New Jersey
ACCUTEST LABORATORIES

08/08/13

Technical Report for

Stantec Consulting Services Inc.

Sunoco, Philadelphia Refinery, Philadelphia, PA

Accutest Job Number: JB33197

Sampling Date: 04/03/13

Report to:

Langan Engineering & Environmental

estrake@langan.com

ATTN: Emily Strake

Total number of pages in report: **448**

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

Client Service contact: Kristin Beebe 732-329-0200

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Accutest LabLink@746284 12:54 08-Aug-2013

Sample Summary

Stantec Consulting Services Inc.

Job No: JB33197

Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB33197-1	04/03/13	11:49	CC	04/03/13	AQ	Ground Water	S-50
JB33197-1F	04/03/13	11:49	CC	04/03/13	AQ	Groundwater Filtered	S-50
JB33197-2	04/03/13	08:30	CC	04/03/13	AQ	Ground Water	S-117
JB33197-2F	04/03/13	08:30	CC	04/03/13	AQ	Groundwater Filtered	S-117
JB33197-3	04/03/13	09:31	CC	04/03/13	AQ	Ground Water	S-226
JB33197-3F	04/03/13	09:31	CC	04/03/13	AQ	Groundwater Filtered	S-226
JB33197-4	04/03/13	09:51	CC	04/03/13	AQ	Ground Water	S-52
JB33197-4F	04/03/13	09:51	CC	04/03/13	AQ	Groundwater Filtered	S-52
JB33197-5	04/03/13	10:27	CC	04/03/13	AQ	Field Blank Water	FIELD BLANK-FB
JB33197-5F	04/03/13	10:27	CC	04/03/13	AQ	Field Blank Filtered	FIELD BLANK-FB
JB33197-6	04/03/13	14:00	CC	04/03/13	AQ	Trip Blank Water	TRIP BLANK
JB33197-7	04/03/13	12:20	CC	04/03/13	AQ	Ground Water	S-25
JB33197-7F	04/03/13	12:20	CC	04/03/13	AQ	Groundwater Filtered	S-25

Sample Summary
(continued)

Stantec Consulting Services Inc.

Job No: JB33197

Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB33197-8	04/03/13	11:35	CC	04/03/13	AQ	Ground Water	S-223
JB33197-8F	04/03/13	11:35	CC	04/03/13	AQ	Groundwater Filtered	S-223
JB33197-9	04/03/13	10:05	CC	04/03/13	AQ	Ground Water	S-222
JB33197-9F	04/03/13	10:05	CC	04/03/13	AQ	Groundwater Filtered	S-222
JB33197-10	04/03/13	08:45	CC	04/03/13	AQ	Ground Water	S-38
JB33197-10F	04/03/13	08:45	CC	04/03/13	AQ	Groundwater Filtered	S-38
JB33197-11	04/03/13	14:00	CC	04/03/13	AQ	Ground Water	S-3
JB33197-11F	04/03/13	14:00	CC	04/03/13	AQ	Groundwater Filtered	S-3

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Stantec Consulting Services Inc.	**Job No**	JB33197
Site:	Sunoco, Philadelphia Refinery, Philadelphia, PA	**Report Date**	5/10/2013 2:39:13 PM

On 04/03/2013, 18 Sample(s), 1 Trip Blank(s) and 2 Field Blank(s) were received at Accutest Laboratories at a temperature of 2.8 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB33197 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:** V2D4985

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB33197-3MS, JB33197-3MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Matrix: AQ **Batch ID:** V2E4025

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB33406-10MS, JB33406-10MSD were used as the QC samples indicated.

Matrix: AQ **Batch ID:** V3D3669

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB33197-8MS, JB33197-8MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Matrix: AQ **Batch ID:** V4D1545

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB33732-3MS, JB33732-3MSD were used as the QC samples indicated.

Extractables by GCMS By Method SW846 8270D BY SIM

Matrix: AQ **Batch ID:** OP65064A

- All samples were extracted within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB33197-4MS, JB33197-4MSD were used as the QC samples indicated.
- Matrix Spike Recovery(s) for Benzo(g,h,i)perylene are outside control limits. Outside control limits due to matrix interference.
- Matrix Spike Duplicate Recovery(s) for Benzo(g,h,i)perylene are outside control limits. Outside control limits due to matrix interference.
- JB33197-8 for Nitrobenzene-d5: Refer to re-extract.
- JB33197-8 for 2-Fluorobiphenyl: Refer to re-extract.
- JB33197-9 for 2-Fluorobiphenyl: Outside control limits due to matrix interference.

Matrix: AQ **Batch ID:** OP65472A

- 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: JB33197-9, JB33197-8 Reextract due to surrogate outside QC limits. Original prep date within holding time.
- JB33197-9: Confirmation run.
- JB33197-8: Reextract due to surrogate outside QC limits. Original prep date within holding time.

Volatiles by GC By Method SW846-8011

Matrix: AQ **Batch ID:** OP65137

- All samples were extracted within the recommended method holding time.
- Sample(s) JB33197-1MS, JB33197-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Metals By Method SW846 6020A

Matrix: AQ **Batch ID:** MP71053

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB33249-1MS, JB33249-1MSD, JB33249-1SDL were used as the QC samples for metals.

Wet Chemistry By Method EPA 300/SW846 9056A

Matrix: AQ **Batch ID:** GP71337

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB33180-2DUP, JB33180-2MS were used as the QC samples for Sulfate.

Wet Chemistry By Method SM19 9215B

Matrix: AQ **Batch ID:** MB4358

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB33198-2DUP were used as the QC samples for Plate Count, Total.

Wet Chemistry By Method SM2320 B-11

Matrix: AQ	**Batch ID:** GN82893

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB33256-1FDUP were used as the QC samples for Alkalinity, Total as CaCO3.

Wet Chemistry By Method SM2540 C-97

Matrix: AQ	**Batch ID:** GN82743

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB33197-1DUP were used as the QC samples for Solids, Total Dissolved.

Wet Chemistry By Method SM5220 C-97,HACH8000

Matrix: AQ	**Batch ID:** GP71327

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB33008-1DUP, JB33008-1MS were used as the QC samples for Chemical Oxygen Demand.

Matrix: AQ	**Batch ID:** GP71402

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB33197-3DUP, JB33197-3MS were used as the QC samples for Chemical Oxygen Demand.

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: JB33197
Account: Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Collected: 04/03/13

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Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB33197-1	**S-50**					
Benzene		0.46 J	1.0	0.24	ug/l	SW846 8260B
Xylene (total)		0.29 J	1.0	0.24	ug/l	SW846 8260B
Alkalinity, Total as CaCO3		329	13	3.5	mg/l	SM2320 B-11
Chemical Oxygen Demand		25.5	20	7.4	mg/l	SM5220 C-97,HACH8000
Plate Count, Total		14000	100		CFU/ml	SM19 9215B
Solids, Total Dissolved		348	10	1.8	mg/l	SM2540 C-97
Sulfate		7.1 B	10	0.38	mg/l	EPA 300/SW846 9056A
JB33197-1F	**S-50**					
Lead		0.090 B	1.0	0.026	ug/l	SW846 6020A
JB33197-2	**S-117**					
Benzene		37.6	1.0	0.24	ug/l	SW846 8260B
Toluene		7.8	1.0	0.23	ug/l	SW846 8260B
Ethylbenzene		43.2	1.0	0.23	ug/l	SW846 8260B
Xylene (total)		6.4	1.0	0.24	ug/l	SW846 8260B
Methyl Tert Butyl Ether		36.0	1.0	0.16	ug/l	SW846 8260B
Isopropylbenzene		9.8	2.0	0.45	ug/l	SW846 8260B
1,2,4-Trimethylbenzene		0.35 J	2.0	0.19	ug/l	SW846 8260B
1,3,5-Trimethylbenzene		2.4	2.0	0.36	ug/l	SW846 8260B
Naphthalene		2.20	0.10	0.036	ug/l	SW846 8270D BY SIM
Alkalinity, Total as CaCO3		250	13	3.5	mg/l	SM2320 B-11
Chemical Oxygen Demand		37.1	20	7.4	mg/l	SM5220 C-97,HACH8000
Plate Count, Total		9200	100		CFU/ml	SM19 9215B
Solids, Total Dissolved		230	10	1.8	mg/l	SM2540 C-97
Sulfate		3.8 B	10	0.38	mg/l	EPA 300/SW846 9056A
JB33197-2F	**S-117**					
Lead		0.19 B	1.0	0.026	ug/l	SW846 6020A
JB33197-3	**S-226**					
Benzene		3180	25	5.9	ug/l	SW846 8260B
Toluene		1260	25	5.7	ug/l	SW846 8260B
Ethylbenzene		20.8 J	25	5.7	ug/l	SW846 8260B
Xylene (total)		182	25	6.0	ug/l	SW846 8260B
Methyl Tert Butyl Ether		156	25	4.1	ug/l	SW846 8260B
Isopropylbenzene		30.5 J	50	11	ug/l	SW846 8260B
1,2,4-Trimethylbenzene		49.8 J	50	4.6	ug/l	SW846 8260B
1,3,5-Trimethylbenzene		23.6 J	50	9.0	ug/l	SW846 8260B

Summary of Hits

Job Number: JB33197
Account: Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Collected: 04/03/13

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Naphthalene		4.46	0.11	0.039	ug/l	SW846 8270D BY SIM
Phenanthrene		0.469	0.11	0.023	ug/l	SW846 8270D BY SIM
Alkalinity, Total as CaCO3		307	13	3.5	mg/l	SM2320 B-11
Chemical Oxygen Demand		69.6	20	7.4	mg/l	SM5220 C-97,HACH8000
Plate Count, Total		11100	100		CFU/ml	SM19 9215B
Solids, Total Dissolved		200	10	1.8	mg/l	SM2540 C-97
Sulfate		2.2 B	10	0.38	mg/l	EPA 300/SW846 9056A
JB33197-3F	**S-226**					
Lead		0.16 B	1.0	0.026	ug/l	SW846 6020A
JB33197-4	**S-52**					
Benzene		1.3	1.0	0.24	ug/l	SW846 8260B
Toluene		1.5	1.0	0.23	ug/l	SW846 8260B
Ethylbenzene		0.24 J	1.0	0.23	ug/l	SW846 8260B
Xylene (total)		0.72 J	1.0	0.24	ug/l	SW846 8260B
Methyl Tert Butyl Ether		316	1.0	0.16	ug/l	SW846 8260B
Isopropylbenzene		15.4	2.0	0.45	ug/l	SW846 8260B
Fluorene		0.697	0.11	0.019	ug/l	SW846 8270D BY SIM
Alkalinity, Total as CaCO3		462	13	3.5	mg/l	SM2320 B-11
Chemical Oxygen Demand		107	20	7.4	mg/l	SM5220 C-97,HACH8000
Plate Count, Total		3450	100		CFU/ml	SM19 9215B
Solids, Total Dissolved		463	10	1.8	mg/l	SM2540 C-97
Sulfate		24.8	10	0.38	mg/l	EPA 300/SW846 9056A
JB33197-4F	**S-52**					
Lead		0.39 B	1.0	0.026	ug/l	SW846 6020A
JB33197-5	**FIELD BLANK-FB**					
Plate Count, Total		7	0		CFU/ml	SM19 9215B
Solids, Total Dissolved		2.0 B	10	1.8	mg/l	SM2540 C-97
JB33197-5F	**FIELD BLANK-FB**					
Lead		0.034 B	1.0	0.026	ug/l	SW846 6020A
JB33197-6	**TRIP BLANK**					

No hits reported in this sample.

Summary of Hits

Job Number: JB33197
Account: Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Collected: 04/03/13

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB33197-7	**S-25**					
Benzene		1.7	1.0	0.24	ug/l	SW846 8260B
Toluene		0.32 J	1.0	0.23	ug/l	SW846 8260B
Ethylbenzene		0.49 J	1.0	0.23	ug/l	SW846 8260B
Xylene (total)		2.4	1.0	0.24	ug/l	SW846 8260B
Methyl Tert Butyl Ether		1.2	1.0	0.16	ug/l	SW846 8260B
1,2,4-Trimethylbenzene		0.54 J	2.0	0.19	ug/l	SW846 8260B
JB33197-7F	**S-25**					
Lead		0.13 B	1.0	0.026	ug/l	SW846 6020A
JB33197-8	**S-223**					
Benzene		5530	40	9.4	ug/l	SW846 8260B
Toluene		337	40	9.1	ug/l	SW846 8260B
Ethylbenzene		866	40	9.1	ug/l	SW846 8260B
Xylene (total)		4040	40	9.5	ug/l	SW846 8260B
Isopropylbenzene		29.3 J	80	18	ug/l	SW846 8260B
1,2,4-Trimethylbenzene		1070	80	7.4	ug/l	SW846 8260B
1,3,5-Trimethylbenzene		351	80	14	ug/l	SW846 8260B
Fluorene [a]		0.625	0.10	0.017	ug/l	SW846 8270D BY SIM
Naphthalene [a]		130	2.0	0.071	ug/l	SW846 8270D BY SIM
Phenanthrene [a]		0.601	0.10	0.021	ug/l	SW846 8270D BY SIM
JB33197-8F	**S-223**					
Lead		0.26 B	1.0	0.026	ug/l	SW846 6020A
JB33197-9	**S-222**					
No hits reported in this sample.						
JB33197-9F	**S-222**					
Lead		1.3	1.0	0.026	ug/l	SW846 6020A
JB33197-10	**S-38**					
Benzene		1.9	1.0	0.24	ug/l	SW846 8260B
Toluene		2.2	1.0	0.23	ug/l	SW846 8260B
Ethylbenzene		10.6	1.0	0.23	ug/l	SW846 8260B
Xylene (total)		23.9	1.0	0.24	ug/l	SW846 8260B
Isopropylbenzene		7.5	2.0	0.45	ug/l	SW846 8260B

Summary of Hits

Job Number: JB33197
Account: Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Collected: 04/03/13

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
1,2,4-Trimethylbenzene		41.3	2.0	0.19	ug/l	SW846 8260B
1,3,5-Trimethylbenzene		16.7	2.0	0.36	ug/l	SW846 8260B
Naphthalene		1.66	0.10	0.036	ug/l	SW846 8270D BY SIM
JB33197-10F	**S-38**					
Lead		1.4	1.0	0.026	ug/l	SW846 6020A
JB33197-11	**S-3**					
Benzene		3.1	1.0	0.24	ug/l	SW846 8260B
Toluene		0.46 J	1.0	0.23	ug/l	SW846 8260B
Ethylbenzene		0.65 J	1.0	0.23	ug/l	SW846 8260B
Xylene (total)		3.0	1.0	0.24	ug/l	SW846 8260B
Methyl Tert Butyl Ether		2.9	1.0	0.16	ug/l	SW846 8260B
JB33197-11F	**S-3**					
Lead		0.73 B	1.0	0.026	ug/l	SW846 6020A

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

New Jersey

ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Accutest LabLink@746284 12:54 08-Aug-2013

Report of Analysis

Client Sample ID:	S-50		
Lab Sample ID:	JB33197-1	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
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	4D34350.D	1	04/16/13	JTP	n/a	n/a	V4D1545
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	0.46	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)	0.29	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	95%		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	94%		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 LabLink@746284 12:54 08-Aug-2013

Report of Analysis

Client Sample ID:	S-50		
Lab Sample ID:	JB33197-1	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
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	3M36222.D	1	04/18/13	AD	04/06/13	OP65064A	E3M1656
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	58%		23-131%
321-60-8	2-Fluorobiphenyl	49%		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

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Report of Analysis

Client Sample ID:	S-50		
Lab Sample ID:	JB33197-1	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
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	WW117625.D	1	04/11/13	VDT	04/10/13	OP65137	GWW4175
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	85%		38-167%
3017-95-6	2-Bromo-1-chloropropane	88%		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-50		
Lab Sample ID:	JB33197-1	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
		Percent Solids:	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	329	13	3.5	mg/l	1	04/09/13	JA	SM2320 B-11
Chemical Oxygen Demand	25.5	20	7.4	mg/l	1	04/16/13 10:02	JA	SM5220 C-97,HACH8000
Plate Count, Total	14000	100		CFU/ml	100	04/03/13 22:05	LS	SM19 9215B
Solids, Total Dissolved	348	10	1.8	mg/l	1	04/05/13	CV	SM2540 C-97
Sulfate	7.1 B	10	0.38	mg/l	1	04/12/13 04:24	NP	EPA 300/SW846 9056A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	S-50		
Lab Sample ID:	JB33197-1F	**Date Sampled:**	04/03/13
Matrix:	AQ - Groundwater Filtered	**Date Received:**	04/03/13
		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	0.090 B	1.0	0.026	ug/l	2	04/06/13	04/21/13	VC	SW846 6020A [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA31006
(2) Prep QC Batch: MP71053

RL = Reporting Limit
MDL = Method Detection Limit

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

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Report of Analysis

Client Sample ID:	S-117		
Lab Sample ID:	JB33197-2	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
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	2E89486.D	1	04/17/13	DPP	n/a	n/a	V2E4025
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	37.6	1.0	0.24	ug/l	
108-88-3	Toluene	7.8	1.0	0.23	ug/l	
100-41-4	Ethylbenzene	43.2	1.0	0.23	ug/l	
1330-20-7	Xylene (total)	6.4	1.0	0.24	ug/l	
1634-04-4	Methyl Tert Butyl Ether	36.0	1.0	0.16	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
98-82-8	Isopropylbenzene	9.8	2.0	0.45	ug/l	
95-63-6	1,2,4-Trimethylbenzene	0.35	2.0	0.19	ug/l	J
108-67-8	1,3,5-Trimethylbenzene	2.4	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	88%		74-127%
2037-26-5	Toluene-D8	93%		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

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Report of Analysis

Client Sample ID:	S-117		
Lab Sample ID:	JB33197-2	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
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	3M36223.D	1	04/18/13	AD	04/06/13	OP65064A	E3M1656
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	2.20	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	45%		24-120%
1718-51-0	Terphenyl-d14	24%		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

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Report of Analysis

Client Sample ID:	S-117		
Lab Sample ID:	JB33197-2	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
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	WW117626.D	1	04/11/13	VDT	04/10/13	OP65137	GWW4175
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	83%		38-167%
3017-95-6	2-Bromo-1-chloropropane	81%		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-117		
Lab Sample ID:	JB33197-2	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
		Percent Solids:	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	250	13	3.5	mg/l	1	04/09/13	JA	SM2320 B-11
Chemical Oxygen Demand	37.1	20	7.4	mg/l	1	04/16/13 10:02	JA	SM5220 C-97,HACH8000
Plate Count, Total	9200	100		CFU/ml	100	04/03/13 22:05	LS	SM19 9215B
Solids, Total Dissolved	230	10	1.8	mg/l	1	04/05/13	CV	SM2540 C-97
Sulfate	3.8 B	10	0.38	mg/l	1	04/12/13 05:36	NP	EPA 300/SW846 9056A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	S-117		
Lab Sample ID:	JB33197-2F	**Date Sampled:**	04/03/13
Matrix:	AQ - Groundwater Filtered	**Date Received:**	04/03/13
		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	0.19 B	1.0	0.026	ug/l	2	04/06/13	04/21/13	VC	SW846 6020A [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA31006
(2) Prep QC Batch: MP71053

RL = Reporting Limit
MDL = Method Detection Limit

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

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Report of Analysis

Client Sample ID:	S-226		
Lab Sample ID:	JB33197-3	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
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	2D119868.D	25	04/13/13	ET	n/a	n/a	V2D4985
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	3180	25	5.9	ug/l	
108-88-3	Toluene	1260	25	5.7	ug/l	
100-41-4	Ethylbenzene	20.8	25	5.7	ug/l	J
1330-20-7	Xylene (total)	182	25	6.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	156	25	4.1	ug/l	
107-06-2	1,2-Dichloroethane	ND	25	6.5	ug/l	
98-82-8	Isopropylbenzene	30.5	50	11	ug/l	J
95-63-6	1,2,4-Trimethylbenzene	49.8	50	4.6	ug/l	J
108-67-8	1,3,5-Trimethylbenzene	23.6	50	9.0	ug/l	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%		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	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

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Report of Analysis

Client Sample ID:	S-226		
Lab Sample ID:	JB33197-3	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
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	3M36224.D	1	04/19/13	AD	04/06/13	OP65064A	E3M1656
Run #2							

	Initial Volume	Final Volume
Run #1	920 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	0.013	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	4.46	0.11	0.039	ug/l	
85-01-8	Phenanthrene	0.469	0.11	0.023	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	51%		23-131%
321-60-8	2-Fluorobiphenyl	37%		24-120%
1718-51-0	Terphenyl-d14	25%		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

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Report of Analysis

Client Sample ID:	S-226		
Lab Sample ID:	JB33197-3	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
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	WW117627.D	1	04/11/13	VDT	04/10/13	OP65137	GWW4175
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	77%		38-167%
3017-95-6	2-Bromo-1-chloropropane	70%		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-226		
Lab Sample ID:	JB33197-3	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
		Percent Solids:	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	307	13	3.5	mg/l	1	04/09/13	JA	SM2320 B-11
Chemical Oxygen Demand	69.6	20	7.4	mg/l	1	04/16/13 10:02	JA	SM5220 C-97,HACH8000
Plate Count, Total	11100	100		CFU/ml	10000	04/03/13 22:15	LS	SM19 9215B
Solids, Total Dissolved	200	10	1.8	mg/l	1	04/05/13	CV	SM2540 C-97
Sulfate	2.2 B	10	0.38	mg/l	1	04/12/13 06:00	NP	EPA 300/SW846 9056A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	S-226		
Lab Sample ID:	JB33197-3F	**Date Sampled:**	04/03/13
Matrix:	AQ - Groundwater Filtered	**Date Received:**	04/03/13
		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	0.16 B	1.0	0.026	ug/l	2	04/06/13	04/21/13	VC	SW846 6020A [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA31006
(2) Prep QC Batch: MP71053

RL = Reporting Limit
MDL = Method Detection Limit

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

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Report of Analysis

Client Sample ID:	S-52		
Lab Sample ID:	JB33197-4	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
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	4D34351.D	1	04/16/13	JTP	n/a	n/a	V4D1545
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	1.3	1.0	0.24	ug/l	
108-88-3	Toluene	1.5	1.0	0.23	ug/l	
100-41-4	Ethylbenzene	0.24	1.0	0.23	ug/l	J
1330-20-7	Xylene (total)	0.72	1.0	0.24	ug/l	J
1634-04-4	Methyl Tert Butyl Ether	316	1.0	0.16	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
98-82-8	Isopropylbenzene	15.4	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	96%		74-127%
2037-26-5	Toluene-D8	98%		80-122%
460-00-4	4-Bromofluorobenzene	95%		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

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Report of Analysis

Client Sample ID:	S-52		
Lab Sample ID:	JB33197-4	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
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	3M36225.D	1	04/19/13	AD	04/06/13	OP65064A	E3M1656
Run #2							

	Initial Volume	Final Volume
Run #1	890 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	0.023	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.11	0.013	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.11	0.014	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	0.018	ug/l	
218-01-9	Chrysene	ND	0.11	0.013	ug/l	
86-73-7	Fluorene	0.697	0.11	0.019	ug/l	
91-20-3	Naphthalene	ND	0.11	0.040	ug/l	
85-01-8	Phenanthrene	ND	0.11	0.023	ug/l	
129-00-0	Pyrene	ND	0.11	0.017	ug/l	

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

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Report of Analysis

Client Sample ID:	S-52		
Lab Sample ID:	JB33197-4	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
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	WW117628.D	1	04/11/13	VDT	04/10/13	OP65137	GWW4175
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	90%		38-167%
3017-95-6	2-Bromo-1-chloropropane	83%		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-52		
Lab Sample ID:	JB33197-4	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
		Percent Solids:	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	462	13	3.5	mg/l	1	04/09/13	JA	SM2320 B-11
Chemical Oxygen Demand	107	20	7.4	mg/l	1	04/16/13 10:02	JA	SM5220 C-97,HACH8000
Plate Count, Total	3450	100		CFU/ml	100	04/03/13 22:15	LS	SM19 9215B
Solids, Total Dissolved	463	10	1.8	mg/l	1	04/05/13	CV	SM2540 C-97
Sulfate	24.8	10	0.38	mg/l	1	04/12/13 06:24	NP	EPA 300/SW846 9056A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	S-52		
Lab Sample ID:	JB33197-4F	**Date Sampled:**	04/03/13
Matrix:	AQ - Groundwater Filtered	**Date Received:**	04/03/13
		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	0.39 B	1.0	0.026	ug/l	2	04/06/13	04/21/13	VC	SW846 6020A [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA31006
(2) Prep QC Batch: MP71053

RL = Reporting Limit
MDL = Method Detection Limit

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

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Report of Analysis

Client Sample ID:	FIELD BLANK-FB		
Lab Sample ID:	JB33197-5	**Date Sampled:**	04/03/13
Matrix:	AQ - Field Blank Water	**Date Received:**	04/03/13
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	3D85337.D	1	04/16/13	NT	n/a	n/a	V3D3669
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	106%		81-121%
17060-07-0	1,2-Dichloroethane-D4	105%		74-127%
2037-26-5	Toluene-D8	100%		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

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Report of Analysis

Client Sample ID:	FIELD BLANK-FB		
Lab Sample ID:	JB33197-5	**Date Sampled:**	04/03/13
Matrix:	AQ - Field Blank Water	**Date Received:**	04/03/13
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	3M36226.D	1	04/19/13	AD	04/06/13	OP65064A	E3M1656
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	67%		23-131%
321-60-8	2-Fluorobiphenyl	55%		24-120%
1718-51-0	Terphenyl-d14	59%		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

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Report of Analysis

Client Sample ID:	FIELD BLANK-FB		
Lab Sample ID:	JB33197-5	**Date Sampled:**	04/03/13
Matrix:	AQ - Field Blank Water	**Date Received:**	04/03/13
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	WW117629.D	1	04/11/13	VDT	04/10/13	OP65137	GWW4175
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	87%		38-167%
3017-95-6	2-Bromo-1-chloropropane	86%		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 BLANK-FB		
Lab Sample ID:	JB33197-5	**Date Sampled:**	04/03/13
Matrix:	AQ - Field Blank Water	**Date Received:**	04/03/13
		Percent Solids:	n/a
Project:	Sunoco, Philadelphia Refinery, Philadelphia, PA		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	1.4 U	5.0	1.4	mg/l	1	04/09/13	JA	SM2320 B-11
Chemical Oxygen Demand	7.4 U	20	7.4	mg/l	1	04/16/13 10:02	JA	SM5220 C-97,HACH8000
Plate Count, Total	7	0		CFU/ml	1	04/03/13 22:15	LS	SM19 9215B
Solids, Total Dissolved	2.0 B	10	1.8	mg/l	1	04/05/13	CV	SM2540 C-97
Sulfate	0.38 U	10	0.38	mg/l	1	04/12/13 06:48	NP	EPA 300/SW846 9056A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	FIELD BLANK-FB		
Lab Sample ID:	JB33197-5F	**Date Sampled:**	04/03/13
Matrix:	AQ - Field Blank Filtered	**Date Received:**	04/03/13
		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	0.034 B	1.0	0.026	ug/l	2	04/06/13	04/21/13	VC	SW846 6020A [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA31006
(2) Prep QC Batch: MP71053

RL = Reporting Limit
MDL = Method Detection Limit

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

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Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	JB33197-6	**Date Sampled:**	04/03/13
Matrix:	AQ - Trip Blank Water	**Date Received:**	04/03/13
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	3D85338.D	1	04/16/13	NT	n/a	n/a	V3D3669
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	104%		81-121%
17060-07-0	1,2-Dichloroethane-D4	106%		74-127%
2037-26-5	Toluene-D8	99%		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

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Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	JB33197-6	**Date Sampled:**	04/03/13
Matrix:	AQ - Trip Blank Water	**Date Received:**	04/03/13
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	WW117630.D	1	04/11/13	VDT	04/10/13	OP65137	GWW4175
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	85%		38-167%
3017-95-6	2-Bromo-1-chloropropane	89%		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

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Report of Analysis

Client Sample ID:	S-25		
Lab Sample ID:	JB33197-7	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
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	2D119872.D	1	04/13/13	ET	n/a	n/a	V2D4985
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	1.7	1.0	0.24	ug/l	
108-88-3	Toluene	0.32	1.0	0.23	ug/l	J
100-41-4	Ethylbenzene	0.49	1.0	0.23	ug/l	J
1330-20-7	Xylene (total)	2.4	1.0	0.24	ug/l	
1634-04-4	Methyl Tert Butyl Ether	1.2	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	0.54	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	92%		81-121%
17060-07-0	1,2-Dichloroethane-D4	97%		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

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Report of Analysis

Client Sample ID:	S-25		
Lab Sample ID:	JB33197-7	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
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	3M36230.D	1	04/19/13	NAP	04/06/13	OP65064A	E3M1657
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	62%		23-131%
321-60-8	2-Fluorobiphenyl	49%		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

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Report of Analysis

Client Sample ID:	S-25		
Lab Sample ID:	JB33197-7	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
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	WW117631.D	1	04/11/13	VDT	04/10/13	OP65137	GWW4175
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	81%		38-167%
3017-95-6	2-Bromo-1-chloropropane	80%		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-25		
Lab Sample ID:	JB33197-7F	**Date Sampled:**	04/03/13
Matrix:	AQ - Groundwater Filtered	**Date Received:**	04/03/13
		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	0.13 B	1.0	0.026	ug/l	2	04/06/13	04/21/13	VC	SW846 6020A [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA31006
(2) Prep QC Batch: MP71053

RL = Reporting Limit
MDL = Method Detection Limit

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

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Report of Analysis

Client Sample ID:	S-223		
Lab Sample ID:	JB33197-8	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
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	3D85331.D	40	04/16/13	NT	n/a	n/a	V3D3669
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	5530	40	9.4	ug/l	
108-88-3	Toluene	337	40	9.1	ug/l	
100-41-4	Ethylbenzene	866	40	9.1	ug/l	
1330-20-7	Xylene (total)	4040	40	9.5	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	40	6.6	ug/l	
107-06-2	1,2-Dichloroethane	ND	40	10	ug/l	
98-82-8	Isopropylbenzene	29.3	80	18	ug/l	J
95-63-6	1,2,4-Trimethylbenzene	1070	80	7.4	ug/l	
108-67-8	1,3,5-Trimethylbenzene	351	80	14	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		81-121%
17060-07-0	1,2-Dichloroethane-D4	104%		74-127%
2037-26-5	Toluene-D8	100%		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

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Report of Analysis

Client Sample ID:	S-223		
Lab Sample ID:	JB33197-8	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
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]	3M36404.D	1	04/24/13	AD	04/26/13	OP65472A	E3M1664
Run #2	3M36231.D	1	04/19/13	NAP	04/06/13	OP65064A	E3M1657
Run #3 [a]	Z79711.D	2	04/26/13	KH	04/26/13	OP65472A	EZ4062

	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	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	0.625	0.10	0.017	ug/l	
91-20-3	Naphthalene	130 [b]	2.0	0.071	ug/l	
85-01-8	Phenanthrene	0.601	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	Run# 3	Limits
4165-60-0	Nitrobenzene-d5	32%	17% [c]	47%	23-131%
321-60-8	2-Fluorobiphenyl	28%	20% [c]	44%	24-120%
1718-51-0	Terphenyl-d14	22%	16%	31%	10-125%

(a) Reextract due to surrogate outside QC limits. Original prep date within holding time.
(b) Result is from Run# 3
(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 LabLink@746284 12:54 08-Aug-2013

Report of Analysis

Client Sample ID:	S-223		
Lab Sample ID:	JB33197-8	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
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	WW117632.D	1	04/11/13	VDT	04/10/13	OP65137	GWW4175
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	82%		38-167%
3017-95-6	2-Bromo-1-chloropropane	71%		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-223		
Lab Sample ID:	JB33197-8F	**Date Sampled:**	04/03/13
Matrix:	AQ - Groundwater Filtered	**Date Received:**	04/03/13
		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	0.26 B	1.0	0.026	ug/l	2	04/06/13	04/21/13	VC	SW846 6020A [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA31006
(2) Prep QC Batch: MP71053

RL = Reporting Limit
MDL = Method Detection Limit

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

Accutest LabLink@746284 12:54 08-Aug-2013

Report of Analysis

Client Sample ID:	S-222		
Lab Sample ID:	JB33197-9	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
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	2D119874.D	1	04/13/13	ET	n/a	n/a	V2D4985
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	94%		81-121%
17060-07-0	1,2-Dichloroethane-D4	99%		74-127%
2037-26-5	Toluene-D8	101%		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 LabLink@746284 12:54 08-Aug-2013

Report of Analysis

Client Sample ID:	S-222		
Lab Sample ID:	JB33197-9	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
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	3M36232.D	1	04/19/13	NAP	04/06/13	OP65064A	E3M1657
Run #2 [a]	3M36405.D	1	04/24/13	AD	04/22/13	OP65472A	E3M1664

	Initial Volume	Final Volume
Run #1	1000 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	0.020	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	26%	35%	23-131%
321-60-8	2-Fluorobiphenyl	17% [b]	26%	24-120%
1718-51-0	Terphenyl-d14	16%	25%	10-125%

(a) Confirmation run.
(b) Outside control limits due to matrix interference.

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 LabLink@746284 12:54 08-Aug-2013

Report of Analysis

Client Sample ID:	S-222		
Lab Sample ID:	JB33197-9	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
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	WW117633.D	1	04/11/13	VDT	04/10/13	OP65137	GWW4175
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	91%		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:	S-222		
Lab Sample ID:	JB33197-9F	**Date Sampled:**	04/03/13
Matrix:	AQ - Groundwater Filtered	**Date Received:**	04/03/13
		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	1.3	1.0	0.026	ug/l	2	04/06/13	04/21/13	VC	SW846 6020A [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA31006
(2) Prep QC Batch: MP71053

RL = Reporting Limit
MDL = Method Detection Limit

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

Accutest LabLink@746284 12:54 08-Aug-2013

Report of Analysis

Client Sample ID:	S-38		
Lab Sample ID:	JB33197-10	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
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	2D119875.D	1	04/13/13	ET	n/a	n/a	V2D4985
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	1.9	1.0	0.24	ug/l	
108-88-3	Toluene	2.2	1.0	0.23	ug/l	
100-41-4	Ethylbenzene	10.6	1.0	0.23	ug/l	
1330-20-7	Xylene (total)	23.9	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	7.5	2.0	0.45	ug/l	
95-63-6	1,2,4-Trimethylbenzene	41.3	2.0	0.19	ug/l	
108-67-8	1,3,5-Trimethylbenzene	16.7	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	98%		74-127%
2037-26-5	Toluene-D8	100%		80-122%
460-00-4	4-Bromofluorobenzene	99%		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 LabLink@746284 12:54 08-Aug-2013

Report of Analysis

Client Sample ID:	S-38		
Lab Sample ID:	JB33197-10	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
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	3M36233.D	1	04/19/13	NAP	04/06/13	OP65064A	E3M1657
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	1.66	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	40%		23-131%
321-60-8	2-Fluorobiphenyl	28%		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 LabLink@746284 12:54 08-Aug-2013

Report of Analysis

Client Sample ID:	S-38		
Lab Sample ID:	JB33197-10	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
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	WW117636.D	1	04/12/13	VDT	04/10/13	OP65137	GWW4175
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	92%		38-167%
3017-95-6	2-Bromo-1-chloropropane	84%		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-38		
Lab Sample ID:	JB33197-10F	**Date Sampled:**	04/03/13
Matrix:	AQ - Groundwater Filtered	**Date Received:**	04/03/13
		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	1.4	1.0	0.026	ug/l	2	04/06/13	04/21/13	VC	SW846 6020A [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA31006
(2) Prep QC Batch: MP71053

RL = Reporting Limit
MDL = Method Detection Limit

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

Accutest LabLink@746284 12:54 08-Aug-2013

Report of Analysis

Client Sample ID:	S-3		
Lab Sample ID:	JB33197-11	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
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	2D119876.D	1	04/13/13	ET	n/a	n/a	V2D4985
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	3.1	1.0	0.24	ug/l	
108-88-3	Toluene	0.46	1.0	0.23	ug/l	J
100-41-4	Ethylbenzene	0.65	1.0	0.23	ug/l	J
1330-20-7	Xylene (total)	3.0	1.0	0.24	ug/l	
1634-04-4	Methyl Tert Butyl Ether	2.9	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	97%		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 LabLink@746284 12:54 08-Aug-2013

Report of Analysis

Client Sample ID:	S-3		
Lab Sample ID:	JB33197-11	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
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	3M36234.D	1	04/19/13	NAP	04/06/13	OP65064A	E3M1657
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	23%		23-131%
321-60-8	2-Fluorobiphenyl	36%		24-120%
1718-51-0	Terphenyl-d14	34%		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 LabLink@746284 12:54 08-Aug-2013

Report of Analysis

Client Sample ID:	S-3		
Lab Sample ID:	JB33197-11	**Date Sampled:**	04/03/13
Matrix:	AQ - Ground Water	**Date Received:**	04/03/13
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	WW117662.D	1	04/12/13	VDT	04/10/13	OP65137	GWW4176
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	92%		38-167%
3017-95-6	2-Bromo-1-chloropropane	89%		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-3		
Lab Sample ID:	JB33197-11F	**Date Sampled:**	04/03/13
Matrix:	AQ - Groundwater Filtered	**Date Received:**	04/03/13
		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	0.73 B	1.0	0.026	ug/l	2	04/06/13	04/21/13	VC	SW846 6020A [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA31006
(2) Prep QC Batch: MP71053

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

GW
FB
WTB

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

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L E F

Priority

FEDEX Tracking # 1856901
Bottle Order Control #
Accutest Quote #
Accutest Job # JB33197

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
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	NaHSO4	Lead - Dissolved - LAB Filter	1,2 Dichloroethane, 1,3,5 Trimethylbenzene, 1,2,4 Trimethylbenzene	EDB/1,2 Dibromoethane, Ethylbenzene, Xylenes (Total)	MTBE, Toluene	AA Naphthalene, Benzo(a) anthracene	Benzo(b) fluoranthene, Benzo(k) fluoranthene, Chrysene	Benzo(g,h,i) perylene, Fluoranthene, Fluorene, Naphthalene, Phenanthrene	Phenol	Alkalinity (SM19 2315B)	COD (SM20 5220C)	Sulfate	Total Plate Count (SM19 9215B)	TDS (SM20 2540C)		LAB USE ONLY
-1F	S-50		4-3-13	1149	CC	GW	12	5			1	5				1	X	X	X	X	X	X	X	X	X	X	X			B12
-2F	S-117			0830	CC		12	5			1	5				1	X	X	X	X	X	X	X		X	X	X			M21
-3F	S-226			0931	CC		12	5			1	5				1	X	X	X	X	X	X	X	X	X	X	X			G37
-4F	S-52			0951	CC		12	5			1	5				1	X	X	X	X	X	X	X	X	X	X	X			C26
-5F	Field Blank - FB			1027	CC		11	4			1	5				1	X	X	X	X	X	X	X	X	X	X	X			2064
-6	Trip Blank						2	2				3						X	X	X	X	X								54
-7F	S-25			1220	SA		8	5				3					X	X	X	X	X	X								
-8F	S-~~237~~ 223			1135	SA		8	5				3					X	X	X	X	X	X								
-9F	S-222			1005	SA		8	5				3					X	X	X	X	X	X								
-10F	S-38			0845	SA		8	5				3					X	X	X	X	X	X								
-11F	S-3		↓	1400	SA	↓	8	5				3					X	X	X	X	X	X								
-12F	S-52		4-3-13	0951	CC		12	5			1	5				1	X	X	X	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 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 Sheet also 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	4-3-13 1050	1 Tom Houm 4.50	2	1940	2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time: 4/3/13	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal # —	[ ] Intact [ ] Not intact	Preserved where applicable ☑ MB; On ice ☑; Cooler Temp. 2.8c

2B

5.1
5

JB33197: Chain of Custody
Page 1 of 4

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB33197 **Client:** Stantec **Project:** PES Philadelphia Refinery

Date / Time Received: 4/3/2013 19:40 **Delivery Method:** Other Courier **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (2.8/2.8); 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	1		

Quality Control _Preservation	Y	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	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 1. Sample -4, "S-52" collected on 4/3/13 @ 0951 repeated on COC. Only rec'd (1) sample set for that ID.

Accutest Laboratories
V:732.329.0200

2235 US Highway 130
F: 732.329.3499

Dayton, New Jersey
www/accutest.com

JB33197: Chain of Custody
Page 2 of 4

Sample Receipt Summary - Problem Resolution

Accutest Job Number: JB33197

CSR: Kristin Beebe **Response Date:** 4/4/2013

Response: Please proceed as noted, only one sample S-52 provided.

Accutest Laboratories
V:732.329.0200

2235 US Highway 130
F: 732.329.3499

Dayton, New Jersey
www/accutest.com

JB33197: Chain of Custody
Page 3 of 4

Job Change Order: JB33197_4_9_2013

Requested Date:	4/9/2013	**Received Date:**	4/3/2013
Account Name:	Stantec Consulting Services Inc.	**Due Date:**	4/17/2013
Project	Sunoco - Marcus Hook Facility, PA	**Deliverable:**	REDT2
CSR:	kristinb	**TAT (Days):**	14

==========

Sample #: JB33197-ALL
Dept:

Change:
Please mov ejob to SECORPAE31905

==========

Above Changes Per: Kristin Beebe **Date:** 4/9/2013

To Client: This Change Order is confirmation of the revisions, previously discussed with the Accutest Client Service

Page 1 of 1

5.1 5

JB33197: Chain of Custody

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Internal Sample Tracking Chronicle

Stantec Consulting Services Inc.

Job No: JB33197

Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB33197-1 S-50	Collected: 03-APR-13 11:49 By: CC		Received: 03-APR-13 By: SC			
JB33197-1	SM19 9215B	03-APR-13 22:05	LS			TPC
JB33197-1	SM2540 C-97	05-APR-13	CV			TDS
JB33197-1	SM2320 B-11	09-APR-13	JA			ALK
JB33197-1	SW846-8011	11-APR-13 21:36	VDT	10-APR-13	MP	V8011EDB
JB33197-1	EPA 300/SW846 9056A	12-APR-13 04:24	NP	11-APR-13	NP	SO4
JB33197-1	SM5220 C-97,HACH8000	16-APR-13 10:02	JA	15-APR-13	JA	COD
JB33197-1	SW846 8260B	16-APR-13 18:41	JTP			V8260SL
JB33197-1	SW846 8270D BY SIM	18-APR-13 23:21	AD	06-APR-13	PW	B8270SIMSL
JB33197-2 S-117	Collected: 03-APR-13 08:30 By: CC		Received: 03-APR-13 By: SC			
JB33197-2	SM19 9215B	03-APR-13 22:05	LS			TPC
JB33197-2	SM2540 C-97	05-APR-13	CV			TDS
JB33197-2	SM2320 B-11	09-APR-13	JA			ALK
JB33197-2	SW846-8011	11-APR-13 21:53	VDT	10-APR-13	MP	V8011EDB
JB33197-2	EPA 300/SW846 9056A	12-APR-13 05:36	NP	11-APR-13	NP	SO4
JB33197-2	SM5220 C-97,HACH8000	16-APR-13 10:02	JA	15-APR-13	JA	COD
JB33197-2	SW846 8260B	17-APR-13 14:06	DPP			V8260SL
JB33197-2	SW846 8270D BY SIM	18-APR-13 23:52	AD	06-APR-13	PW	B8270SIMSL
JB33197-3 S-226	Collected: 03-APR-13 09:31 By: CC		Received: 03-APR-13 By: SC			
JB33197-3	SM19 9215B	03-APR-13 22:15	LS			TPC
JB33197-3	SM2540 C-97	05-APR-13	CV			TDS
JB33197-3	SM2320 B-11	09-APR-13	JA			ALK
JB33197-3	SW846-8011	11-APR-13 22:10	VDT	10-APR-13	MP	V8011EDB
JB33197-3	EPA 300/SW846 9056A	12-APR-13 06:00	NP	11-APR-13	NP	SO4
JB33197-3	SW846 8260B	13-APR-13 01:29	ET			V8260SL
JB33197-3	SM5220 C-97,HACH8000	16-APR-13 10:02	JA	15-APR-13	JA	COD
JB33197-3	SW846 8270D BY SIM	19-APR-13 00:23	AD	06-APR-13	PW	B8270SIMSL
JB33197-4 S-52	Collected: 03-APR-13 09:51 By: CC		Received: 03-APR-13 By: SC			
JB33197-4	SM19 9215B	03-APR-13 22:15	LS			TPC

Internal Sample Tracking Chronicle

Stantec Consulting Services Inc.

Job No: JB33197

Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB33197-4	SM2540 C-97	05-APR-13	CV			TDS
JB33197-4	SM2320 B-11	09-APR-13	JA			ALK
JB33197-4	SW846-8011	11-APR-13 22:27	VDT	10-APR-13	MP	V8011EDB
JB33197-4	EPA 300/SW846 9056A	12-APR-13 06:24	NP	11-APR-13	NP	SO4
JB33197-4	SM5220 C-97,HACH8000	10-APR-13 10:02	JA	15-APR-13	JA	COD
JB33197-4	SW846 8260B	16-APR-13 19:11	JTP			V8260SL
JB33197-4	SW846 8270D BY SIM	19-APR-13 00:54	AD	06-APR-13	PW	B8270SIMSL
JB33197-5	Collected: 03-APR-13 10:27 By: CC		Received: 03-APR-13 By: SC			
FIELD BLANK-FB						
JB33197-5	SM19 9215B	03-APR-13 22:15	LS			TPC
JB33197-5	SM2540 C-97	05-APR-13	CV			TDS
JB33197-5	SM2320 B-11	09-APR-13	JA			ALK
JB33197-5	SW846-8011	11-APR-13 22:43	VDT	10-APR-13	MP	V8011EDB
JB33197-5	EPA 300/SW846 9056A	12-APR-13 06:48	NP	11-APR-13	NP	SO4
JB33197-5	SW846 8260B	16-APR-13 03:59	NT			V8260SL
JB33197-5	SM5220 C-97,HACH8000	10-APR-13 10:02	JA	15-APR-13	JA	COD
JB33197-5	SW846 8270D BY SIM	19-APR-13 01:25	AD	06-APR-13	PW	B8270SIMSL
JB33197-6	Collected: 03-APR-13 14:00 By: CC		Received: 03-APR-13 By: SC			
TRIP BLANK						
JB33197-6	SW846-8011	11-APR-13 23:00	VDT	10-APR-13	MP	V8011EDB
JB33197-6	SW846 8260B	16-APR-13 04:27	NT			V8260SL
JB33197-7	Collected: 03-APR-13 12:20 By: CC		Received: 03-APR-13 By: SC			
S-25						
JB33197-7	SW846-8011	11-APR-13 23:17	VDT	10-APR-13	MP	V8011EDB
JB33197-7	SW846 8260B	13-APR-13 03:28	ET			V8260SL
JB33197-7	SW846 8270D BY SIM	19-APR-13 07:24	NAP	06-APR-13	PW	B8270SIMSL
JB33197-8	Collected: 03-APR-13 11:35 By: CC		Received: 03-APR-13 By: SC			
S-223						
JB33197-8	SW846-8011	11-APR-13 23:33	VDT	10-APR-13	MP	V8011EDB
JB33197-8	SW846 8260B	16-APR-13 01:39	NT			V8260SL
JB33197-8	SW846 8270D BY SIM	19-APR-13 07:55	NAP	06-APR-13	PW	B8270SIMSL
** JB33197-8	SW846 8270D BY SIM	24-APR-13 01:41	AD	26-APR-13	LP	B8270SIMSL

Internal Sample Tracking Chronicle

Stantec Consulting Services Inc.

Job No: JB33197

Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB33197-8	SW846 8270D BY SIM	26-APR-13 16:09	KH	26-APR-13	LP	B8270SIMSL
JB33197-9 S-222	Collected: 03-APR-13 10:05 By: CC		Received: 03-APR-13 By: SC			
JB33197-9	SW846-8011	11-APR-13 23:50	VDT	10-APR-13	MP	V8011EDB
JB33197-9	SW846 8260B	13-APR-13 04:29	ET			V8260SL
JB33197-9	SW846 8270D BY SIM	19-APR-13 08:26	NAP	06-APR-13	PW	B8270SIMSL
JB33197-9	SW846 8270D BY SIM	24-APR-13 02:12	AD	22-APR-13	NP	B8270SIMSL
JB33197-10 S-38	Collected: 03-APR-13 08:45 By: CC		Received: 03-APR-13 By: SC			
JB33197-10	SW846-8011	12-APR-13 01:17	VDT	10-APR-13	MP	V8011EDB
JB33197-10	SW846 8260B	13-APR-13 04:59	ET			V8260SL
JB33197-10	SW846 8270D BY SIM	19-APR-13 08:57	NAP	06-APR-13	PW	B8270SIMSL
JB33197-11 S-3	Collected: 03-APR-13 14:00 By: CC		Received: 03-APR-13 By: SC			
JB33197-11	SW846-8011	12-APR-13 17:04	VDT	10-APR-13	MP	V8011EDB
JB33197-11	SW846 8260B	13-APR-13 05:28	ET			V8260SL
JB33197-11	SW846 8270D BY SIM	19-APR-13 09:28	NAP	06-APR-13	PW	B8270SIMSL
JB33197-1F S-50	Collected: 03-APR-13 11:49 By: CC		Received: 03-APR-13 By: SC			
JB33197-1F	SW846 6020A	21-APR-13 13:05	VC	06-APR-13	RP	PBMS
JB33197-2F S-117	Collected: 03-APR-13 08:30 By: CC		Received: 03-APR-13 By: SC			
JB33197-2F	SW846 6020A	21-APR-13 13:10	VC	06-APR-13	RP	PBMS
JB33197-3F S-226	Collected: 03-APR-13 09:31 By: CC		Received: 03-APR-13 By: SC			
JB33197-3F	SW846 6020A	21-APR-13 13:15	VC	06-APR-13	RP	PBMS

Internal Sample Tracking Chronicle

Stantec Consulting Services Inc.

Sunoco, Philadelphia Refinery, Philadelphia, PA

Job No: JB33197

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB33197-4F	Collected: 03-APR-13 09:51 By: CC		Received: 03-APR-13 By: SC			
S-52						
JB33197-4F	SW846 6020A	21-APR-13 13:20	VC	06-APR-13	RP	PBMS
JB33197-5F	Collected: 03-APR-13 10:27 By: CC		Received: 03-APR-13 By: SC			
FIELD BLANK-FB						
JB33197-5F	SW846 6020A	21-APR-13 13:26	VC	06-APR-13	RP	PBMS
JB33197-7F	Collected: 03-APR-13 12:20 By: CC		Received: 03-APR-13 By: SC			
S-25						
JB33197-7F	SW846 6020A	21-APR-13 13:41	VC	06-APR-13	RP	PBMS
JB33197-8F	Collected: 03-APR-13 11:35 By: CC		Received: 03-APR-13 By: SC			
S-223						
JB33197-8F	SW846 6020A	21-APR-13 13:46	VC	06-APR-13	RP	PBMS
JB33197-9F	Collected: 03-APR-13 10:05 By: CC		Received: 03-APR-13 By: SC			
S-222						
JB33197-9F	SW846 6020A	21-APR-13 13:51	VC	06-APR-13	RP	PBMS
JB33197-10F	Collected: 03-APR-13 08:45 By: CC		Received: 03-APR-13 By: SC			
S-38						
JB33197-10F	SW846 6020A	21-APR-13 13:56	VC	06-APR-13	RP	PBMS
JB33197-11F	Collected: 03-APR-13 14:00 By: CC		Received: 03-APR-13 By: SC			
S-3						
JB33197-11F	SW846 6020A	21-APR-13 14:01	VC	06-APR-13	RP	PBMS

** PROBLEM WITH PREP/ANALYSIS DATES. PLEASE CHECK WITH LAB.

Accutest Internal Chain of Custody

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/03/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33197-1.2	Secured Storage	Patrick Wade	04/06/13 07:59	Retrieve from Storage
JB33197-1.2	Patrick Wade		04/06/13 16:25	Depleted
JB33197-1.2.1	Patrick Wade	Organics Prep	04/06/13 08:01	Extract from JB33197-1.2
JB33197-1.2.1	Organics Prep	Patrick Wade	04/06/13 16:23	Extract from JB33197-1.2
JB33197-1.2.1	Patrick Wade	Extract Storage	04/06/13 16:23	Return to Storage
JB33197-1.2.1	Extract Storage		05/17/13 09:00	Disposed
JB33197-1.3	Secured Storage	Todd Shoemaker	04/05/13 08:46	Retrieve from Storage
JB33197-1.3	Todd Shoemaker	Secured Staging Area	04/05/13 08:46	Return to Storage
JB33197-1.3	Secured Staging Area	Caitie Van Sciver	04/05/13 08:47	Retrieve from Storage
JB33197-1.3	Caitie Van Sciver	Secured Storage	04/05/13 15:37	Return to Storage
JB33197-1.3	Secured Storage	Dave Hunkele	04/09/13 08:30	Retrieve from Storage
JB33197-1.3	Dave Hunkele	Secured Staging Area	04/09/13 08:30	Return to Storage
JB33197-1.3	Secured Staging Area	Jayshree Amin	04/09/13 08:55	Retrieve from Storage
JB33197-1.3	Jayshree Amin	Secured Storage	04/09/13 17:49	Return to Storage
JB33197-1.3	Secured Storage	Nick Popow	04/11/13 09:27	Retrieve from Storage
JB33197-1.3	Nick Popow	Secured Staging Area	04/11/13 09:28	Return to Storage
JB33197-1.3	Secured Staging Area	Nirali Patel	04/11/13 09:35	Retrieve from Storage
JB33197-1.3	Nirali Patel	Secured Storage	04/11/13 17:09	Return to Storage
JB33197-1.3	Darnell Brown		08/08/13 10:25	Disposed
JB33197-1.5	Secured Storage	Adam Scott	04/12/13 09:13	Retrieve from Storage
JB33197-1.5	Adam Scott	Secured Staging Area	04/12/13 09:14	Return to Storage
JB33197-1.5	Secured Staging Area	Jayshree Amin	04/12/13 09:30	Retrieve from Storage
JB33197-1.5	Jayshree Amin	Secured Storage	04/12/13 18:13	Return to Storage
JB33197-1.5	Darnell Brown		08/08/13 10:25	Disposed
JB33197-1.6	Secured Storage	Todd Shoemaker	04/15/13 08:12	Retrieve from Storage
JB33197-1.6	Todd Shoemaker	Secured Staging Area	04/15/13 08:13	Return to Storage
JB33197-1.6	Secured Staging Area	Jayshree Amin	04/15/13 11:18	Retrieve from Storage
JB33197-1.6	Jayshree Amin	Secured Storage	04/15/13 19:13	Return to Storage
JB33197-1.6	Darnell Brown		08/08/13 10:25	Disposed
JB33197-1.7	Secured Storage	Lucas Schneider	04/03/13 21:28	Retrieve from Storage
JB33197-1.7	Lucas Schneider	Secured Storage	04/03/13 23:20	Return to Storage
JB33197-1.7	Darnell Brown		08/08/13 10:25	Disposed
JB33197-1.8	Secured Storage	Juntae Park	04/16/13 14:40	Retrieve from Storage
JB33197-1.8	Juntae Park	GCMS4D	04/16/13 14:40	Load on Instrument
JB33197-1.8	GCMS4D	Juntae Park	04/17/13 11:58	Unload from Instrument
JB33197-1.8	Juntae Park	Secured Storage	04/17/13 11:58	Return to Storage
JB33197-1.8	Darnell Brown		08/08/13 10:25	Disposed

Accutest Internal Chain of Custody

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/03/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33197-1.9	Secured Storage	Emily Tran	04/12/13 16:57	Retrieve from Storage
JB33197-1.9	Emily Tran	VOA Prep Storage	04/12/13 16:57	Return to Storage
JB33197-1.9	VOA Prep Storage	Emily Tran	04/13/13 08:20	Retrieve from Storage
JB33197-1.9	Emily Tran	GCMS2D	04/13/13 08:20	Load on Instrument
JB33197-1.9	GCMS2D	Emily Tran	04/15/13 12:08	Unload from Instrument
JB33197-1.9	Emily Tran	Secured Storage	04/15/13 12:08	Return to Storage
JB33197-1.9	Secured Storage	Dana Tryon	04/17/13 11:10	Retrieve from Storage
JB33197-1.9	Dana Tryon	GCMS1C	04/17/13 11:10	Load on Instrument
JB33197-1.9	GCMS1C	Tamika Yvonne Ginn	04/18/13 13:48	Unload from Instrument
JB33197-1.9	Tamika Yvonne Ginn	Secured Storage	04/18/13 13:48	Return to Storage
JB33197-1.9	Darnell Brown		08/08/13 10:25	Disposed
JB33197-1.10	Secured Storage	Miti Patel	04/10/13 08:46	Retrieve from Storage
JB33197-1.10	Miti Patel	Secured Storage	04/10/13 14:59	Return to Storage
JB33197-1.10	Darnell Brown		08/08/13 10:25	Disposed
JB33197-1.10.1	Miti Patel	Organics Prep	04/10/13 08:46	Extract from JB33197-1.10
JB33197-1.10.1	Organics Prep	Miti Patel	04/10/13 15:45	Extract from JB33197-1.10
JB33197-1.10.1	Miti Patel	Extract Storage	04/10/13 15:45	Return to Storage
JB33197-1.10.1	Extract Storage	Vincent Drago	04/11/13 17:23	Retrieve from Storage
JB33197-1.10.1	Vincent Drago	GCWW	04/11/13 17:23	Load on Instrument
JB33197-1.10.1	GCWW	Vincent Drago	04/12/13 16:39	Unload from Instrument
JB33197-1.10.1	Vincent Drago	Extract Freezer	04/12/13 16:39	Return to Storage
JB33197-1.10.1	Extract Freezer		05/21/13 09:00	Disposed
JB33197-1.11	Secured Storage	Miti Patel	04/10/13 08:46	Retrieve from Storage
JB33197-1.11	Miti Patel	Secured Storage	04/10/13 14:59	Return to Storage
JB33197-1.11	Darnell Brown		08/08/13 10:25	Disposed
JB33197-1.11.1	Miti Patel	Organics Prep	04/10/13 08:46	Extract from JB33197-1.11
JB33197-1.11.1	Organics Prep	Miti Patel	04/10/13 15:45	Extract from JB33197-1.11
JB33197-1.11.1	Miti Patel	Extract Storage	04/10/13 15:45	Return to Storage
JB33197-1.11.1	Extract Storage	Vincent Drago	04/11/13 17:23	Retrieve from Storage
JB33197-1.11.1	Vincent Drago	GCWW	04/11/13 17:23	Load on Instrument
JB33197-1.11.1	GCWW	Vincent Drago	04/12/13 16:39	Unload from Instrument
JB33197-1.11.1	Vincent Drago	Extract Freezer	04/12/13 16:39	Return to Storage
JB33197-1.11.1	Extract Freezer		05/21/13 09:00	Disposed
JB33197-1F.4	Secured Storage	Dave Hunkele	04/04/13 09:52	Retrieve from Storage
JB33197-1F.4	Dave Hunkele	Secured Staging Area	04/04/13 09:52	Return to Storage
JB33197-1F.4	Secured Staging Area	Rinku Patel	04/04/13 11:20	Retrieve from Storage
JB33197-1F.4	Rinku Patel	Gina Montenegro	04/04/13 18:52	Custody Transfer
JB33197-1F.4	Gina Montenegro	Secured Storage	04/04/13 19:04	Return to Storage
JB33197-1F.4	Secured Storage	Rinku Patel	04/06/13 12:06	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/03/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33197-1F.4	Rinku Patel	Secured Storage	04/06/13 12:38	Return to Storage
JB33197-1F.4	Secured Storage	Dave Hunkele	04/09/13 13:16	Retrieve from Storage
JB33197-1F.4	Dave Hunkele	Secured Staging Area	04/09/13 13:16	Return to Storage
JB33197-1F.4	Secured Staging Area	Rinku Patel	04/09/13 13:40	Retrieve from Storage
JB33197-1F.4	Wei Zhou	Secured Storage	04/10/13 07:48	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB33197-1F.4	Darnell Brown		08/08/13 10:25	Disposed
JB33197-1F.4.1	Rinku Patel	Metals Digestion	04/06/13 12:10	Digestate from JB33197-1F.4
JB33197-1F.4.1	Metals Digestion	Rinku Patel	04/06/13 12:10	Digestate from JB33197-1F.4
JB33197-1F.4.1	Rinku Patel	Metals Digestate Storage	04/06/13 12:10	Return to Storage
JB33197-1F.4.1	Metals Digestate Storage		06/13/13 09:00	Disposed
JB33197-2.1	Secured Storage	Patrick Wade	04/06/13 07:59	Retrieve from Storage
JB33197-2.1	Patrick Wade		04/06/13 16:25	Depleted
JB33197-2.1.1	Patrick Wade	Organics Prep	04/06/13 08:01	Extract from JB33197-2.1
JB33197-2.1.1	Organics Prep	Patrick Wade	04/06/13 16:23	Extract from JB33197-2.1
JB33197-2.1.1	Patrick Wade	Extract Storage	04/06/13 16:23	Return to Storage
JB33197-2.1.1	Extract Storage		05/17/13 09:00	Disposed
JB33197-2.3	Secured Storage	Todd Shoemaker	04/05/13 08:46	Retrieve from Storage
JB33197-2.3	Todd Shoemaker	Secured Staging Area	04/05/13 08:46	Return to Storage
JB33197-2.3	Secured Staging Area	Caitie Van Sciver	04/05/13 08:47	Retrieve from Storage
JB33197-2.3	Caitie Van Sciver	Secured Storage	04/05/13 15:37	Return to Storage
JB33197-2.3	Secured Storage	Dave Hunkele	04/09/13 08:30	Retrieve from Storage
JB33197-2.3	Dave Hunkele	Secured Staging Area	04/09/13 08:30	Return to Storage
JB33197-2.3	Secured Staging Area	Jayshree Amin	04/09/13 08:55	Retrieve from Storage
JB33197-2.3	Jayshree Amin	Secured Storage	04/09/13 17:49	Return to Storage
JB33197-2.3	Secured Storage	Nick Popow	04/11/13 09:27	Retrieve from Storage
JB33197-2.3	Nick Popow	Secured Staging Area	04/11/13 09:28	Return to Storage
JB33197-2.3	Secured Staging Area	Nirali Patel	04/11/13 09:35	Retrieve from Storage
JB33197-2.3	Nirali Patel	Secured Storage	04/11/13 17:09	Return to Storage
JB33197-2.3	Darnell Brown		08/08/13 10:25	Disposed
JB33197-2.5	Secured Storage	Adam Scott	04/12/13 09:13	Retrieve from Storage
JB33197-2.5	Adam Scott	Secured Staging Area	04/12/13 09:14	Return to Storage
JB33197-2.5	Secured Staging Area	Jayshree Amin	04/12/13 09:30	Retrieve from Storage
JB33197-2.5	Jayshree Amin	Secured Storage	04/12/13 18:13	Return to Storage
JB33197-2.5	Darnell Brown		08/08/13 10:25	Disposed
JB33197-2.6	Secured Storage	Todd Shoemaker	04/15/13 08:12	Retrieve from Storage
JB33197-2.6	Todd Shoemaker	Secured Staging Area	04/15/13 08:13	Return to Storage
JB33197-2.6	Secured Staging Area	Jayshree Amin	04/15/13 11:18	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/03/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33197-2.6	Jayshree Amin	Secured Storage	04/15/13 19:13	Return to Storage
JB33197-2.6	Darnell Brown		08/08/13 10:25	Disposed
JB33197-2.7	Secured Storage	Lucas Schneider	04/03/13 21:28	Retrieve from Storage
JB33197-2.7	Lucas Schneider	Secured Storage	04/03/13 23:20	Return to Storage
JB33197-2.7	Darnell Brown		08/08/13 10:25	Disposed
JB33197-2.8	Secured Storage	Miti Patel	04/10/13 08:46	Retrieve from Storage
JB33197-2.8	Miti Patel	Secured Storage	04/10/13 14:59	Return to Storage
JB33197-2.8	Darnell Brown		08/08/13 10:25	Disposed
JB33197-2.8.1	Miti Patel	Organics Prep	04/10/13 08:46	Extract from JB33197-2.8
JB33197-2.8.1	Organics Prep	Miti Patel	04/10/13 15:45	Extract from JB33197-2.8
JB33197-2.8.1	Miti Patel	Extract Storage	04/10/13 15:45	Return to Storage
JB33197-2.8.1	Extract Storage	Vincent Drago	04/11/13 17:23	Retrieve from Storage
JB33197-2.8.1	Vincent Drago	GCWW	04/11/13 17:23	Load on Instrument
JB33197-2.8.1	GCWW	Vincent Drago	04/12/13 16:39	Unload from Instrument
JB33197-2.8.1	Vincent Drago	Extract Freezer	04/12/13 16:39	Return to Storage
JB33197-2.8.1	Extract Freezer		05/21/13 09:00	Disposed
JB33197-2.9	Secured Storage	Emily Tran	04/12/13 11:43	Retrieve from Storage
JB33197-2.9	Emily Tran	Secured Storage	04/12/13 17:04	Return to Storage
JB33197-2.9	Secured Storage	Dipa Patel	04/17/13 13:23	Retrieve from Storage
JB33197-2.9	Dipa Patel	GCMS2E	04/17/13 13:23	Load on Instrument
JB33197-2.9	GCMS2E	Dipa Patel	04/18/13 11:31	Unload from Instrument
JB33197-2.9	Dipa Patel	Secured Storage	04/18/13 11:31	Return to Storage
JB33197-2.9	Darnell Brown		08/08/13 10:25	Disposed
JB33197-2.10	Secured Storage	Tara Reddington	04/16/13 12:42	Retrieve from Storage
JB33197-2.10	Tara Reddington	GCMS4D	04/16/13 12:42	Load on Instrument
JB33197-2.10	GCMS4D	Juntae Park	04/17/13 11:58	Unload from Instrument
JB33197-2.10	Juntae Park	Secured Storage	04/17/13 11:58	Return to Storage
JB33197-2.10	Darnell Brown		08/08/13 10:25	Disposed
JB33197-2.11	Secured Storage	Tamika Yvonne Ginn	04/15/13 14:21	Retrieve from Storage
JB33197-2.11	Tamika Yvonne Ginn	Secured Storage	04/15/13 16:56	Return to Storage
JB33197-2.11	Darnell Brown		08/08/13 10:25	Disposed
JB33197-2F.4	Secured Storage	Dave Hunkele	04/04/13 09:52	Retrieve from Storage
JB33197-2F.4	Dave Hunkele	Secured Staging Area	04/04/13 09:52	Return to Storage
JB33197-2F.4	Secured Staging Area	Rinku Patel	04/04/13 11:20	Retrieve from Storage
JB33197-2F.4	Rinku Patel	Gina Montenegro	04/04/13 18:52	Custody Transfer
JB33197-2F.4	Gina Montenegro	Secured Storage	04/04/13 19:04	Return to Storage
JB33197-2F.4	Secured Storage	Rinku Patel	04/06/13 12:06	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/03/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33197-2F.4	Rinku Patel	Secured Storage	04/06/13 12:38	Return to Storage
JB33197-2F.4	Secured Storage	Dave Hunkele	04/09/13 13:16	Retrieve from Storage
JB33197-2F.4	Dave Hunkele	Secured Staging Area	04/09/13 13:16	Return to Storage
JB33197-2F.4	Secured Staging Area	Rinku Patel	04/09/13 13:40	Retrieve from Storage
JB33197-2F.4	Wei Zhou	Secured Storage	04/10/13 07:48	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB33197-2F.4	Darnell Brown		08/08/13 10:25	Disposed
JB33197-2F.4.1	Rinku Patel	Metals Digestion	04/06/13 12:10	Digestate from JB33197-2F.4
JB33197-2F.4.1	Metals Digestion	Rinku Patel	04/06/13 12:10	Digestate from JB33197-2F.4
JB33197-2F.4.1	Rinku Patel	Metals Digestate Storage	04/06/13 12:10	Return to Storage
JB33197-2F.4.1	Metals Digestate Storage		06/13/13 09:00	Disposed
JB33197-3.2	Secured Storage	Patrick Wade	04/06/13 07:59	Retrieve from Storage
JB33197-3.2	Patrick Wade		04/06/13 16:25	Depleted
JB33197-3.2.1	Patrick Wade	Organics Prep	04/06/13 08:01	Extract from JB33197-3.2
JB33197-3.2.1	Organics Prep	Patrick Wade	04/06/13 16:23	Extract from JB33197-3.2
JB33197-3.2.1	Patrick Wade	Extract Storage	04/06/13 16:23	Return to Storage
JB33197-3.2.1	Extract Storage		05/17/13 09:00	Disposed
JB33197-3.3	Secured Storage	Todd Shoemaker	04/05/13 08:46	Retrieve from Storage
JB33197-3.3	Todd Shoemaker	Secured Staging Area	04/05/13 08:46	Return to Storage
JB33197-3.3	Secured Staging Area	Caitie Van Sciver	04/05/13 08:47	Retrieve from Storage
JB33197-3.3	Caitie Van Sciver	Secured Storage	04/05/13 15:37	Return to Storage
JB33197-3.3	Secured Storage	Dave Hunkele	04/09/13 08:30	Retrieve from Storage
JB33197-3.3	Dave Hunkele	Secured Staging Area	04/09/13 08:30	Return to Storage
JB33197-3.3	Secured Staging Area	Jayshree Amin	04/09/13 08:55	Retrieve from Storage
JB33197-3.3	Jayshree Amin	Secured Storage	04/09/13 17:49	Return to Storage
JB33197-3.3	Secured Storage	Nick Popow	04/11/13 09:27	Retrieve from Storage
JB33197-3.3	Nick Popow	Secured Staging Area	04/11/13 09:28	Return to Storage
JB33197-3.3	Secured Staging Area	Nirali Patel	04/11/13 09:35	Retrieve from Storage
JB33197-3.3	Nirali Patel	Secured Storage	04/11/13 17:09	Return to Storage
JB33197-3.3	Darnell Brown		08/08/13 10:25	Disposed
JB33197-3.5	Secured Storage	Adam Scott	04/12/13 09:13	Retrieve from Storage
JB33197-3.5	Adam Scott	Secured Staging Area	04/12/13 09:14	Return to Storage
JB33197-3.5	Secured Staging Area	Jayshree Amin	04/12/13 09:30	Retrieve from Storage
JB33197-3.5	Jayshree Amin	Secured Storage	04/12/13 18:13	Return to Storage
JB33197-3.5	Secured Storage	Todd Shoemaker	04/15/13 08:12	Retrieve from Storage
JB33197-3.5	Todd Shoemaker	Secured Staging Area	04/15/13 08:13	Return to Storage
JB33197-3.5	Secured Staging Area	Jayshree Amin	04/15/13 11:18	Retrieve from Storage
JB33197-3.5	Jayshree Amin	Secured Storage	04/15/13 19:13	Return to Storage
JB33197-3.5	Darnell Brown		08/08/13 10:25	Disposed

Accutest Internal Chain of Custody

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/03/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33197-3.7	Secured Storage	Lucas Schneider	04/03/13 21:28	Retrieve from Storage
JB33197-3.7	Lucas Schneider	Secured Storage	04/03/13 23:20	Return to Storage
JB33197-3.7	Darnell Brown		08/08/13 10:25	Disposed
JB33197-3.9	Secured Storage	Tamika Yvonne Ginn	04/15/13 14:21	Retrieve from Storage
JB33197-3.9	Tamika Yvonne Ginn	Secured Storage	04/15/13 16:56	Return to Storage
JB33197-3.9	Darnell Brown		08/08/13 10:25	Disposed
JB33197-3.10	Secured Storage	Miti Patel	04/10/13 08:46	Retrieve from Storage
JB33197-3.10	Miti Patel	Secured Storage	04/10/13 14:59	Return to Storage
JB33197-3.10	Darnell Brown		08/08/13 10:25	Disposed
JB33197-3.10.1	Miti Patel	Organics Prep	04/10/13 08:46	Extract from JB33197-3.10
JB33197-3.10.1	Organics Prep	Miti Patel	04/10/13 15:45	Extract from JB33197-3.10
JB33197-3.10.1	Miti Patel	Extract Storage	04/10/13 15:45	Return to Storage
JB33197-3.10.1	Extract Storage	Vincent Drago	04/11/13 17:23	Retrieve from Storage
JB33197-3.10.1	Vincent Drago	GCWW	04/11/13 17:23	Load on Instrument
JB33197-3.10.1	GCWW	Vincent Drago	04/12/13 16:39	Unload from Instrument
JB33197-3.10.1	Vincent Drago	Extract Freezer	04/12/13 16:39	Return to Storage
JB33197-3.10.1	Extract Freezer		05/21/13 09:00	Disposed
JB33197-3.11	Secured Storage	Emily Tran	04/12/13 11:43	Retrieve from Storage
JB33197-3.11	Emily Tran	Secured Storage	04/12/13 17:04	Return to Storage
JB33197-3.11	Darnell Brown		08/08/13 10:25	Disposed
JB33197-3F.4	Secured Storage	Dave Hunkele	04/04/13 09:52	Retrieve from Storage
JB33197-3F.4	Dave Hunkele	Secured Staging Area	04/04/13 09:52	Return to Storage
JB33197-3F.4	Secured Staging Area	Rinku Patel	04/04/13 11:20	Retrieve from Storage
JB33197-3F.4	Rinku Patel	Gina Montenegro	04/04/13 18:52	Custody Transfer
JB33197-3F.4	Gina Montenegro	Secured Storage	04/04/13 19:04	Return to Storage
JB33197-3F.4	Secured Storage	Rinku Patel	04/06/13 12:06	Retrieve from Storage
JB33197-3F.4	Rinku Patel	Secured Storage	04/06/13 12:38	Return to Storage
JB33197-3F.4	Secured Storage	Dave Hunkele	04/09/13 13:16	Retrieve from Storage
JB33197-3F.4	Dave Hunkele	Secured Staging Area	04/09/13 13:16	Return to Storage
JB33197-3F.4	Secured Staging Area	Rinku Patel	04/09/13 13:40	Retrieve from Storage
JB33197-3F.4	Wei Zhou	Secured Storage	04/10/13 07:48	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB33197-3F.4	Darnell Brown		08/08/13 10:25	Disposed
JB33197-3F.4.1	Rinku Patel	Metals Digestion	04/06/13 12:10	Digestate from JB33197-3F.4
JB33197-3F.4.1	Metals Digestion	Rinku Patel	04/06/13 12:10	Digestate from JB33197-3F.4
JB33197-3F.4.1	Rinku Patel	Metals Digestate Storage	04/06/13 12:10	Return to Storage
JB33197-3F.4.1	Metals Digestate Storage		06/13/13 09:00	Disposed

Accutest Internal Chain of Custody

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/03/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33197-4.1	Secured Storage	Patrick Wade	04/06/13 07:59	Retrieve from Storage
JB33197-4.1	Patrick Wade		04/06/13 16:25	Depleted
JB33197-4.1.1	Patrick Wade	Organics Prep	04/06/13 08:01	Extract from JB33197-4.1
JB33197-4.1.1	Organics Prep	Patrick Wade	04/06/13 16:23	Extract from JB33197-4.1
JB33197-4.1.1	Patrick Wade	Extract Storage	04/06/13 16:23	Return to Storage
JB33197-4.1.1	Extract Storage		05/17/13 09:00	Disposed
JB33197-4.2	Secured Storage	Patrick Wade	04/06/13 07:59	Retrieve from Storage
JB33197-4.2	Patrick Wade		04/06/13 16:25	Depleted
JB33197-4.2.1	Patrick Wade	Organics Prep	04/06/13 08:01	Extract from JB33197-4.2
JB33197-4.2.1	Organics Prep	Patrick Wade	04/06/13 16:23	Extract from JB33197-4.2
JB33197-4.2.1	Patrick Wade	Extract Storage	04/06/13 16:23	Return to Storage
JB33197-4.2.1	Extract Storage		05/17/13 09:00	Disposed
JB33197-4.3	Secured Storage	Todd Shoemaker	04/05/13 08:46	Retrieve from Storage
JB33197-4.3	Todd Shoemaker	Secured Staging Area	04/05/13 08:46	Return to Storage
JB33197-4.3	Secured Staging Area	Caitie Van Sciver	04/05/13 08:47	Retrieve from Storage
JB33197-4.3	Caitie Van Sciver	Secured Storage	04/05/13 15:37	Return to Storage
JB33197-4.3	Secured Storage	Dave Hunkele	04/09/13 08:30	Retrieve from Storage
JB33197-4.3	Dave Hunkele	Secured Staging Area	04/09/13 08:30	Return to Storage
JB33197-4.3	Secured Staging Area	Jayshree Amin	04/09/13 08:55	Retrieve from Storage
JB33197-4.3	Jayshree Amin	Secured Storage	04/09/13 17:49	Return to Storage
JB33197-4.3	Secured Storage	Nick Popow	04/11/13 09:27	Retrieve from Storage
JB33197-4.3	Nick Popow	Secured Staging Area	04/11/13 09:28	Return to Storage
JB33197-4.3	Secured Staging Area	Nirali Patel	04/11/13 09:35	Retrieve from Storage
JB33197-4.3	Nirali Patel	Secured Storage	04/11/13 17:09	Return to Storage
JB33197-4.3	Darnell Brown		08/08/13 10:25	Disposed
JB33197-4.5	Secured Storage	Adam Scott	04/12/13 09:13	Retrieve from Storage
JB33197-4.5	Adam Scott	Secured Staging Area	04/12/13 09:14	Return to Storage
JB33197-4.5	Secured Staging Area	Jayshree Amin	04/12/13 09:30	Retrieve from Storage
JB33197-4.5	Jayshree Amin	Secured Storage	04/12/13 18:13	Return to Storage
JB33197-4.5	Secured Storage	Todd Shoemaker	04/15/13 08:12	Retrieve from Storage
JB33197-4.5	Todd Shoemaker	Secured Staging Area	04/15/13 08:13	Return to Storage
JB33197-4.5	Secured Staging Area	Jayshree Amin	04/15/13 11:18	Retrieve from Storage
JB33197-4.5	Jayshree Amin	Secured Storage	04/15/13 19:13	Return to Storage
JB33197-4.5	Darnell Brown		08/08/13 10:25	Disposed
JB33197-4.7	Secured Storage	Lucas Schneider	04/03/13 21:28	Retrieve from Storage
JB33197-4.7	Lucas Schneider	Secured Storage	04/03/13 23:20	Return to Storage
JB33197-4.7	Darnell Brown		08/08/13 10:25	Disposed

Accutest Internal Chain of Custody

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/03/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33197-4.8	Secured Storage	Miti Patel	04/10/13 08:46	Retrieve from Storage
JB33197-4.8	Miti Patel	Secured Storage	04/10/13 14:59	Return to Storage
JB33197-4.8	Darnell Brown		08/08/13 10:25	Disposed
JB33197-4.8.1	Miti Patel	Organics Prep	04/10/13 08:46	Extract from JB33197-4.8
JB33197-4.8.1	Organics Prep	Miti Patel	04/10/13 15:45	Extract from JB33197-4.8
JB33197-4.8.1	Miti Patel	Extract Storage	04/10/13 15:45	Return to Storage
JB33197-4.8.1	Extract Storage	Vincent Drago	04/11/13 17:23	Retrieve from Storage
JB33197-4.8.1	Vincent Drago	GCWW	04/11/13 17:23	Load on Instrument
JB33197-4.8.1	GCWW	Vincent Drago	04/12/13 16:39	Unload from Instrument
JB33197-4.8.1	Vincent Drago	Extract Freezer	04/12/13 16:39	Return to Storage
JB33197-4.8.1	Extract Freezer		05/21/13 09:00	Disposed
JB33197-4.9	Secured Storage	Emily Tran	04/12/13 11:43	Retrieve from Storage
JB33197-4.9	Emily Tran	Secured Storage	04/12/13 17:04	Return to Storage
JB33197-4.9	Secured Storage	Juntae Park	04/16/13 14:40	Retrieve from Storage
JB33197-4.9	Juntae Park	GCMS4D	04/16/13 14:40	Load on Instrument
JB33197-4.9	GCMS4D	Juntae Park	04/17/13 11:58	Unload from Instrument
JB33197-4.9	Juntae Park	Secured Storage	04/17/13 11:58	Return to Storage
JB33197-4.9	Darnell Brown		08/08/13 10:25	Disposed
JB33197-4.10	Secured Storage	Tara Reddington	04/16/13 11:07	Retrieve from Storage
JB33197-4.10	Tara Reddington	Secured Storage	04/16/13 15:27	Return to Storage
JB33197-4.10	Secured Storage	Dana Tryon	04/17/13 11:10	Retrieve from Storage
JB33197-4.10	Dana Tryon	GCMS1C	04/17/13 11:10	Load on Instrument
JB33197-4.10	GCMS1C	Tamika Yvonne Ginn	04/18/13 13:48	Unload from Instrument
JB33197-4.10	Tamika Yvonne Ginn	Secured Storage	04/18/13 13:48	Return to Storage
JB33197-4.10	Darnell Brown		08/08/13 10:25	Disposed
JB33197-4.11	Secured Storage	Vianna Chau	04/15/13 16:16	Retrieve from Storage
JB33197-4.11	Vianna Chau	GCMS3D	04/15/13 16:17	Load on Instrument
JB33197-4.11	GCMS3D	Nathaniel Tuvera	04/17/13 08:54	Unload from Instrument
JB33197-4.11	Nathaniel Tuvera	Secured Storage	04/17/13 08:54	Return to Storage
JB33197-4.11	Darnell Brown		08/08/13 10:25	Disposed
JB33197-4F.4	Secured Storage	Dave Hunkele	04/04/13 09:52	Retrieve from Storage
JB33197-4F.4	Dave Hunkele	Secured Staging Area	04/04/13 09:52	Return to Storage
JB33197-4F.4	Secured Staging Area	Rinku Patel	04/04/13 11:20	Retrieve from Storage
JB33197-4F.4	Rinku Patel	Gina Montenegro	04/04/13 18:52	Custody Transfer
JB33197-4F.4	Gina Montenegro	Secured Storage	04/04/13 19:04	Return to Storage
JB33197-4F.4	Secured Storage	Rinku Patel	04/06/13 12:06	Retrieve from Storage
JB33197-4F.4	Rinku Patel	Secured Storage	04/06/13 12:38	Return to Storage
JB33197-4F.4	Secured Storage	Dave Hunkele	04/09/13 13:16	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/03/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33197-4F.4	Dave Hunkele	Secured Staging Area	04/09/13 13:16	Return to Storage
JB33197-4F.4	Secured Staging Area	Rinku Patel	04/09/13 13:40	Retrieve from Storage
JB33197-4F.4	Wei Zhou	Secured Storage	04/10/13 07:48	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB33197-4F.4	Darnell Brown		08/08/13 10:25	Disposed
JB33197-4F.4.1	Rinku Patel	Metals Digestion	04/06/13 12:10	Digestate from JB33197-4F.4
JB33197-4F.4.1	Metals Digestion	Rinku Patel	04/06/13 12:10	Digestate from JB33197-4F.4
JB33197-4F.4.1	Rinku Patel	Metals Digestate Storage	04/06/13 12:10	Return to Storage
JB33197-4F.4.1	Metals Digestate Storage		06/13/13 09:00	Disposed
JB33197-5.1	Secured Storage	Patrick Wade	04/06/13 07:59	Retrieve from Storage
JB33197-5.1	Patrick Wade		04/06/13 16:25	Depleted
JB33197-5.1.1	Patrick Wade	Organics Prep	04/06/13 08:01	Extract from JB33197-5.1
JB33197-5.1.1	Organics Prep	Patrick Wade	04/06/13 16:23	Extract from JB33197-5.1
JB33197-5.1.1	Patrick Wade	Extract Storage	04/06/13 16:23	Return to Storage
JB33197-5.1.1	Extract Storage		05/17/13 09:00	Disposed
JB33197-5.3	Secured Storage	Todd Shoemaker	04/05/13 08:46	Retrieve from Storage
JB33197-5.3	Todd Shoemaker	Secured Staging Area	04/05/13 08:46	Return to Storage
JB33197-5.3	Secured Staging Area	Caitie Van Sciver	04/05/13 08:47	Retrieve from Storage
JB33197-5.3	Caitie Van Sciver	Secured Storage	04/05/13 15:37	Return to Storage
JB33197-5.3	Secured Storage	Dave Hunkele	04/09/13 08:30	Retrieve from Storage
JB33197-5.3	Dave Hunkele	Secured Staging Area	04/09/13 08:30	Return to Storage
JB33197-5.3	Secured Staging Area	Jayshree Amin	04/09/13 08:55	Retrieve from Storage
JB33197-5.3	Jayshree Amin	Secured Storage	04/09/13 17:49	Return to Storage
JB33197-5.3	Secured Storage	Nick Popow	04/11/13 09:27	Retrieve from Storage
JB33197-5.3	Nick Popow	Secured Staging Area	04/11/13 09:28	Return to Storage
JB33197-5.3	Secured Staging Area	Nirali Patel	04/11/13 09:35	Retrieve from Storage
JB33197-5.3	Nirali Patel	Secured Storage	04/11/13 17:09	Return to Storage
JB33197-5.3	Darnell Brown		08/08/13 10:25	Disposed
JB33197-5.5	Secured Storage	Adam Scott	04/12/13 09:13	Retrieve from Storage
JB33197-5.5	Adam Scott	Secured Staging Area	04/12/13 09:14	Return to Storage
JB33197-5.5	Secured Staging Area	Jayshree Amin	04/12/13 09:30	Retrieve from Storage
JB33197-5.5	Jayshree Amin	Secured Storage	04/12/13 18:13	Return to Storage
JB33197-5.5	Darnell Brown		08/08/13 10:25	Disposed
JB33197-5.6	Secured Storage	Todd Shoemaker	04/15/13 08:12	Retrieve from Storage
JB33197-5.6	Todd Shoemaker	Secured Staging Area	04/15/13 08:13	Return to Storage
JB33197-5.6	Secured Staging Area	Jayshree Amin	04/15/13 11:18	Retrieve from Storage
JB33197-5.6	Jayshree Amin	Secured Storage	04/15/13 19:13	Return to Storage
JB33197-5.6	Darnell Brown		08/08/13 10:25	Disposed

Accutest Internal Chain of Custody

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/03/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33197-5.7	Secured Storage	Lucas Schneider	04/03/13 21:28	Retrieve from Storage
JB33197-5.7	Lucas Schneider	Secured Storage	04/03/13 23:20	Return to Storage
JB33197-5.7	Darnell Brown		08/08/13 10:25	Disposed
JB33197-5.8	Secured Storage	Emily Tran	04/12/13 16:49	Retrieve from Storage
JB33197-5.8	Emily Tran	GCMS2D	04/12/13 16:49	Load on Instrument
JB33197-5.8	GCMS2D	Emily Tran	04/13/13 08:19	Unload from Instrument
JB33197-5.8	Emily Tran	Secured Storage	04/13/13 08:19	Return to Storage
JB33197-5.8	Darnell Brown		08/08/13 10:25	Disposed
JB33197-5.9	Secured Storage	Miti Patel	04/10/13 08:46	Retrieve from Storage
JB33197-5.9	Miti Patel	Secured Storage	04/10/13 14:59	Return to Storage
JB33197-5.9	Darnell Brown		08/08/13 10:25	Disposed
JB33197-5.9.1	Miti Patel	Organics Prep	04/10/13 08:46	Extract from JB33197-5.9
JB33197-5.9.1	Organics Prep	Miti Patel	04/10/13 15:45	Extract from JB33197-5.9
JB33197-5.9.1	Miti Patel	Extract Storage	04/10/13 15:45	Return to Storage
JB33197-5.9.1	Extract Storage	Vincent Drago	04/11/13 17:23	Retrieve from Storage
JB33197-5.9.1	Vincent Drago	GCWW	04/11/13 17:23	Load on Instrument
JB33197-5.9.1	GCWW	Vincent Drago	04/12/13 16:39	Unload from Instrument
JB33197-5.9.1	Vincent Drago	Extract Freezer	04/12/13 16:39	Return to Storage
JB33197-5.9.1	Extract Freezer		05/21/13 09:00	Disposed
JB33197-5.11	Secured Storage	Vianna Chau	04/15/13 16:16	Retrieve from Storage
JB33197-5.11	Vianna Chau	GCMS3D	04/15/13 16:17	Load on Instrument
JB33197-5.11	GCMS3D	Nathaniel Tuvera	04/17/13 08:54	Unload from Instrument
JB33197-5.11	Nathaniel Tuvera	Secured Storage	04/17/13 08:54	Return to Storage
JB33197-5.11	Darnell Brown		08/08/13 10:25	Disposed
JB33197-5F.4	Secured Storage	Dave Hunkele	04/04/13 09:52	Retrieve from Storage
JB33197-5F.4	Dave Hunkele	Secured Staging Area	04/04/13 09:52	Return to Storage
JB33197-5F.4	Secured Staging Area	Rinku Patel	04/04/13 11:20	Retrieve from Storage
JB33197-5F.4	Rinku Patel	Gina Montenegro	04/04/13 18:52	Custody Transfer
JB33197-5F.4	Gina Montenegro	Secured Storage	04/04/13 19:04	Return to Storage
JB33197-5F.4	Secured Storage	Rinku Patel	04/06/13 12:06	Retrieve from Storage
JB33197-5F.4	Rinku Patel	Secured Storage	04/06/13 12:38	Return to Storage
JB33197-5F.4	Secured Storage	Dave Hunkele	04/09/13 13:16	Retrieve from Storage
JB33197-5F.4	Dave Hunkele	Secured Staging Area	04/09/13 13:16	Return to Storage
JB33197-5F.4	Secured Staging Area	Rinku Patel	04/09/13 13:40	Retrieve from Storage
JB33197-5F.4	Wei Zhou	Secured Storage	04/10/13 07:48	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB33197-5F.4	Darnell Brown		08/08/13 10:25	Disposed

Accutest Internal Chain of Custody

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/03/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33197-5F.4.1	Rinku Patel	Metals Digestion	04/06/13 12:10	Digestate from JB33197-5F.4
JB33197-5F.4.1	Metals Digestion	Rinku Patel	04/06/13 12:10	Digestate from JB33197-5F.4
JB33197-5F.4.1	Rinku Patel	Metals Digestate Storage	04/06/13 12:10	Return to Storage
JB33197-5F.4.1	Metals Digestate Storage		06/13/13 09:00	Disposed
JB33197-6.1	Secured Storage	Miti Patel	04/10/13 08:46	Retrieve from Storage
JB33197-6.1	Miti Patel	Secured Storage	04/10/13 14:59	Return to Storage
JB33197-6.1	Darnell Brown		08/08/13 10:25	Disposed
JB33197-6.1.1	Miti Patel	Organics Prep	04/10/13 08:46	Extract from JB33197-6.1
JB33197-6.1.1	Organics Prep	Miti Patel	04/10/13 15:45	Extract from JB33197-6.1
JB33197-6.1.1	Miti Patel	Extract Storage	04/10/13 15:45	Return to Storage
JB33197-6.1.1	Extract Storage	Vincent Drago	04/11/13 17:23	Retrieve from Storage
JB33197-6.1.1	Vincent Drago	GCWW	04/11/13 17:23	Load on Instrument
JB33197-6.1.1	GCWW	Vincent Drago	04/12/13 16:39	Unload from Instrument
JB33197-6.1.1	Vincent Drago	Extract Freezer	04/12/13 16:39	Return to Storage
JB33197-6.1.1	Extract Freezer		05/21/13 09:00	Disposed
JB33197-6.2	Secured Storage	Emily Tran	04/12/13 16:49	Retrieve from Storage
JB33197-6.2	Emily Tran	GCMS2D	04/12/13 16:49	Load on Instrument
JB33197-6.2	GCMS2D	Emily Tran	04/13/13 08:19	Unload from Instrument
JB33197-6.2	Emily Tran	Secured Storage	04/13/13 08:19	Return to Storage
JB33197-6.2	Secured Storage	Vianna Chau	04/15/13 16:16	Retrieve from Storage
JB33197-6.2	Vianna Chau	GCMS3D	04/15/13 16:17	Load on Instrument
JB33197-6.2	GCMS3D	Nathaniel Tuvera	04/17/13 08:54	Unload from Instrument
JB33197-6.2	Nathaniel Tuvera	Secured Storage	04/17/13 08:54	Return to Storage
JB33197-6.2	Darnell Brown		08/08/13 10:25	Disposed
JB33197-7.2	Secured Storage	Patrick Wade	04/06/13 07:59	Retrieve from Storage
JB33197-7.2	Patrick Wade		04/06/13 16:25	Depleted
JB33197-7.2.1	Patrick Wade	Organics Prep	04/06/13 08:01	Extract from JB33197-7.2
JB33197-7.2.1	Organics Prep	Patrick Wade	04/06/13 16:23	Extract from JB33197-7.2
JB33197-7.2.1	Patrick Wade	Extract Storage	04/06/13 16:23	Return to Storage
JB33197-7.2.1	Extract Storage		05/17/13 09:00	Disposed
JB33197-7.4	Secured Storage	Vianna Chau	04/15/13 16:16	Retrieve from Storage
JB33197-7.4	Vianna Chau	GCMS3D	04/15/13 16:17	Load on Instrument
JB33197-7.4	GCMS3D	Nathaniel Tuvera	04/17/13 08:54	Unload from Instrument
JB33197-7.4	Nathaniel Tuvera	Secured Storage	04/17/13 08:54	Return to Storage
JB33197-7.4	Darnell Brown		08/08/13 10:25	Disposed
JB33197-7.5	Secured Storage	Emily Tran	04/12/13 16:49	Retrieve from Storage
JB33197-7.5	Emily Tran	GCMS2D	04/12/13 16:49	Load on Instrument

Accutest Internal Chain of Custody

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/03/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33197-7.5	GCMS2D	Emily Tran	04/13/13 08:19	Unload from Instrument
JB33197-7.5	Emily Tran	Secured Storage	04/13/13 08:19	Return to Storage
JB33197-7.5	Darnell Brown		08/08/13 10:25	Disposed
JB33197-7.6	Secured Storage	Miti Patel	04/10/13 08:46	Retrieve from Storage
JB33197-7.6	Miti Patel	Secured Storage	04/10/13 14:59	Return to Storage
JB33197-7.6	Darnell Brown		08/08/13 10:25	Disposed
JB33197-7.6.1	Miti Patel	Organics Prep	04/10/13 08:46	Extract from JB33197-7.6
JB33197-7.6.1	Organics Prep	Miti Patel	04/10/13 15:45	Extract from JB33197-7.6
JB33197-7.6.1	Miti Patel	Extract Storage	04/10/13 15:45	Return to Storage
JB33197-7.6.1	Extract Storage	Vincent Drago	04/11/13 17:23	Retrieve from Storage
JB33197-7.6.1	Vincent Drago	GCWW	04/11/13 17:23	Load on Instrument
JB33197-7.6.1	GCWW	Vincent Drago	04/12/13 16:39	Unload from Instrument
JB33197-7.6.1	Vincent Drago	Extract Freezer	04/12/13 16:39	Return to Storage
JB33197-7.6.1	Extract Freezer		05/21/13 09:00	Disposed
JB33197-7F.3	Secured Storage	Dave Hunkele	04/04/13 09:52	Retrieve from Storage
JB33197-7F.3	Dave Hunkele	Secured Staging Area	04/04/13 09:52	Return to Storage
JB33197-7F.3	Secured Staging Area	Rinku Patel	04/04/13 11:20	Retrieve from Storage
JB33197-7F.3	Rinku Patel	Gina Montenegro	04/04/13 18:52	Custody Transfer
JB33197-7F.3	Gina Montenegro	Secured Storage	04/04/13 19:04	Return to Storage
JB33197-7F.3	Secured Storage	Rinku Patel	04/06/13 12:06	Retrieve from Storage
JB33197-7F.3	Rinku Patel	Secured Storage	04/06/13 12:38	Return to Storage
JB33197-7F.3	Secured Storage	Dave Hunkele	04/09/13 13:16	Retrieve from Storage
JB33197-7F.3	Dave Hunkele	Secured Staging Area	04/09/13 13:16	Return to Storage
JB33197-7F.3	Secured Staging Area	Rinku Patel	04/09/13 13:40	Retrieve from Storage
JB33197-7F.3	Wei Zhou	Secured Storage	04/10/13 07:48	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB33197-7F.3	Darnell Brown		08/08/13 10:25	Disposed
JB33197-7F.3.1	Rinku Patel	Metals Digestion	04/06/13 12:10	Digestate from JB33197-7F.3
JB33197-7F.3.1	Metals Digestion	Rinku Patel	04/06/13 12:10	Digestate from JB33197-7F.3
JB33197-7F.3.1	Rinku Patel	Metals Digestate Storage	04/06/13 12:10	Return to Storage
JB33197-7F.3.1	Metals Digestate Storage		06/13/13 09:00	Disposed
JB33197-8.1	Secured Storage	Patrick Wade	04/06/13 07:59	Retrieve from Storage
JB33197-8.1	Patrick Wade		04/06/13 16:25	Depleted
JB33197-8.1.1	Patrick Wade	Organics Prep	04/06/13 08:01	Extract from JB33197-8.1
JB33197-8.1.1	Organics Prep	Patrick Wade	04/06/13 16:23	Extract from JB33197-8.1
JB33197-8.1.1	Patrick Wade	Extract Storage	04/06/13 16:23	Return to Storage
JB33197-8.1.1	Extract Storage		05/17/13 09:00	Disposed

Accutest Internal Chain of Custody

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/03/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33197-8.2	Secured Storage	Shanice Grant	04/22/13 07:12	Retrieve from Storage
JB33197-8.2	Shanice Grant		04/23/13 14:58	Depleted
JB33197-8.2.1	Shanice Grant	Organics Prep	04/22/13 07:18	Extract from JB33197-8.2
JB33197-8.2.1	Organics Prep	Nikita Permiuov	04/22/13 13:52	Extract from JB33197-8.2
JB33197-8.2.1	Nikita Permiuov	Extract Storage	04/22/13 13:52	Return to Storage
JB33197-8.2.1	Extract Storage		06/03/13 09:00	Disposed
JB33197-8.4	Secured Storage	Tamika Yvonne Ginn	04/15/13 14:21	Retrieve from Storage
JB33197-8.4	Tamika Yvonne Ginn	Secured Storage	04/15/13 16:56	Return to Storage
JB33197-8.4	Darnell Brown		08/08/13 10:25	Disposed
JB33197-8.6	Secured Storage	Emily Tran	04/12/13 11:43	Retrieve from Storage
JB33197-8.6	Emily Tran	Secured Storage	04/12/13 17:04	Return to Storage
JB33197-8.6	Darnell Brown		08/08/13 10:25	Disposed
JB33197-8.7	Secured Storage	Miti Patel	04/10/13 08:46	Retrieve from Storage
JB33197-8.7	Miti Patel	Secured Storage	04/10/13 14:59	Return to Storage
JB33197-8.7	Darnell Brown		08/08/13 10:25	Disposed
JB33197-8.7.1	Miti Patel	Organics Prep	04/10/13 08:46	Extract from JB33197-8.7
JB33197-8.7.1	Organics Prep	Miti Patel	04/10/13 15:45	Extract from JB33197-8.7
JB33197-8.7.1	Miti Patel	Extract Storage	04/10/13 15:45	Return to Storage
JB33197-8.7.1	Extract Storage	Vincent Drago	04/11/13 17:23	Retrieve from Storage
JB33197-8.7.1	Vincent Drago	GCWW	04/11/13 17:23	Load on Instrument
JB33197-8.7.1	GCWW	Vincent Drago	04/12/13 16:39	Unload from Instrument
JB33197-8.7.1	Vincent Drago	Extract Freezer	04/12/13 16:39	Return to Storage
JB33197-8.7.1	Extract Freezer		05/21/13 09:00	Disposed
JB33197-8F.3	Secured Storage	Dave Hunkele	04/04/13 09:52	Retrieve from Storage
JB33197-8F.3	Dave Hunkele	Secured Staging Area	04/04/13 09:52	Return to Storage
JB33197-8F.3	Secured Staging Area	Rinku Patel	04/04/13 11:20	Retrieve from Storage
JB33197-8F.3	Rinku Patel	Gina Montenegro	04/04/13 18:52	Custody Transfer
JB33197-8F.3	Gina Montenegro	Secured Storage	04/04/13 19:04	Return to Storage
JB33197-8F.3	Secured Storage	Rinku Patel	04/06/13 12:06	Retrieve from Storage
JB33197-8F.3	Rinku Patel	Secured Storage	04/06/13 12:38	Return to Storage
JB33197-8F.3	Secured Storage	Dave Hunkele	04/09/13 13:16	Retrieve from Storage
JB33197-8F.3	Dave Hunkele	Secured Staging Area	04/09/13 13:16	Return to Storage
JB33197-8F.3	Secured Staging Area	Rinku Patel	04/09/13 13:40	Retrieve from Storage
JB33197-8F.3	Wei Zhou	Secured Storage	04/10/13 07:48	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB33197-8F.3	Darnell Brown		08/08/13 10:25	Disposed
JB33197-8F.3.1	Rinku Patel	Metals Digestion	04/06/13 12:10	Digestate from JB33197-8F.3

Accutest Internal Chain of Custody

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/03/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33197-8F.3.1	Metals Digestion	Rinku Patel	04/06/13 12:10	Digestate from JB33197-8F.3
JB33197-8F.3.1	Rinku Patel	Metals Digestate Storage	04/06/13 12:10	Return to Storage
JB33197-8F.3.1	Metals Digestate Storage		06/13/13 09:00	Disposed
JB33197-9.1	Secured Storage	Patrick Wade	04/06/13 07:59	Retrieve from Storage
JB33197-9.1	Patrick Wade		04/06/13 16:25	Depleted
JB33197-9.1.1	Patrick Wade	Organics Prep	04/06/13 08:01	Extract from JB33197-9.1
JB33197-9.1.1	Organics Prep	Patrick Wade	04/06/13 16:23	Extract from JB33197-9.1
JB33197-9.1.1	Patrick Wade	Extract Storage	04/06/13 16:23	Return to Storage
JB33197-9.1.1	Extract Storage		05/17/13 09:00	Disposed
JB33197-9.2	Secured Storage	Shanice Grant	04/22/13 07:12	Retrieve from Storage
JB33197-9.2	Shanice Grant		04/23/13 14:58	Depleted
JB33197-9.2.1	Shanice Grant	Organics Prep	04/22/13 07:18	Extract from JB33197-9.2
JB33197-9.2.1	Organics Prep	Nikita Permiuov	04/22/13 13:52	Extract from JB33197-9.2
JB33197-9.2.1	Nikita Permiuov	Extract Storage	04/22/13 13:52	Return to Storage
JB33197-9.2.1	Extract Storage		06/03/13 09:00	Disposed
JB33197-9.4	Secured Storage	Emily Tran	04/12/13 16:49	Retrieve from Storage
JB33197-9.4	Emily Tran	GCMS2D	04/12/13 16:49	Load on Instrument
JB33197-9.4	GCMS2D	Emily Tran	04/13/13 08:19	Unload from Instrument
JB33197-9.4	Emily Tran	Secured Storage	04/13/13 08:19	Return to Storage
JB33197-9.4	Darnell Brown		08/08/13 10:25	Disposed
JB33197-9.5	Secured Storage	Miti Patel	04/10/13 08:46	Retrieve from Storage
JB33197-9.5	Miti Patel	Secured Storage	04/10/13 14:59	Return to Storage
JB33197-9.5	Darnell Brown		08/08/13 10:25	Disposed
JB33197-9.5.1	Miti Patel	Organics Prep	04/10/13 08:46	Extract from JB33197-9.5
JB33197-9.5.1	Organics Prep	Miti Patel	04/10/13 15:45	Extract from JB33197-9.5
JB33197-9.5.1	Miti Patel	Extract Storage	04/10/13 15:45	Return to Storage
JB33197-9.5.1	Extract Storage	Vincent Drago	04/11/13 17:23	Retrieve from Storage
JB33197-9.5.1	Vincent Drago	GCWW	04/11/13 17:23	Load on Instrument
JB33197-9.5.1	GCWW	Vincent Drago	04/12/13 16:39	Unload from Instrument
JB33197-9.5.1	Vincent Drago	Extract Freezer	04/12/13 16:39	Return to Storage
JB33197-9.5.1	Extract Freezer		05/21/13 09:00	Disposed
JB33197-9.7	Secured Storage	Vianna Chau	04/15/13 16:16	Retrieve from Storage
JB33197-9.7	Vianna Chau	GCMS3D	04/15/13 16:17	Load on Instrument
JB33197-9.7	GCMS3D	Nathaniel Tuvera	04/17/13 08:54	Unload from Instrument
JB33197-9.7	Nathaniel Tuvera	Secured Storage	04/17/13 08:54	Return to Storage
JB33197-9.7	Darnell Brown		08/08/13 10:25	Disposed

Accutest Internal Chain of Custody

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/03/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33197-9F.3	Secured Storage	Dave Hunkele	04/04/13 09:52	Retrieve from Storage
JB33197-9F.3	Dave Hunkele	Secured Staging Area	04/04/13 09:52	Return to Storage
JB33197-9F.3	Secured Staging Area	Rinku Patel	04/04/13 11:20	Retrieve from Storage
JB33197-9F.3	Rinku Patel	Gina Montenegro	04/04/13 18:52	Custody Transfer
JB33197-9F.3	Gina Montenegro	Secured Storage	04/04/13 19:04	Return to Storage
JB33197-9F.3	Secured Storage	Rinku Patel	04/06/13 12:06	Retrieve from Storage
JB33197-9F.3	Rinku Patel	Secured Storage	04/06/13 12:38	Return to Storage
JB33197-9F.3	Secured Storage	Dave Hunkele	04/09/13 13:16	Retrieve from Storage
JB33197-9F.3	Dave Hunkele	Secured Staging Area	04/09/13 13:16	Return to Storage
JB33197-9F.3	Secured Staging Area	Rinku Patel	04/09/13 13:40	Retrieve from Storage
JB33197-9F.3	Wei Zhou	Secured Storage	04/10/13 07:48	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB33197-9F.3	Darnell Brown		08/08/13 10:25	Disposed
JB33197-9F.3.1	Rinku Patel	Metals Digestion	04/06/13 12:10	Digestate from JB33197-9F.3
JB33197-9F.3.1	Metals Digestion	Rinku Patel	04/06/13 12:10	Digestate from JB33197-9F.3
JB33197-9F.3.1	Rinku Patel	Metals Digestate Storage	04/06/13 12:10	Return to Storage
JB33197-9F.3.1	Metals Digestate Storage		06/13/13 09:00	Disposed
JB33197-10.2	Secured Storage	Patrick Wade	04/06/13 07:59	Retrieve from Storage
JB33197-10.2	Patrick Wade		04/06/13 16:25	Depleted
JB33197-10.2.1	Patrick Wade	Organics Prep	04/06/13 08:01	Extract from JB33197-10.2
JB33197-10.2.1	Organics Prep	Patrick Wade	04/06/13 16:23	Extract from JB33197-10.2
JB33197-10.2.1	Patrick Wade	Extract Storage	04/06/13 16:23	Return to Storage
JB33197-10.2.1	Extract Storage		05/17/13 09:00	Disposed
JB33197-10.4	Secured Storage	Vianna Chau	04/15/13 16:16	Retrieve from Storage
JB33197-10.4	Vianna Chau	GCMS3D	04/15/13 16:17	Load on Instrument
JB33197-10.4	GCMS3D	Nathaniel Tuvera	04/17/13 08:54	Unload from Instrument
JB33197-10.4	Nathaniel Tuvera	Secured Storage	04/17/13 08:54	Return to Storage
JB33197-10.4	Darnell Brown		08/08/13 10:25	Disposed
JB33197-10.5	Secured Storage	Tara Reddington	04/16/13 12:42	Retrieve from Storage
JB33197-10.5	Tara Reddington	GCMS4D	04/16/13 12:42	Load on Instrument
JB33197-10.5	GCMS4D	Juntae Park	04/17/13 11:58	Unload from Instrument
JB33197-10.5	Juntae Park	Secured Storage	04/17/13 11:58	Return to Storage
JB33197-10.5	Darnell Brown		08/08/13 10:25	Disposed
JB33197-10.6	Secured Storage	Emily Tran	04/12/13 16:49	Retrieve from Storage
JB33197-10.6	Emily Tran	GCMS2D	04/12/13 16:49	Load on Instrument
JB33197-10.6	GCMS2D	Emily Tran	04/13/13 08:19	Unload from Instrument
JB33197-10.6	Emily Tran	Secured Storage	04/13/13 08:19	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/03/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33197-10.6	Darnell Brown		08/08/13 10:25	Disposed
JB33197-10.7	Secured Storage	Miti Patel	04/10/13 08:46	Retrieve from Storage
JB33197-10.7	Miti Patel	Secured Storage	04/10/13 14:59	Return to Storage
JB33197-10.7	Darnell Brown		08/08/13 10:25	Disposed
JB33197-10.7.1	Miti Patel	Organics Prep	04/10/13 08:46	Extract from JB33197-10.7
JB33197-10.7.1	Organics Prep	Miti Patel	04/10/13 15:45	Extract from JB33197-10.7
JB33197-10.7.1	Miti Patel	Extract Storage	04/10/13 15:45	Return to Storage
JB33197-10.7.1	Extract Storage	Vincent Drago	04/11/13 17:23	Retrieve from Storage
JB33197-10.7.1	Vincent Drago	GCWW	04/11/13 17:23	Load on Instrument
JB33197-10.7.1	GCWW	Vincent Drago	04/12/13 16:39	Unload from Instrument
JB33197-10.7.1	Vincent Drago	Extract Freezer	04/12/13 16:39	Return to Storage
JB33197-10.7.1	Extract Freezer		05/21/13 09:00	Disposed
JB33197-10F.3	Secured Storage	Dave Hunkele	04/04/13 09:52	Retrieve from Storage
JB33197-10F.3	Dave Hunkele	Secured Staging Area	04/04/13 09:52	Return to Storage
JB33197-10F.3	Secured Staging Area	Rinku Patel	04/04/13 11:20	Retrieve from Storage
JB33197-10F.3	Rinku Patel	Gina Montenegro	04/04/13 18:52	Custody Transfer
JB33197-10F.3	Gina Montenegro	Secured Storage	04/04/13 19:04	Return to Storage
JB33197-10F.3	Secured Storage	Rinku Patel	04/06/13 12:06	Retrieve from Storage
JB33197-10F.3	Rinku Patel	Secured Storage	04/06/13 12:38	Return to Storage
JB33197-10F.3	Secured Storage	Dave Hunkele	04/09/13 13:16	Retrieve from Storage
JB33197-10F.3	Dave Hunkele	Secured Staging Area	04/09/13 13:16	Return to Storage
JB33197-10F.3	Secured Staging Area	Rinku Patel	04/09/13 13:40	Retrieve from Storage
JB33197-10F.3	Wei Zhou	Secured Storage	04/10/13 07:48	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB33197-10F.3	Darnell Brown		08/08/13 10:25	Disposed
JB33197-10F.3.1	Rinku Patel	Metals Digestion	04/06/13 12:10	Digestate from JB33197-10F.3
JB33197-10F.3.1	Metals Digestion	Rinku Patel	04/06/13 12:10	Digestate from JB33197-10F.3
JB33197-10F.3.1	Rinku Patel	Metals Digestate Storage	04/06/13 12:10	Return to Storage
JB33197-10F.3.1	Metals Digestate Storage		06/13/13 09:00	Disposed
JB33197-11.2	Secured Storage	Patrick Wade	04/06/13 07:59	Retrieve from Storage
JB33197-11.2	Patrick Wade		04/06/13 16:25	Depleted
JB33197-11.2.1	Patrick Wade	Organics Prep	04/06/13 08:01	Extract from JB33197-11.2
JB33197-11.2.1	Organics Prep	Patrick Wade	04/06/13 16:23	Extract from JB33197-11.2
JB33197-11.2.1	Patrick Wade	Extract Storage	04/06/13 16:23	Return to Storage
JB33197-11.2.1	Extract Storage		05/17/13 09:00	Disposed
JB33197-11.4	Secured Storage	Miti Patel	04/10/13 08:46	Retrieve from Storage
JB33197-11.4	Miti Patel	Secured Storage	04/10/13 14:59	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Received: 04/03/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB33197-11.4	Darnell Brown		08/08/13 10:25	Disposed
JB33197-11.4.1	Miti Patel	Organics Prep	04/10/13 08:46	Extract from JB33197-11.4
JB33197-11.4.1	Organics Prep	Miti Patel	04/10/13 15:45	Extract from JB33197-11.4
JB33197-11.4.1	Miti Patel	Extract Storage	04/10/13 15:45	Return to Storage
JB33197-11.4.1	Extract Storage	Vincent Drago	04/11/13 17:23	Retrieve from Storage
JB33197-11.4.1	Vincent Drago	GCWW	04/11/13 17:23	Load on Instrument
JB33197-11.4.1	GCWW	Vincent Drago	04/12/13 16:39	Unload from Instrument
JB33197-11.4.1	Vincent Drago	Extract Freezer	04/12/13 16:39	Return to Storage
JB33197-11.4.1	Extract Freezer		05/21/13 09:00	Disposed
JB33197-11.5	Secured Storage	Emily Tran	04/12/13 16:49	Retrieve from Storage
JB33197-11.5	Emily Tran	GCMS2D	04/12/13 16:49	Load on Instrument
JB33197-11.5	GCMS2D	Emily Tran	04/13/13 08:19	Unload from Instrument
JB33197-11.5	Emily Tran	Secured Storage	04/13/13 08:19	Return to Storage
JB33197-11.5	Darnell Brown		08/08/13 10:25	Disposed
JB33197-11.7	Secured Storage	Vianna Chau	04/15/13 16:16	Retrieve from Storage
JB33197-11.7	Vianna Chau	GCMS3D	04/15/13 16:17	Load on Instrument
JB33197-11.7	GCMS3D	Nathaniel Tuvera	04/17/13 08:54	Unload from Instrument
JB33197-11.7	Nathaniel Tuvera	Secured Storage	04/17/13 08:54	Return to Storage
JB33197-11.7	Darnell Brown		08/08/13 10:25	Disposed
JB33197-11F.3	Secured Storage	Dave Hunkele	04/04/13 09:52	Retrieve from Storage
JB33197-11F.3	Dave Hunkele	Secured Staging Area	04/04/13 09:52	Return to Storage
JB33197-11F.3	Secured Staging Area	Rinku Patel	04/04/13 11:20	Retrieve from Storage
JB33197-11F.3	Rinku Patel	Gina Montenegro	04/04/13 18:52	Custody Transfer
JB33197-11F.3	Gina Montenegro	Secured Storage	04/04/13 19:04	Return to Storage
JB33197-11F.3	Secured Storage	Rinku Patel	04/06/13 12:06	Retrieve from Storage
JB33197-11F.3	Rinku Patel	Secured Storage	04/06/13 12:38	Return to Storage
JB33197-11F.3	Secured Storage	Dave Hunkele	04/09/13 13:16	Retrieve from Storage
JB33197-11F.3	Dave Hunkele	Secured Staging Area	04/09/13 13:16	Return to Storage
JB33197-11F.3	Secured Staging Area	Rinku Patel	04/09/13 13:40	Retrieve from Storage
JB33197-11F.3	Wei Zhou	Secured Storage	04/10/13 07:48	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB33197-11F.3	Darnell Brown		08/08/13 10:25	Disposed
JB33197-11F.3.1	Rinku Patel	Metals Digestion	04/06/13 12:10	Digestate from JB33197-11F.3
JB33197-11F.3.1	Metals Digestion	Rinku Patel	04/06/13 12:10	Digestate from JB33197-11F.3
JB33197-11F.3.1	Rinku Patel	Metals Digestate Storage	04/06/13 12:10	Return to Storage
JB33197-11F.3.1	Metals Digestate Storage		06/13/13 09:00	Disposed

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: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V2D4985-MB	2D119861.D	1	04/12/13	ET	n/a	n/a	V2D4985

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

JB33197-3, JB33197-7, JB33197-9, JB33197-10, JB33197-11

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	97%	74-127%
2037-26-5	Toluene-D8	101%	80-122%
460-00-4	4-Bromofluorobenzene	110%	78-116%

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

Method Blank Summary

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D3669-MB	3D85326.D	1	04/15/13	NT	n/a	n/a	V3D3669

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

JB33197-5, JB33197-6, JB33197-8

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	107%	81-121%
17060-07-0	1,2-Dichloroethane-D4	107%	74-127%
2037-26-5	Toluene-D8	100%	80-122%
460-00-4	4-Bromofluorobenzene	100%	78-116%

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

Method Blank Summary

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V4D1545-MB	4D34335.D	1	04/16/13	JTP	n/a	n/a	V4D1545

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

JB33197-1, JB33197-4

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	96%	81-121%
17060-07-0	1,2-Dichloroethane-D4	97%	74-127%
2037-26-5	Toluene-D8	99%	80-122%
460-00-4	4-Bromofluorobenzene	94%	78-116%

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

Method Blank Summary

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V2E4025-MB1	2E89483.D	1	04/17/13	DPP	n/a	n/a	V2E4025

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

JB33197-2

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	98%	81-121%
17060-07-0	1,2-Dichloroethane-D4	92%	74-127%
2037-26-5	Toluene-D8	92%	80-122%
460-00-4	4-Bromofluorobenzene	96%	78-116%

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

Blank Spike Summary

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V2D4985-BS	2D119862.D	1	04/12/13	ET	n/a	n/a	V2D4985

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

JB33197-3, JB33197-7, JB33197-9, JB33197-10, JB33197-11

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	52.1	104	79-116
107-06-2	1,2-Dichloroethane	50	54.9	110	75-133
100-41-4	Ethylbenzene	50	52.4	105	81-118
98-82-8	Isopropylbenzene	50	54.5	109	74-123
1634-04-4	Methyl Tert Butyl Ether	100	106	106	77-120
108-88-3	Toluene	50	53.5	107	82-119
95-63-6	1,2,4-Trimethylbenzene	50	53.9	108	78-122
108-67-8	1,3,5-Trimethylbenzene	50	53.9	108	77-122
1330-20-7	Xylene (total)	150	162	108	82-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	94%	81-121%
17060-07-0	1,2-Dichloroethane-D4	96%	74-127%
2037-26-5	Toluene-D8	100%	80-122%
460-00-4	4-Bromofluorobenzene	101%	78-116%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D3669-BS	3D85327.D	1	04/15/13	NT	n/a	n/a	V3D3669

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

JB33197-5, JB33197-6, JB33197-8

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	48.0	96	79-116
107-06-2	1,2-Dichloroethane	50	54.3	109	75-133
100-41-4	Ethylbenzene	50	49.8	100	81-118
98-82-8	Isopropylbenzene	50	49.7	99	74-123
1634-04-4	Methyl Tert Butyl Ether	100	96.5	97	77-120
108-88-3	Toluene	50	49.2	98	82-119
95-63-6	1,2,4-Trimethylbenzene	50	49.4	99	78-122
108-67-8	1,3,5-Trimethylbenzene	50	49.0	98	77-122
1330-20-7	Xylene (total)	150	152	101	82-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	108%	81-121%
17060-07-0	1,2-Dichloroethane-D4	109%	74-127%
2037-26-5	Toluene-D8	101%	80-122%
460-00-4	4-Bromofluorobenzene	102%	78-116%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V4D1545-BS	4D34336.D	1	04/16/13	JTP	n/a	n/a	V4D1545

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

JB33197-1, JB33197-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	49.8	100	79-116
107-06-2	1,2-Dichloroethane	50	51.1	102	75-133
100-41-4	Ethylbenzene	50	51.3	103	81-118
98-82-8	Isopropylbenzene	50	51.3	103	74-123
1634-04-4	Methyl Tert Butyl Ether	50	51.7	103	77-120
108-88-3	Toluene	50	50.9	102	82-119
95-63-6	1,2,4-Trimethylbenzene	50	50.3	101	78-122
108-67-8	1,3,5-Trimethylbenzene	50	50.8	102	77-122
1330-20-7	Xylene (total)	150	152	101	82-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	97%	81-121%
17060-07-0	1,2-Dichloroethane-D4	96%	74-127%
2037-26-5	Toluene-D8	99%	80-122%
460-00-4	4-Bromofluorobenzene	92%	78-116%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V2E4025-BS	2E89484.D	1	04/17/13	DPP	n/a	n/a	V2E4025

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

JB33197-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	51.6	103	79-116
107-06-2	1,2-Dichloroethane	50	50.7	101	75-133
100-41-4	Ethylbenzene	50	54.1	108	81-118
98-82-8	Isopropylbenzene	50	58.3	117	74-123
1634-04-4	Methyl Tert Butyl Ether	100	103	103	77-120
108-88-3	Toluene	50	54.5	109	82-119
95-63-6	1,2,4-Trimethylbenzene	50	59.0	118	78-122
108-67-8	1,3,5-Trimethylbenzene	50	58.5	117	77-122
1330-20-7	Xylene (total)	150	164	109	82-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	91%	81-121%
17060-07-0	1,2-Dichloroethane-D4	87%	74-127%
2037-26-5	Toluene-D8	96%	80-122%
460-00-4	4-Bromofluorobenzene	103%	78-116%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB33197-3MS	2D119863.D	25	04/12/13	ET	n/a	n/a	V2D4985
JB33197-3MSD	2D119864.D	25	04/12/13	ET	n/a	n/a	V2D4985
JB33197-3	2D119868.D	25	04/13/13	ET	n/a	n/a	V2D4985

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

JB33197-3, JB33197-7, JB33197-9, JB33197-10, JB33197-11

CAS No.	Compound	JB33197-3 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	3180		1250	4050	70	4200	82	4	48-138/11
107-06-2	1,2-Dichloroethane	ND		1250	1330	106	1370	110	3	68-139/10
100-41-4	Ethylbenzene	20.8	J	1250	1250	98	1320	104	5	48-139/11
98-82-8	Isopropylbenzene	30.5	J	1250	1340	105	1410	110	5	61-135/12
1634-04-4	Methyl Tert Butyl Ether	156		1250	1380	98	1450	104	5	63-133/11
108-88-3	Toluene	1260		1250	2380	90	2480	98	4	55-138/11
95-63-6	1,2,4-Trimethylbenzene	49.8	J	1250	1300	100	1380	106	6	48-140/10
108-67-8	1,3,5-Trimethylbenzene	23.6	J	1250	1290	101	1370	108	6	58-135/11
1330-20-7	Xylene (total)	182		3750	3930	100	4130	105	5	51-139/11

CAS No.	Surrogate Recoveries	MS	MSD	JB33197-3	Limits
1868-53-7	Dibromofluoromethane	93%	93%	92%	81-121%
17060-07-0	1,2-Dichloroethane-D4	96%	97%	97%	74-127%
2037-26-5	Toluene-D8	100%	101%	102%	80-122%
460-00-4	4-Bromofluorobenzene	101%	101%	105%	78-116%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB33197-8MS	3D85328.D	40	04/16/13	NT	n/a	n/a	V3D3669
JB33197-8MSD	3D85329.D	40	04/16/13	NT	n/a	n/a	V3D3669
JB33197-8	3D85331.D	40	04/16/13	NT	n/a	n/a	V3D3669

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

JB33197-5, JB33197-6, JB33197-8

CAS No.	Compound	JB33197-8 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	5530		2000	6880	68	6930	70	1	48-138/11
107-06-2	1,2-Dichloroethane	ND		2000	2040	102	2030	102	0	68-139/10
100-41-4	Ethylbenzene	866		2000	2610	87	2620	88	0	48-139/11
98-82-8	Isopropylbenzene	29.3	J	2000	1810	89	1820	90	1	61-135/12
1634-04-4	Methyl Tert Butyl Ether	ND		2000	1800	90	1800	90	0	63-133/11
108-88-3	Toluene	337		2000	2050	86	2080	87	1	55-138/11
95-63-6	1,2,4-Trimethylbenzene	1070		2000	2830	88	2850	89	1	48-140/10
108-67-8	1,3,5-Trimethylbenzene	351		2000	2130	89	2130	89	0	58-135/11
1330-20-7	Xylene (total)	4040		6000	9250	87	9290	88	0	51-139/11

CAS No.	Surrogate Recoveries	MS	MSD	JB33197-8	Limits
1868-53-7	Dibromofluoromethane	107%	106%	105%	81-121%
17060-07-0	1,2-Dichloroethane-D4	108%	106%	104%	74-127%
2037-26-5	Toluene-D8	101%	101%	100%	80-122%
460-00-4	4-Bromofluorobenzene	101%	101%	100%	78-116%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB33732-3MS	4D34344.D	1	04/16/13	JTP	n/a	n/a	V4D1545
JB33732-3MSD	4D34345.D	1	04/16/13	JTP	n/a	n/a	V4D1545
JB33732-3	4D34339.D	1	04/16/13	JTP	n/a	n/a	V4D1545

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

JB33197-1, JB33197-4

CAS No.	Compound	JB33732-3 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		50	49.8	100	49.7	99	0	48-138/11
107-06-2	1,2-Dichloroethane	ND		50	50.5	101	50.7	101	0	68-139/10
100-41-4	Ethylbenzene	ND		50	50.8	102	49.1	98	3	48-139/11
98-82-8	Isopropylbenzene	ND		50	51.4	103	49.9	100	3	61-135/12
1634-04-4	Methyl Tert Butyl Ether	ND		100	106	106	107	107	1	63-133/11
108-88-3	Toluene	ND		50	51.4	103	50.6	101	2	55-138/11
95-63-6	1,2,4-Trimethylbenzene	ND		50	51.3	103	50.5	101	2	48-140/10
108-67-8	1,3,5-Trimethylbenzene	ND		50	50.7	101	50.2	100	1	58-135/11
1330-20-7	Xylene (total)	ND		150	153	102	152	101	1	51-139/11

CAS No.	Surrogate Recoveries	MS	MSD	JB33732-3	Limits
1868-53-7	Dibromofluoromethane	93%	92%	96%	81-121%
17060-07-0	1,2-Dichloroethane-D4	88%	88%	97%	74-127%
2037-26-5	Toluene-D8	98%	98%	98%	80-122%
460-00-4	4-Bromofluorobenzene	92%	92%	93%	78-116%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB33406-10MS	2E89490.D	25	04/17/13	DPP	n/a	n/a	V2E4025
JB33406-10MSD	2E89491.D	25	04/17/13	DPP	n/a	n/a	V2E4025
JB33406-10	2E89489.D	25	04/17/13	DPP	n/a	n/a	V2E4025

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

JB33197-2

CAS No.	Compound	JB33406-10 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	82.4		1250	1300	97	1310	98	1	48-138/11
107-06-2	1,2-Dichloroethane	ND		1250	1220	98	1230	98	1	68-139/10
100-41-4	Ethylbenzene	3580		1250	4280	56	4270	55	0	48-139/11
98-82-8	Isopropylbenzene	199		1250	1630	114	1650	116	1	61-135/12
1634-04-4	Methyl Tert Butyl Ether	11.1		1250	1290	102	1300	103	1	63-133/11
108-88-3	Toluene	439		1250	1670	98	1670	98	0	55-138/11
95-63-6	1,2,4-Trimethylbenzene	3280		1250	4320	83	4360	86	1	48-140/10
108-67-8	1,3,5-Trimethylbenzene	818		1250	2160	107	2170	108	0	58-135/11
1330-20-7	Xylene (total)	10400		3750	12600	59	12600	59	0	51-139/11

CAS No.	Surrogate Recoveries	MS	MSD	JB33406-10	Limits
1868-53-7	Dibromofluoromethane	92%	92%	84%	81-121%
17060-07-0	1,2-Dichloroethane-D4	91%	90%	90%	74-127%
2037-26-5	Toluene-D8	95%	96%	96%	80-122%
460-00-4	4-Bromofluorobenzene	104%	105%	101%	78-116%

* = Outside of Control Limits.

