New Jersey
ACCUTEST LABORATORIES

05/28/13

Technical Report for

Stantec Consulting Services Inc.

Sunoco, Philadelphia Refinery, Philadelphia, PA

Accutest Job Number: JB33644

Sampling Dates: 04/05/13 - 04/08/13

Report to:

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Total number of pages in report: **525**

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Nancy Cole
Laboratory Director

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Certifications: NJ(12129), NY(10983), CA, CT, DE, FL, IL, IN, KS, KY, LA, MA, MD, MI, MT, NC, OH VAP (CL0056), PA, RI, SC, TN, VA, WV

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Sample Summary

Stantec Consulting Services Inc.

Job No: JB33644

Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB33644-1	04/05/13	13:35	JR	04/08/13	AQ	Ground Water	N-64
JB33644-1F	04/05/13	13:35	JR	04/08/13	AQ	Groundwater Filtered	N-64
JB33644-2	04/05/13	14:25	JR	04/08/13	AQ	Ground Water	N-98
JB33644-2F	04/05/13	14:25	JR	04/08/13	AQ	Groundwater Filtered	N-98
JB33644-3	04/08/13	11:20	JR	04/08/13	AQ	Field Blank Water	FIELD BALNK-FB
JB33644-3F	04/08/13	11:20	JR	04/08/13	AQ	Field Blank Filtered	FIELD BALNK-FB
JB33644-4	04/08/13	13:40	JR	04/08/13	AQ	Trip Blank Water	TRIP BLANK
JB33644-5	04/08/13	09:00	JR	04/08/13	AQ	Ground Water	S-40
JB33644-5F	04/08/13	09:00	JR	04/08/13	AQ	Groundwater Filtered	S-40
JB33644-6	04/08/13	12:26	JR	04/08/13	AQ	Ground Water	A-133
JB33644-6F	04/08/13	12:26	JR	04/08/13	AQ	Groundwater Filtered	A-133
JB33644-7	04/08/13	10:31	JR	04/08/13	AQ	Ground Water	WP-14
JB33644-7F	04/08/13	10:31	JR	04/08/13	AQ	Groundwater Filtered	WP-14

Accutest Laboratories

Sample Summary
(continued)

Stantec Consulting Services Inc.

Job No: JB33644

Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB33644-8	04/08/13	12:01	JR	04/08/13	AQ	Ground Water	A-137
JB33644-8F	04/08/13	12:01	JR	04/08/13	AQ	Groundwater Filtered	A-137
JB33644-9	04/08/13	12:45	JR	04/08/13	AQ	Ground Water	A-140
JB33644-9F	04/08/13	12:45	JR	04/08/13	AQ	Groundwater Filtered	A-140
JB33644-10	04/08/13	13:40	JR	04/08/13	AQ	Ground Water	A-138
JB33644-10F	04/08/13	13:40	JR	04/08/13	AQ	Groundwater Filtered	A-138
JB33644-11	04/08/13	10:00	JR	04/08/13	AQ	Ground Water	C-104
JB33644-11F	04/08/13	10:00	JR	04/08/13	AQ	Groundwater Filtered	C-104
JB33644-12	04/08/13	11:00	JR	04/08/13	AQ	Ground Water	C-127
JB33644-12F	04/08/13	11:00	JR	04/08/13	AQ	Groundwater Filtered	C-127
JB33644-13	04/08/13	12:00	JR	04/08/13	AQ	Ground Water	C-129
JB33644-13F	04/08/13	12:00	JR	04/08/13	AQ	Groundwater Filtered	C-129
JB33644-14	04/08/13	13:35	JR	04/08/13	AQ	Ground Water	B-158

Sample Summary
(continued)

Stantec Consulting Services Inc.

Job No: JB33644

Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB33644-14F	04/08/13	13:35	JR	04/08/13	AQ	Groundwater Filtered	B-158
JB33644-15	04/08/13	10:40	JR	04/08/13	AQ	Ground Water	PGW-MW-8S
JB33644-15F	04/08/13	10:40	JR	04/08/13	AQ	Groundwater Filtered	PGW-MW-8S
JB33644-16	04/08/13	12:40	JR	04/08/13	AQ	Ground Water	B-131
JB33644-16F	04/08/13	12:40	JR	04/08/13	AQ	Groundwater Filtered	B-131

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Stantec Consulting Services Inc.	**Job No**	JB33644
Site:	Sunoco, Philadelphia Refinery, Philadelphia, PA	**Report Date**	5/24/2013 10:07:38 A

On 04/08/2013, 14 Sample(s), 1 Trip Blank(s) and 1 Field Blank(s) were received at Accutest Laboratories at a temperature of 1.5 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB33644 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix: AQ **Batch ID:** VA7306

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB33644-9MS, JB33644-9MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Matrix: AQ **Batch ID:** VA7307

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB33644-7MS, JB33644-7MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Matrix: AQ **Batch ID:** VA7309

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB34206-4MS, JB34206-4MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Matrix: AQ **Batch ID:** VU7923

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB33822-1MS, JB33822-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GCMS By Method SW846 8270D BY SIM

Matrix: AQ **Batch ID:** OP65230

- All samples were extracted within the recommended method holding time.
- Sample(s) JB33644-1MS, JB33644-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- Matrix Spike Recovery(s) for Anthracene, Benzo(a)pyrene, Benzo(g,h,i)perylene, Chrysene, Fluorene, Phenanthrene are outside control limits. Outside of Control Limits.
- Matrix Spike Duplicate Recovery(s) for Anthracene, Benzo(a)pyrene, Benzo(g,h,i)perylene, Chrysene, Fluorene, Phenanthrene, Pyrene are outside control limits. Outside of Control Limits.
- Sample(s) JB33644-10, JB33644-7, JB33644-15 have surrogates outside control limits. Outside of in house control limits.
- JB33644-7 for 2-Fluorobiphenyl: Outside of in house control limits.
- JB33644-10 for Nitrobenzene-d5: Outside of in house control limits.
- JB33644-15 for Nitrobenzene-d5: Refer to re-extract.

Matrix: AQ **Batch ID:** OP65642A

- Sample(s) JB35436-2MS, JB35436-2MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- The following samples were extracted outside of holding time for method SW846 8270D BY SIM: JB33644-10, JB33644-15, JB33644-7 Reextract due to surrogate outside QC limits. Original prep date within holding time.
- Matrix Spike Recovery(s) for Benzo(a)anthracene are outside control limits. Outside control limits due to matrix interference.
- Matrix Spike Duplicate Recovery(s) for Anthracene, Benzo(a)anthracene, Fluorene, Phenanthrene, Pyrene are outside control limits. Probable cause due to matrix interference.
- Sample(s) JB33644-10, JB33644-7, JB33644-15 have surrogates outside control limits. Original prep date within holding time.
- JB33644-7: Reextract due to surrogate outside QC limits. Original prep date within holding time.
- JB33644-15: Reextract due to surrogate outside QC limits. Original prep date within holding time.
- JB33644-15: Reextract due to surrogate outside QC limits. Original prep date within holding time.
- JB33644-10: Reextract due to surrogate outside QC limits. Original prep date within holding time.

Volatiles by GC By Method SW846-8011

Matrix: AQ **Batch ID:** OP65293

- All samples were extracted within the recommended method holding time.
- Sample(s) JB33644-1DUP, JB33644-1MS were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Metals By Method SW846 6010C

Matrix: AQ **Batch ID:** MP71329

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB33820-1MS, JB33820-1MSD, JB33820-1SDL were used as the QC samples for metals.
- RPD(s) for Serial Dilution for Lead are outside control limits for sample MP71329-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

Accutest certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting Accutest's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

Accutest Laboratories is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by Accutest Laboratories indicated via signature on the report cover

Summary of Hits

Job Number: JB33644
Account: Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Collected: 04/05/13 thru 04/08/13

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Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB33644-1	**N-64**					
1,2,4-Trimethylbenzene		0.22 J	2.0	0.19	ug/l	SW846 8260B
Anthracene		0.738	0.10	0.020	ug/l	SW846 8270D BY SIM
Fluorene		3.16	0.10	0.017	ug/l	SW846 8270D BY SIM
Phenanthrene		0.873	0.10	0.021	ug/l	SW846 8270D BY SIM
Pyrene		0.177	0.10	0.015	ug/l	SW846 8270D BY SIM
JB33644-1F	**N-64**					
No hits reported in this sample.						
JB33644-2	**N-98**					
No hits reported in this sample.						
JB33644-2F	**N-98**					
No hits reported in this sample.						
JB33644-3	**FIELD BALNK-FB**					
No hits reported in this sample.						
JB33644-3F	**FIELD BALNK-FB**					
No hits reported in this sample.						
JB33644-4	**TRIP BLANK**					
No hits reported in this sample.						
JB33644-5	**S-40**					
Fluorene		0.135	0.10	0.017	ug/l	SW846 8270D BY SIM
Phenanthrene		0.255	0.10	0.021	ug/l	SW846 8270D BY SIM
JB33644-5F	**S-40**					
No hits reported in this sample.						
JB33644-6	**A-133**					
Benzo(a)anthracene		0.173	0.10	0.012	ug/l	SW846 8270D BY SIM
Benzo(a)pyrene		0.269	0.10	0.012	ug/l	SW846 8270D BY SIM

Summary of Hits

Job Number: JB33644
Account: Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Collected: 04/05/13 thru 04/08/13

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Chrysene		0.574	0.10	0.012	ug/l	SW846 8270D BY SIM
Pyrene		0.959	0.10	0.015	ug/l	SW846 8270D BY SIM
JB33644-6F	**A-133**					
No hits reported in this sample.						
JB33644-7	**WP-14**					
Methyl Tert Butyl Ether		0.26 J	1.0	0.16	ug/l	SW846 8260B
Anthracene [a]		0.249	0.11	0.021	ug/l	SW846 8270D BY SIM
Benzo(a)anthracene [a]		0.586	0.11	0.012	ug/l	SW846 8270D BY SIM
Benzo(a)pyrene [a]		0.463	0.11	0.013	ug/l	SW846 8270D BY SIM
Benzo(b)fluoranthene [a]		0.432	0.11	0.011	ug/l	SW846 8270D BY SIM
Benzo(g,h,i)perylene [a]		0.270	0.11	0.016	ug/l	SW846 8270D BY SIM
Chrysene [a]		0.576	0.11	0.012	ug/l	SW846 8270D BY SIM
Fluorene [a]		0.228	0.11	0.018	ug/l	SW846 8270D BY SIM
Naphthalene [a]		0.228	0.11	0.037	ug/l	SW846 8270D BY SIM
Phenanthrene [a]		0.540	0.11	0.022	ug/l	SW846 8270D BY SIM
Pyrene [a]		1.17	0.11	0.016	ug/l	SW846 8270D BY SIM
JB33644-7F	**WP-14**					
No hits reported in this sample.						
JB33644-8	**A-137**					
Methyl Tert Butyl Ether		0.84 J	1.0	0.16	ug/l	SW846 8260B
JB33644-8F	**A-137**					
No hits reported in this sample.						
JB33644-9	**A-140**					
Xylene (total)		0.73 J	1.0	0.24	ug/l	SW846 8260B
Methyl Tert Butyl Ether		0.24 J	1.0	0.16	ug/l	SW846 8260B
1,2,4-Trimethylbenzene		0.39 J	2.0	0.19	ug/l	SW846 8260B
JB33644-9F	**A-140**					
No hits reported in this sample.						

Summary of Hits

Job Number: JB33644
Account: Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Collected: 04/05/13 thru 04/08/13

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB33644-10	**A-138**					
Benzene		0.76 J	1.0	0.24	ug/l	SW846 8260B
Xylene (total)		0.33 J	1.0	0.24	ug/l	SW846 8260B
Methyl Tert Butyl Ether		1.1	1.0	0.16	ug/l	SW846 8260B
Isopropylbenzene		104	2.0	0.45	ug/l	SW846 8260B
Benzo(a)anthracene [a]		0.151	0.10	0.012	ug/l	SW846 8270D BY SIM
Benzo(b)fluoranthene [a]		0.166	0.10	0.010	ug/l	SW846 8270D BY SIM
Chrysene [a]		0.152	0.10	0.012	ug/l	SW846 8270D BY SIM
Phenanthrene [a]		0.235	0.10	0.021	ug/l	SW846 8270D BY SIM
Pyrene [a]		0.174	0.10	0.015	ug/l	SW846 8270D BY SIM
JB33644-10F	**A-138**					
No hits reported in this sample.						
JB33644-11	**C-104**					
Xylene (total)		0.62 J	1.0	0.24	ug/l	SW846 8260B
Anthracene		0.364	0.10	0.020	ug/l	SW846 8270D BY SIM
Fluorene		2.35	0.10	0.017	ug/l	SW846 8270D BY SIM
Phenanthrene		0.633	0.10	0.021	ug/l	SW846 8270D BY SIM
Pyrene		0.641	0.10	0.015	ug/l	SW846 8270D BY SIM
JB33644-11F	**C-104**					
No hits reported in this sample.						
JB33644-12	**C-127**					
Xylene (total)		0.57 J	1.0	0.24	ug/l	SW846 8260B
Methyl Tert Butyl Ether		7.5	1.0	0.16	ug/l	SW846 8260B
Isopropylbenzene		2.2	2.0	0.45	ug/l	SW846 8260B
Anthracene		0.285	0.10	0.020	ug/l	SW846 8270D BY SIM
Fluorene		1.64	0.10	0.017	ug/l	SW846 8270D BY SIM
Pyrene		0.590	0.10	0.015	ug/l	SW846 8270D BY SIM
JB33644-12F	**C-127**					
No hits reported in this sample.						
JB33644-13	**C-129**					
No hits reported in this sample.						

Summary of Hits

Job Number: JB33644
Account: Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Collected: 04/05/13 thru 04/08/13

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB33644-13F	**C-129**					
No hits reported in this sample.						
JB33644-14	**B-158**					
No hits reported in this sample.						
JB33644-14F	**B-158**					
No hits reported in this sample.						
JB33644-15	**PGW-MW-8S**					
Benzene		2.4	1.0	0.24	ug/l	SW846 8260B
Toluene		1.9	1.0	0.23	ug/l	SW846 8260B
Ethylbenzene		0.78 J	1.0	0.23	ug/l	SW846 8260B
Xylene (total)		8.4	1.0	0.24	ug/l	SW846 8260B
Methyl Tert Butyl Ether		2.1	1.0	0.16	ug/l	SW846 8260B
Isopropylbenzene		35.8	2.0	0.45	ug/l	SW846 8260B
1,2,4-Trimethylbenzene		0.94 J	2.0	0.19	ug/l	SW846 8260B
1,3,5-Trimethylbenzene		1.5 J	2.0	0.36	ug/l	SW846 8260B
Anthracene [a]		3.57	0.10	0.020	ug/l	SW846 8270D BY SIM
Benzo(a)anthracene [a]		4.75	0.10	0.012	ug/l	SW846 8270D BY SIM
Benzo(a)pyrene [a]		3.33	0.10	0.012	ug/l	SW846 8270D BY SIM
Benzo(b)fluoranthene [a]		2.89	0.10	0.010	ug/l	SW846 8270D BY SIM
Benzo(g,h,i)perylene [a]		1.52	0.10	0.016	ug/l	SW846 8270D BY SIM
Chrysene [a]		6.45	1.0	0.012	ug/l	SW846 8270D BY SIM
Fluorene [a]		7.17	1.0	0.017	ug/l	SW846 8270D BY SIM
Phenanthrene [a]		14.1	1.0	0.021	ug/l	SW846 8270D BY SIM
Pyrene [a]		16.8	1.0	0.015	ug/l	SW846 8270D BY SIM
JB33644-15F	**PGW-MW-8S**					
No hits reported in this sample.						
JB33644-16	**B-131**					
Benzene		1.1	1.0	0.24	ug/l	SW846 8260B
Toluene		0.61 J	1.0	0.23	ug/l	SW846 8260B
Ethylbenzene		0.32 J	1.0	0.23	ug/l	SW846 8260B
Xylene (total)		0.62 J	1.0	0.24	ug/l	SW846 8260B
Isopropylbenzene		13.0	2.0	0.45	ug/l	SW846 8260B
Anthracene		0.477	0.10	0.020	ug/l	SW846 8270D BY SIM
Benzo(a)anthracene		0.169	0.10	0.012	ug/l	SW846 8270D BY SIM

Summary of Hits

Job Number: JB33644
Account: Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Collected: 04/05/13 thru 04/08/13

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Chrysene		0.132	0.10	0.012	ug/l	SW846 8270D BY SIM
Fluorene		1.08	0.10	0.017	ug/l	SW846 8270D BY SIM
Phenanthrene		0.430	0.10	0.021	ug/l	SW846 8270D BY SIM
Pyrene		1.13	0.10	0.015	ug/l	SW846 8270D BY SIM

JB33644-16F B-131

No hits reported in this sample.

(a) Reextract due to surrogate outside QC limits. Original prep date within holding time.

New Jersey

ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	N-64		
Lab Sample ID:	JB33644-1	**Date Sampled:**	04/05/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	A193780.D	1	04/18/13	OTR	n/a	n/a	VA7306
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.24	ug/l	
108-88-3	Toluene	ND	1.0	0.23	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.23	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.24	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.16	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.45	ug/l	
95-63-6	1,2,4-Trimethylbenzene	0.22	2.0	0.19	ug/l	J
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.36	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	89%		81-121%
17060-07-0	1,2-Dichloroethane-D4	86%		74-127%
2037-26-5	Toluene-D8	101%		80-122%
460-00-4	4-Bromofluorobenzene	104%		78-116%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	N-64		
Lab Sample ID:	JB33644-1	**Date Sampled:**	04/05/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846 8270D BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M36428.D	1	04/24/13	AD	04/12/13	OP65230	E3M1665
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

BN Special List by SIM

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	0.738	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.10	0.012	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.10	0.012	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.010	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.016	ug/l	
218-01-9	Chrysene	ND	0.10	0.012	ug/l	
86-73-7	Fluorene	3.16	0.10	0.017	ug/l	
91-20-3	Naphthalene	ND	0.10	0.036	ug/l	
85-01-8	Phenanthrene	0.873	0.10	0.021	ug/l	
129-00-0	Pyrene	0.177	0.10	0.015	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	55%		23-131%
321-60-8	2-Fluorobiphenyl	50%		24-120%
1718-51-0	Terphenyl-d14	43%		10-125%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	N-64		
Lab Sample ID:	JB33644-1	**Date Sampled:**	04/05/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846-8011 EPA 504	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	WW117719.D	1	04/16/13	VDT	04/15/13	OP65293	GWW4178
Run #2							

	Initial Volume	Final Volume
Run #1	35 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	0.011	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	104%		38-167%
3017-95-6	2-Bromo-1-chloropropane	99%		38-167%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	N-64		
Lab Sample ID:	JB33644-1F	**Date Sampled:**	04/05/13
Matrix:	AQ - Groundwater Filtered	**Date Received:**	04/08/13
		Percent Solids:	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	1.7 U	3.0	1.7	ug/l	1	04/16/13	04/18/13	GT	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA30983
(2) Prep QC Batch: MP71329

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	N-98		
Lab Sample ID:	JB33644-2	**Date Sampled:**	04/05/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	A193781.D	1	04/18/13	OTR	n/a	n/a	VA7306
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.24	ug/l	
108-88-3	Toluene	ND	1.0	0.23	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.23	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.24	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.16	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.45	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.19	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.36	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	88%		81-121%
17060-07-0	1,2-Dichloroethane-D4	86%		74-127%
2037-26-5	Toluene-D8	102%		80-122%
460-00-4	4-Bromofluorobenzene	107%		78-116%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	N-98		
Lab Sample ID:	JB33644-2	**Date Sampled:**	04/05/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846 8270D BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M36429.D	1	04/24/13	AD	04/12/13	OP65230	E3M1665
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

BN Special List by SIM

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.10	0.012	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.10	0.012	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.010	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.016	ug/l	
218-01-9	Chrysene	ND	0.10	0.012	ug/l	
86-73-7	Fluorene	ND	0.10	0.017	ug/l	
91-20-3	Naphthalene	ND	0.10	0.036	ug/l	
85-01-8	Phenanthrene	ND	0.10	0.021	ug/l	
129-00-0	Pyrene	ND	0.10	0.015	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	49%		23-131%
321-60-8	2-Fluorobiphenyl	41%		24-120%
1718-51-0	Terphenyl-d14	39%		10-125%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	N-98		
Lab Sample ID:	JB33644-2	**Date Sampled:**	04/05/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846-8011 EPA 504	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	WW117720.D	1	04/16/13	VDT	04/15/13	OP65293	GWW4178
Run #2							

	Initial Volume	Final Volume
Run #1	35 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	0.011	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	102%		38-167%
3017-95-6	2-Bromo-1-chloropropane	95%		38-167%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	N-98		
Lab Sample ID:	JB33644-2F	**Date Sampled:**	04/05/13
Matrix:	AQ - Groundwater Filtered	**Date Received:**	04/08/13
		Percent Solids:	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	1.7 U	3.0	1.7	ug/l	1	04/16/13	04/18/13	GT	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA30983
(2) Prep QC Batch: MP71329

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	FIELD BALNK-FB		
Lab Sample ID:	JB33644-3	**Date Sampled:**	04/08/13
Matrix:	AQ - Field Blank Water	**Date Received:**	04/08/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	A193850.D	1	04/20/13	OTR	n/a	n/a	VA7309
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.24	ug/l	
108-88-3	Toluene	ND	1.0	0.23	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.23	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.24	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.16	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.45	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.19	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.36	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%		81-121%
17060-07-0	1,2-Dichloroethane-D4	93%		74-127%
2037-26-5	Toluene-D8	102%		80-122%
460-00-4	4-Bromofluorobenzene	111%		78-116%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	FIELD BALNK-FB		
Lab Sample ID:	JB33644-3	**Date Sampled:**	04/08/13
Matrix:	AQ - Field Blank Water	**Date Received:**	04/08/13
Method:	SW846 8270D BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M36430.D	1	04/24/13	AD	04/12/13	OP65230	E3M1665
Run #2							

	Initial Volume	Final Volume
Run #1	930 ml	1.0 ml
Run #2		

BN Special List by SIM

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	0.11	0.022	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.11	0.012	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.11	0.013	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.11	0.011	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.11	0.017	ug/l	
218-01-9	Chrysene	ND	0.11	0.013	ug/l	
86-73-7	Fluorene	ND	0.11	0.018	ug/l	
91-20-3	Naphthalene	ND	0.11	0.038	ug/l	
85-01-8	Phenanthrene	ND	0.11	0.022	ug/l	
129-00-0	Pyrene	ND	0.11	0.016	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	61%		23-131%
321-60-8	2-Fluorobiphenyl	49%		24-120%
1718-51-0	Terphenyl-d14	50%		10-125%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	FIELD BALNK-FB		
Lab Sample ID:	JB33644-3	**Date Sampled:**	04/08/13
Matrix:	AQ - Field Blank Water	**Date Received:**	04/08/13
Method:	SW846-8011 EPA 504	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	WW117721.D	1	04/16/13	VDT	04/15/13	OP65293	GWW4178
Run #2							

	Initial Volume	Final Volume
Run #1	35 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	0.011	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	102%		38-167%
3017-95-6	2-Bromo-1-chloropropane	99%		38-167%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	FIELD BALNK-FB		
Lab Sample ID:	JB33644-3F	**Date Sampled:**	04/08/13
Matrix:	AQ - Field Blank Filtered	**Date Received:**	04/08/13
		Percent Solids:	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	1.7 U	3.0	1.7	ug/l	1	04/16/13	04/18/13	GT	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA30983
(2) Prep QC Batch: MP71329

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	JB33644-4	**Date Sampled:**	04/08/13
Matrix:	AQ - Trip Blank Water	**Date Received:**	04/08/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	U171098.D	1	04/22/13	MS	n/a	n/a	VU7923
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.24	ug/l	
108-88-3	Toluene	ND	1.0	0.23	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.23	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.24	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.16	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.45	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.19	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.36	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%		81-121%
17060-07-0	1,2-Dichloroethane-D4	90%		74-127%
2037-26-5	Toluene-D8	105%		80-122%
460-00-4	4-Bromofluorobenzene	103%		78-116%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	JB33644-4	**Date Sampled:**	04/08/13
Matrix:	AQ - Trip Blank Water	**Date Received:**	04/08/13
Method:	SW846-8011 EPA 504	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	WW117722.D	1	04/16/13	VDT	04/15/13	OP65293	GWW4178
Run #2							

	Initial Volume	Final Volume
Run #1	35 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	0.011	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	101%		38-167%
3017-95-6	2-Bromo-1-chloropropane	95%		38-167%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	S-40		
Lab Sample ID:	JB33644-5	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	A193797.D	1	04/19/13	OTR	n/a	n/a	VA7306
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.24	ug/l	
108-88-3	Toluene	ND	1.0	0.23	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.23	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.24	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.16	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.45	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.19	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.36	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	88%		81-121%
17060-07-0	1,2-Dichloroethane-D4	85%		74-127%
2037-26-5	Toluene-D8	99%		80-122%
460-00-4	4-Bromofluorobenzene	104%		78-116%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	S-40		
Lab Sample ID:	JB33644-5	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846 8270D BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M36431.D	1	04/24/13	AD	04/12/13	OP65230	E3M1665
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

BN Special List by SIM

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.10	0.012	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.10	0.012	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.010	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.016	ug/l	
218-01-9	Chrysene	ND	0.10	0.012	ug/l	
86-73-7	Fluorene	0.135	0.10	0.017	ug/l	
91-20-3	Naphthalene	ND	0.10	0.036	ug/l	
85-01-8	Phenanthrene	0.255	0.10	0.021	ug/l	
129-00-0	Pyrene	ND	0.10	0.015	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	50%		23-131%
321-60-8	2-Fluorobiphenyl	38%		24-120%
1718-51-0	Terphenyl-d14	43%		10-125%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	S-40		
Lab Sample ID:	JB33644-5	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846-8011 EPA 504	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	WW117723.D	1	04/16/13	VDT	04/15/13	OP65293	GWW4178
Run #2							

	Initial Volume	Final Volume
Run #1	35 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	0.011	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	101%		38-167%
3017-95-6	2-Bromo-1-chloropropane	96%		38-167%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-40		
Lab Sample ID:	JB33644-5F	**Date Sampled:**	04/08/13
Matrix:	AQ - Groundwater Filtered	**Date Received:**	04/08/13
		Percent Solids:	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	1.7 U	3.0	1.7	ug/l	1	04/16/13	04/18/13	GT	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA30983
(2) Prep QC Batch: MP71329

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	A-133		
Lab Sample ID:	JB33644-6	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	A193798.D	1	04/19/13	OTR	n/a	n/a	VA7306
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.24	ug/l	
108-88-3	Toluene	ND	1.0	0.23	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.23	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.24	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.16	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.45	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.19	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.36	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	90%		81-121%
17060-07-0	1,2-Dichloroethane-D4	88%		74-127%
2037-26-5	Toluene-D8	101%		80-122%
460-00-4	4-Bromofluorobenzene	105%		78-116%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	A-133		
Lab Sample ID:	JB33644-6	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846 8270D BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M36432.D	1	04/24/13	AD	04/12/13	OP65230	E3M1665
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

BN Special List by SIM

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	0.173	0.10	0.012	ug/l	
50-32-8	Benzo(a)pyrene	0.269	0.10	0.012	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.010	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.016	ug/l	
218-01-9	Chrysene	0.574	0.10	0.012	ug/l	
86-73-7	Fluorene	ND	0.10	0.017	ug/l	
91-20-3	Naphthalene	ND	0.10	0.036	ug/l	
85-01-8	Phenanthrene	ND	0.10	0.021	ug/l	
129-00-0	Pyrene	0.959	0.10	0.015	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	57%		23-131%
321-60-8	2-Fluorobiphenyl	46%		24-120%
1718-51-0	Terphenyl-d14	43%		10-125%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	A-133		
Lab Sample ID:	JB33644-6	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846-8011 EPA 504	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	WW117724.D	1	04/16/13	VDT	04/15/13	OP65293	GWW4178
Run #2							

	Initial Volume	Final Volume
Run #1	35 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	0.011	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	99%		38-167%
3017-95-6	2-Bromo-1-chloropropane	95%		38-167%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	A-133		
Lab Sample ID:	JB33644-6F	**Date Sampled:**	04/08/13
Matrix:	AQ - Groundwater Filtered	**Date Received:**	04/08/13
		Percent Solids:	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	1.7 U	3.0	1.7	ug/l	1	04/16/13	04/18/13	GT	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA30983
(2) Prep QC Batch: MP71329

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	WP-14		
Lab Sample ID:	JB33644-7	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	A193816.D	1	04/19/13	OTR	n/a	n/a	VA7307
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.24	ug/l	
108-88-3	Toluene	ND	1.0	0.23	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.23	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.24	ug/l	
1634-04-4	Methyl Tert Butyl Ether	0.26	1.0	0.16	ug/l	J
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.45	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.19	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.36	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%		81-121%
17060-07-0	1,2-Dichloroethane-D4	91%		74-127%
2037-26-5	Toluene-D8	101%		80-122%
460-00-4	4-Bromofluorobenzene	110%		78-116%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	WP-14		
Lab Sample ID:	JB33644-7	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846 8270D BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	3M36842.D	1	05/07/13	NAP	04/29/13	OP65642A	E3M1683
Run #2	3M36433.D	1	04/24/13	AD	04/12/13	OP65230	E3M1665

	Initial Volume	Final Volume
Run #1	950 ml	1.0 ml
Run #2	960 ml	1.0 ml

BN Special List by SIM

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	0.249	0.11	0.021	ug/l	
56-55-3	Benzo(a)anthracene	0.586	0.11	0.012	ug/l	
50-32-8	Benzo(a)pyrene	0.463	0.11	0.013	ug/l	
205-99-2	Benzo(b)fluoranthene	0.432	0.11	0.011	ug/l	
191-24-2	Benzo(g,h,i)perylene	0.270	0.11	0.016	ug/l	
218-01-9	Chrysene	0.576	0.11	0.012	ug/l	
86-73-7	Fluorene	0.228	0.11	0.018	ug/l	
91-20-3	Naphthalene	0.228	0.11	0.037	ug/l	
85-01-8	Phenanthrene	0.540	0.11	0.022	ug/l	
129-00-0	Pyrene	1.17	0.11	0.016	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	37%	30%	23-131%
321-60-8	2-Fluorobiphenyl	33%	23% [b]	24-120%
1718-51-0	Terphenyl-d14	46%	19%	10-125%

(a) Reextract due to surrogate outside QC limits. Original prep date within holding time.
(b) Outside of in house control limits.

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	WP-14		
Lab Sample ID:	JB33644-7	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846-8011 EPA 504	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	WW117725.D	1	04/16/13	VDT	04/15/13	OP65293	GWW4178
Run #2							

	Initial Volume	Final Volume
Run #1	35 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	0.011	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	100%		38-167%
3017-95-6	2-Bromo-1-chloropropane	95%		38-167%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WP-14		
Lab Sample ID:	JB33644-7F	**Date Sampled:**	04/08/13
Matrix:	AQ - Groundwater Filtered	**Date Received:**	04/08/13
		Percent Solids:	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	1.7 U	3.0	1.7	ug/l	1	04/16/13	04/18/13	GT	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA30993
(2) Prep QC Batch: MP71329

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	A-137		
Lab Sample ID:	JB33644-8	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	A193783.D	1	04/18/13	OTR	n/a	n/a	VA7306
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.24	ug/l	
108-88-3	Toluene	ND	1.0	0.23	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.23	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.24	ug/l	
1634-04-4	Methyl Tert Butyl Ether	0.84	1.0	0.16	ug/l	J
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.45	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.19	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.36	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	91%		81-121%
17060-07-0	1,2-Dichloroethane-D4	89%		74-127%
2037-26-5	Toluene-D8	100%		80-122%
460-00-4	4-Bromofluorobenzene	106%		78-116%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	A-137		
Lab Sample ID:	JB33644-8	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846 8270D BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M36434.D	1	04/24/13	AD	04/12/13	OP65230	E3M1665
Run #2							

	Initial Volume	Final Volume
Run #1	940 ml	1.0 ml
Run #2		

BN Special List by SIM

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	0.11	0.022	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.11	0.012	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.11	0.013	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.11	0.011	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.11	0.017	ug/l	
218-01-9	Chrysene	ND	0.11	0.013	ug/l	
86-73-7	Fluorene	ND	0.11	0.018	ug/l	
91-20-3	Naphthalene	ND	0.11	0.038	ug/l	
85-01-8	Phenanthrene	ND	0.11	0.022	ug/l	
129-00-0	Pyrene	ND	0.11	0.016	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	56%		23-131%
321-60-8	2-Fluorobiphenyl	45%		24-120%
1718-51-0	Terphenyl-d14	47%		10-125%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	A-137		
Lab Sample ID:	JB33644-8	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846-8011 EPA 504	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	WW117728.D	1	04/16/13	VDT	04/15/13	OP65293	GWW4178
Run #2							

	Initial Volume	Final Volume
Run #1	35 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	0.011	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	102%		38-167%
3017-95-6	2-Bromo-1-chloropropane	94%		38-167%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	A-137		
Lab Sample ID:	JB33644-8F	**Date Sampled:**	04/08/13
Matrix:	AQ - Groundwater Filtered	**Date Received:**	04/08/13
		Percent Solids:	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	1.7 U	3.0	1.7	ug/l	1	04/16/13	04/18/13	GT	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA30993
(2) Prep QC Batch: MP71329

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	A-140		
Lab Sample ID:	JB33644-9	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	A193782.D	1	04/18/13	OTR	n/a	n/a	VA7306
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.24	ug/l	
108-88-3	Toluene	ND	1.0	0.23	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.23	ug/l	
1330-20-7	Xylene (total)	0.73	1.0	0.24	ug/l	J
1634-04-4	Methyl Tert Butyl Ether	0.24	1.0	0.16	ug/l	J
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.45	ug/l	
95-63-6	1,2,4-Trimethylbenzene	0.39	2.0	0.19	ug/l	J
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.36	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	89%		81-121%
17060-07-0	1,2-Dichloroethane-D4	86%		74-127%
2037-26-5	Toluene-D8	100%		80-122%
460-00-4	4-Bromofluorobenzene	110%		78-116%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	A-140		
Lab Sample ID:	JB33644-9	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846 8270D BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M36435.D	1	04/24/13	AD	04/12/13	OP65230	E3M1665
Run #2							

	Initial Volume	Final Volume
Run #1	950 ml	1.0 ml
Run #2		

BN Special List by SIM

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	0.11	0.021	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.11	0.012	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.11	0.013	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.11	0.011	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.11	0.016	ug/l	
218-01-9	Chrysene	ND	0.11	0.012	ug/l	
86-73-7	Fluorene	ND	0.11	0.018	ug/l	
91-20-3	Naphthalene	ND	0.11	0.037	ug/l	
85-01-8	Phenanthrene	ND	0.11	0.022	ug/l	
129-00-0	Pyrene	ND	0.11	0.016	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	47%		23-131%
321-60-8	2-Fluorobiphenyl	38%		24-120%
1718-51-0	Terphenyl-d14	38%		10-125%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	A-140		
Lab Sample ID:	JB33644-9	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846-8011 EPA 504	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	WW117729.D	1	04/16/13	VDT	04/15/13	OP65293	GWW4178
Run #2							

	Initial Volume	Final Volume
Run #1	35 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	0.011	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	106%		38-167%
3017-95-6	2-Bromo-1-chloropropane	98%		38-167%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	A-140		
Lab Sample ID:	JB33644-9F	**Date Sampled:**	04/08/13
Matrix:	AQ - Groundwater Filtered	**Date Received:**	04/08/13
		Percent Solids:	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	1.7 U	3.0	1.7	ug/l	1	04/16/13	04/18/13	GT	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA30993
(2) Prep QC Batch: MP71329

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	A-138		
Lab Sample ID:	JB33644-10	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	A193784.D	1	04/18/13	OTR	n/a	n/a	VA7306
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.76	1.0	0.24	ug/l	J
108-88-3	Toluene	ND	1.0	0.23	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.23	ug/l	
1330-20-7	Xylene (total)	0.33	1.0	0.24	ug/l	J
1634-04-4	Methyl Tert Butyl Ether	1.1	1.0	0.16	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
98-82-8	Isopropylbenzene	104	2.0	0.45	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.19	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.36	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	91%		81-121%
17060-07-0	1,2-Dichloroethane-D4	89%		74-127%
2037-26-5	Toluene-D8	101%		80-122%
460-00-4	4-Bromofluorobenzene	105%		78-116%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	A-138		
Lab Sample ID:	JB33644-10	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846 8270D BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	3M36844.D	1	05/07/13	NAP	04/29/13	OP65642A	E3M1683
Run #2	3M36436.D	1	04/24/13	AD	04/12/13	OP65230	E3M1665

	Initial Volume	Final Volume
Run #1	975 ml	1.0 ml
Run #2	1000 ml	1.0 ml

BN Special List by SIM

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	0.10	0.021	ug/l	
56-55-3	Benzo(a)anthracene	0.151	0.10	0.012	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.10	0.013	ug/l	
205-99-2	Benzo(b)fluoranthene	0.166	0.10	0.010	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.016	ug/l	
218-01-9	Chrysene	0.152	0.10	0.012	ug/l	
86-73-7	Fluorene	ND	0.10	0.017	ug/l	
91-20-3	Naphthalene	ND	0.10	0.036	ug/l	
85-01-8	Phenanthrene	0.235	0.10	0.021	ug/l	
129-00-0	Pyrene	0.174	0.10	0.015	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	60%	22% [b]	23-131%
321-60-8	2-Fluorobiphenyl	52%	37%	24-120%
1718-51-0	Terphenyl-d14	62%	36%	10-125%

(a) Reextract due to surrogate outside QC limits. Original prep date within holding time.
(b) Outside of in house control limits.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	A-138		
Lab Sample ID:	JB33644-10	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846-8011 EPA 504	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	WW117730.D	1	04/16/13	VDT	04/15/13	OP65293	GWW4178
Run #2							

	Initial Volume	Final Volume
Run #1	35 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	0.011	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	104%		38-167%
3017-95-6	2-Bromo-1-chloropropane	99%		38-167%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	A-138		
Lab Sample ID:	JB33644-10F	**Date Sampled:**	04/08/13
Matrix:	AQ - Groundwater Filtered	**Date Received:**	04/08/13
		Percent Solids:	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	1.7 U	3.0	1.7	ug/l	1	04/16/13	04/18/13	GT	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA30993
(2) Prep QC Batch: MP71329

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	C-104		
Lab Sample ID:	JB33644-11	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	A193791.D	1	04/19/13	OTR	n/a	n/a	VA7306
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.24	ug/l	
108-88-3	Toluene	ND	1.0	0.23	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.23	ug/l	
1330-20-7	Xylene (total)	0.62	1.0	0.24	ug/l	J
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.16	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.45	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.19	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.36	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	89%		81-121%
17060-07-0	1,2-Dichloroethane-D4	87%		74-127%
2037-26-5	Toluene-D8	100%		80-122%
460-00-4	4-Bromofluorobenzene	106%		78-116%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	C-104		
Lab Sample ID:	JB33644-11	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846 8270D BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M36459.D	1	04/25/13	AD	04/12/13	OP65230	E3M1666
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

BN Special List by SIM

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	0.364	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.10	0.012	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.10	0.012	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.010	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.016	ug/l	
218-01-9	Chrysene	ND	0.10	0.012	ug/l	
86-73-7	Fluorene	2.35	0.10	0.017	ug/l	
91-20-3	Naphthalene	ND	0.10	0.036	ug/l	
85-01-8	Phenanthrene	0.633	0.10	0.021	ug/l	
129-00-0	Pyrene	0.641	0.10	0.015	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	38%		23-131%
321-60-8	2-Fluorobiphenyl	30%		24-120%
1718-51-0	Terphenyl-d14	29%		10-125%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	C-104		
Lab Sample ID:	JB33644-11	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846-8011 EPA 504	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	WW117731.D	1	04/16/13	VDT	04/15/13	OP65293	GWW4178
Run #2							

	Initial Volume	Final Volume
Run #1	35 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	0.011	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	104%		38-167%
3017-95-6	2-Bromo-1-chloropropane	98%		38-167%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	C-104		
Lab Sample ID:	JB33644-11F	**Date Sampled:**	04/08/13
Matrix:	AQ - Groundwater Filtered	**Date Received:**	04/08/13
		Percent Solids:	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	1.7 U	3.0	1.7	ug/l	1	04/16/13	04/18/13	GT	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA30993
(2) Prep QC Batch: MP71329

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	C-127		
Lab Sample ID:	JB33644-12	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	A193792.D	1	04/19/13	OTR	n/a	n/a	VA7306
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.24	ug/l	
108-88-3	Toluene	ND	1.0	0.23	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.23	ug/l	
1330-20-7	Xylene (total)	0.57	1.0	0.24	ug/l	J
1634-04-4	Methyl Tert Butyl Ether	7.5	1.0	0.16	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
98-82-8	Isopropylbenzene	2.2	2.0	0.45	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.19	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.36	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	89%		81-121%
17060-07-0	1,2-Dichloroethane-D4	87%		74-127%
2037-26-5	Toluene-D8	101%		80-122%
460-00-4	4-Bromofluorobenzene	104%		78-116%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	C-127		
Lab Sample ID:	JB33644-12	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846 8270D BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M36460.D	1	04/25/13	AD	04/12/13	OP65230	E3M1666
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

BN Special List by SIM

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	0.285	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.10	0.012	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.10	0.012	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.010	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.016	ug/l	
218-01-9	Chrysene	ND	0.10	0.012	ug/l	
86-73-7	Fluorene	1.64	0.10	0.017	ug/l	
91-20-3	Naphthalene	ND	0.10	0.036	ug/l	
85-01-8	Phenanthrene	ND	0.10	0.021	ug/l	
129-00-0	Pyrene	0.590	0.10	0.015	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	47%		23-131%
321-60-8	2-Fluorobiphenyl	38%		24-120%
1718-51-0	Terphenyl-d14	37%		10-125%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	C-127		
Lab Sample ID:	JB33644-12	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846-8011 EPA 504	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	WW117732.D	1	04/16/13	VDT	04/15/13	OP65293	GWW4178
Run #2							

	Initial Volume	Final Volume
Run #1	35 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	0.011	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	103%		38-167%
3017-95-6	2-Bromo-1-chloropropane	98%		38-167%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	C-127		
Lab Sample ID:	JB33644-12F	**Date Sampled:**	04/08/13
Matrix:	AQ - Groundwater Filtered	**Date Received:**	04/08/13
		Percent Solids:	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	1.7 U	3.0	1.7	ug/l	1	04/16/13	04/18/13	GT	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA30993
(2) Prep QC Batch: MP71329

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	C-129		
Lab Sample ID:	JB33644-13	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	A193793.D	1	04/19/13	OTR	n/a	n/a	VA7306
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.24	ug/l	
108-88-3	Toluene	ND	1.0	0.23	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.23	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.24	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.16	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.45	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.19	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.36	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	90%		81-121%
17060-07-0	1,2-Dichloroethane-D4	88%		74-127%
2037-26-5	Toluene-D8	101%		80-122%
460-00-4	4-Bromofluorobenzene	109%		78-116%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	C-129		
Lab Sample ID:	JB33644-13	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846 8270D BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M36461.D	1	04/25/13	AD	04/12/13	OP65230	E3M1666
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

BN Special List by SIM

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.10	0.012	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.10	0.012	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.010	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.016	ug/l	
218-01-9	Chrysene	ND	0.10	0.012	ug/l	
86-73-7	Fluorene	ND	0.10	0.017	ug/l	
91-20-3	Naphthalene	ND	0.10	0.036	ug/l	
85-01-8	Phenanthrene	ND	0.10	0.021	ug/l	
129-00-0	Pyrene	ND	0.10	0.015	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	57%		23-131%
321-60-8	2-Fluorobiphenyl	44%		24-120%
1718-51-0	Terphenyl-d14	41%		10-125%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	C-129		
Lab Sample ID:	JB33644-13	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846-8011 EPA 504	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	WW117733.D	1	04/16/13	VDT	04/15/13	OP65293	GWW4178
Run #2							

	Initial Volume	Final Volume
Run #1	35 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	0.011	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	103%		38-167%
3017-95-6	2-Bromo-1-chloropropane	99%		38-167%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	C-129		
Lab Sample ID:	JB33644-13F	**Date Sampled:**	04/08/13
Matrix:	AQ - Groundwater Filtered	**Date Received:**	04/08/13
		Percent Solids:	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	1.7 U	3.0	1.7	ug/l	1	04/16/13	04/18/13	GT	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA30993
(2) Prep QC Batch: MP71329

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	B-158		
Lab Sample ID:	JB33644-14	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	A193794.D	1	04/19/13	OTR	n/a	n/a	VA7306
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.24	ug/l	
108-88-3	Toluene	ND	1.0	0.23	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.23	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.24	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.16	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.45	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.19	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.36	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	91%		81-121%
17060-07-0	1,2-Dichloroethane-D4	90%		74-127%
2037-26-5	Toluene-D8	101%		80-122%
460-00-4	4-Bromofluorobenzene	108%		78-116%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	B-158		
Lab Sample ID:	JB33644-14	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846 8270D BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M36462.D	1	04/25/13	AD	04/12/13	OP65230	E3M1666
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

BN Special List by SIM

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.10	0.012	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.10	0.012	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.010	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.016	ug/l	
218-01-9	Chrysene	ND	0.10	0.012	ug/l	
86-73-7	Fluorene	ND	0.10	0.017	ug/l	
91-20-3	Naphthalene	ND	0.10	0.036	ug/l	
85-01-8	Phenanthrene	ND	0.10	0.021	ug/l	
129-00-0	Pyrene	ND	0.10	0.015	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	55%		23-131%
321-60-8	2-Fluorobiphenyl	41%		24-120%
1718-51-0	Terphenyl-d14	35%		10-125%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	B-158		
Lab Sample ID:	JB33644-14	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846-8011 EPA 504	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	WW117734.D	1	04/16/13	VDT	04/15/13	OP65293	GWW4178
Run #2							

	Initial Volume	Final Volume
Run #1	35 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	0.011	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	101%		38-167%
3017-95-6	2-Bromo-1-chloropropane	98%		38-167%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	B-158		
Lab Sample ID:	JB33644-14F	**Date Sampled:**	04/08/13
Matrix:	AQ - Groundwater Filtered	**Date Received:**	04/08/13
		Percent Solids:	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	1.7 U	3.0	1.7	ug/l	1	04/16/13	04/18/13	GT	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA30993
(2) Prep QC Batch: MP71329

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	PGW-MW-8S		
Lab Sample ID:	JB33644-15	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	A193795.D	1	04/19/13	OTR	n/a	n/a	VA7306
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	2.4	1.0	0.24	ug/l	
108-88-3	Toluene	1.9	1.0	0.23	ug/l	
100-41-4	Ethylbenzene	0.78	1.0	0.23	ug/l	J
1330-20-7	Xylene (total)	8.4	1.0	0.24	ug/l	
1634-04-4	Methyl Tert Butyl Ether	2.1	1.0	0.16	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
98-82-8	Isopropylbenzene	35.8	2.0	0.45	ug/l	
95-63-6	1,2,4-Trimethylbenzene	0.94	2.0	0.19	ug/l	J
108-67-8	1,3,5-Trimethylbenzene	1.5	2.0	0.36	ug/l	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	89%		81-121%
17060-07-0	1,2-Dichloroethane-D4	98%		74-127%
2037-26-5	Toluene-D8	101%		80-122%
460-00-4	4-Bromofluorobenzene	100%		78-116%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	PGW-MW-8S		
Lab Sample ID:	JB33644-15	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846 8270D BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	3M36843.D	1	05/07/13	NAP	04/29/13	OP65642A	E3M1683
Run #2 [a]	R99365.D	1	05/17/13	ALS	04/29/13	OP65642A	ER3953
Run #3	3M36469.D	1	04/25/13	NAP	04/12/13	OP65230	E3M1667

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2	1000 ml	1.0 ml
Run #3	1000 ml	1.0 ml

BN Special List by SIM

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	3.57	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	4.75	0.10	0.012	ug/l	
50-32-8	Benzo(a)pyrene	3.33	0.10	0.012	ug/l	
205-99-2	Benzo(b)fluoranthene	2.89	0.10	0.010	ug/l	
191-24-2	Benzo(g,h,i)perylene	1.52	0.10	0.016	ug/l	
218-01-9	Chrysene	6.45 [b]	1.0	0.012	ug/l	
86-73-7	Fluorene	7.17 [b]	1.0	0.017	ug/l	
91-20-3	Naphthalene	ND	0.10	0.036	ug/l	
85-01-8	Phenanthrene	14.1 [b]	1.0	0.021	ug/l	
129-00-0	Pyrene	16.8 [b]	1.0	0.015	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
4165-60-0	Nitrobenzene-d5	54%	75%	9% [c]	23-131%
321-60-8	2-Fluorobiphenyl	50%	69%	32%	24-120%
1718-51-0	Terphenyl-d14	61%	79%	30%	10-125%

(a) Reextract due to surrogate outside QC limits. Original prep date within holding time.
(b) Result is from Run# 2
(c) Refer to re-extract.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	PGW-MW-8S		
Lab Sample ID:	JB33644-15	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846-8011 EPA 504	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	WW117735.D	1	04/16/13	VDT	04/15/13	OP65293	GWW4178
Run #2							

	Initial Volume	Final Volume
Run #1	35 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	0.011	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	97%		38-167%
3017-95-6	2-Bromo-1-chloropropane	92%		38-167%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PGW-MW-8S		
Lab Sample ID:	JB33644-15F	**Date Sampled:**	04/08/13
Matrix:	AQ - Groundwater Filtered	**Date Received:**	04/08/13
		Percent Solids:	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	1.7 U	3.0	1.7	ug/l	1	04/16/13	04/18/13	GT	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA30993
(2) Prep QC Batch: MP71329

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	B-131		
Lab Sample ID:	JB33644-16	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	A193796.D	1	04/19/13	OTR	n/a	n/a	VA7306
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	1.1	1.0	0.24	ug/l	
108-88-3	Toluene	0.61	1.0	0.23	ug/l	J
100-41-4	Ethylbenzene	0.32	1.0	0.23	ug/l	J
1330-20-7	Xylene (total)	0.62	1.0	0.24	ug/l	J
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.16	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
98-82-8	Isopropylbenzene	13.0	2.0	0.45	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.19	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.36	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	89%		81-121%
17060-07-0	1,2-Dichloroethane-D4	90%		74-127%
2037-26-5	Toluene-D8	100%		80-122%
460-00-4	4-Bromofluorobenzene	101%		78-116%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	B-131		
Lab Sample ID:	JB33644-16	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846 8270D BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M36470.D	1	04/25/13	NAP	04/12/13	OP65230	E3M1667
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

BN Special List by SIM

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	0.477	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	0.169	0.10	0.012	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.10	0.012	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.010	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.016	ug/l	
218-01-9	Chrysene	0.132	0.10	0.012	ug/l	
86-73-7	Fluorene	1.08	0.10	0.017	ug/l	
91-20-3	Naphthalene	ND	0.10	0.036	ug/l	
85-01-8	Phenanthrene	0.430	0.10	0.021	ug/l	
129-00-0	Pyrene	1.13	0.10	0.015	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	44%		23-131%
321-60-8	2-Fluorobiphenyl	33%		24-120%
1718-51-0	Terphenyl-d14	35%		10-125%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	B-131		
Lab Sample ID:	JB33644-16	**Date Sampled:**	04/08/13
Matrix:	AQ - Ground Water	**Date Received:**	04/08/13
Method:	SW846-8011 EPA 504	**Percent Solids:**	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	WW117736.D	1	04/16/13	VDT	04/15/13	OP65293	GWW4178
Run #2							

	Initial Volume	Final Volume
Run #1	35 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	0.011	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	100%		38-167%
3017-95-6	2-Bromo-1-chloropropane	98%		38-167%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	B-131		
Lab Sample ID:	JB33644-16F	**Date Sampled:**	04/08/13
Matrix:	AQ - Groundwater Filtered	**Date Received:**	04/08/13
		Percent Solids:	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	1.7 U	3.0	1.7	ug/l	1	04/16/13	04/18/13	GT	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA30993
(2) Prep QC Batch: MP71329

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

New Jersey

ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

2235 Route 130, Dayton, NJ 08810
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www.accutest.com

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FED-EX Tracking #:
Bottle Order Control #:
Accutest Quote #:
Accutest Job #: JB33644

Client / Reporting Information

Company Name: Stantec
Street Address: 1060 Andrew Dr Suite 140
City State Zip: West Chester PA 19380
Project Contact: Jennifer Manges
E-mail: Jennifer.manges@Stantec.com
Phone #: 610-840-2524
Fax #:
Sampler(s) Name(s): CC, JR, SA
Phone #: 856 952 4578

Project Information

Project Name: PES Philadelphia Refinery
Street:
City State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (if different from Report to)

Company Name:
Street Address:
City State Zip:
Attention:

Requested Analysis (see TEST CODE sheet)

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Lead dissolved - LAB Filter	1,2 Dichlorotoluene, 1,3,4 Trimethylbenzene, 1,3,5 Trimethylbenzene, Benzene, cumene, Ethylbenzene, Ethylene Dibromide, MTBE, Toluene, Xylenes (total)	Anthracene	Benzo(g,h,i) Perylene, Benzo(a) pyrene	Benzo(b) Fluoranthene, chrysene, Fluorene, Naphthalene	Phenanthrene, Pyrene					LAB USE ONLY
1F	N-64		4/5/13	1335	JR	GW	8	5				3				X	X	X	X	X	X	X				
2F	N-98		4/5/13	1425	JR	GW	8	5				3				X	X	X	X	X	X	X				
3F	Field Blank - FB		4-8-13	1120	CC	FB	7	4				3				X	X	X	X	X	X	X				E28
4	Trip Blank		4-8-13			TB	2	2									X	X								C10
5F	S-40		4-8-13	0900	CC	GW	8	5				3				X	X	X	X	X	X	X				2135
6F	A-133		4-8-13	12:26	CC	GW	8	5				3				X	X	X	X	X	X	X				2136
7F	WP-14		4-8-13	10:31	CC	GW	8	5				3				X	X	X	X	X	X	X				
8F	A-137		4-8-13	1201	CC	GW	8	5				3				X	X	X	X	X	X	X				
9F	A-140		4-8-13	1245	CC	GW	8	5				3				X	X	X	X	X	X	X				
10F	A-138		4-8-13	1340	CC	GW	8	5				3				X	X	X	X	X	X	X				
11F	C-104		4-8-13	1000	JR	GW	8	5				3				X	X	X	X	X	X	X				
12F	C-127		4-8-13	1100	JR	GW	8	5				3				X	X	X	X	X	X	X				

Turnaround Time (Business days)

- [x] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [ ] other _____

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format _____
- [x] Other REDT2 Deliverables

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

** Lead Dissolved is LAB Filter **
Analysis list Attached

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	4-8-13 / 1440	1	2	4/8/13 1600	2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	[ ] Intact [ ] Not intact	Preserved where applicable [ ]

On Ice: [ ] Cooler Temp. 1.3, 1.1, 1.6, 1.5, 1.1 °C

5 coolers

5.1 5

JB33644: Chain of Custody
Page 1 of 3

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

PAGE ___ OF ___

2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

FED-EX Tracking #:
Bottle Order Control #:
Accutest Quote #:
Accutest Job #: JB 33644

Client / Reporting Information

Company Name: Stantec
Street Address: 1060 Andrew Dr. Suite 140
City / State / Zip: West Chester PA 19380
Project Contact / E-mail: Jennifer Menges / Jennifer.Menges@Stantec.com
Phone # / Fax #: 610-840 2501
Sampler(s) Name(s) / Phone #: CC, JR, SA 856-952-4518

Project Information

Project Name: PES Philadelphia Refinery
Street:
City / State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (if different from Report to)

Company Name:
Street Address:
City / State / Zip:
Attention:

Requested Analysis (see TEST CODE sheet)

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB-Equipment Blank
RB- Rinse Blank
TB-Trip Blank

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Lead Dissolved - Lab Filter	1,2 Dichloroethane, 1,2,4 Trimethylbenzene, 1,3,5 Trimethylbenzene, Benzene, Cumene, Ethylbenzene, Dibromide, MTBE, Toluene, Xylenes-Total	Anthracene, Benzo(k) Anthracene	Benzo(g,h,i) Perylene, Benzo(a) Pyrene	Benzo(b) Fluoranthene, Chrysene	Fluorene, Naphthalene,	Phenanthrene, Pyrene				LAB USE ONLY
13F	C-129		4-8-13	12000	JR	GW	8	5				3				X	X	X	X	X	X	X	X			
14F	B-158		4-8-13	1335	JR	GW	8	5				3				X	X	X	X	X	X	X	X			
15F	PGW-MW-85		4/8/13	1040	SA	GW	8	5				3				X	X	X	X	X	X	X	X			
16F	B-131		4/8/13	1240	SA	GW	8	5				3				X	X	X	X	X	X	X	X			

Turnaround Time (Business days)

- [x] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [ ] other _____

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [x] Other RED T2 Deliverables

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

* Lead Dissolved is lab filter *
Analysis list attached.

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	4-8-13 1440	1	2	4/8/13 1600	2
3		3	4		4
5		5			

Custody Seal #: ☐ Intact ☐ Not intact
Preserved where applicable: ☐
On Ice: ☐
Cooler Temp. 1.3, 1.1, 1.0, 1.5, 1.1 °C
Scoolers

5.1 5

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB33644 **Client:** **Project:**

Date / Time Received: 4/8/2013 **Delivery Method:** **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (1.3/1.3); #2: (1.1/1.1); #3: (1/1); #4: (1.5/1.5); #5: (1.1/1.1); 0

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:			
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	5		

Quality Control Preservatio	Y	or	N	N/A
1. Trip Blank present / cooler:	☑		☐	☐
2. Trip Blank listed on COC:	☑		☐	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☑		☐	☐

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

Accutest Laboratories
V:732.329.0200

2235 US Highway 130
F: 732.329.3499

Dayton, New Jersey
www/accutest.com

JB33644: Chain of Custody
Page 3 of 3

Internal Sample Tracking Chronicle

Stantec Consulting Services Inc.

Job No: JB33644

Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB33644-1 N-64	Collected: 05-APR-13 13:35 By: JR		Received: 08-APR-13 By: TH			
JB33644-1	SW846-8011	16-APR-13 11:26	VDT	15-APR-13	LP	V8011EDB
JB33644-1	SW846 8260B	18-APR-13 21:17	OTR			V8260SL
JB33644-1	SW846 8270D BY SIM	24-APR-13 18:12	AD	12-APR-13	PW	B8270SIMSL
JB33644-2 N-98	Collected: 05-APR-13 14:25 By: JR		Received: 08-APR-13 By: TH			
JB33644-2	SW846-8011	16-APR-13 11:43	VDT	15-APR-13	LP	V8011EDB
JB33644-2	SW846 8260B	18-APR-13 21:47	OTR			V8260SL
JB33644-2	SW846 8270D BY SIM	24-APR-13 18:44	AD	12-APR-13	PW	B8270SIMSL
JB33644-3 FIELD BALNK-FB	Collected: 08-APR-13 11:20 By: JR		Received: 08-APR-13 By: TH			
JB33644-3	SW846-8011	16-APR-13 12:00	VDT	15-APR-13	LP	V8011EDB
JB33644-3	SW846 8260B	20-APR-13 12:32	OTR			V8260SL
JB33644-3	SW846 8270D BY SIM	24-APR-13 19:16	AD	12-APR-13	PW	B8270SIMSL
JB33644-4 TRIP BLANK	Collected: 08-APR-13 13:40 By: JR		Received: 08-APR-13 By: TH			
JB33644-4	SW846-8011	16-APR-13 12:17	VDT	15-APR-13	LP	V8011EDB
JB33644-4	SW846 8260B	22-APR-13 15:21	MS			V8260SL
JB33644-5 S-40	Collected: 08-APR-13 09:00 By: JR		Received: 08-APR-13 By: TH			
JB33644-5	SW846-8011	16-APR-13 12:33	VDT	15-APR-13	LP	V8011EDB
JB33644-5	SW846 8260B	19-APR-13 06:09	OTR			V8260SL
JB33644-5	SW846 8270D BY SIM	24-APR-13 19:47	AD	12-APR-13	PW	B8270SIMSL
JB33644-6 A-133	Collected: 08-APR-13 12:26 By: JR		Received: 08-APR-13 By: TH			
JB33644-6	SW846-8011	16-APR-13 12:50	VDT	15-APR-13	LP	V8011EDB
JB33644-6	SW846 8260B	19-APR-13 06:54	OTR			V8260SL
JB33644-6	SW846 8270D BY SIM	24-APR-13 20:19	AD	12-APR-13	PW	B8270SIMSL

Internal Sample Tracking Chronicle

Stantec Consulting Services Inc.

Job No: JB33644

Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB33644-7 WP-14	Collected: 08-APR-13 10:31 By: JR		Received: 08-APR-13 By: TH			
JB33644-7	SW846-8011	16-APR-13 13:07	VDT	15-APR-13	LP	V8011EDB
JB33644-7	SW846 8260B	19-APR-13 17:50	OTR			V8260SL
JB33644-7	SW846 8270D BY SIM	24-APR-13 20:51	AD	12-APR-13	PW	B8270SIMSL
JB33644-7	SW846 8270D BY SIM	07-MAY-13 17:13	NAP	29-APR-13	JL	B8270SIMSL
JB33644-8 A-137	Collected: 08-APR-13 12:01 By: JR		Received: 08-APR-13 By: TH			
JB33644-8	SW846-8011	16-APR-13 15:20	VDT	15-APR-13	LP	V8011EDB
JB33644-8	SW846 8260B	18-APR-13 22:46	OTR			V8260SL
JB33644-8	SW846 8270D BY SIM	24-APR-13 21:22	AD	12-APR-13	PW	B8270SIMSL
JB33644-9 A-140	Collected: 08-APR-13 12:45 By: JR		Received: 08-APR-13 By: TH			
JB33644-9	SW846-8011	16-APR-13 15:37	VDT	15-APR-13	LP	V8011EDB
JB33644-9	SW846 8260B	18-APR-13 22:16	OTR			V8260SL
JB33644-9	SW846 8270D BY SIM	24-APR-13 21:54	AD	12-APR-13	PW	B8270SIMSL
JB33644-10 A-138	Collected: 08-APR-13 13:40 By: JR		Received: 08-APR-13 By: TH			
JB33644-10	SW846-8011	16-APR-13 15:54	VDT	15-APR-13	LP	V8011EDB
JB33644-10	SW846 8260B	18-APR-13 23:15	OTR			V8260SL
JB33644-10	SW846 8270D BY SIM	24-APR-13 22:26	AD	12-APR-13	PW	B8270SIMSL
JB33644-10	SW846 8270D BY SIM	07-MAY-13 18:17	NAP	29-APR-13	JL	B8270SIMSL
JB33644-11 C-104	Collected: 08-APR-13 10:00 By: JR		Received: 08-APR-13 By: TH			
JB33644-11	SW846-8011	16-APR-13 16:11	VDT	15-APR-13	LP	V8011EDB
JB33644-11	SW846 8260B	19-APR-13 02:57	OTR			V8260SL
JB33644-11	SW846 8270D BY SIM	25-APR-13 07:08	AD	12-APR-13	PW	B8270SIMSL

Internal Sample Tracking Chronicle

Stantec Consulting Services Inc.

Job No: JB33644

Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB33644-12	Collected: 08-APR-13 11:00 By: JR		Received: 08-APR-13 By: TH			
C-127						
JB33644-12	SW846-8011	16-APR-13 16:28	VDT	15-APR-13	LP	V8011EDB
JB33644-12	SW846 8260B	19-APR-13 03:41	OTR			V8260SL
JB33644-12	SW846 8270D BY SIM	25-APR-13 07:39	AD	12-APR-13	PW	B8270SIMSL
JB33644-13	Collected: 08-APR-13 12:00 By: JR		Received: 08-APR-13 By: TH			
C-129						
JB33644-13	SW846-8011	16-APR-13 16:44	VDT	15-APR-13	LP	V8011EDB
JB33644-13	SW846 8260B	19-APR-13 04:11	OTR			V8260SL
JB33644-13	SW846 8270D BY SIM	25-APR-13 08:10	AD	12-APR-13	PW	B8270SIMSL
JB33644-14	Collected: 08-APR-13 13:35 By: JR		Received: 08-APR-13 By: TH			
B-158						
JB33644-14	SW846-8011	16-APR-13 17:01	VDT	15-APR-13	LP	V8011EDB
JB33644-14	SW846 8260B	19-APR-13 04:41	OTR			V8260SL
JB33644-14	SW846 8270D BY SIM	25-APR-13 08:42	AD	12-APR-13	PW	B8270SIMSL
JB33644-15	Collected: 08-APR-13 10:40 By: JR		Received: 08-APR-13 By: TH			
PGW-MW-8S						
JB33644-15	SW846-8011	16-APR-13 17:18	VDT	15-APR-13	LP	V8011EDB
JB33644-15	SW846 8260B	19-APR-13 05:10	OTR			V8260SL
JB33644-15	SW846 8270D BY SIM	25-APR-13 12:31	NAP	12-APR-13	PW	B8270SIMSL
JB33644-15	SW846 8270D BY SIM	07-MAY-13 17:45	NAP	29-APR-13	JL	B8270SIMSL
JB33644-15	SW846 8270D BY SIM	17-MAY-13 15:54	ALS	29-APR-13	JL	B8270SIMSL
JB33644-16	Collected: 08-APR-13 12:40 By: JR		Received: 08-APR-13 By: TH			
B-131						
JB33644-16	SW846-8011	16-APR-13 17:35	VDT	15-APR-13	LP	V8011EDB
JB33644-16	SW846 8260B	19-APR-13 05:40	OTR			V8260SL
JB33644-16	SW846 8270D BY SIM	25-APR-13 13:02	NAP	12-APR-13	PW	B8270SIMSL

Internal Sample Tracking Chronicle

Stantec Consulting Services Inc.

Sunoco, Philadelphia Refinery, Philadelphia, PA

Job No: JB33644

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB33644-1F Collected: 05-APR-13 13:35 By: JR N-64			Received: 08-APR-13 By: TH			
JB33644-1F	SW846 6010C	18-APR-13 05:20	GT	16-APR-13	CS	PB
JB33644-2F Collected: 05-APR-13 14:25 By: JR N-98			Received: 08-APR-13 By: TH			
JB33644-2F	SW846 6010C	18-APR-13 05:26	GT	16-APR-13	CS	PB
JB33644-3F Collected: 08-APR-13 11:20 By: JR FIELD BALNK-FB			Received: 08-APR-13 By: TH			
JB33644-3F	SW846 6010C	18-APR-13 05:46	GT	16-APR-13	CS	PB
JB33644-5F Collected: 08-APR-13 09:00 By: JR S-40			Received: 08-APR-13 By: TH			
JB33644-5F	SW846 6010C	18-APR-13 05:52	GT	16-APR-13	CS	PB
JB33644-6F Collected: 08-APR-13 12:26 By: JR A-133			Received: 08-APR-13 By: TH			
JB33644-6F	SW846 6010C	18-APR-13 05:59	GT	16-APR-13	CS	PB
JB33644-7F Collected: 08-APR-13 10:31 By: JR WP-14			Received: 08-APR-13 By: TH			
JB33644-7F	SW846 6010C	18-APR-13 19:38	GT	16-APR-13	CS	PB
JB33644-8F Collected: 08-APR-13 12:01 By: JR A-137			Received: 08-APR-13 By: TH			
JB33644-8F	SW846 6010C	18-APR-13 19:45	GT	16-APR-13	CS	PB
JB33644-9F Collected: 08-APR-13 12:45 By: JR A-140			Received: 08-APR-13 By: TH			
JB33644-9F	SW846 6010C	18-APR-13 19:51	GT	16-APR-13	CS	PB

Internal Sample Tracking Chronicle

Stantec Consulting Services Inc.

Sunoco, Philadelphia Refinery, Philadelphia, PA

Job No: JB33644

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB33644-10F	Collected: 08-APR-13 13:40 By: JR		Received: 08-APR-13 By: TH			
A-138						
JB33644-10F	SW846 6010C	18-APR-13 19:58	GT	16-APR-13	CS	PB
JB33644-11F	Collected: 08-APR-13 10:00 By: JR		Received: 08-APR-13 By: TH			
C-104						
JB33644-11F	SW846 6010C	18-APR-13 20:04	GT	16-APR-13	CS	PB
JB33644-12F	Collected: 08-APR-13 11:00 By: JR		Received: 08-APR-13 By: TH			
C-127						
JB33644-12F	SW846 6010C	18-APR-13 20:10	GT	16-APR-13	CS	PB
JB33644-13F	Collected: 08-APR-13 12:00 By: JR		Received: 08-APR-13 By: TH			
C-129						
JB33644-13F	SW846 6010C	18-APR-13 20:30	GT	16-APR-13	CS	PB
JB33644-14F	Collected: 08-APR-13 13:35 By: JR		Received: 08-APR-13 By: TH			
B-158						
JB33644-14F	SW846 6010C	18-APR-13 20:36	GT	16-APR-13	CS	PB
JB33644-15F	Collected: 08-APR-13 10:40 By: JR		Received: 08-APR-13 By: TH			
PGW-MW-8S						
JB33644-15F	SW846 6010C	18-APR-13 20:42	GT	16-APR-13	CS	PB
JB33644-16F	Collected: 08-APR-13 12:40 By: JR		Received: 08-APR-13 By: TH			
B-131						
JB33644-16F	SW846 6010C	18-APR-13 20:49	GT	16-APR-13	CS	PB

Accutest Internal Chain of Custody

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/08/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33644-1.1	Secured Storage	Patrick Wade	04/12/13 08:11	Retrieve from Storage
JB33644-1.1	Patrick Wade		04/12/13 14:42	Depleted
JB33644-1.1.1	Patrick Wade	Organics Prep	04/12/13 08:14	Extract from JB33644-1.1
JB33644-1.1.1	Organics Prep	Patrick Wade	04/12/13 16:05	Extract from JB33644-1.1
JB33644-1.1.1	Patrick Wade	Extract Storage	04/12/13 16:05	Return to Storage
JB33644-1.1.1	Extract Storage	Nina Pandya	04/25/13 12:26	Retrieve from Storage
JB33644-1.1.1	Nina Pandya	GCMS3M	04/25/13 12:26	Load on Instrument
JB33644-1.1.1	GCMS3M	Nina Pandya	04/26/13 12:24	Unload from Instrument
JB33644-1.1.1	Nina Pandya	Extract Freezer	04/26/13 12:24	Return to Storage
JB33644-1.1.1	Extract Freezer		05/23/13 09:00	Disposed
JB33644-1.2	Secured Storage	Patrick Wade	04/12/13 08:11	Retrieve from Storage
JB33644-1.2	Patrick Wade		04/12/13 14:42	Depleted
JB33644-1.2.1	Patrick Wade	Organics Prep	04/12/13 08:14	Extract from JB33644-1.2
JB33644-1.2.1	Organics Prep	Patrick Wade	04/12/13 16:05	Extract from JB33644-1.2
JB33644-1.2.1	Patrick Wade	Extract Storage	04/12/13 16:05	Return to Storage
JB33644-1.2.1	Extract Storage	Nina Pandya	04/25/13 12:26	Retrieve from Storage
JB33644-1.2.1	Nina Pandya	GCMS3M	04/25/13 12:26	Load on Instrument
JB33644-1.2.1	GCMS3M	Nina Pandya	04/26/13 12:24	Unload from Instrument
JB33644-1.2.1	Nina Pandya	Extract Freezer	04/26/13 12:24	Return to Storage
JB33644-1.2.1	Extract Freezer		05/23/13 09:00	Disposed
JB33644-1.4	Secured Storage	Larisa Pejdah	04/15/13 09:58	Retrieve from Storage
JB33644-1.4	Larisa Pejdah	Secured Storage	04/15/13 22:09	Return to Storage
JB33644-1.4.1	Larisa Pejdah	Organics Prep	04/15/13 09:59	Extract from JB33644-1.4
JB33644-1.4.1	Organics Prep	Vincent Drago	04/16/13 10:37	Extract from JB33644-1.4
JB33644-1.4.1	Vincent Drago	Extract Storage	04/16/13 10:37	Return to Storage
JB33644-1.4.1	Extract Storage	Vincent Drago	04/16/13 10:37	Retrieve from Storage
JB33644-1.4.1	Vincent Drago	GCWW	04/16/13 10:37	Load on Instrument
JB33644-1.4.1	GCWW	Vincent Drago	04/18/13 11:15	Unload from Instrument
JB33644-1.4.1	Vincent Drago	Extract Freezer	04/18/13 11:15	Return to Storage
JB33644-1.4.1	Extract Freezer		05/27/13 09:00	Disposed
JB33644-1.5	Secured Storage	Larisa Pejdah	04/15/13 09:58	Retrieve from Storage
JB33644-1.5	Larisa Pejdah	Secured Storage	04/15/13 22:09	Return to Storage
JB33644-1.5.1	Larisa Pejdah	Organics Prep	04/15/13 09:59	Extract from JB33644-1.5
JB33644-1.5.1	Organics Prep	Vincent Drago	04/16/13 10:37	Extract from JB33644-1.5
JB33644-1.5.1	Vincent Drago	Extract Storage	04/16/13 10:37	Return to Storage
JB33644-1.5.1	Extract Storage	Vincent Drago	04/16/13 10:37	Retrieve from Storage
JB33644-1.5.1	Vincent Drago	GCWW	04/16/13 10:37	Load on Instrument

Accutest Internal Chain of Custody

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/08/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33644-1.5.1	GCWW	Vincent Drago	04/18/13 11:15	Unload from Instrument
JB33644-1.5.1	Vincent Drago	Extract Freezer	04/18/13 11:15	Return to Storage
JB33644-1.5.1	Extract Freezer		05/27/13 09:00	Disposed
JB33644-1.7	Secured Storage	Oksana Treglazova	04/18/13 16:23	Retrieve from Storage
JB33644-1.7	Oksana Treglazova	Secured Storage	04/18/13 16:24	Return to Storage
JB33644-1F.3	Secured Storage	Adam Scott	04/09/13 11:21	Retrieve from Storage
JB33644-1F.3	Adam Scott	Secured Staging Area	04/09/13 11:22	Return to Storage
JB33644-1F.3	Secured Staging Area	Nida Saleem	04/09/13 11:51	Retrieve from Storage
JB33644-1F.3	Nida Saleem	Gina Montenegro	04/09/13 17:12	Custody Transfer
JB33644-1F.3	Gina Montenegro	Secured Storage	04/09/13 23:37	Return to Storage
JB33644-1F.3	Secured Storage	Mehmet Temizsu	04/16/13 15:43	Retrieve from Storage
JB33644-1F.3	Mehmet Temizsu	Secured Staging Area	04/16/13 15:43	Return to Storage
JB33644-1F.3	Secured Staging Area	Michael Bunza	04/16/13 15:47	Retrieve from Storage
JB33644-1F.3	Michael Bunza	Secured Storage	04/16/13 20:06	Return to Storage
JB33644-2.1	Secured Storage	Patrick Wade	04/12/13 08:11	Retrieve from Storage
JB33644-2.1	Patrick Wade		04/12/13 14:42	Depleted
JB33644-2.1.1	Patrick Wade	Organics Prep	04/12/13 08:14	Extract from JB33644-2.1
JB33644-2.1.1	Organics Prep	Patrick Wade	04/12/13 16:05	Extract from JB33644-2.1
JB33644-2.1.1	Patrick Wade	Extract Storage	04/12/13 16:05	Return to Storage
JB33644-2.1.1	Extract Storage	Nina Pandya	04/25/13 12:26	Retrieve from Storage
JB33644-2.1.1	Nina Pandya	GCMS3M	04/25/13 12:26	Load on Instrument
JB33644-2.1.1	GCMS3M	Nina Pandya	04/26/13 12:24	Unload from Instrument
JB33644-2.1.1	Nina Pandya	Extract Freezer	04/26/13 12:24	Return to Storage
JB33644-2.1.1	Extract Freezer		05/23/13 09:00	Disposed
JB33644-2.4	Secured Storage	Larisa Pejdah	04/15/13 09:58	Retrieve from Storage
JB33644-2.4	Larisa Pejdah	Secured Storage	04/15/13 22:09	Return to Storage
JB33644-2.4.1	Larisa Pejdah	Organics Prep	04/15/13 09:59	Extract from JB33644-2.4
JB33644-2.4.1	Organics Prep	Vincent Drago	04/16/13 10:37	Extract from JB33644-2.4
JB33644-2.4.1	Vincent Drago	Extract Storage	04/16/13 10:37	Return to Storage
JB33644-2.4.1	Extract Storage	Vincent Drago	04/16/13 10:37	Retrieve from Storage
JB33644-2.4.1	Vincent Drago	GCWW	04/16/13 10:37	Load on Instrument
JB33644-2.4.1	GCWW	Vincent Drago	04/18/13 11:15	Unload from Instrument
JB33644-2.4.1	Vincent Drago	Extract Freezer	04/18/13 11:15	Return to Storage
JB33644-2.4.1	Extract Freezer		05/27/13 09:00	Disposed
JB33644-2.7	Secured Storage	Oksana Treglazova	04/18/13 16:23	Retrieve from Storage
JB33644-2.7	Oksana Treglazova	Secured Storage	04/18/13 16:24	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/08/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33644-2F.3	Secured Storage	Adam Scott	04/09/13 11:21	Retrieve from Storage
JB33644-2F.3	Adam Scott	Secured Staging Area	04/09/13 11:22	Return to Storage
JB33644-2F.3	Secured Staging Area	Nida Saleem	04/09/13 11:51	Retrieve from Storage
JB33644-2F.3	Nida Saleem	Gina Montenegro	04/09/13 17:12	Custody Transfer
JB33644-2F.3	Gina Montenegro	Secured Storage	04/09/13 23:37	Return to Storage
JB33644-2F.3	Secured Storage	Mehmet Temizsu	04/16/13 15:43	Retrieve from Storage
JB33644-2F.3	Mehmet Temizsu	Secured Staging Area	04/16/13 15:43	Return to Storage
JB33644-2F.3	Secured Staging Area	Michael Bunza	04/16/13 15:47	Retrieve from Storage
JB33644-2F.3	Michael Bunza	Secured Storage	04/16/13 20:06	Return to Storage
JB33644-3.2	Secured Storage	Patrick Wade	04/12/13 08:11	Retrieve from Storage
JB33644-3.2	Patrick Wade		04/12/13 14:42	Depleted
JB33644-3.2.1	Patrick Wade	Organics Prep	04/12/13 08:14	Extract from JB33644-3.2
JB33644-3.2.1	Organics Prep	Patrick Wade	04/12/13 16:05	Extract from JB33644-3.2
JB33644-3.2.1	Patrick Wade	Extract Storage	04/12/13 16:05	Return to Storage
JB33644-3.2.1	Extract Storage	Nina Pandya	04/25/13 12:26	Retrieve from Storage
JB33644-3.2.1	Nina Pandya	GCMS3M	04/25/13 12:26	Load on Instrument
JB33644-3.2.1	GCMS3M	Nina Pandya	04/26/13 12:24	Unload from Instrument
JB33644-3.2.1	Nina Pandya	Extract Freezer	04/26/13 12:24	Return to Storage
JB33644-3.2.1	Extract Freezer		05/23/13 09:00	Disposed
JB33644-3.6	Secured Storage	Larisa Pejdah	04/15/13 09:58	Retrieve from Storage
JB33644-3.6	Larisa Pejdah	Secured Storage	04/15/13 22:09	Return to Storage
JB33644-3.6.1	Larisa Pejdah	Organics Prep	04/15/13 09:59	Extract from JB33644-3.6
JB33644-3.6.1	Organics Prep	Vincent Drago	04/16/13 10:37	Extract from JB33644-3.6
JB33644-3.6.1	Vincent Drago	Extract Storage	04/16/13 10:37	Return to Storage
JB33644-3.6.1	Extract Storage	Vincent Drago	04/16/13 10:37	Retrieve from Storage
JB33644-3.6.1	Vincent Drago	GCWW	04/16/13 10:37	Load on Instrument
JB33644-3.6.1	GCWW	Vincent Drago	04/18/13 11:15	Unload from Instrument
JB33644-3.6.1	Vincent Drago	Extract Freezer	04/18/13 11:15	Return to Storage
JB33644-3.6.1	Extract Freezer		05/27/13 09:00	Disposed
JB33644-3.7	Secured Storage	Oksana Treglazova	04/19/13 16:26	Retrieve from Storage
JB33644-3.7	Oksana Treglazova	Secured Storage	04/19/13 16:26	Return to Storage
JB33644-3F.3	Secured Storage	Adam Scott	04/09/13 11:21	Retrieve from Storage
JB33644-3F.3	Adam Scott	Secured Staging Area	04/09/13 11:22	Return to Storage
JB33644-3F.3	Secured Staging Area	Nida Saleem	04/09/13 11:51	Retrieve from Storage
JB33644-3F.3	Nida Saleem	Gina Montenegro	04/09/13 17:12	Custody Transfer
JB33644-3F.3	Gina Montenegro	Secured Storage	04/09/13 23:37	Return to Storage
JB33644-3F.3	Secured Storage	Mehmet Temizsu	04/16/13 15:43	Retrieve from Storage
JB33644-3F.3	Mehmet Temizsu	Secured Staging Area	04/16/13 15:43	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/08/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33644-3F.3	Secured Staging Area	Michael Bunza	04/16/13 15:47	Retrieve from Storage
JB33644-3F.3	Michael Bunza	Secured Storage	04/16/13 20:06	Return to Storage
JB33644-4.1	Secured Storage	Larisa Pejdah	04/15/13 09:58	Retrieve from Storage
JB33644-4.1	Larisa Pejdah	Secured Storage	04/15/13 22:09	Return to Storage
JB33644-4.1.1	Larisa Pejdah	Organics Prep	04/15/13 09:59	Extract from JB33644-4.1
JB33644-4.1.1	Organics Prep	Vincent Drago	04/16/13 10:37	Extract from JB33644-4.1
JB33644-4.1.1	Vincent Drago	Extract Storage	04/16/13 10:37	Return to Storage
JB33644-4.1.1	Extract Storage	Vincent Drago	04/16/13 10:37	Retrieve from Storage
JB33644-4.1.1	Vincent Drago	GCWW	04/16/13 10:37	Load on Instrument
JB33644-4.1.1	GCWW	Vincent Drago	04/18/13 11:15	Unload from Instrument
JB33644-4.1.1	Vincent Drago	Extract Freezer	04/18/13 11:15	Return to Storage
JB33644-4.1.1	Extract Freezer		05/27/13 09:00	Disposed
JB33644-4.2	Secured Storage	Margaret Starzec	04/22/13 14:27	Retrieve from Storage
JB33644-4.2	Margaret Starzec	GCMSU	04/22/13 14:27	Load on Instrument
JB33644-4.2	GCMSU	Margaret Starzec	04/23/13 11:44	Unload from Instrument
JB33644-4.2	Margaret Starzec	Secured Storage	04/23/13 11:45	Return to Storage
JB33644-5.1	Secured Storage	Patrick Wade	04/12/13 08:11	Retrieve from Storage
JB33644-5.1	Patrick Wade		04/12/13 14:42	Depleted
JB33644-5.1.1	Patrick Wade	Organics Prep	04/12/13 08:14	Extract from JB33644-5.1
JB33644-5.1.1	Organics Prep	Patrick Wade	04/12/13 16:05	Extract from JB33644-5.1
JB33644-5.1.1	Patrick Wade	Extract Storage	04/12/13 16:05	Return to Storage
JB33644-5.1.1	Extract Storage	Nina Pandya	04/25/13 12:26	Retrieve from Storage
JB33644-5.1.1	Nina Pandya	GCMS3M	04/25/13 12:26	Load on Instrument
JB33644-5.1.1	GCMS3M	Nina Pandya	04/26/13 12:24	Unload from Instrument
JB33644-5.1.1	Nina Pandya	Extract Freezer	04/26/13 12:24	Return to Storage
JB33644-5.1.1	Extract Freezer		05/23/13 09:00	Disposed
JB33644-5.6	Secured Storage	Larisa Pejdah	04/15/13 09:58	Retrieve from Storage
JB33644-5.6	Larisa Pejdah	Secured Storage	04/15/13 22:09	Return to Storage
JB33644-5.6.1	Larisa Pejdah	Organics Prep	04/15/13 09:59	Extract from JB33644-5.6
JB33644-5.6.1	Organics Prep	Vincent Drago	04/16/13 10:37	Extract from JB33644-5.6
JB33644-5.6.1	Vincent Drago	Extract Storage	04/16/13 10:37	Return to Storage
JB33644-5.6.1	Extract Storage	Vincent Drago	04/16/13 10:37	Retrieve from Storage
JB33644-5.6.1	Vincent Drago	GCWW	04/16/13 10:37	Load on Instrument
JB33644-5.6.1	GCWW	Vincent Drago	04/18/13 11:15	Unload from Instrument
JB33644-5.6.1	Vincent Drago	Extract Freezer	04/18/13 11:15	Return to Storage
JB33644-5.6.1	Extract Freezer		05/27/13 09:00	Disposed

Accutest Internal Chain of Custody

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/08/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33644-5.7	Secured Storage	Oksana Treglazova	04/18/13 16:23	Retrieve from Storage
JB33644-5.7	Oksana Treglazova	Secured Storage	04/18/13 16:24	Return to Storage
JB33644-5F.3	Secured Storage	Adam Scott	04/09/13 11:21	Retrieve from Storage
JB33644-5F.3	Adam Scott	Secured Staging Area	04/09/13 11:22	Return to Storage
JB33644-5F.3	Secured Staging Area	Nida Saleem	04/09/13 11:51	Retrieve from Storage
JB33644-5F.3	Nida Saleem	Gina Montenegro	04/09/13 17:12	Custody Transfer
JB33644-5F.3	Gina Montenegro	Secured Storage	04/09/13 23:37	Return to Storage
JB33644-5F.3	Secured Storage	Mehmet Temizsu	04/16/13 15:43	Retrieve from Storage
JB33644-5F.3	Mehmet Temizsu	Secured Staging Area	04/16/13 15:43	Return to Storage
JB33644-5F.3	Secured Staging Area	Michael Bunza	04/16/13 15:47	Retrieve from Storage
JB33644-5F.3	Michael Bunza	Secured Storage	04/16/13 20:10	Return to Storage
JB33644-6.2	Secured Storage	Patrick Wade	04/12/13 08:11	Retrieve from Storage
JB33644-6.2	Patrick Wade		04/12/13 14:42	Depleted
JB33644-6.2.1	Patrick Wade	Organics Prep	04/12/13 08:14	Extract from JB33644-6.2
JB33644-6.2.1	Organics Prep	Patrick Wade	04/12/13 16:05	Extract from JB33644-6.2
JB33644-6.2.1	Patrick Wade	Extract Storage	04/12/13 16:05	Return to Storage
JB33644-6.2.1	Extract Storage	Nina Pandya	04/25/13 12:26	Retrieve from Storage
JB33644-6.2.1	Nina Pandya	GCMS3M	04/25/13 12:26	Load on Instrument
JB33644-6.2.1	GCMS3M	Nina Pandya	04/26/13 12:24	Unload from Instrument
JB33644-6.2.1	Nina Pandya	Extract Freezer	04/26/13 12:24	Return to Storage
JB33644-6.2.1	Extract Freezer		05/23/13 09:00	Disposed
JB33644-6.6	Secured Storage	Larisa Pejdah	04/15/13 09:58	Retrieve from Storage
JB33644-6.6	Larisa Pejdah	Secured Storage	04/15/13 22:09	Return to Storage
JB33644-6.6.1	Larisa Pejdah	Organics Prep	04/15/13 09:59	Extract from JB33644-6.6
JB33644-6.6.1	Organics Prep	Vincent Drago	04/16/13 10:37	Extract from JB33644-6.6
JB33644-6.6.1	Vincent Drago	Extract Storage	04/16/13 10:37	Return to Storage
JB33644-6.6.1	Extract Storage	Vincent Drago	04/16/13 10:37	Retrieve from Storage
JB33644-6.6.1	Vincent Drago	GCWW	04/16/13 10:37	Load on Instrument
JB33644-6.6.1	GCWW	Vincent Drago	04/18/13 11:15	Unload from Instrument
JB33644-6.6.1	Vincent Drago	Extract Freezer	04/18/13 11:15	Return to Storage
JB33644-6.6.1	Extract Freezer		05/27/13 09:00	Disposed
JB33644-6.7	Secured Storage	Oksana Treglazova	04/18/13 16:23	Retrieve from Storage
JB33644-6.7	Oksana Treglazova	Secured Storage	04/18/13 16:24	Return to Storage
JB33644-6F.3	Secured Storage	Adam Scott	04/09/13 11:21	Retrieve from Storage
JB33644-6F.3	Adam Scott	Secured Staging Area	04/09/13 11:22	Return to Storage
JB33644-6F.3	Secured Staging Area	Nida Saleem	04/09/13 11:51	Retrieve from Storage
JB33644-6F.3	Nida Saleem	Gina Montenegro	04/09/13 17:12	Custody Transfer

Accutest Internal Chain of Custody

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/08/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33644-6F.3	Gina Montenegro	Secured Storage	04/09/13 23:37	Return to Storage
JB33644-6F.3	Secured Storage	Mehmet Temizsu	04/16/13 15:43	Retrieve from Storage
JB33644-6F.3	Mehmet Temizsu	Secured Staging Area	04/16/13 15:43	Return to Storage
JB33644-6F.3	Secured Staging Area	Michael Bunza	04/16/13 15:47	Retrieve from Storage
JB33644-6F.3	Michael Bunza	Secured Storage	04/16/13 20:10	Return to Storage
JB33644-7.1	Secured Storage	Patrick Wade	04/12/13 08:11	Retrieve from Storage
JB33644-7.1	Patrick Wade		04/12/13 14:42	Depleted
JB33644-7.1.1	Patrick Wade	Organics Prep	04/12/13 08:14	Extract from JB33644-7.1
JB33644-7.1.1	Organics Prep	Patrick Wade	04/12/13 16:05	Extract from JB33644-7.1
JB33644-7.1.1	Patrick Wade	Extract Storage	04/12/13 16:05	Return to Storage
JB33644-7.1.1	Extract Storage	Nina Pandya	04/25/13 12:26	Retrieve from Storage
JB33644-7.1.1	Nina Pandya	GCMS3M	04/25/13 12:26	Load on Instrument
JB33644-7.1.1	GCMS3M	Nina Pandya	04/26/13 12:24	Unload from Instrument
JB33644-7.1.1	Nina Pandya	Extract Freezer	04/26/13 12:24	Return to Storage
JB33644-7.1.1	Extract Freezer		05/23/13 09:00	Disposed
JB33644-7.2	Secured Storage	Shanice Grant	04/29/13 06:31	Retrieve from Storage
JB33644-7.2	Shanice Grant		04/29/13 15:09	Depleted
JB33644-7.2.1	Shanice Grant	Organics Prep	04/29/13 06:38	Extract from JB33644-7.2
JB33644-7.2.1	Organics Prep	Shanice Grant	04/29/13 15:13	Extract from JB33644-7.2
JB33644-7.2.1	Shanice Grant	Extract Storage	04/29/13 15:13	Return to Storage
JB33644-7.2.1	Extract Storage	Nina Pandya	05/07/13 09:34	Retrieve from Storage
JB33644-7.2.1	Nina Pandya	GCMS3M	05/07/13 09:35	Load on Instrument
JB33644-7.2.1	GCMS3M	Ashley Dye	05/20/13 10:48	Unload from Instrument
JB33644-7.2.1	Ashley Dye	Extract Freezer	05/20/13 10:48	Return to Storage
JB33644-7.6	Secured Storage	Larisa Pejdah	04/15/13 09:58	Retrieve from Storage
JB33644-7.6	Larisa Pejdah	Secured Storage	04/15/13 22:09	Return to Storage
JB33644-7.6.1	Larisa Pejdah	Organics Prep	04/15/13 09:59	Extract from JB33644-7.6
JB33644-7.6.1	Organics Prep	Vincent Drago	04/16/13 10:37	Extract from JB33644-7.6
JB33644-7.6.1	Vincent Drago	Extract Storage	04/16/13 10:37	Return to Storage
JB33644-7.6.1	Extract Storage	Vincent Drago	04/16/13 10:37	Retrieve from Storage
JB33644-7.6.1	Vincent Drago	GCWW	04/16/13 10:37	Load on Instrument
JB33644-7.6.1	GCWW	Vincent Drago	04/18/13 11:15	Unload from Instrument
JB33644-7.6.1	Vincent Drago	Extract Freezer	04/18/13 11:15	Return to Storage
JB33644-7.6.1	Extract Freezer		05/27/13 09:00	Disposed
JB33644-7.7	Secured Storage	Oksana Treglazova	04/19/13 16:26	Retrieve from Storage
JB33644-7.7	Oksana Treglazova	Secured Storage	04/19/13 16:26	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/08/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33644-7F.3	Secured Storage	Adam Scott	04/09/13 11:21	Retrieve from Storage
JB33644-7F.3	Adam Scott	Secured Staging Area	04/09/13 11:22	Return to Storage
JB33644-7F.3	Secured Staging Area	Nida Saleem	04/09/13 11:51	Retrieve from Storage
JB33644-7F.3	Nida Saleem	Gina Montenegro	04/09/13 17:12	Custody Transfer
JB33644-7F.3	Gina Montenegro	Secured Storage	04/09/13 23:37	Return to Storage
JB33644-7F.3	Secured Storage	Mehmet Temizsu	04/16/13 15:43	Retrieve from Storage
JB33644-7F.3	Mehmet Temizsu	Secured Staging Area	04/16/13 15:43	Return to Storage
JB33644-7F.3	Secured Staging Area	Michael Bunza	04/16/13 15:47	Retrieve from Storage
JB33644-7F.3	Michael Bunza	Secured Storage	04/16/13 20:16	Return to Storage
JB33644-8.2	Secured Storage	Patrick Wade	04/12/13 08:11	Retrieve from Storage
JB33644-8.2	Patrick Wade		04/12/13 14:42	Depleted
JB33644-8.2.1	Patrick Wade	Organics Prep	04/12/13 08:14	Extract from JB33644-8.2
JB33644-8.2.1	Organics Prep	Patrick Wade	04/12/13 16:05	Extract from JB33644-8.2
JB33644-8.2.1	Patrick Wade	Extract Storage	04/12/13 16:05	Return to Storage
JB33644-8.2.1	Extract Storage	Nina Pandya	04/25/13 12:26	Retrieve from Storage
JB33644-8.2.1	Nina Pandya	GCMS3M	04/25/13 12:26	Load on Instrument
JB33644-8.2.1	GCMS3M	Nina Pandya	04/26/13 12:24	Unload from Instrument
JB33644-8.2.1	Nina Pandya	Extract Freezer	04/26/13 12:24	Return to Storage
JB33644-8.2.1	Extract Freezer		05/23/13 09:00	Disposed
JB33644-8.5	Secured Storage	Oksana Treglazova	04/18/13 16:23	Retrieve from Storage
JB33644-8.5	Oksana Treglazova	Secured Storage	04/18/13 16:24	Return to Storage
JB33644-8.7	Secured Storage	Larisa Pejdah	04/15/13 09:58	Retrieve from Storage
JB33644-8.7	Larisa Pejdah	Secured Storage	04/15/13 22:09	Return to Storage
JB33644-8.7.1	Larisa Pejdah	Organics Prep	04/15/13 09:59	Extract from JB33644-8.7
JB33644-8.7.1	Organics Prep	Vincent Drago	04/16/13 10:37	Extract from JB33644-8.7
JB33644-8.7.1	Vincent Drago	Extract Storage	04/16/13 10:37	Return to Storage
JB33644-8.7.1	Extract Storage	Vincent Drago	04/16/13 10:37	Retrieve from Storage
JB33644-8.7.1	Vincent Drago	GCWW	04/16/13 10:37	Load on Instrument
JB33644-8.7.1	GCWW	Vincent Drago	04/18/13 11:15	Unload from Instrument
JB33644-8.7.1	Vincent Drago	Extract Freezer	04/18/13 11:15	Return to Storage
JB33644-8.7.1	Extract Freezer		05/27/13 09:00	Disposed
JB33644-8F.3	Secured Storage	Adam Scott	04/09/13 11:21	Retrieve from Storage
JB33644-8F.3	Adam Scott	Secured Staging Area	04/09/13 11:22	Return to Storage
JB33644-8F.3	Secured Staging Area	Nida Saleem	04/09/13 11:51	Retrieve from Storage
JB33644-8F.3	Nida Saleem	Gina Montenegro	04/09/13 17:12	Custody Transfer
JB33644-8F.3	Gina Montenegro	Secured Storage	04/09/13 23:37	Return to Storage
JB33644-8F.3	Secured Storage	Mehmet Temizsu	04/16/13 15:43	Retrieve from Storage
JB33644-8F.3	Mehmet Temizsu	Secured Staging Area	04/16/13 15:43	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/08/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33644-8F.3	Secured Staging Area	Michael Bunza	04/16/13 15:47	Retrieve from Storage
JB33644-8F.3	Michael Bunza	Secured Storage	04/16/13 20:06	Return to Storage
JB33644-9.2	Secured Storage	Patrick Wade	04/12/13 08:11	Retrieve from Storage
JB33644-9.2	Patrick Wade		04/12/13 14:42	Depleted
JB33644-9.2.1	Patrick Wade	Organics Prep	04/12/13 08:14	Extract from JB33644-9.2
JB33644-9.2.1	Organics Prep	Patrick Wade	04/12/13 16:05	Extract from JB33644-9.2
JB33644-9.2.1	Patrick Wade	Extract Storage	04/12/13 16:05	Return to Storage
JB33644-9.2.1	Extract Storage	Nina Pandya	04/25/13 12:26	Retrieve from Storage
JB33644-9.2.1	Nina Pandya	GCMS3M	04/25/13 12:26	Load on Instrument
JB33644-9.2.1	GCMS3M	Nina Pandya	04/26/13 12:24	Unload from Instrument
JB33644-9.2.1	Nina Pandya	Extract Freezer	04/26/13 12:24	Return to Storage
JB33644-9.2.1	Extract Freezer		05/23/13 09:00	Disposed
JB33644-9.5	Secured Storage	Oksana Treglazova	04/18/13 16:23	Retrieve from Storage
JB33644-9.5	Oksana Treglazova	Secured Storage	04/18/13 16:24	Return to Storage
JB33644-9.7	Secured Storage	Larisa Pejdah	04/15/13 09:58	Retrieve from Storage
JB33644-9.7	Larisa Pejdah	Secured Storage	04/15/13 22:09	Return to Storage
JB33644-9.7.1	Larisa Pejdah	Organics Prep	04/15/13 09:59	Extract from JB33644-9.7
JB33644-9.7.1	Organics Prep	Vincent Drago	04/16/13 10:37	Extract from JB33644-9.7
JB33644-9.7.1	Vincent Drago	Extract Storage	04/16/13 10:37	Return to Storage
JB33644-9.7.1	Extract Storage	Vincent Drago	04/16/13 10:37	Retrieve from Storage
JB33644-9.7.1	Vincent Drago	GCWW	04/16/13 10:37	Load on Instrument
JB33644-9.7.1	GCWW	Vincent Drago	04/18/13 11:15	Unload from Instrument
JB33644-9.7.1	Vincent Drago	Extract Freezer	04/18/13 11:15	Return to Storage
JB33644-9.7.1	Extract Freezer		05/27/13 09:00	Disposed
JB33644-9F.3	Secured Storage	Adam Scott	04/09/13 11:21	Retrieve from Storage
JB33644-9F.3	Adam Scott	Secured Staging Area	04/09/13 11:22	Return to Storage
JB33644-9F.3	Secured Staging Area	Nida Saleem	04/09/13 11:51	Retrieve from Storage
JB33644-9F.3	Nida Saleem	Gina Montenegro	04/09/13 17:12	Custody Transfer
JB33644-9F.3	Gina Montenegro	Secured Storage	04/09/13 23:37	Return to Storage
JB33644-9F.3	Secured Storage	Mehmet Temizsu	04/16/13 15:43	Retrieve from Storage
JB33644-9F.3	Mehmet Temizsu	Secured Staging Area	04/16/13 15:43	Return to Storage
JB33644-9F.3	Secured Staging Area	Michael Bunza	04/16/13 15:47	Retrieve from Storage
JB33644-9F.3	Michael Bunza	Secured Storage	04/16/13 20:06	Return to Storage
JB33644-10.1	Secured Storage	Patrick Wade	04/12/13 08:11	Retrieve from Storage
JB33644-10.1	Patrick Wade		04/12/13 14:42	Depleted
JB33644-10.1.1	Patrick Wade	Organics Prep	04/12/13 08:14	Extract from JB33644-10.1

Accutest Internal Chain of Custody

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/08/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33644-10.1.1	Organics Prep	Patrick Wade	04/12/13 16:05	Extract from JB33644-10.1
JB33644-10.1.1	Patrick Wade	Extract Storage	04/12/13 16:05	Return to Storage
JB33644-10.1.1	Extract Storage	Nina Pandya	04/25/13 12:26	Retrieve from Storage
JB33644-10.1.1	Nina Pandya	GCMS3M	04/25/13 12:26	Load on Instrument
JB33644-10.1.1	GCMS3M	Nina Pandya	04/26/13 12:24	Unload from Instrument
JB33644-10.1.1	Nina Pandya	Extract Freezer	04/26/13 12:24	Return to Storage
JB33644-10.1.1	Extract Freezer		05/23/13 09:00	Disposed
JB33644-10.2	Secured Storage	Shanice Grant	04/29/13 06:31	Retrieve from Storage
JB33644-10.2	Shanice Grant		04/29/13 15:09	Depleted
JB33644-10.2.1	Shanice Grant	Organics Prep	04/29/13 06:38	Extract from JB33644-10.2
JB33644-10.2.1	Organics Prep	Shanice Grant	04/29/13 15:13	Extract from JB33644-10.2
JB33644-10.2.1	Shanice Grant	Extract Storage	04/29/13 15:13	Return to Storage
JB33644-10.2.1	Extract Storage	Nina Pandya	05/07/13 09:34	Retrieve from Storage
JB33644-10.2.1	Nina Pandya	GCMS3M	05/07/13 09:35	Load on Instrument
JB33644-10.2.1	GCMS3M	Ashley Dye	05/20/13 10:48	Unload from Instrument
JB33644-10.2.1	Ashley Dye	Extract Freezer	05/20/13 10:48	Return to Storage
JB33644-10.5	Secured Storage	Oksana Treglazova	04/18/13 16:23	Retrieve from Storage
JB33644-10.5	Oksana Treglazova	Secured Storage	04/18/13 16:24	Return to Storage
JB33644-10.7	Secured Storage	Larisa Pejdah	04/15/13 09:58	Retrieve from Storage
JB33644-10.7	Larisa Pejdah	Secured Storage	04/15/13 22:09	Return to Storage
JB33644-10.7.1	Larisa Pejdah	Organics Prep	04/15/13 09:59	Extract from JB33644-10.7
JB33644-10.7.1	Organics Prep	Vincent Drago	04/16/13 10:37	Extract from JB33644-10.7
JB33644-10.7.1	Vincent Drago	Extract Storage	04/16/13 10:37	Return to Storage
JB33644-10.7.1	Extract Storage	Vincent Drago	04/16/13 10:37	Retrieve from Storage
JB33644-10.7.1	Vincent Drago	GCWW	04/16/13 10:37	Load on Instrument
JB33644-10.7.1	GCWW	Vincent Drago	04/18/13 11:15	Unload from Instrument
JB33644-10.7.1	Vincent Drago	Extract Freezer	04/18/13 11:15	Return to Storage
JB33644-10.7.1	Extract Freezer		05/27/13 09:00	Disposed
JB33644-10F.3	Secured Storage	Adam Scott	04/09/13 11:21	Retrieve from Storage
JB33644-10F.3	Adam Scott	Secured Staging Area	04/09/13 11:22	Return to Storage
JB33644-10F.3	Secured Staging Area	Nida Saleem	04/09/13 11:51	Retrieve from Storage
JB33644-10F.3	Nida Saleem	Gina Montenegro	04/09/13 17:12	Custody Transfer
JB33644-10F.3	Gina Montenegro	Secured Storage	04/09/13 23:37	Return to Storage
JB33644-10F.3	Secured Storage	Mehmet Temizsu	04/16/13 15:43	Retrieve from Storage
JB33644-10F.3	Mehmet Temizsu	Secured Staging Area	04/16/13 15:43	Return to Storage
JB33644-10F.3	Secured Staging Area	Michael Bunza	04/16/13 15:47	Retrieve from Storage
JB33644-10F.3	Michael Bunza	Secured Storage	04/16/13 20:06	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/08/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33644-11.2	Secured Storage	Patrick Wade	04/12/13 08:11	Retrieve from Storage
JB33644-11.2	Patrick Wade		04/12/13 14:42	Depleted
JB33644-11.2.1	Patrick Wade	Organics Prep	04/12/13 08:14	Extract from JB33644-11.2
JB33644-11.2.1	Organics Prep	Patrick Wade	04/12/13 16:05	Extract from JB33644-11.2
JB33644-11.2.1	Patrick Wade	Extract Storage	04/12/13 16:05	Return to Storage
JB33644-11.2.1	Extract Storage	Nina Pandya	04/25/13 12:26	Retrieve from Storage
JB33644-11.2.1	Nina Pandya	GCMS3M	04/25/13 12:26	Load on Instrument
JB33644-11.2.1	GCMS3M	Nina Pandya	04/26/13 12:24	Unload from Instrument
JB33644-11.2.1	Nina Pandya	Extract Freezer	04/26/13 12:24	Return to Storage
JB33644-11.2.1	Extract Freezer		05/23/13 09:00	Disposed
JB33644-11.5	Secured Storage	Oksana Treglazova	04/18/13 16:23	Retrieve from Storage
JB33644-11.5	Oksana Treglazova	Secured Storage	04/18/13 16:24	Return to Storage
JB33644-11.6	Secured Storage	Larisa Pejdah	04/15/13 09:58	Retrieve from Storage
JB33644-11.6	Larisa Pejdah	Secured Storage	04/15/13 22:09	Return to Storage
JB33644-11.6.1	Larisa Pejdah	Organics Prep	04/15/13 09:59	Extract from JB33644-11.6
JB33644-11.6.1	Organics Prep	Vincent Drago	04/16/13 10:37	Extract from JB33644-11.6
JB33644-11.6.1	Vincent Drago	Extract Storage	04/16/13 10:37	Return to Storage
JB33644-11.6.1	Extract Storage	Vincent Drago	04/16/13 10:37	Retrieve from Storage
JB33644-11.6.1	Vincent Drago	GCWW	04/16/13 10:37	Load on Instrument
JB33644-11.6.1	GCWW	Vincent Drago	04/18/13 11:15	Unload from Instrument
JB33644-11.6.1	Vincent Drago	Extract Freezer	04/18/13 11:15	Return to Storage
JB33644-11.6.1	Extract Freezer		05/27/13 09:00	Disposed
JB33644-11F.3	Secured Storage	Adam Scott	04/09/13 11:21	Retrieve from Storage
JB33644-11F.3	Adam Scott	Secured Staging Area	04/09/13 11:22	Return to Storage
JB33644-11F.3	Secured Staging Area	Nida Saleem	04/09/13 11:51	Retrieve from Storage
JB33644-11F.3	Nida Saleem	Gina Montenegro	04/09/13 17:12	Custody Transfer
JB33644-11F.3	Gina Montenegro	Secured Storage	04/09/13 23:37	Return to Storage
JB33644-11F.3	Secured Storage	Mehmet Temizsu	04/16/13 15:43	Retrieve from Storage
JB33644-11F.3	Mehmet Temizsu	Secured Staging Area	04/16/13 15:43	Return to Storage
JB33644-11F.3	Secured Staging Area	Michael Bunza	04/16/13 15:47	Retrieve from Storage
JB33644-11F.3	Michael Bunza	Secured Storage	04/16/13 20:06	Return to Storage
JB33644-12.2	Secured Storage	Patrick Wade	04/12/13 08:11	Retrieve from Storage
JB33644-12.2	Patrick Wade		04/12/13 14:42	Depleted
JB33644-12.2.1	Patrick Wade	Organics Prep	04/12/13 08:14	Extract from JB33644-12.2
JB33644-12.2.1	Organics Prep	Patrick Wade	04/12/13 16:05	Extract from JB33644-12.2
JB33644-12.2.1	Patrick Wade	Extract Storage	04/12/13 16:05	Return to Storage
JB33644-12.2.1	Extract Storage	Nina Pandya	04/25/13 12:26	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/08/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33644-12.2.1	Nina Pandya	GCMS3M	04/25/13 12:26	Load on Instrument
JB33644-12.2.1	GCMS3M	Nina Pandya	04/26/13 12:24	Unload from Instrument
JB33644-12.2.1	Nina Pandya	Extract Freezer	04/26/13 12:24	Return to Storage
JB33644-12.2.1	Extract Freezer		05/23/13 09:00	Disposed
JB33644-12.5	Secured Storage	Oksana Treglazova	04/18/13 16:23	Retrieve from Storage
JB33644-12.5	Oksana Treglazova	Secured Storage	04/18/13 16:24	Return to Storage
JB33644-12.7	Secured Storage	Larisa Pejdah	04/15/13 09:58	Retrieve from Storage
JB33644-12.7	Larisa Pejdah	Secured Storage	04/15/13 22:09	Return to Storage
JB33644-12.7.1	Larisa Pejdah	Organics Prep	04/15/13 09:59	Extract from JB33644-12.7
JB33644-12.7.1	Organics Prep	Vincent Drago	04/16/13 10:37	Extract from JB33644-12.7
JB33644-12.7.1	Vincent Drago	Extract Storage	04/16/13 10:37	Return to Storage
JB33644-12.7.1	Extract Storage	Vincent Drago	04/16/13 10:37	Retrieve from Storage
JB33644-12.7.1	Vincent Drago	GCWW	04/16/13 10:37	Load on Instrument
JB33644-12.7.1	GCWW	Vincent Drago	04/18/13 11:15	Unload from Instrument
JB33644-12.7.1	Vincent Drago	Extract Freezer	04/18/13 11:15	Return to Storage
JB33644-12.7.1	Extract Freezer		05/27/13 09:00	Disposed
JB33644-12F.3	Secured Storage	Adam Scott	04/09/13 11:21	Retrieve from Storage
JB33644-12F.3	Adam Scott	Secured Staging Area	04/09/13 11:22	Return to Storage
JB33644-12F.3	Secured Staging Area	Nida Saleem	04/09/13 11:51	Retrieve from Storage
JB33644-12F.3	Nida Saleem	Gina Montenegro	04/09/13 17:12	Custody Transfer
JB33644-12F.3	Gina Montenegro	Secured Storage	04/09/13 23:37	Return to Storage
JB33644-12F.3	Secured Storage	Mehmet Temizsu	04/16/13 15:43	Retrieve from Storage
JB33644-12F.3	Mehmet Temizsu	Secured Staging Area	04/16/13 15:43	Return to Storage
JB33644-12F.3	Secured Staging Area	Michael Bunza	04/16/13 15:47	Retrieve from Storage
JB33644-12F.3	Michael Bunza	Secured Storage	04/16/13 20:06	Return to Storage
JB33644-13.2	Secured Storage	Patrick Wade	04/12/13 08:11	Retrieve from Storage
JB33644-13.2	Patrick Wade		04/12/13 14:42	Depleted
JB33644-13.2.1	Patrick Wade	Organics Prep	04/12/13 08:14	Extract from JB33644-13.2
JB33644-13.2.1	Organics Prep	Patrick Wade	04/12/13 16:05	Extract from JB33644-13.2
JB33644-13.2.1	Patrick Wade	Extract Storage	04/12/13 16:05	Return to Storage
JB33644-13.2.1	Extract Storage	Nina Pandya	04/25/13 12:26	Retrieve from Storage
JB33644-13.2.1	Nina Pandya	GCMS3M	04/25/13 12:26	Load on Instrument
JB33644-13.2.1	GCMS3M	Nina Pandya	04/26/13 12:24	Unload from Instrument
JB33644-13.2.1	Nina Pandya	Extract Freezer	04/26/13 12:24	Return to Storage
JB33644-13.2.1	Extract Freezer		05/23/13 09:00	Disposed
JB33644-13.5	Secured Storage	Oksana Treglazova	04/18/13 16:23	Retrieve from Storage
JB33644-13.5	Oksana Treglazova	Secured Storage	04/18/13 16:24	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/08/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33644-13.7	Secured Storage	Larisa Pejdah	04/15/13 09:58	Retrieve from Storage
JB33644-13.7	Larisa Pejdah	Secured Storage	04/15/13 22:09	Return to Storage
JB33644-13.7.1	Larisa Pejdah	Organics Prep	04/15/13 09:59	Extract from JB33644-13.7
JB33644-13.7.1	Organics Prep	Vincent Drago	04/16/13 10:37	Extract from JB33644-13.7
JB33644-13.7.1	Vincent Drago	Extract Storage	04/16/13 10:37	Return to Storage
JB33644-13.7.1	Extract Storage	Vincent Drago	04/16/13 10:37	Retrieve from Storage
JB33644-13.7.1	Vincent Drago	GCWW	04/16/13 10:37	Load on Instrument
JB33644-13.7.1	GCWW	Vincent Drago	04/18/13 11:15	Unload from Instrument
JB33644-13.7.1	Vincent Drago	Extract Freezer	04/18/13 11:15	Return to Storage
JB33644-13.7.1	Extract Freezer		05/27/13 09:00	Disposed
JB33644-13F.3	Secured Storage	Adam Scott	04/09/13 11:21	Retrieve from Storage
JB33644-13F.3	Adam Scott	Secured Staging Area	04/09/13 11:22	Return to Storage
JB33644-13F.3	Secured Staging Area	Nida Saleem	04/09/13 11:51	Retrieve from Storage
JB33644-13F.3	Nida Saleem	Gina Montenegro	04/09/13 17:12	Custody Transfer
JB33644-13F.3	Gina Montenegro	Secured Storage	04/09/13 23:37	Return to Storage
JB33644-13F.3	Secured Storage	Mehmet Temizsu	04/16/13 15:43	Retrieve from Storage
JB33644-13F.3	Mehmet Temizsu	Secured Staging Area	04/16/13 15:43	Return to Storage
JB33644-13F.3	Secured Staging Area	Michael Bunza	04/16/13 15:47	Retrieve from Storage
JB33644-13F.3	Michael Bunza	Secured Storage	04/16/13 20:06	Return to Storage
JB33644-14.2	Secured Storage	Patrick Wade	04/12/13 08:11	Retrieve from Storage
JB33644-14.2	Patrick Wade		04/12/13 14:42	Depleted
JB33644-14.2.1	Patrick Wade	Organics Prep	04/12/13 08:14	Extract from JB33644-14.2
JB33644-14.2.1	Organics Prep	Patrick Wade	04/12/13 16:05	Extract from JB33644-14.2
JB33644-14.2.1	Patrick Wade	Extract Storage	04/12/13 16:05	Return to Storage
JB33644-14.2.1	Extract Storage	Nina Pandya	04/25/13 12:26	Retrieve from Storage
JB33644-14.2.1	Nina Pandya	GCMS3M	04/25/13 12:26	Load on Instrument
JB33644-14.2.1	GCMS3M	Nina Pandya	04/26/13 12:24	Unload from Instrument
JB33644-14.2.1	Nina Pandya	Extract Freezer	04/26/13 12:24	Return to Storage
JB33644-14.2.1	Extract Freezer		05/23/13 09:00	Disposed
JB33644-14.6	Secured Storage	Larisa Pejdah	04/15/13 09:58	Retrieve from Storage
JB33644-14.6	Larisa Pejdah	Secured Storage	04/15/13 22:09	Return to Storage
JB33644-14.6.1	Larisa Pejdah	Organics Prep	04/15/13 09:59	Extract from JB33644-14.6
JB33644-14.6.1	Organics Prep	Vincent Drago	04/16/13 10:37	Extract from JB33644-14.6
JB33644-14.6.1	Vincent Drago	Extract Storage	04/16/13 10:37	Return to Storage
JB33644-14.6.1	Extract Storage	Vincent Drago	04/16/13 10:37	Retrieve from Storage
JB33644-14.6.1	Vincent Drago	GCWW	04/16/13 10:37	Load on Instrument
JB33644-14.6.1	GCWW	Vincent Drago	04/18/13 11:15	Unload from Instrument

Accutest Internal Chain of Custody

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/08/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33644-14.6.1	Vincent Drago	Extract Freezer	04/18/13 11:15	Return to Storage
JB33644-14.6.1	Extract Freezer		05/27/13 09:00	Disposed
JB33644-14.7	Secured Storage	Oksana Treglazova	04/18/13 16:23	Retrieve from Storage
JB33644-14.7	Oksana Treglazova	Secured Storage	04/18/13 16:24	Return to Storage
JB33644-14F.3	Secured Storage	Adam Scott	04/09/13 11:21	Retrieve from Storage
JB33644-14F.3	Adam Scott	Secured Staging Area	04/09/13 11:22	Return to Storage
JB33644-14F.3	Secured Staging Area	Nida Saleem	04/09/13 11:51	Retrieve from Storage
JB33644-14F.3	Nida Saleem	Gina Montenegro	04/09/13 17:12	Custody Transfer
JB33644-14F.3	Gina Montenegro	Secured Storage	04/09/13 23:37	Return to Storage
JB33644-14F.3	Secured Storage	Mehmet Temizsu	04/16/13 15:43	Retrieve from Storage
JB33644-14F.3	Mehmet Temizsu	Secured Staging Area	04/16/13 15:43	Return to Storage
JB33644-14F.3	Secured Staging Area	Michael Bunza	04/16/13 15:47	Retrieve from Storage
JB33644-14F.3	Michael Bunza	Secured Storage	04/16/13 20:06	Return to Storage
JB33644-15.1	Secured Storage	Patrick Wade	04/12/13 08:11	Retrieve from Storage
JB33644-15.1	Patrick Wade		04/12/13 14:42	Depleted
JB33644-15.1.1	Patrick Wade	Organics Prep	04/12/13 08:14	Extract from JB33644-15.1
JB33644-15.1.1	Organics Prep	Patrick Wade	04/12/13 16:05	Extract from JB33644-15.1
JB33644-15.1.1	Patrick Wade	Extract Storage	04/12/13 16:05	Return to Storage
JB33644-15.1.1	Extract Storage	Nina Pandya	04/25/13 12:26	Retrieve from Storage
JB33644-15.1.1	Nina Pandya	GCMS3M	04/25/13 12:26	Load on Instrument
JB33644-15.1.1	GCMS3M	Nina Pandya	04/26/13 12:24	Unload from Instrument
JB33644-15.1.1	Nina Pandya	Extract Freezer	04/26/13 12:24	Return to Storage
JB33644-15.1.1	Extract Freezer		05/23/13 09:00	Disposed
JB33644-15.2	Secured Storage	Shanice Grant	04/29/13 06:31	Retrieve from Storage
JB33644-15.2	Shanice Grant		04/29/13 15:09	Depleted
JB33644-15.2.1	Shanice Grant	Organics Prep	04/29/13 06:38	Extract from JB33644-15.2
JB33644-15.2.1	Organics Prep	Shanice Grant	04/29/13 15:13	Extract from JB33644-15.2
JB33644-15.2.1	Shanice Grant	Extract Storage	04/29/13 15:13	Return to Storage
JB33644-15.2.1	Extract Storage	Nina Pandya	05/07/13 09:34	Retrieve from Storage
JB33644-15.2.1	Nina Pandya	GCMS3M	05/07/13 09:35	Load on Instrument
JB33644-15.2.1	GCMS3M	Ashley Dye	05/20/13 10:48	Unload from Instrument
JB33644-15.2.1	Ashley Dye	Extract Freezer	05/20/13 10:48	Return to Storage
JB33644-15.4	Secured Storage	Larisa Pejdah	04/15/13 09:58	Retrieve from Storage
JB33644-15.4	Larisa Pejdah	Secured Storage	04/15/13 22:09	Return to Storage
JB33644-15.4.1	Larisa Pejdah	Organics Prep	04/15/13 09:59	Extract from JB33644-15.4
JB33644-15.4.1	Organics Prep	Vincent Drago	04/16/13 10:37	Extract from JB33644-15.4

Accutest Internal Chain of Custody

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/08/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33644-15.4.1	Vincent Drago	Extract Storage	04/16/13 10:37	Return to Storage
JB33644-15.4.1	Extract Storage	Vincent Drago	04/16/13 10:37	Retrieve from Storage
JB33644-15.4.1	Vincent Drago	GCWW	04/16/13 10:37	Load on Instrument
JB33644-15.4.1	GCWW	Vincent Drago	04/18/13 11:15	Unload from Instrument
JB33644-15.4.1	Vincent Drago	Extract Freezer	04/18/13 11:15	Return to Storage
JB33644-15.4.1	Extract Freezer		05/27/13 09:00	Disposed
JB33644-15.5	Secured Storage	Oksana Treglazova	04/18/13 16:23	Retrieve from Storage
JB33644-15.5	Oksana Treglazova	Secured Storage	04/18/13 16:24	Return to Storage
JB33644-15F.3	Secured Storage	Adam Scott	04/09/13 11:21	Retrieve from Storage
JB33644-15F.3	Adam Scott	Secured Staging Area	04/09/13 11:22	Return to Storage
JB33644-15F.3	Secured Staging Area	Nida Saleem	04/09/13 11:51	Retrieve from Storage
JB33644-15F.3	Nida Saleem	Gina Montenegro	04/09/13 17:12	Custody Transfer
JB33644-15F.3	Gina Montenegro	Secured Storage	04/09/13 23:37	Return to Storage
JB33644-15F.3	Secured Storage	Mehmet Temizsu	04/16/13 15:43	Retrieve from Storage
JB33644-15F.3	Mehmet Temizsu	Secured Staging Area	04/16/13 15:43	Return to Storage
JB33644-15F.3	Secured Staging Area	Michael Bunza	04/16/13 15:47	Retrieve from Storage
JB33644-15F.3	Michael Bunza	Secured Storage	04/16/13 20:06	Return to Storage
JB33644-16.1	Secured Storage	Patrick Wade	04/12/13 08:11	Retrieve from Storage
JB33644-16.1	Patrick Wade		04/12/13 14:42	Depleted
JB33644-16.1.1	Patrick Wade	Organics Prep	04/12/13 08:14	Extract from JB33644-16.1
JB33644-16.1.1	Organics Prep	Patrick Wade	04/12/13 16:05	Extract from JB33644-16.1
JB33644-16.1.1	Patrick Wade	Extract Storage	04/12/13 16:05	Return to Storage
JB33644-16.1.1	Extract Storage	Nina Pandya	04/25/13 12:26	Retrieve from Storage
JB33644-16.1.1	Nina Pandya	GCMS3M	04/25/13 12:26	Load on Instrument
JB33644-16.1.1	GCMS3M	Nina Pandya	04/26/13 12:24	Unload from Instrument
JB33644-16.1.1	Nina Pandya	Extract Freezer	04/26/13 12:24	Return to Storage
JB33644-16.1.1	Extract Freezer		05/23/13 09:00	Disposed
JB33644-16.4	Secured Storage	Larisa Pejdah	04/15/13 09:58	Retrieve from Storage
JB33644-16.4	Larisa Pejdah	Secured Storage	04/15/13 22:09	Return to Storage
JB33644-16.4.1	Larisa Pejdah	Organics Prep	04/15/13 09:59	Extract from JB33644-16.4
JB33644-16.4.1	Organics Prep	Vincent Drago	04/16/13 10:37	Extract from JB33644-16.4
JB33644-16.4.1	Vincent Drago	Extract Storage	04/16/13 10:37	Return to Storage
JB33644-16.4.1	Extract Storage	Vincent Drago	04/16/13 10:37	Retrieve from Storage
JB33644-16.4.1	Vincent Drago	GCWW	04/16/13 10:37	Load on Instrument
JB33644-16.4.1	GCWW	Vincent Drago	04/18/13 11:15	Unload from Instrument
JB33644-16.4.1	Vincent Drago	Extract Freezer	04/18/13 11:15	Return to Storage
JB33644-16.4.1	Extract Freezer		05/27/13 09:00	Disposed

Accutest Internal Chain of Custody

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/08/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33644-16.7	Secured Storage	Oksana Treglazova	04/18/13 16:23	Retrieve from Storage
JB33644-16.7	Oksana Treglazova	Secured Storage	04/18/13 16:24	Return to Storage
JB33644-16F.3	Secured Storage	Adam Scott	04/09/13 11:21	Retrieve from Storage
JB33644-16F.3	Adam Scott	Secured Staging Area	04/09/13 11:22	Return to Storage
JB33644-16F.3	Secured Staging Area	Nida Saleem	04/09/13 11:51	Retrieve from Storage
JB33644-16F.3	Nida Saleem	Gina Montenegro	04/09/13 17:12	Custody Transfer
JB33644-16F.3	Gina Montenegro	Secured Storage	04/09/13 23:37	Return to Storage
JB33644-16F.3	Secured Storage	Mehmet Temizsu	04/16/13 15:43	Retrieve from Storage
JB33644-16F.3	Mehmet Temizsu	Secured Staging Area	04/16/13 15:43	Return to Storage
JB33644-16F.3	Secured Staging Area	Michael Bunza	04/16/13 15:47	Retrieve from Storage
JB33644-16F.3	Michael Bunza	Secured Storage	04/16/13 20:10	Return to Storage

New Jersey
ACCUTEST LABORATORIES

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (BFB)
- Internal Standard Area Summaries
- Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries

Method Blank Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VA7306-MB	A193767.D	1	04/18/13	OTR	n/a	n/a	VA7306

The QC reported here applies to the following samples: **Method:** SW846 8260B

JB33644-1, JB33644-2, JB33644-8, JB33644-9, JB33644-10

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.24	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.23	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.45	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.16	ug/l	
108-88-3	Toluene	ND	1.0	0.23	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.19	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.36	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.24	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	92%	81-121%
17060-07-0	1,2-Dichloroethane-D4	94%	74-127%
2037-26-5	Toluene-D8	100%	80-122%
460-00-4	4-Bromofluorobenzene	112%	78-116%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

Method Blank Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VA7306-MB2	A193790.D	1	04/19/13	OTR	n/a	n/a	VA7306

The QC reported here applies to the following samples: **Method:** SW846 8260B

JB33644-5, JB33644-6, JB33644-11, JB33644-12, JB33644-13, JB33644-14, JB33644-15, JB33644-16

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.24	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.23	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.45	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.16	ug/l	
108-88-3	Toluene	ND	1.0	0.23	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.19	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.36	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.24	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	92%	81-121%
17060-07-0	1,2-Dichloroethane-D4	93%	74-127%
2037-26-5	Toluene-D8	102%	80-122%
460-00-4	4-Bromofluorobenzene	110%	78-116%

Method Blank Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VA7307-MB	A193802.D	1	04/19/13	OTR	n/a	n/a	VA7307

The QC reported here applies to the following samples: **Method:** SW846 8260B

JB33644-7

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.24	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.23	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.45	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.16	ug/l	
108-88-3	Toluene	ND	1.0	0.23	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.19	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.36	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.24	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	93%	81-121%
17060-07-0	1,2-Dichloroethane-D4	91%	74-127%
2037-26-5	Toluene-D8	100%	80-122%
460-00-4	4-Bromofluorobenzene	114%	78-116%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

Method Blank Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VA7309-MB	A193845.D	1	04/20/13	OTR	n/a	n/a	VA7309

The QC reported here applies to the following samples: **Method:** SW846 8260B

JB33644-3

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.24	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.23	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.45	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.16	ug/l	
108-88-3	Toluene	ND	1.0	0.23	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.19	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.36	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.24	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	91%	81-121%
17060-07-0	1,2-Dichloroethane-D4	89%	74-127%
2037-26-5	Toluene-D8	101%	80-122%
460-00-4	4-Bromofluorobenzene	113%	78-116%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

Method Blank Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VU7923-MB	U171094.D	1	04/22/13	MS	n/a	n/a	VU7923

The QC reported here applies to the following samples: **Method:** SW846 8260B

JB33644-4

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.24	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.23	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.45	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.16	ug/l	
108-88-3	Toluene	ND	1.0	0.23	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.19	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.36	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.24	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	95%	81-121%
17060-07-0	1,2-Dichloroethane-D4	89%	74-127%
2037-26-5	Toluene-D8	106%	80-122%
460-00-4	4-Bromofluorobenzene	103%	78-116%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

Blank Spike Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VA7306-BS	A193768.D	1	04/18/13	OTR	n/a	n/a	VA7306

The QC reported here applies to the following samples: **Method:** SW846 8260B

JB33644-1, JB33644-2, JB33644-5, JB33644-6, JB33644-8, JB33644-9, JB33644-10, JB33644-11, JB33644-12, JB33644-13, JB33644-14, JB33644-15, JB33644-16

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	53.9	108	79-116
107-06-2	1,2-Dichloroethane	50	56.4	113	75-133
100-41-4	Ethylbenzene	50	51.8	104	81-118
98-82-8	Isopropylbenzene	50	51.0	102	74-123
1634-04-4	Methyl Tert Butyl Ether	50	52.4	105	77-120
108-88-3	Toluene	50	51.9	104	82-119
95-63-6	1,2,4-Trimethylbenzene	50	51.5	103	78-122
108-67-8	1,3,5-Trimethylbenzene	50	51.3	103	77-122
1330-20-7	Xylene (total)	150	160	107	82-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	91%	81-121%
17060-07-0	1,2-Dichloroethane-D4	95%	74-127%
2037-26-5	Toluene-D8	102%	80-122%
460-00-4	4-Bromofluorobenzene	98%	78-116%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VA7307-BS	A193803.D	1	04/19/13	OTR	n/a	n/a	VA7307

The QC reported here applies to the following samples: **Method:** SW846 8260B

JB33644-7

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	56.9	114	79-116
107-06-2	1,2-Dichloroethane	50	60.0	120	75-133
100-41-4	Ethylbenzene	50	56.0	112	81-118
98-82-8	Isopropylbenzene	50	55.2	110	74-123
1634-04-4	Methyl Tert Butyl Ether	50	56.7	113	77-120
108-88-3	Toluene	50	55.8	112	82-119
95-63-6	1,2,4-Trimethylbenzene	50	55.2	110	78-122
108-67-8	1,3,5-Trimethylbenzene	50	55.0	110	77-122
1330-20-7	Xylene (total)	150	172	115	82-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	93%	81-121%
17060-07-0	1,2-Dichloroethane-D4	97%	74-127%
2037-26-5	Toluene-D8	102%	80-122%
460-00-4	4-Bromofluorobenzene	98%	78-116%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VA7309-BS	A193846.D	1	04/20/13	OTR	n/a	n/a	VA7309

The QC reported here applies to the following samples: **Method:** SW846 8260B

JB33644-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	52.3	105	79-116
107-06-2	1,2-Dichloroethane	50	54.8	110	75-133
100-41-4	Ethylbenzene	50	50.7	101	81-118
98-82-8	Isopropylbenzene	50	49.1	98	74-123
1634-04-4	Methyl Tert Butyl Ether	50	49.1	98	77-120
108-88-3	Toluene	50	51.2	102	82-119
95-63-6	1,2,4-Trimethylbenzene	50	49.5	99	78-122
108-67-8	1,3,5-Trimethylbenzene	50	49.3	99	77-122
1330-20-7	Xylene (total)	150	156	104	82-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	91%	81-121%
17060-07-0	1,2-Dichloroethane-D4	92%	74-127%
2037-26-5	Toluene-D8	101%	80-122%
460-00-4	4-Bromofluorobenzene	97%	78-116%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VU7923-BS	U171095.D	1	04/22/13	MS	n/a	n/a	VU7923

The QC reported here applies to the following samples: **Method:** SW846 8260B

JB33644-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	52.6	105	79-116
107-06-2	1,2-Dichloroethane	50	44.7	89	75-133
100-41-4	Ethylbenzene	50	50.8	102	81-118
98-82-8	Isopropylbenzene	50	52.4	105	74-123
1634-04-4	Methyl Tert Butyl Ether	100	80.3	80	77-120
108-88-3	Toluene	50	52.2	104	82-119
95-63-6	1,2,4-Trimethylbenzene	50	51.4	103	78-122
108-67-8	1,3,5-Trimethylbenzene	50	51.4	103	77-122
1330-20-7	Xylene (total)	150	151	101	82-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	97%	81-121%
17060-07-0	1,2-Dichloroethane-D4	91%	74-127%
2037-26-5	Toluene-D8	108%	80-122%
460-00-4	4-Bromofluorobenzene	101%	78-116%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB33644-9MS	A193777.D	1	04/18/13	OTR	n/a	n/a	VA7306
JB33644-9MSD	A193778.D	1	04/18/13	OTR	n/a	n/a	VA7306
JB33644-9	A193782.D	1	04/18/13	OTR	n/a	n/a	VA7306

The QC reported here applies to the following samples: **Method:** SW846 8260B

JB33644-1, JB33644-2, JB33644-5, JB33644-6, JB33644-8, JB33644-9, JB33644-10, JB33644-11, JB33644-12, JB33644-13, JB33644-14, JB33644-15, JB33644-16

CAS No.	Compound	JB33644-9 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		50	49.0	98	52.3	105	7	48-138/11
107-06-2	1,2-Dichloroethane	ND		50	51.5	103	54.7	109	6	68-139/10
100-41-4	Ethylbenzene	ND		50	48.3	97	51.3	103	6	48-139/11
98-82-8	Isopropylbenzene	ND		50	48.7	97	51.5	103	6	61-135/12
1634-04-4	Methyl Tert Butyl Ether	0.24	J	100	89.3	89	94.9	95	6	63-133/11
108-88-3	Toluene	ND		50	48.5	97	52.1	104	7	55-138/11
95-63-6	1,2,4-Trimethylbenzene	0.39	J	50	47.4	94	50.0	99	5	48-140/10
108-67-8	1,3,5-Trimethylbenzene	ND		50	48.3	97	50.8	102	5	58-135/11
1330-20-7	Xylene (total)	0.73	J	150	148	98	158	105	7	51-139/11

CAS No.	Surrogate Recoveries	MS	MSD	JB33644-9	Limits
1868-53-7	Dibromofluoromethane	90%	89%	89%	81-121%
17060-07-0	1,2-Dichloroethane-D4	91%	92%	86%	74-127%
2037-26-5	Toluene-D8	102%	102%	100%	80-122%
460-00-4	4-Bromofluorobenzene	98%	97%	110%	78-116%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB33644-7MS	A193817.D	1	04/19/13	OTR	n/a	n/a	VA7307
JB33644-7MSD	A193818.D	1	04/19/13	OTR	n/a	n/a	VA7307
JB33644-7	A193816.D	1	04/19/13	OTR	n/a	n/a	VA7307

The QC reported here applies to the following samples: **Method:** SW846 8260B

JB33644-7

CAS No.	Compound	JB33644-7 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		50	62.8	126	62.0	124	1	48-138/11
107-06-2	1,2-Dichloroethane	ND		50	68.6	137	66.9	134	3	68-139/10
100-41-4	Ethylbenzene	ND		50	60.4	121	59.5	119	2	48-139/11
98-82-8	Isopropylbenzene	ND		50	59.4	119	59.2	118	0	61-135/12
1634-04-4	Methyl Tert Butyl Ether	0.26	J	100	112	111	110	110	2	63-133/11
108-88-3	Toluene	ND		50	62.4	125	61.7	123	1	55-138/11
95-63-6	1,2,4-Trimethylbenzene	ND		50	59.2	118	58.9	118	1	48-140/10
108-67-8	1,3,5-Trimethylbenzene	ND		50	59.5	119	59.2	118	1	58-135/11
1330-20-7	Xylene (total)	ND		150	187	125	184	123	2	51-139/11

CAS No.	Surrogate Recoveries	MS	MSD	JB33644-7	Limits
1868-53-7	Dibromofluoromethane	91%	91%	92%	81-121%
17060-07-0	1,2-Dichloroethane-D4	95%	96%	91%	74-127%
2037-26-5	Toluene-D8	101%	103%	101%	80-122%
460-00-4	4-Bromofluorobenzene	97%	98%	110%	78-116%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB34206-4MS	A193847.D	1	04/20/13	OTR	n/a	n/a	VA7309
JB34206-4MSD	A193848.D	1	04/20/13	OTR	n/a	n/a	VA7309
JB34206-4	A193851.D	1	04/20/13	OTR	n/a	n/a	VA7309

The QC reported here applies to the following samples: **Method:** SW846 8260B

JB33644-3

CAS No.	Compound	JB34206-4 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		50	54.6	109	52.5	105	4	48-138/11
107-06-2	1,2-Dichloroethane	ND		50	59.4	119	56.6	113	5	68-139/10
100-41-4	Ethylbenzene	ND		50	51.9	104	50.7	101	2	48-139/11
98-82-8	Isopropylbenzene	ND		50	51.0	102	50.5	101	1	61-135/12
1634-04-4	Methyl Tert Butyl Ether	ND		100	102	102	99.0	99	3	63-133/11
108-88-3	Toluene	ND		50	53.9	108	52.6	105	2	55-138/11
95-63-6	1,2,4-Trimethylbenzene	ND		50	50.6	101	49.3	99	3	48-140/10
108-67-8	1,3,5-Trimethylbenzene	ND		50	50.9	102	50.3	101	1	58-135/11
1330-20-7	Xylene (total)	ND		150	160	107	156	104	3	51-139/11

CAS No.	Surrogate Recoveries	MS	MSD	JB34206-4	Limits
1868-53-7	Dibromofluoromethane	91%	90%	91%	81-121%
17060-07-0	1,2-Dichloroethane-D4	94%	91%	88%	74-127%
2037-26-5	Toluene-D8	102%	102%	101%	80-122%
460-00-4	4-Bromofluorobenzene	97%	99%	115%	78-116%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB33822-1MS	U171108.D	1	04/22/13	MS	n/a	n/a	VU7923
JB33822-1MSD	U171109.D	1	04/22/13	MS	n/a	n/a	VU7923
JB33822-1	U171097.D	1	04/22/13	MS	n/a	n/a	VU7923

The QC reported here applies to the following samples: **Method:** SW846 8260B

JB33644-4

CAS No.	Compound	JB33822-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		50	45.7	91	46.8	94	2	48-138/11
107-06-2	1,2-Dichloroethane	ND		50	43.3	87	43.4	87	0	68-139/10
100-41-4	Ethylbenzene	ND		50	43.0	86	43.9	88	2	48-139/11
98-82-8	Isopropylbenzene	0.64	J	50	42.7	84	44.5	88	4	61-135/12
1634-04-4	Methyl Tert Butyl Ether	0.52	J	50	42.5	84	42.9	85	1	63-133/11
108-88-3	Toluene	ND		50	45.4	91	46.9	94	3	55-138/11
95-63-6	1,2,4-Trimethylbenzene	ND		50	42.1	84	42.2	84	0	48-140/10
108-67-8	1,3,5-Trimethylbenzene	ND		50	39.8	80	40.7	81	2	58-135/11
1330-20-7	Xylene (total)	ND		150	129	86	131	87	2	51-139/11

CAS No.	Surrogate Recoveries	MS	MSD	JB33822-1	Limits
1868-53-7	Dibromofluoromethane	98%	98%	97%	81-121%
17060-07-0	1,2-Dichloroethane-D4	92%	92%	89%	74-127%
2037-26-5	Toluene-D8	107%	108%	105%	80-122%
460-00-4	4-Bromofluorobenzene	99%	99%	103%	78-116%

* = Outside of Control Limits.

