27/13 07/30/13 08/02/13 ENV 3069 8/7/13 13:40 PAH-2012.M 1.0 NA NA NA 1X	ARC1604.D SED-DA-EB-02-072913 Water 07/29/13 07/31/13 08/02/13 ENV 3069 8/7/13 14:49 PAH-2012.M 1.0 NA NA 1X	ARC1606.D SED-DA-EB-03-073013 Water 07/30/13 07/31/13 08/02/13 ENV 3069 8/7/13 15:57 PAH-2012.M 1.0 NA NA NA 1X	ARC1609.D SED-DA-EB-04-073113 Water 07/31/13 08/01/13 08/02/13 ENV 3069 8/7/13 17:06 PAH-2012.M 1.0 NA NA NA 1X
Target Compounds	Su. Corrected C Conc. (ng/L)	Su. Corrected Conc. (ng/L)	Q Su. Corrected Conc. (ng/L)	Q Su. Corrected Q Conc. (ng/L)
cis/trans Decalin	<1.2 L	<1.1	U <1.2	U <1.1 U
C1-Decalins	<2.4 L			
C2-Decalins	<2.4 L		0.53	52
C3-Decalins C4-Decalins	<2.4 L <2.4 L			
Naphthalene	119	112	193	0 <2.3 U 66.2
C1-Naphthalenes	1.95	1.49	1.84	1.81
C2-Naphthalenes	3.06	2.30		
C3-Naphthalenes	<6.1 U		(T) (T)	U <5.8 U
C4-Naphthalenes	<6.1 U		(T) (J) (J) (J) (J) (J) (J) (J) (J) (J) (J	
Benzothiophene C1-Benzothiophenes	<1.4 U <2.7 U			10-1 S.M.O. (7).
C2-Benzothiophenes	<2.7 U		ST	
C3-Benzothiophenes	<2.7 U			
C4-Benzothiophenes	<2.7 U			
Biphenyl	0.881 J		2722 52774	· · · · · · · · · · · · · · · · · · ·
Acenaphthylene Acenaphthene	<1.2 U <1.5 U	5	UN1077	
Dibenzofuran	1.13 J			
Fluorene	0.535 J			
C1-Fluorenes	<1.7 U		U <1.7	U <1.6 U
C2-Fluorenes	<1.7 U			
C3-Fluorenes Carbazole	<1.7 U <0.9 U	<1.6 <0.8		
Anthracene	<0.9 U	<0.8		
Phenanthrene	3.54	3.10	3.29	3.45
C1-Phenanthrenes/Anthracenes	<0.7 U	<0.7	U <0.7	
C2-Phenanthrenes/Anthracenes	<3.2 U	<3		
C3-Phenanthrenes/Anthracenes C4-Phenanthrenes/Anthracenes	<3.2 U <3.2 U	<3 <3		
Dibenzothiophene	<0.9 U	<0.8		T
C1-Dibenzothiophenes	<0.7 U	<0.7		
C2-Dibenzothiophenes	<1.4 U	<1.3	U <1.4	
C3-Dibenzothiophenes	<1.4 U	<1.3		5 STORES
C4-Dibenzothiophenes Fluoranthene	<1.4 U <1.2 U	<1.3 <1.1		2020-02
Pyrene	<1.4 U	<1.4	5. COM	
C1-Fluoranthenes/Pyrenes	<2.6 U	<2.5	C (120.5)	
C2-Fluoranthenes/Pyrenes	<2.6 U	<2.5		J <2.5 U
C3-Fluoranthenes/Pyrenes C4-Fluoranthenes/Pyrenes	<2.6 U <2.6 U	<2.5		
Naphthobenzothiophene	<2.6 U <1.1 U	<2.5 <1		
C1-Naphthobenzothiophenes	<2.2 U	<2.1		
C2-Naphthobenzothiophenes	<2.2 U	<2.1		
C3-Naphthobenzothiophenes	<2.2 U	<2.1		
C4-Naphthobenzothiophenes	<2.2 U	<2.1		
Benz(a)anthracene Chrysene/Triphenylene	<0.8 U <0.8 U	<0.7 <0.8		
C1-Chrysenes	<1.7 U	<1.6		
C2-Chrysenes	<1.7 U	<1.6		
C3-Chrysenes	<1.7 U	<1.6		C
C4-Chrysenes	<1.7 U <2.5 U	<1.6	E	
Benzo(b)fluoranthene Benzo(k,j)fluoranthene	<2.5 U <2.6 U	<2.4 <2.5		
Benzo(a)fluoranthene	<2.6 U	<2.5		
Benzo(e)pyrene	<2.8 U	<2.7		
Benzo(a)pyrene	<2 U	<1.9		J <1.9 U
Perylene	<0.7 U	<0.6		
ndeno(1,2,3-c,d)pyrene Dibenzo(a,h)anthracene	<1.5 U <1.2 U	<1.4 <1.1		
Benzo(g,h,i)perylene	<1.2 U <2.6 U	<2.5		
	100			2.0 0

Arcadis - Mayflower AR Polycyclic Aromatic Hydrocarbon Data Client Submitted Samples

Sample Name Client Name Matrix Collection Date Received Date Extraction Batch Date Acquired Method Sample Volume (L) % Dry % Moisture Dilution	ARC1564.D SED-EB-01-072713 Water 07/27/13 07/30/13 08/02/13 ENV 3069 8/7/13 13:40 PAH-2012.M 1.0 NA NA 1X		ARC1604.D SED-DA-EB-02-072913 07/29/13 07/31/13 08/02/13 ENV 3069 8/7/13 14:49 PAH-2012.M 1.0 NA NA 1X		ARC1606.D SED-DA-EB-03-073013 Water 07/30/13 07/31/13 08/02/13 ENV 3069 8/7/13 15:57 PAH-2012.M 1.0 NA NA 1X		ARC1609.D SED-DA-EB-04-073113 Water 07/31/13 08/01/13 08/02/13 ENV 3069 8/7/13 17:06 PAH-2012.M 1.0 NA NA 1X	3
Target Compounds	Su. Corrected Conc. (ng/L)	Q	Su. Corrected Conc. (ng/L)	Q	Su. Corrected Conc. (ng/L)	Q	Su. Corrected Conc. (ng/L)	Q
Individual Alkyl Isomers and Hopanes								
2 Methylapathtalana	1.88		1.58		1.78		1.86	6
2-Methylnaphthalene 1-Methylnaphthalene	1.36		0.890	24	1.76	ï		6 4 J
2,6-Dimethylnaphthalene	0.723		0.690	1.000	0.634		0.51	
1,6,7-Trimethylnaphthalene	<0.7		<0.7		<0.7			7 U
1-Methylfluorene	<1.5		<1.5		<1.5			5 U
4-Methyldibenzothiophene		ŭ	<1		<1.0			1 U
2/3-Methyldibenzothiophene		ŭ	<1		<1			1 U
1-Methyldibenzothiophene		ŭ	<1		<1	1771		1 U
3-Methylphenanthrene		ŭ	<0.9		<1			9 U
2-Methylphenanthrene		ŭ	<0.9		<1	1.00		9 U
2-Methylanthracene		Ŭ	<0.9	00.00	<1	2777	- C. C.	9 U
4/9-Methylphenanthrene	<1	-	<0.9		<1	-		9 U
1-Methylphenanthrene	<1		<0.9		<1	175.1		9 U
3,6-Dimethylphenanthrene	<1.8	T	<1.7		<1.7			7 U
Retene	<1.7		<1.6		<1.6			6 U
2-Methylfluoranthene	<1.2		<1.1		<1.2			1 U
Benzo(b)fluorene	<1.4		<1.4		<1.4			4 U
C29-Hopane	<8.6	U	<8.2	U	<8.4	Ū	<8.2	2 U
18a-Oleanane	<8.6	U	<8.2	U	<8.4	U		2 U
C30-Hopane	<8.6	U	<8.2	U	<8.4	U	<8.2	2 U
C20-TAS	<2.7	U	<2.6	U	<2.7	U	<2.6	6 U
C21-TAS	<2.7	U	<2.6	U	<2.7	U	<2.6	6 U
C26(20S)-TAS	<2.7	U	<2.6	U	<2.7	U	<2.6	6 U
C26(20R)/C27(20S)-TAS	<2.7	U	<2.6	U	<2.7	U	<2.6	6 U
C28(20S)-TAS	<2.7	U	<2.6	U	<2.7	U	<2.6	6 U
C27(20R)-TAS	<2.7	U	<2.6	U	<2.7	U	<2.6	6 U
C28(20R)-TAS	<2.7	U	<2.6	U	<2.7	U	<2.6	6 U
Surrogate Recovery								- 01
Naphthalene-d8	78		78		80		75	
Acenaphthene-d10	86		86		86		87	
Phenanthrene-d10	91		90		92		94	
Chrysene-d12	88		84		82		85	
Perylene-d12	89		91		88		95	

B&B Laboratories Project J13034 Report 13-3090

Sample Name	ENV3069A.D						
Client Name	Procedural Blank						
Matrix	Water						
Collection Date	NA						
Received Date	NA						
Extraction Date	08/02/13						
Extraction Batch	ENV 3069						
Date Acquired	8/7/13 10:14						
Method	PAH-2012.M	PAH-2012.M					
Sample Volume (L)	1.0						
% Dry	NA						
% Moisture	NA						
Dilution	1X						
Target Compounds	Su. Corrected	Q	3X	Actual MDL			
	Conc. (ng/L)		MDL				
cis/trans Decalin	<1.1	U	3.43	1.14			
C1-Decalins	<2.3	U	6.85	2.28			
C2-Decalins	<2.3	U	6.85	2.28			
C3-Decalins	3-Decalins <2.3						
C4-Decalins	<2.3	U	6.85	2.28			
Naphthalene							

cis/trans Decalin	<1.1 U	3.43	1.14
C1-Decalins	<2.3 U	6.85	2.28
C2-Decalins	<2.3 U	6.85	2.28
C3-Decalins	<2.3 U	6.85	2.28
C4-Decalins	<2.3 U	6.85	2.28
Naphthalene	2.366 J	8.72	2.91
C1-Naphthalenes	1.299 J	4.09	1.36
C2-Naphthalenes	<5.8 U	17.4	5.82
C3-Naphthalenes	<5.8 U	17.4	5.82
C4-Naphthalenes	<5.8 U	17.4	5.82
Benzothiophene	<1.3 U	3.86	1.29
C1-Benzothiophenes	<2.6 U	7.72	2.57
C2-Benzothiophenes	<2.6 U	7.72	2.57
C3-Benzothiophenes	<2.6 U	7.72	2.57
C4-Benzothiophenes	<2.6 U	7.72	2.57
Biphenyl	0.810 J	15.3	5.09
Acenaphthylene	<1.2 U	3.52	1.17
Acenaphthene	<1.4 U	4.31	1.44
Dibenzofuran	0.848 J	3.57	1.19
Fluorene	0.293 J	2.44	0.813
C1-Fluorenes	<1.6 U	4.88	1.63
C2-Fluorenes	<1.6 U	4.88	1.63
C3-Fluorenes	<1.6 U	4.88	1.63
Carbazole	<0.8 U	2.50	0.833
Anthracene	<0.8 U	2.30	0.77
Phenanthrene	1.340 J	6.79	2.26
C1-Phenanthrenes/Anthracenes	<0.7 U	2.10	0.70
C2-Phenanthrenes/Anthracenes	<3 U	9.09	3.03
C3-Phenanthrenes/Anthracenes	<3 U	9.09	3.03
C4-Phenanthrenes/Anthracenes	<3 U	9.09	3.03
Dibenzothiophene	<0.8 U	2.47	0.824
C1-Dibenzothiophenes	<0.7 U	2.01	0.670
C2-Dibenzothiophenes	<1.3 U	4.02	1.34
C3-Dibenzothiophenes	<1.3 U	4.02	1.34
C4-Dibenzothiophenes	<1.3 U	4.02	1.34
Fluoranthene	0.6 J	3.28	1.09
Pyrene	0.8 J	4.12	1.37
C1-Fluoranthenes/Pyrenes	<2.5 U	7.41	2.47
C2-Fluoranthenes/Pyrenes	<2.5 U	7.41	2.47
C3-Fluoranthenes/Pyrenes	<2.5 U	7.41	2.47
C4-Fluoranthenes/Pyrenes	<2.5 U	7.41	2.47
Naphthobenzothiophene	<1 U	3.10	1.03
C1-Naphthobenzothiophenes	<2.1 U	6.20	2.07
C2-Naphthobenzothiophenes	<2.1 U	6.20	2.07
C3-Naphthobenzothiophenes	<2.1 U	6.20	2.07
C4-Naphthobenzothiophenes	<2.1 U	6.20	2.07
Benz(a)anthracene	<0.7 U	2.21	0.737
Chrysene/Triphenylene	<0.8 U	2.40	0.799
C1-Chrysenes	<1.6 U	4.80	1.60
C2-Chrysenes	<1.6 U	4.80	1.60
C3-Chrysenes	<1.6 U	4.80	1.60
C4-Chrysenes	<1.6 U	4.80	1.60
Benzo(b)fluoranthene	<2.4 U	7.15	2.38
Benzo(k,j)fluoranthene	<2.5 U	7.53	2.51
Benzo(a)fluoranthene	<2.5 U	7.53	2.51
Benzo(e)pyrene	<2.7 U	8.08	2.69
	<1.9 U		
Benzo(a)pyrene		5.74	1.91
Perylene	<0.6 U	1.90	0.635
Indeno(1,2,3-c,d)pyrene	<1.4 U	4.18	1.39
Dibenzo(a,h)anthracene	<1.1 U	3.41	1.14
Benzo(g,h,i)perylene	<2.5 U	7.53	2.51
Total PAHs	8.4		

Sample Name	ENV3069A.D	
Client Name	Procedural Blank	
Matrix	Water	
Collection Date	NA	
Received Date	NA	
Extraction Date	08/02/13	
Extraction Batch	ENV 3069	
Date Acquired	8/7/13 10:14	
Method	PAH-2012.M	
Sample Volume (L)	1.0	
% Dry	NA	
% Moisture	NA	
Dilution	1X	

Target Compounds	Su. Corrected Conc. (ng/L)	Q	3X MDL	Actual MDI
Individual Alkyl Isomers and Hopane			MDL	
2-Methylnaphthalene	1.3	29	3.31	1.10
1-Methylnaphthalene	0.86	35 J	4.26	1.42
2,6-Dimethylnaphthalene	<0	.7 U	2.09	0.696
1,6,7-Trimethylnaphthalene	<0	.7 U	2.00	0.668
1-Methylfluorene	<1	.5 U	4.41	1.47
4-Methyldibenzothiophene		<1 U	2.90	0.966
2/3-Methyldibenzothiophene		<1 U	2.90	0,966
1-Methyldibenzothiophene		<1 U	2.90	0.966
3-Methylphenanthrene	<0	.9 U	2.82	0.939
2-Methylphenanthrene		9 U	2.82	0.939
2-Methylanthracene	<0	9 U	2.82	0.939
4/9-Methylphenanthrene	<0	9 U	2.82	0.939
1-Methylphenanthrene	<0	9 U	2.82	0.939
3,6-Dimethylphenanthrene	<1	7 U	5.01	1.67
Retene		.6 U	4.78	1.59
2-Methylfluoranthene		1 U	3.44	1.15
Benzo(b)fluorene		4 U	4.12	1.37
C29-Hopane	<8	2 U	24.6	8.19
18a-Oleanane	<8	2 U	24.6	8.19
C30-Hopane		2 U	24.6	8.19
C20-TAS		6 U	7.80	2.60
C21-TAS		6 U	7.80	2.60
C26(20S)-TAS		6 U	7.80	2.60
C26(20R)/C27(20S)-TAS	107.3	6 U	7.80	2.60
C28(20S)-TAS	0.77	6 U	7.80	2.60
C27(20R)-TAS	0.73	6 U	7.80	2.60
C28(20R)-TAS		6 U	7.80	2.60
Surrogate Recovery				
Naphthalene-d8	83			
Acenaphthene-d10	88			
Phenanthrene-d10	93			
Chrysene-d12	94			
Pervlene-d12	93			

B&B Laboratories Project J13034 Report 13-3090

Arcadis - Mayflower AR Polycyclic Aromatic Hydrocarbon Data Blank Spike Report

Sample Name	ENV3069B.D	ENV3069C.D	
Client Name	Blank Spike	Blank Spike Dupl.	
Matrix	Water	Water	
Collection Date	NA	NA	
Received Date	NA	NA	
Extraction Date	08/02/13	08/02/13	
Extraction Batch	ENV 3069	ENV 3069	
Date Acquired	8/7/13 11:22	8/7/13 12:31	
Method	PAH-2012.M	PAH-2012.M	
Sample Volume (L)	1.0	1.0	
% Dry	NA	NA	
% Moisture	NA	NA	
Dilution	1X	1X	

Target Compounds	Su. Corrected Amount (ng)	Q Recovery Q (%)	Su. Corrected Amount (ng)	Q Recovery Q (%)	RPD (%)	Q Spike amount (ng)
cis/trans Decalin	69.1	70	60.9	62	13	98.9
C1-Decalins	NA		NA			
C2-Decalins	NA		NA			
C3-Decalins	NA		NA			
C4-Decalins	NA		NA			
Naphthalene	80.6	81	79.7	80	1	100
C1-Naphthalenes	NA		NA			
C2-Naphthalenes	NA		NA			
C3-Naphthalenes	NA		NA			
C4-Naphthalenes	NA	70	NA			
Benzothiophene	78.2	79	79.3	80	1	99.4
C1-Benzothiophenes	NA		NA			
C2-Benzothiophenes	NA		NA			
C3-Benzothiophenes	NA		NA			
C4-Benzothiophenes	NA	76	NA	75	0	00.4
Biphenyl	74.7	75	74.7	75	0	99.1
Acenaphthylene	76.2	77	76.9	78	1	99.2
Acenaphthene	79.9 80.6	80 81	80.9 81.7	81 82	1	100 99.5
Dibenzofuran Fluorene	80.6	81	81.7	82 83	2	100
	81.3 NA	01	82.7 NA	03	2	100
C1-Fluorenes C2-Fluorenes	NA		NA			
C3-Fluorenes	NA		NA			
Carbazole	77.2	78	79.7	80	3	99,1
Anthracene	81.2	81	81.1	81	0	100
Phenanthrene	83.5	84	83.4	84	0	99.1
C1-Phenanthrenes/Anthracenes	NA	04	NA	04	0	99.1
C2-Phenanthrenes/Anthracenes	NA		NA			
C3-Phenanthrenes/Anthracenes	NA		NA			
C4-Phenanthrenes/Anthracenes	NA		NA			
Dibenzothiophene	101.2	103	102.7	104	2	98.6
C1-Dibenzothiophenes	NA	100	NA	104		00.0
C2-Dibenzothiophenes	NA		NA			
C3-Dibenzothiophenes	NA		NA			
C4-Dibenzothiophenes	NA		NA			
Fluoranthene	88.9	89	90.8	91	2	100
Pyrene	85.3	85	86.1	86	1	100
C1-Fluoranthenes/Pyrenes	NA		NA			
C2-Fluoranthenes/Pyrenes	NA		NA			
C3-Fluoranthenes/Pyrenes	NA		NA			
C4-Fluoranthenes/Pyrenes	NA		NA			
Naphthobenzothiophene	89.2	89	89.2	89	0	101
C1-Naphthobenzothiophenes	NA		NA			
C2-Naphthobenzothiophenes	NA		NA			
C3-Naphthobenzothiophenes	NA		NA			
C4-Naphthobenzothiophenes	NA		NA			
Benz(a)anthracene	88.8	89	87.4	88	2	99.8
Chrysene/Triphenylene	85.3	86	82.1	83	4	99.4
C1-Chrysenes	NA		NA			
C2-Chrysenes	NA		NA			
C3-Chrysenes	NA		NA			
C4-Chrysenes	NA		NA			
Benzo(b)fluoranthene	83.0	83	85.0	85	2	100
Benzo(k,j)fluoranthene	77.1	77	79.3	80	3	99.6
Benzo(a)fluoranthene	NA	332	NA	1221	20	12240
Benzo(e)pyrene	83.6	84	86.5	87	3	99.6
Benzo(a)pyrene	82.4	83	81.6	82	1	99.8
Perylene	94.3	94	97.0	97	3	100
Indeno(1,2,3-c,d)pyrene	76.9	78	78.4	80	2	98.3
Dibenzo(a,h)anthracene	80.0	81	82.0	83	3	99.1
Benzo(g,h,i)perylene	79.4	80	80.9	82	2	99.1
Average % Recovery		83		84		

B&B Laboratories Project J13034 Report 13-3090

Sample Name Client Name	ENV3069B.D Blank Spike		ENV3069C.D Blank Spike Dupl.					
Matrix	Water		Water					
Collection Date	NA							
Received Date	NA		NA	NA				
	08/02/13		08/02/13					
Extraction Batch	ENV 3069		ENV 3069					
Date Acquired	8/7/13 11:22		8/7/13 12:31					
Method	PAH-2012.M		PAH-2012.M					
Sample Volume (L)	1.0		1.0					
% Dry	NA		NA					
% Moisture	NA		NA					
Dilution	1X		1X					
Target Compounds	Su. Corrected	Q Recovery Q	Su. Corrected	Q Recovery Q		Spike amount		
Individual Alkyl Isomers and Hopanes	Amount (ng)	(%)	Amount (ng)	(%)	(%)	(ng)		
individual Aikyr isoliters and hopanes								
2-Methylnaphthalene	79.1		77.		2	100		
1-Methylnaphthalene	78.0		77.		0	99.9		
2,6-Dimethylnaphthalene	76.9		73.	50 65-25 C	4	100		
1,6,7-Trimethylnaphthalene	83.4	83	83.	4 83	0	100		
1-Methylfluorene	85.1	84	86.	8 86	2	101		
4-Methyldibenzothiophene	87.0	86	89.3	3 89	3	101		
2/3-Methyldibenzothiophene	NA		N	4				
1-Methyldibenzothiophene	NA		N	4				
3-Methylphenanthrene	NA		N	4				
2-Methylphenanthrene	NA		N					
2-Methylanthracene	NA		N					
- '아이지 : 2012'에 알려진 것, 2012'에 가지 않는 것, 2012'에 Name and Annia (1912'에 Name and Annia (1912')에 Name and Annia (19								
4/9-Methylphenanthrene	NA		NA		2	120000		
1-Methylphenanthrene	85.6		86.		1	98.9		
3,6-Dimethylphenanthrene	77.6		78.3	56 KDC52	1	100		
Retene	77.2		77.3		0	89.4		
2-Methylfluoranthene	88.3		88.9		1	101		
Benzo(b)fluorene	94.1		94.8		1	101		
C29-Hopane	NA		NA	\				
18a-Oleanane	NA		NA	\				
C30-Hopane	90.1	90	91.3	91	1	100		
C20-TAS	NA		NA	(50 M 20 M		
C21-TAS	NA		NA					
C26(20S)-TAS	NA		NA					
C26(20R)/C27(20S)-TAS	93.1		93.0		0	100		
C28(20S)-TAS	NA		NA					
C27(20R)-TAS	NA		NA					
C28(20R)-TAS	NA		NA					
Surrogate Recovery								
Naphthalene-d8	81		78					
Acenaphthene-d10	88		87					
Phenanthrene-d10	93		90					
Chrysene-d12	91		88					
			00					

Sample Name Client Name Matrix Collection Date	MS70052K.D AR-SRM2779-WK4.0-001 Gulf of Mexico Crude Oil NA					
Received Date Extraction Date	NA					
Extraction Batch	ENV 3069					
Date Acquired	8/7/13 9:05					
Method	PAH-2012.M					
Sample Weight (mg)	4.1					
Target Compounds	Su. Corrected Conc. (ng/mg)	QQ	1 RPD (%)	SRM 2779 Certified Value (ug/g)	-20% Certified Value (ug/g)	+20% Certified Value (ug/g)
cis/trans Decalin	657					
C1-Decalins	934					
C2-Decalins	760					
C3-Decalins C4-Decalins	416					
Naphthalene	677		23	855 ± 46	647	1081
C1-Naphthalenes	1403		25	000 I 40	047	1001
C2-Naphthalenes	1704					
C3-Naphthalenes	1041					
C4-Naphthalenes	557					
Benzothiophene	7.71	J				
C1-Benzothiophenes	31.9					
C2-Benzothiophenes	26.1					
C3-Benzothiophenes	30.3					
C4-Benzothiophenes	24.9					
Biphenyl	146 8.15					
Acenaphthylene Acenaphthene	5.26					
Dibenzofuran	28.0					
Fluorene	116					
C1-Fluorenes	221					
C2-Fluorenes	335					
C3-Fluorenes	262					
Carbazole		J		0.40 - 0.50	0.00	4.04
Anthracene Phenanthrene	3.3 226	J	5 13	3.42 ± 0.59 258 ± 27	2.26 185	4.81 342
C1-Phenanthrenes/Anthracenes	585		15	230 1 21	105	542
C2-Phenanthrenes/Anthracenes	639					
C3-Phenanthrenes/Anthracenes	466					
C4-Phenanthrenes/Anthracenes	177					
Dibenzothiophene	47.1		10	51.8 ± 2.1	39.8	64.7
C1-Dibenzothiophenes	103					
C2-Dibenzothiophenes	147 115					
C3-Dibenzothiophenes C4-Dibenzothiophenes	49.7					
Fluoranthene	3.36		26	4.36 ± 0.40	3.17	5.71
Pyrene	12.7		15	14.81 ± 0.39	11.5	18.2
C1-Fluoranthenes/Pyrenes	75.0					
C2-Fluoranthenes/Pyrenes	151					
C3-Fluoranthenes/Pyrenes	119					
C4-Fluoranthenes/Pyrenes	109					
Naphthobenzothiophene	22.1					
C1-Naphthobenzothiophenes	55.2 76.8					
C2-Naphthobenzothiophenes C3-Naphthobenzothiophenes	50.6					
C4-Naphthobenzothiophenes	18.0					
Benz(a)anthracene	5.27		29	7.03 ± 0.85	4.94	9.5
Chrysene/Triphenylene	42.3		11	47.4 ± 1.7	36.6	58.9
C1-Chrysenes	119					
C2-Chrysenes	141					
C3-Chrysenes	97.2					
C4-Chrysenes	53.4		00	E 00 . 0 01		-
Benzo(b)fluoranthene	4.53		22	5.62 ± 0.34	4.22	7.15
Benzo(k,j)fluoranthene Benzo(a)fluoranthene	0.968 <10					
Benzo(a)huorannene Benzo(e)pyrene	8.4		24	10.78 ± 0.60	8.14	13.7
Benzo(a)pyrene	1.57					
Perylene	0.489					
Indeno(1,2,3-c,d)pyrene	0.512					
Dibenzo(a,h)anthracene Benzo(g,h,i)perylene	0.592		3 28	0.574 ± 0.091 2.11 ± 0.26	0.386	0.798 2.84
		U	20	2.11.2 0.20	1.40	2.07
Total PAHs	13902					

Sample Name	MS70052K.D
Client Name	AR-SRM2779-WK4.0-001
Matrix	Gulf of Mexico Crude Oil
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3069
Date Acquired	8/7/13 9:05
Method	PAH-2012.M
Sample Weight (mg)	4.1

Target Compounds	Su. Corrected Conc. (ng/mg)		Q	RPD (%)	SRM 2779 Certified Value	-20% Certified Value	+20% Certified Value
Individual Alkyl Isomers and Hopanes					(ug/g)	(ug/g)	(ug/g)
2-Methylnaphthalene		1399		15	1630 ± 50	1264	2016
1-Methylnaphthalene		927		21	1140 ± 20	896	1392
2,6-Dimethylnaphthalene		847					
1,6,7-Trimethylnaphthalene		242					
1-Methylfluorene		204					
4-Methyldibenzothiophene		93.6					
2/3-Methyldibenzothiophene		44.6					
1-Methyldibenzothiophene		32.4					
3-Methylphenanthrene		158		26	206 ± 32	139	286
2-Methylphenanthrene		212		8	230 ± 14	173	293
2-Methylanthracene		13.8		-			
4/9-Methylphenanthrene		242		4	232 ± 19	170	301
1-Methylphenanthrene		149		13	169 ± 10	127	215
3,6-Dimethylphenanthrene		44.4			0.000	052	
Retene		6,46	1				
2-Methylfluoranthene		5.05					
Benzo(b)fluorene		13.7	ñ.,				
C29-Hopane		18.4					
18a-Oleanane		<10	U				
C30-Hopane		42.9					
C20-TAS		5.09	J				
C21-TAS		6.30	- 52				
C26(20S)-TAS		3.35					
C26(20R)/C27(20S)-TAS		11.2	5				
C28(20S)-TAS		8.46	1				
C27(20R)-TAS		6.81					
C28(20R)-TAS		5.65					
Surrogate Recovery							
Naphthalene-d8	92						
Acenaphthene-d10	98						
Phenanthrene-d10	92						
Chrysene-d12	97						
Perylene-d12	88						
Peak Resolution							
4/9-Methylphenanthrene from							
1-Methylyphenanthrene (m/z 192)	88%						
(mentify) (mentione (met rot)	0070						

Sample Name	MS70052L.D	
Client Name	AR-WKCC-250-037	
Matrix	Solution	
Collection Date	NA	
Received Date	NA	
Extraction Date	NA	
Extraction Batch	ENV 3069	
Date Acquired	8/7/13 18:15	
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	246	0.3	247	210	284
C1-Decalins	NA	0.0	2.47	210	204
C2-Decalins	NA				
C3-Decalins	NA				
C4-Decalins	NA				
Naphthalene	242	3.2	250	213	288
C1-Naphthalenes	NA				
C2-Naphthalenes	NA				
C3-Naphthalenes	NA				
C4-Naphthalenes	NA	6/3	22.55		
Benzothiophene	240	3.4	249	211	286
C1-Benzothiophenes	NA				
C2-Benzothiophenes	NA				
C3-Benzothiophenes C4-Benzothiophenes	NA				
Biphenyl	NA 235	5.3	248	044	005
Acenaphthylene	233	15.2	248	211 211	285 285
Acenaphthene	236	5.8	240	213	288
Dibenzofuran	234	5.9	249	213	286
Fluorene	231	8.2	251	213	288
C1-Fluorenes	NA	0.2	201	210	200
C2-Fluorenes	NA				
C3-Fluorenes	NA				
Carbazole	213	15.0	248	211	285
Anthracene	243	3.2	251	213	288
Phenanthrene	255	2.9	248	211	285
C1-Phenanthrenes/Anthracenes	NA				
C2-Phenanthrenes/Anthracenes	NA				
C3-Phenanthrenes/Anthracenes	NA				
C4-Phenanthrenes/Anthracenes	NA				
Dibenzothiophene	253	2.5	247	210	283
C1-Dibenzothiophenes	NA				
C2-Dibenzothiophenes	NA				
C3-Dibenzothiophenes	NA				
C4-Dibenzothiophenes Fluoranthene	NA 247		250	040	000
Pyrene	247	1.4 0.0	250 250	213 213	288 288
C1-Fluoranthenes/Pyrenes	NA	0.0	250	213	200
C2-Fluoranthenes/Pyrenes	NA				
C3-Fluoranthenes/Pyrenes	NA				
C4-Fluoranthenes/Pyrenes	NA				
Naphthobenzothiophene	236	6.5	252	214	289
C1-Naphthobenzothiophenes	NA				122224
C2-Naphthobenzothiophenes	NA				
C3-Naphthobenzothiophenes	NA				
C4-Naphthobenzothiophenes	NA				
Benz(a)anthracene	213	15.6	250	212	287
Chrysene/Triphenylene	238	4.5	249	211	286
C1-Chrysenes	NA				
C2-Chrysenes	NA				
C3-Chrysenes	NA				
C4-Chrysenes	NA		12-24-0	10100	10.210
Benzo(b)fluoranthene	264	5.2	251	213	288
Benzo(k,j)fluoranthene	264	6.0	249	212	286
Benzo(a)fluoranthene	NA		0.40		000
Benzo(e)pyrene Benzo(a)pyrene	272	8.9	249	212	286
Perylene	254 255	1.7 2.0	250	212	287
Indeno(1,2,3-c,d)pyrene	235	4.3	250 246	213 209	288 283
Dibenzo(a,h)anthracene	243	4.3	248	209	285
Benzo(g,h,i)perylene	245	0.4	248	211	285
10. 11F	241				200

Sample Name	MS70052L.D
Client Name	AR-WKCC-250-037
Matrix	Solution
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3069
Date Acquired	8/7/13 18:15
Method	PAH-2012.M
Sample Volume (mL)	1.0

			_				
Target Compounds	Concentration		Q	RPD	LCM	-15%	+15%
	(ng/mL)			(%)	Certified Conc.	Certified Conc.	
Individual Alkyl Isomers and Hopanes					(ng/mL)	(ng/mL)	(ng/mL)
2-Methylnaphthalene		238		5.1	250	213	288
1-Methylnaphthalene		239		4.5	250	212	287
2,6-Dimethylnaphthalene		231		7.9	250	213	288
1,6,7-Trimethylnaphthalene		231		7.8	250	213	288
1-Methylfluorene		229		9.4	252	214	290
4-Methyldibenzothiophene		247		2.1	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		230		7.2	247	210	284
3,6-Dimethylphenanthrene		228		9.4	250	213	288
Retene		204		9.1	223	190	257
2-Methylfluoranthene		233		7.9	252	214	289
Benzo(b)fluorene		218		14.7	252	214	290
C29-Hopane		NA					200
18a-Oleanane		NA					
C30-Hopane		241		3.8	250	213	288
C20-TAS		NA					
C21-TAS		NA					
C26(20S)-TAS		NA					
C26(20R)/C27(20S)-TAS		216		14.7	250	213	288
C28(20S)-TAS		NA			2742		
C27(20R)-TAS		NA					
C28(20R)-TAS		NA					
Surrogate Recovery							
Naphthalene-d8	96						
Acenaphthene-d10	94						
Phenanthrene-d10	104						
Chrysene-d12	96						
Perylene-d12	100						

Sample Name	MS700521.D
Client Name	AR-WKICV-250-003
Matrix	Solution
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3069
Date Acquired	8/7/13 6:48
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		278		10.5	250	200	300
C1-Decalins		NA					
C2-Decalins		NA					
C3-Decalins		NA					
C4-Decalins		NA					
Naphthalene		276		9.9	250	200	300
C1-Naphthalenes		NA					
C2-Naphthalenes C3-Naphthalenes		NA NA					
C4-Naphthalenes		NA					
Benzothiophene		279		11.0	250	200	300
C1-Benzothiophenes		NA		11.0	200	200	000
C2-Benzothiophenes		NA					
C3-Benzothiophenes		NA					
C4-Benzothiophenes		NA					
Biphenyl		275		9.2	251	201	301
Acenaphthylene		254					
Acenaphthene		281		11.6	250	200	300
Dibenzofuran		281		11.6	250	200	300
Fluorene		273		8.8	250	200	300
C1-Fluorenes		NA					
C2-Fluorenes		NA					
C3-Fluorenes Carbazole		NA		0.0	250	200	200
Anthracene		248 279		0.9	250 250	200	300 300
Phenanthrene		293		15.7	250	200	300
C1-Phenanthrenes/Anthracenes		NA		10.7	250	200	300
C2-Phenanthrenes/Anthracenes		NA					
C3-Phenanthrenes/Anthracenes		NA					
24-Phenanthrenes/Anthracenes		NA					
Dibenzothiophene		291		14.9	250	200	300
C1-Dibenzothiophenes		NA					
C2-Dibenzothiophenes		NA					
C3-Dibenzothiophenes		NA					
C4-Dibenzothiophenes		NA					
luoranthene		292		15.4	250	200	300
Pyrene		294		16.3	250	200	300
C1-Fluoranthenes/Pyrenes		NA					
2-Fluoranthenes/Pyrenes		NA					
C3-Fluoranthenes/Pyrenes		NA					
Vaphthobenzothiophene		NA					
21-Naphthobenzothiophenes		NA					
2-Naphthobenzothiophenes		NA					
3-Naphthobenzothiophenes		NA					
4-Naphthobenzothiophenes		NA					
Benz(a)anthracene		267		6.6	250	200	300
Chrysene/Triphenylene		281		11.6	250	200	300
C1-Chrysenes		NA					
2-Chrysenes		NA					
C3-Chrysenes		NA					
C4-Chrysenes		NA		1203	10000		
Senzo(b)fluoranthene		297		17.1	250	200	300
Senzo(k,j)fluoranthene		296		16.9	250	200	300
Benzo(a)fluoranthene		NA 291		15.0	250	200	300
Benzo(e)pyrene Benzo(a)pyrene		291		10.6	250	200 200	300
Pervlene		275		9.2	250	200	300
ndeno(1,2,3-c,d)pyrene		270		9.2	250	200	300
)ibenzo(a,h)anthracene		286		13.3	250	200	300
				8.7	250		000

Sample Name	MS70052I.D
Client Name	AR-WKICV-250-003
Matrix	Solution
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3069
Date Acquired	8/7/13 6:48
Method	PAH-2012.M
Sample Volume (mL)	1.0

		_	_				
Target Compounds	Concentration		Q	RPD	ICV	-20%	+20%
Individual Alkyl Isomers and Hopanes	(ng/mL)			(%)	Certified Conc.	Certified Conc.	
Individual Alkyl isomers and Hopanes					(ng/mL)	(ng/mL)	(ng/mL)
2-Methylnaphthalene		286		13.3	250	200	301
1-Methylnaphthalene		284		12.4	251	200	301
2,6-Dimethylnaphthalene		272		8.3	250	200	300
1,6,7-Trimethylnaphthalene		281		11.5	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		268		6.9	250	200	300
3,6-Dimethylphenanthrene		NA			2000 2020 1	0 0 000	
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		228		9.3	250	200	300
Acenaphthene-d10		224		11.1	250	200	300
Phenanthrene-d10		243		2.9	250	200	300
Chrysene-d12		234		6.4	250	200	300
Perylene-d12		217		13.9	250	200	300

Polycyclic Aromatic Hydrocarbon Histograms



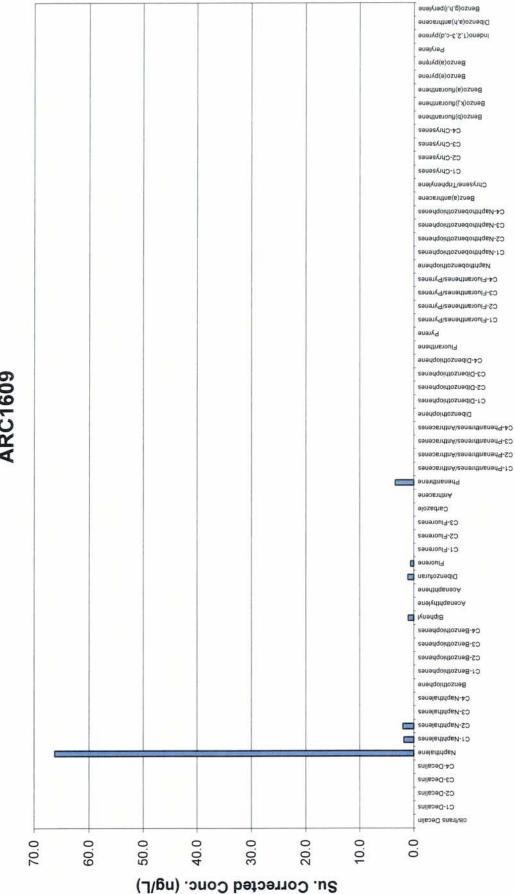
SED-EB-01-072713 (Water) ARC1564





SED-DA-EB-03-073013 (Water) ARC1606







Polycyclic Aromatic Hydrocarbon Total Ion Chromatograms

Time--> 10.00 12.00 14.00 18.00 20.00 22.00 24.00 26.00 28.00 30.00 32.00 34.00 36.00 38.00 40.00 42.00 44.00 46.00 48.00 50.00 52.00 54.00 58.00 60.00 TIC: ARC1564.D\data.ms NN using AcqMethod PAH-2012.M :C:\GCMS7\MS70052\ARC1564.D : YM : 7 Aug 2013 13:40 usi : GCMSD Sample Name: SED-EB-01-072713 Misc Info : Vial Number: 15 V Acquired : Instrument : Operator Abundance 1e+07 0000006 8000000 7000000 6000000 5000000 4000000 3000000 2000000 1000000 File

1000000

File : Operator : Acquired : Instrument : Sample Name: Misc Info : Vial Number:	Abundance 4500000	400000	350000	300000	250000	200000	150000	100000	50000		Time> 10
:C:\GCMS7\MS70052\ARC1606.D or : YM ed : 7 Aug 2013 15:57 us ment : GCMSD Name: SED-DA-EB-03-073013 nfo : nber: 17	0									The second secon	10.00 12.00 14.00 16.00 18.00 20.00 22.00 24.00
ing AcgM											.00 24.00 26.00 28.00
ethod PAH-2012.M	TIC:									- - - - -	30.00 32.00
12.M	TIC: ARC1606.D\data.ms										34.00 36.00 38.00
	us										40.00
											42.00 44.00
											46.00 48.00
											50.00 52.00
											54.00
											56.00 58.00
											00.09 00
								-			

using AcqMethod PAH-2012.M	TIC: ARC1609.D\data.ms									28.00 30.00 32.00 34.00 36.00 38.00 40.00 42.00 44.00 46.00 48.00 50.00 52.00 54.00 56.00 58.00 60.00
09.D using Acq	ł									00 24.00 26.00 28.00
:C:\GCMS7\MS70052\ARC1609.D br : YM ed : 7 Aug 2013 17:06 us ment : GCMSD Name: SED-DA-EB-04-073113 nfo : umber: 18										10.00 12.00 14.00 16.00 18.00 20.00 22.00 24.00
File :: Operator :: Acquired :: Instrument : Sample Name: Misc Info : Vial Number:	Abundance	400000	350000	300000	250000	200000	150000	100000	50000	 Time> 1(

Total Petroleum Hydrocarbons/ Aliphatic Hydrocarbons Raw Data

B&B LABORATORIES ALIPHATICS/TEH QA FORM

Extraction Page: ENU-3069	Analyst: M. Dailey
Client: Arcadis Muyflower	Date: 8/20/13
Job: #: J13034	Project Quality Manager: 70000
SDG #: 1/4/1005	Date: 08/21/13
Initial Calibration: No fub	ICV Nofnh
Surrogate Recoveries:	
Procedural Blank: No fue h	
Blank Spike: No fue h	
Blank Spike Duplicate: Nor Auch	
Laboratory Duplicate:	
Matrix Spike:	
Matirx Spike Duplicate:	
SRM 2779 Reference Oil	
Mass Discrimination Check (n-C36/n-C20 >0.7)	
No fue has	

FID Sequence Summary Report



Sequence name:	FID30036 2013-08-06 07-47-44
Acquisition date:	8/6/2013 7:47:45 AM
Acquired by:	Meghan Dailey
Data Directory	C:\CHEM32\4\DATA\FID30036 2013-08-06 07-47-44

Line	Location	Sample Name	Datafile	Method	Injection Date
4	Vial 1	Solvent Blank	FID30036A.D	ALIFRONT.M	08/06/2013 11:21:53
5	Vial 2	AL-WKCC-25-023	FID30036B.D	ALIFRONT.M	08/06/2013 12:31:54
6	Vial 3	AL-SRM2779-20-01	FID30036C.D	ALIFRONT.M	08/06/2013 13:41:46
7	Vial 1	Solvent Blank	FID30036D.D	ALIFRONT.M	08/06/2013 14:52:10
8	Vial 4	AL-WKRetWin-001	FID30036E.D	ALIFRONT.M	08/06/2013 16:02:03
9	Vial 5	AL-WKPem-001	FID30036F.D	ALIFRONT.M	08/06/2013 17:12:33
10	Vial 6		ENV3069A.D	ALIFRONT.M	08/06/2013 18:22:53
11	Vial 7		ENV3069B.D	ALIFRONT.M	08/06/2013 19:33:16
12	Vial 8		ENV3069C.D	ALIFRONT.M	08/06/2013 20:43:33
13	Vial 9		ARC1564.D	ALIFRONT.M	08/06/2013 21:53:51
14	Vial 10		ARC1604.D	ALIFRONT.M	08/06/2013 23:04:08
15	Vial 11		ARC1606.D	ALIFRONT.M	08/07/2013 00:14:32
16	Vial 12		ARC1609.D	ALIFRONT.M	08/07/2013 01:25:02
17	Vial 13	AL-WKCC-25-023	FID30036G.D	ALIFRONT.M	08/07/2013 02:34:53

Page 1

Data Path : P:\2013\J13034\Aliphatics\ENV 3069\FID30036\

Data File : FID30036B.D Signal(s) : FID1A.CH Acq On : 06-Aug-2013, 12:31:54 Operator : Meghan Dailey Sample : AL-WKCC-25-023 Misc : ALS Vial : 2 Sample Multiplier: 1 Integration File: autointl.e Quant Time: Aug 07 08:46:14 2013 Quant Method : P:\2013\J13034\Aliphatics\ENV 3069\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic QLast Update : Wed Jul 24 12:42:03 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : 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) 7 n-C12 10 n-C13 12 n-C14 14 n-C15 15 n-C16 1.1971.219-1.81100.001.0001.0000.01080.000.9670.995-2.91100.000.9620.989-2.81100.000.9520.978-2.71100.000.9690.996-2.81090.000.9520.976-2.51090.000.9520.976-2.51090.000.9570.982-2.61090.000.9650.991-2.71090.000.9660.990-2.51090.000.9660.994-2.81090.000.9670.994-2.81090.000.9660.992-2.71100.000.9660.992-2.71100.000.9660.992-2.71100.000.9550.978-2.41100.000.9400.965-2.71100.000.9420.967-2.71100.000.9420.967-2.71090.000.8920.913-2.41090.000.8920.913-2.41090.000.8990.926-3.01090.000.8440.874-3.61090.00</t 16 I 5a-androstane
 18
 n-C17

 19
 Pristane

 20
 n-C18

 21
 Phytane

 22
 n-C19

 23
 S

 n-eicosane-d42
 23 S n-eicosane-d4 24 n-C20 25 n-C21 26 n-C22 27 n-C23 28 n-C24 29 n-C25 30 n-C26 31 n-C27 32 n-C28 33 n-C29 34 S n-triacontane 34 S n-triacontane-d62

 34
 S
 n-tria

 35
 n-C30

 36
 n-C31

 37
 n-C32

 38
 n-C33

 39
 n-C34

 40
 n-C35

 41
 n-C36

 42
 n-C37

 43
 n-C38

44	n-C39		0.803	0.845	-5.2	109	0.00
45	n-C40		0.741	0.786	-6.1	109	0.00
		Evaluate	Continuing Cal	ibration	Report - No	t Fo	unds
8	i-13		0.018	0.000	100.0#	0#	-8.82#
8 9	i-14		0.018	0.000	100.0#	0#	-9.51#
11	i-15		0.019	0.000	100.0#	0#	-10.65#
13	i-16		0.019	0.000	100.0#	O #	-11.53#
17	i-18		0.019	0.000	100.0#	0#	-13.44#
46	TPH		0.018	0.000	100.0#	0#	-28.45#
47	TRH1		0.018	0.000	100.0#	0#	-7.59#
48	TRH2		0.018	0.000	100.0#	0#	-15.59#
49	TRH3		0.018	0.000	100.0#	0#	-22.90#
50	TRH4		0.018	0.000	100.0#	0#	-27.81#
51	TRH5		0.018	0.000	100.0#	0#	-32.69#
52	TRH6		0.018	0.000	100.0#	0#	-43.91#
53	GRO		0.018	0.000	100.0#	0#	-5.16#
54	DRO		0.018	0.000	100.0#	O #	-14.01#
55	RRO		0.018	0.000	100.0#	0#	-32.32#

(#) = Out of Range

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

FID3C08FRONT072413.M Wed Aug 07 08:46:29 2013

Data Path : P:\2013\J13034\Aliphatics\ENV 3069\FID30036\ Data File : FID30036B.D Signal(s) : FID1A.CH Acq On : 06-Aug-2013, 12:31:54 Operator : Meghan Dailey Sample : AL-WKCC-25-023 Misc : ALS Vial : 2 Sample Multiplier: 1 Integration File: autoint1.e Quant Time: Aug 07 08:46:14 2013 Quant Method : P:\2013\J13034\Aliphatics\ENV 3069\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic QLast Update : Wed Jul 24 12:42:03 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : Compound R.T. Response Conc Units Internal Standards

 1) I
 n-hexadecane-d34
 12.655
 346270
 50.000 ug/mlm

 16) I
 5a-androstane
 17.773
 433335
 50.072 ug/mlm

 16) I System Monitoring Compounds

 6) S
 n-dodecane-d26
 8.388

 23) S
 n-eicosane-d42
 17.217

 34) S
 n-triacontane-d62
 29.073

 175478 25.311 ug/mlm 168783 25.455 ug/mlm 160614 25.085 ug/mlm

 3.300
 160278
 25.065 ug/mlm

 4.588
 171610
 25.625 ug/mlm

 5.987
 184611
 25.726 ug/mlm

 7.335
 188702
 25.774 ug/mlm

 8.594
 196089
 25.385 ug/mlm

 0.000
 0
 N.D. ug/mld

 0.000
 0
 N.D. ug/mld

 9.766
 200568
 25.755 ug/mlm

 0.000
 0
 N.D. ug/mld

 10.860
 206065
 25.546 ug/mlm

 0.000
 0
 N.D. ug/mld

 11.889
 208304
 25.358 ug/mlm

 0.000
 0
 N.D. ug/mld

 13.977
 212650
 25.420 ug/mlm

 14.091
 212102
 25.477 ug/mlm

 15.130
 211821
 25.701 ug/mlm

 16.346
 211024
 25.604 ug/mlm

 16.346
 211024
 25.644 ug/mlm

 16.346
 211024
 25.644 ug/mlm

 21.471
 21264
 25.375 ug/mlm

 22.730
 212523
 25.392 ug/mlm

 23.960
 214010
 25.584 ug/mlm

 23.960
 214010
 Target Compounds 2) n-C8 3) n-C9 2) n-C83) n-C94) n-C105) n-C117) n-C128) i-139) i-1410) n-C1311) i-1512) n-C1413) i-1614) n-C1515) n-C1617) i-1818) n-C1719) Pristane 20) n-C1821) Phytane 22) n-C1924) n-C2025) n-C2126) n-C2227) n-C2328) n-C2429) n-C2530) n-C2631) n-C2631) n-C2732) n-C2833) n-C2935) n-C3036) n-C3137) n-C3238) n-C3339) n-C3440) n-C35

Data Path : P:\2013\J13034\Aliphatics\ENV 3069\FID30036\ Data File : FID30036B.D Signal(s) : FID1A.CH Acq On : 06-Aug-2013, 12:31:54 Operator : Meghan Dailey Sample : AL-WKCC-25-023 Misc 1.1 ALS Vial : 2 Sample Multiplier: 1 Integration File: autointl.e Quant Time: Aug 07 08:46:14 2013 Quant Method : P:\2013\J13034\Aliphatics\ENV 3069\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic QLast Update : Wed Jul 24 12:42:03 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound

 41)
 n-C36

 42)
 n-C37

 43)
 n-C38

 44)
 n-C39

 45)
 n-C40

 46)
 TPH

 47)
 TRH1

 48)
 TRH2

 49)
 TRH3

 50)
 TRH4

 51)
 TRH5

 52)
 TRH6

 53)
 GBO

 35.592
 206652
 25.256 ug/mlm

 36.835
 191490
 25.767 ug/mlm

 38.279
 189325
 25.929 ug/mlm

 39.971
 182849
 26.307 ug/mlm

 41.969
 169639
 26.439 ug/mlm

 0.000
 0
 N.D. ug/mld

 0 N.D. ug/mld 0 N.D. ug/mld 0.000 0 N.D. ug/mld 0 N.D. ug/mld 0.000 0.000 0 N.D. ug/mld 0.000 0 N.D. ug/mld 0 N.D. ug/mld 0 N.D. ug/mld 0 N.D. ug/mld 0.000 0.000 GRO 0.000 53) 0 N.D. ug/mld 54) DRO 0.000 RRO 0 N.D. ug/mld 55) 0.000

SemiQuant Compounds - Not Calibrated on this Instrument

(f) = RT Delta > 1/2 Window

(m)=manual int.

696.14 0+2-4 660-u 179.971 6/2'88 p-C38 7537 n 36,835 Quant Method : P:\2013\J13034\Aliphatics\ENV 3069\FID3C08FRONT072413.M 960-u 269'91 u-C32 u-C34 u-C34 TIC: FID30036B.D 34 209 33'225 32,607 n-C29 n-triacont n-C30 n-C31 n-C31 31.638 30.641 -59.610 29.073 -28.548 P:\2013\J13034\Aliphatics\ENV 3069\FID30036\ n-C28 27.450 722-n 56.322 p-CS6 52,159 u-CSS 53'960 u-C54 55.730 P-C23 114.12 P-C55 161.02 n-C21 768.81 enssozie-n Izonbhs-se : Wed Jul 24 12:42:03 2013 £77.71 019.71-112.71 610-4 16.346 Sample Multiplier: 1 analyid 061.01882.01 Response via : Initial Calibration Quant Title : C8 - C40 aliphatic 06-Aug-2013, 12:31:54 anteland LEBOET Quant Time: Aug 07 08:46:14 2013 B-Pokeadeca 2,900 15.655 688'L Integration File: autointl.e 098.01 AL-WKCC-25-023 992'6 Meghan Dailey H-Godecane \$69.8 Integrator: ChemStation FID30036B.D 112-4 333g FID1A.CH 789.ð 010-4 60-u 885.4 80-u 3'300 •• •• •• 2 QLast Update Signal Phase •• •• .. •• Volume Inj. Signal Info Data Path Data File Signal(s) 5000 25000 20000-10000 Response 15000-Ò Operator ALS Vial Acq On Sample Misc

Page:

60.00

55.00

50.00

45.00

40.00

35.00

30.00

25.00

20.00

15.00

10.00

5.00

0.00

Time

Data Path : P:\2013\J13034\Aliphatics\ENV 3069\FID30036\ Data File : FID30036G.D Signal(s) : FID1A.CH Acq On : 07-Aug-2013, 02:34:53 Operator : Meghan Dailey Sample : AL-WKCC-25-023 Misc . ALS Vial : 13 Sample Multiplier: 1 Integration File: autointl.e Quant Time: Aug 07 08:54:18 2013 Quant Method : P:\2013\J13034\Aliphatics\ENV 3069\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic QLast Update : Wed Jul 24 12:42:03 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min Max. RRF Dev : 25% Max. Rel. Area : 200% AvgRF CCRF %Dev Area% Dev(Min) Compound

	compound	110 9112	00112	0201	112 0 0 0	201 (IIII)
 1 I	n-hexadecane-d34 n-C8 n-C9 n-C10 n-C11 n-dodecane-d26	1.000	1.000	0.0	115	0.00
2	n-C8	0.909	0.907	0.2	114	0.00
3	n-C9	0.967	0.979	-1.2	116	0.00
4	n-C10	1.036	1.057	-2.0	117	0.00
5	n-C11	1.057	1.080	-2.2	117	0.00
6 S	n-dodecane-d26	1.001	1.007	-0.6	116	0.00
7	n-C12	1.115	1.144	-2.6	117	0.00
10	n-C13			-2.4		0.00
	n-C14	1.165	1.195	-2.6	116	
14	n-C15	1.186	1.210	-2.6 -2.0	116	0.00
15	n-C15 n-C16	1.197	1.222	-2.0 -2.1	115	0.00
16 I	5a-androstane	1.000	1.000	0.0	113	0.00
18	n-C17	0.967	0.994	-2.8	115	0.00
19	Pristane	0.962	0.991	-3.0	115	0.00
20	n-C18		0.980	-2.9	115	0.00
21	Phytane	0.969	0.998	-3.0	115	0.00
22	n-C19	0.952	0.978	-2.7	115	0.00
23 S	n-eicosane-d42	0.766	0.777	-1.4	114	0.00
24	n-C20	0.957	0.984	-2.8	115	0.00
25	n-C21	0.965	0.997	-3.3	115	0.00
26	n-C22	0.966	0.998	-3.3	115	0.00
27	n-C23	0.970	1.004	-3.5	116	0.00
28	n-C24	0.967	1.004	-3.8	116	0.00
29	n-C25	0.967	1.002	-3.6	116	0.00
30	n-C26	0.966	1.002	-3.7	116	0.00
31	n-C27	0.940	0.974	-3.6	116	0.00
32	n-C28	0.952	0.986	-3.6	116	0.00
33	n-C29	0.955	0.986	-3.2	116	0.00
34 S	n-triacontane-d62	0.740	0.748	-1.1	114	0.00
35	n-C30	0.942	0.974	-3.4	116	0.00
36	n-C31	0.926	0.958	-3.5	116	0.00
37	n-C32	0.917	0.946	-3.2	115	0.00
38	n-C33	0.892	0.917	-2.8	115	0.00
39	n-C34	0.899	0.928	-3.2	115	0.00
40	n-C35	0.882	0.905	-2.6		
41	n-C36	0.945	0.975	-3.2	114	
	n-C37	0.859	0.884	-2.9		
	n-C38	0.844	0.879	-4.1	114	0.00

44	n-C39	0.	803 0.8	43 -5.0	114	-0.01
45	n-C40	0.	741 0.7	89 -6.5	115	-0.03
		Evaluate Continuing	Calibrat	ion Report -	Not Fo	unds
8	i-13	0.	018 0.0	00 100.0‡	ŧ 0#	-8.82#
8 9	i-14	0.	018 0.0	00 100.0#	ŧ 0#	-9.51#
11	i-15	0.	019 0.0	00 100.0#	ŧ 0#	-10.65#
13	i-16	0.	019 0.0	00 100.0#	ŧ 0#	-11.53#
17	i-18	0.	019 0.0	00 100.0‡	ŧ 0#	-13.44#
46	TPH	0.	018 0.0	00 100.0‡	ŧ 0#	-28.45#
47	TRH1	0.	018 0.00	00 100.0#	ŧ 0#	-7.59#
48	TRH2	0.	018 0.00	00 100.0‡	ŧ 0#	-15.59#
49	TRH3	0.	018 0.00	00 100.0#	ŧ 0#	-22.90#
50	TRH4	0.	018 0.00	00 100.0#	ŧ 0#	-27.81#
51	TRH5	0.	018 0.00	00 100.0‡	ŧ 0#	-32.69#
52	TRH6	0.	018 0.00	00 100.0#	ŧ 0#	-43.91#
53	GRO	0.	018 0.00	00 100.0#	ŧ 0#	-5.16#
54	DRO	0.	018 0.00	00 100.0#	ŧ 0#	-14.01#
55	RRO	0.	018 0.00	00 100.0#	ŧ 0#	-32.32#

(#) = Out of Range

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

FID3C08FRONT072413.M Wed Aug 07 08:54:40 2013

D S A O S M A	ata Fi ignal(cq On perato ample isc LS Via	le : s) : r :) i 1 :	P:\2013\J13034\A FID30036G.D FID1A.CH 07-Aug-2013, 02:3 Meghan Dailey AL-WKCC-25-023 13 Sample Multi	34:53	3069\FID30036\		
	uant T uant M uant T Last U espons	ime: A ethod itle pdate e via	File: autoint1.e Aug 07 08:54:18 2 : P:\2013\J13034 : C8 - C40 aliph : Wed Jul 24 12: : Initial Calibr ChemStation	\Aliphatics\EM hatic 42:03 2013	₩ 3069\FID3C08	FRONT072413.M	
S	olume ignal 1 ignal 1	Phase	:				
					Response	Conc Units	
			andards				
			kadecane-d34				
10	6) I	5a-ar	ndrostane	17.769	453403	50.072 ug/mlm	
6	Sustom	Monit	coring Compounds				
			decane-d26	8.387	182376	25.147 ug/mlm	
			cosane-d42			25.533 ug/mlm	
34	1) S	n-tri	iacontane-d62	29.068		25.292 ug/mlm	
	Deveret	Comp					
	Carget 2)			3.300	164373	24.952 ug/mlm	
1	3)	n-C9		4.588	177271	25.304 ug/mlm	
4	1)	n-C10)	5.986	191496	25.304 ug/mlm 25.510 ug/mlm	
5	3) 1) 5)	n-C11	Č.	7.334	195827	25.568 ug/mlm	
1	7)	n-C12	2		203676	25.205 ug/mlm	
8	3) 9)	i-13		0.000	0	N.D. ug/ml N.D. ug/mld	
9))	i-14	2	0.000	0	N.D. ug/mld	
))		3			25.625 ug/mlm	
		i-15 n-C14		0.000 10.858	215101	N.D. ug/mld 25.501 ug/mlm	
13		i-16	t.	0.000	215181	N.D. ug/ml	
14		n-C15	5	11.887	218012	25.370 ug/mlm	
15		n-Cle		12.898	219111	25.271 ug/mlm	
17	7)	i-18		0.000	0	N.D. ug/mld	
18		n-C17		13.975	222377	25.406 ug/mlm	
19		Prist		14.088	222257	25.515 ug/mlm	
20 21		n-C18		15.127 15.285	222041	25.749 ug/mlm	
22		Phyta n-C19		16.344	225411 221173	25.688 ug/mlm 25.648 ug/mlm	
24		n-C20		17.607	223187	25.757 ug/mlm	
25		n-C21		18.894	223750	25.606 ug/mlm	
26		n-C22		20.187	226298	25.872 ug/mlm	
27		n-C23		21.468	225033	25.627 ug/mlm	
28		n-C24		22.727	224620	25.649 ug/mlm	
29		n-C25		23.956	226111	25.835 ug/mlm	
30 31		n-C26 n-C27		25.154 26.318	227206 220615	25.971 ug/mlm 25.920 ug/mlm	
32		n-C28		27.447	223214	25.881 ug/mlm	
33		n-C29		28.542	223396	25.828 ug/mlm	
35		n-C30		29.605	219636	25.737 ug/mlm	
36		n-C31		30.634	216925	25.877 ug/mlm	
37)	n-C32		31.633	211442	25.455 ug/mlm	
38		n-C33		32.605	207612	25.692 ug/mlm	
39		n-C34		33.545	209586	25.759 ug/mlm	
40)	n-C35		34.503	204842	25.638 ug/mlm	

Data Path : P:\2013\J13034\Aliphatics\ENV 3069\FID30036\ Data File : FID30036G.D Signal(s) : FID1A.CH Acq On : 07-Aug-2013, 02:34:53 Operator : Meghan Dailey Sample : AL-WKCC-25-023 Misc : ALS Vial : 13 Sample Multiplier: 1 Integration File: autointl.e Quant Time: Aug 07 08:54:18 2013 Quant Method : P:\2013\J13034\Aliphatics\ENV 3069\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic QLast Update : Wed Jul 24 12:42:03 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound

 35.586
 216350
 25.271 ug/mlm

 36.829
 200309
 25.760 ug/mlm

 38.274
 199258
 26.082 ug/mlm

 39.959
 190975
 26.260 ug/mlm

 41.943
 178174
 26.540 ug/mlm

 41) n-C36

 41)

 42)
 n-C37

 43)
 n-C38

 44)
 n-C39

 45)
 n-C40

 46)
 TPH

 47)
 TRH1

 48)
 TRH2

 49)
 TRH3

 0.000 0 N.D. ug/mld 0.000 0 N.D. ug/mld 0.000 0 N.D. ug/mld 0.000 TRH3 TRH4 TRH5 TRH6 GR0 DR0 RR0 0.000 50) 0.000 51) 0.000 0.000 0.000 52) 53) 54) 0.000 55)

SemiQuant Compounds - Not Calibrated on this Instrument

(f) = RT Delta > 1/2 Window

(m)=manual int.

55.00 50.00 45.00 641.943 0+0-u 40.00 696 62-6C3-4 P-C38 38'514 1637 n 678'98 Quant Method : P:\2013\J13034\Aliphatics\ENV 3069\FID3C08FRONT072413.M 960-u 35.00 989.68 TIC: FID30036G.D u-C32 u-C34 u-C34 34.503 33'242 32,605 P-C35 21.633 n-C31 n-C31 n-C30 n-C39 n-C39 30.00 30.634 59.068 29.605 58.542 P:\2013\J13034\Aliphatics\ENV 3069\FID30036\ n-C28 7447 122-4 815.92 25.00 9ZO-4 52 124 u-CS2 53'626 u-C24 17121 ezo-u 894.15 20.00 u-C25 181 u-CS1 768.81 : Wed Jul 24 12:42:03 2013 anszozia-n Izonbhis-ist 692.71 209 21 17.213 Sample Multiplier: 1 16.344 610-u 15.00 151.285 15.127 antelene Response via : Initial Calibration Quant Title : C8 - C40 aliphatic 07-Aug-2013, 02:34:53 anbland Quant Time: Aug 07 08:54:18 2013 B-Pakegees 15.653 868 SLD-U 788.1 Integration File: autointl.e #10-u 858.01 10.00 AL-WKCC-25-023 610-u \$91.6 Meghan Dailey H-6d6cane 8 265 FID30036G.D Integrator: ChemStation 110-4 7.334 FID1A.CH 010-4 986'9 5.00 60-u 4.588 80-4 3,300 : 13 •• •• •• QLast Update Signal Phase •• Volume Inj. •• . Signal Info 0.00 Data Path Data File Signal(s) Response 30000-25000 20000 5000 15000ò 10000 Operator ALS Vial Acq On Sample Time Misc

Page:

m

60.00

			Concentration
Data File Name	FID30036C.D		FID30036C.D
Sample Name	AL-SRM2779-20-01		AL-SRM2779-20-01
Misc Info	0		06-Aug-2013, 13:41:46
Data File Path	C:\msdchem\2\data\FID30036\		ALIFRONT.M
Operator	Meghan Dailey		
Date Acquired	06-Aug-2013, 13:41:46		0.05
Instrument Name	HP5890		
Acq. Method File	ALIFRONT.M	Vial #	3
Vial Number	3	IS Area 1	306687
Sample Multiplier	0.05	IS Area 2	453319

#	Name	Ret Time	Target Response	Amount	Concentration
2) n-C8	8	3.31	1930190	17.30	17.304
3) n-C9		4.60	1649200	13.90	13.902
4) n-C1	0	6.00	1613780	12.70	12.696
5) n-C1	1	7.35	1432600	11.05	11.046
7) n-C1	2	8.61	1389960	10.16	10.158
8) i-13		8.79	343992	2.49	2.493
9) i-14		9.49	236367	1.65	1.654
10) n-C13	3	9.78	1143180	8.29	8.287
11) i-15		10.64	291615	2.00	2.004
12) n-C14	4	10.87	1062890	7.44	7.439
13) i-16		11.54	443322	3.02	3.020
14) n-C1	5	11.90	1074560	7.38	7.385
15) n-C16	6	12.91	933653	6.36	6.359
17) i-18		13.46	251188	1.46	1.457
18) n-C1	7	13.99	822958	4.70	4.702
19) Prista	ane	14.10	413377	2.37	2.373
20) n-C18	8	15.15	630308	3.66	3.655
21) Phyta		15.30	256163	1.46	1.460
22) n-C19		16.36	573153	3.32	3.324
24) n-C20		17.63	472199	2.73	2.725
25) n-C2:		18.91	393690	2.25	2.253
26) n-C22		20.20	365010	2.09	2.087
27) n-C23	3	21.49	332812	1.90	1.895
28) n-C24		22.74	312449	1.78	1.784
29) n-C25		23.97	254613	1.45	1.455
30) n-C26		25.17	200200	1.14	1.144
31) n-C27		26.33	150106	0.88	0.882
32) n-C28		27.46	134223	0.78	0.778
33) n-C29		28.56	124252	0.72	0.718
35) n-C30		29.62	116585	0.68	0.683
36) n-C31		30.65	97124.6	0.58	0.579
37) n-C32		31.64	78250.1	0.47	0.471
38) n-C33		32.61	77598.8	0.48	0.480
39) n-C34		33.55	65545	0.40	0.403
40) n-C35		34.52	55036.7	0.34	0.344
41) n-C36		35.59	35014.5	0.20	0.205
42) n-C37		36.84	32523.3	0.21	0.209
43) n-C38		38.29	26781.1	0.18	0.175
44) n-C39		39.97	22734.3	0.16	0.156
45) n-C40		41.95	22355.7	0.17	0.167
46) TPH		7.35	104263000	635.91	635.905
47) TRH1		7.35	18154400	110.72	110.725
48) TRH2		11.90	13664800	83.34	83.342
49) TRH3		21.49	1697790	10.35	10.355
50) TRH4		26.33	1443200	8.80	8.802
51) TRH5		31.64	1099720	6.71	6.707
52) TRH6		36.84	173826	1.06	1.060
53) GRO		0.00	0	0.00	0.000
54) DRO		0.00	0	0.00	0.000
55) RRO		0.00	0	0.00	0.000
	decane-d26	8.39	118193	0.96	96.2
	osane-d42	17.22	137381	0.90	98.4
	contane-d62	29.08	130840	0.99	98.4
s+) in-tild	contane-uoz	25.00	150640	0.56	37.0
1) = her	Ach oncode	13 66	206697	2 50	206697 000
	adecane-d34	12.66	306687	2.50	306687.000
101 58-80	idrostane	17.78	453319	2.50	453319.000

Data Path : C:\msdchem\2\data\FID30036\ Data File : FID30036C.D Signal(s) : FID1A.CH Acq On : 06-Aug-2013, 13:41:46 Operator : Meghan Dailey Sample : AL-SRM2779-20-01 Misc : ALS Vial : 3 Sample Multiplier: 0.05 Integration File: autoint1.e Quant Time: Aug 07 09:35:32 2013 Quant Method : P:\2013\J13034\Aliphatics\ENV 3069\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic QLast Update : Wed Jul 24 12:42:03 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound R.T. Response Conc Units Internal Standards 1) In-hexadecane-d3412.66030668750.000 ug/mlm.6) I5a-androstane17.78545331950.072 ug/mlm 16) I System Monitoring Compounds 6) Sn-dodecane-d268.3901181930.962 ug/mlm23) Sn-eicosane-d4217.2221373810.990 ug/mlm34) Sn-triacontane-d6229.0821308400.977 ug/mlm

 3.306
 1930189
 17.304
 ug/mlm

 4.599
 1649196
 13.902
 ug/mlm

 5.999
 1613777
 12.696
 ug/mlm

 7.349
 1432602
 11.046
 ug/mlm

 8.608
 1389956
 10.158
 ug/mlm

 9.489
 236367
 1.654
 ug/mlm

 9.780
 1143180
 8.287
 ug/mlm

 10.644
 291615
 2.004
 ug/mlm

 11.903
 1074557
 7.385
 ug/mlm

 11.903
 1074557
 7.385
 ug/mlm

 12.914
 933653
 6.359
 ug/mlm

 13.457
 251188
 1.457
 ug/mlm

 13.993
 822958
 4.702
 ug/mlm

 15.147
 630308
 3.655
 ug/mlm

 15.298
 256163
 1.460
 ug/mlm

 16.364
 573153
 3.324
 ug/mlm

 15.298
 256163
 1.460
 ug/mlm

 20.205
 365010
 2.087
 ug/mlm

 21.485
 332812
 1.895
 ug/mlm

 Target Compounds 2) n-C8 3) n-C9 n-C10 n-C11 n-C12 4) 5) 7) 8) i-13 i-14 9) n-C13 10) i-15 11) n-C14 12) i-16 13) n-C15 14) n-C16 15) 17) i-18 n-Cl7 Pristane n-Cl8 Phytane n-Cl9 18) 19) 20) 21) 22) n-C20 24) 25) n-C21 26) n-C22 27) n-C23 28) n-C24 29) n-C25 30) n-C26 31) n-C27 32) n-C28 33) n-C29 35) n-C30 36) n-C31 37) n-C32 38) n-C33 39) n-C34 40) n-C35

Data Fi Signal(Acq On Operato Sample Misc	<pre>http://discommodeling.com</pre>						
<pre>Integration File: autoint1.e Quant Time: Aug 07 09:35:32 2013 Quant Method : P:\2013\J13034\Aliphatics\ENV 3069\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic QLast Update : Wed Jul 24 12:42:03 2013 Response via : Initial Calibration Integrator: ChemStation</pre>							
Volume Signal Signal	Phase :						
	Compound	R.T.	Response	Conc Units			
41)	n-C36						
42)		35.593	35014	0.205 ug/mlm			
1 - /		35.593 36.840		0.205 ug/mlm 0.209 ug/mlm			
		36.840		0.209 ug/mlm			
43)	n-C37 n-C38	36.840	32523	0.209 ug/mlm 0.175 ug/mlm			
43) 44)	n-C37	36.840 38.293	32523 26781	0.209 ug/mlm 0.175 ug/mlm 0.156 ug/mlm			
43) 44)	n-C37 n-C38 n-C39	36.840 38.293 39.969	32523 26781 22734 22356	0.209 ug/mlm 0.175 ug/mlm 0.156 ug/mlm 0.167 ug/mlm			
43) 44) 45)	n-C37 n-C38 n-C39 n-C40	36.840 38.293 39.969 41.950 7.349f 7.349	32523 26781 22734 22356	0.209 ug/mlm 0.175 ug/mlm 0.156 ug/mlm 0.167 ug/mlm 635.903 ug/mlm 110.724 ug/mlm			
43) 44) 45) 46) 47) 48)	n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2	36.840 38.293 39.969 41.950 7.349f 7.349	32523 26781 22734 22356 104262890 18154423 13664823	0.209 ug/mlm 0.175 ug/mlm 0.156 ug/mlm 0.167 ug/mlm 635.903 ug/mlm 110.724 ug/mlm 83.342 ug/mlm			
43) 44) 45) 46) 47) 48) 49)	n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH3	36.840 38.293 39.969 41.950 7.349f 7.349 11.903f 21.485f	32523 26781 22734 22356 104262890 18154423 13664823 1697793	0.209 ug/mlm 0.175 ug/mlm 0.156 ug/mlm 0.167 ug/mlm 635.903 ug/mlm 110.724 ug/mlm 83.342 ug/mlm 10.355 ug/mlm			
43) 44) 45) 46) 47) 48) 49) 50)	n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH3 TRH4	36.840 38.293 39.969 41.950 7.349f 7.349 11.903f 21.485f 26.332f	32523 26781 22734 22356 104262890 18154423 13664823 1697793 1443197	0.209 ug/mlm 0.175 ug/mlm 0.156 ug/mlm 0.167 ug/mlm 635.903 ug/mlm 110.724 ug/mlm 83.342 ug/mlm 10.355 ug/mlm 8.802 ug/mlm			
43) 44) 45) 46) 47) 48) 49) 50) 51)	n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH3 TRH4 TRH5	36.840 38.293 39.969 41.950 7.349f 7.349 11.903f 21.485f 26.332f 31.643	32523 26781 22734 22356 104262890 18154423 13664823 1697793 1443197 1099725	0.209 ug/mlm 0.175 ug/mlm 0.156 ug/mlm 0.167 ug/mlm 635.903 ug/mlm 110.724 ug/mlm 83.342 ug/mlm 10.355 ug/mlm 8.802 ug/mlm 6.707 ug/mlm			
43) 44) 45) 46) 47) 48) 49) 50) 51) 52)	n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH3 TRH4 TRH5 TRH6	36.840 38.293 39.969 41.950 7.349f 7.349 11.903f 21.485f 26.332f 31.643 36.840f	32523 26781 22734 22356 104262890 18154423 13664823 1697793 1443197 1099725 173826	0.209 ug/mlm 0.175 ug/mlm 0.156 ug/mlm 0.167 ug/mlm 635.903 ug/mlm 110.724 ug/mlm 83.342 ug/mlm 10.355 ug/mlm 8.802 ug/mlm 6.707 ug/mlm 1.060 ug/mlm			
43) 44) 45) 46) 47) 48) 49) 50) 51) 52) 53)	n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH3 TRH4 TRH5 TRH6 GRO	36.840 38.293 39.969 41.950 7.349f 7.349 11.903f 21.485f 26.332f 31.643 36.840f 0.000	32523 26781 22734 22356 104262890 18154423 13664823 1697793 1443197 1099725 173826 0	0.209 ug/mlm 0.175 ug/mlm 0.156 ug/mlm 0.167 ug/mlm 635.903 ug/mlm 110.724 ug/mlm 83.342 ug/mlm 10.355 ug/mlm 8.802 ug/mlm 6.707 ug/mlm 1.060 ug/mlm N.D. ug/mld			
43) 44) 45) 46) 47) 48) 49) 50) 51) 52)	n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH3 TRH4 TRH5 TRH6	36.840 38.293 39.969 41.950 7.349f 7.349 11.903f 21.485f 26.332f 31.643 36.840f	32523 26781 22734 22356 104262890 18154423 13664823 1697793 1443197 1099725 173826	0.209 ug/mlm 0.175 ug/mlm 0.156 ug/mlm 0.167 ug/mlm 635.903 ug/mlm 110.724 ug/mlm 83.342 ug/mlm 10.355 ug/mlm 8.802 ug/mlm 6.707 ug/mlm 1.060 ug/mlm N.D. ug/mld			

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window

(m)=manual int.

