New Jersey
ACCUTEST LABORATORIES

05/15/13

Technical Report for

Aquaterra Technologies, Inc.

Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

AOI-4

Accutest Job Number: JB35319

Sampling Date: 04/24/13

Report to:

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Total number of pages in report: **243**

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 T. Cole
Nancy Cole
Laboratory Director

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

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Sections: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Table of Contents

-1-

Section 1: Sample Summary **4**
Section 2: Case Narrative/Conformance Summary **5**
Section 3: Summary of Hits **9**
Section 4: Sample Results **10**
4.1: JB35319-1: S-381 @ 12'_04242013 11
4.2: JB35319-2: S-381 @ 24'_04252013 15
Section 5: Misc. Forms **19**
5.1: Chain of Custody 20
5.2: Sample Tracking Chronicle 22
5.3: Internal Chain of Custody 23
Section 6: GC/MS Volatiles - QC Data Summaries **24**
6.1: Method Blank Summary 25
6.2: Blank Spike Summary 27
6.3: Matrix Spike Summary 29
6.4: Matrix Spike/Matrix Spike Duplicate Summary 30
6.5: Duplicate Summary 31
6.6: Instrument Performance Checks (BFB) 32
6.7: Internal Standard Area Summaries 36
6.8: Surrogate Recovery Summaries 38
6.9: Initial and Continuing Calibration Summaries 39
Section 7: GC/MS Volatiles - Raw Data **65**
7.1: Samples 66
7.2: Method Blanks 78
Section 8: Misc. Forms (Accutest Labs of New England, Inc.) **82**
8.1: Chain of Custody 83
8.2: Sample Tracking Chronicle 85
8.3: Internal Chain of Custody 86
Section 9: GC/MS Semi-volatiles - QC Data (Accutest Labs of New England, Inc.) **87**
9.1: Method Blank Summary 88
9.2: Blank Spike Summary 89
9.3: Matrix Spike/Matrix Spike Duplicate Summary 90
9.4: Instrument Performance Checks (DFTPP) 91
9.5: Internal Standard Area Summaries 99
9.6: Surrogate Recovery Summaries 103
9.7: Initial and Continuing Calibration Summaries 104
Section 10: GC/MS Semi-volatiles - Raw Data (Accutest Labs of New England, Inc.) **162**
10.1: Samples 163
10.2: Method Blanks 178
Section 11: GC Volatiles - QC Data (Accutest Labs of New England, Inc.) **180**
11.1: Method Blank Summary 181
11.2: Blank Spike Summary 182
11.3: Matrix Spike/Matrix Spike Duplicate Summary 183

Table of Contents

-2-

11.4: Surrogate Recovery Summaries 184
11.5: GC Surrogate Retention Time Summaries 185
11.6: Initial and Continuing Calibration Summaries 187
Section 12: GC Volatiles - Raw Data (Accutest Labs of New England, Inc.) 192
12.1: Samples 193
12.2: Method Blanks 201
Section 13: Metals Analysis - QC Data (Accutest Labs of New England, Inc.) 205
13.1: Inst QC MA15519: Pb 206
13.2: Prep QC MP20863: Pb 228
Section 14: General Chemistry - QC Data (Accutest Labs of New England, Inc.) 240
14.1: Percent Solids Raw Data Summary 241
Section 15: General Chemistry - QC Data Summaries 242
15.1: Percent Solids Raw Data Summary 243

Accutest Laboratories

Sample Summary

Aquaterra Technologies, Inc.

Job No: JB35319

Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Project No: AOI-4

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB35319-1	04/24/13	11:10	SS	04/25/13	SO	Soil	S-381 @ 12'_04242013
JB35319-2	04/24/13	08:30	SS	04/25/13	SO	Soil	S-381 @ 24'_04252013

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Aquaterra Technologies, Inc.	**Job No**	JB35319
Site:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, P	**Report Date**	5/15/2013 10:16:10 A

On 04/25/2013, 2 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories at a temperature of 1.2 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB35319 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: SO **Batch ID:** VD8514

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB35330-2MS, JB35330-2MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- JB35319-2: Dilution required due to matrix interference.

Matrix: SO **Batch ID:** VY5761

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB35063-1MS, JB35101-1DUP were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GCMS By Method SW846 8270C

Matrix: SO **Batch ID:** M:OP32964

- The data for SW846 8270C meets quality control requirements.
- JB35319-1: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB35319-2: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB35319-2: Analysis performed at Accutest Laboratories, Marlborough, MA.

Volatiles by GC By Method SW846 8011

Matrix: SO **Batch ID:** M:OP32931

- The data for SW846 8011 meets quality control requirements.
- JB35319-2: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB35319-1: Analysis performed at Accutest Laboratories, Marlborough, MA.

Metals By Method SW846 6010C

Matrix: SO **Batch ID:** M:MP20863

- The data for SW846 6010C meets quality control requirements.
- JB35319-2 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB35319-1 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.

Wet Chemistry By Method SM21 2540 B MOD.

Matrix: SO	**Batch ID:** M:GN42540

- The data for SM21 2540 B MOD. meets quality control requirements.
- JB35319-1 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB35319-2 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.

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

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client:	Accutest New Jersey	**Job No**	JB35319
Site:	AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philad	**Report Date**	5/13/2013 2:52:58 PM

2 Sample(s) were collected on 04/24/2013 and were received at Accutest on 04/25/2013 properly preserved, at 2.1 Deg. C and intact. These Samples received an Accutest job number of JB35319. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Extractables by GCMS By Method SW846 8270C

Matrix SO **Batch ID:** OP32964

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB35277-22MS, JB35277-22MSD were used as the QC samples indicated.
- Matrix Spike Recovery(s) for Benzo(a)pyrene are outside control limits. Outside control limits due to possible matrix interference. Refer to Blank Spike.
- RPD(s) for MSD for Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Chrysene, Fluorene, Naphthalene, Phenanthrene, Pyrene are outside control limits for sample OP32964-MSD. High RPD due to possible matrix interference and/or sample non-homogeneity.

Volatiles by GC By Method SW846 8011

Matrix SO **Batch ID:** OP32931

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB35341-5MS, JB35341-5MSD were used as the QC samples indicated.

Metals By Method SW846 6010C

Matrix SO **Batch ID:** MP20863

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB35204-3MSD, JB35204-3MS, JB35204-3SDL were used as the QC samples for metals.
- MP20863-SD1 for Lead: Serial dilution indicates possible matrix interference.

Wet Chemistry By Method SM21 2540 B MOD.

Matrix SO **Batch ID:** GN42540

- Sample(s) JB35341-5DUP were used as the QC samples for Solids, Percent.

The Accutest Laboratories of New England certifies that all analysis were performed within method specification. It is further recommended that this report to be used in its entirety.The Accutest Laboratories of NE, Laboratory Director or assignee as verified by the signature on the cover page has authorized the release of this report(JB35319).

Summary of Hits

Job Number: JB35319
Account: Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Collected: 04/24/13

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB35319-1	**S-381 @ 12'_04242013**					
Benzene		0.0403	0.00089	0.00011	mg/kg	SW846 8260B
Toluene		0.0076	0.00089	0.000093	mg/kg	SW846 8260B
Ethylbenzene		0.0021	0.00089	0.00023	mg/kg	SW846 8260B
Xylene (total)		0.0056	0.00089	0.00012	mg/kg	SW846 8260B
Isopropylbenzene		0.0033 J	0.0045	0.000066	mg/kg	SW846 8260B
1,2,4-Trimethylbenzene		0.0032 J	0.0045	0.00019	mg/kg	SW846 8260B
Lead [a]		8.5	0.90	0.15	mg/kg	SW846 6010C
JB35319-2	**S-381 @ 24'_04252013**					
Benzene [b]		1.11	0.50	0.060	mg/kg	SW846 8260B
Toluene [b]		0.200 J	0.50	0.053	mg/kg	SW846 8260B
Ethylbenzene [b]		0.439 J	0.50	0.13	mg/kg	SW846 8260B
Xylene (total) [b]		1.01	0.50	0.070	mg/kg	SW846 8260B
Isopropylbenzene [b]		11.7	2.5	0.037	mg/kg	SW846 8260B
1,2,4-Trimethylbenzene [b]		0.518 J	2.5	0.11	mg/kg	SW846 8260B
1,3,5-Trimethylbenzene [b]		0.543 J	2.5	0.081	mg/kg	SW846 8260B
Anthracene [a]		1.79	0.12	0.040	mg/kg	SW846 8270C
Chrysene [a]		0.0624 J	0.12	0.047	mg/kg	SW846 8270C
Fluorene [a]		5.02	0.12	0.041	mg/kg	SW846 8270C
Naphthalene [a]		5.48	0.12	0.045	mg/kg	SW846 8270C
Phenanthrene [a]		13.0	0.58	0.17	mg/kg	SW846 8270C
Pyrene [a]		1.11	0.12	0.035	mg/kg	SW846 8270C
Lead [a]		5.6	0.90	0.15	mg/kg	SW846 6010C

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.
(b) Dilution required due to matrix interference.

New Jersey

ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	S-381 @ 12'_04242013		
Lab Sample ID:	JB35319-1	**Date Sampled:**	04/24/13
Matrix:	SO - Soil	**Date Received:**	04/25/13
Method:	SW846 8260B	**Percent Solids:**	85.1
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y133821.D	1	05/03/13	RS	n/a	n/a	VY5761
Run #2							

	Initial Weight
Run #1	6.6 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.0403	0.00089	0.00011	mg/kg	
108-88-3	Toluene	0.0076	0.00089	0.000093	mg/kg	
100-41-4	Ethylbenzene	0.0021	0.00089	0.00023	mg/kg	
1330-20-7	Xylene (total)	0.0056	0.00089	0.00012	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00089	0.00021	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00089	0.00012	mg/kg	
98-82-8	Isopropylbenzene	0.0033	0.0045	0.000066	mg/kg	J
95-63-6	1,2,4-Trimethylbenzene	0.0032	0.0045	0.00019	mg/kg	J
108-67-8	1,3,5-Trimethylbenzene	ND	0.0045	0.00014	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		70-130%
17060-07-0	1,2-Dichloroethane-D4	94%		70-122%
2037-26-5	Toluene-D8	105%		81-127%
460-00-4	4-Bromofluorobenzene	94%		66-132%

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

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	S-381 @ 12'_04242013		
Lab Sample ID:	JB35319-1	**Date Sampled:**	04/24/13
Matrix:	SO - Soil	**Date Received:**	04/25/13
Method:	SW846 8270C SW846 3546	**Percent Solids:**	85.1
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	W11968.D	1	05/07/13	AMA	05/06/13	M:OP32964	M:MSW552
Run #2							

	Initial Weight	Final Volume
Run #1	20.5 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	0.11	0.039	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.11	0.044	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.11	0.026	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.11	0.027	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.11	0.051	mg/kg	
218-01-9	Chrysene	ND	0.11	0.046	mg/kg	
86-73-7	Fluorene	ND	0.11	0.040	mg/kg	
91-20-3	Naphthalene	ND	0.11	0.044	mg/kg	
85-01-8	Phenanthrene	ND	0.11	0.034	mg/kg	
129-00-0	Pyrene	ND	0.11	0.035	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	76%		30-130%
321-60-8	2-Fluorobiphenyl	82%		30-130%
1718-51-0	Terphenyl-d14	99%		30-130%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

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

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	S-381 @ 12'_04242013		
Lab Sample ID:	JB35319-1	**Date Sampled:**	04/24/13
Matrix:	SO - Soil	**Date Received:**	04/25/13
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	85.1
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BK24312.D	1	05/04/13	AMA	05/03/13	M:OP32931	M:GBK854
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	50.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0029	0.0011	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	112%		61-167%
460-00-4	Bromofluorobenzene (S)	149%		61-167%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

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-381 @ 12'_04242013		
Lab Sample ID:	JB35319-1	**Date Sampled:**	04/24/13
Matrix:	SO - Soil	**Date Received:**	04/25/13
		Percent Solids:	85.1
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead [a]	8.5	0.90	0.15	mg/kg	1	04/30/13	04/30/13	AMA	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: M:MA15519
(2) Prep QC Batch: M:MP20863

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

RL = Reporting Limit
MDL = Method Detection Limit

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	S-381 @ 24'_04252013		
Lab Sample ID:	JB35319-2	**Date Sampled:**	04/24/13
Matrix:	SO - Soil	**Date Received:**	04/25/13
Method:	SW846 8260B	**Percent Solids:**	84.9
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	D208632.D	1	05/08/13	ET	n/a	n/a	VD8514
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.4 g	10.0 ml	20.0 ul
Run #2			

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	1.11	0.50	0.060	mg/kg	
108-88-3	Toluene	0.200	0.50	0.053	mg/kg	J
100-41-4	Ethylbenzene	0.439	0.50	0.13	mg/kg	J
1330-20-7	Xylene (total)	1.01	0.50	0.070	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.50	0.12	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.50	0.068	mg/kg	
98-82-8	Isopropylbenzene	11.7	2.5	0.037	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	0.518	2.5	0.11	mg/kg	J
108-67-8	1,3,5-Trimethylbenzene	0.543	2.5	0.081	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	91%		70-130%
17060-07-0	1,2-Dichloroethane-D4	103%		70-122%
2037-26-5	Toluene-D8	112%		81-127%
460-00-4	4-Bromofluorobenzene	114%		66-132%

(a) Dilution required 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 Laboratories

Report of Analysis

Client Sample ID:	S-381 @ 24'_04252013		
Lab Sample ID:	JB35319-2	**Date Sampled:**	04/24/13
Matrix:	SO - Soil	**Date Received:**	04/25/13
Method:	SW846 8270C SW846 3546	**Percent Solids:**	84.9
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	W11969.D	1	05/08/13	AMA	05/06/13	M:OP32964	M:MSW552
Run #2 [a]	F63826.D	5	05/09/13	AMA	05/06/13	M:OP32964	M:MSF2976

	Initial Weight	Final Volume
Run #1	20.4 g	1.0 ml
Run #2	20.4 g	1.0 ml

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	1.79	0.12	0.040	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.12	0.044	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.12	0.027	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.12	0.027	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.12	0.052	mg/kg	
218-01-9	Chrysene	0.0624	0.12	0.047	mg/kg	J
86-73-7	Fluorene	5.02	0.12	0.041	mg/kg	
91-20-3	Naphthalene	5.48	0.12	0.045	mg/kg	
85-01-8	Phenanthrene	13.0 [b]	0.58	0.17	mg/kg	
129-00-0	Pyrene	1.11	0.12	0.035	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	91%	81%	30-130%
321-60-8	2-Fluorobiphenyl	75%	73%	30-130%
1718-51-0	Terphenyl-d14	110%	65%	30-130%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.
(b) Result is from Run# 2

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

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	S-381 @ 24'_04252013		
Lab Sample ID:	JB35319-2	**Date Sampled:**	04/24/13
Matrix:	SO - Soil	**Date Received:**	04/25/13
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	84.9
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BK24313.D	1	05/04/13	AMA	05/03/13	M:OP32931	M:GBK854
Run #2							

	Initial Weight	Final Volume
Run #1	30.5 g	50.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0029	0.0011	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	106%		61-167%
460-00-4	Bromofluorobenzene (S)	149%		61-167%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

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

Report of Analysis

Client Sample ID:	S-381 @ 24'_04252013		
Lab Sample ID:	JB35319-2	**Date Sampled:**	04/24/13
Matrix:	SO - Soil	**Date Received:**	04/25/13
		Percent Solids:	84.9
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead [a]	5.6	0.90	0.15	mg/kg	1	04/30/13	04/30/13	AMA	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: M:MA15519
(2) Prep QC Batch: M:MP20863

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

RL = Reporting Limit
MDL = Method Detection Limit

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

New Jersey

ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

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

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

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

PAGE 1 OF 1

FED-EX Tracking #: | Bottle Order Control #:
Accutest Quote #: | Accutest Job #: JB35319

Client / Reporting Information

Company Name: AQUATERRA TECHNOLOGIES
Street Address: 122 S. Church St.
City / State / Zip: West Chester PA 19381
Project Contact / E-mail: Tiffani Doerr TD@AQUATERRATECH.COM
Phone # / Fax #: (610) 431-5733
Sampler(s) Name(s) / Phone #: Shawn Sykes

Project Information

Project Name: PHILADELPHIA REFINERY AOI-4
Street:
City / State:
Project #: AOI-4
Client Purchase Order #:
Project Manager: T. Doerr

Billing Information (if different from Report to):
Company Name:
Street Address:
City / State / Zip:
Attention:

Requested Analysis (see TEST CODE sheet)

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	6010C Lead	Cumene, EDC - 8260B - BTEX, MTBE, TMBs	8011D - EDB	8270C (Benzo(a) anthracene, Benzo(b) fluoranthene, Benzo(k) fluoranthene, Chrysene, Dibenzo(a,h) anthracene, Fluoranthene, Naphthalene, Phenanthrene, Pyrene)	LAB USE ONLY
-1	S-381@ 12' - 0424203	6608/6345 6346	4/24/13	1110	SS	SO	5					2	2			X	X	X	X	
-2	S-381@ 24' 04252013	6585/6603 6604	4/25/13	830	SS	SO	5					2	2			X	X	X	X	
																				C5
																				1454
																				4003

D.I. slurry VOC vials frozen storage
Date: 4/25/13 Time: 1927 Initials: [illegible]

Field Kits Received

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

Turnaround Time (Business days)

- [ ] Std. 15 Business Days
- [x] Std. 10 Business Days (by Contract only)
- [ ] 10 Day *RUSH*
- [ ] 5 Day *RUSH*
- [ ] 3 Day *EMERGENCY*
- [ ] 2 Day *EMERGENCY*
- [ ] 1 Day *EMERGENCY*

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)
- [x] NJ Reduced F2
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [ ] Other

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

Comments / Special Instructions

Rec'd at Exton Service Center 4/25/13

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 [signature] Aquaterra	4/25/13 1300	1 Aquaterra Sample Refrigerator	2 Aquaterra Sample Fridge	4/25/13 1400	2 [signature]
Relinquished by Sampler: 3 [signature]	Date Time: 4/25/13 1810	Received By: 3 [signature]	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal # ____	Intact / Not intact	Preserved where applicable / On Ice / Cooler Temp. 1.2 °C

JB35319: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB35319 **Client:** **Project:**

Date / Time Received: 4/25/2013 **Delivery Method:** **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (1.2/1.2); 0

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

Cooler Temperature	Y	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	N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	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

Accutest Laboratories
V:732.329.0200

2235 US Highway 130
F: 732.329.3499

Dayton, New Jersey
www/accutest.com

JB35319: Chain of Custody
Page 2 of 2

Internal Sample Tracking Chronicle

Aquaterra Technologies, Inc.

Job No: JB35319

Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Project No: AOI-4

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB35319-1	Collected: 24-APR-13 11:10 By: SS		Received: 25-APR-13 By: TH			
S-381 @ 12'_04242013						
JB35319-1	SM21 2540 B MOD.	30-APR-13	AMA			%SOL
JB35319-1	SW846 6010C	30-APR-13 20:19	AMA	30-APR-13	AMA	PB
JB35319-1	SW846 8260B	03-MAY-13 21:50	RS			V8260SL
JB35319-1	SW846 8011	04-MAY-13 07:40	AMA	03-MAY-13	AMA	V8011EDB
JB35319-1	SW846 8270C	07-MAY-13 23:50	AMA	06-MAY-13	AMA	B8270SL
JB35319-2	Collected: 24-APR-13 08:30 By: SS		Received: 25-APR-13 By: TH			
S-381 @ 24'_04252013						
JB35319-2	SM21 2540 B MOD.	30-APR-13	AMA			%SOL
JB35319-2	SW846 6010C	30-APR-13 20:23	AMA	30-APR-13	AMA	PB
JB35319-2	SW846 8011	04-MAY-13 08:04	AMA	03-MAY-13	AMA	V8011EDB
JB35319-2	SW846 8270C	08-MAY-13 00:13	AMA	06-MAY-13	AMA	B8270SL
JB35319-2	SW846 8260B	08-MAY-13 15:29	ET			V8260SL
JB35319-2	SW846 8270C	09-MAY-13 14:03	AMA	06-MAY-13	AMA	B8270SL

Accutest Internal Chain of Custody

Job Number: JB35319
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 04/25/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB35319-1.1	Secured Storage	Tim Hudson	04/26/13 17:04	Retrieve from Storage
JB35319-1.1	Tim Hudson		04/26/13 17:05	Subcontract
JB35319-1.2	Secured Storage	Tim Hudson	04/26/13 17:04	Retrieve from Storage
JB35319-1.2	Tim Hudson		04/26/13 17:05	Subcontract
JB35319-1.5	Secured Storage	Thomas Saddler	05/03/13 18:06	Retrieve from Storage
JB35319-1.5	Thomas Saddler	GCMSY	05/03/13 18:06	Load on Instrument
JB35319-1.5	GCMSY	Robert Szot	05/09/13 08:44	Unload from Instrument
JB35319-1.5	Robert Szot		05/09/13 08:44	Depleted
JB35319-2.1	Secured Storage	Tim Hudson	04/26/13 17:04	Retrieve from Storage
JB35319-2.1	Tim Hudson		04/26/13 17:05	Subcontract
JB35319-2.2	Secured Storage	Tim Hudson	04/26/13 17:04	Retrieve from Storage
JB35319-2.2	Tim Hudson		04/26/13 17:05	Subcontract
JB35319-2.3	Secured Storage	Emily Tran	05/06/13 14:15	Retrieve from Storage
JB35319-2.3	Emily Tran	Secured Storage	05/07/13 10:17	Return to Storage

New Jersey
ACCUTEST LABORATORIES

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: JB35319
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY5761-MB	Y133803.D	1	05/03/13	RS	n/a	n/a	VY5761

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

JB35319-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.12	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	0.14	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	0.26	ug/kg	
98-82-8	Isopropylbenzene	ND	5.0	0.074	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.24	ug/kg	
108-88-3	Toluene	ND	1.0	0.11	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	0.21	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	0.16	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	0.14	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	105%	70-130%
17060-07-0	1,2-Dichloroethane-D4	97%	70-122%
2037-26-5	Toluene-D8	105%	81-127%
460-00-4	4-Bromofluorobenzene	95%	66-132%

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

Method Blank Summary

Job Number: JB35319
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VD8514-MB	D208622.D	1	05/08/13	ET	n/a	n/a	VD8514

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

JB35319-2

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	6.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	50	6.8	ug/kg	
100-41-4	Ethylbenzene	ND	50	13	ug/kg	
98-82-8	Isopropylbenzene	ND	250	3.7	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	50	12	ug/kg	
108-88-3	Toluene	ND	50	5.3	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	250	10	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	250	8.0	ug/kg	
1330-20-7	Xylene (total)	ND	50	7.0	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	92%	70-130%
17060-07-0	1,2-Dichloroethane-D4	93%	70-122%
2037-26-5	Toluene-D8	98%	81-127%
460-00-4	4-Bromofluorobenzene	103%	66-132%

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

Blank Spike Summary

Job Number: JB35319
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY5761-BS	Y133804.D	1	05/03/13	RS	n/a	n/a	VY5761