Instrument Performance Check (BFB)

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: V2D4958-BFB
Lab File ID: 2D119264.D
Instrument ID: GCMS2D
Injection Date: 03/27/13
Injection Time: 14:19

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	19226	15.7		Pass
75	30.0 - 60.0% of mass 95	52226	42.7		Pass
95	Base peak, 100% relative abundance	122445	100.0		Pass
96	5.0 - 9.0% of mass 95	7990	6.53		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	129578	105.8		Pass
175	5.0 - 9.0% of mass 174	9709	7.93	(7.49) [a]	Pass
176	95.0 - 101.0% of mass 174	125858	102.8	(97.1) [a]	Pass
177	5.0 - 9.0% of mass 176	8092	6.61	(6.43) [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
V2D4958-IC4958	2D119265.D	03/27/13	14:49	00:30	Initial cal 0.5
V2D4958-IC4958	2D119266.D	03/27/13	15:18	00:59	Initial cal 1
V2D4958-IC4958	2D119267.D	03/27/13	15:48	01:29	Initial cal 2
V2D4958-IC4958	2D119268.D	03/27/13	16:18	01:59	Initial cal 5
V2D4958-IC4958	2D119269.D	03/27/13	16:49	02:30	Initial cal 10
V2D4958-IC4958	2D119270.D	03/27/13	17:18	02:59	Initial cal 20
V2D4958-ICC4958	2D119271.D	03/27/13	17:48	03:29	Initial cal 50
V2D4958-IC4958	2D119272.D	03/27/13	18:17	03:58	Initial cal 100
V2D4958-IC4958	2D119273.D	03/27/13	18:47	04:28	Initial cal 200

Instrument Performance Check (BFB)

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: V2D4985-BFB
Lab File ID: 2D119858.D
Instrument ID: GCMS2D
Injection Date: 04/12/13
Injection Time: 20:30

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	15231	16.3		Pass
75	30.0 - 60.0% of mass 95	40773	43.5		Pass
95	Base peak, 100% relative abundance	93720	100.0		Pass
96	5.0 - 9.0% of mass 95	6069	6.48		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	103285	110.2		Pass
175	5.0 - 9.0% of mass 174	7691	8.21	(7.45) [a]	Pass
176	95.0 - 101.0% of mass 174	100045	106.7	(96.9) [a]	Pass
177	5.0 - 9.0% of mass 176	6520	6.96	(6.52) [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
V2D4985-CC4958	2D119859.D	04/12/13	21:00	00:30	Continuing cal 50
V2D4985-MB	2D119861.D	04/12/13	22:00	01:30	Method Blank
V2D4985-BS	2D119862.D	04/12/13	22:30	02:00	Blank Spike
JB33197-3MS	2D119863.D	04/12/13	23:00	02:30	Matrix Spike
JB33197-3MSD	2D119864.D	04/12/13	23:29	02:59	Matrix Spike Duplicate
JB33197-3	2D119868.D	04/13/13	01:29	04:59	S-226
ZZZZZZ	2D119869.D	04/13/13	01:59	05:29	(unrelated sample)
ZZZZZZ	2D119870.D	04/13/13	02:28	05:58	(unrelated sample)
ZZZZZZ	2D119871.D	04/13/13	02:58	06:28	(unrelated sample)
JB33197-7	2D119872.D	04/13/13	03:28	06:58	S-25
JB33197-9	2D119874.D	04/13/13	04:29	07:59	S-222
JB33197-10	2D119875.D	04/13/13	04:59	08:29	S-38
JB33197-11	2D119876.D	04/13/13	05:28	08:58	S-3
ZZZZZZ	2D119877.D	04/13/13	05:58	09:28	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: V2E3957-BFB
Lab File ID: 2E88003.D
Instrument ID: GCMS2E
Injection Date: 03/06/13
Injection Time: 10:12

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	10557	19.2		Pass
75	30.0 - 60.0% of mass 95	26509	48.2		Pass
95	Base peak, 100% relative abundance	54965	100.0		Pass
96	5.0 - 9.0% of mass 95	3778	6.87		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	47461	86.3		Pass
175	5.0 - 9.0% of mass 174	3629	6.60	(7.65) [a]	Pass
176	95.0 - 101.0% of mass 174	47029	85.6	(99.1) [a]	Pass
177	5.0 - 9.0% of mass 176	3069	5.58	(6.53) [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
V2E3957-IC3957	2E88004.D	03/06/13	10:50	00:38	Initial cal 1
V2E3957-IC3957	2E88005.D	03/06/13	11:34	01:22	Initial cal 2
V2E3957-IC3957	2E88006.D	03/06/13	12:12	02:00	Initial cal 0.5
V2E3957-IC3957	2E88007.D	03/06/13	12:41	02:29	Initial cal 5
V2E3957-IC3957	2E88008.D	03/06/13	13:10	02:58	Initial cal 10
V2E3957-IC3957	2E88009.D	03/06/13	13:39	03:27	Initial cal 20
V2E3957-ICC3957	2E88010.D	03/06/13	14:11	03:59	Initial cal 50
V2E3957-IC3957	2E88011.D	03/06/13	14:40	04:28	Initial cal 100
V2E3957-IC3957	2E88012.D	03/06/13	15:09	04:57	Initial cal 200
V2E3957-ICV3957	2E88015.D	03/06/13	16:38	06:26	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: V2E4025-BFB
Lab File ID: 2E89480.D
Instrument ID: GCMS2E
Injection Date: 04/17/13
Injection Time: 10:08

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	7990	18.1		Pass
75	30.0 - 60.0% of mass 95	20813	47.0		Pass
95	Base peak, 100% relative abundance	44253	100.0		Pass
96	5.0 - 9.0% of mass 95	3013	6.81		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	36283	82.0		Pass
175	5.0 - 9.0% of mass 174	2725	6.16	(7.51) [a]	Pass
176	95.0 - 101.0% of mass 174	35643	80.5	(98.2) [a]	Pass
177	5.0 - 9.0% of mass 176	2346	5.30	(6.58) [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
V2E4025-CC3957	2E89481.D	04/17/13	10:42	00:34	Continuing cal 20
V2E4025-MB1	2E89483.D	04/17/13	11:47	01:39	Method Blank
V2E4025-BS	2E89484.D	04/17/13	12:53	02:45	Blank Spike
JB33197-2	2E89486.D	04/17/13	14:06	03:58	S-117
ZZZZZZ	2E89487.D	04/17/13	14:35	04:27	(unrelated sample)
ZZZZZZ	2E89488.D	04/17/13	15:04	04:56	(unrelated sample)
JB33406-10	2E89489.D	04/17/13	15:33	05:25	(used for QC only; not part of job JB33197)
JB33406-10MS	2E89490.D	04/17/13	16:10	06:02	Matrix Spike
JB33406-10MSD	2E89491.D	04/17/13	16:39	06:31	Matrix Spike Duplicate
ZZZZZZ	2E89493.D	04/17/13	17:37	07:29	(unrelated sample)
ZZZZZZ	2E89494.D	04/17/13	18:06	07:58	(unrelated sample)
ZZZZZZ	2E89495.D	04/17/13	18:40	08:32	(unrelated sample)
ZZZZZZ	2E89496.D	04/17/13	19:09	09:01	(unrelated sample)
ZZZZZZ	2E89497.D	04/17/13	19:38	09:30	(unrelated sample)
ZZZZZZ	2E89498.D	04/17/13	20:07	09:59	(unrelated sample)
ZZZZZZ	2E89499.D	04/17/13	20:36	10:28	(unrelated sample)
ZZZZZZ	2E89500.D	04/17/13	21:05	10:57	(unrelated sample)
ZZZZZZ	2E89501.D	04/17/13	21:33	11:25	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: V3D3579-BFB
Lab File ID: 3D83172.D
Instrument ID: GCMS3D
Injection Date: 02/18/13
Injection Time: 11:09

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	15893	17.0		Pass
75	30.0 - 60.0% of mass 95	40546	43.4		Pass
95	Base peak, 100% relative abundance	93426	100.0		Pass
96	5.0 - 9.0% of mass 95	6231	6.67		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	87082	93.2		Pass
175	5.0 - 9.0% of mass 174	7082	7.58	(8.13) [a]	Pass
176	95.0 - 101.0% of mass 174	84816	90.8	(97.4) [a]	Pass
177	5.0 - 9.0% of mass 176	5526	5.91	(6.52) [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
V3D3579-IC3579	3D83173.D	02/18/13	11:42	00:33	Initial cal 0.5
V3D3579-IC3579	3D83174.D	02/18/13	12:10	01:01	Initial cal 1
V3D3579-IC3579	3D83175.D	02/18/13	12:38	01:29	Initial cal 2
V3D3579-IC3579	3D83176.D	02/18/13	13:06	01:57	Initial cal 5
V3D3579-IC3579	3D83177.D	02/18/13	13:33	02:24	Initial cal 10
V3D3579-IC3579	3D83178.D	02/18/13	14:01	02:52	Initial cal 20
V3D3579-ICC3579	3D83179.D	02/18/13	14:29	03:20	Initial cal 50
V3D3579-IC3579	3D83180.D	02/18/13	14:57	03:48	Initial cal 75
V3D3579-IC3579	3D83181.D	02/18/13	15:25	04:16	Initial cal 100
V3D3579-IC3579	3D83182.D	02/18/13	15:53	04:44	Initial cal 200
V3D3579-ICV3579	3D83184.D	02/18/13	16:51	05:42	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: V3D3669-BFB
Lab File ID: 3D85323.D
Instrument ID: GCMS3D
Injection Date: 04/15/13
Injection Time: 21:55

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	12407	16.5		Pass
75	30.0 - 60.0% of mass 95	33722	44.9		Pass
95	Base peak, 100% relative abundance	75080	100.0		Pass
96	5.0 - 9.0% of mass 95	4968	6.62		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	73816	98.3		Pass
175	5.0 - 9.0% of mass 174	5547	7.39	(7.51) [a]	Pass
176	95.0 - 101.0% of mass 174	71272	94.9	(96.6) [a]	Pass
177	5.0 - 9.0% of mass 176	4715	6.28	(6.62) [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
V3D3669-CC3579	3D85324.D	04/15/13	22:23	00:28	Continuing cal 50
V3D3669-MB	3D85326.D	04/15/13	23:19	01:24	Method Blank
V3D3669-BS	3D85327.D	04/15/13	23:47	01:52	Blank Spike
JB33197-8MS	3D85328.D	04/16/13	00:15	02:20	Matrix Spike
JB33197-8MSD	3D85329.D	04/16/13	00:43	02:48	Matrix Spike Duplicate
JB33197-8	3D85331.D	04/16/13	01:39	03:44	S-223
ZZZZZZ	3D85332.D	04/16/13	02:07	04:12	(unrelated sample)
ZZZZZZ	3D85333.D	04/16/13	02:35	04:40	(unrelated sample)
JB33197-5	3D85337.D	04/16/13	03:59	06:04	FIELD BLANK-FB
JB33197-6	3D85338.D	04/16/13	04:27	06:32	TRIP BLANK
ZZZZZZ	3D85342.D	04/16/13	06:18	08:23	(unrelated sample)
ZZZZZZ	3D85343.D	04/16/13	06:46	08:51	(unrelated sample)
ZZZZZZ	3D85344.D	04/16/13	07:14	09:19	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: V4D1526-BFB
Lab File ID: 4D33875.D
Instrument ID: GCMS4D
Injection Date: 04/05/13
Injection Time: 09:46

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	19389	16.8		Pass
75	30.0 - 60.0% of mass 95	51939	45.1		Pass
95	Base peak, 100% relative abundance	115248	100.0		Pass
96	5.0 - 9.0% of mass 95	7711	6.69		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	91296	79.2		Pass
175	5.0 - 9.0% of mass 174	7313	6.35	(8.01) [a]	Pass
176	95.0 - 101.0% of mass 174	87739	76.1	(96.1) [a]	Pass
177	5.0 - 9.0% of mass 176	5951	5.16	(6.78) [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
V4D1526-IC1526	4D33876.D	04/05/13	10:21	00:35	Initial cal 5
V4D1526-IC1526	4D33877.D	04/05/13	10:51	01:05	Initial cal 2
V4D1526-IC1526	4D33878.D	04/05/13	11:42	01:56	Initial cal 1
V4D1526-IC1526	4D33879.D	04/05/13	12:12	02:26	Initial cal 0.5
V4D1526-IC1526	4D33880.D	04/05/13	12:41	02:55	Initial cal 10
V4D1526-IC1526	4D33881.D	04/05/13	13:10	03:24	Initial cal 20
V4D1526-ICC1526	4D33882.D	04/05/13	13:40	03:54	Initial cal 50
V4D1526-IC1526	4D33883.D	04/05/13	14:09	04:23	Initial cal 100
V4D1526-IC1526	4D33884.D	04/05/13	14:39	04:53	Initial cal 200
V4D1526-ICV1526	4D33887.D	04/05/13	16:07	06:21	Initial cal verification 50
V4D1526-ICV1526	4D33888.D	04/05/13	16:36	06:50	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: V4D1545-BFB
Lab File ID: 4D34332.D
Instrument ID: GCMS4D
Injection Date: 04/16/13
Injection Time: 09:46

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	16789	16.1		Pass
75	30.0 - 60.0% of mass 95	45813	44.0		Pass
95	Base peak, 100% relative abundance	104229	100.0		Pass
96	5.0 - 9.0% of mass 95	6983	6.70		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	85533	82.1		Pass
175	5.0 - 9.0% of mass 174	6652	6.38	(7.78) [a]	Pass
176	95.0 - 101.0% of mass 174	83661	80.3	(97.8) [a]	Pass
177	5.0 - 9.0% of mass 176	5580	5.35	(6.67) [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
V4D1545-CC1526	4D34333.D	04/16/13	10:16	00:30	Continuing cal 20
V4D1545-MB	4D34335.D	04/16/13	11:21	01:35	Method Blank
V4D1545-BS	4D34336.D	04/16/13	11:51	02:05	Blank Spike
ZZZZZZ	4D34337.D	04/16/13	12:20	02:34	(unrelated sample)
ZZZZZZ	4D34338.D	04/16/13	12:49	03:03	(unrelated sample)
JB33732-3	4D34339.D	04/16/13	13:18	03:32	(used for QC only; not part of job JB33197)
ZZZZZZ	4D34340.D	04/16/13	13:48	04:02	(unrelated sample)
ZZZZZZ	4D34341.D	04/16/13	14:17	04:31	(unrelated sample)
ZZZZZZ	4D34342.D	04/16/13	14:46	05:00	(unrelated sample)
ZZZZZZ	4D34343.D	04/16/13	15:16	05:30	(unrelated sample)
JB33732-3MS	4D34344.D	04/16/13	15:45	05:59	Matrix Spike
JB33732-3MSD	4D34345.D	04/16/13	16:14	06:28	Matrix Spike Duplicate
ZZZZZZ	4D34347.D	04/16/13	17:13	07:27	(unrelated sample)
ZZZZZZ	4D34348.D	04/16/13	17:43	07:57	(unrelated sample)
ZZZZZZ	4D34349.D	04/16/13	18:12	08:26	(unrelated sample)
JB33197-1	4D34350.D	04/16/13	18:41	08:55	S-50
JB33197-4	4D34351.D	04/16/13	19:11	09:25	S-52
ZZZZZZ	4D34354.D	04/16/13	20:39	10:53	(unrelated sample)
ZZZZZZ	4D34355.D	04/16/13	21:08	11:22	(unrelated sample)

Volatile Internal Standard Area Summary

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Check Std:	V2D4985-CC4958	**Injection Date:**	04/12/13
Lab File ID:	2D119859.D	**Injection Time:**	21:00
Instrument ID:	GCMS2D	**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	272462	7.18	370816	9.83	471302	10.99	436227	15.22	249191	18.03
Upper Limit [a]	544924	7.68	741632	10.33	942604	11.49	872454	15.72	498382	18.53
Lower Limit [b]	136231	6.68	185408	9.33	235651	10.49	218114	14.72	124596	17.53

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
V2D4985-MB	254530	7.19	377189	9.83	473983	10.99	431484	15.22	219274	18.03
V2D4985-BS	273362	7.17	363144	9.83	461350	10.99	429252	15.21	249246	18.03
JB33197-3MS	273700	7.17	371831	9.83	471613	10.99	437772	15.21	252166	18.03
JB33197-3MSD	281573	7.16	368773	9.83	467550	10.99	435049	15.21	251908	18.03
JB33197-3	260673	7.19	379101	9.83	473694	10.99	435930	15.21	236436	18.03
ZZZZZZ	264006	7.19	380441	9.83	476466	10.98	434997	15.21	229636	18.03
ZZZZZZ	257102	7.19	379171	9.82	472496	10.99	432322	15.21	221295	18.03
ZZZZZZ	262249	7.19	377415	9.83	472694	10.98	429946	15.21	221191	18.03
JB33197-7	269150	7.19	378679	9.82	472048	10.98	428824	15.21	221778	18.03
JB33197-9	253371	7.19	372259	9.82	465529	10.98	426414	15.21	229741	18.03
JB33197-10	267988	7.18	371182	9.82	461933	10.98	426336	15.21	241549	18.03
JB33197-11	278820	7.18	379740	9.82	473392	10.98	430595	15.21	223698	18.03
ZZZZZZ	266188	7.19	379730	9.82	475309	10.98	429922	15.21	224061	18.03

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: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Check Std:	V2E4025-CC3957	**Injection Date:**	04/17/13
Lab File ID:	2E89481.D	**Injection Time:**	10:42
Instrument ID:	GCMS2E	**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	117470	6.96	141139	9.16	213545	10.07	170061	13.24	90494	15.56
Upper Limit [a]	234940	7.46	282278	9.66	427090	10.57	340122	13.74	180988	16.06
Lower Limit [b]	58735	6.46	70570	8.66	106773	9.57	85031	12.74	45247	15.06

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
V2E4025-MB1	98496	6.96	126172	9.16	193064	10.07	154427	13.25	79794	15.57
V2E4025-BS	121567	6.95	137020	9.16	207043	10.06	168136	13.24	87524	15.57
JB33197-2	106401	6.95	128147	9.16	194348	10.06	159235	13.24	82225	15.57
ZZZZZZ	99366	6.96	125228	9.16	192353	10.07	156809	13.25	80071	15.57
ZZZZZZ	107043	6.95	132896	9.16	205256	10.06	168482	13.24	85208	15.57
JB33406-10	66470	6.95	114011	9.16	194993	10.06	159428	13.24	82367	15.57
JB33406-10MS	119239	6.96	138394	9.16	214544	10.07	171854	13.24	87889	15.56
JB33406-10MSD	117625	6.95	137944	9.16	213202	10.06	171527	13.24	87272	15.56
ZZZZZZ	102373	6.95	128596	9.16	196593	10.07	157079	13.24	81203	15.57
ZZZZZZ	111130	6.95	131737	9.15	198219	10.06	159185	13.24	81709	15.57
ZZZZZZ	110706	6.96	126220	9.16	194549	10.07	154749	13.25	80179	15.57
ZZZZZZ	107086	6.96	125940	9.15	193820	10.07	154109	13.24	79150	15.57
ZZZZZZ	72996	6.95	122813	9.16	188622	10.06	150581	13.24	78366	15.57
ZZZZZZ	96924	6.95	122947	9.16	187605	10.07	153292	13.25	82044	15.57
ZZZZZZ	96654	6.95	130101	9.16	202376	10.06	165184	13.24	83811	15.57
ZZZZZZ	66511	6.95	125061	9.16	195158	10.06	154222	13.24	79947	15.57
ZZZZZZ	105749	6.95	131925	9.15	200088	10.06	166178	13.24	86810	15.57

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: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Check Std:	V3D3669-CC3579	**Injection Date:**	04/15/13
Lab File ID:	3D85324.D	**Injection Time:**	22:23
Instrument ID:	GCMS3D	**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	114653	7.29	275510	9.53	391250	10.45	309502	13.60	176489	15.90
Upper Limit [a]	229306	7.79	551020	10.03	782500	10.95	619004	14.10	352978	16.40
Lower Limit [b]	57327	6.79	137755	9.03	195625	9.95	154751	13.10	88245	15.40

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
V3D3669-MB	110786	7.29	296656	9.53	417542	10.45	323064	13.60	183254	15.90
V3D3669-BS	118135	7.30	282309	9.53	399768	10.45	315714	13.60	179139	15.90
JB33197-8MS	124509	7.30	292725	9.53	414486	10.45	326033	13.60	184007	15.90
JB33197-8MSD	133566	7.29	300233	9.53	421210	10.45	333692	13.60	187843	15.90
JB33197-8	124599	7.29	297680	9.53	416635	10.45	326741	13.60	183791	15.90
ZZZZZZ	120598	7.29	302550	9.53	418131	10.45	326562	13.60	183911	15.90
ZZZZZZ	121207	7.29	305815	9.53	424709	10.45	331467	13.60	186717	15.90
JB33197-5	116348	7.29	292743	9.53	408966	10.45	320411	13.60	179748	15.90
JB33197-6	122318	7.29	298272	9.53	418195	10.45	324691	13.60	182032	15.90
ZZZZZZ	114853	7.29	294740	9.53	415966	10.45	317947	13.60	180314	15.90
ZZZZZZ	124203	7.29	301402	9.53	424225	10.45	329184	13.60	188533	15.90
ZZZZZZ	143155	7.29	329988	9.53	470557	10.45	368899	13.60	205605	15.90

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: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Check Std:	V4D1545-CC1526	**Injection Date:**	04/16/13
Lab File ID:	4D34333.D	**Injection Time:**	10:16
Instrument ID:	GCMS4D	**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	116040	7.11	207142	9.69	325597	10.64	292969	14.01	160046	16.43
Upper Limit [a]	232080	7.61	414284	10.19	651194	11.14	585938	14.51	320092	16.93
Lower Limit [b]	58020	6.61	103571	9.19	162799	10.14	146485	13.51	80023	15.93

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
V4D1545-MB	120247	7.12	216817	9.69	342040	10.65	307234	14.01	164103	16.43
V4D1545-BS	118253	7.12	206181	9.69	324157	10.65	293172	14.01	163480	16.43
ZZZZZZ	115931	7.12	205552	9.69	328963	10.65	290608	14.01	155634	16.43
ZZZZZZ	117636	7.12	207832	9.69	327514	10.65	290142	14.01	157308	16.43
JB33732-3	118870	7.12	209858	9.69	331641	10.65	297219	14.01	157787	16.43
ZZZZZZ	121540	7.11	215956	9.69	345196	10.64	306996	14.01	165199	16.43
ZZZZZZ	110437	7.12	199828	9.69	315898	10.64	284511	14.01	154917	16.43
ZZZZZZ	122573	7.12	220938	9.69	348105	10.65	307228	14.01	164456	16.43
ZZZZZZ	136105	7.12	242061	9.69	379381	10.65	336597	14.01	181026	16.43
JB33732-3MS	135115	7.13	230135	9.69	353820	10.65	318937	14.01	174299	16.43
JB33732-3MSD	134762	7.12	229764	9.69	354319	10.65	319641	14.01	173996	16.43
ZZZZZZ	149034	7.12	262828	9.69	412786	10.64	363926	14.01	195694	16.43
ZZZZZZ	149262	7.12	260480	9.69	406963	10.64	363185	14.01	195786	16.43
ZZZZZZ	128358	7.12	225258	9.69	352880	10.65	317117	14.01	166873	16.43
JB33197-1	130550	7.12	219344	9.69	334749	10.65	306166	14.01	164290	16.43
JB33197-4	106939	7.12	207520	9.69	330393	10.65	289986	14.01	157920	16.43
ZZZZZZ	121401	7.11	229300	9.69	362859	10.64	321313	14.01	171731	16.43
ZZZZZZ	117083	7.11	222245	9.69	349001	10.64	312249	14.01	163400	16.43

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: JB33197
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
JB33197-1	4D34350.D	95.0	94.0	100.0	94.0
JB33197-2	2E89486.D	92.0	88.0	93.0	104.0
JB33197-3	2D119868.D	92.0	97.0	102.0	105.0
JB33197-4	4D34351.D	96.0	96.0	98.0	95.0
JB33197-5	3D85337.D	106.0	105.0	100.0	100.0
JB33197-6	3D85338.D	104.0	106.0	99.0	100.0
JB33197-7	2D119872.D	92.0	97.0	101.0	109.0
JB33197-8	3D85331.D	105.0	104.0	100.0	100.0
JB33197-9	2D119874.D	94.0	99.0	101.0	107.0
JB33197-10	2D119875.D	92.0	98.0	100.0	99.0
JB33197-11	2D119876.D	92.0	97.0	101.0	108.0
JB33197-3MS	2D119863.D	93.0	96.0	100.0	101.0
JB33197-3MSD	2D119864.D	93.0	97.0	101.0	101.0
JB33197-8MS	3D85328.D	107.0	108.0	101.0	101.0
JB33197-8MSD	3D85329.D	106.0	106.0	101.0	101.0
JB33406-10MS	2E89490.D	92.0	91.0	95.0	104.0
JB33406-10MSD	2E89491.D	92.0	90.0	96.0	105.0
JB33732-3MS	4D34344.D	93.0	88.0	98.0	92.0
JB33732-3MSD	4D34345.D	92.0	88.0	98.0	92.0
V2D4985-BS	2D119862.D	94.0	96.0	100.0	101.0
V2D4985-MB	2D119861.D	93.0	97.0	101.0	110.0
V2E4025-BS	2E89484.D	91.0	87.0	96.0	103.0
V2E4025-MB1	2E89483.D	98.0	92.0	92.0	96.0
V3D3669-BS	3D85327.D	108.0	109.0	101.0	102.0
V3D3669-MB	3D85326.D	107.0	107.0	100.0	100.0
V4D1545-BS	4D34336.D	97.0	96.0	99.0	92.0
V4D1545-MB	4D34335.D	96.0	97.0	99.0	94.0

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	81-121%
S2 = 1,2-Dichloroethane-D4	74-127%
S3 = Toluene-D8	80-122%
S4 = 4-Bromofluorobenzene	78-116%

Initial Calibration Summary

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Sample: V2D4958-ICC4958
Lab FileID: 2D119271.D

Response Factor Report MS2D

```
Method       : C:\MSDCHEM\1\METHODS\M2D4958.M (RTE Integrator)
Title        : SW-846 Method 8260B, ZB624 60m x 0.25mm x 1.4um
Last Update  : Mon Apr 08 15:45:10 2013
Response via : Initial Calibration

Calibration Files
1   =2d119266.D  2   =2d119267.D  100 =2d119272.D  50  =2d119271.D
20  =2d119270.D  200 =2d119273.D  5   =2d119268.D  0.5 =2d119265.D
10  =2d119269.D      =

 Compound
           1     2     100   50    20    200   5     0.5   10      Avg    %RSD
-------------------------------------------------------------------------------

1) I   tert butyl alcohol-d9 ----------------ISTD---------------------
2)  tertiary butyl alcohol
          1.155 1.011 1.058 1.024 0.972 1.007 0.948       1.016   1.024    6.10
3)  ethyl alcohol
          0.017 0.016 0.020 0.019 0.014 0.016 0.014       0.018   0.017   13.24
4)  acrolein
          1.440 1.572       1.515 1.376             1.630 1.333   1.478    7.77
5)  1,4-dioxane
          0.109 0.083 0.101 0.103 0.098 0.105 0.105 0.076 0.115   0.100   12.47

6) I   pentafluorobenzene    ----------------ISTD---------------------
7)  freon 23
                                                                  0.000   -1.00
8)  freon 115
                                                                  0.000   -1.00
9)  freon 143a
                                                                  0.000   -1.00
10)  freon 152a
                                                                  0.000   -1.00
11)  chlorotrifluoroethene
                                                                  0.000   -1.00
12)  chlorodifluoromethane
          0.354 0.289 0.330 0.304 0.291 0.351 0.285 0.233 0.301   0.304   12.28
13)  dichlorodifluoromethane
          0.461 0.520 0.474 0.479 0.443 0.428 0.388 0.438 0.413   0.449    8.74
14)  freon 114
                                                                  0.000   -1.00
15)  freon 142b
                                                                  0.000   -1.00
16)  chloromethane
          0.519 0.554 0.439 0.429 0.411 0.376 0.449 0.548 0.451   0.464   13.39
17)  vinyl chloride
          0.631 0.605 0.526 0.514 0.481 0.463 0.519 0.605 0.530   0.542   10.85
18)  acetaldehyde
                                                                  0.000   -1.00
19)  bromomethane
          0.441 0.382 0.297 0.309 0.293       0.333       0.322   0.340   15.82
           ----- Linear regression -----  Coefficient =  0.9996
             Response Ratio = 0.00367 + 0.29708 *A

20)  chloroethane
          0.251 0.250 0.210 0.216 0.211 0.166 0.228 0.218 0.228   0.220   11.49
21)  trichlorofluoromethane
          0.472 0.642 0.552 0.564 0.528 0.469 0.526 0.554 0.532   0.538    9.62
```

Initial Calibration Summary

Job Number: JB33197 **Sample:** V2D4958-ICC4958
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2D119271.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

22)	pentane										0.000	-1.00
23)	ethyl ether				0.292	0.212	0.220	0.246	0.191	0.231	0.219	0.230	13.88
24)	freon 141b											0.000	-1.00
25)	freon 123a											0.000	-1.00
26)	freon 123											0.000	-1.00
27)	1,1-dichloroethene	0.392	0.386	0.352	0.354	0.382	0.329	0.340	0.398	0.337	0.363	7.23
28)	2-chloropropane	0.593	0.636	0.585	0.593	0.645	0.517	0.584	0.718	0.571	0.605	9.30
29)	acetone			0.047	0.047	0.052	0.043	0.044		0.047	0.047	0.047	7.03
30)	allyl chloride	0.230	0.233	0.237	0.238	0.256	0.227	0.211	0.250	0.218	0.233	6.03
31)	acetonitrile	0.031	0.031	0.037	0.033	0.035	0.034	0.034	0.032	0.038	0.034	7.53
32)	iodomethane	0.722	0.812	0.763	0.764	0.810	0.725	0.728	0.730	0.723	0.753	4.88
33)	iso-butyl alcohol	0.002	0.003	0.003	0.003	0.003	0.003	0.003		0.003	0.003	9.77
34)	carbon disulfide	1.231	1.289	1.205	1.210	1.279	1.145	1.146	1.300	1.153	1.218	5.10
35)	methylene chloride	0.459	0.454	0.411	0.412	0.442	0.385	0.407	0.518	0.392	0.431	9.75
36)	methyl acetate	0.785	0.649	0.629	0.617	0.610	0.609	0.642	0.527	0.632	0.633	10.62
37)	1-chloropropane			0.030	0.032	0.036	0.028	0.026		0.034	0.031	11.55
38)	methyl tert butyl ether	1.225	1.275	1.207	1.213	1.299	1.121	1.152	1.215	1.150	1.206	4.83
39)	trans-1,2-dichloroethene	0.419	0.433	0.386	0.391	0.426	0.367	0.373	0.455	0.377	0.403	7.68
40)	di-isopropyl ether	1.628	1.342	1.337	1.314	1.292	1.321	1.339	1.178	1.332	1.342	8.82
41)	2-butanone	0.043	0.062	0.068	0.066	0.072	0.062	0.059		0.063	0.062	13.71
42)	1,1-dichloroethane	0.659	0.746	0.656	0.685	0.726	0.635	0.644	0.736	0.643	0.681	6.41
43)	chloroprene	0.675	0.543	0.573	0.557	0.538	0.587	0.537	0.473	0.555	0.560	9.58
44)	acrylonitrile	0.176	0.196	0.199	0.202	0.216	0.183	0.179	0.161	0.183	0.188	8.76
45)	vinyl acetate			0.038	0.036	0.033	0.037	0.031		0.033	0.035	7.36
46)	ethyl tert-butyl ether	1.506	1.275	1.276	1.242	1.200	1.289	1.255	1.092	1.245	1.264	8.59
47)	ethyl acetate	0.062	0.056	0.062	0.061	0.061	0.062	0.059		0.063	0.061	3.86
48)	2,2-dichloropropane	0.552	0.585	0.502	0.514	0.568	0.472	0.525	0.667	0.502	0.543	10.81
49)	cis-1,2-dichloroethene	0.452	0.476	0.432	0.444	0.475	0.414	0.427	0.499	0.423	0.449	6.44
50)	propionitrile	0.071	0.083	0.083	0.085	0.089	0.078	0.076	0.072	0.075	0.079	7.91
51)	tert-Butyl Formate	0.418	0.358	0.395	0.369	0.360	0.402	0.356		0.377	0.379	6.10

Initial Calibration Summary

Job Number: JB33197 **Sample:** V2D4958-ICC4958
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2D119271.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
52)  bromochloromethane
           0.240 0.259 0.240 0.241 0.260 0.229 0.235 0.237 0.230   0.241    4.71
53)  tetrahydrofuran
           0.261 0.246 0.194 0.201 0.223 0.181 0.206       0.196   0.213   13.01
54)  chloroform
           0.680 0.752 0.675 0.689 0.737 0.641 0.648 0.733 0.652   0.690    6.04
55)  dibromofluoromethane (s)
           0.448 0.436 0.386 0.391 0.380 0.357 0.414       0.396   0.401    7.50
56)  1,2-dichloroethane-d4 (s)
           0.438 0.440 0.398 0.413 0.397 0.362 0.432       0.413   0.411    6.36
57)  freon 113
           0.405 0.338 0.329 0.320 0.326 0.333 0.299       0.289   0.330   10.52
58)  methacrylonitrile
           0.289 0.327 0.320 0.320 0.337 0.300 0.283       0.289   0.308    6.63
59)  1,1,1-trichloroethane
           0.552 0.582 0.565 0.571 0.614 0.531 0.547 0.602 0.535   0.567    5.08
60)  cyclohexane
           0.546 0.600 0.532 0.545 0.594 0.509 0.474       0.470   0.534    9.10
61)  tert amyl alcohol
           0.068 0.065 0.075 0.070 0.068 0.067 0.069       0.078   0.070    6.12
62)  iso-octane
           1.841 1.557 1.418 1.474 1.468 1.381 1.292 1.286 1.237   1.439   12.71

63) I   1,4-difluorobenzene   ----------------ISTD--------------------
64)  di-isobutylene
                                                                   0.000   -1.00
65)  epichlorohydrin
           0.052 0.042 0.047 0.047 0.045 0.049 0.045       0.046   0.047    6.30
66)  n-butyl alcohol
           0.014 0.014 0.015 0.015 0.015 0.015 0.015       0.015   0.015    2.57
67)  carbon tetrachloride
           0.403 0.436 0.394 0.407 0.432 0.373 0.367 0.418 0.376   0.401    6.29
68)  1,1-dichloropropene
           0.402 0.420 0.384 0.400 0.421 0.368 0.376 0.418 0.374   0.396    5.32
69)  hexane
                       0.057 0.060 0.059 0.058 0.049       0.050   0.056    8.67
70)  benzene
           1.299 1.321 1.163 1.215 1.312 1.100 1.170 1.358 1.156   1.233    7.41
71)  tert-amyl methyl ether
           0.296 0.264 0.250 0.258 0.262 0.249 0.248       0.270   0.262    6.03
72)  heptane
           0.284 0.249 0.225 0.235 0.232 0.228 0.206 0.203 0.201   0.229   11.49
73)  isopropyl acetate
           1.241 1.035 0.969 0.993 0.962 0.930 0.978 0.897 0.973   0.998    9.90
74)  1,2-dichloroethane
           0.387 0.409 0.361 0.371 0.411 0.338 0.371 0.387 0.354   0.376    6.47
75)  trichloroethene
           0.360 0.375 0.339 0.354 0.375 0.326 0.336 0.392 0.327   0.354    6.64
76)  ethyl acrylate
           0.448 0.447 0.500 0.492 0.443 0.467 0.450       0.497   0.468    5.24
77)  tert amyl ethyl ether
           0.370 0.389 0.388 0.383 0.346 0.366 0.388 0.400 0.406   0.382    4.85
78)  2-nitropropane
                       0.007 0.007 0.007 0.007             0.006   0.007    6.66
79)  2-chloroethyl vinyl ether
           0.239 0.207 0.224 0.224 0.218 0.223 0.211 0.164 0.216   0.214    9.71
80)  methyl methacrylate
           0.237 0.256 0.262 0.270 0.281 0.245 0.239 0.231 0.242   0.251    6.69
81)  1,2-dichloropropane
           0.314 0.314 0.301 0.305 0.328 0.287 0.293 0.335 0.288   0.307    5.50
```

Initial Calibration Summary

Job Number: JB33197 **Sample:** V2D4958-ICC4958
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2D119271.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
 82)  dibromomethane
            0.217 0.225 0.213 0.216 0.233 0.203 0.195 0.204 0.202   0.212    5.70
 83)  methylcyclohexane
            0.638 0.563 0.522 0.532 0.521 0.518 0.466 0.471 0.464   0.522   10.55
 84)  bromodichloromethane
            0.401 0.419 0.414 0.420 0.443 0.398 0.375 0.400 0.384   0.406    5.06
 85)  cis-1,3-dichloropropene
            0.480 0.515 0.509 0.516 0.543 0.492 0.465 0.521 0.473   0.502    5.11
 86)  toluene-d8 (s)
            1.148 1.150 1.067 1.120 1.091 0.978 1.169       1.137   1.108    5.58
 87)  4-methyl-2-pentanone
            0.163 0.171 0.180 0.184 0.196 0.168 0.165 0.161 0.176   0.174    6.53
 88)  toluene
            0.794 0.847 0.762 0.789 0.846 0.741 0.756 0.863 0.735   0.792    6.17
 89)  3-methyl-1-butanol
            0.024 0.019 0.022 0.022 0.022 0.023 0.020       0.021   0.021    7.41
 90)  trans-1,3-dichloropropene
            0.434 0.470 0.474 0.479 0.507 0.452 0.417 0.406 0.423   0.451    7.50
 91)  ethyl methacrylate
            0.406 0.458 0.477 0.488 0.521 0.451 0.425 0.402 0.437   0.452    8.66
 92)  1,1,2-trichloroethane
            0.254 0.282 0.264 0.268 0.282 0.250 0.254 0.260 0.249   0.263    4.79
 93)  2-hexanone
            0.151 0.156 0.170 0.175 0.184 0.160 0.150 0.143 0.156   0.161    8.21

 94) I   chlorobenzene-d5      ----------------ISTD---------------------
 95)  3,3-Dimethyl-1-butanol
            0.051 0.048 0.051 0.050 0.045 0.051 0.044 0.039 0.045   0.047    8.68
 96)  tetrachloroethene
            0.390 0.432 0.354 0.374 0.400 0.336 0.369 0.416 0.368   0.382    7.92
 97)  1,3-dichloropropane
            0.520 0.568 0.510 0.527 0.569 0.485 0.502 0.557 0.501   0.526    5.91
 98)  butyl acetate
            0.335 0.284 0.298 0.297 0.288 0.302 0.281 0.219 0.292   0.288   10.52
 99)  dibromochloromethane
            0.387 0.415 0.418 0.428 0.456 0.406 0.384 0.408 0.392   0.411    5.49
100)  1,2-dibromoethane
            0.373 0.385 0.384 0.392 0.417 0.370 0.361 0.368 0.360   0.379    4.79
101)  n-butyl ether
                                                                    0.000   -1.00
102)  chlorobenzene
            1.006 1.053 0.956 0.987 1.067 0.914 0.962 1.079 0.923   0.994    6.16
103)  1,1,1,2-tetrachloroethane
            0.378 0.388 0.358 0.369 0.396 0.342 0.353 0.375 0.348   0.368    5.03
104)  ethylbenzene
            1.584 1.717 1.530 1.615 1.746 1.454 1.573 1.809 1.537   1.618    7.15
105)  m,p-xylene
            0.650 0.670 0.614 0.640 0.696 0.592 0.622 0.711 0.607   0.645    6.32
106)  o-xylene
            0.627 0.687 0.622 0.647 0.692 0.599 0.608 0.657 0.602   0.638    5.50
107)  styrene
            0.930 1.043 1.058 1.088 1.162 1.018 0.947 0.934 0.979   1.018    7.71
108)  bromoform
            0.305 0.348 0.378 0.382 0.388 0.366 0.323 0.335 0.333   0.351    8.31

109) I   1,4-dichlorobenzene-d ----------------ISTD---------------------
110)  isopropylbenzene
            2.676 3.001 2.610 2.752 3.011 2.481 2.678 2.944 2.606   2.751    6.94
111)  4-bromofluorobenzene (s)
            0.807 0.846 0.725 0.767 0.758 0.674 0.829       0.777   0.773    7.26
```

```
112)  cyclohexanone
                        0.041 0.049 0.056 0.032 0.073       0.065   0.053   28.55
          ----- Quadratic regression -----                 Coefficient =  0.9997
               Response Ratio = 0.03164 + 0.04938 *A + -0.00045 *A^2

113)  bromobenzene
            0.843 0.894 0.790 0.835 0.928 0.758 0.833 0.917 0.799   0.844    6.95
114)  1,1,2,2-tetrachloroethane
            0.898 0.988 0.892 0.914 1.005 0.836 0.886 1.005 0.865   0.921    6.83
115)  trans-1,4-dichloro-2-butene
                        0.215 0.214 0.229 0.208 0.162       0.170   0.200   13.53
116)  1,2,3-trichloropropane
            0.226 0.253 0.226 0.237 0.268 0.212 0.241 0.263 0.231   0.240    7.74
117)  n-propylbenzene
            3.047 3.386 2.952 3.129 3.438 2.823 3.083 3.335 2.990   3.131    6.75
118)  4-ethyltoluene
            2.712 2.562 2.490 2.532 2.354 2.377 2.596 3.054 2.686   2.596    8.10
119)  2-chlorotoluene
            0.724 0.795 0.656 0.693 0.763 0.638 0.705 0.765 0.661   0.711    7.71
120)  4-chlorotoluene
            1.920 2.103 1.871 1.948 2.128 1.800 1.881 2.143 1.830   1.958    6.78
121)  1,3,5-trimethylbenzene
            2.182 2.494 2.140 2.266 2.483 2.038 2.222 2.544 2.196   2.285    7.81
122)  tert-butylbenzene
            1.947 2.194 1.939 2.037 2.225 1.864 1.943 2.221 1.936   2.034    6.97
123)  pentachloroethane
            0.490 0.547 0.524 0.532 0.584 0.512 0.509 0.515 0.498   0.523    5.43
124)  1,2,4-trimethylbenzene
            2.301 2.452 2.214 2.315 2.529 2.102 2.205 2.733 2.194   2.338    8.51
125)  1,2,3-trimethylbenzene
            2.852 2.571 2.316 2.358 2.303 2.312 2.674 2.514 2.493   2.488    7.60
126)  sec-butylbenzene
            2.862 3.138 2.900 3.048 3.298 2.761 2.835 3.113 2.831   2.976    6.06
127)  1,3-dichlorobenzene
            1.550 1.605 1.465 1.530 1.677 1.412 1.481 1.549 1.441   1.523    5.49
128)  p-isopropyltoluene
            2.308 2.502 2.447 2.567 2.762 2.346 2.347 2.475 2.374   2.459    5.77
129)  1,4-dichlorobenzene
            1.568 1.691 1.484 1.541 1.684 1.421 1.497 1.735 1.446   1.563    7.35
130)  1,2-dichlorobenzene
            1.543 1.620 1.477 1.530 1.666 1.405 1.443 1.631 1.430   1.527    6.25
131)  benzyl chloride
            1.579 1.367 1.678 1.622 1.537 1.734 1.346 1.149 1.474   1.498   12.36
132)  1,4-diethylbenzene
            1.360 1.422 1.484 1.506 1.346 1.438 1.357 1.547 1.506   1.440    5.19
133)  n-butylbenzene
            1.123 1.249 1.231 1.283 1.343 1.202 1.108 1.165 1.139   1.205    6.56
134)  1,2,4,5-tetramethylbenzene
            2.023 2.027 2.256 2.287 2.044 2.132 2.023 2.301 2.233   2.147    5.67
135)  1,2-dibromo-3-chloropropane
            0.188 0.165 0.165 0.167 0.175 0.157 0.143 0.217 0.154   0.170   12.77
136)  1,3,5-trichlorobenzene
            1.149 1.225 1.233 1.291 1.349 1.150 1.101 1.215 1.142   1.206    6.57
137)  hexachlorobutadiene
            0.608 0.616 0.589 0.635 0.666 0.550 0.556 0.672 0.548   0.604    7.92
138)  naphthalene
            1.713 1.685 2.355 2.356 2.319 2.235 1.525 1.954 1.783   1.992   16.51
             ----- Linear regression -----  Coefficient =  0.9991
               Response Ratio = -0.00285 + 2.26397 *A
```

Initial Calibration Summary

Job Number: JB33197 **Sample:** V2D4958-ICC4958
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2D119271.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
139)  1,2,4-trichlorobenzene
            0.835 0.850 1.070 1.097 1.106 1.001 0.800 0.903 0.883   0.950   12.64
140)  1,2,3-trichlorobenzene
            0.818 0.791 0.947 0.967 0.983 0.877 0.696 0.878 0.773   0.859   11.33
141)  hexachloroethane
            0.433 0.487 0.532 0.535 0.562 0.526 0.457 0.487 0.461   0.498    8.67
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          M2D4958.M         Tue Apr 09 09:48:21 2013   MS2D
```

Initial Calibration Verification

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Sample: V2D4959-ICV4958
Lab FileID: 2D119278.D

Evaluate Continuing Calibration Report

```
Data File : C:\MSDCHEM\1\DATA\2D119278.D                    Vial: 2
Acq On    : 28 Mar 2013  11:30 am                       Operator: EmilyT
Sample    : icv4958-50                                  Inst    : MS2D
Misc      : ms45219,v2d4959,w,,,,1                      Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2D4958.M (RTE Integrator)
Title        : SW-846 Method 8260B, ZB624 60m x 0.25mm x 1.4um
Last Update  : Thu Mar 28 17:46:55 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	94	-0.02	7.16
2		tertiary butyl alcohol	1.024	1.182	-15.4	108	-0.02	7.29
3		ethyl alcohol	0.017	0.019	-11.8	95	0.00	5.81
4		acrolein	1.478	1.586	-7.3	98	-0.01	6.22
5		1,4-dioxane	0.100	0.119	-19.0	108	-0.02	11.93
6	I	pentafluorobenzene	1.000	1.000	0.0	96	-0.01	9.81
7	m	freon 23		----------NA----------				
8	m	freon 115		----------NA----------				
9	m	freon 143a		----------NA----------				
10	m	freon 152a		----------NA----------				
11	m	chlorotrifluoroethene		----------NA----------				
12		chlorodifluoromethane	0.304	0.314	-3.3	100	0.00	3.68
13		dichlorodifluoromethane	0.449	0.496	-10.5	100	0.00	3.66
14	m	freon 114		----------NA----------				
15	m	freon 142b		----------NA----------				
16		chloromethane	0.464	0.462	0.4	104	0.00	3.98
17		vinyl chloride	0.542	0.559	-3.1	105	0.00	4.24
18	m	acetaldehyde		----------NA----------				
		----------	True	Calc.	% Drift	----------		
19		bromomethane	50.000	54.299	-8.6	102	0.00	4.87
		----------	AvgRF	CCRF	% Dev	----------		
20		chloroethane	0.220	0.229	-4.1	102	0.00	5.04
21		trichlorofluoromethane	0.554	0.598	-7.9	102	0.00	5.53
22	m	pentane		----------NA----------				
23		ethyl ether	0.230	0.227	1.3	100	0.00	5.92
24	m	freon 141b		----------NA----------				
25	m	freon 123a		----------NA----------				
26	m	freon 123		----------NA----------				
27		1,1-dichloroethene	0.363	0.375	-3.3	102	0.00	6.38
28	m	2-chloropropane	0.605	0.644	-6.4	105	0.00	6.14
29		acetone	0.047	0.060	-27.7#	125	0.00	6.45
30		allyl chloride	0.233	0.247	-6.0	100	0.00	6.95
31		acetonitrile	0.034	0.038	-11.8	112	-0.02	6.94
32		iodomethane	0.753	0.817	-8.5	103	0.00	6.68
33		iso-butyl alcohol	0.003	0.003	0.0	102	-0.01	10.13
34		carbon disulfide	1.218	1.306	-7.2	104	0.00	6.81
35		methylene chloride	0.431	0.430	0.2	101	0.00	7.18
36		methyl acetate	0.633	0.419	33.8#	65	0.00	6.94
37	m	1-chloropropane	0.031	0.034	-9.7	102	0.00	7.20

Initial Calibration Verification

Job Number: JB33197 **Sample:** V2D4959-ICV4958
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2D119278.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

38		methyl tert butyl ether	1.206	1.230	-2.0	98	-0.01	7.53
39		trans-1,2-dichloroethene	0.403	0.411	-2.0	101	0.00	7.58
40		di-isopropyl ether	1.342	1.321	1.6	97	0.00	8.22
41		2-butanone	0.062	0.074	-19.4	108	-0.01	9.11
42		1,1-dichloroethane	0.681	0.706	-3.7	100	-0.01	8.24
43		chloroprene		----------NA----------				
44		acrylonitrile	0.188	0.206	-9.6	98	-0.01	7.55
45		vinyl acetate	0.035	0.080	-128.6#	212#	0.00	8.23
46		ethyl tert-butyl ether	1.264	1.262	0.2	98	0.00	8.79
47		ethyl acetate	0.061	0.063	-3.3	99	0.00	9.14
48		2,2-dichloropropane	0.543	0.576	-6.1	108	0.00	9.14
49		cis-1,2-dichloroethene	0.449	0.460	-2.4	100	-0.01	9.15
50		propionitrile	0.079	0.086	-8.9	98	-0.01	9.25
51		tert-Butyl Formate	0.379	0.406	-7.1	106	-0.01	9.64
52		bromochloromethane	0.241	0.250	-3.7	100	-0.01	9.53
53		tetrahydrofuran	0.213	0.201	5.6	96	-0.01	9.57
54		chloroform	0.690	0.718	-4.1	101	0.00	9.61
55	S	dibromofluoromethane (s)	0.401	0.378	5.7	93	-0.01	9.86
56	S	1,2-dichloroethane-d4 (s)	0.411	0.379	7.8	89	0.00	10.39
57		freon 113	0.330	0.275	16.7	83	-0.01	6.35
58		methacrylonitrile	0.308	0.325	-5.5	98	-0.01	9.46
59		1,1,1-trichloroethane	0.567	0.601	-6.0	101	0.00	9.91
60		cyclohexane	0.534	0.573	-7.3	101	0.00	9.99
61	m	tert amyl alcohol	0.070	0.070	0.0	96	-0.02	10.36
62	m	iso-octane	1.439	1.297	9.9	85	0.00	10.47
63	I	1,4-difluorobenzene	1.000	1.000	0.0	97	0.00	10.97
64		di-isobutylene		----------NA----------				
65		epichlorohydrin	0.047	0.050	-6.4	104	0.00	12.67
66		n-butyl alcohol	0.015	0.016	-6.7	100	-0.02	11.19
67		carbon tetrachloride	0.401	0.426	-6.2	102	-0.01	10.15
68		1,1-dichloropropene	0.396	0.417	-5.3	101	-0.01	10.13
69		hexane	0.056	0.044	21.4#	71	0.00	7.91
70		benzene	1.233	1.245	-1.0	100	-0.01	10.46
71		tert-amyl methyl ether	0.262	0.261	0.4	98	-0.01	10.53
72		heptane	0.229	0.206	10.0	85	0.00	10.70
73		isopropyl acetate	0.998	1.053	-5.5	103	-0.01	10.41
74		1,2-dichloroethane	0.376	0.387	-2.9	101	-0.01	10.50
75		trichloroethene	0.354	0.361	-2.0	99	-0.01	11.40
76	m	ethyl acrylate	0.468	0.500	-6.8	99	-0.01	11.44
77	m	tert amyl ethyl ether	0.382	0.436	-14.0	110	0.00	11.64
78		2-nitropropane	0.007	0.007	0.0	102	-0.03	12.48
79		2-chloroethyl vinyl ether	0.214	0.230	-7.5	100	0.00	12.51
80		methyl methacrylate	0.251	0.270	-7.6	97	0.00	11.80
81		1,2-dichloropropane	0.307	0.315	-2.6	101	-0.01	11.76
82		dibromomethane	0.212	0.220	-3.8	99	0.00	11.97
83		methylcyclohexane	0.522	0.469	10.2	86	-0.01	11.67
84		bromodichloromethane	0.406	0.430	-5.9	100	-0.01	12.16
85		cis-1,3-dichloropropene	0.502	0.537	-7.0	101	-0.01	12.79
86	S	toluene-d8 (s)	1.108	1.076	2.9	93	-0.01	13.16
87		4-methyl-2-pentanone	0.174	0.181	-4.0	96	0.00	12.94
88		toluene	0.792	0.815	-2.9	101	0.00	13.26
89		3-methyl-1-butanol	0.021	0.025	-19.0	108	-0.01	13.00
90		trans-1,3-dichloropropene	0.451	0.499	-10.6	101	0.00	13.57
91		ethyl methacrylate	0.452	0.491	-8.6	98	0.00	13.58
92		1,1,2-trichloroethane	0.263	0.268	-1.9	97	0.00	13.85
93		2-hexanone	0.161	0.176	-9.3	98	-0.01	14.10
94	I	chlorobenzene-d5	1.000	1.000	0.0	98	0.00	15.20
95		3,3-Dimethyl-1-butanol	0.047	0.050	-6.4	99	-0.01	14.36

Initial Calibration Verification

Job Number: JB33197 **Sample:** V2D4959-ICV4958
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2D119278.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

96		tetrachloroethene	0.382	0.378	1.0	99	0.00	14.05
97		1,3-dichloropropane	0.526	0.530	-0.8	98	0.00	14.09
98		butyl acetate	0.288	0.299	-3.8	98	0.00	14.22
99		dibromochloromethane	0.411	0.435	-5.8	99	0.00	14.44
100		1,2-dibromoethane	0.379	0.396	-4.5	99	-0.01	14.62
101	m	n-butyl ether		----------NA----------				
102		chlorobenzene	0.994	1.008	-1.4	100	0.00	15.24
103		1,1,1,2-tetrachloroethane	0.368	0.378	-2.7	100	-0.01	15.33
104		ethylbenzene	1.618	1.645	-1.7	100	0.00	15.33
105		m,p-xylene	0.645	0.655	-1.6	100	0.00	15.47
106		o-xylene	0.638	0.659	-3.3	100	0.00	16.02
107		styrene	1.018	1.100	-8.1	99	0.00	16.04
108		bromoform	0.351	0.389	-10.8	100	-0.01	16.37
109	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	97	0.00	18.02
110		isopropylbenzene	2.751	2.858	-3.9	101	-0.01	16.47
111	S	4-bromofluorobenzene (s)	0.773	0.713	7.8	90	0.00	16.72
		----------	True	Calc.	% Drift		----------	
112	m	cyclohexanone		----------NA----------				
		----------	AvgRF	CCRF	% Dev		----------	
113		bromobenzene	0.844	0.855	-1.3	99	0.00	16.94
114		1,1,2,2-tetrachloroethane	0.921	0.943	-2.4	100	0.00	16.87
115		trans-1,4-dichloro-2-bute	0.200	0.234	-17.0	106	0.00	16.92
116		1,2,3-trichloropropane	0.240	0.239	0.4	98	0.00	16.95
117		n-propylbenzene	3.131	3.258	-4.1	101	0.00	16.97
118	m	4-ethyltoluene	2.596	2.660	-2.5	102	0.00	17.09
119		2-chlorotoluene	0.711	0.712	-0.1	100	0.00	17.13
120		4-chlorotoluene	1.958	2.009	-2.6	100	0.00	17.25
121		1,3,5-trimethylbenzene	2.285	2.337	-2.3	100	0.00	17.15
122		tert-butylbenzene	2.034	2.132	-4.8	101	0.00	17.54
123		pentachloroethane	0.523	0.568	-8.6	104	0.00	17.62
124		1,2,4-trimethylbenzene	2.338	2.409	-3.0	101	0.00	17.59
125	m	1,2,3-trimethylbenzene	2.488	2.568	-3.2	106	0.00	18.05
126		sec-butylbenzene	2.976	3.181	-6.9	101	0.00	17.77
127		1,3-dichlorobenzene	1.523	1.573	-3.3	100	0.00	17.96
128		p-isopropyltoluene	2.459	2.680	-9.0	101	0.00	17.90
129		1,4-dichlorobenzene	1.563	1.580	-1.1	99	0.00	18.05
130		1,2-dichlorobenzene	1.527	1.586	-3.9	100	0.00	18.44
131		benzyl chloride	1.498	1.949	-30.1#	116	0.00	18.18
132	m	1,4-diethylbenzene	1.440	1.598	-11.0	103	0.00	18.29
133		n-butylbenzene	1.205	1.344	-11.5	102	0.00	18.32
134	m	1,2,4,5-tetramethylbenzen	2.147	2.436	-13.5	103	0.00	19.04
135		1,2-dibromo-3-chloropropa	0.170	0.171	-0.6	100	0.00	19.19
136		1,3,5-trichlorobenzene	1.206	1.356	-12.4	102	0.00	19.35
137		hexachlorobutadiene	0.604	0.677	-12.1	103	0.00	20.06
		----------	True	Calc.	% Drift		----------	
138		naphthalene	50.000	51.881	-3.8	97	0.00	20.23
		----------	AvgRF	CCRF	% Dev		----------	
139		1,2,4-trichlorobenzene	0.950	1.139	-19.9	101	0.00	19.96
140	m	1,2,3-trichlorobenzene	0.859	0.989	-15.1	99	-0.01	20.46
141		hexachloroethane	0.498	0.583	-17.1	106	0.00	18.68

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2d119271.D M2D4958.M Thu Mar 28 17:49:37 2013 MS2D

Continuing Calibration Summary

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Sample: V2D4985-CC4958
Lab FileID: 2D119859.D

Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\2D119859.D Vial: 24
Acq On : 12 Apr 2013 9:00 pm Operator: EmilyT
Sample : cc4958-50 Inst : MS2D
Misc : ms46061,v2d4985,w,,,,1 Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M2D4958.M (RTE Integrator)
Title : SW-846 Method 8260B, ZB624 60m x 0.25mm x 1.4um
Last Update : Mon Apr 08 15:45:10 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	112	0.00	7.18
2		tertiary butyl alcohol	1.024	0.996	2.7	109	0.00	7.31
3		ethyl alcohol	0.017	0.024	-41.2#	142	0.00	5.82
4		acrolein	1.478	1.024	30.7#	76	0.00	6.23
5		1,4-dioxane	0.100	0.098	2.0	106	0.00	11.94
6	I	pentafluorobenzene	1.000	1.000	0.0	94	0.01	9.83
7	m	freon 23		----------NA----------				
8	m	freon 115		----------NA----------				
9	m	freon 143a		----------NA----------				
10	m	freon 152a		----------NA----------				
11	m	chlorotrifluoroethene		----------NA----------				
12		chlorodifluoromethane	0.304	0.311	-2.3	96	0.02	3.70
13		dichlorodifluoromethane	0.449	0.497	-10.7	98	0.02	3.68
14	m	freon 114		----------NA----------				
15	m	freon 142b		----------NA----------				
16		chloromethane	0.464	0.461	0.6	101	0.02	3.99
17		vinyl chloride	0.542	0.554	-2.2	102	0.01	4.26
18	m	acetaldehyde		----------NA----------				
		----------	True	Calc.	% Drift	----------		
19		bromomethane	50.000	52.432	-4.9	96	0.02	4.88
		----------	AvgRF	CCRF	% Dev	----------		
20		chloroethane	0.220	0.233	-5.9	101	0.01	5.05
21		trichlorofluoromethane	0.554	0.600	-8.3	100	0.02	5.55
22	m	pentane		----------NA----------				
23		ethyl ether	0.230	0.222	3.5	95	0.00	5.94
24	m	freon 141b		----------NA----------				
25	m	freon 123a		----------NA----------				
26	m	freon 123		----------NA----------				
27		1,1-dichloroethene	0.363	0.347	4.4	92	0.01	6.39
28	m	2-chloropropane	0.605	0.632	-4.5	100	0.01	6.15
29		acetone	0.047	0.054	-14.9	108	0.00	6.46
30		allyl chloride	0.233	0.229	1.7	91	0.00	6.97
31		acetonitrile	0.034	0.041	-20.6#	116	0.00	6.96
32		iodomethane	0.753	0.764	-1.5	94	0.01	6.70
33		iso-butyl alcohol	0.003	0.003	0.0	100	0.01	10.15
34		carbon disulfide	1.218	1.221	-0.2	95	0.01	6.82
35		methylene chloride	0.431	0.400	7.2	91	0.00	7.19
36		methyl acetate	0.633	0.617	2.5	94	0.00	6.96
37	m	1-chloropropane	0.031	0.032	-3.2	95	0.00	7.21

Continuing Calibration Summary

Job Number: JB33197 **Sample:** V2D4985-CC4958
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2D119859.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

38		methyl tert butyl ether	1.206	1.213	-0.6	94	0.00	7.54
39		trans-1,2-dichloroethene	0.403	0.385	4.5	93	0.01	7.60
40		di-isopropyl ether	1.342	1.374	-2.4	98	0.01	8.24
41		2-butanone	0.062	0.069	-11.3	97	0.01	9.13
42		1,1-dichloroethane	0.681	0.677	0.6	93	0.00	8.26
43		chloroprene	0.560	0.567	-1.2	96	0.00	8.38
44		acrylonitrile	0.188	0.194	-3.2	90	0.00	7.56
45		vinyl acetate	0.035	0.034	2.9	89	0.01	8.26
46		ethyl tert-butyl ether	1.264	1.285	-1.7	97	0.01	8.81
47		ethyl acetate	0.061	0.063	-3.3	97	0.01	9.16
48		2,2-dichloropropane	0.543	0.422	22.3#	77	0.00	9.15
49		cis-1,2-dichloroethene	0.449	0.433	3.6	92	0.00	9.16
50		propionitrile	0.079	0.083	-5.1	92	0.00	9.26
51		tert-Butyl Formate	0.379	0.379	0.0	97	0.00	9.66
52		bromochloromethane	0.241	0.236	2.1	92	0.00	9.55
53		tetrahydrofuran	0.213	0.196	8.0	92	0.00	9.59
54		chloroform	0.690	0.697	-1.0	95	0.01	9.63
55	S	dibromofluoromethane (s)	0.401	0.375	6.5	90	0.00	9.88
56	S	1,2-dichloroethane-d4 (s)	0.411	0.399	2.9	91	0.01	10.41
57		freon 113	0.330	0.309	6.4	91	0.00	6.36
58		methacrylonitrile	0.308	0.321	-4.2	94	0.01	9.48
59		1,1,1-trichloroethane	0.567	0.580	-2.3	95	0.00	9.92
60		cyclohexane	0.534	0.539	-0.9	93	0.00	10.00
61	m	tert amyl alcohol		----------NA----------				
62	m	iso-octane	1.439	1.323	8.1	84	0.01	10.48
63	I	1,4-difluorobenzene	1.000	1.000	0.0	93	0.01	10.99
64		di-isobutylene		----------NA----------				
65		epichlorohydrin	0.047	0.046	2.1	91	0.01	12.69
66		n-butyl alcohol	0.015	0.017	-13.3	101	0.00	11.20
67		carbon tetrachloride	0.401	0.415	-3.5	95	0.00	10.17
68		1,1-dichloropropene	0.396	0.413	-4.3	96	0.01	10.15
69		hexane	0.056	0.049	12.5	75	0.00	7.93
70		benzene	1.233	1.227	0.5	94	0.01	10.48
71		tert-amyl methyl ether	0.262	0.250	4.6	90	0.00	10.54
72		heptane	0.229	0.211	7.9	83	0.01	10.71
73		isopropyl acetate	0.998	0.937	6.1	88	0.00	10.43
74		1,2-dichloroethane	0.376	0.391	-4.0	98	0.01	10.52
75		trichloroethene	0.354	0.374	-5.6	98	0.00	11.42
76	m	ethyl acrylate		----------NA----------				
77	m	tert amyl ethyl ether		----------NA----------				
78		2-nitropropane	0.007	0.008	-14.3	98	0.00	12.50
79		2-chloroethyl vinyl ether	0.214	0.218	-1.9	90	0.01	12.53
80		methyl methacrylate	0.251	0.261	-4.0	90	0.01	11.82
81		1,2-dichloropropane	0.307	0.318	-3.6	97	0.00	11.77
82		dibromomethane	0.212	0.221	-4.2	95	0.01	11.99
83		methylcyclohexane	0.522	0.512	1.9	90	0.00	11.69
84		bromodichloromethane	0.406	0.438	-7.9	97	0.00	12.18
85		cis-1,3-dichloropropene	0.502	0.516	-2.8	93	0.00	12.80
86	S	toluene-d8 (s)	1.108	1.111	-0.3	92	0.00	13.18
87		4-methyl-2-pentanone	0.174	0.180	-3.4	91	0.01	12.95
88		toluene	0.792	0.808	-2.0	95	0.01	13.28
89		3-methyl-1-butanol	0.021	0.022	-4.8	93	0.01	13.02
90		trans-1,3-dichloropropene	0.451	0.473	-4.9	92	0.00	13.58
91		ethyl methacrylate	0.452	0.486	-7.5	93	0.01	13.59
92		1,1,2-trichloroethane	0.263	0.273	-3.8	95	0.00	13.86
93		2-hexanone	0.161	0.168	-4.3	89	0.00	14.12
94	I	chlorobenzene-d5	1.000	1.000	0.0	93	0.01	15.22
95		3,3-Dimethyl-1-butanol	0.047	0.051	-8.5	94	0.00	14.38

Continuing Calibration Summary

Job Number: JB33197 **Sample:** V2D4985-CC4958
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2D119859.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

96		tetrachloroethene	0.382	0.448	-17.3	111	0.01	14.06
97		1,3-dichloropropane	0.526	0.546	-3.8	96	0.00	14.10
98		butyl acetate	0.288	0.309	-7.3	96	0.00	14.23
99		dibromochloromethane	0.411	0.434	-5.6	94	0.01	14.45
100		1,2-dibromoethane	0.379	0.400	-5.5	95	0.00	14.64
101	m	n-butyl ether		----------NA----------				
102		chlorobenzene	0.994	1.017	-2.3	96	0.00	15.25
103		1,1,1,2-tetrachloroethane	0.368	0.376	-2.2	94	0.00	15.35
104		ethylbenzene	1.618	1.627	-0.6	94	0.00	15.34
105		m,p-xylene	0.645	0.656	-1.7	95	0.00	15.49
106		o-xylene	0.638	0.663	-3.9	95	0.00	16.03
107		styrene	1.018	1.083	-6.4	92	0.00	16.05
108		bromoform	0.351	0.376	-7.1	91	0.00	16.39
109	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	88	0.00	18.03
110		isopropylbenzene	2.751	2.955	-7.4	94	0.00	16.48
111	S	4-bromofluorobenzene (s)	0.773	0.783	-1.3	89	0.00	16.73
		----------	True	Calc.	% Drift	----------		
112	m	cyclohexanone	500.000	410.626	17.9	72	0.00	16.69
		----------	AvgRF	CCRF	% Dev	----------		
113		bromobenzene	0.844	0.889	-5.3	93	0.00	16.95
114		1,1,2,2-tetrachloroethane	0.921	0.975	-5.9	93	0.01	16.89
115		trans-1,4-dichloro-2-bute	0.200	0.166	17.0	68	0.00	16.93
116		1,2,3-trichloropropane	0.240	0.252	-5.0	93	0.00	16.96
117		n-propylbenzene	3.131	3.264	-4.2	91	0.00	16.98
118	m	4-ethyltoluene		----------NA----------				
119		2-chlorotoluene	0.711	0.755	-6.2	95	0.00	17.14
120		4-chlorotoluene	1.958	2.058	-5.1	93	0.00	17.26
121		1,3,5-trimethylbenzene	2.285	2.376	-4.0	92	0.00	17.16
122		tert-butylbenzene	2.034	2.202	-8.3	95	0.00	17.55
123		pentachloroethane	0.523	0.513	1.9	84	0.00	17.64
124		1,2,4-trimethylbenzene	2.338	2.415	-3.3	91	0.00	17.60
125	m	1,2,3-trimethylbenzene		----------NA----------				
126		sec-butylbenzene	2.976	3.202	-7.6	92	0.00	17.78
127		1,3-dichlorobenzene	1.523	1.601	-5.1	92	0.00	17.97
128		p-isopropyltoluene	2.459	2.668	-8.5	91	0.00	17.91
129		1,4-dichlorobenzene	1.563	1.621	-3.7	92	0.00	18.05
130		1,2-dichlorobenzene	1.527	1.597	-4.6	91	0.00	18.45
131		benzyl chloride	1.498	1.084	27.6#	59	0.00	18.18
132	m	1,4-diethylbenzene		----------NA----------				
133		n-butylbenzene	1.205	1.271	-5.5	87	0.00	18.33
134	m	1,2,4,5-tetramethylbenzen		----------NA----------				
135		1,2-dibromo-3-chloropropa	0.170	0.170	0.0	89	0.00	19.20
136		1,3,5-trichlorobenzene	1.206	1.316	-9.1	89	0.00	19.36
137		hexachlorobutadiene	0.604	0.655	-8.4	90	0.00	20.07
		----------	True	Calc.	% Drift	----------		
138		naphthalene	50.000	45.973	8.1	77	0.00	20.24
		----------	AvgRF	CCRF	% Dev	----------		
139		1,2,4-trichlorobenzene	0.950	1.053	-10.8	84	0.00	19.97
140	m	1,2,3-trichlorobenzene	0.859	0.912	-6.2	83	0.00	20.47
141		hexachloroethane	0.498	0.474	4.8	78	0.00	18.69

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2d119271.D M2D4958.M Sun Apr 14 14:35:50 2013 MS2D

Initial Calibration Summary

Job Number: JB33197 **Sample:** V2E3957-ICC3957
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2E88010.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Response Factor Report ms2e

```
Method       : C:\msdchem\1\METHODS\M2E3957.M (RTE Integrator)
Title        : SW-846 Method 8260B, ZB624 60Mx0.25MMx1.4UM
Last Update  : Fri Mar 22 12:55:44 2013
Response via : Initial Calibration

Calibration Files
5   =2E88007.D   2   =2E88005.D   0.5 =2E88006.D   50  =2E88010.D
100 =2E88011.D   1   =2E88004.D   200 =2E88012.D   20  =2E88009.D
10  =2E88008.D       =
```

Compound	5	2	0.5	50	100	1	200	20	10	Avg	%RSD
1) I Tert Butyl Alcohol-d9 ----------ISTD----------											
2) 1,4-dioxane	0.094		0.118	0.115		0.113	0.114	0.107		0.110	7.77
3) tertiary butyl alcohol	1.309	1.192	1.290	1.299	1.258	1.402	1.216	1.313	1.295	1.286	4.73
4) ethanol	0.104	0.108		0.095	0.074	0.088		0.104	0.100	0.096	12.34
5) acetonitrile	0.816	0.821		0.835	0.806	0.845	0.781	0.862	0.809	0.822	3.06
6) iso-butyl alcohol	0.363	0.279		0.379	0.384	0.354	0.377	0.342	0.336	0.352	9.72
7) I pentafluorobenzene ----------ISTD----------											
8) freon 143a										0.000#	-1.00
9) freon 142b										0.000#	-1.00
10) freon 141b										0.000#	-1.00
11) Propylene	1.470	1.074		1.669	1.796	0.761		1.470	1.318	1.366	25.92
----- Linear regression ----- Coefficient = 0.9984											
Response Ratio = -0.02889 + 1.80527 *A											
12) chlorodifluoromethane	0.837	0.819	0.898	0.830	0.824	0.773	0.847	0.824	0.813	0.829	3.98
13) dichlorodifluoromethane	0.796	0.648		0.812	0.889	0.813	0.886	0.962	0.918	0.840	11.53
14) chloromethane	0.941	0.951	0.943	0.936	0.970	0.916	0.980	1.049	0.998	0.965	4.15
15) vinyl chloride	0.929	0.851	0.884	0.928	0.990	0.954	1.004	1.048	0.971	0.951	6.40
16) bromomethane	0.505	0.469	0.418	0.458	0.373	0.456		0.538	0.526	0.468	11.78
17) chloroethane	0.467	0.457	0.391	0.443	0.415	0.460		0.520	0.501	0.457	9.23
18) trichlorofluoromethane	0.909	0.764		0.896	0.947	0.832	0.904	1.047	1.001	0.913	9.81
19) Pentane	1.027			1.202	1.178		1.121	1.177	1.323	1.171	8.31
20) ethyl ether	0.412	0.411		0.377	0.366	0.468	0.359	0.407	0.404	0.401	8.60
21) 2-chloropropane	1.333	1.348	1.472	1.268	1.279	1.669	1.299	1.369	1.386	1.380	9.03

Initial Calibration Summary

Job Number: JB33197 **Sample:** V2E3957-ICC3957
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2E88010.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
22)  acrolein
           0.157 0.148 0.151 0.165 0.162 0.140 0.163 0.170 0.161   0.157    5.98
23)  1,1-dichloroethene
           0.551 0.485 0.550 0.519 0.539 0.566 0.549 0.578 0.561   0.544    5.10
24)  acetone
           0.076             0.093 0.084       0.077 0.085 0.080   0.082    7.38
25)  allyl chloride
           0.331 0.308       0.350 0.351 0.350 0.362 0.358 0.333   0.343    5.17
26)  iodomethane
           0.961 0.907 0.879 0.958 0.967 1.027 0.994 1.028 0.995   0.968    5.21
27)  carbon disulfide
           2.060 1.950 2.277 2.033 2.030 2.309 2.063 2.210 2.159   2.121    5.81
28)  methylene chloride
           0.662 0.663 0.769 0.644 0.640 0.856 0.646 0.706 0.677   0.696   10.40
29)  methyl acetate
           0.595 0.588       0.652 0.629 0.605 0.636 0.644 0.627   0.622    3.76
30)  1-chloropropane
           0.473 0.440       0.337 0.331       0.325 0.378 0.447   0.390   15.99
            ----- Linear regression -----  Coefficient =  0.9968
              Response Ratio = 0.00992 + 0.32729 *A

31)  methyl tert butyl ether
           1.846 1.746 1.727 1.992 1.979 2.004 2.004 2.054 1.966   1.924    6.25
32)  trans-1,2-dichloroethene
           0.603 0.568 0.590 0.599 0.591 0.614 0.594 0.650 0.635   0.605    4.11
33)  di-isopropyl ether
           2.077 1.887 1.733 2.310 2.326 1.892 2.400 2.234 2.131   2.110   10.95
34)  ethyl tert-butyl ether
           1.913 1.734 1.548 2.152 2.187 1.699 2.277 2.083 1.990   1.954   12.75
35)  2-butanone
           0.056             0.096 0.095       0.093 0.085 0.082   0.085   17.73
            ----- Linear regression -----  Coefficient =  0.9996
              Response Ratio = -0.00149 + 0.09383 *A

36)  1,1-dichloroethane
           1.168 1.061 1.153 1.176 1.158 1.223 1.166 1.264 1.237   1.179    5.00
37)  chloroprene
           0.880 0.774       0.994 1.017 0.675 1.047 0.947 0.917   0.906   14.04
38)  acrylonitrile
           0.286 0.250       0.302 0.293 0.273 0.289 0.312 0.306   0.289    6.91
39)  vinyl acetate
           0.061             0.121 0.125       0.125 0.104 0.085   0.104   25.11
            ----- Linear regression -----  Coefficient =  0.9999
              Response Ratio = -0.00715 + 0.12707 *A

40)  ethyl acetate
           0.077             0.118 0.121       0.124 0.111 0.091   0.107   17.35
            ----- Linear regression -----  Coefficient =  0.9998
              Response Ratio = -0.00541 + 0.12432 *A

41)  2,2-dichloropropane
           0.941 0.899 0.881 0.980 0.966 1.068 0.962 0.998 0.948   0.960    5.71
42)  cis-1,2-dichloroethene
           0.638 0.576 0.541 0.662 0.655 0.623 0.662 0.699 0.676   0.637    7.85
43)  propionitrile
           0.098             0.120 0.117       0.116 0.123 0.115   0.115    7.46
44)  bromochloromethane
           0.306 0.281 0.228 0.314 0.312 0.346 0.317 0.336 0.333   0.308   11.50
45)  tetrahydrofuran
           0.302 0.280       0.290 0.284 0.369 0.288 0.299 0.273   0.298   10.13
```

Initial Calibration Summary

Job Number: JB33197 **Sample:** V2E3957-ICC3957
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2E88010.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
46)  chloroform
           0.695 0.639 0.649 0.699 0.689 0.713 0.697 0.751 0.737   0.697    5.22
47)  t-butyl formate
           0.451             0.546 0.585       0.629 0.510 0.476   0.533   12.58
48)  dibromofluoromethane (s)
           0.541 0.577       0.542 0.545       0.561 0.565 0.593   0.560    3.48
49)  1,2-dichloroethane-d4 (s)
           0.674 0.745       0.687 0.688       0.718 0.708 0.751   0.710    4.18
50)  freon 113
           0.427 0.391       0.405 0.439       0.438 0.415 0.410   0.418    4.23
51)  methacrylonitrile
           0.288             0.432 0.445       0.459 0.407 0.358   0.398   16.20
            ----- Linear regression -----  Coefficient =  0.9998
              Response Ratio = -0.01898 + 0.45898 *A

52)  1,1,1-trichloroethane
           0.900 0.830 0.908 0.917 0.920 0.944 0.930 0.979 0.945   0.919    4.45
53)  Cyclohexane
           0.908 0.814 0.807 0.940 0.973 0.953 0.978 1.009 0.950   0.926    7.66
54)  2,2,4-trimethylpentane
           2.102 1.864       2.244 2.567 1.730 2.560 2.127 2.130   2.166   13.63
55)  tert-amyl methyl ether
           0.425 0.373       0.445 0.447 0.342 0.470 0.445 0.423   0.421   10.11

56) I   1,4-difluorobenzene   ----------------ISTD--------------------
57)  Di-isobutylene
                                                                    0.000#  -1.00
58)  epichlorohydrin
           0.035             0.048 0.047       0.049 0.044 0.041   0.044   12.05
59)  n-butyl alcohol
           0.015             0.021 0.020       0.020 0.019 0.017   0.019   12.29
60)  carbon tetrachloride
           0.491 0.487 0.521 0.504 0.504 0.566 0.497 0.526 0.515   0.512    4.69
61)  1,1-dichloropropene
           0.518 0.503 0.498 0.557 0.559 0.531 0.555 0.580 0.554   0.540    5.22
62)  hexane
           0.451 0.428 0.469 0.489 0.531 0.392 0.521 0.447 0.457   0.465    9.46
63)  benzene
           1.559 1.471 1.660 1.651 1.635 1.787 1.607 1.734 1.679   1.643    5.65
64)  heptane
           0.259 0.230       0.284 0.309 0.173 0.305 0.256 0.270   0.261   16.92
            ----- Linear regression -----  Coefficient =  0.9984
              Response Ratio = -0.00352 + 0.30221 *A

65)  isopropyl acetate
           0.779             0.873 0.890       0.914 0.925 0.903   0.881    6.04
66)  1,2-dichloroethane
           0.546 0.480 0.449 0.560 0.555 0.527 0.556 0.586 0.572   0.537    8.33
67)  trichloroethene
           0.370 0.353 0.339 0.393 0.398 0.420 0.393 0.408 0.401   0.386    6.92
68)  2-nitropropane
           0.118 0.117       0.124 0.128       0.131 0.137 0.131   0.127    5.90
69)  2-chloroethyl vinyl ether
           0.019 0.012       0.030 0.037       0.048 0.026 0.024   0.028   42.57
            ----- Linear regression -----  Coefficient =  0.9852
              Response Ratio = -0.04052 + 0.04822 *A

70)  methyl methacrylate
           0.066             0.106 0.108       0.109 0.101 0.090   0.097   16.90
            ----- Linear regression -----  Coefficient =  1.0000
```

```
                Response Ratio = -0.00417 + 0.11017 *A

71)  1,2-dichloropropane
           0.426 0.364 0.347 0.443 0.444 0.453 0.443 0.456 0.448   0.425    9.48
72)  methylcyclohexane
           0.595 0.545 0.554 0.646 0.680 0.470 0.677 0.603 0.593   0.596   11.32
73)  dibromomethane
           0.236 0.201 0.217 0.248 0.246 0.244 0.246 0.264 0.249   0.239    7.92
74)  bromodichloromethane
           0.483 0.462 0.458 0.539 0.539 0.493 0.546 0.554 0.529   0.511    7.35
75)  cis-1,3-dichloropropene
           0.556 0.505       0.671 0.680 0.562 0.697 0.664 0.633   0.621   11.39
76)  toluene-d8 (s)
           1.228 1.284       1.302 1.331 1.674 1.355 1.341 1.403   1.365    9.92
77)  4-methyl-2-pentanone
           0.164             0.203 0.199       0.196 0.202 0.184   0.191    7.86
78)  toluene
           0.868 0.735 0.733 0.948 0.953 0.841 0.962 0.981 0.944   0.885   10.95
79)  3-methyl-1-butanol
           0.014 0.010       0.019 0.018       0.018 0.017 0.016   0.016   18.58
            ----- Linear regression -----  Coefficient =  0.9997
              Response Ratio = -0.00391 + 0.01785 *A

80)  trans-1,3-dichloropropene
           0.485 0.434       0.594 0.605 0.483 0.617 0.586 0.562   0.546   12.58
81)  ethyl methacrylate
           0.364             0.537 0.553       0.561 0.502 0.453   0.495   15.22
            ----- Linear regression -----  Coefficient =  1.0000
              Response Ratio = -0.02478 + 0.56656 *A

82)  1,1,2-trichloroethane
           0.260 0.241 0.249 0.287 0.288 0.255 0.291 0.290 0.290   0.272    7.65
83)  2-hexanone
           0.105             0.158 0.162       0.165 0.134 0.150   0.146   15.54
            ----- Linear regression -----  Coefficient =  0.9991
              Response Ratio = -0.00609 + 0.16547 *A


84) I   chlorobenzene-d5      ----------------ISTD--------------------
85)  tetrachloroethene
           0.472 0.433 0.442 0.494 0.496 0.501 0.487 0.520 0.507   0.484    6.07
86)  1,3-dichloropropane
           0.690 0.589       0.741 0.729 0.654 0.721 0.755 0.721   0.700    7.83
87)  butyl acetate
           0.215             0.341 0.343       0.345 0.309 0.275   0.305   16.99
            ----- Linear regression -----  Coefficient =  1.0000
              Response Ratio = -0.01260 + 0.34827 *A

88)  3,3-dimethyl-1-butanol
           0.060 0.054 0.068 0.080 0.077 0.066 0.075 0.076 0.068   0.069   12.03
89)  dibromochloromethane
           0.406 0.367       0.461 0.461 0.386 0.465 0.464 0.443   0.432    9.17
90)  1,2-dibromoethane
           0.378 0.340       0.420 0.417 0.349 0.411 0.426 0.419   0.395    8.69
91)  chlorobenzene
           1.149 1.057 1.103 1.205 1.203 1.227 1.207 1.257 1.210   1.180    5.43
92)  1,1,1,2-tetrachloroethane
           0.448 0.402 0.401 0.480 0.474 0.474 0.466 0.505 0.477   0.458    7.74
93)  ethylbenzene
           1.891 1.729 1.743 2.135 2.122 2.035 2.070 2.195 2.089   2.001    8.59
```

Initial Calibration Summary

Job Number: JB33197 **Sample:** V2E3957-ICC3957
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2E88010.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
 94)  m,p-xylene
            0.746 0.643 0.602 0.814 0.806 0.723 0.793 0.847 0.800   0.753   11.03
 95)  o-xylene
            0.691 0.628       0.811 0.815 0.649 0.800 0.829 0.785   0.751   10.85
 96)  styrene
            1.013 0.817       1.294 1.310 0.884 1.313 1.297 1.172   1.137   18.03
             ----- Linear regression -----  Coefficient =  0.9995
               Response Ratio = -0.01492 + 1.31328 *A

 97)  bromoform
            0.274 0.227       0.331 0.335 0.234 0.340 0.328 0.307   0.297   15.53
             ----- Linear regression -----  Coefficient =  0.9996
               Response Ratio = -0.00349 + 0.33808 *A


 98) I   1,4-dichlorobenzene-d ----------------ISTD--------------------
 99)  isopropylbenzene
            3.234 2.803       3.929 4.002 3.045 3.821 4.010 3.693   3.567   13.26
100)  4-bromofluorobenzene (s)
            0.948 1.105       1.055 1.075       1.080 1.076 1.130   1.067    5.41
101)  bromobenzene
            0.894 0.779       0.975 0.977 0.802 0.962 1.013 0.981   0.923    9.59
102)  cyclohexanone
            0.085 0.056       0.209 0.190 0.044 0.131 0.112 0.097   0.116   51.07
             ----- Linear regression -----  Coefficient =  0.9078
               Response Ratio = -0.02477 + 0.14482 *A

103)  1,1,2,2-tetrachloroethane
            1.063 0.957 1.045 1.137 1.125 1.110 1.076 1.180 1.149   1.094    6.13
104)  trans-1,4-dichloro-2-butene
            0.192 0.155       0.271 0.280       0.282 0.256 0.223   0.237   20.65
             ----- Linear regression -----  Coefficient =  0.9994
               Response Ratio = -0.00713 + 0.28207 *A

105)  1,2,3-trichloropropane
            0.279 0.231       0.297 0.290 0.257 0.278 0.315 0.299   0.281    9.51
106)  n-propylbenzene
            3.901 3.426       4.519 4.564 3.611 4.317 4.669 4.458   4.183   11.31
107)  2-chlorotoluene
            0.790 0.726       0.927 0.937 0.776 0.914 0.957 0.899   0.866   10.15
108)  4-chlorotoluene
            2.487 2.190       2.748 2.779 2.417 2.711 2.878 2.741   2.619    8.83
109)  1,3,5-trimethylbenzene
            2.789 2.259       3.316 3.383 2.479 3.252 3.402 3.202   3.010   14.73
110)  tert-butylbenzene
            2.153 1.801       2.749 2.872 2.042 2.821 2.777 2.510   2.466   16.73
             ----- Linear regression -----  Coefficient =  0.9998
               Response Ratio = -0.04099 + 2.84126 *A

111)  pentachloroethane
            0.602 0.518       0.681 0.692 0.599 0.684 0.695 0.650   0.640    9.79
112)  1,2,4-trimethylbenzene
            2.693 2.275       3.275 3.334 2.386 3.226 3.369 3.122   2.960   14.96
113)  sec-butylbenzene
            3.602 3.010       4.195 4.364 3.336 4.217 4.297 3.985   3.876   12.95
114)  1,3-dichlorobenzene
            1.674 1.501 1.649 1.797 1.820 1.788 1.802 1.878 1.817   1.747    6.71
115)  p-isopropyltoluene
            2.788 2.327       3.398 3.564 2.509 3.517 3.493 3.187   3.098   15.82
             ----- Linear regression -----  Coefficient =  0.9994
```

Initial Calibration Summary

Job Number: JB33197 **Sample:** V2E3957-ICC3957
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2E88010.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
                Response Ratio = -0.03607 + 3.52287 *A

116)  1,4-dichlorobenzene
            1.821 1.775 1.901 1.881 1.895 2.026 1.862 1.978 1.937   1.897    4.04
117)  1,2-dichlorobenzene
            1.700 1.592 1.658 1.844 1.864 1.744 1.835 1.905 1.852   1.777    6.06
118)  n-butylbenzene
            1.464 1.288       1.767 1.869 1.475 1.833 1.814 1.683   1.649   12.97
119)  1,2-dibromo-3-chloropropane
            0.218 0.197       0.242 0.246 0.193 0.236 0.238 0.230   0.225    9.11
120)  1,3,5-trichlorobenzene
            1.522 1.352 1.508 1.661 1.747 1.503 1.722 1.717 1.651   1.598    8.34
121)  1,2,4-trichlorobenzene
            1.384 1.279 1.392 1.607 1.682 1.433 1.636 1.652 1.541   1.512    9.49
122)  hexachlorobutadiene
            0.759 0.717 0.777 0.770 0.860 0.805 0.841 0.836 0.823   0.799    5.79
123)  naphthalene
            3.050 2.844       4.001 4.014 3.049 3.668 4.001 3.645   3.534   13.71
124)  1,2,3-trichlorobenzene
            1.431 1.240 1.360 1.548 1.575 1.481 1.466 1.608 1.570   1.475    8.03
125)  hexachloroethane
            0.587 0.535 0.581 0.681 0.712 0.586 0.715 0.687 0.656   0.638   10.42
126)  Benzyl chloride
            1.857 1.659       2.327 2.356 1.957 2.342 2.059 1.947   2.063   12.47
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           M2E3957.M         Fri Mar 22 12:56:58 2013   MS2E
```

6.7.4

6

Initial Calibration Verification

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Sample: V2E3957-ICV3957
Lab FileID: 2E88015.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2E88015.D                    Vial: 13
Acq On    :  6 Mar 2013   4:38 pm                     Operator: dipap
Sample    : icv3957-50                                Inst    : ms2e
Misc      : MS44193,V2E3957,5,,,,1                    Multiplr: 1.00
MS Integration Params: rteint.p

Method       : C:\msdchem\1\METHODS\M2E3957.M (RTE Integrator)
Title        : SW-846 Method 8260B, ZB624 60Mx0.25MMx1.4UM
Last Update  : Fri Mar 22 12:55:44 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	96	0.00	6.97
2	M	1,4-dioxane	0.110	0.115	-4.5	94	0.00	10.80
3	M	tertiary butyl alcohol	1.286	1.324	-3.0	98	0.00	7.08
4		ethanol	0.096	0.103	-7.3	104	-0.01	5.78
5		acetonitrile	0.822	0.810	1.5	94	0.00	6.78
6		iso-butyl alcohol	0.352	0.353	-0.3	90	0.00	9.46
7	I	pentafluorobenzene	1.000	1.000	0.0	97	0.00	9.16
8		freon 143a		----------NA----------				
9		freon 142b		----------NA----------				
10		freon 141b		----------NA----------				
		----------	True	Calc.	% Drift	----------		
11		Propylene		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
12	M	chlorodifluoromethane	0.829	0.832	-0.4	98	0.00	3.83
13	M	dichlorodifluoromethane	0.840	0.935	-11.3	112	0.00	3.81
14	M	chloromethane	0.965	1.000	-3.6	104	0.00	4.12
15	M	vinyl chloride	0.951	1.023	-7.6	108	0.00	4.35
16	M	bromomethane	0.468	0.492	-5.1	105	0.00	4.93
17	M	chloroethane	0.457	0.479	-4.8	105	0.00	5.09
18	M	trichlorofluoromethane	0.913	1.005	-10.1	109	0.00	5.52
19		Pentane		----------NA----------				
20	M	ethyl ether	0.401	0.386	3.7	100	0.00	5.89
21		2-chloropropane	1.380	1.316	4.6	101	0.00	6.08
22	M	acrolein	0.157	0.173	-10.2	102	0.00	6.14
23	M	1,1-dichloroethene	0.544	0.564	-3.7	106	0.00	6.30
24	M	acetone	0.082	0.084	-2.4	88	0.00	6.36
25	M	allyl chloride	0.343	0.350	-2.0	97	0.00	6.80
26	M	iodomethane	0.968	0.995	-2.8	101	0.00	6.56
27	M	carbon disulfide	2.121	2.097	1.1	101	0.00	6.68
28	M	methylene chloride	0.696	0.663	4.7	100	0.00	6.99
29	M	methyl acetate	0.622	0.573	7.9	86	0.00	6.80
		----------	True	Calc.	% Drift	----------		
30		1-chloropropane	50.000	57.827	-15.7	112	0.00	7.02
		----------	AvgRF	CCRF	% Dev	----------		
31	M	methyl tert butyl ether	1.924	2.056	-6.9	101	0.00	7.30
32	M	trans-1,2-dichloroethene	0.605	0.612	-1.2	100	0.00	7.35
33	M	di-isopropyl ether	2.110	2.301	-9.1	97	0.00	7.89

Initial Calibration Verification

Job Number: JB33197 **Sample:** V2E3957-ICV3957
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2E88015.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

34	M	ethyl tert-butyl ether	1.954	2.108	-7.9	95	0.00	8.35
		----------	True	Calc.	% Drift	----------		
35	M	2-butanone	50.000	49.600	0.8	93	0.00	8.63
		----------	AvgRF	CCRF	% Dev	----------		
36	M	1,1-dichloroethane	1.179	1.233	-4.6	102	0.00	7.91
37	M	chloroprene	0.906	0.913	-0.8	90	0.00	8.02
38	M	acrylonitrile	0.289	0.313	-8.3	101	0.00	7.31
		----------	True	Calc.	% Drift	----------		
39	M	vinyl acetate	50.000	52.027	-4.1	101	0.00	7.91
40	M	ethyl acetate	50.000	48.469	3.1	95	0.00	8.64
		----------	AvgRF	CCRF	% Dev	----------		
41	M	2,2-dichloropropane	0.960	0.891	7.2	89	0.00	8.63
42	M	cis-1,2-dichloroethene	0.637	0.680	-6.8	100	0.00	8.64
43	M	propionitrile	0.115	0.126	-9.6	103	0.00	8.71
44	M	bromochloromethane	0.308	0.323	-4.9	100	0.00	8.95
45	M	tetrahydrofuran	0.298	0.304	-2.0	102	0.00	8.99
46	M	chloroform	0.697	0.722	-3.6	101	0.00	9.00
47		t-butyl formate	0.533	0.579	-8.6	103	0.00	9.03
48	S	dibromofluoromethane (s)	0.560	0.555	0.9	100	0.00	9.20
49	S	1,2-dichloroethane-d4 (s)	0.710	0.697	1.8	99	0.00	9.62
50	M	freon 113	0.418	0.365	12.7	88	0.00	6.26
		----------	True	Calc.	% Drift	----------		
51	M	methacrylonitrile	50.000	49.327	1.3	98	0.00	8.89
		----------	AvgRF	CCRF	% Dev	----------		
52	M	1,1,1-trichloroethane	0.919	0.957	-4.1	102	0.00	9.24
53		Cyclohexane	0.926	1.011	-9.2	105	0.00	9.31
54		2,2,4-trimethylpentane	2.166	2.125	1.9	92	0.00	9.68
55	M	tert-amyl methyl ether	0.421	0.454	-7.8	99	0.00	9.72
56	I	1,4-difluorobenzene	1.000	1.000	0.0	98	0.00	10.07
57	M	Di-isobutylene		----------NA----------				
58	M	epichlorohydrin	0.044	0.047	-6.8	97	0.00	11.35
59	M	n-butyl alcohol	0.019	0.022	-15.8	101	0.00	10.21
60	M	carbon tetrachloride	0.512	0.532	-3.9	103	0.00	9.44
61	M	1,1-dichloropropene	0.540	0.580	-7.4	102	0.00	9.43
62	M	hexane	0.465	0.379	18.5	76	0.00	7.64
63	M	benzene	1.643	1.702	-3.6	101	0.00	9.68
		----------	True	Calc.	% Drift	----------		
64	M	heptane	50.000	41.981	16.0	86	0.00	9.86
		----------	AvgRF	CCRF	% Dev	----------		
65	M	isopropyl acetate	0.881	0.947	-7.5	106	0.00	9.62
66	M	1,2-dichloroethane	0.537	0.582	-8.4	101	0.00	9.71
67	M	trichloroethene	0.386	0.411	-6.5	102	0.00	10.41
68	M	2-nitropropane	0.127	0.131	-3.1	103	0.00	11.19
		----------	True	Calc.	% Drift	----------		
69	M	2-chloroethyl vinyl ether	250.000	214.312	14.3	107	0.00	11.23
70	M	methyl methacrylate	50.000	53.302	-6.6	104	0.00	10.70
		----------	AvgRF	CCRF	% Dev	----------		
71	M	1,2-dichloropropane	0.425	0.461	-8.5	102	0.00	10.68
72	M	methylcyclohexane	0.596	0.621	-4.2	94	0.00	10.62

Initial Calibration Verification

Job Number: JB33197 **Sample:** V2E3957-ICV3957
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2E88015.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

73	M	dibromomethane	0.239	0.262	-9.6	103	0.00	10.84
74	M	bromodichloromethane	0.511	0.565	-10.6	102	0.00	10.97
75	M	cis-1,3-dichloropropene	0.621	0.653	-5.2	95	0.00	11.44
76	S	toluene-d8 (s)	1.365	1.331	2.5	100	0.00	11.73
77	M	4-methyl-2-pentanone	0.191	0.207	-8.4	100	0.00	11.54
78	M	toluene	0.885	0.965	-9.0	99	0.00	11.80
		----------	True	Calc.	% Drift	----------		
79	M	3-methyl-1-butanol	1000.000	1041.552	-4.2	97	0.00	11.57
		----------	AvgRF	CCRF	% Dev	----------		
80	M	trans-1,3-dichloropropene	0.546	0.596	-9.2	98	0.00	12.01
		----------	True	Calc.	% Drift	----------		
81	M	ethyl methacrylate	50.000	48.563	2.9	96	0.00	12.01
		----------	AvgRF	CCRF	% Dev	----------		
82	M	1,1,2-trichloroethane	0.272	0.300	-10.3	102	0.00	12.22
		----------	True	Calc.	% Drift	----------		
83	M	2-hexanone	50.000	49.420	1.2	97	0.00	12.41
		----------	AvgRF	CCRF	% Dev	----------		
84	I	chlorobenzene-d5	1.000	1.000	0.0	97	0.00	13.25
85	M	tetrachloroethene	0.484	0.512	-5.8	100	0.00	12.39
86	M	1,3-dichloropropane	0.700	0.760	-8.6	99	0.00	12.41
		----------	True	Calc.	% Drift	----------		
87	M	butyl acetate	50.000	50.934	-1.9	97	0.00	12.48
		----------	AvgRF	CCRF	% Dev	----------		
88		3,3-dimethyl-1-butanol	0.069	0.083	-20.3#	101	0.00	12.58
89	M	dibromochloromethane	0.432	0.472	-9.3	99	0.00	12.67
90	M	1,2-dibromoethane	0.395	0.432	-9.4	100	0.00	12.82
91	M	chlorobenzene	1.180	1.235	-4.7	99	0.00	13.28
92	M	1,1,1,2-tetrachloroethane	0.458	0.498	-8.7	101	0.00	13.34
93	M	ethylbenzene	2.001	2.196	-9.7	100	0.00	13.34
94	M	m,p-xylene	0.753	0.833	-10.6	99	0.00	13.44
95	M	o-xylene	0.751	0.850	-13.2	101	0.00	13.86
		----------	True	Calc.	% Drift	----------		
96	M	styrene	50.000	50.865	-1.7	99	0.00	13.88
97	M	bromoform	50.000	51.258	-2.5	100	0.00	14.14
		----------	AvgRF	CCRF	% Dev	----------		
98	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	96	0.00	15.57
99	M	isopropylbenzene	3.567	4.123	-15.6	101	0.00	14.20
100	S	4-bromofluorobenzene (s)	1.067	1.085	-1.7	99	0.00	14.41
101	M	bromobenzene	0.923	1.002	-8.6	99	0.00	14.60
		----------	True	Calc.	% Drift	----------		
102	M	cyclohexanone	500.000	198.330	60.3#	25	0.00	14.37
		----------	AvgRF	CCRF	% Dev	----------		
103	M	1,1,2,2-tetrachloroethane	1.094	1.155	-5.6	98	0.00	14.52
		----------	True	Calc.	% Drift	----------		
104	M	trans-1,4-dichloro-2-bute	50.000	47.831	4.3	93	0.00	14.56

Initial Calibration Verification

Job Number: JB33197 **Sample:** V2E3957-ICV3957
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2E88015.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

			AvgRF	CCRF	% Dev			
105	M	1,2,3-trichloropropane	0.281	0.308	-9.6	99	0.00	14.59
106	M	n-propylbenzene	4.183	4.789	-14.5	102	0.00	14.61
107	M	2-chlorotoluene	0.866	0.959	-10.7	99	0.00	14.76
108	M	4-chlorotoluene	2.619	2.827	-7.9	99	0.00	14.86
109	M	1,3,5-trimethylbenzene	3.010	3.455	-14.8	100	0.00	14.77
			True	Calc.	% Drift			
110	M	tert-butylbenzene	50.000	52.063	-4.1	102	0.00	15.11
			AvgRF	CCRF	% Dev			
111	M	pentachloroethane	0.640	0.720	-12.5	102	0.00	15.19
112	M	1,2,4-trimethylbenzene	2.960	3.437	-16.1	101	0.00	15.16
113	M	sec-butylbenzene	3.876	4.453	-14.9	102	0.00	15.33
114	M	1,3-dichlorobenzene	1.747	1.858	-6.4	99	0.00	15.51
			True	Calc.	% Drift			
115	M	p-isopropyltoluene	50.000	53.421	-6.8	105	0.00	15.45
			AvgRF	CCRF	% Dev			
116	M	1,4-dichlorobenzene	1.897	1.913	-0.8	98	0.00	15.59
117	M	1,2-dichlorobenzene	1.777	1.908	-7.4	99	0.00	15.98
118	M	n-butylbenzene	1.649	1.879	-13.9	102	0.00	15.86
119	M	1,2-dibromo-3-chloropropa	0.225	0.249	-10.7	99	0.00	16.71
120		1,3,5-trichlorobenzene	1.598	1.661	-3.9	96	0.00	16.88
121	M	1,2,4-trichlorobenzene	1.512	1.750	-15.7	105	0.00	17.45
122	M	hexachlorobutadiene	0.799	0.876	-9.6	109	0.00	17.55
123	M	naphthalene	3.534	4.141	-17.2	99	0.00	17.70
124	M	1,2,3-trichlorobenzene	1.475	1.644	-11.5	102	0.00	17.92
125	M	hexachloroethane	0.638	0.719	-12.7	101	0.00	16.22
126		Benzyl chloride	2.063	1.888	8.5	78	0.00	15.71

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2E88010.D M2E3957.M Fri Mar 22 13:03:10 2013 MS2E

6.7.5

6

Initial Calibration Verification

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Sample: V2E3964-ICV3957
Lab FileID: 2E88131.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2E\v2e3957a\2E88131.D      Vial: 14
Acq On    : 11 Mar 2013   4:44 pm                    Operator: dipap
Sample    : icv3957-4.3                              Inst    : ms2e
Misc      : MS44403,V2E3964,5,,,,1                   Multiplr: 1.00
MS Integration Params: rteint.p

Method       : C:\msdchem\1\METHODS\M2E3957.M (RTE Integrator)
Title        : SW-846 Method 8260B, ZB624 60Mx0.25MMx1.4UM
Last Update  : Mon Mar 11 17:21:18 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	87	0.00	6.97
2	M	1,4-dioxane		NA				
3	M	tertiary butyl alcohol		NA				
4		ethanol		NA				
5		acetonitrile		NA				
6		iso-butyl alcohol		NA				
7	I	pentafluorobenzene	1.000	1.000	0.0	82	0.00	9.17
8		freon 143a		NA				
9		freon 142b		NA				
10		freon 141b		NA				
			True	Calc.	% Drift			
11		Propylene	4.300	3.895	9.4	86	0.00	3.69
			AvgRF	CCRF	% Dev			
12	M	chlorodifluoromethane		NA				
13	M	dichlorodifluoromethane		NA				
14	M	chloromethane		NA				
15	M	vinyl chloride		NA				
16	M	bromomethane		NA				
17	M	chloroethane		NA				
18	M	trichlorofluoromethane		NA				
19		Pentane		NA				
20	M	ethyl ether		NA				
21		2-chloropropane		NA				
22	M	acrolein		NA				
23	M	1,1-dichloroethene		NA				
24	M	acetone		NA				
25	M	allyl chloride		NA				
26	M	iodomethane		NA				
27	M	carbon disulfide		NA				
28	M	methylene chloride		NA				
29	M	methyl acetate		NA				
			True	Calc.	% Drift			
30		1-chloropropane		NA				
			AvgRF	CCRF	% Dev			
31	M	methyl tert butyl ether		NA				
32	M	trans-1,2-dichloroethene		NA				
33	M	di-isopropyl ether		NA				

Initial Calibration Verification

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Sample: V2E3964-ICV3957
Lab FileID: 2E88131.D

34	M	ethyl tert-butyl ether		----------NA----------				
		----------	True	Calc.	% Drift	----------		
35	M	2-butanone		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
36	M	1,1-dichloroethane		----------NA----------				
37	M	chloroprene		----------NA----------				
38	M	acrylonitrile		----------NA----------				
		----------	True	Calc.	% Drift	----------		
39	M	vinyl acetate		----------NA----------				
40	M	ethyl acetate		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
41	M	2,2-dichloropropane		----------NA----------				
42	M	cis-1,2-dichloroethene		----------NA----------				
43	M	propionitrile		----------NA----------				
44	M	bromochloromethane		----------NA----------				
45	M	tetrahydrofuran		----------NA----------				
46	M	chloroform		----------NA----------				
47		t-butyl formate		----------NA----------				
48	S	dibromofluoromethane (s)	0.560	0.552	1.4	83	0.00	9.21
49	S	1,2-dichloroethane-d4 (s)	0.710	0.687	3.2	82	0.00	9.62
50	M	freon 113		----------NA----------				
		----------	True	Calc.	% Drift	----------		
51	M	methacrylonitrile		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
52	M	1,1,1-trichloroethane		----------NA----------				
53		Cyclohexane		----------NA----------				
54		2,2,4-trimethylpentane		----------NA----------				
55	M	tert-amyl methyl ether		----------NA----------				
56	I	1,4-difluorobenzene	1.000	1.000	0.0	80	0.00	10.07
57	M	Di-isobutylene		----------NA----------				
58	M	epichlorohydrin		----------NA----------				
59	M	n-butyl alcohol		----------NA----------				
60	M	carbon tetrachloride		----------NA----------				
61	M	1,1-dichloropropene		----------NA----------				
62	M	hexane		----------NA----------				
63	M	benzene		----------NA----------				
		----------	True	Calc.	% Drift	----------		
64	M	heptane		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
65	M	isopropyl acetate		----------NA----------				
66	M	1,2-dichloroethane		----------NA----------				
67	M	trichloroethene		----------NA----------				
68	M	2-nitropropane		----------NA----------				
		----------	True	Calc.	% Drift	----------		
69	M	2-chloroethyl vinyl ether		----------NA----------				
70	M	methyl methacrylate		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
71	M	1,2-dichloropropane		----------NA----------				
72	M	methylcyclohexane		----------NA----------				

Initial Calibration Verification

Job Number: JB33197 **Sample:** V2E3964-ICV3957
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2E88131.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

73	M	dibromomethane		----------NA----------				
74	M	bromodichloromethane		----------NA----------				
75	M	cis-1,3-dichloropropene		----------NA----------				
76	S	toluene-d8 (s)	1.365	1.242	9.0	76	0.00	11.73
77	M	4-methyl-2-pentanone		----------NA----------				
78	M	toluene		----------NA----------				
		----------	True	Calc.	% Drift	----------		
79	M	3-methyl-1-butanol		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
80	M	trans-1,3-dichloropropene		----------NA----------				
		----------	True	Calc.	% Drift	----------		
81	M	ethyl methacrylate		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
82	M	1,1,2-trichloroethane		----------NA----------				
		----------	True	Calc.	% Drift	----------		
83	M	2-hexanone		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
84	I	chlorobenzene-d5	1.000	1.000	0.0	80	0.00	13.25
85	M	tetrachloroethene		----------NA----------				
86	M	1,3-dichloropropane		----------NA----------				
		----------	True	Calc.	% Drift	----------		
87	M	butyl acetate		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
88		3,3-dimethyl-1-butanol		----------NA----------				
89	M	dibromochloromethane		----------NA----------				
90	M	1,2-dibromoethane		----------NA----------				
91	M	chlorobenzene		----------NA----------				
92	M	1,1,1,2-tetrachloroethane		----------NA----------				
93	M	ethylbenzene		----------NA----------				
94	M	m,p-xylene		----------NA----------				
95	M	o-xylene		----------NA----------				
		----------	True	Calc.	% Drift	----------		
96	M	styrene		----------NA----------				
97	M	bromoform		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
98	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	79	0.00	15.57
99	M	isopropylbenzene		----------NA----------				
100	S	4-bromofluorobenzene (s)	1.067	0.952	10.8	72	0.00	14.41
101	M	bromobenzene		----------NA----------				
		----------	True	Calc.	% Drift	----------		
102	M	cyclohexanone		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
103	M	1,1,2,2-tetrachloroethane		----------NA----------				
		----------	True	Calc.	% Drift	----------		
104	M	trans-1,4-dichloro-2-bute		----------NA----------				

Initial Calibration Verification

Job Number: JB33197 **Sample:** V2E3964-ICV3957
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2E88131.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
            ----------------------- AvgRF   CCRF     % Dev   -------------
105 M   1,2,3-trichloropropane             ----------NA----------
106 M   n-propylbenzene                    ----------NA----------
107 M   2-chlorotoluene                    ----------NA----------
108 M   4-chlorotoluene                    ----------NA----------
109 M   1,3,5-trimethylbenzene             ----------NA----------

            ----------------------- True    Calc.   % Drift  ------------
110 M   tert-butylbenzene                  ----------NA----------

            ----------------------- AvgRF   CCRF     % Dev   -------------
111 M   pentachloroethane                  ----------NA----------

            ----------------------- True    Calc.   % Drift  ------------
112 M   1,2,4-trimethylbenzene             ----------NA----------

            ----------------------- AvgRF   CCRF     % Dev   -------------
113 M   sec-butylbenzene                   ----------NA----------
114 M   1,3-dichlorobenzene                ----------NA----------

            ----------------------- True    Calc.   % Drift  ------------
115 M   p-isopropyltoluene                 ----------NA----------

            ----------------------- AvgRF   CCRF     % Dev   -------------
116 M   1,4-dichlorobenzene                ----------NA----------
117 M   1,2-dichlorobenzene                ----------NA----------
118 M   n-butylbenzene                     ----------NA----------
119 M   1,2-dibromo-3-chloropropa          ----------NA----------
120     1,3,5-trichlorobenzene             ----------NA----------
121 M   1,2,4-trichlorobenzene             ----------NA----------
122 M   hexachlorobutadiene                ----------NA----------
123 M   naphthalene                        ----------NA----------
124 M   1,2,3-trichlorobenzene             ----------NA----------
125 M   hexachloroethane                   ----------NA----------
126     Benzyl chloride                    ----------NA----------
 ---------------------------------------------------------------------------
 ---------------------------------------------------------------------------

    (#) = Out of Range              SPCC's out = 0  CCC's out = 0
     2E88010.D  M2E3957.M        Tue Mar 12 08:26:52 2013   ACCNJ
```

Continuing Calibration Summary

Job Number: JB33197 **Sample:** V2E4025-CC3957
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2E89481.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2E\v2e4025\2E89481.D       Vial: 2
Acq On    : 17 Apr 2013  10:42 am                     Operator: dipap
Sample    : cc3957-20                                 Inst    : ms2e
Misc      : MS46185,V2E4025,5,,,,1                    Multiplr: 1.00
MS Integration Params: rteint.p

Method       : C:\msdchem\1\METHODS\M2E3957.M (RTE Integrator)
Title        : SW-846 Method 8260B, ZB624 60Mx0.25MMx1.4UM
Last Update  : Fri Mar 22 12:55:44 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	82	-0.01	6.96
2	M	1,4-dioxane	0.110	0.099	10.0	72	0.00	10.80
3	M	tertiary butyl alcohol	1.286	1.162	9.6	73	-0.01	7.07
4		ethanol	0.096	0.087	9.4	69	-0.03	5.76
5		acetonitrile	0.822	0.846	-2.9	81	0.00	6.78
6		iso-butyl alcohol	0.352	0.332	5.7	80	0.00	9.46
7	I	pentafluorobenzene	1.000	1.000	0.0	94	0.00	9.16
8		freon 143a		----------NA----------				
9		freon 142b		----------NA----------				
10		freon 141b		----------NA----------				
		----------	True	Calc.	% Drift	----------		
11		Propylene		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
12	M	chlorodifluoromethane	0.829	0.610	26.4#	70	0.00	3.82
13	M	dichlorodifluoromethane	0.840	0.775	7.7	76	0.00	3.80
14	M	chloromethane	0.965	0.654	32.2#	59	-0.01	4.11
15	M	vinyl chloride	0.951	0.773	18.7	69	0.00	4.34
16	M	bromomethane	0.468	0.438	6.4	77	0.00	4.93
17	M	chloroethane	0.457	0.405	11.4	73	0.00	5.10
18	M	trichlorofluoromethane	0.913	0.918	-0.5	82	0.00	5.53
19		Pentane		----------NA----------				
20	M	ethyl ether	0.401	0.393	2.0	91	0.00	5.89
21		2-chloropropane	1.380	1.216	11.9	84	0.00	6.08
22	M	acrolein	0.157	0.163	-3.8	90	0.00	6.14
23	M	1,1-dichloroethene	0.544	0.533	2.0	87	0.00	6.29
24	M	acetone	0.082	0.080	2.4	89	0.00	6.36
25	M	allyl chloride	0.343	0.329	4.1	86	0.00	6.80
26	M	iodomethane	0.968	0.928	4.1	85	0.00	6.55
27	M	carbon disulfide	2.121	2.005	5.5	85	0.00	6.68
28	M	methylene chloride	0.696	0.649	6.8	87	0.00	6.98
29	M	methyl acetate	0.622	0.844	-35.7#	123	0.00	6.80
		----------	True	Calc.	% Drift	----------		
30		1-chloropropane	20.000	19.603	2.0	86	0.00	7.02
		----------	AvgRF	CCRF	% Dev	----------		
31	M	methyl tert butyl ether	1.924	1.830	4.9	84	0.00	7.30
32	M	trans-1,2-dichloroethene	0.605	0.595	1.7	86	0.00	7.35
33	M	di-isopropyl ether	2.110	2.168	-2.7	91	0.00	7.89

Continuing Calibration Summary

Job Number: JB33197 **Sample:** V2E4025-CC3957
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2E89481.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

34	M	ethyl tert-butyl ether	1.954	1.988	-1.7	90	0.00	8.34
		----------	True	Calc.	% Drift	----------		
35	M	2-butanone	20.000	18.706	6.5	93	0.01	8.64
		----------	AvgRF	CCRF	% Dev	----------		
36	M	1,1-dichloroethane	1.179	1.107	6.1	82	0.00	7.91
37	M	chloroprene	0.906	0.901	0.6	90	0.00	8.01
38	M	acrylonitrile	0.289	0.291	-0.7	88	0.00	7.31
		----------	True	Calc.	% Drift	----------		
39	M	vinyl acetate	20.000	9.128	54.4#	36	0.03	7.94
40	M	ethyl acetate	20.000	19.170	4.1	90	0.00	8.64
		----------	AvgRF	CCRF	% Dev	----------		
41	M	2,2-dichloropropane	0.960	0.912	5.0	86	0.00	8.63
42	M	cis-1,2-dichloroethene	0.637	0.637	0.0	86	0.00	8.64
43	M	propionitrile	0.115	0.110	4.3	84	0.00	8.71
44	M	bromochloromethane	0.308	0.302	1.9	85	0.00	8.94
45	M	tetrahydrofuran	0.298	0.262	12.1	82	0.00	8.99
46	M	chloroform	0.697	0.664	4.7	83	0.00	9.00
47		t-butyl formate	0.533	0.560	-5.1	103	0.00	9.02
48	S	dibromofluoromethane (s)	0.560	0.511	8.8	85	0.00	9.20
49	S	1,2-dichloroethane-d4 (s)	0.710	0.623	12.3	83	0.00	9.62
50	M	freon 113	0.418	0.470	-12.4	106	0.01	6.27
		----------	True	Calc.	% Drift	----------		
51	M	methacrylonitrile	20.000	17.162	14.2	80	0.00	8.90
		----------	AvgRF	CCRF	% Dev	----------		
52	M	1,1,1-trichloroethane	0.919	0.852	7.3	82	0.00	9.24
53		Cyclohexane	0.926	0.935	-1.0	87	0.00	9.31
54		2,2,4-trimethylpentane	2.166	2.542	-17.4	112	0.00	9.67
55	M	tert-amyl methyl ether	0.421	0.448	-6.4	95	0.00	9.72
56	I	1,4-difluorobenzene	1.000	1.000	0.0	92	0.00	10.07
57	M	Di-isobutylene		----------NA----------				
58	M	epichlorohydrin	0.044	0.049	-11.4	102	0.00	11.35
59	M	n-butyl alcohol	0.019	0.020	-5.3	93	0.00	10.22
60	M	carbon tetrachloride	0.512	0.475	7.2	83	0.00	9.44
61	M	1,1-dichloropropene	0.540	0.517	4.3	82	0.00	9.43
62	M	hexane	0.465	0.529	-13.8	109	0.00	7.64
63	M	benzene	1.643	1.598	2.7	85	0.00	9.68
		----------	True	Calc.	% Drift	----------		
64	M	heptane	20.000	21.209	-6.0	112	0.00	9.86
		----------	AvgRF	CCRF	% Dev	----------		
65	M	isopropyl acetate	0.881	0.767	12.9	76	0.00	9.63
66	M	1,2-dichloroethane	0.537	0.514	4.3	80	0.00	9.71
67	M	trichloroethene	0.386	0.374	3.1	84	0.00	10.41
68	M	2-nitropropane	0.127	0.145	-14.2	97	0.00	11.20
		----------	True	Calc.	% Drift	----------		
69	M	2-chloroethyl vinyl ether	100.000	402.674	-302.7#	605	0.00	11.22
70	M	methyl methacrylate	20.000	18.472	7.6	83	0.00	10.70
		----------	AvgRF	CCRF	% Dev	----------		
71	M	1,2-dichloropropane	0.425	0.420	1.2	85	0.00	10.67
72	M	methylcyclohexane	0.596	0.692	-16.1	105	0.00	10.61

Continuing Calibration Summary

Job Number: JB33197 **Sample:** V2E4025-CC3957
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2E89481.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

73	M	dibromomethane	0.239	0.239	0.0	83	0.00	10.84
74	M	bromodichloromethane	0.511	0.484	5.3	80	0.00	10.97
75	M	cis-1,3-dichloropropene	0.621	0.609	1.9	84	0.00	11.44
76	S	toluene-d8 (s)	1.365	1.290	5.5	88	0.00	11.72
77	M	4-methyl-2-pentanone	0.191	0.184	3.7	84	0.00	11.55
78	M	toluene	0.885	0.899	-1.6	84	0.00	11.80
			True	Calc.	% Drift			
79	M	3-methyl-1-butanol	400.000	394.328	1.4	93	0.00	11.58
			AvgRF	CCRF	% Dev			
80	M	trans-1,3-dichloropropene	0.546	0.535	2.0	84	0.00	12.01
			True	Calc.	% Drift			
81	M	ethyl methacrylate	20.000	18.211	8.9	83	0.00	12.01
			AvgRF	CCRF	% Dev			
82	M	1,1,2-trichloroethane	0.272	0.282	-3.7	89	0.00	12.22
			True	Calc.	% Drift			
83	M	2-hexanone	20.000	16.810	16.0	85	0.01	12.42
			AvgRF	CCRF	% Dev			
84	I	chlorobenzene-d5	1.000	1.000	0.0	91	0.00	13.24
85	M	tetrachloroethene	0.484	0.469	3.1	82	0.00	12.39
86	M	1,3-dichloropropane	0.700	0.705	-0.7	85	0.00	12.41
			True	Calc.	% Drift			
87	M	butyl acetate	20.000	19.984	0.1	93	0.00	12.49
			AvgRF	CCRF	% Dev			
88		3,3-dimethyl-1-butanol	0.069	0.084	-21.7#	100	0.00	12.58
89	M	dibromochloromethane	0.432	0.419	3.0	82	0.00	12.67
90	M	1,2-dibromoethane	0.395	0.394	0.3	84	0.00	12.81
91	M	chlorobenzene	1.180	1.165	1.3	84	0.00	13.28
92	M	1,1,1,2-tetrachloroethane	0.458	0.456	0.4	82	0.00	13.34
93	M	ethylbenzene	2.001	2.003	-0.1	83	0.00	13.33
94	M	m,p-xylene	0.753	0.779	-3.5	84	0.00	13.44
95	M	o-xylene	0.751	0.756	-0.7	83	0.00	13.86
			True	Calc.	% Drift			
96	M	styrene	20.000	18.311	8.4	82	0.00	13.88
97	M	bromoform	20.000	16.664	16.7	76	0.00	14.14
			AvgRF	CCRF	% Dev			
98	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	87	-0.01	15.56
99	M	isopropylbenzene	3.567	3.695	-3.6	81	0.00	14.20
100	S	4-bromofluorobenzene (s)	1.067	1.089	-2.1	89	0.00	14.41
101	M	bromobenzene	0.923	0.931	-0.9	80	0.00	14.60
			True	Calc.	% Drift			
102	M	cyclohexanone	200.000	188.518	5.7	102	0.00	14.37
			AvgRF	CCRF	% Dev			
103	M	1,1,2,2-tetrachloroethane	1.094	1.180	-7.9	88	0.00	14.51
			True	Calc.	% Drift			
104	M	trans-1,4-dichloro-2-bute	20.000	17.153	14.2	77	0.00	14.56

Continuing Calibration Summary

Job Number: JB33197 **Sample:** V2E4025-CC3957
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2E89481.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

			AvgRF	CCRF	% Dev			
105	M	1,2,3-trichloropropane	0.281	0.304	-8.2	84	0.00	14.58
106	M	n-propylbenzene	4.183	4.505	-7.7	84	0.00	14.61
107	M	2-chlorotoluene	0.866	0.902	-4.2	82	0.00	14.75
108	M	4-chlorotoluene	2.619	2.676	-2.2	81	0.00	14.85
109	M	1,3,5-trimethylbenzene	3.010	3.217	-6.9	83	0.00	14.77
			True	Calc.	% Drift			
110	M	tert-butylbenzene	20.000	18.505	7.5	80	0.00	15.11
			AvgRF	CCRF	% Dev			
111	M	pentachloroethane	0.640	0.654	-2.2	82	0.00	15.18
112	M	1,2,4-trimethylbenzene	2.960	3.155	-6.6	82	0.00	15.15
113	M	sec-butylbenzene	3.876	4.045	-4.4	82	0.00	15.32
114	M	1,3-dichlorobenzene	1.747	1.755	-0.5	82	0.00	15.51
			True	Calc.	% Drift			
115	M	p-isopropyltoluene	20.000	18.974	5.1	81	0.00	15.44
			AvgRF	CCRF	% Dev			
116	M	1,4-dichlorobenzene	1.897	1.846	2.7	82	0.00	15.59
117	M	1,2-dichlorobenzene	1.777	1.793	-0.9	82	0.00	15.97
118	M	n-butylbenzene	1.649	1.718	-4.2	83	0.00	15.85
119	M	1,2-dibromo-3-chloropropa	0.225	0.221	1.8	81	0.00	16.71
120		1,3,5-trichlorobenzene	1.598	1.554	2.8	79	0.00	16.88
121	M	1,2,4-trichlorobenzene	1.512	1.452	4.0	77	0.00	17.45
122	M	hexachlorobutadiene	0.799	0.751	6.0	79	0.00	17.55
123	M	naphthalene	3.534	3.610	-2.2	79	0.00	17.70
124	M	1,2,3-trichlorobenzene	1.475	1.487	-0.8	81	0.00	17.91
125	M	hexachloroethane	0.638	0.660	-3.4	84	0.00	16.21
126		Benzyl chloride	2.063	2.357	-14.3	100	0.00	15.70

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2E88009.D M2E3957.M Wed Apr 17 17:26:02 2013 ACCNJ

6.7.7

6

Initial Calibration Summary

Job Number: JB33197 **Sample:** V3D3579-ICC3579
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3D83179.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Response Factor Report MS3D

```
Method       : C:\MSDCHEM\1\METHODS\M3D3579.M (RTE Integrator)
Title        : Method SW846 8260B, ZB 624 60m x 0.25mm x 1.4 um
Last Update  : Fri Feb 22 15:43:19 2013
Response via : Initial Calibration

Calibration Files
5   =3D83176.D   0.5 =3D83173.D   2   =3D83175.D   50  =3D83179.D
100 =3D83181.D   1   =3D83174.D   200 =3D83182.D   20  =3D83178.D
10  =3D83177.D   75  =3D83180.D       =                =

Compound
        5     0.5   2     50    100   1     200   20    10    75     Avg   %RSD
-------------------------------------------------------------------------------

1) I   Tert Butyl Alcohol-d9 ----------------ISTD---------------------
2)  1,4-dioxane
     0.096 0.083 0.093 0.092 0.086 0.108 0.083 0.095 0.093 0.087  0.092    8.20
3)  tertiary butyl alcohol
     1.045 1.116 1.157 1.000 0.947 1.112 0.916 1.029 1.026 0.967  1.031    7.59

4) I   pentafluorobenzene    ----------------ISTD---------------------
5)  chlorodifluoromethane
     0.497 0.513 0.507 0.497 0.468 0.551 0.462 0.506 0.493 0.496  0.499    4.94
6)  dichlorodifluoromethane
     0.706 0.607 0.640 0.706 0.659 0.669 0.658 0.696 0.712 0.688  0.674    5.02
7)  chloromethane
     0.746 0.887 0.750 0.748 0.720 0.810 0.705 0.729 0.729 0.734  0.756    7.11
8)  vinyl chloride
     0.763 0.821 0.769 0.752 0.737 0.787 0.721 0.744 0.754 0.757  0.761    3.66
9)  bromomethane
     0.439 0.459 0.444 0.437 0.418 0.482 0.370 0.432 0.431 0.423  0.433    6.72
10)  chloroethane
     0.344 0.363 0.353 0.341 0.320 0.379 0.303 0.342 0.345 0.329  0.342    6.24
11)  vinyl bromide
                                                                  0.000#  -1.00
12)  trichlorofluoromethane
     0.731 0.466 0.721 0.727 0.693 0.718 0.688 0.724 0.737 0.718  0.692   11.73
13)  pentane
                                                                  0.000#  -1.00
14)  ethyl ether
     0.252       0.299 0.240 0.234 0.329 0.236 0.250 0.257 0.239  0.259   12.59
15)  acrolein
     0.105 0.099 0.103 0.103 0.106 0.102 0.114 0.104 0.101 0.101  0.104    4.01
16)  1,1-dichloroethene
     0.663 0.622 0.700 0.647 0.616 0.649 0.616 0.652 0.654 0.628  0.645    4.00
17)  acetone
     0.038             0.041 0.039       0.039 0.041 0.044 0.040  0.040    5.10
18)  allyl chloride
     0.262 0.233 0.271 0.247 0.250 0.264 0.247 0.251 0.250 0.251  0.253    4.23
19)  acetonitrile
     0.044 0.051 0.045 0.042 0.040 0.049 0.040 0.045 0.043 0.042  0.044    8.31
20)  iodomethane
     0.795 0.741 0.834 0.778 0.754 0.760 0.753 0.794 0.795 0.769  0.777    3.56
21)  iso-butyl alcohol
     0.015       0.020 0.015 0.015       0.014 0.016 0.015 0.015  0.016   11.65
22)  carbon disulfide
     1.556 1.669 1.628 1.523 1.484 1.581 1.471 1.556 1.547 1.497  1.551    4.04
23)  methylene chloride
```

```
      0.490 0.562 0.526 0.470 0.453 0.506 0.454 0.478 0.485 0.464  0.489    7.02
24)  methyl acetate
      0.078       0.076 0.075 0.075       0.075 0.079 0.077 0.077  0.077    2.06
25)  methyl tert butyl ether
      1.335 1.375 1.415 1.307 1.271 1.325 1.248 1.359 1.348 1.301  1.328    3.73
26)  trans-1,2-dichloroethene
      0.646 0.617 0.676 0.636 0.609 0.649 0.603 0.644 0.647 0.626  0.635    3.45
27)  di-isopropyl ether
      1.565 1.652 1.624 1.547 1.472 1.753 1.455 1.588 1.538 1.528  1.572    5.60
28)  ethyl tert-butyl ether
      1.492 1.546 1.563 1.492 1.429 1.609 1.418 1.521 1.488 1.477  1.504    3.90
29)  2-butanone
      0.045       0.046 0.050 0.050       0.049 0.051 0.052 0.050  0.049    4.75
30)  1,1-dichloroethane
      0.787 0.764 0.853 0.773 0.745 0.777 0.743 0.792 0.787 0.769  0.779    3.98
31)  chloroprene
      0.613 0.590 0.623 0.612 0.582 0.649 0.586 0.617 0.592 0.608  0.607    3.38
32)  acrylonitrile
      0.175 0.172 0.187 0.182 0.176 0.177 0.174 0.190 0.185 0.180  0.180    3.34
33)  vinyl acetate
      0.065       0.061 0.070 0.070 0.051 0.070 0.071 0.067 0.070  0.066    9.81
34)  ethyl acetate
      0.065       0.071 0.063 0.061       0.061 0.066 0.065 0.063  0.064    5.43
35)  2,2-dichloropropane
      0.630 0.672 0.671 0.602 0.577 0.634 0.558 0.618 0.621 0.595  0.618    5.96
36)  cis-1,2-dichloroethene
      0.791 0.779 0.815 0.771 0.738 0.763 0.738 0.780 0.781 0.766  0.772    3.02
37)  propionitrile
      0.067 0.070 0.072 0.068 0.066 0.065 0.066 0.070 0.068 0.068  0.068    3.11
38)  methyl acrylate
      0.497 0.465 0.517 0.500 0.491 0.511 0.489 0.522 0.498 0.502  0.499    3.21
39)  bromochloromethane
      0.232 0.210 0.251 0.237 0.228 0.228 0.233 0.239 0.240 0.234  0.233    4.54
40)  tetrahydrofuran
      0.177       0.204 0.158 0.155       0.152 0.173 0.171 0.158  0.169   10.15
41)  chloroform
      0.737 0.723 0.779 0.733 0.709 0.704 0.712 0.734 0.735 0.727  0.729    2.88
42)  Tert-Butyl Formate
      0.411 0.443 0.441 0.430 0.414 0.434 0.413 0.438 0.418 0.424  0.427    2.87
43)  dibromofluoromethane (s)
      0.360 0.443 0.422 0.385 0.377 0.374 0.381 0.383 0.372 0.390  0.389    6.46
44)  1,2-dichloroethane-d4 (s)
      0.391       0.451 0.409 0.389 0.429 0.384 0.412 0.416 0.405  0.409    5.15
45)  freon 113
      0.319 0.254 0.312 0.310 0.299 0.339 0.294 0.323 0.314 0.311  0.307    7.33
46)  methacrylonitrile
      0.278 0.343 0.320 0.283 0.278 0.310 0.277 0.295 0.287 0.285  0.296    7.47
47)  1,1,1-trichloroethane
      0.633 0.609 0.667 0.632 0.613 0.631 0.609 0.649 0.635 0.631  0.631    2.88
48)  tert amyl alcohol
                                                                   0.000#  -1.00
49)  2,2,4-Trimethylpentane
      1.486 1.507 1.569 1.551 1.440 1.650 1.442 1.586 1.518 1.533  1.528    4.24
50)  tert-amyl methyl ether
      1.416 1.526 1.552 1.401 1.349 1.591 1.331 1.427 1.397 1.382  1.437    6.15

51) I   1,4-difluorobenzene   ----------------ISTD---------------------
52)  epichlorohydrin
      0.030 0.035 0.033 0.030 0.030 0.031 0.029 0.031 0.030 0.030  0.031    5.47
53)  n-butyl alcohol
```

Initial Calibration Summary

Job Number: JB33197 **Sample:** V3D3579-ICC3579
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3D83179.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
      0.008 0.010 0.010 0.009 0.009 0.011 0.009 0.009 0.008 0.009  0.009#   8.85
54)  cyclohexane
      0.464 0.416 0.479 0.457 0.447 0.465 0.436 0.468 0.478 0.453  0.456    4.22
55)  carbon tetrachloride
      0.395 0.372 0.413 0.388 0.383 0.377 0.375 0.401 0.407 0.388  0.390    3.55
56)  1,1-dichloropropene
      0.397 0.401 0.424 0.389 0.382 0.387 0.381 0.400 0.398 0.387  0.394    3.25
57)  hexane
      0.372       0.388 0.358 0.327 0.441 0.326 0.360 0.365 0.348  0.365    9.50
58)  benzene
      1.248 1.251 1.349 1.218 1.179 1.273 1.170 1.232 1.254 1.201  1.238    4.18
59)  heptane
      0.210 0.212 0.208 0.205 0.188 0.222 0.190 0.212 0.210 0.202  0.206    5.07
60)  isopropyl acetate
      0.651 0.681 0.698 0.617 0.590 0.733 0.591 0.635 0.623 0.603  0.642    7.52
61)  1,2-dichloroethane
      0.370 0.345 0.397 0.363 0.346 0.371 0.338 0.373 0.378 0.355  0.364    4.91
62)  trichloroethene
      0.299 0.287 0.311 0.291 0.287 0.283 0.287 0.295 0.289 0.289  0.292    2.78
63)  tert amyl ethyl ether
      0.225 0.202 0.218 0.217 0.210 0.229 0.206 0.224 0.215 0.217  0.216    3.98
64)  2-nitropropane
      0.004             0.005 0.005       0.005 0.006 0.005 0.006  0.005#   8.98
65)  2-chloroethyl vinyl ether
      0.182 0.191 0.189 0.183 0.176 0.199 0.170 0.188 0.181 0.180  0.184    4.51
66)  methyl methacrylate
      0.470 0.520 0.498 0.453 0.437 0.505 0.429 0.460 0.469 0.446  0.469    6.43
67)  1,2-dichloropropane
      0.319 0.308 0.326 0.312 0.301 0.297 0.298 0.314 0.315 0.306  0.310    3.07
68)  methylcyclohexane
      0.505 0.487 0.536 0.501 0.473 0.545 0.473 0.507 0.498 0.495  0.502    4.68
69)  dibromomethane
      0.193 0.193 0.200 0.193 0.186 0.190 0.187 0.192 0.196 0.191  0.192    2.11
70)  bromodichloromethane
      0.387 0.371 0.395 0.389 0.380 0.379 0.379 0.385 0.391 0.383  0.384    1.84
71)  cis-1,3-dichloropropene
      0.478 0.478 0.492 0.487 0.470 0.495 0.469 0.490 0.485 0.477  0.482    1.88
72)  toluene-d8 (s)
      0.900 1.130 1.075 0.973 0.944 0.980 0.937 0.957 0.947 0.967  0.981    7.05
73)  4-methyl-2-pentanone
      0.113 0.119 0.114 0.122 0.121 0.106 0.121 0.125 0.121 0.121  0.118    4.70
74)  toluene
      0.712 0.681 0.738 0.702 0.681 0.699 0.684 0.699 0.708 0.696  0.700    2.46
75)  3-methyl-1-butanol
      0.007 0.007 0.008 0.007 0.007 0.009 0.008 0.008 0.007 0.008  0.008#   8.69
76)  trans-1,3-dichloropropene
      0.423 0.414 0.436 0.426 0.413 0.422 0.411 0.431 0.434 0.421  0.423    2.05
77)  ethyl methacrylate
      0.349 0.362 0.368 0.374 0.370 0.314 0.369 0.379 0.370 0.369  0.362    5.17
78)  1,1,2-trichloroethane
      0.223 0.232 0.231 0.223 0.220 0.216 0.218 0.226 0.228 0.220  0.224    2.46
79)  2-hexanone
      0.098 0.090 0.092 0.105 0.105 0.090 0.104 0.107 0.106 0.105  0.100    7.07

80) I   chlorobenzene-d5      ----------------ISTD---------------------
81)  tetrachloroethene
      0.395 0.376 0.405 0.381 0.371 0.380 0.375 0.385 0.381 0.378  0.383    2.63
82)  1,3-dichloropropane
      0.511 0.535 0.523 0.490 0.472 0.525 0.464 0.508 0.502 0.480  0.501    4.80
83)  butyl acetate
```