096'17 696'68 88.293 36.840 Quant Method : P:\2013\J13034\Aliphatics\ENV 3069\FID3C08FRONT072413.M 32'283 TIC: FID30036C.D 919.46 93.554 35.613 (QT Reviewed) 31.643 n-C29 n-C31 n-C31 n-C31 n-C31 30.646 59.616 59.085 -58.556 097.75 26.332 0/1'97 726'82 501 Quantitation Report GRt 502 \$16.81 anseogla-n Jaonbha-se Sample Multiplier: 0.05 QLast Update : Wed Jul 24 12:42:03 2013 1259411-C:\msdchem\2\data\FID30036' 17.222 9'364 PHARME 141.9 : Initial Calibration : C8 - C40 aliphatic Prisidine 1-18 A-Peysideca 06-Aug-2013, 13:41:46 13.993 Integration File: autoint1.e Quant Time: Aug 07 09:35:32 2013 13.457 15.914 0-b6x9q6c9 - มูรุญามิ - มาดูเปร - มาดูเปร - มาดูเปรียง - มาด - มาดูเปรียง - มาด - ม 11.903 AL-SRM2779-20-01 10.874 084 681 Meghan Dailey Integrator: ChemStation FID30036C.D 346 FID1A.CH 669' 3.306 •• ς Response via Signal Phase Quant Title ... Volume Inj. Signal Info Data Path Data File Response 130000 Signal(s) 70000 50000 40000 30000 20000 120000 110000 100000 00006 80000 60000 10000 -10000 0 Operator ALS Vial Sample Acq On Misc

S 08FRONT072413.M Tue Aug 20 19:27:46 2013

Page:

3

60.00

55.00

50.00

45.00

40.00

U-C40

-C39

P-C38 BECHR

u-C36 u-C32 u-C34 u-C34 35.00

RECHA

u-C28 2EQ19

U-CS2

P-C24

EFOH

1-C51

610-u

LHOH

010-4 5.00 60-U

80-4

30.00

25.00 p-C26

20.00 P-C22

15.00

10.00

0.00

me

			Concentration
Data File Name	FID30036F.D		FID30036F.D
Sample Name	AL-WKPem-001		AL-WKPem-001
Misc Info	0		06-Aug-2013, 17:12:33
Data File Path	P:\2013\J13034\Aliphatics\ENV 3069\FID30036\		ALIFRONT.M
Operator	Meghan Dailey		
Date Acquired	06-Aug-2013, 17:12:33		1
Instrument Name	HP5890		
Acq. Method File	ALIFRONT.M	Vial #	5
Vial Number	5	IS Area 1	321497
Sample Multiplier	1	IS Area 2	403656

#	Name	Ret Time	Target Response	Amount	Concentration
2) n-C8		0.00	0	0.00	0.000
3) n-C9		0.00	0	0.00	0.000
4) n-C10		0.00	0	0.00	0.000
5) n-C11		0.00	0	0.00	0.000
7) n-C12		0.00	0	0.00	0.000
8) i-13		0.00	0	0.00	0.000
9) i-14		0.00	0	0.00	0.000
10) n-C13		0.00	0	0.00	0.000
11) i-15		0.00	0	0.00	0.000
12) n-C14		0.00	0	0.00	0.000
13) i-16		0.00	0	0.00	0.000
14) n-C15		0.00	0	0.00	0.000
14) n-C15		0.00	0	0.00	0.000
		0.00	0	0.00	0.000
17) i-18		0.00	0	0.00	0.000
18) n-C17		0.00	0	0.00	
19) Pristane					0.000
20) n-C18		0.00	0	0.00	0.000
21) Phytane	50	0.00	0	0.00	0.000
22) n-C19		0.00	0	0.00	0.000
24) n-C20		0.00	0	0.00	0.000
25) n-C21		0.00	0	0.00	0.000
26) n-C22		0.00	0	0.00	0.000
27) n-C23		0.00	0	0.00	0.000
28) n-C24		0.00	0	0.00	0.000
29) n-C25		0.00	0	0.00	0.000
30) n-C26		0.00	0	0.00	0.000
31) n-C27		0.00	0	0.00	0.000
32) n-C28		0.00	0	0.00	0.000
33) n-C29		0.00	0	0.00	0.000
35) n-C30		0.00	0	0.00	0.000
36) n-C31		0.00	0	0.00	0.000
87) n-C32		0.00	0	0.00	0.000
88) n-C33		0.00	0	0.00	0.000
89) n-C34		0.00	0	0.00	0.000
0) n-C35		0.00	0	0.00	0.000
1) n-C36		0.00	0	0.00	0.000
2) n-C37		0.00	0	0.00	0.000
3) n-C38		0.00	0	0.00	0.000
4) n-C39		0.00	0	0.00	0.000
15) n-C40		0.00	0	0.00	0.000
(6) TPH		12.65	5239410	717.74	717.738
7) TRH1		8.39	137782	18.87	18.875
18) TRH2		12.65	899680	123.25	123.246
19) TRH2		25.81	4690.13	0.64	0.642
50) TRH4		29.07	135651	18.58	18.583
				7.14	
51) TRH5		35.51	52143.7		7.143
2) TRH6		38.99	30577	4.19	4.189
53) GRO		0.00	0	0.00	0.000
4) DRO		0.00	0	0.00	0.000
55) RRO	100	0.00	0	0.00	0.000
6) n-dodec		8.39	130186	20.23	101.1
23) n-eicosa		17.22	124434	20.15	100.1
34) n-triaco	ntane-d62	29.07	120700	20.24	101.1
1) n-hexad		12.65	321497	50.00	321497.000
16) 5a-andr	ostane	17.77	403656	50.07	403656.000

Data Path : C:\msdchem\2\data\FID30036\ Data File : FID30036F.D Signal(s) : FID1A.CH Acq On : 06-Aug-2013, 17:12:33 Operator : Meghan Dailey Sample : AL-WKPem-001 Misc : ALS Vial : 5 Sample Multiplier: 1 Integration File: autoint1.e Quant Time: Aug 07 09:02:22 2013 Quant Method : P:\2013\J13034\Aliphatics\ENV 3069\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic QLast Update : Wed Jul 24 12:42:03 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound Internal Standards 1) In-hexadecane-d3412.65532149750.000 ug/mlm16) I5a-androstane17.77140365650.072 ug/mlm System Monitoring Compounds 6) Sn-dodecane-d268.38813018620.225 ug/mlm23) Sn-eicosane-d4217.21612443420.146 ug/mlm34) Sn-triacontane-d6229.07212070020.237 ug/mlm
 29.072
 120.00
 20.25, ug/mlm

 0.000
 0
 N.D.
 ug/mld

 <td Target Compounds 2) n-C8 3) n-C9

 12)
 n-Cl4

 13)
 i-16

 14)
 n-Cl5

 15)
 n-Cl6

 17)
 i-18

 18)
 n-Cl7

 19)
 Pristane

 20)
 n-Cl8

 21)
 Phytane

 22)
 n-Cl9

 24)
 n-C20

 25)
 n-C21

 26)
 n-C23

 28)
 n-C24

 29)
 n-C25

 30)
 n-C26

 13) i-16 n-C26 n-C27 n-C28 30) 31) 32) 33) n-C29 35) n-C30 36) n-C31 37) n-C32 38) n-C33 39) n-C34 40) n-C35

Data Fi Signal(Acq On Operato Sample Misc ALS Via	ath : C:\msdchem\2\data\FID: ile : FID30036F.D (s) : FID1A.CH : 06-Aug-2013, 17:12:33 or : Meghan Dailey : AL-WKPem-001 : al : 5 Sample Multiplier: ation File: autoint1.e	201		
Quant I Quant M Quant I QLast U Respons	Time: Aug 07 09:02:22 2013 Method : P:\2013\J13034\Alip Title : C8 - C40 aliphatic Jpdate : Wed Jul 24 12:42:03 Se via : Initial Calibration	3 2013	3069\FID3C08	FRONT072413.M
	Inj. : Phase : Info :			
	Compound	R.T.	Response	Conc Units
41)	n-C36	0.000	0	N.D. ug/mld
42)	n-C37	0.000	0	
43)	n-C38	0.000	0	
44)	n-C39	0.000	0	
45)	n-C40	0.000	0	N.D. ug/mld
46) 47)	TPH	12.655f	5239408	717.738 ug/mlm
47) 48)	TRH1 TRH2	8.388 12.655f	137782 899680	18.875 ug/mlm
49)	TRH3	25.805f	4690	123.246 ug/mlm 0.642 ug/mlm
50)	TRH4	29.072f	135651	18.583 ug/mlm
51)	TRH5	35.514f		7.143 ug/mlm
52)	TRH6	38.989f	30577	4.189 ug/mlm
53)	GRO	0.000		
53) 54)			0	N.D. ug/mld

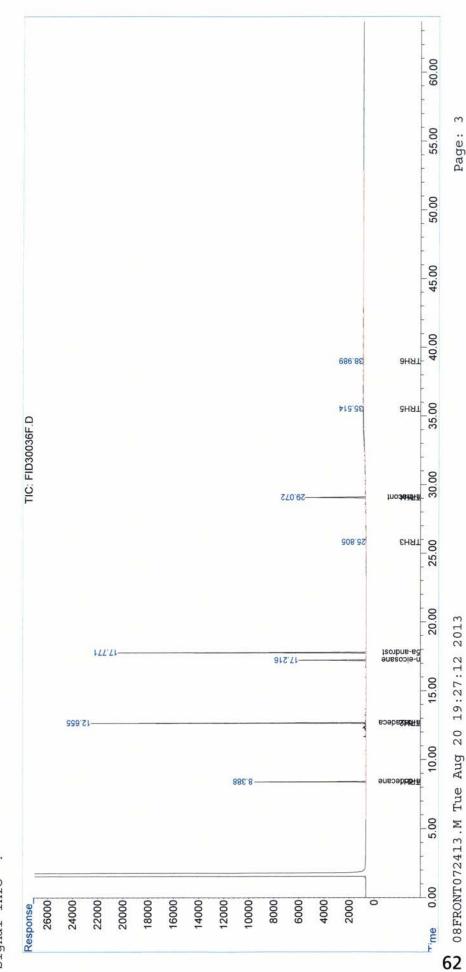
(f)=RT Delta > 1/2 Window

Quantitation Report (QT Reviewed)

Quant Method : P:\2013\J13034\Aliphatics\ENV 3069\FID3C08FRONT072413.M QLast Update : Wed Jul 24 12:42:03 2013 Response via : Initial Calibration C:\msdchem\2\data\FID30036 Ч Sample Multiplier: Quant Title : C8 - C40 aliphatic 06-Aug-2013, 17:12:33 Quant Time: Aug 07 09:02:22 2013 Integration File: autoint1.e Meghan Dailey AL-WKPem-001 FID30036F.D FID1A.CH S •• Data Path Data File Signal(s) Operator ALS Vial Sample Acq On Misc

Volume Inj. : Signal Phase : Signal Info :

Integrator: ChemStation



			Concentration
Data File Name	ENV3069A.D		ENV3069A.D
Sample Name	Procedural Blank		Procedural Blank
Misc Info	0		06-Aug-2013, 18:22:53
Data File Path	C:\msdchem\2\data\FID30036\		ALIFRONT.M
Operator	Meghan Dailey		
Date Acquired	06-Aug-2013, 18:22:53		1
Instrument Name	HP5890		
Acq. Method File	ALIFRONT.M	Vial #	6
Vial Number	6	IS Area 1	298755
Sample Multiplier	1	IS Area 2	377188

# Name	Ret Time	Target Response	Amount	Concentration
2) n-C8	0.00	0	0.00	0.000
3) n-C9	0.00	0	0.00	0.000
4) n-C10	0.00	0	0.00	0.000
5) n-C11	0.00	0	0.00	0.000
7) n-C12	0.00	0	0.00	0.000
8) i-13	0.00	0	0.00	0.000
9) i-14	0.00	0	0.00	0.000
10) n-C13	0.00	0	0.00	0.000
11) i-15	0.00	0	0.00	0.000
12) n-C14	0.00	0	0.00	0.000
13) i-16	0.00	0	0.00	0.000
14) n-C15	0.00	0	0.00	0.000
15) n-C16	0.00	0	0.00	0.000
17) i-18	0.00	0	0.00	0.000
18) n-C17	0.00	0	0.00	0.000
19) Pristane	0.00	0	0.00	0.000
20) n-C18	0.00	0	0.00	0.000
21) Phytane	0.00	0	0.00	0.000
22) n-C19	0.00	0	0.00	0.000
24) n-C20	0.00	0	0.00	0.000
25) n-C21	0.00	0	0.00	0.000
26) n-C22	0.00	0	0.00	0.000
27) n-C23	0.00	0	0.00	0.000
28) n-C24	0.00	0	0.00	0.000
28) n-C25	0.00	0	0.00	
30) n-C26	0.00		0.00	0.000
30) n-C25 31) n-C27	0.00	0		0.000
			0.00	0.000
32) n-C28	0.00	0	0.00	0.000
33) n-C29	0.00	0	0.00	0.000
35) n-C30	0.00	0	0.00	0.000
36) n-C31	0.00	0	0.00	0.000
37) n-C32	0.00	0	0.00	0.000
38) n-C33	0.00	0	0.00	0.000
39) n-C34	0.00	0	0.00	0.000
40) n-C35	0.00	0	0.00	0.000
41) n-C36	0.00	0	0.00	0.000
42) n-C37	0.00	0	0.00	0.000
13) n-C38	0.00	0	0.00	0.000
14) n-C39	0.00	0	0.00	0.000
15) n-C40	0.00	0	0.00	0.000
16) TPH	12.65	4870410	714.01	714.007
17) TRH1	8.39	105000	15.39	15.393
18) TRH2	12.65	835958	122.55	122.552
19) TRH3	22.79	6986.44	1.02	1.024
50) TRH4	29.07	105836	15.52	15.516
51) TRH5	35.31	49751.4	7.29	7.294
52) TRH6	39.05	61403.3	9.00	9.002
53) GRO	0.00	0	0.00	0.000
54) DRO	0.00	0	0.00	0.000
5) RRO	0.00	0	0.00	0.000
6) n-dodecane-d26	8.39	80871	13.52	67.6
23) n-eicosane-d42	17.21	100149	17.35	86.2
34) n-triacontane-d62	29.07	97423.9	17.48	87.3
	25.07	51425.5	17.40	97.5
1) n-hexadecane-d34	12.65	298755	50.00	298755.000
16) 5a-androstane	17.77	377188	50.07	377188.000

Data Path : C:\msdchem\2\data\FID30036\ Data File : ENV3069A.D Signal(s) : FID1A.CH Acq On : 06-Aug-2013, 18:22:53 Operator : Meghan Dailey Sample : Procedural Blank Misc : ALS Vial : 6 Sample Multiplier: 1 Integration File: autoint1.e Quant Time: Aug 07 09:10:59 2013 Quant Method : P:\2013\J13034\Aliphatics\ENV 3069\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic QLast Update : Wed Jul 24 12:42:03 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound Internal Standards 1) In-hexadecane-d3412.65429875550.000 ug/mlm16) I5a-androstane17.77137718850.072 ug/mlm System Monitoring Compounds 6) Sn-dodecane-d268.3868087113.520 ug/mlm23) Sn-eicosane-d4217.21410014917.352 ug/mlm34) Sn-triacontane-d6229.0719742417.481 ug/mlm 0 N.D. ug/mld Target Compounds 2) n-C8 3) n-C9 0.000 0.000 n-C9 n-C10 n-C11 n-C12 i-13 i-14 n-C13 i-15 4) 0.000 5) 0.000 7) 0.000 0.000 8) 0.000 9) 0.000 10) i-15 0.000 11) n-C14 0.000 12)n-C1413)i-1614)n-C1515)n-C1617)i-1818)n-C1719)Pristane20)n-C1821)Phytane22)n-C1924)n-C2025)n-C2126)n-C2227)n-C2328)n-C2429)n-C2530)n-C2631)n-C2732)n-C2833)n-C29 12) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 n-C29 n-C30 n-C31 n-C32 33) 0.000 35) 0.000 36) 0.000 37) 0.000
 38)
 n-C33

 39)
 n-C34

 40)
 n-C35
 0.000 0.000 0.000

Data Fi Signal(Acq On Operato Sample Misc ALS Via	ath : C:\msdchem\2\data\FID tle : ENV3069A.D (s) : FID1A.CH : 06-Aug-2013, 18:22:53 or : Meghan Dailey : Procedural Blank : al : 6 Sample Multiplier			
Quant T Quant M Quant T QLast U Respons	ation File: autoint1.e Time: Aug 07 09:10:59 2013 Method : P:\2013\J13034\Alig Title : C8 - C40 aliphatic Update : Wed Jul 24 12:42:03 Se via : Initial Calibration Stor: ChemStation	3 2013	3069\FID3C08	FRONT072413.M
Volume Signal Signal	Phase :			
	Compound	R.T.	Response	Conc Units
41)	n-C36	0.000	0	N.D. ug/mld
42)	n-C37	0.000	0	N.D. ug/mld
43)	n-C38	0.000	0	
44)	n-C39	0.000	0	
45)	n-C40	0.000	0	N.D. ug/mld
46)	TPH	12.654f	4870415	
47)	TRH1	8.386	105000	
48)	TRH2	12.654f	835958	5,
49)	TRH3		6986	1.024 ug/mlm
Sec. 32 / S. /		22.790	0900	1.021 09/1111
50)	TRH4	29.071f	105836	15.516 ug/mlm
51)	TRH4 TRH5	29.071f 35.314f	105836 49751	15.516 ug/mlm 7.294 ug/mlm
51) 52)	TRH4 TRH5 TRH6	29.071f 35.314f 39.050f	105836 49751 61403	15.516 ug/mlm 7.294 ug/mlm 9.002 ug/mlm
51) 52) 53)	TRH4 TRH5 TRH6 GRO	29.071f 35.314f 39.050f 0.000	105836 49751 61403 0	15.516 ug/mlm 7.294 ug/mlm 9.002 ug/mlm N.D. ug/mld
51) 52)	TRH4 TRH5 TRH6	29.071f 35.314f 39.050f	105836 49751 61403	15.516 ug/mlm 7.294 ug/mlm 9.002 ug/mlm N.D. ug/mld

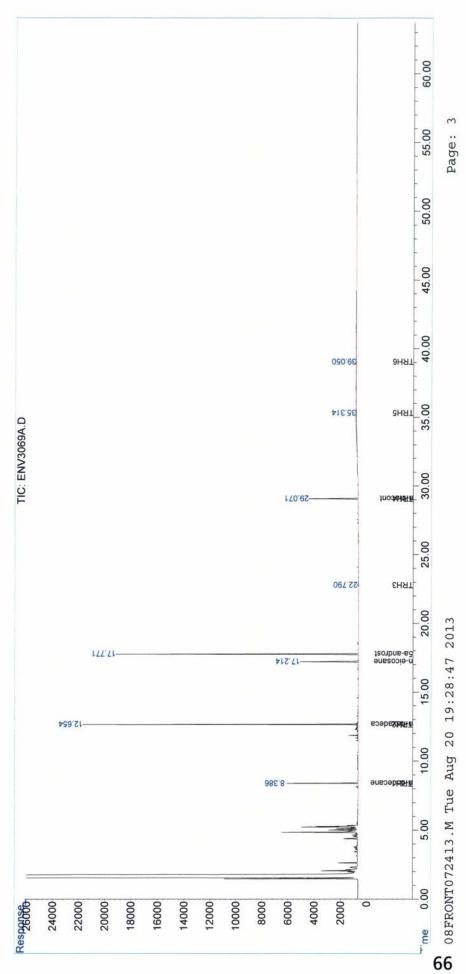
(f) = RT Delta > 1/2 Window



Method : P:\2013\J13034\Aliphatics\ENV 3069\FID3C08FRONT072413.M C:\msdchem\2\data\FID30036 Sample Multiplier: 1 06-Aug-2013, 18:22:53 Meghan Dailey Integration File: autointl.e Quant Time: Aug 07 09:10:59 2013 Procedural Blank ENV3069A.D FID1A.CH 9 •• Data Path Data File Signal(s) Operator ALS Vial Acq On Sample Quant Misc

QLast Update : Wed Jul 24 12:42:03 2013 : Initial Calibration : C8 - C40 aliphatic Integrator: ChemStation Response via Quant Title

Volume Inj. : Signal Phase : Signal Info :



		Concentration
ENV3069B.D		ENV3069B.D
Blank Spike		Blank Spike
0		06-Aug-2013, 19:33:16
C:\msdchem\2\data\FID30036\		ALIFRONT.M
Meghan Dailey		
06-Aug-2013, 19:33:16		1
HP5890		
ALIFRONT.M	Vial #	7
7	IS Area 1	312419
1	IS Area 2	394470
	Blank Spike 0 C:\msdchem\2\data\FID30036\ Meghan Dailey 06-Aug-2013, 19:33:16 HP5890 ALIFRONT.M 7	Blank Spike 0 C:\msdchem\2\data\FID30036\ Meghan Dailey 06-Aug-2013, 19:33:16 HP5890 ALIFRONT.M Vial # 7 IS Area 1

#	Name	Ret Time	Target Response	Amount	Concentration
2) n-C8	1	3.30	17563.4	3.09	3.091
3) n-C9	l.	4.59	36587.3	6.06	6.055
4) n-C1	0	5.99	41285.5	6.38	6.377
5) n-C1	1	7.33	45652.4	6.91	6.911
7) n-C1		8.59	48708.1	6.99	6.989
8) i-13		0.00	0	0.00	0.000
9) i-14		0.00	0	0.00	0.000
10) n-C1	3	9.76	49316.6	7.02	7.019
11) i-15	•	0.00	0	0.00	0.000
12) n-C1	4	10.86	53602.7	7.37	7.365
13) i-16	-	0.00	0	0.00	0.000
14) n-C1	5	11.89	61244.9	8.26	8.264
15) n-C1		12.90	62456.4	8.35	8.352
17) i-18	0	0.00	02450.4	0.00	0.000
	7				
18) n-C1		13.97	65096	8.55	8.548
19) Prist		14.09	65130	8.59	8.594
20) n-C1		15.13	66309.8	8.84	8.838
21) Phyt		15.28	66999.1	8.78	8.776
22) n-C1		16.34	66956.1	8.92	8.924
24) n-C2		17.61	67205.8	8.91	8.915
25) n-C2		18.89	67402.9	8.87	8.866
26) n-C2		20.19	67952.2	8.93	8.929
27) n-C2		21.47	67608.3	8.85	8.849
28) n-C2	4	22.73	67992	8.92	8.924
29) n-C2	5	23.95	67892.2	8.92	8.916
30) n-C2	6	25.15	68385.5	8.98	8.985
31) n-C2	7	26.32	66488.6	8.98	8.979
32) n-C2	8	27.45	67033.7	8.93	8.934
33) n-C2	9	28.54	67538.8	8.98	8.975
35) n-C3	0	29.61	65899.3	8.88	8.876
36) n-C3	1	30.63	64906.4	8.90	8.899
37) n-C3	2	31.63	63418.6	8.78	8.775
38) n-C3		32.60	62248.2	8.85	8.854
39) n-C34		33.55	62665.6	8.85	8.852
40) n-C3		34.50	61214.1	8.81	8.806
41) n-C3		35.58	64311.5	8.63	8.634
12) n-C3		36.83	59653.7	8.82	8.818
43) n-C3		38.27	58689.9	8.83	8.830
44) n-C3		39.96	56940.6	9.00	8.999
45) n-C40		41.95	52854	9.05	9.049
46) TPH		0.00	0	0.00	0.000
		0.00	0		
47) TRH1				0.00	0.000
18) TRH2		0.00	0	0.00	0.000
49) TRH3		0.00	0	0.00	0.000
50) TRH4		0.00	0	0.00	0.000
51) TRH5		0.00	0	0.00	0.000
52) TRH6	Б	0.00	0	0.00	0.000
3) GRO		0.00	0	0.00	0.000
4) DRO		0.00	0	0.00	0.000
5) RRO		0.00	0	0.00	0.000
6) n-doo	decane-d26	8.39	85283.8	13.63	68.2
23) n-eic	osane-d42	17.21	102389	16.96	84.3
84) n-tria	contane-d62	29.07	99213.8	17.02	85.0
1) n-hex	adecane-d34	12.65	312419	50.00	312419.000

Data Path : C:\msdchem\2\data\FID30036\ Data File : ENV3069B.D Signal(s) : FID1A.CH Acq On : 06-Aug-2013, 19:33:16 Operator : Meghan Dailey Sample : Blank Spike Misc ALS Vial : 7 Sample Multiplier: 1 Integration File: autointl.e Quant Time: Aug 07 10:05:31 2013 Quant Method : P:\2013\J13034\Aliphatics\ENV 3069\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic QLast Update : Wed Jul 24 12:42:03 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound Internal Standards 1) In-hexadecane-d3412.65431241950.000 ug/mlm16) I5a-androstane17.77039447050.072 ug/mlm System Monitoring Compounds 6) Sn-dodecane-d268.3878528413.634 ug/mlm23) Sn-eicosane-d4217.21410238916.963 ug/mlm34) Sn-triacontane-d6229.0709921417.022 ug/mlm

 3.298
 17563
 3.091 ug/mlm

 4.587
 36587
 6.055 ug/mlm

 5.985
 41285
 6.377 ug/mlm

 7.333
 45652
 6.911 ug/mlm

 8.592
 48708
 6.989 ug/mlm

 0.000
 0
 N.D. ug/mld

 0.000
 0
 N.D. ug/mld

 9.764
 49317
 7.019 ug/mlm

 0.000
 0
 N.D. ug/mld

 10.857
 53603
 7.365 ug/mlm

 0.000
 0
 N.D. ug/mld

 11.886
 61245
 8.264 ug/mlm

 12.897
 62456
 8.352 ug/mlm

 0.000
 0
 N.D. ug/mld

 13.973
 65096
 8.548 ug/mlm

 15.126
 66310
 8.388 ug/mlm

 15.284
 66999
 8.776 ug/mlm

 15.284
 66999
 8.776 ug/mlm

 16.344
 66956
 8.924 ug/mlm

 12.466
 67403
 8.869 ug/mlm

 22.725
 67992
 8.924 ug/mlm

 23.955
 67892
 8.915 ug/mlm

 26.318
 66489
 8.979 ug/mlm
 Target Compounds 2) n-C8 n-C9 n-C10 n-C11 i-13 i-14 n-C13 i-15 n-C14 i-16 n-C15 n-C9 3) 4) 5) 7) 8) 9) 10) 11) 12) 13) n-C15 14)n-C1515)n-C1617)i-1818)n-C1719)Pristane20)n-C1821)Phytane22)n-C1924)n-C2025)n-C2126)n-C2227)n-C2328)n-C2429)n-C2530)n-C2631)n-C2732)n-C2833)n-C29 14) n-C29 33) n-C30 n-C31 n-C32 35) 36) 37)
 38)
 n-C33

 39)
 n-C34

 40)
 n-C35

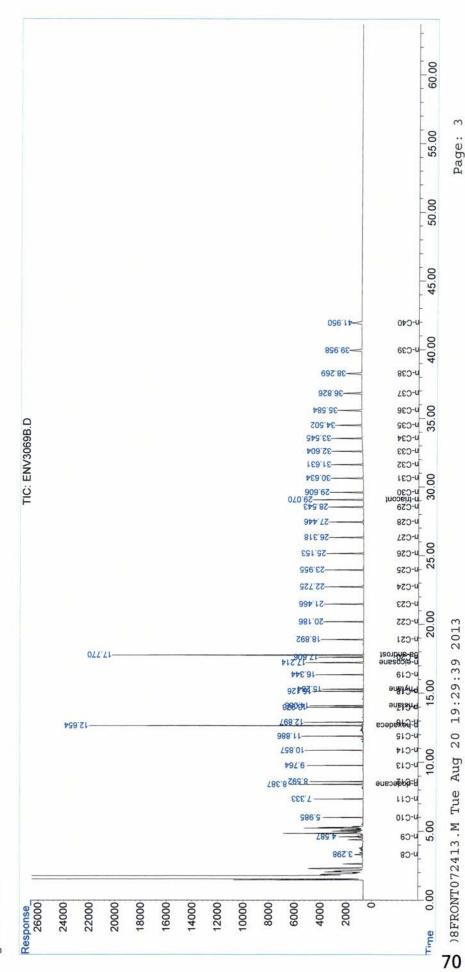
Data Fi Signal(Acq On Operato: Sample Misc	<pre>th : C:\msdchem\2\data\FID le : ENV3069B.D s) : FID1A.CH : 06-Aug-2013, 19:33:16 r : Meghan Dailey : Blank Spike : l : 7 Sample Multiplier</pre>			
Quant T: Quant Me Quant T: QLast Up Response	tion File: autoint1.e ime: Aug 07 10:05:31 2013 ethod : P:\2013\J13034\Alip itle : C8 - C40 aliphatic pdate : Wed Jul 24 12:42:03 e via : Initial Calibration tor: ChemStation	3 2013	3069\FID3C08FR	CONT072413.M
Volume I Signal I Signal I	Phase :			
	Compound	R.T.	Response	Conc Units
43) 44) 45) 46) 47) 48) 49) 50) 51) 52) 53) 54)	n-C36 n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH3 TRH4 TRH5 TRH6 GRO DRO RRO	35.584 36.826 38.269 39.958 41.950 0.000	64312 59654 58690 56941 52854 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8.634 ug/mlm 8.818 ug/mlm 8.830 ug/mlm 8.999 ug/mlm 9.049 ug/mlm N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld

(f)=RT Delta > 1/2 Window

Quantitation Report (QT Reviewed)

Quant Method : P:\2013\J13034\Aliphatics\ENV 3069\FID3C08FRONT072413.M QLast Update : Wed Jul 24 12:42:03 2013 C:\msdchem\2\data\FID30036 Ч Sample Multiplier: Response via : Initial Calibration : C8 - C40 aliphatic 06-Aug-2013, 19:33:16 Integration File: autoint1.e Quant Time: Aug 07 10:05:31 2013 Meghan Dailey Blank Spike Integrator: ChemStation ENV3069B.D FID1A.CH 5 Quant Title •• •• ••• ... Data File Data Path Signal(s) Operator ALS Vial Acq On Sample Misc

Volume Inj. : Signal Phase : Signal Info :



щ

			Concentration
Data File Name	ENV3069C.D		ENV3069C.D
Sample Name	Blank Spike Duplicate		Blank Spike Duplicate
Misc Info	0		06-Aug-2013, 20:43:33
Data File Path	C:\msdchem\2\data\FID30036\		ALIFRONT.M
Operator	Meghan Dailey		
Date Acquired	06-Aug-2013, 20:43:33		1
Instrument Name	HP5890		
Acq. Method File	ALIFRONT.M	Vial #	8
Vial Number	8	IS Area 1	317895
Sample Multiplier	1	IS Area 2	403137

		Target Response	Amount	Concentration
2) n-C8	3.30	15829.1	2.74	2.738
3) n-C9	4.59	32817.6	5.34	5.338
4) n-C10	5.98	36527.8	5.54	5.545
5) n-C11	7.33	39155.3	5.83	5.825
7) n-C12	8.59	41867.6	5.90	5.904
8) i-13	0.00	0	0.00	0.000
9) i-14	0.00	0	0.00	0.000
10) n-C13	9.76	44334.2	6.20	6.201
11) i-15	0.00	0	0.00	0.000
12) n-C14	10.86	49359.9	6.67	6.665
13) i-16	0.00	0	0.00	0.000
14) n-C15	11.89	58293	7.73	7.730
15) n-C16	12.90	62241.5	8.18	8.180
17) i-18	0.00	02241.5	0.00	0.000
18) n-C17	13.97	65936.2		
			8.47	8.472
19) Pristane	14.09	66087.4	8.53	8.533
20) n-C18	15.13	68050.6	8.88	8.875
21) Phytane	15.28	68625.9	8.80	8.796
22) n-C19	16.34	68925.8	8.99	8.990
24) n-C20	17.61	69340.9	9.00	9.000
25) n-C21	18.89	69710.9	8.97	8.972
26) n-C22	20.19	70337.8	9.04	9.044
27) n-C23	21.47	70029.6	8.97	8.969
28) n-C24	22.72	70453.6	9.05	9.048
29) n-C25	23.95	70119.7	9.01	9.011
30) n-C26	25.15	70533.2	9.07	9.068
31) n-C27	26.32	68539.5	9.06	9.057
32) n-C28	27.45	69402.2	9.05	9.050
33) n-C29	28.54	69721.7	9.07	9.066
35) n-C30	29.61	68238.7	8.99	8.993
36) n-C31	30.63	67431.4	9.05	9.047
37) n-C32	31.63	65602.2	8.88	8.882
38) n-C33	32.60	64652.6	9.00	8.998
39) n-C34	33.54	65451	9.05	9.047
40) n-C35	34.50	63882.8	8.99	8.993
l1) n-C36	35.58	67220.1	8.83	8.831
2) n-C37	36.82	62560.7	9.05	9.049
l3) n-C38	38.26	61336.7	9.03	9.030
(4) n-C39	39.96	58882.1	9.11	9.106
15) n-C40	41.95	54904.1	9.20	9.198
16) TPH	0.00	0	0.00	0.000
7) TRH1	0.00	0	0.00	0.000
18) TRH2	0.00	0	0.00	0.000
9) TRH3	0.00	o	0.00	0.000
0) TRH4	0.00	0	0.00	0.000
1) TRH5	0.00	0		
	0.00		0.00	0.000
2) TRH6		0	0.00	0.000
3) GRO	0.00	0	0.00	0.000
4) DRO	0.00	0	0.00	0.000
5) RRO	0.00	0	0.00	0.000
6) n-dodecane-d26	8.39	69748.9	10.96	54.8
3) n-eicosane-d42	17.21	104274	16.90	84.0
4) n-triacontane-d62	29.07	100985	16.95	84.7
1) n-hexadecane-d34	12.65	217005	50.00	217805 000
	12.05	317895	50.00	317895.000

Data Path : C:\msdchem\2\data\FID30036\ Data File : ENV3069C.D Signal(s) : FID1A.CH Acq On : 06-Aug-2013, 20:43:33 Operator : Meghan Dailey Sample : Blank Spike Duplicate Misc . ALS Vial : 8 Sample Multiplier: 1 Integration File: autoint1.e Quant Time: Aug 07 10:02:23 2013 Quant Method : P:\2013\J13034\Aliphatics\ENV 3069\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic QLast Update : Wed Jul 24 12:42:03 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound Internal Standards 1) In-hexadecane-d3412.65431789550.000 ug/mlm16) I5a-androstane17.77040313750.072 ug/mlm System Monitoring Compounds 6) Sn-dodecane-d268.3866974910.959ug/mlm23) Sn-eicosane-d4217.21410427416.904ug/mlm34) Sn-triacontane-d6229.06810098516.954ug/mlm

 3.299
 15829
 2.738 ug/mlm

 4.587
 32818
 5.338 ug/ml

 5.985
 36528
 5.545 ug/mlm

 7.333
 39155
 5.825 ug/mlm

 8.591
 41868
 5.904 ug/mlm

 0.000
 0
 N.D. ug/mld

 9.763
 44334
 6.201 ug/mlm

 0.000
 0
 N.D. ug/mld

 10.857
 49360
 6.665 ug/mlm

 0.000
 0
 N.D. ug/mld

 11.886
 58293
 7.730 ug/mlm

 12.896
 62241
 8.180 ug/mlm

 0.000
 0
 N.D. ug/mld

 13.973
 65936
 8.472 ug/mlm

 14.088
 66087
 8.533 ug/mlm

 15.125
 68051
 8.875 ug/mlm

 15.284
 68626
 8.796 ug/mlm

 16.343
 68926
 8.989 ug/mlm

 17.606
 69341
 9.000 ug/mlm

 18.893
 69711
 8.972 ug/mlm

 20.185
 70338
 9.044 ug/mlm

 23.954
 70120
 9.011 ug/mlm

 26.317
 6840
 9.057 ug/mlm
 </ Target Compounds 2) n-C8 2) n-C83) n-C94) n-C105) n-C117) n-C128) i-139) i-1410) n-C1311) i-1512) n-C1413) i-1614) n-C1515) n-C1617) i-1818) n-C1719) Pristane 20) n-C1821) Phytane 22) n-C1924) n-C2025) n-C2126) n-C2227) n-C2328) n-C2429) n-C2530) n-C2631) n-C2732) n-C2833) n-C2935) n-C30n-C9 3) n-C30 35) n-C31 n-C32 36) 37) n-C33 38) n-C34 n-C35 39) 40)

Data Fi Signal Acq On Operato Sample Misc	<pre>ath : C:\msdchem\2\data\FID: ile : ENV3069C.D (s) : FID1A.CH : 06-Aug-2013, 20:43:33 or : Meghan Dailey : Blank Spike Duplicate : al : 8 Sample Multiplier;</pre>			
Quant I Quant M Quant I QLast U Respons	ation File: autoint1.e Cime: Aug 07 10:02:23 2013 Method : P:\2013\J13034\Alig Citle : C8 - C40 aliphatic Update : Wed Jul 24 12:42:03 Se via : Initial Calibration Stor: ChemStation	2013	3069\FID3C08FF	RONT072413.M
-	Phase :			
Signal	Info :			
	Compound	R.T.	Response	2022-01 2022-0005
	compound	R . I .	Repponde	Conc Units
 41)	n-C36	35.581	67220	8.831 ug/mlm
10.000			67220 62561	8.831 ug/mlm 9.049 ug/mlm
10.000	n-C36	35.581	67220 62561	8.831 ug/mlm 9.049 ug/mlm
42) 43)	n-C36 n-C37	35.581 36.822	67220 62561 61337 58882	8.831 ug/mlm 9.049 ug/mlm 9.030 ug/mlm 9.106 ug/mlm
42) 43) 44) 45)	n-C36 n-C37 n-C38 n-C39 n-C40	35.581 36.822 38.261 39.961 41.946	67220 62561 61337 58882	8.831 ug/mlm 9.049 ug/mlm 9.030 ug/mlm 9.106 ug/mlm 9.198 ug/mlm
42) 43) 44) 45) 46)	n-C36 n-C37 n-C38 n-C39 n-C40 TPH	35.581 36.822 38.261 39.961 41.946 0.000	67220 62561 61337	8.831 ug/mlm 9.049 ug/mlm 9.030 ug/mlm 9.106 ug/mlm 9.198 ug/mlm N.D. ug/mld
42) 43) 44) 45) 46) 47)	n-C36 n-C37 n-C38 n-C39 n-C40 TPH TRH1	35.581 36.822 38.261 39.961 41.946 0.000 0.000	67220 62561 61337 58882 54904 0 0	8.831 ug/mlm 9.049 ug/mlm 9.030 ug/mlm 9.106 ug/mlm 9.198 ug/mlm N.D. ug/mld N.D. ug/mld
42) 43) 44) 45) 46) 47) 48)	n-C36 n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH1 TRH2	35.581 36.822 38.261 39.961 41.946 0.000 0.000 0.000 0.000	67220 62561 61337 58882 54904 0 0 0	8.831 ug/mlm 9.049 ug/mlm 9.030 ug/mlm 9.106 ug/mlm 9.198 ug/mlm N.D. ug/mld N.D. ug/mld N.D. ug/mld
42) 43) 44) 45) 46) 47) 48) 49)	n-C36 n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH3	35.581 36.822 38.261 39.961 41.946 0.000 0.000 0.000 0.000 0.000	67220 62561 61337 58882 54904 0 0 0 0 0	8.831 ug/mlm 9.049 ug/mlm 9.030 ug/mlm 9.106 ug/mlm 9.198 ug/mlm N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld
42) 43) 44) 45) 46) 47) 48) 49) 50)	n-C36 n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH3 TRH4	35.581 36.822 38.261 39.961 41.946 0.000 0.000 0.000 0.000 0.000 0.000	67220 62561 61337 58882 54904 0 0 0 0 0 0 0	8.831 ug/mlm 9.049 ug/mlm 9.030 ug/mlm 9.106 ug/mlm 9.198 ug/mlm N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld
42) 43) 44) 45) 46) 47) 48) 49) 50) 51)	n-C36 n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH2 TRH3 TRH4 TRH5	35.581 36.822 38.261 39.961 41.946 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	67220 62561 61337 58882 54904 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8.831 ug/mlm 9.049 ug/mlm 9.030 ug/mlm 9.106 ug/mlm 9.198 ug/mlm N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld
42) 43) 44) 45) 46) 47) 48) 49) 50) 51) 52)	n-C36 n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH3 TRH4 TRH5 TRH6	35.581 36.822 38.261 39.961 41.946 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	67220 62561 61337 58882 54904 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8.831 ug/mlm 9.049 ug/mlm 9.030 ug/mlm 9.106 ug/mlm 9.198 ug/mlm N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld
42) 43) 44) 45) 46) 47) 48) 49) 50) 51) 52) 53)	n-C36 n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH3 TRH4 TRH5 TRH6 GRO	35.581 36.822 38.261 39.961 41.946 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	67220 62561 61337 58882 54904 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8.831 ug/mlm 9.049 ug/mlm 9.030 ug/mlm 9.106 ug/mlm 9.198 ug/mlm N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld
42) 43) 44) 45) 46) 47) 48) 49) 50) 51) 52)	n-C36 n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH3 TRH4 TRH5 TRH6	35.581 36.822 38.261 39.961 41.946 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	67220 62561 61337 58882 54904 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8.831 ug/mlm 9.049 ug/mlm 9.030 ug/mlm 9.106 ug/mlm 9.198 ug/mlm N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld

(f)=RT Delta > 1/2 Window

0+2-4 996'17-196'68-660-u 38.261 P-C38 778'99 150-n Quant Method : P:\2013\J13034\Aliphatics\ENV 3069\FID3C08FRONT072413.M 960-u LAC'C TIC: ENV3069C.D 960-C36 34.502 u-C34 u-C33 33'244 109'78 (QT Reviewed) u-C35 1631 n-C30 n-C31 n-C30 n-C29 30.633 58.642 29.068 28.642 u-C28 944.TS 122-u 112.91 p-C26 231.52 u-C25 796'8 u-C24 5.723 Quantitation Report u-C23 595 P-C22 981.02 120-u 868.81 anseogia-n Ba-androst OLL'LL QLast Update : Wed Jul 24 12:42:03 2013 12 606 714 C:\msdchem\2\data\FID30036 16.343 610-u Ч ansight 2778719 Sample Multiplier: Response via : Initial Calibration : C8 - C40 aliphatic antistand Blank Spike Duplicate 06-Aug-2013, 20:43:33 880 \$ Integration File: autoint1.e Quant Time: Aug 07 10:02:23 2013 ปะโงใส่gadeca n-C15 15.654 988.11 #10-u 728.01 n-C13 £91'6 Meghan Dailey B-Bogecane 985.965.8 Integrator: ChemStation ENV3069C.D 110-4 2.333 FID1A.CH 01-0-U 986'9 QQC 3,299 •• ω Signal Phase Quant Title . [n] ••• Signal Info .. Data Path Data File Signal(s) 26000 24000 22000 20000 16000 14000 12000 10000 8000 6000 4000 2000 18000 Ò Response Operator ALS Vial Volume Sample Acq On Misc

4 08FRONT072413.M Tue Aug 20 19:29:56 2013

Page:

3

60.00

55.00

50.00

45.00

40.00

35.00

30.00

25.00

20.00

15.00

10.00

5.00 60-u

0.00

-me

80-U

			Concentration
Data File Name	ARC1564.D		ARC1564.D
Sample Name	SED-EB-01-072713		SED-EB-01-072713
Misc Info	0		06-Aug-2013, 21:53:51
Data File Path	C:\msdchem\2\data\FID30036\		ALIFRONT.M
Operator	Meghan Dailey		
Date Acquired	06-Aug-2013, 21:53:51		1.05263
Instrument Name	HP5890		
Acq. Method File	ALIFRONT.M	Vial #	9
Vial Number	9	IS Area 1	306896
Sample Multiplier	1.05263	IS Area 2	386203

# Name	Ret Time	Target Response	Amount	Concentration
2) n-C8	0.00	0	0.00	0.000
3) n-C9	0.00	0	0.00	0.000
4) n-C10	0.00	0	0.00	0.000
5) n-C11	0.00	0	0.00	0.000
7) n-C12	0.00	0	0.00	0.000
8) i-13	0.00	0	0.00	0.000
9) i-14	0.00	0	0.00	0.000
10) n-C13	0.00	0	0.00	0.000
11) i-15	0.00	0	0.00	0.000
12) n-C14	0.00	0	0.00	0.000
13) i-16	0.00	0	0.00	0.000
14) n-C15	0.00	0	0.00	0.000
15) n-C16	0.00	0	0.00	0.000
17) i-18	13.44	518.778	0.07	0.074
18) n-C17	13.97	505.08	0.07	0.071
19) Pristane	14.06	223.124	0.03	0.032
20) n-C18	15.12	713.049	0.10	0.102
21) Phytane	15.26	209.244	0.03	0.029
22) n-C19	16.34	333.007	0.05	0.048
24) n-C20	17.61	122.094	0.02	0.017
25) n-C21	18.89	177.661	0.03	0.025
26) n-C22	20.18	512.481	0.07	0.072
27) n-C23	21.47	255.72	0.04	0.036
28) n-C24	22.72	505.111	0.07	0.071
29) n-C25	23.96	245.034	0.03	0.035
30) n-C26	25.15	289.633	0.04	0.041
31) n-C27	26.31	161.038	0.02	0.023
32) n-C28	27.44	184.2	0.03	0.026
33) n-C29	0.00	0	0.00	0.000
35) n-C30	0.00	0	0.00	0.000
36) n-C31	0.00	0	0.00	0.000
37) n-C32	0.00	0	0.00	0.000
38) n-C33	0.00	0	0.00	0.000
39) n-C34	0.00	0	0.00	0.000
40) n-C35	0.00	0		
40) n-C36	0.00	0	0.00 0.00	0.000
42) n-C37	0.00	0	0.00	0.000
42) n-C38				0.000
	0.00 0.00	0	0.00	0.000
44) n-C39		0	0.00	0.000
45) n-C40	0.00	0	0.00	0.000
46) TPH	19.85	8884630	1339.04	1339.040
47) TRH1	8.39	109838	16.55	16.554
48) TRH2	19.85	2969190	447.50	447.500
49) TRH3	22.41	1771700	267.02	267.021
50) TRH4	29.07	109512	16.51	16.505
51) TRH5	34.60	4421.02	0.67	0.666
52) TRH6	36.46	28656.8	4.32	4.319
53) GRO	0.00	0	0.00	0.000
54) DRO	0.00	0	0.00	0.000
55) RRO	0.00	0	0.00	0.000
6) n-dodecane-d26	8.39	70186.6	12.02	57.1
23) n-eicosane-d42	17.21	116192	20.70	97.7
34) n-triacontane-d62	29.07	98060	18.09	85.8
1) n-hexadecane-d34	12.65	306896	52.63	306896.000
16) 5a-androstane	17.77	386203	52.71	386203.000

Data Path : C:\msdchem\2\data\FID30036\ Data File : ARC1564.D Signal(s) : FID1A.CH Acq On : 06-Aug-2013, 21:53:51 Operator : Meghan Dailey Sample : SED-EB-01-072713 Misc : ALS Vial : 9 Sample Multiplier: 1.05263 Integration File: autoint1.e Quant Time: Aug 12 18:10:57 2013 Quant Method : P:\2013\J13034\Aliphatics\ENV 3069\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic QLast Update : Wed Jul 24 12:42:03 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound Internal Standards 1) In-hexadecane-d3412.65330689650.000 ug/mlm16) I5a-androstane17.76738620350.072 ug/mlm System Monitoring Compounds 6) Sn-dodecane-d268.3867018712.024 ug/mlm23) Sn-eicosane-d4217.21311619220.697 ug/mlm34) Sn-triacontane-d6229.0699806018.089 ug/mlm
 0.000
 0
 N.D.
 ug/mld

 13.442
 519
 0.074
 ug/mlm

 13.973
 505
 0.071
 ug/mlm

 15.122
 713
 0.102
 ug/mlm

 15.464
 209
 0.029
 ug/mlm

 15.122
 0.17
 ug/mlm
 18.892

 178
 0.025
 ug/mlm
 21.470< Target Compounds 2) n-C8 3) n-C9 n-C9 n-C10 n-C11 n-C12 i-13 i-14 n-C13 i-15 i-15 4) 5) 7) 8) 9) 10) 11) n-C14 12) i-16 14) n-C15 15) n 13)n-C1514)n-C1515)n-C1617)i-1818)n-C1719)Pristane20)n-C1821)Phytane22)n-C1924)n-C2025)n-C2126)n-C2227)n-C2328)n-C2429)n-C2530)n-C2631)n-C2732)n-C2833)n-C2935)n-C3036)n-C3137)n-C3238)n-C33
 38)
 n-C33

 39)
 n-C34

 40)
 n-C35

Data Path : C:\msdchem\2\data\FID30036\ Data File : ARC1564.D Signal(s) : FID1A.CH Acq On : 06-Aug-2013, 21:53:51 Operator : Meghan Dailey Sample : SED-EB-01-072713 Misc : ALS Vial : 9 Sample Multiplier: 1.05263 Integration File: autoint1.e Quant Time: Aug 12 18:10:57 2013 Quant Method : P:\2013\J13034\Aliphatics\ENV 3069\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic QLast Update : Wed Jul 24 12:42:03 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound
 0.000
 0
 N.D.
 ug/mld

 19.846
 8884634
 1339.043
 ug/mlm

 8.386
 109838
 16.554
 ug/mlm

 19.846f
 2969193
 447.500
 ug/mlm

 22.405
 1771701
 267.021
 ug/mlm

 29.069f
 109512
 16.505
 ug/mlm

 34.603f
 4421
 0.666
 ug/mlm

 36.463f
 28657
 4.319
 ug/mlm

 0.000
 0
 N.D.
 ug/mld

 0.000
 0
 N.D.
 ug/mld
 41) n-C36 42) n-C37 43) n-C38 44) n-C39 45) n-C40 46) TPH 47) TRH1 48) TRH2 49) TRH3 50) TRH4 51) TRH5 52) TRH6 53) GRO 54) DRO DRO DRO RRO 54) 55)

SemiQuant Compounds - Not Calibrated on this Instrument

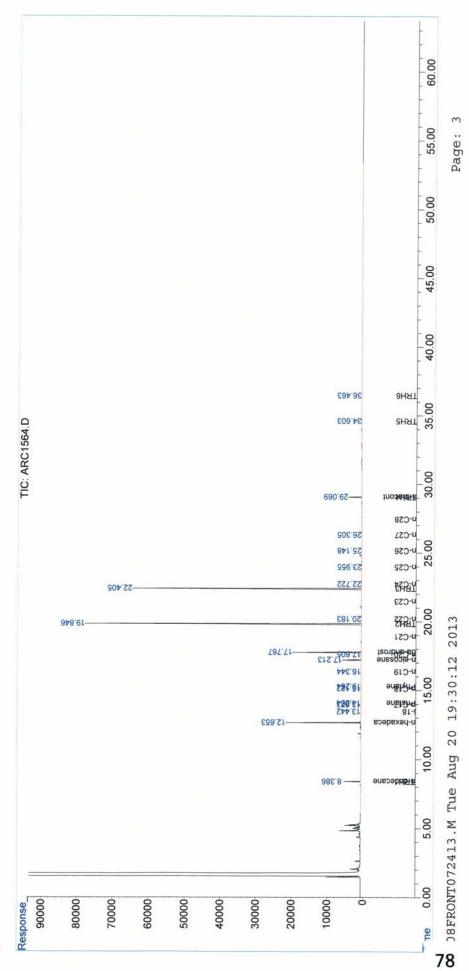
(f) = RT Delta > 1/2 Window



Quant Method : P:\2013\J13034\Aliphatics\ENV 3069\FID3C08FRONT072413.M Sample Multiplier: 1.05263 QLast Update : Wed Jul 24 12:42:03 2013 C:\msdchem\2\data\FID30036 Response via : Initial Calibration : C8 - C40 aliphatic 06-Aug-2013, 21:53:51 Integration File: autoint1.e Quant Time: Aug 12 18:10:57 2013 SED-EB-01-072713 Meghan Dailey ARC1564.D FID1A.CH 6 Quant Title •• .. •• •• Data Path Data File Signal(s) Operator ALS Vial Acq On Sample Misc

•• Signal Phase Volume Inj. Signal Info

Integrator: ChemStation



			Concentration
Data File Name	ARC1604.D		ARC1604.D
Sample Name	SED-DA-EB-02-072913		SED-DA-EB-02-072913
Misc Info	0		06-Aug-2013, 23:04:08
Data File Path	C:\msdchem\2\data\FID30036\		ALIFRONT.M
Operator	Meghan Dailey		
Date Acquired	06-Aug-2013, 23:04:08		0.961538
Instrument Name	HP5890		
Acq. Method File	ALIFRONT.M	Vial #	10
Vial Number	10	IS Area 1	300205
Sample Multiplier	0.961538	IS Area 2	382123

#	Name	Ret Time	Target Response	Amount	Concentration
2) n-C8	3	0.00	0	0.00	0.000
3) n-C9)	0.00	0	0.00	0.000
4) n-C1	.0	0.00	0	0.00	0.000
5) n-C1	1	7.33	410.431	0.06	0.062
7) n-C1	2	8.59	420.76	0.06	0.060
8) i-13		0.00	0	0.00	0.000
9) i-14		9.48	177.319	0.02	0.024
10) n-C1	3	9.78	219.77	0.03	0.031
11) i-15		10.64	423.502	0.06	0.057
12) n-C1	4	10.86	207.869	0.03	0.029
13) i-16		11.55	64.336	0.01	0.009
14) n-C1	5	11.88	114.324	0.02	0.015
15) n-C1	6	12.88	347.125	0.05	0.046
17) i-18		13.44	483.79	0.06	0.064
18) n-C1	7	13.98	245.75	0.03	0.032
19) Prist		14.10	140.86	0.02	0.018
20) n-C1		15.12	178.338	0.02	0.024
21) Phyt		15.26	153.689	0.02	0.020
22) n-C1		16.35	101.708	0.01	0.013
24) n-C2		17.61	115.56	0.02	0.015
25) n-C2		18.90	142.356	0.02	0.019
26) n-C2		20.17	95.2	0.01	0.012
27) n-C2		21.47	178.58	0.02	0.023
28) n-C2		22.72	147.074	0.02	0.019
29) n-C2		23.95	193.69	0.03	0.025
30) n-C2		25.15	196.912	0.03	0.026
31) n-C2		26.32	261.1	0.03	0.035
32) n-C2		27.44	228.628	0.03	0.030
33) n-C2		28.55	551.678	0.07	0.073
35) n-C3		29.61	164.273	0.02	0.022
36) n-C3		30.63	230.15	0.02	0.031
37) n-C3		31.63	153.217	0.02	0.021
38) n-C3		0.00	0	0.02	0.000
39) n-C3		0.00	0	0.00	0.000
40) n-C3		0.00	0	0.00	
40) n-C3		0.00	0	0.00	0.000
42) n-C3		0.00	0	0.00	
		0.00			0.000
43) n-C3		0.00	0	0.00	0.000
44) n-C3		0.00	0	0.00	0.000
45) n-C4	5			0.00	0.000
46) TPH		12.65	5242850	729.50	729.501
47) TRH1		8.39	107693	14.98	14.985
48) TRH2		12.65	885865	123.26	123.261
49) TRH3		22.79	13533.8	1.88	1.883
50) TRH4		29.07	116293	16.18	16.181
51) TRH5		35.31	61728.9	8.59	8.589
52) TRH6		41.49	26037.1	3.62	3.623
53) GRO		0.00	0	0.00	0.000
54) DRO		0.00	0	0.00	0.000
55) RRO		0.00	0	0.00	0.000
	decane-d26	8.39	59484.4	9.52	49.5
	osane-d42	17.21	102938	16.93	87.5
34) n-tria	contane-d62	29.07	100475	17.11	88.9
52 5	adecane-d34	12.65	300205	48.08	300205.000
1) n-hex	auccane-uj4	12.00	300203	40.00	300203.000

Data Path : C:\msdchem\2\data\FID30036\ Data File : ARC1604.D Signal(s) : FID1A.CH Acq On : 06-Aug-2013, 23:04:08 Operator : Meghan Dailey Sample : SED-DA-EB-02-072913 Misc : ALS Vial : 10 Sample Multiplier: 0.961538 Integration File: autoint1.e Quant Time: Aug 07 10:44:35 2013 Quant Method : P:\2013\J13034\Aliphatics\ENV 3069\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic QLast Update : Wed Jul 24 12:42:03 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound R.T. Response Conc Units Internal Standards

 1) I
 n-hexadecane-d34
 12.653
 300205
 50.000 ug/mlm

 16) I
 5a-androstane
 17.768
 382123
 50.072 ug/mlm

 System Monitoring Compounds 6) Sn-dodecane-d268.385594849.516 ug/mlm23) Sn-eicosane-d4217.21210293816.928 ug/mlm34) Sn-triacontane-d6229.07110047517.111 ug/mlm
 0.000
 0
 N.D.
 ug/mld

 0.000
 0
 N.D.
 ug/mld

 0.000
 0
 N.D.
 ug/mld

 7.333
 410
 0.062
 ug/mlm

 8.592
 421
 0.060
 ug/mld

 9.483
 177
 0.024
 ug/mlm

 9.778
 220
 0.031
 ug/mlm

 10.641
 424
 0.057
 ug/mlm

 11.549
 64
 0.009
 ug/mlm

 11.883
 114
 0.015
 ug/mlm

 12.879
 347
 0.046
 ug/mlm

 13.977
 246
 0.032
 ug/mlm

 14.098
 141
 0.018
 ug/mlm

 15.117
 178
 0.024
 ug/mlm

 16.348
 102
 0.013
 ug/mlm

 16.348
 102
 0.013
 ug/mlm

 17.605
 116
 0.015
 ug/mlm

 21.465
 179
 0.023
 ug/mlm

 22.718
 147
 < Target Compounds 2) n-C8 3) n-C9

 3)
 n-C19

 4)
 n-C10

 5)
 n-C11

 7)
 n-C12

 8)
 i-13

 9)
 i-14

 8) i-13 9) i-14 10) n-C13 11) i-15 12) n-C14 13) i-16 14) n-C15 15) n-C16 17) i-18 18) n-C17 19) Pristane 20) n-C18 21) Phytane 22) n-C19 24) n-C20 25) n-C21 26) n-C22 27) n-C23 28) n-C24 29) n-C25 30) n-C26 31) n-C27 32) n-C28 33) n-C28 33) n-C29 35) n-C31 37) n-C32 38) n-C33 38) n-C33 39) n-C34 40) n-C35

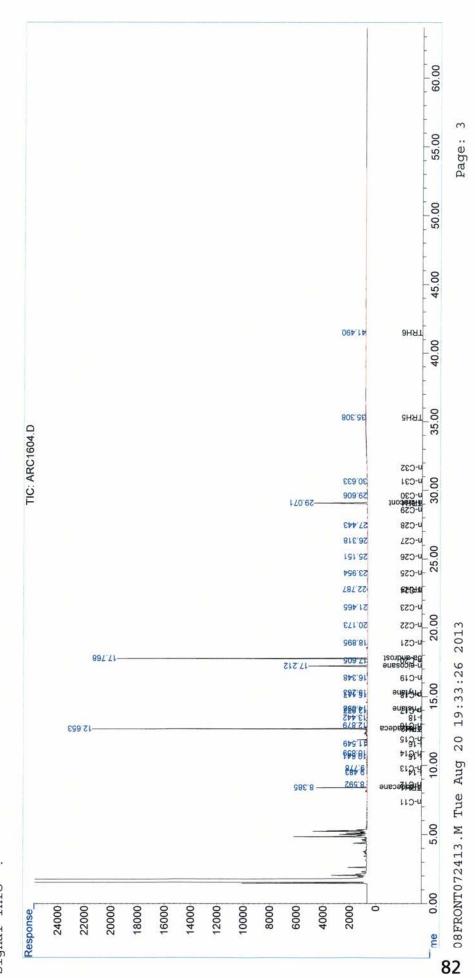
Data Fi Signal(Acq On Operato Sample Misc	ath : C:\msdchem\2\data\FII ile : ARC1604.D (s) : FID1A.CH : 06-Aug-2013, 23:04:08 or : Meghan Dailey : SED-DA-EB-02-072913 : al : 10 Sample Multiplie	3		
Quant T Quant M Quant T QLast U Respons	ation File: autoint1.e Time: Aug 07 10:44:35 2013 Method : P:\2013\J13034\Ali Title : C8 - C40 aliphatic Update : Wed Jul 24 12:42:0 se via : Initial Calibratic stor: ChemStation	2 03 2013	3069\FID3C08	FRONT072413.M
	Inj. : Phase : Info :			
	Compound	R.T.	Response	Conc Units
5.0	n-C37	0.000 0.000 0.000 0.000 0.000	0 0 0 0	N.D. ug/mld N.D. ug/mld
46) 47)	TPH TRH1	12.653f 8.385	5242853 107693	729.500 ug/mlm 14.985 ug/mlm
48) 49) 50) 51)	TRH2 TRH3 TRH4 TRH5	12.653f 22.787 29.071f 35.308f	885865 13534 116293 61729	123.261 ug/mlm 1.883 ug/mlm 16.181 ug/mlm 8.589 ug/mlm 3.623 ug/mlm
	TRH6 GRO DRO RRO	41.490 0.000 0.000 0.000	26037 0 0 0	N.D. ug/mld

(f)=RT Delta > 1/2 Window



Method : P:\2013\J13034\Aliphatics\ENV 3069\FID3C08FRONT072413.M Sample Multiplier: 0.961538 QLast Update : Wed Jul 24 12:42:03 2013 C:\msdchem\2\data\FID30036 : Initial Calibration : C8 - C40 aliphatic 06-Aug-2013, 23:04:08 Quant Time: Aug 07 10:44:35 2013 SED-DA-EB-02-072913 Integration File: autointl.e Meghan Dailey Integrator: ChemStation ARC1604.D FID1A.CH : 10 Response via Quant Title •• •• Data File Data Path Signal(s) Operator ALS Vial Acq On Sample Quant Misc

Volume Inj. : Signal Phase : Signal Info :



			Concentration
Data File Name	ARC1606.D		ARC1606.D
Sample Name	SED-DA-EB-03-073013		SED-DA-EB-03-073013
Misc Info	0		07-Aug-2013, 00:14:32
Data File Path	C:\msdchem\2\data\FID30036\		ALIFRONT.M
Operator	Meghan Dailey		
Date Acquired	07-Aug-2013, 00:14:32		1.03093
Instrument Name	HP5890		
Acq. Method File	ALIFRONT.M	Vial #	11
Vial Number	11	IS Area 1	292513
Sample Multiplier	1.03093	IS Area 2	369516

#	Name	Ret Time	Target Response	Amount	Concentration
2) n-C8		0.00	0	0.00	0.000
3) n-C9		0.00	0	0.00	0.000
4) n-C1	0	0.00	0	0.00	0.000
5) n-C1	1	7.34	283.76	0.05	0.047
7) n-C1		8.59	279.86	0.04	0.044
8) i-13		0.00	0	0.00	0.000
9) i-14		0.00	0	0.00	0.000
10) n-C1	3	9.78	157.046	0.02	0.025
11) i-15	2	0.00	0	0.00	0.000
12) n-C1	4	10.86	184.583	0.03	0.028
13) i-16	20 C	0.00	0	0.00	0.000
14) n-C1	5	11.88	33.225	0.00	0.005
15) n-C1		12.88	243.668	0.04	0.036
17) i-18	0	0.00	243.008	0.00	0.000
18) n-C1	7	13.97	93.026	0.01	
			93.020		0.013
19) Prista		0.00	149.924	0.00	0.000
20) n-C1		15.11		0.02	0.022
21) Phyta		0.00	0	0.00	0.000
22) n-C19		16.35	59.212	0.01	0.009
24) n-C20		17.61	99.734	0.01	0.015
25) n-C21		18.89	82.071	0.01	0.012
26) n-C22		20.19	75.738	0.01	0.011
27) n-C23	3	21.47	88.172	0.01	0.013
28) n-C24	4	22.71	96.452	0.01	0.014
29) n-C25	5	23.95	126.074	0.02	0.018
30) n-C26	5	25.15	148.063	0.02	0.021
81) n-C27	7	26.31	215.71	0.03	0.032
32) n-C28	3	27.44	209.06	0.03	0.031
3) n-C29	Ð	28.55	189.409	0.03	0.028
5) n-C30	0	29.61	139.378	0.02	0.021
6) n-C31	L	30.62	148.528	0.02	0.022
7) n-C32	2	31.64	120.201	0.02	0.018
8) n-C33		0.00	0	0.00	0.000
9) n-C34		0.00	0	0.00	0.000
0) n-C35		0.00	0	0.00	0.000
1) n-C36		0.00	0	0.00	0.000
2) n-C37		0.00	0	0.00	0.000
3) n-C38		0.00	0	0.00	0.000
4) n-C39		0.00	0	0.00	
		0.00	0	0.00	0.000
15) n-C40 16) TPH		12.65			0.000
			4854970	748.99	748.992
7) TRH1		8.39	111478	17.20	17.198
8) TRH2		12.65	829857	128.03	128.025
9) TRH3		24.38	17699.4	2.73	2.731
0) TRH4		29.07	112418	17.34	17.343
1) TRH5		35.31	61830.3	9.54	9.539
2) TRH6		41.51	37906.8	5.85	5.848
3) GRO		0.00	0	0.00	0.000
4) DRO		0.00	0	0.00	0.000
5) RRO		0.00	0	0.00	0.000
6) n-doc	lecane-d26	8.39	61094.7	10.75	52.2
3) n-eico	osane-d42	17.21	97715.2	17.82	85.9
4) n-tria	contane-d62	29.07	95906.5	18.11	87.7
	adecane-d34	12.65	292513	51.55	292513.000
1) n-hex				04.00	£3£3£3.000

Data Path : C:\msdchem\2\data\FID30036\ Data File : ARC1606.D Signal(s) : FID1A.CH Acq On : 07-Aug-2013, 00:14:32 Operator : Meghan Dailey Sample : SED-DA-EB-03-073013 Misc : ALS Vial : 11 Sample Multiplier: 1.03093 Integration File: autoint1.e Quant Time: Aug 07 11:03:11 2013 Quant Method : P:\2013\J13034\Aliphatics\ENV 3069\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic QLast Update : Wed Jul 24 12:42:03 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound Internal Standards 1) In-hexadecane-d3412.65229251350.000 ug/mlm16) I5a-androstane17.76736951650.072 ug/mlm System Monitoring Compounds 6) Sn-dodecane-d268.3866109510.754 ug/mlm23) Sn-eicosane-d4217.2139771517.817 ug/mlm34) Sn-triacontane-d6229.0699590718.109 ug/mlm
 0.000
 0
 N.D.
 ug/mld

 0.000
 0
 N.D.
 ug/mld

 0.000
 0
 N.D.
 ug/mld

 7.335
 284
 0.044
 ug/mld

 0.000
 0
 N.D.
 ug/mld

 10.857
 185
 0.028
 ug/mld

 11.884
 33
 0.005
 ug/mlm

 0.000
 0
 N.D.
 ug/mld

 13.972
 93
 0.013
 ug/mld

 15.112
 150
 0.022
 ug/mlm

 0.000
 0
 N.D.
 ug/mld

 16.345
 59
 0.009
 ug/mlm

 16.345
 59
 0.009
 ug/mlm

 12.468
 88
 0.013
 ug/mlm< Target Compounds 2) n-C8 3) n-C9

 3)
 n-C9

 4)
 n-C10

 5)
 n-C11

 7)
 n-C12

 8)
 i-13

 9)
 i-14

 10)
 n-C13

 11)
 i-15

 12)
 n-C14

 12)
 n-Cl4

 13)
 i-16

 14)
 n-Cl5

 15)
 n-Cl6

 17)
 i-18

 18)
 n-Cl7

 19)
 Pristane

 20)
 n-Cl8

 21)
 Phytane

 22)
 n-Cl9

 24)
 n-C20

 25)
 n-C21

 26)
 n-C22

 27)
 n-C23

 28)
 n-C24

 29)
 n-C25

 30)
 n-C26

 31)
 n-C27

 32)
 n-C28

 33)
 n-C29

 35)
 n-C30

 36)
 n-C31

 37)
 n-C32

 38)
 n-C33

 38) n-C33 39) n-C34 40) n-C35

Data Path : C:\msdchem\2\data\F Data File : ARC1606.D Signal(s) : FID1A.CH Acq On : 07-Aug-2013, 00:14: Operator : Meghan Dailey Sample : SED-DA-EB-03-073013 Misc : ALS Vial : 11 Sample Multipl	32			
Integration File: autoint1.e Quant Time: Aug 07 11:03:11 201 Quant Method : P:\2013\J13034\A Quant Title : C8 - C40 aliphat QLast Update : Wed Jul 24 12:42 Response via : Initial Calibrat Integrator: ChemStation	liphatics\ENV ic :03 2013	3069\FID3C08	FRONT0724	413.M
Volume Inj. : Signal Phase : Signal Info :				
Compound	R.T.	Response	Conc (Jnits
<pre>41) n-C36 42) n-C37 43) n-C38 44) n-C39 45) n-C40 46) TPH 47) TRH1 48) TRH2 49) TRH3 50) TRH4 51) TRH5 52) TRH6 53) GRO 54) DRO 55) RRO</pre>	0.000 0.000 0.000 12.652f 8.386 12.652f 24.382f 29.069f 35.310f 41.511 0.000 0.000	0 0 4854974 111478 829857 17699 112418 61830	N.D. N.D. N.D. 748.992 17.198 128.025 2.731 17.343 9.539 5.848 N.D.	ug/mld ug/mld ug/mlm ug/mlm ug/mlm ug/mlm ug/mlm ug/mlm ug/mld ug/mld

(f)=RT Delta > 1/2 Window

Quantitation Report (QT Reviewed)

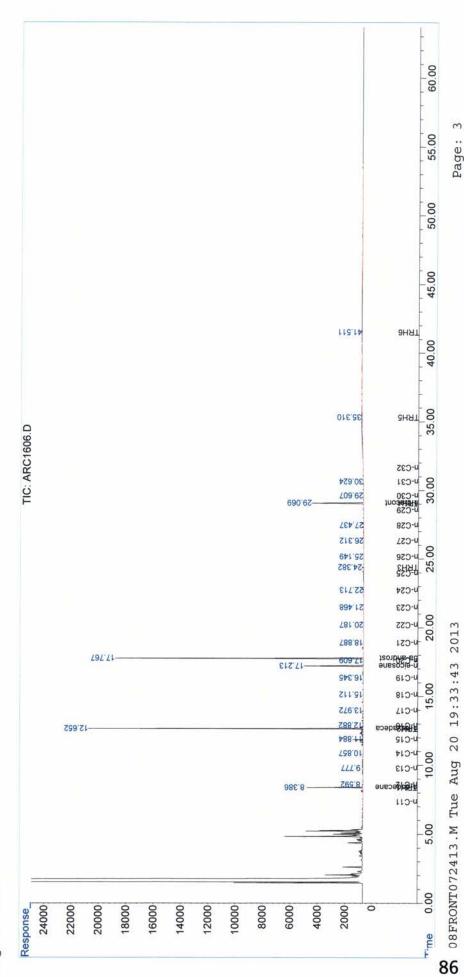
C:\msdchem\2\data\FID30036

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Data Path

Quant Method : P:\2013\J13034\Aliphatics\ENV 3069\FID3C08FRONT072413.M Sample Multiplier: 1.03093 QLast Update : Wed Jul 24 12:42:03 2013 Response via : Initial Calibration : C8 - C40 aliphatic 07-Aug-2013, 00:14:32 Integration File: autoint1.e Quant Time: Aug 07 11:03:11 2013 SED-DA-EB-03-073013 Meghan Dailey Integrator: ChemStation ARC1606.D FID1A.CH 11 Title •• Data File Signal(s) Operator ALS Vial Acq On Sample Quant Misc

Volume Inj. : Signal Phase : Signal Info :



. .