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

JB35319-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	49.9	100	76-117
107-06-2	1,2-Dichloroethane	50	61.5	123	68-134
100-41-4	Ethylbenzene	50	47.1	94	74-119
98-82-8	Isopropylbenzene	50	50.9	102	71-119
1634-04-4	Methyl Tert Butyl Ether	50	56.6	113	72-124
108-88-3	Toluene	50	49.7	99	77-121
95-63-6	1,2,4-Trimethylbenzene	50	50.4	101	72-118
108-67-8	1,3,5-Trimethylbenzene	50	50.6	101	69-118
1330-20-7	Xylene (total)	150	138	92	76-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	100%	70-130%
17060-07-0	1,2-Dichloroethane-D4	92%	70-122%
2037-26-5	Toluene-D8	106%	81-127%
460-00-4	4-Bromofluorobenzene	94%	66-132%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB35319
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VD8514-BS	D208623.D	1	05/08/13	ET	n/a	n/a	VD8514

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

JB35319-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2320	93	76-117
107-06-2	1,2-Dichloroethane	2500	2220	89	68-134
100-41-4	Ethylbenzene	2500	2230	89	74-119
98-82-8	Isopropylbenzene	2500	2330	93	71-119
1634-04-4	Methyl Tert Butyl Ether	2500	2310	92	72-124
108-88-3	Toluene	2500	2220	89	77-121
95-63-6	1,2,4-Trimethylbenzene	2500	2290	92	72-118
108-67-8	1,3,5-Trimethylbenzene	2500	2250	90	69-118
1330-20-7	Xylene (total)	7500	6580	88	76-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	93%	70-130%
17060-07-0	1,2-Dichloroethane-D4	99%	70-122%
2037-26-5	Toluene-D8	99%	81-127%
460-00-4	4-Bromofluorobenzene	103%	66-132%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: JB35319
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB35063-1MS	Y133814.D	1	05/03/13	RS	n/a	n/a	VY5761
JB35063-1	Y133816.D	1	05/03/13	RS	n/a	n/a	VY5761

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

JB35319-1

CAS No.	Compound	JB35063-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Limits
71-43-2	Benzene	ND		52.1	25.5	49	44-130
107-06-2	1,2-Dichloroethane	ND		52.1	34.1	65	43-139
100-41-4	Ethylbenzene	ND		52.1	22.2	43	29-137
98-82-8	Isopropylbenzene	ND		52.1	21.4	41	27-138
1634-04-4	Methyl Tert Butyl Ether	ND		104	70.3	67	51-128
108-88-3	Toluene	ND		52.1	25.4	49	40-135
95-63-6	1,2,4-Trimethylbenzene	ND		52.1	20.9	40	17-142
108-67-8	1,3,5-Trimethylbenzene	ND		52.1	20.5	39	20-140
1330-20-7	Xylene (total)	ND		156	65.1	42	28-139

CAS No.	Surrogate Recoveries	MS	JB35063-1	Limits
1868-53-7	Dibromofluoromethane	96%	95%	70-130%
17060-07-0	1,2-Dichloroethane-D4	96%	92%	70-122%
2037-26-5	Toluene-D8	105%	104%	81-127%
460-00-4	4-Bromofluorobenzene	96%	95%	66-132%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB35319
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB35330-2MS	D208634.D	1	05/08/13	ET	n/a	n/a	VD8514
JB35330-2MSD	D208635.D	1	05/08/13	ET	n/a	n/a	VD8514
JB35330-2	D208629.D	1	05/08/13	ET	n/a	n/a	VD8514

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

JB35319-2

CAS No.	Compound	JB35330-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		2730	2780	102	2730	100	2	44-130/21
107-06-2	1,2-Dichloroethane	ND		2730	2850	105	2850	105	0	43-139/19
100-41-4	Ethylbenzene	124		2730	2840	100	2800	98	1	29-137/25
98-82-8	Isopropylbenzene	ND		2730	2840	104	2750	101	3	27-138/26
1634-04-4	Methyl Tert Butyl Ether	ND		5460	5000	91	5040	92	1	51-128/20
108-88-3	Toluene	28.4	J	2730	2750	100	2670	97	3	40-135/22
95-63-6	1,2,4-Trimethylbenzene	ND		2730	2960	109	2890	106	2	17-142/28
108-67-8	1,3,5-Trimethylbenzene	ND		2730	2840	104	2760	101	3	20-140/27
1330-20-7	Xylene (total)	481		8180	8690	100	8490	98	2	28-139/25

CAS No.	Surrogate Recoveries	MS	MSD	JB35330-2	Limits
1868-53-7	Dibromofluoromethane	93%	93%	90%	70-130%
17060-07-0	1,2-Dichloroethane-D4	100%	101%	91%	70-122%
2037-26-5	Toluene-D8	100%	99%	98%	81-127%
460-00-4	4-Bromofluorobenzene	101%	102%	102%	66-132%

* = Outside of Control Limits.

Duplicate Summary

Job Number: JB35319
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB35101-1DUP	Y133815.D	1	05/03/13	RS	n/a	n/a	VY5761
JB35101-1	Y133817.D	1	05/03/13	RS	n/a	n/a	VY5761

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

JB35319-1

CAS No.	Compound	JB35101-1 ug/kg	Q	DUP ug/kg	Q	RPD	Limits
71-43-2	Benzene	ND		ND		nc	15
107-06-2	1,2-Dichloroethane	ND		ND		nc	10
100-41-4	Ethylbenzene	ND		ND		nc	29
98-82-8	Isopropylbenzene	ND		ND		nc	23
1634-04-4	Methyl Tert Butyl Ether	ND		ND		nc	23
108-88-3	Toluene	ND		ND		nc	21
95-63-6	1,2,4-Trimethylbenzene	ND		ND		nc	10
108-67-8	1,3,5-Trimethylbenzene	ND		ND		nc	12
1330-20-7	Xylene (total)	ND		ND		nc	26

CAS No.	Surrogate Recoveries	DUP	JB35101-1	Limits
1868-53-7	Dibromofluoromethane	103%	102%	70-130%
17060-07-0	1,2-Dichloroethane-D4	94%	92%	70-122%
2037-26-5	Toluene-D8	104%	104%	81-127%
460-00-4	4-Bromofluorobenzene	95%	95%	66-132%

* = Outside of Control Limits.

Instrument Performance Check (BFB)

Job Number: JB35319
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VD8459-BFB
Lab File ID: D207286.D
Instrument ID: GCMSD
Injection Date: 04/04/13
Injection Time: 11:25

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	15035	18.9		Pass
75	30.0 - 60.0% of mass 95	38304	48.1		Pass
95	Base peak, 100% relative abundance	79632	100.0		Pass
96	5.0 - 9.0% of mass 95	5286	6.64		Pass
173	Less than 2.0% of mass 174	519	0.65	(0.73) [a]	Pass
174	50.0 - 120.0% of mass 95	71434	89.7		Pass
175	5.0 - 9.0% of mass 174	5171	6.49	(7.24) [a]	Pass
176	95.0 - 101.0% of mass 174	70218	88.2	(98.3) [a]	Pass
177	5.0 - 9.0% of mass 176	4610	5.79	(6.57) [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
VD8459-IC8459	D207290.D	04/04/13	13:29	02:04	Initial cal 5
VD8459-ICC8459	D207293.D	04/04/13	14:57	03:32	Initial cal 50
VD8459-IC8459	D207294.D	04/04/13	15:26	04:01	Initial cal 100
VD8459-IC8459	D207295.D	04/04/13	15:55	04:30	Initial cal 200
VD8459-IC8459	D207298.D	04/04/13	17:23	05:58	Initial cal 0.5
VD8459-IC8459	D207299.D	04/04/13	17:53	06:28	Initial cal 1
VD8459-IC8459	D207300.D	04/04/13	18:22	06:57	Initial cal 2
VD8459-IC8459	D207301.D	04/04/13	18:51	07:26	Initial cal 10
VD8459-IC8459	D207302.D	04/04/13	19:20	07:55	Initial cal 20
VD8459-ICV8459	D207303.D	04/04/13	19:49	08:24	Initial cal verification 50
VD8459-ICV8459	D207304.D	04/04/13	20:18	08:53	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JB35319
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VD8514-BFB
Lab File ID: D208619.D
Instrument ID: GCMSD
Injection Date: 05/08/13
Injection Time: 08:53

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	9511	19.6		Pass
75	30.0 - 60.0% of mass 95	23621	48.6		Pass
95	Base peak, 100% relative abundance	48557	100.0		Pass
96	5.0 - 9.0% of mass 95	3275	6.74		Pass
173	Less than 2.0% of mass 174	213	0.44	(0.53) [a]	Pass
174	50.0 - 120.0% of mass 95	40533	83.5		Pass
175	5.0 - 9.0% of mass 174	2940	6.05	(7.25) [a]	Pass
176	95.0 - 101.0% of mass 174	39458	81.3	(97.3) [a]	Pass
177	5.0 - 9.0% of mass 176	2583	5.32	(6.55) [b]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VD8514-CC8459	D208620.D	05/08/13	09:25	00:32	Continuing cal 20
ZZZZZZ	D208622.D	05/08/13	10:32	01:39	(unrelated sample)
VD8514-MB	D208622.D	05/08/13	10:32	01:39	Method Blank
VD8514-BS	D208623.D	05/08/13	11:01	02:08	Blank Spike
VD8514-BS	D208624.D	05/08/13	11:33	02:40	Blank Spike
ZZZZZZ	D208628.D	05/08/13	13:31	04:38	(unrelated sample)
JB35330-2	D208629.D	05/08/13	14:01	05:08	(used for QC only; not part of job JB35319)
ZZZZZZ	D208630.D	05/08/13	14:30	05:37	(unrelated sample)
ZZZZZZ	D208631.D	05/08/13	14:59	06:06	(unrelated sample)
JB35319-2	D208632.D	05/08/13	15:29	06:36	S-381 @ 24'_04252013
ZZZZZZ	D208633.D	05/08/13	15:58	07:05	(unrelated sample)
JB35330-2MS	D208634.D	05/08/13	16:28	07:35	Matrix Spike
JB35330-2MSD	D208635.D	05/08/13	16:57	08:04	Matrix Spike Duplicate
ZZZZZZ	D208636.D	05/08/13	17:27	08:34	(unrelated sample)
ZZZZZZ	D208637.D	05/08/13	17:56	09:03	(unrelated sample)
ZZZZZZ	D208640.D	05/08/13	19:24	10:31	(unrelated sample)
ZZZZZZ	D208641.D	05/08/13	19:54	11:01	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JB35319
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VY5710-BFB
Lab File ID: Y132600.D
Instrument ID: GCMSY
Injection Date: 04/02/13
Injection Time: 09:38

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	7188	16.6		Pass
75	30.0 - 60.0% of mass 95	19216	44.2		Pass
95	Base peak, 100% relative abundance	43429	100.0		Pass
96	5.0 - 9.0% of mass 95	2887	6.65		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	41152	94.8		Pass
175	5.0 - 9.0% of mass 174	3182	7.33	(7.73) [a]	Pass
176	95.0 - 101.0% of mass 174	39698	91.4	(96.5) [a]	Pass
177	5.0 - 9.0% of mass 176	2683	6.18	(6.76) [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
VY5710-IC5710	Y132601.D	04/02/13	10:15	00:37	Initial cal 10
VY5710-IC5710	Y132602.D	04/02/13	10:44	01:06	Initial cal 5
VY5710-IC5710	Y132603.D	04/02/13	11:13	01:35	Initial cal 2
VY5710-IC5710	Y132604.D	04/02/13	11:42	02:04	Initial cal 1
VY5710-IC5710	Y132605.D	04/02/13	12:11	02:33	Initial cal 0.5
VY5710-IC5710	Y132606.D	04/02/13	12:40	03:02	Initial cal 20
VY5710-ICC5710	Y132607.D	04/02/13	13:09	03:31	Initial cal 50
VY5710-IC5710	Y132608.D	04/02/13	13:38	04:00	Initial cal 75
VY5710-IC5710	Y132609.D	04/02/13	14:07	04:29	Initial cal 100
VY5710-IC5710	Y132610.D	04/02/13	14:36	04:58	Initial cal 200
VY5710-ICV5710	Y132613.D	04/02/13	16:39	07:01	Initial cal verification 50
VY5710-ICV5710	Y132614.D	04/02/13	17:21	07:43	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JB35319
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VY5761-BFB
Lab File ID: Y133801.D
Instrument ID: GCMSY
Injection Date: 05/03/13
Injection Time: 10:27

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	4890	17.6		Pass
75	30.0 - 60.0% of mass 95	12758	46.0		Pass
95	Base peak, 100% relative abundance	27717	100.0		Pass
96	5.0 - 9.0% of mass 95	1907	6.88		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	26546	95.8		Pass
175	5.0 - 9.0% of mass 174	2173	7.84	(8.19) [a]	Pass
176	95.0 - 101.0% of mass 174	25653	92.6	(96.6) [a]	Pass
177	5.0 - 9.0% of mass 176	1755	6.33	(6.84) [b]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VY5761-CC5710	Y133802.D	05/03/13	11:02	00:35	Continuing cal 20
VY5761-MB	Y133803.D	05/03/13	12:18	01:51	Method Blank
VY5761-BS	Y133804.D	05/03/13	12:52	02:25	Blank Spike
ZZZZZZ	Y133805.D	05/03/13	13:45	03:18	(unrelated sample)
ZZZZZZ	Y133806.D	05/03/13	14:13	03:46	(unrelated sample)
ZZZZZZ	Y133807.D	05/03/13	14:42	04:15	(unrelated sample)
ZZZZZZ	Y133808.D	05/03/13	15:11	04:44	(unrelated sample)
ZZZZZZ	Y133809.D	05/03/13	15:39	05:12	(unrelated sample)
ZZZZZZ	Y133810.D	05/03/13	16:08	05:41	(unrelated sample)
ZZZZZZ	Y133811.D	05/03/13	16:36	06:09	(unrelated sample)
ZZZZZZ	Y133812.D	05/03/13	17:05	06:38	(unrelated sample)
ZZZZZZ	Y133813.D	05/03/13	17:34	07:07	(unrelated sample)
JB35063-1MS	Y133814.D	05/03/13	18:27	08:00	Matrix Spike
JB35101-1DUP	Y133815.D	05/03/13	18:56	08:29	Duplicate
JB35063-1	Y133816.D	05/03/13	19:25	08:58	(used for QC only; not part of job JB35319)
JB35101-1	Y133817.D	05/03/13	19:54	09:27	(used for QC only; not part of job JB35319)
ZZZZZZ	Y133818.D	05/03/13	20:22	09:55	(unrelated sample)
ZZZZZZ	Y133819.D	05/03/13	20:51	10:24	(unrelated sample)
ZZZZZZ	Y133820.D	05/03/13	21:20	10:53	(unrelated sample)
JB35319-1	Y133821.D	05/03/13	21:50	11:23	S-381 @ 12'_04242013
ZZZZZZ	Y133822.D	05/03/13	22:18	11:51	(unrelated sample)

Volatile Internal Standard Area Summary

Job Number: JB35319
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	VD8514-CC8459	**Injection Date:**	05/08/13
Lab File ID:	D208620.D	**Injection Time:**	09:25
Instrument ID:	GCMSD	**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	90576	8.00	143659	10.23	222163	11.14	199008	14.48	109814	17.07
Upper Limit [a]	181152	8.50	287318	10.73	444326	11.64	398016	14.98	219628	17.57
Lower Limit [b]	45288	7.50	71830	9.73	111082	10.64	99504	13.98	54907	16.57

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VD8514-MB	84591	8.03	141356	10.22	217416	11.14	200118	14.48	111079	17.06
ZZZZZZ	84591	8.03	141356	10.22	217416	11.14	200118	14.48	111079	17.06
VD8514-BS	89097	7.99	142092	10.23	218637	11.14	199466	14.48	111845	17.06
VD8514-BS	88847	8.00	143048	10.22	217623	11.14	202547	14.48	109372	17.07
ZZZZZZ	92361	8.00	141420	10.23	218017	11.14	200646	14.48	109355	17.07
JB35330-2	86880	8.02	143753	10.23	217789	11.14	199795	14.48	110727	17.06
ZZZZZZ	86877	8.01	142747	10.23	218693	11.14	199834	14.48	111811	17.06
ZZZZZZ	87225	8.01	142212	10.23	217669	11.14	198968	14.48	110326	17.06
JB35319-2 [c]	88877	7.99	141525	10.23	216271	11.14	192529	14.48	116014	17.06
ZZZZZZ	88998	8.00	141778	10.23	218935	11.14	200655	14.48	116350	17.06
JB35330-2MS	88285	8.01	140279	10.23	217716	11.14	197810	14.48	112287	17.06
JB35330-2MSD	88684	8.00	141128	10.23	219682	11.14	198452	14.48	112228	17.06
ZZZZZZ	87858	8.00	140629	10.23	215502	11.14	195470	14.48	110752	17.06
ZZZZZZ	100649	8.02	141280	10.23	216585	11.14	213426	14.49	110616	17.08
ZZZZZZ	89097	8.02	140968	10.22	218826	11.14	207367	14.48	114421	17.07
ZZZZZZ	86667	8.01	143158	10.23	221044	11.14	210983	14.48	115415	17.07

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.
(c) Dilution required due to matrix interference.

Volatile Internal Standard Area Summary

Job Number: JB35319
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	VY5761-CC5710	**Injection Date:**	05/03/13
Lab File ID:	Y133802.D	**Injection Time:**	11:02
Instrument ID:	GCMSY	**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	40186	7.63	104604	9.81	148642	10.73	126015	13.82	68535	16.10
Upper Limit [a]	80372	8.13	209208	10.31	297284	11.23	252030	14.32	137070	16.60
Lower Limit [b]	20093	7.13	52302	9.31	74321	10.23	63008	13.32	34268	15.60

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VY5761-MB	36500	7.64	96197	9.81	142588	10.73	126298	13.82	66201	16.10
VY5761-BS	44268	7.63	102256	9.81	145925	10.73	125845	13.82	67682	16.10
ZZZZZZ	42788	7.63	112377	9.81	162726	10.73	137486	13.82	72249	16.10
ZZZZZZ	41503	7.64	110837	9.82	161812	10.73	140610	13.82	70357	16.10
ZZZZZZ	38732	7.63	100431	9.82	146831	10.73	125929	13.82	64217	16.10
ZZZZZZ	41815	7.64	103864	9.82	151929	10.73	128802	13.82	67217	16.10
ZZZZZZ	40278	7.64	103338	9.82	150211	10.73	127437	13.82	65932	16.10
ZZZZZZ	35621	7.64	105103	9.82	152628	10.73	130493	13.82	66163	16.10
ZZZZZZ	33345	7.65	108888	9.82	158948	10.73	136337	13.82	69361	16.10
ZZZZZZ	34790	7.64	103198	9.82	151399	10.73	127309	13.82	64985	16.10
ZZZZZZ	16049*	7.64	107681	9.82	148674	10.73	115324	13.82	54865	16.10
JB35063-1MS	51403	7.64	105470	9.81	154974	10.73	134216	13.82	71923	16.10
JB35101-1DUP	40760	7.64	102591	9.82	148826	10.73	129296	13.82	67499	16.10
JB35063-1	38964	7.64	104126	9.82	151400	10.74	130712	13.82	67625	16.10
JB35101-1	38517	7.64	105403	9.82	153004	10.73	130395	13.82	67920	16.10
ZZZZZZ	35026	7.64	100518	9.82	143841	10.73	124309	13.82	64047	16.10
ZZZZZZ	33910	7.64	102180	9.82	146819	10.73	123074	13.82	62359	16.10
ZZZZZZ	37044	7.64	96147	9.81	142274	10.73	121628	13.82	64804	16.10
JB35319-1	32535	7.64	97666	9.82	142586	10.73	123130	13.82	65499	16.10
ZZZZZZ	31371	7.63	99822	9.82	144623	10.74	124303	13.82	65241	16.10

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: JB35319
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Method: SW846 8260B **Matrix:** SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
JB35319-1	Y133821.D	102.0	94.0	105.0	94.0
JB35319-2	D208632.D	91.0	103.0	112.0	114.0
JB35063-1MS	Y133814.D	96.0	96.0	105.0	96.0
JB35101-1DUP	Y133815.D	103.0	94.0	104.0	95.0
JB35330-2MS	D208634.D	93.0	100.0	100.0	101.0
JB35330-2MSD	D208635.D	93.0	101.0	99.0	102.0
VD8514-BS	D208623.D	93.0	99.0	99.0	103.0
VD8514-MB	D208622.D	92.0	93.0	98.0	103.0
VY5761-BS	Y133804.D	100.0	92.0	106.0	94.0
VY5761-MB	Y133803.D	105.0	97.0	105.0	95.0

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	70-130%
S2 = 1,2-Dichloroethane-D4	70-122%
S3 = Toluene-D8	81-127%
S4 = 4-Bromofluorobenzene	66-132%