Initial Calibration Summary

Job Number: JB33197 **Sample:** V3D3579-ICC3579
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3D83179.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
       0.222 0.212 0.242 0.223 0.214 0.241 0.214 0.236 0.222 0.218  0.224    5.04
 84)  3,3-Dimethyl-1-Butanol
       0.032       0.037 0.031 0.032       0.034 0.032 0.030 0.033  0.033    6.70
 85)  dibromochloromethane
       0.371 0.392 0.379 0.381 0.375 0.352 0.374 0.377 0.377 0.376  0.375    2.61
 86)  1,2-dibromoethane
       0.339 0.319 0.344 0.331 0.323 0.309 0.322 0.341 0.337 0.324  0.329    3.46
 87)  n-Butyl Ether
                                                                    0.000#  -1.00
 88)  chlorobenzene
       0.941 0.964 0.960 0.901 0.878 0.929 0.878 0.910 0.915 0.886  0.916    3.46
 89)  1,1,1,2-tetrachloroethane
       0.346 0.385 0.363 0.347 0.342 0.337 0.342 0.348 0.352 0.345  0.351    3.94
 90)  ethylbenzene
       1.584 1.561 1.636 1.520 1.474 1.524 1.470 1.547 1.545 1.493  1.536    3.33
 91)  m,p-xylene
       0.601 0.605 0.622 0.583 0.565 0.585 0.565 0.587 0.593 0.573  0.588    3.09
 92)  o-xylene
       0.596 0.586 0.603 0.590 0.572 0.550 0.578 0.592 0.586 0.578  0.583    2.55
 93)  styrene
       0.975 0.964 0.979 0.990 0.968 0.964 0.973 0.978 0.979 0.972  0.974    0.81
 94)  Butyl Acrylate
                                                                    0.000#  -1.00
 95)  bromoform
       0.270 0.297 0.276 0.285 0.284 0.256 0.287 0.283 0.271 0.281  0.279    4.02

 96) I   1,4-dichlorobenzene-d ----------------ISTD---------------------
 97)  isopropylbenzene
       2.701 2.596 2.782 2.657 2.594 2.627 2.548 2.696 2.675 2.656  2.653    2.50
 98)  4-bromofluorobenzene (s)
       0.722       0.933 0.739 0.726       0.724 0.745 0.726 0.743  0.757    9.44
 99)  bromobenzene
       0.750 0.760 0.816 0.734 0.724 0.727 0.728 0.754 0.744 0.734  0.747    3.65
100)  cyclohexanone
       0.019 0.021 0.020 0.019 0.019 0.021 0.018 0.020 0.019 0.019  0.020    5.11
101)  1,1,2,2-tetrachloroethane
       0.787 0.922 0.811 0.780 0.771 0.819 0.744 0.810 0.794 0.775  0.801    5.99
102)  trans-1,4-dichloro-2-butene
       0.189 0.217 0.202 0.184 0.190 0.169 0.178 0.210 0.194 0.190  0.192    7.51
103)  1,2,3-trichloropropane
       0.178 0.162 0.180 0.174 0.171 0.189 0.167 0.184 0.177 0.174  0.175    4.50
104)  n-propylbenzene
       3.179 3.163 3.194 3.097 2.988 3.168 2.932 3.149 3.132 3.061  3.106    2.82
105)  4-Ethyltoluene
                                                                    0.000#  -1.00
106)  2-chlorotoluene
       0.675 0.690 0.673 0.644 0.625 0.696 0.626 0.646 0.660 0.636  0.657    3.90
107)  4-chlorotoluene
       0.659 0.676 0.685 0.648 0.633 0.649 0.638 0.658 0.667 0.640  0.655    2.60
108)  1,3,5-trimethylbenzene
       2.215 2.227 2.262 2.196 2.153 2.137 2.134 2.214 2.203 2.198  2.194    1.88
109)  tert-butylbenzene
       1.843 1.861 1.933 1.876 1.827 1.809 1.815 1.877 1.864 1.875  1.858    1.97
110)  pentachloroethane
       0.467 0.495 0.501 0.501 0.491 0.437 0.486 0.496 0.492 0.503  0.487    4.19
111)  1,2,4-trimethylbenzene
       2.234 2.197 2.257 2.199 2.148 2.181 2.142 2.212 2.197 2.184  2.195    1.60
112)  sec-butylbenzene
       2.913 2.900 2.951 2.880 2.793 2.762 2.759 2.905 2.850 2.876  2.859    2.32
113)  1,3-dichlorobenzene
```

Initial Calibration Summary

Job Number: JB33197 **Sample:** V3D3579-ICC3579
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3D83179.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
       1.388 1.473 1.426 1.361 1.334 1.359 1.351 1.380 1.370 1.349  1.379    3.02
114)  p-isopropyltoluene
       2.381 2.393 2.374 2.346 2.280 2.217 2.268 2.376 2.338 2.338  2.331    2.48
115)  1,4-dichlorobenzene
       1.444 1.616 1.519 1.394 1.376 1.401 1.390 1.422 1.414 1.396  1.437    5.19
116)  1,2-dichlorobenzene
       1.388 1.471 1.470 1.393 1.363 1.339 1.350 1.414 1.387 1.370  1.395    3.27
117)  1,4-Diethylbenzene
                                                                   0.000#  -1.00
118)  n-butylbenzene
       0.547 0.591 0.582 0.555 0.542 0.533 0.552 0.571 0.543 0.554  0.557    3.35
119)  1,2,4,5-Tetramethylbenzene
                                                                   0.000#  -1.00
120)  1,2-dibromo-3-chloropropane
       0.167 0.205 0.167 0.173 0.163 0.171 0.147 0.177 0.171 0.170  0.171    8.45
121)  1,3,5-trichlorobenzene
       1.191 1.312 1.215 1.199 1.107 1.173 1.001 1.201 1.191 1.181  1.177    6.76
122)  1,2,4-trichlorobenzene
       1.102 1.185 1.148 1.113 0.962 1.097       1.139 1.110 1.093  1.105    5.56
123)  hexachlorobutadiene
       0.569 0.608 0.579 0.569 0.514 0.561 0.439 0.571 0.566 0.561  0.554    8.39
124)  naphthalene
       2.196 2.605 2.293 2.268 1.851 2.341       2.365 2.274 2.176  2.263    8.78
125)  1,2,3-trichlorobenzene
       0.939 1.029 1.004 0.958 0.717 0.966       0.987 0.964 0.892  0.939    9.81
126)  hexachloroethane
       0.493 0.526 0.494 0.516 0.501 0.445 0.496 0.505 0.480 0.514  0.497    4.56
127)  Benzyl chloride
       1.460       1.570 1.439 1.395 1.732 1.373 1.500 1.424 1.430  1.481    7.49
 ------------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           M3D3579.M         Fri Feb 22 15:46:23 2013   RPT1
```

Initial Calibration Verification

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: V3D3579-ICV3579
Lab FileID: 3D83184.D

Evaluate Continuing Calibration Report

Data File : C:\MSDChem\1\DATA\3D\3D83184.D Vial: 13
Acq On : 18 Feb 2013 4:51 pm Operator: natet
Sample : icv3579-50 Inst : MS3D
Misc : MS43168,V3D3579,W,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\M3D3579.M (RTE Integrator)
Title : Method SW846 8260B, ZB 624 60m x 0.25mm x 1.4 um
Last Update : Fri Feb 22 15:43:19 2013
Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.30min
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	110	0.00	7.30
2		1,4-dioxane	0.092	0.086	6.5	103	0.00	11.18
3	M	tertiary butyl alcohol	1.031	0.991	3.9	109	0.00	7.42
4	I	pentafluorobenzene	1.000	1.000	0.0	107	0.00	9.53
5		chlorodifluoromethane	0.499	0.512	-2.6	110	0.00	3.90
6		dichlorodifluoromethane	0.674	0.662	1.8	100	0.00	3.87
7		chloromethane	0.756	0.737	2.5	105	0.00	4.23
8		vinyl chloride	0.761	0.745	2.1	106	0.00	4.49
9		bromomethane	0.433	0.432	0.2	106	0.00	5.14
10		chloroethane	0.342	0.333	2.6	105	0.00	5.32
11		vinyl bromide		----------NA----------				
12		trichlorofluoromethane	0.692	0.692	0.0	102	0.00	5.77
13		pentane		----------NA----------				
14		ethyl ether	0.259	0.243	6.2	108	0.00	6.18
15		acrolein	0.104	0.105	-1.0	109	0.00	6.46
16		1,1-dichloroethene	0.645	0.626	2.9	104	0.00	6.61
17		acetone	0.040	0.043	-7.5	111	0.00	6.69
18		allyl chloride	0.253	0.245	3.2	107	0.00	7.15
19		acetonitrile	0.044	0.043	2.3	109	0.00	7.15
20		iodomethane	0.777	0.763	1.8	105	0.00	6.91
21		iso-butyl alcohol	0.016	0.014	12.5	102	0.00	9.83
22		carbon disulfide	1.551	1.476	4.8	104	0.00	7.02
23		methylene chloride	0.489	0.469	4.1	107	0.00	7.36
24		methyl acetate	0.077	0.073	5.2	104	0.00	7.13
25		methyl tert butyl ether	1.328	1.299	5.5	107	0.00	7.66
26		trans-1,2-dichloroethene	0.635	0.624	1.7	105	0.00	7.71
27		di-isopropyl ether	1.572	1.535	2.4	106	0.00	8.24
28		ethyl tert-butyl ether	1.504	1.424	5.3	102	0.00	8.71
29		2-butanone	0.049	0.052	-6.1	111	0.00	8.99
30	M	1,1-dichloroethane	0.779	0.788	-1.2	109	0.00	8.29
31		chloroprene	0.607	0.592	2.5	103	0.00	8.39
32		acrylonitrile	0.180	0.193	-7.2	114	0.00	7.70
33		vinyl acetate	0.066	0.078	-18.2	118	0.00	8.26
34		ethyl acetate	0.064	0.063	1.6	107	0.00	9.00
35		2,2-dichloropropane	0.618	0.568	8.1	101	0.00	9.02
36		cis-1,2-dichloroethene	0.772	0.761	1.4	106	0.00	9.03
37		propionitrile	0.068	0.070	-2.9	111	0.00	9.12
38		methyl acrylate	0.499	0.504	-1.0	108	0.00	9.08
39		bromochloromethane	0.233	0.232	0.4	105	0.00	9.35
40		tetrahydrofuran	0.169	0.165	2.4	112	0.00	9.37
41		chloroform	0.729	0.730	-0.1	107	0.00	9.40

Initial Calibration Verification

Job Number: JB33197 **Sample:** V3D3579-ICV3579
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3D83184.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

42		Tert-Butyl Formate	0.427	0.437	-2.3	109	0.00	9.42
43	S	dibromofluoromethane (s)	0.389	0.376	3.3	104	0.00	9.61
44	S	1,2-dichloroethane-d4 (s)	0.409	0.390	4.6	102	0.00	10.03
45		freon 113	0.307	0.280	8.8	97	0.00	6.57
46		methacrylonitrile	0.296	0.284	4.1	108	0.00	9.29
47		1,1,1-trichloroethane	0.631	0.624	1.1	106	0.00	9.64
48		tert amyl alcohol		----------NA----------				
49		2,2,4-Trimethylpentane	1.528	1.349	11.7	93	0.00	10.05
50		tert-amyl methyl ether	1.437	1.354	5.8	103	0.00	10.10
51	I	1,4-difluorobenzene	1.000	1.000	0.0	107	0.00	10.46
52		epichlorohydrin	0.031	0.031	0.0	109	0.00	11.73
53		n-butyl alcohol	0.009	0.009#	0.0	109	0.00	10.59
54	M	cyclohexane	0.456	0.450	1.3	105	0.00	9.70
55		carbon tetrachloride	0.390	0.391	-0.3	107	0.00	9.84
56		1,1-dichloropropene	0.394	0.392	0.5	107	0.00	9.82
57		hexane	0.365	0.325	11.0	97	0.00	7.99
58	M	benzene	1.238	1.220	1.5	107	0.00	10.08
59		heptane	0.206	0.189	8.3	98	0.00	10.22
60		isopropyl acetate	0.642	0.665	-3.6	115	0.00	10.00
61		1,2-dichloroethane	0.364	0.358	1.6	105	0.00	10.11
62		trichloroethene	0.292	0.297	-1.7	109	0.00	10.80
63		tert amyl ethyl ether		----------NA----------				
64		2-nitropropane	0.005	0.006#	-20.0	110	0.00	11.59
65		2-chloroethyl vinyl ether	0.184	0.182	1.1	106	0.00	11.59
66		methyl methacrylate	0.469	0.458	2.3	108	0.00	11.06
67		1,2-dichloropropane	0.310	0.314	-1.3	107	0.00	11.07
68		methylcyclohexane	0.502	0.459	8.6	98	0.00	11.00
69		dibromomethane	0.192	0.196	-2.1	108	0.00	11.24
70		bromodichloromethane	0.384	0.396	-3.1	109	0.00	11.36
71		cis-1,3-dichloropropene	0.482	0.463	3.9	101	0.00	11.81
72	S	toluene-d8 (s)	0.981	0.940	4.2	103	0.00	12.09
73		4-methyl-2-pentanone	0.118	0.126	-6.8	110	0.00	11.90
74		toluene	0.700	0.704	-0.6	107	0.00	12.16
75		3-methyl-1-butanol	0.008	0.008#	0.0	109	0.00	11.92
76		trans-1,3-dichloropropene	0.423	0.422	0.2	106	0.00	12.37
77		ethyl methacrylate	0.362	0.369	-1.9	105	0.00	12.35
78		1,1,2-trichloroethane	0.224	0.230	-2.7	110	0.00	12.59
79		2-hexanone	0.100	0.109	-9.0	111	0.00	12.75
80	I	chlorobenzene-d5	1.000	1.000	0.0	107	0.00	13.61
81		tetrachloroethene	0.383	0.377	1.6	106	0.00	12.75
82		1,3-dichloropropane	0.501	0.494	1.4	108	0.00	12.77
83		butyl acetate	0.224	0.229	-2.2	109	0.00	12.81
84		3,3-Dimethyl-1-Butanol	0.033	0.040	-21.2#	137	0.00	12.92
85		dibromochloromethane	0.375	0.375	0.0	105	0.00	13.03
86		1,2-dibromoethane	0.329	0.332	-0.9	107	0.00	13.19
87		n-Butyl Ether		----------NA----------				
88		chlorobenzene	0.916	0.910	0.7	108	0.00	13.64
89		1,1,1,2-tetrachloroethane	0.351	0.352	-0.3	108	0.00	13.70
90		ethylbenzene	1.536	1.531	0.3	107	0.00	13.68
91		m,p-xylene	0.588	0.588	0.0	107	0.00	13.78
92		o-xylene	0.583	0.596	-2.2	108	0.00	14.20
93		styrene	0.974	0.987	-1.3	106	0.00	14.22
94		Butyl Acrylate		----------NA----------				
95		bromoform	0.279	0.287	-2.9	108	0.00	14.50
96	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	105	0.00	15.91
97		isopropylbenzene	2.653	2.699	-1.7	107	0.00	14.54
98	S	4-bromofluorobenzene (s)	0.757	0.732	3.3	104	0.00	14.75

Initial Calibration Verification

Job Number: JB33197 **Sample:** V3D3579-ICV3579
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3D83184.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

99	bromobenzene	0.747	0.758	-1.5	109	0.00	14.95
100	cyclohexanone	0.020	0.019	5.0	108	0.00	14.73
101	1,1,2,2-tetrachloroethane	0.801	0.792	1.1	107	0.00	14.87
102	trans-1,4-dichloro-2-bute	0.192	0.179	6.8	102	0.00	14.91
103	1,2,3-trichloropropane	0.175	0.182	-4.0	110	0.00	14.94
104	n-propylbenzene	3.106	3.201	-3.1	109	0.00	14.95
105	4-Ethyltoluene		----------NA----------				
106	2-chlorotoluene	0.657	0.655	0.3	107	0.00	15.11
107	4-chlorotoluene	0.655	0.662	-1.1	108	0.00	15.20
108	1,3,5-trimethylbenzene	2.194	2.247	-2.4	108	0.00	15.10
109	tert-butylbenzene	1.858	1.904	-2.5	107	0.00	15.45
110	pentachloroethane	0.487	0.515	-5.7	108	0.00	15.54
111	1,2,4-trimethylbenzene	2.195	2.290	-4.3	110	0.00	15.49
112	sec-butylbenzene	2.859	2.896	-1.3	106	0.00	15.66
113	1,3-dichlorobenzene	1.379	1.407	-2.0	109	0.00	15.86
114	p-isopropyltoluene	2.331	2.458	-5.4	110	0.00	15.78
115	1,4-dichlorobenzene	1.437	1.431	0.4	108	0.00	15.93
116	1,2-dichlorobenzene	1.395	1.423	-2.0	108	0.00	16.32
117	1,4-Diethylbenzene		----------NA----------				
118	n-butylbenzene	0.557	0.570	-2.3	108	0.00	16.18
119	1,2,4,5-Tetramethylbenzen		----------NA----------				
120	1,2-dibromo-3-chloropropa	0.171	0.183	-7.0	111	0.00	17.05
121	1,3,5-trichlorobenzene	1.177	1.196	-1.6	105	0.00	17.20
122	1,2,4-trichlorobenzene	1.105	1.184	-7.1	112	0.00	17.78
123	hexachlorobutadiene	0.554	0.567	-2.3	105	0.00	17.88
124	naphthalene	2.263	2.391	-5.7	111	0.00	18.04
125	1,2,3-trichlorobenzene	0.939	0.994	-5.9	109	0.00	18.27
126	hexachloroethane	0.497	0.519	-4.4	106	0.00	16.55
127	Benzyl chloride	1.481	1.409	4.9	103	0.00	16.05

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3D83179.D M3D3579.M Fri Feb 22 15:47:13 2013 RPT1

Continuing Calibration Summary

Job Number: JB33197 **Sample:** V3D3669-CC3579
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3D85324.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\MSDCHEM\1\DATA\3D\3D85324.D                Vial: 26
Acq On    : 15 Apr 2013  10:23 pm                     Operator: natet
Sample    : cc3579-50                                 Inst    : MS3D
Misc      : MS46061,V3D3669,W,,,,1                    Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\MSDCHEM\1\METHODS\M3D3579.M (RTE Integrator)
Title        : Method SW846 8260B, ZB 624 60m x 0.25mm x 1.4 um
Last Update  : Fri Feb 22 15:43:19 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.010  Min. Rel. Area :  50%  Max. R.T. Dev  0.30min
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	-0.01	7.29
2		1,4-dioxane	0.092	0.071	22.8#	65	-0.01	11.17
3	M	tertiary butyl alcohol	1.031	1.031	0.0	87	-0.01	7.41
4	I	pentafluorobenzene	1.000	1.000	0.0	97	-0.01	9.53
5		chlorodifluoromethane	0.499	0.490	1.8	95	0.00	3.90
6		dichlorodifluoromethane	0.674	0.728	-8.0	100	0.00	3.88
7		chloromethane	0.756	0.739	2.2	95	0.00	4.24
8		vinyl chloride	0.761	0.769	-1.1	99	0.00	4.49
9		bromomethane	0.433	0.444	-2.5	98	0.00	5.15
10		chloroethane	0.342	0.321	6.1	91	0.00	5.33
11		vinyl bromide		----------NA----------				
12		trichlorofluoromethane	0.692	0.748	-8.1	99	0.00	5.78
13		pentane		----------NA----------				
14		ethyl ether	0.259	0.247	4.6	100	0.00	6.18
15		acrolein	0.104	0.088	15.4	83	0.00	6.46
16		1,1-dichloroethene	0.645	0.671	-4.0	100	0.00	6.61
17		acetone	0.040	0.041	-2.5	96	0.00	6.68
18		allyl chloride	0.253	0.257	-1.6	101	-0.01	7.15
19		acetonitrile	0.044	0.035	20.5#	81	0.00	7.14
20		iodomethane	0.777	0.851	-9.5	106	-0.01	6.90
21		iso-butyl alcohol	0.016	0.013	18.8	84	0.00	9.83
22		carbon disulfide	1.551	1.555	-0.3	99	0.00	7.02
23		methylene chloride	0.489	0.480	1.8	99	0.00	7.35
24		methyl acetate	0.077	0.109	-41.6#	140	0.00	7.13
25		methyl tert butyl ether	1.328	1.352	-1.8	100	0.00	7.65
26		trans-1,2-dichloroethene	0.635	0.653	-2.8	99	0.00	7.71
27		di-isopropyl ether	1.572	1.427	9.2	89	0.00	8.24
28		ethyl tert-butyl ether	1.504	1.408	6.4	91	0.00	8.70
29		2-butanone	0.049	0.049	0.0	95	0.00	8.99
30	M	1,1-dichloroethane	0.779	0.799	-2.6	100	-0.01	8.28
31		chloroprene	0.607	0.615	-1.3	97	0.00	8.38
32		acrylonitrile	0.180	0.177	1.7	94	-0.01	7.69
33		vinyl acetate	0.066	0.035	47.0#	48#	0.00	8.27
34		ethyl acetate	0.064	0.059	7.8	90	0.00	8.99
35		2,2-dichloropropane	0.618	0.569	7.9	91	0.00	9.02
36		cis-1,2-dichloroethene	0.772	0.775	-0.4	97	0.00	9.02
37		propionitrile	0.068	0.065	4.4	93	-0.01	9.11
38		methyl acrylate	0.499	0.478	4.2	92	-0.01	9.08
39		bromochloromethane	0.233	0.256	-9.9	105	-0.01	9.34
40		tetrahydrofuran	0.169	0.148	12.4	90	0.00	9.36
41		chloroform	0.729	0.768	-5.3	101	-0.01	9.39

Continuing Calibration Summary

Job Number: JB33197 **Sample:** V3D3669-CC3579
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3D85324.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

42		Tert-Butyl Formate	0.427	0.438	-2.6	98	-0.01	9.41
43	S	dibromofluoromethane (s)	0.389	0.416	-6.9	104	0.00	9.60
44	S	1,2-dichloroethane-d4 (s)	0.409	0.440	-7.6	104	0.00	10.02
45		freon 113	0.307	0.351	-14.3	110	0.00	6.57
46		methacrylonitrile	0.296	0.256	13.5	87	-0.01	9.28
47		1,1,1-trichloroethane	0.631	0.670	-6.2	102	-0.01	9.63
48		tert amyl alcohol		----------NA----------				
49		2,2,4-Trimethylpentane	1.528	1.374	10.1	85	0.00	10.05
50		tert-amyl methyl ether	1.437	1.378	4.1	95	0.00	10.09
51	I	1,4-difluorobenzene	1.000	1.000	0.0	97	-0.01	10.45
52		epichlorohydrin	0.031	0.028	9.7	92	-0.01	11.72
53		n-butyl alcohol	0.009	0.007#	22.2#	80	-0.01	10.58
54	M	cyclohexane	0.456	0.454	0.4	96	0.00	9.69
55		carbon tetrachloride	0.390	0.428	-9.7	107	-0.01	9.83
56		1,1-dichloropropene	0.394	0.410	-4.1	102	0.00	9.81
57		hexane	0.365	0.315	13.7	85	0.00	7.99
58	M	benzene	1.238	1.219	1.5	97	-0.01	10.08
59		heptane	0.206	0.170	17.5	80	0.00	10.22
60		isopropyl acetate	0.642	0.581	9.5	91	-0.01	9.99
61		1,2-dichloroethane	0.364	0.403	-10.7	108	-0.01	10.10
62		trichloroethene	0.292	0.300	-2.7	100	0.00	10.79
63		tert amyl ethyl ether		----------NA----------				
64		2-nitropropane	0.005	0.006#	-20.0	105	-0.01	11.58
65		2-chloroethyl vinyl ether	0.184	0.196	-6.5	104	-0.01	11.59
66		methyl methacrylate	0.469	0.435	7.2	93	-0.01	11.06
67		1,2-dichloropropane	0.310	0.309	0.3	96	-0.01	11.06
68		methylcyclohexane	0.502	0.469	6.6	91	0.00	11.00
69		dibromomethane	0.192	0.204	-6.2	102	0.00	11.23
70		bromodichloromethane	0.384	0.399	-3.9	100	0.00	11.36
71		cis-1,3-dichloropropene	0.482	0.472	2.1	94	-0.01	11.80
72	S	toluene-d8 (s)	0.981	0.988	-0.7	98	-0.01	12.09
73		4-methyl-2-pentanone	0.118	0.118	0.0	94	0.00	11.90
74		toluene	0.700	0.698	0.3	96	0.00	12.16
75		3-methyl-1-butanol	0.008	0.007#	12.5	93	-0.01	11.91
76		trans-1,3-dichloropropene	0.423	0.428	-1.2	97	0.00	12.37
77		ethyl methacrylate	0.362	0.347	4.1	90	-0.01	12.34
78		1,1,2-trichloroethane	0.224	0.223	0.4	97	-0.01	12.58
79		2-hexanone	0.100	0.101	-1.0	93	-0.01	12.74
80	I	chlorobenzene-d5	1.000	1.000	0.0	93	-0.01	13.60
81		tetrachloroethene	0.383	0.394	-2.9	96	-0.01	12.74
82		1,3-dichloropropane	0.501	0.531	-6.0	101	-0.01	12.76
83		butyl acetate	0.224	0.233	-4.0	97	0.00	12.81
84		3,3-Dimethyl-1-Butanol	0.033	0.034	-3.0	101	0.00	12.91
85		dibromochloromethane	0.375	0.409	-9.1	100	0.00	13.03
86		1,2-dibromoethane	0.329	0.349	-6.1	98	-0.01	13.18
87		n-Butyl Ether		----------NA----------				
88		chlorobenzene	0.916	0.952	-3.9	98	-0.01	13.63
89		1,1,1,2-tetrachloroethane	0.351	0.379	-8.0	102	0.00	13.69
90		ethylbenzene	1.536	1.549	-0.8	95	-0.01	13.67
91		m,p-xylene	0.588	0.600	-2.0	96	-0.01	13.78
92		o-xylene	0.583	0.608	-4.3	96	-0.01	14.20
93		styrene	0.974	0.982	-0.8	92	-0.01	14.21
94		Butyl Acrylate		----------NA----------				
95		bromoform	0.279	0.297	-6.5	97	-0.01	14.49
96	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	93	0.00	15.90
97		isopropylbenzene	2.653	2.658	-0.2	93	0.00	14.53
98	S	4-bromofluorobenzene (s)	0.757	0.758	-0.1	96	0.00	14.75

Continuing Calibration Summary

Job Number: JB33197 **Sample:** V3D3669-CC3579
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3D85324.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

99	bromobenzene	0.747	0.757	-1.3	96	-0.01	14.94
100	cyclohexanone	0.020	0.017	15.0	81	-0.01	14.72
101	1,1,2,2-tetrachloroethane	0.801	0.829	-3.5	99	-0.01	14.86
102	trans-1,4-dichloro-2-bute	0.192	0.166	13.5	84	0.00	14.90
103	1,2,3-trichloropropane	0.175	0.192	-9.7	103	-0.01	14.93
104	n-propylbenzene	3.106	3.024	2.6	91	0.00	14.94
105	4-Ethyltoluene		----------NA----------				
106	2-chlorotoluene	0.657	0.659	-0.3	95	-0.01	15.10
107	4-chlorotoluene	0.655	0.669	-2.1	96	0.00	15.19
108	1,3,5-trimethylbenzene	2.194	2.187	0.3	93	-0.01	15.09
109	tert-butylbenzene	1.858	1.872	-0.8	93	-0.01	15.44
110	pentachloroethane	0.487	0.510	-4.7	95	-0.01	15.53
111	1,2,4-trimethylbenzene	2.195	2.196	-0.0	93	-0.01	15.48
112	sec-butylbenzene	2.859	2.803	2.0	91	0.00	15.65
113	1,3-dichlorobenzene	1.379	1.357	1.6	93	-0.01	15.84
114	p-isopropyltoluene	2.331	2.281	2.1	91	0.00	15.77
115	1,4-dichlorobenzene	1.437	1.400	2.6	94	0.00	15.93
116	1,2-dichlorobenzene	1.395	1.408	-0.9	94	-0.01	16.31
117	1,4-Diethylbenzene		----------NA----------				
118	n-butylbenzene	0.557	0.539	3.2	91	-0.01	16.17
119	1,2,4,5-Tetramethylbenzen		----------NA----------				
120	1,2-dibromo-3-chloropropa	0.171	0.196	-14.6	105	-0.01	17.04
121	1,3,5-trichlorobenzene	1.177	1.188	-0.9	92	0.00	17.20
122	1,2,4-trichlorobenzene	1.105	1.163	-5.2	97	0.00	17.77
123	hexachlorobutadiene	0.554	0.560	-1.1	92	-0.01	17.87
124	naphthalene	2.263	2.807	-24.0#	115	0.00	18.04
125	1,2,3-trichlorobenzene	0.939	1.108	-18.0	108	0.00	18.26
126	hexachloroethane	0.497	0.513	-3.2	93	-0.01	16.54
127	Benzyl chloride	1.481	1.268	14.4	82	0.00	16.04

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3D83179.D M3D3579.M Tue Apr 16 16:42:58 2013 RPT1

Initial Calibration Summary

Job Number: JB33197 **Sample:** V4D1526-ICC1526
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 4D33882.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Response Factor Report MS4D

```
Method       : C:\MSDCHEM\1\METHODS\M4D1526.M (RTE Integrator)
Title        : SW-846 Method 8260
Last Update  : Fri Apr 05 18:19:54 2013
Response via : Initial Calibration

Calibration Files
10  =4d33880.D   0.5 =4d33879.D   5   =4d33876.D   50  =4d33882.D
100 =4d33883.D   1   =4d33878.D   200 =4d33884.D   20  =4d33881.D
2   =4d33877.D       =
```

Compound	10	0.5	5	50	100	1	200	20	2	Avg	%RSD
1) I Tert Butyl Alcohol-d9 ----------ISTD----------											
2) 1,4-dioxane	0.138		0.124	0.128	0.122	0.092	0.116	0.138	0.131	0.124	11.94
3) tertiary butyl alcohol	1.496		1.333	1.301	1.242		1.197	1.462	1.475	1.358	8.86
4) I pentafluorobenzene ----------ISTD----------											
5) chlorodifluoromethane	0.560	0.574	0.682	0.604	0.627	0.572	0.649	0.611	0.678	0.617	7.36
6) dichlorodifluoromethane	0.907	0.813	0.933	0.927	0.872	0.672	0.875	0.930	0.918	0.872	9.65
7) chloromethane	0.688	0.729	0.708	0.696	0.672	0.690	0.694	0.684	0.708	0.696	2.39
8) vinyl chloride	0.868	0.899	0.904	0.886	0.854	0.754	0.881	0.871	0.906	0.869	5.38
9) acetaldehyde										0.000	-1.00
10) bromomethane	0.524	0.549	0.539	0.497	0.478	0.514	0.447	0.497	0.571	0.513	7.40
11) chloroethane	0.387	0.329	0.366	0.335	0.337	0.337	0.308	0.336	0.351	0.343	6.63
12) trichlorofluoromethane	1.017	0.901	1.044	1.024	0.967	0.765	0.981	1.024	1.003	0.970	9.06
13) vinyl bromide	0.506	0.696	0.540	0.518		0.561		0.489	0.585	0.556	12.54
14) ethyl ether	0.307	0.356	0.328	0.300	0.295	0.404	0.293	0.307	0.359	0.328	11.64
15) pentane	0.733		0.822	0.685		0.776		0.688	0.829	0.756	8.43
16) 2-chloropropane	0.783		0.895	0.805	0.822		0.850	0.795	0.933	0.840	6.63
17) acrolein	0.114		0.110	0.107		0.107		0.112	0.113	0.111	2.81
18) 1,1-dichloroethene	0.460	0.384	0.549	0.501	0.512	0.549	0.539	0.474	0.611	0.509	12.77
19) acetone	0.162		0.129	0.153	0.126		0.130	0.164		0.144	12.28
20) allyl chloride	0.290		0.337	0.298	0.307	0.310	0.313	0.284	0.328	0.308	5.85
21) acetonitrile	0.033		0.028	0.029	0.030		0.029	0.032	0.024	0.029	10.66
22) iodomethane	0.983	0.850	1.116	1.032	1.066	1.153	1.092	0.999	1.143	1.048	9.12
23) iso-butyl alcohol											

```
            0.020       0.019 0.017 0.017       0.017 0.021 0.022   0.019   11.32
24)  carbon disulfide
            1.729 1.816 2.143 1.904 1.965 2.326 2.045 1.806 2.249   1.998   10.41
25)  methylene chloride
            0.601 0.556 0.657 0.609 0.619 0.654 0.632 0.600 0.705   0.626    6.81
26)  1-chloropropane
            0.807       0.976 0.816 0.829       0.864 0.817 1.104   0.888   12.60
27)  methyl acetate
            0.083       0.077 0.085 0.084       0.085 0.089 0.075   0.083    6.04
28)  methyl tert butyl ether
            1.697 1.541 1.670 1.621 1.617 1.713 1.596 1.722 1.699   1.653    3.75
29)  trans-1,2-dichloroethene
            0.503 0.506 0.596 0.545 0.554 0.648 0.567 0.528 0.635   0.565    9.28
30)  di-isopropyl ether
            1.800 1.759 1.806 1.752 1.769 1.963 1.733 1.852 1.900   1.815    4.21
31)  ethyl tert-butyl ether
            1.822 1.691 1.803 1.782 1.789 1.856 1.784 1.892 1.884   1.811    3.42
32)  2-butanone
            0.060       0.056 0.061 0.060       0.061 0.063 0.047   0.058    9.26
33)  1,1-dichloroethane
            0.950 0.871 1.078 1.005 1.012 1.163 1.040 0.983 1.100   1.022    8.41
34)  chloroprene
            0.664 0.666 0.745 0.707 0.714 0.706 0.738 0.711 0.780   0.715    5.14
35)  acrylonitrile
            0.207 0.146 0.195 0.197 0.192 0.192 0.190 0.211 0.198   0.192    9.61
36)  vinyl acetate
            0.084       0.077 0.088 0.090       0.091 0.090 0.069   0.084    9.85
37)  ethyl acetate
            0.079       0.069 0.071 0.067       0.068 0.076 0.095   0.075   13.23
38)  2,2-dichloropropane
            0.708 0.603 0.879 0.750 0.748 0.932 0.760 0.723 0.884   0.776   13.31
39)  cis-1,2-dichloroethene
            0.595 0.611 0.645 0.619 0.623 0.669 0.639 0.602 0.710   0.635    5.71
40)  propionitrile
            0.079 0.061 0.075 0.074 0.072 0.068 0.072 0.080 0.075   0.073    7.82
41)  methyl acrylate
            0.516       0.469 0.484 0.473 0.565 0.473 0.519 0.432   0.491    8.26
42)  bromochloromethane
            0.324 0.233 0.321 0.319 0.321 0.329 0.327 0.320 0.329   0.314    9.75
43)  tetrahydrofuran
            0.160       0.166 0.146 0.141       0.138 0.160         0.152    7.66
44)  chloroform
            0.998 0.950 1.085 1.024 1.031 1.173 1.050 1.007 1.148   1.052    6.85
45)  dibromofluoromethane (s)
            0.580 0.749 0.618 0.589 0.584 0.665 0.604 0.590 0.689   0.630    9.31
46)  1,2-dichloroethane-d4 (s)
            0.650 0.670 0.649 0.634 0.620 0.661 0.627 0.644 0.725   0.653    4.77
47)  freon 113
            0.313       0.368 0.334 0.346 0.267 0.354 0.334 0.373   0.336   10.18
48)  methacrylonitrile
            0.345 0.315 0.335 0.316 0.311 0.302 0.308 0.335 0.339   0.323    4.86
49)  1,1,1-trichloroethane
            0.752 0.647 0.899 0.828 0.847 0.934 0.884 0.802 0.947   0.838   11.36
50)  tert-amyl methyl ether
            1.752 1.622 1.729 1.693 1.684 1.791 1.669 1.823 1.784   1.728    3.82

51) I   1,4-difluorobenzene   ----------------ISTD---------------------
52)  epichlorohydrin
            0.038 0.026 0.034 0.035 0.034 0.035 0.035 0.040 0.036   0.035   10.47
53)  n-butyl alcohol
```

Initial Calibration Summary

Job Number: JB33197 **Sample:** V4D1526-ICC1526
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 4D33882.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
            0.011       0.010 0.009 0.009 0.009 0.009 0.011 0.010   0.010    7.64
54)  cyclohexane
            0.421       0.521 0.469 0.476 0.540 0.487 0.452 0.562   0.491    9.59
55)  carbon tetrachloride
            0.415 0.324 0.499 0.472 0.479 0.517 0.497 0.442 0.506   0.461   13.16
56)  1,1-dichloropropene
            0.434 0.357 0.518 0.490 0.485 0.563 0.497 0.462 0.556   0.485   13.04
57)  hexane
            0.342 0.431 0.418 0.360 0.358 0.389 0.364 0.369 0.453   0.387    9.84
58)  benzene
            1.346 1.331 1.506 1.420 1.409 1.679 1.424 1.371 1.562   1.450    7.81
59)  heptane
            0.193 0.169 0.237 0.209 0.210 0.204 0.207 0.214 0.245   0.210   10.69
60)  isopropyl acetate
            0.654 0.802 0.605 0.625 0.601 0.751 0.596 0.683 0.618   0.659   11.04
61)  1,2-dichloroethane
            0.498 0.437 0.509 0.499 0.485 0.523 0.481 0.503 0.522   0.495    5.27
62)  trichloroethene
            0.336 0.322 0.385 0.366 0.365 0.434 0.382 0.348 0.403   0.371    9.30
63)  ethyl acrylate
            0.485 0.526 0.476 0.472       0.475       0.498 0.486   0.488    3.83
64)  2-nitropropane
            0.079       0.067 0.074 0.077       0.082 0.078 0.068   0.075    7.38
65)  2-chloroethyl vinyl ether
            0.278 0.236 0.262 0.263 0.253 0.272 0.246 0.287 0.270   0.263    6.04
66)  methyl methacrylate
            0.305 0.262 0.288 0.292 0.281 0.260 0.278 0.303 0.231   0.278    8.44
67)  1,2-dichloropropane
            0.379 0.313 0.403 0.385 0.378 0.428 0.377 0.379 0.426   0.385    8.75
68)  methylcyclohexane
            0.473 0.465 0.547 0.508 0.513 0.477 0.519 0.505 0.579   0.510    7.16
69)  dibromomethane
            0.262 0.218 0.261 0.260 0.254 0.284 0.256 0.266 0.269   0.259    6.87
70)  bromodichloromethane
            0.495 0.445 0.512 0.515 0.515 0.553 0.533 0.508 0.532   0.512    5.89
71)  cis-1,3-dichloropropene
            0.635 0.553 0.646 0.646 0.643 0.693 0.650 0.642 0.661   0.641    5.81
72)  toluene-d8 (s)
            1.198 1.332 1.349 1.272 1.251 1.337 1.314 1.256 1.451   1.307    5.60
73)  4-methyl-2-pentanone
            0.147       0.138 0.141 0.137 0.150 0.139 0.151 0.143   0.143    3.75
74)  toluene
            0.814 0.765 0.915 0.874 0.864 1.008 0.885 0.837 0.951   0.879    8.30
75)  3-methyl-1-butanol
            0.010       0.009 0.009 0.009 0.007 0.009 0.010 0.009   0.009    9.63
76)  trans-1,3-dichloropropene
            0.583 0.533 0.586 0.597 0.592 0.636 0.597 0.594 0.607   0.592    4.56
77)  ethyl methacrylate
            0.496 0.406 0.476 0.493 0.483 0.521 0.487 0.502 0.494   0.484    6.61
78)  1,1,2-trichloroethane
            0.312 0.282 0.309 0.306 0.301 0.353 0.304 0.310 0.322   0.311    6.12
79)  2-hexanone
            0.133       0.123 0.134 0.131 0.145 0.133 0.142 0.130   0.134    5.12

80) I   chlorobenzene-d5      ----------------ISTD---------------------
81)  tetrachloroethene
            0.368 0.315 0.438 0.410 0.420 0.458 0.429 0.398 0.460   0.411   11.21
82)  1,3-dichloropropane
            0.646 0.568 0.634 0.621 0.622 0.692 0.603 0.655 0.650   0.632    5.55
83)  butyl acetate
```

```
            0.292 0.203 0.258 0.259 0.262 0.276 0.259 0.305 0.288   0.267   11.03
 84)  dibromochloromethane
            0.448 0.357 0.440 0.465 0.483 0.480 0.482 0.473 0.429   0.451    8.92
 85)  1,2-dibromoethane
            0.431 0.391 0.414 0.411 0.417 0.457 0.415 0.438 0.427   0.422    4.45
 86)  n-Butyl Ether
                                                                    0.000   -1.00
 87)  chlorobenzene
            1.075 1.031 1.158 1.106 1.137 1.286 1.140 1.113 1.218   1.141    6.64
 88)  1,1,1,2-tetrachloroethane
            0.392 0.317 0.403 0.408 0.424 0.453 0.425 0.406 0.412   0.404    9.16
 89)  ethylbenzene
            1.714 1.625 1.950 1.840 1.885 2.147 1.909 1.813 2.051   1.882    8.50
 90)  m,p-xylene
            0.661 0.606 0.730 0.698 0.713 0.824 0.706 0.690 0.761   0.710    8.61
 91)  o-xylene
            0.665 0.611 0.729 0.696 0.716 0.809 0.707 0.697 0.761   0.710    7.89
 92)  styrene
            1.187 1.091 1.258 1.224 1.264 1.409 1.233 1.234 1.336   1.248    7.12
 93)  butyl acrylate
            0.886 1.025 0.842 0.855       0.876       0.923 0.881   0.898    6.83
 94)  bromoform
            0.297 0.234 0.282 0.307 0.324 0.312 0.328 0.314 0.277   0.297    9.94

 95) I   1,4-dichlorobenzene-d ----------------ISTD---------------------
 96)  isopropylbenzene
            2.995 2.757 3.411 3.242 3.276 3.808 3.321 3.105 3.595   3.279    9.55
 97)  4-bromofluorobenzene (s)
            1.019       1.119 1.034 1.013 1.234 1.032 1.022 1.253   1.091    9.20
 98)  bromobenzene
            0.885 0.766 0.912 0.908 0.923 1.070 0.929 0.900 0.978   0.919    8.73
 99)  cyclohexanone
            0.055       0.059 0.042 0.035 0.092 0.034 0.051 0.079   0.056   36.93
             ----- Linear regression -----  Coefficient =  0.9971
               Response Ratio = 0.03909 + 0.03335 *A

100)  1,1,2,2-tetrachloroethane
            1.065 0.905 1.003 1.012 0.997 1.303 0.977 1.079 1.039   1.042   10.59
101)  trans-1,4-dichloro-2-butene
            0.231 0.199 0.228 0.234 0.236 0.276 0.232 0.247 0.244   0.236    8.49
102)  1,2,3-trichloropropane
            0.248       0.221 0.229 0.227 0.261 0.225 0.242 0.242   0.237    5.78
103)  n-propylbenzene
            3.628 3.334 4.141 3.953 3.975 4.553 3.978 3.777 4.360   3.967    9.26
104)  2-chlorotoluene
            0.761 0.675 0.829 0.816 0.823 0.949 0.836 0.790 0.911   0.821    9.70
105)  4-chlorotoluene
            2.410 2.341 2.605 2.513 2.524 3.058 2.529 2.436 2.802   2.580    8.61
106)  1,3,5-trimethylbenzene
            2.627 2.391 2.906 2.770 2.816 3.134 2.845 2.686 3.044   2.802    7.94
107)  tert-butylbenzene
            2.140 1.935 2.414 2.312 2.339 2.726 2.408 2.224 2.534   2.337    9.75
108)  pentachloroethane
            0.546 0.407 0.549 0.583 0.588 0.653 0.603 0.549 0.586   0.563   11.96
109)  1,2,4-trimethylbenzene
            2.652 2.537 2.994 2.869 2.883 3.320 2.928 2.745 3.107   2.893    8.17
110)  sec-butylbenzene
            3.343 2.910 3.835 3.668 3.675 4.227 3.722 3.488 3.987   3.650   10.41
111)  1,3-dichlorobenzene
            1.611 1.539 1.730 1.654 1.691 2.103 1.719 1.665 1.870   1.731    9.60
```

Initial Calibration Summary

Job Number: JB33197 **Sample:** V4D1526-ICC1526
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 4D33882.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
112)  p-isopropyltoluene
            2.693 2.377 3.028 2.955 2.987 3.369 3.037 2.820 3.201   2.941    9.80
113)  1,4-dichlorobenzene
            1.693 1.732 1.768 1.743 1.760 2.194 1.781 1.726 1.925   1.814    8.65
114)  1,2-dichlorobenzene
            1.636 1.554 1.694 1.671 1.675 2.052 1.700 1.675 1.832   1.721    8.35
115)  n-butylbenzene
            1.494 1.331 1.682 1.635 1.657 1.931 1.692 1.598 1.763   1.643   10.18
116)  1,2-dibromo-3-chloropropane
            0.175       0.169 0.169 0.161 0.199 0.160 0.183 0.174   0.174    7.29
117)  1,2,4-trichlorobenzene
            1.176 1.166 1.212 1.247 1.163 1.607 1.116 1.235 1.322   1.249   11.74
118)  hexachlorobutadiene
            0.527 0.509 0.592 0.581 0.561 0.699 0.537 0.562 0.643   0.579   10.30
119)  naphthalene
            2.873 2.831 2.790 2.868 2.559 3.657 2.388 3.039 3.002   2.890   12.23
120)  1,2,3-trichlorobenzene
            1.081 1.067 1.105 1.109 0.960 1.396 0.873 1.137 1.194   1.102   13.24
121)  hexachloroethane
            0.547 0.409 0.598 0.627 0.644 0.673 0.690 0.584 0.623   0.599   14.00
122)  Benzyl chloride
            2.122       2.006 1.951 1.926 2.007 1.931 2.172 2.165   2.035    5.07
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           M4D1526.M         Fri Apr 05 18:23:58 2013   RPT1
```

Initial Calibration Verification

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Sample: V4D1526-ICV1526
Lab FileID: 4D33887.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\data\4d33887.D Vial: 13
Acq On : 5 Apr 2013 4:07 pm Operator: juntaep
Sample : icv1526-50 Inst : MS4D
Misc : MS45753,V4D1526,,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\M4D1526.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Fri Apr 05 18:19:54 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	105	0.00	7.12
2		1,4-dioxane	0.124	0.129	-4.0	106	0.00	11.39
3	M	tertiary butyl alcohol	1.358	1.275	6.1	103	0.00	7.27
4	I	pentafluorobenzene	1.000	1.000	0.0	107	0.00	9.69
5		chlorodifluoromethane	0.617	0.558	9.6	98	0.00	3.44
6		dichlorodifluoromethane	0.872	0.842	3.4	97	0.00	3.43
7		chloromethane	0.696	0.655	5.9	100	0.00	3.75
8		vinyl chloride	0.869	0.838	3.6	101	0.00	4.03
9		acetaldehyde		----------NA----------				
10		bromomethane	0.513	0.471	8.2	101	0.00	4.70
11		chloroethane	0.343	0.357	-4.1	114	0.00	4.89
12		trichlorofluoromethane	0.970	0.936	3.5	97	0.00	5.45
13		vinyl bromide	0.556	0.471	15.3	97	0.00	5.28
14		ethyl ether	0.328	0.291	11.3	103	0.00	5.90
15		pentane	0.756	0.631	16.5	98	0.00	5.55
16		2-chloropropane	0.840	0.767	8.7	102	0.00	6.10
17		acrolein	0.111	0.104	6.3	103	0.00	6.13
18		1,1-dichloroethene	0.509	0.476	6.5	101	0.00	6.35
19		acetone	0.144	0.129	10.4	90	0.00	6.40
20		allyl chloride	0.308	0.284	7.8	102	0.00	6.95
21		acetonitrile	0.029	0.029	0.0	104	0.00	6.85
22		iodomethane	1.048	1.013	3.3	105	0.00	6.62
23		iso-butyl alcohol	0.019	0.017	10.5	102	0.00	9.98
24		carbon disulfide	1.998	1.819	9.0	102	0.00	6.76
25		methylene chloride	0.626	0.603	3.7	106	0.00	7.14
26		1-chloropropane	0.888	0.774	12.8	101	0.00	7.20
27		methyl acetate	0.083	0.122	-47.0#	152	0.00	6.95
28		methyl tert butyl ether	1.653	1.578	4.5	104	0.00	7.59
29		trans-1,2-dichloroethene	0.565	0.522	7.6	102	0.00	7.59
30		di-isopropyl ether	1.815	1.750	3.6	107	0.00	8.30
31		ethyl tert-butyl ether	1.811	1.768	2.4	106	0.00	8.83
32		2-butanone	0.058	0.059	-1.7	104	0.00	9.04
33	M	1,1-dichloroethane	1.022	0.972	4.9	103	0.00	8.24
34		chloroprene	0.715	0.737	-3.1	111	0.00	8.38
35		acrylonitrile	0.192	0.187	2.6	101	0.00	7.50
36		vinyl acetate	0.084	0.040	52.4#	49#	0.00	8.27
37		ethyl acetate	0.075	0.069	8.0	104	0.00	9.10
38		2,2-dichloropropane	0.776	0.670	13.7	95	0.00	9.08
39		cis-1,2-dichloroethene	0.635	0.598	5.8	103	0.00	9.06
40		propionitrile	0.073	0.072	1.4	104	0.00	9.12
41		methyl acrylate	0.491	0.467	4.9	103	0.00	9.17

Initial Calibration Verification

Job Number: JB33197 **Sample:** V4D1526-ICV1526
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 4D33887.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

42		bromochloromethane	0.314	0.314	0.0	105	0.00	9.39
43		tetrahydrofuran	0.152	0.138	9.2	101	0.00	9.45
44		chloroform	1.052	0.992	5.7	103	0.00	9.47
45	S	dibromofluoromethane (s)	0.630	0.561	11.0	102	0.00	9.68
46	S	1,2-dichloroethane-d4 (s)	0.653	0.598	8.4	101	0.00	10.13
47		freon 113	0.336	0.356	-6.0	114	0.00	6.36
48		methacrylonitrile	0.323	0.301	6.8	102	0.00	9.34
49		1,1,1-trichloroethane	0.838	0.785	6.3	101	0.00	9.76
50		tert-amyl methyl ether	1.728	1.664	3.7	105	0.00	10.32
51	I	1,4-difluorobenzene	1.000	1.000	0.0	107	0.00	10.65
52		epichlorohydrin	0.035	0.035	0.0	105	0.00	11.95
53		n-butyl alcohol	0.010	0.009	10.0	103	0.00	10.78
54	M	cyclohexane	0.491	0.440	10.4	100	0.00	9.86
55		carbon tetrachloride	0.461	0.445	3.5	101	0.00	9.99
56		1,1-dichloropropene	0.485	0.461	4.9	101	0.00	9.96
57		hexane	0.387	0.375	3.1	111	0.00	8.02
58	M	benzene	1.450	1.367	5.7	103	0.00	10.23
59		heptane	0.210	0.219	-4.3	112	0.00	10.50
60		isopropyl acetate	0.659	0.619	6.1	106	0.00	10.21
61		1,2-dichloroethane	0.495	0.474	4.2	101	0.00	10.23
62		trichloroethene	0.371	0.349	5.9	102	0.00	11.00
63		ethyl acrylate	0.488	0.457	6.4	103	0.00	11.04
64		2-nitropropane	0.075	0.070	6.7	100	0.00	11.80
65		2-chloroethyl vinyl ether	0.263	0.262	0.4	107	0.00	11.86
66		methyl methacrylate	0.278	0.279	-0.4	102	0.00	11.32
67		1,2-dichloropropane	0.385	0.372	3.4	103	0.00	11.27
68		methylcyclohexane	0.510	0.524	-2.7	110	0.00	11.26
69		dibromomethane	0.259	0.254	1.9	105	0.00	11.41
70		bromodichloromethane	0.512	0.500	2.3	104	0.00	11.56
71		cis-1,3-dichloropropene	0.641	0.620	3.3	102	0.00	12.07
72	S	toluene-d8 (s)	1.307	1.208	7.6	101	0.00	12.40
73		4-methyl-2-pentanone	0.143	0.136	4.9	103	0.00	12.20
74		toluene	0.879	0.840	4.4	103	0.00	12.48
75		3-methyl-1-butanol	0.009	0.009	0.0	106	0.00	12.21
76		trans-1,3-dichloropropene	0.592	0.572	3.4	102	0.00	12.67
77		ethyl methacrylate	0.484	0.472	2.5	102	0.00	12.71
78		1,1,2-trichloroethane	0.311	0.300	3.5	105	0.00	12.89
79		2-hexanone	0.134	0.128	4.5	102	0.00	13.12
80	I	chlorobenzene-d5	1.000	1.000	0.0	105	0.00	14.01
81		tetrachloroethene	0.411	0.397	3.4	101	0.00	13.11
82		1,3-dichloropropane	0.632	0.606	4.1	102	0.00	13.09
83		butyl acetate	0.267	0.266	0.4	107	0.00	13.22
84		dibromochloromethane	0.451	0.463	-2.7	104	0.00	13.36
85		1,2-dibromoethane	0.422	0.413	2.1	105	0.00	13.52
86		n-Butyl Ether		----------NA----------				
87		chlorobenzene	1.141	1.100	3.6	104	0.00	14.04
88		1,1,1,2-tetrachloroethane	0.404	0.405	-0.2	104	0.00	14.11
89		ethylbenzene	1.882	1.819	3.3	104	0.00	14.13
90		m,p-xylene	0.710	0.683	3.8	102	0.00	14.24
91		o-xylene	0.710	0.691	2.7	104	0.00	14.69
92		styrene	1.248	1.220	2.2	104	0.00	14.69
93		butyl acrylate	0.898	0.850	5.3	104	0.00	14.53
94		bromoform	0.297	0.306	-3.0	104	0.00	14.93
95	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	106	0.00	16.43
96		isopropylbenzene	3.279	3.159	3.7	103	0.00	15.06
97	S	4-bromofluorobenzene (s)	1.091	0.983	9.9	101	0.00	15.25
98		bromobenzene	0.919	0.902	1.8	105	0.00	15.44

Initial Calibration Verification

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: V4D1526-ICV1526
Lab FileID: 4D33887.D

		True	Calc.	% Drift			
99	cyclohexanone	500.000	370.708	25.9#	73	0.00	15.19

		AvgRF	CCRF	% Dev			
100	1,1,2,2-tetrachloroethane	1.042	0.998	4.2	104	0.00	15.34
101	trans-1,4-dichloro-2-bute	0.236	0.224	5.1	101	0.00	15.39
102	1,2,3-trichloropropane	0.237	0.223	5.9	103	0.00	15.41
103	n-propylbenzene	3.967	3.820	3.7	102	0.00	15.49
104	2-chlorotoluene	0.821	0.810	1.3	105	0.00	15.62
105	4-chlorotoluene	2.580	2.446	5.2	103	0.00	15.72
106	1,3,5-trimethylbenzene	2.802	2.725	2.7	104	0.00	15.64
107	tert-butylbenzene	2.337	2.252	3.6	103	0.00	16.00
108	pentachloroethane	0.563	0.569	-1.1	103	0.00	16.05
109	1,2,4-trimethylbenzene	2.893	2.795	3.4	103	0.00	16.04
110	sec-butylbenzene	3.650	3.528	3.3	102	0.00	16.22
111	1,3-dichlorobenzene	1.731	1.663	3.9	106	0.00	16.37
112	p-isopropyltoluene	2.941	2.862	2.7	103	0.00	16.34
113	1,4-dichlorobenzene	1.814	1.726	4.9	105	0.00	16.46
114	1,2-dichlorobenzene	1.721	1.654	3.9	105	0.00	16.83
115	n-butylbenzene	1.643	1.601	2.6	104	0.00	16.74
116	1,2-dibromo-3-chloropropa	0.174	0.167	4.0	105	0.00	17.56
117	1,2,4-trichlorobenzene	1.249	1.247	0.2	106	0.00	18.34
118	hexachlorobutadiene	0.579	0.571	1.4	104	0.00	18.46
119	naphthalene	2.890	2.861	1.0	106	0.00	18.60
120	1,2,3-trichlorobenzene	1.102	1.107	-0.5	106	0.00	18.82
121	hexachloroethane	0.599	0.616	-2.8	104	0.00	17.10
122	Benzyl chloride	2.035	1.773	12.9	96	0.00	16.57

(#) = Out of Range SPCC's out = 0 CCC's out = 0
4d33882.D M4D1526.M Fri Apr 05 18:23:13 2013 RPT1

Initial Calibration Verification

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: V4D1526-ICV1526
Lab FileID: 4D33888.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\data\4d33888.D                    Vial: 14
Acq On    :  5 Apr 2013   4:36 pm                      Operator: juntaep
Sample    : icv1526-50                                 Inst    : MS4D
Misc      : MS45753,V4D1526,,,,,1                      Multiplr: 1.00
MS Integration Params: rteint.p

Method       : C:\MSDCHEM\1\METHODS\M4D1526.M (RTE Integrator)
Title        : SW-846 Method 8260
Last Update  : Fri Apr 05 18:19:54 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	7.12
2		1,4-dioxane		----------NA----------				
3	M	tertiary butyl alcohol		----------NA----------				
4	I	pentafluorobenzene	1.000	1.000	0.0	107	0.00	9.69
5		chlorodifluoromethane		----------NA----------				
6		dichlorodifluoromethane		----------NA----------				
7		chloromethane		----------NA----------				
8		vinyl chloride		----------NA----------				
9		acetaldehyde		----------NA----------				
10		bromomethane		----------NA----------				
11		chloroethane		----------NA----------				
12		trichlorofluoromethane		----------NA----------				
13		vinyl bromide		----------NA----------				
14		ethyl ether		----------NA----------				
15		pentane		----------NA----------				
16		2-chloropropane		----------NA----------				
17		acrolein		----------NA----------				
18		1,1-dichloroethene		----------NA----------				
19		acetone		----------NA----------				
20		allyl chloride		----------NA----------				
21		acetonitrile		----------NA----------				
22		iodomethane		----------NA----------				
23		iso-butyl alcohol		----------NA----------				
24		carbon disulfide		----------NA----------				
25		methylene chloride		----------NA----------				
26		1-chloropropane		----------NA----------				
27		methyl acetate	0.083	0.078	6.0	98	0.00	6.95
28		methyl tert butyl ether		----------NA----------				
29		trans-1,2-dichloroethene		----------NA----------				
30		di-isopropyl ether		----------NA----------				
31		ethyl tert-butyl ether		----------NA----------				
32		2-butanone		----------NA----------				
33	M	1,1-dichloroethane		----------NA----------				
34		chloroprene		----------NA----------				
35		acrylonitrile		----------NA----------				
36		vinyl acetate	0.084	0.086	-2.4	104	0.00	8.27
37		ethyl acetate	0.075	0.068	9.3	103	0.00	9.10
38		2,2-dichloropropane		----------NA----------				
39		cis-1,2-dichloroethene		----------NA----------				
40		propionitrile		----------NA----------				
41		methyl acrylate		----------NA----------				

Initial Calibration Verification

Job Number: JB33197 **Sample:** V4D1526-ICV1526
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 4D33888.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

42		bromochloromethane		----------NA----------				
43		tetrahydrofuran		----------NA----------				
44		chloroform		----------NA----------				
45	S	dibromofluoromethane (s)	0.630	0.605	4.0	109	0.00	9.68
46	S	1,2-dichloroethane-d4 (s)	0.653	0.629	3.7	106	0.00	10.13
47		freon 113		----------NA----------				
48		methacrylonitrile		----------NA----------				
49		1,1,1-trichloroethane		----------NA----------				
50		tert-amyl methyl ether		----------NA----------				
51	I	1,4-difluorobenzene	1.000	1.000	0.0	108	0.00	10.65
52		epichlorohydrin		----------NA----------				
53		n-butyl alcohol		----------NA----------				
54	M	cyclohexane		----------NA----------				
55		carbon tetrachloride		----------NA----------				
56		1,1-dichloropropene		----------NA----------				
57		hexane		----------NA----------				
58	M	benzene		----------NA----------				
59		heptane		----------NA----------				
60		isopropyl acetate		----------NA----------				
61		1,2-dichloroethane		----------NA----------				
62		trichloroethene		----------NA----------				
63		ethyl acrylate		----------NA----------				
64		2-nitropropane		----------NA----------				
65		2-chloroethyl vinyl ether		----------NA----------				
66		methyl methacrylate		----------NA----------				
67		1,2-dichloropropane		----------NA----------				
68		methylcyclohexane		----------NA----------				
69		dibromomethane		----------NA----------				
70		bromodichloromethane		----------NA----------				
71		cis-1,3-dichloropropene		----------NA----------				
72	S	toluene-d8 (s)	1.307	1.309	-0.2	112	0.00	12.40
73		4-methyl-2-pentanone		----------NA----------				
74		toluene		----------NA----------				
75		3-methyl-1-butanol		----------NA----------				
76		trans-1,3-dichloropropene		----------NA----------				
77		ethyl methacrylate		----------NA----------				
78		1,1,2-trichloroethane		----------NA----------				
79		2-hexanone		----------NA----------				
80	I	chlorobenzene-d5	1.000	1.000	0.0	105	0.00	14.01
81		tetrachloroethene		----------NA----------				
82		1,3-dichloropropane		----------NA----------				
83		butyl acetate	0.267	0.253	5.2	103	0.00	13.22
84		dibromochloromethane		----------NA----------				
85		1,2-dibromoethane		----------NA----------				
86		n-Butyl Ether		----------NA----------				
87		chlorobenzene		----------NA----------				
88		1,1,1,2-tetrachloroethane		----------NA----------				
89		ethylbenzene		----------NA----------				
90		m,p-xylene		----------NA----------				
91		o-xylene		----------NA----------				
92		styrene		----------NA----------				
93		butyl acrylate		----------NA----------				
94		bromoform		----------NA----------				
95	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	106	0.00	16.43
96		isopropylbenzene		----------NA----------				
97	S	4-bromofluorobenzene (s)	1.091	1.056	3.2	108	0.00	15.25
98		bromobenzene		----------NA----------				

Initial Calibration Verification

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: V4D1526-ICV1526
Lab FileID: 4D33888.D

		True	Calc.	% Drift
99	cyclohexanone		NA	

		AvgRF	CCRF	% Dev
100	1,1,2,2-tetrachloroethane		NA	
101	trans-1,4-dichloro-2-bute		NA	
102	1,2,3-trichloropropane		NA	
103	n-propylbenzene		NA	
104	2-chlorotoluene		NA	
105	4-chlorotoluene		NA	
106	1,3,5-trimethylbenzene		NA	
107	tert-butylbenzene		NA	
108	pentachloroethane		NA	
109	1,2,4-trimethylbenzene		NA	
110	sec-butylbenzene		NA	
111	1,3-dichlorobenzene		NA	
112	p-isopropyltoluene		NA	
113	1,4-dichlorobenzene		NA	
114	1,2-dichlorobenzene		NA	
115	n-butylbenzene		NA	
116	1,2-dibromo-3-chloropropa		NA	
117	1,2,4-trichlorobenzene		NA	
118	hexachlorobutadiene		NA	
119	naphthalene		NA	
120	1,2,3-trichlorobenzene		NA	
121	hexachloroethane		NA	
122	Benzyl chloride		NA	

(#) = Out of Range SPCC's out = 0 CCC's out = 0
4d33882.D M4D1526.M Fri Apr 05 18:28:55 2013 RPT1

6.7.13

6

Continuing Calibration Summary

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: V4D1545-CC1526
Lab FileID: 4D34333.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\data\4d34333.D Vial: 2
Acq On : 16 Apr 2013 10:16 am Operator: juntaep
Sample : cc1526-20 Inst : MS4D
Misc : MS46532,V4D1545,,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\M4D1526.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Fri Apr 05 18:19:54 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	116	-0.01	7.11
2		1,4-dioxane	0.124	0.127	-2.4	107	0.00	11.39
3	M	tertiary butyl alcohol	1.358	1.204	11.3	95	-0.01	7.25
4	I	pentafluorobenzene	1.000	1.000	0.0	96	0.00	9.69
5		chlorodifluoromethane	0.617	0.407	34.0#	64	-0.01	3.43
6		dichlorodifluoromethane	0.872	0.949	-8.8	98	-0.01	3.42
7		chloromethane	0.696	0.747	-7.3	105	-0.02	3.73
8		vinyl chloride	0.869	0.846	2.6	93	-0.02	4.01
9		acetaldehyde		----------NA----------				
10		bromomethane	0.513	0.555	-8.2	107	-0.01	4.68
11		chloroethane	0.343	0.416	-21.3#	119	0.00	4.89
12		trichlorofluoromethane	0.970	1.075	-10.8	101	0.00	5.45
13		vinyl bromide		----------NA----------				
14		ethyl ether	0.328	0.295	10.1	92	-0.01	5.90
15		pentane		----------NA----------				
16		2-chloropropane	0.840	0.783	6.8	95	0.00	6.09
17		acrolein	0.111	0.123	-10.8	105	0.00	6.12
18		1,1-dichloroethene	0.509	0.517	-1.6	105	0.00	6.35
19		acetone	0.144	0.164	-13.9	96	0.00	6.40
20		allyl chloride	0.308	0.292	5.2	99	0.00	6.94
21		acetonitrile	0.029	0.030	-3.4	90	0.00	6.85
22		iodomethane	1.048	1.031	1.6	99	0.00	6.62
23		iso-butyl alcohol	0.019	0.021	-10.5	97	0.00	9.98
24		carbon disulfide	1.998	1.953	2.3	104	0.00	6.76
25		methylene chloride	0.626	0.622	0.6	100	0.00	7.13
26		1-chloropropane	0.888	0.813	8.4	96	0.00	7.20
27		methyl acetate	0.083	0.089	-7.2	96	0.00	6.94
28		methyl tert butyl ether	1.653	1.531	7.4	86	-0.01	7.57
29		trans-1,2-dichloroethene	0.565	0.564	0.2	103	0.00	7.59
30		di-isopropyl ether	1.815	1.491	17.9	77	-0.01	8.30
31		ethyl tert-butyl ether	1.811	1.501	17.1	76	0.00	8.82
32		2-butanone	0.058	0.072	-24.1#	109	0.00	9.04
33	M	1,1-dichloroethane	1.022	1.009	1.3	99	0.00	8.23
34		chloroprene	0.715	0.611	14.5	83	0.00	8.38
35		acrylonitrile	0.192	0.242	-26.0#	111	0.00	7.50
36		vinyl acetate	0.084	0.081	3.6	87	0.00	8.26
37		ethyl acetate	0.075	0.076	-1.3	96	0.00	9.10
38		2,2-dichloropropane	0.776	0.740	4.6	98	0.00	9.08
39		cis-1,2-dichloroethene	0.635	0.625	1.6	100	0.00	9.06
40		propionitrile	0.073	0.094	-28.8#	114	0.00	9.11
41		methyl acrylate	0.491	0.576	-17.3	107	0.00	9.17

Continuing Calibration Summary

Job Number: JB33197 **Sample:** V4D1545-CC1526
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 4D34333.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

42		bromochloromethane	0.314	0.325	-3.5	98	0.00	9.39
43		tetrahydrofuran	0.152	0.175	-15.1	105	0.00	9.45
44		chloroform	1.052	1.018	3.2	97	0.00	9.47
45	S	dibromofluoromethane (s)	0.630	0.608	3.5	99	0.00	9.68
46	S	1,2-dichloroethane-d4 (s)	0.653	0.623	4.6	93	0.00	10.13
47		freon 113	0.336	0.294	12.5	84	-0.01	6.35
48		methacrylonitrile	0.323	0.351	-8.7	101	0.00	9.34
49		1,1,1-trichloroethane	0.838	0.821	2.0	98	0.00	9.76
50		tert-amyl methyl ether	1.728	1.523	11.9	80	0.00	10.32
51	I	1,4-difluorobenzene	1.000	1.000	0.0	97	0.00	10.64
52		epichlorohydrin	0.035	0.044	-25.7#	108	0.00	11.95
53		n-butyl alcohol	0.010	0.013	-30.0#	112	0.00	10.78
54	M	cyclohexane	0.491	0.483	1.6	103	0.00	9.86
55		carbon tetrachloride	0.461	0.474	-2.8	104	0.00	9.99
56		1,1-dichloropropene	0.485	0.486	-0.2	102	0.00	9.96
57		hexane	0.387	0.329	15.0	86	0.00	8.02
58	M	benzene	1.450	1.410	2.8	100	0.00	10.23
59		heptane	0.210	0.207	1.4	94	0.00	10.50
60		isopropyl acetate	0.659	0.634	3.8	90	0.00	10.21
61		1,2-dichloroethane	0.495	0.485	2.0	93	0.00	10.22
62		trichloroethene	0.371	0.370	0.3	103	0.00	10.99
63		ethyl acrylate		----------NA----------				
64		2-nitropropane	0.075	0.094	-25.3#	117	0.00	11.80
65		2-chloroethyl vinyl ether	0.263	0.273	-3.8	92	0.00	11.85
66		methyl methacrylate	0.278	0.303	-9.0	97	0.00	11.32
67		1,2-dichloropropane	0.385	0.379	1.6	97	0.00	11.26
68		methylcyclohexane	0.510	0.486	4.7	93	0.00	11.26
69		dibromomethane	0.259	0.272	-5.0	99	0.00	11.41
70		bromodichloromethane	0.512	0.502	2.0	96	0.00	11.56
71		cis-1,3-dichloropropene	0.641	0.621	3.1	94	0.00	12.07
72	S	toluene-d8 (s)	1.307	1.301	0.5	100	0.00	12.40
73		4-methyl-2-pentanone	0.143	0.166	-16.1	107	0.00	12.20
74		toluene	0.879	0.852	3.1	99	0.00	12.48
75		3-methyl-1-butanol	0.009	0.011	-22.2#	110	0.00	12.21
76		trans-1,3-dichloropropene	0.592	0.569	3.9	93	0.00	12.67
77		ethyl methacrylate	0.484	0.498	-2.9	96	0.00	12.71
78		1,1,2-trichloroethane	0.311	0.321	-3.2	100	0.00	12.89
79		2-hexanone	0.134	0.156	-16.4	106	0.00	13.12
80	I	chlorobenzene-d5	1.000	1.000	0.0	99	0.00	14.01
81		tetrachloroethene	0.411	0.421	-2.4	105	0.00	13.10
82		1,3-dichloropropane	0.632	0.639	-1.1	97	0.00	13.09
83		butyl acetate	0.267	0.284	-6.4	92	0.00	13.22
84		dibromochloromethane	0.451	0.481	-6.7	101	0.00	13.36
85		1,2-dibromoethane	0.422	0.451	-6.9	102	0.00	13.52
86		n-Butyl Ether		----------NA----------				
87		chlorobenzene	1.141	1.095	4.0	98	0.00	14.04
88		1,1,1,2-tetrachloroethane	0.404	0.403	0.2	98	0.00	14.11
89		ethylbenzene	1.882	1.835	2.5	100	0.00	14.13
90		m,p-xylene	0.710	0.697	1.8	100	0.00	14.24
91		o-xylene	0.710	0.688	3.1	98	0.00	14.69
92		styrene	1.248	1.180	5.4	95	0.00	14.69
93		butyl acrylate		----------NA----------				
94		bromoform	0.297	0.345	-16.2	109	0.00	14.93
95	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	96	0.00	16.43
96		isopropylbenzene	3.279	3.223	1.7	100	0.00	15.06
97	S	4-bromofluorobenzene (s)	1.091	1.023	6.2	97	0.00	15.25
98		bromobenzene	0.919	0.906	1.4	97	0.00	15.44

Continuing Calibration Summary

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: V4D1545-CC1526
Lab FileID: 4D34333.D

		True	Calc.	% Drift			
99	cyclohexanone	200.000	359.710	-79.9#	132	0.00	15.19

		AvgRF	CCRF	% Dev			
100	1,1,2,2-tetrachloroethane	1.042	1.173	-12.6	105	0.00	15.34
101	trans-1,4-dichloro-2-bute	0.236	0.254	-7.6	99	0.00	15.39
102	1,2,3-trichloropropane	0.237	0.270	-13.9	108	0.00	15.41
103	n-propylbenzene	3.967	3.976	-0.2	102	0.00	15.49
104	2-chlorotoluene	0.821	0.826	-0.6	101	0.00	15.62
105	4-chlorotoluene	2.580	2.491	3.4	99	0.00	15.72
106	1,3,5-trimethylbenzene	2.802	2.730	2.6	98	0.00	15.64
107	tert-butylbenzene	2.337	2.288	2.1	99	0.00	16.00
108	pentachloroethane	0.563	0.566	-0.5	99	0.00	16.05
109	1,2,4-trimethylbenzene	2.893	2.812	2.8	99	0.00	16.04
110	sec-butylbenzene	3.650	3.673	-0.6	102	0.00	16.22
111	1,3-dichlorobenzene	1.731	1.670	3.5	97	0.00	16.37
112	p-isopropyltoluene	2.941	2.896	1.5	99	0.00	16.34
113	1,4-dichlorobenzene	1.814	1.725	4.9	96	0.00	16.46
114	1,2-dichlorobenzene	1.721	1.669	3.0	96	0.00	16.83
115	n-butylbenzene	1.643	1.659	-1.0	100	0.00	16.74
116	1,2-dibromo-3-chloropropa	0.174	0.206	-18.4	108	0.00	17.56
117	1,2,4-trichlorobenzene	1.249	1.244	0.4	97	0.00	18.33
118	hexachlorobutadiene	0.579	0.602	-4.0	103	0.00	18.46
119	naphthalene	2.890	3.271	-13.2	104	0.00	18.60
120	1,2,3-trichlorobenzene	1.102	1.161	-5.4	99	0.00	18.82
121	hexachloroethane	0.599	0.628	-4.8	104	0.00	17.10
122	Benzyl chloride	2.035	2.847	-39.9#	126	0.00	16.57

(#) = Out of Range SPCC's out = 0 CCC's out = 0
4d33881.D M4D1526.M Tue Apr 16 15:06:10 2013 RPT1

New Jersey

ACCUTEST LABORATORIES

GC/MS Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\OLD DATA\4d34300\
Data File : 4d34350.D
Acq On : 16 Apr 2013 6:41 pm
Operator : juntaep
Sample : jb33197-1
Misc : MS46061,V4D1545,,,,,1
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Apr 17 10:14:48 2013
Quant Method : C:\MSDCHEM\1\METHODS\M4D1526.M
Quant Title : SW-846 Method 8260
QLast Update : Fri Apr 05 18:19:54 2013
Response via : Initial Calibration

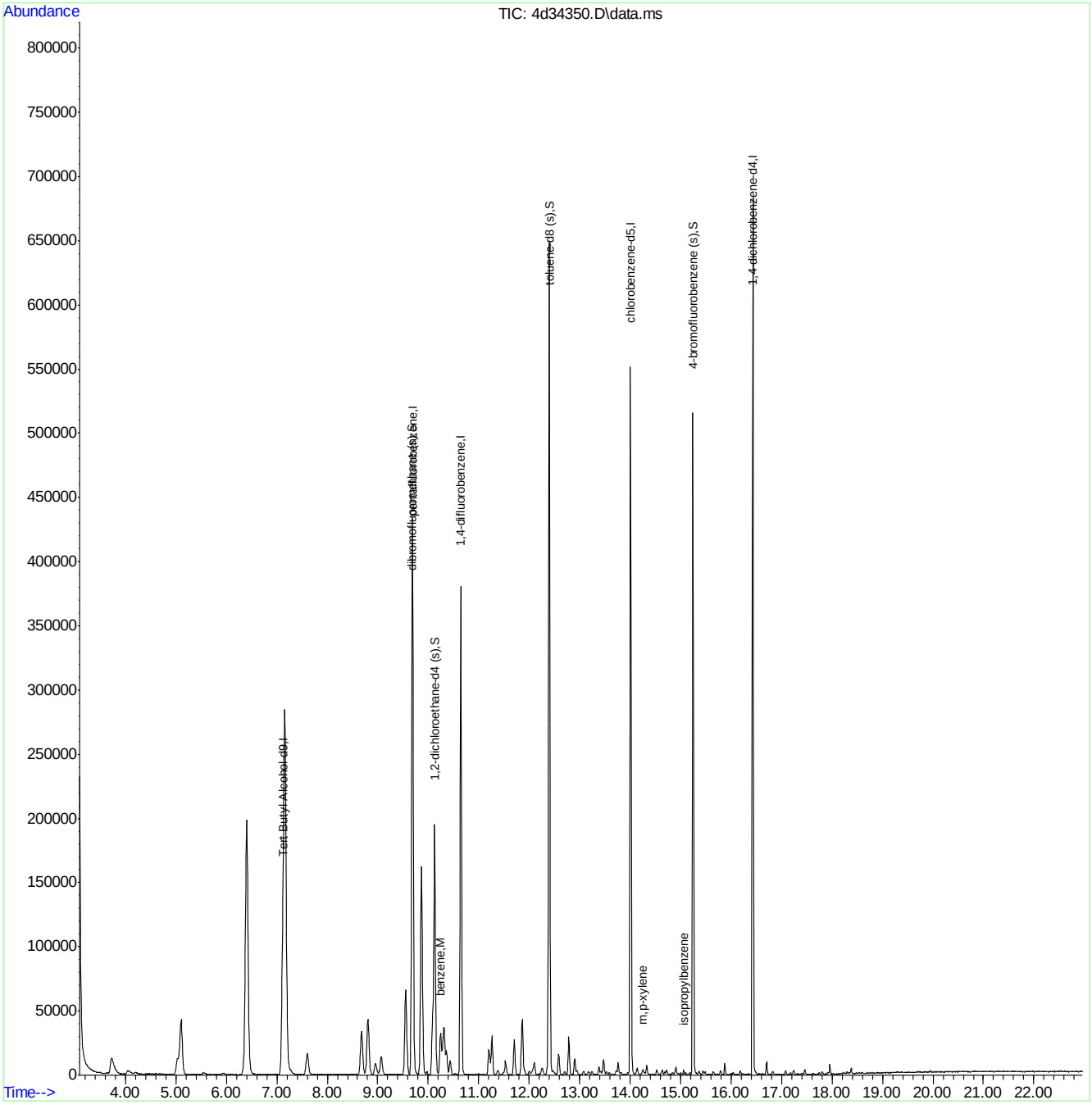
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	7.119	65	130550	500.00	ug/L	0.00
4) pentafluorobenzene	9.693	168	219344	50.00	ug/L	0.00
51) 1,4-difluorobenzene	10.647	114	334749	50.00	ug/L	0.00
80) chlorobenzene-d5	14.008	117	306166	50.00	ug/L	0.00
95) 1,4-dichlorobenzene-d4	16.430	152	164290	50.00	ug/L	0.00
System Monitoring Compounds						
45) dibromofluoromethane (s)	9.677	113	131657	47.65	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 95.30%			
46) 1,2-dichloroethane-d4 (s)	10.128	65	134964	47.09	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 94.18%			
72) toluene-d8 (s)	12.398	98	437013	49.95	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 99.90%			
97) 4-bromofluorobenzene (s)	15.245	95	168035	46.89	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 93.78%			
Target Compounds						Qvalue
58) benzene	10.233	78	4501	0.46	ug/L	97
90) m,p-xylene	14.249	106	1246	0.29	ug/L	85
96) isopropylbenzene	15.062	105	2819	0.26	ug/L	95

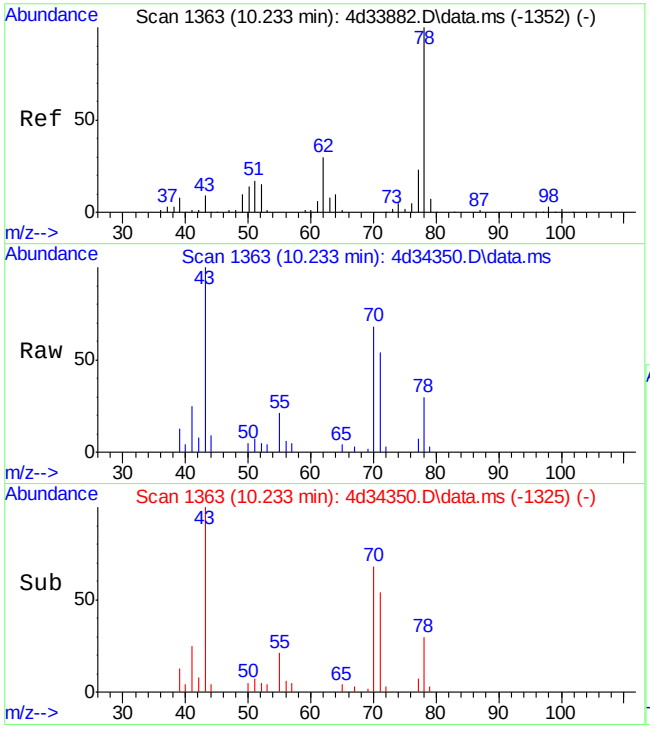
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\OLD DATA\4d34300\
Data File : 4d34350.D
Acq On : 16 Apr 2013 6:41 pm
Operator : juntaep
Sample : jb33197-1
Misc : MS46061,V4D1545,,,,,1
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Apr 17 10:14:48 2013
Quant Method : C:\MSDCHEM\1\METHODS\M4D1526.M
Quant Title : SW-846 Method 8260
QLast Update : Fri Apr 05 18:19:54 2013
Response via : Initial Calibration

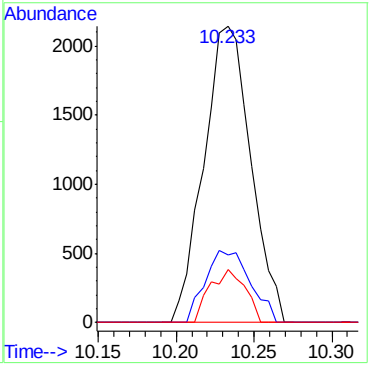


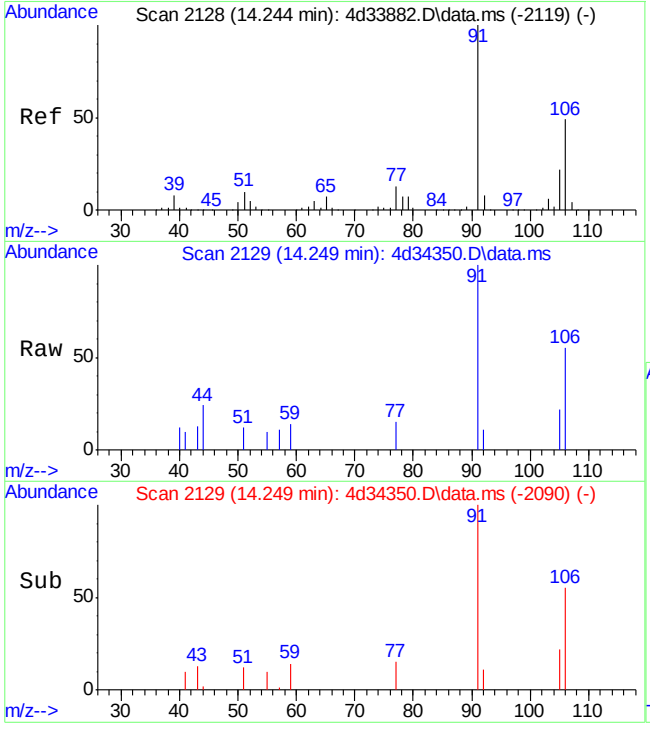


#58
benzene
Concen: 0.46 ug/L
RT: 10.233 min Scan# 1363
Delta R.T. -0.000 min
Lab File: 4d34350.D
Acq: 16 Apr 2013 6:41 pm

Tgt Ion: 78 Resp: 4501

Ion	Ratio	Lower	Upper
78	100		
77	22.8	0.0	53.3
52	17.8	0.0	45.0

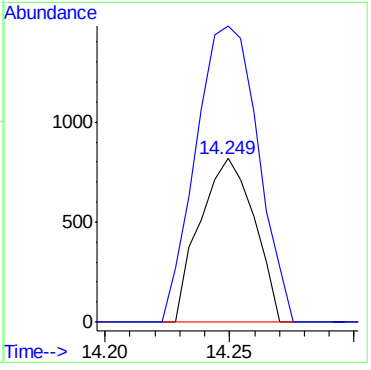


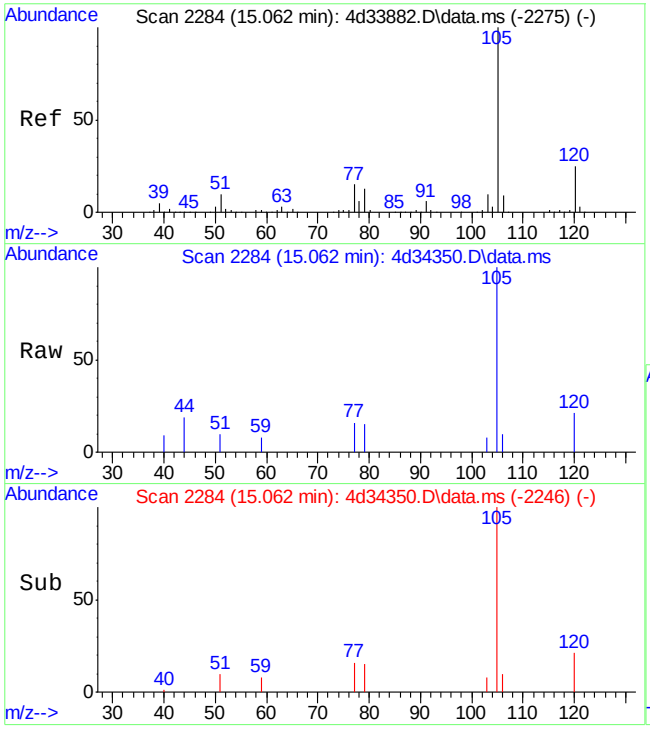


#90
m,p-xylene
Concen: 0.29 ug/L
RT: 14.249 min Scan# 2129
Delta R.T. 0.005 min
Lab File: 4d34350.D
Acq: 16 Apr 2013 6:41 pm

Tgt Ion:106 Resp: 1246

Ion	Ratio	Lower	Upper
106	100		
91	181.2	143.2	266.0

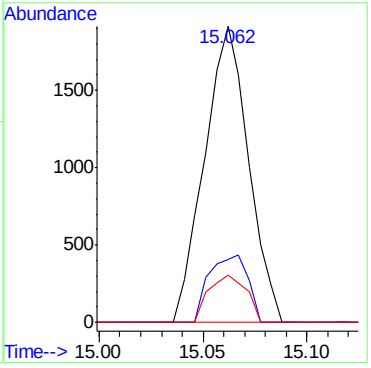




#96
isopropylbenzene
Concen: 0.26 ug/L
RT: 15.062 min Scan# 2284
Delta R.T. -0.000 min
Lab File: 4d34350.D
Acq: 16 Apr 2013 6:41 pm

Tgt Ion:105 Resp: 2819

Ion	Ratio	Lower	Upper
105	100		
120	21.3	0.0	55.0
77	15.8	0.0	45.3



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2E\v2e4025-29\
Data File : 2E89486.D
Acq On : 17 Apr 2013 2:06 pm
Operator : dipap
Sample : jb33197-2
Misc : MS46061,V2E4025,5,,,,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Apr 17 17:29:56 2013
Quant Method : C:\msdchem\1\METHODS\M2E3957.M
Quant Title : SW-846 Method 8260B, ZB624 60Mx0.25MMx1.4UM
QLast Update : Fri Mar 22 12:55:44 2013
Response via : Initial Calibration

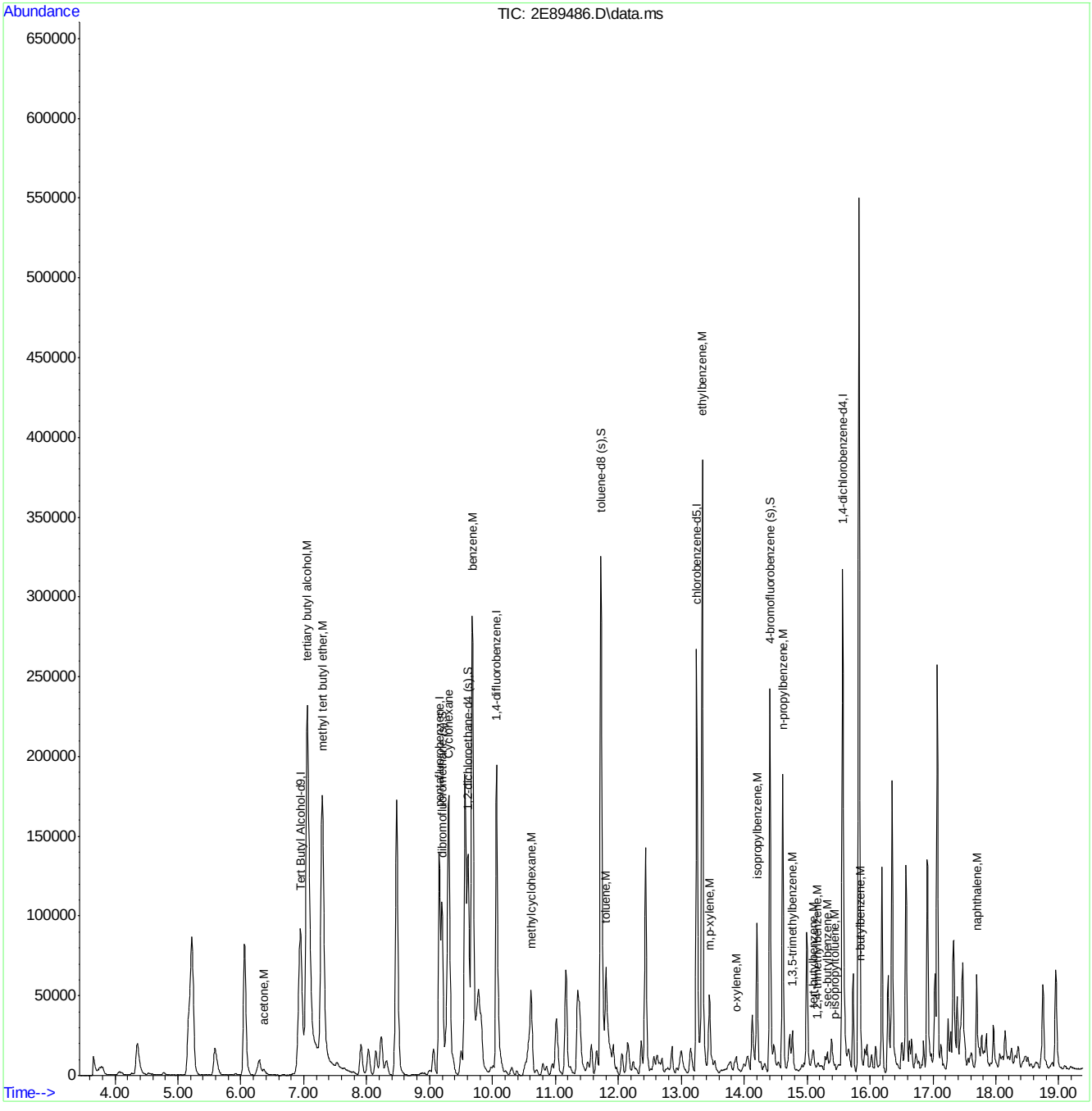
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	6.953	65	106401	500.00	ug/L	-0.02
7) pentafluorobenzene	9.155	168	128147	50.00	ug/L	0.00
56) 1,4-difluorobenzene	10.062	114	194348	50.00	ug/L	-0.01
84) chlorobenzene-d5	13.245	117	159235	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	15.567	152	82225	50.00	ug/L	0.00
System Monitoring Compounds						
48) dibromofluoromethane (s)	9.197	113	65719	45.75	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 91.50%			
49) 1,2-dichloroethane-d4 (s)	9.611	65	80463	44.21	ug/L	-0.01
Spiked Amount 50.000	Range 74 - 127		Recovery = 88.42%			
76) toluene-d8 (s)	11.724	98	246128	46.40	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 92.80%			
100) 4-bromofluorobenzene (s)	14.409	95	91237	52.00	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 104.00%			
Target Compounds						Qvalue
3) tertiary butyl alcohol	7.053	59	518044	1893.22	ug/L	93
24) acetone	6.366	58	2836	13.42	ug/L #	64
31) methyl tert butyl ether	7.294	73	177498	35.99	ug/L #	50
53) Cyclohexane	9.307	84	84260	35.52	ug/L #	40
63) benzene	9.679	78	239802	37.56	ug/L	100
72) methylcyclohexane	10.618	83	24973	10.78	ug/L	96
78) toluene	11.803	92	26971	7.84	ug/L	94
93) ethylbenzene	13.334	91	275150	43.17	ug/L	100
94) m,p-xylene	13.449	106	13720	5.72	ug/L	97
95) o-xylene	13.869	106	1693	0.71	ug/L	84
99) isopropylbenzene	14.204	105	57726	9.84	ug/L	100
106) n-propylbenzene	14.613	91	155619	22.62	ug/L	98
109) 1,3,5-trimethylbenzene	14.765	105	11929	2.41	ug/L	94
110) tert-butylbenzene	15.106	119	1625	1.07	ug/L	98
112) 1,2,4-trimethylbenzene	15.164	105	1703	0.35	ug/L	86
113) sec-butylbenzene	15.321	105	8268	1.30	ug/L	91
115) p-isopropyltoluene	15.441	119	1758	0.82	ug/L	96
118) n-butylbenzene	15.850	92	4046	1.49	ug/L #	80
123) naphthalene	17.696	128	43940	7.56	ug/L	98

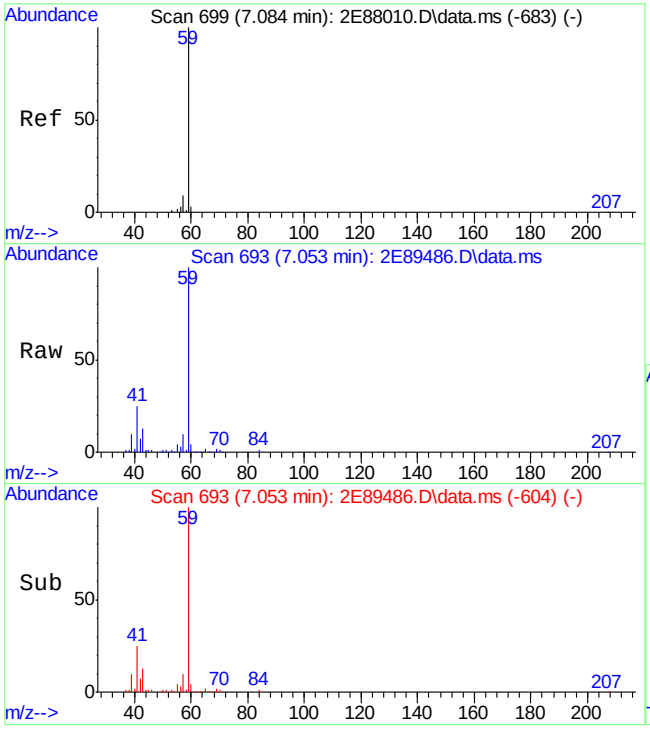
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2E\v2e4025-29\
Data File : 2E89486.D
Acq On : 17 Apr 2013 2:06 pm
Operator : dipap
Sample : jb33197-2
Misc : MS46061,V2E4025,5,,,,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Apr 17 17:29:56 2013
Quant Method : C:\msdchem\1\METHODS\M2E3957.M
Quant Title : SW-846 Method 8260B, ZB624 60Mx0.25MMx1.4UM
QLast Update : Fri Mar 22 12:55:44 2013
Response via : Initial Calibration

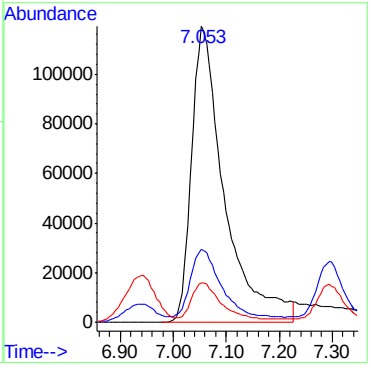


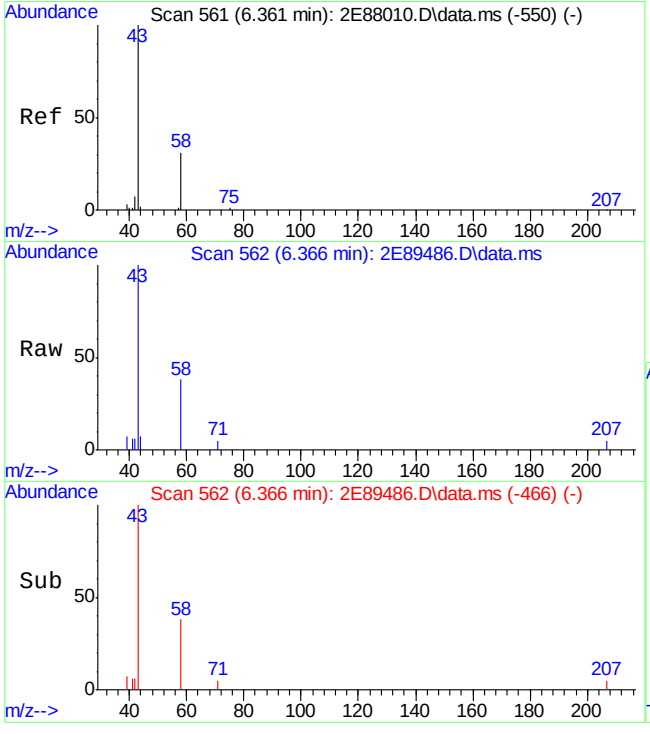


#3
tertiary butyl alcohol
Concen: 1893.22 ug/L
RT: 7.053 min Scan# 693
Delta R.T. -0.031 min
Lab File: 2E89486.D
Acq: 17 Apr 2013 2:06 pm

Tgt Ion: 59 Resp: 518044

Ion	Ratio	Lower	Upper
59	100		
41	24.6	0.0	58.3
43	13.5	0.0	46.6

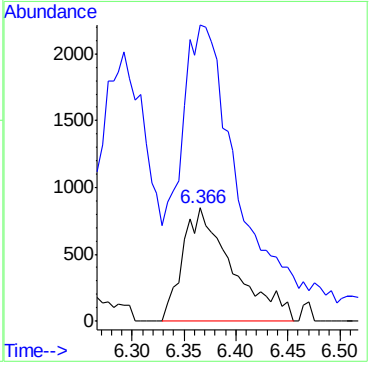


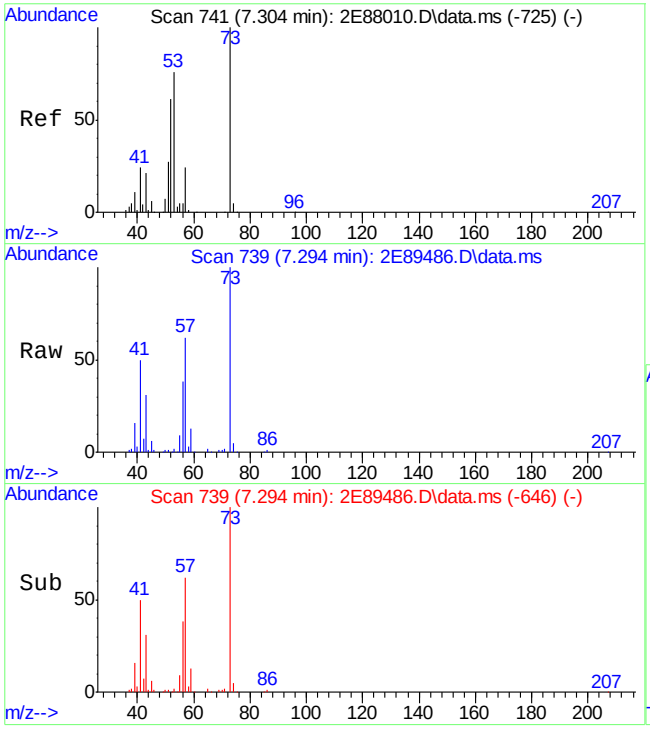


#24
acetone
Concen: 13.42 ug/L
RT: 6.366 min Scan# 562
Delta R.T. 0.005 min
Lab File: 2E89486.D
Acq: 17 Apr 2013 2:06 pm

Tgt Ion: 58 Resp: 2836

Ion	Ratio	Lower	Upper
58	100		
43	262.2	307.5	367.5#

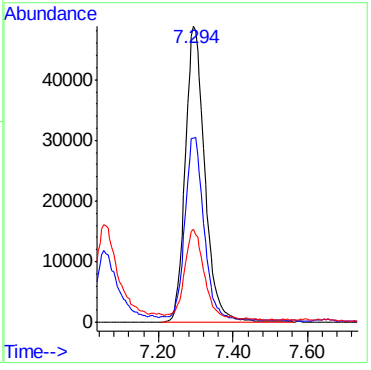


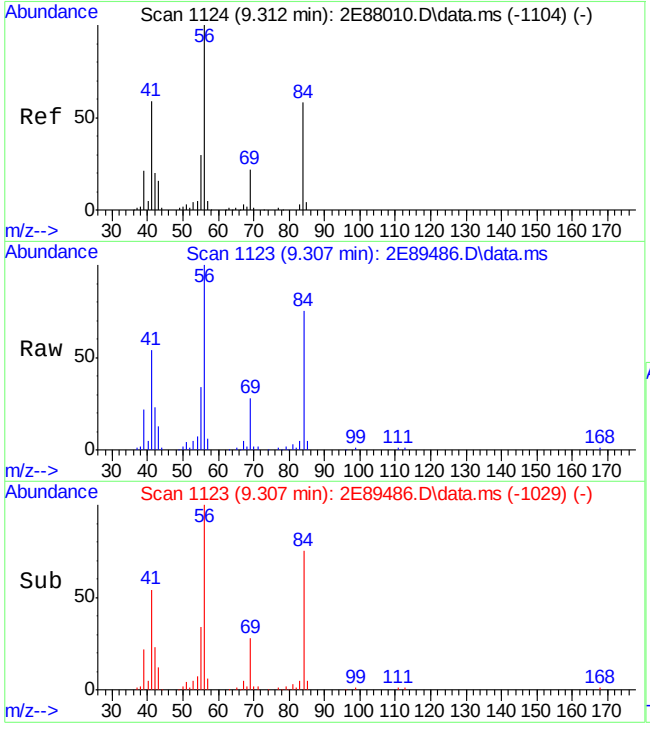


#31
methyl tert butyl ether
Concen: 35.99 ug/L
RT: 7.294 min Scan# 739
Delta R.T. -0.010 min
Lab File: 2E89486.D
Acq: 17 Apr 2013 2:06 pm

Tgt Ion: 73 Resp: 177498

Ion	Ratio	Lower	Upper
73	100		
57	62.0	0.0	54.6#
43	31.5	0.0	51.5

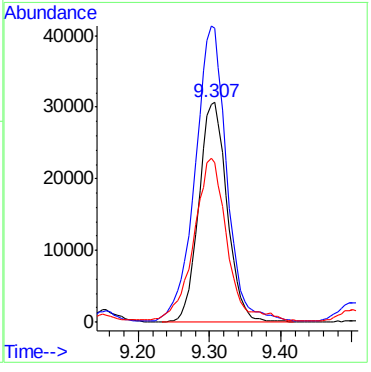


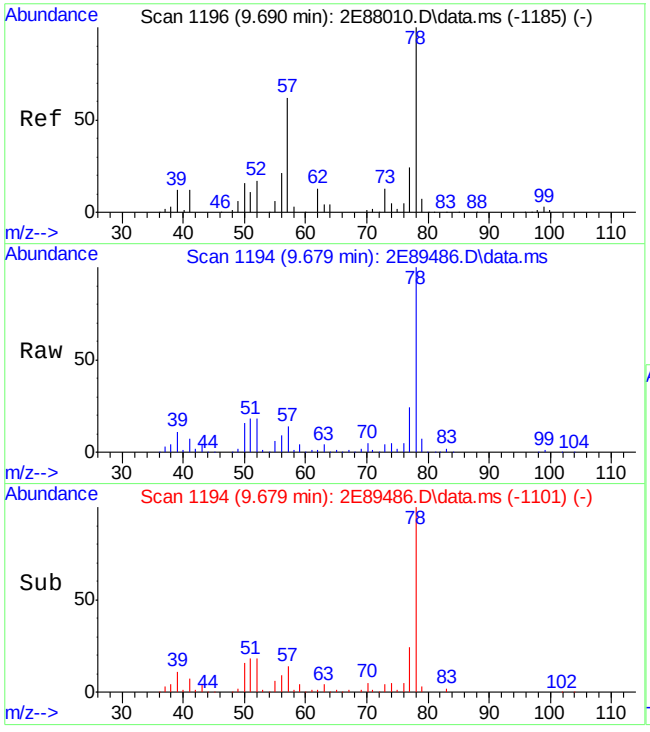


#53
Cyclohexane
Concen: 35.52 ug/L
RT: 9.307 min Scan# 1123
Delta R.T. -0.005 min
Lab File: 2E89486.D
Acq: 17 Apr 2013 2:06 pm

Tgt Ion: 84 Resp: 84260

Ion	Ratio	Lower	Upper
84	100		
56	148.8	246.4	286.4#
41	87.3	134.4	174.4#

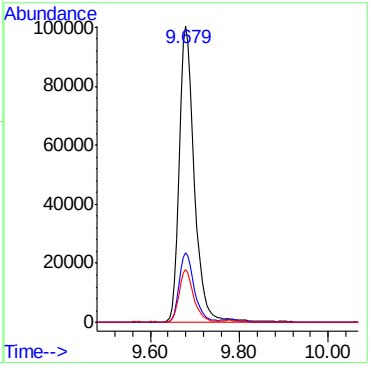


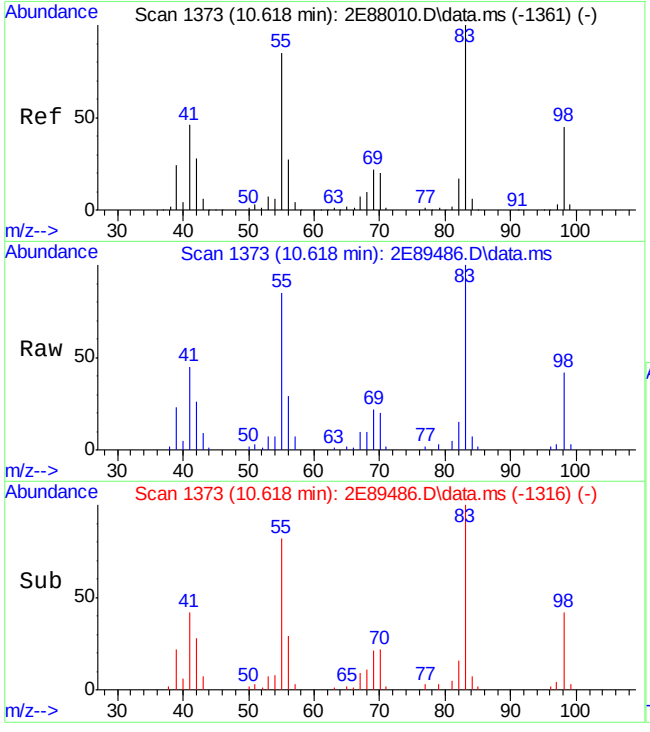


#63
benzene
Concen: 37.56 ug/L
RT: 9.679 min Scan# 1194
Delta R.T. -0.010 min
Lab File: 2E89486.D
Acq: 17 Apr 2013 2:06 pm

Tgt Ion: 78 Resp: 239802

Ion	Ratio	Lower	Upper
78	100		
77	23.7	0.0	53.6
52	17.7	0.0	47.4

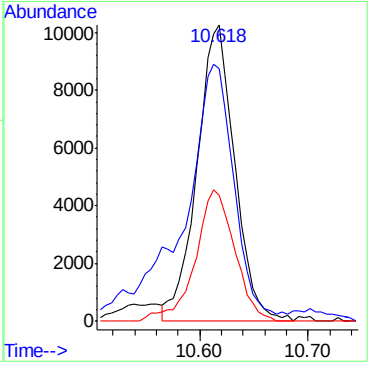


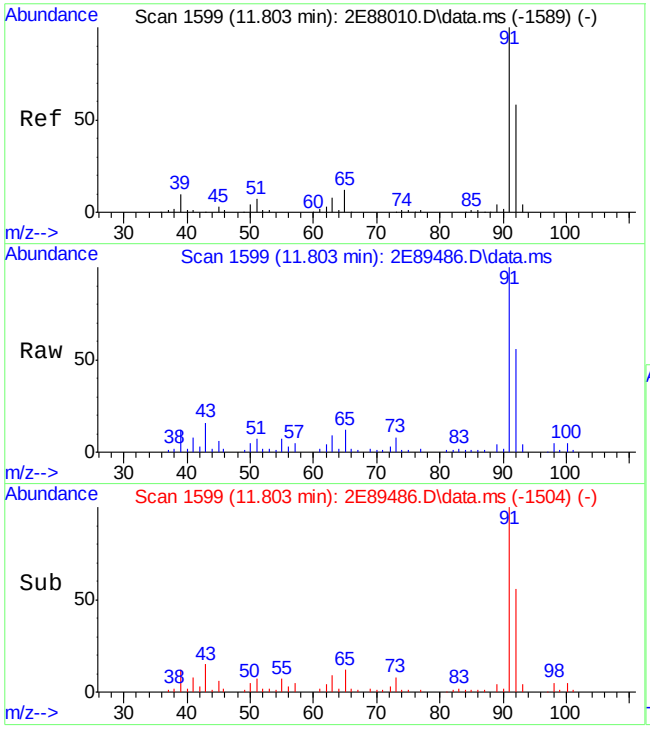


#72
methylcyclohexane
Concen: 10.78 ug/L
RT: 10.618 min Scan# 1373
Delta R.T. 0.000 min
Lab File: 2E89486.D
Acq: 17 Apr 2013 2:06 pm

Tgt Ion: 83 Resp: 24973

Ion	Ratio	Lower	Upper
83	100		
55	82.1	56.1	116.1
98	42.4	14.8	74.8

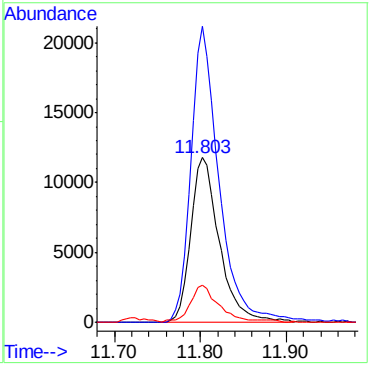


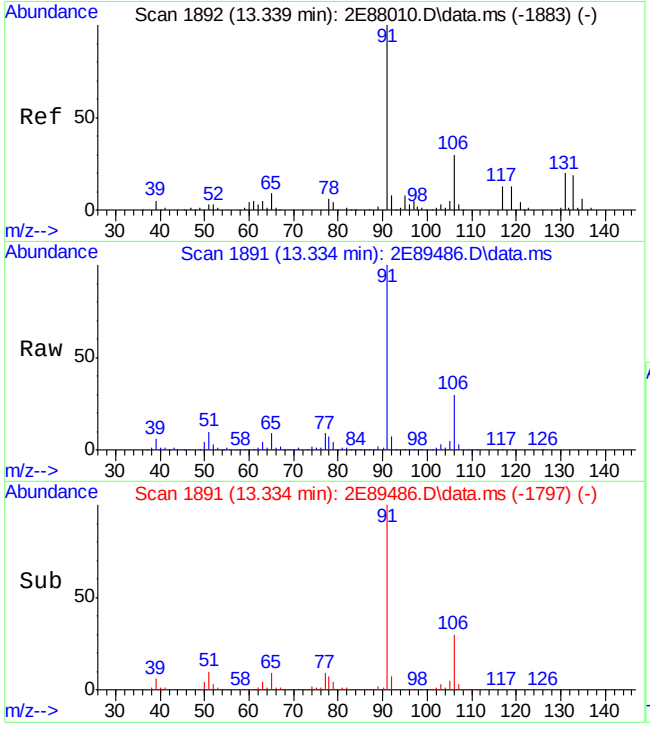


#78
toluene
Concen: 7.84 ug/L
RT: 11.803 min Scan# 1599
Delta R.T. 0.000 min
Lab File: 2E89486.D
Acq: 17 Apr 2013 2:06 pm

Tgt Ion: 92 Resp: 26971

Ion	Ratio	Lower	Upper
92	100		
91	179.5	141.0	201.0
65	22.2	0.0	50.4

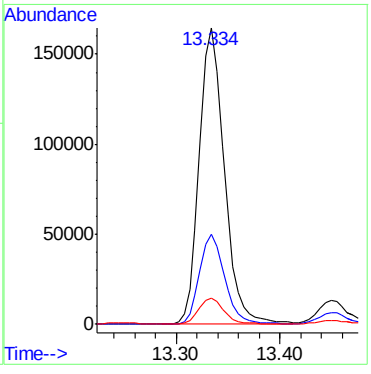


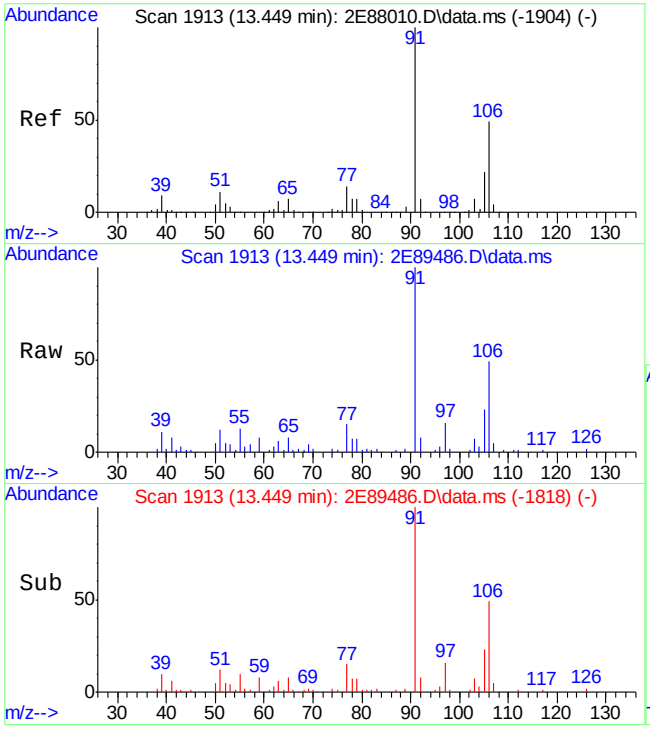


#93
ethylbenzene
Concen: 43.17 ug/L
RT: 13.334 min Scan# 1891
Delta R.T. -0.005 min
Lab File: 2E89486.D
Acq: 17 Apr 2013 2:06 pm

Tgt Ion: 91 Resp: 275150

Ion	Ratio	Lower	Upper
91	100		
106	30.2	0.1	60.1
77	8.5	0.0	38.7

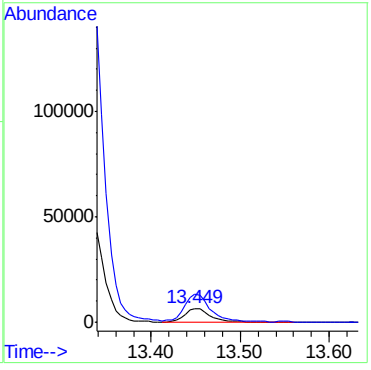


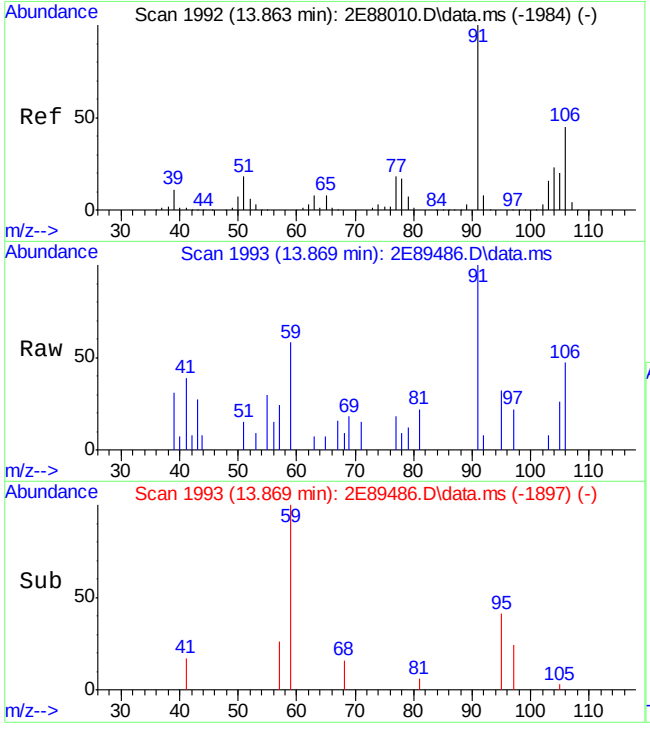


#94
m,p-xylene
Concen: 5.72 ug/L
RT: 13.449 min Scan# 1913
Delta R.T. 0.000 min
Lab File: 2E89486.D
Acq: 17 Apr 2013 2:06 pm

Tgt Ion:106 Resp: 13720

Ion	Ratio	Lower	Upper
106	100		
91	198.8	141.9	263.5

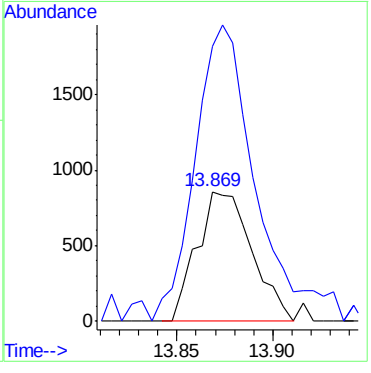




#95
o-xylene
Concen: 0.71 ug/L
RT: 13.869 min Scan# 1993
Delta R.T. 0.005 min
Lab File: 2E89486.D
Acq: 17 Apr 2013 2:06 pm

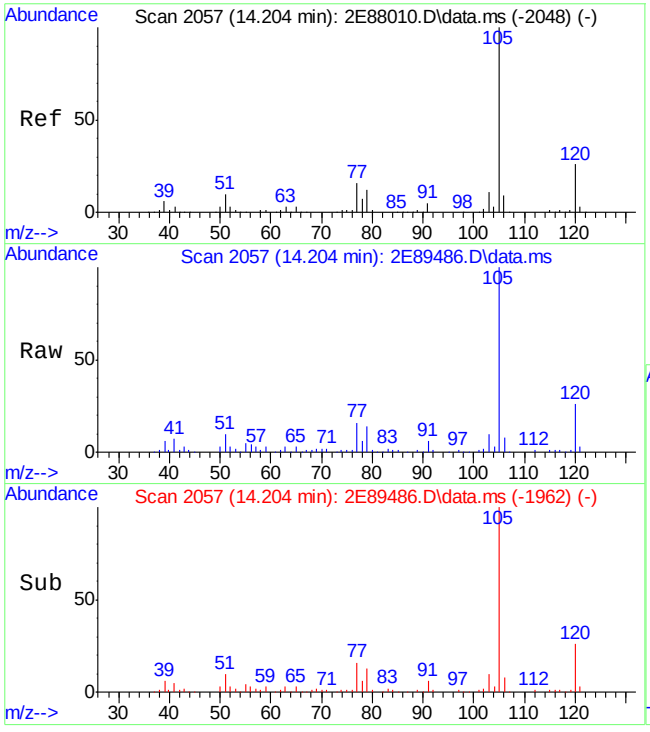
Tgt Ion:106 Resp: 1693

Ion	Ratio	Lower	Upper
106	100		
91	194.7	154.8	287.6



7.1.2

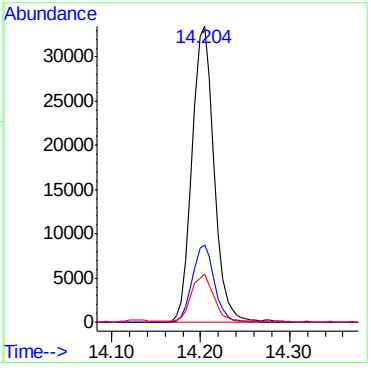
7

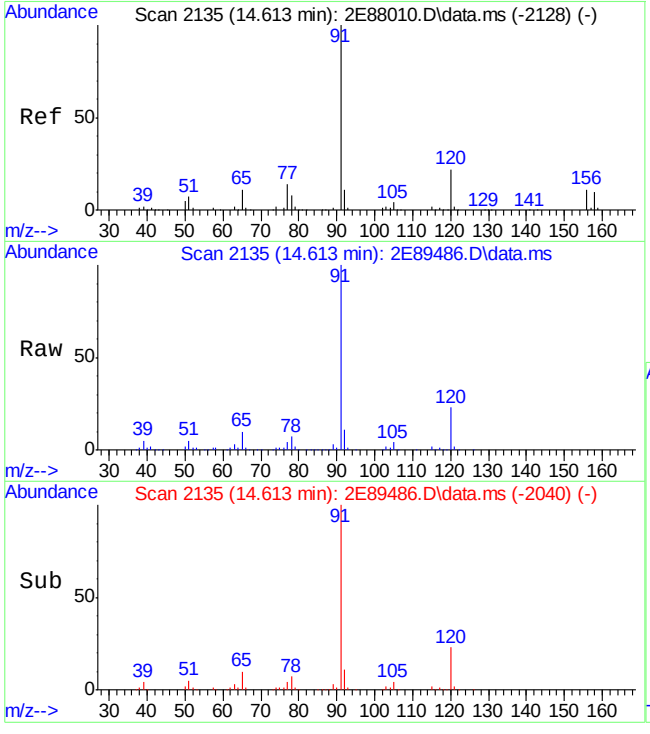


#99
isopropylbenzene
Concen: 9.84 ug/L
RT: 14.204 min Scan# 2057
Delta R.T. 0.000 min
Lab File: 2E89486.D
Acq: 17 Apr 2013 2:06 pm

Tgt Ion:105 Resp: 57726

Ion	Ratio	Lower	Upper
105	100		
120	26.1	0.0	56.0
77	16.5	0.0	46.3

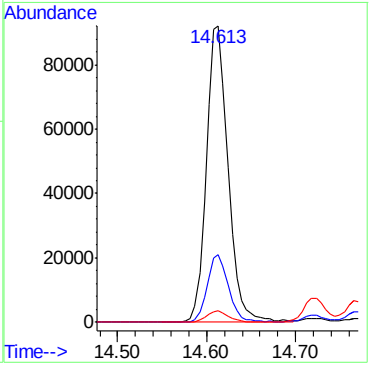


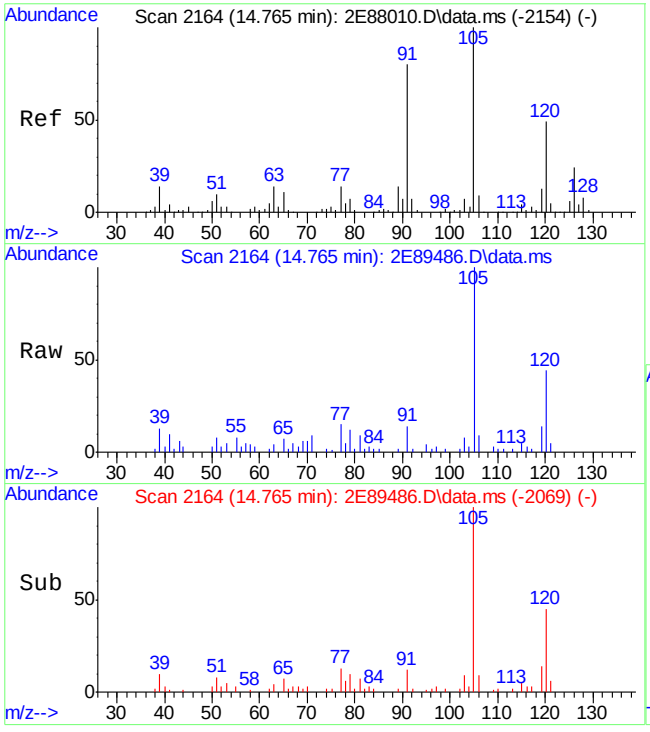


#106
n-propylbenzene
Concen: 22.62 ug/L
RT: 14.613 min Scan# 2135
Delta R.T. 0.000 min
Lab File: 2E89486.D
Acq: 17 Apr 2013 2:06 pm

Tgt Ion: 91 Resp: 155619

Ion	Ratio	Lower	Upper
91	100		
120	22.9	0.0	52.1
105	3.8	0.0	33.5

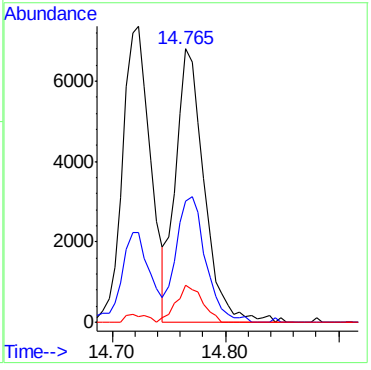


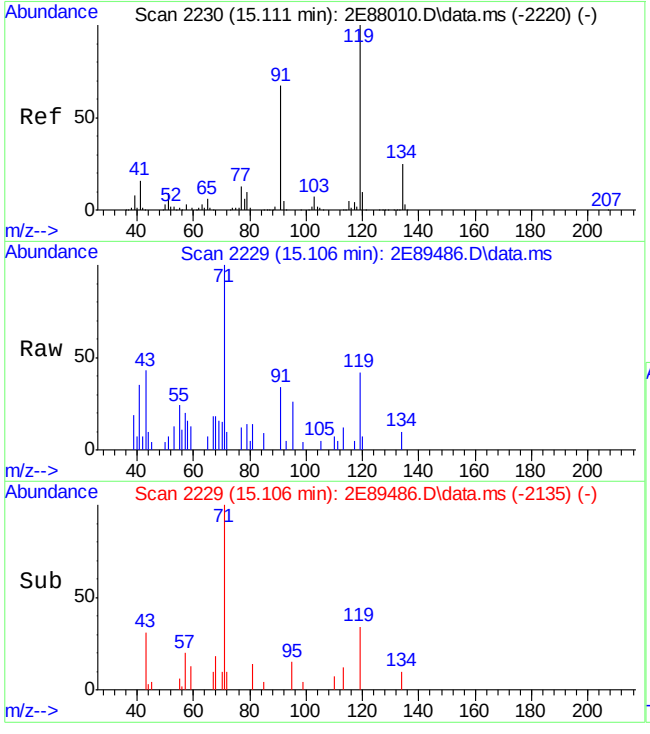


#109
1,3,5-trimethylbenzene
Concen: 2.41 ug/L
RT: 14.765 min Scan# 2164
Delta R.T. 0.000 min
Lab File: 2E89486.D
Acq: 17 Apr 2013 2:06 pm

Tgt Ion:105 Resp: 11929

Ion	Ratio	Lower	Upper
105	100		
120	44.2	19.1	79.1
119	13.7	0.0	42.5

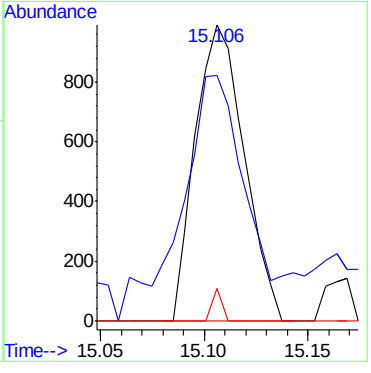


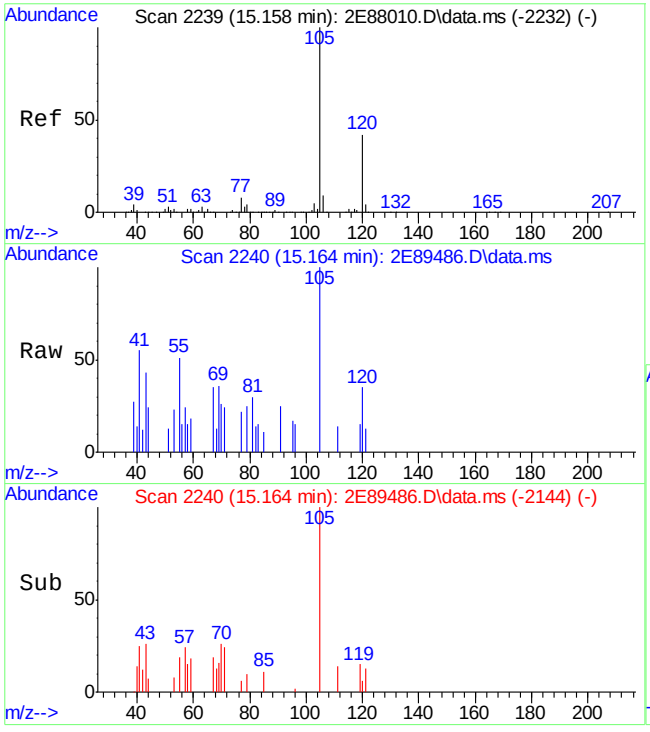


#110
tert-butylbenzene
Concen: 1.07 ug/L
RT: 15.106 min Scan# 2229
Delta R.T. -0.005 min
Lab File: 2E89486.D
Acq: 17 Apr 2013 2:06 pm

Tgt Ion:119 Resp: 1625

Ion	Ratio	Lower	Upper
119	100		
91	66.6	37.1	97.1
117	11.1	0.0	33.7

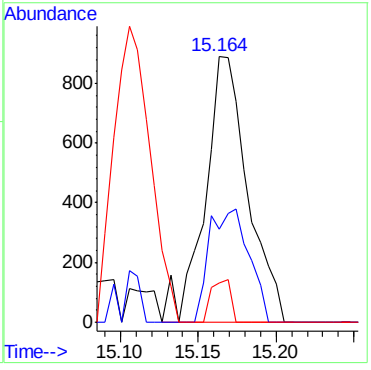


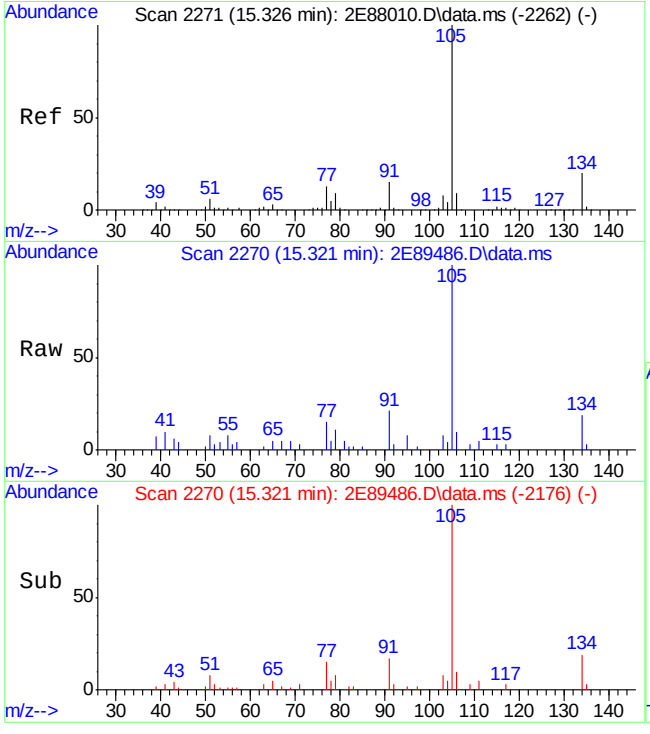


#112
1,2,4-trimethylbenzene
Concen: 0.35 ug/L
RT: 15.164 min Scan# 2240
Delta R.T. 0.006 min
Lab File: 2E89486.D
Acq: 17 Apr 2013 2:06 pm