			Concentration
Data File Name	ARC1609.D		ARC1609.D
Sample Name	SED-DA-EB-04-073113		SED-DA-EB-04-073113
Misc Info	0		07-Aug-2013, 01:25:02
Data File Path	C:\msdchem\2\data\FID30036\		ALIFRONT.M
Operator	Meghan Dailey		
Date Acquired	07-Aug-2013, 01:25:02		1
Instrument Name	HP5890		
Acq. Method File	ALIFRONT.M	Vial #	12
Vial Number	12	IS Area 1	288914
Sample Multiplier	1	IS Area 2	366688

# Name	Ret Time	Target Response	Amount	Concentration
2) n-C8	0.00	0	0.00	0.000
3) n-C9	0.00	0	0.00	0.000
4) n-C10	0.00	0	0.00	0.000
5) n-C11	7.33	259.505	0.04	0.042
7) n-C12	8.59	314.197	0.05	0.049
8) i-13	0.00	0	0.00	0.000
9) i-14	0.00	0	0.00	0.000
10) n-C13	9.78	293.496	0.05	0.045
11) i-15	0.00	0	0.00	0.000
12) n-C14	10.86	153.224	0.02	0.023
13) i-16	0.00	0	0.00	0.000
14) n-C15	11.89	144.904	0.02	0.021
15) n-C16	12.89	244.27	0.04	0.035
17) i-18	0.00	0	0.00	0.000
18) n-C17	13.97	416.463	0.06	0.059
19) Pristane	0.00	0	0.00	0.000
20) n-C18	15.12	525.551	0.08	0.075
21) Phytane	0.00	0	0.00	0.000
22) n-C19	16.35	315.279	0.05	0.045
24) n-C20	17.61	159.597	0.02	0.023
25) n-C21	18.89	237.457	0.03	0.034
26) n-C22	20.17	353.238	0.05	0.050
27) n-C23	21.46	156.941	0.02	0.022
28) n-C24	22.73	1177.44	0.17	0.166
29) n-C25	23.96	231.04	0.03	0.033
30) n-C26	25.16	1507.39	0.21	0.213
31) n-C27	26.31	256.165	0.04	0.037
32) n-C28	27.43	512.89	0.07	0.074
33) n-C29	28.55	455.359	0.07	0.065
35) n-C30	29.60	225.415	0.03	0.033
36) n-C31	30.63	203.821	0.03	0.030
37) n-C32	31.63	147.906	0.03	0.022
38) n-C33	0.00	147.500	0.02	0.000
39) n-C34	0.00	0	0.00	0.000
10) n-C35	0.00	0	0.00	0.000
1) n-C36	0.00	0	0.00	
(2) n-C37	0.00	0	0.00	0.000
	0.00	0		0.000
(3) n-C38			0.00	0.000
(4) n-C39	0.00	0	0.00	0.000
5) n-C40	0.00	0	0.00	0.000
6) TPH	12.65	4999450	753.91	753.912
7) TRH1	8.39	73179.4	11.04	11.035
8) TRH2	12.65	864885	130.42	130.424
19) TRH3	23.27	61938.3	9.34	9.340
O) TRH4	29.07	185643	27.99	27.995
1) TRH5	31.20	76895.5	11.60	11.596
2) TRH6	37.48	52466.1	7.91	7.912
3) GRO	0.00	0	0.00	0.000
4) DRO	0.00	0	0.00	0.000
5) RRO	0.00	0	0.00	0.000
6) n-dodecane-d26	8.39	46264.8	8.00	40.0
 n-eicosane-d42 	17.21	99363.9	17.71	88.0
4) n-triacontane-d62	29.07	95997.2	17.72	88.5
1) n-hexadecane-d34	12.65	288914	50.00	288914.000
6) 5a-androstane	17.77	366688	50.07	366688.000

Data F: Signal Acq On Operato Sample Misc ALS Via Integra Quant T Quant M Quant T		.:25:02 /3113 .tiplier: 1 e 5 2013 /34\Aliphatics\ENV phatic	3069\FID3C08	FRONT072413.M
Respons	se via : Initial Cali ator: ChemStation			
Signal	Inj. : Phase : Info :			
	Compound	R.T.	Response	Conc Units
Interr	al Standards			
	n-hexadecane-d34 5a-androstane	12.653	288914	50.000 ug/mlm
16) I	5a-androstane	17.767	366688	50.072 ug/mlm
System	Monitoring Compound	s		
6) S	n-dodecane-d26 n-eicosane-d42	8.386	46265	7.998 ug/mlm
23) S 34) S	n-eicosane-d42 n-triacontane-d62	17.213 29.069	99364 95997	
2) 3) 4) 5) 7) 8) 9) 10) 11) 12) 13) 14) 15) 17) 18) 19) 20) 21) 22) 24) 25) 26) 27) 28) 29)	n-C9 n-C10 n-C11 n-C12 i-13 i-14 n-C13 i-15 n-C14 i-16 n-C15 n-C16 i-18 n-C17 Pristane n-C17 Phytane n-C19 n-C20 n-C21 n-C22 n-C23 n-C24 n-C25	0.000 0.000 7.334 8.592 0.000 0.000 9.779 0.000 10.858 0.000 11.893 12.893 0.000 13.973 0.000 15.121 0.000 15.125 0.000 15.125 0.000 15.125 0.000 0.	260 314 0 293 0 153 0 145 244 0 416 0 526 0 315 160 237 353 157 1177 231	N.D. ug/mld N.D. ug/mld 0.042 ug/mlm 0.049 ug/mlm N.D. ug/mld N.D. ug/mld 0.045 ug/mlm N.D. ug/mld 0.023 ug/mlm N.D. ug/mld 0.021 ug/mlm N.D. ug/mld 0.059 ug/mlm N.D. ug/mld 0.059 ug/mlm N.D. ug/mld 0.075 ug/mlm N.D. ug/mld 0.045 ug/mlm 0.023 ug/mlm 0.034 ug/mlm 0.034 ug/mlm 0.050 ug/mlm 0.022 ug/mlm 0.023 ug/mlm
30) 31)	n-C26 n-C27	25.157 26.305	1507 256	0.213 ug/mlm 0.037 ug/mlm
32)	n-C28	27.430	513	0.074 ug/mlm
33) 35)	n-C29 n-C30	28.547 29.598	455 225	0.065 ug/mlm 0.033 ug/mlm
36)	n-C31	30.633	204	0.030 ug/mlm
37)	n-C32	31.628	148	0.022 ug/mlm
38) 39)	n-C33 n-C34	0.000	0	N.D. ug/mld N.D. ug/mld
40)	n-C35	0.000	õ	N.D. ug/mld

Data Fi Signal(Acq On Operato Sample Misc	ath : C:\msdchem\2\data\FID le : ARC1609.D (s) : FID1A.CH : 07-Aug-2013, 01:25:02 or : Meghan Dailey : SED-DA-EB-04-073113 : al : 12 Sample Multiplie:			
Quant T Quant M Quant T QLast U Respons	tion File: autoint1.e Time: Aug 12 18:01:15 2013 Method : P:\2013\J13034\Alip Title : C8 - C40 aliphatic Mpdate : Wed Jul 24 12:42:03 Se via : Initial Calibration tor: ChemStation	3 2013	3069\FID3C08	FRONT072413.M
Volume Signal Signal	Phase :			
	Compound	R.T.	Response	Conc Units
41) 42) 43) 44) 45) 46) 47) 48) 49) 50) 51) 52) 53) 54) 55)	n-C36 n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH2 TRH3 TRH4 TRH5 TRH6 GRO DRO RRO	0.000 0.000 0.000 12.653f 8.386 12.653f 23.266 29.069f 31.201f 37.476f 0.000 0.000 0.000	0 0 0 4999453 73179 864885 61938 185643 76896 52466 0 0	N.D. ug/mld N.D. ug/mld N.D. ug/mld 753.912 ug/mlm 11.035 ug/mlm 130.424 ug/mlm 9.340 ug/mlm 27.995 ug/mlm 11.596 ug/mlm 7.912 ug/mlm N.D. ug/mld

(f) = RT Delta > 1/2 Window



C:\msdchem\2\data\FID30036

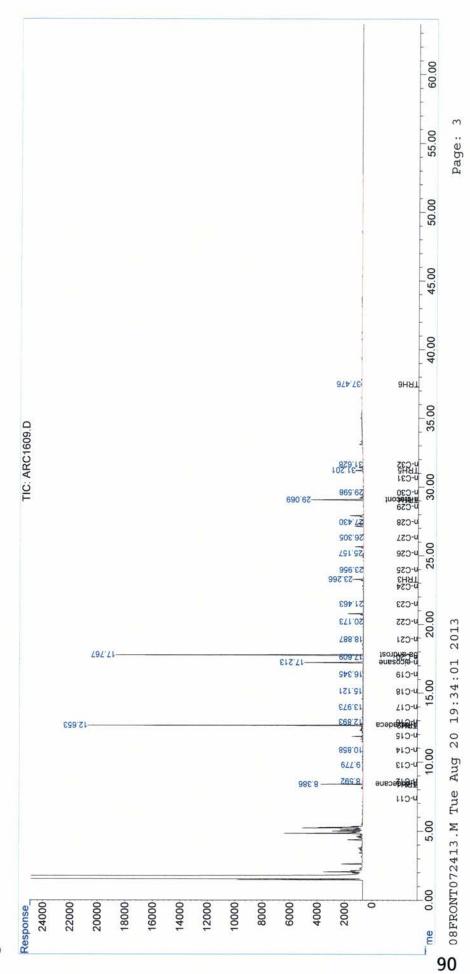
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Data Path

Method : P:\2013\J13034\Aliphatics\ENV 3069\FID3C08FRONT072413.M QLast Update : Wed Jul 24 12:42:03 2013 Ч Sample Multiplier: Response via : Initial Calibration : C8 - C40 aliphatic 07-Aug-2013, 01:25:02 Integration File: autointl.e Quant Time: Aug 12 18:01:15 2013 SED-DA-EB-04-073113 Meghan Dailey ARC1609.D FID1A.CH 12 .. Quant Title .. • • Data File Signal(s) Operator ALS Vial Acq On Sample Quant Misc

Volume Inj. : Signal Phase : Signal Info :

Integrator: ChemStation



Polycyclic Aromatic Hydrocarbon Raw Data

B&B LABORATORIES PAHs QA FORM

Extraction Page: ENV-3069 Analyst: 4. MIGO					
Client: Arcadis- Mayflower Date: 8/20/13					
Job: #: J13034 Project Quality Manager: Jacob					
SDG #: Various Date: 08(21(13					
Initial Calibration: No fuch ICV No fuch					
Surrogate Recoveries: No failures					
Procedural Blank: No fuelos					
Blank Spike: No fre					
Blank Spike Duplicate: No fuel					
Laboratory Duplicate:					
Matrix Spike:					
Matirx Spike Duplicate:					
SRM/LCS (Solution, Tissue, Sediment, Petroleum): NO fuith - Sulstian No fuith Petroleum					
CCC (from a second source): No ful					
SRM-2279 Reference Oil No fui L					
Mass Discrimination Check (benzo(ghi)perylene/phenanthrene >0.7)					

Sequence Name: C:\msdchem\l\sequence\MS70052.s Comment: Arcadis-Mayflower AR-Water-PAH (08/06/13) Operator: YM Data Path: C:\MSDCHEM\l\DATA\MS70052\ Instrument Control Pre-Seq Cmd: Data Analysis Pre-Seq Cmd: Instrument Control Post-Seq Cmd: Data Analysis Post-Seq Cmd:					
Method Sections To Run Sequence Barcode Options					
(X) Full Method () On Mismatch, Inject Anyway					
() Reprocessing Only () On Mismatch, Inject Anyway () Reprocessing Only () On Mismatch, Don't Inject					
() Reprocessing Only () On Mismatch, Don't inject (X) Barcode Disabled					
Line Sample Name/Misc Info 1) Sample 1 MS70052A PAH-2012 Solvent rinse					
1)	Sample	1	MS70052A	PAH-2012 Solvent rinse	
2)	Sample	2	MS70052B	PAH-2012 AR-WKC1-020-029	
3)	Sample			PAH-2012 AR-WKC2-100-029	
4)	Sample	4	MS70052D	PAH-2012 AR-WKC3-250-029	
5)	Sample	5	MS70052E	PAH-2012 AR-WKC4-500-029	
6)	Sample	6		PAH-2012 AR-WKC5-1000-029	
7)	Sample	7	MS70052G	PAH-2012 AR-WKC6-5000-029	
8)	Sample	8		PAH-2012 AR-WKISSU-250-001	
9)	Sample	9		PAH-2012 AR-WKICV-250-003	
10)	Sample	10		PAH-2012 AR-WKCC-250-037	
11)	Sample	11		PAH-2012 AR-SRM2779-WK4.0-001	
12)	Sample	12	ENV3069A	PAH-2012	
13)	Sample	13	ENV3069B	PAH-2012	
14)	Sample	14	the second s	PAH-2012	
15)	Sample	15		PAH-2012	
16)	Sample	16		PAH-2012	
17)	Sample	17		PAH-2012	
18)	Sample	18		PAH-2012	
19)	Sample	19	MS70052L	PAH-2012 AR-WKCC-250-037	

Data Path : C:\GCMS7\MS70052\ Data File : MS70052J.D Acq On : 7 Aug 2013 7:56 am Operator : YM Sample : AR-WKCC-250-037 Misc : ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 08 09:01:39 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 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 Ar	ea% Dev(min)
1	I	Fluorene-d10	1.000	1.000	0.0	86 0.00
2	S	Naphthalene-d8	1.791	1.678	6.3	88 0.00
3		cis/trans Decalin	0.313	0.307	1.9	91 0.00
4		C1-Decalins	0.313	0.000	100.0#	0# -12.40#
5	un	C2-Decalins	0.313	0.000	100.0#	0# -13.73#
6	un	C3-Decalins	0.313	0.000	100.0#	0# -16.13#
7	un	C4-Decalins	0.313	0.000	100.0#	0# -18.49#
8	т	Naphthalene	1.938	1.813	6.4	88 0.00
9	т	2-Methylnaphthalene	1.199	1.098	8.4	87 0.00
10	т	1-Methylnaphthalene	1.122	1.047	6.7	88 0.03
11	Т	2,6-Dimethylnaphthalene	1.093	0.978	10.5	85 0.00
12	Т	1,6,7-Trimethylnaphthalene	1.026	0.912	11.1	85 0.00
13	un	C2-Naphthalenes	1.938	0.000	100.0#	0# -18.61#
14	un	C3-Naphthalenes	1.938	0.000	100.0#	0# -20.43#
15	un	C4-Naphthalenes	1.938	0.000	100.0#	0# -22.14#
16	т	Benzothiophene	1.526	1.441	5.6	88 0.00
17	un	C1-Benzothiophenes	1.526	0.000	100.0#	0# -15.50#
18	un	C2-Benzothiophenes	1.526	0.000	100.0#	0# -18.70#
19	un	C3-Benzothiophenes	1.526	0.000	100.0#	0# -20.37#
20	un	C4-Benzothiophenes	1.526	0.000	100.0#	0# -22.08#
21	S	Acenaphthene-d10	0.984	0.897	8.8	86 0.00
22	т	Biphenyl	1.625	1.517	6.6	88 0.00
23	т	Acenaphthylene	1.786	1.439	19.4	77 0.00
24	т	Acenaphthene	1.080	0.974	9.8	85 0.00
25	Т	Dibenzofuran	1.748	1.597	8.6	87 0.00
26	т	Fluorene	1.402	1.251	10.8	85 0.00
27	т	1-Methylfluorene	0.725	0.622	14.2	82 -0.03
28	un	C1-Fluorenes	1.402	0.000	100.0#	0# -23.65#
29	un	C2-Fluorenes	1.402	0.000	100.0#	0# -24.92#
30	un	C3-Fluorenes	1.402	0.000	100.0#	0# -27.22#
31		Pyrene-d10	1.000	1.000	0.0	78 0.00
32	S	Phenanthrene-d10	1.031	1.071	-3.9	87 0.00
33	Т	Carbazole	1.030	0.832	19.2	71 0.00
34	Т	Dibenzothiophene	1.197	1.258	-5.1	88 0.00
35	Т	4-Methyldibenzothiophene	0.723	0.725	-0.3	87 0.00
	un	2/3-Methyldibenzothiophene	0.723	0.000	100.0#	0# -26.22#
	un	1-Methyldibenzothiophene	0.723	0.000	100.0#	0# -26.57#
38	un	C2-Dibenzothiophenes	1.197	0.000	100.0#	0# -28.12#
	un	C3-Dibenzothiophenes	1.197	0.000	100.0#	0# -28.87#
	un	C4-Dibenzothiophenes	1.197	0.000	100.0#	0# -30.83#
41		Phenanthrene	1.095	1.137	-3.8	88 -0.03
42	Т	Anthracene	0.978	0.921	5.8	81 0.00
	un	3-Methylphenanthrene	0.826	0.000	100.0#	0# -26.55#
44	un	2-Methylphenanthrene	0.826	0.000	100.0#	0# -26.62#
	un	2-Methylanthracene	0.826	0.000	100.0#	0# -26.75#
46	un	4/9-Methylphenanthrene	0.826	0.000	100.0#	0# -26.99#

Data Path : C:\GCMS7\MS70052\ Data File : MS70052J.D Acq On : 7 Aug 2013 7:56 am Operator : YM Sample : AR-WKCC-250-037 Misc : ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 08 09:01:39 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 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%

-54	0.0000000000000000000000000000000000000	Compound	AvgRF	CCRF	%Dev Ar	ea%	Dev(min)
47	т	1-Methylphenanthrene	0.826	0.775	6.2	83	0.00
48	т	3,6-Dimethylphenanthrene	0.825	0.754	8.6	82	0.00
49		Retene	0.367	0.340	7.4	80	0.00
	un	C2-Phenanthrenes/Anthracene	1.095	0.000	100.0#	0#	
51	un	C3-Phenanthrenes/Anthracene	1.095	0.000	100.0#	0#	
	un	C4-Phenanthrenes/Anthracene	1.095	0.000	100.0#		-32.06#
53		Naphthobenzothiophene	1.068	1.017	4.8	82	-0.04
	un	Cl-Naphthobenzothiophenes	1.068	0.000	100.0#	0#	
55	un	C2-Naphthobenzothiophenes	1.068	0.000	100.0#	0#	
56	un	C3-Naphthobenzothiophenes	1.068	0.000	100.0#	0#	-37.26#
57	un	C4-Naphthobenzothiophenes	1.068	0.000	100.0#		
58	т	Fluoranthene	1.286	1.279	0.5	83	0.00
59	т	Pyrene	1.321	1.343	-1.7	86	0.00
60	т	2-Methylfluoranthene	0.849	0.795	6.4	81	0.00
61	т	Benzo(b)fluorene	0.894	0.744	16.8	75	0.00
62	un	C1-Fluoranthenes/Pyrenes	1.286	0.000	100.0#	0#	
63	un	C2-Fluoranthenes/Pyrenes	1.286	0.000	100.0#	0#	-32.31#
64	un	C3-Fluoranthenes/Pyrenes	1.286	0.000	100.0#	0#	
65	un	C4-Fluoranthenes/Pyrenes	1.286	0.000	100.0#	0#	-35.28#
66	S	Chrysene-d12	1.023	1.015	0.8	86	-0.04
67	Т	Benz(a)anthracene	1.105	0.945	14.5	74	-0.04
68	т	Chrysene/Triphenylene	1.090	1.064	2.4	84	0.00
69	un	C1-Chrysenes	1.090	0.000	100.0#	0#	-35.43#
70	un	C2-Chrysenes	1.090	0.000	100.0#	0#	-36.58#
71	un	C3-Chrysenes	1.090	0.000	100.0#	0#	-38.23#
72	un	C4-Chrysenes	1.090	0.000	100.0#	0#	-39.58#
73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	72	-0.04
74	un	C29-Hopane	0.456	0.000	100.0#	0#	-40.63#
	un	18a-Oleanane	0.456	0.000	100.0#	0#	-42.01#
76	Т	C30-Hopane	0.456	0.420	7.9	71	-0.04
77	Т	Benzo(b)fluoranthene	1.384	1.353	2.2	78	0.00
78	Т	Benzo(k,j)fluoranthene	1.474	1.433	2.8	76	0.00
	un	Benzo(a)fluoranthene	1.474	0.000	100.0#	0#	-37.40#
80	Т	Benzo(e)pyrene	1.535	1.535	0.0	79	0.00
81	Т	Benzo(a)pyrene	1.368	1.282	6.3	75	0.00
82	т	Indeno(1,2,3-c,d)pyrene	1.628	1.469	9.8	73	-0.04
83	Т	Dibenzo(a,h)anthracene	1.292	1.195	7.5	76	-0.04
84	un	C1-Dibenzo(a,h)anthracenes	1.292	0.000	100.0#		-48.71#
	un	C2-Dibenzo(a,h)anthracenes	1.292	0.000	100.0#		-50.20#
	un	C3-Dibenzo(a,h)anthracenes	1.292	0.000	100.0#	0#	-51.06#
87		Benzo(g,h,i)perylene	1.439	1.356	5.8	75	-0.04
88		Perylene-d12	1.271	1.175	7.6	74	-0.04
89		Perylene	1.413	1.342	5.0	76	0.00
90		5(b)H-Cholane	0.306	0.280	8.5	74	0.00
	un	C20-TAS	1.603	0.000	100.0#		-33.35#
92	un	C21-TAS	1.603	0.000	100.0#	0#	-34.29#

(QT Reviewed)	
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Data Acq C Opera Sampl Misc	Path : C:\GCMS7\MS70052\ File : MS70052J.D On : 7 Aug 2013 7:56 a tor : YM .e : AR-WKCC-250-037 Yial : 10 Sample Multipli						
Quant Quant QLast	Time: Aug 08 09:01:39 2013 Method : C:\GCMS7\MS70052\ Title : PAH Calibration T Update : Thu Aug 08 08:32: nse via : Initial Calibrati	AR70052 able-203 30 2013					
	Compound	R.T.	QIon	Response	Conc Un	its	Dev(Min)
Inte 1) 31) 73)	rnal Standards Fluorene-d10 Pyrene-d10 Benzo(a)pyrene-d12						
2) 21) 32) 66) 88)	em Monitoring Compounds Naphthalene-d8 Acenaphthene-d10 Phenanthrene-d10 Chrysene-d12 Perylene-d12 5(b)H-Cholane	13.878 19.728 24.787 33.848 38.736 34.274	188 240 264	403193m 775863m 734759m 736043m	259.84 247.88 231.19		0.00
3) 4) 5) 6) 7) 8) 9)	et Compounds cis/trans Decalin C1-Decalins C2-Decalins C3-Decalins C4-Decalins Naphthalene 2-Methylnaphthalene 1-Methylnaphthalene	0.000 0.000 0.000 13.934 16.190	128 142	136240m 0 0 0 814996m 493823m 470165m	N.D. N.D. N.D. 233.87 229.09	d	Qvalue
11) 12) 13) 14) 15) 16) 17)	2,6-Dimethylnaphthalene 1,6,7-Trimethylnaphtha C2-Naphthalenes	18.279	170			d	
19) 20) 22) 23) 24) 25) 26)	C3-Benzothiophenes C4-Benzothiophenes Biphenyl Acenaphthylene Acenaphthene Dibenzofuran Fluorene	0.000 0.000 17.750 19.226 19.811 20.424 21.594	152 154 168 166	0 0 675500m 641588m 438630m 713993m 563521m	N.D. N.D. 231.19 199.85 225.91 227.18 223.65	d	
28) 29) 30) 33) 34) 35)	<pre>1-Methylfluorene C1-Fluorenes C2-Fluorenes C3-Fluorenes Carbazole Dibenzothiophene 4-Methyldibenzothiophene 2/3-Methyldibenzothiop</pre>	23.540 0.000 0.000 25.618 24.441 25.964 0.000	180 167 184 198	281634m 0 0 596785m 898225m 529072m 0	216.19 N.D. N.D. 200.02 259.07 252.49 N.D.	d	
37) 38) 39) 40) 41)	1-Methyldibenzothiophene C2-Dibenzothiophenes C3-Dibenzothiophenes C4-Dibenzothiophenes Phenanthrene Anthracene	0.000 0.000 0.000 24.856 25.064	178 178	0 0 0 815978m 669090m	N.D. N.D. N.D. 257.35 236.30	d d	

Data Path : C:\GCMS7\MS70052\ Data File : MS70052J.D Acq On : 7 Aug 2013 7:56 a Operator : YM Sample : AR-WKCC-250-037 Misc : ALS Vial : 10 Sample Multipli Quant Time: Aug 08 09:01:39 2013 Quant Method : C:\GCMS7\MS70052 Quant Title : PAH Calibration T QLast Update : Thu Aug 08 08:32: Response via : Initial Calibrati	ier: 1 AR70052 Table-201 30 2013				
Compound	R.T.			Conc Units Dev(Min)	
43) 3-Methylphenanthrene	0.000		0	N.D. d	
44) 2-Methylphenanthrene			0	N.D. d	
45) 2-Methylanthracene	0 000		0	N.D. d	
46) 4/9-Methylphenanthrene	0.000		0		
47) 1-Methylphenanthrene	27.003	192	554936m	231.83	
48) 3,6-Dimethylphenanthrene	28.077	206	546862m	228.94	
49) Retene	30.743	234	219683m	206.84	
50) C2-Phenanthrenes/Anthr			0		
51) C3-Phenanthrenes/Anthr			0	N.D. d	
52) C4-Phenanthrenes/Anthr	22 004	224	0	N.D. 239.58	
53) Naphthobenzothiophene 54) Cl-Naphthobenzothiophenes	0 000	234	0	N.D. d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D. d	
56) C3-Naphthobenzothiophenes			õ	N.D. d	
57) C4-Naphthobenzothiophenes			0	N.D. d	
58) Fluoranthene	28.977	202	926760m	248.84	
59) Pyrene	29.739	202	972597m	254.27	
60) 2-Methylfluoranthene	30.501				
61) Benzo(b)fluorene	31.124		543631m		
62) C1-Fluoranthenes/Pyrenes63) C2-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	
 64) C3-Fluoranthenes/Fyrenes 65) C4-Fluoranthenes/Pyrenes 67) Benz(a) anthracene 68) Chrysene/Triphenylene 	0.000	1212723	0	N.D. d	
67) Benz(a) anthracene	33.809	228	682886m		
68) Chrysene/Triphenylene 69) Cl-Chrysenes	33.964	228			
69) CI-Chrysenes	0.000			N.D. d	
70) C2-Chrysenes 71) C3-Chrysenes	0.000		0	N.D. d N.D. d	
72) C4-Chrysenes	0.000		0	N.D. d	
74) C29-Hopane	0.000		Ő	N.D. d	
75) 18a-Oleanane	0.000		õ	N.D. d	
76) C30-Hopane	42.857	191	263044m		
77) Benzo(b)fluoranthene	37.378	252			
78) Benzo(k,j)fluoranthene	37.456	252	894170m	242.12	
79) Benzo(a)fluoranthene	0.000		0	N.D. d	
80) Benzo(e)pyrene	38.348	252	957736m		
81) Benzo(a)pyrene	38.542	252	801549m		
	43.226	276	904272m		
83) Dibenzo(a,h)anthracene	43.299	278	742007m	229.25	
	0.000		0	N.D. d	
85) C2-Dibenzo(a,h)anthrac	0.000		0	N.D. d	
86) C3-Dibenzo(a,h)anthrac87) Benzo(g,h,i)perylene	0.000 44.590	276	0 841528m	N.D. d 233.50	
89) Perylene	38.852	252	841644m	237.83	
91) C20-TAS	0.000	252	041044m 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	39.473	231	771687m	192.11	
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	

Data Path : C:\GCMS7\MS70052\ Data File : MS70052J.D Acq On : 7 Aug 2013 7:56 am Operator : YM Sample : AR-WKCC-250-037 Misc : ALS Vial : 10 Sample Multiplier: 1 Quant Time: Aug 08 09:01:39 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration (#) = qualifier out of range (m) = manual integration (+) = signals summed

60.00 58.00 56.00 54.00 52.00 50.00 48.00 46.00 44.00 T.enslyneq(i,h,ensleng T.anacenthre(A.A.Breakerter)anthracene.T C30-Hopane,T 42.00 40.00 C26(20R)/C27(20S)-TAS,T 38.00 TIC: MS70052J.D\data.ms T,enerthenet(i,i)fluoranthenet Senzo(k,i)fluoranthenet 36.00 34.00 S, enslord)-H(d)2 T.903751019161719152017 Chrysene-d12,5 T,enertothioznedorthqsN 32.00 Z-Methylfluoranthene, T Penzo(b)fluorene, T T,enenorene, T 30.00 Pyrefortenerd10,1 Fluoranthene,T 28.00 T,enenthrenanthrenet, 2,6-Dimethrenet, 2 T, enerthylphenanthrene, T 26.00 T,eneacole,T 4-Methyldibenzothiophene,T T,ənərlqoirtyoznədiQ 2,01b-төрий/ялыйл9 PAH Calibration Table-2013A T,enecene,T C:\GCMS7\MS70052\AR70052.M 24.00 08 08:32:30 2013 T.Anethylfluorene,T н 22.00 Sample Multiplier: T.enelerthdsnlytheminT-7,0,1 Fluorene,T Thu Aug 08 08:32:30 Initial Calibration Liorene-d10,1 7:56 am 08 09:01:39 2013 20.00 T,nenutoznediQ T,enenthqsneoA Acenaphthylene,T S,01b-enedthylene C:\GCMS7\MS70052\ 18.00 YM AR-WKCC-250-037 T,lynərdqid T,ənəlsritinqsniyritəmid-8,2 7 Aug 2013 16.00 T, ensite thy inspirit and the second MS70052J.D 14.00 Time: Aug •• 12.00 10 Method QLast Update Response via Title •• .. •• ... T,nilsoed ansthaio 10.00 Data Path Data File Operator ALS Vial 600000 400000 150000 100000 50000 Acq On Abundance 550000 500000 450000 350000 250000 200000 0 Sample 650000 300000 Quant Quant Quant Misc lime-->

60 12.M Tue Aug 13 08:16:49 2013

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Page: 4

Data Path : C:\GCMS7\MS70052\ Data File : MS70052L.D Acq On : 7 Aug 2013 6:15 pm Operator : YM Sample : AR-WKCC-250-037 Misc : ALS Vial : 19 Sample Multiplier: 1

Quant Time: Aug 12 19:49:16 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 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 Ar	ea%	Dev(min)
1	I I	Fluorene-d10	1.000	1.000	0.0	81	0.00
2	S	Naphthalene-d8	1.791	1.716	4.2	85	0.00
3		cis/trans Decalin	0.313	0.312	0.3	87	0.00
4		C1-Decalins	0.313	0.000	100.0#	0#	
5	un	C2-Decalins	0.313	0.000	100.0#	0#	
6	un	C3-Decalins	0.313	0.000	100.0#		-16.13#
7	un	C4-Decalins	0.313	0.000	100.0#	0#	
8	т	Naphthalene	1.938	1.877	3.1	85	0.00
9	т	2-Methylnaphthalene	1.199	1.139	5.0	84	0.00
10	т	1-Methylnaphthalene	1.122	1.073	4.4	84	0.03
11	Т	2,6-Dimethylnaphthalene	1.093	1.010	7.6	83	0.00
12	Т	1,6,7-Trimethylnaphthalene	1.026	0.949	7.5	83	0.00
13	un	C2-Naphthalenes	1.938	0.000	100.0#	0#	-18.61#
14	un	C3-Naphthalenes	1.938	0.000	100.0#		-20.43#
15	un	C4-Naphthalenes	1.938	0.000	100.0#		-22.14#
16	т	Benzothiophene	1.526	1.475	3.3	85	0.00
17	un	C1-Benzothiophenes	1.526	0.000	100.0#	0#	-15.50#
18	un	C2-Benzothiophenes	1.526	0.000	100.0#		-18.70#
19	un	C3-Benzothiophenes	1.526	0.000	100.0#		-20.37#
20	un	C4-Benzothiophenes	1.526	0.000	100.0#		-22.08#
21	S	Acenaphthene-d10	0.984	0.924	6.1	83	0.00
22	Т	Biphenyl	1.625	1.541	5.2	84	0.00
23	т	Acenaphthylene	1.786	1.533	14.2	77	0.00
24	Т	Acenaphthene	1.080	1.019	5.6	84	0.00
25	т	Dibenzofuran	1.748	1.648	5.7	84	0.00
26	т	Fluorene	1.402	1.291	7.9	83	0.00
27	т	1-Methylfluorene	0.725	0.659	9.1	82	-0.03
28	un	C1-Fluorenes	1.402	0.000	100.0#	0#	-23.65#
29	un	C2-Fluorenes	1.402	0.000	100.0#	0#	-24.92#
30	un	C3-Fluorenes	1.402	0.000	100.0#	0#	-27.22#
31	I	Pyrene-d10	1.000	1.000	0.0	77	0.00
32	S	Phenanthrene-d10	1.031	1.074	-4.2	86	0.00
33	Т	Carbazole	1.030	0.887	13.9	74	0.00
34	т	Dibenzothiophene	1.197	1.228	-2.6	84	0.00
35	Т	4-Methyldibenzothiophene	0.723	0.708	2.1	84	0.00
36	un	2/3-Methyldibenzothiophene	0.723	0.000	100.0#	0#	-26.22#
37	un	1-Methyldibenzothiophene	0.723	0.000	100.0#	0#	-26.57#
38	un	C2-Dibenzothiophenes	1.197	0.000	100.0#	0#	-28.12#
39	un	C3-Dibenzothiophenes	1.197	0.000	100.0#	0#	-28.87#
40	un	C4-Dibenzothiophenes	1.197	0.000	100.0#	0#	-30.83#
41	Т	Phenanthrene	1.095	1.127	-2.9	85	-0.03
42	Т	Anthracene	0.978	0.947	3.2	82	0.00
43	un	3-Methylphenanthrene	0.826	0.000	100.0#	0#	-26.55#
44	un	2-Methylphenanthrene	0.826	0.000	100.0#	0#	-26.62#
	un	2-Methylanthracene	0.826	0.000	100.0#		-26.75#
46	un	4/9-Methylphenanthrene	0.826	0.000	100.0#	0#	-26.99#

Data Path : C:\GCMS7\MS70052\ Data File : MS70052L.D Acq On : 7 Aug 2013 6:15 pm Operator : YM Sample : AR-WKCC-250-037 Misc : ALS Vial : 19 Sample Multiplier: 1

Quant Time: Aug 12 19:49:16 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 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 Ar	ea% D	ev(min)
47	 Т	1-Methylphenanthrene	0.826	0.769	6.9	81	0.00
48	Т	3,6-Dimethylphenanthrene	0.825	0.751	9.0	80	0.00
49	Т	Retene	0.367	0.335	8.7	77	0.00
50	un	C2-Phenanthrenes/Anthracene	1.095	0.000	100.0#	0#	-28.42#
51	un	C3-Phenanthrenes/Anthracene	1.095	0.000	100.0#		-29.49#
52	un	C4-Phenanthrenes/Anthracene	1.095	0.000	100.0#	0#	-32.06#
53	Т	Naphthobenzothiophene	1.068	1.001	6.3	79	-0.04
54	un	C1-Naphthobenzothiophenes	1.068	0.000	100.0#	0#	-34.09#
55	un	C2-Naphthobenzothiophenes	1.068	0.000	100.0#	0#	-35.86#
56	un	C3-Naphthobenzothiophenes	1.068	0.000	100.0#	0#	-37.26#
57	un	C4-Naphthobenzothiophenes	1.068	0.000	100.0#	0#	-38.08#
58	Т	Fluoranthene	1.286	1.268	1.4	81	0.00
59	т	Pyrene	1.321	1.321	0.0	83	0.00
60	т	2-Methylfluoranthene	0.849	0.785	7.5	78	0.00
61	Т	Benzo(b)fluorene	0.894	0.772	13.6	76	0.00
62	un	C1-Fluoranthenes/Pyrenes	1.286	0.000	100.0#	0#	-30.80#
63	un	C2-Fluoranthenes/Pyrenes	1.286	0.000	100.0#	0#	-32.31#
64	un	C3-Fluoranthenes/Pyrenes	1.286	0.000	100.0#	0#	-33.98#
65	un	C4-Fluoranthenes/Pyrenes	1.286	0.000	100.0#	0#	-35.28#
66	S	Chrysene-d12	1.023	0.981	4.1	81	-0.04
67	т	Benz(a)anthracene	1.105	0.945	14.5	72	-0.04
68	Т	Chrysene/Triphenylene	1.090	1.043	4.3	81	0.00
69	un	C1-Chrysenes	1.090	0.000	100.0#	0#	-35.43#
	un	C2-Chrysenes	1.090	0.000	100.0#	0#	-36.58#
	un	C3-Chrysenes	1.090	0.000	100.0#	0#	-38.23#
72	un	C4-Chrysenes	1.090	0.000	100.0#	0#	-39.58#
73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	65	0.00
74	un	C29-Hopane	0.456	0.000	100.0#	0#	-40.63#
	un	18a-Oleanane	0.456	0.000	100.0#	0#	-42.01#
	Т	C30-Hopane	0.456	0.439	3.7	67	-0.04
77	Т	Benzo(b)fluoranthene	1.384	1.458	-5.3	75	0.00
78	Т	Benzo(k,j)fluoranthene	1.474	1.565	-6.2	75	0.00
	un	Benzo(a)fluoranthene	1.474	0.000	100.0#	0#	-37.40#
80	Т	Benzo(e)pyrene	1.535	1.678	-9.3	78	0.00
81		Benzo(a)pyrene	1.368	1.390	-1.6	73	0.00
82	Т	Indeno(1,2,3-c,d)pyrene	1.628	1.559	4.2		-0.04
83	Т	Dibenzo(a,h)anthracene	1.292	1.269	1.8		-0.04
	un	Cl-Dibenzo(a,h)anthracenes	1.292	0.000	100.0#		-48.71#
	un	C2-Dibenzo(a,h)anthracenes	1.292	0.000	100.0#	0#	-50.20#
	un	C3-Dibenzo(a,h)anthracenes	1.292	0.000	100.0#	0#	-51.06#
87		Benzo(g,h,i)perylene	1.439	1.433	0.4	72	-0.04
88		Perylene-d12	1.271	1.273	-0.2	73	-0.04
89		Perylene	1.413	1.441	-2.0	74	0.00
90		5(b)H-Cholane	0.306	0.305	0.3	73	0.00
	un	C20-TAS	1.603	0.000	100.0#		-33.35#
92	un	C21-TAS	1.603	0.000	100.0#	0#	-34.29#

Data Path : C:\GCMS7\MS70052\ Data File : MS70052L.D Acq On : 7 Aug 2013 6:15 pm Operator : YM Sample : AR-WKCC-250-037 Misc : ALS Vial : 19 Sample Multiplier: 1 Quant Time: Aug 12 19:49:16 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 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) 1.6030.000100.0#0#-38.74#1.6031.38413.7620.001.6030.000100.0#0#-40.24#1.6030.000100.0#0#-40.70#1.6030.000100.0#0#-42.01# 93 un C26(20S)-TAS C26(20R)/C27(20S)-TAS 94 T
 94
 T
 C26 (20R)/C27 (

 95
 un
 C28 (20S) - TAS

 96
 un
 C27 (20R) - TAS

 97
 un
 C28 (20R) - TAS

(#) = Out of Range

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

Data Acq C Opera Sampl Misc ALS V Quant Quant Quant	<pre>Path : C:\GCMS7\MS70052\ File : MS70052L.D On : 7 Aug 2013 6:15 p ator : YM .e : AR-WKCC-250-037 : Yial : 19 Sample Multipl: Time: Aug 12 19:49:16 2013 Method : C:\GCMS7\MS70052\ Title : PAH Calibration T Update : Thu Aug 08 08:32:</pre>	ier: 1 3 \AR70052 Table-203				
100	nse via : Initial Calibrati Compound		OIon	Response	Conc Un	its Dev(Min)
	Compound		·			
	rnal Standards					
1)	Fluorene-d10 Pyrene-d10 Benzo(a)pyrene-d12	21.511	176	423207m	251.05	0.00
31)	Pyrene-d10	29.704	212	711221m	250.63	0.00
73)	Benzo(a)pyrene-d12	38.464	264	566531m	250.32	0.00
a						
Syst	em Monitoring Compounds	12 070	120	700640-	000 74	0.00
21)	Naphthalene-d8 Acenaphthene-d10 Phenanthrene-d10 Chrysene-d12	13.8/8	136	723649m 389624m 762721m	239.74	0.00
21)	Renanthrong d10	19.728	104	38962411	234.94	0.00
56)	Chrysene-d12	33 949	240	696222m	200.70	-0.04
88)	Perylene-d12	38 736	240	720586m	259.72	-0.04
90)	5(b)H-Cholane	34 274	217	172541m	249 52	0.00
				1,2011	215.52	0.00
Targ	et Compounds					Qvalue
3)	cis/trans Decalin	11.231	138	130137m		
	C1-Decalins	0.000		0 0 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 Naphthalene 2-Methylnaphthalene	0.000		0	N.D.	d
8)	Naphthalene	13.934	128	791004m	242.06	
9)	2-Methylnaphthalene	16.190	142	480610m	237.78	
10)	1-Methylnaphthalene	16.524	142	451576m	238.67	
	2,6-Dimethylnaphthalene					
12)	1,6,7-Trimethylnaphtha		170	399824m		
13)	C2-Naphthalenes	0.000			N.D.	1
	C3-Naphthalenes C4-Naphthalenes	0.000			N.D.	a
	Benzothiophene	0.000 14.101	134	0 617875m	N.D. 240.20	
	C1-Benzothiophenes	0.000	124	01/8/5/	240.20 N.D.	A
	C2-Benzothiophenes	0.000		õ	N.D.	
	C3-Benzothiophenes	0.000		0	N.D.	
	C4-Benzothiophenes	0.000		0	N.D.	
	Biphenyl	17.750	154	643439m	234.85	
23)	Acenaphthylene	19.226	152	640933m	212.92	
24)	Acenaphthene	19.811	154	430332m	236.36	
25)	Dibenzofuran	20.424	168	690992m	234.47	
	Fluorene	21.594	166	545346m	230.81	
	1-Methylfluorene	23.540	180	280003m	229.22	
	C1-Fluorenes	0.000		0	N.D.	
	C2-Fluorenes	0.000		0	N.D.	
	C3-Fluorenes	0.000	1.67	0	N.D.	a
	Carbazole Dibenzothiophene	25.618	167	623408m	213.24	
	4-Methyldibenzothiophene	24.441	184	858914m	252.83	
	2/3-Methyldibenzothiop	25.964	198	506684m 0	246.79 N.D.	
	1-Methyldibenzothiophene	0.000		0	N.D. N.D.	3
	C2-Dibenzothiophenes	0.000		0	N.D.	
	C3-Dibenzothiophenes	0.000		0	N.D.	
	C4-Dibenzothiophenes	0.000		0	N.D.	
	Phenanthrene	24.856	178	792575m	255.12	99499 - 28
	Anthracene	25.064	178	673658m	242.81	

Data Path : C:\GCMS7\MS70052\ Data File : MS70052L.D Acq On : 7 Aug 2013 6:15 Operator : YM Sample : AR-WKCC-250-037 Misc : ALS Vial : 19 Sample Multip Quant Time: Aug 12 19:49:16 20 Quant Method : C:\GCMS7\MS7005 Quant Title : PAH Calibration	olier: 1 13 2\AR70052 Table-20				
QLast Update : Thu Aug 08 08:3 Response via : Initial Calibra					
Compound	R.T.			Conc Units Dev(Min)	
43) 3-Methylphenanthrene			0	N.D. d	
44) 2-Methylphenanthrene	0.000		0		
45) 2-Methylanthracene46) 4/9-Methylphenanthrene	0.000		0	N.D. d	
46) 4/9-Methylphenanthrene	0.000	1212121	0	N.D. d	
47) 1-Methylphenanthrene	27.003	192	539587m	230.06	
48) 3,6-Dimethylphenanthrene 49) Retene					
50) C2-Phenanthrenes/Anthr	30.743	234	212182m 0	203.90 N.D. d	
51) C3-Phenanthrenes/Anthr.	. 0.000		0	N.D. d	
52) C4-Phenanthrenes/Anthr	. 0.000		ő	N.D.	
53) Naphthobenzothiophene	32.994	234			
54) Cl-Naphthobenzothiophene 55) C2-Naphthobenzothiophene	s 0.000		0		
55) C2-Naphthobenzothiophene	s 0.000		0	N.D. d	
56) C3-Naphthobenzothiophene			0		
57) C4-Naphthobenzothiophene	s 0.000		0	N.D. d	
58) Fluoranthene	28.977	202	900567m 937279m	246.79	
59) Pyrene 60) 2-Methylfluoranthene	29.739	202	937279m	250.09	
61) Benzo(b) fluorene	31 124	216	552545m		
62) C1-Fluoranthenes/Pyrenes	0.000	210	0		
62) C1-Fluoranthenes/Pyrenes63) 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	
 65) C4-Fluoranthenes/Pyrenes 67) Benz(a)anthracene 68) Chrysene/Triphenylene 69) C1-Chrysenes 	33.809	228	668763m	213.35	
68) Chrysene/Triphenylene	33.964	228	735298m	237.64	
69) CI-Chrysenes	0.000				
70) C2-Chrysenes 71) C3-Chrysenes	0.000		0	N.D. d 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	42.857	191	248371m		
77) Benzo(b)fluoranthene	37.378	252			
78) Benzo(k,j)fluoranthene	37.455	252	882160m		
79) Benzo(a)fluoranthene	0.000		0	N.D. d	
80) Benzo(e)pyrene	38.348	252			
81) Benzo(a)pyrene82) Indeno(1,2,3-c,d)pyrene	38.542 43.226	252 276	785124m 867330m		
83) Dibenzo(a,h)anthracene		278	711538m		
84) Cl-Dibenzo(a,h)anthrac		2.00	0	N.D. d	
85) C2-Dibenzo(a,h)anthrac			0	N.D. d	
86) C3-Dibenzo(a,h)anthrac			0	N.D. d	
87) Benzo(g,h,i)perylene	44.590	276	803443m		
89) Perylene	38.852	252	816345m	255.35	
91) C20-TAS	0.000		0	N.D. d	
92) C21-TAS	0.000		0	N.D. d	
93) C26(20S)-TAS 94) C26(20B)/C27(20S)-TAS	0.000	221	0	N.D. d	
94) C26(20R)/C27(20S)-TAS 95) C28(20S)-TAS	39.473 0.000	231	783107m 0	215.81 N.D.	
96) C27(20R)-TAS	0.000		0	N.D. d	
97) C28(20R) -TAS	0.000		0	N.D. d	
eral 11 artella destriction allegation	80885017.0°T.)		10	2000 CL2C - 0755	

Data Path : C:\GCMS7\MS70052\ Data File : MS70052L.D Acq On : 7 Aug 2013 6:15 pm Operator : YM Sample : AR-WKCC-250-037 Misc : ALS Vial : 19 Sample Multiplier: 1 Quant Time: Aug 12 19:49:16 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration (#) = qualifier out of range (m) = manual integration (+) = signals summed

60.00 58.00 56.00 54.00 52.00 50.00 48.00 4 46.00 T,enslynsq(i,d,g)ozns8 44.00 T, anasentine(Has)exkakarg-E, S, r, onebol. C30-Hopane,T 42.00 40.00 T, 2AT-(20S)/C27(20S)-TAS,T Benzo(a)pyrene, a12, S Benzo(a)pyrene, a12, S Benzo(a)pyrene, T 38.00 TIC: MS70052L.D\data.ms T,enantherouth(i,i)huoranthenette 36.00 34.00 S, anslord D-H(d) B T.enertophoradorthqs/ 32.00 S-Methylfluorapthene,T Benzo(b)fluorene,T T,ene,T 30.00 Pyrene, TPyrene-d10,1 T,enertheroul7 28.00 T, enerthylphenanthrene, T, energine, T, ene T,enerthylphenanthrene,T 26.00 Carbazole,T 4-Methyldibenzothiophene,T PAH Calibration Table-2013A T,enecene,T C:\GCMS7\MS70052\AR70052.M 24.00 2013 T,eneroufflydfane,T H 22.00 Sample Multiplier: Thu Aug 08 08:32:30 Initial Calibration T.eneleritriqsnivritemiT-5.8.1 T.enerouiT Fluorene-d10,1 mq 20.00 2013 Time: Aug 12 19:49:16 2013 T,nshutoznediQ 6:15 T,enerthqanecA T.enelththyleneck 2,01b-enelthder C:\GCMS7\MS70052 18.00 08:17:00 AR-WKCC-250-037 T, enelshindsnivniemi G-8, S **T,Iynenyl,T** 16.00 7 Aug 2013 T, ensishingeningeningeningen-T T, ensishingeningeningen-T MS70052L.D 14.00 13 T,enelshindsN 2,8,8,9,00,60,00,00 Aug WМ 19 12.00 Method QLast Update Response via Tue Title •• ... ••• T,nilsoad ansh/aio 10.00 Data Path Data File Operator ALS Vial 52.M 50000 Ó 150000 200000 150000 100000 Abundance 400000 300000 Acq On Sample 600000 550000 500000 350000 250000 Quant Quant Quant Ą Misc 106

Page:

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

Sample Amount 0

Data File Name	M\$70052H.D	Surrogate/Internal Multiplier Factor:	1.00	
Data File Path	C:\GCMS7\MS70052\	AR-WKSU-2500-001:	(ng/mL)	
Operator	YM	Naphthalene-d8	250.125	
Date Acquired	8/7/2013 5:39	Acenaphthene-d10	250.163	Co
Acq. Method File	PAH-2012.M	Phenanthrene-d10	250.194	to
Sample Name	AR-WKISSU-250-001	Chrysene-d12	250.038	
Misc Info	0	Perylene-d12	250.031	
Instrument Name	GCMSD	5(b)H-Cholane	250.000	AR-
Vial Number	8			
Sample Multiplier	1			

Copy data below to Spread Sheet

MS70052H.D AR-WKISSU-250-001 8/7/2013 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
10. M	C1-Decalins	0.00	0	0.0000	0.0000
1.1		0.00	0	0.0000	0.0000
	C2-Decalins		0	0.0000	0.0000
27	C3-Decalins	0.00			
10.5	C4-Decalins	0.00	0	0.0000	0.0000
	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
	Biphenyl	0.00	0	0.0000	0.0000
2.2.2.V	Acenaphthylene	0.00	0	0.0000	0.0000
	Acenaphthene	0.00	0	0.0000	0.0000
	Dibenzofuran	0.00	0	0.0000	0.0000
1.2253.5	Fluorene	0.00	0	0.0000	0.0000
		0.00	0	0.0000	0.0000
	C1-Fluorenes		0		
	C2-Fluorenes	0.00		0.0000	0.0000
	C3-Fluorenes	0.00	0	0.0000	0.0000
	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
(3)+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
1/2014	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
12533	Dibenzothiophene	0.00	0	0.0000	0.0000
	C1-Dibenzothiophenes	0.00	0	0.0000	0.0000
	방법을 다 같은 것이 집에 있는 것이 같이 있다. 것은 것이 있는 것이 없는 것이 없다.		0		0.0000
	C2-Dibenzothiophenes	0.00		0.0000	
500	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
	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
	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
	Naphthobenzothiophene	0.00	0	0.0000	0.0000
	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
	C2-Naphthobenzothiophenes	0.00	õ	0.0000	0.0000
N.2338	C3-Naphthobenzothiophenes	0.00	õ	0.0000	0.0000
	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
A 1927 -	Benz(a)anthracene	0.00	0	0.0000	0.0000
1.2.2.0	Chrysene/Triphenylene	0.00	0	0.0000	0.0000
	C1-Chrysenes	0.00	0	0.0000	0.0000
	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
	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
1.000	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
5.10	Benzo(e)pyrene	0.00	0	0.0000	0.0000
Ni-1970	Benzo(a)pyrene	0.00	õ	0.0000	0.0000
1000 A	The second s	0.00	0	0.0000	0.0000
	Perylene				
7.530	Indeno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
2013 March 1997	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
96)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
00/					

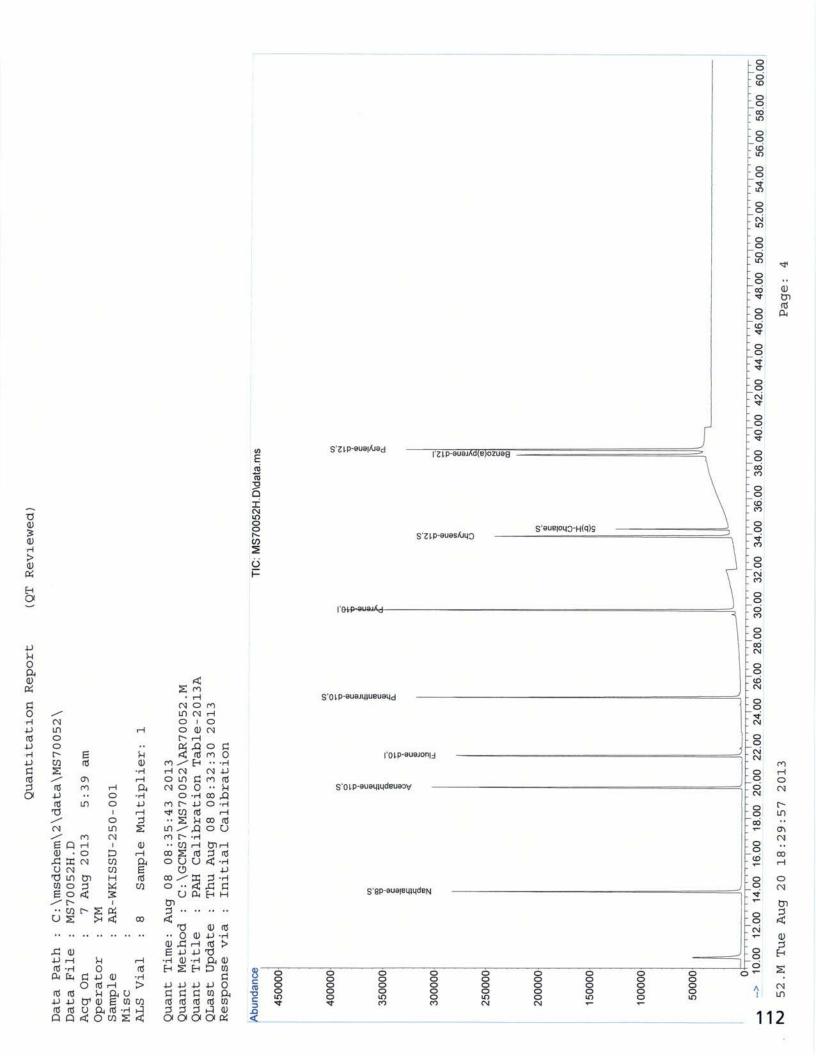
#	Compound Name	Ret Time	Target Response	Concentration	Su. Corrected
		(minute)	(area)		Concentration
	Individual Alkyl Isomers and Hopanes	í.			
9)	2-Methylnaphthalene	0.00	0	0.0000	0.0000
10)	1-Methylnaphthalene	0.00	0	0.0000	0.0000
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	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(205)-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	13.88	749374	237.26	94.86
21)	Acenaphthene-d10	19.73	397414	229.02	91.55
32)	Phenanthrene-d10	24.79	748445	246.48	98.52
66)	Chrysene-d12	33.85	626646	207.88	83.14
88)	Perylene-d12	38.74	711348	227.71	91.07
90)	5(b)H-Cholane	34.27	180850	240.78	96.31
	Internal Standards				
1)	Fluorene-d10	21.51	442838	251.05	
31)	Pyrene-d10	29.70	738172	250.63	
73)	Benzo(a)pyrene-d12	38.46	615368	250.33	

2 ·····					
Data Path : C:\msdchem\2\data\M	1970052				
Data File : MS70052H.D					
Acq On : 7 Aug 2013 5:39	am				
Operator : YM					
Sample : AR-WKISSU-250-001					
Misc :					
ALS Vial : 8 Sample Multipli	ier: 1				
Quant Time: Aug 08 08:35:43 201	L3				
Quant Method : C:\GCMS7\MS70052					
Quant Title : PAH Calibration		.3A			
QLast Update : Thu Aug 08 08:32	2:30 2013				
Response via : Initial Calibrat	tion				
Compound	R.T.	Qion	Response	Conc Uni	ts Dev(Min)
Internal Standards					
1) Elverene dio	01 511	176	112020m	251 05	0 00
 Fluorene-d10 Pyrene-d10 Benzo(a)pyrene-d12 	21.511	1/0	442030III 720172m	251.05	0.00
31) Pyrene-d10 72) Pongo (2) pyropo d12	29.704	212	/301/2111 615260m	250.03	0.00
(3) Benzo(a) pyrene-diz	38.404	204	0102080	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8 21) Acenaphthene-d10 32) Phenanthrene-d10 66) Chrysene-d12	13.878	136	749374m	237.26	0 00
21) Acenaphthene-d10	19.728	164	397414m	229.02	0.00
32) Phenanthrene-d10	24.787	188	748445m	246.48	0.00
66) Chrysene-d12	33.847	240	626646m	207.88	-0.04
88) Perylene-d12	38.735	264	711348m	227.71	-0.04
	34.274				0.00
<i>y</i> ,					
Target Compounds					Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d
4) C1-Decalins	0.000			N.D.	
	0.000		0	NT D	2
6) C3-Decalins	0.000		0	N.D.	d
7) C4-Decalins	0.000		0	N.D.	a
8) Naphthalene9) 2-Methylnaphthalene10) 1-Methylnaphthalene	0.000		0	N.D. N.D. N.D.	d
9) 2-Methylnaphthalene	0.000		0	N.D.	d
10) 1-Methylnaphthalene	0.000		0	N.D.	d
 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.	
15) C4-Naphthalenes	0.000		0	N.D.	
16) Benzothiophene	0.000		0	N.D.	
17) C1-Benzothiophenes	0.000		0	N.D.	
18) C2-Benzothiophenes	0.000		0	N.D.	
19) C3-Benzothiophenes	0.000		0	N.D.	
20) C4-Benzothiophenes	0.000		0	N.D.	
22) Biphenyl	0.000		0	N.D.	
23) Acenaphthylene	0.000		0	N.D.	
24) Acenaphthene	0.000		0	N.D.	
25) Dibenzofuran	0.000		0	N.D.	
26) Fluorene	0.000		0	N.D.	
27) 1-Methylfluorene	0.000		0	N.D.	
28) C1-Fluorenes	0.000		0	N.D.	
29) C2-Fluorenes	0.000			N.D.	
30) C3-Fluorenes	0.000		0	N.D.	
33) Carbazole	0.000		0	N.D.	
34) Dibenzothiophene35) 4-Methyldibenzothiophene			0	N.D.	
	0.000		0		
	0.000		0	N.D.	
36) 2/3-Methyldibenzothiop	0.000		0	N.D.	d
36) 2/3-Methyldibenzothiop37) 1-Methyldibenzothiophene	0.000 0.000 0.000		0	N.D. N.D.	d d
 36) 2/3-Methyldibenzothiop 37) 1-Methyldibenzothiophene 38) C2-Dibenzothiophenes 	0.000 0.000 0.000 0.000		0 0 0	N.D. N.D. N.D.	d d d
 36) 2/3-Methyldibenzothiop 37) 1-Methyldibenzothiophene 38) C2-Dibenzothiophenes 39) C3-Dibenzothiophenes 	0.000 0.000 0.000 0.000 0.000		0 0 0	N.D. N.D. N.D. N.D.	d d d d
 36) 2/3-Methyldibenzothiop 37) 1-Methyldibenzothiophene 38) C2-Dibenzothiophenes 39) C3-Dibenzothiophenes 40) C4-Dibenzothiophenes 	0.000 0.000 0.000 0.000 0.000 0.000		0 0 0 0	N.D. N.D. N.D. N.D. N.D.	d d d d
 36) 2/3-Methyldibenzothiop 37) 1-Methyldibenzothiophene 38) C2-Dibenzothiophenes 39) C3-Dibenzothiophenes 40) C4-Dibenzothiophenes 41) Phenanthrene 	0.000 0.000 0.000 0.000 0.000 0.000 0.000			N.D. N.D. N.D. N.D. N.D. N.D.	d d d d d d
 36) 2/3-Methyldibenzothiop 37) 1-Methyldibenzothiophene 38) C2-Dibenzothiophenes 39) C3-Dibenzothiophenes 40) C4-Dibenzothiophenes 	0.000 0.000 0.000 0.000 0.000 0.000		0 0 0 0	N.D. N.D. N.D. N.D. N.D.	d d d d d d d

Data Acq (Opera Samp) Misc ALS V Quant Quant Quant Quant	Path : C:\msdchem\2\data\MS File : MS70052H.D On : 7 Aug 2013 5:39 a ator : YM le : AR-WKISSU-250-001 : /ial : 8 Sample Multiplie t Time: Aug 08 08:35:43 2013 t Method : C:\GCMS7\MS70052\2 Title : PAH Calibration Ta Update : Thu Aug 08 08:32: onse via : Initial Calibratio	m r: 1 AR70052.M able-2013A 30 2013		
	Compound	R.T. QION	Response	Conc Units Dev(Min)
	2-Methylphenanthrene		0	
45)	2-Methylphenanthrene 4/9-Methylphenanthrene 1-Methylphenanthrene 3,6-Dimethylphenanthrene	0.000	0	NG, 안 ACARCINE 24
46)	4/9-Methylphenanthrene	0.000	0	N.D. d
47)	1-Methylphenanthrene	0.000	0	N.D. d N.D. d
48)	3,6-Dimethylphenanthrene	0.000	õ	
49)	Retene	0.000	0	
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 Cl-Naphthobenzothiophenes		0	
54)	Naphthobenzothiophene Cl-Naphthobenzothiophenes C2-Naphthobenzothiophenes	0.000	0	N.D. d
55)	C2-Naphthobenzothiophenes	0.000		N.D. d
	C3-Naphthobenzothiophenes		0	N.D. d
	C4-Naphthobenzothiophenes		0	N.D. d
	Fluoranthene	0.000	0	N.D. d
59)	Pyrene	0.000	0	N.D. d
60)	2-Methylfluoranthene	0.000	0	N.D. d
62)	Benzo(b)fluorene Cl-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 N.D. d
65)	C3-Fluoranthenes/Pyrenes C4-Fluoranthenes/Pyrenes Benz(a)anthracene	0.000	0	N.D. d
67)	Benz(a) anthracene	0.000	Ő	N.D. d
68)	Chrysene/Triphenylene	0.000	õ	N.D. d
69)	Chrysene/Triphenylene C1-Chrysenes	0.000	0	N.D. d
70)	C2-Chrysenes	0.000	0	N.D. d
	C3-Chrysenes	0.000	0	N.D. d
	C4-Chrysenes	0.000	0	N.D. d
	C29-Hopane	0.000	0	N.D. d
	18a-Oleanane	0.000	0	N.D. d
76)	C30-Hopane	0.000	0	N.D. d
	Benzo (b) fluoranthene		0	N.D. d
78)	Benzo(k,j)fluoranthene Benzo(a)fluoranthene Benzo(e)pyrene	0.000	0	N.D. d
80)	Benzo (a) nurene	0.000	0	N.D. d N.D. d
81)	Benzo (a) pyrene	0.000	0	N.D. d
	Indeno(1,2,3-c,d)pyrene	0.000	0	N.D. d
83)	Dibenzo(a, h) anthracene	0.000	õ	N.D. d
84)	Dibenzo(a,h)anthracene 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
	Benzo(g,h,i)perylene	0.000	0	N.D. d
89)	Perylene	0.000	0	N.D. d
	C20-TAS	0.000	0	N.D. d
	C21-TAS	0.000	0	N.D. d
	C26(20S)-TAS	0.000	0	N.D. d
	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 C28 (20R) - TAS	0.000	0	N.D. d
97)	C28(20R)-TAS	0.000	0	N.D. d
	en neu anternation de la	an 1999 an Anna 1977 (1997). Tha Ta Ta Ta Ta		

Data Path : C:\msdchem\2\data\MS70052\ Data File : MS70052H.D Acq On : 7 Aug 2013 5:39 am Operator : YM Sample : AR-WKISSU-250-001 Misc : ALS Vial : 8 Sample Multiplier: 1 Quant Time: Aug 08 08:35:43 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration Compound R.T. QIon Response Conc Units Dev(Min)

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



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

Data File Name	MS70052K.D	Surrogate/Internal Multiplier Factor:	1.00	
Data File Path	C:\msdchem\2\data\MS70052\	AR-WKSU-2500-001:	(ng/mL)	
Operator	YM	Naphthalene-d8	250.125	
Date Acquired	8/7/2013 9:05	Acenaphthene-d10	250.163	Copy data below
Acq. Method File	PAH-2012.M	Phenanthrene-d10	250.194	to Spread Sheet
Sample Name	AR-SRM2779-WK4.0-001	Chrysene-d12	250.038	
Misc Info	0	Perylene-d12	250.031	MS70052K.D
Instrument Name	GCMSD	5(b)H-Cholane	250.000	AR-SRM2779-WK4.0-001
Vial Number	11			8/7/2013
Sample Multiplier	0.24461			PAH-2012.M
Sample Amount	0			4.088140305

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration	
3)	cis/trans Decalin	11.23	2116310	606.4396	657.1962	
	C1-Decalins	12.40	3007020	861.6779	933.7969	
	C2-Decalins	13.79	2448820	701.7225	760.4539	
	C3-Decalins	16.75	2505090	717.8472	777.9282	
5.00	C4-Decalins	17.78	1338910	383.6732	415.7852	
	Naphthalene	13.93	13496300	625.0519	677.3663	
	C1-Naphthalenes	16.36	27944400	1294.1844	1402.5026	
	C2-Naphthalenes	18.56	33950600	1572.3482	1703.9476	
	C3-Naphthalenes	20.56	20750400	961.0066	1041.4391	
10.245		22.85	11098100	513.9843	557.0028	
	C4-Naphthalenes	14.13	120888	7.1122	7.7075	
	Benzothiophene	15.69	500437	29.4425	31.9067	
1.00	C1-Benzothiophenes	18.70	409644	24.1007	26.1178	
	C2-Benzothiophenes		476000	28.0047	30.3485	
	C3-Benzothiophenes	20.37				
0.000	C4-Benzothiophenes	22.15	390096	22.9507	24.8715	
	Biphenyl	17.75	2438430	134.6935	145.9668	
1930.05	Acenaphthylene	19.23	149593	7.5207	8.1501	
	Acenaphthene	19.81	58394	4.8538	5.2601	
2.972.92	Dibenzofuran	20.42	502891	25.8249	27.9864	
	Fluorene	21.59	1667820	106.8293	115.7705	
28)	C1-Fluorenes	23.57	3180100	203.6956	220.7441	
29)	C2-Fluorenes	25.20	4829910	309.3705	335.2636	
30)	C3-Fluorenes	26.93	3777310	241.9489	262.1991	
33)	Carbazole	25.62	72556	3.6945	4.0038	
42)	Anthracene	25.06	55898	2.9993	3.2503	
41)	Phenanthrene	24.89	4355570	208.7066	226.1746	
3)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.77	11269043	539.9808	585.1750	
	C2-Phenanthrenes/Anthracenes	28.42	12302900	589.5223	638.8630	
	C3-Phenanthrenes/Anthracenes	29.98	8983030	430.4427	466.4690	
	C4-Phenanthrenes/Anthracenes	31.82	3409560	163.3767	177.0507	
1000	Dibenzothiophene	24.44	991465	43.4454	47.0816	
	C1-Dibenzothiophenes	26.26	2171091	95.1360	103.0985	
	C2-Dibenzothiophenes	27.35	3100550	135.8642	147.2355	
	C3-Dibenzothiophenes	28.87	2421610	106.1135	114.9948	
1000	C4-Dibenzothiophenes	30.92	1046610	45.8619	49.7004	
20081	Fluoranthene	28.98	75913	3.0968	3.3559	
		29.74	296090	11.7606	12.7449	
	Pyrene	31.57	1695490	69.1649	74.9538	
	C1-Fluoranthenes/Pyrenes	32.37	3415580	139.3335	150.9952	
	C2-Fluoranthenes/Pyrenes	34.08	2700200	110.1503	119.3695	
19465-021	C3-Fluoranthenes/Pyrenes			100.2928	108.6869	
	C4-Fluoranthenes/Pyrenes	35.21	2458550			
	Naphthobenzothiophene	33.03	414689	20.3668	22.0714	
10000	C1-Naphthobenzothiophenes	34.43	1036760	50.9185	55.1802	
	C2-Naphthobenzothiophenes	35.86	1442280	70.8354	76.7640	
20-17-00 A	C3-Naphthobenzothiophenes	37.26	950190	46.6669	50.5728	
	C4-Naphthobenzothiophenes	38.23	338378	16.6189	18.0098	
1.22.010	Benz(a)anthracene	33.81	102418	4.8638	5.2709	
	Chrysene/Triphenylene	33.93	811879	39.0593	42.3284	
69)	C1-Chrysenes	35.17	2279930	109.6865	118.8669	
	C2-Chrysenes	36.64	2697500	129.7759	140.6376	
71)	C3-Chrysenes	38.08	1863710	89.6623	97.1667	
72)	C4-Chrysenes	39.47	1024730	49.2992	53.4253	
77)	Benzo(b)fluoranthene	37.38	120506	4.1758	4.5253	
78)	Benzo(k,j)fluoranthene	37.42	27465	0.8936	0.9684	
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000	
	Benzo(e)pyrene	38.35	249432	7.7949	8.4473	
	Benzo(a)pyrene	38.54	41290	1.4482	1.5694	
	Perylene	38.85	13288	0.4512	0.4890	
	Indeno(1,2,3-c,d)pyrene	43.26	16023	0.4720	0.5115	
- 1997 - Parket	Dibenzo(a,h)anthracene	43.30	14708	0.5460	0.5917	
	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000	
	C2-Dibenzo(a,h)anthracenes	0.00	o	0.0000	0.0000	
951					0.0000	
N (2003)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000	