Initial Calibration Summary

Job Number: JB35319 **Sample:** VD8459-ICC8459
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D207293.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Response Factor Report MSD

```
Method       : C:\MSDCHEM\1\METHODS\MD8459.M (RTE Integrator)
Title        : SW-846 Method 8260B
Last Update  : Fri Apr 05 08:43:57 2013
Response via : Initial Calibration

Calibration Files
5   =d207290.D   2   =d207300.D   0.5 =d207298.D   50  =d207293.D
100 =d207294.D   1   =d207299.D   200 =d207295.D   20  =d207302.D
10  =d207301.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	0.097		0.087	0.108		0.105	0.114	0.110		0.103	9.51
3) tertiary butyl alcohol	1.325	1.327	1.283	1.252	1.470	1.186	1.339	1.340		1.315	6.24
4) I pentafluorobenzene ----------ISTD----------											
5) 1,2-dichloro-1,2,2-trifluoroet										0.000#	-1.00
6) chlorodifluoromethane	0.636	0.655	0.679	0.666	0.657	0.675	0.681	0.657	0.696	0.667	2.67
7) dichlorodifluoromethane	0.847	0.976	0.712	0.796	0.805	0.733	0.837	0.696	0.765	0.796	10.76
8) chloromethane	0.665	0.807	0.662	0.714	0.714	0.779	0.570	0.629		0.693	11.24
9) vinyl chloride	0.824	0.954	0.822	0.875	0.800	0.925	0.709	0.785		0.837	9.46
10) bromomethane	0.459	0.516	0.458	0.472	0.468	0.337	0.406	0.432		0.443	12.06
11) chloroethane	0.398	0.506	0.398	0.449	0.415	0.447	0.352	0.386		0.419	11.28
12) vinyl bromide										0.000#	-1.00
13) trichlorofluoromethane	0.836	1.015	0.984	0.824	0.874	0.840	0.914	0.692	0.768	0.861	11.72
14) pentane	0.887	0.949	0.861		0.857		0.676	0.784		0.836	11.33
15) ethyl ether	0.354	0.399	0.342	0.347		0.349	0.301	0.343		0.348	8.15
16) acrolein	0.121	0.133	0.125		0.122		0.123	0.125		0.125	3.52
17) chlorotrifluoroethene										0.000#	-1.00
18) 2-chloropropane	0.948	1.013	0.770	0.988	1.000	1.233	1.016	0.827	0.949	0.971	13.41
19) 1,1-dichloroethene	0.494	0.557	0.550	0.506	0.507	0.543	0.521	0.421	0.492	0.510	8.04
20) acetone	0.082		0.075	0.077		0.079	0.065	0.074		0.075	7.75
21) allyl chloride	0.985	0.974	0.998	1.119	1.171	1.109	1.302	0.915	1.077	1.072	11.14
22) acetonitrile	0.031	0.031	0.034	0.031	0.038	0.034	0.035	0.035		0.034	7.40
23) acetaldehyde											

											0.000#	-1.00
24)	iodomethane											
	0.867	0.830	0.668	0.905	0.910	0.908	0.918	0.737	0.858		0.844	10.34
25)	iso-butyl alcohol											
											0.000#	-1.00
26)	carbon disulfide											
	1.774	1.696	1.541	1.764	1.803	1.916	1.824	1.453	1.697		1.719	8.37
27)	methylene chloride											
	0.578	0.557	0.530	0.576	0.579	0.614	0.578	0.495	0.568		0.564	6.04
28)	1-chloropropane											
	1.050	1.013	1.292	1.005	1.024	1.239	1.051	0.879	1.011		1.063	11.89
29)	methyl acetate											
	0.438	0.523		0.465	0.473	0.505	0.488	0.449	0.467		0.476	5.93
30)	methyl tert butyl ether											
	1.663	1.682	1.605	1.720	1.723	1.726	1.708	1.585	1.707		1.680	3.13
31)	trans-1,2-dichloroethene											
	0.529	0.556	0.662	0.547	0.554	0.633	0.557	0.472	0.521		0.559	10.24
32)	di-isopropyl ether											
	1.781	1.948	1.730	1.909	1.922	1.867	1.956	1.896	1.881		1.877	4.03
33)	ethyl tert-butyl ether											
	1.729	1.821	1.656	1.845	1.836	1.776	1.845	1.821	1.816		1.794	3.56
34)	2-butanone											
	0.088			0.082	0.085		0.086	0.069	0.076		0.081	8.89
35)	1,1-dichloroethane											
	0.950	0.890	0.843	0.981	1.001	0.990	1.009	0.850	0.960		0.942	6.85
36)	chloroprene											
	0.727	0.782		0.801	0.804	0.747	0.828	0.775	0.781		0.781	4.11
37)	acrylonitrile											
	0.217	0.221	0.178	0.228	0.237	0.228	0.242	0.199	0.221		0.219	9.00
38)	vinyl acetate											
	0.104	0.097		0.117	0.120	0.091	0.119	0.118	0.107		0.109	10.18
39)	ethyl acetate											
	0.075	0.083		0.082	0.081		0.084	0.083	0.082		0.082	3.54
40)	2,2-dichloropropane											
	0.829	0.753	0.705	0.810	0.822	0.830	0.813	0.712	0.828		0.789	6.51
41)	cis-1,2-dichloroethene											
	0.595	0.588	0.513	0.591	0.599	0.648	0.599	0.518	0.607		0.584	7.34
42)	propionitrile											
	0.085	0.080	0.065	0.087	0.092	0.078	0.095	0.077	0.087		0.083	11.01
43)	bromochloromethane											
	0.273	0.268	0.216	0.291	0.286	0.279	0.284	0.250	0.286		0.270	8.85
44)	tetrahydrofuran											
	0.073	0.063		0.081	0.083		0.086	0.070	0.075		0.076	10.52
45)	chloroform											
	0.897	0.861	0.802	0.931	0.935	0.936	0.933	0.820	0.946		0.896	6.12
46)	dibromofluoromethane (s)											
	0.469	0.487	0.553	0.458	0.461	0.517	0.464	0.432	0.491		0.481	7.48
47)	1,2-dichloroethane-d4 (s)											
	0.619	0.594	0.529	0.622	0.626	0.607	0.629	0.596	0.686		0.612	6.73
48)	freon 113											
	0.314	0.344		0.342	0.341	0.319	0.359	0.334	0.330		0.335	4.29
49)	methacrylonitrile											
	0.360	0.339		0.364	0.376	0.301	0.382	0.328	0.366		0.352	7.74
50)	t-butyl formate											
	0.507	0.529		0.553	0.551	0.495	0.551	0.545	0.544		0.534	4.16
51)	1,1,1-trichloroethane											
	0.780	0.741	0.655	0.819	0.827	0.789	0.829	0.700	0.792		0.770	7.83
52)	tert-amyl methyl ether											
	1.769	1.873	1.825	1.806	1.815	1.901	1.830	1.787	1.859		1.830	2.30

Initial Calibration Summary

Job Number: JB35319 **Sample:** VD8459-ICC8459
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D207293.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
53) I   1,4-difluorobenzene   ----------------ISTD--------------------
54)  cyclohexane
           0.543 0.501       0.539 0.553 0.558 0.573 0.477 0.533   0.535    5.87
55)  tert amyl alcohol
           0.016 0.016       0.016 0.016 0.015 0.016 0.016 0.016   0.016    3.52
56)  2,2,4-trimethylpentane
           1.199 1.367 1.230 1.296 1.325 1.285 1.328 1.277 1.276   1.287    3.96
57)  epichlorohydrin
           0.040 0.042       0.044 0.045 0.036 0.046 0.044 0.042   0.042    7.09
58)  n-butyl alcohol
           0.010 0.009       0.011 0.012 0.009 0.013 0.011 0.011   0.011   12.12
59)  carbon tetrachloride
           0.466 0.414 0.373 0.467 0.476 0.485 0.478 0.406 0.455   0.447    8.80
60)  1,1-dichloropropene
           0.480 0.443 0.412 0.482 0.493 0.507 0.500 0.424 0.475   0.469    7.26
61)  hexane
           0.408 0.487 0.513 0.415 0.422 0.495 0.436 0.428 0.415   0.447    8.99
62)  benzene
           1.440 1.322 1.325 1.433 1.463 1.500 1.463 1.263 1.426   1.404    5.72
63)  heptane
           0.236 0.261 0.205 0.242 0.250 0.255 0.250 0.264 0.247   0.245    7.18
64)  isopropyl acetate
           0.733 0.778 0.739 0.740 0.749 0.760 0.768 0.762 0.767   0.755    2.03
65)  1,2-dichloroethane
           0.488 0.449 0.407 0.483 0.489 0.489 0.492 0.436 0.496   0.470    6.71
66)  Ethyl Acrylate
           0.408 0.391       0.455 0.473 0.378 0.482 0.382 0.423   0.424    9.78
67)  trichloroethene
           0.357 0.311 0.277 0.356 0.365 0.352 0.367 0.313 0.359   0.340    9.27
68)  2-nitropropane
           0.890 0.931 0.845 0.962 0.992 0.918 1.017 0.950 0.967   0.941    5.59
69)  2-chloroethyl vinyl ether
           0.219 0.219 0.195 0.242 0.248 0.218 0.253 0.238 0.239   0.230    8.14
70)  methyl methacrylate
           0.089 0.081       0.104 0.109 0.073 0.111 0.090 0.098   0.094   14.43
71)  tert-amyl ethyl ether
           0.514 0.526 0.449 0.536 0.541 0.506 0.538 0.485 0.526   0.513    5.83
72)  1,2-dichloropropane
           0.365 0.339 0.331 0.381 0.394 0.356 0.405 0.333 0.380   0.365    7.42
73)  methylcyclohexane
           0.533 0.584 0.522 0.571 0.587 0.593 0.602 0.569 0.572   0.570    4.69
74)  dibromomethane
           0.215 0.208 0.163 0.226 0.229 0.219 0.226 0.201 0.229   0.213    9.83
75)  bromodichloromethane
           0.458 0.416 0.398 0.485 0.492 0.455 0.489 0.419 0.474   0.454    7.77
76)  cis-1,3-dichloropropene
           0.588 0.532 0.492 0.613 0.628 0.593 0.623 0.533 0.610   0.579    8.33
77)  toluene-d8 (s)
           1.256 1.217 1.182 1.205 1.209 1.279 1.211 1.131 1.285   1.219    3.97
78)  4-methyl-2-pentanone
           0.158 0.133       0.168 0.172       0.175 0.146 0.162   0.159    9.47
79)  toluene
           0.897 0.834 0.777 0.906 0.926 0.933 0.922 0.786 0.923   0.878    7.07
80)  3-methyl-1-butanol
           0.009 0.008       0.011 0.012       0.013 0.011 0.010   0.010   14.50
81)  trans-1,3-dichloropropene
           0.545 0.506 0.470 0.579 0.593 0.569 0.593 0.502 0.578   0.548    8.24
82)  ethyl methacrylate
           0.470 0.425       0.542 0.564 0.426 0.573 0.456 0.517   0.497   12.11
83)  1,1,2-trichloroethane
```

```
            0.267 0.267 0.227 0.277 0.285 0.262 0.285 0.244 0.284   0.266    7.50
 84)  2-hexanone
            0.174             0.169 0.182       0.191 0.138 0.157   0.169   11.10

 85) I   chlorobenzene-d5      ----------------ISTD--------------------
 86)  tetrachloroethene
            0.473 0.426 0.354 0.457 0.471 0.475 0.477 0.402 0.471   0.445    9.64
 87)  1,3-dichloropropane
            0.612 0.560 0.480 0.619 0.629 0.630 0.627 0.555 0.631   0.594    8.73
 88)  butyl acetate
            0.262 0.256       0.279 0.286 0.239 0.295 0.283 0.283   0.273    6.88
 89)  3,3-dimethyl-1-butanol
            0.031 0.032       0.036 0.042 0.028       0.035 0.033   0.034   13.50
 90)  dibromochloromethane
            0.394 0.339 0.315 0.411 0.422 0.390 0.415 0.362 0.400   0.383    9.60
 91)  1,2-dibromoethane
            0.357 0.326 0.267 0.371 0.377 0.338 0.370 0.334 0.373   0.346   10.14
 92)  chlorobenzene
            1.076 1.018 0.953 1.055 1.069 1.153 1.058 0.932 1.086   1.044    6.53
 93)  1,1,1,2-tetrachloroethane
            0.385 0.364 0.299 0.399 0.405 0.387 0.407 0.345 0.389   0.375    9.30
 94)  ethylbenzene
            1.886 1.750 1.700 1.877 1.919 1.970 1.905 1.652 1.884   1.838    5.95
 95)  m,p-xylene
            0.729 0.679 0.634 0.731 0.752 0.760 0.735 0.647 0.734   0.711    6.48
 96)  o-xylene
            0.736 0.676 0.586 0.736 0.752 0.735 0.741 0.643 0.731   0.704    8.04
 97)  styrene
            1.140 1.033 0.917 1.235 1.289 1.110 1.280 1.055 1.182   1.138   10.84
 98)  bromoform
            0.302 0.264       0.318 0.329 0.265 0.330 0.271 0.304   0.298    9.36

 99) I   1,4-dichlorobenzene-d ----------------ISTD--------------------
100)  isopropylbenzene
            3.279 2.986 2.917 3.170 3.202 3.420 3.132 2.825 3.257   3.132    6.06
101)  4-bromofluorobenzene (s)
            0.904 0.866 1.016 0.860 0.874 0.932 0.894 0.812 0.902   0.895    6.30
102)  bromobenzene
            0.855 0.786 0.768 0.830 0.838 0.887 0.831 0.749 0.849   0.822    5.46
103)  cyclohexanone
            0.135 0.099 0.110 0.121 0.139 0.118 0.132 0.122 0.132   0.123   10.48
104)  1,1,2,2-tetrachloroethane
            0.940 0.855 0.868 0.885 0.895 0.924 0.882 0.802 0.906   0.884    4.59
105)  trans-1,4-dichloro-2-butene
            0.251 0.216       0.271 0.281 0.207 0.281 0.238 0.265   0.251   11.35
106)  1,2,3-trichloropropane
            0.268 0.251       0.251 0.253 0.249 0.250 0.227 0.258   0.251    4.59
107)  n-propylbenzene
            3.833 3.486 3.770 3.714 3.759 4.065 3.677 3.283 3.746   3.704    5.89
108)  p-ethyltoluene
            2.822 2.839 2.535 2.896 2.907 2.881 2.783 2.335 2.734   2.748    7.00
109)  2-chlorotoluene
            0.788 0.682 0.686 0.759 0.778 0.820 0.772 0.677 0.780   0.749    7.12
110)  4-chlorotoluene
            2.434 2.280 2.520 2.363 2.404 2.690 2.388 2.103 2.388   2.397    6.66
111)  1,3,5-trimethylbenzene
            2.916 2.767 2.634 2.783 2.828 3.157 2.816 2.431 2.814   2.794    7.01
112)  tert-butylbenzene
            2.463 2.207 2.238 2.394 2.394 2.690 2.378 2.082 2.393   2.360    7.32
113)  pentachloroethane
```

Initial Calibration Summary

Job Number: JB35319 **Sample:** VD8459-ICC8459
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D207293.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
            0.522 0.453 0.425 0.519 0.526 0.499 0.494 0.459 0.505   0.489    7.24
114)  1,2,4-trimethylbenzene
            2.852 2.618 2.684 2.815 2.866 3.057 2.845 2.463 2.818   2.780    6.13
115)  sec-butylbenzene
            3.624 3.294 3.181 3.567 3.641 3.742 3.510 3.115 3.554   3.470    6.33
116)  1,3-dichlorobenzene
            1.611 1.499 1.476 1.594 1.620 1.747 1.583 1.407 1.605   1.571    6.28
117)  p-isopropyltoluene
            2.931 2.632 2.603 2.935 2.990 2.930 2.875 2.502 2.877   2.808    6.36
118)  1,4-dichlorobenzene
            1.705 1.659 1.684 1.657 1.682 1.797 1.641 1.477 1.676   1.664    5.01
119)  Benzyl Chloride
            1.840 1.827 1.889 1.912 1.920 1.865 1.892 1.866 1.870   1.876    1.64
120)  p-diethylbenzene
            1.595 1.617 1.326 1.722 1.729 1.670 1.640 1.334 1.510   1.571    9.67
121)  1,2-dichlorobenzene
            1.552 1.483 1.453 1.576 1.586 1.630 1.530 1.379 1.573   1.529    5.10
122)  n-butylbenzene
            1.499 1.359 1.167 1.605 1.671 1.463 1.630 1.351 1.507   1.472   10.86
123)  1,2,4,5-tetramethylbenzene
            2.270 2.270 1.996 2.511 2.520 2.272 2.325 1.941 2.123   2.248    8.95
124)  1,2-dibromo-3-chloropropane
            0.143 0.152       0.152 0.158 0.154 0.151 0.129 0.138   0.147    6.65
125)  1,3,5-trichlorobenzene
            1.078 0.990 0.910 1.222 1.230 1.066 1.160 1.003 1.098   1.084    9.90
126)  1,2,4-trichlorobenzene
            0.725 0.624 0.604 0.932 0.975 0.607 0.947 0.740 0.761   0.768   19.43
             ----- Linear regression -----  Coefficient =  0.9993
               Response Ratio = -0.02325 + 0.95782 *A

127)  hexachlorobutadiene
            0.533 0.480 0.636 0.565 0.578 0.577 0.536 0.459 0.507   0.541   10.08
128)  naphthalene
            1.475             1.871 1.972       1.934 1.483 1.520   1.709   14.02
129)  1,2,3-trichlorobenzene
            0.525 0.455 0.485 0.698 0.735 0.460 0.726 0.541 0.546   0.574   19.84
             ----- Linear regression -----  Coefficient =  0.9994
               Response Ratio = -0.02402 + 0.73353 *A