Instrument Performance Check (BFB)

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: VA7282-BFB
Lab File ID: A193245.D
Instrument ID: GCMSA
Injection Date: 04/03/13
Injection Time: 08:40

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	14.95 - 40.0% of mass 95	6846	17.3		Pass
75	30.0 - 60.0% of mass 95	17986	45.6		Pass
95	Base peak, 100% relative abundance	39469	100.0		Pass
96	5.0 - 9.0% of mass 95	2766	7.01		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	33613	85.2		Pass
175	5.0 - 9.0% of mass 174	2692	6.82	(8.01) [a]	Pass
176	95.0 - 101.0% of mass 174	32848	83.2	(97.7) [a]	Pass
177	5.0 - 9.0% of mass 176	2152	5.45	(6.55) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VA7282-IC7282	A193246.D	04/03/13	09:29	00:49	Initial cal 0.5
VA7282-IC7282	A193247.D	04/03/13	09:54	01:14	Initial cal 1
VA7282-IC7282	A193249.D	04/03/13	10:57	02:17	Initial cal 5
VA7282-IC7282	A193250.D	04/03/13	11:28	02:48	Initial cal 10
VA7282-IC7282	A193251.D	04/03/13	11:59	03:19	Initial cal 20
VA7282-ICC7282	A193252.D	04/03/13	12:31	03:51	Initial cal 50
VA7282-IC7282	A193253.D	04/03/13	13:02	04:22	Initial cal 100
VA7282-IC7282	A193254.D	04/03/13	13:34	04:54	Initial cal 200
VA7282-IC7282	A193257.D	04/03/13	15:05	06:25	Initial cal 2
VA7282-ICV7282	A193258.D	04/03/13	15:40	07:00	Initial cal verification 50
VA7282-ICV7282	A193259.D	04/03/13	16:17	07:37	Initial cal verification 50
VA7282-ICV7282	A193260.D	04/03/13	16:47	08:07	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: VA7306-BFB
Lab File ID: A193765.D
Instrument ID: GCMSA
Injection Date: 04/18/13
Injection Time: 12:31

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	14.95 - 40.0% of mass 95	10006	17.9		Pass
75	30.0 - 60.0% of mass 95	25925	46.4		Pass
95	Base peak, 100% relative abundance	55899	100.0		Pass
96	5.0 - 9.0% of mass 95	3979	7.12		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	46432	83.1		Pass
175	5.0 - 9.0% of mass 174	3707	6.63	(7.98) [a]	Pass
176	95.0 - 101.0% of mass 174	44941	80.4	(96.8) [a]	Pass
177	5.0 - 9.0% of mass 176	3169	5.67	(7.05) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VA7306-CC7282	A193766.D	04/18/13	13:00	00:29	Continuing cal 20
VA7306-MB	A193767.D	04/18/13	13:42	01:11	Method Blank
VA7306-BS	A193768.D	04/18/13	14:52	02:21	Blank Spike
ZZZZZZ	A193770.D	04/18/13	15:50	03:19	(unrelated sample)
ZZZZZZ	A193771.D	04/18/13	16:19	03:48	(unrelated sample)
ZZZZZZ	A193772.D	04/18/13	16:56	04:25	(unrelated sample)
ZZZZZZ	A193773.D	04/18/13	17:35	05:04	(unrelated sample)
ZZZZZZ	A193774.D	04/18/13	18:05	05:34	(unrelated sample)
ZZZZZZ	A193775.D	04/18/13	18:34	06:03	(unrelated sample)
ZZZZZZ	A193776.D	04/18/13	19:04	06:33	(unrelated sample)
JB33644-9MS	A193777.D	04/18/13	19:34	07:03	Matrix Spike
JB33644-9MSD	A193778.D	04/18/13	20:03	07:32	Matrix Spike Duplicate
JB33644-1	A193780.D	04/18/13	21:17	08:46	N-64
JB33644-2	A193781.D	04/18/13	21:47	09:16	N-98
JB33644-9	A193782.D	04/18/13	22:16	09:45	A-140
JB33644-8	A193783.D	04/18/13	22:46	10:15	A-137
JB33644-10	A193784.D	04/18/13	23:15	10:44	A-138

Instrument Performance Check (BFB)

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: VA7306-BFB
Lab File ID: A193787.D
Instrument ID: GCMSA
Injection Date: 04/19/13
Injection Time: 00:59

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	14.95 - 40.0% of mass 95	9538	18.2		Pass
75	30.0 - 60.0% of mass 95	24715	47.1		Pass
95	Base peak, 100% relative abundance	52440	100.0		Pass
96	5.0 - 9.0% of mass 95	3412	6.51		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	42403	80.9		Pass
175	5.0 - 9.0% of mass 174	3355	6.40	(7.91) [a]	Pass
176	95.0 - 101.0% of mass 174	41947	80.0	(98.9) [a]	Pass
177	5.0 - 9.0% of mass 176	2649	5.05	(6.32) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VA7306-CC7282	A193788.D	04/19/13	01:28	00:29	Continuing cal 50
VA7306-MB2	A193790.D	04/19/13	02:27	01:28	Method Blank
JB33644-11	A193791.D	04/19/13	02:57	01:58	C-104
JB33644-12	A193792.D	04/19/13	03:41	02:42	C-127
JB33644-13	A193793.D	04/19/13	04:11	03:12	C-129
JB33644-14	A193794.D	04/19/13	04:41	03:42	B-158
JB33644-15	A193795.D	04/19/13	05:10	04:11	PGW-MW-8S
JB33644-16	A193796.D	04/19/13	05:40	04:41	B-131
JB33644-5	A193797.D	04/19/13	06:09	05:10	S-40
JB33644-6	A193798.D	04/19/13	06:54	05:55	A-133

Instrument Performance Check (BFB)

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: VA7307-BFB
Lab File ID: A193799.D
Instrument ID: GCMSA
Injection Date: 04/19/13
Injection Time: 07:23

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	14.95 - 40.0% of mass 95	11502	18.6		Pass
75	30.0 - 60.0% of mass 95	29013	46.9		Pass
95	Base peak, 100% relative abundance	61888	100.0		Pass
96	5.0 - 9.0% of mass 95	4366	7.05		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	50963	82.3		Pass
175	5.0 - 9.0% of mass 174	4096	6.62	(8.04) [a]	Pass
176	95.0 - 101.0% of mass 174	49419	79.9	(97.0) [a]	Pass
177	5.0 - 9.0% of mass 176	3403	5.50	(6.89) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VA7307-CC7282	A193801.D	04/19/13	09:28	02:05	Continuing cal 20
VA7307-MB	A193802.D	04/19/13	10:12	02:49	Method Blank
VA7307-BS	A193803.D	04/19/13	10:35	03:12	Blank Spike
ZZZZZZ	A193805.D	04/19/13	11:55	04:32	(unrelated sample)
ZZZZZZ	A193806.D	04/19/13	12:24	05:01	(unrelated sample)
ZZZZZZ	A193807.D	04/19/13	12:54	05:31	(unrelated sample)
ZZZZZZ	A193808.D	04/19/13	13:38	06:15	(unrelated sample)
ZZZZZZ	A193810.D	04/19/13	14:36	07:13	(unrelated sample)
ZZZZZZ	A193811.D	04/19/13	15:05	07:42	(unrelated sample)
ZZZZZZ	A193812.D	04/19/13	15:35	08:12	(unrelated sample)
ZZZZZZ	A193813.D	04/19/13	16:08	08:45	(unrelated sample)
ZZZZZZ	A193814.D	04/19/13	16:51	09:28	(unrelated sample)
ZZZZZZ	A193815.D	04/19/13	17:20	09:57	(unrelated sample)
JB33644-7	A193816.D	04/19/13	17:50	10:27	WP-14
JB33644-7MS	A193817.D	04/19/13	18:19	10:56	Matrix Spike
JB33644-7MSD	A193818.D	04/19/13	18:49	11:26	Matrix Spike Duplicate

Instrument Performance Check (BFB)

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: VA7309-BFB
Lab File ID: A193842.D
Instrument ID: GCMSA
Injection Date: 04/20/13
Injection Time: 08:17

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	14.95 - 40.0% of mass 95	11066	18.5		Pass
75	30.0 - 60.0% of mass 95	28179	47.0		Pass
95	Base peak, 100% relative abundance	59915	100.0		Pass
96	5.0 - 9.0% of mass 95	4160	6.94		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	48845	81.5		Pass
175	5.0 - 9.0% of mass 174	3820	6.38	(7.82) [a]	Pass
176	95.0 - 101.0% of mass 174	48221	80.5	(98.7) [a]	Pass
177	5.0 - 9.0% of mass 176	3310	5.52	(6.86) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VA7309-CC7282	A193843.D	04/20/13	09:01	00:44	Continuing cal 20
VA7309-MB	A193845.D	04/20/13	09:52	01:35	Method Blank
VA7309-BS	A193846.D	04/20/13	10:24	02:07	Blank Spike
JB34206-4MS	A193847.D	04/20/13	11:03	02:46	Matrix Spike
JB34206-4MSD	A193848.D	04/20/13	11:33	03:16	Matrix Spike Duplicate
JB33644-3	A193850.D	04/20/13	12:32	04:15	FIELD BALNK-FB
JB34206-4	A193851.D	04/20/13	13:01	04:44	(used for QC only; not part of job JB33644)
ZZZZZZ	A193852.D	04/20/13	13:31	05:14	(unrelated sample)
ZZZZZZ	A193853.D	04/20/13	14:00	05:43	(unrelated sample)
ZZZZZZ	A193854.D	04/20/13	14:30	06:13	(unrelated sample)
ZZZZZZ	A193855.D	04/20/13	15:00	06:43	(unrelated sample)
ZZZZZZ	A193856.D	04/20/13	15:44	07:27	(unrelated sample)
ZZZZZZ	A193857.D	04/20/13	16:13	07:56	(unrelated sample)
ZZZZZZ	A193858.D	04/20/13	16:43	08:26	(unrelated sample)
ZZZZZZ	A193859.D	04/20/13	17:13	08:56	(unrelated sample)
ZZZZZZ	A193860.D	04/20/13	17:42	09:25	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: VU7811-BFB
Lab File ID: U168473.D
Instrument ID: GCMSU
Injection Date: 02/12/13
Injection Time: 18:49

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	13148	18.5		Pass
75	30.0 - 60.0% of mass 95	34538	48.5		Pass
95	Base peak, 100% relative abundance	71205	100.0		Pass
96	5.0 - 9.0% of mass 95	4637	6.51		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	69016	96.9		Pass
175	5.0 - 9.0% of mass 174	5472	7.68	(7.93) [a]	Pass
176	95.0 - 101.0% of mass 174	68522	96.2	(99.3) [a]	Pass
177	5.0 - 9.0% of mass 176	4590	6.45	(6.70) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VU7811-IC7811	U168474.D	02/12/13	19:19	00:30	Initial cal 0.5
VU7811-IC7811	U168475.D	02/12/13	19:48	00:59	Initial cal 1
VU7811-IC7811	U168476.D	02/12/13	20:18	01:29	Initial cal 2
VU7811-IC7811	U168477.D	02/12/13	20:47	01:58	Initial cal 5
VU7811-IC7811	U168478.D	02/12/13	21:16	02:27	Initial cal 10
VU7811-IC7811	U168479.D	02/12/13	21:46	02:57	Initial cal 20
VU7811-ICC7811	U168480.D	02/12/13	22:16	03:27	Initial cal 50
VU7811-IC7811	U168481.D	02/12/13	22:45	03:56	Initial cal 100
VU7811-IC7811	U168482.D	02/12/13	23:15	04:26	Initial cal 200
VU7811-ICV7811	U168485.D	02/13/13	00:42	05:53	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: VU7923-BFB
Lab File ID: U171091.D
Instrument ID: GCMSU
Injection Date: 04/22/13
Injection Time: 11:34

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	20354	19.4		Pass
75	30.0 - 60.0% of mass 95	48568	46.3		Pass
95	Base peak, 100% relative abundance	104872	100.0		Pass
96	5.0 - 9.0% of mass 95	6929	6.61		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	97690	93.2		Pass
175	5.0 - 9.0% of mass 174	7583	7.23	(7.76) [a]	Pass
176	95.0 - 101.0% of mass 174	95413	91.0	(97.7) [a]	Pass
177	5.0 - 9.0% of mass 176	6531	6.23	(6.84) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VU7923-CC7811	U171092.D	04/22/13	12:09	00:35	Continuing cal 20
VU7923-MB	U171094.D	04/22/13	13:18	01:44	Method Blank
VU7923-BS	U171095.D	04/22/13	13:47	02:13	Blank Spike
JB33822-1	U171097.D	04/22/13	14:52	03:18	(used for QC only; not part of job JB33644)
JB33644-4	U171098.D	04/22/13	15:21	03:47	TRIP BLANK
ZZZZZZ	U171099.D	04/22/13	15:51	04:17	(unrelated sample)
ZZZZZZ	U171100.D	04/22/13	16:21	04:47	(unrelated sample)
ZZZZZZ	U171101.D	04/22/13	16:51	05:17	(unrelated sample)
ZZZZZZ	U171104.D	04/22/13	18:19	06:45	(unrelated sample)
ZZZZZZ	U171106.D	04/22/13	19:18	07:44	(unrelated sample)
JB33822-1MS	U171108.D	04/22/13	20:18	08:44	Matrix Spike
JB33822-1MSD	U171109.D	04/22/13	20:47	09:13	Matrix Spike Duplicate
ZZZZZZ	U171113.D	04/22/13	22:44	11:10	(unrelated sample)

Volatile Internal Standard Area Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Check Std:	VA7306-CC7282	**Injection Date:**	04/18/13
Lab File ID:	A193766.D	**Injection Time:**	13:00
Instrument ID:	GCMSA	**Method:**	SW846 8260B

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	79488	7.57	214885	9.90	318007	10.86	287520	14.30	145490	16.93
Upper Limit [a]	158976	8.07	429770	10.40	636014	11.36	575040	14.80	290980	17.43
Lower Limit [b]	39744	7.07	107443	9.40	159004	10.36	143760	13.80	72745	16.43

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VA7306-MB	82456	7.57	203659	9.90	305958	10.86	275365	14.31	117712	16.94
VA7306-BS	68757	7.56	205097	9.90	307023	10.86	280921	14.31	146978	16.94
ZZZZZZ	67255	7.57	211842	9.91	310348	10.87	277162	14.31	121097	16.94
ZZZZZZ	71079	7.58	204959	9.91	305639	10.87	275771	14.31	121897	16.94
ZZZZZZ	68360	7.58	203432	9.91	298670	10.87	274340	14.31	120330	16.94
ZZZZZZ	64757	7.57	202906	9.91	299361	10.87	271206	14.31	116162	16.95
ZZZZZZ	70512	7.57	203219	9.91	300629	10.87	273958	14.31	117328	16.95
ZZZZZZ	74591	7.57	210800	9.91	314001	10.87	284814	14.31	131654	16.95
ZZZZZZ	82313	7.57	219930	9.91	324614	10.87	297586	14.31	150124	16.95
JB33644-9MS	77980	7.58	225430	9.91	330865	10.87	301482	14.31	155920	16.95
JB33644-9MSD	73290	7.57	220667	9.91	325678	10.87	296313	14.31	154791	16.95
JB33644-1	68683	7.57	222740	9.91	331051	10.87	297615	14.32	142689	16.95
JB33644-2	74542	7.57	227413	9.91	330932	10.87	300249	14.32	137206	16.95
JB33644-9	73345	7.58	220893	9.91	327340	10.87	288710	14.32	127647	16.95
JB33644-8	73716	7.57	213125	9.92	321722	10.87	288332	14.31	131460	16.95
JB33644-10	77821	7.58	221142	9.91	330189	10.87	297910	14.32	139216	16.95

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Volatile Internal Standard Area Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Check Std:	VA7306-CC7282	**Injection Date:**	04/19/13
Lab File ID:	A193788.D	**Injection Time:**	01:28
Instrument ID:	GCMSA	**Method:**	SW846 8260B

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	89285	7.58	215568	9.92	324436	10.87	304219	14.32	162382	16.95
Upper Limit [a]	178570	8.08	431136	10.42	648872	11.37	608438	14.82	324764	17.45
Lower Limit [b]	44643	7.08	107784	9.42	162218	10.37	152110	13.82	81191	16.45

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VA7306-MB2	80802	7.58	213924	9.92	320346	10.88	293597	14.32	130543	16.95
JB33644-11	74545	7.58	230482	9.92	343792	10.88	307471	14.32	144045	16.95
JB33644-12	74699	7.58	223748	9.92	333602	10.88	296487	14.32	140568	16.95
JB33644-13	75109	7.58	226134	9.92	338116	10.88	303411	14.32	135196	16.95
JB33644-14	83793	7.59	221172	9.92	331019	10.88	299316	14.32	134184	16.95
JB33644-15	74921	7.58	227971	9.92	335214	10.88	303711	14.32	154076	16.95
JB33644-16	76475	7.59	240488	9.92	356786	10.88	318291	14.32	155825	16.95
JB33644-5	80674	7.59	245275	9.92	360484	10.88	316687	14.32	152024	16.96
JB33644-6	86021	7.58	240313	9.92	356978	10.88	315702	14.32	148920	16.95

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Volatile Internal Standard Area Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Check Std:	VA7307-CC7282	**Injection Date:**	04/19/13
Lab File ID:	A193801.D	**Injection Time:**	09:28
Instrument ID:	GCMSA	**Method:**	SW846 8260B

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	91993	7.58	226499	9.92	340853	10.88	311528	14.33	162147	16.96
Upper Limit [a]	183986	8.08	452998	10.42	681706	11.38	623056	14.83	324294	17.46
Lower Limit [b]	45997	7.08	113250	9.42	170427	10.38	155764	13.83	81074	16.46

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VA7307-MB	72663	7.58	214107	9.92	320324	10.88	288030	14.32	121306	16.95
VA7307-BS	82076	7.59	214404	9.92	323288	10.88	297609	14.33	157072	16.96
ZZZZZZ	80676	7.59	224131	9.93	335244	10.89	298155	14.33	129429	16.96
ZZZZZZ	77786	7.59	224909	9.93	334439	10.88	303017	14.33	130134	16.96
ZZZZZZ	78074	7.59	225363	9.93	336772	10.88	303166	14.33	134917	16.96
ZZZZZZ	80920	7.59	219035	9.93	329607	10.89	297324	14.33	130254	16.96
ZZZZZZ	78783	7.60	217263	9.93	325834	10.89	290462	14.33	123453	16.96
ZZZZZZ	84982	7.60	216149	9.93	323713	10.89	290109	14.34	127222	16.97
ZZZZZZ	79990	7.59	211719	9.93	317084	10.90	287707	14.34	121590	16.97
ZZZZZZ	78243	7.60	217097	9.93	321011	10.89	290834	14.34	128087	16.97
ZZZZZZ	83738	7.61	217915	9.93	323229	10.90	295896	14.34	130236	16.97
ZZZZZZ	82850	7.60	213775	9.93	320441	10.90	295048	14.34	131483	16.97
JB33644-7	77371	7.60	216993	9.93	325572	10.89	296504	14.34	130529	16.97
JB33644-7MS	81537	7.60	223402	9.93	333438	10.89	306664	14.34	160327	16.97
JB33644-7MSD	78876	7.60	223677	9.93	331534	10.90	305636	14.34	158001	16.97

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Volatile Internal Standard Area Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Check Std:	VA7309-CC7282	**Injection Date:**	04/20/13
Lab File ID:	A193843.D	**Injection Time:**	09:01
Instrument ID:	GCMSA	**Method:**	SW846 8260B

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	83910	7.58	240230	9.92	356338	10.88	325526	14.33	164884	16.96
Upper Limit [a]	167820	8.08	480460	10.42	712676	11.38	651052	14.83	329768	17.46
Lower Limit [b]	41955	7.08	120115	9.42	178169	10.38	162763	13.83	82442	16.46

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VA7309-MB	79926	7.58	235968	9.92	351263	10.88	315622	14.32	134550	16.96
VA7309-BS	83373	7.58	238042	9.92	352471	10.88	321591	14.32	170851	16.95
JB34206-4MS	89574	7.58	239824	9.92	353471	10.88	327641	14.32	171432	16.95
JB34206-4MSD	79198	7.58	233665	9.92	345953	10.87	318589	14.32	163837	16.95
JB33644-3	84183	7.58	222815	9.92	337055	10.88	308861	14.32	132517	16.95
JB34206-4	76579	7.58	229609	9.92	342544	10.88	307206	14.32	128913	16.95
ZZZZZZ	76251	7.58	235541	9.92	348185	10.88	315931	14.32	135606	16.95
ZZZZZZ	80042	7.58	228710	9.92	337401	10.88	306530	14.32	133721	16.95
ZZZZZZ	74254	7.58	224135	9.92	334830	10.88	300142	14.32	129306	16.95
ZZZZZZ	70827	7.58	197583	9.92	291250	10.88	262998	14.32	111193	16.95
ZZZZZZ	78125	7.58	228823	9.92	342158	10.88	311463	14.32	134625	16.95
ZZZZZZ	78239	7.58	228137	9.92	341218	10.88	306422	14.32	133298	16.95
ZZZZZZ	79430	7.58	218778	9.92	322988	10.87	292250	14.32	127203	16.95
ZZZZZZ	80842	7.58	235448	9.92	352019	10.87	323256	14.32	170618	16.95
ZZZZZZ	97896	7.57	239756	9.91	356583	10.87	329725	14.32	152155	16.95

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Volatile Internal Standard Area Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Check Std:	VU7923-CC7811	**Injection Date:**	04/22/13
Lab File ID:	U171092.D	**Injection Time:**	12:09
Instrument ID:	GCMSU	**Method:**	SW846 8260B

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	124015	8.03	227857	10.25	312815	11.18	303037	14.51	177522	17.09
Upper Limit [a]	248030	8.53	455714	10.75	625630	11.68	606074	15.01	355044	17.59
Lower Limit [b]	62008	7.53	113929	9.75	156408	10.68	151519	14.01	88761	16.59

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VU7923-MB	87641	8.03	228095	10.25	313599	11.18	298670	14.52	167965	17.09
VU7923-BS	90374	8.03	226841	10.26	310352	11.18	299703	14.52	176227	17.09
JB33822-1	90179	8.03	233247	10.25	319126	11.18	306272	14.51	171664	17.09
JB33644-4	91513	8.04	233233	10.26	320328	11.18	303543	14.52	171199	17.09
ZZZZZZ	88207	8.03	235263	10.25	322385	11.18	305964	14.52	172160	17.09
ZZZZZZ	88514	8.03	230551	10.25	319784	11.18	304889	14.52	171491	17.09
ZZZZZZ	86898	8.03	234475	10.25	321208	11.18	308896	14.52	172180	17.09
ZZZZZZ	94979	8.03	236656	10.25	325163	11.18	311791	14.52	189823	17.09
ZZZZZZ	103979	8.03	242711	10.26	335669	11.18	323490	14.52	193486	17.09
JB33822-1MS	104109	8.04	249445	10.25	340357	11.18	327520	14.52	197549	17.09
JB33822-1MSD	103989	8.03	248631	10.26	339005	11.18	334087	14.52	197849	17.09
ZZZZZZ	105700	8.03	259124	10.25	355497	11.18	343600	14.52	199805	17.09

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Volatile Surrogate Recovery Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Method: SW846 8260B **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
JB33644-1	A193780.D	89.0	86.0	101.0	104.0
JB33644-2	A193781.D	88.0	86.0	102.0	107.0
JB33644-3	A193850.D	92.0	93.0	102.0	111.0
JB33644-4	U171098.D	96.0	90.0	105.0	103.0
JB33644-5	A193797.D	88.0	85.0	99.0	104.0
JB33644-6	A193798.D	90.0	88.0	101.0	105.0
JB33644-7	A193816.D	92.0	91.0	101.0	110.0
JB33644-8	A193783.D	91.0	89.0	100.0	106.0
JB33644-9	A193782.D	89.0	86.0	100.0	110.0
JB33644-10	A193784.D	91.0	89.0	101.0	105.0
JB33644-11	A193791.D	89.0	87.0	100.0	106.0
JB33644-12	A193792.D	89.0	87.0	101.0	104.0
JB33644-13	A193793.D	90.0	88.0	101.0	109.0
JB33644-14	A193794.D	91.0	90.0	101.0	108.0
JB33644-15	A193795.D	89.0	98.0	101.0	100.0
JB33644-16	A193796.D	89.0	90.0	100.0	101.0
JB33644-7MS	A193817.D	91.0	95.0	101.0	97.0
JB33644-7MSD	A193818.D	91.0	96.0	103.0	98.0
JB33644-9MS	A193777.D	90.0	91.0	102.0	98.0
JB33644-9MSD	A193778.D	89.0	92.0	102.0	97.0
JB33822-1MS	U171108.D	98.0	92.0	107.0	99.0
JB33822-1MSD	U171109.D	98.0	92.0	108.0	99.0
JB34206-4MS	A193847.D	91.0	94.0	102.0	97.0
JB34206-4MSD	A193848.D	90.0	91.0	102.0	99.0
VA7306-BS	A193768.D	91.0	95.0	102.0	98.0
VA7306-MB	A193767.D	92.0	94.0	100.0	112.0
VA7306-MB2	A193790.D	92.0	93.0	102.0	110.0
VA7307-BS	A193803.D	93.0	97.0	102.0	98.0
VA7307-MB	A193802.D	93.0	91.0	100.0	114.0
VA7309-BS	A193846.D	91.0	92.0	101.0	97.0
VA7309-MB	A193845.D	91.0	89.0	101.0	113.0
VU7923-BS	U171095.D	97.0	91.0	108.0	101.0
VU7923-MB	U171094.D	95.0	89.0	106.0	103.0

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	81-121%
S2 = 1,2-Dichloroethane-D4	74-127%
S3 = Toluene-D8	80-122%

Volatile Surrogate Recovery Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Method: SW846 8260B **Matrix:** AQ

Samples and QC shown here apply to the above method

Surrogate Compounds	Recovery Limits
S4 = 4-Bromofluorobenzene	78-116%

Initial Calibration Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Sample: VA7282-ICC7282
Lab FileID: A193252.D

Response Factor Report MSA

```
Method       : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title        : SW 846  8260bB ZB624 60m x 0.25mm x 1.4um
Last Update  : Wed Apr 03 17:17:15 2013
Response via : Initial Calibration

Calibration Files
5   =A193249.D   2   =A193257.D   20  =A193251.D   50  =A193252.D
100 =A193253.D   1   =A193247.D   200 =A193254.D   0.5 =A193246.D
10  =A193250.D       =
```

Compound	5	2	20	50	100	1	200	0.5	10	Avg	%RSD
1) I Tert Butyl Alcohol-d9 ----------ISTD----------											
2) 1,4-dioxane	0.089	0.092	0.103	0.090	0.101	0.084	0.098		0.102	0.095	7.52
3) ethanol										0.000#	-1.00
4) tertiary butyl alcohol	1.165	1.105	1.246	1.136	1.168		1.076		1.198	1.156	4.92
5) I pentafluorobenzene ----------ISTD----------											
6) chlorotrifluoroethene										0.000#	-1.00
7) chlorodifluoromethane	0.393	0.423	0.439	0.394	0.408	0.451	0.379		0.393	0.410	6.19
8) dichlorodifluoromethane	0.473	0.518	0.530	0.512	0.513	0.510	0.471	0.423	0.524	0.497	7.03
9) chloromethane	0.633	0.656	0.636	0.609	0.620	0.732	0.541		0.639	0.633	8.38
10) vinyl chloride	0.644	0.684	0.689	0.660	0.680	0.673	0.592	0.621	0.694	0.660	5.24
11) bromomethane	0.367	0.389	0.374	0.338	0.302	0.413		0.421	0.361	0.371	10.50
12) chloroethane	0.297	0.309	0.314	0.292	0.290	0.311	0.237		0.306	0.294	8.47
13) vinyl bromide										0.000#	-1.00
14) trichlorofluoromethane	0.524	0.560	0.594	0.566	0.568	0.578	0.524		0.585	0.562	4.63
15) pentane	0.816	0.797	0.756	0.712	0.697		0.641		0.767	0.741	8.25
16) ethyl ether	0.245	0.254	0.244	0.222	0.228	0.322	0.207		0.244	0.246	13.99
17) Freon 123a										0.000#	-1.00
18) acrolein	0.070	0.064	0.071	0.063	0.069	0.065		0.056	0.065	0.067	7.54
19) 1,1-dichloroethene	0.330	0.372	0.377	0.344	0.358	0.306	0.328	0.474	0.371	0.362	13.33
20) acetone	0.195		0.163	0.106	0.123		0.096		0.159	0.140	27.23
----- Quadratic regression ----- Coefficient = 0.9907											
Response Ratio = 0.00752 + 0.12602 *A + -0.00766 *A^2											
21) allyl chloride	0.232	0.216	0.266	0.239	0.254	0.167	0.234		0.255	0.233	13.36

Initial Calibration Summary

Job Number: JB33644 **Sample:** VA7282-ICC7282
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** A193252.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
22)  acetonitrile
           0.035       0.033 0.030 0.031       0.029       0.032   0.032    7.22
23)  iodomethane
           0.652 0.575 0.745 0.684 0.717 0.514 0.664       0.710   0.658   11.79
24)  iso-butyl alcohol
           0.017       0.015 0.013 0.014       0.012       0.014   0.014   11.58
25)  carbon disulfide
           1.263 1.282 1.495 1.363 1.415 1.105 1.298 1.068 1.444   1.304   11.16
26)  methylene chloride
           0.446 0.473 0.491 0.444 0.457       0.420       0.491   0.460    5.70
27)  methyl acetate
           0.380 0.260 0.312 0.258 0.266       0.244       0.328   0.293   16.79
            ----- Linear regression -----  Coefficient =  0.9928
              Response Ratio = 0.00619 + 0.25354 *A

28)  methyl tert butyl ether
           1.164 1.135 1.234 1.130 1.194 1.126 1.077 1.367 1.162   1.177    7.15
29)  trans-1,2-dichloroethene
           0.374 0.366 0.421 0.393 0.401 0.345 0.373 0.366 0.415   0.384    6.56
30)  di-isopropyl ether
           1.608 1.533 1.684 1.549 1.615 1.649 1.483 1.697 1.583   1.600    4.43
31)  t-butyl formate
           0.375 0.350 0.394 0.367 0.393 0.398 0.363       0.370   0.376    4.56
32)  3,3-dimethyl-1-butanol
           0.041 0.039 0.043 0.039 0.042 0.054 0.038 0.046 0.039   0.042   11.71
33)  ethyl tert-butyl ether
           1.422 1.372 1.517 1.389 1.470 1.378 1.349 1.333 1.389   1.402    4.18
34)  2-butanone
           0.040       0.043 0.037 0.044       0.037       0.039   0.040    7.28
35)  1,1-dichloroethane
           0.725 0.673 0.821 0.771 0.793 0.578 0.730 0.547 0.799   0.715   13.67
36)  chloroprene
           0.513 0.533 0.590 0.543 0.557 0.476 0.527 0.485 0.551   0.530    6.71
37)  acrylonitrile
           0.124 0.110 0.133 0.120 0.125 0.119 0.115 0.094 0.121   0.118    9.47
38)  vinyl acetate
           0.050       0.064 0.058 0.064       0.059       0.060   0.059    8.83
39)  ethyl acetate
           0.064       0.058 0.049 0.050       0.045       0.057   0.054   12.96
40)  ethyl acrylate
           0.433 0.460 0.453 0.392 0.430 0.450 0.388       0.418   0.428    6.34
41)  2,2-dichloropropane
           0.583 0.600 0.629 0.570 0.595 0.630 0.534 0.650 0.632   0.603    6.09
42)  cis-1,2-dichloroethene
           0.475 0.444 0.481 0.439 0.460 0.487 0.424 0.361 0.465   0.448    8.62
43)  propionitrile
           0.047 0.042 0.050 0.045 0.047 0.048 0.043       0.047   0.046    5.58
44)  bromochloromethane
           0.192 0.168 0.214 0.198 0.209 0.155 0.196       0.203   0.192   10.49
45)  tetrahydrofuran
           0.160 0.159 0.150 0.125 0.131       0.120       0.141   0.141   11.46
46)  chloroform
           0.675 0.637 0.752 0.695 0.731 0.595 0.676 0.550 0.732   0.671    9.98
47)  dibromofluoromethane (s)
           0.381 0.423 0.399 0.372 0.389 0.406 0.364 0.468 0.372   0.397    8.23
48)  1,2-dichloroethane-d4 (s)
           0.421 0.470 0.449 0.407 0.430 0.449 0.393 0.567 0.430   0.446   11.40
49)  freon 113
           0.214 0.211 0.258 0.237 0.240       0.225       0.239   0.232    7.20
50)  methacrylonitrile
```

Initial Calibration Summary

Job Number: JB33644 **Sample:** VA7282-ICC7282
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** A193252.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
            0.249 0.290 0.237 0.202 0.217       0.200       0.228   0.232   13.39
51)  cyclohexane
            0.524 0.519 0.613 0.567 0.588 0.455 0.543       0.606   0.552    9.57
52)  1,1,1-trichloroethane
            0.531 0.523 0.608 0.569 0.590 0.447 0.547 0.430 0.588   0.537   11.66
53)  tert-amyl methyl ether
            1.275 1.234 1.373 1.262 1.347 1.393 1.231 1.393 1.236   1.305    5.42

54) I   1,4-difluorobenzene   ----------------ISTD---------------------
55)  Di-isobutylene
                                                                    0.000#  -1.00
56)  epichlorohydrin
            0.023 0.022 0.025 0.022 0.023 0.029 0.021       0.022   0.024   11.18
57)  n-butyl alcohol
            0.007 0.008 0.008 0.007 0.008 0.009 0.007       0.007   0.008#   9.96
58)  carbon tetrachloride
            0.296 0.287 0.347 0.324 0.337 0.246 0.314 0.228 0.331   0.301   13.68
59)  1,1-dichloropropene
            0.331 0.337 0.375 0.352 0.359 0.315 0.335 0.292 0.362   0.340    7.56
60)  hexane
            0.336 0.365 0.361 0.327 0.325 0.411 0.300       0.346   0.347    9.64
61)  benzene
            1.057 1.016 1.161 1.080 1.128 0.987 1.035 1.003 1.142   1.068    5.98
62)  Iso-octane
            0.961 1.042 1.118 1.021 1.028 1.068 0.967 1.071 1.055   1.037    4.82
63)  heptane
            0.183 0.203 0.215 0.193 0.190 0.193 0.183 0.215 0.203   0.198    6.14
64)  tert amyl alcohol
            0.012 0.014 0.012 0.010 0.010       0.010       0.010   0.011   14.69
65)  isopropyl acetate
            0.704 0.760 0.769 0.684 0.702 0.920 0.641 0.967 0.688   0.759   14.75
66)  1,2-dichloroethane
            0.311 0.269 0.341 0.317 0.331 0.256 0.306 0.239 0.323   0.299   11.94
67)  trichloroethene
            0.239 0.237 0.272 0.250 0.265 0.212 0.246 0.211 0.262   0.244    8.89
68)  2-nitropropane
                        0.005 0.004 0.005       0.004       0.003   0.004#  11.85
69)  tert-amyl ethyl ether
            0.391 0.362 0.418 0.391 0.416 0.366 0.383 0.341 0.382   0.383    6.43
70)  methylcyclohexane
            0.396 0.384 0.440 0.408 0.411 0.424 0.390 0.373 0.421   0.405    5.29
71)  2-chloroethyl vinyl ether
            0.139 0.138 0.157 0.137 0.150 0.128 0.135 0.129 0.141   0.139    6.67
72)  methyl methacrylate
            0.153 0.149 0.168 0.149 0.162 0.153 0.145 0.145 0.155   0.153    4.85
73)  1,2-dichloropropane
            0.289 0.258 0.323 0.295 0.310 0.238 0.286 0.239 0.311   0.283   11.15
74)  dibromomethane
            0.148 0.136 0.163 0.148 0.157 0.108 0.145       0.150   0.144   11.59
75)  bromodichloromethane
            0.349 0.301 0.382 0.354 0.378 0.298 0.351 0.306 0.365   0.343    9.55
76)  cis-1,3-dichloropropene
            0.461 0.458 0.514 0.459 0.491 0.409 0.449 0.457 0.491   0.466    6.50
77)  toluene-d8 (s)
            0.987 1.188 1.046 0.937 0.973 1.109 0.897       1.013   1.019    9.26
78)  4-methyl-2-pentanone
            0.102 0.082 0.105 0.093 0.099 0.096 0.089       0.098   0.095    7.70
79)  toluene
            0.636 0.703 0.733 0.655 0.698 0.602 0.638 0.650 0.723   0.671    6.69
80)  3-methyl-1-butanol
```

Initial Calibration Summary

Job Number: JB33644 **Sample:** VA7282-ICC7282
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** A193252.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
            0.013 0.014 0.013 0.012 0.012       0.011       0.012   0.012    7.51
 81)  trans-1,3-dichloropropene
            0.408 0.406 0.452 0.394 0.427 0.405 0.383 0.463 0.426   0.418    6.28
 82)  ethyl methacrylate
            0.328 0.289 0.360 0.310 0.345 0.332 0.306       0.334   0.326    6.94
 83)  1,1,2-trichloroethane
            0.197 0.178 0.210 0.185 0.200 0.187 0.181 0.174 0.205   0.191    6.74
 84)  2-hexanone
            0.093 0.101 0.099 0.085 0.101 0.099 0.084       0.094   0.095    7.43

 85) I   chlorobenzene-d5      ----------------ISTD---------------------
 86)  tetrachloroethene
            0.214 0.222 0.256 0.238 0.239 0.194 0.232 0.197 0.247   0.227    9.48
 87)  1,3-dichloropropane
            0.417 0.384 0.458 0.416 0.430 0.401 0.410 0.356 0.441   0.412    7.39
 88)  butyl acetate
            0.186 0.205 0.208 0.183 0.190 0.234 0.175 0.179 0.181   0.193    9.82
 89)  dibromochloromethane
            0.293 0.261 0.318 0.296 0.310 0.255 0.298 0.252 0.305   0.287    8.68
 90)  1,2-dibromoethane
            0.249 0.221 0.261 0.240 0.251 0.237 0.235 0.185 0.243   0.236    9.29
 91)  n-butyl ether
                                                                    0.000#  -1.00
 92)  chlorobenzene
            0.804 0.787 0.902 0.836 0.862 0.760 0.809 0.797 0.884   0.827    5.73
 93)  1,1,1,2-tetrachloroethane
            0.300 0.277 0.326 0.317 0.321 0.286 0.315 0.262 0.315   0.302    7.43
 94)  ethylbenzene
            1.392 1.430 1.539 1.413 1.439 1.268 1.354 1.467 1.520   1.425    5.82
 95)  m,p-xylene
            0.518 0.518 0.594 0.540 0.552 0.477 0.515 0.509 0.571   0.533    6.63
 96)  o-xylene
            0.526 0.513 0.600 0.552 0.562 0.491 0.540 0.520 0.579   0.543    6.36
 97)  styrene
            0.886 0.849 1.010 0.938 0.987 0.831 0.929 0.892 0.957   0.920    6.58
 98)  bromoform
            0.194 0.168 0.215 0.200 0.210 0.169 0.203       0.205   0.196    9.01

 99) I   1,4-dichlorobenzene-d ----------------ISTD---------------------
100)  isopropylbenzene
            2.709 2.863 2.932 2.513 2.579 2.699 2.424 3.099 3.021   2.760    8.46
101)  cyclohexanone
            0.099       0.092 0.067 0.086       0.066       0.096   0.084   17.29
102)  4-bromofluorobenzene (s)
            0.935       0.889 0.751 0.789       0.736       0.888   0.831   10.02
103)  bromobenzene
            0.724 0.763 0.753 0.653 0.689 0.817 0.645       0.762   0.726    8.24
104)  1,1,2,2-tetrachloroethane
            0.727 0.626 0.716 0.603 0.627 0.798 0.584 0.906 0.747   0.704   14.98
105)  trans-1,4-dichloro-2-butene
            0.175 0.167 0.191 0.170 0.179 0.180 0.171       0.185   0.177    4.57
106)  1,2,3-trichloropropane
            0.168 0.146 0.166 0.143 0.148 0.175 0.138       0.173   0.157    9.46
107)  n-propylbenzene
            3.185 3.391 3.488 3.014 3.064 2.943 2.824 3.619 3.590   3.235    9.12
108)  2-chlorotoluene
            0.696 0.739 0.732 0.628 0.654 0.772 0.605       0.766   0.699    9.12
109)  4-chlorotoluene
            2.021 2.110 2.163 1.903 1.990 2.098 1.858 2.554 2.197   2.099    9.75
110)  p-ethyltoluene
```

Initial Calibration Summary

Job Number: JB33644 **Sample:** VA7282-ICC7282
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** A193252.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
            2.541 2.906 2.667 2.333 2.401 2.782 2.261 2.537 2.666   2.566    8.25
111)  1,3,5-trimethylbenzene
            2.376 2.481 2.549 2.213 2.256 2.239 2.082 2.944 2.602   2.416   10.82
112)  tert-butylbenzene
            2.042 2.003 2.132 1.882 1.871 1.964 1.837 2.180 2.168   2.009    6.54
113)  pentachloroethane
            0.369 0.335 0.382 0.353 0.359 0.350 0.358 0.290 0.401   0.355    8.79
114)  1,2,4-trimethylbenzene
            2.418 2.564 2.542 2.242 2.334 2.489 2.201 2.892 2.631   2.479    8.59
115)  sec-butylbenzene
            2.968 3.182 3.287 2.901 2.880 2.996 2.730 3.419 3.356   3.080    7.77
116)  1,3-dichlorobenzene
            1.311 1.326 1.395 1.264 1.308 1.347 1.239 1.573 1.394   1.351    7.28
117)  p-isopropyltoluene
            2.390 2.498 2.677 2.383 2.376 2.262 2.260 2.708 2.717   2.475    7.44
118)  1,2,3-trimethylbenzene
                                                                    0.000#  -1.00
119)  1,4-dichlorobenzene
            1.309 1.352 1.400 1.277 1.318 1.353 1.253 1.598 1.381   1.360    7.42
120)  p-diethylbenzene
            1.403 1.537 1.518 1.377 1.377 1.295 1.323 1.339 1.496   1.407    6.31
121)  1,2-dichlorobenzene
            1.295 1.264 1.357 1.233 1.236 1.317 1.175 1.514 1.368   1.306    7.62
122)  n-butylbenzene
            1.236 1.315 1.442 1.308 1.303 1.119 1.254 1.273 1.409   1.295    7.33
123)  1,2,4,5-tetramethylbenzene
            2.200 2.147 2.403 2.241 1.952 2.002 1.823 1.780 2.278   2.092   10.23
124)  1,2-dibromo-3-chloropropane
            0.132 0.167 0.115 0.104 0.085       0.073       0.136   0.116   27.65
        ----- Quadratic regression -----                Coefficient =  0.9985
            Response Ratio = 0.00597 + 0.09822 *A + -0.00669 *A^2

125)  1,3,5-trichlorobenzene
            0.949 0.970 1.087 1.023 0.835 0.828 0.752 1.070 1.057   0.952   12.72
126)  1,2,4-trichlorobenzene
            0.611 0.561 0.788 0.778 0.619 0.529       0.596 0.697   0.647   14.94
127)  hexachlorobutadiene
            0.556 0.614 0.596 0.547 0.435 0.575             0.626   0.564   11.33
128)  naphthalene
            1.152 1.145 1.463 1.430 1.089 1.068             1.316   1.238   13.22
129)  1,2,3-trichlorobenzene
            0.573 0.568 0.704 0.666 0.472 0.519             0.641   0.592   13.97
130)  hexachloroethane
            0.374 0.352 0.451 0.433 0.423       0.410       0.451   0.413    9.15
131)  Ethylenimine
                                                                    0.000#  -1.00
132)  Bis(chloromethyl)ether
                                                                    0.000#  -1.00
133)  2-methylnaphthalene
                                                                    0.000#  -1.00
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          MA7282.M          Thu Apr 04 08:02:37 2013   MSA
```

6.7.1

6

Initial Calibration Verification

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Sample: VA7282-ICV7282
Lab FileID: A193258.D

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\A193258.D Vial: 14
Acq On : 3 Apr 2013 3:40 pm Operator: Oksanat
Sample : icv7282-50 Inst : MSA
Misc : MS45751,VA7282,5,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Wed Apr 03 17:17:15 2013
Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	108	0.01	7.61
2	M	1,4-dioxane	0.095	0.103	-8.4	123	0.00	11.66
3	M	ethanol		----------NA----------				
4	M	tertiary butyl alcohol	1.156	1.173	-1.5	112	0.00	7.73
5	I	pentafluorobenzene	1.000	1.000	0.0	102	0.00	9.92
6		chlorotrifluoroethene		----------NA----------				
7	M	chlorodifluoromethane	0.410	0.341	16.8	89	0.00	3.98
8	M	dichlorodifluoromethane	0.497	0.377	24.1#	75	0.00	3.96
9	M	chloromethane	0.633	0.627	0.9	106	0.00	4.30
10	M	vinyl chloride	0.660	0.539	18.3	84	0.00	4.58
11	M	bromomethane	0.371	0.334	10.0	101	0.00	5.26
12	M	chloroethane	0.294	0.296	-0.7	104	0.00	5.45
13		vinyl bromide		----------NA----------				
14	M	trichlorofluoromethane	0.562	0.500	11.0	90	0.00	5.94
15	m	pentane	0.741	0.686	7.4	99	0.00	6.00
16	M	ethyl ether	0.246	0.233	5.3	108	0.00	6.37
17		Freon 123a		----------NA----------				
18	M	acrolein	0.067	0.074	-10.4	119	0.00	6.69
19	M	1,1-dichloroethene	0.362	0.331	8.6	99	0.00	6.82
		----------	True	Calc.	% Drift	----------		
20	M	acetone	50.000	43.630	12.7	108	0.00	6.93
		----------	AvgRF	CCRF	% Dev	----------		
21	M	allyl chloride	0.233	0.244	-4.7	104	0.00	7.40
22	M	acetonitrile	0.032	0.032	0.0	109	0.01	7.43
23	M	iodomethane	0.658	0.668	-1.5	100	0.00	7.13
24	M	iso-butyl alcohol	0.014	0.014	0.0	114	0.00	10.27
25	M	carbon disulfide	1.304	1.287	1.3	97	0.00	7.25
26	M	methylene chloride	0.460	0.438	4.8	101	0.00	7.62
		----------	True	Calc.	% Drift	----------		
27	M	methyl acetate	50.000	78.050	-56.1#	159	0.00	7.40
		----------	AvgRF	CCRF	% Dev	----------		
28	M	methyl tert butyl ether	1.177	1.174	0.3	106	0.00	7.94
29	M	trans-1,2-dichloroethene	0.384	0.375	2.3	98	0.00	8.00
30	M	di-isopropyl ether	1.600	1.593	0.4	105	0.00	8.56
31	m	t-butyl formate	0.376	0.382	-1.6	106	0.00	9.81
32	m	3,3-dimethyl-1-butanol	0.042	0.045	-7.1	118	0.00	13.58
33	M	ethyl tert-butyl ether	1.402	1.444	-3.0	106	0.00	9.05

Initial Calibration Verification

Job Number: JB33644 **Sample:** VA7282-ICV7282
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** A193258.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

34	M	2-butanone	0.040	0.039	2.5	107	0.00	9.38
35	M	1,1-dichloroethane	0.715	0.761	-6.4	101	0.00	8.61
36	M	chloroprene	0.530	0.572	-7.9	108	0.00	8.71
37	M	acrylonitrile	0.118	0.126	-6.8	107	0.00	8.00
38	M	vinyl acetate	0.059	0.028	52.5#	49#	0.00	8.60
39	M	ethyl acetate	0.054	0.052	3.7	108	0.00	9.38
40		ethyl acrylate	0.428	0.434	-1.4	113	0.00	11.25
41	M	2,2-dichloropropane	0.603	0.543	10.0	98	0.00	9.38
42	M	cis-1,2-dichloroethene	0.448	0.438	2.2	102	0.00	9.40
43	M	propionitrile	0.046	0.049	-6.5	112	0.00	9.51
44	M	bromochloromethane	0.192	0.203	-5.7	105	0.00	9.73
45	M	tetrahydrofuran	0.141	0.134	5.0	109	0.00	9.76
46	M	chloroform	0.671	0.694	-3.4	102	0.00	9.78
47	S	dibromofluoromethane (s)	0.397	0.372	6.3	102	0.00	10.00
48	S	1,2-dichloroethane-d4 (s)	0.446	0.413	7.4	104	0.00	10.44
49	M	freon 113	0.232	0.251	-8.2	108	0.00	6.78
50	M	methacrylonitrile	0.232	0.221	4.7	112	0.00	9.68
51		cyclohexane	0.552	0.529	4.2	95	0.00	10.08
52	M	1,1,1-trichloroethane	0.537	0.543	-1.1	98	0.00	10.03
53	M	tert-amyl methyl ether	1.305	1.309	-0.3	106	0.00	10.51
54	I	1,4-difluorobenzene	1.000	1.000	0.0	103	0.00	10.88
55	M	Di-isobutylene		----------NA----------				
56	M	epichlorohydrin	0.024	0.024	0.0	114	0.00	12.25
57	M	n-butyl alcohol	0.008	0.008#	0.0	116	0.00	11.05
58	M	carbon tetrachloride	0.301	0.309	-2.7	99	0.00	10.22
59	M	1,1-dichloropropene	0.340	0.318	6.5	93	0.00	10.21
60	M	hexane	0.347	0.334	3.7	106	0.00	8.28
61	M	benzene	1.068	1.066	0.2	102	0.00	10.49
62	M	Iso-octane	1.037	1.029	0.8	104	0.00	10.45
63	M	heptane	0.198	0.204	-3.0	109	0.00	10.63
64	m	tert amyl alcohol	0.011	0.010	10.0	102	0.00	10.39
65	M	isopropyl acetate	0.759	0.680	10.4	103	0.00	10.42
66	M	1,2-dichloroethane	0.299	0.319	-6.7	104	0.00	10.53
67	M	trichloroethene	0.244	0.248	-1.6	102	0.00	11.23
68	M	2-nitropropane	0.004	0.005#	-25.0#	116	0.00	12.10
69	m	tert-amyl ethyl ether	0.383	0.358	6.5	94	0.00	11.39
70	m	methylcyclohexane	0.405	0.413	-2.0	105	0.00	11.44
71	M	2-chloroethyl vinyl ether	0.139	0.151	-8.6	115	0.00	12.10
72	M	methyl methacrylate	0.153	0.163	-6.5	113	0.00	11.53
73	M	1,2-dichloropropane	0.283	0.303	-7.1	106	0.00	11.53
74	M	dibromomethane	0.144	0.152	-5.6	107	0.00	11.71
75	M	bromodichloromethane	0.343	0.360	-5.0	105	0.00	11.85
76	M	cis-1,3-dichloropropene	0.466	0.429	7.9	97	0.00	12.33
77	S	toluene-d8 (s)	1.019	0.927	9.0	102	0.00	12.64
78	M	4-methyl-2-pentanone	0.095	0.100	-5.3	112	0.00	12.44
79	M	toluene	0.671	0.651	3.0	103	0.00	12.71
80	M	3-methyl-1-butanol	0.012	0.013	-8.3	117	0.00	12.47
81	M	trans-1,3-dichloropropene	0.418	0.404	3.3	106	0.00	12.95
82	M	ethyl methacrylate	0.326	0.326	0.0	109	0.00	12.93
83	M	1,1,2-trichloroethane	0.191	0.195	-2.1	109	0.00	13.20
84	M	2-hexanone	0.095	0.096	-1.1	118	0.00	13.38
85	I	chlorobenzene-d5	1.000	1.000	0.0	107	0.00	14.32
86	M	tetrachloroethene	0.227	0.223	1.8	101	0.00	13.35
87	M	1,3-dichloropropane	0.412	0.430	-4.4	111	0.00	13.40
88	M	butyl acetate	0.193	0.204	-5.7	120	0.00	13.45
89	M	dibromochloromethane	0.287	0.303	-5.6	110	0.00	13.69
90	M	1,2-dibromoethane	0.236	0.245	-3.8	110	0.00	13.86
91	M	n-butyl ether		----------NA----------				

Initial Calibration Verification

Job Number: JB33644 **Sample:** VA7282-ICV7282
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** A193258.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

92	M	chlorobenzene	0.827	0.827	0.0	106	0.00	14.36
93	M	1,1,1,2-tetrachloroethane	0.302	0.306	-1.3	103	0.00	14.43
94	M	ethylbenzene	1.425	1.383	2.9	105	0.00	14.41
95	M	m,p-xylene	0.533	0.533	0.0	106	0.00	14.53
96	M	o-xylene	0.543	0.545	-0.4	106	0.00	15.00
97	M	styrene	0.920	0.943	-2.5	108	0.00	15.03
98	M	bromoform	0.196	0.209	-6.6	112	0.00	15.35
99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	106	0.00	16.96
100	M	isopropylbenzene	2.760	2.481	10.1	105	0.00	15.39
101	m	cyclohexanone	0.084	0.049	41.7#	77	0.00	15.63
102	S	4-bromofluorobenzene (s)	0.831	0.765	7.9	108	0.00	15.64
103	M	bromobenzene	0.726	0.659	9.2	107	0.00	15.86
104	M	1,1,2,2-tetrachloroethane	0.704	0.644	8.5	113	0.00	15.77
105	M	trans-1,4-dichloro-2-bute	0.177	0.173	2.3	108	0.00	15.82
106	M	1,2,3-trichloropropane	0.157	0.150	4.5	111	0.00	15.86
107	M	n-propylbenzene	3.235	3.043	5.9	107	0.00	15.85
108	M	2-chlorotoluene	0.699	0.624	10.7	105	0.00	16.03
109	M	4-chlorotoluene	2.099	1.877	10.6	105	0.00	16.14
110	m	p-ethyltoluene	2.566	2.373	7.5	108	0.00	15.97
111	M	1,3,5-trimethylbenzene	2.416	2.143	11.3	103	0.00	16.02
112	M	tert-butylbenzene	2.009	1.833	8.8	103	0.00	16.42
113	M	pentachloroethane	0.355	0.355	0.0	107	0.00	16.53
114	M	1,2,4-trimethylbenzene	2.479	2.288	7.7	108	0.00	16.47
115	M	sec-butylbenzene	3.080	2.769	10.1	101	0.00	16.66
116	M	1,3-dichlorobenzene	1.351	1.277	5.5	107	0.00	16.89
117	M	p-isopropyltoluene	2.475	2.396	3.2	107	0.00	16.79
118	M	1,2,3-trimethylbenzene		----------NA----------				
119	M	1,4-dichlorobenzene	1.360	1.268	6.8	105	0.00	16.99
120	m	p-diethylbenzene	1.407	1.348	4.2	104	0.00	17.22
121	M	1,2-dichlorobenzene	1.306	1.246	4.6	107	0.00	17.44
122	M	n-butylbenzene	1.295	1.280	1.2	104	0.00	17.26
123	m	1,2,4,5-tetramethylbenzen	2.092	2.219	-6.1	105	0.00	18.10
		----------	True	Calc.	% Drift	----------		
124	M	1,2-dibromo-3-chloropropa	50.000	56.739	-13.5	111	0.00	18.32
		----------	AvgRF	CCRF	% Dev	----------		
125	M	1,3,5-trichlorobenzene	0.952	1.004	-5.5	104	0.00	18.49
126	M	1,2,4-trichlorobenzene	0.647	0.767	-18.5	104	0.00	19.22
127	M	hexachlorobutadiene	0.564	0.514	8.9	100	0.00	19.33
128	M	naphthalene	1.238	1.479	-19.5	110	0.00	19.55
129	M	1,2,3-trichlorobenzene	0.592	0.673	-13.7	107	0.00	19.83
130	M	hexachloroethane	0.413	0.414	-0.2	101	0.00	17.71
131		Ethylenimine		----------NA----------				
132		Bis(chloromethyl)ether		----------NA----------				
133		2-methylnaphthalene		----------NA----------				

(#) = Out of Range SPCC's out = 0 CCC's out = 0
A193252.D MA7282.M Thu Apr 04 08:01:19 2013 MSA

6.7.2

6

Initial Calibration Verification

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: VA7282-ICV7282
Lab FileID: A193259.D

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\1\DATA\A193259.D                    Vial: 15
Acq On    :  3 Apr 2013   4:17 pm                    Operator: Oksanat
Sample    : icv7282-50                               Inst    : MSA
Misc      : MS45751,VA7282,5,,,,1                    Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title        : SW 846  8260bB ZB624 60m x 0.25mm x 1.4um
Last Update  : Wed Apr 03 17:17:15 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.010  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	117	0.00	7.60
5	I	pentafluorobenzene	1.000	1.000	0.0	102	0.00	9.92
27	M	methyl acetate	50.000	52.873	-5.7	108	0.00	7.40
38	M	vinyl acetate	0.059	0.060	-1.7	105	0.00	8.60
39	M	ethyl acetate	0.054	0.053	1.9	110	0.00	9.38
47	S	dibromofluoromethane (s)	0.397	0.366	7.8	100	0.00	10.00
48	S	1,2-dichloroethane-d4 (s)	0.446	0.388	13.0	97	0.00	10.44
54	I	1,4-difluorobenzene	1.000	1.000	0.0	103	0.00	10.88
77	S	toluene-d8 (s)	1.019	0.897	12.0	98	0.00	12.63
85	I	chlorobenzene-d5	1.000	1.000	0.0	107	0.00	14.32
88	M	butyl acetate	0.193	0.189	2.1	111	0.00	13.45
99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	93	0.00	16.96
102	S	4-bromofluorobenzene (s)	0.831	0.805	3.1	99	0.00	15.64

(#) = Out of Range SPCC's out = 0 CCC's out = 0
A193252.D MA7282.M Thu Apr 04 08:01:21 2013 MSA

Initial Calibration Verification

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: VA7282-ICV7282
Lab FileID: A193260.D

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\1\DATA\A193260.D                    Vial: 16
Acq On    :  3 Apr 2013   4:47 pm                    Operator: Oksanat
Sample    : icv7282-50                               Inst    : MSA
Misc      : MS45751,VA7282,5,,,,1                    Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title        : SW 846  8260bB ZB624 60m x 0.25mm x 1.4um
Last Update  : Wed Apr 03 17:17:15 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.010  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	114	0.00	7.60
5	I	pentafluorobenzene	1.000	1.000	0.0	107	0.00	9.92
6		chlorotrifluoroethene		----------NA----------				
7	M	chlorodifluoromethane	0.410	0.412	-0.5	112	0.00	3.98
8	M	dichlorodifluoromethane	0.497	0.401	19.3	84	0.00	3.95
9	M	chloromethane	0.633	0.619	2.2	109	0.00	4.30
10	M	vinyl chloride	0.660	0.557	15.6	91	0.00	4.57
11	M	bromomethane	0.371	0.330	11.1	105	0.00	5.25
12	M	chloroethane	0.294	0.295	-0.3	108	0.00	5.44
14	M	trichlorofluoromethane	0.562	0.524	6.8	99	0.00	5.94
47	S	dibromofluoromethane (s)	0.397	0.366	7.8	106	0.00	9.99
48	S	1,2-dichloroethane-d4 (s)	0.446	0.379	15.0	100	0.00	10.43
54	I	1,4-difluorobenzene	1.000	1.000	0.0	106	0.00	10.88
77	S	toluene-d8 (s)	1.019	1.039	-2.0	118	0.00	12.63
85	I	chlorobenzene-d5	1.000	1.000	0.0	111	0.00	14.33
99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	107	0.00	16.96
100	M	isopropylbenzene	2.760	2.653	3.9	113	0.00	15.38
101	m	cyclohexanone	0.084	0.109	-29.8#	173	0.00	15.62
102	S	4-bromofluorobenzene (s)	0.831	0.787	5.3	112	0.00	15.64

(#) = Out of Range SPCC's out = 0 CCC's out = 0
A193252.D MA7282.M Thu Apr 04 08:01:24 2013 MSA

Continuing Calibration Summary

Job Number: JB33644 **Sample:** VA7306-CC7282
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** A193766.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\1\DATA\A193766.D                    Vial: 100
Acq On    : 18 Apr 2013   1:00 pm                    Operator: Oksanat
Sample    : cc7282-20                                Inst    : MSA
Misc      : MS46273,VA7306,w,,,,1                    Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title        : SW 846  8260bB ZB624 60m x 0.25mm x 1.4um
Last Update  : Tue Apr 09 08:05:51 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.010  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	112	-0.04	7.57
2	M	1,4-dioxane	0.095	0.098	-3.2	106	-0.03	11.64
3	M	ethanol		----------NA----------				
4	M	tertiary butyl alcohol	1.156	1.186	-2.6	107	-0.03	7.70
5	I	pentafluorobenzene	1.000	1.000	0.0	115	-0.02	9.90
6		chlorotrifluoroethene		----------NA----------				
7	M	chlorodifluoromethane	0.410	0.403	1.7	105	-0.01	3.97
8	M	dichlorodifluoromethane	0.497	0.468	5.8	102	-0.01	3.94
9	M	chloromethane	0.633	0.646	-2.1	117	-0.02	4.28
10	M	vinyl chloride	0.660	0.602	8.8	100	-0.02	4.56
11	M	bromomethane	0.371	0.361	2.7	111	-0.01	5.25
12	M	chloroethane	0.294	0.300	-2.0	110	-0.01	5.44
13		vinyl bromide		----------NA----------				
14	M	trichlorofluoromethane	0.562	0.582	-3.6	113	0.00	5.93
15	m	pentane		----------NA----------				
16	M	ethyl ether	0.246	0.223	9.3	105	-0.02	6.35
17		Freon 123a		----------NA----------				
18	M	acrolein	0.067	0.064	4.5	102	-0.03	6.66
19	M	1,1-dichloroethene	0.362	0.348	3.9	106	-0.02	6.80
		----------	True	Calc.	% Drift	----------		
20	M	acetone	20.000	12.712	36.4#	69	-0.04	6.89
		----------	AvgRF	CCRF	% Dev	----------		
21	M	allyl chloride	0.233	0.241	-3.4	104	-0.02	7.38
22	M	acetonitrile	0.032	0.030	6.3	103	-0.03	7.39
23	M	iodomethane	0.658	0.679	-3.2	105	-0.02	7.11
24	M	iso-butyl alcohol	0.014	0.014	0.0	106	-0.03	10.24
25	M	carbon disulfide	1.304	1.330	-2.0	102	-0.02	7.23
26	M	methylene chloride	0.460	0.459	0.2	107	-0.03	7.59
		----------	True	Calc.	% Drift	----------		
27	M	methyl acetate	20.000	17.815	10.9	89	-0.02	7.37
		----------	AvgRF	CCRF	% Dev	----------		
28	M	methyl tert butyl ether	1.177	1.113	5.4	104	-0.03	7.91
29	M	trans-1,2-dichloroethene	0.384	0.396	-3.1	108	-0.02	7.98
30	M	di-isopropyl ether	1.600	1.436	10.3	98	-0.02	8.54
31	m	t-butyl formate	0.376	0.346	8.0	101	-0.03	9.78
32	m	3,3-dimethyl-1-butanol	0.042	0.039	7.1	104	-0.02	13.55
33	M	ethyl tert-butyl ether	1.402	1.335	4.8	101	-0.02	9.03

Continuing Calibration Summary

Job Number: JB33644 **Sample:** VA7306-CC7282
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** A193766.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

34	M	2-butanone	0.040	0.036	10.0	97	-0.03	9.35
35	M	1,1-dichloroethane	0.715	0.752	-5.2	105	-0.02	8.59
36	M	chloroprene	0.530	0.532	-0.4	104	-0.02	8.69
37	M	acrylonitrile	0.118	0.116	1.7	101	-0.03	7.98
38	M	vinyl acetate	0.059	0.054	8.5	97	-0.02	8.58
39	M	ethyl acetate	0.054	0.045	16.7	89	-0.02	9.35
40		ethyl acrylate		----------NA----------				
41	M	2,2-dichloropropane	0.603	0.576	4.5	105	-0.02	9.36
42	M	cis-1,2-dichloroethene	0.448	0.439	2.0	105	-0.02	9.37
43	M	propionitrile	0.046	0.044	4.3	102	-0.03	9.48
44	M	bromochloromethane	0.192	0.195	-1.6	105	-0.02	9.71
45	M	tetrahydrofuran	0.141	0.126	10.6	97	-0.02	9.73
46	M	chloroform	0.671	0.691	-3.0	106	-0.02	9.76
47	S	dibromofluoromethane (s)	0.397	0.360	9.3	104	-0.02	9.97
48	S	1,2-dichloroethane-d4 (s)	0.446	0.401	10.1	103	-0.03	10.41
49	M	freon 113	0.232	0.234	-0.9	104	0.00	6.77
50	M	methacrylonitrile	0.232	0.195	15.9	94	-0.03	9.65
51		cyclohexane	0.552	0.553	-0.2	104	-0.02	10.06
52	M	1,1,1-trichloroethane	0.537	0.564	-5.0	107	-0.02	10.00
53	M	tert-amyl methyl ether	1.305	1.232	5.6	103	-0.02	10.49
54	I	1,4-difluorobenzene	1.000	1.000	0.0	113	-0.02	10.86
55	M	Di-isobutylene		----------NA----------				
56	M	epichlorohydrin	0.024	0.022	8.3	101	-0.02	12.23
57	M	n-butyl alcohol	0.008	0.008#	0.0	113	-0.03	11.02
58	M	carbon tetrachloride	0.301	0.325	-8.0	106	-0.02	10.20
59	M	1,1-dichloropropene	0.340	0.341	-0.3	103	-0.02	10.18
60	M	hexane	0.347	0.297	14.4	93	-0.01	8.26
61	M	benzene	1.068	1.074	-0.6	104	-0.02	10.47
62	M	Iso-octane	1.037	0.994	4.1	101	-0.02	10.43
63	M	heptane	0.198	0.202	-2.0	106	-0.01	10.61
64	m	tert amyl alcohol		----------NA----------				
65	M	isopropyl acetate	0.759	0.612	19.4	90	-0.03	10.39
66	M	1,2-dichloroethane	0.299	0.326	-9.0	108	-0.02	10.51
67	M	trichloroethene	0.244	0.254	-4.1	105	-0.02	11.21
68	M	2-nitropropane	0.004	0.003#	25.0#	82	-0.02	12.08
69	m	tert-amyl ethyl ether		----------NA----------				
70	m	methylcyclohexane	0.405	0.419	-3.5	107	-0.02	11.42
71	M	2-chloroethyl vinyl ether	0.139	0.130	6.5	93	-0.02	12.08
72	M	methyl methacrylate	0.153	0.146	4.6	98	-0.02	11.51
73	M	1,2-dichloropropane	0.283	0.293	-3.5	102	-0.02	11.51
74	M	dibromomethane	0.144	0.150	-4.2	104	-0.02	11.69
75	M	bromodichloromethane	0.343	0.349	-1.7	103	-0.02	11.83
76	M	cis-1,3-dichloropropene	0.466	0.462	0.9	101	-0.02	12.31
77	S	toluene-d8 (s)	1.019	1.027	-0.8	111	-0.02	12.61
78	M	4-methyl-2-pentanone	0.095	0.092	3.2	99	-0.02	12.42
79	M	toluene	0.671	0.672	-0.1	104	-0.02	12.69
80	M	3-methyl-1-butanol	0.012	0.012	0.0	105	-0.03	12.45
81	M	trans-1,3-dichloropropene	0.418	0.394	5.7	98	-0.02	12.93
82	M	ethyl methacrylate	0.326	0.301	7.7	94	-0.02	12.90
83	M	1,1,2-trichloroethane	0.191	0.190	0.5	102	-0.02	13.17
84	M	2-hexanone	0.095	0.082	13.7	94	-0.02	13.36
85	I	chlorobenzene-d5	1.000	1.000	0.0	110	-0.02	14.30
86	M	tetrachloroethene	0.227	0.234	-3.1	101	-0.02	13.33
87	M	1,3-dichloropropane	0.412	0.416	-1.0	100	-0.02	13.38
88	M	butyl acetate	0.193	0.180	6.7	96	-0.02	13.43
89	M	dibromochloromethane	0.287	0.293	-2.1	102	-0.02	13.67
90	M	1,2-dibromoethane	0.236	0.242	-2.5	102	-0.02	13.84
91	M	n-butyl ether		----------NA----------				

Continuing Calibration Summary

Job Number: JB33644 **Sample:** VA7306-CC7282
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** A193766.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

92	M	chlorobenzene	0.827	0.835	-1.0	102	-0.02	14.34
93	M	1,1,1,2-tetrachloroethane	0.302	0.310	-2.6	105	-0.02	14.41
94	M	ethylbenzene	1.425	1.399	1.8	100	-0.02	14.39
95	M	m,p-xylene	0.533	0.540	-1.3	101	-0.02	14.51
96	M	o-xylene	0.543	0.542	0.2	100	-0.02	14.98
97	M	styrene	0.920	0.900	2.2	98	-0.02	15.01
98	M	bromoform	0.196	0.195	0.5	100	-0.02	15.33
99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	107	-0.02	16.93
100	M	isopropylbenzene	2.760	2.771	-0.4	101	-0.02	15.37
101	m	cyclohexanone	0.084	0.065	22.6#	76	-0.02	15.60
102	S	4-bromofluorobenzene (s)	0.831	0.828	0.4	100	-0.02	15.62
103	M	bromobenzene	0.726	0.716	1.4	102	-0.02	15.84
104	M	1,1,2,2-tetrachloroethane	0.704	0.673	4.4	101	-0.03	15.75
105	M	trans-1,4-dichloro-2-bute	0.177	0.168	5.1	94	-0.02	15.79
106	M	1,2,3-trichloropropane	0.157	0.152	3.2	98	-0.02	15.84
107	M	n-propylbenzene	3.235	3.250	-0.5	100	-0.02	15.83
108	M	2-chlorotoluene	0.699	0.688	1.6	101	-0.02	16.01
109	M	4-chlorotoluene	2.099	2.040	2.8	101	-0.02	16.12
110	m	p-ethyltoluene		----------NA----------				
111	M	1,3,5-trimethylbenzene	2.416	2.407	0.4	101	-0.02	16.00
112	M	tert-butylbenzene	2.009	2.050	-2.0	103	-0.02	16.40
113	M	pentachloroethane	0.355	0.436	-22.8#	122	-0.02	16.51
114	M	1,2,4-trimethylbenzene	2.479	2.430	2.0	102	-0.02	16.45
115	M	sec-butylbenzene	3.080	3.096	-0.5	101	-0.02	16.64
116	M	1,3-dichlorobenzene	1.351	1.322	2.1	102	-0.02	16.87
117	M	p-isopropyltoluene	2.475	2.521	-1.9	101	-0.02	16.77
118	M	1,2,3-trimethylbenzene		----------NA----------				
119	M	1,4-dichlorobenzene	1.360	1.316	3.2	101	-0.02	16.97
120	m	p-diethylbenzene		----------NA----------				
121	M	1,2-dichlorobenzene	1.306	1.285	1.6	101	-0.02	17.41
122	M	n-butylbenzene	1.295	1.261	2.6	94	-0.02	17.24
123	m	1,2,4,5-tetramethylbenzen		----------NA----------				
		----------	True	Calc.	% Drift	----------		
124	M	1,2-dibromo-3-chloropropa	20.000	22.520	-12.6	114	-0.02	18.29
		----------	AvgRF	CCRF	% Dev	----------		
125	M	1,3,5-trichlorobenzene	0.952	1.010	-6.1	100	-0.02	18.47
126	M	1,2,4-trichlorobenzene	0.647	0.701	-8.3	95	-0.02	19.19
127	M	hexachlorobutadiene	0.564	0.585	-3.7	105	-0.02	19.30
128	M	naphthalene	1.238	1.300	-5.0	95	-0.02	19.53
129	M	1,2,3-trichlorobenzene	0.592	0.626	-5.7	95	-0.02	19.81
130	M	hexachloroethane	0.413	0.465	-12.6	111	-0.02	17.69
131		Ethylenimine		----------NA----------				
132		Bis(chloromethyl)ether		----------NA----------				
133		2-methylnaphthalene		----------NA----------				

(#) = Out of Range SPCC's out = 0 CCC's out = 0
A193251.D MA7282.M Thu Apr 18 16:38:33 2013 MSA

Continuing Calibration Summary

Job Number: JB33644 **Sample:** VA7306-CC7282
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** A193788.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\1\DATA\A193788.D                    Vial: 100
Acq On    : 19 Apr 2013   1:28 am                    Operator: Oksanat
Sample    : cc7282-50                                Inst    : MSA
Misc      : MS46397,VA7306,w,,,,1                    Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title        : SW 846  8260bB ZB624 60m x 0.25mm x 1.4um
Last Update  : Tue Apr 09 08:05:51 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.010  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	122	-0.02	7.58
2	M	1,4-dioxane	0.095	0.095	0.0	128	-0.01	11.65
3	M	ethanol		----------NA----------				
4	M	tertiary butyl alcohol	1.156	1.204	-4.2	129	-0.02	7.71
5	I	pentafluorobenzene	1.000	1.000	0.0	109	0.00	9.92
6		chlorotrifluoroethene		----------NA----------				
7	M	chlorodifluoromethane	0.410	0.390	4.9	108	0.00	3.98
8	M	dichlorodifluoromethane	0.497	0.504	-1.4	107	0.00	3.95
9	M	chloromethane	0.633	0.712	-12.5	127	0.00	4.30
10	M	vinyl chloride	0.660	0.643	2.6	106	0.00	4.57
11	M	bromomethane	0.371	0.378	-1.9	122	0.00	5.27
12	M	chloroethane	0.294	0.319	-8.5	119	0.00	5.45
13		vinyl bromide		----------NA----------				
14	M	trichlorofluoromethane	0.562	0.612	-8.9	118	0.00	5.93
15	m	pentane		----------NA----------				
16	M	ethyl ether	0.246	0.245	0.4	120	-0.01	6.36
17		Freon 123a		----------NA----------				
18	M	acrolein	0.067	0.070	-4.5	120	-0.01	6.67
19	M	1,1-dichloroethene	0.362	0.361	0.3	114	0.00	6.81
		----------	True	Calc.	% Drift	----------		
20	M	acetone	50.000	44.138	11.7	116	-0.02	6.90
		----------	AvgRF	CCRF	% Dev	----------		
21	M	allyl chloride	0.233	0.248	-6.4	113	0.00	7.39
22	M	acetonitrile	0.032	0.033	-3.1	118	0.00	7.41
23	M	iodomethane	0.658	0.733	-11.4	116	0.00	7.12
24	M	iso-butyl alcohol	0.014	0.016	-14.3	140	-0.01	10.25
25	M	carbon disulfide	1.304	1.405	-7.7	112	0.00	7.24
26	M	methylene chloride	0.460	0.498	-8.3	122	0.00	7.61
		----------	True	Calc.	% Drift	----------		
27	M	methyl acetate	50.000	54.798	-9.6	120	0.00	7.39
		----------	AvgRF	CCRF	% Dev	----------		
28	M	methyl tert butyl ether	1.177	1.281	-8.8	123	-0.01	7.93
29	M	trans-1,2-dichloroethene	0.384	0.412	-7.3	114	0.00	7.99
30	M	di-isopropyl ether	1.600	1.620	-1.3	114	0.00	8.55
31	m	t-butyl formate	0.376	0.399	-6.1	118	-0.01	9.79
32	m	3,3-dimethyl-1-butanol	0.042	0.049	-16.7	137	-0.01	13.56
33	M	ethyl tert-butyl ether	1.402	1.513	-7.9	118	0.00	9.04

Continuing Calibration Summary

Job Number: JB33644 **Sample:** VA7306-CC7282
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** A193788.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

34	M	2-butanone	0.040	0.042	-5.0	123	-0.02	9.35
35	M	1,1-dichloroethane	0.715	0.835	-16.8	118	0.00	8.60
36	M	chloroprene	0.530	0.567	-7.0	114	0.00	8.70
37	M	acrylonitrile	0.118	0.138	-16.9	125	-0.01	7.99
38	M	vinyl acetate	0.059	0.062	-5.1	116	0.00	8.59
39	M	ethyl acetate	0.054	0.053	1.9	118	-0.02	9.35
40		ethyl acrylate		----------NA----------				
41	M	2,2-dichloropropane	0.603	0.584	3.2	112	0.00	9.37
42	M	cis-1,2-dichloroethene	0.448	0.478	-6.7	118	0.00	9.38
43	M	propionitrile	0.046	0.052	-13.0	127	-0.01	9.49
44	M	bromochloromethane	0.192	0.223	-16.1	123	0.00	9.72
45	M	tetrahydrofuran	0.141	0.146	-3.5	127	-0.01	9.74
46	M	chloroform	0.671	0.763	-13.7	119	0.00	9.78
47	S	dibromofluoromethane (s)	0.397	0.377	5.0	110	0.00	9.99
48	S	1,2-dichloroethane-d4 (s)	0.446	0.445	0.2	119	-0.01	10.42
49	M	freon 113	0.232	0.234	-0.9	107	0.00	6.77
50	M	methacrylonitrile	0.232	0.231	0.4	125	0.00	9.67
51		cyclohexane	0.552	0.583	-5.6	112	0.00	10.07
52	M	1,1,1-trichloroethane	0.537	0.599	-11.5	115	0.00	10.02
53	M	tert-amyl methyl ether	1.305	1.408	-7.9	121	0.00	10.50
54	I	1,4-difluorobenzene	1.000	1.000	0.0	110	0.00	10.87
55	M	Di-isobutylene		----------NA----------				
56	M	epichlorohydrin	0.024	0.025	-4.2	127	0.00	12.24
57	M	n-butyl alcohol	0.008	0.009#	-12.5	139	-0.02	11.03
58	M	carbon tetrachloride	0.301	0.342	-13.6	116	0.00	10.22
59	M	1,1-dichloropropene	0.340	0.358	-5.3	112	0.00	10.20
60	M	hexane	0.347	0.304	12.4	102	0.00	8.27
61	M	benzene	1.068	1.153	-8.0	117	0.00	10.48
62	M	Iso-octane	1.037	1.032	0.5	111	0.00	10.45
63	M	heptane	0.198	0.199	-0.5	113	0.00	10.62
64	m	tert amyl alcohol		----------NA----------				
65	M	isopropyl acetate	0.759	0.689	9.2	111	0.00	10.40
66	M	1,2-dichloroethane	0.299	0.363	-21.4#	126	0.00	10.52
67	M	trichloroethene	0.244	0.266	-9.0	117	0.00	11.22
68	M	2-nitropropane	0.004	0.005#	-25.0#	124	0.00	12.09
69	m	tert-amyl ethyl ether		----------NA----------				
70	m	methylcyclohexane	0.405	0.426	-5.2	115	0.00	11.43
71	M	2-chloroethyl vinyl ether	0.139	0.146	-5.0	118	0.00	12.09
72	M	methyl methacrylate	0.153	0.172	-12.4	126	0.00	11.52
73	M	1,2-dichloropropane	0.283	0.321	-13.4	120	0.00	11.52
74	M	dibromomethane	0.144	0.166	-15.3	124	0.00	11.71
75	M	bromodichloromethane	0.343	0.393	-14.6	122	0.00	11.84
76	M	cis-1,3-dichloropropene	0.466	0.509	-9.2	122	0.00	12.33
77	S	toluene-d8 (s)	1.019	1.038	-1.9	122	0.00	12.63
78	M	4-methyl-2-pentanone	0.095	0.111	-16.8	131	0.00	12.43
79	M	toluene	0.671	0.722	-7.6	121	0.00	12.70
80	M	3-methyl-1-butanol	0.012	0.015	-25.0#	139	-0.01	12.46
81	M	trans-1,3-dichloropropene	0.418	0.439	-5.0	123	0.00	12.95
82	M	ethyl methacrylate	0.326	0.363	-11.3	129	0.00	12.91
83	M	1,1,2-trichloroethane	0.191	0.215	-12.6	128	0.00	13.19
84	M	2-hexanone	0.095	0.101	-6.3	132	0.00	13.37
85	I	chlorobenzene-d5	1.000	1.000	0.0	117	0.00	14.32
86	M	tetrachloroethene	0.227	0.238	-4.8	117	0.00	13.34
87	M	1,3-dichloropropane	0.412	0.460	-11.7	130	0.00	13.39
88	M	butyl acetate	0.193	0.200	-3.6	128	0.00	13.43
89	M	dibromochloromethane	0.287	0.324	-12.9	128	0.00	13.68
90	M	1,2-dibromoethane	0.236	0.265	-12.3	129	0.00	13.85
91	M	n-butyl ether		----------NA----------				

Continuing Calibration Summary

Job Number: JB33644 **Sample:** VA7306-CC7282
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** A193788.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

92	M	chlorobenzene	0.827	0.881	-6.5	123	0.00	14.35
93	M	1,1,1,2-tetrachloroethane	0.302	0.329	-8.9	121	0.00	14.43
94	M	ethylbenzene	1.425	1.443	-1.3	120	0.00	14.40
95	M	m,p-xylene	0.533	0.558	-4.7	121	0.00	14.52
96	M	o-xylene	0.543	0.582	-7.2	124	0.00	15.00
97	M	styrene	0.920	0.977	-6.2	122	0.00	15.02
98	M	bromoform	0.196	0.218	-11.2	128	0.00	15.34
99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	111	0.00	16.95
100	M	isopropylbenzene	2.760	2.715	1.6	120	0.00	15.38
101	m	cyclohexanone	0.084	0.049	41.7#	80	0.00	15.61
102	S	4-bromofluorobenzene (s)	0.831	0.808	2.8	119	0.00	15.63
103	M	bromobenzene	0.726	0.726	0.0	123	0.00	15.85
104	M	1,1,2,2-tetrachloroethane	0.704	0.722	-2.6	133	0.00	15.76
105	M	trans-1,4-dichloro-2-bute	0.177	0.182	-2.8	119	0.00	15.81
106	M	1,2,3-trichloropropane	0.157	0.169	-7.6	131	0.00	15.85
107	M	n-propylbenzene	3.235	3.174	1.9	117	0.00	15.84
108	M	2-chlorotoluene	0.699	0.678	3.0	120	0.00	16.02
109	M	4-chlorotoluene	2.099	2.068	1.5	120	0.00	16.14
110	m	p-ethyltoluene		----------NA----------				
111	M	1,3,5-trimethylbenzene	2.416	2.399	0.7	120	0.00	16.01
112	M	tert-butylbenzene	2.009	2.003	0.3	118	0.00	16.41
113	M	pentachloroethane	0.355	0.441	-24.2#	138	0.00	16.52
114	M	1,2,4-trimethylbenzene	2.479	2.444	1.4	121	0.00	16.46
115	M	sec-butylbenzene	3.080	3.038	1.4	116	0.00	16.65
116	M	1,3-dichlorobenzene	1.351	1.362	-0.8	120	0.00	16.88
117	M	p-isopropyltoluene	2.475	2.494	-0.8	116	0.00	16.78
118	M	1,2,3-trimethylbenzene		----------NA----------				
119	M	1,4-dichlorobenzene	1.360	1.357	0.2	118	0.00	16.98
120	m	p-diethylbenzene		----------NA----------				
121	M	1,2-dichlorobenzene	1.306	1.358	-4.0	122	0.00	17.43
122	M	n-butylbenzene	1.295	1.285	0.8	109	0.00	17.25
123	m	1,2,4,5-tetramethylbenzen		----------NA----------				
		----------	True	Calc.	% Drift	----------		
124	M	1,2-dibromo-3-chloropropa	50.000	64.922	-29.8#	130	0.00	18.30
		----------	AvgRF	CCRF	% Dev	----------		
125	M	1,3,5-trichlorobenzene	0.952	1.035	-8.7	112	0.00	18.48
126	M	1,2,4-trichlorobenzene	0.647	0.800	-23.6#	114	0.00	19.21
127	M	hexachlorobutadiene	0.564	0.567	-0.5	115	0.00	19.32
128	M	naphthalene	1.238	1.591	-28.5#	123	0.00	19.55
129	M	1,2,3-trichlorobenzene	0.592	0.719	-21.5#	120	0.00	19.82
130	M	hexachloroethane	0.413	0.466	-12.8	120	0.00	17.70
131		Ethylenimine		----------NA----------				
132		Bis(chloromethyl)ether		----------NA----------				
133		2-methylnaphthalene		----------NA----------				

(#) = Out of Range SPCC's out = 0 CCC's out = 0
A193252.D MA7282.M Fri Apr 19 11:05:20 2013 MSA

Continuing Calibration Summary

Job Number: JB33644 **Sample:** VA7307-CC7282
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** A193801.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\1\DATA\A193801.D                    Vial: 100
Acq On    : 19 Apr 2013   9:28 am                    Operator: Oksanat
Sample    : cc7282-20                                Inst    : MSA
Misc      : MS46397,VA7307,w,,,,1                    Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title        : SW 846  8260bB ZB624 60m x 0.25mm x 1.4um
Last Update  : Tue Apr 09 08:05:51 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.010  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	130	-0.02	7.58
2	M	1,4-dioxane	0.095	0.112	-17.9	141	0.00	11.66
3	M	ethanol		----------NA----------				
4	M	tertiary butyl alcohol	1.156	1.334	-15.4	139	-0.02	7.71
5	I	pentafluorobenzene	1.000	1.000	0.0	121	0.00	9.92
6		chlorotrifluoroethene		----------NA----------				
7	M	chlorodifluoromethane	0.410	0.389	5.1	107	0.00	3.98
8	M	dichlorodifluoromethane	0.497	0.506	-1.8	116	0.00	3.95
9	M	chloromethane	0.633	0.671	-6.0	128	0.00	4.30
10	M	vinyl chloride	0.660	0.616	6.7	108	0.00	4.57
11	M	bromomethane	0.371	0.377	-1.6	122	0.00	5.27
12	M	chloroethane	0.294	0.314	-6.8	121	0.00	5.46
13		vinyl bromide		----------NA----------				
14	M	trichlorofluoromethane	0.562	0.600	-6.8	122	0.00	5.93
15	m	pentane		----------NA----------				
16	M	ethyl ether	0.246	0.249	-1.2	124	0.00	6.37
17		Freon 123a		----------NA----------				
18	M	acrolein	0.067	0.077	-14.9	131	0.00	6.68
19	M	1,1-dichloroethene	0.362	0.351	3.0	113	0.00	6.83
		----------	True	Calc.	% Drift	----------		
20	M	acetone	20.000	28.322	-41.6#	142	-0.01	6.91
		----------	AvgRF	CCRF	% Dev	----------		
21	M	allyl chloride	0.233	0.252	-8.2	115	0.00	7.40
22	M	acetonitrile	0.032	0.036	-12.5	131	0.00	7.41
23	M	iodomethane	0.658	0.685	-4.1	111	0.00	7.13
24	M	iso-butyl alcohol	0.014	0.017	-21.4#	138	0.00	10.26
25	M	carbon disulfide	1.304	1.315	-0.8	107	0.00	7.24
26	M	methylene chloride	0.460	0.510	-10.9	126	0.00	7.62
		----------	True	Calc.	% Drift	----------		
27	M	methyl acetate	20.000	24.167	-20.8#	125	0.00	7.39
		----------	AvgRF	CCRF	% Dev	----------		
28	M	methyl tert butyl ether	1.177	1.335	-13.4	131	0.00	7.93
29	M	trans-1,2-dichloroethene	0.384	0.403	-4.9	116	0.00	8.00
30	M	di-isopropyl ether	1.600	1.684	-5.2	121	0.00	8.56
31	m	t-butyl formate	0.376	0.421	-12.0	130	0.00	9.80
32	m	3,3-dimethyl-1-butanol	0.042	0.048	-14.3	134	0.00	13.57
33	M	ethyl tert-butyl ether	1.402	1.571	-12.1	126	0.00	9.05

Continuing Calibration Summary

Job Number: JB33644 **Sample:** VA7307-CC7282
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** A193801.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

34	M	2-butanone	0.040	0.055	-37.5#	157	0.00	9.36
35	M	1,1-dichloroethane	0.715	0.794	-11.0	117	0.00	8.60
36	M	chloroprene	0.530	0.578	-9.1	119	0.00	8.70
37	M	acrylonitrile	0.118	0.146	-23.7#	133	0.00	7.99
38	M	vinyl acetate	0.059	0.066	-11.9	126	0.00	8.59
39	M	ethyl acetate	0.054	0.058	-7.4	120	0.00	9.37
40		ethyl acrylate		----------NA----------				
41	M	2,2-dichloropropane	0.603	0.608	-0.8	117	0.00	9.38
42	M	cis-1,2-dichloroethene	0.448	0.458	-2.2	115	0.00	9.39
43	M	propionitrile	0.046	0.057	-23.9#	138	0.00	9.50
44	M	bromochloromethane	0.192	0.218	-13.5	124	0.00	9.72
45	M	tetrahydrofuran	0.141	0.161	-14.2	130	0.00	9.75
46	M	chloroform	0.671	0.741	-10.4	119	0.00	9.78
47	S	dibromofluoromethane (s)	0.397	0.366	7.8	111	0.00	9.99
48	S	1,2-dichloroethane-d4 (s)	0.446	0.420	5.8	114	0.00	10.43
49	M	freon 113	0.232	0.248	-6.9	116	0.00	6.78
50	M	methacrylonitrile	0.232	0.245	-5.6	125	0.00	9.67
51		cyclohexane	0.552	0.569	-3.1	112	0.00	10.08
52	M	1,1,1-trichloroethane	0.537	0.577	-7.4	115	0.00	10.02
53	M	tert-amyl methyl ether	1.305	1.430	-9.6	126	0.00	10.51
54	I	1,4-difluorobenzene	1.000	1.000	0.0	121	0.00	10.88
55	M	Di-isobutylene		----------NA----------				
56	M	epichlorohydrin	0.024	0.026	-8.3	127	0.00	12.24
57	M	n-butyl alcohol	0.008	0.009#	-12.5	142	0.00	11.04
58	M	carbon tetrachloride	0.301	0.333	-10.6	116	0.00	10.22
59	M	1,1-dichloropropene	0.340	0.342	-0.6	111	0.00	10.20
60	M	hexane	0.347	0.359	-3.5	120	0.00	8.27
61	M	benzene	1.068	1.104	-3.4	115	0.00	10.49
62	M	Iso-octane	1.037	1.080	-4.1	117	0.00	10.44
63	M	heptane	0.198	0.197	0.5	111	0.00	10.63
64	m	tert amyl alcohol		----------NA----------				
65	M	isopropyl acetate	0.759	0.737	2.9	116	0.00	10.41
66	M	1,2-dichloroethane	0.299	0.357	-19.4	127	0.00	10.53
67	M	trichloroethene	0.244	0.261	-7.0	116	0.01	11.24
68	M	2-nitropropane	0.004	0.004#	0.0	112	0.00	12.10
69	m	tert-amyl ethyl ether		----------NA----------				
70	m	methylcyclohexane	0.405	0.439	-8.4	121	0.00	11.44
71	M	2-chloroethyl vinyl ether	0.139	0.147	-5.8	114	0.00	12.10
72	M	methyl methacrylate	0.153	0.178	-16.3	129	0.00	11.52
73	M	1,2-dichloropropane	0.283	0.315	-11.3	118	0.00	11.53
74	M	dibromomethane	0.144	0.166	-15.3	123	0.00	11.71
75	M	bromodichloromethane	0.343	0.383	-11.7	121	0.00	11.85
76	M	cis-1,3-dichloropropene	0.466	0.507	-8.8	119	0.00	12.33
77	S	toluene-d8 (s)	1.019	1.031	-1.2	119	0.00	12.63
78	M	4-methyl-2-pentanone	0.095	0.114	-20.0#	132	0.00	12.44
79	M	toluene	0.671	0.698	-4.0	115	0.00	12.71
80	M	3-methyl-1-butanol	0.012	0.015	-25.0#	137	0.00	12.46
81	M	trans-1,3-dichloropropene	0.418	0.450	-7.7	121	0.00	12.96
82	M	ethyl methacrylate	0.326	0.364	-11.7	122	0.00	12.92
83	M	1,1,2-trichloroethane	0.191	0.217	-13.6	125	0.00	13.20
84	M	2-hexanone	0.095	0.118	-24.2#	144	0.00	13.37
85	I	chlorobenzene-d5	1.000	1.000	0.0	120	0.00	14.33
86	M	tetrachloroethene	0.227	0.236	-4.0	110	0.00	13.35
87	M	1,3-dichloropropane	0.412	0.473	-14.8	124	0.00	13.39
88	M	butyl acetate	0.193	0.213	-10.4	123	0.00	13.44
89	M	dibromochloromethane	0.287	0.326	-13.6	123	0.00	13.69
90	M	1,2-dibromoethane	0.236	0.273	-15.7	125	0.00	13.85
91	M	n-butyl ether		----------NA----------				

Continuing Calibration Summary

Job Number: JB33644 **Sample:** VA7307-CC7282
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** A193801.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

92	M	chlorobenzene	0.827	0.877	-6.0	116	0.00	14.36
93	M	1,1,1,2-tetrachloroethane	0.302	0.327	-8.3	120	0.00	14.43
94	M	ethylbenzene	1.425	1.482	-4.0	115	0.00	14.41
95	M	m,p-xylene	0.533	0.571	-7.1	115	0.00	14.52
96	M	o-xylene	0.543	0.591	-8.8	118	0.00	15.01
97	M	styrene	0.920	0.972	-5.7	115	0.00	15.02
98	M	bromoform	0.196	0.225	-14.8	125	0.00	15.35
99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	119	0.00	16.96
100	M	isopropylbenzene	2.760	2.818	-2.1	115	0.00	15.39
101	m	cyclohexanone	0.084	0.149	-77.4#	192	0.00	15.62
102	S	4-bromofluorobenzene (s)	0.831	0.818	1.6	110	0.00	15.63
103	M	bromobenzene	0.726	0.757	-4.3	120	0.00	15.86
104	M	1,1,2,2-tetrachloroethane	0.704	0.786	-11.6	131	0.00	15.77
105	M	trans-1,4-dichloro-2-bute	0.177	0.210	-18.6	131	0.00	15.81
106	M	1,2,3-trichloropropane	0.157	0.186	-18.5	134	0.00	15.86
107	M	n-propylbenzene	3.235	3.374	-4.3	115	0.00	15.85
108	M	2-chlorotoluene	0.699	0.709	-1.4	116	0.00	16.03
109	M	4-chlorotoluene	2.099	2.156	-2.7	119	0.00	16.14
110	m	p-ethyltoluene		----------NA----------				
111	M	1,3,5-trimethylbenzene	2.416	2.502	-3.6	117	0.00	16.01
112	M	tert-butylbenzene	2.009	2.051	-2.1	115	0.00	16.41
113	M	pentachloroethane	0.355	0.467	-31.5#	146	0.00	16.53
114	M	1,2,4-trimethylbenzene	2.479	2.559	-3.2	120	0.00	16.46
115	M	sec-butylbenzene	3.080	3.140	-1.9	114	0.00	16.66
116	M	1,3-dichlorobenzene	1.351	1.434	-6.1	123	0.00	16.89
117	M	p-isopropyltoluene	2.475	2.582	-4.3	115	0.00	16.79
118	M	1,2,3-trimethylbenzene		----------NA----------				
119	M	1,4-dichlorobenzene	1.360	1.428	-5.0	122	0.00	16.98
120	m	p-diethylbenzene		----------NA----------				
121	M	1,2-dichlorobenzene	1.306	1.422	-8.9	125	0.00	17.43
122	M	n-butylbenzene	1.295	1.320	-1.9	109	0.00	17.26
123	m	1,2,4,5-tetramethylbenzen		----------NA----------				
		----------	True	Calc.	% Drift	----------		
124	M	1,2-dibromo-3-chloropropa	20.000	26.196	-31.0#	144	0.00	18.31
		----------	AvgRF	CCRF	% Dev	----------		
125	M	1,3,5-trichlorobenzene	0.952	1.090	-14.5	120	0.00	18.48
126	M	1,2,4-trichlorobenzene	0.647	0.800	-23.6#	121	0.00	19.22
127	M	hexachlorobutadiene	0.564	0.575	-2.0	115	0.00	19.33
128	M	naphthalene	1.238	1.549	-25.1#	126	0.00	19.55
129	M	1,2,3-trichlorobenzene	0.592	0.723	-22.1#	123	0.00	19.83
130	M	hexachloroethane	0.413	0.459	-11.1	121	0.00	17.71
131		Ethylenimine		----------NA----------				
132		Bis(chloromethyl)ether		----------NA----------				
133		2-methylnaphthalene		----------NA----------				

(#) = Out of Range SPCC's out = 0 CCC's out = 0
A193251.D MA7282.M Fri Apr 19 11:25:42 2013 MSA

6.7.7

6

Continuing Calibration Summary

Job Number: JB33644 **Sample:** VA7309-CC7282
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** A193843.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\1\DATA\A193843.D                    Vial: 2
Acq On    : 20 Apr 2013   9:01 am                    Operator: Oksanat
Sample    : cc7282-20                                Inst    : MSA
Misc      : MS46597,VA7309,w,,,,1                    Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title        : SW 846  8260bB ZB624 60m x 0.25mm x 1.4um
Last Update  : Tue Apr 09 08:05:51 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.010  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	118	-0.02	7.58
2	M	1,4-dioxane	0.095	0.108	-13.7	124	0.00	11.65
3	M	ethanol		----------NA----------				
4	M	tertiary butyl alcohol	1.156	1.334	-15.4	127	-0.03	7.70
5	I	pentafluorobenzene	1.000	1.000	0.0	129	0.00	9.92
6		chlorotrifluoroethene		----------NA----------				
7	M	chlorodifluoromethane	0.410	0.354	13.7	104	0.00	3.99
8	M	dichlorodifluoromethane	0.497	0.497	0.0	121	0.00	3.95
9	M	chloromethane	0.633	0.652	-3.0	132	0.00	4.30
10	M	vinyl chloride	0.660	0.612	7.3	114	0.00	4.57
11	M	bromomethane	0.371	0.361	2.7	124	0.00	5.27
12	M	chloroethane	0.294	0.303	-3.1	124	0.00	5.46
13		vinyl bromide		----------NA----------				
14	M	trichlorofluoromethane	0.562	0.580	-3.2	125	0.00	5.93
15	m	pentane		----------NA----------				
16	M	ethyl ether	0.246	0.240	2.4	126	0.00	6.37
17		Freon 123a		----------NA----------				
18	M	acrolein	0.067	0.055	17.9	100	0.00	6.68
19	M	1,1-dichloroethene	0.362	0.368	-1.7	126	0.00	6.82
		----------	True	Calc.	% Drift	----------		
20	M	acetone	20.000	14.298	28.5#	85	-0.02	6.91
		----------	AvgRF	CCRF	% Dev	----------		
21	M	allyl chloride	0.233	0.242	-3.9	117	0.00	7.40
22	M	acetonitrile	0.032	0.030	6.3	116	0.00	7.41
23	M	iodomethane	0.658	0.723	-9.9	125	0.00	7.13
24	M	iso-butyl alcohol	0.014	0.015	-7.1	130	-0.01	10.25
25	M	carbon disulfide	1.304	1.398	-7.2	120	0.00	7.24
26	M	methylene chloride	0.460	0.473	-2.8	124	0.00	7.62
		----------	True	Calc.	% Drift	----------		
27	M	methyl acetate	20.000	19.049	4.8	106	0.00	7.39
		----------	AvgRF	CCRF	% Dev	----------		
28	M	methyl tert butyl ether	1.177	1.198	-1.8	125	0.00	7.93
29	M	trans-1,2-dichloroethene	0.384	0.421	-9.6	129	0.00	7.99
30	M	di-isopropyl ether	1.600	1.540	3.8	117	0.00	8.55
31	m	t-butyl formate	0.376	0.352	6.4	115	0.00	9.80
32	m	3,3-dimethyl-1-butanol	0.042	0.043	-2.4	129	0.00	13.57
33	M	ethyl tert-butyl ether	1.402	1.417	-1.1	120	0.00	9.04

Continuing Calibration Summary

Job Number: JB33644 **Sample:** VA7309-CC7282
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** A193843.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

34	M	2-butanone	0.040	0.038	5.0	116	-0.01	9.36
35	M	1,1-dichloroethane	0.715	0.836	-16.9	131	0.00	8.61
36	M	chloroprene	0.530	0.514	3.0	112	0.00	8.71
37	M	acrylonitrile	0.118	0.128	-8.5	123	0.00	7.99
38	M	vinyl acetate	0.059	0.053	10.2	108	0.00	8.58
39	M	ethyl acetate	0.054	0.049	9.3	108	0.00	9.37
40		ethyl acrylate		----------NA----------				
41	M	2,2-dichloropropane	0.603	0.521	13.6	106	0.00	9.38
42	M	cis-1,2-dichloroethene	0.448	0.478	-6.7	128	0.00	9.39
43	M	propionitrile	0.046	0.049	-6.5	126	0.00	9.50
44	M	bromochloromethane	0.192	0.218	-13.5	131	0.00	9.72
45	M	tetrahydrofuran	0.141	0.136	3.5	117	0.00	9.75
46	M	chloroform	0.671	0.768	-14.5	131	0.00	9.78
47	S	dibromofluoromethane (s)	0.397	0.363	8.6	117	0.00	9.99
48	S	1,2-dichloroethane-d4 (s)	0.446	0.405	9.2	116	0.00	10.43
49	M	freon 113	0.232	0.204	12.1	101	0.00	6.78
50	M	methacrylonitrile	0.232	0.218	6.0	118	0.00	9.68
51		cyclohexane	0.552	0.573	-3.8	120	0.00	10.08
52	M	1,1,1-trichloroethane	0.537	0.603	-12.3	127	0.00	10.02
53	M	tert-amyl methyl ether	1.305	1.297	0.6	121	0.00	10.51
54	I	1,4-difluorobenzene	1.000	1.000	0.0	127	0.00	10.88
55	M	Di-isobutylene		----------NA----------				
56	M	epichlorohydrin	0.024	0.020	16.7	101	0.00	12.25
57	M	n-butyl alcohol	0.008	0.009#	-12.5	137	-0.02	11.04
58	M	carbon tetrachloride	0.301	0.344	-14.3	126	0.00	10.23
59	M	1,1-dichloropropene	0.340	0.358	-5.3	121	0.00	10.20
60	M	hexane	0.347	0.266	23.3#	93	0.00	8.27
61	M	benzene	1.068	1.168	-9.4	127	0.00	10.49
62	M	Iso-octane	1.037	0.902	13.0	102	0.00	10.44
63	M	heptane	0.198	0.175	11.6	103	0.00	10.63
64	m	tert amyl alcohol		----------NA----------				
65	M	isopropyl acetate	0.759	0.634	16.5	104	0.00	10.41
66	M	1,2-dichloroethane	0.299	0.362	-21.1#	134	0.00	10.52
67	M	trichloroethene	0.244	0.267	-9.4	124	0.00	11.23
68	M	2-nitropropane		----------NA----------				
69	m	tert-amyl ethyl ether		----------NA----------				
70	m	methylcyclohexane	0.405	0.378	6.7	109	0.01	11.44
71	M	2-chloroethyl vinyl ether	0.139	0.136	2.2	109	0.00	12.09
72	M	methyl methacrylate	0.153	0.159	-3.9	120	0.00	11.52
73	M	1,2-dichloropropane	0.283	0.324	-14.5	127	0.00	11.53
74	M	dibromomethane	0.144	0.164	-13.9	127	0.00	11.71
75	M	bromodichloromethane	0.343	0.388	-13.1	129	0.00	11.85
76	M	cis-1,3-dichloropropene	0.466	0.462	0.9	114	0.00	12.33
77	S	toluene-d8 (s)	1.019	1.036	-1.7	125	0.00	12.63
78	M	4-methyl-2-pentanone	0.095	0.101	-6.3	122	0.00	12.43
79	M	toluene	0.671	0.720	-7.3	124	0.00	12.71
80	M	3-methyl-1-butanol	0.012	0.013	-8.3	127	0.00	12.46
81	M	trans-1,3-dichloropropene	0.418	0.390	6.7	109	0.00	12.95
82	M	ethyl methacrylate	0.326	0.334	-2.5	117	0.00	12.92
83	M	1,1,2-trichloroethane	0.191	0.208	-8.9	125	0.00	13.19
84	M	2-hexanone	0.095	0.090	5.3	115	0.00	13.37
85	I	chlorobenzene-d5	1.000	1.000	0.0	125	0.00	14.33
86	M	tetrachloroethene	0.227	0.243	-7.0	119	0.00	13.35
87	M	1,3-dichloropropane	0.412	0.455	-10.4	124	0.00	13.39
88	M	butyl acetate	0.193	0.193	0.0	116	0.00	13.44
89	M	dibromochloromethane	0.287	0.321	-11.8	126	0.00	13.69
90	M	1,2-dibromoethane	0.236	0.258	-9.3	124	0.00	13.85
91	M	n-butyl ether		----------NA----------				

Continuing Calibration Summary

Job Number: JB33644 **Sample:** VA7309-CC7282
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** A193843.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

92	M	chlorobenzene	0.827	0.878	-6.2	122	0.00	14.36
93	M	1,1,1,2-tetrachloroethane	0.302	0.338	-11.9	130	0.00	14.43
94	M	ethylbenzene	1.425	1.459	-2.4	118	0.00	14.41
95	M	m,p-xylene	0.533	0.553	-3.8	116	0.00	14.52
96	M	o-xylene	0.543	0.576	-6.1	120	0.00	15.01
97	M	styrene	0.920	0.938	-2.0	116	0.00	15.02
98	M	bromoform	0.196	0.209	-6.6	122	0.00	15.35
99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	121	0.00	16.96
100	M	isopropylbenzene	2.760	2.862	-3.7	118	0.00	15.38
101	m	cyclohexanone	0.084	0.020	76.2#	27#	0.00	15.61
102	S	4-bromofluorobenzene (s)	0.831	0.831	0.0	113	0.00	15.63
103	M	bromobenzene	0.726	0.741	-2.1	119	0.00	15.86
104	M	1,1,2,2-tetrachloroethane	0.704	0.730	-3.7	124	0.00	15.77
105	M	trans-1,4-dichloro-2-bute	0.177	0.145	18.1	93	0.00	15.81
106	M	1,2,3-trichloropropane	0.157	0.178	-13.4	130	0.00	15.85
107	M	n-propylbenzene	3.235	3.201	1.1	111	0.00	15.85
108	M	2-chlorotoluene	0.699	0.689	1.4	114	0.00	16.03
109	M	4-chlorotoluene	2.099	1.987	5.3	112	0.00	16.14
110	m	p-ethyltoluene		----------NA----------				
111	M	1,3,5-trimethylbenzene	2.416	2.434	-0.7	116	0.00	16.01
112	M	tert-butylbenzene	2.009	2.161	-7.6	123	0.00	16.41
113	M	pentachloroethane	0.355	0.449	-26.5#	143	0.00	16.53
114	M	1,2,4-trimethylbenzene	2.479	2.388	3.7	114	0.00	16.47
115	M	sec-butylbenzene	3.080	3.094	-0.5	114	0.00	16.66
116	M	1,3-dichlorobenzene	1.351	1.276	5.6	111	0.00	16.89
117	M	p-isopropyltoluene	2.475	2.383	3.7	108	0.00	16.79
118	M	1,2,3-trimethylbenzene		----------NA----------				
119	M	1,4-dichlorobenzene	1.360	1.251	8.0	108	0.00	16.98
120	m	p-diethylbenzene		----------NA----------				
121	M	1,2-dichlorobenzene	1.306	1.327	-1.6	119	0.00	17.43
122	M	n-butylbenzene	1.295	1.083	16.4	91	0.00	17.26
123	m	1,2,4,5-tetramethylbenzen		----------NA----------				
		----------	True	Calc.	% Drift	----------		
124	M	1,2-dibromo-3-chloropropa	20.000	22.022	-10.1	126	0.00	18.31
		----------	AvgRF	CCRF	% Dev	----------		
125	M	1,3,5-trichlorobenzene	0.952	0.799	16.1	89	0.00	18.48
126	M	1,2,4-trichlorobenzene	0.647	0.570	11.9	88	0.00	19.22
127	M	hexachlorobutadiene	0.564	0.514	8.9	105	0.00	19.33
128	M	naphthalene	1.238	1.318	-6.5	109	0.00	19.55
129	M	1,2,3-trichlorobenzene	0.592	0.575	2.9	99	0.00	19.82
130	M	hexachloroethane	0.413	0.498	-20.6#	134	0.00	17.70
131		Ethylenimine		----------NA----------				
132		Bis(chloromethyl)ether		----------NA----------				
133		2-methylnaphthalene		----------NA----------				

(#) = Out of Range SPCC's out = 0 CCC's out = 0
A193251.D MA7282.M Mon Apr 22 13:12:26 2013 MSA

6.7.8

6

Initial Calibration Summary

Job Number: JB33644 **Sample:** VU7811-ICC7811
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** U168480.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Response Factor Report MSU

```
Method       : C:\MSDCHEM\1\METHODS\MU7811.M (RTE Integrator)
Title        : SW-846  8260B, DB624  60m x 250um x 1.40um
Last Update  : Fri Feb 15 11:42:29 2013
Response via : Initial Calibration

Calibration Files
5   =U168477.D   2   =U168476.D   20  =U168479.D   50  =U168480.D
100 =U168481.D   1   =U168475.D   200 =U168482.D   10  =U168478.D
0.5 =U168474.D       =
```

Compound	5	2	20	50	100	1	200	10	0.5	Avg	%RSD
1) I Tert Butyl Alcohol-d9 ----------ISTD----------											
2) tertiary butyl alcohol	0.954	1.099	0.996	0.987	0.978	1.227	0.941	0.975		1.020	9.46
3) Ethanol	0.048	0.042	0.048	0.047	0.046	0.048	0.045	0.049		0.046	5.31
4) 1,4-dioxane	0.085	0.085	0.092	0.092	0.089		0.090	0.087		0.089	3.52
5) I pentafluorobenzene ----------ISTD----------											
6) freon 115										0.000	-1.00
7) freon 23										0.000	-1.00
8) freon 143A										0.000	-1.00
9) freon 152A										0.000	-1.00
10) chlorotrifluoroethene										0.000	-1.00
11) chlorodifluoromethane	0.413	0.358	0.429	0.451	0.442	0.560	0.461	0.443		0.444	12.70
12) dichlorodifluoromethane	0.465	0.587	0.541	0.556	0.538	0.613	0.511	0.565		0.547	8.31
13) freon 142B										0.000	-1.00
14) freon 114										0.000	-1.00
15) chloromethane	0.638	0.809	0.659	0.649	0.644	0.804	0.608	0.652		0.683	11.39
16) vinyl chloride	0.596	0.664	0.654	0.655	0.652	0.665	0.613	0.643	0.583	0.636	4.81
17) acetaldehyde										0.000	-1.00
18) bromomethane	0.363	0.438	0.372	0.361	0.344	0.490		0.362		0.390	13.69
19) chloroethane	0.297	0.364	0.321	0.320	0.310	0.336	0.283	0.313	0.372	0.324	8.96
20) trichlorofluoromethane	0.598	0.651	0.675	0.672	0.668	0.664	0.628	0.673	0.505	0.637	8.74
21) pentane										0.000	-1.00
22) freon 123A										0.000	-1.00
23) ethyl ether											

Initial Calibration Summary

Job Number: JB33644 **Sample:** VU7811-ICC7811
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** U168480.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
            0.252 0.289 0.243 0.244 0.244       0.248 0.248         0.253    6.40
24)  2-CHLOROPROPANE
            0.764 0.797 0.767 0.801 0.783 0.840 0.779 0.798 0.851   0.798    3.76
25)  freon 141B
                                                                    0.000   -1.00
26)  freon 123
                                                                    0.000   -1.00
27)  acrolein
            0.100 0.102 0.089 0.096 0.094 0.114 0.091 0.094         0.097    8.14
28)  1,1-dichloroethene
            0.416 0.474 0.376 0.376 0.369 0.563 0.362 0.412         0.419   16.48
             ----- Linear regression -----  Coefficient =  0.9999
               Response Ratio = 0.00772 + 0.36154 *A

29)  acetone
            0.044       0.043 0.045 0.044       0.043 0.044         0.044    2.13
30)  allyl chloride
            0.084       0.082 0.079 0.078       0.078 0.083         0.081    3.06
31)  acetonitrile
            0.037 0.036 0.040 0.041 0.040 0.045 0.039 0.039         0.040    6.50
32)  iodomethane
            0.734 0.727 0.739 0.764 0.753 0.698 0.749 0.763         0.741    2.93
33)  carbon disulfide
            1.390 1.371 1.354 1.390 1.368 1.517 1.343 1.425 1.450   1.401    3.93
34)  1-CHLOROPROPANE
            0.040       0.035 0.036 0.035       0.035 0.040         0.037    7.48
35)  methylene chloride
            0.455 0.464 0.430 0.437 0.434       0.432 0.452         0.443    2.98
36)  methyl acetate
            0.345 0.346 0.404 0.383 0.375 0.412 0.375 0.348         0.373    6.98
37)  methyl tert butyl ether
            1.350 1.492 1.324 1.345 1.337 1.513 1.354 1.390 1.745   1.428    9.61
38)  trans-1,2-dichloroethene
            0.411 0.512 0.411 0.402 0.397 0.556 0.386 0.431         0.438   14.04
39)  di-isopropyl ether
            1.354 1.314 1.437 1.446 1.448 1.535 1.440 1.388 1.698   1.451    7.72
40)  ethyl tert-butyl ether
            1.323 1.259 1.427 1.445 1.463 1.440 1.469 1.375 1.432   1.404    5.07
41)  2-butanone
            0.049       0.054 0.054 0.053       0.055 0.052         0.053    4.23
42)  1,1-dichloroethane
            0.746 0.728 0.746 0.755 0.747 0.742 0.743 0.784 0.722   0.746    2.35
43)  chloroprene
            0.556 0.572 0.602 0.604 0.608 0.615 0.600 0.586 0.680   0.602    5.75
44)  acrylonitrile
            0.175 0.176 0.172 0.174 0.171 0.182 0.173 0.176 0.180   0.175    2.03
45)  vinyl acetate
            0.064       0.072 0.070 0.072       0.072 0.066         0.069    5.28
46)  ethyl acetate
            0.075 0.078 0.068 0.066 0.066       0.065 0.075         0.070    7.92
47)  2,2-dichloropropane
            0.542 0.589 0.593 0.513 0.503       0.563 0.543         0.550    6.34
48)  cis-1,2-dichloroethene
            0.456 0.475 0.442 0.442 0.438 0.565 0.437 0.458         0.464    9.22
49)  methyl acrylate
            0.481 0.486 0.496 0.503 0.494       0.501 0.502         0.495    1.73
50)  propionitrile
            0.070 0.069 0.068 0.068 0.067 0.072 0.068 0.071         0.069    2.35
51)  bromochloromethane
            0.220 0.220 0.222 0.222 0.226 0.227 0.228 0.219 0.222   0.223    1.46
```

Initial Calibration Summary

Job Number: JB33644 **Sample:** VU7811-ICC7811
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** U168480.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
52)  tetrahydrofuran
           0.201       0.168 0.172 0.169       0.170 0.191         0.178    7.83
53)  chloroform
           0.695 0.731 0.690 0.698 0.693 0.801 0.691 0.716 0.814   0.726    6.70
54)  tert-butyl Formate
           0.418 0.418 0.448 0.455 0.457 0.443 0.456 0.432 0.458   0.443    3.68
55)  iso-butyl alcohol
                                                                    0.000   -1.00
56)  dibromofluoromethane (s)
           0.401 0.391 0.379 0.378 0.381       0.376 0.387         0.385    2.31
57)  1,2-dichloroethane-d4 (s)
           0.474 0.472 0.437 0.441 0.448       0.441 0.462         0.453    3.40
58)  freon 113
           0.273 0.265 0.300 0.304 0.306 0.260 0.298 0.300 0.236   0.282    8.81
59)  methacrylonitrile
           0.284 0.319 0.277 0.283 0.280 0.276 0.288 0.281 0.329   0.291    6.64
60)  1,1,1-trichloroethane
           0.616 0.631 0.618 0.628 0.621 0.651 0.608 0.638 0.703   0.635    4.50
61)  tert amyl alcohol
                                                                    0.000   -1.00
62)  tert-amyl methyl ether
           0.291 0.272 0.310 0.306 0.311 0.312 0.309 0.299 0.283   0.299    4.77
63)  iso-octane
           1.245 1.300 1.439 1.372 1.461       1.455 1.365         1.377    5.98

64) I   1,4-difluorobenzene   ----------------ISTD---------------------
65)  Di-isobutylene
                                                                    0.000   -1.00
66)  epichlorohydrin
           0.039 0.042 0.036 0.035 0.033       0.033 0.036         0.036    9.21
67)  n-butyl alcohol
           0.012 0.013 0.011 0.011 0.010       0.010 0.012         0.011    8.98
68)  Cyclohexane
           0.472 0.453 0.454 0.471 0.457 0.475 0.446 0.497 0.426   0.461    4.38
69)  carbon tetrachloride
           0.414 0.402 0.407 0.423 0.408 0.402 0.398 0.429 0.404   0.410    2.52
70)  1,1-dichloropropene
           0.394 0.410 0.397 0.401 0.394 0.391 0.392 0.410 0.352   0.393    4.31
71)  hexane
           0.046 0.039 0.052 0.049 0.050 0.044 0.051 0.052         0.048    9.57
72)  benzene
           1.179 1.192 1.157 1.179 1.143 1.193 1.133 1.196 1.221   1.177    2.38
73)  heptane
           0.192 0.210 0.209 0.193 0.193 0.212 0.201 0.197         0.201    4.22
74)  isopropyl acetate
           0.609 0.611 0.629 0.636 0.622 0.665 0.615 0.613 0.821   0.647   10.47
75)  1,2-dichloroethane
           0.390 0.397 0.393 0.395 0.386 0.419 0.391 0.395 0.350   0.391    4.55
76)  ethyl acrylate
                                                                    0.000   -1.00
77)  tert amyl ethyl ether
                                                                    0.000   -1.00
78)  trichloroethene
           0.290 0.308 0.285 0.293 0.286 0.320 0.288 0.293 0.295   0.295    3.85
79)  methylcyclohexane
           0.464 0.482 0.499 0.506 0.510       0.498 0.504         0.495    3.27
80)  2-nitropropane
           0.005       0.007 0.007 0.007       0.007 0.007         0.007   11.29
81)  2-chloroethyl vinyl ether
           0.194 0.185 0.203 0.212 0.207 0.203 0.202 0.205 0.212   0.203    4.34
```

```
 82)  methyl methacrylate
            0.089 0.084 0.088 0.091 0.087       0.087 0.093         0.088    3.43
 83)  1,2-dichloropropane
            0.318 0.327 0.309 0.316 0.308 0.342 0.308 0.324 0.333   0.321    3.71
 84)  propyl acetate
            0.072       0.063 0.070 0.063       0.061 0.067         0.066    6.73
 85)  dibromomethane
            0.183 0.194 0.187 0.192 0.188 0.204 0.190 0.190 0.166   0.188    5.39
 86)  bromodichloromethane
            0.405 0.438 0.393 0.409 0.401 0.495 0.405 0.403 0.453   0.423    7.91
 87)  cis-1,3-dichloropropene
            0.507 0.526 0.508 0.516 0.506 0.532 0.515 0.522 0.524   0.517    1.79
 88)  toluene-d8 (s)
            1.228 1.185 1.105 1.124 1.088       1.026 1.204         1.137    6.32
 89)  4-methyl-2-pentanone
            0.143 0.151 0.136 0.140 0.133 0.142 0.132 0.141 0.171   0.143    8.19
 90)  toluene
            0.753 0.787 0.730 0.766 0.734 0.738 0.721 0.796 0.747   0.752    3.42
 91)  3-methyl-1-butanol
            0.018 0.025 0.017 0.017 0.015       0.014 0.019         0.018   18.97
             ----- Linear regression -----  Coefficient =  0.9974
               Response Ratio = 0.02434 + 0.01399 *A

 92)  trans-1,3-dichloropropene
            0.495 0.502 0.474 0.492 0.474 0.494 0.476 0.496 0.528   0.492    3.46
 93)  ethyl methacrylate
            0.469 0.519 0.432 0.460 0.442 0.509 0.431 0.467         0.466    7.12
 94)  1,1,2-trichloroethane
            0.256 0.281 0.230 0.244 0.238 0.302 0.235 0.247         0.254    9.85
 95)  2-hexanone
            0.138       0.133 0.136 0.131       0.127 0.141         0.135    3.79

 96) I   chlorobenzene-d5      ----------------ISTD---------------------
 97)  cyclohexanone
            0.014       0.018 0.013 0.012       0.013 0.016         0.014   16.27
             ----- Linear regression -----  Coefficient =  0.9976
               Response Ratio = 0.00810 + 0.01240 *A

 98)  tetrachloroethene
            0.296 0.291 0.295 0.294 0.289 0.314 0.290 0.307 0.265   0.293    4.58
 99)  1,3-dichloropropane
            0.498 0.510 0.499 0.500 0.484 0.537 0.487 0.512 0.513   0.505    3.17
100)  butyl acetate
            0.247 0.263 0.242 0.236 0.229       0.224 0.236         0.240    5.29
101)  dibromochloromethane
            0.362 0.367 0.349 0.361 0.356 0.384 0.368 0.361 0.379   0.365    2.95
102)  1,2-dibromoethane
            0.320 0.329 0.314 0.316 0.314 0.328 0.317 0.322 0.301   0.318    2.63
103)  3,3-dimethyl-1-Butanol
            0.044 0.050 0.040 0.035 0.032       0.030 0.040         0.039   18.13
             ----- Linear regression -----  Coefficient =  0.9985
               Response Ratio = 0.02625 + 0.02997 *A

104)  n-butyl ether
                                                                    0.000   -1.00
105)  chlorobenzene
            0.929 0.920 0.913 0.924 0.905 0.943 0.900 0.937 0.902   0.919    1.67
106)  1,1,1,2-tetrachloroethane
            0.345 0.333 0.336 0.337 0.331 0.350 0.341 0.344 0.307   0.336    3.76
107)  ethylbenzene
```

```
            1.540 1.614 1.525 1.541 1.496 1.591 1.452 1.579 1.725   1.563    5.02
108)  m,p-xylene
            0.604 0.619 0.600 0.598 0.584 0.615 0.567 0.616 0.582   0.598    2.97
109)  o-xylene
            0.601 0.618 0.601 0.604 0.595 0.642 0.591 0.617 0.639   0.612    3.02
110)  styrene
            1.038 1.056 1.029 1.056 1.039 1.095 1.021 1.059 1.039   1.048    2.08
111)  bromoform
            0.286 0.286 0.283 0.299 0.298 0.308 0.306 0.284 0.265   0.291    4.59

112) I   1,4-dichlorobenzene-d ----------------ISTD---------------------
113)  isopropylbenzene
            2.598 2.672 2.587 2.589 2.513 2.687 2.417 2.723 2.676   2.607    3.71
114)  4-bromofluorobenzene (s)
            0.930 0.897 0.771 0.786 0.764       0.727 0.857         0.819    9.29
115)  bromobenzene
            0.738 0.806 0.726 0.740 0.725 0.766 0.711 0.779 0.807   0.755    4.71
116)  1,1,2,2-tetrachloroethane
            0.751 0.786 0.712 0.726 0.699 0.849 0.698 0.742         0.745    6.86
117)  trans-1,4-dichloro-2-butene
            0.197 0.197 0.210 0.205 0.193 0.224 0.217 0.202 0.187   0.204    5.74
118)  1,2,3-trichloropropane
            0.202 0.226 0.190 0.192 0.188 0.225 0.187 0.206 0.196   0.201    7.49
119)  n-propylbenzene
            3.110 3.322 3.015 3.070 2.989 3.058 2.867 3.235 3.118   3.087    4.32
120)  2-chlorotoluene
            0.645 0.662 0.644 0.645 0.626 0.768 0.610 0.678 0.737   0.668    7.79
121)  4-chlorotoluene
            1.916 2.059 1.862 1.887 1.852 2.221 1.813 1.948 2.274   1.981    8.42
122)  p-Ethyltoluene
                                                                    0.000   -1.00
123)  1,3,5-trimethylbenzene
            2.219 2.316 2.212 2.196 2.126 2.294 2.086 2.334 2.481   2.252    5.31
124)  tert-butylbenzene
            1.938 2.001 1.904 1.884 1.871 2.020 1.860 2.028 2.089   1.955    4.20
125)  pentachloroethane
            0.455 0.482 0.462 0.458 0.461 0.429 0.463 0.478 0.472   0.462    3.37
126)  1,2,4-trimethylbenzene
            2.295 2.428 2.235 2.238 2.165 2.454 2.109 2.357 2.530   2.312    6.08
127)  sec-butylbenzene
            2.904 2.930 2.862 2.843 2.764 3.025 2.697 3.040 3.335   2.933    6.37
128)  1,3-dichlorobenzene
            1.384 1.427 1.372 1.388 1.374 1.458 1.358 1.411 1.414   1.398    2.28
129)  p-isopropyltoluene
            2.396 2.514 2.428 2.424 2.359 2.542 2.307 2.555 2.502   2.447    3.52
130)  1,4-dichlorobenzene
            1.386 1.452 1.390 1.407 1.397 1.517 1.399 1.431 1.492   1.430    3.32
131)  benzyl chloride
            1.001 1.002 1.326 1.040 1.032 1.285 1.267 1.001         1.119   12.98
132)  1,2-dichlorobenzene
            1.339 1.378 1.352 1.367 1.321 1.397 1.321 1.343 1.370   1.354    1.91
133)  p-Diethylbenzene
                                                                    0.000   -1.00
134)  n-butylbenzene
            1.164 1.154 1.239 1.225 1.215 1.164 1.198 1.213 1.171   1.194    2.61
135)  1,2,4,5-Tetramethylbenzene
                                                                    0.000   -1.00
136)  1,2-dibromo-3-chloropropane
            0.148       0.150 0.135 0.122       0.117 0.142         0.136   10.01
137)  1,3,5-trichlorobenzene
```

Initial Calibration Summary

Job Number: JB33644 **Sample:** VU7811-ICC7811
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** U168480.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
            1.155 1.131 1.211 1.141 1.060 1.159 1.001 1.200 1.208   1.141    6.18
138)  1,2,4-trichlorobenzene
            0.973 0.933 1.032 0.977 0.859 0.977 0.761 1.010 0.948   0.941    8.87
139)  hexachlorobutadiene
            0.625 0.637 0.642 0.575 0.540 0.671 0.486 0.642         0.602   10.45
140)  naphthalene
            1.921 1.846 1.997 1.863 1.583 1.956 1.345 1.965 1.893   1.819   11.83
141)  INDANE
                                                                    0.000   -1.00
142)  1,2,3-trichlorobenzene
            0.863 0.841 0.904 0.796 0.654 0.883       0.877         0.831   10.30
143)  hexachloroethane
            0.460 0.461 0.484 0.485 0.496 0.468 0.486 0.492 0.417   0.472    5.20
144)  MMT
                                                                    0.000   -1.00
145)  Bis(chloromethyl)ether
                                                                    0.000   -1.00
146)  Ethylenimine
                                                                    0.000   -1.00
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          MU7811.M          Fri Feb 15 11:43:02 2013   VOA-05
```

6.7.9

6

Initial Calibration Verification

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: VU7811-ICV7811
Lab FileID: U168485.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\U168485.D Vial: 13
Acq On : 13 Feb 2013 12:42 am Operator: margares
Sample : icv7811-50 Inst : MSU
Misc : MS42960,vu7811,5,,,,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\MU7811.M (RTE Integrator)
Title : SW-846 8260B, DB624 60m x 250um x 1.40um
Last Update : Wed Feb 13 10:16:02 2013
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	103	0.00	8.06
2	M	tertiary butyl alcohol	1.020	0.971	4.8	101	0.00	8.17
3		Ethanol	0.046	0.043	6.5	94	0.00	6.82
4	m	1,4-dioxane	0.089	0.080	10.1	90	0.00	11.93
5	I	pentafluorobenzene	1.000	1.000	0.0	102	0.00	10.27
6	M	freon 115		----------NA----------				
7	M	freon 23		----------NA----------				
8	M	freon 143A		----------NA----------				
9	M	freon 152A		----------NA----------				
10	M	chlorotrifluoroethene		----------NA----------				
11	M	chlorodifluoromethane	0.444	0.496	-11.7	113	0.00	4.55
12	M	dichlorodifluoromethane	0.547	0.527	3.7	97	0.00	4.52
13	M	freon 142B		----------NA----------				
14	M	freon 114		----------NA----------				
15	M	chloromethane	0.683	0.671	1.8	106	0.00	4.92
16	M	vinyl chloride	0.636	0.672	-5.7	105	0.00	5.19
17	M	acetaldehyde		----------NA----------				
18	M	bromomethane	0.390	0.373	4.4	106	0.00	5.89
19	M	chloroethane	0.324	0.332	-2.5	106	0.00	6.07
20	M	trichlorofluoromethane	0.637	0.665	-4.4	101	0.00	6.55
21	M	pentane		----------NA----------				
22	M	freon 123A		----------NA----------				
23	M	ethyl ether	0.253	0.246	2.8	103	0.00	6.94
24		2-CHLOROPROPANE	0.798	0.794	0.5	101	0.00	7.16
25	M	freon 141B		----------NA----------				
26	M	freon 123		----------NA----------				
27	M	acrolein	0.097	0.096	1.0	102	0.00	7.23
		----------	True	Calc.	% Drift	----------		
28	M	1,1-dichloroethene	50.000	51.564	-3.1	104	0.00	7.40
		----------	AvgRF	CCRF	% Dev	----------		
29	M	acetone	0.044	0.047	-6.8	107	0.00	7.45
30	M	allyl chloride	0.081	0.077	4.9	100	0.00	7.93
31	M	acetonitrile	0.040	0.040	0.0	101	0.00	7.92
32	M	iodomethane	0.741	0.763	-3.0	102	0.00	7.70
33	M	carbon disulfide	1.401	1.385	1.1	102	0.00	7.82
34		1-CHLOROPROPANE	0.037	0.035	5.4	100	0.00	8.15
35	M	methylene chloride	0.443	0.429	3.2	100	0.00	8.13
36	M	methyl acetate	0.373	0.365	2.1	98	0.00	7.90
37	M	methyl tert butyl ether	1.428	1.284	10.1	98	0.00	8.42

Initial Calibration Verification

Job Number: JB33644 **Sample:** VU7811-ICV7811
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** U168485.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

38	M	trans-1,2-dichloroethene	0.438	0.399	8.9	101	0.00	8.49
39	M	di-isopropyl ether	1.451	1.422	2.0	101	0.00	8.99
40	M	ethyl tert-butyl ether	1.404	1.366	2.7	97	0.00	9.46
41	M	2-butanone	0.053	0.053	0.0	100	0.00	9.74
42	M	1,1-dichloroethane	0.746	0.756	-1.3	102	0.00	9.06
43	M	chloroprene	0.602	0.582	3.3	99	0.00	9.16
44	M	acrylonitrile	0.175	0.171	2.3	100	0.00	8.46
45	M	vinyl acetate	0.069	0.078	-13.0	113	0.00	9.02
46	M	ethyl acetate	0.070	0.064	8.6	100	0.00	9.74
47	M	2,2-dichloropropane	0.550	0.496	9.8	99	0.00	9.78
48	M	cis-1,2-dichloroethene	0.464	0.437	5.8	101	0.00	9.79
49	M	methyl acrylate	0.495	0.489	1.2	99	0.00	9.83
50	M	propionitrile	0.069	0.066	4.3	100	0.00	9.87
51	M	bromochloromethane	0.223	0.220	1.3	102	0.00	10.11
52	M	tetrahydrofuran	0.178	0.167	6.2	99	0.00	10.13
53	M	chloroform	0.726	0.692	4.7	102	0.00	10.15
54		tert-butyl Formate	0.443	0.461	-4.1	104	0.00	10.17
55	M	iso-butyl alcohol		----------NA----------				
56	S	dibromofluoromethane (s)	0.385	0.367	4.7	99	0.00	10.35
57	S	1,2-dichloroethane-d4 (s)	0.453	0.424	6.4	98	0.00	10.78
58	M	freon 113	0.282	0.259	8.2	87	0.00	7.35
59	M	methacrylonitrile	0.291	0.278	4.5	101	0.00	10.04
60	M	1,1,1-trichloroethane	0.635	0.624	1.7	102	0.00	10.40
61	M	tert amyl alcohol		----------NA----------				
62	M	tert-amyl methyl ether	0.299	0.292	2.3	98	0.00	10.85
63		iso-octane	1.377	1.132	17.8	84	0.00	10.80
64	I	1,4-difluorobenzene	1.000	1.000	0.0	104	0.00	11.20
65	M	Di-isobutylene		----------NA----------				
66	M	epichlorohydrin	0.036	0.033	8.3	98	0.00	12.49
67	M	n-butyl alcohol	0.011	0.010	9.1	97	0.00	11.31
68	M	Cyclohexane	0.461	0.449	2.6	99	0.00	10.46
69	M	carbon tetrachloride	0.410	0.412	-0.5	101	0.00	10.60
70	M	1,1-dichloropropene	0.393	0.393	0.0	102	0.00	10.57
71	M	hexane	0.048	0.042	12.5	90	0.00	8.75
72	M	benzene	1.177	1.152	2.1	101	0.00	10.84
73	M	heptane	0.201	0.162	19.4	87	0.00	10.96
74	M	isopropyl acetate	0.647	0.664	-2.6	108	0.00	10.73
75	M	1,2-dichloroethane	0.391	0.385	1.5	101	0.00	10.86
76	M	ethyl acrylate		----------NA----------				
77		tert amyl ethyl ether		----------NA----------				
78	M	trichloroethene	0.295	0.289	2.0	102	0.00	11.55
79	M	methylcyclohexane	0.495	0.434	12.3	89	0.00	11.76
80	M	2-nitropropane	0.007	0.007	0.0	96	0.00	12.34
81	M	2-chloroethyl vinyl ether	0.203	0.202	0.5	98	0.00	12.34
82	M	methyl methacrylate	0.088	0.083	5.7	95	0.00	11.79
83	M	1,2-dichloropropane	0.321	0.309	3.7	101	0.00	11.82
84	M	propyl acetate	0.066	0.060	9.1	89	0.00	11.83
85	M	dibromomethane	0.188	0.183	2.7	98	0.00	12.00
86	M	bromodichloromethane	0.423	0.392	7.3	99	0.00	12.12
87	M	cis-1,3-dichloropropene	0.517	0.489	5.4	98	0.00	12.58
88	S	toluene-d8 (s)	1.137	1.059	6.9	98	0.00	12.89
89	M	4-methyl-2-pentanone	0.143	0.132	7.7	98	0.00	12.67
90	M	toluene	0.752	0.733	2.5	99	0.00	12.96
		----------	True	Calc.	% Drift	----------		
91	M	3-methyl-1-butanol	1000.000	1018.191	-1.8	96	0.00	12.68
		----------	AvgRF	CCRF	% Dev	----------		
92	M	trans-1,3-dichloropropene	0.492	0.457	7.1	96	0.00	13.18

6.7.10

6

Initial Calibration Verification

Job Number: JB33644 **Sample:** VU7811-ICV7811
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** U168485.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

93	M	ethyl methacrylate	0.466	0.425	8.8	96	0.00	13.14
94	M	1,1,2-trichloroethane	0.254	0.229	9.8	97	0.00	13.41
95	M	2-hexanone	0.135	0.128	5.2	97	0.00	13.58
96	I	chlorobenzene-d5	1.000	1.000	0.0	98	0.00	14.53
		----------	True	Calc.	% Drift	----------		
97	M	cyclohexanone	500.000	490.664	1.9	98	0.00	15.79
		----------	AvgRF	CCRF	% Dev	----------		
98	M	tetrachloroethene	0.293	0.295	-0.7	98	0.00	13.59
99	M	1,3-dichloropropane	0.505	0.488	3.4	96	0.00	13.61
100	M	butyl acetate	0.240	0.229	4.6	96	0.00	13.64
101	M	dibromochloromethane	0.365	0.354	3.0	96	0.00	13.91
102	M	1,2-dibromoethane	0.318	0.308	3.1	96	0.00	14.08
		----------	True	Calc.	% Drift	----------		
103		3,3-dimethyl-1-Butanol	500.000	681.067	-36.2#	122	0.00	13.76
		----------	AvgRF	CCRF	% Dev	----------		
104		n-butyl ether		----------NA----------				
105	M	chlorobenzene	0.919	0.902	1.8	96	0.00	14.56
106	M	1,1,1,2-tetrachloroethane	0.336	0.344	-2.4	100	0.00	14.63
107	M	ethylbenzene	1.563	1.515	3.1	97	0.00	14.61
108	M	m,p-xylene	0.598	0.587	1.8	96	0.00	14.72
109	M	o-xylene	0.612	0.602	1.6	98	0.00	15.19
110	M	styrene	1.048	1.026	2.1	96	0.00	15.20
111	M	bromoform	0.291	0.293	-0.7	96	0.00	15.53
112	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	102	0.00	17.10
113	M	isopropylbenzene	2.607	2.493	4.4	98	0.00	15.56
114	S	4-bromofluorobenzene (s)	0.819	0.718	12.3	93	0.00	15.80
115	M	bromobenzene	0.755	0.705	6.6	97	0.00	16.03
116	M	1,1,2,2-tetrachloroethane	0.745	0.684	8.2	96	0.00	15.92
117	M	trans-1,4-dichloro-2-bute	0.204	0.199	2.5	99	0.00	15.97
118	M	1,2,3-trichloropropane	0.201	0.184	8.5	98	0.00	16.01
119	M	n-propylbenzene	3.087	2.949	4.5	98	0.00	16.01
120	M	2-chlorotoluene	0.668	0.616	7.8	97	0.00	16.20
121	M	4-chlorotoluene	1.981	1.806	8.8	98	0.00	16.31
122		p-Ethyltoluene		----------NA----------				
123	M	1,3,5-trimethylbenzene	2.252	2.114	6.1	98	0.00	16.18
124	M	tert-butylbenzene	1.955	1.888	3.4	102	0.00	16.57
125	M	pentachloroethane	0.462	0.451	2.4	100	0.00	16.68
126	M	1,2,4-trimethylbenzene	2.312	2.152	6.9	98	0.00	16.62
127	M	sec-butylbenzene	2.933	2.752	6.2	99	0.00	16.81
128	M	1,3-dichlorobenzene	1.398	1.345	3.8	99	0.00	17.04
129	M	p-isopropyltoluene	2.447	2.335	4.6	98	0.00	16.93
130	M	1,4-dichlorobenzene	1.430	1.358	5.0	98	0.00	17.13
131	M	benzyl chloride	1.119	0.975	12.9	96	0.00	17.26
132	M	1,2-dichlorobenzene	1.354	1.320	2.5	99	0.00	17.57
133		p-Diethylbenzene		----------NA----------				
134	M	n-butylbenzene	1.194	1.181	1.1	98	0.00	17.39
135		1,2,4,5-Tetramethylbenzen		----------NA----------				
136	M	1,2-dibromo-3-chloropropa	0.136	0.127	6.6	96	0.00	18.43
137		1,3,5-trichlorobenzene	1.141	1.109	2.8	99	0.00	18.62
138	M	1,2,4-trichlorobenzene	0.941	0.937	0.4	98	0.00	19.36
139	M	hexachlorobutadiene	0.602	0.571	5.1	101	0.00	19.47
140	M	naphthalene	1.819	1.792	1.5	98	0.00	19.69
141		INDANE		----------NA----------				
142	M	1,2,3-trichlorobenzene	0.831	0.772	7.1	99	0.00	19.97

Initial Calibration Verification

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Sample: VU7811-ICV7811
Lab FileID: U168485.D

```
143 M   hexachloroethane            0.472   0.488     -3.4  103   0.00   17.85
144 M   MMT                                ----------NA----------
145 M   Bis(chloromethyl)ether             ----------NA----------
146 M   Ethylenimine                       ----------NA----------
 ---------------------------------------------------------------------------
 ---------------------------------------------------------------------------

    (#) = Out of Range              SPCC's out = 0  CCC's out = 0
     U168480.D  MU7811.M         Wed Feb 13 10:21:40 2013   RPT1
```

Continuing Calibration Summary

Job Number: JB33644 **Sample:** VU7923-CC7811
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** U171092.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\Ucore\VU7923\U171092.D     Vial: 2
Acq On    : 22 Apr 2013  12:09 pm                    Operator: margares
Sample    : cc7811-20                                Inst    : MSU
Misc      : MS46697,vu7923,5,,,,1                    Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\MSDCHEM\1\METHODS\MU7811.M (RTE Integrator)
Title        : SW-846  8260B, DB624  60m x 250um x 1.40um
Last Update  : Fri Feb 15 11:48:28 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	84	-0.02	8.03
2	M	tertiary butyl alcohol	1.020	1.062	-4.1	90	-0.02	8.15
3		Ethanol	0.046	0.052	-13.0	91	-0.03	6.79
4	m	1,4-dioxane	0.089	0.088	1.1	80	-0.02	11.91
5	I	pentafluorobenzene	1.000	1.000	0.0	92	-0.02	10.25
6	M	freon 115		----------NA----------				
7	M	freon 23		----------NA----------				
8	M	freon 143A		----------NA----------				
9	M	freon 152A		----------NA----------				
10	M	chlorotrifluoroethene		----------NA----------				
11	M	chlorodifluoromethane	0.444	0.447	-0.7	96	-0.04	4.51
12	M	dichlorodifluoromethane	0.547	0.578	-5.7	99	-0.02	4.50
13	M	freon 142B		----------NA----------				
14	M	freon 114		----------NA----------				
15	M	chloromethane	0.683	0.622	8.9	87	-0.05	4.86
16	M	vinyl chloride	0.636	0.608	4.4	86	-0.05	5.14
17	M	acetaldehyde		----------NA----------				
18	M	bromomethane	0.390	0.331	15.1	82	-0.03	5.85
19	M	chloroethane	0.324	0.289	10.8	83	-0.02	6.04
20	M	trichlorofluoromethane	0.637	0.591	7.2	81	-0.03	6.52
21	M	pentane		----------NA----------				
22	M	freon 123A		----------NA----------				
23	M	ethyl ether	0.253	0.241	4.7	91	-0.01	6.93
24		2-CHLOROPROPANE	0.798	0.844	-5.8	102	-0.02	7.14
25	M	freon 141B		----------NA----------				
26	M	freon 123		----------NA----------				
27	M	acrolein	0.097	0.087	10.3	90	-0.02	7.21
		----------	True	Calc.	% Drift		----------	
28	M	1,1-dichloroethene	20.000	20.924	-4.6	98	-0.03	7.37
		----------	AvgRF	CCRF	% Dev		----------	
29	M	acetone	0.044	0.040	9.1	87	-0.02	7.43
30	M	allyl chloride	0.081	0.082	-1.2	92	-0.02	7.90
31	M	acetonitrile	0.040	0.043	-7.5	98	-0.03	7.89
32	M	iodomethane	0.741	0.689	7.0	86	-0.03	7.67
33	M	carbon disulfide	1.401	1.469	-4.9	100	-0.02	7.80
34		1-CHLOROPROPANE	0.037	0.035	5.4	92	-0.02	8.13
35	M	methylene chloride	0.443	0.443	0.0	95	-0.03	8.10
36	M	methyl acetate	0.373	0.532	-42.6#	122	-0.02	7.88
37	M	methyl tert butyl ether	1.428	1.250	12.5	87	-0.02	8.40

Continuing Calibration Summary

Job Number: JB33644 **Sample:** VU7923-CC7811
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** U171092.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

38	M	trans-1,2-dichloroethene	0.438	0.416	5.0	93	-0.02	8.47
39	M	di-isopropyl ether	1.451	1.606	-10.7	103	-0.02	8.97
40	M	ethyl tert-butyl ether	1.404	1.421	-1.2	92	-0.02	9.44
41	M	2-butanone	0.053	0.049	7.5	83	-0.01	9.73
42	M	1,1-dichloroethane	0.746	0.774	-3.8	96	-0.02	9.04
43	M	chloroprene	0.602	0.646	-7.3	99	-0.02	9.14
44	M	acrylonitrile	0.175	0.166	5.1	89	-0.02	8.44
45	M	vinyl acetate	0.069	0.030	56.5#	39#	-0.02	9.00
46	M	ethyl acetate	0.070	0.064	8.6	88	-0.01	9.73
47	M	2,2-dichloropropane	0.550	0.576	-4.7	90	-0.02	9.77
48	M	cis-1,2-dichloroethene	0.464	0.445	4.1	93	-0.02	9.77
49	M	methyl acrylate	0.495	0.474	4.2	88	-0.01	9.82
50	M	propionitrile	0.069	0.065	5.8	88	-0.02	9.84
51	M	bromochloromethane	0.223	0.213	4.5	88	-0.02	10.08
52	M	tetrahydrofuran	0.178	0.169	5.1	93	-0.02	10.11
53	M	chloroform	0.726	0.680	6.3	91	-0.02	10.13
54		tert-butyl Formate	0.443	0.405	8.6	83	-0.02	10.15
55	M	iso-butyl alcohol		----------NA----------				
56	S	dibromofluoromethane (s)	0.385	0.376	2.3	91	-0.02	10.33
57	S	1,2-dichloroethane-d4 (s)	0.453	0.430	5.1	91	-0.02	10.76
58	M	freon 113	0.282	0.306	-8.5	94	-0.03	7.33
59	M	methacrylonitrile	0.291	0.276	5.2	92	-0.02	10.02
60	M	1,1,1-trichloroethane	0.635	0.577	9.1	86	-0.02	10.38
61	M	tert amyl alcohol		----------NA----------				
62	M	tert-amyl methyl ether	0.299	0.287	4.0	85	-0.02	10.83
63		iso-octane	1.377	1.574	-14.3	101	-0.02	10.78
64	I	1,4-difluorobenzene	1.000	1.000	0.0	95	-0.01	11.18
65	M	Di-isobutylene		----------NA----------				
66	M	epichlorohydrin	0.036	0.033	8.3	87	-0.02	12.48
67	M	n-butyl alcohol	0.011	0.010	9.1	84	-0.01	11.29
68	M	Cyclohexane	0.461	0.450	2.4	94	-0.01	10.45
69	M	carbon tetrachloride	0.410	0.375	8.5	87	-0.01	10.58
70	M	1,1-dichloropropene	0.393	0.403	-2.5	96	-0.02	10.55
71	M	hexane	0.048	0.055	-14.6	100	-0.01	8.74
72	M	benzene	1.177	1.231	-4.6	101	-0.01	10.83
73	M	heptane	0.201	0.226	-12.4	103	0.00	10.95
74	M	isopropyl acetate	0.647	0.619	4.3	93	-0.01	10.71
75	M	1,2-dichloroethane	0.391	0.358	8.4	86	-0.02	10.85
76	M	ethyl acrylate		----------NA----------				
77		tert amyl ethyl ether		----------NA----------				
78	M	trichloroethene	0.295	0.293	0.7	98	-0.01	11.53
79	M	methylcyclohexane	0.495	0.506	-2.2	96	-0.01	11.74
80	M	2-nitropropane	0.007	0.007	0.0	104	-0.02	12.33
81	M	2-chloroethyl vinyl ether	0.203	0.192	5.4	90	-0.01	12.33
82	M	methyl methacrylate	0.088	0.079	10.2	85	0.00	11.78
83	M	1,2-dichloropropane	0.321	0.322	-0.3	99	-0.02	11.81
84	M	propyl acetate	0.066	0.065	1.5	99	-0.02	11.81
85	M	dibromomethane	0.188	0.167	11.2	84	-0.02	11.98
86	M	bromodichloromethane	0.423	0.387	8.5	93	-0.02	12.10
87	M	cis-1,3-dichloropropene	0.517	0.513	0.8	96	-0.01	12.57
88	S	toluene-d8 (s)	1.137	1.215	-6.9	104	-0.01	12.87
89	M	4-methyl-2-pentanone	0.143	0.131	8.4	91	-0.01	12.66
90	M	toluene	0.752	0.789	-4.9	103	-0.01	12.95
		----------	True	Calc.	% Drift	----------		
91	M	3-methyl-1-butanol	400.000	346.000	13.5	83	-0.01	12.67
		----------	AvgRF	CCRF	% Dev	----------		
92	M	trans-1,3-dichloropropene	0.492	0.456	7.3	91	-0.01	13.16

Continuing Calibration Summary

Job Number: JB33644 **Sample:** VU7923-CC7811
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** U171092.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

93	M	ethyl methacrylate	0.466	0.404	13.3	89	-0.01	13.12
94	M	1,1,2-trichloroethane	0.254	0.233	8.3	96	0.00	13.40
95	M	2-hexanone	0.135	0.134	0.7	95	0.00	13.57
96	I	chlorobenzene-d5	1.000	1.000	0.0	97	-0.02	14.51
		----------	True	Calc.	% Drift	----------		
97	M	cyclohexanone	200.000	250.268	-25.1#	93	-0.02	15.77
		----------	AvgRF	CCRF	% Dev	----------		
98	M	tetrachloroethene	0.293	0.291	0.7	96	-0.01	13.57
99	M	1,3-dichloropropane	0.505	0.469	7.1	91	-0.01	13.60
100	M	butyl acetate	0.240	0.232	3.3	93	-0.01	13.62
101	M	dibromochloromethane	0.365	0.321	12.1	89	-0.01	13.89
102	M	1,2-dibromoethane	0.318	0.285	10.4	88	-0.02	14.06
		----------	True	Calc.	% Drift	----------		
103		3,3-dimethyl-1-Butanol	200.000	175.838	12.1	81	-0.01	13.74
		----------	AvgRF	CCRF	% Dev	----------		
104		n-butyl ether		----------NA----------				
105	M	chlorobenzene	0.919	0.913	0.7	97	-0.01	14.55
106	M	1,1,1,2-tetrachloroethane	0.336	0.325	3.3	94	-0.01	14.61
107	M	ethylbenzene	1.563	1.587	-1.5	101	-0.01	14.59
108	M	m,p-xylene	0.598	0.611	-2.2	99	-0.01	14.71
109	M	o-xylene	0.612	0.615	-0.5	99	-0.01	15.18
110	M	styrene	1.048	1.026	2.1	97	-0.01	15.19
111	M	bromoform	0.291	0.248	14.8	85	-0.02	15.51
112	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	92	-0.01	17.09
113	M	isopropylbenzene	2.607	2.795	-7.2	99	0.00	15.55
114	S	4-bromofluorobenzene (s)	0.819	0.821	-0.2	98	-0.01	15.79
115	M	bromobenzene	0.755	0.728	3.6	92	-0.01	16.02
116	M	1,1,2,2-tetrachloroethane	0.745	0.718	3.6	93	-0.02	15.90
117	M	trans-1,4-dichloro-2-bute	0.204	0.207	-1.5	91	-0.01	15.95
118	M	1,2,3-trichloropropane	0.201	0.178	11.4	86	-0.02	15.99
119	M	n-propylbenzene	3.087	3.323	-7.6	101	-0.01	16.00
120	M	2-chlorotoluene	0.668	0.663	0.7	95	-0.01	16.18
121	M	4-chlorotoluene	1.981	2.026	-2.3	100	-0.01	16.29
122		p-Ethyltoluene		----------NA----------				
123	M	1,3,5-trimethylbenzene	2.252	2.355	-4.6	98	-0.01	16.16
124	M	tert-butylbenzene	1.955	2.323	-18.8	112	0.00	16.56
125	M	pentachloroethane	0.462	0.478	-3.5	95	-0.01	16.67
126	M	1,2,4-trimethylbenzene	2.312	2.376	-2.8	98	-0.01	16.61
127	M	sec-butylbenzene	2.933	3.111	-6.1	100	-0.01	16.79
128	M	1,3-dichlorobenzene	1.398	1.427	-2.1	96	-0.01	17.02
129	M	p-isopropyltoluene	2.447	2.596	-6.1	98	-0.01	16.92
130	M	1,4-dichlorobenzene	1.430	1.458	-2.0	96	-0.02	17.11
131	M	benzyl chloride	1.119	1.403	-25.4#	97	-0.01	17.24
132	M	1,2-dichlorobenzene	1.354	1.398	-3.2	95	-0.01	17.56
133		p-Diethylbenzene		----------NA----------				
134	M	n-butylbenzene	1.194	1.336	-11.9	99	0.00	17.38
135		1,2,4,5-Tetramethylbenzen		----------NA----------				
136	M	1,2-dibromo-3-chloropropa	0.136	0.130	4.4	80	-0.01	18.42
137		1,3,5-trichlorobenzene	1.141	1.215	-6.5	92	-0.01	18.61
138	M	1,2,4-trichlorobenzene	0.941	0.992	-5.4	88	-0.01	19.35
139	M	hexachlorobutadiene	0.602	0.642	-6.6	92	0.00	19.46
140	M	naphthalene	1.819	1.863	-2.4	86	-0.02	19.67
141		INDANE		----------NA----------				
142	M	1,2,3-trichlorobenzene	0.831	0.834	-0.4	85	-0.01	19.95

Continuing Calibration Summary

Job Number: JB33644 **Sample:** VU7923-CC7811
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** U171092.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
143 M   hexachloroethane            0.472   0.503     -6.6   96  -0.01   17.83
144 M   MMT                                ----------NA----------
145 M   Bis(chloromethyl)ether             ----------NA----------
146 M   Ethylenimine                       ----------NA----------
 ---------------------------------------------------------------------------
 ---------------------------------------------------------------------------

    (#) = Out of Range              SPCC's out = 0  CCC's out = 0
     U168479.D  MU7811.M         Thu Apr 25 17:49:45 2013   VOA-05
```