#	Compound Name	Ret Time	Target Response	Concentration	Su. Corrected	
	2276	(minute)	(area)		Concentration	
	Individual Alkyl Isomers and Hopanes					
9)	2-Methylnaphthalene	16.19	17244900	1291.1959	1399.2639	
10)	1-Methylnaphthalene	16.52	10699500	855.8268	927.4561	
	2,6-Dimethylnaphthalene	18.31	9515360	781.2305	846.6165	
12)	1,6,7-Trimethylnaphthalene	21.12	2551790	223.2746	241.9618	
27)	1-Methylfluorene	23.57	1520280	188.3492	204.1133	
35)	4-Methyldibenzothiophene	25.96	1191390	86.3818	93.6116	
36)	2/3-Methyldibenzothiophene	26.24	567972	41.1808	44.6275	
37)	1-Methyldibenzothiophene	26.59	411729	29.8524	32.3510	
43)	3-Methylphenanthrene	26.55	2303260	146.1863	158.4215	
44)	2-Methylphenanthrene	26.62	3082530	195.6459	212.0207	
45)	2-Methylanthracene	26.80	200863	12.7486	13.8156	
46)	4/9-Methylphenanthrene	26.90	3518810	223.3360	242.0284	
47)	1-Methylphenanthrene	27.00	2163580	137.3206	148.8138	
48)	3,6-Dimethylphenanthrene	28.08	643706	40.9426	44.3693	
49)	Retene	30.74	41666	5.9603	6.4592	
60)	2-Methylfluoranthene	30.54	75388	4.6563	5.0460	
61)	Benzo(b)fluorene	31.12	215022	12.6154	13.6713	
74)	C29-Hopane	40.83	161330	16.9779	18.3989	
75)	18a-Oleanane	0.00	0	0.0000	0.0000	
76)	C30-Hopane	42.16	376339	39.6048	42.9196	
91)	C20-TAS	33.42	157069	4.6988	5.0921	
92)	C21-TAS	34.51	194367	5.8146	6.3012	
93)	C26(20S)-TAS	38.62	103448	3.0947	3.3537	
94)	C26(20R)/C27(20S)-TAS	39.55	345979	10.3501	11.2164	
95)	C28(20S)-TAS	40.31	261086	7.8105	8.4642	
96)	C27(20R)-TAS	40.79	210134	6.2863	6.8124	
97)	C28(20R)-TAS	41.90	174263	5.2132	5.6495	
	Surrogate Standards					
2)	Naphthalene-d8	13.88	1120640	56.19	91.83	
21)	Acenaphthene-d10	19.73	659311	60.17	98.33	
32)	Phenanthrene-d10	24.79	1109900	56.47	92.28	
66)	Chrysene-d12	33.89	1154010	59.15	96.71	
88)	Perylene-d12	38.74	1418830	53.55	87.56	
90)	5(b)H-Cholane	34.27	421610	66.19	108.23	
	Internal Standards					
1)	Fluorene-d10	21.51	684029	61.41		
31)	Pyrene-d10	29.70	1168680	61.31		
73)	Benzo(a)pyrene-d12	38.46	1276590	61.23		

Data Path : C:\msdchem\2\data\MS70052\ Data File : MS70052K.D Acq On : 7 Aug 2013 9:05 am Operator : YM Sample : AR-SRM2779-WK4.0-001 Misc : ALS Vial : 11 Sample Multiplier: 0.24461 Quant Time: Aug 12 13:44:07 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration Compound R.T. QION Response Conc Units Dev(Min) ------Internal Standards1) Fluorene-d1021.511176684029m251.050.0031) Pyrene-d1029.7042121168677m250.630.0073) Benzo(a)pyrene-d1238.4642641276588m250.320.00 System Monitoring Compounds 2) Naphthalene-d813.8781361120640m56.190.0021) Acenaphthene-d1019.728164659311m60.170.0032) Phenanthrene-d1024.7871881109900m56.470.0066) Chrysene-d1233.8862401154012m59.150.0088) Perylene-d1238.7362641418827m53.55-0.0490) 5 (b)H-Cholane34.274217421610m66.190.00 Target Compounds3) cis/trans Decalin11.2311382116308m606.444) C1-Decalins12.4011523007024m861.685) C2-Decalins13.7941662448821m701.726) C3-Decalins16.7471802505091m717.857) C4-Decalins17.7781941338912m383.678) Naphthalene13.93312813496321m625.059) 2-Methylnaphthalene16.19014217244939m1291.2010) 1-Methylnaphthalene16.5241421069537m855.8311) 2, 6-Dimethylnaphthalene18.071569515361m781.2312) 1, 6, 7-Trimethylnaphthal.21.1211702551785m223.2713) C2-Naphthalenes18.55815633950632m1572.3514) C3-Naphthalenes20.56317020750388m961.0115) C4-Naphthalenes22.84818411098113m513.9816) Benzothiophene14.128134120888m7.1117) C1-Benzothiophenes15.688148500437m29.4418) C2-Benzothiophenes22.151190390096m22.9520) Biphenyl17.750154243427m134.6923) Acenaphthylene19.226152149593m7.5224) Acenaphthene19.81115458394m4.8525) Dibenzofuran20.4241661667821m106.8327) I-Methylfluorene23.5751803180101m203.70<t Target Compounds Qvalue 36) 2/3-Methyldibenzothiop... 26.241 198 567972m 41.18 36)2/3-Methyldibenzothiop...26.241198567972m41.1837)1-Methyldibenzothiophene26.587198411729m29.8538)C2-Dibenzothiophenes27.3492123100551m135.8639)C3-Dibenzothiophenes28.8732262421612m106.1140)C4-Dibenzothiophenes30.9162401046611m45.8641)Phenanthrene24.8911784355566m208.7142)Anthracene25.06417855898m3.0043)3-Methylphenanthrene26.5531922303264m146.19

Data Path : C:\msdchem\2\data\MS70052\ Data File : MS70052K.D Acq On : 7 Aug 2013 9:05 am Operator : YM Sample : AR-SRM2779-WK4.0-001 Misc : ALS Vial : 11 Sample Multiplier: 0.24461 Quant Time: Aug 12 13:44:07 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration
 Compound
 R.T. QIon Response Conc Units

 44)
 2-Methylphenanthrene
 26.622
 192
 3082533m
 195.65

 44)
 2-Methylphenanthrene
 26.795
 192
 200863m
 12.75

 46)
 4/9-Methylphenanthrene
 26.899
 192
 318811m
 22.75

 47)
 1-Methylphenanthrene
 27.003
 192
 2163578m
 137.32

 48)
 3,6-Dimethylphenanthrene
 28.076
 206
 643706m
 40.94

 49)
 Retene
 30.743
 214
 41668m
 5.96

 50)
 C2-Phenanthrenes/Anthr...
 29.981
 206
 4930857
 50.92

 51)
 C3-Naphthobenzothiophenes
 37.421
 214
 414689m
 20.37

 54)
 C1-Naphthobenzothiophenes
 37.812
 276
 950190m
 46.67

 57)
 C4-Maphthobenzothiophenes
 37.821
 276
 950190m
 46.67

 59)
 Pyrene
 29.379
 202
 296090m
 13.62

 59)
 Pyrene
 21.97 Compound R.T. QIon Response Conc Units Dev(Min)

Data Path : C:\msdchem\2\data\MS70052\ Data File : MS70052K.D Acq On : 7 Aug 2013 9:05 am Operator : YM Sample : AR-SRM2779-WK4.0-001 Misc : ALS Vial : 11 Sample Multiplier: 0.24461 Quant Time: Aug 12 13:44:07 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration Compound R.T. QIon Response Conc Units Dev(Min)

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

antitation Report (QT Reviewed)	
Report	Reviewed)
	TQ)
antitation	Report
Qui	Quantitation

Sample Multiplier: 0.24461 Data Path : C:\msdchem\2\data\MS70052\ 9:05 am : AR-SRM2779-WK4.0-001 7 Aug 2013 : MS70052K.D WX : : 11 •• Data File Operator ALS Vial Sample Acq On Misc

Quant Time: Aug 12 13:44:07 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration

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

Data File Nam	e ENV3069A.D	Surrogate/Internal Multiplier Factor:	1.00	
Data File Pat	h C:\GCMS7\MS70052\	AR-WKSU-2500-001:	(ng/mL)	
Operato	or YM	Naphthalene-d8	250.125	
Date Acquire	d 8/7/2013 10:14	Acenaphthene-d10	250.163	Copy o
Acq. Method Fil	e PAH-2012.M	Phenanthrene-d10	250.194	to Spi
Sample Nam	e Procedural Blank	Chrysene-d12	250.038	
Misc Inf	0 0	Perylene-d12	250.031	ENV
Instrument Nam	e GCMSD	5(b)H-Cholane	250.000	Proce
Vial Numbe	r 12			8/
Sample Multiplic	er 1			DAH

Sample Multiplier 1 Sample Amount 0

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data below pread Sheet

V3069A.D rocedural Blank 8/7/2013 PAH-2012.M 1

#	Compound Name	Ret Time	Target Response	Concentration	Su. Corrected	
		(minute)	(area)		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	
12/2	C4-Decalins	0.00	0	0.0000	0.0000	
8)	Naphthalene	13.93	7113	2.1883	2.3656	
9)+10)	C1-Naphthalenes	16.36	3906	1.2017	1.2990	
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	17.75	2043	0.7496	0.8104	
23)	Acenaphthylene	0.00	0	0.0000	0.0000	
24)	Acenaphthene	0.00	0	0.0000	0.0000	
25)	Dibenzofuran	20.42	2300	0.7846	0.8482	
26)	Fluorene	21.59	637	0.2710	0.2930	
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	24.89	4128	1.2393	1.3397	
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000	
	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000	
	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000	
	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000	
- 19 P. 1.	Dibenzothiophene	0.00	0	0.0000	0.0000	
	C1-Dibenzothiophenes	0.00	0	0.0000	0.0000	
	C2-Dibenzothiophenes	0.00	õ	0.0000	0.0000	
	C3-Dibenzothiophenes	0.00	ō	0.0000	0.0000	
	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000	
	Fluoranthene	28.98	2111	0.5395	0.5832	
NS.27	Pyrene	29.74	3033	0.7548	0.8159	
	C1-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000	
	C2-Fluoranthenes/Pyrenes	0.00	õ	0.0000	0.0000	
	C3-Fluoranthenes/Pyrenes	0.00	o	0.0000	0.0000	
	C4-Fluoranthenes/Pyrenes	0.00	õ	0.0000	0.0000	
	Naphthobenzothiophene	0.00	0	0.0000	0.0000	
	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000	
	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000	
	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000	
		0.00	0	0.0000	0.0000	
0.000	C4-Naphthobenzothiophenes		0			
A216203	Benz(a)anthracene	0.00	0	0.0000	0.0000	
	Chrysene/Triphenylene	0.00		0.0000	0.0000	
	C1-Chrysenes	0.00	0	0.0000	0.0000	
10.575	C2-Chrysenes	0.00		0.0000	0.0000	
	C3-Chrysenes	0.00	0	0.0000	0.0000	
1. C. N. S.	C4-Chrysenes	0.00	0	0.0000	0.0000	
	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000	
	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000	
	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000	
	Benzo(e)pyrene	0.00	0	0.0000	0.0000	
Sec. 22.	Benzo(a)pyrene	0.00	0	0.0000	0.0000	
89)	Perylene	0.00	0	0.0000	0.0000	
0.002773.1	Indeno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000	
82)			0	0.0000	0.0000	
82) 83)	Dibenzo(a,h)anthracene	0.00	0	0.0000		
82) 83)		0.00	0	0.0000	0.0000	
82) 83) 84)	Dibenzo(a,h)anthracene					
82) 83) 84) 85)	Dibenzo(a,h)anthracene C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000	

#	Compound Name	Ret Time	Target Response	Concentration	Su. Corrected
	9	(minute)	(area)		Concentration
	Individual Alkyl Isomers and Hopanes	5			
9)	2-Methylnaphthalene	16.19	2400	1.1937	1.2904
10)	1-Methylnaphthalene	16.52	1506	0.8002	0.8650
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(205)-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	13.88	625879	208.45	83.34
21)	Acenaphthene-d10	19.73	365094	221.32	88.47
32)	Phenanthrene-d10	24.79	726014	231.44	92.50
66)	Chrysene-d12	33.85	731388	234.87	93.93
88)	Perylene-d12	38.74	891608	232.80	93.11
90)	5(b)H-Cholane	34.27	210488	228.58	91.43
1000	Internal Standards				
1)	Fluorene-d10	21.51	420967	251.05	
31)	Pyrene-d10	29.70	762580	250.63	
73)	Benzo(a)pyrene-d12	38.43	754432	250.33	

Data Path : C:\msdchem\2\data\MS70052\ Data File : ENV3069A.D Acq On : 7 Aug 2013 10:14 am Operator : YM Sample : Procedural Blank Misc : ALS Vial : 12 Sample Multiplier: 1 Quant Time: Aug 12 14:20:07 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration R.T. QION Response Conc Units Dev(Min) Compound Internal Standards21.511176420967m251.050.0031) Pyrene-d1029.704212762580m250.630.0073) Benzo(a)pyrene-d1238.425264754432m250.32-0.04 System Monitoring Compounds 2) Naphthalene-d813.878136625879m208.450.0021) Acenaphthene-d1019.728164365094m221.320.0032) Phenanthrene-d1024.787188726014m231.440.0066) Chrysene-d1233.848240731388m234.87-0.0488) Perylene-d1238.736264891608m232.80-0.0490) 5 (b)H-Cholane34.274217210488m228.580.00

 90)
 5 (b)H-Cholane
 34.274
 217
 210488m
 228.58

 Target Compounds
 0.000
 0
 N.D. d

 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

 9)
 2-Methylnaphthalene
 16.524
 142
 2400m
 1.19

 9)
 2-Methylnaphthalene
 16.524
 142
 1506m
 0.80

 11)
 2,6-Dimethylnaphthalene
 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)
 Benzothiophenes
 0.000
 0
 N.D. d

 17)
 C1-Benzothiophenes
 0.000
 0
 N.D. d

 22)
 Biphenyl</td Qvalue

Data Path : C:\msdchem\2\data\MS Data File : ENV3069A.D Acq On : 7 Aug 2013 10:14 a Operator : YM Sample : Procedural Blank Misc : ALS Vial : 12 Sample Multipli Quant Time: Aug 12 14:20:07 2013 Quant Method : C:\GCMS7\MS70052 Quant Title : PAH Calibration T QLast Update : Thu Aug 08 08:32: Response via : Initial Calibrati	am Ler: 1 AR70052. Table-201 30 2013			
Compound	R.T.	QIon	Response	Conc Units Dev(Min)
<pre>44) 2-Methylphenanthrene 45) 2-Methylphenanthrene 46) 4/9-Methylphenanthrene 47) 1-Methylphenanthrene 48) 3,6-Dimethylphenanthrene 49) Retene 50) C2-Phenanthrenes/Anthr 51) C3-Phenanthrenes/Anthr 52) C4-Phenanthrenes/Anthr 53) Naphthobenzothiophene 54) C1-Naphthobenzothiophenes 55) C2-Naphthobenzothiophenes 56) C3-Naphthobenzothiophenes 57) C4-Naphthobenzothiophenes 58) Fluoranthene 59) Pyrene 60) 2-Methylfluoranthene 61) Benzo(b)fluorene 62) C1-Fluoranthenes/Pyrenes 63) C2-Fluoranthenes/Pyrenes 64) C3-Fluoranthenes/Pyrenes 65) C4-Fluoranthenes/Pyrenes</pre>	0.000 0	202 202	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	N.D. d N.D. d
96) C27(20R)-TAS 97) C28(20R)-TAS	0.000		0	N.D. d N.D. d

Data Path : C:\msdchem\2\data\MS70052\ Data File : ENV3069A.D Acq On : 7 Aug 2013 10:14 am Operator : YM Sample : Procedural Blank Misc : ALS Vial : 12 Sample Multiplier: 1 Quant Time: Aug 12 14:20:07 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration Compound R.T. QIon Response Conc Units Dev(Min)

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

AR70052.M Tue Aug 20 18:53:16 2013

Reviewed)
(QT]
Report
Quantitation

Data Path	••	C:/msdchem/2/data/	MS70052\	
Data File		Data File : ENV3069A.D		
Acq On	••	7 Aug 2013 10:14 am	am	
Operator	••			
Sample	••	Procedural Blank		
Misc	••			
ALS Vial	••	: 12 Sample Multiplier:	lier: 1	
i i i				

Quant Time: Aug 12 14:20:07 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration

S(b)H-Choiane, S.S. Bepg(a)ptre?/5, S12, I

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

Data File Name	ENV3069B.D	Surrogate/Internal Multiplier Factor:	1.00	
Data File Path	C:\msdchem\2\data\MS70052\	AR-WKSU-2500-001:	(ng/mL)	
Operator	YM	Naphthalene-d8	250.125	
Date Acquired	8/7/2013 11:22	Acenaphthene-d10	250.163	Copy data below
Acq. Method File	PAH-2012.M	Phenanthrene-d10	250.194	to Spread Sheet
Sample Name	Blank Spike	Chrysene-d12	250.038	
Misc Info	0	Perylene-d12	250.031	ENV3069B.D
Instrument Name	GCMSD	5(b)H-Cholane	250.000	Blank Spike
Vial Number	13			8/7/2013
Sample Multiplier	1			PAH-2012.M
Sample Amount	0			1

#	Compound Name	Ret Time	Target Response	Concentration	Su. Corrected
		(minute)	(area)		Concentration
3)	cis/trans Decalin	11.23	35053	63.9332	69.0643
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	13.93	252995	74.5771	80.5624
9)+10)	C1-Naphthalenes	16.36	295518	87.1119	94.1032
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	14.10	193307	72.3875	78.1971
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	17.75	196592	69.1187	74.6660
23)	Acenaphthylene	19.23	220459	70.5451	76.2068
24)	Acenaphthene	19.81	139801	73.9641	79.9002
25)	Dibenzofuran	20.42	228293	74.6193	80.6080
26)	Fluorene	21.59	184512	75.2242	81.2615
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	25.62	230487	71.4228	77.1550
42)	Anthracene	25.06	230103	75.1349	81.1650
41)	Phenanthrene	24.89	265142	77.3167	83.5219
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	5.40	205201	59.8376	64.6400
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	24.44	351148	93.6396	101.1548
35)+36)+37)	C1-Dibenzothiophenes	8.65	182597	48.6926	52.6005
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	28.98	331470	82.2884	88.8926
59)	Pyrene	29.74	326535	78.9293	85.2639
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
	Naphthobenzothiophene	32.99	276351	82.5968	89.2258
	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	33.81	284585	82.2458	88.8466
68)	Chrysene/Triphenylene	33.96	269562	78.9212	85.2552
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	37.38	327545	76.8754	83.0452
78)	Benzo(k,j)fluoranthene	37.46	323974	71.3977	77.1279
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.35	365503	77.3641	83.5731
81)	Benzo(a)pyrene	38.54	320959	76.2456	82.3648
89)	Perylene	38.85	379422	87.2623	94.2657
	Indeno(1,2,3-c,d)pyrene	43.23	356957	71.2175	76.9332
83)	Dibenzo(a,h)anthracene	43.30	294468	74.0464	79.9891
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.59	325409	73.4884	79.3864

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#	Compound Name	Ret Time	Target Response	Concentration	Su. Corrected
		(minute)	(area)		Concentration
	Individual Alkyl Isomers and Hopanes	5			
9)	2-Methylnaphthalene	16.19	153711	73.2535	79.1326
10)	1-Methylnaphthalene	16.52	141807	72.1957	77.9899
11)	2,6-Dimethylnaphthalene	18.28	136152	71.1494	76.8596
12)	1,6,7-Trimethylnaphthalene	21.12	138634	77.2072	83.4036
27)	1-Methylfluorene	23.54	99888	78.7673	85.0889
35)	4-Methyldibenzothiophene	25.96	182597	80.5686	87.0348
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	27.00	205201	79.2584	85.6194
48)	3,6-Dimethylphenanthrene	28.08	185541	71.8176	77.5815
49)	Retene	30.74	82114	71.4840	77.2211
60)	2-Methylfluoranthene	30.50	217494	81.7503	88.3113
61)	Benzo(b)fluorene	31.12	244066	87.1422	94.1360
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	42.86	116986	83.3860	90.0783
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	39.47	425148	86.1441	93.0578
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	13.88	638042	203.61	81.40
21)	Acenaphthene-d10	19.73	380805	221.19	88.42
32)	Phenanthrene-d10	24.79	747975	231.61	92.57
66)	Chrysene-d12	33.85	730133	227.74	91.08
88)	Perylene-d12	38.74	900048	230.09	92.03
90)	5(b)H-Cholane	34.27	207535	220.67	88.27
	Internal Standards				
1)	Fluorene-d10	21.51	439347	251.05	
31)	Pyrene-d10	29.70	785086	250.63	
	Benzo(a)pyrene-d12	38.43	770525	250.33	

Data Path : C:\msdchem\2\data\MS70052\ Data File : ENV3069B.D Acq On : 7 Aug 2013 11:22 am Operator : YM Sample : Blank Spike Misc : ALS Vial : 13 Sample Multiplier: 1							
Quant Quant QLast	Time: Aug 12 18:56:13 2013 Method : C:\GCMS7\MS70052 Title : PAH Calibration 7 Update : Thu Aug 08 08:32 onse via : Initial Calibrat	\AR70052. Fable-201 :30 2013					
	Compound	R.T.	QIon	Response	Conc Un	its	Dev(Min)
Inte	rnal Standards						
1)	Fluorene-d10	21.511	176	439347m	251.05		0.00
31)	Fluorene-d10 Pyrene-d10 Benzo(a)pyrene-d12	29.704	212	785086m	250.63		0.00 -0.04
73)	Benzo(a)pyrene-d12	38.425	264	770525m	250.32		-0.04
Syst	em Monitoring Compounds Naphthalene-d8 Acenaphthene-d10 Phenanthrene-d10 Chrysene-d12 Perylene-d12 5 (b)H-Cholane						
2)	Naphthalene-d8	13.878	136	638042m	203.61		0.00
21)	Acenaphthene-d10	19.728	164	380805m	221.19		0.00
32)	Phenanthrene-d10	24.787	188	747975m	231.61		0.00
66)	Chrysene-dl2	33.84/	240	/30133m	227.74		-0.04
90)	5(b)H-Cholane	34 274	204	207535m	220.67		-0.04
507	5 (b) il chorane	51.2/1	211	20755511	220.07		0.00
	et Compounds	11 001	1 - 0	25052	6 2 02		Qvalue
3)	cis/trans Decalin	11.231	138	35053m	63.93	್ಷ	
4)	C1-Decalins	0.000		0	N.D.	a	
5)	C2-Decaling	0.000		0	N.D.	a	
7)	C4-Decaling	0.000		0	N.D.	đ	
8)	C1-Decalins C2-Decalins C3-Decalins C4-Decalins Naphthalene 2-Methylnaphthalene	13 933	128	252995m	74 58	u	
9)	2-Methylnaphthalene	16,190	142	153711m	73.25		
	1-Methylnaphthalene				Contraction of the second s		
11)	2,6-Dimethylnaphthalene	18.279	156	136152m	71.15		
12)	2,6-Dimethylnaphthalene 1,6,7-Trimethylnaphtha	21.121	170	138634m	77.21		
13)	C2-Naphthalenes	0.000		0	N.D.	d	
	C3-Naphthalenes	0.000		0	N.D.	d	
	C4-Naphthalenes	0.000		0	N.D.		
	Benzothiophene	14.101	134	193307m	72.39		
	C1-Benzothiophenes	0.000		0	N.D.		
	C2-Benzothiophenes	0.000		0	N.D.		
	C3-Benzothiophenes	0.000		0	N.D.		
	C4-Benzothiophenes	0.000 17.750	154	0 196592m	N.D. 69.12	a	
	Biphenyl Acenaphthylene	19.226	152	220459m	70.55		
	Acenaphthene	19.811	154	139801m	73.96		
	Dibenzofuran	20.424	168	228293m	74.62		
	Fluorene	21.594	166	184512m	75.22		
	1-Methylfluorene	23.540	180	99888m	78.77		
28)	C1-Fluorenes	0.000		0	N.D.	d	
29)	C2-Fluorenes	0.000		0	N.D.	d	
	C3-Fluorenes	0.000		0	N.D.	d	
	Carbazole	25.618	167	230487m	71.42		
	Dibenzothiophene	24.441	184	351148m	93.64		
	4-Methyldibenzothiophene	25.964	198	182597m	80.57	a	
	2/3-Methyldibenzothiop	0.000		0	N.D.		
	1-Methyldibenzothiophene C2-Dibenzothiophenes	0.000		0	N.D.		
	C3-Dibenzothiophenes	0.000		0	N.D. N.D.		
	C4-Dibenzothiophenes	0.000		0	N.D.		
	Phenanthrene	24.891	178	265142m	77.32	-	
	Anthracene	25.064	178	230103m	75.13		
	3-Methylphenanthrene	0.000	1.470 (040 7 50)	0	N.D.	d	

Data Path : C:\msdchem\2\data\MS70052\ Data File : ENV3069B.D Acq On : 7 Aug 2013 11:22 am Operator : YM Sample : Blank Spike Misc : ALS Vial : 13 Sample Multiplier: 1 Quant Time: Aug 12 18:56:13 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A							
QLast Update : Thu Aug 08 08:32: Response via : Initial Calibrati	lon						
Compound				Conc Units Dev(Min)			
<pre>44) 2-Methylphenanthrene 45) 2-Methylphenanthrene 46) 4/9-Methylphenanthrene 47) 1-Methylphenanthrene 48) 3,6-Dimethylphenanthrene 49) Retene 50) C2-Phenanthrenes/Anthr 51) C3-Phenanthrenes/Anthr 52) C4-Phenanthrenes/Anthr 53) Naphthobenzothiophene 54) C1-Naphthobenzothiophenes 55) C2-Naphthobenzothiophenes 56) C3-Naphthobenzothiophenes 57) C4-Naphthobenzothiophenes 58) Fluoranthene 59) Pyrene 60) 2-Methylfluoranthene 61) Benzo(b) fluorene 62) C1-Fluoranthenes/Pyrenes 63) C2-Fluoranthenes/Pyrenes 63) C2-Fluoranthenes/Pyrenes 64) C3-Fluoranthenes/Pyrenes 65) C4-Fluoranthenes/Pyrenes 66) C1-Chrysenes 70) C2-Chrysenes 71) C3-Chrysenes 72) C4-Chrysenes 73) C3-Chrysenes 74) C29-Hopane 75) 18a-Oleanane 76) C30-Hopane 77) Benzo(b) fluoranthene 78) Benzo(k, j) fluoranthene 79) Benzo(a) fluoranthene 79) Benzo(a) fluoranthene 70) Benzo(a) fluoranthene 71) Benzo(a) fluoranthene 73) Benzo(a) fluoranthene 74) C1-Dibenzo(a,h) anthrac 75) C2-Dibenzo(a,h) anthrac 76) C3-Dibenzo(a,h) anthrac 77) Benzo(g,h,i) perylene 77) Benzo(g,h,i) perylene</pre>	0.000 0.000 27.003 28.076 30.743 0.000 0.000 0.000 32.994 0.000 0.000 2.994 0.000 0.000 2.994 0.000 0.000 31.124 0.000 0.000 31.124 0.000 0.000 31.124 0.000 0.000 31.994 0.000 0.	192 206 234 234 234 202 202 216 216 216 216 228 228 228 228 228 228 191 252 252 252 252 252 252	0 0 0 205201m 185541m 82114m 0 0 276351m 0 0 331470m 326535m 217494m 244066m 0 0 0 284585m 269562m 0 0 0 0 284585m 269562m 0 0 0 0 116986m 327545m 323974m 0 365503m 320959m 356957m 294468m 0 0 0 0 325409m 379422m	N.D. d N.D. d N.D. d 79.26 71.82 71.48 N.D. d N.D.			
91) C20-TAS 92) C21-TAS	0.000		0	N.D. d N.D. d			
93) C26(20S)-TAS	0.000	221	0	N.D. d			
94) C26(20R)/C27(20S)-TAS 95) C28(20S)-TAS	39.473 0.000	231	425148m 0	86.14 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:\msdchem\2\data\MS70052\ Data File : ENV3069B.D Acq On : 7 Aug 2013 11:22 am Operator : YM Sample : Blank Spike Misc : ALS Vial : 13 Sample Multiplier: 1 Quant Time: Aug 12 18:56:13 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration (#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\2\data\MS70052\ Data File : ENV3069B.D Acq On : 7 Aug 2013 11:22 am Operator : YM Sample : Blank Spike Misc : 13 Sample Multiplier: 1 Quant Time: Aug 12 18:56:13 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration

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Data Path : C:\msdchem\2\data\MS70052\ Data File : ENV3069B.D Acq On : 7 Aug 2013 11:22 am Operator : YM Sample : Blank Spike Misc : ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 12 18:56:13 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration

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ancak				T,9	S.enslord-H(b)	M
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Data File Name	ENV3069C.D	Surrogate/Internal Multiplier Factor:	1.00	
Data File Path	C:\msdchem\2\data\MS70052\	AR-WKSU-2500-001:	(ng/mL)	
Operator	YM	Naphthalene-d8	250.125	
Date Acquired	8/7/2013 12:31	Acenaphthene-d10	250.163	Copy data below
Acq. Method File	PAH-2012.M	Phenanthrene-d10	250.194	to Spread Sheet
Sample Name	Blank Spike Dupl.	Chrysene-d12	250.038	
Misc Info	0	Perylene-d12	250.031	ENV3069C.D
Instrument Name	GCMSD	5(b)H-Cholane	250.000	Blank Spike Dupl.
Vial Number	14			8/7/2013
Sample Multiplier	1			PAH-2012.M

Sample Amount 0

Compound Name

			8/7/2013 PAH-2012.M 1
Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
11.23	29193	54.8581	60.8622
0.00	0	0.0000	0.0000
0.00	0	0.0000	0.0000
0.00	0	0.0000	0.0000
0.00	0	0.0000	0.0000
13.93	236455	71.8130	79.6728
16.36	275749	83.7469	92.9128
0.00	0	0.0000	0.0000
0.00	0	0.0000	0.0000
0.00	0	0.0000	0.0000
14.10	185204	71.4541	79.2747
0.00	0	0.0000	0.0000
0.00	0	0 0000	0.0000

		(minute)	(area)		Concentration
3)	cis/trans Decalin	11.23	29193	54.8581	60.8622
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
	C4-Decalins	0.00	0	0.0000	0.0000
18.000	Naphthalene	13.93	236455	71.8130	79.6728
	C1-Naphthalenes	16.36	275749	83,7469	92.9128
	C2-Naphthalenes	0.00	0	0.0000	0.0000
	C3-Naphthalenes	0.00	0	0.0000	0.0000
	C4-Naphthalenes	0.00	0	0.0000	0.0000
	Benzothiophene	14.10	185204	71.4541	79.2747
	C1-Benzothiophenes	0.00	0	0.0000	0.0000
		0.00	0	0.0000	0.0000
	C2-Benzothiophenes C3-Benzothiophenes	0.00	0	0.0000	0.0000
		0.00	0	0.0000	0.0000
	C4-Benzothiophenes		185866	67.3272	74.6961
	Biphenyl	17.75			76.9337
	Acenaphthylene	19.23	210334	69.3441	
	Acenaphthene	19.81	133738	72.8998	80.8786
2803200	Dibenzofuran	20.42	218638	73.6284	81.6869
	Fluorene	21.59	177474	74.5468	82.7059
	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	25.62	225420	71.7924	79.6500
42) /	Anthracene	25.06	217791	73.0895	81.0891
41) (Phenanthrene	24.86	250892	75.1929	83.4227
3)+44)+45)+46)+47) (C1-Phenanthrenes/Anthracenes	5.40	196392	58.8591	65.3012
	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51) (C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
1920328-2	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
Sec. 1983	Dibenzothiophene	24.44	337867	92.5999	102.7348
	C1-Dibenzothiophenes	8.65	177543	48.6596	53.9853
	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
		0.00	0	0.0000	0.0000
	C4-Dibenzothiophenes	28.98	320701	81.8258	90.7815
	Fluoranthene		312502	77.6348	86.1318
	Pyrene	29.74			
	C1-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
2.57.2.472	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
	Naphthobenzothiophene	32.99	261681	80.3841	89.1820
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) 8	Benz(a)anthracene	33.81	265154	78.7582	87.3782
68) (Chrysene/Triphenylene	33.96	245820	73.9687	82.0645
69) (C1-Chrysenes	0.00	0	0.0000	0.0000
	C2-Chrysenes	0.00	0	0.0000	0.0000
	C3-Chrysenes	0.00	0	0.0000	0.0000
	C4-Chrysenes	0.00	0	0.0000	0.0000
(1957-50-5	Benzo(b)fluoranthene	37.38	312231	76.6250	85.0115
	Benzo(k,j)fluoranthene	37.46	310164	71.4733	79.2960
	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
	Benzo(e)pyrene	38.35	352195	77.9488	86.4802
		38.54	296202	73.5752	81.6279
	Benzo(a)pyrene			87.4048	96.9711
	Perylene	38.85	363457 338542		
	ndeno(1,2,3-c,d)pyrene	43.23		70.6255	78.3554
	Dibenzo(a,h)anthracene	43.30	281206	73.9382	82.0306
22 C (1 C)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
OF! (C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86) (C3-Dibenzo(a,h)anthracenes Benzo(g,h,i)perylene	0.00 44.59	0 308612	0.0000 72.8753	0.0000 80.8514

#	Compound Name	Ret Time	Target Response	Concentration	Su. Corrected
		(minute)	(area)		Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.19	142301	69.8702	77.5174
10)	1-Methylnaphthalene	16.52	133448	69.9982	77.6594
11)	2,6-Dimethylnaphthalene	18.28	123535	66.5117	73.7913
12)	1,6,7-Trimethylnaphthalene	21.12	130951	75.1376	83.3613
27)	1-Methylfluorene	23.54	96318	78.2530	86.8177
35)	4-Methyldibenzothiophene	25.96	177543	80.5140	89.3262
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	27.00	196392	77.9624	86.4953
48)	3,6-Dimethylphenanthrene	28.08	177355	70.5553	78.2775
49)	Retene	30.74	77836	69.6414	77.2636
60)	2-Methylfluoranthene	30.50	207314	80.0878	88.8533
	Benzo(b)fluorene	31.12	232804	85.4294	94.7795
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	42.86	110451	82.3204	91.3303
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	39.47	395791	83.8551	93.0329
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	13.88	594069	195.32	78.09
21)	Acenaphthene-d10	19.73	362087	216.69	86.62
32)	Phenanthrene-d10	24.79	708619	225.51	90.13
66)	Chrysene-d12	33.85	682867	218.91	87.55
88)	Perylene-d12	38.74	844633	225.78	90.30
90)	5(b)H-Cholane	34.27	195212	217.04	86.81
	Internal Standards				
1)	Fluorene-d10	21.51	426429	251.05	
31)	Pyrene-d10	29.70	763874	250.63	
73)	Benzo(a)pyrene-d12	38.43	736900	250.33	

Data Path : C:\msdchem\2\data\MS70052\ Data File : ENV3069C.D Acq On : 7 Aug 2013 12:31 pm Operator : YM Sample : Blank Spike Dupl. Misc : ALS Vial : 14 Sample Multiplier: 1 Quant Time: Aug 12 19:05:24 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration Compound R.T. QIon Response Conc Units Dev(Min) Internal Standards21.511176426429m251.050.0031) Pyrene-d1029.704212763874m250.630.0073) Benzo(a)pyrene-d1238.425264736900m250.32-0.04 System Monitoring Compounds 2) Naphthalene-d813.878136594069m195.320.0021) Acenaphthene-d1019.728164362087m216.690.0032) Phenanthrene-d1024.787188708619m225.510.0066) Chrysene-d1233.848240682867m218.91-0.0488) Perylene-d1238.736264844633m225.78-0.0490) 5 (b)H-Cholane34.274217195212m217.040.00

 90)
 5 (b)H-Cholane
 34.274
 217
 195212m
 217.04

 Target Compounds
 11.231
 138
 29193m
 54.86

 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

 9)
 2-Methylnaphthalene
 16.190
 142
 142301m
 69.87

 10
 1-Methylnaphthalene
 16.524
 123448m
 70.00

 11)
 2,6-Dimethylnaphthalene
 18.279
 156
 12355m
 66.51

 12)
 1,6,7-Trimethylnaphthalene
 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)
 Benzothiophenes
 0.000
 0
 N.D. d

 17)
 C1-Benzothiophenes
 0.000
 0
 N.D. d

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Data Path : C:\msdchem\2\data\MS70052\ Data File : ENV3069C.D Acq On : 7 Aug 2013 12:31 pm Operator : YM Sample : Blank Spike Dupl. Misc : ALS Vial : 14 Sample Multiplier: 1		
Quant Time: Aug 12 19:05:24 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013 QLast Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration		
	Ion Response Conc Units	
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	
46)4/9-Methylphenanthrene0.00047)1-Methylphenanthrene27.00348)3,6-Dimethylphenanthrene28.077	192 196392m 77.96	
48) 3,6-Dimethylphenanthrene 28.077	206 177355m 70.56	
49) Retene 30.743	234 77836m 69.64	
50) C2-Phenanthrenes/Anthr 0.000 51) C3-Phenanthrenes/Anthr 0.000	0 N.D. d	
51) C3-Phenanthrenes/Anthr 0.000	0 N.D. a	
52) C4-Phenanthrenes/Anthr 0.000	0 N.D. d	
53) Naphthobenzothiophene 32.994	234 261681m 80.38	
54) Cl-Naphthobenzothiophenes 0.000 55) C2-Naphthobenzothiophenes 0.000	0 N.D. d	
56) C3-Naphthobenzothiophenes 0.000	0 N.D. d 0 N.D. d	
57) C4-Naphthobenzothiophenes 0.000	0 N.D. d	
58) Fluoranthene 28.977	202 320701m 81.83	
59) Pyrene 29.739	202 320701m 81.83 202 312502m 77.63	
60) 2-Methylfluoranthene 30.501	216 207314m 80.09	
	216 232804m 85 43	
62)C1-Fluoranthenes/Pyrenes0.00063)C2-Fluoranthenes/Pyrenes0.000	0 N.D. d	
63) C2-Fluoranthenes/Pyrenes 0.000	0 N.D. U	
64) C3-Fluoranthenes/Pyrenes 0.000	0 N.D. d	
65) C4-Fluoranthenes/Pyrenes 0.000	0 N.D. d	
65)C4-Fluoranthenes/Pyrenes0.00067)Benz(a)anthracene33.80968)Chrysene/Triphenylene33.964	228 265154m 78.76	
68) Chrysene/Triphenyiene 33.964	228 245820m /3.9/	
69) C1-Chrysenes 0.000 70) C2-Chrysenes 0.000	0 N.D. d 0 N.D. d	
71) C3-Chrysenes 0.000	0 N.D. d 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	
	191 110451m 82.32	
	252 312231m 76.62	
	252 310164m 71.47	
79) Benzo(a)fluoranthene 0.000	0 N.D. d	
	252 352195m 77.95 252 296202m 73.58	
	276 338542m 70.63	
방법, 방법에는 그는 사람을 가지 않았는 것은 것입니. 것은 것을 못했는 것은 것이 가장에 가지 않는 것은 것은 것은 것은 것을 하는 것을 수 있는 것을 수 있는 것을 수 있는 것을 하는 것을 수 있는 것을 수 있는 것을 수 있는 것을 가지 않는 것을 수 있는 것을 수 있다. 것을 것을 수 있는 것을 것을 것을 수 있는 것을 수 있다. 것을 것을 것을 것을 것을 것을 것을 수 있는 것을 수 있는 것을 수 있는 것을 수 있는 것을	278 281206m 73.94	
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 44.590	276 308612m 72.88	
89) Perylene 38.852	252 363457m 87.40	
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	
에 방향 전 것을 가 안 있는 것은 전 방향 것을 위한 것을 것 같아요. 것은 것은 가지 않는 것은 것은 것을 가지 않는 것이 있는 것을 가지 않는 것이 있는 것이 있는 것이 있는 것이 있는 것이 있	231 395791m 83.86	
95) C28(20S)-TAS 0.000	0 N.D. d	
96) C27(20R)-TAS 0.000 97) C28(20R)-TAS 0.000	0 N.D. d 0 N.D. d	

Data Path : C:\msdchem\2\data\MS70052\ Data File : ENV3069C.D Acq On : 7 Aug 2013 12:31 pm Operator : YM Sample : Blank Spike Dupl. Misc : ALS Vial : 14 Sample Multiplier: 1 Quant Time: Aug 12 19:05:24 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration Compound R.T. QIon Response Conc Units Dev(Min)

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

Page: 4

5 52.M Tue Aug 20 19:00:36 2013

Data File Name	ARC1564.D	Surrogate/Internal Multiplier Factor:	1.00	
Data File Path	C:\msdchem\2\data\MS70052\	AR-WKSU-2500-001:	(ng/mL)	
Operator	YM	Naphthalene-d8	250.125	
Date Acquired	8/7/2013 13:40	Acenaphthene-d10	250.163	Copy data below
Acq. Method File	PAH-2012.M	Phenanthrene-d10	250.194	to Spread Sheet
Sample Name	SED-EB-01-072713	Chrysene-d12	250.038	
Misc Info	0	Perylene-d12	250.031	ARC1564.D
Instrument Name	GCMSD	5(b)H-Cholane	250.000	SED-EB-01-072713
Vial Number	15			8/7/2013
Sample Multiplier	1.05263			PAH-2012.M
Sample Amount	0			0.950001425

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
31	cis/trans Decalin	0.00	0	0.0000	0.0000
1028	C1-Decalins	0.00	o	0.0000	0.0000
10.5		0.00	0	0.0000	0.0000
204	C2-Decalins	0.00	0	0.0000	0.0000
226	C3-Decalins		0		
100	C4-Decalins	0.00		0.0000	0.0000
The second s	Naphthalene	13.93	335416	108.4904	119.2032
9)+10)	C1-Naphthalenes	16.36	5497	1.7780	1.9536
13)	C2-Naphthalenes	18.64	8621	2.7885	3.0638
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
	C3-Benzothiophenes	0.00	0	0.0000	0.0000
	C4-Benzothiophenes	0.00	0	0.0000	0.0000
and the second se	Biphenyl	17.75	2078	0.8017	0.8808
		0.00	0	0.0000	0.0000
C = 25 6 1	Acenaphthylene		0		
	Acenaphthene	0.00		0.0000	0.0000
1. Start 1.	Dibenzofuran	20.42	2878	1.0322	1.1341
10922 A	Fluorene	21.59	1088	0.4867	0.5348
2023/27	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
	Phenanthrene	24.89	10287	3.2210	3.5391
ALL AND THE REPORT OF A DESCRIPTION OF A DESCRIPANTO OF A DESCRIPTION OF A DESCRIPTION OF A DESCRIPTION OF A	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
	지수가 지난 것 같아요. 그는 것이 같은 것 같아. 한 것은 것은 것이 가지 않아?	0.00	0	0.0000	0.0000
-53-35 W	C3-Phenanthrenes/Anthracenes		0	0.0000	0.0000
10.000	C4-Phenanthrenes/Anthracenes	0.00			
	Dibenzothiophene	0.00	0	0.0000	0.0000
	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
	Pyrene	0.00	0	0.0000	0.0000
	C1-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
	ALCONTRACTOR ALCONTRACTOR	0.00	0	0.0000	0.0000
	C4-Fluoranthenes/Pyrenes				
	Naphthobenzothiophene	0.00	0	0.0000	0.0000
	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
10.000	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
	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
20.002°	C1-Chrysenes	0.00	0	0.0000	0.0000
	C2-Chrysenes	0.00	0	0.0000	0.0000
	C3-Chrysenes	0.00	0	0.0000	0.0000
	C4-Chrysenes	0.00	0	0.0000	0.0000
	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
	and the second		0	0.0000	0.0000
	Benzo(k,j)fluoranthene	0.00			
	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
201	Benzo(e)pyrene	0.00	0	0.0000	0.0000
10/12/07	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
	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
2002	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
0.028/02	C3-Dibenzo(a,h)anthracenes	0.00	õ	0.0000	0.0000
		0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	0.00	v	0.0000	0.0000

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#	Compound Name	Ret Time	Target Response	Concentration	Su. Corrected
		(minute)	(area)		Concentration
	Individual Alkyl Isomers and Hopanes	1			
9)	2-Methylnaphthalene	16.19	3276	1.7131	1.8823
10)	1-Methylnaphthalene	16.52	2221	1.2407	1.3632
11)	2,6-Dimethylnaphthalene	18.31	1148	0.6583	0.7233
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	o	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
	C27(20R)-TAS	0.00	0	0.0000	0.0000
2.000	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.88	585226	204.92	77.83
21)	Acenaphthene-d10	19.73	354604	226.01	85.83
32)	Phenanthrene-d10	24.79	720917	239.69	91.01
66)	Chrysene-d12	33.89	689650	230.98	87.76
	Pervlene-d12	38.74	827634	233.23	88.62
90)	5(b)H-Cholane	34.27	205228	240.54	91.40
0.00	Internal Standards		272320223	ST3. NASATA 6	0.70.0.74
1)	Fluorene-d10	21.51	421473	264.26	
	Pyrene-d10	29.70	769636	263.82	
	Benzo(a)pyrene-d12	38.43	735804	263.50	

	2 contr	020002011	nopor		correctioned,	
Data	Path : C:\msdchem\2\data\M	970052\				
	File : ARC1564.D	5/0052 (
	On : 7 Aug 2013 1:40	ma				
Opera	itor : YM	Pur				
Sampl	e : SED-EB-01-072713					
Misc	.e : SED-EB-01-072713 :					
ALS V	vial : 15 Sample Multipl:	ier· 1 04	5263			
1120	i i bampio naioipi.	101. 1.0.	200			
Quant	Time: Aug 12 20:10:33 201	3				
	Method : C:\GCMS7\MS70052		м			
	Title : PAH Calibration					
	Update : Thu Aug 08 08:32					
	onse via : Initial Calibrat:					
neopo	noe ,iu , initial calibrat.	1011				
	Compound	вΨ	OTon	Response	Conc Unit	s Dev(Min)
Inte	rnal Standards			0.0 S.S.S.S.S.S.S.S.S.S.S.S.S.S.S.S.S.S.		
1)	Fluorene-d10	21 511	176	101177m	251 05	0 00
31)	Fluorene-d10 Pyrene-d10	29 704	212	769636m	251.05	0.00
73)	Benzo(a)pyrene-d12	29.704	212	735904m	250.03	0.00
131	Benzo (a) pyrene-urz	50.425	204	/5500411	250.52	-0.04
Svet	em Monitoring Compounds					
2)	Naphthalene-d8	13 979	126	505226m	204 92	0.00
21)	Acenandthene-d10	19 729	164	354604m	204.95	0.00
32)	Phenanthrene-d10	24 707	104	720017m	220.01	0.00
56)	Chrygono-d12	24.707	240	720917m	239.69	0.00
00)	Naphthalene-d8 Acenaphthene-d10 Phenanthrene-d10 Chrysene-d12 Perylene-d12	20 726	240	009090111 007634m	230.90	0.00
90)	5 (b) H-Cholane	34.274	204	205229m	233.23	0.00
507	5(b) n-chorane	54.274	211	20522011	240.54	0.00
Tara	et Compounds					Qvalue
1019	cis/trans Decalin	0 000		0	N.D. d	QVAIUE
				0	N.D. d	L I
		0.000		0	N.D. d	
C1	C3-Decalins	0.000		0	N.D. d	
7)	C3-Decalins C4-Decalins Naphthalene 2-Methylnaphthalene 1-Methylnaphthalene 2,6-Dimethylnaphthalene	0.000		0	N.D. d N.D. d N.D. d N.D. d	
8)	Nanhthalene	13 934	129	225/16m	100 40	
9)	2-Methylpaphthalene	16 190	140	2076m	1 71	
10)	1-Methylnaphthalene	16.190	142	3270m	1.71	
11)	2 6-Dimethylnaphthalene	19 207	156	1149m	1.24	
12)	1,6,7-Trimethylnaphtha	10.307	120	114000	00.0	
121	C2-Naphthalenes	10.000	150	0	N.D. U	
14)		0.000			2.79	
	C4-Naphthalenes	0.000		0	N.D. d	
	Benzothiophene	0.000		0	N.D. d N.D. d	
	C1-Benzothiophenes	0.000		0	N.D. d	
	C2-Benzothiophenes	0.000		0	N.D. d	
	C3-Benzothiophenes	0.000		0	N.D. d	
	C4-Benzothiophenes	0.000		0	N.D. d	
	Biphenyl	17.750	154	2078m	0.80	
	Acenaphthylene	0.000	101	0	N.D. d	
	Acenaphthene	0.000		0	N.D. d	
	Dibenzofuran	20.424	168	2878m	1.03	
	Fluorene	21.594	166	1088m	0.49	
	1-Methylfluorene	0.000	100	0	N.D. d	
	C1-Fluorenes	0.000		0	N.D. d	
	C2-Fluorenes	0.000		0	N.D. d	
	C3-Fluorenes	0.000		0	N.D. d	
	Carbazole	0.000		0	N.D. d	
	Dibenzothiophene	0.000		0		
	4-Methyldibenzothiophene	0.000		0	N.D. d	
	2/3-Methyldibenzothiop	0.000		0	N.D. d	
	1-Methyldibenzothiophene				N.D. d	
	C2-Dibenzothiophenes	0.000		0	N.D. d	
	C3-Dibenzothiophenes	0.000		0	N.D. d	
	C4-Dibenzothiophenes	0.000		0	N.D. d	
	Phenanthrene	0.000 24.891	170	1411 Martin and 1874	N.D.	
	Anthracene	0.000	178	10287m 0	3.22 ND d	
	3-Methylphenanthrene	0.000		0	N.D. d	
101	s	0.000		0	N.D. d	

Data Path : C:\msdchem\2\data\MS70052\ Data File : ARC1564.D Acq On : 7 Aug 2013 1:40 pm Operator : YM Sample : SED-EB-01-072713 Misc 2 ALS Vial : 15 Sample Multiplier: 1.05263 Quant Time: Aug 12 20:10:33 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration
 Compound
 R.T. QIon Response Conc Units

 441
 2-Methylphenanthrene
 0.000
 0
 N.D. d

 451
 2-Methylphenanthrene
 0.000
 0
 N.D. d

 451
 2-Methylphenanthrene
 0.000
 0
 N.D. d

 471
 1-Methylphenanthrene
 0.000
 0
 N.D. d

 481
 3,6-Dimethylphenanthrene
 0.000
 0
 N.D. d

 491
 Retene
 0.000
 0
 N.D. d

 501
 C2-Phenanthrenes/Anthr...
 0.000
 0
 N.D. d

 511
 C3-Phenanthrenes/Anthr...
 0.000
 0
 N.D. d

 512
 C4-Phenanthrenes/Anthr...
 0.000
 0
 N.D. d

 513
 Naphthobenzothiophenes
 0.000
 0
 N.D. d

 514
 C1-Naphthobenzothiophenes
 0.000
 0
 N.D. d

 519
 Pyrene
 0.000
 0
 N.D. d

 621
 C1-Pluoranthenes/Pyrenes
 0.000
 0
 N.D. d

 631
 C2-Fluoranthenes/Pyrenes
 Compound R.T. QION Response Conc Units Dev(Min) _____

Data Path : C:\msdchem\2\data\MS70052\ Data File : ARC1564.D Acq On : 7 Aug 2013 1:40 pm Operator : YM Sample : SED-EB-01-072713 Misc : ALS Vial : 15 Sample Multiplier: 1.05263 Quant Time: Aug 12 20:10:33 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration Compound R.T. QIon Response Conc Units Dev(Min)

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

AR70052.M Tue Aug 20 19:14:40 2013

Sample Multiplier: 1.05263 Data Path : C:\msdchem\2\data\MS70052\ 1:40 pm SED-EB-01-072713 7 Aug 2013 : ARC1564.D : 15 MX Data File Operator ALS Vial Acq On Sample Misc

Quant Time: Aug 12 20:10:33 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration

|--|

Data File Name	ARC1604.D	Surrogate/Internal Multiplier Factor:	1.00	
Data File Path	C:\msdchem\2\data\MS70052\	AR-WKSU-2500-001:	(ng/mL)	
Operator	YM	Naphthalene-d8	250.125	
Date Acquired	8/7/2013 14:49	Acenaphthene-d10	250.163	Copy data below
Acq. Method File	PAH-2012.M	Phenanthrene-d10	250.194	to Spread Sheet
Sample Name	SED-DA-EB-02-072913	Chrysene-d12	250.038	
Misc Info	0	Perylene-d12	250.031	ARC1604.D
Instrument Name	GCMSD	5(b)H-Cholane	250.000	SED-DA-EB-02-072913
Vial Number	16			8/7/2013
Sample Multiplier	0.96154			PAH-2012.M
Sample Amount	0			1.039998336

250.038	
250.031	ARC16
250.000	SED-DA-EB-
	8/7/2
	PAH-20
	1 02000

# Cor	npound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3) cie/	trans Decalin	0.00	0	0.0000	0.0000
	Decalins	0.00	õ	0.0000	0.0000
	Decalins	0.00	õ	0.0000	0.0000
	Decalins	0.00	0	0.0000	0.0000
	Decalins	0.00	0		0.0000
				0.0000	
	hthalene	13.93	341574	101.4819	112.1806
	Naphthalenes	16.36	4536	1.3476	1.4897
2002-03-062-05	Naphthalenes	18.64	7017	2.0847	2.3045
	Naphthalenes	0.00	0	0.0000	0.0000
15) C4-I	Naphthalenes	0.00	0	0.0000	0.0000
16) Ben	zothiophene	0.00	0	0.0000	0.0000
17) C1-I	Benzothiophenes	0.00	0	0.0000	0.0000
18) C2-I	Benzothiophenes	0.00	0	0.0000	0.0000
19) C3-I	Benzothiophenes	0.00	0	0.0000	0.0000
20) C4-I	Benzothiophenes	0.00	0	0.0000	0.0000
22) Biph	enyl	17.75	1894	0.6711	0.7419
	naphthylene	0.00	0	0.0000	0.0000
	naphthene	0.00	0	0.0000	0.0000
	enzofuran	20.42	2569	0.8463	0.9355
26) Fluc		21.59	1372	0.5638	0.6232
	luorenes	0.00	0	0.0000	0.0000
	luorenes	0.00	0	0.0000	0.0000
	luorenes	0.00	0	0.0000	0.0000
33) Cart		0.00	0	0.0000	0.0000
42) Anti		0.00	0	0.0000	0.0000
41) Phe	nanthrene	24.89	9748	2.8024	3.0979
(3)+44)+45)+46)+47) C1-F	henanthrenes/Anthracenes	0.00	0	0.0000	0.0000
50) C2-F	henanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51) C3-F	henanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52) C4-F	henanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34) Dibe	nzothiophene	0.00	0	0.0000	0.0000
18 - 27 - 27 - 28 - 28 - 28 - 28 - 28 - 2	bibenzothiophenes	0.00	0	0.0000	0.0000
	Dibenzothiophenes	0.00	Ö	0.0000	0.0000
	Dibenzothiophenes	0.00	0	0.0000	0.0000
	libenzothiophenes	0.00	0	0.0000	0.0000
	한 같은 100m 전 150 전 150 전 100 M · · · · · · · · · · · · · · · · · ·				
	ranthene	0.00	0	0.0000	0.0000
59) Pyre		0.00	0	0.0000	0.0000
	luoranthenes/Pyrenes	0.00	0	0.0000	0.0000
	luoranthenes/Pyrenes	0.00	0	0.0000	0.0000
	luoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65) C4-F	luoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53) Nap	hthobenzothiophene	0.00	0	0.0000	0.0000
54) C1-N	laphthobenzothiophenes	0.00	0	0.0000	0.0000
55) C2-N	laphthobenzothiophenes	0.00	0	0.0000	0.0000
	laphthobenzothiophenes	0.00	0	0.0000	0.0000
	laphthobenzothiophenes	0.00	0	0.0000	0.0000
	(a)anthracene	0.00	0	0.0000	0.0000
	sene/Triphenylene	0.00	0	0.0000	0.0000
		0.00	0	0.0000	
	hrysenes		0		0.0000
	hrysenes	0.00	1778	0.0000	12.50.50.50.50.50
	hrysenes	0.00	0	0.0000	0.0000
	hrysenes	0.00	0	0.0000	0.0000
	o(b)fluoranthene	0.00	0	0.0000	0.0000
	o(k,j)fluoranthene	0.00	0	0.0000	0.0000
79) Benz	o(a)fluoranthene	0.00	0	0.0000	0.0000
80) Benz	o(e)pyrene	0.00	0	0.0000	0.0000
	o(a)pyrene	0.00	0	0.0000	0.0000
89) Pery		0.00	0	0.0000	0.0000
	no(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
	nzo(a,h)anthracene	0.00	0	0.0000	0.0000
			0		
2.23 CONTRACTOR 6	ibenzo(a,h)anthracenes	0.00		0.0000	0.0000
	ibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86) C3-D	ibenzo(a,h)anthracenes o(g,h,i)perylene	0.00	0	0.0000	0.0000
		0.00	0	0.0000	0.0000

#	Compound Name	Ret Time	Target Response	Concentration	Su. Corrected
		(minute)	(area)		Concentration
	Individual Alkyl Isomers and Hopanes	5			
9)	2-Methylnaphthalene	16.19	2967	1.4251	1.5754
10)	1-Methylnaphthalene	16.52	1569	0.8051	0.8900
11)	2,6-Dimethylnaphthalene	18.31	1071	0.5641	0.6236
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
	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
	C30-Hopane	0.00	0	0.0000	0.0000
	C20-TAS	0.00	0	0.0000	0.0000
	C21-TAS	0.00	0	0.0000	0.0000
	C26(20S)-TAS	0.00	0	0.0000	0.0000
	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
10000	C28(20S)-TAS	0.00	0	0.0000	0.0000
	C27(20R)-TAS	0.00	0	0.0000	0.0000
	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.88	582190	187.25	77.86
	Acenaphthene-d10	19.73	353936	207.20	86.14
	Phenanthrene-d10	24.79	712895	217.63	90.46
	Chrysene-d12	33.85	657002	202.04	84.03
	Pervlene-d12	38.74	804388	218.14	90.73
	5(b)H-Cholane	34.27	188993	213.17	88.68
1	Internal Standards	100030000	いたかけたいがら		122204200
1)	Fluorene-d10	21.51	419147	241.39	
	Pyrene-d10	29.70	765699	240.99	
	Benzo(a)pyrene-d12	38.43	698433	240.70	

Data Path : C:\msdchem\2\data\M Data File : ARC1604.D Acq On : 7 Aug 2013 2:49 Operator : YM Sample : SED-DA-EB-02-072913 Misc : ALS Vial : 16 Sample Multipl Quant Time: Aug 12 19:15:29 201 Quant Method : C:\GCMS7\MS70052 Quant Title : PAH Calibration QLast Update : Thu Aug 08 08:32 Response via : Initial Calibrat	pm ier: 0.96 3 \AR70052 Table-201 :30 2013	. M	200.77			
Compound	R.T.	QIon	Response	Conc Un	nits Dev(Min)	
Internal Standards 1) Fluorene-d10 31) Pyrene-d10 73) Benzo(a)pyrene-d12						
System Monitoring Compounds 2) Naphthalene-d8 21) Acenaphthene-d10 32) Phenanthrene-d10 66) Chrysene-d12 88) Perylene-d12 90) 5(b)H-Cholane	33.040	240	804388m	202.04 218.14	0.00 0.00 0.00 -0.04 -0.04 0.00	
 7) C4-Decalins 8) Naphthalene 9) 2-Methylnaphthalene 10) 1-Methylnaphthalene 11) 2,6-Dimethylnaphthalene 12) 1,6,7-Trimethylnaphtha 13) C2-Naphthalenes 	0.000 0.000 0.000 13.934 16.190 16.524 18.307	128 142 142 156	0 0 341574m 2967m 1569m 1071m 0 7017m	N.D. N.D. N.D. N.D. 101.48 1.43 0.81 0.56 N.D. 2.08 N.D. N.D. N.D. N.D. N.D. N.D. N.D. N.D	d d d d d d d d d d d d d d d d d d d	

Data Path : C:\msdchem\2\data\MS70052\ Data File : ARC1604.D Acq On : 7 Aug 2013 2:49 pm Operator : YM Sample : SED-DA-EB-02-072913 Misc : ALS Vial : 16 Sample Multiplier: 0.96154 Quant Time: Aug 12 19:15:29 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration
 Compound
 R.T. QIon Response Conc Units

 441
 2-Methylphenanthrene
 0.000
 0
 N.D. d

 451
 2-Methylphenanthrene
 0.000
 0
 N.D. d

 461
 2.4
 2-Methylphenanthrene
 0.000
 0
 N.D. d

 471
 1-Methylphenanthrene
 0.000
 0
 N.D. d

 481
 3.6-Dimethylphenanthrene
 0.000
 0
 N.D. d

 491
 Retene
 0.000
 0
 N.D. d

 501
 C2-Phenanthrenes/Anthr...
 0.000
 0
 N.D. d

 512
 C4-Phenanthrenes/Anthr...
 0.000
 0
 N.D. d

 521
 C4-Phenanthrenes/Anthr...
 0.000
 0
 N.D. d

 521
 C4-Phenanthrenes/Anthr...
 0.000
 0
 N.D. d

 531
 Naphthobenzothiophenes
 0.000
 0
 N.D. d

 532
 C4-Maphthobenzothiophenes
 0.000
 0
 N.D. d

 531
 Fluoranthene
 0.000
 0
 N.D. d

 542
 C1-Pluor R.T. QIon Response Conc Units Dev(Min) Compound _____ Data Path : C:\msdchem\2\data\MS70052\ Data File : ARC1604.D Acq On : 7 Aug 2013 2:49 pm Operator : YM Sample : SED-DA-EB-02-072913 Misc : ALS Vial : 16 Sample Multiplier: 0.96154 Quant Time: Aug 12 19:15:29 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration Compound R.T. QIon Response Conc Units Dev(Min)

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



1,218-2020(a)pyreade8 TIC: ARC1604.D\data.ms 5(b)H-Cholane,S S,enslond,S Pyrene-d10,1 Sample Multiplier: 0.96154 : PAH Calibration Table-2013A Quant Time: Aug 12 19:15:29 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Phenampresetting QLast Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration C:\msdchem\2\data\MS70052\ 2:49 pm Fluore Abgrene-d10,1 SED-DA-EB-02-072913 T,nshutoznadiQ Acenaphthene-d10,S Biphenyl, T 7.6-Dimethylgsnlydfalene, T 7.2-Naphthalenes, un 7 Aug 2013 T.analeningenivnam-f ARC1604.D 2,8b-p.onisidiring MУ : 16 Quant Title •• ••• ... Data Path Data File Operator ALS Vial Acq On Sample 1500000 Abundance 5500000 5000000 4500000 4000000 3500000 3000000 1000000 2500000 2000000 Misc

52.M Tue Aug 20 19:16:56 2013

10.00 12.00 14.00 16.00 18.00 20.00 22.00 24.00 26.00 28.00

10

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149

500000

Page:

34.00 36.00 38.00 40.00 42.00 44.00 46.00 48.00

32.00

30.00

4

50.00 52.00 54.00 56.00 58.00 60.00

Data File Name	ARC1606.D	Surrogate/Internal Multiplier Factor: 1.00	
Data File Path	C:\msdchem\2\data\MS70052\	AR-WKSU-2500-001: (ng/mL)	
Operator	YM	Naphthalene-d8 250.125	
Date Acquired	8/7/2013 15:57	Acenaphthene-d10 250.163	Copy data below
Acq. Method File	PAH-2012.M	Phenanthrene-d10 250.194	to Spread Sheet
Sample Name	SED-DA-EB-03-073013	Chrysene-d12 250.038	
Misc Info	0	Perylene-d12 250.031	ARC1606.D
Instrument Name	GCMSD	5(b)H-Cholane 250.000	SED-DA-EB-03-073013
Vial Number	17		8/7/2013
Sample Multiplier	1.03093		PAH-2012.M
Sample Amount	0		0.969997963

lane	250.000	SED-DA-E
		8/7
		PAH-
		0.969
	Concentration	Su. Co

# Co	ompound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3) ci	s/trans Decalin	0.00	0	0.0000	0.0000
	L-Decalins	0.00	0	0.0000	0.0000
	2-Decalins	0.00	0	0.0000	0.0000
	3-Decalins	0.00	o	0.0000	0.0000
	4-Decalins	0.00	0	0.0000	0.0000
	aphthalene	13.93	536524	177.6890	192.7295
	L-Naphthalenes	16.36	5115	1.6940	1.8374
	2-Naphthalenes	18.56	5870	1.9441	2.1086
	-Naphthalenes	0.00	0	0.0000	0.0000
-2.2 51	-Naphthalenes	0.00	0	0.0000	0.0000
	enzothiophene	0.00	0	0.0000	0.0000
	-Benzothiophenes	0.00	0	0.0000	0.0000
	-Benzothiophenes	0.00	0	0.0000	0.0000
	-Benzothiophenes	0.00	0	0.0000	0.0000
	-Benzothiophenes	0.00	0	0.0000	0.0000
		17.75	1526	0.6028	0.6538
22) Bi	A Second S	0.00	0	0.0000	0.0000
	enaphthylene	0.00	0		0.0000
	enaphthene		2313	0.0000	
	benzofuran	20.42		0.8494	0.9213
	Jorene	21.59	1479	0.6775	0.7348
	-Fluorenes	0.00	0	0.0000	0.0000
2002 (Trans)	-Fluorenes	0.00	0	0.0000	0.0000
R.S.M. 201323.0	Fluorenes	0.00		0.0000	0.0000
100 100	rbazole	0.00	0	0.0000	0.0000
	hthracene	0.00	0	0.0000	0.0000
and a second	enanthrene	24.89	9173	3.0338	3.2906
	-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
	-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) Dil	benzothiophene	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) Flu	Joranthene	0.00	0	0.0000	0.0000
59) Py	rene	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) Na	phthobenzothiophene	0.00	0	0.0000	0.0000
54) C1	-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
	-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
	-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
	-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
20152223	nz(a)anthracene	0.00	0	0.0000	0.0000
	rysene/Triphenylene	0.00	0	0.0000	0.0000
	-Chrysenes	0.00	0	0.0000	0.0000
C + 12 2 2 4 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2	-Chrysenes	0.00	0	0.0000	0.0000
	-Chrysenes	0.00	0	0.0000	0.0000
	-Chrysenes	0.00	ō	0.0000	0.0000
	nzo(b)fluoranthene	0.00	0	0.0000	0.0000
00000	nzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
	nzo(a)fluoranthene	0.00	0	0.0000	0.0000
	nzo(e)pyrene	0.00	0	0.0000	0.0000
	nzo(a)pyrene	0.00	0	0.0000	0.0000
81) Be		0.00	0	0.0000	0.0000
0.022 0.0740 0.07	이 특히 가입니다.	0.00	0	0.0000	0.0000
	deno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
	benzo(a,h)anthracene				
	-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
	-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
	-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
	nzo(g,h,i)perylene	0.00	0	0.0000	0.0000

#	Compound Name	Ret Time	Target Response	Concentration	Su. Corrected
		(minute)	(area)		Concentration
	Individual Alkyl Isomers and Hopanes	5			
9)	2-Methylnaphthalene	16.19	3064	1.6406	1.7794
10)	1-Methylnaphthalene	16.52	2051	1.1732	1.2725
11)	2,6-Dimethylnaphthalene	18.31	996	0.5848	0.6343
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	13.88	576032	206.53	80.09
21)	Acenaphthene-d10	19.73	338537	220.93	85.66
32)	Phenanthrene-d10	24.79	677135	237.80	92.20
66)	Chrysene-d12	33.85	598489	211.73	82.14
88)	Perylene-d12	38.74	730603	227.23	88.15
90)	5(b)H-Cholane	34.27	171923	222.40	86.29
n nevă j	Internal Standards				
1)	Fluorene-d10	21.51	403142	258.81	
31)	Pyrene-d10	29.70	713617	258.38	
73)	Benzo(a)pyrene-d12	38.43	652939	258.07	

Data Path : C:\msdchem\2\data\MS70052\ Data File : ARC1606.D Acq On : 7 Aug 2013 3:57 pm Operator : YM Sample : SED-DA-EB-03-073013 Misc : ALS Vial : 17 Sample Multiplier: 1.03093								
Quant Time: Aug 12 19:20:24 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration								
	Compound	R.T.	QIon	Response	Conc Units	B Dev(Min)		
	rnal Standards	21 511	176	402142m	251 05	0 00		
1) 31)	Pyrene-d10	29 704	212	403142m 713617m	251.05	0.00		
73)	Fluorene-d10 Pyrene-d10 Benzo(a)pyrene-d12	38.425	264	652939m	250.32	0.00		
01	em Monitoring Compounds	10 070	120	556000-	206 52	0 00		
2)	Naphthalene-d8	13.878	164	576032m 338537m	206.53 220.93	0.00		
32)	Acenaphthene-d10 Phenanthrene-d10	24.787	188	677135m	237.80	0.00		
66)	Chrysene-d12	33.848	240	598489m	211.73	-0.04		
88)	Chrysene-d12 Perylene-d12 5(b)H-Cholane	38.736	264	730603m	227.23	-0.04		
90)	5(b)H-Cholane	34.274	217	171923m	222.40	0.00		
Targ	et Compounds					Qvalue		
3)	et Compounds cis/trans Decalin C1-Decalins	0.000		0	N.D. d	-		
4)	C1-Decalins	0.000		0	N.D. d N.D. d			
5)	C2-Decalins	0.000		0	N.D. d			
6) 7)	C2-Decalins C3-Decalins C4-Decalins Naphthalene 2-Methylnaphthalene	0.000		0	N.D. d N.D. d			
8)	Naphthalene	13.934	128	536524m	177.69			
9)	2-Methylnaphthalene	16.190	142	3064m	1.64			
10/	T TICCITY THUNHOUGHOUGHOUGH		and the start	2001111	and a make of			
11)	2,6-DimethyInaphthalene	18.307	156	996m	0.58 N.D. d			
	1,6,7-Trimethylnaphtha							
	C2-Naphthalenes C3-Naphthalenes	18.558 0.000	156	5870m 0	1.94 N.D. d			
15)	C4-Naphthalenes	0.000		0	N.D. d			
	Benzothiophene	0.000		0	N.D. d			
	C1-Benzothiophenes	0.000		0	N.D. d			
	C2-Benzothiophenes	0.000		0	N.D. d			
	C3-Benzothiophenes	0.000		0	N.D. d N.D. d			
	C4-Benzothiophenes Biphenyl	0.000 17.750	154	1526m	0.60			
	Acenaphthylene	0.000		0	N.D. d			
	Acenaphthene	0.000		0	N.D. d			
	Dibenzofuran	20.424	168	2313m	0.85			
	Fluorene	21.594	166	1479m	0.68			
	1-Methylfluorene C1-Fluorenes	0.000		0	N.D. d N.D. d			
	C2-Fluorenes	0.000		õ	N.D. d			
30)	C3-Fluorenes	0.000		0	N.D. d			
	Carbazole	0.000		0	N.D. d			
	Dibenzothiophene	0.000		0	N.D. d			
	4-Methyldibenzothiophene 2/3-Methyldibenzothiop	0.000		0	N.D. d N.D. d			
	1-Methyldibenzothiophene	0.000		0	N.D. d			
	C2-Dibenzothiophenes	0.000		0	N.D. d			
39)	C3-Dibenzothiophenes	0.000		0	N.D. d			
	C4-Dibenzothiophenes	0.000	1.80	0	N.D. d			
	Phenanthrene Anthracene	24.891 0.000	178	9173m	3.03			
	3-Methylphenanthrene	0.000		0	N.D. d N.D. d			
10/				č				

Data Path : C:\msdchem\2\data\MS70052\ Data File : ARC1606.D Acq On : 7 Aug 2013 3:57 pm Operator : YM Sample : SED-DA-EB-03-073013 Misc 12 ALS Vial : 17 Sample Multiplier: 1.03093 Quant Time: Aug 12 19:20:24 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration
 Compound
 R.T. QION Response Conc Units

 44)
 2-Methylphenanthrene
 0.000
 0
 N.D. d

 45)
 2-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

 52)
 C4-Phenanthrenes/Anthr...
 0.000
 0
 N.D. d

 51)
 C3-Naphthobenzothiophenes
 0.000
 0
 N.D. d

 51)
 C4-Maphthobenzothiophenes
 0.000
 0
 N.D. d

 52)
 Pyrene
 0.000
 0
 N.D. d

 51)
 Pyrene
 0.000
 0
 N.D. d

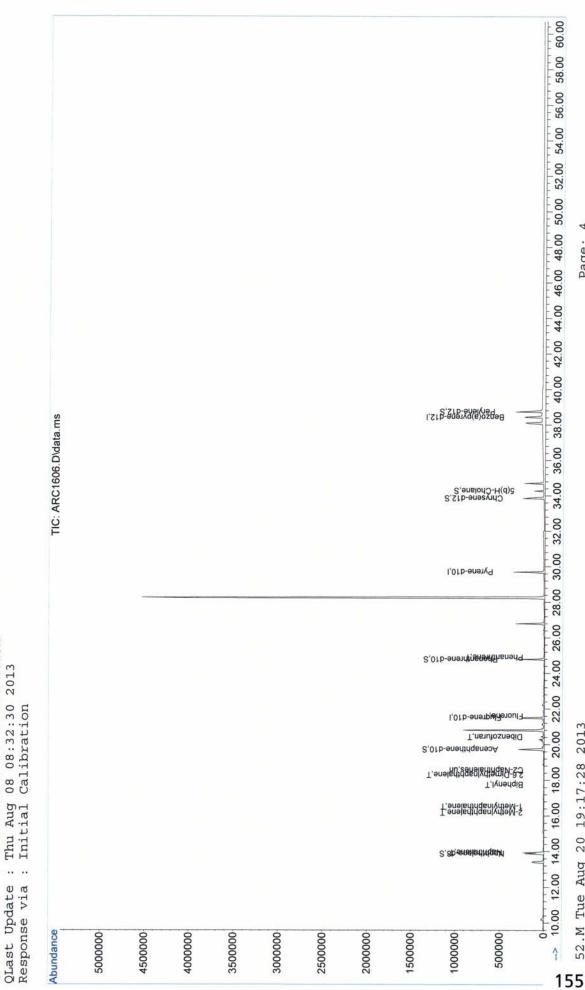
 52)
 Pyrene
 0.000
 <td Compound R.T. QIon Response Conc Units Dev(Min)