130)  hexachloroethane
            0.593 0.542 0.626 0.566 0.583 0.666 0.578 0.482 0.553   0.576    9.02
 ------------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           MD8459.M          Fri Apr 05 08:58:46 2013
```

Initial Calibration Verification

Job Number: JB35319 **Sample:** VD8459-ICV8459
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D207303.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\d207303.D Vial: 18
Acq On : 4 Apr 2013 7:49 pm Operator: EmilyT
Sample : icv8459-50 Inst : MSD
Misc : ms45762,vd8459,5,,100,5,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method : C:\MSDCHEM\1\METHODS\MD8459.M (RTE Integrator)
Title : SW-846 Method 8260B
Last Update : Fri Apr 05 08:43:57 2013
Response via : Multiple Level Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	108	0.00	8.00
2	M	1,4-dioxane	0.103	0.103	0.0	128	0.00	11.87
3	M	tertiary butyl alcohol	1.315	1.329	-1.1	111	0.00	8.12
4	I	pentafluorobenzene	1.000	1.000	0.0	104	0.00	10.23
5	M	1,2-dichloro-1,2,2-triflu		----------NA----------				
6	M	chlorodifluoromethane	0.667	0.598	10.3	94	0.00	4.56
7	M	dichlorodifluoromethane	0.796	0.785	1.4	103	0.00	4.54
8	M	chloromethane	0.693	0.672	3.0	106	0.00	4.90
9	M	vinyl chloride	0.837	0.831	0.7	105	0.00	5.18
10	M	bromomethane	0.443	0.453	-2.3	103	0.00	5.84
11	M	chloroethane	0.419	0.401	4.3	105	0.00	6.03
12	M	vinyl bromide		----------NA----------				
13	M	trichlorofluoromethane	0.861	0.823	4.4	104	0.00	6.56
14		pentane	0.836	0.841	-0.6	102	0.00	6.63
15	M	ethyl ether	0.348	0.340	2.3	104	0.00	6.94
16	M	acrolein	0.125	0.122	2.4	102	0.00	7.16
17	M	chlorotrifluoroethene		----------NA----------				
18	M	2-chloropropane	0.971	0.991	-2.1	105	0.00	7.14
19	M	1,1-dichloroethene	0.510	0.506	0.8	104	0.00	7.37
20	M	acetone	0.075	0.072	4.0	101	0.00	7.38
21	M	allyl chloride	1.072	1.117	-4.2	104	0.00	7.88
22	M	acetonitrile	0.034	0.037	-8.8	114	0.00	7.80
23	M	acetaldehyde		----------NA----------				
24	M	iodomethane	0.844	0.907	-7.5	104	0.00	7.63
25	M	iso-butyl alcohol		----------NA----------				
26	M	carbon disulfide	1.719	1.789	-4.1	106	0.00	7.77
27	M	methylene chloride	0.564	0.569	-0.9	103	0.00	8.05
28	M	1-chloropropane	1.063	1.014	4.6	105	0.00	8.11
29	M	methyl acetate	0.476	0.662	-39.1#	148	0.00	7.85
30	M	methyl tert butyl ether	1.680	1.706	-1.5	104	0.00	8.41
31	M	trans-1,2-dichloroethene	0.559	0.536	4.1	102	0.00	8.44
32	M	di-isopropyl ether	1.877	1.905	-1.5	104	0.00	9.01
33	M	ethyl tert-butyl ether	1.794	1.834	-2.2	104	0.00	9.47
34	M	2-butanone	0.081	0.077	4.9	98	0.00	9.67
35	M	1,1-dichloroethane	0.942	0.973	-3.3	103	0.00	8.99
36	M	chloroprene	0.781	0.848	-8.6	110	0.00	9.11
37	M	acrylonitrile	0.219	0.226	-3.2	103	0.00	8.35
38	M	vinyl acetate	0.109	0.051	53.2#	45#	0.00	8.98
39	M	ethyl acetate	0.082	0.085	-3.7	107	0.00	9.70
40	M	2,2-dichloropropane	0.789	0.730	7.5	94	0.00	9.74
41	M	cis-1,2-dichloroethene	0.584	0.586	-0.3	103	0.00	9.71

Initial Calibration Verification

Job Number: JB35319 **Sample:** VD8459-ICV8459
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D207303.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

42	M	propionitrile	0.083	0.089	-7.2	107	0.00	9.75
43	M	bromochloromethane	0.270	0.284	-5.2	102	0.00	10.01
44	M	tetrahydrofuran	0.076	0.081	-6.6	105	0.00	10.08
45	M	chloroform	0.896	0.928	-3.6	104	0.00	10.07
46	S	dibromofluoromethane (s)	0.481	0.452	6.0	103	0.00	10.26
47	S	1,2-dichloroethane-d4 (s)	0.612	0.616	-0.7	103	0.00	10.69
48	M	freon 113	0.335	0.370	-10.4	113	0.00	7.36
49	M	methacrylonitrile	0.352	0.367	-4.3	105	0.00	9.95
50	m	t-butyl formate	0.534	0.533	0.2	100	0.00	10.14
51	M	1,1,1-trichloroethane	0.770	0.814	-5.7	104	0.00	10.36
52	M	tert-amyl methyl ether	1.830	1.779	2.8	103	0.00	10.84
53	I	1,4-difluorobenzene	1.000	1.000	0.0	104	0.00	11.15
54	M	cyclohexane	0.535	0.539	-0.7	104	0.00	10.46
55		tert amyl alcohol	0.016	0.016	0.0	100	0.00	10.64
56	M	2,2,4-trimethylpentane	1.287	1.320	-2.6	106	0.00	10.84
57	M	epichlorohydrin	0.042	0.043	-2.4	102	0.00	12.41
58	M	n-butyl alcohol	0.011	0.012	-9.1	118	0.00	11.24
59	M	carbon tetrachloride	0.447	0.465	-4.0	104	0.00	10.57
60	M	1,1-dichloropropene	0.469	0.480	-2.3	104	0.00	10.53
61	M	hexane	0.447	0.425	4.9	107	0.00	8.78
62	M	benzene	1.404	1.440	-2.6	105	0.00	10.79
63	M	heptane	0.245	0.258	-5.3	111	0.00	11.00
64	M	isopropyl acetate	0.755	0.756	-0.1	106	0.00	10.70
65	M	1,2-dichloroethane	0.470	0.493	-4.9	106	0.00	10.78
66		Ethyl Acrylate	0.424	0.452	-6.6	103	0.00	11.49
67	M	trichloroethene	0.340	0.363	-6.8	106	0.00	11.50
68	M	2-nitropropane	0.941	0.985	-4.7	107	0.00	12.29
69	M	2-chloroethyl vinyl ether	0.230	0.247	-7.4	106	0.00	12.29
70	M	methyl methacrylate	0.094	0.105	-11.7	105	0.00	11.76
71	M	tert-amyl ethyl ether	0.513	0.464	4.9	90	0.00	11.69
72	M	1,2-dichloropropane	0.365	0.382	-4.7	104	0.00	11.76
73	M	methylcyclohexane	0.570	0.592	-3.9	108	0.00	11.76
74	M	dibromomethane	0.213	0.227	-6.6	105	0.00	11.91
75	M	bromodichloromethane	0.454	0.486	-7.0	104	0.00	12.04
76	M	cis-1,3-dichloropropene	0.579	0.602	-4.0	102	0.00	12.52
77	S	toluene-d8 (s)	1.219	1.184	2.9	102	0.00	12.86
78	M	4-methyl-2-pentanone	0.159	0.166	-4.4	103	0.00	12.64
79	M	toluene	0.878	0.911	-3.8	105	0.00	12.94
80	M	3-methyl-1-butanol	0.010	0.011	-10.0	110	0.00	12.63
81	M	trans-1,3-dichloropropene	0.548	0.565	-3.1	101	0.00	13.11
82	M	ethyl methacrylate	0.497	0.540	-8.7	104	0.00	13.12
83	M	1,1,2-trichloroethane	0.266	0.278	-4.5	105	0.00	13.34
84	M	2-hexanone	0.169	0.156	7.7	96	0.00	13.54
85	I	chlorobenzene-d5	1.000	1.000	0.0	103	0.00	14.49
86	M	tetrachloroethene	0.445	0.504	-13.3	114	0.00	13.57
87	M	1,3-dichloropropane	0.594	0.625	-5.2	104	0.00	13.54
88	M	butyl acetate	0.273	0.296	-8.4	110	0.00	13.63
89	m	3,3-dimethyl-1-butanol	0.034	0.041	-20.6#	118	0.00	13.71
90	M	dibromochloromethane	0.383	0.412	-7.6	104	0.00	13.82
91	M	1,2-dibromoethane	0.346	0.375	-8.4	105	0.00	14.00
92	M	chlorobenzene	1.044	1.058	-1.3	104	0.00	14.52
93	M	1,1,1,2-tetrachloroethane	0.375	0.396	-5.6	102	0.00	14.58
94	M	ethylbenzene	1.838	1.891	-2.9	104	0.00	14.59
95	M	m,p-xylene	0.711	0.737	-3.7	104	0.00	14.71
96	M	o-xylene	0.704	0.735	-4.4	103	0.00	15.17
97	M	styrene	1.138	1.244	-9.3	104	0.00	15.18
98	M	bromoform	0.298	0.318	-6.7	103	0.00	15.45

Initial Calibration Verification

Job Number: JB35319 **Sample:** VD8459-ICV8459
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D207303.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	102	0.00	17.08
100	M	isopropylbenzene	3.132	3.197	-2.1	103	0.00	15.56
101	S	4-bromofluorobenzene (s)	0.895	0.868	3.0	103	0.00	15.77
102	M	bromobenzene	0.822	0.835	-1.6	102	0.00	15.99
103	M	cyclohexanone	0.123	0.118	4.1	100	0.00	15.72
104	M	1,1,2,2-tetrachloroethane	0.884	0.891	-0.8	103	0.00	15.86
105	M	trans-1,4-dichloro-2-bute	0.251	0.266	-6.0	100	0.00	15.91
106	M	1,2,3-trichloropropane	0.251	0.251	0.0	102	0.00	15.95
107	M	n-propylbenzene	3.704	3.764	-1.6	103	0.00	16.02
108	M	p-ethyltoluene	2.748	2.841	-3.4	100	0.00	16.13
109	M	2-chlorotoluene	0.749	0.772	-3.1	104	0.00	16.18
110	M	4-chlorotoluene	2.397	2.394	0.1	103	0.00	16.28
111	M	1,3,5-trimethylbenzene	2.794	2.787	0.3	102	0.00	16.19
112	M	tert-butylbenzene	2.360	2.427	-2.8	103	0.00	16.58
113	M	pentachloroethane	0.489	0.463	5.3	91	0.00	16.65
114	M	1,2,4-trimethylbenzene	2.780	2.833	-1.9	103	0.00	16.63
115	M	sec-butylbenzene	3.470	3.604	-3.9	103	0.00	16.83
116	M	1,3-dichlorobenzene	1.571	1.609	-2.4	103	0.00	17.01
117	M	p-isopropyltoluene	2.808	2.934	-4.5	102	0.00	16.96
118	M	1,4-dichlorobenzene	1.664	1.674	-0.6	103	0.00	17.10
119		Benzyl Chloride	1.876	1.634	12.9	87	0.00	17.22
120	M	p-diethylbenzene	1.571	1.675	-6.6	99	0.00	17.37
121	M	1,2-dichlorobenzene	1.529	1.582	-3.5	102	0.00	17.54
122	M	n-butylbenzene	1.472	1.616	-9.8	103	0.00	17.41
123	M	1,2,4,5-tetramethylbenzen	2.248	2.443	-8.7	99	0.00	18.24
124	M	1,2-dibromo-3-chloropropa	0.147	0.152	-3.4	102	0.00	18.38
125	M	1,3,5-trichlorobenzene	1.084	1.206	-11.3	101	0.00	18.62
		----------	True	Calc.	% Drift	----------		
126	M	1,2,4-trichlorobenzene	50.000	49.221	1.6	101	0.00	19.34
		----------	AvgRF	CCRF	% Dev	----------		
127	M	hexachlorobutadiene	0.541	0.552	-2.0	100	0.00	19.50
128	M	naphthalene	1.709	1.850	-8.3	101	0.00	19.66
		----------	True	Calc.	% Drift	----------		
129	M	1,2,3-trichlorobenzene	50.000	48.456	3.1	100	0.00	19.95
		----------	AvgRF	CCRF	% Dev	----------		
130	M	hexachloroethane	0.576	0.566	1.7	102	0.00	17.84

(#) = Out of Range SPCC's out = 0 CCC's out = 0
d207293.D MD8459.M Fri Apr 05 08:59:17 2013

6.9.2

6

Initial Calibration Verification

Job Number: JB35319 **Sample:** VD8459-ICV8459
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D207304.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\d207304.D                    Vial: 19
Acq On    :  4 Apr 2013   8:18 pm                     Operator: EmilyT
Sample    : icv8459-50                                Inst    : MSD
Misc      : ms45762,vd8459,5,,100,5,1                 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\MSDCHEM\1\METHODS\MD8459.M (RTE Integrator)
Title        : SW-846 Method 8260B
Last Update  : Fri Apr 05 08:43:57 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	111	0.00	8.00
4	I	pentafluorobenzene	1.000	1.000	0.0	104	0.00	10.23
19	M	1,1-dichloroethene	----------NA----------					
29	M	methyl acetate	0.476	0.433	9.0	97	0.00	7.85
38	M	vinyl acetate	0.109	0.098	10.1	88	0.00	8.98
39	M	ethyl acetate	0.082	0.074	9.8	94	0.00	9.71
46	S	dibromofluoromethane (s)	0.481	0.443	7.9	101	0.00	10.26
47	S	1,2-dichloroethane-d4 (s)	0.612	0.573	6.4	96	0.00	10.69
53	I	1,4-difluorobenzene	1.000	1.000	0.0	105	0.00	11.15
64	M	isopropyl acetate	0.755	0.720	4.6	102	0.00	10.70
77	S	toluene-d8 (s)	1.219	1.154	5.3	100	0.00	12.86
85	I	chlorobenzene-d5	1.000	1.000	0.0	105	0.00	14.49
88	M	butyl acetate	0.273	0.278	-1.8	104	0.00	13.64
99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	100	0.00	17.08
100	M	isopropylbenzene	----------NA----------					
101	S	4-bromofluorobenzene (s)	0.895	0.886	1.0	103	0.00	15.77

(#) = Out of Range SPCC's out = 0 CCC's out = 0
d207293.D MD8459.M Fri Apr 05 08:59:46 2013

Continuing Calibration Summary

Job Number: JB35319 **Sample:** VD8514-CC8459
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D208620.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\d208620.D                    Vial: 2
Acq On    :  8 May 2013   9:25 am                     Operator: EmilyT
Sample    : cc8459-20                                 Inst    : MSD
Misc      : ms47177,vd8514,5,,100,5,1                 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\MSDCHEM\1\METHODS\MD8459.M (RTE Integrator)
Title        : SW-846 Method 8260B
Last Update  : Wed May 08 13:12:13 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	91	0.00	8.00
2	M	1,4-dioxane	0.103	0.106	-2.9	85	0.00	11.86
3	M	tertiary butyl alcohol	1.315	1.040	20.9#	71	0.00	8.11
4	I	pentafluorobenzene	1.000	1.000	0.0	76	0.00	10.23
5	M	1,2-dichloro-1,2,2-triflu		----------NA----------				
6	M	chlorodifluoromethane	0.667	0.560	16.0	65	0.00	4.55
7	M	dichlorodifluoromethane	0.796	0.758	4.8	83	0.01	4.55
8	M	chloromethane	0.693	0.883	-27.4#	118	0.00	4.88
9	M	vinyl chloride	0.837	0.993	-18.6	106	-0.02	5.16
10	M	bromomethane	0.443	0.463	-4.5	87	0.00	5.84
11	M	chloroethane	0.419	0.492	-17.4	106	0.00	6.02
12	M	vinyl bromide		----------NA----------				
13	M	trichlorofluoromethane	0.861	0.891	-3.5	98	-0.02	6.53
14		pentane		----------NA----------				
15	M	ethyl ether	0.348	0.346	0.6	87	0.00	6.93
16	M	acrolein	0.125	0.130	-4.0	80	0.00	7.15
17	M	chlorotrifluoroethene		----------NA----------				
18	M	2-chloropropane	0.971	1.106	-13.9	101	0.00	7.13
19	M	1,1-dichloroethene	0.510	0.485	4.9	87	0.00	7.36
20	M	acetone	0.075	0.063	16.0	74	0.00	7.38
21	M	allyl chloride	1.072	1.277	-19.1	106	0.00	7.87
22	M	acetonitrile	0.034	0.047	-38.2#	102	-0.01	7.79
23	M	acetaldehyde		----------NA----------				
24	M	iodomethane	0.844	0.805	4.6	83	0.00	7.62
25	M	iso-butyl alcohol		----------NA----------				
26	M	carbon disulfide	1.719	1.711	0.5	89	0.00	7.76
27	M	methylene chloride	0.564	0.756	-34.0#	116	0.00	8.04
28	M	1-chloropropane	1.063	1.083	-1.9	93	0.00	8.10
29	M	methyl acetate	0.476	0.583	-22.5#	98	0.00	7.85
30	M	methyl tert butyl ether	1.680	1.499	10.8	72	0.00	8.40
31	M	trans-1,2-dichloroethene	0.559	0.531	5.0	85	0.00	8.43
32	M	di-isopropyl ether	1.877	1.684	10.3	67	0.00	9.00
33	M	ethyl tert-butyl ether	1.794	1.476	17.7	61	0.00	9.46
34	M	2-butanone	0.081	0.069	14.8	75	0.00	9.67
35	M	1,1-dichloroethane	0.942	1.002	-6.4	89	0.00	8.98
36	M	chloroprene	0.781	0.808	-3.5	79	0.00	9.10
37	M	acrylonitrile	0.219	0.250	-14.2	95	0.00	8.34
38	M	vinyl acetate	0.109	0.105	3.7	68	0.00	8.97
39	M	ethyl acetate	0.082	0.093	-13.4	84	0.00	9.69
40	M	2,2-dichloropropane	0.789	0.646	18.1	69	0.00	9.74
41	M	cis-1,2-dichloroethene	0.584	0.575	1.5	84	0.00	9.70

Continuing Calibration Summary

Job Number: JB35319 **Sample:** VD8514-CC8459
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D208620.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

42	M	propionitrile	0.083	0.096	-15.7	95	0.00	9.74
43	M	bromochloromethane	0.270	0.265	1.9	80	0.00	10.00
44	M	tetrahydrofuran	0.076	0.078	-2.6	85	0.00	10.06
45	M	chloroform	0.896	0.900	-0.4	83	0.00	10.06
46	S	dibromofluoromethane (s)	0.481	0.445	7.5	78	0.00	10.25
47	S	1,2-dichloroethane-d4 (s)	0.612	0.585	4.4	74	0.00	10.68
48	M	freon 113	0.335	0.288	14.0	65	0.00	7.35
49	M	methacrylonitrile	0.352	0.409	-16.2	95	0.00	9.94
50	m	t-butyl formate	0.534	0.501	6.2	70	0.00	10.13
51	M	1,1,1-trichloroethane	0.770	0.769	0.1	83	-0.01	10.35
52	M	tert-amyl methyl ether	1.830	1.380	24.6#	59	0.00	10.83
53	I	1,4-difluorobenzene	1.000	1.000	0.0	78	0.00	11.14
54	M	cyclohexane	0.535	0.511	4.5	83	0.00	10.45
55		tert amyl alcohol		----------NA----------				
56	M	2,2,4-trimethylpentane	1.287	1.229	4.5	75	0.00	10.83
57	M	epichlorohydrin	0.042	0.041	2.4	72	0.00	12.40
58	M	n-butyl alcohol	0.011	0.012	-9.1	87	0.00	11.24
59	M	carbon tetrachloride	0.447	0.408	8.7	78	0.00	10.56
60	M	1,1-dichloropropene	0.469	0.466	0.6	85	0.00	10.52
61	M	hexane	0.447	0.442	1.1	80	0.00	8.77
62	M	benzene	1.404	1.419	-1.1	87	0.00	10.79
63	M	heptane	0.245	0.226	7.8	66	0.00	10.98
64	M	isopropyl acetate	0.755	0.798	-5.7	81	0.00	10.70
65	M	1,2-dichloroethane	0.470	0.452	3.8	80	0.00	10.77
66		Ethyl Acrylate		----------NA----------				
67	M	trichloroethene	0.340	0.338	0.6	84	0.00	11.49
68	M	2-nitropropane	0.941	0.746	20.7#	61	0.00	12.28
69	M	2-chloroethyl vinyl ether	0.230	0.176	23.5#	57	0.00	12.28
70	M	methyl methacrylate	0.094	0.095	-1.1	82	0.00	11.76
71	M	tert-amyl ethyl ether		----------NA----------				
72	M	1,2-dichloropropane	0.365	0.389	-6.6	90	0.00	11.75
73	M	methylcyclohexane	0.570	0.582	-2.1	79	0.00	11.75
74	M	dibromomethane	0.213	0.205	3.8	79	0.00	11.89
75	M	bromodichloromethane	0.454	0.450	0.9	83	0.00	12.03
76	M	cis-1,3-dichloropropene	0.579	0.567	2.1	83	0.00	12.52
77	S	toluene-d8 (s)	1.219	1.202	1.4	82	0.00	12.85
78	M	4-methyl-2-pentanone	0.159	0.170	-6.9	90	0.00	12.63
79	M	toluene	0.878	0.880	-0.2	87	0.00	12.92
80	M	3-methyl-1-butanol	0.010	0.010	0.0	76	0.00	12.63
81	M	trans-1,3-dichloropropene	0.548	0.513	6.4	79	0.00	13.10
82	M	ethyl methacrylate	0.497	0.498	-0.2	85	0.00	13.12
83	M	1,1,2-trichloroethane	0.266	0.262	1.5	83	0.00	13.33
84	M	2-hexanone	0.169	0.134	20.7#	75	0.00	13.54
85	I	chlorobenzene-d5	1.000	1.000	0.0	75	0.00	14.48
86	M	tetrachloroethene	0.445	0.435	2.2	81	0.00	13.56
87	M	1,3-dichloropropane	0.594	0.618	-4.0	83	0.00	13.54
88	M	butyl acetate	0.273	0.279	-2.2	74	0.00	13.63
89	m	3,3-dimethyl-1-butanol	0.034	0.039	-14.7	84	0.00	13.72
90	M	dibromochloromethane	0.383	0.372	2.9	77	0.00	13.81
91	M	1,2-dibromoethane	0.346	0.341	1.4	76	0.00	13.99
92	M	chlorobenzene	1.044	1.023	2.0	82	0.00	14.51
93	M	1,1,1,2-tetrachloroethane	0.375	0.363	3.2	79	0.00	14.58
94	M	ethylbenzene	1.838	1.839	-0.1	83	0.00	14.59
95	M	m,p-xylene	0.711	0.708	0.4	82	0.00	14.71
96	M	o-xylene	0.704	0.705	-0.1	82	0.00	15.17
97	M	styrene	1.138	1.125	1.1	80	0.00	15.17
98	M	bromoform	0.298	0.267	10.4	74	0.00	15.44

Continuing Calibration Summary

Job Number: JB35319 **Sample:** VD8514-CC8459
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D208620.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	69	0.00	17.07
100	M	isopropylbenzene	3.132	3.345	-6.8	81	0.00	15.55
101	S	4-bromofluorobenzene (s)	0.895	0.931	-4.0	79	0.00	15.76
102	M	bromobenzene	0.822	0.822	0.0	75	0.00	15.98
103	M	cyclohexanone	0.123	0.061	50.4#	35#	0.00	15.72
104	M	1,1,2,2-tetrachloroethane	0.884	0.945	-6.9	81	0.00	15.85
105	M	trans-1,4-dichloro-2-bute	0.251	0.212	15.5	61	0.00	15.90
106	M	1,2,3-trichloropropane	0.251	0.256	-2.0	77	0.00	15.94
107	M	n-propylbenzene	3.704	3.898	-5.2	81	0.00	16.01
108	M	p-ethyltoluene		----------NA----------				
109	M	2-chlorotoluene	0.749	0.767	-2.4	78	0.00	16.17
110	M	4-chlorotoluene	2.397	2.460	-2.6	80	0.00	16.28
111	M	1,3,5-trimethylbenzene	2.794	2.857	-2.3	81	0.00	16.18
112	M	tert-butylbenzene	2.360	2.456	-4.1	81	0.00	16.57
113	M	pentachloroethane	0.489	0.501	-2.5	75	0.00	16.64
114	M	1,2,4-trimethylbenzene	2.780	2.908	-4.6	81	0.00	16.62
115	M	sec-butylbenzene	3.470	3.652	-5.2	80	0.00	16.81
116	M	1,3-dichlorobenzene	1.571	1.565	0.4	76	0.00	17.01
117	M	p-isopropyltoluene	2.808	2.925	-4.2	80	0.00	16.94
118	M	1,4-dichlorobenzene	1.664	1.639	1.5	76	0.00	17.10
119		Benzyl Chloride	1.876	1.103	41.2#	41#	0.00	17.22
120	M	p-diethylbenzene		----------NA----------				
121	M	1,2-dichlorobenzene	1.529	1.557	-1.8	77	0.00	17.53
122	M	n-butylbenzene	1.472	1.501	-2.0	76	0.00	17.40
123	M	1,2,4,5-tetramethylbenzen		----------NA----------				
124	M	1,2-dibromo-3-chloropropa	0.147	0.163	-10.9	87	0.00	18.37
125	M	1,3,5-trichlorobenzene	1.084	1.223	-12.8	84	0.00	18.61
		----------	True	Calc.	% Drift	----------		
126	M	1,2,4-trichlorobenzene	20.000	20.917	-4.6	87	0.00	19.34
		----------	AvgRF	CCRF	% Dev	----------		
127	M	hexachlorobutadiene	0.541	0.567	-4.8	85	0.00	19.49
128	M	naphthalene	1.709	1.932	-13.0	89	0.00	19.66
		----------	True	Calc.	% Drift	----------		
129	M	1,2,3-trichlorobenzene	20.000	23.562	-17.8	102	0.00	19.94
		----------	AvgRF	CCRF	% Dev	----------		
130	M	hexachloroethane	0.576	0.519	9.9	74	0.00	17.83

(#) = Out of Range SPCC's out = 0 CCC's out = 0
d207302.D MD8459.M Wed May 08 13:15:11 2013

6.9.4

6

Initial Calibration Summary

Job Number: JB35319 **Sample:** VY5710-ICC5710
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** Y132607.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Response Factor Report MSY

```
Method       : C:\MSDCHEM\1\METHODS\MY5710.M (RTE Integrator)
Title        : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
Last Update  : Thu Apr 04 09:48:17 2013
Response via : Initial Calibration

Calibration Files
5   =Y132602.D   10  =Y132601.D   0.5 =Y132605.D   50  =Y132607.D
100 =Y132609.D   1   =Y132604.D   200 =Y132610.D   20  =Y132606.D
2   =Y132603.D   75  =Y132608.D       =                =

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

1) I   Tert Butyl Alcohol-d9 ----------------ISTD---------------------
2)  1,4-dioxane
     0.102 0.102       0.106 0.105 0.070 0.103 0.108 0.091 0.105  0.099   12.10
3)  tertiary butyl alcohol
     1.334 1.205       1.214 1.206 1.513 1.140 1.236 1.357 1.178  1.265    9.21

4) I   pentafluorobenzene    ----------------ISTD---------------------
5)  propene
                                                                   0.000   -1.00
6)  freon 141b
     0.317 0.333       0.288 0.259 0.326 0.232 0.316 0.341 0.301  0.301   12.03
7)  freon 142b
     0.378 0.392       0.326 0.342 0.367 0.278 0.373 0.378 0.337  0.352   10.10
8)  freon 143a
     0.267 0.280       0.219       0.223 0.286 0.258 0.238 0.216  0.248   11.33
9)  chlorodifluoromethane
     0.412 0.398 0.333 0.333 0.353 0.429 0.311 0.369 0.357 0.341  0.364   10.52
10)  dichlorodifluoromethane
     0.496 0.507       0.394 0.430 0.436 0.369 0.448 0.511 0.406  0.444   11.52
11)  chloromethane
     0.494 0.492       0.449 0.447       0.400 0.473       0.449  0.458    7.11
12)  vinyl chloride
     0.555 0.568 0.528 0.464 0.480 0.610 0.428 0.520 0.589 0.470  0.521   11.48
13)  bromomethane
     0.334 0.337       0.289 0.285       0.233 0.306 0.360 0.282  0.303   13.18
14)  chloroethane
     0.255 0.257       0.218 0.222 0.274 0.191 0.241 0.265 0.218  0.238   11.42
15)  Vinyl Bromide
                                                                   0.000   -1.00
16)  trichlorofluoromethane
     0.553 0.572       0.450 0.486 0.549 0.419 0.518 0.618 0.466  0.515   12.51
17)  ethyl ether
     0.236 0.231       0.224 0.234       0.208 0.219       0.225  0.225    4.31
18)  2-chloropropane
     0.138 0.161       0.130 0.135       0.123 0.148 0.159 0.133  0.141    9.79
19)  acrolein
     0.063 0.065       0.063       0.065 0.075 0.060 0.063 0.063  0.065    6.90
20)  1,1-dichloroethene
     0.561 0.590       0.471 0.469       0.423 0.539       0.478  0.504   11.82
21)  acetone
           0.027       0.027 0.030       0.027 0.034       0.029  0.029    8.57
22)  allyl chloride
     0.221 0.225       0.210 0.216 0.224 0.195 0.219 0.237 0.211  0.218    5.40
23)  acetonitrile
```

Initial Calibration Summary

Job Number: JB35319 **Sample:** VY5710-ICC5710
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** Y132607.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
      0.016 0.013       0.018 0.019       0.016 0.016       0.017  0.017   10.19
24)  iodomethane
      0.687 0.708 0.622 0.656 0.676 0.911 0.610 0.685 0.899 0.661  0.711   14.92
25)  iso-butyl alcohol
      0.017 0.015       0.013 0.014       0.012 0.013       0.013  0.014   11.07
26)  carbon disulfide
      1.177 1.260 1.117 1.053 1.107 1.320 0.995 1.173 1.378 1.073  1.165   10.49
27)  1-chloropropane
      0.025 0.030       0.026 0.028       0.025 0.028       0.027  0.027    6.82
28)  methylene chloride
      0.642 0.596       0.540 0.559       0.503 0.577       0.546  0.566    7.89
29)  methyl acetate
      0.035 0.043       0.053 0.058       0.053 0.046       0.054  0.049   16.54
            ----- Linear regression -----  Coefficient =  0.9976
              Response Ratio = -0.00124 + 0.05470 *A

30)  methyl tert butyl ether
      1.121 1.096 1.175 1.120 1.185 1.378 1.061 1.076 1.217 1.123  1.155    8.01
31)  trans-1,2-dichloroethene
      0.516 0.549 0.419 0.482 0.498 0.613 0.450 0.531 0.611 0.488  0.516   12.25
32)  di-isopropyl ether
      1.403 1.298       1.330 1.388 1.689 1.259 1.316 1.417 1.355  1.384    9.05
33)  ethyl tert-butyl ether
      1.281 1.205       1.266 1.335 1.517 1.206 1.234 1.311 1.292  1.294    7.32
34)  2-butanone
            0.036       0.040 0.045       0.040 0.039       0.040  0.040    6.95
35)  1,1-dichloroethane
      0.670 0.721 0.603 0.646 0.667 0.792 0.601 0.684 0.832 0.654  0.687   10.96
36)  chloroprene
      0.489 0.479 0.463 0.424 0.445 0.558 0.403 0.469 0.478 0.436  0.464    9.19
37)  acrylonitrile
      0.112 0.125       0.118 0.130 0.135 0.115 0.115 0.129 0.122  0.122    6.29
38)  vinyl acetate
            0.045       0.061 0.068       0.061 0.051       0.063  0.058   14.72
39)  ethyl acetate
      0.038 0.044       0.054 0.057       0.046 0.047       0.054  0.049   13.59
40)  2,2-dichloropropane
      0.563 0.570       0.469 0.492       0.440 0.534 0.673 0.483  0.528   14.06
41)  cis-1,2-dichloroethene
      0.445 0.446 0.440 0.421 0.436 0.560 0.395 0.439 0.531 0.431  0.454   11.14
42)  propionitrile
      0.042 0.046       0.047 0.051       0.046 0.043 0.049 0.048  0.047    6.47
43)  bromochloromethane
      0.277 0.281       0.279 0.293 0.325 0.264 0.273 0.348 0.283  0.291    9.41
44)  tetrahydrofuran
      0.035 0.048       0.049 0.051       0.046 0.042       0.048  0.046   11.51
45)  chloroform
      0.711 0.717 0.782 0.662 0.691 0.913 0.628 0.692 0.883 0.675  0.735   12.91
46)  tert-Butyl Formate
      0.282 0.273       0.299 0.320 0.293 0.290 0.282 0.279 0.306  0.291    5.04
47)  dibromofluoromethane (s)
      0.405 0.407       0.372 0.385       0.349 0.378 0.442 0.379  0.390    7.20
48)  1,2-dichloroethane-d4 (s)
      0.414 0.438       0.391 0.408       0.369 0.394 0.458 0.397  0.409    6.87
49)  freon 113
      0.238 0.241       0.194 0.214 0.146 0.186 0.217 0.181 0.204  0.202   14.73
50)  methacrylonitrile
      0.130 0.138       0.143 0.153       0.139 0.131 0.132 0.143  0.139    5.57
51)  1,1,1-trichloroethane
      0.573 0.598 0.528 0.493 0.518 0.689 0.473 0.561 0.648 0.509  0.559   12.42
```