Tgt Ion:105 Resp: 1703

Ion	Ratio	Lower	Upper
105	100		
120	35.1	16.2	76.2
119	14.7	0.0	42.5

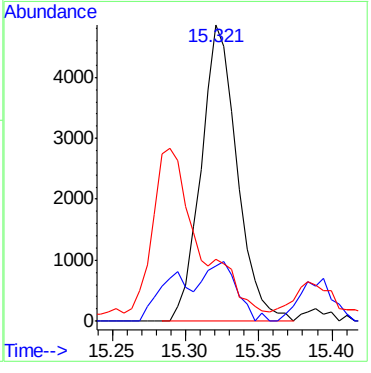


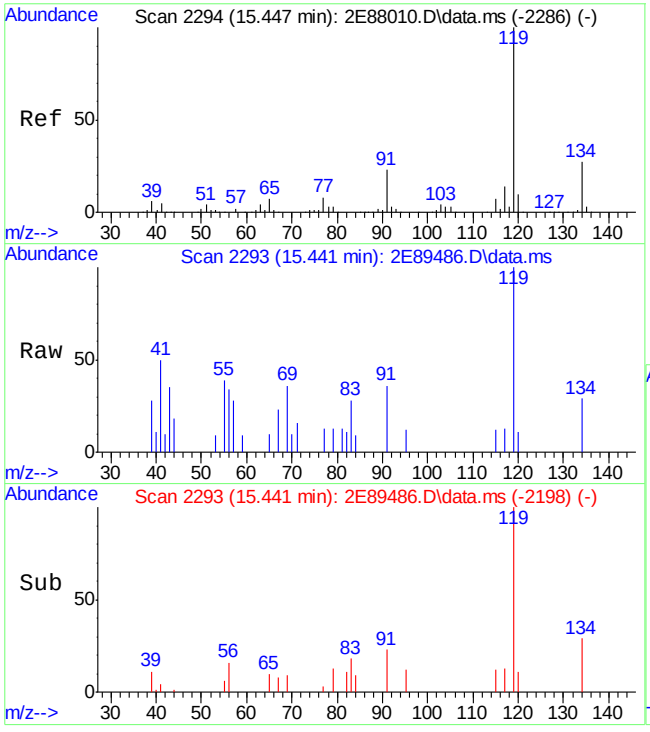


#113
sec-butylbenzene
Concen: 1.30 ug/L
RT: 15.321 min Scan# 2270
Delta R.T. -0.005 min
Lab File: 2E89486.D
Acq: 17 Apr 2013 2:06 pm

Tgt Ion:105 Resp: 8268

Ion	Ratio	Lower	Upper
105	100		
134	13.6	0.0	50.0
91	14.3	0.0	45.1

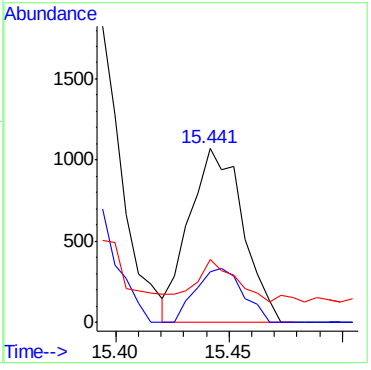


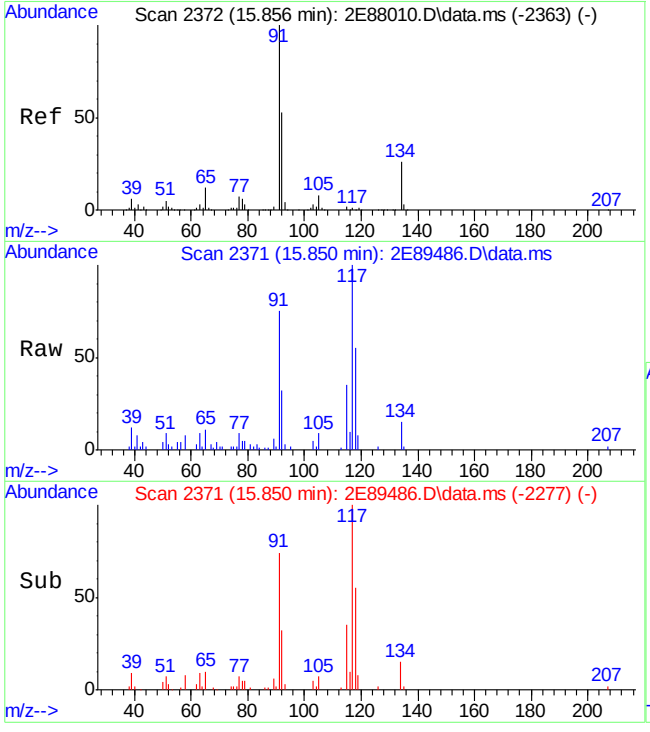


#115
p-isopropyltoluene
Concen: 0.82 ug/L
RT: 15.441 min Scan# 2293
Delta R.T. -0.005 min
Lab File: 2E89486.D
Acq: 17 Apr 2013 2:06 pm

Tgt Ion:119 Resp: 1758

Ion	Ratio	Lower	Upper
119	100		
134	29.1	0.0	56.5
91	22.3	0.0	53.2

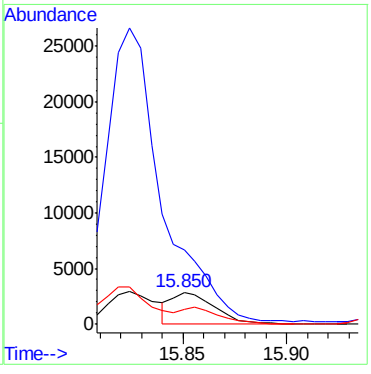




#118
n-butylbenzene
Concen: 1.49 ug/L
RT: 15.850 min Scan# 2371
Delta R.T. -0.005 min
Lab File: 2E89486.D
Acq: 17 Apr 2013 2:06 pm

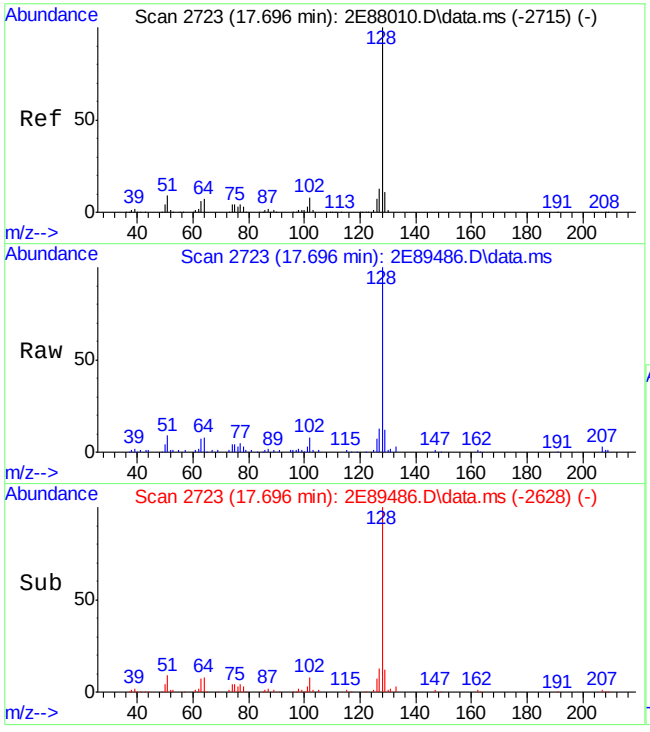
Tgt Ion: 92 Resp: 4046

Ion	Ratio	Lower	Upper
92	100		
91	223.7	158.0	218.0#
134	46.9	18.7	78.7



7.1.2

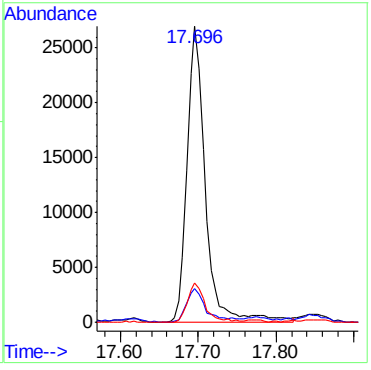
7



#123
naphthalene
Concen: 7.56 ug/L
RT: 17.696 min Scan# 2723
Delta R.T. 0.000 min
Lab File: 2E89486.D
Acq: 17 Apr 2013 2:06 pm

Tgt Ion:128 Resp: 43940

Ion	Ratio	Lower	Upper
128	100		
129	11.6	0.0	40.7
127	13.2	0.0	42.8



7.1.2

7

Manual Integrations APPROVED (compounds with "m" flag)
Kanya Veerawat 04/16/13 04:34

Quantitation Report (QT Reviewed)

Data Path : C:\MSDChem\1\DATA\
Data File : 2d119868.D
Acq On : 13 Apr 2013 1:29 am
Operator : EmilyT
Sample : jb33197-3
Misc : ms46061,v2d4985,w,,,,25
ALS Vial : 33 Sample Multiplier: 1

Quant Time: Apr 14 14:44:01 2013
Quant Method : C:\MSDCHEM\1\METHODS\M2D4958.M
Quant Title : SW-846 Method 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Apr 08 15:45:10 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) tert butyl alcohol-d9	7.19	65	260673	500.00	ug/L	0.00
6) pentafluorobenzene	9.83	168	379101	50.00	ug/L	0.01
63) 1,4-difluorobenzene	10.99	114	473694	50.00	ug/L	0.01
94) chlorobenzene-d5	15.21	117	435930	50.00	ug/L	0.00
109) 1,4-dichlorobenzene-d4	18.03	152	236436	50.00	ug/L	0.00

System Monitoring Compounds						
55) dibromofluoromethane (s)	9.88	113	140001	46.05	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 92.10%			
56) 1,2-dichloroethane-d4 (s)	10.41	65	150835	48.36	ug/L	0.01
Spiked Amount 50.000	Range 74 - 127		Recovery = 96.72%			
86) toluene-d8 (s)	13.18	98	533968	50.89	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 101.78%			
111) 4-bromofluorobenzene (s)	16.73	95	192417	52.65	ug/L	0.00
Spiked Amount 50.000	Range 76 - 116		Recovery = 105.30%			

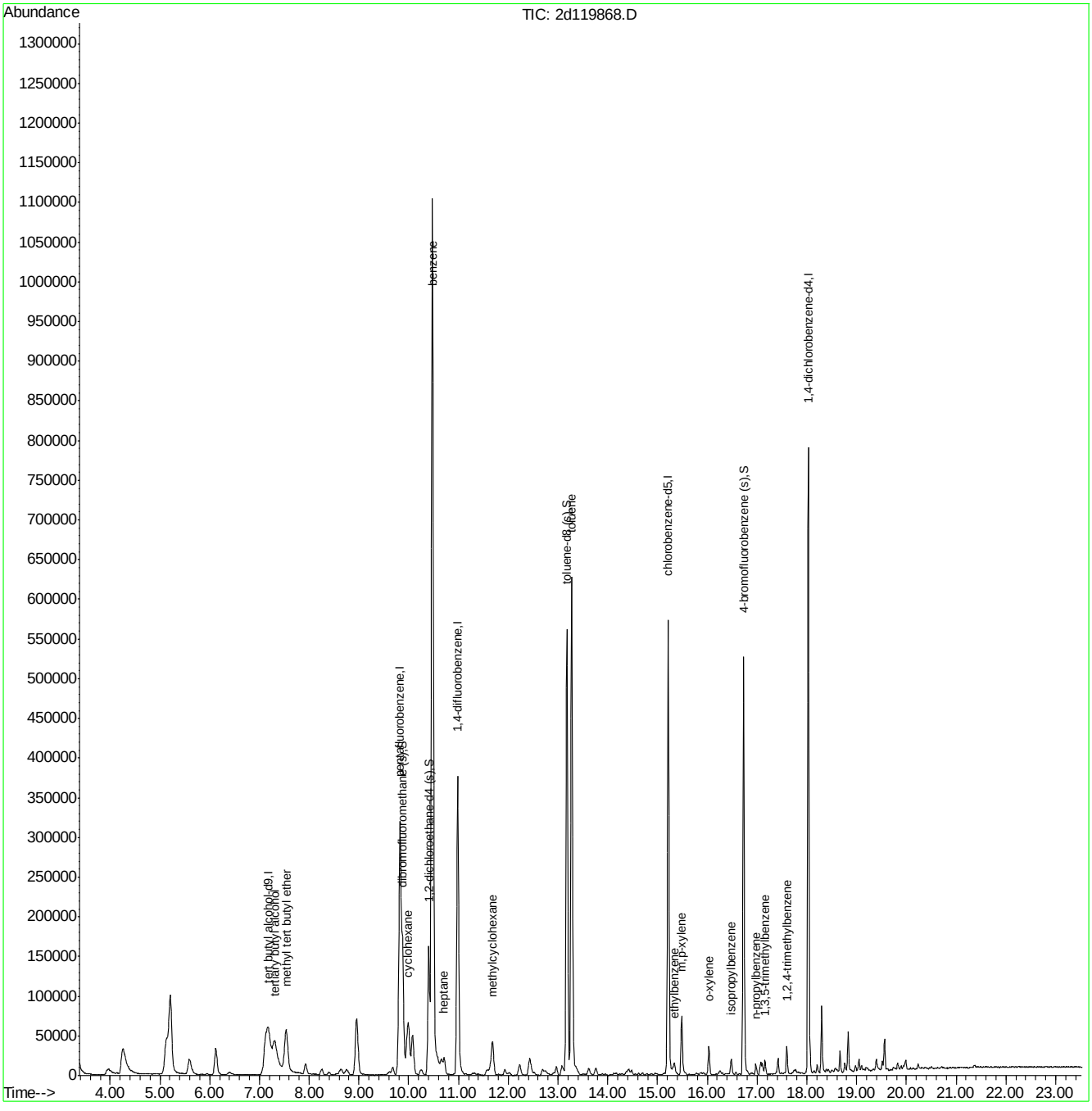
Target Compounds						Qvalue
2) tertiary butyl alcohol	7.31	59	133304m	249.76	ug/L	
38) methyl tert butyl ether	7.55	73	56971	6.23	ug/L #	1
60) cyclohexane	10.00	84	42071	10.40	ug/L	86
70) benzene	10.47	78	1484083	127.09	ug/L	99
72) heptane	10.71	57	8343	3.84	ug/L	88
83) methylcyclohexane	11.69	83	28089	5.68	ug/L	99
88) toluene	13.27	92	378027	50.36	ug/L	100
104) ethylbenzene	15.34	91	11720	0.83	ug/L	96
105) m,p-xylene	15.49	106	28741	5.11	ug/L	96
106) o-xylene	16.03	106	12118	2.18	ug/L	99
110) isopropylbenzene	16.48	105	15887	1.22	ug/L	93
117) n-propylbenzene	16.97	91	13716	0.93	ug/L	95
121) 1,3,5-trimethylbenzene	17.16	105	10184	0.94	ug/L	96
124) 1,2,4-trimethylbenzene	17.60	105	22039	1.99	ug/L	98

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

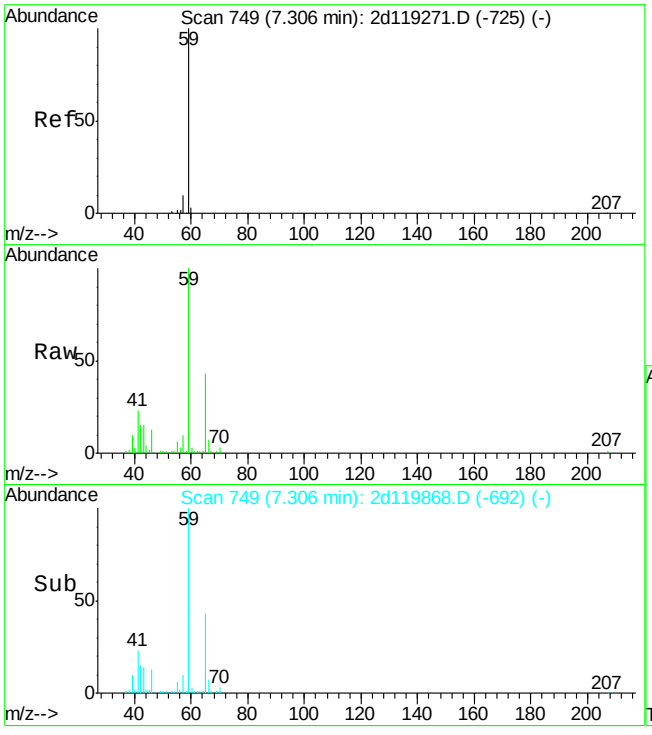
Quantitation Report (QT Reviewed)

Data Path : C:\MSDChem\1\DATA\
Data File : 2d119868.D
Acq On : 13 Apr 2013 1:29 am
Operator : EmilyT
Sample : jb33197-3
Misc : ms46061,v2d4985,w,,,,25
ALS Vial : 33 Sample Multiplier: 1

Quant Time: Apr 14 14:44:01 2013
Quant Method : C:\MSDCHEM\1\METHODS\M2D4958.M
Quant Title : SW-846 Method 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Apr 08 15:45:10 2013
Response via : Initial Calibration



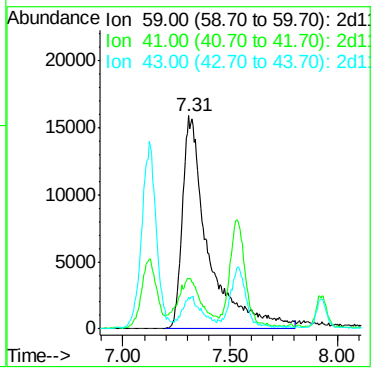
M2D4958.M Sun Apr 14 14:44:15 2013 MS2D Page: 2

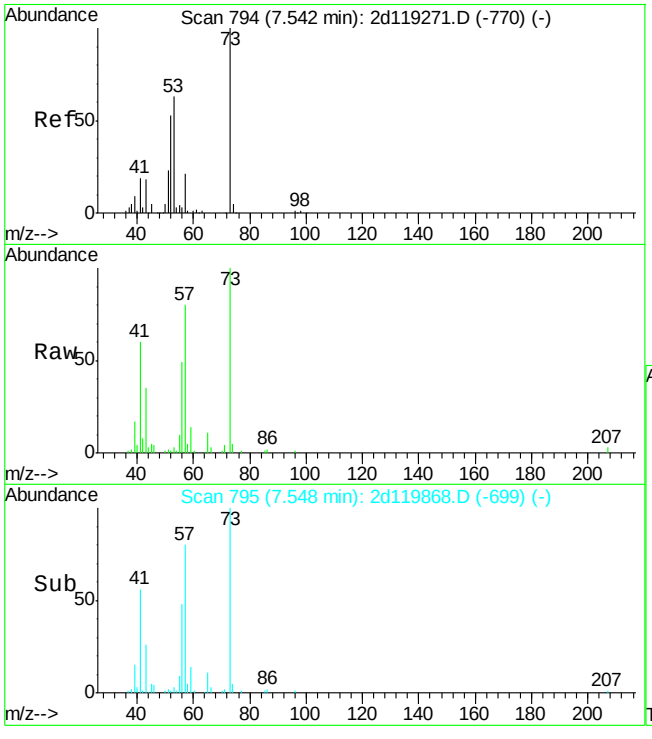


#2
tertiary butyl alcohol
Concen: 249.76 ug/L m
RT: 7.31 min Scan# 749
Delta R.T. 0.00 min
Lab File: 2d119868.D
Acq: 13 Apr 2013 1:29 am

Tgt Ion: 59 Resp: 133304

Ion	Ratio	Lower	Upper
59	100		
41	23.3	0.0	30.0
43	15.0	0.0	30.0

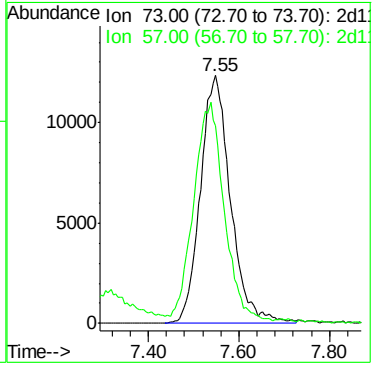




#38
methyl tert butyl ether
Concen: 6.23 ug/L
RT: 7.55 min Scan# 795
Delta R.T. 0.01 min
Lab File: 2d119868.D
Acq: 13 Apr 2013 1:29 am

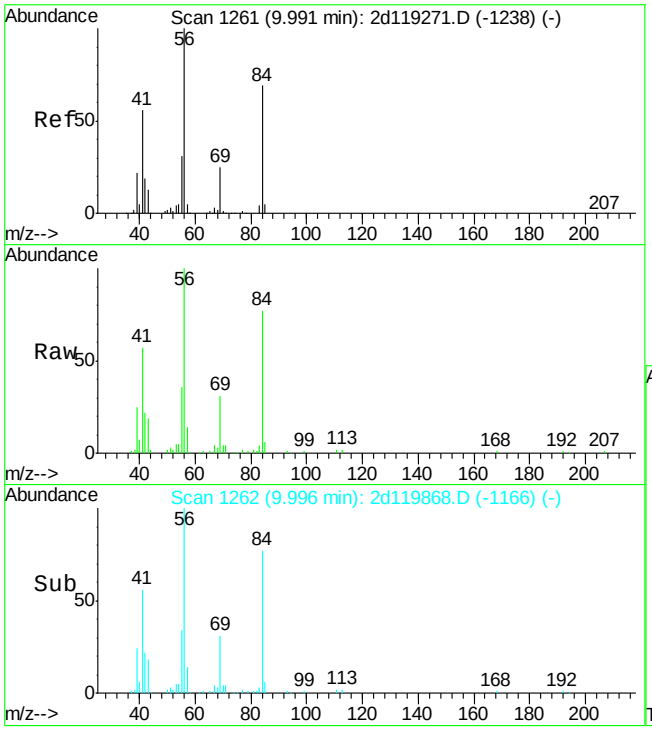
Tgt Ion: 73 Resp: 56971

Ion	Ratio	Lower	Upper
73	100		
57	90.1	0.0	51.1#



7.1.3

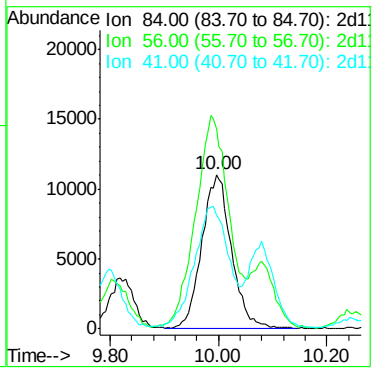
7

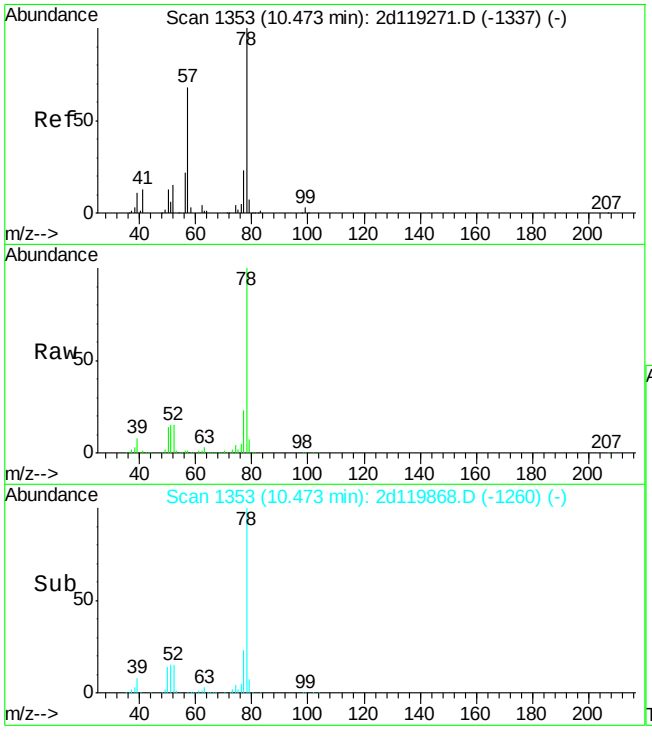


#60
cyclohexane
Concen: 10.40 ug/L
RT: 10.00 min Scan# 1262
Delta R.T. 0.01 min
Lab File: 2d119868.D
Acq: 13 Apr 2013 1:29 am

Tgt Ion: 84 Resp: 42071

Ion	Ratio	Lower	Upper
84	100		
56	127.9	102.1	189.7
41	70.5	57.3	106.5

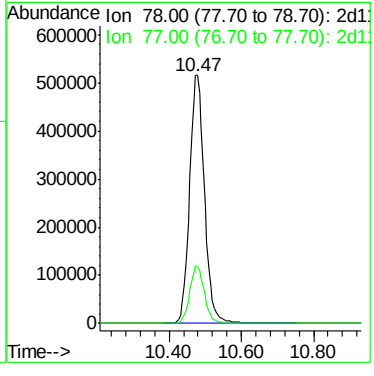


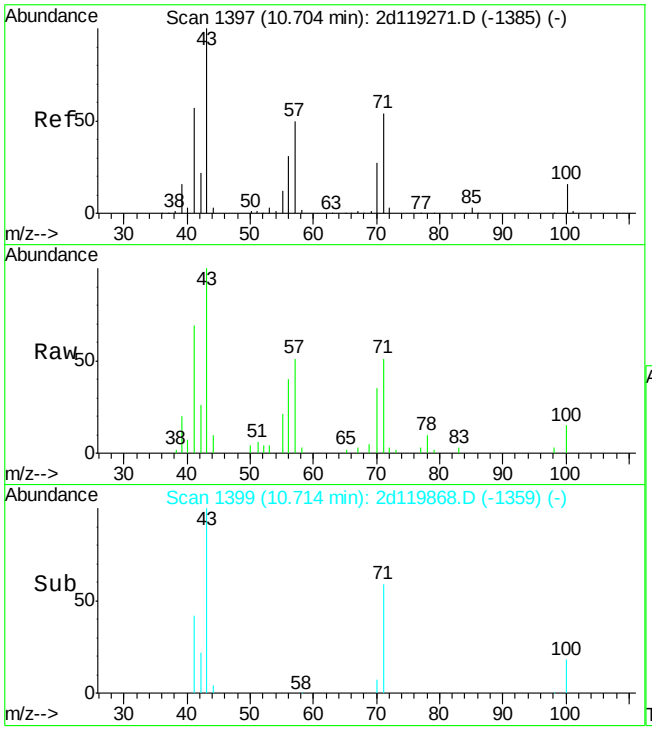


#70
benzene
Concen: 127.09 ug/L
RT: 10.47 min Scan# 1353
Delta R.T. 0.00 min
Lab File: 2d119868.D
Acq: 13 Apr 2013 1:29 am

Tgt Ion: 78 Resp: 1484083

Ion	Ratio	Lower	Upper
78	100		
77	23.4	0.0	53.0

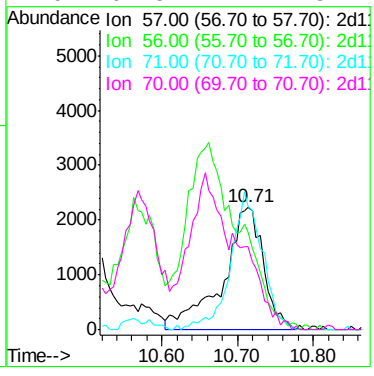


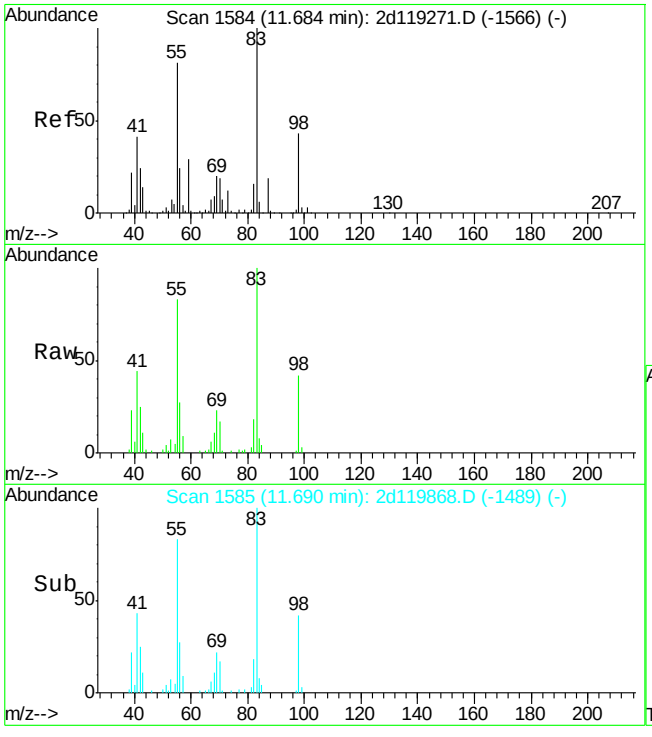


#72
heptane
Concen: 3.84 ug/L
RT: 10.71 min Scan# 1399
Delta R.T. 0.01 min
Lab File: 2d119868.D
Acq: 13 Apr 2013 1:29 am

Tgt Ion: 57 Resp: 8343

Ion	Ratio	Lower	Upper
57	100		
56	74.8	31.7	91.7
71	100.6	76.0	136.0
70	64.8	22.1	82.1

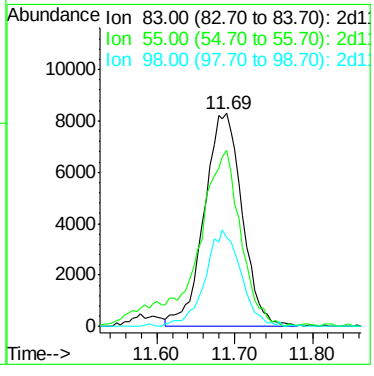


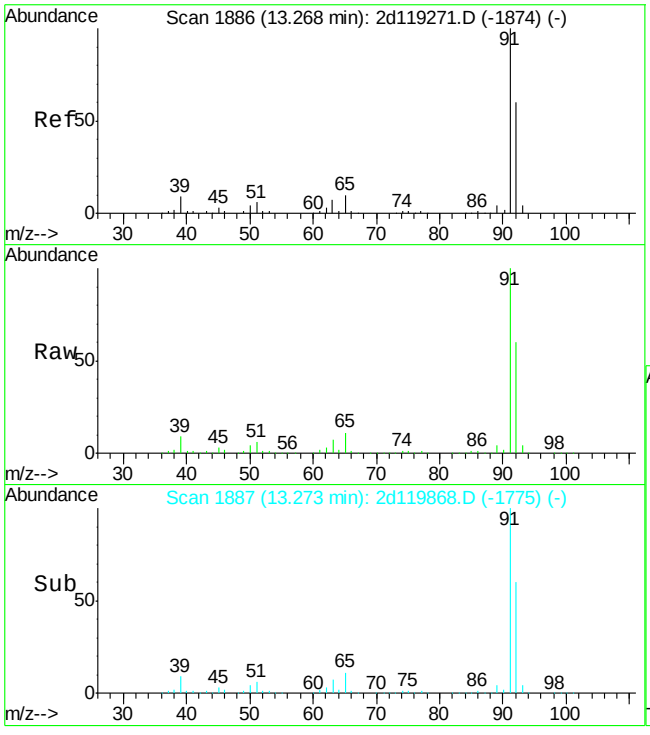


#83
methylcyclohexane
Concen: 5.68 ug/L
RT: 11.69 min Scan# 1585
Delta R.T. 0.01 min
Lab File: 2d119868.D
Acq: 13 Apr 2013 1:29 am

Tgt Ion: 83 Resp: 28089

Ion	Ratio	Lower	Upper
83	100		
55	82.0	51.2	111.2
98	41.9	12.6	72.6

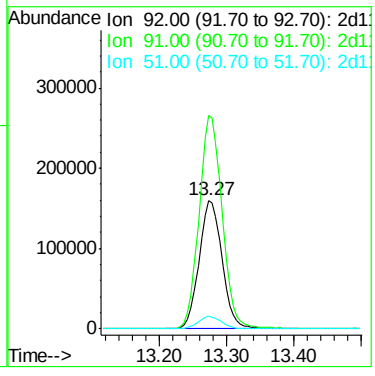


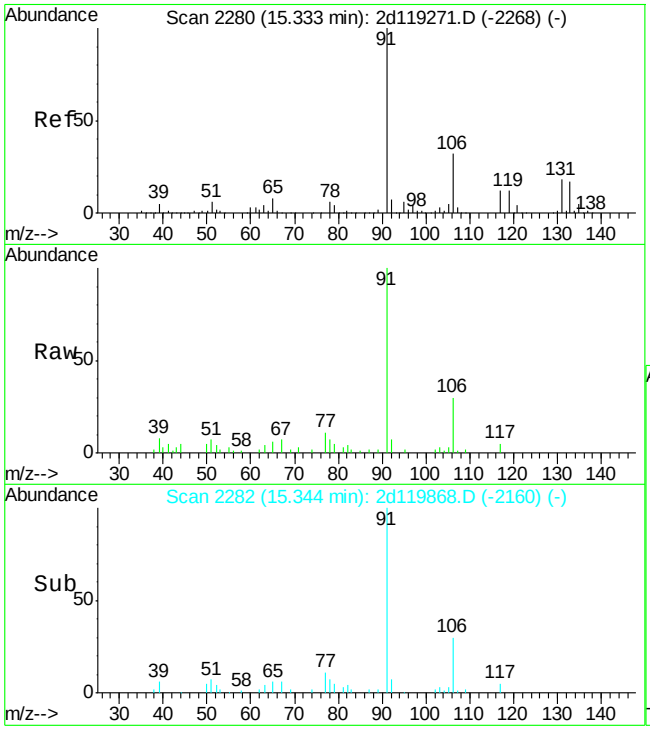


#88
toluene
Concen: 50.36 ug/L
RT: 13.27 min Scan# 1887
Delta R.T. 0.01 min
Lab File: 2d119868.D
Acq: 13 Apr 2013 1:29 am

Tgt Ion: 92 Resp: 378027

Ion	Ratio	Lower	Upper
92	100		
91	166.2	136.0	196.0
51	10.0	0.0	39.6

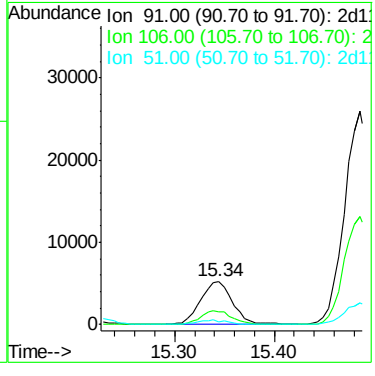


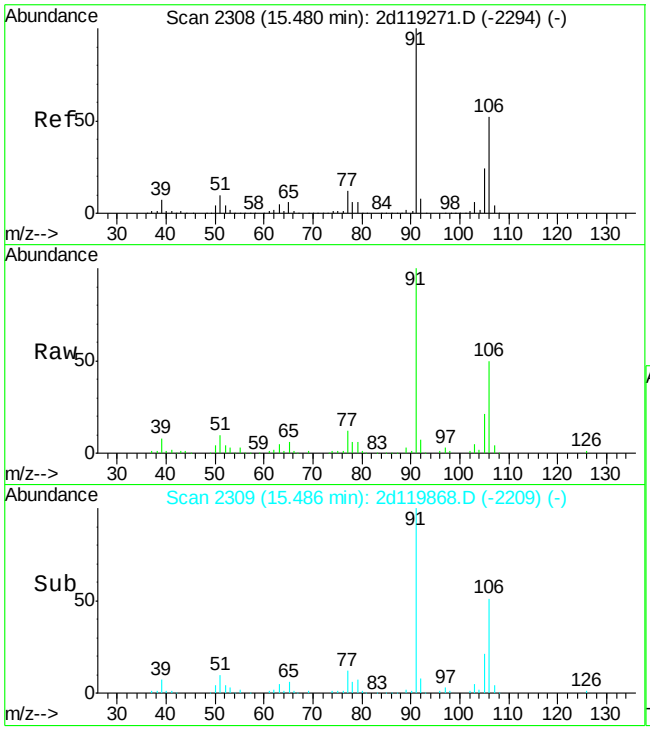


#104
ethylbenzene
Concen: 0.83 ug/L
RT: 15.34 min Scan# 2282
Delta R.T. 0.01 min
Lab File: 2d119868.D
Acq: 13 Apr 2013 1:29 am

Tgt Ion: 91 Resp: 11720

Ion	Ratio	Lower	Upper
91	100		
106	30.4	2.3	62.3
51	7.0	0.0	39.3

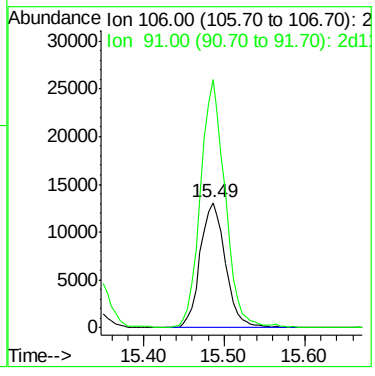


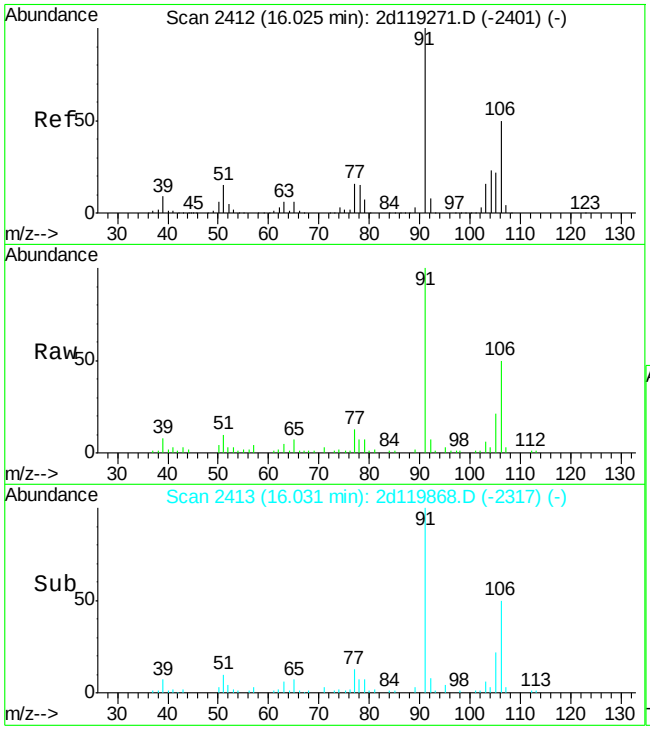


#105
m,p-xylene
Concen: 5.11 ug/L
RT: 15.49 min Scan# 2309
Delta R.T. 0.01 min
Lab File: 2d119868.D
Acq: 13 Apr 2013 1:29 am

Tgt Ion:106 Resp: 28741

Ion	Ratio	Lower	Upper
106	100		
91	198.3	163.0	223.0

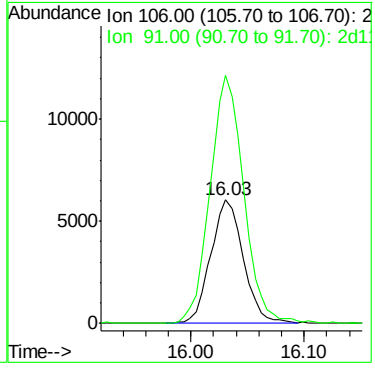


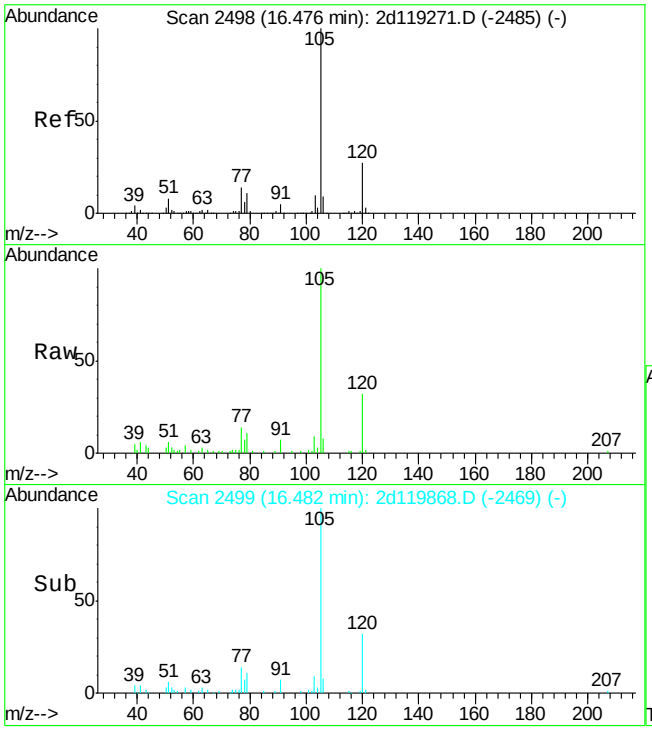


#106
o-xylene
Concen: 2.18 ug/L
RT: 16.03 min Scan# 2413
Delta R.T. 0.01 min
Lab File: 2d119868.D
Acq: 13 Apr 2013 1:29 am

Tgt Ion:106 Resp: 12118

Ion	Ratio	Lower	Upper
106	100		
91	200.5	171.4	231.4

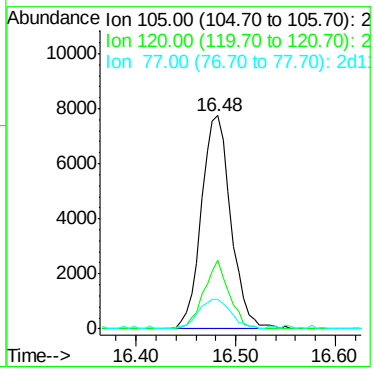


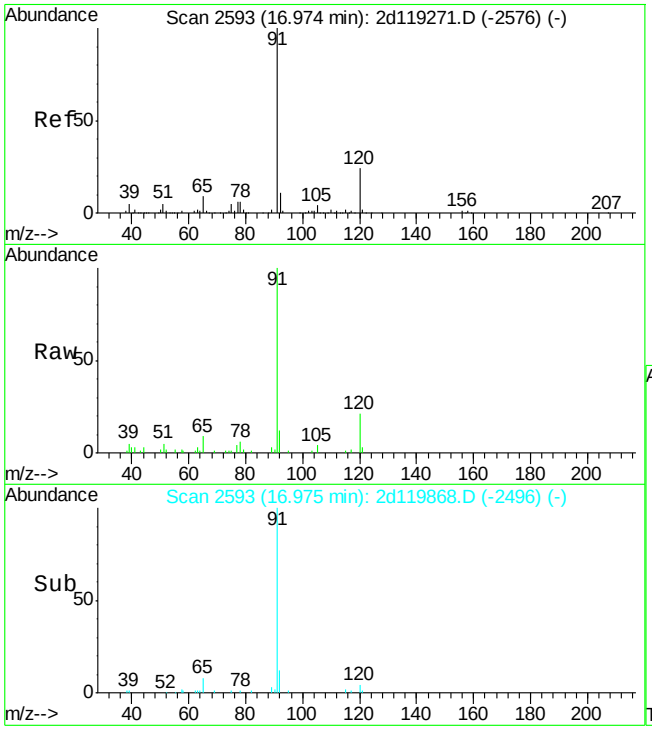


#110
isopropylbenzene
Concen: 1.22 ug/L
RT: 16.48 min Scan# 2499
Delta R.T. 0.01 min
Lab File: 2d119868.D
Acq: 13 Apr 2013 1:29 am

Tgt Ion:105 Resp: 15887

Ion	Ratio	Lower	Upper
105	100		
120	32.2	0.0	57.0
77	13.6	0.0	43.6

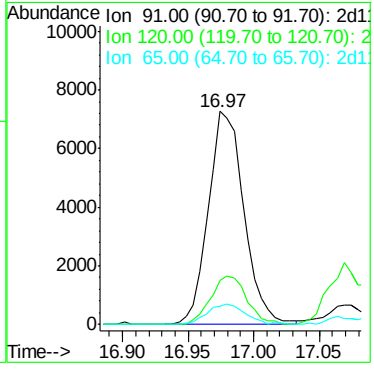


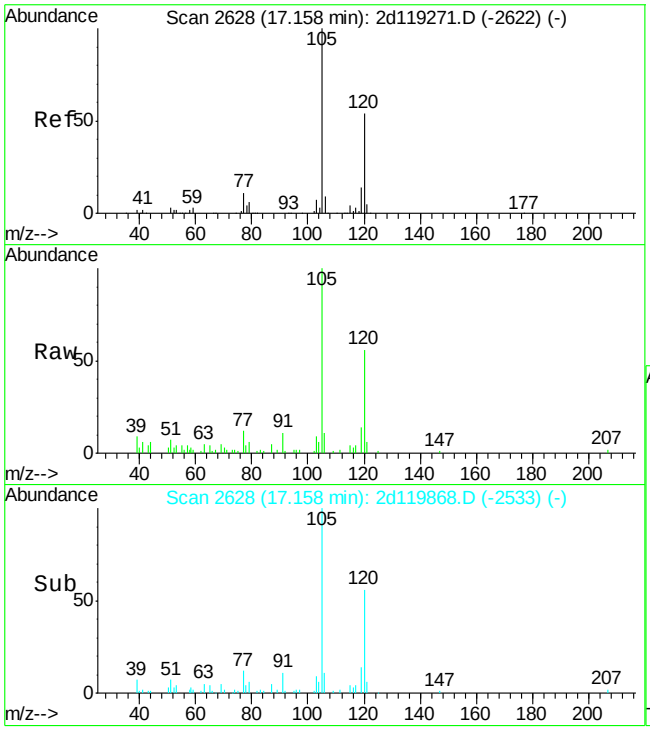


#117
n-propylbenzene
Concen: 0.93 ug/L
RT: 16.97 min Scan# 2593
Delta R.T. 0.00 min
Lab File: 2d119868.D
Acq: 13 Apr 2013 1:29 am

Tgt Ion: 91 Resp: 13716

Ion	Ratio	Lower	Upper
91	100		
120	20.8	0.0	54.0
65	8.8	0.0	39.4

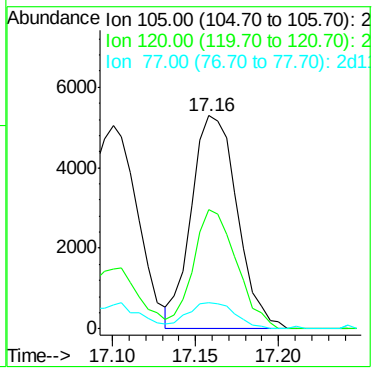


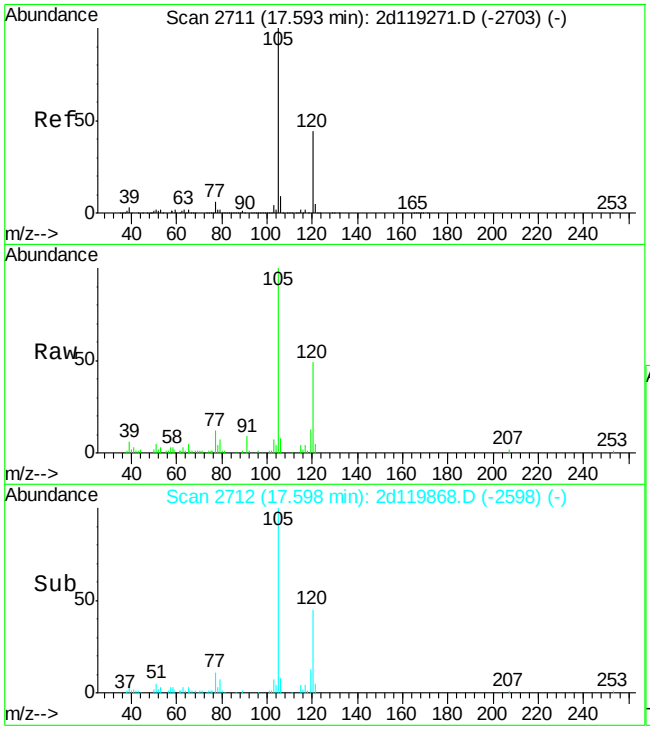


#121
1,3,5-trimethylbenzene
Concen: 0.94 ug/L
RT: 17.16 min Scan# 2628
Delta R.T. 0.00 min
Lab File: 2d119868.D
Acq: 13 Apr 2013 1:29 am

Tgt Ion:105 Resp: 10184

Ion	Ratio	Lower	Upper
105	100		
120	56.0	22.6	82.6
77	10.8	0.0	41.2

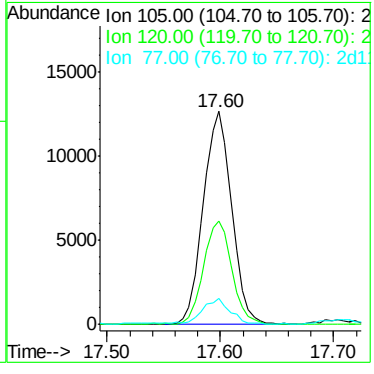




#124
1,2,4-trimethylbenzene
Concen: 1.99 ug/L
RT: 17.60 min Scan# 2712
Delta R.T. 0.01 min
Lab File: 2d119868.D
Acq: 13 Apr 2013 1:29 am

Tgt Ion:105 Resp: 22039

Ion	Ratio	Lower	Upper
105	100		
120	48.6	19.4	79.4
77	12.3	0.0	40.9



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\OLD DATA\4d34300\
Data File : 4d34351.D
Acq On : 16 Apr 2013 7:11 pm
Operator : juntaep
Sample : jb33197-4
Misc : MS46061,V4D1545,,,,,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Apr 17 10:17:10 2013
Quant Method : C:\MSDCHEM\1\METHODS\M4D1526.M
Quant Title : SW-846 Method 8260
QLast Update : Fri Apr 05 18:19:54 2013
Response via : Initial Calibration

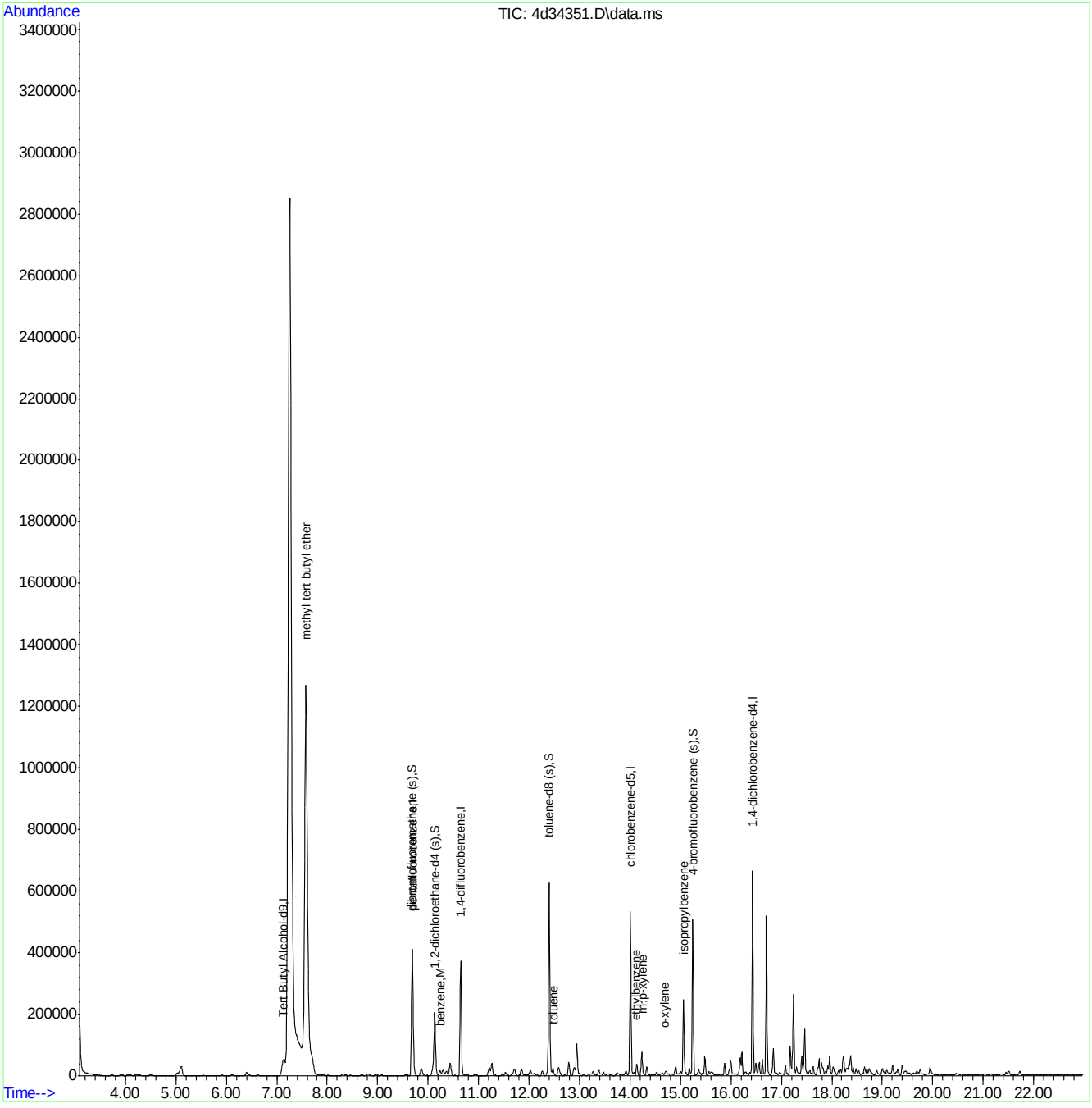
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	7.119	65	106939	500.00	ug/L	0.00
4) pentafluorobenzene	9.693	168	207520	50.00	ug/L	0.00
51) 1,4-difluorobenzene	10.647	114	330393	50.00	ug/L	0.00
80) chlorobenzene-d5	14.008	117	289986	50.00	ug/L	0.00
95) 1,4-dichlorobenzene-d4	16.430	152	157920	50.00	ug/L	0.00
System Monitoring Compounds						
45) dibromofluoromethane (s)	9.682	113	125395	47.97	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 95.94%			
46) 1,2-dichloroethane-d4 (s)	10.128	65	130006	47.94	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 95.88%			
72) toluene-d8 (s)	12.398	98	423821	49.08	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 98.16%			
97) 4-bromofluorobenzene (s)	15.245	95	162839	47.27	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 94.54%			
Target Compounds						Qvalue
28) methyl tert butyl ether	7.580	73	2166641	315.81	ug/L	99
58) benzene	10.233	78	12728	1.33	ug/L	97
74) toluene	12.477	92	8463	1.46	ug/L	96
89) ethylbenzene	14.129	91	2618	0.24	ug/L	85
90) m,p-xylene	14.244	106	1855	0.45	ug/L	93
91) o-xylene	14.690	106	1100	0.27	ug/L	95
96) isopropylbenzene	15.062	105	159334	15.39	ug/L	99

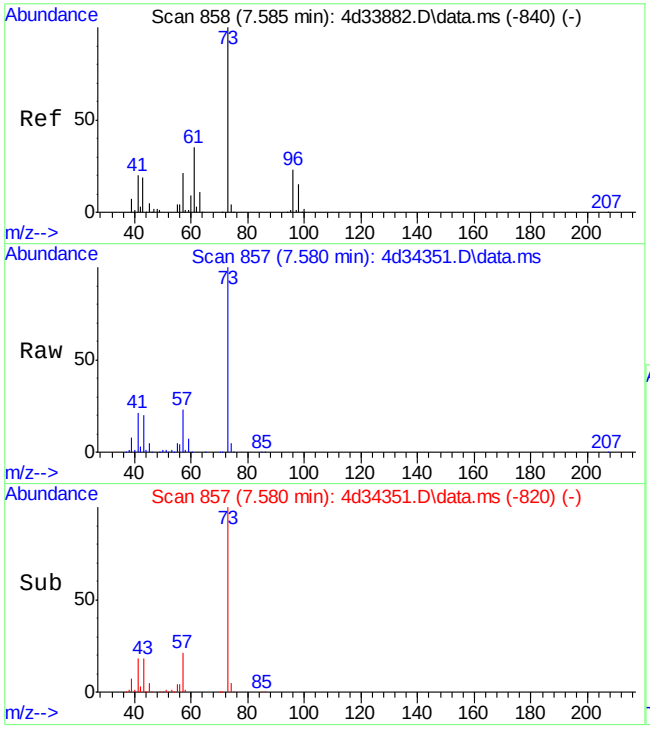
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\OLD DATA\4d34300\
Data File : 4d34351.D
Acq On : 16 Apr 2013 7:11 pm
Operator : juntaep
Sample : jb33197-4
Misc : MS46061,V4D1545,,,,,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Apr 17 10:17:10 2013
Quant Method : C:\MSDCHEM\1\METHODS\M4D1526.M
Quant Title : SW-846 Method 8260
QLast Update : Fri Apr 05 18:19:54 2013
Response via : Initial Calibration

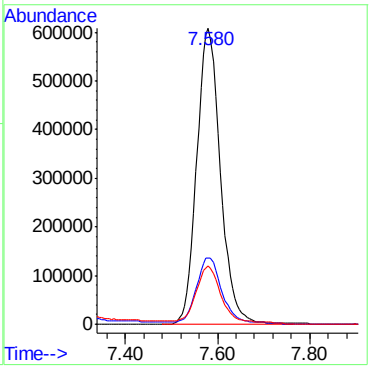


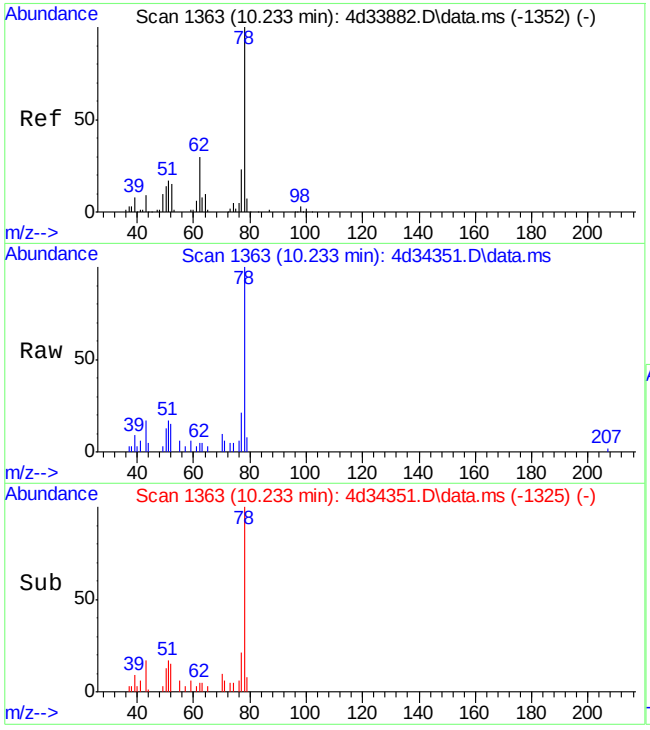


#28
methyl tert butyl ether
Concen: 315.81 ug/L
RT: 7.580 min Scan# 857
Delta R.T. -0.005 min
Lab File: 4d34351.D
Acq: 16 Apr 2013 7:11 pm

Tgt Ion: 73 Resp: 2166641

Ion	Ratio	Lower	Upper
73	100		
57	22.6	0.0	51.5
43	19.6	0.0	49.4

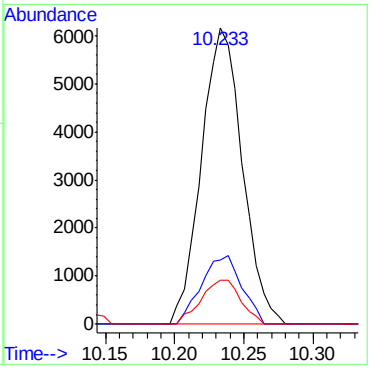


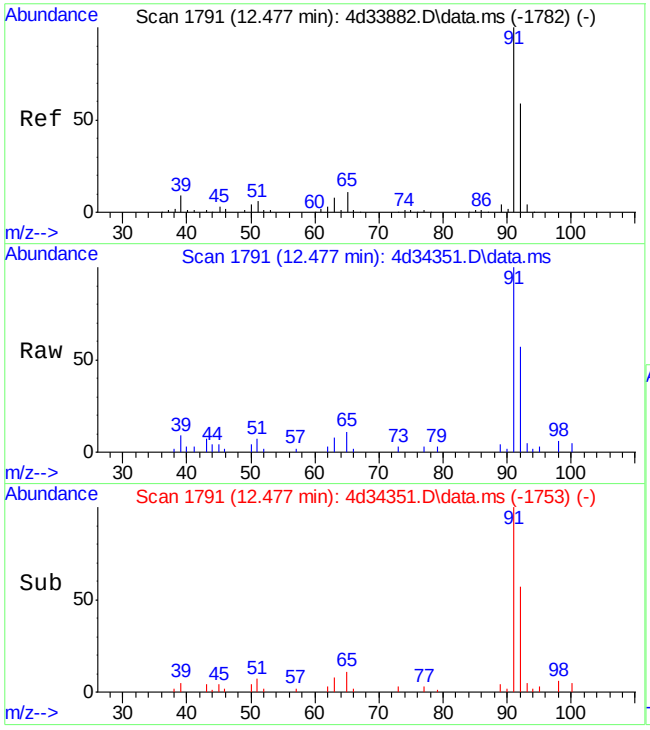


#58
benzene
Concen: 1.33 ug/L
RT: 10.233 min Scan# 1363
Delta R.T. -0.000 min
Lab File: 4d34351.D
Acq: 16 Apr 2013 7:11 pm

Tgt Ion: 78 Resp: 12728

Ion	Ratio	Lower	Upper
78	100		
77	21.4	0.0	53.3
52	14.7	0.0	45.0

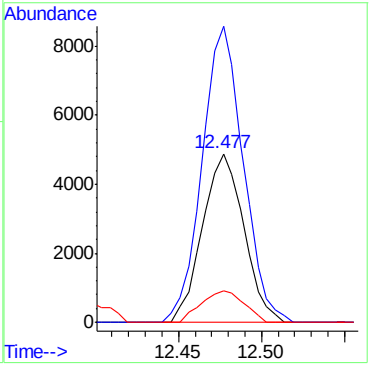


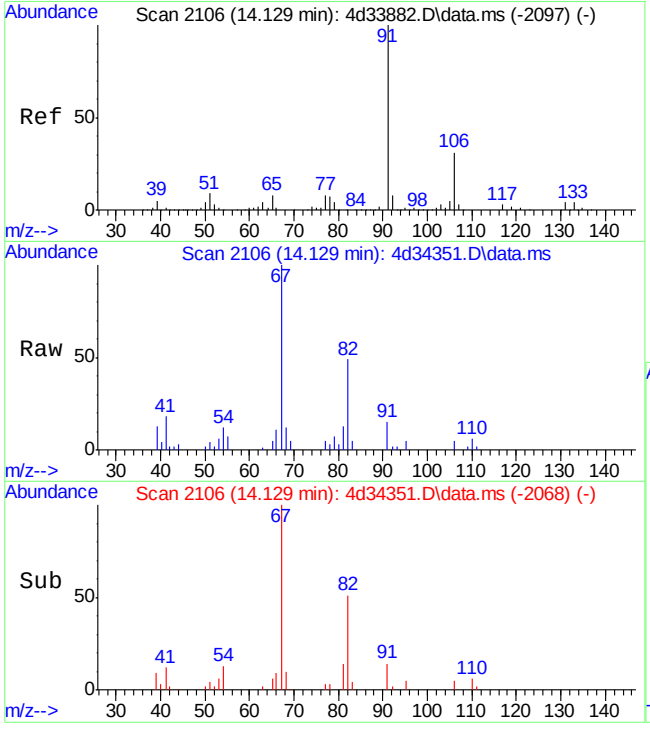


#74
toluene
Concen: 1.46 ug/L
RT: 12.477 min Scan# 1791
Delta R.T. -0.000 min
Lab File: 4d34351.D
Acq: 16 Apr 2013 7:11 pm

Tgt Ion: 92 Resp: 8463

Ion	Ratio	Lower	Upper
92	100		
91	175.9	139.4	199.4
65	18.5	0.0	49.3

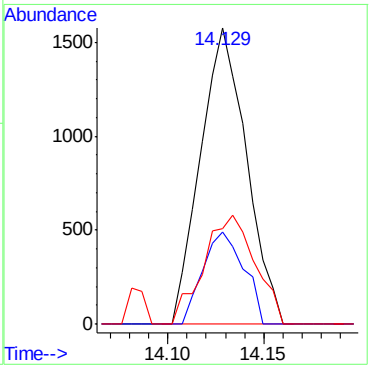


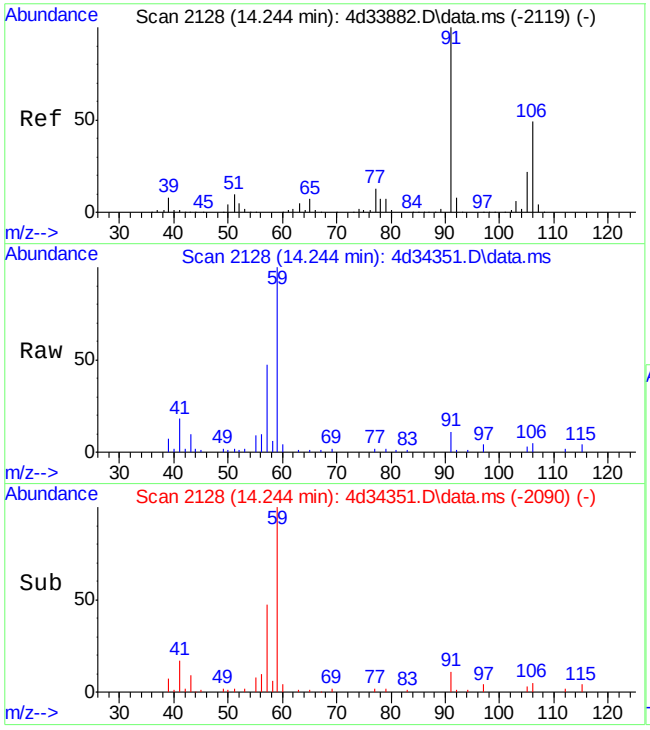


#89
ethylbenzene
Concen: 0.24 ug/L
RT: 14.129 min Scan# 2106
Delta R.T. -0.000 min
Lab File: 4d34351.D
Acq: 16 Apr 2013 7:11 pm

Tgt Ion: 91 Resp: 2618

Ion	Ratio	Lower	Upper
91	100		
106	31.0	0.6	60.6
77	32.2	0.0	38.4

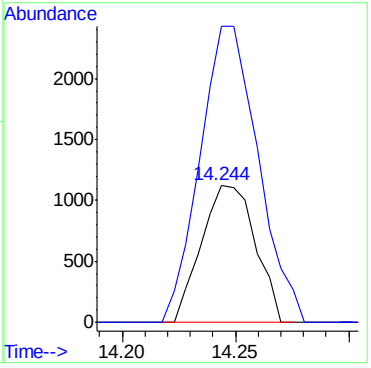


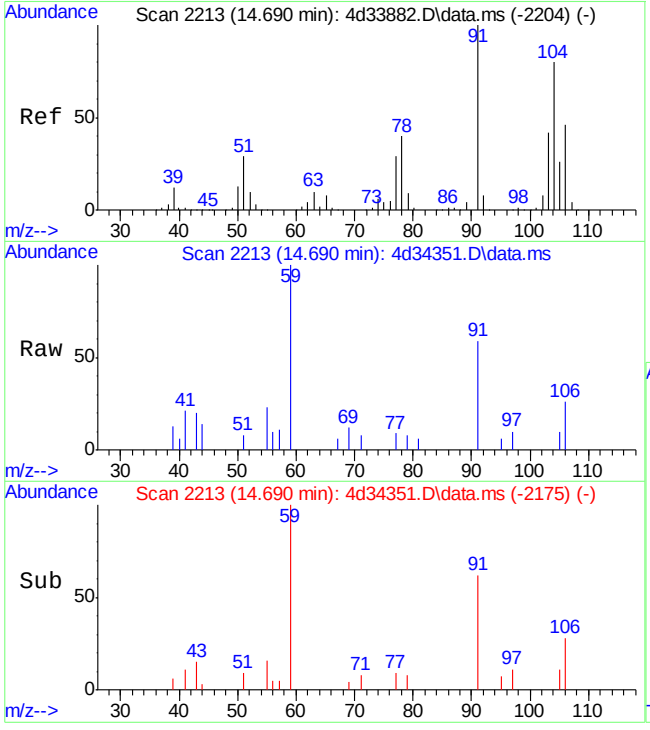


#90
m,p-xylene
Concen: 0.45 ug/L
RT: 14.244 min Scan# 2128
Delta R.T. -0.000 min
Lab File: 4d34351.D
Acq: 16 Apr 2013 7:11 pm

Tgt Ion:106 Resp: 1855

Ion	Ratio	Lower	Upper
106	100		
91	215.9	143.2	266.0

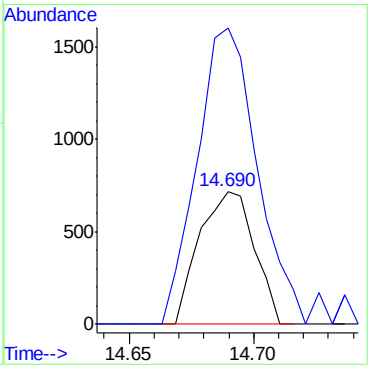


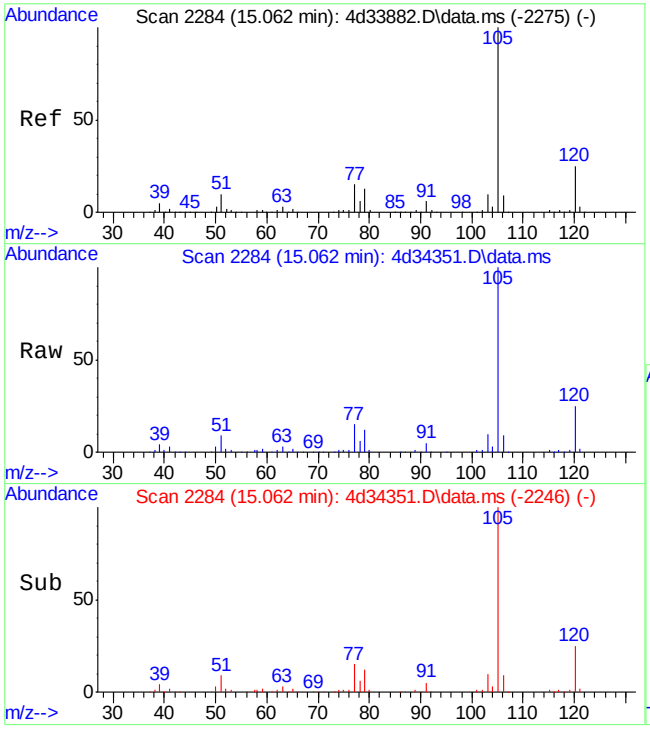


#91
o-xylene
Concen: 0.27 ug/L
RT: 14.690 min Scan# 2213
Delta R.T. -0.000 min
Lab File: 4d34351.D
Acq: 16 Apr 2013 7:11 pm

Tgt Ion:106 Resp: 1100

Ion	Ratio	Lower	Upper
106	100		
91	223.1	151.1	280.5

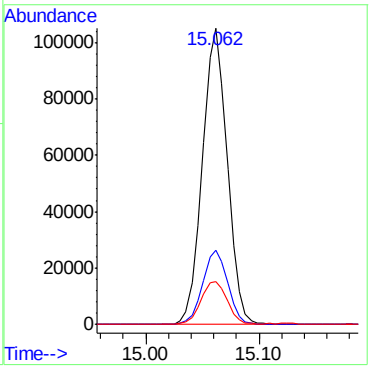




#96
isopropylbenzene
Concen: 15.39 ug/L
RT: 15.062 min Scan# 2284
Delta R.T. -0.000 min
Lab File: 4d34351.D
Acq: 16 Apr 2013 7:11 pm

Tgt Ion:105 Resp: 159334

Ion	Ratio	Lower	Upper
105	100		
120	25.2	0.0	55.0
77	14.5	0.0	45.3



7.1.4

7

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\3D\
Data File : 3D85337.D
Acq On : 16 Apr 2013 3:59 am
Operator : natet
Sample : jb33197-5
Misc : MS45996,V3D3669,W,,,,1
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Apr 16 16:47:02 2013
Quant Method : C:\MSDCHEM\1\METHODS\M3D3579.M
Quant Title : Method SW846 8260B, ZB 624 60m x 0.25mm x 1.4 um
QLast Update : Fri Feb 22 15:43:19 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.29	65	116348	500.00	ug/L	-0.02
4) pentafluorobenzene	9.53	168	292743	50.00	ug/L	-0.01
51) 1,4-difluorobenzene	10.45	114	408966	50.00	ug/L	-0.01
80) chlorobenzene-d5	13.60	117	320411	50.00	ug/L	-0.01
96) 1,4-dichlorobenzene-d4	15.90	152	179748	50.00	ug/L	0.00

System Monitoring Compounds

43) dibromofluoromethane (s)	9.59	113	120033	52.76	ug/L	-0.01
Spiked Amount 50.000	Range 81 - 121		Recovery = 105.52%			
44) 1,2-dichloroethane-d4 (s)	10.01	65	125354	52.29	ug/L	-0.01
Spiked Amount 50.000	Range 74 - 127		Recovery = 104.58%			
72) toluene-d8 (s)	12.09	98	400738	49.94	ug/L	-0.01
Spiked Amount 50.000	Range 80 - 122		Recovery = 99.88%			
98) 4-bromofluorobenzene (s)	14.75	95	135600	49.80	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 99.60%			

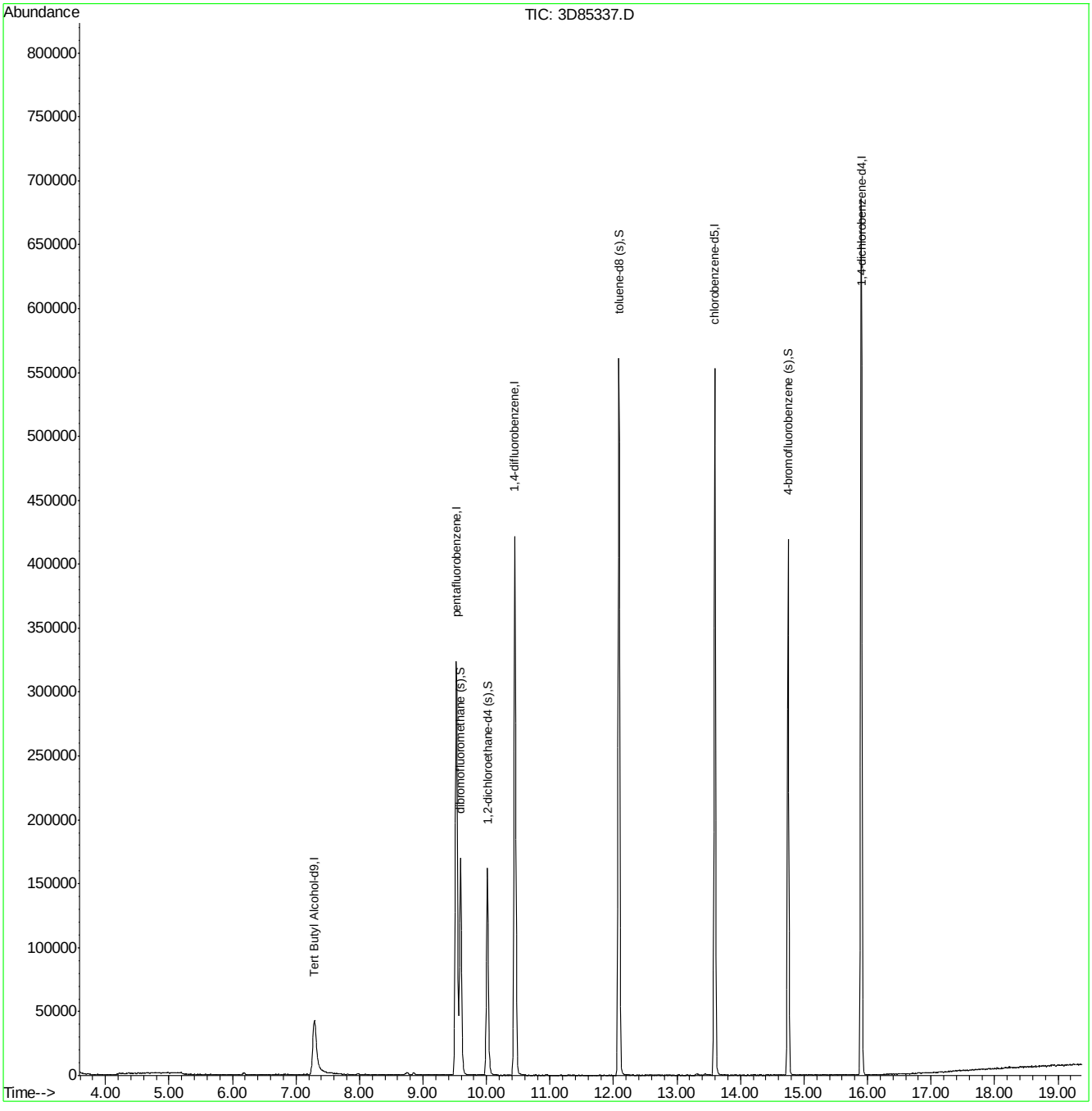
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\3D\
Data File : 3D85337.D
Acq On : 16 Apr 2013 3:59 am
Operator : natet
Sample : jb33197-5
Misc : MS45996,V3D3669,W,,,,1
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Apr 16 16:47:02 2013
Quant Method : C:\MSDCHEM\1\METHODS\M3D3579.M
Quant Title : Method SW846 8260B, ZB 624 60m x 0.25mm x 1.4 um
QLast Update : Fri Feb 22 15:43:19 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\3D\
Data File : 3D85338.D
Acq On : 16 Apr 2013 4:27 am
Operator : natet
Sample : jb33197-6
Misc : MS45996,V3D3669,W,,,,1
ALS Vial : 39 Sample Multiplier: 1

Quant Time: Apr 16 16:47:17 2013
Quant Method : C:\MSDCHEM\1\METHODS\M3D3579.M
Quant Title : Method SW846 8260B, ZB 624 60m x 0.25mm x 1.4 um
QLast Update : Fri Feb 22 15:43:19 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.29	65	122318	500.00	ug/L	-0.01
4) pentafluorobenzene	9.53	168	298272	50.00	ug/L	-0.01
51) 1,4-difluorobenzene	10.45	114	418195	50.00	ug/L	-0.01
80) chlorobenzene-d5	13.60	117	324691	50.00	ug/L	-0.01
96) 1,4-dichlorobenzene-d4	15.90	152	182032	50.00	ug/L	0.00

System Monitoring Compounds

43) dibromofluoromethane (s)	9.60	113	120010	51.77	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 103.54%			
44) 1,2-dichloroethane-d4 (s)	10.01	65	128997	52.81	ug/L	-0.01
Spiked Amount 50.000	Range 74 - 127		Recovery = 105.62%			
72) toluene-d8 (s)	12.09	98	407993	49.73	ug/L	-0.01
Spiked Amount 50.000	Range 80 - 122		Recovery = 99.46%			
98) 4-bromofluorobenzene (s)	14.75	95	137974	50.03	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 100.06%			

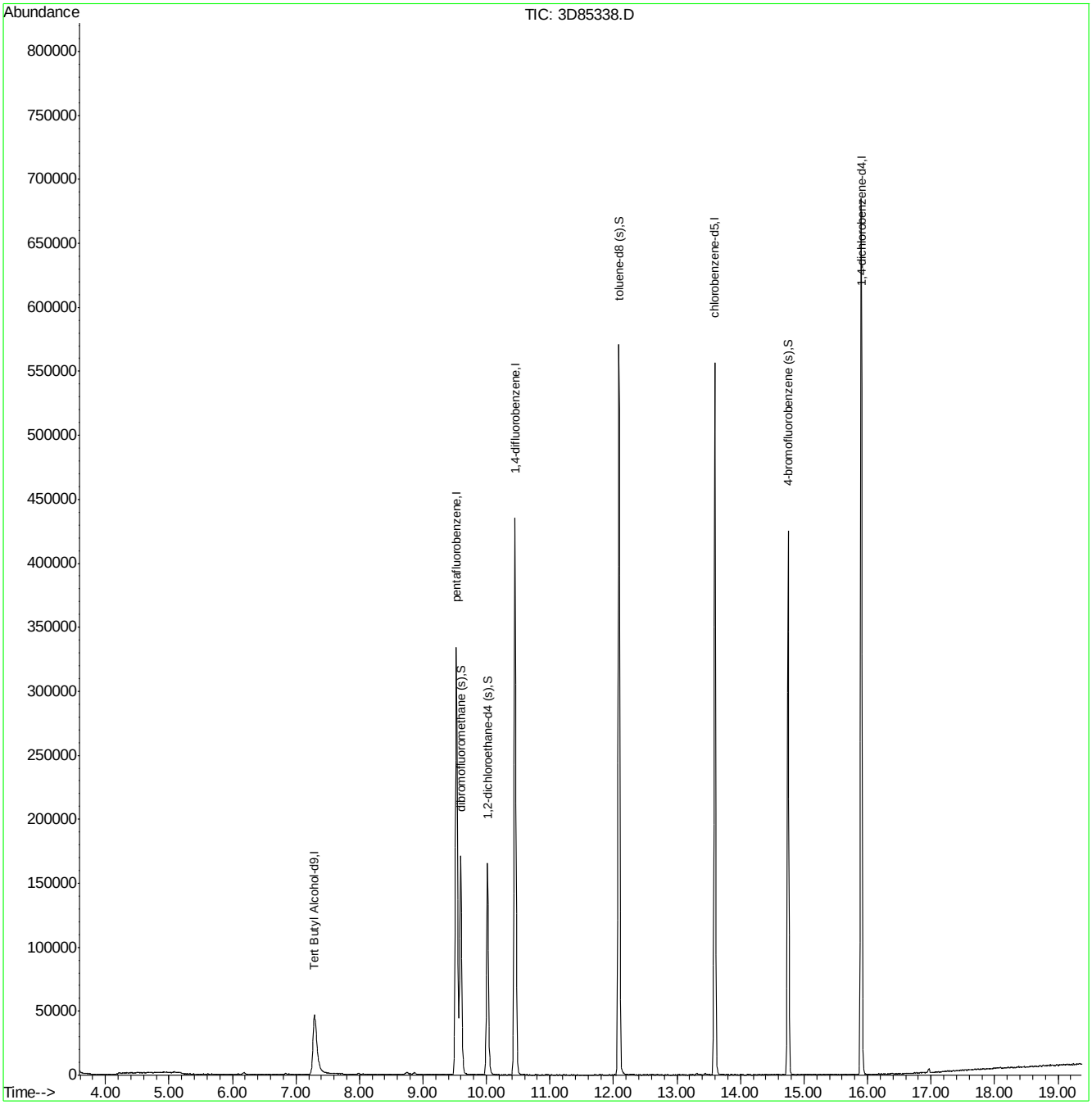
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\3D\
Data File : 3D85338.D
Acq On : 16 Apr 2013 4:27 am
Operator : natet
Sample : jb33197-6
Misc : MS45996,V3D3669,W,,,,1
ALS Vial : 39 Sample Multiplier: 1

Quant Time: Apr 16 16:47:17 2013
Quant Method : C:\MSDCHEM\1\METHODS\M3D3579.M
Quant Title : Method SW846 8260B, ZB 624 60m x 0.25mm x 1.4 um
QLast Update : Fri Feb 22 15:43:19 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\MSDChem\1\DATA\
Data File : 2d119872.D
Acq On : 13 Apr 2013 3:28 am
Operator : EmilyT
Sample : jb33197-7
Misc : ms45944,v2d4985,w,,,,1
ALS Vial : 37 Sample Multiplier: 1

Quant Time: Apr 14 14:47:39 2013
Quant Method : C:\MSDCHEM\1\METHODS\M2D4958.M
Quant Title : SW-846 Method 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Apr 08 15:45:10 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) tert butyl alcohol-d9	7.19	65	269150	500.00	ug/L	0.01
6) pentafluorobenzene	9.82	168	378679	50.00	ug/L	0.00
63) 1,4-difluorobenzene	10.98	114	472048	50.00	ug/L	0.00
94) chlorobenzene-d5	15.21	117	428824	50.00	ug/L	0.00
109) 1,4-dichlorobenzene-d4	18.03	152	221778	50.00	ug/L	0.00

System Monitoring Compounds

55) dibromofluoromethane (s)	9.88	113	139380	45.89	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 91.78%			
56) 1,2-dichloroethane-d4 (s)	10.40	65	150915	48.44	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 96.88%			
86) toluene-d8 (s)	13.17	98	526895	50.39	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 100.78%			
111) 4-bromofluorobenzene (s)	16.73	95	186905	54.52	ug/L	0.00
Spiked Amount 50.000	Range 76 - 116		Recovery = 109.04%			

Target Compounds

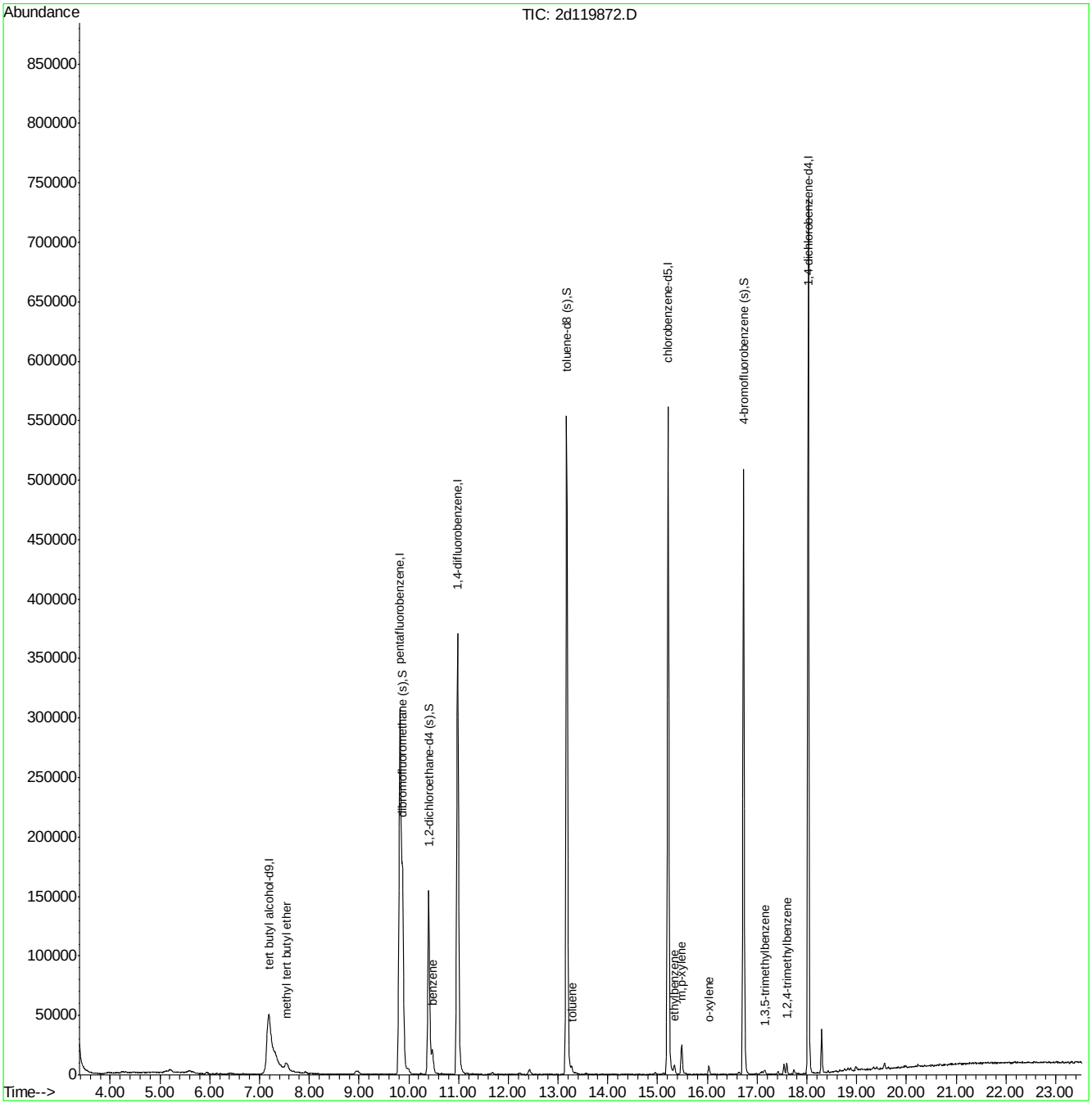
						Qvalue
38) methyl tert butyl ether	7.55	73	10703	1.17	ug/L	72
70) benzene	10.48	78	20087	1.73	ug/L	91
88) toluene	13.28	92	2367	0.32	ug/L	93
104) ethylbenzene	15.34	91	6753	0.49	ug/L	98
105) m,p-xylene	15.48	106	10558	1.91	ug/L	93
106) o-xylene	16.03	106	2538	0.46	ug/L	99
121) 1,3,5-trimethylbenzene	17.16	105	2065	0.20	ug/L	91
124) 1,2,4-trimethylbenzene	17.60	105	5612	0.54	ug/L	96

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

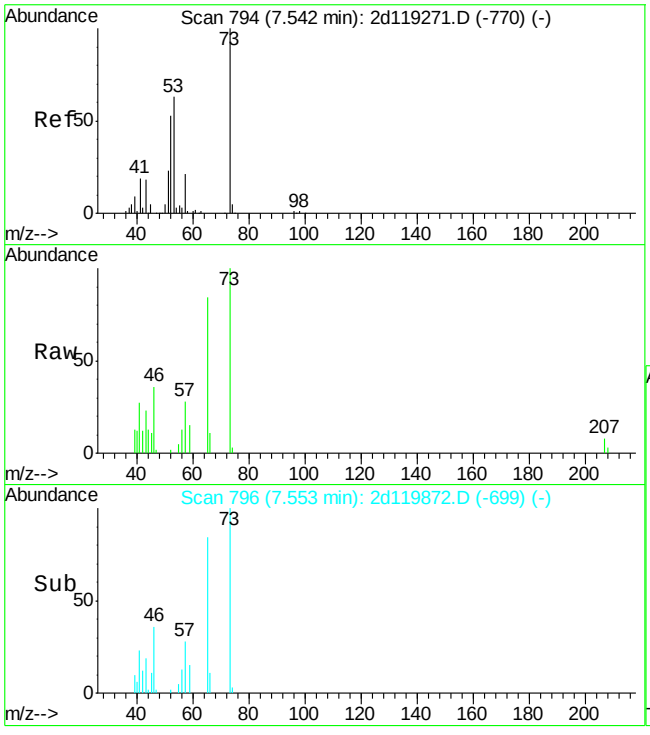
Quantitation Report (QT Reviewed)

Data Path : C:\MSDChem\1\DATA\
Data File : 2d119872.D
Acq On : 13 Apr 2013 3:28 am
Operator : EmilyT
Sample : jb33197-7
Misc : ms45944,v2d4985,w,,,,1
ALS Vial : 37 Sample Multiplier: 1

Quant Time: Apr 14 14:47:39 2013
Quant Method : C:\MSDCHEM\1\METHODS\M2D4958.M
Quant Title : SW-846 Method 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Apr 08 15:45:10 2013
Response via : Initial Calibration



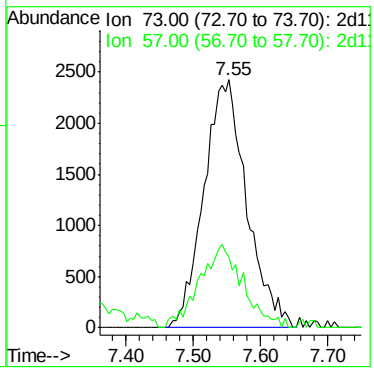
M2D4958.M Sun Apr 14 14:47:52 2013 MS2D Page: 2

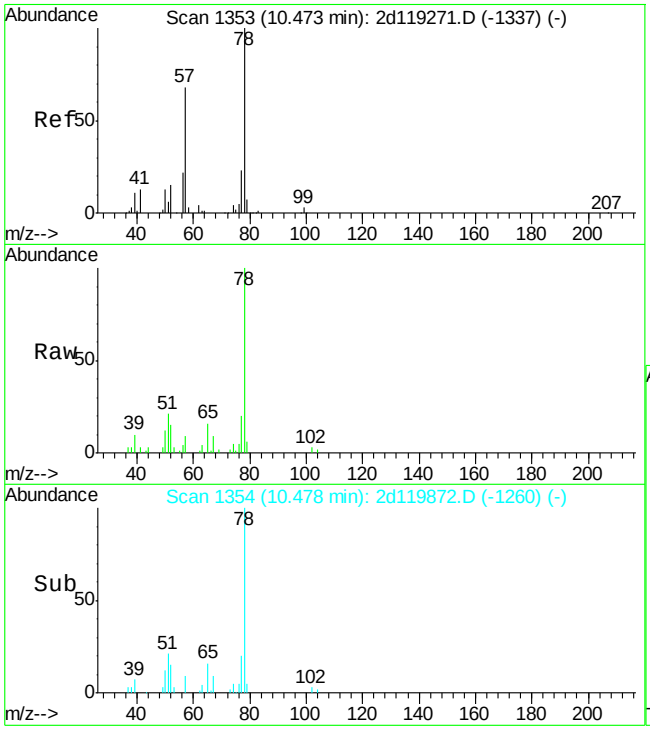


#38
methyl tert butyl ether
Concen: 1.17 ug/L
RT: 7.55 min Scan# 796
Delta R.T. 0.01 min
Lab File: 2d119872.D
Acq: 13 Apr 2013 3:28 am

Tgt Ion: 73 Resp: 10703

Ion	Ratio	Lower	Upper
73	100		
57	34.1	0.0	51.1

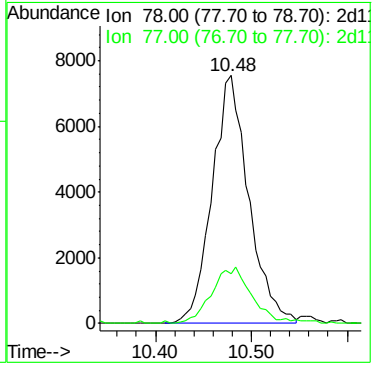


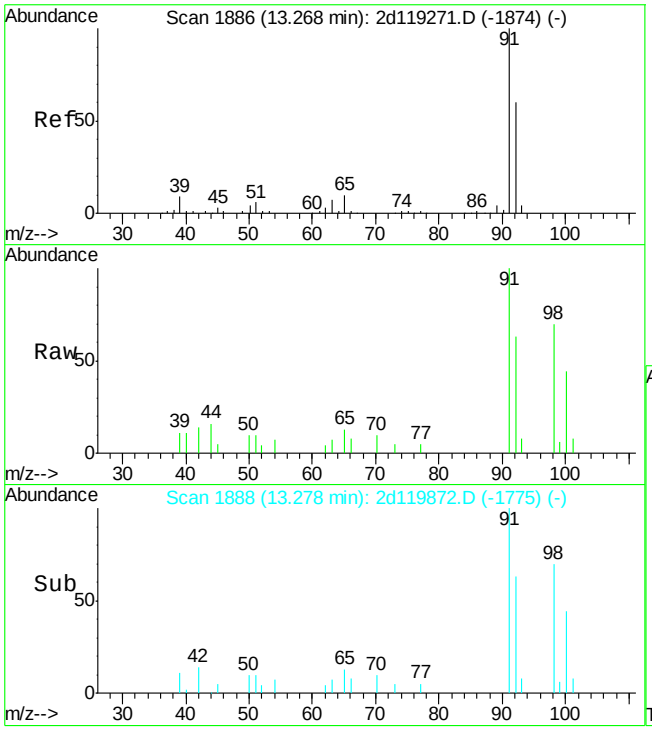


#70
benzene
Concen: 1.73 ug/L
RT: 10.48 min Scan# 1354
Delta R.T. 0.01 min
Lab File: 2d119872.D
Acq: 13 Apr 2013 3:28 am

Tgt Ion: 78 Resp: 20087

Ion	Ratio	Lower	Upper
78	100		
77	18.8	0.0	53.0

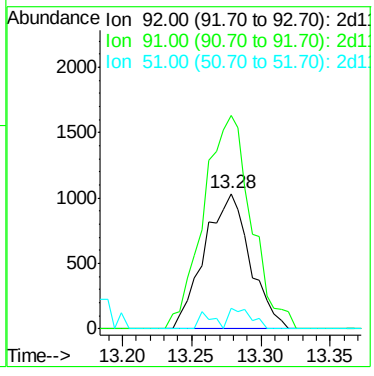


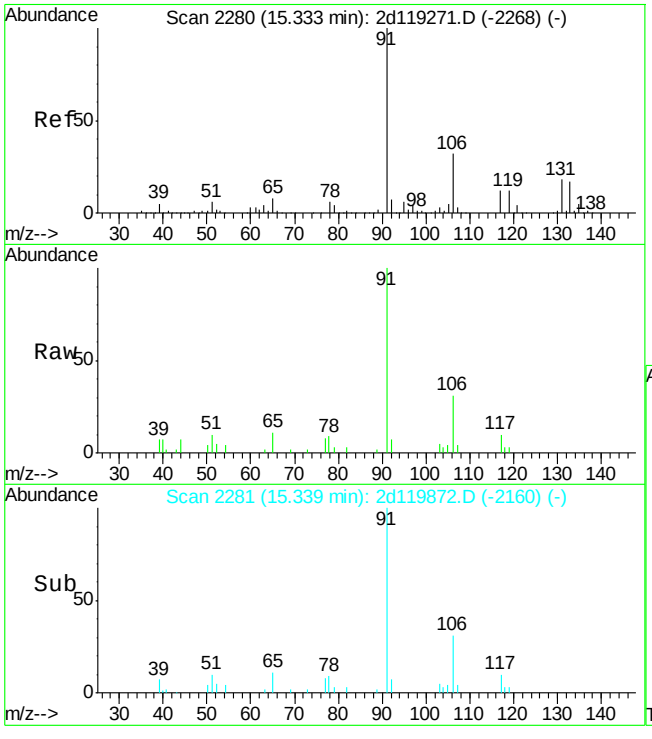


#88
toluene
Concen: 0.32 ug/L
RT: 13.28 min Scan# 1888
Delta R.T. 0.01 min
Lab File: 2d119872.D
Acq: 13 Apr 2013 3:28 am

Tgt Ion: 92 Resp: 2367

Ion	Ratio	Lower	Upper
92	100		
91	157.5	136.0	196.0
51	15.1	0.0	39.6

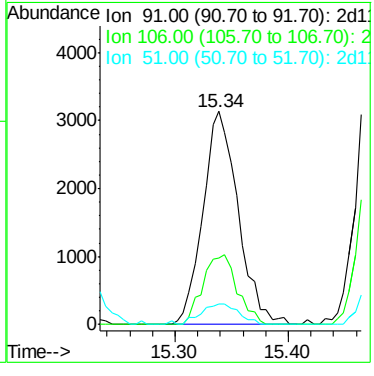




#104
ethylbenzene
Concen: 0.49 ug/L
RT: 15.34 min Scan# 2281
Delta R.T. 0.01 min
Lab File: 2d119872.D
Acq: 13 Apr 2013 3:28 am

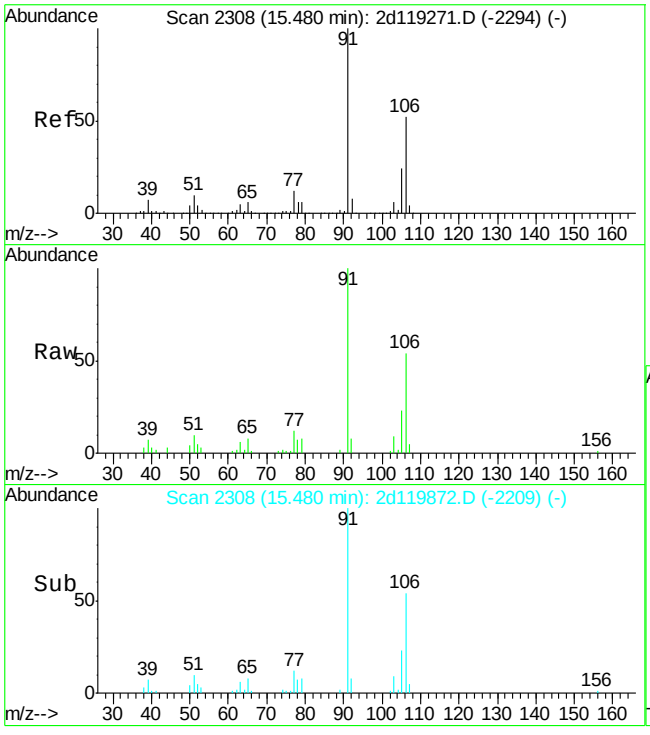
Tgt Ion: 91 Resp: 6753

Ion	Ratio	Lower	Upper
91	100		
106	31.3	2.3	62.3
51	9.9	0.0	39.3



7.1.7

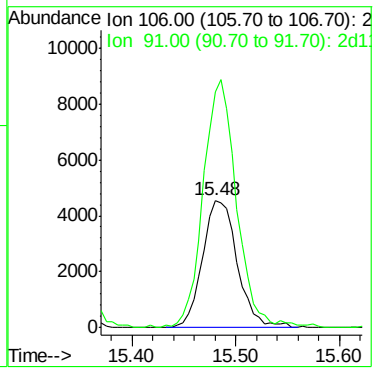
7

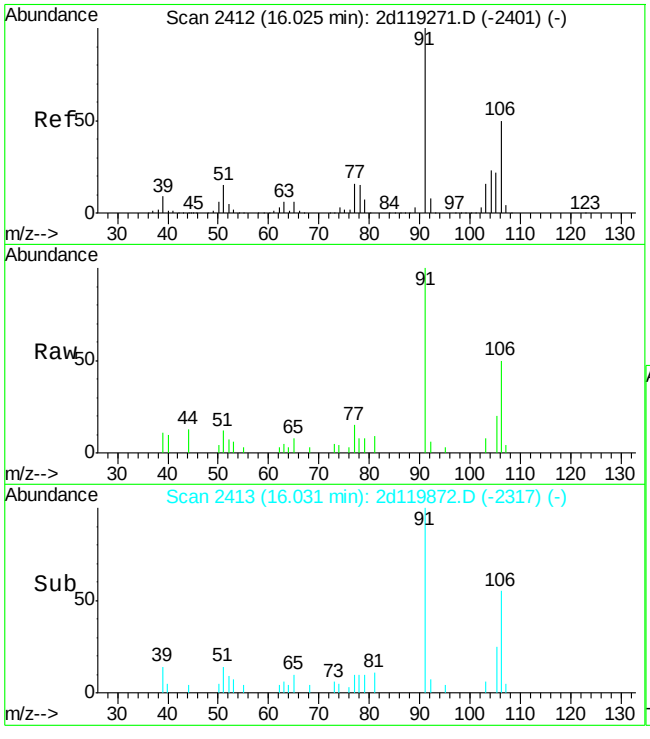


#105
m,p-xylene
Concen: 1.91 ug/L
RT: 15.48 min Scan# 2308
Delta R.T. 0.00 min
Lab File: 2d119872.D
Acq: 13 Apr 2013 3:28 am

Tgt Ion:106 Resp: 10558

Ion	Ratio	Lower	Upper
106	100		
91	183.2	163.0	223.0

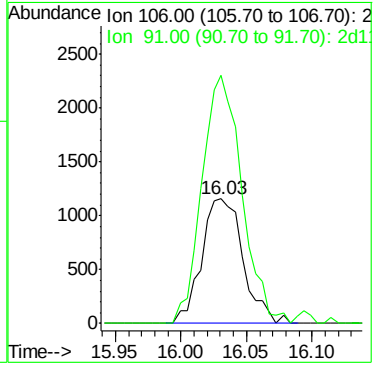


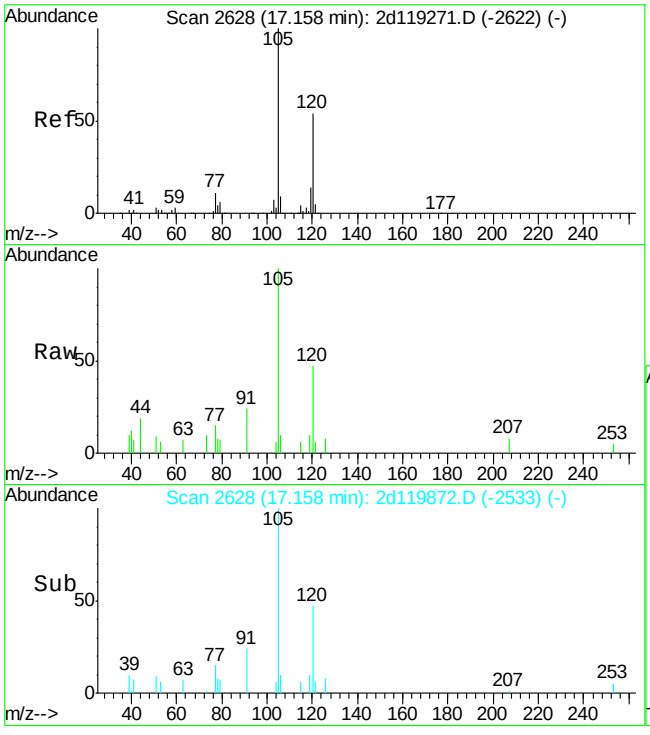


#106
o-xylene
Concen: 0.46 ug/L
RT: 16.03 min Scan# 2413
Delta R.T. 0.01 min
Lab File: 2d119872.D
Acq: 13 Apr 2013 3:28 am

Tgt Ion:106 Resp: 2538

Ion	Ratio	Lower	Upper
106	100		
91	199.3	171.4	231.4

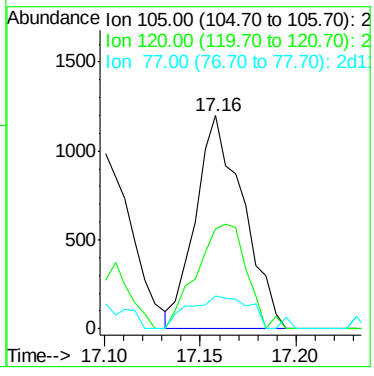


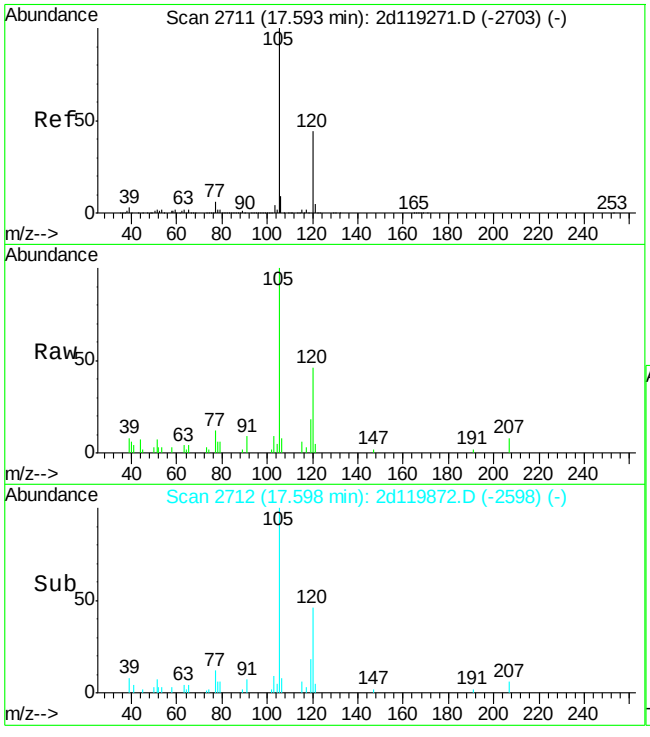


#121
1,3,5-trimethylbenzene
Concen: 0.20 ug/L
RT: 17.16 min Scan# 2628
Delta R.T. 0.00 min
Lab File: 2d119872.D
Acq: 13 Apr 2013 3:28 am

Tgt Ion:105 Resp: 2065

Ion	Ratio	Lower	Upper
105	100		
120	46.9	22.6	82.6
77	15.3	0.0	41.2

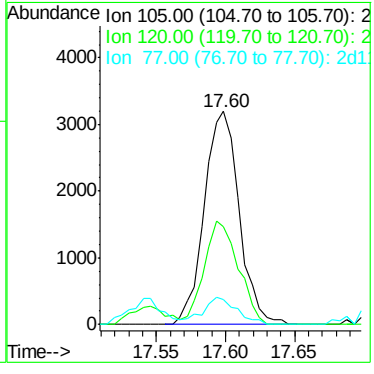




#124
1,2,4-trimethylbenzene
Concen: 0.54 ug/L
RT: 17.60 min Scan# 2712
Delta R.T. 0.01 min
Lab File: 2d119872.D
Acq: 13 Apr 2013 3:28 am

Tgt Ion:105 Resp: 5612

Ion	Ratio	Lower	Upper
105	100		
120	46.1	19.4	79.4
77	11.8	0.0	40.9



7.1.7

7

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\3D\
Data File : 3D85331.D
Acq On : 16 Apr 2013 1:39 am
Operator : natet
Sample : jb33197-8
Misc : MS45996,V3D3669,W,,,,40
ALS Vial : 33 Sample Multiplier: 1

Quant Time: Apr 16 16:45:04 2013
Quant Method : C:\MSDCHEM\1\METHODS\M3D3579.M
Quant Title : Method SW846 8260B, ZB 624 60m x 0.25mm x 1.4 um
QLast Update : Fri Feb 22 15:43:19 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.29	65	124599	500.00	ug/L	-0.01
4) pentafluorobenzene	9.53	168	297680	50.00	ug/L	-0.01
51) 1,4-difluorobenzene	10.45	114	416635	50.00	ug/L	-0.01
80) chlorobenzene-d5	13.60	117	326741	50.00	ug/L	-0.01
96) 1,4-dichlorobenzene-d4	15.90	152	183791	50.00	ug/L	0.00

System Monitoring Compounds						
43) dibromofluoromethane (s)	9.60	113	121289	52.43	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 104.86%			
44) 1,2-dichloroethane-d4 (s)	10.01	65	127318	52.23	ug/L	-0.01
Spiked Amount 50.000	Range 74 - 127		Recovery = 104.46%			
72) toluene-d8 (s)	12.09	98	408750	50.01	ug/L	-0.01
Spiked Amount 50.000	Range 80 - 122		Recovery = 100.02%			
98) 4-bromofluorobenzene (s)	14.75	95	138626	49.79	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 99.58%			

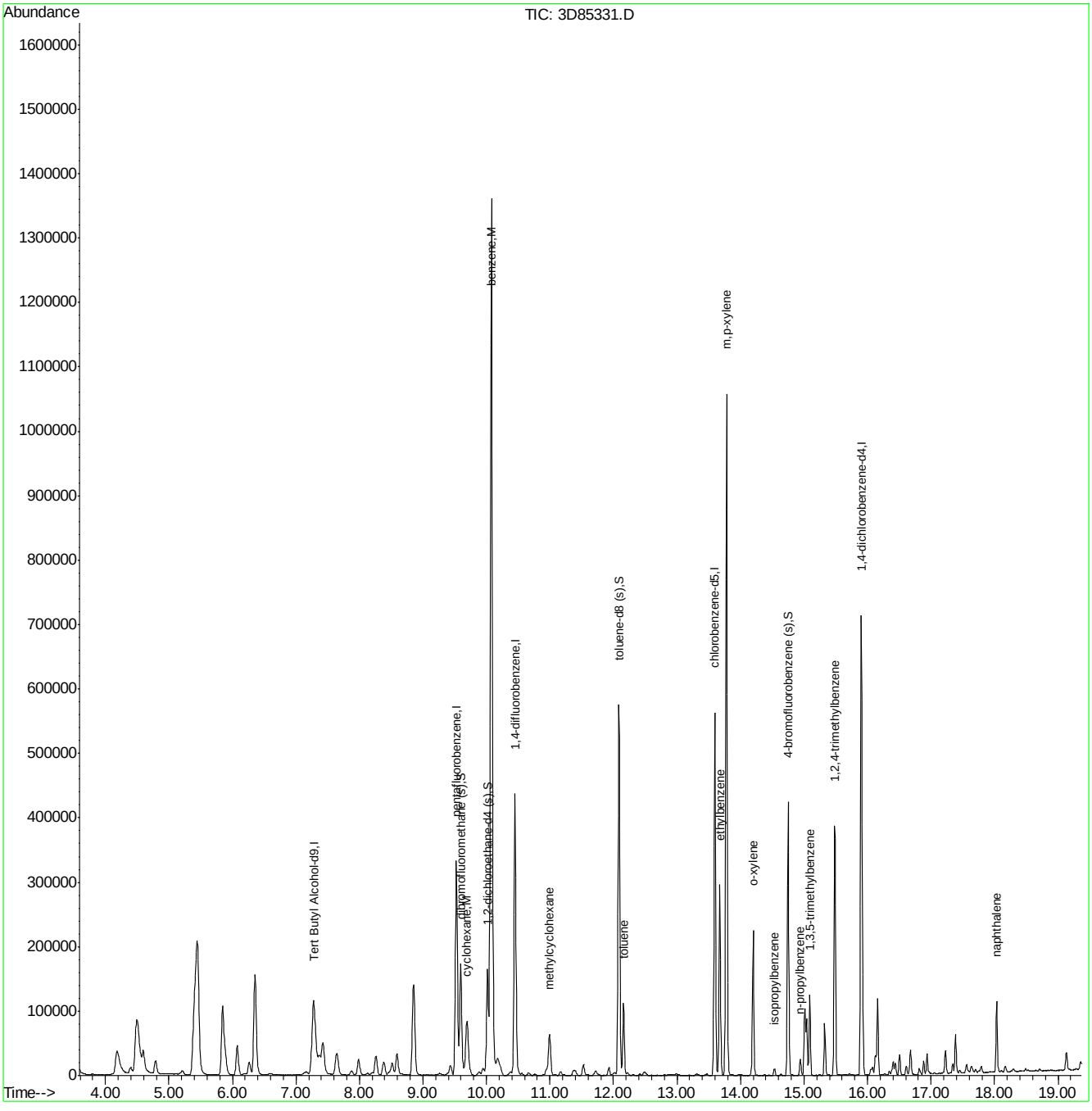
Target Compounds						Qvalue
54) cyclohexane	9.69	84	46122	12.13	ug/L #	38
58) benzene	10.08	78	1425906	138.27	ug/L	99
68) methylcyclohexane	10.99	83	33898	8.10	ug/L	94
74) toluene	12.16	92	49189	8.43	ug/L	98
90) ethylbenzene	13.67	91	217351	21.66	ug/L	97
91) m,p-xylene	13.78	106	322466	83.91	ug/L	100
92) o-xylene	14.20	106	65106	17.09	ug/L	97
97) isopropylbenzene	14.54	105	7150	0.73	ug/L	99
104) n-propylbenzene	14.94	91	20707	1.81	ug/L	98
108) 1,3,5-trimethylbenzene	15.09	105	70761	8.77	ug/L	99
111) 1,2,4-trimethylbenzene	15.48	105	215437	26.70	ug/L	98
124) naphthalene	18.04	128	85643	10.29	ug/L	99

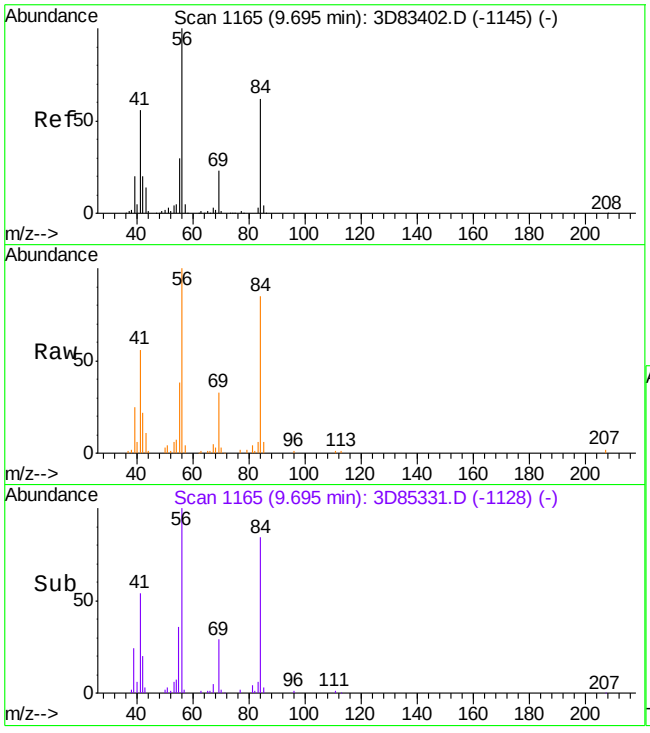
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\3D\
Data File : 3D85331.D
Acq On : 16 Apr 2013 1:39 am
Operator : natet
Sample : jb33197-8
Misc : MS45996,V3D3669,W,,,,40
ALS Vial : 33 Sample Multiplier: 1

Quant Time: Apr 16 16:45:04 2013
Quant Method : C:\MSDCHEM\1\METHODS\M3D3579.M
Quant Title : Method SW846 8260B, ZB 624 60m x 0.25mm x 1.4 um
QLast Update : Fri Feb 22 15:43:19 2013
Response via : Initial Calibration

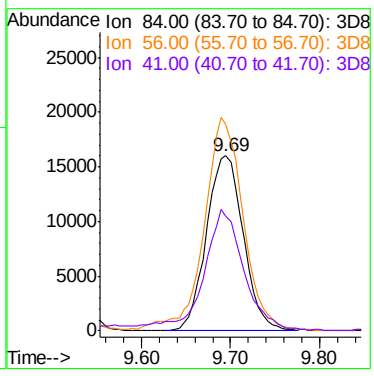


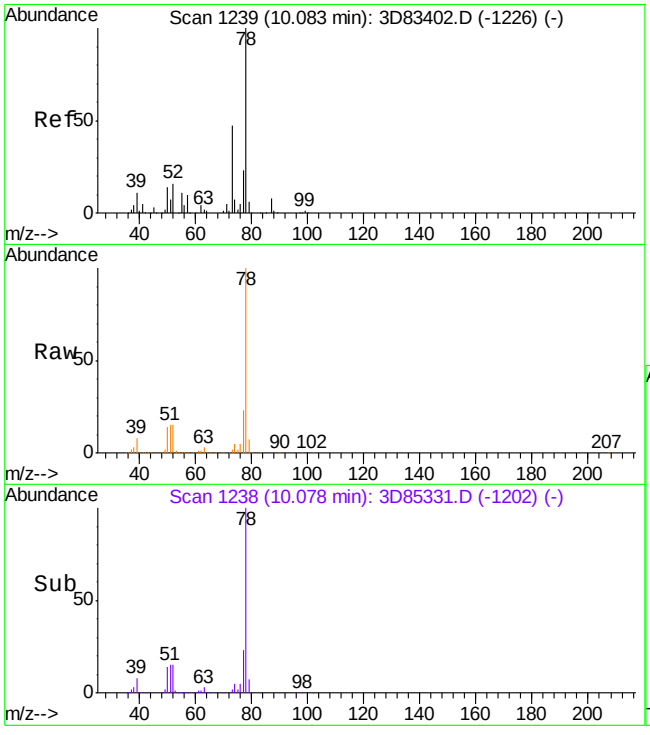


#54
cyclohexane
Concen: 12.13 ug/L
RT: 9.69 min Scan# 1165
Delta R.T. -0.01 min
Lab File: 3D85331.D
Acq: 16 Apr 2013 1:39 am

Tgt Ion: 84 Resp: 46122

Ion	Ratio	Lower	Upper
84	100		
56	129.7	213.9	273.9#
41	75.8	110.7	170.7#

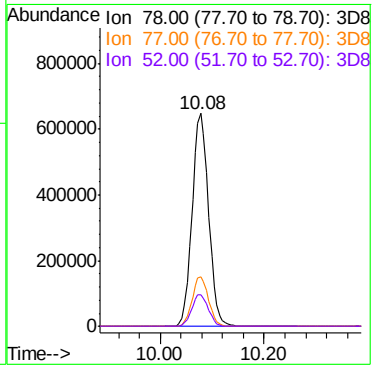




#58
benzene
Concen: 138.27 ug/L
RT: 10.08 min Scan# 1238
Delta R.T. -0.01 min
Lab File: 3D85331.D
Acq: 16 Apr 2013 1:39 am

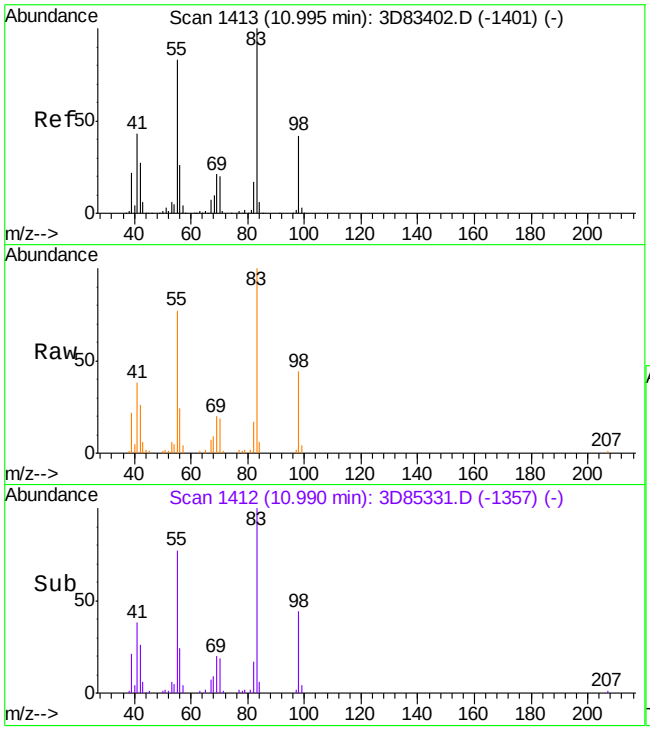
Tgt Ion: 78 Resp: 1425906

Ion	Ratio	Lower	Upper
78	100		
77	23.2	0.0	53.4
52	15.1	0.0	45.9



7.1.8

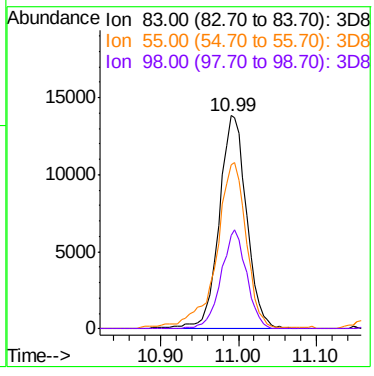
7

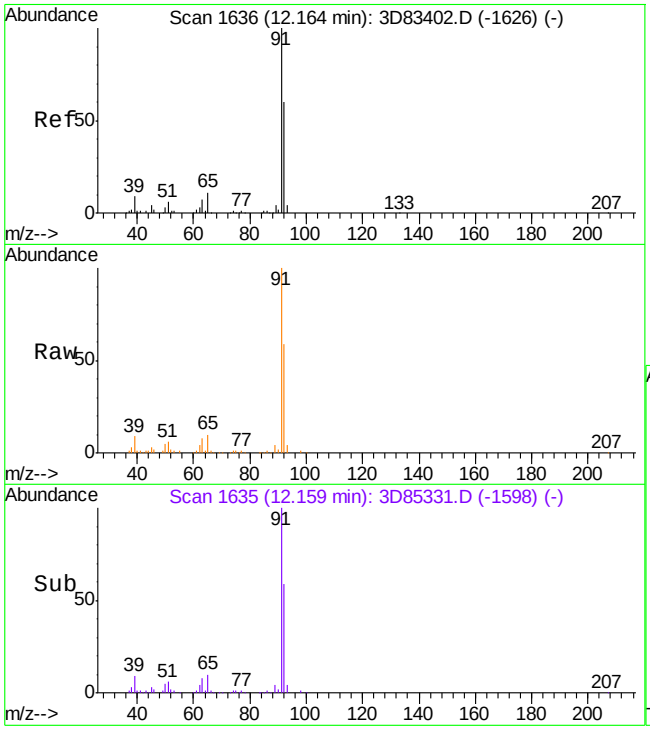


#68
methylcyclohexane
Concen: 8.10 ug/L
RT: 10.99 min Scan# 1412
Delta R.T. -0.01 min
Lab File: 3D85331.D
Acq: 16 Apr 2013 1:39 am

Tgt Ion: 83 Resp: 33898

Ion	Ratio	Lower	Upper
83	100		
55	76.1	52.4	112.4
98	43.9	10.7	70.7

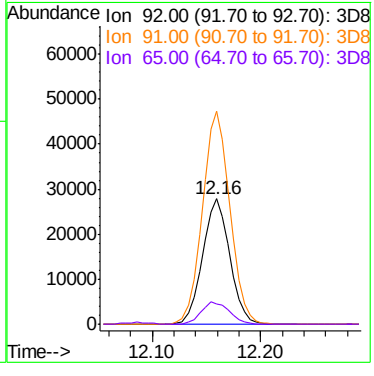


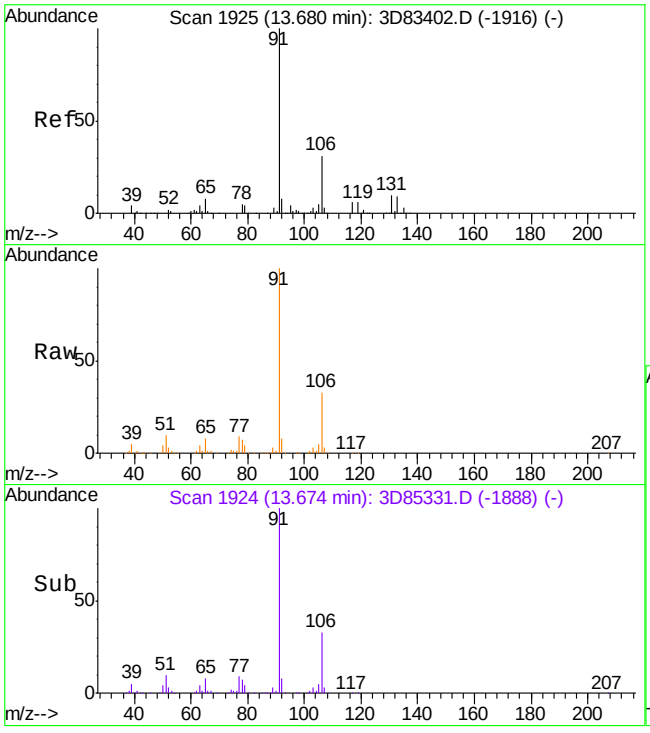


#74
toluene
Concen: 8.43 ug/L
RT: 12.16 min Scan# 1635
Delta R.T. -0.01 min
Lab File: 3D85331.D
Acq: 16 Apr 2013 1:39 am

Tgt Ion: 92 Resp: 49189

Ion	Ratio	Lower	Upper
92	100		
91	169.5	137.2	197.2
65	16.4	0.0	48.8

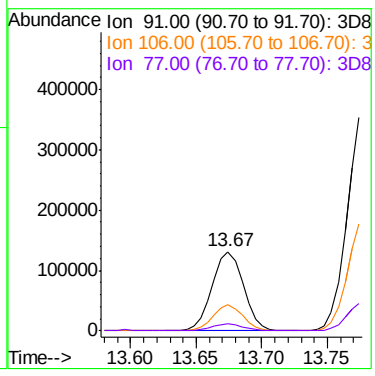


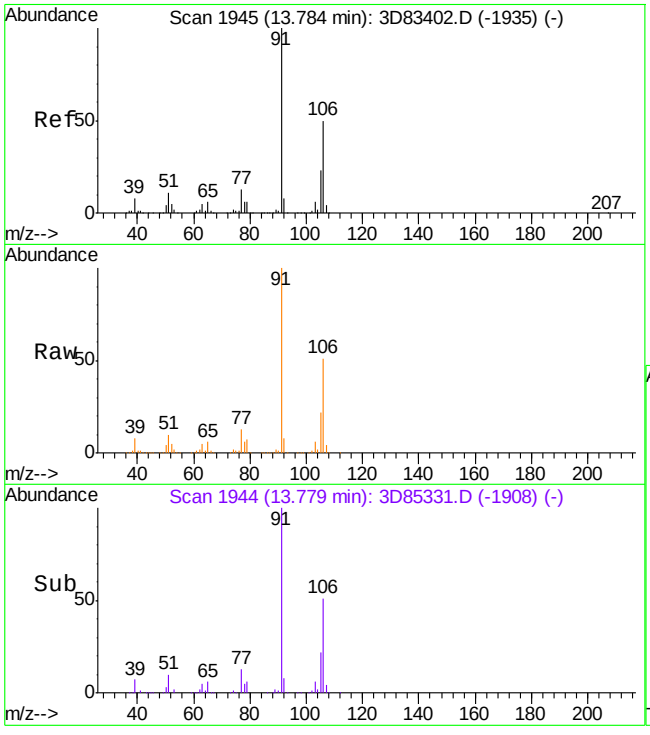


#90
ethylbenzene
Concen: 21.66 ug/L
RT: 13.67 min Scan# 1924
Delta R.T. -0.01 min
Lab File: 3D85331.D
Acq: 16 Apr 2013 1:39 am

Tgt Ion: 91 Resp: 217351

Ion	Ratio	Lower	Upper
91	100		
106	32.6	0.7	60.7
77	8.7	0.0	38.0

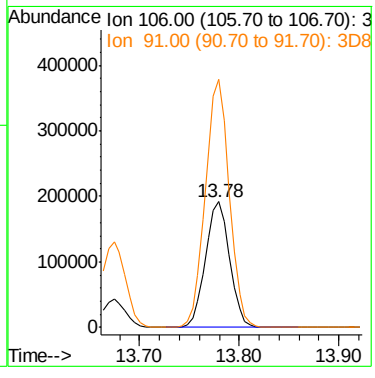


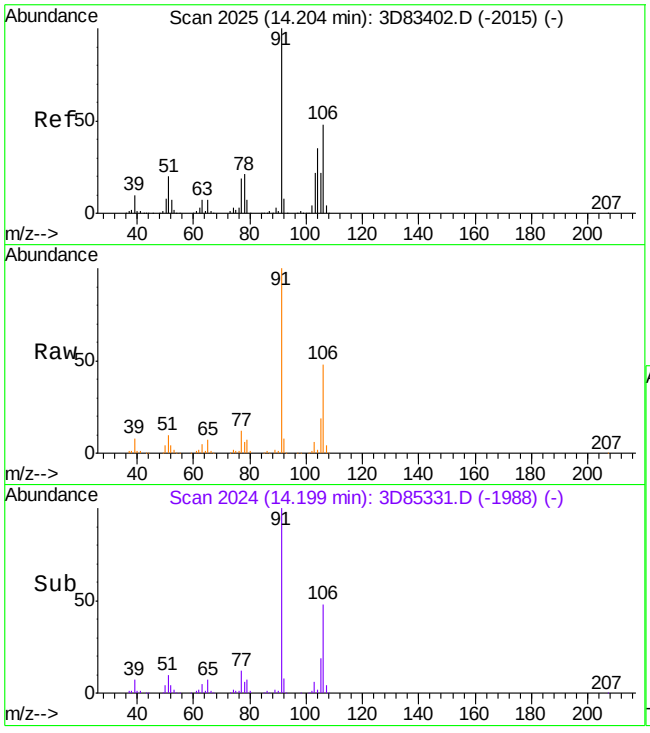


#91
m,p-xylene
Concen: 83.91 ug/L
RT: 13.78 min Scan# 1944
Delta R.T. -0.01 min
Lab File: 3D85331.D
Acq: 16 Apr 2013 1:39 am