Data Path : C:\msdchem\2\data\MS70052\ Data File : ARC1606.D Acq On : 7 Aug 2013 3:57 pm Operator : YM Sample : SED-DA-EB-03-073013 Misc : ALS Vial : 17 Sample Multiplier: 1.03093 Quant Time: Aug 12 19:20:24 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration Compound R.T. QIon Response Conc Units Dev(Min)

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

AR70052.M Tue Aug 20 19:17:27 2013

(QT Reviewed)		
Quantitation Report	Data Path : C:\msdchem\2\data\MS70052\ Data File : ARC1606.D Acq On : 7 Aug 2013 3:57 pm Operator : YM	Quant Time: Aug 12 19:20:24 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration



Page:

4

-

Data File Name	ARC1609.D	Surrogate/Internal Multiplier Factor:	1.00	
Data File Path	C:\GCMS7\MS70052\	AR-WKSU-2500-001:	(ng/mL)	
Operator	YM	Naphthalene-d8	250.125	
Date Acquired	8/7/2013 17:06	Acenaphthene-d10	250.163	Copy data b
Acq. Method File	PAH-2012.M	Phenanthrene-d10	250.194	to Spread S
Sample Name	SED-DA-EB-04-073113	Chrysene-d12	250.038	3443.C38.C40.42444
Misc Info	0	Perylene-d12	250.031	ARC1609
Instrument Name	GCMSD	5(b)H-Cholane	250.000	SED-DA-EB-04
Vial Number	18			8/7/201
Sample Multiplier	1			PAH-2012
Sample Amount	0			1

Copy data below		
	v data below	w
to Spread Sheet		

1609.D 3-04-073113 /2013 2012.M

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
31	cis/trans Decalin	0.00	0	0.0000	0.0000
2.43	C1-Decalins	0.00	0	0.0000	0.0000
1010	C2-Decalins	0.00	0	0.0000	0.0000
0.33	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
	Naphthalene	13.93	191114	62.4433	66.2444
9)+10)	C1-Naphthalenes	16.36	5223	1.7065	1.8104
	C2-Naphthalenes	18.64	5706	1.8643	1.9778
	C3-Naphthalenes	0.00	0	0.0000	0.0000
	C4-Naphthalenes	0.00	0	0.0000	0.0000
	Benzothiophene	0.00	0	0.0000	0.0000
	C1-Benzothiophenes	0.00	0	0.0000	0.0000
	C2-Benzothiophenes	0.00	0	0.0000	0.0000
	C3-Benzothiophenes	0.00	0	0.0000	0.0000
C27320	C4-Benzothiophenes	0.00	0	0.0000	0.0000
	Biphenyl	17.75	2433	0.9481	1.0059
100000	Acenaphthylene	0.00	0	0.0000	0.0000
	Acenaphthene	0.00	0	0.0000	0.0000
	Dibenzofuran	20.42	2773	1.0046	1.0658
	Fluorene	21.59	1168	0.5278	0.5599
5-6-67	C1-Fluorenes	0.00	0	0.0000	0.0000
10.1179	C2-Fluorenes	0.00	õ	0.0000	0.0000
	C3-Fluorenes	0.00	0	0.0000	0.0000
865.5	Carbazole	0.00	0	0.0000	0.0000
	Anthracene	0.00	0	0.0000	0.0000
	Phenanthrene	24.89	10191	3.2473	3.4450
	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
202523	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
2011/201	Dibenzothiophene	0.00	0	0.0000	0.0000
	C1-Dibenzothiophenes	0.00	0		
ALCOUNT ALCOUNT	CARLEND FILM	0.00	0	0.0000	0.0000
	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
	C3-Dibenzothiophenes			0.0000	0.0000
	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
0.55	Fluoranthene	0.00	0	0.0000	0.0000
	Pyrene	0.00	0	0.0000	0.0000
	C1-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
2002200	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
2008	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
	Naphthobenzothiophene	0.00	0	0.0000	0.0000
	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
2012	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
53.170	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
	Benz(a)anthracene	0.00	0	0.0000	0.0000
	Chrysene/Triphenylene	0.00	0	0.0000	0.0000
	C1-Chrysenes	0.00	0	0.0000	0.0000
	C2-Chrysenes	0.00	0	0.0000	0.0000
	C3-Chrysenes	0.00	0	0.0000	0.0000
-7.0	C4-Chrysenes	0.00	0	0.0000	0.0000
	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
	Benzo(e)pyrene	0.00	0	0.0000	0.0000
	Benzo(a)pyrene	0.00	0	0.0000	0.0000
	Perylene	0.00	0	0.0000	0.0000
	Indeno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
0.000	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
	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	Target Response	Concentration	Su. Corrected
		(minute)	(area)		Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.19	3311	1.7490	1.8554
10)	1-Methylnaphthalene	16.52	1912	1.0790	1.1446
11)	2,6-Dimethylnaphthalene	18.31	841	0.4871	0.5168
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	13.88	528095	186.80	74.68
21)	Acenaphthene-d10	19.73	339761	218.74	87.44
32)	Phenanthrene-d10	24.79	697007	235.84	94.26
66)	Chrysene-d12	33.85	623005	212.35	84.93
88)	Perylene-d12	38.74	783614	236.50	94.59
90)	5(b)H-Cholane	34.27	181875	228.30	91.32
	Internal Standards				
1)	Fluorene-d10	21.51	396376	251.05	
31)	Pyrene-d10	29.70	718459	250.63	
73)	Benzo(a)pyrene-d12	38.46	652671	250.33	

Data Path : C:\msdchem\2\data\MS70052\ Data File : ARC1609.D Acq On : 7 Aug 2013 5:06 pm Operator : YM Sample : SED-DA-EB-04-073113 Misc : ALS Vial : 18 Sample Multiplier: 1 Quant Time: Aug 12 19:28:53 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration									
Compound	R.T.				its Dev(Min)				
Internal Standards 1) Fluorene-d10 31) Pyrene-d10 73) Benzo(a)pyrene-d12	21.510 29.704 38.464		396376m 718459m 652671m		0.00 0.00 0.00				
21) Acenaphthene-d1032) Phenanthrene-d1066) Chrysene-d12	13.878 19.728 24.787 33.847 38.735 34.274	164 188 240 264	339761m 697007m 623005m 783614m	218.74 235.84 212.35	0.00 -0.04 -0.04				
 6) C3-Decalins 7) C4-Decalins 8) Naphthalene 9) 2-Methylnaphthalene 10) 1-Methylnaphthalene 11) 2,6-Dimethylnaphthalene 12) 1,6,7-Trimethylnaphtha 13) C2-Naphthalenes 	0.000 0.000 0.000 13.933 16.190 16.524 18.307	128 142 142 156	0 0 0 191114m 3311m 1912m 841m 0 5706m	N.D. N.D. 62.44 1.75 1.08 0.49	d d d d d d d d d d d d d d d d d d d				

Compound R.T. QION Response Conc Units Dev(Min) 441 2-Methylphenanthrene 0.000 0 N.D. d 451 2-Methylphenanthrene 0.000 0 N.D. d 461 4/9 Methylphenanthrene 0.000 0 N.D. d 471 1-Methylphenanthrene 0.000 0 N.D. d 471 1-Methylphenanthrene 0.000 0 N.D. d 471 1-Methylphenanthrene 0.000 0 N.D. d 471 1-Methylphenanthrenes/Anthr 0.000 0 N.D. d 572 C4-Phenanthrenes/Anthr 0.000 0 N.D. d 572 C4-Naphthobenzothiophenes 0.000 0 N.D. d 572 C4-Naphthobenzothiophenes 0.000 0 N.D. d 58 Fluoranthenes/Pyrenes 0.000 0 N.D. d 59 Pyrene 0.000 0 N.D. d 61 Benzo(bfluoranthenes/Pyrenes 0.000 0 N.D. d	Data Path : C:\msdchem\2\data\MS70052\ Data File : ARC1609.D Acq On : 7 Aug 2013 5:06 pm Operator : YM Sample : SED-DA-EB-04-073113 Misc : ALS Vial : 18 Sample Multiplier: 1 Quant Time: Aug 12 19:28:53 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration								
45 2-Methylphenanthrene 0.000 0 N.D. d 46 4/9-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 51 C3-Phenanthrenes/Anthr 0.000 0 N.D. d 51 C3-Phenanthrenes/Anthr 0.000 0 N.D. d 51 C2-Phaphthobenzothiophenes 0.000 0 N.D. d 52 C4-Phaphthobenzothiophenes 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 61 Benzo(b)fluorantene 0.000 0 N.D. d 62 C1-Fluoranthenes/Pyrenes 0.000 0 N.D. d		Compound	R.T. QI	on Response	Conc Units Dev(Min)				
45 2-Methylphenanthrene 0.000 0 N.D. d 46 4/9-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 51 C3-Phenanthrenes/Anthr 0.000 0 N.D. d 51 C3-Phenanthrenes/Anthr 0.000 0 N.D. d 51 C2-Phaphthobenzothiophenes 0.000 0 N.D. d 52 C4-Phaphthobenzothiophenes 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 61 Benzo(b)fluorantene 0.000 0 N.D. d 62 C1-Fluoranthenes/Pyrenes 0.000 0 N.D. d	44)	2-Methylphenanthrene	0.000		N.D. d				
47) 1-Methylphenanthrene 0.000 0 N.D. d 48) 3, 6-Dimethylphenanthrene 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 51) C3-Phenanthrenes/Anthr 0.000 0 N.D. d 52) C4-Phenanthrenes/Anthr 0.000 0 N.D. d 53) Naphthobenzothiophenes 0.000 0 N.D. d 54) C1-Naphthobenzothiophenes 0.000 0 N.D. d 55) C2-Naphthobenzothiophenes 0.000 0 N.D. d 66) C3-Naphthobenzothiophenes 0.000 0 N.D. d 67) C4-Naphthobenzothiophenes 0.000 0 N.D. d 61) Benzo(b) fluoranthene 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 </td <td>45)</td> <td>2-Methylanthracene</td> <td>0.000</td> <td>0</td> <td></td>	45)	2-Methylanthracene	0.000	0					
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) Naphthobenzothiophenes 0.000 0 N.D. d 54) C1-Naphthobenzothiophenes 0.000 0 N.D. d 55) C2-Naphthobenzothiophenes 0.000 0 N.D. d 57) C4-Naphthobenzothiophenes 0.000 0 N.D. d 58) Fluoranthene 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 67) Benzo(a) fluorene 0.000 0 N.D. d 68) Chrysenes 0.000 0 N.D. d 7	46)	4/9-Methylphenanthrene	0.000						
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) Naphthobenzothiophenes 0.000 0 N.D. d 54) C1-Naphthobenzothiophenes 0.000 0 N.D. d 55) C2-Naphthobenzothiophenes 0.000 0 N.D. d 57) C4-Naphthobenzothiophenes 0.000 0 N.D. d 58) Fluoranthene 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 67) Benzo(a) fluorene 0.000 0 N.D. d 68) Chrysenes 0.000 0 N.D. d 7	47)	1-Methylphenanthrene	0.000						
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 Naphthobenzothiophenes 0.000 0 N.D. d 54 C1-Naphthobenzothiophenes 0.000 0 N.D. d 55 C2-Naphthobenzothiophenes 0.000 0 N.D. d 57 C4-Naphthobenzothiophenes 0.000 0 N.D. d 58 Fluoranthene 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 67 Benz(a) anthracene 0.000 0 N.D. d 63 C4-Fluoranthenes/Pyrenes 0.000 N.D. d 71 <td></td> <td></td> <td></td> <td></td> <td></td>									
51) C3-Phenanthrenes/Anthr 0.000 0 N.D. d 52) C4-Phenanthrenes/Anthr 0.000 0 N.D. d 53) Naphthobenzothiophenes 0.000 0 N.D. d 54) C1-Naphthobenzothiophenes 0.000 0 N.D. d 55) C2-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 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 67) Benz(a) anthracene 0.000 0 N.D. d 67) Benz(a) anthracene 0.000 0 N.D. d 68) C1-Fluoranthenes/Pyrenes 0.000 0 N.D. d									
52) C4-Phenanthrenes/Anthr 0.000 0 N.D. d 53) Naphthobenzothiophenes 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 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) Benzo(a)fluoranthene 0.000 0 N.D. d 71) C3-Chrysenes 0.000 0 N.D. d	50)	C2-Phenanthrenes/Anthr	0.000						
53) Naphthobenzothiophenes 0.000 0 N.D. d 54) C1-Naphthobenzothiophenes 0.000 0 N.D. d 55) C2-Naphthobenzothiophenes 0.000 0 N.D. d 57) C4-Naphthobenzothiophenes 0.000 0 N.D. d 58) Fluoranthene 0.000 0 N.D. d 60) 2-Methylfluoranthene 0.000 0 N.D. d 61) Benzo(b)fluoranthenes/Pyrenes 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 66) 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									
54) C1-Naphthobenzothiophenes 0.000 0 N.D. d 55) C2-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/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 66) 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 73) Benzo(k) fluoranthene 0.000 0 N.D. d 74) C30		Naphthobenzothiophene	0.000						
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 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) 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 73) Ba-									
57) C4-Naphthobenzothiophenes 0.000 0 N.D. d 58) Fluoranthene 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) 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 73) 18a-Oleanane 0.000 0 N.D. d 74) C29-Hopane 0.000 0 N.D. d 75) 18a-Oleanane 0.00				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 66) Chrysene/Triphenylene 0.000 0 N.D. d 67) Benz (a) anthracene 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 73) 18a-Oleanane 0.000 0 N.D. d 74) C29-Hopane 0.000 0 N.D. d 79) Benzo(a) fluoranthene				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 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 73) Benzo(b)fluoranthene 0.000 0 N.D. d 74) C29-Hopane 0.000 0 N.D. d 77) Benzo(a)fluoranthene <td></td> <td></td> <td></td> <td></td> <td></td>									
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 66) Ch-rysenthenes/Pyrenes 0.000 0 N.D. d 67) Benz (a) anthracene 0.000 0 N.D. d 68) Chrysenes/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 73) Beacole/Dilocranthene 0.000 0 N.D. d 74) C29-Hopane 0.000 0 N.D. d 76) Benzo(a) flu									
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 79) Benzo(k,j) fluoranthene 0.000 0 N.D. d 80) Benzo(a, h) anthraccne 0.000 0 N.D. d 81) Benzo(a, h) anthrac									
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 74) C29-Hogane 0.000 0 N.D. d 75) 18a-Oleanane 0.000 0 N.D. d 77) Benzo(k, j)fluoranthene 0.000 0 N.D. d 78) Benzo(a)fluoranthene 0.000 0 N.D. d 79) Benzo(a)fluoranthene 0.000 0 N.D. d 80) Benzo(a, h)anthracene 0.000 0 N.D. d 81) Benzo(a,									
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 77) Benzo(k, j) fluoranthene 0.000 0 N.D. d 78) Benzo(a) fluoranthene 0.000 0 N.D. d 79) Benzo(a) pyrene 0.000 0 N.D. d 80) Benzo(a, h) anthracene 0.000 0 N.D. d 81) Dibenzo(a, h) anthracen									
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 (a) fluoranthene 0.000 0 N.D. d 80) Benzo (a) pyrene 0.000 0 N.D. d 81) Benzo (a, h) anthraccne 0.000 0 N.D. d 82) Indeno (1, 2, 3-c, d) pyrene 0.000 0 N.D. d 84) C1-Dibenzo (a, h) anthrac	63)	C2-Fluoranthenes/Pyrenes	0.000						
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 (a) fluoranthene 0.000 0 N.D. d 80) Benzo (a) pyrene 0.000 0 N.D. d 81) Benzo (a, h) anthraccne 0.000 0 N.D. d 82) Indeno (1, 2, 3-c, d) pyrene 0.000 0 N.D. d 84) C1-Dibenzo (a, h) anthrac	64)	C3-Fluoranthenes/Pyrenes	0.000						
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 (a) fluoranthene 0.000 0 N.D. d 79) Benzo (a) pyrene 0.000 0 N.D. d 80) Benzo (a) pyrene 0.000 0 N.D. d 81) Benzo (a, h) anthracene 0.000 0 N.D. d 82) Indeno (1, 2, 3-c, d) pyrene 0.000 0 N.D. d 83) Dibenzo (a, h) anthrac <t< td=""><td>65)</td><td>C4-Fluoranthenes/Pyrenes</td><td>0.000</td><td></td><td></td></t<>	65)	C4-Fluoranthenes/Pyrenes	0.000						
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 77) Benzo(b)fluoranthene 0.000 0 N.D. d 77) Benzo(k, j)fluoranthene 0.000 0 N.D. d 79) Benzo(a)fluoranthene 0.000 0 N.D. d 80) Benzo(a)fluoranthene 0.000 0 N.D. d 81) Benzo(a)fluoranthene 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 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 <td>67)</td> <td>Benz(a)anthracene</td> <td></td> <td>0</td> <td>N.D. d</td>	67)	Benz(a)anthracene		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 77) Benzo(b)fluoranthene 0.000 0 N.D. d 77) Benzo(k, j)fluoranthene 0.000 0 N.D. d 79) Benzo(a)fluoranthene 0.000 0 N.D. d 80) Benzo(a)fluoranthene 0.000 0 N.D. d 81) Benzo(a)fluoranthene 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 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 <td>68)</td> <td>Chrysene/Triphenylene</td> <td></td> <td></td> <td></td>	68)	Chrysene/Triphenylene							
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(a) 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) anthracc 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 87) Benzo(g,h,i)perylene 0.000 0 N.D. d 91) C20-TAS	69)	Cl-Chrysenes							
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) jluoranthene 0.000 0 N.D. d 79) Benzo(a) fluoranthene 0.000 0 N.D. d 79) Benzo(a) fluoranthene 0.000 0 N.D. d 80) Benzo(a) fluoranthene 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) anthracc 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 87) Benzo(g,h,i) perylene 0.000 0 N.D. d 91) C									
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 79) Benzo (a) pyrene 0.000 0 N.D. d 80) Benzo (a) 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 87) Benzo (g, h, i) perylene 0.000 0 N.D. d 89) Perylene 0.000 0 N.D. d 91)									
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 79) Benzo(a) fluoranthene 0.000 0 N.D. d 80) Benzo(a) fluoranthene 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) anthraccne 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 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									
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 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 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) <t< td=""><td></td><td></td><td></td><td></td><td></td></t<>									
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 (a) fluoranthene 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 9									
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) anthracene 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 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									
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)anthracene 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 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			0.000						
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 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		Benzo(a)fluoranthene	0.000						
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 93) C26(20S)-TAS 0.000 0 N.D. d 94) C26(20S)-TAS 0.000 0 N.D. d 95) C28(20S)-TAS 0.000 0 N.D. d		Benzo(e)pyrene	0.000						
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	81)	Benzo(a)pyrene	0.000						
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(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	82)	Dibenzo(a, h)anthracene	0.000						
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(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	84)	C1-Dibenzo(a, h) anthrac	0.000						
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(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	85)	C2-Dibenzo(a,h)anthrac	0.000						
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	86)	C3-Dibenzo(a,h)anthrac	0.000						
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									
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	89)	Perylene							
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									
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	92)	C21-TAS							
95) C28(20S)-TAS 0.000 0 N.D. d 96) C27(20R)-TAS 0.000 0 N.D. d	93)	C26 (20S) - TAS							
95) C28(205)-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	94)	$C_{26}(20R)/C_{27}(20S)$ -TAS							
97) C28(20R)-TAS 0.000 0 N.D. d	95)	(200) - TAS	0.000						
	971	$C_2 (20R) - TAS$	0.000						

Data Path : C:\msdchem\2\data\MS70052\ Data File : ARC1609.D Acq On : 7 Aug 2013 5:06 pm Operator : YM Sample : SED-DA-EB-04-073113 Misc : ALS Vial : 18 Sample Multiplier: 1 Quant Time: Aug 12 19:28:53 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration Compound R.T. QIon Response Conc Units Dev(Min)

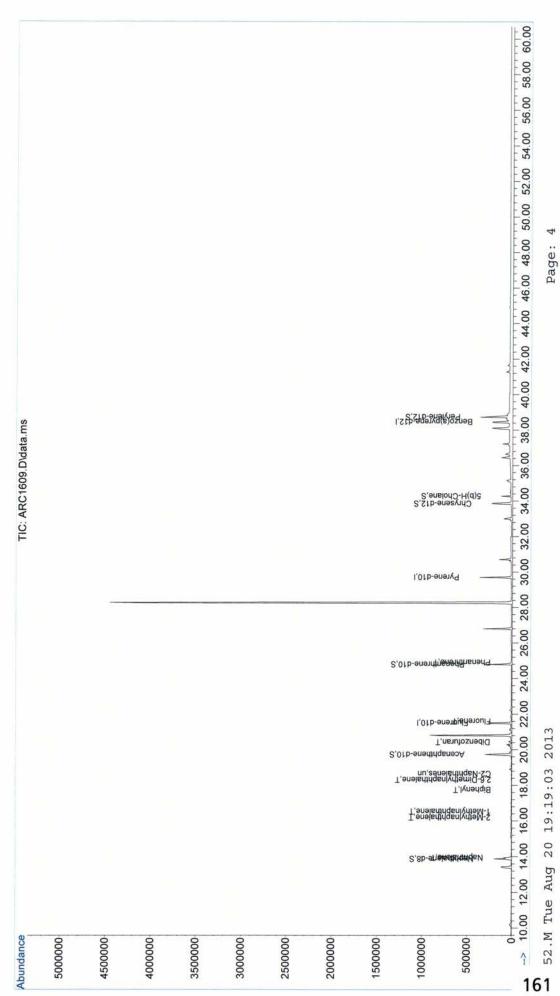
(#) = qualifier out of range (m) = manual integration (+) = signals summed

AR70052.M Tue Aug 20 19:19:01 2013

Quantitation Report (QT Reviewed)

C:\msdchem\2\data\MS70052\ Sample Multiplier: 1 5:06 pm SED-DA-EB-04-073113 7 Aug 2013 ARC1609.D MХ : 18 Data Path Data File Operator ALS Vial Acq On Sample Misc

Quant Time: Aug 12 19:28:53 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A Quant Update : Thu Aug 08 08:32:30 2013 Response via : Initial Calibration



Aliphatic Hydrocarbons/ Total Petroleum Hydrocarbons/ Initial Calibration Data and Initial Calibration Verification Data

TPH/Aliphatic ICAL FID3C08FRONT072413.M

GC/FID-3 FRONT

Method Path : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\
Method File : FID3C08FRONT072413.M
Title : C8 - C40 aliphatic
Last Update : Wed Jul 24 12:42:03 2013
Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	1	1	50	P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\FID30032C.D
2	2	10	50	P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\FID30032D.D
3	3	25	50	P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\FID30032E.D
4	4	40	50	P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\FID30032F.D
5	5	50	50	P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\FID30032G.D
6	6	100	50	P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\FID30032H.D

#	ID	Update Time	Quant Time	Acquisition Time		
	1	Jul 24 09:52 2013	Jul 24 09:51 2013	19-Jul-2013, 14:22:44		
2	2	Jul 24 10:03 2013	Jul 24 10:02 2013	19-Jul-2013, 15:33:34		
3	3	Jul 24 10:13 2013	Jul 24 10:11 2013	19-Jul-2013, 16:44:13		
4	4	Jul 24 10:22 2013	Jul 24 10:22 2013	19-Jul-2013, 17:55:07		
5	5	Jul 24 12:16 2013	Jul 24 12:16 2013	19-Jul-2013, 19:05:43		
6	6	Jul 24 12:31 2013	Jul 24 12:31 2013	19-Jul-2013, 20:16:32		

FID3C08FRONT072413.M Wed Jul 24 12:55:28 2013

Response Factor Report HP5890

Method Path : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\ Method File : FID3C08FRONT072413.M Title : C8 - C40 aliphatic Last Update : Wed Jul 24 12:42:03 2013 Response Via : Initial Calibration										
1		ration Files =FID30032C.D 2 =FID30032F.D 5		=FID30 =FID30	032D.D 032G.D	3 6	= F = F	ID3003 ID3003	2E.D 2H.D	
		Compound	1	2	3	4	5	6	Avg	%RSD
1)	I	n-hexadecane-d34				IS	TD			
2)		n-C8 n-C9 n-C10 n-C11 n-dodecane-d26	0.918	0.928	0.917	0.939	0.936	0.818	0.909	5.01
3)		n-C9	0.980	0.988	0.972	0.998	0.998	0.866	0.967	5.21
4)		n-C10	1.049	1.061	1.043	1.067	1.069	0.928	1.036	5.21
5)		n-C11	1.072	1.085	1.065	1.089	1.089	0.944	1.057	5.35
6)	S	n-dodecane-d26	1.024	1.015	1.003	1.049	1.018	0.898	1.001	5.29
7)		n-C12	1.135	1.148	1.129	1.130	1.153	0.997	1.115	5.27
8)		1-13	1.143	1.154	1.136	1.15/	1.158	1.000	1.125	5.50
9)		1-14	1.18/	1.195	1 136	1.189	1.201	1.035	1 124	5.50
10)		n=C13	1 237	1 216	1 202	1 203	1 214	1 045	1 186	5.93
12)		n=C14	1 187	1 195	1,181	1.189	1.201	1.035	1.165	5.50
13)		i-16	1.250	1.229	1.218	1.208	1.223	1.052	1.197	6.03
14)		n-dodecane-d26 n-C12 i-13 i-14 n-C13 i-15 n-C14 i-16 n-C15 p-C16	1.237	1.216	1.202	1.203	1.214	1.045	1.186	5.93
101		11-010	1.200	1.262	1.210	1.200	1.220	1.002	+ • + > /	0.00
16)	I	5a-androstane i-18 n-C17 Pristane n-C18 Phytane n-C19	a and			IS'	TD			
17)		i-18	0.964	0.978	0.968	0.979	0.976	0.850	0.952	5.32
18)		n-C17	0.996	0.985	0.982	0.980	0.992	0.864	0.967	5.22
19)		Pristane	0.900	0.902	0.970	0.979	0.907	0.850	0.902	5.20
20)		Dhutane	0.904	0.970	0.900	0.973	0.995	0.865	0.952	5 30
221		n=C19	0.968	0.980	0.968	0.977	0.974	0.847	0.952	5.43
23)	S	Phytane n-C19 n-eicosane-d42 n-C20 n-C21 n-C22 n-C23 n-C24	0.779	0.780	0.773	0.803	0.775	0.687	0.766	5.27
24)	0	n-C20	0.971	0.985	0.974	0.982	0.981	0.849	0.957	5.54
25)		n-C21	0.979	0.999	0.984	0.983	0.988	0.857	0.965	5.53
26)		n-C22	0.978	1.000	0.982	0.993	0.987	0.855	0.966	5.67
27)		n-C23	0.993	1.003	0.986	0.987	0.992	0.858	0.970	5.67
28)		n-C24	0.987	1.001	0.986	0.984	0.990	0.855	0.967	5.71
291		n-025	0.903	1.000	0.903	0.990	0.909	0.054	0.907	5.70
30)		n-C26					0.988			5.85
31)		n-C27					0.961			5.87 5.95
32)			0.978				0.973			6.07
33) 34)	C	n-C29 n-triacontane								5.97
35)			0.970							6.07
36)			0.945							6.04
37)			0.952	0.946	0.932	0.935	0.939	0.801	0.917	6.28
38)		n-C33	0.919	0.921	0.907	0.920	0.913	0.775	0.892	6.47
39)			0.909							6.65
40)			0.917							7.34
41)			0.977							7.72
42)			0.886							8.61
43)			0.852							9.12 10.06
44)			0.698							10.85
45) 46)			0.921							6.01
46)			0.921							6.01
48)		TRH2	0.921							6.01
49)			0.921							6.01
50)			0.921							6.01
51)		TRH5	0.921							6.01
52)			0.921							6.01
53)			0.921							6.01
54)		DRO	0.921	0.931	0.920	0.936	0.930	0.795	0.906	6.01

Response Factor Report HP5890

Meth Titl Last	nod Path : P:\2013 nod File : FID3C08 .e : C8 - C40 : Update : Wed Ju ponse Via : Initia	BFRONTO alipha ul 24 1	72413.M tic 2:42:03		data\F	ID 3\F	ID3003	2\	
0.01.0.0	bration Files								
1	=FID30032C.D	2	=FID30	032D.D	3	=F	ID3003	2E.D	
4	=FID30032F.D	5	=FID30	032G.D	6	=F	ID3003	2H.D	
	Compound	1	2	3	4	5	6	Avg	%RSD
55)	RRO	0.9	21 0.931	0.920	0.936	0.930	0.795	0.906	6.01

(#) = Out of Range

	Area for TPH Calculations
Last Calibration Update	Wed Jul 24 12:31:48 2013
Quant Method	FID3C08FRONT072413.M

	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
	FID30032C.D	FID30032D.D	FID30032E.D	FID30032F.D	FID30032G.D	FID30032H.D
- 69	7617	57901	144403	233385	290524	583697
n-C8	8126	57801 61516	152936	247896	309522	617387
n-C9	8700	66055	164128	265066	331587	661294
n-C10	8902	67600	167797	270681	338008	673133
n-C11	9246	70252	174675	280850	351243	698133
n-C12	9240	70252	179128	280850	359811	713855
n-C13	9478	73955	184790	295538	370085	732939
n-C14	10207	75285	188225	299031	374791	741118
n-C15		75265	189802	300192	375564	742405
n-C16	10267	75721	193557	305453	383216	742403
n-C17	10346	77522	193557	305455	382365	754394
Pristane	10297 10142	77945	193298	305091	381843	753869
n-C18		7945	195518	309378	387907	764835
Phytane	10264	79065	192945	304356	380520	750532
n-C19	10171	78630		304356	383881	754413
n-C20	10230		194526	306458	382648	752956
n-C21	10202	78894	194476		386271	759113
n-C22	10301	79763	196069	309558 307631	383750	753077
n-C23	10331	79085	194653 194348	307631	382501	749228
n-C24	10256	78793		308755	385142	749220
n-C25	10307	79333 79592	195419 196042	310549	386843	756548
n-C26	10344	79592			375686	733940
n-C27	10107		190196	301634	380160	733940
n-C28	10285	78098	192578	305587	381233	
n-C29	10395	78126	193046	306909		743442
n-C30	10157	77156	189640	301671	375009	729500
n-C31	9940	75918	187389	298151	370694	720189 700650
n-C32	9881	74369	183516	291410	362078 356774	687137
n-C33	9660	73336	180897 182664	286809 289701	360595	688161
n-C34	9546	74155	179100	284082	353306	665741
n-C35	9647	72724			373912	692719
n-C36	10064	77070	189880	300472		
n-C37	9326	71542	176028	278248	346639 343448	628403 611125
n-C38	8970	70597	174353	276224		
n-C39	8156	67932	167694	266046	331042	575814
n-C40	7321	63071	155536	246883	307520	526463
Average Area (use for TPH, TRPH, GRO, DRO, RR	9685 RO)	74159	183532	291395	363603	704846
Average of n-C38 & n-C40	8146	66834	164945	261554	325484	568794
n-C36/n-C20	0.98	0.98	0.98	0.98	0.97	0.92

For Isoprenoids (other than Pristane and Phytane) use area for normal alkane; i-C13 use n-C13

Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\ Data File : FID30032C.D Signal(s) : FID1A.CH Acq On : 19-Jul-2013, 14:22:44 Operator : Meghan Dailey Sample : AL-WKC1-1.25-019 Misc : ALS Vial : 3 Sample Multiplier: 1 Integration File: autoint1.e Quant Time: Jul 24 09:51:30 2013 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic QLast Update : Wed Jun 12 10:04:05 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound _____ Internal Standards 1) I n-hexadecane-d34 16) I 5a-androstane 12.81933169350.000 ug/mlm18.01842118350.072 ug/mlm System Monitoring Compounds

 6) S
 n-dodecane-d26
 8.543
 8489
 1.284 ug/mlm

 23) S
 n-eicosane-d42
 17.435
 8243
 1.269 ug/mlm

 34) S
 n-triacontane-d62
 29.317
 8057
 1.298 ug/mlm

 3.447
 7617
 1.216 ug/mlm

 4.744
 8126
 1.236 ug/mlm

 6.144
 8700
 1.247 ug/mlm

 7.491
 8902
 1.263 ug/mlm

 8.748
 9246
 1.256 ug/mlm

 0.000
 0
 N.D. ug/mld

 0.000
 0
 N.D. ug/mld

 11.013
 9790
 1.273 ug/mlm

 0.000
 0
 N.D. ug/mld

 12.041
 10207
 1.303 ug/mlm

 0.000
 0
 N.D. ug/mld

 14.160
 10346
 1.259 ug/mlm

 15.328
 10142
 1.254 ug/mlm

 15.488
 10267
 1.262 ug/mlm

 15.488
 10264
 1.247 ug/mlm

 15.488
 10264
 1.246 ug/mlm

 15.488
 10264
 1.246 ug/mlm

 15.488
 10264
 1.246 ug/mlm

 15.488
 10264
 1.246 ug/mlm

 16.557
 10171
 1.259 ug/mlm

 17.629
 10230
 1.260 ug/mlm

 22.967
 10256
 1.247 ug/mlm

 25.399
 10344
 1.268 ug/mlm
 Target Compounds 2) n-C8 3) n-C9 3) n-C9 4) n-C10 5) n-C11 7) n-C12 8) i-13 9) i-14 n-C13 10) i-15 n-C14 11) 12) i-16 13) n-C15 14) n-C16 15) i-18 17) n-C17 18)
 19)
 Pristane

 20)
 n-C18

 21)
 Phytane

 22)
 n-C19
 n-C20 n-C21 24) 25) 26) n-C22 n-C23 27) n-C24 28) n-C25 29) 30) n-C26 31) n-C27 n-C28 32) n-C2 n-C30 n-C31 33) 35) 36)

 36,

 37)
 n-c

 38)
 n-C33

 39)
 n-C34

 22)
 n-C35

Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\ Data File : FID30032C.D Signal(s) : FID1A.CH Acq On : 19-Jul-2013, 14:22:44 Operator : Meghan Dailey Sample : AL-WKC1-1.25-019 Misc : ALS Vial : 3 Sample Multiplier: 1 Integration File: autointl.e Quant Time: Jul 24 09:51:30 2013 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic QLast Update : Wed Jun 12 10:04:05 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound 35.919100631.226 ug/mlm37.21093261.256 ug/mlm38.72089701.210 ug/mlm40.49381561.142 ug/mlm42.58773211.098 ug/mlm0.0000N.D. ug/mld 41) n-C36

 10063
 1.226 ug/mlm

 9326
 1.256 ug/mlm

 8970
 1.210 ug/mlm

 8156
 1.142 ug/mlm

 7321
 1.098 ug/mlm

 0
 N.D. ug/mld

 n-C37 n-C38 n-C39 n-C40 TPH 42) 43) 44) 45) 46) TRH1 0.000 47) TRH2 0.000 48) TRH3 49) 0.000 TRH4 50) 0.000 TRH5 0.000 51) 52) TRH6 0 N.D. ug/mld 0.000 N.D. ug/mld 53) GRO 0.000 0 0 N.D. ug/mld DRO 54) 0.000 RRO 0 N.D. ug/mld 55) 0.000

SemiQuant Compounds - Not Calibrated on this Instrument

(f) = RT Delta > 1/2 Window

(m)=manual int.

Quantitation Report (QT Reviewed)

55.00 50.00 45.00 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\FID3C08FRONT072413.M 45.587 4-C40 40.00 C67.04 P-C39 38.720 u-C38 912.75+ 7637 616'98-960-u 35.00 ъ-Сзғ ъ-Сзғ TIC: FID30032C.D 682.45-967.55n-C39 n-C30 n-C31 n-C32 n-C33 n-C33 32.852 188.16--30.882 30.00 -59.317 P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032' 9-C28 *****69'22-4-C27 -26.564 25.00 -52'366 p-C26 u-CS2 54 500 -55'66L n-C24 u-C23 707.12-50 u-css -50.424 10.125 123-4 1sonbre-st 810.81 2013 988 41-610-4 199.91e 8887 SH= QLast Update : Wed Jun 12 10:04:05 Sample Multiplier: Response via : Initial Calibration entelend : C8 - C40 aliphatic 647.41= 19-Jul-2013, 14:22:44 Quant Time: Jul 24 09:51:30 2013 13.067 B-Pakadeca 15.819 12.041 510-4 AL-WKC1-1.25-019 Integration File: autointl.e +LJ-4 21011-10.00 613-u 616.6 Meghan Dailey атрод-Н £#68= aue: Integrator: ChemStation FID30032C.D 167.7-110-4 FID1A.CH - 6.144 010-4 5.00 47744 6**ጋ**-u 80-4 3.447 m Signal Phase ... Quant Title Volume Inj. •• Signal Info •• •• 0.00 Data Path Data File 10000 5000-Signal(s) 20000 Response 25000-Ó 15000 Operator ALS Vial Acq On Sample ime Misc 170

:08FRONT072413.M Wed Jul 24 12:42:19 2013

Page: 3

60.00

Data Signa Acq O Opera Samplo Misc	Path : P:\2013\J13001\ALI File : FID30032D.D l(s) : FID1A.CH n : 19-Jul-2013, 15:33 tor : Meghan Dailey e : AL-WKC2-10-019 :	8:34	FID 3\FID3003	2\	
ALS V	ial : 4 Sample Multipl	ler: 1			
Quant Quant Quant QLast Respor Integr	ration File: autoint1.e Time: Jul 24 10:02:21 20 Method : P:\2013\J13001\ Title : C8 - C40 alipha Update : Wed Jul 24 09:5 nse via : Initial Calibra rator: ChemStation = Inj. :	ALI\MSDCHEM da tic 2:30 2013	ta\FID 3\FID3	0032\FID3C08FRONT07241	L3.M
Signal	l Phase :				
2	L Info :	D	Perpense	Conc Unito	
	Compound		Kesponse		
	cnal Standards	-1/19/1 - 13 MADA	1758-0000-125-047-04	Vic. 10.5 2010 (1996)	
	n-hexadecane-d34				
16) I	5a-androstane	18.019	398847	50.072 ug/mlm	
Syste	em Monitoring Compounds				
6) S	n-dodecane-d26	8.543	63193	10.159 ug/mlm	
23) S	n-eicosane-d42	17.436	62549	10.186 ug/mlm	
34) S	n-triacontane-d62	29.319	59962	10.149 ug/mlm	
Targe	t Compounds				
2)	n-C8	3.445	57801	9.921 ug/mlm 10.030 ug/mlm	
3)	n-C9	4.744	61516	10.030 ug/mlm 10.134 ug/mlm	
	n-C10 n-C11			10.134 ug/mlm 10.245 ug/mlm	
7)	n-C12	8.749	70252	10.151 ug/mlm	
8)	n-C12 i-13	0.000	0	10.151 ug/mlm N.D. ug/mld	
	i-14	0.000	0	N.D. ug/mld	
10) 11)	n-C13 i-15	9.920	/1981	10.331 ug/mlm N.D. ug/mld	
	n-C14	11.013		10.237 ug/mlm	
13)	i-16	0.000	0	N.D. ug/mld	
14)	n-C15	12.042	75285	10.225 ug/mlm	
15) 17)	n-C16 i-18	13.067 0.000	75721 0	10.186 ug/mlm N.D. ug/mld	
18)	n-C17	14.161	77522	9.991 ug/mlm	
19)	Pristane	14.277	77490	10.029 ug/mlm	
20)	n-C18	15.328	77945	10.202 ug/mlm	
21) 22)	Phytane n-C19	15.489 16.559	79065 77963	10.169 ug/mlm 10.208 ug/mlm	
24)	n-C20	17.830	78630	10.253 ug/mlm	
25)	n-C21	19.127	78894	10.209 ug/mlm	
26)	n-C22	20.423	79763	10.316 ug/mlm	
27)	n-C23 n-C24	21.707 22.970	79085 78793	10.181 ug/mlm 10.183 ug/mlm	
28) 29)	n-C25	24.201	79333	10.261 ug/mlm	
30)	n-C26	25.402	79592	10.304 ug/mlm	
31)	n-C27	26.566	77241	10.283 ug/mlm	
32) 33)	n-C28 n-C29	27.696 28.793	78098 78126	10.264 ug/mlm 10.251 ug/mlm	
35)	n-C29 n-C30	29.856	77155	10.242 ug/mlm	
36)	n-C31	30.885	75918	10.248 ug/mlm	
37)	n-C32	31.886	74369	10.120 ug/mlm	
38)	n-C33	32.854	73336	10.229 ug/mlm	
39) 40)	n-C34 n-C35	33.797 34.789	74155 72724	10.230 ug/mlm 10.162 ug/mlm	
40)	11-000	54.705	12124	10.102 ug/mill	

Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\ Data File : FID30032D.D Signal(s) : FID1A.CH Acq On : 19-Jul-2013, 15:33:34 Operator : Meghan Dailey Sample : AL-WKC2-10-019 Misc 100 ALS Vial : 4 Sample Multiplier: 1 Integration File: autointl.e Quant Time: Jul 24 10:02:21 2013 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic QLast Update : Wed Jul 24 09:52:30 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound

 35.915
 77070
 9.983 ug/mlm

 37.214
 71541
 10.158 ug/mlm

 38.719
 70597
 10.137 ug/mlm

 40.499
 67932
 10.178 ug/mlm

 42.585
 63071
 10.179 ug/mlm

 0.000
 0
 N.D. ug/mld

 41) n-C36 n-C37 42) 43) n-C38 n-C39 44) n-C40 45) 42.00

 3071
 10.179 ug/mlm

 0
 N.D. ug/mld

 46) TPH TRH1 TRH2 TRH3 TRH4 TRH5 TRH6 TPH 47) 0.000 48) 0.000 49) 0.000 50) 0.000 0.000 51) 0.000 52) GRO 0.000 53) DRO 0.000 54) RRO 0.000 55)

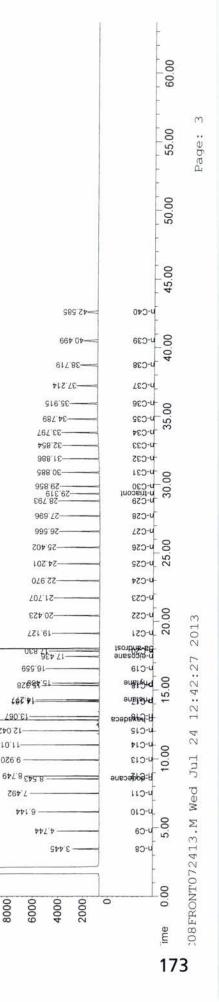
SemiQuant Compounds - Not Calibrated on this Instrument

(f) = RT Delta > 1/2 Window

(m)=manual int.

(QT Reviewed) Quantitation Report

Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\FID3C08FRONT072413.M TIC: FID30032D.D P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\ 610.81 QLast Update : Wed Jul 24 09:52:30 2013 Н Sample Multiplier: : Initial Calibration Quant Title : C8 - C40 aliphatic 19-Jul-2013, 15:33:34 Quant Time: Jul 24 10:02:21 2013 12.820 Integration File: autointl.e AL-WKC2-10-019 Meghan Dailey Integrator: ChemStation FID30032D.D FID1A.CH ** •• .. 4 Response via Signal Phase Volume Inj. •• ... Signal Info Data File Data Path Response 26000 Signal(s) 24000 22000-20000 18000 16000 14000 12000 Operator ALS Vial Acq On Sample Misc



15.042

£10.11

10000 8000

076'6

Data E Signal Acq On Operat Sample Misc ALS Vi	<pre>Path : P:\2013\J13001\AL 'ile : FID30032E.D (s) : FID1A.CH : 19-Jul-2013, 16:4 or : Meghan Dailey : AL-WKC3-25-019 : al : 5 Sample Multip</pre>	4:13	FID 3\FID3003	2\
Quant Quant Quant QLast Respon Integr	Title : C8 - C40 alipha Update : Wed Jul 24 10:0 se via : Initial Calibra ator: ChemStation	\ALI\MSDCHEM dat atic 03:13 2013	ta\FID 3\FID3	0032\FID3C08FRONT072413.M
Signal	Inj. : Phase : Info :			
	Compound	R.T.		
	nal Standards			
	n-hexadecane-d34	12.819	314775	50.000 ug/mlm
16) I	5a-androstane	18.018	399530	50.072 ug/mlm
Syster	n Monitoring Compounds			
	n-dodecane-d26	8.543	157806	25.042 ug/mlm
	n-eicosane-d42			25.263 ug/mlm
34) S	n-triacontane-d62	29.320	148501	25.136 ug/mlm
Target	Compounds			
2)	n-C8	3.445	144403	24.624 ug/mlm
3)	n-C9 n-C10	4.744	152936	24.726 ug/mlm
		6.144		24.918 ug/mlm
5) 7)	n-C11 n-C12	7.491		25.115 ug/mlm
8)	i-13	0.000	1/46/5	24.901 ug/mlm
9)	i-14	0.000	0	N.D. ug/mld N.D. ug/mld
10)	n-C13	9.920	179128	25.367 ug/mlm
	i-15	0.000	0	
	n-C14	11.014		25.263 ug/mlm
13) 14)	i-16 n-C15	0.000 12.042	0 188225	N.D. ug/ml 25.259 ug/mlm
15)	n-C16	13.068	189802	25.247 ug/mlm
17)	i-18	0.000	0	N.D. ug/mld
18)	n-C17	14.162	193557	24.967 ug/mlm
19)	Pristane	14.278	193298	25.040 ug/mlm
20) 21)	n-C18 Phytane	15.329 15.490	193318 196559	25.295 ug/mlm 25.277 ug/mlm
22)	n-C19	16.560	192945	25.254 ug/mlm
24)	n-C20	17.833	194526	25.350 ug/mlm
25)	n-C21	19.129	194476	25.138 ug/mlm
26)	n-C22	20.426	196069	25.329 ug/mlm
27) 28)	n-C23 n-C24	21.711 22.973	194653 194348	25.055 ug/mlm 25.114 ug/mlm
29)	n-C25	24.206	195419	25.270 ug/mlm
30)	n-C26	25.405	196042	25.380 ug/mlm
31)	n-C27	26.568	190196	25.322 ug/mlm
32)	n-C28	27.698	192578	25.317 ug/mlm
33)	n-C29	28.795	193046	25.339 ug/mlm
35) 36)	n-C30 n-C31	29.859 30.886	189640 187389	25.182 ug/mlm 25.319 ug/mlm
37)	n-C32	31.889	183516	24.985 ug/mlm
38)	n-C33	32.860	180897	25.261 ug/mlm
39)	n-C34	33.801	182664	25.225 ug/mlm
40)	n-C35	34.793	179100	25.065 ug/mlm

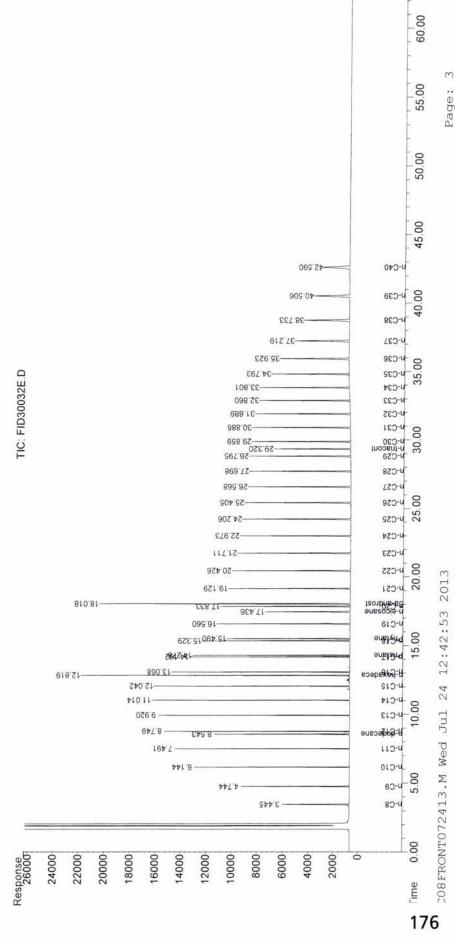
Integration File: autointl.e Quant Time: Jul 24 10:11:50 2013 Quant Method : P:\2013\J13001\ALL\MSDCHEM data\FID 3\FID30032\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic QLast Update : Wed Jul 24 10:31:13 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : 41) n-C36 35.923 189680 24.642 ug/mlm 420 n-C37 37.219 176028 25.026 ug/mlm 431 n-C38 38.733 174353 25.065 ug/mlm 431 n-C40 42.590 155536 25.169 ug/mlm 451 n-C40 42.590 155536 25.169 ug/mlm 461 TPH 0.000 0 N.D. ug/mld 470 TRH1 0.000 0 N.D. ug/mld 481 TRH2 0.000 0 N.D. ug/mld 491 TRH3 0.000 0 N.D. ug/mld 511 TRH5 0.000 0 N.D. ug/mld 521 TRH6 0.000 0 N.D. ug/mld 531 GRO 0.000 0 N.D. ug/mld 551 RRO	Data F Signal Acq On Operato Sample Misc	ath : P:\2013\J13001\ALI\MS ile : FID30032E.D (s) : FID1A.CH : 19-Jul-2013, 16:44:13 or : Meghan Dailey : AL-WKC3-25-019 : al : 5 Sample Multiplier		FID 3\FID3003;	2\	
Signal Phase : Signal Info : Compound R.T. Response Conc Units 41) n-C36 35.923 189880 24.642 ug/mlm 42) n-C37 37.219 176028 25.026 ug/mlm 43) n-C38 38.733 174353 25.065 ug/mlm 44) n-C39 40.506 167694 25.206 ug/mlm 45) n-C40 42.590 155536 25.169 ug/mlm 46) TPH 0.000 0 N.D. ug/mld 48) TRH2 0.000 0 N.D. ug/mld 49) TRH3 0.000 0 N.D. ug/mld 50) TRH4 0.000 0 N.D. ug/mld 51) TRH5 0.000 0 N.D. ug/mld 52) TRH6 0.000 0 N.D. ug/mld 53) GRO 0.000 0 N.D. ug/mld 54) DRO 0.000 0 N.D. ug/mld	Quant D Quant N Quant D QLast U Respons	Fime: Jul 24 10:11:50 2013 Method : P:\2013\J13001\ALI Fitle : C8 - C40 aliphatic Jpdate : Wed Jul 24 10:03:1 se via : Initial Calibratic	3 2013	a\FID 3\FID3(0032\FID	3C08FRONT072413.M
Signal Info : R.T. Response Conc Units 41) n-C36 35.923 189880 24.642 ug/mlm 42) n-C37 37.219 176028 25.026 ug/mlm 43) n-C38 38.733 174353 25.065 ug/mlm 44) n-C39 40.506 167694 25.206 ug/mlm 45) n-C40 42.590 155536 25.169 ug/mlm 46) TPH 0.000 0 N.D. ug/mld 47) TRH1 0.000 0 N.D. ug/mld 48) TRH2 0.000 0 N.D. ug/mld 49) TRH3 0.000 0 N.D. ug/mld 50) TRH4 0.000 0 N.D. ug/mld 51) TRH5 0.000 0 N.D. ug/mld 52) TRH6 0.000 0 N.D. ug/mld 53) GRO 0.000 0 N.D. ug/mld 54) DRO 0.000 0 N.D. ug/mld	Volume	Inj. :				
CompoundR.T.ResponseConc Units41)n-C3635.92318988024.642 ug/mlm42)n-C3737.21917602825.026 ug/mlm43)n-C3838.73317435325.065 ug/mlm44)n-C3940.50616769425.206 ug/mlm45)n-C4042.59015553625.169 ug/mlm46)TPH0.0000N.D. ug/mld47)TRH10.0000N.D. ug/mld48)TRH20.0000N.D. ug/mld50)TRH30.0000N.D. ug/mld51)TRH50.0000N.D. ug/mld52)TRH60.0000N.D. ug/mld53)GRO0.0000N.D. ug/mld54)DRO0.0000N.D. ug/mld	Signal	Phase :				
41) $n-C36$ 35.923 189880 24.642 ug/mlm42) $n-C37$ 37.219 176028 25.026 ug/mlm43) $n-C38$ 38.733 174353 25.065 ug/mlm44) $n-C39$ 40.506 167694 25.206 ug/mlm45) $n-C40$ 42.590 155536 25.169 ug/mlm46)TPH 0.000 0 N.D.ug/mld47)TRH1 0.000 0 N.D.ug/mld48)TRH2 0.000 0 N.D.ug/mld50)TRH3 0.000 0 N.D.ug/mld51)TRH5 0.000 0 N.D.ug/mld52)TRH6 0.000 0 N.D.ug/mld53)GRO 0.000 0 N.D.ug/mld54)DRO 0.000 0 N.D.ug/mld	Signal	Info :				
42)n-C37 37.219 176028 25.026 ug/mlm 43)n-C38 38.733 174353 25.065 ug/mlm 44)n-C39 40.506 167694 25.206 ug/mlm 45)n-C40 42.590 15536 25.169 ug/mlm 46)TPH 0.000 0 N.D. ug/mld 47)TRH1 0.000 0 N.D. ug/mld 48)TRH2 0.000 0 N.D. ug/mld 49)TRH3 0.000 0 N.D. ug/mld 50)TRH4 0.000 0 N.D. ug/mld 51)TRH5 0.000 0 N.D. ug/mld 52)TRH6 0.000 0 N.D. ug/mld 53)GRO 0.000 0 N.D. ug/mld 54)DRO 0.000 0 N.D. ug/mld		Compound	R.T.	Response	Conc	Units
42)n-C37 37.219 176028 25.026 ug/mlm 43)n-C38 38.733 174353 25.065 ug/mlm 44)n-C39 40.506 167694 25.206 ug/mlm 45)n-C40 42.590 15536 25.169 ug/mlm 46)TPH 0.000 0 N.D. ug/mld 47)TRH1 0.000 0 N.D. ug/mld 48)TRH2 0.000 0 N.D. ug/mld 49)TRH3 0.000 0 N.D. ug/mld 50)TRH4 0.000 0 N.D. ug/mld 51)TRH5 0.000 0 N.D. ug/mld 52)TRH6 0.000 0 N.D. ug/mld 53)GRO 0.000 0 N.D. ug/mld 54)DRO 0.000 0 N.D. ug/mld	41)	n-C36	35.923	189880	24.642	ug/mlm
43)n-C3838.73317435325.065 ug/mlm44)n-C3940.50616769425.206 ug/mlm45)n-C4042.5901553625.169 ug/mlm46)TPH0.0000N.D. ug/mld47)TRH10.0000N.D. ug/mld48)TRH20.0000N.D. ug/mld49)TRH30.0000N.D. ug/mld50)TRH40.0000N.D. ug/mld51)TRH50.0000N.D. ug/mld52)TRH60.0000N.D. ug/mld53)GRO0.0000N.D. ug/mld54)DRO0.0000N.D. ug/mld			37.219	176028	25.026	ug/mlm
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	43)	n-C38	38.733	174353	25.065	ug/mlm
46) TPH 0.000 0 N.D. ug/mld 47) TRH1 0.000 0 N.D. ug/mld 48) TRH2 0.000 0 N.D. ug/mld 49) TRH3 0.000 0 N.D. ug/mld 50) TRH4 0.000 0 N.D. ug/mld 51) TRH5 0.000 0 N.D. ug/mld 52) TRH6 0.000 0 N.D. ug/mld 53) GRO 0.000 0 N.D. ug/mld 54) DRO 0.000 0 N.D. ug/mld	44)	n-C39	40.506	167694	25.206	ug/mlm
47)TRH10.0000N.D.ug/mld48)TRH20.0000N.D.ug/mld49)TRH30.0000N.D.ug/mld50)TRH40.0000N.D.ug/mld51)TRH50.0000N.D.ug/mld52)TRH60.0000N.D.ug/mld53)GR00.0000N.D.ug/mld54)DRO0.0000N.D.ug/mld	45)	n-C40	42.590	155536	25.169	ug/mlm
48) TRH2 0.000 0 N.D. ug/mld 49) TRH3 0.000 0 N.D. ug/mld 50) TRH4 0.000 0 N.D. ug/mld 51) TRH5 0.000 0 N.D. ug/mld 52) TRH6 0.000 0 N.D. ug/mld 53) GR0 0.000 0 N.D. ug/mld 54) DRO 0.000 0 N.D. ug/mld	46)	TPH	0.000	0	N.D.	ug/mld
49) TRH3 0.000 0 N.D. ug/mld 50) TRH4 0.000 0 N.D. ug/mld 51) TRH5 0.000 0 N.D. ug/mld 52) TRH6 0.000 0 N.D. ug/mld 53) GR0 0.000 0 N.D. ug/mld 54) DR0 0.000 0 N.D. ug/mld	47)	TRH1	0.000	0	N.D.	ug/mld
50) TRH4 0.000 0 N.D. ug/mld 51) TRH5 0.000 0 N.D. ug/mld 52) TRH6 0.000 0 N.D. ug/mld 53) GR0 0.000 0 N.D. ug/mld 54) DR0 0.000 0 N.D. ug/mld	48)	TRH2	0.000	0		
51) TRH5 0.000 0 N.D. ug/mld 52) TRH6 0.000 0 N.D. ug/mld 53) GR0 0.000 0 N.D. ug/mld 54) DR0 0.000 0 N.D. ug/mld	49)	TRH3	0.000	0		
52) TRH6 0.000 0 N.D. ug/mld 53) GR0 0.000 0 N.D. ug/mld 54) DR0 0.000 0 N.D. ug/mld	50)	TRH4		0		
53) GRO 0.000 0 N.D. ug/mld 54) DRO 0.000 0 N.D. ug/mld						3
54) DRO 0.000 0 N.D. ug/mld				0		3
	53)	GRO		0		
55) RRO 0.000 0 N.D. ug/mld	54)			0		Strain Trans. In the second
	55)	RRO	0.000	0	N.D.	ug/mld

SemiQuant Compounds - Not Calibrated on this Instrument

(f) = RT Delta > 1/2 Window

(m)=manual int.

Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\FID3C08FRONT072413.M TIC: FID30032E.D P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\ 810.81 QLast Update : Wed Jul 24 10:03:13 2013 Sample Multiplier: 1 Response via : Initial Calibration Quant Title : C8 - C40 aliphatic 19-Jul-2013, 16:44:13 Quant Time: Jul 24 10:11:50 2013 618.21-Integration File: autointl.e AL-WKC3-25-019 Meghan Dailey Integrator: ChemStation FID30032E.D FID1A.CH •• •• ... 5 Signal Phase Volume Inj. •• Signal Info •• ... •• Data Path Data File Response 26000 Signal(s) 24000 22000-20000-Operator ALS Vial Acq On Sample Misc



Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\ Data File : FID30032F.D Signal(s) : FID1A.CH Acq On : 19-Jul-2013, 17:55:07 Operator : Meghan Dailey Sample : AL-WKC4-40-019 Misc . . ALS Vial : 6 Sample Multiplier: 1 Integration File: autointl.e Quant Time: Jul 24 10:22:10 2013 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic QLast Update : Wed Jul 24 10:13:00 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound ____ Internal Standards 1) In-hexadecane-d3412.82131036250.000 ug/ml16) I5a-androstane18.01838985850.072 ug/mlm 16) I System Monitoring Compounds 6) Sn-dodecane-d268.54626048141.970 ug/mlm23) Sn-eicosane-d4217.43925166142.051 ug/mlm34) Sn-triacontane-d6229.32624266242.135 ug/mlm

 3.446
 233385
 40.683 ug/mlm

 4.745
 247896
 40.877 ug/mlm

 6.147
 265066
 40.971 ug/mlm

 7.495
 270681
 41.175 ug/mlm

 8.752
 280850
 40.638 ug/mlm

 0.000
 0
 N.D. ug/mld

 9.923
 287547
 41.323 ug/mlm

 0.000
 0
 N.D. ug/mld

 1.016
 295538
 40.998 ug/mlm

 0.000
 0
 N.D. ug/mld

 12.044
 29031
 40.710 ug/mlm

 13.070
 300192
 40.477 ug/mlm

 0.000
 0
 N.D. ug/mld

 14.164
 305453
 40.836 ug/mlm

 15.332
 305013
 40.979 ug/mlm

 15.494
 309378
 40.836 ug/mlm

 15.494
 309378
 40.836 ug/mlm

 15.494
 309558
 41.044 ug/mlm

 20.430
 309558
 41.044 ug/mlm

 21.714
 307631
 40.639 ug/mlm

 25.408
 310549
 41.255 ug/mlm

 25.408
 310549
 41.255 ug/mlm

 26.70
 301634</td Target Compounds 2) n-C8 3) n-C9 n-C9 n-C10 n-C11 n-C12 i-13 i-14 n-C13 i-15 n-C14 i-16 n-C15 n-C16 i-18 4) 5) 7) 8) 9) 10) 11) 12) 13) 14) 15) n-C16 i-18 n-C17 Pristane n-C18 Phytane n-C19 n-C20 n-C21 n-C22 n-C23 n-C23 n-C24 n-C25 17) 18) 19) 20) 21) 22) 24) 25) 26) 27) 28) 29) n-C25 n-C26 n-C27 30) 31) n-C28 32) 33) n-C29 n-C30 n-C31 35) 36) 37) n-C32 38) n-C33 39) n-C34 40) n-C35

Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\ Data File : FID30032F.D Signal(s) : FID1A.CH Acg On : 19-Jul-2013, 17:55:07 Operator : Meghan Dailey Sample : AL-WKC4-40-019 Misc : ALS Vial : 6 Sample Multiplier: 1 Integration File: autointl.e Quant Time: Jul 24 10:22:10 2013 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic QLast Update : Wed Jul 24 10:13:00 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound 35.92330047240.089 ug/mlm37.22427824840.675 ug/mlm38.73027622440.865 ug/mlm40.50826604641.165 ug/mlm42.60624688341.138 ug/mlm0.0000N.D. ug/mld 41) n-C36 n-C37 42) n-C38 n-C39 43) 44) n-C40 45) 0 N.D. ug/mld 0 N.D. ug/mld 46) TPH TRH1 0.000 47) TRH2 0 N.D. ug/mld 0.000 48) TRH3 0 N.D. ug/mld 0.000 49) TRH4 0.000 0 N.D. ug/mld 50) TRH5 TRH6 0.000 0 N.D. ug/mld 51) 0.000 0 N.D. ug/mld 52) GRO 0.000 0 N.D. ug/mld 53) DRO 0 N.D. ug/mld 54) 0.000 RRO 0 N.D. ug/mld 0.000 55)

SemiQuant Compounds - Not Calibrated on this Instrument

(f) = RT Delta > 1/2 Window

(m)=manual int.

Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\FID3C08FRONT072413.M 45'60e 809.04 98.730 37.224 32'653 TIC: FID30032F.D 962.45 \$08.55 35,860 688.15 168.05 59.863 925.926 P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\ 28.802 57.703 56.570 S5 408 54'508 22,977 50.430 19.132 810.81-758.71-QLast Update : Wed Jul 24 10:13:00 2013 627.71-16.563 Sample Multiplier: 1 15.494 15.332 Response via : Initial Calibration Quant Title : C8 - C40 aliphatic 192 41 19-Jul-2013, 17:55:07 Quant Time: Jul 24 10:22:10 2013 020688 21-12.044 Integration File: autointl.e 910.11 : AL-WKC4-40-019 6.923 Meghan Dailey 8.752 Integrator: ChemStation FID30032F.D 96¢'L FID1A.CH 141.9 \$\$L'\$ 3'446 •• 6 Signal Phase Volume Inj. Data Path : Signal Info .. ., ... Data File Signal(s) 10000 Response 25000-20000 15000 5000 30000 Operator ALS Vial Acq On Sample Misc

308FRONT072413.M Wed Jul 24 12:42:35 2013 au 179

3 Page:

60.00

55.00

50.00

45.00

40.00

35.00

30.00

U+C+0

P-C39 P-C38

1637

4-C36

u-C28

123-4

p-C26 25.00

P-CS2

4-C24

P-C23

123-4

anscosane Barandrost

Pricial Brief

antiang

eseperated-U 910-4 910-4

Breddecane

110-4

010-4

80-4

ò

20.00 p-C22

15.00

10.00 E13-4

5.00 60-u

0.00

Data F Signal Acq On Operat Sample Misc	Path : P:\2013\J13001\ALI File : FID30032G.D .(s) : FID1A.CH . : 19-Ju1-2013, 19:05 For : Meghan Dailey . : AL-WKC5-50-019 al : 7 Sample Multipl	:43	FID 3\FID3003	2\
Quant Quant Quant QLast Respon	ation File: autointl.e Time: Jul 24 12:16:23 20 Method : P:\2013\J13001\ Title : C8 - C40 aliphat Update : Wed Jul 24 10:22 se via : Initial Calibrat ator: ChemStation	ALI\MSDCHEM dat tic 2:49 2013	a\FID 3\FID3	0032\FID3C08FRONT072413.M
Signal	Inj. : Phase : Info :			
		R.T.		
	nal Standards			
1) I	n-hexadecane-d34 5a-androstane	12.818	310113	50.000 ug/mlm
16) I	5a-androstane	18.018	391437	50.072 ug/mlm
	m Monitoring Compounds			
6) S	n-dodecane-d26	8.545	315734	50.916 ug/mlm
	n-eicosane-d42 n-triacontane-d62			50.837 ug/mlm 50.475 ug/mlm
547 5	in critaconcare doz	27.521	292000	50.475 ug/mim
	Compounds			
	n-C8	3.446	290524	51.035 ug/mlm
4)	n-C9 n-C10	6.146	331587	51.437 ug/mlm
5)	n-C10 n-C11	7.493	338008	51.308 ug/mlm 51.437 ug/mlm 51.508 ug/mlm
7)	n-C12	8.751	351243	50.853 ug/mlm
8)	1-13 i-14	0.000	0	N.D. ug/mld
10)	i-13 i-14 n-C13	9.922	359811	N.D. ug/mld N.D. ug/mld 51.717 ug/mlm
11)	i-15	0.000	0	N.D. ug/mld
12)	n-C14	11.016		51.355 ug/mlm
13) 14)	i-16 n-C15	0.000 12.044	0 374791	N.D. ug/mld 51.052 ug/mlm
15)	n-C16	13.071	375564	50.680 ug/mlm
17)	i-18	0.000	0	N.D. ug/mld
18) 19)	n-C17 Pristane	14.166 14.282	383216 382365	50.623 ug/mlm 50.734 ug/mlm
20)	n-C18	15.333	381843	51.168 ug/mlm
21)	Phytane	15.494	387907	51.084 ug/mlm
22)	n-C19	16.565	380520	50.986 ug/mlm
24) 25)	n-C20 n-C21	17.838 19.132	383881 382648	51.200 ug/mlm 50.605 ug/mlm
26)	n-C22	20.432	386271	51.052 ug/mlm
27)	n-C23	21.716	383750	50.522 ug/mlm
28)	n-C24	22.978	382501	50.514 ug/mlm
29) 30)	n-C25 n-C26	24.210 25.410	385142 386843	50.907 ug/mlm 51.178 ug/mlm
31)	n-C27	26.575	375686	51.098 ug/mlm
32)	n-C28	27.706	380160	51.039 ug/mlm
33) 35)	n-C29 n-C30	28.801 29.863	381233 375009	51.078 ug/mlm 50.873 ug/mlm
36)	n-C31	30.894	370694	51.161 ug/mlm
37)	n-C32	31.893	362078	50.368 ug/mlm
38)	n-C33	32.861	356774	50.949 ug/mlm
39)	n-C34	33.806 34.802	360595 353306	50.992 ug/mlm 50.670 ug/mlm
40)	n-C35	34.002	333306	50.070 ug/mim

Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\ Data File : FID30032G.D Signal(s) : FID1A.CH Acq On : 19-Jul-2013, 19:05:43 Operator : Meghan Dailey Sample : AL-WKC5-50-019 Misc : ALS Vial : 7 Sample Multiplier: 1 Integration File: autointl.e Quant Time: Jul 24 12:16:23 2013 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic OLast Update : Wed Jul 24 10:22:49 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound

 35.930
 373912
 49.808 ug/mlm

 37.226
 346639
 50.606 ug/mlm

 38.744
 343448
 50.765 ug/mlm

 40.517
 331042
 51.196 ug/mlm

 42.611
 307520
 51.263 ug/mlm

 0.000
 0
 N.D. ug/mld

 41)
 n-C36

 42)
 n-C37

 43)
 n-C38

 44)
 n-C39

 45)
 n-C40

 46)
 TPH

 47)
 TRH1

 48)
 TRH2

 49)
 TRH3

 50)
 TRH4

 51)
 TRH5

 52)
 TRH6

 53)
 GRO

 54)
 DRO

 55)
 RRO

 41) n-C36 0.000 0 N.D. ug/mld
SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window

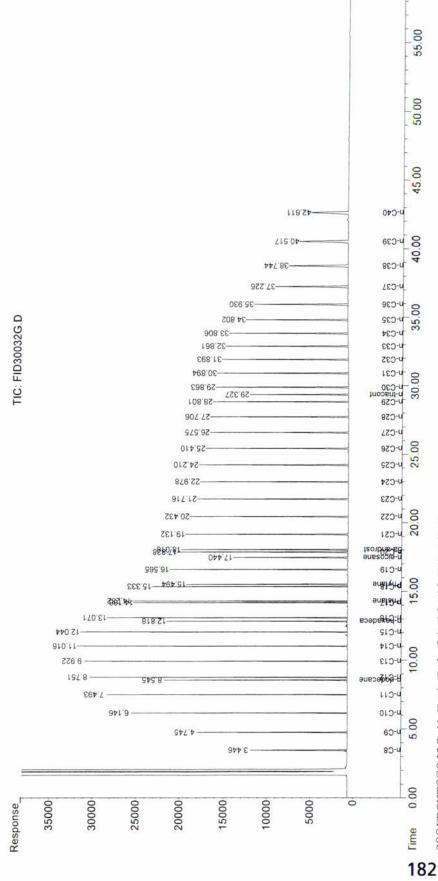
(m) = manual int.

Data Path :

Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\FID3C08FRONT072413.M P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\ QLast Update : Wed Jul 24 10:22:49 2013 Sample Multiplier: 1 Response via : Initial Calibration Quant Title : C8 - C40 aliphatic 19-Jul-2013, 19:05:43 Quant Time: Jul 24 12:16:23 2013 Integration File: autointl.e AL-WKC5-50-019 Meghan Dailey FID30032G.D FID1A.CH 2 .. •• Data File Signal(s) Operator ALS Vial Acq On Sample Misc

12 R. 22 Signal Phase Volume Inj. Signal Info

Integrator: ChemStation



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60.00

Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\ Data File : FID30032H.D Signal(s) : FID1A.CH Acq On : 19-Jul-2013, 20:16:32 Operator : Meghan Dailey Sample : AL-WKC6-100-019 Misc : ALS Vial : 8 Sample Multiplier: 1 Integration File: autoint1.e Quant Time: Jul 24 12:31:34 2013 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic QLast Update : Wed Jul 24 12:16:35 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : Compound R.T. Response Conc Units _____ Internal Standards 12.82035634350.000 ug/mlm18.02144389050.072 ug/mlm 1) I n-hexadecane-d34 16) I 5a-androstane System Monitoring Compounds 6) Sn-dodecane-d268.54963972289.646 ug/mlm23) Sn-eicosane-d4217.44761278690.121 ug/mlm34) Sn-triacontane-d6229.33558014388.470 ug/mlm

 3.449
 583697
 89.671 ug/mlm

 4.748
 617387
 89.260 ug/mlm

 6.149
 661294
 89.334 ug/mlm

 7.497
 673133
 89.222 ug/mlm

 8.755
 698133
 87.827 ug/mlm

 0.000
 0
 N.D. ug/mld

 0.000
 0
 N.D. ug/mld

 1.021
 732939
 88.339 ug/mlm

 0.000
 0
 N.D. ug/mld

 1.021
 732939
 88.339 ug/mlm

 0.000
 0
 N.D. ug/mld

 12.049
 741118
 87.707 ug/mlm

 0.000
 0
 N.D. ug/mld

 14.172
 756998
 88.268 ug/mlm

 15.341
 753869
 89.208 ug/mlm

 15.503
 764835
 88.940 ug/mlm

 15.503
 764835
 88.812 ug/mlm

 15.503
 764835
 88.82 ug/mlm

 15.420
 756548
 88.323 ug/mlm

 2.4221
 759713
 88.594 ug/mlm

 2.988
 749228
 87.349 ug/mlm

 2.420
 75648
 88.323 ug/mlm

 2.420
 75648
 Target Compounds 2) n-C8 n-C9 3) n-C10 4) n-C11 5) n-C12 7) i-13 8) i-14 9) n-C13 10) i-15 11) n-C14 12) i-16 13) n-C15 14) n-C16 15) n-C16 i-18 n-C17 Pristane n-C18 Phytane n-C19 n-C20 n-C21 n-C22 n-C22 n-C23 n-C24 n-C25 n-C26 n-C27 17) 18) 19) 20) 21) 22) 24) 25) 26) 27) 28) 29) 30) n-C27 31) n-C28 n-C29 n-C30 n-C31 32) 33) 35) 36) n-C32 37) n-C33 38) n-C34 39) n-C35 40)

Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\ Data File : FID30032H.D Signal(s) : FID1A.CH Acq On : 19-Jul-2013, 20:16:32 Operator : Meghan Dailey Sample : AL-WKC6-100-019 Misc : ALS Vial : 8 Sample Multiplier: 1 Integration File: autointl.e Quant Time: Jul 24 12:31:34 2013 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic QLast Update : Wed Jul 24 12:16:35 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : Compound R.T. Response Conc Units

 35.942
 692719
 81.602 ug/mlm

 37.243
 628403
 81.129 ug/mlm

 38.759
 611125
 79.949 ug/mlm

 40.532
 575814
 78.830 ug/mlm

 42.621
 526463
 77.781 ug/mlm

 0.000
 0
 N.D. ug/mld

 41) n-C36 42) 43) n-C37 n-C38 44) n-C39 45) n-C40 46) TPH TRH1 0.000 47) 0 N.D. ug/mld TRH2 0.000 48) 0 N.D. ug/mld 0.000 49) TRH3 0 N.D. ug/mld 0.000 TRH4 0 N.D. ug/mld 50) 0.000 51) TRH5 0 N.D. ug/mld 0.000 TRH6 0 N.D. ug/mld 52) 52) IRAC 53) GRO 54) DRO 55) DRO GRO 0.000 0 N.D. ug/mld 0.000 0 N.D. ug/mld 55) RRO 0.000 0 N.D. ug/mld

SemiQuant Compounds - Not Calibrated on this Instrument

(f) = RT Delta > 1/2 Window

(m)=manual int.