Initial Calibration Summary

Job Number: JB35319 **Sample:** VY5710-ICC5710
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** Y132607.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
52)  Cyclohexane
      0.540 0.573       0.436 0.468       0.413 0.513       0.449  0.485   12.15
53)  2,2,4-trimethylpentane
      1.392 1.320 1.328 1.070 1.172 1.495 1.016 1.174 1.281 1.119  1.237   12.25
54)  tert-amyl methyl ether
      1.266 1.184 1.521 1.220 1.291 1.600 1.164 1.180 1.352 1.238  1.302   11.44

55) I   1,4-difluorobenzene   ----------------ISTD--------------------
56)  epichlorohydrin
      0.023 0.022       0.023 0.025       0.023 0.023       0.023  0.023    3.91
57)  n-butyl alcohol
      0.008 0.008       0.008 0.009       0.008 0.008       0.008  0.008    4.78
58)  carbon tetrachloride
      0.350 0.378 0.281 0.300 0.317 0.408 0.285 0.348 0.410 0.306  0.338   14.31
59)  1,1-dichloropropene
      0.354 0.374 0.310 0.303 0.314 0.378 0.286 0.347 0.412 0.306  0.338   12.06
60)  hexane
      0.347 0.325       0.251 0.272       0.234 0.287       0.258  0.282   14.46
61)  Tert Amyl Alcohol
      0.034 0.033       0.031 0.033 0.040 0.030 0.030 0.032 0.031  0.033    9.45
62)  benzene
      1.117 1.167 1.175 1.031 1.067 1.366 0.971 1.103 1.366 1.045  1.141   11.70
63)  heptane
      0.193 0.183 0.201 0.146 0.158 0.202 0.136 0.162 0.192 0.150  0.172   14.32
64)  isopropyl acetate
      0.100 0.101       0.105 0.112       0.101 0.108 0.092 0.105  0.103    5.72
65)  1,2-dichloroethane
      0.318 0.336 0.249 0.327 0.344 0.386 0.311 0.321 0.384 0.328  0.330   11.68
66)  trichloroethene
      0.274 0.281 0.246 0.244 0.254 0.315 0.231 0.270 0.322 0.250  0.268   11.33
67)  ethyl acrylate
      0.283 0.294       0.308 0.335 0.251 0.310 0.280 0.250 0.317  0.292    9.95
68)  2-nitropropane
      0.089 0.084       0.081 0.086       0.074 0.079 0.108 0.079  0.085   12.25
69)  2-chloroethyl vinyl ether
      0.114 0.111       0.121 0.131 0.128 0.121 0.117 0.115 0.123  0.120    5.45
70)  methyl methacrylate
      0.165 0.173       0.170 0.184       0.166 0.161 0.192 0.171  0.173    6.01
71)  1,2-dichloropropane
      0.287 0.285 0.285 0.278 0.288 0.355 0.261 0.277 0.357 0.279  0.295   11.18
72)  methylcyclohexane
      0.407 0.397 0.427 0.316 0.341 0.427 0.295 0.352 0.380 0.328  0.367   12.90
73)  Tert-amyl ethyl ether
      0.721 0.704 0.731 0.692 0.730 0.766 0.665 0.694 0.698 0.710  0.711    3.87
74)  dibromomethane
      0.159 0.165       0.165 0.173 0.193 0.157 0.162 0.204 0.166  0.172    9.44
75)  bromodichloromethane
      0.371 0.379 0.395 0.367 0.389 0.449 0.355 0.368 0.455 0.373  0.390    8.86
76)  cis-1,3-dichloropropene
      0.464 0.468 0.482 0.454 0.475 0.566 0.433 0.447 0.552 0.462  0.480    9.14
77)  toluene-d8 (s)
      0.976 1.004       0.875 0.903       0.812 0.932       0.893  0.914    7.04
78)  4-methyl-2-pentanone
      0.096 0.099       0.098 0.107       0.095 0.092 0.108 0.098  0.099    5.75
79)  toluene
      1.159 1.192       1.039 1.081 1.471 0.980 1.110 1.407 1.056  1.166   14.36
80)  3-methyl-1-butanol
      0.008 0.007       0.007 0.008 0.011 0.007 0.007 0.008 0.007  0.008   13.57
81)  trans-1,3-dichloropropene
      0.382 0.404 0.351 0.399 0.423 0.479 0.383 0.383 0.447 0.400  0.405    9.06
```

Initial Calibration Summary

Job Number: JB35319 **Sample:** VY5710-ICC5710
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** Y132607.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
 82)  ethyl methacrylate
       0.328 0.342       0.337 0.359 0.439 0.323 0.320 0.388 0.331  0.352   11.09
 83)  1,1,2-trichloroethane
       0.194 0.198 0.211 0.197 0.208 0.271 0.189 0.188 0.247 0.196  0.210   13.00
 84)  2-hexanone
       0.085 0.095       0.097 0.107       0.096 0.092 0.083 0.096  0.094    7.95

 85) I   chlorobenzene-d5      ----------------ISTD--------------------
 86)  tetrachloroethene
       0.375 0.398 0.412 0.316 0.331 0.430 0.297 0.364 0.453 0.324  0.370   14.26
 87)  1,3-dichloropropane
       0.459 0.466 0.510 0.453 0.477 0.561 0.429 0.443 0.558 0.455  0.481    9.68
 88)  butyl acetate
       0.204 0.193       0.189 0.210       0.189 0.194 0.186 0.195  0.195    4.17
 89)  dibromochloromethane
       0.350 0.357 0.360 0.358 0.384 0.445 0.348 0.343 0.415 0.362  0.372    8.88
 90)  1,2-dibromoethane
       0.283 0.297 0.249 0.292 0.309 0.341 0.279 0.283 0.330 0.293  0.296    8.91
 91)  3,3-Dimethyl-1-Butanol
       0.036 0.034       0.032 0.035       0.031 0.032 0.040 0.031  0.034    8.76
 92)  chlorobenzene
       0.907 0.937 1.114 0.867 0.894 1.229 0.802 0.893 1.143 0.864  0.965   14.82
 93)  1,1,1,2-tetrachloroethane
       0.325 0.357 0.375 0.337 0.347 0.426 0.315 0.338 0.423 0.337  0.358   10.87
 94)  ethylbenzene
       1.518 1.579       1.354 1.401 1.934 1.265 1.476 1.822 1.362  1.523   14.67
 95)  m,p-xylene
       0.587 0.614 0.741 0.526 0.544 0.742       0.570 0.696 0.531  0.617   14.19
 96)  o-xylene
       1.227 1.274       1.142 1.187 1.616 1.062 1.190 1.497 1.142  1.260   14.35
 97)  styrene
       0.982 1.011 1.043 0.959 1.000 1.271 0.892 0.963 1.206 0.958  1.029   11.53
 98)  bromoform
       0.232 0.237       0.248 0.266 0.302 0.243 0.229 0.270 0.247  0.253    9.12

 99) I   1,4-dichlorobenzene-d ----------------ISTD--------------------
100)  isopropylbenzene
       2.646 2.822       2.350 2.412       2.255 2.640       2.393  2.503    8.10
101)  4-bromofluorobenzene (s)
             0.869       0.769 0.788       0.735 0.816       0.783  0.793    5.73
102)  bromobenzene
       0.763 0.789 0.907 0.749 0.773 1.040 0.716 0.756 0.966 0.753  0.821   13.33
103)  cyclohexanone
       0.094 0.110       0.059 0.071             0.103 0.107 0.073  0.088   23.00
          ----- Quadratic regression -----                 Coefficient =  0.9816
               Response Ratio = 0.06556 + 0.05829 *A + 0.00048 *A^2

104)  1,1,2,2-tetrachloroethane
       0.692 0.712       0.696 0.726       0.678 0.669 0.883 0.687  0.718    9.65
105)  trans-1,4-dichloro-2-butene
       0.161 0.178       0.181 0.193       0.184 0.171 0.180 0.181  0.179    5.29
106)  1,2,3-trichloropropane
       0.165 0.161       0.166 0.172       0.161 0.162 0.211 0.163  0.170    9.90
107)  n-propylbenzene
       3.210 3.344       2.789 2.880       2.678 3.130       2.835  2.981    8.29
108)  4-Ethyltoluene
       2.701 2.732 2.823 2.425 2.437 2.525 2.325 2.626 2.614 2.439  2.565    6.23
109)  2-chlorotoluene
       0.668 0.708       0.625 0.635       0.584 0.649       0.629  0.642    6.00
110)  4-chlorotoluene
```