Tgt Ion:106 Resp: 322466

Ion	Ratio	Lower	Upper
106	100		
91	196.9	137.5	255.3

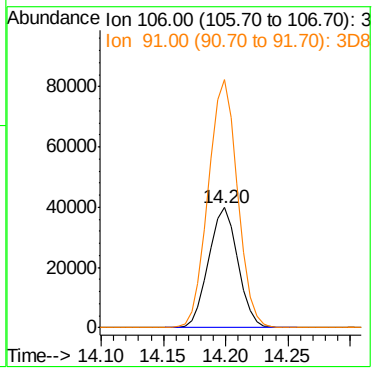


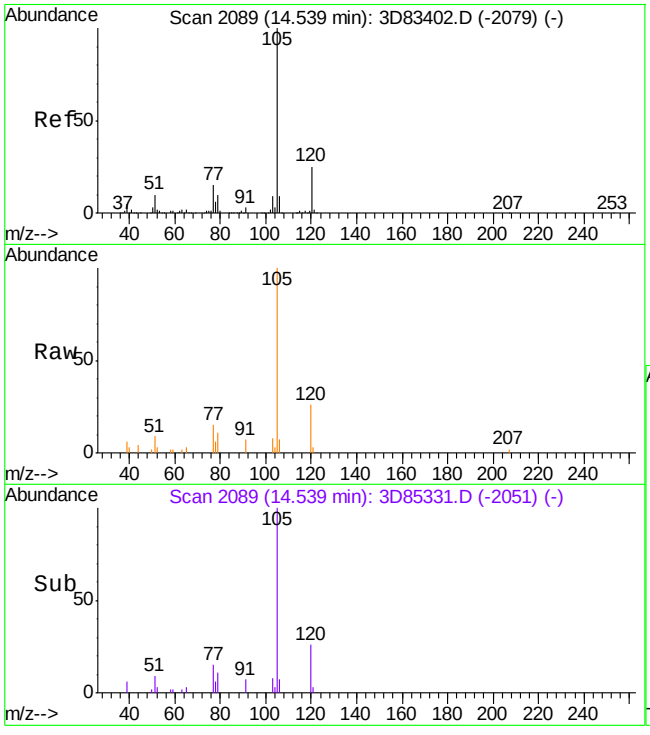


#92
o-xylene
Concen: 17.09 ug/L
RT: 14.20 min Scan# 2024
Delta R.T. -0.01 min
Lab File: 3D85331.D
Acq: 16 Apr 2013 1:39 am

Tgt Ion:106 Resp: 65106

Ion	Ratio	Lower	Upper
106	100		
91	206.9	141.6	263.0

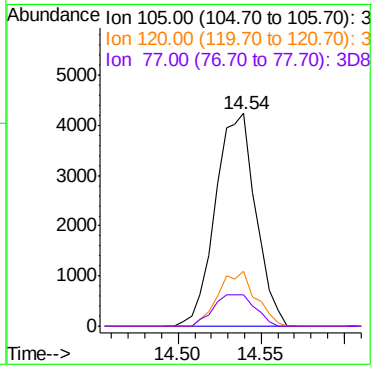


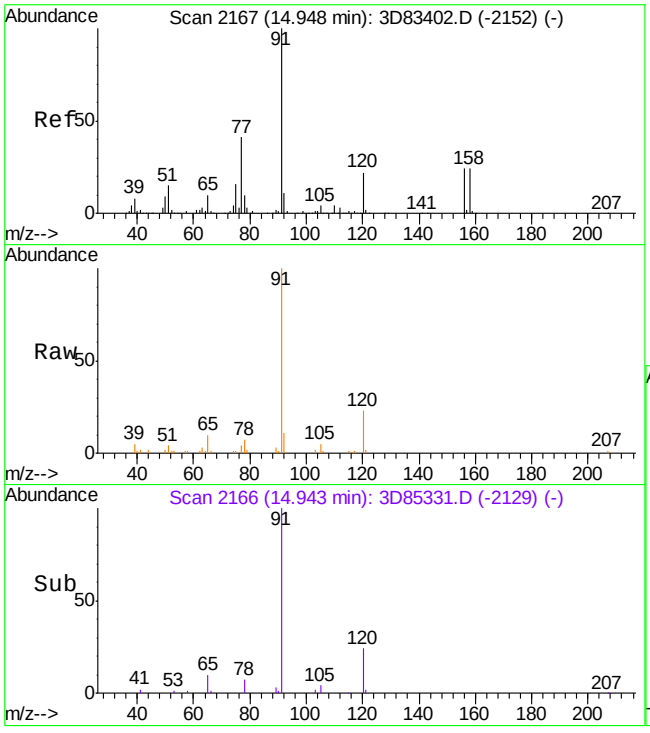


#97
isopropylbenzene
Concen: 0.73 ug/L
RT: 14.54 min Scan# 2089
Delta R.T. -0.00 min
Lab File: 3D85331.D
Acq: 16 Apr 2013 1:39 am

Tgt Ion:105 Resp: 7150

Ion	Ratio	Lower	Upper
105	100		
120	25.8	0.0	55.5
77	15.1	0.0	44.6

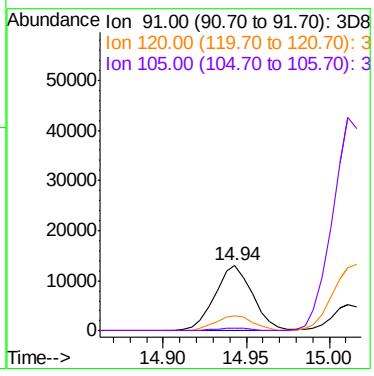


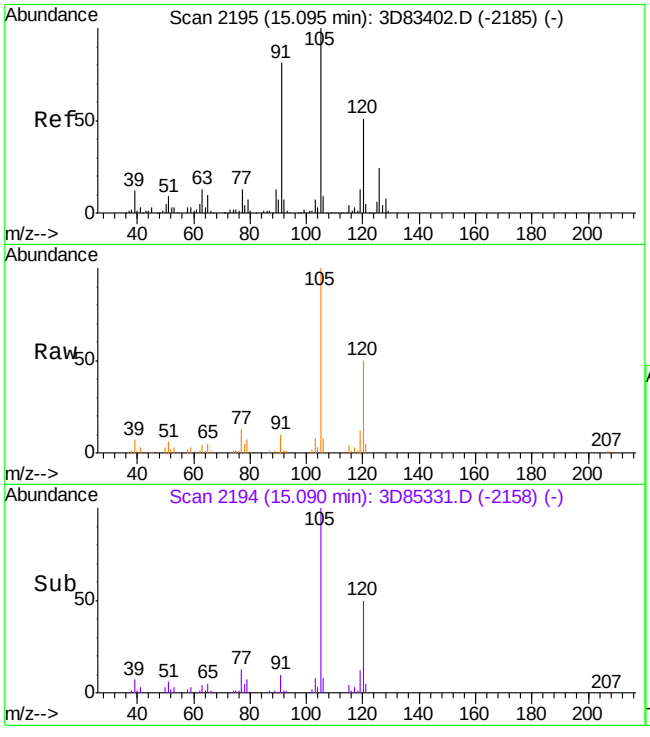


#104
n-propylbenzene
Concen: 1.81 ug/L
RT: 14.94 min Scan# 2166
Delta R.T. -0.01 min
Lab File: 3D85331.D
Acq: 16 Apr 2013 1:39 am

Tgt Ion: 91 Resp: 20707

Ion	Ratio	Lower	Upper
91	100		
120	23.1	0.0	52.1
105	4.6	0.0	33.7

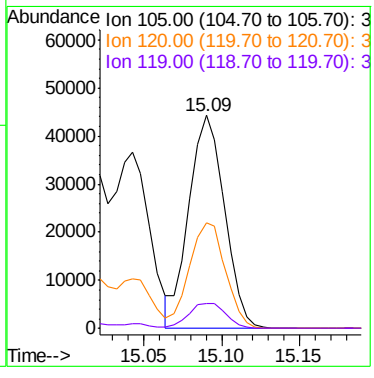


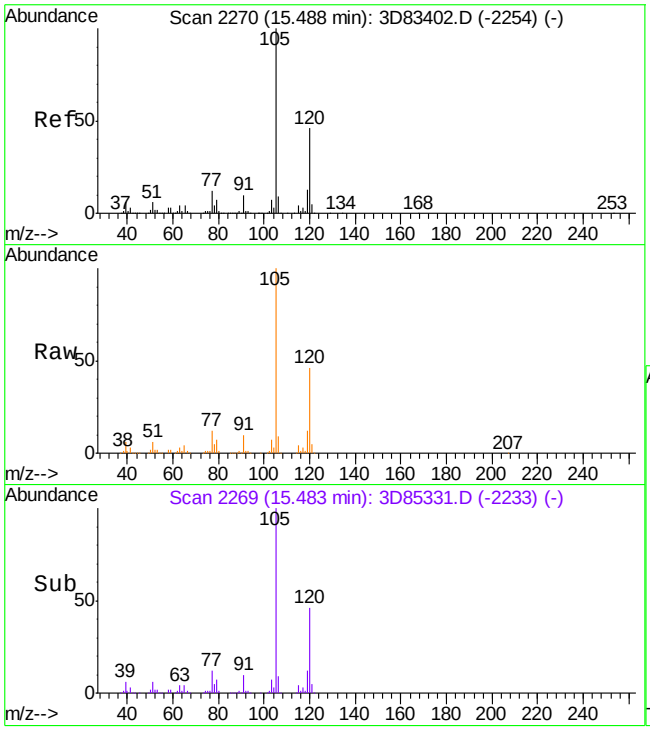


#108
1,3,5-trimethylbenzene
Concen: 8.77 ug/L
RT: 15.09 min Scan# 2194
Delta R.T. -0.01 min
Lab File: 3D85331.D
Acq: 16 Apr 2013 1:39 am

Tgt Ion:105 Resp: 70761

Ion	Ratio	Lower	Upper
105	100		
120	49.6	19.5	79.5
119	11.8	0.0	42.6

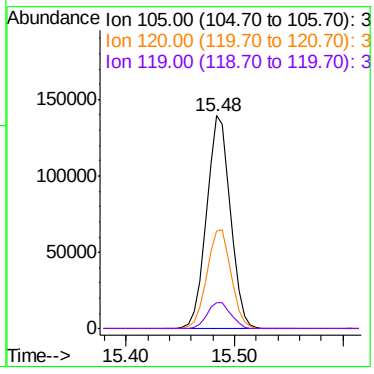


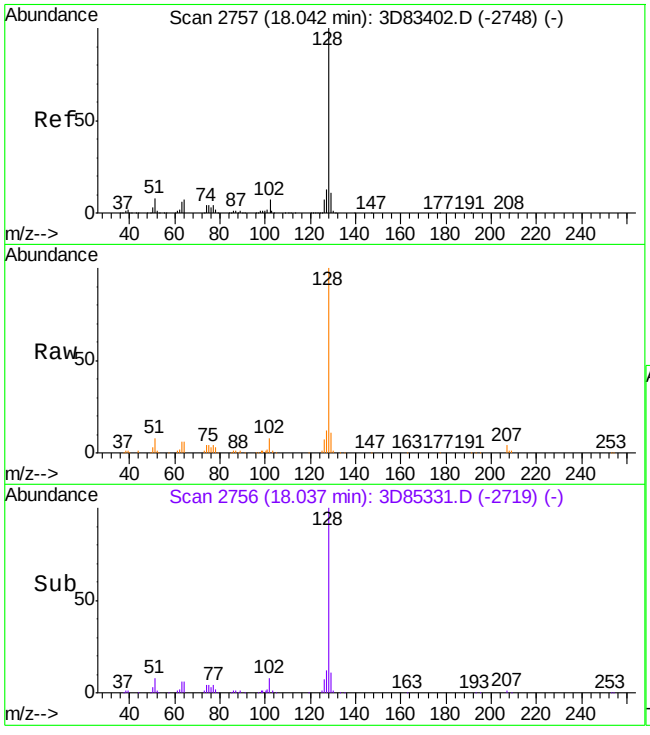


#111
1,2,4-trimethylbenzene
Concen: 26.70 ug/L
RT: 15.48 min Scan# 2269
Delta R.T. -0.01 min
Lab File: 3D85331.D
Acq: 16 Apr 2013 1:39 am

Tgt Ion:105 Resp: 215437

Ion	Ratio	Lower	Upper
105	100		
120	46.2	17.4	77.4
119	12.4	0.0	41.7

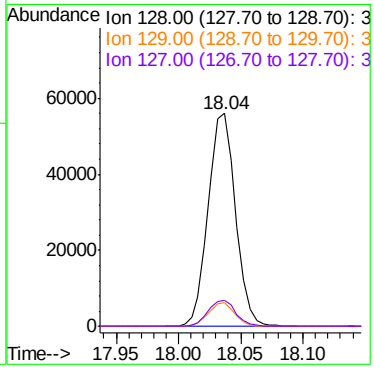




#124
naphthalene
Concen: 10.29 ug/L
RT: 18.04 min Scan# 2756
Delta R.T. -0.00 min
Lab File: 3D85331.D
Acq: 16 Apr 2013 1:39 am

Tgt Ion:128 Resp: 85643

Ion	Ratio	Lower	Upper
128	100		
129	11.1	0.0	40.9
127	12.5	0.0	43.0



7.1.8

7

Quantitation Report (QT Reviewed)

Data Path : C:\MSDChem\1\DATA\
Data File : 2d119874.D
Acq On : 13 Apr 2013 4:29 am
Operator : EmilyT
Sample : jb33197-9
Misc : ms45944,v2d4985,w,,,,1
ALS Vial : 39 Sample Multiplier: 1

Quant Time: Apr 14 14:49:47 2013
Quant Method : C:\MSDCHEM\1\METHODS\M2D4958.M
Quant Title : SW-846 Method 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Apr 08 15:45:10 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) tert butyl alcohol-d9	7.19	65	253371	500.00	ug/L	0.00
6) pentafluorobenzene	9.82	168	372259	50.00	ug/L	0.00
63) 1,4-difluorobenzene	10.98	114	465529	50.00	ug/L	0.00
94) chlorobenzene-d5	15.21	117	426414	50.00	ug/L	0.00
109) 1,4-dichlorobenzene-d4	18.03	152	229741	50.00	ug/L	0.00

System Monitoring Compounds

55) dibromofluoromethane (s)	9.88	113	139599	46.76	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 93.52%			
56) 1,2-dichloroethane-d4 (s)	10.39	65	151452	49.45	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 98.90%			
86) toluene-d8 (s)	13.17	98	518827	50.31	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 100.62%			
111) 4-bromofluorobenzene (s)	16.72	95	189837	53.45	ug/L	0.00
Spiked Amount 50.000	Range 76 - 116		Recovery = 106.90%			

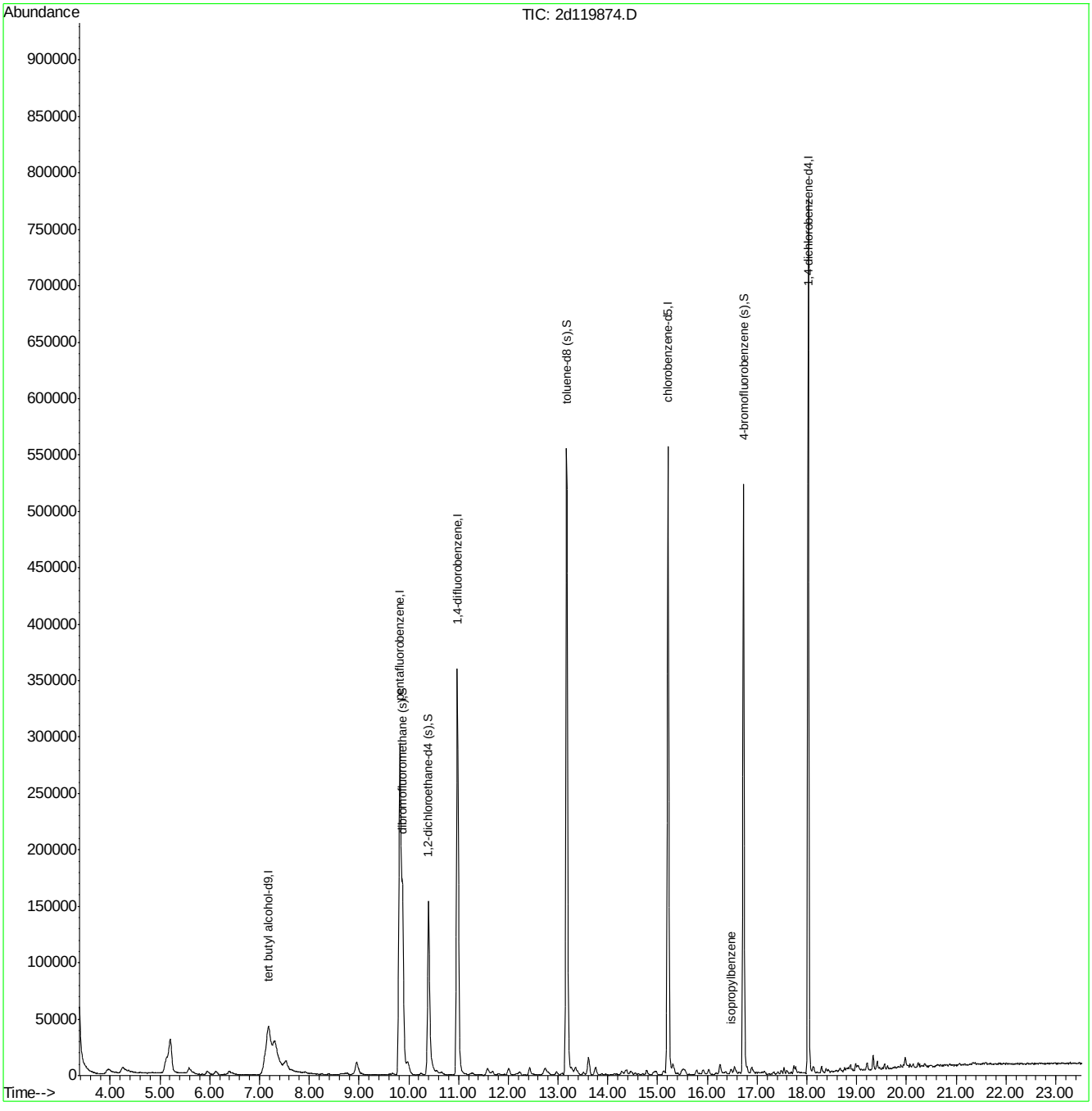
Target Compounds						Qvalue
110) isopropylbenzene	16.48	105	2833	0.22	ug/L	95

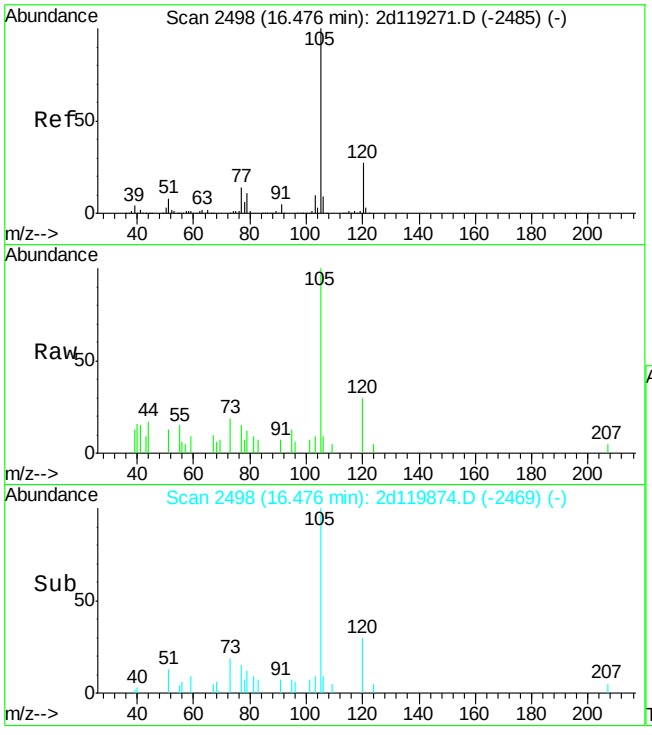
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\MSDChem\1\DATA\
Data File : 2d119874.D
Acq On : 13 Apr 2013 4:29 am
Operator : EmilyT
Sample : jb33197-9
Misc : ms45944,v2d4985,w,,,,1
ALS Vial : 39 Sample Multiplier: 1

Quant Time: Apr 14 14:49:47 2013
Quant Method : C:\MSDCHEM\1\METHODS\M2D4958.M
Quant Title : SW-846 Method 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Apr 08 15:45:10 2013
Response via : Initial Calibration

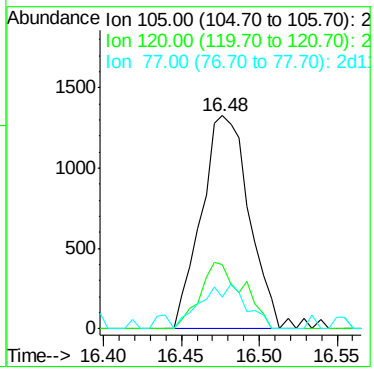




#110
isopropylbenzene
Concen: 0.22 ug/L
RT: 16.48 min Scan# 2498
Delta R.T. -0.00 min
Lab File: 2d119874.D
Acq: 13 Apr 2013 4:29 am

Tgt Ion:105 Resp: 2833

Ion	Ratio	Lower	Upper
105	100		
120	30.0	0.0	57.0
77	14.8	0.0	43.6



Quantitation Report (QT Reviewed)

Data Path : C:\MSDChem\1\DATA\
Data File : 2d119875.D
Acq On : 13 Apr 2013 4:59 am
Operator : EmilyT
Sample : jb33197-10
Misc : ms45944,v2d4985,w,,,,1
ALS Vial : 40 Sample Multiplier: 1

Quant Time: Apr 14 14:50:44 2013
Quant Method : C:\MSDCHEM\1\METHODS\M2D4958.M
Quant Title : SW-846 Method 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Apr 08 15:45:10 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) tert butyl alcohol-d9	7.18	65	267988	500.00	ug/L	0.00
6) pentafluorobenzene	9.82	168	371182	50.00	ug/L	0.00
63) 1,4-difluorobenzene	10.98	114	461933	50.00	ug/L	0.00
94) chlorobenzene-d5	15.21	117	426336	50.00	ug/L	0.00
109) 1,4-dichlorobenzene-d4	18.03	152	241549	50.00	ug/L	0.00

System Monitoring Compounds

55) dibromofluoromethane (s)	9.87	113	137117	46.06	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 92.12%			
56) 1,2-dichloroethane-d4 (s)	10.39	65	150248	49.20	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 98.40%			
86) toluene-d8 (s)	13.17	98	511884	50.02	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 100.04%			
111) 4-bromofluorobenzene (s)	16.72	95	184054	49.29	ug/L	0.00
Spiked Amount 50.000	Range 76 - 116		Recovery = 98.58%			

Target Compounds

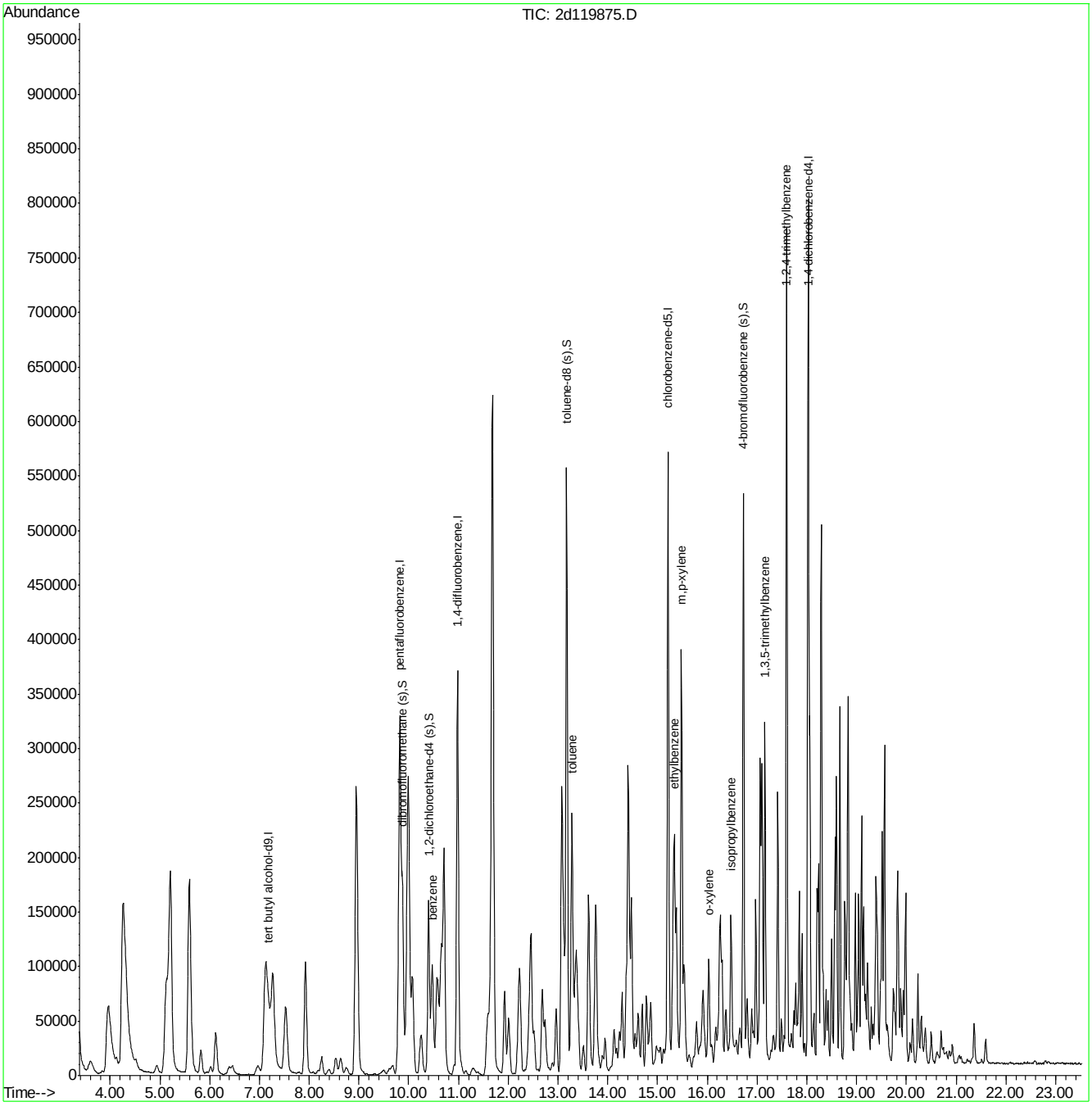
						Qvalue
70) benzene	10.47	78	21927	1.93	ug/L	95
88) toluene	13.27	92	16456	2.25	ug/L	97
104) ethylbenzene	15.33	91	145761	10.56	ug/L	97
105) m,p-xylene	15.48	106	116557	21.21	ug/L	98
106) o-xylene	16.03	106	14919	2.74	ug/L	90
110) isopropylbenzene	16.48	105	99064	7.45	ug/L	99
121) 1,3,5-trimethylbenzene	17.16	105	184440	16.71	ug/L	100
124) 1,2,4-trimethylbenzene	17.59	105	466893	41.33	ug/L	98

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDChem\1\DATA\
Data File : 2d119875.D
Acq On : 13 Apr 2013 4:59 am
Operator : EmilyT
Sample : jb33197-10
Misc : ms45944,v2d4985,w,,,,1
ALS Vial : 40 Sample Multiplier: 1

Quant Time: Apr 14 14:50:44 2013
Quant Method : C:\MSDCHEM\1\METHODS\M2D4958.M
Quant Title : SW-846 Method 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Apr 08 15:45:10 2013
Response via : Initial Calibration



M2D4958.M Sun Apr 14 14:50:53 2013 MS2D

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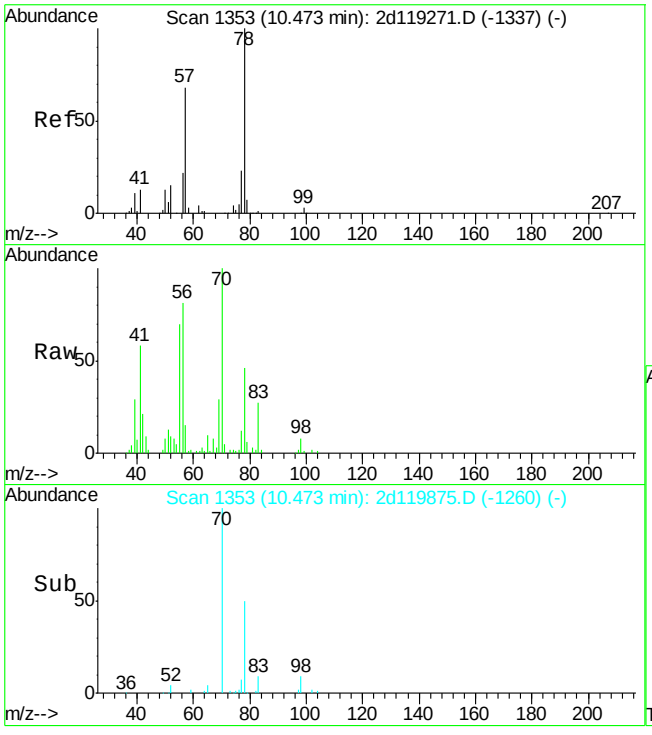
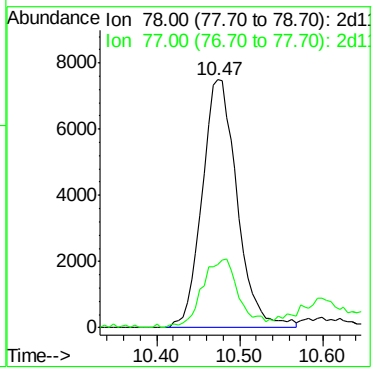
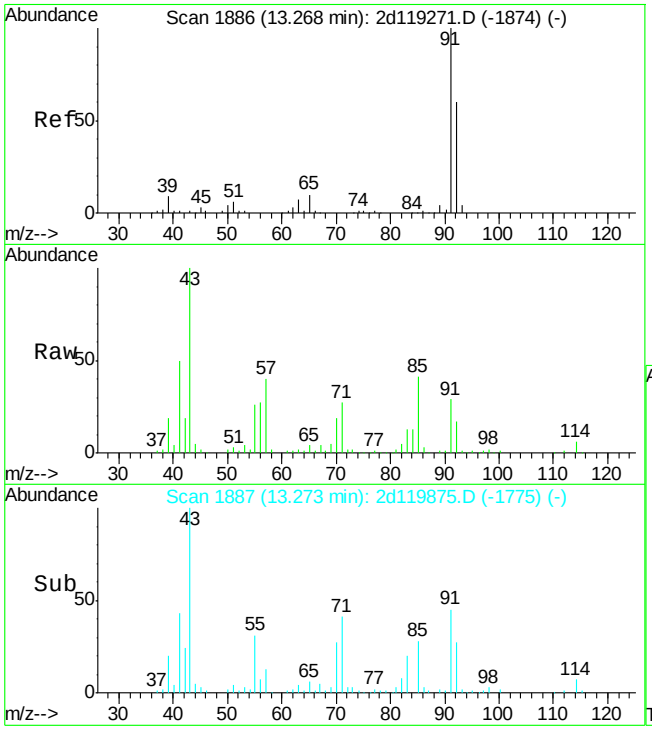


#70
benzene
Concen: 1.93 ug/L
RT: 10.47 min Scan# 1353
Delta R.T. 0.00 min
Lab File: 2d119875.D
Acq: 13 Apr 2013 4:59 am

Tgt Ion: 78 Resp: 21927

Ion	Ratio	Lower	Upper
78	100		
77	25.3	0.0	53.0

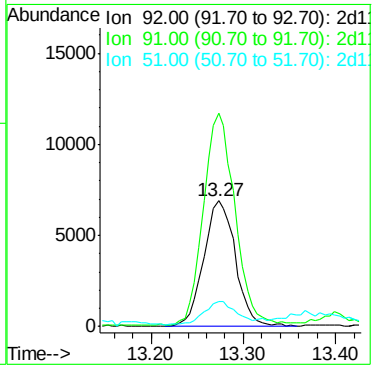


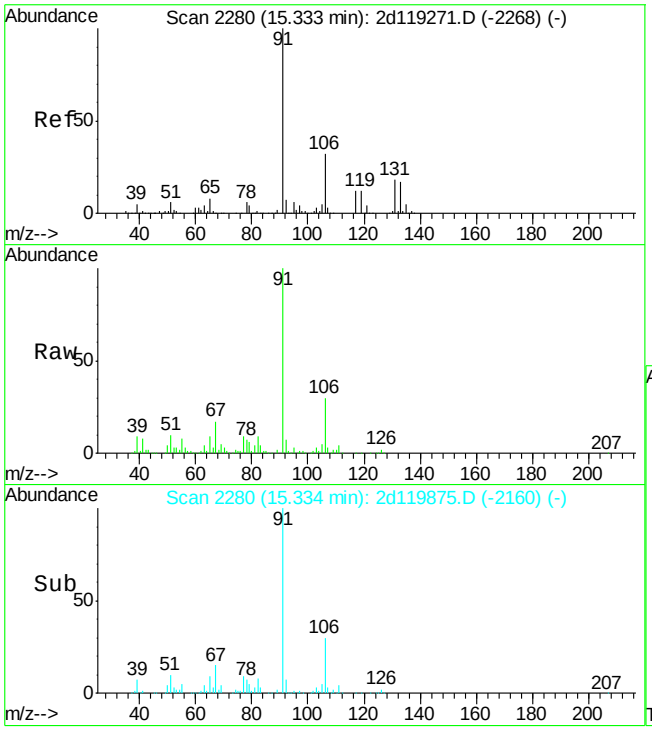


#88
toluene
Concen: 2.25 ug/L
RT: 13.27 min Scan# 1887
Delta R.T. 0.01 min
Lab File: 2d119875.D
Acq: 13 Apr 2013 4:59 am

Tgt Ion: 92 Resp: 16456

Ion	Ratio	Lower	Upper
92	100		
91	168.7	136.0	196.0
51	18.4	0.0	39.6

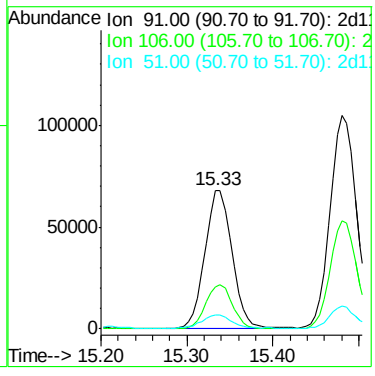


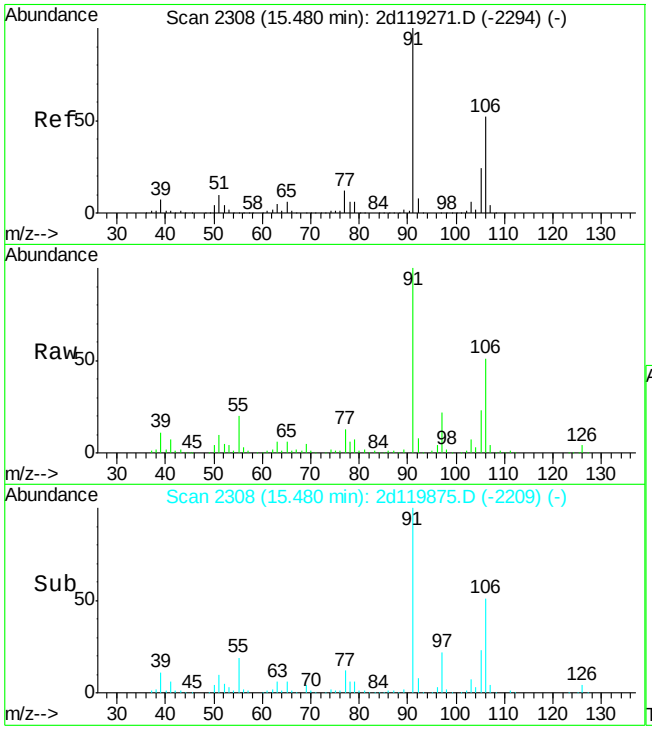


#104
ethylbenzene
Concen: 10.56 ug/L
RT: 15.33 min Scan# 2280
Delta R.T. 0.00 min
Lab File: 2d119875.D
Acq: 13 Apr 2013 4:59 am

Tgt Ion: 91 Resp: 145761

Ion	Ratio	Lower	Upper
91	100		
106	30.3	2.3	62.3
51	9.9	0.0	39.3

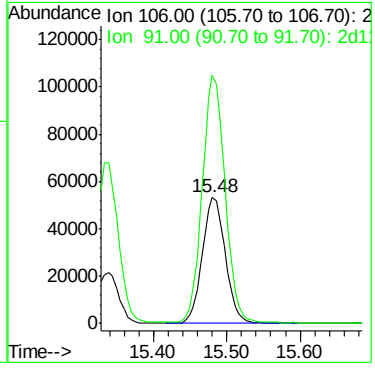


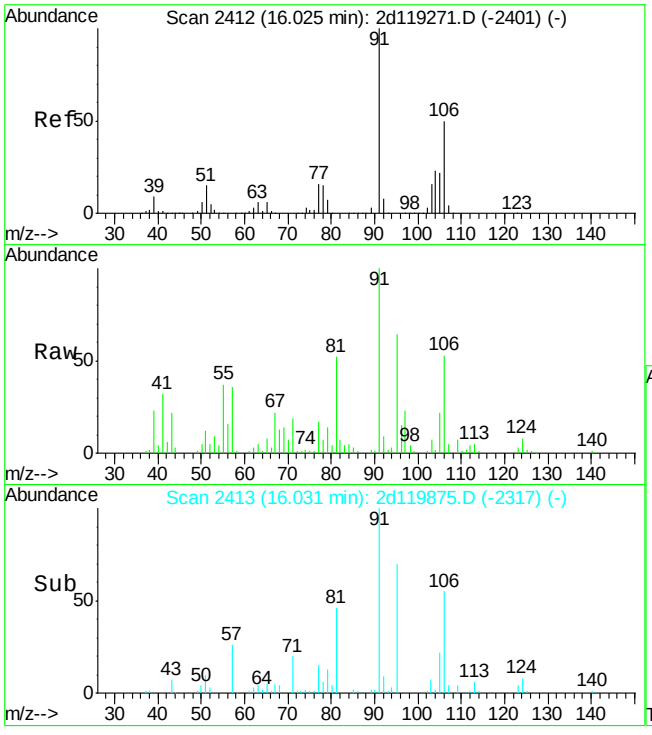


#105
m,p-xylene
Concen: 21.21 ug/L
RT: 15.48 min Scan# 2308
Delta R.T. 0.00 min
Lab File: 2d119875.D
Acq: 13 Apr 2013 4:59 am

Tgt Ion:106 Resp: 116557

Ion	Ratio	Lower	Upper
106	100		
91	196.0	163.0	223.0

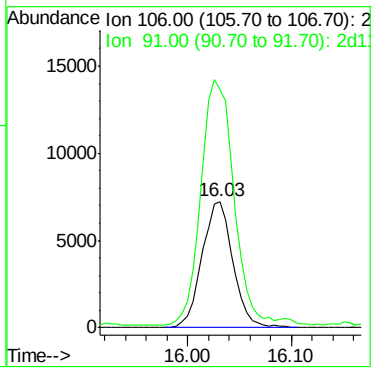


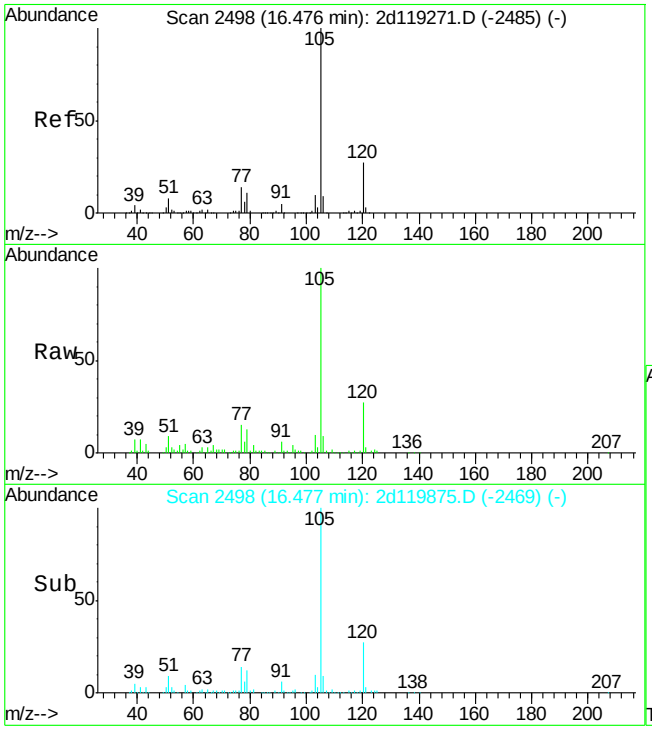


#106
o-xylene
Concen: 2.74 ug/L
RT: 16.03 min Scan# 2413
Delta R.T. 0.01 min
Lab File: 2d119875.D
Acq: 13 Apr 2013 4:59 am

Tgt Ion:106 Resp: 14919

Ion	Ratio	Lower	Upper
106	100		
91	185.9	171.4	231.4

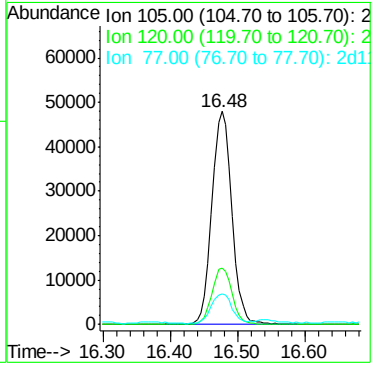


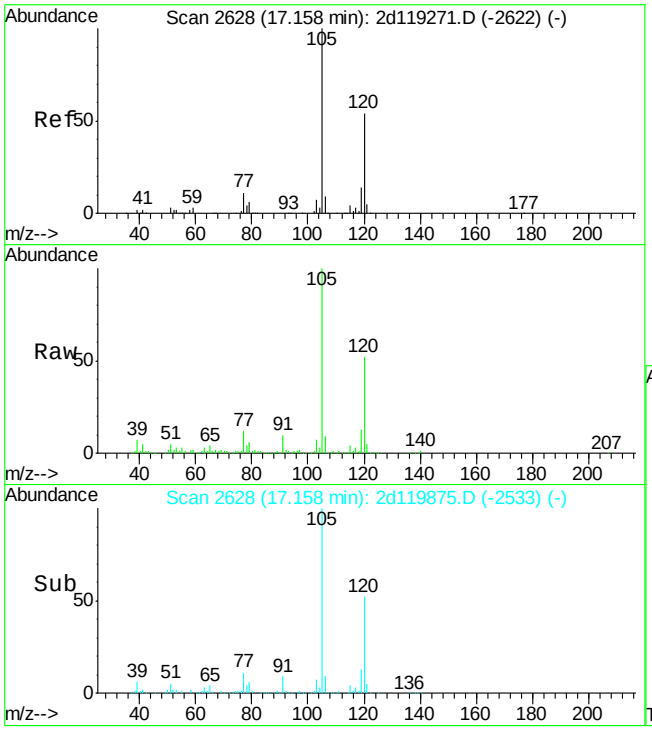


#110
isopropylbenzene
Concen: 7.45 ug/L
RT: 16.48 min Scan# 2498
Delta R.T. 0.00 min
Lab File: 2d119875.D
Acq: 13 Apr 2013 4:59 am

Tgt Ion:105 Resp: 99064

Ion	Ratio	Lower	Upper
105	100		
120	26.7	0.0	57.0
77	13.5	0.0	43.6

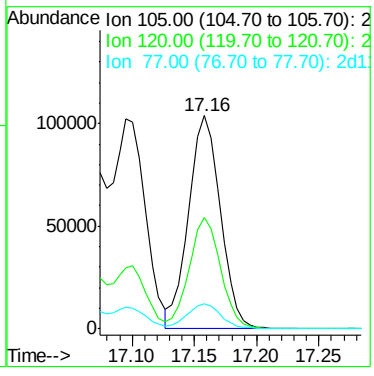


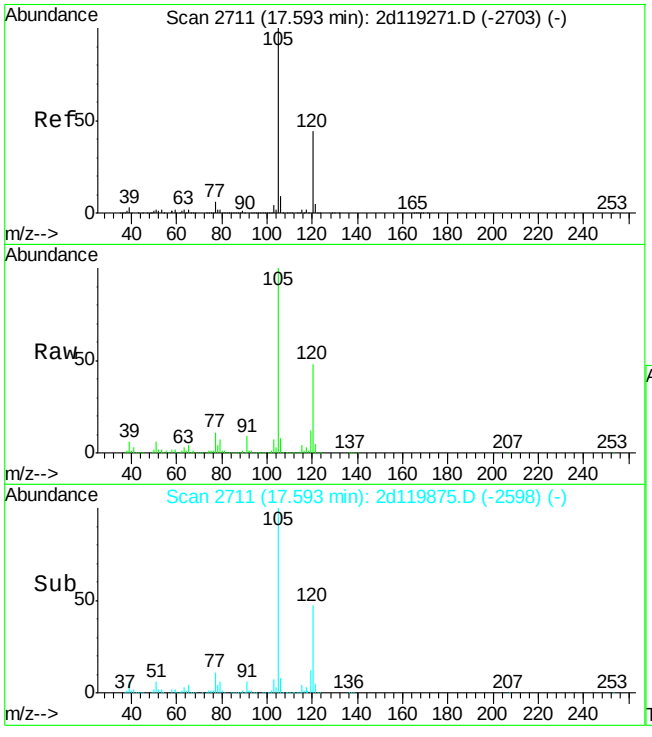


#121
1,3,5-trimethylbenzene
Concen: 16.71 ug/L
RT: 17.16 min Scan# 2628
Delta R.T. 0.00 min
Lab File: 2d119875.D
Acq: 13 Apr 2013 4:59 am

Tgt Ion:105 Resp: 184440

Ion	Ratio	Lower	Upper
105	100		
120	52.5	22.6	82.6
77	11.6	0.0	41.2

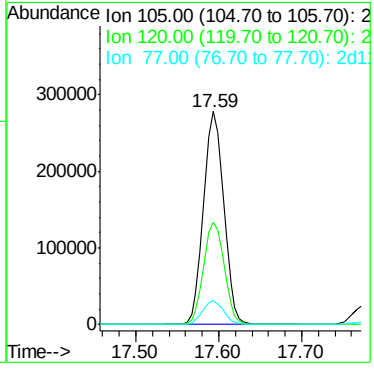




#124
1,2,4-trimethylbenzene
Concen: 41.33 ug/L
RT: 17.59 min Scan# 2711
Delta R.T. 0.00 min
Lab File: 2d119875.D
Acq: 13 Apr 2013 4:59 am

Tgt Ion:105 Resp: 466893

Ion	Ratio	Lower	Upper
105	100		
120	48.0	19.4	79.4
77	11.0	0.0	40.9



Quantitation Report (QT Reviewed)

Data Path : C:\MSDChem\1\DATA\
Data File : 2d119876.D
Acq On : 13 Apr 2013 5:28 am
Operator : EmilyT
Sample : jb33197-11
Misc : ms45944,v2d4985,w,,,,1
ALS Vial : 41 Sample Multiplier: 1

Quant Time: Apr 14 14:51:42 2013
Quant Method : C:\MSDCHEM\1\METHODS\M2D4958.M
Quant Title : SW-846 Method 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Apr 08 15:45:10 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) tert butyl alcohol-d9	7.18	65	278820	500.00	ug/L	0.00
6) pentafluorobenzene	9.82	168	379740	50.00	ug/L	0.00
63) 1,4-difluorobenzene	10.98	114	473392	50.00	ug/L	0.00
94) chlorobenzene-d5	15.21	117	430595	50.00	ug/L	0.00
109) 1,4-dichlorobenzene-d4	18.03	152	223698	50.00	ug/L	0.00

System Monitoring Compounds						
55) dibromofluoromethane (s)	9.88	113	139881	45.93	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 91.86%			
56) 1,2-dichloroethane-d4 (s)	10.40	65	152150	48.70	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 97.40%			
86) toluene-d8 (s)	13.17	98	530481	50.59	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 101.18%			
111) 4-bromofluorobenzene (s)	16.72	95	186546	53.95	ug/L	0.00
Spiked Amount 50.000	Range 76 - 116		Recovery = 107.90%			

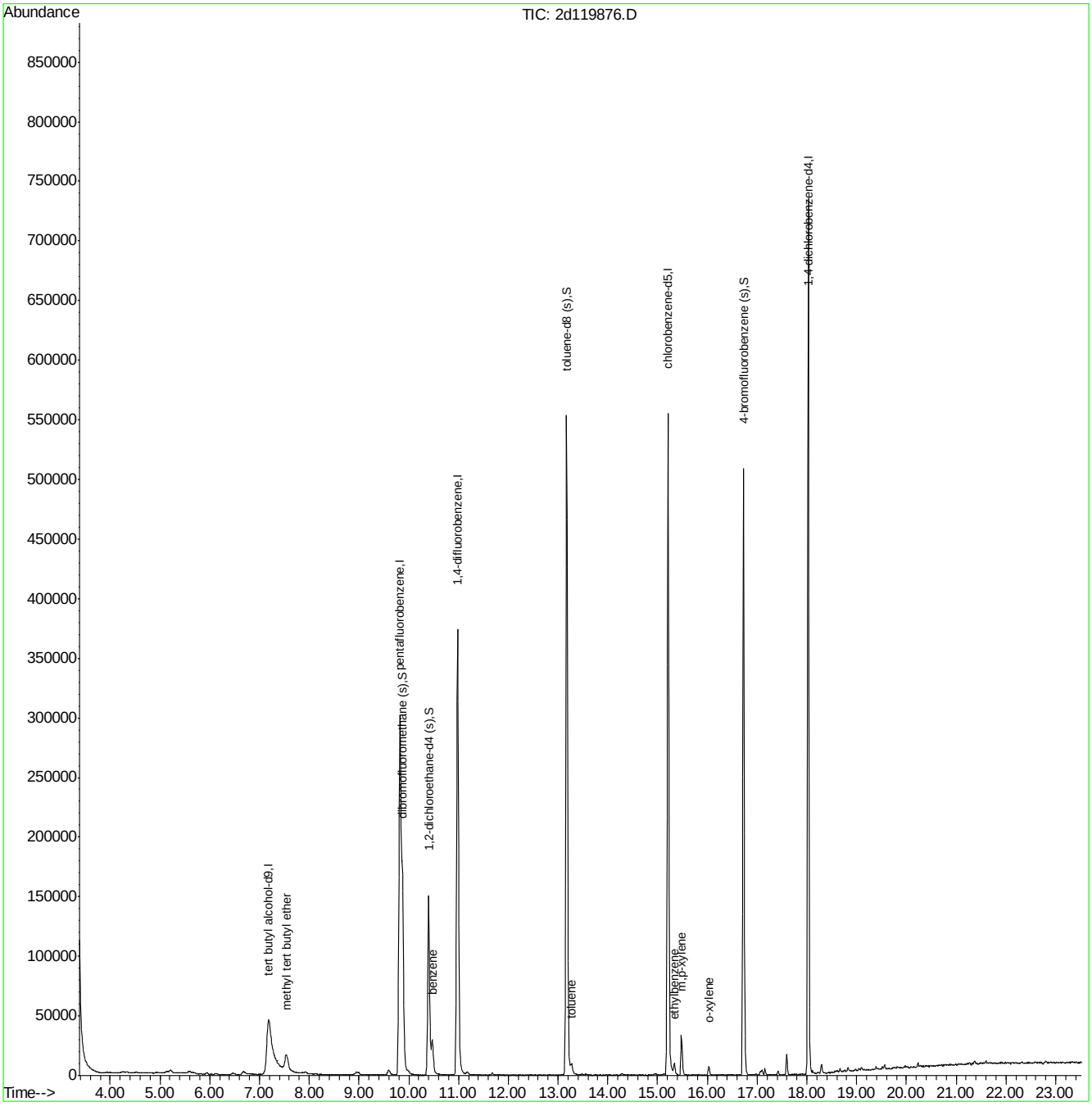
Target Compounds						Qvalue
38) methyl tert butyl ether	7.54	73	27019	2.95	ug/L	94
70) benzene	10.48	78	35950	3.08	ug/L	98
88) toluene	13.27	92	3433	0.46	ug/L	93
104) ethylbenzene	15.34	91	9055	0.65	ug/L	94
105) m,p-xylene	15.48	106	13581	2.45	ug/L	97
106) o-xylene	16.03	106	2887	0.53	ug/L	82

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDChem\1\DATA\
Data File : 2d119876.D
Acq On : 13 Apr 2013 5:28 am
Operator : EmilyT
Sample : jb33197-11
Misc : ms45944,v2d4985,w,,,,1
ALS Vial : 41 Sample Multiplier: 1

Quant Time: Apr 14 14:51:42 2013
Quant Method : C:\MSDCHEM\1\METHODS\M2D4958.M
Quant Title : SW-846 Method 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Apr 08 15:45:10 2013
Response via : Initial Calibration



M2D4958.M Sun Apr 14 14:51:55 2013 MS2D

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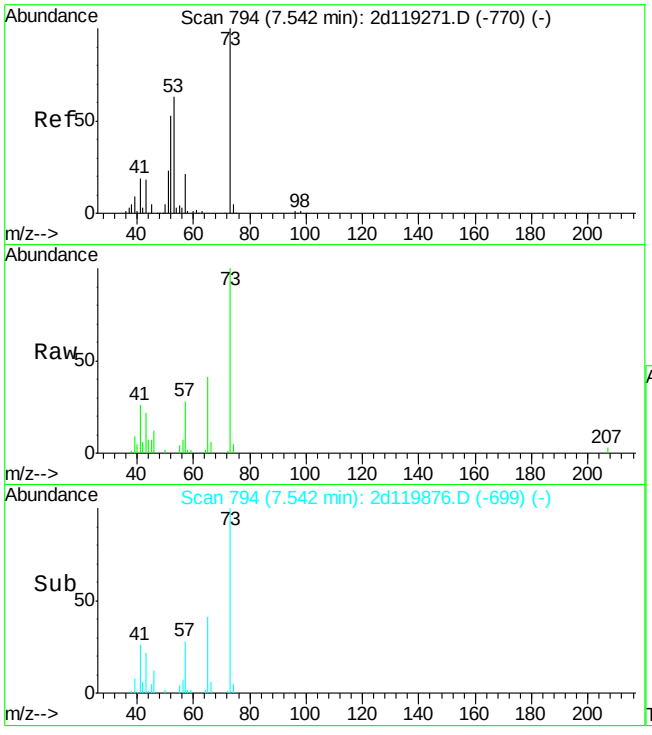
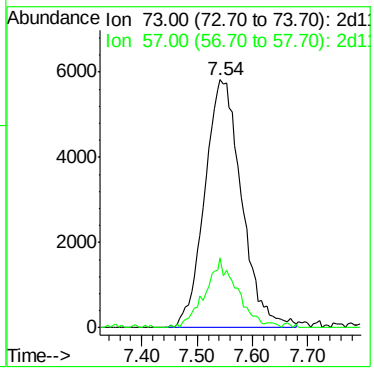
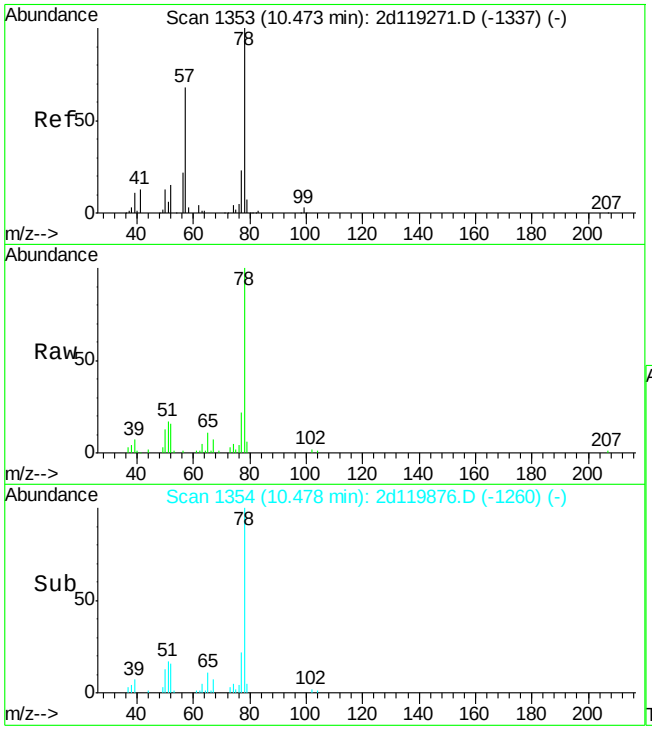


#38
methyl tert butyl ether
Concen: 2.95 ug/L
RT: 7.54 min Scan# 794
Delta R.T. -0.00 min
Lab File: 2d119876.D
Acq: 13 Apr 2013 5:28 am

Tgt Ion: 73 Resp: 27019

Ion	Ratio	Lower	Upper
73	100		
57	24.0	0.0	51.1

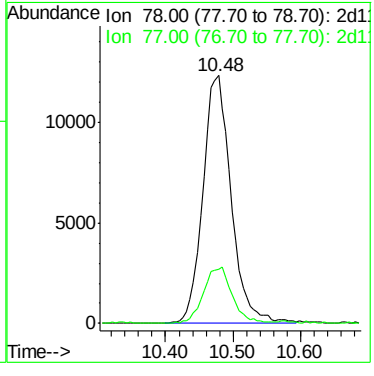


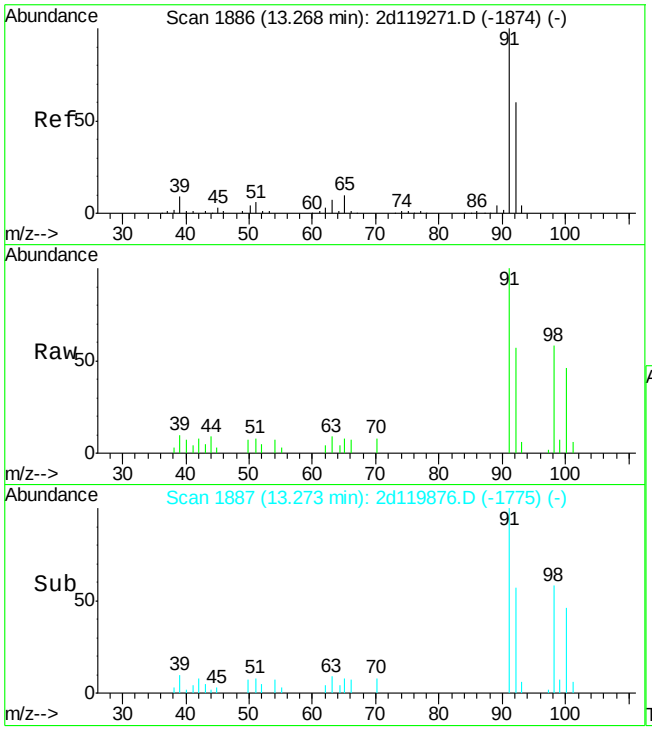


#70
benzene
Concen: 3.08 ug/L
RT: 10.48 min Scan# 1354
Delta R.T. 0.01 min
Lab File: 2d119876.D
Acq: 13 Apr 2013 5:28 am

Tgt Ion: 78 Resp: 35950

Ion	Ratio	Lower	Upper
78	100		
77	22.1	0.0	53.0

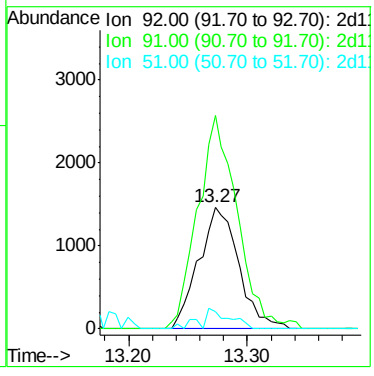


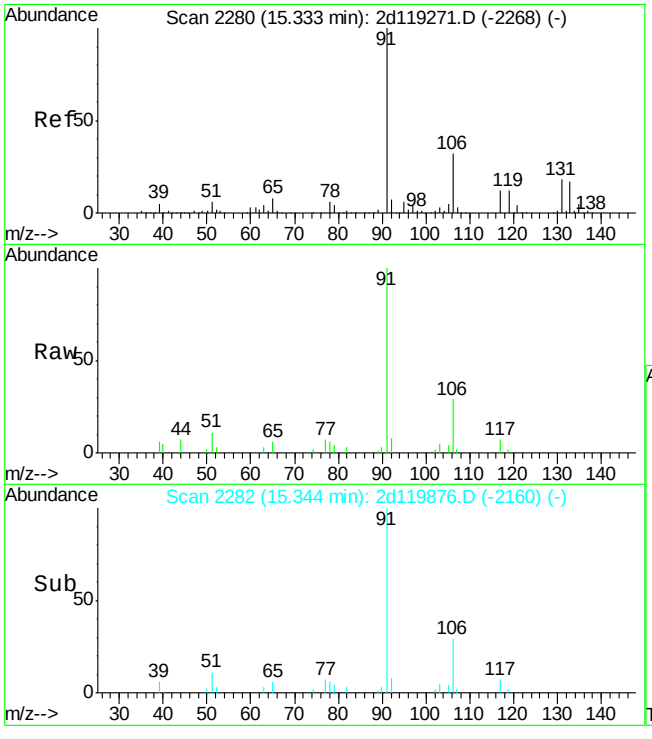


#88
toluene
Concen: 0.46 ug/L
RT: 13.27 min Scan# 1887
Delta R.T. 0.01 min
Lab File: 2d119876.D
Acq: 13 Apr 2013 5:28 am

Tgt Ion: 92 Resp: 3433

Ion	Ratio	Lower	Upper
92	100		
91	175.5	136.0	196.0
51	13.7	0.0	39.6

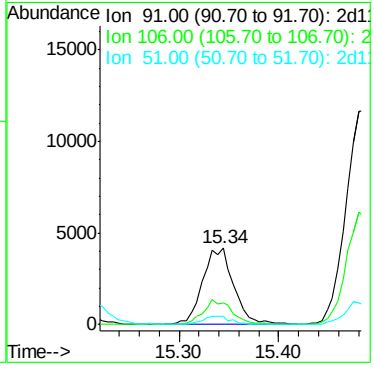


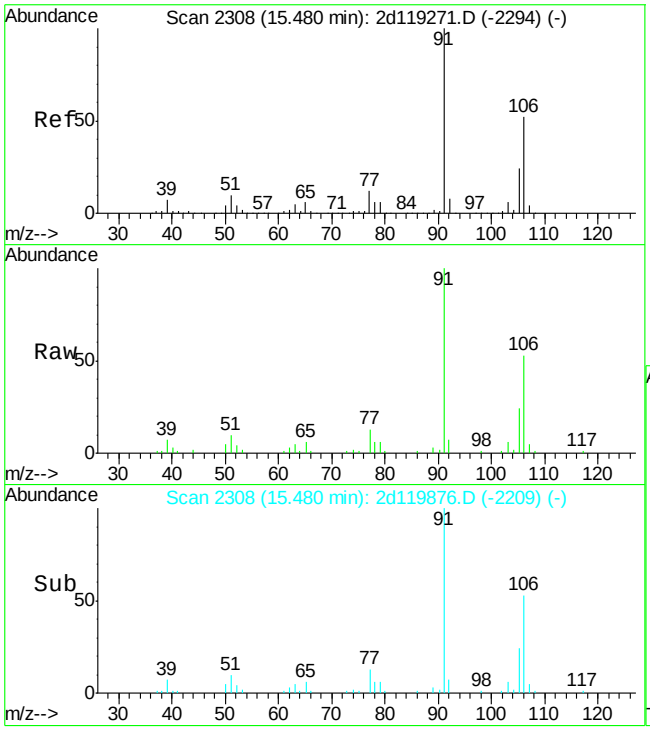


#104
ethylbenzene
Concen: 0.65 ug/L
RT: 15.34 min Scan# 2282
Delta R.T. 0.01 min
Lab File: 2d119876.D
Acq: 13 Apr 2013 5:28 am

Tgt Ion: 91 Resp: 9055

Ion	Ratio	Lower	Upper
91	100		
106	28.5	2.3	62.3
51	10.5	0.0	39.3

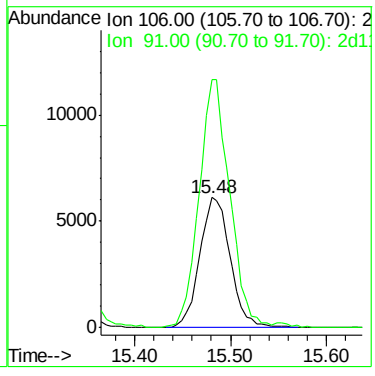


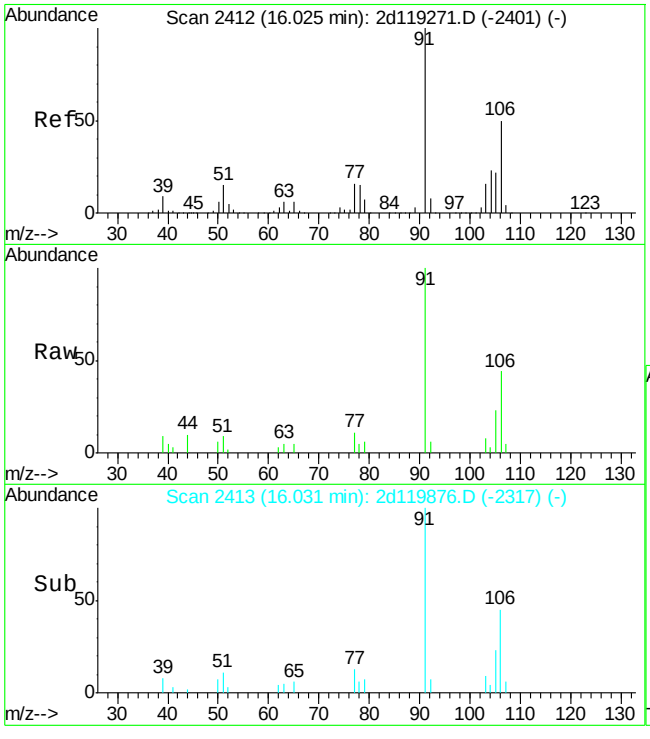


#105
m,p-xylene
Concen: 2.45 ug/L
RT: 15.48 min Scan# 2308
Delta R.T. -0.00 min
Lab File: 2d119876.D
Acq: 13 Apr 2013 5:28 am

Tgt Ion:106 Resp: 13581

Ion	Ratio	Lower	Upper
106	100		
91	188.8	163.0	223.0

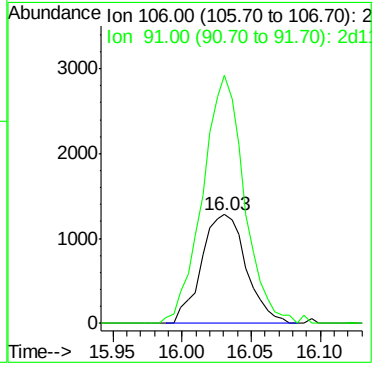




#106
o-xylene
Concen: 0.53 ug/L
RT: 16.03 min Scan# 2413
Delta R.T. 0.01 min
Lab File: 2d119876.D
Acq: 13 Apr 2013 5:28 am

Tgt Ion:106 Resp: 2887

Ion	Ratio	Lower	Upper
106	100		
91	228.1	171.4	231.4



Quantitation Report (QT Reviewed)

Data Path : C:\MSDChem\1\DATA\
Data File : 2d119861.D
Acq On : 12 Apr 2013 10:00 pm
Operator : EmilyT
Sample : mb
Misc : ms45944,v2d4985,w,,,,1
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Apr 14 14:36:59 2013
Quant Method : C:\MSDCHEM\1\METHODS\M2D4958.M
Quant Title : SW-846 Method 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Apr 08 15:45:10 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) tert butyl alcohol-d9	7.19	65	254530	500.00 ug/L	0.00
6) pentafluorobenzene	9.83	168	377189	50.00 ug/L	0.01
63) 1,4-difluorobenzene	10.99	114	473983	50.00 ug/L	0.01
94) chlorobenzene-d5	15.22	117	431484	50.00 ug/L	0.01
109) 1,4-dichlorobenzene-d4	18.03	152	219274	50.00 ug/L	0.00

System Monitoring Compounds

55) dibromofluoromethane (s)	9.88	113	140970	46.60 ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 93.20%		
56) 1,2-dichloroethane-d4 (s)	10.41	65	149851	48.29 ug/L	0.01
Spiked Amount 50.000	Range 74 - 127		Recovery = 96.58%		
86) toluene-d8 (s)	13.18	98	529742	50.45 ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 100.90%		
111) 4-bromofluorobenzene (s)	16.73	95	186380	54.99 ug/L	0.00
Spiked Amount 50.000	Range 76 - 116		Recovery = 109.98%		

Target Compounds Qvalue

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

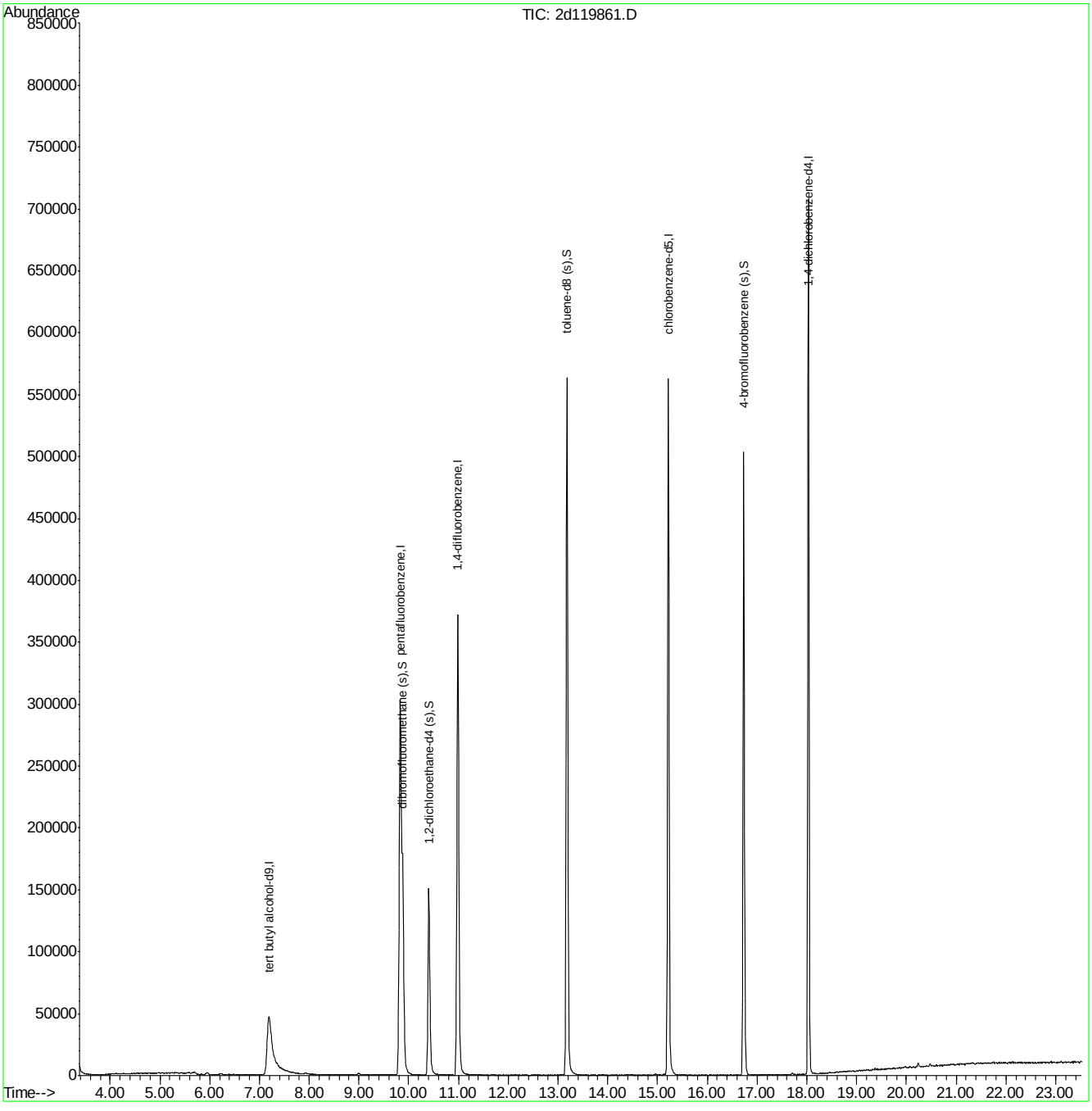
7.2.1

7

Quantitation Report (QT Reviewed)

Data Path : C:\MSDChem\1\DATA\
Data File : 2d119861.D
Acq On : 12 Apr 2013 10:00 pm
Operator : EmilyT
Sample : mb
Misc : ms45944,v2d4985,w,,,,1
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Apr 14 14:36:59 2013
Quant Method : C:\MSDCHEM\1\METHODS\M2D4958.M
Quant Title : SW-846 Method 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Apr 08 15:45:10 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2E\v2e4025\
Data File : 2E89483.D
Acq On : 17 Apr 2013 11:47 am
Operator : dipap
Sample : mb1
Misc : MS46185,V2E4025,5,,,,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Apr 17 17:26:57 2013
Quant Method : C:\msdchem\1\METHODS\M2E3957.M
Quant Title : SW-846 Method 8260B, ZB624 60Mx0.25MMx1.4UM
QLast Update : Fri Mar 22 12:55:44 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	6.958	65	98496	500.00	ug/L	-0.01
7) pentafluorobenzene	9.155	168	126172	50.00	ug/L	0.00
56) 1,4-difluorobenzene	10.068	114	193064	50.00	ug/L	0.00
84) chlorobenzene-d5	13.250	117	154427	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	15.567	152	79794	50.00	ug/L	0.00
System Monitoring Compounds						
48) dibromofluoromethane (s)	9.197	113	69636	49.24	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 98.48%			
49) 1,2-dichloroethane-d4 (s)	9.611	65	82645	46.12	ug/L	-0.01
Spiked Amount 50.000	Range 74 - 127		Recovery = 92.24%			
76) toluene-d8 (s)	11.724	98	241344	45.80	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 91.60%			
100) 4-bromofluorobenzene (s)	14.409	95	81357	47.78	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 95.56%			

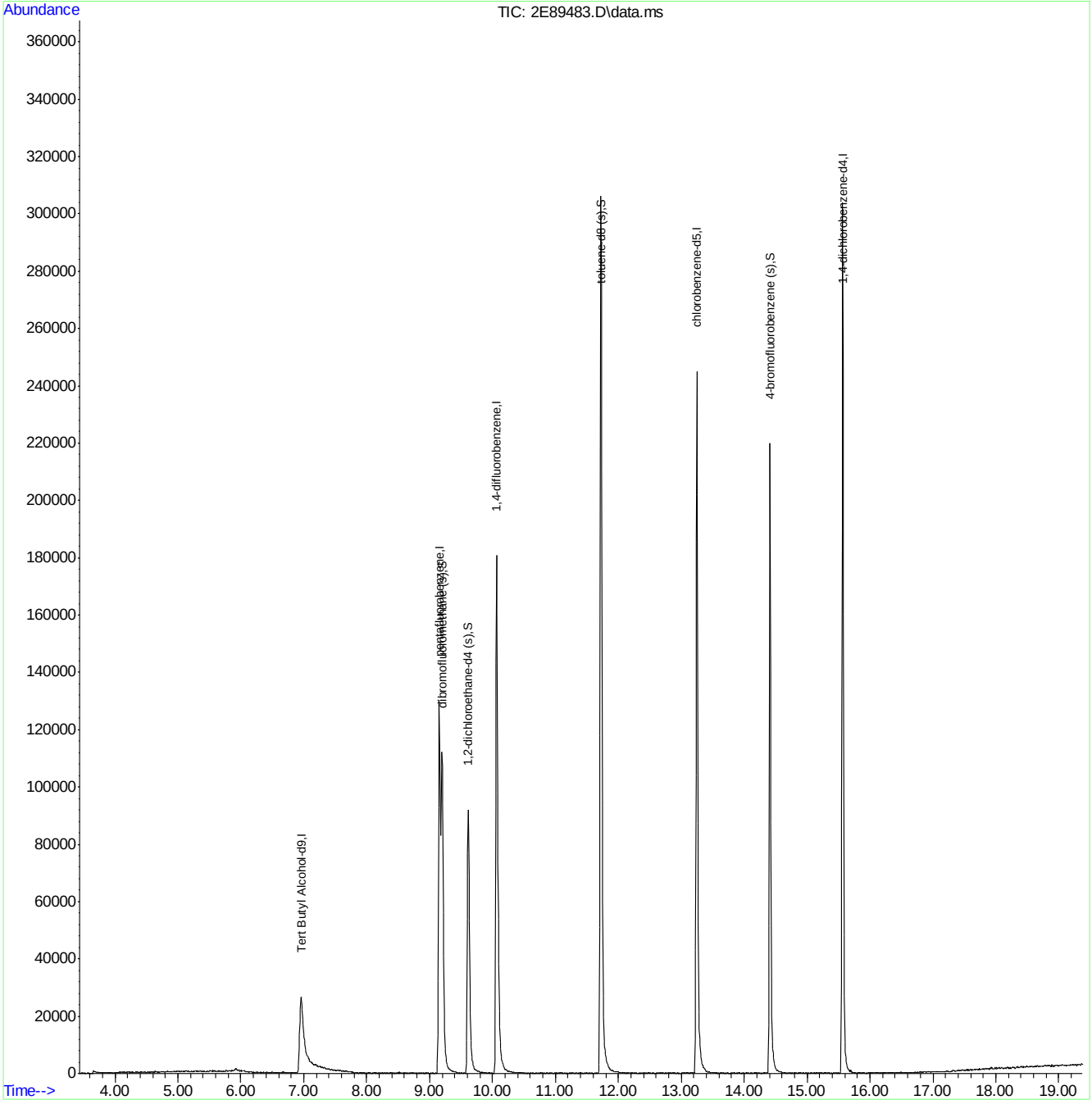
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2E\v2e4025\
Data File : 2E89483.D
Acq On : 17 Apr 2013 11:47 am
Operator : dipap
Sample : mb1
Misc : MS46185,V2E4025,5,,,,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Apr 17 17:26:57 2013
Quant Method : C:\msdchem\1\METHODS\M2E3957.M
Quant Title : SW-846 Method 8260B, ZB624 60Mx0.25MMx1.4UM
QLast Update : Fri Mar 22 12:55:44 2013
Response via : Initial Calibration



M2E3957.M Wed Apr 17 17:27:02 2013 ACCNJ Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\3D\
Data File : 3D85326.D
Acq On : 15 Apr 2013 11:19 pm
Operator : natet
Sample : mb
Misc : MS46250,V3D3669,W,,,,1
ALS Vial : 28 Sample Multiplier: 1

Quant Time: Apr 16 16:42:43 2013
Quant Method : C:\MSDCHEM\1\METHODS\M3D3579.M
Quant Title : Method SW846 8260B, ZB 624 60m x 0.25mm x 1.4 um
QLast Update : Fri Feb 22 15:43:19 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.29	65	110786	500.00	ug/L	-0.02
4) pentafluorobenzene	9.53	168	296656	50.00	ug/L	-0.01
51) 1,4-difluorobenzene	10.45	114	417542	50.00	ug/L	-0.01
80) chlorobenzene-d5	13.60	117	323064	50.00	ug/L	-0.01
96) 1,4-dichlorobenzene-d4	15.90	152	183254	50.00	ug/L	0.00

System Monitoring Compounds

43) dibromofluoromethane (s)	9.60	113	122865	53.29	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 106.58%			
44) 1,2-dichloroethane-d4 (s)	10.01	65	129711	53.39	ug/L	-0.01
Spiked Amount 50.000	Range 74 - 127		Recovery = 106.78%			
72) toluene-d8 (s)	12.09	98	408290	49.84	ug/L	-0.01
Spiked Amount 50.000	Range 80 - 122		Recovery = 99.68%			
98) 4-bromofluorobenzene (s)	14.75	95	138284	49.81	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 99.62%			

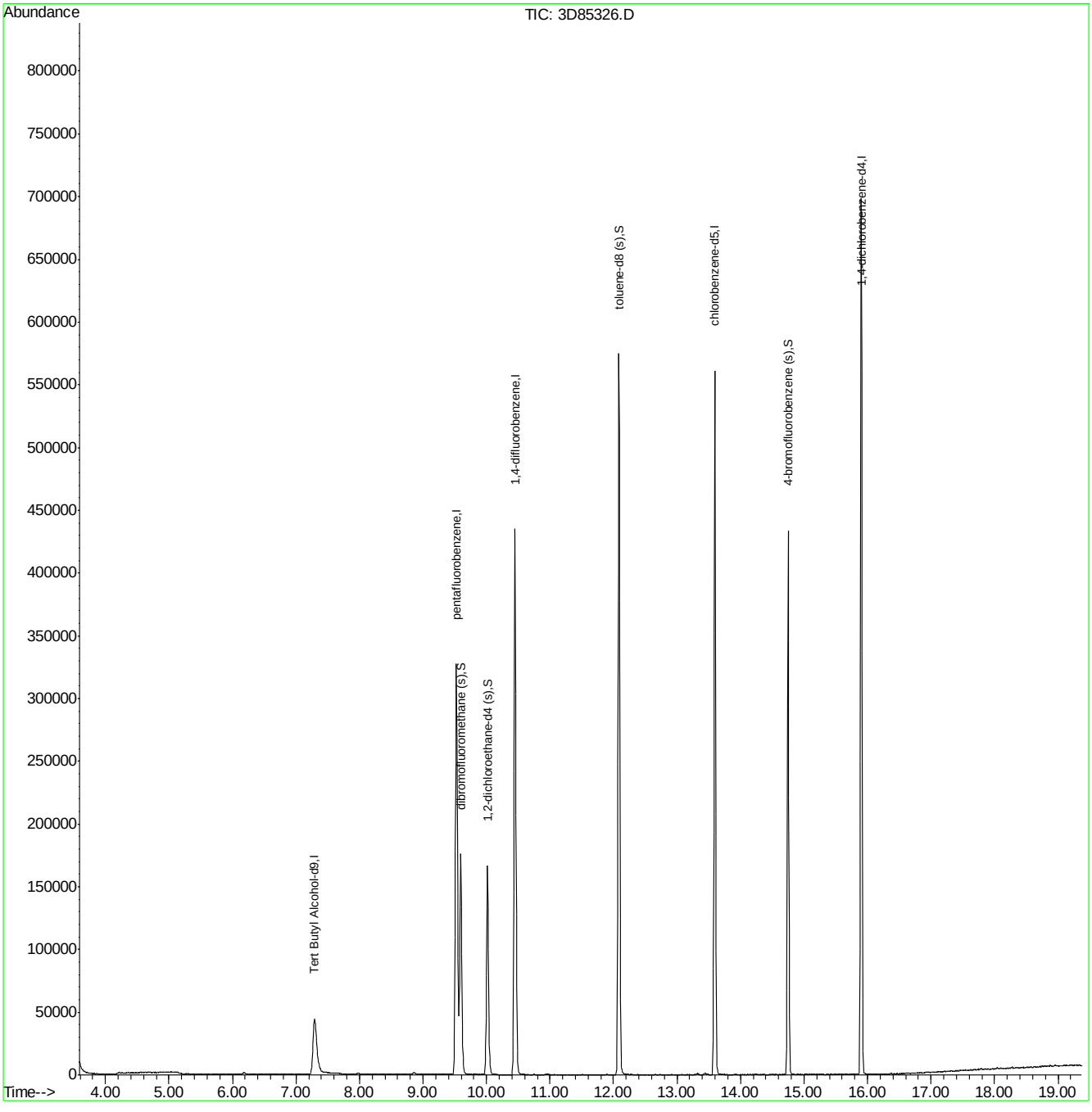
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\3D\
Data File : 3D85326.D
Acq On : 15 Apr 2013 11:19 pm
Operator : natet
Sample : mb
Misc : MS46250,V3D3669,W,,,,1
ALS Vial : 28 Sample Multiplier: 1

Quant Time: Apr 16 16:42:43 2013
Quant Method : C:\MSDCHEM\1\METHODS\M3D3579.M
Quant Title : Method SW846 8260B, ZB 624 60m x 0.25mm x 1.4 um
QLast Update : Fri Feb 22 15:43:19 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\
Data File : 4d34335.D
Acq On : 16 Apr 2013 11:21 am
Operator : juntaep
Sample : mb
Misc : MS39652,V4D1545,,,,,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Apr 16 15:07:42 2013
Quant Method : C:\MSDCHEM\1\METHODS\M4D1526.M
Quant Title : SW-846 Method 8260
QLast Update : Fri Apr 05 18:19:54 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	7.119	65	120247	500.00	ug/L	0.00
4) pentafluorobenzene	9.693	168	216817	50.00	ug/L	0.00
51) 1,4-difluorobenzene	10.647	114	342040	50.00	ug/L	0.00
80) chlorobenzene-d5	14.008	117	307234	50.00	ug/L	0.00
95) 1,4-dichlorobenzene-d4	16.430	152	164103	50.00	ug/L	0.00
System Monitoring Compounds						
45) dibromofluoromethane (s)	9.677	113	131547	48.16	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 96.32%			
46) 1,2-dichloroethane-d4 (s)	10.128	65	137418	48.50	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 97.00%			
72) toluene-d8 (s)	12.398	98	441067	49.34	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 98.68%			
97) 4-bromofluorobenzene (s)	15.245	95	168035	46.94	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 93.88%			

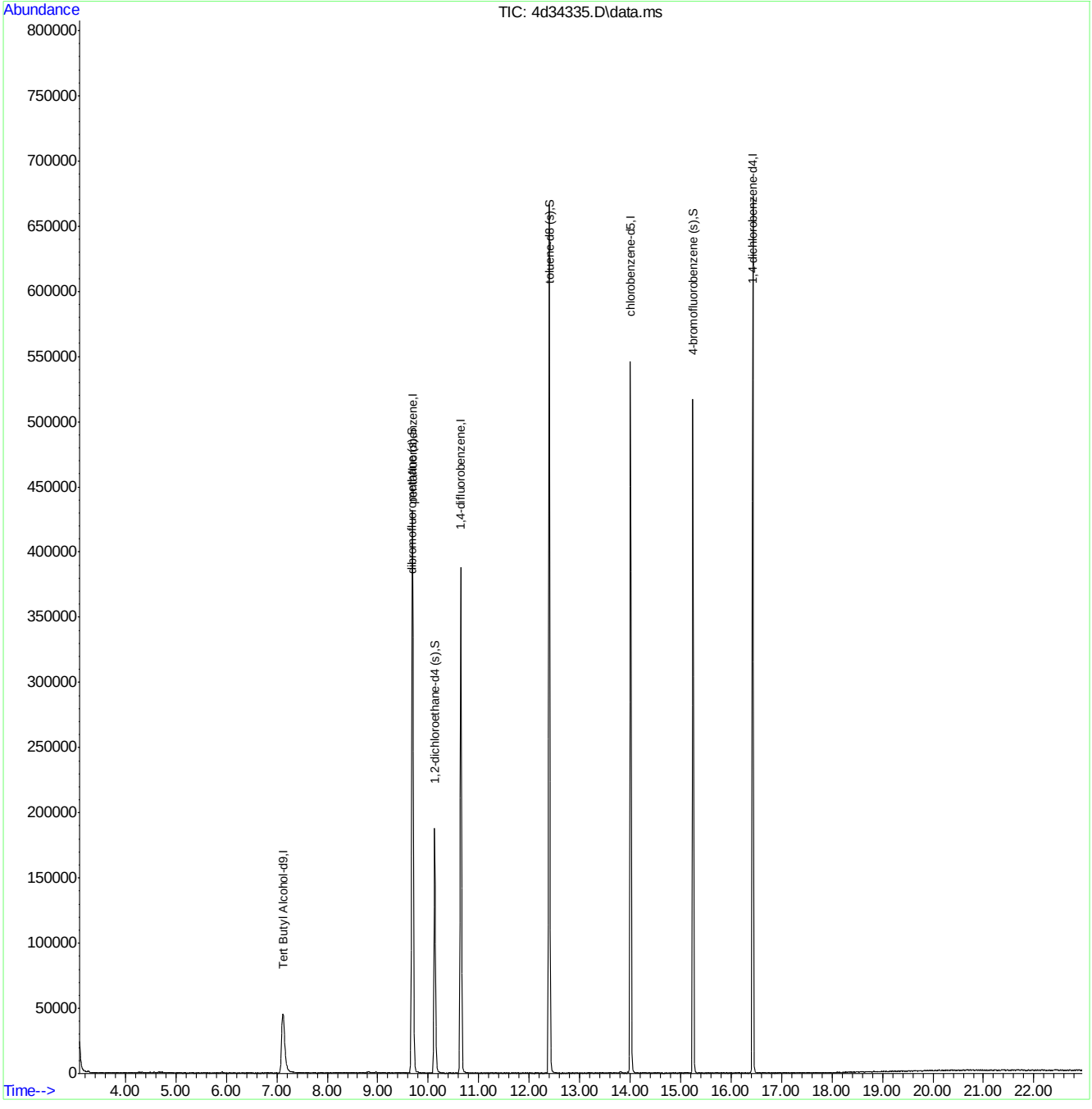
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\
Data File : 4d34335.D
Acq On : 16 Apr 2013 11:21 am
Operator : juntaep
Sample : mb
Misc : MS39652,V4D1545,,,,,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Apr 16 15:07:42 2013
Quant Method : C:\MSDCHEM\1\METHODS\M4D1526.M
Quant Title : SW-846 Method 8260
QLast Update : Fri Apr 05 18:19:54 2013
Response via : Initial Calibration



ACCUTEST LABORATORIES JB33197

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: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP65064A-MB1	3M35865.D	1	04/09/13	ALS	04/06/13	OP65064A	E3M1641

The QC reported here applies to the following samples: **Method:** SW846 8270D BY SIM

JB33197-1, JB33197-2, JB33197-3, JB33197-4, JB33197-5, JB33197-7, JB33197-8, JB33197-9, JB33197-10, JB33197-11

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	63%	23-131%
321-60-8	2-Fluorobiphenyl	70%	24-120%
1718-51-0	Terphenyl-d14	74%	10-125%

Method Blank Summary

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP65472A-MB1	3M36400.D	1	04/23/13	AD	04/22/13	OP65472A	E3M1664

The QC reported here applies to the following samples: **Method:** SW846 8270D BY SIM

JB33197-8

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	36%	10-110%
4165-62-2	Phenol-d5	29%	10-110%
118-79-6	2,4,6-Tribromophenol	60%	10-157%
4165-60-0	Nitrobenzene-d5	61%	23-131%
321-60-8	2-Fluorobiphenyl	44%	24-120%
1718-51-0	Terphenyl-d14	57%	10-125%

Blank Spike Summary

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP65064A-BS12	3M35866.D	1	04/09/13	ALS	04/06/13	OP65064A	E3M1641

The QC reported here applies to the following samples: **Method:** SW846 8270D BY SIM

JB33197-1, JB33197-2, JB33197-3, JB33197-4, JB33197-5, JB33197-7, JB33197-8, JB33197-9, JB33197-10, JB33197-11

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
120-12-7	Anthracene	1	0.967	97	48-136
56-55-3	Benzo(a)anthracene	1	1.16	116	33-136
50-32-8	Benzo(a)pyrene	1	0.917	92	44-123
205-99-2	Benzo(b)fluoranthene	1	1.17	117	32-146
191-24-2	Benzo(g,h,i)perylene	1	0.827	83	47-129
218-01-9	Chrysene	1	0.856	86	43-143
86-73-7	Fluorene	1	1.20	120	49-125
91-20-3	Naphthalene	1	0.782	78	36-128
85-01-8	Phenanthrene	1	0.984	98	41-129
129-00-0	Pyrene	1	0.960	96	47-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	71%	23-131%
321-60-8	2-Fluorobiphenyl	71%	24-120%
1718-51-0	Terphenyl-d14	73%	10-125%

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP65472A-BS12	3M36401.D	1	04/24/13	AD	04/22/13	OP65472A	E3M1664
OP65472A-BSD12	3M36402.D	1	04/24/13	AD	04/22/13	OP65472A	E3M1664

The QC reported here applies to the following samples: **Method:** SW846 8270D BY SIM

JB33197-8

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
120-12-7	Anthracene	1	0.898	90	0.877	88	2	48-136/30
56-55-3	Benzo(a)anthracene	1	0.970	97	0.908	91	7	33-136/30
50-32-8	Benzo(a)pyrene	1	0.802	80	0.764	76	5	44-123/30
205-99-2	Benzo(b)fluoranthene	1	0.918	92	0.859	86	7	32-146/30
191-24-2	Benzo(g,h,i)perylene	1	0.847	85	0.803	80	5	47-129/30
218-01-9	Chrysene	1	0.800	80	0.752	75	6	43-143/30
86-73-7	Fluorene	1	0.849	85	0.830	83	2	49-125/30
91-20-3	Naphthalene	1	0.724	72	0.718	72	1	36-128/30
85-01-8	Phenanthrene	1	0.853	85	0.818	82	4	41-129/30
129-00-0	Pyrene	1	0.878	88	0.830	83	6	47-130/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
367-12-4	2-Fluorophenol	46%	37%	10-110%
4165-62-2	Phenol-d5	42%	29%	10-110%
118-79-6	2,4,6-Tribromophenol	61%	62%	10-157%
4165-60-0	Nitrobenzene-d5	61%	63%	23-131%
321-60-8	2-Fluorobiphenyl	44%	47%	24-120%
1718-51-0	Terphenyl-d14	59%	55%	10-125%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP65064A-MS	3M35873.D	1	04/09/13	ALS	04/06/13	OP65064A	E3M1641
OP65064A-MSD	3M35874.D	1	04/09/13	ALS	04/06/13	OP65064A	E3M1641
JB33197-4	3M36225.D	1	04/19/13	AD	04/06/13	OP65064A	E3M1656

The QC reported here applies to the following samples: **Method:** SW846 8270D BY SIM

JB33197-1, JB33197-2, JB33197-3, JB33197-4, JB33197-5, JB33197-7, JB33197-8, JB33197-9, JB33197-10, JB33197-11

CAS No.	Compound	JB33197-4 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
120-12-7	Anthracene	ND		2.27	1.78	78	1.59	70	11	55-121/21
56-55-3	Benzo(a)anthracene	ND		2.27	1.85	81	1.75	77	6	51-120/20
50-32-8	Benzo(a)pyrene	ND		2.27	1.07	47	1.05	46	2	45-128/20
205-99-2	Benzo(b)fluoranthene	ND		2.27	1.29	57	1.32	58	2	38-137/28
191-24-2	Benzo(g,h,i)perylene	ND		2.27	0.519	23* [a]	0.556	24* [a]	7	34-138/23
218-01-9	Chrysene	ND		2.27	1.37	60	1.29	57	6	50-123/21
86-73-7	Fluorene	0.697		2.27	3.37	118	3.19	110	5	53-122/22
91-20-3	Naphthalene	ND		2.27	1.63	72	1.58	70	3	36-119/21
85-01-8	Phenanthrene	ND		2.27	1.85	81	1.73	76	7	49-126/20
129-00-0	Pyrene	ND		2.27	1.76	77	1.73	76	2	52-122/22

CAS No.	Surrogate Recoveries	MS	MSD	JB33197-4	Limits
4165-60-0	Nitrobenzene-d5	63%	65%	49%	23-131%
321-60-8	2-Fluorobiphenyl	65%	60%	39%	24-120%
1718-51-0	Terphenyl-d14	43%	41%	24%	10-125%

(a) Outside control limits due to matrix interference.

* = Outside of Control Limits.

Instrument Performance Check (DFTPP)

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: E3M1635-DFTPP
Lab File ID: 3M35755.D
Instrument ID: GCMS3M
Injection Date: 04/04/13
Injection Time: 11:11

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	116341	32.8		Pass
68	Less than 2.0% of mass 69	2210	0.62	(1.62) [a]	Pass
69	Mass 69 relative abundance	136451	38.4		Pass
70	Less than 2.0% of mass 69	599	0.17	(0.44) [a]	Pass
127	40.0 - 60.0% of mass 198	163459	46.0		Pass
197	Less than 1.0% of mass 198	1718	0.48		Pass
198	Base peak, 100% relative abundance	355221	100.0		Pass
199	5.0 - 9.0% of mass 198	24196	6.81		Pass
275	10.0 - 30.0% of mass 198	93064	26.2		Pass
365	1.0 - 100.0% of mass 198	13141	3.70		Pass
441	Present, but less than mass 443	45929	12.9	(78.4) [b]	Pass
442	40.0 - 100.0% of mass 198	308787	86.9		Pass
443	17.0 - 23.0% of mass 442	58571	16.5	(19.0) [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
E3M1635-IC1635	3M35758.D	04/04/13	12:46	01:35	Initial cal 5
E3M1635-IC1635	3M35759.D	04/04/13	13:17	02:06	Initial cal 2.5
E3M1635-ICC1635	3M35760.D	04/04/13	13:48	02:37	Initial cal 1
E3M1635-IC1635	3M35761.D	04/04/13	14:19	03:08	Initial cal 0.5
E3M1635-IC1635	3M35762.D	04/04/13	14:49	03:38	Initial cal 0.2
E3M1635-IC1635	3M35763.D	04/04/13	15:20	04:09	Initial cal 0.1
E3M1635-IC1635	3M35764.D	04/04/13	15:51	04:40	Initial cal 0.05
E3M1635-IC1635	3M35765.D	04/04/13	16:22	05:11	Initial cal 0.02
E3M1635-IC1635	3M35766.D	04/04/13	16:53	05:42	Initial cal 0.01
E3M1635-ICV1635	3M35767.D	04/04/13	17:24	06:13	Initial cal verification 1
E3M1635-ICV1635	3M35768.D	04/04/13	17:55	06:44	Initial cal verification 1

Instrument Performance Check (DFTPP)

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: E3M1641-DFTPP
Lab File ID: 3M35863.D
Instrument ID: GCMS3M
Injection Date: 04/09/13
Injection Time: 08:30

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	21145	34.5		Pass
68	Less than 2.0% of mass 69	365	0.60	(1.52) [a]	Pass
69	Mass 69 relative abundance	24059	39.2		Pass
70	Less than 2.0% of mass 69	83	0.14	(0.34) [a]	Pass
127	40.0 - 60.0% of mass 198	29603	48.3		Pass
197	Less than 1.0% of mass 198	341	0.56		Pass
198	Base peak, 100% relative abundance	61320	100.0		Pass
199	5.0 - 9.0% of mass 198	4235	6.91		Pass
275	10.0 - 30.0% of mass 198	14629	23.9		Pass
365	1.0 - 100.0% of mass 198	1946	3.17		Pass
441	Present, but less than mass 443	6659	10.9	(73.0) [b]	Pass
442	40.0 - 100.0% of mass 198	46195	75.3		Pass
443	17.0 - 23.0% of mass 442	9116	14.9	(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
E3M1641-CC1635	3M35864.D	04/09/13	08:43	00:13	Continuing cal .5
OP65064A-MB1	3M35865.D	04/09/13	09:21	00:51	Method Blank
OP65064A-BS12	3M35866.D	04/09/13	09:52	01:22	Blank Spike
OP65091-MB1	3M35875.D	04/09/13	10:23	01:53	Method Blank
OP65091-BS12	3M35876.D	04/09/13	10:54	02:24	Blank Spike
OP65091-BSD12	3M35877.D	04/09/13	11:25	02:55	Blank Spike Duplicate
OP65091-LB29	3M35878.D	04/09/13	11:57	03:27	Leachate Blank
ZZZZZZ	3M35879.D	04/09/13	12:28	03:58	(unrelated sample)
ZZZZZZ	3M35880.D	04/09/13	12:59	04:29	(unrelated sample)
ZZZZZZ	3M35881.D	04/09/13	13:30	05:00	(unrelated sample)
ZZZZZZ	3M35882.D	04/09/13	14:01	05:31	(unrelated sample)
ZZZZZZ	3M35883.D	04/09/13	14:33	06:03	(unrelated sample)
OP65064A-MS	3M35873.D	04/09/13	18:43	10:13	Matrix Spike
OP65064A-MSD	3M35874.D	04/09/13	19:14	10:44	Matrix Spike Duplicate
ZZZZZZ	3M35885.D	04/09/13	19:45	11:15	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB33197
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: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: E3M1656-DFTPP
Lab File ID: 3M36220.D
Instrument ID: GCMS3M
Injection Date: 04/18/13
Injection Time: 22:37

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	37125	33.5		Pass
68	Less than 2.0% of mass 69	514	0.46	(1.18) [a]	Pass
69	Mass 69 relative abundance	43455	39.3		Pass
70	Less than 2.0% of mass 69	520	0.47	(1.20) [a]	Pass
127	40.0 - 60.0% of mass 198	51931	46.9		Pass
197	Less than 1.0% of mass 198	580	0.52		Pass
198	Base peak, 100% relative abundance	110707	100.0		Pass
199	5.0 - 9.0% of mass 198	7660	6.92		Pass
275	10.0 - 30.0% of mass 198	27845	25.2		Pass
365	1.0 - 100.0% of mass 198	3933	3.55		Pass
441	Present, but less than mass 443	13831	12.5	(78.6) [b]	Pass
442	40.0 - 100.0% of mass 198	89176	80.6		Pass
443	17.0 - 23.0% of mass 442	17589	15.9	(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
E3M1656-CC1644	3M36221.D	04/18/13	22:50	00:13	Continuing cal 0.5
JB33197-1	3M36222.D	04/18/13	23:21	00:44	S-50
JB33197-2	3M36223.D	04/18/13	23:52	01:15	S-117
JB33197-3	3M36224.D	04/19/13	00:23	01:46	S-226
JB33197-4	3M36225.D	04/19/13	00:54	02:17	S-52
JB33197-5	3M36226.D	04/19/13	01:25	02:48	FIELD BLANK-FB

Instrument Performance Check (DFTPP)

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: E3M1657-DFTPP
Lab File ID: 3M36228.D
Instrument ID: GCMS3M
Injection Date: 04/19/13
Injection Time: 06:32

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	42736	34.6		Pass
68	Less than 2.0% of mass 69	806	0.65	(1.62) [a]	Pass
69	Mass 69 relative abundance	49790	40.3		Pass
70	Less than 2.0% of mass 69	240	0.19	(0.48) [a]	Pass
127	40.0 - 60.0% of mass 198	59355	48.0		Pass
197	Less than 1.0% of mass 198	606	0.49		Pass
198	Base peak, 100% relative abundance	123603	100.0		Pass
199	5.0 - 9.0% of mass 198	8552	6.92		Pass
275	10.0 - 30.0% of mass 198	28920	23.4		Pass
365	1.0 - 100.0% of mass 198	4199	3.40		Pass
441	Present, but less than mass 443	13932	11.3	(78.6) [b]	Pass
442	40.0 - 100.0% of mass 198	92888	75.2		Pass
443	17.0 - 23.0% of mass 442	17718	14.3	(19.1) [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
E3M1657-CC1644	3M36229.D	04/19/13	06:48	00:16	Continuing cal 1.0
JB33197-7	3M36230.D	04/19/13	07:24	00:52	S-25
JB33197-8	3M36231.D	04/19/13	07:55	01:23	S-223
JB33197-9	3M36232.D	04/19/13	08:26	01:54	S-222
JB33197-10	3M36233.D	04/19/13	08:57	02:25	S-38
JB33197-11	3M36234.D	04/19/13	09:28	02:56	S-3
OP65249A-MS	3M36235.D	04/19/13	09:59	03:27	Matrix Spike
OP65249A-MSD	3M36236.D	04/19/13	10:31	03:59	Matrix Spike Duplicate
OP65238A-MS	3M36237.D	04/19/13	11:02	04:30	Matrix Spike
OP65238A-MSD	3M36238.D	04/19/13	11:33	05:01	Matrix Spike Duplicate
ZZZZZZ	3M36239.D	04/19/13	12:05	05:33	(unrelated sample)
ZZZZZZ	3M36240.D	04/19/13	12:36	06:04	(unrelated sample)
ZZZZZZ	3M36241.D	04/19/13	13:08	06:36	(unrelated sample)
OP65170A-MS	3M36242.D	04/19/13	13:39	07:07	Matrix Spike
OP65170A-MSD	3M36243.D	04/19/13	14:11	07:39	Matrix Spike Duplicate
JB33375-3	3M36244.D	04/19/13	14:42	08:10	(used for QC only; not part of job JB33197)
ZZZZZZ	3M36245.D	04/19/13	15:14	08:42	(unrelated sample)
OP65192A-MS	3M36246.D	04/19/13	15:45	09:13	Matrix Spike
OP65192A-MSD	3M36247.D	04/19/13	16:17	09:45	Matrix Spike Duplicate

Instrument Performance Check (DFTPP)

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample:	E3M1657-DFTPP	**Injection Date:**	04/19/13
Lab File ID:	3M36228.D	**Injection Time:**	06:32
Instrument ID:	GCMS3M		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	3M36248.D	04/19/13	16:48	10:16	(unrelated sample)
ZZZZZZ	3M36249.D	04/19/13	17:20	10:48	(unrelated sample)
ZZZZZZ	3M36250.D	04/19/13	17:51	11:19	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: E3M1664-DFTPP
Lab File ID: 3M36395.D
Instrument ID: GCMS3M
Injection Date: 04/23/13
Injection Time: 21:16

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	30236	36.9		Pass
68	Less than 2.0% of mass 69	503	0.61	(1.45) [a]	Pass
69	Mass 69 relative abundance	34757	42.4		Pass
70	Less than 2.0% of mass 69	318	0.39	(0.91) [a]	Pass
127	40.0 - 60.0% of mass 198	39808	48.5		Pass
197	Less than 1.0% of mass 198	368	0.45		Pass
198	Base peak, 100% relative abundance	81995	100.0		Pass
199	5.0 - 9.0% of mass 198	5742	7.00		Pass
275	10.0 - 30.0% of mass 198	18869	23.0		Pass
365	1.0 - 100.0% of mass 198	2772	3.38		Pass
441	Present, but less than mass 443	8628	10.5	(80.9) [b]	Pass
442	40.0 - 100.0% of mass 198	56149	68.5		Pass
443	17.0 - 23.0% of mass 442	10659	13.0	(19.0) [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
E3M1664-CC1644	3M36396.D	04/23/13	21:30	00:14	Continuing cal 0.5
OP65389A-MB1	3M36397.D	04/23/13	22:02	00:46	Method Blank
OP65389A-BS12	3M36398.D	04/23/13	22:33	01:17	Blank Spike
OP65389A-BSD12	3M36399.D	04/23/13	23:04	01:48	Blank Spike Duplicate
OP65472A-MB1	3M36400.D	04/23/13	23:35	02:19	Method Blank
OP65472A-BS12	3M36401.D	04/24/13	00:07	02:51	Blank Spike
OP65472A-BSD12	3M36402.D	04/24/13	00:38	03:22	Blank Spike Duplicate
OP65287A-BS12	3M36403.D	04/24/13	01:09	03:53	Blank Spike
JB33197-8	3M36404.D	04/24/13	01:41	04:25	S-223
JB33197-9	3M36405.D	04/24/13	02:12	04:56	S-222
ZZZZZZ	3M36406.D	04/24/13	02:43	05:27	(unrelated sample)
ZZZZZZ	3M36407.D	04/24/13	03:15	05:59	(unrelated sample)
ZZZZZZ	3M36408.D	04/24/13	03:46	06:30	(unrelated sample)
ZZZZZZ	3M36409.D	04/24/13	04:18	07:02	(unrelated sample)
ZZZZZZ	3M36410.D	04/24/13	04:49	07:33	(unrelated sample)
ZZZZZZ	3M36411.D	04/24/13	05:20	08:04	(unrelated sample)
ZZZZZZ	3M36412.D	04/24/13	05:52	08:36	(unrelated sample)
ZZZZZZ	3M36413.D	04/24/13	06:24	09:08	(unrelated sample)
ZZZZZZ	3M36414.D	04/24/13	06:55	09:39	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: E3M1664-DFTPP
Lab File ID: 3M36395.D
Instrument ID: GCMS3M
Injection Date: 04/23/13
Injection Time: 21:16

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	3M36415.D	04/24/13	07:26	10:10	(unrelated sample)
ZZZZZZ	3M36416.D	04/24/13	07:58	10:42	(unrelated sample)
ZZZZZZ	3M36418.D	04/24/13	08:29	11:13	(unrelated sample)
ZZZZZZ	3M36419.D	04/24/13	09:01	11:45	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: EZ4049-DFTPP
Lab File ID: Z79452.D
Instrument ID: GCMSZ
Injection Date: 04/18/13
Injection Time: 16:01

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	23386	37.8		Pass
68	Less than 2.0% of mass 69	55	0.09	(0.27) [a]	Pass
69	Mass 69 relative abundance	20641	33.4		Pass
70	Less than 2.0% of mass 69	75	0.12	(0.36) [a]	Pass
127	40.0 - 60.0% of mass 198	27365	44.3		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	61813	100.0		Pass
199	5.0 - 9.0% of mass 198	4077	6.60		Pass
275	10.0 - 30.0% of mass 198	14789	23.9		Pass
365	1.0 - 100.0% of mass 198	1565	2.53		Pass
441	Present, but less than mass 443	7972	12.9	(74.3) [b]	Pass
442	40.0 - 100.0% of mass 198	53403	86.4		Pass
443	17.0 - 23.0% of mass 442	10730	17.4	(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
EZ4049-ICC4049	Z79453.D	04/18/13	16:15	00:14	Initial cal 50
EZ4049-IC4049	Z79454.D	04/18/13	16:48	00:47	Initial cal 100
EZ4049-IC4049	Z79455.D	04/18/13	17:21	01:20	Initial cal 1
EZ4049-IC4049	Z79456.D	04/18/13	17:54	01:53	Initial cal 80
EZ4049-IC4049	Z79457.D	04/18/13	18:27	02:26	Initial cal 2
EZ4049-IC4049	Z79458.D	04/18/13	19:00	02:59	Initial cal 25
EZ4049-IC4049	Z79459.D	04/18/13	19:33	03:32	Initial cal 5
EZ4049-IC4049	Z79460.D	04/18/13	20:06	04:05	Initial cal 10

Instrument Performance Check (DFTPP)

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: EZ4050-DFTPP
Lab File ID: Z79461.D
Instrument ID: GCMSZ
Injection Date: 04/18/13
Injection Time: 20:32

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	23113	38.7		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	20440	34.2		Pass
70	Less than 2.0% of mass 69	127	0.21	(0.62) [a]	Pass
127	40.0 - 60.0% of mass 198	26131	43.7		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	59794	100.0		Pass
199	5.0 - 9.0% of mass 198	4204	7.03		Pass
275	10.0 - 30.0% of mass 198	13565	22.7		Pass
365	1.0 - 100.0% of mass 198	1551	2.59		Pass
441	Present, but less than mass 443	7569	12.7	(74.9) [b]	Pass
442	40.0 - 100.0% of mass 198	51684	86.4		Pass
443	17.0 - 23.0% of mass 442	10101	16.9	(19.5) [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
EZ4050-IC4050	Z79462.D	04/18/13	20:46	00:14	Initial cal 100
EZ4050-IC4050	Z79463.D	04/18/13	21:19	00:47	Initial cal 80
EZ4050-ICC4050	Z79464.D	04/18/13	21:52	01:20	Initial cal 50
EZ4050-IC4050	Z79465.D	04/18/13	22:25	01:53	Initial cal 25
EZ4050-IC4050	Z79466.D	04/18/13	22:59	02:27	Initial cal 10
EZ4050-IC4050	Z79467.D	04/18/13	23:32	03:00	Initial cal 5
EZ4050-IC4050	Z79468.D	04/19/13	00:05	03:33	Initial cal 2
EZ4050-IC4050	Z79469.D	04/19/13	00:38	04:06	Initial cal 1
EZ4050-ICV4049	Z79470.D	04/19/13	01:11	04:39	Initial cal verification 50
EZ4050-ICV4049	Z79472.D	04/19/13	02:16	05:44	Initial cal verification 50
EZ4050-ICV4050	Z79472A.D	04/19/13	02:16	05:44	Initial cal verification 50
EZ4050-ICV4049	Z79473.D	04/19/13	02:49	06:17	Initial cal verification 50
EZ4050-ICV4050	Z79473A.D	04/19/13	02:49	06:17	Initial cal verification 50
EZ4050-ICV4050	Z79474.D	04/19/13	03:21	06:49	Initial cal verification 50
EZ4050-ICV4049	Z79475.D	04/19/13	03:54	07:22	Initial cal verification 50
EZ4050-ICV4050	Z79476.D	04/19/13	04:26	07:54	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: EZ4062-DFTPP
Lab File ID: Z79688.D
Instrument ID: GCMSZ
Injection Date: 04/26/13
Injection Time: 08:36

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	13459	34.3		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	12234	31.2		Pass
70	Less than 2.0% of mass 69	172	0.44	(1.41) [a]	Pass
127	40.0 - 60.0% of mass 198	17065	43.5		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	39272	100.0		Pass
199	5.0 - 9.0% of mass 198	2265	5.77		Pass
275	10.0 - 30.0% of mass 198	9569	24.4		Pass
365	1.0 - 100.0% of mass 198	1237	3.15		Pass
441	Present, but less than mass 443	4355	11.1	(65.0) [b]	Pass
442	40.0 - 100.0% of mass 198	35160	89.5		Pass
443	17.0 - 23.0% of mass 442	6695	17.0	(19.0) [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
EZ4062-CC4049	Z79689.D	04/26/13	08:49	00:13	Continuing cal 25
EZ4062-CC4050	Z79690.D	04/26/13	09:23	00:47	Continuing cal 25
OP65585-MB1	Z79691.D	04/26/13	09:56	01:20	Method Blank
OP65585-BS1	Z79692.D	04/26/13	10:30	01:54	Blank Spike
ZZZZZZ	Z79693.D	04/26/13	11:03	02:27	(unrelated sample)
OP65426-MB1	Z79705.D	04/26/13	11:37	03:01	Method Blank
OP65426-BS1	Z79706.D	04/26/13	12:10	03:34	Blank Spike
ZZZZZZ	Z79708.D	04/26/13	13:18	04:42	(unrelated sample)
ZZZZZZ	Z79709.D	04/26/13	13:52	05:16	(unrelated sample)
ZZZZZZ	Z79695.D	04/26/13	15:35	06:59	(unrelated sample)
JB33197-8	Z79711.D	04/26/13	16:09	07:33	S-223
OP65527-MS	Z79696.D	04/26/13	16:43	08:07	Matrix Spike
OP65527-MSD	Z79697.D	04/26/13	17:18	08:42	Matrix Spike Duplicate
JB34634-1	Z79698.D	04/26/13	17:52	09:16	(used for QC only; not part of job JB33197)
OP65542-MS	Z79699.D	04/26/13	18:27	09:51	Matrix Spike
OP65542-MSD	Z79700.D	04/26/13	19:02	10:26	Matrix Spike Duplicate
JB34561-3	Z79701.D	04/26/13	19:36	11:00	(used for QC only; not part of job JB33197)
OP65585-MS	Z79702.D	04/26/13	20:11	11:35	Matrix Spike

Semivolatile Internal Standard Area Summary

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Check Std:	E3M1641-CC1635	**Injection Date:**	04/09/13
Lab File ID:	3M35864.D	**Injection Time:**	08:43
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	160633	8.80	278548	11.75	436499	15.93	308099	20.56
Upper Limit [a]	321266	9.30	557096	12.25	872998	16.43	616198	21.06
Lower Limit [b]	80317	8.30	139274	11.25	218250	15.43	154050	20.06

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
OP65064A-MB1	142907	8.80	221339	11.75	345916	15.93	235209	20.57
OP65064A-BS12	141527	8.80	237359	11.75	349254	15.93	226887	20.56
OP65091-MB1	139015	8.80	233500	11.75	360692	15.93	255819	20.56
OP65091-BS12	146022	8.80	258779	11.75	401856	15.93	267996	20.56
OP65091-BSD12	151077	8.80	236776	11.75	358004	15.93	252421	20.56
OP65091-LB29	147760	8.80	244458	11.75	355780	15.93	245026	20.57
ZZZZZZ	148325	8.80	232542	11.75	367897	15.93	244315	20.56
ZZZZZZ	168668	8.80	265533	11.75	385353	15.93	281370	20.56
ZZZZZZ	143189	8.80	236119	11.75	376099	15.93	292829	20.56
ZZZZZZ	167887	8.80	275178	11.75	409177	15.93	289991	20.56
ZZZZZZ	169605	8.80	249984	11.75	364771	15.93	278020	20.56
OP65064A-MS	133535	8.80	219680	11.75	344871	15.93	250702	20.56
OP65064A-MSD	137199	8.80	221047	11.75	352079	15.93	256561	20.56
ZZZZZZ	176069	8.80	268248	11.75	428382	15.93	307869	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: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Check Std:	E3M1656-CC1644	**Injection Date:**	04/18/13
Lab File ID:	3M36221.D	**Injection Time:**	22:50
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	45045	8.69	73582	11.63	107385	15.83	69726	20.44
Upper Limit [a]	90090	9.19	147164	12.13	214770	16.33	139452	20.94
Lower Limit [b]	22523	8.19	36791	11.13	53693	15.33	34863	19.94

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
JB33197-1	33707	8.69	58102	11.63	85069	15.83	61394	20.45
JB33197-2	32634	8.69	57815	11.63	86464	15.83	64980	20.44
JB33197-3	32390	8.69	52430	11.63	78350	15.83	58441	20.45
JB33197-4	35117	8.69	57129	11.63	85034	15.83	60689	20.44
JB33197-5	37476	8.69	63487	11.63	92163	15.83	64299	20.44

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: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Check Std:	E3M1657-CC1644	**Injection Date:**	04/19/13
Lab File ID:	3M36229.D	**Injection Time:**	06:48
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	46452	8.69	77031	11.63	111219	15.83	74707	20.45
Upper Limit [a]	92904	9.19	154062	12.13	222438	16.33	149414	20.95
Lower Limit [b]	23226	8.19	38516	11.13	55610	15.33	37354	19.95

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
JB33197-7	36201	8.69	61509	11.63	90118	15.83	65097	20.45
JB33197-8	32389	8.69	61785	11.63	90764	15.83	68464	20.45
JB33197-9	36553	8.69	62028	11.63	87978	15.83	64749	20.45
JB33197-10	34806	8.69	64227	11.63	91139	15.83	66942	20.45
JB33197-11	38927	8.69	68355	11.63	94764	15.83	70504	20.45
OP65249A-MS	33647	8.71	56602	11.65	77425	15.85	57943	20.46
OP65249A-MSD	32997	8.71	56465	11.65	78605	15.85	57926	20.46
OP65238A-MS	35248	8.69	63251	11.63	88704	15.83	58229	20.45
OP65238A-MSD	33577	8.69	61170	11.63	91598	15.83	58084	20.45
ZZZZZZ	36139	8.69	60636	11.63	91949	15.83	62085	20.45
ZZZZZZ	37840	8.69	65386	11.63	96669	15.83	68017	20.45
ZZZZZZ	38875	8.69	65887	11.63	97944	15.83	71008	20.45
OP65170A-MS	38952	8.69	67572	11.63	98337	15.83	71367	20.45
OP65170A-MSD	41768	8.71	71267	11.65	105542	15.83	78007	20.45
JB33375-3	40311	8.71	69460	11.65	101355	15.83	75240	20.46
ZZZZZZ	46750	8.71	76452	11.65	111143	15.85	88336	20.46
OP65192A-MS	40705	8.72	58936	11.65	89759	15.86	52101	20.49
OP65192A-MSD	43850	8.72	59424	11.65	84580	15.86	54373	20.50
ZZZZZZ	34363	8.71	57825	11.65	77803	15.85	53987	20.47
ZZZZZZ	36608	8.71	59525	11.65	82783	15.85	58001	20.47
ZZZZZZ	34954	8.71	57867	11.65	77123	15.85	54885	20.46

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: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Check Std:	E3M1664-CC1644	**Injection Date:**	04/23/13
Lab File ID:	3M36396.D	**Injection Time:**	21:30
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	39298	8.64	65184	11.58	94752	15.77	66059	20.40
Upper Limit [a]	78596	9.14	130368	12.08	189504	16.27	132118	20.90
Lower Limit [b]	19649	8.14	32592	11.08	47376	15.27	33030	19.90

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
OP65389A-MB1	34440	8.64	57354	11.58	78208	15.77	57946	20.40
OP65389A-BS12	30151	8.64	50230	11.58	71151	15.77	50871	20.40
OP65389A-BSD12	30679	8.64	50643	11.58	71519	15.77	51190	20.40
OP65472A-MB1	40187	8.64	64760	11.58	90094	15.77	64698	20.40
OP65472A-BS12	36465	8.64	61435	11.58	83379	15.77	61159	20.40
OP65472A-BSD12	34564	8.64	58024	11.58	79957	15.77	57174	20.40
OP65287A-BS12	31263	8.64	52149	11.58	73088	15.77	52548	20.40
JB33197-8 [c]	31699	8.64	48274	11.58	68518	15.78	53525	20.40
JB33197-9 [d]	35846	8.64	57430	11.58	79654	15.78	59016	20.40
ZZZZZZ	30252	8.64	50865	11.58	70483	15.78	53518	20.40
ZZZZZZ	35100	8.64	47644	11.58	66190	15.78	51225	20.40
ZZZZZZ	29369	8.64	49722	11.58	71041	15.78	51105	20.40
ZZZZZZ	32454	8.65	52415	11.58	75972	15.78	55683	20.40
ZZZZZZ	31963	8.64	50927	11.58	70009	15.78	50791	20.40
ZZZZZZ	34171	8.64	56514	11.58	78813	15.77	56423	20.40
ZZZZZZ	52473	8.64	85603	11.58	117552	15.77	88035	20.40
ZZZZZZ	32283	8.64	53365	11.58	76310	15.78	56093	20.40
ZZZZZZ	42700	8.65	50692	11.60	69085	15.78	54353	20.40
ZZZZZZ	40140	8.64	66524	11.58	89653	15.78	65718	20.40
ZZZZZZ	33519	8.64	56579	11.58	77985	15.77	57964	20.40
ZZZZZZ	42332	8.64	69322	11.58	94384	15.78	70282	20.40
ZZZZZZ	29453	8.64	52508	11.58	68932	15.78	53034	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.
(c) Reextract due to surrogate outside QC limits. Original prep date within holding time.
(d) Confirmation run.

Semivolatile Internal Standard Area Summary

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Check Std:	EZ4062-CC4049	**Injection Date:**	04/26/13
Lab File ID:	Z79689.D	**Injection Time:**	08:49
Instrument ID:	GCMSZ	**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	538082	5.37	2088025	6.60	1232611	9.10	2029211	11.74	2014603	16.94	1896418	19.58
Upper Limit [a]	1076164	5.87	4176050	7.10	2465222	9.60	4058422	12.24	4029206	17.44	3792836	20.08
Lower Limit [b]	269041	4.87	1044013	6.10	616306	8.60	1014606	11.24	1007302	16.44	948209	19.08

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
OP65585-MB1	602312	5.37	2458384	6.60	1489144	9.09	2322062	11.73	2223317	16.93	1887732	19.57
OP65585-BS1	510695	5.37	2011887	6.60	1078682	9.10	1705968	11.73	1601790	16.93	1439159	19.58
ZZZZZZ	525232	5.37	2059847	6.60	1243967	9.09	2067164	11.73	2187116	16.93	2023253	19.57
OP65426-MB1	494421	5.37	1808376	6.60	1069902	9.09	1766137	11.73	1879714	16.93	1629464	19.57
OP65426-BS1	500668	5.37	1947867	6.60	1069477	9.09	1762614	11.73	1809120	16.93	1622860	19.57
ZZZZZZ	489717	5.37	1791120	6.60	1065421	9.09	1758332	11.73	1877058	16.93	1614755	19.57
ZZZZZZ	423569	5.37	1813773	6.60	1045356	9.09	1660274	11.73	1461898	16.96	1280650	19.59
ZZZZZZ	385565	5.38	1588578	6.61	885880	9.10	1411637	11.74	1141598	16.98	982867	19.62
JB33197-8 [c]	423269	5.37	1615747	6.60	978011	9.10	1599774	11.74	1497204	16.94	1289795	19.58
OP65527-MS	454465	5.37	1885259	6.60	1006696	9.10	1594649	11.74	1440408	16.94	1340020	19.58
OP65527-MSD	448250	5.37	1821931	6.60	973273	9.09	1516786	11.74	1504034	16.94	1417519	19.58
JB34634-1	503668	5.37	1910646	6.60	1090194	9.09	1705316	11.73	1606485	16.93	1473457	19.58
OP65542-MS	437712	5.37	1773013	6.60	963388	9.09	1513013	11.73	1475863	16.93	1442983	19.58
OP65542-MSD	440708	5.37	1740758	6.60	947456	9.09	1459568	11.73	1370670	16.93	1336669	19.58
JB34561-3	492038	5.37	1728145	6.60	979450	9.09	1524390	11.73	1603031	16.93	1413565	19.57
OP65585-MS	472229	5.37	1774772	6.60	943285	9.09	1495449	11.73	1423244	16.94	1298176	19.58

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: JB33197
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
JB33197-1	3M36222.D	58.0	49.0	39.0
JB33197-2	3M36223.D	55.0	45.0	24.0
JB33197-3	3M36224.D	51.0	37.0	25.0
JB33197-4	3M36225.D	49.0	39.0	24.0
JB33197-5	3M36226.D	67.0	55.0	59.0
JB33197-7	3M36230.D	62.0	49.0	43.0
JB33197-8	Z79711.D	47.0	44.0	31.0
JB33197-8	3M36231.D	17.0* [a]	20.0* [a]	16.0
JB33197-8	3M36404.D	32.0	28.0	22.0
JB33197-9	3M36405.D	35.0	26.0	25.0
JB33197-9	3M36232.D	26.0	17.0* [b]	16.0
JB33197-10	3M36233.D	40.0	28.0	35.0
JB33197-11	3M36234.D	23.0	36.0	34.0
OP65064A-BS12	3M35866.D	71.0	71.0	73.0
OP65064A-MB1	3M35865.D	63.0	70.0	74.0
OP65064A-MS	3M35873.D	63.0	65.0	43.0
OP65064A-MSD	3M35874.D	65.0	60.0	41.0
OP65472A-BS12	3M36401.D	61.0	44.0	59.0
OP65472A-BSD12	3M36402.D	63.0	47.0	55.0
OP65472A-MB1	3M36400.D	61.0	44.0	57.0

Surrogate Compounds	Recovery Limits
S1 = Nitrobenzene-d5	23-131%
S2 = 2-Fluorobiphenyl	24-120%
S3 = Terphenyl-d14	10-125%

(a) Refer to re-extract.
(b) Outside control limits due to matrix interference.