(QT Reviewed) Quantitation Report

Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\FID3C08FRONT072413.M 45.621 0+2-4 P-C38 40.532 692.86 J-C38 31.243 LED-U 35.942 u-C36 TIC: FID30032H.D 34,808 33.818 928.26 31.905 \$06'08 -59.332 -59.332 -59.332 P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\ 820-u P17.714 220-4 56.584 P-C26 52'\$50 P-C22 122.4221 4-C24 886°Z P-C53 51,726 0 u-css 50.442 19.143 anesogia-n Isonbris-se 120.8 QLast Update : Wed Jul 24 12:16:35 2013 17.847 61)-u 573.91-Sample Multiplier: 1 કનદાએન્વ કતકાર્સન 145.01-503.01-Response via : Initial Calibration Quant Title : C8 - C40 aliphatic 19-Jul-2013, 20:16:32 584 \$1 Quant Time: Jul 24 12:31:34 2013 13.077 B-Pakadeca 5.820 sto-u 15.049 Integration File: autointl.e P-C14 11.021 AL-WKC6-100-019 E10-4 6.927 Meghan Dailey B-606ecane 667.8 FID30032H.D Integrator: ChemStation 267.7 110-4 FID1A.CH 010-4 6719 60-u 877.4 80-u 3.449 Volume Inj. : Signal Phase : ω Volume Inj. •• •• •• Signal Info Data Path Data File Signal(s) 70000 60000 50000 40000 30000 20000 10000 Response Ó Operator ALS Vial Acq On Sample Misc

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3 Page:

60.00

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30.00

25.00

15.00

10.00

5.00

0.00

Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\ Data File : FID30032I.D Signal(s) : FID1A.CH Acq On : 19-Jul-2013, 21:27:16 Operator : Meghan Dailey Sample : AL-WKICV-25-001 Misc : ALS Vial : 9 Sample Multiplier: 1 Integration File: autointl.e Quant Time: Jul 24 12:48:15 2013 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic QLast Update : Wed Jul 24 12:31:43 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min Max. RRF Dev : 25% Max. Rel. Area : 200% AvgRF CCRF %Dev Area% Dev(Min) Compound 7 n-C12 10 10 n-C13 12 n-C14 14 n-C15 15 n-C16 1.1971.1870.81030.001.0001.0000.01060.000.9670.9442.41020.000.9620.9184.6990.000.9520.9401.31030.000.9690.9244.6990.000.9520.9411.21030.000.9520.9411.21030.000.9570.9451.31030.000.9650.9620.31040.000.9660.9590.71030.000.9660.9590.71030.000.9670.9551.21030.000.9660.9472.01020.000.9660.9472.01020.000.9550.9391.41030.000.9550.9391.71030.000.9420.9331.01030.000.9260.8983.01010.000.8920.910-2.01060.000.8990.8490.01040.000.8440.8202.8990.0016 I 5a-androstane

 18
 n-C17

 19
 Pristane

 20
 n-C18

 21
 Phytane

 22
 n-C19

 23
 S
 n-eicosane-d42

 24 n-C20 25 n-C21
 25
 n-C21

 26
 n-C22

 27
 n-C23

 28
 n-C24

 29
 n-C25

 30
 n-C26

 31
 n-C27

 32
 n-C28

 33
 n-C29
 34 S n-triacontane-d62

 34
 S
 n-tria

 35
 n-C30

 36
 n-C31

 37
 n-C32

 38
 n-C33

 39
 n-C34

 40
 n-C35

 41
 n-C36

 42
 n-C37

 43
 n-C38

44	n-C39		0.803	0.804	-0.1	101	0.00
45	n-C40		0.741			106	0.00
		Evaluate	Continuing Cal	ibration	Report - No	ot Fo	unds
8	i-13		0.018	0.000	100.0#	0#	-8.94#
8 9	i-14		0.018	0.000	100.0#	0#	-9.64#
11	i-15		0.019	0.000	100.0#	0#	-10.79#
13	i-16		0.019	0.000	100.0#	0#	-11.68#
17	i-18		0.019	0.000	100.0#	0#	-13.63#
46	TPH		0.018	0.000	100.0#	0#	-28.85#
47	TRH1		0.018	0.000	100.0#	0#	-7.70#
48	TRH2		0.018	0.000	100.0#	0#	-15.81#
49	TRH3		0.018	0.000	100.0#	0#	-23.22#
50	TRH4		0.018	0.000	100.0#	0#	-28.20#
51	TRH5		0.018	0.000	100.0#	0#	-33.15#
52	TRH6		0.018	0.000	100.0#	0#	-44.53#
53	GRO		0.018	0.000	100.0#	0#	-5.24#
54	DRO		0.018	0.000	100.0#		-14.21#
55	RRO		0.018	0.000	100.0#	0#	-32.78#

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

FID3C08FRONT072413.M Wed Jul 24 12:48:21 2013

Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\ Data File : FID30032I.D Signal(s) : FID1A.CH Acq On : 19-Jul-2013, 21:27:16 Operator : Meghan Dailey Sample : AL-WKICV-25-001 Misc : ALS Vial : 9 Sample Multiplier: 1 Integration File: autoint1.e Quant Time: Jul 24 12:48:15 2013 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic QLast Update : Wed Jul 24 12:31:43 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound _____ Internal Standards 12.81933225750.000 ug/mlm18.01742304950.072 ug/mlm 1) I n-hexadecane-d34 16) I 5a-androstane System Monitoring Compounds 6) Sn-dodecane-d268.54416582524.928 ug/mlm23) Sn-eicosane-d4217.43616208425.039 ug/mlm34) Sn-triacontane-d6229.32015796725.272 ug/mlm

 3.444
 147794
 24.459 ug/mlm

 4.743
 158947
 24.736 ug/mlm

 6.144
 167027
 24.258 ug/mlm

 7.492
 173858
 24.748 ug/mlm

 8.750
 180274
 24.322 ug/mlm

 0.000
 0
 N.D. ug/mld

 0.000
 0
 N.D. ug/mld

 9.920
 186041
 24.897 ug/mlm

 0.000
 0
 N.D. ug/mld

 11.014
 189344
 24.463 ug/mlm

 0.000
 0
 N.D. ug/mld

 12.042
 193231
 24.515 ug/mlm

 13.068
 195201
 24.545 ug/mlm

 0.000
 0
 N.D. ug/mld

 14.162
 197096
 24.134 ug/mlm

 14.278
 192280
 23.657 ug/mlm

 15.329
 198797
 24.707 ug/mlm

 15.491
 194700
 23.780 ug/mlm

 15.491
 194700
 23.780 ug/mlm

 16.559
 198682
 24.693 ug/mlm

 17.832
 199902
 24.726 ug/mlm

 20.427
 202730
 24.840 ug/mlm

 21.710
 199527
 2) n-C8
3) n-C9
4) n-C10
5) n-C11
7) n-C12
8) i-13
9) i-14
0) n-C13
1) i-15
') n-C14
) i-16
) n-C15
') n-C16
i-18
n-C17
Pristane
n-C18
Phytane
n-C19
n-C20
n-C21
n-C22
n-C23
n-C24 Target Compounds n-C24 n-C25 28) 29) n-C26 30) n-C27 n-C28 n-C29 n-C30 n-C31 n-C27 31) 32) 33) 35) 36) n-C32 37) 38) n-C33 39) n-C34 40) n-C35 n-C33

Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\ Data File : FID30032I.D Signal(s) : FID1A.CH Acq On : 19-Jul-2013, 21:27:16 Operator : Meghan Dailey Sample : AL-WKICV-25-001 Misc : ALS Vial : 9 Sample Multiplier: 1 Integration File: autointl.e Quant Time: Jul 24 12:48:15 2013 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic QLast Update : Wed Jul 24 12:31:43 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : Compound R.T. Response Conc Units

 41)
 n-C36

 42)
 n-C37

 43)
 n-C38

 44)
 n-C39

 45)
 n-C40

 46)
 TPH

 47)
 TRH1

 48)
 TRH2

 49)
 TRH3

 50)
 TRH4

 51)
 TRH5

 52)
 TRH6

 53)
 GRO

 54)
 DRO

 35.915
 190972
 23.907 ug/mlm

 37.216
 177494
 24.464 ug/mlm

 38.726
 173473
 24.336 ug/mlm

 40.497
 169907
 25.040 ug/mlm

 42.583
 165224
 26.377 ug/mlm

 0.000
 0
 N.D. ug/mld

 0.000
 0
 N.D. ug/mld

 0.000
 0
 N.D. ug/mld

 0 N.D. ug/mld 0 N.D. ug/mld 0 N.D. ug/mld 0 N.D. ug/mld 0 N.D. ug/mld 0.000 0.000 0.000 0.000 0 N.D. ug/mld 0.000 DRO 0 N.D. ug/mld 54) 0.000 RRO 0 N.D. ug/mld 55) 0.000

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window

(m)=manual int.

(QT Reviewed) Quantitation Report

Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\FID3C08FRONT072413.M 45.583 167 05 38,726 917.76 916'98 TIC: FID300321.D 067.45 867.66 32,856 31,886 30.885 29,320 29,320 28,794 P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\ 769.75-199.92 52'404 54.204 27.972 51.710 20.427 128 110.81 2013 17 832 17.436 655.91 Sample Multiplier: 1 676.21 15.329 QLast Update : Wed Jul 24 12:31:43 : Initial Calibration : C8 - C40 aliphatic 19-Jul-2013, 21:27:16 Quant Time: Jul 24 12:48:15 2013 890.8 12,819 15.042 Integration File: autointl.e 11.014 AL-WKICV-25-001 076'6 Meghan Dailey 097.8 FID300321.D Integrator: ChemStation 267'2 FID1A.CH 6.144 \$743 3.444 ю н 3 0 Response via Signal Phase Quant Title Volume Inj. •• •• Signal Info •• ., •• ... Data Path Data File Signal(s) 10000 20000 15000 5000 25000 Response_ Operator ALS Vial Acq On Sample Misc

308FRONT072413.M Wed Jul 24 12:48:30 2013

3 Page:

60.00

55.00

50.00

45.00

40.00

35.00

30.00

25.00 9ZD-u

0+0-u

P-C36 u-C38

1537 960-n-

u-C28 LZD-U

p-CS2

n-C24

ecs3

123-4

610-4

ankland

510-4

\$10-4

610-u

110-4

012-4

80-u

ò

10.00

5.00 60-u

0.00

Time

190

eseperated=H

Bredescane

15. O philane

Da-androst

0 u-css

Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\ Data File : FID30032J.D Signal(s) : FID1A.CH Acq On : 19-Jul-2013, 22:37:55 Operator : Meghan Dailey Sample : AL-WKCC-25-023 Misc : ALS Vial : 10 Sample Multiplier: 1 Integration File: autointl.e Quant Time: Jul 24 12:54:44 2013 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic QLast Update : Wed Jul 24 12:42:03 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min Max. RRF Dev : 25% Max. Rel. Area : 200% AvgRF CCRF %Dev Area% Dev(Min) Compound 1 I n-hexadecane-d34 2 n-C8 3 n-C9 3 n-C9 4 n-C10 5 n-C11 6 S n-dodecane-d26 7 n-C12 10 n-C13 12 n-C14 14 n-C15 15 n-C16 1.1971.219-1.8990.001.0001.0000.0980.000.9670.993-2.7990.000.9620.988-2.7990.000.9520.978-2.7990.000.9520.976-2.8990.000.9520.976-2.5990.000.9520.976-2.5990.000.9570.978-2.2990.000.9650.989-2.5990.000.9660.988-2.3990.000.9660.988-2.3990.000.9670.992-2.6990.000.9660.991-2.6990.000.9660.991-2.6990.000.9660.991-2.6990.000.9520.975-2.4990.000.9550.980-2.6990.000.9420.969-2.91000.000.9260.954-3.01000.000.8920.922-3.41000.000.8990.934-3.91000.000.8440.889-5.31000.0016 I 5a-androstane 18 n-C17 19 Pristane 20 n-C18 21 Phytane 22 n-C19 23 S n-eicosane-d42 24 n-C20 25 n-C21
 25
 n-C21

 26
 n-C22

 27
 n-C23

 28
 n-C24

 29
 n-C25

 30
 n-C26

 31
 n-C27

 32
 n-C28

 33
 n-C29

 34
 S
 n-triad
 34 S n-triacontane-d62 35 n-C30

 35
 n-C30

 36
 n-C31

 37
 n-C32

 38
 n-C33

 39
 n-C34

 40
 n-C35

 41
 n-C36

 42
 n-C37

 43
 n-C38

191

44	n-C39		0.803	0.855	-6.5	100	0.00
45	n-C40		0.741	0.798	-7.7	100	0.00
		Evaluate (Continuing Cali	bration	Report - No	t Fo	unds
8	i-13		0.018	0.000	100.0#	0#	-8.94#
9	i-14		0.018	0.000	100.0#	0#	-9.64#
11	i-15		0.019	0.000	100.0#	0#	-10.79#
13	i-16		0.019	0.000	100.0#	0#	-11.68#
17	i-18		0.019	0.000	100.0#	0#	-13.63#
46	TPH		0.018	0.000	100.0#	0#	-28.85#
47	TRH1		0.018	0.000	100.0#	0#	-7.70#
48	TRH2		0.018	0.000	100.0#	0#	-15.81#
49	TRH3		0.018	0.000	100.0#	0#	-23.22#
50	TRH4		0.018	0.000	100.0#	0#	-28.20#
51	TRH5		0.018	0.000	100.0#	0#	-33.15#
52	TRH6		0.018	0.000	100.0#	0#	-44.53#
53	GRO		0.018	0.000	100.0#	0#	-5.24#
54	DRO		0.018	0.000	100.0#	0#	-14.21#
55	RRO		0.018	0.000	100.0#	0#	-32.78#

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

FID3C08FRONT072413.M Wed Jul 24 12:54:50 2013

Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\ Data File : FID30032J.D Signal(s) : FID1A.CH Acq On : 19-Jul-2013, 22:37:55 Operator : Meghan Dailey Sample : AL-WKCC-25-023 . Misc ALS Vial : 10 Sample Multiplier: 1 Integration File: autoint1.e Quant Time: Jul 24 12:54:44 2013 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic QLast Update : Wed Jul 24 12:42:03 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound Internal Standards 12.81931209950.000 ug/mlm18.01639194150.072 ug/mlm 1) I n-hexadecane-d34 16) I 5a-androstane System Monitoring Compounds 6) Sn-dodecane-d268.54415617324.993 ug/mlm23) Sn-eicosane-d4217.43615197225.340 ug/mlm34) Sn-triacontane-d6229.31914552025.128 ug/mlm

 3.446
 144712
 25.1125 ug/mlm

 4.745
 153259
 25.391 ug/mlm

 6.145
 164134
 25.377 ug/mlm

 7.492
 167541
 25.389 ug/mlm

 8.750
 174466
 25.059 ug/mlm

 0.000
 0
 N.D. ug/mld

 0.000
 0
 N.D. ug/mld

 9.920
 179183
 25.528 ug/mlm

 0.000
 0
 N.D. ug/mld

 11.014
 184695
 25.404 ug/mlm

 0.000
 0
 N.D. ug/mld

 12.042
 187434
 25.316 ug/mlm

 0.000
 0
 N.D. ug/mld

 14.162
 191996
 25.375 ug/mlm

 14.277
 191587
 25.443 ug/mlm

 15.328
 191579
 25.700 ug/mlm

 15.490
 194449
 25.634 ug/mlm

 15.490
 194449
 25.601 ug/mlm

 15.490
 194449
 25.601 ug/mlm

 15.490
 194449
 25.601 ug/mlm

 15.490
 194449
 25.601 ug/mlm

 2.425
 193636
 25.601 ug/mlm

 2.709
 192320
 Target Compounds 2) n-C8 n-C8 n-C9 n-C10 n-C11 n-C12 i-13 i-14 n-C13 i-15 3) 4) 5) 7) 8) 9) 10) 11) i-15 n-C14 12) i-16 13) n-C15 14) 15) n-C16 i-18 17) n-C17 18) Pristane 19) n-C18 20) Phytane 21) n-C19 22) n-C20 24) n-C21 25) n-C22 26) 27) n-C23 n-C24 28) n-C25 29) n-C26 30) 31) n-C27 32) n-C28 33) n-C29 n-C30 35) 36) n-C31 37) n-C32 38) n-C33 39) n-C34 n-C35 40)

Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\ Data File : FID30032J.D Signal(s) : FID1A.CH Acq On : 19-Jul-2013, 22:37:55 Operator : Meghan Dailey Sample : AL-WKCC-25-023 : Misc ALS Vial : 10 Sample Multiplier: 1 Integration File: autointl.e Ouant Time: Jul 24 12:54:44 2013 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\FID3C08FRONT072413.M Quant Title : C8 - C40 aliphatic QLast Update : Wed Jul 24 12:42:03 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : Compound R.T. Response Conc Units

 35.916
 189618
 25.622 ug/mlm

 37.212
 175645
 26.131 ug/mlm

 38.720
 174334
 26.398 ug/mlm

 40.502
 167455
 26.637 ug/mlm

 42.580
 155941
 26.871 ug/mlm

 0.000
 0
 N.D. ug/mld

 41) n-C36 n-C37 42) n-C38 43) 44) 45) n-C39 n-C40 TPH 46) 0.000 0 N.D. ug/mld 47) TRH1 TRH2 0.000 48) 0 N.D. ug/mld 0.000 49) TRH3 0 N.D. ug/mld 0.000 50) TRH4 0 N.D. ug/mld 0.000 51) TRH5 0 N.D. ug/mld 0.000 52) TRH6 0 N.D. ug/mld GRO 0.000 53) 0 N.D. ug/mld 54) DRO 0.000 0 N.D. ug/mld 55) RRO 0.000 0 N.D. ug/mld

SemiQuant Compounds - Not Calibrated on this Instrument

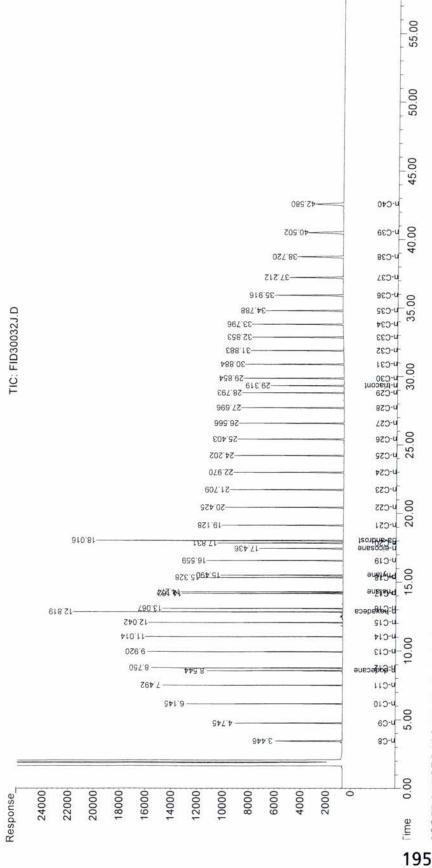
(f)=RT Delta > 1/2 Window

(m)=manual int.

Quantitation Report (QT Reviewed)

Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\FID3C08FRONT072413.M P:\2013\J13001\ALI\MSDCHEM data\FID 3\FID30032\ 2013 Sample Multiplier: 1 QLast Update : Wed Jul 24 12:42:03 Response via : Initial Calibration Quant Title : C8 - C40 aliphatic 19-Jul-2013, 22:37:55 Quant Time: Jul 24 12:54:44 2013 Integration File: autointl.e AL-WKCC-25-023 Meghan Dailey FID30032J.D Integrator: ChemStation FID1A.CH : 10 • • Data Path Data File Signal(s) Operator ALS Vial Acq On Sample Misc

Volume Inj. : Signal Phase : Signal Info :



7 208FRONT072413.M Wed Jul 24 12:55:15 2013

Page:

3

60.00

Aliphatic Mass Discrimination Ratio

File Name	Sample Name	n-C20	n-C36	n-C36/n-C20 ratio	Q
		(Area)	(Area)		
FID30032C.D	AL-WKC1-1.25-019	10230	10064	0.98	
FID30032C.D	AL-WKC2-10-019	78630	77070	0.98	
FID30032E.D	AL-WKC3-25-019	194526	189880	0.98	
FID30032F.D	AL-WKC4-40-019	305908	300472	0.98	
FID30032G.D	AL-WKC5-50-019	383881	373912	0.97	
FID30032H.D	AL-WKC6-100-019	754413	692719	0.92	
FID30032I.D	AL-WKICV-25-001	199902	190972	0.96	
FID30032J.D	AL-WKCC-25-023	191757	189618	0.99	
FID30036B.D	AL-WKCC-25-023	212749	206652	0.97	
FID30036G.D	AL-WKCC-25-023	223187	216350	0.97	

Qualifiers (Q): Ratio of n-C36 to n-C20 needs to be > 0.70

Aliphatic Internal Standard Area Data

B&B Laboratories Project J13034 Report 13-3090

Arcadis-Mayflower AR Aliphatic Hyrdocarbon and Total Petroleum Hydrocarbon Data Area of Internal Standards

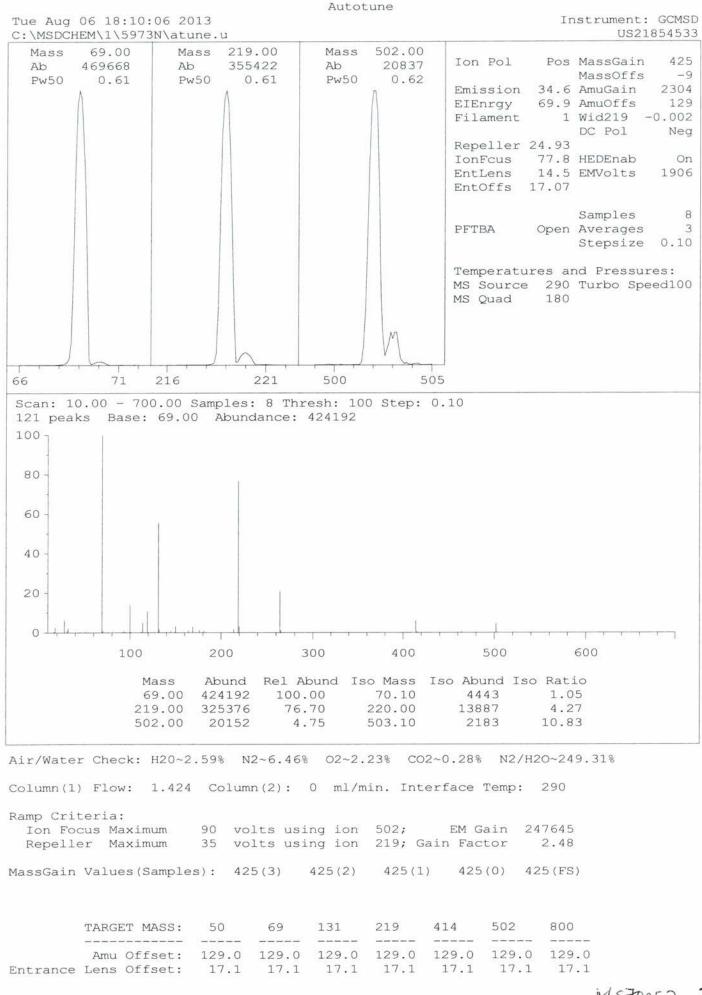
ient Project # B0086003.1301	B0086003.1302
Clie	

			H-IICAAUCCAILC-UCH			5a-androstane	
		Response	50%	200%	Response	50%	200%
		no hodony i	200	2004	00000000	200	201
		(Area)	(Area)	(Area)	(Area)	(Area)	(Area)
FID30032E.D	AL-WKC3-25-019	314775	157388	629550	399530	199765	799060
FID300321.D	AL-WKICV-25-001	332257	166129	664514	423049	211525	846098
FID30032J.D	AL-WKCC-25-023	312099	156050	624198	391941	195971	783882
FID30036B.D	AL-WKCC-25-023	346270	173135	692540	433335	216668	866670
FID30036C.D	AL-SRM2779-20-01	306687			453319		
FID30036F.D	AL-WKPem-001	321497			403656		
ENV3069A.D	Procedural Blank	298755			377188		
ENV3069B.D	Blank Spike	312419			394470		
ENV3069C.D	Blank Spike Duplicate	317895			403137		
ARC1564.D	SED-EB-01-072713	306896			386203		
ARC1604.D S	SED-DA-EB-02-072913	300205			382123		
ARC1606.D S	SED-DA-EB-03-073013	292513			369516		
ARC1609.D S	SED-DA-EB-04-073113	288914			366688		
FID30036G.D	AL-WKCC-25-023	362234	181117	724468	453403	226702	906806

Polycyclic Aromatic Hydrocarbon Initial Calibration Data and Initial Calibration Verification Data

PAH ICAL AR 70052.M

GC/MS 7 (PAH-2012)



MS70052 202

Vri

Me Ti La	ethod tle ast U	l Path : C:\GCMS7\M l File : AR70052.M : PAH Calibrat pdate : Thu Aug 0 se Via : Initial C	ion Ta 8 08:3	ble-20 2:30 2						
Ca 1 6	=M	ation Files S70052B.D 2 =MS S70052G.D	70052C	.D 3	=MS7	0052D.	D 4	=MS70	052E.D	5 =MS70052F.D
		Compound	1	2	3	4	5	6	Avg	%RSD
1)	I	Fluorene-d10	2			TST	D			
		Naphthalene-d8								
	т	cis/trans Decalin	0.367	0.320	0.290	0.299	0.303	0.301	0.313	8.96
4)	un	Cl-Decalins C2-Decalins C3-Decalins	0.367	0.320	0.290	0.299	0.303	0.301	0.313	8.96
5)	un	C2-Decalins	0.367	0.320	0.290	0.299	0.303	0.301	0.313	8.96
02000	un	C3-Decalins	0.367	0.320	0.290	0.299	0.303	0.301	0.313	8.96
10.00	un	C4-Decalins	0.367	0.320	0.290	0.299	0.303	0.301	0.313	8.96
	Т	Naphthalene	2.311	1.915	1.770	1.832	1.887	1.915	1.938	9.84
	Т	2-Methylnaphth	1.399	1.187	1.089	1.135	1.169	1.215	1.199	8.94
	Т	1-Methylnaphth	1.311	1.121	1.028	1.070	1.093	1.111	1.122	8.77
	T									
	T	1,6,7-Trimethy	1.220	0.993	0.925	0.974	1.005	1.039	1.026	9.95
14)	un	C2-Naphthalenes C3-Naphthalenes	2.311	1 015	1.770	1 022	1 007	1.915	1 020	9.84 9.84
15)	un	C4-Naphthalenes	2 311	1 915	1 770	1 832	1 887	1 915	1 938	9.84
16)	Т	C4-Naphthalenes Benzothiophene	1.792	1.516	1.402	1.453	1.480	1.513	1.526	8.97
17)	un	Cl-Benzothioph	1.792	1.516	1.402	1.453	1.480	1.513	1.526	8.97
18)	un	C2-Benzothioph	1.792	1.516	1.402	1.453	1.480	1.513	1.526	8.97
	un	C3-Benzothioph	1.792	1.516	1.402	1.453	1.480	1.513	1.526	8.97
	un		1.792	1.516	1.402	1.453	1.480	1.513	1.526	8.97
10	S	Acenaphthene-d10	1.160	0.969	0.894	0.930	0.959	0.990	0.984	9.42
22)	Т	Biphenyl	1.899	1.600	1.480	1.544	1.588	1.640	1.625	8.91
		Acenaphthylene	2.111	1.750	1.603	1.691	1.784	1.774	1.786	9.69
24) 25)		Acenaphthene	1.259	1.068	0.979	1.031	1.064	1.080	1.080	8.80
26)		Dibenzofuran Fluorene	2.020	1 375	1 260	1 222	1.702	1.798	1.748	8.60
	T	Fluorene 1-Methylfluorene	0 858	0 712	0 651	0 682	0 703	0 742	0 725	9.55
		C1-Fluorenes	1.646	1.375	1.260	1.322	1.367	1.441	1.402	9.55
	un	C2-Fluorenes			1.260					9.55
30)	un	C3-Fluorenes							1.402	
~ 1 \	-									
31) 32)		Pyrene-d10								
32) 33)		Phenanthrene-d10 Carbazole								6.49
	T	Carbazole Dibenzothiophene	1 334	1 161	1 127	1 218	1 223	1 119	1 197	7.49 6.70
		4-Methyldibenz	0.812	0.688	0.651	0.705	0 720	0 765	0 723	7.89
36)	un	2/3-Methyldibe	0.812	0.688	0.651	0.705	0.720	0.765	0.723	7.89
	un									
38)	un	C2-Dibenzothio	1.334	1.161	1.127	1.218	1.223	1.119	1.197	6.70
39)	un	C3-Dibenzothio	1.334	1.161	1.127	1.218	1.223	1.119	1.197	6.70
		C4-Dibenzothio								6.70
41)		Phenanthrene	1.237	1.059	1.015	1.092	1.084	1.080	1.095	6.85
42)	т	Anthracene 3-Methylphenan	1.057	0.914	0.892	0.964	0.985	1.054	0.978	7.05
43)	un	3-Methylphenan	0.924	0.772	0.730	0.789	0.819	0.925	0.826	9.85
	un		0.924	0.772	0.730	0.789	0.819	0.925	0.826	9.85
	un	2-Methylanthra 4/9-Methylphen								
	un T	1-Methylphenan								9.85
100 C 100 C 100	T	3,6-Dimethylph								
49)		Retene								9.11
		C2-Phenanthren	1.237	1.059	1.015	1.092	1.084	1.080	1.095	6.85
51)	un	C3-Phenanthren	1.237	1.059	1.015	1.092	1.084	1.080	1.095	6.85
52)	un	C4-Phenanthren	1.237	1.059	1.015	1.092	1.084	1.080	1.095	6.85
53)	Т	Naphthobenzoth	1.272	1.037	0.978	1.021	1.033	1.067	1.068	9.73

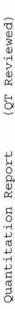
		Path : C:\GCMS7\M File : AR70052.M	S70052	λ.						
Ti	tle	: PAH Calibrat	ion Tal	ble-20	13A					
54)	un	C1-Naphthobenz	1.272	1.037	0.978	1.021	1.033	1.067	1.068	9.73
55)		C2-Naphthobenz								9.73
56)		C3-Naphthobenz								9.73
57)		C4-Naphthobenz								9.73
58)	т	Fluoranthene								11.28
59)	т	Pyrene	1.556	1.310	1.223	1.292	1.285	1.258	1.321	9.03
60)		2-Methylfluora	0.989	0.823	0.773	0.834	0.851	0.825	0.849	8.62
61)	Т	Benzo(b)fluorene								9.89
62)	un	Cl-Fluoranthen								11.28
63)		C2-Fluoranthen								11.28
64)		C3-Fluoranthen								11.28
65)		C4-Fluoranthen								11.28
66)			1.140							9.08
67)		Benz(a) anthracene								10.68
68)		Chrysene/Triph								9.29
69)	un	C1-Chrysenes	1.225	1.005	0.990	1.050	1.065	1,207	1,090	9.29
70)	un	C2-Chrysenes C3-Chrysenes C4-Chrysenes	1.225	1.005	0.990	1.050	1.065	1.207	1.090	9.29
71)	un	C3-Chrysenes	1.225	1.005	0.990	1.050	1.065	1.207	1.090	9.29
72)	un	C4-Chrysenes	1.225	1.005	0.990	1.050	1.065	1.207	1.090	9.29
		,								
73)		Benzo(a)pyrene-d12								
74)	un	C29-Hopane 18a-Oleanane	0.525	0.461	0.426	0.431	0.442	0.449	0.456	7.98
75)	un	18a-Oleanane	0.525	0.461	0.426	0.431	0.442	0.449	0.456	7.98
76)	Т	C30-Hopane	0.525	0.461	0.426	0.431	0.442	0.449	0.456	7.98
77)	т	Benzo(b)fluora								8.95
78)	Т	Benzo(k,j)fluo	1.697	1.429	1.362	1.503	1.564	1.290	1.474	9.93
79)	un	Benzo(a)fluora								9.93
80)	т	Benzo(e)pyrene	1.877	1.477	1.407	1.518	1.562	1.368	1.535	11.85
81)	Т	Benzo(a)pyrene	1.582	1.307	1.236	1.338	1.398	1.345	1.368	8.61
82)	т	Indeno(1,2,3-c	1.885	1.537	1.448	1.553	1.645	1.702	1.628	9.44
83)	т	Dibenzo(a,h)an	1.456	1.218	1.140	1.247	1.326	1.366	1.292	8.77
84)	un	Cl-Dibenzo(a,h	1.456	1.218	1.140	1.247	1.326	1.366	1.292	8.77
85)	un	C2-Dibenzo(a,h	1.456	1.218	1.140	1.247	1.326	1.366	1.292	8.77
86)	un	C3-Dibenzo(a,h	1.456	1.218	1.140	1.247	1.326	1.366	1.292	8.77
87)	т	Benzo(g,h,i)pe	1.680	1.393	1.302	1.390	1.427	1.439	1.439	8.88
88)	S	Perylene-d12	1.547	1.220	1.140	1.210	1.239	1.268	1.271	11.18
89)	Т	Perylene	1.659	1.348	1.275	1.393	1.465	1.336	1.413	9.64
90)	S	5(b)H-Cholane								9.62
91)	un	C20-TAS		1.610						12.74
92)	un	C21-TAS	1.999							12.74
93)	un		1.999							12.74
94)		C26(20R)/C27(2								12.74
95)			1.999							12.74
96)		C27 (20R) - TAS								12.74
		C28 (20R) - TAS								12.74
2422210	1822	111 12 121								

(#) = Out of Range

Data Acq O Opera Sampl Misc ALS V Quant Quant Quant QLast	Path : C:\GCMS7\MS70052\ File : MS70052B.D On : 6 Aug 2013 10:48 p tor : YM .e : AR-WKC1-020-029 Yial : 2 Sample Multiplie Time: Aug 08 08:08:27 2013 Method : C:\GCMS7\MS70052\ Title : PAH Calibration T Update : Tue Jul 09 09:34: onse via : Initial Calibrati	er: 1 AR70052. Table-201 31 2013				
	Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
	rnal Standards Fluorene-d10 Pyrene-d10 Benzo(a)pyrene-d12					
66) 88)	em Monitoring Compounds Naphthalene-d8 Acenaphthene-d10 Phenanthrene-d10 Chrysene-d12 Perylene-d12 5(b)H-Cholane	33.848	240 264	86015m 114649m	25.42	-0.13 0.00
3) 4) 5) 6) 7) 8) 9) 10) 11) 12) 13) 14) 15)	C2-Decalins C3-Decalins C4-Decalins Naphthalene 2-Methylnaphthalene 1-Methylnaphthalene 2,6-Dimethylnaphthalene 1,6,7-Trimethylnaphtha C2-Naphthalenes	0.000 0.000 0.000 13.934 16.190 16.524 18.279	128 142 142 156 170	0 0 93436m 56614m 52972m 51548m 49325m 0	N.D. d N.D. d N.D. d 22.80 21.00 21.31 22.40	Qvalue
17) 18) 19) 20) 22) 23) 24) 25) 26) 27) 28) 29) 30) 33) 34) 35) 36) 37) 38) 39) 40) 41)	C1-Benzothiophenes C2-Benzothiophenes C3-Benzothiophenes C4-Benzothiophenes Biphenyl Acenaphthylene Acenaphthene Dibenzofuran Fluorene 1-Methylfluorene C1-Fluorenes C2-Fluorenes C3-Fluorenes C3-Fluorenes Carbazole Dibenzothiophene 4-Methyldibenzothiophene 2/3-Methyldibenzothiophene C2-Dibenzothiophenes C3-Dibenzothiophenes C3-Dibenzothiophenes C4-Dibenzothiophenes Phenanthrene Anthracene	14.101 0.000 0.000 0.000 17.750 19.226 19.811 20.424 21.594 23.575 0.000 0.000 0.000 25.618 24.441 25.964 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.000000 0.00000000	134 154 152 154 168 166 180 167 184 198 178	0 0 0 0 0 0 0 76109m 84698m 51019m 81268m 66689m 34951m 0 0 0 83102m 99244m 61764m 0 0 0 99244m 61764m 0 0 0 0 992501m 80014m	N.D. d N.D. d N.D. d N.D. d 22.60 24.53 24.47 22.10 23.36 28.48 N.D. d N.D. d N	

Data File Acq On Operator Sample Misc ALS Vial Quant Tim	: C:\GCMS7\MS70052\ : MS70052B.D : 6 Aug 2013 10:48 ; : YM : AR-WKC1-020-029 : : 2 Sample Multiplic e: Aug 08 08:08:27 201 hod : C:\GCMS7\MS70052	er: 1 3	. M			
QLast Upd	le : PAH Calibration ' ate : Tue Jul 09 09:34 via : Initial Calibrat	:31 2013	13A			
C	ompound	R.T.	QIon	Response	Conc Unit	s Dev(Min)
44) 2-M 45) 2-M 46) 4/9 47) 1-M 48) 3,6 49) Ret	ethylphenanthrene ethylphenanthrene ethylanthracene -Methylphenanthrene ethylphenanthrene -Dimethylphenanthrene ene	0.000 0.000 27.003 28.077 30.743	192 206 234	0 0 68990m	N.D. d N.D. d 22.30 21.04	6
52) C4- 53) Napi	Phenanthrenes/Anthr Phenanthrenes/Anthr Phenanthrenes/Anthr nthobenzothiophene Naphthobenzothiophenes Naphthobenzothiophenes	0.000 0.000 0.000 32.994	234	0 0 96568m 0	N.D. d N.D. d N.D. d	
56) C3-1 57) C4-1 58) Flua 59) Pyra 60) 2-Ma	Naphthobenzothiophenes Naphthobenzothiophenes oranthene ene ethylfluoranthene	0.000 0.000 28.977 29.739 30.501	202 202 216	0 0 112159m 117418m 75143m	N.D. d N.D. d 24.22 18.28 21.98	
62) C1-3 63) C2-3 64) C3-3 65) C4-3 67) Bens	Fluoranthenes/Pyrenes Fluoranthenes/Pyrenes Fluoranthenes/Pyrenes Fluoranthenes/Pyrenes z(a)anthracene	0.000 0.000 0.000 0.000 33.809		77334m 0 0 0 99985m	N.D. d N.D. d N.D. d	
68) Chry 69) Cl-(70) C2-(71) C3-(72) C4-(74) C29	/sene/Tripnenylene Chrysenes Chrysenes Chrysenes Chrysenes Hopane	33.964 0.000 0.000 0.000 0.000 0.000	228	91876m 0 0 0 0 0	22.67 N.D. d N.D. d N.D. d N.D. d N.D. d	
76) C30 77) Ben: 78) Ben: 79) Ben:	Oleanane Hopane zo(b)fluoranthene zo(k,j)fluoranthene zo(a)fluoranthene zo(e)pyrene	0.000 42.894 37.378 37.456 0.000 38.348	191 252 252 252	0 38922m 120029m 125192m 0 138481m	N.D. d 20.88 23.24 23.93 N.D. d 22.08	
82) Inde 83) Dibe 84) C1-I 85) C2-I	zo (a) pyrene eno (1,2,3-c,d) pyrene enzo (a,h) anthracene Dibenzo (a,h) anthrac Dibenzo (a,h) anthrac	38.542 43.226 43.336 0.000 0.000	252 276 278	116962m 137287m 106910m 0 0	23.20 26.08 24.15 N.D. d N.D. d	
87) Ben: 89) Pery 91) C20- 92) C21-	TAS	0.000 44.590 38.852 0.000 0.000 0.000	276 252	0 123346m 122992m 0 0 0	N.D. d 28.27 21.89 N.D. d N.D. d N.D. d	
94) C26 95) C28 96) C27	20R) / TAS 20S) - TAS 20R) - TAS 20R) - TAS 20R) - TAS	39.473 0.000 0.000 0.000	231	148074m 0 0 0	N.D. d 23.54 N.D. d N.D. d N.D.	

Data Path : C:\GCMS7\MS70052\ Data File : MS70052B.D Acq On : 6 Aug 2013 10:48 pm Operator : YM Sample : AR-WKC1-020-029 Misc : ALS Vial : 2 Sample Multiplier: 1 Quant Time: Aug 08 08:08:27 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Tue Jul 09 09:34:31 2013 Response via : Initial Calibration Compound R.T. QIon Response Conc Units Dev(Min) (#) = qualifier out of range (m) = manual integration (+) = signals summed



60.00 58.00 56.00 54.00 52.00 50.00 48.00 4 46.00 44.00 T,enslyneq(i,h,ensleng) C30-Hopane,T Imagento,A,A,Amagent 42.00 40.00 C26(20R)/C27(20S)-TAS,T 38.00 TIC: MS70052B.D\data.ms Benzo(a)pyrene-d12,1 T. and ranker work (194) Banad 36.00 34.00 T,ehelensee, S,enslon 2-H(d)5 T,enertqoirttoznedortriqsN 32.00 T, enerting up to the contract of the contract 30.00 Pyrene-d10,1 T, snary? T,enerthenoul₁ 28.00 T, enerthynenerdpyntemid-8, 5 T, Anethylphenanthrene, T 26.00 T,enskinyldibenzothiophene,T 4-Methyldibenzothiophene,T : PAH Calibration Table-2013A Z,014-analyticsnahodid 2,014-analyticsnahodid 1,5h5-binner 24.00 C:\GCMS7\MS70052\AR70052.M : Tue Jul 09 09:34:31 2013 : Initial Calibration T.Anethylfluorene,T 22.00 Ч Sample Multiplier: T,enelarthqanlynteminT-5,8,t T,enerout7 Fluorene-d10,1 md 20.00 2013 08 08:08:27 2013 T,nenutoznediQ T.analyntidgenaod 2.0.b.anandiddasogood 10:48 C:\GCMS7\MS70052\ 18.00 YM AR-WKC1-020-029 08:15:17 T,enelshthqsnlyhtemiQ-8,S T,lynshqia 16.00 6 Aug 2013 T.9nelshingsnivnem-T. T.anelshingsnivnem-T. MS70052B.D 14.00 13 S BURNING WORKS Aug 32.M Tue Aug Method : 12.00 N Response via QLast Update Time: Title •• T,nilecel enert/eic 10.00 Data Path Data File Operator ALS Vial Abundance 550000 500000 350000 200000 50000 0 250000 400000 Acq On 450000 300000 50000 00000 Sample Quant Quant Quant Ņ Misc 208

Page:

Data Acq C Opera Sampl Misc ALS V Quant	Path : C:\GCMS7\MS70052\ File : MS70052C.D On : 6 Aug 2013 11:57 p ator : YM Le : AR-WKC2-100-029 : Vial : 3 Sample Multiplie : Time: Aug 08 08:13:03 2013 : Method : C:\GCMS7\MS70052	er: 1	м			
Quant QLast	Title : PAH Calibration 7 Update : Thu Aug 08 08:08: onse via : Initial Calibrati	Table-203 41 2013				
	Compound	R.T.	QIon	Response	Conc Un	its Dev(Min)
Inte	rnal Standards					
1)	Fluorene-d10 Pyrene-d10 Benzo(a)pyrene-d12	21.511	176	519529m	251.05	0.00
31)	Pyrene-d10	29.704	212	949451m	250.63	0.00
73)	Benzo(a)pyrene-d12	38.464	264	901705m	250.32	0.04
Syst	em Monitoring Compounds					
2)	Naphthalene-d8 Acenaphthene-d10	13.878	136	367125m	90.22	0.00
21)	Acenaphthene-d10	19.728	164	200710m	94.43	0.00
32)	Phenanthrene-d10	24.787	188	375946m	74.19	0.00
66)	Chrysene-d12 Perylene-d12 5(b)H-Cholane	33.848	240	361227m	98.72	0.00
88)	Perylene-d12	38.736	264	439452m	85.18	0.00
90)	5(b)H-Cholane	34.274	217	105769m	89.87	0.00
Targ	et Compounds					Qvalue
3)	cis/trans Decalin	11.231	138	65499m	92.72	
4)	Cl-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)	C3-Decalins C4-Decalins Naphthalene 2-Methylnaphthalene	0.000		0	N.D.	d
8)	Naphthalene	13.934	128	396348m	91.77	
9)	2-Methylnaphthalene	16.190	142	245958m	87.54	
10)	1-Methylnaphthalene	16.524	142	231825m	89.32	
12)	2,6-Dimethylnaphthalene 1,6,7-Trimethylnaphtha	18.279	170	222682m	91.73	
12)	C2-Naphthalenes	0.000	170	20558611	N.D.	
	(177)	0.000		0		
	C4-Naphthalenes	0.000		0	N.D.	u
	Benzothiophene	14.101	134		91.85	
	C1-Benzothiophenes	0.000		0	N.D.	d
	C2-Benzothiophenes	0.000		0	N.D.	
	C3-Benzothiophenes	0.000		0	N.D.	
	C4-Benzothiophenes	0.000		0	N.D.	
	Biphenyl	17.750	154	328228m	92.16	
	Acenaphthylene	19.226		359301m	96.27	
	Acenaphthene	19.811		221385m	98.77	
	Dibenzofuran	20.424		354487m	90.95	
	Fluorene	21.594		285017m	93.58	
	1-Methylfluorene	23.540	180	148531m	109.37	
	Cl-Fluorenes C2-Fluorenes	0.000		0	N.D.	
	C3-Fluorenes	0.000		0	N.D.	
	Carbazole	0.000 25.618	167		N.D. 74.93	ч
	Dibenzothiophene	24.441		433755m	74.01	
	4-Methyldibenzothiophene	25.964		262879m	88.26	
	2/3-Methyldibenzothiop	0.000	220	0	N.D.	
	1-Methyldibenzothiophene	0.000		õ	N.D.	d
	C2-Dibenzothiophenes	0.000		0	N.D.	
	C3-Dibenzothiophenes	0.000		0	N.D.	
	C4-Dibenzothiophenes	0.000		0	N.D.	
	Phenanthrene	24.856		397676m	77.83	
42)	Anthracene	25.064	178	347423m	80.25	

Compound Response Conc Units Dev(Min) Compound R.T. Qion Response Conc Units Dev(Min) 433 3-Methylphenanthrene 0.000 0 N.D. d 440 2-Methylphenanthrene 2.000 N.D. d 471 Conc Units Dev(Min) 481 3.077 26 2839381m 89.52 481 3.077 206 2839381m 83.52 481 3.6 0.000 0 N.D. d 5.2 C4-Phenanthrenes/Anthr 0.000 0 N.D. d 5.2 C4-Phenanthrenes/Anthr 0.000 0 N.D. d 5.2 C4-Phenanthrenes/Anthr 0.000 0 N.D. d 5.0 0.0	Data Path : C:\GCMS7\MS70052\ Data File : MS70052C.D Acq On : 6 Aug 2013 11:57 p Operator : YM Sample : AR-WKC2-100-029 Misc : ALS Vial : 3 Sample Multiplie Quant Time: Aug 08 08:13:03 2013 Quant Method : C:\GCMS7\MS70052\ Quant Title : PAH Calibration T QLast Update : Thu Aug 08 08:08:	er: 1 AR70052 Table-203 41 2013				
43) 3-Methylphenanthrene 0.000 0 N.D. d 44) 2-Methylphenanthrene 0.000 0 N.D. d 45) 2-Methylphenanthrene 0.000 0 N.D. d 47) 1-Methylphenanthrene 27.03 192 289381m 89.52 48) 3.6-Dimethylphenanthrene 28.077 206 287338m 83.30 48) 7.6-Dimethylphenanthrenes/Anthr 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) Naphthobenzothiophenes 0.000 0 N.D. d 54) C1-Naphthobenzothiophenes 0.000 0 N.D. d 57) C4-Naphthobenzothiophenes 0.000 0 N.D. d 58) Fluoranthene 28.739 202 486359m 77.67 62) C1-Fluoranthenes/Pyrenes 0.000 0 N.D. d 63) C2-Fl	Compound	R.T.	QIon	Response	Conc Un:	its Dev(Min)
44) 2-Methylphenanthrene 0.000 0 N.D. d 45) 2-Methylphenanthrene 0.000 0 N.D. d 47) 1-Methylphenanthrene 27.003 192 289381m 89.52 48) 3.6-Dimethylphenanthrene 28.077 206 267338M 83.30 49) Retene 30.743 234 117637m 76.55 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 Naphthobenzothiophenes 0.000 0 N.D. d 54 C1-Naphthobenzothiophenes 0.000 0 N.D. d 55 C4-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 50 C2-Hapathhenez/Pyrenes 0.000 0 N.D. d 51 Benzo(b)fluoranthenes/Pyre						
451 2-Methylphenanthracene 0.000 0 N.D. d 461 4/9-Methylphenanthrene 27.003 192 289381m 89.52 481 3,6-Dimethylphenanthrene 28.077 206 287338m 83.30 491 Retene 30.743 224 117637m 76.55 501 C2-Phenanthrenes/Anthr 0.000 0 N.D. d 510 C3-Phenanthrenes/Anthr 0.000 0 N.D. d 521 C3-Phenanthrenes/Anthr 0.000 0 N.D. d 531 Naphthobenzothiophenes 0.000 0 N.D. d 541 C1-Naphthobenzothiophenes 0.000 0 N.D. d 557 C4-Naphthobenzothiophenes 0.000 0 N.D. d 561 C3-Naphthobenzothiophenes 0.000 0 N.D. d 571 C4-Naphthobenzothiophenes 0.000 0 N.D. d 572 Pyrene 29.739 202 496238m 77.67 601 2-Methylfluoranthene 30.501 216 313934m 88.28 <						
449 3,6-Dimetrylphenanthrene 28,077 206 287338m 83.30 49 Retene 30.743 234 117637m 76.55 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 Naphthobenzothiophenes 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-Maphthobenzothiophenes 0.000 0 N.D. d 57 Pyrene 29.739 202 495238m 77.67 50 2-Methylfluoranthene 31.124 216 313934m 88.28 61 Benzo(b)fluorene 31.124 216 316635m 101.95 62 C1-Fluoranthenes/Pyrenes 0.000 0 N.D. d 63 C2-Fluoranthenes/Pyrenes 0.000 0 N.D. d 71	44) 2-Methylphenanthrene	0.000		0	N.D.	
449 3,6-Dimetrylphenanthrene 28,077 206 287338m 83.30 49 Retene 30.743 234 117637m 76.55 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 Naphthobenzothiophenes 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-Maphthobenzothiophenes 0.000 0 N.D. d 57 Pyrene 29.739 202 495238m 77.67 50 2-Methylfluoranthene 31.124 216 313934m 88.28 61 Benzo(b)fluorene 31.124 216 316635m 101.95 62 C1-Fluoranthenes/Pyrenes 0.000 0 N.D. d 63 C2-Fluoranthenes/Pyrenes 0.000 0 N.D. d 71	45) 2-Methylanthracene	0.000		0	N.D.	
449 3,6-Dimetrylphenanthrene 28,077 206 287338m 83.30 49 Retene 30.743 234 117637m 76.55 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 Naphthobenzothiophenes 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-Maphthobenzothiophenes 0.000 0 N.D. d 57 Pyrene 29.739 202 495238m 77.67 50 2-Methylfluoranthene 31.124 216 313934m 88.28 61 Benzo(b)fluorene 31.124 216 316635m 101.95 62 C1-Fluoranthenes/Pyrenes 0.000 0 N.D. d 63 C2-Fluoranthenes/Pyrenes 0.000 0 N.D. d 71	46) 4/9-Methylphenanthrene	0.000	100	0	N.D.	d
49) Retene 30.743 234 117637m 76.55 50) C2-Phenanthrenes/Anthr 0.000 0 N.D. d 51) C3-Phenanthrenes/Anthr 0.000 0 N.D. d 53) Naphthobenzothiophenes 2.994 395336m 113.20 54) C1-Naphthobenzothiophenes 0.000 0 N.D. d 55) C2-Naphthobenzothiophenes 0.000 0 N.D. d 66) C3-Naphthobenzothiophenes 0.000 0 N.D. d 57) C4-Naphthobenzothiophenes 0.000 0 N.D. d 610 2-Methylfluoranthene 28.777 202 483595m 97.83 59) Pyrene 29.739 202 496238m 77.67 610 2-Methylfluoranthene 31.124 216 316635m 101.95 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 70 <t< td=""><td>47) 1-Methylphenanthrene</td><td>27.003</td><td>192</td><td>289381m</td><td>89.52</td><td></td></t<>	47) 1-Methylphenanthrene	27.003	192	289381m	89.52	
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) 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) Fyrene 29.739 202 496238m 77.67 50) 2-Methylfluoranthene 31.124 216 316635m 101.95 51) 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 71) C3-Chrysenes 0.000 0 N.D. d 65) C4-Fluoranthenes/Pyrenes 0.000 0 N.D. d 71) C3-Chrysenes 0.000	48) 3,6-Dimethyiphenanthrene	28.077	206	28/338m	83.30	
11 C3-Phenanthrenes/Antr 0.000 0 N.D. d 12 C4-Phenanthrenes/Antr 0.000 0 N.D. d 13 Naphthobenzothiophenes 0.000 0 N.D. d 14 C1-Naphthobenzothiophenes 0.000 0 N.D. d 15 C2-Naphthobenzothiophenes 0.000 0 N.D. d 16 C1-Naphthobenzothiophenes 0.000 0 N.D. d 17 C4-Naphthobenzothiophenes 0.000 0 N.D. d 17 C4-Naphthobenzothiophenes 0.000 0 N.D. d 16 C1-Naphthobenzothiophenes 0.000 0 N.D. d 17 C4-Naphthobenzothiophenes 0.000 0 N.D. d 18 Purene 28.977 202 483596m 97.83 19 Pyrene 30.501 216 313394m 88.28 10 C1-Pluoranthenes/Pyrenes 0.000 0 N.D. d 10 C2-Fluoranthenes/Pyrenes 0.000 0 N.D. d 10 C1-Chrysenes 0.000 0	49) Receile	30.743	234		76.55	
52) C4-Phenanthrenes/Anthr 0.000 0 N.D. d 53) Naphthobenzothiophenes 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 28.977 202 496238m 77.67 60) 2-Methylfluoranthene 30.501 216 313934m 88.28 61) Benzo(b) 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) C1-Chrysenes 0.000 0 N.D. d 66) C1-Chrysenes 0.000 0 N.D. d 70) C2-Chrysenes 0.000 0 N.D. d 71) C3-Chrysenes 0.000 0	50) C2-Phenanchrenes/Anthr	0.000			N.D.	a
53) Naphthobenzothiophenes 32.994 234 395336m 113.20 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 28.977 202 483596m 97.83 59) Pyrene 29.739 202 496238m 77.67 60 2-Methylfluoranthene 31.124 216 316635m 101.95 61) Enezo(b) fluorene 31.124 216 316635m 101.95 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 67) Benz(a) anthracene 33.809 228 405154m 126.72 68) C1-Chrysenes 0.000 0 N.D. d 0	52) C4-Dhenanthrenes/Anthr	0.000				
54 C1-Naphthobenzothiophenes 0.000 0 N.D. d 55 C2-Naphthobenzothiophenes 0.000 0 N.D. d 57 C4-Naphthobenzothiophenes 0.000 0 N.D. d 58 Fluoranthene 28.977 202 495238m 77.67 60 2-Methylfluoranthene 30.501 216 313934m 88.28 61 Benzo(b)fluorene 31.124 216 31635m 101.95 62 C1-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 33.809 228 405154m 126.72 68 Chrysenes 0.000 0 N.D. d 71 C3-Chrysenes 0.000 0 N.D. d 71 C3-Chrysenes 0.000 0 N.D. d 71 73 22-Hopan 737 222 5159 71 71 C3-Chrysenes 0.000 0 <t< td=""><td>52) Naphthopenzothiophene</td><td>32 994</td><td>224</td><td></td><td></td><td>a</td></t<>	52) Naphthopenzothiophene	32 994	224			a
56 C3-Naphthobenzothiophenes 0.000 0 N.D. d 57 C4-Naphthobenzothiophenes 0.000 0 N.D. d 58 Fluoranthene 28.977 202 483596m 97.83 59 Pyrene 29.739 202 496238m 77.67 60 2-Methylfluoranthene 30.501 216 313934m 88.28 61 Benzo(b)fluorene 31.124 216 31663sm 101.95 621 C1-Fluoranthenes/Pyrenes 0.000 0 N.D. d 631 C2-Fluoranthenes/Pyrenes 0.000 0 N.D. d 641 C3-Fluoranthenes/Pyrenes 0.000 0 N.D. d 675 C4-Fluoranthenes/Pyrenes 0.000 0 N.D. d 676 C1-Chrysenes 0.000 0 N.D. d 670 C2-Chrysenes 0.000 0 N.D. d 671 Bacleanae 0.000 0 N.D. d 771 Benzo(k)fluoranthene 37.378 252 512591m 94.74 78 Benzo(a)fluoranthene	53) Naphenobenzothiophene	0 000	234			4
56 C3-Naphthobenzothiophenes 0.000 0 N.D. d 57 C4-Naphthobenzothiophenes 0.000 0 N.D. d 58 Fluoranthene 28.977 202 483596m 97.83 59 Pyrene 29.739 202 496238m 77.67 60 2-Methylfluoranthene 30.501 216 313934m 88.28 61 Benzo(b)fluorene 31.124 216 31663sm 101.95 621 C1-Fluoranthenes/Pyrenes 0.000 0 N.D. d 631 C2-Fluoranthenes/Pyrenes 0.000 0 N.D. d 641 C3-Fluoranthenes/Pyrenes 0.000 0 N.D. d 675 C4-Fluoranthenes/Pyrenes 0.000 0 N.D. d 676 C1-Chrysenes 0.000 0 N.D. d 670 C2-Chrysenes 0.000 0 N.D. d 671 Bacleanae 0.000 0 N.D. d 771 Benzo(k)fluoranthene 37.378 252 512591m 94.74 78 Benzo(a)fluoranthene	55) C2-Naphthobenzothiophenes	0.000				
57) C4-Naphthobenzothiophenes 0.000 0 N.D. d 58) Fluoranthene 28.977 202 483596m 97.83 59) Pyrene 29.739 202 483596m 97.83 60) 2-Methylfluoranthene 30.501 216 313934m 88.28 61) Benzo(b)fluorene 31.124 216 31665m 101.95 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 33.809 228 405154m 126.72 68) 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 31.378	56) C3-Naphthobenzothiophenes	0.000				
58) Fluoranthene 28.977 202 485396m 97.83 59) Pyrene 29.739 202 496238m 77.67 60) 2-Methylfluoranthene 31.124 216 313934m 88.28 61) Benzo(b) fluorene 31.124 216 316635m 101.95 62) C1-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 66) C1-Chrysenes 0.000 0 N.D. d 67) Benz(a) anthracene 33.804 228 405154m 126.72 68) Chrysene/Triphenylene 33.964 228 405154m 126.72 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) Edacane 0.000 0 N.D. d 73) Bacolo fluoranthene 37.378 252 128490m 93.59 78) Benzo(a) fluoranthene 37.475 252 530024m 83.33 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
60) 2-Methylfluoranthene 30.501 216 313934m 88.28 61) Benzo(b)fluorene 31.124 216 316635m 101.95 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 33.809 228 405154m 126.72 68) Chrysene/Triphenylene 33.964 228 378474m 88.01 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 73) Beazo(k,j)fluoranthene 37.455 252 512591m 94.74 79) Benzo(a)fluoranthene 33.348 252 520 469734m 91.48 <t< td=""><td></td><td></td><td>202</td><td></td><td></td><td>u</td></t<>			202			u
60) 2-Methylfluoranthene 30.501 216 313934m 88.28 61) Benzo(b)fluorene 31.124 216 316635m 101.95 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 33.809 228 405154m 126.72 68) Chrysene/Triphenylene 33.964 228 378474m 88.01 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 73) Beazo(k,j)fluoranthene 37.455 252 512591m 94.74 79) Benzo(a)fluoranthene 33.348 252 520 469734m 91.48 <t< td=""><td></td><td>29.739</td><td>202</td><td>496238m</td><td>77 67</td><td></td></t<>		29.739	202	496238m	77 67	
61) Benzo(b) fluorene 31.124 216 316635m 101.95 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 33.809 228 405154m 126.72 68) Chrysenes/Triphenylene 33.964 228 378474m 88.01 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 73) Benzo(b) fluoranthene 37.378 252 484820m 93.59 78) Benzo(a) fluoranthene 37.475 252 51024m 83.33 81) Benzo(a) pyrene 38.348 252 530024m 83.33 81)	60) 2-Methylfluoranthene	30.501	216	313934m	88.28	
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 33.809 228 378474m 88.01 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 73) Bacoleanane 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) Benzo(k) fluoranthene 37.378 252 484820m 93.59 78) Benzo(a) pyrene 38.542 252 530024m 83.33 81) Benzo(a) pyrene 38.542 252 43673m	61) Benzo(b)fluorene	31.124	216			
65) C4-Fluoranthenes/Pyrenes 0.000 0 N.D. d 67) Benz (a) anthracene 33.809 228 405154m 126.72 68) Chrysene/Triphenylene 33.964 228 378474m 88.01 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 42.894 191 166145m 91.22 77) Benzo(k, j) fluoranthene 37.455 252 512591m 94.74 79) Benzo(a) fluoranthene 37.455 252 51024m 83.33 81) Benzo(a) pyrene 38.542 252 469734m 91.48 82) Indeno(1,2,3-c,d) pyrene 43.226 276 544141m 99.14 83) <	62) C1-Fluoranthenes/Pyrenes	0.000	100000000000			d
65) C4-Fluoranthenes/Pyrenes 0.000 0 N.D. d 67) Benz (a) anthracene 33.809 228 405154m 126.72 68) Chrysene/Triphenylene 33.964 228 378474m 88.01 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 42.894 191 166145m 91.22 77) Benzo(k, j) fluoranthene 37.455 252 512591m 94.74 79) Benzo(a) fluoranthene 37.455 252 51024m 83.33 81) Benzo(a) pyrene 38.542 252 469734m 91.48 82) Indeno(1,2,3-c,d) pyrene 43.226 276 544141m 99.14 83) <	63) C2-Fluoranthenes/Pyrenes	0.000				
65) C4-Fluoranthenes/Pyrenes 0.000 0 N.D. d 67) Benz (a) anthracene 33.809 228 405154m 126.72 68) Chrysene/Triphenylene 33.964 228 378474m 88.01 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 42.894 191 166145m 91.22 77) Benzo(k, j) fluoranthene 37.455 252 512591m 94.74 79) Benzo(a) fluoranthene 37.455 252 51024m 83.33 81) Benzo(a) pyrene 38.542 252 469734m 91.48 82) Indeno(1,2,3-c,d) pyrene 43.226 276 544141m 99.14 83) <	64) C3-Fluoranthenes/Pyrenes	0.000				
67) Benz (a) anthracene 33.809 228 405154m 126.72 68) Chrysene/Triphenylene 33.964 228 378474m 88.01 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 42.894 191 166145m 91.22 77) Benzo (b) fluoranthene 37.378 252 512591m 94.74 79) Benzo (a) fluoranthene 0.000 0 N.D. d 80 Benzo (a) pyrene 38.348 252 530024m 83.33 81) Benzo (a, h) anthracc 0.000 0 N.D. d 82) Indeno (1, 2, 3-c, d) pyrene 43.226 276 544141m 99.14 83) Dibenzo (a, h) ant	65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	
68) Chrysene/Triphenylene 33.964 228 378474m 88.01 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 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 42.894 191 166145m 91.22 77) Benzo(k) fluoranthene 37.378 252 484820m 93.59 78) Benzo(k, j) fluoranthene 37.455 252 512591m 94.74 79) Benzo(a) fluoranthene 38.348 252 53024m 83.33 81) Benzo(a) fluoranthene 43.226 276 544141m 99.14 82) Inden (1, 2, 3-c, d) pyrene 43.226 276 544141m 99.14 83) <td< td=""><td>67) Benz(a)anthracene</td><td>33.809</td><td>228</td><td>405154m</td><td>126.72</td><td></td></td<>	67) Benz(a)anthracene	33.809	228	405154m	126.72	
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 42.894 191 166145m 91.22 77) Benzo(k,j)fluoranthene 37.378 252 484820m 93.59 78) Benzo(a)fluoranthene 37.475 252 512591m 94.74 79) Benzo(a)fluoranthene 0.000 0 N.D. d 80) Benzo(a)fluoranthene 37.475 252 530024m 83.33 81) Benzo(a)fluoranthene 0.000 0 N.D. d 80) Benzo(a,h)anthracene 43.226 276 544141m 99.14 83) Dibenzo(a,h)anthrac 0.000 0 N.D. d 84) C1-Dibenzo(a,h)anthrac 0.000	68) Chrysene/Triphenylene					
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 42.894 191 166145m 91.22 77) Benzo(b) fluoranthene 37.378 252 484820m 93.59 78) Benzo(a, fluoranthene 0.000 0 N.D. d 80) Benzo(a) fluoranthene 0.000 0 N.D. d 81) Benzo(a) pyrene 38.348 252 530024m 83.33 81) Benzo(a) pyrene 38.542 252 469734m 91.48 82) Indeno(1,2,3-c,d) pyrene 43.26 276 544141m 99.14 83) Dibenzo(a,h) anthracc 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 87) Benzo(g,h,i)perylene	69) Cl-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 42.894 191 166145m 91.22 77) Benzo(b) fluoranthene 37.378 252 484820m 93.59 78) Benzo(k,j) fluoranthene 0.000 0 N.D. d 80) Benzo(a) fluoranthene 0.000 0 N.D. d 81) Benzo(a) fluoranthene 0.000 0 N.D. d 82) Indeno(1, 2, 3-c, d) pyrene 43.226 252 469734m 91.48 82) Indeno(1, 2, 3-c, d) pyrene 43.226 276 544141m 99.14 83) Dibenzo(a,h) anthracc 0.000 0 N.D. d 85) C2-Dibenzo(a,h) anthracc 0.000 0 N.D. d 86) C3-Dibenzo(a,h) anthrac 0.000 0 N.D. d 87) Benzo(g,h,i)perylene 44.590 276 497435m 108.23 89)		0.000		0	N.D.	d
74)C29-Hopane0.0000N.D. d75)18a-Oleanane0.0000N.D. d76)C30-Hopane42.894191166145m91.2277)Benzo (b) fluoranthene37.378252484820m93.5978)Benzo (k, j) fluoranthene37.455252512591m94.7479)Benzo (a) fluoranthene0.0000N.D. d80)Benzo (a) pyrene38.348252530024m83.3381)Benzo (a) pyrene38.542252469734m91.4882)Indeno (1, 2, 3-c, d) pyrene43.226276544141m99.1483)Dibenzo (a, h) anthracene43.336278434673m95.2084)C1-Dibenzo (a, h) anthrac0.0000N.D. d85)C2-Dibenzo (a, h) anthrac0.0000N.D. d86)C3-Dibenzo (a, h) anthrac0.0000N.D. d87)Benzo (g, h, i) perylene44.590276497435m108.2389)Perylene38.852252485922m85.9391)C20-TAS0.0000N.D. d92)C21-TAS0.0000N.D. d93)C26(20R)/C27(20S)-TAS39.473231580017m92.0995)C28(20S)-TAS0.0000N.D. d96)C27(20R)-TAS0.0000N.D. d		0.000		0	N.D.	d
75) 18a-Oleanane 0.000 0 N.D. d 76) C30-Hopane 42.894 191 166145m 91.22 77) Benzo(b) fluoranthene 37.378 252 484820m 93.59 78) Benzo(a) fluoranthene 37.455 252 512591m 94.74 79) Benzo(a) fluoranthene 0.000 0 N.D. d 80) Benzo(a) pyrene 38.348 252 530024m 83.33 81) Benzo(a) pyrene 38.348 252 530024m 83.33 82) Indeno(1,2,3-c,d) pyrene 43.226 276 544141m 99.14 83) Dibenzo(a,h) anthracene 43.336 278 434673m 95.20 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 44.590 276 497435m 108.23 89) Perylene 38.852 252 <td></td> <td></td> <td></td> <td>0</td> <td></td> <td></td>				0		
76)C30-Hopane 42.894 191166145m91.2277)Benzo(b) fluoranthene 37.378 252 $484820m$ 93.59 78)Benzo(k,j) fluoranthene 37.455 252 $512591m$ 94.74 79)Benzo(a) fluoranthene 0.000 0 N.D. d80)Benzo(e) pyrene 38.348 252 $530024m$ 83.33 81)Benzo(a) pyrene 38.542 252 $469734m$ 91.48 82)Indeno(1,2,3-c,d) pyrene 43.226 276 $544141m$ 99.14 83)Dibenzo(a,h) anthracene 43.336 278 $434673m$ 95.20 84)C1-Dibenzo(a,h) anthrac 0.000 0 N.D. d85)C2-Dibenzo(a,h) anthrac 0.000 0 N.D. d86)C3-Dibenzo(a,h) anthrac 0.000 0 N.D. d87)Benzo(g,h,i) perylene 44.590 276 $497435m$ 108.23 89)Perylene 38.852 252 $485922m$ 85.93 91)C20-TAS 0.000 0 N.D. d93)C26(20S) -TAS 0.000 0 N.D. d94)C26(20R)/C27(20S) -TAS 9.473 231 $580017m$ 92.09 95)C28(20S) -TAS 0.000 0 N.D. d96)C27(20R) -TAS 0.000 0 N.D. d				0		
77)Benzo (b) fluoranthene37.378252484820m93.5978)Benzo (k, j) fluoranthene37.455252512591m94.7479)Benzo (a) fluoranthene0.0000N.D. d80)Benzo (e) pyrene38.348252530024m83.3381)Benzo (a) pyrene38.542252469734m91.4882)Indeno (1, 2, 3-c, d) pyrene43.226276544141m99.1483)Dibenzo (a, h) anthracene43.336278434673m95.2084)C1-Dibenzo (a, h) anthrac0.0000N.D. d85)C2-Dibenzo (a, h) anthrac0.0000N.D. d86)C3-Dibenzo (a, h) anthrac0.0000N.D. d87)Benzo (g, h, i) perylene44.590276497435m108.2389)Perylene38.852252485922m85.9391)C20-TAS0.0000N.D. d92)C21-TAS0.0000N.D. d93)C26 (20S) -TAS0.0000N.D. d94)C26 (20R)/C27 (20S) -TAS39.473231580017m92.0995)C28 (20S) -TAS0.0000N.D. d96)C27 (20R) -TAS0.0000N.D. d						d
78)Benzo (k, j) fluoranthene37.455252 $512591m$ 94.74 79)Benzo (a) fluoranthene 0.000 0 N.D. d80)Benzo (e) pyrene 38.348 252 $530024m$ 83.33 81)Benzo (a) pyrene 38.542 252 $469734m$ 91.48 82)Indeno (1, 2, 3-c, d) pyrene 43.226 276 $544141m$ 99.14 83)Dibenzo (a, h) anthracene 43.336 278 $434673m$ 95.20 84)C1-Dibenzo (a, h) anthrac 0.000 0 N.D. d85)C2-Dibenzo (a, h) anthrac 0.000 0 N.D. d86)C3-Dibenzo (a, h) anthrac 0.000 0 N.D. d87)Benzo (g, h, i) perylene 44.590 276 $497435m$ 108.23 89)Perylene 38.852 252 $485922m$ 85.93 91)C20-TAS 0.000 0 N.D. d92)C21-TAS 0.000 0 N.D. d93)C26 (20S) -TAS 0.000 0 N.D. d94)C26 (20R)/C27 (20S) -TAS 39.473 231 $580017m$ 92.09 95)C28 (20S) -TAS 0.000 0 N.D. d96)C27 (20R) -TAS 0.000 0 N.D. d						
79)Benzo (a) fluoranthene0.0000N.D. d80)Benzo (e) pyrene38.348252530024m83.3381)Benzo (a) pyrene38.542252469734m91.4882)Indeno (1, 2, 3-c, d) pyrene43.226276544141m99.1483)Dibenzo (a, h) anthracene43.336278434673m95.2084)C1-Dibenzo (a, h) anthrac0.0000N.D. d85)C2-Dibenzo (a, h) anthrac0.0000N.D. d86)C3-Dibenzo (a, h) anthrac0.0000N.D. d87)Benzo (g, h, i) perylene44.590276497435m108.2389)Perylene38.852252485922m85.9391)C20-TAS0.0000N.D. d92)C21-TAS0.0000N.D. d93)C26 (20R) / C27 (20S) - TAS39.473231580017m92.0995)C28 (20S) - TAS0.0000N.D. d96)C27 (20R) - TAS0.0000N.D. d						
80) Benzo(e) pyrene 38.348 252 530024m 83.33 81) Benzo(a) pyrene 38.542 252 469734m 91.48 82) Indeno(1,2,3-c,d) pyrene 43.226 276 544141m 99.14 83) Dibenzo(a,h) anthracene 43.336 278 434673m 95.20 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 44.590 276 497435m 108.23 89) Perylene 38.852 252 485922m 85.93 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 39.473 231 580017m 92.09 95) C28(20S) -TAS 0.000 0 N.D. d <t< td=""><td></td><td></td><td>252</td><td></td><td></td><td>200</td></t<>			252			200
81) Benzo(a) pyrene 38.542 252 469734m 91.48 82) Indeno(1,2,3-c,d) pyrene 43.226 276 544141m 99.14 83) Dibenzo(a,h) anthracene 43.336 278 434673m 95.20 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 44.590 276 497435m 108.23 89) Perylene 38.852 252 485922m 85.93 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 39.473 231 580017m 92.09 95) C28(20S)-TAS 0.000 0 N.D. d 96) C27(20R)-TAS 0.000 0 N.D. d			050			a
82) Indeno(1,2,3-c,d)pyrene 43.226 276 544141m 99.14 83) Dibenzo(a,h)anthracene 43.336 278 434673m 95.20 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 44.590 276 497435m 108.23 89) Perylene 38.852 252 485922m 85.93 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 39.473 231 580017m 92.09 95) C28(20S) -TAS 0.000 0 N.D. d 96) C27(20R)-TAS 0.000 0 N.D. d						
83) Dibenzo(a,h)anthracene 43.336 278 434673m 95.20 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 44.590 276 497435m 108.23 89) Perylene 38.852 252 485922m 85.93 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 39.473 231 580017m 92.09 95) C28(20S)-TAS 0.000 0 N.D. d 96) C27(20R)-TAS 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 44.590 276 497435m 108.23 89) Perylene 38.852 252 485922m 85.93 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 39.473 231 580017m 92.09 95) C28(20S)-TAS 0.000 0 N.D. d 96) C27(20R)-TAS 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 44.590 276 497435m 108.23 89) Perylene 38.852 252 485922m 85.93 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 39.473 231 580017m 92.09 95) C28(20S)-TAS 0.000 0 N.D. d 96) C27(20R)-TAS 0.000 0 N.D. d			210			2
86) C3-Dibenzo(a,h) anthrac 0.000 0 N.D. d 87) Benzo(g,h,i)perylene 44.590 276 497435m 108.23 89) Perylene 38.852 252 485922m 85.93 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 39.473 231 580017m 92.09 95) C28(20S)-TAS 0.000 0 N.D. d 96) C27(20R)-TAS 0.000 0 N.D. d						
87)Benzo(g,h,i)perylene44.590276497435m108.2389)Perylene38.852252485922m85.9391)C20-TAS0.0000N.D. d92)C21-TAS0.0000N.D. d93)C26(20S)-TAS0.0000N.D. d94)C26(20R)/C27(20S)-TAS39.473231580017m92.0995)C28(20S)-TAS0.0000N.D. d96)C27(20R)-TAS0.0000N.D. d						
89) Perylene 38.852 252 485922m 85.93 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 39.473 231 580017m 92.09 95) C28(20S)-TAS 0.000 0 N.D. d 96) C27(20R)-TAS 0.000 0 N.D. d			276			4
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 39.473 231 580017m 92.09 95) C28(20S)-TAS 0.000 0 N.D. d 96) C27(20R)-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 39.473 231 580017m 92.09 95) C28(20S)-TAS 0.000 0 N.D. d 96) C27(20R)-TAS 0.000 0 N.D. d			232			6
93)C26 (20S) - TAS0.0000N.D. d94)C26 (20R) / C27 (20S) - TAS39.473231580017m92.0995)C28 (20S) - TAS0.0000N.D. d96)C27 (20R) - TAS0.0000N.D. d						
94)C26(20R)/C27(20S)-TAS39.473231580017m92.0995)C28(20S)-TAS0.0000N.D. d96)C27(20R)-TAS0.0000N.D. d						
95) C28(20S)-TAS0.0000N.D. d96) C27(20R)-TAS0.0000N.D. d			231			
96) C27(20R)-TAS 0.000 0 N.D. d						d
				0		