New Jersey

ACCUTEST LABORATORIES

GC/MS Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A193780.D Vial: 100
Acq On : 18 Apr 2013 9:17 pm Operator: Oksanat
Sample : jb33644-1 Inst : MSA
Misc : MS46397,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 10:24 2013 Quant Results File: MA7282.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration
DataAcq Meth : MA7282

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.57	65	68683	500.00	ug/L	-0.03
5) pentafluorobenzene	9.91	168	222740	50.00	ug/L	0.00
54) 1,4-difluorobenzene	10.87	114	331051	50.00	ug/L	-0.01
85) chlorobenzene-d5	14.32	117	297615	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	16.95	152	142689	50.00	ug/L	0.00

System Monitoring Compounds						
47) dibromofluoromethane (s)	9.98	113	79063	44.69	ug/L	-0.01
Spiked Amount 50.000	Range 81 - 121		Recovery = 89.38%			
48) 1,2-dichloroethane-d4 (s)	10.42	65	85530	43.01	ug/L	-0.01
Spiked Amount 50.000	Range 74 - 127		Recovery = 86.02%			
77) toluene-d8 (s)	12.62	98	342304	50.75	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 101.50%			
102) 4-bromofluorobenzene (s)	15.62	95	123440	52.03	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 104.06%			

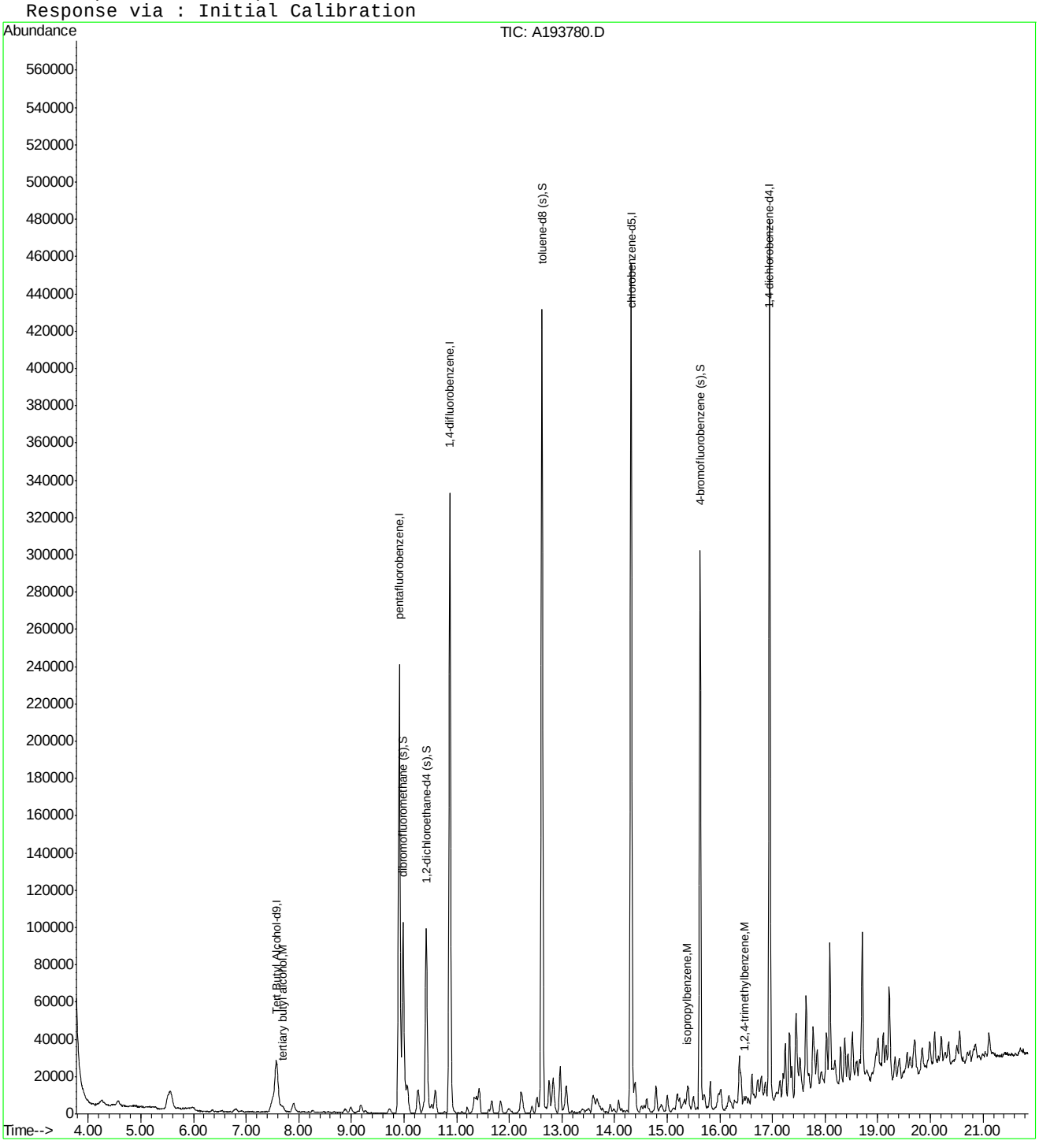
Target Compounds						Qvalue
4) tertiary butyl alcohol	7.70	59	3824	24.07	ug/L	100
100) isopropylbenzene	15.37	105	2545	0.32	ug/L	88
114) 1,2,4-trimethylbenzene	16.46	105	1567	0.22	ug/L	94

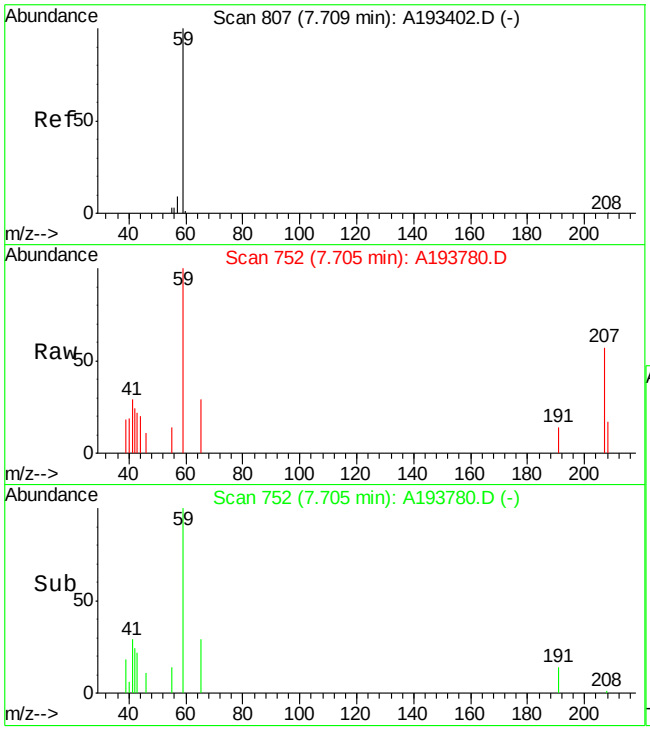
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A193780.D Vial: 100
Acq On : 18 Apr 2013 9:17 pm Operator: Oksanat
Sample : jb33644-1 Inst : MSA
Misc : MS46397,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 10:24 2013 Quant Results File: MA7282.RES

Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration

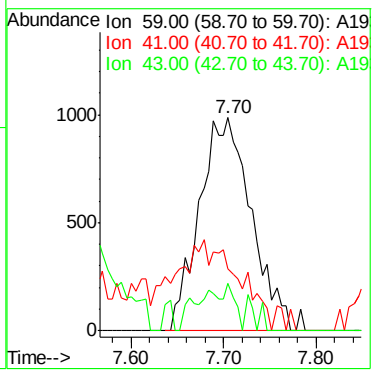


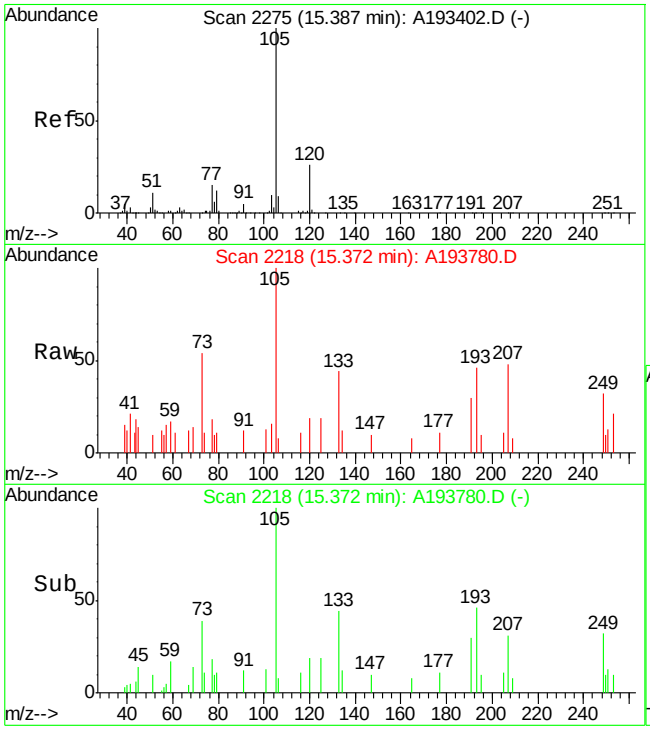


#4
tertiary butyl alcohol
Concen: 24.07 ug/L
RT: 7.70 min Scan# 752
Delta R.T. -0.02 min
Lab File: A193780.D
Acq: 18 Apr 2013 9:17 pm

Tgt Ion: 59 Resp: 3824

Ion	Ratio	Lower	Upper
59	100		
41	16.4	0.0	30.0
43	16.3	0.0	30.0

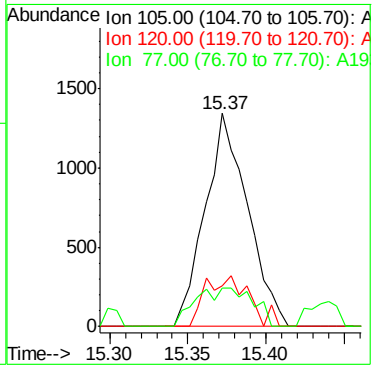


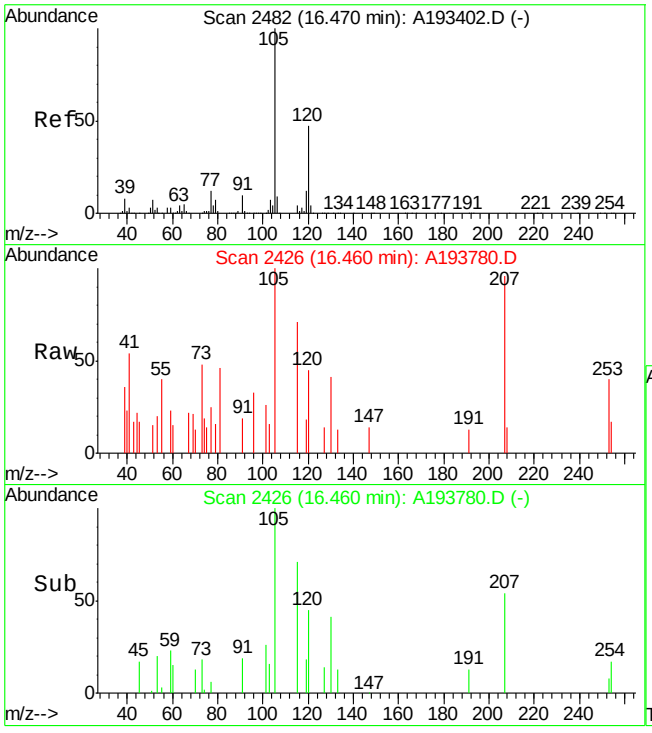


#100
isopropylbenzene
Concen: 0.32 ug/L
RT: 15.37 min Scan# 2218
Delta R.T. -0.01 min
Lab File: A193780.D
Acq: 18 Apr 2013 9:17 pm

Tgt Ion:105 Resp: 2545

Ion	Ratio	Lower	Upper
105	100		
120	18.9	0.0	56.2
77	18.2	0.0	45.3

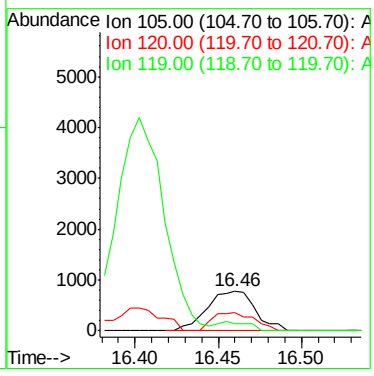




#114
1,2,4-trimethylbenzene
Concen: 0.22 ug/L
RT: 16.46 min Scan# 2426
Delta R.T. -0.01 min
Lab File: A193780.D
Acq: 18 Apr 2013 9:17 pm

Tgt Ion:105 Resp: 1567

Ion	Ratio	Lower	Upper
105	100		
120	44.5	16.9	76.9
119	18.2	0.0	42.4



7.1.1

7

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A193781.D Vial: 100
Acq On : 18 Apr 2013 9:47 pm Operator: Oksanat
Sample : jb33644-2 Inst : MSA
Misc : MS46397,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 10:25 2013 Quant Results File: MA7282.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration
DataAcq Meth : MA7282

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.57	65	74542	500.00	ug/L	-0.03
5) pentafluorobenzene	9.91	168	227413	50.00	ug/L	0.00
54) 1,4-difluorobenzene	10.87	114	330932	50.00	ug/L	-0.01
85) chlorobenzene-d5	14.32	117	300249	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	16.95	152	137206	50.00	ug/L	0.00

System Monitoring Compounds

47) dibromofluoromethane (s)	9.98	113	79620	44.08	ug/L	-0.01
Spiked Amount 50.000	Range 81 - 121		Recovery = 88.16%			
48) 1,2-dichloroethane-d4 (s)	10.42	65	87548	43.12	ug/L	-0.02
Spiked Amount 50.000	Range 74 - 127		Recovery = 86.24%			
77) toluene-d8 (s)	12.62	98	344928	51.15	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 102.30%			
102) 4-bromofluorobenzene (s)	15.62	95	122003	53.48	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 106.96%			

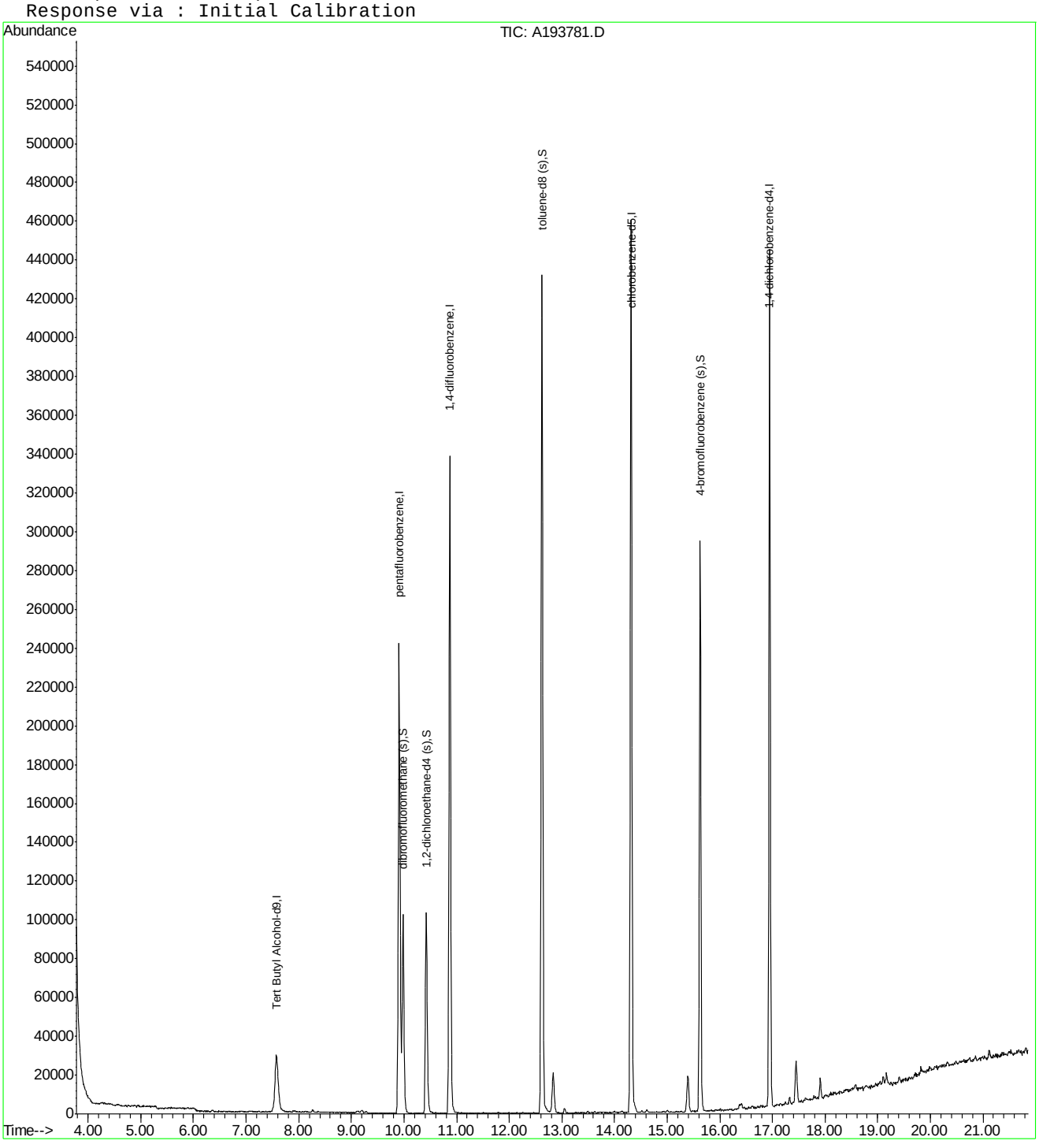
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
A193781.D MA7282.M Fri Apr 19 10:25:34 2013 MSA

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A193781.D Vial: 100
Acq On : 18 Apr 2013 9:47 pm Operator: Oksanat
Sample : jb33644-2 Inst : MSA
Misc : MS46397,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 10:25 2013 Quant Results File: MA7282.RES

Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A193850.D Vial: 9
Acq On : 20 Apr 2013 12:32 pm Operator: Oksanat
Sample : jb33644-3 Inst : MSA
Misc : MS46397,VA7309,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 22 13:17 2013 Quant Results File: MA7282.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration
DataAcq Meth : MA7282

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.58	65	84183	500.00	ug/L	-0.02
5) pentafluorobenzene	9.92	168	222815	50.00	ug/L	0.00
54) 1,4-difluorobenzene	10.88	114	337055	50.00	ug/L	0.00
85) chlorobenzene-d5	14.32	117	308861	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	16.95	152	132517	50.00	ug/L	0.00

System Monitoring Compounds

47) dibromofluoromethane (s)	9.99	113	81672	46.15	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 92.30%			
48) 1,2-dichloroethane-d4 (s)	10.43	65	92650	46.57	ug/L	-0.01
Spiked Amount 50.000	Range 74 - 127		Recovery = 93.14%			
77) toluene-d8 (s)	12.63	98	348779	50.78	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 101.56%			
102) 4-bromofluorobenzene (s)	15.63	95	121810	55.28	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 110.56%			

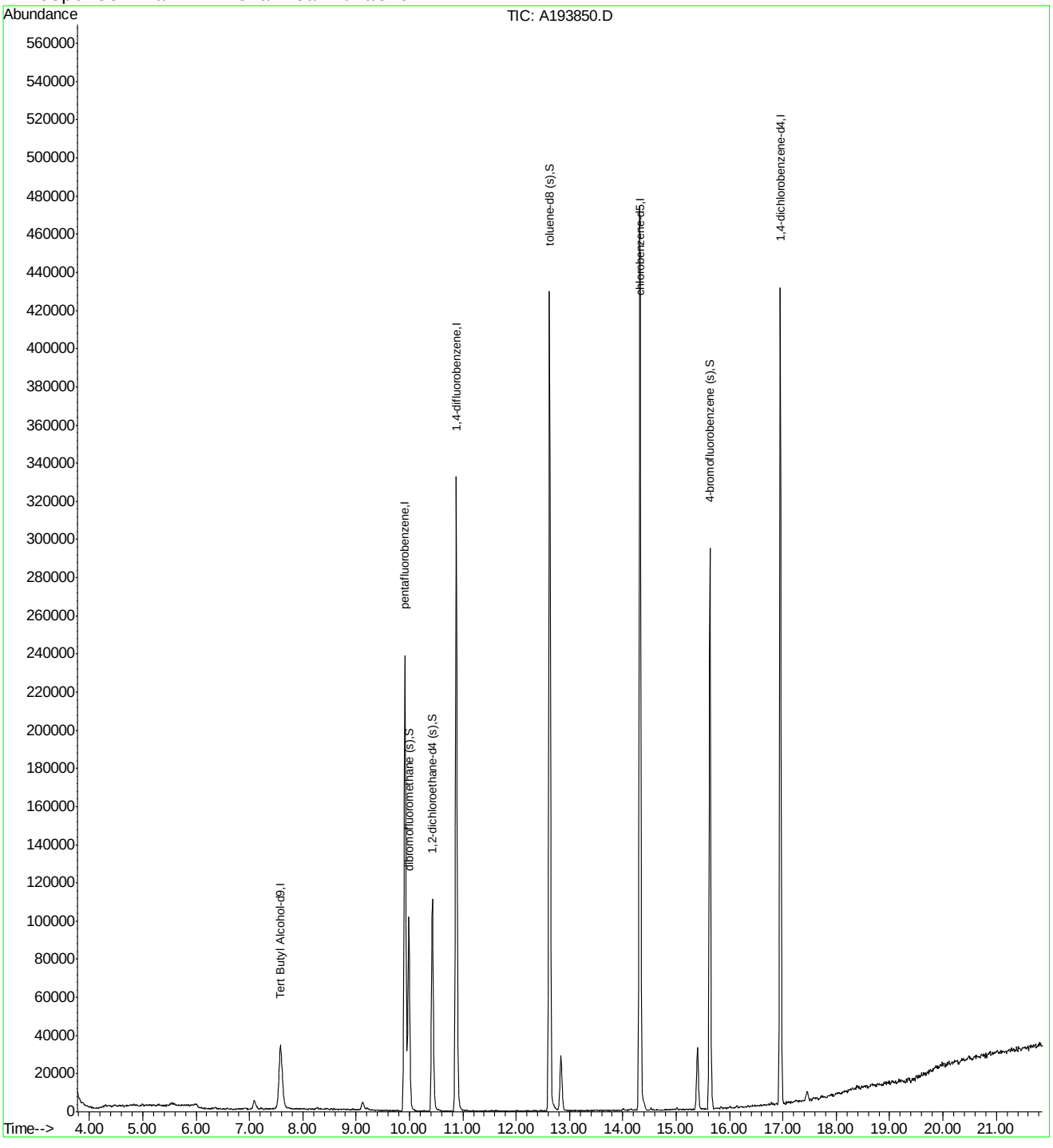
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A193850.D Vial: 9
Acq On : 20 Apr 2013 12:32 pm Operator: Oksanat
Sample : jb33644-3 Inst : MSA
Misc : MS46397,VA7309,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 22 13:17 2013 Quant Results File: MA7282.RES

Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\Ucore\vu7923-7926\
Data File : U171098.D
Acq On : 22 Apr 2013 3:21 pm
Operator : margares
Sample : jb33644-4
Misc : MS46397,vu7923,5,,,,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 20 09:39:21 2013
Quant Method : C:\MSDCHEM\1\METHODS\MU7811.M
Quant Title : SW-846 8260B, DB624 60m x 250um x 1.40um
QLast Update : Fri Feb 15 11:48:28 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	8.038	65	91513	500.00	ug/L	-0.01
5) pentafluorobenzene	10.255	168	233233	50.00	ug/L	-0.01
64) 1,4-difluorobenzene	11.181	114	320328	50.00	ug/L	-0.01
96) chlorobenzene-d5	14.518	117	303543	50.00	ug/L	-0.01
112) 1,4-dichlorobenzene-d4	17.086	152	171199	50.00	ug/L	-0.01
System Monitoring Compounds						
56) dibromofluoromethane (s)	10.329	113	86242	48.06	ug/L	-0.02
Spiked Amount 50.000	Range 81 - 121		Recovery = 96.12%			
57) 1,2-dichloroethane-d4 (s)	10.763	65	95471	45.13	ug/L	-0.01
Spiked Amount 50.000	Range 74 - 127		Recovery = 90.26%			
88) toluene-d8 (s)	12.871	98	383896	52.71	ug/L	-0.01
Spiked Amount 50.000	Range 80 - 122		Recovery = 105.42%			
114) 4-bromofluorobenzene (s)	15.794	95	144945	51.70	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 103.40%			

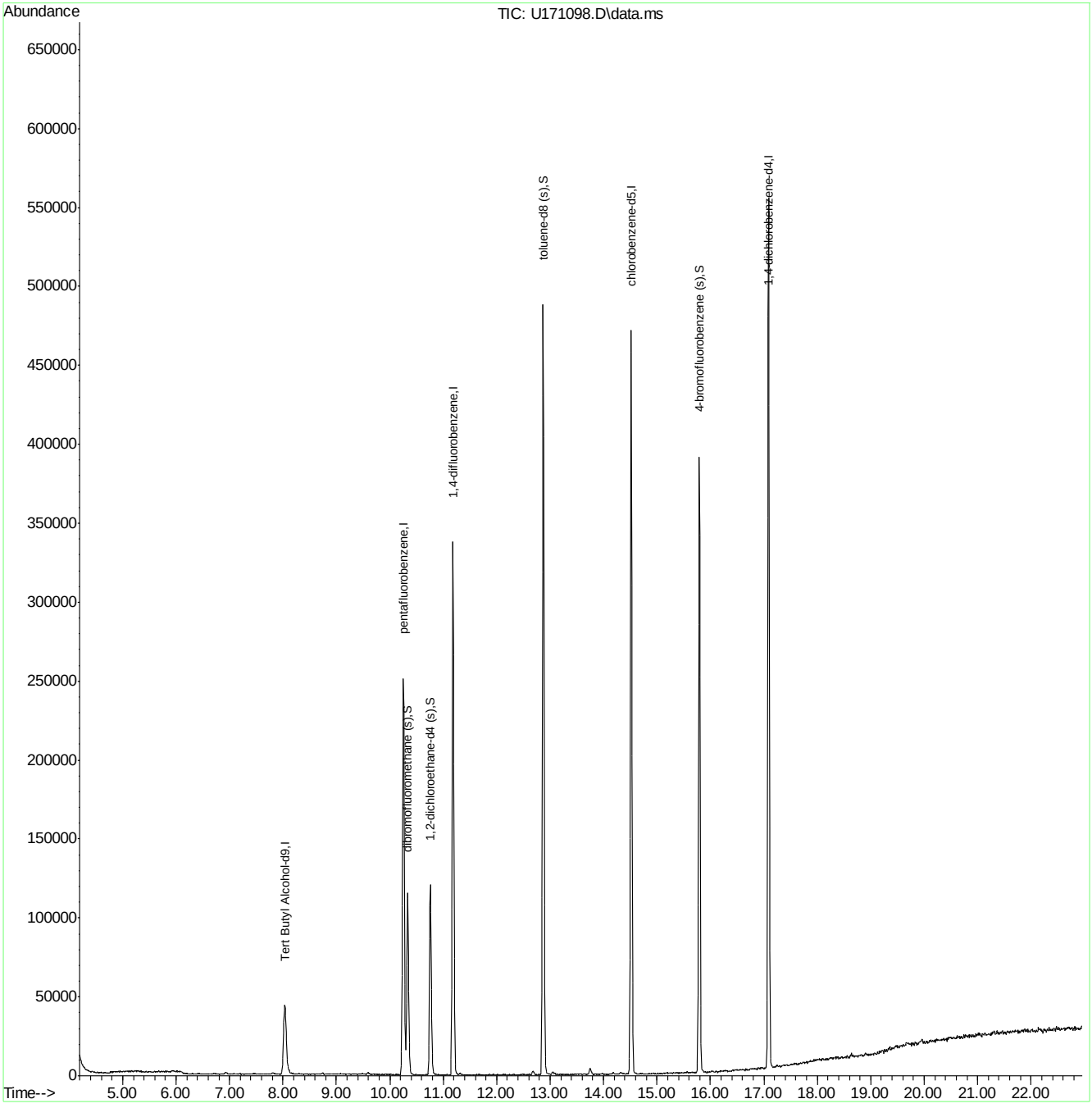
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\Ucore\vu7923-7926\
Data File : U171098.D
Acq On : 22 Apr 2013 3:21 pm
Operator : margares
Sample : jb33644-4
Misc : MS46397,vu7923,5,,,,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 20 09:39:21 2013
Quant Method : C:\MSDCHEM\1\METHODS\MU7811.M
Quant Title : SW-846 8260B, DB624 60m x 250um x 1.40um
QLast Update : Fri Feb 15 11:48:28 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A193797.D Vial: 100
Acq On : 19 Apr 2013 6:09 am Operator: Oksanat
Sample : jb33644-5 Inst : MSA
Misc : MS46397,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 11:21 2013 Quant Results File: MA7282.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration
DataAcq Meth : MA7282

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.59	65	80674	500.00	ug/L	-0.01
5) pentafluorobenzene	9.92	168	245275	50.00	ug/L	0.00
54) 1,4-difluorobenzene	10.88	114	360484	50.00	ug/L	0.00
85) chlorobenzene-d5	14.32	117	316687	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	16.96	152	152024	50.00	ug/L	0.00

System Monitoring Compounds						
47) dibromofluoromethane (s)	10.00	113	85794	44.04	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 88.08%			
48) 1,2-dichloroethane-d4 (s)	10.43	65	92829	42.39	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 84.78%			
77) toluene-d8 (s)	12.63	98	362819	49.40	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 98.80%			
102) 4-bromofluorobenzene (s)	15.63	95	131523	52.03	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 104.06%			

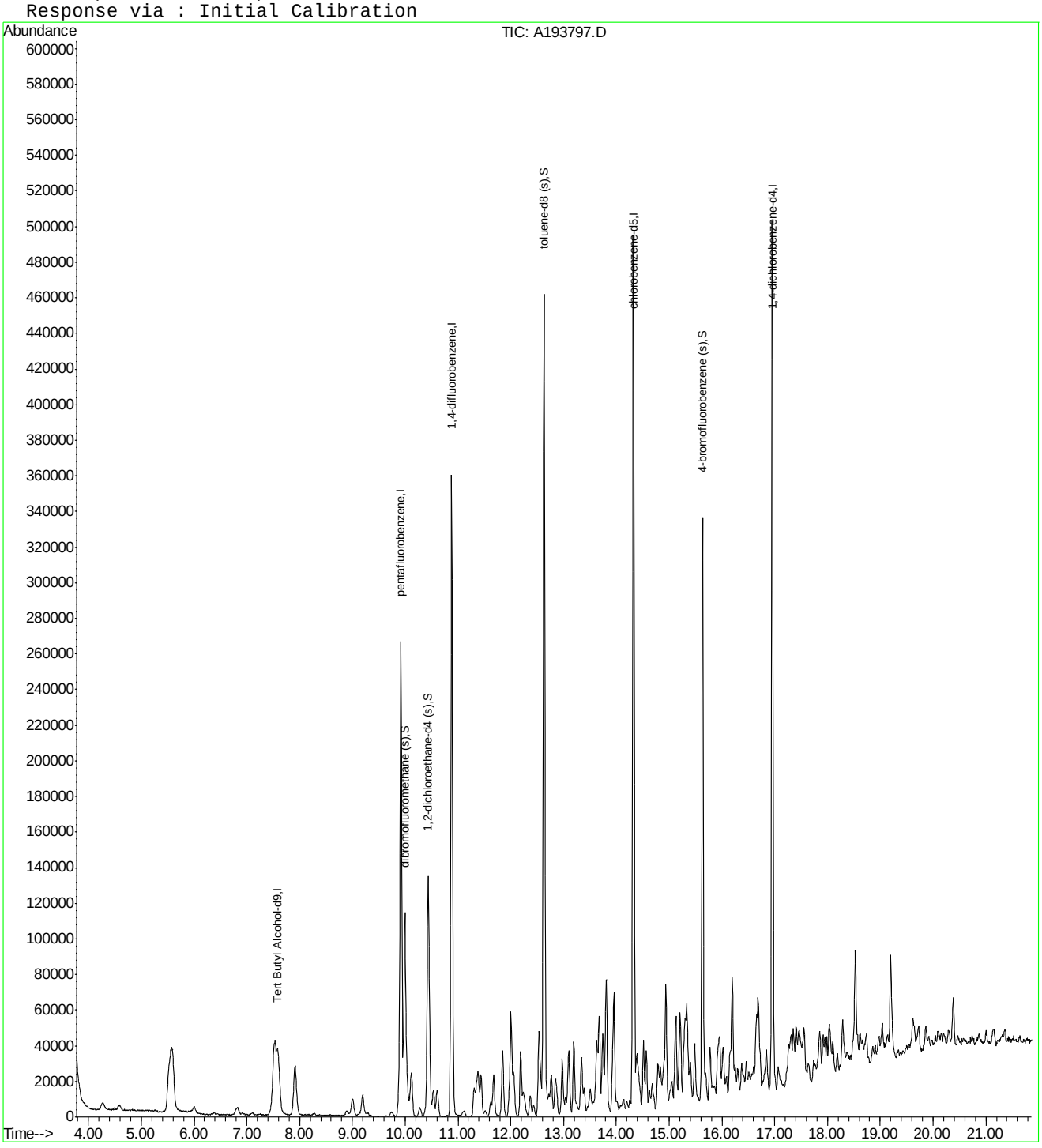
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
A193797.D MA7282.M Fri Apr 19 11:21:20 2013 MSA

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A193797.D Vial: 100
Acq On : 19 Apr 2013 6:09 am Operator: Oksanat
Sample : jb33644-5 Inst : MSA
Misc : MS46397,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 11:21 2013 Quant Results File: MA7282.RES

Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A193798.D Vial: 100
Acq On : 19 Apr 2013 6:54 am Operator: Oksanat
Sample : jb33644-6 Inst : MSA
Misc : MS46397,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 11:22 2013 Quant Results File: MA7282.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration
DataAcq Meth : MA7282

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.58	65	86021	500.00	ug/L	-0.02
5) pentafluorobenzene	9.92	168	240313	50.00	ug/L	0.00
54) 1,4-difluorobenzene	10.88	114	356978	50.00	ug/L	0.00
85) chlorobenzene-d5	14.32	117	315702	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	16.95	152	148920	50.00	ug/L	0.00

System Monitoring Compounds

47) dibromofluoromethane (s)	9.99	113	86315	45.22	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 90.44%			
48) 1,2-dichloroethane-d4 (s)	10.43	65	94721	44.14	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 88.28%			
77) toluene-d8 (s)	12.63	98	367814	50.57	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 101.14%			
102) 4-bromofluorobenzene (s)	15.63	95	130055	52.52	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 105.04%			

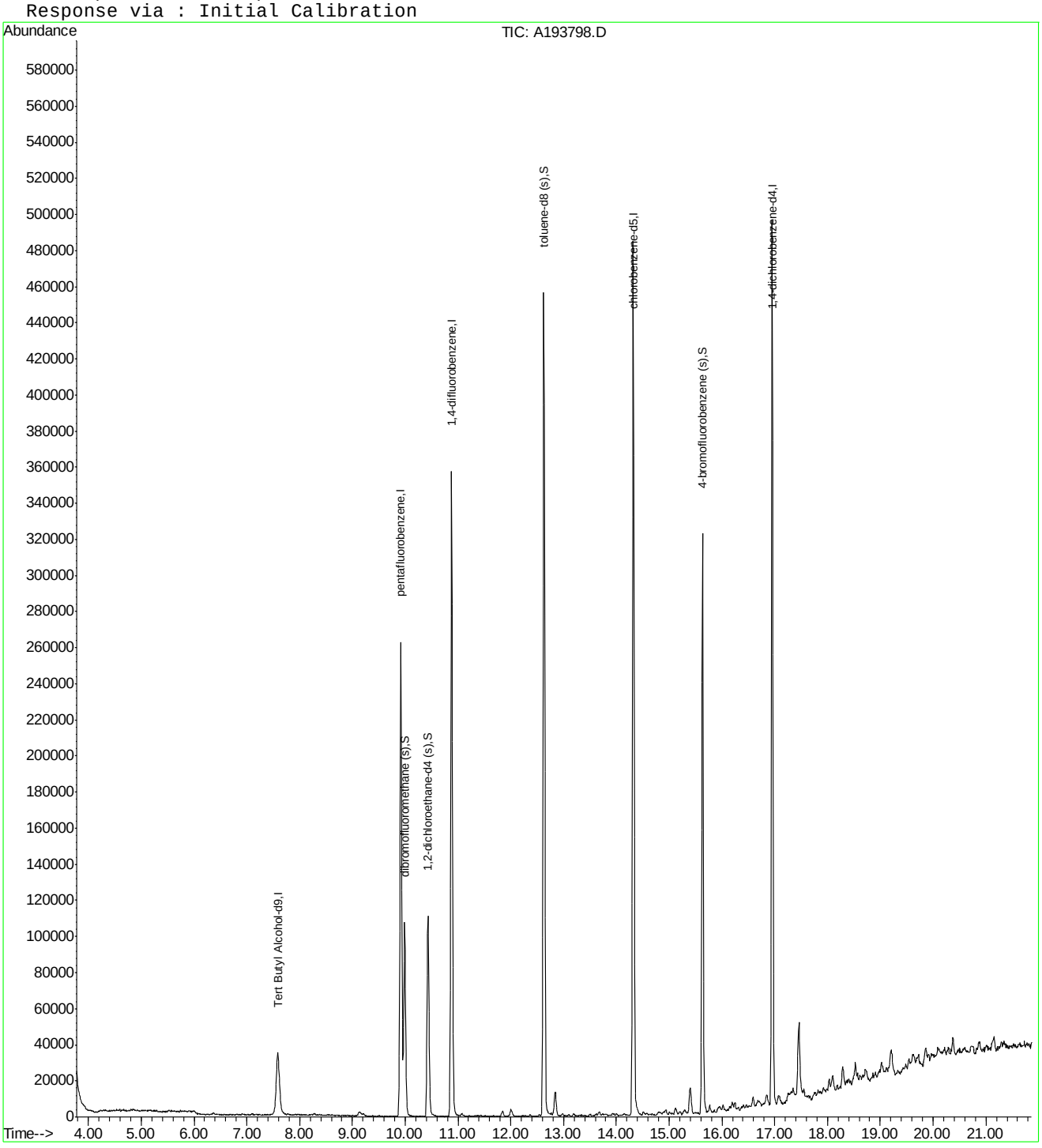
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
A193798.D MA7282.M Thu Apr 25 15:38:25 2013 MSA

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A193798.D Vial: 100
Acq On : 19 Apr 2013 6:54 am Operator: Oksanat
Sample : jb33644-6 Inst : MSA
Misc : MS46397,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 11:22 2013 Quant Results File: MA7282.RES

Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration



Manual Integrations APPROVED (compounds with "m" flag)
Wen Wen Chi
04/21/13 23:31

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A193816.D Vial: 100
Acq On : 19 Apr 2013 5:50 pm Operator: Oksanat
Sample : jb33644-7 Inst : MSA
Misc : MS46397,VA7307,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 18:24 2013 Quant Results File: MA7282.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration
DataAcq Meth : MA7282

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.60	65	77371	500.00	ug/L	0.00
5) pentafluorobenzene	9.93	168	216993	50.00	ug/L	0.01
54) 1,4-difluorobenzene	10.89	114	325572	50.00	ug/L	0.01
85) chlorobenzene-d5	14.34	117	296504	50.00	ug/L	0.01
99) 1,4-dichlorobenzene-d4	16.97	152	130529	50.00	ug/L	0.01

System Monitoring Compounds						
47) dibromofluoromethane (s)	10.01	113	79004	45.84	ug/L	0.01
Spiked Amount 50.000	Range 81 - 121		Recovery = 91.68%			
48) 1,2-dichloroethane-d4 (s)	10.44	65	88258	45.55	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 91.10%			
77) toluene-d8 (s)	12.64	98	335781	50.62	ug/L	0.01
Spiked Amount 50.000	Range 80 - 122		Recovery = 101.24%			
102) 4-bromofluorobenzene (s)	15.65	95	118890	54.78	ug/L	0.02
Spiked Amount 50.000	Range 78 - 116		Recovery = 109.56%			

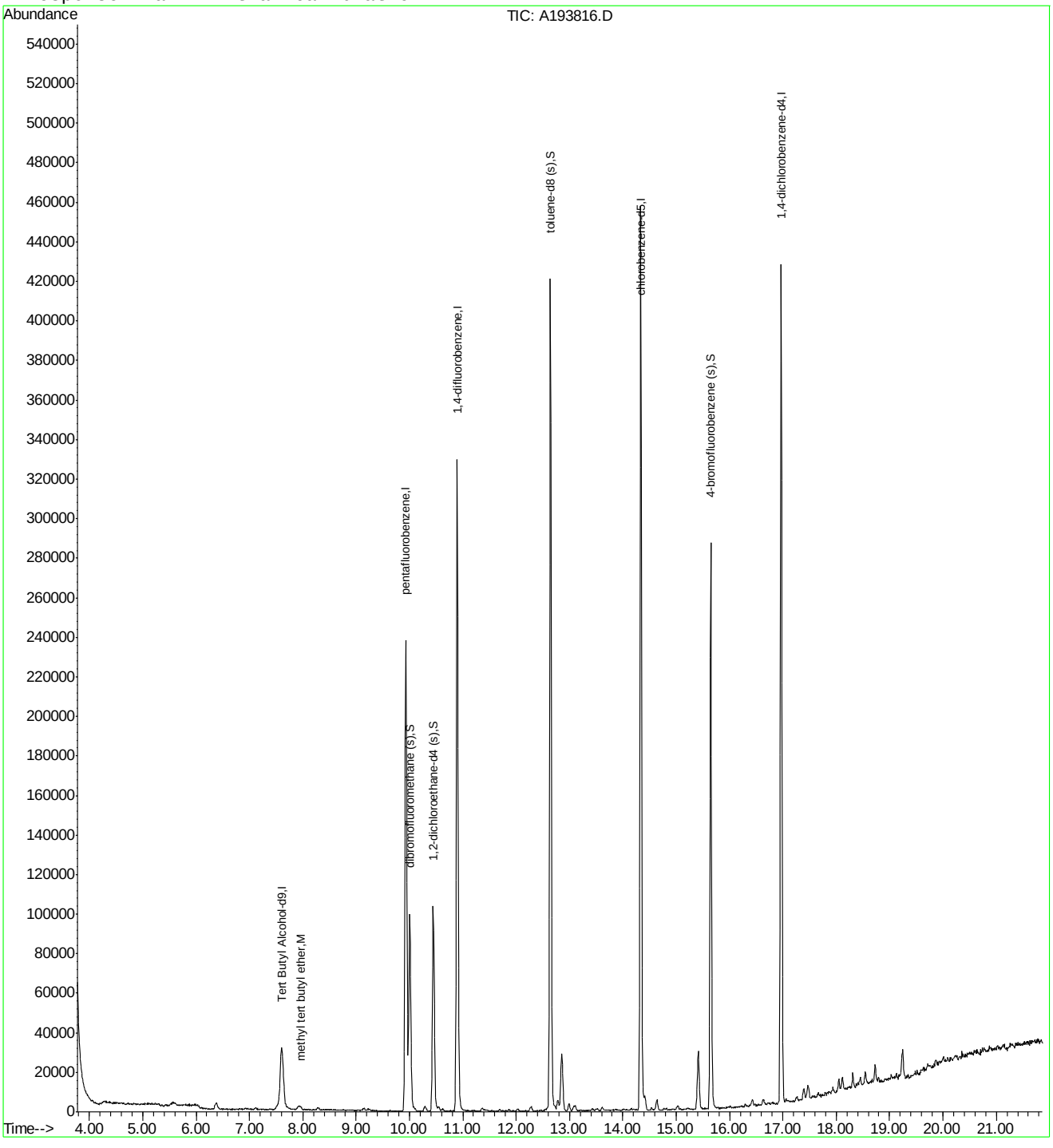
Target Compounds						Qvalue
28) methyl tert butyl ether	7.96	73	1353m	0.26	ug/L	

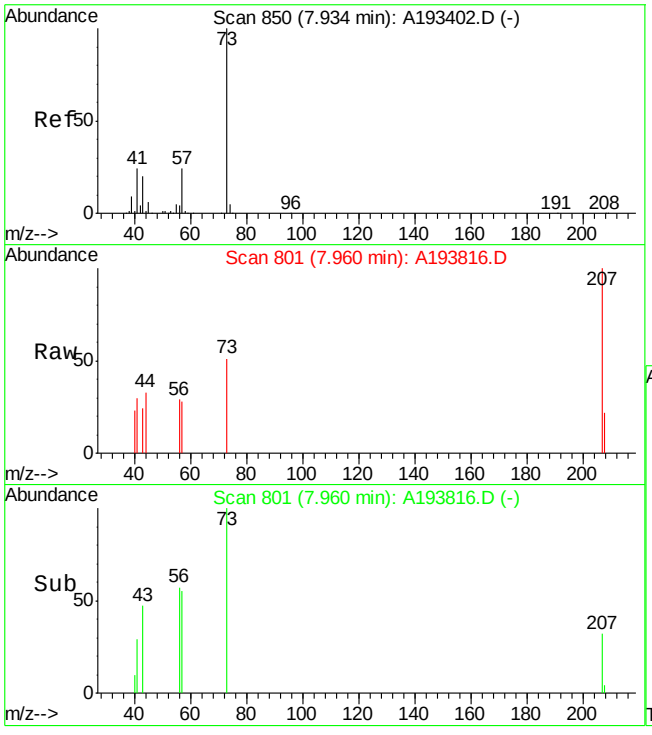
(#) = qualifier out of range (m) = manual integration
A193816.D MA7282.M Fri Apr 19 18:24:55 2013 MSA

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A193816.D Vial: 100
Acq On : 19 Apr 2013 5:50 pm Operator: Oksanat
Sample : jb33644-7 Inst : MSA
Misc : MS46397,VA7307,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 18:24 2013 Quant Results File: MA7282.RES

Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration

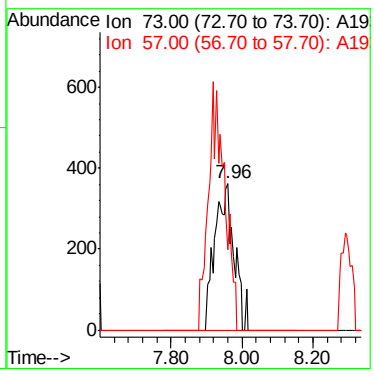




#28
methyl tert butyl ether
Concen: 0.26 ug/L m
RT: 7.96 min Scan# 801
Delta R.T. 0.02 min
Lab File: A193816.D
Acq: 19 Apr 2013 5:50 pm

Tgt Ion: 73 Resp: 1353

Ion	Ratio	Lower	Upper
73	100		
57	0.0	0.0	53.6



7.1.7

Manual Integrations APPROVED (compounds with "m" flag)
Wen Wen Chi
04/21/13 23:31

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A193783.D Vial: 100
Acq On : 18 Apr 2013 10:46 pm Operator: Oksanat
Sample : jb33644-8 Inst : MSA
Misc : MS46397,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 10:28 2013 Quant Results File: MA7282.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration
DataAcq Meth : MA7282

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.57	65	73716	500.00	ug/L	-0.03
5) pentafluorobenzene	9.92	168	213125	50.00	ug/L	0.00
54) 1,4-difluorobenzene	10.87	114	321722	50.00	ug/L	-0.01
85) chlorobenzene-d5	14.31	117	288332	50.00	ug/L	-0.01
99) 1,4-dichlorobenzene-d4	16.95	152	131460	50.00	ug/L	-0.01

System Monitoring Compounds

47) dibromofluoromethane (s)	9.98	113	76757	45.34	ug/L	-0.01
Spiked Amount 50.000	Range 81 - 121		Recovery = 90.68%			
48) 1,2-dichloroethane-d4 (s)	10.42	65	84423	44.36	ug/L	-0.02
Spiked Amount 50.000	Range 74 - 127		Recovery = 88.72%			
77) toluene-d8 (s)	12.62	98	329365	50.24	ug/L	-0.01
Spiked Amount 50.000	Range 80 - 122		Recovery = 100.48%			
102) 4-bromofluorobenzene (s)	15.63	95	115907	53.03	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 106.06%			

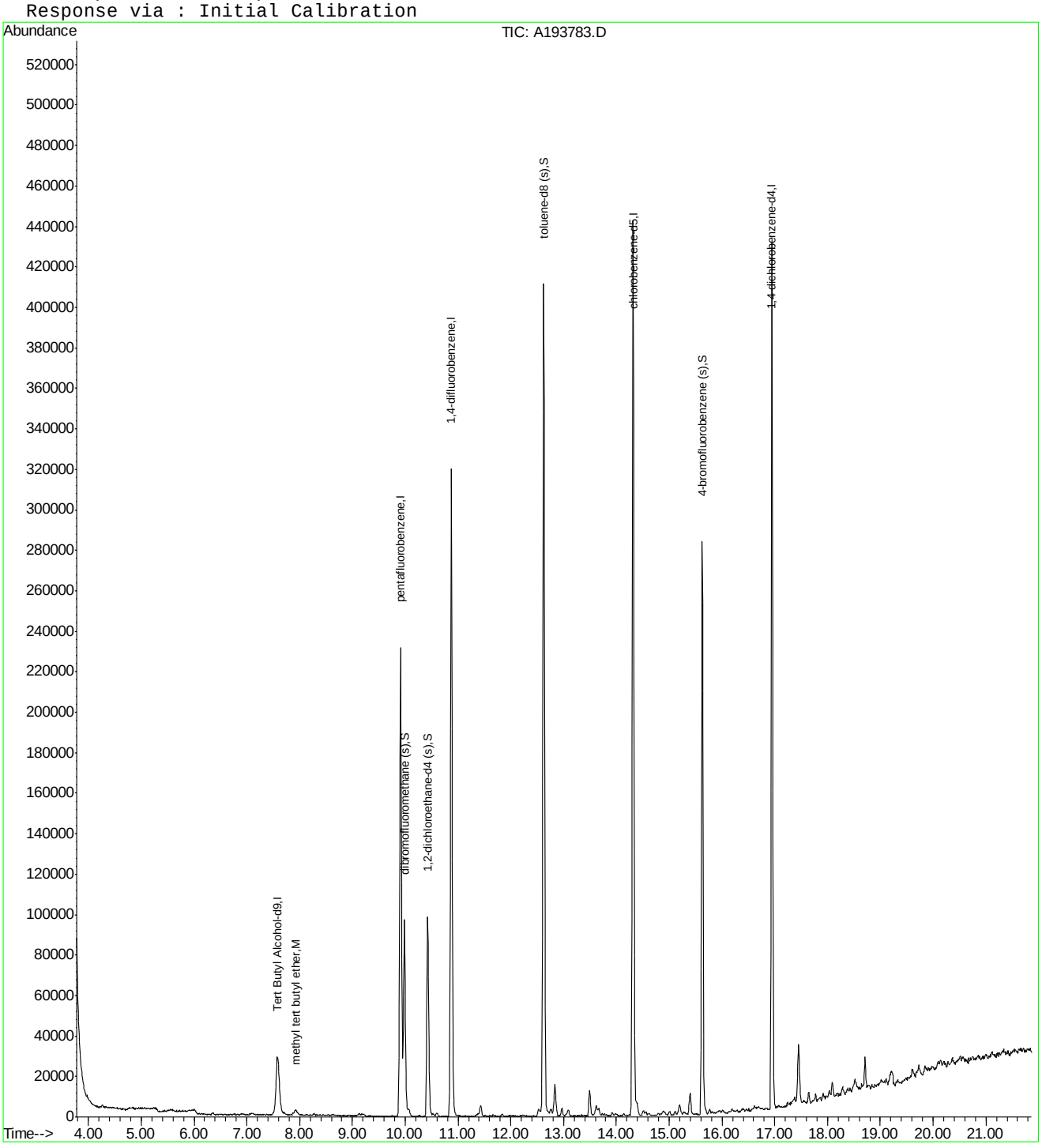
Target Compounds						Qvalue
28) methyl tert butyl ether	7.93	73	4215m	0.84	ug/L	

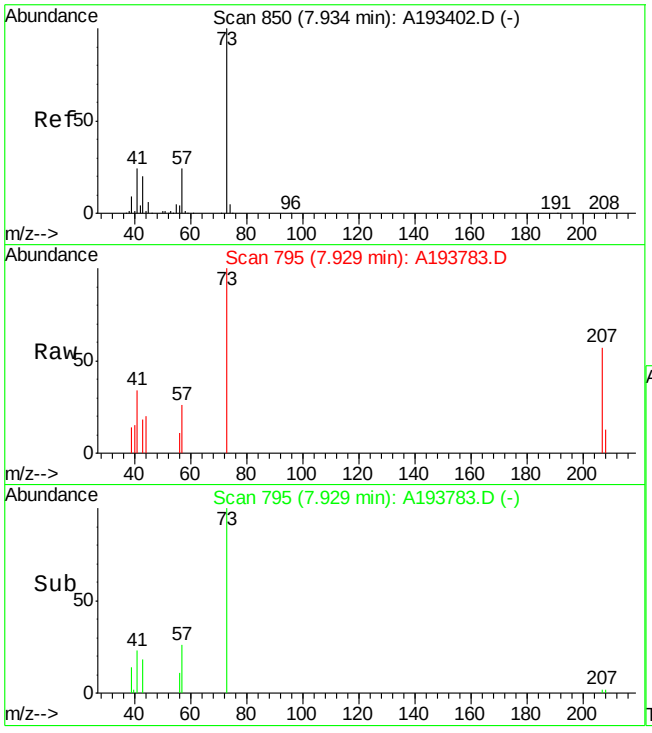
(#) = qualifier out of range (m) = manual integration
A193783.D MA7282.M Thu Apr 25 15:36:26 2013 MSA

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A193783.D Vial: 100
Acq On : 18 Apr 2013 10:46 pm Operator: Oksanat
Sample : jb33644-8 Inst : MSA
Misc : MS46397,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 10:28 2013 Quant Results File: MA7282.RES

Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration

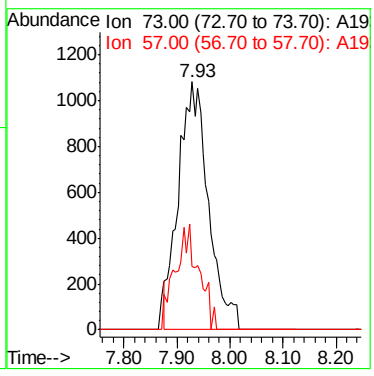




#28
methyl tert butyl ether
Concen: 0.84 ug/L m
RT: 7.93 min Scan# 795
Delta R.T. -0.02 min
Lab File: A193783.D
Acq: 18 Apr 2013 10:46 pm

Tgt Ion: 73 Resp: 4215

Ion	Ratio	Lower	Upper
73	100		
57	33.9	0.0	53.6



7.1.8

7

Manual Integrations APPROVED (compounds with "m" flag)
Kanya Veerawat 04/21/13 18:04

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A193782.D Vial: 100
Acq On : 18 Apr 2013 10:16 pm Operator: Oksanat
Sample : jb33644-9 Inst : MSA
Misc : MS46397,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 10:27 2013 Quant Results File: MA7282.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration
DataAcq Meth : MA7282

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.58	65	73345	500.00	ug/L	-0.02
5) pentafluorobenzene	9.91	168	220893	50.00	ug/L	0.00
54) 1,4-difluorobenzene	10.87	114	327340	50.00	ug/L	0.00
85) chlorobenzene-d5	14.32	117	288710	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	16.95	152	127647	50.00	ug/L	0.00

System Monitoring Compounds						
47) dibromofluoromethane (s)	9.99	113	77852	44.37	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 88.74%			
48) 1,2-dichloroethane-d4 (s)	10.42	65	84992	43.09	ug/L	-0.01
Spiked Amount 50.000	Range 74 - 127		Recovery = 86.18%			
77) toluene-d8 (s)	12.62	98	334746	50.19	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 100.38%			
102) 4-bromofluorobenzene (s)	15.62	95	116608	54.94	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 109.88%			

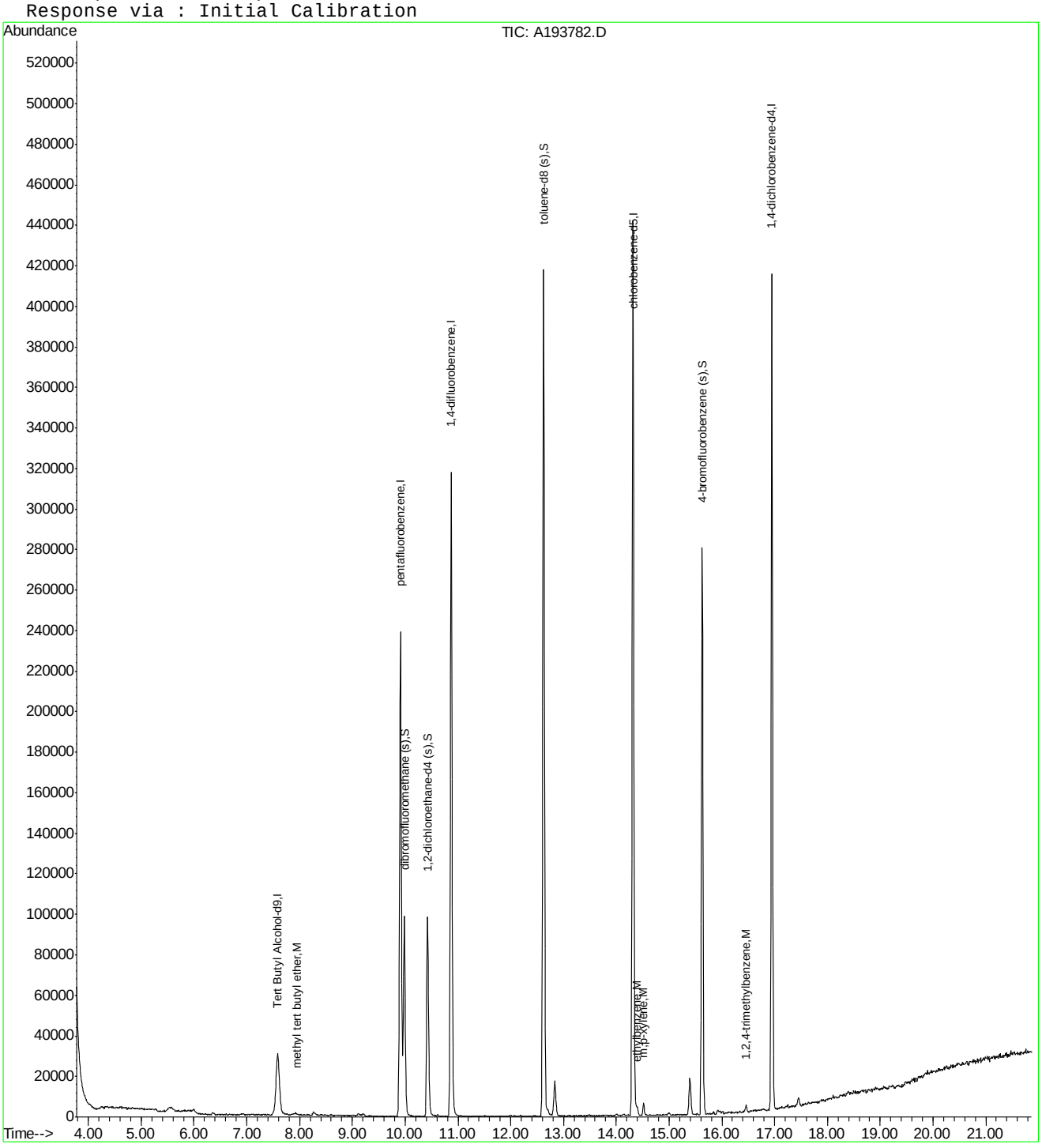
Target Compounds						Qvalue
28) methyl tert butyl ether	7.95	73	1233m	0.24	ug/L	
94) ethylbenzene	14.40	91	1653	0.20	ug/L	88
95) m,p-xylene	14.51	106	2258	0.73	ug/L	96
114) 1,2,4-trimethylbenzene	16.46	105	2439	0.39	ug/L	94

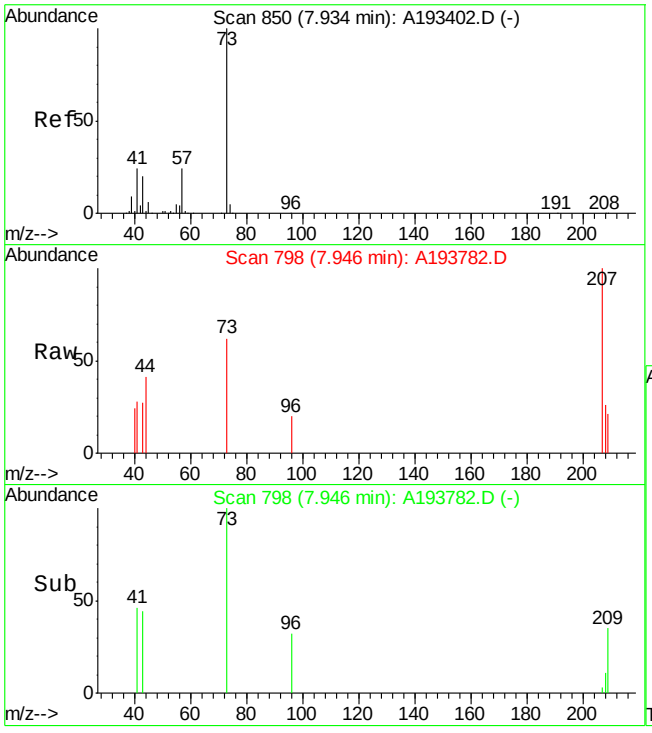
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A193782.D Vial: 100
Acq On : 18 Apr 2013 10:16 pm Operator: Oksanat
Sample : jb33644-9 Inst : MSA
Misc : MS46397,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 10:27 2013 Quant Results File: MA7282.RES

Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration

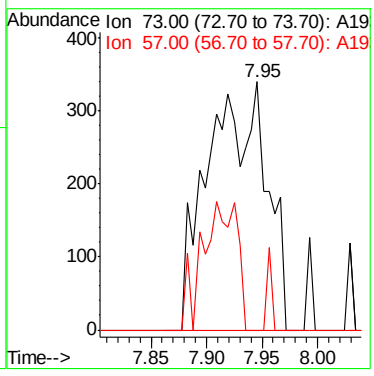


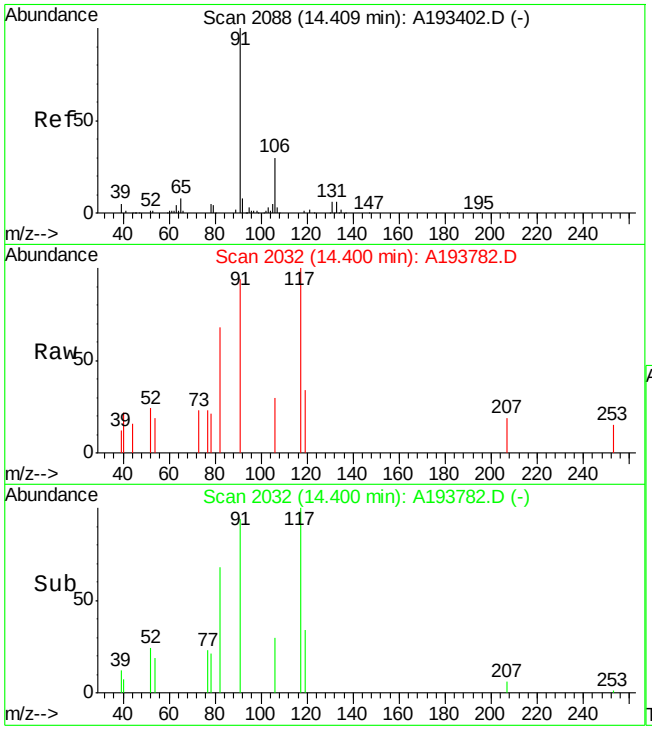


#28
methyl tert butyl ether
Concen: 0.24 ug/L m
RT: 7.95 min Scan# 798
Delta R.T. 0.00 min
Lab File: A193782.D
Acq: 18 Apr 2013 10:16 pm

Tgt Ion: 73 Resp: 1233

Ion	Ratio	Lower	Upper
73	100		
57	2.8	0.0	53.6

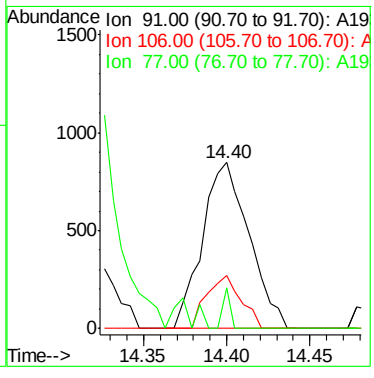


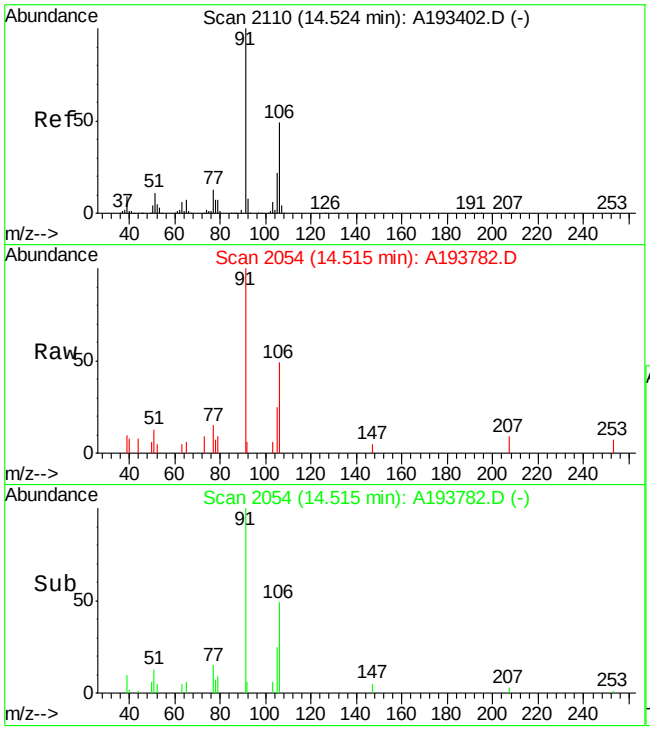


#94
ethylbenzene
Concen: 0.20 ug/L
RT: 14.40 min Scan# 2032
Delta R.T. -0.01 min
Lab File: A193782.D
Acq: 18 Apr 2013 10:16 pm

Tgt Ion: 91 Resp: 1653

Ion	Ratio	Lower	Upper
91	100		
106	32.0	0.8	60.8
77	24.6	0.0	38.6

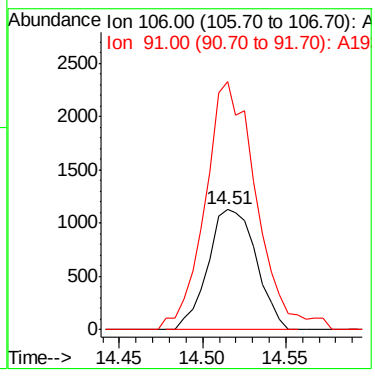


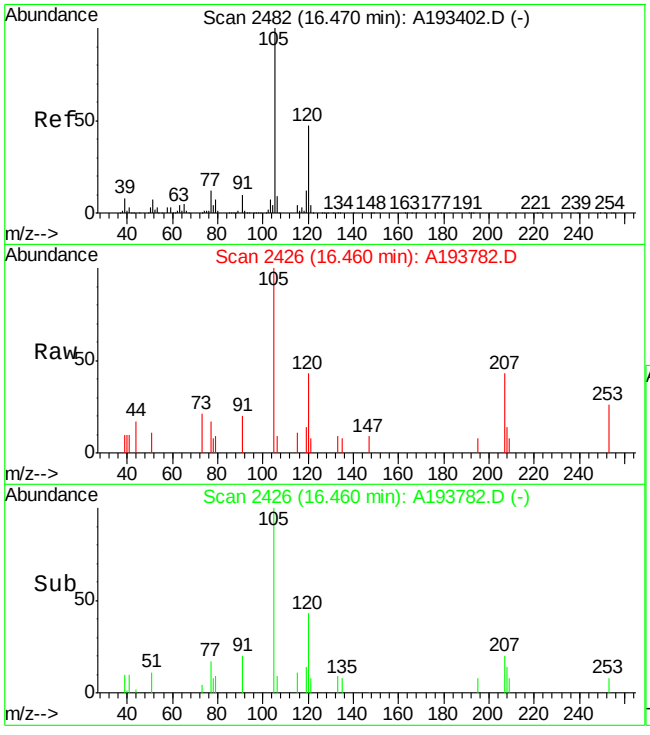


#95
m,p-xylene
Concen: 0.73 ug/L
RT: 14.51 min Scan# 2054
Delta R.T. -0.01 min
Lab File: A193782.D
Acq: 18 Apr 2013 10:16 pm

Tgt Ion:106 Resp: 2258

Ion	Ratio	Lower	Upper
106	100		
91	196.3	172.1	232.1

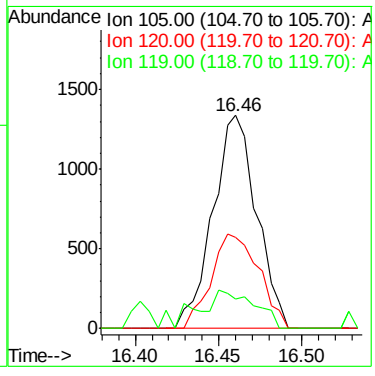




#114
1,2,4-trimethylbenzene
Concen: 0.39 ug/L
RT: 16.46 min Scan# 2426
Delta R.T. -0.01 min
Lab File: A193782.D
Acq: 18 Apr 2013 10:16 pm

Tgt Ion:105 Resp: 2439

Ion	Ratio	Lower	Upper
105	100		
120	42.5	16.9	76.9
119	13.7	0.0	42.4



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A193784.D Vial: 100
Acq On : 18 Apr 2013 11:15 pm Operator: Oksanat
Sample : jb33644-10 Inst : MSA
Misc : MS46397,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 10:29 2013 Quant Results File: MA7282.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration
DataAcq Meth : MA7282

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.58	65	77821	500.00	ug/L	-0.03
5) pentafluorobenzene	9.91	168	221142	50.00	ug/L	0.00
54) 1,4-difluorobenzene	10.87	114	330189	50.00	ug/L	0.00
85) chlorobenzene-d5	14.32	117	297910	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	16.95	152	139216	50.00	ug/L	0.00

System Monitoring Compounds						
47) dibromofluoromethane (s)	9.98	113	79596	45.32	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 90.64%			
48) 1,2-dichloroethane-d4 (s)	10.42	65	88113	44.62	ug/L	-0.01
Spiked Amount 50.000	Range 74 - 127		Recovery = 89.24%			
77) toluene-d8 (s)	12.62	98	340818	50.66	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 101.32%			
102) 4-bromofluorobenzene (s)	15.63	95	121852	52.64	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 105.28%			

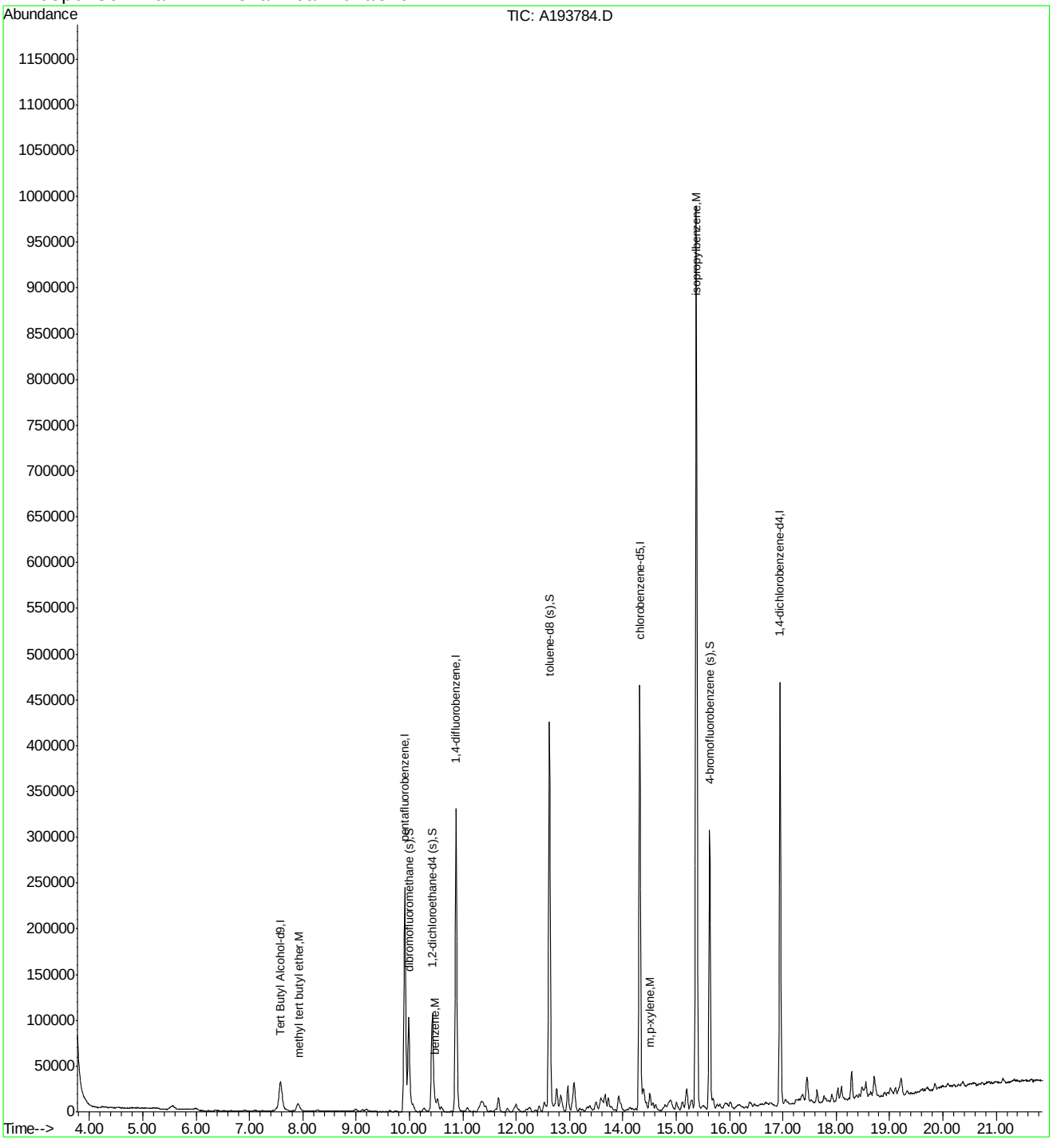
Target Compounds						Qvalue
28) methyl tert butyl ether	7.93	73	5727	1.10	ug/L #	1
61) benzene	10.49	78	5367	0.76	ug/L	96
95) m,p-xylene	14.51	106	1052	0.33	ug/L	97
100) isopropylbenzene	15.38	105	796692	103.68	ug/L	99

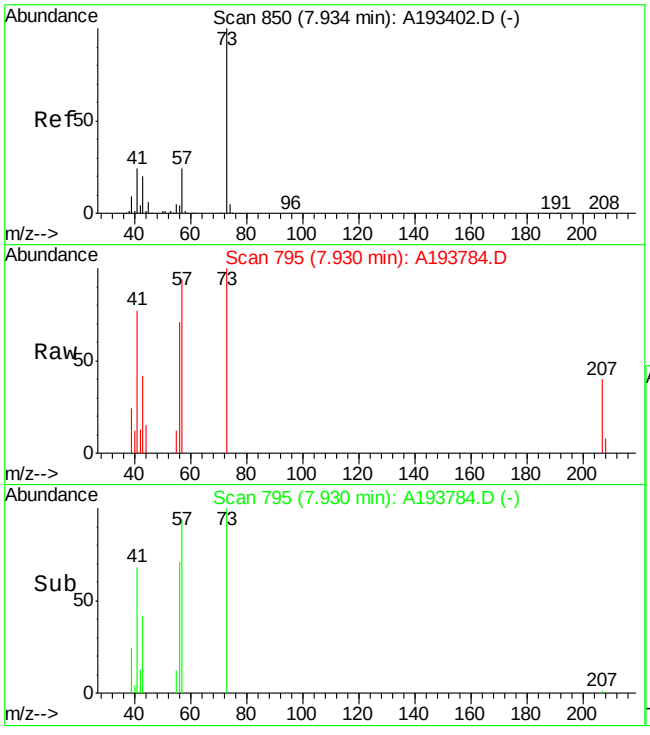
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A193784.D Vial: 100
Acq On : 18 Apr 2013 11:15 pm Operator: Oksanat
Sample : jb33644-10 Inst : MSA
Misc : MS46397,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 10:29 2013 Quant Results File: MA7282.RES

Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration

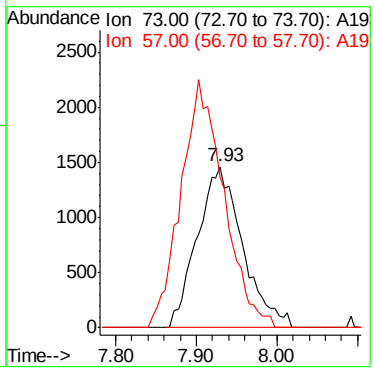


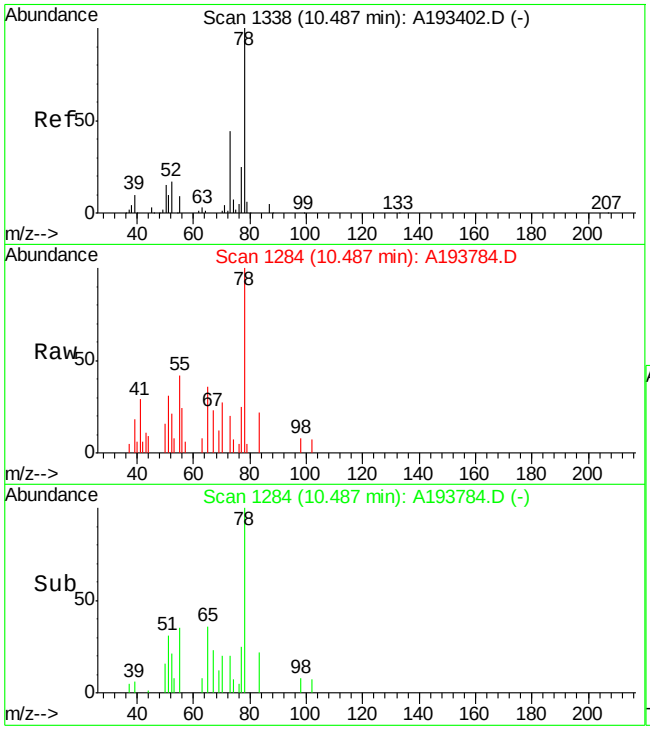


#28
methyl tert butyl ether
Concen: 1.10 ug/L
RT: 7.93 min Scan# 795
Delta R.T. -0.01 min
Lab File: A193784.D
Acq: 18 Apr 2013 11:15 pm

Tgt Ion: 73 Resp: 5727

Ion	Ratio	Lower	Upper
73	100		
57	145.1	0.0	53.6#

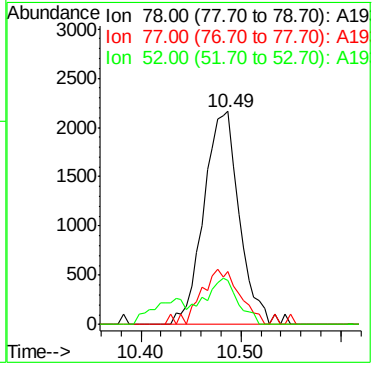


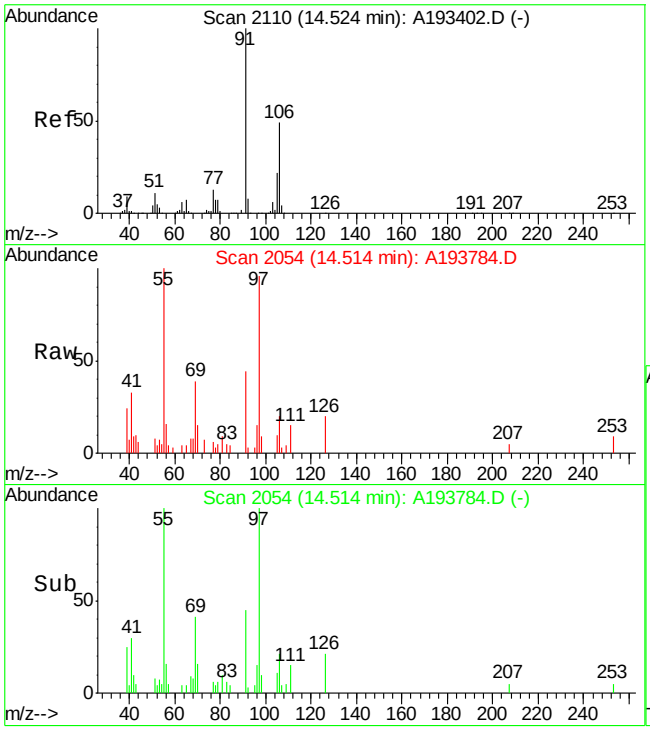


#61
benzene
Concen: 0.76 ug/L
RT: 10.49 min Scan# 1284
Delta R.T. 0.00 min
Lab File: A193784.D
Acq: 18 Apr 2013 11:15 pm

Tgt Ion: 78 Resp: 5367

Ion	Ratio	Lower	Upper
78	100		
77	24.8	0.0	54.0
52	20.7	0.0	47.0

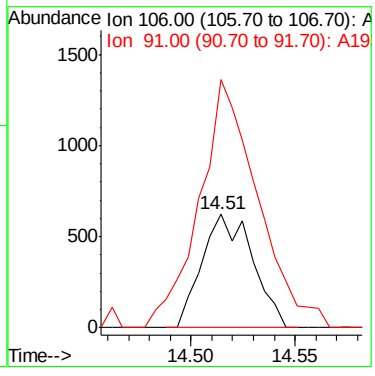


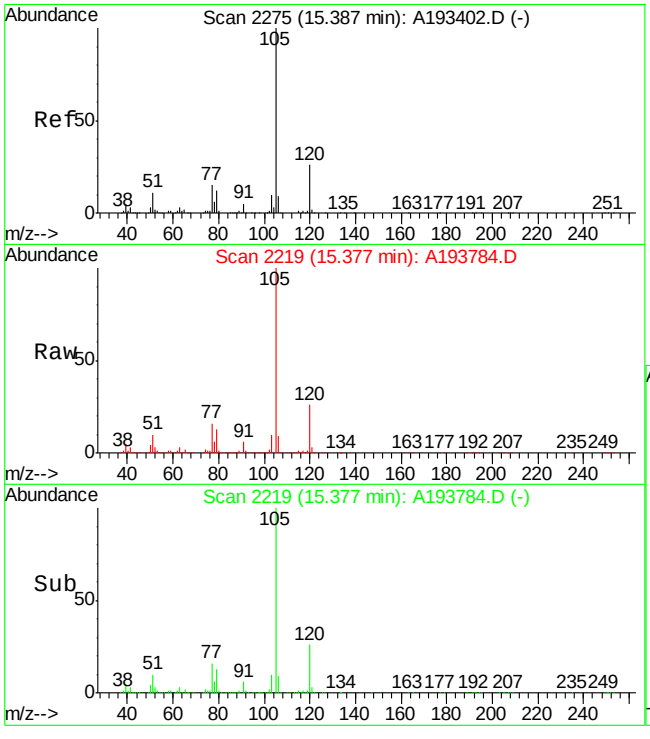


#95
m,p-xylene
Concen: 0.33 ug/L
RT: 14.51 min Scan# 2054
Delta R.T. -0.01 min
Lab File: A193784.D
Acq: 18 Apr 2013 11:15 pm

Tgt Ion:106 Resp: 1052

Ion	Ratio	Lower	Upper
106	100		
91	198.2	172.1	232.1

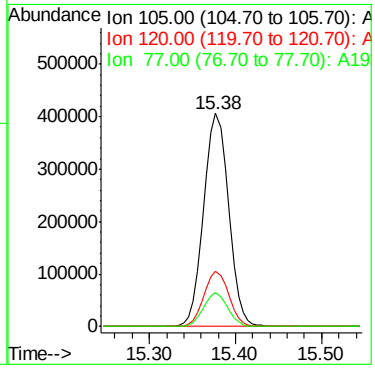




#100
isopropylbenzene
Concen: 103.68 ug/L
RT: 15.38 min Scan# 2219
Delta R.T. -0.01 min
Lab File: A193784.D
Acq: 18 Apr 2013 11:15 pm

Tgt Ion:105 Resp: 796692

Ion	Ratio	Lower	Upper
105	100		
120	26.0	0.0	56.2
77	15.8	0.0	45.3



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A193791.D Vial: 100
Acq On : 19 Apr 2013 2:57 am Operator: Oksanat
Sample : jb33644-11 Inst : MSA
Misc : MS46397,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 11:08 2013 Quant Results File: MA7282.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration
DataAcq Meth : MA7282

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.58	65	74545	500.00	ug/L	-0.02
5) pentafluorobenzene	9.92	168	230482	50.00	ug/L	0.00
54) 1,4-difluorobenzene	10.88	114	343792	50.00	ug/L	0.00
85) chlorobenzene-d5	14.32	117	307471	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	16.95	152	144045	50.00	ug/L	0.00

System Monitoring Compounds						
47) dibromofluoromethane (s)	9.99	113	81752	44.66	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 89.32%			
48) 1,2-dichloroethane-d4 (s)	10.43	65	89106	43.30	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 86.60%			
77) toluene-d8 (s)	12.63	98	351450	50.17	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 100.34%			
102) 4-bromofluorobenzene (s)	15.63	95	126411	52.78	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 105.56%			

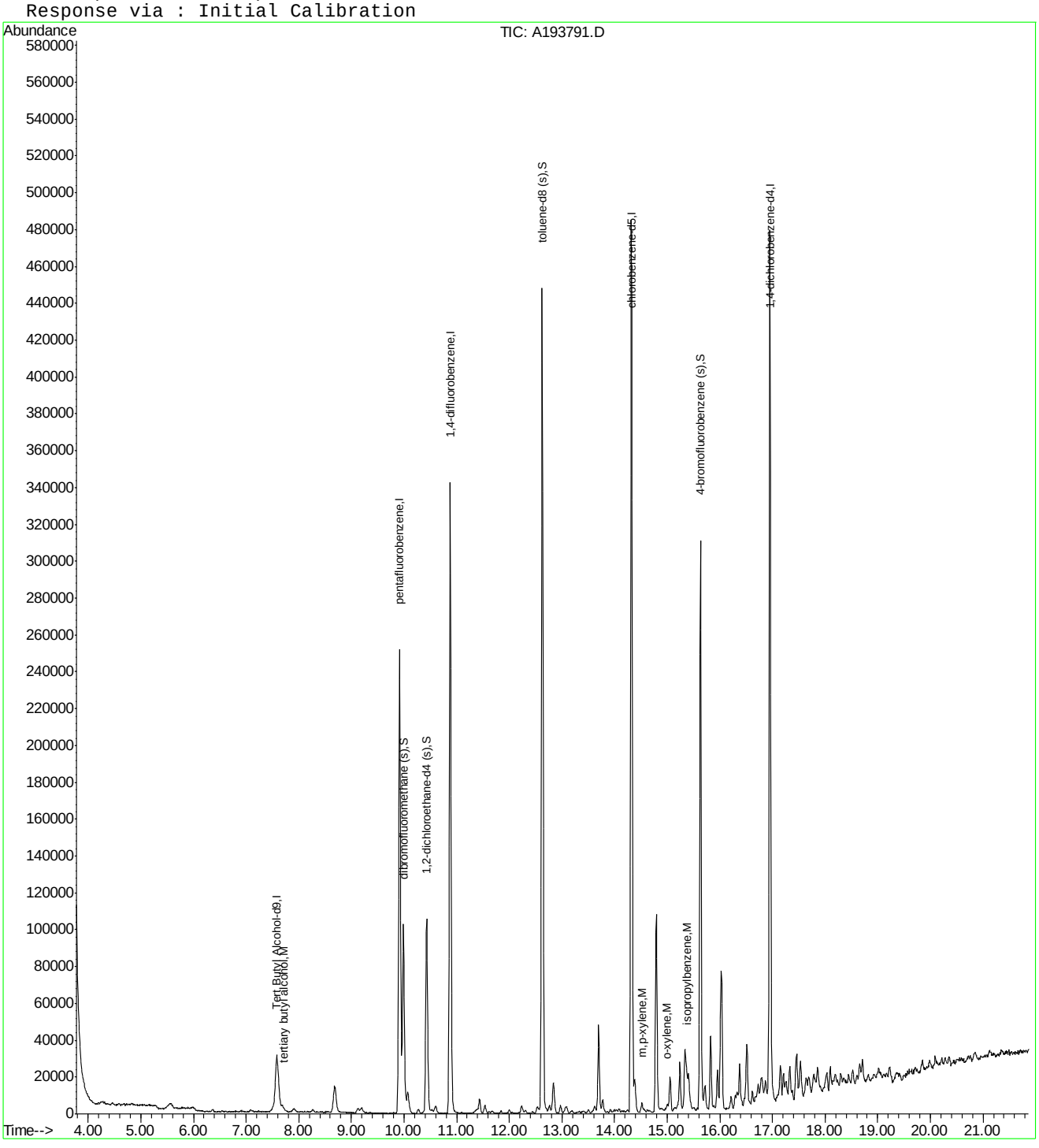
Target Compounds						Qvalue
4) tertiary butyl alcohol	7.71	59	2601	15.09	ug/L	100
95) m,p-xylene	14.52	106	1299	0.40	ug/L	86
96) o-xylene	15.00	106	758	0.23	ug/L #	72
100) isopropylbenzene	15.38	105	3150	0.40	ug/L	93

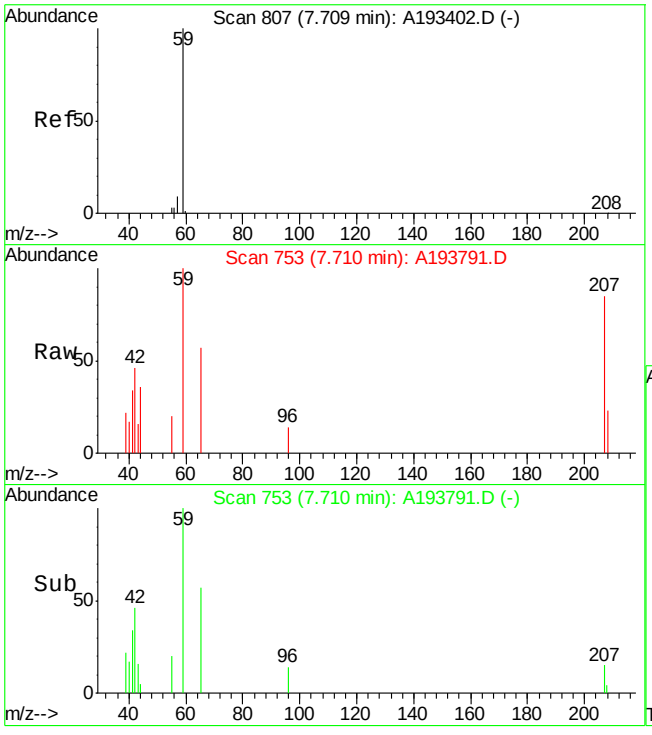
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A193791.D Vial: 100
Acq On : 19 Apr 2013 2:57 am Operator: Oksanat
Sample : jb33644-11 Inst : MSA
Misc : MS46397,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 11:08 2013 Quant Results File: MA7282.RES

Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration

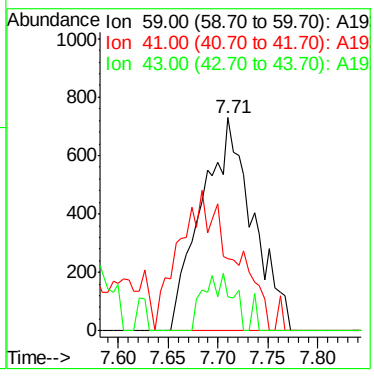


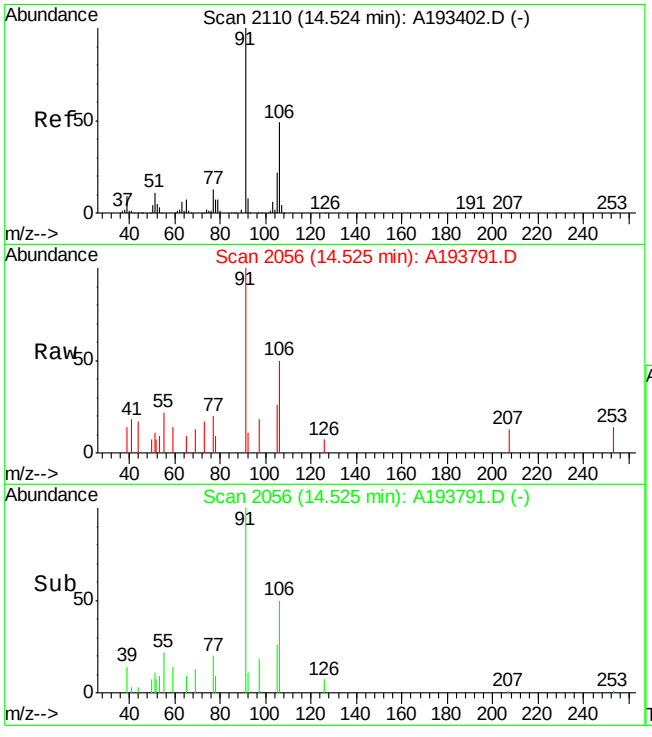


#4
tertiary butyl alcohol
Concen: 15.09 ug/L
RT: 7.71 min Scan# 753
Delta R.T. -0.02 min
Lab File: A193791.D
Acq: 19 Apr 2013 2:57 am

Tgt Ion: 59 Resp: 2601

Ion	Ratio	Lower	Upper
59	100		
41	21.2	0.0	30.0
43	16.2	0.0	30.0

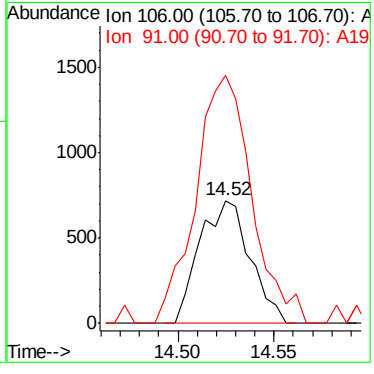


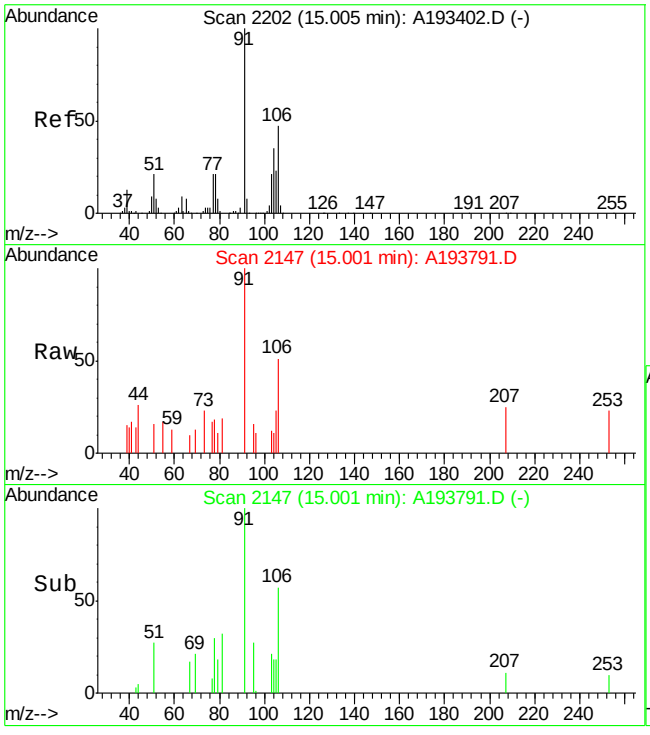


#95
m,p-xylene
Concen: 0.40 ug/L
RT: 14.52 min Scan# 2056
Delta R.T. 0.00 min
Lab File: A193791.D
Acq: 19 Apr 2013 2:57 am

Tgt Ion:106 Resp: 1299

Ion	Ratio	Lower	Upper
106	100		
91	181.4	172.1	232.1

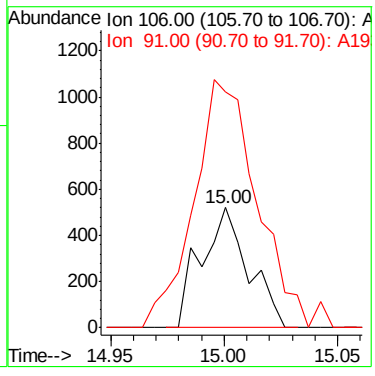


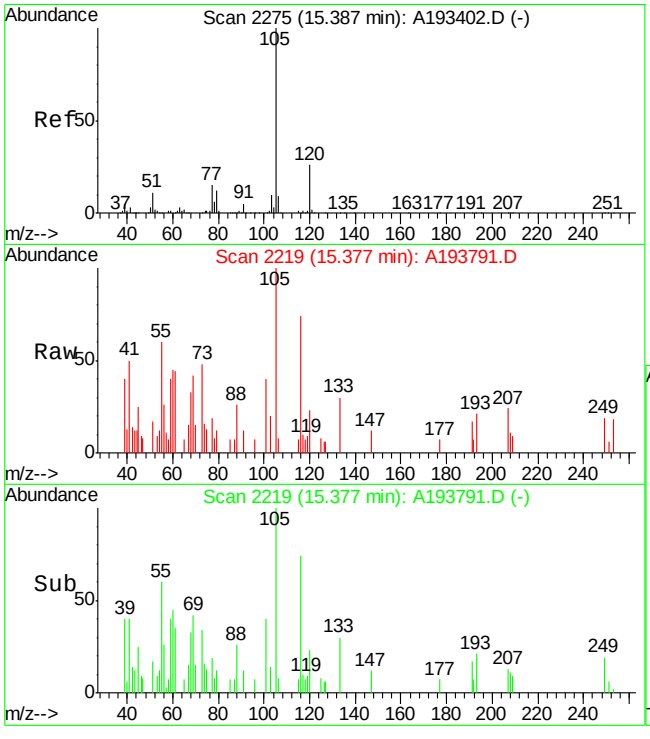


#96
o-xylene
Concen: 0.23 ug/L
RT: 15.00 min Scan# 2147
Delta R.T. -0.00 min
Lab File: A193791.D
Acq: 19 Apr 2013 2:57 am

Tgt Ion:106 Resp: 758

Ion	Ratio	Lower	Upper
106	100		
91	169.3	183.9	243.9#

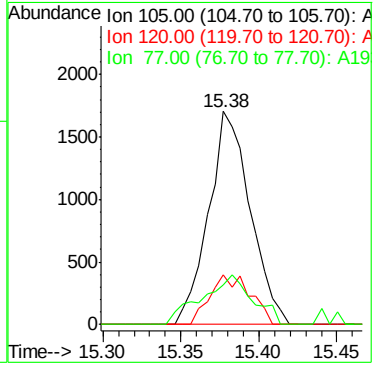




#100
isopropylbenzene
Concen: 0.40 ug/L
RT: 15.38 min Scan# 2219
Delta R.T. -0.01 min
Lab File: A193791.D
Acq: 19 Apr 2013 2:57 am

Tgt Ion:105 Resp: 3150

Ion	Ratio	Lower	Upper
105	100		
120	23.1	0.0	56.2
77	18.8	0.0	45.3



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A193792.D Vial: 100
Acq On : 19 Apr 2013 3:41 am Operator: Oksanat
Sample : jb33644-12 Inst : MSA
Misc : MS46397,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 11:09 2013 Quant Results File: MA7282.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration
DataAcq Meth : MA7282

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.58	65	74699	500.00	ug/L	-0.03
5) pentafluorobenzene	9.92	168	223748	50.00	ug/L	0.00
54) 1,4-difluorobenzene	10.88	114	333602	50.00	ug/L	0.00
85) chlorobenzene-d5	14.32	117	296487	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	16.95	152	140568	50.00	ug/L	0.00
System Monitoring Compounds						
47) dibromofluoromethane (s)	9.99	113	79212	44.57	ug/L	0.00
Spiked Amount 50.000 Range 81 - 121 Recovery = 89.14%						
48) 1,2-dichloroethane-d4 (s)	10.43	65	87233	43.66	ug/L	0.00
Spiked Amount 50.000 Range 74 - 127 Recovery = 87.32%						
77) toluene-d8 (s)	12.63	98	341574	50.25	ug/L	0.00
Spiked Amount 50.000 Range 80 - 122 Recovery = 100.50%						
102) 4-bromofluorobenzene (s)	15.63	95	121664	52.05	ug/L	0.00
Spiked Amount 50.000 Range 78 - 116 Recovery = 104.10%						

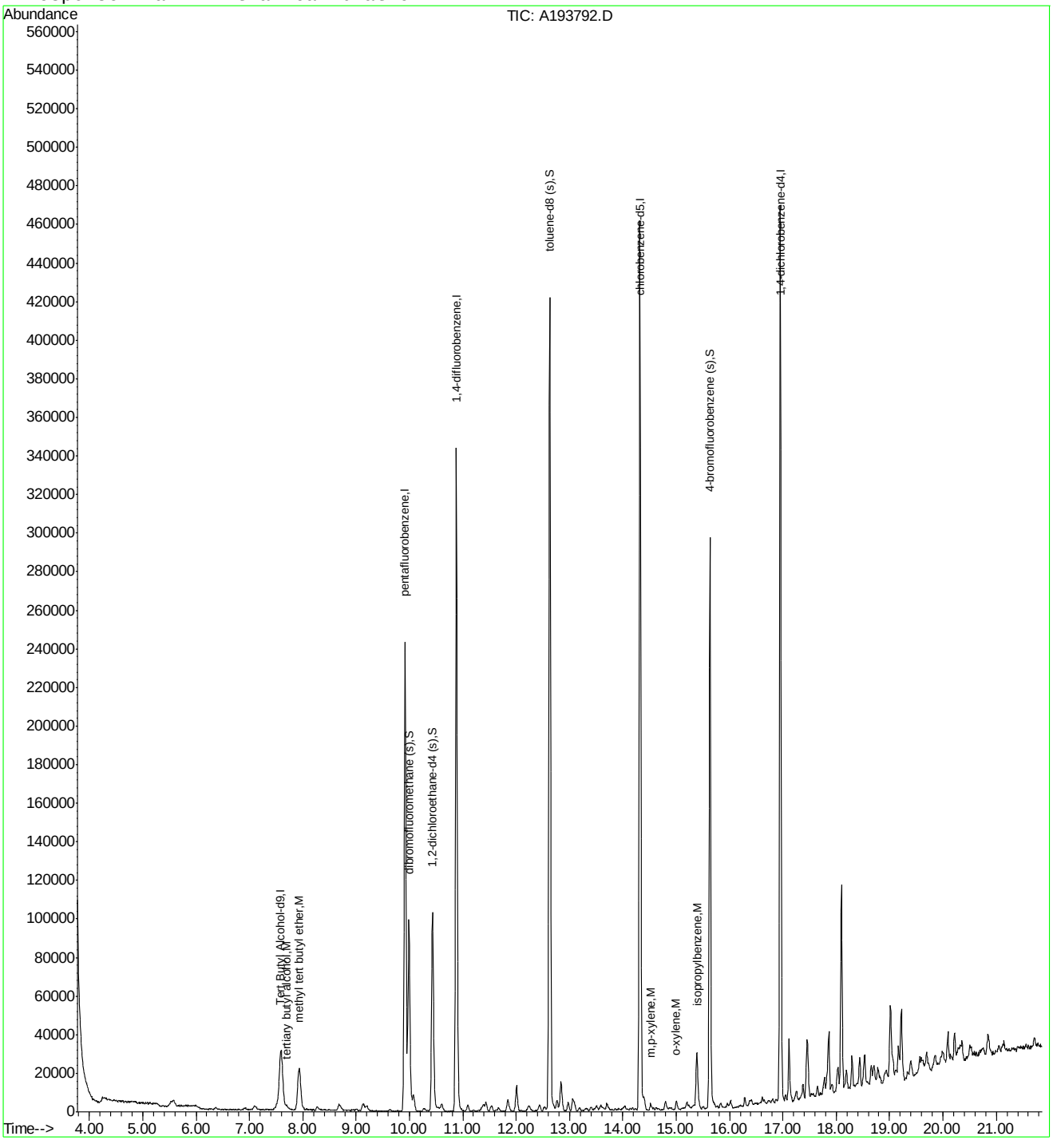
Target Compounds						Qvalue
4) tertiary butyl alcohol	7.70	59	1676	9.70	ug/L	100
28) methyl tert butyl ether	7.93	73	39259	7.46	ug/L	92
95) m,p-xylene	14.53	106	987	0.31	ug/L	88
96) o-xylene	15.00	106	818	0.25	ug/L	86
100) isopropylbenzene	15.38	105	16706	2.15	ug/L	97

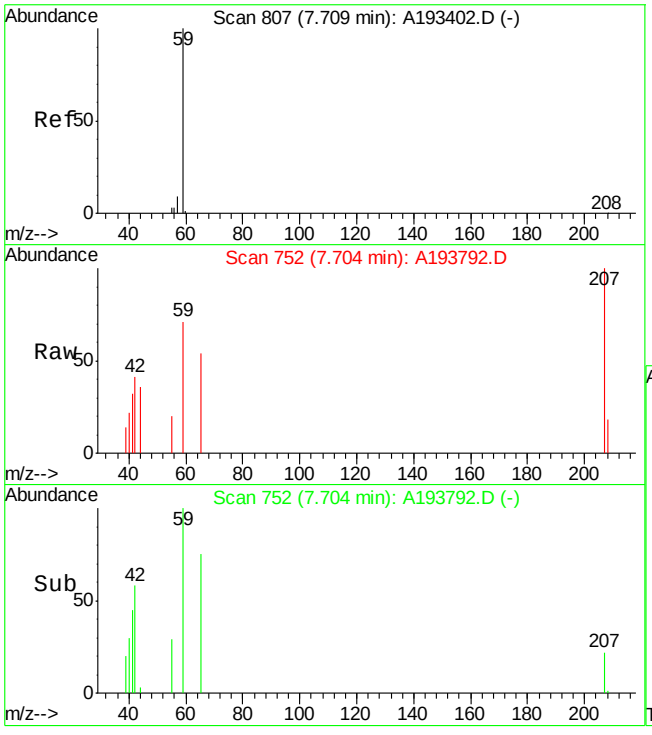
(#) = qualifier out of range (m) = manual integration
A193792.D MA7282.M Fri Apr 19 11:09:45 2013 MSA

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A193792.D Vial: 100
Acq On : 19 Apr 2013 3:41 am Operator: Oksanat
Sample : jb33644-12 Inst : MSA
Misc : MS46397,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 11:09 2013 Quant Results File: MA7282.RES

Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration

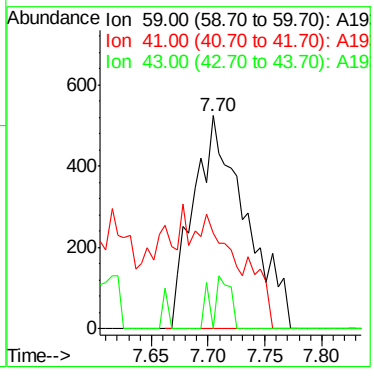


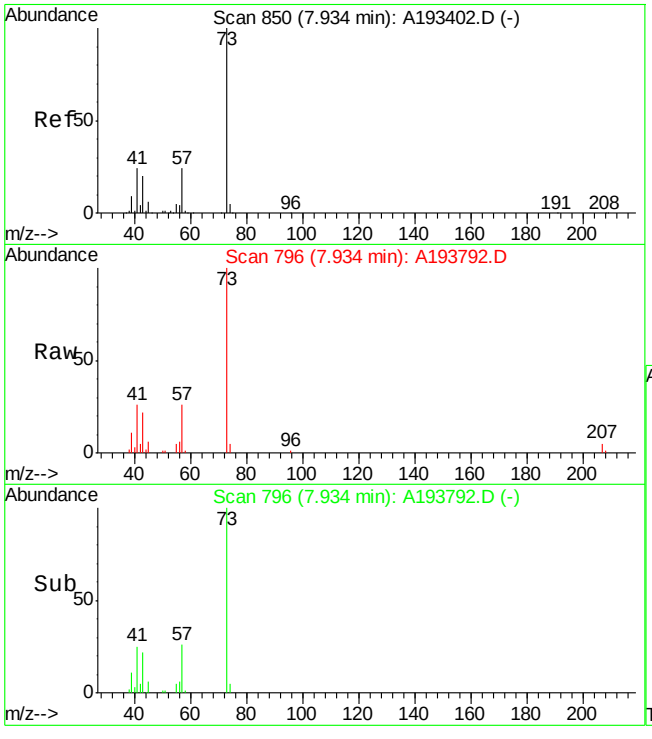


#4
tertiary butyl alcohol
Concen: 9.70 ug/L
RT: 7.70 min Scan# 752
Delta R.T. -0.03 min
Lab File: A193792.D
Acq: 19 Apr 2013 3:41 am

Tgt Ion: 59 Resp: 1676

Ion	Ratio	Lower	Upper
59	100		
41	20.8	0.0	30.0
43	0.0	0.0	30.0

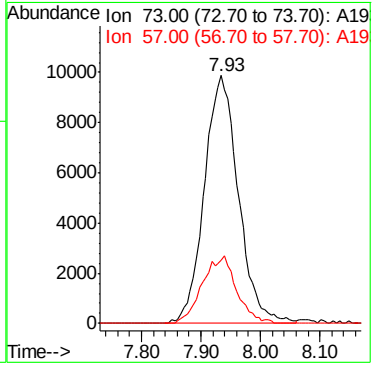


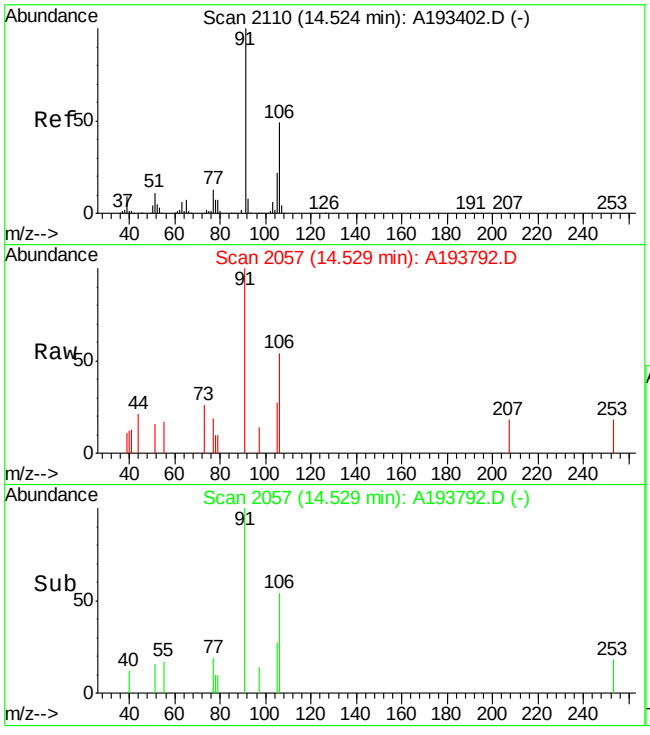


#28
methyl tert butyl ether
Concen: 7.46 ug/L
RT: 7.93 min Scan# 796
Delta R.T. -0.01 min
Lab File: A193792.D
Acq: 19 Apr 2013 3:41 am

Tgt Ion: 73 Resp: 39259

Ion	Ratio	Lower	Upper
73	100		
57	27.3	0.0	53.6

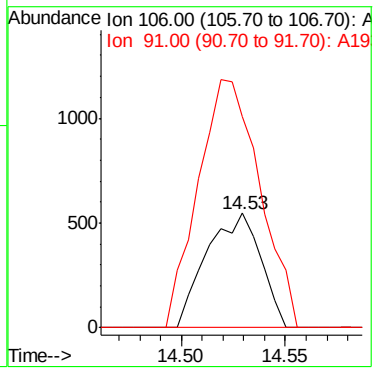


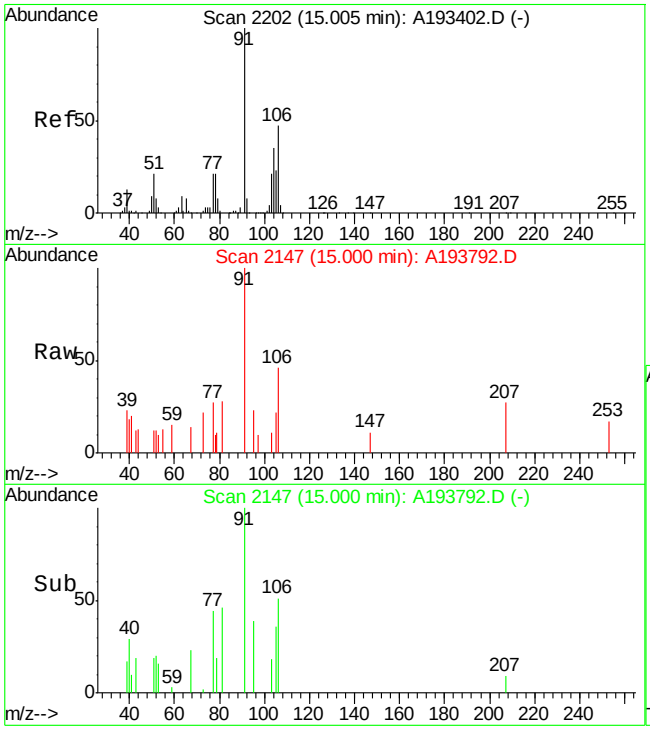


#95
m,p-xylene
Concen: 0.31 ug/L
RT: 14.53 min Scan# 2057
Delta R.T. 0.01 min
Lab File: A193792.D
Acq: 19 Apr 2013 3:41 am

Tgt Ion:106 Resp: 987

Ion	Ratio	Lower	Upper
106	100		
91	184.3	172.1	232.1

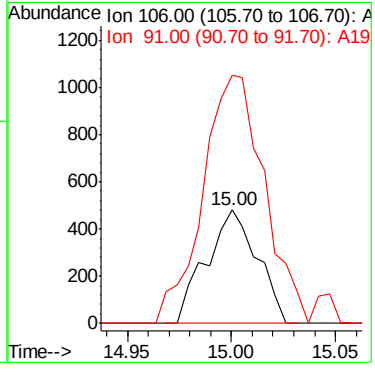




#96
o-xylene
Concen: 0.25 ug/L
RT: 15.00 min Scan# 2147
Delta R.T. -0.00 min
Lab File: A193792.D
Acq: 19 Apr 2013 3:41 am

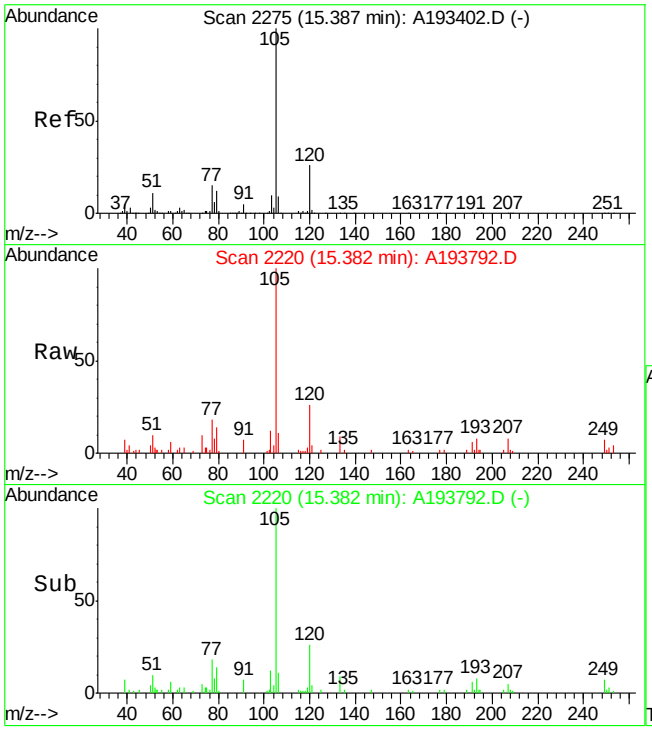
Tgt Ion:106 Resp: 818

Ion	Ratio	Lower	Upper
106	100		
91	191.3	183.9	243.9



7.1.12

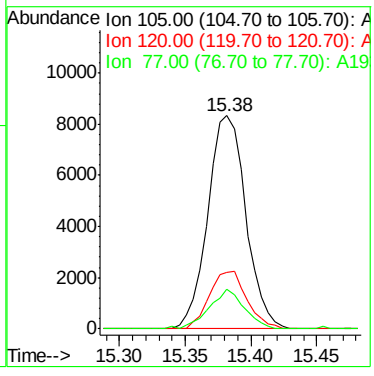
7



#100
isopropylbenzene
Concen: 2.15 ug/L
RT: 15.38 min Scan# 2220
Delta R.T. -0.00 min
Lab File: A193792.D
Acq: 19 Apr 2013 3:41 am

Tgt Ion:105 Resp: 16706

Ion	Ratio	Lower	Upper
105	100		
120	26.3	0.0	56.2
77	18.5	0.0	45.3



7.1.12

7

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A193793.D Vial: 100
Acq On : 19 Apr 2013 4:11 am Operator: Oksanat
Sample : jb33644-13 Inst : MSA
Misc : MS46397,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 11:10 2013 Quant Results File: MA7282.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration
DataAcq Meth : MA7282

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.58	65	75109	500.00	ug/L	-0.02
5) pentafluorobenzene	9.92	168	226134	50.00	ug/L	0.00
54) 1,4-difluorobenzene	10.88	114	338116	50.00	ug/L	0.00
85) chlorobenzene-d5	14.32	117	303411	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	16.95	152	135196	50.00	ug/L	0.00

System Monitoring Compounds

47) dibromofluoromethane (s)	9.99	113	80562	44.85	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 89.70%			
48) 1,2-dichloroethane-d4 (s)	10.43	65	89155	44.16	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 88.32%			
77) toluene-d8 (s)	12.63	98	348930	50.65	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 101.30%			
102) 4-bromofluorobenzene (s)	15.63	95	122429	54.46	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 108.92%			

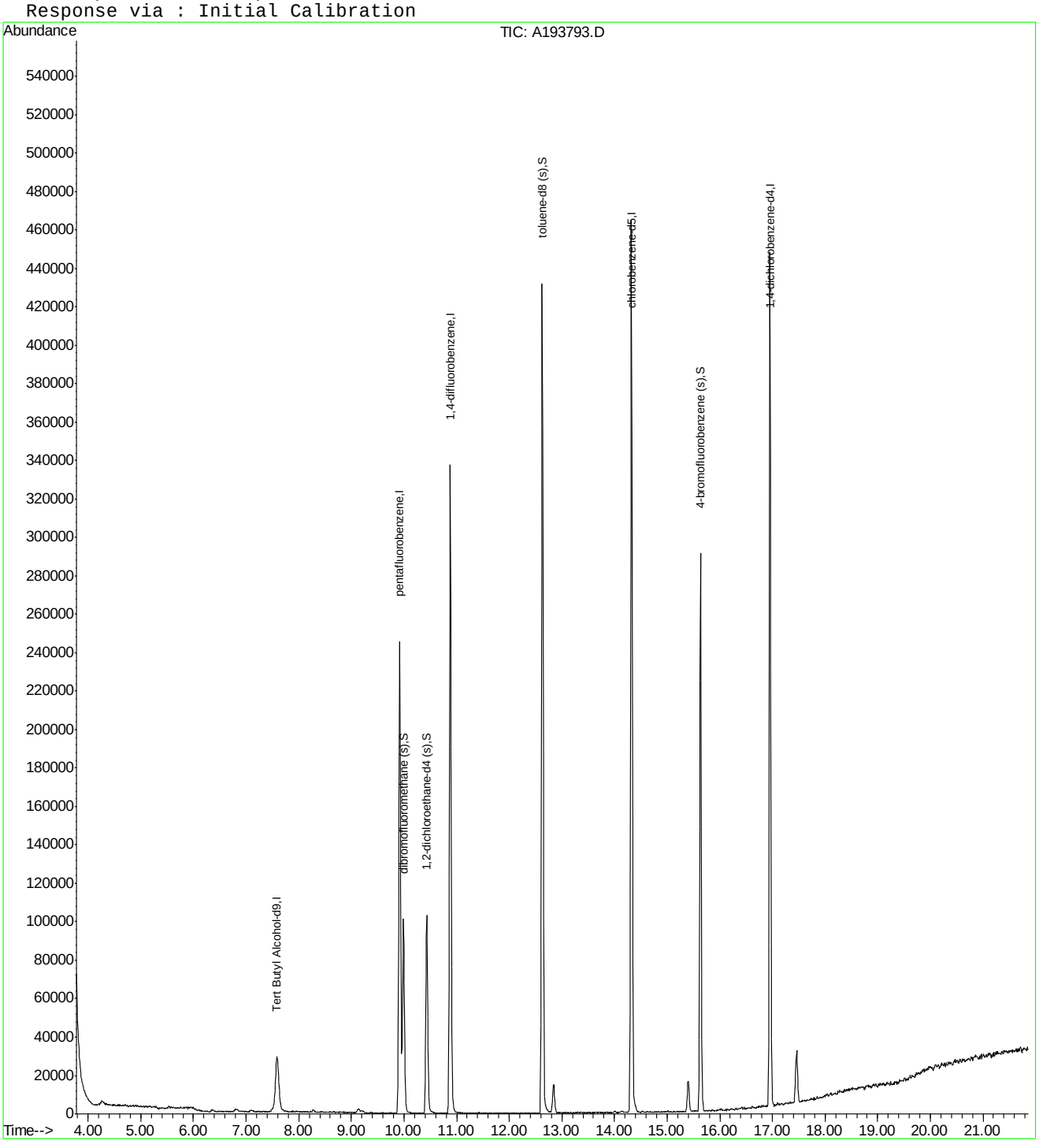
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
A193793.D MA7282.M Fri Apr 19 11:11:07 2013 MSA

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A193793.D Vial: 100
Acq On : 19 Apr 2013 4:11 am Operator: Oksanat
Sample : jb33644-13 Inst : MSA
Misc : MS46397,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 11:10 2013 Quant Results File: MA7282.RES

Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A193794.D Vial: 100
Acq On : 19 Apr 2013 4:41 am Operator: Oksanat
Sample : jb33644-14 Inst : MSA
Misc : MS46397,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 11:14 2013 Quant Results File: MA7282.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration
DataAcq Meth : MA7282

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.59	65	83793	500.00	ug/L	-0.01
5) pentafluorobenzene	9.92	168	221172	50.00	ug/L	0.00
54) 1,4-difluorobenzene	10.88	114	331019	50.00	ug/L	0.00
85) chlorobenzene-d5	14.32	117	299316	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	16.95	152	134184	50.00	ug/L	0.00

System Monitoring Compounds

47) dibromofluoromethane (s)	9.99	113	80279	45.70	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 91.40%			
48) 1,2-dichloroethane-d4 (s)	10.43	65	89238	45.19	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 90.38%			
77) toluene-d8 (s)	12.63	98	341896	50.69	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 101.38%			
102) 4-bromofluorobenzene (s)	15.63	95	120896	54.19	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 108.38%			

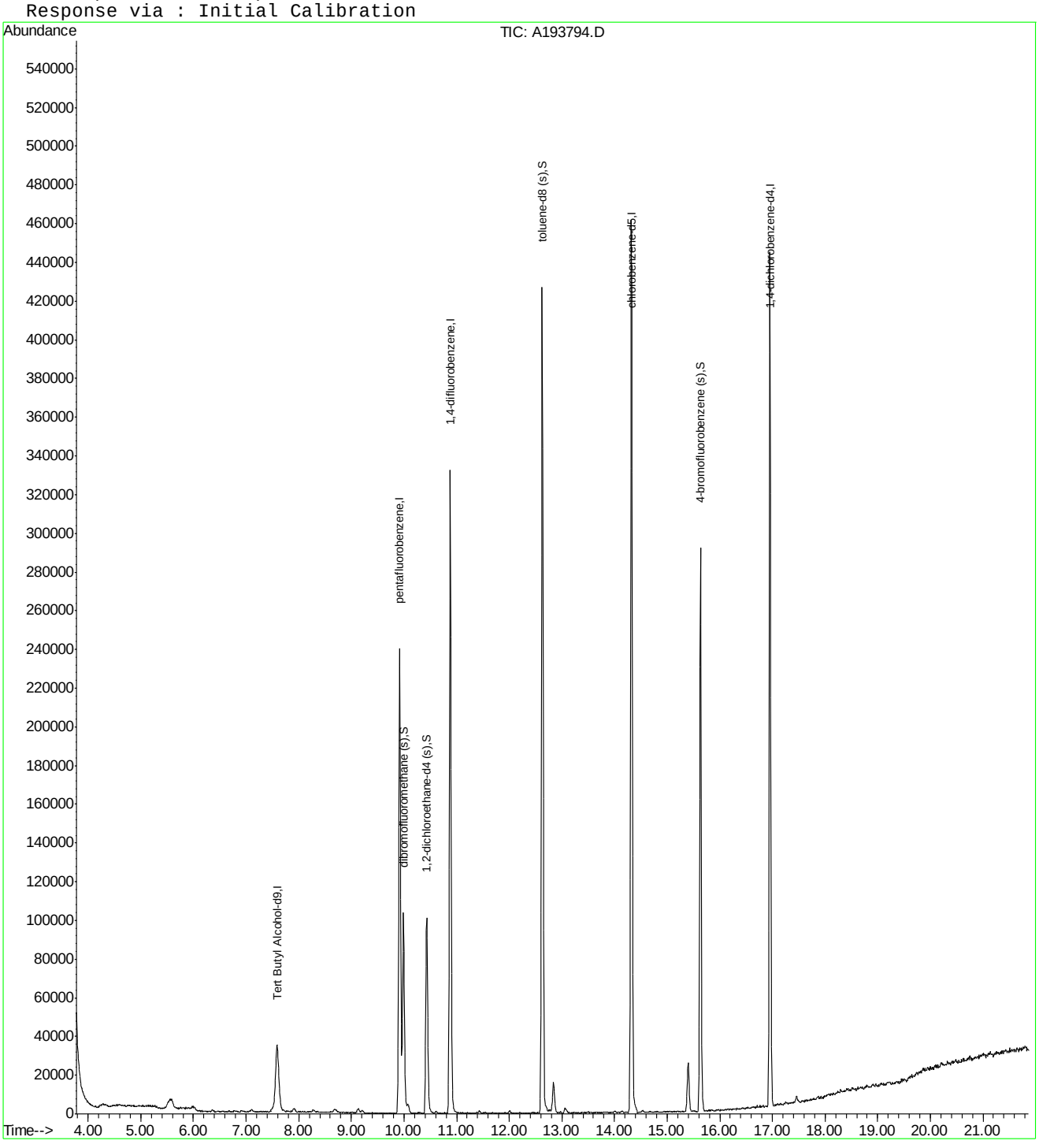
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
A193794.D MA7282.M Fri Apr 19 11:15:46 2013 MSA

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A193794.D Vial: 100
Acq On : 19 Apr 2013 4:41 am Operator: Oksanat
Sample : jb33644-14 Inst : MSA
Misc : MS46397,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 11:14 2013 Quant Results File: MA7282.RES

Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration



Manual Integrations APPROVED (compounds with "m" flag)
Mei Chen
04/23/13 10:24

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A193795.D Vial: 100
Acq On : 19 Apr 2013 5:10 am Operator: Oksanat
Sample : jb33644-15 Inst : MSA
Misc : MS46397,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 23 8:32 2013 Quant Results File: MA7282.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration
DataAcq Meth : MA7282

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.58	65	74921	500.00	ug/L	-0.02
5) pentafluorobenzene	9.92	168	227971	50.00	ug/L	0.00
54) 1,4-difluorobenzene	10.88	114	335214	50.00	ug/L	0.00
85) chlorobenzene-d5	14.32	117	303711	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	16.95	152	154076	50.00	ug/L	0.00

System Monitoring Compounds						
47) dibromofluoromethane (s)	9.99	113	80341	44.37	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 88.74%			
48) 1,2-dichloroethane-d4 (s)	10.43	65	99278	48.77	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 97.54%			
77) toluene-d8 (s)	12.63	98	343563	50.30	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 100.60%			
102) 4-bromofluorobenzene (s)	15.63	95	127459	49.75	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 99.50%			

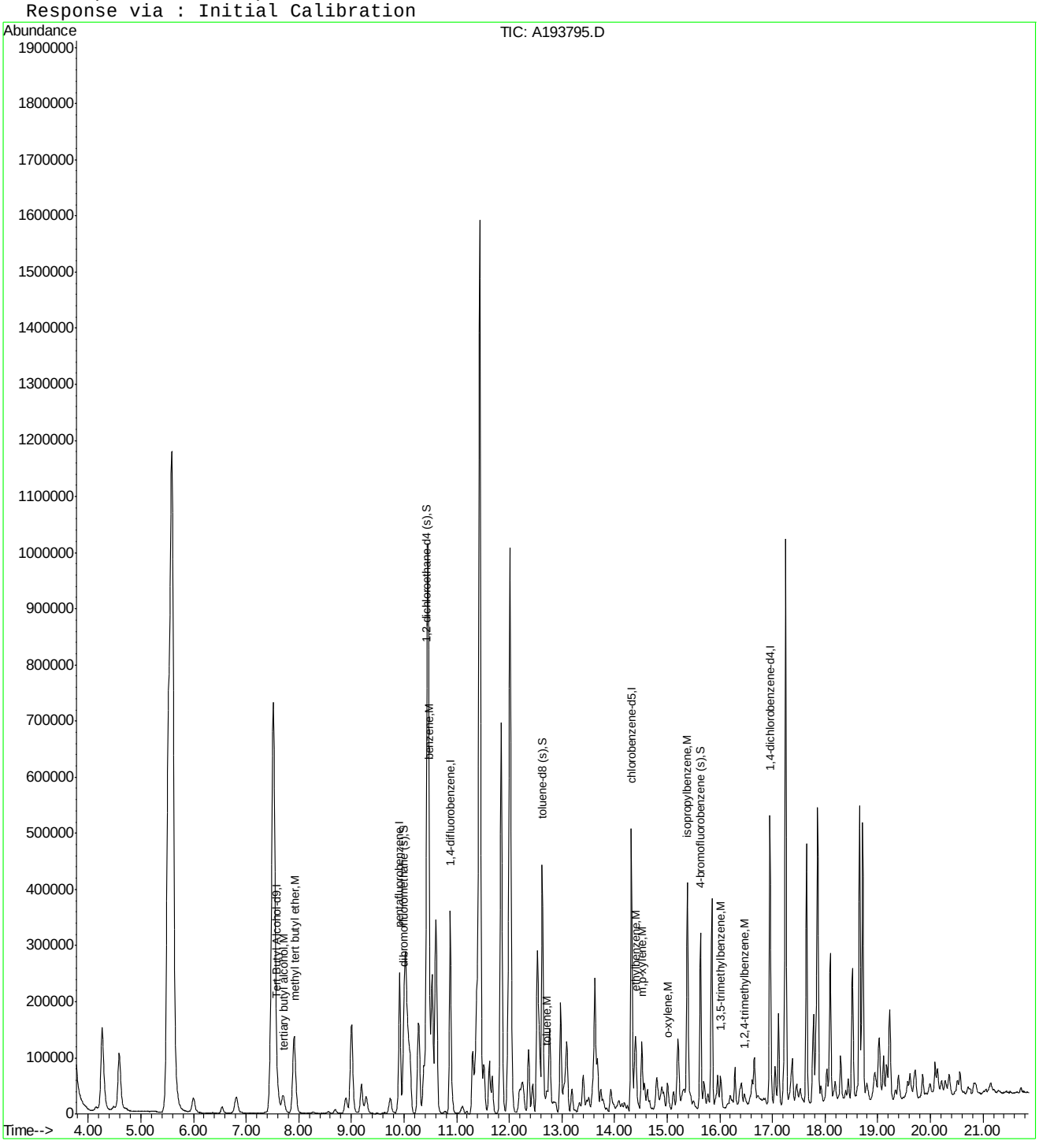
Target Compounds						Qvalue
4) tertiary butyl alcohol	7.71	59	63912	368.85	ug/L	100
28) methyl tert butyl ether	7.93	73	11177	2.08	ug/L #	1
61) benzene	10.48	78	17200	2.40	ug/L	79
79) toluene	12.71	92	8408	1.87	ug/L	99
94) ethylbenzene	14.40	91	6709m	0.78	ug/L	
95) m,p-xylene	14.52	106	21128	6.53	ug/L	99
96) o-xylene	15.00	106	6284	1.91	ug/L	88
100) isopropylbenzene	15.38	105	304527	35.81	ug/L	100
111) 1,3,5-trimethylbenzene	16.02	105	11199	1.50	ug/L	98
114) 1,2,4-trimethylbenzene	16.47	105	7209	0.94	ug/L	90

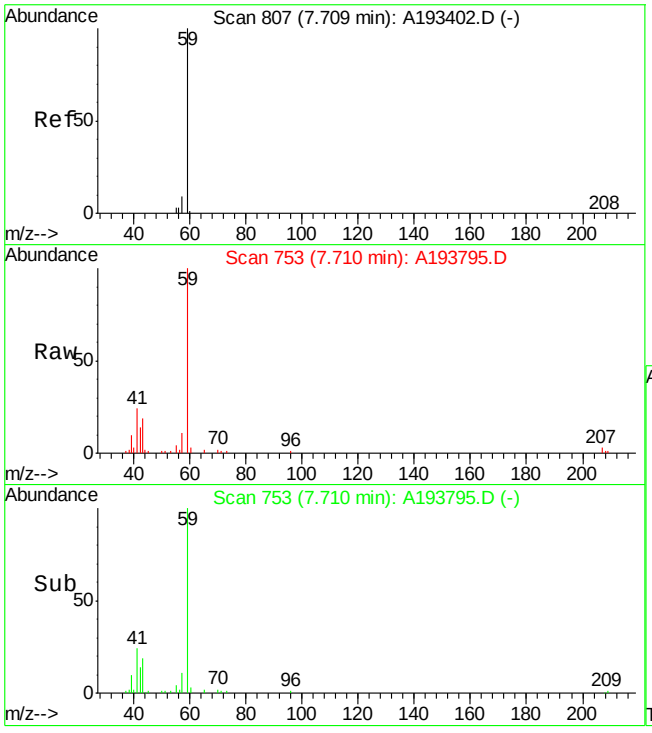
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A193795.D Vial: 100
Acq On : 19 Apr 2013 5:10 am Operator: Oksanat
Sample : jb33644-15 Inst : MSA
Misc : MS46397,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 23 8:32 2013 Quant Results File: MA7282.RES

Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration

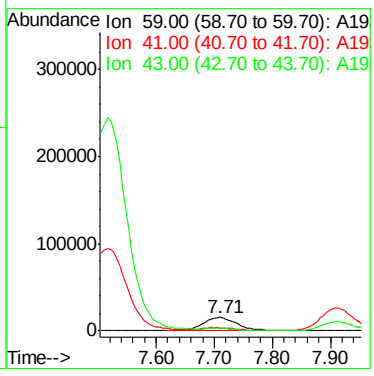


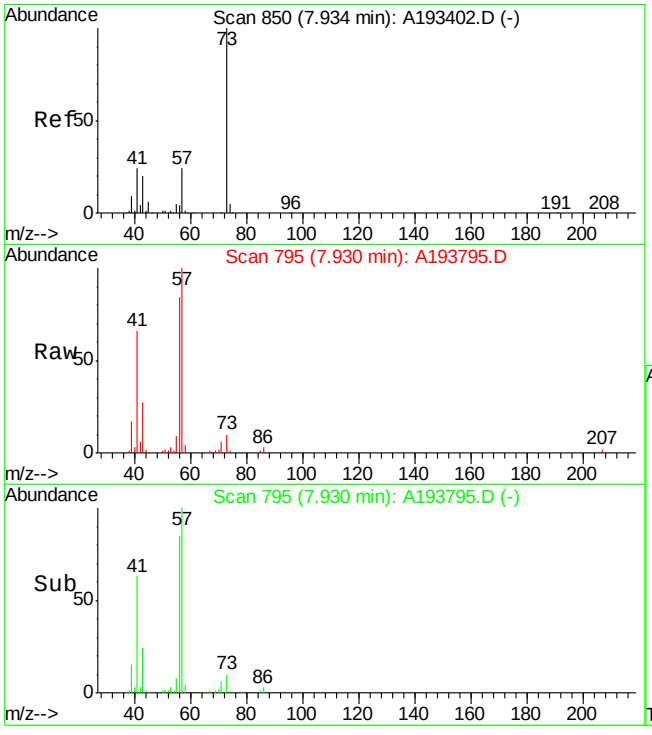


#4
tertiary butyl alcohol
Concen: 368.85 ug/L
RT: 7.71 min Scan# 753
Delta R.T. -0.02 min
Lab File: A193795.D
Acq: 19 Apr 2013 5:10 am

Tgt Ion: 59 Resp: 63912

Ion	Ratio	Lower	Upper
59	100		
41	11.4	0.0	30.0
43	0.0	0.0	30.0

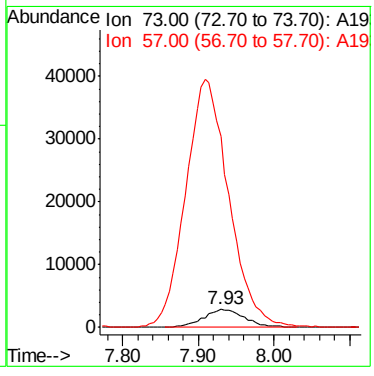


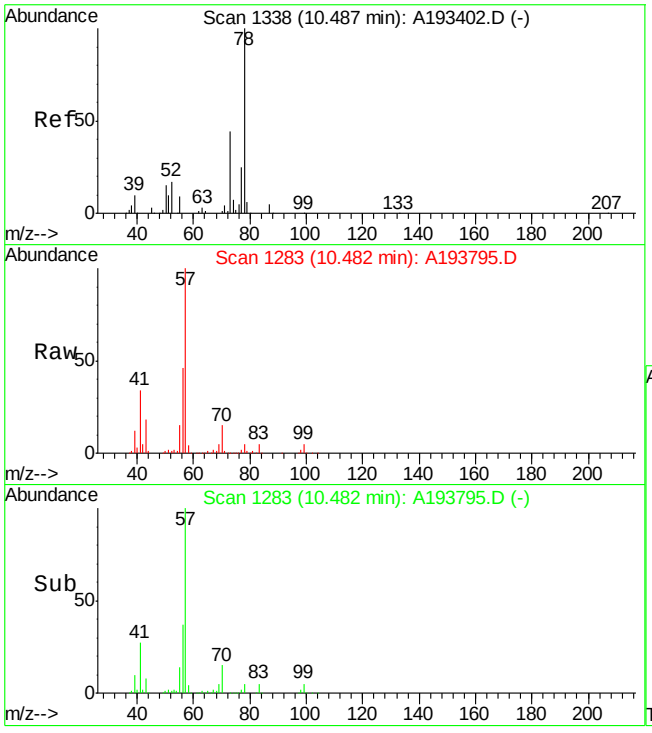


#28
methyl tert butyl ether
Concen: 2.08 ug/L
RT: 7.93 min Scan# 795
Delta R.T. -0.01 min
Lab File: A193795.D
Acq: 19 Apr 2013 5:10 am

Tgt Ion: 73 Resp: 11177

Ion	Ratio	Lower	Upper
73	100		
57	1403.9	0.0	53.6#

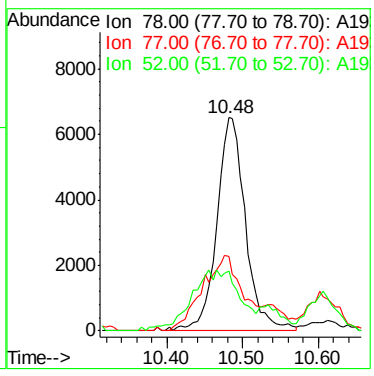


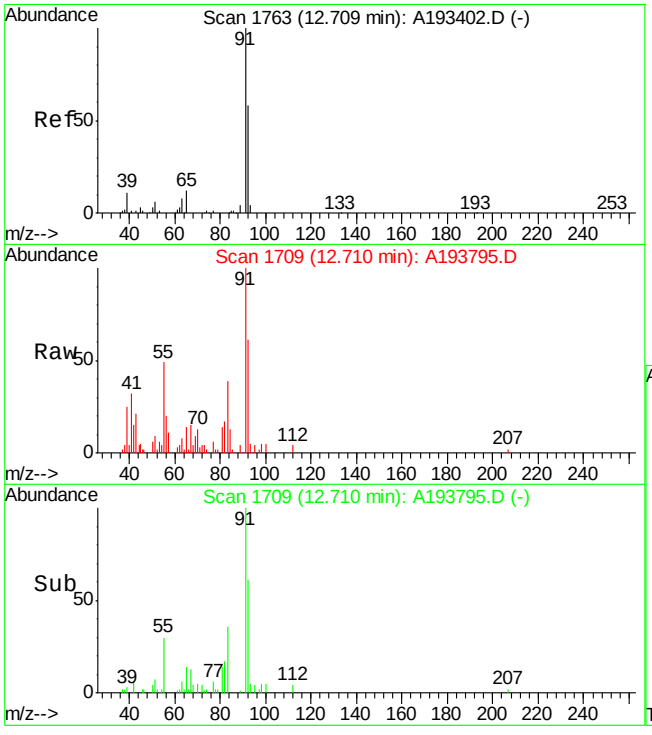


#61
benzene
Concen: 2.40 ug/L
RT: 10.48 min Scan# 1283
Delta R.T. -0.00 min
Lab File: A193795.D
Acq: 19 Apr 2013 5:10 am

Tgt Ion: 78 Resp: 17200

Ion	Ratio	Lower	Upper
78	100		
77	34.9	0.0	54.0
52	25.1	0.0	47.0

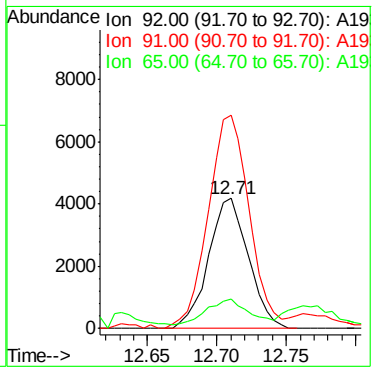


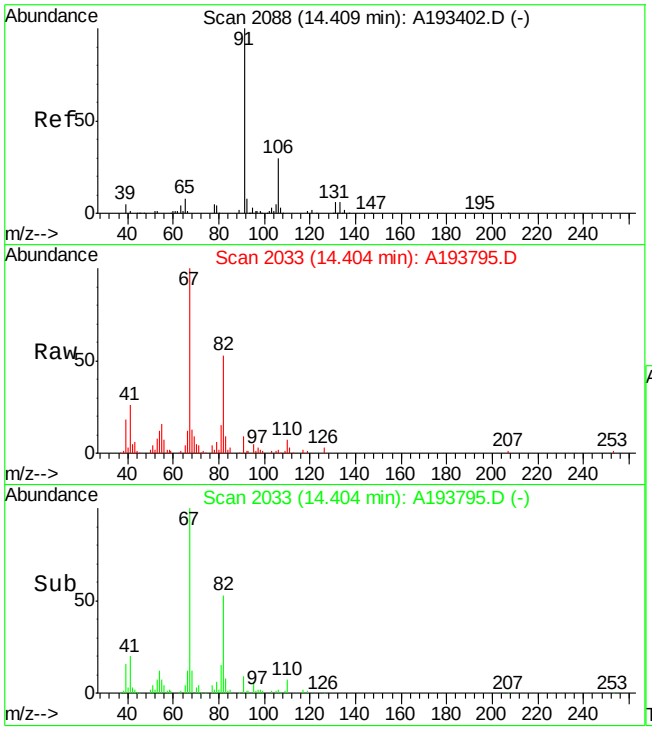


#79
toluene
Concen: 1.87 ug/L
RT: 12.71 min Scan# 1709
Delta R.T. 0.00 min
Lab File: A193795.D
Acq: 19 Apr 2013 5:10 am