Initial Calibration Summary

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Sample: E3M1635-ICC1635
Lab FileID: 3M35760.D

```
                    Response Factor Report  MS3M

Method       : C:\msdchem\1\METHODS\M1635SIM.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Fri Apr 05 15:04:44 2013
Response via : Initial Calibration

Calibration Files
2.5 =3m35759.D   1.0 =3m35760.D   0.5 =3m35761.D   0.2 =3m35762.D
0.1 =3m35763.D   0.05=3m35764.D   0.02=3m35765.D   0.01=3m35766.D
5   =3m35758.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
     0.598 0.617 0.663 0.823 0.674 0.739             0.601        0.674   12.26
3)  Phenol-d5
     0.682 0.751 0.866 1.060 0.814 0.854             0.649        0.811   16.95
4)  Phenol
     0.838 0.928 1.032 1.244 0.976 1.004             0.822        0.977   14.50
5)  bis(2-Chloroethyl)ether
     0.718 0.793 0.927 1.136 0.813 0.887 0.880 1.072 0.704        0.881   16.72
6)  Nitrobenzene-d5
     0.788 0.848 0.961 1.157 0.899 0.952             0.817        0.917   13.52
7)  Naphthalene
     2.689 3.025 3.512 4.484 3.535 3.628             2.621        3.356   19.22
8)  Hexachlorobutadiene
     0.617 0.684 0.772 0.958 0.782 0.809             0.601        0.746   16.64
9)  2-Methylnaphthalene
     1.488 1.587 1.777 2.237 1.881 1.766             1.466        1.743   15.38
10)  1-Methylnaphthalene
     1.440 1.553 1.703 2.237 1.743 1.729 2.002       1.425        1.729   16.05

12) I   Fluorene-d10          ----------------ISTD---------------------
13)  2-Fluorobiphenyl
     0.964 1.022 1.169 1.176 1.007 1.415             0.931        1.098   15.40
14)  Acenaphthylene
     1.575 1.615 1.806 1.702 1.365 1.881 2.341       1.557        1.730   16.97
15)  Acenaphthene
     1.065 1.136 1.296 1.274 1.039 1.411 1.764       1.025        1.251   19.91
16)  Fluorene
     0.688 0.791 0.953 0.905 0.725 0.986             0.740        0.827   14.47
17)  2,4,6-Tribromophenol
     0.190 0.190 0.209 0.177 0.121                   0.174        0.177   16.83

18)     Fluoranthene-d10      ----------------ISTD---------------------
19)  Hexachlorobenzene
     0.295 0.332 0.404 0.487 0.393 0.415 0.525                    0.407   19.77
20)  Pentachlorophenol
     0.110 0.083 0.064 0.050 0.025 0.011             0.130        0.068   63.91
           ----- Linear regression -----  Coefficient =  0.9934
             Response Ratio = -0.03059 + 0.13086 *A

21)  Phenanthrene
     1.134 1.208 1.455 1.739 1.489 1.530             1.062        1.374   17.82
22)  Anthracene
     1.098 1.134 1.285 1.482 1.158 1.140 1.411       1.010        1.215   13.40
```

Initial Calibration Summary

Job Number: JB33197 **Sample:** E3M1635-ICC1635
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3M35760.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
23)  Fluoranthene
      1.160 1.295 1.511 1.776 1.467 1.569            1.150        1.418   16.17
24)  Pyrene
      1.195 1.337 1.536 1.830 1.497 1.556            1.184        1.448   15.80
25)  Terphenyl-d14
      0.548 0.591 0.678 0.790 0.692 0.759            0.484        0.649   17.29
26)  Benzo[a]anthracene
      0.967 0.928 0.951 1.052 0.850 0.865 1.055      1.018        0.961    8.18
27)  Chrysene
      1.119 1.199 1.444 1.723 1.395                  1.078        1.326   18.37

28) I   Benzo(a)pyrene-d12    ----------------ISTD---------------------
29)  Benzo[b]fluoranthene
      1.511 1.643 1.576 1.768 1.642 1.617 1.705      1.565        1.628    5.00
30)  Benzo[k]fluoranthene
      1.572 1.719 2.024 2.305 1.442                  1.634        1.783   18.03
31)  Benzo[a]pyrene
      1.531 1.637 2.078 2.670 2.011 2.031 2.019      1.523        1.937   19.56
32)  Indeno[1,2,3-cd]pyrene
      1.767 1.880 2.095 2.421 1.856 1.852 2.158      1.853        1.985   11.15
33)  Dibenz[a,h]anthracene
      1.442 1.535 1.734 1.956 1.434 1.423 1.638      1.508        1.584   11.70
34)  Benzo[g,h,i]perylene
      1.501 1.700 1.940 2.327 1.848 1.865 2.277      1.570        1.879   16.03
-------------------------------------------------------------------------------
(#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          M1635SIM.M        Fri Apr 05 15:14:10 2013   RPT1
```

8.8.1

8

Initial Calibration Verification

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: E3M1635-ICV1635
Lab FileID: 3M35767.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e3m1635\3m35767.D          Vial: 11
Acq On    :  4 Apr 2013   5:24 pm                     Operator: andrews1
Sample    : icv1635-1                                 Inst    : MS3M
Misc      : op63546a,e3m1635                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M1635SIM.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Fri Apr 05 15:04:44 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	124	0.00	8.81
5	t	bis(2-Chloroethyl)ether	0.881	0.937	-6.4	146	-0.02	4.76
7	t	Naphthalene	3.356	3.333	0.7	136	0.00	7.34
8	t	Hexachlorobutadiene	0.746	0.719	3.6	130	0.00	7.72
9	t	2-Methylnaphthalene	1.743	1.644	5.7	128	-0.02	8.66
12	I	Fluorene-d10	1.000	1.000	0.0	116	0.00	11.77
14	t	Acenaphthylene	1.730	1.544	10.8	111	-0.02	10.42
15	t	Acenaphthene	1.251	1.195	4.5	123	-0.02	10.79
16	t	Fluorene	0.827	0.951	-15.0	140	0.00	11.81
18		Fluoranthene-d10	1.000	1.000	0.0	109	0.00	15.95
19	t	Hexachlorobenzene	0.407	0.362	11.1	119	0.00	13.09
		----------	AvgRF	CCRF	% Dev	----------		
21	t	Phenanthrene	1.374	1.302	5.2	117	0.00	13.72
22	t	Anthracene	1.215	1.154	5.0	111	-0.02	13.79
23	t	Fluoranthene	1.418	1.330	6.2	112	0.00	15.98
24	t	Pyrene	1.448	1.354	6.5	110	0.00	16.37
26	t	Benzo[a]anthracene	0.961	0.881	8.3	103	0.00	18.46
27	t	Chrysene	1.326	1.204	9.2	109	0.00	18.53
28	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	96	0.00	20.56
29	t	Benzo[b]fluoranthene	1.628	1.544	5.2	90	0.00	20.15
30	t	Benzo[k]fluoranthene	1.783	1.886	-5.8	105	0.00	20.18
31	t	Benzo[a]pyrene	1.937	1.616	16.6	94	0.00	20.60
32	t	Indeno[1,2,3-cd]pyrene	1.985	1.853	6.6	94	0.00	22.16
33	t	Dibenz[a,h]anthracene	1.584	1.522	3.9	95	-0.02	22.19
34	t	Benzo[g,h,i]perylene	1.879	1.675	10.9	94	0.00	22.56

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3m35760.D M1635SIM.M Fri Apr 05 15:13:57 2013 RPT1

8.8.2

8

Initial Calibration Verification

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Sample: E3M1635-ICV1635
Lab FileID: 3M35768.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e3m1635\3m35768.D          Vial: 12
Acq On    :  4 Apr 2013   5:55 pm                     Operator: andrews1
Sample    : icv1635-1                                 Inst    : MS3M
Misc      : op63546a,e3m1635                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M1635SIM.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Fri Apr 05 15:04:44 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	183	0.00	8.82
4		Phenol	0.977	1.002	-2.6	198	-0.02	4.68
12	I	Fluorene-d10	1.000	1.000	0.0	177	0.00	11.77
18		Fluoranthene-d10	1.000	1.000	0.0	168	0.00	15.95
		----------	True	Calc.	% Drift	----------		
20	t	Pentachlorophenol	5.000	4.843	3.1	207	-0.11	13.47
		----------	AvgRF	CCRF	% Dev	----------		
28	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	187	0.00	20.57

```
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    3m35760.D  M1635SIM.M       Fri Apr 05 15:13:59 2013   RPT1
```

8.8.3

8

Continuing Calibration Summary

Job Number: JB33197 **Sample:** E3M1641-CC1635
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3M35864.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e3m1641\3m35864.D          Vial: 2
Acq On    :  9 Apr 2013   8:43 am                    Operator: andrews1
Sample    : cc1635-.5                                Inst    : MS3M
Misc      : op63546a,e3m1641                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M1635SIM.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Fri Apr 05 15:04:44 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	64	-0.02	8.80
2	S	2-Fluorophenol	0.674	0.632	6.2	61	0.00	3.44
3	S	Phenol-d5	0.811	0.821	-1.2	61	0.00	4.68
4		Phenol	0.977	0.972	0.5	60	0.00	4.69
5	t	bis(2-Chloroethyl)ether	0.881	0.830	5.8	57	-0.02	4.76
6	S	Nitrobenzene-d5	0.917	0.914	0.3	61	-0.01	6.05
7	t	Naphthalene	3.356	3.573	-6.5	65	-0.01	7.33
8	t	Hexachlorobutadiene	0.746	0.798	-7.0	66	-0.01	7.70
9	t	2-Methylnaphthalene	1.743	1.785	-2.4	64	-0.03	8.64
10	t	1-Methylnaphthalene	1.729	1.760	-1.8	66	-0.02	8.86
12	I	Fluorene-d10	1.000	1.000	0.0	70	-0.02	11.75
13	S	2-Fluorobiphenyl	1.098	1.176	-7.1	70	-0.02	9.45
14	t	Acenaphthylene	1.730	2.014	-16.4	78	-0.03	10.41
15	t	Acenaphthene	1.251	1.245	0.5	67	-0.02	10.79
16	t	Fluorene	0.827	1.029	-24.4#	75	-0.01	11.80
17	S	2,4,6-Tribromophenol	0.177	0.207	-16.9	69	0.00	12.35
18		Fluoranthene-d10	1.000	1.000	0.0	68	-0.02	15.93
19	t	Hexachlorobenzene	0.407	0.416	-2.2	70	-0.02	13.07
		----------	True	Calc.	% Drift	----------		
20	t	Pentachlorophenol	2.500	4.205	-68.2#	180	-0.11	13.47
		----------	AvgRF	CCRF	% Dev	----------		
21	t	Phenanthrene	1.374	1.425	-3.7	66	-0.02	13.70
22	t	Anthracene	1.215	1.292	-6.3	68	-0.02	13.79
23	t	Fluoranthene	1.418	1.411	0.5	63	-0.02	15.96
24	t	Pyrene	1.448	1.582	-9.3	70	-0.02	16.35
25	S	Terphenyl-d14	0.649	0.644	0.8	64	-0.02	16.74
26	t	Benzo[a]anthracene	0.961	1.324	-37.8#	94	0.00	18.45
27	t	Chrysene	1.326	1.265	4.6	59	0.00	18.52
28	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	71	0.00	20.56
29	t	Benzo[b]fluoranthene	1.628	1.914	-17.6	87	-0.01	20.14
30	t	Benzo[k]fluoranthene	1.783	1.533	14.0	54	-0.01	20.17
31	t	Benzo[a]pyrene	1.937	2.181	-12.6	75	-0.01	20.59
32	t	Indeno[1,2,3-cd]pyrene	1.985	1.862	6.2	64	-0.02	22.16
33	t	Dibenz[a,h]anthracene	1.584	1.490	5.9	61	-0.03	22.18
34	t	Benzo[g,h,i]perylene	1.879	1.612	14.2	59	-0.02	22.55

Continuing Calibration Summary

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: E3M1641-CC1635
Lab FileID: 3M35864.D

```
(#) = Out of Range                SPCC's out = 0  CCC's out = 0
 3m35761.D  M1635SIM.M       Tue Apr 09 15:19:44 2013   RPT1
```

Initial Calibration Summary

Job Number: JB33197 **Sample:** E3M1644-ICC1644
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3M35924.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

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: JB33197 **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
```

8.8.5

8

Initial Calibration Verification

Job Number: JB33197 **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

8.8.6

8

Initial Calibration Verification

Job Number: JB33197
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

8.8.7

8

Continuing Calibration Summary

Job Number: JB33197 **Sample:** E3M1656-CC1644
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3M36221.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e3m1656\3m36221.D          Vial: 2
Acq On    : 18 Apr 2013  10:50 pm                    Operator: ashleyd
Sample    : cc1644-0.5                               Inst    : MS3M
Misc      : op63546a,e3m1656                         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	118	-0.05	8.69
2	S	2-Fluorophenol	0.627	0.565	9.9	103	-0.06	3.37
3	S	Phenol-d5	0.802	0.840	-4.7	111	-0.06	4.59
4		Phenol	0.883	0.865	2.0	110	-0.06	4.60
5	t	bis(2-Chloroethyl)ether	0.765	0.727	5.0	111	-0.06	4.66
6	S	Nitrobenzene-d5	0.855	0.930	-8.8	117	-0.07	5.95
7	t	Naphthalene	3.336	3.393	-1.7	116	-0.07	7.22
8	t	Hexachlorobutadiene	0.548	0.582	-6.2	118	-0.07	7.61
9	t	2-Methylnaphthalene	1.605	1.733	-8.0	120	-0.08	8.54
10	t	1-Methylnaphthalene	1.549	1.641	-5.9	118	-0.07	8.75
12	I	Fluorene-d10	1.000	1.000	0.0	123	-0.08	11.63
13	S	2-Fluorobiphenyl	1.171	1.085	7.3	112	-0.07	9.35
14	t	Acenaphthylene	1.754	2.079	-18.5	130	-0.08	10.31
15	t	Acenaphthene	1.247	1.283	-2.9	123	-0.08	10.68
16	t	Fluorene	1.281	1.343	-4.8	121	-0.06	11.69
17	S	2,4,6-Tribromophenol	0.167	0.178	-6.6	118	-0.09	12.22
18		Fluoranthene-d10	1.000	1.000	0.0	119	-0.06	15.83
19	t	Hexachlorobenzene	0.315	0.352	-11.7	129	-0.08	12.95
20	t	Pentachlorophenol	0.124	0.225	-81.5#	151	-0.08	13.35
21	t	Phenanthrene	1.446	1.511	-4.5	124	-0.08	13.57
22	t	Anthracene	1.194	1.421	-19.0	137	-0.09	13.67
23	t	Fluoranthene	1.384	1.379	0.4	122	-0.08	15.85
24	t	Pyrene	1.523	1.575	-3.4	118	-0.09	16.23
25	S	Terphenyl-d14	0.670	0.599	10.6	108	-0.08	16.62
26	t	Benzo[a]anthracene	1.146	1.308	-14.1	121	-0.08	18.34
27	t	Chrysene	1.337	1.220	8.8	112	-0.08	18.41
28	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	107	-0.08	20.44
29	t	Benzo[b]fluoranthene	1.738	2.150	-23.7#	125	-0.08	20.02
30	t	Benzo[k]fluoranthene	1.730	1.511	12.7	91	-0.08	20.05
31	t	Benzo[a]pyrene	1.610	1.648	-2.4	109	-0.08	20.47
32	t	Indeno[1,2,3-cd]pyrene	1.987	2.012	-1.3	107	-0.12	22.01
33	t	Dibenz[a,h]anthracene	1.578	1.579	-0.1	110	-0.12	22.03
34	t	Benzo[g,h,i]perylene	1.790	1.785	0.3	108	-0.12	22.39

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3m35925.D M1644SIM.M Fri Apr 19 15:42:20 2013 RPT1

Continuing Calibration Summary

Job Number: JB33197 **Sample:** E3M1657-CC1644
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3M36229.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e3m1657\3m36229.D          Vial: 2
Acq On    : 19 Apr 2013   6:48 am                    Operator: ninap
Sample    : cc1644-1.0                               Inst    : MS3M
Misc      : op63546a,e3m1657                         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	-0.05	8.69
2	S	2-Fluorophenol	0.627	0.510	18.7	111	-0.06	3.37
3	S	Phenol-d5	0.802	0.717	10.6	118	-0.06	4.59
4		Phenol	0.883	0.796	9.9	117	-0.06	4.60
5	t	bis(2-Chloroethyl)ether	0.765	0.706	7.7	124	-0.06	4.66
6	S	Nitrobenzene-d5	0.855	0.824	3.6	124	-0.07	5.95
7	t	Naphthalene	3.336	3.045	8.7	122	-0.06	7.23
8	t	Hexachlorobutadiene	0.548	0.534	2.6	125	-0.07	7.61
9	t	2-Methylnaphthalene	1.605	1.526	4.9	123	-0.07	8.56
10	t	1-Methylnaphthalene	1.549	1.467	5.3	123	-0.07	8.75
12	I	Fluorene-d10	1.000	1.000	0.0	122	-0.08	11.63
13	S	2-Fluorobiphenyl	1.171	0.906	22.6#	113	-0.07	9.35
14	t	Acenaphthylene	1.754	1.815	-3.5	133	-0.08	10.31
15	t	Acenaphthene	1.247	1.132	9.2	126	-0.08	10.68
16	t	Fluorene	1.281	1.290	-0.7	132	-0.06	11.69
17	S	2,4,6-Tribromophenol	0.167	0.158	5.4	123	-0.07	12.24
18		Fluoranthene-d10	1.000	1.000	0.0	121	-0.06	15.83
19	t	Hexachlorobenzene	0.315	0.315	0.0	125	-0.08	12.95
20	t	Pentachlorophenol	0.124	0.199	-60.5#	149	-0.06	13.37
21	t	Phenanthrene	1.446	1.317	8.9	124	-0.08	13.57
22	t	Anthracene	1.194	1.210	-1.3	133	-0.09	13.67
23	t	Fluoranthene	1.384	1.289	6.9	126	-0.06	15.86
24	t	Pyrene	1.523	1.528	-0.3	131	-0.08	16.25
25	S	Terphenyl-d14	0.670	0.562	16.1	122	-0.06	16.63
26	t	Benzo[a]anthracene	1.146	1.175	-2.5	123	-0.07	18.35
27	t	Chrysene	1.337	1.116	16.5	119	-0.08	18.41
28	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	115	-0.07	20.45
29	t	Benzo[b]fluoranthene	1.738	1.787	-2.8	126	-0.08	20.02
30	t	Benzo[k]fluoranthene	1.730	1.450	16.2	106	-0.08	20.05
31	t	Benzo[a]pyrene	1.610	1.489	7.5	101	-0.07	20.48
32	t	Indeno[1,2,3-cd]pyrene	1.987	1.733	12.8	111	-0.12	22.01
33	t	Dibenz[a,h]anthracene	1.578	1.356	14.1	111	-0.11	22.04
34	t	Benzo[g,h,i]perylene	1.790	1.572	12.2	115	-0.12	22.39

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3m35924.D M1644SIM.M Fri Apr 19 16:36:15 2013 RPT1

8.8.9

Continuing Calibration Summary

Job Number: JB33197 **Sample:** E3M1664-CC1644
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3M36396.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e3m1664\3m36396.D          Vial: 2
Acq On    : 23 Apr 2013   9:30 pm                    Operator: ashleyd
Sample    : cc1644-0.5                               Inst    : MS3M
Misc      : op63546a,e3m1664                         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	103	-0.11	8.64
2	S	2-Fluorophenol	0.627	0.623	0.6	99	-0.09	3.34
3	S	Phenol-d5	0.802	0.850	-6.0	98	-0.09	4.56
4		Phenol	0.883	0.931	-5.4	103	-0.09	4.57
5	t	bis(2-Chloroethyl)ether	0.765	0.760	0.7	101	-0.11	4.62
6	S	Nitrobenzene-d5	0.855	0.995	-16.4	109	-0.12	5.90
7	t	Naphthalene	3.336	3.569	-7.0	106	-0.11	7.18
8	t	Hexachlorobutadiene	0.548	0.596	-8.8	106	-0.12	7.55
9	t	2-Methylnaphthalene	1.605	1.720	-7.2	104	-0.12	8.50
10	t	1-Methylnaphthalene	1.549	1.671	-7.9	105	-0.12	8.69
12	I	Fluorene-d10	1.000	1.000	0.0	109	-0.13	11.58
13	S	2-Fluorobiphenyl	1.171	1.050	10.3	96	-0.12	9.29
14	t	Acenaphthylene	1.754	2.113	-20.5#	117	-0.14	10.25
15	t	Acenaphthene	1.247	1.275	-2.2	108	-0.14	10.62
16	t	Fluorene	1.281	1.383	-8.0	110	-0.11	11.63
17	S	2,4,6-Tribromophenol	0.167	0.172	-3.0	101	-0.13	12.18
18		Fluoranthene-d10	1.000	1.000	0.0	105	-0.12	15.77
19	t	Hexachlorobenzene	0.315	0.335	-6.3	108	-0.13	12.90
20	t	Pentachlorophenol	0.124	0.205	-65.3#	121	-0.11	13.31
21	t	Phenanthrene	1.446	1.452	-0.4	105	-0.13	13.52
22	t	Anthracene	1.194	1.363	-14.2	116	-0.15	13.61
23	t	Fluoranthene	1.384	1.311	5.3	102	-0.12	15.80
24	t	Pyrene	1.523	1.671	-9.7	110	-0.14	16.19
25	S	Terphenyl-d14	0.670	0.615	8.2	97	-0.12	16.57
26	t	Benzo[a]anthracene	1.146	1.347	-17.5	110	-0.12	18.29
27	t	Chrysene	1.337	1.216	9.1	99	-0.13	18.35
28	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	101	-0.13	20.40
29	t	Benzo[b]fluoranthene	1.738	1.987	-14.3	109	-0.14	19.97
30	t	Benzo[k]fluoranthene	1.730	1.756	-1.5	101	-0.12	20.01
31	t	Benzo[a]pyrene	1.610	1.625	-0.9	102	-0.12	20.43
32	t	Indeno[1,2,3-cd]pyrene	1.987	2.103	-5.8	106	-0.17	21.95
33	t	Dibenz[a,h]anthracene	1.578	1.608	-1.9	106	-0.17	21.98
34	t	Benzo[g,h,i]perylene	1.790	1.824	-1.9	105	-0.18	22.33

```
(#) = Out of Range                SPCC's out = 0  CCC's out = 0
 3m35925.D  M1644SIM.M       Fri Apr 26 13:09:02 2013   RPT1
```

8.8.10

8

Initial Calibration Summary

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Sample: EZ4049-ICC4049
Lab FileID: Z79453.D

Response Factor Report MSZ

Method : C:\msdchem\1\METHODS\MZ4049.M (RTE Integrator)
Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update : Sun Apr 21 09:40:20 2013
Response via : Initial Calibration

Calibration Files
100 =Z79454.D 80 =Z79456.D 50 =Z79453.D 25 =Z79458.D
10 =Z79460.D 5 =Z79459.D 2 =Z79457.D 1 =Z79455.D

Compound	100	80	50	25	10	5	2	1	Avg	%RSD
1) I 1,4-Dichlorobenzene-d	----------	----------	----------	----------	ISTD	----------	----------	----------	----------	
3) Pyridine	1.533	1.596	1.697	1.734	1.580	1.547	1.437	1.279	1.551	9.28
4) N-Nitrosodim	0.935	0.988	1.036	1.066	0.955	0.933	0.897	0.819	0.954	8.18
5) 2-Fluorophen	1.374	1.404	1.467	1.492	1.317	1.254	1.221	1.161	1.336	8.87
6) Indene	1.997	2.151	2.361	2.532	2.422	2.359	2.407	2.232	2.307	7.42
7) Cumene	2.910	3.077	3.329	3.568	3.285	3.223	3.210	3.054	3.207	6.24
8) Phenol-d5	1.637	1.693	1.786	1.848	1.612	1.530	1.492	1.350	1.619	9.98
9) Phenol	1.686	1.744	1.874	1.944	1.753	1.630	1.595	1.440	1.708	9.32
10) Aniline	2.062	2.145	2.374	2.436	2.225	2.121	2.134	2.023	2.190	6.69
11) bis(2-Chloro	1.307	1.330	1.407	1.478	1.357	1.328	1.353	1.323	1.361	4.15
12) 2-Chlorophen	1.286	1.345	1.463	1.571	1.463	1.418	1.411	1.328	1.411	6.46
13) Decane	1.297	1.394	1.554	1.726	1.681	1.656	1.714	1.703	1.591	10.23
14) 1,3-Dichloro	1.560	1.631	1.739	1.837	1.696	1.679	1.689	1.654	1.686	4.80
15) 1,4-Dichloro	1.512	1.592	1.687	1.783	1.631	1.636	1.609	1.616	1.633	4.78
16) Benzyl alcoh	0.953	0.977	1.031	1.044	0.922	0.859	0.825		0.944	8.73
17) 1,2-Dichloro	1.376	1.459	1.575	1.697	1.592	1.568	1.593	1.528	1.548	6.24
18) Acetophenone	1.706	1.775	1.898	2.005	1.839	1.730	1.725	1.598	1.785	7.09
19) 2-Methylphen	1.293	1.334	1.424	1.454	1.345	1.248	1.186	1.127	1.301	8.61
20) 2,2'-oxybis(	0.420	0.447	0.484	0.524	0.488	0.478	0.468	0.438	0.468	6.97
21) 3&4-Methylph	1.407	1.444	1.521	1.565	1.379	1.329	1.205		1.407	8.55
22) n-Nitroso-di	0.903	0.934	0.994	1.043	0.978	0.938	0.946	0.842	0.947	6.37
23) Hexachloroet	0.536	0.555	0.582	0.606	0.554	0.554	0.535	0.508	0.554	5.41
24) I Naphthalene-d8	----------	----------	----------	----------	ISTD	----------	----------	----------	----------	
25) Nitrobenzene	0.314	0.327	0.334	0.360	0.317	0.298	0.298	0.277	0.315	8.08
26) Nitrobenzene	0.320	0.334	0.344	0.376	0.332	0.323	0.323	0.309	0.333	6.11
27) Quinoline	0.686	0.703	0.729	0.791	0.686	0.663	0.662	0.575	0.687	8.99
28) Isophorone	0.589	0.611	0.640	0.688	0.617	0.600	0.605	0.568	0.615	5.87
29) 2-Nitropheno	0.160	0.171	0.187	0.205	0.172	0.160	0.149		0.172	10.83
30) 2,4-Dimethyl	0.262	0.278	0.310	0.351	0.322	0.308	0.236	0.260	0.291	13.11
31) Benzoic Acid	0.280	0.278	0.268	0.260	0.189				0.255	14.91
32) bis(2-Chloro	0.350	0.367	0.379	0.417	0.382	0.357	0.364	0.332	0.369	6.83
33) 2,4-Dichloro	0.296	0.306	0.317	0.338	0.290	0.270	0.258		0.297	9.20
34) 2,6-Dichloro	0.268	0.281	0.300	0.333	0.289	0.275	0.267	0.241	0.282	9.67
35) 1,3,5-Trichl	0.272	0.295	0.320	0.372	0.352	0.345	0.353	0.349	0.332	10.18
36) 1,2,4-Trichl	0.311	0.329	0.343	0.376	0.344	0.334	0.342	0.321	0.337	5.80
37) 1,2,3-Trichl	0.289	0.302	0.320	0.360	0.327	0.324	0.331	0.315	0.321	6.57
38) Naphthalene	0.958	1.017	1.070	1.190	1.094	1.063	1.115	1.053	1.070	6.38
39) 4-Chloroanil	0.411	0.431	0.459	0.508	0.442	0.408	0.389	0.354	0.425	10.91
40) 2,3-Dichloro	0.324	0.341	0.368	0.405	0.358	0.345	0.349	0.301	0.349	8.80
41) Caprolactam	0.162	0.164	0.168	0.179	0.150	0.138	0.146		0.158	8.89
42) Hexachlorobu	0.160	0.171	0.179	0.199	0.185	0.181	0.186	0.179	0.180	6.35
43) 4-Chloro-3-m	0.283	0.291	0.302	0.324	0.274	0.254	0.234	0.203	0.270	14.40
44) 2-Methylnaph	0.566	0.600	0.634	0.715	0.638	0.621	0.635	0.561	0.621	7.84
45) 1-Methylnaph	0.536	0.561	0.599	0.666	0.605	0.596	0.603	0.563	0.591	6.62
46) Dimethylnaph	0.555	0.592	0.634	0.709	0.636	0.611	0.625	0.582	0.618	7.46

Initial Calibration Summary

Job Number: JB33197 **Sample:** EZ4049-ICC4049
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** Z79453.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
47) I   Acenaphthene-d10      ----------------ISTD---------------------
48) Hexachlorocy 0.289 0.308 0.327 0.348 0.281 0.258             0.302  10.83
49) 2,4,6-Trichl 0.338 0.356 0.374 0.406 0.336 0.313 0.306 0.256 0.335  13.54
50) 2,4,5-Trichl 0.376 0.394 0.405 0.438 0.371 0.329 0.333       0.378  10.26
51) 2-Fluorobiph 1.140 1.210 1.293 1.447 1.274 1.255 1.315 1.167 1.263   7.64
52) 2-Chloronaph 1.010 1.062 1.126 1.259 1.132 1.116 1.151 1.024 1.110   7.17
53) Biphenyl     1.261 1.359 1.464 1.636 1.447 1.410 1.440 1.338 1.419   7.78
54) 2-Nitroanili 0.266 0.286 0.303 0.336 0.268 0.241 0.220       0.274  14.06
55) Dimethylphth 1.172 1.223 1.303 1.416 1.224 1.197 1.225 1.142 1.238   6.93
56) Acenaphthyle 1.576 1.678 1.814 2.067 1.843 1.773 1.798 1.646 1.774   8.45
57) 2,6-Dinitrot 0.245 0.257 0.276 0.299 0.241 0.217 0.193       0.247  14.34
58) 3-Nitroanili 0.334 0.347 0.357 0.375 0.292 0.250 0.228       0.312  18.05
59) Acenaphthene 1.009 1.070 1.149 1.289 1.133 1.130 1.178 1.082 1.130   7.36
60) 2,4-Dinitrop 0.147 0.142 0.130 0.105 0.047                   0.114  35.74
            ----- Linear regression -----  Coefficient =  0.9996
              Response Ratio = -0.06271 + 0.15795 *A

61) 4-Nitropheno 0.118 0.123 0.123 0.125 0.093 0.083             0.111  16.56
62) Dibenzofuran 1.476 1.558 1.652 1.852 1.632 1.600 1.647 1.556 1.622   6.79
63) 2,4-Dinitrot 0.377 0.387 0.399 0.410 0.317 0.272 0.228       0.342  20.58
            ----- Linear regression -----  Coefficient =  0.9983
              Response Ratio = -0.00388 + 0.38598 *A

64) 2,3,4,6-Tetr 0.317 0.329 0.339 0.360 0.288 0.266 0.239       0.305  14.08
65) Diethylphtha 1.090 1.149 1.217 1.330 1.159 1.093 1.116 1.012 1.146   8.32
66) Fluorene     1.060 1.156 1.268 1.461 1.292 1.239 1.310 1.236 1.253   9.32
67) 4-Chlorophen 0.516 0.561 0.622 0.705 0.641 0.630 0.658 0.608 0.618   9.38
68) 4-Nitroanili 0.344 0.352 0.359 0.368 0.288 0.242             0.326  15.21

69) I   Phenanthrene-d10      ----------------ISTD---------------------
70) 4,6-Dinitro- 0.139 0.133 0.128 0.113 0.063 0.045             0.104  38.25
            ----- Linear regression -----  Coefficient =  0.9991
              Response Ratio = -0.01767 + 0.14393 *A

71) n-Nitrosodip 0.539 0.559 0.591 0.668 0.588 0.576 0.580 0.519 0.577   7.63
72) 1,2-Diphenyl 0.620 0.650 0.691 0.771 0.676 0.655 0.668 0.635 0.671   6.93
73) 2,4,6-Tribro 0.105 0.108 0.111 0.120 0.096 0.085 0.077       0.100  14.97
74) 4-Bromopheny 0.211 0.218 0.232 0.257 0.224 0.220 0.219 0.221 0.225   6.18
75) Hexachlorobe 0.216 0.230 0.243 0.268 0.241 0.245 0.257 0.229 0.241   6.84
76) Pentachlorop 0.147 0.156 0.164 0.175 0.138 0.121             0.150  12.76
77) Phenanthrene 1.012 1.056 1.127 1.291 1.145 1.144 1.179 1.140 1.137   7.28
78) Anthracene   1.023 1.082 1.154 1.311 1.146 1.140 1.133 1.071 1.133   7.53
79) Carbazole    0.958 1.005 1.066 1.193 1.027 0.998 0.960 0.885 1.011   8.99
80) Di-n-butylph 1.134 1.194 1.260 1.391 1.155 1.087 1.033 0.932 1.148  12.21
81) Fluoranthene 1.126 1.178 1.262 1.410 1.211 1.181 1.138 1.072 1.197   8.61
82) Octadecane   0.432 0.453 0.485 0.548 0.472 0.438 0.446 0.377 0.456  10.72

83) I   Chrysene-d12          ----------------ISTD---------------------
84) Pyrene       1.294 1.312 1.344 1.489 1.247 1.226 1.231 1.157 1.288   7.76
85) Butyl steara 0.330 0.337 0.337 0.358 0.275 0.240 0.220       0.300  18.06
86) Terphenyl-d1 0.899 0.918 0.939 1.020 0.851 0.818 0.823 0.775 0.880   8.99
87) Butylbenzylp 0.573 0.574 0.573 0.592 0.453 0.405 0.394       0.509  17.30
88) Benzo[a]anth 1.180 1.217 1.228 1.326 1.076 1.035 1.056 1.075 1.149   9.04
89) 3,3'-Dichlor 0.444 0.445 0.456 0.472 0.363 0.328 0.318       0.404  16.13
90) Chrysene     1.103 1.126 1.145 1.244 1.054 1.044 1.080 1.029 1.103   6.32
91) bis(2-Ethylh 0.753 0.765 0.768 0.809 0.609 0.544 0.499       0.678  18.42

92) I   Perylene-d12          ----------------ISTD---------------------
93) Di-n-octylph 1.271 1.313 1.364 1.419 1.038 0.879 0.776       1.152  22.00
```

Initial Calibration Summary

Job Number: JB33197 **Sample:** EZ4049-ICC4049
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** Z79453.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
              ----- Linear regression -----  Coefficient =  0.9974
                Response Ratio = -0.01010 + 1.30513 *A

 94) Benzo[b]fluo       1.205 1.261 1.323 1.133 1.040 1.006 0.937 1.129  12.57
 95) Benzo[k]fluo 0.947 1.046 1.176 1.444 1.234 1.283 1.256 1.251 1.205  12.62
 96) Benzo[a]pyre 1.059 1.122 1.197 1.307 1.065 1.002 0.997 0.911 1.082  11.52
 97) Indeno[1,2,3 1.259 1.316 1.405 1.537 1.226 1.148 1.140 1.130 1.270  11.35
 98) Dibenz(a,h)a 0.950 0.986 1.026 1.103 0.836 0.799 0.779       0.925  13.33
 99) Dibenz[a,h]a 1.051 1.110 1.195 1.299 1.044 0.942 0.989 0.934 1.071  11.83
100) 7,12-Dimethy 0.453 0.492 0.557 0.662 0.556 0.524 0.439       0.526  14.35
101) Benzo[g,h,i] 1.088 1.124 1.189 1.307 1.047 0.997 0.998 0.985 1.092  10.26
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          MZ4049.M          Mon Apr 22 11:17:23 2013
```

8.8.11

8

Initial Calibration Summary

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Sample: EZ4050-ICC4050
Lab FileID: Z79464.D

```
                          Response Factor Report  MSZ

  Method       : C:\msdchem\1\METHODS\MZ4049eph.M (RTE Integrator)
  Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
  Last Update  : Fri Apr 19 17:07:46 2013
  Response via : Initial Calibration

  Calibration Files
  100 =Z79462.D    80  =Z79463.D    50  =Z79464.D    25  =Z79465.D
  10  =Z79466.D    5   =Z79467.D    2   =Z79468.D    1   =Z79469.D

   Compound         100   80    50    25    10    5     2     1     Avg %RSD
  ---------------------------------------------------------------------------
102)     1,4-Dichlorobenzene-d ----------------ISTD---------------------
103) Benzaldehyde 0.952 1.034 1.120 1.133 1.179 1.124 1.249 1.218 1.126   8.57

104)     Phenanthrene-d10a     ----------------ISTD---------------------
105) Atrazine     0.112 0.114 0.114 0.115 0.114 0.106 0.104 0.091 0.109   7.61
106) O-terphenyl  0.548 0.564 0.583 0.609 0.649 0.631 0.671 0.628 0.610   6.99

107)     Chrysene-d12a         ----------------ISTD---------------------
108) 1-chloroocta 0.310 0.319 0.309 0.312 0.318 0.281 0.287 0.235 0.296   9.63
109) Benzidine    0.217 0.350 0.612 0.567 0.665 0.479 0.443 0.203 0.442  39.36

110)     Acenaphthene-d10a     ----------------ISTD---------------------
111) 1,2,4,5-Tetr 0.502 0.510 0.513 0.532 0.563 0.550 0.586 0.574 0.541   5.84

112) I   Naphthalene-d8a       ----------------ISTD---------------------
113) Hydroquinone 0.267 0.272 0.266 0.234 0.184                   0.245  15.05
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           MZ4049eph.M        Mon Apr 22 11:30:36 2013
```

8.8.12

8

Initial Calibration Verification

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Sample: EZ4050-ICV4049
Lab FileID: Z79470.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\ez4049\Z79470.D            Vial: 19
Acq On    : 19 Apr 2013   1:11 am                    Operator: katelynh
Sample    : icv4049-50                               Inst    : MSZ
Misc      : op65134,ez4050,                          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\MZ4049.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Sun Apr 21 09:40:20 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 : 202%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	147	0.00	5.41
5	S	2-Fluorophenol	1.336	1.264	5.4	126	0.00	4.45
8	S	Phenol-d5	1.619	1.443	10.9	119	0.00	5.13
24	I	Naphthalene-d8	1.000	1.000	0.0	133	0.00	6.65
25	S	Nitrobenzene-d5	0.315	0.320	-1.6	127	0.00	5.92
47	I	Acenaphthene-d10	1.000	1.000	0.0	121	0.00	9.16
51	S	2-Fluorobiphenyl	1.263	1.242	1.7	116	0.00	8.08
69	I	Phenanthrene-d10	1.000	1.000	0.0	110	0.00	11.80
73	S	2,4,6-Tribromophenol	0.100	0.088	12.0	87	0.00	10.55
83	I	Chrysene-d12	1.000	1.000	0.0	104	0.00	17.00
86	S	Terphenyl-d14	0.880	0.861	2.2	95	0.00	14.96

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 Z79464.D   MZ4049.M         Mon Apr 22 11:25:54 2013
```

8.8.13

8

Initial Calibration Verification

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: EZ4050-ICV4050
Lab FileID: Z79472A.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\ez4049\Z79472a.D          Vial: 21
Acq On    : 19 Apr 2013   2:16 am                   Operator: katelynh
Sample    : icv4050-50                              Inst    : MSZ
Misc      : op65134,ez4050,                         Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\MZ4049.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Sun Apr 21 09:40:20 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 : 202%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
108	Acenaphthene-d10a	1.000	1.000	0.0	127	0.00	9.16
109	1,2,4,5-Tetrachlorobenzen	0.541	0.551	-1.8	136	0.00	7.83

(#) = Out of Range SPCC's out = 0 CCC's out = 0
Z79464.D MZ4049.M Mon Apr 22 12:51:32 2013

8.8.14

8

Initial Calibration Verification

Job Number: JB33197 **Sample:** EZ4050-ICV4049
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** Z79472.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\ez4049\Z79472.D            Vial: 21
Acq On    : 19 Apr 2013   2:16 am                    Operator: katelynh
Sample    : icv4049-50                               Inst    : MSZ
Misc      : op65134,ez4050,                          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\MZ4049.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Sun Apr 21 09:40:20 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 : 202%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	156	0.00	5.41
3	t	Pyridine	1.551	1.404	9.5	129	-0.04	3.40
4	t	N-Nitrosodimethylamine	0.954	0.949	0.5	143	0.00	3.40
11	t	bis(2-Chloroethyl)ether	1.361	1.513	-11.2	168	0.00	5.21
14	t	1,3-Dichlorobenzene	1.686	1.721	-2.1	155	0.00	5.38
15	t	1,4-Dichlorobenzene	1.633	1.627	0.4	151	0.00	5.43
16	t	Benzyl alcohol	0.944	0.967	-2.4	147	0.00	5.53
17	t	1,2-Dichlorobenzene	1.548	1.639	-5.9	163	0.00	5.59
20	t	2,2'-oxybis(1-Chloropropa	0.468	0.527	-12.6	170	0.00	5.66
22	t	n-Nitroso-di-n-propylamin	0.947	1.028	-8.6	162	0.00	5.78
23	t	Hexachloroethane	0.554	0.588	-6.1	158	0.00	5.86
24	I	Naphthalene-d8	1.000	1.000	0.0	146	0.00	6.66
26	t	Nitrobenzene	0.333	0.379	-13.8	161	0.00	5.95
28	t	Isophorone	0.615	0.676	-9.9	154	0.00	6.15
32	t	bis(2-Chloroethoxy)methan	0.369	0.428	-16.0	165	0.00	6.37
36	t	1,2,4-Trichlorobenzene	0.337	0.357	-5.9	152	0.00	6.60
38	t	Naphthalene	1.070	1.075	-0.5	147	0.00	6.68
42	t	Hexachlorobutadiene	0.180	0.192	-6.7	156	0.00	6.87
44	t	2-Methylnaphthalene	0.621	0.591	4.8	136	0.00	7.53
47	I	Acenaphthene-d10	1.000	1.000	0.0	133	0.00	9.16
48	t	Hexachlorocyclopentadiene	0.302	0.288	4.6	116	0.00	7.85
52	t	2-Chloronaphthalene	1.110	1.207	-8.7	142	0.00	8.24
54	t	2-Nitroaniline	0.274	0.311	-13.5	136	0.00	8.45
55	t	Dimethylphthalate	1.238	1.275	-3.0	130	0.01	8.78
56	t	Acenaphthylene	1.774	1.633	7.9	119	0.00	8.90
57	t	2,6-Dinitrotoluene	0.247	0.266	-7.7	128	0.00	8.90
58	t	3-Nitroaniline	0.312	0.279	10.6	104	0.01	9.13
59	t	Acenaphthene	1.130	1.129	0.1	130	0.01	9.21
62	t	Dibenzofuran	1.622	1.560	3.8	125	0.00	9.48
		----------	True	Calc.	% Drift	----------		
63	t	2,4-Dinitrotoluene	50.000	43.334	13.3	110	0.01	9.56
		----------	AvgRF	CCRF	% Dev	----------		
65	t	Diethylphthalate	1.146	1.110	3.1	121	0.01	10.00
66	t	Fluorene	1.253	1.204	3.9	126	0.00	10.08
67	t	4-Chlorophenyl-phenylethe	0.618	0.575	7.0	123	0.00	10.09
68	t	4-Nitroaniline	0.326	0.296	9.2	109	0.02	10.21
69	I	Phenanthrene-d10	1.000	1.000	0.0	122	0.00	11.80

Initial Calibration Verification

Job Number: JB33197 **Sample:** EZ4050-ICV4049
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** Z79472.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

71	t	n-Nitrosodiphenylamine	0.577	0.589	-2.1	121	0.00	10.32
72	t	1,2-Diphenylhydrazine	0.671	0.723	-7.7	127	0.01	10.37
74	t	4-Bromophenyl-phenylether	0.225	0.234	-4.0	123	0.00	10.97
75	t	Hexachlorobenzene	0.241	0.249	-3.3	125	0.01	11.24
77	t	Phenanthrene	1.137	1.162	-2.2	125	0.00	11.84
78	t	Anthracene	1.133	1.180	-4.1	124	0.01	11.93
79	t	Carbazole	1.011	1.051	-4.0	120	0.01	12.27
80	t	Di-n-butylphthalate	1.148	1.210	-5.4	117	0.01	13.10
81	t	Fluoranthene	1.197	1.226	-2.4	118	0.01	14.16
83	I	Chrysene-d12	1.000	1.000	0.0	115	0.00	17.01
84	t	Pyrene	1.288	1.376	-6.8	117	0.01	14.59
87	t	Butylbenzylphthalate	0.509	0.542	-6.5	109	0.00	16.04
88	t	Benzo[a]anthracene	1.149	1.209	-5.2	113	0.00	16.97
89	t	3,3'-Dichlorobenzidine	0.404	0.333	17.6	84	0.00	17.00
90	t	Chrysene	1.103	1.161	-5.3	116	0.01	17.06
91	t	bis(2-Ethylhexyl)phthalat	0.678	0.745	-9.9	111	0.00	17.24
92	I	Perylene-d12	1.000	1.000	0.0	109	0.00	19.65
		----------	True	Calc.	% Drift	----------		
93	t	Di-n-octylphthalate	50.000	53.121	-6.2	110	0.00	18.39
		----------	AvgRF	CCRF	% Dev	----------		
94	t	Benzo[b]fluoranthene	1.129	1.294	-14.6	112	0.02	19.00
95	t	Benzo[k]fluoranthene	1.205	1.235	-2.5	114	0.02	19.04
96	t	Benzo[a]pyrene	1.082	1.170	-8.1	106	0.00	19.55
97	t	Indeno[1,2,3-cd]pyrene	1.270	1.469	-15.7	114	0.02	21.66
99	t	Dibenz[a,h]anthracene	1.071	1.218	-13.7	111	0.02	21.70
101	t	Benzo[g,h,i]perylene	1.092	1.295	-18.6	118	0.03	22.23

(#) = Out of Range SPCC's out = 0 CCC's out = 0
Z79464.D MZ4049.M Mon Apr 22 12:51:30 2013

8.8.15

8

Initial Calibration Verification

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Sample: EZ4050-ICV4049
Lab FileID: Z79473.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\ez4049\Z79473.D            Vial: 22
Acq On    : 19 Apr 2013   2:49 am                    Operator: katelynh
Sample    : icv4049-50                               Inst    : MSZ
Misc      : op65134,ez4050,                          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\MZ4049.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Mon Apr 22 19:34:40 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 : 202%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	118	0.00	5.41
6	t	Indene	2.307	2.436	-5.6	122	0.00	5.65
7	t	Cumene	3.207	3.210	-0.1	114	0.00	4.81
13	t	Decane	1.591	1.604	-0.8	122	0.00	5.26
18	t	Acetophenone	1.785	1.853	-3.8	115	0.00	5.77
24	I	Naphthalene-d8	1.000	1.000	0.0	122	0.00	6.65
27	t	Quinoline	0.687	0.609	11.4	102	0.00	7.07
40	t	2,3-Dichloroaniline	0.349	0.277	20.6	91	0.00	7.99
45	t	1-Methylnaphthalene	0.591	0.524	11.3	107	0.00	7.69
46	t	Dimethylnaphthalene	0.618	0.539	12.8	104	0.00	8.45
69	I	Phenanthrene-d10	1.000	1.000	0.0	90	0.00	11.79
82	t	Octadecane	0.456	0.505	-10.7	93	0.00	11.63
92	I	Perylene-d12	1.000	1.000	0.0	72	0.00	19.64
100	t	7,12-Dimethylbenz(a)anthr	0.526	0.361	31.4#	47#	0.00	19.03

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 Z79464.D   MZ4049.M         Wed Apr 24 11:46:30 2013   RTE
```

Initial Calibration Verification

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: EZ4050-ICV4050
Lab FileID: Z79473A.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\ez4049\Z79473a.D          Vial: 22
Acq On    : 19 Apr 2013   2:49 am                   Operator: katelynh
Sample    : icv4050-50                              Inst    : MSZ
Misc      : op65134,ez4050,                         Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\MZ4049.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Mon Apr 22 19:34:40 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 : 202%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
102	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	109	0.00	5.41
103	Benzaldehyde	1.126	1.219	-8.3	119	0.00	5.07
104	Phenanthrene-d10a	1.000	1.000	0.0	86	0.00	11.79
105	Atrazine	0.109	0.119	-9.2	90	0.01	11.39

(#) = Out of Range SPCC's out = 0 CCC's out = 0
Z79464.D MZ4049.M Wed Apr 24 11:46:32 2013 RTE

8.8.17

8

Initial Calibration Verification

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA
Sample: EZ4050-ICV4050
Lab FileID: Z79474.D

Evaluate Continuing Calibration Report

```
  Data File : C:\msdchem\1\DATA\ez4049\Z79474.D           Vial: 23
  Acq On    : 19 Apr 2013   3:21 am                   Operator: katelynh
  Sample    : icv4050-50                              Inst    : MSZ
  Misc      : op65134,ez4050,                         Multiplr: 1.00
  MS Integration Params: RTEINT.P

  Method       : C:\msdchem\1\METHODS\MZ4049.M (RTE Integrator)
  Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
  Last Update  : Sun Apr 21 09:40:20 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 : 202%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
106	Chrysene-d12a	1.000	1.000	0.0	94	0.00	17.00
107	Benzidine	0.442	0.669	-51.4#	102	0.00	14.48

(#) = Out of Range SPCC's out = 0 CCC's out = 0
Z79464.D MZ4049.M Mon Apr 22 12:45:59 2013

8.8.18

8

Initial Calibration Verification

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: EZ4050-ICV4049
Lab FileID: Z79475.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\ez4049\Z79475.D            Vial: 24
Acq On    : 19 Apr 2013   3:54 am                    Operator: katelynh
Sample    : icv4049-50                               Inst    : MSZ
Misc      : op65134,ez4050,                          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\MZ4049.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Sun Apr 21 09:40:20 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 : 202%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	113	0.00	5.41
10	t	Aniline	2.190	2.112	3.6	101	0.00	5.18
24	I	Naphthalene-d8	1.000	1.000	0.0	108	0.00	6.65
39	t	4-Chloroaniline	0.425	0.395	7.1	93	0.00	6.75

(#) = Out of Range SPCC's out = 0 CCC's out = 0
Z79464.D MZ4049.M Mon Apr 22 12:46:01 2013

8.8.19

8

Initial Calibration Verification

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: EZ4050-ICV4050
Lab FileID: Z79476.D

Evaluate Continuing Calibration Report

```
  Data File : C:\msdchem\1\DATA\ez4049\Z79476.D           Vial: 25
  Acq On    : 19 Apr 2013   4:26 am                   Operator: katelynh
  Sample    : icv4050-50                              Inst    : MSZ
  Misc      : op65134,ez4050,                         Multiplr: 1.00
  MS Integration Params: RTEINT.P

  Method       : C:\msdchem\1\METHODS\MZ4049.M (RTE Integrator)
  Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
  Last Update  : Sun Apr 21 09:40:20 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 : 202%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
110 I	Naphthalene-d8a	1.000	1.000	0.0	96	0.00	6.65
111	Hydroquinone	0.245	0.291	-18.8	105	0.00	7.11

(#) = Out of Range SPCC's out = 0 CCC's out = 0
Z79464.D MZ4049.M Mon Apr 22 12:46:03 2013

8.8.20

8

Initial Calibration Verification

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample: EZ4057-ICV4049
Lab FileID: Z79609.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\ez4057\Z79609.D            Vial: 2
Acq On    : 23 Apr 2013  11:41 am                    Operator: katelynh
Sample    : icv4049-50                               Inst    : MSZ
Misc      : op65265,ez4057,                          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\MZ4049.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Mon Apr 22 19:34:40 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 : 202%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	110	-0.03	5.38
9	t	Phenol	1.708	1.933	-13.2	113	-0.02	5.12
12	t	2-Chlorophenol	1.411	1.549	-9.8	116	-0.02	5.24
19	t	2-Methylphenol	1.301	1.349	-3.7	104	-0.02	5.60
21	t	3&4-Methylphenol	1.407	1.426	-1.4	103	-0.02	5.73
24	I	Naphthalene-d8	1.000	1.000	0.0	106	-0.03	6.62
29	t	2-Nitrophenol	0.172	0.199	-15.7	112	-0.03	6.23
30	t	2,4-Dimethylphenol	0.291	0.306	-5.2	105	-0.02	6.24
31		Benzoic Acid	0.255	0.242	5.1	95	0.04	6.35
33	t	2,4-Dichlorophenol	0.297	0.310	-4.4	103	-0.03	6.46
34		2,6-Dichlorophenol	0.282	0.298	-5.7	105	-0.03	6.73
43	t	4-Chloro-3-methylphenol	0.270	0.290	-7.4	102	-0.03	7.29
47	I	Acenaphthene-d10	1.000	1.000	0.0	99	-0.04	9.11
49	t	2,4,6-Trichlorophenol	0.335	0.375	-11.9	99	-0.03	7.93
50	t	2,4,5-Trichlorophenol	0.378	0.394	-4.2	96	-0.03	7.98
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	100.000	107.884	-7.9	92	-0.03	9.25
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.111	0.122	-9.9	98	-0.02	9.37
		----------	AvgRF	CCRF	% Dev	----------		
64		2,3,4,6-Tetrachlorophenol	0.305	0.313	-2.6	91	-0.04	9.73
69	I	Phenanthrene-d10	1.000	1.000	0.0	93	-0.04	11.75
		----------	True	Calc.	% Drift	----------		
70	t	4,6-Dinitro-2-methylpheno	50.000	49.328	1.3	92	-0.04	10.22
		----------	AvgRF	CCRF	% Dev	----------		
76	t	Pentachlorophenol	0.150	0.156	-4.0	88	-0.04	11.53

(#) = Out of Range SPCC's out = 0 CCC's out = 0
Z79464.D MZ4049.M Tue Apr 23 12:11:15 2013 RTE

8.8.21

8

Continuing Calibration Summary

Job Number: JB33197 **Sample:** EZ4062-CC4049
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** Z79689.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\ez4062\Z79689.D Vial: 2
Acq On : 26 Apr 2013 8:49 am Operator: katelynh
Sample : cc4049-25 Inst : MSZ
Misc : op65542,ez4062, Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\msdchem\1\METHODS\MZ4049.M (RTE Integrator)
Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update : Mon Apr 22 19:34:40 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 : 202%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	143	-0.04	5.37
3	t	Pyridine	1.551	1.478	4.7	122	-0.07	3.36
4	t	N-Nitrosodimethylamine	0.954	0.921	3.5	124	-0.04	3.36
5	S	2-Fluorophenol	1.336	1.447	-8.3	139	-0.03	4.42
6	t	Indene	2.307	2.333	-1.1	132	-0.04	5.61
7	t	Cumene	3.207	3.277	-2.2	132	-0.04	4.78
8	S	Phenol-d5	1.619	1.766	-9.1	137	-0.03	5.10
9	t	Phenol	1.708	1.824	-6.8	135	-0.03	5.11
10	t	Aniline	2.190	1.753	20.0	103	-0.04	5.14
11	t	bis(2-Chloroethyl)ether	1.361	1.385	-1.8	134	-0.04	5.17
12	t	2-Chlorophenol	1.411	1.447	-2.6	132	-0.03	5.23
13	t	Decane	1.591	1.546	2.8	128	-0.04	5.21
14	t	1,3-Dichlorobenzene	1.686	1.703	-1.0	133	-0.04	5.34
15	t	1,4-Dichlorobenzene	1.633	1.637	-0.2	132	-0.04	5.38
16	t	Benzyl alcohol	0.944	0.991	-5.0	136	-0.04	5.49
17	t	1,2-Dichlorobenzene	1.548	1.555	-0.5	131	-0.04	5.54
18	t	Acetophenone	1.785	1.832	-2.6	131	-0.04	5.73
19	t	2-Methylphenol	1.301	1.326	-1.9	131	-0.03	5.59
20	t	2,2'-oxybis(1-Chloropropa	0.468	0.466	0.4	128	-0.04	5.61
21	t	3&4-Methylphenol	1.407	1.469	-4.4	135	-0.03	5.72
22	t	n-Nitroso-di-n-propylamin	0.947	0.928	2.0	128	-0.04	5.74
23	t	Hexachloroethane	0.554	0.586	-5.8	139	-0.05	5.82
24	I	Naphthalene-d8	1.000	1.000	0.0	142	-0.05	6.60
25	S	Nitrobenzene-d5	0.315	0.343	-8.9	135	-0.04	5.88
26	t	Nitrobenzene	0.333	0.362	-8.7	136	-0.04	5.90
27	t	Quinoline	0.687	0.725	-5.5	130	-0.05	7.03
28	t	Isophorone	0.615	0.640	-4.1	132	-0.04	6.11
29	t	2-Nitrophenol	0.172	0.206	-19.8	143	-0.05	6.21
30	t	2,4-Dimethylphenol	0.291	0.279	4.1	112	-0.04	6.22
31		Benzoic Acid	0.255	0.284	-11.4	155	0.01	6.32
32	t	bis(2-Chloroethoxy)methan	0.369	0.382	-3.5	130	-0.04	6.32
33	t	2,4-Dichlorophenol	0.297	0.318	-7.1	133	-0.04	6.45
34		2,6-Dichlorophenol	0.282	0.305	-8.2	130	-0.05	6.71
35	t	1,3,5-Trichlorobenzene	0.332	0.345	-3.9	132	-0.05	6.21
36	t	1,2,4-Trichlorobenzene	0.337	0.347	-3.0	131	-0.05	6.55
37	t	1,2,3-Trichlorobenzene	0.321	0.327	-1.9	129	-0.05	6.83
38	t	Naphthalene	1.070	1.077	-0.7	128	-0.05	6.62
39	t	4-Chloroaniline	0.425	0.440	-3.5	123	-0.05	6.70
40	t	2,3-Dichloroaniline	0.349	0.363	-4.0	127	-0.06	7.93
41	t	Caprolactam	0.158	0.166	-5.1	131	-0.02	7.09
42	t	Hexachlorobutadiene	0.180	0.183	-1.7	130	-0.05	6.82

Continuing Calibration Summary

Job Number: JB33197 **Sample:** EZ4062-CC4049
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** Z79689.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

43	t	4-Chloro-3-methylphenol	0.270	0.303	-12.2	133	-0.04	7.28
44	t	2-Methylnaphthalene	0.621	0.641	-3.2	127	-0.05	7.47
45	t	1-Methylnaphthalene	0.591	0.603	-2.0	128	-0.05	7.63
46	t	Dimethylnaphthalene	0.618	0.637	-3.1	127	-0.06	8.38
47	I	Acenaphthene-d10	1.000	1.000	0.0	140	-0.06	9.10
48	t	Hexachlorocyclopentadiene	0.302	0.312	-3.3	125	-0.06	7.79
49	t	2,4,6-Trichlorophenol	0.335	0.381	-13.7	131	-0.05	7.91
50	t	2,4,5-Trichlorophenol	0.378	0.415	-9.8	132	-0.04	7.97
51	S	2-Fluorobiphenyl	1.263	1.284	-1.7	124	-0.06	8.02
52	t	2-Chloronaphthalene	1.110	1.150	-3.6	128	-0.05	8.18
53	t	Biphenyl	1.419	1.497	-5.5	128	-0.06	8.15
54	t	2-Nitroaniline	0.274	0.322	-17.5	134	-0.05	8.39
55	t	Dimethylphthalate	1.238	1.296	-4.7	128	-0.05	8.72
56	t	Acenaphthylene	1.774	1.842	-3.8	124	-0.06	8.84
57	t	2,6-Dinitrotoluene	0.247	0.295	-19.4	138	-0.06	8.84
58	t	3-Nitroaniline	0.312	0.363	-16.3	135	-0.05	9.07
59	t	Acenaphthene	1.130	1.161	-2.7	126	-0.06	9.15
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	50.000	70.139	-40.3#	228	-0.05	9.24
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.111	0.133	-19.8	148	-0.03	9.36
62	t	Dibenzofuran	1.622	1.660	-2.3	125	-0.06	9.41
		----------	True	Calc.	% Drift	----------		
63	t	2,4-Dinitrotoluene	25.000	26.984	-7.9	140	-0.05	9.50
		----------	AvgRF	CCRF	% Dev	----------		
64		2,3,4,6-Tetrachlorophenol	0.305	0.347	-13.8	135	-0.06	9.71
65	t	Diethylphthalate	1.146	1.228	-7.2	129	-0.05	9.94
66	t	Fluorene	1.253	1.292	-3.1	124	-0.06	10.01
67	t	4-Chlorophenyl-phenylethe	0.618	0.625	-1.1	124	-0.06	10.02
68	t	4-Nitroaniline	0.326	0.350	-7.4	133	-0.05	10.14
69	I	Phenanthrene-d10	1.000	1.000	0.0	140	-0.06	11.74
		----------	True	Calc.	% Drift	----------		
70	t	4,6-Dinitro-2-methylpheno	25.000	31.405	-25.6#	189	-0.05	10.21
		----------	AvgRF	CCRF	% Dev	----------		
71	t	n-Nitrosodiphenylamine	0.577	0.598	-3.6	126	-0.06	10.26
72	t	1,2-Diphenylhydrazine	0.671	0.708	-5.5	129	-0.05	10.30
73	S	2,4,6-Tribromophenol	0.100	0.118	-18.0	139	-0.06	10.49
74	t	4-Bromophenyl-phenylether	0.225	0.231	-2.7	127	-0.06	10.91
75	t	Hexachlorobenzene	0.241	0.248	-2.9	129	-0.06	11.17
76	t	Pentachlorophenol	0.150	0.166	-10.7	134	-0.05	11.52
77	t	Phenanthrene	1.137	1.143	-0.5	124	-0.06	11.77
78	t	Anthracene	1.133	1.152	-1.7	123	-0.06	11.86
79	t	Carbazole	1.011	1.098	-8.6	129	-0.06	12.20
80	t	Di-n-butylphthalate	1.148	1.298	-13.1	131	-0.06	13.03
81	t	Fluoranthene	1.197	1.268	-5.9	126	-0.06	14.09
82	t	Octadecane	0.456	0.494	-8.3	126	-0.06	11.56
83	I	Chrysene-d12	1.000	1.000	0.0	139	-0.06	16.94
84	t	Pyrene	1.288	1.343	-4.3	126	-0.06	14.52
85		Butyl stearate	0.300	0.351	-17.0	137	-0.06	16.03
86	S	Terphenyl-d14	0.880	0.926	-5.2	127	-0.06	14.90
87	t	Butylbenzylphthalate	0.509	0.583	-14.5	137	-0.06	15.97

Continuing Calibration Summary

Job Number: JB33197 **Sample:** EZ4062-CC4049
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** Z79689.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

88	t	Benzo[a]anthracene	1.149	1.230	-7.0	129	-0.06	16.90
89	t	3,3'-Dichlorobenzidine	0.404	0.434	-7.4	128	-0.06	16.94
90	t	Chrysene	1.103	1.125	-2.0	126	-0.06	16.98
91	t	bis(2-Ethylhexyl)phthalat	0.678	0.804	-18.6	139	-0.07	17.16
92	I	Perylene-d12	1.000	1.000	0.0	138	-0.07	19.58
		----------	True	Calc.	% Drift	----------		
93	t	Di-n-octylphthalate	25.000	28.794	-15.2	145	-0.07	18.31
		----------	AvgRF	CCRF	% Dev	----------		
94	t	Benzo[b]fluoranthene	1.129	1.295	-14.7	136	-0.06	18.92
95	t	Benzo[k]fluoranthene	1.205	1.231	-2.2	118	-0.06	18.96
96	t	Benzo[a]pyrene	1.082	1.187	-9.7	126	-0.06	19.48
97	t	Indeno[1,2,3-cd]pyrene	1.270	1.410	-11.0	127	-0.09	21.55
98	t	Dibenz(a,h)acridine	0.925	1.056	-14.2	133	-0.08	21.11
99	t	Dibenz[a,h]anthracene	1.071	1.194	-11.5	127	-0.09	21.59
100	t	7,12-Dimethylbenz(a)anthr	0.526	0.503	4.4	105	-0.06	18.96
101	t	Benzo[g,h,i]perylene	1.092	1.191	-9.1	126	-0.09	22.11

(#) = Out of Range SPCC's out = 0 CCC's out = 0
Z79465.D MZ4049.M Fri Apr 26 13:54:53 2013 RTE

8.8.22

8

Continuing Calibration Summary

Job Number: JB33197 **Sample:** EZ4062-CC4050
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** Z79690.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\ez4062\Z79690.D          Vial: 3
Acq On    : 26 Apr 2013   9:23 am                  Operator: katelynh
Sample    : cc4050-25                              Inst    : MSZ
Misc      : op65542,ez4062,                        Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\MZ4049.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Mon Apr 22 19:34:40 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 : 202%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
102	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	116	-0.04	5.37
103	Benzaldehyde	1.126	1.166	-3.6	120	-0.04	5.03
104	Phenanthrene-d10a	1.000	1.000	0.0	117	-0.06	11.73
105	Atrazine	0.109	0.121	-11.0	123	-0.05	11.32
106	Chrysene-d12a	1.000	1.000	0.0	119	-0.07	16.93
107	Benzidine	0.442	0.589	-33.3#	123	-0.06	14.41
108	Acenaphthene-d10a	1.000	1.000	0.0	117	-0.06	9.09
109	1,2,4,5-Tetrachlorobenzen	0.541	0.535	1.1	118	-0.05	7.77
110 I	Naphthalene-d8a	1.000	1.000	0.0	119	-0.05	6.60
111	Hydroquinone	0.245	0.354	-44.5#	180	-0.04	7.07

(#) = Out of Range SPCC's out = 0 CCC's out = 0
Z79465.D MZ4049.M Fri Apr 26 13:56:22 2013 RTE

8.8.23

8

New Jersey

ACCUTEST LABORATORIES

GC/MS Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1656\
Data File : 3m36222.D
Acq On : 18 Apr 2013 11:21 pm
Operator : ashleyd
Sample : jb33197-1
Misc : op65064a,e3m1656,940
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Apr 19 15:42:39 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	8.694	150	33707	4.00	ppb	-0.05
12) Fluorene-d10	11.633	176	58102	4.00	ppb	-0.08
18) Fluoranthene-d10	15.831	212	85069	4.00	ppb	-0.06
28) Benzo(a)pyrene-d12	20.448	264	61394	4.00	ppb	-0.07
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	5.951	82	210133	29.15	ppb	-0.07
Spiked Amount 50.000			Recovery	=	58.30%	
13) 2-Fluorobiphenyl	9.345	172	420423	24.71	ppb	-0.07
Spiked Amount 50.000			Recovery	=	49.42%	
17) 2,4,6-Tribromophenol	0.000	330	0d	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
25) Terphenyl-d14	16.619	244	281021	19.72	ppb	-0.08
Spiked Amount 50.000			Recovery	=	39.44%	

Target Compounds Qvalue

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

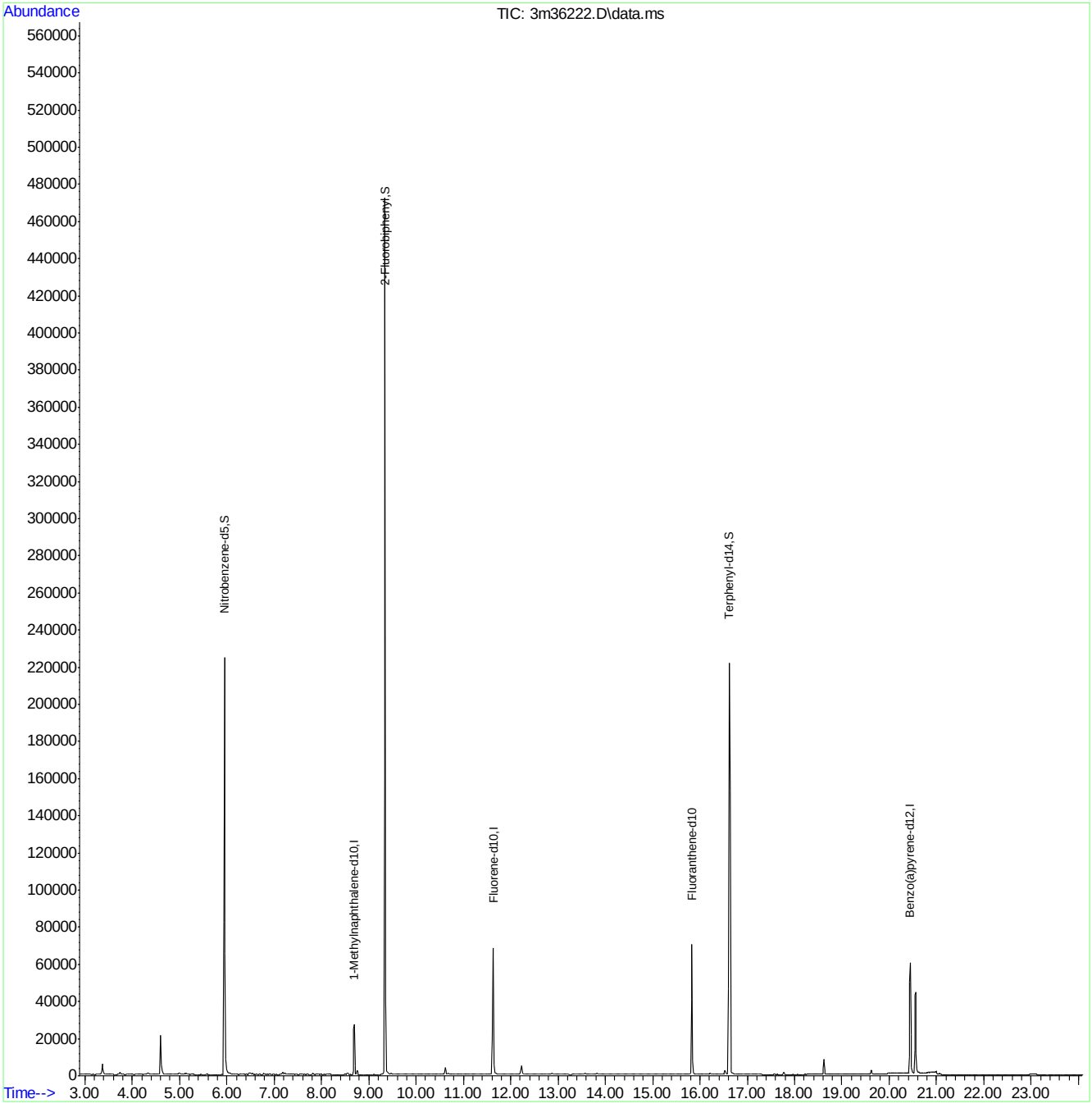
9.1.1

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1656\
Data File : 3m36222.D
Acq On : 18 Apr 2013 11:21 pm
Operator : ashleyd
Sample : jb33197-1
Misc : op65064a,e3m1656,940
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Apr 19 15:42:39 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\e3m1656\
Data File : 3m36223.D
Acq On : 18 Apr 2013 11:52 pm
Operator : ashleyd
Sample : jb33197-2
Misc : op65064a,e3m1656,1000
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Apr 19 15:43:19 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	8.694	150	32634	4.00 ppb	-0.05
12) Fluorene-d10	11.633	176	57815	4.00 ppb	-0.08
18) Fluoranthene-d10	15.831	212	86464	4.00 ppb	-0.06
28) Benzo(a)pyrene-d12	20.439	264	64980	4.00 ppb	-0.08
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	5.951	82	192954	27.65 ppb	-0.07
Spiked Amount 50.000			Recovery	= 55.30%	
13) 2-Fluorobiphenyl	9.345	172	384546	22.71 ppb	-0.07
Spiked Amount 50.000			Recovery	= 45.42%	
17) 2,4,6-Tribromophenol	0.000	330	0	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
25) Terphenyl-d14	16.619	244	175225	12.10 ppb	-0.08
Spiked Amount 50.000			Recovery	= 24.20%	
Target Compounds					Qvalue
7) Naphthalene	7.219	128	59917	2.20 ppb	96

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

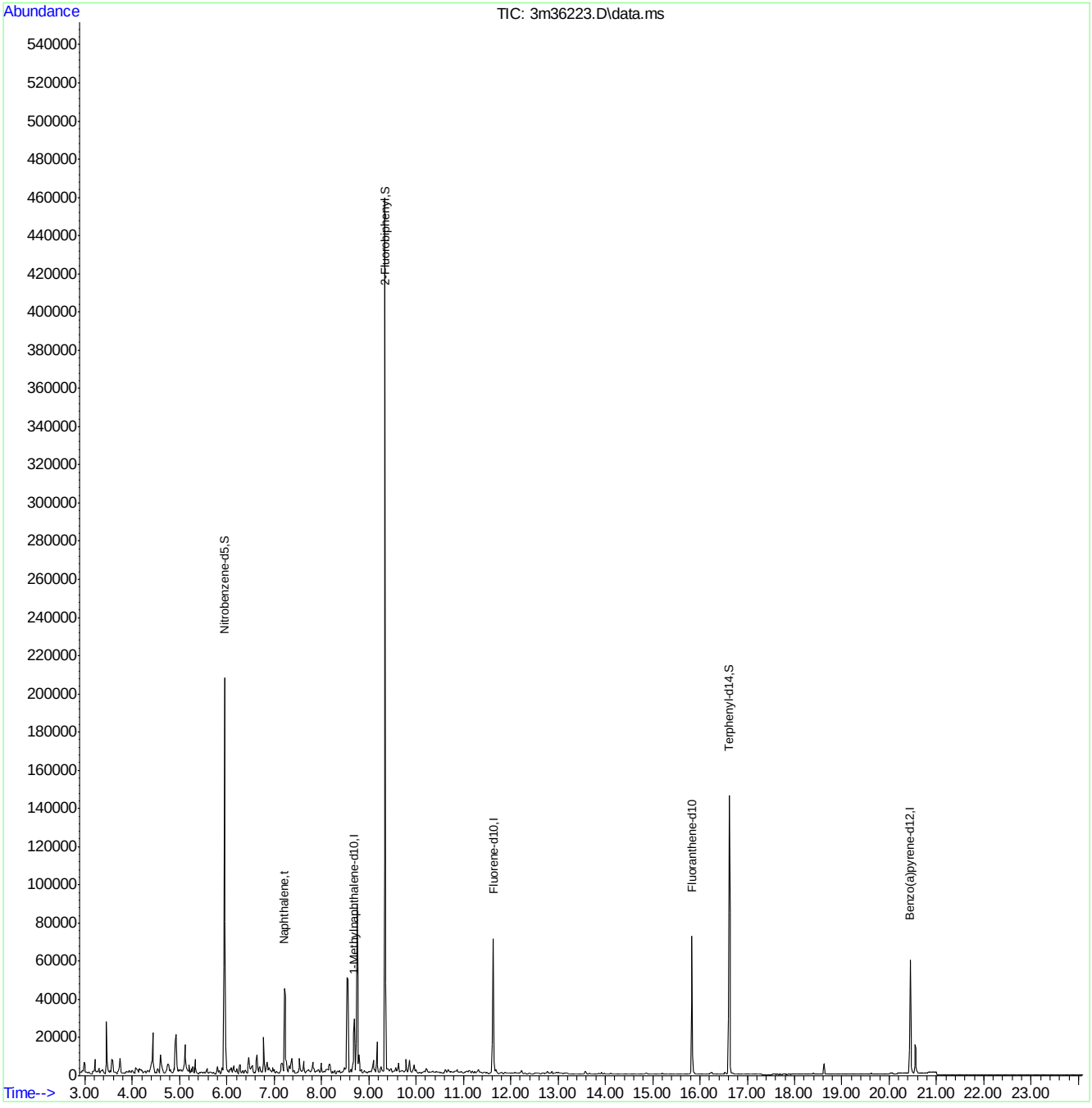
9.1.2

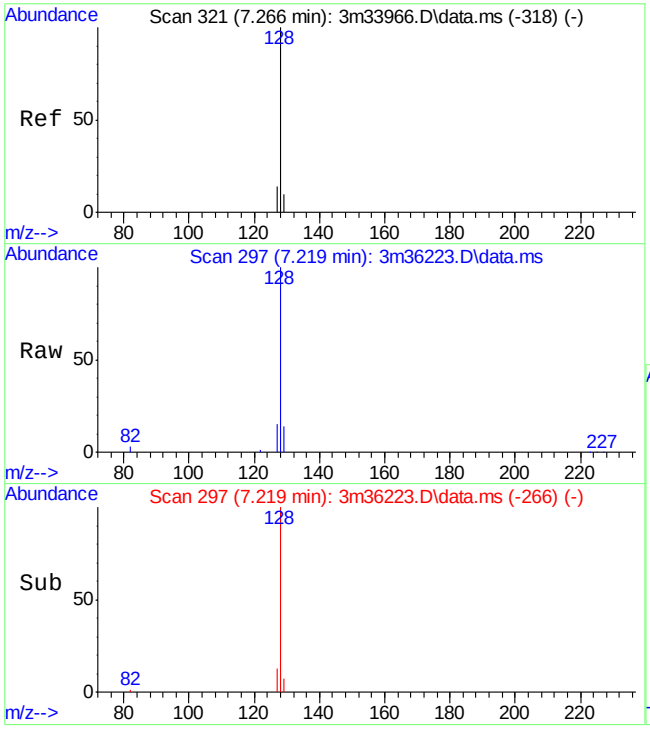
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1656\
Data File : 3m36223.D
Acq On : 18 Apr 2013 11:52 pm
Operator : ashleyd
Sample : jb33197-2
Misc : op65064a,e3m1656,1000
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Apr 19 15:43:19 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

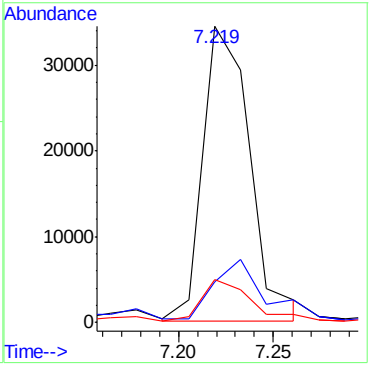




#7
Naphthalene
Concen: 2.20 ppb
RT: 7.219 min Scan# 297
Delta R.T. -0.069 min
Lab File: 3m36223.D
Acq: 18 Apr 2013 11:52 pm

Tgt Ion:128 Resp: 59917

Ion	Ratio	Lower	Upper
128	100		
129	9.7	0.0	41.4
127	13.6	0.0	42.0



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1656\
Data File : 3m36224.D
Acq On : 19 Apr 2013 12:23 am
Operator : ashleyd
Sample : jb33197-3
Misc : op65064a,e3m1656,920
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Apr 19 15:45:29 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	8.694	150	32390	4.00	ppb	-0.05
12) Fluorene-d10	11.634	176	52430	4.00	ppb	-0.08
18) Fluoranthene-d10	15.831	212	78350	4.00	ppb	-0.06
28) Benzo(a)pyrene-d12	20.450	264	58441	4.00	ppb	-0.07
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	0	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
6) Nitrobenzene-d5	5.951	82	175902	25.40	ppb	-0.07
Spiked Amount 50.000			Recovery	=	50.80%	
13) 2-Fluorobiphenyl	9.345	172	286105	18.64	ppb	-0.07
Spiked Amount 50.000			Recovery	=	37.28%	
17) 2,4,6-Tribromophenol	0.000	330	0	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
25) Terphenyl-d14	16.619	244	161249	12.29	ppb	-0.08
Spiked Amount 50.000			Recovery	=	24.58%	
Target Compounds						Qvalue
7) Naphthalene	7.219	128	110739	4.10	ppb	96
21) Phenanthrene	13.573	178	12223	0.43	ppb	99

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

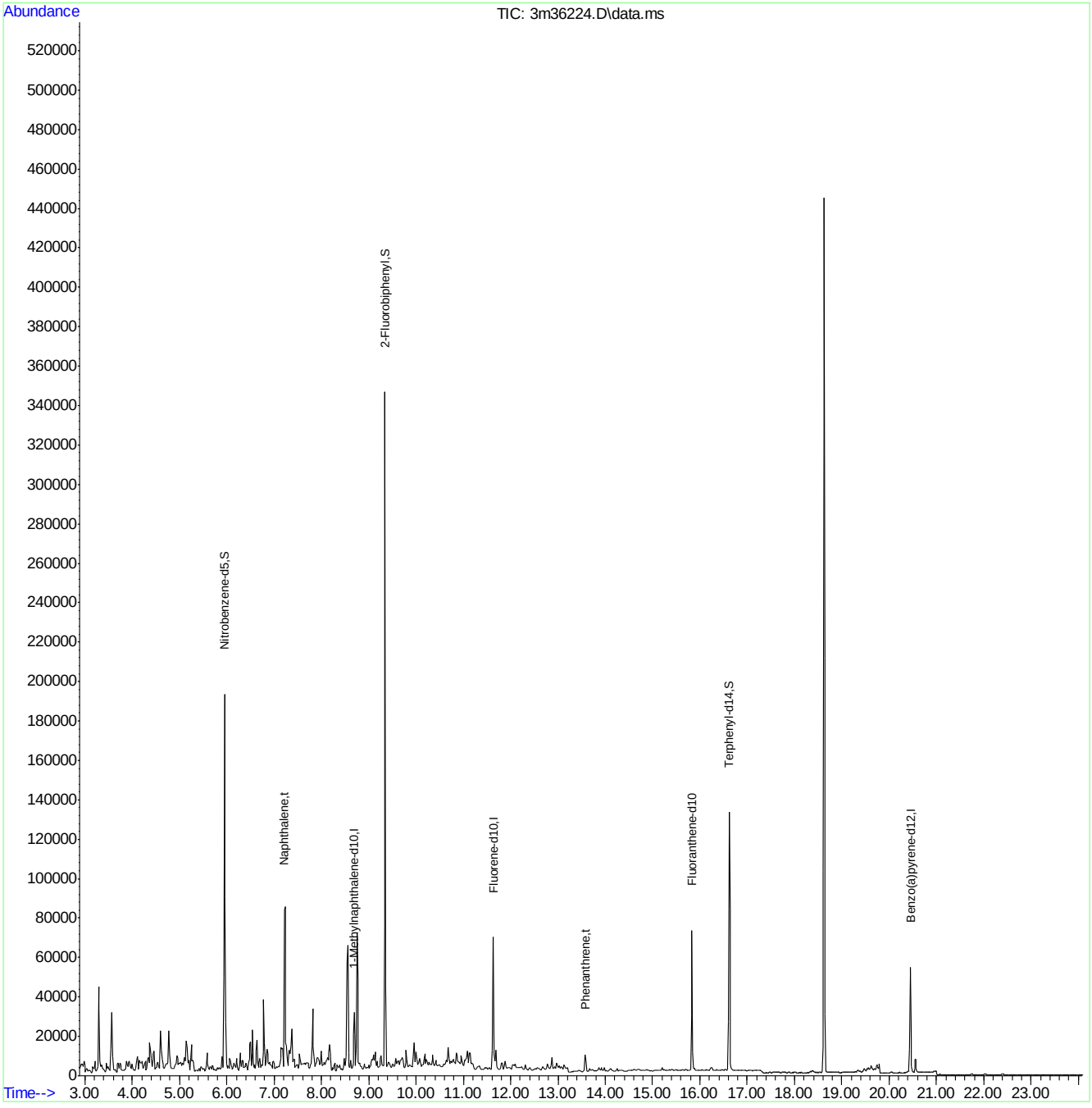
9.1.3

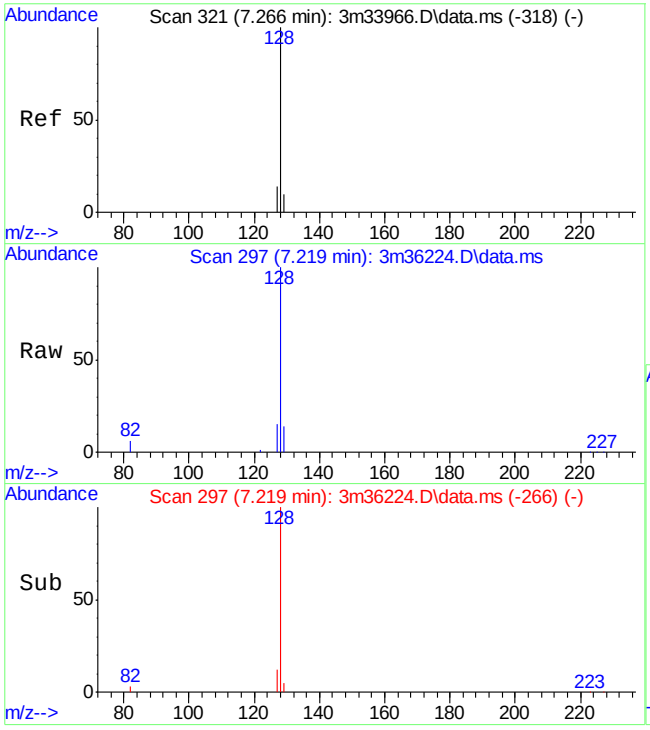
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1656\
Data File : 3m36224.D
Acq On : 19 Apr 2013 12:23 am
Operator : ashleyd
Sample : jb33197-3
Misc : op65064a,e3m1656,920
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Apr 19 15:45:29 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

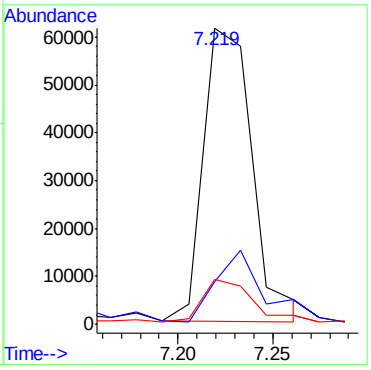


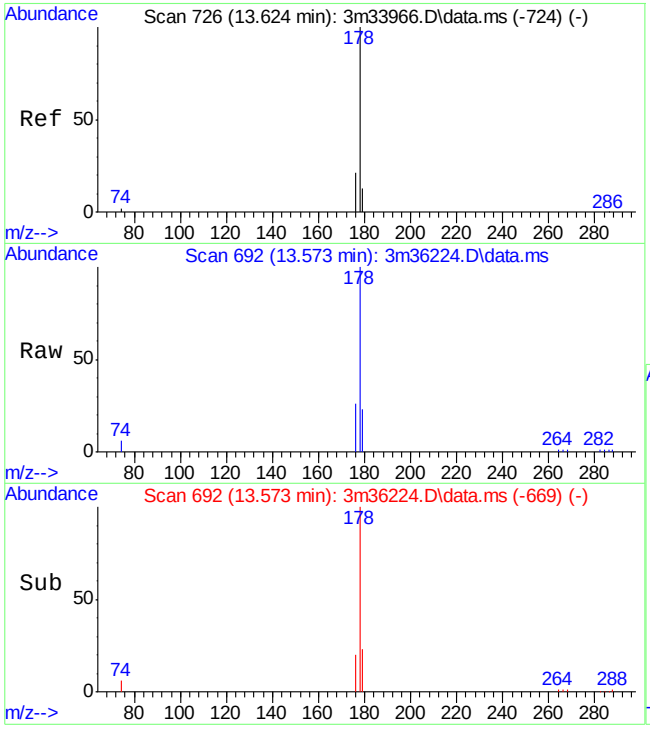


#7
Naphthalene
Concen: 4.10 ppb
RT: 7.219 min Scan# 297
Delta R.T. -0.069 min
Lab File: 3m36224.D
Acq: 19 Apr 2013 12:23 am

Tgt Ion:128 Resp: 110739

Ion	Ratio	Lower	Upper
128	100		
129	10.1	0.0	41.4
127	14.0	0.0	42.0

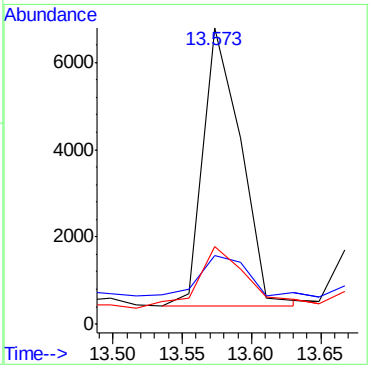




#21
Phenanthrene
Concen: 0.43 ppb
RT: 13.573 min Scan# 692
Delta R.T. -0.075 min
Lab File: 3m36224.D
Acq: 19 Apr 2013 12:23 am

Tgt Ion:178 Resp: 12223

Ion	Ratio	Lower	Upper
178	100		
179	13.9	0.0	44.7
176	19.8	0.0	50.1



Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 04/19/13 17:38

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1656\
Data File : 3m36225.D
Acq On : 19 Apr 2013 12:54 am
Operator : ashleyd
Sample : jb33197-4
Misc : op65064a,e3m1656,890
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Apr 19 15:46:05 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	8.694	150	35117m	4.00	ppb	-0.05
12) Fluorene-d10	11.633	176	57129	4.00	ppb	-0.08
18) Fluoranthene-d10	15.831	212	85034	4.00	ppb	-0.06
28) Benzo(a)pyrene-d12	20.439	264	60689	4.00	ppb	-0.08
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	5.951	82	185711	24.73	ppb	-0.07
Spiked Amount 50.000			Recovery	=	49.46%	
13) 2-Fluorobiphenyl	9.345	172	326669	19.53	ppb	-0.07
Spiked Amount 50.000			Recovery	=	39.06%	
17) 2,4,6-Tribromophenol	0.000	330	0	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
25) Terphenyl-d14	16.619	244	173752	12.20	ppb	-0.08
Spiked Amount 50.000			Recovery	=	24.40%	
Target Compounds						Qvalue
15) Acenaphthene	10.678	153	4865	0.27	ppb	90
16) Fluorene	11.690	166	11348	0.62	ppb #	70

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

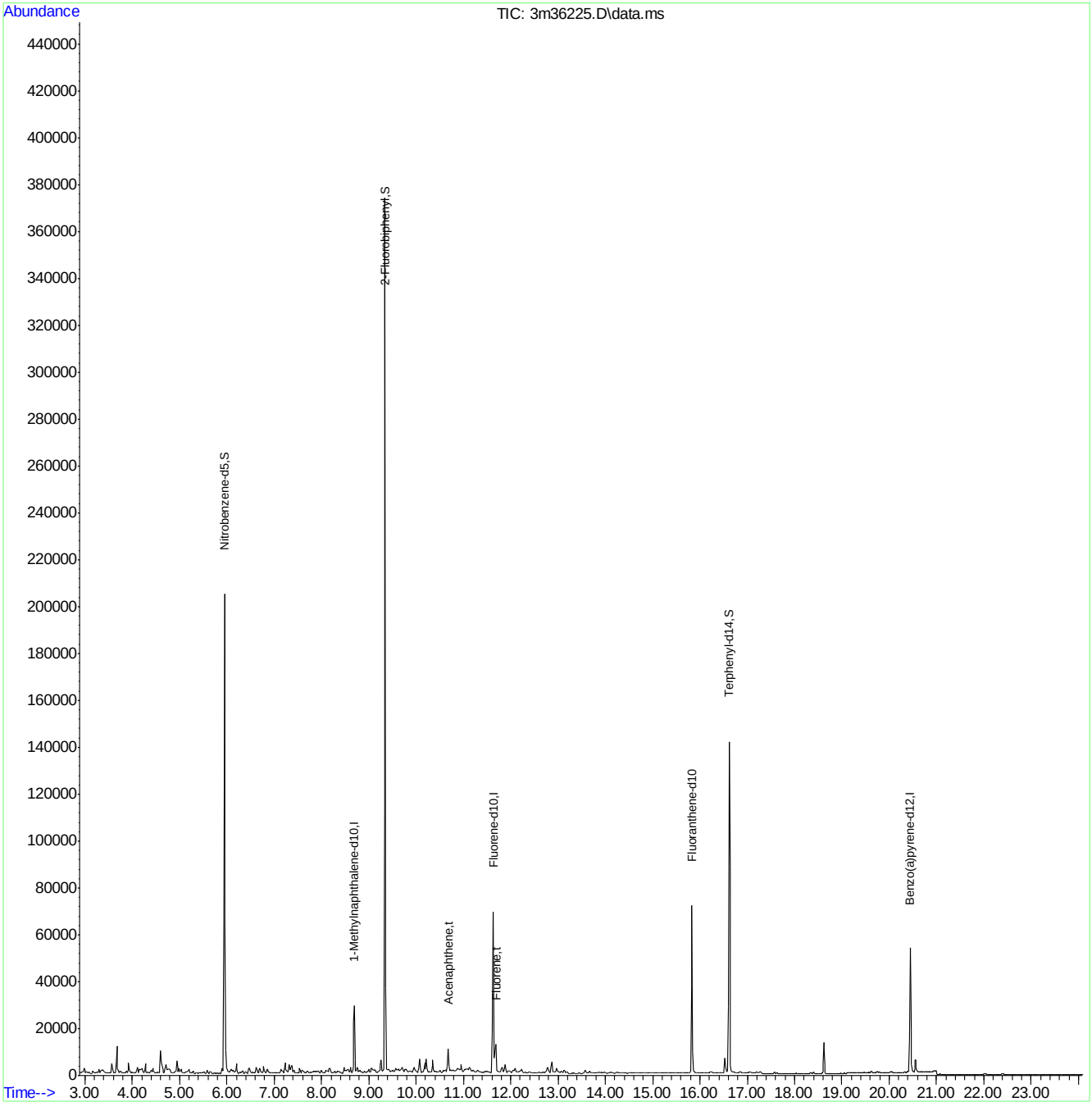
9.1.4

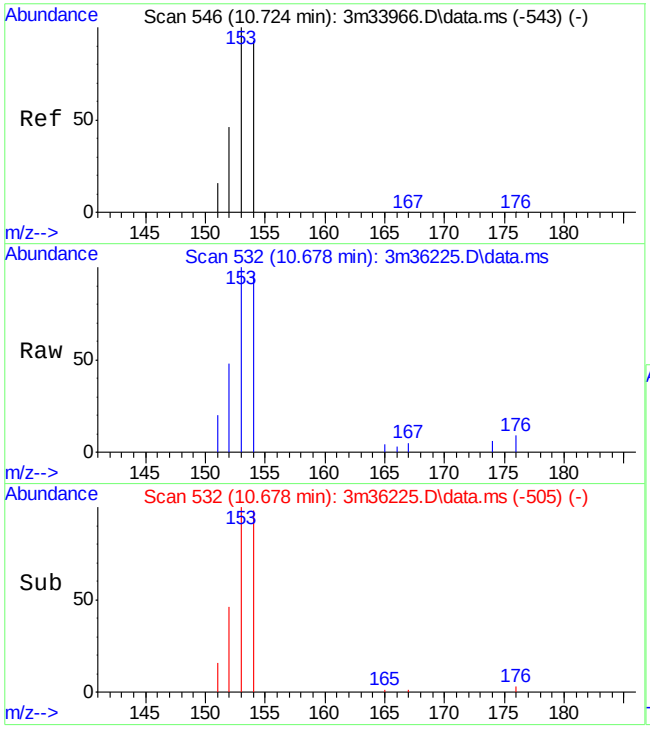
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1656\
Data File : 3m36225.D
Acq On : 19 Apr 2013 12:54 am
Operator : ashleyd
Sample : jb33197-4
Misc : op65064a,e3m1656,890
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Apr 19 15:46:05 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

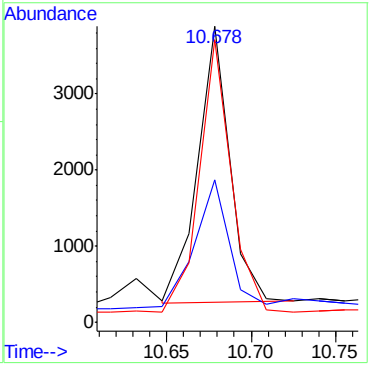


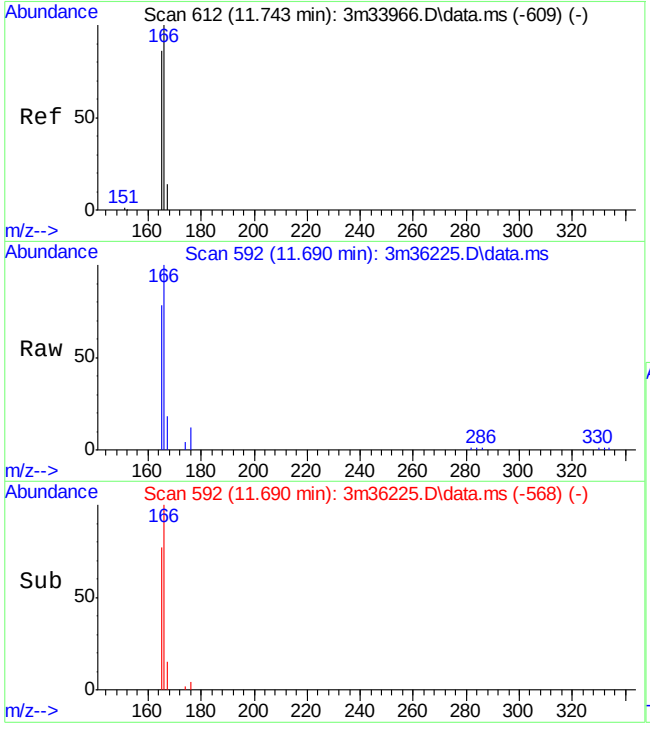


#15
Acenaphthene
Concen: 0.27 ppb
RT: 10.678 min Scan# 532
Delta R.T. -0.077 min
Lab File: 3m36225.D
Acq: 19 Apr 2013 12:54 am

Tgt Ion:153 Resp: 4865

Ion	Ratio	Lower	Upper
153	100		
152	44.4	11.2	71.2
154	99.2	81.2	141.2

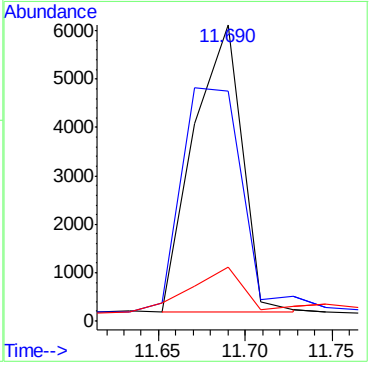




#16
Fluorene
Concen: 0.62 ppb
RT: 11.690 min Scan# 592
Delta R.T. -0.057 min
Lab File: 3m36225.D
Acq: 19 Apr 2013 12:54 am

Tgt Ion:166 Resp: 11348

Ion	Ratio	Lower	Upper
166	100		
165	73.1	76.4	136.4#
167	13.2	0.0	41.3



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1656\
Data File : 3m36226.D
Acq On : 19 Apr 2013 1:25 am
Operator : ashleyd
Sample : jb33197-5
Misc : op65064a,e3m1656,930
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Apr 19 15:46:27 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	8.694	150	37476	4.00 ppb	-0.05
12) Fluorene-d10	11.633	176	63487	4.00 ppb	-0.08
18) Fluoranthene-d10	15.831	212	92163	4.00 ppb	-0.06
28) Benzo(a)pyrene-d12	20.439	264	64299	4.00 ppb	-0.08
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	5.951	82	266969	33.31 ppb	-0.07
Spiked Amount 50.000			Recovery	= 66.62%	
13) 2-Fluorobiphenyl	9.345	172	511176	27.50 ppb	-0.07
Spiked Amount 50.000			Recovery	= 55.00%	
17) 2,4,6-Tribromophenol	0.000	330	0	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
25) Terphenyl-d14	16.635	244	457065	29.61 ppb	-0.06
Spiked Amount 50.000			Recovery	= 59.22%	

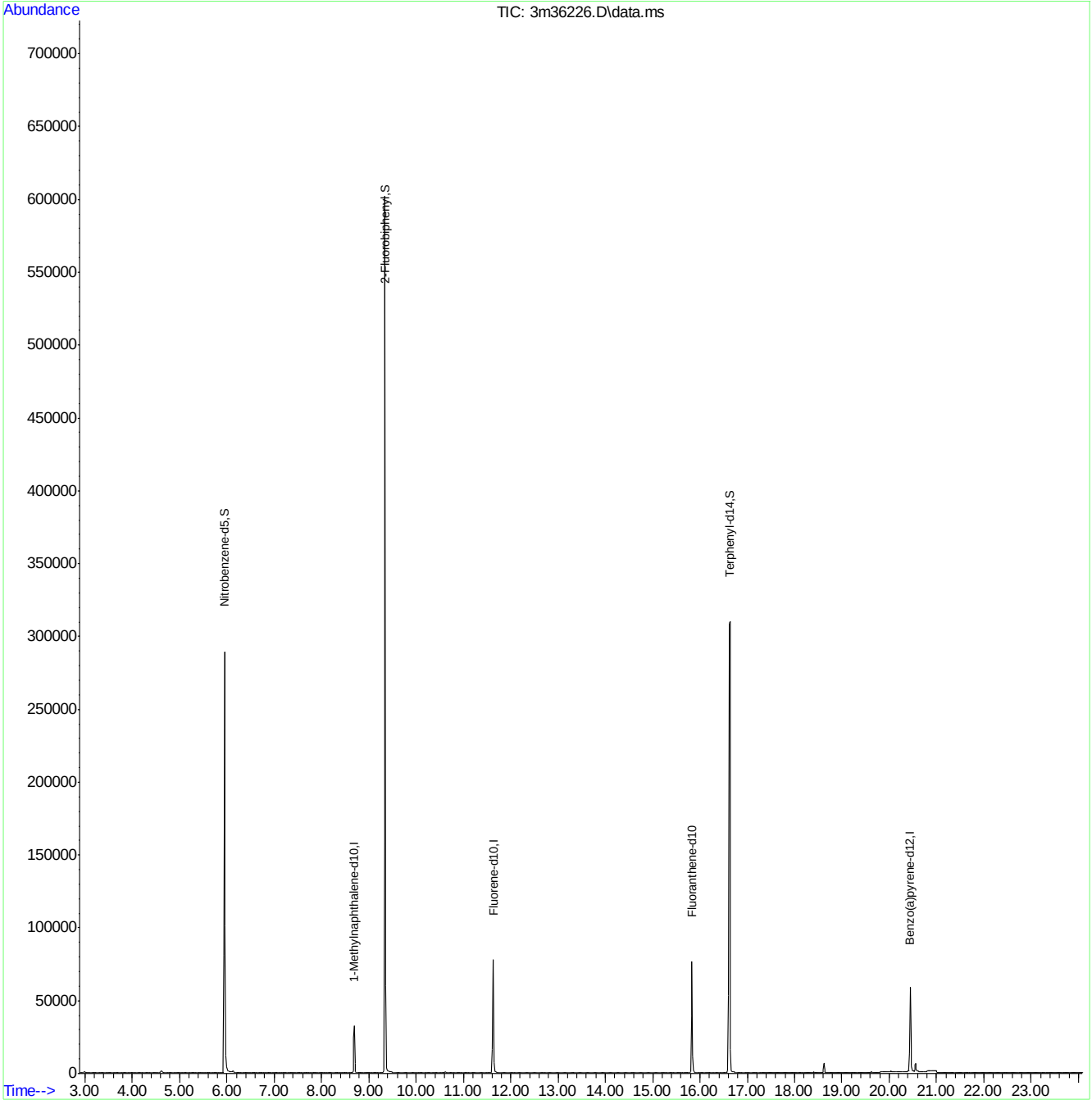
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1656\
Data File : 3m36226.D
Acq On : 19 Apr 2013 1:25 am
Operator : ashleyd
Sample : jb33197-5
Misc : op65064a,e3m1656,930
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Apr 19 15:46:27 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



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1657\
Data File : 3m36230.D
Acq On : 19 Apr 2013 7:24 am
Operator : ninap
Sample : jb33197-7
Misc : op65064a,e3m1657,1000
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Apr 19 16:39:40 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	8.694	150	36201	4.00 ppb	-0.05
12) Fluorene-d10	11.634	176	61509	4.00 ppb	-0.08
18) Fluoranthene-d10	15.831	212	90118	4.00 ppb	-0.06
28) Benzo(a)pyrene-d12	20.450	264	65097	4.00 ppb	-0.07
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	5.951	82	241186	31.16 ppb	-0.07
Spiked Amount 50.000			Recovery	= 62.32%	
13) 2-Fluorobiphenyl	9.345	172	437560	24.29 ppb	-0.07
Spiked Amount 50.000			Recovery	= 48.58%	
17) 2,4,6-Tribromophenol	0.000	330	0	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
25) Terphenyl-d14	16.635	244	326081	21.60 ppb	-0.06
Spiked Amount 50.000			Recovery	= 43.20%	

Target Compounds Qvalue

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

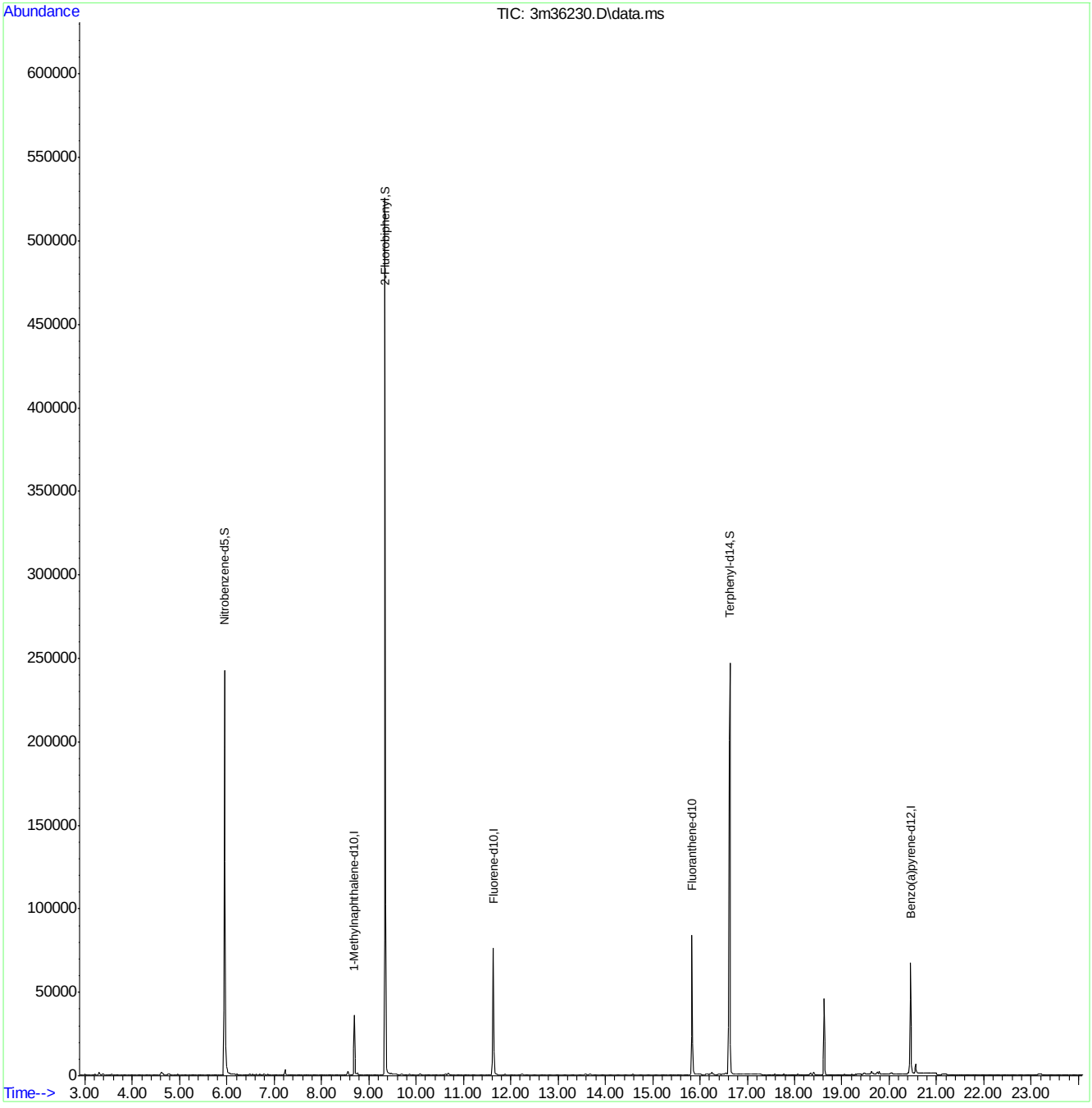
9.1.6

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1657\
Data File : 3m36230.D
Acq On : 19 Apr 2013 7:24 am
Operator : ninap
Sample : jb33197-7
Misc : op65064a,e3m1657,1000
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Apr 19 16:39:40 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\e3m1657\
Data File : 3m36231.D
Acq On : 19 Apr 2013 7:55 am
Operator : ninap
Sample : jb33197-8
Misc : op65064a,e3m1657,1000
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Apr 19 16:45:24 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	8.694	150	32389	4.00	ppb	-0.05
12) Fluorene-d10	11.633	176	61785	4.00	ppb	-0.08
18) Fluoranthene-d10	15.831	212	90764	4.00	ppb	-0.06
28) Benzo(a)pyrene-d12	20.450	264	68464	4.00	ppb	-0.07
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	5.951	82	59052	8.53	ppb	-0.07
Spiked Amount 50.000			Recovery	=	17.06%	
13) 2-Fluorobiphenyl	9.345	172	180276	9.96	ppb	-0.07
Spiked Amount 50.000			Recovery	=	19.92%	
17) 2,4,6-Tribromophenol	0.000	330	0	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
25) Terphenyl-d14	16.635	244	119217	7.84	ppb	-0.06
Spiked Amount 50.000			Recovery	=	15.68%	
Target Compounds						Qvalue
7) Naphthalene	7.233	128	1100249	40.73	ppb	93
15) Acenaphthene	10.678	153	5826	0.30	ppb	85
16) Fluorene	11.690	166	7492	0.38	ppb	81
21) Phenanthrene	13.592	178	12364	0.38	ppb	91

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

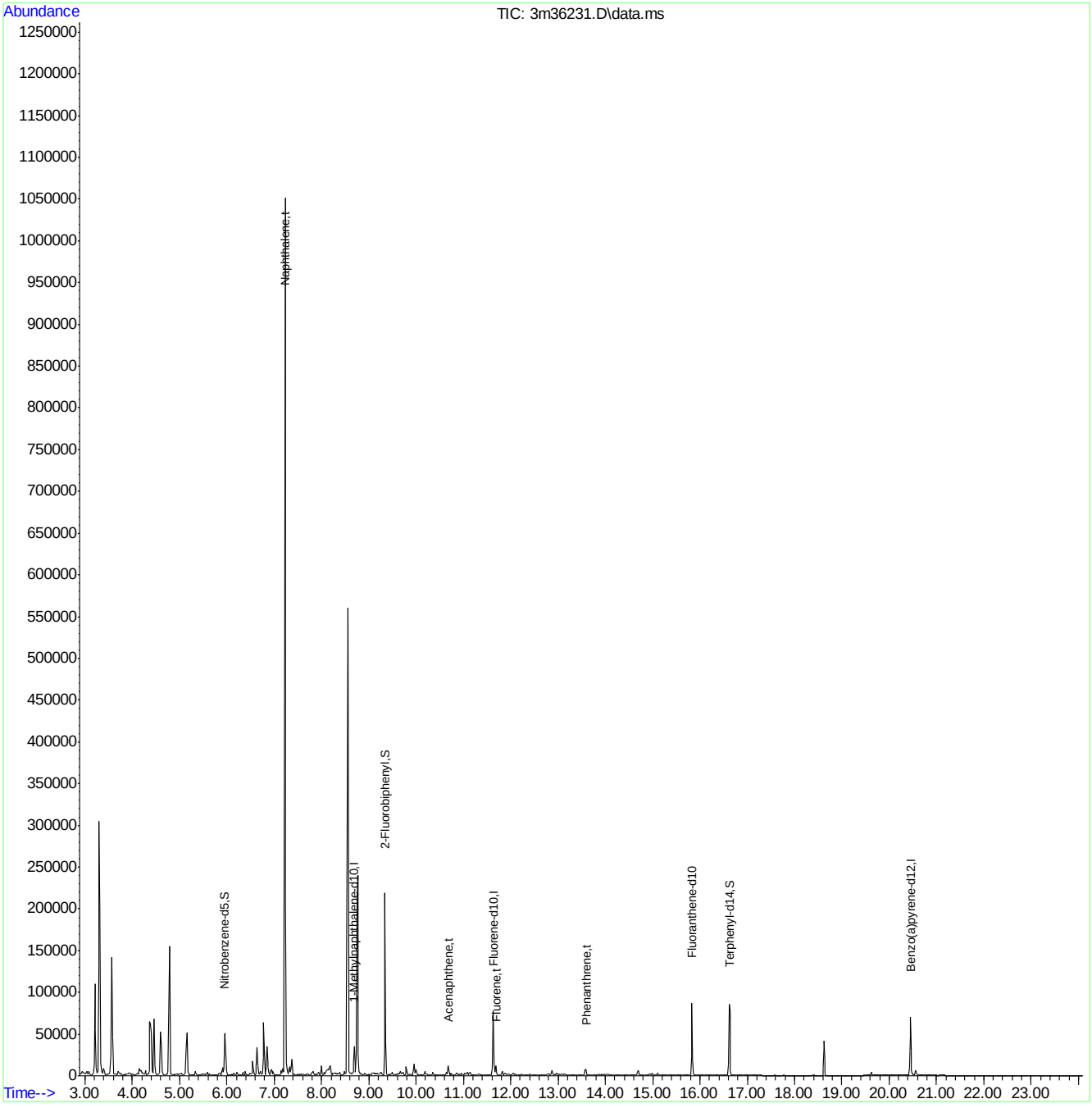
9.1.7

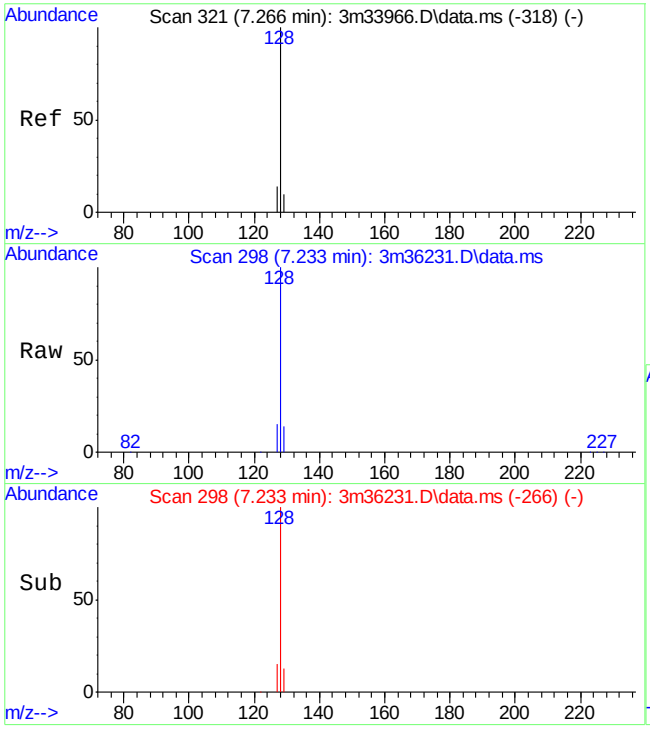
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1657\
Data File : 3m36231.D
Acq On : 19 Apr 2013 7:55 am
Operator : ninap
Sample : jb33197-8
Misc : op65064a,e3m1657,1000
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Apr 19 16:45:24 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

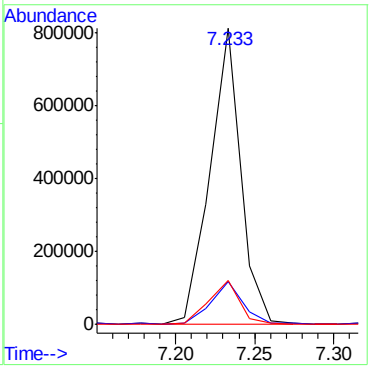


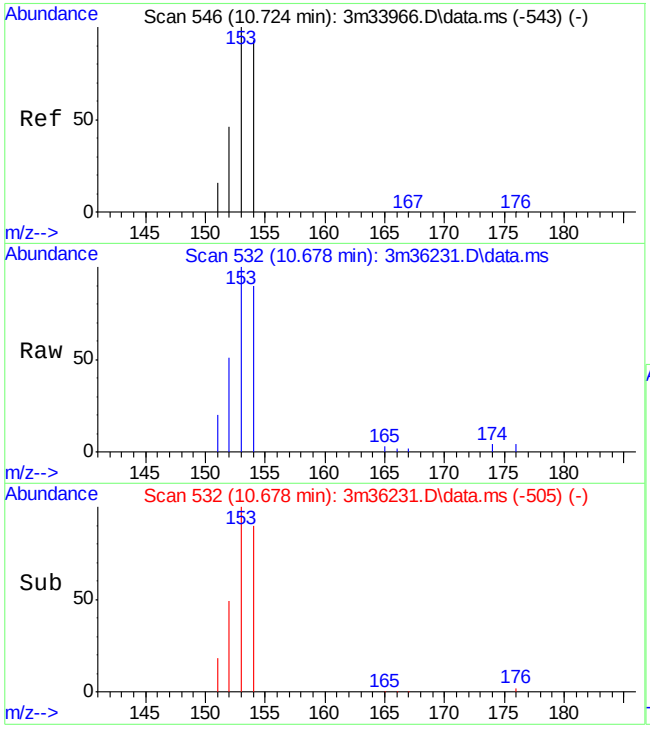


#7
Naphthalene
Concen: 40.73 ppb
RT: 7.233 min Scan# 298
Delta R.T. -0.055 min
Lab File: 3m36231.D
Acq: 19 Apr 2013 7:55 am

Tgt Ion:128 Resp: 1100249

Ion	Ratio	Lower	Upper
128	100		
129	14.2	0.0	41.4
127	14.8	0.0	42.0

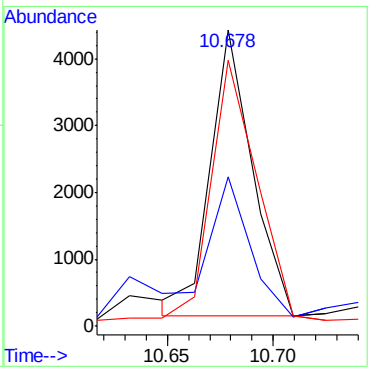


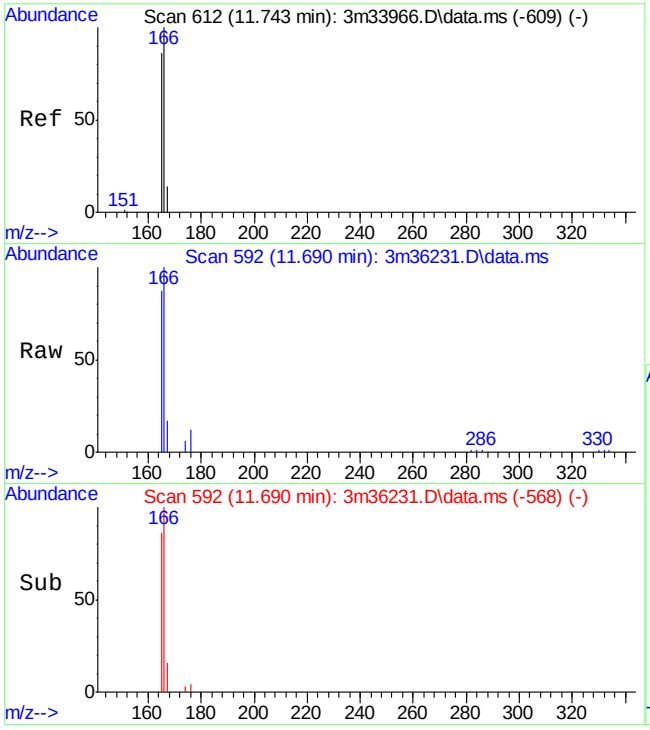


#15
Acenaphthene
Concen: 0.30 ppb
RT: 10.678 min Scan# 532
Delta R.T. -0.077 min
Lab File: 3m36231.D
Acq: 19 Apr 2013 7:55 am

Tgt Ion:153 Resp: 5826

Ion	Ratio	Lower	Upper
153	100		
152	46.4	11.2	71.2
154	92.5	81.2	141.2

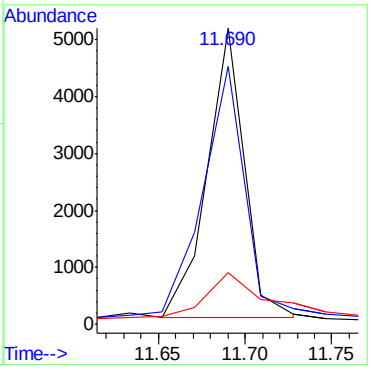


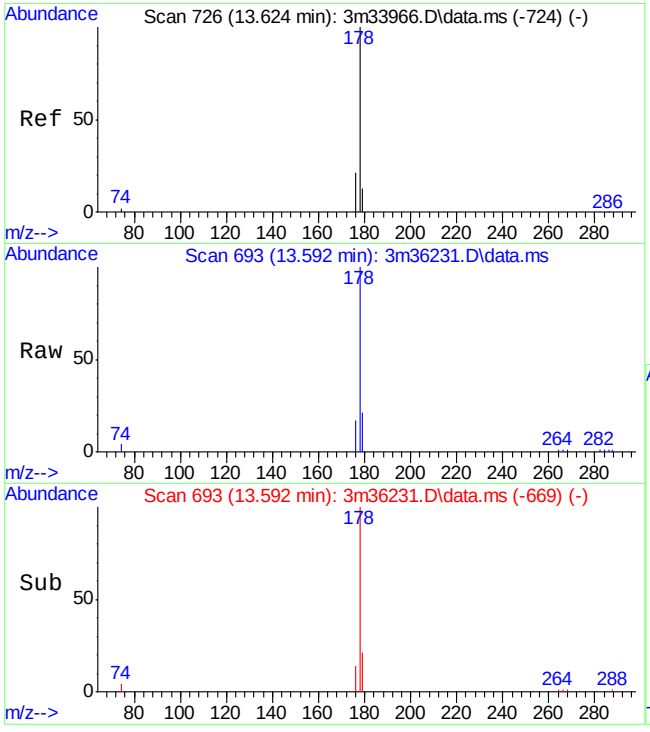


#16
Fluorene
Concen: 0.38 ppb
RT: 11.690 min Scan# 592
Delta R.T. -0.056 min
Lab File: 3m36231.D
Acq: 19 Apr 2013 7:55 am

Tgt Ion:166 Resp: 7492

Ion	Ratio	Lower	Upper
166	100		
165	84.7	76.4	136.4
167	12.8	0.0	41.3

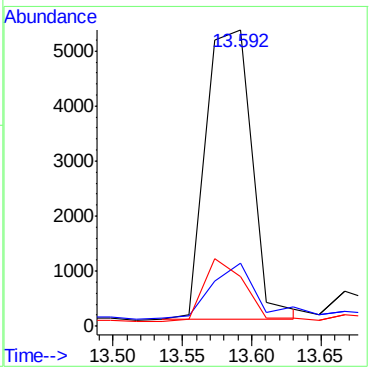




#21
Phenanthrene
Concen: 0.38 ppb
RT: 13.592 min Scan# 693
Delta R.T. -0.057 min
Lab File: 3m36231.D
Acq: 19 Apr 2013 7:55 am

Tgt Ion:178 Resp: 12364

Ion	Ratio	Lower	Upper
178	100		
179	17.2	0.0	44.7
176	15.3	0.0	50.1



Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
04/29/13 15:50

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1664\
Data File : 3m36404.D
Acq On : 24 Apr 2013 1:41 am
Operator : ashleyd
Sample : jb33197-8
Misc : op65472a,e3m1664,1000
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Apr 24 16:52:43 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	31699m	4.00	ppb	-0.11
12) Fluorene-d10	11.577	176	48274	4.00	ppb	-0.13
18) Fluoranthene-d10	15.784	212	68518	4.00	ppb	-0.11
28) Benzo(a)pyrene-d12	20.398	264	53525	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	110085	16.24	ppb	-0.11
Spiked Amount 50.000			Recovery	=	32.48%	
13) 2-Fluorobiphenyl	9.294	172	197958	14.00	ppb	-0.12
Spiked Amount 50.000			Recovery	=	28.00%	
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	124701	10.87	ppb	-0.12
Spiked Amount 50.000			Recovery	=	21.74%	
Target Compounds						Qvalue
7) Naphthalene	7.178	128	1267392	47.94	ppb	91
15) Acenaphthene	10.632	153	7332	0.49	ppb	98
16) Fluorene	11.633	166	9663	0.63	ppb	81
21) Phenanthrene	13.535	178	14881	0.60	ppb	92

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

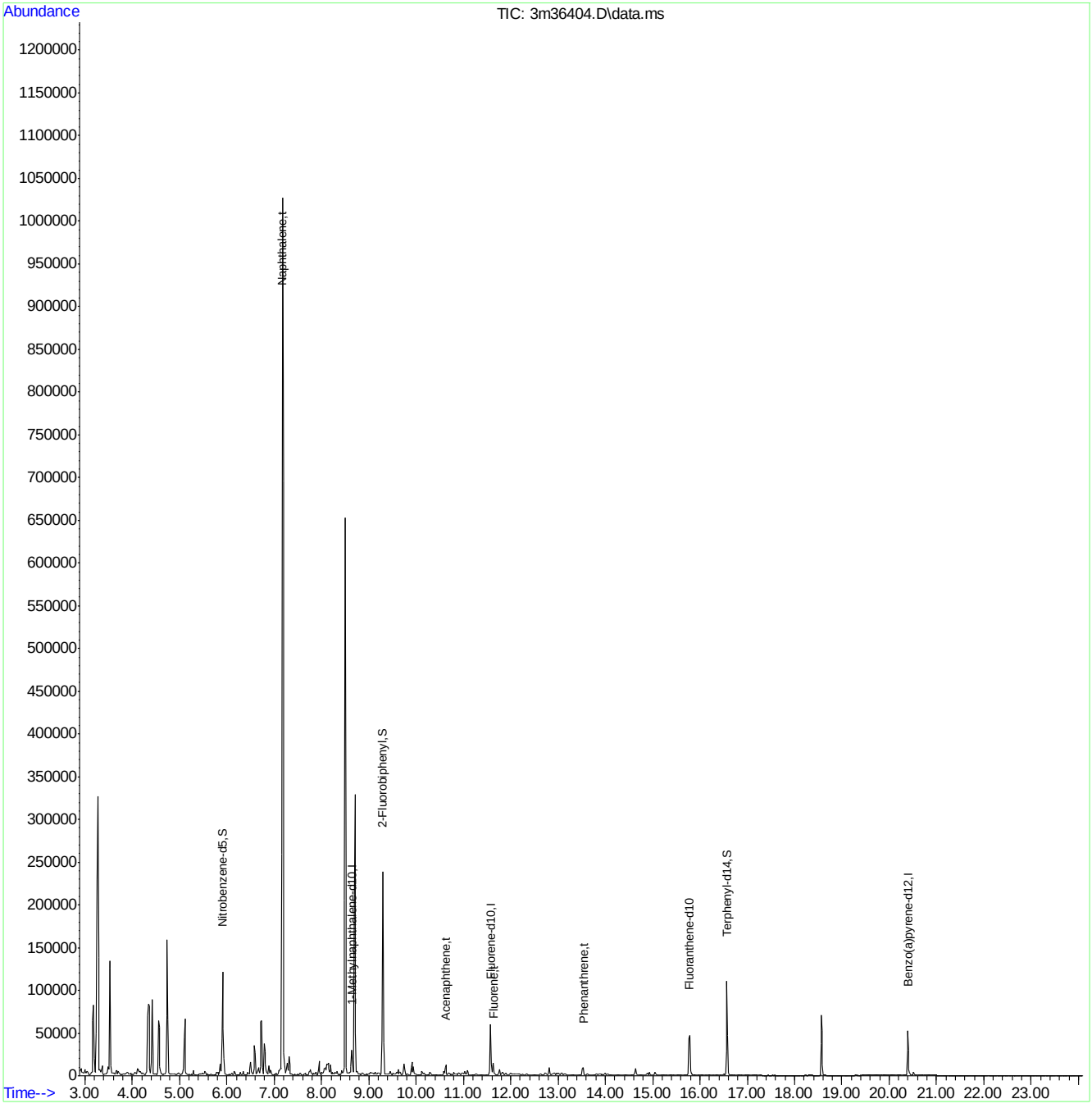
9.1.8

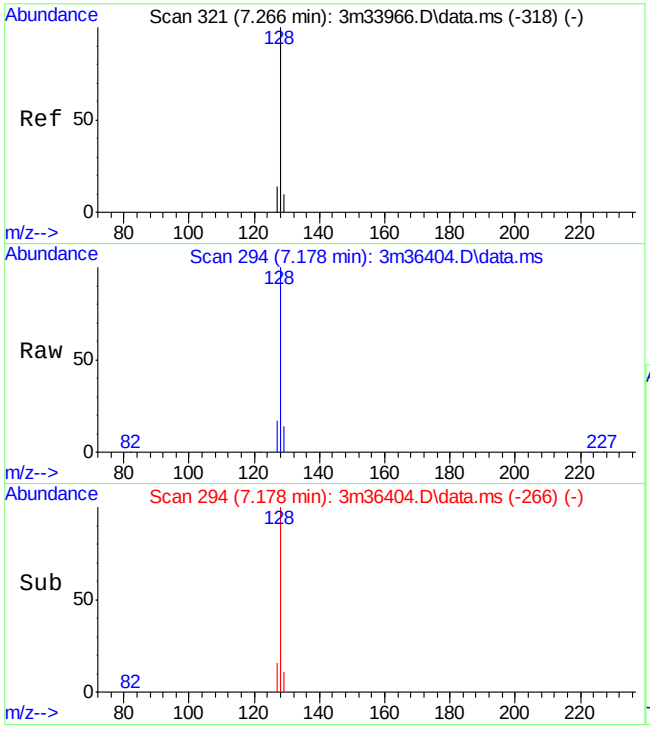
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1664\
Data File : 3m36404.D
Acq On : 24 Apr 2013 1:41 am
Operator : ashleyd
Sample : jb33197-8
Misc : op65472a,e3m1664,1000
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Apr 24 16:52:43 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

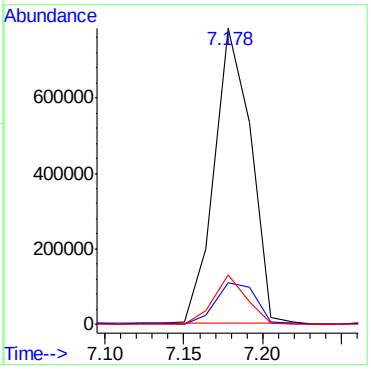


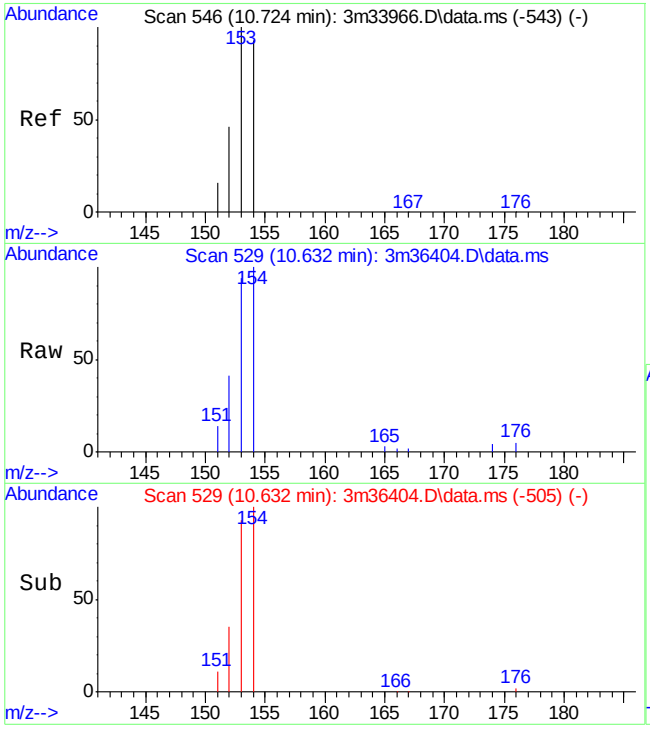


#7
Naphthalene
Concen: 47.94 ppb
RT: 7.178 min Scan# 294
Delta R.T. -0.110 min
Lab File: 3m36404.D
Acq: 24 Apr 2013 1:41 am

Tgt Ion:128 Resp: 1267392

Ion	Ratio	Lower	Upper
128	100		
129	13.5	0.0	41.4
127	16.5	0.0	42.0

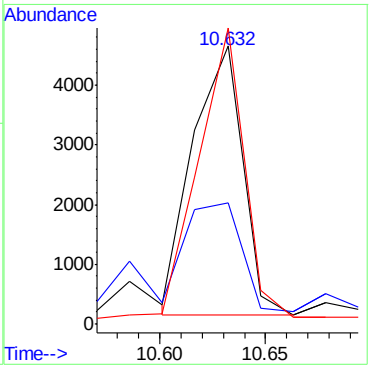


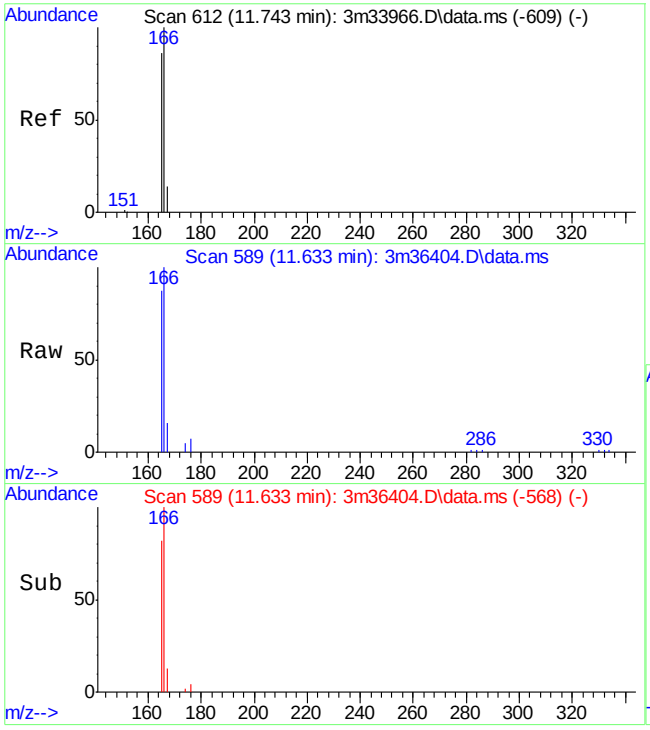


#15
Acenaphthene
Concen: 0.49 ppb
RT: 10.632 min Scan# 529
Delta R.T. -0.124 min
Lab File: 3m36404.D
Acq: 24 Apr 2013 1:41 am

Tgt Ion:153 Resp: 7332

Ion	Ratio	Lower	Upper
153	100		
152	39.9	11.2	71.2
154	109.2	81.2	141.2

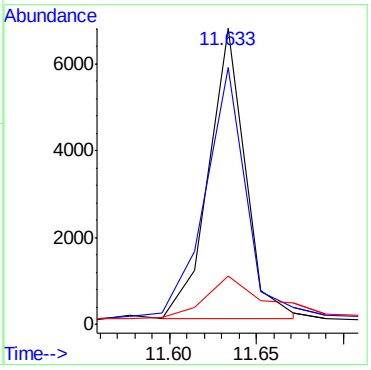


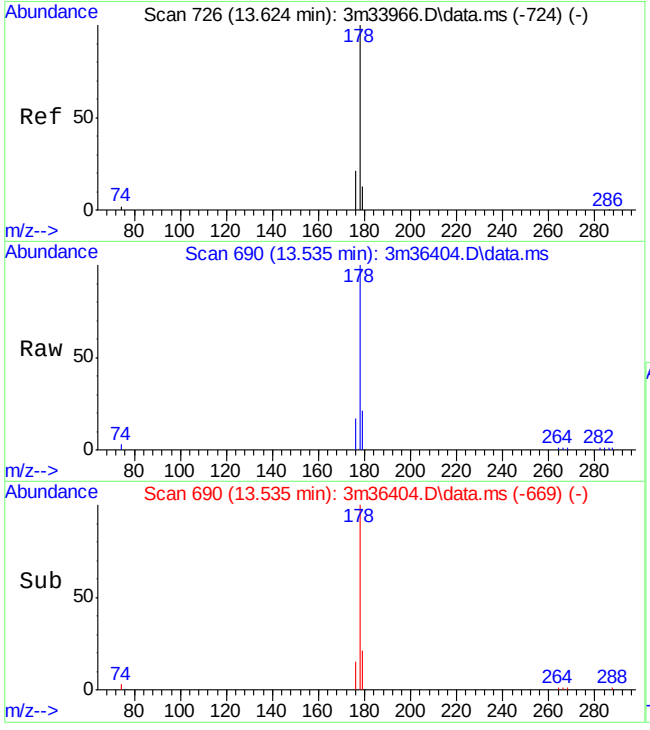


#16
Fluorene
Concen: 0.63 ppb
RT: 11.633 min Scan# 589
Delta R.T. -0.113 min
Lab File: 3m36404.D
Acq: 24 Apr 2013 1:41 am

Tgt Ion:166 Resp: 9663

Ion	Ratio	Lower	Upper
166	100		
165	84.5	76.4	136.4
167	11.8	0.0	41.3

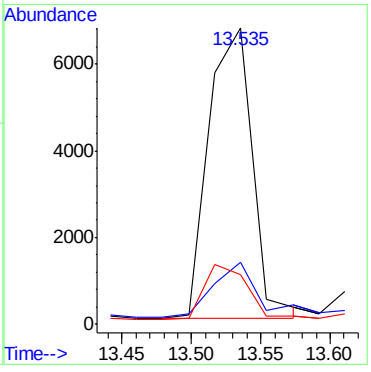




#21
Phenanthrene
Concen: 0.60 ppb
RT: 13.535 min Scan# 690
Delta R.T. -0.113 min
Lab File: 3m36404.D
Acq: 24 Apr 2013 1:41 am