Initial Calibration Summary

Job Number: JB35319 **Sample:** VY5710-ICC5710
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** Y132607.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
       2.041 2.116       1.900 1.935       1.779 2.019       1.906  1.957    5.69
111)  1,3,5-trimethylbenzene
       2.296 2.451       1.984 2.122       1.870 2.181       2.106  2.144    8.96
112)  tert-butylbenzene
       1.938 1.990       1.674 1.710       1.571 1.856       1.692  1.776    8.67
113)  pentachloroethane
       0.488 0.514       0.496 0.501       0.465 0.496 0.616 0.492  0.509    8.99
114)  1,2,4-trimethylbenzene
       2.334 2.428       2.142 2.190       1.977 2.291       2.151  2.216    6.69
115)  sec-butylbenzene
       2.972 3.073       2.489 2.554       2.327 2.842       2.528  2.684   10.38
116)  1,3-dichlorobenzene
       1.447 1.460       1.364 1.389       1.252 1.399 1.825 1.358  1.437   11.79
117)  p-isopropyltoluene
       2.434 2.526       2.108 2.156       1.934 2.384       2.140  2.240    9.43
118)  1,4-dichlorobenzene
       1.531 1.522       1.403 1.452       1.290 1.468       1.414  1.440    5.71
119)  1,2-dichlorobenzene
       1.417 1.403       1.336 1.353       1.202 1.332 1.780 1.324  1.393   12.15
120)  n-butylbenzene
       0.574 0.559       0.459 0.456       0.409 0.513       0.457  0.489   12.44
121)  p-Diethylbenzene
       1.489 1.512 1.446 1.292 1.334 1.352 1.178 1.414 1.382 1.346  1.374    7.15
122)  1,2-dibromo-3-chloropropane
       0.134 0.142       0.139 0.133       0.120 0.135 0.161 0.129  0.137    8.62
123)  1,3,5-Trichlorobenzene
       1.215 1.220       1.067 1.024       0.872 1.165       1.036  1.086   11.49
124)  1,2,4-trichlorobenzene
       1.071 1.089       0.987 0.900       0.738 1.019       0.914  0.960   12.64
125)  1,2,4,5-tetramethylbenzene
       2.497 2.487       2.199 2.163 2.375 1.899 2.343 2.328 2.220  2.279    8.13
126)  hexachlorobutadiene
       0.618 0.639       0.497 0.452             0.590       0.478  0.545   14.59
127)  naphthalene
       2.149 2.146       1.970 1.741       1.451 2.004       1.757  1.888   13.41
128)  1,2,3-trichlorobenzene
       0.974 0.965       0.865 0.725             0.914       0.751  0.866   12.34
129)  hexachloroethane
       0.475 0.497       0.448 0.450 0.606 0.410 0.486 0.553 0.451  0.486   12.38
130)  Benzyl chloride
       1.483 1.378       1.330 1.423       1.281 1.397 1.508 1.368  1.396    5.38
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          MY5710.M          Thu Apr 04 14:19:53 2013   RPT1
```

Initial Calibration Verification

Job Number: JB35319 **Sample:** VY5710-ICV5710
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** Y132613.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\MSDChem\1\DATA\Y132613.D Vial: 14
Acq On : 2 Apr 2013 4:39 pm Operator: ROBERTS
Sample : ICV5710-50 Inst : MSY
Misc : MS45471,VY5710,5.0,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method : C:\MSDCHEM\1\METHODS\MY5710.M (RTE Integrator)
Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Apr 04 09:48:17 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	115	0.00	7.64
2	1,4-dioxane	0.099	0.109	-10.1	118	0.00	11.46
3	tertiary butyl alcohol	1.265	1.222	3.4	115	0.00	7.75
4 I	pentafluorobenzene	1.000	1.000	0.0	100	0.00	9.81
5	propene		----------NA----------				
6	freon 141b	0.301	0.297	1.3	104	0.00	6.51
7	freon 142b	0.352	0.346	1.7	106	0.00	4.44
8	freon 143a	0.248	0.230	7.3	105	0.00	3.83
9	chlorodifluoromethane	0.364	0.297	18.4	89	0.00	4.18
10	dichlorodifluoromethane	0.444	0.375	15.5	96	0.01	4.16
11	chloromethane	0.458	0.446	2.6	99	0.00	4.52
12	vinyl chloride	0.521	0.468	10.2	101	0.00	4.78
13	bromomethane	0.303	0.287	5.3	100	0.00	5.46
14	chloroethane	0.238	0.214	10.1	98	0.00	5.63
15	Vinyl Bromide		----------NA----------				
16	trichlorofluoromethane	0.515	0.462	10.3	103	0.00	6.08
17	ethyl ether	0.225	0.244	-8.4	109	0.00	6.48
18	2-chloropropane	0.141	0.134	5.0	103	0.00	6.70
19	acrolein	0.065	0.069	-6.2	109	0.00	6.80
20	1,1-dichloroethene	0.504	0.486	3.6	103	0.00	6.93
21	acetone	0.029	0.032	-10.3	117	0.00	7.02
22	allyl chloride	0.218	0.214	1.8	102	0.00	7.46
23	acetonitrile	0.017	0.021	-23.5#	120	0.00	7.51
24	iodomethane	0.711	0.670	5.8	102	0.00	7.22
25	iso-butyl alcohol	0.014	0.015	-7.1	113	0.00	10.14
26	carbon disulfide	1.165	1.062	8.8	101	0.00	7.33
27	1-chloropropane	0.027	0.026	3.7	100	0.00	7.68
28	methylene chloride	0.566	0.558	1.4	104	-0.01	7.67
	----------	True	Calc.	% Drift	----------		
29	methyl acetate	50.000	76.572	-53.1#	156	0.00	7.45
	----------	AvgRF	CCRF	% Dev	----------		
30	methyl tert butyl ether	1.155	1.174	-1.6	106	0.00	7.95
31	trans-1,2-dichloroethene	0.516	0.479	7.2	100	0.00	8.02
32	di-isopropyl ether	1.384	1.358	1.9	102	0.00	8.52
33	ethyl tert-butyl ether	1.294	1.304	-0.8	103	0.00	8.98
34	2-butanone	0.040	0.044	-10.0	111	0.00	9.32
35	1,1-dichloroethane	0.687	0.657	4.4	102	0.00	8.59
36	chloroprene	0.464	0.453	2.4	107	0.00	8.68
37	acrylonitrile	0.122	0.130	-6.6	111	0.00	8.04

Initial Calibration Verification

Job Number: JB35319 **Sample:** VY5710-ICV5710
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** Y132613.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

38		vinyl acetate	0.058	0.027	53.4#	44#	0.00	8.58
39		ethyl acetate	0.049	0.052	-6.1	97	0.00	9.30
40		2,2-dichloropropane	0.528	0.475	10.0	101	0.00	9.32
41		cis-1,2-dichloroethene	0.454	0.426	6.2	101	0.00	9.33
42		propionitrile	0.047	0.053	-12.8	113	0.00	9.45
43		bromochloromethane	0.291	0.286	1.7	103	0.00	9.65
44		tetrahydrofuran	0.046	0.053	-15.2	109	0.00	9.67
45		chloroform	0.735	0.668	9.1	101	0.00	9.70
46		tert-Butyl Formate	0.291	0.315	-8.2	106	0.00	9.71
47	S	dibromofluoromethane (s)	0.390	0.368	5.6	99	0.00	9.90
48	S	1,2-dichloroethane-d4 (s)	0.409	0.396	3.2	101	0.00	10.32
49		freon 113	0.202	0.220	-8.9	114	-0.01	6.86
50		methacrylonitrile	0.139	0.152	-9.4	107	0.00	9.61
51		1,1,1-trichloroethane	0.559	0.499	10.7	102	0.00	9.92
52		Cyclohexane	0.485	0.449	7.4	103	0.00	9.96
53		2,2,4-trimethylpentane	1.237	1.198	3.2	112	0.00	10.30
54		tert-amyl methyl ether	1.302	1.240	4.8	102	0.00	10.36
55	I	1,4-difluorobenzene	1.000	1.000	0.0	100	0.00	10.73
56		epichlorohydrin	0.023	0.026	-13.0	113	0.00	12.00
57		n-butyl alcohol	0.008	0.009	-12.5	121	0.00	10.88
58		carbon tetrachloride	0.338	0.311	8.0	103	0.00	10.11
59		1,1-dichloropropene	0.338	0.291	13.9	96	0.00	10.09
60		hexane	0.282	0.280	0.7	111	0.00	8.26
61		Tert Amyl Alcohol	0.033	0.034	-4.9	110	0.00	10.25
62		benzene	1.141	1.049	8.1	101	0.00	10.37
63		heptane	0.172	0.171	0.6	116	0.00	10.47
64		isopropyl acetate	0.103	0.113	-9.7	107	0.00	10.27
65		1,2-dichloroethane	0.330	0.337	-2.1	103	0.00	10.41
66		trichloroethene	0.268	0.248	7.5	101	0.00	11.06
67		ethyl acrylate	0.292	0.328	-12.3	106	0.00	11.07
68		2-nitropropane	0.085	0.088	-3.5	108	0.00	11.87
69		2-chloroethyl vinyl ether	0.120	0.132	-10.0	109	0.00	11.85
70		methyl methacrylate	0.173	0.189	-9.2	111	0.00	11.32
71		1,2-dichloropropane	0.295	0.285	3.4	102	0.00	11.34
72		methylcyclohexane	0.367	0.351	4.4	111	0.00	11.25
73		Tert-amyl ethyl ether	0.711	0.692	3.0	100	0.00	11.18
74		dibromomethane	0.172	0.175	-1.7	105	0.00	11.52
75		bromodichloromethane	0.390	0.380	2.6	103	0.00	11.63
76		cis-1,3-dichloropropene	0.480	0.432	10.0	95	0.00	12.07
77	S	toluene-d8 (s)	0.914	0.869	4.9	99	0.00	12.33
78		4-methyl-2-pentanone	0.099	0.109	-10.1	111	0.00	12.16
79		toluene	1.166	1.035	11.2	99	0.00	12.40
80		3-methyl-1-butanol	0.008	0.009	-12.5	118	0.00	12.18
81		trans-1,3-dichloropropene	0.405	0.410	-1.2	103	0.00	12.63
82		ethyl methacrylate	0.352	0.347	1.4	103	0.00	12.58
83		1,1,2-trichloroethane	0.210	0.207	1.4	105	0.00	12.84
84		2-hexanone	0.094	0.109	-16.0	112	0.00	12.99
85	I	chlorobenzene-d5	1.000	1.000	0.0	101	0.00	13.82
86		tetrachloroethene	0.370	0.316	14.6	101	0.00	12.97
87		1,3-dichloropropane	0.481	0.467	2.9	104	0.00	13.02
88		butyl acetate	0.195	0.211	-8.2	113	0.00	13.04
89		dibromochloromethane	0.372	0.372	0.0	105	0.00	13.27
90		1,2-dibromoethane	0.296	0.300	-1.4	104	0.00	13.43
91		3,3-Dimethyl-1-Butanol	0.034	0.037	-8.8	120	0.00	13.15
92		chlorobenzene	0.965	0.857	11.2	100	0.00	13.86
93		1,1,1,2-tetrachloroethane	0.358	0.334	6.7	100	0.00	13.91
94		ethylbenzene	1.523	1.325	13.0	99	0.00	13.89
95		m,p-xylene	0.617	0.518	16.0	99	0.00	13.99

Initial Calibration Verification

Job Number: JB35319 **Sample:** VY5710-ICV5710
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** Y132613.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

96		o-xylene	1.260	1.121	11.0	99	0.00	14.41
97		styrene	1.029	0.951	7.6	100	0.00	14.43
98		bromoform	0.253	0.258	-2.0	105	0.00	14.72
99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	102	0.00	16.10
100		isopropylbenzene	2.503	2.286	8.7	99	0.00	14.73
101	S	4-bromofluorobenzene (s)	0.793	0.759	4.3	101	0.00	14.96
102		bromobenzene	0.821	0.739	10.0	101	0.00	15.15
		----------	True	Calc.	% Drift	----------		
103		cyclohexanone	500.000	517.574	-3.5	125	0.00	14.95
		----------	AvgRF	CCRF	% Dev	----------		
104		1,1,2,2-tetrachloroethane	0.718	0.721	-0.4	106	0.00	15.08
105		trans-1,4-dichloro-2-bute	0.179	0.192	-7.3	108	0.00	15.12
106		1,2,3-trichloropropane	0.170	0.170	0.0	105	0.00	15.15
107		n-propylbenzene	2.981	2.767	7.2	101	0.00	15.14
108		4-Ethyltoluene	2.565	2.278	11.2	96	0.00	15.24
109		2-chlorotoluene	0.642	0.607	5.5	99	0.00	15.30
110		4-chlorotoluene	1.957	1.820	7.0	98	0.00	15.40
111		1,3,5-trimethylbenzene	2.144	2.018	5.9	104	0.00	15.28
112		tert-butylbenzene	1.776	1.606	9.6	98	0.00	15.62
113		pentachloroethane	0.509	0.487	4.3	100	0.00	15.73
114		1,2,4-trimethylbenzene	2.216	2.092	5.6	100	0.00	15.68
115		sec-butylbenzene	2.684	2.432	9.4	100	0.00	15.84
116		1,3-dichlorobenzene	1.437	1.326	7.7	99	0.00	16.05
117		p-isopropyltoluene	2.240	2.117	5.5	102	0.00	15.95
118		1,4-dichlorobenzene	1.440	1.361	5.5	99	0.00	16.13
119		1,2-dichlorobenzene	1.393	1.321	5.2	101	0.00	16.52
120		n-butylbenzene	0.489	0.491	-0.4	109	0.00	16.37
121		p-Diethylbenzene	1.374	1.248	9.2	98	0.00	16.33
122		1,2-dibromo-3-chloropropa	0.137	0.149	-8.8	109	0.00	17.31
123		1,3,5-Trichlorobenzene	1.086	1.013	6.7	97	0.00	17.46
124		1,2,4-trichlorobenzene	0.960	0.937	2.4	97	0.00	18.10
125		1,2,4,5-tetramethylbenzen	2.279	2.148	5.7	100	0.00	17.11
126		hexachlorobutadiene	0.545	0.489	10.3	100	0.00	18.19
127		naphthalene	1.888	2.052	-8.7	106	0.00	18.40
128		1,2,3-trichlorobenzene	0.866	0.869	-0.3	102	0.00	18.65
129		hexachloroethane	0.486	0.428	11.9	97	0.00	16.76
130		Benzyl chloride	1.396	1.375	1.5	105	0.00	16.26

(#) = Out of Range SPCC's out = 0 CCC's out = 0
Y132607.D MY5710.M Thu Apr 04 10:03:35 2013 RPT1

Initial Calibration Verification

Job Number: JB35319 **Sample:** VY5710-ICV5710
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** Y132614.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\MSDChem\1\DATA\Y132614.D                    Vial: 15
Acq On    :  2 Apr 2013   5:21 pm                     Operator: ROBERTS
Sample    : ICV5710-50                                Inst    : MSY
Misc      : MS45471,VY5710,5.0,,,,1                   Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\MSDCHEM\1\METHODS\MY5710.M (RTE Integrator)
Title        : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
Last Update  : Thu Apr 04 09:48:17 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	122	0.00	7.63
2		1,4-dioxane		----------NA----------				
3		tertiary butyl alcohol		----------NA----------				
4	I	pentafluorobenzene	1.000	1.000	0.0	101	0.00	9.81
5		propene		----------NA----------				
6		freon 141b		----------NA----------				
7		freon 142b		----------NA----------				
8		freon 143a		----------NA----------				
9		chlorodifluoromethane		----------NA----------				
10		dichlorodifluoromethane		----------NA----------				
11		chloromethane		----------NA----------				
12		vinyl chloride		----------NA----------				
13		bromomethane		----------NA----------				
14		chloroethane		----------NA----------				
15		Vinyl Bromide		----------NA----------				
16		trichlorofluoromethane		----------NA----------				
17		ethyl ether		----------NA----------				
18		2-chloropropane		----------NA----------				
19		acrolein		----------NA----------				