Data Path : C:\GCMS7\MS70052\ Data File : MS70052C.D Acq On : 6 Aug 2013 11:57 pm Operator : YM Sample : AR-WKC2-100-029 Misc : ALS Vial : 3 Sample Multiplier: 1 Quant Time: Aug 08 08:13:03 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:08:41 2013 Response via : Initial Calibration Compound R.T. QIon Response Conc Units Dev(Min) (#) = qualifier out of range (m) = manual integration (+) = signals summed

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Data Path : C:\GCMS7\MS70052\ Data File : MS70052C.D Acq On : 6 Aug 2013 11:57 pm Operator : YM Sample : AR-WKC2-100-029 Misc : AR-WKC2-100-029 Misc : 3 Sample Multiplier: 1

Quant Time: Aug 08 08:13:03 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:08:41 2013 Response via : Initial Calibration

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S.S.THY SHORE AND SHORE AN							HqsV —		
Benzo(b)fluoranthenanthenanthenanthena. Benzo(b)fluoranthenanth			T.en I.Stb-ene	entherount([,	S.Entrangia	Helth Starking		9) <u>9</u>	

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Data Acq C Opera Sampl Misc ALS V Quant Quant Quant QLast	Path : C:\GCMS7\MS70052\ File : MS70052D.D On : 7 Aug 2013 1:05 a ator : YM .e : AR-WKC3-250-029 Yial : 4 Sample Multiplie Time: Aug 08 08:18:15 2013 Method : C:\GCMS7\MS70052 Title : PAH Calibration T Update : Thu Aug 08 08:13: onse via : Initial Calibrati	er: 1 AR70052. Table-201 10 2013					
	Compound	R.T.		Response			
	ernal Standards		1.5.5				
(L 21)	Fluorene-d10 Pyrene-d10	21.511	176	525390m	251.05		0.00
31) 73)	Benzo(a)pyrene-d12	29.704	212	925918m	250.63		0.00
131	Benzo (a) pyrene-urz	30.425	264	8702660	250.32		-0.04
Svst	em Monitoring Compounds						
2)	Naphthalene-d8	13,878	136	853837m	210 01		0 00
21)	Naphthalene-d8 Acenaphthene-d10	19.728	164	467829m	216.49		0.00
32)	Phenanthrene-d10	24.787	188	890857m	187.48		0.00
66)	Chrysene-d12	33.847	240	856944m	231.34		0.00
88)	Chrysene-d12 Perylene-d12	38.736	264	991166m	200.41		0.00
90)	5(b)H-Cholane	34.274	217	237165m	209.60		0.00
Targ	et Compounds						Qvalue
	cis/trans Decalin			150290m			
		0.000		0			
5)	C2-Decalins	0.000			N.D.		
6)	C3-Decalins	0.000		0	N.D.	d	
/)	C4-Decalins	0.000	15/15/27	0	N.D.	d	
				926116m			
9)	2-Methylnaphthalene	16.190	142	570170m	203.67		
10)	1-Methyinaphthalene	16.524	142	537088m	206.94		
12)	2,6-Dimethyinaphthaiene	18.279	156	515390m	210.70		
12)	<pre>2-Methylnaphthalene 1-Methylnaphthalene 2,6-Dimethylnaphthalene 1,6,7-Trimethylnaphtha C2-Naphthalenes</pre>	21.121	1/0	484134m	231.31		
101	C3-Naphthalenes	0.000		0	м.р.	2	
	C4-Naphthalenes	0.000		0	N.D. N.D.	a	
	Benzothiophene	14.101	134	729099m	214.13		
	C1-Benzothiophenes	0.000	131	0	N.D.	Ь	
	C2-Benzothiophenes	0.000		õ	N.D.		
	C3-Benzothiophenes	0.000		0	N.D.		
	C4-Benzothiophenes	0.000		0	N.D.		
22)	Biphenyl	17.750	154	767524m	214.29		
23)	Acenaphthylene	19.226	152	832086m	216.68		
	Acenaphthene	19.811	154	513023m	223.91		
	Dibenzofuran	20.424	168	824933m	209.66		
	Fluorene	21.594	166	660348m	213.50		
	1-Methylfluorene	23.540	180	342958m	241.63		
	C1-Fluorenes	0.000		0	N.D.		
	C2-Fluorenes	0.000		0	N.D.		
	C3-Fluorenes	0.000		0	N.D.	d	
- D/	Carbazole	25.618	167	842019m	184.44		
	Dibenzothiophene	24.441	184	1026304m	185.30		
	4-Methyldibenzothiophene	25.964	198	606688m	210.30		
	2/3-Methyldibenzothiop 1-Methyldibenzothiophene	0.000		0	N.D.	2	
	C2-Dibenzothiophenes	0.000		0	N.D.		
	C3-Dibenzothiophenes	0.000		0	N.D. N.D.		
	C4-Dibenzothiophenes	0.000		0	N.D. N.D.		
	Phenanthrene	24.856	178	929434m	N.D. 192.94	u	
	Anthracene	25.064	178	825878m	200.18		
		2 0 00					

Data Acq C Opera Sampl Misc ALS V Quant Quant Quant Quant	Path : C:\GCMS7\MS70052\ File : MS70052D.D On : 7 Aug 2013 1:05 a ator : YM .e : AR-WKC3-250-029 Yial : 4 Sample Multiplie Time: Aug 08 08:18:15 2013 Method : C:\GCMS7\MS70052\ Title : PAH Calibration T . Update : Thu Aug 08 08:13: onse via : Initial Calibrati	er: 1 AR70052 Table-201 10 2013			
	Compound	R.T.	QIon	Response	Conc Units Dev(Min)
43)	3-Methylphenanthrene	0.000		0	N.D. d
44)	2-Methylphenanthrene 2-Methylanthracene 4/9-Methylphenanthrene	0.000		0	N.D. d
45)	4/9-Methylphenanthrene	0.000		0	N.D. d
47)	1-Methylphenanthrene	27 003	192	EEELEOm	N.D. d
48)	3 6-Dimethylphenanthrene	29.076	206	669965m	107 60
49)	1-Methylphenanthrene 3,6-Dimethylphenanthrene Retene	30 743	200	274064m	197.09
50)	C2-Phenanthrenes/Anthr	0 000	234	27400411	N.D. d
	가장 같은 것 같아요. 집에 가지 않는 것 이렇게 하는 것 같아요. 것 같아요. 것 같아요. 것 같아요. 같아요. 것 같아요.	0.000		0	N.D. d
	C4-Phenanthrenes/Anthr			õ	N.D.
53)	Naphthobenzothiophene	32.994	234		252.97
	C1-Naphthobenzothiophenes			0	N.D. d
	C2-Naphthobenzothiophenes			0	N.D. d
56)	C3-Naphthobenzothiophenes	0.000		0	N.D. d
57)	C4-Naphthobenzothiophenes	0.000		0	N.D. d
100003-20	Fluoranthene	28.977	202	1117483m	224.54
				1129151m	
60)	2-Methylfluoranthene	30.500	216	719207m	206.15
	Benzo(b)fluorene	31.124	216	723844m	226.95
	C1-Fluoranthenes/Pyrenes			0	
63)	C2-Fluoranthenes/Pyrenes	0.000		0	N.D. d
64)	C3-Fluoranthenes/Pyrenes C4-Fluoranthenes/Pyrenes Benz(a)anthracene	0.000		0	N.D. d
67)	Renz(a) anthracene	22 209	220	026525m	N.D. d
68)	Chrysene/Triphenylene	33.964	228	926535m 909168m	212.52
	C1-Chrysenes	0.000	220	000100	N.D. d
70)	C2-Chrysenes	0.000		õ	N.D. d
	C3-Chrysenes	0.000		õ	N.D. d
	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
	C30-Hopane	42.894	191	370291m	212.75
	Benzo(b)fluoranthene	37.378	252	1094923m	221.82
	Benzo(k,j)fluoranthene	37.455	252	1179289m	218.93
	Benzo(a)fluoranthene	0.000		0	N.D. d
	Benzo(e)pyrene	38.348	252	1218020m	200.70
	Benzo(a)pyrene	38.542	252	1072299m	216.71
	Indeno(1,2,3-c,d)pyrene Dibenzo(a,h)anthracene	43.225	276 278	1237387m	227.89
	Cl-Dibenzo(a, h) anthrac	43.336	270	981764m 0	218.79 N.D. d
	C2-Dibenzo(a,h)anthrac	0.000		0	N.D. d
	C3-Dibenzo(a,h)anthrac	0.000		õ	N.D. d
	Benzo(g,h,i)perylene	44.590	276	1121571m	244.87
	Perylene	38.852	252	1109634m	205.85
	C20-TAS	0.000		0	N.D. d
	C21-TAS	0.000		0	N.D. d
93)	C26(20S)-TAS	0.000		0	N.D. d
	C26(20R)/C27(20S)-TAS	39.473	231	1255406m	205.42
	C28 (20S) - TAS	0.000		0	N.D. d
	C27 (20R) - TAS	0.000		0	N.D. d
97)	C28(20R)-TAS	0.000		0	N.D. d

Data Path : C:\GCMS7\MS70052\ Data File : MS70052D.D Acq On : 7 Aug 2013 1:05 am Operator : YM Sample : AR-WKC3-250-029 Misc ः ALS Vial : 4 Sample Multiplier: 1 Quant Time: Aug 08 08:18:15 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:13:10 2013 Response via : Initial Calibration Compound R.T. QIon Response Conc Units Dev(Min) (#) = qualifier out of range (m) = manual integration (+) = signals summed (QT Reviewed) Quantitation Report

: 4 Sample Multiplier: 1 1:05 am Data Path : C:\GCMS7\MS70052\ Data File : MS70052D.D : YM : AR-WKC3-250-029 7 Aug 2013 •• Operator ALS Vial Acq On Sample Misc

Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:13:10 2013 Response via : Initial Calibration Quant Time: Aug 08 08:18:15 2013

Z-Methyfiluorantylickiener. T-generation Benzo(b)filuorantylickiener. Naphthobenzorthiophene. Naphthobenzorthiophene. S-Methyfiluoranthene. Benzo(b)fluoranthene. Benzo(b)fluoranthene. Benzo(b)fluoranthene. Citys
T.enerved(a)ozne8 Z.S.f.b-enelvet enervet T.enervet T.enervet T.enervet T.enervet

52.00 54.00 56.00 58.00 60.00

Data Path : C:\GCMS7\MS70052\ Data File : MS70052E.D Acg On : 7 Aug 2013 2:14 am Operator : YM Sample : AR-WKC4-500-029 : Misc ALS Vial : 5 Sample Multiplier: 1 Quant Time: Aug 08 08:22:54 2013 Ouant Method : C:\GCMS7\MS70052\AR70052.M Ouant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:18:22 2013 Response via : Initial Calibration Compound R.T. QIon Response Conc Units Dev(Min) Internal Standards 1) Fluorene-dl021.511176534006m251.050.0031) Pyrene-dl029.704212925106m250.630.0073) Benzo(a)pyrene-dl238.464264852068m250.320.04 System Monitoring Compounds2) Naphthalene-d813.8781361797156m445.750.0021) Acenaphthene-d1019.728164990249m455.820.0032) Phenanthrene-d1024.7871881922759m429.240.0066) Chrysene-d1233.8482401824840m483.370.0088) Perylene-d1238.7362642059890m433.350.0090) 5 (b) H-Cholane34.274217508839m464.890.00

 90)
 5 (b)H-Cholane
 34.274
 217
 508839M
 464.89

 Target Compounds
 11.231
 138
 314137m
 448.23

 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
 16.190
 142
 1208297m
 436.72

 10)
 1-Methylnaphthalene
 16.524
 142
 1136888m
 442.22

 11)
 2.6-Dimethylnaphthalene
 18.279
 156
 1100156m
 450.88

 12)
 1.6,7-Trimethylnaphthal...
 21.121
 170
 1035411m
 484.81

 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)
 Benzothiophenes
 0.000
 0
 N.D.
 d

 12)
 Qvalue

Data Acq C Opera Sampl Misc ALS V Quant Quant Quant Quant	Path : C:\GCMS7\MS70052\ File : MS70052E.D On : 7 Aug 2013 2:14 a ator : YM .e : AR-WKC4-500-029 Vial : 5 Sample Multiplie . Time: Aug 08 08:22:54 2013 . Method : C:\GCMS7\MS70052\ . Title : PAH Calibration T . Update : Thu Aug 08 08:18: onse via : Initial Calibrati	er: 1 AR70052 'able-203 22 2013				
	Compound	R.T.		Response		
43)	3-Methylphenanthrene			0	N.D.	
	2-Methylphenanthrene			0		
45)	2-Methylanthracene	0.000		0	N.D.	
46)	2-Methylanthracene 4/9-Methylphenanthrene	0.000		0	N.D.	
47)	1-Methylphenanthrene	27.003	192	1439536m	453.94	
48)	3,6-Dimethylphenanthrene	28.077	206	1466636m	440.78	
49)	Retene	30.743	234	590974m	399.54	
50)	C2-Phenanthrenes/Anthr C3-Phenanthrenes/Anthr	0.000		0		d
51)	C3-Phenanthrenes/Anthr	0.000		0	N.D.	d
52)	C4-Phenanthrenes/Anthr	0.000		0	N.D.	
	Naphthobenzothiophene			1896683m	508.89	
54)	Cl-Naphthobenzothiophenes	0.000		0		
55)	C2-Naphthobenzothiophenes	0.000		0	N.D.	
	C3-Naphthobenzothiophenes			0	N.D.	
	C4-Naphthobenzothiophenes			0	N.D.	a
	Fluoranthene Pyrene			2405829m 2384052m		
59) 60)	2-Methylfluoranthene	30 501	202	2384052m	413.00	
	Benzo(b) fluorene			1604179m		
				0	N.D.	d
63)	C1-Fluoranthenes/Pyrenes C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	
64)	C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	
65)	C4-Fluoranthenes/Pyrenes	0.000		0		d
67)	Benz(a)anthracene	33.809	228	1894416m	529.23	
68)	Chrysene/Triphenylene	33.964	228	1926155m	450.35	
69)		0.000		0		
	C2-Chrysenes	0.000		0	N.D.	
	C3-Chrysenes	0.000		0	N.D.	
	C4-Chrysenes	0.000		0	N.D.	
	C29-Hopane 18a-Oleanane	0.000		0	N.D. N.D.	
	C30-Hopane	42.894	191	733457m		u
	Benzo(b)fluoranthene	37.378	252		487.81	
	Benzo(k,j)fluoranthene	37.455	252	2547987m	476.98	
	Benzo(a)fluoranthene	0.000		0	N.D.	d
80)	Benzo(e)pyrene	38.348	252	2573162m	442.18	
	Benzo(a)pyrene	38.542				
		43.226			482.44	
	Dibenzo(a,h)anthracene	43.336	278		476.98	
	C1-Dibenzo(a,h)anthrac			0	N.D.	
		0.000		0	N.D.	
	C3-Dibenzo(a,h)anthrac	0.000	276	0	N.D.	a
	Benzo(g,h,i)perylene	44.627	276 252		511.19	
	Perylene C20-TAS	38.852	202	2373443m 0	459.94 N D	6
	C21-TAS	0.000		0	N.D. N.D.	
	C26(20S)-TAS	0.000		0	N.D.	
	C26 (208) / C27 (208) - TAS	39.473	231	2517178m	421.51	C204
	C28 (20S) - TAS	0.000		0	N.D.	d
	C27 (20R) - TAS	0.000		0	N.D.	
97)	C28(20R)-TAS	0.000		0	N.D.	

Data Path : C:\GCMS7\MS70052\ Acq On : 7 Aug 2013 2:14 am Operator : YM Sample : AR-WKC4-500-029 Misc : ALS Vial : 5 Sample Multiplier: 1 Quant Time: Aug 08 08:22:54 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:18:22 2013 Response via : Initial Calibration Compound R.T. QION Response Conc Units Dev(Min) (#) = qualifier out of range (m) = manual integration (+) = signals summed

60.00 58.00 56.00 54.00 52.00 50.00 48.00 Page: 46.00 44.00 T,enslyneq(i,h,e)ozne8 T.enessi Hingeriver (bs as a good of the second states and the sec C30-Hopane,T 42.00 40.00 C26(20R)/C27(20S)-TAS,T T.enerve(e)e 38.00 TIC: MS70052E.D\data.ms I'ZIp-auau/d(e)ozuag T,enantnerouth(i,i)fluoranthenet, Benzo(k,j)fluoranthenet, T 36.00 34.00 5,9n6lod2-H(d)2 ChrysenBerth and Statester Chrysene-d12,S T, enerto this of the second state of the seco 32.00 T, and the state of the state o 30.00 Pyrene,T Pyrene d10,1 Fluoranthene,T 28.00 T,enendthsnendthythemid-8,5 T, enerthylphenanthrene, T 26.00 Carbazole,T 4-Methyldibenzothiophene,T T,ənənqointoznadi Z,01b-ə**rtəntərməsfib**riq PAH Calibration Table-2013A Anthracene,T C:\GCMS7\MS70052\AR70052.M 24.00 Thu Aug 08 08:18:22 2013 Initial Calibration T, enerouthy the M-t 22.00 Ч Sample Multiplier: T.enelerthylnaphthalene,T. 1'01P-0 2:14 am Time: Aug 08 08:22:54 2013 20.00 2013 Tinshotofuran,T T,enshtheneoA T,ənəlyrlinqsnəca Bod 2,01b-ən C:\GCMS7\MS70052\ 18.00 08:15:38 AR-WKC4-500-029 T,enelshthdsnlyhtemid-8,S T,Ivnonqia 7 Aug 2013 16.00 T, And thy inspirit and the state of the sta MS70052E.D 14.00 Tue Aug 13 T, analsringsv2.45, ang and the start and th MY •• •• 12.00 S Quant Method QLast Update Response via Quant Title •• T,nileoad anent/aio 10.00 Data Path Data File Operator ALS Vial Σ. 0 1200000 1100000 000006 800000 700000 600000 500000 200000 100000 Acq On Abundance Sample 1600000 1500000 1400000 1300000 0000001 400000 300000 Quant N ٨ Misc 220

4

1

Data Path : C:\GCMS7\MS70052\ Data File : MS70052F.D Acq On : 7 Aug 2013 3:22 Operator : YM Sample : AR-WKC5-1000-029 Misc : ALS Vial : 6 Sample Multipl Quant Time: Aug 08 08:27:51 20 Quant Time: Aug 08 08:27:51 20 Quant Title : PAH Calibration QLast Update : Thu Aug 08 08:22 Response via : Initial Calibrat	ier: 1 13 2\AR70052 Table-203 3:16 2013					
Compound	R.T.	QIon	Response	Conc Un	its	Dev(Min)
Internal Standards						
1) Fluorene-d10	21 511	176	514903m	251 05		0.00
31) Pyrene-d10	29.704	212	906146m	250.63		0.00
 Fluorene-d10 Pyrene-d10 Benzo(a)pyrene-d12 	38.464	264	841948m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.878	136	3562024m	934.15		0.00
 Naphthalene-d8 Acenaphthene-d10 	19.728	164	1967800m	947.53		0.00
32) Phenanthrene-d10	24.787	188	3776639m	912.60		0.00
66) Chrysene-d12	33.847	240	3587721m	954.60		0.00
88) Perylene-d12	38.736	264	4167001m	907.28		0.00
66) Chrysene-d12 88) Perylene-d12 90) 5(b)H-Cholane	34.274	217	1021690m	948.90		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.231	138	613832m	924.65		Quarac
4) Cl-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0 0 0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
7) C4-Decalins 8) Naphthalene 9) 2-Methylnaphthalene	13.933	128	3871001m	946.21		
9) 2-Methylnaphthalene	16.190	142	2400286m	922.70		
10) 1-Methylnaphthalene	16.524	142	2239916m	922.57		
11) 2,6-Dimethylnaphthalene	18.279	156	2193797m	946.58		
 11) 2,6-Dimethylnaphthalene 1,6,7-Trimethylnaphtha 	. 21.121	170	2061608m	991.83		
13) C2-Naphthalenes	0.000			N.D.		
	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.		
16) Benzothiophene	14.101	134	3017414m	936.28		
17) Cl-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	17.750	154	3226777m	948.95		
23) Acenaphthylene	19.226	152	3629615m			
24) Acenaphthene	19.811	154				
25) Dibenzofuran	20.424	168	3472497m	931.29		
26) Fluorene	21.594	166		948.74		
27) 1-Methylfluorene	23.540	180	1452968m			
28) C1-Fluorenes	0.000		0	N.D.		
29) C2-Fluorenes	0.000		0	N.D.		
30) C3-Fluorenes	0.000	107	0	N.D.	a	
33) Carbazole	25.618	167				
34) Dibenzothiophene	24.441	184				
35) 4-Methyldibenzothiophene	25.964	198		971.36		
36) 2/3-Methyldibenzothiop			0	N.D.	<i></i>	
37) 1-Methyldibenzothiophene	0.000		0	N.D.		
38) C2-Dibenzothiophenes	0.000		0	N.D.		
39) C3-Dibenzothiophenes	0.000		0	N.D.		
40) C4-Dibenzothiophenes	0.000	1	0	N.D.	a	
41) Phenanthrene	24.856		3884291m	913.66		
42) Anthracene	25.064	178	3572159m	949.90		

Data Path : C:\GCMS7\MS70052\ Data File : MS70052F.D Acq On : 7 Aug 2013 3:22 a Operator : YM Sample : AR-WKC5-1000-029 Misc : ALS Vial : 6 Sample Multiplie					
Quant Time: Aug 08 08:27:51 2013 Quant Method : C:\GCMS7\MS70052 Quant Title : PAH Calibration T QLast Update : Thu Aug 08 08:23: Response via : Initial Calibrati	AR70052 Table-202 16 2013				
Compound	R.T.				its Dev(Min)
43) 3-Methylphenanthrene	0.000		0	N.D.	
44) 2-Methylphenanthrene	0.000		0	N.D.	
44) 2-Methylphenanthrene45) 2-Methylanthracene	0.000		0	N.D.	
46) 4/9-Methylphenanthrene	0.000			N.D.	
47) 1-Methylphenanthrene	27.003	192	2927127m		
47) 1-Methylphenanthrene 48) 3,6-Dimethylphenanthrene 49) Retene	28.076	206	3047220m	956.51	
49) Retene	30.743	234	1191409m	839.91	
50) C2-Phenanthrenes/Anthr	0.000		0	N.D.	d
51) C3-Phenanthrenes/Anthr			0	N.D.	d
52) C4-Phenanthrenes/Anthr	0.000		0	N.D.	
53) Naphthobenzothiophene			3756763m		
54) Cl-Naphthobenzothiophenes			0	N.D.	
55) C2-Naphthobenzothiophenes			0	N.D.	- 201
56) C3-Naphthobenzothiophenes			0	N.D.	
57) C4-Naphthobenzothiophenes			0	N.D.	a
58) Fluoranthene 59) Pyrene	28.977				
			4647670m		
60) 2-Methylfluoranthene 61) Benzo(b)fluorene			3367056m		
62) C1-Fluoranthenes/Pyrenes	0.000	210	0	N.D.	d
63) C2-Fluoranthenes/Pyrenes	0.000		õ	N.D.	
(1) (2) Elucanthenes / Dumenes	0 000		0	NT D	
 64) C3-Fluoranthenes/Pyrenes 65) C4-Fluoranthenes/Pyrenes 67) Benz(a) anthracene 69) Characteristic for the product of t	0.000		0	N.D.	
67) Benz(a)anthracene	33.809	228	3822787m	1036.56	
68) Chrysene/Triphenylene	33.964	228	3826533m	914.04	
69) Cl-Chrysenes	0.000		0	N.D.	d
70) C2-Chrysenes	0.000		0	N.D.	
71) C3-Chrysenes	0.000		0	N.D.	
72) C4-Chrysenes	0.000		0	N.D.	
74) C29-Hopane	0.000		0	N.D.	
75) 18a-Oleanane	0.000	101	0	N.D.	a
76) C30-Hopane 77) Benzo(b)fluoranthene	42.894 37.378	191 252	1487503m 4737565m		
78) Benzo(k,j)fluoranthene	37.455	252	5240213m	983.20	
79) Benzo(a) fluoranthene	0.000	252	0	N.D.	d
80) Benzo(e)pyrene	38.348	252	5232006m		
81) Benzo(a)pyrene	38.542	252	4691282m		
82) Indeno(1,2,3-c,d)pyrene	43.262	276	5437579m	1007.62	
83) Dibenzo(a,h)anthracene	43.336	278	4418105m	1014.07	
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	44.626	276			
89) Perylene	38.852	252	4932027m	989.04	
91) C20-TAS	0.000		0	N.D.	
92) C21-TAS	0.000		0	N.D.	
93) C26(20S)-TAS 94) C26(20R)/C27(20S)-TAS	0.000	221	0	N.D.	u
95) C28(20S)-TAS	39.473 0.000	231	5038094m 0	861.08 N.D.	
96) C27(20R)-TAS	0.000		0	N.D. N.D.	d
97) C28(20R)-TAS	0.000		0	N.D.	
	94 - 533 - 58 <i>3</i> 74		<i>C</i>	1. 1. S.	102 C

Data Path : C:\GCMS7\MS70052\ Data File : MS70052F.D Acq On : 7 Aug 2013 3:22 am Operator : YM Sample : AR-WKC5-1000-029 Misc : ALS Vial : 6 Sample Multiplier: 1 Quant Time: Aug 08 08:27:51 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:23:16 2013 Response via : Initial Calibration Compound R.T. QIon Response Conc Units Dev(Min) (#) = qualifier out of range (m) = manual integration (+) = signals summed

: 6 Sample Multiplier: 1 3:22 am Data Path : C:\GCMS7\MS70052\ YM AR-WKC5-1000-029 7 Aug 2013 : MS70052F.D ... Data File Operator ALS Vial Acq On Sample Misc

Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:23:16 2013 Response via : Initial Calibration Quant Time: Aug 08 08:27:51 2013

	400000	
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Data Path : C:\GCMS7\MS70052\ Data File : MS70052G.D Acq On : 7 Aug 2013 4:31 am Operator : YM Sample : AR-WKC6-5000-029 Misc : ALS Vial : 7 Sample Multiplier: 1 Quant Time: Aug 08 08:32:22 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:27:59 2013 Response via : Initial Calibration Compound R.T. QIon Response Conc Units Dev(Min) Internal Standards 1) Fluorene-d1021.511176513889m251.050.0031) Pyrene-d1029.704212928950m250.630.0073) Benzo(a)pyrene-d1238.464264898667m250.320.00 System Monitoring Compounds2) Naphthalene-d813.87813618414433m4926.950.0021) Acenaphthene-d1019.72816410143631m4940.310.0032) Phenanthrene-d1024.78718818429119m4622.260.0066) Chrysene-d1233.88624021114094m5464.740.0488) Perylene-d1238.77526422769026m4796.230.0490) 5(b)H-Cholane34.2742175441838m4790.890.00

 90)
 5 (b)H-Cholane
 34.274
 217
 5441838M
 4/90.89

 Target Compounds
 11.232
 138
 3046287m
 4678.70

 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
 16.190
 142
 12451668m
 492.461

 10
 1-Methylnaphthalene
 16.496
 142
 1257467m
 4799.02

 11)
 2,6-Dimethylnaphthalene
 18.279
 156
 11471714m
 5047.36

 12)
 1,6,7-Trimethylnaphthal...
 21.121
 170
 10633509m
 5081.75

 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)
 Bezothiophene
 14.101
 134
 15389041m
 455.51

 Target Compounds Qvalue

Data	Path : C:\GCMS7\MS70052\					
	File : MS70052G.D					
	On : 7 Aug 2013 4:31 a ator : YM	am				
	Le : AR-WKC6-5000-029					
Misc	· · · ·					
ALS V	Vial : 7 Sample Multiplie	er: 1				
	Time: Aug 08 08:32:22 2013					
	Method : C:\GCMS7\MS70052\ Title : PAH Calibration T					
	Update : Thu Aug 08 08:27:		LJA			
Respo	onse via : Initial Calibrati	on 2013				
Reppe	mbe via : iniciai calibiaci	.011				
	Compound	R.T.	QIon	Response	Conc Un	its Dev(Min)
43)	3-Methylphenanthrene	0.000		0	N.D.	
44)	2-Methylphenanthrene	0.000		0	N.D.	
45)	2-Methylanthracene	0.000		0	N.D.	
40/	4/9-Methylphenanthrene 1-Methylphenanthrene 3,6-Dimethylphenanthrene	27 002	100	16050660m	N.D.	a
48)	3 6-Dimethylphenanthrene	28 077	206	16945936m	5421.33 5316 10	
49)	Retene	30 743	234	6027577m	4261 65	
	C2-Phenanthrenes/Anthr	0.000	231	002/5//11	N.D.	Б
51)	C3-Phenanthrenes/Anthr	0.000		0	N.D.	
52)	C4-Phenanthrenes/Anthr	0.000		0	N.D.	-
	Naphthobenzothiophene			19897323m		
54)	C1-Naphthobenzothiophenes	0.000		0	N.D.	d
	C2-Naphthobenzothiophenes			0	N.D.	d
	C3-Naphthobenzothiophenes			0	N.D.	
	C4-Naphthobenzothiophenes			0	N.D.	d
	Fluoranthene	28.977	202	19705636m	3870.35	
	Pyrene	29.739	202	23319610m	4512.37	
60)	2-Methylfluoranthene Benzo(b)fluorene	30.501	216	15390071m	4690.67	
62)	C1-Fluoranthenes/Pyrenes	0 000	210	1/939334m 0	5325.46 N.D.	a
63)	C2-Fluoranthenes/Pyrenes	0 000		0	N D	
64)	C3-Fluoranthenes/Pyrenes C4-Fluoranthenes/Pyrenes Benz(a)anthracene	0.000		0	N.D.	
65)	C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	
67)	Benz(a)anthracene	33.848	228	20994492m	5329.84	
68)	Chrysene/Triphenylene	33.964	228	22237182m	5263.44	
69)	Cl-Chrysenes	0.000		0		
	C2-Chrysenes	0.000		0	N.D.	
	C3-Chrysenes	0.000		0	N.D.	
	C4-Chrysenes	0.000		0	N.D.	
	C29-Hopane 18a-Oleanane	0.000		0	N.D.	
	C30-Hopane	0.000 42.894	191	0 8055346m	N.D.	a
	Benzo(b) fluoranthene	37.378		23827558m		
	Benzo(k,j)fluoranthene	37.456		23057154m		
	Benzo(a)fluoranthene	0.000	66-7000 A	0	N.D.	d
	Benzo(e)pyrene	38.348	252	24458526m		
81)	Benzo(a)pyrene	38.542	252	24089160m	4745.58	
		43.262	276	30023402m	5127.54	
	Dibenzo(a,h)anthracene	43.336	278	24291461m	5203.99	
		0.000		0	N.D.	
	C2-Dibenzo(a,h)anthrac	0.000		0	N.D.	
	C3-Dibenzo(a, h) anthrac	0.000	0.7.5	0	N.D.	d
	Benzo(g,h,i)perylene			25603126m		
	Perylene	38.852	252	23999084m		d
	C20-TAS C21-TAS	0.000		0	N.D. N.D.	
	C26(20S)-TAS	0.000		0	N.D. N.D.	
	C26(20R)/C27(20S)-TAS	39.473	231	28534978m		
	C28 (20S) - TAS	0.000		0	N.D.	
	C27 (20R) - TAS	0.000		0	N.D.	d
97)	C28(20R)-TAS	0.000		0	N.D.	

Data Path : C:\GCMS7\MS70052\ Data File : MS70052G.D : 7 Aug 2013 4:31 am Acq On Operator : YM Sample : AR-WKC6-5000-029 Misc : ALS Vial : 7 Sample Multiplier: 1 Quant Time: Aug 08 08:32:22 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:27:59 2013 Response via : Initial Calibration Compound R.T. QIon Response Conc Units Dev(Min)

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

: 7 Sample Multiplier: 1 4:31 am Data Path : C:\GCMS7\MS70052\ : YM : AR-WKC6-5000-029 7 Aug 2013 : MS70052G.D Data File Operator ALS Vial Acq On Sample Misc

Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:27:59 2013 Response via : Initial Calibration Quant Time: Aug 08 08:32:22 2013

Benzo(a)pyrene d12,1 Benzo(a)pyrene d12,1 Benzo(a)pyrene d12,1 C30-Hopane,T C30-Hopane,T Benzo(g,h,i)perviene,T,2,3Bnbbinzotene,T Benzo(g,h,i)perviene,T Benzo(g,h,i)perviene,T
1.snentimenantrikenenti, 3.6-Dimetrytypremid-3,6 T,enentimerenti, 5.ensithrene, T,enentimerenti, Fluorantimerenti, Fluorantimerenti, <t< th=""></t<>
Benzo(a)/illuorene.1 Kananinabenzotiniophene.7 Benzo(a)/illuorent/menoriniophene.1 Benzo(a)/pyrene-d12,1 Benzo(a)/pyrene-d12,1 C30-Hopane
Transdhravaditusiouff(d)assread T.anayoftenedity, T.anayoftenedity, S.anayoftenedity, S.anayoftenedity, T.anayoftenedity, S.anayoftenedity, S.anayoftenedit
C26(20R)/C27(205)/TAS/T C30-Hopane,T C30-Hopane,T Benzo(g,h,i)perylene,T
T,anabentineξ(#89024884826.5.1). Benoleyae(1,h.(g)ozna8

56.00 58.00 60.00

B&B Laboratories Project J13034 Report 13-3090

Arcadis - Mayflower AR Polycyclic Aromatic Hydrocarbon Data Mass Discrimination Sheet

File Name	Sample Name	Benzo(g,h,i)perylene Concentration (ng/mL)	Phenanthrene Concentration (ng/mL)	Benzo(g,h,i)perylene/ Phenanthrene ratio	Q
MS70052I.D	AR-WKICV-250-003	273	293	0.93	

Qualifiers (Q): Ratio of Benzo(g,h,i) perylene to Phenanthrene needs to be ≥ 0.70

Data Path : C:\GCMS7\MS70052\ Data File : MS70052I.D Acq On : 7 Aug 2013 6:48 am Operator : YM Sample : AR-WKICV-250-003 Misc : ALS Vial : 9 Sample Multiplier: 1

 (\mathbf{t})

Quant Time: Aug 08 08:40:25 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 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	0.0 102 0.00
2	s	Naphthalene-d8	1.791	1.632	8.9 103 0.00
3	T	cis/trans Decalin	0.313	0.352	-12.5 124 0.00
	un	C1-Decalins	0.313	0.000	100.0# 0# -12.40#
	un	C2-Decalins	0.313	0.000	100.0# 0# -13.73#
6	un	C3-Decalins	0.313	0.000	100.0# 0# -16.13#
7	un	C4-Decalins	0.313	0.000	100.0# 0# -18.49#
8	Т	Naphthalene	1.938	2.142	-10.5 124 0.00
9	т	2-Methylnaphthalene	1.199	1.371	-14.3 129 0.00
10	т	1-Methylnaphthalene	1.122	1.275	-13.6 127 0.03
11		2,6-Dimethylnaphthalene	1.093	1.189	-8.8 124 0.00
12		1,6,7-Trimethylnaphthalene	1.026	1.153	-12.4 128 0.00
13	un	C2-Naphthalenes	1.938	0.000	100.0# 0# -18.61#
14	un	C3-Naphthalenes	1.938	0.000	100.0# 0# -20.43#
	un	C4-Naphthalenes	1.938	0.000	100.0# 0# -22.14#
16	Т	Benzothiophene	1.526	1.716	-12.5 125 0.00
17	un	C1-Benzothiophenes	1.526	0.000	100.0# 0# -15.50#
18	un	C2-Benzothiophenes	1.526	0.000	100.0# 0# -18.70#
19	un	C3-Benzothiophenes	1.526	0.000	100.0# 0# -20.37#
20	un	C4-Benzothiophenes	1.526	0.000	100.0# 0# -22.08#
21	S	Acenaphthene-d10	0.984	0.881	10.5 101 0.00
22	Т	Biphenyl	1.625	1.804	-11.0 125 0.00
23	Т	Acenaphthylene	1.786	1.832	-2.6 117 0.00
24	Т	Acenaphthene	1.080	1.211	-12.1 127 0.00
25	т	Dibenzofuran	1.748	1.974	-12.9 128 0.00
26	Т	Fluorene	1.402	1.529	-9.1 124 0.00
27	Т	1-Methylfluorene	0.725	0.000	100.0# 0# -23.58#
28	un	C1-Fluorenes	1.402	0.000	100.0# 0# -23.65#
29	un	C2-Fluorenes	1.402	0.000	100.0# 0# -24.92#
30	un	C3-Fluorenes	1.402	0.000	100.0# 0# -27.22#
31	I	Pyrene-d10	1.000	1.000	0.0 100 0.00
32	S	Phenanthrene-d10	1.031	1.001	2.9 104 0.00
33	т	Carbazole	1.030	1.031	-0.1 112 0.00
34	Т	Dibenzothiophene	1.197	1.411	-17.9 125 0.00
35	Т	4-Methyldibenzothiophene	0.723	0.000	100.0# 0# -25.96#
36	un	2/3-Methyldibenzothiophene	0.723	0.000	100.0# 0# -26.22#
37	un	1-Methyldibenzothiophene	0.723	0.000	100.0# 0# -26.57#
38	un	C2-Dibenzothiophenes	1.197	0.000	100.0# 0# -28.12#
39	un	C3-Dibenzothiophenes	1.197	0.000	100.0# 0# -28.87#
40	un	C4-Dibenzothiophenes	1.197	0.000	100.0# 0# -30.83#
41	т	Phenanthrene	1.095	1.294	-18.2 127 -0.03
42	Т	Anthracene	0.978	1.090	-11.5 122 -0.03
43	un	3-Methylphenanthrene	0.826	0.000	100.0# 0# -26.55#
44		2-Methylphenanthrene	0.826	0.000	100.0# 0# -26.62#
	un	2-Methylanthracene	0.826	0.000	100.0# 0# -26.75#
46	un	4/9-Methylphenanthrene	0.826	0.000	100.0# 0# -26.99#

Data Path : C:\GCMS7\MS70052\ Data File : MS70052I.D Acq On : 7 Aug 2013 6:48 am Operator : YM Sample : AR-WKICV-250-003 Misc : ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 08 08:40:25 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 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 A	rea%	Dev(min)
47		1-Methylphenanthrene	0.826	0.897	-8.6	123	0.00
48	т	3,6-Dimethylphenanthrene	0.825	0.000	100.0#	0#	-28.08#
49	т	Retene	0.367	0.000	100.0#		-30.74#
50	un	C2-Phenanthrenes/Anthracene	1.095	0.000	100.0#	0#	-28.42#
	un	C3-Phenanthrenes/Anthracene	1.095	0.000	100.0#	0#	-29.49#
	un	C4-Phenanthrenes/Anthracene	1.095	0.000	100.0#		-32.06#
53	Т	Naphthobenzothiophene	1.068	0.000	100.0#	0#	-33.03#
	un	C1-Naphthobenzothiophenes	1.068	0.000	100.0#	0#	-34.09#
	un	C2-Naphthobenzothiophenes	1.068	0.000	100.0#	0#	-35.86#
	un	C3-Naphthobenzothiophenes	1.068	0.000	100.0#		-37.26#
57		C4-Naphthobenzothiophenes	1.068	0.000	100.0#	0#	-38.08#
58	т	Fluoranthene	1.286	1.500	-16.6	124	0.00
59		Pyrene	1.321	1.556	-17.8	127	0.00
60		2-Methylfluoranthene	0.849	0.000	100.0#		-30.50#
61		Benzo(b)fluorene	0.894	0.000	100.0#		-31.12#
	un	C1-Fluoranthenes/Pyrenes	1.286	0.000	100.0#		-30.80#
	un	C2-Fluoranthenes/Pyrenes	1.286	0.000	100.0#		-32.31#
64	un	C3-Fluoranthenes/Pyrenes	1.286	0.000	100.0#		-33.98#
	un	C4-Fluoranthenes/Pyrenes	1.286	0.000	100.0#		-35.28#
	S	Chrysene-d12	1.023	0.960	6.2	103	-0.04
67		Benz(a) anthracene	1.105	1.183	-7.1	117	-0.04
68		Chrysene/Triphenylene	1.090	1.233	-13.1	124	0.00
	un	C1-Chrysenes	1.090	0.000	100.0#		-35.43#
	un	C2-Chrysenes	1.090	0.000	100.0#		-36.58#
	un	C3-Chrysenes	1.090	0.000	100.0#		-38.23#
12	un	C4-Chrysenes	1.090	0.000	100.0#	0#	-39.58#
73		Benzo(a)pyrene-d12	1.000	1.000	0.0	94	-0.04
74	un	C29-Hopane	0.456	0.000	100.0#		-40.63#
	un	18a-Oleanane	0.456	0.000	100.0#	0#	-42.01#
	Т	C30-Hopane	0.456	0.000	100.0#	0#	-42.89#
77		Benzo(b)fluoranthene	1.384	1.640	-18.5	123	0.00
78	Т	Benzo(k,j)fluoranthene	1.474	1.755	-19.1	121	0.00
	un	Benzo(a)fluoranthene	1.474	0.000	100.0#	0#	-37.40#
	Т	Benzo(e)pyrene	1.535	1.792	-16.7	120	0.00
81		Benzo(a)pyrene	1.368	1.525	-11.5	116	0.00
82		Indeno(1,2,3-c,d)pyrene	1.628	1.790	-10.0	116	-0.04
83		Dibenzo(a,h)anthracene	1.292	1.490	-15.3	123	-0.04
84		C1-Dibenzo(a,h)anthracenes	1.292	0.000	100.0#		-48.71#
	un	C2-Dibenzo(a,h)anthracenes	1.292	0.000	100.0#		-50.20#
	un	C3-Dibenzo(a,h)anthracenes	1.292	0.000	100.0#		-51.06#
87		Benzo(g,h,i)perylene	1.439	1.584	-10.1	114	-0.04
	S	Perylene-d12	1.271	1.105	13.1	91	-0.04
89		Perylene	1.413	1.550	-9.7	114	0.00
90		5(b)H-Cholane	0.306	0.267	12.7	92	0.00
91	un	C20-TAS C21-TAS	1.603 1.603	0.000	100.0#		-33.35#
92				0.000	100.0#		-34.29#

Data Path : C:\GCMS7\MS70052\ Data File : MS70052I.D : 7 Aug 2013 Acq On 6:48 am Operator : YM Sample : AR-WKICV-250-003 Misc : ALS Vial : 9 Sample Multiplier: 1 Quant Time: Aug 08 08:40:25 2013 Quant Method : C:\GCMS7\MS70052\AR70052.M Quant Title : PAH Calibration Table-2013A QLast Update : Thu Aug 08 08:32:30 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% AvgRF CCRF %Dev Area% Dev(min) Compound 93 unC26(20S)-TAS1.6030.000100.0#0# -38.74#94 TC26(20R)/C27(20S)-TAS1.6030.000100.0#0# -39.47#95 unC28(20S)-TAS1.6030.000100.0#0# -40.24#96 unC27(20R)-TAS1.6030.000100.0#0# -40.70#97 unC28(20R)-TAS1.6030.000100.0#0# -42.01#

(#) = Out of Range

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

Data Acq C Opera Sampl Misc ALS V	Vial : 9 Sample Multiplie	er: 1				
Quant Quant QLast	Time: Aug 08 08:40:25 2013 Method : C:\GCMS7\MS70052 Title : PAH Calibration T Update : Thu Aug 08 08:32 onse via : Initial Calibrati	AR70052 Table-201 30 2013				
	Compound	R.T.	QIon	Response	Conc Un	its Dev(Min)
Inte	Fluorene-dl0	21 511	176	E20246m	251 05	0.00
31)	Pyrene-d10	29 704	212	922897m	251.05	0.00
73)	Fluorene-d10 Pyrene-d10 Benzo(a)pyrene-d12	38.425	264	817387m	250.32	-0.04
200203			1711/2012/02			
Syst	em Monitoring Compounds					
2)	Naphthalene-d8 Acenaphthene-d10 Phenanthrene-d10	13.878	136	875194m	227.98	0.00
21)	Acenaphthene-d10	19.728	164	472319m	223.94	0.00
32) 66)	Chrugono d12	24.787	188	922630m	243.03	0.00
88)	Chrysene-d12 Pervlene-d12	38 736	240	902252m	234.45	-0.04
90)	Perylene-d12 5(b)H-Cholane	34.274	217	218270m	217.43	-0.04
200.0				E 202 / Oli	210170	0.00
	et Compounds					Qvalue
3)	cis/trans Decalin	11.231	138	186853m	278.18	
	Cl-Decalins	0.000		0 0	N.D.	d
	C2-Decalins	0.000		0	N.D.	d
(0) 7)	C3-Decalins	0.000		0	N.D.	d
8)	C4-Decalins Naphthalene 2-Methylnaphthalene	13 934	128	1147959m	N.D.	a
9)	2-Methylnaphthalene	16 190	142	735568m	286 14	
10)	1-Methylnaphthalene	16.524	142	682811m	283.75	
11)	2,6-Dimethylnaphthalene	18.279	156	637378m		
12)	1,6,7-Trimethylnaphtha	21.121	170	618184m		
13)		0.000			N.D.	
14)	C3-Naphthalenes	0.000		0	N.D.	d
	C4-Naphthalenes	0.000		0	N.D.	
	Benzothiophene Cl-Benzothiophenes	14.101	134	914191m	279.43	a
	C2-Benzothiophenes	0.000		0	N.D.	
	C3-Benzothiophenes	0.000		0	N.D. N.D.	
	C4-Benzothiophenes	0.000		0	N.D.	
	Biphenyl	17.750	154	958187m	274.98	
23)	Acenaphthylene	19.226	152	973973m	254.40	
	Acenaphthene	19.811	154	650602m	280.97	
	Dibenzofuran	20.424	168	1052798m	280.89	
	Fluorene	21.594	166	821288m	273.31	
	1-Methylfluorene	0.000		0	N.D.	
	C1-Fluorenes C2-Fluorenes	0.000		0	N.D.	
	C3-Fluorenes	0.000		0	N.D. N.D.	
	Carbazole	25.618	167	940757m	247.99	u .
	Dibenzothiophene	24.441	184	1280638m	290.51	
	4-Methyldibenzothiophene	0.000		0	N.D.	d
	2/3-Methyldibenzothiop	0.000		0	N.D.	
	1-Methyldibenzothiophene	0.000		0	N.D.	
	C2-Dibenzothiophenes	0.000		0	N.D.	
	C3-Dibenzothiophenes	0.000		0	N.D.	
	C4-Dibenzothiophenes	0.000	170	0	N.D.	d
	Phenanthrene Anthracene	24.856 25.029	178 178	1180465m 1006163m	292.83 279.48	
14/		23.029	1/0	100010300	219.40	

Data Acq C Opera Sampl Misc ALS V Quant	Path : C:\GCMS7\MS70052\ File : MS70052I.D On : 7 Aug 2013 6:48 a tor : YM e : AR-WKICV-250-003 Yial : 9 Sample Multiplie Time: Aug 08 08:40:25 2013	er: 1				
Quant QLast	Method : C:\GCMS7\MS70052\ Title : PAH Calibration T Update : Thu Aug 08 08:32: nse via : Initial Calibrati	able-201 30 2013				
	Compound	R.T.	QIon	Response	Conc Un	its Dev(Min)
43)	3-Methylphenanthrene			0	N.D.	
44)	2-Methylphenanthrene	0.000		0	N.D.	
45)	2-Methylanthracene	0.000		0	N.D.	
46)	2-Methylanthracene 4/9-Methylphenanthrene	0.000		0	N.D.	d
47)	1-Methylphenanthrene	27.003	192	816435m	268.26	
48)	3,6-Dimethylphenanthrene	0.000		0	N.D.	d
49)	Retene	0.000			N.D.	
50)	C2-Phenanthrenes/Anthr C3-Phenanthrenes/Anthr	0.000		0	N.D.	
51)	C3-Phenanthrenes/Anthr	0.000		0	N.D.	
52)	C4-Phenanthrenes/Anthr	0.000		0		
53)	Naphthobenzothiophene Cl-Naphthobenzothiophenes C2-Naphthobenzothiophenes	0.000		0	N.D. N.D.	
55)	C2-Naphthobenzothiophenes	0.000		0	N.D.	
56)	C3-Naphthobenzothiophenes	0.000		ő	N.D.	
	C4-Naphthobenzothiophenes			0	N.D.	
	Fluoranthene		202	1382032m		
59)	Pyrene			1432088m		
60)	2-Methylfluoranthene	0.000		0		d
	Benzo(b)fluorene	0.000		0		
62)	Cl-Fluoranthenes/Pyrenes C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d
63)	C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	a
64)	C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	
65)	C4-Fluoranthenes/Pyrenes	0.000	220	1000000	N.D.	a
67)	C4-Fluoranthenes/Pyrenes Benz(a)anthracene Chrysene/Triphenylene C1-Chrysenes	33.809	228	1120111m	207.21	
69)	Cl-Chrysenes	0 000	220	0	200.90 N D	5
	C2-Chrysenes	0.000		õ	N.D.	
	C3-Chrysenes	0.000		0	N.D.	
	C4-Chrysenes	0.000		0	N.D.	
74)	C29-Hopane	0.000		0	N.D.	
	18a-Oleanane	0.000		0	N.D.	d
	C30-Hopane	0.000		0	N.D.	d
	Benzo(b)fluoranthene	37.378	252	1341773m		
	Benzo(k,j)fluoranthene	37.455	252	1427104m		
	Benzo(a) fluoranthene	0.000	252	0 1456873m	N.D.	a
	Benzo(e)pyrene Benzo(a)pyrene	38.348 38.542		1242497m		
		43.225	276			
83)	Dibenzo(a, h) anthracene	43.299	278	1205717m		
		0.000		0	N.D.	d
		0.000		0	N.D.	
		0.000		0	N.D.	
87)	Benzo(g,h,i)perylene	44.590	276	1281534m	272.82	
	Perylene	38.852	252	1266687m	274.62	
	C20-TAS	0.000		0	N.D.	
	C21-TAS	0.000		0	N.D.	
	C26(20S) - TAS	0.000		0	N.D.	
	C26(20R)/C27(20S)-TAS	0.000		0	N.D.	
	C28 (20S) - TAS C27 (20R) - TAS	0.000		0	N.D.	
	C28 (20R) - TAS	0.000		0	N.D. N.D.	
		0.000		0		220

(QT Reviewed) Quantitation Report

60.00 58.00 56.00 54.00 52.00 50.00 48.00 Page: 46.00 44.00 T,enslyneq(i,h,i)perylene.T T,9n95sht/ns(d,8,98880(b,3-6,2,1)onebal 42.00 40.00 38.00 TIC: MS70052I.D\data.ms T,enso(e)pyrene,T T.ensrtheroult(i, x)ozne8 T,enschenthene,t 36.00 34.00 S, enslord)-H(d)2 S'ZLP-Eversitighter(1)211941/20035/14) 32.00 30.00 T.energ101Pyrene.T T, anarthene, T 28.00 T.enerdthylphenanthrene.T 26.00 T, elosedie.7 T,ənəriqointroznədid T,ənəri**ğriğriştra**tərifinspard T,ənərir T,ənəritəri T,ənərir : PAH Calibration Table-2013A C:\GCMS7\MS70052\AR70052.M 24.00 : Thu Aug 08 08:32:30 2013 : Initial Calibration 22.00 Ч Sample Multiplier: Fluorene-d10,1 am Time: Aug 08 08:40:25 2013 20.00 2013 Tinenzofuran, T 6:48 T,enerthdaneoA S,01b-anadidqeneoA T,enelyhthyleneoA C:\GCMS7\MS70052\ AR-WKICV-250-003 18.00 08:16:38 T, eneledt/denly/temiQ-8,S T,Ivnenqia 7 Aug 2013 16.00 MS700521.D T, enelsentrigentryatener T, enelsentrigentryatener 14.00 32.M Tue Aug 13 T,enelshindsN T,enendomoznedindsW WЖ Quant Method : 12.00 5 QLast Update Response via Title •• T,nilsoed ansnt/aio 10.00 Data Path Data File Operator ALS Vial +0 Abundance 000006 500000 200000 Acq On 800000 700000 Sample 400000 300000 100000 600000 Quant Quant Misc Ņ 235 N

4

PAH Mass Discrimination Ratio

Client Project #B0086003.1301/1302

B&B Laboratories Project J13034 Report 13-3090

Arcadis - Mayflower AR Polycyclic Aromatic Hydrocarbon Data Mass Discrimination Sheet

File Name	Sample Name	Benzo(g,h,i)perylene Concentration (ng/mL)	Phenanthrene Concentration (ng/mL)	Benzo(g,h,i)perylene/ Phenanthrene ratio	Q
			100		
MS70052B.D	AR-WKC1-020-029	28.3	18.1	1.57	
MS70052C.D	AR-WKC2-100-029	108	77.8	1.39	
MS70052D.D	AR-WKC3-250-029	245	193	1.27	
MS70052E.D	AR-WKC4-500-029	511	437	1.17	
MS70052F.D	AR-WKC5-1000-029	1021	914	1.12	
MS70052G.D	AR-WKC6-5000-029	5012	4784	1.05	
MS700521.D	AR-WKICV-250-003	273	293	0.93	
MS70052J.D	AR-WKCC-250-037	233	257	0.91	
MS70052L.D	AR-WKCC-250-037	247	255	0.97	

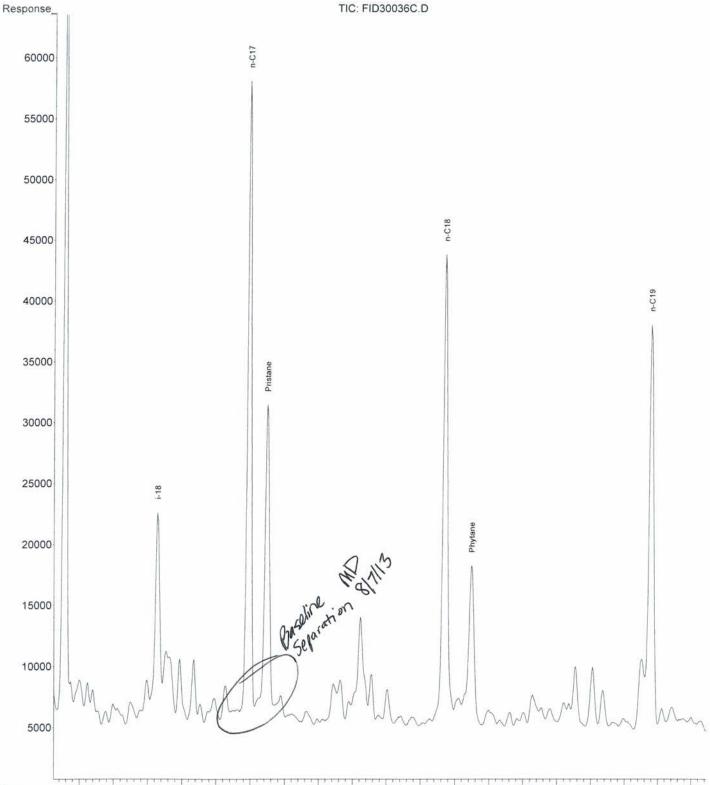
Qualifiers (Q): Ratio of Benzo(g,h,i) perylene to Phenanthrene needs to be ≥ 0.70

PAH Internal Standard Area Data

Report 13-3090	The Area of the						internal Standards in the Associated Calibration Standard			
File Name	Sample Name	Inter	Internal Standard 1 Fluorene-d10	o 1	Inter	Internal Standard 2 Pyrene-d10	rd 2	Inter Benz	Internal Standard 3 Benzo(a)pyrene-d12	rd 3 -d12
		Response (Area)	50% (Area)	200% (Area)	Response (Area)	50% (Area)	200% (Area)	Response (Area)	50% (Area)	200% (Area)
MS70052D.D MS700521.D	AR-WKC3-250-029 AR-WKICV-250-003	525390 538246	262695	1050780	925918 922897	462959	1851836	870266 817387	435133	1740532
MS70052J.D ENV3069A.D ENV3069B.D	AR-WKCC-250-037 Procedural Blank Blank Spike	451326 420967 439347	225663	902652	725876 762580 785086	362938	1451752	627132 754432 770525	313566	1254264
ENV3069C.D ARC1564.D	Blank Spike Dupl. SED-EB-01-072713 SED-DA EB-02-072013	426429 421473 410147			763874 769636 765600			736900 735804		
ARC1606.D ARC1609.D	SED-DA-EB-03-073013 SED-DA-EB-03-073013 SED-DA-EB-04-073113	403142 396376			713617 718459			652939 652939 652671		
MS70052L.D	AR-WKCC-250-037	423207	211604	846414	711221	355611	1422442	566531	283266	1133062

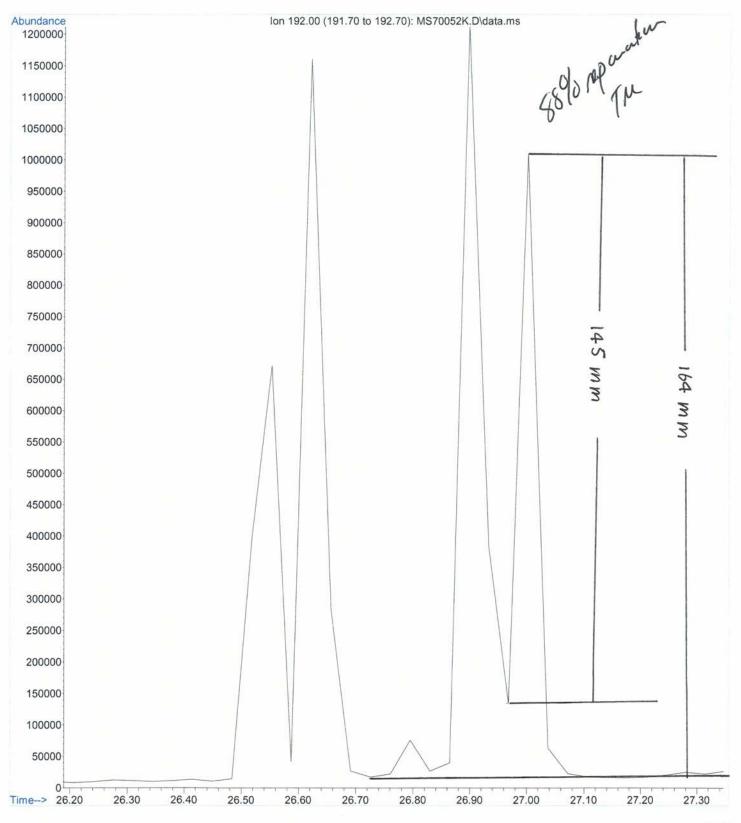
SRM-2779 Reference Oil Aliphatic and PAH Resolution Checks

```
File :P:\2013\J13034\Aliphatics\ENV 3069\FID30036\FID30036C.D
Operator : Meghan Dailey
Acquired : 06-Aug-2013, 13:41:46 using AcqMethod ALIFRONT.M
Instrument : HP5890
Sample Name: AL-SRM2779-20-01
Misc Info :
Vial Number: 3
```



13.00 13.20 13.40 13.60 13.80 14.00 14.20 14.40 14.60 14.80 15.00 15.20 15.40 15.60 15.80 16.00 16.20 16.40 16.60

File :C:\GCMS7\MS70052\MS70052K.D Operator : YM Acquired : 7 Aug 2013 9:05 am using AcqMethod PAH-2012.M Instrument : GCMSD Sample Name: AR-SRM2779-WK4.0-001 Misc Info : Vial Number: 11



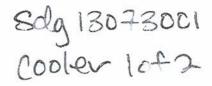
Supporting Documents

Shipping, Sample Receiving, and Project Initiation Documents

B&B LABORATORIES RECEIVING/INTEGRITY REPORT

Job: J13034 Date Received: 7/30/13 SDG#: 13073001
sender: Arcadis-Mayflower AR
1. Number of Shipping Containers: 2 Avcadis - Daviel Mays
Comments: 10f2, large blue cooler
2. Airbill Present? Vest No Shipping Company: FedEx
Airbill Number: 8987 6914 8662 Comments: priority overnight
3. Custody Seals on Container? No (es) intact Not Intact Comments: Ou top of duct tape
4. Chain of Custody Records? Comments No relinguished signature ou coc
5. General Sample Conditions: Frozen Cool Unrefrigerated Dry Ice Blue Ice Ice Temperature/Comments: 7.4°C/+EULP blank 5.1°C (Tb
6. List of Broken Containers:
None
7. Number of Samples Expected: 2000 PVS Number of Samples Received:
8. Problems/Discrepancies:
N/A Il seds
2 waters
9. Resolutions:
NIA
10. Checked in by: AMAUDA BULUStu Date: 7/30/13





wet ice thermometer is 7.4°C temp blank: 5.1°c

CUSTODY S Laboratories	SEAL SIGNATURE D. D. D. D
Express NEW Package Free B987 6914 8662	C 200 Recipients Con Express Package Service * Read Merrier Package up to 150 lbs. Recipient 150 lbs. Recipient 150 lbs. Recipient 150 lbs.
terk	Kortes of actual go out http://www.commons.com/com/commons.com/com/com/commons.com/com/com/com/com/com/com/com/com/com/
e Phone	FedEx First Dovernight Determine that where some of a strength of the second business and marked a strength of the second business and strength of
Dept/RoortSide/Room	Saturday Tokana di Avernight Media koloner Morrison Setter Vitanza di Avernight
State ZIP	5 Packaging * Declared values time total. □ FedEx Envelope* □ FedEx Envelope* □ FedEx Envelope* □ FedEx Pak* FedEx
ient's Phone	Special Handling and Delivery Signature Options SATURDAY Delivery MOT matching for Focks Standard Oxymmut, Focks 20ay AM, or Focks Repress Saves. No Signature Deviced Signature Indirect Signature
any HOLD Weekday FedEr to zoon address Ress net deliver to P.0. Job boxes or P.0. ZIP codes. Dept/Finer/Suith/Recom HOLD Saturday	No Signature Required Direct Signature Indirect Signature Package may be left when Someone at province address Indirect Signature Boes this shipment contain dangerous goods? Direct Signature Indirect Signature No Yes Supper Contain Yes Supper Contain Yes Supper Declaration Diry Ice Dry Ice Dry Ice
PSS Fight burden address Time for the HOLD location eddress or for continuation of your shipping address. Fight burden address State ZIP	Cargo Aircraft Only Payment Bill to: Enter FedEx Acet. No. or Credit Cerd No. bolow.
	Sender Weitbehömen Recipient Third Party Credit Card Cash/Check Total Packages Total Declared Value* Over Ger Aust Backages Total Veight Total Declared Value* Over Ger Aust Backages Total Veight Total Declared Value* Over Ger Aust Backages Total Veight Total Declared Value* Over Ger Aust Backages Total Veight Total Declared Value* Over Ger Aust Backages Sas the current FedSe Service Sude Isr Aresh E 1 2

B&B LABORATORIES RECEIVING/INTEGRITY REPORT

Job: J13034 Date Received: 7/30/13 SDG#: 13073001
sender: Arcadis- Mayflower AR
1. Number of Shipping Containers: 2 Arcadis - Daniel Mays
Comments: 20F2, lavge blue cooler
2. Airbill Present? Vesto Shipping Company: Fed Ex
Airbill Number: 7958 0260 9144 Comments: priority overnight
3. Custody Seals on Container? No res intact Not Intact On top of duct tape
4. Chain of Custody Records? Comments No Yes Paper Work in Cooler 1
5. General Sample Conditions: Frozen Cool Unrefrigerated Dry Ice Blue Ice (Ice) Temperature/Comments: 10.9°C / Hup blank 2.3°C (Tb
6. List of Broken Containers:
None
O as al a se
7. Number of Samples Expected: 2001evs Number of Samples Received:
8. Problems/Discrepancies:
NIA [16 seds
9. Resolutions:
NIA
10. Checked in by: Maula BULWEU Date: 7/30/13

G =Gas Ws =Wasto HW =Hazardous Wasto W =Water

Matrix

Sample Container Volmaterral G=Glass C=Core P=Plastic B=8ag

-		
P		Inc.
		tories
C	2	bora
r	Y	XB La
C	r	3&B

Page 2 2 3 CHAIN OF CUSTODY RECORD



sdy 13ct 3cc

Client: ARCADIS						[Analyses		
Project 10: B 0086003.1301 NayAlower 9	1301 May	Alower P	peline	ive Incident		WISC	1	Other Instructions	
B&B Contact: JUAN ROMMINEZ	Zavin		_			228	00		
Sampler Signature: Dumiel Muys	Mays :	Timil	May			Pow Pow			
Sample ID	Sample Date	Sample Date Sample Time	Sample Matrix	Preservative	Containers Type	No.		Comments	Τ
15ED-EB-01-072713 7-27-13	51-22-2	500	Water	Mone -	1 Lamber	XXX	1.1	Full PAH list	Γ
JED-DA-0360-0.5) 7-78-13 915	7-28-13	915	Sed	None	802 jar	XX	4	FWI PAH List	Γ
5ED-DA-DUP-0-07213 7-28-13	7-28-13		Sed	Nove	8 02 Jar	XX	Ц	Full PAH JST	Γ
5ED-D4-034(054.0)7-28-13 920	7-28-13	920	red	None	402 101	X	-	たいまった	Γ
5ED-DA-036(1.0-1.5)7-78-13 925	7-28-13	925	Sed,	Now ~	HOZDAY	X	4	大口中ちた	
5ED-DA-037 (0-0.5) 7-78-13	7-23-13	1015	Sed	Nover	802 av	XX	2	Full PAH List	Γ
SED-DA-037(0,5-1,0) 7-28-13	7-28-13	0201	Sed	Nane	4 0Z Lav		1	44 PAH List	
5ED-DA-037(1.0-1.5)	7-28-13	025	Seil	None	40210H	X	2	HAPAH List	
5ED-DA-038(0-05)	7-78-13	115	Sed	Now .	8024	XX	2	Full PAH List	
DED-DA-038(0.54.0) 7-28-13	7-28-13	1120	xd	Nove	1 02B	X	2	WY PAH List	
				Total #	Total # of Containers	=			

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
"Damiel Ways Stan Milly	ARUADIS	E-12-L	1000	PERSONANCE LEVEX		7-24-13	000
Signature				Signature:			
Print Ley Routing				ASULT & JULL & PULL	-		
1.42%-ellipte				Signature a survey			

G=Gas Ws=Wasto HW=Hazardnus Wasto W=Water T=Tissue S=Scal:Sediment R=Rinseate P=Product Malux:

	Page	36	S	M				tosi pre	3001 8 C 30
B&B Laboratories, Inc. Hone	CHAIN O Home Office 14391B South Dowling Road	NOF College	Station TX 77	F CUSTODY REC College Station TX 77845 phone (979) 693-3446	CHAIN OF CUSTODY RECORD 391B South Dowling Road College Station TX 77845 phone (979) 693-3446 fax (979) 693-6389	6389	http://www.tdi-bi.com	TD	Brooks
Client: ARCADIS						Analyses	S		
1 0	Mayflower Ripeline Inident	Procline	Their	Pend	WISO	100		Other Instructions	S
B&B Contact: Julan Ramirez	-	-		0	28	4 /	#- _		
Sampler Signature: DUMIC MU45	Hannel	appropriate (POW		/ /		
Sample ID Sample Da	Sample Date Sample Time Sar	Sample Preservative Matrix	vative	Containers Type	No. 124	201		Comments	
- 5ED-DA-038(1,0-15) 7-28-13	3 1125 501	V	love + 1	101	1	-	44 P4	H L'X	
45ED-DA-032LO 0.5) 7-28-13	1400	None	80	02 jar	XX	Ч	Full B	4H) 14+	
DED-DA-032(0.5-1.0) 7-78-13	1405	(Nove	14	02 Jar	X	2	HP PAH	List.	
5ED-DA-02(10-15) 7-28-13	5 1410 Sed	1 Now	4 2	02 pr	X I	-	HA PAH	134	
5ED-D4-03(0-0.5) 7-28-13	1430	1 Non	6 8	ozar	X	2	Full P	AH List	
-5ED-DA-031(0.5-1.0) 7-28-1	31435 500	Non	5 4	62 jar	X	2	44 PA	H List	
SED-DA-03(1.0-1.5) 7-28-B	1440	Non	E to	02 Jun	X	4	HA PAH	List	
		_			_				
			+						
			Total # of (Total # of Containers	2				
Relinquished By	Company Name	Date	Time		Received By		Company Name	le Date	Time
Prime Mays SWING Mig	ARCANS	5-12-L	1000	Printed Marine	Fedex			N	1000
Signature:				Signalure					
Protect Autoria				Firstlad Name.	HUMBLE F	せいいた	8 8	2/22/F 20/2	L. L
Signature.				Signature:	in utura	BULLY			