Tgt Ion: 92 Resp: 8408

Ion	Ratio	Lower	Upper
92	100		
91	164.0	135.5	195.5
65	19.6	0.0	49.1

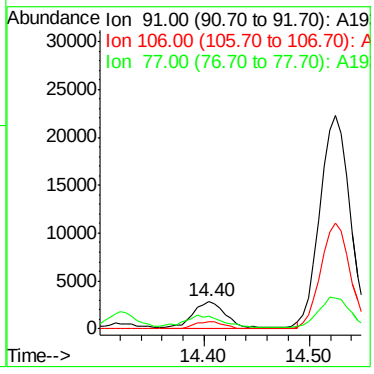


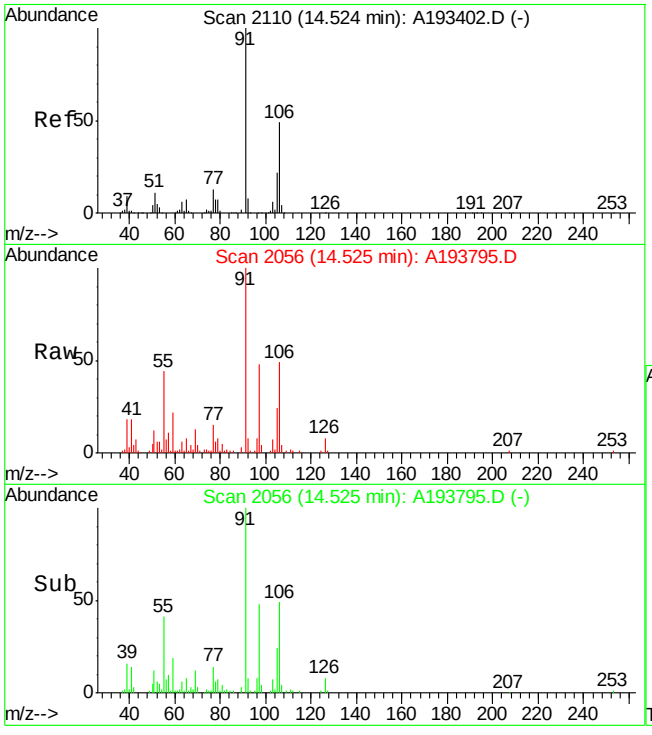


#94
ethylbenzene
Concen: 0.78 ug/L m
RT: 14.40 min Scan# 2033
Delta R.T. -0.00 min
Lab File: A193795.D
Acq: 19 Apr 2013 5:10 am

Tgt Ion: 91 Resp: 6709

Ion	Ratio	Lower	Upper
91	100		
106	26.5	0.8	60.8
77	46.9	0.0	38.6#

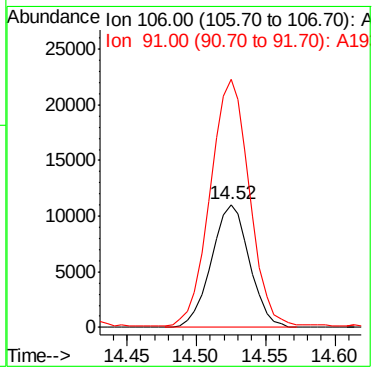


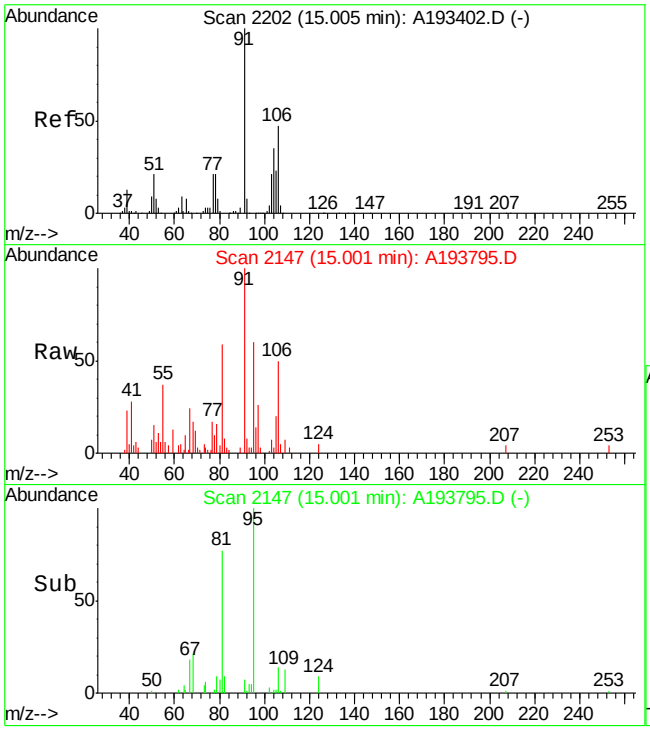


#95
m,p-xylene
Concen: 6.53 ug/L
RT: 14.52 min Scan# 2056
Delta R.T. 0.00 min
Lab File: A193795.D
Acq: 19 Apr 2013 5:10 am

Tgt Ion:106 Resp: 21128

Ion	Ratio	Lower	Upper
106	100		
91	200.6	172.1	232.1

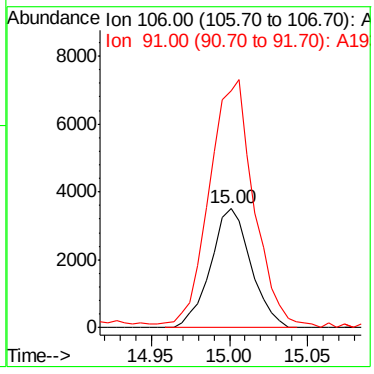


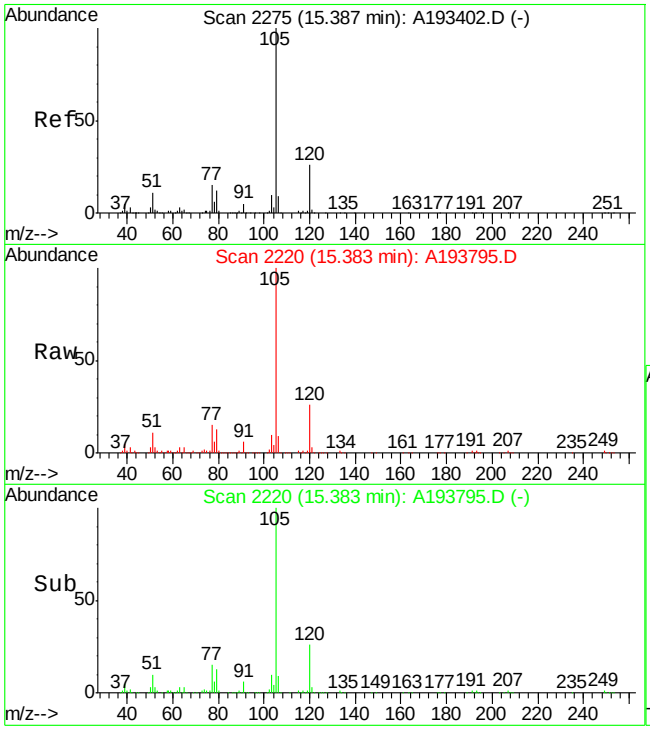


#96
o-xylene
Concen: 1.91 ug/L
RT: 15.00 min Scan# 2147
Delta R.T. -0.00 min
Lab File: A193795.D
Acq: 19 Apr 2013 5:10 am

Tgt Ion:106 Resp: 6284

Ion	Ratio	Lower	Upper
106	100		
91	194.8	183.9	243.9

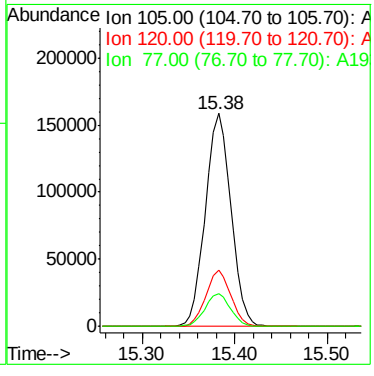


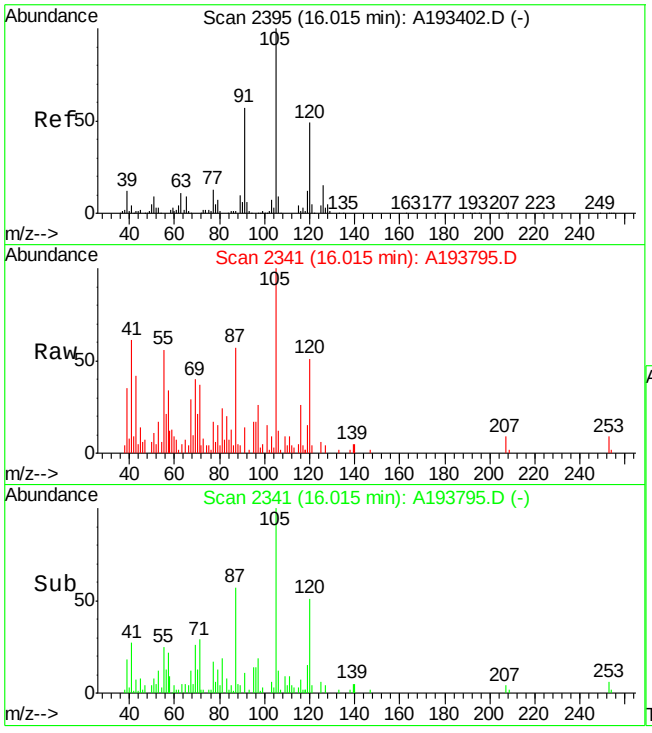


#100
isopropylbenzene
Concen: 35.81 ug/L
RT: 15.38 min Scan# 2220
Delta R.T. -0.00 min
Lab File: A193795.D
Acq: 19 Apr 2013 5:10 am

Tgt Ion:105 Resp: 304527

Ion	Ratio	Lower	Upper
105	100		
120	26.2	0.0	56.2
77	15.3	0.0	45.3

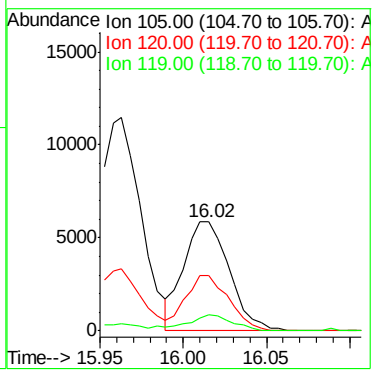


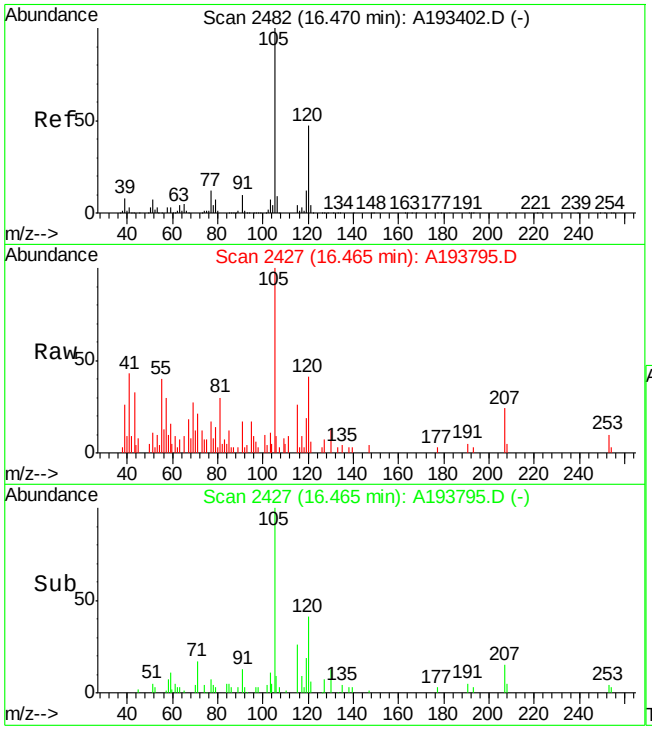


#111
1,3,5-trimethylbenzene
Concen: 1.50 ug/L
RT: 16.02 min Scan# 2341
Delta R.T. 0.00 min
Lab File: A193795.D
Acq: 19 Apr 2013 5:10 am

Tgt Ion:105 Resp: 11199

Ion	Ratio	Lower	Upper
105	100		
120	51.2	20.2	80.2
119	14.6	0.0	42.7

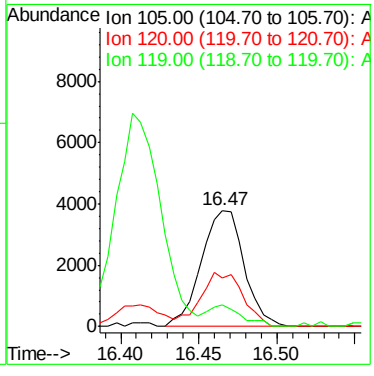




#114
1,2,4-trimethylbenzene
Concen: 0.94 ug/L
RT: 16.47 min Scan# 2427
Delta R.T. -0.00 min
Lab File: A193795.D
Acq: 19 Apr 2013 5:10 am

Tgt Ion:105 Resp: 7209

Ion	Ratio	Lower	Upper
105	100		
120	41.5	16.9	76.9
119	19.1	0.0	42.4



Manual Integrations APPROVED (compounds with "m" flag)
Kanya Veerawat 04/23/13 03:09

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A193796.D Vial: 100
Acq On : 19 Apr 2013 5:40 am Operator: Oksanat
Sample : jb33644-16 Inst : MSA
Misc : MS46397,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 11:19 2013 Quant Results File: MA7282.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration
DataAcq Meth : MA7282

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.59	65	76475	500.00	ug/L	-0.01
5) pentafluorobenzene	9.92	168	240488	50.00	ug/L	0.00
54) 1,4-difluorobenzene	10.88	114	356786	50.00	ug/L	0.00
85) chlorobenzene-d5	14.32	117	318291	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	16.95	152	155825	50.00	ug/L	0.00

System Monitoring Compounds

47) dibromofluoromethane (s)	9.99	113	85391	44.70	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 89.40%			
48) 1,2-dichloroethane-d4 (s)	10.43	65	96265	44.83	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 89.66%			
77) toluene-d8 (s)	12.63	98	362800	49.90	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 99.80%			
102) 4-bromofluorobenzene (s)	15.63	95	130228	50.26	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 100.52%			

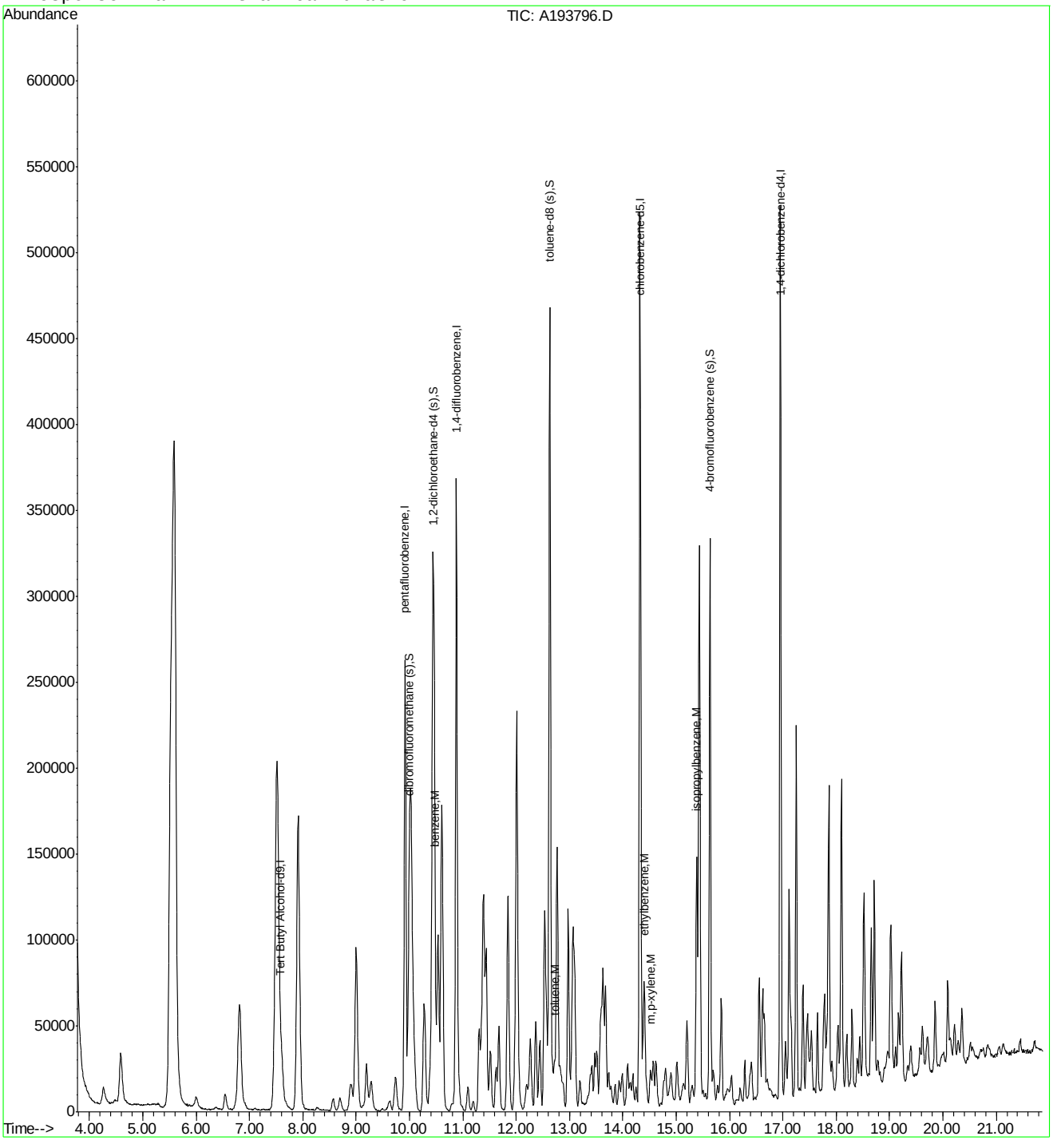
Target Compounds						Qvalue
61) benzene	10.49	78	8559	1.12	ug/L	96
79) toluene	12.71	92	2930	0.61	ug/L	98
94) ethylbenzene	14.40	91	2910m	0.32	ug/L	
95) m,p-xylene	14.52	106	2086	0.62	ug/L	92
100) isopropylbenzene	15.38	105	111714	12.99	ug/L	99

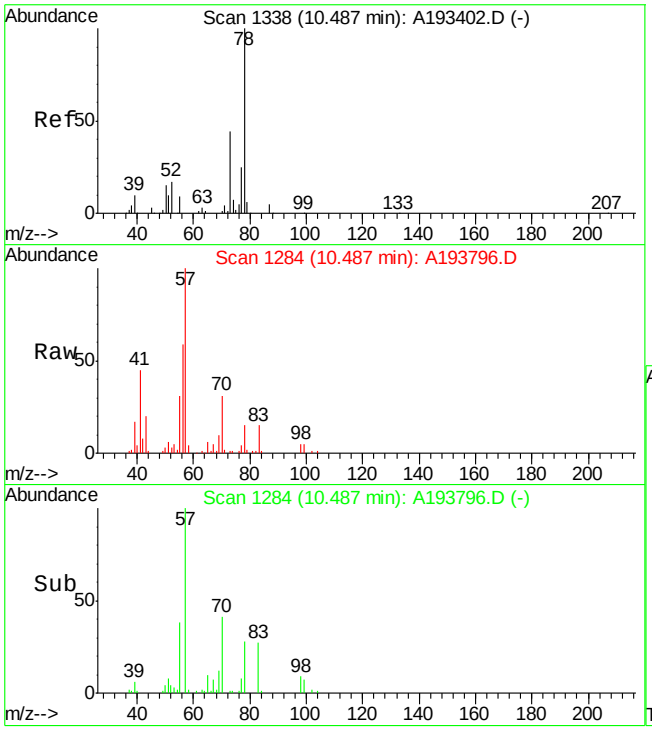
(#) = qualifier out of range (m) = manual integration
A193796.D MA7282.M Fri Apr 19 11:19:30 2013 MSA

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A193796.D Vial: 100
Acq On : 19 Apr 2013 5:40 am Operator: Oksanat
Sample : jb33644-16 Inst : MSA
Misc : MS46397,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 11:19 2013 Quant Results File: MA7282.RES

Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration

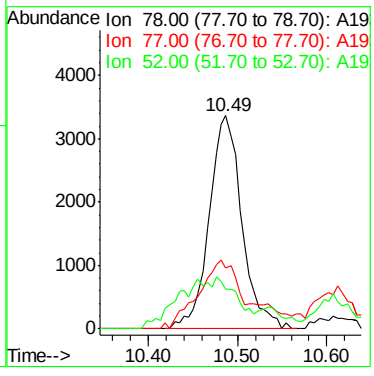


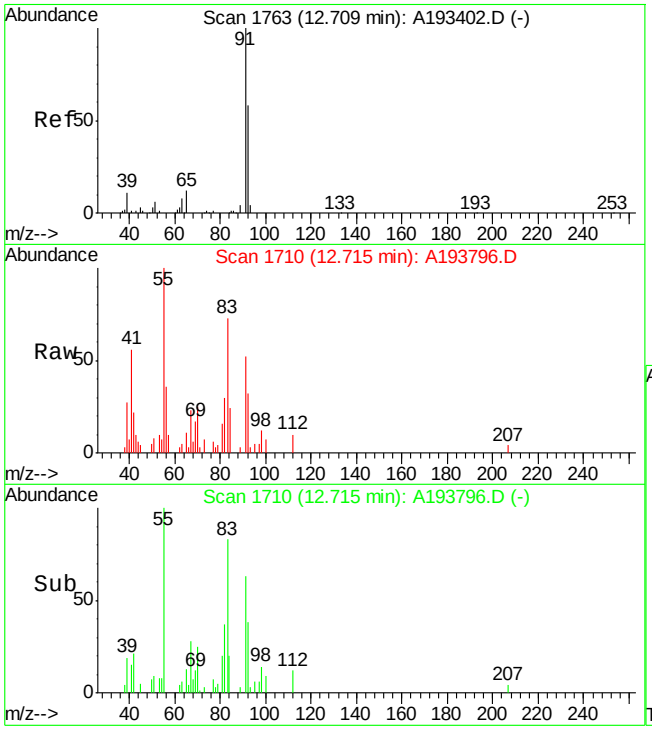


#61
benzene
Concen: 1.12 ug/L
RT: 10.49 min Scan# 1284
Delta R.T. 0.00 min
Lab File: A193796.D
Acq: 19 Apr 2013 5:40 am

Tgt Ion: 78 Resp: 8559

Ion	Ratio	Lower	Upper
78	100		
77	25.6	0.0	54.0
52	14.8	0.0	47.0

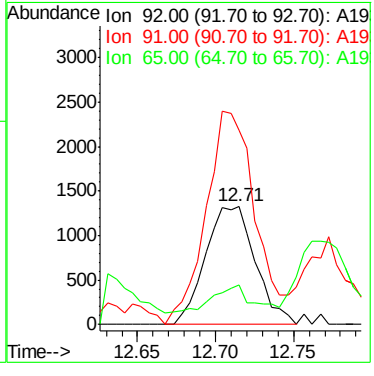


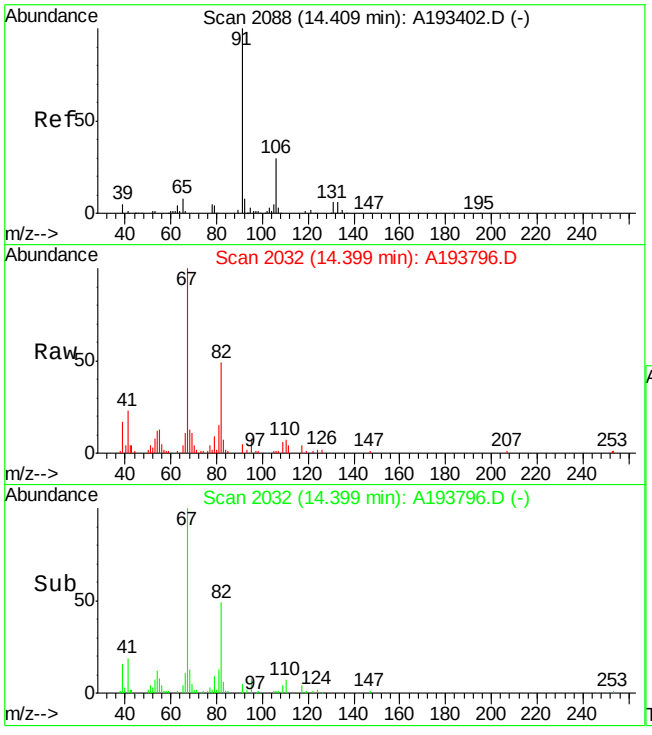


#79
toluene
Concen: 0.61 ug/L
RT: 12.71 min Scan# 1710
Delta R.T. 0.01 min
Lab File: A193796.D
Acq: 19 Apr 2013 5:40 am

Tgt Ion: 92 Resp: 2930

Ion	Ratio	Lower	Upper
92	100		
91	164.3	135.5	195.5
65	24.2	0.0	49.1

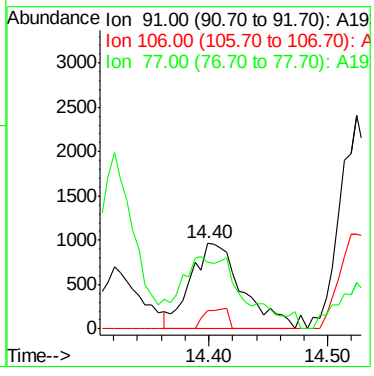


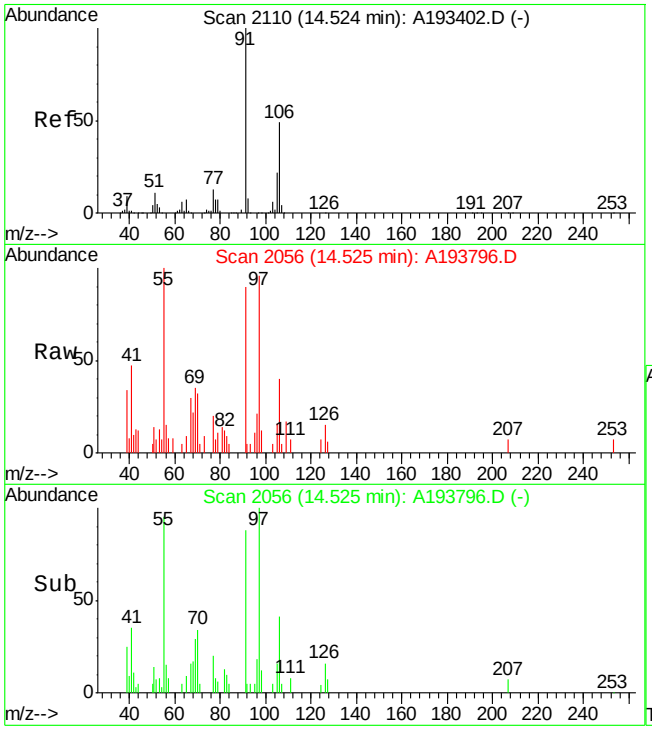


#94
ethylbenzene
Concen: 0.32 ug/L m
RT: 14.40 min Scan# 2032
Delta R.T. -0.01 min
Lab File: A193796.D
Acq: 19 Apr 2013 5:40 am

Tgt Ion: 91 Resp: 2910

Ion	Ratio	Lower	Upper
91	100		
106	20.9	0.8	60.8
77	76.7	0.0	38.6#

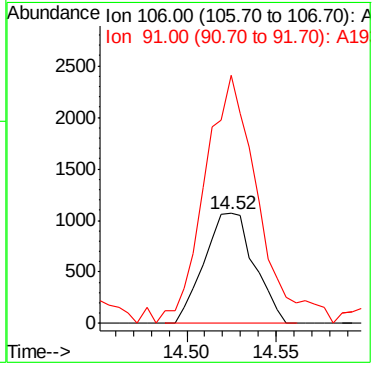


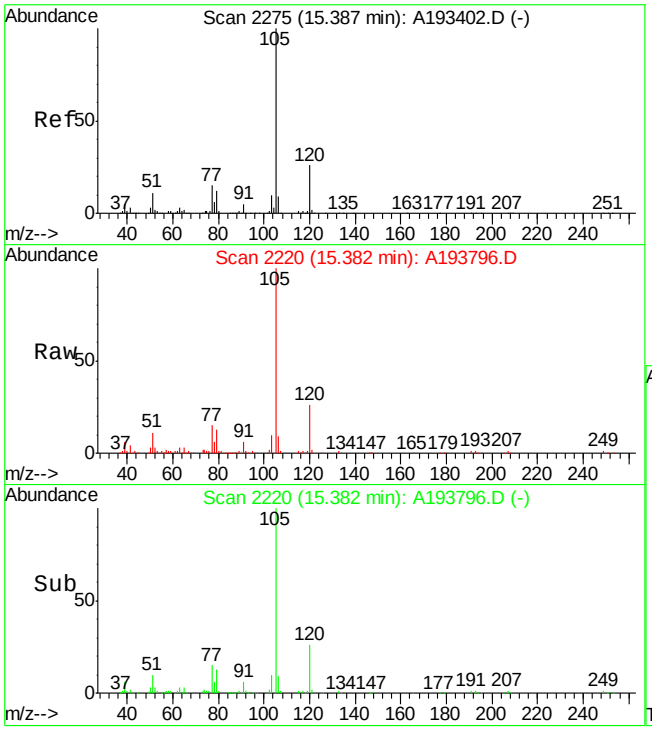


#95
m,p-xylene
Concen: 0.62 ug/L
RT: 14.52 min Scan# 2056
Delta R.T. 0.00 min
Lab File: A193796.D
Acq: 19 Apr 2013 5:40 am

Tgt Ion:106 Resp: 2086

Ion	Ratio	Lower	Upper
106	100		
91	214.1	172.1	232.1

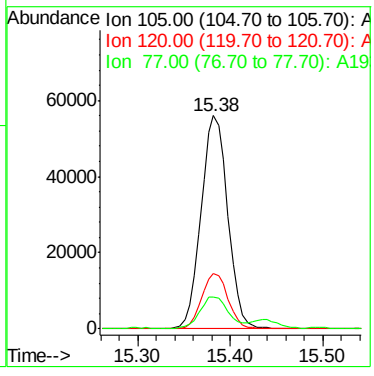




#100
isopropylbenzene
Concen: 12.99 ug/L
RT: 15.38 min Scan# 2220
Delta R.T. -0.00 min
Lab File: A193796.D
Acq: 19 Apr 2013 5:40 am

Tgt Ion:105 Resp: 111714

Ion	Ratio	Lower	Upper
105	100		
120	25.8	0.0	56.2
77	14.8	0.0	45.3



Quantitation Report (QT/LSC Reviewed)

Data File : C:\HPCHEM\1\DATA\A193767.D Vial: 100
Acq On : 18 Apr 2013 1:42 pm Operator: Oksanat
Sample : mb Inst : MSA
Misc : MS46273,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 9:05 2013 Quant Results File: MA7282.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration
DataAcq Meth : MA7282

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.57	65	82456	500.00	ug/L	-0.04
5) pentafluorobenzene	9.90	168	203659	50.00	ug/L	-0.02
54) 1,4-difluorobenzene	10.86	114	305958	50.00	ug/L	-0.02
85) chlorobenzene-d5	14.31	117	275365	50.00	ug/L	-0.02
99) 1,4-dichlorobenzene-d4	16.94	152	117712	50.00	ug/L	-0.01

System Monitoring Compounds

47) dibromofluoromethane (s)	9.97	113	74688	46.17	ug/L	-0.02
Spiked Amount 50.000	Range 81 - 121		Recovery = 92.34%			
48) 1,2-dichloroethane-d4 (s)	10.41	65	85811	47.19	ug/L	-0.03
Spiked Amount 50.000	Range 74 - 127		Recovery = 94.38%			
77) toluene-d8 (s)	12.61	98	311649	49.99	ug/L	-0.02
Spiked Amount 50.000	Range 80 - 122		Recovery = 99.98%			
102) 4-bromofluorobenzene (s)	15.62	95	109905	56.15	ug/L	-0.01
Spiked Amount 50.000	Range 78 - 116		Recovery = 112.30%			

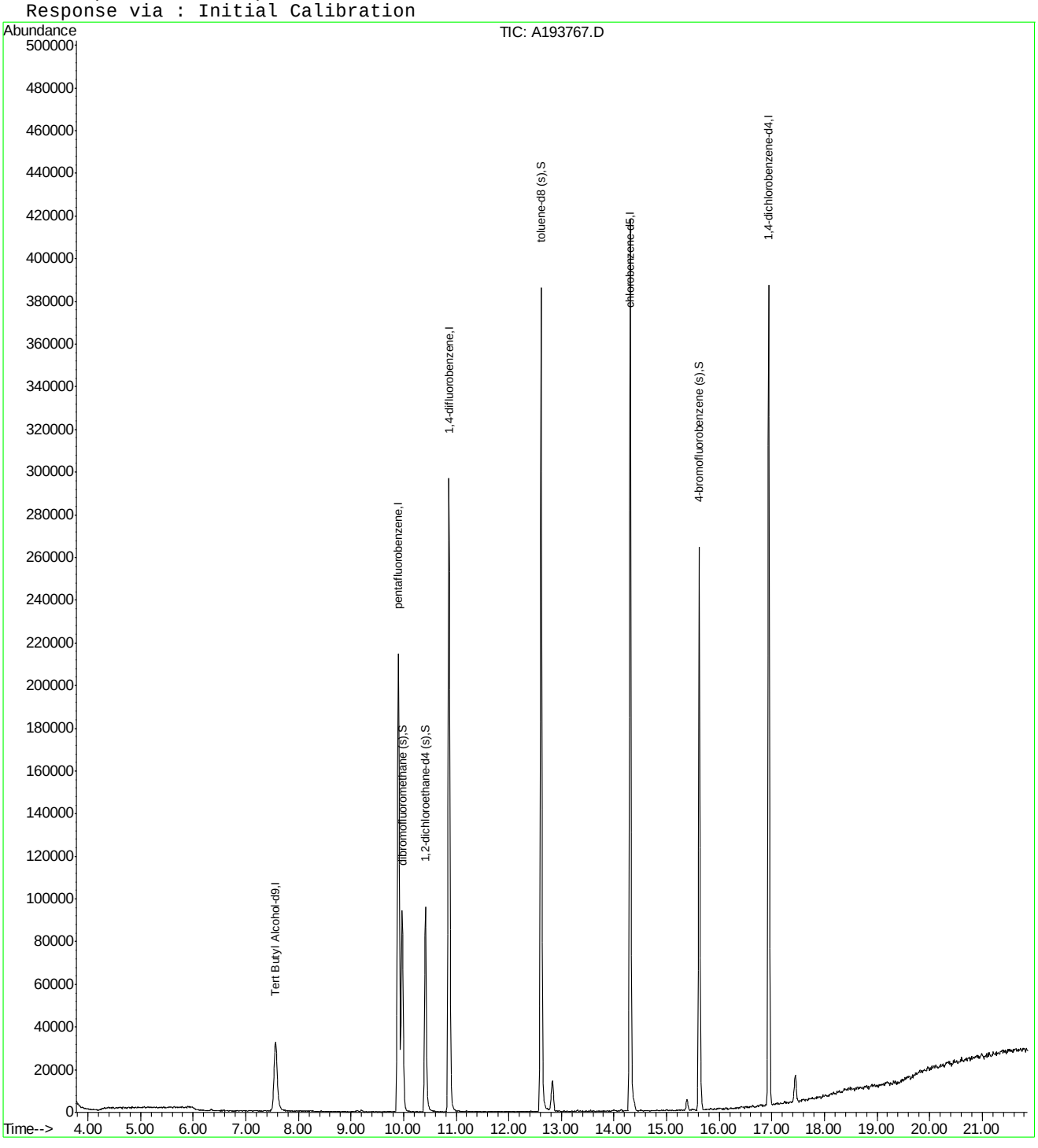
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
A193767.D MA7282.M Thu Apr 25 15:32:59 2013 MSA

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A193767.D Vial: 100
Acq On : 18 Apr 2013 1:42 pm Operator: Oksanat
Sample : mb Inst : MSA
Misc : MS46273,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 9:05 2013 Quant Results File: MA7282.RES

Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration



Quantitation Report (QT/LSC Reviewed)

Data File : C:\HPCHEM\1\DATA\A193790.D Vial: 100
Acq On : 19 Apr 2013 2:27 am Operator: Oksanat
Sample : mb2 Inst : MSA
Misc : MS46397,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 11:05 2013 Quant Results File: MA7282.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration
DataAcq Meth : MA7282

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.58	65	80802	500.00	ug/L	-0.02
5) pentafluorobenzene	9.92	168	213924	50.00	ug/L	0.00
54) 1,4-difluorobenzene	10.88	114	320346	50.00	ug/L	0.00
85) chlorobenzene-d5	14.32	117	293597	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	16.95	152	130543	50.00	ug/L	0.00

System Monitoring Compounds

47) dibromofluoromethane (s)	9.99	113	78380	46.13	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 92.26%			
48) 1,2-dichloroethane-d4 (s)	10.43	65	88692	46.43	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 92.86%			
77) toluene-d8 (s)	12.63	98	332515	50.94	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 101.88%			
102) 4-bromofluorobenzene (s)	15.63	95	119463	55.04	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 110.08%			

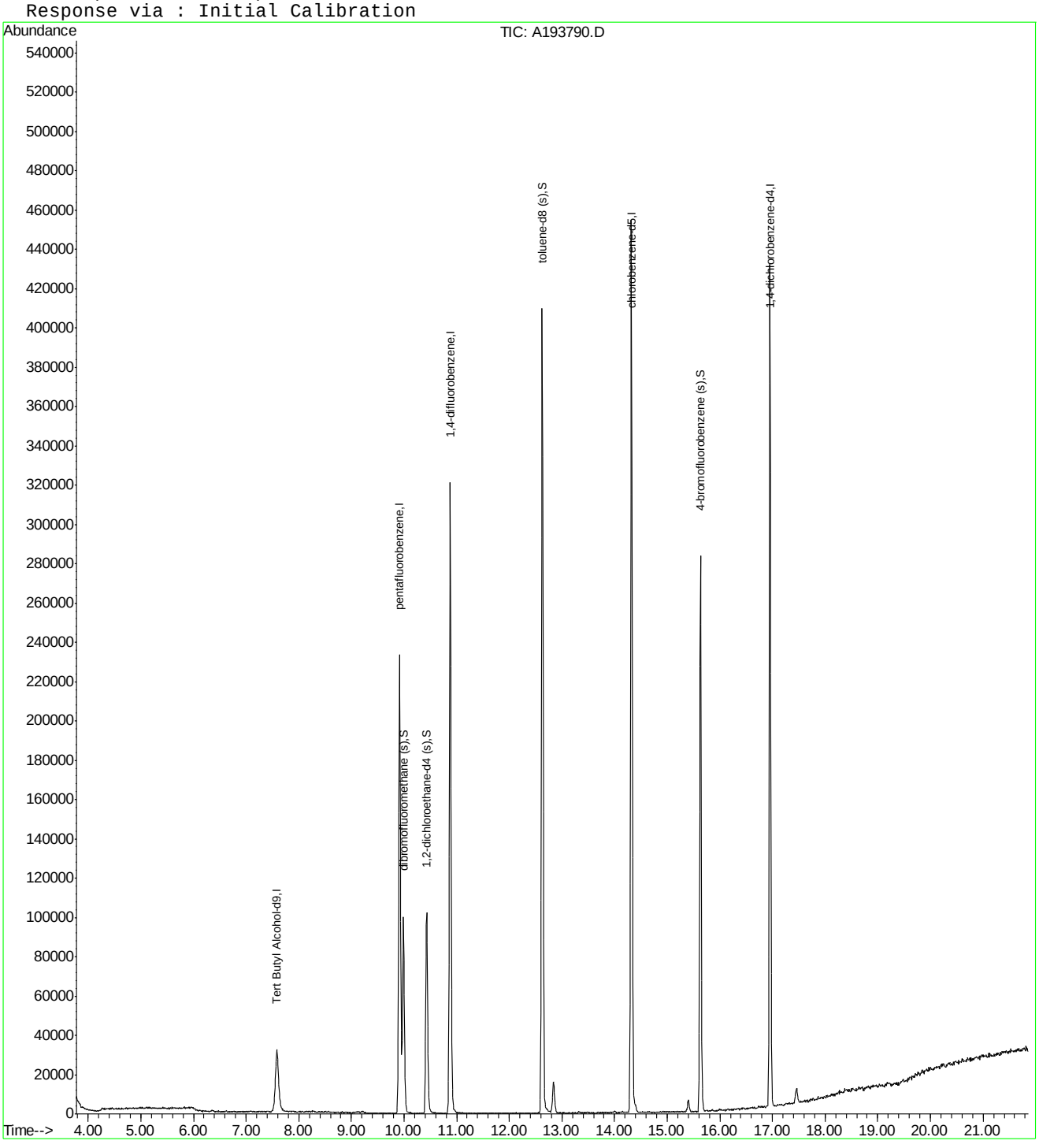
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
A193790.D MA7282.M Thu Apr 25 15:37:39 2013 MSA

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A193790.D Vial: 100
Acq On : 19 Apr 2013 2:27 am Operator: Oksanat
Sample : mb2 Inst : MSA
Misc : MS46397,VA7306,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 11:05 2013 Quant Results File: MA7282.RES

Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration



A193790.D MA7282.M Thu Apr 25 15:37:40 2013 MSA Page 2

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A193802.D Vial: 100
Acq On : 19 Apr 2013 10:12 am Operator: Oksanat
Sample : MB Inst : MSA
Misc : MS46209,VA7307,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 11:27 2013 Quant Results File: MA7282.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration
DataAcq Meth : MA7282

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.58	65	72663	500.00	ug/L	-0.02
5) pentafluorobenzene	9.92	168	214107	50.00	ug/L	0.00
54) 1,4-difluorobenzene	10.88	114	320324	50.00	ug/L	0.00
85) chlorobenzene-d5	14.32	117	288030	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	16.95	152	121306	50.00	ug/L	0.00

System Monitoring Compounds

47) dibromofluoromethane (s)	9.99	113	78676	46.26	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 92.52%			
48) 1,2-dichloroethane-d4 (s)	10.43	65	86687	45.34	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 90.68%			
77) toluene-d8 (s)	12.63	98	327858	50.23	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 100.46%			
102) 4-bromofluorobenzene (s)	15.64	95	114630	56.83	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 113.66%			

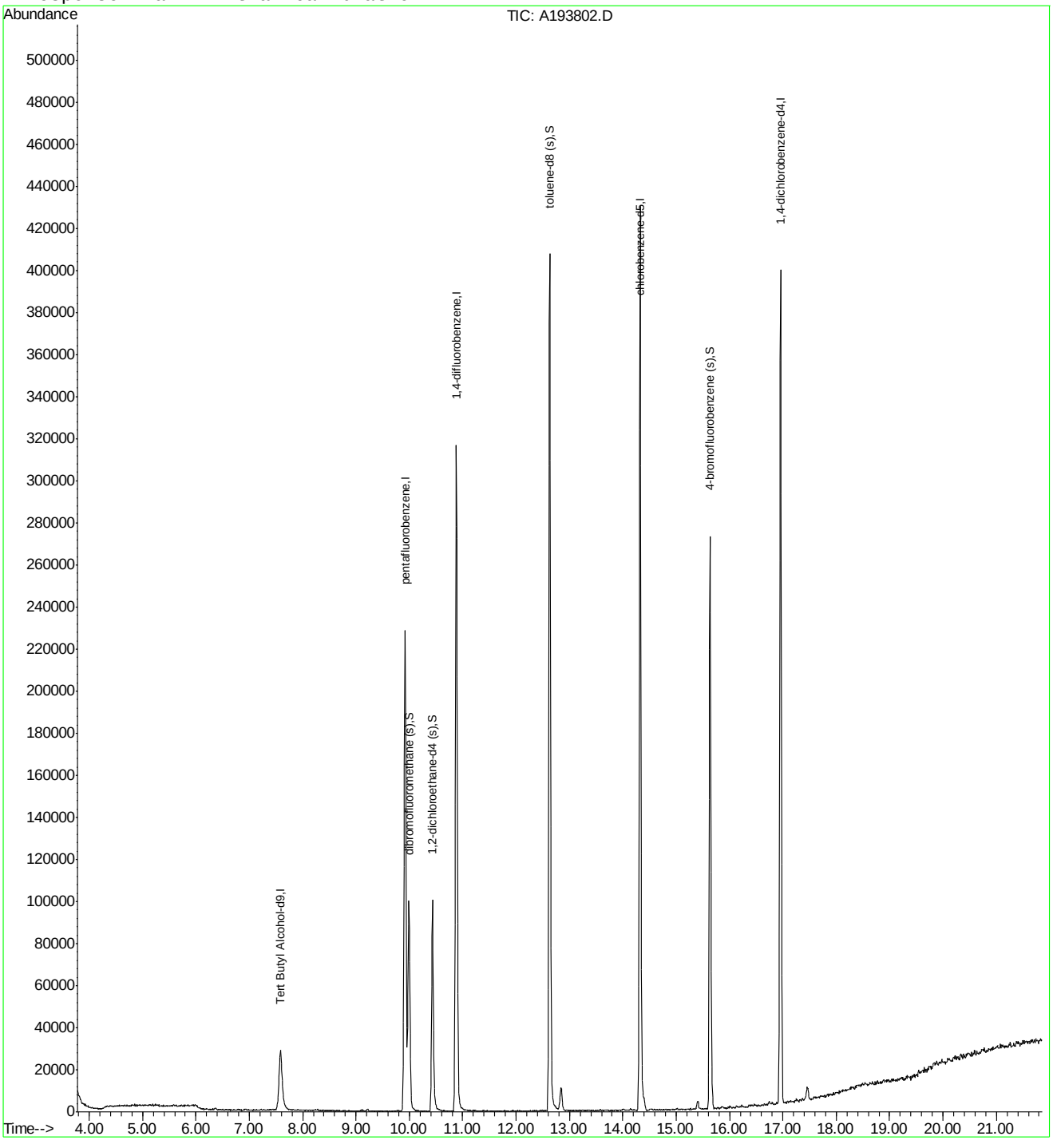
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
A193802.D MA7282.M Fri Apr 19 11:27:43 2013 MSA Page 1

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A193802.D Vial: 100
Acq On : 19 Apr 2013 10:12 am Operator: Oksanat
Sample : MB Inst : MSA
Misc : MS46209,VA7307,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 19 11:27 2013 Quant Results File: MA7282.RES

Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration



A193802.D MA7282.M Fri Apr 19 11:27:44 2013 MSA Page 2

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A193845.D Vial: 4
Acq On : 20 Apr 2013 9:52 am Operator: Oksanat
Sample : mb Inst : MSA
Misc : MS46804,VA7309,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 22 13:13 2013 Quant Results File: MA7282.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration
DataAcq Meth : MA7282

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.58	65	79926	500.00	ug/L	-0.02
5) pentafluorobenzene	9.92	168	235968	50.00	ug/L	0.00
54) 1,4-difluorobenzene	10.88	114	351263	50.00	ug/L	0.00
85) chlorobenzene-d5	14.32	117	315622	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	16.96	152	134550	50.00	ug/L	0.00

System Monitoring Compounds

47) dibromofluoromethane (s)	9.99	113	85254	45.49	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 90.98%			
48) 1,2-dichloroethane-d4 (s)	10.43	65	93812	44.53	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 89.06%			
77) toluene-d8 (s)	12.63	98	361333	50.48	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 100.96%			
102) 4-bromofluorobenzene (s)	15.63	95	126892	56.72	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 113.44%			

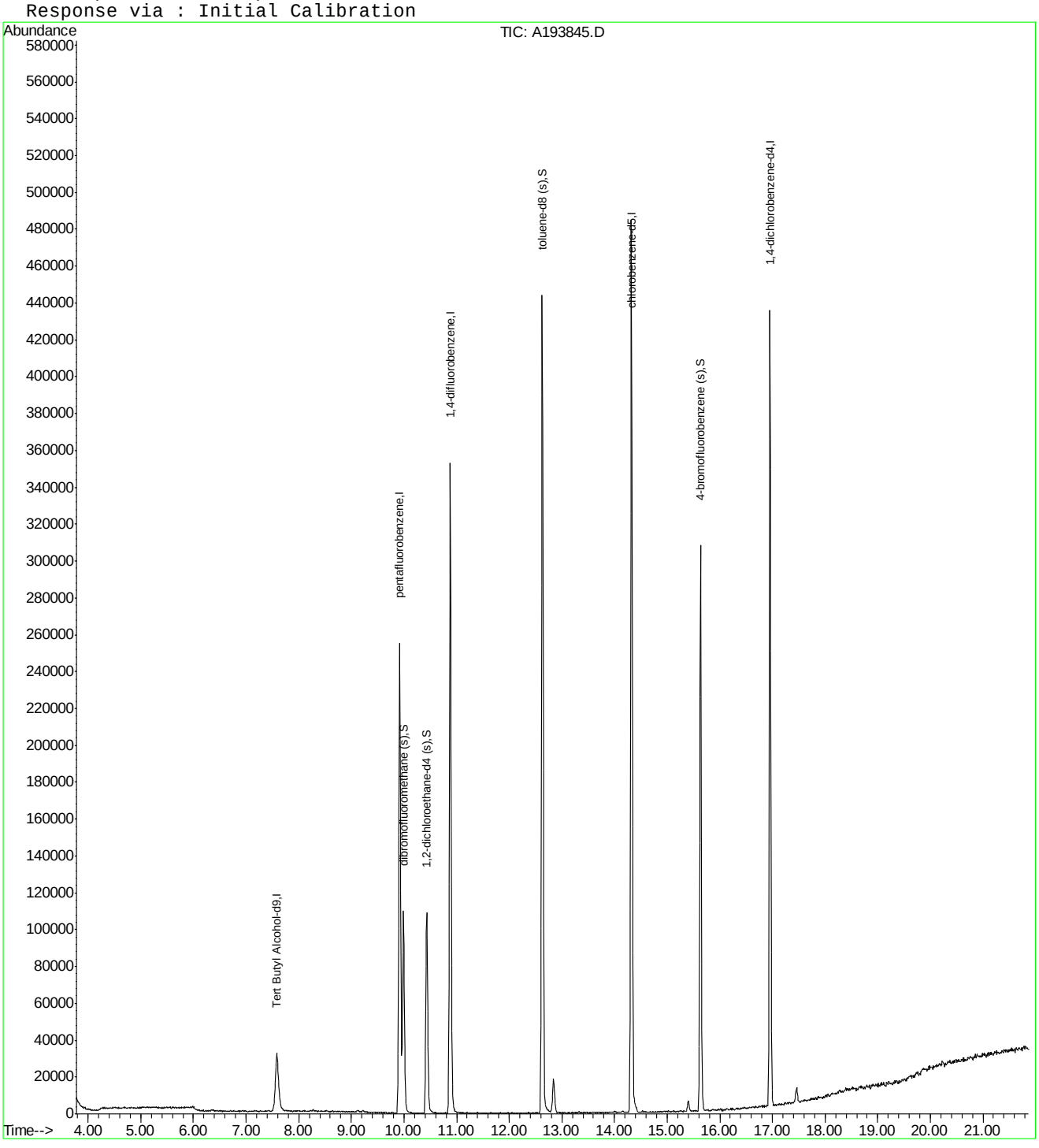
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
A193845.D MA7282.M Mon Apr 22 13:13:52 2013 MSA Page 1

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A193845.D Vial: 4
Acq On : 20 Apr 2013 9:52 am Operator: Oksanat
Sample : mb Inst : MSA
Misc : MS46804,VA7309,w,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 22 13:13 2013 Quant Results File: MA7282.RES

Method : C:\HPCHEM\1\METHODS\MA7282.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Apr 09 08:05:51 2013
Response via : Initial Calibration



Quantitation Report (QT/LSC Reviewed)

Data Path : C:\msdchem\1\DATA\Ucore\VU7923\
Data File : U171094.D
Acq On : 22 Apr 2013 1:18 pm
Operator : margares
Sample : mb
Misc : MS46697,vu7923,5,,,,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Apr 25 17:50:39 2013
Quant Method : C:\MSDCHEM\1\METHODS\MU7811.M
Quant Title : SW-846 8260B, DB624 60m x 250um x 1.40um
QLast Update : Fri Feb 15 11:48:28 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	8.032	65	87641	500.00	ug/L	-0.02
5) pentafluorobenzene	10.255	168	228095	50.00	ug/L	-0.02
64) 1,4-difluorobenzene	11.181	114	313599	50.00	ug/L	-0.02
96) chlorobenzene-d5	14.517	117	298670	50.00	ug/L	-0.02
112) 1,4-dichlorobenzene-d4	17.085	152	167965	50.00	ug/L	-0.02
System Monitoring Compounds						
56) dibromofluoromethane (s)	10.333	113	83636	47.66	ug/L	-0.02
Spiked Amount 50.000	Range 81 - 121		Recovery = 95.32%			
57) 1,2-dichloroethane-d4 (s)	10.757	65	92483	44.70	ug/L	-0.02
Spiked Amount 50.000	Range 74 - 127		Recovery = 89.40%			
88) toluene-d8 (s)	12.875	98	378979	53.15	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 106.30%			
114) 4-bromofluorobenzene (s)	15.793	95	141956	51.61	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 103.22%			

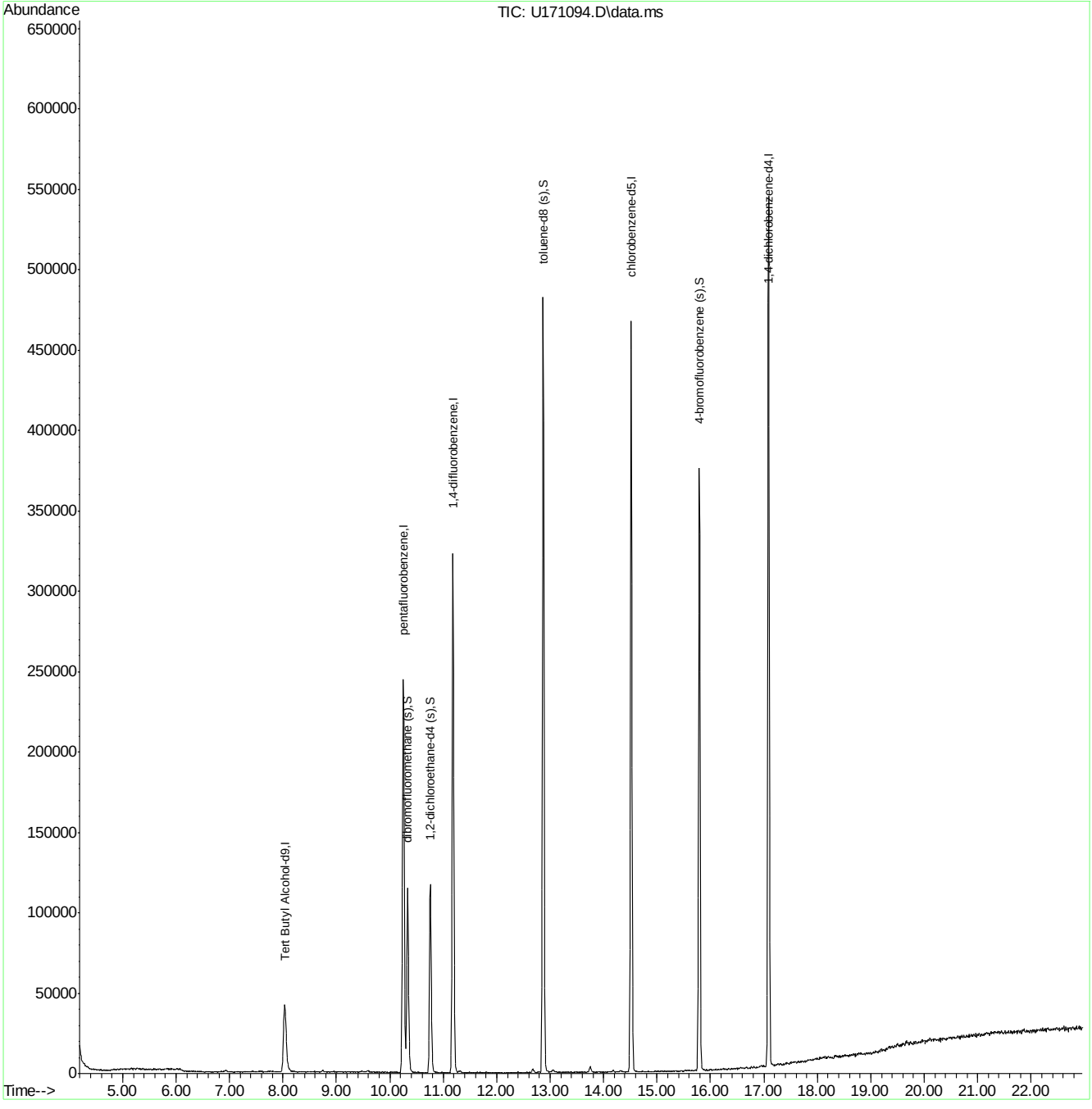
Target Compounds Qvalue

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

Quantitation Report (QT/LSC Reviewed)

Data Path : C:\msdchem\1\DATA\Ucore\VU7923\
Data File : U171094.D
Acq On : 22 Apr 2013 1:18 pm
Operator : margares
Sample : mb
Misc : MS46697,vu7923,5,,,,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Apr 25 17:50:39 2013
Quant Method : C:\MSDCHEM\1\METHODS\MU7811.M
Quant Title : SW-846 8260B, DB624 60m x 250um x 1.40um
QLast Update : Fri Feb 15 11:48:28 2013
Response via : Initial Calibration



New Jersey

ACCUTEST LABORATORIES

GC/MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (DFTPP)
- Internal Standard Area Summaries
- Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries

Method Blank Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP65230-MB1	3M36424.D	1	04/24/13	AD	04/12/13	OP65230	E3M1665

The QC reported here applies to the following samples: **Method:** SW846 8270D BY SIM

JB33644-1, JB33644-2, JB33644-3, JB33644-5, JB33644-6, JB33644-7, JB33644-8, JB33644-9, JB33644-10, JB33644-11, JB33644-12, JB33644-13, JB33644-14, JB33644-15, JB33644-16

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.10	0.012	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.10	0.012	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.010	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.016	ug/l	
218-01-9	Chrysene	ND	0.10	0.012	ug/l	
86-73-7	Fluorene	ND	0.10	0.017	ug/l	
91-20-3	Naphthalene	ND	0.10	0.036	ug/l	
85-01-8	Phenanthrene	ND	0.10	0.021	ug/l	
129-00-0	Pyrene	ND	0.10	0.015	ug/l	

CAS No.	Surrogate Recoveries		Limits
4165-60-0	Nitrobenzene-d5	62%	23-131%
321-60-8	2-Fluorobiphenyl	52%	24-120%
1718-51-0	Terphenyl-d14	60%	10-125%

Method Blank Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP65642A-MB1	3M36829.D	1	05/07/13	NAP	04/29/13	OP65642A	E3M1683

The QC reported here applies to the following samples: **Method:** SW846 8270D BY SIM

JB33644-7, JB33644-10, JB33644-15

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.10	0.012	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.10	0.012	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.010	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.016	ug/l	
218-01-9	Chrysene	ND	0.10	0.012	ug/l	
86-73-7	Fluorene	ND	0.10	0.017	ug/l	
91-20-3	Naphthalene	ND	0.10	0.036	ug/l	
85-01-8	Phenanthrene	ND	0.10	0.021	ug/l	
129-00-0	Pyrene	ND	0.10	0.015	ug/l	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	32%	10-110%
4165-62-2	Phenol-d5	28%	10-110%
118-79-6	2,4,6-Tribromophenol	62%	10-157%
4165-60-0	Nitrobenzene-d5	54%	23-131%
321-60-8	2-Fluorobiphenyl	42%	24-120%
1718-51-0	Terphenyl-d14	61%	10-125%

Method Blank Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP65642A-MB1	4P316.D	1	05/08/13	AD	04/29/13	OP65642A	E4P16

The QC reported here applies to the following samples: **Method:** SW846 8270D BY SIM

JB33644-7, JB33644-10, JB33644-15

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.10	0.012	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.10	0.012	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.010	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.016	ug/l	
218-01-9	Chrysene	ND	0.10	0.012	ug/l	
86-73-7	Fluorene	ND	0.10	0.017	ug/l	
91-20-3	Naphthalene	ND	0.10	0.036	ug/l	
85-01-8	Phenanthrene	ND	0.10	0.021	ug/l	
129-00-0	Pyrene	ND	0.10	0.015	ug/l	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	44%	10-110%
4165-62-2	Phenol-d5	39%	10-110%
118-79-6	2,4,6-Tribromophenol	90%	10-157%
4165-60-0	Nitrobenzene-d5	64%	23-131%
321-60-8	2-Fluorobiphenyl	54%	24-120%
1718-51-0	Terphenyl-d14	78%	10-125%

Blank Spike Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP65230-BS1	3M36425.D	1	04/24/13	AD	04/12/13	OP65230	E3M1665

The QC reported here applies to the following samples: **Method:** SW846 8270D BY SIM

JB33644-1, JB33644-2, JB33644-3, JB33644-5, JB33644-6, JB33644-7, JB33644-8, JB33644-9, JB33644-10, JB33644-11, JB33644-12, JB33644-13, JB33644-14, JB33644-15, JB33644-16

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
120-12-7	Anthracene	1	0.957	96	48-136
56-55-3	Benzo(a)anthracene	1	0.990	99	33-136
50-32-8	Benzo(a)pyrene	1	0.812	81	44-123
205-99-2	Benzo(b)fluoranthene	1	0.999	100	32-146
191-24-2	Benzo(g,h,i)perylene	1	0.850	85	47-129
218-01-9	Chrysene	1	0.802	80	43-143
86-73-7	Fluorene	1	0.900	90	49-125
91-20-3	Naphthalene	1	0.778	78	36-128
85-01-8	Phenanthrene	1	0.872	87	41-129
129-00-0	Pyrene	1	0.912	91	47-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	74%	23-131%
321-60-8	2-Fluorobiphenyl	56%	24-120%
1718-51-0	Terphenyl-d14	65%	10-125%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP65642A-BS12	4P317.D	1	05/09/13	AD	04/29/13	OP65642A	E4P16

The QC reported here applies to the following samples: **Method:** SW846 8270D BY SIM

JB33644-7, JB33644-10, JB33644-15

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
120-12-7	Anthracene	1	1.02	102	48-136
56-55-3	Benzo(a)anthracene	1	1.12	112	33-136
50-32-8	Benzo(a)pyrene	1	1.06	106	44-123
205-99-2	Benzo(b)fluoranthene	1	1.09	109	32-146
191-24-2	Benzo(g,h,i)perylene	1	1.11	111	47-129
218-01-9	Chrysene	1	1.05	105	43-143
86-73-7	Fluorene	1	1.06	106	49-125
91-20-3	Naphthalene	1	0.856	86	36-128
85-01-8	Phenanthrene	1	1.02	102	41-129
129-00-0	Pyrene	1	1.00	100	47-130

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	49%	10-110%
4165-62-2	Phenol-d5	39%	10-110%
118-79-6	2,4,6-Tribromophenol	85%	10-157%
4165-60-0	Nitrobenzene-d5	69%	23-131%
321-60-8	2-Fluorobiphenyl	65%	24-120%
1718-51-0	Terphenyl-d14	74%	10-125%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP65230-MS	3M36426.D	1	04/24/13	AD	04/12/13	OP65230	E3M1665
OP65230-MSD	3M36427.D	1	04/24/13	AD	04/12/13	OP65230	E3M1665
JB33644-1	3M36428.D	1	04/24/13	AD	04/12/13	OP65230	E3M1665

The QC reported here applies to the following samples: **Method:** SW846 8270D BY SIM

JB33644-1, JB33644-2, JB33644-3, JB33644-5, JB33644-6, JB33644-7, JB33644-8, JB33644-9, JB33644-10, JB33644-11, JB33644-12, JB33644-13, JB33644-14, JB33644-15, JB33644-16

CAS No.	Compound	JB33644-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
120-12-7	Anthracene	0.738		2	1.74	50*	1.57	42*	10	55-121/21
56-55-3	Benzo(a)anthracene	ND		2	1.13	57	1.03	52	9	51-120/20
50-32-8	Benzo(a)pyrene	ND		2	0.686	34*	0.649	32*	6	45-128/20
205-99-2	Benzo(b)fluoranthene	ND		2	0.829	41	0.762	38	8	38-137/28
191-24-2	Benzo(g,h,i)perylene	ND		2	0.546	27*	0.545	27*	0	34-138/23
218-01-9	Chrysene	ND		2	0.892	45*	0.822	41*	8	50-123/21
86-73-7	Fluorene	3.16		2	3.57	21*	3.14	-1*	13	53-122/22
91-20-3	Naphthalene	ND		2	1.12	56	0.988	49	13	36-119/21
85-01-8	Phenanthrene	0.873		2	1.78	45*	1.60	36*	11	49-126/20
129-00-0	Pyrene	0.177		2	1.26	54	1.15	49*	9	52-122/22

CAS No.	Surrogate Recoveries	MS	MSD	JB33644-1	Limits
4165-60-0	Nitrobenzene-d5	54%	47%	55%	23-131%
321-60-8	2-Fluorobiphenyl	41%	36%	50%	24-120%
1718-51-0	Terphenyl-d14	31%	30%	43%	10-125%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP65642A-MS	4P318.D	1	05/09/13	AD	04/29/13	OP65642A	E4P16
OP65642A-MSD	4P319.D	1	05/09/13	AD	04/29/13	OP65642A	E4P16
JB35436-2	4P321.D	1	05/09/13	AD	04/29/13	OP65642A	E4P16

The QC reported here applies to the following samples: **Method:** SW846 8270D BY SIM

JB33644-7, JB33644-10, JB33644-15

CAS No.	Compound	JB35436-2 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
120-12-7	Anthracene	ND		2	2.40	120	2.72	136* [a]	13	55-121/21
56-55-3	Benzo(a)anthracene	0.148		2	2.76	131* [a]	2.96	141* [a]	7	51-120/20
50-32-8	Benzo(a)pyrene	0.0299	J	2	2.24	111	2.34	116	4	45-128/20
205-99-2	Benzo(b)fluoranthene	0.0462	J	2	2.67	131	2.59	127	3	38-137/28
191-24-2	Benzo(g,h,i)perylene	0.0401	J	2	2.40	118	2.48	122	3	34-138/23
218-01-9	Chrysene	0.0349	J	2	2.42	119	2.48	122	2	50-123/21
86-73-7	Fluorene	ND		2	2.40	120	2.52	126* [a]	5	53-122/22
91-20-3	Naphthalene	0.328		2	2.02	85	2.11	89	4	36-119/21
85-01-8	Phenanthrene	ND		2	2.48	124	2.64	132* [a]	6	49-126/20
129-00-0	Pyrene	ND		2	2.42	121	2.57	129* [a]	6	52-122/22

CAS No.	Surrogate Recoveries	MS	MSD	JB35436-2	Limits
367-12-4	2-Fluorophenol	59%	63%		10-110%
4165-62-2	Phenol-d5	59%	62%		10-110%
118-79-6	2,4,6-Tribromophenol	100%	101%		10-157%
4165-60-0	Nitrobenzene-d5	61%	65%	71%	23-131%
321-60-8	2-Fluorobiphenyl	63%	65%	69%	24-120%
1718-51-0	Terphenyl-d14	81%	87%	80%	10-125%

(a) Outside control limits due to matrix interference.

* = Outside of Control Limits.

Instrument Performance Check (DFTPP)

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: E3M1644-DFTPP
Lab File ID: 3M35922.D
Instrument ID: GCMS3M
Injection Date: 04/11/13
Injection Time: 08:41

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	30864	36.7		Pass
68	Less than 2.0% of mass 69	498	0.59	(1.40) [a]	Pass
69	Mass 69 relative abundance	35464	42.1		Pass
70	Less than 2.0% of mass 69	89	0.11	(0.25) [a]	Pass
127	40.0 - 60.0% of mass 198	41205	49.0		Pass
197	Less than 1.0% of mass 198	326	0.39		Pass
198	Base peak, 100% relative abundance	84141	100.0		Pass
199	5.0 - 9.0% of mass 198	5692	6.76		Pass
275	10.0 - 30.0% of mass 198	19049	22.6		Pass
365	1.0 - 100.0% of mass 198	2474	2.94		Pass
441	Present, but less than mass 443	7846	9.32	(76.9) [b]	Pass
442	40.0 - 100.0% of mass 198	51632	61.4		Pass
443	17.0 - 23.0% of mass 442	10203	12.1	(19.8) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3M1644-ICC1644	3M35924.D	04/11/13	09:57	01:16	Initial cal 1.0
E3M1644-IC1644	3M35925.D	04/11/13	14:36	05:55	Initial cal .5
E3M1644-IC1644	3M35926.D	04/11/13	15:08	06:27	Initial cal .2
E3M1644-IC1644	3M35927.D	04/11/13	15:39	06:58	Initial cal .1
E3M1644-IC1644	3M35928.D	04/11/13	16:10	07:29	Initial cal .05
E3M1644-IC1644	3M35929.D	04/11/13	16:41	08:00	Initial cal .02
E3M1644-IC1644	3M35930.D	04/11/13	17:12	08:31	Initial cal .01
E3M1644-IC1644	3M35931.D	04/11/13	17:43	09:02	Initial cal 5
E3M1644-IC1644	3M35932.D	04/11/13	18:14	09:33	Initial cal 2.5
E3M1644-ICV1644	3M35933.D	04/11/13	18:45	10:04	Initial cal verification 1
E3M1644-ICV1644	3M35934.D	04/11/13	19:16	10:35	Initial cal verification 1

Instrument Performance Check (DFTPP)

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: E3M1665-DFTPP
Lab File ID: 3M36422.D
Instrument ID: GCMS3M
Injection Date: 04/24/13
Injection Time: 15:12

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	28853	36.6		Pass
68	Less than 2.0% of mass 69	449	0.57	(1.32) [a]	Pass
69	Mass 69 relative abundance	34078	43.2		Pass
70	Less than 2.0% of mass 69	206	0.26	(0.60) [a]	Pass
127	40.0 - 60.0% of mass 198	38714	49.0		Pass
197	Less than 1.0% of mass 198	306	0.39		Pass
198	Base peak, 100% relative abundance	78939	100.0		Pass
199	5.0 - 9.0% of mass 198	5497	6.96		Pass
275	10.0 - 30.0% of mass 198	19358	24.5		Pass
365	1.0 - 100.0% of mass 198	2682	3.40		Pass
441	Present, but less than mass 443	8964	11.4	(75.4) [b]	Pass
442	40.0 - 100.0% of mass 198	59269	75.1		Pass
443	17.0 - 23.0% of mass 442	11886	15.1	(20.1) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3M1665-CC1644	3M36423.D	04/24/13	15:25	00:13	Continuing cal 1.0
OP65230-MB1	3M36424.D	04/24/13	16:05	00:53	Method Blank
OP65230-BS1	3M36425.D	04/24/13	16:37	01:25	Blank Spike
OP65230-MS	3M36426.D	04/24/13	17:08	01:56	Matrix Spike
OP65230-MSD	3M36427.D	04/24/13	17:40	02:28	Matrix Spike Duplicate
JB33644-1	3M36428.D	04/24/13	18:12	03:00	N-64
JB33644-2	3M36429.D	04/24/13	18:44	03:32	N-98
JB33644-3	3M36430.D	04/24/13	19:16	04:04	FIELD BALNK-FB
JB33644-5	3M36431.D	04/24/13	19:47	04:35	S-40
JB33644-6	3M36432.D	04/24/13	20:19	05:07	A-133
JB33644-7	3M36433.D	04/24/13	20:51	05:39	WP-14
JB33644-8	3M36434.D	04/24/13	21:22	06:10	A-137
JB33644-9	3M36435.D	04/24/13	21:54	06:42	A-140
JB33644-10	3M36436.D	04/24/13	22:26	07:14	A-138

Instrument Performance Check (DFTPP)

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: E3M1666-DFTPP
Lab File ID: 3M36443.D
Instrument ID: GCMS3M
Injection Date: 04/24/13
Injection Time: 23:04

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	33319	37.8		Pass
68	Less than 2.0% of mass 69	647	0.73	(1.71) [a]	Pass
69	Mass 69 relative abundance	37927	43.1		Pass
70	Less than 2.0% of mass 69	143	0.16	(0.38) [a]	Pass
127	40.0 - 60.0% of mass 198	44149	50.1		Pass
197	Less than 1.0% of mass 198	498	0.57		Pass
198	Base peak, 100% relative abundance	88077	100.0		Pass
199	5.0 - 9.0% of mass 198	6310	7.16		Pass
275	10.0 - 30.0% of mass 198	21084	23.9		Pass
365	1.0 - 100.0% of mass 198	2983	3.39		Pass
441	Present, but less than mass 443	9313	10.6	(76.8) [b]	Pass
442	40.0 - 100.0% of mass 198	64040	72.7		Pass
443	17.0 - 23.0% of mass 442	12129	13.8	(18.9) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3M1666-CC1644	3M36444.D	04/24/13	23:18	00:14	Continuing cal 0.5
OP65287A-MB1	3M36445.D	04/24/13	23:50	00:46	Method Blank
JB33864-2	3M36446.D	04/25/13	00:21	01:17	(used for QC only; not part of job JB33644)
ZZZZZZ	3M36447.D	04/25/13	00:53	01:49	(unrelated sample)
ZZZZZZ	3M36448.D	04/25/13	01:24	02:20	(unrelated sample)
OP65256A-MB1	3M36450.D	04/25/13	02:27	03:23	Method Blank
OP65256A-BS12	3M36451.D	04/25/13	02:58	03:54	Blank Spike
OP65256A-MS	3M36452.D	04/25/13	03:29	04:25	Matrix Spike
OP65256A-MSD	3M36453.D	04/25/13	04:00	04:56	Matrix Spike Duplicate
ZZZZZZ	3M36454.D	04/25/13	04:32	05:28	(unrelated sample)
ZZZZZZ	3M36455.D	04/25/13	05:03	05:59	(unrelated sample)
JB33992-1	3M36456.D	04/25/13	05:34	06:30	(used for QC only; not part of job JB33644)
ZZZZZZ	3M36457.D	04/25/13	06:05	07:01	(unrelated sample)
ZZZZZZ	3M36458.D	04/25/13	06:37	07:33	(unrelated sample)
JB33644-11	3M36459.D	04/25/13	07:08	08:04	C-104
JB33644-12	3M36460.D	04/25/13	07:39	08:35	C-127
JB33644-13	3M36461.D	04/25/13	08:10	09:06	C-129
JB33644-14	3M36462.D	04/25/13	08:42	09:38	B-158

Instrument Performance Check (DFTPP)

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: E3M1667-DFTPP
Lab File ID: 3M36467.D
Instrument ID: GCMS3M
Injection Date: 04/25/13
Injection Time: 11:41

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	36656	39.9		Pass
68	Less than 2.0% of mass 69	620	0.68	(1.48) [a]	Pass
69	Mass 69 relative abundance	41775	45.5		Pass
70	Less than 2.0% of mass 69	345	0.38	(0.83) [a]	Pass
127	40.0 - 60.0% of mass 198	46557	50.7		Pass
197	Less than 1.0% of mass 198	459	0.50		Pass
198	Base peak, 100% relative abundance	91848	100.0		Pass
199	5.0 - 9.0% of mass 198	6165	6.71		Pass
275	10.0 - 30.0% of mass 198	20664	22.5		Pass
365	1.0 - 100.0% of mass 198	2581	2.81		Pass
441	Present, but less than mass 443	8802	9.58	(77.8) [b]	Pass
442	40.0 - 100.0% of mass 198	56513	61.5		Pass
443	17.0 - 23.0% of mass 442	11314	12.3	(20.0) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3M1667-CC1644	3M36468.D	04/25/13	11:59	00:18	Continuing cal 1.0
JB33644-15	3M36469.D	04/25/13	12:31	00:50	PGW-MW-8S
JB33644-16	3M36470.D	04/25/13	13:02	01:21	B-131
ZZZZZZ	3M36471.D	04/25/13	13:34	01:53	(unrelated sample)
ZZZZZZ	3M36472.D	04/25/13	14:05	02:24	(unrelated sample)
ZZZZZZ	3M36473.D	04/25/13	14:36	02:55	(unrelated sample)
ZZZZZZ	3M36477.D	04/25/13	15:40	03:59	(unrelated sample)
ZZZZZZ	3M36478.D	04/25/13	16:12	04:31	(unrelated sample)
ZZZZZZ	3M36479.D	04/25/13	16:43	05:02	(unrelated sample)
ZZZZZZ	3M36480.D	04/25/13	17:15	05:34	(unrelated sample)
ZZZZZZ	3M36482.D	04/25/13	18:18	06:37	(unrelated sample)
ZZZZZZ	3M36483.D	04/25/13	18:50	07:09	(unrelated sample)
OP65404A-MB1	3M36484.D	04/25/13	19:22	07:41	Method Blank
OP65404A-LB21	3M36487.D	04/25/13	20:57	09:16	Leachate Blank
ZZZZZZ	3M36488.D	04/25/13	21:29	09:48	(unrelated sample)
ZZZZZZ	3M36489.D	04/25/13	22:00	10:19	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: E3M1682-DFTPP
Lab File ID: 3M36814.D
Instrument ID: GCMS3M
Injection Date: 05/06/13
Injection Time: 16:36

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	15312	39.5		Pass
68	Less than 2.0% of mass 69	220	0.57	(1.30) [a]	Pass
69	Mass 69 relative abundance	16903	43.7		Pass
70	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
127	40.0 - 60.0% of mass 198	19784	51.1		Pass
197	Less than 1.0% of mass 198	115	0.30		Pass
198	Base peak, 100% relative abundance	38717	100.0		Pass
199	5.0 - 9.0% of mass 198	2838	7.33		Pass
275	10.0 - 30.0% of mass 198	9585	24.8		Pass
365	1.0 - 100.0% of mass 198	1651	4.26		Pass
441	Present, but less than mass 443	4418	11.4	(72.9) [b]	Pass
442	40.0 - 100.0% of mass 198	30064	77.7		Pass
443	17.0 - 23.0% of mass 442	6057	15.6	(20.1) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3M1682-ICC1682	3M36815.D	05/06/13	16:50	00:14	Initial cal 1.0
E3M1682-IC1682	3M36816.D	05/06/13	17:22	00:46	Initial cal 0.5
E3M1682-IC1682	3M36817.D	05/06/13	17:54	01:18	Initial cal 0.2
E3M1682-IC1682	3M36818.D	05/06/13	18:26	01:50	Initial cal 0.1
E3M1682-IC1682	3M36819.D	05/06/13	18:58	02:22	Initial cal 0.05
E3M1682-IC1682	3M36820.D	05/06/13	19:30	02:54	Initial cal 0.02
E3M1682-IC1682	3M36821.D	05/06/13	20:02	03:26	Initial cal 0.01
E3M1682-IC1682	3M36822.D	05/06/13	20:34	03:58	Initial cal 5
E3M1682-IC1682	3M36823.D	05/06/13	21:06	04:30	Initial cal 2.5
E3M1682-ICV1682	3M36824.D	05/06/13	21:37	05:01	Initial cal verification 1

Instrument Performance Check (DFTPP)

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: E3M1683-DFTPP
Lab File ID: 3M36826.D
Instrument ID: GCMS3M
Injection Date: 05/07/13
Injection Time: 07:54

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	13542	49.2		Pass
68	Less than 2.0% of mass 69	171	0.62	(1.16) [a]	Pass
69	Mass 69 relative abundance	14723	53.5		Pass
70	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
127	40.0 - 60.0% of mass 198	15892	57.7		Pass
197	Less than 1.0% of mass 198	91	0.33		Pass
198	Base peak, 100% relative abundance	27531	100.0		Pass
199	5.0 - 9.0% of mass 198	1938	7.04		Pass
275	10.0 - 30.0% of mass 198	6394	23.2		Pass
365	1.0 - 100.0% of mass 198	1071	3.89		Pass
441	Present, but less than mass 443	2522	9.16	(80.2) [b]	Pass
442	40.0 - 100.0% of mass 198	15853	57.6		Pass
443	17.0 - 23.0% of mass 442	3144	11.4	(19.8) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3M1683-CC1682	3M36828.D	05/07/13	08:45	00:51	Continuing cal 0.5
OP65642A-MB1	3M36829.D	05/07/13	09:16	01:22	Method Blank
OP65317A-MB1	3M36830.D	05/07/13	09:48	01:54	Method Blank
ZZZZZZ	3M36831.D	05/07/13	10:20	02:26	(unrelated sample)
ZZZZZZ	3M36832.D	05/07/13	10:52	02:58	(unrelated sample)
JB34067-1	3M36833.D	05/07/13	11:24	03:30	(used for QC only; not part of job JB33644)
ZZZZZZ	3M36834.D	05/07/13	11:55	04:01	(unrelated sample)
ZZZZZZ	3M36835.D	05/07/13	12:27	04:33	(unrelated sample)
ZZZZZZ	3M36836.D	05/07/13	12:59	05:05	(unrelated sample)
OP65145-BS12	3M36848.D	05/07/13	14:34	06:40	Blank Spike
OP65186-BS12	3M36849.D	05/07/13	15:06	07:12	Blank Spike
ZZZZZZ	3M36839.D	05/07/13	15:38	07:44	(unrelated sample)
JB33644-7	3M36842.D	05/07/13	17:13	09:19	WP-14
JB33644-15	3M36843.D	05/07/13	17:45	09:51	PGW-MW-8S
JB33644-10	3M36844.D	05/07/13	18:17	10:23	A-138
ZZZZZZ	3M36845.D	05/07/13	18:49	10:55	(unrelated sample)
ZZZZZZ	3M36847.D	05/07/13	19:53	11:59	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: E4P10-DFTPP
Lab File ID: 4P178.D
Instrument ID: GCMS4P
Injection Date: 05/05/13
Injection Time: 19:35

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	37805	45.4		Pass
68	Less than 2.0% of mass 69	393	0.47	(1.04) [a]	Pass
69	Mass 69 relative abundance	37725	45.3		Pass
70	Less than 2.0% of mass 69	148	0.18	(0.39) [a]	Pass
127	40.0 - 60.0% of mass 198	48290	58.0		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	83194	100.0		Pass
199	5.0 - 9.0% of mass 198	5539	6.66		Pass
275	10.0 - 30.0% of mass 198	19302	23.2		Pass
365	1.0 - 100.0% of mass 198	2596	3.12		Pass
441	Present, but less than mass 443	10995	13.2	(76.1) [b]	Pass
442	40.0 - 100.0% of mass 198	74368	89.4		Pass
443	17.0 - 23.0% of mass 442	14443	17.4	(19.4) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E4P10-ICC10	4P181.D	05/05/13	20:53	01:18	Initial cal 0.5
E4P10-IC10	4P182.D	05/05/13	21:24	01:49	Initial cal 1
E4P10-IC10	4P183.D	05/05/13	21:56	02:21	Initial cal .2
E4P10-IC10	4P184.D	05/05/13	22:27	02:52	Initial cal .1
E4P10-IC10	4P185.D	05/05/13	22:59	03:24	Initial cal .05
E4P10-IC10	4P186.D	05/05/13	23:30	03:55	Initial cal .02
E4P10-IC10	4P187.D	05/06/13	00:01	04:26	Initial cal .01
E4P10-IC10	4P188.D	05/06/13	00:32	04:57	Initial cal 5
E4P10-IC10	4P189.D	05/06/13	01:03	05:28	Initial cal 2.5
E4P10-ICV10	4P190.D	05/06/13	01:35	06:00	Initial cal verification 1
E4P10-ICV10	4P191.D	05/06/13	02:06	06:31	Initial cal verification 1

Instrument Performance Check (DFTPP)

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: E4P16-DFTPP
Lab File ID: 4P314.D
Instrument ID: GCMS4P
Injection Date: 05/08/13
Injection Time: 23:10

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	40382	44.8		Pass
68	Less than 2.0% of mass 69	55	0.06	(0.13) [a]	Pass
69	Mass 69 relative abundance	40782	45.3		Pass
70	Less than 2.0% of mass 69	225	0.25	(0.55) [a]	Pass
127	40.0 - 60.0% of mass 198	51788	57.5		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	90069	100.0		Pass
199	5.0 - 9.0% of mass 198	6158	6.84		Pass
275	10.0 - 30.0% of mass 198	21535	23.9		Pass
365	1.0 - 100.0% of mass 198	2900	3.22		Pass
441	Present, but less than mass 443	13056	14.5	(75.5) [b]	Pass
442	40.0 - 100.0% of mass 198	89765	99.7		Pass
443	17.0 - 23.0% of mass 442	17298	19.2	(19.3) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E4P16-CC10	4P315.D	05/08/13	23:25	00:15	Continuing cal 1.0
OP65642A-MB1	4P316.D	05/08/13	23:56	00:46	Method Blank
OP65642A-BS12	4P317.D	05/09/13	00:27	01:17	Blank Spike
OP65642A-MS	4P318.D	05/09/13	00:58	01:48	Matrix Spike
OP65642A-MSD	4P319.D	05/09/13	01:29	02:19	Matrix Spike Duplicate
JB35436-2	4P321.D	05/09/13	02:31	03:21	(used for QC only; not part of job JB33644)
ZZZZZZ	4P322.D	05/09/13	03:02	03:52	(unrelated sample)
OP65444A-MB2	4P324.D	05/09/13	04:04	04:54	Method Blank
OP65444A-BS22	4P325.D	05/09/13	04:35	05:25	Blank Spike
ZZZZZZ	4P326.D	05/09/13	05:06	05:56	(unrelated sample)
ZZZZZZ	4P327.D	05/09/13	05:37	06:27	(unrelated sample)
OP65317A-MS	4P328.D	05/09/13	06:08	06:58	Matrix Spike
OP65317A-MSD	4P329.D	05/09/13	06:39	07:29	Matrix Spike Duplicate
ZZZZZZ	4P330.D	05/09/13	07:10	08:00	(unrelated sample)
ZZZZZZ	4P331.D	05/09/13	07:41	08:31	(unrelated sample)
OP65346A-MB1	4P332.D	05/09/13	08:12	09:02	Method Blank
OP65346A-LB12	4P333.D	05/09/13	08:43	09:33	Leachate Blank
OP65346A-BS12	4P334.D	05/09/13	09:14	10:04	Blank Spike
OP65346A-BSD12	4P335.D	05/09/13	09:45	10:35	Blank Spike Duplicate

Instrument Performance Check (DFTPP)

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample:	E4P16-DFTPP	**Injection Date:**	05/08/13
Lab File ID:	4P314.D	**Injection Time:**	23:10
Instrument ID:	GCMS4P		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	4P336.D	05/09/13	10:17	11:07	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: ER3950-DFTPP
Lab File ID: R99305.D
Instrument ID: GCMSR
Injection Date: 05/15/13
Injection Time: 15:22

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	513016	53.8		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	398537	41.8		Pass
70	Less than 2.0% of mass 69	2128	0.22	(0.53) [a]	Pass
127	40.0 - 60.0% of mass 198	484947	50.9		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	953009	100.0		Pass
199	5.0 - 9.0% of mass 198	63597	6.67		Pass
275	10.0 - 30.0% of mass 198	250240	26.3		Pass
365	1.0 - 100.0% of mass 198	22316	2.34		Pass
441	Present, but less than mass 443	126104	13.2	(76.3) [b]	Pass
442	40.0 - 100.0% of mass 198	837568	87.9		Pass
443	17.0 - 23.0% of mass 442	165202	17.3	(19.7) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ER3950-ICC3950	R99314.D	05/15/13	16:09	00:47	Initial cal 50
ER3950-IC3950	R99307.D	05/15/13	16:41	01:19	Initial cal 25
ER3950-IC3950	R99308.D	05/15/13	17:12	01:50	Initial cal 100
ER3950-IC3950	R99309.D	05/15/13	17:43	02:21	Initial cal 80
ER3950-IC3950	R99310.D	05/15/13	18:14	02:52	Initial cal 10
ER3950-IC3950	R99311.D	05/15/13	18:46	03:24	Initial cal 5
ER3950-IC3950	R99312.D	05/15/13	19:17	03:55	Initial cal 2
ER3950-IC3950	R99313.D	05/15/13	19:48	04:26	Initial cal 1

Instrument Performance Check (DFTPP)

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: ER3953-DFTPP
Lab File ID: R99360.D
Instrument ID: GCMSR
Injection Date: 05/17/13
Injection Time: 13:40

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	134067	58.3		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	98610	42.9		Pass
70	Less than 2.0% of mass 69	350	0.15	(0.35) [a]	Pass
127	40.0 - 60.0% of mass 198	117955	51.3		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	229846	100.0		Pass
199	5.0 - 9.0% of mass 198	16479	7.17		Pass
275	10.0 - 30.0% of mass 198	54834	23.9		Pass
365	1.0 - 100.0% of mass 198	5242	2.28		Pass
441	Present, but less than mass 443	27047	11.8	(79.8) [b]	Pass
442	40.0 - 100.0% of mass 198	183325	79.8		Pass
443	17.0 - 23.0% of mass 442	33908	14.8	(18.5) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ER3953-CC3950	R99361.D	05/17/13	13:53	00:13	Continuing cal 25
ZZZZZZ	R99362.D	05/17/13	14:23	00:43	(unrelated sample)
ZZZZZZ	R99363.D	05/17/13	14:53	01:13	(unrelated sample)
ZZZZZZ	R99364.D	05/17/13	15:24	01:44	(unrelated sample)
JB33644-15	R99365.D	05/17/13	15:54	02:14	PGW-MW-8S

Semivolatile Internal Standard Area Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Check Std:	E3M1665-CC1644	**Injection Date:**	04/24/13
Lab File ID:	3M36423.D	**Injection Time:**	15:25
Instrument ID:	GCMS3M	**Method:**	SW846 8270D BY SIM

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
Check Std	46158	8.64	75834	11.58	106141	15.77	78680	20.40
Upper Limit [a]	92316	9.14	151668	12.08	212282	16.27	157360	20.90
Lower Limit [b]	23079	8.14	37917	11.08	53071	15.27	39340	19.90

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
OP65230-MB1	29422	8.64	47238	11.58	67646	15.78	49266	20.40
OP65230-BS1	30246	8.64	50717	11.58	71567	15.78	51637	20.40
OP65230-MS	26663	8.64	43707	11.58	62305	15.78	46851	20.40
OP65230-MSD	27326	8.64	44919	11.58	62825	15.78	47266	20.40
JB33644-1	27289	8.64	44966	11.58	60496	15.78	46265	20.40
JB33644-2	28607	8.64	44696	11.58	64696	15.78	48283	20.40
JB33644-3	29615	8.64	46802	11.58	67792	15.78	48749	20.40
JB33644-5	27241	8.64	44854	11.58	63483	15.78	48778	20.40
JB33644-6	28657	8.64	46529	11.58	62748	15.77	45192	20.40
JB33644-7	29849	8.64	49350	11.58	69487	15.77	50929	20.40
JB33644-8	29642	8.64	47878	11.58	66490	15.77	49909	20.39
JB33644-9	33109	8.64	53012	11.58	74408	15.77	54790	20.40
JB33644-10	29115	8.64	48075	11.58	65851	15.77	48672	20.40

IS 1 = 1-Methylnaphthalene-d10
IS 2 = Fluorene-d10
IS 3 = Fluoranthene-d10
IS 4 = Benzo(a)pyrene-d12

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Semivolatile Internal Standard Area Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Check Std:	E3M1666-CC1644	**Injection Date:**	04/24/13
Lab File ID:	3M36444.D	**Injection Time:**	23:18
Instrument ID:	GCMS3M	**Method:**	SW846 8270D BY SIM

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
Check Std	40437	8.64	66568	11.58	94487	15.77	66691	20.39
Upper Limit [a]	80874	9.14	133136	12.08	188974	16.27	133382	20.89
Lower Limit [b]	20219	8.14	33284	11.08	47244	15.27	33346	19.89

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
OP65287A-MB1	34738	8.64	55890	11.58	77385	15.77	55938	20.39
JB33864-2	26947	8.65	41850	11.60	60282	15.80	46437	20.39
ZZZZZZ	39999	8.72	51546	11.63	70603	15.80	50023	20.39
ZZZZZZ	33327	8.64	54041	11.58	79173	15.77	53927	20.39
OP65256A-MB1	30021	8.64	48482	11.58	70539	15.77	48641	20.39
OP65256A-BS12	29049	8.64	47736	11.58	69719	15.77	49642	20.39
OP65256A-MS	27257	8.63	44268	11.58	65759	15.77	47179	20.39
OP65256A-MSD	29802	8.63	47900	11.58	71802	15.77	51694	20.38
ZZZZZZ	30598	8.63	48858	11.58	72339	15.77	51728	20.39
ZZZZZZ	29040	8.63	45247	11.58	68176	15.77	49390	20.38
JB33992-1	30738	8.63	48967	11.56	72072	15.77	52544	20.38
ZZZZZZ	30824	8.63	48710	11.56	69540	15.77	52144	20.38
ZZZZZZ	30779	8.63	46837	11.56	67213	15.75	50067	20.38
JB33644-11	30126	8.63	50304	11.56	71966	15.75	54555	20.38
JB33644-12	28366	8.63	46255	11.56	66363	15.75	48642	20.38
JB33644-13	31209	8.63	50909	11.56	70785	15.75	52299	20.38
JB33644-14	30441	8.63	49364	11.56	69478	15.75	50326	20.38

IS 1 = 1-Methylnaphthalene-d10
IS 2 = Fluorene-d10
IS 3 = Fluoranthene-d10
IS 4 = Benzo(a)pyrene-d12

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Semivolatile Internal Standard Area Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Check Std:	E3M1667-CC1644	**Injection Date:**	04/25/13
Lab File ID:	3M36468.D	**Injection Time:**	11:59
Instrument ID:	GCMS3M	**Method:**	SW846 8270D BY SIM

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
Check Std	53749	8.63	87283	11.56	123155	15.75	88148	20.38
Upper Limit [a]	107498	9.13	174566	12.06	246310	16.25	176296	20.88
Lower Limit [b]	26875	8.13	43642	11.06	61578	15.25	44074	19.88

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
JB33644-15	31174	8.63	47957	11.56	63104	15.75	46616	20.38
JB33644-16	31638	8.63	52455	11.56	73622	15.75	54187	20.38
ZZZZZZ	39566	8.63	64239	11.56	82849	15.75	65007	20.38
ZZZZZZ	40832	8.63	67294	11.56	92526	15.75	66229	20.38
ZZZZZZ	27892	8.63	44429	11.56	62170	15.75	48790	20.38
ZZZZZZ	27598	8.63	68065	11.56	69020	15.75	50469	20.38
ZZZZZZ	28234	8.63	44556	11.56	64639	15.75	48445	20.38
ZZZZZZ	29302	8.63	45258	11.56	66921	15.75	49920	20.38
ZZZZZZ	29986	8.63	48157	11.56	69774	15.75	51333	20.38
ZZZZZZ	29005	8.63	47865	11.56	67125	15.75	47237	20.38
ZZZZZZ	35443	8.65	50325	11.63	57856*	15.78	47601	20.38
OP65404A-MB1	27801	8.63	43921	11.56	63218	15.75	44938	20.38
OP65404A-LB21	35918	8.63	57761	11.56	81009	15.75	57914	20.38
ZZZZZZ	31575	8.63	50725	11.56	69869	15.75	50844	20.38
ZZZZZZ	31070	8.63	52201	11.56	71716	15.75	51747	20.38

IS 1 = 1-Methylnaphthalene-d10
IS 2 = Fluorene-d10
IS 3 = Fluoranthene-d10
IS 4 = Benzo(a)pyrene-d12

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Semivolatile Internal Standard Area Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Check Std:	E3M1683-CC1682	**Injection Date:**	05/07/13
Lab File ID:	3M36828.D	**Injection Time:**	08:45
Instrument ID:	GCMS3M	**Method:**	SW846 8270D BY SIM

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
Check Std	41853	8.52	64811	11.46	94259	15.65	65040	20.29
Upper Limit [a]	83706	9.02	129622	11.96	188518	16.15	130080	20.79
Lower Limit [b]	20927	8.02	32406	10.96	47130	15.15	32520	19.79

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
OP65642A-MB1	58105	8.52	89310	11.46	118729	15.65	81293	20.29
OP65317A-MB1	49925	8.52	76777	11.46	104850	15.65	71964	20.29
ZZZZZZ	54672	8.52	83357	11.46	116277	15.65	78734	20.29
ZZZZZZ	59708	8.51	88711	11.46	129579	15.65	87219	20.29
JB34067-1	54114	8.52	81352	11.46	112358	15.65	82921	20.29
ZZZZZZ	56463	8.52	83568	11.46	113388	15.65	80527	20.29
ZZZZZZ	59091	8.52	86922	11.46	121284	15.65	87792	20.29
ZZZZZZ	53963	8.51	79690	11.46	109157	15.65	80023	20.29
OP65145-BS12	35976	8.52	55193	11.46	78008	15.65	53864	20.30
OP65186-BS12	28707	8.51	44360	11.46	66579	15.65	43109	20.29
ZZZZZZ	21585	8.52	34766	11.46	49576	15.67	33065	20.30
JB33644-7 [c]	62106	8.52	91821	11.46	122745	15.65	89036	20.30
JB33644-15 [c]	54386	8.52	81467	11.46	98040	15.67	68092	20.30
JB33644-10 [c]	53813	8.52	82018	11.46	109735	15.67	74791	20.30
ZZZZZZ	56692	8.52	91838	11.46	115048	15.67	78455	20.30
ZZZZZZ	56881	8.52	87973	11.46	119795	15.65	77633	20.30

IS 1 = 1-Methylnaphthalene-d10
IS 2 = Fluorene-d10
IS 3 = Fluoranthene-d10
IS 4 = Benzo(a)pyrene-d12

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.
(c) Reextract due to surrogate outside QC limits. Original prep date within holding time.

Semivolatile Internal Standard Area Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Check Std:	E4P16-CC10	**Injection Date:**	05/08/13
Lab File ID:	4P315.D	**Injection Time:**	23:25
Instrument ID:	GCMS4P	**Method:**	SW846 8270D BY SIM

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
Check Std	57441	8.78	84475	11.73	127348	15.94	86788	20.54
Upper Limit [a]	114882	9.28	168950	12.23	254696	16.44	173576	21.04
Lower Limit [b]	28721	8.28	42238	11.23	63674	15.44	43394	20.04

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
OP65642A-MB1	64299	8.78	87004	11.75	134026	15.94	90740	20.54
OP65642A-BS12	53856	8.78	77643	11.75	115549	15.94	73547	20.54
OP65642A-MS	52257	8.78	72963	11.73	106734	15.94	75776	20.54
OP65642A-MSD	50480	8.78	72373	11.75	103682	15.94	74731	20.54
JB35436-2	58470	8.78	83587	11.75	111268	15.94	85345	20.54
ZZZZZZ	62733	8.78	87469	11.75	127917	15.94	87078	20.55
OP65444A-MB2	58271	8.78	84237	11.75	119697	15.94	83047	20.54
OP65444A-BS22	46771	8.78	68516	11.75	101419	15.94	62475	20.55
ZZZZZZ	59501	8.78	83400	11.75	124273	15.94	84238	20.54
ZZZZZZ	58288	8.78	78730	11.75	120493	15.94	79361	20.54
OP65317A-MS	51000	8.78	76161	11.75	110336	15.94	70656	20.54
OP65317A-MSD	50423	8.78	76741	11.73	108910	15.94	69720	20.55
ZZZZZZ	55927	8.78	76441	11.75	115531	15.94	76708	20.54
ZZZZZZ	59731	8.78	79989	11.73	122230	15.94	78219	20.55
OP65346A-MB1	34653	8.78	46782	11.75	71193	15.94	44212	20.54
OP65346A-LB12	51151	8.78	69778	11.75	103327	15.94	64834	20.54
OP65346A-BS12	48815	8.78	73985	11.75	100079	15.94	64933	20.55
OP65346A-BSD12	45654	8.78	66109	11.73	90985	15.94	58392	20.56
ZZZZZZ	50449	8.78	71590	11.75	102949	15.94	67186	20.56

IS 1 = 1-Methylnaphthalene-d10
IS 2 = Fluorene-d10
IS 3 = Fluoranthene-d10
IS 4 = Benzo(a)pyrene-d12

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Semivolatile Internal Standard Area Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Check Std:	ER3953-CC3950	**Injection Date:**	05/17/13
Lab File ID:	R99361.D	**Injection Time:**	13:53
Instrument ID:	GCMSR	**Method:**	SW846 8270D BY SIM

	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	250821	4.60	992119	5.72	512752	8.05	730719	10.62	719191	15.79	1104978	18.43
Upper Limit [a]	501642	5.10	1984238	6.22	1025504	8.55	1461438	11.12	1438382	16.29	2209956	18.93
Lower Limit [b]	125411	4.10	496060	5.22	256376	7.55	365360	10.12	359596	15.29	552489	17.93

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
ZZZZZZ	153634	4.60	550989	5.72	262832	8.04	390092	10.61	473447	15.78	787314	18.42
ZZZZZZ	152810	4.60	574562	5.72	284784	8.04	394356	10.61	436038	15.78	809557	18.42
ZZZZZZ	155880	4.59	565345	5.72	276991	8.05	385065	10.61	371586	15.78	589516	18.42
JB33644-15 [c]	218943	4.59	946004	5.72	541089	8.05	808846	10.62	769580	15.79	902432	18.42

IS 1 = 1,4-Dichlorobenzene-d4
IS 2 = Naphthalene-d8
IS 3 = Acenaphthene-D10
IS 4 = Phenanthrene-d10
IS 5 = Chrysene-d12
IS 6 = Perylene-d12

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.
(c) Reextract due to surrogate outside QC limits. Original prep date within holding time.

Semivolatile Surrogate Recovery Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Method: SW846 8270D BY SIM **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
JB33644-1	3M36428.D	55.0	50.0	43.0
JB33644-2	3M36429.D	49.0	41.0	39.0
JB33644-3	3M36430.D	61.0	49.0	50.0
JB33644-5	3M36431.D	50.0	38.0	43.0
JB33644-6	3M36432.D	57.0	46.0	43.0
JB33644-7	3M36842.D	37.0	33.0	46.0
JB33644-7	3M36433.D	30.0	23.0* [a]	19.0
JB33644-8	3M36434.D	56.0	45.0	47.0
JB33644-9	3M36435.D	47.0	38.0	38.0
JB33644-10	3M36844.D	60.0	52.0	62.0
JB33644-10	3M36436.D	22.0* [a]	37.0	36.0
JB33644-11	3M36459.D	38.0	30.0	29.0
JB33644-12	3M36460.D	47.0	38.0	37.0
JB33644-13	3M36461.D	57.0	44.0	41.0
JB33644-14	3M36462.D	55.0	41.0	35.0
JB33644-15	3M36843.D	54.0	50.0	61.0
JB33644-15	R99365.D	75.0	69.0	79.0
JB33644-15	3M36469.D	9.0* [b]	32.0	30.0
JB33644-16	3M36470.D	44.0	33.0	35.0
OP65230-BS1	3M36425.D	74.0	56.0	65.0
OP65230-MB1	3M36424.D	62.0	52.0	60.0
OP65230-MS	3M36426.D	54.0	41.0	31.0
OP65230-MSD	3M36427.D	47.0	36.0	30.0
OP65642A-BS12	4P317.D	69.0	65.0	74.0
OP65642A-MB1	3M36829.D	54.0	42.0	61.0
OP65642A-MB1	4P316.D	64.0	54.0	78.0
OP65642A-MS	4P318.D	61.0	63.0	81.0
OP65642A-MSD	4P319.D	65.0	65.0	87.0

Surrogate Compounds	Recovery Limits
S1 = Nitrobenzene-d5	23-131%
S2 = 2-Fluorobiphenyl	24-120%
S3 = Terphenyl-d14	10-125%

(a) Outside of in house control limits.
(b) Refer to re-extract.

Initial Calibration Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: E3M1644-ICC1644
Lab FileID: 3M35924.D

Response Factor Report MS3M

```
Method       : C:\MSDCHEM\1\METHODS\M1644SIM.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration

Calibration Files
2.5 =3m35932.D   1.0 =3m35924.D   0.5 =3m35925.D   0.2 =3m35926.D
0.1 =3m35927.D   0.05=3m35928.D   0.02=3m35929.D   0.01=3m35930.D
5   =3m35931.D       =                =                =
```

Compound	2.5	1.0	0.5	0.2	0.1	0.05	0.02	0.01	5	Avg	%RSD
1) I 1-Methylnaphthalene-d	----------ISTD----------										
2) 2-Fluorophenol	0.518	0.571	0.649	0.791	0.643	0.716			0.498	0.627	16.90
3) Phenol-d5	0.655	0.753	0.891	1.077	0.747	0.774	0.926		0.594	0.802	19.42
4) Phenol	0.750	0.847	0.930	1.118	0.840	0.931			0.764	0.883	14.22
5) bis(2-Chloroethyl)ether	0.690	0.706	0.774	0.883	0.718	0.724	0.741	0.985	0.663	0.765	13.56
6) Nitrobenzene-d5	0.733	0.824	0.937	1.139	0.822	0.840			0.693	0.855	17.25
7) Naphthalene	2.766	3.096	3.465	4.117	2.973	3.119	3.893	3.939	2.654	3.336	16.17
8) Hexachlorobutadiene	0.494	0.532	0.580	0.682	0.487	0.513	0.618		0.481	0.548	13.16
9) 2-Methylnaphthalene	1.384	1.541	1.700	2.105	1.441	1.414	1.818	1.693	1.350	1.605	15.48
10) 1-Methylnaphthalene	1.365	1.486	1.640	1.892	1.425	1.467	1.665	1.684	1.321	1.549	11.86
12) I Fluorene-d10	----------ISTD----------										
13) 2-Fluorobiphenyl	0.890	0.973	1.194	1.464	1.175	1.331				1.171	18.30
14) Acenaphthylene	1.611	1.656	1.964	2.153	1.535	1.559	1.897	1.810	1.604	1.754	12.18
15) Acenaphthene	1.022	1.092	1.287	1.530	1.172	1.229	1.476	1.422	0.988	1.247	15.85
16) Fluorene	1.233	1.192	1.367	1.534	1.107	1.114	1.372	1.397	1.211	1.281	11.25
17) 2,4,6-Tribromophenol	0.154	0.156	0.186	0.217	0.145				0.147	0.167	17.03
18) Fluoranthene-d10	----------ISTD----------										
19) Hexachlorobenzene	0.289	0.305	0.325	0.387	0.295	0.299	0.350		0.275	0.315	11.68
20) Pentachlorophenol	0.122	0.161	0.176	0.092	0.083	0.106			0.130	0.124	27.97
21) Phenanthrene	1.209	1.281	1.441	1.791	1.281	1.483	1.682	1.695	1.148	1.446	16.18
22) Anthracene	1.056	1.101	1.226	1.480	1.109	1.114	1.271	1.312	1.081	1.194	11.72
23) Fluoranthene	1.176	1.239	1.344	1.652	1.318	1.386	1.806		1.152	1.384	16.71

Initial Calibration Summary

Job Number: JB33644 **Sample:** E3M1644-ICC1644
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3M35924.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
24)  Pyrene
      1.302 1.413 1.586 1.847 1.403 1.420 1.733 1.737 1.263        1.523   13.79
25)  Terphenyl-d14
      0.489 0.556 0.661 0.840 0.717 0.757                          0.670   19.39
26)  Benzo[a]anthracene
      1.037 1.151 1.284 1.323 1.001 0.977 1.191 1.329 1.023        1.146   12.43
27)  Chrysene
      1.065 1.134 1.288 1.578 1.296 1.391 1.587 1.678 1.020        1.337   17.92

28) I   Benzo(a)pyrene-d12    ----------------ISTD---------------------
29)  Benzo[b]fluoranthene
      1.501 1.640 1.847 2.087 1.466 1.663 1.937 2.018 1.482        1.738   13.84
30)  Benzo[k]fluoranthene
      1.583 1.579 1.773 2.179 1.704 1.581 1.704 1.910 1.554        1.730   11.82
31)  Benzo[a]pyrene
      1.454 1.707 1.613 1.901 1.640 1.797 1.431 1.552 1.397        1.610   10.65
32)  Indeno[1,2,3-cd]pyrene
      1.727 1.803 2.012 2.371 1.851 1.895 2.142 2.394 1.687        1.987   13.26
33)  Dibenz[a,h]anthracene
      1.341 1.405 1.541 1.881 1.527 1.587 1.741 1.838 1.338        1.578   12.95
34)  Benzo[g,h,i]perylene
      1.500 1.574 1.764 2.092 1.689 1.721 2.026 2.268 1.477        1.790   15.54
-------------------------------------------------------------------------------
(#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          M1644SIM.M        Fri Apr 12 13:55:40 2013   RPT1
```

8.7.1

8

Initial Calibration Verification

Job Number: JB33644 **Sample:** E3M1644-ICV1644
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3M35933.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e3m1644\3m35933.D          Vial: 11
Acq On    : 11 Apr 2013   6:45 pm                    Operator: ninap
Sample    : icv1644-1                                Inst    : MS3M
Misc      : op63546a,e3m1644                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M1644SIM.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Thu Apr 11 19:11:25 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1-Methylnaphthalene-d10	1.000	1.000	0.0	119	0.00	8.75
5	t	bis(2-Chloroethyl)ether	0.765	0.939	-22.7	159	-0.02	4.71
7	t	Naphthalene	3.336	3.176	4.8	122	0.00	7.29
8	t	Hexachlorobutadiene	0.548	0.551	-0.5	123	-0.01	7.66
9	t	2-Methylnaphthalene	1.605	1.611	-0.4	125	-0.01	8.61
12	I	Fluorene-d10	1.000	1.000	0.0	109	-0.02	11.69
14	t	Acenaphthylene	1.754	1.604	8.6	105	-0.02	10.37
15	t	Acenaphthene	1.247	1.160	7.0	115	-0.02	10.74
16	t	Fluorene	1.281	1.297	-1.2	118	0.00	11.75
18		Fluoranthene-d10	1.000	1.000	0.0	104	0.00	15.89
19	t	Hexachlorobenzene	0.315	0.321	-1.9	110	0.00	13.03
21	t	Phenanthrene	1.446	1.426	1.4	116	0.00	13.65
22	t	Anthracene	1.194	1.255	-5.1	119	-0.02	13.74
23	t	Fluoranthene	1.384	1.287	7.0	108	0.00	15.92
24	t	Pyrene	1.523	1.431	6.0	105	-0.02	16.31
26	t	Benzo[a]anthracene	1.146	1.032	9.9	93	0.00	18.41
27	t	Chrysene	1.337	1.133	15.3	104	0.00	18.48
28	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	94	-0.01	20.51
29	t	Benzo[b]fluoranthene	1.738	1.893	-8.9	108	-0.01	20.10
30	t	Benzo[k]fluoranthene	1.730	1.463	15.4	87	-0.01	20.13
31	t	Benzo[a]pyrene	1.610	1.443	10.4	79	-0.01	20.54
32	t	Indeno[1,2,3-cd]pyrene	1.987	1.810	8.9	94	-0.03	22.10
33	t	Dibenz[a,h]anthracene	1.578	1.388	12.0	93	-0.03	22.13
34	t	Benzo[g,h,i]perylene	1.790	1.560	12.8	93	-0.02	22.49

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3m35924.D M1644SIM.M Fri Apr 12 13:55:07 2013 RPT1

8.7.2 8

Initial Calibration Verification

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: E3M1644-ICV1644
Lab FileID: 3M35934.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e3m1644\3m35934.D          Vial: 12
Acq On    : 11 Apr 2013   7:16 pm                     Operator: ninap
Sample    : icv1644-1                                 Inst    : MS3M
Misc      : op63546a,e3m1644                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M1644SIM.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Thu Apr 11 19:11:25 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1-Methylnaphthalene-d10	1.000	1.000	0.0	170	0.00	8.75
4		Phenol	0.883	0.923	-4.5	186	-0.02	4.65
12	I	Fluorene-d10	1.000	1.000	0.0	157	-0.02	11.69
18		Fluoranthene-d10	1.000	1.000	0.0	158	0.00	15.89
20	t	Pentachlorophenol	0.124	0.120	3.2	118	0.00	13.42
28	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	164	0.00	20.52

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3m35924.D M1644SIM.M Fri Apr 12 13:55:09 2013 RPT1

8.7.3

8

Continuing Calibration Summary

Job Number: JB33644 **Sample:** E3M1665-CC1644
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3M36423.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e3m1665\3m36423.D          Vial: 2
Acq On    : 24 Apr 2013   3:25 pm                    Operator: ashleyd
Sample    : cc1644-1.0                               Inst    : MS3M
Misc      : op63546a,e3m1665                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M1644SIM.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Thu Apr 11 19:11:25 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1-Methylnaphthalene-d10	1.000	1.000	0.0	124	-0.11	8.64
2	S	2-Fluorophenol	0.627	0.513	18.2	111	-0.09	3.33
3	S	Phenol-d5	0.802	0.714	11.0	117	-0.09	4.56
4		Phenol	0.883	0.786	11.0	115	-0.09	4.57
5	t	bis(2-Chloroethyl)ether	0.765	0.678	11.4	119	-0.09	4.63
6	S	Nitrobenzene-d5	0.855	0.824	3.6	124	-0.11	5.91
7	t	Naphthalene	3.336	3.153	5.5	126	-0.11	7.18
8	t	Hexachlorobutadiene	0.548	0.528	3.6	123	-0.11	7.56
9	t	2-Methylnaphthalene	1.605	1.503	6.4	120	-0.12	8.50
10	t	1-Methylnaphthalene	1.549	1.464	5.5	122	-0.11	8.71
12	I	Fluorene-d10	1.000	1.000	0.0	120	-0.13	11.58
13	S	2-Fluorobiphenyl	1.171	0.901	23.1#	111	-0.12	9.29
14	t	Acenaphthylene	1.754	1.877	-7.0	136	-0.12	10.26
15	t	Acenaphthene	1.247	1.115	10.6	122	-0.12	10.63
16	t	Fluorene	1.281	1.317	-2.8	132	-0.11	11.63
17	S	2,4,6-Tribromophenol	0.167	0.155	7.2	120	-0.13	12.18
18		Fluoranthene-d10	1.000	1.000	0.0	115	-0.12	15.77
19	t	Hexachlorobenzene	0.315	0.315	0.0	119	-0.13	12.90
20	t	Pentachlorophenol	0.124	0.203	-63.7#	145	-0.11	13.31
21	t	Phenanthrene	1.446	1.376	4.8	124	-0.13	13.52
22	t	Anthracene	1.194	1.275	-6.8	134	-0.15	13.61
23	t	Fluoranthene	1.384	1.300	6.1	121	-0.12	15.80
24	t	Pyrene	1.523	1.544	-1.4	126	-0.14	16.19
25	S	Terphenyl-d14	0.670	0.553	17.5	115	-0.12	16.57
26	t	Benzo[a]anthracene	1.146	1.236	-7.9	124	-0.13	18.28
27	t	Chrysene	1.337	1.160	13.2	118	-0.13	18.35
28	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	122	-0.13	20.40
29	t	Benzo[b]fluoranthene	1.738	1.887	-8.6	140	-0.14	19.97
30	t	Benzo[k]fluoranthene	1.730	1.360	21.4#	105	-0.14	20.00
31	t	Benzo[a]pyrene	1.610	1.493	7.3	106	-0.14	20.42
32	t	Indeno[1,2,3-cd]pyrene	1.987	1.835	7.6	124	-0.18	21.95
33	t	Dibenz[a,h]anthracene	1.578	1.417	10.2	123	-0.18	21.97
34	t	Benzo[g,h,i]perylene	1.790	1.598	10.7	123	-0.19	22.32

```
(#) = Out of Range                SPCC's out = 0  CCC's out = 0
 3m35924.D  M1644SIM.M       Wed Apr 24 18:47:36 2013   RPT1
```

Continuing Calibration Summary

Job Number: JB33644 **Sample:** E3M1666-CC1644
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3M36444.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e3m1666\3m36444.D          Vial: 2
Acq On    : 24 Apr 2013  11:18 pm                    Operator: ashleyd
Sample    : cc1644-0.5                               Inst    : MS3M
Misc      : op63546a,e3m1666                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M1644SIM.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Thu Apr 11 19:11:25 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1-Methylnaphthalene-d10	1.000	1.000	0.0	106	-0.11	8.64
2	S	2-Fluorophenol	0.627	0.593	5.4	97	-0.09	3.33
3	S	Phenol-d5	0.802	0.851	-6.1	101	-0.09	4.56
4		Phenol	0.883	0.930	-5.3	106	-0.09	4.57
5	t	bis(2-Chloroethyl)ether	0.765	0.744	2.7	102	-0.11	4.62
6	S	Nitrobenzene-d5	0.855	0.981	-14.7	111	-0.12	5.90
7	t	Naphthalene	3.336	3.481	-4.3	106	-0.11	7.18
8	t	Hexachlorobutadiene	0.548	0.586	-6.9	107	-0.12	7.55
9	t	2-Methylnaphthalene	1.605	1.722	-7.3	107	-0.12	8.50
10	t	1-Methylnaphthalene	1.549	1.638	-5.7	106	-0.12	8.69
12	I	Fluorene-d10	1.000	1.000	0.0	111	-0.13	11.58
13	S	2-Fluorobiphenyl	1.171	1.037	11.4	97	-0.12	9.29
14	t	Acenaphthylene	1.754	2.100	-19.7	119	-0.14	10.25
15	t	Acenaphthene	1.247	1.284	-3.0	111	-0.14	10.62
16	t	Fluorene	1.281	1.350	-5.4	110	-0.11	11.63
17	S	2,4,6-Tribromophenol	0.167	0.172	-3.0	103	-0.13	12.18
18		Fluoranthene-d10	1.000	1.000	0.0	104	-0.12	15.77
19	t	Hexachlorobenzene	0.315	0.352	-11.7	113	-0.13	12.90
20	t	Pentachlorophenol	0.124	0.196	-58.1#	116	-0.11	13.31
21	t	Phenanthrene	1.446	1.523	-5.3	110	-0.13	13.52
22	t	Anthracene	1.194	1.419	-18.8	121	-0.15	13.61
23	t	Fluoranthene	1.384	1.393	-0.7	108	-0.12	15.80
24	t	Pyrene	1.523	1.692	-11.1	111	-0.14	16.19
25	S	Terphenyl-d14	0.670	0.622	7.2	98	-0.12	16.57
26	t	Benzo[a]anthracene	1.146	1.347	-17.5	109	-0.13	18.28
27	t	Chrysene	1.337	1.222	8.6	99	-0.14	18.35
28	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	102	-0.14	20.39
29	t	Benzo[b]fluoranthene	1.738	1.930	-11.0	107	-0.15	19.96
30	t	Benzo[k]fluoranthene	1.730	1.729	0.1	100	-0.14	20.00
31	t	Benzo[a]pyrene	1.610	1.606	0.2	102	-0.14	20.42
32	t	Indeno[1,2,3-cd]pyrene	1.987	2.073	-4.3	106	-0.19	21.94
33	t	Dibenz[a,h]anthracene	1.578	1.571	0.4	104	-0.19	21.96
34	t	Benzo[g,h,i]perylene	1.790	1.806	-0.9	105	-0.20	22.31

```
(#) = Out of Range                SPCC's out = 0  CCC's out = 0
 3m35925.D  M1644SIM.M       Thu Apr 25 15:25:40 2013   RPT1
```

8.7.5

8

Continuing Calibration Summary

Job Number: JB33644 **Sample:** E3M1667-CC1644
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3M36468.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e3m1667\3m36468.D          Vial: 2
Acq On    : 25 Apr 2013  11:59 am                    Operator: ninap
Sample    : cc1644-1.0                               Inst    : MS3M
Misc      : op63546a,e3m1667                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M1644SIM.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Thu Apr 11 19:11:25 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1-Methylnaphthalene-d10	1.000	1.000	0.0	144	-0.12	8.63
2	S	2-Fluorophenol	0.627	0.539	14.0	136	-0.11	3.32
3	S	Phenol-d5	0.802	0.695	13.3	133	-0.09	4.56
4		Phenol	0.883	0.797	9.7	135	-0.09	4.57
5	t	bis(2-Chloroethyl)ether	0.765	0.719	6.0	147	-0.12	4.60
6	S	Nitrobenzene-d5	0.855	0.802	6.2	140	-0.14	5.88
7	t	Naphthalene	3.336	3.193	4.3	148	-0.12	7.16
8	t	Hexachlorobutadiene	0.548	0.530	3.3	143	-0.14	7.54
9	t	2-Methylnaphthalene	1.605	1.506	6.2	141	-0.15	8.47
10	t	1-Methylnaphthalene	1.549	1.483	4.3	144	-0.14	8.68
12	I	Fluorene-d10	1.000	1.000	0.0	138	-0.15	11.56
13	S	2-Fluorobiphenyl	1.171	0.880	24.9#	125	-0.14	9.28
14	t	Acenaphthylene	1.754	1.880	-7.2	157	-0.15	10.23
15	t	Acenaphthene	1.247	1.122	10.0	142	-0.15	10.60
16	t	Fluorene	1.281	1.292	-0.9	149	-0.13	11.61
17	S	2,4,6-Tribromophenol	0.167	0.155	7.2	137	-0.15	12.16
18		Fluoranthene-d10	1.000	1.000	0.0	134	-0.14	15.75
19	t	Hexachlorobenzene	0.315	0.317	-0.6	139	-0.15	12.88
20	t	Pentachlorophenol	0.124	0.210	-69.4#	174	-0.13	13.29
21	t	Phenanthrene	1.446	1.331	8.0	139	-0.15	13.50
22	t	Anthracene	1.194	1.282	-7.4	156	-0.17	13.59
23	t	Fluoranthene	1.384	1.272	8.1	137	-0.14	15.78
24	t	Pyrene	1.523	1.522	0.1	144	-0.15	16.17
25	S	Terphenyl-d14	0.670	0.529	21.0#	127	-0.14	16.56
26	t	Benzo[a]anthracene	1.146	1.205	-5.1	140	-0.15	18.27
27	t	Chrysene	1.337	1.112	16.8	131	-0.15	18.34
28	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	136	-0.15	20.38
29	t	Benzo[b]fluoranthene	1.738	1.672	3.8	139	-0.15	19.96
30	t	Benzo[k]fluoranthene	1.730	1.644	5.0	142	-0.15	19.99
31	t	Benzo[a]pyrene	1.610	1.508	6.3	120	-0.15	20.41
32	t	Indeno[1,2,3-cd]pyrene	1.987	1.822	8.3	138	-0.20	21.93
33	t	Dibenz[a,h]anthracene	1.578	1.418	10.1	137	-0.20	21.95
34	t	Benzo[g,h,i]perylene	1.790	1.597	10.8	138	-0.21	22.30

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3m35924.D M1644SIM.M Thu Apr 25 17:27:36 2013 RPT1

8.7.6

8

Initial Calibration Summary

Job Number: JB33644 **Sample:** E3M1682-ICC1682
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3M36815.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Response Factor Report MS3M

Method : C:\MSDCHEM\1\METHODS\M1682SIM.M (RTE Integrator)
Title : Semi Volatile Extractables by GC/MS
Last Update : Mon May 06 21:57:09 2013
Response via : Initial Calibration

Calibration Files
2.5 =3m36823.D 1.0 =3m36815.D 0.5 =3m36816.D 0.2 =3m36817.D
0.1 =3m36818.D 0.05=3m36819.D 0.02=3m36820.D 0.01=3m36821.D
5 =3m36822.D = = =

Compound	2.5	1.0	0.5	0.2	0.1	0.05	0.02	0.01	5	Avg	%RSD
1) I 1-Methylnaphthalene-d	----------ISTD----------										
2) 2-Fluorophenol	0.362	0.413	0.479	0.538	0.572	0.561				0.487	17.52
3) Phenol-d5	0.523	0.557	0.656	0.704	0.791	0.785			0.459	0.639	20.36
4) Phenol	0.671	0.692	0.772	0.874	0.862	0.828			0.624	0.760	13.09
5) bis(2-Chloroethyl)ether	0.552	0.562	0.575	0.677	0.748	0.543	0.857	0.683	0.531	0.636	17.68
6) Nitrobenzene-d5	0.713	0.809	0.918	1.062	1.033	1.072			0.626	0.890	20.06
7) Naphthalene	2.366	2.621	2.937	3.137	2.901				2.150	2.685	13.99
8) Hexachlorobutadiene	0.431	0.484	0.511	0.527	0.510	0.545			0.404	0.488	10.61
9) 2-Methylnaphthalene	1.342	1.499	1.682	2.092	2.099				1.234	1.658	22.37
12) I Fluorene-d10	----------ISTD----------										
13) 2-Fluorobiphenyl	0.716	0.828	0.933	1.121	1.188	1.228				1.002	20.78
14) Acenaphthylene	1.547	1.722	1.834	1.925	1.758	1.708			1.383	1.697	10.67
15) Acenaphthene	0.909	1.049	1.155	1.313	1.196	1.179			0.819	1.088	15.96
16) Fluorene	1.089	1.149	1.156	1.233	1.187	1.233			0.985	1.147	7.63
17) 2,4,6-Tribromophenol	0.105	0.119	0.135	0.149	0.129				0.105	0.124	14.04
18) Fluoranthene-d10	----------ISTD----------										
19) Hexachlorobenzene	0.247	0.273	0.275	0.290	0.271	0.269	0.387		0.215	0.278	17.82
21) Phenanthrene	1.123	1.243	1.298	1.393	1.309	1.321			0.986	1.239	11.24
22) Anthracene	1.143	1.229	1.254	1.278	1.254	1.221			1.001	1.197	8.08
23) Fluoranthene	1.128	1.210	1.225	1.320	1.294	1.344			0.969	1.213	10.78
24) Pyrene	1.237	1.405	1.416	1.533	1.489	1.516			1.078	1.382	12.10
25) Terphenyl-d14	0.436	0.495	0.533	0.631	0.672	0.739				0.585	19.76
26) Benzo[a]anthracene	0.924	1.037	1.029	1.123	1.033	1.021	1.491		0.841	1.062	18.13

Initial Calibration Summary

Job Number: JB33644 **Sample:** E3M1682-ICC1682
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3M36815.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
27)  Chrysene
      0.988 1.055 1.103 1.188 1.164 1.236            0.863        1.085   11.86

28) I   Benzo(a)pyrene-d12    ----------------ISTD--------------------
29)  Benzo[b]fluoranthene
      1.285 1.632 1.637 1.647 1.425 1.730            1.193        1.507   13.71
30)  Benzo[k]fluoranthene
      1.404 1.336 1.548 1.818 1.926 1.767            1.218        1.574   17.10
31)  Benzo[a]pyrene
      1.277 1.359 1.428 1.529 1.524 1.345            1.148        1.373    9.88
32)  Indeno[1,2,3-cd]pyrene
      1.470 1.558 1.713 1.902 1.838 1.883            1.326        1.670   13.39
33)  Dibenz[a,h]anthracene
      1.169 1.235 1.333 1.483 1.443 1.556            1.059        1.325   13.63
34)  Benzo[g,h,i]perylene
      1.275 1.355 1.488 1.645 1.597 1.671            1.145        1.454   13.82
--------------------------------------------------------------------------------
(#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          M1682SIM.M        Tue May 07 14:30:34 2013   RPT1
```

8.7.7

8

Initial Calibration Verification

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: E3M1682-ICV1682
Lab FileID: 3M36824.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\e3m1682\3m36824.D Vial: 11
Acq On : 6 May 2013 9:37 pm Operator: ashleyd
Sample : icv1682-1 Inst : MS3M
Misc : op63546a,e3m1682 Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M1682SIM.M (RTE Integrator)
Title : Semi Volatile Extractables by GC/MS
Last Update : Mon May 06 21:57:09 2013
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1-Methylnaphthalene-d10	1.000	1.000	0.0	105	0.00	8.52
5	t	bis(2-Chloroethyl)ether	0.636	0.810	-27.4	151	0.00	4.52
7	t	Naphthalene	2.685	3.135	-16.8	126	0.00	7.05
8	t	Hexachlorobutadiene	0.488	0.541	-10.9	117	0.00	7.43
9	t	2-Methylnaphthalene	1.658	1.596	3.7	112	0.00	8.38
12	I	Fluorene-d10	1.000	1.000	0.0	96	0.00	11.46
14	t	Acenaphthylene	1.697	1.772	-4.4	99	0.00	10.13
15	t	Acenaphthene	1.088	1.238	-13.8	114	0.00	10.50
16	t	Fluorene	1.147	1.316	-14.7	110	0.00	11.49
18		Fluoranthene-d10	1.000	1.000	0.0	95	0.00	15.65
19	t	Hexachlorobenzene	0.278	0.292	-5.0	102	0.00	12.77
21	t	Phenanthrene	1.239	1.444	-16.5	111	0.00	13.40
22	t	Anthracene	1.197	1.397	-16.7	108	0.00	13.49
23	t	Fluoranthene	1.213	1.303	-7.4	103	0.00	15.68
24	t	Pyrene	1.382	1.484	-7.4	101	0.00	16.07
26	t	Benzo[a]anthracene	1.062	1.063	-0.1	98	0.00	18.18
27	t	Chrysene	1.085	1.126	-3.8	102	0.00	18.25
28	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	85	0.00	20.29
29	t	Benzo[b]fluoranthene	1.507	1.926	-27.8	101	0.00	19.87
30	t	Benzo[k]fluoranthene	1.574	1.455	7.6	93	0.00	19.90
31	t	Benzo[a]pyrene	1.373	1.457	-6.1	91	0.00	20.32
32	t	Indeno[1,2,3-cd]pyrene	1.670	1.769	-5.9	97	0.00	21.83
33	t	Dibenz[a,h]anthracene	1.325	1.381	-4.2	95	0.00	21.85
34	t	Benzo[g,h,i]perylene	1.454	1.569	-7.9	99	0.00	22.20

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3m36815.D M1682SIM.M Tue May 07 14:30:18 2013 RPT1

Continuing Calibration Summary

Job Number: JB33644 **Sample:** E3M1683-CC1682
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3M36828.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e3m1683\3m36828.D          Vial: 3
Acq On    :  7 May 2013   8:45 am                    Operator: ninap
Sample    : cc1682-0.5                               Inst    : MS3M
Misc      : op63546a,e3m1683                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M1682SIM.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Mon May 06 21:57:09 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1-Methylnaphthalene-d10	1.000	1.000	0.0	92	0.00	8.52
2	S	2-Fluorophenol	0.487	0.471	3.3	90	0.02	3.27
3	S	Phenol-d5	0.639	0.608	4.9	85	0.02	4.49
4		Phenol	0.760	0.741	2.5	88	0.02	4.51
5	t	bis(2-Chloroethyl)ether	0.636	0.557	12.4	89	0.00	4.52
6	S	Nitrobenzene-d5	0.890	0.880	1.1	88	0.01	5.80
7	t	Naphthalene	2.685	2.750	-2.4	86	0.00	7.05
8	t	Hexachlorobutadiene	0.488	0.465	4.7	83	0.00	7.43
9	t	2-Methylnaphthalene	1.658	1.884	-13.6	103	0.00	8.38
12	I	Fluorene-d10	1.000	1.000	0.0	88	0.00	11.46
13	S	2-Fluorobiphenyl	1.002	0.968	3.4	91	0.00	9.17
14	t	Acenaphthylene	1.697	1.706	-0.5	82	0.00	10.13
15	t	Acenaphthene	1.088	1.104	-1.5	84	0.00	10.50
16	t	Fluorene	1.147	1.092	4.8	83	0.02	11.51
17	S	2,4,6-Tribromophenol	0.124	0.123	0.8	80	0.00	12.06
18		Fluoranthene-d10	1.000	1.000	0.0	87	0.00	15.65
19	t	Hexachlorobenzene	0.278	0.255	8.3	81	0.00	12.77
21	t	Phenanthrene	1.239	1.192	3.8	80	0.00	13.40
22	t	Anthracene	1.197	1.200	-0.3	84	0.00	13.49
23	t	Fluoranthene	1.213	1.191	1.8	85	0.00	15.68
24	t	Pyrene	1.382	1.355	2.0	84	0.00	16.07
25	S	Terphenyl-d14	0.585	0.532	9.1	87	0.00	16.46
26	t	Benzo[a]anthracene	1.062	0.915	13.8	78	0.00	18.19
27	t	Chrysene	1.085	1.143	-5.3	91	0.00	18.25
28	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	90	0.00	20.29
29	t	Benzo[b]fluoranthene	1.507	1.511	-0.3	83	0.00	19.87
30	t	Benzo[k]fluoranthene	1.574	1.506	4.3	88	0.00	19.90
31	t	Benzo[a]pyrene	1.373	1.390	-1.2	88	0.00	20.32
32	t	Indeno[1,2,3-cd]pyrene	1.670	1.680	-0.6	89	0.00	21.84
33	t	Dibenz[a,h]anthracene	1.325	1.327	-0.2	90	0.00	21.86
34	t	Benzo[g,h,i]perylene	1.454	1.470	-1.1	89	0.00	22.21

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3m36816.D M1682SIM.M Tue May 07 14:40:13 2013 RPT1

Initial Calibration Summary

Job Number: JB33644 **Sample:** E4P10-ICC10
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 4P181.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Response Factor Report MS4P

```
Method       : C:\msdchem\1\METHODS\4p10sim.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Mon May 06 08:56:08 2013
Response via : Initial Calibration

Calibration Files
2.5 =4p189.D     1.0 =4p182.D     0.5 =4p181.D     0.2 =4p183.D
0.1 =4p184.D     0.05=4p185.D     0.02=4p186.D     0.01=4p187.D
5   =4p188.D         =                =                =

Compound
        2.5   1.0   0.5   0.2   0.1   0.05  0.02  0.01  5            Avg   %RSD
-------------------------------------------------------------------------------

1) I   1-Methylnaphthalene-d ----------------ISTD---------------------
2)  2-Fluorophenol
     0.574 0.609 0.598 0.552 0.493 0.477             0.536        0.548    9.17
3)  Phenol-d5
     0.601 0.556 0.488 0.490 0.572 0.262             0.625        0.513   23.85
4)  Phenol
     0.794 0.801 0.807 0.646 0.728 0.055             0.739        0.653   41.26
5)  bis(2-Chloroethyl)ether
     0.681 0.728 0.729 0.770 0.749 0.706 1.003 0.912 0.620        0.766   15.50
6)  Nitrobenzene-d5
     0.796 0.825 0.839 0.921 0.877 0.849             0.771        0.840    5.91
7)  Naphthalene
     2.806 2.744 2.710 2.893 2.676 2.797             2.798        2.775    2.59
8)  Hexachlorobutadiene
     0.426 0.418 0.426 0.439 0.425 0.440             0.425        0.428    1.88
9)  2-Methylnaphthalene
     1.666 1.659 1.567 1.714 1.766 1.709             1.535        1.659    4.98
12) I   Fluorene-d10          ----------------ISTD---------------------
13)  2-Fluorobiphenyl
     1.055 1.168 1.196 1.278 1.260 1.223             0.855        1.148   12.93
14)  Acenaphthylene
     1.755 1.821 1.831 1.812 1.802 1.713             1.797        1.790    2.34
15)  Acenaphthene
     1.088 1.136 1.134 1.210 1.163 1.137             1.039        1.129    4.81
16)  Fluorene
     1.172 1.237 1.209 1.280 1.309 1.236             1.160        1.229    4.39
17)  2,4,6-Tribromophenol
     0.146 0.152 0.147 0.142                         0.143        0.146    2.61

18)     Fluoranthene-d10      ----------------ISTD---------------------
19)  Hexachlorobenzene
     0.290 0.276 0.281 0.290 0.298 0.282 0.433 0.544 0.247        0.327   29.60
          ----- Linear regression -----  Coefficient =  0.9941
            Response Ratio = 0.00344 + 0.25250 *A

20)  Pentachlorophenol
     0.117 0.084 0.073 0.058 0.050 0.043             0.125        0.079   40.65
        ----- Quadratic regression -----                Coefficient =  0.9984
            Response Ratio = -0.01310 + 0.10579 *A + 0.00341 *A^2

21)  Phenanthrene
     1.207 1.208 1.246 1.300 1.223 1.232             1.127        1.221    4.25
22)  Anthracene
     1.100 1.058 1.191 1.245 1.161 1.166             1.122        1.149    5.39
```

Initial Calibration Summary

Job Number: JB33644 **Sample:** E4P10-ICC10
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 4P181.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
23)  Fluoranthene
      1.247 1.188 1.206 1.342 1.248 1.330            1.165        1.247    5.47
24)  Pyrene
      1.291 1.274 1.294 1.354 1.217 1.214            1.165        1.258    5.05
25)  Terphenyl-d14
      0.467 0.495 0.522 0.576 0.545 0.523                         0.521    7.31
26)  Benzo[a]anthracene
      0.916 0.910 0.950 0.932 0.831 0.778            0.879        0.885    6.89
27)  Chrysene
      1.035 0.990 1.011 1.061 0.983 0.991            0.938        1.001    3.93

28) I   Benzo(a)pyrene-d12    ----------------ISTD---------------------
29)  Benzo[b]fluoranthene
      1.353 1.554 1.362 1.426 1.216 1.304 1.747      1.508        1.434   11.62
30)  Benzo[k]fluoranthene
      1.608 1.329 1.584 1.607 1.494 1.365            1.311        1.471    9.10
31)  Benzo[a]pyrene
      1.467 1.375 1.384 1.430 1.489 1.402            1.395        1.420    3.06
32)  Indeno[1,2,3-cd]pyrene
      1.734 1.737 1.752 1.790 1.626 1.538            1.661        1.691    5.17
33)  Dibenz[a,h]anthracene
      1.351 1.371 1.398 1.419 1.287 1.180            1.291        1.328    6.18
34)  Benzo[g,h,i]perylene
      1.501 1.484 1.517 1.592 1.475 1.422            1.427        1.488    3.89
-------------------------------------------------------------------------------
(#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          4p10sim.M         Mon May 06 17:37:29 2013
```

8.7.10

8

Initial Calibration Verification

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: E4P10-ICV10
Lab FileID: 4P190.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\10\4p190.D                    Vial: 11
Acq On    :  6 May 2013   1:35 am                       Operator: ashleyd
Sample    : icv10-1                                     Inst    : MS4P
Misc      : op65329a,e4p10,1000,,,1,1                   Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\4p10sim.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Mon May 06 08:56:08 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1-Methylnaphthalene-d10	1.000	1.000	0.0	106	0.00	8.77
5	t	bis(2-Chloroethyl)ether	0.766	0.968	-26.4	141	0.00	4.68
7	t	Naphthalene	2.775	3.047	-9.8	117	0.00	7.31
8	t	Hexachlorobutadiene	0.428	0.516	-20.6	130	0.00	7.60
9	t	2-Methylnaphthalene	1.659	1.604	3.3	102	0.00	8.64
12	I	Fluorene-d10	1.000	1.000	0.0	105	0.00	11.73
14	t	Acenaphthylene	1.790	1.785	0.3	103	0.00	10.40
15	t	Acenaphthene	1.129	1.277	-13.1	119	0.00	10.76
16	t	Fluorene	1.229	1.357	-10.4	116	0.00	11.79
18		Fluoranthene-d10	1.000	1.000	0.0	95	0.00	15.94
		----------	True	Calc.	% Drift	----------		
19	t	Hexachlorobenzene	1.000	1.293	-29.3	117	0.00	12.90
		----------	AvgRF	CCRF	% Dev	----------		
21	t	Phenanthrene	1.221	1.441	-18.0	114	0.00	13.70
22	t	Anthracene	1.149	1.394	-21.3	125	0.02	13.81
23	t	Fluoranthene	1.247	1.389	-11.4	111	0.02	15.97
24	t	Pyrene	1.258	1.409	-12.0	105	0.00	16.35
26	t	Benzo[a]anthracene	0.885	0.943	-6.6	99	0.00	18.46
27	t	Chrysene	1.001	1.118	-11.7	107	0.00	18.51
28	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	80	0.00	20.54
29	t	Benzo[b]fluoranthene	1.434	1.684	-17.4	87	0.00	20.11
30	t	Benzo[k]fluoranthene	1.471	1.743	-18.5	105	0.00	20.14
31	t	Benzo[a]pyrene	1.420	1.665	-17.3	97	0.00	20.57
32	t	Indeno[1,2,3-cd]pyrene	1.691	1.867	-10.4	86	0.00	22.09
33	t	Dibenz[a,h]anthracene	1.328	1.453	-9.4	85	0.00	22.12
34	t	Benzo[g,h,i]perylene	1.488	1.686	-13.3	91	0.00	22.48

```
(#) = Out of Range                SPCC's out = 0  CCC's out = 0
 4p182.D    4p10sim.M        Mon May 06 17:37:13 2013
```

8.7.11

8

Initial Calibration Verification

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Sample: E4P10-ICV10
Lab FileID: 4P191.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\10\4p191.D                Vial: 12
Acq On    :  6 May 2013   2:06 am                   Operator: ashleyd
Sample    : icv10-1                                 Inst    : MS4P
Misc      : op65329a,e4p10,1000,,,1,1               Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\4p10sim.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Mon May 06 08:56:08 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%

       Compound                   AvgRF   CCRF      %Dev Area%  Dev(min)R.T.
 ---------------------------------------------------------------------------
 1 I   1-Methylnaphthalene-d10    1.000   1.000      0.0   91   0.00    8.76
 4     Phenol                     0.653   0.706     -8.1   80   0.00    4.59

12 I   Fluorene-d10               1.000   1.000      0.0   97   0.00   11.73

18     Fluoranthene-d10           1.000   1.000      0.0   89   0.00   15.94

           ----------------------- True    Calc.   % Drift  ------------
20 t   Pentachlorophenol          5.000   5.973    -19.5  129   0.02   13.39

           ----------------------- AvgRF   CCRF     % Dev   -------------
28 I   Benzo(a)pyrene-d12         1.000   1.000      0.0   85   0.00   20.54
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    4p182.D    4p10sim.M        Mon May 06 17:37:15 2013
```

Continuing Calibration Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: E4P16-CC10
Lab FileID: 4P315.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\16\4p315.D                    Vial: 2
Acq On    :  8 May 2013  11:25 pm                      Operator: ashleyd
Sample    : cc10-1.0                                   Inst    : MS4P
Misc      : op65329a,e4p16                             Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\4P10SIM.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Mon May 06 08:56:08 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1-Methylnaphthalene-d10	1.000	1.000	0.0	109	0.01	8.78
2	S	2-Fluorophenol	0.548	0.545	0.5	98	0.02	3.37
3	S	Phenol-d5	0.513	0.629	-22.6#	124	0.02	4.59
4		Phenol	0.653	0.749	-14.7	102	0.00	4.59
5	t	bis(2-Chloroethyl)ether	0.766	0.604	21.1#	91	0.02	4.69
6	S	Nitrobenzene-d5	0.840	0.809	3.7	107	0.01	5.99
7	t	Naphthalene	2.775	2.771	0.1	110	0.00	7.31
8	t	Hexachlorobutadiene	0.428	0.421	1.6	110	0.00	7.60
9	t	2-Methylnaphthalene	1.659	1.576	5.0	104	0.01	8.66
10	t	1-Methylnaphthalene		----------NA----------				
11		Hexachlorocyclopentadiene	0.000	0.242	0.0	0#	0.00	8.99
12	I	Fluorene-d10	1.000	1.000	0.0	107	0.00	11.73
13	S	2-Fluorobiphenyl	1.148	1.069	6.9	98	0.00	9.41
14	t	Acenaphthylene	1.790	2.154	-20.3#	127	0.00	10.40
15	t	Acenaphthene	1.129	1.167	-3.4	110	0.00	10.76
16	t	Fluorene	1.229	1.339	-9.0	116	0.00	11.79
17	S	2,4,6-Tribromophenol	0.146	0.152	-4.1	107	0.00	12.30
18		Fluoranthene-d10	1.000	1.000	0.0	112	0.00	15.94
		----------	True	Calc.	% Drift	----------		
19	t	Hexachlorobenzene	1.000	0.915	8.5	99	0.00	12.91
20	t	Pentachlorophenol	5.000	7.029	-40.6#	195	-0.02	13.35
		----------	AvgRF	CCRF	% Dev	----------		
21	t	Phenanthrene	1.221	1.235	-1.1	114	0.00	13.70
22	t	Anthracene	1.149	1.155	-0.5	122	0.02	13.81
23	t	Fluoranthene	1.247	1.148	7.9	108	0.02	15.97
24	t	Pyrene	1.258	1.242	1.3	109	0.00	16.35
25	S	Terphenyl-d14	0.521	0.485	6.9	109	0.00	16.73
26	t	Benzo[a]anthracene	0.885	0.992	-12.1	122	0.00	18.45
27	t	Chrysene	1.001	0.977	2.4	110	0.00	18.51
28	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	117	0.00	20.54
29	t	Benzo[b]fluoranthene	1.434	1.457	-1.6	110	0.00	20.12
30	t	Benzo[k]fluoranthene	1.471	1.426	3.1	126	0.00	20.15
31	t	Benzo[a]pyrene	1.420	1.436	-1.1	123	0.01	20.58
32	t	Indeno[1,2,3-cd]pyrene	1.691	1.769	-4.6	120	0.01	22.10
33	t	Dibenz[a,h]anthracene	1.328	1.411	-6.2	121	0.00	22.13
34	t	Benzo[g,h,i]perylene	1.488	1.490	-0.1	118	0.01	22.48