20		1,1-dichloroethene		----------NA----------				
21		acetone		----------NA----------				
22		allyl chloride		----------NA----------				
23		acetonitrile		----------NA----------				
24		iodomethane		----------NA----------				
25		iso-butyl alcohol		----------NA----------				
26		carbon disulfide		----------NA----------				
27		1-chloropropane		----------NA----------				
28		methylene chloride		----------NA----------				
		----------	True	Calc.	% Drift		----------	
29		methyl acetate	50.000	51.858	-3.7	105	0.00	7.46
		----------	AvgRF	CCRF	% Dev		----------	
30		methyl tert butyl ether		----------NA----------				
31		trans-1,2-dichloroethene		----------NA----------				
32		di-isopropyl ether		----------NA----------				
33		ethyl tert-butyl ether		----------NA----------				
34		2-butanone		----------NA----------				
35		1,1-dichloroethane		----------NA----------				
36		chloroprene		----------NA----------				
37		acrylonitrile		----------NA----------				

Initial Calibration Verification

Job Number: JB35319 **Sample:** VY5710-ICV5710
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** Y132614.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

38		vinyl acetate	0.058	0.067	-15.5	110	-0.01	8.57
39		ethyl acetate	0.049	0.051	-4.1	96	0.00	9.30
40		2,2-dichloropropane		----------NA----------				
41		cis-1,2-dichloroethene		----------NA----------				
42		propionitrile		----------NA----------				
43		bromochloromethane		----------NA----------				
44		tetrahydrofuran		----------NA----------				
45		chloroform		----------NA----------				
46		tert-Butyl Formate		----------NA----------				
47	S	dibromofluoromethane (s)	0.390	0.381	2.3	103	0.00	9.90
48	S	1,2-dichloroethane-d4 (s)	0.409	0.404	1.2	104	0.00	10.32
49		freon 113		----------NA----------				
50		methacrylonitrile		----------NA----------				
51		1,1,1-trichloroethane		----------NA----------				
52		Cyclohexane		----------NA----------				
53		2,2,4-trimethylpentane		----------NA----------				
54		tert-amyl methyl ether		----------NA----------				
55	I	1,4-difluorobenzene	1.000	1.000	0.0	101	0.00	10.73
56		epichlorohydrin		----------NA----------				
57		n-butyl alcohol		----------NA----------				
58		carbon tetrachloride		----------NA----------				
59		1,1-dichloropropene		----------NA----------				
60		hexane		----------NA----------				
61		Tert Amyl Alcohol		----------NA----------				
62		benzene		----------NA----------				
63		heptane		----------NA----------				
64		isopropyl acetate	0.103	0.114	-10.7	109	0.00	10.27
65		1,2-dichloroethane		----------NA----------				
66		trichloroethene		----------NA----------				
67		ethyl acrylate		----------NA----------				
68		2-nitropropane		----------NA----------				
69		2-chloroethyl vinyl ether		----------NA----------				
70		methyl methacrylate		----------NA----------				
71		1,2-dichloropropane		----------NA----------				
72		methylcyclohexane		----------NA----------				
73		Tert-amyl ethyl ether		----------NA----------				
74		dibromomethane		----------NA----------				
75		bromodichloromethane		----------NA----------				
76		cis-1,3-dichloropropene		----------NA----------				
77	S	toluene-d8 (s)	0.914	0.911	0.3	105	0.00	12.33
78		4-methyl-2-pentanone		----------NA----------				
79		toluene		----------NA----------				
80		3-methyl-1-butanol		----------NA----------				
81		trans-1,3-dichloropropene		----------NA----------				
82		ethyl methacrylate		----------NA----------				
83		1,1,2-trichloroethane		----------NA----------				
84		2-hexanone		----------NA----------				
85	I	chlorobenzene-d5	1.000	1.000	0.0	102	0.00	13.82
86		tetrachloroethene		----------NA----------				
87		1,3-dichloropropane		----------NA----------				
88		butyl acetate	0.195	0.214	-9.7	115	0.00	13.04
89		dibromochloromethane		----------NA----------				
90		1,2-dibromoethane		----------NA----------				
91		3,3-Dimethyl-1-Butanol		----------NA----------				
92		chlorobenzene		----------NA----------				
93		1,1,1,2-tetrachloroethane		----------NA----------				
94		ethylbenzene		----------NA----------				
95		m,p-xylene		----------NA----------				

Initial Calibration Verification

Job Number: JB35319 **Sample:** VY5710-ICV5710
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** Y132614.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
 96      o-xylene                            ----------NA----------
 97      styrene                             ----------NA----------
 98      bromoform                           ----------NA----------

 99 I    1,4-dichlorobenzene-d4      1.000   1.000      0.0  103   0.00   16.10
100      isopropylbenzene                    ----------NA----------
101 S    4-bromofluorobenzene (s)    0.793   0.771      2.8  103   0.00   14.96
102      bromobenzene                        ----------NA----------

             ----------------------- True    Calc.   % Drift  ------------
103      cyclohexanone                       ----------NA----------

             ----------------------- AvgRF   CCRF     % Dev   -------------
104      1,1,2,2-tetrachloroethane           ----------NA----------
105      trans-1,4-dichloro-2-bute           ----------NA----------
106      1,2,3-trichloropropane              ----------NA----------
107      n-propylbenzene                     ----------NA----------
108      4-Ethyltoluene                      ----------NA----------
109      2-chlorotoluene                     ----------NA----------
110      4-chlorotoluene                     ----------NA----------
111      1,3,5-trimethylbenzene              ----------NA----------
112      tert-butylbenzene                   ----------NA----------
113      pentachloroethane                   ----------NA----------
114      1,2,4-trimethylbenzene              ----------NA----------
115      sec-butylbenzene                    ----------NA----------
116      1,3-dichlorobenzene                 ----------NA----------
117      p-isopropyltoluene                  ----------NA----------
118      1,4-dichlorobenzene                 ----------NA----------
119      1,2-dichlorobenzene                 ----------NA----------
120      n-butylbenzene                      ----------NA----------
121      p-Diethylbenzene                    ----------NA----------
122      1,2-dibromo-3-chloropropa           ----------NA----------
123      1,3,5-Trichlorobenzene              ----------NA----------
124      1,2,4-trichlorobenzene              ----------NA----------
125      1,2,4,5-tetramethylbenzen           ----------NA----------
126      hexachlorobutadiene                 ----------NA----------
127      naphthalene                         ----------NA----------
128      1,2,3-trichlorobenzene              ----------NA----------
129      hexachloroethane                    ----------NA----------
130      Benzyl chloride                     ----------NA----------
 ---------------------------------------------------------------------------
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    (#) = Out of Range              SPCC's out = 0  CCC's out = 0
     Y132607.D  MY5710.M         Thu Apr 04 10:03:10 2013   RPT1
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6.9.7

6

Continuing Calibration Summary

Job Number: JB35319 **Sample:** VY5761-CC5710
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** Y133802.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\MSDChem\1\DATA\Y133802.D Vial: 2
Acq On : 3 May 2013 11:02 am Operator: ROBERTS
Sample : CC5710-20 Inst : MSY
Misc : MS47365,VY5761,5.0,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method : C:\MSDCHEM\1\METHODS\MY5710.M (RTE Integrator)
Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
Last Update : Mon May 06 10:42:14 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	7.63
2	1,4-dioxane	0.099	0.101	-2.0	99	0.00	11.46
3	tertiary butyl alcohol	1.265	1.174	7.2	100	0.00	7.75
4 I	pentafluorobenzene	1.000	1.000	0.0	92	0.00	9.81
5	propene		----------NA----------				
6	freon 141b		----------NA----------				
7	freon 142b		----------NA----------				
8	freon 143a		----------NA----------				
9	chlorodifluoromethane	0.364	0.363	0.3	91	-0.02	4.16
10	dichlorodifluoromethane	0.444	0.475	-7.0	98	-0.01	4.14
11	chloromethane	0.458	0.431	5.9	84	-0.01	4.51
12	vinyl chloride	0.521	0.484	7.1	86	-0.02	4.76
13	bromomethane	0.303	0.317	-4.6	96	-0.02	5.44
14	chloroethane	0.238	0.222	6.7	85	0.00	5.63
15	Vinyl Bromide		----------NA----------				
16	trichlorofluoromethane	0.515	0.553	-7.4	99	-0.02	6.07
17	ethyl ether	0.225	0.240	-6.7	101	0.00	6.47
18	2-chloropropane	0.141	0.161	-14.2	100	0.00	6.70
19	acrolein	0.065	0.065	0.0	100	0.00	6.80
20	1,1-dichloroethene	0.504	0.547	-8.5	94	0.00	6.92
21	acetone	0.029	0.032	-10.3	88	-0.01	7.02
22	allyl chloride	0.218	0.217	0.5	91	0.00	7.46
23	acetonitrile	0.017	0.016	5.9	93	0.00	7.51
24	iodomethane	0.711	0.758	-6.6	102	0.00	7.23
25	iso-butyl alcohol	0.014	0.014	0.0	95	-0.01	10.13
26	carbon disulfide	1.165	1.229	-5.5	97	0.00	7.33
27	1-chloropropane	0.027	0.032	-18.5	107	0.00	7.67
28	methylene chloride	0.566	0.671	-18.6	107	-0.01	7.67
	----------	True	Calc.	% Drift	----------		
29	methyl acetate	20.000	19.065	4.7	99	0.00	7.46
	----------	AvgRF	CCRF	% Dev	----------		
30	methyl tert butyl ether	1.155	1.174	-1.6	101	0.00	7.95
31	trans-1,2-dichloroethene	0.516	0.543	-5.2	95	0.00	8.01
32	di-isopropyl ether	1.384	1.344	2.9	94	0.00	8.51
33	ethyl tert-butyl ether	1.294	1.223	5.5	92	-0.01	8.97
34	2-butanone	0.040	0.043	-7.5	101	0.00	9.32
35	1,1-dichloroethane	0.687	0.732	-6.6	99	-0.01	8.59
36	chloroprene	0.464	0.483	-4.1	95	-0.01	8.68
37	acrylonitrile	0.122	0.121	0.8	97	0.00	8.04

Continuing Calibration Summary

Job Number: JB35319 **Sample:** VY5761-CC5710
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** Y133802.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

38		vinyl acetate	0.058	0.057	1.7	104	0.00	8.58
39		ethyl acetate	0.049	0.042	14.3	83	0.00	9.30
40		2,2-dichloropropane	0.528	0.580	-9.8	100	0.00	9.31
41		cis-1,2-dichloroethene	0.454	0.455	-0.2	96	0.00	9.33
42		propionitrile	0.047	0.048	-2.1	102	0.00	9.45
43		bromochloromethane	0.291	0.306	-5.2	103	0.00	9.65
44		tetrahydrofuran	0.046	0.049	-6.5	107	0.00	9.68
45		chloroform	0.735	0.736	-0.1	98	-0.01	9.69
46		tert-Butyl Formate	0.291	0.300	-3.1	98	0.00	9.71
47	S	dibromofluoromethane (s)	0.390	0.382	2.1	93	-0.01	9.90
48	S	1,2-dichloroethane-d4 (s)	0.409	0.368	10.0	86	0.00	10.32
49		freon 113	0.202	0.252	-24.8#	108	0.00	6.87
50		methacrylonitrile	0.139	0.130	6.5	91	0.00	9.61
51		1,1,1-trichloroethane	0.559	0.615	-10.0	101	-0.01	9.92
52		Cyclohexane	0.485	0.528	-8.9	95	0.00	9.97
53		2,2,4-trimethylpentane	1.237	1.226	0.9	97	-0.01	10.30
54		tert-amyl methyl ether	1.302	1.201	7.8	94	0.00	10.36
55	I	1,4-difluorobenzene	1.000	1.000	0.0	93	-0.01	10.73
56		epichlorohydrin	0.023	0.022	4.3	91	0.00	12.00
57		n-butyl alcohol	0.008	0.007	12.5	90	0.00	10.88
58		carbon tetrachloride	0.338	0.399	-18.0	106	0.00	10.10
59		1,1-dichloropropene	0.338	0.349	-3.3	93	0.00	10.09
60		hexane	0.282	0.286	-1.4	92	0.00	8.25
61		Tert Amyl Alcohol	0.033	0.015	54.5#	47#	0.00	10.25
62		benzene	1.141	1.105	3.2	93	0.00	10.36
63		heptane	0.172	0.164	4.7	94	0.00	10.47
64		isopropyl acetate	0.103	0.105	-1.9	90	0.00	10.27
65		1,2-dichloroethane	0.330	0.371	-12.4	107	0.00	10.41
66		trichloroethene	0.268	0.278	-3.7	96	0.00	11.06
67		ethyl acrylate		----------NA----------				
68		2-nitropropane	0.085	0.081	4.7	96	0.00	11.86
69		2-chloroethyl vinyl ether	0.120	0.085	29.2#	68	0.00	11.85
70		methyl methacrylate	0.173	0.165	4.6	95	0.00	11.32
71		1,2-dichloropropane	0.295	0.289	2.0	97	-0.01	11.34
72		methylcyclohexane	0.367	0.388	-5.7	102	0.00	11.24
73		Tert-amyl ethyl ether	0.711	0.339	52.3#	45#	0.00	11.18
74		dibromomethane	0.172	0.182	-5.8	104	0.00	11.51
75		bromodichloromethane	0.390	0.397	-1.8	100	0.00	11.63
76		cis-1,3-dichloropropene	0.480	0.469	2.3	97	0.00	12.07
77	S	toluene-d8 (s)	0.914	0.958	-4.8	95	0.00	12.33
78		4-methyl-2-pentanone	0.099	0.102	-3.0	102	0.00	12.16
79		toluene	1.166	1.124	3.6	94	0.00	12.40
80		3-methyl-1-butanol	0.008	0.007	12.5	89	0.00	12.18
81		trans-1,3-dichloropropene	0.405	0.423	-4.4	102	0.00	12.63