Tgt Ion:178 Resp: 14881

Ion	Ratio	Lower	Upper
178	100		
179	17.1	0.0	44.7
176	15.3	0.0	50.1



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\ez4062\
Data File : Z79711.D
Acq On : 26 Apr 2013 4:09 pm
Operator : katelynh
Sample : jb33197-8
Misc : op65472a,ez4062,1000,,,1,2
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Apr 26 16:41:51 2013
Quant Method : C:\msdchem\1\METHODS\MZ4049.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Mon Apr 22 19:34:40 2013
Response via : Initial Calibration

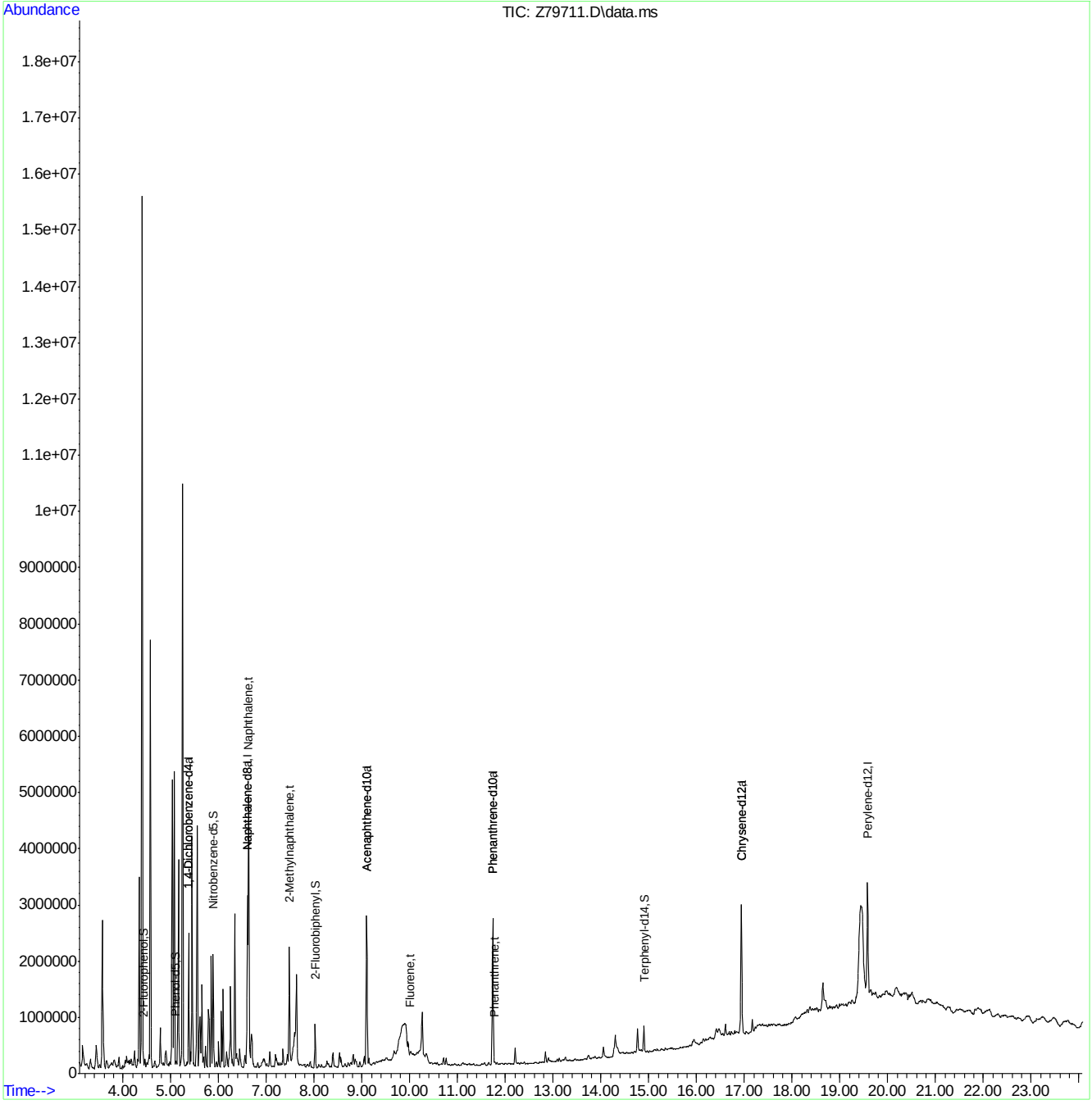
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.368	152	423269	40.00	ppb	-0.04
24) Naphthalene-d8	6.602	136	1615747	40.00	ppb	-0.05
47) Acenaphthene-d10	9.097	164	978011	40.00	ppb	-0.06
69) Phenanthrene-d10	11.736	188	1599774	40.00	ppb	-0.06
83) Chrysene-d12	16.940	240	1497204	40.00	ppb	-0.06
92) Perylene-d12	19.579	264	1289795	40.00	ppb	-0.07
102) 1,4-Dichlorobenzene-d4a	5.368	152	423269	40.00	ppb	-0.04
104) Phenanthrene-d10a	11.736	188	1599774	40.00	ppb	-0.06
106) Chrysene-d12a	16.940	240	1497204	40.00	ppb	-0.06
108) Acenaphthene-d10a	9.097	164	978011	40.00	ppb	-0.06
110) Naphthalene-d8a	6.602	136	1615747	40.00	ppb	-0.05
System Monitoring Compounds						
5) 2-Fluorophenol	4.428	112	2176	0.15	ppb	-0.02
Spiked Amount 50.000			Recovery	=	0.30%	
8) Phenol-d5	5.106	99	15716	0.92	ppb	-0.02
Spiked Amount 50.000			Recovery	=	1.84%	
25) Nitrobenzene-d5	5.881	82	149092	11.70	ppb	-0.04
Spiked Amount 50.000			Recovery	=	23.40%	
51) 2-Fluorobiphenyl	8.018	172	339854	11.01	ppb	-0.06
Spiked Amount 50.000			Recovery	=	22.02%	
73) 2,4,6-Tribromophenol	0.000	330	0	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
86) Terphenyl-d14	14.899	244	259073	7.86	ppb	-0.06
Spiked Amount 50.000			Recovery	=	15.72%	
Target Compounds						Qvalue
38) Naphthalene	6.624	128	2808475	64.97	ppb	99
44) 2-Methylnaphthalene	7.478	141	691801	27.57	ppb	94
66) Fluorene	10.011	166	12180	0.40	ppb	94
77) Phenanthrene	11.774	178	18771	0.41	ppb	97

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

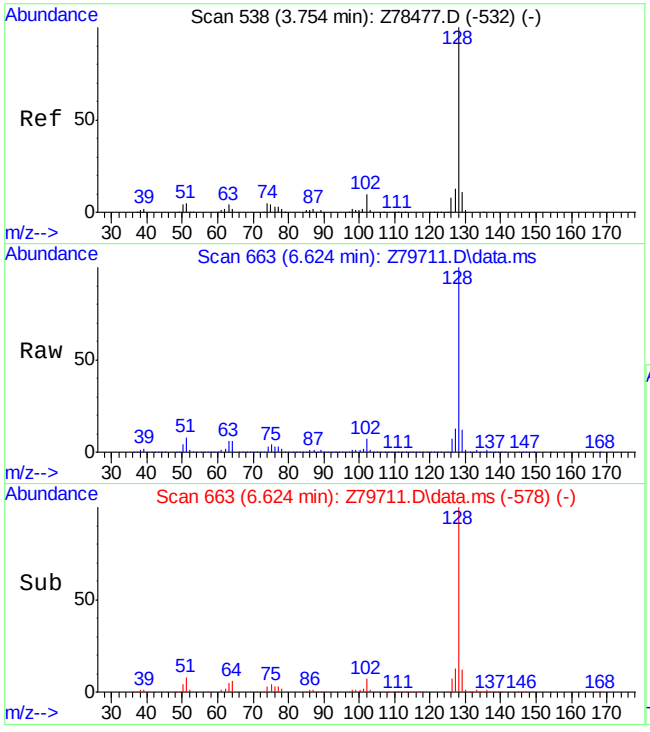
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\ez4062\
Data File : Z79711.D
Acq On : 26 Apr 2013 4:09 pm
Operator : katelynh
Sample : jb33197-8
Misc : op65472a,ez4062,1000,,,1,2
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Apr 26 16:41:51 2013
Quant Method : C:\msdchem\1\METHODS\MZ4049.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Mon Apr 22 19:34:40 2013
Response via : Initial Calibration



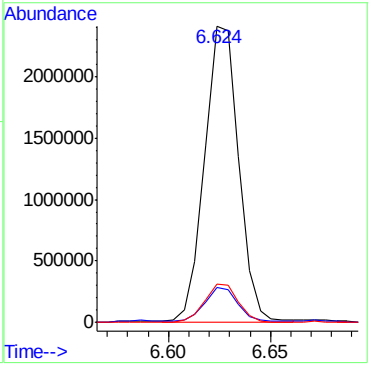
MZ4049.M Fri Apr 26 16:41:54 2013 RTE Page: 2

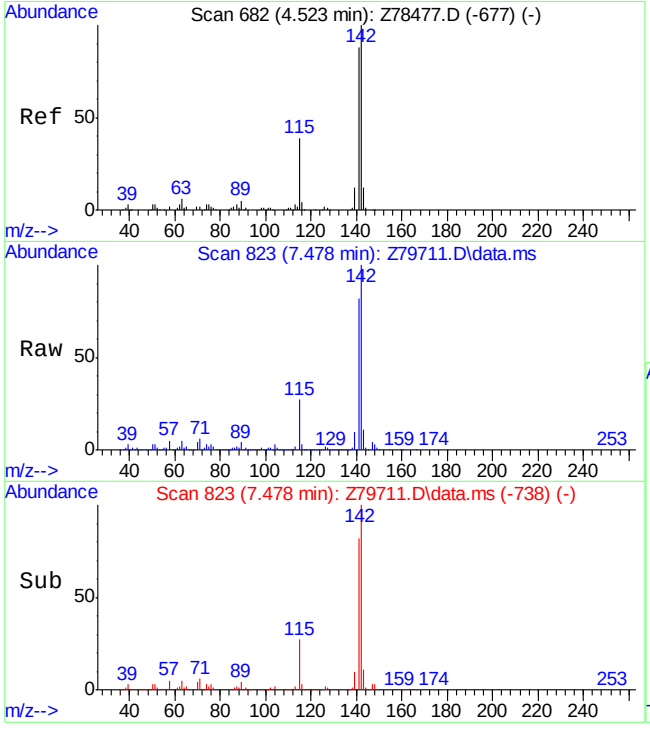


#38
Naphthalene
Concen: 64.97 ppb
RT: 6.624 min Scan# 663
Delta R.T. -0.048 min
Lab File: Z79711.D
Acq: 26 Apr 2013 4:09 pm

Tgt Ion:128 Resp: 2808475

Ion	Ratio	Lower	Upper
128	100		
129	11.4	0.0	41.3
127	12.7	0.0	43.6

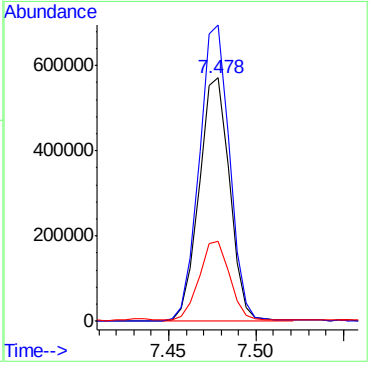


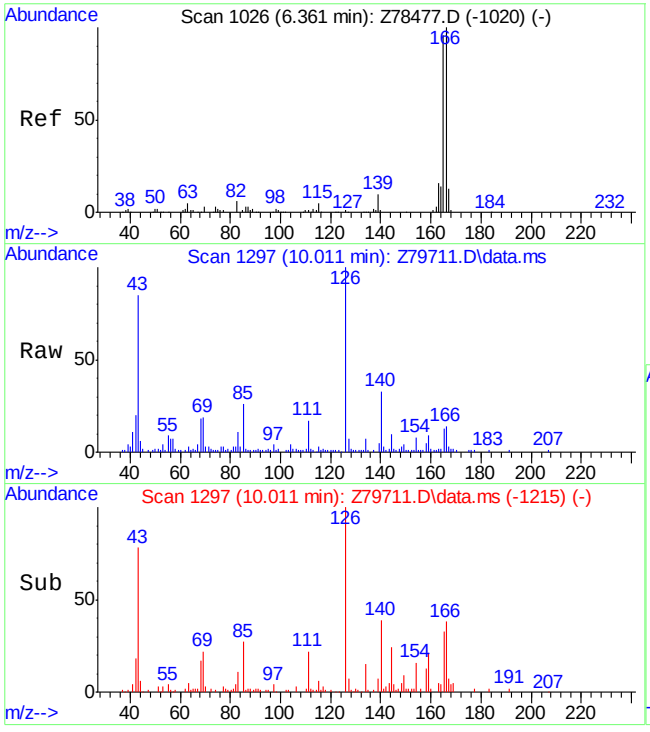


#44
2-Methylnaphthalene
Concen: 27.57 ppb
RT: 7.478 min Scan# 823
Delta R.T. -0.048 min
Lab File: Z79711.D
Acq: 26 Apr 2013 4:09 pm

Tgt Ion:141 Resp: 691801

Ion	Ratio	Lower	Upper
141	100		
142	121.8	88.7	148.7
115	32.5	11.8	71.8

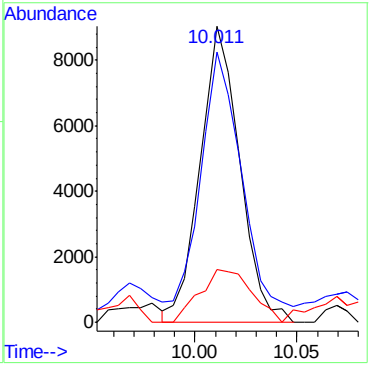


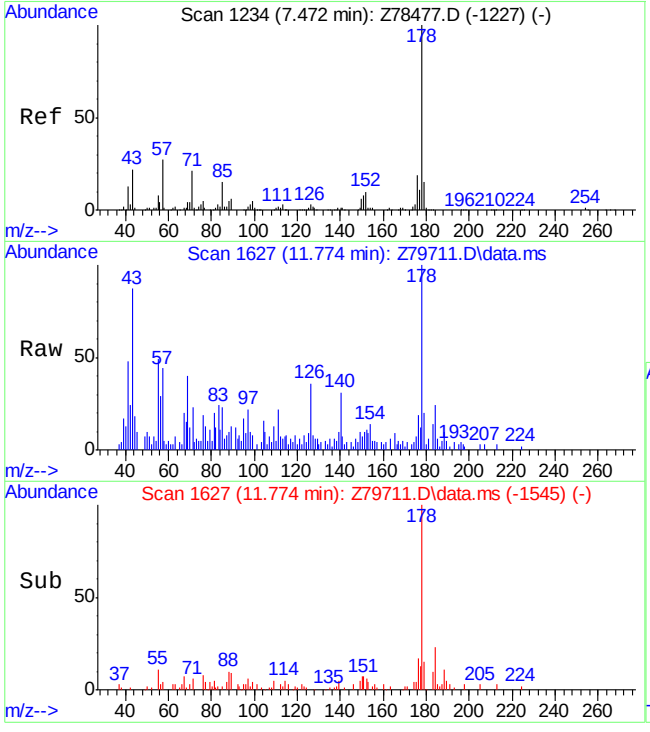


#66
Fluorene
Concen: 0.40 ppb
RT: 10.011 min Scan# 1297
Delta R.T. -0.064 min
Lab File: Z79711.D
Acq: 26 Apr 2013 4:09 pm

Tgt Ion:166 Resp: 12180

Ion	Ratio	Lower	Upper
166	100		
165	86.8	61.9	121.9
167	16.2	0.0	43.3

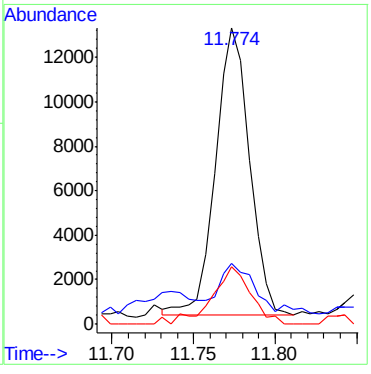




#77
Phenanthrene
Concen: 0.41 ppb
RT: 11.774 min Scan# 1627
Delta R.T. -0.064 min
Lab File: Z79711.D
Acq: 26 Apr 2013 4:09 pm

Tgt Ion:178 Resp: 18771

Ion	Ratio	Lower	Upper
178	100		
179	13.3	0.0	45.7
176	18.8	0.0	49.0



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1657\
Data File : 3m36232.D
Acq On : 19 Apr 2013 8:26 am
Operator : ninap
Sample : jb33197-9
Misc : op65064a,e3m1657,1000
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Apr 19 16:46:06 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	8.694	150	36553	4.00 ppb	-0.05
12) Fluorene-d10	11.633	176	62028	4.00 ppb	-0.08
18) Fluoranthene-d10	15.831	212	87978	4.00 ppb	-0.06
28) Benzo(a)pyrene-d12	20.450	264	64749	4.00 ppb	-0.07
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	5.951	82	101862	13.03 ppb	-0.07
Spiked Amount 50.000			Recovery	= 26.06%	
13) 2-Fluorobiphenyl	9.345	172	150766	8.30 ppb	-0.07
Spiked Amount 50.000			Recovery	= 16.60%	
17) 2,4,6-Tribromophenol	0.000	330	0	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
25) Terphenyl-d14	16.635	244	119709	8.12 ppb	-0.06
Spiked Amount 50.000			Recovery	= 16.24%	

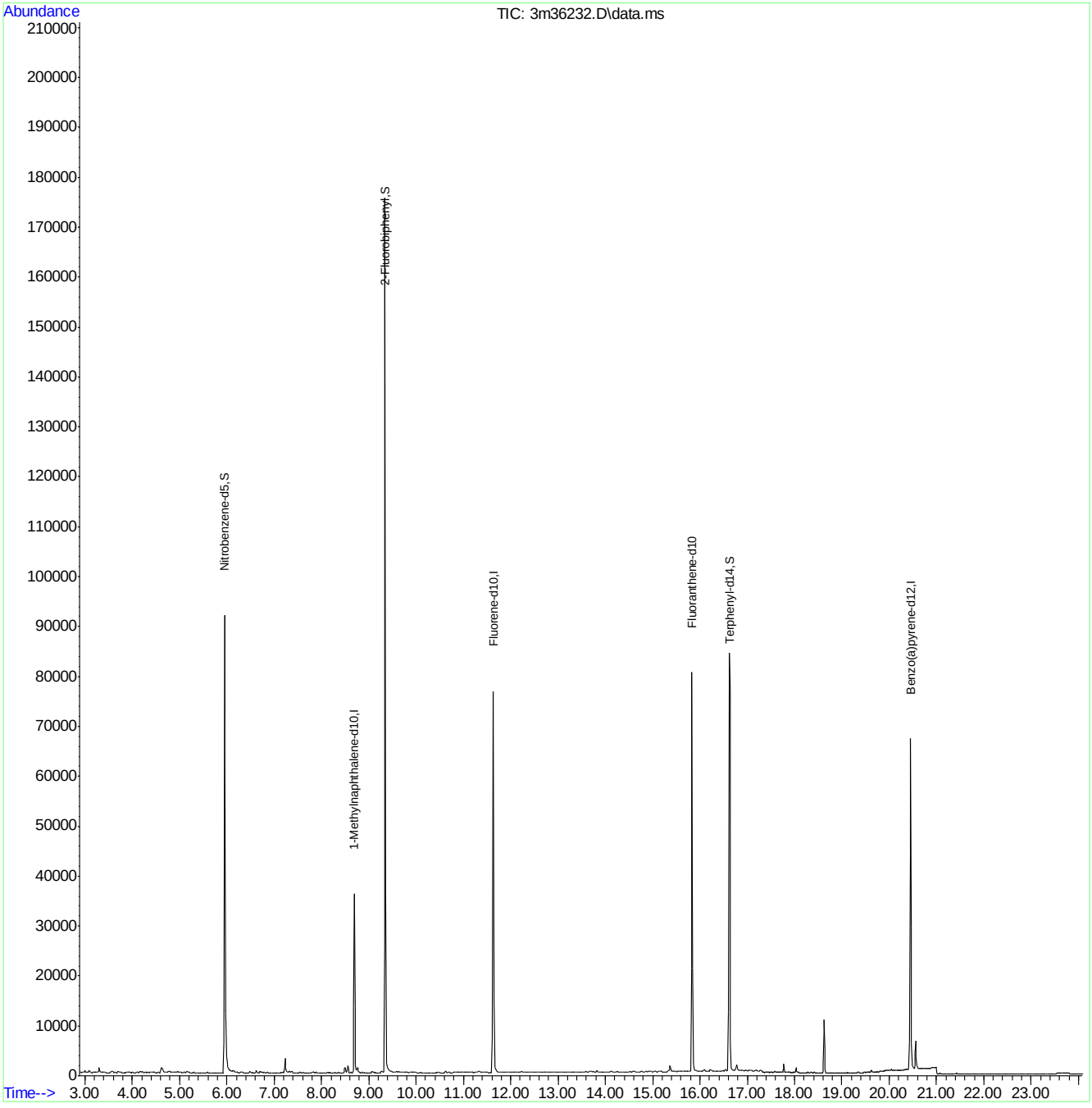
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1657\
Data File : 3m36232.D
Acq On : 19 Apr 2013 8:26 am
Operator : ninap
Sample : jb33197-9
Misc : op65064a,e3m1657,1000
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Apr 19 16:46:06 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



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1664\
Data File : 3m36405.D
Acq On : 24 Apr 2013 2:12 am
Operator : ashleyd
Sample : jb33197-9
Misc : op65472a,e3m1664,1000
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Apr 24 18:41:15 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	35846	4.00	ppb	-0.11
12) Fluorene-d10	11.577	176	57430	4.00	ppb	-0.13
18) Fluoranthene-d10	15.784	212	79654	4.00	ppb	-0.11
28) Benzo(a)pyrene-d12	20.398	264	59016	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	134414	17.54	ppb	-0.11
Spiked Amount 50.000			Recovery	=	35.08%	
13) 2-Fluorobiphenyl	9.294	172	220475	13.11	ppb	-0.12
Spiked Amount 50.000			Recovery	=	26.22%	
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	165283	12.39	ppb	-0.12
Spiked Amount 50.000			Recovery	=	24.78%	

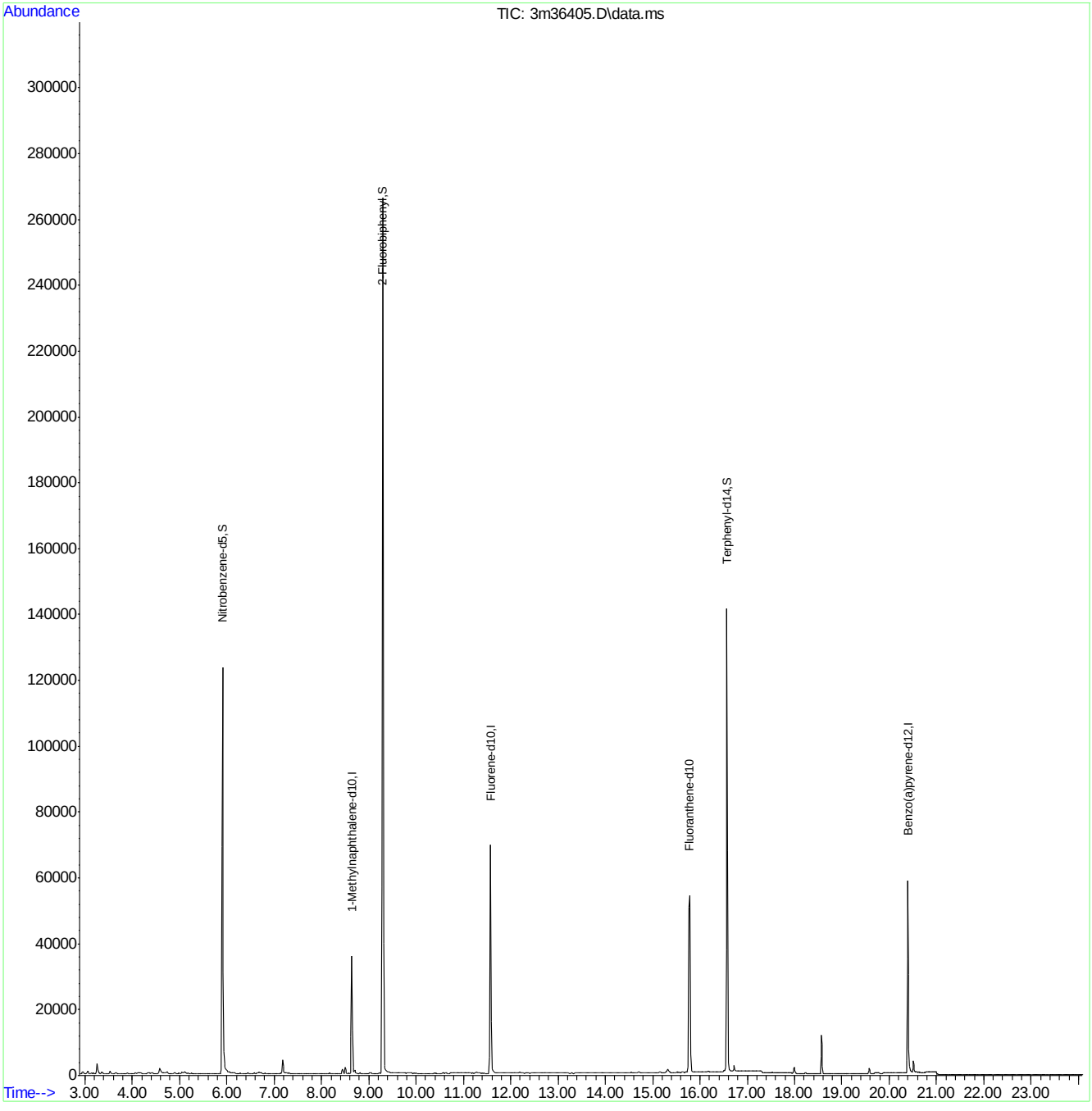
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1664\
Data File : 3m36405.D
Acq On : 24 Apr 2013 2:12 am
Operator : ashleyd
Sample : jb33197-9
Misc : op65472a,e3m1664,1000
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Apr 24 18:41:15 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\e3m1657\
Data File : 3m36233.D
Acq On : 19 Apr 2013 8:57 am
Operator : ninap
Sample : jb33197-10
Misc : op65064a,e3m1657,1000
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Apr 19 16:46:42 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	8.694	150	34806	4.00	ppb	-0.05
12) Fluorene-d10	11.633	176	64227	4.00	ppb	-0.08
18) Fluoranthene-d10	15.831	212	91139	4.00	ppb	-0.06
28) Benzo(a)pyrene-d12	20.450	264	66942	4.00	ppb	-0.07
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	5.951	82	147563	19.83	ppb	-0.07
Spiked Amount 50.000			Recovery	=	39.66%	
13) 2-Fluorobiphenyl	9.345	172	263772	14.02	ppb	-0.07
Spiked Amount 50.000			Recovery	=	28.04%	
17) 2,4,6-Tribromophenol	0.000	330	0	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
25) Terphenyl-d14	16.635	244	270010	17.69	ppb	-0.06
Spiked Amount 50.000			Recovery	=	35.38%	
Target Compounds						Qvalue
7) Naphthalene	7.233	128	48145	1.66	ppb	89

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

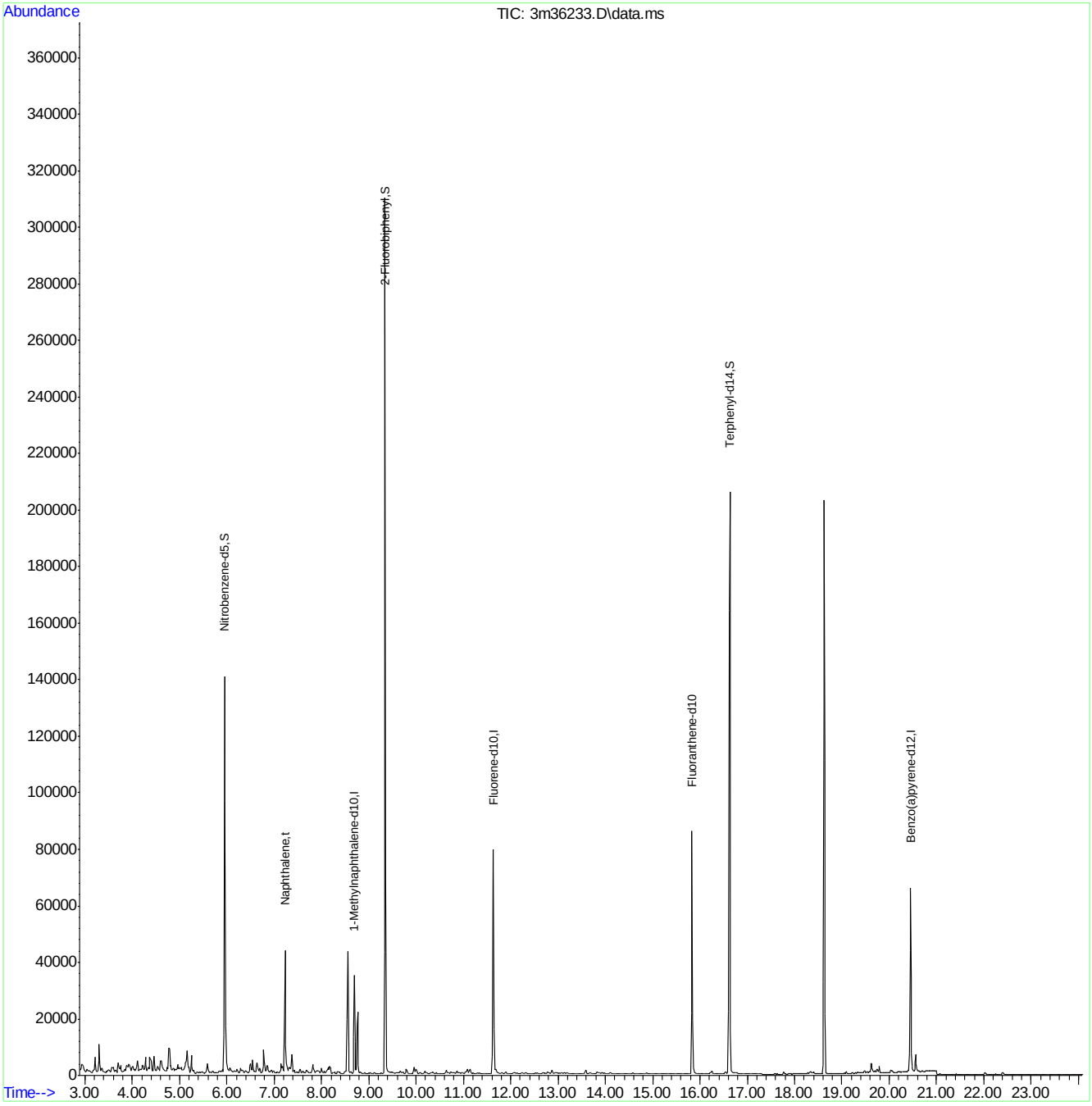
9.1.12

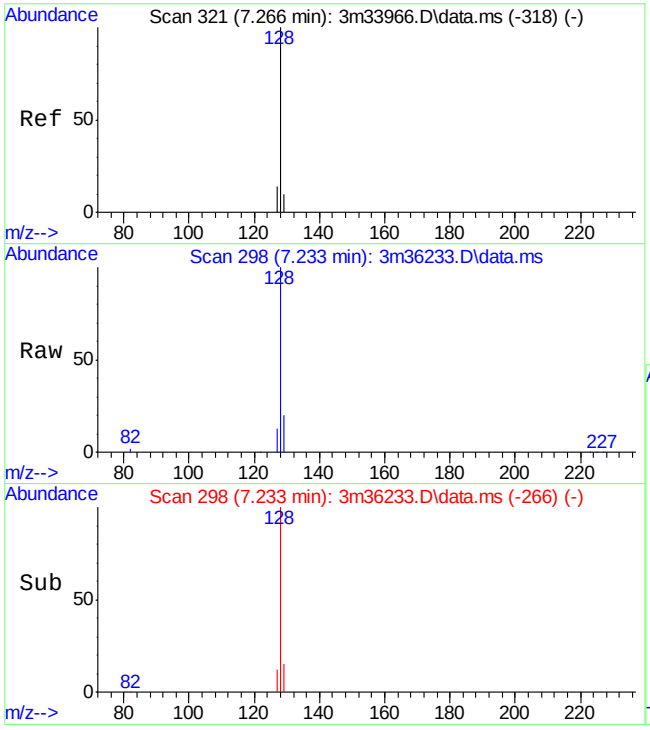
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1657\
Data File : 3m36233.D
Acq On : 19 Apr 2013 8:57 am
Operator : ninap
Sample : jb33197-10
Misc : op65064a,e3m1657,1000
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Apr 19 16:46:42 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

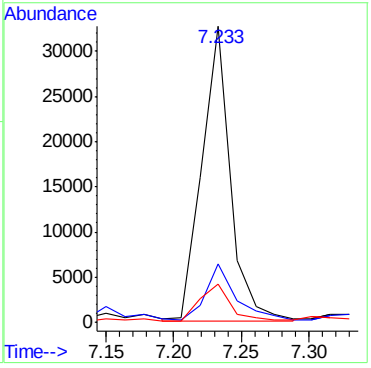




#7
Naphthalene
Concen: 1.66 ppb
RT: 7.233 min Scan# 298
Delta R.T. -0.055 min
Lab File: 3m36233.D
Acq: 19 Apr 2013 8:57 am

Tgt Ion:128 Resp: 48145

Ion	Ratio	Lower	Upper
128	100		
129	19.1	0.0	41.4
127	12.5	0.0	42.0



9.1.12

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1657\
Data File : 3m36234.D
Acq On : 19 Apr 2013 9:28 am
Operator : ninap
Sample : jb33197-11
Misc : op65064a,e3m1657,1000
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Apr 19 16:47:31 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	8.694	150	38927	4.00 ppb	-0.05
12) Fluorene-d10	11.634	176	68355	4.00 ppb	-0.08
18) Fluoranthene-d10	15.831	212	94764	4.00 ppb	-0.06
28) Benzo(a)pyrene-d12	20.450	264	70504	4.00 ppb	-0.07
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	5.951	82	95160	11.43 ppb	-0.07
Spiked Amount 50.000			Recovery	= 22.86%	
13) 2-Fluorobiphenyl	9.345	172	364339	18.20 ppb	-0.07
Spiked Amount 50.000			Recovery	= 36.40%	
17) 2,4,6-Tribromophenol	0.000	330	0d	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
25) Terphenyl-d14	16.635	244	266509	16.79 ppb	-0.06
Spiked Amount 50.000			Recovery	= 33.58%	

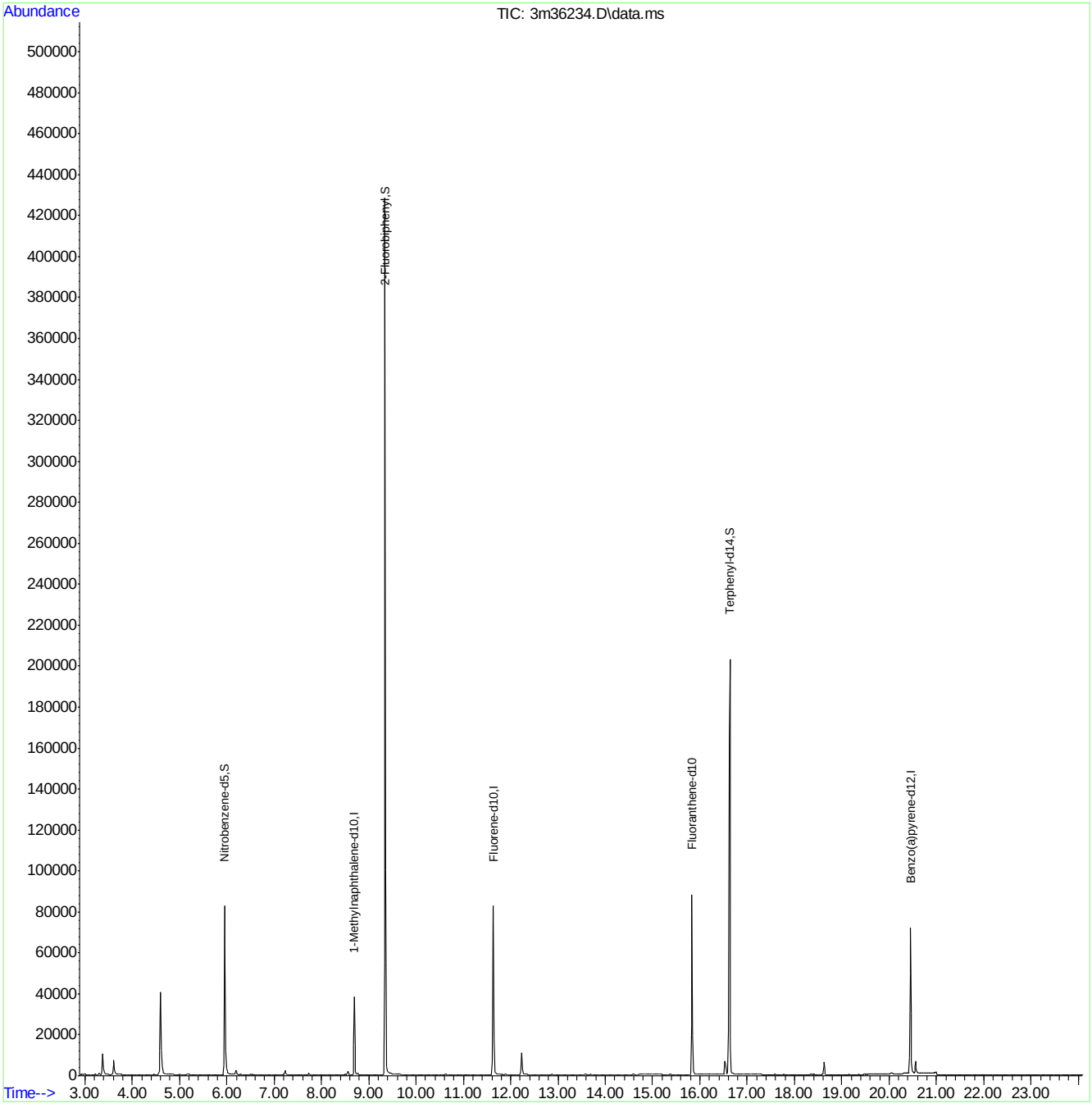
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1657\
Data File : 3m36234.D
Acq On : 19 Apr 2013 9:28 am
Operator : ninap
Sample : jb33197-11
Misc : op65064a,e3m1657,1000
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Apr 19 16:47:31 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\e3m1641\
Data File : 3m35865.D
Acq On : 9 Apr 2013 9:21 am
Operator : andrews1
Sample : op65064a-mb1
Misc : op65064a,e3m1641,1000
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Apr 09 15:20:21 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1635SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Apr 05 15:04:44 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.800	150	142907	4.00	ppb	-0.02
12) Fluorene-d10	11.753	176	221339	4.00	ppb	-0.02
18) Fluoranthene-d10	15.933	212	345916	4.00	ppb	-0.02
28) Benzo(a)pyrene-d12	20.565	264	235209	4.00	ppb	0.00
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	6.047	82	1024601	31.26	ppb	-0.01
Spiked Amount 50.000			Recovery	=	62.52%	
13) 2-Fluorobiphenyl	9.448	172	2123602	34.96	ppb	-0.02
Spiked Amount 50.000			Recovery	=	69.92%	
17) 2,4,6-Tribromophenol	0.000	330	0d	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
25) Terphenyl-d14	16.737	244	2072396	36.93	ppb	-0.02
Spiked Amount 50.000			Recovery	=	73.86%	

Target Compounds Qvalue

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

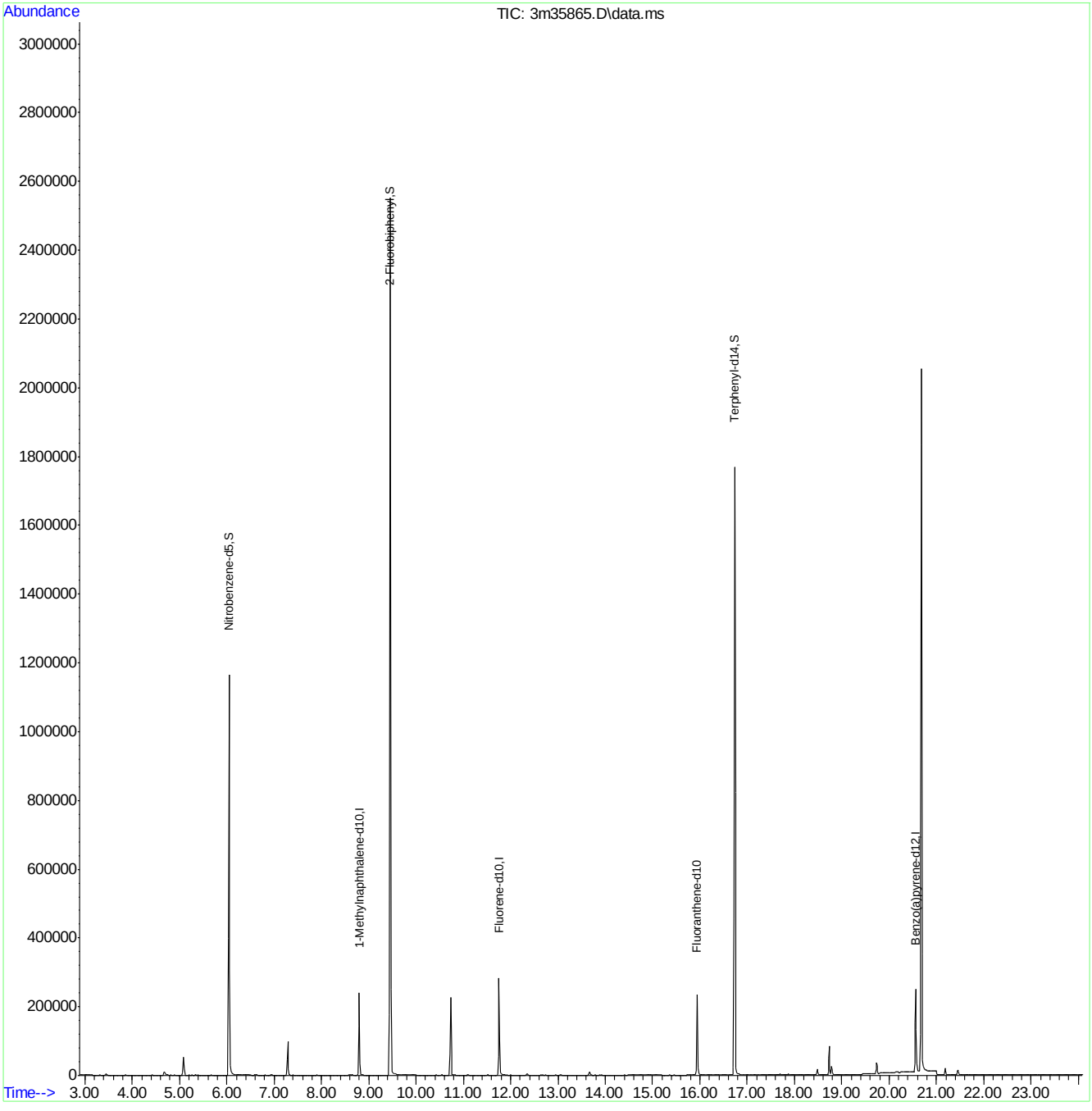
9.2.1

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1641\
Data File : 3m35865.D
Acq On : 9 Apr 2013 9:21 am
Operator : andrews1
Sample : op65064a-mb1
Misc : op65064a,e3m1641,1000
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Apr 09 15:20:21 2013
Quant Method : C:\MSDCHEM\1\METHODS\M1635SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Apr 05 15:04:44 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1664\
Data File : 3m36400.D
Acq On : 23 Apr 2013 11:35 pm
Operator : ashleyd
Sample : op65472a-mb1
Misc : op65472a,e3m1664,1000
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Apr 24 16:50:50 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	40187	4.00 ppb	-0.11
12) Fluorene-d10	11.577	176	64760	4.00 ppb	-0.13
18) Fluoranthene-d10	15.769	212	90094	4.00 ppb	-0.12
28) Benzo(a)pyrene-d12	20.398	264	64698	4.00 ppb	-0.13
System Monitoring Compounds					
2) 2-Fluorophenol	3.335	112	112587	17.88 ppb	-0.09
Spiked Amount 50.000			Recovery	= 35.76%	
3) Phenol-d5	4.556	99	116389	14.44 ppb	-0.09
Spiked Amount 50.000			Recovery	= 28.88%	
6) Nitrobenzene-d5	5.896	82	259987	30.25 ppb	-0.12
Spiked Amount 50.000			Recovery	= 60.50%	
13) 2-Fluorobiphenyl	9.294	172	418223	22.05 ppb	-0.12
Spiked Amount 50.000			Recovery	= 44.10%	
17) 2,4,6-Tribromophenol	12.180	330	81256	29.98 ppb	-0.13
Spiked Amount 50.000			Recovery	= 59.96%	
25) Terphenyl-d14	16.573	244	427133	28.31 ppb	-0.12
Spiked Amount 50.000			Recovery	= 56.62%	

Target Compounds Qvalue

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

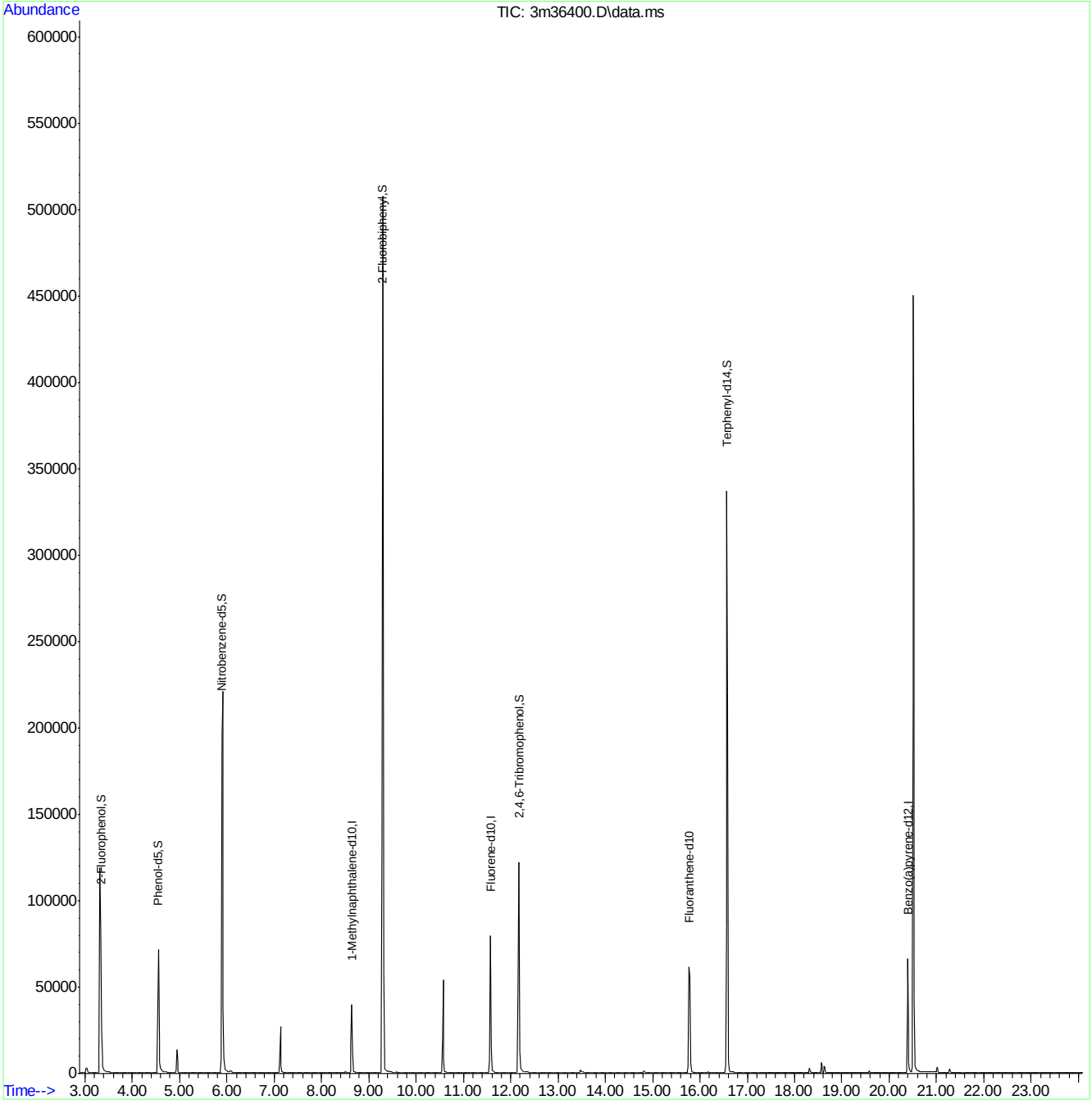
9.2.2

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m1664\
Data File : 3m36400.D
Acq On : 23 Apr 2013 11:35 pm
Operator : ashleyd
Sample : op65472a-mb1
Misc : op65472a,e3m1664,1000
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Apr 24 16:50:50 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 Wed Apr 24 16:50:54 2013 RPT1 Page: 2

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: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP65137-MB1	WW117619.D	1	04/11/13	VDT	04/10/13	OP65137	GWW4175

The QC reported here applies to the following samples: **Method:** SW846-8011

JB33197-1, JB33197-2, JB33197-3, JB33197-4, JB33197-5, JB33197-6, JB33197-7, JB33197-8, JB33197-9, JB33197-10, JB33197-11

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	73%	38-167%
3017-95-6	2-Bromo-1-chloropropane	74%	38-167%

Blank Spike Summary

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP65137-BS1	WW117620.D	1	04/11/13	VDT	04/10/13	OP65137	GWW4175

The QC reported here applies to the following samples: **Method:** SW846-8011

JB33197-1, JB33197-2, JB33197-3, JB33197-4, JB33197-5, JB33197-6, JB33197-7, JB33197-8, JB33197-9, JB33197-10, JB33197-11

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
106-93-4	1,2-Dibromoethane	0.5	0.45	90	54-162

CAS No.	Surrogate Recoveries	BSP	Limits
3017-95-6	2-Bromo-1-chloropropane	107%	38-167%
3017-95-6	2-Bromo-1-chloropropane	112%	38-167%

10.2.1

10

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP65137-MS	WW117621.D	1	04/11/13	VDT	04/10/13	OP65137	GWW4175
OP65137-MSD	WW117622.D	1	04/11/13	VDT	04/10/13	OP65137	GWW4175
JB33197-1	WW117625.D	1	04/11/13	VDT	04/10/13	OP65137	GWW4175

The QC reported here applies to the following samples: **Method:** SW846-8011

JB33197-1, JB33197-2, JB33197-3, JB33197-4, JB33197-5, JB33197-6, JB33197-7, JB33197-8, JB33197-9, JB33197-10, JB33197-11

CAS No.	Compound	JB33197-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
106-93-4	1,2-Dibromoethane	ND		0.875	0.99	113	1.0	114	1	55-163/29

CAS No.	Surrogate Recoveries	MS	MSD	JB33197-1	Limits
3017-95-6	2-Bromo-1-chloropropane	85%	90%	85%	38-167%
3017-95-6	2-Bromo-1-chloropropane	92%	97%	88%	38-167%

10.3.1

10

* = Outside of Control Limits.

Volatile Surrogate Recovery Summary

Job Number: JB33197
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]
JB33197-1	WW117625.D	85.0	88.0
JB33197-2	WW117626.D	83.0	81.0
JB33197-3	WW117627.D	77.0	70.0
JB33197-4	WW117628.D	90.0	83.0
JB33197-5	WW117629.D	87.0	86.0
JB33197-6	WW117630.D	85.0	89.0
JB33197-7	WW117631.D	81.0	80.0
JB33197-8	WW117632.D	82.0	71.0
JB33197-9	WW117633.D	91.0	99.0
JB33197-10	WW117636.D	92.0	84.0
JB33197-11	WW117662.D	92.0	89.0
OP65137-BS1	WW117620.D	107.0	112.0
OP65137-MB1	WW117619.D	73.0	74.0
OP65137-MS	WW117621.D	85.0	92.0
OP65137-MSD	WW117622.D	90.0	97.0

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: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Check Std:	GWW4175-CC4171	**Injection Date:**	04/11/13
Lab File ID:	WW117613.D	**Injection Time:**	17:22
Instrument ID:	GCWW	**Method:**	SW846-8011

	S1 [a] RT	S1 [b] RT
Check Std	3.29	2.79

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
ZZZZZZ	WW117614.D	04/11/13	17:56	3.31	2.80
ZZZZZZ	WW117615.D	04/11/13	18:12	3.29	2.78
ZZZZZZ	WW117616.D	04/11/13	18:29	3.31	2.80
OP65140-MS	WW117617.D	04/11/13	18:46	3.31	2.81
OP65140-MSD	WW117618.D	04/11/13	19:03	3.33	2.82
OP65137-MB1	WW117619.D	04/11/13	19:19	3.33	2.82
OP65137-BS1	WW117620.D	04/11/13	19:36	3.33	2.83
OP65137-MS	WW117621.D	04/11/13	19:53	3.33	2.83
OP65137-MSD	WW117622.D	04/11/13	20:10	3.32	2.82

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: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Check Std:	GWW4175-CC4171	**Injection Date:**	04/11/13
Lab File ID:	WW117623.D	**Injection Time:**	21:03
Instrument ID:	GCWW	**Method:**	SW846-8011

	S1 [a] RT	S1 [b] RT
Check Std	3.33	2.83

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
JB33197-1	WW117625.D	04/11/13	21:36	3.33	2.83
JB33197-2	WW117626.D	04/11/13	21:53	3.33	2.83
JB33197-3	WW117627.D	04/11/13	22:10	3.32	2.81
JB33197-4	WW117628.D	04/11/13	22:27	3.33	2.83
JB33197-5	WW117629.D	04/11/13	22:43	3.34	2.84
JB33197-6	WW117630.D	04/11/13	23:00	3.33	2.83
JB33197-7	WW117631.D	04/11/13	23:17	3.34	2.84
JB33197-8	WW117632.D	04/11/13	23:33	3.34	2.84
JB33197-9	WW117633.D	04/11/13	23:50	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: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Check Std:	GWW4175-CC4171	**Injection Date:**	04/12/13
Lab File ID:	WW117634.D	**Injection Time:**	00:44
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
JB33197-10	WW117636.D	04/12/13	01:17	3.34	2.84
ZZZZZZ	WW117638.D	04/12/13	01:51	3.34	2.84
ZZZZZZ	WW117639.D	04/12/13	02:08	3.34	2.84
ZZZZZZ	WW117640.D	04/12/13	02:25	3.34	2.84
ZZZZZZ	WW117641.D	04/12/13	02:41	3.34	2.84
ZZZZZZ	WW117643.D	04/12/13	03:15	3.34	2.84
ZZZZZZ	WW117644.D	04/12/13	03:32	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: JB33197
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Check Std:	GWW4176-CC4171	**Injection Date:**	04/12/13
Lab File ID:	WW117660.D	**Injection Time:**	16:14
Instrument ID:	GCWW	**Method:**	SW846-8011

	S1 [a] RT	S1 [b] RT
Check Std	3.32	2.82

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
JB33197-11	WW117662.D	04/12/13	17:04	3.34	2.84
ZZZZZZ	WW117663.D	04/12/13	17:21	3.34	2.84
OP65139-MB1	WW117664.D	04/12/13	17:38	3.34	2.83
OP65139-BS1	WW117665.D	04/12/13	17:54	3.34	2.84
OP65139-MS	WW117666.D	04/12/13	18:11	3.34	2.84
OP65139-MSD	WW117667.D	04/12/13	18:28	3.34	2.84
JB33559-10	WW117668.D	04/12/13	18:45	3.34	2.84
ZZZZZZ	WW117669.D	04/12/13	19:02	3.34	2.84
ZZZZZZ	WW117670.D	04/12/13	19:18	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

Initial Calibration Summary

Job Number: JB33197
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
```

10.6.1

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Initial Calibration Verification

Job Number: JB33197
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
```

10.6.2

10

Continuing Calibration Summary

Job Number: JB33197 **Sample:** GWW4175-CC4171
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** WW117613.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\WW4175\WW117613.D\ECD1A.CH Vial: 3
 Signal #2 : C:\msdchem\1\DATA\WW4175\WW117613.D\ECD2B.CH
 Acq On    : 11 Apr 2013   5:22 pm                    Operator: vinced
 Sample    : cc4171-1.0                               Inst    : HP G1530A
 Misc      : OP65213,Gww4175,35,,,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 15:40:06 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   1.508 E6  22.6#  87  -0.06    2.76- 2.82
 2     1,2-Dibromoethane       10.377   9.931 E6   4.3  100  -0.02    2.94- 3.00
 3     1,2,3-Trichloropropane   0.924   0.890 E6   3.7  116  -0.01    4.36- 4.42
 4     1,2-Dibromo-3-Chloropr  19.392  22.600 E6 -16.5# 114   0.00    5.99- 6.08

*****  Signal #2   *****

 1 S   2-Bromo-1-Chloropropan 566.871 486.025 E3  14.3   91  -0.05    3.26- 3.32
 2     1,2-Dibromoethane        3.133   2.693 E6  14.0   85  -0.02    3.69- 3.75
 3     1,2,3-Trichloropropane 308.737 221.103 E3  28.4#  71   0.00    5.17- 5.24
 4     1,2-Dibromo-3-Chloropr   5.392   5.640 E6  -4.6  108   0.00    7.10- 7.16
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    WW117503.D 504M4171.M       Fri Apr 12 16:00:53 2013
```

10.6.3

10

Continuing Calibration Summary

Job Number: JB33197 **Sample:** GWW4175-CC4171
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** WW117623.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\WW4175\WW117623.D\ECD1A.CH Vial: 2
 Signal #2 : C:\msdchem\1\DATA\WW4175\WW117623.D\ECD2B.CH
 Acq On    : 11 Apr 2013   9:03 pm                    Operator: vinced
 Sample    : cc4171-0.5                               Inst    : HP G1530A
 Misc      : OP65137,Gww4175,20,,,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 15:40:06 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   1.899 E6   2.6  104  -0.01    2.80- 2.86
 2     1,2-Dibromoethane       10.377  10.151 E6   2.2  100   0.02    2.98- 3.04
 3     1,2,3-Trichloropropane   0.924   0.670 E6  27.5# 100   0.02    4.38- 4.44
 4     1,2-Dibromo-3-Chloropr  19.392  19.810 E6  -2.2  104   0.01    6.00- 6.10

*****  Signal #2   *****

 1 S   2-Bromo-1-Chloropropan 566.871 587.604 E3  -3.7  107  -0.01    3.30- 3.36
 2     1,2-Dibromoethane        3.133   3.162 E6  -0.9  103   0.02    3.72- 3.78
 3     1,2,3-Trichloropropane 308.737 320.295 E3  -3.7  109   0.01    5.19- 5.26
 4     1,2-Dibromo-3-Chloropr   5.392   5.673 E6  -5.2  109   0.01    7.11- 7.17
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    WW117502.D 504M4171.M       Fri Apr 12 16:01:30 2013
```

10.6.4

10

Continuing Calibration Summary

Job Number: JB33197 **Sample:** GWW4175-CC4171
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** WW117634.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\WW4175\WW117634.D\ECD1A.CH Vial: 3
 Signal #2 : C:\msdchem\1\DATA\WW4175\WW117634.D\ECD2B.CH
 Acq On    : 12 Apr 2013  12:44 am                    Operator: vinced
 Sample    : cc4171-1.0                               Inst    : HP G1530A
 Misc      : OP65137,Gww4175,35,,,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 15:40:06 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   1.885 E6   3.3  109   0.00    2.81- 2.87
 2     1,2-Dibromoethane       10.377  10.540 E6  -1.6  106   0.04    2.99- 3.05
 3     1,2,3-Trichloropropane   0.924   1.120 E6 -21.2# 146   0.02    4.39- 4.45
 4     1,2-Dibromo-3-Chloropr  19.392  22.827 E6 -17.7# 115   0.02    6.01- 6.10

*****  Signal #2   *****

 1 S   2-Bromo-1-Chloropropan 566.871 571.102 E3  -0.7  107   0.00    3.31- 3.37
 2     1,2-Dibromoethane        3.133   3.298 E6  -5.3  105   0.03    3.73- 3.79
 3     1,2,3-Trichloropropane 308.737 357.921 E3 -15.9# 116   0.02    5.20- 5.27
 4     1,2-Dibromo-3-Chloropr   5.392   6.553 E6 -21.5# 126   0.01    7.11- 7.17
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    WW117503.D 504M4171.M       Fri Apr 12 16:00:55 2013
```

10.6.5

10

Continuing Calibration Summary

Job Number: JB33197 **Sample:** GWW4175-CC4171
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** WW117645.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\WW4175\WW117645.D\ECD1A.CH Vial: 2
 Signal #2 : C:\msdchem\1\DATA\WW4175\WW117645.D\ECD2B.CH
 Acq On    : 12 Apr 2013   4:25 am                    Operator: vinced
 Sample    : cc4171-0.5                               Inst    : HP G1530A
 Misc      : OP65137,Gww4175,35,,,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 15:40:06 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   1.692 E6  13.2   93   0.00    2.82- 2.88
 2     1,2-Dibromoethane       10.377   9.099 E6  12.3   90   0.05    3.00- 3.06
 3     1,2,3-Trichloropropane   0.924   0.716 E6  22.5# 106   0.03    4.40- 4.46
 4     1,2-Dibromo-3-Chloropr  19.392  18.193 E6   6.2   95   0.02    6.02- 6.11

*****  Signal #2   *****

 1 S   2-Bromo-1-Chloropropan 566.871 583.308 E3  -2.9  106   0.00    3.32- 3.38
 2     1,2-Dibromoethane        3.133   3.329 E6  -6.3  108   0.03    3.74- 3.80
 3     1,2,3-Trichloropropane 308.737 316.792 E3  -2.6  108   0.02    5.20- 5.27
 4     1,2-Dibromo-3-Chloropr   5.392   5.666 E6  -5.1  109   0.01    7.12- 7.18
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    WW117502.D 504M4171.M       Fri Apr 12 16:01:32 2013
```

10.6.6

10

Continuing Calibration Summary

Job Number: JB33197 **Sample:** GWW4176-CC4171
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** WW117660.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\WW4176\WW117660.D\ECD1A.CH Vial: 3
 Signal #2 : C:\msdchem\1\DATA\WW4176\WW117660.D\ECD2B.CH
 Acq On    : 12 Apr 2013   4:14 pm                    Operator: vinced
 Sample    : cc4171-1.0                               Inst    : HP G1530A
 Misc      : OP65140,Gww4176,35,,,2,4                 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 11:59:51 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   1.648 E6  15.4#  95  -0.01    2.79- 2.85
 2     1,2-Dibromoethane       10.377   9.281 E6  10.6   94  -0.02    2.98- 3.04
 3     1,2,3-Trichloropropane   0.924   0.931 E6  -0.8  121  -0.01    4.38- 4.44
 4     1,2-Dibromo-3-Chloropr  19.392  18.081 E6   6.8   91   0.00    6.00- 6.09

*****  Signal #2   *****

 1 S   2-Bromo-1-Chloropropan 566.871 486.935 E3  14.1   91  -0.01    3.29- 3.35
 2     1,2-Dibromoethane        3.133   2.807 E6  10.4   89  -0.01    3.71- 3.77
 3     1,2,3-Trichloropropane 308.737 286.011 E3   7.4   92  -0.01    5.18- 5.25
 4     1,2-Dibromo-3-Chloropr   5.392   5.018 E6   6.9   96   0.00    7.11- 7.17
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    WW117503.D 504M4171.M       Mon Apr 15 11:02:09 2013
```

10.6.7

10

Continuing Calibration Summary

Job Number: JB33197 **Sample:** GWW4176-CC4171
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** WW117671.D
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\WW4176\WW117671.D\ECD1A.CH Vial: 2
 Signal #2 : C:\msdchem\1\DATA\WW4176\WW117671.D\ECD2B.CH
 Acq On    : 12 Apr 2013   8:11 pm                    Operator: vinced
 Sample    : cc4171-0.5                               Inst    : HP G1530A
 Misc      : OP65139,Gww4176,35,,,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 11:59:51 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   1.897 E6   2.7  104   0.00    2.81- 2.87
 2     1,2-Dibromoethane       10.377  10.324 E6   0.5  102   0.00    3.00- 3.06
 3     1,2,3-Trichloropropane   0.924   0.801 E6  13.3  119   0.00    4.40- 4.46
 4     1,2-Dibromo-3-Chloropr  19.392  21.737 E6 -12.1  114   0.00    6.02- 6.11

*****  Signal #2   *****

 1 S   2-Bromo-1-Chloropropan 566.871 615.758 E3  -8.6  112   0.00    3.31- 3.37
 2     1,2-Dibromoethane        3.133   3.392 E6  -8.3  110   0.00    3.73- 3.79
 3     1,2,3-Trichloropropane 308.737 326.364 E3  -5.7  111   0.00    5.20- 5.27
 4     1,2-Dibromo-3-Chloropr   5.392   6.663 E6 -23.6# 128   0.00    7.12- 7.18
-----------------------------------------------------------------------------
-----------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    WW117502.D 504M4171.M       Mon Apr 15 11:02:38 2013
```

10.6.8

10

New Jersey

ACCUTEST LABORATORIES

GC Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4175\
Data File : WW117625.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 11 Apr 2013 9:36 pm
Operator : vinced
Sample : jb33197-1
Misc : OP65137,Gww4175,35,,,2,1
ALS Vial : 27 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 12 15:33:27 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 15:25:48 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...	2.830f	3.332f	17059171	4838992	8.751	8.536
Spiked Amount 10.000			Recovery	=	87.51%	85.36%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

11.1.1

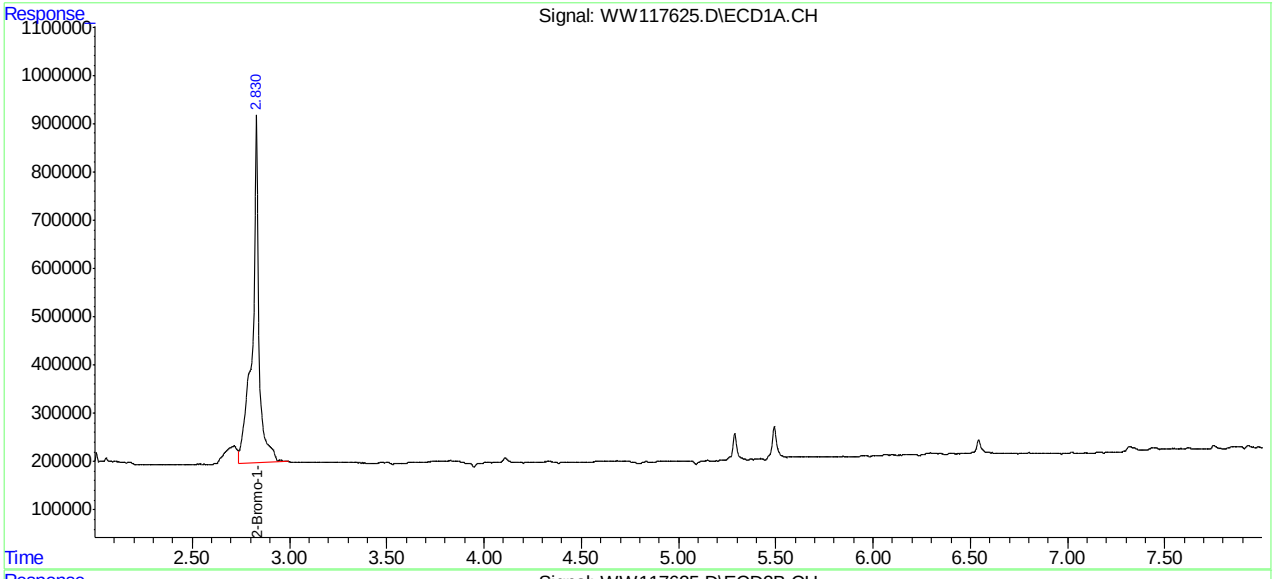
11

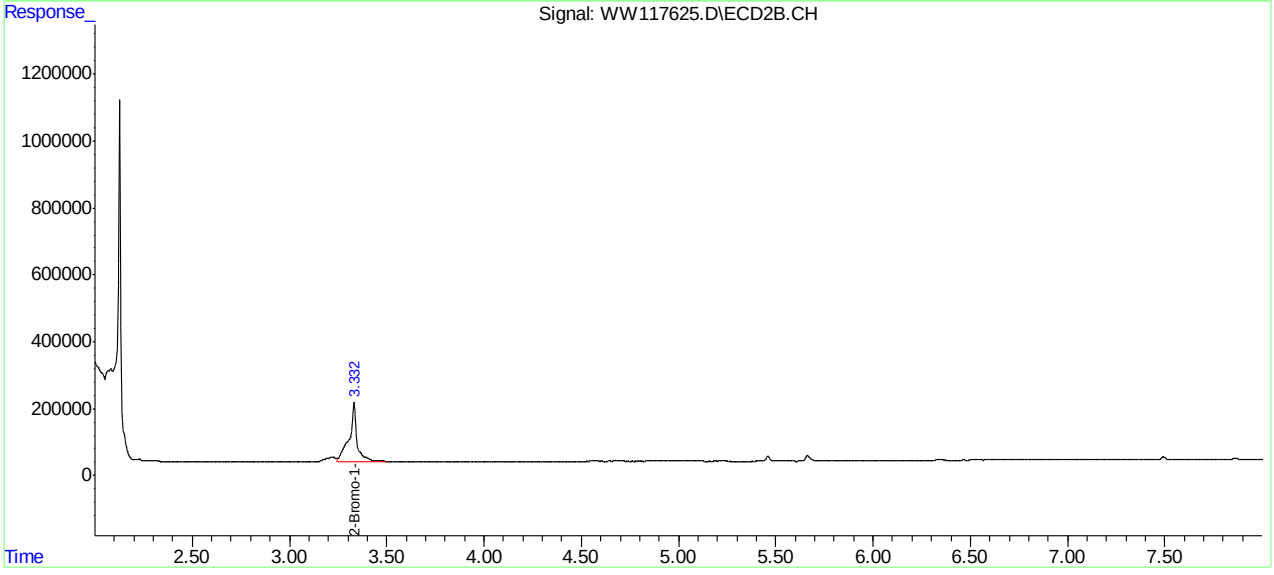
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4175\
Data File : WW117625.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 11 Apr 2013 9:36 pm
Operator : vinced
Sample : jb33197-1
Misc : OP65137,Gww4175,35,,,2,1
ALS Vial : 27 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 12 15:33:27 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 15:25:48 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\WW4175\
Data File : WW117626.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 11 Apr 2013 9:53 pm
Operator : vinced
Sample : jb33197-2
Misc : OP65137,Gww4175,35,,,2,1
ALS Vial : 28 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 12 15:34:05 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 15:25:48 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...	2.828f	3.330f	15880701	4683562	8.147	8.262
Spiked Amount 10.000			Recovery	=	81.47%	82.62%
Target Compounds						

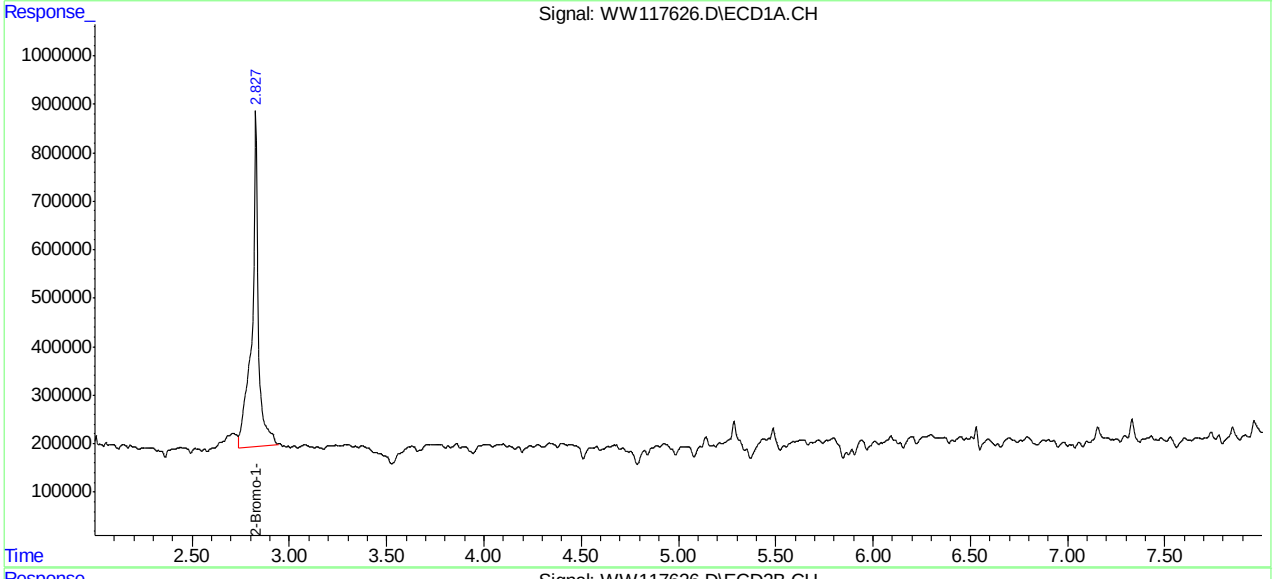
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

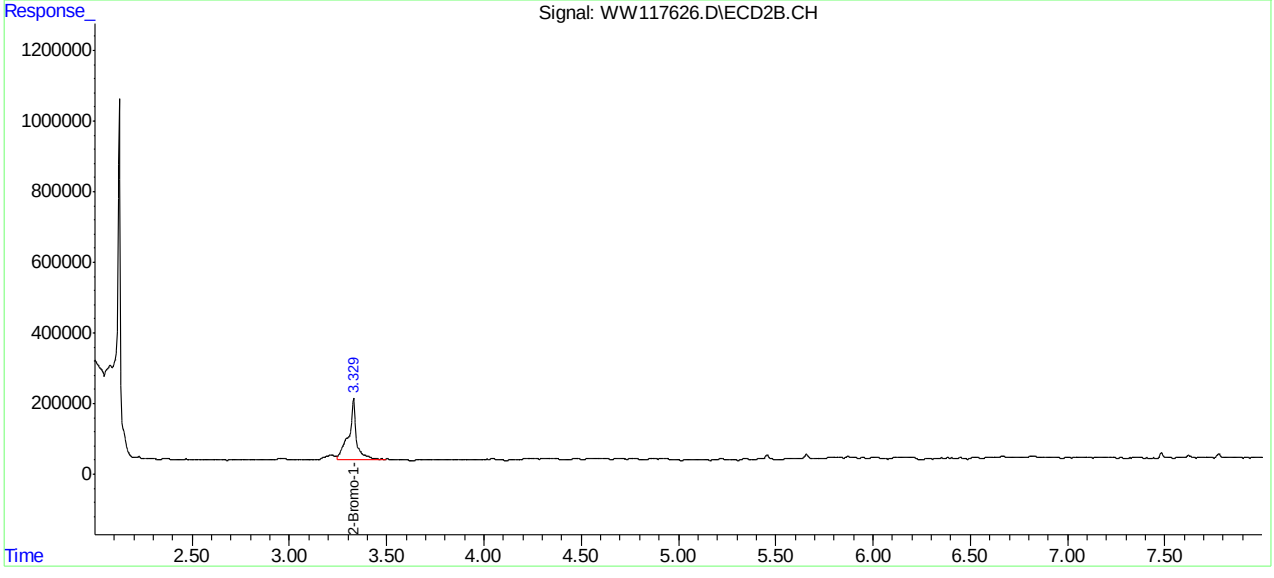
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4175\
Data File : WW117626.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 11 Apr 2013 9:53 pm
Operator : vinced
Sample : jb33197-2
Misc : OP65137,Gww4175,35,,,2,1
ALS Vial : 28 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 12 15:34:05 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 15:25:48 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
04/17/13 22:49

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4175\
Data File : WW117627.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 11 Apr 2013 10:10 pm
Operator : vinced
Sample : jb33197-3
Misc : OP65137,Gww4175,35,,,2,1
ALS Vial : 29 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 12 15:34:34 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 15:25:48 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...	2.813	3.317	13735484	4353499	7.046m	7.680
Spiked Amount 10.000			Recovery =		70.46%	76.80%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

11.1.3

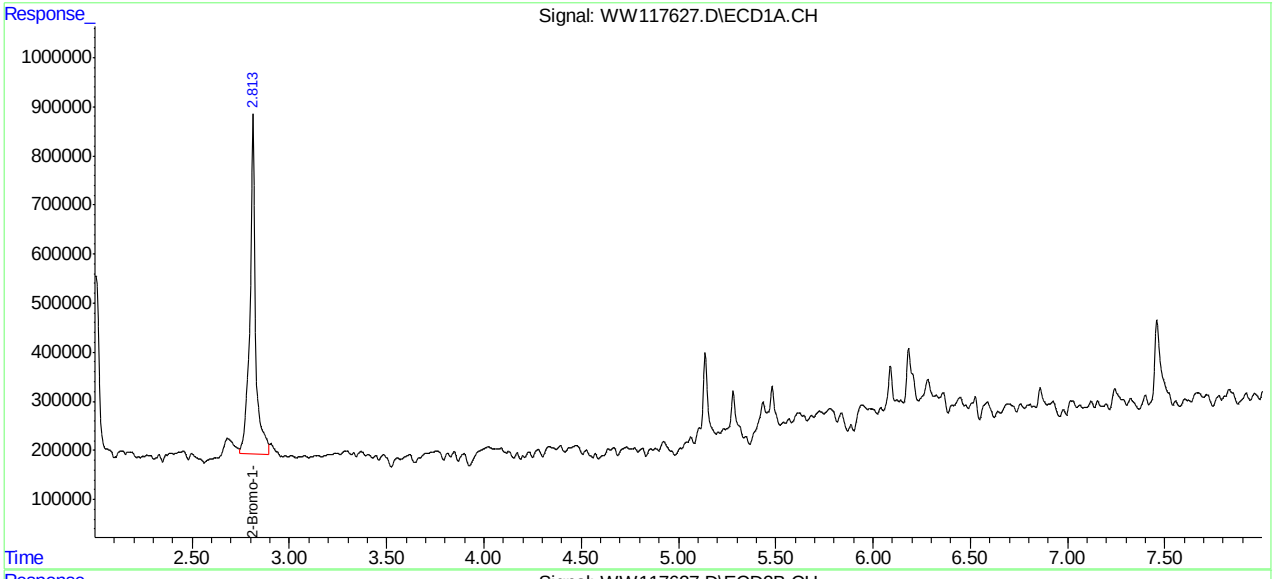
11

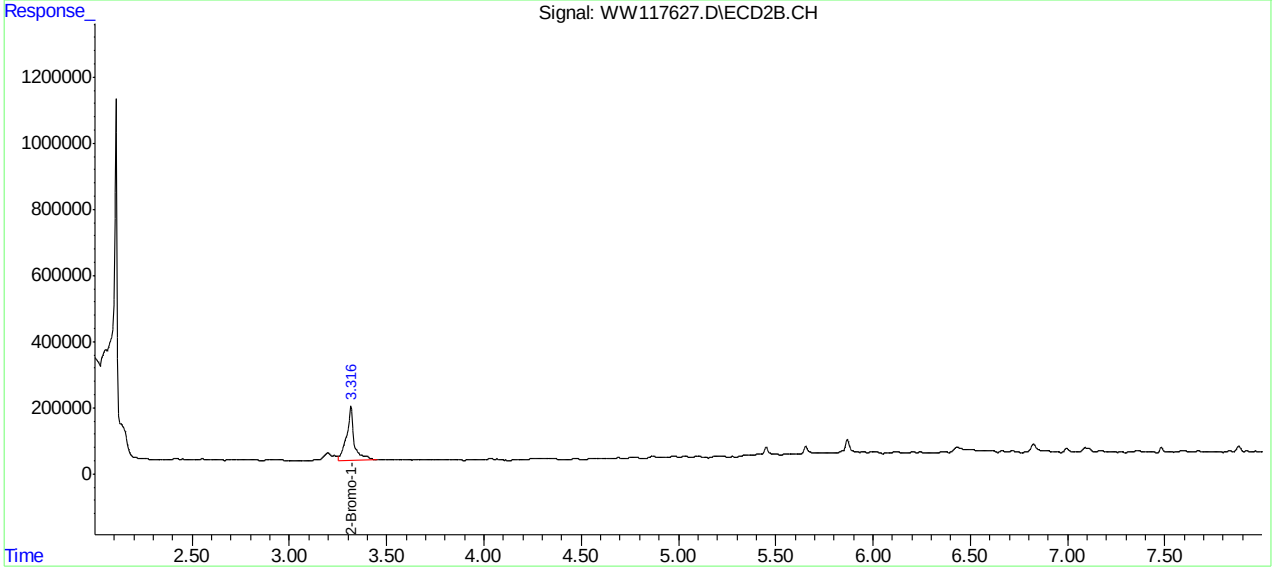
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4175\
Data File : WW117627.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 11 Apr 2013 10:10 pm
Operator : vinced
Sample : jb33197-3
Misc : OP65137,Gww4175,35,,,2,1
ALS Vial : 29 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 12 15:34:34 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 15:25:48 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 Fri Apr 12 15:34:50 2013 Page: 2

Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
04/17/13 22:49

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4175\
Data File : WW117628.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 11 Apr 2013 10:27 pm
Operator : vinced
Sample : jb33197-4
Misc : OP65137,Gww4175,35,,,2,1
ALS Vial : 30 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 12 15:35:12 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 08:46:33 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...	2.829	3.331	16251669	5126656	8.337m	9.044
Spiked Amount 10.000			Recovery =		83.37%	90.44%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

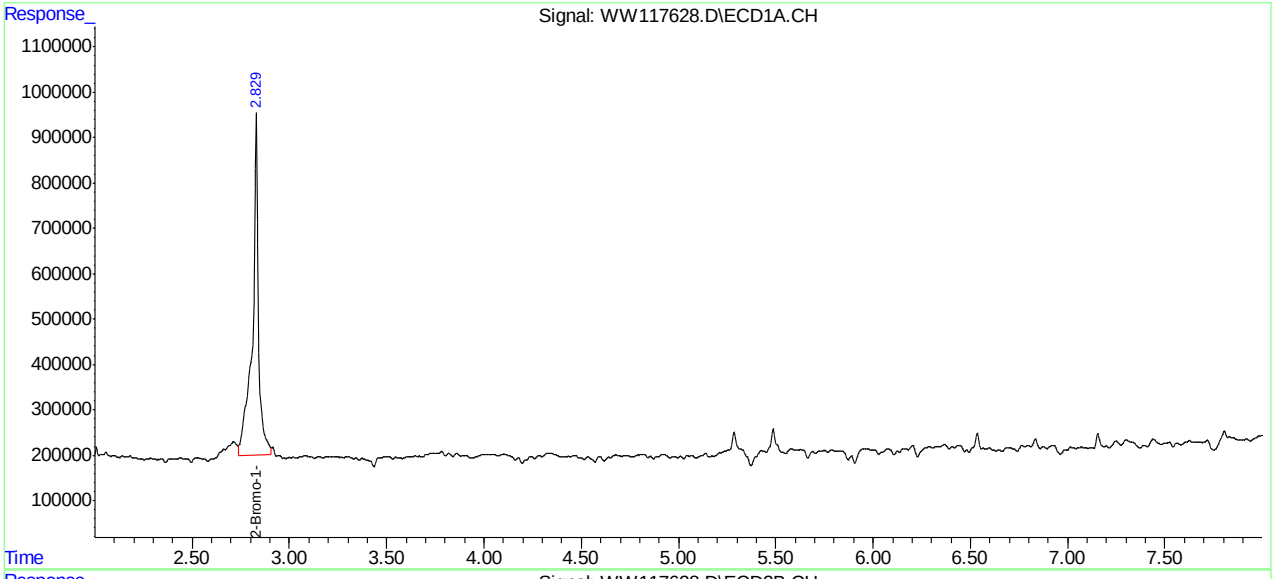
11.1.4
11

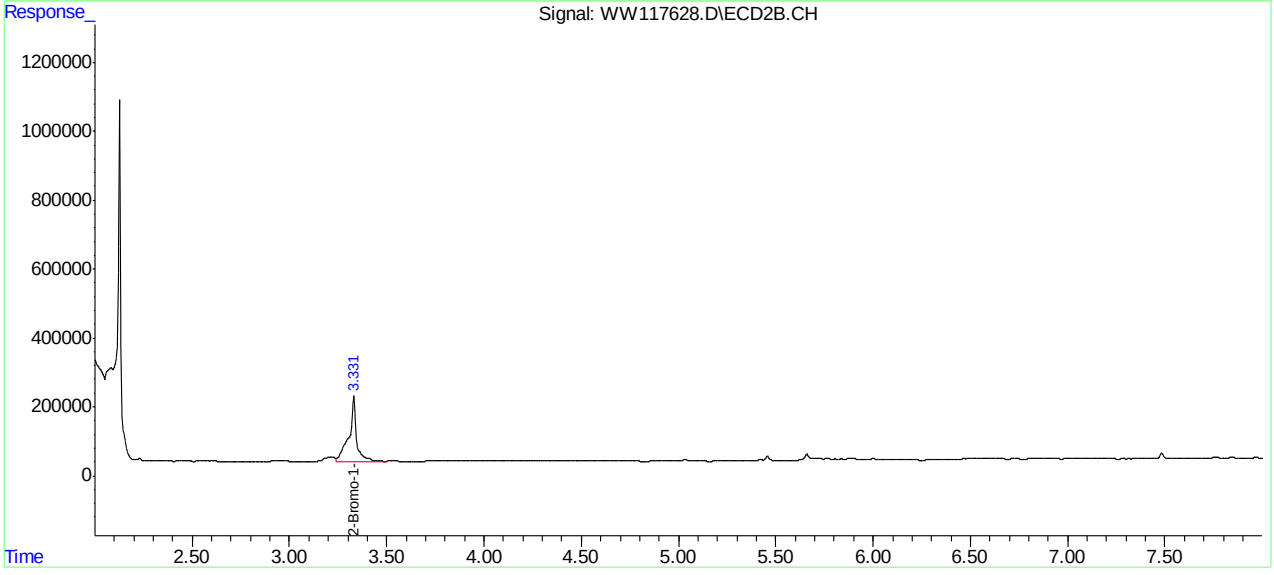
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4175\
Data File : WW117628.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 11 Apr 2013 10:27 pm
Operator : vinced
Sample : jb33197-4
Misc : OP65137,Gww4175,35,,,2,1
ALS Vial : 30 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 12 15:35:12 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 08:46:33 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 Fri Apr 12 15:35:17 2013 Page: 2

Manual Integrations
APPROVED
(compounds with "m" flag)
Cheng-Hwan Ao
04/17/13 22:49

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4175\
Data File : WW117629.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 11 Apr 2013 10:43 pm
Operator : vinced
Sample : jb33197-5
Misc : OP65137,Gww4175,35,,,2,1
ALS Vial : 31 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 12 15:35:31 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 08:46:33 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...	2.837	3.338	16676555	4912351	8.555m	8.666
Spiked Amount 10.000			Recovery	=	85.55%	86.66%
Target Compounds						

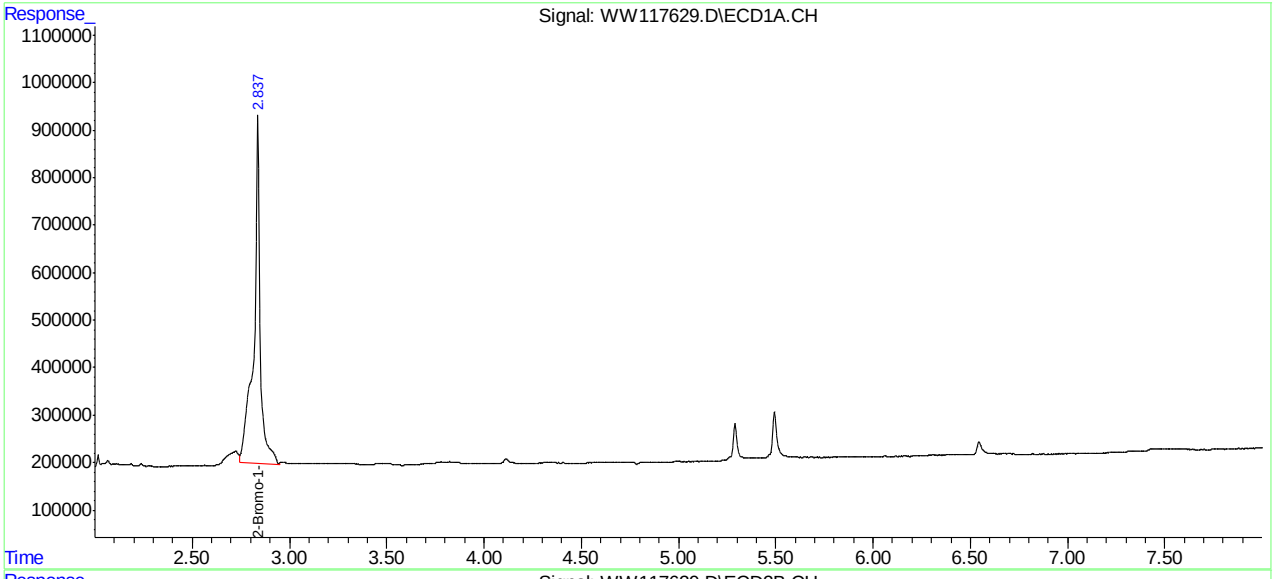
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

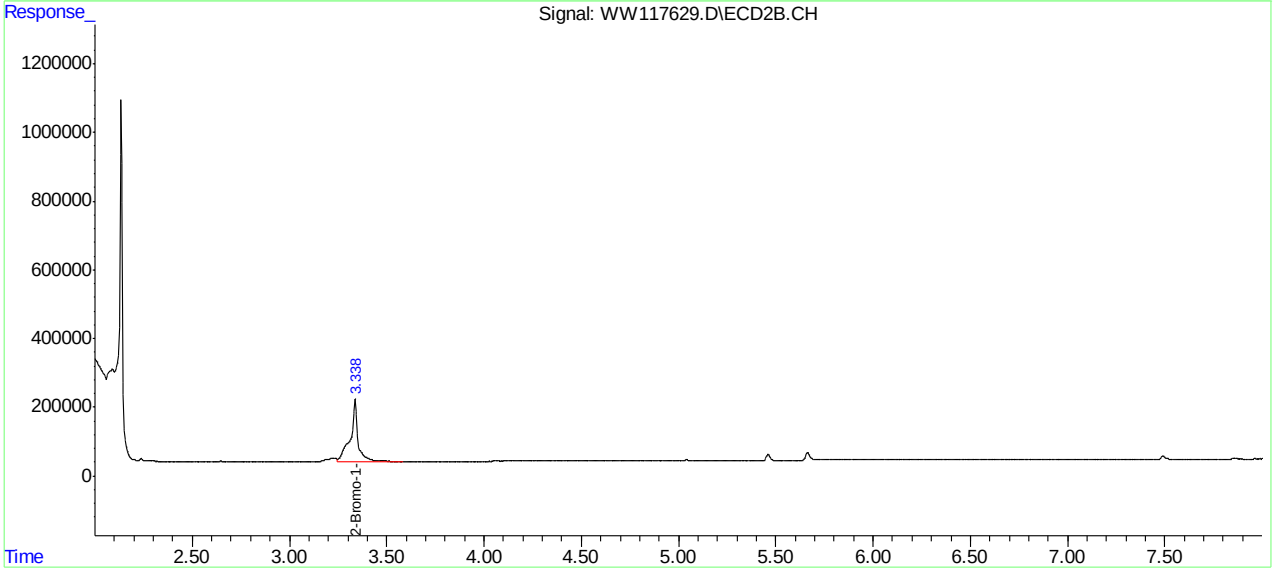
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4175\
Data File : WW117629.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 11 Apr 2013 10:43 pm
Operator : vinced
Sample : jb33197-5
Misc : OP65137,Gww4175,35,,,2,1
ALS Vial : 31 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 12 15:35:31 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 08:46:33 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\WW4175\
Data File : WW117630.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 11 Apr 2013 11:00 pm
Operator : vinced
Sample : jb33197-6
Misc : OP65137,Gww4175,35,,,2,1
ALS Vial : 32 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 12 15:35:54 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 15:25:48 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...	2.829f	3.331f	17261841	4808343	8.855	8.482
Spiked Amount 10.000			Recovery	=	88.55%	84.82%
Target Compounds						

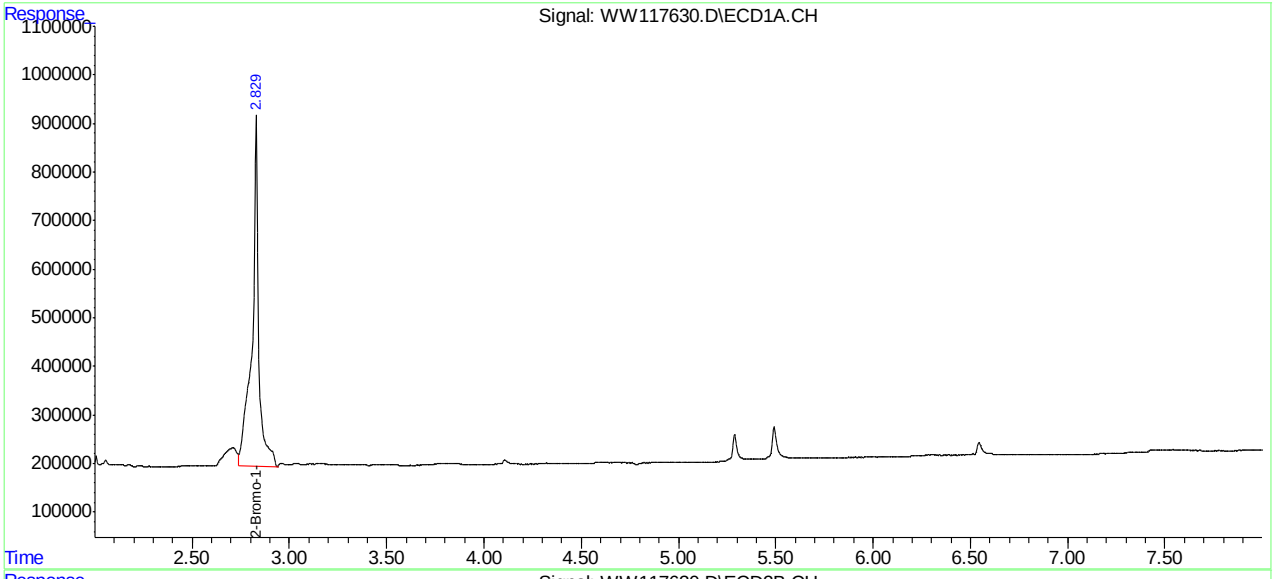
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

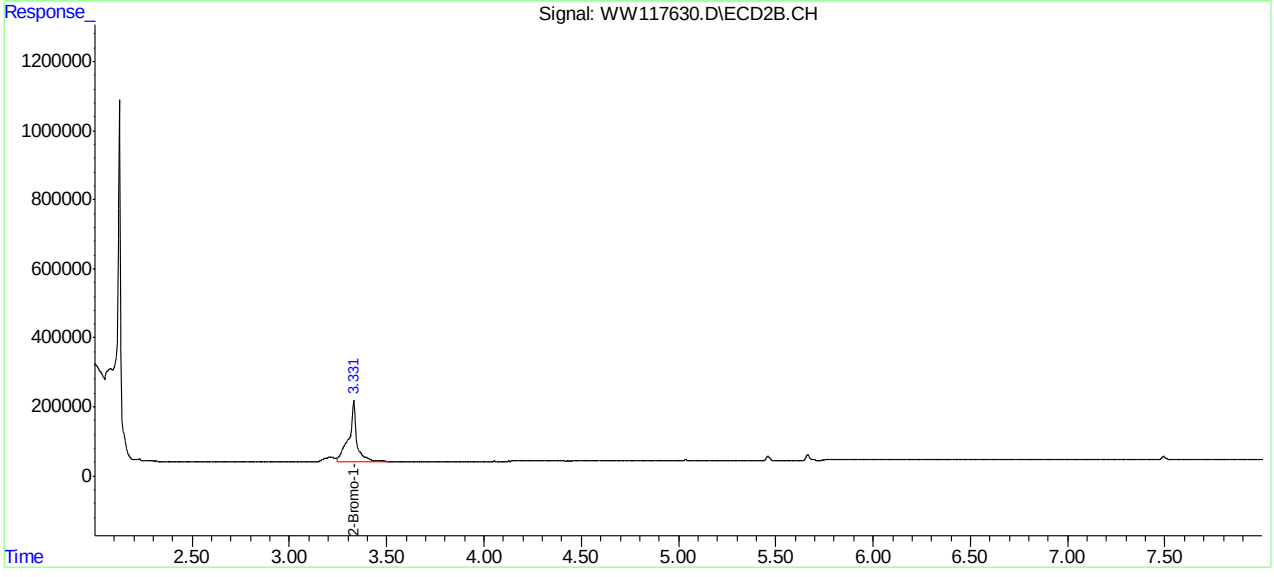
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4175\
Data File : WW117630.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 11 Apr 2013 11:00 pm
Operator : vinced
Sample : jb33197-6
Misc : OP65137,Gww4175,35,,,2,1
ALS Vial : 32 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 12 15:35:54 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 15:25:48 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\WW4175\
Data File : WW117631.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 11 Apr 2013 11:17 pm
Operator : vinced
Sample : jb33197-7
Misc : OP65137,Gww4175,35,,,2,1
ALS Vial : 33 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 12 15:36:12 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 15:25:48 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...	2.838f	3.338f	15674876	4563532	8.041	8.050
Spiked Amount 10.000			Recovery	=	80.41%	80.50%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

11.1.7

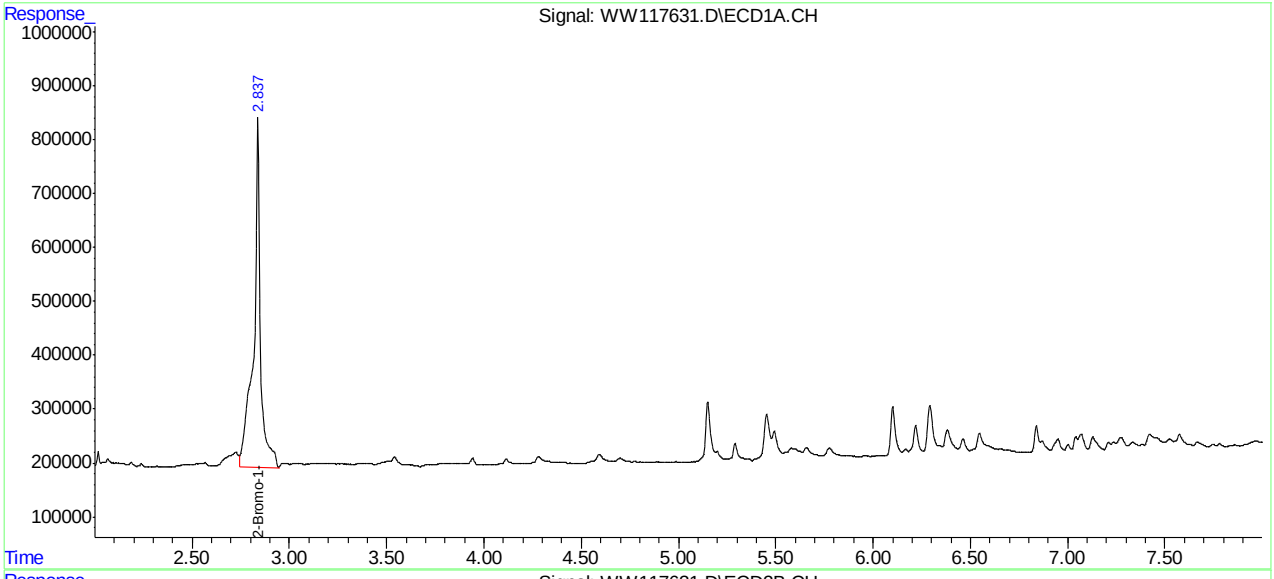
11

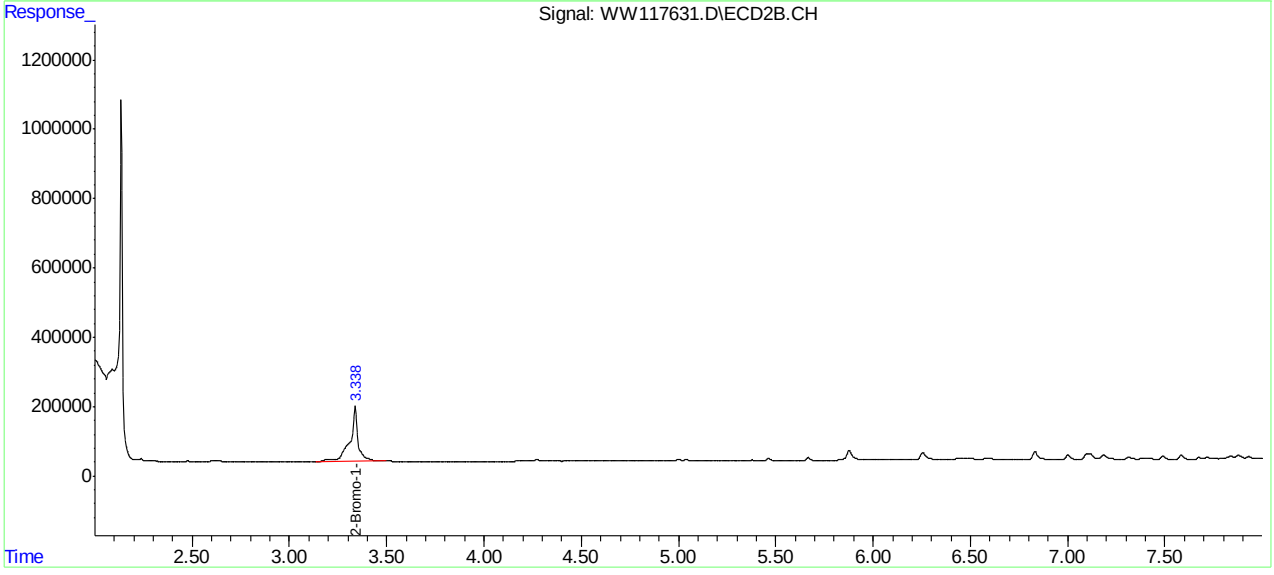
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4175\
Data File : WW117631.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 11 Apr 2013 11:17 pm
Operator : vinced
Sample : jb33197-7
Misc : OP65137,Gww4175,35,,,2,1
ALS Vial : 33 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 12 15:36:12 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 15:25:48 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
04/17/13 22:49

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4175\
Data File : WW117632.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 11 Apr 2013 11:33 pm
Operator : vinced
Sample : jb33197-8
Misc : OP65137,Gww4175,35,,,2,1
ALS Vial : 34 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 12 15:36:45 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 15:25:48 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...	2.840f	3.341f	13767248	4632614	7.063m	8.172
Spiked Amount 10.000			Recovery	=	70.63%	81.72%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

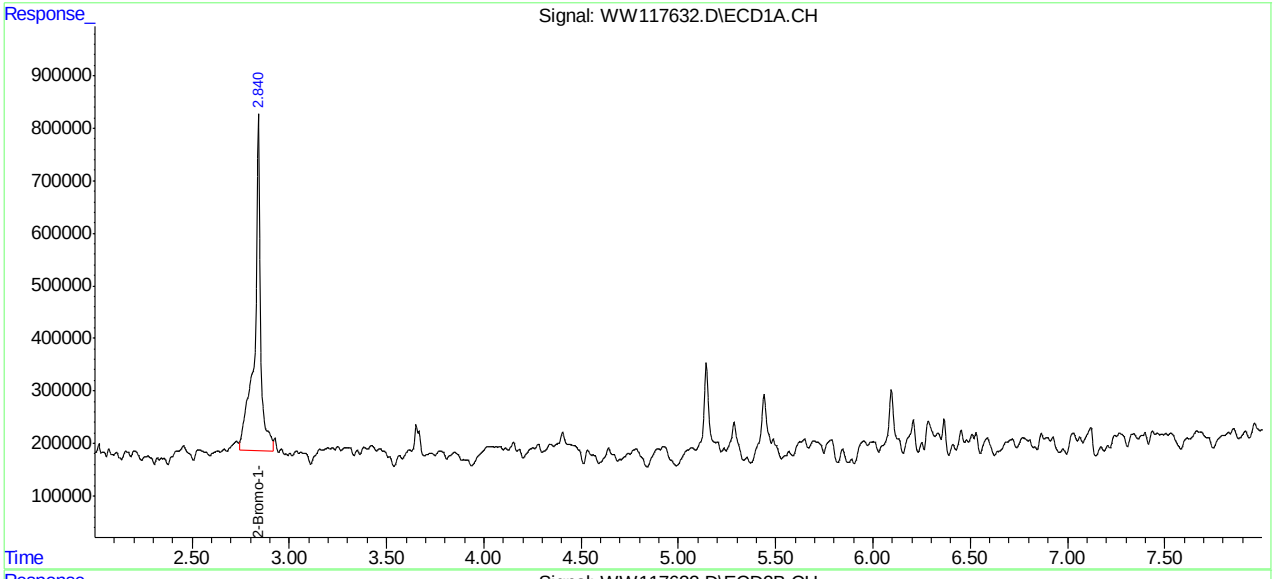
11.1.8
11

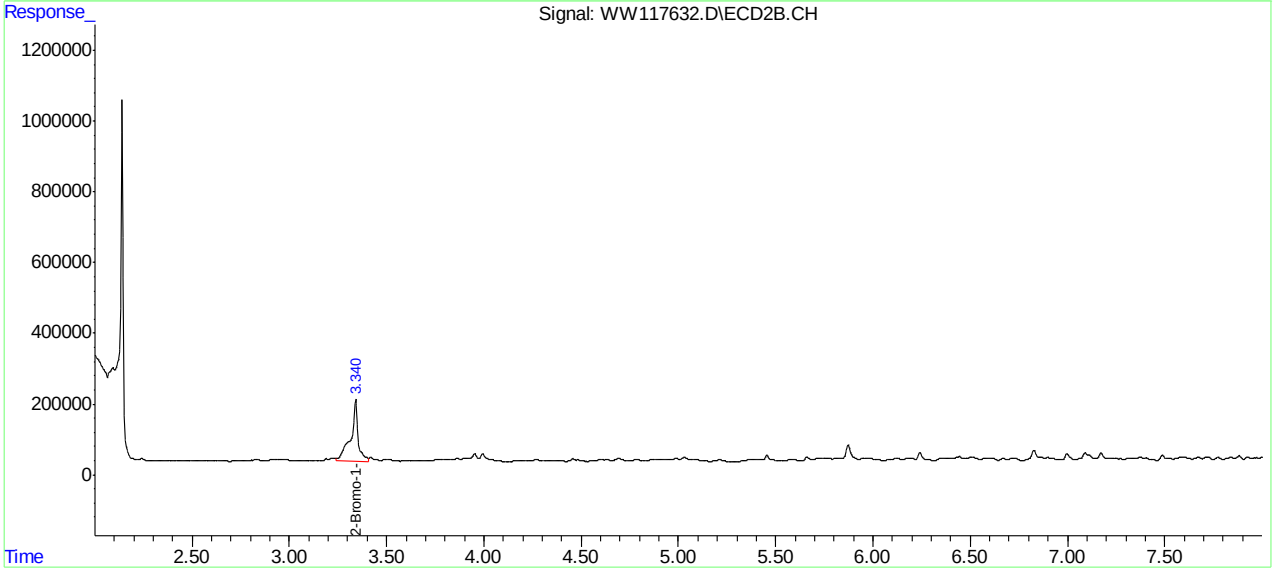
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4175\
Data File : WW117632.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 11 Apr 2013 11:33 pm
Operator : vinced
Sample : jb33197-8
Misc : OP65137,Gww4175,35,,,2,1
ALS Vial : 34 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 12 15:36:45 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 15:25:48 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 Fri Apr 12 15:36:50 2013 Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4175\
Data File : WW117633.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 11 Apr 2013 11:50 pm
Operator : vinced
Sample : jb33197-9
Misc : OP65137,Gww4175,35,,,2,1
ALS Vial : 35 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 12 15:37:01 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 15:25:48 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...	2.836f	3.337f	19324040	5179103	9.913	9.136
Spiked Amount 10.000			Recovery	=	99.13%	91.36%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

11.1.9

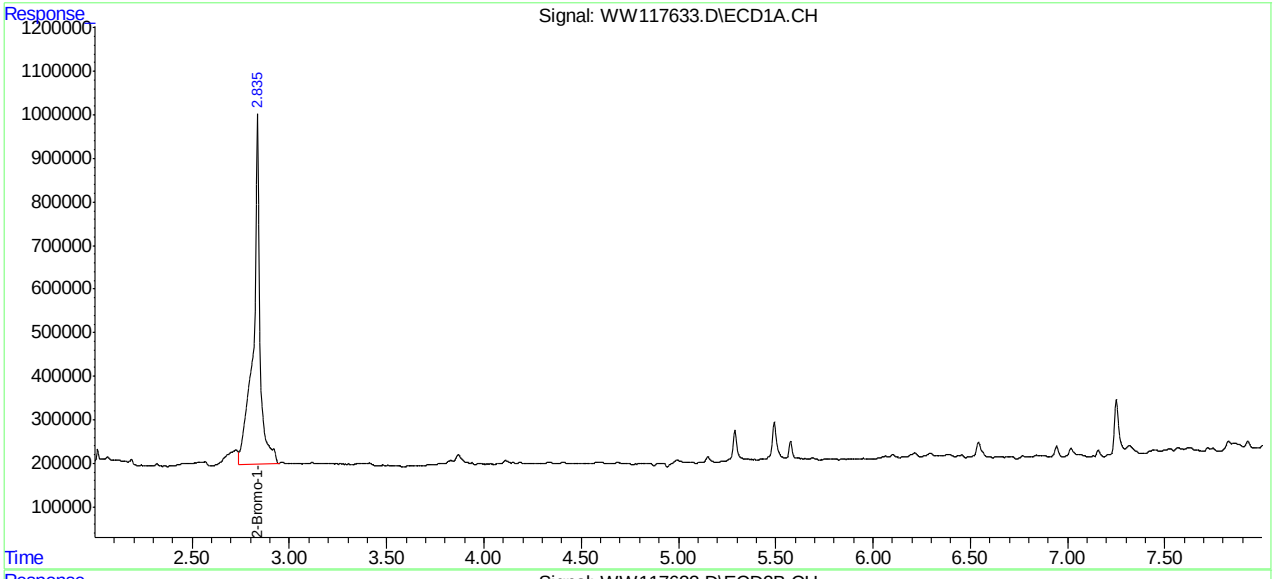
11

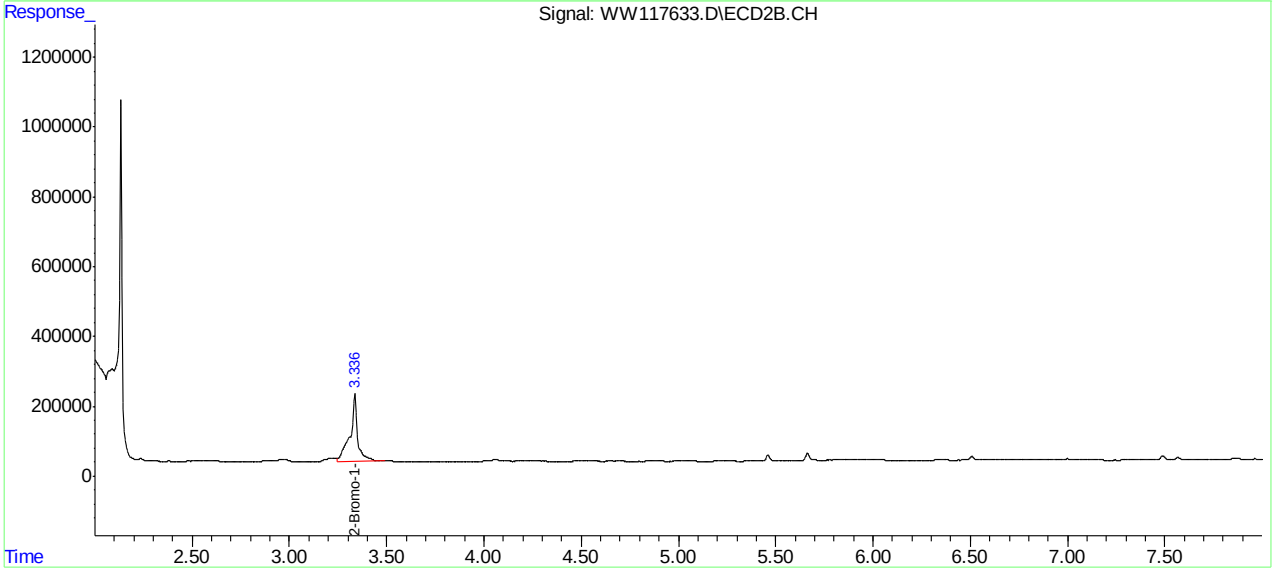
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4175\
Data File : WW117633.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 11 Apr 2013 11:50 pm
Operator : vinced
Sample : jb33197-9
Misc : OP65137,Gww4175,35,,,2,1
ALS Vial : 35 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 12 15:37:01 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 15:25:48 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 Fri Apr 12 15:37:07 2013 Page: 2

Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
04/17/13 22:49

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4175\
Data File : WW117636.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 12 Apr 2013 1:17 am
Operator : vinced
Sample : jb33197-10
Misc : OP65137,Gww4175,35,,,2,1
ALS Vial : 36 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 12 15:38:22 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 15:25:48 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...	2.839f	3.340f	16409689	5190138	8.418m	9.156
Spiked Amount 10.000			Recovery	=	84.18%	91.56%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

11.1.10

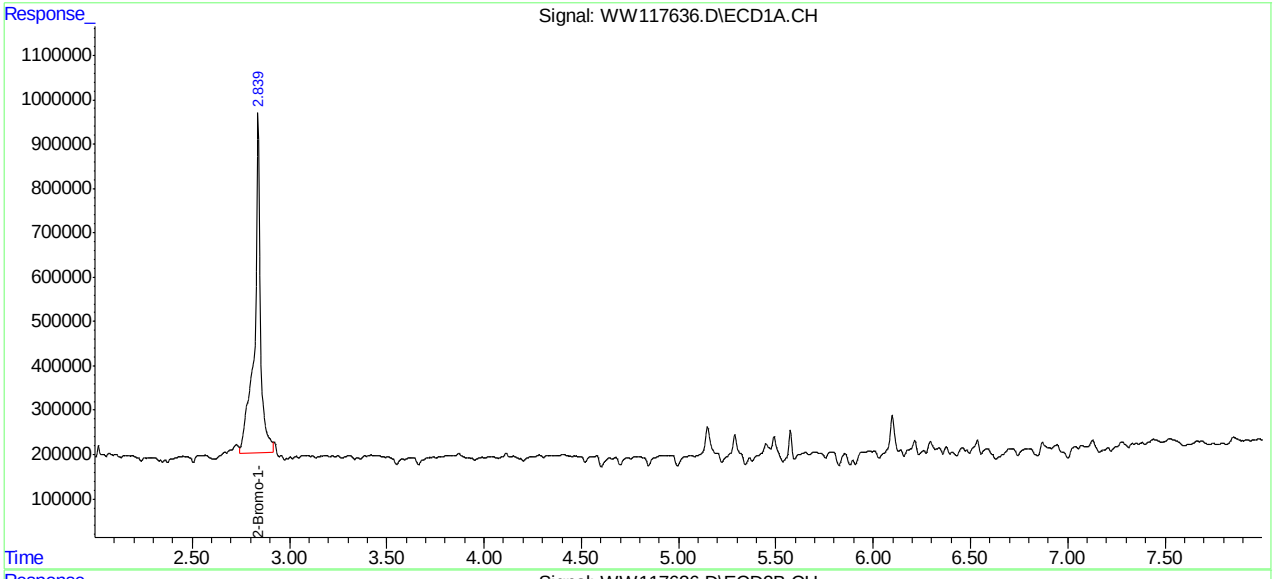
11

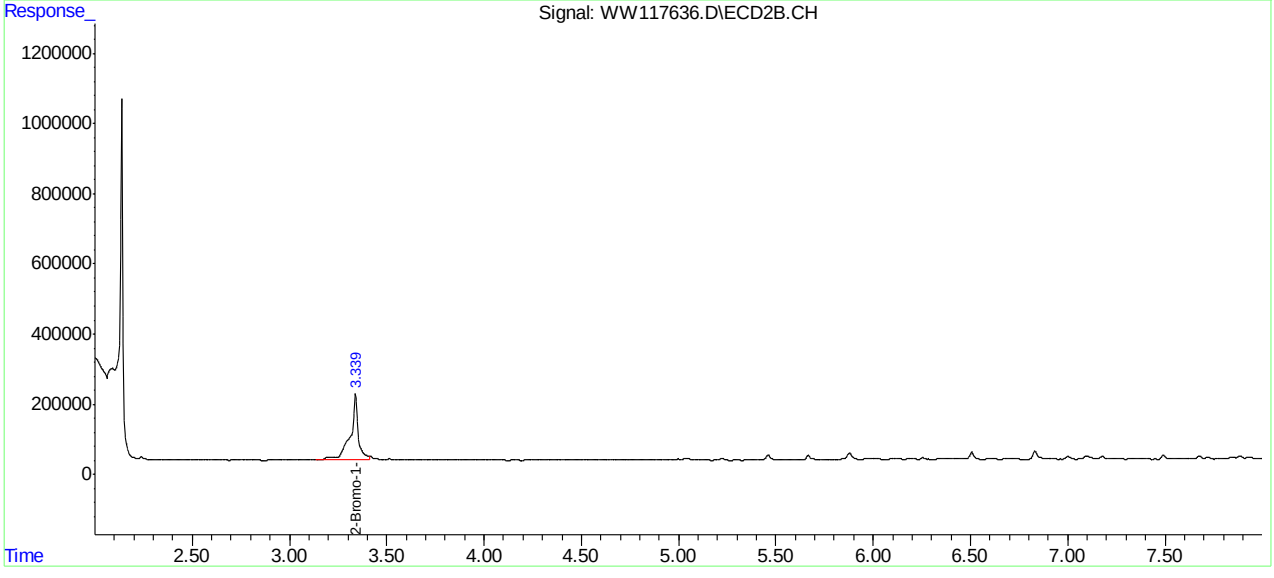
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4175\
Data File : WW117636.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 12 Apr 2013 1:17 am
Operator : vinced
Sample : jb33197-10
Misc : OP65137,Gww4175,35,,,2,1
ALS Vial : 36 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 12 15:38:22 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 15:25:48 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 Fri Apr 12 15:38:30 2013 Page: 2

Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
04/17/13 22:49

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4176\
Data File : WW117662.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 12 Apr 2013 5:04 pm
Operator : vinced
Sample : jb33197-11
Misc : OP65137,Gww4176,35,,,2,1
ALS Vial : 11 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 15 09:50:58 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...	2.842	3.341	17299989	5186990	8.875	9.150m
Spiked Amount 10.000			Recovery	=	88.75%	91.50%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

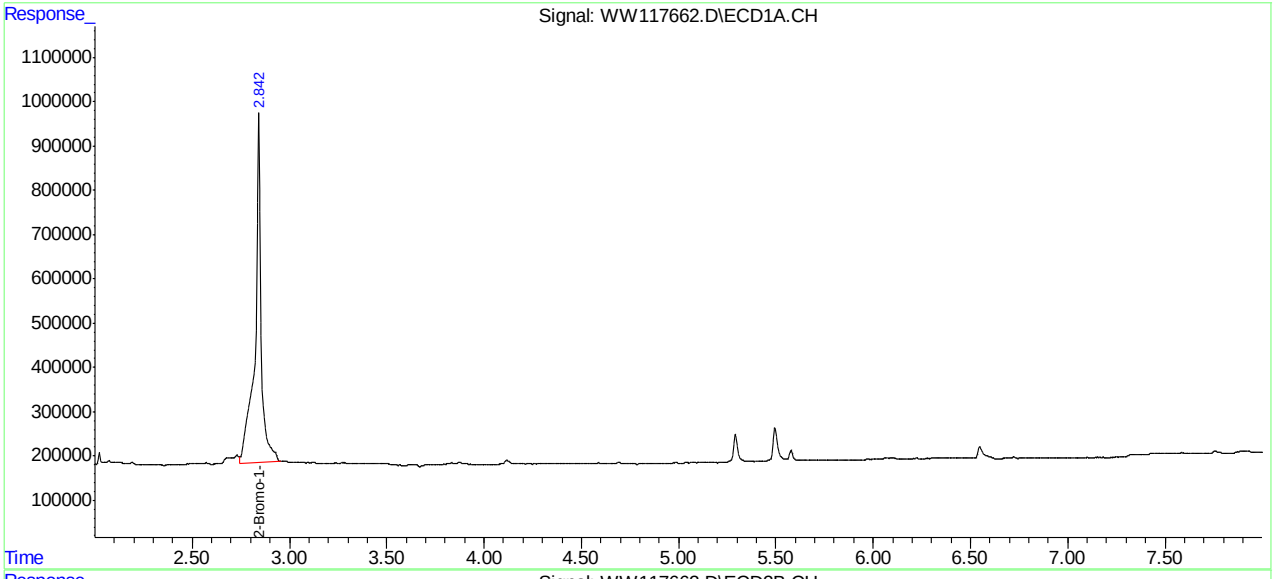
11.1.11
11

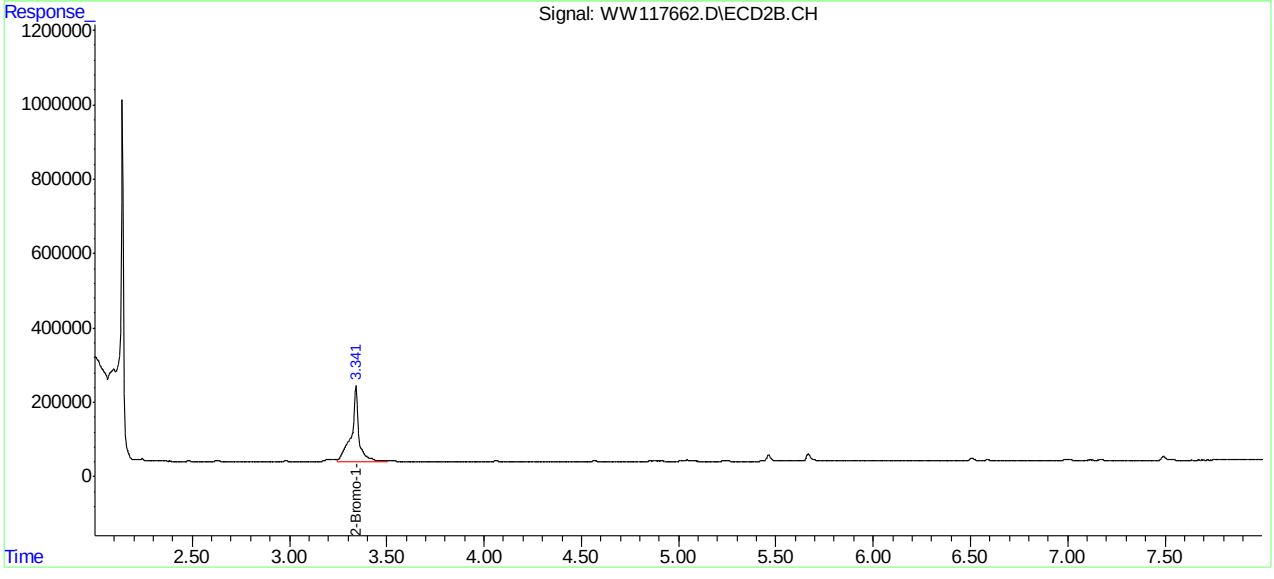
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4176\
Data File : WW117662.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 12 Apr 2013 5:04 pm
Operator : vinced
Sample : jb33197-11
Misc : OP65137,Gww4176,35,,,2,1
ALS Vial : 11 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 15 09:50:58 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 Mon Apr 15 09:51:05 2013 Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4175\
Data File : WW117619.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 11 Apr 2013 7:19 pm
Operator : vinced
Sample : op65137-mb1
Misc : OP65137,Gww4175,35,,,2,1
ALS Vial : 23 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 12 15:26:59 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 15:25:48 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...	2.824f	3.326	14498726	4129923	7.438	7.285
Spiked Amount 10.000			Recovery	=	74.38%	72.85%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

11.2.1

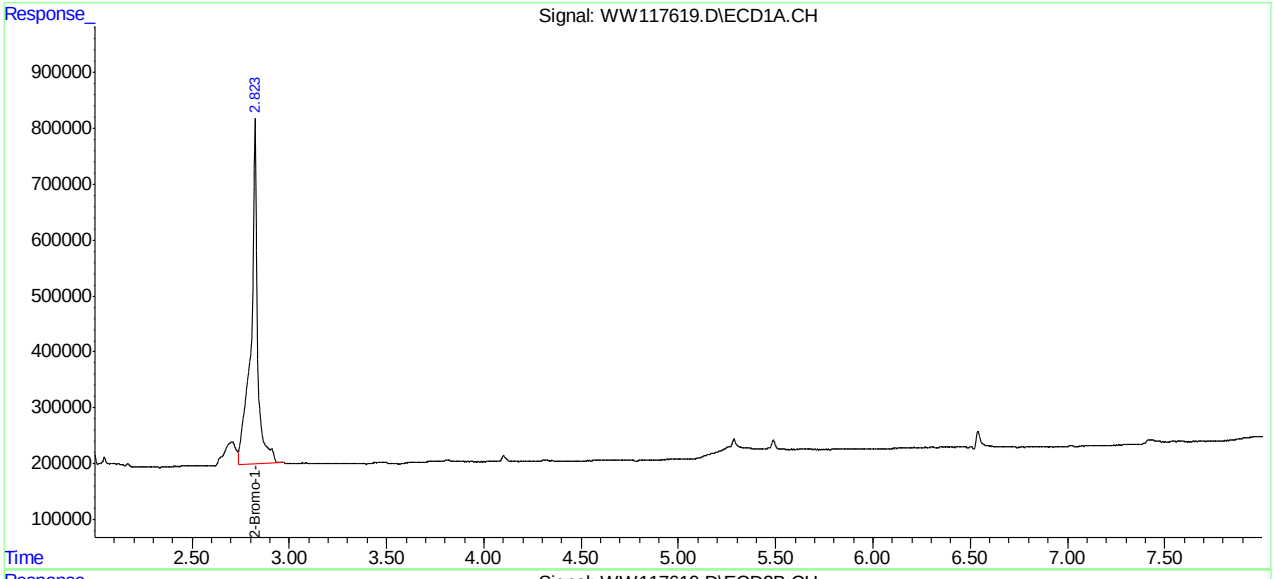
11

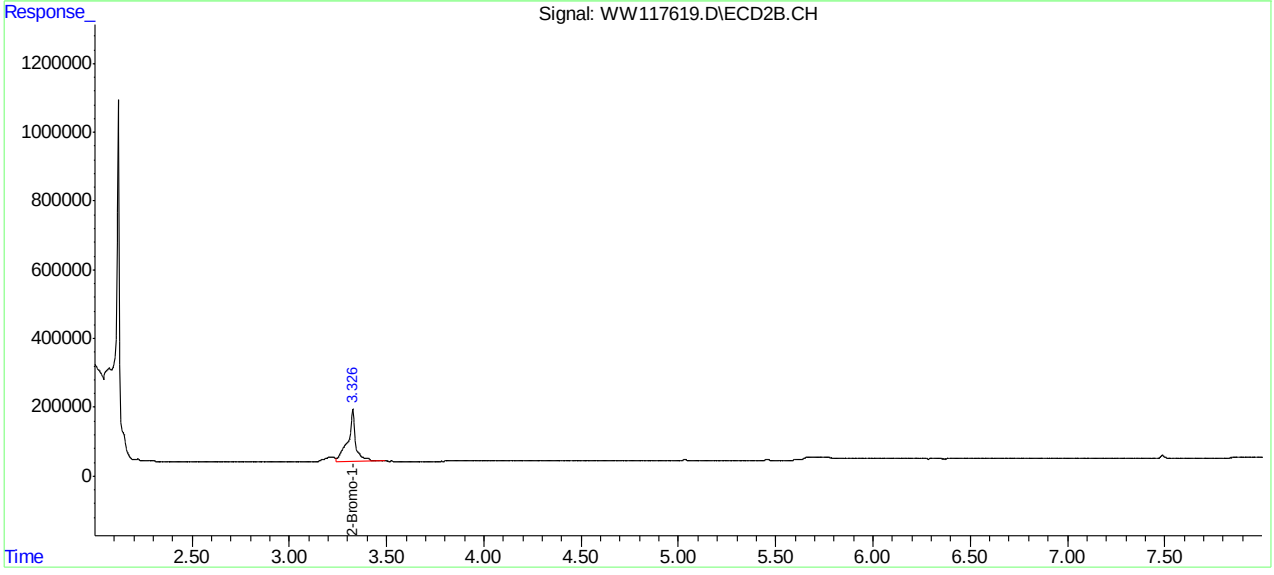
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4175\
Data File : WW117619.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 11 Apr 2013 7:19 pm
Operator : vinced
Sample : op65137-mb1
Misc : OP65137,Gww4175,35,,,2,1
ALS Vial : 23 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Apr 12 15:26:59 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4171.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Apr 12 15:25:48 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 Fri Apr 12 15:27:05 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: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA041013M2L.CSV Date Analyzed: 04/10/13 Methods: SW846 6020A
Analyst: VC Run ID: MA30922
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
09:28	MA30922-STD1	1		STDA
09:33	MA30922-STD2	1		STDB
09:38	MA30922-STD3	1		STDC
09:43	MA30922-STD4	1		STDD
09:48	MA30922-STD5	1		STDE
09:53	MA30922-STD6	1		STDA
09:58	MA30922-STD7	1		STDD
10:03	MA30922-STD8	1		STDE
10:08	MA30922-STD9	1		STDF
10:13	MA30922-STD10	1		STDG
10:18	MA30922-STD11	1		STDH
10:23	MA30922-STD12	1		STDI
10:28	MA30922-STD13	1		STDJ
10:34	MA30922-ICVA1	1		
10:39	MA30922-ICB1	1		
10:44	MA30922-CRIB1	1		
10:49	MA30922-CCVA1	1		
10:54	MA30922-CCB1	1		
10:59	MA30922-ICSA1	1		
11:04	MA30922-ICSAB1	1		
11:10	ZZZZZZ	2		
11:15	ZZZZZZ	2		
11:20	MA30922-CCVA2	1		
11:25	MA30922-CCB2	1		
11:30	MA30922-CRIB2	1		
11:35	ZZZZZZ	2		
11:40	MP71053-MB1	2		
11:45	MP71053-MB2	2		
11:50	MP71053-MB3	2		
11:55	MP71053-MB4	2		
12:00	ZZZZZZ	25		
12:05	MP71053-LC1	10		
12:10	MP71053-LC2	10		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA041013M2L.CSV Date Analyzed: 04/10/13 Methods: SW846 6020A
Analyst: VC Run ID: MA30922
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
12:15	MA30922-CCVA3	1		
12:20	MA30922-CCB3	1		
12:25	MP71053-LC3	10		
12:30	MP71053-LC4	10		
12:35	MP71053-S1	25		
12:40	MP71053-S2	25		
12:45	JB33249-1	2		(sample used for QC only; not part of login JB33197)
12:50	MP71053-SD1	10		
---------->	Last reportable sample/prep for job JB33197			
12:55	ZZZZZZ	2		
13:01	ZZZZZZ	2		
13:06	ZZZZZZ	2		
13:11	MA30922-CCVA4	1		
13:16	MA30922-CCB4	1		
13:21	MP71050-MB1	5		
13:26	ZZZZZZ	25		
13:31	MP71050-S1	100		
13:36	MP71050-S2	100		
13:41	ZZZZZZ	25		
13:46	FA3119-6A	50		(sample used for QC only; not part of login JB33197)
13:51	MP71050-SD1	250		
13:56	MP71050-PS1	5		
14:01	MP71050-PS1	50		
14:06	ZZZZZZ	50		
14:11	MA30922-CCVA5	1		
14:16	MA30922-CCB5	1		
14:21	ZZZZZZ	25		
14:26	ZZZZZZ	50		
14:31	ZZZZZZ	50		
14:36	ZZZZZZ	50		
14:41	ZZZZZZ	50		
14:46	ZZZZZZ	50		
14:51	ZZZZZZ	50		
14:56	ZZZZZZ	50		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA041013M2L.CSV Date Analyzed: 04/10/13 Methods: SW846 6020A
Analyst: VC Run ID: MA30922
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
15:01	MP71083-MB1	2		
15:06	MP71083-LC1	10		
15:11	MA30922-CCVA6	1		
15:16	MA30922-CCB6	1		
15:22	ZZZZZZ	1		
15:27	MA30922-ICSA2	1		
15:32	MA30922-ICSAB2	1		
15:37	ZZZZZZ	1		
15:43	MP71050-B1	50		
15:48	ZZZZZZ	5		
15:53	MA30922-CCVA7	1		
15:58	MA30922-CCB7	1		
---------->	Last reportable CCB for job JB33197			
16:03	ZZZZZZ	2		
16:08	MA30922-CRIB3	1		
16:13	MP71071-MB1	5		
16:18	ZZZZZZ	25		
16:23	ZZZZZZ	50		
16:28	MP71071-B1	50		
16:33	ZZZZZZ	5		
16:38	MP71122-B1	50		
16:43	ZZZZZZ	2		
16:49	MP71122-MB1	5		
16:54	MA30922-CCVA8	1		
16:59	MA30922-CCB8	1		
17:04	MP71071-LC1	25		
17:09	FA3119-6A	5		(sample used for QC only; not part of login JB33197)
17:14	MP71050-SD1	25		
17:19	ZZZZZZ	5		
17:24	ZZZZZZ	5		
17:29	ZZZZZZ	5		
17:34	ZZZZZZ	5		
17:39	ZZZZZZ	5		
17:44	ZZZZZZ	5		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA041013M2L.CSV Date Analyzed: 04/10/13 Methods: SW846 6020A
Analyst: VC Run ID: MA30922
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
17:49	ZZZZZZ	5		
17:54	MA30922-CCVA9	1		
17:59	MA30922-CCB9	1		
18:04	ZZZZZZ	5		
18:09	MP71083-S1	25		
18:14	MP71083-S2	25		
18:20	FA3213-3	2		(sample used for QC only; not part of login JB33197)
18:25	MP71083-SD1	10		
18:30	MP71083-PS1	2		
18:35	ZZZZZZ	2		
18:40	ZZZZZZ	2		
18:45	MA30922-CCVA10	1		
18:50	MA30922-CCB10	1		
18:55	MA30922-CRIB4	1		
19:00	MP71071-S1	50		Very high RSD's, to reanalysis.
19:05	MP71071-S2	50		
19:10	ZZZZZZ	1		
19:15	FA3119-14A	5		(sample used for QC only; not part of login JB33197)
19:20	MP71071-SD1	25		
19:25	ZZZZZZ	5		
19:30	MP71071-PS1	5		
19:35	ZZZZZZ	5		
19:41	ZZZZZZ	1		
19:45	MA30922-CCVA11	1		
19:51	MA30922-CCB11	1		
19:56	ZZZZZZ	5		
20:01	ZZZZZZ	5		
20:06	ZZZZZZ	5		
20:11	ZZZZZZ	5		
20:16	ZZZZZZ	5		
20:21	ZZZZZZ	5		
20:26	ZZZZZZ	5		
20:31	ZZZZZZ	5		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA041013M2L.CSV Date Analyzed: 04/10/13 Methods: SW846 6020A
Analyst: VC Run ID: MA30922
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
20:36	ZZZZZZ	5		
20:41	ZZZZZZ	1		
20:46	MA30922-CCVA12	1		
20:51	MA30922-CCB12	1		
20:56	MA30922-CRIB5	1		Mn out for 6020. Fe out for DOD.
21:01	ZZZZZZ	5		
21:06	ZZZZZZ	5		
21:12	MP71122-S1	50		No bracketing low check due to power outage.
21:17	MP71122-S2	50		No bracketing low check due to power outage.
21:22	ZZZZZZ	1		No bracketing low check due to power outage.
21:27	FA3179-4A	5		(sample used for QC only; not part of login JB33197)
21:32	MP71122-SD1	25		No bracketing low check due to power outage.
21:37	MP71122-PS1	5		No bracketing low check due to power outage.
21:42	ZZZZZZ	5		
21:47	MA30922-CCVA13	1		No bracketing low check due to power outage.
21:52	MA30922-CCB13	1		No bracketing low check due to power outage.
21:57	ZZZZZZ	5		
22:02	ZZZZZZ	5		
22:07	ZZZZZZ	5		

Refer to raw data for calibration curve and standards.