Continuing Calibration Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: E4P16-CC10
Lab FileID: 4P315.D

```
(#) = Out of Range                SPCC's out = 0  CCC's out = 0
 4p182.D    4P10SIM.M        Thu May 09 13:55:58 2013
```

Initial Calibration Summary

Job Number: JB33644 **Sample:** ER3950-ICC3950
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** R99314.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Response Factor Report Instrument #1

Method : C:\MSDCHEM\1\METHODS\MR3950.M (RTE Integrator)
Title : Semi Volatile GC/MS, ZB-5MSI 30m x .25mm x .25um
Last Update : Fri May 17 12:05:43 2013
Response via : Initial Calibration

Calibration Files
2 =R99312.D 5 =R99311.D 100 =R99308.D 50 =R99314.D
1 =R99313.D 10 =R99310.D 80 =R99309.D 25 =R99307.D

Compound	2	5	100	50	1	10	80	25	Avg	%RSD
1) I 1,4-Dichlorobenzene-d					ISTD					
2) 1,4-Dioxane	0.918	0.796	0.528	0.555		0.805	0.564	0.619	0.683	22.47
3) Pyridine	1.643	1.515	1.457	1.442	1.479	1.823	1.400	1.532	1.536	8.92
4) N-Nitrosodim	1.368	1.236	1.017	1.054	1.638	1.377	1.034	1.141	1.233	17.62
5) 2-Fluorophen	1.175	1.132	0.963	0.994		1.188	0.994	1.052	1.071	8.69
6) Indene	2.697	2.560	2.843	2.601	2.543	2.727	2.827	2.719	2.690	4.24
7) Cumene	3.721	3.519	2.874	2.937	3.826	3.611	2.966	3.151	3.325	11.60
8) Phenol-d5	1.394	1.403	1.297	1.241	1.320	1.457	1.295	1.332	1.342	5.23
9) Phenol	2.033	2.005	1.889	1.781	1.857	2.054	1.869	1.889	1.922	5.04
10) Aniline	1.960	2.044	1.628	1.807	2.056	2.042	1.668	1.952	1.895	9.10
11) bis(2-Chloro	1.202	1.149	1.070	0.975	1.059	1.132	1.047	1.056	1.086	6.54
12) 2-Chlorophen	1.602	1.596	1.634	1.482	1.535	1.595	1.636	1.543	1.578	3.37
13) Decane	2.399	2.195	2.182	2.147	2.568	2.380	2.203	2.214	2.286	6.44
14) 1,3-Dichloro	1.888	1.794	1.861	1.750	1.944	1.927	1.854	1.802	1.853	3.63
15) 1,4-Dichloro	1.888	1.970	1.929	1.823	2.004	2.006	1.934	1.898	1.932	3.22
16) Benzyl alcoh	0.906	0.982	1.104	1.031		1.063	1.113	1.073	1.039	7.08
17) 1,2-Dichloro	1.809	1.777	1.859	1.750	1.920	1.848	1.878	1.829	1.834	3.00
18) Acetophenone	2.088	1.938	2.102	2.058	1.897	2.101	2.141	2.093	2.052	4.23
19) 2-Methylphen	1.360	1.249	1.388	1.311	1.318	1.365	1.402	1.365	1.345	3.69
20) 2,2'-oxybis(	0.408	0.380	0.452	0.414	0.458	0.454	0.452	0.446	0.433	6.61
21) 3&4-Methylph	1.294	1.267	1.565	1.448		1.447	1.579	1.505	1.444	8.50
22) n-Nitroso-di	0.883	0.898	1.027	0.959	0.890	0.985	1.032	0.997	0.959	6.38
23) Hexachloroet	0.659	0.601	0.667	0.630	0.603	0.665	0.682	0.663	0.646	4.79
24) I Naphthalene-d8					ISTD					
25) Nitrobenzene	0.345	0.352	0.359	0.322	0.350	0.355	0.351	0.342	0.347	3.24
26) Nitrobenzene	0.424	0.414	0.409	0.380	0.401	0.421	0.406	0.403	0.407	3.36
27) Quinoline	0.726	0.744	0.771	0.718	0.724	0.760	0.783	0.779	0.751	3.48
28) Isophorone	0.646	0.669	0.656	0.621	0.626	0.690	0.662	0.654	0.653	3.42
29) 2-Nitropheno	0.212	0.220	0.235	0.216	0.189	0.219	0.234	0.222	0.218	6.58
30) 2,4-Dimethyl	0.274	0.279	0.376	0.348	0.286	0.300	0.368	0.360	0.324	13.31
31) Benzoic acid		0.254	0.305	0.271		0.266	0.300	0.285	0.280	7.17
32) bis(2-Chloro	0.308	0.329	0.344	0.317	0.320	0.340	0.342	0.337	0.330	4.08
33) 2,4-Dichloro	0.315	0.316	0.345	0.311		0.335	0.333	0.323	0.325	3.91
34) 2,6-Dichloro	0.301	0.339	0.331	0.315	0.293	0.334	0.341	0.335	0.324	5.64
35) 1,3,5-Trichl	0.402	0.398	0.370	0.351	0.371	0.380	0.373	0.365	0.376	4.49
36) 1,2,4-Trichl	0.369	0.381	0.374	0.343	0.332	0.364	0.372	0.358	0.362	4.62
37) 1,2,3-Trichl	0.364	0.354	0.361	0.336	0.363	0.355	0.362	0.354	0.356	2.52
38) Naphthalene	1.110	1.090	1.131	1.036	1.164	1.163	1.127	1.116	1.117	3.69
39) 4-Chloroanil	0.493	0.518	0.501	0.486	0.489	0.503	0.516	0.523	0.504	2.76
40) 2,3-Dichloro	0.336	0.354	0.391	0.351	0.324	0.364	0.389	0.371	0.360	6.54
41) Caprolactam	0.198	0.222	0.211	0.202		0.217	0.217	0.209	0.211	4.15
42) Hexachlorobu	0.215	0.201	0.198	0.185	0.198	0.203	0.198	0.194	0.199	4.30
43) 4-Chloro-3-m	0.280	0.288	0.332	0.297	0.283	0.320	0.321	0.320	0.305	6.63
44) 2-Methylnaph	0.683	0.732	0.759	0.681	0.703	0.723	0.752	0.727	0.720	4.02
45) 1-Methylnaph	0.719	0.736	0.783	0.706	0.736	0.749	0.774	0.744	0.743	3.42

Initial Calibration Summary

Job Number: JB33644 **Sample:** ER3950-ICC3950
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** R99314.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

46)	Dimethylnaph	0.601	0.601	0.685	0.616	0.534	0.641	0.685	0.641	0.626	7.95
47)	I Acenaphthene-d10					----------ISTD----------					
48)	Hexachlorocy		0.214	0.378	0.337		0.281	0.368	0.334	0.319	19.26
49)	2,4,6-Trichl	0.367	0.387	0.420	0.392	0.336	0.392	0.419	0.398	0.389	7.03
50)	2,4,5-Trichl	0.390	0.393	0.440	0.412	0.336	0.408	0.444	0.408	0.404	8.32
51)	2-Fluorobiph	1.373	1.393	1.419	1.344	1.297	1.384	1.433	1.353	1.375	3.15
52)	2-Chloronaph	1.331	1.354	1.450	1.372	1.310	1.391	1.467	1.412	1.386	3.99
53)	Biphenyl	1.726	1.735	1.828	1.705	1.623	1.777	1.812	1.737	1.743	3.72
54)	2-Nitroanili	0.326	0.411	0.461	0.437		0.412	0.470	0.440	0.422	11.38
55)	Dimethylphth	1.350	1.308	1.356	1.243	1.253	1.327	1.309	1.256	1.300	3.41
56)	Acenaphthyle	1.775	1.868	2.011	1.878	1.658	1.906	1.987	1.868	1.869	6.03
57)	2,6-Dinitrot	0.268	0.311	0.361	0.326		0.334	0.360	0.334	0.328	9.72
58)	3-Nitroanili		0.378	0.415	0.377		0.401	0.398	0.392	0.393	3.71
59)	Acenaphthene	1.282	1.231	1.306	1.195	1.184	1.246	1.294	1.216	1.244	3.67
60)	2,4-Dinitrop			0.234	0.199		0.147	0.224	0.197	0.200	16.79
61)	4-Nitropheno		0.128	0.181	0.164		0.132	0.171	0.165	0.157	13.74
62)	Dibenzofuran	1.832	1.835	1.923	1.783	1.753	1.855	1.944	1.823	1.843	3.50
63)	2,4-Dinitrot	0.357	0.401	0.476	0.436	0.320	0.445	0.474	0.442	0.419	13.29
64)	2,3,4,6-Tetr	0.255	0.300	0.340	0.312		0.325	0.343	0.314	0.313	9.57
65)	Diethylphtha	1.166	1.183	1.167	1.085	1.037	1.206	1.171	1.139	1.144	4.91
66)	Fluorene	1.226	1.202	1.295	1.171	1.196	1.259	1.319	1.200	1.234	4.25
67)	4-Chlorophen	0.613	0.620	0.649	0.598	0.598	0.597	0.654	0.585	0.614	4.15
68)	4-Nitroanili		0.333	0.387	0.344		0.347	0.368	0.345	0.354	5.57
69)	I Phenanthrene-d10					----------ISTD----------					
70)	4,6-Dinitro-		0.130	0.200	0.186		0.144	0.195	0.179	0.172	16.70
71)	n-Nitrosodip	0.595	0.627	0.665	0.639	0.569	0.628	0.669	0.648	0.630	5.41
72)	1,2-Diphenyl	0.795	0.844	1.046	0.987	0.823	0.879	1.050	1.002	0.928	11.20
73)	2,4,6-Tribro	0.067	0.092	0.103	0.098		0.091	0.101	0.097	0.093	13.28
74)	4-Bromopheny	0.187	0.209	0.203	0.199	0.205	0.206	0.209	0.207	0.203	3.59
75)	Hexachlorobe	0.238	0.249	0.231	0.224	0.249	0.250	0.237	0.242	0.240	3.98
76)	Pentachlorop		0.116	0.148	0.142		0.130	0.148	0.141	0.137	9.22
77)	Phenanthrene	1.175	1.156	1.202	1.093	1.169	1.138	1.162	1.142	1.155	2.76
78)	Anthracene	1.096	1.154	1.261	1.113	1.058	1.135	1.209	1.171	1.150	5.63
79)	Carbazole	1.013	1.143	1.231	1.114	1.088	1.137	1.172	1.189	1.136	5.85
80)	Di-n-butylph	1.106	1.169	1.137	1.123	1.098	1.193	1.162	1.187	1.147	3.14
81)	Fluoranthene	1.065	1.094	1.021	0.985	0.995	1.097	0.977	1.028	1.033	4.61
82)	Octadecane	0.560	0.616	0.667	0.626	0.508	0.647	0.685	0.687	0.624	10.07
83)	I Chrysene-d12					----------ISTD----------					
84)	Pyrene	1.194	1.251	1.322	1.231	1.151	1.300	1.262	1.345	1.257	5.19
85)	Butyl steara	0.275	0.337	0.424	0.394		0.378	0.429	0.439	0.382	15.44
86)	Terphenyl-d1	0.793	0.816	0.872	0.832	0.784	0.850	0.853	0.901	0.838	4.75
87)	Butylbenzylp	0.416	0.485	0.551	0.516	0.414	0.533	0.526	0.547	0.498	11.12
88)	Benzo[a]anth	1.020	1.055	1.076	1.042	1.050	1.074	1.107	1.080	1.063	2.52
89)	3,3'-Dichlor	0.328	0.402	0.465	0.422		0.416	0.459	0.449	0.420	11.19
90)	Chrysene	1.089	1.165	1.188	1.088	1.146	1.143	1.174	1.150	1.143	3.20
91)	bis(2-Ethylh	0.526	0.657	0.877	0.797		0.755	0.870	0.829	0.759	16.76
92)	I Perylene-d12					----------ISTD----------					
93)	Di-n-octylph	0.882	1.148	1.417	1.166		1.346	1.397	1.321	1.240	15.30
94)	Benzo[b]fluo	0.941	1.078	1.062	0.885	0.900	1.085	1.073	1.017	1.005	8.35
95)	Benzo[k]fluo	1.384	1.333	1.373	1.096	1.315	1.407	1.344	1.240	1.312	7.69
96)	Benzo[a]pyre	0.961	1.043	1.178	1.104	0.816	1.087	1.138	1.141	1.058	11.21
97)	Indeno[1,2,3	1.097	1.206	1.218	1.056	1.006	1.009	1.210	1.089	1.111	8.00
98)	Dibenz(a,h)a	1.004	1.108	1.158	1.080		1.165	1.154	1.182	1.122	5.60
99)	Dibenz[a,h]a	1.037	1.184	1.306	1.170	0.923	1.275	1.278	1.271	1.180	11.51
100)	7,12-Dimethy	0.524	0.591	0.671	0.547	0.540	0.637	0.667	0.616	0.599	9.64
101)	Benzo[g,h,i]	1.078	1.251	1.319	1.201	1.035	1.274	1.275	1.295	1.216	8.63

Initial Calibration Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: ER3950-ICC3950
Lab FileID: R99314.D

```
--------------------------------------------------------------------------------
(#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          MR3950.M          Sun May 19 11:59:30 2013
```

Initial Calibration Verification

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Sample: ER3952-ICV3950
Lab FileID: R99332.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\er3952\R99332.D            Vial: 2
Acq On    : 16 May 2013  12:32 pm                    Operator: andrews1
Sample    : icv3950-50                               Inst    : Instrument #1
Misc      : op65387,er3952,950                       Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\MR3950.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5MSI 30m x .25mm x .25um
Last Update  : Fri May 17 12:05:43 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	114	0.00	4.60
9	t	Phenol	1.922	1.366	28.9	87	-0.02	4.40
12	t	2-Chlorophenol	1.578	1.300	17.6	100	-0.01	4.47
19	t	2-Methylphenol	1.345	1.111	17.4	96	-0.02	4.84
21	t	3&4-Methylphenol	1.444	1.195	17.2	94	-0.02	4.96
24	I	Naphthalene-d8	1.000	1.000	0.0	110	0.00	5.71
29	t	2-Nitrophenol	0.218	0.166	23.9	84	0.00	5.37
30	t	2,4-Dimethylphenol	0.324	0.310	4.3	98	-0.01	5.41
31	t	Benzoic acid	0.280	0.208	25.7	84	0.03	5.56
33	t	2,4-Dichlorophenol	0.325	0.269	17.2	95	-0.02	5.60
34	t	2,6-Dichlorophenol	0.324	0.269	17.0	94	-0.01	5.83
43	t	4-Chloro-3-methylphenol	0.305	0.246	19.3	91	-0.02	6.39
47	I	Acenaphthene-d10	1.000	1.000	0.0	93	0.00	8.04
49	t	2,4,6-Trichlorophenol	0.389	0.367	5.7	87	0.00	6.95
50	t	2,4,5-Trichlorophenol	0.404	0.399	1.2	90	-0.02	7.01
60	t	2,4-Dinitrophenol	0.200	0.110	45.0	52	-0.02	8.22
61	t	4-Nitrophenol	0.157	0.121	22.9	68	-0.05	8.41
64	t	2,3,4,6-Tetrachlorophenol	0.313	0.270	13.7	80	-0.02	8.66
69	I	Phenanthrene-d10	1.000	1.000	0.0	86	0.00	10.60
70	t	4,6-Dinitro-2-methylpheno	0.172	0.142	17.4	65	0.00	9.16
76	t	Pentachlorophenol	0.137	0.132	0.5	80	0.00	10.42

(#) = Out of Range SPCC's out = 0 CCC's out = 0
R99318.D MR3950.M Fri May 17 12:38:05 2013

8.7.15

8

Initial Calibration Verification

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Sample: ER3952-ICV3950
Lab FileID: R99333.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\er3952\R99333.D          Vial: 3
Acq On    : 16 May 2013   1:02 pm                  Operator: andrews1
Sample    : icv3950-50                             Inst    : Instrument #1
Misc      : op65387,er3952,950                     Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\MR3950.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5MSI 30m x .25mm x .25um
Last Update  : Fri May 17 12:05:43 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	106	0.00	4.59
5	S	2-Fluorophenol	1.071	1.176	-9.8	125	-0.02	3.69
8	S	Phenol-d5	1.342	1.333	0.7	113	-0.01	4.39
24	I	Naphthalene-d8	1.000	1.000	0.0	87	0.00	5.72
25	S	Nitrobenzene-d5	0.347	0.337	2.9	91	0.00	5.07
47	I	Acenaphthene-d10	1.000	1.000	0.0	84	0.00	8.04
51	S	2-Fluorobiphenyl	1.375	1.350	1.8	84	0.00	7.04
69	I	Phenanthrene-d10	1.000	1.000	0.0	79	0.00	10.60
73	S	2,4,6-Tribromophenol	0.093	0.094	-1.1	75	-0.01	9.40
83	I	Chrysene-d12	1.000	1.000	0.0	77	0.00	15.76
86	S	Terphenyl-d14	0.838	0.938	-11.9	87	0.00	13.77