Sample Container. Volimaterial G=Glass C=Core P=Plastic B=Bag G=Gas Ws=Wasto HW-Hazardous Waste W=Water T=Trissue S≈Scut'Sedunoiit R=Rinseato P≏Product

Maliux

BE-B Laboratories

Environmental Sample Inventory

Log # Jo		CLIENT NAME	FILENAME CLIENT ID	CLIENT ID	COL. DATE	RECVD Analysis	MATRIX	MATRIX COMMENTS	B&B SDG	Cooler #	Sent by:	Container	Bi Project #
64222 J13	J13034 Arca	Arcadis - Maylower AR	ARC1537	SED-DA-033 (0-0.5)	07/27/13	07/30/13 PAH, TPH, ALI	SED		13073001	Cooler 1	Arcadis: Daniel Mavs	Boz clear plass iar	18
64223 J13	113034 Arca	Arcadis - Mayllower AR	ARC1538	SED-DA-033 (0.5-1.0)	07/27/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 1	Arcadis: Daniel Mays	4oz clear olass lar	PODREODA 1301
64224 J13	113034 Arca	Arcadis - Mayflower AR	ARC1539	SED-DA-033 (1.0-1.5)	07/27/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 1	Arcadis: Daniel Mavs	4oz clear plass lar	BOORBOO3 1301
64226 J13	113034 Arca	Arcadis - Mayflower AR	ARC1540	SED-DA-034 (0-0.5)	07/27/13		SED		13073001	Cooler 2	Arcadis: Daniel Mavs	8oz clear plass iar	HODREDOX 1301
64226 J13	113034 Arca	Arcadis - Mayflower AR	ARC1541	SED-DA-034 (05-1.0)	07/27/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 1	Arcadis: Daniel Mays	402 clear place lar	ROORGODA 1301
64227 J13	J13034 Arca	Arcadis - Mayflower AR	ARC1542	SED-DA-034 (1.0-1.5)	07/27/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 1	Arcadis: Daniel Mays	4oz clear olass lar	B0086003 1301
1		Arcadis - Maylower AR	ARC1543	SED-DA-035 (0-0.5)	07/27/13	07/30/13 PAH, TPH, ALI	SED		13073001	Cooler 2	Arcadis: Daniel Mays	8oz clear olass iar	B0086003 1301
64229 J13	-1	Arcadis - Mayllower AR	ARC1544	SED-DA-035 (0.5-1.0)	07/27/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 1	Arcadis: Daniel Mays	4oz clear olass iar	B0086003.1301
-		Arcadis - Mayflower AR	ARC1545	SED-DA-035 (1.0-1.5)	07/27/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 1	Arcadis: Daniel Mays	4oz clear olass iar	B0086003.1301
	Ľ.	Arcadis - Mayflower AR	ARC1546	SED-DA-035 (0-0.5) MS/MSD	07/27/13	07/30/13 PAH, TPH, ALI	SED	1 of 2	13073001	Cooler 2	Arcadis: Daniel Mays	8oz clear olass jar	B0086003.1301
-		Arcadis - Mayflower AR	ARC1547	SED-DA-035 (0-0.5) MSMSD	07/27/13	07/30/13 HOLD	SED	2 of 2	13073001	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1301
	1	Arcadis - Mayflower AR	ARC1548	SED-DA-036 (0-0.5)	07/28/13	07/30/13 PAH, TPH, ALI	SED		13073001	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1301
-	1	Arcadis - Mayflower AR	ARC1549	SED-DA-DUP-01-072813	07/28/13	07/30/13 PAH, TPH, ALI	SED		13073001	Cooler 2	Arcadis: Daniel Mays	8oz clear glass iar	B0086003.1301
1		Arcadis - Mayflower AR	ARC1550	SED-DA-036 (0.5-1.0)	07/28/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 1	Arcadis: Daniel Mays	4oz clear class jar	B0086003.1301
-		Arcadis - Mayflower AR	ARC1561	SED-DA-036 (1.0-1.5)	07/28/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 2	Arcadis: Daniel Mays	4oz clear glass lar	B0086003.1301
_		Arcadis - Mayflower AR	ARC1552	SED-DA-037 (0-0.5)	07/28/13	07/30/13 PAH, TPH, ALI	SED		13073001	Cooler 2	Arcadis: Daniel Mays	Boz clear glass lar	B0086003.1301
1		Arcadis - Mayflower AR	ARC1563	SED-DA-037 (0.5-1.0)	07/28/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1301
1		Arcadis - Mayflower AR	ARC1554	SED-DA-037 (1.0-1.5)	07/28/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 2	Arcadis: Daniel Mays	4oz clear class ier	B0086003.1301
		Arcadis - Mayflower AR	ARC1555	SED-DA-038 (0-0.5)	07/28/13	07/30/13 PAH, TPH, ALI	SED		13073001	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1301
1		Arcadis - Mayflower AR	ARC1556	SED-DA-038 (0.5-1.0)	07/28/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 2	Arcadis. Daniel Mays	4oz clear glass lar	B0086003.1301
		Arcadis - Mayflower AR	ARC1557	SED-DA-038 (1.0-1.5)	07/28/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1301
1	-	Arcadis - Mayflower AR	ARC1558	SED-DA-032 (0-0.5)	07/28/13	07/30/13 PAH, TPH, ALI	SED		13073001	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1301
_	1	Arcadis - Mayflower AR	ARC1559	SED-DA-032 (0.5-1.0)	07/28/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1301
1	1	Arcadis - Mayflower AR	ARC1560	SED-DA-032 (1.0-1.5)	07/28/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1301
-	1	Arcadis - Mayflower AR	ARC1561	SED-DA-031 (0-0.5)	07/28/13	07/30/13 PAH, TPH, ALI	SED		13073001	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1301
1		Arcadis - Mayflower AR	ARC1562	SED-DA-031 (0.5-1.0)	07/28/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1301
1		Arcadis - Mayllower AR	ARC1563	SED-DA-031 (1.0-1.5)	07/28/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1301
_		Arcadis - Mayflower AR	ARC1564	SED-EB-01-072713	07/27/13	07/30/13 PAH, TPH, ALJ	WATER	1 of 2	13073001	Cooler 1	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1301
64250 J13	J13034 Arca	Arcadis - Mayflower AR	ARC1565	SED-EB-01-072713	07/27/13	07/30/13 HOLD	WATER	2 of 2	13073001	Cooler 1	Arcadis: Daniel Mays	11 amber olacs BR bottla	BOORFOOT 1201

Page 1 of 1

Report 13-3088

B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #:	Number of Samples: 10 Matrix: <u>Sediments</u> Due Date: <u>45 days</u> : 10/13/13 Comments: <u>PAH</u> , TPH, ALL Veceived 7/30/13
Analyses	received 1130/15
Analyses PAHs OCs/PCBs Dry Wt. When the second s	Aliphatics/TPH EOM TOC/TIC
Requested QA/QC (per batch of Client - F Blank - SRM/LCS / 14// A Blank Spike Duplicate Matrix Spike Duplicate	
	TIC STANDARDS TO USE
Surrogate(s): FA-H A(1	Volume(s):(
Spike Standard(s):	
Internal Standard(s): 19-14 4-(1	Volume(s):
Final Extract Volume (ml):	Final Solvent:
Comments: 1620 A-RCI	546 as M5/45D
Sample Custodian Signature:	Builte Date: 7/30/13 Date: 2/20/13 cc: COC Book

B&B Laboratories

Environmental Sample Inventory

# 80	# qor	Job # CLIENT NAME	NAME	FILENAME	FILENAME CLIENT ID	COL. DATE	RECVD Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	a: Project #
4222	J13034	Arcadis -	Arcadis - Mayflower AR	ARC1537	SED-DA-033 (0-0.5)	07/27/13	•	SED		13073001	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1301
4225	J13034	Arcadis -	Arcadis - Mayflower AR	ARC1540	SED-DA-034 (0-0.5)	07/27/13	07/30/13 PAH, TPH, ALI	SED		13073001	Cooler 2	1 -	8oz clear glass jar	B0086003.1301
4228	J13034	Arcadis -	Arcadis - Mayflower AR	ARC1543	SED-DA-035 (0-0.5)	07/27/13	07/30/13 PAH. TPH. ALI	SED		13073001	Cooler 2	-	aar o	B0066003.1301
64231	J13034		Arcadis - Mayflower AR	ARC1546	SED-DA-035 (0-0.5) MS/MSD	07/27/13	Δ	SED	1 of 2	13073001	Cooler 2	Arcadis:	Boz clear class lar	B0086003.1301
64233	J13034	Arcadis -	Arcadis - Mayflower AR	ARC1548		07/28/13	07/30/13 PAH, TPH, ALI	SED		13073001	Cooler 2	Arcadis:	lear o	B0086003.1301
-	J13034	Arcadis -	Arcadis - Maylower AR	ARC1549	SED-DA-DUP-01-072813	07/28/13	P.	SED		13073001	Cooler 2	Arcadis:		B0086003 1301
64237	J13034	Arcadis -	Arcadis - Maytlower AR	ARC1552	SED-DA-037 (0-0.5)	07/28/13	a.	SED		13073001	Cooler 2	Arcadis: Daniel	ear o	B0086003 1301
64240	J13034		Arcadis - Mayflower AR	ARC1555	SED-DA-036 (0-0.5)	07/28/13		SED		13073001	Cooler 2	Arcadis: Daniel	Bar	B0086003.1301
64243	J13034		Arcadis - Mayflower AR	ARC1558	SED-DA-032 (0-0.5)	07/28/13	07/30/13 PAH, TPH, ALI	SED		13073001	Cooler 2	Arcadis: C	0 0	B0086003.1301
4246	J13034	Arcadis -	Arcadis - Mayflower AR	ARC1561	SED-DA-031 (0-0.5)	07/28/13	07/30/13 PAH. TPH. ALI	SED		13073001	Cooler 2	Arcadis: Daniel Mays		RUDRROOM 1301

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Report 13-3089

B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: <u>J 13034</u> SDG: <u>13073001</u> Client: <u>Avcadis- Mayflowlev</u> Initiation Date: <u>7/30/13</u> AK	Number of Samples: 16 Matrix: Sediments Due Date: 45 days: 10/13/13 Comments: PAH: 44 analytes Veceived 7/30/13
Analyses	
PAHs OCs/PCBs	Aliphatics/TPH EOM
Dry Wt. DwLipid	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 SPECIF	
Surrogate(s):	
	Volume(s):
Surrogate(s):	Volume(s): /
Surrogate(s): PAH ACL Spike Standard(s): PAH A-CL	Volume(s): /
Surrogate(s):AUAUAU Spike Standard(s):AUAUAU Internal Standard(s):AUAU Final Extract Volume (ml):C Comments:AU Surrogate(s):AUAU Surrogate(s):AU	Volume(s): 1000000000000000000000000000000000000
Surrogate(s):AUAU Spike Standard(s):AUAU Internal Standard(s):AUAU Final Extract Volume (ml):C Comments: Comments:AUAU Surrogate(s):AU	Volume(s): <u>Volume(s)</u> Volume(s): <u>Volume(s)</u> Final Solvent: <u>DCM</u>

18.8 Laboratories

Environmental Sample Inventory

# 50	# qor	CLIENT NAME	FILENAME	FILENAME CLIENT ID	COL. DATE	RECVD Analysis	MATRIX	COMMENTS	B&B SDG	Cooler # Sent by:	Sent by:	Container	a Project#
4223	J13034	Arcadis - Mayllower AR	ARC1538	SED-DA-033 (0.5-1.0)	07/27/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1301
4224	J13034	Arcadis - Mayllower AR	ARC1539	SED-DA-033 (1.0-1.5)	07/27/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1301
64226	J13034	Arcadis - Mayllower AR	ARC1541	SED-DA-034 (05-1.0)	07/27/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1301
4227	J13034	Arcadis - Mayflower AR	ARC1542	SED-DA-034 (1.0-1.5)	07/27/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1301
64229	J13034	Arcadis - Mayflower AR	ARC1544	SED-DA-035 (0.5-1.0)	07/27/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003,1301
64230	J13034	Arcadis - Mayllower AR	ARC1545	SED-DA-035 (1.0-1.5)	07/27/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 1	Arcadis: Daniel Mays	4oz cleár glass jar	B0086003.1301
64235	J13034	Arcadis - Mayflower AR	ARC1550	SED-DA-036 (0.5-1.0)	07/28/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1301
64236	J13034	Arcadis - Mayflower AR	ARC1551	SED-DA-036 (1.0-1.5)	07/28/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1301
64238	J13034	Arcadis - Mayflower AR	ARC1553	SED-DA-037 (0.5-1.0)	07/28/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1301
64239	J13034	Arcadis - Mayllower AR	ARC1554	SED-DA-037 (1.0-1.5)	07/28/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1301
64241	J13034	Arcadis - Mayllower AR	ARC1556	SED-DA-038 (0.5-1.0)	07/28/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1301
64242	J13034	Arcadis - Mayflower AR	ARC1557	SED-DA-038 (1.0-1.5)	07/28/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1301
64244	J13034	Arcadis - Mayflower AR	ARC1559	SED-DA-032 (0.5-1.0)	07/28/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.130
84245	J13034	Arcadis - Mayllower AR	ARC1560	SED-DA-032 (1.0-1.5)	07/28/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.130
4247	J13034	Arcadis - Mayllower AR	ARC1562	SED-DA-031 (0.5-1.0)	07/28/13	07/30/13 PAH	SED	44 analytes	13073001	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.130
64248	J13034	J13034 Arcadis - Mayflower AR	ARC1563	SED-DA-031 (1.0-1.5)	07/28/13	07/30/13 PAH	SED	44 analyles	13073001	Cooler 2	Cooler 2 Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1301

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Page 1 of 1

7/30/2013 4:05 PM

Report 13-3090

B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: <u>J13034</u> SDG: <u>13073001</u> Client: <u>Avcadis-Mayflowev</u> Ak Initiation Date: <u>7/30/13</u> Analyses PAHs OCS/PCBs	Comments: <u>Collected</u> 7/27/13 <u>extract</u> by 8/02/13 <u>veceived</u> 7/30/13 Aliphatics/TPH <u>EOM</u>
Dry Wt. Kipid Short Columns Long Columns	□ TOC/TIC □ □ □
Requested QA/QC (per batch of Client Blank SRM/LCS Blank Spike Duplicate Matrix Spike Duplicate	7. 128 M. T. D.
Surrogate(s):	FIC STANDARDS TO USE Volume(s):
Spike Standard(s):	Volume(s):6 ¹ 2'
Internal Standard(s):	Volume(s):
Final Extract Volume (ml):	Final Solvent:
Comments: Sample Custodian Signature: AMAUCIA	and the

Rev 1

38.B Laboratories

Environmental Sample Inventory

	Project #	
	Container and hottle and	
The second se	0G Cooler # Sent by: 01 Cooler 1 Arcadie: Dariel Me	
	VATER 1 of 2 130730	
	COL. DATE RECVD Analysis M 07/97/13 07/30/13 PAH TPH AI 1 W	
	ME FILENAME CLIENT ID Mitrower AR ARC1564 SED-F8-01-072713	
	64249 JI3034 Arcadis - Mavftowe	
	Log #	

Page 1 of 1

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amanda brewster

From:	amanda brewster <amandabrewster@tdi-bi.com></amandabrewster@tdi-bi.com>
Sent:	Tuesday, July 30, 2013 5:11 PM
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 7/30/13
Attachments:	COC 7-30-13.pdf

Hi Daniel,

We received your samples today in good condition. The internal temperature of Cooler 1 was 7.4°C and the temperature blank was 5.1°C. The internal temperature of Cooler 1 was 10.9°C and the temperature blank was 2.3°C. A PDF of the COC is attached for your records.

Regards, Amanda

From: Mays, Daniel [mailto:Daniel.Mays@arcadis-us.com] Sent: Monday, July 29, 2013 6:25 PM To: amandabrewster@TDI-BI.com Subject: B&B Cooler Shipment from Mayflower, AR

Good Evening Mrs. Amanda Brewster,

I shipped 2 coolers via Fedex today for arrival tomorrow morning 7-30-2013.

The tracking numbers are 898769148662 and 795802609144. 28 Sample Jars.

Regards,

Danny Mays | Environmental Specialist, E.I. | <u>daniel.mays@arcadis-us.com</u> 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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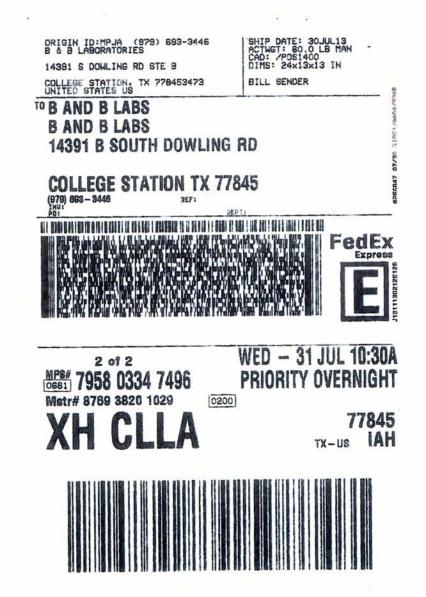
B&B LABORATORIES RECEIVING/INTEGRITY REPORT

Job: <u>J13034</u> Date Received: <u>7/31/13</u> SDG#: 13073101
Sender: Arcadis- May flower AR
1. Number of Shipping Containers: 2 Avcadis - Daviel Mays
Comments: 10f2, lavge blue cooler
2. Airbill Present? (Yes) No Shipping Company: Fedex
Airbill Number: 7958 0334 7496 PON
3. Custody Seals on Container? No Ves Not Intact Not Intact Comments: On top of duct tape
4. Chain of Custody Records? Comments No Yes Paper Work in Cooler 2
5. General Sample Conditions: Frozen Cool Unrefrigerated Dry Ice Blue Ice Tce Temperature/Comments: L. Loc/temp blank 2.9°C (Tb
6. List of Broken Containers:
None
7. Number of Samples Expected: 2 Codevs Number of Samples Received:
8. Problems/Discrepancies:
None 19 seds 2 waters
9. Resolutions:
NIA
10. Checked in by: Manala Bunkte Date: 7/31/13

10108 Cooler

Solg 1307-3101 Cooler 10F2 wet ice The ho coc 6.6°c/temp blank 2.9°c

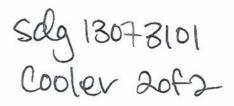




B&B LABORATORIES RECEIVING/INTEGRITY REPORT

Job: J13034 Date Received: 7/31/13 SDG#: 13073101
Sender: <u>Avcadis- Mayflower AR</u> 1. Number of Shipping Containers: 2 Avcadis- Daviel Mays
1. Number of Shipping Containers: 2 Avcadis-Daniel Mays Comments: 20F2 large blue cooler
2. Airbill Present? (res/No Shipping Company: Fed EX Airbill Number: Comments: PoN
3. Custody Seals on Container? No (res) Intact Not Intact Comments: ON top of duct tape
4. Chain of Custody Records? Comments No very usked signature
5. General Sample Conditions: Frozen Cool Unrefrigerated Dry Ice Blue Ice Ice Temperature/Comments: 4.9°C/Temp blank 3.6°C (T6)
6. List of Broken Containers:
Noue
7. Number of Samples Expected: 2 Coolevs Number of Samples Received:
8. Problems/Discrepancies: Cooler 2:
None 19 seds 2 waters
9. Resolutions:
NIA
10. Checked in by: allanda Buyster Date: -7/31/13





4.9°C/temp blank 3.6°C



	Express US Airbill 🚟 8769 3820 1029	9	0200 🞫		FedEx Retrieval Copy
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Client: ANATUR Project ID: BDD86003, 1301 May Rang B&B Contact: Juon Ramirez Sampler Signature: Dathiel Mays Anni	1301 . Mays	May Planes	er Pig	Pipeline Fruid	Trude	t	5108 Prus WS 1128 Prus	Analyses	8	Other Instructions	
Sample ID Sa	Sample Date	Sample Time	Sample Matrix	Preservative		Containers Type No.	The second	-		Comments	
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Signature						Sinnatura					

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T = Tissue S = Soit/Sodiment R = Rinseate P = Product

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Sample (D Sample Visa Sample Visa Sample Visa Sample Visa Continues Contis Continues Continues	B&B Contact: JUUN Sampler Signature: DUUN	el Mays	Danie	O NEW			Pom 8	1	1		
-W-028(0-65)(194) 7-29-13 1300 Sed Mone 4 oz jar 2 X 11 WH PAH Jat -M-028(0-5-10) 7-29-13 1310 Sed Mone 4 oz jar 1 X 11 WH PAH Lat -M-028(0-5-10) 7-29-13 1310 Sed Mone 4 oz jar 1 X 11 WH PAH Lat -M-028(0-1.5) 7-29-13 1410 Sed None 4 oz jar 1 X 11 WH PAH Lat -M-027(0-0.5) 7-29-13 1410 Sed None 4 oz jar 1 X 11 WH PAH Lat -M-027(0-0.5) 7-29-13 1410 Sed None 4 oz jar 1 X 11 WH PAH Lat -M-027(0-0.5) 7-29-13 1410 Sed None 4 oz jar 1 X 11 WH PAH Lat -M-027(0-0.5) 7-29-13 1410 Sed None 4 oz jar 1 X 11 WH PAH Lat -M-027(0-0.5) 7-29-13 1410 Sed None 4 oz jar 1 X 11 WH PAH Lat -M-027(0-0.5) 7-29-13 1410 Sed None 4 oz jar 1 X 11 WH PAH Lat -M-027(0-0.5) 7-29-13 1410 Sed None 4 oz jar 1 X 11 WH PAH Lat -M-027(0-0.5) 7-29-13 1410 Sed None 4 oz jar 1 X 11 WH PAH Lat -M-027(0-0.5) 7-39-13 1410 Sed None 4 oz jar 1 X 11 WH PAH Lat -M-027(0-0.5) 7-39-13 1420 Sed None 4 oz jar 1 X 11 MH PAH Lat -M-027(0-0.5) 7-39-13 1420 Sed None 4 oz jar 1 X 11 MH PAH Lat -M-027(0-0.5) 7-39-13 1420 Sed None 4 oz jar 1 X 11 MH PAH Lat -M-027(0-0.5) 7-39-13 1420 Sed None 1 Review 1 X 11 MH PAH Lat -M-027(0-0.5) 7-39-13 1420 Sed None 1 Review 1 X 11 MH PAH Lat -M-027(0-0.5) 7-39-13 1420 Sed None 1 Review 1 X 11 MH PAH Lat -M-027(0-0.5) 7-39-13 1420 Sed None 1 Review 1 X 11 MH PAH Lat -M-027(0-0.5) 7-39-13 1420 Sed None 1 Review 1 X 11 MH PAH Lat -M-027(0-0.5) 7-39-13 1700 Sed None 1 X 11 MH PAH Lat -M-027(0-0.5) 7-39-13 1700 Sed None 1 X 11 MH PAH Lat -M-027(0-0.5) 7-39-13 1700 Sed None 1 X 11 MH PAH Lat -M-027(0-0.5) 7-39-13 1700 Sed None 1 X 11 MH PAH Lat -M-027(0-0.5) 7-39-13 1700 Sed None 1 X 11 MH PAH Lat -M-027(0-0.5) 7-39-13 1420 Sed None 1 X 11 MH PAH Lat -M-027(0-0.5) 7-39-13 1700 Sed None 1 X 11 MH PAH Lat -M-027(0-0.5) 7-39-13 1700 Sed None 1 X 11 MH PAH Lat -M-027(0-0.5) 7-39-13 1700 Sed None 1 X 11 MH PAH PAH PAH PAH PAH PAH PAH PAH PAH PA	Sample ID	Sample Date	-		reservative	Containe Type	No.	102		Comments	
14-0380.5-10 1-14-13 13.0 5.24 More 4.02/04 1. 1.44 1.11 1.44 DAth 13-0281.0-15 7-741-3 13.10 5.24 More 4.02/04 1.1 1.44 DAth 13-0281.0-15 7-741-3 13.10 5.24 More 4.02/04 1.1 1.44 DAth 13-0216.5-10 7-741-3 14.05 5.24 More 4.02/04 1.1 1.44 DAth 13-0216.5-20 7-74-13 14.15 5.24 More 4.02/04 1.1 1.44 DAth 13-0216.5-20 7-74-13 14.15 5.26 More 4.02/04 1.1 1.44 DAth 13-0216.5-20 7-74-13 14.15 5.26 More 4.02/04 1.1 1.44 DAth 13-0216.5-20 7-74-13 14.15 5.26 More 4.02 1.1 144 DAth 13-02176.0-3.01 7-74-13 14.15 5.26 More 4.02 1.1 144 DAth 155 1410 14-02175.0-3.01 7-74-13 14.15 5.24 More 1.1 144 DAth 155 1410 10-4 6.0275.0-73-34	5ED-DA-028 (0-0.5) NY 14	11	300 5	ed !		802 jar	2 XX	14	Full P/	ま一番	
M-038.10-15 7-34-13 1.3 1.0 5.ed More 8.or No. 1.1 1.4 9.4 1.3 M-037(0-15) 7-34-13 1400 5.ed None 8.or No. 1.1 1.4 1.4 1.4 DM-037(0-15) 7-34-13 1410 5.ed None 4.or 1.1 1.4 1.4 1.4 DM-037(0-15) 7-34-13 1415 5.ed None 4.or 1.1 1.4 1.4 1.4 DM-037(1.5.2.0) 7-34-13 1415 5.ed None 4.or 1.1 1.4 1.4 1.4 DM-027(1.6-15) 7-34-13 1415 5.ed None 4.or 1.1 1.4 1.4 1.5 DM-027(1.6-15) 7-34-13 1415 5.ed None 4.or 1.1 1.4 1.4 1.5 DM-027(1.6-15) 7-34-13 1415 5.ed None 4.or 1.1 1.4 1.5 DM-027(1.6-2.0) 7-34-13 1415 5.ed None 4.or 1.1 1.4 1.5 DM-027(1.6-3.0) 7-34-13 1415 5.ed None 4.or 1.1 1.4 1.4 <	120-04-028(0,5-1.0)	6-29-1	36	Red		4 02 jar	X·	-	HA PA	t list	
Marcallor 15 1-14-13 1400 Sed Nove 4 cr 2 DA-027.05-10) 1-24-13 1410 5_d Nove 4 cr 1 144 DAH 154 DA-027.05-10) 1-24-13 1415 5_d Nove 4 cr 2 1 144 DAH 154 DA-027.05-10) 1-24-13 1415 5_d Nove 4 cr 2 1 144 DAH 154 DA-027.05-30 1-24-13 1415 5_d Nove 4 cr 2 1 144 DAH 154 DA-027.03-30 1-24-13 1415 5_d Nove 4 cr 2 1 144 DAH 14 DA-027.13 1415 5_d Nove 4 cr 2 2 144 155 2 DA-027.80-3.6 731-13 1420 X 1 144 PAH 155 2 DA-027.13 1415 5_d Nove 4 cr 2 2 2 2 155 DA-027.13 1700 Nove 1 1000 2 2 7 154 155 DA-027.13 1700 Nove 1 1700	780-DA-0280.0-1.51	5-29-13	310	2ed	Ubre	1	X	+	44 24	H 137	
Diff-Outo-15) Tarte 1405 Sed Now 4 ar is 14 Diff List Diff-Out(0-15) T-291-3 1410 Sed Now 4 ar is 14 Diff List Diff-Out(0-15) T-291-3 1415 Sed Now 4 ar is 11 14 Diff List Diff-Out(0-15) T-291-3 1415 Sed Now 4 ar is 11 14 Diff List Diff-Out(0-15) T-291-3 1425 Sed Now 4 ar is 11 14 Diff List Diff-Out(3-3.0) T-291-13 1425 Sed Now 4 ar is 11 14 Diff List Diff-Out(3.0.3.0) T-291-13 1425 Sed Now 4 ar is 2 is List 14 Diff List Edited Diff Diff Sed Now Mon 4 ar is 2 is List List List List Diff Diff Sed Now Mon Mon Mon List List List List Diff Diff Sed Now Mon Mon Mon List List List	(S.2.0)120-MI-074C	1-11-13	5	ed 1	Vove -	V02, av	XX	1	Full P	たり出	
TYP-COTIO-I-SI T-29-13 HIE Sch None Har Xer I: HI PAH List extend TM-027(2-03-0) 7-24-13 HIE Sch None Har Xer I: HI PAH List extend PA-027(2-03-0) 7-24-13 HIE Sch None Har Xer II: HI PAH List extract DA-027(2-03-0) 7-24-13 HIE Sch None Har Xer II: HI PAH List extract DA-027(2-03-0) 7-24-13 HIE Sch None Har Xer II: HI PAH List extract DA-027(2-03-0) 7-24-13 HIE Sch None Har Xer II: HI PAH List extract DA-027(2-03-0) 7-24-13 HIE Sch None Har Xer II: HI PAH List extract DA-027(2-03-0) 7-24-13 HIE Sch None Har Xer II: HI PAH List extract DA-027(2-03-0) 7-24-13 HIE Sch None Har Xer II: HI PAH List extract DA-027(2-03-0) 7-24-13 HIE Sch None Har Xer II: HI PAH List extract DA-027(2-03-0) 7-24-13 HIE Sch None Har Xer II: HIE PAH List extract Total # of containers II: II: II: HIE Sch None Har Xer II: III PAH List extract Relinquished By Company Name Date Time Received By Company Name Pate Davide Nev Sch II: PAH List extract Received By Company Name 73/13 H me Davide Nev Sch II: PAH List extract Received By Company Name 73/13 H me Davide Nev Sch II: PAH List extract Received By Company Name 73/13 H me Davide Nev Sch II: PAH List extract Received By Company Name 73/13 H me Davide Nev Sch II: PAH List extract Received By Company Name 73/13 H me Davide Nev Sch II: PAH List extract Received By Company Name 73/13 H me Davide Nev Sch II: PAH List extract Received By Company Name 73/13 H me Davide Nev Sch II: PAH List extract Received By Company Name 73/13 H Merceived By Company Name 890 H Merceived By Company Name 890 H Merceived By Company Name 73/13 H Merceived By Company Name 73/14 H Merceived By Company Name 74/14 H Me	201-24-0260.5-1.0)	5-12-13	405 5	ed	Vove	4 02 jav	X		HAP PAH	L'X	•
March 10 14	15-1-01/20-4/1-1/2C	C-BC-L	1410 2	Did	Vone	402 00	×.		#Y2 44	List	
-DA-027(2.0.3.0) / 24-13 420 Sed None 4 or other 1 1 44 941 List extract DA-027(3.0.3.6) 7-24-13 425 Sed None 4 or other 1 amber 20 K 1 1 44 PAI List extract 24 EB-03 23-03 7-31-13 400 Mort None 4 amber 20 K 2.2 Full PAI List extract rate of containers 2 no Davie Nury Shall Received By Company Name Date 7313 1 no. Davie Nury Shall ABCADS 7-31-13 1700 meansmun Feder 6 and 7-31-13 1 no. Davie Nury Shall ABCADS 7-31-13 1700 meansmun Feder 8 and 3 8/13 2 no. Davie Nury Shall ABCADS 7-31-13 1700 meansmun Feder 8 and 3 8/13 2 no. Davie Nury Shall ABCADS 7-31-13 1700 meansmun Feder 8 and 3 8/13 2 no. Davie Nury Shall ABCADS 7-31-13 1700 meansmun Feder 8 and 3 8/13 2 no. Davie Nury Shall ABCADS 7-31-13 1700 meansmun Feder 8 and 3 8/13 2	1	6-12-2	145 2	ed 1	love -	4 or par	X	-	44 PAH	- List ethad	thald
-DA-DUTAD-3-60 7-79-13 1475 Sed Nove 4 amber 24 24 144 444 4545 ethad -DA-EB-03-3-230 7-31-13 400 Mater Nove 4 amber 24 24 1454 454 Total # of Containers 2 Relinquished By Company Name Date 7 - Davide New 5 243 1700 Protect By Company Name Date 7-3143 4 - Date 1700 Protect Name Bate Time Received By Company Name Date 7 - Date 7 2013 1700 Protect Name 24 2513 4 - Date 7 2013 - Date 7 2013 7 - Date 7 2013 4 - Date 7 2013 - Date 7 2013	0.5-0-27(2-0-2-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0	E-M-1	5 Mch	ed 1	Jone -	J	X	1	HH 24H	L'X, extract	1
Total # of Containers 2 Relinquished By Company Name Date Time Received By Company Name Date me. Davide Wuys Name Date Time Received By Company Name Date me. Davide Wuys Name Date Time Autor Received By Company Name Date me. Davide Wuys Name Hurder Received By Company Name Date me. Davide Wuys Name Autor Received By Company Name Date me. Davide Wuys Name Autor Received By Company Name Date Received By Company Name Date Time Received By Company Name Date Muys Name Date Time Received By Company Name Date Received By	(75-05/170-40-47C)	5-19-13	475	ed A	PNC -		X		HA 4H	List, ethan	
Total # of Containers Relinquished By Company Name Date me. Datified Number of Containers Z me. Datified Number of Containers Z me. Datified Number of Containers Z me. Datified Number of Company Name Date me. Datified Number of Company Name Date me. Datified Number of Company Name Z Mode Signature Educe Educe Z me. Date Signature Educe Educe Mode Signature A Number of Signature Educe	0450-03-ER-03-029B	5-29-2	8	later 1	love y	1 Lamber	XXC	2,2	Full PA	H List	
Relinquished By Company Name Date Time Received By Company Name Date me Davie Main Particle 730-13 1700 Printed Name 73/13 73/13 me Davie Particle Printed Name 73/13 1700 Printed Name 73/13 73/13 me Davie Particle Name Particle Name Fall 73/13 73/13 me Davie Particle Name Autol Company Name 73/13 73/13 me Davie Signature Autol Company Name 73/13 73/13					Total #	of Containers	2		-		
me Daviel Neurys Multy Shull ARCANS 7-38-13 1700 Friedermin Felex 7-3713 7 Signature: Reneared to 8 Signature: AUGULA Science to 5 also 7,31/13 19 10. Signature: AUGULA Science to 5 also 7,31/13 19	Relinquished By	0	ompany Name	Date	Tim		Received By		Company Name	Date	Time
Me. Signature: Signature: <td>Daviel,</td> <td>Multip</td> <td>1PC+DS</td> <td>7-30+</td> <td>-</td> <td>Ø Printed Nam</td> <td>102</td> <td>lex</td> <td></td> <td>7-343 1</td> <td>100</td>	Daviel,	Multip	1PC+DS	7-30+	-	Ø Printed Nam	102	lex		7-343 1	100
me. Printed Name HUULLA EVENCIAL EVENCIEVENCIAL EVENCIAL EVENCIAL EVENCIAL EVENCIEVENCIAL EVENCIEVENCIAL EVENCIAL EVENCIAL EVENCIAL EVENCIAL EVENCIAL EVENCIEVENCIAL EVENCIAL EVENCIE	Signature.					Signature:					
Stynature: ALLISTICS Frank	Punted Name.	<u></u>				Printed Nam	Awanda		A. A. A.	31/13	20
	Signature:					Signature:	Muducia	Nauna	+		
	Malnx:	T	Sample (Sample Container. Vol/material	tenal						

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G=Gas Ws=Waste HW≠Hazardous Waste W≃Water

T=Tissue S=Soit/Sedimein R=Rinseate P=Product

G=Glass P= Plastic

C=Core B+Bag

RAR A		CHAIN	1 OF	CIICTO		CHAIN OF CLISTODY PECOPI			ELEV 2	$\frac{d}{k}$
B&B Laboratories, Inc	Home Office 14	Home Office 14391B South Dowling Road	ig Road Collei	College Station TX 77845	phone (979) 693-3446	5.3446 fax (979) 693-6389		http://www.tdi-bi.com		Brooks
Client: AP/ 4015						4	Analyses			
Project ID: BOD86003.	3	Maytlaver Pipeline Tincia	Pipelia	e their	leigt	5100			Other Instructions	8
B&B Contact: UNUN CONNIVEZ Sampler Signature: Duniel Mays	durivez)	Sand M	h.			3-10-11 18-19-11 18-19-11	16 A.			
Sample ID	Sample Date Sam	Sample Time Matrix	-	Preservative	Containers	1 AN AN A	de i		Comments	
517-04-02(10-05)	7-30-13 83	i Sed	1 Nove	X	52 101 M		Ч	Full P.	4H 1 14	
SED-DA-024(0.5-1.0)	N	55 Sed	R	1	Jar		2	HTA MA	141	
560-DA-026(1,0-15)	7-31-0 84		N (4		X	2	AN DAI	+1.50	
550-04-026(15-20)	7-30-13 84	LA.	N	one the 2	ian	X	2	WP HA H	t, extract +	- hold
5ED-D4-026(2.0-30	7-30-13 25	3	2	one 4 or	jar 1	X	2	HY PAHLIN	D PX-rac	+ 401 4
5ED-DA-026(3.0-3.4)	7-30-13 85.	N		None Has	ar	X	2	HH BAH 19	hettad	+ hold
5BD-DA-0250-0.5)	7-30-13	5 20	Y	love Bor	2 10~	X	2	Full PAH	- List	
56P-DH-025(0.54.0)	7-30-13 451	0	V	love 4 02	02 Jar 1	X	2	1444 14	たっ	
250.0-	7-30-12 455	5 201	X No	love those	1 mot	X.	2	44 74 11	ty -	
5EP-DA-0240-05)	7-30-13	015 50	A No	love Bon	02.197	XX	2	Rull PH	- 424	
				Total # of Containers	tainers 0					
Relinquished By	Comp	Company Name	Date	Time		Received By		Company Name	Date	Time
PINICE Name, DUMP May K	Seriller	RADS	CHIEC	1700	Printed Narne.	Fedex			C1-16-1	1700
Signature:					Signature:					
Printed Name	2				Printed Name: 4	us vinu	うせらつ	ris aus	31/13	3.00
Signature:					Signature:	HALLOA R	100			
Matrix		Sample Contr	Samole Container Vol/material							
		titude audition	DUDINING STATE							

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G≖Gas Ws∍Waste HW≃Hazard∩us Waste W∍Water

T = Tissue S = Soil/Sodiment R = Rinseate P = Product

B&B & B&B &	Home Office	14	CHAIN O	CHAIN OF CUSTODY RECORI 3918 South Dowling Road College Station TX 77845 phone (979) 683-3446 fax (979) 61	TODY	DY REC	ORD fax (979) 693-6389		http://www.tdi-bi.com	TD	Brooks
client: APCADD Project ID: BCOB603, B&B Contact: JVVW B Sampler Signature: DWMC	4015 COBECO3, 201 Juan Raminez Daminez		We Pip	Hey Flower Pipeline Inciden	dent		STOR POW	Analyses		Other Instructions	2
Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers	No	TEN I	19.1		Comments	
260-04-024 (1.0-1.5)	ELVE-L	1025	Sel	Nove A	1 1	XX		44	the th	t List	
5ED-DH-024(15-2.0)	1	020	Sel	Nove	02, ON	X		2	THYC M	ist, extraut	+hald
510-04-04(20-3.0)	7-30-13	1035	Sed	Nove 2	Horlow			4	ちまな	th extrad	4 + hold
5ED-DA-020(0-0.5)	7-30-13	8	pag	Naver	2 02, jar	X	V	2	Full P44	- List	
120-04-020(0,5-1.0)	7-30-03	S	Sel	Nove 4	no zo	X		2	Pro hh	24	
51-01-020110-115	0-02-6	0	pag	Nover	12 195	7		2	44 04#	XT	
SEP-DA-BG 407(0-0.5)	N	1345	Sed	Never	Juzian		H.	2	Fuller	H LIX	
247-14-DUF-02-07-1	21-15-18		Sed	Nove	ND(20 S	×	X	2	Tv= な	H LIST	
				Total # o	Total # of Containers	Ba					
Relinquished By		Company Name	H	Date Time	-	Rece	Received By		Company Name	Date	Time
Printed Name Navy 5	Need II >	PUANS	N	-34-13 1200	Printed Name	te	ley			2-3013	2021
Signaturo.		D	_	_	Signature:						
Printed Namo			_	_	Printed Nam	Aucu	ucia five	Just	A. S. S. W.	S1/18/15	13.20
Signature					Cinnettee.	N 1. 1.	the star	The second			

G=Glass P=Plastic

G=Gas Ws=Wasto HW=Hazardous Waste W=Water

T = Tissue S = Soit/Sedmeix R = Rinseale P = Product

C=Core B=Bag

B&B Laboratories

Environmental Sample Inventory

F # 507	JOD # GOL	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD Analysis	MATRIX	COMMENTS	B&B SDG	Coolor #	Sent by:	Container	a Project #
64251 J1	J13034 Arc	Arcadis - Mayflower AR	ARC1566	SED-DA-029 (0-0.5)	07/29/13	07/31/13 PAH, TPH, ALI	SED		13073101	Cooler 1	Arcadis: Daniel Mays	Boz clear glass jar	B0086003.1302
64252 J1	J13034 Arc	Arcadis - Mayllower AR	ARC1567	SED-DA-029 (0.5-1.0)	07/29/13	07/31/13 PAH	SED	44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64253 J1	J13034 Arc	Arcadis - Mayflower AR	ARC1568	SED-DA-029 (1.0-1.5)	07/29/13	07/31/13 PAH	SED	44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass lar	B0086003 1302
64254 J1	13034 Arc	Arcadis - Mayflower AR	ARC1569	SED-DA-029 (1.5-2.0)	07/29/13	07/31/13 PAH	SED	extract & hold, 44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64255 J1	J13034 Arc	Arcadis - Mayflower AR	ARC1570	SED-DA-029 (2.0-3.0)	£1/62/L0	07/31/13 PAH	SED	extract & hold, 44 analytes	13073101	Cooler 1	Arcadls: Daniel Mays	4oz clear glass jar	B0086003.1302
64256 J1	13034 Arc	Arcadis - Mayflower AR	ARC1571	SED-DA-030 (0-0.5)	07/29/13	07/31/13 PAH, TPH, ALI	SED		13073101	Cooler 1	Arcadis. Daniel Mays	8oz clear glass jar	B0086003.1302
64257 J1	13034 Arc	Arcadis - Mayflower AR	ARC1572	SED-DA-030 (0.5-1.0)	07/29/13	07/31/13 PAH	SED	44 analytes	13073101	Cooler 1	+	4oz clear plass iar	B0086003.1302
64258 J1	J13034 Arc	Arcadis - Mayflower AR	ARC1573	SED-DA-030 (1.0-1.5)	07/29/13	07/31/13 PAH	SED	44 analytes	13073101	Cooler 1	-	4oz clear glass lar	B0066003.1302
64259 11	J13034 Arc	Arcadis - Mayflower AR	ARC1574	SED-DA-028 (0-0.5)	07/29/13	07/31/13 PAH, TPH, ALI	SED		13073101	Cooler 1	Arcadis Daniel Mays	Boz clear class iar	B0086003.1302
64260 J1	J13034 Arc	Arcadis - Mayllower AR	ARC1575	SED-DA-028 (0-0.5) MS/MSD	07/29/13	07/31/13 PAH, TPH, AU	SED	1 of 2	13073101	Cooler 1	Arcadis: Daniel Mays	Boz clear glass jar	B0086003.1302
64261 J1	J13034 Arc	Arcadis - Mayllower AR	ARC1576	SED-DA-028 (0-0.5) MS/MSD	07/29/13	07/31/13 HOLD	SED	2 of 2	13073101	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64262 J1	J13034 Arc	Arcadis - Mayllower AR	ARC1577	SED-DA-028 (0.5-1.0)	07/29/13	07/31/13 PAH	SED	44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass lar	B0086003.1302
64263 J1	J13034 Arc	Arcadis - Mayllower AR	ARC1578	SED-DA-028 (1.0-1.5)	07/29/13	07/31/13 PAH	SED	44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64264 J1	J13034 Arc	Arcadis - Mayliower AR	ARC1579	SED-DA-027 (0-0.5)	07/29/13	07/31/13 PAH. TPH. ALI	SED		13073101	Cooler 1	Arcadis: Daniel Mays	Boz clear glass jar	B0086003.1302
64265 J1	J13034 Arc	Arcadis - Maylower AR	ARC1580	SED-DA-027 (0.5-1.0)	07/29/13	07/31/13 PAH	SED	44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64266 J1	13034 Arc	Arcadis - Maylower AR	ARC1581	SED-DA-027 (1.0-1.5)	07/29/13	07/31/13 PAH	SED	44 analytes	13073101	Cooter 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64267 J1	13034 Arc	Arcadis - Mayflower AR	ARC1582	SED-DA-027 (1.5-2.0)	07/29/13	07/31/13 PAH	SED	extract & hold, 44 analytes	13073101	Cooter 1	Arcadis: Daniel Mays	4oz clear glass jar	80086003.1302
64268 J1	J13034 Arc	Arcadis - Mayflower AR	ARC1583	SED-DA-027 (2.0-3.0)	07/29/13	UTA1M3 PAH	SED	extract & hold, 44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0066003.1302
64269 J1	J13034 Arc	Arcadis - Mayflower AR	ARC1584	SED-DA-027 (3.0-3.6)	E1/62/10	HA9 27/31/13 PAH	SED	extract & hold, 44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear plass jar	B0066003.1302
64270 J1	J13034 Arc	Arcadis - Mayflower AR	ARC1585	SED-DA-026 (0-0.5)	07/30/13	07/31/13 PAH, TPH, ALI	SED		13073101	Cooler 2	Arcadis. Daniel Mays	8oz clear glass jar	B0086003.1302
84271 J1	J13034 Arc	Arcadis - Mayflower AR	ARC1586	SED-DA-026 (0.5-1.0)	07/30/13	07/31/13 PAH	SED	44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64272 J1	13034 Arc	Arcadis - Mayflower AR	-	SED-DA-026 (1.0-1.5)	07/30/13	07/31/13 PAH	SED	44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64273 J1	J13034 Arc	Arcadis - Mayflower AR	ARC1588	SED-DA-026 (1.5-2.0)	07/30/13	07/31/13 PAH	SED	extract & hold, 44 analytes	13073101	Cooler 2	Arcadis:	4oz clear glass jar	B0086003.1302
		Arcadis - Maylower AR		SED-DA-026 (2.0-3.0)	07/30/13		SED	extract & hold, 44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	80066003.1302
64275 J1		Arcadis - Mayflower AR	-	SED-DA-026 (3.0-3.4)	07/30/13		SED	extract & hold, 44 analytes	13073101	Coaler 2	Arcadis: Daniel Mays	Aoz clear glass jar	B0086003.1302
		Arcadis - Mayflower AR		SED-DA-025 (0-0.5)	07/30/13		SED		13073101	Coater 2	Arcadis: Daniel Mays	8oz clear glass jar	B0066003.1302
1	1	Arcadis - Mayflower AR		SED-DA-025 (0.5-1.0)	07/30/13		SED	44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
'		Arcadis - Mayflower AR		SED-DA-025 (1.0-1.5)	07/30/13	PAH	SED	44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0066003.1302
_		Arcadis - Maylower AR	-	SED-DA-024 (0-0.5)	07/30/13	07/31/13 PAH, TPH, ALI	SED		13073101	Cooler 2	Arcadis: Daniel Mays	Boz clear glass jar	B0086003.1302
-	1	Arcadis - Mayflower AR	-	SED-DA-024 (0.5-1.0)	07/30/13	07/31/13 PAH	SED	44 analytes	13073101	Cooler 2		4oz clear glass jar	80086003.1302
		Arcadis - Mayllower AR		SED-DA-024 (1.0-1.5)	07/30/13	07/31/13 PAH	SED	44 analyles	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	80086003.1302
		Arcadis - Mayllower AR		SED-DA-024 (1.5-2.0)	07/30/13	07/31/13 PAH	SED	extract & hold, 44 analytes	13073101	Cooler 2	Arcadis. Daniel Mays	4oz clear glass jar	80086003.1302
		Arcadis - Mayllower AR		SED-DA-024 (2.0-3.0)	07/30/13	PAH	SED	extract & hold, 44 analyles	13073101	Cooler 2		4oz clear glass jar	80086003.1302
64284 J1	J13034 Arc	Arcadis - Mayllower AR	ARC1599	SED-DA-020 (0-0.5)	07/30/13	07/31/13 PAH, TPH, ALI	SED		13073101	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64285 J1	U13034 Arc	Arcadis - Maylower AR		SED-DA-020 (0.5-1.0)	07/30/13	07/31/13 PAH	SED	44 analytes	13073101	Coaler 2	Arcadis: Daniel Mays	4oz clear glass jar	80086003.1302
64286 J1	J13034 Arc	Arcadis - Mayflower AR	ARC1601	SED-DA-020 (1.0-1.5)	07/30/13	07/31/13 PAH	SED	44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64287 J1	J13034 Arc	Arcadis - Mayflower AR	ARC1602	SED-DA-BG-007 (0-0.5)	07/30/13	07/31/13 [PAH, TPH, ALI	SED		13073101	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64288 J1	013034 Arc	Arcadis - Mayflower AR	ARC1603	SED-DA-DUP-02-073013	07/30/13	07/31/13 PAH, TPH, ALI	SED		13073101	Cooler 2	Arcadis: Daniel Mays	Boz clear glass jar	B0086003.1302
64289 J1	J13034 Arc	Arcadis - Maylower AR	ARC1604	SED-DA-EB-02-072913	07/29/13	07/31/13 PAH. TPH. ALI	WATER	1 of 2	13073101	Cooler 1	Arcadis: Daniel Mays	1L amber glass BR bottle	80086003.1302
64290 J1	J13034 Arc	Arcadis - Mayflower AR	ARC1605	SED-DA-EB-02-072913	07/29/13	07/31/13 HOLD	WATER	2 of 2	13073101	Cooler 1	Arcadis: Daniel Mays	1L amber glass BR bottle	B0066003.1302
64291 J1	J13034 Arc	Arcadis - Mayflower AR		SED-DA-EB-03-073013	07/30/13	07/31/13 PAH, TPH, ALI	WATER	1 of 2	13073101	Cooler 2	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302
64292 J1	J13034 Arc	Arcadis - Mavfirwer AR	ARC1607	SED-DA-EB-03-073013	07/30/13	07/31/13 HOLD	WATER	2 of 2	13073101	Cooler 2	Arcadis: Daniel Mays	11 amher clase RD hotto	COC+ FONDONOG

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B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: <u>J13034</u> SDG: <u>13073101</u> Client: <u>Avcadis-Mayflowev</u> Initiation Date: <u>7/31/13</u> Analyses	Number of Samples: 16 Matrix: <u>Sectiments</u> as 7/31/13 45 days: 10/14/13 Due Date: <u>PAH: 44 avalytes</u> Veceived 7/31/13
PAHs OCs/PCBs	Aliphatics/TPH _ EOM
Dry Wt. WL.	
Short Columns Long Columns	
Requested QA/QC (per batch of Cli	ent Samples)
Blank - SRM/LCS_	Blank Spike
Blank Spike Duplicate	Matrix Spike
Matrix Spike Duplicate	Duplicate
Surrogate(s):	
Spike Standard(s): <u>J.A.M.A.(</u>	Volume(s):
Internal Standard(s):	Volume(s):
Final Extract Volume (ml):	Final Solvent: DC/7
Comments: Chaly	2 patts short list ong
Sample Custodian Signature:	2 BULL Date: 7/31/13
Laboratory Manager Signature:	Date: <u>7-/31/13</u>
Sample Initiaiton - general Rev 1.doc Rev 1	cc: COC Book Extraction Lab

B&B Laboratories

Environmental Sample Inventory

# 60-	# gop	CLIENT NAME	FILENAME	FILENAME CLIENT ID	COL DATE	RECVD Analysis	MATRIX	COMMENTS	B&B SDG Cooler # Sent by:	Cooler #	Sent by:	Container	a Project #
64252	113034	Arcadis - Mayflower AR	ARC1567	SED-DA-029 (0.5-1.0)	07/29/13	07/31/13 PAH	SED	44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003 1302
64253	J13034	Arcedis - Mayflower AR	ARC1568	SED-DA-029 (1.0-1.5)	07/29/13	07/31/13 PAH	SED	44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64257	J13034	Arcadis - Mayflower AR	ARC1572	SED-DA-030 (0.5-1.0)	07/29/13	07/31/13 PAH	SED	44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear olass iar	B0086003 1302
64258	J13034	Arcadis - Mayflower AR	ARC1573	SED-DA-030 (1.0-1.5)	07/28/13	07/31/13 PAH	SED	44 analytes	13073101	Cooler 1	Arcadis: Daniel Mavs	4oz ciear class lar	B0086003.1302
64262	J13034	Arcadis - Mayflower AR	ARC1577	SED-DA-028 (0.5-1.0)	07/29/13	07/31/13 PAH	SED	44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear olass lar	B0086003 1302
64263	J13034	Arcadis - Mayflower AR	ARC1578	SED-DA-028 (1.0-1.5)	07/29/13	07/31/13 PAH	SED	44 analytes	13073101	Cooler 1	Arcadis: Daniel Mavs	4oz clear olass iar	B0086003 1302
64265	J13034	Arcadis - Mayflower AR	ARC1580	SED-DA-027 (0.5-1.0)	07/29/13	07/31/13 PAH	SED	44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear olass iar	B0086003 1302
64266	J13034	Arcadis - Mayflower AR	ARC1581	SED-DA-027 (1.0-1.5)	07/29/13	07/31/13 PAH	SED	44 analytes	13073101	Cooler 1	Arcadis: Daniel Mavs	4oz clear olass lar	BOORBOOS 1302
64271	J13034	Arcadis - Mayflower AR	ARC1586	SED-DA-026 (0.5-1.0)	07/30/13	07/31/13 PAH	SED	44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear olass iar	B0086003 1302
64272	J13034	Arcadis - Mayflower AR	ARC1587	SED-DA-026 (1.0-1.5)	07/30/13	07/31/13 PAH	SED	44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear class lar	B0086003 1302
64277	J13034	Arcadis - Mayflower AR	ARC1592	SED-DA-025 (0.5-1.0)	07/30/13	07/31/13 PAH	SED	44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear olass lar	ROORGOO3 1302
64278	J13034	Arcadis - Mayflower AR	ARC1593	SED-DA-025 (1.0-1.5)	07/30/13	07/31/13 PAH	SED	44 analytes	13073101	Cooler 2	1	4oz clear olass lar	BOORBOON 1302
64280	J13034	Arcadis - Mayflower AR	ARC1595	SED-DA-024 (0.5-1.0)	07/30/13	07/31/13 PAH	SED	44 analytes	13073101	Cooler 2			B0086003 1302
64281	J13034	Arcadis - Mayflower AR	ARC1596	SED-DA-024 (1.0-1.5)	07/30/13	07/31/13 PAH	SED	44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	10	B0086003 1302
64285	J13034	Arcadis - Mayflower AR	ARC1600	SED-DA-020 (0.5-1.0)	07/30/13	07/31/13 PAH	SED	44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays		B0086003 1302
64286	J13034	Arcadis - Mayflower AR	ARC1601	SED-DA-020 (1.0-1.5)	07/30/13	07/31/13 PAH	SED	44 analytes	13073101	Cooler 2	Cooler 2 Arcadis: Daniel Mays	4oz clear olass iar	BOORGOO3 1302

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7/31/2013 1:41 PM

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B&B LABORATORIES SAMPLE INITIATION FORM-ENV

100 #: <u>513034</u>		Number of Samples: 2	
SDG: 1307310	>1	Matrix: Wate	UV
Client: AVCadis -	MayflowerAR	Due Date: 45 days	5: 10/14/13
Initiation Date: 7/3	1/13	Comments: <u>Collected</u>	7/29-7/30
		received 7/31/13	ry 8/04-8/05
Analyses			
PAHs	OCs/PCBs	Aliphatics/TPH	EOM
Dry Wt.	□ %Lipid	_	
Short Columns	-		
Demote 1.0.1/00/		t Commission	
	er batch of Clier		
	SRM/LCS		
Blank Spike Dup	licate	Matrix Spike	
Matrix Spike Dup	olicate	Duplicate	
	SEE BACK FOR SPECI	FIC STANDARDS TO USE	
Surrogate(s):	PAH, AU	Volume(s):	10 Juni
Spike Standard(s):	PAH, A.C.	Volume(s):	100m /
Internal Standard(s):	PAH, AU	Volume(s):	1021
Final Extract Volume (ml)):/.0	Final Solvent:	DCM
Comments:			
		. 0	
Sample Custodian Signatu	ire: alland	a Bullite Date:	7/31/13
Laboratory Manager Sign	1	Date:	7/31/13
Sample Initiaiton - general R Rev 1	ev 1.doc		cc: COC Book Extraction Lab

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from Master Log	Project # B0086003.1302 B0086003.1302		7/31/2013 1:40 PM
	a amber glass BR bottle amber glass BR bottle		
	B&B SDG Cooler # Sent by: Container a Project # 13073101 Cooler 1 Arcadis: Daniel Mays 1L amber glass BR bottle B0066003.1302 13073101 Cooler 2 Arcadis: Daniel Mays 1L amber glass BR bottle B0066003.1302		
	Cooler # Cooler 1 Cooler 2		
	38.8 SDG 13073101 13073101		
nventory	MATRIX WATER WATER		
al Sample I	PH, ALI PH, ALI		Page 1 of 1
Environmental Sample Inventory	RECVD Analysis MATRIX ICOMMENTS 07/31/13 PAH, TPH, ALI WATER 1 of 2 07/31/13 PAH, TPH, ALI WATER 1 of 2		ε. Σ
	COL. DATE 07/29/13 07/30/13		
	072913 073013		
	FILENAME CLIENT ID ARC 1604 SED-DA-EB-02-072913 ARC 1606 SED-DA-EB-03-073013		
	ARC1604 SARC1606	14	
	CLIENT NAME Arcadis - Mayflower AR Arcadis - Mayflower AR		w visk
orties	Job# Job# 113034 1		la's envir-mst1_new.xisk
B&B Laboratories	Log # 64289 64291		
8			271

B&B LABORATORIES SAMPLE INITIATION FORM-ENV

T120214
Job #: J13034 SDG: 307-3101 Matrix: Sediments
Client: Avcadis - Mayflower Ale Due Date: 45 days: 10/14/13
Initiation Date: 7/31/13 Comments: PAH, TPH, ALI
received 7/31/13
Analyses
-D PAHS D OCs/PCBs D Aliphatics/TPH EOM
Dry Wt. WLipid TOC/TIC
Short Columns Long Columns
Requested QA/QC (per batch of Client Samples)
Blank SRM/LCS 1941 / D Blank Spike
Blank Spike Duplicate Matrix Spike
Matrix Spike Duplicate Duplicate
SEE BACK FOR SPECIFIC STANDARDS TO USE
Surrogate(s):A.H.A.H.A.H.A.H.A.H.A.H.A.H.A.H
Surrogate(s):
Surrogate(s): $PAHAY$ Volume(s): $PAHAY$ Spike Standard(s): $PAHAY$ Volume(s): $PAHAY$
Surrogate(s): $PAH A Y$ Volume(s): $PAH A Y$ Spike Standard(s): $PAH A Y$ Volume(s): $PAH A Y$ Internal Standard(s): $PAH A (I)$ Volume(s): $PAH A (I)$ Final Extract Volume (ml): $Q X$ PAH PAH
Surrogate(s): $PAH A Y$ Volume(s): $PAH A Y$ Spike Standard(s): $PAH A Y$ Volume(s): $PAH A Y$ Internal Standard(s): $PAH A Y$ Volume(s): $PAH A Y$ Final Extract Volume (ml): $Q Y$ $PAH A Y$ Volume(s): $PAH A Y$
Surrogate(s): $A+4$, $A+4$, $A+4$, $Volume(s)$: $A+4$, $A+4$, $A+4$, $Volume(s)$: $A+4$, $A+4$

B&B Laboratories

Environmental Sample Inventory

from Master Log

# 60-	# qof	Job # CLIENT NAME	FILENAME CLIENT ID	CLIENT ID	COL. DATE	RECVD Analysis	MATRIX	COMMENTS	B&B SDG	Cooler # Sent by	Sent by:	Container	A Project #
4251	J13034	Arcadis - Mayflower AR	ARC1566	SED-DA-029 (0-0.5)	07/29/13	07/31/13 PAH, TPH, ALI	SED		13073101	Cooler 1	Arcadis: Daniel Mavs	Boz clear olass iar	BODR6003 1302
64256	J13034	Arcadis - Mayflower AR	ARC1571	SED-DA-030 (0-0.5)	07/29/13	07/31/13 PAH, TPH, ALI	SED		13073101	Cooler 1	Arcadis: Daniel Mavs	olass	B0086003 1302
64259	J13034	Arcadis - Mayflower AR	ARC1574	SED-DA-028 (0-0.5)	07/29/13	07/31/13 PAH, TPH, ALI	SED		13073101	Cooler 1	Daniel I	Boz clear class lar	B0086003 1302
64260	J13034	Arcadis - Mayflower AR	ARC1575	SED-DA-028 (0-0.5) MS/MSD	07/29/13	07/31/13 PAH, TPH, ALI	SED	1 of 2	13073101	Cooler 1		Boz clear class lar	B0086003 1302
64264	J13034	Arcadis - Mayflower AR	ARC1579	SED-DA-027 (0-0.5)	07/29/13	07/31/13 PAH, TPH, ALI	SED		13073101	Cooler 1	Daniel I	Boz clear class iar	RUNAGONA 1302
64270	J13034	Arcadis - Mayflower AR	ARC1585	SED-DA-026 (0-0.5)	07/30/13	07/31/13 PAH, TPH, ALI	SED		13073101	Cooler 2	Daniel N	Boz clear plass iar	B0086003 1302
64276	J13034	Arcadis - Mayflower AR	ARC1591	SED-DA-025 (0-0.5)	07/30/13	07/31/13 PAH, TPH, ALI	SED		13073101	Cooler 2	Daniel N	clear	BODREDO3 1302
64279	J13034	Arcadis - Mayflower AR	ARC1594	SED-DA-024 (0-0.5)	07/30/13	07/31/13 PAH. TPH. ALI	SED		13073101	Cooler 2	Daniel N	Diace	ROORGOOS 1302
64284	J13034	Arcadis - Mayflower AR	ARC1599	SED-DA-020 (0-0.5)	07/30/13	07/31/13 PAH. TPH, ALI	SED		13073101	Cooler 2	Daniel N	olase	B0086003 1302
64287	J13034	Arcadis - Mayflower AR	ARC1602	SED-DA-BG-007 (0-0.5)	07/30/13	07/31/13 PAH. TPH, ALI	SED		13073101	Cooler 2	Daniel N	Boz clear class lar	B0086003 1302
64288	J13034	Arcadis - Mayflower AR	ARC1603	SED-DA-DUP-02-073013	07/30/13	07/31/13 PAH, TPH, ALI	SED		13073101	1.1	-	Boz clear plass iar	BOORBOO3 1302

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B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034	Number of Samples: 10
SDG: 13073101	Matrix: sediments
client: Arcadis- Mayflowerf	HR Due Date: 45 days: 10/14/13
Initiation Date: 7/31/13	Comments: EXTRACT & HOLD
	received 7/31/13
Analyses	
PAHs OCs/PCBs	Aliphatics/TPH EOM
Dry Wt. 🗆 %Lipid	
Short Columns Long Column	ns
Requested QA/QC (per batch ofC	Client Samples)
Blank SRM/LCS / 9	Blank Spike
□ Blank Spike Duplicate	Hatrix Spike
Matrix Spike Duplicate	Duplicate
SEE BACK FOR S	SPECIFIC STANDARDS TO USE
Surrogate(s):	/ Volume(s):
Spike Standard(s):	/ Volume(s):
Internal Standard(s): <u>1944</u>	<u>Volume(s):</u>
Final Extract Volume (ml):	Final Solvent: PCM
Comments:	fact the la
2An	k.c.l
	-
Sample Custodian Signature: auaud	-

B&B Laboratories

Environmental Sample Inventory

# 60	# qof	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	# Sent by:	Container	a Project#
1254	J13034	Arcadis - Mayllower AR	ARC1569	SED-DA-029 (1.5-2.0)	07/29/13	07/31/13 PAH	SED	extract & hold, 44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
1255	J13034	Arcadis - Mayflower AR	ARC1570	SED-DA-029 (2.0-3.0)	07/29/13	07/31/13 PAH	SED	extract & hold, 44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
54267	J13034	Arcadis - Mayflower AR	ARC1582	SED-DA-027 (1.5-2.0)	07/29/13	07/31/13 PAH	SED	extract & hold, 44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64268	J13034	Arcadis - Mayllower AR	ARC1583	SED-DA-027 (2.0-3.0)	07/29/13	07/31/13 PAH	SED	extract & hold, 44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64269	J13034	Arcadis - Mayllower AR	ARC1584	SED-DA-027 (3.0-3.6)	07/29/13	07/31/13 PAH	SED	extract & hold, 44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
273	J13034	Arcadis - Mayflower AR	ARC1588	SED-DA-026 (1.5-2.0)	07/30/13	07/31/13 PAH	SED	extract & hold, 44 analytes	-	Cooler 2	Arcadis: Daniel Mays	0	B0086003.1302
34274	J13034	Arcadis - Mayfipwer AR	ARC1589	SED-DA-026 (2.0-3.0)	07/30/13	07/31/13 PAH	SED	extract & hold, 44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays		B0086003.1302
54275	J13034	Arcadis - Mayflower AR	ARC1590	SED-DA-026 (3.0-3.4)	07/30/13	07/31/13 PAH	SED	extract & hold, 44 analytes	-	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64282	J13034	Arcadis - Mayflower AR	ARC1597	SED-DA-024 (1.5-2.0)	07/30/13	07/31/13 PAH	SED	extract & hold, 44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
54283	J13034	Arcadis - Mayflower AR	ARC1598	SED-DA-024 (2.0-3.0)	07/30/13	07/31/13 PAH	SED	extract & hold. 44 analytes	13073101	Cooler 2	Arcadis: Daniel Mavs	4oz clear olass iar	B0086003 1302

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amanda brewster

From:	amanda brewster <amandabrewster@tdi-bi.com></amandabrewster@tdi-bi.com>
Sent:	Wednesday, July 31, 2013 4:39 PM
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:	RE: B+B Shipment 7-30-2013
Attachments:	COC 7-31-13.pdf

Hi Daniel,

We received your samples today in good condition. The internal temperature of Cooler 1 was 6.6°C and the temperature blank was 2.9°C. The internal temperature of Cooler 2 was 4.9°C and the temperature blank was 3.6°C. A PDF of the COC is attached for your records.

Regards, Amanda

From: Mays, Daniel [mailto:Daniel.Mays@arcadis-us.com] Sent: Tuesday, July 30, 2013 5:11 PM To: amandabrewster@TDI-BI.com Subject: B+B Shipment 7-30-2013

Good evening Amanda,

2 coolers were shipped to B+B today, tracking number 876938201029 and 795803347496.

Regards,

Danny Mays | Environmental Specialist, E.I. | <u>daniel mays@arcadis-us.com</u> 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

DOD LADURALURIES ENVIRONMENTAL EXTRACTION LOG

Spike: OU JuL	PAH: AR-WKSK-1000-026	Pest/PCB:	Aliphatic: AL-WKSY-100-029		Turbo Vap II	Both T (C).	aut 1 (u).	Pressure (>20psi):	Uneck water Level:		Internal Chain of Custody	Extraction Prep	B-2-13 B-2-13	Initials: Cr Initials:	Extraction	Date: Date: Date: 0-2-13	infliats. Initials.	Concentration	0 543 Bree -5-13	Initials:	Short Columns	5-13	Initials:	ENV 3069 Page 1 of 2
Surrogate: 100 µL S	PAH: AP-WYSV-2500-002 P	Pest/PCB:	-	Other:0	GC Int Std: 100 nt 1			100-002-52-0-14	The second second second		Extraction Comments													
N X	(Z) X	(ک) ۲	N S	Long (Short)		Witness	E1-2-0	8-2-13	SISI 1	Drv Wt	(g)	V	/	/	/	/								
Lipids	Dry Wt.	Copper	EOM	Columns (Added		812113 CK	6/2) E	1-	%					/			/	/	/			
LUU		ALI			0 mL		Surrogate:	Spike:	Internal:	Wet Wt.	-	1.00	1.00	1.00	0.95	1.04	19.0	1.00						
SDG #: Varian	layflower AR]	V	Final Volume:						11 ID	7		riart	EB-01-072713	- 072913	3-073013	073113						
Job # J 13034	client. Arradu's - Nay Plower AR	Analvsis: X PAH		Extraction Solvent: DCM	Final Solvent : DCM		90				Client ID	1 ENVSOIGA Provedural Blank	ENV309 B Blanck Spike	3 EM3049C Blank Spile Duplicat	APCISION SED-	APCILOU SED-DA-EB-02-072913	APC 16130 SED-DA-EB-03-073013	APCILLOA SED - DA - EB - 04 - 073113						
MATRIX	OTHER 0	X WATER				General Comments:	Report 13-3090			Cample Name	sample Name	1 ENVSOUGA	2 ENV3009 B	3 EN 3069C	4 ENVIOLAT	5 APCILOON	· ARCILITIA	7 APCILEO9.	8	6	10	11	12	

ENVIROLOG Rev 2 Env. Extraction Log

Post-HPLC Concentration 8-5-13 Bate Internal Chain of Custody Final Extract Transfer ate - 5 - 13 nitials 2 Transfer for HPLC Concentration Short Columns Concentration Concentration nitials: Initials: initials: hitials: HPLC Columns Initials: Dale Columns SA2 SA2 SA1 SA1 EN Date:)ate: ate: Sodium Sulfate: 2092CSZS Extraction Comments Alumina: TG1482EMS Hydrochloric Acid: 52144 Silica: BCBJ9493V Lot Numbers Water: DTO45-B 52195 Hydromatrix: --SPE Columns: **B&B LABORATORIES ENVIRONMENTAL EXTRACTION LOG** Copper: ----Hexane: -Pentane: Other: -DCM: Dry Wt. (6) Clean-up/Separation/Other Initials **Copied to Folders** Dry Wt. % QC Review 7 M Columns 80 Date Wet Wt. (g or L) E Ø C 8 HPLC Storage Box # Lipid/EOM Page ZIAI WOA Client ID 8/15/13 3 Sample Storage Box # **Dry Weight Page** J13034 -1 Sample Name 24 100 19 20 22 23 21 16 17 13 14 15

ENVIROLOG Rev 2 Env. Extraction Log

ENV 3069 Page 2 of 2 B&B LABORATORIES EOM LOGBOOK THE P

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SEDIMENT	Client MILLOWS WILL TOWAR	NO XY								
WATER	Date/Int: $\left. \left. \frac{1}{8} \right/ 5 / 15 94$	Transfe 8 51 3 From ENV Pg: From DRY Pg:	Transferred by Date/Int: a 5 13 Of m ENV Pg: ENV306 9 m DRY Pg:	te/Int: 9	Date/Int: 8/5/13	Bal. Cal. V	Bate/Int:	11 CK	k l	
Sample Name	Client ID	Smpl Wt. (0) (9) 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
ENV3UGA	ENV3UGA Procedural Blauk	1.00		3	23,33623.338	23.338	200.0	C(0)	/	
ENVSOLAB	ENVSOLAB Blawk Spike	00.1		8	23.96023.9700.010	23.970	0.010	300		
ENV3069C	ENV3069C Blank Spith Duvicate	1.00		\sim	24.515 24 526 0.011	24.526	110.0	330	5	
ARCISWY		0.45	R	ξ	24.472 24.502 0.030	24.502	0.030	Ltb	5	
APCIST 160	APCHEN 1604 SED-DA-EB-02-072913 1.04	13 1.04		m	24.385 24.3910.00%	24.391	~ KICI. 0	172	57	
APCIEUL	ALCIEUL SED-DA-EB-03-073013 0.97	0.97	97.	m	23.211 23.2130.000	23,213	0.000	102	5/	
Apcillog	7 AP CILO9 SED-DA-EB- 04-073113	1.00	0/0	Э	23.72623.7450.019	23.745	0.019	510	(p)	

EOM Rev 2 EOM Logbook

Client ID Client ID (6 0,00	B&B LABORATORIES EOM LOGBOOK	Smpl Wt.NolFinalInitialFilter & Net Wt.Wt. of 100 µlEOM µg/gEOM µg/g(g/L) Wet Wt.Dry Wt. (%)ExtractFilterSampleEOM Wt. (Met Wt. (mg)(Dry Wt. (Basis)Comments								1000 %RPD= (EOM ₁ - EOM ₂) x 100% (EOM ₁ + EOM ₂) x 0.5	Initial Filter & Wt. of 100 µl The Relative Percent Difference (RPD) between duplicates roust-be < 25%. Wt (mg) Wt (mg) Wt (mg)	23.254 23.254 0.000 Sample:	23.488 33.550 (0.062 Duplicate	, - 10_01v1
	3 LABORATORIES EOM LOGBOOI	Dry Wt. (%) Extract Vol (mL)			r//	N C	212				Filter & Sample Wt (mg)	33.39	33.550 (0.	- 10-01-
	B&									×	W			FOM - MALC

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