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA041013M2L.CSV Date Analyzed: 04/10/13 Methods: SW846 6020A
Analyst: VC Run ID: MA30922
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4	Istd#5	Istd#6	Istd#7	Istd#8
09:28	MA30922-STD1	100	100	100	100	100	100	100	100
09:33	MA30922-STD2	102.384	100.974	100.796	100.073	103.817	99.284	101.267	101.197
09:38	MA30922-STD3	102.456	100.746	100.856	98.268	103.886	100.885	103.885	100.36
09:43	MA30922-STD4	100.46	98.031	96.086	94.35	97.988	84.936	85.949	98.745
09:48	MA30922-STD5	97.727	95.433	94.089	91.459	94.958	83.674	83.38	95.863
09:53	MA30922-STD6	100	100	100	100	100	100	100	100
09:58	MA30922-STD7	98.907	99.467	98.119	97.63	98.302	99.163	96.976	98.933
10:03	MA30922-STD8	98.797	97.321	97.002	95.556	98.592	101.21	100.2	97.559
10:08	MA30922-STD9	97.211	96.034	93.272	93.172	95.989	103.175	103.659	95.879
10:13	MA30922-STD10	96.267	94.025	94.78	93.643	93.625	95.157	95.126	94.541
10:18	MA30922-STD11	98.857	97.573	98.382	97.782	96.584	98.274	104.392	96.948
10:23	MA30922-STD12	101.259	100	101.353	99.322	98.519	102.817	98.629	96.388
10:28	MA30922-STD13	99.96	99.102	101.752	100.027	102.377	104.266	98.15	94.408
10:34	MA30922-ICVA1	99.081	97.881	97.149	96.246	101.562	97.323	94.351	94.458
10:39	MA30922-ICB1	95.55	93.593	93.786	93.757	98.23	95.099	98.766	94.199
10:44	MA30922-CRIB1	95.761	94.898	95.827	94.817	103.704	100.091	103.743	95.458
10:49	MA30922-CCVA1	96.528	95.857	95.874	93.939	100.716	97.356	98.935	92.86
10:54	MA30922-CCB1	93.63	91.542	93.581	92.689	98.311	94.927	93.35	92.444
10:59	MA30922-ICSA1	95.523	92.41	94.714	95.155	90.562	92.89	92.333	84.023
11:04	MA30922-ICSAB1	98.895	97.176	96.173	98.438	94.311	92.384	93.654	88.836
11:10	ZZZZZZ	89.622	90.851	88.951	94.308	91.619	92.393	96.979	90.267
11:15	ZZZZZZ	88.776	89.424	88.742	95.556	94.489	96.633	100.885	89.145
11:20	MA30922-CCVA2	90.239	92.085	92.893	94.287	90.578	91.738	90.272	92.15
11:25	MA30922-CCB2	92.969	93.422	95.463	96.237	92.738	94.994	94.755	96.326
11:30	MA30922-CRIB2	96.363	98.395	98.874	99.328	100.6	102.524	100.909	100.738
11:35	ZZZZZZ	No results reported for the elements associated with this internal standard.							
11:40	MP71053-MB1	101.229	101.354	102.837	106.317	104.761	105.529	105.555	102.838
11:45	MP71053-MB2	95.925	96.593	95.601	100.514	99.608	97.978	101.278	97.976
11:50	MP71053-MB3	93.107	92.916	93.081	99.437	96.122	97.021	99.657	94.747
11:55	MP71053-MB4	92.944	93.39	93.217	99.265	96.866	97.911	100.819	95.368
12:00	ZZZZZZ	No results reported for the elements associated with this internal standard.							
12:05	MP71053-LC1	91.733	92.625	92.489	93.94	94.021	93.574	93.05	94.742
12:10	MP71053-LC2	91.829	92.552	91.93	91.982	94.186	94.219	91.907	94.769

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA041013M2L.CSV Date Analyzed: 04/10/13 Methods: SW846 6020A
Analyst: VC Run ID: MA30922
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4	Istd#5	Istd#6	Istd#7	Istd#8
12:15	MA30922-CCVA3	93.335	94.84	94.138	95.498	94.633	92.642	91.177	94.546
12:20	MA30922-CCB3	93.83	94.734	97.06	98.261	96.115	97.404	96.351	97.744
12:25	MP71053-LC3	94.602	94.411	93.722	95.938	95.574	95.807	94.876	96.648
12:30	MP71053-LC4	93.325	93.78	95.082	95.02	94.436	95.539	96.59	96.065
12:35	MP71053-S1	92.486	93.527	94.931	95.243	95.592	95.234	92.113	95.577
12:40	MP71053-S2	95.817	97.119	95.386	95.165	95.473	96.247	92.459	97.69
12:45	JB33249-1	95.194	95.13	94.154	86.473	96.968	95.725	94.036	93.533
12:50	MP71053-SD1	92.638	92.362	93.526	94.746	92.835	96.521	93.472	94.865
12:55	ZZZZZZ	No results reported for the elements associated with this internal standard.							
13:01	ZZZZZZ	96.051	98.199	93.928	94.912	90.846	90.032	90.531	84.448
13:06	ZZZZZZ	No results reported for the elements associated with this internal standard.							
13:11	MA30922-CCVA4	96.538	98.133	97.266	96.98	97.272	96.787	100.608	98.188
13:16	MA30922-CCB4	96.796	97.39	98.743	98.377	100.331	100.096	98.141	100.527
13:21	MP71050-MB1	100.023	100.739	103.269	99.628	101.478	102.888	97.906	103.416
13:26	ZZZZZZ	No results reported for the elements associated with this internal standard.							
13:31	MP71050-S1	99.139	99.949	102.98	97.294	98.622	102.917	95.811	101.22
13:36	MP71050-S2	98.537	100.584	102.194	95.644	99.82	103.754	95.045	101.889
13:41	ZZZZZZ	No results reported for the elements associated with this internal standard.							
13:46	FA3119-6A	98.199	99.797	102.218	96.616	98.599	102.644	95.723	101.421
13:51	MP71050-SD1	98.978	100.268	102.265	95.953	100.405	105.529	95.229	102.564
13:56	MP71050-PS1	94.103	100.289	100.019	95.676	95.496	95.572	89.693	93.353
14:01	MP71050-PS1	96.444	98.62	100.411	94.415	101.098	101.941	93.774	99.744
14:06	ZZZZZZ	97.064	98.729	98.272	92.199	100.73	100.707	91.566	100.218
14:11	MA30922-CCVA5	98.745	100.119	98.905	97.155	101.752	100.741	95.189	99.285
14:16	MA30922-CCB5	99.799	102.614	103.9	102.12	103.197	108.456	101.854	103.547
14:21	ZZZZZZ	No results reported for the elements associated with this internal standard.							
14:26	ZZZZZZ	100.592	102.287	102.996	98.826	101.358	105.893	97.38	103.042
14:31	ZZZZZZ	97.206	100.454	101.959	94.777	98.473	104.783	94.851	100.813
14:36	ZZZZZZ	97.466	100.173	102.253	94.925	99.386	104.61	93.494	100.969
14:41	ZZZZZZ	97.56	100.117	101.958	95.419	99.615	104.165	92.993	101.62
14:46	ZZZZZZ	96.899	100.121	103.134	96.299	102.086	103.452	95.045	100.93
14:51	ZZZZZZ	93.59	96.239	99.689	94.688	98.113	101.808	92.52	96.838
14:56	ZZZZZZ	102.03	104.837	107.722	99.691	108.444	108.612	99.074	105.816

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA041013M2L.CSV Date Analyzed: 04/10/13 Methods: SW846 6020A
Analyst: VC Run ID: MA30922
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4	Istd#5	Istd#6	Istd#7	Istd#8
15:01	MP71083-MB1	101.555	102.479	102.184	103.966	112.069	112.263	112	103.797
15:06	MP71083-LC1	101.569	104.334	104.589	100.847	105.831	107.006	100.637	106.03
15:11	MA30922-CCVA6	102.559	106.046	105.307	101.265	105.693	104.515	99.315	104.317
15:16	MA30922-CCB6	103.764	106.414	107.977	106.187	107.626	109.259	105.371	108.391
15:22	ZZZZZZ	No results reported for the elements associated with this internal standard.							
15:27	MA30922-ICSA2	93.01	91.899	93.516	96.051	91.156	93.794	91.778	86.005
15:32	MA30922-ICSAB2	94.013	95.23	94.291	98.299	92.244	93.296	93.706	88.463
15:37	ZZZZZZ	No results reported for the elements associated with this internal standard.							
15:43	MP71050-B1	88.447	92.74	94.172	96.037	93.057	98.25	94.897	97.823
15:48	ZZZZZZ	No results reported for the elements associated with this internal standard.							
15:53	MA30922-CCVA7	90.732	94.384	94.227	98.523	93.447	93.159	93.766	96.009
15:58	MA30922-CCB7	91.218	94.502	96.183	100.382	97.971	99.966	99.524	98.98
16:03	ZZZZZZ	No results reported for the elements associated with this internal standard.							
16:08	MA30922-CRIB3	94.11	97.561	98.773	100.393	102.08	99.713	100.656	101.731
16:13	MP71071-MB1	95.048	97.608	100.741	102.617	101.22	101.163	101.168	102.507
16:18	ZZZZZZ	No results reported for the elements associated with this internal standard.							
16:23	ZZZZZZ	No results reported for the elements associated with this internal standard.							
16:28	MP71071-B1	96.586	99.681	101.321	100.827	102.141	103.29	99.284	104.144
16:33	ZZZZZZ	No results reported for the elements associated with this internal standard.							
16:38	MP71122-B1	No results reported for the elements associated with this internal standard.							
16:43	ZZZZZZ	No results reported for the elements associated with this internal standard.							
16:49	MP71122-MB1	No results reported for the elements associated with this internal standard.							
16:54	MA30922-CCVA8	92.979	96.092	97.656	101.354	99.957	99.392	101.521	97.177
16:59	MA30922-CCB8	95.735	97.865	98.103	103.169	105.267	104.596	105.129	101.62
17:04	MP71071-LC1	96.21	99.068	99.006	99.752	102.945	102.243	98.98	102.478
17:09	FA3119-6A	96.735	104.789	103.839	102.702	103.633	100.961	96.27	99.254
17:14	MP71050-SD1	98.158	102.012	101.94	101.934	102.613	106.318	98.063	103.415
17:19	ZZZZZZ	96.502	103.051	101.384	101.81	99.637	99.297	94.474	99.206
17:24	ZZZZZZ	95.936	104.023	104.867	104.038	97.244	99.708	96.713	97.997
17:29	ZZZZZZ	96.743	104.925	103.629	105.278	99.25	102.195	98.572	99.149
17:34	ZZZZZZ	97.479	106.197	105.815	104.979	99.7	103.003	97.83	100.033
17:39	ZZZZZZ	96.582	104.878	104.596	107.45	98.546	100.32	98.062	98.694
17:44	ZZZZZZ	97.275	105.017	105.529	105.975	99.104	102.983	99.608	100.018

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA041013M2L.CSV Date Analyzed: 04/10/13 Methods: SW846 6020A
Analyst: VC Run ID: MA30922
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4	Istd#5	Istd#6	Istd#7	Istd#8
17:49	ZZZZZZ	92.71	99.385	96.268	101.299	92.237	95.548	94.389	92.064
17:54	MA30922-CCVA9	100.677	105.453	103.24	106.762	102.663	103.764	103.07	106.12
17:59	MA30922-CCB9	102.103	106.245	106.716	110.229	106.534	107.8	108.837	109.749
18:04	ZZZZZZ	104.333	114.173	110.483	109.916	110.319	108.561	103.786	107.88
18:09	MP71083-S1	99.431	104.044	104.247	105.896	103.929	106.935	103.779	105.865
18:14	MP71083-S2	100.262	105.177	104.901	105.901	103.928	106.704	103.638	107.086
18:20	FA3213-3	93.881	101.454	99.022	107.476	103.955	107.06	112.861	97.944
18:25	MP71083-SD1	98.068	102.205	99.245	106.991	107.152	104.758	105.893	103.966
18:30	MP71083-PS1	92.584	100.864	96.994	105.143	105.058	103.72	106.884	96.177
18:35	ZZZZZZ	95.881	99.784	98.224	104.767	102.082	104.572	107.564	96.983
18:40	ZZZZZZ	93.592	97.422	94.097	102.87	99.12	100.096	107.487	94.497
18:45	MA30922-CCVA10	93.258	96.526	94.521	99.45	97.792	95.998	99.016	97.622
18:50	MA30922-CCB10	94.589	97.654	98.322	102.092	99.694	99.159	100.957	101.773
18:55	MA30922-CRIB4	96.772	100.451	101.113	103.605	100.987	102.793	102.85	103.621
19:00	MP71071-S1	92.009	89.966	102.644	100.416	95.873	102.501	99.05	92.462
19:05	MP71071-S2	98.627	101.344	103.238	100.492	100.561	103.836	99.14	103.967
19:10	ZZZZZZ	No results reported for the elements associated with this internal standard.							
19:15	FA3119-14A	98.906	105.245	104.451	105.585	102.336	102.31	100.978	103.371
19:20	MP71071-SD1	102.139	106.521	105.409	104.89	107.89	107.805	103.033	108.509
19:25	ZZZZZZ	101.125	108.736	104.626	105.007	103.15	101.243	96.58	103.636
19:30	MP71071-PS1	96.651	104.05	103.023	103.264	101.001	102.755	101.244	101.185
19:35	ZZZZZZ	101.091	110.918	107.489	108.112	109.319	106.48	103.723	104.766
19:41	ZZZZZZ	No results reported for the elements associated with this internal standard.							
19:45	MA30922-CCVA11	100.987	105.567	103.453	104.751	108.803	106.748	103.626	105.938
19:51	MA30922-CCB11	103.767	107.55	109.315	112.26	113.333	112.427	113.478	111.347
19:56	ZZZZZZ	101.144	110.433	107.28	105.31	107.569	108.116	101.187	104.92
20:01	ZZZZZZ	98.196	106.889	105.33	104.471	104.696	101.88	95.718	101.031
20:06	ZZZZZZ	97.244	106.15	106.139	106.003	105.573	102.687	97.779	100.196
20:11	ZZZZZZ	97.159	107.04	105.852	105.964	106.139	105.49	98.859	101.138
20:16	ZZZZZZ	96.86	106.245	105.084	105.876	105.309	104.557	100.06	100.554
20:21	ZZZZZZ	97.479	107.612	105.183	106.098	104.95	104.62	97.435	101.73
20:26	ZZZZZZ	96.183	106.298	103.052	103.878	105.198	101.019	97.523	101.437
20:31	ZZZZZZ	96.633	106.197	105.111	105.797	105.997	104.763	100.893	100.698

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA041013M2L.CSV Date Analyzed: 04/10/13 Methods: SW846 6020A
Analyst: VC Run ID: MA30922
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4	Istd#5	Istd#6	Istd#7	Istd#8
20:36	ZZZZZZ	95.005	105.756	103.77	105.026	102.771	101.306	96.728	98.079
20:41	ZZZZZZ	No results reported for the elements associated with this internal standard.							
20:46	MA30922-CCVA12	101.686	107.996	103.696	105.973	110.237	105.825	102.086	107.542
20:51	MA30922-CCB12	102.022	108.105	110.637	112.155	113.863	114.383	113.946	111.081
20:56	MA30922-CRIB5	105.881	111.725	110.799	113.211	120.415	116.948	115.686	115.056
21:01	ZZZZZZ	No results reported for the elements associated with this internal standard.							
21:06	ZZZZZZ	No results reported for the elements associated with this internal standard.							
21:12	MP71122-S1	No results reported for the elements associated with this internal standard.							
21:17	MP71122-S2	No results reported for the elements associated with this internal standard.							
21:22	ZZZZZZ	No results reported for the elements associated with this internal standard.							
21:27	FA3179-4A	No results reported for the elements associated with this internal standard.							
21:32	MP71122-SD1	No results reported for the elements associated with this internal standard.							
21:37	MP71122-PS1	No results reported for the elements associated with this internal standard.							
21:42	ZZZZZZ	No results reported for the elements associated with this internal standard.							
21:47	MA30922-CCVA13	No results reported for the elements associated with this internal standard.							
21:52	MA30922-CCB13	No results reported for the elements associated with this internal standard.							
21:57	ZZZZZZ	No results reported for the elements associated with this internal standard.							
22:02	ZZZZZZ	No results reported for the elements associated with this internal standard.							
22:07	ZZZZZZ	No results reported for the elements associated with this internal standard.							

! = Outside limits.

LEGEND:

Istd#	Parameter	Limits	CCV/CCB Limits
Istd#1	Lithium	70-130 %	70-130 %
Istd#2	Scandium (45-1)	70-130 %	70-130 %
Istd#3	Scandium (45-2)	70-130 %	70-130 %
Istd#4	Scandium (45-3)	70-130 %	70-130 %
Istd#5	Germanium (72-1)	70-130 %	70-130 %
Istd#6	Germanium (72-2)	70-130 %	70-130 %
Istd#7	Germanium (72-3)	70-130 %	70-130 %
Istd#8	Rhodium (103-1)	70-130 %	70-130 %

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA041013M2L.CSV Date Analyzed: 04/10/13 Methods: SW846 6020A
Analyst: VC Run ID: MA30922
Parameters: Pb

Time	Sample Description	Istd#9	Istd#10	Istd#11	Istd#12	Istd#13	Istd#14	Istd#15	Istd#16
09:28	MA30922-STD1	100	100	100	100	100	100	100	100
09:33	MA30922-STD2	100.393	100.816	101.179	100.125	100.86	100.755	101.168	101.113
09:38	MA30922-STD3	99.805	100.64	99.341	100.323	100.041	100.999	100.82	101.732
09:43	MA30922-STD4	96.825	98.449	96.063	98.944	98.229	99.299	99.409	100.455
09:48	MA30922-STD5	94.861	96.032	94.298	96.792	96.626	97.54	97.088	98.516
09:53	MA30922-STD6	100	100	100	100	100	100	100	100
09:58	MA30922-STD7	98.223	99.041	97.721	99.015	98.618	98.973	98.169	99.732
10:03	MA30922-STD8	97.204	97.5	96.615	97.981	98.252	98.495	97.73	99.128
10:08	MA30922-STD9	94.589	96.535	93.267	97.712	96.721	97.952	96.353	99.274
10:13	MA30922-STD10	94.726	95.714	95.819	97.242	96.693	97.452	97.199	98.254
10:18	MA30922-STD11	97.247	97.603	98.948	98.653	99.359	98.844	99.42	99.158
10:23	MA30922-STD12	97.286	97.875	98.446	99.336	100.729	99.8	100.42	97.098
10:28	MA30922-STD13	95.42	96.327	97.315	98.901	99.756	99.113	99.702	94.839
10:34	MA30922-ICVA1	94.084	96.352	95.414	98.309	98.666	98.527	98.235	96.557
10:39	MA30922-ICB1	94.367	95.487	95.376	96.709	96.207	96.859	95.628	97.853
10:44	MA30922-CRIB1	95.779	96.072	97.365	96.5	97.573	96.515	97.21	97.98
10:49	MA30922-CCVA1	92.984	94.402	93.824	96.89	97.064	97.148	97.273	95.435
10:54	MA30922-CCB1	93.289	93.906	94.302	94.856	95.45	95.284	95.961	96.98
10:59	MA30922-ICSA1	85.747	90.894	91.009	92.726	90.992	92.702	90.145	87.552
11:04	MA30922-ICSAB1	87.099	96.06	92.148	97.895	91.751	97.659	90.986	92.218
11:10	ZZZZZZ	88.881	94.011	90.112	98.206	94.787	98.787	95.155	97.017
11:15	ZZZZZZ	89.32	92.657	89.199	96.495	94.684	96.805	95.149	94.614
11:20	MA30922-CCVA2	92.223	94.104	92.536	97.322	96.798	97.593	97.333	96.751
11:25	MA30922-CCB2	97.846	97.28	98.112	98.399	99.243	98.208	99.173	100.581
11:30	MA30922-CRIB2	100.08	101.886	100.737	101.36	100.569	100.929	100.166	102.486
11:35	ZZZZZZ	No results reported for the elements associated with this internal standard.							
11:40	MP71053-MB1	102.52	103.973	102.301	105.175	103.385	105.244	103.596	104.51
11:45	MP71053-MB2	96.981	99.797	96.872	101.888	99.083	102.29	99.161	101.855
11:50	MP71053-MB3	95.128	96.814	94.651	99.819	97.661	100.721	98.019	100.527
11:55	MP71053-MB4	95.562	96.906	95.277	99.995	98.557	100.359	99.06	100.704
12:00	ZZZZZZ	No results reported for the elements associated with this internal standard.							
12:05	MP71053-LC1	94.834	97.526	95.611	98.636	97.551	99.063	98.039	100.667
12:10	MP71053-LC2	94.313	97.063	94.918	98.486	97.311	98.993	97.54	100.564

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA041013M2L.CSV Date Analyzed: 04/10/13 Methods: SW846 6020A
Analyst: VC Run ID: MA30922
Parameters: Pb

Time	Sample Description	Istd#9	Istd#10	Istd#11	Istd#12	Istd#13	Istd#14	Istd#15	Istd#16
12:15	MA30922-CCVA3	93.415	96.627	93.831	99.363	97.133	99.724	97.551	98.619
12:20	MA30922-CCB3	98.285	99.182	99.107	99.87	99.664	99.664	100.173	101.818
12:25	MP71053-LC3	95.83	99.138	96.684	99.826	98.204	99.894	98.607	101.969
12:30	MP71053-LC4	96.609	98.284	96.398	99.238	99.009	99.429	99.138	101.385
12:35	MP71053-S1	96.177	97.735	97.772	98.125	99.14	98.368	99.489	101.037
12:40	MP71053-S2	97.885	100.146	98.963	100.182	100.432	100.371	100.342	103.303
12:45	JB33249-1	92.863	97.668	92.871	101.719	98.068	102.041	98.411	99.194
12:50	MP71053-SD1	96.094	97.704	97.341	98.683	98.756	98.683	98.948	102.052
12:55	ZZZZZZ	No results reported for the elements associated with this internal standard.							
13:01	ZZZZZZ	81.103	92.933	85.792	100.578	92.616	101.963	93.379	86.638
13:06	ZZZZZZ	No results reported for the elements associated with this internal standard.							
13:11	MA30922-CCVA4	96.542	100.538	98.2	102.2	100.585	102.577	101.131	100.867
13:16	MA30922-CCB4	101.235	101.779	102.63	102	101.99	101.866	101.996	104.059
13:21	MP71050-MB1	103.282	104.921	105.795	103.218	104.046	103.298	103.963	106.788
13:26	ZZZZZZ	No results reported for the elements associated with this internal standard.							
13:31	MP71050-S1	101.875	102.446	105.856	100.732	103.99	100.4	103.88	104.445
13:36	MP71050-S2	102.437	102.714	105.334	101.15	103.725	101.075	104.257	104.683
13:41	ZZZZZZ	No results reported for the elements associated with this internal standard.							
13:46	FA3119-6A	101.439	102.156	104.547	100.798	103.118	101.028	103.271	103.529
13:51	MP71050-SD1	102.108	103.483	106.368	101.131	103.425	101.022	103.322	104.769
13:56	MP71050-PS1	92.385	97.376	95.938	98.364	97.963	98.525	97.952	95.934
14:01	MP71050-PS1	99.91	101.007	103.288	99.579	102.137	99.814	101.816	102.212
14:06	ZZZZZZ	99.329	100.94	103.492	99.753	101.295	100.08	101.193	102.785
14:11	MA30922-CCVA5	97.688	101.485	99.908	101.774	101.604	102.497	101.922	100.963
14:16	MA30922-CCB5	103.975	104.884	106.725	103.511	104.216	103.302	104.186	104.93
14:21	ZZZZZZ	No results reported for the elements associated with this internal standard.							
14:26	ZZZZZZ	102.938	104.038	106.831	102.284	104.783	102.291	105.174	104.323
14:31	ZZZZZZ	100.884	102.292	104.983	100.378	103.198	100.412	103.326	102.996
14:36	ZZZZZZ	100.271	102.261	104.762	100.172	102.867	100.221	102.951	103.243
14:41	ZZZZZZ	100.657	102.167	104.93	100.476	102.74	100.391	102.818	103.337
14:46	ZZZZZZ	100.791	101.554	104.666	100.533	103.115	100.728	103.77	103.637
14:51	ZZZZZZ	97.944	99.754	102.875	99.262	101.819	99.331	101.947	102.108
14:56	ZZZZZZ	105.434	106.663	110.368	103.859	107.339	103.969	106.933	106.492

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA041013M2L.CSV Date Analyzed: 04/10/13 Methods: SW846 6020A
Analyst: VC Run ID: MA30922
Parameters: Pb

Time	Sample Description	Istd#9	Istd#10	Istd#11	Istd#12	Istd#13	Istd#14	Istd#15	Istd#16
15:01	MP71083-MB1	102.15	106.195	103.719	106.792	104.159	106.989	104.978	107.37
15:06	MP71083-LC1	104.956	108.061	107.128	106.015	106.387	106.092	106.184	106.922
15:11	MA30922-CCVA6	102.709	106.944	104.936	106.244	105.602	106.207	105.914	104.485
15:16	MA30922-CCB6	108.462	109.916	110.475	107.262	107.741	107.422	107.842	108.467
15:22	ZZZZZZ	No results reported for the elements associated with this internal standard.							
15:27	MA30922-ICSA2	86.689	93.833	93.363	95.46	92.901	95.484	92.358	91.447
15:32	MA30922-ICSAB2	87.469	97.26	93.362	99.632	92.794	99.299	92.887	94.418
15:37	ZZZZZZ	No results reported for the elements associated with this internal standard.							
15:43	MP71050-B1	98.464	101.61	100.815	102.365	102.142	102.878	102.544	106.895
15:48	ZZZZZZ	No results reported for the elements associated with this internal standard.							
15:53	MA30922-CCVA7	95.594	100.147	97.209	102.223	100.896	103.288	100.856	102.506
15:58	MA30922-CCB7	99.86	102.617	101.513	102.797	102.066	103.277	102.277	105.695
16:03	ZZZZZZ	No results reported for the elements associated with this internal standard.							
16:08	MA30922-CRIB3	100.753	104.847	104.162	105.106	102.754	105.098	103.342	107.508
16:13	MP71071-MB1	103.655	105.412	106.149	105.005	104.957	104.802	105.252	108.562
16:18	ZZZZZZ	No results reported for the elements associated with this internal standard.							
16:23	ZZZZZZ	No results reported for the elements associated with this internal standard.							
16:28	MP71071-B1	103.604	106.191	106.973	105.91	106.327	106.161	106.269	109.548
16:33	ZZZZZZ	No results reported for the elements associated with this internal standard.							
16:38	MP71122-B1	No results reported for the elements associated with this internal standard.							
16:43	ZZZZZZ	No results reported for the elements associated with this internal standard.							
16:49	MP71122-MB1	No results reported for the elements associated with this internal standard.							
16:54	MA30922-CCVA8	97.934	101.165	100.099	104.139	103.524	104.545	103.604	103.796
16:59	MA30922-CCB8	102.981	105.553	104.185	105.638	104.238	106.361	104.837	109.261
17:04	MP71071-LC1	101.655	105.858	104.131	105.469	103.678	105.645	104.541	109.421
17:09	FA3119-6A	97.453	103.41	100.724	105.149	103.313	105.415	103.299	103
17:14	MP71050-SD1	103.226	106.076	105.054	106.529	106.079	106.524	106.29	108.89
17:19	ZZZZZZ	96.381	103.243	99.329	105.728	102.333	106.021	102.547	103.685
17:24	ZZZZZZ	97.563	102.369	100.407	104.13	102.732	104.445	102.684	101.753
17:29	ZZZZZZ	98.734	104.024	102.098	105.596	104.064	106.07	104.226	103.344
17:34	ZZZZZZ	98.959	104.172	101.67	106.026	103.688	105.909	104.172	103.803
17:39	ZZZZZZ	97.764	102.993	100.306	104.608	103.22	105.074	103.034	102.605
17:44	ZZZZZZ	100.257	104.973	102.411	106.077	104.53	106.361	105.076	103.978

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA041013M2L.CSV Date Analyzed: 04/10/13 Methods: SW846 6020A
Analyst: VC Run ID: MA30922
Parameters: Pb

Time	Sample Description	Istd#9	Istd#10	Istd#11	Istd#12	Istd#13	Istd#14	Istd#15	Istd#16
17:49	ZZZZZZ	91.064	100.623	95.945	101.656	97.418	101.724	97.734	98.919
17:54	MA30922-CCVA9	104.181	109.727	104.828	111.455	108.03	111.554	108.115	109.849
17:59	MA30922-CCB9	110.071	112.193	110.943	110.434	109.331	110.103	110.316	112.313
18:04	ZZZZZZ	104.783	111.915	107.375	111.696	108.355	111.697	108.157	108.146
18:09	MP71083-S1	106.14	110.451	108.331	109.693	107.921	109.862	108.638	110.589
18:14	MP71083-S2	106.381	111.336	108.664	109.507	108.061	109.913	108.541	111.638
18:20	FA3213-3	97.097	104.872	99.031	109.283	104.422	110.238	105.155	103.347
18:25	MP71083-SD1	101.633	108.69	104.349	108.545	105.065	108.727	105.051	109.824
18:30	MP71083-PS1	95.786	103.215	97.895	108.725	103.364	109.456	103.664	101.471
18:35	ZZZZZZ	96.489	104.087	98.008	108.067	103.479	108.801	104.421	103.465
18:40	ZZZZZZ	93.907	102.332	95.311	106.462	101.817	107.74	102.749	102.132
18:45	MA30922-CCVA10	97.753	102.647	98.878	105.365	103.625	106.388	104.363	105.236
18:50	MA30922-CCB10	102.133	105.48	103.358	106.007	104.159	106.895	104.913	108.696
18:55	MA30922-CRIB4	104.268	107.34	105.984	107.393	105.884	107.335	105.939	109.502
19:00	MP71071-S1	103.444	96.006	106.876	95.449	106.365	95.398	106.596	100.369
19:05	MP71071-S2	104.8	106.992	107.354	106.402	107.042	106.95	107.407	109.999
19:10	ZZZZZZ	No results reported for the elements associated with this internal standard.							
19:15	FA3119-14A	102.302	107.77	104.06	108.597	105.889	109.382	106.45	108.122
19:20	MP71071-SD1	106.72	111.725	110.461	109.597	109.029	109.814	109.308	112.662
19:25	ZZZZZZ	100.589	107.952	102.537	108.645	105.466	108.478	105.552	105.909
19:30	MP71071-PS1	99.998	105.494	102.428	106.258	104.988	106.932	105.131	105.168
19:35	ZZZZZZ	101.394	108.682	102.705	109.125	105.083	109.325	105.092	106.072
19:41	ZZZZZZ	No results reported for the elements associated with this internal standard.							
19:45	MA30922-CCVA11	103.071	109.272	104.916	109.328	106.373	109.631	106.818	107.724
19:51	MA30922-CCB11	111.695	113.236	112.767	111.557	110.602	111.554	110.456	112.894
19:56	ZZZZZZ	101.784	108.392	104.116	108.8	105.696	109.212	105.934	105.83
20:01	ZZZZZZ	98.808	105.632	102.095	106.967	104.101	107.164	103.873	104.43
20:06	ZZZZZZ	99.223	104.504	101.905	105.077	103.576	105.463	103.839	102.613
20:11	ZZZZZZ	99.286	105.098	102.461	106.167	103.891	106.255	104.267	103.231
20:16	ZZZZZZ	99.123	104.667	101.288	106.456	103.92	106.49	104.229	103.5
20:21	ZZZZZZ	98.92	105.783	102.728	106.447	104.481	106.834	104.016	102.841
20:26	ZZZZZZ	98.599	105.431	101.526	105.695	102.997	106.003	102.965	102.914
20:31	ZZZZZZ	99.865	104.775	102.553	105.782	103.655	105.744	103.993	102.461

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA041013M2L.CSV Date Analyzed: 04/10/13 Methods: SW846 6020A
Analyst: VC Run ID: MA30922
Parameters: Pb

Time	Sample Description	Istd#9	Istd#10	Istd#11	Istd#12	Istd#13	Istd#14	Istd#15	Istd#16
20:36	ZZZZZZ	97.044	103.174	100.199	103.812	101.992	103.927	102.123	101.222
20:41	ZZZZZZ	No results reported for the elements associated with this internal standard.							
20:46	MA30922-CCVA12	104.157	110.465	105.659	110.198	108.125	110.362	107.617	108.24
20:51	MA30922-CCB12	112.614	113.885	113.771	110.185	110.635	110.257	109.788	111.224
20:56	MA30922-CRIB5	113.984	116.817	116.326	112.698	111.755	112.229	112.388	113.304
21:01	ZZZZZZ	No results reported for the elements associated with this internal standard.							
21:06	ZZZZZZ	No results reported for the elements associated with this internal standard.							
21:12	MP71122-S1	No results reported for the elements associated with this internal standard.							
21:17	MP71122-S2	No results reported for the elements associated with this internal standard.							
21:22	ZZZZZZ	No results reported for the elements associated with this internal standard.							
21:27	FA3179-4A	No results reported for the elements associated with this internal standard.							
21:32	MP71122-SD1	No results reported for the elements associated with this internal standard.							
21:37	MP71122-PS1	No results reported for the elements associated with this internal standard.							
21:42	ZZZZZZ	No results reported for the elements associated with this internal standard.							
21:47	MA30922-CCVA13	No results reported for the elements associated with this internal standard.							
21:52	MA30922-CCB13	No results reported for the elements associated with this internal standard.							
21:57	ZZZZZZ	No results reported for the elements associated with this internal standard.							
22:02	ZZZZZZ	No results reported for the elements associated with this internal standard.							
22:07	ZZZZZZ	No results reported for the elements associated with this internal standard.							

! = Outside limits.

LEGEND:

Istd#	Parameter	Limits	CCV/CCB Limits
Istd#9	Rhodium (103-2)	70-130 %	70-130 %
Istd#10	Indium (115-1)	70-130 %	70-130 %
Istd#11	Indium (115-2)	70-130 %	70-130 %
Istd#12	Terbium (159-1)	70-130 %	70-130 %
Istd#13	Terbium (159-2)	70-130 %	70-130 %
Istd#14	Holmium (165-1)	70-130 %	70-130 %
Istd#15	Holmium (165-2)	70-130 %	70-130 %
Istd#16	Bismuth (209-1)	70-130 %	70-130 %

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA041013M2L.CSV Date Analyzed: 04/10/13 Methods: SW846 6020A
Analyst: VC Run ID: MA30922
Parameters: Pb

Time	Sample Description	Istd#17
09:28	MA30922-STD1	100
09:33	MA30922-STD2	101.267
09:38	MA30922-STD3	100.628
09:43	MA30922-STD4	99.429
09:48	MA30922-STD5	97.67
09:53	MA30922-STD6	100
09:58	MA30922-STD7	99.47
10:03	MA30922-STD8	98.709
10:08	MA30922-STD9	97.591
10:13	MA30922-STD10	97.458
10:18	MA30922-STD11	99.149
10:23	MA30922-STD12	97.561
10:28	MA30922-STD13	95.367
10:34	MA30922-ICVA1	95.906
10:39	MA30922-ICB1	97.203
10:44	MA30922-CRIB1	98.664
10:49	MA30922-CCVA1	94.744
10:54	MA30922-CCB1	97.104
10:59	MA30922-ICSA1	84.018
11:04	MA30922-ICSAB1	84.955
11:10	ZZZZZZ	92.157
11:15	ZZZZZZ	91.983
11:20	MA30922-CCVA2	94.853
11:25	MA30922-CCB2	100.414
11:30	MA30922-CRIB2	101.454
11:35	ZZZZZZ	No results reported for the elements associated with this internal standard.
11:40	MP71053-MB1	102.225
11:45	MP71053-MB2	98.341
11:50	MP71053-MB3	96.535
11:55	MP71053-MB4	98.11
12:00	ZZZZZZ	No results reported for the elements associated with this internal standard.
12:05	MP71053-LC1	99.108
12:10	MP71053-LC2	98.709

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA041013M2L.CSV Date Analyzed: 04/10/13 Methods: SW846 6020A
Analyst: VC Run ID: MA30922
Parameters: Pb

Time	Sample Description	Istd#17
12:15	MA30922-CCVA3	96.039
12:20	MA30922-CCB3	101.497
12:25	MP71053-LC3	99.765
12:30	MP71053-LC4	100.248
12:35	MP71053-S1	101.343
12:40	MP71053-S2	101.786
12:45	JB33249-1	95.05
12:50	MP71053-SD1	101.688
12:55	ZZZZZZ	No results reported for the elements associated with this internal standard.
13:01	ZZZZZZ	77.968
13:06	ZZZZZZ	No results reported for the elements associated with this internal standard.
13:11	MA30922-CCVA4	99.455
13:16	MA30922-CCB4	103.851
13:21	MP71050-MB1	106.559
13:26	ZZZZZZ	No results reported for the elements associated with this internal standard.
13:31	MP71050-S1	106.747
13:36	MP71050-S2	106.993
13:41	ZZZZZZ	No results reported for the elements associated with this internal standard.
13:46	FA3119-6A	105.699
13:51	MP71050-SD1	106.825
13:56	MP71050-PS1	94.825
14:01	MP71050-PS1	104.674
14:06	ZZZZZZ	103.863
14:11	MA30922-CCVA5	99.94
14:16	MA30922-CCB5	105.791
14:21	ZZZZZZ	No results reported for the elements associated with this internal standard.
14:26	ZZZZZZ	107.1
14:31	ZZZZZZ	105.746
14:36	ZZZZZZ	105.304
14:41	ZZZZZZ	104.952
14:46	ZZZZZZ	106.084
14:51	ZZZZZZ	103.795
14:56	ZZZZZZ	109.317

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA041013M2L.CSV Date Analyzed: 04/10/13 Methods: SW846 6020A
Analyst: VC Run ID: MA30922
Parameters: Pb

Time	Sample Description	Istd#17
15:01	MP71083-MB1	104.06
15:06	MP71083-LC1	107.946
15:11	MA30922-CCVA6	103.536
15:16	MA30922-CCB6	109.327
15:22	ZZZZZZ	No results reported for the elements associated with this internal standard.
15:27	MA30922-ICSA2	86.648
15:32	MA30922-ICSAB2	87.511
15:37	ZZZZZZ	No results reported for the elements associated with this internal standard.
15:43	MP71050-B1	105.601
15:48	ZZZZZZ	No results reported for the elements associated with this internal standard.
15:53	MA30922-CCVA7	99.552
15:58	MA30922-CCB7	104.56
16:03	ZZZZZZ	No results reported for the elements associated with this internal standard.
16:08	MA30922-CRIB3	105.322
16:13	MP71071-MB1	108.145
16:18	ZZZZZZ	No results reported for the elements associated with this internal standard.
16:23	ZZZZZZ	No results reported for the elements associated with this internal standard.
16:28	MP71071-B1	109.445
16:33	ZZZZZZ	No results reported for the elements associated with this internal standard.
16:38	MP71122-B1	No results reported for the elements associated with this internal standard.
16:43	ZZZZZZ	No results reported for the elements associated with this internal standard.
16:49	MP71122-MB1	No results reported for the elements associated with this internal standard.
16:54	MA30922-CCVA8	101.962
16:59	MA30922-CCB8	107.13
17:04	MP71071-LC1	107.762
17:09	FA3119-6A	100.305
17:14	MP71050-SD1	108.134
17:19	ZZZZZZ	100.583
17:24	ZZZZZZ	99.89
17:29	ZZZZZZ	101.705
17:34	ZZZZZZ	101.417
17:39	ZZZZZZ	100.153
17:44	ZZZZZZ	102.23

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA041013M2L.CSV Date Analyzed: 04/10/13 Methods: SW846 6020A
Analyst: VC Run ID: MA30922
Parameters: Pb

Time	Sample Description	Istd#17
17:49	ZZZZZZ	94.472
17:54	MA30922-CCVA9	105.97
17:59	MA30922-CCB9	111.119
18:04	ZZZZZZ	105.008
18:09	MP71083-S1	109.144
18:14	MP71083-S2	110.055
18:20	FA3213-3	97.109
18:25	MP71083-SD1	106.493
18:30	MP71083-PS1	95.118
18:35	ZZZZZZ	98.257
18:40	ZZZZZZ	96.574
18:45	MA30922-CCVA10	102.25
18:50	MA30922-CCB10	107.061
18:55	MA30922-CRIB4	107.978
19:00	MP71071-S1	108.707
19:05	MP71071-S2	110.146
19:10	ZZZZZZ	No results reported for the elements associated with this internal standard.
19:15	FA3119-14A	106.207
19:20	MP71071-SD1	112.547
19:25	ZZZZZZ	103.009
19:30	MP71071-PS1	102.984
19:35	ZZZZZZ	102.125
19:41	ZZZZZZ	No results reported for the elements associated with this internal standard.
19:45	MA30922-CCVA11	104.374
19:51	MA30922-CCB11	111.64
19:56	ZZZZZZ	102.874
20:01	ZZZZZZ	101.244
20:06	ZZZZZZ	100.655
20:11	ZZZZZZ	100.762
20:16	ZZZZZZ	100.915
20:21	ZZZZZZ	100.693
20:26	ZZZZZZ	100.613
20:31	ZZZZZZ	100.677

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA041013M2L.CSV Date Analyzed: 04/10/13 Methods: SW846 6020A
Analyst: VC Run ID: MA30922
Parameters: Pb

Time	Sample Description	Istd#17
20:36	ZZZZZZ	98.318
20:41	ZZZZZZ	No results reported for the elements associated with this internal standard.
20:46	MA30922-CCVA12	104.975
20:51	MA30922-CCB12	111.576
20:56	MA30922-CRIB5	112.64
21:01	ZZZZZZ	No results reported for the elements associated with this internal standard.
21:06	ZZZZZZ	No results reported for the elements associated with this internal standard.
21:12	MP71122-S1	No results reported for the elements associated with this internal standard.
21:17	MP71122-S2	No results reported for the elements associated with this internal standard.
21:22	ZZZZZZ	No results reported for the elements associated with this internal standard.
21:27	FA3179-4A	No results reported for the elements associated with this internal standard.
21:32	MP71122-SD1	No results reported for the elements associated with this internal standard.
21:37	MP71122-PS1	No results reported for the elements associated with this internal standard.
21:42	ZZZZZZ	No results reported for the elements associated with this internal standard.
21:47	MA30922-CCVA13	No results reported for the elements associated with this internal standard.
21:52	MA30922-CCB13	No results reported for the elements associated with this internal standard.
21:57	ZZZZZZ	No results reported for the elements associated with this internal standard.
22:02	ZZZZZZ	No results reported for the elements associated with this internal standard.
22:07	ZZZZZZ	No results reported for the elements associated with this internal standard.

! = Outside limits.

LEGEND:

Istd#	Parameter	Limits	CCV/CCB Limits
Istd#17	Bismuth (209-2)	70-130 %	70-130 %

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA041013M2L.CSV Date Analyzed: 04/10/13 Methods: SW846 6020A
QC Limits: result < LOD Run ID: MA30922 Units: ug/l

Time:				10:39		10:54		11:25	
Sample ID:				ICB1		CCB1		CCB2	
Metal	RL	IDL	LOD	raw	final	raw	final	raw	final
Aluminum	25	.2	20						
Antimony	0.50	.038	0.50						
Arsenic	0.50	.018	0.40						
Barium	1.0	.034	0.50						
Beryllium	0.50	.0032	0.25						
Boron	5.0	.88	2.5						
Cadmium	0.50	.0039	0.30						
Calcium	250	1.4	50						
Chromium	1.0	.012	0.50						
Cobalt	0.50	.0032	0.25						
Copper	1.0	.0096	0.50						
Iron	25	.66	13						
Lead	0.50	.0039	0.25	-0.00049	<1.5	-0.0031	<1.5	-0.0021	<1.5
Magnesium	250	.35	130						
Manganese	1.0	.0078	0.50						
Molybdenum	1.0	.035	0.50						
Nickel	1.0	.038	1.0						
Potassium	250	1.4	50						
Selenium	0.50	.025	0.50						
Silver	0.50	.004	0.25						
Sodium	250	5.2	50						
Strontium	5.0	.0065	2.5						
Thallium	0.50	.015	0.35						
Tin	5.0	.021	2.5						
Titanium	1.0	.04	0.50						
Vanadium	1.0	.025	0.50						
Zinc	2.0	.055	1.5						

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA041013M2L.CSV Date Analyzed: 04/10/13 Methods: SW846 6020A
QC Limits: result < LOD Run ID: MA30922 Units: ug/l

Time:				12:20		13:16		14:16	
Sample ID:				CCB3		CCB4		CCB5	
Metal	RL	IDL	LOD	raw	final	raw	final	raw	final
Aluminum	25	.2	20						
Antimony	0.50	.038	0.50						
Arsenic	0.50	.018	0.40						
Barium	1.0	.034	0.50						
Beryllium	0.50	.0032	0.25						
Boron	5.0	.88	2.5						
Cadmium	0.50	.0039	0.30						
Calcium	250	1.4	50						
Chromium	1.0	.012	0.50						
Cobalt	0.50	.0032	0.25						
Copper	1.0	.0096	0.50						
Iron	25	.66	13						
Lead	0.50	.0039	0.25	-0.0030	<0.50	-0.0077	<0.50	-0.0036	<1.5
Magnesium	250	.35	130						
Manganese	1.0	.0078	0.50						
Molybdenum	1.0	.035	0.50						
Nickel	1.0	.038	1.0						
Potassium	250	1.4	50						
Selenium	0.50	.025	0.50						
Silver	0.50	.004	0.25						
Sodium	250	5.2	50						
Strontium	5.0	.0065	2.5						
Thallium	0.50	.015	0.35						
Tin	5.0	.021	2.5						
Titanium	1.0	.04	0.50						
Vanadium	1.0	.025	0.50						
Zinc	2.0	.055	1.5						

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA041013M2L.CSV Date Analyzed: 04/10/13 Methods: SW846 6020A
QC Limits: result < LOD Run ID: MA30922 Units: ug/l

Time:				15:16		15:58	
Sample ID:				CCB6		CCB7	
Metal	RL	IDL	LOD	raw	final	raw	final
Aluminum	25	.2	20				
Antimony	0.50	.038	0.50				
Arsenic	0.50	.018	0.40				
Barium	1.0	.034	0.50				
Beryllium	0.50	.0032	0.25				
Boron	5.0	.88	2.5				
Cadmium	0.50	.0039	0.30				
Calcium	250	1.4	50				
Chromium	1.0	.012	0.50				
Cobalt	0.50	.0032	0.25				
Copper	1.0	.0096	0.50				
Iron	25	.66	13				
Lead	0.50	.0039	0.25	-0.0046	<1.5	-0.0038	<1.5
Magnesium	250	.35	130				
Manganese	1.0	.0078	0.50				
Molybdenum	1.0	.035	0.50				
Nickel	1.0	.038	1.0				
Potassium	250	1.4	50				
Selenium	0.50	.025	0.50				
Silver	0.50	.004	0.25				
Sodium	250	5.2	50				
Strontium	5.0	.0065	2.5				
Thallium	0.50	.015	0.35				
Tin	5.0	.021	2.5				
Titanium	1.0	.04	0.50				
Vanadium	1.0	.025	0.50				
Zinc	2.0	.055	1.5				

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA041013M2L.CSV Date Analyzed: 04/10/13 Methods: SW846 6020A
QC Limits: 90 to 110 % Recovery Run ID: MA30922 Units: ug/l

Time:		10:34			10:49			11:20	
Sample ID:	ICVA	ICVA1		CCVA	CCVA1		CCVA	CCVA2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	60	63.1	105.2	50	55.9	111.8*	50	50.3	100.6
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Potassium	anr								
Selenium	anr								
Silver	anr								
Sodium	anr								
Strontium									
Thallium	anr								
Tin									
Titanium									
Vanadium	anr								
Zinc	anr								

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA041013M2L.CSV Date Analyzed: 04/10/13 Methods: SW846 6020A
QC Limits: 90 to 110 % Recovery Run ID: MA30922 Units: ug/l

Time:		12:15			13:11			14:11	
Sample ID:	CCVA	CCVA3		CCVA	CCVA4		CCVA	CCVA5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	50	50.1	100.2	50	50.4	100.8	50	50.1	100.2
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Potassium	anr								
Selenium	anr								
Silver	anr								
Sodium	anr								
Strontium									
Thallium	anr								
Tin									
Titanium									
Vanadium	anr								
Zinc	anr								

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA041013M2L.CSV Date Analyzed: 04/10/13 Methods: SW846 6020A
QC Limits: 90 to 110 % Recovery Run ID: MA30922 Units: ug/l

Time:		15:11			15:53	
Sample ID:	CCVA	CCVA6		CCVA	CCVA7	
Metal	True	Results	% Rec	True	Results	% Rec
Aluminum	anr					
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Boron						
Cadmium	anr					
Calcium	anr					
Chromium	anr					
Cobalt	anr					
Copper	anr					
Iron	anr					
Lead	50	50.0	100.0	50	50.6	101.2
Magnesium	anr					
Manganese	anr					
Molybdenum						
Nickel	anr					
Potassium	anr					
Selenium	anr					
Silver	anr					
Sodium	anr					
Strontium						
Thallium	anr					
Tin						
Titanium						
Vanadium	anr					
Zinc	anr					

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA041013M2L.CSV Date Analyzed: 04/10/13 Methods: SW846 6020A
QC Limits: 80 to 120 % Recovery Run ID: MA30922 Units: ug/l

Time:		10:44		11:30	
Sample ID:	CRIB	CRIB1		CRIB2	
Metal	True	Results	% Rec	Results	% Rec
Aluminum	25				
Antimony	0.50				
Arsenic	0.50				
Barium	1.0				
Beryllium	0.50				
Boron	5.0				
Cadmium	0.50				
Calcium	250				
Chromium	1.0				
Cobalt	0.50				
Copper	1.0				
Iron	25				
Lead	0.50	0.56	112.0	0.54	108.0
Magnesium	250				
Manganese	0.50				
Molybdenum	1.0				
Nickel	1.0				
Potassium	250				
Selenium	0.50				
Silver	0.50				
Sodium	250				
Strontium	5.0				
Thallium	0.50				
Tin	5.0				
Titanium	1.0				
Vanadium	1.0				
Zinc	2.0				

(*) Outside of QC limits
(anr) Analyte not requested

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA041013M2L.CSV Date Analyzed: 04/10/13 Methods: SW846 6020A
QC Limits: 80 to 120 % Recovery Run ID: MA30922 Units: ug/l

Time:			10:59		11:04		15:27		15:32	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1		ICSA2		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	100000	100000	97500	97.5	96200	96.2	96600	96.6	93400	93.4
Antimony			0.22		0.20		0.24		0.19	
Arsenic		20	0.066		18.8	94.0	0.074		19.3	96.5
Barium			0.16		0.16		0.15		0.17	
Beryllium			0.0023		0.00053		-0.0053		-0.0011	
Boron			0.85		0.72		0.63		0.20	
Cadmium		20	0.43		18.3	91.5	0.44		18.6	93.0
Calcium	100000	100000	94500	94.5	93600	93.6	94800	94.8	92500	92.5
Chromium		20	1.1		21.4	107.0	1.1		21.1	105.5
Cobalt		20	0.014		19.3	96.5	0.012		18.9	94.5
Copper		20	-0.45		17.4	87.0	-0.49		17.2	86.0
Iron	100000	100000	96600	96.6	95100	95.1	96400	96.4	94900	94.9
Lead			0.13		0.12		0.12		0.12	
Magnesium	100000	100000	97000	97.0	95000	95.0	95500	95.5	92600	92.6
Manganese		20	0.20		19.9	99.5	0.23		20.3	101.5
Molybdenum	2000	2000	2270	113.5	2240	112.0	2250	112.5	2210	110.5
Nickel		20	0.62		19.3	96.5	0.70		18.8	94.0
Potassium	100000	100000	97500	97.5	96600	96.6	97700	97.7	95400	95.4
Selenium			0.018		0.0023		0.053		0.023	
Silver		20	0.040		18.3	91.5	0.034		17.9	89.5
Sodium	100000	100000	99200	99.2	97600	97.6	97700	97.7	94100	94.1
Strontium			4.7		4.7		4.8		4.7	
Thallium			0.054		0.052		0.091		0.066	
Tin			0.079		0.073		0.059		0.055	
Titanium	2000	2000	2300	115.0	2260	113.0	2290	114.5	2230	111.5
Vanadium			-0.093		-0.091		-0.087		-0.078	
Zinc		20	1.3		17.2	86.0	1.4		17.8	89.0

(*) Outside of QC limits
(anr) Analyte not requested

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA042113M2L.CSV Date Analyzed: 04/21/13 Methods: SW846 6020A
Analyst: VC Run ID: MA31006
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
10:32	MA31006-STD1	1		STDA
10:37	MA31006-STD2	1		STDA
10:42	MA31006-STD3	1		STDB
10:48	MA31006-STD4	1		STDC
10:53	MA31006-STD5	1		STDD
10:58	MA31006-STD6	1		STDE
11:03	MA31006-STD7	1		STDF
11:08	MA31006-STD8	1		STDG
11:13	MA31006-STD9	1		STDH
11:18	MA31006-STD10	1		STDI
11:23	MA31006-STD11	1		STDJ
11:28	MA31006-ICVA1	1		See rerun.
11:33	MA31006-ICB1	1		See rerun.
11:38	MA31006-ICVA2	1		
11:43	MA31006-ICB2	1		
11:48	MA31006-CRIB1	1		
11:53	MA31006-CCVA1	1		
11:58	MA31006-CCB1	1		
12:03	MA31006-ICSA1	1		
12:09	MA31006-ICSAB1	1		
12:14	ZZZZZZ	2		
12:19	MP71279A-SD1	50		Sc-3 out.
12:24	MP71239-LC1	2		
12:29	MP71239-LC2	2		
12:34	MA31006-CCVA2	1		
12:39	MA31006-CCB2	1		
12:44	MP71239-LC3	2		
12:49	MP71239-LC4	2		To reanalysis for Zn.
12:55	MP71239-SD1	10		To reanalysis, wrong sample used.
13:00	ZZZZZZ	2		
13:05	JB33197-1F	2		
13:10	JB33197-2F	2		
13:15	JB33197-3F	2		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA042113M2L.CSV Date Analyzed: 04/21/13 Methods: SW846 6020A
Analyst: VC Run ID: MA31006
Parameters: Pb

	Time	Sample Description	Dilution Factor	PS Recov	Comments
	13:20	JB33197-4F	2		
	13:26	JB33197-5F	2		
	13:31	MA31006-CCVA3	1		
	13:36	MA31006-CCB3	1		
	13:41	JB33197-7F	2		
	13:46	JB33197-8F	2		
	13:51	JB33197-9F	2		
	13:56	JB33197-10F	2		
	14:01	JB33197-11F	2		
---------->	Last reportable sample/prep for job JB33197				
	14:06	MP71313-MB1	2		
	14:11	MP71313-MB2	2		
	14:16	MP71313-LC1	2		
	14:22	MP71313-LC2	2		
	14:27	ZZZZZZ	2		
	14:32	MA31006-CCVA4	1		
	14:37	MA31006-CCB4	1		
	14:42	MP71313-S1	10		
	14:47	MP71313-S2	10		
	14:52	JB33559-3F	2		(sample used for QC only; not part of login JB33197)
	14:57	MP71313-SD1	10		
	15:02	ZZZZZZ	2		
	15:07	ZZZZZZ	2		
	15:12	ZZZZZZ	2		
	15:17	ZZZZZZ	2		
	15:23	ZZZZZZ	2		
	15:28	ZZZZZZ	2		
	15:33	MA31006-CCVA5	1		
	15:38	MA31006-CCB5	1		
	15:43	MA31006-CRIB2	1		
	15:48	ZZZZZZ	2		
	15:54	ZZZZZZ	2		
	15:59	ZZZZZZ	2		
	16:04	ZZZZZZ	2		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA042113M2L.CSV Date Analyzed: 04/21/13 Methods: SW846 6020A
Analyst: VC Run ID: MA31006
Parameters: Pb

	Time	Sample Description	Dilution Factor	PS Recov	Comments
	16:09	ZZZZZZ	2		
	16:14	ZZZZZZ	2		
	16:19	ZZZZZZ	2		
	16:24	ZZZZZZ	2		
	16:29	ZZZZZZ	2		
	16:35	MA31006-CCVA6	1		
	16:40	MA31006-CCB6	1		
---------->	Last reportable CCB for job JB33197				
	16:45	ZZZZZZ	2		
	16:50	ZZZZZZ	2		
	16:55	ZZZZZZ	2		
	17:00	ZZZZZZ	2		
	17:05	MP71255A-MB1	2		
	17:10	MP71255A-LC1	10		
	17:15	MP71255A-B1	25		
	17:20	MP71255A-S1	25		Sc out.
	17:25	MP71255A-S2	25		Sc out.
	17:30	ZZZZZZ	1		
	17:35	MA31006-CCVA7	1		
	17:40	MA31006-CCB7	1		
	17:46	MA31006-CRIB3	1		
	17:51	JB33256-66	5		(sample used for QC only; not part of login JB33197)
	17:56	MP71255A-SD1	25		Sc out.
	18:01	MP71255A-S3	25		Sc out.
	18:06	MP71255A-S4	25		Sc out.
	18:11	JB33256-66F	5		(sample used for QC only; not part of login JB33197)
	18:16	MP71255A-SD2	25		Sc out.
	18:21	MP71255A-PS1	5		Sc out.
	18:26	MP71255A-PS2	5		
	18:31	ZZZZZZ	2		
	18:36	MA31006-CCVA8	1		
	18:41	MA31006-CCB8	1		
	18:46	ZZZZZZ	2		
	18:51	ZZZZZZ	5		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA042113M2L.CSV Date Analyzed: 04/21/13 Methods: SW846 6020A
Analyst: VC Run ID: MA31006
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
18:56	ZZZZZZ	2		
19:01	ZZZZZZ	2		
19:06	ZZZZZZ	2		
19:11	ZZZZZZ	2		
19:16	ZZZZZZ	2		
19:21	ZZZZZZ	2		
19:26	ZZZZZZ	5		
19:31	ZZZZZZ	2		
19:36	MA31006-CCVA9	1		
19:42	MA31006-CCB9	1		
19:47	ZZZZZZ	1		
19:52	ZZZZZZ	2		
19:57	ZZZZZZ	2		
20:02	ZZZZZZ	2		
20:07	MP71256A-MB1	2		Sc out on CCV.
20:12	MP71256A-LC1	10		Sc out on CCV.
20:17	MP71256A-B1	25		Sc out on CCV.
20:22	MP71256A-S1	25		Sc out on CCV.
20:27	MP71256A-S2	25		Sc out on CCV.
20:32	JB33256-76	10		(sample used for QC only; not part of login JB33197)
20:37	MA31006-CCVA10	1		Sc out on CCV.
20:42	MA31006-CCB10	1		Sc out on CCV.
20:47	MP71256A-SD1	50		Sc out on CCV.
20:52	JB33256-76F	10		(sample used for QC only; not part of login JB33197)
20:57	MP71256A-SD2	50		Sc out on CCV.
21:02	MP71256A-S3	25		Sc out on CCV.
21:07	MP71256A-S4	25		Sc out on CCV.
21:12	MP71256A-PS1	10		Sc out on CCV.
21:17	MP71256A-PS2	10		Sc out on CCV.
21:23	ZZZZZZ	2		
21:28	ZZZZZZ	2		
21:33	ZZZZZZ	10		
21:38	MA31006-CCVA11	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA042113M2L.CSV Date Analyzed: 04/21/13 Methods: SW846 6020A
Analyst: VC Run ID: MA31006
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
21:43	MA31006-CCB11	1		
21:48	MA31006-CRIB4	1		
21:53	ZZZZZZ	2		
21:58	ZZZZZZ	2		
22:03	ZZZZZZ	2		
22:08	ZZZZZZ	2		
22:13	ZZZZZZ	2		
22:18	MA31006-CCVA12	1		
22:23	MA31006-CCB12	1		
22:29	MA31006-CRIB5	1		Zn out.
22:34	ZZZZZZ	2		
22:39	ZZZZZZ	2		
22:44	ZZZZZZ	10		
22:49	ZZZZZZ	10		
22:54	ZZZZZZ	1		
22:59	ZZZZZZ	1		

Refer to raw data for calibration curve and standards.

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA042113M2L.CSV Date Analyzed: 04/21/13 Methods: SW846 6020A
Analyst: VC Run ID: MA31006
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4	Istd#5	Istd#6	Istd#7	Istd#8
10:32	MA31006-STD1	100	100	100	100	100	100	100	100
10:37	MA31006-STD2	100	100	100	100	100	100	100	100
10:42	MA31006-STD3	100.959	101.303	103.501	103.252	100.317	102.191	102.831	101.32
10:48	MA31006-STD4	102.652	103.205	101.478	98.282	101.529	98.366	97.599	102.821
10:53	MA31006-STD5	100.094	101.61	98.083	96.765	99.858	98.211	96.946	101.37
10:58	MA31006-STD6	96.719	96.831	95.037	93.524	94.028	93.597	92.34	97.081
11:03	MA31006-STD7	91.275	91.145	89.442	86.741	89.336	87.221	85.412	91.094
11:08	MA31006-STD8	94.541	94.884	97.198	96.586	93.378	96.534	96.071	95.004
11:13	MA31006-STD9	101.227	103.277	100.105	97.835	100.188	99.266	97.387	101.192
11:18	MA31006-STD10	101.627	102.513	103.537	100.715	99.369	100.809	98.512	98.69
11:23	MA31006-STD11	104.782	105.265	105.648	108.061	101.959	102.561	102.211	98.83
11:28	MA31006-ICVA1	No results reported for the elements associated with this internal standard.							
11:33	MA31006-ICB1	No results reported for the elements associated with this internal standard.							
11:38	MA31006-ICVA2	101.644	104.583	100.472	97.543	99.958	98.489	96.303	99.12
11:43	MA31006-ICB2	102.77	103.988	106.025	103.277	101.31	105.59	102.583	103.431
11:48	MA31006-CRIB1	104.307	105.072	104.464	103.323	103.047	103.832	102.028	104.385
11:53	MA31006-CCVA1	102.743	104.329	101.251	98.762	101.125	99.463	95.736	100.806
11:58	MA31006-CCB1	105.708	106.649	106.972	103.249	104.219	103.789	103.341	106.475
12:03	MA31006-ICSA1	102.064	100.888	104.107	103.632	95.072	96.928	97.599	89
12:09	MA31006-ICSAB1	116.779	118.875	115.668	118.156	109.874	108.799	112.886	101.946
12:14	ZZZZZZ	No results reported for the elements associated with this internal standard.							
12:19	MP71279A-SD1	118.12	124.445	123.937	130.645	!a123.406	126.726	131.623	!a114.721
12:24	MP71239-LC1	110.152	112.157	103.028	111.065	105.729	99.915	109.967	102.729
12:29	MP71239-LC2	114.499	117.365	105.035	116.568	107.921	101.407	114.086	107.286
12:34	MA31006-CCVA2	114.039	116.497	110.946	120.432	109.795	109.928	117.501	108.244
12:39	MA31006-CCB2	122.364	130.038	!a113.674	121.035	119.806	111.848	121.29	125.826
12:44	MP71239-LC3	118.853	120.219	109.26	119.432	110.956	103.851	115.852	108.783
12:49	MP71239-LC4	115.322	116.07	108.49	117.872	107.136	103.708	113.541	105.318
12:55	MP71239-SD1	No results reported for the elements associated with this internal standard.							
13:00	ZZZZZZ	120.27	126.303	110.15	108.028	107.26	95.991	100.525	100.364
13:05	JB33197-1F	95.191	100.059	92.511	101.477	92.637	92.117	100.621	89.018
13:10	JB33197-2F	104.943	110.336	98.506	111.03	102.551	100.13	109.678	99.015
13:15	JB33197-3F	105.061	111.154	100.921	110.978	102.053	99.081	111.36	97.837

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA042113M2L.CSV Date Analyzed: 04/21/13 Methods: SW846 6020A
Analyst: VC Run ID: MA31006
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4	Istd#5	Istd#6	Istd#7	Istd#8
13:20	JB33197-4F	108.08	116.916	100.922	112.446	106.222	101.666	111.136	100.328
13:26	JB33197-5F	113.408	118.834	106.947	118.01	112.477	106.664	118.548	111.465
13:31	MA31006-CCVA3	100.943	103.662	100.793	108.924	101.58	99.581	108.345	97.527
13:36	MA31006-CCB3	104.242	106.418	102.541	109.304	105.881	104.275	112.445	104.053
13:41	JB33197-7F	105.774	109.884	99.603	111.418	103.903	99.019	111.661	100.065
13:46	JB33197-8F	110.494	116.792	105.484	116.591	107.911	103.579	115.369	102.814
13:51	JB33197-9F	111.416	116.099	104.569	115.748	108.746	103.77	116.017	103.427
13:56	JB33197-10F	108.285	113.898	101	112.593	106.722	102.659	111.783	101.867
14:01	JB33197-11F	108.222	115.302	106.143	116.335	103.936	104.677	113.142	99.784
14:06	MP71313-MB1	119.803	129.227	115.656	123.514	120.841	113.341	123.764	121.492
14:11	MP71313-MB2	116.568	122.377	108.386	119.833	116.831	108.7	120.445	114.87
14:16	MP71313-LC1	105.447	108.324	105.999	121.692	101.822	100.821	116.724	98.199
14:22	MP71313-LC2	114.486	119.353	108.887	120.366	109.595	103.912	116.012	107.593
14:27	ZZZZZZ	No results reported for the elements associated with this internal standard.							
14:32	MA31006-CCVA4	97.504	97.187	97.693	102.618	96.495	96.762	102.36	92.849
14:37	MA31006-CCB4	96.827	98.911	96.452	100.692	97.808	98.052	102.257	97.883
14:42	MP71313-S1	90.622	94.65	80.866	92.36	92.97	83.941	94.667	91.845
14:47	MP71313-S2	89.966	92.028	89.766	90.05	91.913	92.838	91.264	89.78
14:52	JB33559-3F	98.99	104.731	99.715	108.557	95.843	97.088	103.5	94.593
14:57	MP71313-SD1	92.743	95.084	96.039	95.384	97.096	97.712	98.893	94.779
15:02	ZZZZZZ	106.705	112.328	106.303	109.997	107.298	105.079	110.668	108.068
15:07	ZZZZZZ	103.89	108.703	100.947	108.28	100.27	95.713	105.643	95.772
15:12	ZZZZZZ	102.425	108.992	99.542	106.398	99.862	96.916	103.426	95.104
15:17	ZZZZZZ	103.316	109.605	99.593	107.4	100.67	97.095	105.834	96.89
15:23	ZZZZZZ	97.574	97.725	104.582	113.155	96.41	102.172	109.868	85.676
15:28	ZZZZZZ	92.998	97.658	94.017	100.125	90.866	91.759	99.342	83.751
15:33	MA31006-CCVA5	101.457	106.894	103.583	105.562	104.072	103.813	104.281	102.113
15:38	MA31006-CCB5	101.109	108.853	102.543	103.513	104.514	104.271	104.727	107.234
15:43	MA31006-CRIB2	103.842	111.061	98.977	99.15	108.201	101.759	101.769	111.678
15:48	ZZZZZZ	100.511	113.5	100.276	106.455	105.468	100.334	105.008	100.111
15:54	ZZZZZZ	99.513	102.006	100.498	107.087	100.085	99.371	108.224	93.47
15:59	ZZZZZZ	97.694	101.514	95.78	102.182	95.981	94.634	101.271	90.82
16:04	ZZZZZZ	98.831	101.674	97.196	104.062	99.409	97.977	104.551	92.757

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA042113M2L.CSV Date Analyzed: 04/21/13 Methods: SW846 6020A
Analyst: VC Run ID: MA31006
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4	Istd#5	Istd#6	Istd#7	Istd#8
16:09	ZZZZZZ	94.636	100.091	93.749	99.422	93.161	92.641	99.301	89.314
16:14	ZZZZZZ	85.819	87.317	96.734	101.432	88.155	98.927	100.913	78.462
16:19	ZZZZZZ	81.378	81.432	88.063	94.794	82.387	87.917	95.668	75.362
16:24	ZZZZZZ	84.824	91.566	83.859	89.192	86.317	80.666	90.081	83.394
16:29	ZZZZZZ	84.244	93.438	84.828	91.063	85.988	84.508	91.126	84.309
16:35	MA31006-CCVA6	84.406	89.248	86.943	87.008	88.273	89.213	88.571	87.311
16:40	MA31006-CCB6	82.684	86.72	84.596	85.467	86.833	87.146	89.02	87.924
16:45	ZZZZZZ	83.148	89.868	84.431	88.686	85.9	84.396	90.48	86.261
16:50	ZZZZZZ	85.86	94.628	71.143	87.506	87.973	75.131	88.096	86.946
16:55	ZZZZZZ	85.445	95.471	74.267	85.149	86.271	74.288	83.435	84.51
17:00	ZZZZZZ	83.222	89.537	81.799	87.213	87.263	84.439	89.815	85.668
17:05	MP71255A-MB1	80.918	86.333	79.745	84.494	83.874	81.986	86.203	85.831
17:10	MP71255A-LC1	72.046	74.389	72.267	71.408	76.393	76.689	76.603	77.168
17:15	MP71255A-B1	65.75 !a	68.354 !a	70.412	66.686 !a	71.867	74.273	71.553	72.206
17:20	MP71255A-S1	No results reported for the elements associated with this internal standard.							
17:25	MP71255A-S2	No results reported for the elements associated with this internal standard.							
17:30	ZZZZZZ	No results reported for the elements associated with this internal standard.							
17:35	MA31006-CCVA7	67.981 !a	71.319	73.684	72.018	72.282	74.316	74.802	72.626
17:40	MA31006-CCB7	70.276	72.696	74.937	72.549	74.137	78.891	76.807	76.378
17:46	MA31006-CRIB3	68.391 !a	73.701	75.022	74.806	74.77	77.238	78.194	77.215
17:51	JB33256-66	67.044 !a	69.903 !a	73.373	88.986	71.849	77.546	88.205	72.515
17:56	MP71255A-SD1	No results reported for the elements associated with this internal standard.							
18:01	MP71255A-S3	No results reported for the elements associated with this internal standard.							
18:06	MP71255A-S4	No results reported for the elements associated with this internal standard.							
18:11	JB33256-66F	64.518 !a	68.561 !a	71.587	70.122	70.845	73.897	74.027	71.643
18:16	MP71255A-SD2	No results reported for the elements associated with this internal standard.							
18:21	MP71255A-PS1	No results reported for the elements associated with this internal standard.							
18:26	MP71255A-PS2	57.885 !a	58.957 !a	72.656	70.881	62.411 !a	76.733	73.563	60.578 !a
18:31	ZZZZZZ	73.788	79.385	77.427	79.776	78.629	80.042	81.452	79.154
18:36	MA31006-CCVA8	68.544 !a	72.709	72.81	70.57	72.504	75.678	74.737	73.389
18:41	MA31006-CCB8	66.862 !a	68.779 !a	73.337	71.289	71.77	75.913	74.406	72.747
18:46	ZZZZZZ	74.271	80.281	79.607	80.55	79.37	82.343	84.602	82.532
18:51	ZZZZZZ	67.904 !a	75.101	73.982	72.144	75.355	80.006	76.131	76.606

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA042113M2L.CSV Date Analyzed: 04/21/13 Methods: SW846 6020A
Analyst: VC Run ID: MA31006
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4	Istd#5	Istd#6	Istd#7	Istd#8
18:56	ZZZZZZ	78.068	85.626	82.828	78.68	83.465	83.582	80.718	84.963
19:01	ZZZZZZ	76.255	82.501	77.479	69.865 !a	79.33	78.927	73.483	81.351
19:06	ZZZZZZ	75.208	82.642	74.083	81.115	80.368	78.736	84.827	81.328
19:11	ZZZZZZ	75.02	80.563	78.137	78.843	79.359	80.376	81.581	79.904
19:16	ZZZZZZ	73.974	78.222	75.375	76.704	77.232	77.14	81.508	77.892
19:21	ZZZZZZ	75.044	79.779	77.604	79.363	79.124	79.994	80.653	80.694
19:26	ZZZZZZ	66.757 !a	71.575	70.314	68.752 !a	72.031	74.014	71.933	73.666
19:31	ZZZZZZ	73.148	77.683	76.995	76.752	76.39	77.651	79.779	76.585
19:36	MA31006-CCVA9	64.292 !a	67.991 !a	71.544	68.956 !a	69.651 !a	73.995	72.673	70.222
19:42	MA31006-CCB9	67.468 !a	71.003	73.197	70.111	72.963	78.236	73.354	75.09
19:47	ZZZZZZ	No results reported for the elements associated with this internal standard.							
19:52	ZZZZZZ	No results reported for the elements associated with this internal standard.							
19:57	ZZZZZZ	No results reported for the elements associated with this internal standard.							
20:02	ZZZZZZ	No results reported for the elements associated with this internal standard.							
20:07	MP71256A-MB1	No results reported for the elements associated with this internal standard.							
20:12	MP71256A-LC1	No results reported for the elements associated with this internal standard.							
20:17	MP71256A-B1	No results reported for the elements associated with this internal standard.							
20:22	MP71256A-S1	No results reported for the elements associated with this internal standard.							
20:27	MP71256A-S2	No results reported for the elements associated with this internal standard.							
20:32	JB33256-76	No results reported for the elements associated with this internal standard.							
20:37	MA31006-CCVA10	64.62 !a	68.379 !a	69.82 !a	70.687	69.772 !a	73.379	72.697	69.26 !a
20:42	MA31006-CCB10	69.485 !a	72.96	74.1	71.143	73.988	78.323	73.934	76.965
20:47	MP71256A-SD1	No results reported for the elements associated with this internal standard.							
20:52	JB33256-76F	No results reported for the elements associated with this internal standard.							
20:57	MP71256A-SD2	No results reported for the elements associated with this internal standard.							
21:02	MP71256A-S3	No results reported for the elements associated with this internal standard.							
21:07	MP71256A-S4	No results reported for the elements associated with this internal standard.							
21:12	MP71256A-PS1	No results reported for the elements associated with this internal standard.							
21:17	MP71256A-PS2	No results reported for the elements associated with this internal standard.							
21:23	ZZZZZZ	No results reported for the elements associated with this internal standard.							
21:28	ZZZZZZ	No results reported for the elements associated with this internal standard.							
21:33	ZZZZZZ	No results reported for the elements associated with this internal standard.							
21:38	MA31006-CCVA11	64.851 !a	69.009 !a	73.104	70.173	70.301	75.672	72.898	71.179

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA042113M2L.CSV Date Analyzed: 04/21/13 Methods: SW846 6020A
Analyst: VC Run ID: MA31006
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4	Istd#5	Istd#6	Istd#7	Istd#8
21:43	MA31006-CCB11	70.86	75.304	74.505	69.53 !a	75.598	77.596	73.787	78.908
21:48	MA31006-CRIB4	69.946 !a	74.369	74.855	71.279	76.253	79.587	73.901	78.685
21:53	ZZZZZZ	No results reported for the elements associated with this internal standard.							
21:58	ZZZZZZ	No results reported for the elements associated with this internal standard.							
22:03	ZZZZZZ	No results reported for the elements associated with this internal standard.							
22:08	ZZZZZZ	No results reported for the elements associated with this internal standard.							
22:13	ZZZZZZ	No results reported for the elements associated with this internal standard.							
22:18	MA31006-CCVA12	No results reported for the elements associated with this internal standard.							
22:23	MA31006-CCB12	No results reported for the elements associated with this internal standard.							
22:29	MA31006-CRIB5	No results reported for the elements associated with this internal standard.							
22:34	ZZZZZZ	No results reported for the elements associated with this internal standard.							
22:39	ZZZZZZ	No results reported for the elements associated with this internal standard.							
22:44	ZZZZZZ	No results reported for the elements associated with this internal standard.							
22:49	ZZZZZZ	No results reported for the elements associated with this internal standard.							
22:54	ZZZZZZ	No results reported for the elements associated with this internal standard.							
22:59	ZZZZZZ	No results reported for the elements associated with this internal standard.							

! = Outside limits.

LEGEND:

Istd#	Parameter	Limits	CCV/CCB Limits
Istd#1	Lithium	70-130 %	70-130 %
Istd#2	Scandium (45-1)	70-130 %	70-130 %
Istd#3	Scandium (45-2)	70-130 %	70-130 %
Istd#4	Scandium (45-3)	70-130 %	70-130 %
Istd#5	Germanium (72-1)	70-130 %	70-130 %
Istd#6	Germanium (72-2)	70-130 %	70-130 %
Istd#7	Germanium (72-3)	70-130 %	70-130 %
Istd#8	Rhodium (103-1)	70-130 %	70-130 %

(a) No samples reported for the elements associated with this internal standard.

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA042113M2L.CSV Date Analyzed: 04/21/13 Methods: SW846 6020A
Analyst: VC Run ID: MA31006
Parameters: Pb

Time	Sample Description	Istd#9	Istd#10	Istd#11	Istd#12	Istd#13	Istd#14	Istd#15	Istd#16
10:32	MA31006-STD1	100	100	100	100	100	100	100	100
10:37	MA31006-STD2	100	100	100	100	100	100	100	100
10:42	MA31006-STD3	102.094	100.086	102.832	100.182	101.555	100.247	101.497	100.802
10:48	MA31006-STD4	100.29	101.85	99.63	103.081	100.121	102.396	100.346	102.196
10:53	MA31006-STD5	98.375	100.46	97.781	101.761	99.273	101.291	99.287	101.559
10:58	MA31006-STD6	95.218	96.745	93.203	98.918	96.272	98.758	96.356	99.419
11:03	MA31006-STD7	90.759	91.044	90.007	94.337	93.97	93.927	94.22	95.475
11:08	MA31006-STD8	97.315	95.458	97.666	97.277	98.72	96.583	98.842	97.699
11:13	MA31006-STD9	99.831	100.853	99.39	102.24	101.121	101.5	100.636	101.015
11:18	MA31006-STD10	98.581	98.867	98.768	101.369	101.227	100.581	101.099	97.598
11:23	MA31006-STD11	98.267	99.311	98.725	102.267	102.16	101.134	102.296	96.114
11:28	MA31006-ICVA1	No results reported for the elements associated with this internal standard.							
11:33	MA31006-ICB1	No results reported for the elements associated with this internal standard.							
11:38	MA31006-ICVA2	96.952	99.961	96.185	102.385	99.81	101.215	99.638	98.15
11:43	MA31006-ICB2	106.287	103.234	104.988	103.201	104.915	101.954	105.153	102.797
11:48	MA31006-CRIB1	103.52	103.855	103.42	104.226	103.263	102.883	103.063	103.303
11:53	MA31006-CCVA1	97.748	100.719	96.724	102.515	100.777	101.827	100.725	97.958
11:58	MA31006-CCB1	105.527	105.174	105.081	105.639	104.932	103.964	104.046	104.508
12:03	MA31006-ICSA1	89.234	95.024	94.794	97.96	94.73	96.112	93.474	87.612
12:09	MA31006-ICSAB1	98.887	109.63	103.273	112.848	102.426	111.151	101.795	99.426
12:14	ZZZZZZ	No results reported for the elements associated with this internal standard.							
12:19	MP71279A-SD1	117.672	118.805	116.941	122.056	119.543	121.366	120.022	118.211
12:24	MP71239-LC1	101.963	107.145	96.446	116.962	107.688	116.448	107.817	108.283
12:29	MP71239-LC2	103.554	111.007	97.969	121.648	110.019	120.658	110.855	111.129
12:34	MA31006-CCVA2	110.2	111.98	105.191	118.202	113.167	117.191	113.053	113.934
12:39	MA31006-CCB2	115.174	126.941	110.376	131.425	!a114.107	130.297	!a114.588	127.665
12:44	MP71239-LC3	106.821	112.556	100.24	121.943	111.902	121.57	112.256	111.245
12:49	MP71239-LC4	106.107	109.801	99.201	119.5	111.027	119.108	111.439	108.954
12:55	MP71239-SD1	No results reported for the elements associated with this internal standard.							
13:00	ZZZZZZ	90.616	109.78	92.861	119.438	100.583	118.797	100.837	95.123
13:05	JB33197-1F	89.739	93.193	85.725	101.185	95.187	100.603	95.683	92.419
13:10	JB33197-2F	96.555	103.208	91.476	110.629	100.779	109.753	100.917	100.672
13:15	JB33197-3F	96.209	102.056	90.936	110.171	100.521	109.841	100.823	98.703

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA042113M2L.CSV Date Analyzed: 04/21/13 Methods: SW846 6020A
Analyst: VC Run ID: MA31006
Parameters: Pb

Time	Sample Description	Istd#9	Istd#10	Istd#11	Istd#12	Istd#13	Istd#14	Istd#15	Istd#16
13:20	JB33197-4F	97.287	104.614	92.116	113.423	101.791	112.831	102.689	100.481
13:26	JB33197-5F	107.051	112.619	99.678	117.621	105.87	115.872	105.9	112.345
13:31	MA31006-CCVA3	100.246	100.939	94.983	105.738	101.895	104.409	101.597	102.099
13:36	MA31006-CCB3	105.607	105.678	100.138	107.764	103.104	106.309	102.794	106.905
13:41	JB33197-7F	98.89	105.528	93.881	111.709	101.541	110.751	101.708	105.075
13:46	JB33197-8F	101.562	107.352	96.532	114.67	104.264	114.118	104.03	103.112
13:51	JB33197-9F	102.184	107.63	96.297	115.025	104.649	113.912	105.242	105.268
13:56	JB33197-10F	100.19	107.27	95.269	113.745	102.418	113.241	102.451	106.632
14:01	JB33197-11F	98.939	104.38	95.202	113.563	103.674	112.93	103.45	99.509
14:06	MP71313-MB1	114.495	121.838	108.152	124.858	111.287	123.036	110.757	117.965
14:11	MP71313-MB2	109.392	116.591	102.347	121.015	107.388	119.267	106.502	114.968
14:16	MP71313-LC1	103.029	102.609	96.459	109.408	104.994	108.633	105.313	101.078
14:22	MP71313-LC2	105.344	111.205	98.211	118.656	107.742	116.977	107.485	107.763
14:27	ZZZZZZ	No results reported for the elements associated with this internal standard.							
14:32	MA31006-CCVA4	97.625	95.748	93.14	100.181	99.608	98.386	99.242	97.429
14:37	MA31006-CCB4	98.895	99.83	95.284	102.368	98.784	101.219	98.408	101.794
14:42	MP71313-S1	79.752	95.184	78.644	98.895	83.334	97.828	83.504	95.377
14:47	MP71313-S2	89.61	92.584	88.31	95.631	93.433	94.517	93.557	93.347
14:52	JB33559-3F	94.79	98.77	90.764	106.381	100.031	105.1	99.657	96.028
14:57	MP71313-SD1	96.982	96.74	95.509	97.872	98.089	96.669	97.58	96.259
15:02	ZZZZZZ	105.612	108.967	100.343	112.806	104.369	111.339	104.174	107.64
15:07	ZZZZZZ	93.352	101.566	91.194	108.411	99.423	107.799	99.133	96.69
15:12	ZZZZZZ	93.512	100.096	90.947	108.305	99.281	107.97	99.125	96.519
15:17	ZZZZZZ	94.681	103.259	91.911	109.914	100.784	109.243	100.702	99.523
15:23	ZZZZZZ	97.222	89.95	93.069	95.866	101.551	94.659	101.701	88.443
15:28	ZZZZZZ	88.385	88.557	84.868	97.035	94.619	95.723	94.689	86.721
15:33	MA31006-CCVA5	100.929	103.769	97.43	106.554	102.182	105.17	101.839	101.174
15:38	MA31006-CCB5	102.652	107.79	99.051	107.702	100.345	106.363	100.638	104.577
15:43	MA31006-CRIB2	101.487	111.395	97.962	112.12	100.172	110.651	99.649	108.699
15:48	ZZZZZZ	92.378	103.858	90.534	111.156	97.754	110.753	97.845	98.9
15:54	ZZZZZZ	95.902	97.954	91.886	101.615	99.177	100.217	98.707	96.071
15:59	ZZZZZZ	91.467	95.808	87.987	101.093	96.248	100.153	96.564	94.082
16:04	ZZZZZZ	93.907	97.054	90.25	101.906	97.403	100.484	97.196	96.927

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA042113M2L.CSV Date Analyzed: 04/21/13 Methods: SW846 6020A
Analyst: VC Run ID: MA31006
Parameters: Pb

Time	Sample Description	Istd#9	Istd#10	Istd#11	Istd#12	Istd#13	Istd#14	Istd#15	Istd#16
16:09	ZZZZZZ	89.329	93.626	85.504	100.403	94.536	100.132	95.135	90.877
16:14	ZZZZZZ	93.648	82.23	89.697	86.863	97.749	85.934	98.348	82.244
16:19	ZZZZZZ	87.327	79.266	83.386	83.476	91.577	82.195	92.349	81.662
16:24	ZZZZZZ	80.664	88.325	79.417	96.613	89.161	96.285	89.678	87.959
16:29	ZZZZZZ	82.281	89.516	80.779	97.342	90.104	97.008	90.855	87.411
16:35	MA31006-CCVA6	87.339	89.968	85.308	93.861	91.069	92.639	90.975	90.854
16:40	MA31006-CCB6	89.105	90.532	85.983	92.769	90.106	90.987	90.367	92.059
16:45	ZZZZZZ	85.527	89.234	82.257	95.221	90.693	94.845	90.733	90.803
16:50	ZZZZZZ	69.423 !a	92.232	69.609 !a	99.17	77.205	98.112	77.026	89.453
16:55	ZZZZZZ	69.365 !a	90.875	68.893 !a	99.029	77.542	98.585	78.051	85.428
17:00	ZZZZZZ	83.706	90.509	81.545	96.087	89.454	95.365	90.087	91.015
17:05	MP71255A-MB1	84.207	87.956	81.397	93.528	87.85	92.917	87.894	91.607
17:10	MP71255A-LC1	77.155	79.619	76.436	83.202	82.09	82.016	82.482	83.541
17:15	MP71255A-B1	73.415	73.603	73.862	75.998	78.713	75.365	79.415	78.653
17:20	MP71255A-S1	No results reported for the elements associated with this internal standard.							
17:25	MP71255A-S2	No results reported for the elements associated with this internal standard.							
17:30	ZZZZZZ	No results reported for the elements associated with this internal standard.							
17:35	MA31006-CCVA7	74.559	74.687	74.8	79.284	81.563	78.321	81.802	78.272
17:40	MA31006-CCB7	79.95	77.888	78.125	80.746	83.268	79.64	83.838	82.599
17:46	MA31006-CRIB3	78.693	78.206	78.413	80.607	82.763	79.57	83.21	80.715
17:51	JB33256-66	78.128	74.479	78.207	78.282	83.323	77.577	83.381	79.39
17:56	MP71255A-SD1	No results reported for the elements associated with this internal standard.							
18:01	MP71255A-S3	No results reported for the elements associated with this internal standard.							
18:06	MP71255A-S4	No results reported for the elements associated with this internal standard.							
18:11	JB33256-66F	74.927	73.827	75.609	77.4	80.344	76.12	80.551	78.735
18:16	MP71255A-SD2	No results reported for the elements associated with this internal standard.							
18:21	MP71255A-PS1	No results reported for the elements associated with this internal standard.							
18:26	MP71255A-PS2	74.787	63.369 !a	75.114	65.883 !a	81.207	65.147 !a	81.468	67.17 !a
18:31	ZZZZZZ	79.864	82.318	78.999	87.676	86.178	86.493	85.945	85.65
18:36	MA31006-CCVA8	74.356	75.609	74.464	80.932	81.432	79.754	81.803	79.27
18:41	MA31006-CCB8	77.518	73.859	77.411	76.876	81.789	75.983	81.929	78.791
18:46	ZZZZZZ	82.907	83.918	81.073	89.004	86.764	87.93	87.784	86.304
18:51	ZZZZZZ	76.053	78.222	76.853	82.968	82.311	81.157	82.25	81.921

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA042113M2L.CSV Date Analyzed: 04/21/13 Methods: SW846 6020A
Analyst: VC Run ID: MA31006
Parameters: Pb

Time	Sample Description	Istd#9	Istd#10	Istd#11	Istd#12	Istd#13	Istd#14	Istd#15	Istd#16
18:56	ZZZZZZ	83.164	87.412	82.289	93.121	88.947	92.304	89.208	87.633
19:01	ZZZZZZ	78.601	84.773	77.65	91.311	85.552	90.315	85.819	86.288
19:06	ZZZZZZ	75.24	85.129	75.163	90.417	82.573	89.808	82.443	85.708
19:11	ZZZZZZ	78.824	82.891	78.329	88.483	85.644	87.859	85.845	85.019
19:16	ZZZZZZ	78.076	81.171	77.255	86.632	84.623	86.232	84.597	84.293
19:21	ZZZZZZ	80.996	82.748	79.079	88.209	85.011	87.134	85.395	86.261
19:26	ZZZZZZ	73.566	76.153	74.069	80.671	79.629	79.844	80.128	80.897
19:31	ZZZZZZ	77.07	80.331	77.196	85.913	84.21	85.546	84.827	82.272
19:36	MA31006-CCVA9	73.078	72.458	73.421	77.011	80.51	76.231	80.976	75.693
19:42	MA31006-CCB9	77.197	75.906	76.687	78.502	81.308	77.451	81.288	79.877
19:47	ZZZZZZ	No results reported for the elements associated with this internal standard.							
19:52	ZZZZZZ	No results reported for the elements associated with this internal standard.							
19:57	ZZZZZZ	No results reported for the elements associated with this internal standard.							
20:02	ZZZZZZ	No results reported for the elements associated with this internal standard.							
20:07	MP71256A-MB1	No results reported for the elements associated with this internal standard.							
20:12	MP71256A-LC1	No results reported for the elements associated with this internal standard.							
20:17	MP71256A-B1	No results reported for the elements associated with this internal standard.							
20:22	MP71256A-S1	No results reported for the elements associated with this internal standard.							
20:27	MP71256A-S2	No results reported for the elements associated with this internal standard.							
20:32	JB33256-76	No results reported for the elements associated with this internal standard.							
20:37	MA31006-CCVA10	72.072	71.44	72.935	75.467	79.262	74.698	79.659	74.328
20:42	MA31006-CCB10	78.576	77.308	78.459	81.049	82.435	79.51	82.147	81.491
20:47	MP71256A-SD1	No results reported for the elements associated with this internal standard.							
20:52	JB33256-76F	No results reported for the elements associated with this internal standard.							
20:57	MP71256A-SD2	No results reported for the elements associated with this internal standard.							
21:02	MP71256A-S3	No results reported for the elements associated with this internal standard.							
21:07	MP71256A-S4	No results reported for the elements associated with this internal standard.							
21:12	MP71256A-PS1	No results reported for the elements associated with this internal standard.							
21:17	MP71256A-PS2	No results reported for the elements associated with this internal standard.							
21:23	ZZZZZZ	No results reported for the elements associated with this internal standard.							
21:28	ZZZZZZ	No results reported for the elements associated with this internal standard.							
21:33	ZZZZZZ	No results reported for the elements associated with this internal standard.							
21:38	MA31006-CCVA11	74.049	72.242	75.637	76.62	80.822	75.683	80.94	75.15

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA042113M2L.CSV Date Analyzed: 04/21/13 Methods: SW846 6020A
Analyst: VC Run ID: MA31006
Parameters: Pb

Time	Sample Description	Istd#9	Istd#10	Istd#11	Istd#12	Istd#13	Istd#14	Istd#15	Istd#16
21:43	MA31006-CCB11	78.31	79.404	78.394	82.213	81.916	80.789	82.405	82.198
21:48	MA31006-CRIB4	78.006	79.446	78.802	81.34	82.377	80.489	82.429	81.696
21:53	ZZZZZZ	No results reported for the elements associated with this internal standard.							
21:58	ZZZZZZ	No results reported for the elements associated with this internal standard.							
22:03	ZZZZZZ	No results reported for the elements associated with this internal standard.							
22:08	ZZZZZZ	No results reported for the elements associated with this internal standard.							
22:13	ZZZZZZ	No results reported for the elements associated with this internal standard.							
22:18	MA31006-CCVA12	No results reported for the elements associated with this internal standard.							
22:23	MA31006-CCB12	No results reported for the elements associated with this internal standard.							
22:29	MA31006-CRIB5	No results reported for the elements associated with this internal standard.							
22:34	ZZZZZZ	No results reported for the elements associated with this internal standard.							
22:39	ZZZZZZ	No results reported for the elements associated with this internal standard.							
22:44	ZZZZZZ	No results reported for the elements associated with this internal standard.							
22:49	ZZZZZZ	No results reported for the elements associated with this internal standard.							
22:54	ZZZZZZ	No results reported for the elements associated with this internal standard.							
22:59	ZZZZZZ	No results reported for the elements associated with this internal standard.							

! = Outside limits.

LEGEND:

Istd#	Parameter	Limits	CCV/CCB Limits
Istd#9	Rhodium (103-2)	70-130 %	70-130 %
Istd#10	Indium (115-1)	70-130 %	70-130 %
Istd#11	Indium (115-2)	70-130 %	70-130 %
Istd#12	Terbium (159-1)	70-130 %	70-130 %
Istd#13	Terbium (159-2)	70-130 %	70-130 %
Istd#14	Holmium (165-1)	70-130 %	70-130 %
Istd#15	Holmium (165-2)	70-130 %	70-130 %
Istd#16	Bismuth (209-1)	70-130 %	70-130 %

(a) No samples reported for the elements associated with this internal standard.

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA042113M2L.CSV Date Analyzed: 04/21/13 Methods: SW846 6020A
Analyst: VC Run ID: MA31006
Parameters: Pb

Time	Sample Description	Istd#17
10:32	MA31006-STD1	100
10:37	MA31006-STD2	100
10:42	MA31006-STD3	101.464
10:48	MA31006-STD4	100.606
10:53	MA31006-STD5	99.973
10:58	MA31006-STD6	97.585
11:03	MA31006-STD7	95.345
11:08	MA31006-STD8	99.375
11:13	MA31006-STD9	100.333
11:18	MA31006-STD10	97.097
11:23	MA31006-STD11	96.095
11:28	MA31006-ICVA1	No results reported for the elements associated with this internal standard.
11:33	MA31006-ICB1	No results reported for the elements associated with this internal standard.
11:38	MA31006-ICVA2	96.468
11:43	MA31006-ICB2	104.787
11:48	MA31006-CRIB1	103.22
11:53	MA31006-CCVA1	97.119
11:58	MA31006-CCB1	104.472
12:03	MA31006-ICSA1	84.461
12:09	MA31006-ICSAB1	91.204
12:14	ZZZZZZ	No results reported for the elements associated with this internal standard.
12:19	MP71279A-SD1	115.118
12:24	MP71239-LC1	100.488
12:29	MP71239-LC2	101.75
12:34	MA31006-CCVA2	109.286
12:39	MA31006-CCB2	115.758
12:44	MP71239-LC3	103.213
12:49	MP71239-LC4	103.055
12:55	MP71239-SD1	No results reported for the elements associated with this internal standard.
13:00	ZZZZZZ	81.734
13:05	JB33197-1F	88.398
13:10	JB33197-2F	93.754
13:15	JB33197-3F	91.758

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA042113M2L.CSV Date Analyzed: 04/21/13 Methods: SW846 6020A
Analyst: VC Run ID: MA31006
Parameters: Pb

Time	Sample Description	Istd#17
13:20	JB33197-4F	91.861
13:26	JB33197-5F	103.144
13:31	MA31006-CCVA3	98.732
13:36	MA31006-CCB3	103.69
13:41	JB33197-7F	97.944
13:46	JB33197-8F	96.069
13:51	JB33197-9F	98.02
13:56	JB33197-10F	98.069
14:01	JB33197-11F	92.979
14:06	MP71313-MB1	108.405
14:11	MP71313-MB2	104.95
14:16	MP71313-LC1	98.238
14:22	MP71313-LC2	99.197
14:27	ZZZZZZ	No results reported for the elements associated with this internal standard.
14:32	MA31006-CCVA4	97.058
14:37	MA31006-CCB4	99.456
14:42	MP71313-S1	83.84
14:47	MP71313-S2	92.294
14:52	JB33559-3F	91.718
14:57	MP71313-SD1	97.621
15:02	ZZZZZZ	101.568
15:07	ZZZZZZ	90.906
15:12	ZZZZZZ	90.503
15:17	ZZZZZZ	93.223
15:23	ZZZZZZ	92.044
15:28	ZZZZZZ	84.465
15:33	MA31006-CCVA5	98.535
15:38	MA31006-CCB5	101.476
15:43	MA31006-CRIB2	99.79
15:48	ZZZZZZ	90.42
15:54	ZZZZZZ	94.169
15:59	ZZZZZZ	90.004
16:04	ZZZZZZ	92.92

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA042113M2L.CSV Date Analyzed: 04/21/13 Methods: SW846 6020A
Analyst: VC Run ID: MA31006
Parameters: Pb

Time	Sample Description	Istd#17
16:09	ZZZZZZ	86.39
16:14	ZZZZZZ	93.08
16:19	ZZZZZZ	88.989
16:24	ZZZZZZ	82.819
16:29	ZZZZZZ	82.839
16:35	MA31006-CCVA6	89.426
16:40	MA31006-CCB6	91.869
16:45	ZZZZZZ	87.831
16:50	ZZZZZZ	72.458
16:55	ZZZZZZ	70.275
17:00	ZZZZZZ	87.45
17:05	MP71255A-MB1	87.67
17:10	MP71255A-LC1	84.741
17:15	MP71255A-B1	83.345
17:20	MP71255A-S1	No results reported for the elements associated with this internal standard.
17:25	MP71255A-S2	No results reported for the elements associated with this internal standard.
17:30	ZZZZZZ	No results reported for the elements associated with this internal standard.
17:35	MA31006-CCVA7	82.019
17:40	MA31006-CCB7	86.591
17:46	MA31006-CRIB3	85.761
17:51	JB33256-66	85.496
17:56	MP71255A-SD1	No results reported for the elements associated with this internal standard.
18:01	MP71255A-S3	No results reported for the elements associated with this internal standard.
18:06	MP71255A-S4	No results reported for the elements associated with this internal standard.
18:11	JB33256-66F	83.84
18:16	MP71255A-SD2	No results reported for the elements associated with this internal standard.
18:21	MP71255A-PS1	No results reported for the elements associated with this internal standard.
18:26	MP71255A-PS2	82.637
18:31	ZZZZZZ	85.109
18:36	MA31006-CCVA8	81.671
18:41	MA31006-CCB8	85.05
18:46	ZZZZZZ	87.05
18:51	ZZZZZZ	84.234

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA042113M2L.CSV Date Analyzed: 04/21/13 Methods: SW846 6020A
Analyst: VC Run ID: MA31006
Parameters: Pb

Time	Sample Description	Istd#17
18:56	ZZZZZZ	86.461
19:01	ZZZZZZ	83.589
19:06	ZZZZZZ	81.064
19:11	ZZZZZZ	84.081
19:16	ZZZZZZ	83.881
19:21	ZZZZZZ	85.943
19:26	ZZZZZZ	82.606
19:31	ZZZZZZ	82.848
19:36	MA31006-CCVA9	80.893
19:42	MA31006-CCB9	84.496
19:47	ZZZZZZ	No results reported for the elements associated with this internal standard.
19:52	ZZZZZZ	No results reported for the elements associated with this internal standard.
19:57	ZZZZZZ	No results reported for the elements associated with this internal standard.
20:02	ZZZZZZ	No results reported for the elements associated with this internal standard.
20:07	MP71256A-MB1	No results reported for the elements associated with this internal standard.
20:12	MP71256A-LC1	No results reported for the elements associated with this internal standard.
20:17	MP71256A-B1	No results reported for the elements associated with this internal standard.
20:22	MP71256A-S1	No results reported for the elements associated with this internal standard.
20:27	MP71256A-S2	No results reported for the elements associated with this internal standard.
20:32	JB33256-76	No results reported for the elements associated with this internal standard.
20:37	MA31006-CCVA10	80.11
20:42	MA31006-CCB10	85.666
20:47	MP71256A-SD1	No results reported for the elements associated with this internal standard.
20:52	JB33256-76F	No results reported for the elements associated with this internal standard.
20:57	MP71256A-SD2	No results reported for the elements associated with this internal standard.
21:02	MP71256A-S3	No results reported for the elements associated with this internal standard.
21:07	MP71256A-S4	No results reported for the elements associated with this internal standard.
21:12	MP71256A-PS1	No results reported for the elements associated with this internal standard.
21:17	MP71256A-PS2	No results reported for the elements associated with this internal standard.
21:23	ZZZZZZ	No results reported for the elements associated with this internal standard.
21:28	ZZZZZZ	No results reported for the elements associated with this internal standard.
21:33	ZZZZZZ	No results reported for the elements associated with this internal standard.
21:38	MA31006-CCVA11	81.252

INTERNAL STANDARD SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA042113M2L.CSV Date Analyzed: 04/21/13 Methods: SW846 6020A
Analyst: VC Run ID: MA31006
Parameters: Pb

Time	Sample Description	Istd#17
21:43	MA31006-CCB11	85.453
21:48	MA31006-CRIB4	85.408
21:53	ZZZZZZ	No results reported for the elements associated with this internal standard.
21:58	ZZZZZZ	No results reported for the elements associated with this internal standard.
22:03	ZZZZZZ	No results reported for the elements associated with this internal standard.
22:08	ZZZZZZ	No results reported for the elements associated with this internal standard.
22:13	ZZZZZZ	No results reported for the elements associated with this internal standard.
22:18	MA31006-CCVA12	No results reported for the elements associated with this internal standard.
22:23	MA31006-CCB12	No results reported for the elements associated with this internal standard.
22:29	MA31006-CRIB5	No results reported for the elements associated with this internal standard.
22:34	ZZZZZZ	No results reported for the elements associated with this internal standard.
22:39	ZZZZZZ	No results reported for the elements associated with this internal standard.
22:44	ZZZZZZ	No results reported for the elements associated with this internal standard.
22:49	ZZZZZZ	No results reported for the elements associated with this internal standard.
22:54	ZZZZZZ	No results reported for the elements associated with this internal standard.
22:59	ZZZZZZ	No results reported for the elements associated with this internal standard.

! = Outside limits.

LEGEND:

Istd#	Parameter	Limits	CCV/CCB Limits
Istd#17	Bismuth (209-2)	70-130 %	70-130 %

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA042113M2L.CSV Date Analyzed: 04/21/13 Methods: SW846 6020A
QC Limits: result < LOD Run ID: MA31006 Units: ug/l

Time:				11:43		11:58		12:39	
Sample ID:				ICB2		CCB1		CCB2	
Metal	RL	IDL	LOD	raw	final	raw	final	raw	final
Aluminum	25	.2	20						
Antimony	0.50	.038	0.50						
Arsenic	0.50	.018	0.40						
Barium	1.0	.034	0.50						
Beryllium	0.50	.0032	0.25						
Boron	5.0	.88	2.5						
Cadmium	0.50	.0039	0.30						
Calcium	250	1.4	50						
Chromium	1.0	.012	0.50						
Cobalt	0.50	.0032	0.25						
Copper	1.0	.0096	0.50						
Iron	25	.66	13						
Lead	0.50	.0039	0.25	0.00092	<1.5	-0.0017	<1.5	0.0021	<0.50
Magnesium	250	.35	130						
Manganese	1.0	.0078	0.50						
Molybdenum	1.0	.035	0.50						
Nickel	1.0	.038	1.0						
Potassium	250	1.4	50						
Selenium	0.50	.025	0.50						
Silver	0.50	.004	0.25						
Sodium	250	5.2	50						
Strontium	5.0	.0065	2.5						
Thallium	0.50	.015	0.35						
Tin	5.0	.021	2.5						
Titanium	1.0	.04	0.50						
Vanadium	1.0	.025	0.50						
Zinc	2.0	.055	1.5						

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA042113M2L.CSV Date Analyzed: 04/21/13 Methods: SW846 6020A
QC Limits: result < LOD Run ID: MA31006 Units: ug/l

Time:				13:36		14:37		15:38	
Sample ID:				CCB3		CCB4		CCB5	
Metal	RL	IDL	LOD	raw	final	raw	final	raw	final
Aluminum	25	.2	20						
Antimony	0.50	.038	0.50						
Arsenic	0.50	.018	0.40						
Barium	1.0	.034	0.50						
Beryllium	0.50	.0032	0.25						
Boron	5.0	.88	2.5						
Cadmium	0.50	.0039	0.30						
Calcium	250	1.4	50						
Chromium	1.0	.012	0.50						
Cobalt	0.50	.0032	0.25						
Copper	1.0	.0096	0.50						
Iron	25	.66	13						
Lead	0.50	.0039	0.25	-0.0015	<0.50	0.0016	<0.50	-0.0011	<0.50
Magnesium	250	.35	130						
Manganese	1.0	.0078	0.50						
Molybdenum	1.0	.035	0.50						
Nickel	1.0	.038	1.0						
Potassium	250	1.4	50						
Selenium	0.50	.025	0.50						
Silver	0.50	.004	0.25						
Sodium	250	5.2	50						
Strontium	5.0	.0065	2.5						
Thallium	0.50	.015	0.35						
Tin	5.0	.021	2.5						
Titanium	1.0	.04	0.50						
Vanadium	1.0	.025	0.50						
Zinc	2.0	.055	1.5						

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA042113M2L.CSV Date Analyzed: 04/21/13 Methods: SW846 6020A
QC Limits: result < LOD Run ID: MA31006 Units: ug/l

Time:				16:40	
Sample ID:				CCB6	
Metal	RL	IDL	LOD	raw	final
Aluminum	25	.2	20		
Antimony	0.50	.038	0.50		
Arsenic	0.50	.018	0.40		
Barium	1.0	.034	0.50		
Beryllium	0.50	.0032	0.25		
Boron	5.0	.88	2.5		
Cadmium	0.50	.0039	0.30		
Calcium	250	1.4	50		
Chromium	1.0	.012	0.50		
Cobalt	0.50	.0032	0.25		
Copper	1.0	.0096	0.50		
Iron	25	.66	13		
Lead	0.50	.0039	0.25	0.0025	<0.50
Magnesium	250	.35	130		
Manganese	1.0	.0078	0.50		
Molybdenum	1.0	.035	0.50		
Nickel	1.0	.038	1.0		
Potassium	250	1.4	50		
Selenium	0.50	.025	0.50		
Silver	0.50	.004	0.25		
Sodium	250	5.2	50		
Strontium	5.0	.0065	2.5		
Thallium	0.50	.015	0.35		
Tin	5.0	.021	2.5		
Titanium	1.0	.04	0.50		
Vanadium	1.0	.025	0.50		
Zinc	2.0	.055	1.5		

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA042113M2L.CSV Date Analyzed: 04/21/13 Methods: SW846 6020A
QC Limits: 90 to 110 % Recovery Run ID: MA31006 Units: ug/l

Time:		11:38			11:53			12:34	
Sample ID:	ICVA	ICVA2		CCVA	CCVA1		CCVA	CCVA2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium									
Beryllium									
Boron									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper	anr								
Iron	anr								
Lead	60	61.0	101.7	50	52.3	104.6	50	51.9	103.8
Magnesium									
Manganese	anr								
Molybdenum									
Nickel									
Potassium									
Selenium	anr								
Silver									
Sodium	anr								
Strontium									
Thallium									
Tin									
Titanium									
Vanadium									
Zinc	anr								

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA042113M2L.CSV Date Analyzed: 04/21/13 Methods: SW846 6020A
QC Limits: 90 to 110 % Recovery Run ID: MA31006 Units: ug/l

Time:		13:31			14:32			15:33	
Sample ID:	CCVA	CCVA3		CCVA	CCVA4		CCVA	CCVA5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium									
Beryllium									
Boron									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper	anr								
Iron	anr								
Lead	50	51.6	103.2	50	52.5	105.0	50	50.8	101.6
Magnesium									
Manganese	anr								
Molybdenum									
Nickel									
Potassium									
Selenium	anr								
Silver									
Sodium	anr								
Strontium									
Thallium									
Tin									
Titanium									
Vanadium									
Zinc	anr								

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA042113M2L.CSV Date Analyzed: 04/21/13 Methods: SW846 6020A
QC Limits: 90 to 110 % Recovery Run ID: MA31006 Units: ug/l

Time:		16:35	
Sample ID:	CCVA	CCVA6	
Metal	True	Results	% Rec
Aluminum			
Antimony			
Arsenic	anr		
Barium			
Beryllium			
Boron			
Cadmium			
Calcium			
Chromium			
Cobalt			
Copper	anr		
Iron	anr		
Lead	50	50.8	101.6
Magnesium			
Manganese	anr		
Molybdenum			
Nickel			
Potassium			
Selenium	anr		
Silver			
Sodium	anr		
Strontium			
Thallium			
Tin			
Titanium			
Vanadium			
Zinc	anr		

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA042113M2L.CSV Date Analyzed: 04/21/13 Methods: SW846 6020A
QC Limits: 80 to 120 % Recovery Run ID: MA31006 Units: ug/l

Time:		11:48		15:43	
Sample ID:	CRIB	CRIB1		CRIB2	
Metal	True	Results	% Rec	Results	% Rec
Aluminum	25				
Antimony	0.50				
Arsenic	0.50				
Barium	1.0				
Beryllium	0.50				
Boron	5.0				
Cadmium	0.50				
Calcium	250				
Chromium	1.0				
Cobalt	0.50				
Copper	1.0				
Iron	25				
Lead	0.50	0.54	108.0	0.49	98.0
Magnesium	250				
Manganese	0.50				
Molybdenum	1.0				
Nickel	1.0				
Potassium	250				
Selenium	0.50				
Silver	0.50				
Sodium	250				
Strontium	5.0				
Thallium	0.50				
Tin	5.0				
Titanium	1.0				
Vanadium	1.0				
Zinc	2.0				

(*) Outside of QC limits
(anr) Analyte not requested

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: XA042113M2L.CSV Date Analyzed: 04/21/13 Methods: SW846 6020A
QC Limits: 80 to 120 % Recovery Run ID: MA31006 Units: ug/l

Time:			12:03		12:09	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1	
Metal	True	True	Results	% Rec	Results	% Rec
Aluminum	100000	100000	96500	96.5	90000	90.0
Antimony			0.24		0.26	
Arsenic		20	0.033		18.4	92.0
Barium			0.22		0.20	
Beryllium			0.0014		-0.0014	
Boron			0.52		0.19	
Cadmium		20	0.12		18.5	92.5
Calcium	100000	100000	94700	94.7	89300	89.3
Chromium		20	1.1		20.7	103.5
Cobalt		20	0.025		18.3	91.5
Copper		20	0.52		17.4	87.0
Iron	100000	100000	88500	88.5	85200	85.2
Lead			0.13		0.12	
Magnesium	100000	100000	95500	95.5	89300	89.3
Manganese		20	0.24		19.2	96.0
Molybdenum	2000	2000	2230	111.5	2110	105.5
Nickel		20	0.67		18.1	90.5
Potassium	100000	100000	95600	95.6	90300	90.3
Selenium			0.066		0.038	
Silver		20	0.036		16.7	83.5
Sodium	100000	100000	97100	97.1	91000	91.0
Strontium			4.6		4.2	
Thallium			0.045		0.016	
Tin			0.11		0.082	
Titanium	2000	2000	2220	111.0	2080	104.0
Vanadium			-0.021		-0.033	
Zinc		20	1.5		17.7	88.5

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

QC Batch ID: MP71053
Matrix Type: AQUEOUS

Methods: SW846 6020A
Units: ug/l

Prep Date:					04/06/13		04/06/13		04/06/13
Metal	RL	IDL	MDL	MB raw	final	MB raw	final	MB raw	final
Aluminum	50	.4	13						
Antimony	1.0	.076	.43						
Arsenic	1.0	.037	.35						
Barium	2.0	.068	.29						
Beryllium	1.0	.0064	.061						
Boron	10	1.8	.8						
Cadmium	1.0	.0078	.13						
Calcium	500	2.8	15						
Chromium	2.0	.025	.11						
Cobalt	1.0	.0064	.11						
Copper	5.0	.019	.12						
Iron	50	1.3	7.8						
Lead	1.0	.0078	.026	0.020	<1.0	0.024	<1.0	0.018	<1.0
Magnesium	500	.71	6.7						
Manganese	2.0	.016	.15						
Molybdenum	2.0	.069	.25						
Nickel	2.0	.076	.21						
Potassium	500	2.7	17						
Selenium	1.0	.049	.3						
Silver	1.0	.008	.053						
Sodium	500	10	9.3						
Strontium	10	.013	.062						
Thallium	1.0	.03	.078						
Tin	10	.042	.11						
Titanium	2.0	.079	.22						
Vanadium	2.0	.05	.15						
Zinc	4.0	.11	.49						

Associated samples MP71053: JB33197-1F, JB33197-2F, JB33197-3F, JB33197-4F, JB33197-5F, JB33197-7F, JB33197-8F, JB33197-9F, JB33197-10F, JB33197-11F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

QC Batch ID: MP71053
Matrix Type: AQUEOUS

Methods: SW846 6020A
Units: ug/l

Prep Date: 04/06/13

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	.4	13		
Antimony	1.0	.076	.43		
Arsenic	1.0	.037	.35		
Barium	2.0	.068	.29		
Beryllium	1.0	.0064	.061		
Boron	10	1.8	.8		
Cadmium	1.0	.0078	.13		
Calcium	500	2.8	15		
Chromium	2.0	.025	.11		
Cobalt	1.0	.0064	.11		
Copper	5.0	.019	.12		
Iron	50	1.3	7.8		
Lead	1.0	.0078	.026	0.016	<1.0
Magnesium	500	.71	6.7		
Manganese	2.0	.016	.15		
Molybdenum	2.0	.069	.25		
Nickel	2.0	.076	.21		
Potassium	500	2.7	17		
Selenium	1.0	.049	.3		
Silver	1.0	.008	.053		
Sodium	500	10	9.3		
Strontium	10	.013	.062		
Thallium	1.0	.03	.078		
Tin	10	.042	.11		
Titanium	2.0	.079	.22		
Vanadium	2.0	.05	.15		
Zinc	4.0	.11	.49		

Associated samples MP71053: JB33197-1F, JB33197-2F, JB33197-3F, JB33197-4F, JB33197-5F, JB33197-7F, JB33197-8F, JB33197-9F, JB33197-10F, JB33197-11F

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: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

QC Batch ID: MP71053
Matrix Type: AQUEOUS

Methods: SW846 6020A
Units: ug/l

Prep Date: 04/06/13

Metal	JB33249-1 Original	MS	Spikelot MPIRW1	% Rec	QC Limits
Aluminum	anr				
Antimony	anr				
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper	anr				
Iron	anr				
Lead	3.0	571	500	113.6	75-125
Magnesium	anr				
Manganese					
Molybdenum					
Nickel					
Potassium					
Selenium					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Vanadium					
Zinc	anr				

Associated samples MP71053: JB33197-1F, JB33197-2F, JB33197-3F, JB33197-4F, JB33197-5F, JB33197-7F, JB33197-8F, JB33197-9F, JB33197-10F, JB33197-11F

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: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

QC Batch ID: MP71053
Matrix Type: AQUEOUS

Methods: SW846 6020A
Units: ug/l

Prep Date: 04/06/13

Metal	JB33249-1 Original	MSD	Spikelot MPIRW1	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony	anr					
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper	anr					
Iron	anr					
Lead	3.0	561	500	111.6	1.8	20
Magnesium	anr					
Manganese						
Molybdenum						
Nickel						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc	anr					

Associated samples MP71053: JB33197-1F, JB33197-2F, JB33197-3F, JB33197-4F, JB33197-5F, JB33197-7F, JB33197-8F, JB33197-9F, JB33197-10F, JB33197-11F

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: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

QC Batch ID: MP71053
Matrix Type: AQUEOUS

Methods: SW846 6020A
Units: ug/l

Prep Date:			04/06/13				04/06/13	
Metal	LCS Result	Spikelot MPLCW3	% Rec	QC Limits	LCS Result	Spikelot MPLCW3	% Rec	QC Limits
Aluminum	anr							
Antimony	anr							
Arsenic								
Barium								
Beryllium								
Boron								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper	anr							
Iron	anr							
Lead	552	500	110.4	80-120	541	500	108.2	80-120
Magnesium	anr							
Manganese								
Molybdenum								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Strontium								
Thallium								
Tin								
Titanium								
Vanadium								
Zinc	anr							

Associated samples MP71053: JB33197-1F, JB33197-2F, JB33197-3F, JB33197-4F, JB33197-5F, JB33197-7F, JB33197-8F, JB33197-9F, JB33197-10F, JB33197-11F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

QC Batch ID: MP71053
Matrix Type: AQUEOUS

Methods: SW846 6020A
Units: ug/l

Prep Date:			04/06/13				04/06/13	
Metal	LCS Result	Spikelot MPLCW3	% Rec	QC Limits	LCS Result	Spikelot MPLCW3	% Rec	QC Limits
Aluminum	anr							
Antimony	anr							
Arsenic								
Barium								
Beryllium								
Boron								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper	anr							
Iron	anr							
Lead	541	500	108.2	80-120	542	500	108.4	80-120
Magnesium	anr							
Manganese								
Molybdenum								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Strontium								
Thallium								
Tin								
Titanium								
Vanadium								
Zinc	anr							

Associated samples MP71053: JB33197-1F, JB33197-2F, JB33197-3F, JB33197-4F, JB33197-5F, JB33197-7F, JB33197-8F, JB33197-9F, JB33197-10F, JB33197-11F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

QC Batch ID: MP71053
Matrix Type: AQUEOUS

Methods: SW846 6020A
Units: ug/l

Prep Date: 04/06/13

Metal	JB33249-1 Original	SDL 2:10	%DIF	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper	anr			
Iron	anr			
Lead	3.04	2.77	9.0	0-10
Magnesium	anr			
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc	anr			

Associated samples MP71053: JB33197-1F, JB33197-2F, JB33197-3F, JB33197-4F, JB33197-5F, JB33197-7F, JB33197-8F, JB33197-9F, JB33197-10F, JB33197-11F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

New Jersey
ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries
- Instrument Runlogs/QC

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Alkalinity, Total as CaCO3	GN82893	5.0	0.0	mg/l	50.0	54.5	109.0	90-110%
Chemical Oxygen Demand	GP71327/GN83279	20	0.0	mg/l	750	693	92.4	90-110%
Chemical Oxygen Demand	GP71327/GN83279	20	0.0	mg/l	150	147	98.0	90-110%
Chemical Oxygen Demand	GP71402/GN83332	20	0.0	mg/l	50.0	46.4	92.8	90-110%
Chemical Oxygen Demand	GP71402/GN83332	20	0.0	mg/l				
Plate Count, Total	MB4358	0	0	CFU/ml				
Solids, Total Dissolved	GN82743	10	0.0	mg/l				
Sulfate	GP71337/GN83119	10	0.0	mg/l	80	83.0	103.8	90-110%

Associated Samples:
Batch MB4358: JB33197-1, JB33197-2, JB33197-3, JB33197-4, JB33197-5
Batch GN82743: JB33197-1, JB33197-2, JB33197-3, JB33197-4, JB33197-5
Batch GN82893: JB33197-1, JB33197-2, JB33197-3, JB33197-4, JB33197-5
Batch GP71327: JB33197-1, JB33197-2
Batch GP71337: JB33197-1, JB33197-2, JB33197-3, JB33197-4, JB33197-5
Batch GP71402: JB33197-3, JB33197-4, JB33197-5
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Alkalinity, Total as CaCO3	GN82893	JB33256-1F	mg/l	39.9	40.4	1.2	0-10%
Chemical Oxygen Demand	GP71327/GN83147	JB33008-1	mg/l	0.0	0.0	0.0	0-39.8%
Chemical Oxygen Demand	GP71402/GN83332	JB33197-3	mg/l	69.6	71.9	3.3	0-39.8%
Plate Count, Total	MB4358	JB33198-2	CFU/ml	11100	9550	3.7	0-49.4%
Solids, Total Dissolved	GN82743	JB33197-1	mg/l	348	358	2.8	0-18.7%
Sulfate	GP71337/GN83119	JB33180-2	mg/l	9.2	9.5	3.2	0-20%

Associated Samples:
Batch MB4358: JB33197-1, JB33197-2, JB33197-3, JB33197-4, JB33197-5
Batch GN82743: JB33197-1, JB33197-2, JB33197-3, JB33197-4, JB33197-5
Batch GN82893: JB33197-1, JB33197-2, JB33197-3, JB33197-4, JB33197-5
Batch GP71327: JB33197-1, JB33197-2
Batch GP71337: JB33197-1, JB33197-2, JB33197-3, JB33197-4, JB33197-5
Batch GP71402: JB33197-3, JB33197-4, JB33197-5
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chemical Oxygen Demand	GP71327/GN83147	JB33008-1	mg/l	0.0	50.0	54.3	108.6	43-140%
Chemical Oxygen Demand	GP71402/GN83332	JB33197-3	mg/l	69.6	50.0	118	96.8	43-140%
Sulfate	GP71337/GN83119	JB33180-2	mg/l	9.2	80	88.6	99.3	80-120%

Associated Samples:
Batch GP71327: JB33197-1, JB33197-2
Batch GP71337: JB33197-1, JB33197-2, JB33197-3, JB33197-4, JB33197-5
Batch GP71402: JB33197-3, JB33197-4, JB33197-5
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: 213041101.TXT Date Analyzed: 04/11/13 Methods: EPA 300/SW846 9056A
Analyst: NP Run ID: GN83119
Parameters: Sulfate

Time	Sample Description	Dilution Factor	PS Recov	Comments
06:11	GN83119-STD1	1		Manually integrated chrom. peaks reviewed and verified to comply with criteria of Accutest SOP EQA044.
06:35	GN83119-STD2	1		STDB
06:59	GN83119-STD3	1		STDC
07:47	GN83119-STD4	1		STDD
08:35	GN83119-STD5	1		STDE
08:59	GN83119-STD6	1		STDF
09:23	GN83119-STD7	1		STDG
09:11	GN83119-ICV1	1		
09:35	GN83119-CCV1	1		
09:59	GN83119-CCB1	1		
10:23	GP71336-MB1	1		
10:47	GP71336-B1	1		
11:11	GP71336-S1	1		
11:35	GP71336-D1	1		
11:59	JB32894-4	1		(sample used for QC only; not part of login JB33197)
12:23	ZZZZZZ	1		
12:47	ZZZZZZ	1		
13:10	ZZZZZZ	1		
13:34	GP71336-S2	1		
13:58	JB33275-1	1		(sample used for QC only; not part of login JB33197)
14:22	GN83119-CCV2	1		
14:46	GN83119-CCB2	1		
15:15	ZZZZZZ	1		
15:39	ZZZZZZ	1		
16:03	ZZZZZZ	1		
16:26	ZZZZZZ	1		
16:50	ZZZZZZ	1		
17:14	ZZZZZZ	1		
17:38	ZZZZZZ	1		
18:02	ZZZZZZ	1		
18:26	ZZZZZZ	1		
18:50	ZZZZZZ	1		
19:14	GN83119-CCV3	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: 213041101.TXT Date Analyzed: 04/11/13 Methods: EPA 300/SW846 9056A
Analyst: NP Run ID: GN83119
Parameters: Sulfate

Time	Sample Description	Dilution Factor	PS Recov	Comments
19:38	GN83119-CCB3	1		
20:02	ZZZZZZ	1		
20:26	ZZZZZZ	1		
20:50	ZZZZZZ	1		
21:14	ZZZZZZ	1		
21:38	GP71337-MB1	1		
22:01	GP71337-B1	1		
22:25	ZZZZZZ	1		
22:49	ZZZZZZ	1		
23:13	ZZZZZZ	1		
23:37	GP71337-S1	1		
00:01	GN83119-CCV4	1		
00:25	GN83119-CCB4	1		
00:49	GP71337-D1	1		
01:13	JB33180-2	1		(sample used for QC only; not part of login JB33197)
01:37	GP71337-S2	1		
02:01	JB33180-3	1		(sample used for QC only; not part of login JB33197)
02:25	ZZZZZZ	1		
02:49	ZZZZZZ	1		
03:12	ZZZZZZ	1		
03:36	ZZZZZZ	1		
04:00	ZZZZZZ	1		
04:24	JB33197-1	1		
04:48	GN83119-CCV5	1		
05:12	GN83119-CCB5	1		
05:36	JB33197-2	1		
06:00	JB33197-3	1		
06:24	JB33197-4	1		
06:48	JB33197-5	1		
07:12	ZZZZZZ	1		
07:36	ZZZZZZ	1		
07:59	ZZZZZZ	1		
08:23	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: 213041101.TXT Date Analyzed: 04/11/13 Methods: EPA 300/SW846 9056A
Analyst: NP Run ID: GN83119
Parameters: Sulfate

Time	Sample Description	Dilution Factor	PS Recov	Comments
08:47	ZZZZZZ	1		
09:11	GN83119-CCV6	1		
09:35	GN83119-CCB6	1		

Refer to raw data for calibration curve and standards.

Instrument QC Summary
Inorganics Analyses

Login Number: JB33197
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco, Philadelphia Refinery, Philadelphia, PA

File ID: 213041101.TXT Date Analyzed: 04/11/13 Methods: EPA 300/SW846 9056A
Run ID: GN83119 Units: mg/l

Sample Number	Parameter	Result	RL	IDL/MDL	True Value	% Recov.	QC Limits
GN83119-ICV1	Sulfate	105	10	0.38	101.804	103.1	90-110
GN83119-CCV1	Sulfate	208	10	0.38	200	104.0	90-110
GN83119-CCB1	Sulfate	0.38 U	10	0.38			
GN83119-CCV2	Sulfate	206	10	0.38	200	103.0	90-110
GN83119-CCB2	Sulfate	0.38 U	10	0.38			
GN83119-CCV3	Sulfate	208	10	0.38	200	104.0	90-110
GN83119-CCB3	Sulfate	0.38 U	10	0.38			
GN83119-CCV4	Sulfate	204	10	0.38	200	102.0	90-110
GN83119-CCB4	Sulfate	0.38 U	10	0.38			
GN83119-CCV5	Sulfate	206	10	0.38	200	103.0	90-110
GN83119-CCB5	Sulfate	0.38 U	10	0.38			
GN83119-CCV6	Sulfate	206	10	0.38	200	103.0	90-110
GN83119-CCB6	Sulfate	0.38 U	10	0.38			

(!) Outside of QC limits