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 R99318.D   MR3950.M         Fri May 24 16:27:48 2013
```

8.7.16

8

Initial Calibration Verification

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Sample: ER3952-ICV3950
Lab FileID: R99334.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\er3952\R99334.D Vial: 4
Acq On : 16 May 2013 1:33 pm Operator: andrews1
Sample : icv3950-50 Inst : Instrument #1
Misc : op65387,er3952,950 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\MR3950.M (RTE Integrator)
Title : Semi Volatile GC/MS, ZB-5MSI 30m x .25mm x .25um
Last Update : Fri May 17 12:05:43 2013
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	153	0.00	4.60
3	t	Pyridine	1.536	1.351	12.0	143	-0.07	2.54
4	t	N-Nitrosodimethylamine	1.233	1.045	15.2	152	-0.03	2.55
11	t	bis(2-Chloroethyl)ether	1.086	0.992	8.7	156	0.00	4.43
14	t	1,3-Dichlorobenzene	1.853	1.412	23.8	123	0.00	4.57
15	t	1,4-Dichlorobenzene	1.932	1.572	18.6	132	0.00	4.61
16	t	Benzyl alcohol	1.039	0.851	18.1	126	-0.01	4.74
17	t	1,2-Dichlorobenzene	1.834	1.501	18.2	131	0.00	4.76
20	t	2,2'-oxybis(1-Chloropropa	0.433	0.401	7.4	148	0.00	4.84
22	t	n-Nitroso-di-n-propylamin	0.959	0.846	11.8	135	0.00	4.96
23	t	Hexachloroethane	0.646	0.536	17.0	130	0.00	5.00
24	I	Naphthalene-d8	1.000	1.000	0.0	145	0.00	5.72
26	t	Nitrobenzene	0.407	0.322	20.9	123	0.00	5.09
28	t	Isophorone	0.653	0.548	16.1	128	0.00	5.28
32	t	bis(2-Chloroethoxy)methan	0.330	0.329	0.3	151	0.00	5.49
36	t	1,2,4-Trichlorobenzene	0.362	0.292	19.3	123	0.00	5.68
38	t	Naphthalene	1.117	1.045	6.4	146	0.00	5.74
39	t	4-Chloroaniline	0.504	0.279	44.6#	83	-0.01	5.83
42	t	Hexachlorobutadiene	0.199	0.173	13.1	136	0.00	5.92
44	t	2-Methylnaphthalene	0.720	0.565	21.5	121	0.00	6.52
47	I	Acenaphthene-d10	1.000	1.000	0.0	148	0.00	8.04
48	t	Hexachlorocyclopentadiene	0.319	0.240	24.7	106	0.00	6.81
52	t	2-Chloronaphthalene	1.386	1.012	27.0	109	0.00	7.17
54	t	2-Nitroaniline	0.422	0.285	32.5#	96	0.00	7.40
55	t	Dimethylphthalate	1.300	1.049	19.3	125	0.00	7.72
56	t	Acenaphthylene	1.869	1.586	15.1	125	0.00	7.80
57	t	2,6-Dinitrotoluene	0.328	0.252	23.2	115	0.00	7.83
58	t	3-Nitroaniline	0.393	0.272	30.8#	107	0.00	8.05
59	t	Acenaphthene	1.244	1.156	7.1	143	0.01	8.10
62	t	Dibenzofuran	1.843	1.470	20.2	122	0.00	8.35
63	t	2,4-Dinitrotoluene	0.419	0.327	22.0	111	0.00	8.48
65	t	Diethylphthalate	1.144	0.999	12.7	136	0.00	8.90
66	t	Fluorene	1.234	1.132	8.3	143	0.00	8.93
67	t	4-Chlorophenyl-phenylethe	0.614	0.561	8.6	139	0.00	8.96
68	t	4-Nitroaniline	0.354	0.271	23.4	117	0.00	9.11
69	I	Phenanthrene-d10	1.000	1.000	0.0	131	0.00	10.61
71	t	n-Nitrosodiphenylamine	0.630	0.635	-0.8	130	0.00	9.20
72	t	1,2-Diphenylhydrazine	0.928	0.899	3.1	120	0.00	9.23
74	t	4-Bromophenyl-phenylether	0.203	0.217	-6.9	143	0.00	9.82

Initial Calibration Verification

Job Number: JB33644 **Sample:** ER3952-ICV3950
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** R99334.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

75	t	Hexachlorobenzene	0.240	0.217	9.6	127	0.00	10.06
77	t	Phenanthrene	1.155	1.087	5.9	131	0.00	10.65
78	t	Anthracene	1.150	1.196	-4.0	141	0.00	10.73
79	t	Carbazole	1.136	1.010	11.1	119	0.00	11.10
80	t	Di-n-butylphthalate	1.147	1.146	0.1	134	0.00	11.95
81	t	Fluoranthene	1.033	0.962	6.9	128	0.00	12.94
83	I	Chrysene-d12	1.000	1.000	0.0	129	0.00	15.77
84	t	Pyrene	1.257	1.295	-3.0	135	0.00	13.35
87	t	Butylbenzylphthalate	0.498	0.511	-2.6	127	0.00	14.87
88	t	Benzo[a]anthracene	1.063	0.984	7.4	121	0.00	15.74
89	t	3,3'-Dichlorobenzidine	0.420	0.296	29.5	90	0.00	15.80
90	t	Chrysene	1.143	1.099	3.8	130	0.00	15.82
91	t	bis(2-Ethylhexyl)phthalat	0.759	0.759	0.0	122	0.00	16.09
92	I	Perylene-d12	1.000	1.000	0.0	111	0.00	18.41
93	t	Di-n-octylphthalate	1.240	1.298	-4.7	124	0.00	17.24
94	t	Benzo[b]fluoranthene	1.005	0.994	1.1	125	0.00	17.76
95	t	Benzo[k]fluoranthene	1.312	1.207	8.0	122	0.01	17.80
96	t	Benzo[a]pyrene	1.058	1.040	1.7	105	0.00	18.31
97	t	Indeno[1,2,3-cd]pyrene	1.111	0.931	16.2	98	0.00	20.11
99	t	Dibenz[a,h]anthracene	1.180	1.103	6.5	105	0.00	20.14
101	t	Benzo[g,h,i]perylene	1.216	1.113	8.5	103	0.00	20.55

(#) = Out of Range SPCC's out = 0 CCC's out = 0
R99318.D MR3950.M Fri May 17 12:38:09 2013

8.7.17

8

Initial Calibration Verification

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Sample: ER3952-ICV3950
Lab FileID: R99335.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\er3952\R99335.D          Vial: 5
Acq On    : 16 May 2013   2:04 pm                  Operator: andrews1
Sample    : icv3950-50                             Inst    : Instrument #1
Misc      : op65387,er3952,950                     Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\MR3950.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5MSI 30m x .25mm x .25um
Last Update  : Fri May 17 12:05:43 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	96	0.00	4.60
2	t	1,4-Dioxane	0.683	0.621	9.1	108	0.00	2.20
6	t	Indene	2.690	2.326	13.5	86	0.00	4.82
7	t	Cumene	3.325	2.969	10.7	97	0.00	4.03
13	t	Decane	2.286	1.812	20.7	81	0.00	4.47
18	t	Acetophenone	2.052	1.662	19.0	78	-0.01	4.94
24	I	Naphthalene-d8	1.000	1.000	0.0	91	0.00	5.72
27	t	Quinoline	0.751	0.582	22.5	74	-0.01	6.11
40	t	2,3-Dichloroaniline	0.360	0.257	28.6	66	0.00	6.96
41	t	Caprolactam	0.211	0.145	31.3#	65	0.00	6.18
45	t	1-Methylnaphthalene	0.743	0.583	21.5	75	0.00	6.66
46	t	Dimethylnaphthalene	0.626	0.510	18.5	75	0.00	7.38
47	I	Acenaphthene-d10	1.000	1.000	0.0	81	0.00	8.04
53	t	Biphenyl	1.743	1.530	12.2	73	0.00	7.16
69	I	Phenanthrene-d10	1.000	1.000	0.0	75	0.00	10.60
82	t	Octadecane	0.624	0.572	8.3	69	0.00	10.51
92	I	Perylene-d12	1.000	1.000	0.0	57	0.00	18.40
100	t	7,12-Dimethylbenz(a)anthr	0.599	0.553	7.7	58	0.00	17.79

(#) = Out of Range SPCC's out = 0 CCC's out = 0
R99318.D MR3950.M Fri May 17 12:38:11 2013

8.7.18

8

Continuing Calibration Summary

Job Number: JB33644 **Sample:** ER3953-CC3950
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** R99361.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\er3953\R99361.D          Vial: 2
Acq On    : 17 May 2013   1:53 pm                  Operator: andrews1
Sample    : cc3950-25                              Inst    : Instrument #1
Misc      : op65387,er3953,950                     Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\MR3950.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5MSI 30m x .25mm x .25um
Last Update  : Fri May 17 12:05:43 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	99	0.00	4.60
2	t	1,4-Dioxane	0.683	0.569	16.7	91	-0.01	2.19
3	t	Pyridine	1.536	1.542	-0.4	99	-0.07	2.54
4	t	N-Nitrosodimethylamine	1.233	1.132	8.2	98	-0.04	2.53
5	S	2-Fluorophenol	1.071	1.077	-0.6	101	-0.02	3.69
6	t	Indene	2.690	2.674	0.6	97	0.00	4.82
7	t	Cumene	3.325	3.269	1.7	102	0.00	4.03
8	S	Phenol-d5	1.342	1.359	-1.3	101	0.00	4.40
9	t	Phenol	1.922	1.912	0.5	100	0.00	4.41
10	t	Aniline	1.895	1.965	-3.7	99	0.00	4.39
11	t	bis(2-Chloroethyl)ether	1.086	1.101	-1.4	103	0.00	4.43
12	t	2-Chlorophenol	1.578	1.585	-0.4	101	0.00	4.48
13	t	Decane	2.286	2.339	-2.3	104	0.00	4.47
14	t	1,3-Dichlorobenzene	1.853	1.832	1.1	100	0.00	4.57
15	t	1,4-Dichlorobenzene	1.932	1.883	2.5	98	0.00	4.61
16	t	Benzyl alcohol	1.039	1.041	-0.2	96	0.00	4.74
17	t	1,2-Dichlorobenzene	1.834	1.750	4.6	94	0.00	4.76
18	t	Acetophenone	2.052	2.062	-0.5	97	0.00	4.94
19	t	2-Methylphenol	1.345	1.337	0.6	97	0.00	4.85
20	t	2,2'-oxybis(1-Chloropropa	0.433	0.425	1.8	94	0.00	4.84
21	t	3&4-Methylphenol	1.444	1.415	2.0	93	0.00	4.96
22	t	n-Nitroso-di-n-propylamin	0.959	0.976	-1.8	97	0.00	4.96
23	t	Hexachloroethane	0.646	0.611	5.4	91	0.00	5.00
24	I	Naphthalene-d8	1.000	1.000	0.0	94	0.00	5.72
25	S	Nitrobenzene-d5	0.347	0.343	1.2	94	0.00	5.07
26	t	Nitrobenzene	0.407	0.407	0.0	94	0.00	5.09
27	t	Quinoline	0.751	0.742	1.2	89	0.00	6.12
28	t	Isophorone	0.653	0.677	-3.7	97	0.00	5.29
29	t	2-Nitrophenol	0.218	0.226	-3.7	95	0.00	5.37
30	t	2,4-Dimethylphenol	0.324	0.340	-4.9	88	0.00	5.41
31	t	Benzoic acid	0.280	0.284	-1.4	93	0.03	5.56
32	t	bis(2-Chloroethoxy)methan	0.330	0.327	0.9	91	0.00	5.49
33	t	2,4-Dichlorophenol	0.325	0.314	3.4	91	-0.02	5.61
34	t	2,6-Dichlorophenol	0.324	0.317	2.2	88	0.00	5.84
35	t	1,3,5-Trichlorobenzene	0.376	0.364	3.2	93	0.00	5.37
36	t	1,2,4-Trichlorobenzene	0.362	0.353	2.5	92	0.00	5.68
37	t	1,2,3-Trichlorobenzene	0.356	0.343	3.7	91	0.00	5.93
38	t	Naphthalene	1.117	1.091	2.3	91	0.00	5.74
39	t	4-Chloroaniline	0.504	0.505	-0.2	90	0.00	5.83
40	t	2,3-Dichloroaniline	0.360	0.355	1.4	89	0.00	6.96
41	t	Caprolactam	0.211	0.214	-1.4	96	0.03	6.21

Continuing Calibration Summary

Job Number: JB33644 **Sample:** ER3953-CC3950
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** R99361.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

42	t	Hexachlorobutadiene	0.199	0.187	6.0	90	0.00	5.92
43	t	4-Chloro-3-methylphenol	0.305	0.310	-1.6	91	0.00	6.41
44	t	2-Methylnaphthalene	0.720	0.694	3.6	89	0.00	6.53
45	t	1-Methylnaphthalene	0.743	0.707	4.8	89	0.00	6.66
46	t	Dimethylnaphthalene	0.626	0.612	2.2	89	0.00	7.38
47	I	Acenaphthene-d10	1.000	1.000	0.0	91	0.00	8.05
48	t	Hexachlorocyclopentadiene	0.319	0.270	15.4	73	0.00	6.81
49	t	2,4,6-Trichlorophenol	0.389	0.404	-3.9	92	0.00	6.96
50	t	2,4,5-Trichlorophenol	0.404	0.404	0.0	90	0.00	7.02
51	S	2-Fluorobiphenyl	1.375	1.323	3.8	89	0.00	7.04
52	t	2-Chloronaphthalene	1.386	1.368	1.3	88	0.00	7.18
53	t	Biphenyl	1.743	1.689	3.1	88	0.00	7.17
54	t	2-Nitroaniline	0.422	0.444	-5.2	91	0.00	7.41
55	t	Dimethylphthalate	1.300	1.272	2.2	92	0.00	7.72
56	t	Acenaphthylene	1.869	1.909	-2.1	93	0.00	7.80
57	t	2,6-Dinitrotoluene	0.328	0.335	-2.1	91	0.01	7.84
58	t	3-Nitroaniline	0.393	0.363	7.6	84	0.00	8.06
59	t	Acenaphthene	1.244	1.213	2.5	91	0.01	8.10
60	t	2,4-Dinitrophenol	0.200	0.169	15.5	78	0.00	8.24
61	t	4-Nitrophenol	0.157	0.166	-5.7	92	-0.02	8.44
62	t	Dibenzofuran	1.843	1.814	1.6	90	0.01	8.36
63	t	2,4-Dinitrotoluene	0.419	0.455	-8.6	93	0.00	8.48
64	t	2,3,4,6-Tetrachlorophenol	0.313	0.312	0.3	90	0.00	8.67
65	t	Diethylphthalate	1.144	1.151	-0.6	92	0.01	8.90
66	t	Fluorene	1.234	1.254	-1.6	95	0.00	8.94
67	t	4-Chlorophenyl-phenylethe	0.614	0.606	1.3	94	0.01	8.96
68	t	4-Nitroaniline	0.354	0.305	13.8	80	0.00	9.11
69	I	Phenanthrene-d10	1.000	1.000	0.0	96	0.01	10.62
70	t	4,6-Dinitro-2-methylpheno	0.172	0.174	-1.2	93	0.01	9.19
71	t	n-Nitrosodiphenylamine	0.630	0.630	0.0	93	0.01	9.20
72	t	1,2-Diphenylhydrazine	0.928	0.999	-7.7	95	0.01	9.23
73	S	2,4,6-Tribromophenol	0.093	0.095	-2.2	93	0.00	9.41
74	t	4-Bromophenyl-phenylether	0.203	0.208	-2.5	96	0.00	9.82
75	t	Hexachlorobenzene	0.240	0.233	2.9	92	0.01	10.07
76	t	Pentachlorophenol	0.137	0.139	-1.5	94	0.01	10.44
77	t	Phenanthrene	1.155	1.154	0.1	97	0.01	10.66
78	t	Anthracene	1.150	1.172	-1.9	96	0.02	10.74
79	t	Carbazole	1.136	1.152	-1.4	93	0.01	11.11
80	t	Di-n-butylphthalate	1.147	1.239	-8.0	100	0.00	11.96
81	t	Fluoranthene	1.033	1.054	-2.0	98	0.01	12.94
82	t	Octadecane	0.624	0.677	-8.5	94	0.00	10.52
83	I	Chrysene-d12	1.000	1.000	0.0	115	0.02	15.79
84	t	Pyrene	1.257	1.135	9.7	97	0.01	13.37
85		Butyl stearate	0.382	0.409	-7.1	107	0.00	14.97
86	S	Terphenyl-d14	0.838	0.759	9.4	97	0.01	13.78
87	t	Butylbenzylphthalate	0.498	0.547	-9.8	115	0.02	14.88
88	t	Benzo[a]anthracene	1.063	1.118	-5.2	119	0.02	15.76
89	t	3,3'-Dichlorobenzidine	0.420	0.371	11.7	95	0.01	15.82
90	t	Chrysene	1.143	1.166	-2.0	117	0.02	15.84
91	t	bis(2-Ethylhexyl)phthalat	0.759	0.906	-19.4	126	0.01	16.09
92	I	Perylene-d12	1.000	1.000	0.0	176	0.02	18.43
93	t	Di-n-octylphthalate	1.240	1.321	-6.5	176	0.01	17.25
94	t	Benzo[b]fluoranthene	1.005	1.067	-6.2	184	0.02	17.78
95	t	Benzo[k]fluoranthene	1.312	1.203	8.3	170	0.03	17.82
96	t	Benzo[a]pyrene	1.058	1.145	-8.2	176	0.02	18.32
97	t	Indeno[1,2,3-cd]pyrene	1.111	1.219	-9.7	197	0.02	20.13

Continuing Calibration Summary

Job Number: JB33644 **Sample:** ER3953-CC3950
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** R99361.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

98	t	Dibenz(a,h)acridine	1.122	1.321	-17.7	196	0.01	19.78
99	t	Dibenz[a,h]anthracene	1.180	1.343	-13.8	186	0.02	20.16
100	t	7,12-Dimethylbenz(a)anthr	0.599	0.618	-3.2	176	0.03	17.81
101	t	Benzo[g,h,i]perylene	1.216	1.291	-6.2	175	0.02	20.57

(#) = Out of Range SPCC's out = 0 CCC's out = 0
R99319.D MR3950.M Fri May 17 20:17:11 2013

8.7.19

8

New Jersey

ACCUTEST LABORATORIES

GC/MS Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1665\
Data File : 3m36428.D
Acq On : 24 Apr 2013 6:12 pm
Operator : ashleyd
Sample : jb33644-1
Misc : op65230,e3m1665,1000
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Apr 24 18:50:42 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration

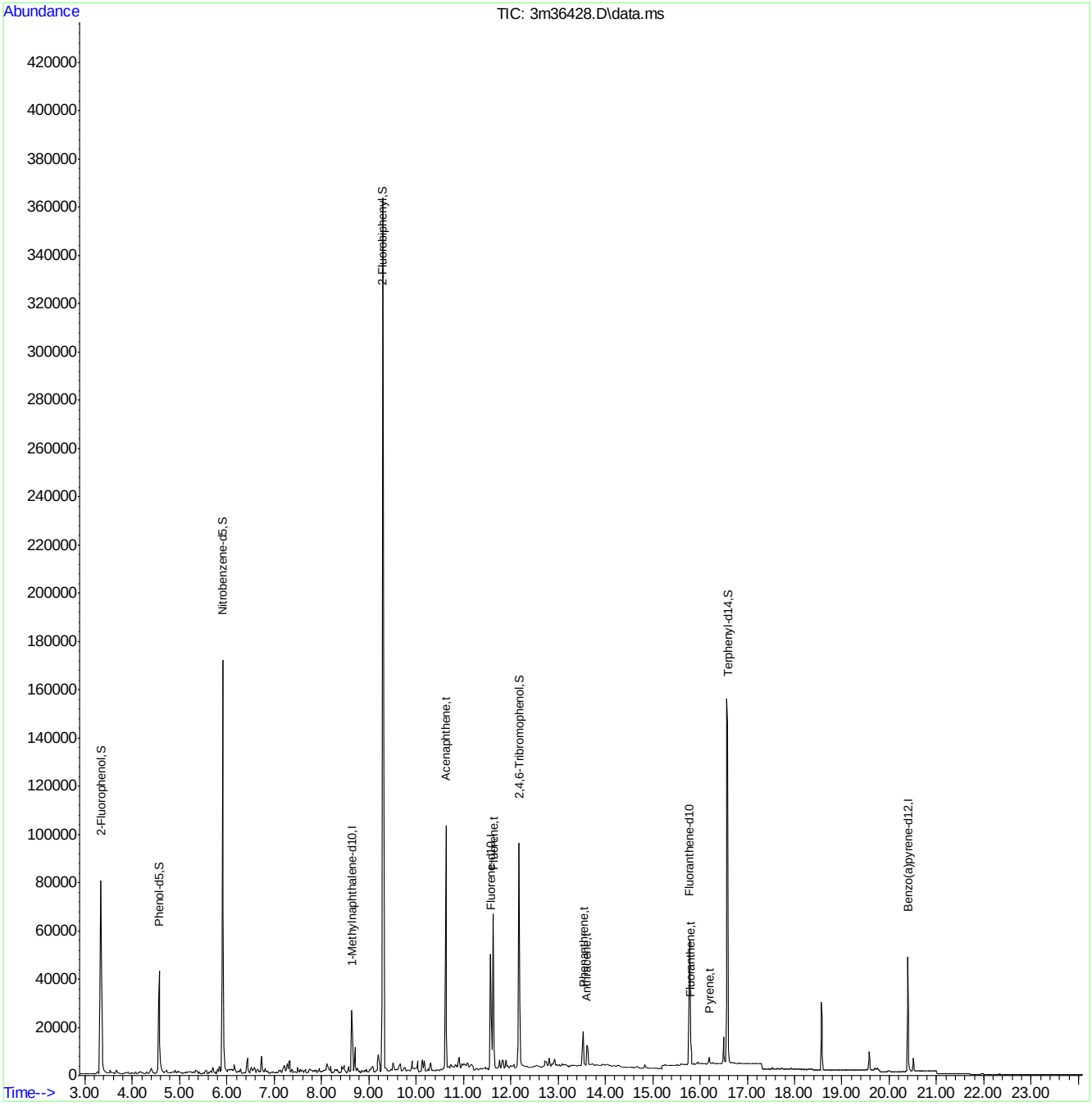
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.639	150	27289	4.00	ppb	-0.11
12) Fluorene-d10	11.577	176	44966	4.00	ppb	-0.13
18) Fluoranthene-d10	15.784	212	60496	4.00	ppb	-0.11
28) Benzo(a)pyrene-d12	20.398	264	46265	4.00	ppb	-0.13
System Monitoring Compounds						
2) 2-Fluorophenol	3.335	112	76692	17.94	ppb	-0.09
Spiked Amount 50.000			Recovery = 35.88%			
3) Phenol-d5	4.571	99	72685	13.28	ppb	-0.08
Spiked Amount 50.000			Recovery = 26.56%			
6) Nitrobenzene-d5	5.909	82	160278	27.47	ppb	-0.11
Spiked Amount 50.000			Recovery = 54.94%			
13) 2-Fluorobiphenyl	9.294	172	331781	25.20	ppb	-0.12
Spiked Amount 50.000			Recovery = 50.40%			
17) 2,4,6-Tribromophenol	12.180	330	58405	31.03	ppb	-0.13
Spiked Amount 50.000			Recovery = 62.06%			
25) Terphenyl-d14	16.588	244	217382	21.45	ppb	-0.11
Spiked Amount 50.000			Recovery = 42.90%			
Target Compounds						Qvalue
15) Acenaphthene	10.632	153	55896	3.99	ppb	99
16) Fluorene	11.633	166	45487	3.16	ppb	78
21) Phenanthrene	13.536	178	19097	0.87	ppb	91
22) Anthracene	13.611	178	13332	0.74	ppb	97
23) Fluoranthene	15.800	202	6755	0.32	ppb	95
24) Pyrene	16.202	202	4077	0.18	ppb	92

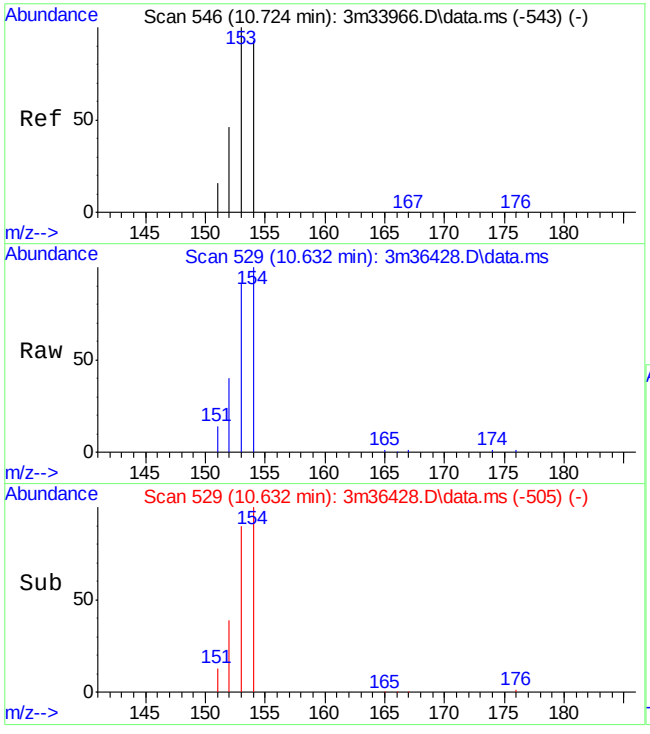
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1665\
Data File : 3m36428.D
Acq On : 24 Apr 2013 6:12 pm
Operator : ashleyd
Sample : jb33644-1
Misc : op65230,e3m1665,1000
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Apr 24 18:50:42 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration

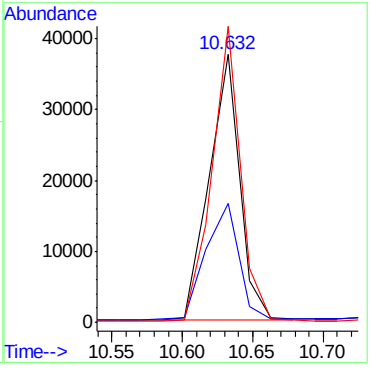


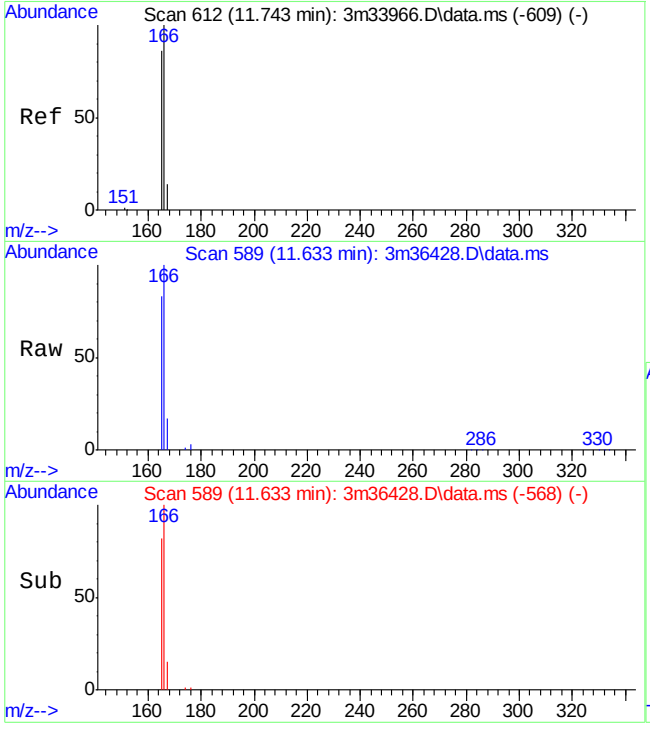


#15
Acenaphthene
Concen: 3.99 ppb
RT: 10.632 min Scan# 529
Delta R.T. -0.124 min
Lab File: 3m36428.D
Acq: 24 Apr 2013 6:12 pm

Tgt Ion:153 Resp: 55896

Ion	Ratio	Lower	Upper
153	100		
152	43.5	11.2	71.2
154	111.0	81.2	141.2

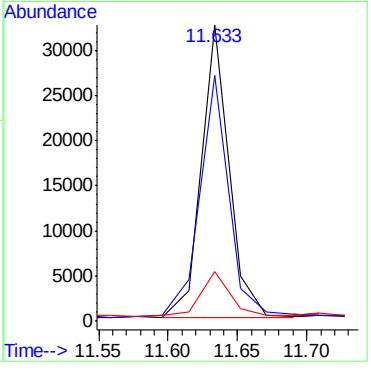


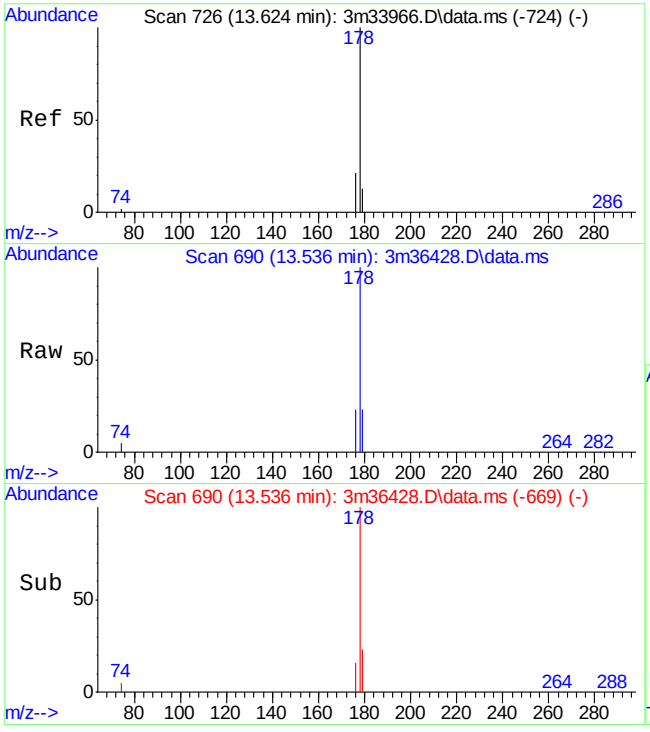


#16
Fluorene
Concen: 3.16 ppb
RT: 11.633 min Scan# 589
Delta R.T. -0.113 min
Lab File: 3m36428.D
Acq: 24 Apr 2013 6:12 pm

Tgt Ion:166 Resp: 45487

Ion	Ratio	Lower	Upper
166	100		
165	82.1	76.4	136.4
167	14.8	0.0	41.3

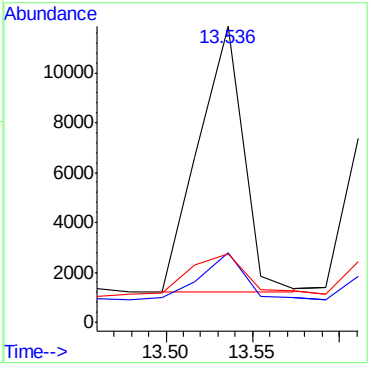


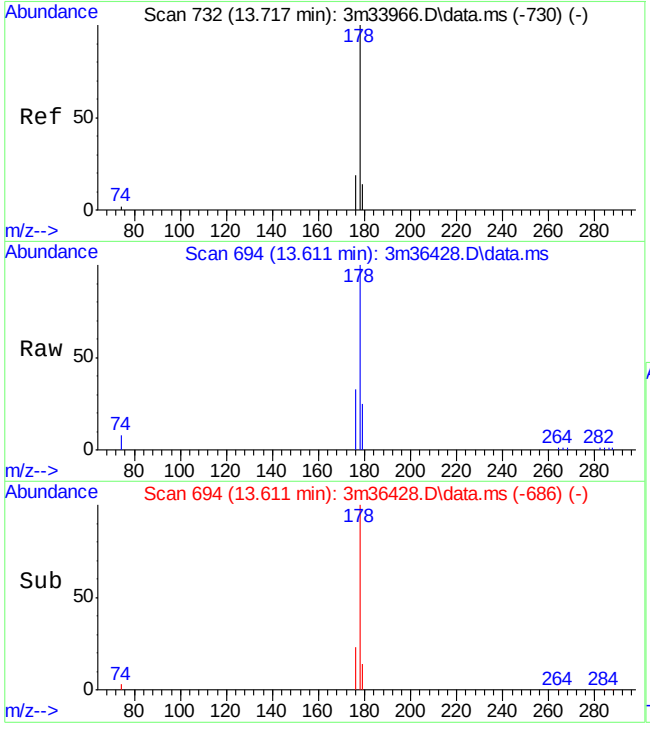


#21
Phenanthrene
Concen: 0.87 ppb
RT: 13.536 min Scan# 690
Delta R.T. -0.113 min
Lab File: 3m36428.D
Acq: 24 Apr 2013 6:12 pm

Tgt Ion:178 Resp: 19097

Ion	Ratio	Lower	Upper
178	100		
179	17.0	0.0	44.7
176	14.6	0.0	50.1

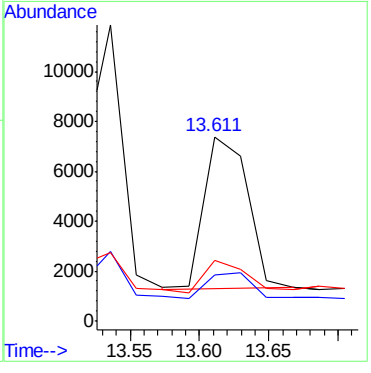


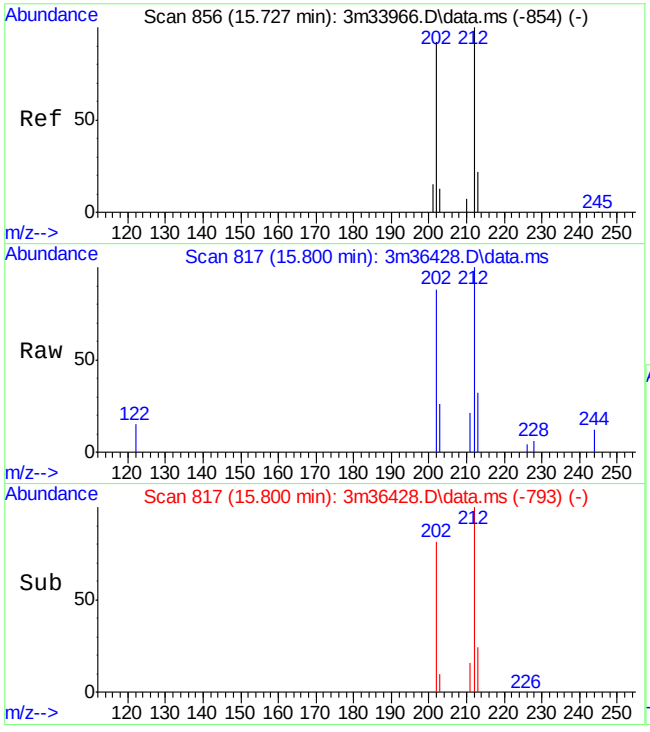


#22
Anthracene
Concen: 0.74 ppb
RT: 13.611 min Scan# 694
Delta R.T. -0.151 min
Lab File: 3m36428.D
Acq: 24 Apr 2013 6:12 pm

Tgt Ion:178 Resp: 13332

Ion	Ratio	Lower	Upper
178	100		
179	14.3	0.0	45.5
176	19.7	0.0	48.3

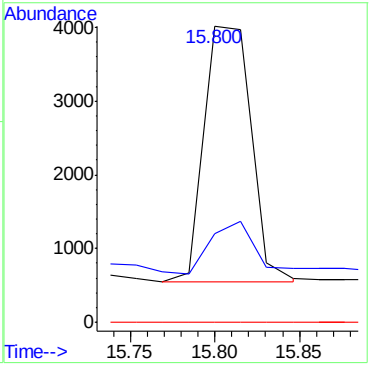


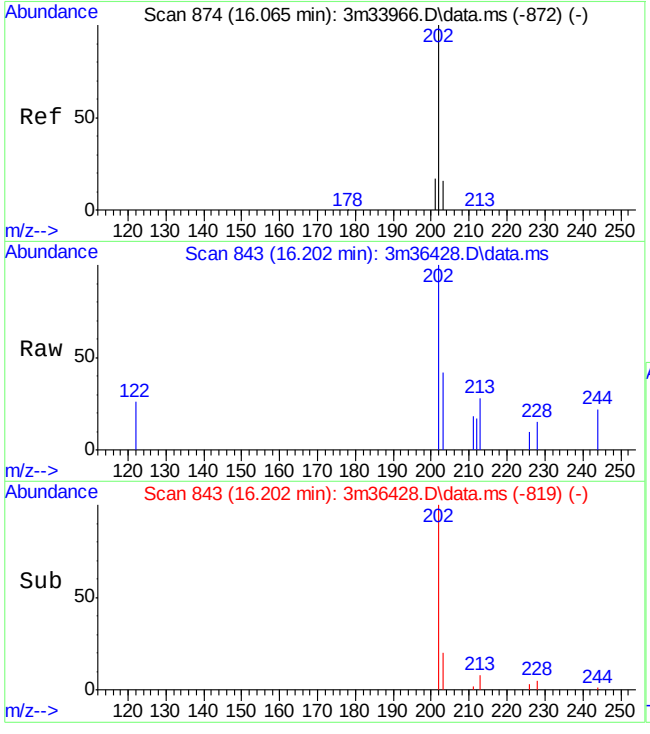


#23
Fluoranthene
Concen: 0.32 ppb
RT: 15.800 min Scan# 817
Delta R.T. -0.124 min
Lab File: 3m36428.D
Acq: 24 Apr 2013 6:12 pm

Tgt Ion:202 Resp: 6755

Ion	Ratio	Lower	Upper
202	100		
203	14.4	0.0	46.4
201	0.0	0.0	30.0

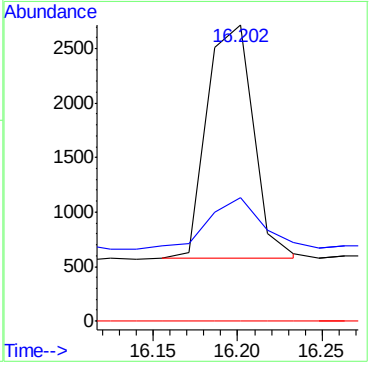




#24
Pyrene
Concen: 0.18 ppb
RT: 16.202 min Scan# 843
Delta R.T. -0.124 min
Lab File: 3m36428.D
Acq: 24 Apr 2013 6:12 pm

Tgt Ion:202 Resp: 4077

Ion	Ratio	Lower	Upper
202	100		
203	20.1	0.0	46.8
201	0.0	0.0	30.0



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1665\
Data File : 3m36429.D
Acq On : 24 Apr 2013 6:44 pm
Operator : ashleyd
Sample : jb33644-2
Misc : op65230,e3m1665,1000
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Apr 24 22:26:38 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1-Methylnaphthalene-d10	8.639	150	28607	4.00 ppb	-0.11
12) Fluorene-d10	11.577	176	44696	4.00 ppb	-0.13
18) Fluoranthene-d10	15.784	212	64696	4.00 ppb	-0.11
28) Benzo(a)pyrene-d12	20.398	264	48283	4.00 ppb	-0.13
System Monitoring Compounds					
2) 2-Fluorophenol	3.350	112	18234	4.07 ppb	-0.08
Spiked Amount 50.000			Recovery	= 8.14%	
3) Phenol-d5	4.571	99	52010	9.07 ppb	-0.08
Spiked Amount 50.000			Recovery	= 18.14%	
6) Nitrobenzene-d5	5.909	82	150508	24.60 ppb	-0.11
Spiked Amount 50.000			Recovery	= 49.20%	
13) 2-Fluorobiphenyl	9.294	172	270963	20.70 ppb	-0.12
Spiked Amount 50.000			Recovery	= 41.40%	
17) 2,4,6-Tribromophenol	12.180	330	13765	7.36 ppb	-0.13
Spiked Amount 50.000			Recovery	= 14.72%	
25) Terphenyl-d14	16.573	244	209924	19.37 ppb	-0.12
Spiked Amount 50.000			Recovery	= 38.74%	

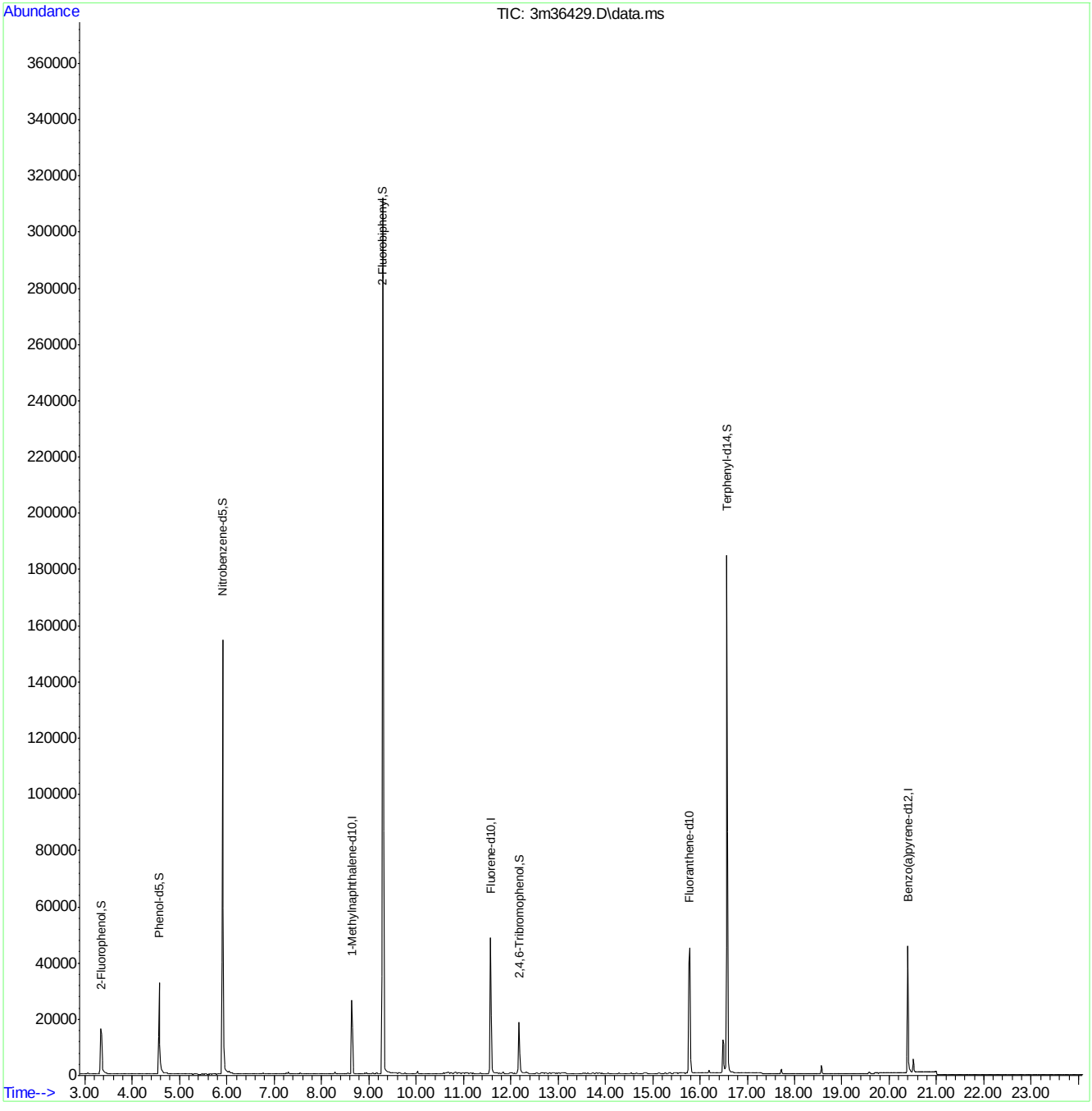
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1665\
Data File : 3m36429.D
Acq On : 24 Apr 2013 6:44 pm
Operator : ashleyd
Sample : jb33644-2
Misc : op65230,e3m1665,1000
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Apr 24 22:26:38 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1665\
Data File : 3m36430.D
Acq On : 24 Apr 2013 7:16 pm
Operator : ashleyd
Sample : jb33644-3
Misc : op65230,e3m1665,930
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Apr 24 22:26:59 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.639	150	29615	4.00	ppb	-0.11
12) Fluorene-d10	11.577	176	46802	4.00	ppb	-0.13
18) Fluoranthene-d10	15.784	212	67792	4.00	ppb	-0.11
28) Benzo(a)pyrene-d12	20.398	264	48749	4.00	ppb	-0.13
System Monitoring Compounds						
2) 2-Fluorophenol	0.000	112	0	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
3) Phenol-d5	0.000	99	0d	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
6) Nitrobenzene-d5	5.909	82	192481	30.39	ppb	-0.11
Spiked Amount 50.000			Recovery	=	60.78%	
13) 2-Fluorobiphenyl	9.294	172	336792	24.57	ppb	-0.12
Spiked Amount 50.000			Recovery	=	49.14%	
17) 2,4,6-Tribromophenol	0.000	330	0	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
25) Terphenyl-d14	16.573	244	286518	25.23	ppb	-0.12
Spiked Amount 50.000			Recovery	=	50.46%	

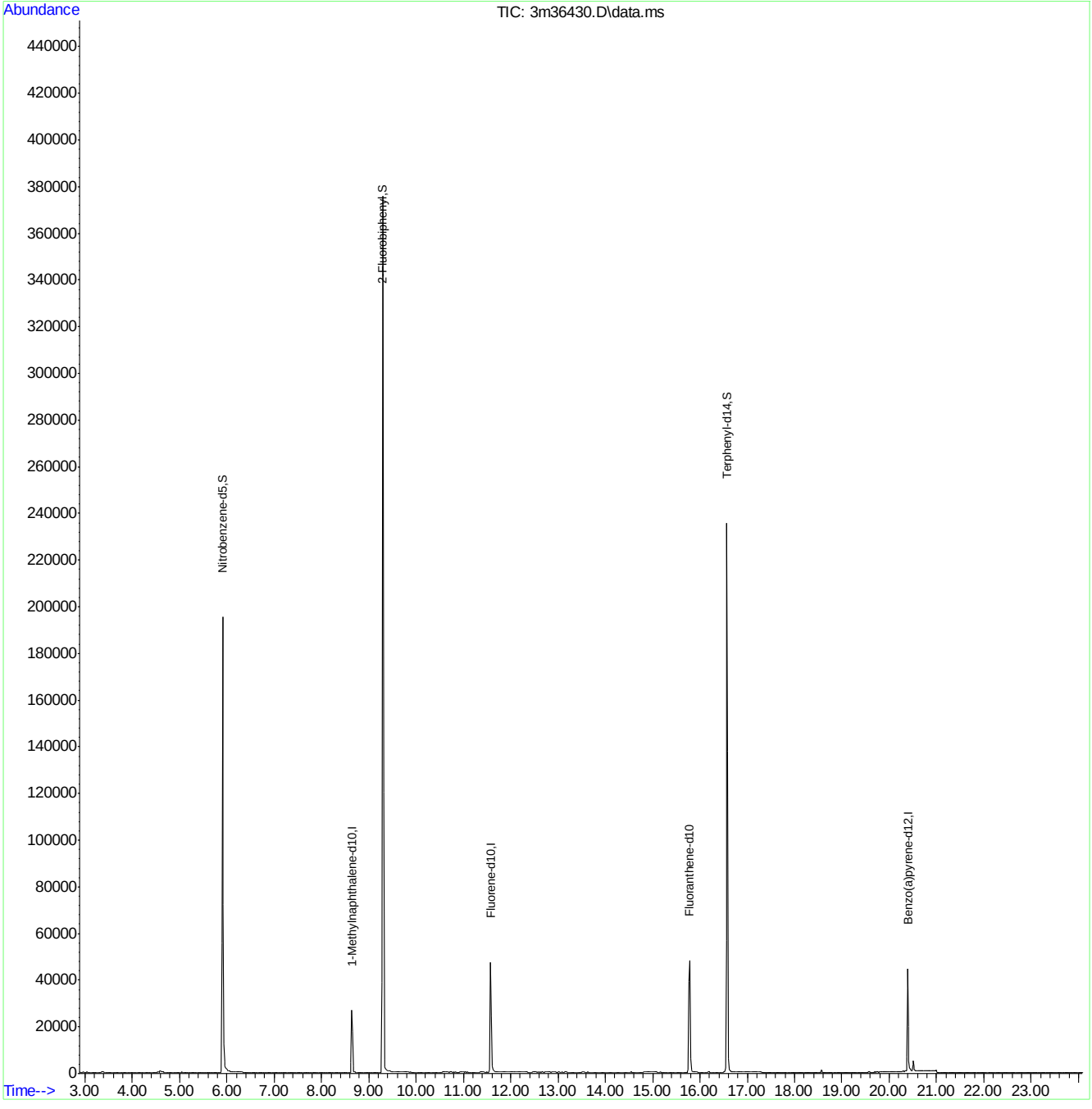
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1665\
Data File : 3m36430.D
Acq On : 24 Apr 2013 7:16 pm
Operator : ashleyd
Sample : jb33644-3
Misc : op65230,e3m1665,930
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Apr 24 22:26:59 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1665\
Data File : 3m36431.D
Acq On : 24 Apr 2013 7:47 pm
Operator : ashleyd
Sample : jb33644-5
Misc : op65230,e3m1665,1000
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Apr 24 22:27:37 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.639	150	27241	4.00	ppb	-0.11
12) Fluorene-d10	11.577	176	44854	4.00	ppb	-0.13
18) Fluoranthene-d10	15.784	212	63483	4.00	ppb	-0.11
28) Benzo(a)pyrene-d12	20.398	264	48778	4.00	ppb	-0.13
System Monitoring Compounds						
2) 2-Fluorophenol	0.000	112	0	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
3) Phenol-d5	0.000	99	0d	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
6) Nitrobenzene-d5	5.909	82	145057	24.90	ppb	-0.11
Spiked Amount 50.000			Recovery	=	49.80%	
13) 2-Fluorobiphenyl	9.294	172	250430	19.07	ppb	-0.12
Spiked Amount 50.000			Recovery	=	38.14%	
17) 2,4,6-Tribromophenol	0.000	330	0	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
25) Terphenyl-d14	16.573	244	226760	21.33	ppb	-0.12
Spiked Amount 50.000			Recovery	=	42.66%	
Target Compounds						Qvalue
16) Fluorene	11.633	166	1944	0.14	ppb	90
21) Phenanthrene	13.535	178	5849	0.25	ppb	93

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

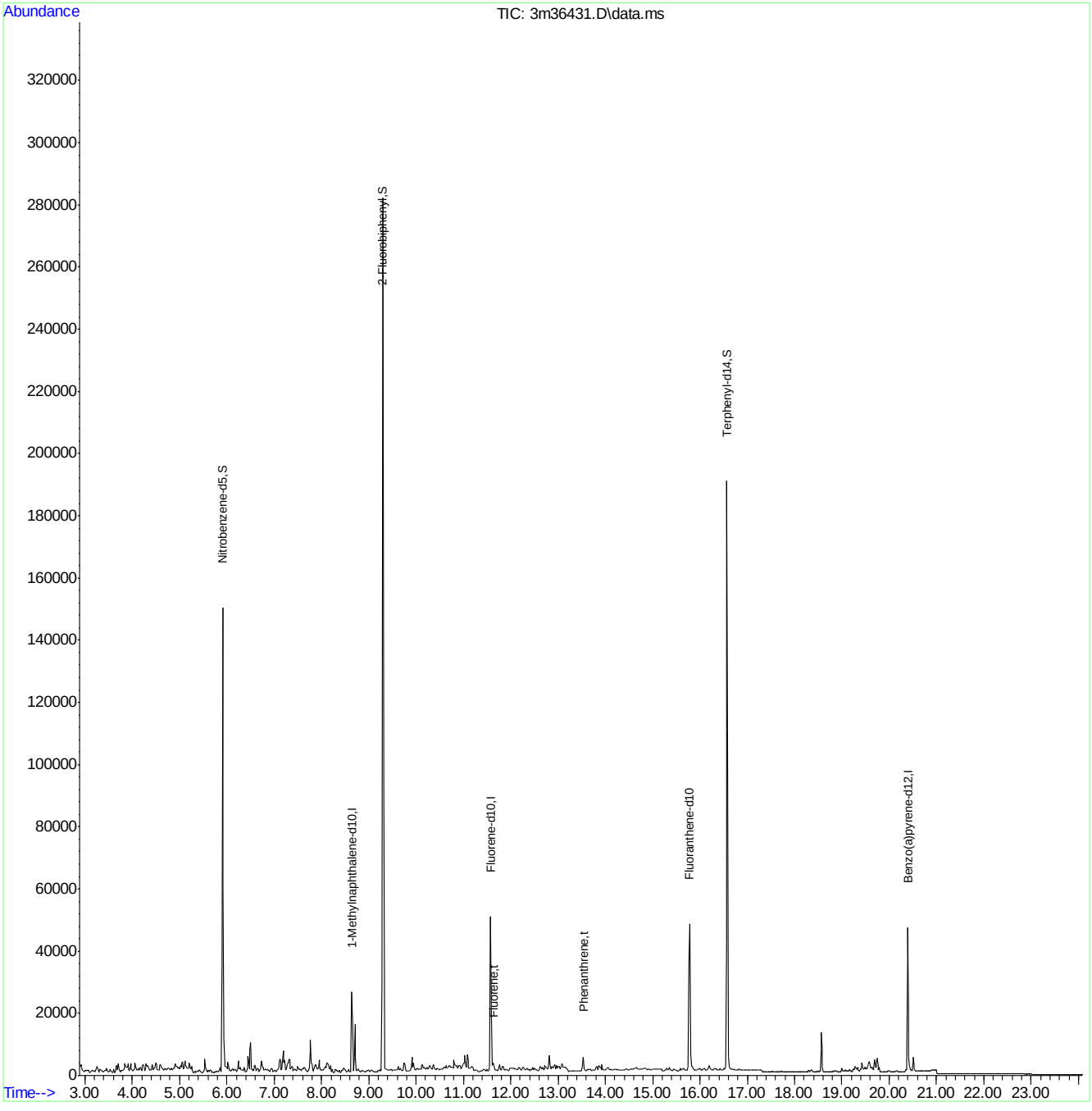
9.1.4

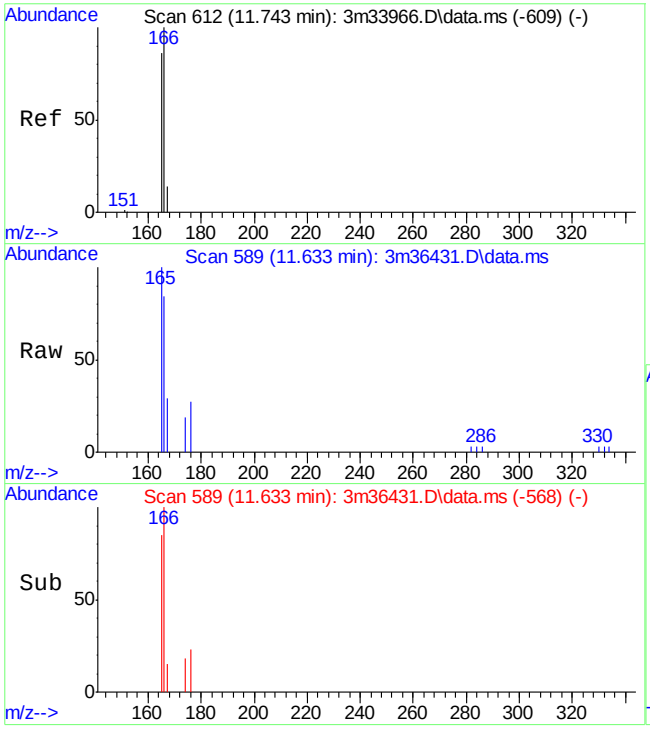
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1665\
Data File : 3m36431.D
Acq On : 24 Apr 2013 7:47 pm
Operator : ashleyd
Sample : jb33644-5
Misc : op65230,e3m1665,1000
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Apr 24 22:27:37 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration

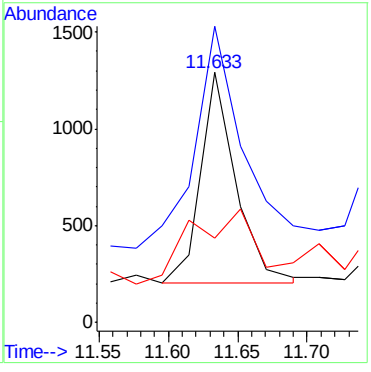


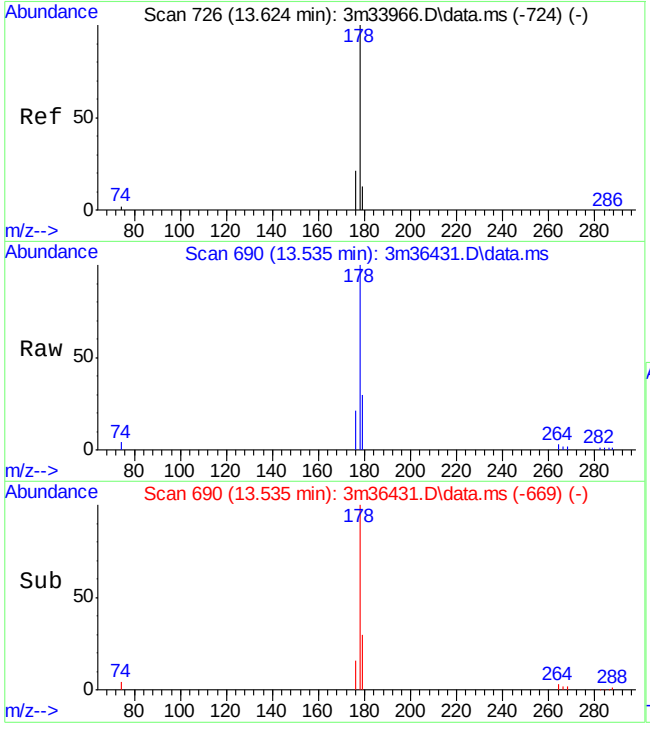


#16
Fluorene
Concen: 0.14 ppb
RT: 11.633 min Scan# 589
Delta R.T. -0.113 min
Lab File: 3m36431.D
Acq: 24 Apr 2013 7:47 pm

Tgt Ion:166 Resp: 1944

Ion	Ratio	Lower	Upper
166	100		
165	96.1	76.4	136.4
167	15.1	0.0	41.3

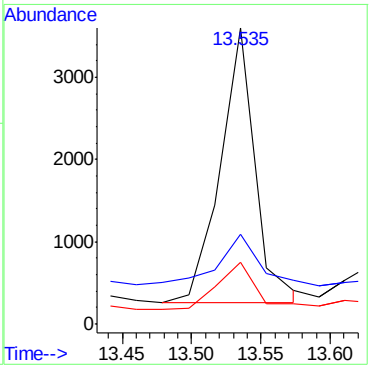




#21
Phenanthrene
Concen: 0.25 ppb
RT: 13.535 min Scan# 690
Delta R.T. -0.113 min
Lab File: 3m36431.D
Acq: 24 Apr 2013 7:47 pm

Tgt Ion:178 Resp: 5849

Ion	Ratio	Lower	Upper
178	100		
179	17.4	0.0	44.7
176	16.4	0.0	50.1



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1665\
Data File : 3m36432.D
Acq On : 24 Apr 2013 8:19 pm
Operator : ashleyd
Sample : jb33644-6
Misc : op65230,e3m1665,1000
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Apr 24 22:28:20 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.639	150	28657	4.00	ppb	-0.11
12) Fluorene-d10	11.577	176	46529	4.00	ppb	-0.13
18) Fluoranthene-d10	15.769	212	62748	4.00	ppb	-0.12
28) Benzo(a)pyrene-d12	20.398	264	45192	4.00	ppb	-0.13
System Monitoring Compounds						
2) 2-Fluorophenol	0.000	112	0	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
3) Phenol-d5	0.000	99	0d	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
6) Nitrobenzene-d5	5.909	82	175857	28.70	ppb	-0.11
Spiked Amount 50.000			Recovery	=	57.40%	
13) 2-Fluorobiphenyl	9.294	172	313859	23.04	ppb	-0.12
Spiked Amount 50.000			Recovery	=	46.08%	
17) 2,4,6-Tribromophenol	0.000	330	0	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
25) Terphenyl-d14	16.573	244	227420	21.64	ppb	-0.12
Spiked Amount 50.000			Recovery	=	43.28%	
Target Compounds						Qvalue
24) Pyrene	16.186	202	22919	0.96	ppb	99
26) Benzo[a]anthracene	18.293	228	3106	0.17	ppb	89
27) Chrysene	18.346	228	12044	0.57	ppb	98
31) Benzo[a]pyrene	20.429	252	4898	0.27	ppb	96

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

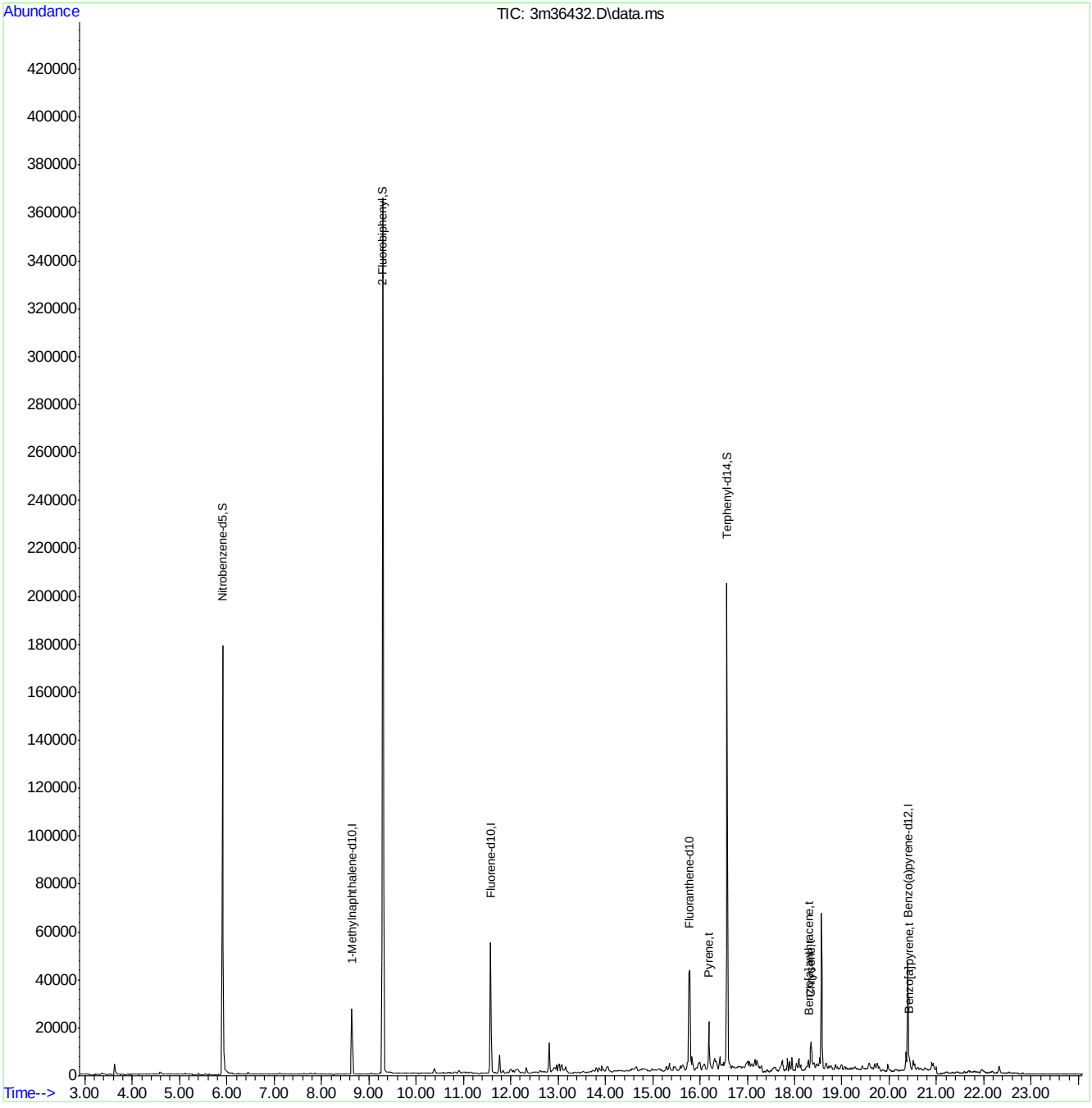
9.1.5

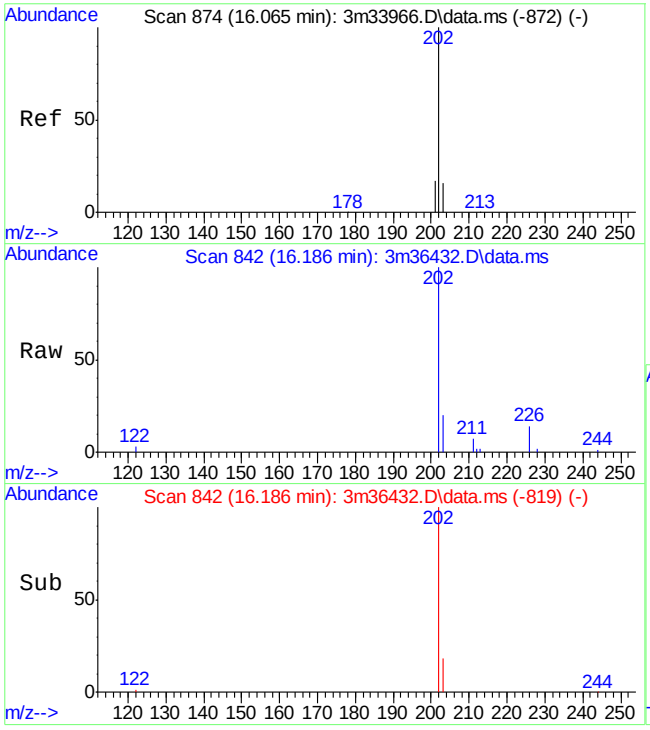
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1665\
Data File : 3m36432.D
Acq On : 24 Apr 2013 8:19 pm
Operator : ashleyd
Sample : jb33644-6
Misc : op65230,e3m1665,1000
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Apr 24 22:28:20 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration

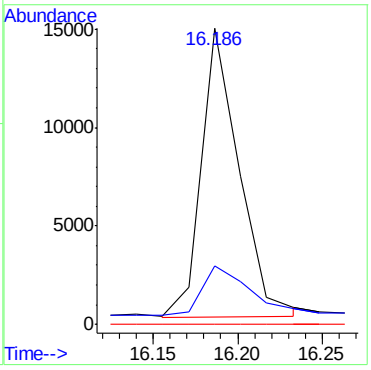


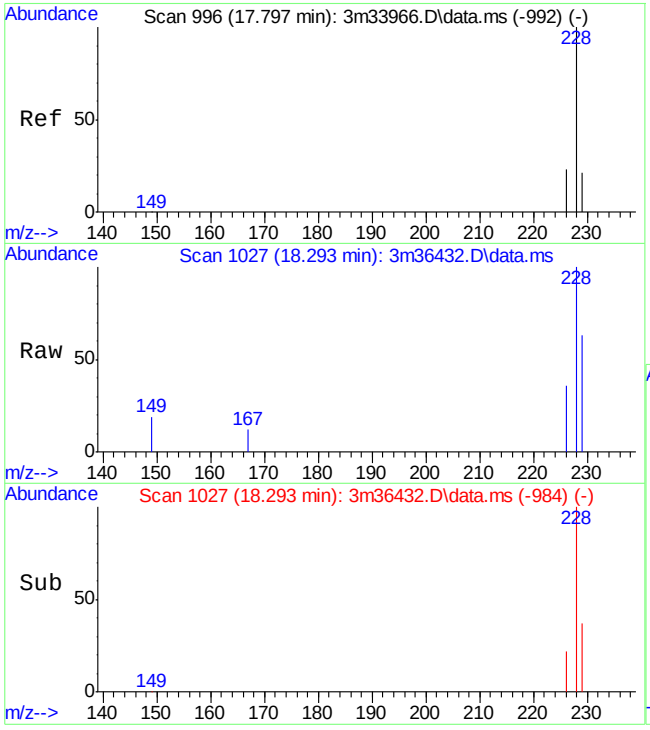


#24
Pyrene
Concen: 0.96 ppb
RT: 16.186 min Scan# 842
Delta R.T. -0.139 min
Lab File: 3m36432.D
Acq: 24 Apr 2013 8:19 pm

Tgt Ion:202 Resp: 22919

Ion	Ratio	Lower	Upper
202	100		
203	16.2	0.0	46.8
201	0.0	0.0	30.0

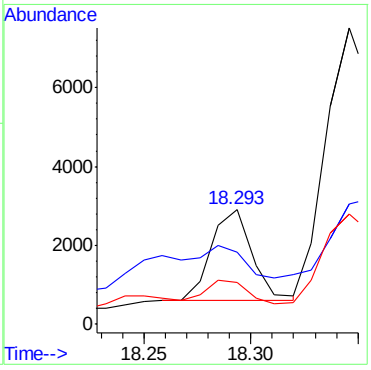


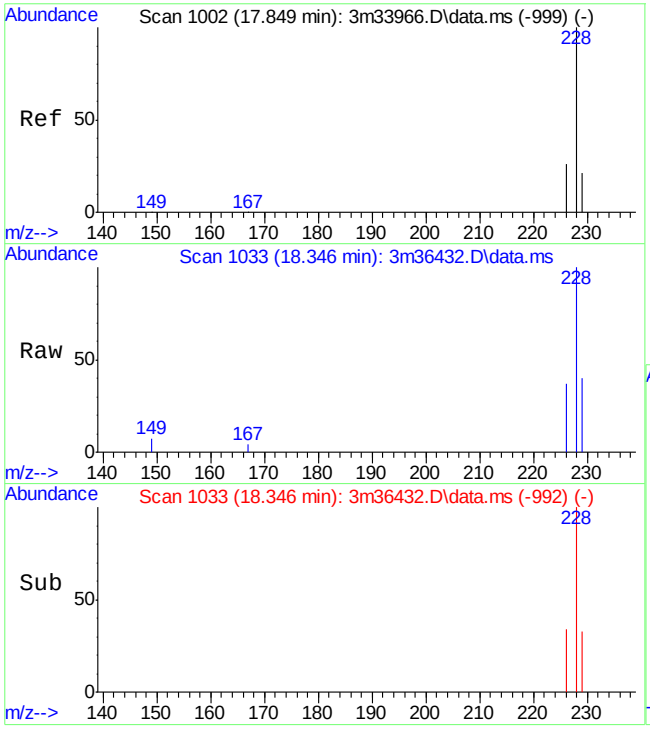


#26
Benzo[a]anthracene
Concen: 0.17 ppb
RT: 18.293 min Scan# 1027
Delta R.T. -0.123 min
Lab File: 3m36432.D
Acq: 24 Apr 2013 8:19 pm

Tgt Ion:228 Resp: 3106

Ion	Ratio	Lower	Upper
228	100		
229	14.9	0.0	51.2
226	20.0	0.0	54.4

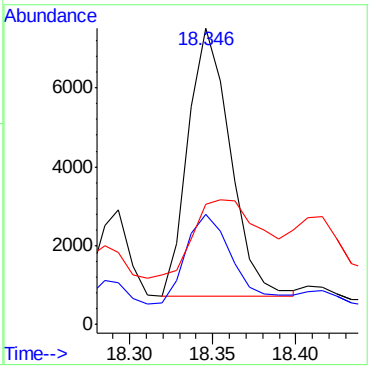


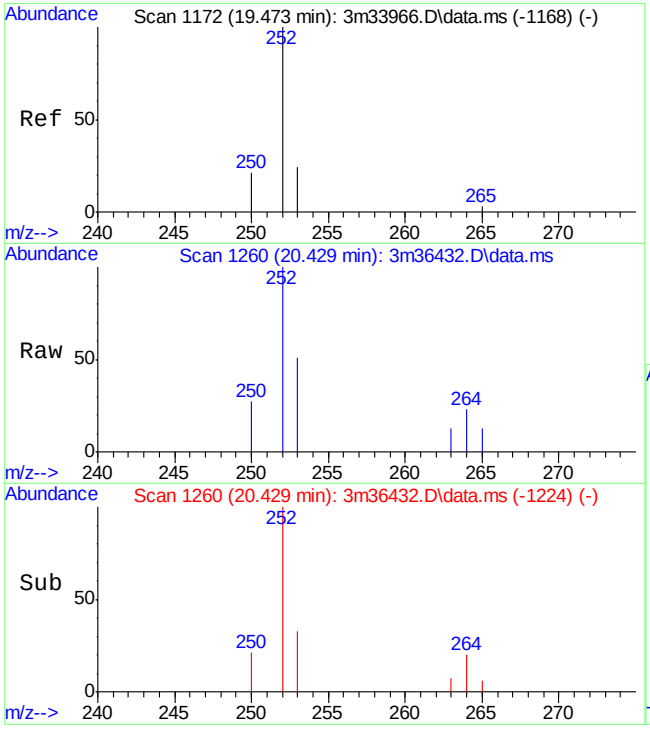


#27
Chrysene
Concen: 0.57 ppb
RT: 18.346 min Scan# 1033
Delta R.T. -0.140 min
Lab File: 3m36432.D
Acq: 24 Apr 2013 8:19 pm

Tgt Ion:228 Resp: 12044

Ion	Ratio	Lower	Upper
228	100		
226	32.0	0.8	60.8
229	18.0	0.0	48.4

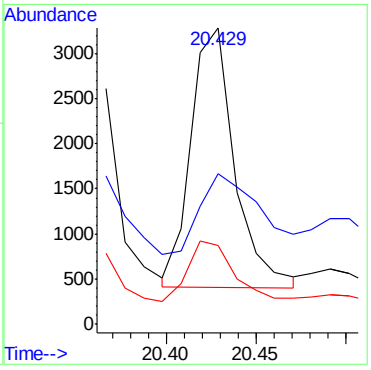




#31
Benzo[a]pyrene
Concen: 0.27 ppb
RT: 20.429 min Scan# 1260
Delta R.T. -0.125 min
Lab File: 3m36432.D
Acq: 24 Apr 2013 8:19 pm

Tgt Ion:252 Resp: 4898

Ion	Ratio	Lower	Upper
252	100		
253	28.4	0.0	55.1
250	22.0	0.0	52.0



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1665\
Data File : 3m36433.D
Acq On : 24 Apr 2013 8:51 pm
Operator : ashleyd
Sample : jb33644-7
Misc : op65230,e3m1665,960
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Apr 24 22:28:55 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1-Methylnaphthalene-d10	8.639	150	29849	4.00 ppb	-0.11
12) Fluorene-d10	11.577	176	49350	4.00 ppb	-0.13
18) Fluoranthene-d10	15.769	212	69487	4.00 ppb	-0.12
28) Benzo(a)pyrene-d12	20.398	264	50929	4.00 ppb	-0.13
System Monitoring Compounds					
2) 2-Fluorophenol	0.000	112	0	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
3) Phenol-d5	0.000	99	0d	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
6) Nitrobenzene-d5	5.910	82	94701	14.84 ppb	-0.11
Spiked Amount 50.000			Recovery	= 29.68%	
13) 2-Fluorobiphenyl	9.294	172	163503	11.31 ppb	-0.12
Spiked Amount 50.000			Recovery	= 22.62%	
17) 2,4,6-Tribromophenol	0.000	330	0	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
25) Terphenyl-d14	16.573	244	108666	9.34 ppb	-0.12
Spiked Amount 50.000			Recovery	= 18.68%	

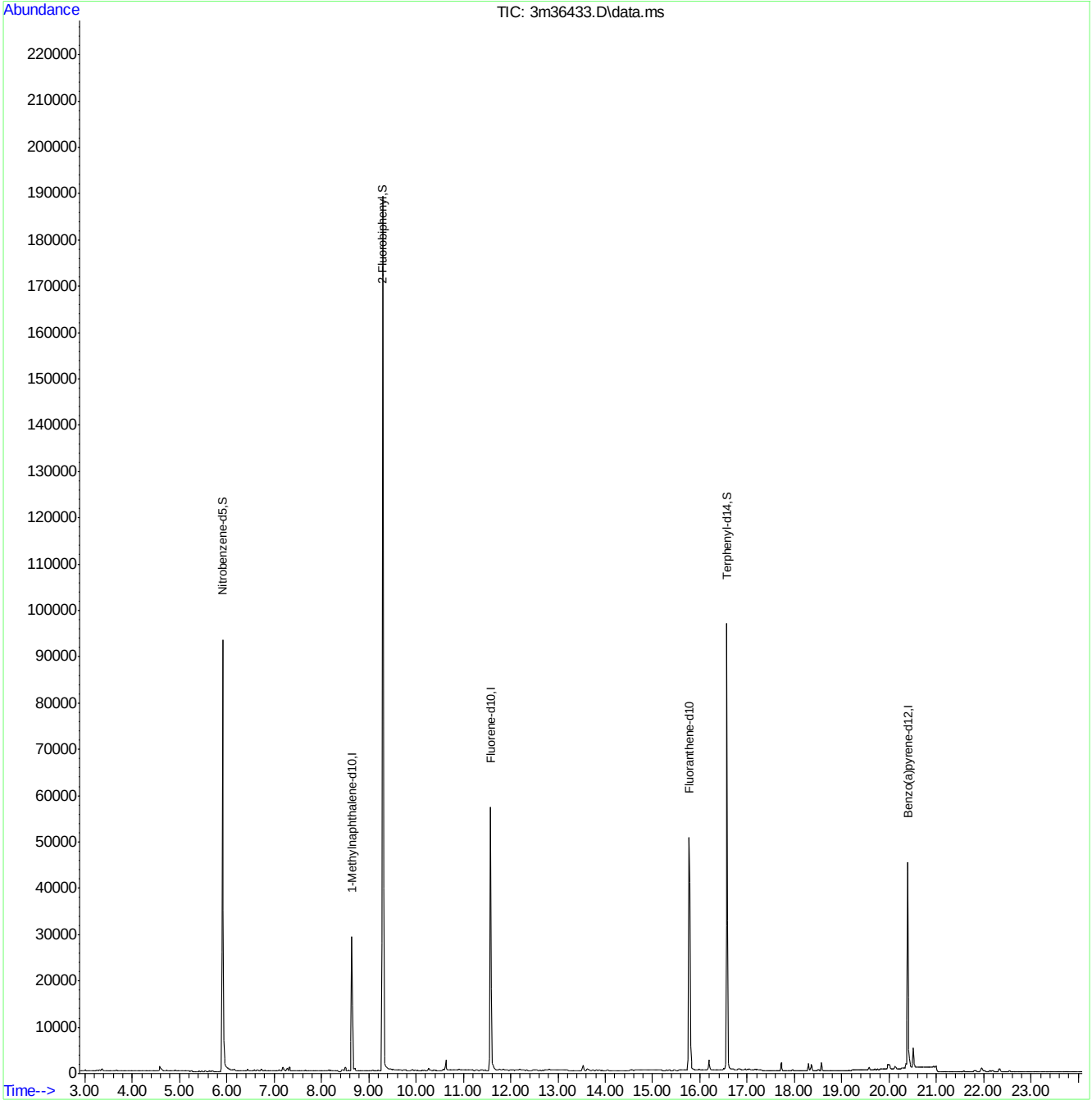
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1665\
Data File : 3m36433.D
Acq On : 24 Apr 2013 8:51 pm
Operator : ashleyd
Sample : jb33644-7
Misc : op65230,e3m1665,960
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Apr 24 22:28:55 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration



Manual Integrations APPROVED (compounds with "m" flag)
Mark Erstling
05/09/13 17:47

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1683\
Data File : 3m36842.D
Acq On : 7 May 2013 5:13 pm
Operator : ninap
Sample : jb33644-7
Misc : op65642a,e3m1683,950
ALS Vial : 17 Sample Multiplier: 1

Quant Time: May 07 19:46:57 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1682SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon May 06 21:57:09 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.515	150	62106	4.00	ppb	0.00
12) Fluorene-d10	11.456	176	91821	4.00	ppb	0.00
18) Fluoranthene-d10	15.653	212	122745	4.00	ppb	0.00
28) Benzo(a)pyrene-d12	20.297	264	89036	4.00	ppb	0.01
System Monitoring Compounds						
2) 2-Fluorophenol	3.273	112	79001	10.44	ppb	0.02
Spiked Amount 50.000			Recovery = 20.88%			
3) Phenol-d5	4.494	99	93910	9.46	ppb	0.02
Spiked Amount 50.000			Recovery = 18.92%			
6) Nitrobenzene-d5	5.799	82	258274	18.68	ppb	0.01
Spiked Amount 50.000			Recovery = 37.36%			
13) 2-Fluorobiphenyl	9.166	172	380558	16.54	ppb	0.00
Spiked Amount 50.000			Recovery = 33.08%			
17) 2,4,6-Tribromophenol	12.059	330	67807	23.87	ppb	0.00
Spiked Amount 50.000			Recovery = 47.74%			
25) Terphenyl-d14	16.457	244	413134	23.03	ppb	0.00
Spiked Amount 50.000			Recovery = 46.06%			
Target Compounds						Qvalue
7) Naphthalene	7.068	128	9047	0.22	ppb	98
15) Acenaphthene	10.501	153	7185	0.29	ppb	95
16) Fluorene	11.512	166	5711	0.22	ppb	78
21) Phenanthrene	13.396	178	19520	0.51	ppb	98
22) Anthracene	13.490	178	8705	0.24	ppb	98
23) Fluoranthene	15.684	202	50849	1.37	ppb	99
24) Pyrene	16.070	202	47250	1.11	ppb	95
26) Benzo[a]anthracene	18.179	228	18142	0.56	ppb	87
27) Chrysene	18.249	228	18225	0.55	ppb	99
29) Benzo[b]fluoranthene	19.870	252	13761m	0.41	ppb	
30) Benzo[k]fluoranthene	19.881	252	14556m	0.42	ppb	
31) Benzo[a]pyrene	20.318	252	13453	0.44	ppb	97
32) Indeno[1,2,3-cd]pyrene	21.842	276	9004	0.24	ppb	98
34) Benzo[g,h,i]perylene	22.209	276	8297	0.26	ppb	99

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

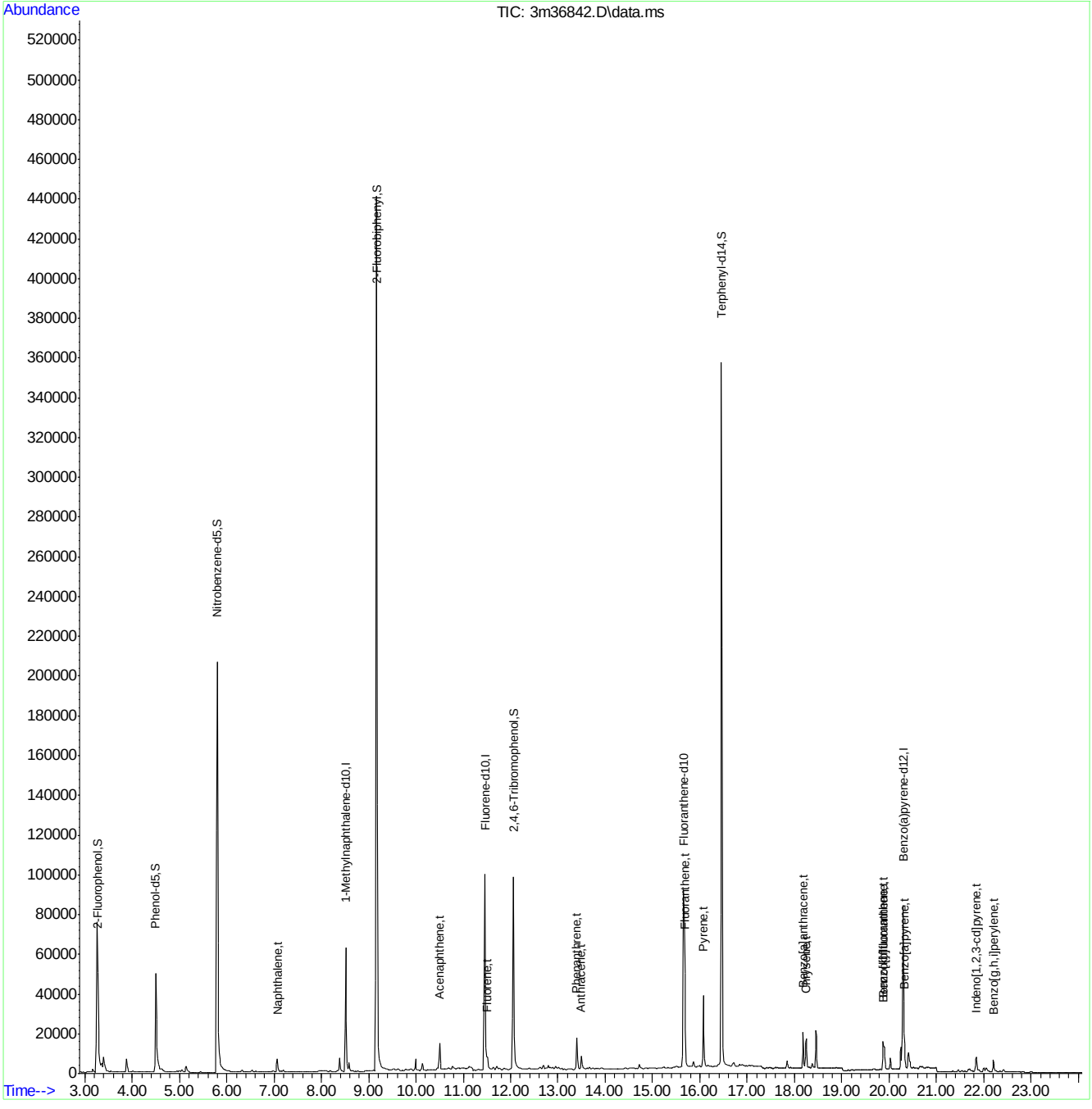
9.1.7

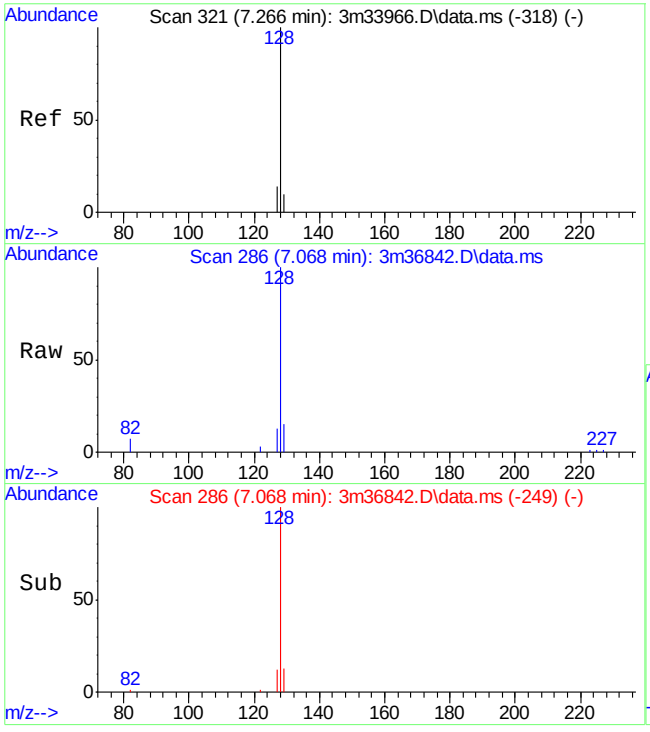
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1683\
Data File : 3m36842.D
Acq On : 7 May 2013 5:13 pm
Operator : ninap
Sample : jb33644-7
Misc : op65642a,e3m1683,950
ALS Vial : 17 Sample Multiplier: 1

Quant Time: May 07 19:46:57 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1682SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon May 06 21:57:09 2013
Response via : Initial Calibration

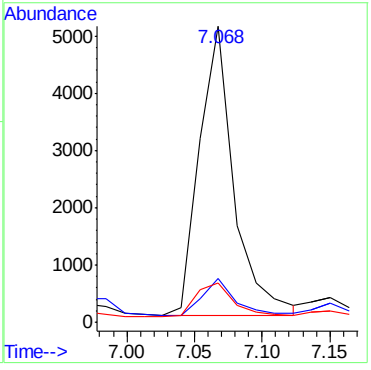


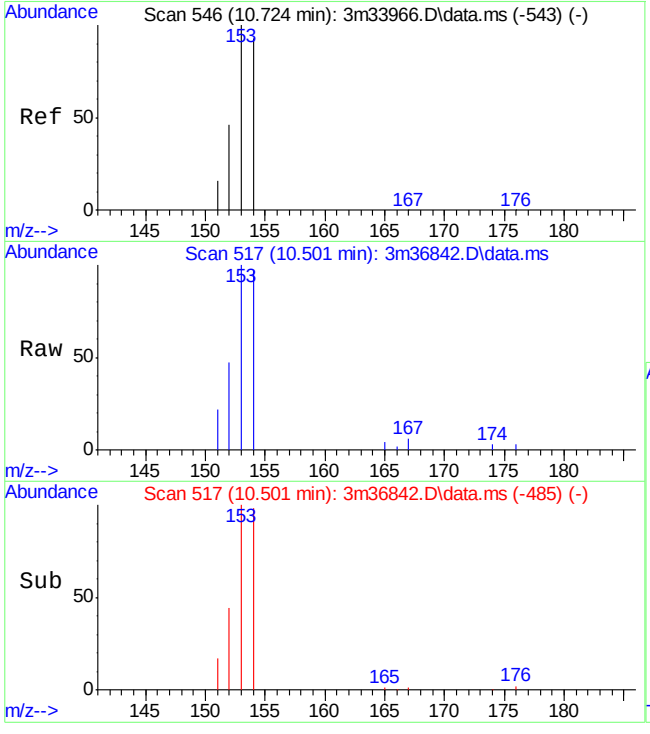


#7
Naphthalene
Concen: 0.22 ppb
RT: 7.068 min Scan# 286
Delta R.T. 0.014 min
Lab File: 3m36842.D
Acq: 7 May 2013 5:13 pm

Tgt Ion:128 Resp: 9047

Ion	Ratio	Lower	Upper
128	100		
129	12.7	0.0	41.7
127	11.8	0.0	42.1

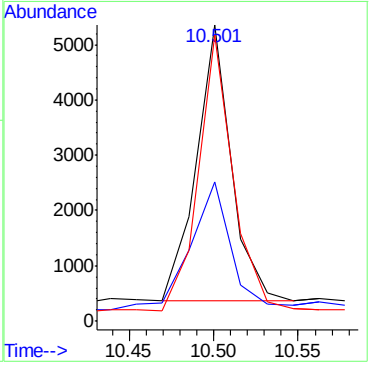


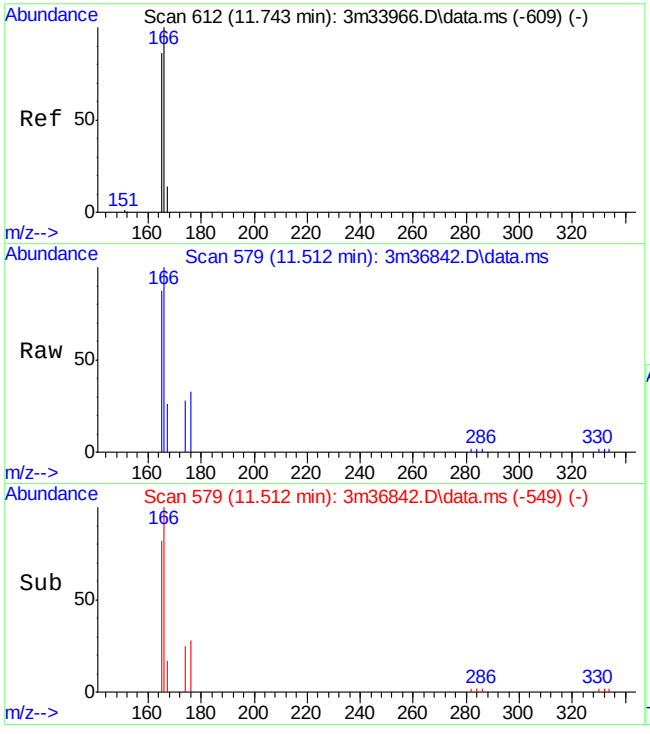


#15
Acenaphthene
Concen: 0.29 ppb
RT: 10.501 min Scan# 517
Delta R.T. 0.000 min
Lab File: 3m36842.D
Acq: 7 May 2013 5:13 pm

Tgt Ion:153 Resp: 7185

Ion	Ratio	Lower	Upper
153	100		
152	44.1	13.4	73.4
154	99.6	76.4	136.4

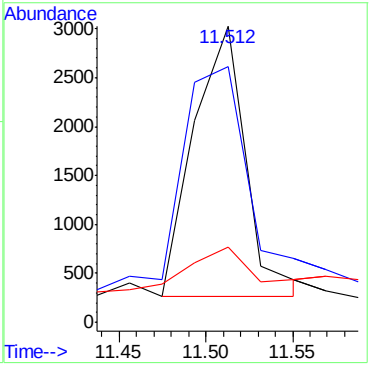


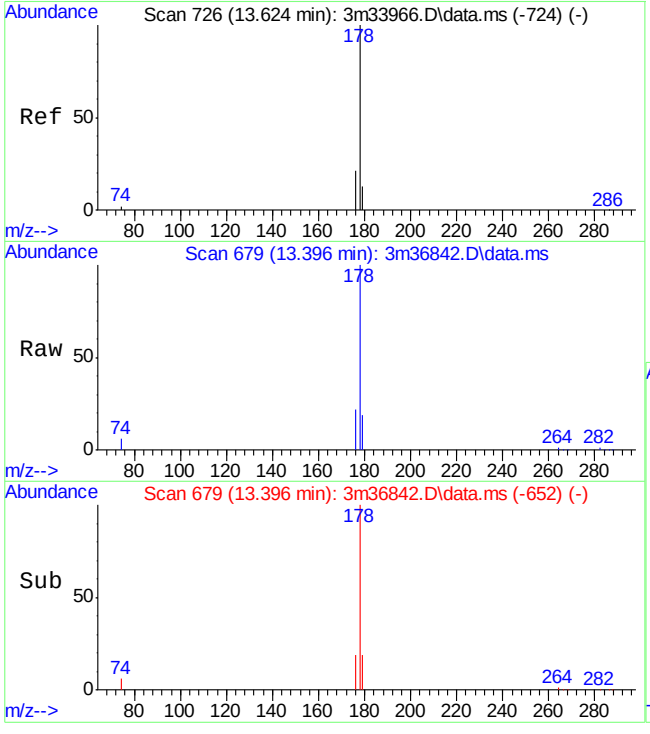


#16
Fluorene
Concen: 0.22 ppb
RT: 11.512 min Scan# 579
Delta R.T. 0.019 min
Lab File: 3m36842.D
Acq: 7 May 2013 5:13 pm

Tgt Ion:166 Resp: 5711

Ion	Ratio	Lower	Upper
166	100		
165	77.5	72.2	132.2
167	13.5	0.0	41.8

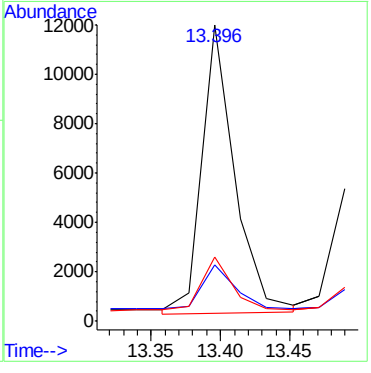


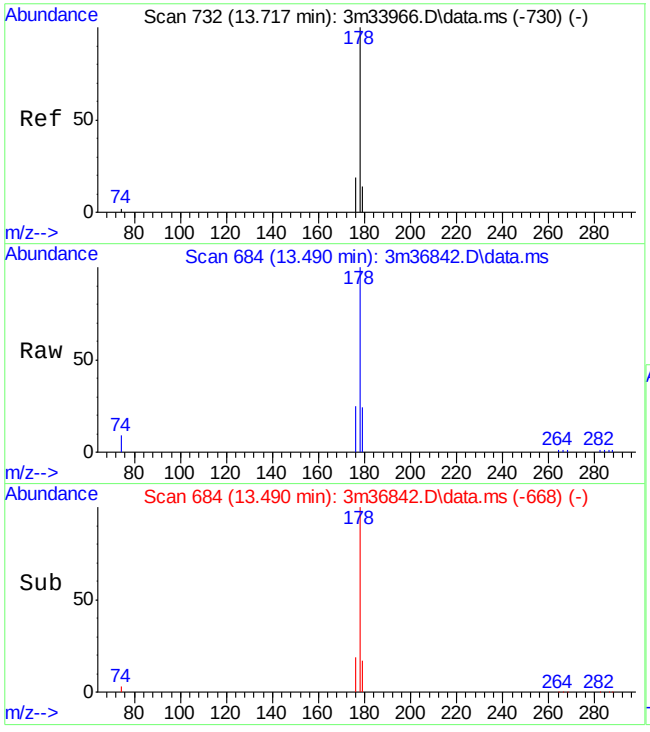


#21
Phenanthrene
Concen: 0.51 ppb
RT: 13.396 min Scan# 679
Delta R.T. 0.000 min
Lab File: 3m36842.D
Acq: 7 May 2013 5:13 pm

Tgt Ion:178 Resp: 19520

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	46.7
176	18.7	0.0	48.8

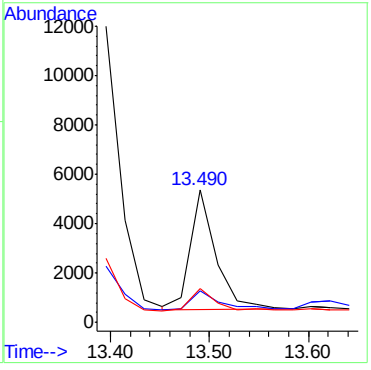


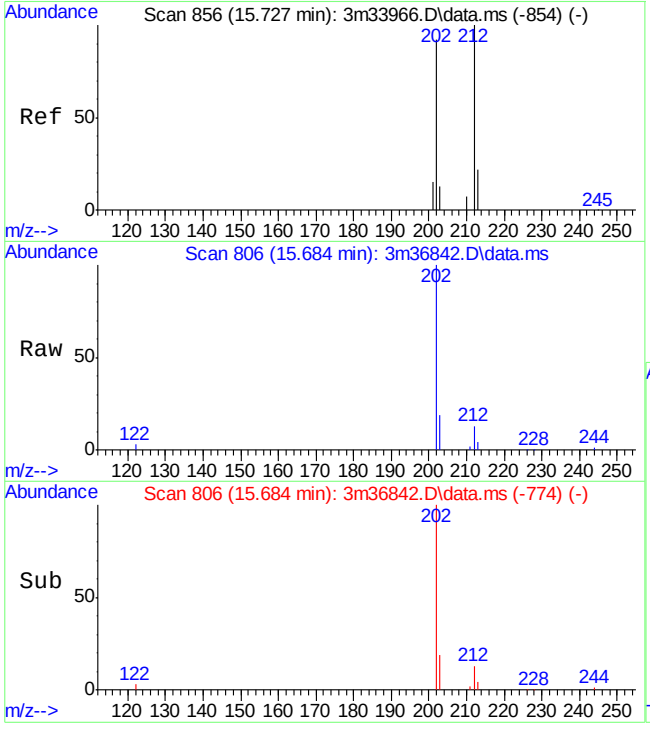


#22
Anthracene
Concen: 0.24 ppb
RT: 13.490 min Scan# 684
Delta R.T. 0.000 min
Lab File: 3m36842.D
Acq: 7 May 2013 5:13 pm

Tgt Ion:178 Resp: 8705

Ion	Ratio	Lower	Upper
178	100		
179	15.7	0.0	46.7
176	18.6	0.0	47.4

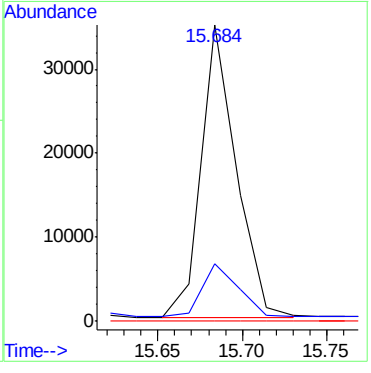


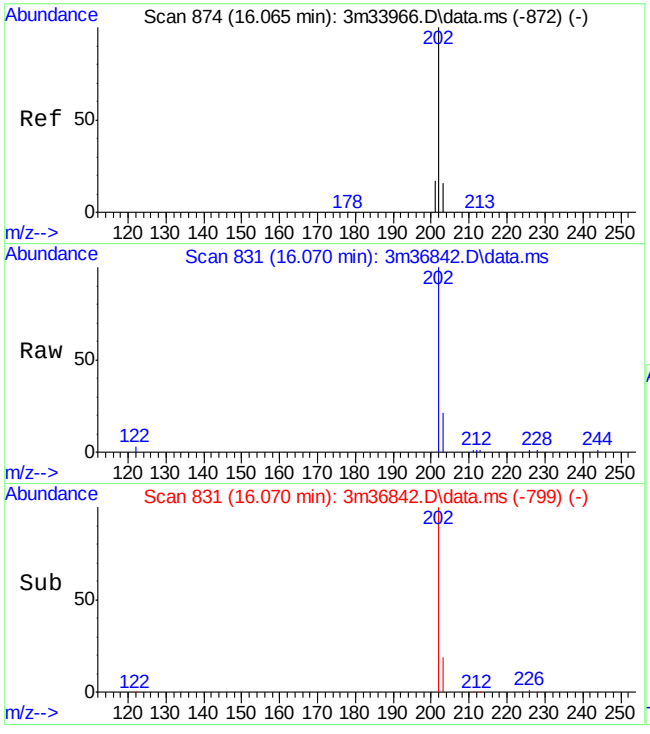


#23
Fluoranthene
Concen: 1.37 ppb
RT: 15.684 min Scan# 806
Delta R.T. 0.000 min
Lab File: 3m36842.D
Acq: 7 May 2013 5:13 pm

Tgt Ion:202 Resp: 50849

Ion	Ratio	Lower	Upper
202	100		
203	18.3	0.0	48.0
201	0.0	0.0	30.0

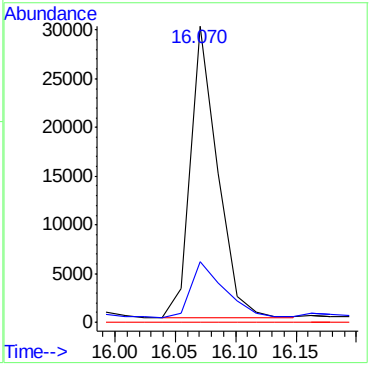


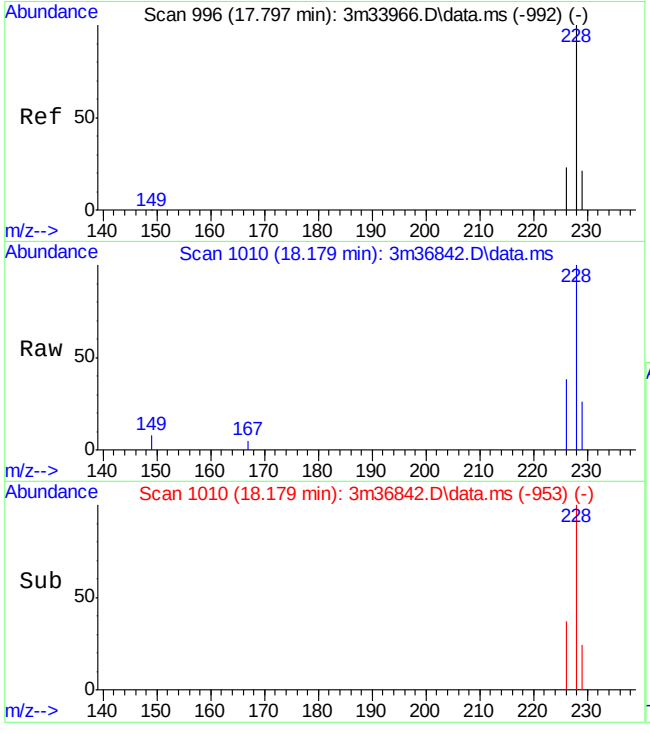


#24
Pyrene
Concen: 1.11 ppb
RT: 16.070 min Scan# 831
Delta R.T. 0.000 min
Lab File: 3m36842.D
Acq: 7 May 2013 5:13 pm

Tgt Ion:202 Resp: 47250

Ion	Ratio	Lower	Upper
202	100		
203	19.0	0.0	46.9
201	0.0	0.0	30.0

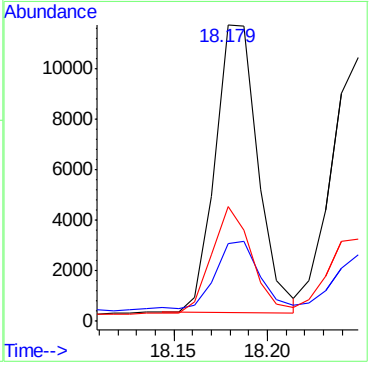


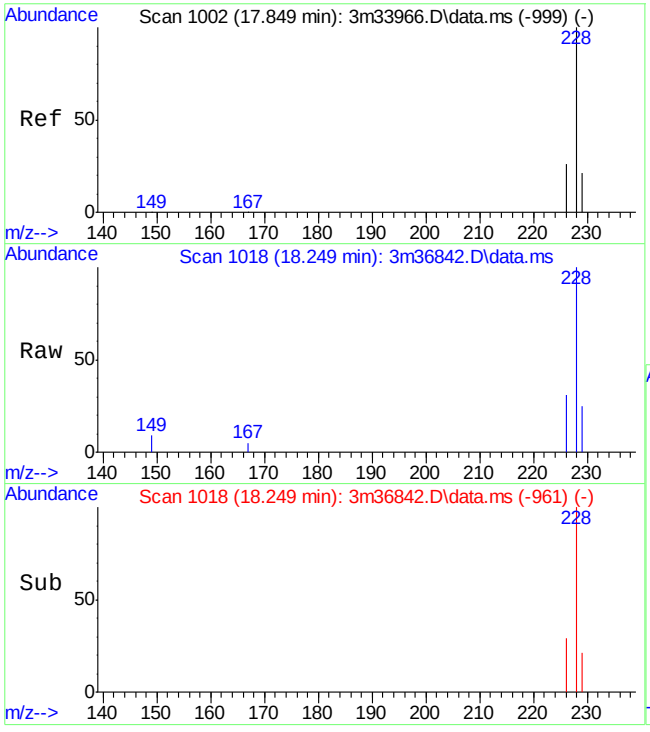


#26
Benzo[a]anthracene
Concen: 0.56 ppb
RT: 18.179 min Scan# 1010
Delta R.T. 0.000 min
Lab File: 3m36842.D
Acq: 7 May 2013 5:13 pm

Tgt Ion:228 Resp: 18142

Ion	Ratio	Lower	Upper
228	100		
229	22.4	0.0	49.2
226	36.9	0.0	57.7

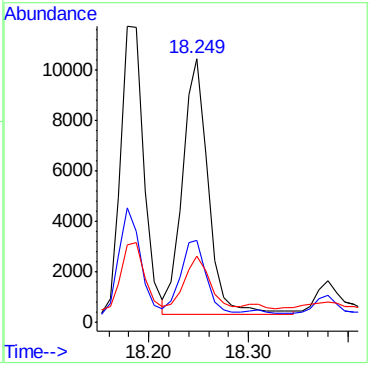


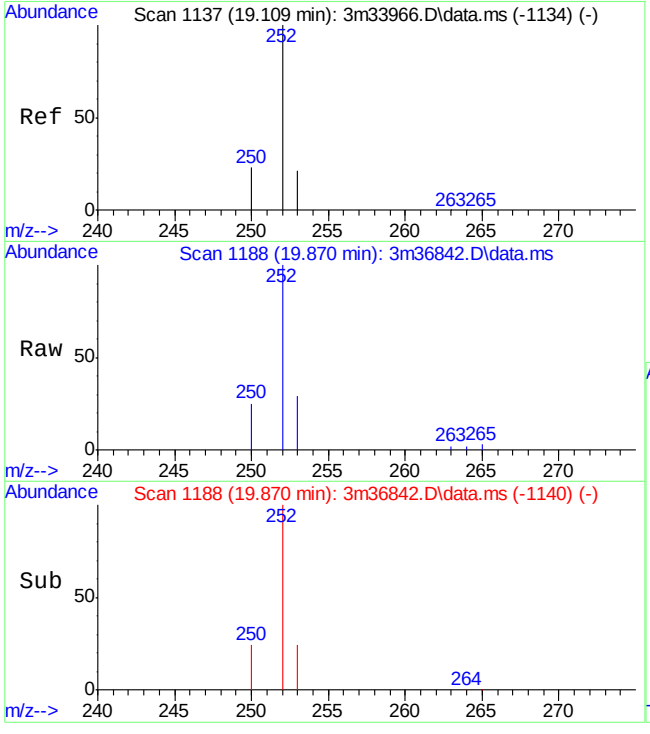


#27
Chrysene
Concen: 0.55 ppb
RT: 18.249 min Scan# 1018
Delta R.T. 0.000 min
Lab File: 3m36842.D
Acq: 7 May 2013 5:13 pm

Tgt Ion:228 Resp: 18225

Ion	Ratio	Lower	Upper
228	100		
226	28.8	0.0	59.3
229	20.5	0.0	51.0

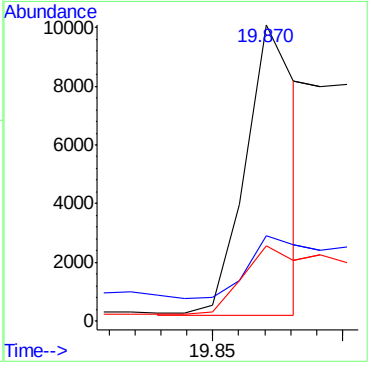


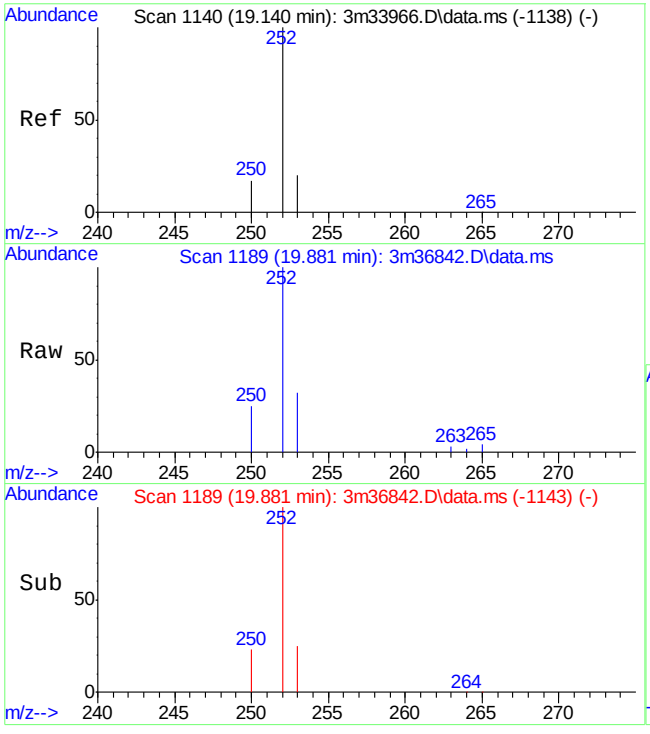


#29
Benzo[b]fluoranthene
Concen: 0.41 ppb m
RT: 19.870 min Scan# 1188
Delta R.T. 0.000 min
Lab File: 3m36842.D
Acq: 7 May 2013 5:13 pm

Tgt Ion:252 Resp: 13761

Ion	Ratio	Lower	Upper
252	100		
253	28.8	0.0	53.8
250	25.2	0.0	51.7

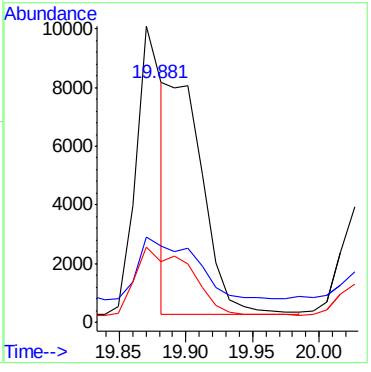


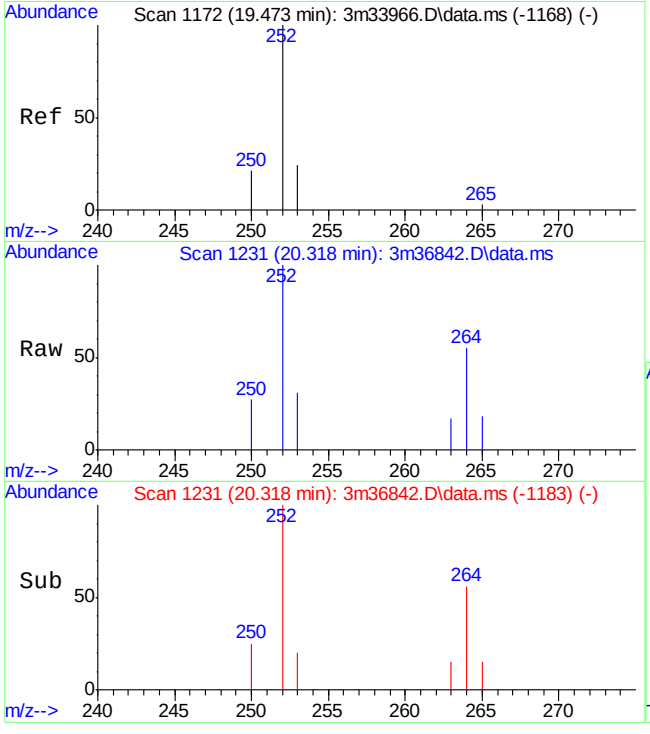


#30
Benzo[k]fluoranthene
Concen: 0.42 ppb m
RT: 19.881 min Scan# 1189
Delta R.T. -0.021 min
Lab File: 3m36842.D
Acq: 7 May 2013 5:13 pm

Tgt Ion:252 Resp: 14556

Ion	Ratio	Lower	Upper
252	100		
253	31.9	0.0	52.2
250	25.2	0.0	51.3

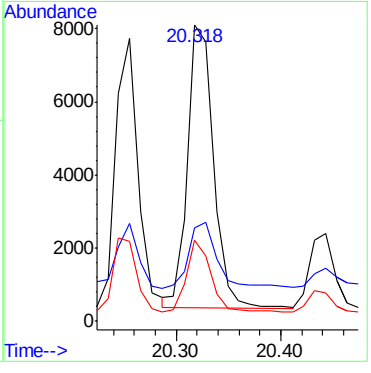


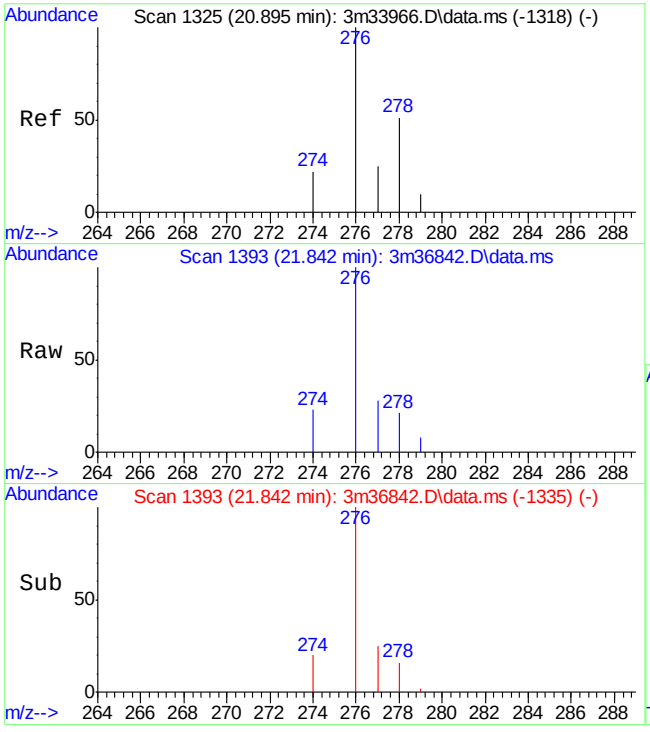


#31
Benzo[a]pyrene
Concen: 0.44 ppb
RT: 20.318 min Scan# 1231
Delta R.T. 0.000 min
Lab File: 3m36842.D
Acq: 7 May 2013 5:13 pm

Tgt Ion:252 Resp: 13453

Ion	Ratio	Lower	Upper
252	100		
253	21.5	0.0	50.3
250	25.7	0.0	54.4

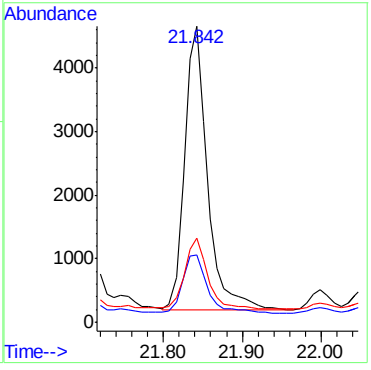


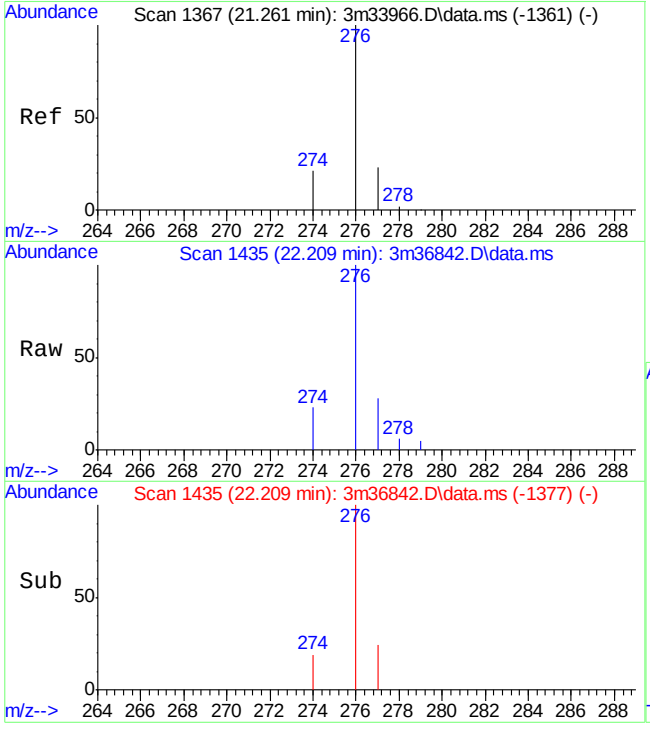


#32
Indeno[1,2,3-cd]pyrene
Concen: 0.24 ppb
RT: 21.842 min Scan# 1393
Delta R.T. 0.009 min
Lab File: 3m36842.D
Acq: 7 May 2013 5:13 pm

Tgt Ion:276 Resp: 9004

Ion	Ratio	Lower	Upper
276	100		
274	20.5	0.0	51.9
277	24.9	0.0	54.0

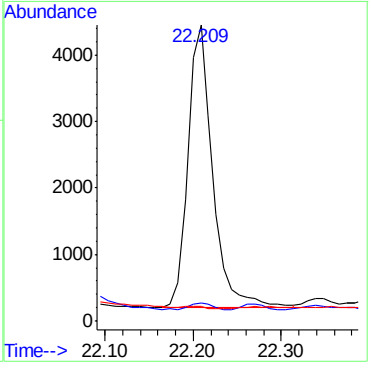




#34
Benzo[g,h,i]perylene
Concen: 0.26 ppb
RT: 22.209 min Scan# 1435
Delta R.T. 0.009 min
Lab File: 3m36842.D
Acq: 7 May 2013 5:13 pm

Tgt Ion:276 Resp: 8297

Ion	Ratio	Lower	Upper
276	100		
278	2.2	0.0	32.6
279	0.0	0.0	30.2



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1665\
Data File : 3m36434.D
Acq On : 24 Apr 2013 9:22 pm
Operator : ashleyd
Sample : jb33644-8
Misc : op65230,e3m1665,940
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Apr 24 22:29:29 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1-Methylnaphthalene-d10	8.639	150	29642	4.00 ppb	-0.11
12) Fluorene-d10	11.577	176	47878	4.00 ppb	-0.13
18) Fluoranthene-d10	15.769	212	66490	4.00 ppb	-0.12
28) Benzo(a)pyrene-d12	20.387	264	49909	4.00 ppb	-0.14
System Monitoring Compounds					
2) 2-Fluorophenol	3.350	112	34184	7.36 ppb	-0.08
Spiked Amount 50.000			Recovery	= 14.72%	
3) Phenol-d5	4.571	99	64330	10.82 ppb	-0.08
Spiked Amount 50.000			Recovery	= 21.64%	
6) Nitrobenzene-d5	5.909	82	177004	27.92 ppb	-0.11
Spiked Amount 50.000			Recovery	= 55.84%	
13) 2-Fluorobiphenyl	9.294	172	316876	22.60 ppb	-0.12
Spiked Amount 50.000			Recovery	= 45.20%	
17) 2,4,6-Tribromophenol	12.179	330	23271	11.61 ppb	-0.13
Spiked Amount 50.000			Recovery	= 23.22%	
25) Terphenyl-d14	16.573	244	262932	23.61 ppb	-0.12
Spiked Amount 50.000			Recovery	= 47.22%	
Target Compounds					Qvalue
15) Acenaphthene	10.632	153	5270	0.35 ppb	92

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

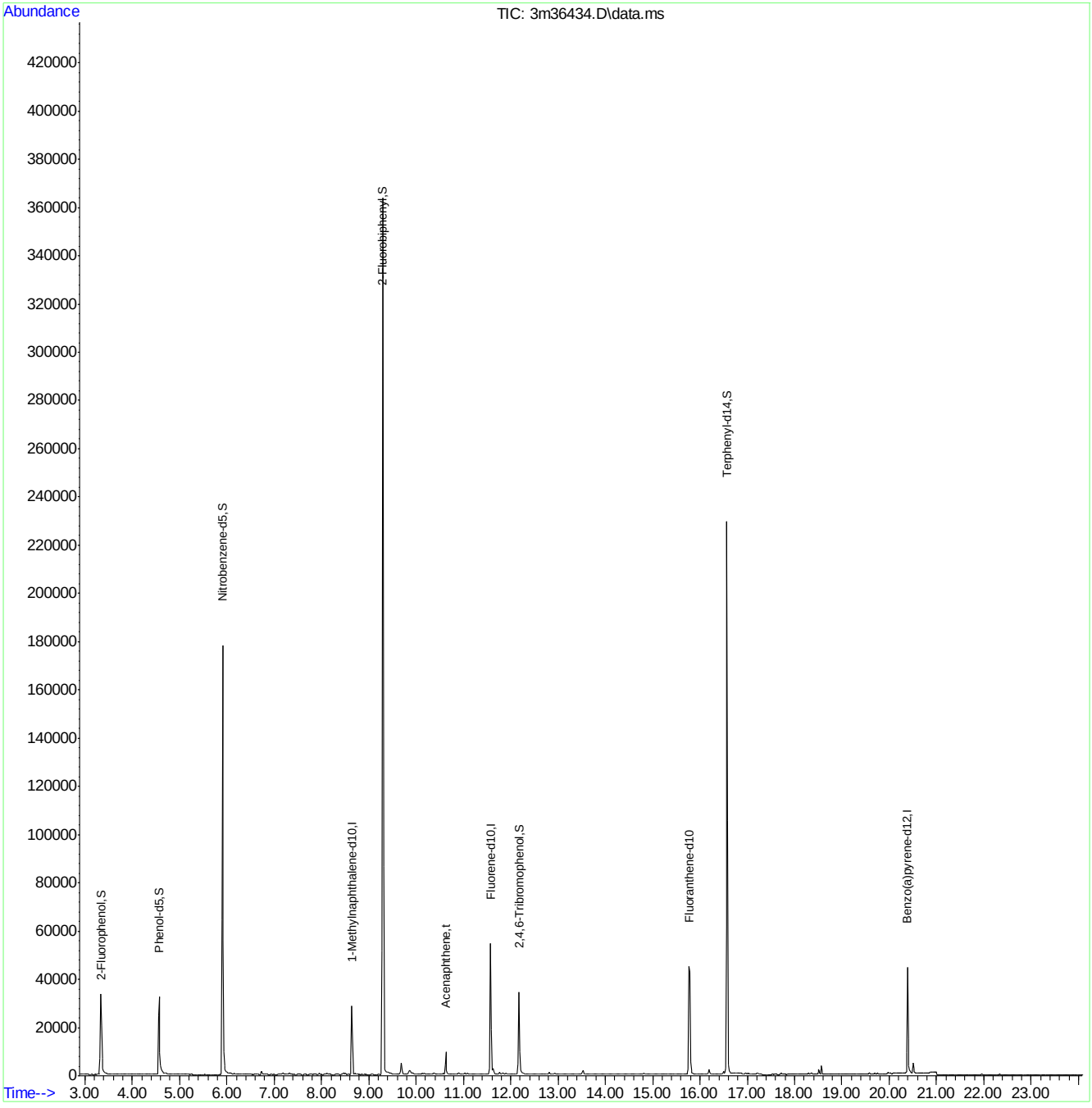
9.1.8

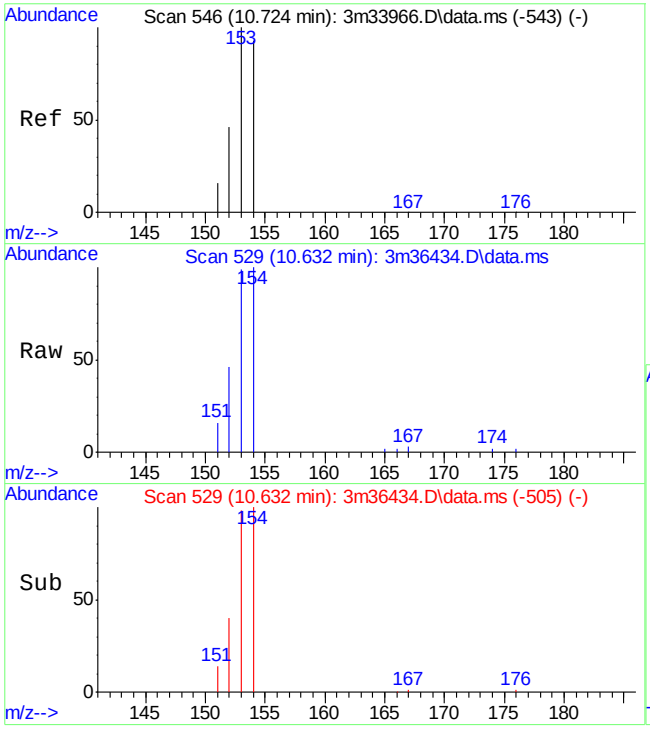
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1665\
Data File : 3m36434.D
Acq On : 24 Apr 2013 9:22 pm
Operator : ashleyd
Sample : jb33644-8
Misc : op65230,e3m1665,940
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Apr 24 22:29:29 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration

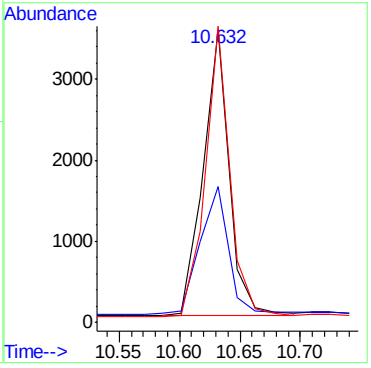




#15
Acenaphthene
Concen: 0.35 ppb
RT: 10.632 min Scan# 529
Delta R.T. -0.124 min
Lab File: 3m36434.D
Acq: 24 Apr 2013 9:22 pm

Tgt Ion:153 Resp: 5270

Ion	Ratio	Lower	Upper
153	100		
152	44.2	11.2	71.2
154	101.7	81.2	141.2



9.1.8

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1665\
Data File : 3m36435.D
Acq On : 24 Apr 2013 9:54 pm
Operator : ashleyd
Sample : jb33644-9
Misc : op65230,e3m1665,950
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Apr 28 08:35:51 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1-Methylnaphthalene-d10	8.639	150	33109	4.00 ppb	-0.11
12) Fluorene-d10	11.577	176	53012	4.00 ppb	-0.13
18) Fluoranthene-d10	15.769	212	74408	4.00 ppb	-0.12
28) Benzo(a)pyrene-d12	20.398	264	54790	4.00 ppb	-0.13
System Monitoring Compounds					
2) 2-Fluorophenol	0.000	112	0d	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
3) Phenol-d5	0.000	99	0d	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
6) Nitrobenzene-d5	5.909	82	166836	23.56 ppb	-0.11
Spiked Amount 50.000			Recovery	= 47.12%	
13) 2-Fluorobiphenyl	9.294	172	296396	19.09 ppb	-0.12
Spiked Amount 50.000			Recovery	= 38.18%	
17) 2,4,6-Tribromophenol	0.000	330	0d	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
25) Terphenyl-d14	16.573	244	236984	19.02 ppb	-0.12
Spiked Amount 50.000			Recovery	= 38.04%	

Target Compounds Qvalue

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

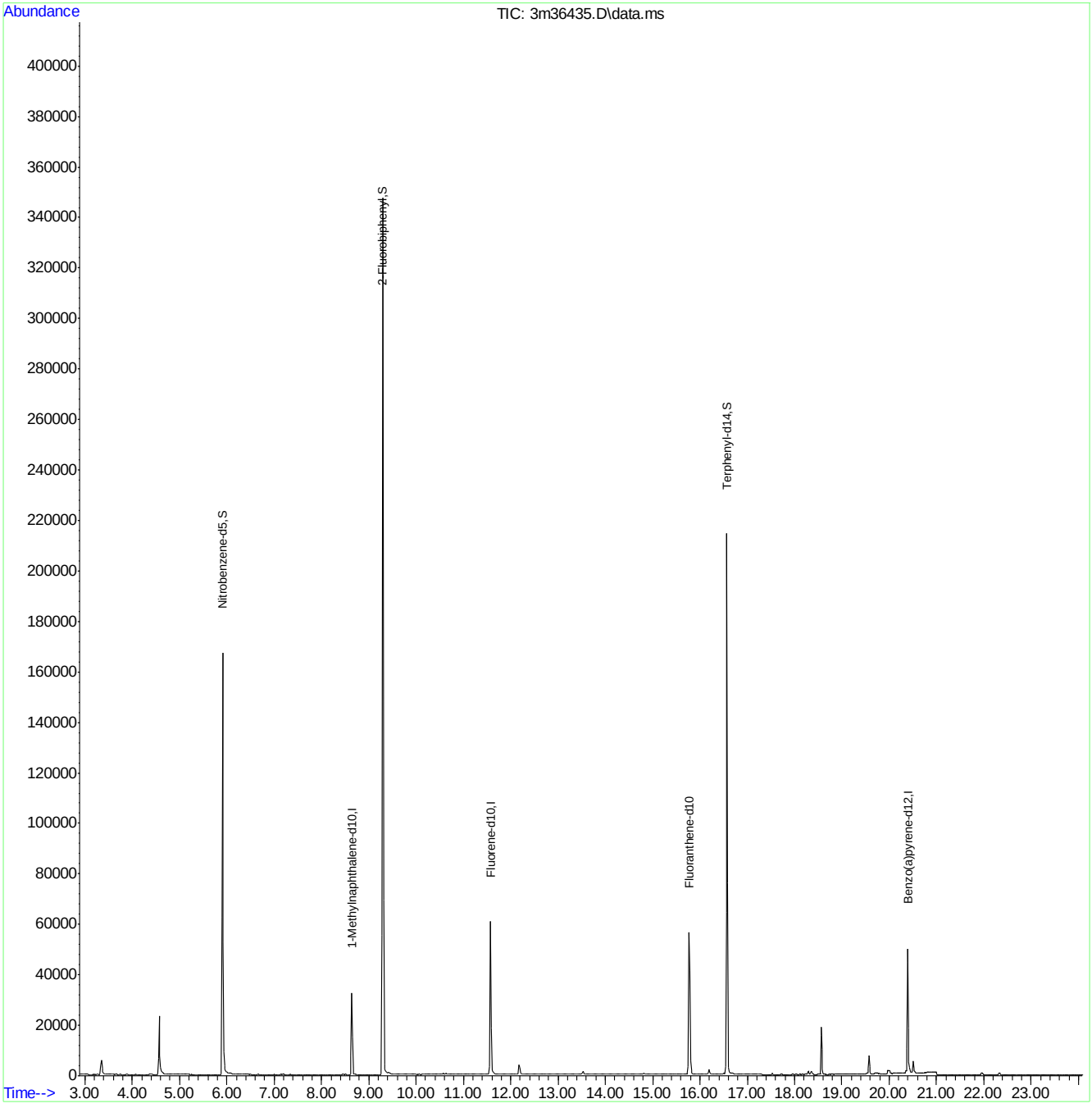
9.1.9

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1665\
Data File : 3m36435.D
Acq On : 24 Apr 2013 9:54 pm
Operator : ashleyd
Sample : jb33644-9
Misc : op65230,e3m1665,950
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Apr 28 08:35:51 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1665\
Data File : 3m36436.D
Acq On : 24 Apr 2013 10:26 pm
Operator : ashleyd
Sample : jb33644-10
Misc : op65230,e3m1665,1000
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Apr 24 22:58:09 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1-Methylnaphthalene-d10	8.639	150	29115	4.00 ppb	-0.11
12) Fluorene-d10	11.577	176	48075	4.00 ppb	-0.13
18) Fluoranthene-d10	15.769	212	65851	4.00 ppb	-0.12
28) Benzo(a)pyrene-d12	20.398	264	48672	4.00 ppb	-0.13
System Monitoring Compounds					
2) 2-Fluorophenol	0.000	112	0d	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
3) Phenol-d5	0.000	99	0d	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
6) Nitrobenzene-d5	5.910	82	67388	10.82 ppb	-0.11
Spiked Amount 50.000			Recovery	= 21.64%	
13) 2-Fluorobiphenyl	9.294	172	262507	18.65 ppb	-0.12
Spiked Amount 50.000			Recovery	= 37.30%	
17) 2,4,6-Tribromophenol	0.000	330	0d	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
25) Terphenyl-d14	16.573	244	197400	17.90 ppb	-0.12
Spiked Amount 50.000			Recovery	= 35.80%	

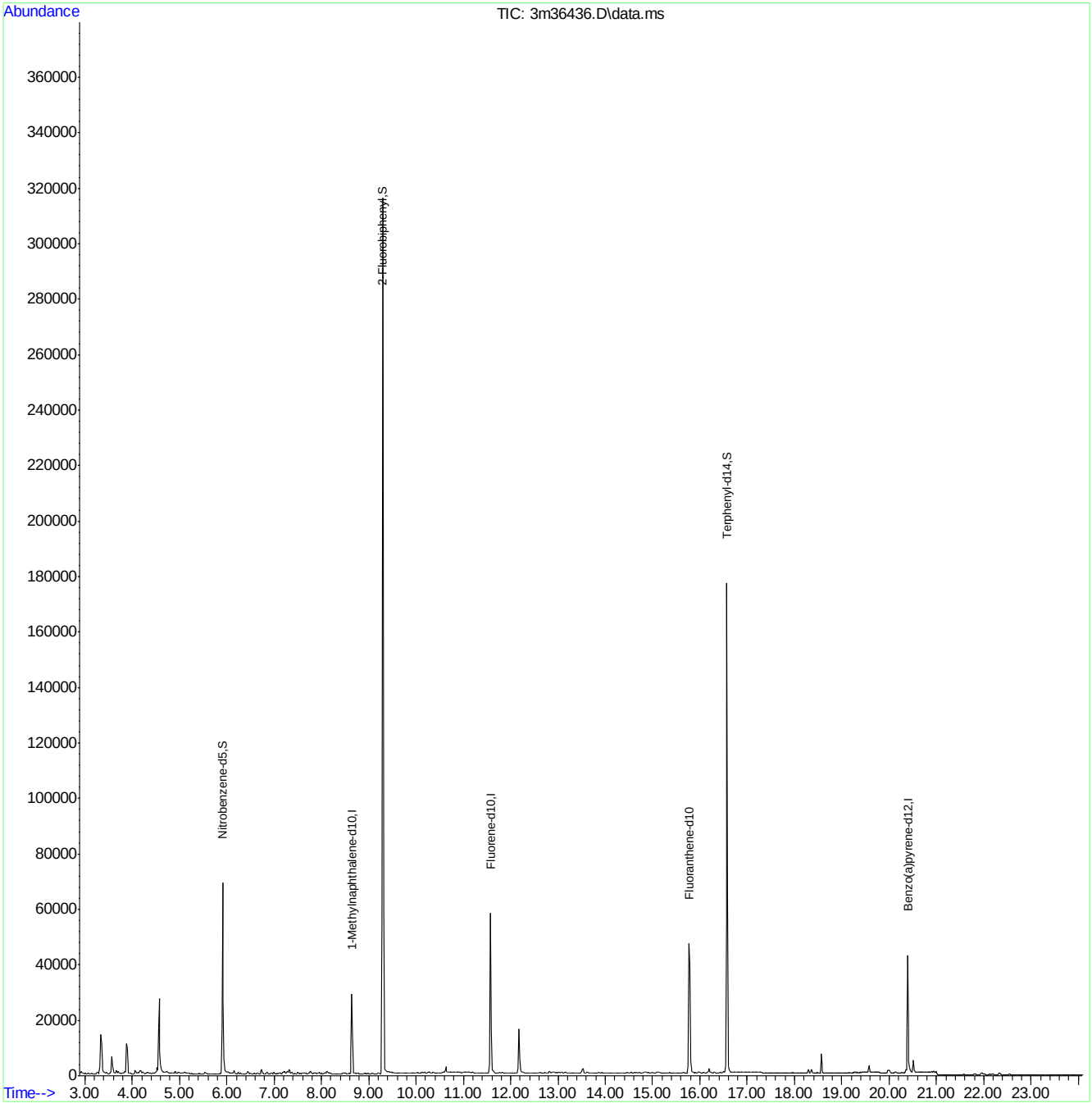
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1665\
Data File : 3m36436.D
Acq On : 24 Apr 2013 10:26 pm
Operator : ashleyd
Sample : jb33644-10
Misc : op65230,e3m1665,1000
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Apr 24 22:58:09 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration



Manual Integrations APPROVED (compounds with "m" flag)
Mark Erstling
05/09/13 17:47

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1683\
Data File : 3m36844.D
Acq On : 7 May 2013 6:17 pm
Operator : ninap
Sample : jb33644-10
Misc : op65642a,e3m1683,975
ALS Vial : 19 Sample Multiplier: 1

Quant Time: May 07 19:49:36 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1682SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon May 06 21:57:09 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.515	150	53813	4.00	ppb	0.00
12) Fluorene-d10	11.456	176	82018	4.00	ppb	0.00
18) Fluoranthene-d10	15.668	212	109735	4.00	ppb	0.02
28) Benzo(a)pyrene-d12	20.297	264	74791	4.00	ppb	0.01
System Monitoring Compounds						
2) 2-Fluorophenol	3.258	112	118971	18.15	ppb	0.00
Spiked Amount 50.000			Recovery = 36.30%			
3) Phenol-d5	4.494	99	134724	15.67	ppb	0.02
Spiked Amount 50.000			Recovery = 31.34%			
6) Nitrobenzene-d5	5.799	82	360059	30.06	ppb	0.01
Spiked Amount 50.000			Recovery = 60.12%			
13) 2-Fluorobiphenyl	9.166	172	531747	25.87	ppb	0.00
Spiked Amount 50.000			Recovery = 51.74%			
17) 2,4,6-Tribromophenol	12.058	330	99784	39.33	ppb	0.00
Spiked Amount 50.000			Recovery = 78.66%			
25) Terphenyl-d14	16.472	244	494936	30.86	ppb	0.02
Spiked Amount 50.000			Recovery = 61.72%			
Target Compounds						Qvalue
15) Acenaphthene	10.500	153	3279	0.15	ppb	95
21) Phenanthrene	13.396	178	7777m	0.23	ppb	
23) Fluoranthene	15.683	202	5171	0.16	ppb	92
24) Pyrene	16.070	202	6424	0.17	ppb	97
26) Benzo[a]anthracene	18.187	228	4287	0.15	ppb	96
27) Chrysene	18.248	228	4405	0.15	ppb	96
29) Benzo[b]fluoranthene	19.870	252	4564m	0.16	ppb	

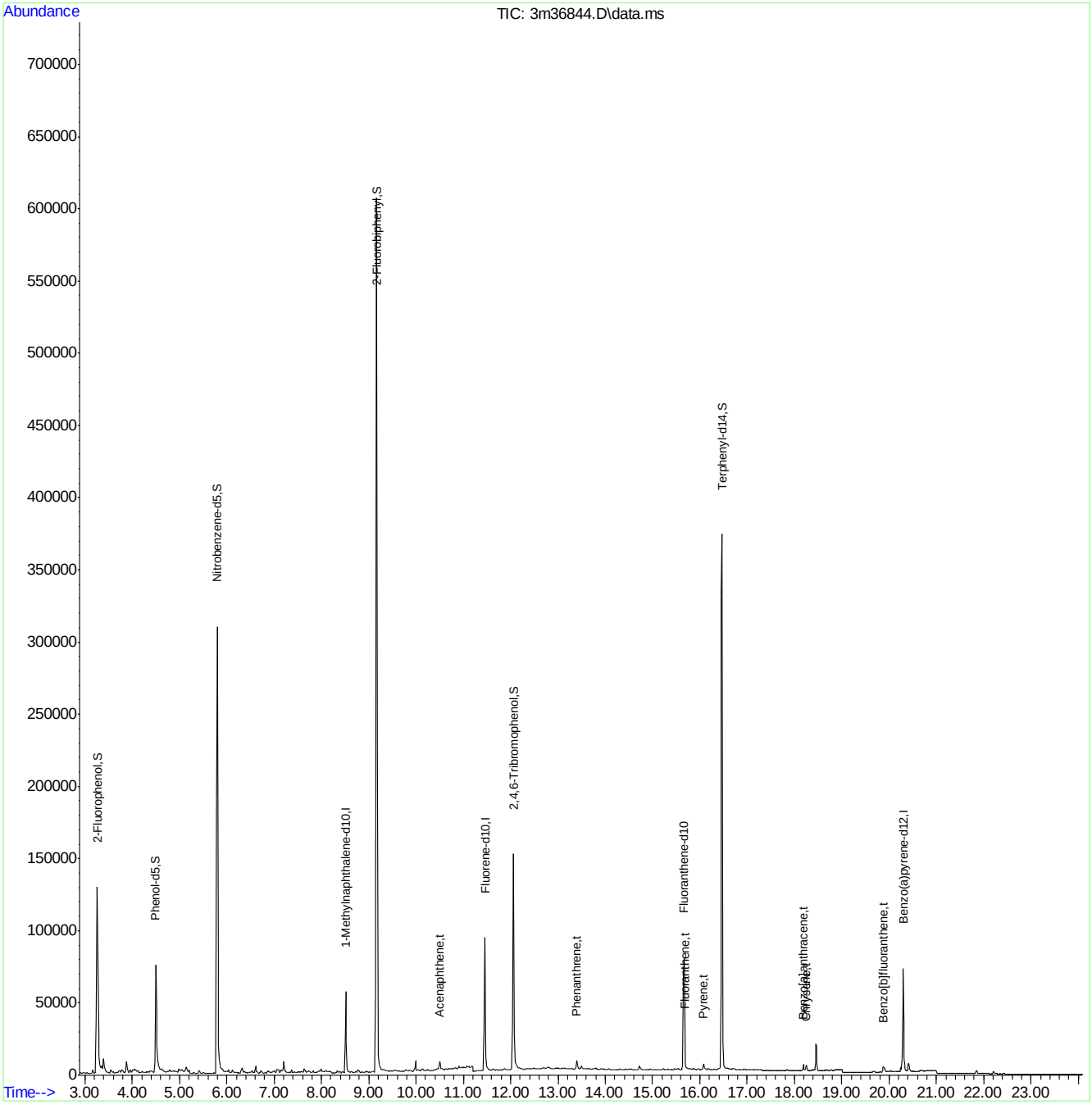
(#) = qualifier out of range (m) = manual integration (+) = signals summed

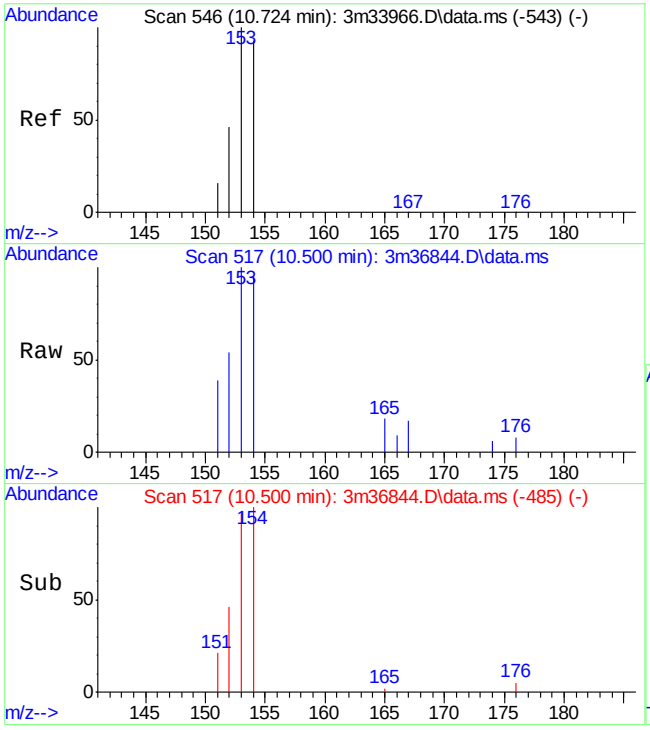
9.1.11
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1683\
Data File : 3m36844.D
Acq On : 7 May 2013 6:17 pm
Operator : ninap
Sample : jb33644-10
Misc : op65642a,e3m1683,975
ALS Vial : 19 Sample Multiplier: 1

Quant Time: May 07 19:49:36 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1682SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon May 06 21:57:09 2013
Response via : Initial Calibration

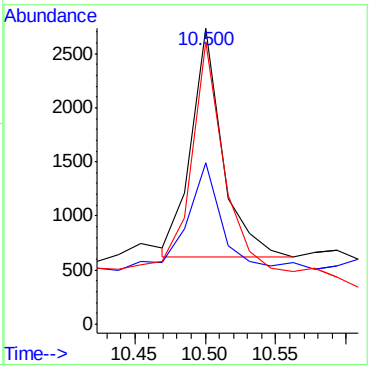


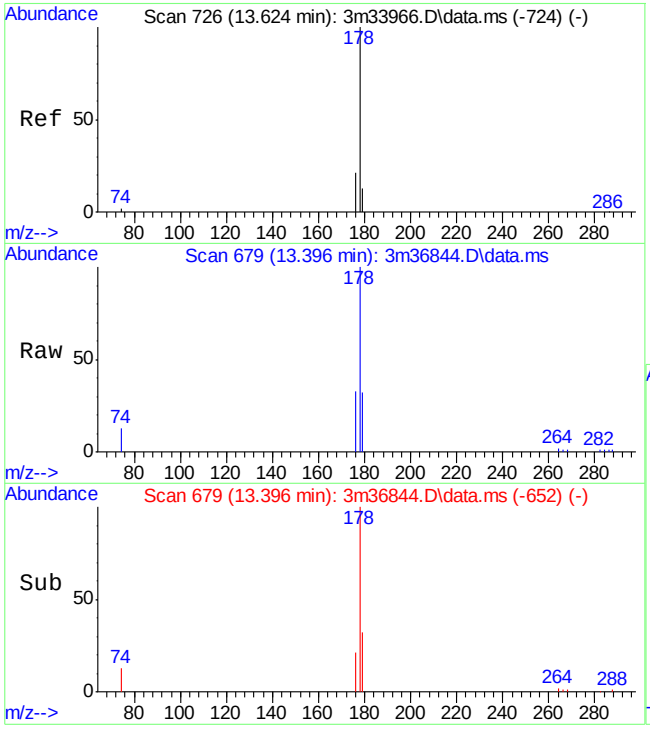


#15
Acenaphthene
Concen: 0.15 ppb
RT: 10.500 min Scan# 517
Delta R.T. 0.000 min
Lab File: 3m36844.D
Acq: 7 May 2013 6:17 pm

Tgt Ion:153 Resp: 3279

Ion	Ratio	Lower	Upper
153	100		
152	44.5	13.4	73.4
154	100.5	76.4	136.4

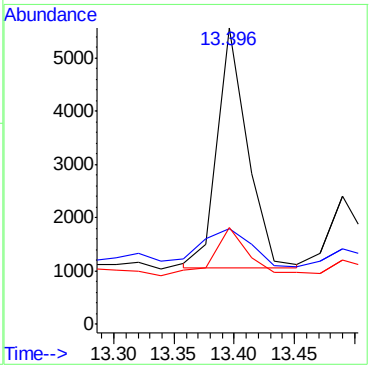




#21
Phenanthrene
Concen: 0.23 ppb m
RT: 13.396 min Scan# 679
Delta R.T. 0.000 min
Lab File: 3m36844.D
Acq: 7 May 2013 6:17 pm

Tgt Ion:178 Resp: 7777

Ion	Ratio	Lower	Upper
178	100		
179	32.1	0.0	46.7
176	32.7	0.0	48.8



9.1.11

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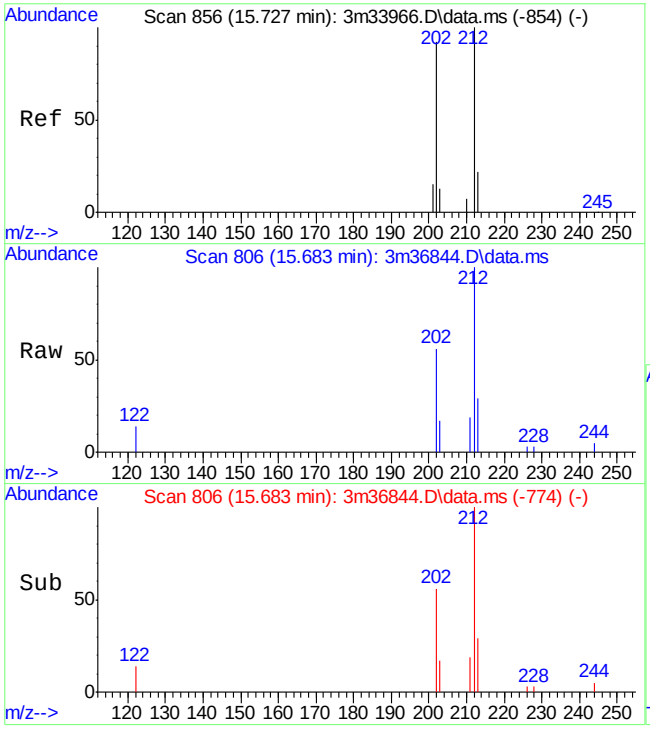
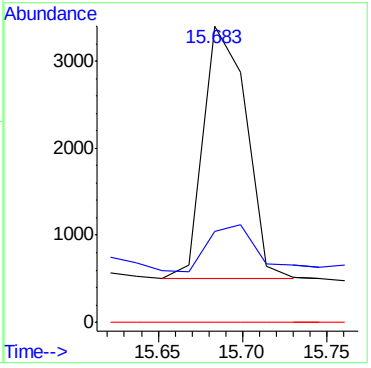
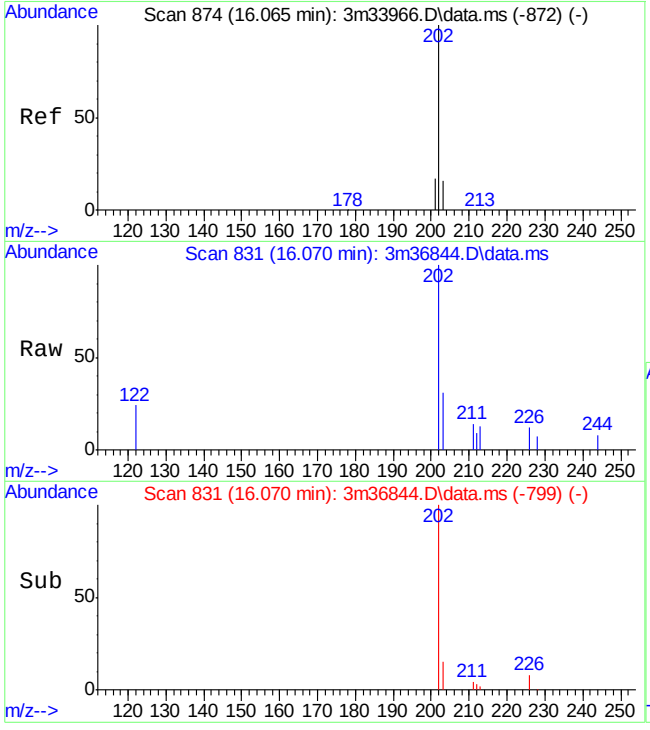


#23
Fluoranthene
Concen: 0.16 ppb
RT: 15.683 min Scan# 806
Delta R.T. 0.000 min
Lab File: 3m36844.D
Acq: 7 May 2013 6:17 pm

Tgt Ion:202 Resp: 5171

Ion	Ratio	Lower	Upper
202	100		
203	14.6	0.0	48.0
201	0.0	0.0	30.0

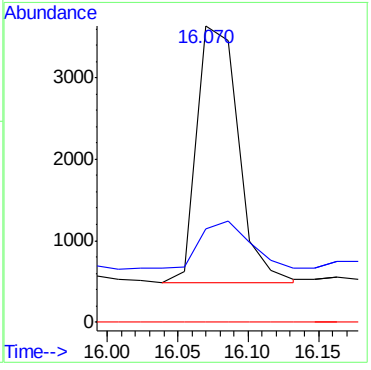




#24
Pyrene
Concen: 0.17 ppb
RT: 16.070 min Scan# 831
Delta R.T. -0.000 min
Lab File: 3m36844.D
Acq: 7 May 2013 6:17 pm

Tgt Ion:202 Resp: 6424

Ion	Ratio	Lower	Upper
202	100		
203	15.4	0.0	46.9
201	0.0	0.0	30.0



9.1.11

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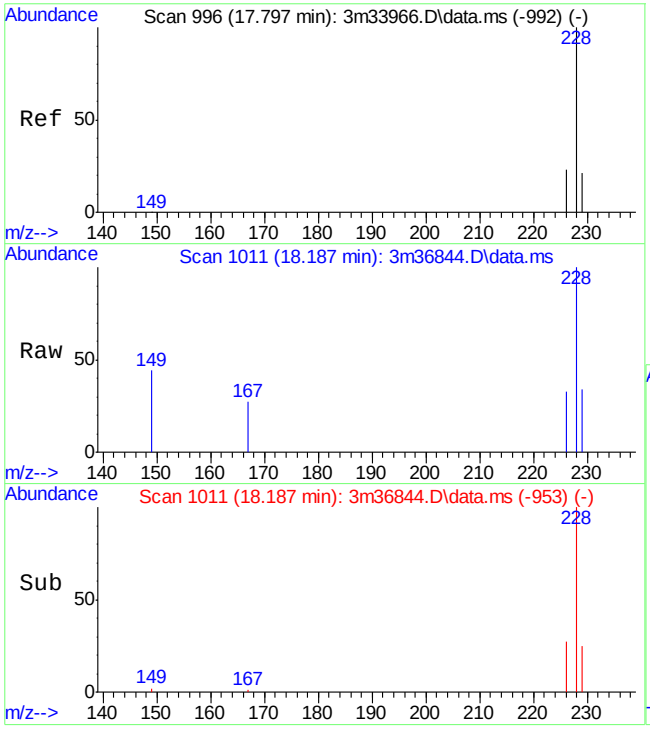
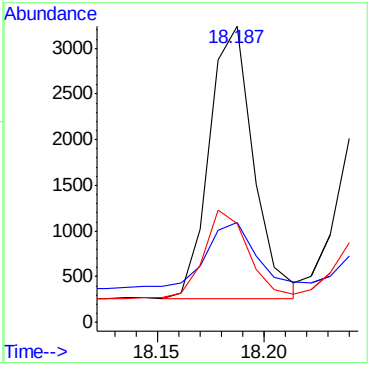
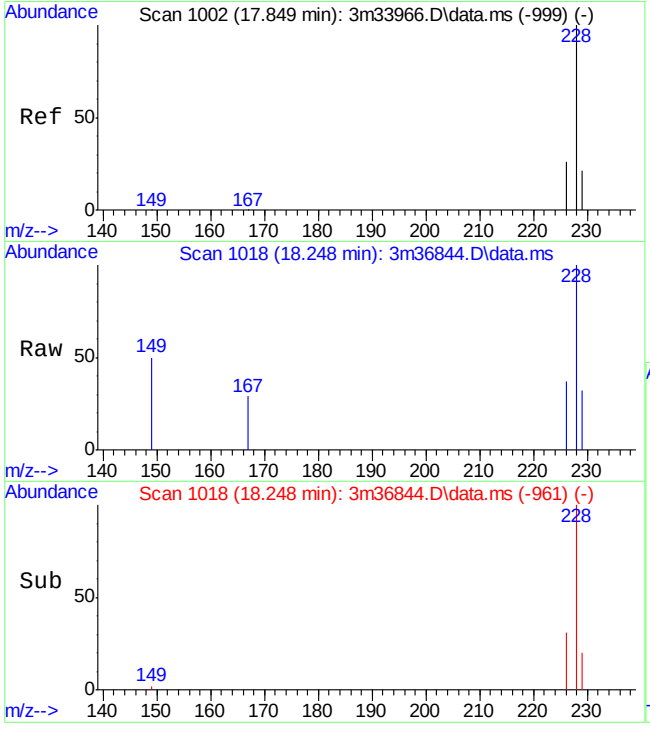


#26
Benzo[a]anthracene
Concen: 0.15 ppb
RT: 18.187 min Scan# 1011
Delta R.T. 0.009 min
Lab File: 3m36844.D
Acq: 7 May 2013 6:17 pm

Tgt Ion:228 Resp: 4287

Ion	Ratio	Lower	Upper
228	100		
229	23.0	0.0	49.2
226	27.5	0.0	57.7

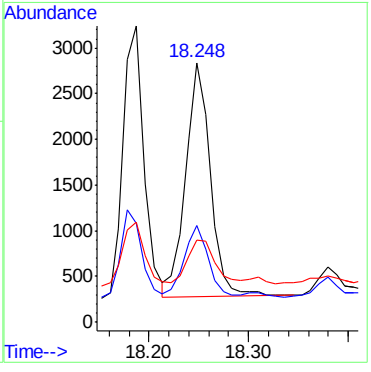


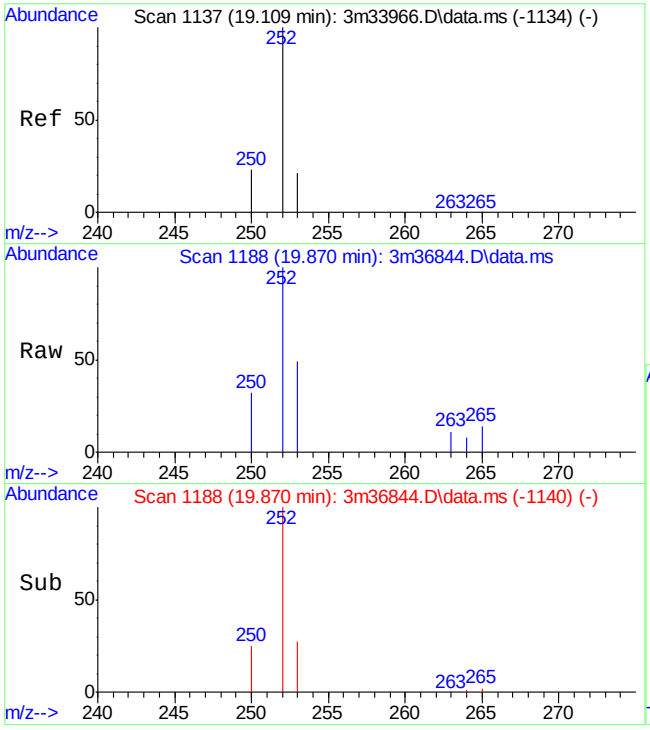


#27
Chrysene
Concen: 0.15 ppb
RT: 18.248 min Scan# 1018
Delta R.T. 0.000 min
Lab File: 3m36844.D
Acq: 7 May 2013 6:17 pm

Tgt Ion:228 Resp: 4405

Ion	Ratio	Lower	Upper
228	100		
226	30.7	0.0	59.3
229	18.7	0.0	51.0

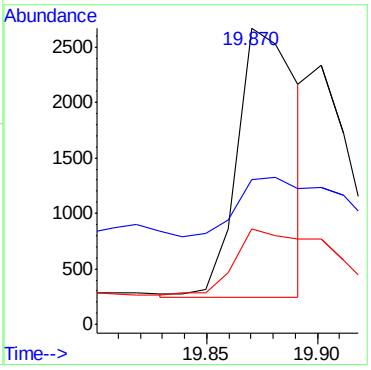




#29
Benzo[b]fluoranthene
Concen: 0.16 ppb m
RT: 19.870 min Scan# 1188
Delta R.T. 0.000 min
Lab File: 3m36844.D
Acq: 7 May 2013 6:17 pm

Tgt Ion:252 Resp: 4564

Ion	Ratio	Lower	Upper
252	100		
253	48.8	0.0	53.8
250	32.4	0.0	51.7



9.1.11

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1666\
Data File : 3m36459.D
Acq On : 25 Apr 2013 7:08 am
Operator : ashleyd
Sample : jb33644-11
Misc : op65230,e3m1666,1000
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Apr 25 16:17:20 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration

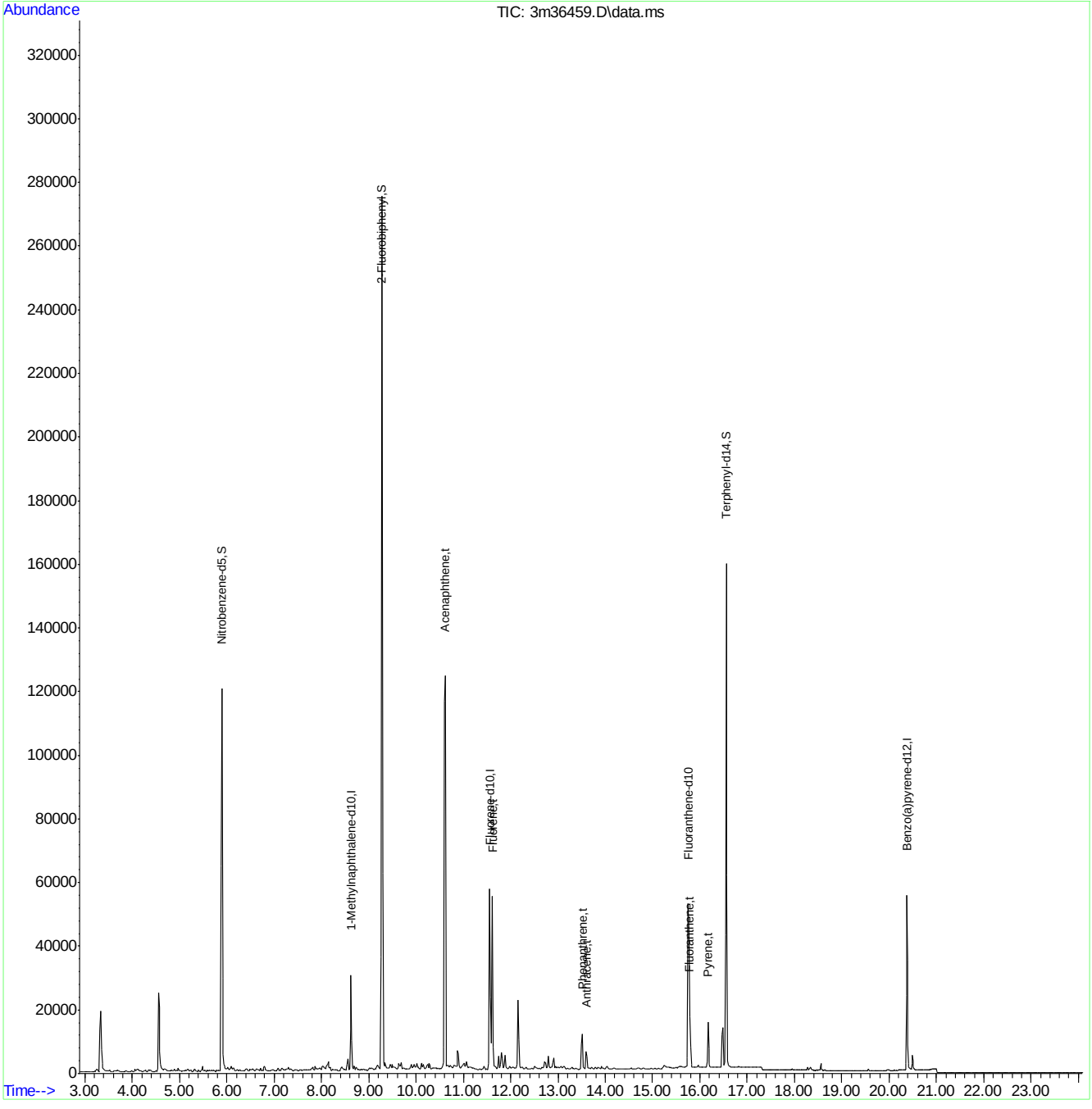
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.625	150	30126	4.00	ppb	-0.12
12) Fluorene-d10	11.558	176	50304	4.00	ppb	-0.15
18) Fluoranthene-d10	15.753	212	71966	4.00	ppb	-0.14
28) Benzo(a)pyrene-d12	20.377	264	54555	4.00	ppb	-0.15
System Monitoring Compounds						
2) 2-Fluorophenol	0.000	112	0d	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
3) Phenol-d5	0.000	99	0d	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
6) Nitrobenzene-d5	5.896	82	123768	19.21	ppb	-0.12
Spiked Amount 50.000			Recovery	=	38.42%	
13) 2-Fluorobiphenyl	9.277	172	223860	15.20	ppb	-0.14
Spiked Amount 50.000			Recovery	=	30.40%	
17) 2,4,6-Tribromophenol	0.000	330	0d	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
25) Terphenyl-d14	16.558	244	174765	14.50	ppb	-0.14
Spiked Amount 50.000			Recovery	=	29.00%	
Target Compounds						Qvalue
15) Acenaphthene	10.617	153	85550	5.46	ppb	93
16) Fluorene	11.615	166	37839	2.35	ppb	78
21) Phenanthrene	13.517	178	16467	0.63	ppb	92
22) Anthracene	13.592	178	7815	0.36	ppb	93
23) Fluoranthene	15.784	202	15491	0.62	ppb	100
24) Pyrene	16.171	202	17572	0.64	ppb	99

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

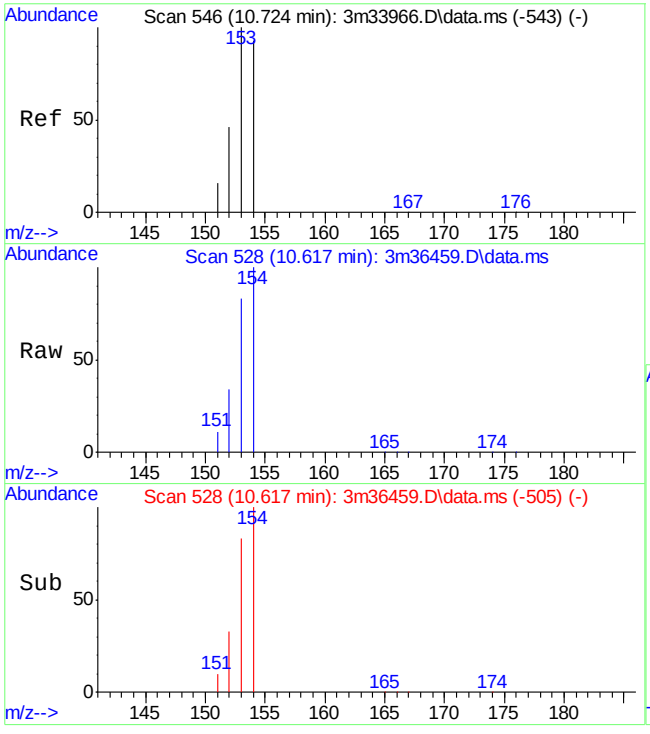
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1666\
Data File : 3m36459.D
Acq On : 25 Apr 2013 7:08 am
Operator : ashleyd
Sample : jb33644-11
Misc : op65230,e3m1666,1000
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Apr 25 16:17:20 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration



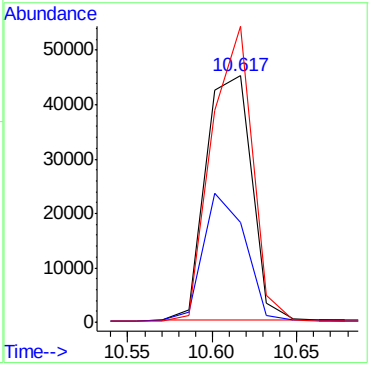
M1644SIM.M Thu Apr 25 16:25:32 2013 RPT1 Page: 2

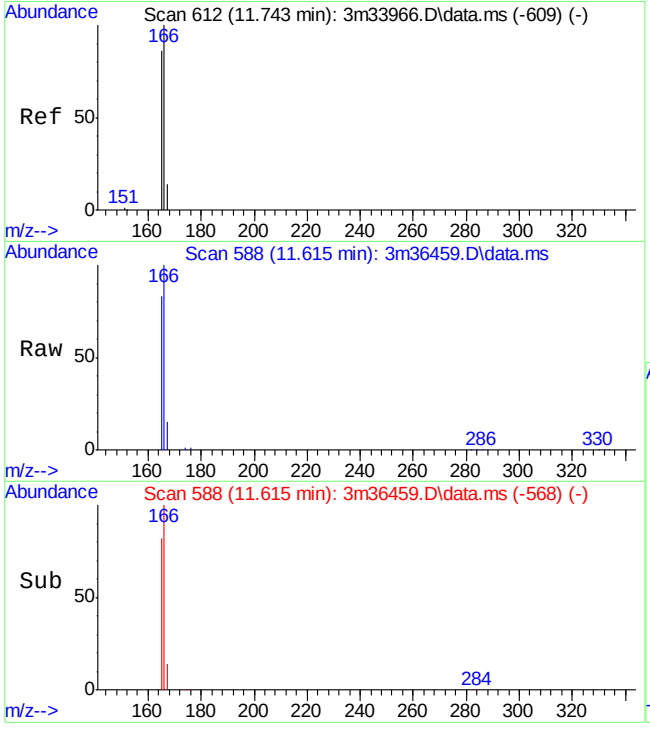


#15
Acenaphthene
Concen: 5.46 ppb
RT: 10.617 min Scan# 528
Delta R.T. -0.139 min
Lab File: 3m36459.D
Acq: 25 Apr 2013 7:08 am

Tgt Ion:153 Resp: 85550

Ion	Ratio	Lower	Upper
153	100		
152	40.2	11.2	71.2
154	120.8	81.2	141.2

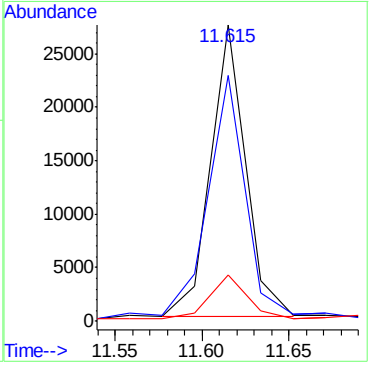


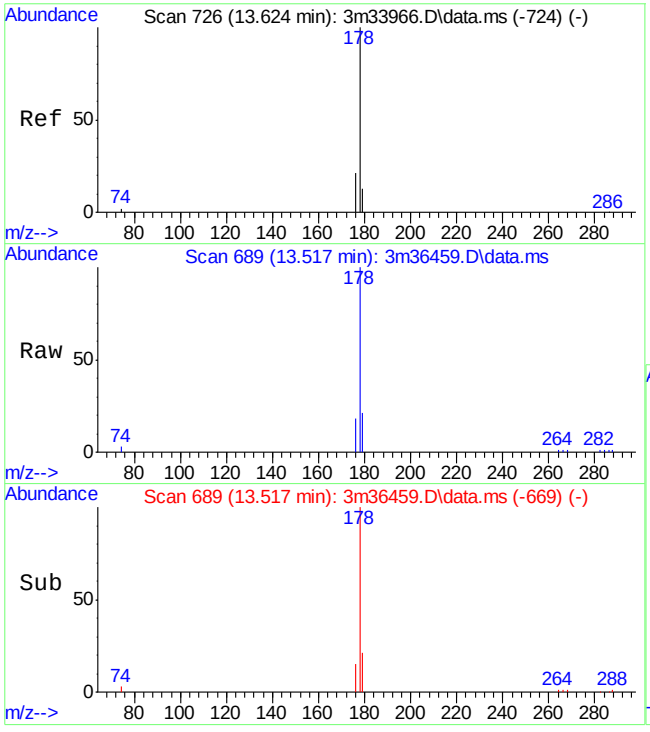


#16
Fluorene
Concen: 2.35 ppb
RT: 11.615 min Scan# 588
Delta R.T. -0.132 min
Lab File: 3m36459.D
Acq: 25 Apr 2013 7:08 am

Tgt Ion:166 Resp: 37839

Ion	Ratio	Lower	Upper
166	100		
165	82.0	76.4	136.4
167	14.7	0.0	41.3

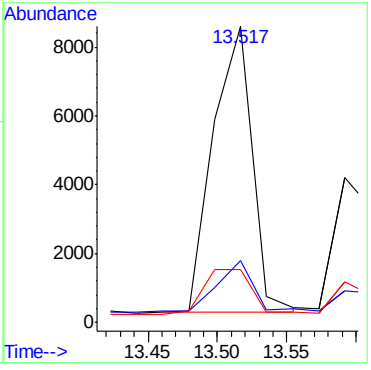


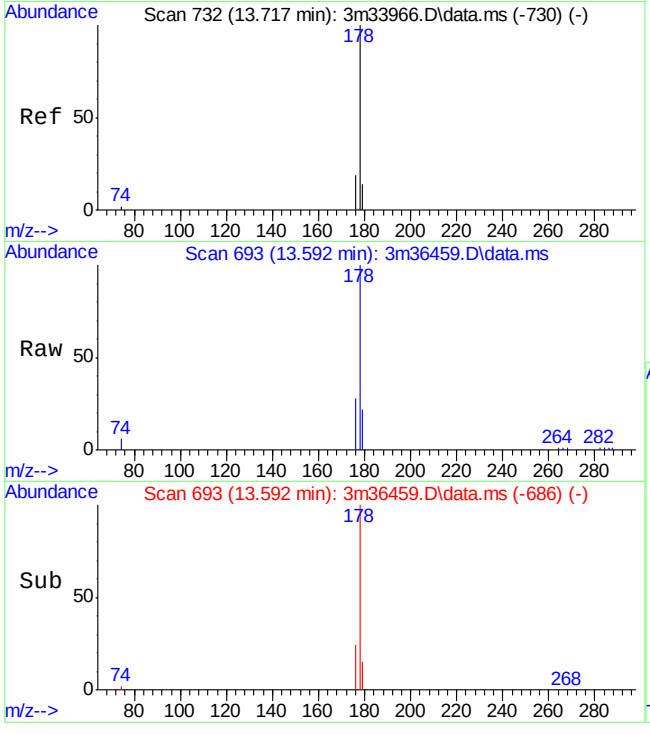


#21
Phenanthrene
Concen: 0.63 ppb
RT: 13.517 min Scan# 689
Delta R.T. -0.132 min
Lab File: 3m36459.D
Acq: 25 Apr 2013 7:08 am

Tgt Ion:178 Resp: 16467

Ion	Ratio	Lower	Upper
178	100		
179	17.2	0.0	44.7
176	15.4	0.0	50.1

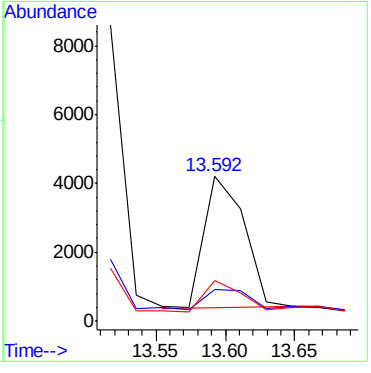




#22
Anthracene
Concen: 0.36 ppb
RT: 13.592 min Scan# 693
Delta R.T. -0.169 min
Lab File: 3m36459.D
Acq: 25 Apr 2013 7:08 am

Tgt Ion:178 Resp: 7815

Ion	Ratio	Lower	Upper
178	100		
179	13.2	0.0	45.5
176	21.8	0.0	48.3



9.1.12

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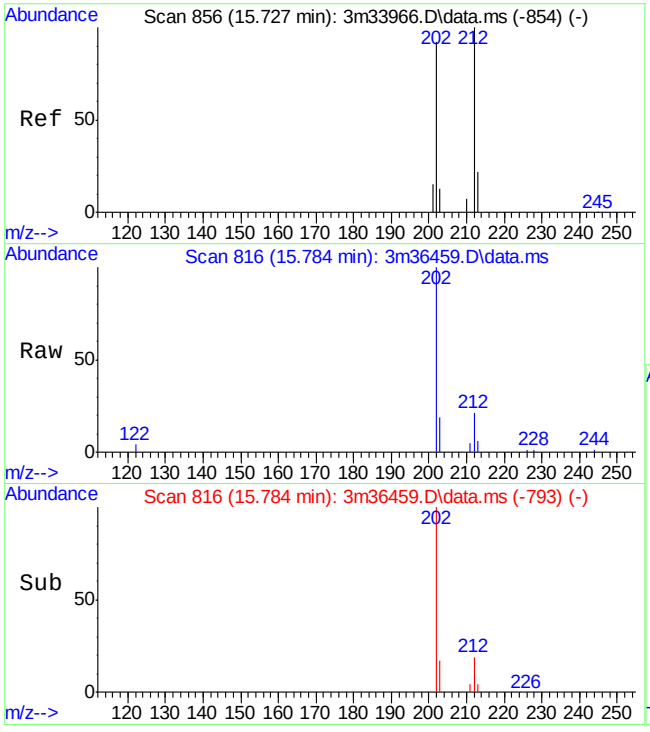
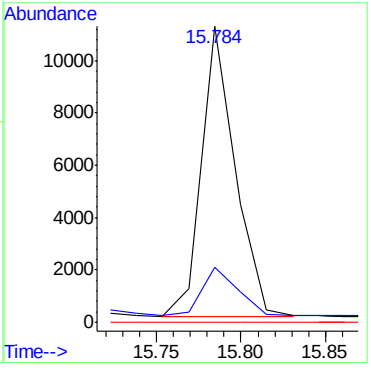
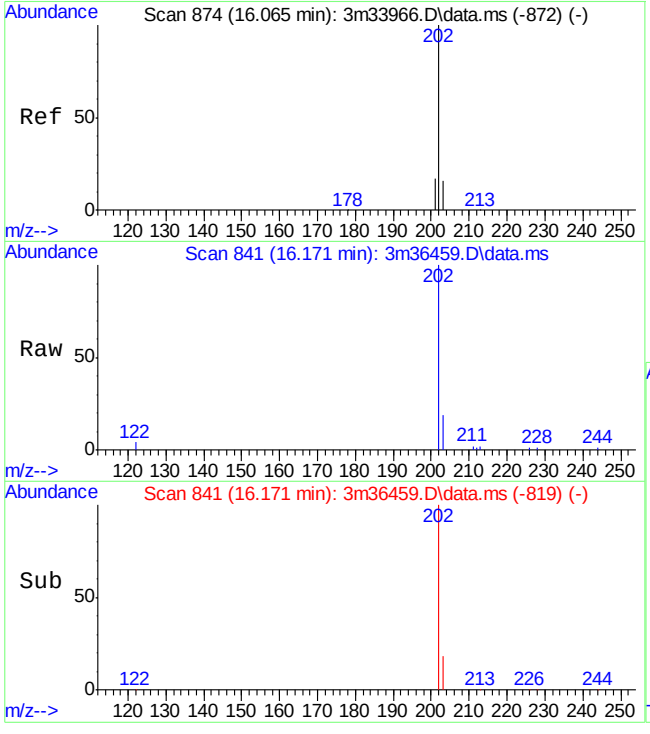


#23
Fluoranthene
Concen: 0.62 ppb
RT: 15.784 min Scan# 816
Delta R.T. -0.139 min
Lab File: 3m36459.D
Acq: 25 Apr 2013 7:08 am

Tgt Ion:202 Resp: 15491

Ion	Ratio	Lower	Upper
202	100		
203	16.6	0.0	46.4
201	0.0	0.0	30.0

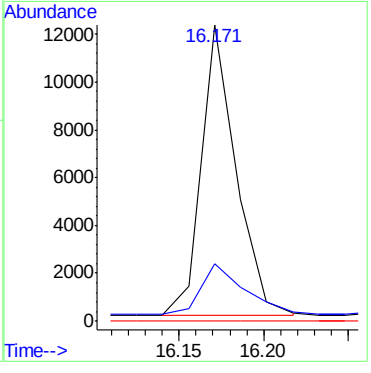




#24
Pyrene
Concen: 0.64 ppb
RT: 16.171 min Scan# 841
Delta R.T. -0.155 min
Lab File: 3m36459.D
Acq: 25 Apr 2013 7:08 am

Tgt Ion:202 Resp: 17572

Ion	Ratio	Lower	Upper
202	100		
203	17.1	0.0	46.8
201	0.0	0.0	30.0



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1666\
Data File : 3m36460.D
Acq On : 25 Apr 2013 7:39 am
Operator : ashleyd
Sample : jb33644-12
Misc : op65230,e3m1666,1000
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Apr 25 16:18:06 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration

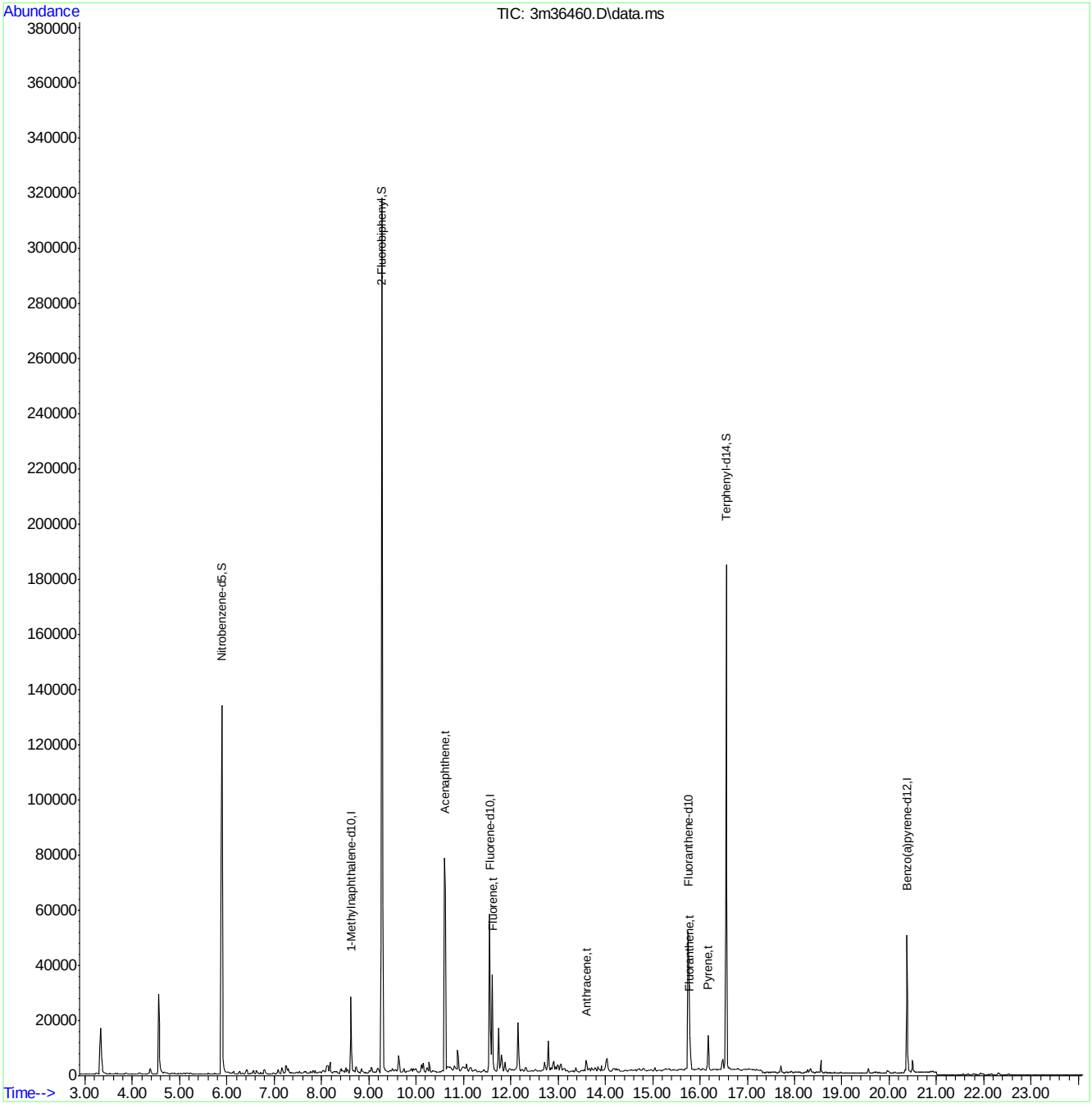
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1-Methylnaphthalene-d10	8.625	150	28366	4.00 ppb	-0.12
12) Fluorene-d10	11.558	176	46255	4.00 ppb	-0.15
18) Fluoranthene-d10	15.753	212	66363	4.00 ppb	-0.14
28) Benzo(a)pyrene-d12	20.377	264	48642	4.00 ppb	-0.15
System Monitoring Compounds					
2) 2-Fluorophenol	0.000	112	0d	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
3) Phenol-d5	0.000	99	0d	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
6) Nitrobenzene-d5	5.896	82	141049	23.25 ppb	-0.12
Spiked Amount 50.000			Recovery	= 46.50%	
13) 2-Fluorobiphenyl	9.277	172	255395	18.86 ppb	-0.14
Spiked Amount 50.000			Recovery	= 37.72%	
17) 2,4,6-Tribromophenol	0.000	330	0d	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
25) Terphenyl-d14	16.557	244	205688	18.51 ppb	-0.14
Spiked Amount 50.000			Recovery	= 37.02%	
Target Compounds					Qvalue
15) Acenaphthene	10.601	153	52626	3.65 ppb	81
16) Fluorene	11.615	166	24333	1.64 ppb	77
22) Anthracene	13.592	178	5651	0.29 ppb	84
23) Fluoranthene	15.784	202	12704	0.55 ppb	99
24) Pyrene	16.171	202	14915	0.59 ppb	99

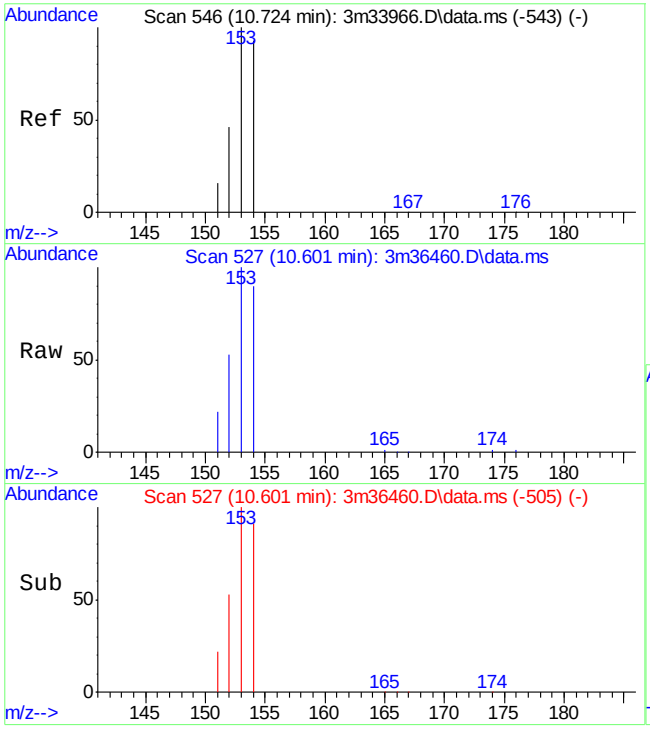
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1666\
Data File : 3m36460.D
Acq On : 25 Apr 2013 7:39 am
Operator : ashleyd
Sample : jb33644-12
Misc : op65230,e3m1666,1000
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Apr 25 16:18:06 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration

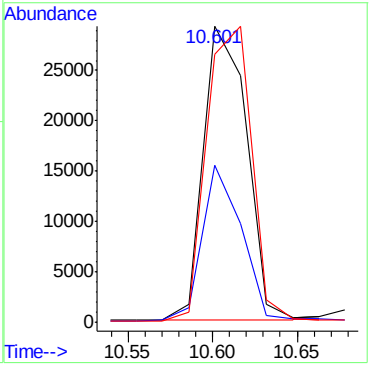


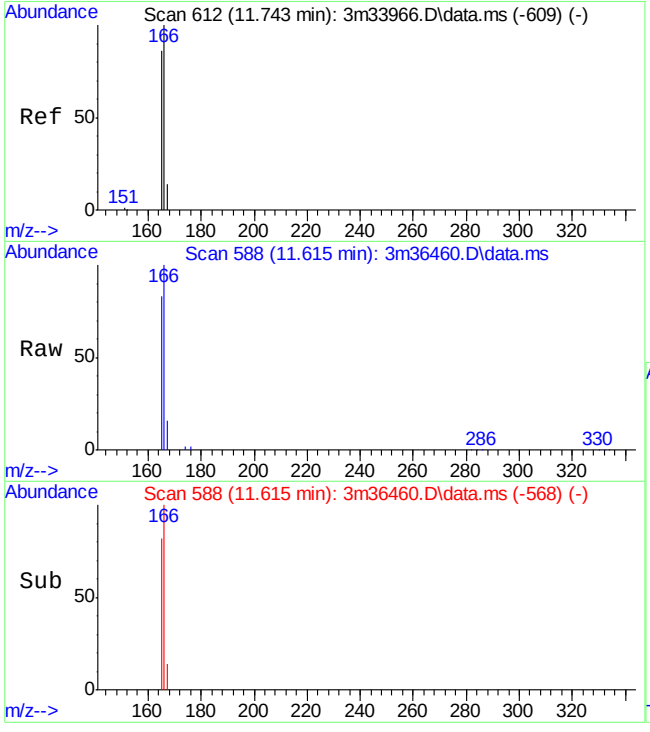


#15
Acenaphthene
Concen: 3.65 ppb
RT: 10.601 min Scan# 527
Delta R.T. -0.155 min
Lab File: 3m36460.D
Acq: 25 Apr 2013 7:39 am

Tgt Ion:153 Resp: 52626

Ion	Ratio	Lower	Upper
153	100		
152	52.8	11.2	71.2
154	90.7	81.2	141.2

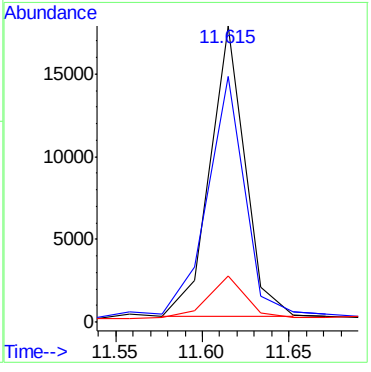


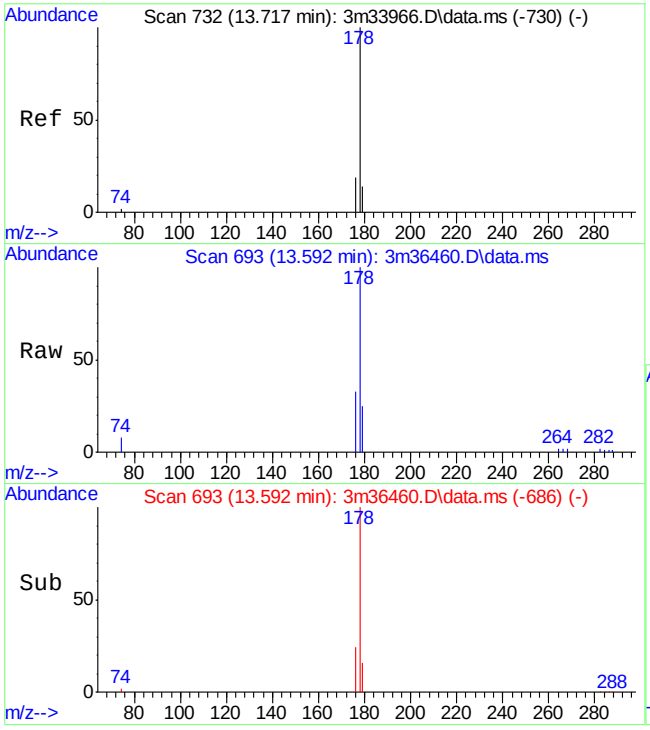


#16
Fluorene
Concen: 1.64 ppb
RT: 11.615 min Scan# 588
Delta R.T. -0.132 min
Lab File: 3m36460.D
Acq: 25 Apr 2013 7:39 am

Tgt Ion:166 Resp: 24333

Ion	Ratio	Lower	Upper
166	100		
165	81.4	76.4	136.4
167	14.3	0.0	41.3

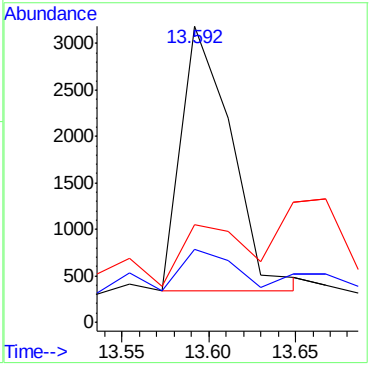


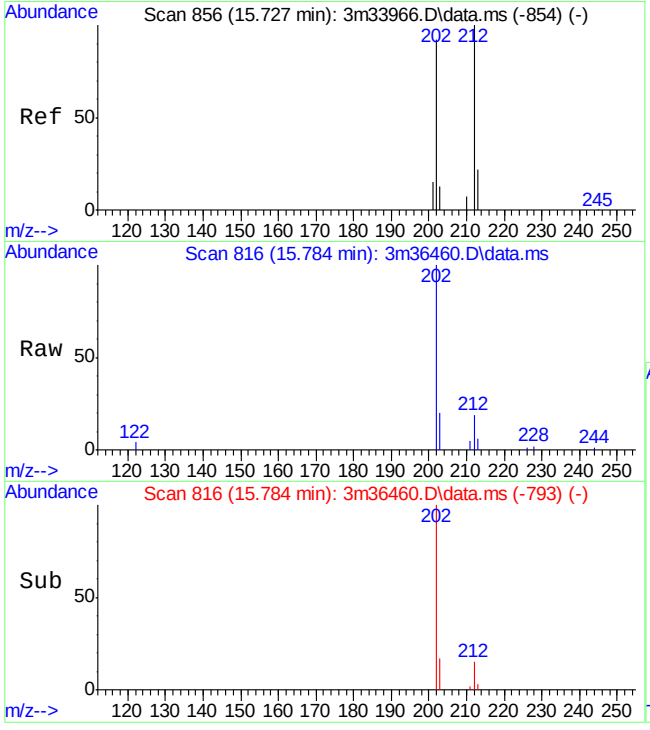


#22
Anthracene
Concen: 0.29 ppb
RT: 13.592 min Scan# 693
Delta R.T. -0.170 min
Lab File: 3m36460.D
Acq: 25 Apr 2013 7:39 am

Tgt Ion:178 Resp: 5651

Ion	Ratio	Lower	Upper
178	100		
179	12.8	0.0	45.5
176	7.8	0.0	48.3

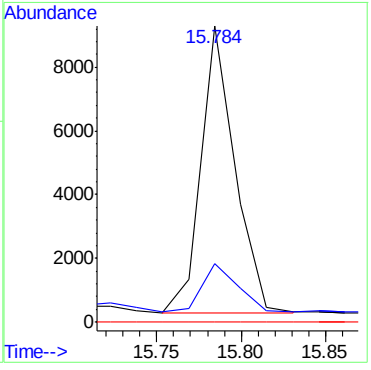


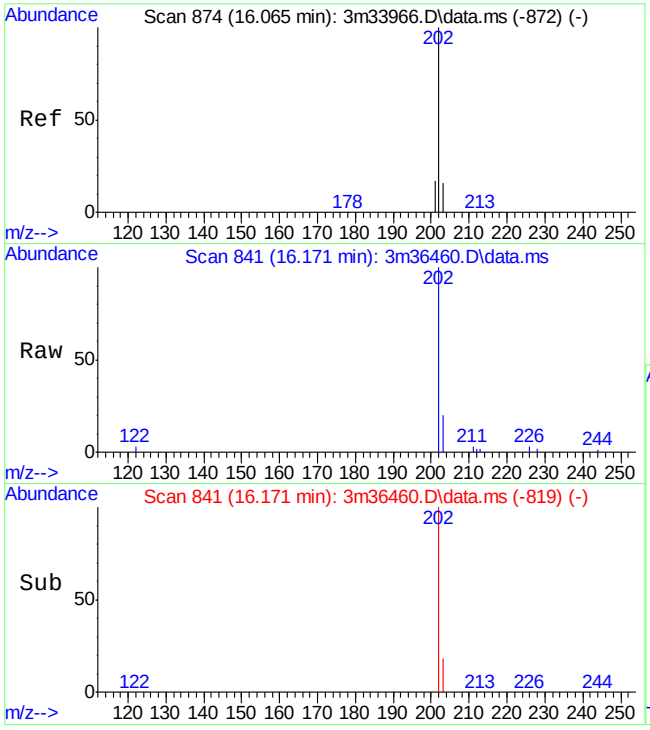


#23
Fluoranthene
Concen: 0.55 ppb
RT: 15.784 min Scan# 816
Delta R.T. -0.139 min
Lab File: 3m36460.D
Acq: 25 Apr 2013 7:39 am

Tgt Ion:202 Resp: 12704

Ion	Ratio	Lower	Upper
202	100		
203	17.0	0.0	46.4
201	0.0	0.0	30.0

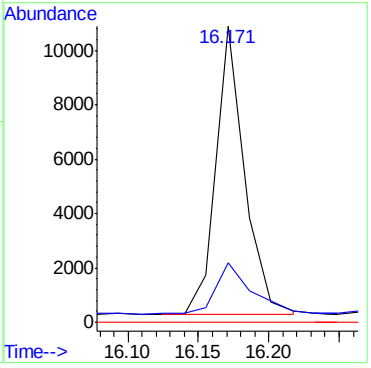




#24
Pyrene
Concen: 0.59 ppb
RT: 16.171 min Scan# 841
Delta R.T. -0.155 min
Lab File: 3m36460.D
Acq: 25 Apr 2013 7:39 am

Tgt Ion:202 Resp: 14915

Ion	Ratio	Lower	Upper
202	100		
203	17.4	0.0	46.8
201	0.0	0.0	30.0



9.1.13

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1666\
Data File : 3m36461.D
Acq On : 25 Apr 2013 8:10 am
Operator : ashleyd
Sample : jb33644-13
Misc : op65230,e3m1666,1000
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Apr 25 16:18:45 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.625	150	31209	4.00	ppb	-0.12
12) Fluorene-d10	11.558	176	50909	4.00	ppb	-0.15
18) Fluoranthene-d10	15.753	212	70785	4.00	ppb	-0.14
28) Benzo(a)pyrene-d12	20.377	264	52299	4.00	ppb	-0.15
System Monitoring Compounds						
2) 2-Fluorophenol	0.000	112	0d	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
3) Phenol-d5	0.000	99	0d	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
6) Nitrobenzene-d5	5.896	82	191685	28.72	ppb	-0.12
Spiked Amount 50.000			Recovery	=	57.44%	
13) 2-Fluorobiphenyl	9.277	172	325445	21.83	ppb	-0.14
Spiked Amount 50.000			Recovery	=	43.66%	
17) 2,4,6-Tribromophenol	0.000	330	0d	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
25) Terphenyl-d14	16.558	244	241575	20.38	ppb	-0.14
Spiked Amount 50.000			Recovery	=	40.76%	
Target Compounds						Qvalue

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

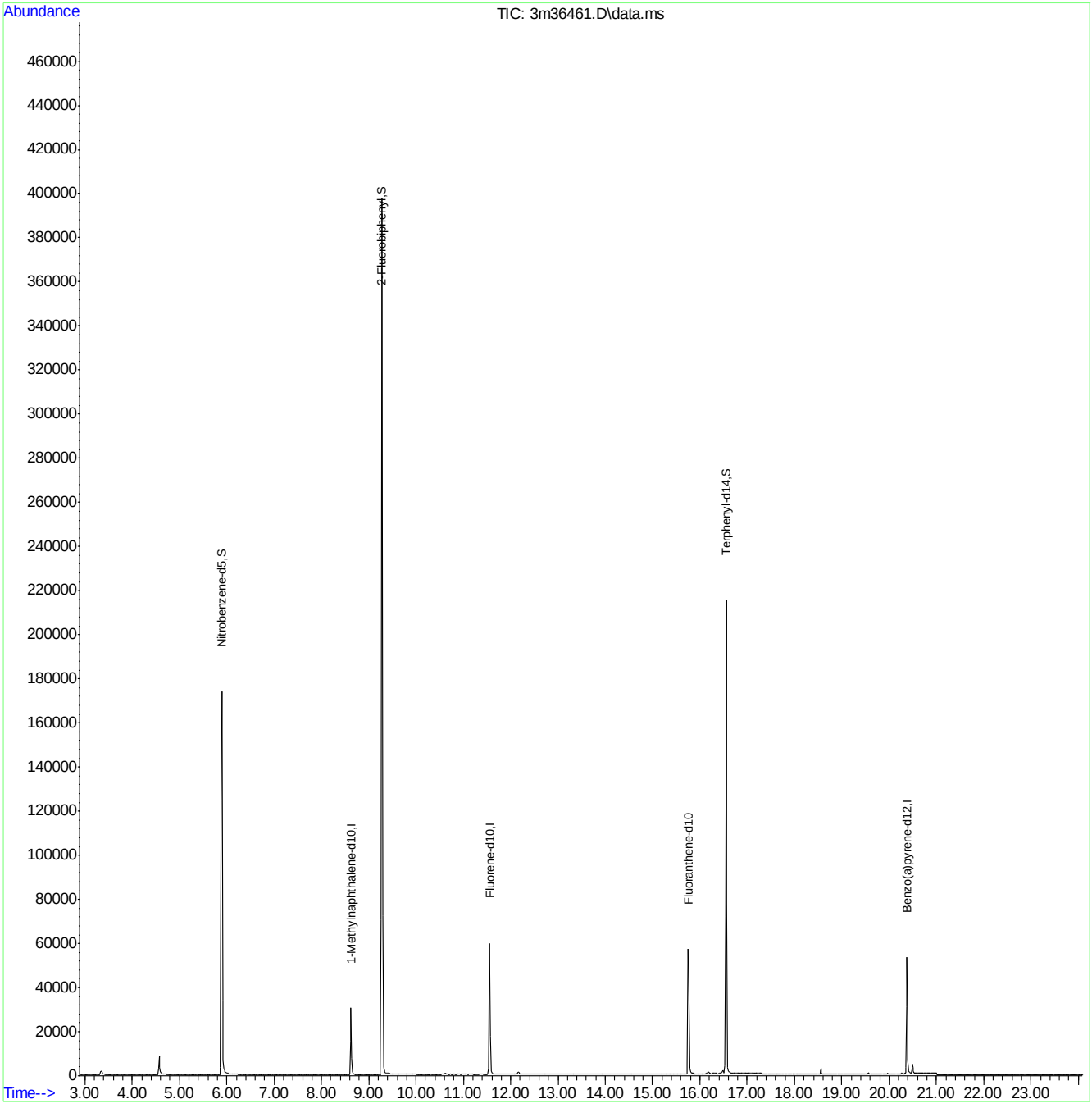
9.1.14

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1666\
Data File : 3m36461.D
Acq On : 25 Apr 2013 8:10 am
Operator : ashleyd
Sample : jb33644-13
Misc : op65230,e3m1666,1000
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Apr 25 16:18:45 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1666\
Data File : 3m36462.D
Acq On : 25 Apr 2013 8:42 am
Operator : ashleyd
Sample : jb33644-14
Misc : op65230,e3m1666,1000
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Apr 25 16:19:27 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1-Methylnaphthalene-d10	8.625	150	30441	4.00 ppb	-0.12
12) Fluorene-d10	11.558	176	49364	4.00 ppb	-0.15
18) Fluoranthene-d10	15.753	212	69478	4.00 ppb	-0.14
28) Benzo(a)pyrene-d12	20.377	264	50326	4.00 ppb	-0.15
System Monitoring Compounds					
2) 2-Fluorophenol	0.000	112	0d	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
3) Phenol-d5	0.000	99	0d	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
6) Nitrobenzene-d5	5.882	82	177429	27.26 ppb	-0.14
Spiked Amount 50.000			Recovery	= 54.52%	
13) 2-Fluorobiphenyl	9.277	172	292819	20.26 ppb	-0.14
Spiked Amount 50.000			Recovery	= 40.52%	
17) 2,4,6-Tribromophenol	0.000	330	0	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
25) Terphenyl-d14	16.557	244	203262	17.47 ppb	-0.14
Spiked Amount 50.000			Recovery	= 34.94%	
Target Compounds					Qvalue
15) Acenaphthene	10.617	153	4184	0.27 ppb	96

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

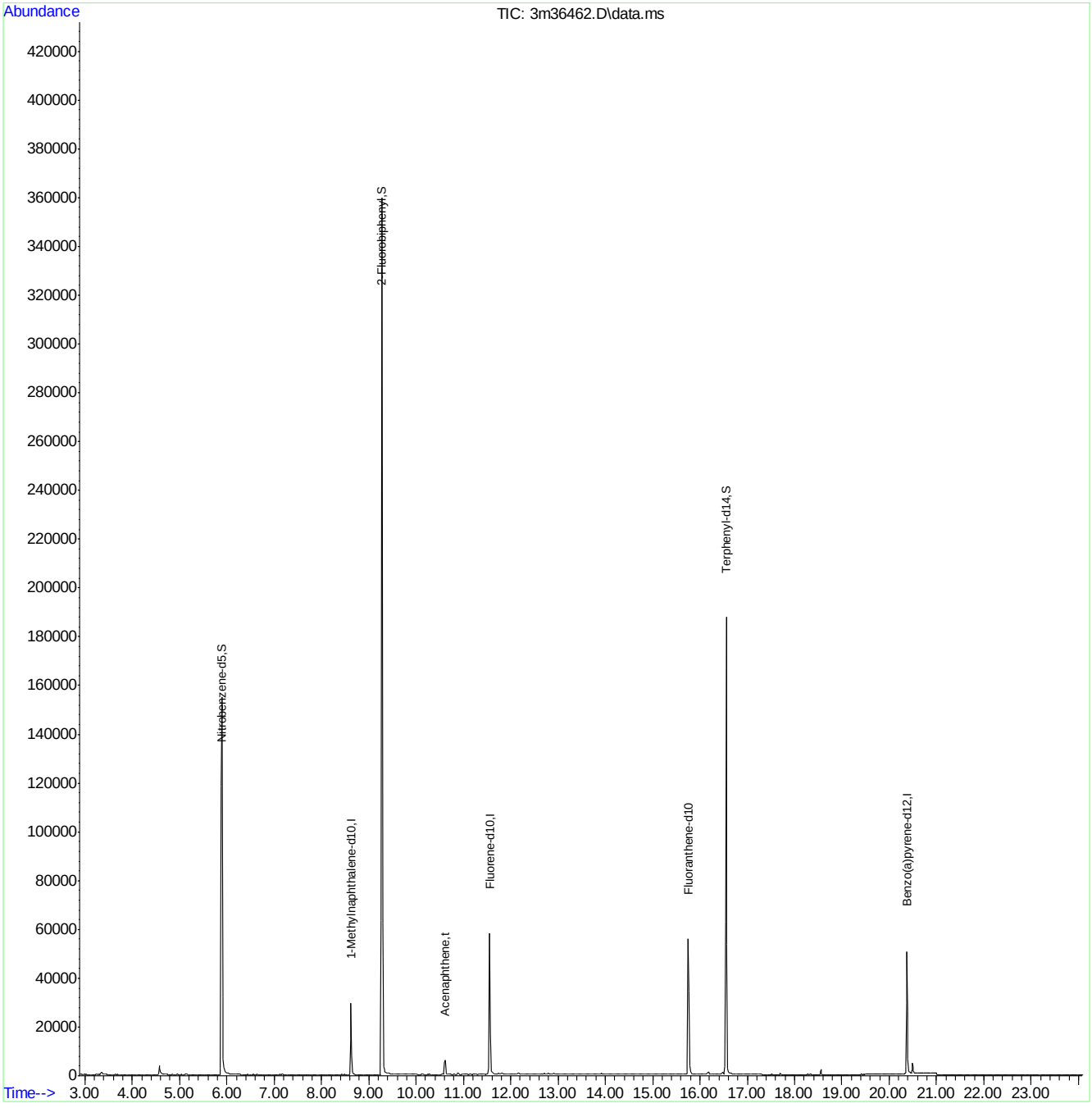
9.1.15

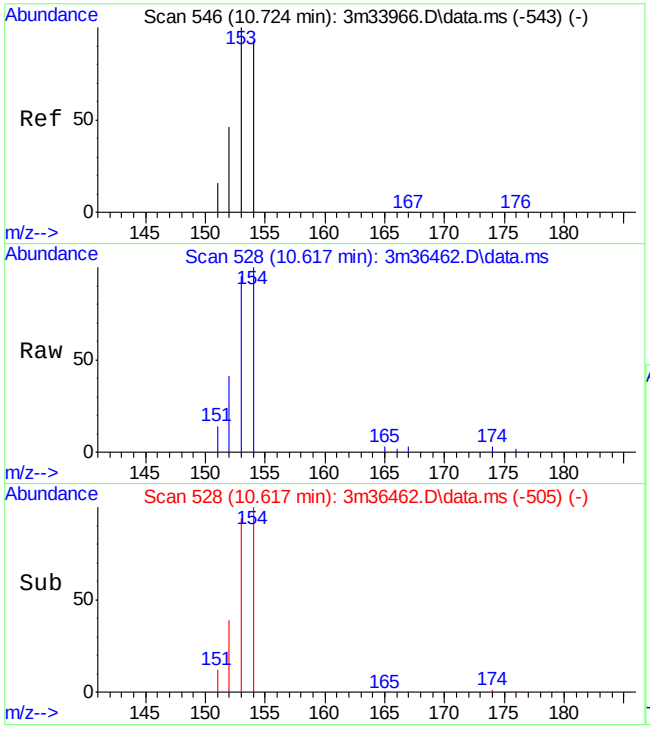
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1666\
Data File : 3m36462.D
Acq On : 25 Apr 2013 8:42 am
Operator : ashleyd
Sample : jb33644-14
Misc : op65230,e3m1666,1000
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Apr 25 16:19:27 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration

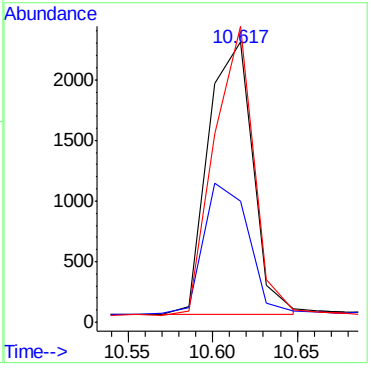




#15
Acenaphthene
Concen: 0.27 ppb
RT: 10.617 min Scan# 528
Delta R.T. -0.139 min
Lab File: 3m36462.D
Acq: 25 Apr 2013 8:42 am

Tgt Ion:153 Resp: 4184

Ion	Ratio	Lower	Upper
153	100		
152	41.2	11.2	71.2
154	105.9	81.2	141.2



9.1.15

9

Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 05/18/13 10:18

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1667\
Data File : 3m36469.D
Acq On : 25 Apr 2013 12:31 pm
Operator : ninap
Sample : jb33644-15
Misc : op65230,e3m1667,1000
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Apr 25 17:29:55 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.625	150	31174m	4.00	ppb	-0.12
12) Fluorene-d10	11.558	176	47957	4.00	ppb	-0.15
18) Fluoranthene-d10	15.753	212	63104	4.00	ppb	-0.14
28) Benzo(a)pyrene-d12	20.377	264	46616	4.00	ppb	-0.15
System Monitoring Compounds						
2) 2-Fluorophenol	0.000	112	0d	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
3) Phenol-d5	0.000	99	0d	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
6) Nitrobenzene-d5	5.896	82	29513m	4.43	ppb	-0.12
Spiked Amount 50.000			Recovery	=	8.86%	
13) 2-Fluorobiphenyl	9.277	172	224971	16.02	ppb	-0.14
Spiked Amount 50.000			Recovery	=	32.04%	
17) 2,4,6-Tribromophenol	0.000	330	0d	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
25) Terphenyl-d14	16.557	244	160287	15.17	ppb	-0.14
Spiked Amount 50.000			Recovery	=	30.34%	
Target Compounds						Qvalue
14) Acenaphthylene	10.230	152	17308	0.82	ppb	98
15) Acenaphthene	10.601	153	52831	3.54	ppb	84
16) Fluorene	11.615	166	55734	3.63	ppb	73
21) Phenanthrene	13.498	178	148740	6.52	ppb	98
22) Anthracene	13.592	178	49302	2.62	ppb	98
23) Fluoranthene	15.784	202	128756	5.90	ppb	89
24) Pyrene	16.171	202	168914	7.03	ppb	88
26) Benzo[a]anthracene	18.267	228	56961	3.15	ppb	95
27) Chrysene	18.337	228	60013	2.84	ppb	95
29) Benzo[b]fluoranthene	19.961	252	39626m	1.96	ppb	
30) Benzo[k]fluoranthene	19.982	252	25097m	1.24	ppb	
31) Benzo[a]pyrene	20.408	252	34135	1.82	ppb	99
32) Indeno[1,2,3-cd]pyrene	21.928	276	15744	0.68	ppb	99
33) Dibenz[a,h]anthracene	21.954	278	6132m	0.33	ppb	
34) Benzo[g,h,i]perylene	22.303	276	16465	0.79	ppb	99

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

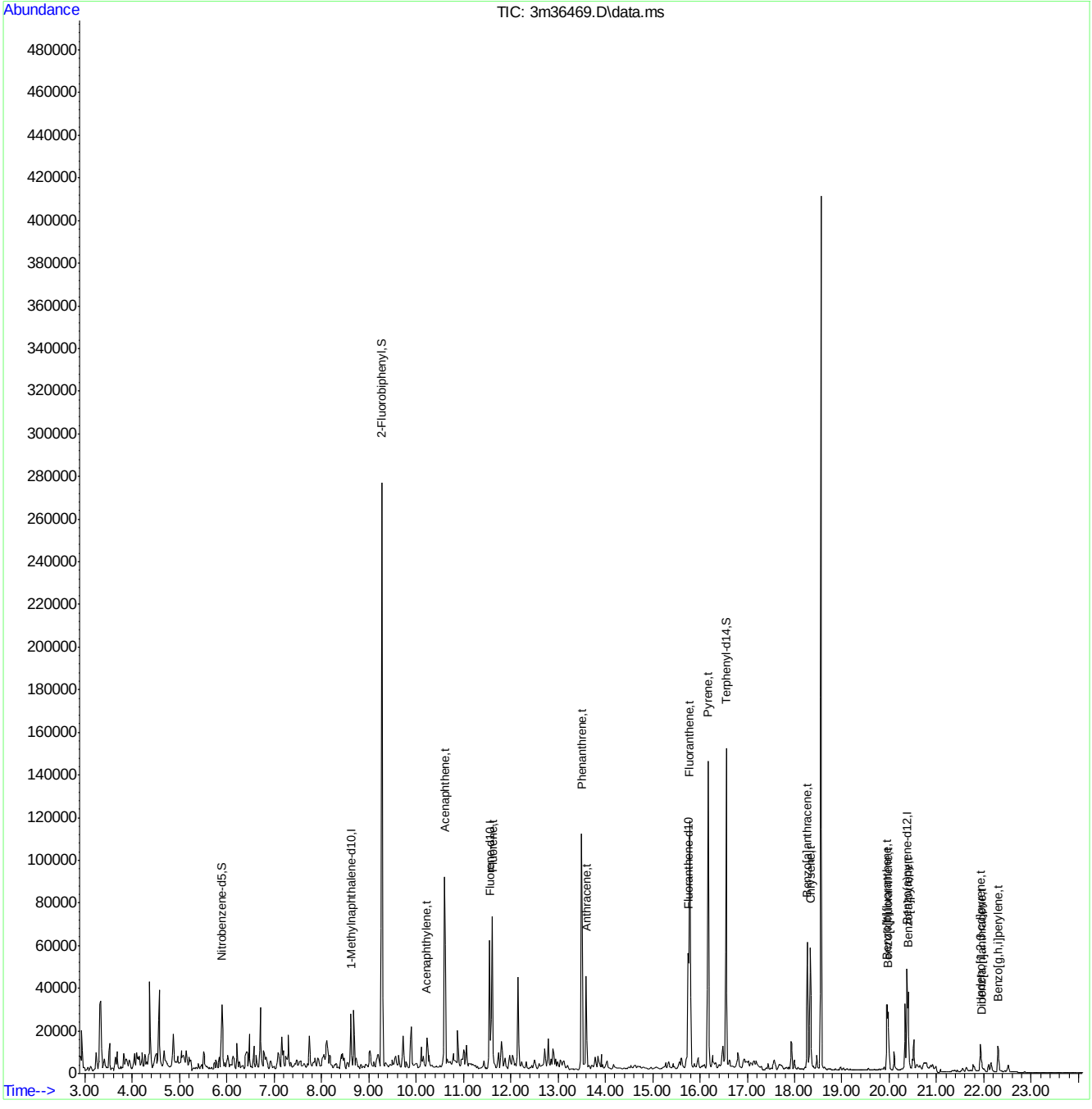
9.1.16

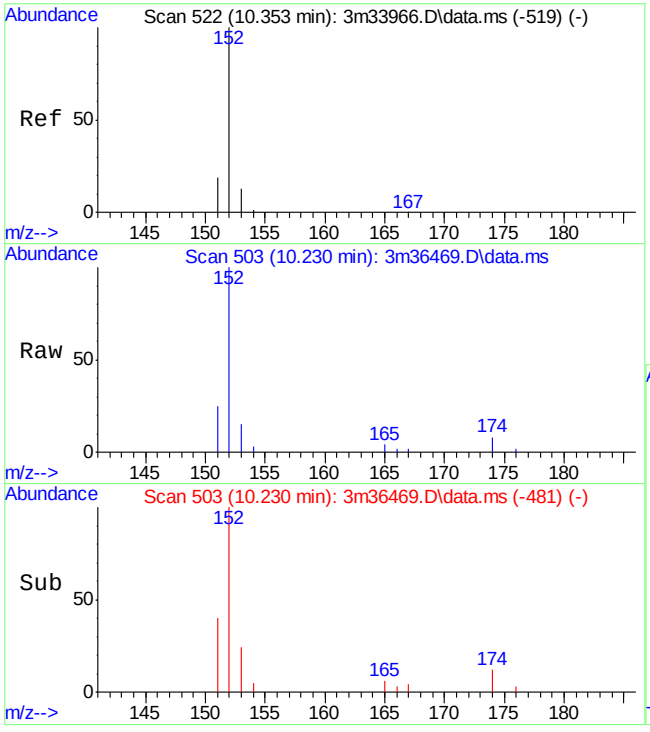
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1667\
Data File : 3m36469.D
Acq On : 25 Apr 2013 12:31 pm
Operator : ninap
Sample : jb33644-15
Misc : op65230,e3m1667,1000
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Apr 25 17:29:55 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration

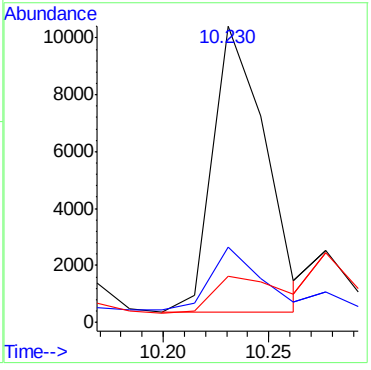


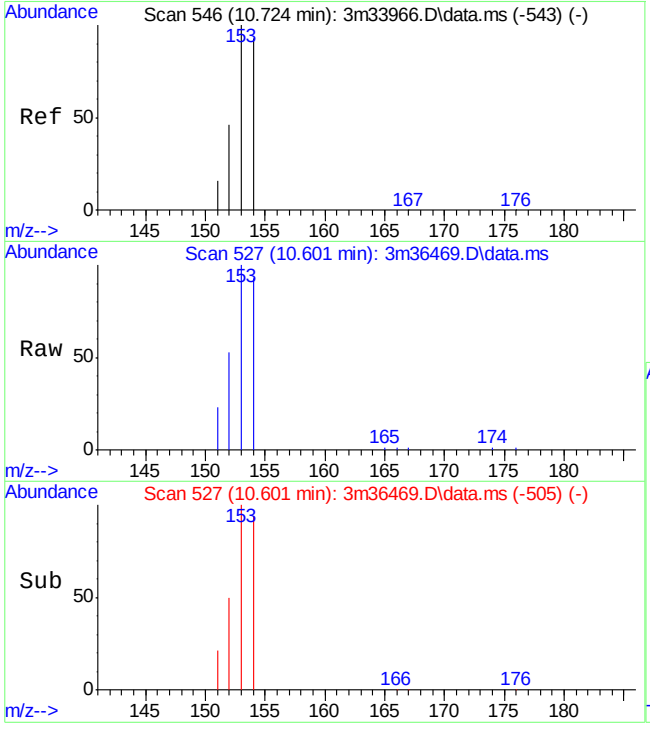


#14
Acenaphthylene
Concen: 0.82 ppb
RT: 10.230 min Scan# 503
Delta R.T. -0.154 min
Lab File: 3m36469.D
Acq: 25 Apr 2013 12:31 pm

Tgt Ion:152 Resp: 17308

Ion	Ratio	Lower	Upper
152	100		
151	21.6	0.0	51.4
153	10.0	0.0	41.9

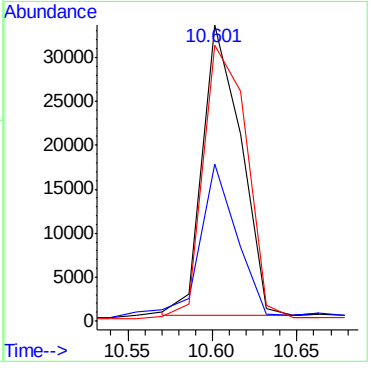




#15
Acenaphthene
Concen: 3.54 ppb
RT: 10.601 min Scan# 527
Delta R.T. -0.154 min
Lab File: 3m36469.D
Acq: 25 Apr 2013 12:31 pm

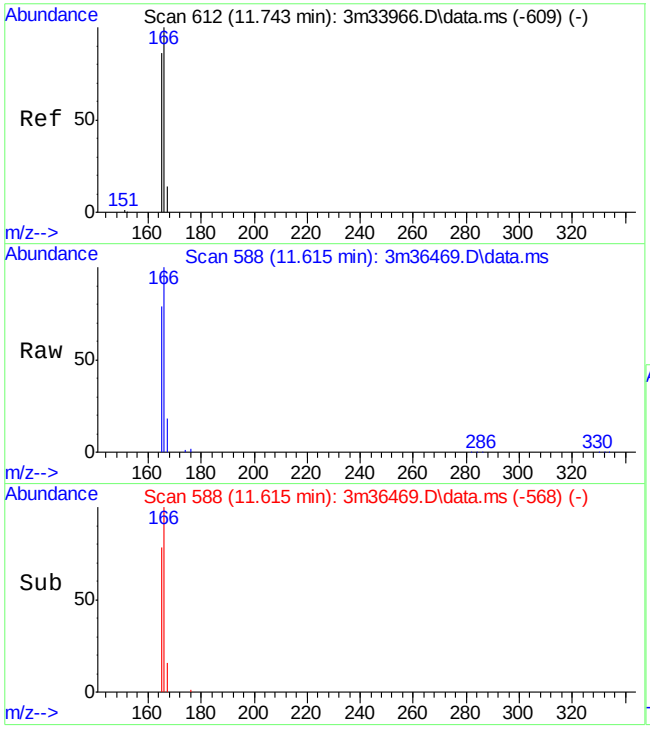
Tgt Ion:153 Resp: 52831

Ion	Ratio	Lower	Upper
153	100		
152	51.4	11.2	71.2
154	94.2	81.2	141.2



9.1.16

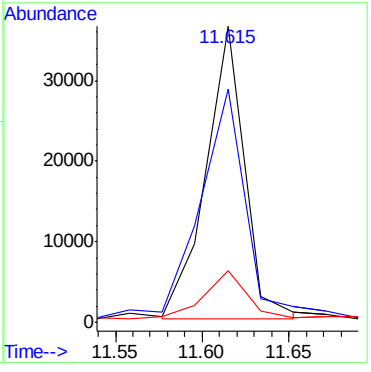
9

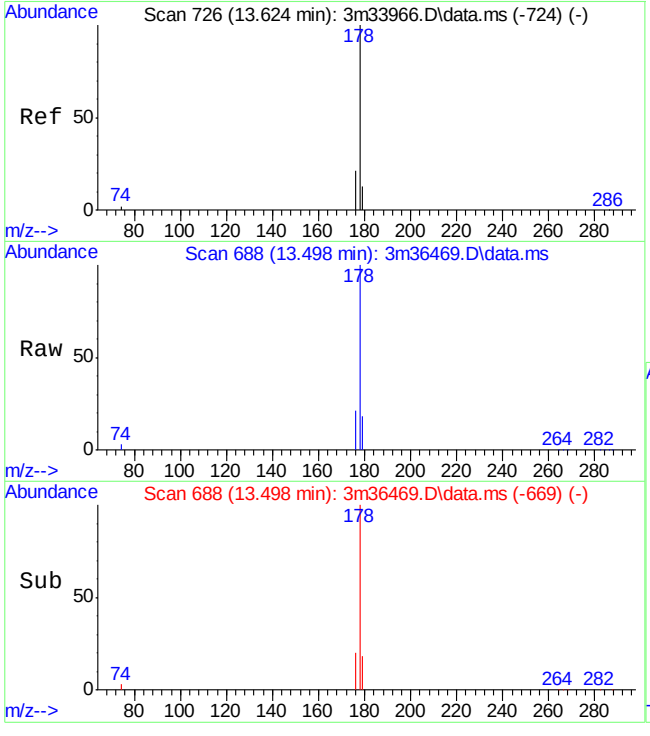


#16
Fluorene
Concen: 3.63 ppb
RT: 11.615 min Scan# 588
Delta R.T. -0.132 min
Lab File: 3m36469.D
Acq: 25 Apr 2013 12:31 pm

Tgt Ion:166 Resp: 55734

Ion	Ratio	Lower	Upper
166	100		
165	76.5	76.4	136.4
167	16.3	0.0	41.3

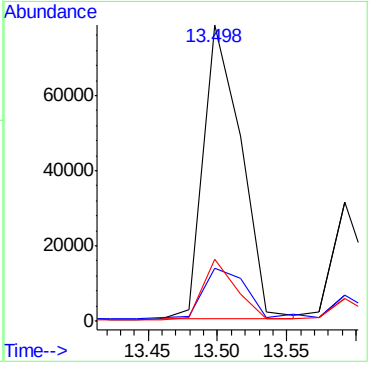




#21
Phenanthrene
Concen: 6.52 ppb
RT: 13.498 min Scan# 688
Delta R.T. -0.151 min
Lab File: 3m36469.D
Acq: 25 Apr 2013 12:31 pm

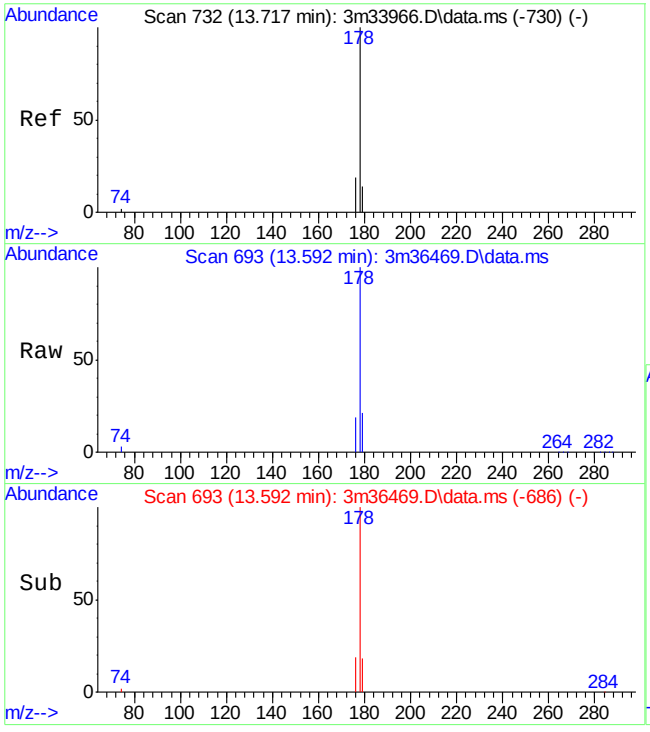
Tgt Ion:178 Resp: 148740

Ion	Ratio	Lower	Upper
178	100		
179	16.5	0.0	44.7
176	20.5	0.0	50.1



9.1.16

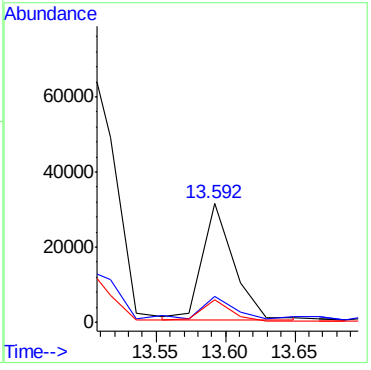
9

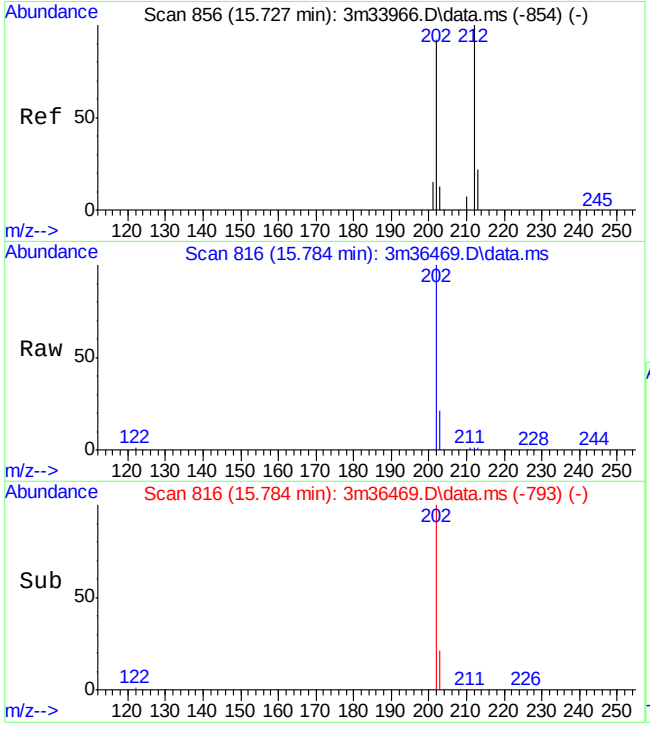


#22
Anthracene
Concen: 2.62 ppb
RT: 13.592 min Scan# 693
Delta R.T. -0.169 min
Lab File: 3m36469.D
Acq: 25 Apr 2013 12:31 pm

Tgt Ion:178 Resp: 49302

Ion	Ratio	Lower	Upper
178	100		
179	16.9	0.0	45.5
176	18.4	0.0	48.3

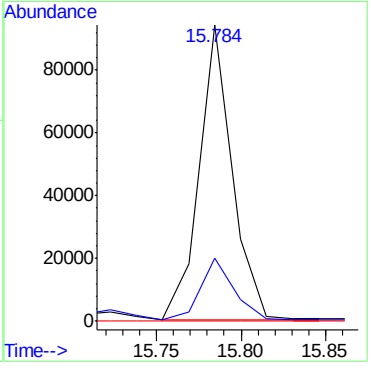




#23
Fluoranthene
Concen: 5.90 ppb
RT: 15.784 min Scan# 816
Delta R.T. -0.139 min
Lab File: 3m36469.D
Acq: 25 Apr 2013 12:31 pm

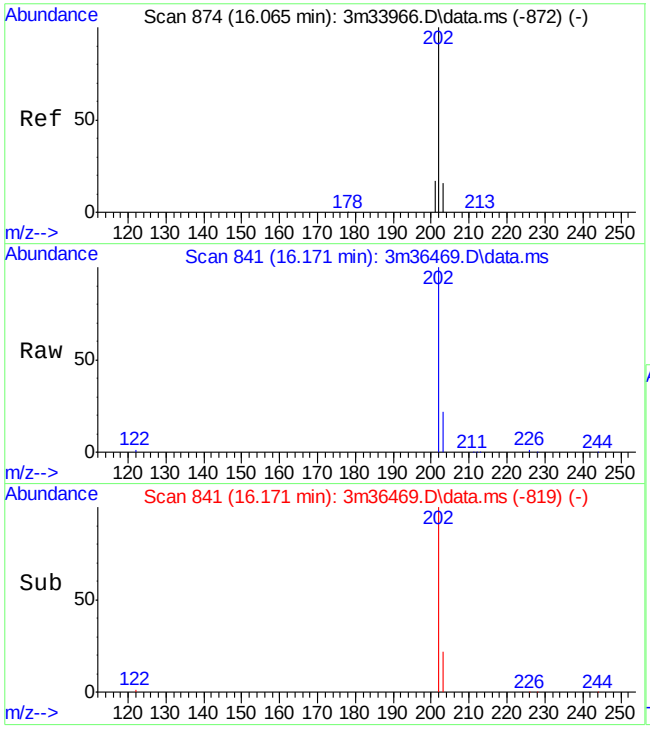
Tgt Ion:202 Resp: 128756

Ion	Ratio	Lower	Upper
202	100		
203	21.0	0.0	46.4
201	0.0	0.0	30.0



9.1.16

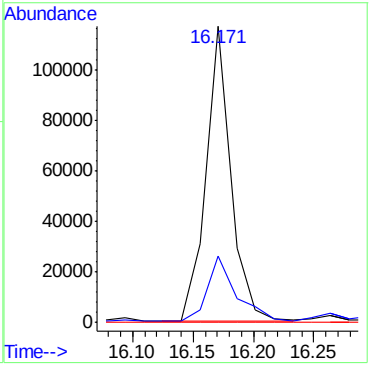
9

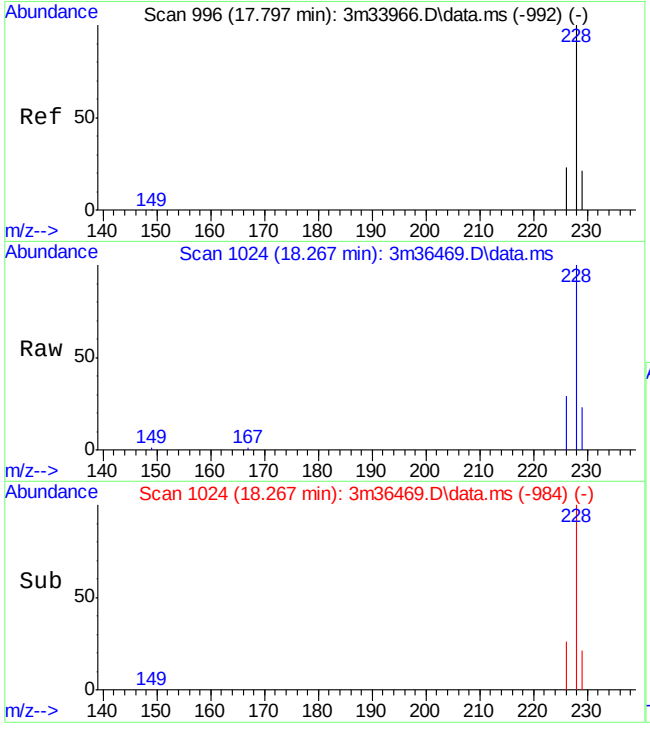


#24
Pyrene
Concen: 7.03 ppb
RT: 16.171 min Scan# 841
Delta R.T. -0.155 min
Lab File: 3m36469.D
Acq: 25 Apr 2013 12:31 pm

Tgt Ion:202 Resp: 168914

Ion	Ratio	Lower	Upper
202	100		
203	22.0	0.0	46.8
201	0.0	0.0	30.0

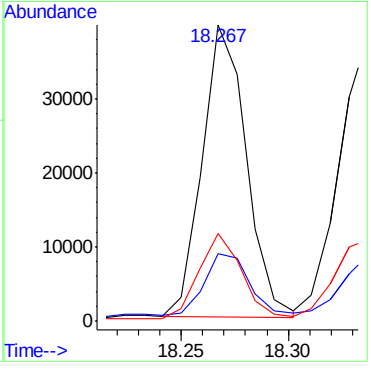


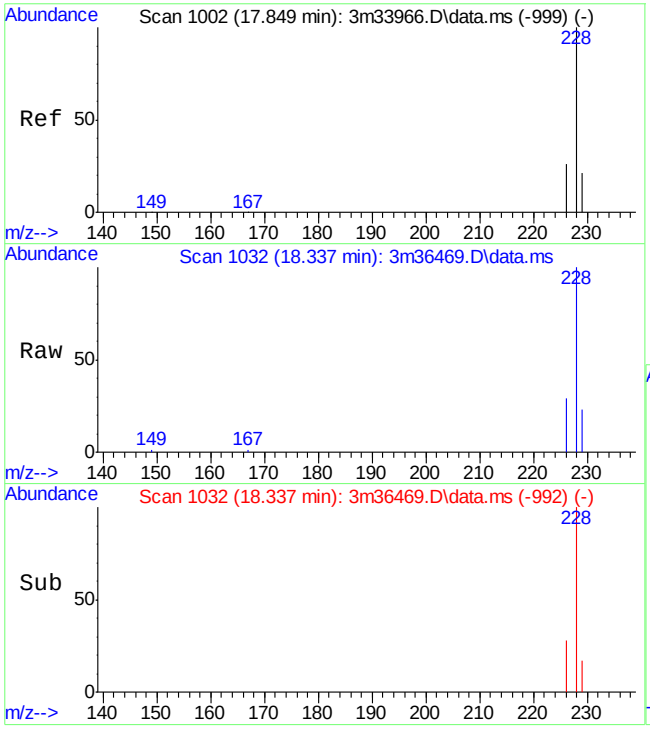


#26
Benzo[a]anthracene
Concen: 3.15 ppb
RT: 18.267 min Scan# 1024
Delta R.T. -0.149 min
Lab File: 3m36469.D
Acq: 25 Apr 2013 12:31 pm

Tgt Ion:228 Resp: 56961

Ion	Ratio	Lower	Upper
228	100		
229	21.0	0.0	51.2
226	28.8	0.0	54.4

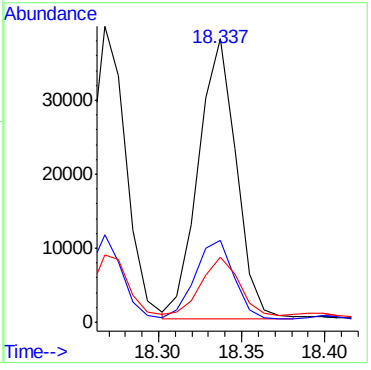


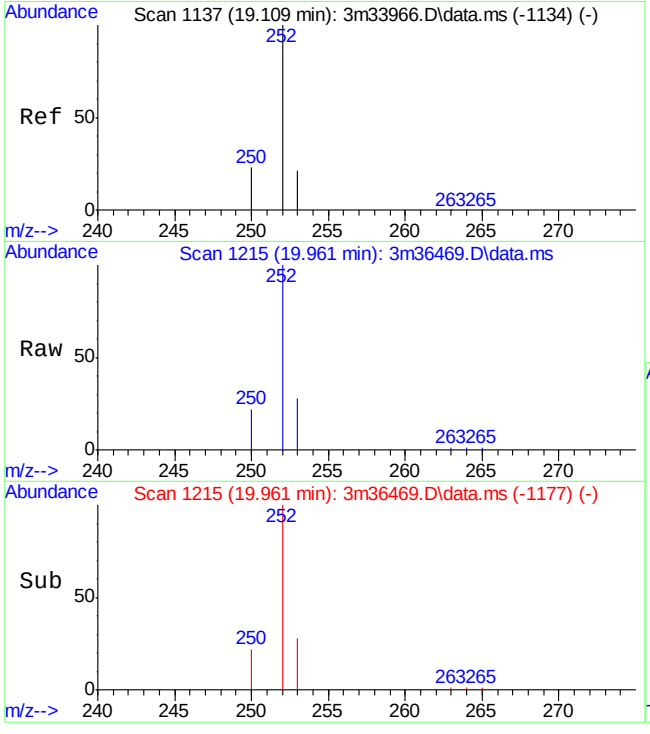


#27
Chrysene
Concen: 2.84 ppb
RT: 18.337 min Scan# 1032
Delta R.T. -0.148 min
Lab File: 3m36469.D
Acq: 25 Apr 2013 12:31 pm

Tgt Ion:228 Resp: 60013

Ion	Ratio	Lower	Upper
228	100		
226	28.3	0.8	60.8
229	20.9	0.0	48.4

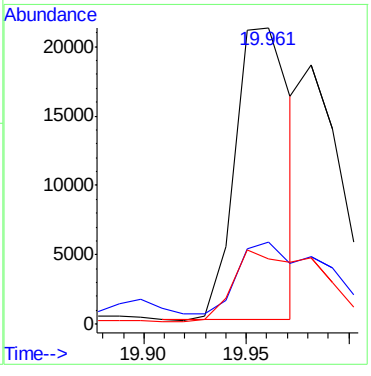


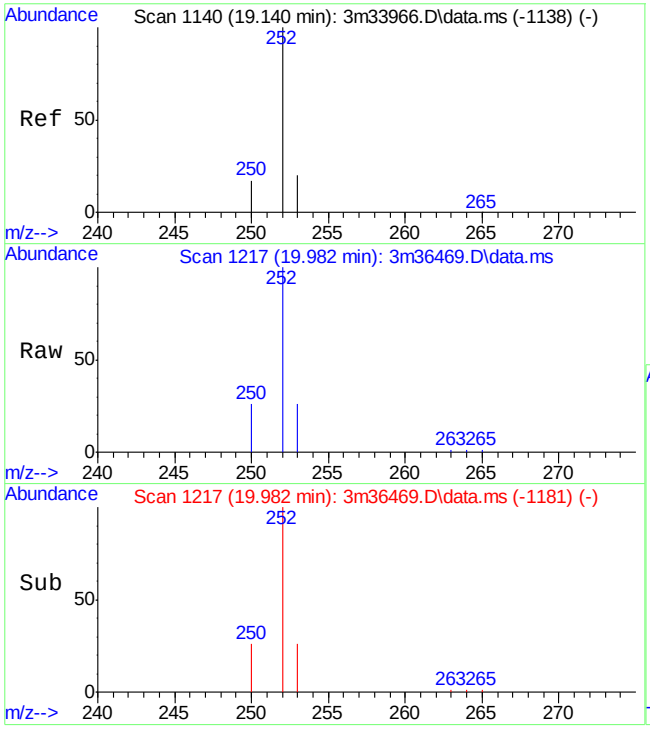


#29
Benzo[b]fluoranthene
Concen: 1.96 ppb m
RT: 19.961 min Scan# 1215
Delta R.T. -0.146 min
Lab File: 3m36469.D
Acq: 25 Apr 2013 12:31 pm

Tgt Ion:252 Resp: 39626

Ion	Ratio	Lower	Upper
252	100		
253	27.7	0.0	49.9
250	22.1	0.0	55.2

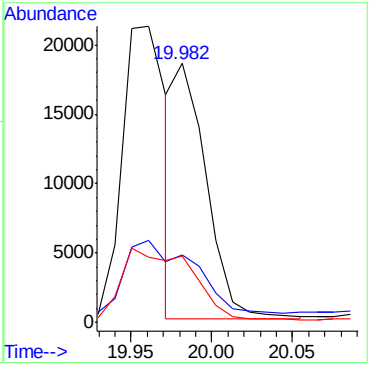


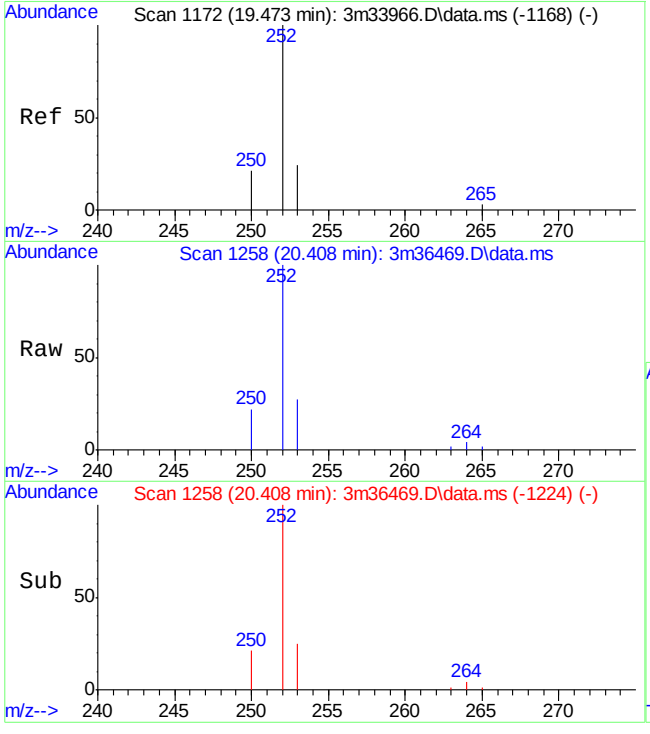


#30
Benzo[k]fluoranthene
Concen: 1.24 ppb m
RT: 19.982 min Scan# 1217
Delta R.T. -0.156 min
Lab File: 3m36469.D
Acq: 25 Apr 2013 12:31 pm

Tgt Ion:252 Resp: 25097

Ion	Ratio	Lower	Upper
252	100		
253	25.9	0.0	52.9
250	25.7	0.0	50.1

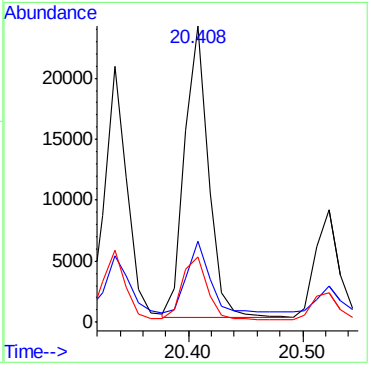




#31
Benzo[a]pyrene
Concen: 1.82 ppb
RT: 20.408 min Scan# 1258
Delta R.T. -0.146 min
Lab File: 3m36469.D
Acq: 25 Apr 2013 12:31 pm

Tgt Ion:252 Resp: 34135

Ion	Ratio	Lower	Upper
252	100		
253	24.5	0.0	55.1
250	21.4	0.0	52.0



9.1.16

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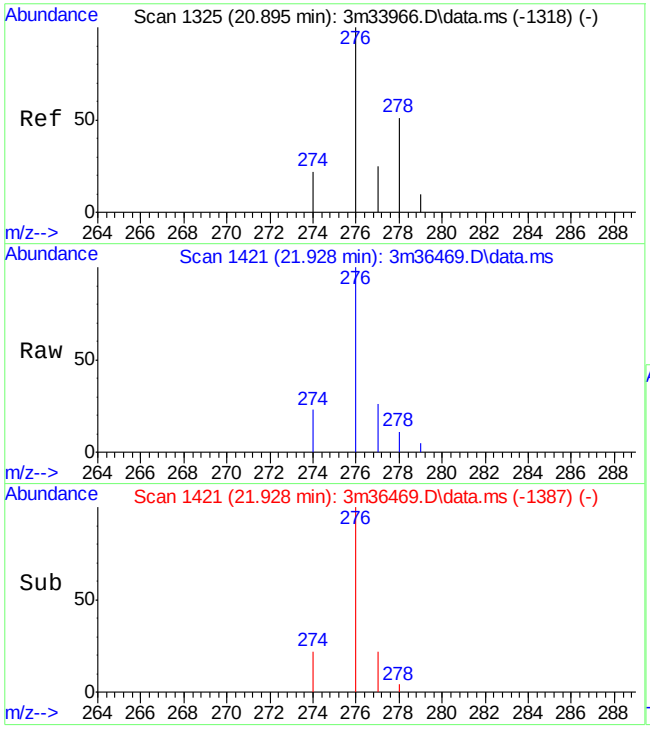
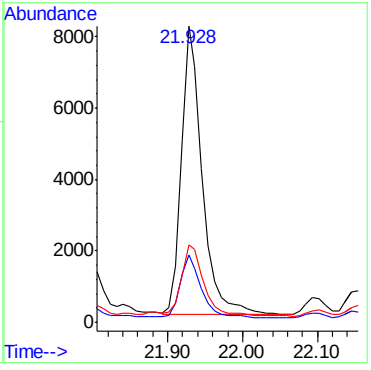
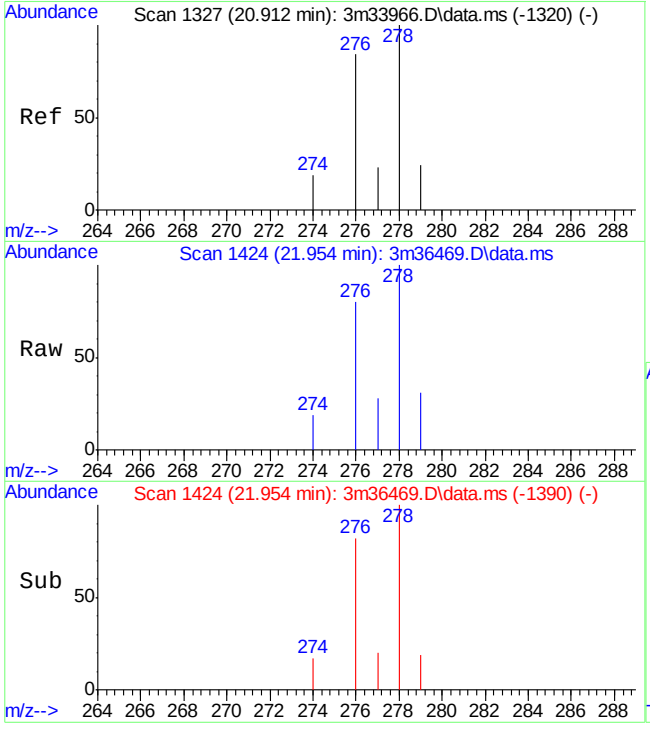


#32
Indeno[1,2,3-cd]pyrene
Concen: 0.68 ppb
RT: 21.928 min Scan# 1421
Delta R.T. -0.201 min
Lab File: 3m36469.D
Acq: 25 Apr 2013 12:31 pm

Tgt Ion:276 Resp: 15744

Ion	Ratio	Lower	Upper
276	100		
274	21.6	0.0	50.4
277	24.5	0.0	54.5

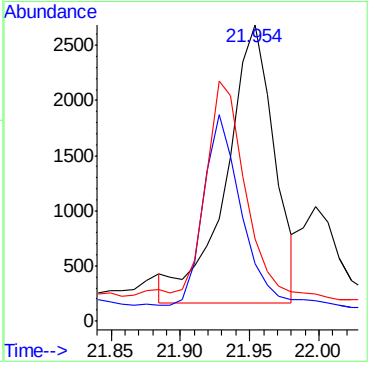




#33
Dibenz[a,h]anthracene
Concen: 0.33 ppb m
RT: 21.954 min Scan# 1424
Delta R.T. -0.201 min
Lab File: 3m36469.D
Acq: 25 Apr 2013 12:31 pm

Tgt Ion:278 Resp: 6132

Ion	Ratio	Lower	Upper
278	100		
274	19.4	0.0	39.2
277	27.7	0.0	40.7



9.1.16

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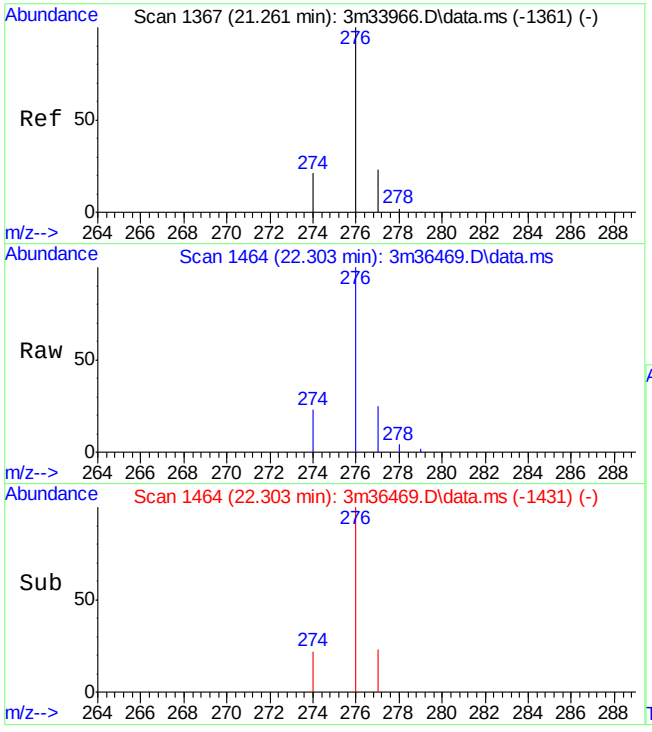
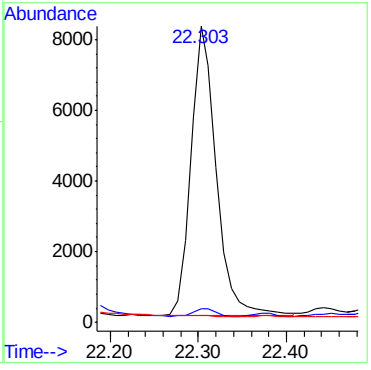


#34
Benzo[g,h,i]perylene
Concen: 0.79 ppb
RT: 22.303 min Scan# 1464
Delta R.T. -0.209 min
Lab File: 3m36469.D
Acq: 25 Apr 2013 12:31 pm

Tgt Ion:276 Resp: 16465

Ion	Ratio	Lower	Upper
276	100		
278	2.4	0.0	32.6
279	0.2	0.0	30.1



9.1.16

9

Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 05/18/13 10:18

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1683\
Data File : 3m36843.D
Acq On : 7 May 2013 5:45 pm
Operator : ninap
Sample : jb33644-15
Misc : op65642a,e3m1683,1000
ALS Vial : 18 Sample Multiplier: 1

Quant Time: May 07 19:47:54 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1682SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon May 06 21:57:09 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.515	150	54386	4.00	ppb	0.00
12) Fluorene-d10	11.456	176	81467	4.00	ppb	0.00
18) Fluoranthene-d10	15.668	212	98040	4.00	ppb	0.02
28) Benzo(a)pyrene-d12	20.297	264	68092	4.00	ppb	0.01
System Monitoring Compounds						
2) 2-Fluorophenol	3.273	112	97950	14.78	ppb	0.02
Spiked Amount 50.000			Recovery = 29.56%			
3) Phenol-d5	4.509	99	106937	12.30	ppb	0.03
Spiked Amount 50.000			Recovery = 24.60%			
6) Nitrobenzene-d5	5.799	82	324697	26.82	ppb	0.01
Spiked Amount 50.000			Recovery = 53.64%			
13) 2-Fluorobiphenyl	9.183	172	508335	24.90	ppb	0.02
Spiked Amount 50.000			Recovery = 49.80%			
17) 2,4,6-Tribromophenol	12.058	330	84868	33.68	ppb	0.00
Spiked Amount 50.000			Recovery = 67.36%			
25) Terphenyl-d14	16.472	244	435445	30.39	ppb	0.02
Spiked Amount 50.000			Recovery = 60.78%			
Target Compounds						Qvalue
14) Acenaphthylene	10.130	152	48283	1.40	ppb	95
15) Acenaphthene	10.500	153	120585	5.44	ppb	90
16) Fluorene	11.512	166	120528	5.16	ppb	76
21) Phenanthrene	13.396	178	300036	9.88	ppb	93
22) Anthracene	13.490	178	104716	3.57	ppb	93
23) Fluoranthene	15.683	202	272912	9.18	ppb	97
24) Pyrene	16.085	202	361789	10.68	ppb	80
26) Benzo[a]anthracene	18.179	228	123550	4.75	ppb	92
27) Chrysene	18.248	228	135649	5.10	ppb	97
29) Benzo[b]fluoranthene	19.870	252	74121m	2.89	ppb	
30) Benzo[k]fluoranthene	19.891	252	69949m	2.61	ppb	
31) Benzo[a]pyrene	20.318	252	77753	3.33	ppb	97
32) Indeno[1,2,3-cd]pyrene	21.833	276	36205	1.27	ppb	97
33) Dibenz[a,h]anthracene	21.851	278	14553	0.65	ppb	37
34) Benzo[g,h,i]perylene	22.200	276	37734	1.52	ppb	99

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

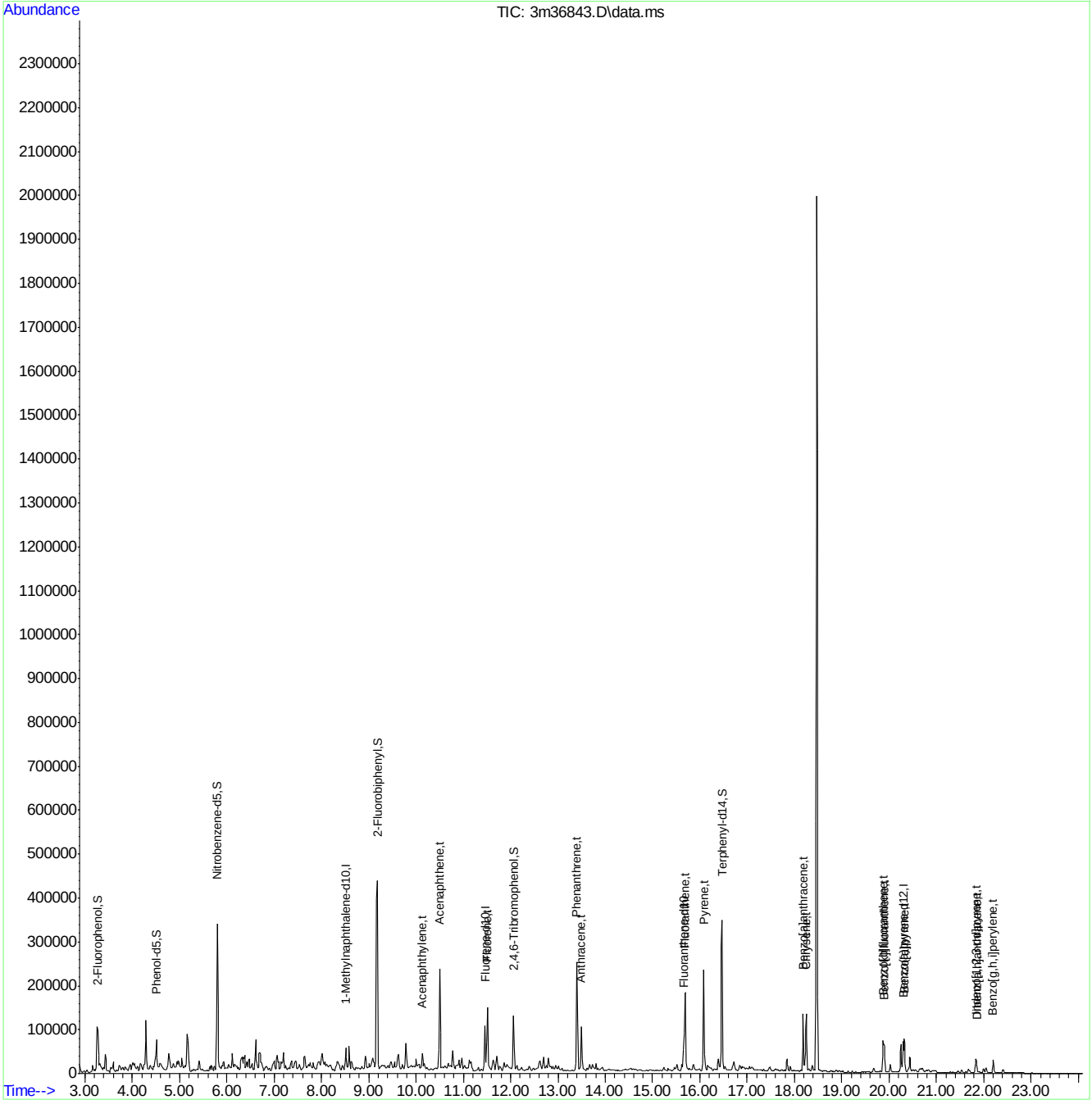
9.1.17

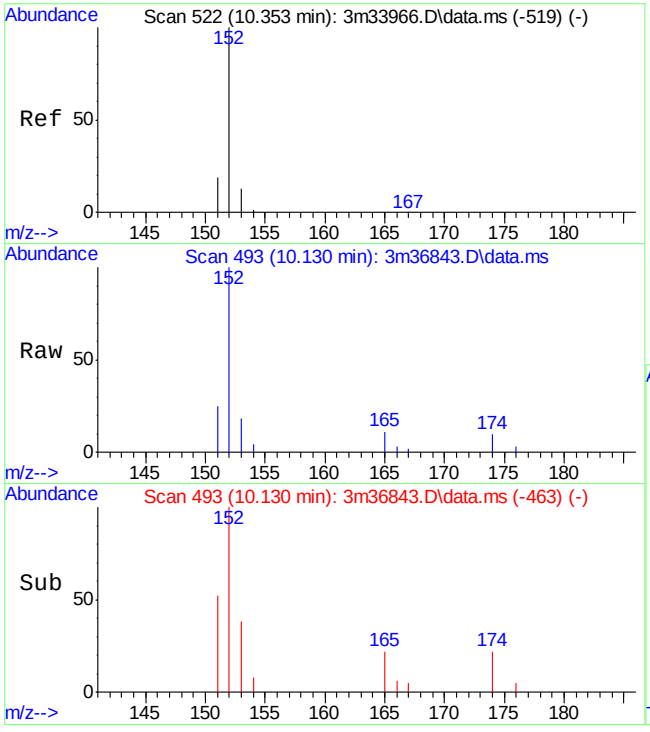
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1683\
Data File : 3m36843.D
Acq On : 7 May 2013 5:45 pm
Operator : ninap
Sample : jb33644-15
Misc : op65642a,e3m1683,1000
ALS Vial : 18 Sample Multiplier: 1

Quant Time: May 07 19:47:54 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1682SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon May 06 21:57:09 2013
Response via : Initial Calibration

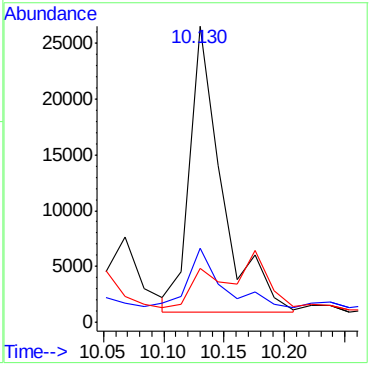


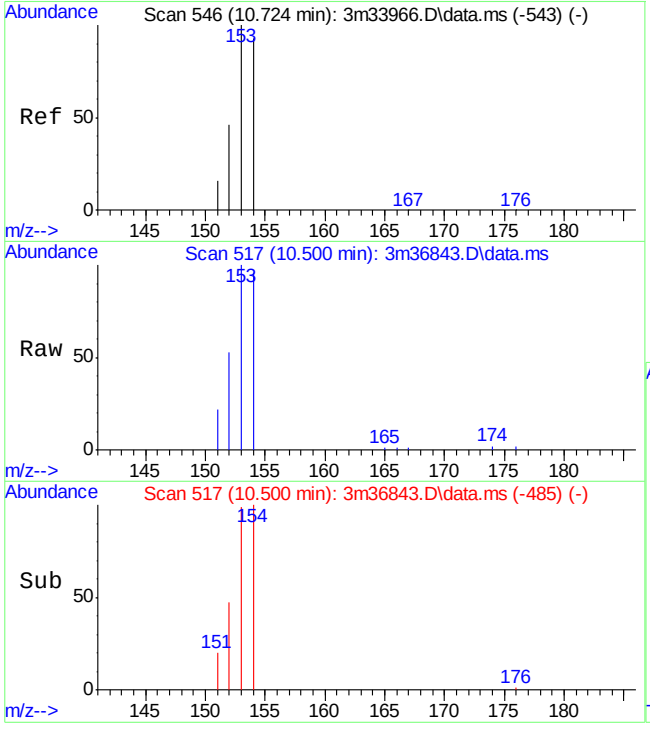


#14
Acenaphthylene
Concen: 1.40 ppb
RT: 10.130 min Scan# 493
Delta R.T. 0.000 min
Lab File: 3m36843.D
Acq: 7 May 2013 5:45 pm

Tgt Ion:152 Resp: 48283

Ion	Ratio	Lower	Upper
152	100		
151	20.7	0.0	47.6
153	13.9	0.0	44.7

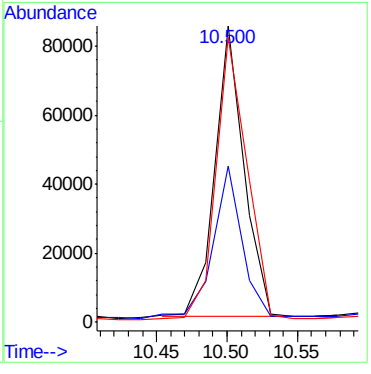




#15
Acenaphthene
Concen: 5.44 ppb
RT: 10.500 min Scan# 517
Delta R.T. 0.000 min
Lab File: 3m36843.D
Acq: 7 May 2013 5:45 pm

Tgt Ion:153 Resp: 120585

Ion	Ratio	Lower	Upper
153	100		
152	51.5	13.4	73.4
154	97.3	76.4	136.4



9.1.17

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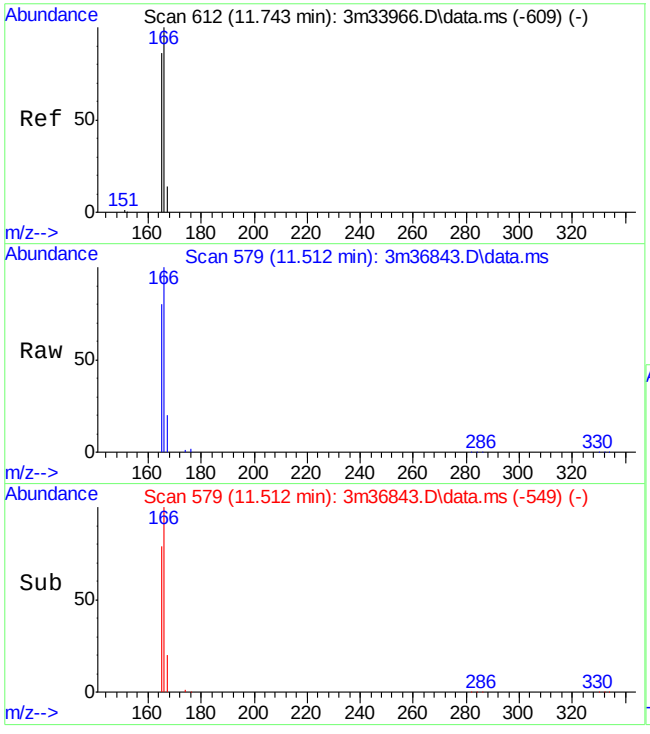
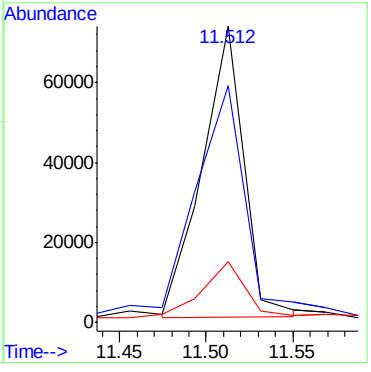
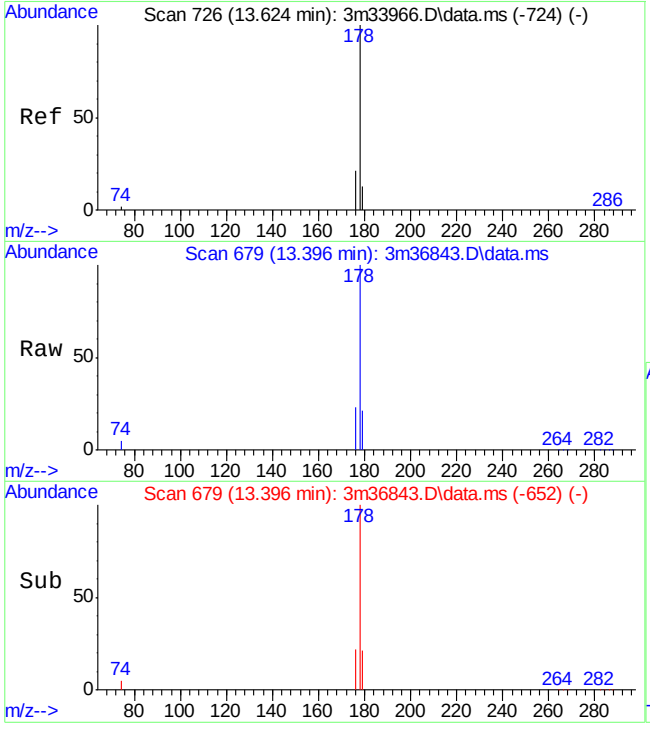


#16
Fluorene
Concen: 5.16 ppb
RT: 11.512 min Scan# 579
Delta R.T. 0.019 min
Lab File: 3m36843.D
Acq: 7 May 2013 5:45 pm

Tgt Ion:166 Resp: 120528

Ion	Ratio	Lower	Upper
166	100		
165	76.7	72.2	132.2
167	18.6	0.0	41.8

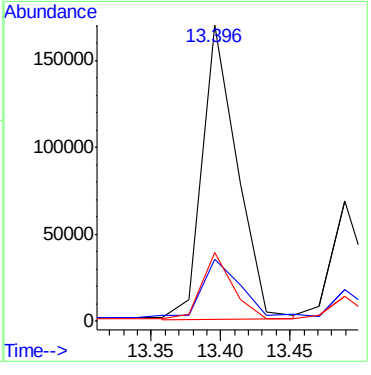




#21
Phenanthrene
Concen: 9.88 ppb
RT: 13.396 min Scan# 679
Delta R.T. 0.000 min
Lab File: 3m36843.D
Acq: 7 May 2013 5:45 pm

Tgt Ion:178 Resp: 300036

Ion	Ratio	Lower	Upper
178	100		
179	18.9	0.0	46.7
176	22.7	0.0	48.8



9.1.17

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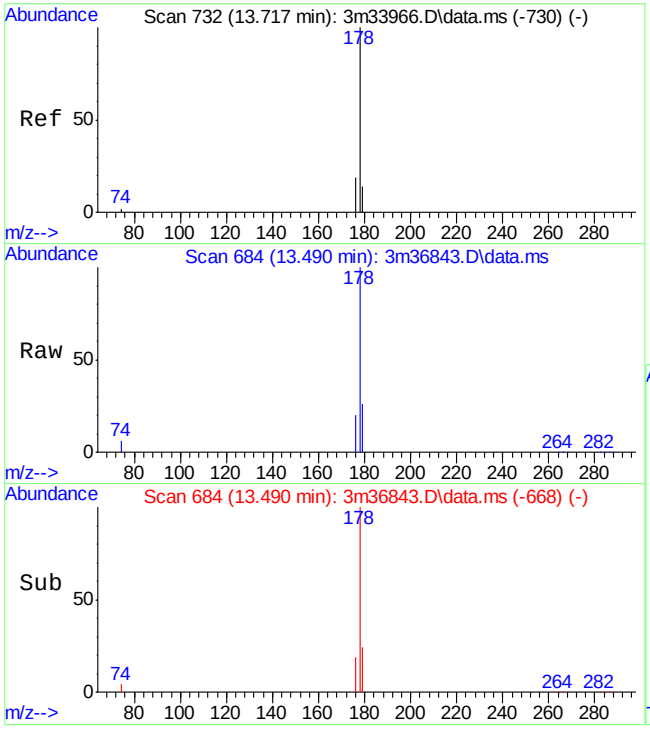
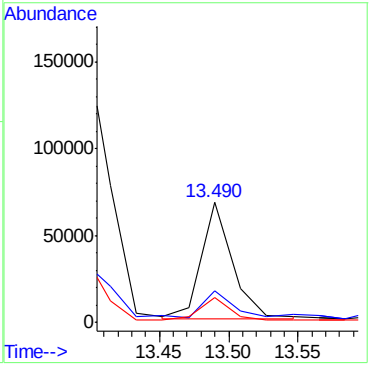
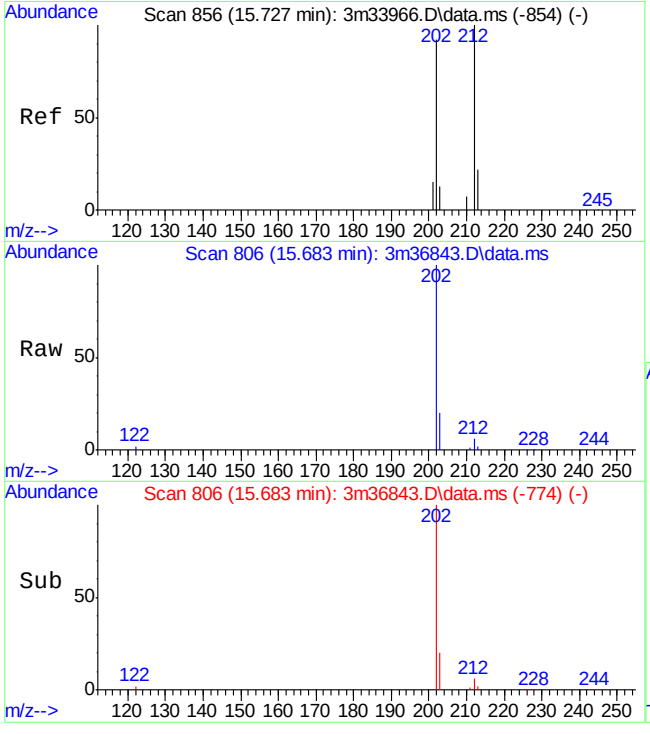


#22
Anthracene
Concen: 3.57 ppb
RT: 13.490 min Scan# 684
Delta R.T. 0.000 min
Lab File: 3m36843.D
Acq: 7 May 2013 5:45 pm

Tgt Ion:178 Resp: 104716

Ion	Ratio	Lower	Upper
178	100		
179	20.8	0.0	46.7
176	19.2	0.0	47.4

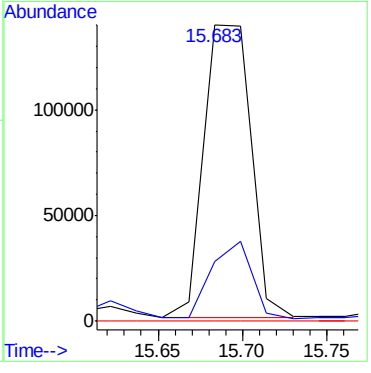


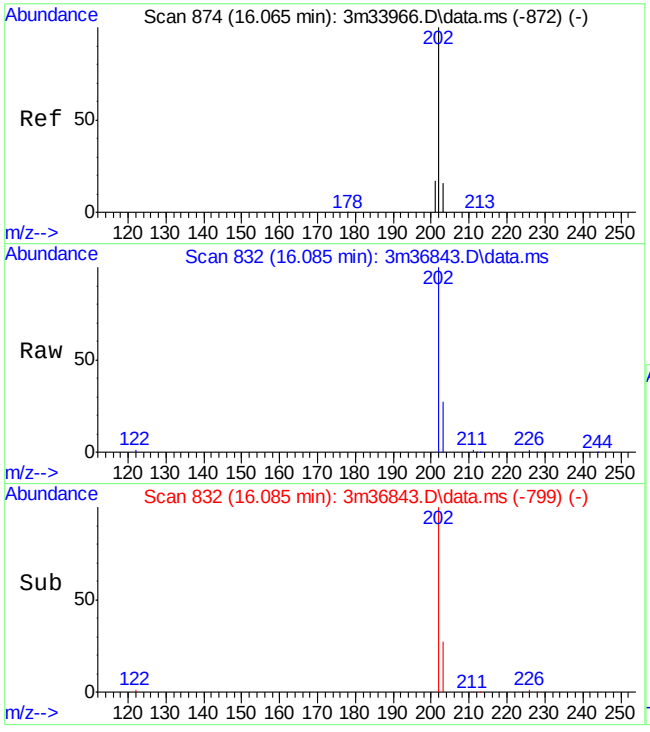


#23
Fluoranthene
Concen: 9.18 ppb
RT: 15.683 min Scan# 806
Delta R.T. 0.000 min
Lab File: 3m36843.D
Acq: 7 May 2013 5:45 pm

Tgt Ion:202 Resp: 272912

Ion	Ratio	Lower	Upper
202	100		
203	19.3	0.0	48.0
201	0.0	0.0	30.0

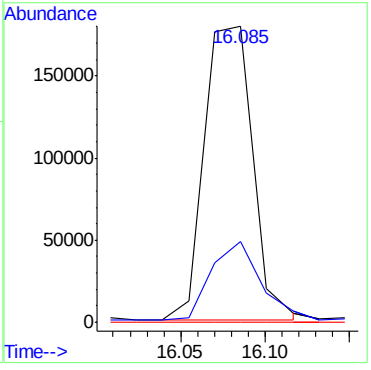


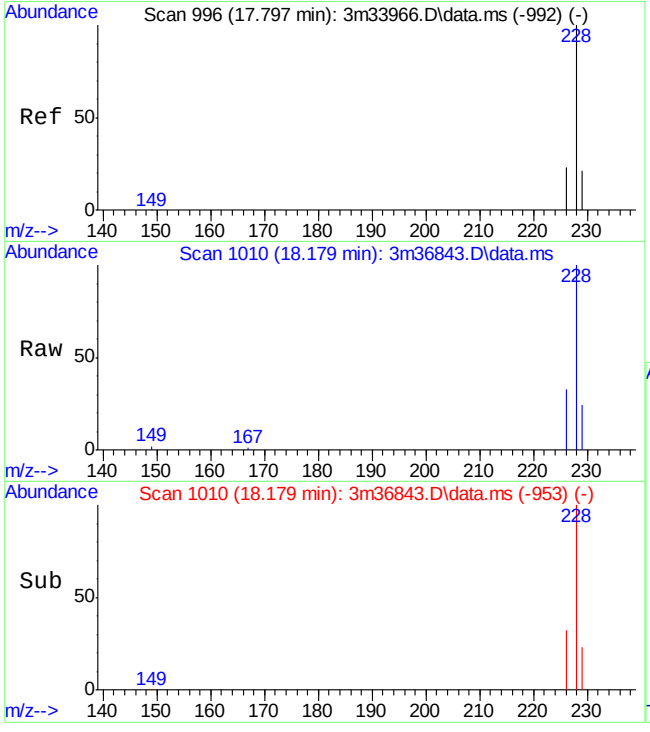


#24
Pyrene
Concen: 10.68 ppb
RT: 16.085 min Scan# 832
Delta R.T. 0.015 min
Lab File: 3m36843.D
Acq: 7 May 2013 5:45 pm

Tgt Ion:202 Resp: 361789

Ion	Ratio	Lower	Upper
202	100		
203	25.6	0.0	46.9
201	0.0	0.0	30.0

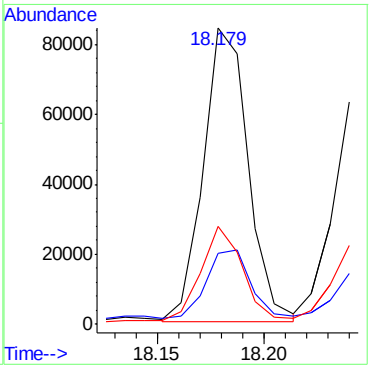


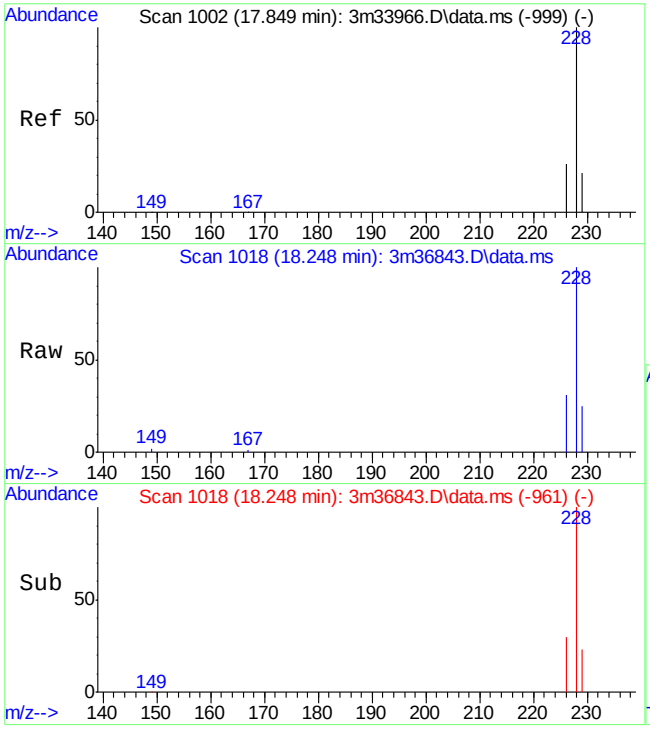


#26
Benzo[a]anthracene
Concen: 4.75 ppb
RT: 18.179 min Scan# 1010
Delta R.T. 0.000 min
Lab File: 3m36843.D
Acq: 7 May 2013 5:45 pm

Tgt Ion:228 Resp: 123550

Ion	Ratio	Lower	Upper
228	100		
229	21.9	0.0	49.2
226	32.2	0.0	57.7

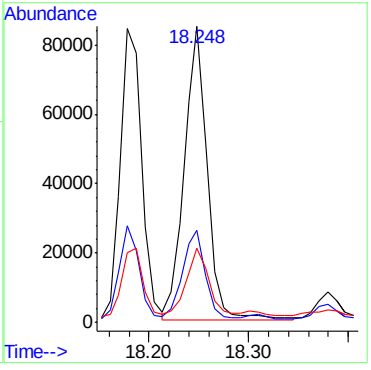


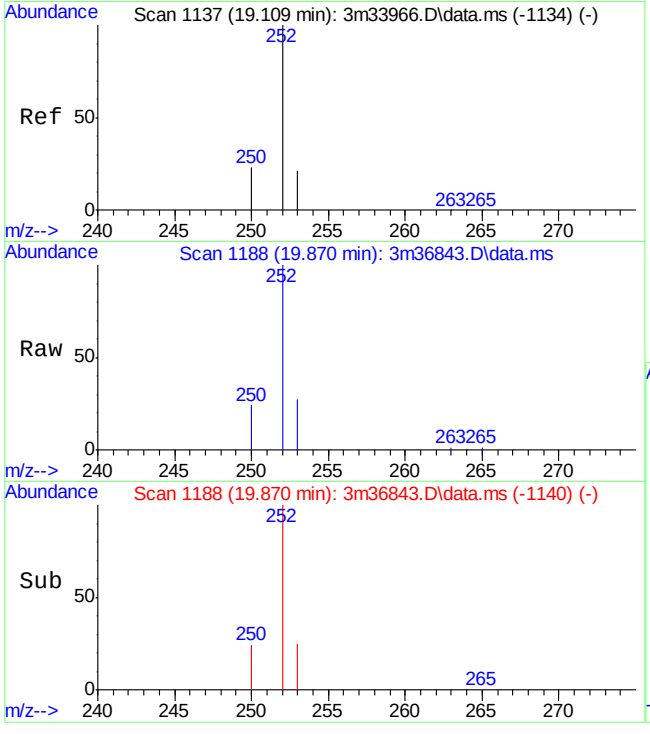


#27
Chrysene
Concen: 5.10 ppb
RT: 18.248 min Scan# 1018
Delta R.T. 0.000 min
Lab File: 3m36843.D
Acq: 7 May 2013 5:45 pm

Tgt Ion:228 Resp: 135649

Ion	Ratio	Lower	Upper
228	100		
226	30.3	0.0	59.3
229	23.2	0.0	51.0

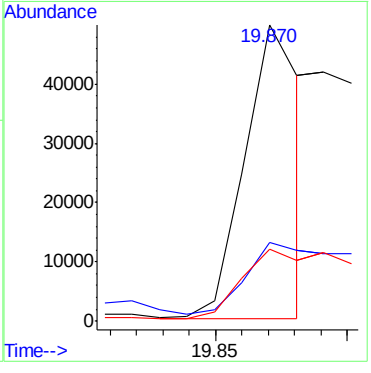


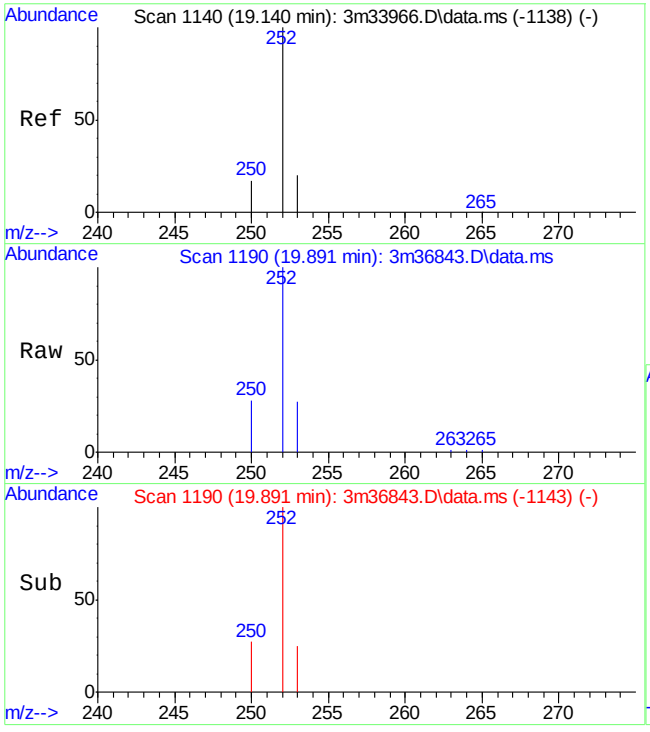


#29
Benzo[b]fluoranthene
Concen: 2.89 ppb m
RT: 19.870 min Scan# 1188
Delta R.T. 0.000 min
Lab File: 3m36843.D
Acq: 7 May 2013 5:45 pm

Tgt Ion:252 Resp: 74121

Ion	Ratio	Lower	Upper
252	100		
253	26.7	0.0	53.8
250	24.4	0.0	51.7

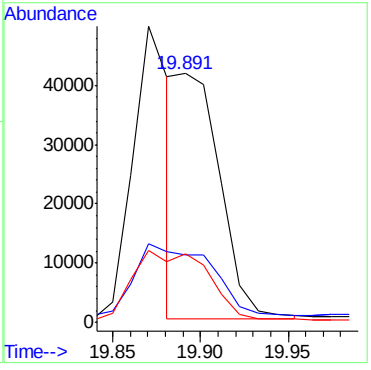


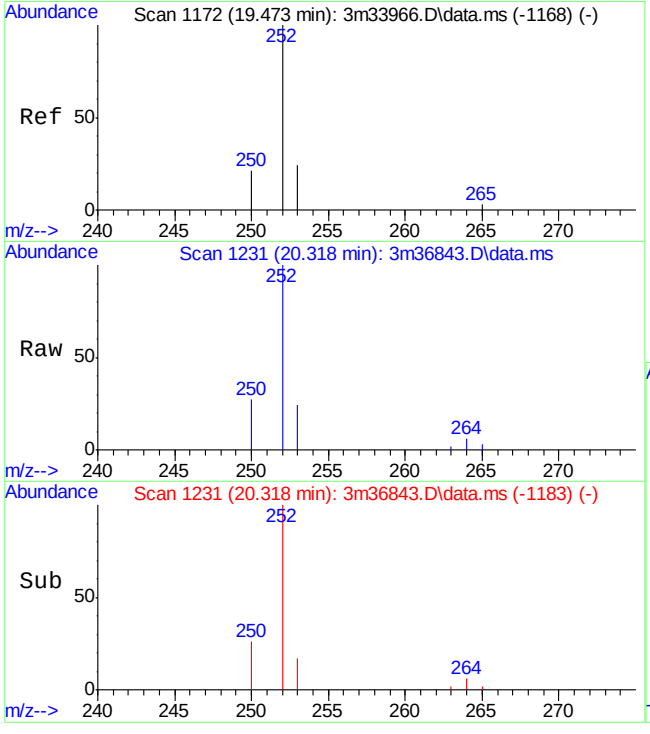


#30
Benzo[k]fluoranthene
Concen: 2.61 ppb m
RT: 19.891 min Scan# 1190
Delta R.T. -0.010 min
Lab File: 3m36843.D
Acq: 7 May 2013 5:45 pm

Tgt Ion:252 Resp: 69949

Ion	Ratio	Lower	Upper
252	100		
253	27.1	0.0	52.2
250	27.7	0.0	51.3

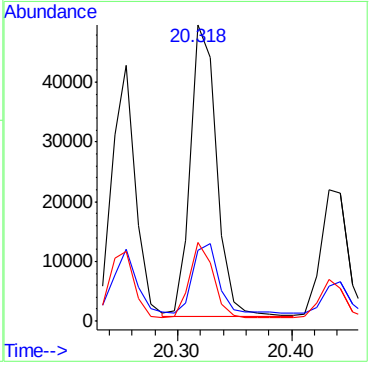


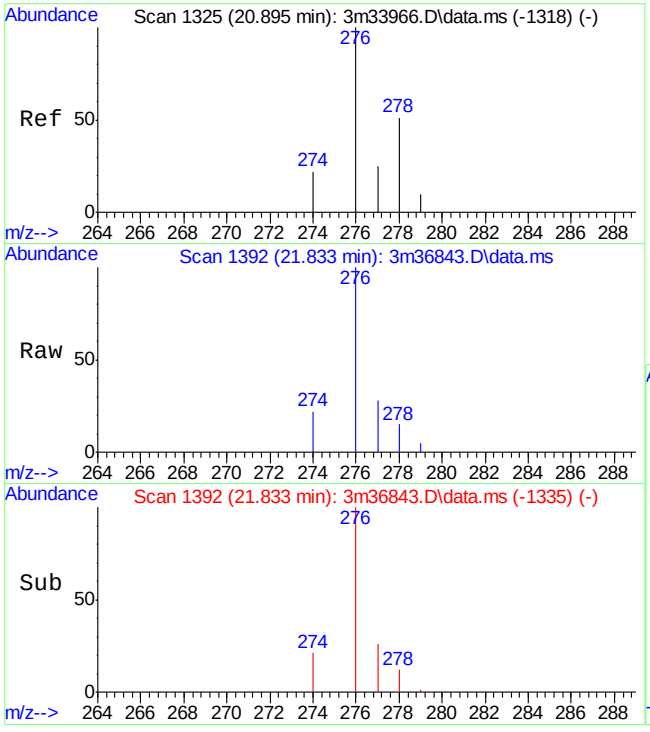


#31
Benzo[a]pyrene
Concen: 3.33 ppb
RT: 20.318 min Scan# 1231
Delta R.T. 0.000 min
Lab File: 3m36843.D
Acq: 7 May 2013 5:45 pm

Tgt Ion:252 Resp: 77753

Ion	Ratio	Lower	Upper
252	100		
253	21.5	0.0	50.3
250	26.2	0.0	54.4

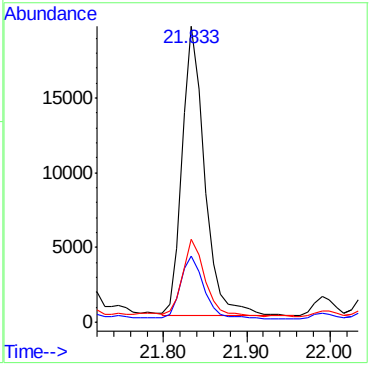


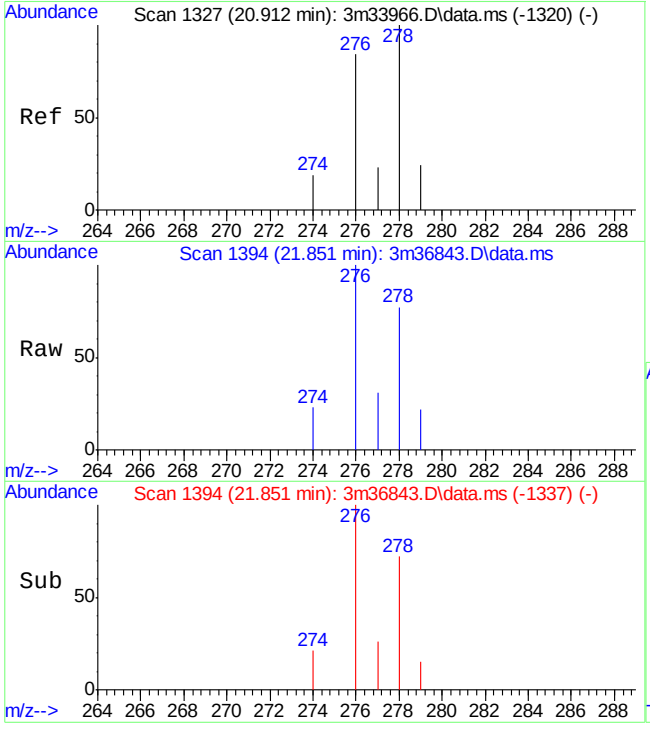


#32
Indeno[1,2,3-cd]pyrene
Concen: 1.27 ppb
RT: 21.833 min Scan# 1392
Delta R.T. 0.000 min
Lab File: 3m36843.D
Acq: 7 May 2013 5:45 pm

Tgt Ion:276 Resp: 36205

Ion	Ratio	Lower	Upper
276	100		
274	21.5	0.0	51.9
277	26.1	0.0	54.0

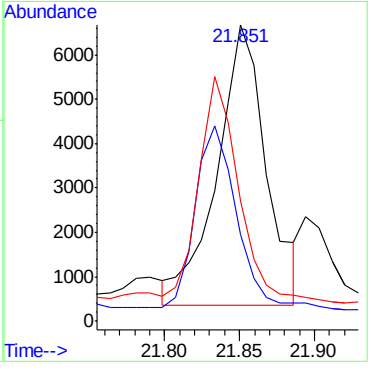




#33
Dibenz[a,h]anthracene
Concen: 0.65 ppb
RT: 21.851 min Scan# 1394
Delta R.T. 0.000 min
Lab File: 3m36843.D
Acq: 7 May 2013 5:45 pm

Tgt Ion:278 Resp: 14553

Ion	Ratio	Lower	Upper
278	100		
274	29.8	0.0	40.0
277	40.2	0.0	42.6



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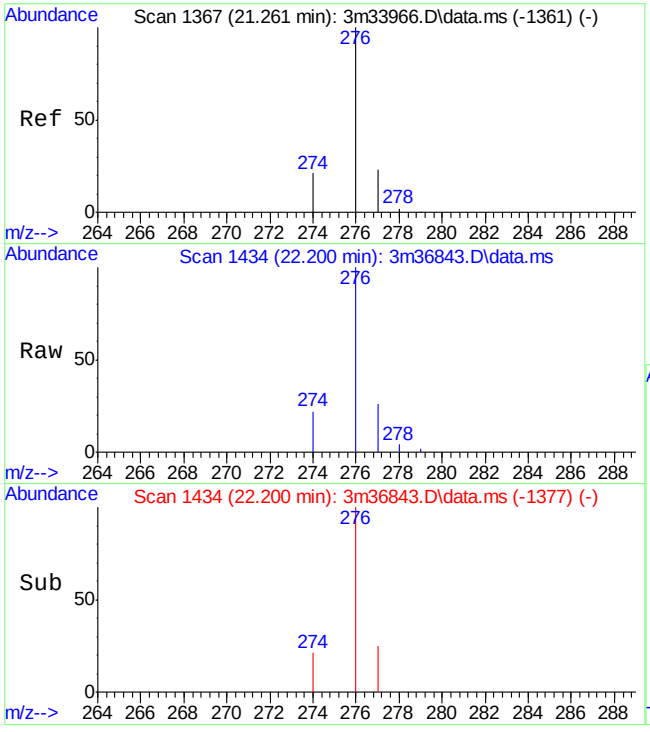
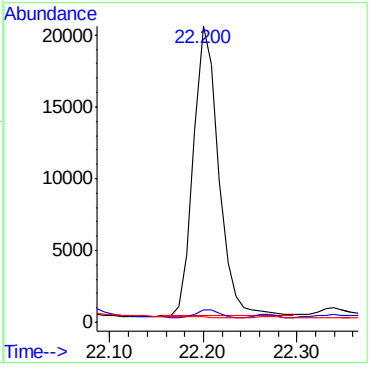


#34
Benzo[g,h,i]perylene
Concen: 1.52 ppb
RT: 22.200 min Scan# 1434
Delta R.T. 0.000 min
Lab File: 3m36843.D
Acq: 7 May 2013 5:45 pm

Tgt Ion:276 Resp: 37734

Ion	Ratio	Lower	Upper
276	100		
278	2.4	0.0	32.6
279	0.0	0.0	30.2



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\er3953\
Data File : R99365.D
Acq On : 17 May 2013 3:54 pm
Operator : andrews1
Sample : jb33644-15
Misc : op65642a,er3953,1000
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 17 20:20:28 2013
Quant Method : C:\MSDCHEM\1\METHODS\MR3950.M
Quant Title : Semi Volatile GC/MS, ZB-5MSI 30m x .25mm x .25um
QLast Update : Fri May 17 12:05:43 2013
Response via : Initial Calibration

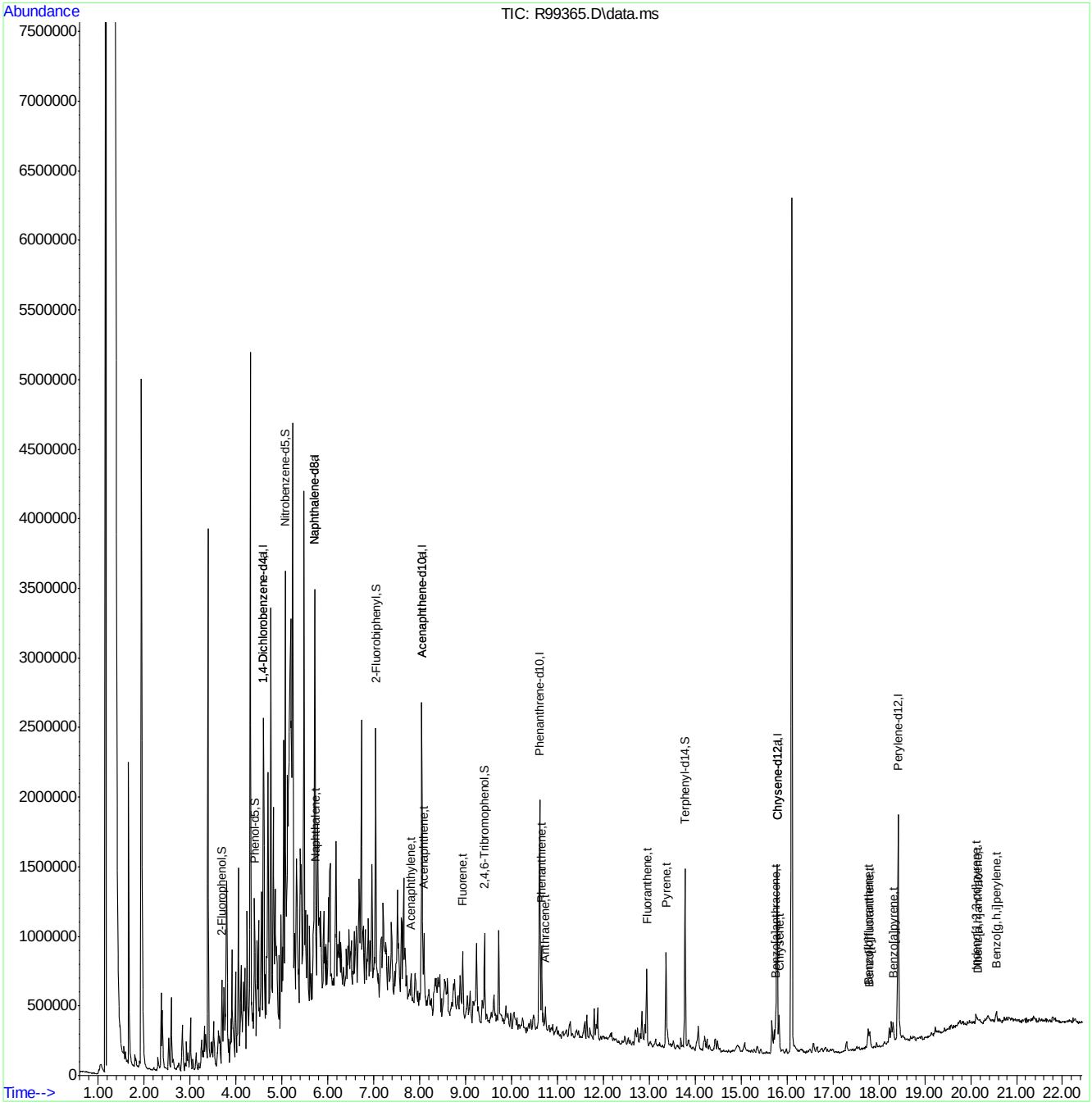
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.595	152	218943	40.00	ppb	0.00
24) Naphthalene-d8	5.716	136	946004	40.00	ppb	0.00
47) Acenaphthene-d10	8.046	164	541089	40.00	ppb	0.00
69) Phenanthrene-d10	10.615	188	808846	40.00	ppb	0.00
83) Chrysene-d12	15.786	240	769580	40.00	ppb	0.01
92) Perylene-d12	18.420	264	902432	40.00	ppb	0.01
102) 1,4-Dichlorobenzene-d4a	4.595	152	218943	40.00	ppb	0.00
104) Acenaphthene-d10a	8.046	164	541089	40.00	ppb	0.00
107) Chrysene-d12a	15.786	240	769580	40.00	ppb	0.02
109) Naphthalene-d8a	5.716	136	946004	40.00	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	3.692	112	130357	22.23	ppb	-0.01
Spiked Amount 50.000			Recovery	=	44.46%	
8) Phenol-d5	4.408	99	121344	16.51	ppb	0.00
Spiked Amount 50.000			Recovery	=	33.02%	
25) Nitrobenzene-d5	5.070	82	306820	37.39	ppb	0.00
Spiked Amount 50.000			Recovery	=	74.78%	
51) 2-Fluorobiphenyl	7.041	172	639407	34.39	ppb	0.00
Spiked Amount 50.000			Recovery	=	68.78%	
73) 2,4,6-Tribromophenol	9.413	330	77706	41.51	ppb	0.00
Spiked Amount 50.000			Recovery	=	83.02%	
86) Terphenyl-d14	13.783	244	639588	39.69	ppb	0.01
Spiked Amount 50.000			Recovery	=	79.38%	
Target Compounds						Qvalue
38) Naphthalene	5.732	128	11509	0.44	ppb #	11
56) Acenaphthylene	7.805	152	41161	1.63	ppb	98
59) Acenaphthene	8.094	153	137407	8.16	ppb	95
66) Fluorene	8.938	166	119606	7.17	ppb	94
77) Phenanthrene	10.658	178	329728	14.12	ppb	98
78) Anthracene	10.738	178	97983	4.21	ppb	96
81) Fluoranthene	12.944	202	310709	14.88	ppb	99
84) Pyrene	13.366	202	406653	16.82	ppb	97
88) Benzo[a]anthracene	15.754	228	124170	6.07	ppb	99
90) Chrysene	15.829	228	141807	6.45	ppb	97
94) Benzo[b]fluoranthene	17.768	252	76456	3.37	ppb	90
95) Benzo[k]fluoranthene	17.795	252	80826	2.73	ppb	88
96) Benzo[a]pyrene	18.313	252	87952	3.68	ppb	97
97) Indeno[1,2,3-cd]pyrene	20.119	276	45877	1.83	ppb	98
99) Dibenz[a,h]anthracene	20.151	278	17735	0.67	ppb	83
101) Benzo[g,h,i]perylene	20.557	276	48301	1.76	ppb	76

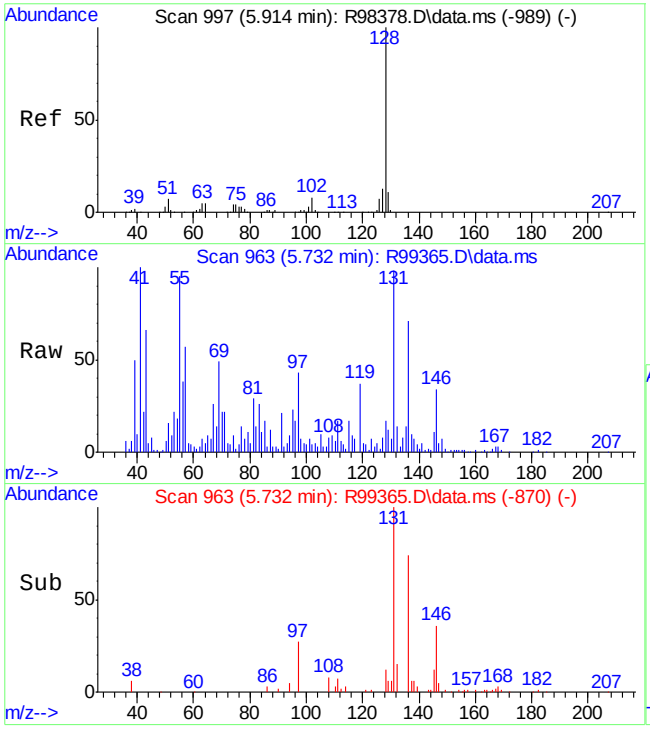
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\er3953\
Data File : R99365.D
Acq On : 17 May 2013 3:54 pm
Operator : andrews1
Sample : jb33644-15
Misc : op65642a,er3953,1000
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 17 20:20:28 2013
Quant Method : C:\MSDCHEM\1\METHODS\MR3950.M
Quant Title : Semi Volatile GC/MS, ZB-5MSI 30m x .25mm x .25um
QLast Update : Fri May 17 12:05:43 2013
Response via : Initial Calibration

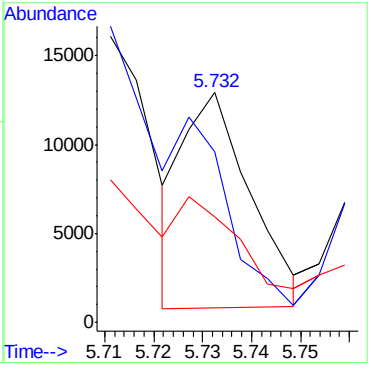


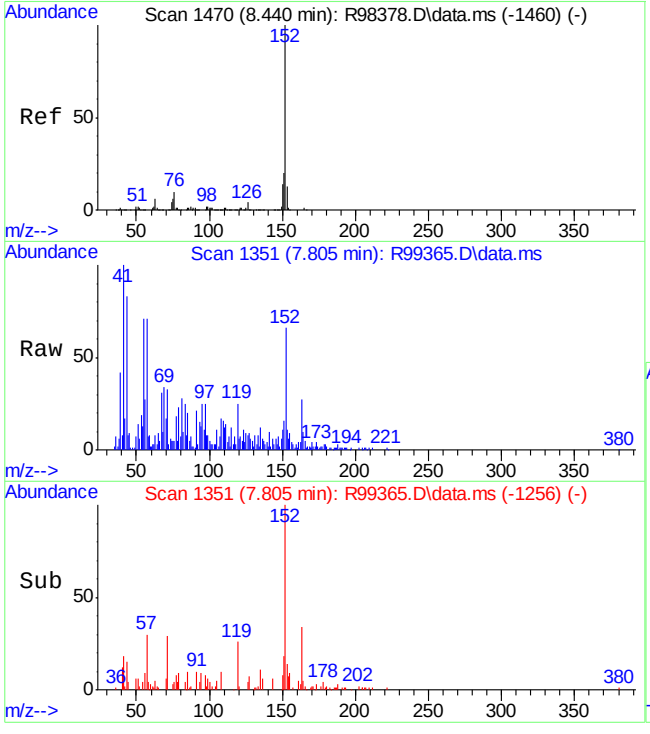


#38
Naphthalene
Concen: 0.44 ppb
RT: 5.732 min Scan# 963
Delta R.T. -0.002 min
Lab File: R99365.D
Acq: 17 May 2013 3:54 pm

Tgt Ion:128 Resp: 11509

Ion	Ratio	Lower	Upper
128	100		
129	62.8	0.0	40.9#
127	33.0	0.0	43.3

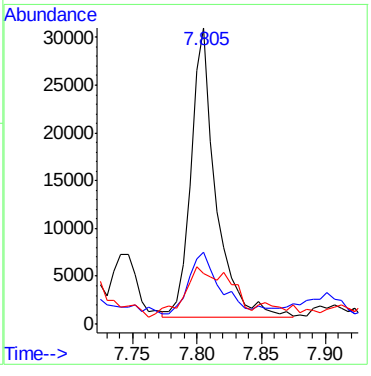


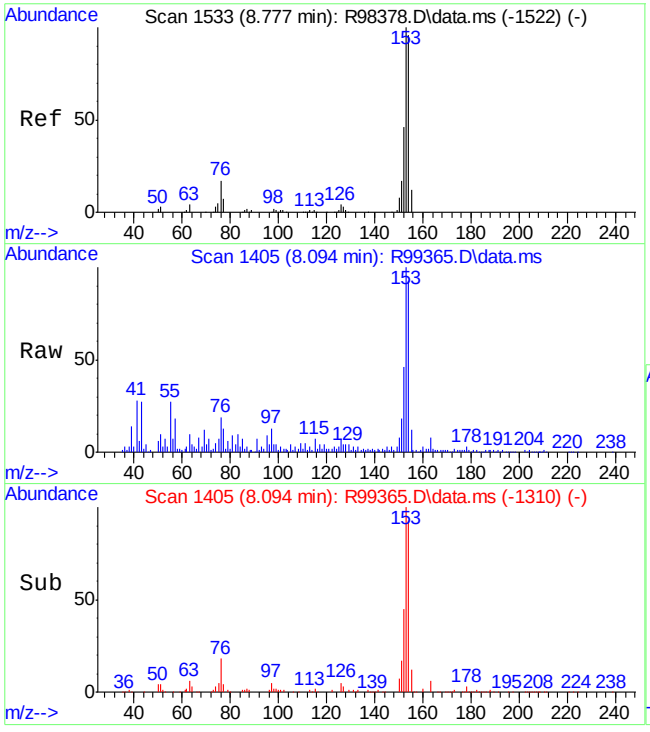


#56
Acenaphthylene
Concen: 1.63 ppb
RT: 7.805 min Scan# 1351
Delta R.T. 0.009 min
Lab File: R99365.D
Acq: 17 May 2013 3:54 pm

Tgt Ion:152 Resp: 41161

Ion	Ratio	Lower	Upper
152	100		
151	20.0	0.0	50.7
153	11.5	0.0	42.9

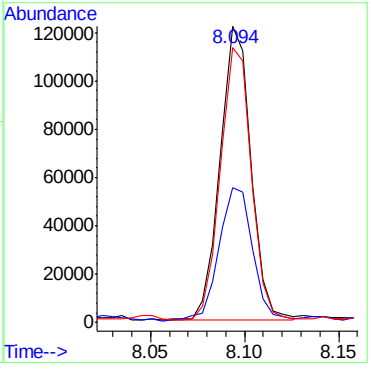


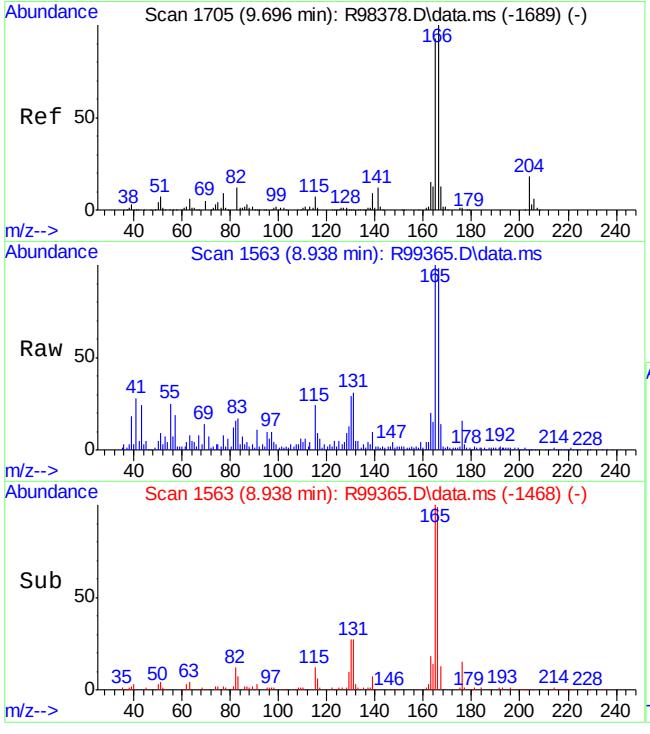


#59
Acenaphthene
Concen: 8.16 ppb
RT: 8.094 min Scan# 1405
Delta R.T. 0.009 min
Lab File: R99365.D
Acq: 17 May 2013 3:54 pm

Tgt Ion:153 Resp: 137407

Ion	Ratio	Lower	Upper
153	100		
152	45.3	18.1	78.1
154	93.0	58.5	118.5

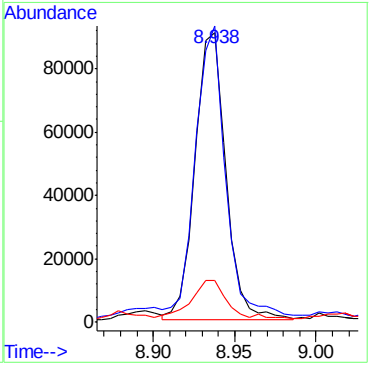




#66
Fluorene
Concen: 7.17 ppb
RT: 8.938 min Scan# 1563
Delta R.T. 0.009 min
Lab File: R99365.D
Acq: 17 May 2013 3:54 pm

Tgt Ion:166 Resp: 119606

Ion	Ratio	Lower	Upper
166	100		
165	100.5	64.4	124.4
167	12.8	0.0	42.8



9.1.18

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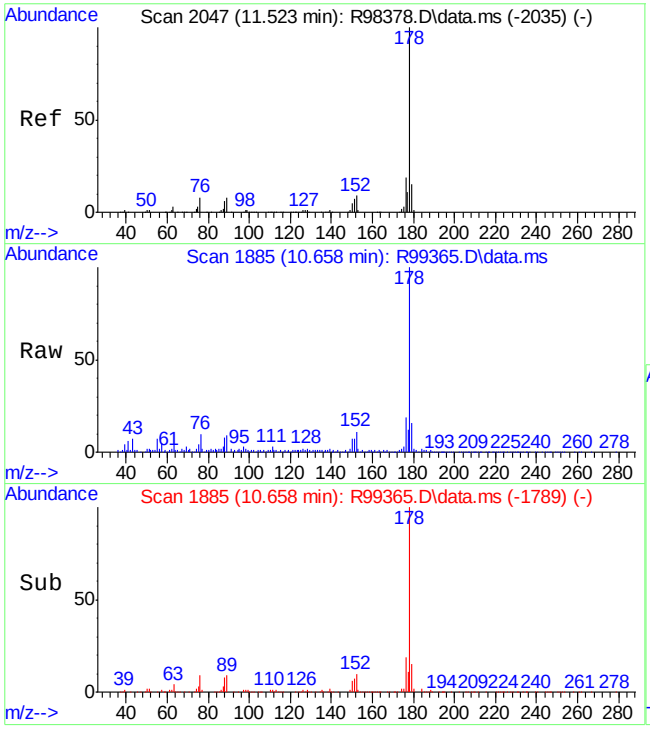
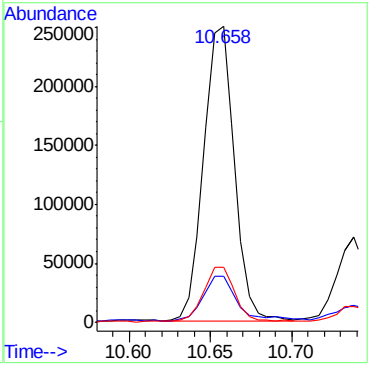
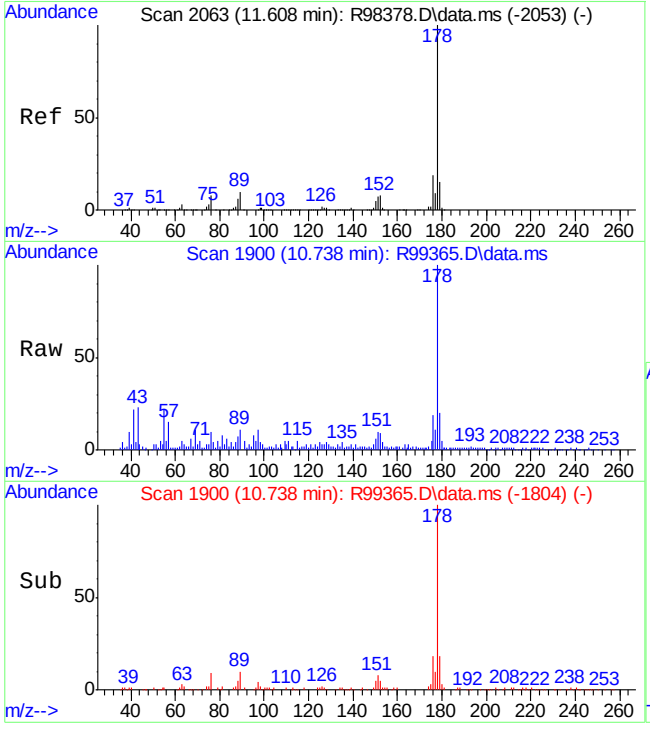


#77
Phenanthrene
Concen: 14.12 ppb
RT: 10.658 min Scan# 1885
Delta R.T. 0.014 min
Lab File: R99365.D
Acq: 17 May 2013 3:54 pm

Tgt Ion:178 Resp: 329728

Ion	Ratio	Lower	Upper
178	100		
179	14.9	0.0	45.4
176	18.5	0.0	49.4

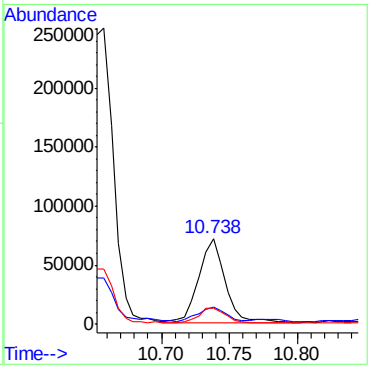


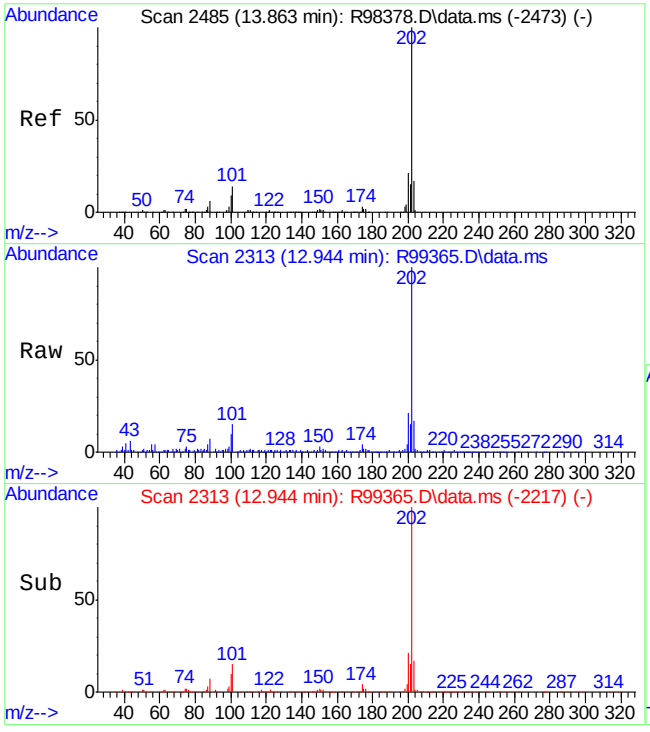


#78
Anthracene
Concen: 4.21 ppb
RT: 10.738 min Scan# 1900
Delta R.T. 0.014 min
Lab File: R99365.D
Acq: 17 May 2013 3:54 pm

Tgt Ion:178 Resp: 97983

Ion	Ratio	Lower	Upper
178	100		
179	17.7	0.0	45.1
176	18.0	0.0	48.9

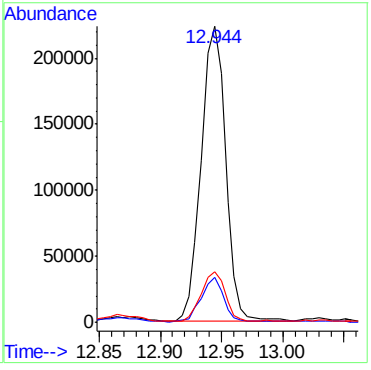


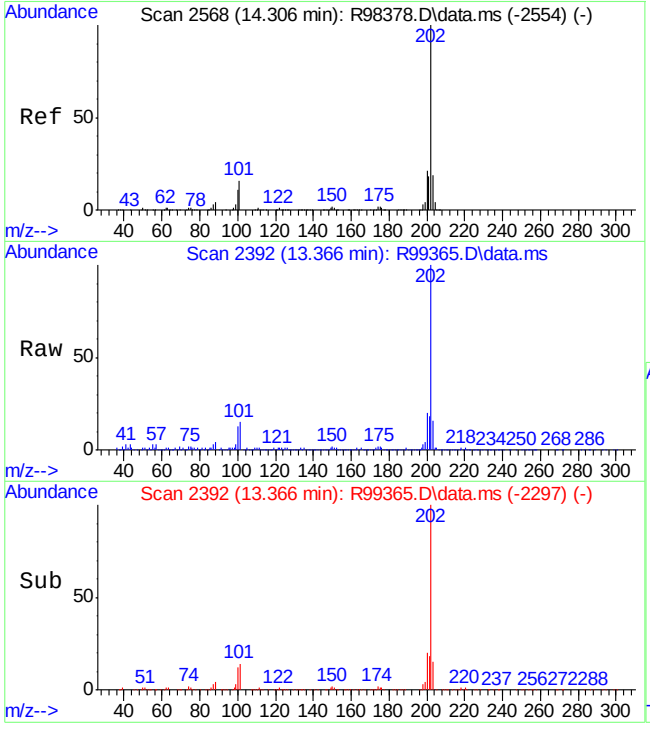


#81
Fluoranthene
Concen: 14.88 ppb
RT: 12.944 min Scan# 2313
Delta R.T. 0.014 min
Lab File: R99365.D
Acq: 17 May 2013 3:54 pm

Tgt Ion:202 Resp: 310709

Ion	Ratio	Lower	Upper
202	100		
101	14.9	0.0	44.5
203	16.8	0.0	47.3

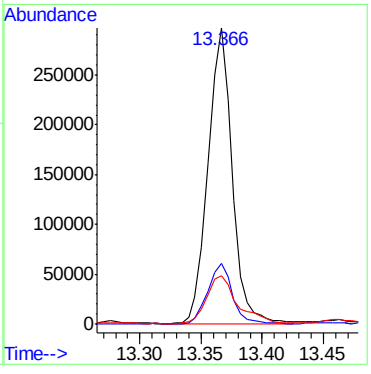




#84
Pyrene
Concen: 16.82 ppb
RT: 13.366 min Scan# 2392
Delta R.T. 0.009 min
Lab File: R99365.D
Acq: 17 May 2013 3:54 pm

Tgt Ion:202 Resp: 406653

Ion	Ratio	Lower	Upper
202	100		
200	20.2	0.0	51.0
203	16.0	0.0	47.9



9.1.18

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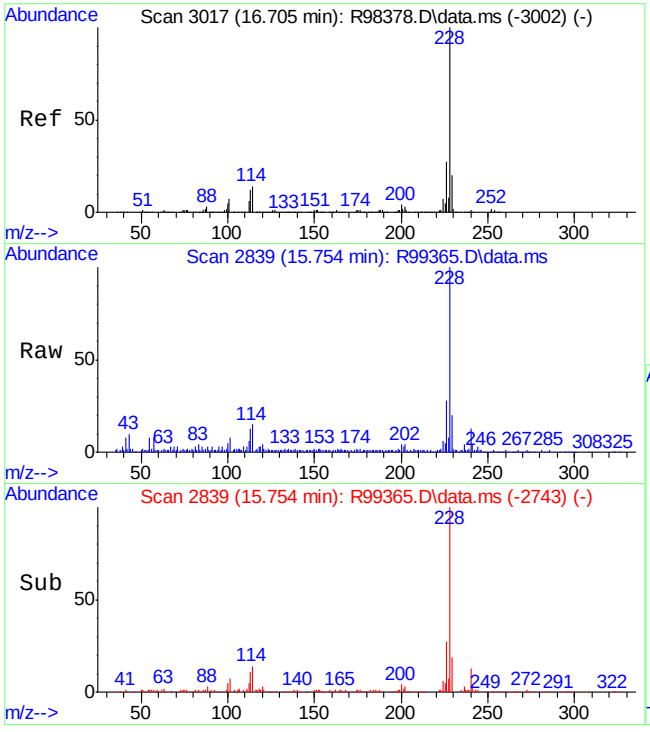
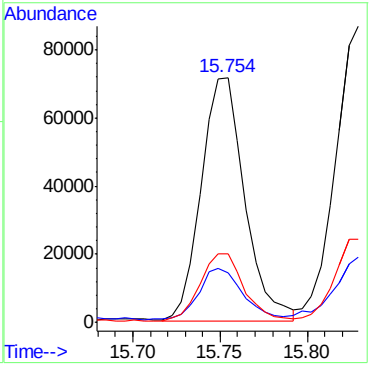
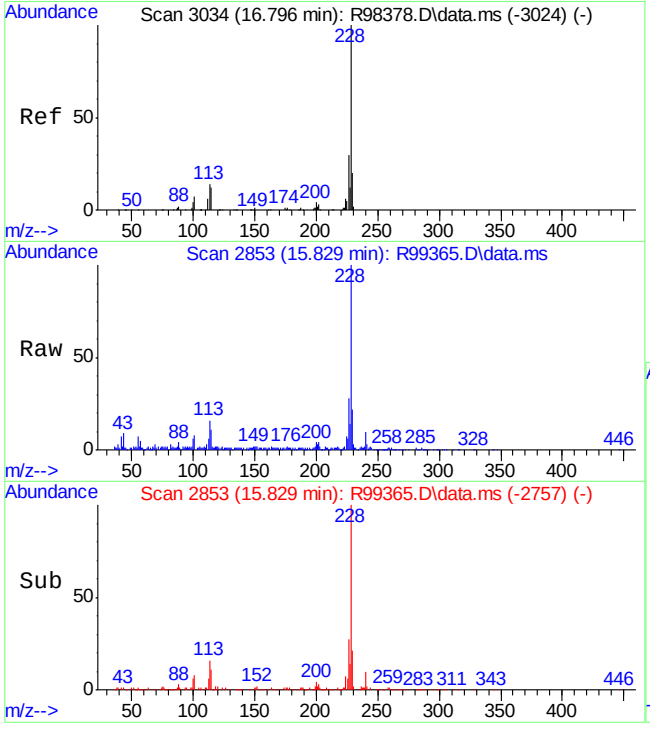


#88
Benzo[a]anthracene
Concen: 6.07 ppb
RT: 15.754 min Scan# 2839
Delta R.T. 0.014 min
Lab File: R99365.D
Acq: 17 May 2013 3:54 pm

Tgt Ion:228 Resp: 124170

Ion	Ratio	Lower	Upper
228	100		
229	18.7	0.0	50.0
226	27.5	0.0	57.6

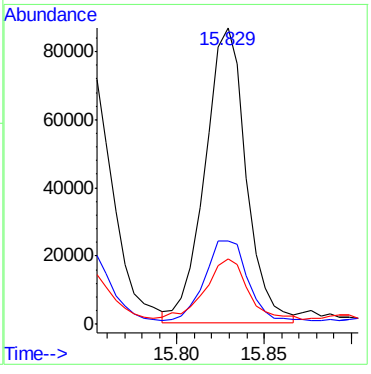




#90
Chrysene
Concen: 6.45 ppb
RT: 15.829 min Scan# 2853
Delta R.T. 0.014 min
Lab File: R99365.D
Acq: 17 May 2013 3:54 pm

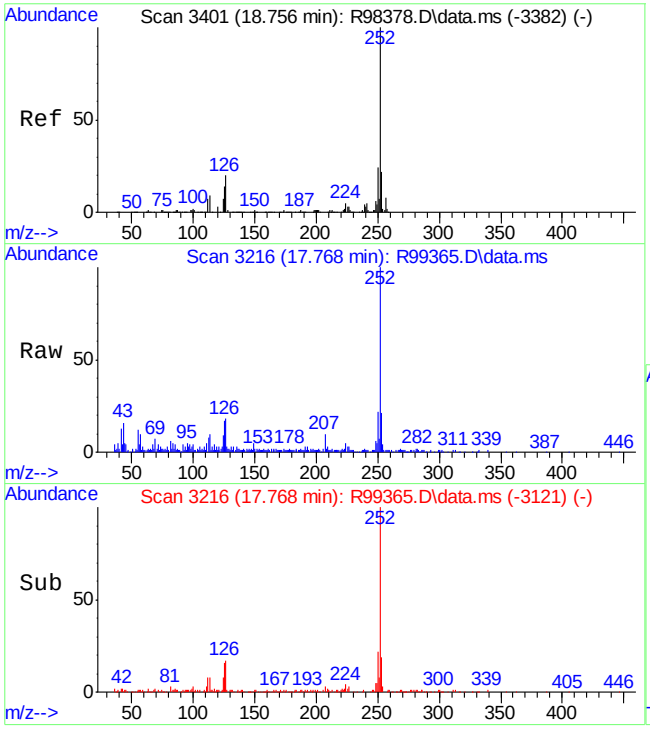
Tgt Ion:228 Resp: 141807

Ion	Ratio	Lower	Upper
228	100		
226	27.9	0.0	59.9
229	20.4	0.0	49.2



9.1.18

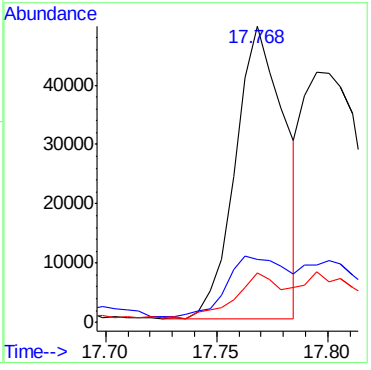
9

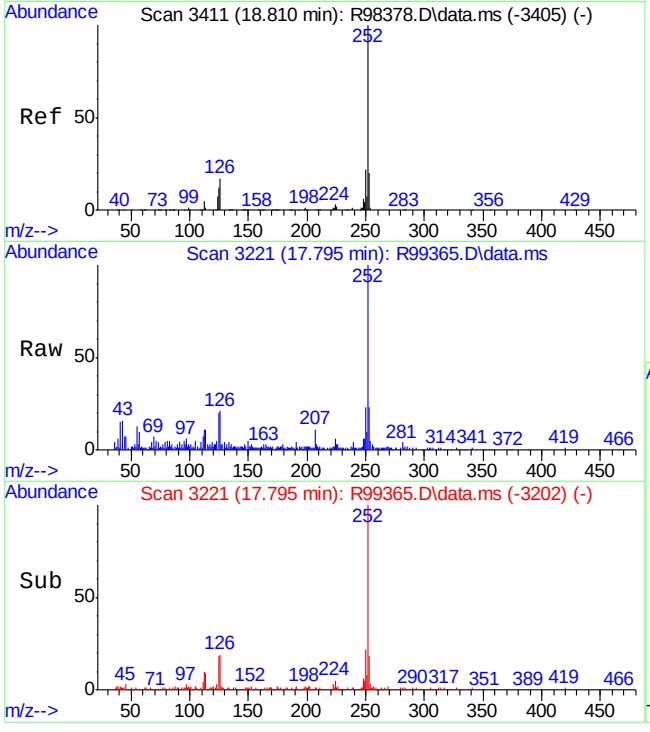


#94
Benzo[b]fluoranthene
Concen: 3.37 ppb
RT: 17.768 min Scan# 3216
Delta R.T. 0.009 min
Lab File: R99365.D
Acq: 17 May 2013 3:54 pm

Tgt Ion:252 Resp: 76456

Ion	Ratio	Lower	Upper
252	100		
253	17.3	0.0	52.3
125	14.8	0.0	41.8

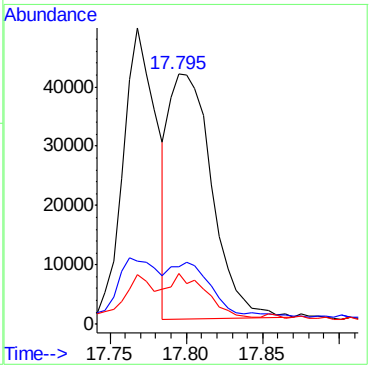




#95
Benzo[k]fluoranthene
Concen: 2.73 ppb
RT: 17.795 min Scan# 3221
Delta R.T. 0.003 min
Lab File: R99365.D
Acq: 17 May 2013 3:54 pm

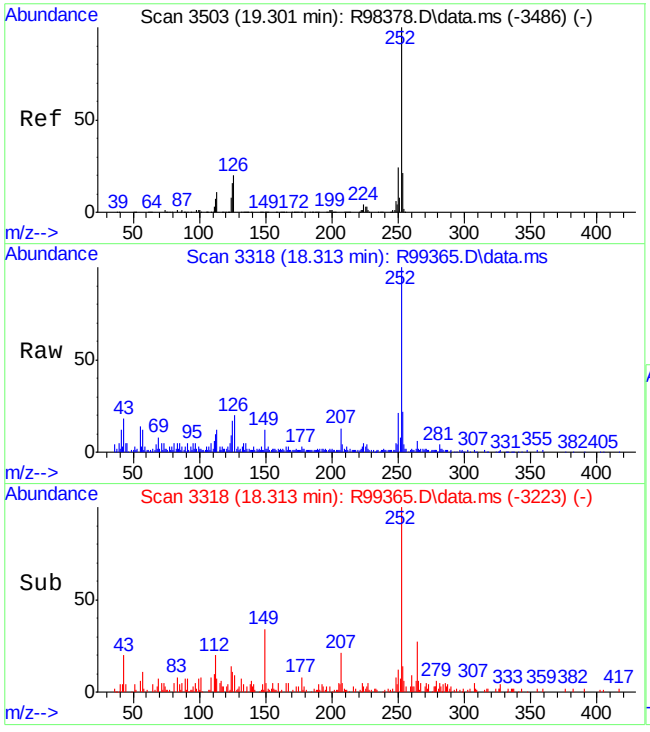
Tgt Ion:252 Resp: 80826

Ion	Ratio	Lower	Upper
252	100		
253	18.6	0.0	51.6
125	19.0	0.0	39.8



9.1.18

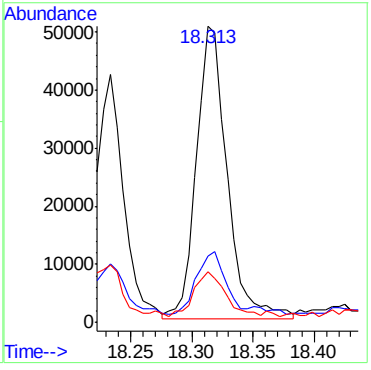
9

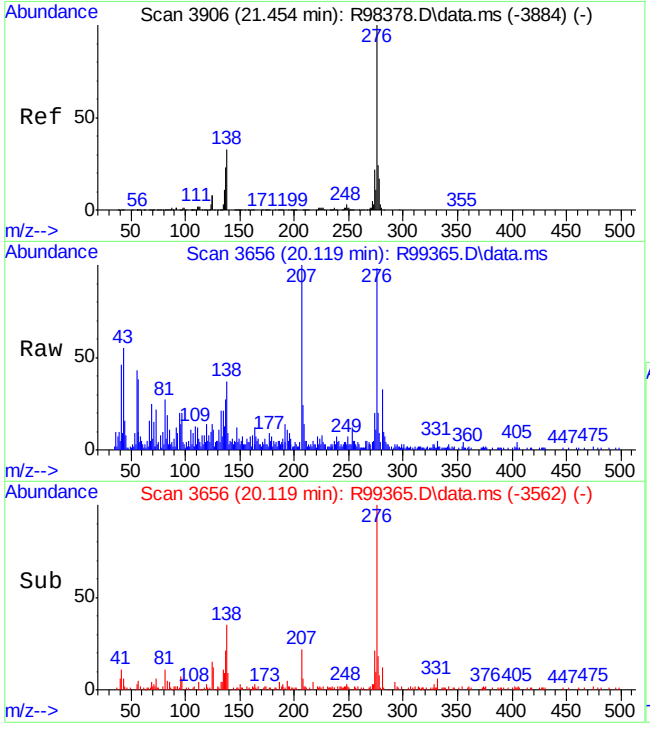


#96
Benzo[a]pyrene
Concen: 3.68 ppb
RT: 18.313 min Scan# 3318
Delta R.T. 0.009 min
Lab File: R99365.D
Acq: 17 May 2013 3:54 pm

Tgt Ion:252 Resp: 87952

Ion	Ratio	Lower	Upper
252	100		
253	19.8	0.0	51.6
125	14.4	0.0	43.3

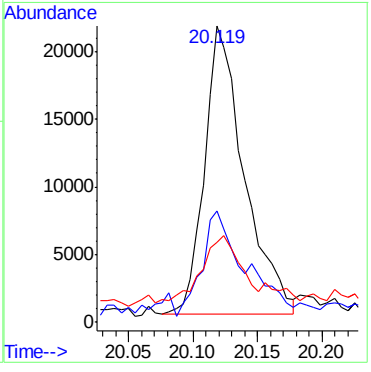




#97
Indeno[1,2,3-cd]pyrene
Concen: 1.83 ppb
RT: 20.119 min Scan# 3656
Delta R.T. 0.003 min
Lab File: R99365.D
Acq: 17 May 2013 3:54 pm

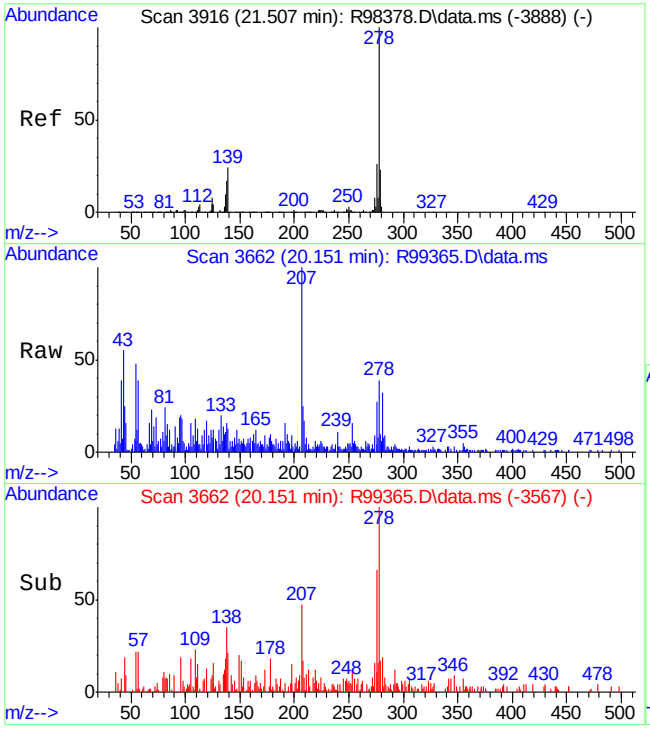
Tgt Ion:276 Resp: 45877

Ion	Ratio	Lower	Upper
276	100		
138	33.7	1.9	61.9
137	19.7	0.0	49.7



9.1.18

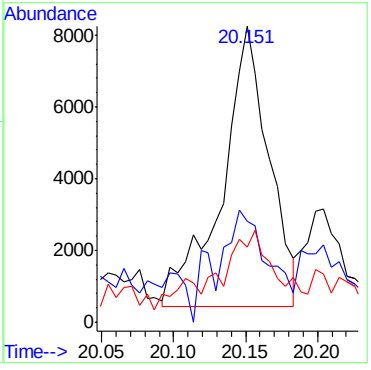
9

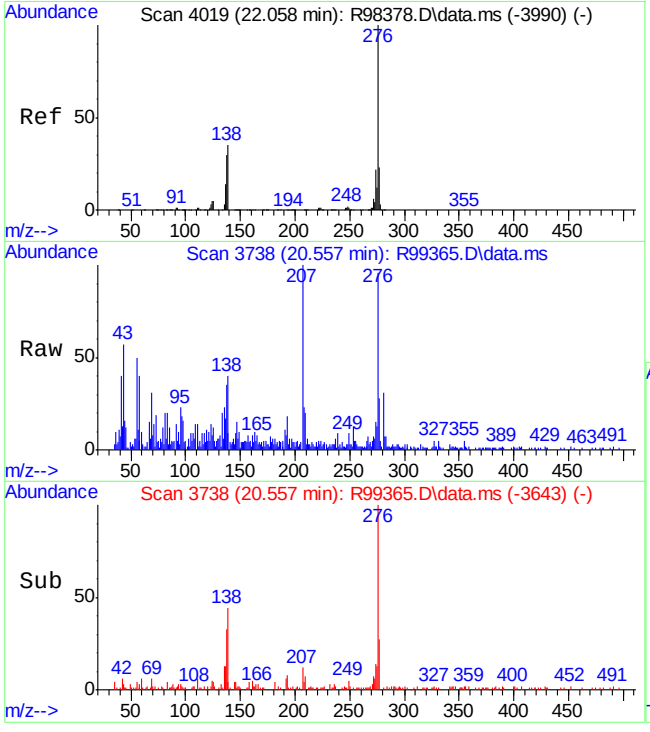


#99
Dibenz[a,h]anthracene
Concen: 0.67 ppb
RT: 20.151 min Scan# 3662
Delta R.T. 0.009 min
Lab File: R99365.D
Acq: 17 May 2013 3:54 pm

Tgt Ion:278 Resp: 17735

Ion	Ratio	Lower	Upper
278	100		
139	27.3	0.0	48.9
279	15.5	0.0	53.3

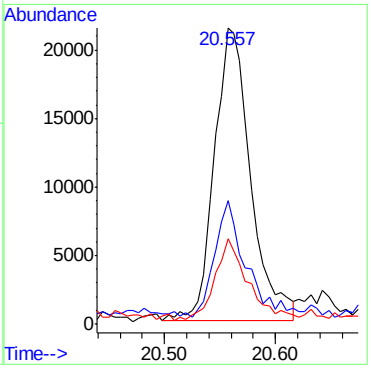




#101
Benzo[g,h,i]perylene
Concen: 1.76 ppb
RT: 20.557 min Scan# 3738
Delta R.T. 0.009 min
Lab File: R99365.D
Acq: 17 May 2013 3:54 pm

Tgt Ion:276 Resp: 48301

Ion	Ratio	Lower	Upper
276	100		
138	48.7	0.0	58.6
277	27.0	0.0	53.7



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1667\
Data File : 3m36470.D
Acq On : 25 Apr 2013 1:02 pm
Operator : ninap
Sample : jb33644-16
Misc : op65230,e3m1667,1000
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Apr 25 17:30:41 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration

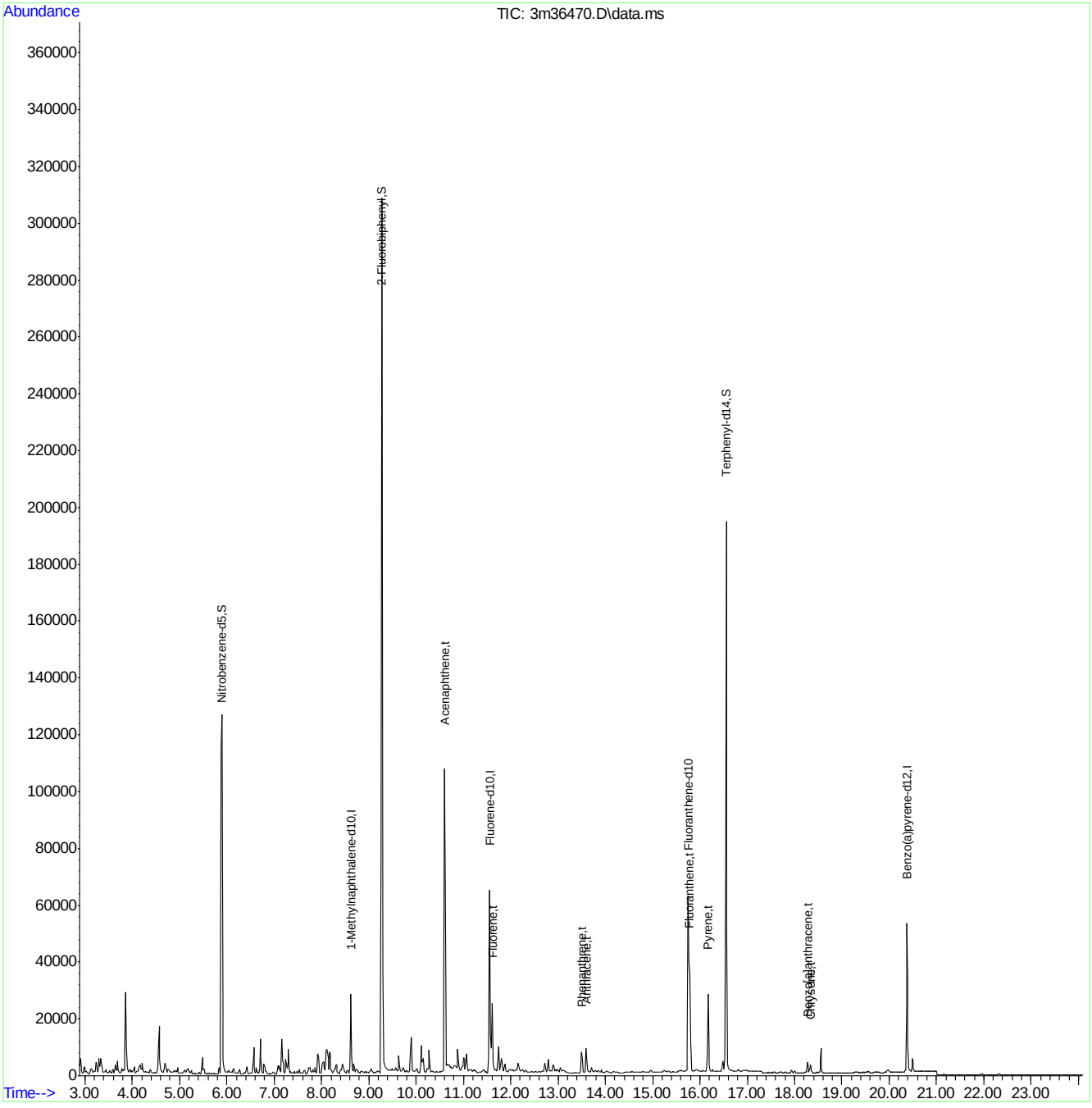
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1-Methylnaphthalene-d10	8.625	150	31638	4.00 ppb	-0.12
12) Fluorene-d10	11.558	176	52455	4.00 ppb	-0.15
18) Fluoranthene-d10	15.753	212	73622	4.00 ppb	-0.14
28) Benzo(a)pyrene-d12	20.377	264	54187	4.00 ppb	-0.15
System Monitoring Compounds					
2) 2-Fluorophenol	0.000	112	0d	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
3) Phenol-d5	0.000	99	0d	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
6) Nitrobenzene-d5	5.882	82	147405	21.79 ppb	-0.14
Spiked Amount 50.000			Recovery	= 43.58%	
13) 2-Fluorobiphenyl	9.277	172	255201	16.61 ppb	-0.14
Spiked Amount 50.000			Recovery	= 33.22%	
17) 2,4,6-Tribromophenol	0.000	330	0d	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
25) Terphenyl-d14	16.557	244	215530	17.48 ppb	-0.14
Spiked Amount 50.000			Recovery	= 34.96%	
Target Compounds					Qvalue
15) Acenaphthene	10.601	153	63178	3.86 ppb	87
16) Fluorene	11.614	166	18194	1.08 ppb	75
21) Phenanthrene	13.498	178	11442	0.43 ppb	96
22) Anthracene	13.592	178	10496	0.48 ppb	100
23) Fluoranthene	15.784	202	37626	1.48 ppb	94
24) Pyrene	16.171	202	31741	1.13 ppb	95
26) Benzo[a]anthracene	18.276	228	3562	0.17 ppb	97
27) Chrysene	18.337	228	3244	0.13 ppb	99

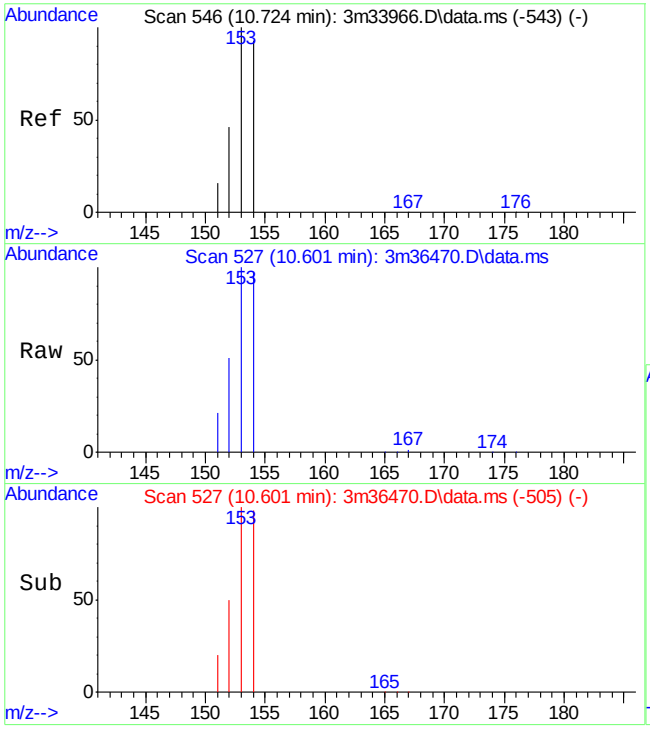
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1667\
Data File : 3m36470.D
Acq On : 25 Apr 2013 1:02 pm
Operator : ninap
Sample : jb33644-16
Misc : op65230,e3m1667,1000
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Apr 25 17:30:41 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration

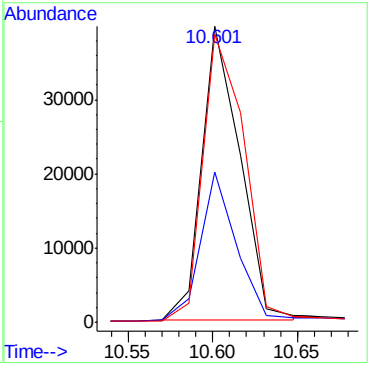


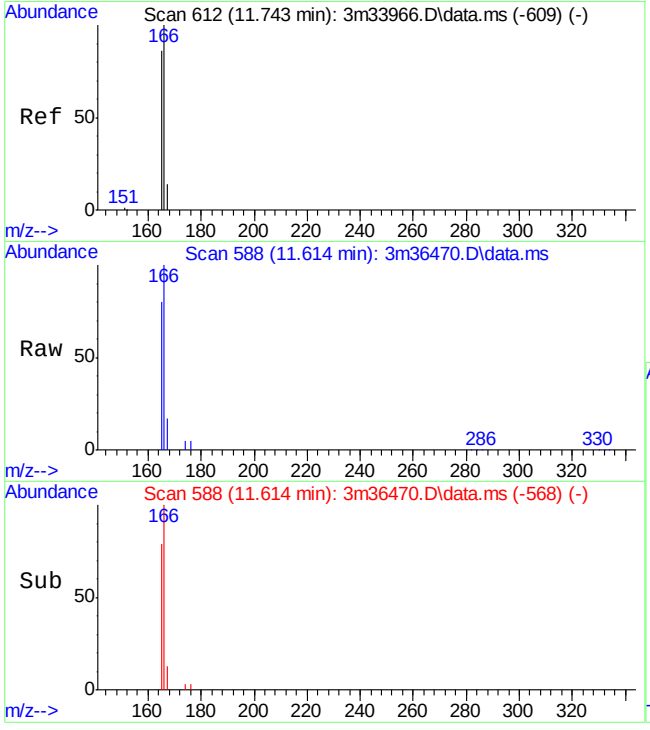


#15
Acenaphthene
Concen: 3.86 ppb
RT: 10.601 min Scan# 527
Delta R.T. -0.155 min
Lab File: 3m36470.D
Acq: 25 Apr 2013 1:02 pm

Tgt Ion:153 Resp: 63178

Ion	Ratio	Lower	Upper
153	100		
152	50.3	11.2	71.2
154	97.7	81.2	141.2

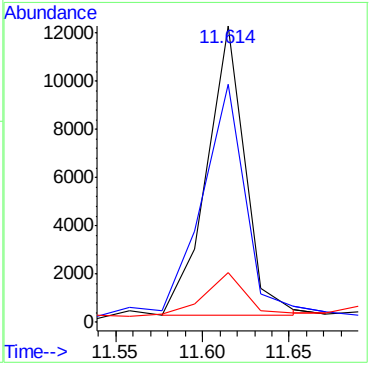


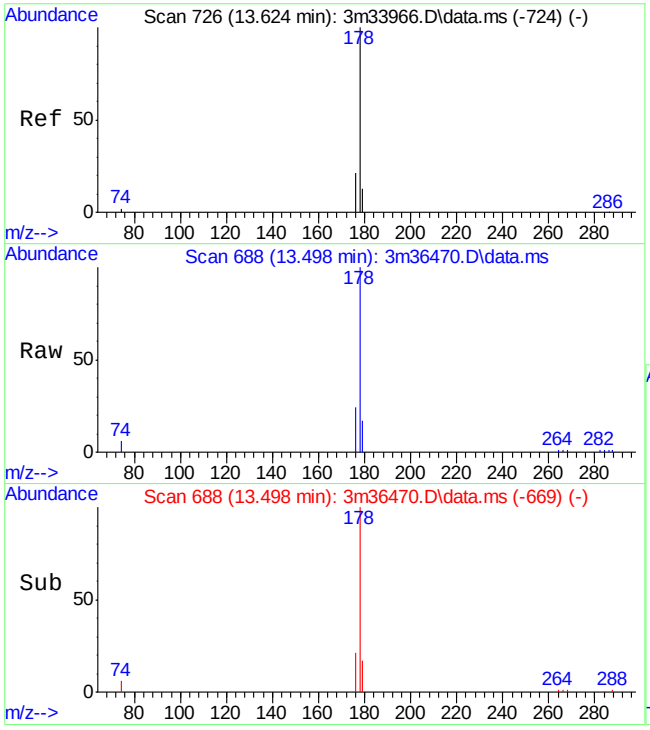


#16
Fluorene
Concen: 1.08 ppb
RT: 11.614 min Scan# 588
Delta R.T. -0.132 min
Lab File: 3m36470.D
Acq: 25 Apr 2013 1:02 pm

Tgt Ion:166 Resp: 18194

Ion	Ratio	Lower	Upper
166	100		
165	78.2	76.4	136.4
167	14.2	0.0	41.3

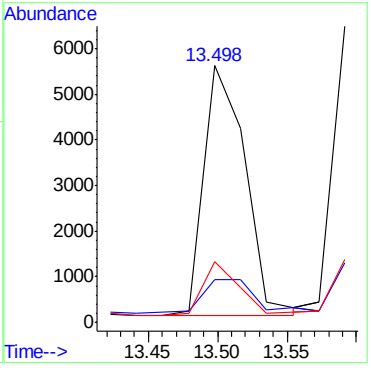


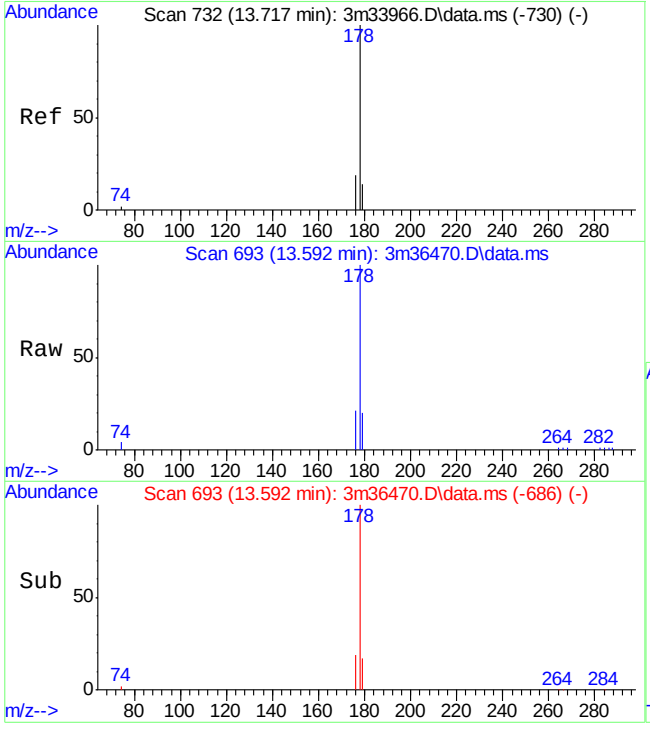


#21
Phenanthrene
Concen: 0.43 ppb
RT: 13.498 min Scan# 688
Delta R.T. -0.151 min
Lab File: 3m36470.D
Acq: 25 Apr 2013 1:02 pm

Tgt Ion:178 Resp: 11442

Ion	Ratio	Lower	Upper
178	100		
179	12.4	0.0	44.7
176	21.1	0.0	50.1

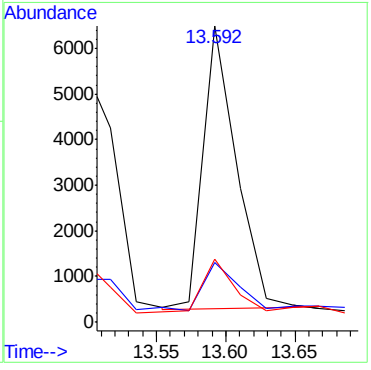




#22
Anthracene
Concen: 0.48 ppb
RT: 13.592 min Scan# 693
Delta R.T. -0.170 min
Lab File: 3m36470.D
Acq: 25 Apr 2013 1:02 pm

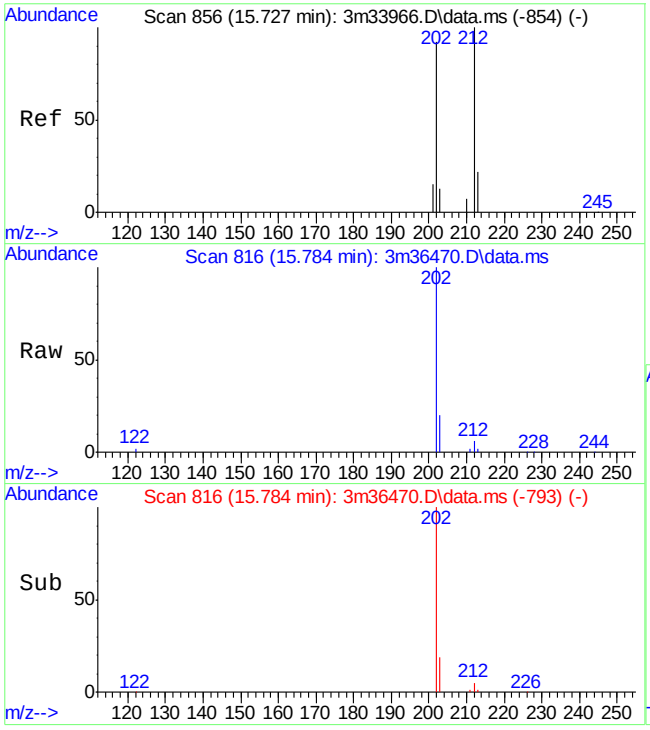
Tgt Ion:178 Resp: 10496

Ion	Ratio	Lower	Upper
178	100		
179	15.6	0.0	45.5
176	18.0	0.0	48.3



9.1.19

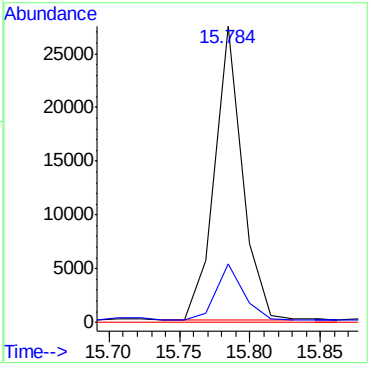
9

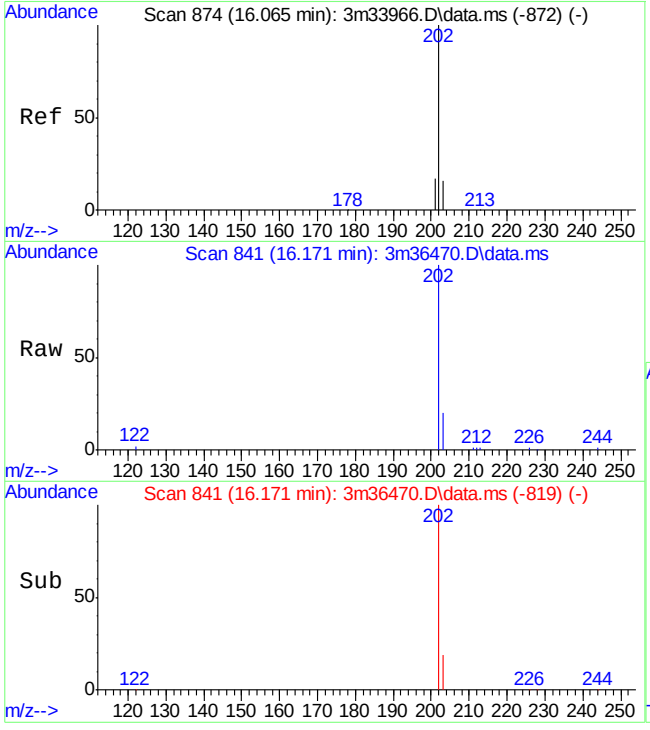


#23
Fluoranthene
Concen: 1.48 ppb
RT: 15.784 min Scan# 816
Delta R.T. -0.139 min
Lab File: 3m36470.D
Acq: 25 Apr 2013 1:02 pm

Tgt Ion:202 Resp: 37626

Ion	Ratio	Lower	Upper
202	100		
203	19.0	0.0	46.4
201	0.0	0.0	30.0

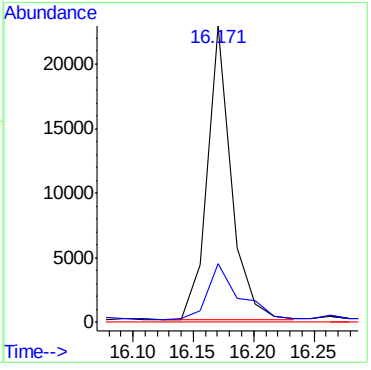


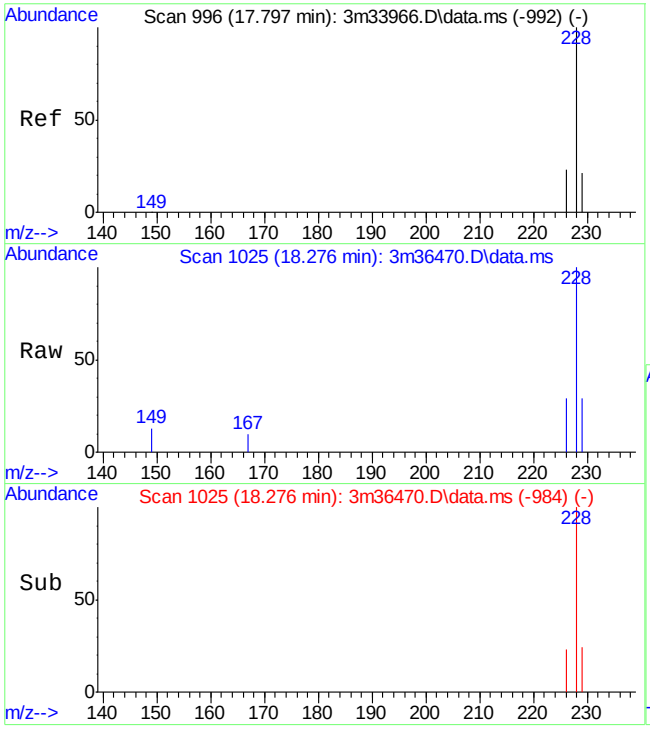


#24
Pyrene
Concen: 1.13 ppb
RT: 16.171 min Scan# 841
Delta R.T. -0.155 min
Lab File: 3m36470.D
Acq: 25 Apr 2013 1:02 pm

Tgt Ion:202 Resp: 31741

Ion	Ratio	Lower	Upper
202	100		
203	18.9	0.0	46.8
201	0.0	0.0	30.0

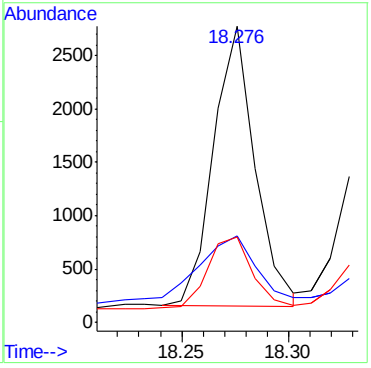


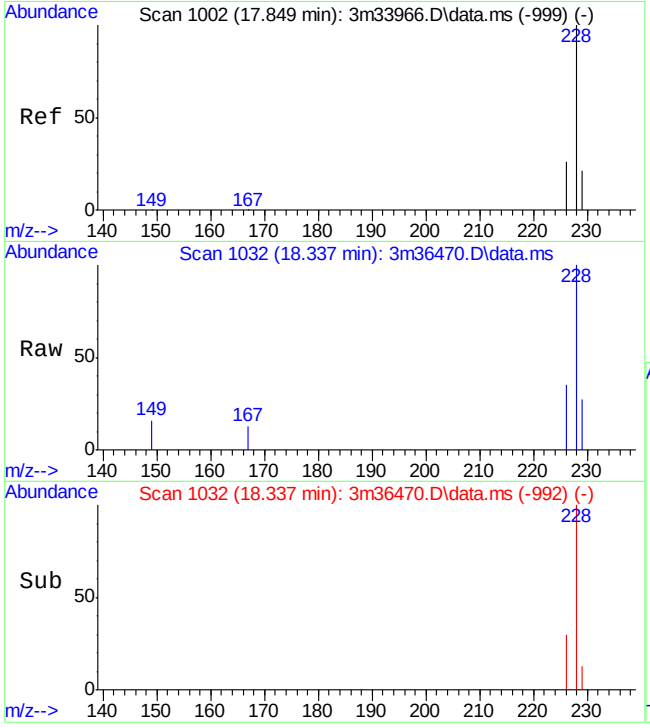


#26
Benzo[a]anthracene
Concen: 0.17 ppb
RT: 18.276 min Scan# 1025
Delta R.T. -0.140 min
Lab File: 3m36470.D
Acq: 25 Apr 2013 1:02 pm

Tgt Ion:228 Resp: 3562

Ion	Ratio	Lower	Upper
228	100		
229	22.5	0.0	51.2
226	25.5	0.0	54.4

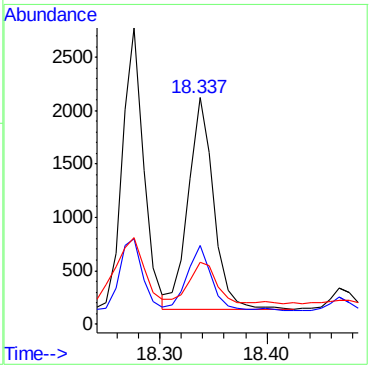




#27
Chrysene
Concen: 0.13 ppb
RT: 18.337 min Scan# 1032
Delta R.T. -0.149 min
Lab File: 3m36470.D
Acq: 25 Apr 2013 1:02 pm

Tgt Ion:228 Resp: 3244

Ion	Ratio	Lower	Upper
228	100		
226	30.8	0.8	60.8
229	19.3	0.0	48.4



9.1.19

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1665\
Data File : 3m36424.D
Acq On : 24 Apr 2013 4:05 pm
Operator : ashleyd
Sample : op65230-mb1
Misc : op65230,e3m1665,1000
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Apr 24 18:48:49 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.639	150	29422	4.00	ppb	-0.11
12) Fluorene-d10	11.577	176	47238	4.00	ppb	-0.13
18) Fluoranthene-d10	15.784	212	67646	4.00	ppb	-0.11
28) Benzo(a)pyrene-d12	20.398	264	49266	4.00	ppb	-0.13
System Monitoring Compounds						
2) 2-Fluorophenol	0.000	112	0	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
3) Phenol-d5	0.000	99	0d	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
6) Nitrobenzene-d5	5.909	82	196498	31.23	ppb	-0.11
Spiked Amount 50.000			Recovery	=	62.46%	
13) 2-Fluorobiphenyl	9.294	172	361057	26.10	ppb	-0.12
Spiked Amount 50.000			Recovery	=	52.20%	
17) 2,4,6-Tribromophenol	0.000	330	0	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
25) Terphenyl-d14	16.588	244	338442	29.87	ppb	-0.11
Spiked Amount 50.000			Recovery	=	59.74%	

Target Compounds Qvalue

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

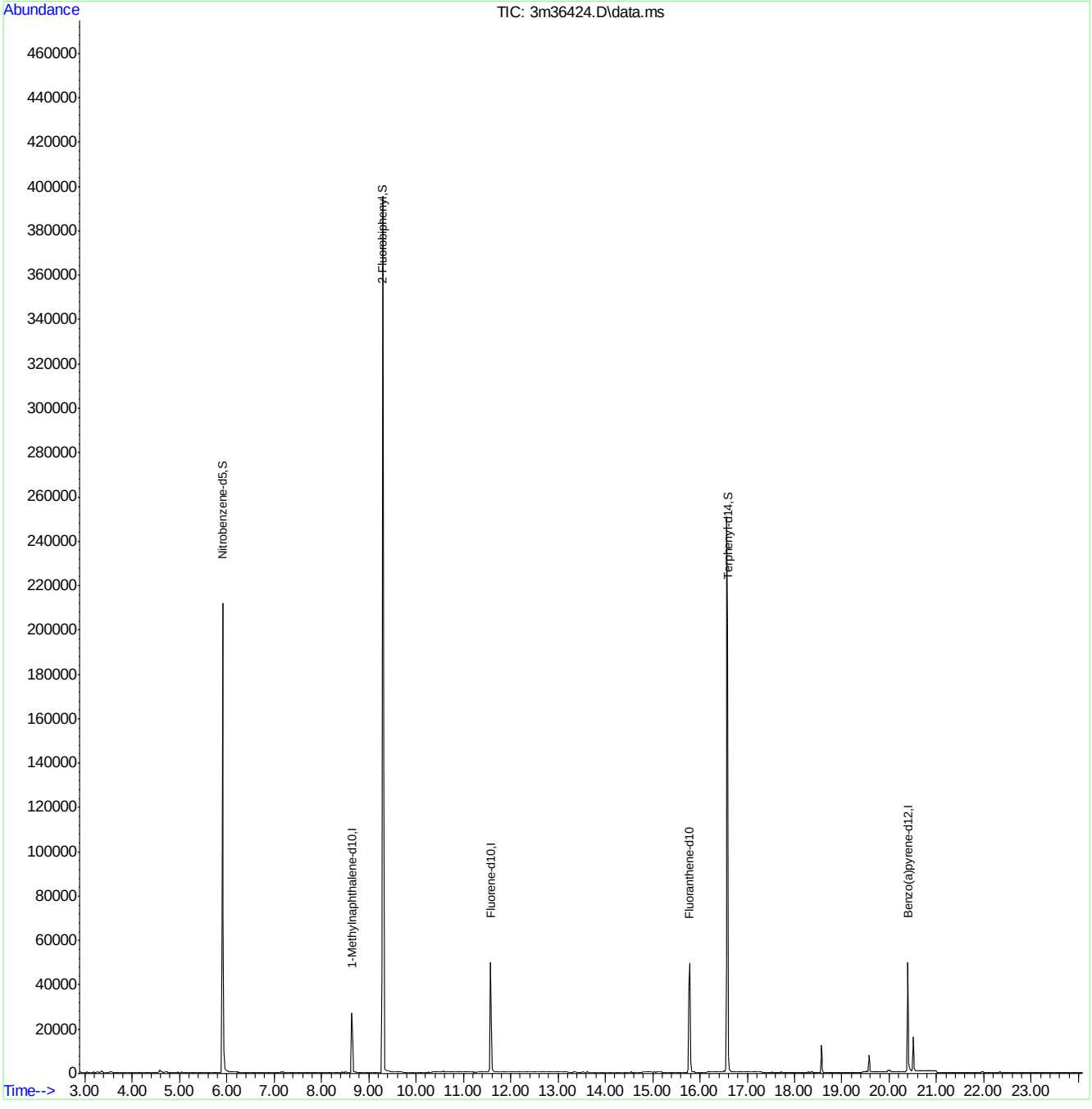
9.2.1

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1665\
Data File : 3m36424.D
Acq On : 24 Apr 2013 4:05 pm
Operator : ashleyd
Sample : op65230-mb1
Misc : op65230,e3m1665,1000
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Apr 24 18:48:49 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1644SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Apr 11 19:11:25 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1683\
Data File : 3m36829.D
Acq On : 7 May 2013 9:16 am
Operator : ninap
Sample : op65642a-mb1
Misc : op65642a,e3m1683,1000
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 07 14:41:34 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1682SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon May 06 21:57:09 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1-Methylnaphthalene-d10	8.515	150	58105	4.00 ppb	0.00
12) Fluorene-d10	11.456	176	89310	4.00 ppb	0.00
18) Fluoranthene-d10	15.652	212	118729	4.00 ppb	0.00
28) Benzo(a)pyrene-d12	20.288	264	81293	4.00 ppb	0.00
System Monitoring Compounds					
2) 2-Fluorophenol	3.258	112	112554	15.90 ppb	0.00
Spiked Amount 50.000			Recovery	= 31.80%	
3) Phenol-d5	4.494	99	128621	13.85 ppb	0.02
Spiked Amount 50.000			Recovery	= 27.70%	
6) Nitrobenzene-d5	5.785	82	349696	27.04 ppb	0.00
Spiked Amount 50.000			Recovery	= 54.08%	
13) 2-Fluorobiphenyl	9.166	172	470561	21.03 ppb	0.00
Spiked Amount 50.000			Recovery	= 42.06%	
17) 2,4,6-Tribromophenol	12.058	330	85970	31.12 ppb	0.00
Spiked Amount 50.000			Recovery	= 62.24%	
25) Terphenyl-d14	16.457	244	525943	30.31 ppb	0.00
Spiked Amount 50.000			Recovery	= 60.62%	

Target Compounds Qvalue

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

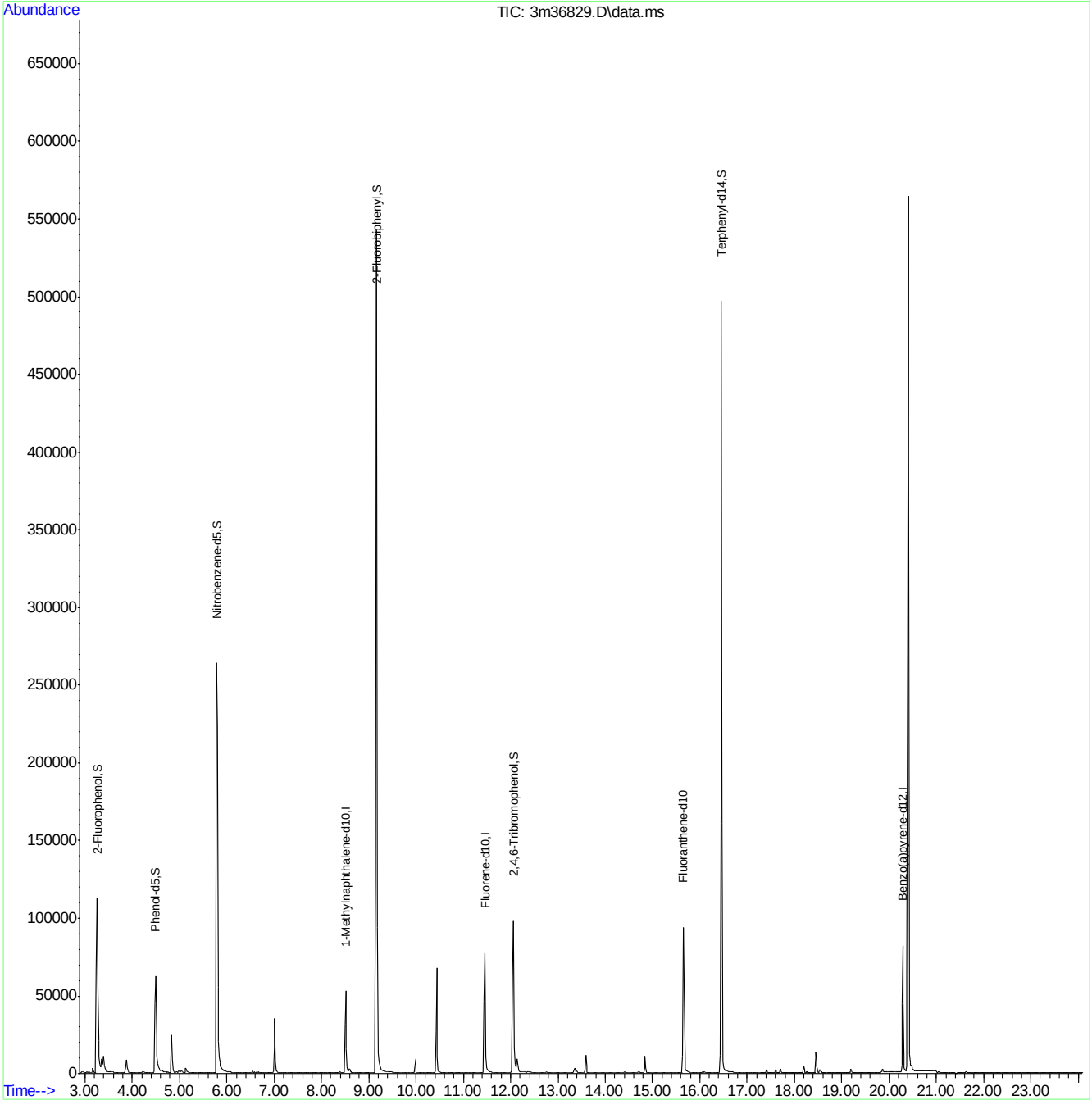
9.2.2

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1683\
Data File : 3m36829.D
Acq On : 7 May 2013 9:16 am
Operator : ninap
Sample : op65642a-mb1
Misc : op65642a,e3m1683,1000
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 07 14:41:34 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1682SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon May 06 21:57:09 2013
Response via : Initial Calibration



M1682SIM.M Tue May 07 14:41:38 2013 RPT1 Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\16\
Data File : 4p316.D
Acq On : 8 May 2013 11:56 pm
Operator : ashleyd
Sample : op65642a-mb1
Misc : op65642a,e4p16,1000
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 09 15:28:20 2013
Quant Method : C:\MSDCHEM\1\METHODS\4P10SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon May 06 08:56:08 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1-Methylnaphthalene-d10	8.782	150	64299	4.00 ppb	0.02
12) Fluorene-d10	11.748	176	87004	4.00 ppb	0.02
18) Fluoranthene-d10	15.938	212	134026	4.00 ppb	0.00
28) Benzo(a)pyrene-d12	20.536	264	90740	4.00 ppb	0.00
System Monitoring Compounds					
2) 2-Fluorophenol	3.369	112	193930	22.00 ppb	0.02
Spiked Amount 50.000			Recovery	= 44.00%	
3) Phenol-d5	4.591	99	158974	19.27 ppb	0.02
Spiked Amount 50.000			Recovery	= 38.54%	
6) Nitrobenzene-d5	5.996	82	434776	32.21 ppb	0.02
Spiked Amount 50.000			Recovery	= 64.42%	
13) 2-Fluorobiphenyl	9.406	172	675254	27.04 ppb	0.00
Spiked Amount 50.000			Recovery	= 54.08%	
17) 2,4,6-Tribromophenol	12.294	330	142589	44.86 ppb	0.00
Spiked Amount 50.000			Recovery	= 89.72%	
25) Terphenyl-d14	16.730	244	683425	39.12 ppb	0.00
Spiked Amount 50.000			Recovery	= 78.24%	

Target Compounds Qvalue

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

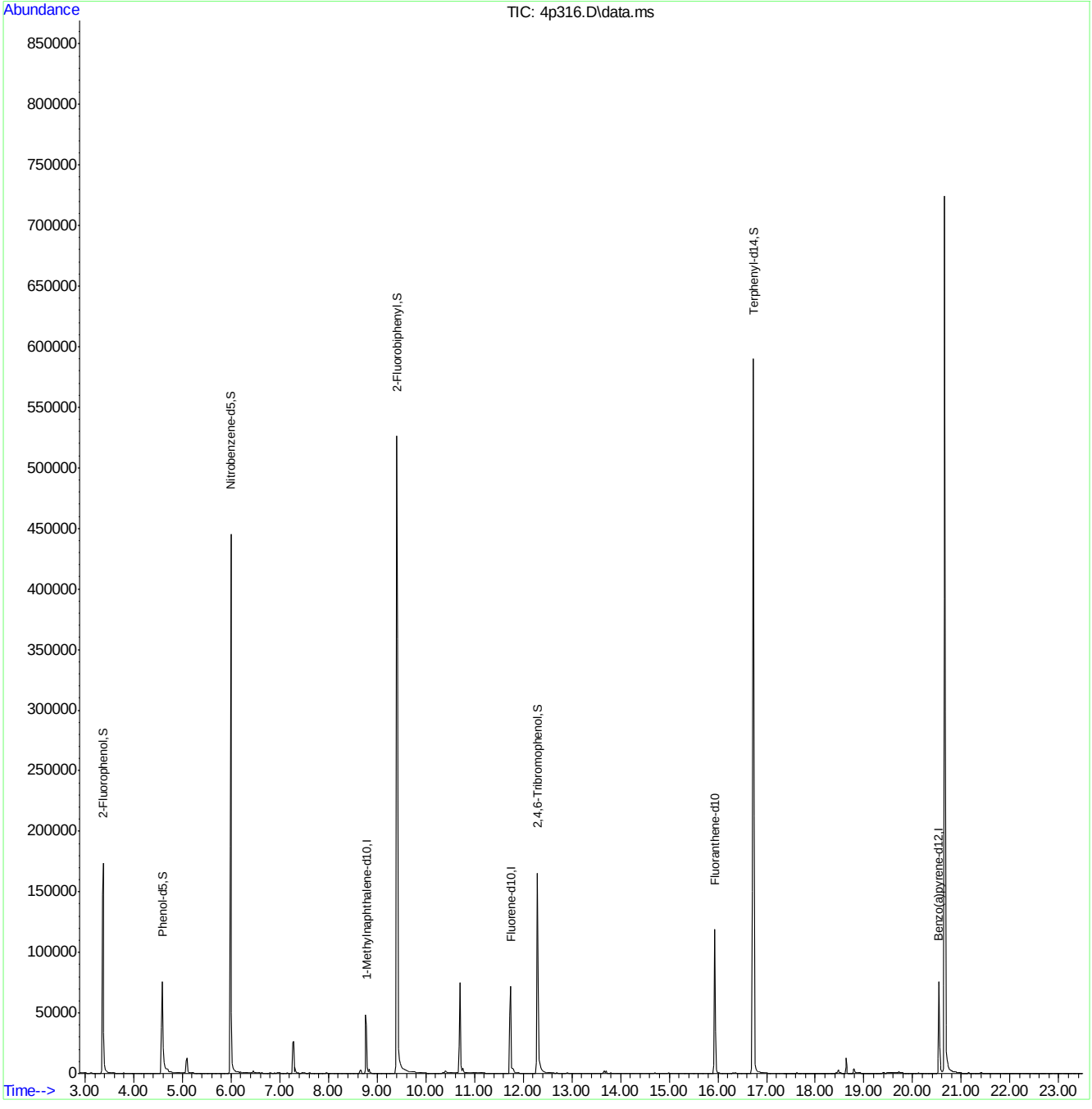
9.2.3

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\16\
Data File : 4p316.D
Acq On : 8 May 2013 11:56 pm
Operator : ashleyd
Sample : op65642a-mb1
Misc : op65642a,e4p16,1000
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 09 15:28:20 2013
Quant Method : C:\MSDCHEM\1\METHODS\4P10SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon May 06 08:56:08 2013
Response via : Initial Calibration



New Jersey

ACCUTEST LABORATORIES

GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Surrogate Recovery Summaries
- GC Surrogate Retention Time Summaries
- Initial and Continuing Calibration Summaries

Method Blank Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP65293-MB1	WW117717.D	1	04/16/13	VDT	04/15/13	OP65293	GWW4178

The QC reported here applies to the following samples: **Method:** SW846-8011

JB33644-1, JB33644-2, JB33644-3, JB33644-4, JB33644-5, JB33644-6, JB33644-7, JB33644-8, JB33644-9, JB33644-10, JB33644-11, JB33644-12, JB33644-13, JB33644-14, JB33644-15, JB33644-16

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	0.011	ug/l	

CAS No.	Surrogate Recoveries		Limits
3017-95-6	2-Bromo-1-chloropropane	100%	38-167%
3017-95-6	2-Bromo-1-chloropropane	95%	38-167%

Blank Spike Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP65293-BS1	WW117718.D	1	04/16/13	VDT	04/15/13	OP65293	GWW4178

The QC reported here applies to the following samples: **Method:** SW846-8011

JB33644-1, JB33644-2, JB33644-3, JB33644-4, JB33644-5, JB33644-6, JB33644-7, JB33644-8, JB33644-9, JB33644-10, JB33644-11, JB33644-12, JB33644-13, JB33644-14, JB33644-15, JB33644-16

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
106-93-4	1,2-Dibromoethane	0.5	0.55	110	54-162

CAS No.	Surrogate Recoveries	BSP	Limits
3017-95-6	2-Bromo-1-chloropropane	108%	38-167%
3017-95-6	2-Bromo-1-chloropropane	104%	38-167%

10.2.1

10

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP65293-MS	WW117740.D	1	04/16/13	VDT	04/15/13	OP65293	GWW4178
JB33644-1	WW117719.D	1	04/16/13	VDT	04/15/13	OP65293	GWW4178

The QC reported here applies to the following samples: **Method:** SW846-8011

JB33644-1, JB33644-2, JB33644-3, JB33644-4, JB33644-5, JB33644-6, JB33644-7, JB33644-8, JB33644-9, JB33644-10, JB33644-11, JB33644-12, JB33644-13, JB33644-14, JB33644-15, JB33644-16

CAS No.	Compound	JB33644-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
106-93-4	1,2-Dibromoethane	ND		0.5	0.56	112	55-163

CAS No.	Surrogate Recoveries	MS	JB33644-1	Limits
3017-95-6	2-Bromo-1-chloropropane	105%	104%	38-167%
3017-95-6	2-Bromo-1-chloropropane	101%	99%	38-167%

10.3.1

10

* = Outside of Control Limits.

Duplicate Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP65293-DUP	WW117739.D	1	04/16/13	VDT	04/15/13	OP65293	GWW4178
JB33644-1	WW117719.D	1	04/16/13	VDT	04/15/13	OP65293	GWW4178

The QC reported here applies to the following samples: **Method:** SW846-8011

JB33644-1, JB33644-2, JB33644-3, JB33644-4, JB33644-5, JB33644-6, JB33644-7, JB33644-8, JB33644-9, JB33644-10, JB33644-11, JB33644-12, JB33644-13, JB33644-14, JB33644-15, JB33644-16

CAS No.	Compound	JB33644-1 ug/l	Q	DUP ug/l	Q	RPD	Limits
106-93-4	1,2-Dibromoethane	ND		ND		nc	30

CAS No.	Surrogate Recoveries	DUP	JB33644-1	Limits
3017-95-6	2-Bromo-1-chloropropane	96%	104%	38-167%
3017-95-6	2-Bromo-1-chloropropane	97%	99%	38-167%

10.4.1

10

* = Outside of Control Limits.

Volatile Surrogate Recovery Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Method: SW846-8011 **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 [a]	S1 [b]
JB33644-1	WW117719.D	104.0	99.0
JB33644-2	WW117720.D	102.0	95.0
JB33644-3	WW117721.D	102.0	99.0
JB33644-4	WW117722.D	101.0	95.0
JB33644-5	WW117723.D	101.0	96.0
JB33644-6	WW117724.D	99.0	95.0
JB33644-7	WW117725.D	100.0	95.0
JB33644-8	WW117728.D	102.0	94.0
JB33644-9	WW117729.D	106.0	98.0
JB33644-10	WW117730.D	104.0	99.0
JB33644-11	WW117731.D	104.0	98.0
JB33644-12	WW117732.D	103.0	98.0
JB33644-13	WW117733.D	103.0	99.0
JB33644-14	WW117734.D	101.0	98.0
JB33644-15	WW117735.D	97.0	92.0
JB33644-16	WW117736.D	100.0	98.0
OP65293-BS1	WW117718.D	108.0	104.0
OP65293-DUP	WW117739.D	96.0	97.0
OP65293-MB1	WW117717.D	100.0	95.0
OP65293-MS	WW117740.D	105.0	101.0

Surrogate Compounds	Recovery Limits
S1 = 2-Bromo-1-chloropropane	38-167%

(a) Recovery from GC signal #2
(b) Recovery from GC signal #1

GC Surrogate Retention Time Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Check Std:	GWW4178-CC4171	**Injection Date:**	04/16/13
Lab File ID:	WW117716.D	**Injection Time:**	10:11
Instrument ID:	GCWW	**Method:**	SW846-8011

	S1 [a] RT	S1 [b] RT
Check Std	3.33	2.82

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
OP65293-MB1	WW117717.D	04/16/13	10:53	3.33	2.83
OP65293-BS1	WW117718.D	04/16/13	11:10	3.34	2.85
JB33644-1	WW117719.D	04/16/13	11:26	3.34	2.85
JB33644-2	WW117720.D	04/16/13	11:43	3.34	2.85
JB33644-3	WW117721.D	04/16/13	12:00	3.34	2.85
JB33644-4	WW117722.D	04/16/13	12:17	3.34	2.85
JB33644-5	WW117723.D	04/16/13	12:33	3.34	2.85
JB33644-6	WW117724.D	04/16/13	12:50	3.35	2.85
JB33644-7	WW117725.D	04/16/13	13:07	3.34	2.85

Surrogate Compounds

S1 = 2-Bromo-1-chloropropane

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

GC Surrogate Retention Time Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Check Std:	GWW4178-CC4171	**Injection Date:**	04/16/13
Lab File ID:	WW117726.D	**Injection Time:**	14:47
Instrument ID:	GCWW	**Method:**	SW846-8011

	S1 [a] RT	S1 [b] RT
Check Std	3.34	2.84

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
JB33644-8	WW117728.D	04/16/13	15:20	3.34	2.84
JB33644-9	WW117729.D	04/16/13	15:37	3.34	2.85
JB33644-10	WW117730.D	04/16/13	15:54	3.34	2.85
JB33644-11	WW117731.D	04/16/13	16:11	3.34	2.84
JB33644-12	WW117732.D	04/16/13	16:28	3.34	2.84
JB33644-13	WW117733.D	04/16/13	16:44	3.34	2.84
JB33644-14	WW117734.D	04/16/13	17:01	3.34	2.84
JB33644-15	WW117735.D	04/16/13	17:18	3.34	2.84
JB33644-16	WW117736.D	04/16/13	17:35	3.34	2.84

Surrogate Compounds

S1 = 2-Bromo-1-chloropropane

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

GC Surrogate Retention Time Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Check Std:	GWW4178-CC4171	**Injection Date:**	04/16/13
Lab File ID:	WW117737.D	**Injection Time:**	18:28
Instrument ID:	GCWW	**Method:**	SW846-8011

	S1 [a] RT	S1 [b] RT
Check Std	3.35	2.85

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
OP65293-DUP	WW117739.D	04/16/13	19:02	3.34	2.85
OP65293-MS	WW117740.D	04/16/13	19:19	3.34	2.84

Surrogate Compounds

S1 = 2-Bromo-1-chloropropane

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

10.6.3

10

Initial Calibration Summary

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Sample: GWW4171-ICC4171
Lab FileID: WW117503.D

```
                    Response Factor Report  HP G1530A

  Method       : C:\MSDCHEM\1\METHODS\504M4171.M (Chemstation Integrator)
  Title        : GC/ECD- EDB
  Last Update  : Fri Apr 12 16:05:11 2013
  Response via : Initial Calibration

  Calibration Files
  2   =WW117504.D  1   =WW117503.D  0.5 =WW117502.D  0.2 =WW117501.D
  0.1    =WW117660.D   0.02   =WW117547.D

        Compound              2     1     0.5   0.2   0.1   0.02  Avg    %RSD
  ---------------------------------------------------------------------------
  1) S   2-Bromo-1-Chloropro 1.931 1.733 1.818 1.901 2.364       1.949 E6  12.54
  2)     1,2-Dibromoethane   1.033 0.991 1.011 1.065 1.143 0.983 1.038 E7   5.75
  3)     1,2,3-Trichloroprop 1.403 0.769 0.673 0.783 0.990       0.924 E6  31.60
  4)     1,2-Dibromo-3-Chlor 2.099 1.983 1.910 1.852 1.882 1.908 1.939 E7   4.61

Signal #2

  1) S   2-Bromo-1-Chloropro 5.707 5.353 5.490 5.525 6.268       5.669 E5   6.32
  2)     1,2-Dibromoethane   3.129 3.151 3.077 3.010 3.203 3.230 3.133 E6   2.59
  3)     1,2,3-Trichloroprop 3.771 3.095 2.933 2.806 2.832       3.087 E5  12.92
  4)     1,2-Dibromo-3-Chlor 5.562 5.216 5.214 5.000 5.310 6.049 5.392 E6   6.85
 ---------------------------------------------------------------------------
 (#) = Out of Range

           504M4171.M        Fri Apr 12 17:55:02 2013
```

10.7.1

10

Initial Calibration Verification

Job Number: JB33644
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Sample: GWW4171-ICV4171
Lab FileID: WW117505.D

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\WW4171\WW117505.D\ECD1A.CH Vial: 8
 Signal #2 : C:\msdchem\1\DATA\WW4171\WW117505.D\ECD2B.CH
 Acq On    : 08 Apr 2013  12:53 pm                    Operator: vinced
 Sample    : icv4171-1.0                              Inst    : HP G1530A
 Misc      : OP64932,Gww4171,35,,,2,1                 Multiplr: 1.00
 IntFile Signal #1: events.e     IntFile Signal #2: events2.e

 Method       : C:\MSDCHEM\1\METHODS\504M4171.M (Chemstation Integrator)
 Title        : GC/ECD- EDB
 Last Update  : Fri Apr 12 16:05:11 2013
 Response via : Multiple Level Calibration

 Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
 Max. RRF Dev :  15%     Max. Rel. Area : 150%

        Compound                AvgRF   CCRF      %Dev Area% Dev(min)RT Window
 ---------------------------------------------------------------------------
 1 S   2-Bromo-1-Chloropropan   1.949   1.731 E6  11.2  100   0.00    2.82- 2.88
 2     1,2-Dibromoethane       10.377  11.538 E6 -11.2  116   0.00    3.00- 3.06
 3     1,2,3-Trichloropropane   0.924   1.204 E6 -30.3# 157#  0.00    4.39- 4.45
 4     1,2-Dibromo-3-Chloropr  19.392  23.685 E6 -22.1# 119   0.00    6.01- 6.10

*****  Signal #2   *****

 1 S   2-Bromo-1-Chloropropan 566.871 517.261 E3   8.8   97   0.00    3.32- 3.38
 2     1,2-Dibromoethane        3.133   3.500 E6 -11.7  111   0.00    3.74- 3.80
 3     1,2,3-Trichloropropane 308.737 374.933 E3 -21.4# 121   0.00    5.20- 5.27
 4     1,2-Dibromo-3-Chloropr   5.392   6.032 E6 -11.9  116   0.00    7.11- 7.17
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    WW117503.D 504M4171.M       Fri Apr 12 17:58:24 2013
```

10.7.2

10

Continuing Calibration Summary

Job Number: JB33644 **Sample:** GWW4178-CC4171
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** WW117716.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\WW4178\WW117716.D\ECD1A.CH Vial: 3
 Signal #2 : C:\msdchem\1\DATA\WW4178\WW117716.D\ECD2B.CH
 Acq On    : 16 Apr 2013  10:11 am                    Operator: vinced
 Sample    : cc4171-1.0                               Inst    : HP G1530A
 Misc      : OP65294,Gww4178,35,,,2,1                 Multiplr: 1.00
 IntFile Signal #1: events.e     IntFile Signal #2: events2.e

 Method       : C:\MSDCHEM\1\METHODS\504M4171.M (Chemstation Integrator)
 Title        : GC/ECD- EDB
 Last Update  : Tue Apr 16 09:18:47 2013
 Response via : Multiple Level Calibration

 Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
 Max. RRF Dev :  15%     Max. Rel. Area : 150%

        Compound                AvgRF   CCRF      %Dev Area% Dev(min)RT Window
 ---------------------------------------------------------------------------
 1 S   2-Bromo-1-Chloropropan   1.949   1.785 E6   8.4  103   0.00    2.79- 2.85
 2     1,2-Dibromoethane       10.377  10.229 E6   1.4  103   0.00    2.98- 3.04
 3     1,2,3-Trichloropropane   0.924   1.071 E6 -15.9# 139   0.00    4.38- 4.44
 4     1,2-Dibromo-3-Chloropr  19.392  21.470 E6 -10.7  108   0.00    6.00- 6.09

*****  Signal #2   *****

 1 S   2-Bromo-1-Chloropropan 566.871 517.172 E3   8.8   97   0.00    3.30- 3.36
 2     1,2-Dibromoethane        3.133   2.938 E6   6.2   93   0.00    3.72- 3.78
 3     1,2,3-Trichloropropane 308.737 325.017 E3  -5.3  105   0.00    5.19- 5.26
 4     1,2-Dibromo-3-Chloropr   5.392   6.024 E6 -11.7  115   0.00    7.11- 7.17
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    WW117503.D 504M4171.M       Wed Apr 17 10:55:58 2013
```

10.7.3

10

Continuing Calibration Summary

Job Number: JB33644 **Sample:** GWW4178-CC4171
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** WW117726.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\WW4178\WW117726.D\ECD1A.CH Vial: 2
 Signal #2 : C:\msdchem\1\DATA\WW4178\WW117726.D\ECD2B.CH
 Acq On    : 16 Apr 2013   2:47 pm                    Operator: vinced
 Sample    : cc4171-0.5                               Inst    : HP G1530A
 Misc      : OP65293,Gww4178,35,,,2,1                 Multiplr: 1.00
 IntFile Signal #1: events.e     IntFile Signal #2: events2.e

 Method       : C:\MSDCHEM\1\METHODS\504M4171.M (Chemstation Integrator)
 Title        : GC/ECD- EDB
 Last Update  : Tue Apr 16 09:18:47 2013
 Response via : Multiple Level Calibration

 Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
 Max. RRF Dev :  15%     Max. Rel. Area : 150%

        Compound                AvgRF   CCRF      %Dev Area% Dev(min)RT Window
 ---------------------------------------------------------------------------
 1 S   2-Bromo-1-Chloropropan   1.949   1.829 E6   6.2  101   0.00    2.81- 2.87
 2     1,2-Dibromoethane       10.377  10.354 E6   0.2  102   0.02    2.99- 3.05
 3     1,2,3-Trichloropropane   0.924   0.816 E6  11.7  121   0.01    4.39- 4.45
 4     1,2-Dibromo-3-Chloropr  19.392  19.950 E6  -2.9  104   0.02    6.01- 6.10

*****  Signal #2   *****

 1 S   2-Bromo-1-Chloropropan 566.871 588.428 E3  -3.8  107   0.00    3.31- 3.37
 2     1,2-Dibromoethane        3.133   3.239 E6  -3.4  105   0.00    3.73- 3.79
 3     1,2,3-Trichloropropane 308.737 313.463 E3  -1.5  107   0.00    5.19- 5.26
 4     1,2-Dibromo-3-Chloropr   5.392   5.955 E6 -10.4  114   0.00    7.11- 7.17
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    WW117502.D 504M4171.M       Wed Apr 17 10:56:22 2013
```

10.7.4

10

Continuing Calibration Summary

Job Number: JB33644 **Sample:** GWW4178-CC4171
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** WW117737.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\WW4178\WW117737.D\ECD1A.CH Vial: 3
 Signal #2 : C:\msdchem\1\DATA\WW4178\WW117737.D\ECD2B.CH
 Acq On    : 16 Apr 2013   6:28 pm                    Operator: vinced
 Sample    : cc4171-1.0                               Inst    : HP G1530A
 Misc      : OP65293,Gww4178,35,,,2,1                 Multiplr: 1.00
 IntFile Signal #1: events.e     IntFile Signal #2: events2.e

 Method       : C:\MSDCHEM\1\METHODS\504M4171.M (Chemstation Integrator)
 Title        : GC/ECD- EDB
 Last Update  : Tue Apr 16 09:18:47 2013
 Response via : Multiple Level Calibration

 Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
 Max. RRF Dev :  15%     Max. Rel. Area : 150%

        Compound                AvgRF   CCRF      %Dev Area% Dev(min)RT Window
 ---------------------------------------------------------------------------
 1 S   2-Bromo-1-Chloropropan   1.949   1.720 E6  11.7   99   0.02    2.82- 2.88
 2     1,2-Dibromoethane       10.377  10.694 E6  -3.1  108   0.03    3.01- 3.07
 3     1,2,3-Trichloropropane   0.924   0.967 E6  -4.7  126   0.02    4.40- 4.46
 4     1,2-Dibromo-3-Chloropr  19.392  20.732 E6  -6.9  105   0.02    6.01- 6.11

*****  Signal #2   *****

 1 S   2-Bromo-1-Chloropropan 566.871 549.503 E3   3.1  103   0.02    3.32- 3.38
 2     1,2-Dibromoethane        3.133   3.175 E6  -1.3  101   0.02    3.74- 3.80
 3     1,2,3-Trichloropropane 308.737 306.684 E3   0.7   99   0.02    5.20- 5.27
 4     1,2-Dibromo-3-Chloropr   5.392   6.041 E6 -12.0  116   0.01    7.12- 7.18
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    WW117503.D 504M4171.M       Wed Apr 17 10:56:00 2013
```

10.7.5

10

Continuing Calibration Summary

Job Number: JB33644 **Sample:** GWW4178-CC4171
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** WW117741.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\WW4178\WW117741.D\ECD1A.CH Vial: 2
 Signal #2 : C:\msdchem\1\DATA\WW4178\WW117741.D\ECD2B.CH
 Acq On    : 16 Apr 2013   8:12 pm                    Operator: vinced
 Sample    : cc4171-0.5                               Inst    : HP G1530A
 Misc      : OP65293,Gww4178,35,,,2,1                 Multiplr: 1.00
 IntFile Signal #1: events.e     IntFile Signal #2: events2.e

 Method       : C:\MSDCHEM\1\METHODS\504M4171.M (Chemstation Integrator)
 Title        : GC/ECD- EDB
 Last Update  : Tue Apr 16 09:18:47 2013
 Response via : Multiple Level Calibration

 Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
 Max. RRF Dev :  15%     Max. Rel. Area : 150%

        Compound                AvgRF   CCRF      %Dev Area% Dev(min)RT Window
 ---------------------------------------------------------------------------
 1 S   2-Bromo-1-Chloropropan   1.949   1.781 E6   8.6   98   0.02    2.82- 2.88
 2     1,2-Dibromoethane       10.377   9.960 E6   4.0   99   0.03    3.01- 3.07
 3     1,2,3-Trichloropropane   0.924   0.809 E6  12.4  120   0.02    4.40- 4.46
 4     1,2-Dibromo-3-Chloropr  19.392  19.692 E6  -1.5  103   0.03    6.02- 6.11

*****  Signal #2   *****

 1 S   2-Bromo-1-Chloropropan 566.871 591.182 E3  -4.3  108   0.02    3.32- 3.38
 2     1,2-Dibromoethane        3.133   3.188 E6  -1.8  104   0.02    3.74- 3.80
 3     1,2,3-Trichloropropane 308.737 304.855 E3   1.3  104   0.02    5.20- 5.27
 4     1,2-Dibromo-3-Chloropr   5.392   6.086 E6 -12.9  117   0.02    7.12- 7.18
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    WW117502.D 504M4171.M       Wed Apr 17 10:56:24 2013
```

10.7.6

10

New Jersey

ACCUTEST LABORATORIES

GC Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117719.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 11:26 am
Operator : vinced
Sample : jb33644-1
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 6 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:35:45 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) S 2-Bromo-1...	2.845	3.345	19251196	5899824	9.876	10.408
Spiked Amount 10.000			Recovery =		98.76%	104.08%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

11.1.1

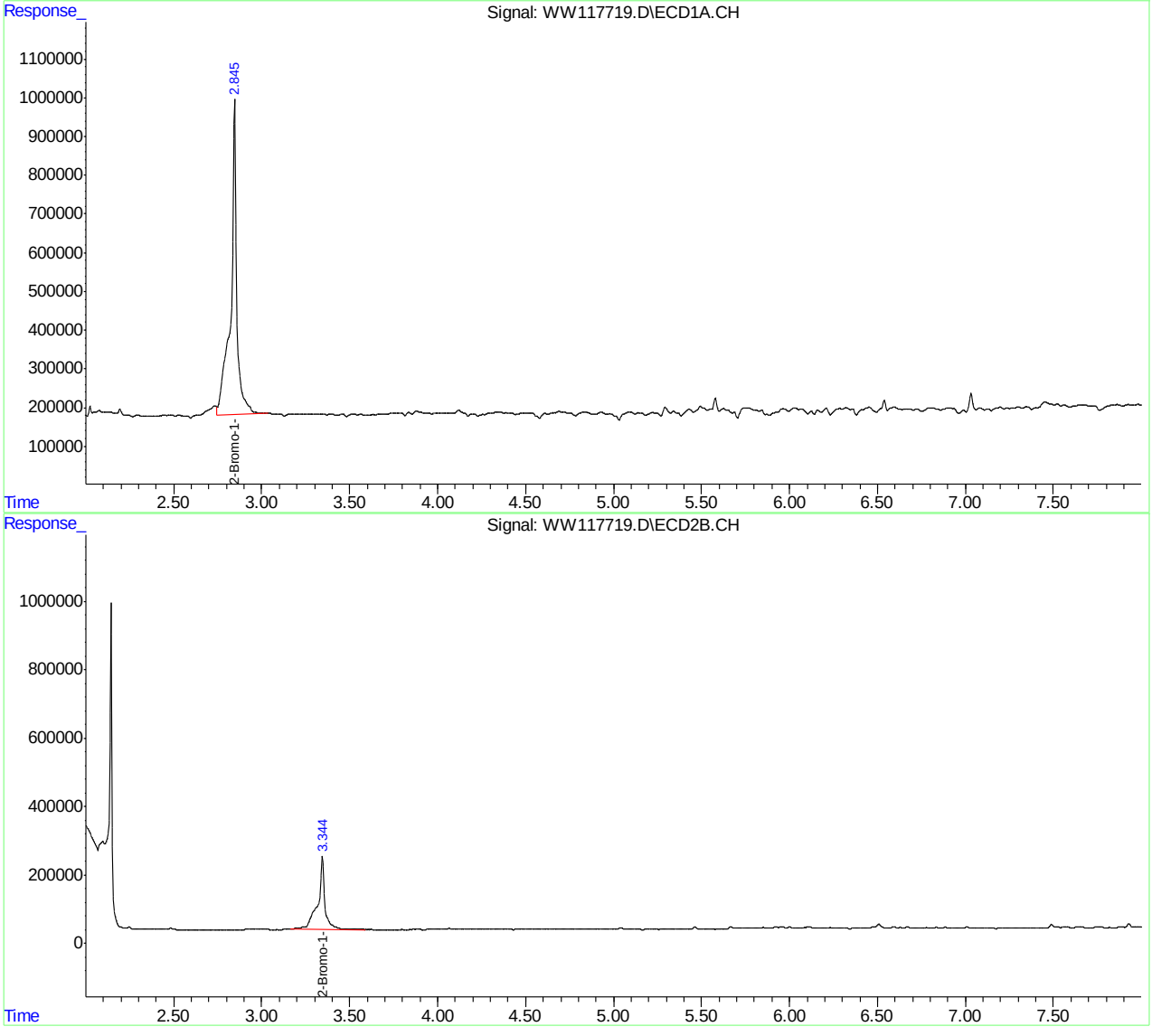
11

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117719.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 11:26 am
Operator : vinced
Sample : jb33644-1
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 6 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:35:45 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um



Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
04/22/13 23:09

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117720.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 11:43 am
Operator : vinced
Sample : jb33644-2
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 7 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:36:12 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) S 2-Bromo-1...	2.846	3.345	18589565	5800801	9.536	10.233m
Spiked Amount 10.000			Recovery	=	95.36%	102.33%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

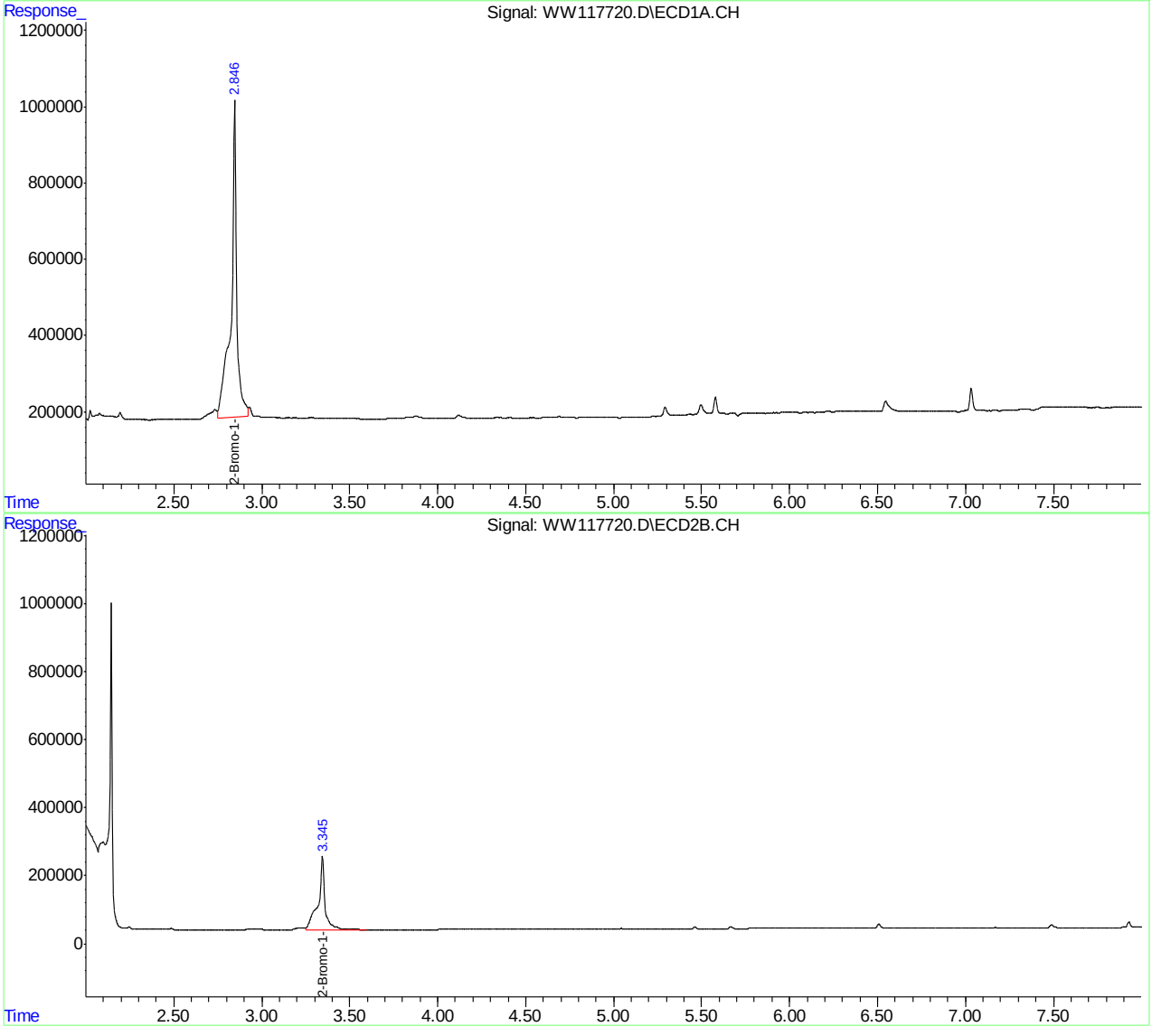
11.1.2
11

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117720.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 11:43 am
Operator : vinced
Sample : jb33644-2
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 7 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:36:12 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um



Manual Integrations
APPROVED
(compounds with "m" flag)
Cheng-Hwan Ao
04/22/13 23:09

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117721.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 12:00 pm
Operator : vinced
Sample : jb33644-3
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 8 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:37:53 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Tue Apr 16 09:18:47 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) S 2-Bromo-1...	2.845f	3.344	19369970	5774650	9.937m	10.187m
Spiked Amount 10.000			Recovery	=	99.37%	101.87%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

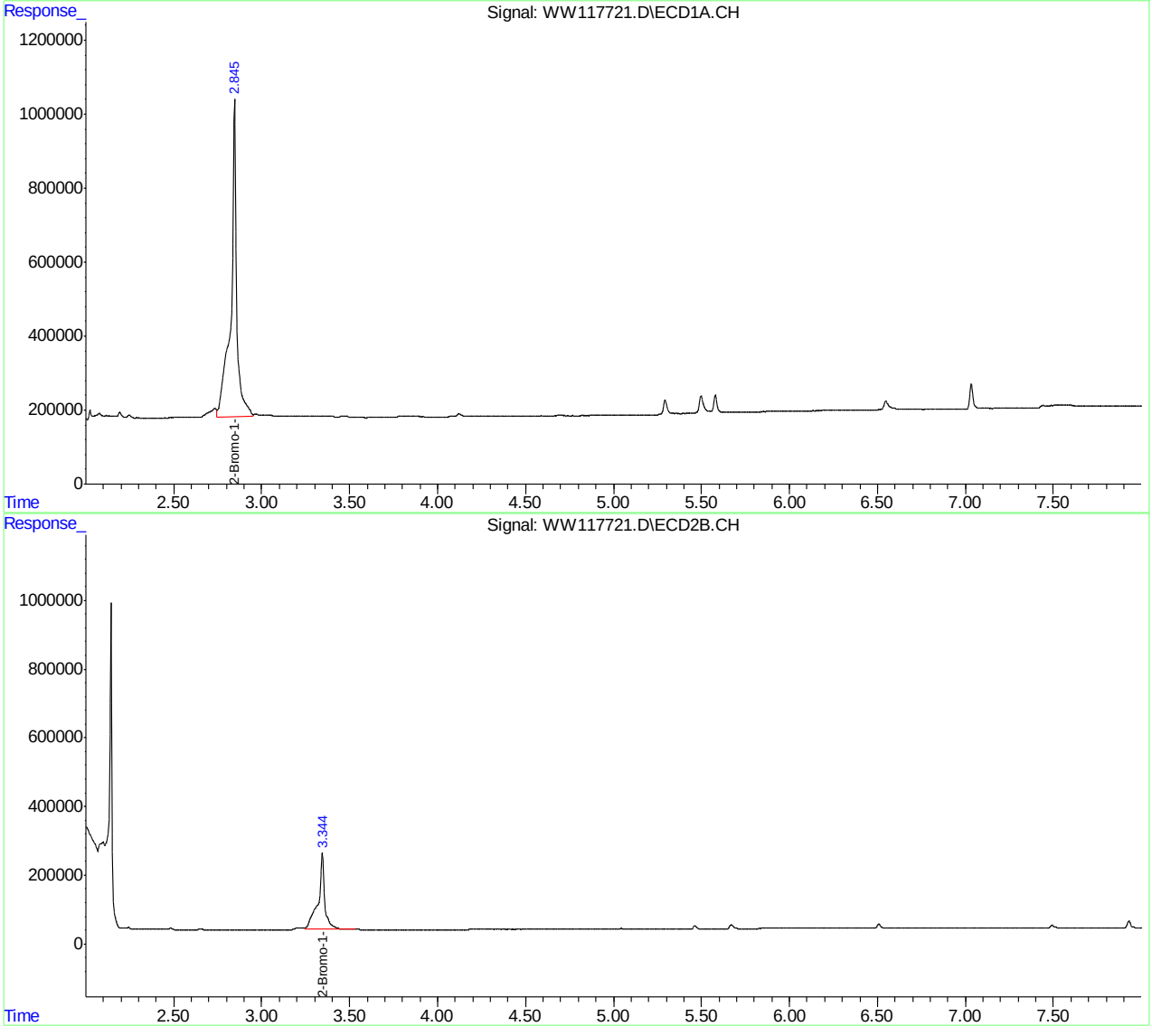
11.1.3
11

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117721.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 12:00 pm
Operator : vinced
Sample : jb33644-3
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 8 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:37:53 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Tue Apr 16 09:18:47 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um



504M4171.M Wed Apr 17 10:37:58 2013 Page: 2

Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
04/22/13 23:09

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117722.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 12:17 pm
Operator : vinced
Sample : jb33644-4
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 9 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:38:29 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) S 2-Bromo-1...	2.846	3.345	18470340	5723847	9.475	10.097m
Spiked Amount 10.000			Recovery =		94.75%	100.97%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

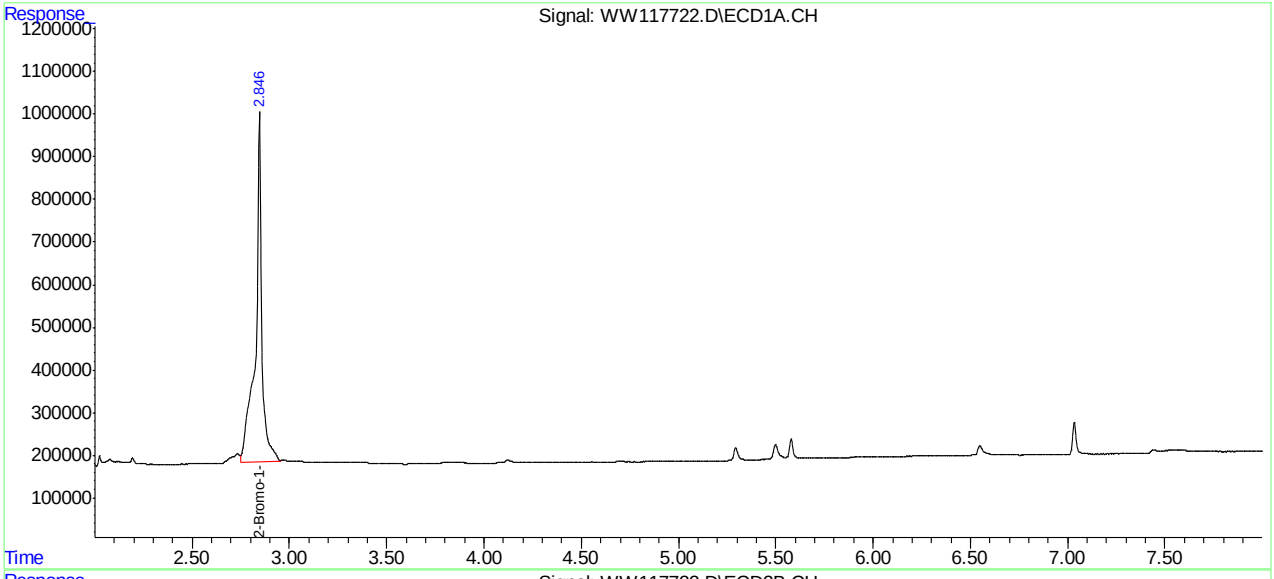
11.1.4
11

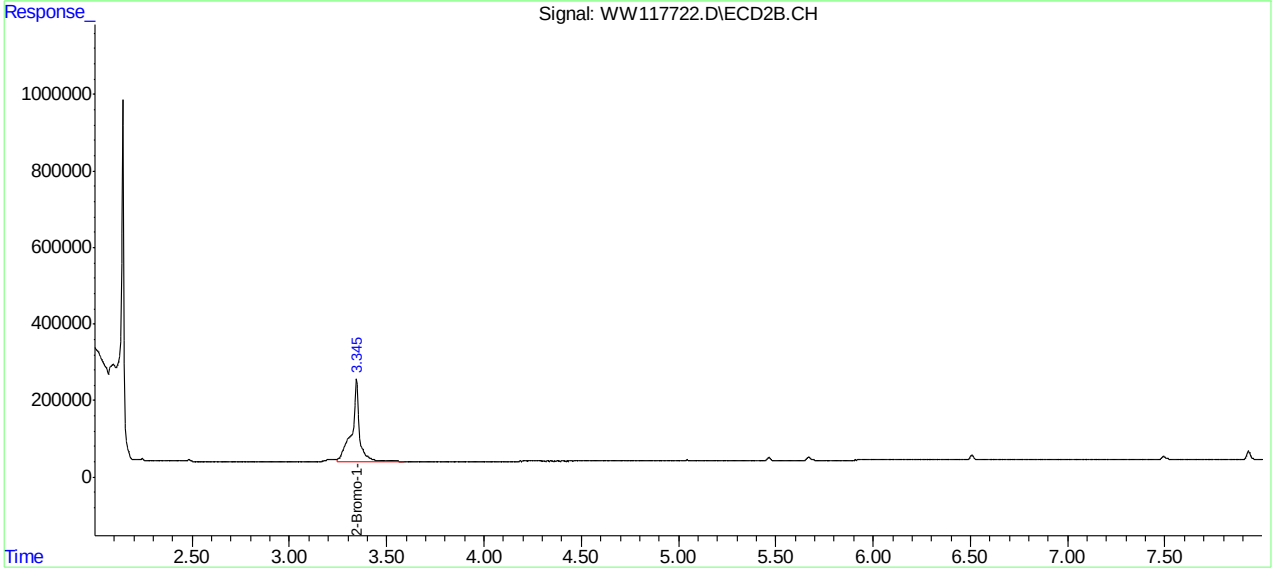
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117722.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 12:17 pm
Operator : vinced
Sample : jb33644-4
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 9 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:38:29 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um





504M4171.M Wed Apr 17 10:38:40 2013 Page: 2

Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
04/22/13 23:09

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117723.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 12:33 pm
Operator : vinced
Sample : jb33644-5
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 10 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:39:15 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) S 2-Bromo-1...	2.845	3.344	18773735	5698483	9.631	10.053m
Spiked Amount 10.000			Recovery	=	96.31%	100.53%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

11.1.5

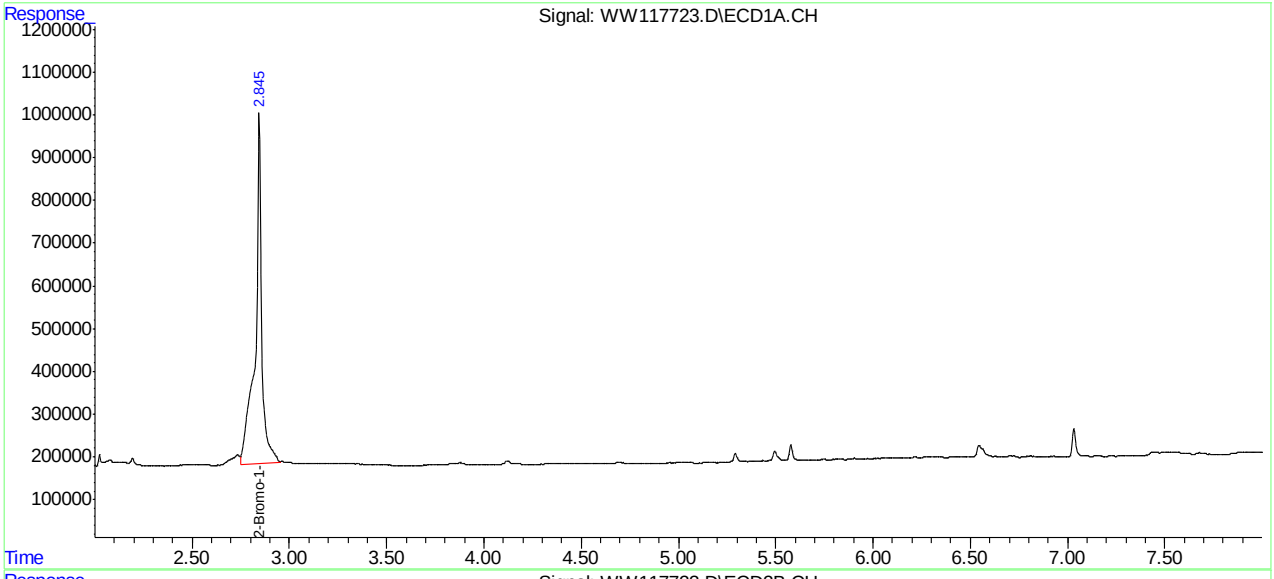
11

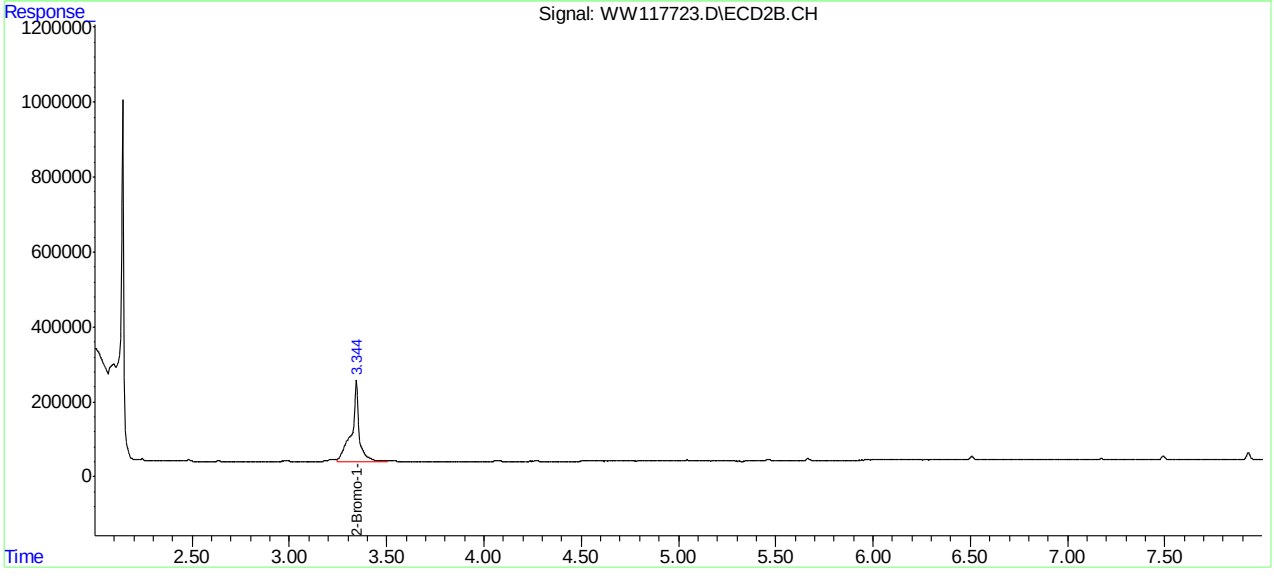
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117723.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 12:33 pm
Operator : vinced
Sample : jb33644-5
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 10 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:39:15 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um





Manual Integrations
APPROVED
(compounds with "m" flag)
Cheng-Hwan Ao
04/22/13 23:09

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117724.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 12:50 pm
Operator : vinced
Sample : jb33644-6
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 11 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:39:48 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) S 2-Bromo-1...	2.846	3.345	18528597	5621515	9.505	9.917m
Spiked Amount 10.000			Recovery	=	95.05%	99.17%
Target Compounds						

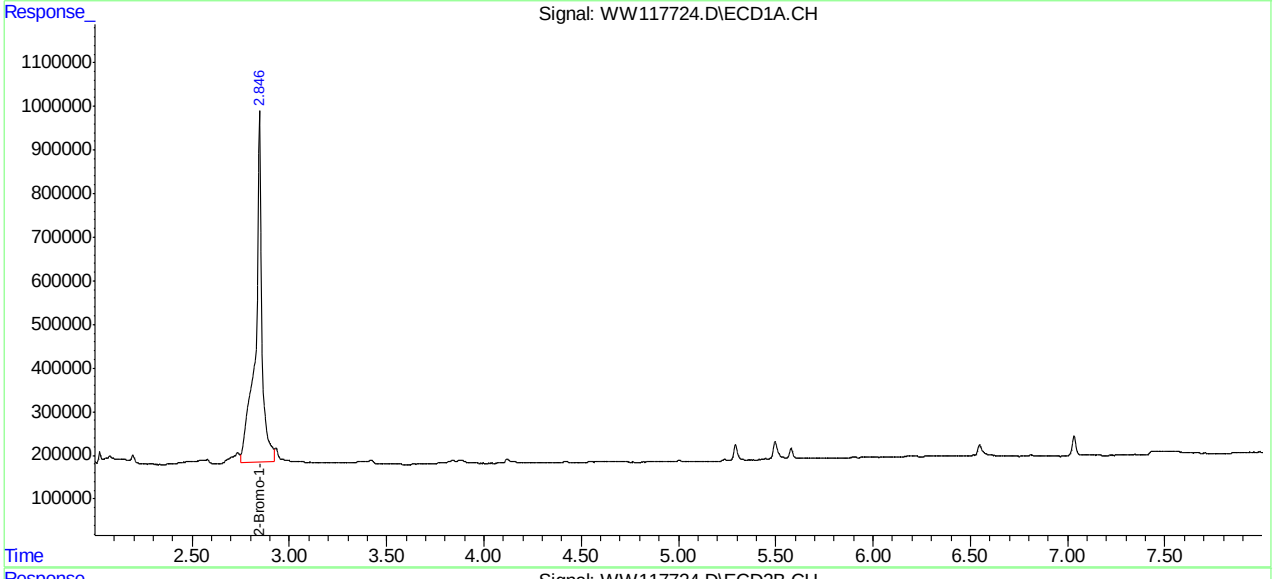
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

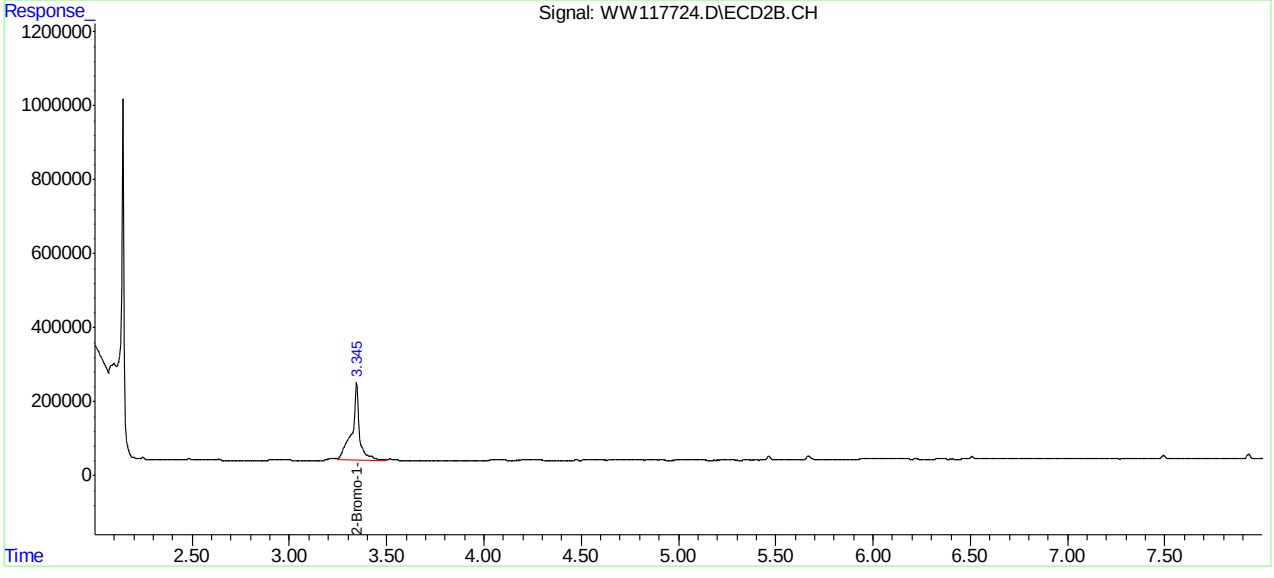
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117724.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 12:50 pm
Operator : vinced
Sample : jb33644-6
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 11 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:39:48 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um





504M4171.M Wed Apr 17 10:40:03 2013 Page: 2

Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
04/22/13 23:09

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117725.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 1:07 pm
Operator : vinced
Sample : jb33644-7
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 12 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:40:26 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) S 2-Bromo-1...	2.845	3.344	18503063	5676357	9.492	10.013m
Spiked Amount 10.000			Recovery	=	94.92%	100.13%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

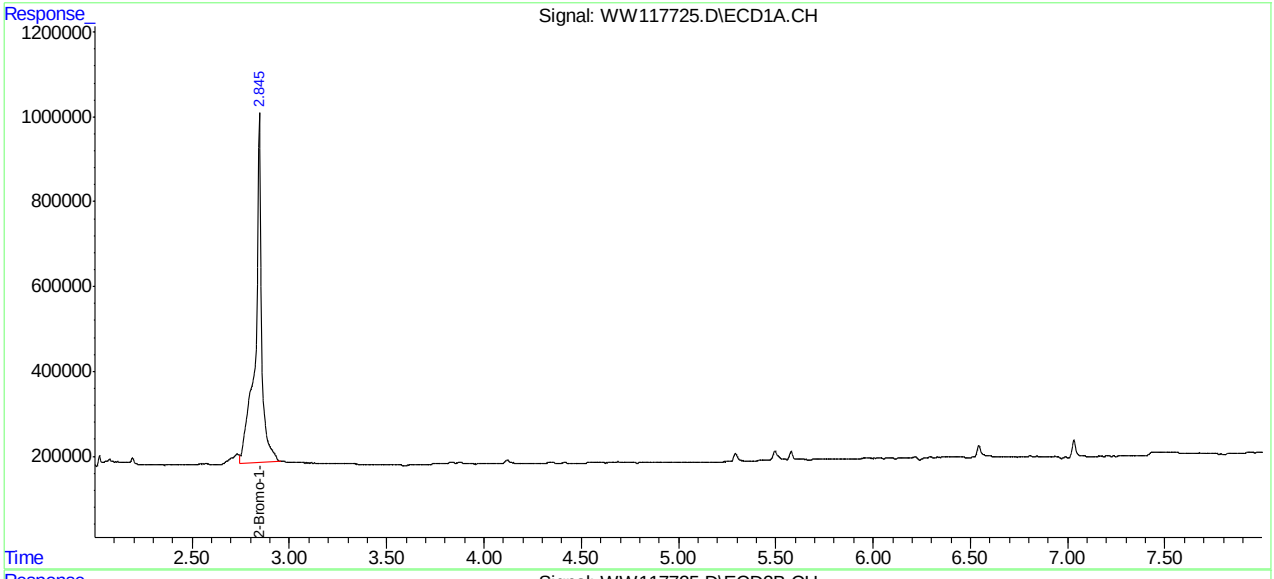
11.1.7
11

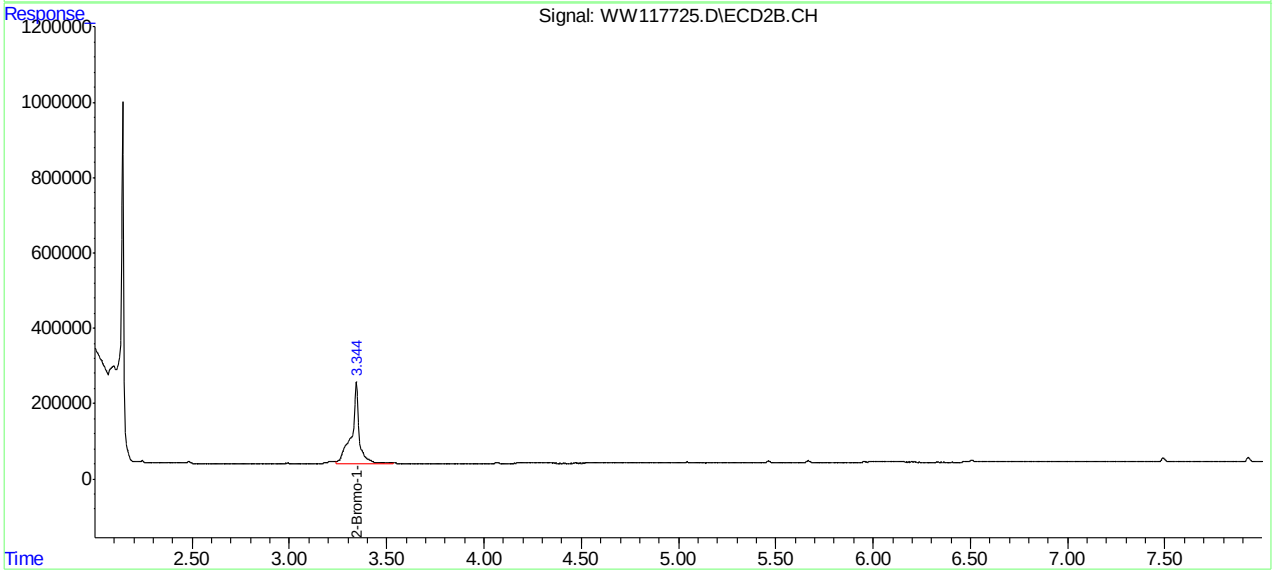
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117725.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 1:07 pm
Operator : vinced
Sample : jb33644-7
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 12 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:40:26 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um





Manual Integrations
APPROVED
(compounds with "m" flag)
Cheng-Hwan Ao
04/22/13 23:09

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117728.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 3:20 pm
Operator : vinced
Sample : jb33644-8
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 13 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:41:28 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) S 2-Bromo-1...	2.845	3.344	18361559	5786006	9.420	10.207m
Spiked Amount 10.000			Recovery	=	94.20%	102.07%
Target Compounds						

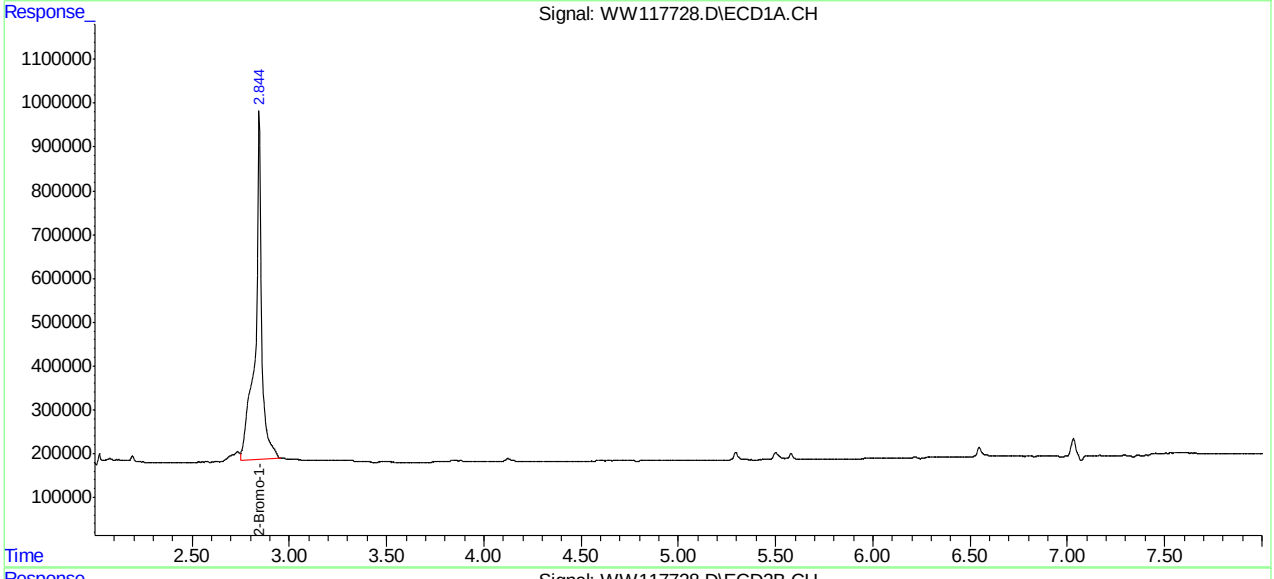
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

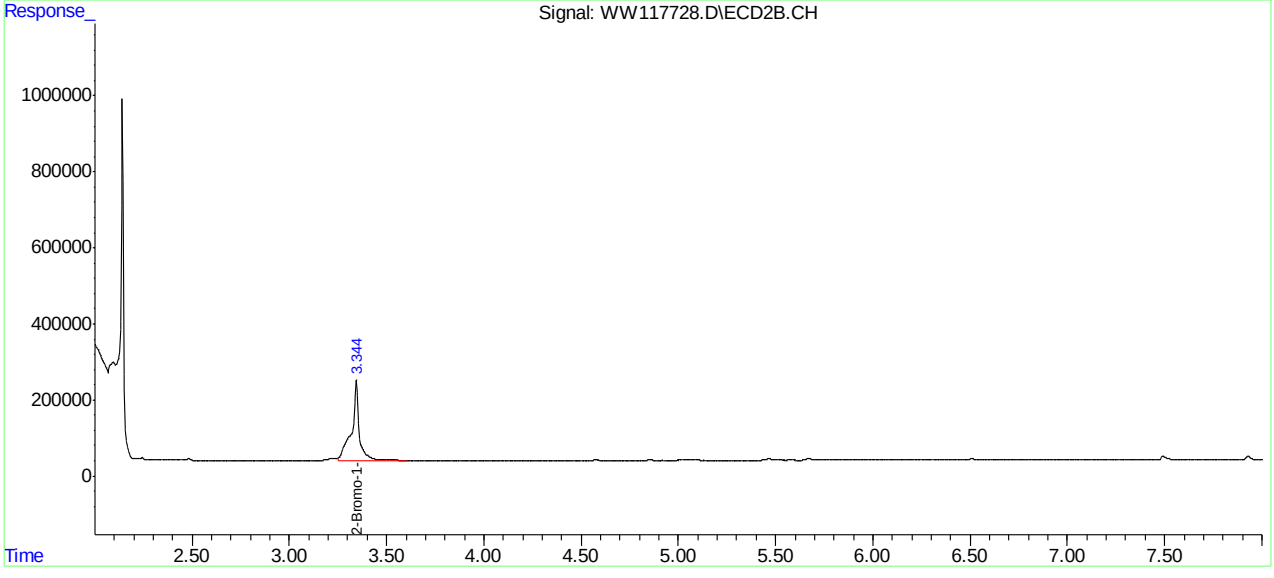
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117728.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 3:20 pm
Operator : vinced
Sample : jb33644-8
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 13 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:41:28 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um





Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
04/22/13 23:09

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117729.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 3:37 pm
Operator : vinced
Sample : jb33644-9
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 14 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:41:55 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) S 2-Bromo-1...	2.846	3.345	19137924	5981047	9.818	10.551m
Spiked Amount 10.000			Recovery	=	98.18%	105.51%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

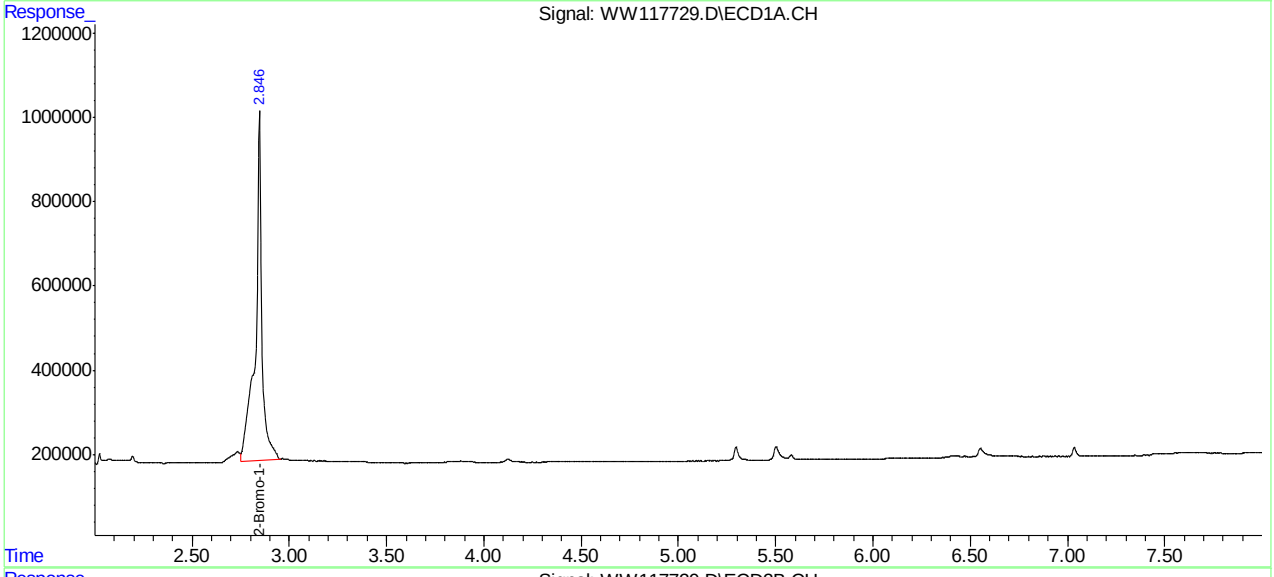
11.1.9
11

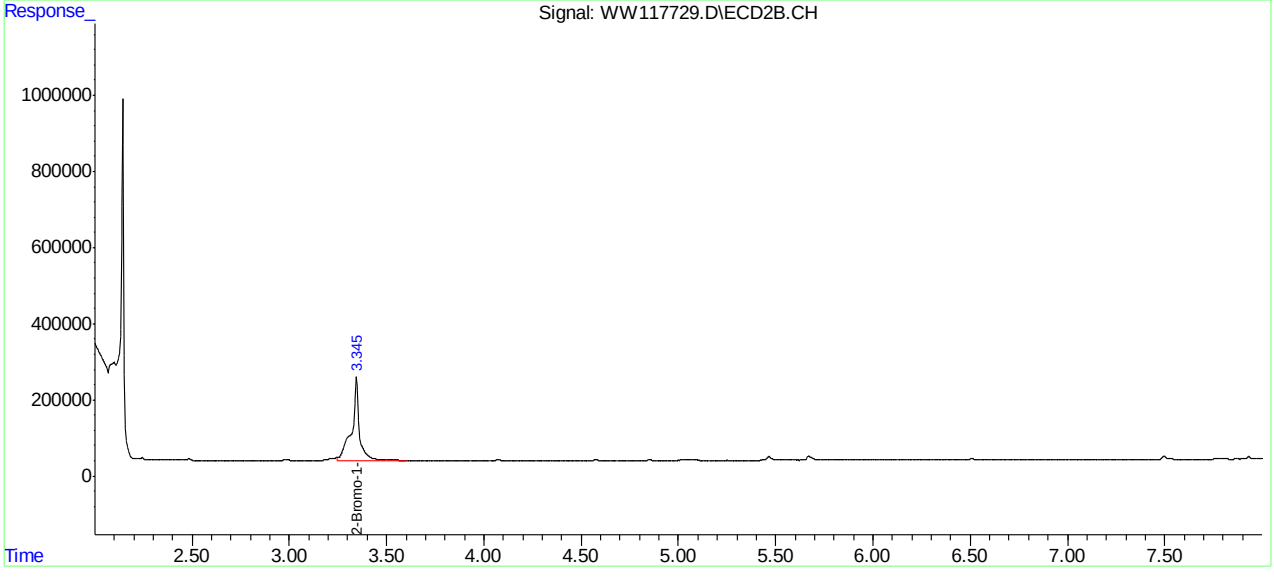
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117729.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 3:37 pm
Operator : vinced
Sample : jb33644-9
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 14 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:41:55 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um





Manual Integrations
APPROVED
(compounds with "m" flag)
Cheng-Hwan Ao
04/22/13 23:09

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117730.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 3:54 pm
Operator : vinced
Sample : jb33644-10
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 15 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:42:17 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) S 2-Bromo-1...	2.846	3.345	19352967	5873407	9.928	10.361m
Spiked Amount 10.000			Recovery	=	99.28%	103.61%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

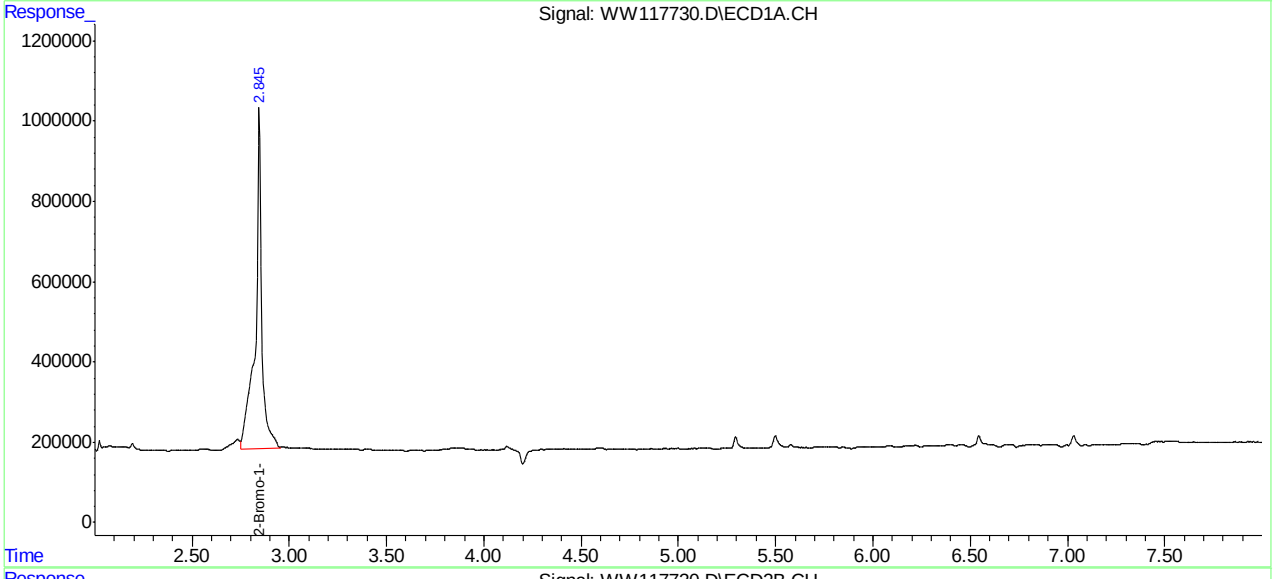
11.1.10
11

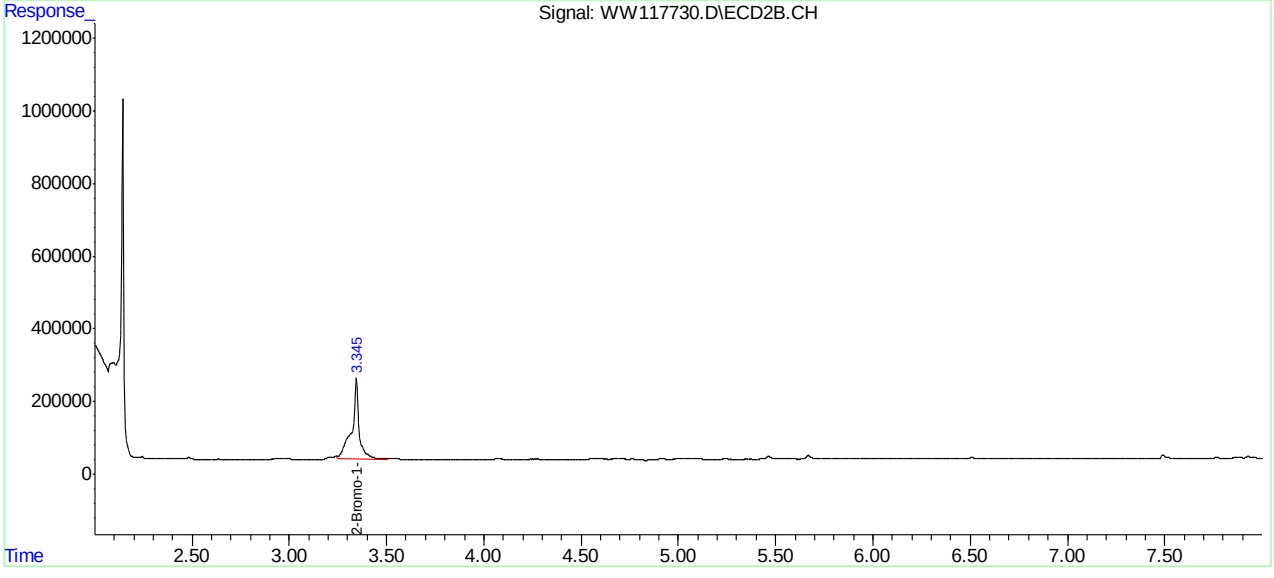
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117730.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 3:54 pm
Operator : vinced
Sample : jb33644-10
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 15 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:42:17 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um





Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
04/22/13 23:09

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117731.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 4:11 pm
Operator : vinced
Sample : jb33644-11
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 16 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:42:59 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) S 2-Bromo-1...	2.845	3.344	19159668	5876242	9.829	10.366m
Spiked Amount 10.000			Recovery	=	98.29%	103.66%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

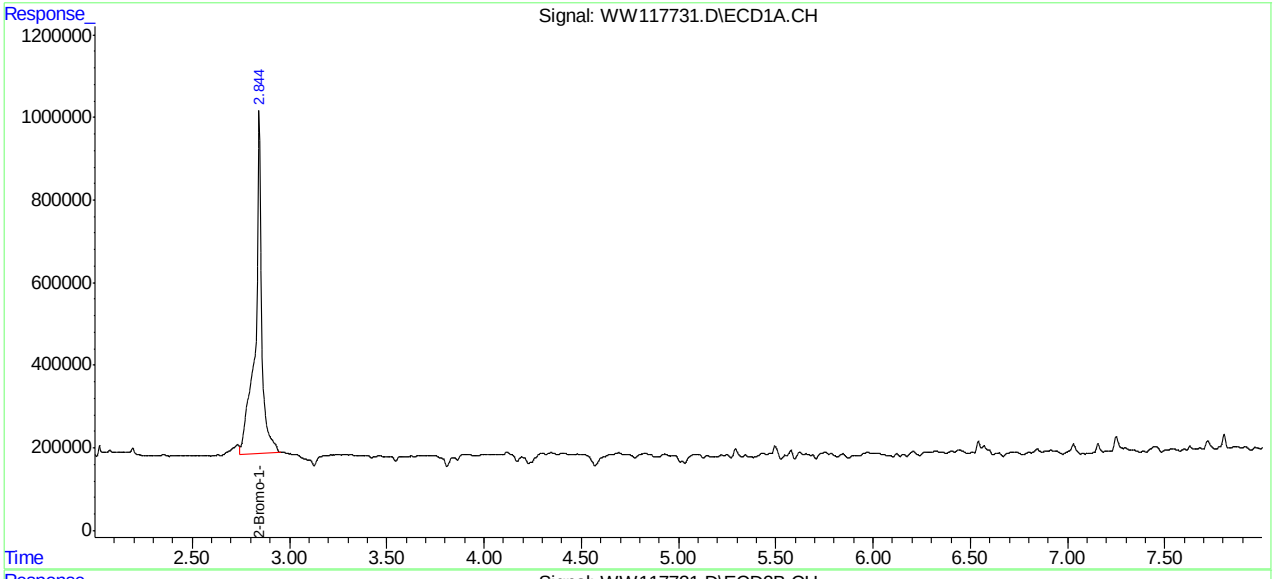
11.1.11
11

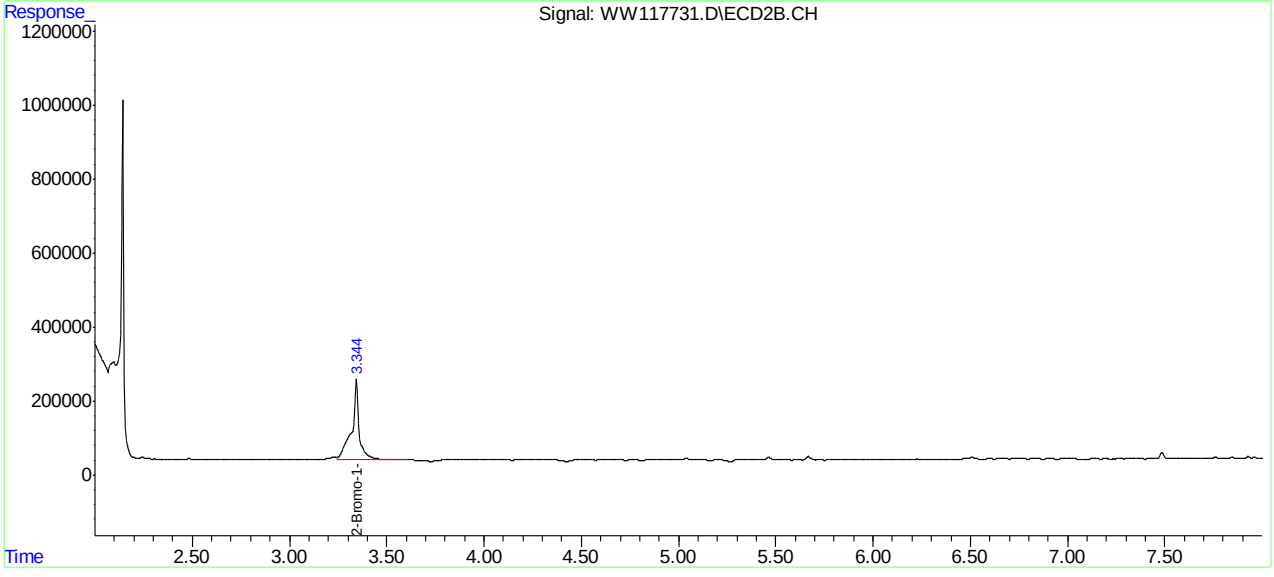
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117731.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 4:11 pm
Operator : vinced
Sample : jb33644-11
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 16 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:42:59 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um





Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
04/22/13 23:09

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117732.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 4:28 pm
Operator : vinced
Sample : jb33644-12
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 17 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:43:22 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) S 2-Bromo-1...	2.845	3.344	19161274	5866032	9.830	10.348m
Spiked Amount 10.000			Recovery	=	98.30%	103.48%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

11.1.12

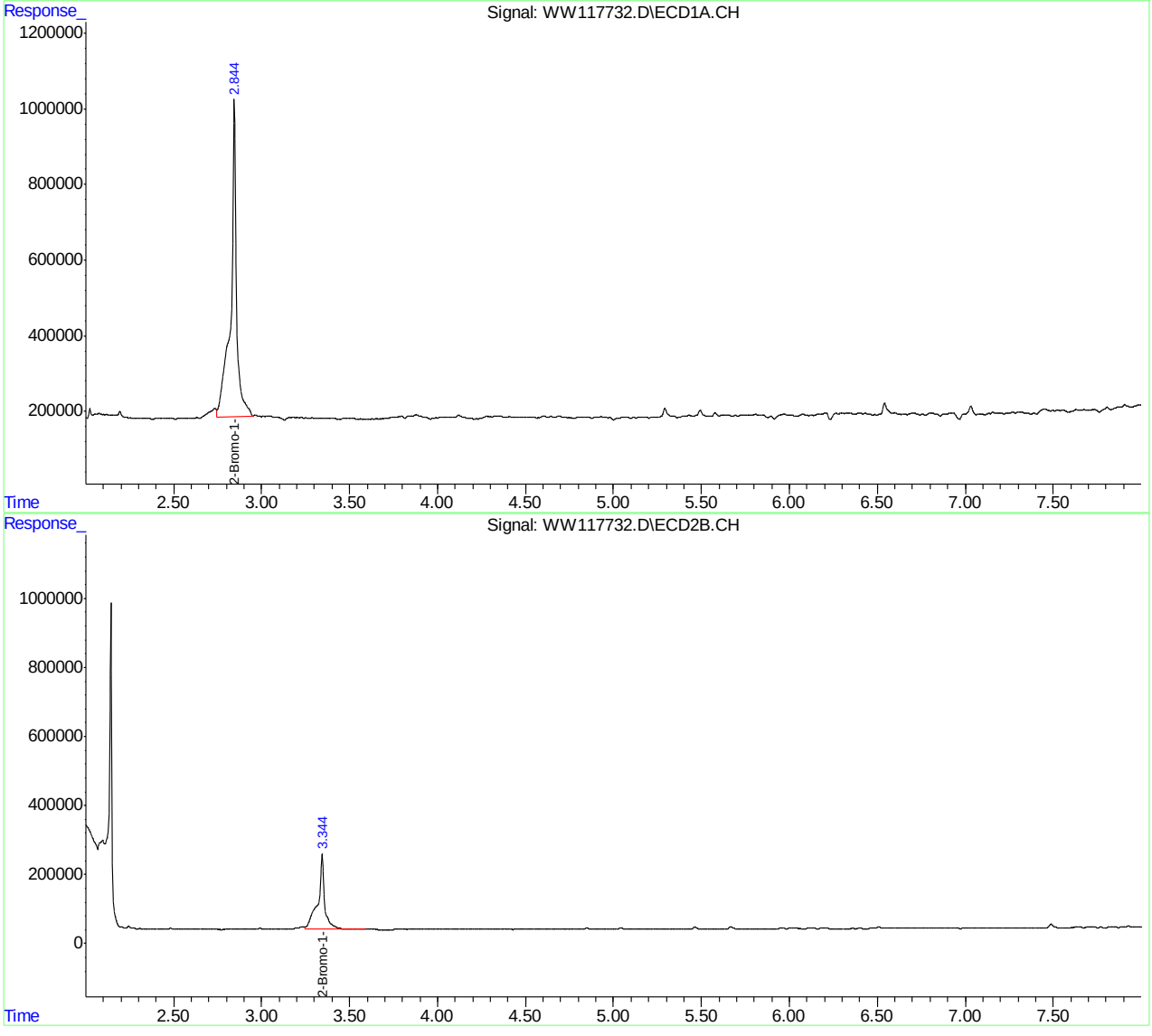
11

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117732.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 4:28 pm
Operator : vinced
Sample : jb33644-12
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 17 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:43:22 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um



Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
04/22/13 23:09

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117733.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 4:44 pm
Operator : vinced
Sample : jb33644-13
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 18 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:44:00 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) S 2-Bromo-1...	2.844	3.343	19394116	5838948	9.949	10.300m
Spiked Amount 10.000			Recovery =		99.49%	103.00%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

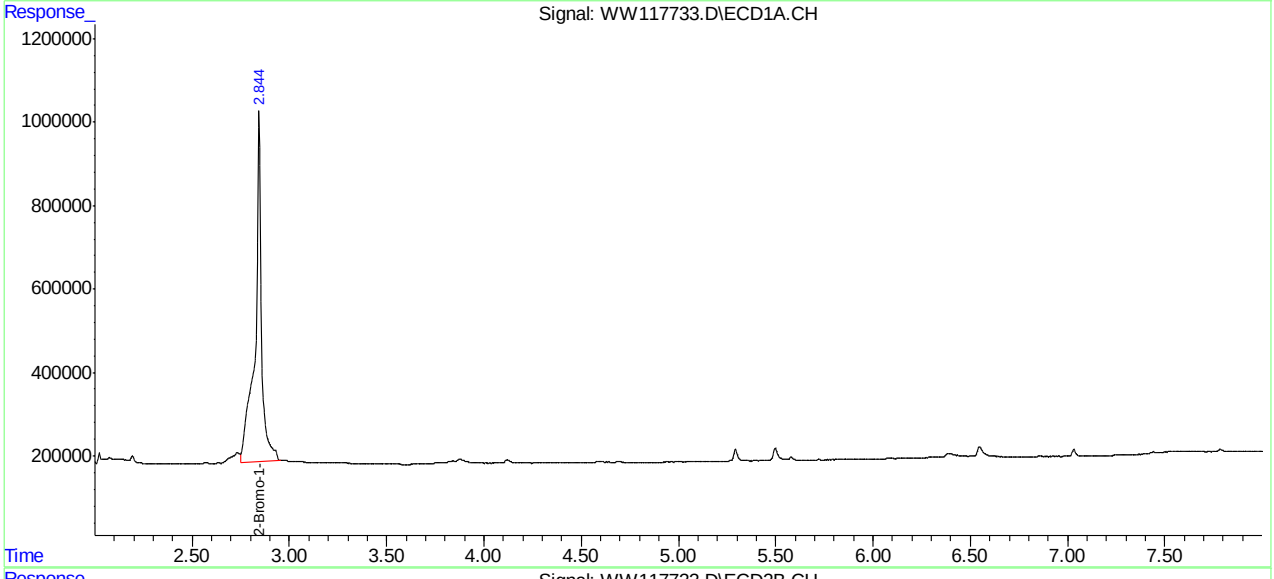
11.1.13 11

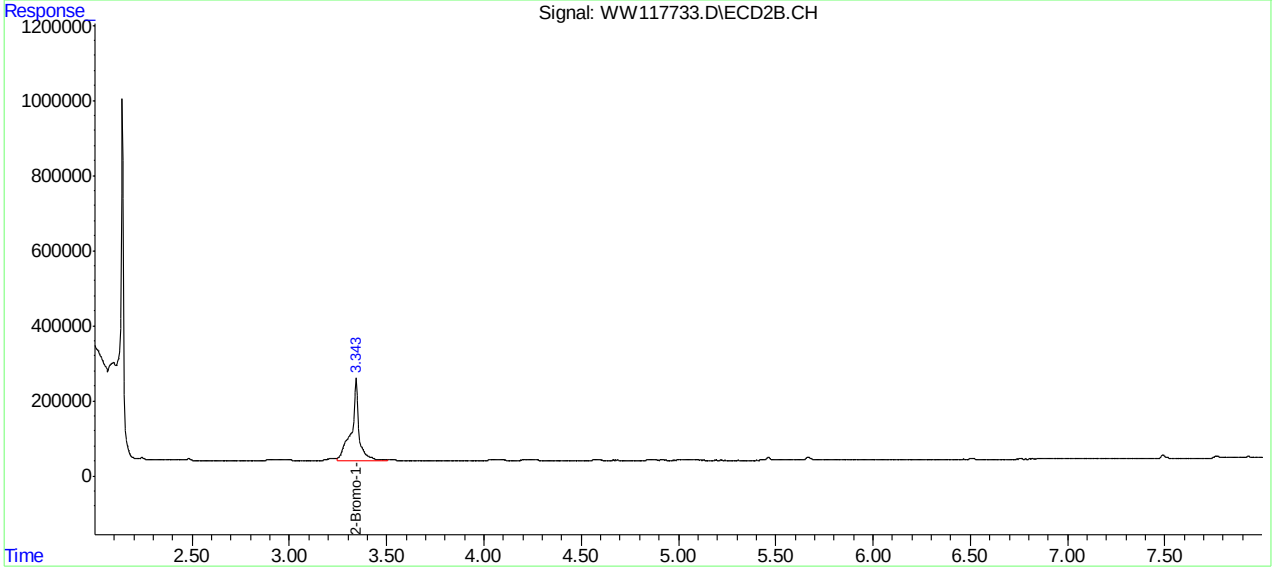
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117733.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 4:44 pm
Operator : vinced
Sample : jb33644-13
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 18 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:44:00 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um





Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
04/22/13 23:09

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117734.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 5:01 pm
Operator : vinced
Sample : jb33644-14
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 19 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:44:45 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Tue Apr 16 09:18:47 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) S 2-Bromo-1...	2.844f	3.344	19013874	5733090	9.754m	10.114m
Spiked Amount 10.000			Recovery	=	97.54%	101.14%
Target Compounds						

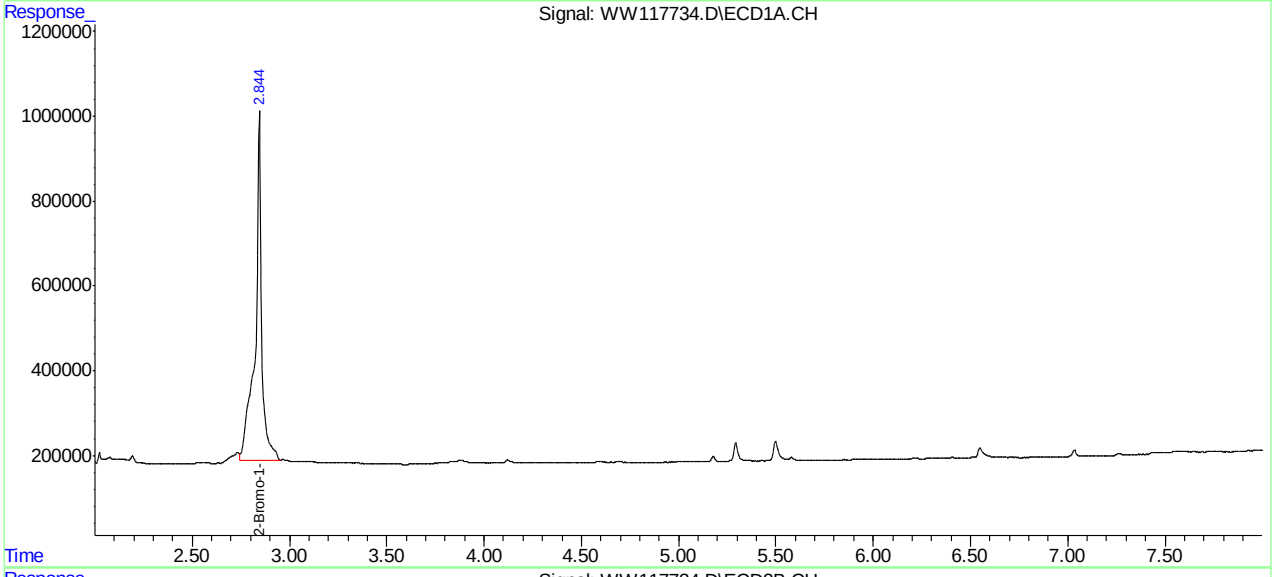
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

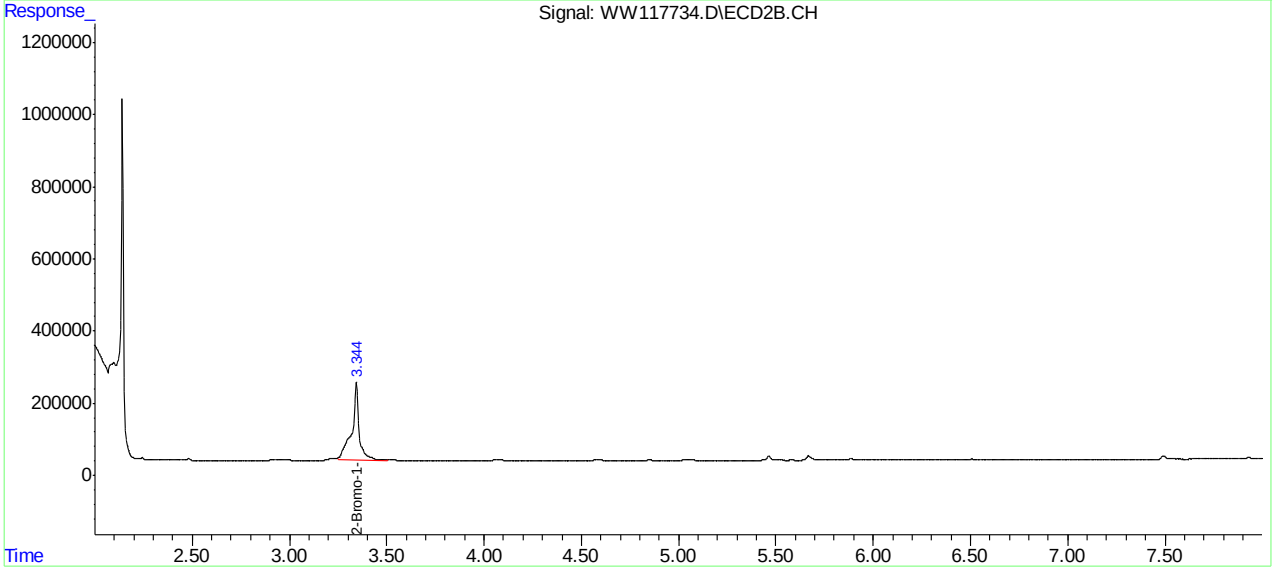
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117734.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 5:01 pm
Operator : vinced
Sample : jb33644-14
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 19 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:44:45 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Tue Apr 16 09:18:47 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um





Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
04/22/13 23:09

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117735.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 5:18 pm
Operator : vinced
Sample : jb33644-15
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 20 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:45:18 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) S 2-Bromo-1...	2.845	3.343	17847151	5504632	9.156	9.711m
Spiked Amount 10.000			Recovery =		91.56%	97.11%
Target Compounds						

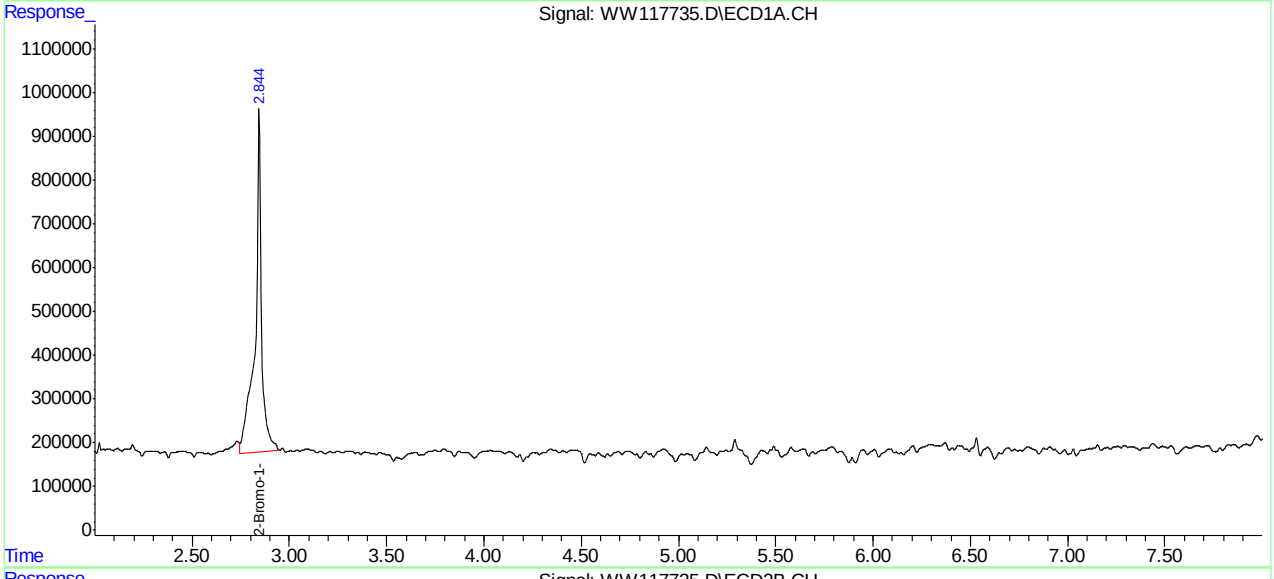
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

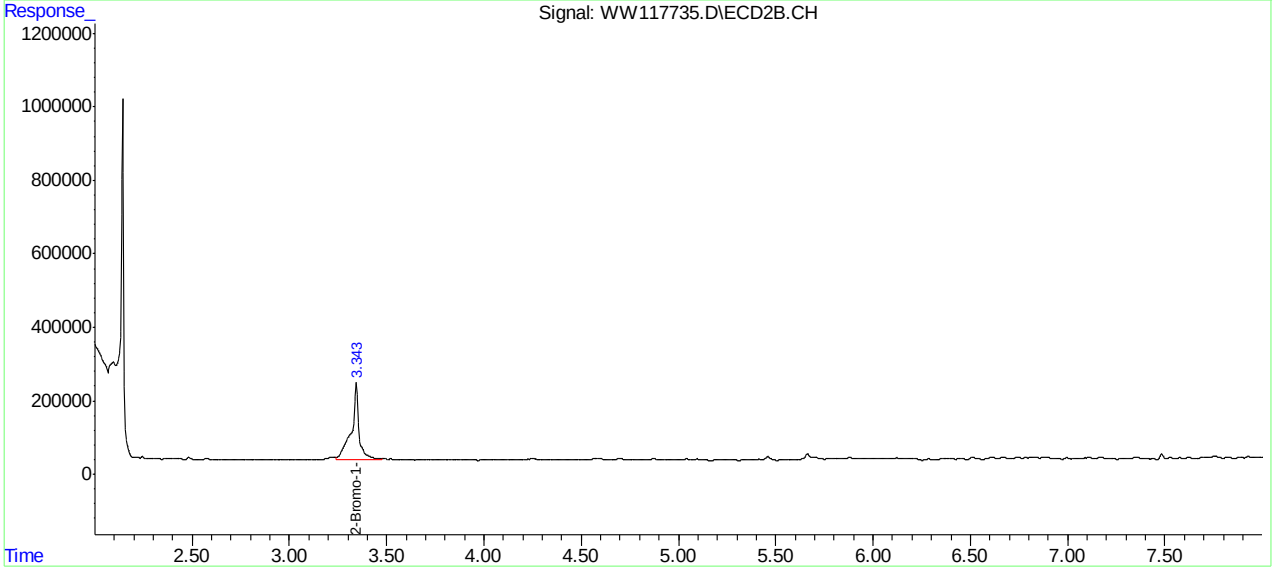
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117735.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 5:18 pm
Operator : vinced
Sample : jb33644-15
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 20 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:45:18 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um





504M4171.M Wed Apr 17 10:45:23 2013 Page: 2

Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
04/22/13 23:09

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117736.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 5:35 pm
Operator : vinced
Sample : jb33644-16
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 21 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:45:49 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) S 2-Bromo-1...	2.844	3.343	19096900	5667909	9.797	9.999m
Spiked Amount 10.000			Recovery	=	97.97%	99.99%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

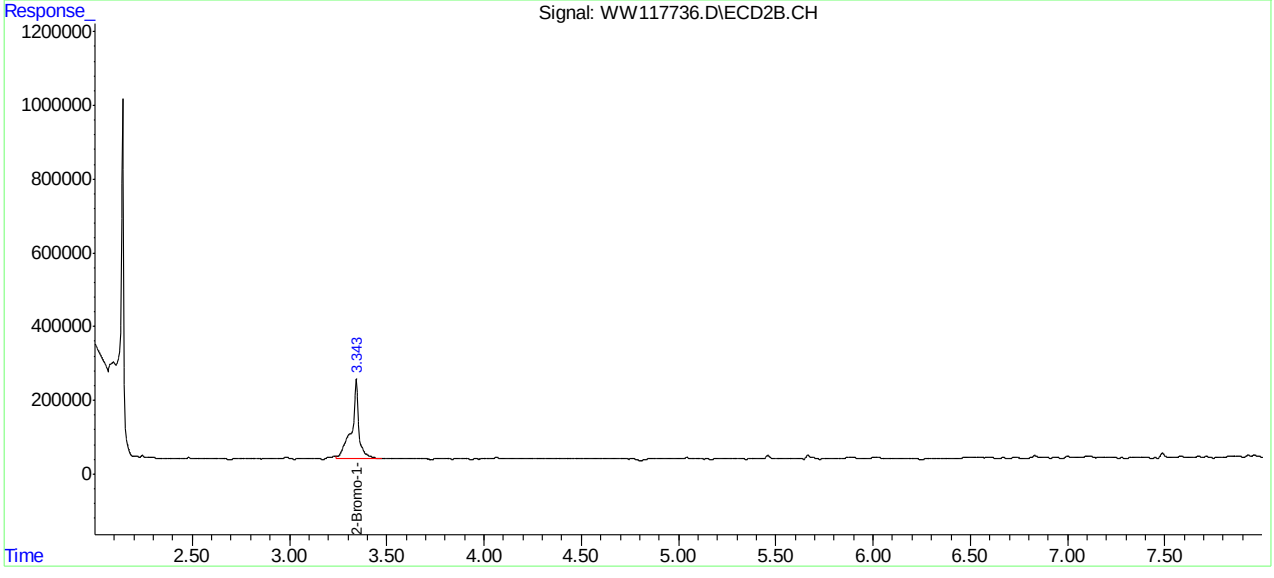
11.1.16
11

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117736.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 5:35 pm
Operator : vinced
Sample : jb33644-16
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 21 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:45:49 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um



Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117717.D
Signal(s) : Signal #1: ECD1A.CH  Signal #2: ECD2B.CH
Acq On    : 16 Apr 2013  10:53 am
Operator  : vinced
Sample    : op65293-mb1
Misc      : OP65293,Gww4178,35,,,2,1
ALS Vial  : 4   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:34:50 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title  : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Small noise peaks clipped

Volume Inj.     : 1UL/COLUMN
Signal #1 Phase : RTXCLP            Signal #2 Phase: RTXCLPII
Signal #1 Info  : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um
```

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) S 2-Bromo-1...	2.830	3.332	18494071	5652416	9.487	9.971
Spiked Amount 10.000			Recovery	=	94.87%	99.71%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

11.2.1

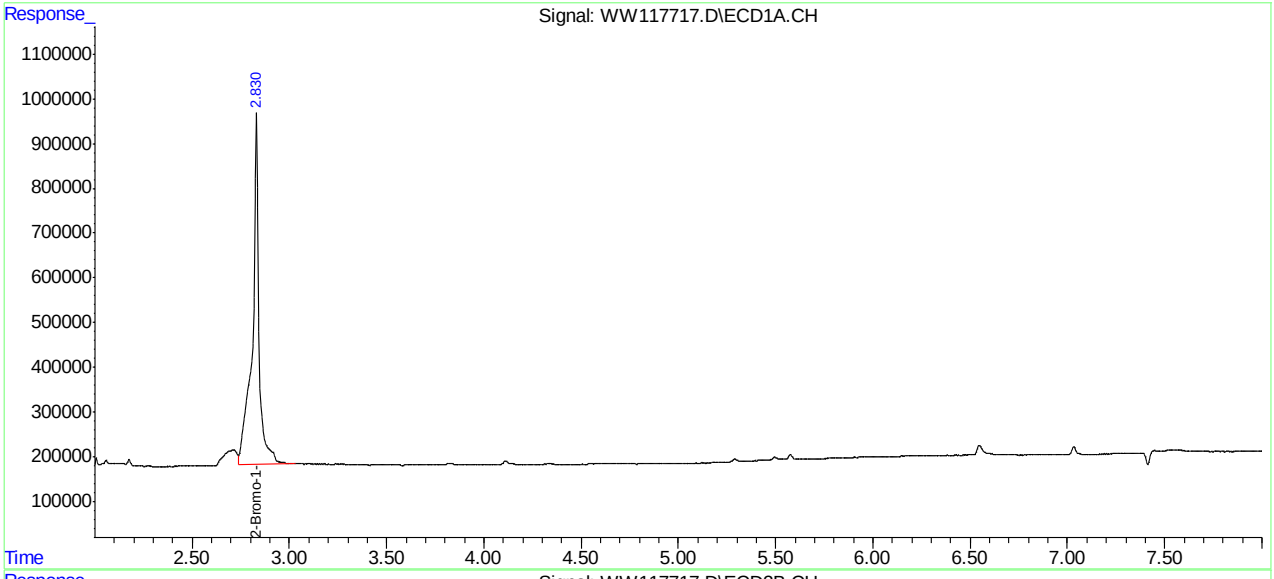
11

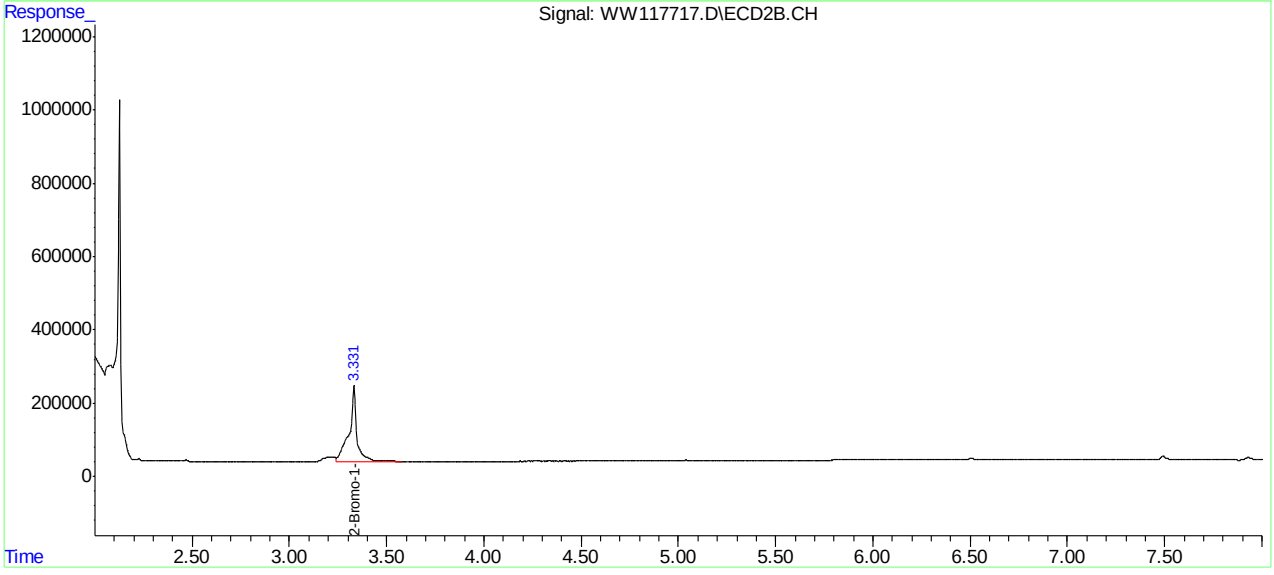
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4178\
Data File : WW117717.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 16 Apr 2013 10:53 am
Operator : vinced
Sample : op65293-mb1
Misc : OP65293,Gww4178,35,,,2,1
ALS Vial : 4 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 17 10:34:50 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 11:59:51 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um





504M4171.M Wed Apr 17 10:34:56 2013 Page: 2

New Jersey

ACCUTEST LABORATORIES

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Instrument Runlogs
- Initial and Continuing Calibration Blanks
- Initial and Continuing Calibration Checks
- High and Low Check Standards
- Interfering Element Check Standards
- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
Analyst: GT Run ID: MA30983
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
08:12	MA30983-STD1	1		STDA
08:19	MA30983-STD2	1		STDB
08:25	MA30983-STD3	1		STDC
08:31	MA30983-STD4	1		STDD
08:38	MA30983-ICV1	1		
08:46	MA30983-ICB1	1		
08:52	MA30983-ICCV1	1		
09:04	MA30983-CCB1	1		
09:09	MA30983-CRI1	1		
09:16	MA30983-CRID1	1		
09:22	MA30983-CRIA1	1		
09:29	MA30983-ICSA1	1		
09:35	MA30983-ICSAB1	1		
09:42	ZZZZZZ	1		
09:48	ZZZZZZ	1		
09:55	MA30983-CCV1	1		
10:01	MA30983-CCB2	1		
10:07	MP71281-MB2	1		
10:14	MP71281-LC1	1		
10:20	ZZZZZZ	1		
10:26	MP71279-MB2	1		
10:33	MP71279-LC1	1		
10:39	ZZZZZZ	1		
10:46	ZZZZZZ	1		
10:52	ZZZZZZ	1		
10:58	ZZZZZZ	1		
11:05	ZZZZZZ	1		
11:11	MA30983-CCV2	1		
11:18	MA30983-CCB3	1		
11:24	ZZZZZZ	1		
11:31	MP71319-MB1	1		
11:37	MP71319-B1	1		
11:43	MP71319-S1	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
Analyst: GT Run ID: MA30983
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
11:50	MP71319-S2	1		
11:56	JB34234-3	1		(sample used for QC only; not part of login JB33644)
12:03	MP71319-SD1	5		
12:09	MP71317-MB1	1		
12:16	MP71317-B1	1		
12:22	ZZZZZZ	1		
12:29	MA30983-CCV3	1		
12:35	MA30983-CCB4	1		
12:41	MP71281-MB1	1		
12:48	MP71281-B1	1		
12:54	MP71171-MB3	1		
13:01	MP71171-LC3	1		
13:07	ZZZZZZ	1		
13:13	ZZZZZZ	1		
13:21	ZZZZZZ	1		
13:27	JB33029-1	1		(sample used for QC only; not part of login JB33644)
13:33	MP71171-SD1	5		
13:40	MA30983-CCV4	1		
13:46	MA30983-CCB5	1		
13:53	ZZZZZZ	1		
13:59	MP71171-S1	1		
14:05	MP71171-S2	1		
14:11	MA30983-CRI2	1		
14:18	MA30983-CRID2	1		
14:24	MA30983-ICSA2	1		
14:31	MA30983-ICSAB2	1		
14:37	MA30983-CCV5	1		
14:43	MA30983-CCB6	1		
14:50	MP71171-S3	1		
14:56	MP71319-S1	5		
15:03	MP71319-S2	5		
15:09	JB34234-3	5		(sample used for QC only; not part of login JB33644)
15:16	MP71319-SD1	25		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
Analyst: GT Run ID: MA30983
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
15:22	ZZZZZZ	3		
15:29	ZZZZZZ	2		
15:35	ZZZZZZ	1		
15:42	MA30983-CCV6	1		
15:48	MA30983-CCB7	1		
15:54	MA30983-CRI3	1		
16:01	MA30983-CRID3	1		
16:07	MA30983-ICSA3	1		
16:14	MA30983-ICSAB3	1		
16:26	ZZZZZZ	1		
16:32	MP71171-B2	1		
16:38	MP71281-S1	1		
16:45	MP71281-S2	1		
16:51	JB32431-1RA	1		(sample used for QC only; not part of login JB33644)
16:57	MP71281-SD1	5		
17:04	MA30983-CCV7	1		
17:10	MA30983-CCB8	1		
17:16	ZZZZZZ	1		
17:23	MP71317-S1	1		
17:29	MP71317-S2	1		
17:36	JB34215-1	1		(sample used for QC only; not part of login JB33644)
17:42	MP71317-SD1	5		
17:48	ZZZZZZ	1		
17:55	ZZZZZZ	1		
18:01	ZZZZZZ	1		
18:08	MP71318-MB1	1		
18:14	MP71318-B1	1		
18:21	MA30983-CCV8	1		
18:27	MA30983-CCB9	1		
18:34	MP71318-S1	1		
18:40	MP71318-S2	1		
18:46	JB33737-1	1		(sample used for QC only; not part of login JB33644)
18:53	MP71318-SD1	5		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
Analyst: GT Run ID: MA30983
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
18:59	ZZZZZZ	1		
19:06	MP71314-MB1	1		
19:12	MP71314-LC1	1		
19:19	MP71314-S1	1		
19:25	MP71314-S2	1		
19:31	MA30983-CCV9	1		
19:38	MA30983-CCB10	1		
19:44	JB33546-1	1		(sample used for QC only; not part of login JB33644)
19:50	MP71314-SD1	5		
19:57	MP71314-S3	1		
20:03	JB33546-6	1		(sample used for QC only; not part of login JB33644)
20:09	ZZZZZZ	1		
20:16	ZZZZZZ	1		
20:22	ZZZZZZ	1		
20:29	ZZZZZZ	1		
20:35	ZZZZZZ	1		
20:41	ZZZZZZ	1		
20:48	MA30983-CCV10	1		
20:54	MA30983-CCB11	1		
21:00	ZZZZZZ	1		
21:07	ZZZZZZ	1		
21:13	ZZZZZZ	1		
21:20	ZZZZZZ	1		
21:26	ZZZZZZ	1		
21:32	ZZZZZZ	1		
21:39	ZZZZZZ	1		
21:45	ZZZZZZ	1		
21:52	MP71272-S1	1		
21:58	MP71272-S2	1		
22:05	MA30983-CCV11	1		
22:11	MA30983-CCB12	1		
22:18	JB33477-1	1		(sample used for QC only; not part of login JB33644)
22:24	MP71272-SD1	5		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
Analyst: GT Run ID: MA30983
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
22:30	ZZZZZZ	1		
22:37	ZZZZZZ	1		
22:44	ZZZZZZ	1		
22:50	ZZZZZZ	1		
22:57	ZZZZZZ	1		
23:04	ZZZZZZ	1		
23:10	ZZZZZZ	1		
23:17	ZZZZZZ	1		
23:23	MA30983-CCV12	1		
23:29	MA30983-CCB13	1		
23:36	MA30983-CRI4	1		
23:42	MA30983-CRID4	1		
23:49	MA30983-CRIA2	1		
23:55	MA30983-ICSA4	1		
00:02	MA30983-ICSAB4	1		
00:08	ZZZZZZ	1		
00:14	ZZZZZZ	1		
00:21	ZZZZZZ	1		
00:27	ZZZZZZ	1		
00:34	MA30983-CCV13	1		
00:40	MA30983-CCB14	1		
00:47	ZZZZZZ	1		
00:53	ZZZZZZ	1		
01:00	ZZZZZZ	1		
01:06	MP71330-MB1	1		
01:12	MP71330-B1	1		
01:19	MP71330-S1	1		
01:25	MP71330-S2	1		
01:31	JB33804-8A	1		(sample used for QC only; not part of login JB33644)
01:38	MP71330-SD1	5		
01:44	MP71330-PS1	1		
01:50	MA30983-CCV14	1		
01:57	MA30983-CCB15	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
Analyst: GT Run ID: MA30983
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
02:03	ZZZZZZ	1		
02:09	ZZZZZZ	1		
02:16	ZZZZZZ	1		
02:22	ZZZZZZ	1		
02:28	ZZZZZZ	1		
02:35	ZZZZZZ	1		
02:41	ZZZZZZ	1		
02:47	ZZZZZZ	1		
02:54	ZZZZZZ	1		
03:00	ZZZZZZ	1		
03:06	MA30983-CCV15	1		
03:13	MA30983-CCB16	1		
03:19	ZZZZZZ	1		
03:26	ZZZZZZ	1		
03:32	ZZZZZZ	1		
03:38	ZZZZZZ	1		
03:45	ZZZZZZ	1		
03:51	ZZZZZZ	1		
03:57	ZZZZZZ	1		
04:04	ZZZZZZ	1		
04:10	ZZZZZZ	1		
04:17	MA30983-CCV16	1		
04:23	MA30983-CCB17	1		
04:29	MP71329-MB1	1		
04:36	MP71329-LC1	1		
04:42	ZZZZZZ	1		
04:48	ZZZZZZ	1		
04:55	MP71329-S1	1		
05:01	MP71329-S2	1		
05:07	JB33820-1	1		(sample used for QC only; not part of login JB33644)
05:14	MP71329-SD1	5		
05:20	JB33644-1F	1		
05:26	JB33644-2F	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
Analyst: GT Run ID: MA30983
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
05:33	MA30983-CCV17	1		
05:39	MA30983-CCB18	1		
05:46	JB33644-3F	1		
05:52	JB33644-5F	1		
05:59	JB33644-6F	1		
06:05	MA30983-CCV18	1		
06:11	MA30983-CCB19	1		
06:18	MA30983-CRI5	1		
06:24	MA30983-CRID5	1		
06:30	MA30983-CRIA3	1		
06:37	MA30983-ICSA5	1		
06:44	MA30983-ICSAB5	1		
06:50	ZZZZZZ	1		

Refer to raw data for calibration curve and standards.

INTERNAL STANDARD SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
Analyst: GT Run ID: MA30983
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
08:12	MA30983-STD1	1517 R	96121 R	26805 R	4580 R
08:19	MA30983-STD2	1425	91977	28715	4151
08:25	MA30983-STD3	1402	89605	28393	4041
08:31	MA30983-STD4	1341	86802	27788	3862
08:38	MA30983-ICV1	1429	89446	27271	4103
08:46	MA30983-ICB1	1515	96649	28067	4630
08:52	MA30983-ICCV1	1445	90629	27698	4150
09:04	MA30983-CCB1	1520	96769	27965	4647
09:09	MA30983-CRI1	1499	95257	27850	4504
09:16	MA30983-CRID1	1523	96825	27975	4624
09:22	MA30983-CRIA1	1530	97399	28053	4652
09:29	MA30983-ICSA1	1312	81625	26658	3709
09:35	MA30983-ICSAB1	1310	81287	26613	3693
09:42	ZZZZZZ	1501	88330	28572	4131
09:48	ZZZZZZ	1502	95092	28099	4635
09:55	MA30983-CCV1	1459	91567	27915	4178
10:01	MA30983-CCB2	1529	97970	28317	4665
10:07	MP71281-MB2	1529	98150	28512	4677
10:14	MP71281-LC1	1501	95047	27523	4480
10:20	ZZZZZZ	1526	97243	28243	4604
10:26	MP71279-MB2	1279	79330	26704	3505
10:33	MP71279-LC1	1502	95187	27687	4484
10:39	ZZZZZZ	1257	78457	26428	3407
10:46	ZZZZZZ	1268	79329	26838	3467
10:52	ZZZZZZ	1292	80743	27001	3481
10:58	ZZZZZZ	1255	78280	26448	3458
11:05	ZZZZZZ	1258	78458	26268	3422
11:11	MA30983-CCV2	1455	90887	27191	4161
11:18	MA30983-CCB3	1535	97281	27618	4670
11:24	ZZZZZZ	1270	78915	26480	3469
11:31	MP71319-MB1	1507	97351	28064	4673
11:37	MP71319-B1	1510	97709	28401	4673
11:43	MP71319-S1	1170	71227	24920	3106 !

INTERNAL STANDARD SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
Analyst: GT Run ID: MA30983
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
11:50	MP71319-S2	1182	72337	25012	3146 !
11:56	JB34234-3	1190	72593	24928	3196 !
12:03	MP71319-SD1	1368	84707	26385	3804
12:09	MP71317-MB1	1276	79254	25899	3508
12:16	MP71317-B1	1283	79709	26106	3519
12:22	ZZZZZZ	1248	78537	25546	3403
12:29	MA30983-CCV3	1442	90738	26694	4125
12:35	MA30983-CCB4	1526	97440	27125	4649
12:41	MP71281-MB1	1510	96949	27106	4606
12:48	MP71281-B1	1515	96820	27334	4604
12:54	MP71171-MB3	1516	97058	27617	4665
13:01	MP71171-LC3	1491	95014	27283	4435
13:07	ZZZZZZ	1510	96644	27354	4639
13:13	ZZZZZZ	1506	96171	27709	4557
13:21	ZZZZZZ	1491	95076	27184	4503
13:27	JB33029-1	1505	95822	27463	4542
13:33	MP71171-SD1	1500	95448	26836	4561
13:40	MA30983-CCV4	1440	90399	26536	4121
13:46	MA30983-CCB5	1518	96566	26837	4619
13:53	ZZZZZZ	1478	93329	26831	4327
13:59	MP71171-S1	1457	92207	27027	4260
14:05	MP71171-S2	1450	92007	27090	4248
14:11	MA30983-CRI2	1494	94960	26596	4488
14:18	MA30983-CRID2	1519	96013	26565	4612
14:24	MA30983-ICSA2	1314	81468	25335	3712
14:31	MA30983-ICSAB2	1318	81410	25052	3713
14:37	MA30983-CCV5	1455	91142	26325	4171
14:43	MA30983-CCB6	1526	97069	26541	4652
14:50	MP71171-S3	1424	90217	26425	4134
14:56	MP71319-S1	1351	83968	25636	3746
15:03	MP71319-S2	1362	84121	25483	3783
15:09	JB34234-3	1368	84717	25693	3810
15:16	MP71319-SD1	1475	92115	26051	4261

INTERNAL STANDARD SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
Analyst: GT Run ID: MA30983
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
15:22	ZZZZZZ	1547	96391	27599	4587
15:29	ZZZZZZ	1314	83513	25259	3679
15:35	ZZZZZZ	1541	98265	27121	4720
15:42	MA30983-CCV6	1459	91316	25925	4181
15:48	MA30983-CCB7	1555	98424	26657	4742
15:54	MA30983-CRI3	1523	95621	26384	4590
16:01	MA30983-CRID3	1549	97826	26487	4699
16:07	MA30983-ICSA3	1338	82437	25183	3782
16:14	MA30983-ICSAB3	1342	82367	25232	3776
16:26	ZZZZZZ	1548	98533	26985	4741
16:32	MP71171-B2	1494	93935	26359	4382
16:38	MP71281-S1	1546	97268	26895	4583
16:45	MP71281-S2	1539	96822	26878	4570
16:51	JB32431-1RA	1542	96894	26850	4586
16:57	MP71281-SD1	1554	97847	26641	4714
17:04	MA30983-CCV7	1473	91245	25829	4219
17:10	MA30983-CCB8	1560	98541	26491	4766
17:16	ZZZZZZ	1565	98580	26309	4774
17:23	MP71317-S1	1307	80854	25336	3559
17:29	MP71317-S2	1303	80684	25282	3544
17:36	JB34215-1	1304	80547	25272	3559
17:42	MP71317-SD1	1449	89794	25970	4122
17:48	ZZZZZZ	1314	80995	25332	3592
17:55	ZZZZZZ	1314	80684	25087	3592
18:01	ZZZZZZ	1315	81244	25139	3595
18:08	MP71318-MB1	1302	80224	25230	3578
18:14	MP71318-B1	1309	80506	25094	3579
18:21	MA30983-CCV8	1488	92479	25706	4265
18:27	MA30983-CCB9	1570	98673	26160	4784
18:34	MP71318-S1	1281	80131	24738	3465
18:40	MP71318-S2	1289	80264	24722	3482
18:46	JB33737-1	1271	79170	24602	3447
18:53	MP71318-SD1	1431	88685	25204	4038

INTERNAL STANDARD SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
Analyst: GT Run ID: MA30983
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
18:59	ZZZZZZ	1290	79985	24863	3499
19:06	MP71314-MB1	1569	98880	26490	4818
19:12	MP71314-LC1	1529	96612	26587	4547
19:19	MP71314-S1	1452	91326	26359	4132
19:25	MP71314-S2	1446	91104	26065	4122
19:31	MA30983-CCV9	1485	91163	25476	4239
19:38	MA30983-CCB10	1575	98788	25813	4795
19:44	JB33546-1	1497	93880	26539	4307
19:50	MP71314-SD1	1526	96415	26082	4550
19:57	MP71314-S3	1460	91690	25851	4245
20:03	JB33546-6	1496	94161	26155	4428
20:09	ZZZZZZ	1510	94401	25958	4443
20:16	ZZZZZZ	1513	95324	26010	4545
20:22	ZZZZZZ	1502	93891	25894	4413
20:29	ZZZZZZ	1539	96744	26406	4579
20:35	ZZZZZZ	1515	95268	25975	4521
20:41	ZZZZZZ	1530	96397	26142	4634
20:48	MA30983-CCV10	1494	92359	25419	4260
20:54	MA30983-CCB11	1584	99323	25643	4802
21:00	ZZZZZZ	1515	94217	26935	4103
21:07	ZZZZZZ	1527	96071	26102	4499
21:13	ZZZZZZ	1574	98509	25924	4805
21:20	ZZZZZZ	1500	95044	25988	4424
21:26	ZZZZZZ	1509	95500	26185	4444
21:32	ZZZZZZ	1497	94834	26053	4407
21:39	ZZZZZZ	1492	94471	25926	4400
21:45	ZZZZZZ	1459	91507	25865	4165
21:52	MP71272-S1	1547	94785	26858	4206
21:58	MP71272-S2	1567	95823	27223	4246
22:05	MA30983-CCV11	1492	92296	25172	4246
22:11	MA30983-CCB12	1573	98533	25436	4768
22:18	JB33477-1	1571	96637	27137	4287
22:24	MP71272-SD1	1563	97083	26031	4475

INTERNAL STANDARD SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
Analyst: GT Run ID: MA30983
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
22:30	ZZZZZZ	1682	101620	29381	4287
22:37	ZZZZZZ	1630	101060	28908	4233
22:44	ZZZZZZ	1620	100750	28453	4193
22:50	ZZZZZZ	1566	97668	27891	4166
22:57	ZZZZZZ	1551	96054	27213	4253
23:04	ZZZZZZ	1630	99416	28141	4342
23:10	ZZZZZZ	1644	101180	27960	4355
23:17	ZZZZZZ	1569	97056	27560	4328
23:23	MA30983-CCV12	1491	92320	25169	4250
23:29	MA30983-CCB13	1563	97897	24615	4744
23:36	MA30983-CRI4	1564	97852	25510	4636
23:42	MA30983-CRID4	1566	98046	25546	4703
23:49	MA30983-CRIA2	1569	98264	24765	4752
23:55	MA30983-ICSA4	1356	83157	23911	3794
00:02	MA30983-ICSAB4	1359	83343	24462	3786
00:08	ZZZZZZ	1502	98502	24995	4734
00:14	ZZZZZZ	1583	98086	24505	4765
00:21	ZZZZZZ	1581	98994	25589	4752
00:27	ZZZZZZ	1580	99342	25539	4792
00:34	MA30983-CCV13	1518	93677	24805	4305
00:40	MA30983-CCB14	1581	99362	25724	4765
00:47	ZZZZZZ	1593	98296	27084	4359
00:53	ZZZZZZ	1604	99305	27950	4291
01:00	ZZZZZZ	1587	98426	26525	4440
01:06	MP71330-MB1	1579	99608	25108	4797
01:12	MP71330-B1	1544	96048	25704	4477
01:19	MP71330-S1	1549	94481	25672	4345
01:25	MP71330-S2	1541	94433	25846	4308
01:31	JB33804-8A	1578	97265	26380	4440
01:38	MP71330-SD1	1599	98909	25342	4663
01:44	MP71330-PS1	1459	90419	25255	3986
01:50	MA30983-CCV14	1504	92475	24669	4281
01:57	MA30983-CCB15	1596	100000	25608	4804

INTERNAL STANDARD SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
Analyst: GT Run ID: MA30983
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
02:03	ZZZZZZ	1517	94305	26143	4236
02:09	ZZZZZZ	1577	97379	25312	4639
02:16	ZZZZZZ	1573	97575	25736	4611
02:22	ZZZZZZ	1565	96327	25552	4474
02:28	ZZZZZZ	1474	91516	25790	4792
02:35	ZZZZZZ	1498	93124	25776	4879
02:41	ZZZZZZ	1498	93175	25735	4617
02:47	ZZZZZZ	1455	89384	25749	4758
02:54	ZZZZZZ	1592	98026	25864	4543
03:00	ZZZZZZ	1578	98100	26168	4556
03:06	MA30983-CCV15	1498	92118	24513	4265
03:13	MA30983-CCB16	1571	98950	25081	4736
03:19	ZZZZZZ	1457	90997	25245	4122
03:26	ZZZZZZ	1467	90023	25415	3909
03:32	ZZZZZZ	1540	95096	25905	4423
03:38	ZZZZZZ	1515	94134	25753	4208
03:45	ZZZZZZ	1606	99131	27361	4326
03:51	ZZZZZZ	1509	93456	25469	4251
03:57	ZZZZZZ	1537	95852	25812	4296
04:04	ZZZZZZ	1503	93707	26261	4234
04:10	ZZZZZZ	1530	95603	25550	4498
04:17	MA30983-CCV16	1500	93024	24936	4256
04:23	MA30983-CCB17	1583	99892	25160	4788
04:29	MP71329-MB1	1581	99570	25431	4782
04:36	MP71329-LC1	1556	97800	25392	4593
04:42	ZZZZZZ	1591	99911	24983	4807
04:48	ZZZZZZ	1547	96906	25341	4545
04:55	MP71329-S1	1470	91578	24490	4194
05:01	MP71329-S2	1475	92232	24997	4187
05:07	JB33820-1	1510	94159	25312	4343
05:14	MP71329-SD1	1552	97118	24605	4605
05:20	JB33644-1F	1495	94229	25297	4341
05:26	JB33644-2F	1397	86986	23534	3925

INTERNAL STANDARD SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
Analyst: GT Run ID: MA30983
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
05:33	MA30983-CCV17	1512	93689	25231	4284
05:39	MA30983-CCB18	1583	99231	25092	4783
05:46	JB33644-3F	1584	99945	25019	4783
05:52	JB33644-5F	1527	96165	25151	4511
05:59	JB33644-6F	1557	97561	24990	4625
06:05	MA30983-CCV18	1497	92496	25039	4245
06:11	MA30983-CCB19	1590	99509	24783	4813
06:18	MA30983-CRI5	1577	98493	25213	4674
06:24	MA30983-CRID5	1581	99090	25146	4757
06:30	MA30983-CRIA3	1589	99600	24466	4779
06:37	MA30983-ICSA5	1359	83081	23979	3800
06:44	MA30983-ICSAB5	1365	83443	23457	3815
06:50	ZZZZZZ	1480	93387	24748	4252

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %
Istd#4	Indium	70-130 %

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30983 Units: ug/l

Time:			08:46		09:04		10:01		11:18	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	6.7	anr							
Antimony	6.0	1.1	anr							
Arsenic	3.0	.9	anr							
Barium	200	.3	anr							
Beryllium	1.0	.2	anr							
Bismuth	20	1.1								
Boron	100	2								
Cadmium	3.0	.4	anr							
Calcium	5000	15	anr							
Chromium	10	.4	anr							
Cobalt	50	.3	anr							
Copper	10	.5	anr							
Iron	100	4.4	anr							
Lead	3.0	1.2	-0.80	<3.0	0.0	<3.0	-1.2	<3.0	-0.80	<3.0
Lithium	20	1								
Magnesium	5000	12	anr							
Manganese	15	.2	anr							
Molybdenum	20	.6								
Nickel	10	.5	anr							
Palladium	50	1.6								
Potassium	10000	28	anr							
Selenium	10	1.4	anr							
Silicon	200	5.4								
Silver	10	.4	anr							
Sodium	10000	14	anr							
Sulfur	50	3.2								
Strontium	10	.1								
Thallium	2.0	1.5	anr							
Tin	10	.9								
Titanium	10	.6								
Tungsten	50	6.6								
Vanadium	50	.4	anr							
Zinc	20	.6	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30983 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.3

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30983 Units: ug/l

Time:			12:35		13:46		14:43		15:48	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	6.7	anr							
Antimony	6.0	1.1	anr							
Arsenic	3.0	.9	anr							
Barium	200	.3	anr							
Beryllium	1.0	.2	anr							
Bismuth	20	1.1								
Boron	100	2								
Cadmium	3.0	.4	anr							
Calcium	5000	15	anr							
Chromium	10	.4	anr							
Cobalt	50	.3	anr							
Copper	10	.5	anr							
Iron	100	4.4	anr							
Lead	3.0	1.2	-0.60	<3.0	-1.1	<3.0	-1.0	<3.0	0.0	<3.0
Lithium	20	1								
Magnesium	5000	12	anr							
Manganese	15	.2	anr							
Molybdenum	20	.6								
Nickel	10	.5	anr							
Palladium	50	1.6								
Potassium	10000	28	anr							
Selenium	10	1.4	anr							
Silicon	200	5.4								
Silver	10	.4	anr							
Sodium	10000	14	anr							
Sulfur	50	3.2								
Strontium	10	.1								
Thallium	2.0	1.5	anr							
Tin	10	.9								
Titanium	10	.6								
Tungsten	50	6.6								
Vanadium	50	.4	anr							
Zinc	20	.6	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30983 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.3

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30983 Units: ug/l

Time:			17:10		18:27		19:38		20:54	
Sample ID:			CCB8		CCB9		CCB10		CCB11	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	6.7	anr							
Antimony	6.0	1.1	anr							
Arsenic	3.0	.9	anr							
Barium	200	.3	anr							
Beryllium	1.0	.2	anr							
Bismuth	20	1.1								
Boron	100	2								
Cadmium	3.0	.4	anr							
Calcium	5000	15	anr							
Chromium	10	.4	anr							
Cobalt	50	.3	anr							
Copper	10	.5	anr							
Iron	100	4.4	anr							
Lead	3.0	1.2	-0.50	<500	-0.30	<3.0	0.0	<3.0	0.0	<3.0
Lithium	20	1								
Magnesium	5000	12	anr							
Manganese	15	.2	anr							
Molybdenum	20	.6								
Nickel	10	.5	anr							
Palladium	50	1.6								
Potassium	10000	28	anr							
Selenium	10	1.4	anr							
Silicon	200	5.4								
Silver	10	.4	anr							
Sodium	10000	14	anr							
Sulfur	50	3.2								
Strontium	10	.1								
Thallium	2.0	1.5	anr							
Tin	10	.9								
Titanium	10	.6								
Tungsten	50	6.6								
Vanadium	50	.4	anr							
Zinc	20	.6	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30983 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.3

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30983 Units: ug/l

Time:			22:11		23:29		00:40		01:57	
Sample ID:			CCB12		CCB13		CCB14		CCB15	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	6.7	anr							
Antimony	6.0	1.1	anr							
Arsenic	3.0	.9	anr							
Barium	200	.3	anr							
Beryllium	1.0	.2	anr							
Bismuth	20	1.1								
Boron	100	2								
Cadmium	3.0	.4	anr							
Calcium	5000	15	anr							
Chromium	10	.4	anr							
Cobalt	50	.3	anr							
Copper	10	.5	anr							
Iron	100	4.4	anr							
Lead	3.0	1.2	0.30	<3.0	-1.1	<3.0	0.0	<3.0	0.10	<3.0
Lithium	20	1								
Magnesium	5000	12	anr							
Manganese	15	.2	anr							
Molybdenum	20	.6								
Nickel	10	.5	anr							
Palladium	50	1.6								
Potassium	10000	28	anr							
Selenium	10	1.4	anr							
Silicon	200	5.4								
Silver	10	.4	anr							
Sodium	10000	14	anr							
Sulfur	50	3.2								
Strontium	10	.1								
Thallium	2.0	1.5	anr							
Tin	10	.9								
Titanium	10	.6								
Tungsten	50	6.6								
Vanadium	50	.4	anr							
Zinc	20	.6	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30983 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.3

(*) Outside of QC limits
(anr) Analyte not requested

12.1.2
12

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30983 Units: ug/l

Time:			03:13		04:23		05:39		06:11	
Sample ID:			CCB16		CCB17		CCB18		CCB19	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	6.7	anr							
Antimony	6.0	1.1	anr							
Arsenic	3.0	.9	anr							
Barium	200	.3	anr							
Beryllium	1.0	.2	anr							
Bismuth	20	1.1								
Boron	100	2								
Cadmium	3.0	.4	anr							
Calcium	5000	15	anr							
Chromium	10	.4	anr							
Cobalt	50	.3	anr							
Copper	10	.5	anr							
Iron	100	4.4	anr							
Lead	3.0	1.2	0.40	<3.0	-0.30	<3.0	-0.50	<3.0	0.20	<3.0
Lithium	20	1								
Magnesium	5000	12	anr							
Manganese	15	.2	anr							
Molybdenum	20	.6								
Nickel	10	.5	anr							
Palladium	50	1.6								
Potassium	10000	28	anr							
Selenium	10	1.4	anr							
Silicon	200	5.4								
Silver	10	.4	anr							
Sodium	10000	14	anr							
Sulfur	50	3.2								
Strontium	10	.1								
Thallium	2.0	1.5	anr							
Tin	10	.9								
Titanium	10	.6								
Tungsten	50	6.6								
Vanadium	50	.4	anr							
Zinc	20	.6	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30983 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.3

(*) Outside of QC limits
(anr) Analyte not requested

12.1.2
12

CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30983 Units: ug/l

Time:		08:52	
Sample ID:	ICCV	ICCV1	
Metal	True	Results	% Rec
Aluminum	anr		
Antimony	anr		
Arsenic	anr		
Barium	anr		
Beryllium	anr		
Bismuth			
Boron			
Cadmium	anr		
Calcium	anr		
Chromium	anr		
Cobalt	anr		
Copper	anr		
Iron	anr		
Lead	2000	1980	99.0
Lithium			
Magnesium	anr		
Manganese	anr		
Molybdenum			
Nickel	anr		
Palladium			
Potassium	anr		
Selenium	anr		
Silicon			
Silver	anr		
Sodium	anr		
Sulfur			
Strontium			
Thallium	anr		
Tin			
Titanium			
Tungsten			
Vanadium	anr		
Zinc	anr		

CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30983 Units: ug/l

Time:	
Sample ID:	
Metal	
Zirconium	

(*) Outside of QC limits
(anr) Analyte not requested

12.1.3

12

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30983 Units: ug/l

Time:		08:38			09:55			11:11	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2010	100.5	2000	1970	98.5	2000	1990	99.5
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30983 Units: ug/l

Time:	
Sample ID:	
Metal	
Zirconium	

(*) Outside of QC limits
(anr) Analyte not requested

12.1.4

12

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30983 Units: ug/l

Time:		12:29			13:40			14:37	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2000	100.0	2000	1980	99.0	2000	1980	99.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30983 Units: ug/l

Time:	
Sample ID:	
Metal	
Zirconium	

(*) Outside of QC limits
(anr) Analyte not requested

12.1.4

12

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30983 Units: ug/l

Time:		15:42			17:04			18:21	
Sample ID:	CCV	CCV6		CCV	CCV7		CCV	CCV8	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	1990	99.5	2000	1990	99.5	2000	1980	99.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30983 Units: ug/l

Time:	
Sample ID:	
Metal	
Zirconium	

(*) Outside of QC limits
(anr) Analyte not requested

12.1.4

12

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30983 Units: ug/l

Time:		19:31			20:48			22:05	
Sample ID:	CCV	CCV9		CCV	CCV10		CCV	CCV11	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	1980	99.0	2000	1980	99.0	2000	1990	99.5
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30983 Units: ug/l

Time:	
Sample ID:	
Metal	
Zirconium	

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30983 Units: ug/l

Time:		23:23			00:34			01:50	
Sample ID:	CCV	CCV12		CCV	CCV13		CCV	CCV14	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	1990	99.5	2000	1980	99.0	2000	2000	100.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30983 Units: ug/l

Time:	
Sample ID:	
Metal	
Zirconium	

(*) Outside of QC limits
(anr) Analyte not requested

12.1.4

12

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30983 Units: ug/l

Time:		03:06			04:17			05:33	
Sample ID:	CCV	CCV15		CCV	CCV16		CCV	CCV17	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2010	100.5	2000	1990	99.5	2000	1980	99.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30983 Units: ug/l

Time:	
Sample ID:	
Metal	
Zirconium	

(*) Outside of QC limits
(anr) Analyte not requested

12.1.4
12

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30983 Units: ug/l

Time:		06:05	
Sample ID:	CCV	CCV18	
Metal	True	Results	% Rec
Aluminum	anr		
Antimony	anr		
Arsenic	anr		
Barium	anr		
Beryllium	anr		
Bismuth			
Boron			
Cadmium	anr		
Calcium	anr		
Chromium	anr		
Cobalt	anr		
Copper	anr		
Iron	anr		
Lead	2000	1990	99.5
Lithium			
Magnesium	anr		
Manganese	anr		
Molybdenum			
Nickel	anr		
Palladium			
Potassium	anr		
Selenium	anr		
Silicon			
Silver	anr		
Sodium	anr		
Sulfur			
Strontium			
Thallium	anr		
Tin			
Titanium			
Tungsten			
Vanadium	anr		
Zinc	anr		

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30983 Units: ug/l

Time:	
Sample ID:	
Metal	

Zirconium

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30983 Units: ug/l

Time:				09:09		09:16		09:22	
Sample ID:	CRI	CRIA	CRID	CRI1		CRID1		CRIA1	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	200	500	100	anr					
Antimony	6.0	20	3.0	anr					
Arsenic	8.0	20	3.0	anr					
Barium	200		4.0	anr					
Beryllium	2.0		1.0	anr					
Bismuth	20								
Boron	100		10						
Cadmium	3.0		1.0	anr					
Calcium	5000		1000	anr					
Chromium	10		2.0	anr					
Cobalt	50		3.0	anr					
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	2.8	93.3	2.0	80.0	19.0	95.0
Lithium	20								
Magnesium	5000		100	anr					
Manganese	15		3.0	anr					
Molybdenum	20		4.0						
Nickel	10		4.0	anr					
Palladium	50								
Potassium	5000		2000	anr					
Selenium	10	20	5.0	anr					
Silicon	200								
Silver	5.0		1.0	anr					
Sodium	5000		1000	anr					
Sulfur	50	50	50						
Strontium	10								
Thallium	10		2.0	anr					
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	anr					
Zinc	20		10	anr					

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30983 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	5.0

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30983 Units: ug/l

Time:				14:11		14:18		15:54	
Sample ID:	CRI	CRIA	CRID	CRI2		CRID2		CRI3	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	200	500	100	anr					
Antimony	6.0	20	3.0	anr					
Arsenic	8.0	20	3.0	anr					
Barium	200		4.0	anr					
Beryllium	2.0		1.0	anr					
Bismuth	20								
Boron	100		10						
Cadmium	3.0		1.0	anr					
Calcium	5000		1000	anr					
Chromium	10		2.0	anr					
Cobalt	50		3.0	anr					
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	2.8	93.3	2.5	100.0	3.2	106.7
Lithium	20								
Magnesium	5000		100	anr					
Manganese	15		3.0	anr					
Molybdenum	20		4.0						
Nickel	10		4.0	anr					
Palladium	50								
Potassium	5000		2000	anr					
Selenium	10	20	5.0	anr					
Silicon	200								
Silver	5.0		1.0	anr					
Sodium	5000		1000	anr					
Sulfur	50	50	50						
Strontium	10								
Thallium	10		2.0	anr					
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	anr					
Zinc	20		10	anr					

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30983 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	5.0

(*) Outside of QC limits
(anr) Analyte not requested

12.1.5

12

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30983 Units: ug/l

Time:				16:01		23:36		23:42	
Sample ID:	CRI	CRIA	CRID	CRID3		CRI4		CRID4	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	200	500	100	anr					
Antimony	6.0	20	3.0	anr					
Arsenic	8.0	20	3.0	anr					
Barium	200		4.0	anr					
Beryllium	2.0		1.0	anr					
Bismuth	20								
Boron	100		10						
Cadmium	3.0		1.0	anr					
Calcium	5000		1000	anr					
Chromium	10		2.0	anr					
Cobalt	50		3.0	anr					
Copper	10		2.0	anr					
Iron	100	500							
Lead	3.0	20	2.5	2.7	108.0	2.9	96.7	2.3	92.0
Lithium	20								
Magnesium	5000		100	anr					
Manganese	15		3.0	anr					
Molybdenum	20		4.0						
Nickel	10		4.0	anr					
Palladium	50								
Potassium	5000		2000	anr					
Selenium	10	20	5.0	anr					
Silicon	200								
Silver	5.0		1.0	anr					
Sodium	5000		1000	anr					
Sulfur	50	50	50						
Strontium	10								
Thallium	10		2.0	anr					
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	anr					
Zinc	20		10	anr					

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30983 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	5.0

(*) Outside of QC limits
(anr) Analyte not requested

12.1.5

12

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30983 Units: ug/l

Time:				23:49		06:18		06:24	
Sample ID:	CRI	CRIA	CRID	CRIA2		CRI5		CRID5	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	200	500	100	anr					
Antimony	6.0	20	3.0	anr					
Arsenic	8.0	20	3.0	anr					
Barium	200		4.0						
Beryllium	2.0		1.0						
Bismuth	20								
Boron	100		10						
Cadmium	3.0		1.0						
Calcium	5000		1000						
Chromium	10		2.0						
Cobalt	50		3.0						
Copper	10		2.0						
Iron	100	500		anr					
Lead	3.0	20	2.5	19.6	98.0	2.5	83.3	2.5	100.0
Lithium	20								
Magnesium	5000		100						
Manganese	15		3.0						
Molybdenum	20		4.0						
Nickel	10		4.0						
Palladium	50								
Potassium	5000		2000						
Selenium	10	20	5.0	anr					
Silicon	200								
Silver	5.0		1.0						
Sodium	5000		1000						
Sulfur	50	50	50						
Strontium	10								
Thallium	10		2.0						
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0						
Zinc	20		10						

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30983 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	5.0

(*) Outside of QC limits
(anr) Analyte not requested

12.1.5

12

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30983 Units: ug/l

Time:				06:30	
Sample ID:	CRI	CRIA	CRID	CRIA3	
Metal	True	True	True	Results	% Rec
Aluminum	200	500	100	anr	
Antimony	6.0	20	3.0	anr	
Arsenic	8.0	20	3.0	anr	
Barium	200		4.0		
Beryllium	2.0		1.0		
Bismuth	20				
Boron	100		10		
Cadmium	3.0		1.0		
Calcium	5000		1000		
Chromium	10		2.0		
Cobalt	50		3.0		
Copper	10		2.0		
Iron	100	500		anr	
Lead	3.0	20	2.5	19.0	95.0
Lithium	20				
Magnesium	5000		100		
Manganese	15		3.0		
Molybdenum	20		4.0		
Nickel	10		4.0		
Palladium	50				
Potassium	5000		2000		
Selenium	10	20	5.0	anr	
Silicon	200				
Silver	5.0		1.0		
Sodium	5000		1000		
Sulfur	50	50	50		
Strontium	10				
Thallium	10		2.0		
Tin	10				
Titanium	10				
Tungsten	50				
Vanadium	50		2.0		
Zinc	20		10		

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30983 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	5.0

(*) Outside of QC limits
(anr) Analyte not requested

12.1.5

12

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA30983 Units: ug/l

Time:			09:29		09:35		14:24		14:31	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1		ICSA2		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	500000	500000	498000	99.6	486000	97.2	484000	96.8	489000	97.8
Antimony		1000	5.6		994	99.4	5.1		981	98.1
Arsenic		1000	2.7		1010	101.0	0.90		1000	100.0
Barium		500	-0.60		486	97.2	-0.50		487	97.4
Beryllium		500	0.10		460	92.0	0.10		456	91.2
Bismuth		500	14.6		487	97.4	15.1		480	96.0
Boron			-5.1		-9.2		-5.4		-9.1	
Cadmium		1000	1.1		985	98.5	1.2		974	97.4
Calcium	400000	400000	378000	94.5	366000	91.5	373000	93.3	364000	91.0
Chromium		500	-0.10		466	93.2	-0.10		468	93.6
Cobalt		500	1.4		451	90.2	1.1		448	89.6
Copper		500	-1.7		500	100.0	-1.8		496	99.2
Iron	200000	200000	206000	103.0	181000	90.5	204000	102.0	179000	89.5
Lead		1000	4.0		899	89.9	4.3		896	89.6
Lithium		500	4.2		489	97.8	3.8		505	101.0
Magnesium	500000	500000	532000	106.4	521000	104.2	523000	104.6	514000	102.8
Manganese		500	0.40		472	94.4	0.30		469	93.8
Molybdenum		500	8.2		477	95.4	7.7		473	94.6
Nickel		1000	-3.3		874	87.4	-3.2		867	86.7
Palladium		500	20.0		559	111.8	18.8		550	110.0
Potassium			32.0		45.2		2.7		25.4	
Selenium		1000	4.3		950	95.0	3.7		941	94.1
Silicon			22.3		19.2		23.9		18.4	
Silver		1000	0.20		991	99.1	0.80		984	98.4
Sodium			-0.90		10.8		56.6		59.1	
Sulfur		500	18.8		488	97.6	15.0		482	96.4
Strontium			-5.5		-5.4		-5.2		-5.3	
Thallium		1000	-2.9		950	95.0	-3.6		951	95.1
Tin			-1.3		-1.1		-1.8		-0.60	
Titanium			2.2		5.7		2.3		5.5	
Tungsten		500	31.8		514	102.8	21.2		502	100.4
Vanadium		500	-1.1		459	91.8	-1.0		455	91.0
Zinc		1000	-1.3		923	92.3	-1.6		920	92.0

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA30983 Units: ug/l

Time:							
Sample ID:							
Metal							
Zirconium	500	-7.8	445	89.0	-8.0	432	86.4

(*) Outside of QC limits
(anr) Analyte not requested

12.1.6
12

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA30983 Units: ug/l

Time:			16:07		16:14		23:55		00:02	
Sample ID:	ICSA	ICSAB	ICSA3		ICSAB3		ICSA4		ICSAB4	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	500000	500000	490000	98.0	482000	96.4	490000	98.0	481000	96.2
Antimony		1000	5.0		964	96.4	3.7		970	97.0
Arsenic		1000	1.4		988	98.8	0.20		1000	100.0
Barium		500	-0.50		486	97.2	-0.50		492	98.4
Beryllium		500	0.10		451	90.2	0.10		432	86.4
Bismuth		500	14.3		474	94.8	14.4		474	94.8
Boron			-5.7		-9.3		-6.6		-11	
Cadmium		1000	1.3		958	95.8	1.2		959	95.9
Calcium	400000	400000	371000	92.8	359000	89.8	372000	93.0	348000	87.0
Chromium		500	0.20		464	92.8	-0.10		466	93.2
Cobalt		500	1.2		444	88.8	0.80		446	89.2
Copper		500	-1.7		491	98.2	-1.9		484	96.8
Iron	200000	200000	206000	103.0	180000	90.0	206000	103.0	178000	89.0
Lead		1000	5.8		889	88.9	0.80		895	89.5
Lithium		500	4.4		507	101.4	5.3		527	105.4
Magnesium	500000	500000	529000	105.8	513000	102.6	527000	105.4	513000	102.6
Manganese		500	-0.10		469	93.8	0.60		475	95.0
Molybdenum		500	8.0		466	93.2	7.6		465	93.0
Nickel		1000	-3.7		863	86.3	-3.2		871	87.1
Palladium		500	22.5		551	110.2	18.1		561	112.2
Potassium			-22		16.9		74.6		61.2	
Selenium		1000	2.2		930	93.0	6.5		935	93.5
Silicon			22.4		18.9		22.2		17.4	
Silver		1000	-0.90		977	97.7	1.2		983	98.3
Sodium			48.4		60.3		40.1		48.3	
Sulfur		500	13.8		438	87.6	13.9		456	91.2
Strontium			-5.0		-5.0		-5.1		-4.5	
Thallium		1000	-3.1		910	91.0	3.4		949	94.9
Tin			-1.0		-0.30		-0.70		-1.4	
Titanium			2.3		5.6		2.3		5.7	
Tungsten		500	21.6		495	99.0	21.7		495	99.0
Vanadium		500	-0.90		457	91.4	-1.3		469	93.8
Zinc		1000	-1.1		912	91.2	-0.70		911	91.1

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA30983 Units: ug/l

Time:							
Sample ID:							
Metal							
Zirconium	500	-7.8	437	87.4	-7.9	448	89.6

(*) Outside of QC limits
(anr) Analyte not requested

12.1.6
12

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA30983 Units: ug/l

Time:			06:37		06:44	
Sample ID:	ICSA	ICSAB	ICSA5		ICSAB5	
Metal	True	True	Results	% Rec	Results	% Rec
Aluminum	500000	500000	494000	98.8	487000	97.4
Antimony		1000	3.6		978	97.8
Arsenic		1000	-0.40		1010	101.0
Barium		500	-0.40		494	98.8
Beryllium		500	0.10		453	90.6
Bismuth		500	13.6		472	94.4
Boron			-5.4		-9.0	
Cadmium		1000	0.90		969	96.9
Calcium	400000	400000	365000	91.3	362000	90.5
Chromium		500	-0.20		489	97.8
Cobalt		500	1.2		447	89.4
Copper		500	-2.0		494	98.8
Iron	200000	200000	202000	101.0	177000	88.5
Lead		1000	2.5		901	90.1
Lithium		500	5.0		522	104.4
Magnesium	500000	500000	522000	104.4	504000	100.8
Manganese		500	0.30		469	93.8
Molybdenum		500	7.8		467	93.4
Nickel		1000	-2.9		872	87.2
Palladium		500	16.2		539	107.8
Potassium			5.9		25.6	
Selenium		1000	4.5		922	92.2
Silicon			21.5		18.2	
Silver		1000	0.60		976	97.6
Sodium			20.3		12.2	
Sulfur		500	12.0		445	89.0
Strontium			-4.7		-5.2	
Thallium		1000	-1.3		959	95.9
Tin			-0.90		-1.6	
Titanium			2.4		5.7	
Tungsten		500	21.7		495	99.0
Vanadium		500	-1.2		448	89.6
Zinc		1000	-1.0		931	93.1

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041713M1.ICP Date Analyzed: 04/17/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA30983 Units: ug/l

Time:				
Sample ID:				
Metal				
Zirconium	500	-8.0	425	85.0

(*) Outside of QC limits
(anr) Analyte not requested

12.1.6
12

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041813M2.ICP Date Analyzed: 04/18/13 Methods: EPA 200.7, SW846 6010C
Analyst: GT Run ID: MA30993
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
17:16	MA30993-STD1	1		STDA
17:22	MA30993-STD2	1		STDB
17:28	MA30993-STD3	1		STDC
17:34	MA30993-STD4	1		STDD
17:43	MA30993-ICV1	1		
17:50	MA30993-ICB1	1		
17:56	MA30993-CCV1	1		
18:02	MA30993-CCB1	1		
18:09	MA30993-CRI1	1		
18:15	MA30993-CRID1	1		
18:22	MA30993-CRIA1	1		
18:28	MA30993-ICSA1	1		
18:35	MA30993-ICSAB1	1		
18:41	ZZZZZZ	1		
18:48	ZZZZZZ	1		
18:54	MA30993-CRID2	1		
19:00	MA30993-CCV2	1		
19:07	MA30993-CCB2	1		
19:13	ZZZZZZ	1		
19:20	MP71369-S1	1		
19:26	MP71369-S2	1		
19:32	MP71369-SD1	5		
19:38	JB33644-7F	1		
19:45	JB33644-8F	1		
19:51	JB33644-9F	1		
19:58	JB33644-10F	1		
20:04	JB33644-11F	1		
20:10	JB33644-12F	1		
20:17	MA30993-CCV3	1		
20:23	MA30993-CCB3	1		
20:30	JB33644-13F	1		
20:36	JB33644-14F	1		
20:42	JB33644-15F	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041813M2.ICP Date Analyzed: 04/18/13 Methods: EPA 200.7, SW846 6010C
Analyst: GT Run ID: MA30993
Parameters: Pb

	Time	Sample Description	Dilution Factor	PS Recov	Comments
	20:49	JB33644-16F	1		
---------->	Last reportable sample/prep for job JB33644				
	20:55	ZZZZZZ	1		
	21:02	ZZZZZZ	1		
	21:08	ZZZZZZ	1		
	21:14	ZZZZZZ	1		
	21:21	ZZZZZZ	1		
	21:27	ZZZZZZ	3		
	21:34	MA30993-CCV4	1		
	21:40	MA30993-CCB4	1		
	21:47	ZZZZZZ	3		
	21:53	ZZZZZZ	2		
	21:59	ZZZZZZ	3		
	22:06	MP71343-MB1	1		
	22:12	MP71343-MB2	1		
	22:19	MP71343-LC1	1		
	22:25	MP71343-LC2	1		
	22:31	MP71343-B1	1		
	22:37	MP71343-S1	1		
	22:44	MP71343-S2	1		
	22:50	MA30993-CCV5	1		
	22:56	MA30993-CCB5	1		
	23:03	JB33683-11	1		(sample used for QC only; not part of login JB33644)
	23:09	MP71343-SD1	5		
	23:15	ZZZZZZ	1		
	23:22	ZZZZZZ	1		
	23:28	ZZZZZZ	1		
	23:34	ZZZZZZ	1		
	23:41	ZZZZZZ	1		
	23:47	ZZZZZZ	1		
	23:53	ZZZZZZ	1		
	00:00	ZZZZZZ	1		
	00:06	MA30993-CCV6	1		
	00:12	MA30993-CCB6	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041813M2.ICP Date Analyzed: 04/18/13 Methods: EPA 200.7, SW846 6010C
Analyst: GT Run ID: MA30993
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
00:19	ZZZZZZ	1		
00:25	ZZZZZZ	1		
00:32	ZZZZZZ	1		
00:38	ZZZZZZ	1		
00:45	ZZZZZZ	1		
00:51	ZZZZZZ	1		
00:57	ZZZZZZ	1		
01:04	ZZZZZZ	1		
01:10	ZZZZZZ	1		
01:17	ZZZZZZ	1		
01:23	MA30993-CCV7	1		
01:29	MA30993-CCB7	1		
01:36	MA30993-CRI2	1		
01:42	MA30993-CRID3	1		
01:49	MA30993-CRIA2	1		
01:55	MA30993-ICSA2	1		
02:02	MA30993-ICSAB2	1		
02:08	MA30993-CCV8	1		
02:15	MA30993-CCB8	1		
---------->	Last reportable CCB for job JB33644			
02:21	ZZZZZZ	1		
02:27	ZZZZZZ	1		
02:34	ZZZZZZ	1		
02:40	ZZZZZZ	1		
02:47	ZZZZZZ	1		
02:53	ZZZZZZ	1		
03:00	MA30993-CCV9	1		
03:06	MA30993-CCB9	1		
03:12	ZZZZZZ	1		
03:19	MP71356-MB1	1		Bad reading on y 3600 on CCB
03:25	MP71356-LC1	1		Bad reading on y 3600 on CCB
03:32	MP71356-S1	1		Bad reading on y 3600 on CCB
03:38	MP71356-S2	1		Bad reading on y 3600 on CCB
03:44	JB33752-2	1		(sample used for QC only; not part of login JB33644)

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041813M2.ICP Date Analyzed: 04/18/13 Methods: EPA 200.7, SW846 6010C
Analyst: GT Run ID: MA30993
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
03:51	MP71356-SD1	5		Bad reading on y 3600 on CCB
03:57	ZZZZZZ	1		
04:04	ZZZZZZ	1		
04:10	ZZZZZZ	1		
04:16	MA30993-CCV10	1		
04:23	MA30993-CCB10	1		
04:29	ZZZZZZ	1		
04:35	ZZZZZZ	1		
04:42	ZZZZZZ	1		
04:48	ZZZZZZ	1		
04:55	ZZZZZZ	1		
05:01	ZZZZZZ	1		
05:07	ZZZZZZ	1		
05:14	ZZZZZZ	1		
05:20	ZZZZZZ	1		
05:27	ZZZZZZ	1		
05:33	MA30993-CCV11	1		
05:39	MA30993-CCB11	1		
05:46	ZZZZZZ	1		
05:52	ZZZZZZ	1		
05:59	ZZZZZZ	1		
06:05	ZZZZZZ	1		
06:12	ZZZZZZ	1		
06:18	ZZZZZZ	1		
06:24	MA30993-CCV12	1		
06:31	MA30993-CCB12	1		
06:37	MA30993-CRI3	1		
06:44	MA30993-CRID4	1		
06:50	MA30993-CRIA3	1		
06:57	MA30993-ICSA3	1		
07:03	MA30993-ICSAB3	1		
07:10	MA30993-CCV13	1		
07:16	MA30993-CCB13	1		

Refer to raw data for calibration curve and standards.

INTERNAL STANDARD SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041813M2.ICP Date Analyzed: 04/18/13 Methods: EPA 200.7, SW846 6010C
Analyst: GT Run ID: MA30993
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
17:16	MA30993-STD1	1832 R	114710 R	28038 R	4985 R
17:22	MA30993-STD2	1781	110080	28290	4622
17:28	MA30993-STD3	1741	108560	27899	4477
17:34	MA30993-STD4	1669	103910	27596	4265
17:43	MA30993-ICV1	1729	108440	27388	4443
17:50	MA30993-ICB1	1823	114660	28030	4977
17:56	MA30993-CCV1	1732	107110	27611	4464
18:02	MA30993-CCB1	1828	115840	28307	4996
18:09	MA30993-CRI1	1815	113920	28293	4888
18:15	MA30993-CRID1	No results reported for the elements associated with this internal standard.			
18:22	MA30993-CRIA1	1839	115470	28329	5020
18:28	MA30993-ICSA1	1584	97764	26952	4005
18:35	MA30993-ICSAB1	1573	96785	27086	3976
18:41	ZZZZZZ	1802	104900	28780	4466
18:48	ZZZZZZ	1792	112660	28292	4960
18:54	MA30993-CRID2	1828	115050	28297	4980
19:00	MA30993-CCV2	1739	108750	28237	4490
19:07	MA30993-CCB2	1837	116560	28717	5032
19:13	ZZZZZZ	1835	116960	999999 !	5042
19:20	MP71369-S1	1820	113280	29872	4595
19:26	MP71369-S2	1812	113010	29578	4622
19:32	MP71369-SD1	1846	116170	29003	4934
19:38	JB33644-7F	1721	108390	28265	4501
19:45	JB33644-8F	1746	110250	28195	4609
19:51	JB33644-9F	1748	110330	28275	4595
19:58	JB33644-10F	1696	106930	28137	4398
20:04	JB33644-11F	1703	108680	28495	4421
20:10	JB33644-12F	1703	107310	27984	4420
20:17	MA30993-CCV3	1754	108190	27980	4507
20:23	MA30993-CCB3	1833	115400	28039	5009
20:30	JB33644-13F	1695	107840	27844	4426
20:36	JB33644-14F	1738	110920	28154	4580
20:42	JB33644-15F	1577	99244	26961	4019

INTERNAL STANDARD SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041813M2.ICP Date Analyzed: 04/18/13 Methods: EPA 200.7, SW846 6010C
Analyst: GT Run ID: MA30993
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
20:49	JB33644-16F	1706	107760	27883	4443
20:55	ZZZZZZ	1686	105110	27522	4320
21:02	ZZZZZZ	1664	103950	27523	4266
21:08	ZZZZZZ	1697	105510	27660	4346
21:14	ZZZZZZ	1693	105210	27273	4353
21:21	ZZZZZZ	1819	115360	28491	5005
21:27	ZZZZZZ	1773	108830	28432	4855
21:34	MA30993-CCV4	1732	106190	27740	4456
21:40	MA30993-CCB4	1822	114550	28265	4990
21:47	ZZZZZZ	1786	111410	28794	4916
21:53	ZZZZZZ	1761	110290	28538	4784
21:59	ZZZZZZ	1755	109240	28225	4824
22:06	MP71343-MB1	1820	116260	28708	5014
22:12	MP71343-MB2	1797	116180	28817	4953
22:19	MP71343-LC1	1797	112470	28351	4818
22:25	MP71343-LC2	1779	112620	28301	4769
22:31	MP71343-B1	1742	110160	28227	4613
22:37	MP71343-S1	1715	108660	28285	4459
22:44	MP71343-S2	1720	108740	28301	4468
22:50	MA30993-CCV5	1736	109030	27876	4495
22:56	MA30993-CCB5	1822	115390	28413	5008
23:03	JB33683-11	1753	111800	28488	4694
23:09	MP71343-SD1	1797	114000	28408	4907
23:15	ZZZZZZ	1810	114740	29358	4679
23:22	ZZZZZZ	1813	113740	28893	4821
23:28	ZZZZZZ	1743	111200	28281	4659
23:34	ZZZZZZ	1759	112540	28080	4765
23:41	ZZZZZZ	1728	111200	28325	4640
23:47	ZZZZZZ	1722	110990	28258	4625
23:53	ZZZZZZ	1721	109980	28355	4580
00:00	ZZZZZZ	1820	115310	29064	4743
00:06	MA30993-CCV6	1718	107710	27323	4469
00:12	MA30993-CCB6	1815	116000	27643	5009

INTERNAL STANDARD SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041813M2.ICP Date Analyzed: 04/18/13 Methods: EPA 200.7, SW846 6010C
Analyst: GT Run ID: MA30993
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
00:19	ZZZZZZ	1576	101270	26387	4073
00:25	ZZZZZZ	1715	109210	26929	4613
00:32	ZZZZZZ	1514	94458	26384	3719
00:38	ZZZZZZ	1753	111170	27496	4721
00:45	ZZZZZZ	1730	110710	27240	4666
00:51	ZZZZZZ	1747	111270	27555	4703
00:57	ZZZZZZ	1701	106250	27268	4474
01:04	ZZZZZZ	1770	111500	27620	4803
01:10	ZZZZZZ	1628	103690	26622	4237
01:17	ZZZZZZ	1555	97793	26178	3938
01:23	MA30993-CCV7	1719	107920	26839	4477
01:29	MA30993-CCB7	1819	113260	27605	5044
01:36	MA30993-CRI2	1798	114120	27325	4924
01:42	MA30993-CRID3	1822	115200	27518	5027
01:49	MA30993-CRIA2	1801	115960	27446	4994
01:55	MA30993-ICSA2	1559	97485	26580	3989
02:02	MA30993-ICSAB2	1550	96935	26548	3959
02:08	MA30993-CCV8	1728	108170	27123	4511
02:15	MA30993-CCB8	1801	116050	27558	5025
02:21	ZZZZZZ	1814	115640	27273	5034
02:27	ZZZZZZ	1810	115630	27461	5040
02:34	ZZZZZZ	1805	115720	27916	5062
02:40	ZZZZZZ	1823	116070	27712	5070
02:47	ZZZZZZ	1801	115250	27398	5017
02:53	ZZZZZZ	1746	113840	27617	5032
03:00	MA30993-CCV9	1728	108780	27211	4531
03:06	MA30993-CCB9	1810	999999 !a	28345	5049
03:12	ZZZZZZ	1808	116370	27995	5096
03:19	MP71356-MB1	1800	116080	28041	5063
03:25	MP71356-LC1	1767	113950	27707	4844
03:32	MP71356-S1	1656	107720	27254	4390
03:38	MP71356-S2	1664	107440	27576	4398
03:44	JB33752-2	1705	109320	28242	4538

INTERNAL STANDARD SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041813M2.ICP Date Analyzed: 04/18/13 Methods: EPA 200.7, SW846 6010C
Analyst: GT Run ID: MA30993
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
03:51	MP71356-SD1	1765	113450	28013	4838
03:57	ZZZZZZ	1706	109260	27745	4558
04:04	ZZZZZZ	1733	110560	27690	4703
04:10	ZZZZZZ	1694	110180	27721	4563
04:16	MA30993-CCV10	1714	112280	27304	4500
04:23	MA30993-CCB10	1800	115410	27448	5054
04:29	ZZZZZZ	1694	104920	27196	4557
04:35	ZZZZZZ	1736	110730	28111	4718
04:42	ZZZZZZ	1684	107980	28098	4448
04:48	ZZZZZZ	1671	105480	27507	4401
04:55	ZZZZZZ	1759	111690	28140	4636
05:01	ZZZZZZ	1703	109230	28066	4653
05:07	ZZZZZZ	1719	109890	27878	4650
05:14	ZZZZZZ	1710	108730	27604	4638
05:20	ZZZZZZ	1116 !	109270	27700	4540
05:27	ZZZZZZ	1723	111390	27913	4697
05:33	MA30993-CCV11	1715	109660	27488	4507
05:39	MA30993-CCB11	1807	117370	27991	5068
05:46	ZZZZZZ	1692	109510	27775	4555
05:52	ZZZZZZ	1736	109990	27400	4696
05:59	ZZZZZZ	1692	107820	28444	4513
06:05	ZZZZZZ	1129 !	109560	27881	4538
06:12	ZZZZZZ	1753	112310	28223	4770
06:18	ZZZZZZ	1678	109110	28163	4491
06:24	MA30993-CCV12	1702	109530	28049	4466
06:31	MA30993-CCB12	1804	116880	27698	5051
06:37	MA30993-CRI3	1804	115260	27615	4966
06:44	MA30993-CRID4	1822	117340	28464	5066
06:50	MA30993-CRIA3	1836	116790	28311	5126
06:57	MA30993-ICSA3	1565	99679	26463	4030
07:03	MA30993-ICSAB3	1582	98485	27024	4057
07:10	MA30993-CCV13	1757	110340	28239	4611
07:16	MA30993-CCB13	1852	117500	28148	5173

R = Reference for ISTD limits. ! = Outside limits.

INTERNAL STANDARD SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041813M2.ICP Date Analyzed: 04/18/13 Methods: EPA 200.7, SW846 6010C
Analyst: GT Run ID: MA30993
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %
Istd#4	Indium	70-130 %

(a) No samples reported for the elements associated with this internal standard.

12.2.1

12

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041813M2.ICP Date Analyzed: 04/18/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30993 Units: ug/l

Time:			17:50		18:02		19:07		20:23	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	6.7								
Antimony	6.0	1.1								
Arsenic	3.0	.9	anr							
Barium	200	.3	anr							
Beryllium	1.0	.2								
Bismuth	20	1.1								
Boron	100	2								
Cadmium	3.0	.4	anr							
Calcium	5000	15								
Chromium	10	.4	anr							
Cobalt	50	.3	anr							
Copper	10	.5	anr							
Iron	100	4.4								
Lead	3.0	1.2	-0.20	<3.0	-0.10	<3.0	-0.20	<3.0	1.1	<3.0
Lithium	20	1								
Magnesium	5000	12								
Manganese	15	.2	anr							
Molybdenum	20	.6								
Nickel	10	.5	anr							
Palladium	50	1.6								
Potassium	10000	28								
Selenium	10	1.4	anr							
Silicon	200	5.4	anr							
Silver	10	.4	anr							
Sodium	10000	14								
Sulfur	50	3.2								
Strontium	10	.1								
Thallium	2.0	1.5	anr							
Tin	10	.9								
Titanium	10	.6								
Tungsten	50	6.6								
Vanadium	50	.4								
Zinc	20	.6								

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041813M2.ICP Date Analyzed: 04/18/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30993 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.3

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041813M2.ICP Date Analyzed: 04/18/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30993 Units: ug/l

Time:			21:40		22:56		00:12		01:29	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	6.7								
Antimony	6.0	1.1								
Arsenic	3.0	.9	anr							
Barium	200	.3	anr							
Beryllium	1.0	.2								
Bismuth	20	1.1								
Boron	100	2								
Cadmium	3.0	.4	anr							
Calcium	5000	15								
Chromium	10	.4	anr							
Cobalt	50	.3	anr							
Copper	10	.5	anr							
Iron	100	4.4								
Lead	3.0	1.2	0.40	<3.0	-0.10	<3.0	0.20	<3.0	0.60	<3.0
Lithium	20	1								
Magnesium	5000	12								
Manganese	15	.2	anr							
Molybdenum	20	.6								
Nickel	10	.5	anr							
Palladium	50	1.6								
Potassium	10000	28								
Selenium	10	1.4	anr							
Silicon	200	5.4	anr							
Silver	10	.4	anr							
Sodium	10000	14								
Sulfur	50	3.2								
Strontium	10	.1								
Thallium	2.0	1.5	anr							
Tin	10	.9								
Titanium	10	.6								
Tungsten	50	6.6								
Vanadium	50	.4								
Zinc	20	.6								

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041813M2.ICP Date Analyzed: 04/18/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30993 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.3

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041813M2.ICP Date Analyzed: 04/18/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30993 Units: ug/l

Time:			02:15	
Sample ID:			CCB8	
Metal	RL	IDL	raw	final
Aluminum	200	6.7		
Antimony	6.0	1.1		
Arsenic	3.0	.9	anr	
Barium	200	.3	anr	
Beryllium	1.0	.2		
Bismuth	20	1.1		
Boron	100	2		
Cadmium	3.0	.4	anr	
Calcium	5000	15		
Chromium	10	.4	anr	
Cobalt	50	.3	anr	
Copper	10	.5	anr	
Iron	100	4.4		
Lead	3.0	1.2	0.10	<3.0
Lithium	20	1		
Magnesium	5000	12		
Manganese	15	.2	anr	
Molybdenum	20	.6		
Nickel	10	.5	anr	
Palladium	50	1.6		
Potassium	10000	28		
Selenium	10	1.4	anr	
Silicon	200	5.4	anr	
Silver	10	.4	anr	
Sodium	10000	14		
Sulfur	50	3.2		
Strontium	10	.1		
Thallium	2.0	1.5	anr	
Tin	10	.9		
Titanium	10	.6		
Tungsten	50	6.6		
Vanadium	50	.4		
Zinc	20	.6		

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041813M2.ICP Date Analyzed: 04/18/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30993 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.3

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041813M2.ICP Date Analyzed: 04/18/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30993 Units: ug/l

Time:		17:43			17:56			19:00	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron									
Lead	2000	2020	101.0	2000	2010	100.5	2000	1980	99.0
Lithium									
Magnesium									
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium									
Selenium	anr								
Silicon	anr								
Silver	anr								
Sodium									
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium									
Zinc									

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041813M2.ICP Date Analyzed: 04/18/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30993 Units: ug/l

Time:	
Sample ID:	
Metal	
Zirconium	

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041813M2.ICP Date Analyzed: 04/18/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30993 Units: ug/l

Time:		20:17			21:34			22:50	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron									
Lead	2000	1990	99.5	2000	2010	100.5	2000	1980	99.0
Lithium									
Magnesium									
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium									
Selenium	anr								
Silicon	anr								
Silver	anr								
Sodium									
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium									
Zinc									

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041813M2.ICP Date Analyzed: 04/18/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30993 Units: ug/l

Time:	
Sample ID:	
Metal	
Zirconium	

(*) Outside of QC limits
(anr) Analyte not requested

12.2.3
12

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041813M2.ICP Date Analyzed: 04/18/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30993 Units: ug/l

Time:		00:06			01:23			02:08	
Sample ID:	CCV	CCV6		CCV	CCV7		CCV	CCV8	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron									
Lead	2000	1960	98.0	2000	1980	99.0	2000	1940	97.0
Lithium									
Magnesium									
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium									
Selenium	anr								
Silicon	anr								
Silver	anr								
Sodium									
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium									
Zinc									

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041813M2.ICP Date Analyzed: 04/18/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30993 Units: ug/l

Time:	
Sample ID:	
Metal	
Zirconium	

(*) Outside of QC limits
(anr) Analyte not requested

12.2.3
12

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041813M2.ICP Date Analyzed: 04/18/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30993 Units: ug/l

Time:				18:09		18:22		18:54	
Sample ID:	CRI	CRIA	CRID	CRI1		CRIA1		CRID2	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	200	500	100						
Antimony	6.0	20	3.0						
Arsenic	8.0	20	3.0	anr					
Barium	200		4.0	anr					
Beryllium	2.0		1.0						
Bismuth	20								
Boron	100		10						
Cadmium	3.0		1.0	anr					
Calcium	5000		1000						
Chromium	10		2.0	anr					
Cobalt	50		3.0	anr					
Copper	10		2.0	anr					
Iron	100	500							
Lead	3.0	20	2.5	2.8	93.3	19.2	96.0		
Lithium	20								
Magnesium	5000		100						
Manganese	15		3.0	anr					
Molybdenum	20		4.0						
Nickel	10		4.0	anr					
Palladium	50								
Potassium	5000		2000						
Selenium	10	20	5.0	anr					
Silicon	200			anr					
Silver	5.0		1.0	anr					
Sodium	5000		1000						
Sulfur	50	50	50						
Strontium	10								
Thallium	10		2.0	anr					
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0						
Zinc	20		10						

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041813M2.ICP Date Analyzed: 04/18/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30993 Units: ug/l

Time:
Sample ID:

Metal		
Zirconium	10	5.0

(*) Outside of QC limits
(anr) Analyte not requested

12.2.4

12

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041813M2.ICP Date Analyzed: 04/18/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30993 Units: ug/l

Time:				01:36		01:42		01:49	
Sample ID:	CRI	CRIA	CRID	CRI2		CRID3		CRIA2	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	200	500	100						
Antimony	6.0	20	3.0						
Arsenic	8.0	20	3.0	anr					
Barium	200		4.0	anr					
Beryllium	2.0		1.0						
Bismuth	20								
Boron	100		10						
Cadmium	3.0		1.0	anr					
Calcium	5000		1000						
Chromium	10		2.0	anr					
Cobalt	50		3.0	anr					
Copper	10		2.0	anr					
Iron	100	500							
Lead	3.0	20	2.5	2.7	90.0			18.1	90.5
Lithium	20								
Magnesium	5000		100						
Manganese	15		3.0	anr					
Molybdenum	20		4.0						
Nickel	10		4.0	anr					
Palladium	50								
Potassium	5000		2000						
Selenium	10	20	5.0	anr					
Silicon	200			anr					
Silver	5.0		1.0	anr					
Sodium	5000		1000						
Sulfur	50	50	50						
Strontium	10								
Thallium	10		2.0	anr					
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0						
Zinc	20		10						

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041813M2.ICP Date Analyzed: 04/18/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30993 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	5.0

(*) Outside of QC limits
(anr) Analyte not requested

12.2.4

12

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041813M2.ICP Date Analyzed: 04/18/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA30993 Units: ug/l

Time:			18:28		18:35		01:55		02:02	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1		ICSA2		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	500000	500000	495000	99.0	497000	99.4	488000	97.6	487000	97.4
Antimony		1000	5.8		1010	101.0	3.1		1000	100.0
Arsenic		1000	0.10		1040	104.0	2.0		1070	107.0
Barium		500	-0.40		495	99.0	-0.30		492	98.4
Beryllium		500	0.10		452	90.4	0.10		445	89.0
Bismuth		500	16.9		514	102.8	14.9		524	104.8
Boron			-5.6		-10		-6.7		-11	
Cadmium		1000	0.90		1030	103.0	1.0		1030	103.0
Calcium	400000	400000	370000	92.5	354000	88.5	360000	90.0	351000	87.8
Chromium		500	0.70		455	91.0	1.0		454	90.8
Cobalt		500	1.4		461	92.2	1.1		457	91.4
Copper		500	-2.2		509	101.8	-1.7		509	101.8
Iron	200000	200000	205000	102.5	179000	89.5	202000	101.0	182000	91.0
Lead		1000	1.0		899	89.9	5.2		883	88.3
Lithium		500	4.8		513	102.6	5.1		511	102.2
Magnesium	500000	500000	523000	104.6	505000	101.0	528000	105.6	514000	102.8
Manganese		500	-0.20		469	93.8	-1.1		471	94.2
Molybdenum		500	8.1		488	97.6	8.1		487	97.4
Nickel		1000	5.1		891	89.1	4.6		881	88.1
Palladium		500	20.4		572	114.4	22.7		580	116.0
Potassium			52.1		72.3		32.2		56.2	
Selenium		1000	1.5		976	97.6	-7.3		979	97.9
Silicon			19.4		18.0		20.5		15.6	
Silver		1000	-0.70		1000	100.0	-4.2		997	99.7
Sodium			-12		-2.7		7.9		7.6	
Sulfur		500	17.6		501	100.2	19.3		493	98.6
Strontium			-4.6		-4.2		-4.0		-3.9	
Thallium		1000	1.7		942	94.2	-3.4		921	92.1
Tin			1.6		0.90		1.2		0.10	
Titanium			2.3		5.7		2.1		5.9	
Tungsten		500	28.2		511	102.2	21.6		500	100.0
Vanadium		500	-1.2		470	94.0	-0.60		474	94.8
Zinc		1000	-0.80		922	92.2	-0.50		903	90.3

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: SB041813M2.ICP Date Analyzed: 04/18/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA30993 Units: ug/l

Time:							
Sample ID:							
Metal							
Zirconium	500	-8.3	442	88.4	-8.6	441	88.2

(*) Outside of QC limits
(anr) Analyte not requested

12.2.5
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BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

QC Batch ID: MP71329
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 04/16/13

Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	6.7	16		
Antimony	6.0	1.1	1.4		
Arsenic	3.0	.9	.97		
Barium	200	.3	.66		
Beryllium	1.0	.2	.44		
Bismuth	20	1.1	1		
Boron	100	2	1		
Cadmium	3.0	.4	.24		
Calcium	5000	15	39		
Chromium	10	.4	.91		
Cobalt	50	.3	.59		
Copper	10	.5	1.3		
Iron	100	4.4	24		
Lead	3.0	1.2	1.7	-0.50	<3.0
Lithium	20	1	2.7		
Magnesium	5000	12	16		
Manganese	15	.2	.4		
Molybdenum	20	.6	1.5		
Nickel	10	.5	.94		
Palladium	50	1.6	1.8		
Potassium	10000	28	62		
Selenium	10	1.4	2.4		
Silicon	200	5.4	18		
Silver	10	.4	.85		
Sodium	10000	14	13		
Sulfur	50	3.2	5		
Strontium	10	.1	.25		
Thallium	2.0	1.5	1.7		
Tin	10	.9	1.3		
Titanium	10	.6	.81		
Tungsten	50	6.6	9.3		
Vanadium	50	.4	.77		
Zinc	20	.6	2.8		

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

QC Batch ID: MP71329 Methods: SW846 6010C
Matrix Type: AQUEOUS Units: ug/l

Prep Date:

Metal			
Zirconium	10	.3	1.7

Associated samples MP71329: JB33644-1F, JB33644-2F, JB33644-3F, JB33644-5F, JB33644-6F, JB33644-7F, JB33644-8F, JB33644-9F, JB33644-10F, JB33644-11F, JB33644-12F, JB33644-13F, JB33644-14F, JB33644-15F, JB33644-16F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

QC Batch ID: MP71329
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 04/16/13

Metal	JB33820-1 Original	MS	Spikelot MPIRW1	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Bismuth					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead	2.6	458	500	91.1	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Palladium					
Potassium					
Selenium					
Silicon					
Silver					
Sodium					
Sulfur					
Strontium					
Thallium					
Tin					
Titanium					
Tungsten					
Vanadium					
Zinc					

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

QC Batch ID: MP71329 | Methods: SW846 6010C
Matrix Type: AQUEOUS | Units: ug/l

Prep Date:

Metal
Zirconium

Associated samples MP71329: JB33644-1F, JB33644-2F, JB33644-3F, JB33644-5F, JB33644-6F, JB33644-7F, JB33644-8F, JB33644-9F, JB33644-10F, JB33644-11F, JB33644-12F, JB33644-13F, JB33644-14F, JB33644-15F, JB33644-16F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

QC Batch ID: MP71329
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 04/16/13

Metal	JB33820-1 Original	MSD	Spikelot MPIRW1	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Bismuth						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead	2.6	457	500	90.9	0.2	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Palladium						
Potassium						
Selenium						
Silicon						
Silver						
Sodium						
Sulfur						
Strontium						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium						
Zinc						

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

QC Batch ID: MP71329
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal

Zirconium

Associated samples MP71329: JB33644-1F, JB33644-2F, JB33644-3F, JB33644-5F, JB33644-6F, JB33644-7F, JB33644-8F, JB33644-9F, JB33644-10F, JB33644-11F, JB33644-12F, JB33644-13F, JB33644-14F, JB33644-15F, JB33644-16F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

QC Batch ID: MP71329
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 04/16/13

Metal	LCS Result	Spikelot MPLCW3	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	513	500	102.6	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Palladium				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Sulfur				
Strontium				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

QC Batch ID: MP71329 Methods: SW846 6010C
Matrix Type: AQUEOUS Units: ug/l

Prep Date:

Metal
Zirconium

Associated samples MP71329: JB33644-1F, JB33644-2F, JB33644-3F, JB33644-5F, JB33644-6F, JB33644-7F, JB33644-8F, JB33644-9F, JB33644-10F, JB33644-11F, JB33644-12F, JB33644-13F, JB33644-14F, JB33644-15F, JB33644-16F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

QC Batch ID: MP71329
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 04/16/13

Metal	JB33820-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	2.60	0.00	100.0(a)	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Palladium				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Sulfur				
Strontium				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB33644
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

QC Batch ID: MP71329 Methods: SW846 6010C
Matrix Type: AQUEOUS Units: ug/l

Prep Date:

Metal
Zirconium

Associated samples MP71329: JB33644-1F, JB33644-2F, JB33644-3F, JB33644-5F, JB33644-6F, JB33644-7F, JB33644-8F, JB33644-9F, JB33644-10F, JB33644-11F, JB33644-12F, JB33644-13F, JB33644-14F, JB33644-15F, JB33644-16F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).