82		ethyl methacrylate	0.352	0.320	9.1	93	0.00	12.58
83		1,1,2-trichloroethane	0.210	0.207	1.4	102	0.00	12.83
84		2-hexanone	0.094	0.094	0.0	95	0.00	12.99
85	I	chlorobenzene-d5	1.000	1.000	0.0	97	0.00	13.82
86		tetrachloroethene	0.370	0.354	4.3	94	0.00	12.97
87		1,3-dichloropropane	0.481	0.470	2.3	103	0.00	13.02
88		butyl acetate	0.195	0.177	9.2	88	0.00	13.04
89		dibromochloromethane	0.372	0.373	-0.3	106	0.00	13.27
90		1,2-dibromoethane	0.296	0.299	-1.0	103	0.00	13.43
91		3,3-Dimethyl-1-Butanol	0.034	0.028	17.6	86	0.00	13.15
92		chlorobenzene	0.965	0.889	7.9	97	0.00	13.85
93		1,1,1,2-tetrachloroethane	0.358	0.357	0.3	103	0.00	13.91
94		ethylbenzene	1.523	1.408	7.6	93	0.00	13.89
95		m,p-xylene	0.617	0.558	9.6	95	0.00	13.99

Continuing Calibration Summary

Job Number: JB35319 **Sample:** VY5761-CC5710
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** Y133802.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

96		o-xylene	1.260	1.133	10.1	92	0.00	14.40
97		styrene	1.029	0.904	12.1	91	0.00	14.42
98		bromoform	0.253	0.249	1.6	106	0.00	14.71
99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	97	0.00	16.10
100		isopropylbenzene	2.503	2.493	0.4	92	0.00	14.73
101	S	4-bromofluorobenzene (s)	0.793	0.749	5.5	90	0.00	14.96
102		bromobenzene	0.821	0.752	8.4	97	0.00	15.15
		----------	True	Calc.	% Drift	----------		
103		cyclohexanone	200.000	293.563	-46.8#	101	0.00	14.95
		----------	AvgRF	CCRF	% Dev	----------		
104		1,1,2,2-tetrachloroethane	0.718	0.711	1.0	103	0.00	15.07
105		trans-1,4-dichloro-2-bute	0.179	0.178	0.6	102	0.00	15.11
106		1,2,3-trichloropropane	0.170	0.179	-5.3	107	0.00	15.15
107		n-propylbenzene	2.981	2.974	0.2	93	0.00	15.14
108		4-Ethyltoluene		----------NA----------				
109		2-chlorotoluene	0.642	0.649	-1.1	97	0.00	15.30
110		4-chlorotoluene	1.957	1.873	4.3	90	0.00	15.39
111		1,3,5-trimethylbenzene	2.144	2.120	1.1	95	0.00	15.28
112		tert-butylbenzene	1.776	1.731	2.5	91	0.00	15.62
113		pentachloroethane	0.509	0.480	5.7	94	0.00	15.73
114		1,2,4-trimethylbenzene	2.216	2.158	2.6	92	0.00	15.67
115		sec-butylbenzene	2.684	2.663	0.8	91	0.00	15.83
116		1,3-dichlorobenzene	1.437	1.365	5.0	95	0.00	16.05
117		p-isopropyltoluene	2.240	2.207	1.5	90	0.00	15.95
118		1,4-dichlorobenzene	1.440	1.408	2.2	93	0.00	16.13
119		1,2-dichlorobenzene	1.393	1.335	4.2	98	0.00	16.52
120		n-butylbenzene	0.489	0.523	-7.0	99	0.00	16.36
121		p-Diethylbenzene		----------NA----------				
122		1,2-dibromo-3-chloropropa	0.137	0.136	0.7	98	0.00	17.31
123		1,3,5-Trichlorobenzene	1.086	1.075	1.0	90	0.00	17.46
124		1,2,4-trichlorobenzene	0.960	0.965	-0.5	92	0.00	18.10
125		1,2,4,5-tetramethylbenzen		----------NA----------				
126		hexachlorobutadiene	0.545	0.528	3.1	87	0.00	18.19
127		naphthalene	1.888	1.965	-4.1	95	0.00	18.39
128		1,2,3-trichlorobenzene	0.866	0.882	-1.8	94	0.00	18.65
129		hexachloroethane	0.486	0.480	1.2	96	0.00	16.76
130		Benzyl chloride	1.396	1.206	13.6	84	0.00	16.25

(#) = Out of Range SPCC's out = 0 CCC's out = 0
Y132606.D MY5710.M Mon May 06 12:18:03 2013 RPT1

New Jersey

ACCUTEST LABORATORIES

GC/MS Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\MSDChem\1\DATA\olddata\Y133000-133999\
Data File : Y133821.D
Acq On : 3 May 2013 9:50 pm
Operator : ROBERTS
Sample : JB35319-1
Misc : MS47319,VY5761,6.6,,,,1
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 09 14:39:50 2013
Quant Method : C:\MSDCHEM\1\METHODS\MY5710.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue May 07 15:14:28 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.64	65	32535	500.00	ug/L	0.00
4) pentafluorobenzene	9.82	168	97666	50.00	ug/L	0.00
56) 1,4-difluorobenzene	10.73	114	142586	50.00	ug/L	0.00
86) chlorobenzene-d5	13.82	117	123130	50.00	ug/L	0.00
100) 1,4-dichlorobenzene-d4	16.10	152	65499	50.00	ug/L	0.00

System Monitoring Compounds

48) dibromofluoromethane (s)	9.90	113	38989	51.21	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 102.42%			
49) 1,2-dichloroethane-d4 (s)	10.32	65	37573	47.08	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 94.16%			
78) toluene-d8 (s)	12.33	98	137338	52.71	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 105.42%			
102) 4-bromofluorobenzene (s)	14.96	95	48764	46.94	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 93.88%			

Target Compounds

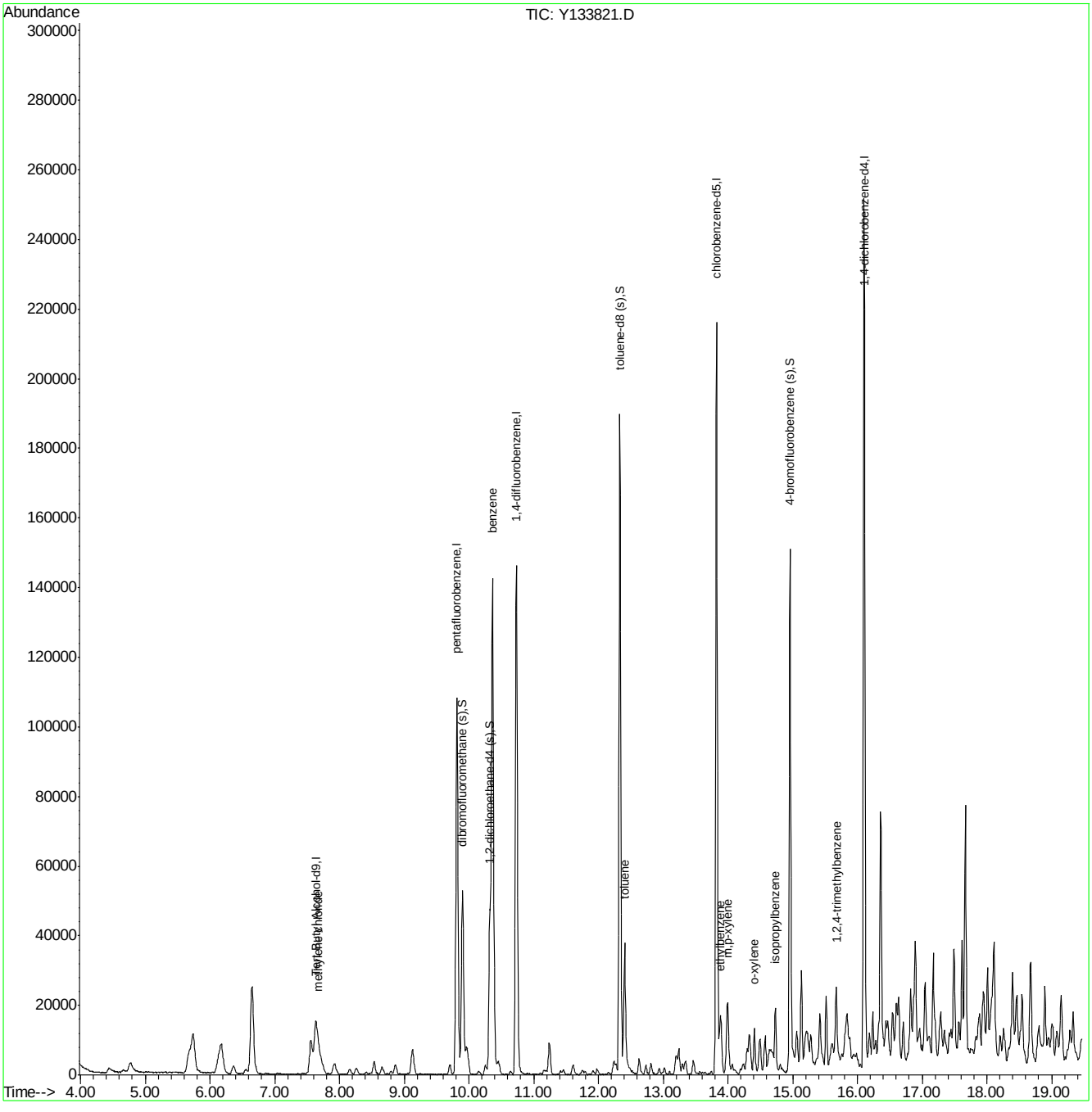
						Qvalue
29) methylene chloride	7.67	49	1852	1.67	ug/L	79
63) benzene	10.37	78	147447	45.32	ug/L	99
80) toluene	12.41	91	28571	8.59	ug/L	98
95) ethylbenzene	13.89	91	8915	2.38	ug/L	99
96) m,p-xylene	14.00	106	5929	3.90	ug/L	96
97) o-xylene	14.41	91	7445	2.40	ug/L	94
101) isopropylbenzene	14.73	105	12288	3.75	ug/L	96
115) 1,2,4-trimethylbenzene	15.67	105	10515	3.62	ug/L	97

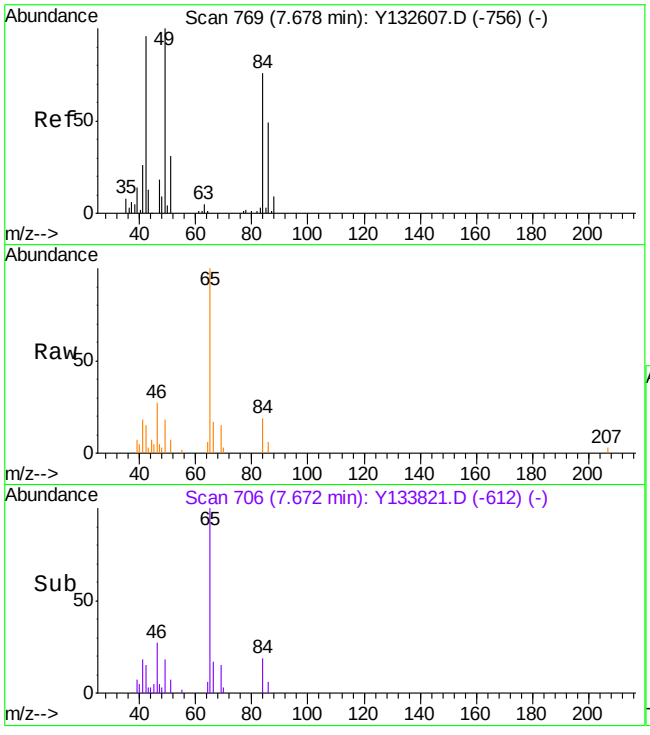
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\MSDChem\1\DATA\olddata\Y133000-133999\
Data File : Y133821.D
Acq On : 3 May 2013 9:50 pm
Operator : ROBERTS
Sample : JB35319-1
Misc : MS47319,VY5761,6.6,,,,1
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 09 14:39:50 2013
Quant Method : C:\MSDCHEM\1\METHODS\MY5710.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue May 07 15:14:28 2013
Response via : Initial Calibration

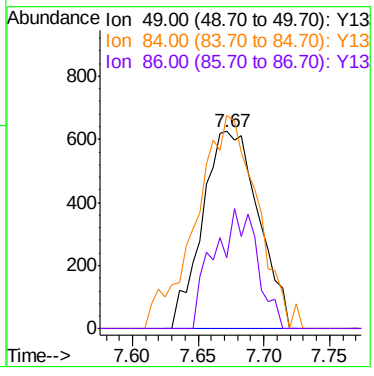


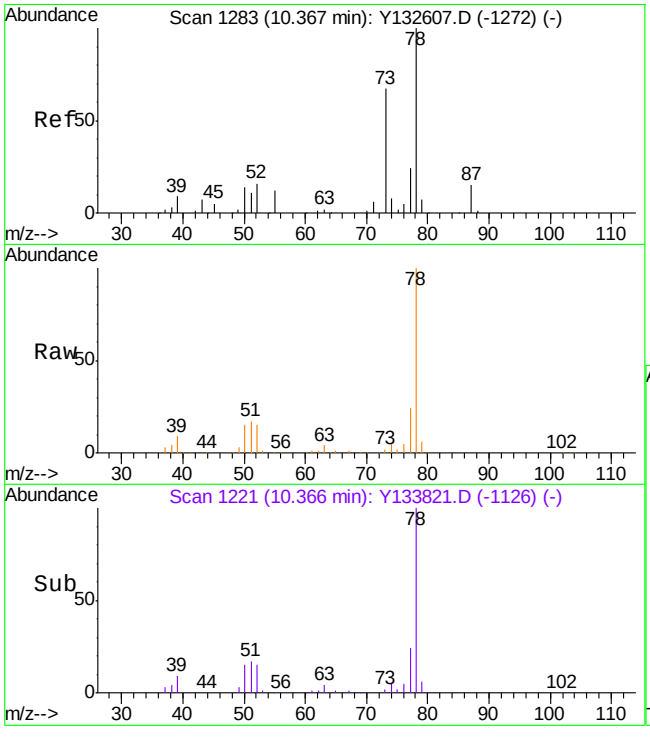


#29
methylene chloride
Concen: 1.67 ug/L
RT: 7.67 min Scan# 706
Delta R.T. -0.01 min
Lab File: Y133821.D
Acq: 3 May 2013 9:50 pm

Tgt Ion: 49 Resp: 1852

Ion	Ratio	Lower	Upper
49	100		
84	95.2	53.3	98.9
86	36.0	34.1	63.3

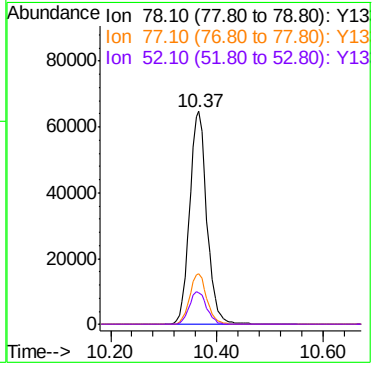


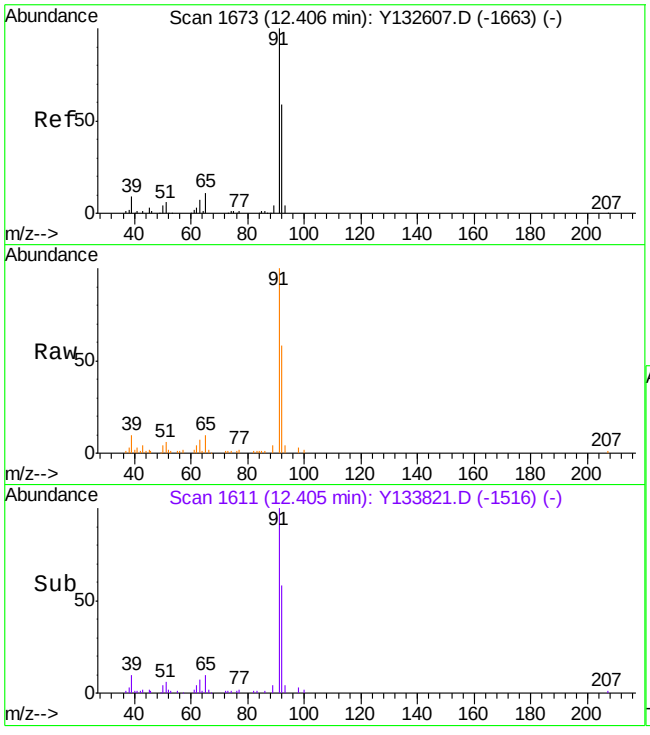


#63
benzene
Concen: 45.32 ug/L
RT: 10.37 min Scan# 1221
Delta R.T. -0.00 min
Lab File: Y133821.D
Acq: 3 May 2013 9:50 pm

Tgt Ion: 78 Resp: 147447

Ion	Ratio	Lower	Upper
78	100		
77	23.8	0.0	54.0
52	14.9	0.0	45.8

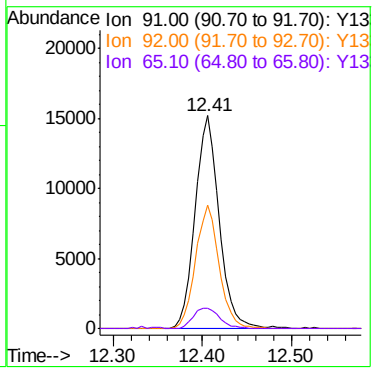


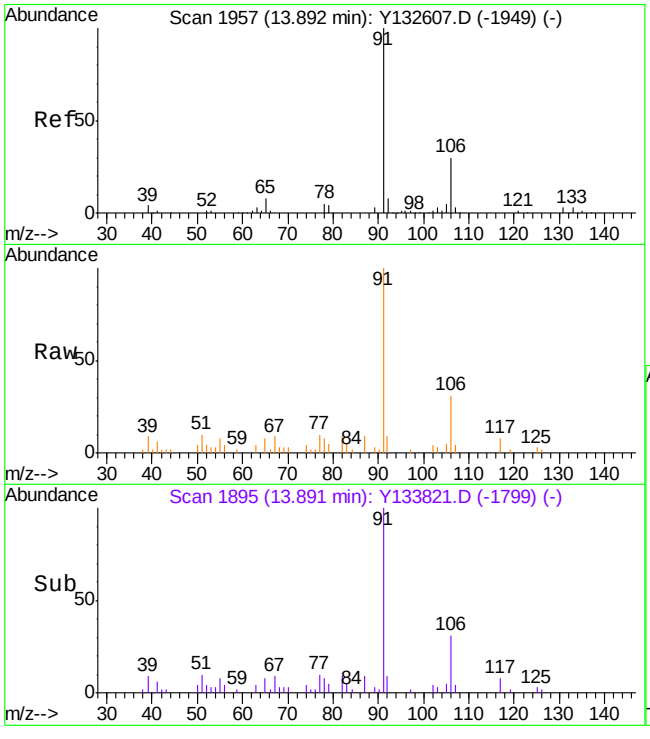


#80
toluene
Concen: 8.59 ug/L
RT: 12.41 min Scan# 1611
Delta R.T. -0.00 min
Lab File: Y133821.D
Acq: 3 May 2013 9:50 pm

Tgt Ion: 91 Resp: 28571

Ion	Ratio	Lower	Upper
91	100		
92	58.1	29.4	89.4
65	9.9	0.0	40.9

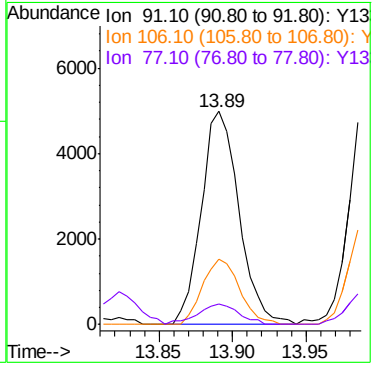


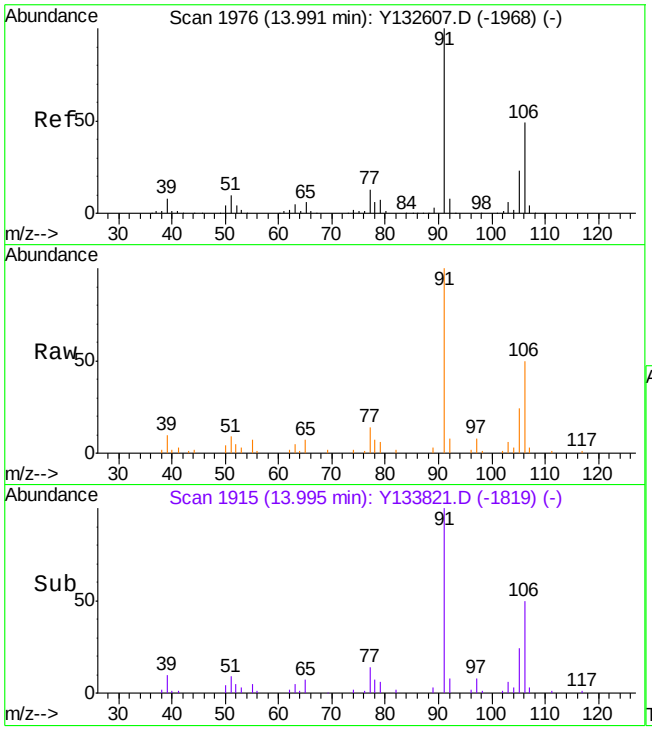


#95
ethylbenzene
Concen: 2.38 ug/L
RT: 13.89 min Scan# 1895
Delta R.T. -0.00 min
Lab File: Y133821.D
Acq: 3 May 2013 9:50 pm

Tgt Ion: 91 Resp: 8915

Ion	Ratio	Lower	Upper
91	100		
106	30.8	0.4	60.4
77	9.5	0.0	39.0

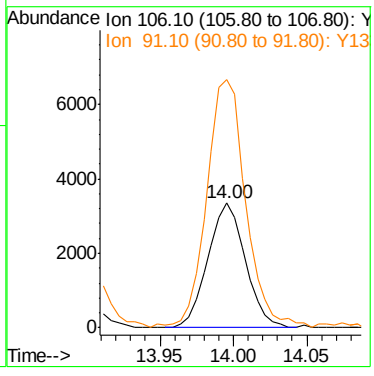


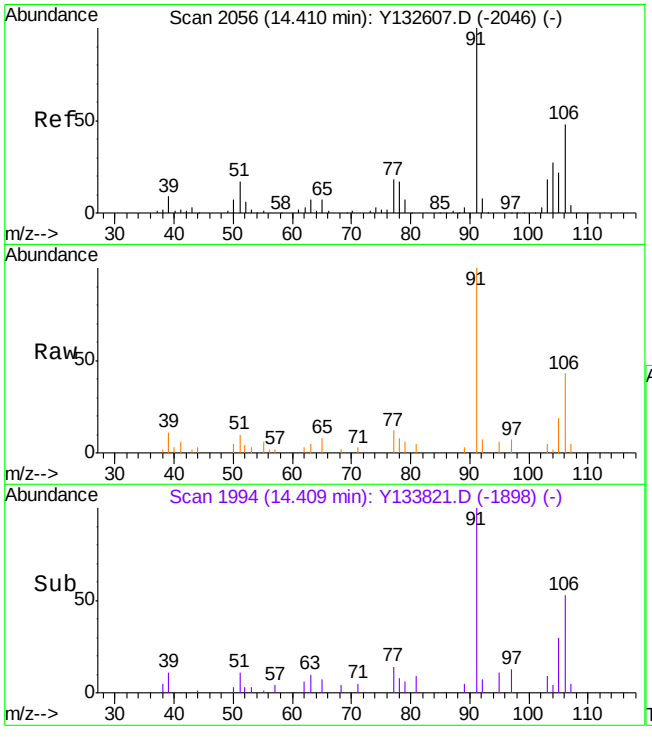


#96
m,p-xylene
Concen: 3.90 ug/L
RT: 14.00 min Scan# 1915
Delta R.T. 0.00 min
Lab File: Y133821.D
Acq: 3 May 2013 9:50 pm

Tgt Ion:106 Resp: 5929

Ion	Ratio	Lower	Upper
106	100		
91	196.1	141.5	262.7

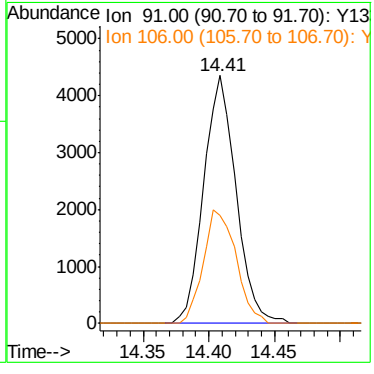


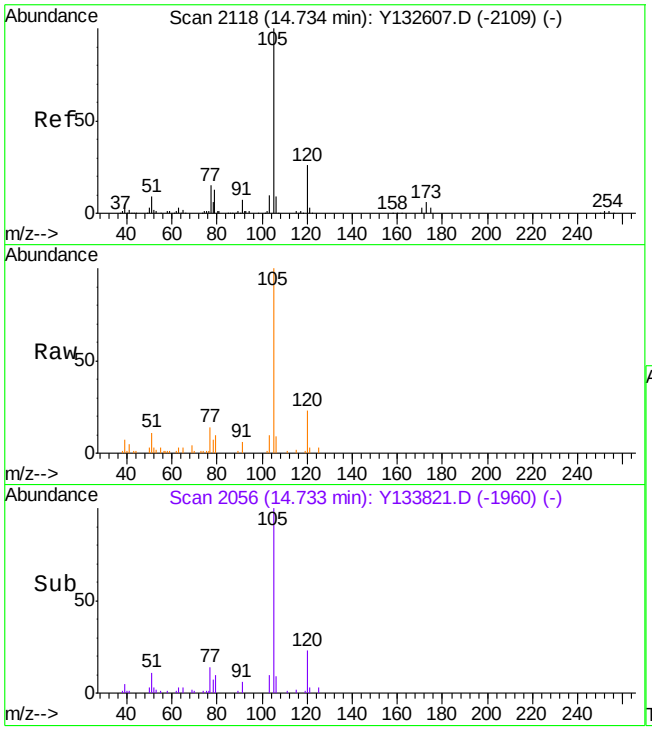


#97
o-xylene
Concen: 2.40 ug/L
RT: 14.41 min Scan# 1994
Delta R.T. -0.00 min
Lab File: Y133821.D
Acq: 3 May 2013 9:50 pm

Tgt Ion: 91 Resp: 7445

Ion	Ratio	Lower	Upper
91	100		
106	43.4	33.3	61.9

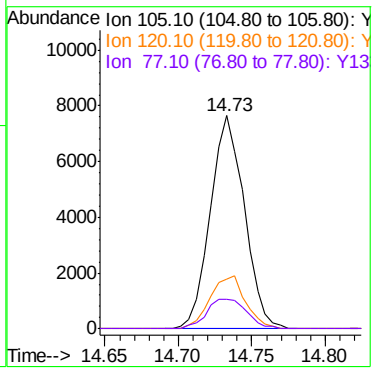


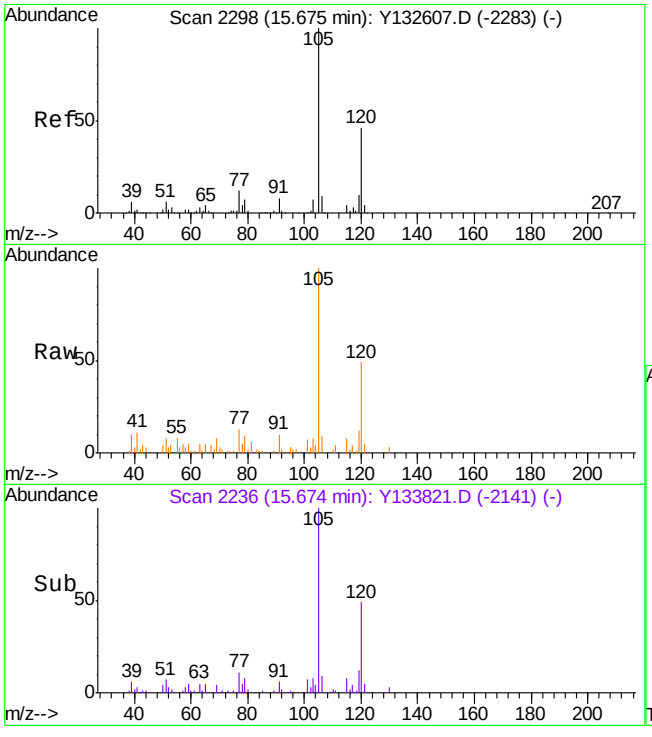


#101
isopropylbenzene
Concen: 3.75 ug/L
RT: 14.73 min Scan# 2056
Delta R.T. -0.00 min
Lab File: Y133821.D
Acq: 3 May 2013 9:50 pm

Tgt Ion:105 Resp: 12288

Ion	Ratio	Lower	Upper
105	100		
120	23.3	0.0	56.2
77	14.0	0.0	44.7

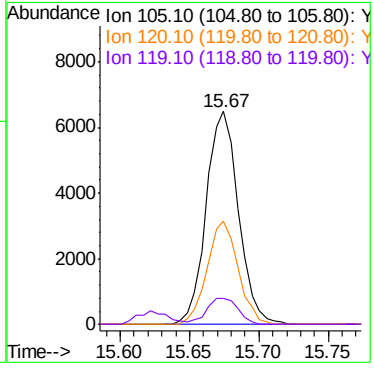




#115
1,2,4-trimethylbenzene
Concen: 3.62 ug/L
RT: 15.67 min Scan# 2236
Delta R.T. -0.00 min
Lab File: Y133821.D
Acq: 3 May 2013 9:50 pm

Tgt Ion:105 Resp: 10515

Ion	Ratio	Lower	Upper
105	100		
120	48.7	16.2	76.2
119	12.1	0.0	41.6



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d208632.D
Acq On : 8 May 2013 3:29 pm
Operator : EmilyT
Sample : jb35319-2
Misc : ms47319,vd8514,6.4,,20,10,1
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 08 15:54:56 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8459.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed May 08 13:16:37 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.994	65	88877	500.00	ug/L	-0.01
4) pentafluorobenzene	10.226	168	141525	50.00	ug/L	0.00
53) 1,4-difluorobenzene	11.141	114	216271	50.00	ug/L	0.00
85) chlorobenzene-d5	14.482	117	192529	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.064	152	116014	50.00	ug/L	-0.01

System Monitoring Compounds

46) dibromofluoromethane (s)	10.252	113	62178	45.64	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 91.28%			
47) 1,2-dichloroethane-d4 (s)	10.681	65	89328	51.57	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 103.14%			
77) toluene-d8 (s)	12.851	98	294847	55.90	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 111.80%			
101) 4-bromofluorobenzene (s)	15.762	95	117968	56.78	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 113.56%			

Target Compounds

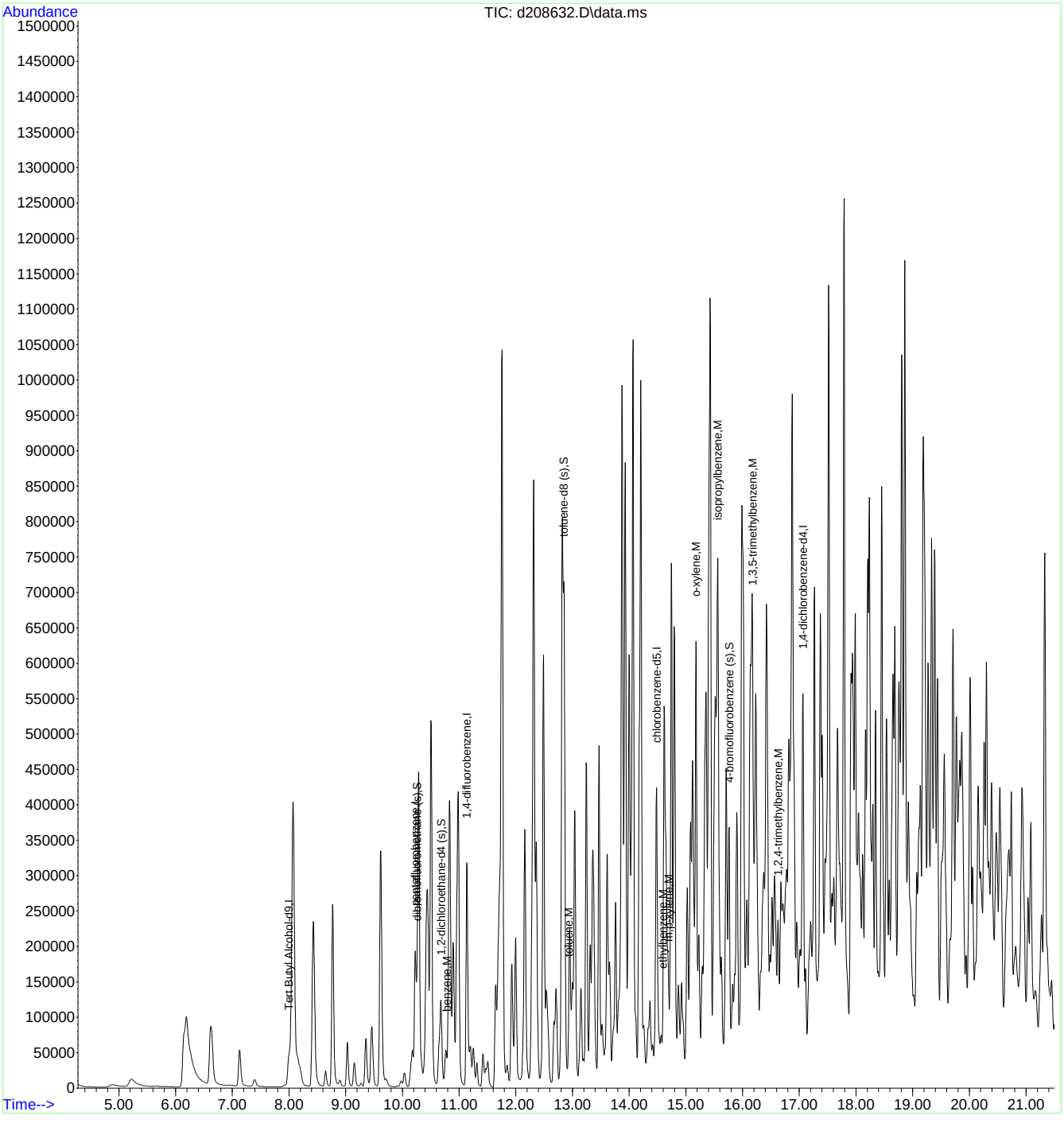
						Qvalue
62) benzene	10.785	78	13366	2.20	ug/L	97
79) toluene	12.929	92	1508	0.40	ug/L	92
94) ethylbenzene	14.586	91	6165	0.87	ug/L	94
95) m,p-xylene	14.701	106	4532	1.65	ug/L	74
96) o-xylene	15.172	106	922	0.34	ug/L #	59
100) isopropylbenzene	15.553	105	168771	23.22	ug/L	98
111) 1,3,5-trimethylbenzene	16.181	105	6981	1.08	ug/L	96
114) 1,2,4-trimethylbenzene	16.620	105	6621	1.03	ug/L	96

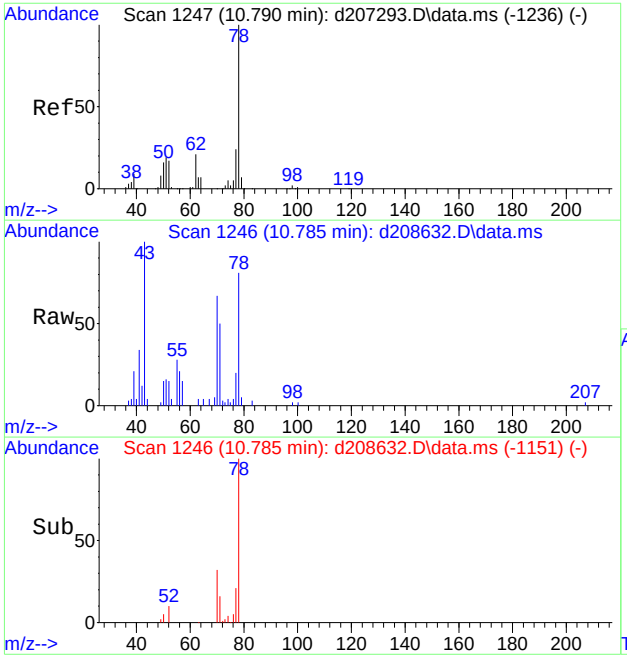
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d208632.D
Acq On : 8 May 2013 3:29 pm
Operator : EmilyT
Sample : jb35319-2
Misc : ms47319,vd8514,6.4,,20,10,1
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 08 15:54:56 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8459.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed May 08 13:16:37 2013
Response via : Initial Calibration

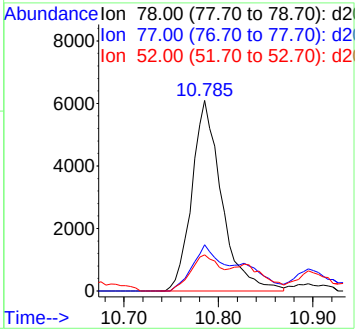


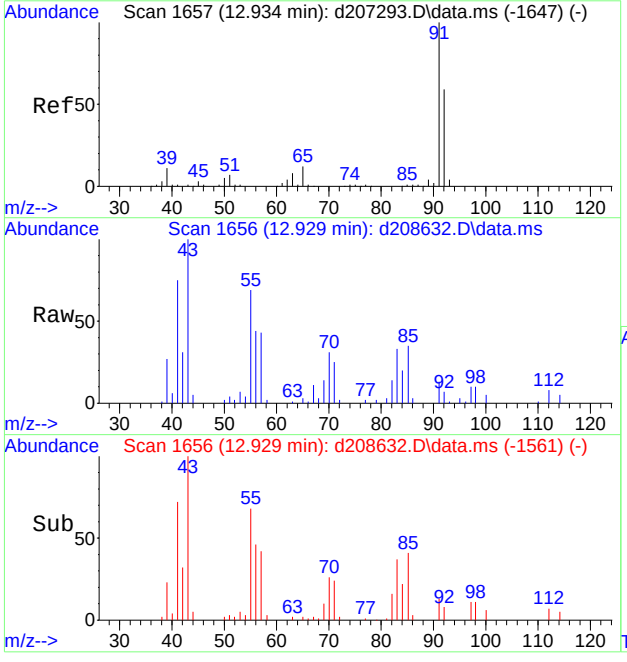


#62
benzene
Concen: 2.20 ug/L
RT: 10.785 min Scan# 1246
Delta R.T. -0.005 min
Lab File: d208632.D
Acq: 8 May 2013 3:29 pm

Tgt Ion: 78 Resp: 13366

Ion	Ratio	Lower	Upper
78	100		
77	24.2	0.0	53.8
52	19.0	0.0	46.7

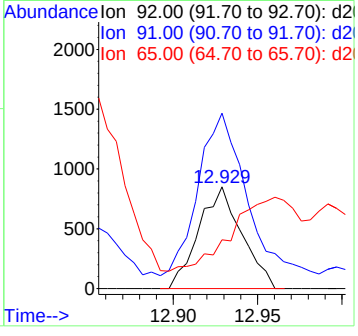




#79
toluene
Concen: 0.40 ug/L
RT: 12.929 min Scan# 1656
Delta R.T. -0.005 min
Lab File: d208632.D
Acq: 8 May 2013 3:29 pm

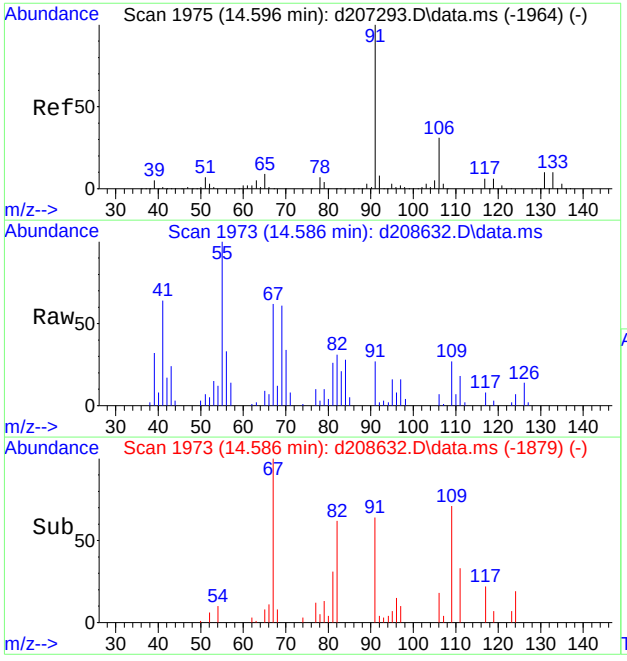
Tgt Ion: 92 Resp: 1508

Ion	Ratio	Lower	Upper
92	100		
91	160.1	139.2	199.2
65	30.4	0.0	50.3



7.1.2

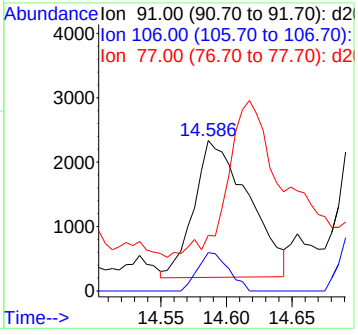
7

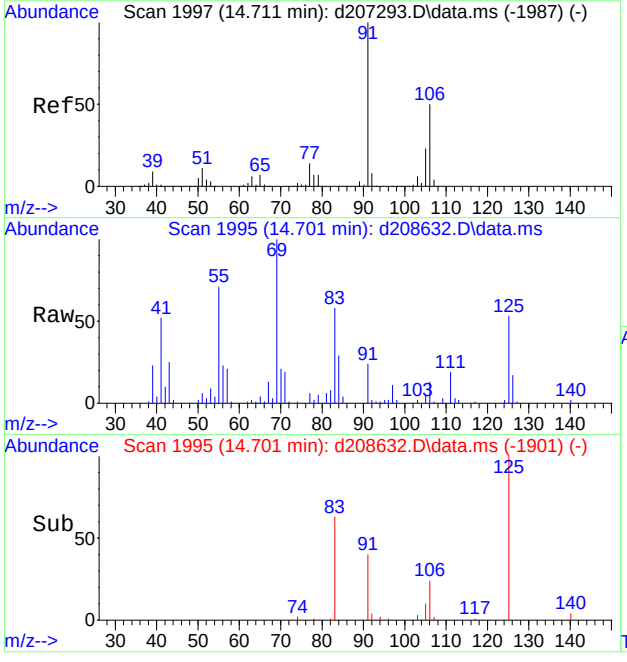


#94
ethylbenzene
Concen: 0.87 ug/L
RT: 14.586 min Scan# 1973
Delta R.T. -0.010 min
Lab File: d208632.D
Acq: 8 May 2013 3:29 pm

Tgt Ion: 91 Resp: 6165

Ion	Ratio	Lower	Upper
91	100		
106	29.5	1.5	61.5
77	14.0	0.0	38.8

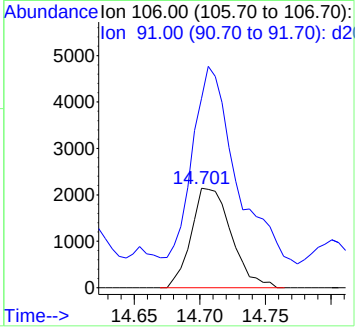




#95
m,p-xylene
Concen: 1.65 ug/L
RT: 14.701 min Scan# 1995
Delta R.T. -0.010 min
Lab File: d208632.D
Acq: 8 May 2013 3:29 pm

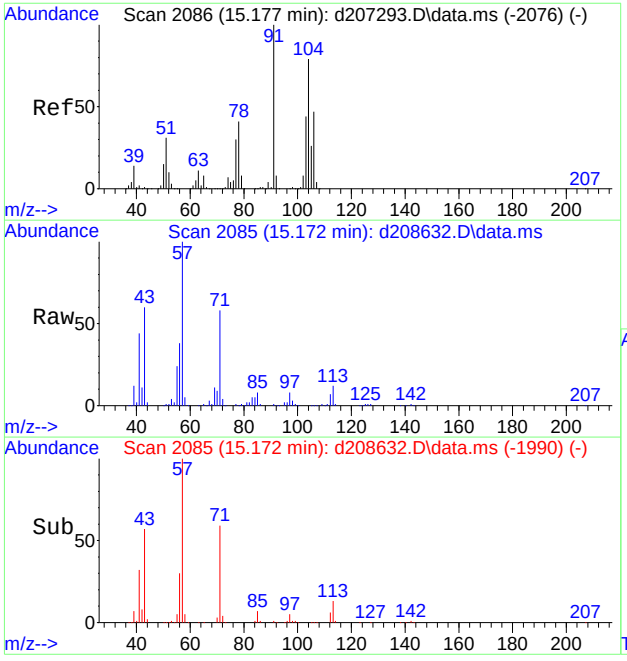
Tgt Ion:106 Resp: 4532

Ion	Ratio	Lower	Upper
106	100		
91	160.3	139.9	259.7



7.1.2

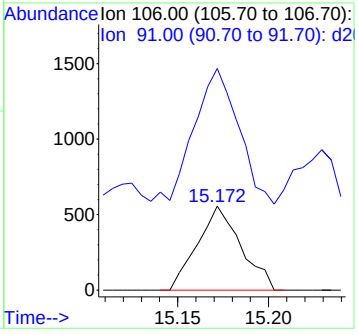
7

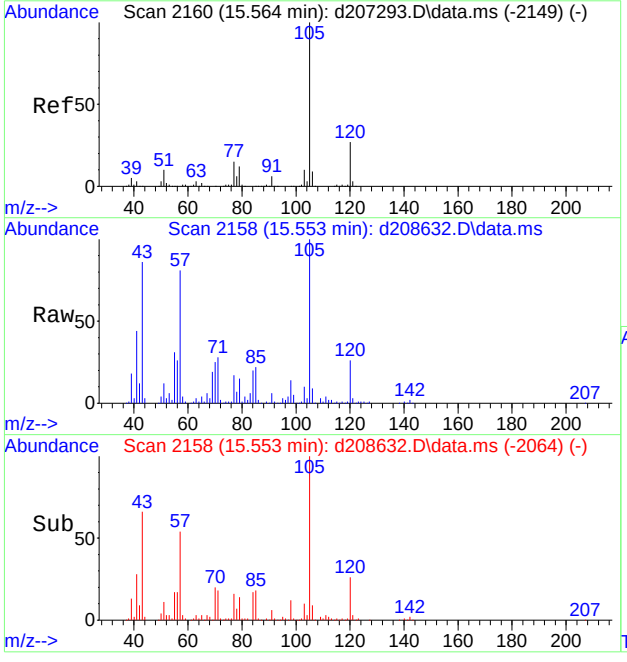


#96
o-xylene
Concen: 0.34 ug/L
RT: 15.172 min Scan# 2085
Delta R.T. -0.005 min
Lab File: d208632.D
Acq: 8 May 2013 3:29 pm

Tgt Ion:106 Resp: 922

Ion	Ratio	Lower	Upper
106	100		
91	147.1	147.8	274.6#

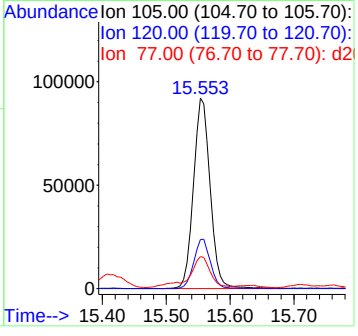


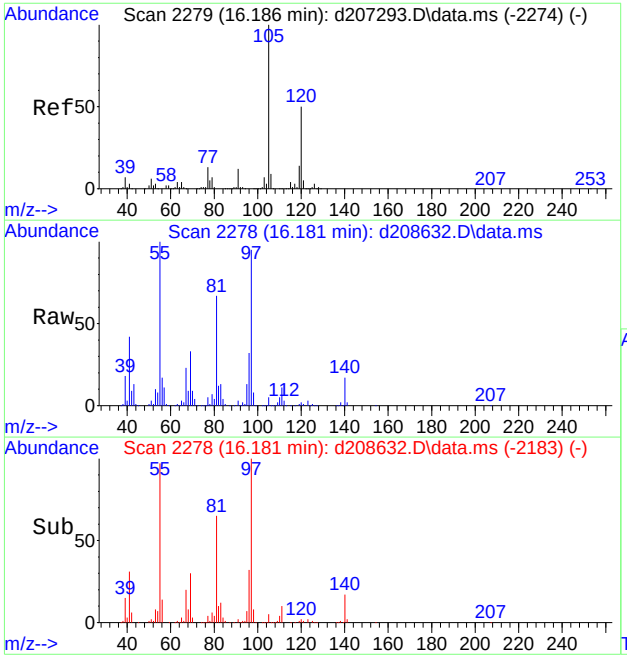


#100
isopropylbenzene
Concen: 23.22 ug/L
RT: 15.553 min Scan# 2158
Delta R.T. -0.010 min
Lab File: d208632.D
Acq: 8 May 2013 3:29 pm

Tgt Ion:105 Resp: 168771

Ion	Ratio	Lower	Upper
105	100		
120	25.8	0.0	57.1
77	16.0	0.0	45.4

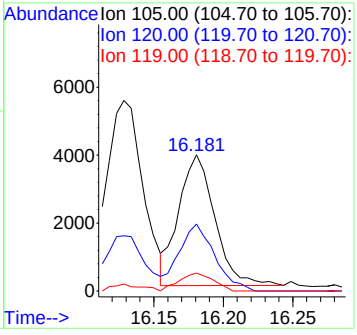


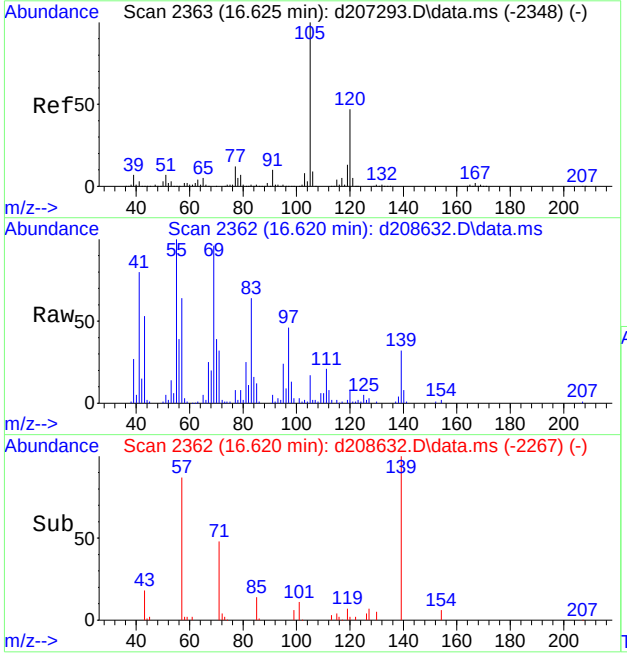


#111
1,3,5-trimethylbenzene
Concen: 1.08 ug/L
RT: 16.181 min Scan# 2278
Delta R.T. -0.005 min
Lab File: d208632.D
Acq: 8 May 2013 3:29 pm

Tgt Ion:105 Resp: 6981

Ion	Ratio	Lower	Upper
105	100		
120	51.4	18.7	78.7
119	13.7	0.0	42.7

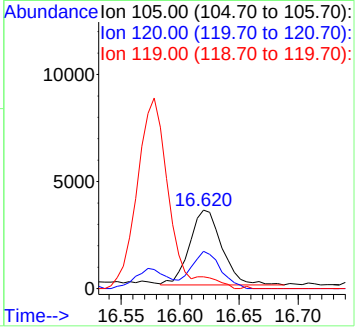




#114
1,2,4-trimethylbenzene
Concen: 1.03 ug/L
RT: 16.620 min Scan# 2362
Delta R.T. -0.005 min
Lab File: d208632.D
Acq: 8 May 2013 3:29 pm

Tgt Ion:105 Resp: 6621

Ion	Ratio	Lower	Upper
105	100		
120	49.8	17.2	77.2
119	15.7	0.0	44.1



7.1.2

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d208622.D
Acq On : 8 May 2013 10:32 am
Operator : EmilyT
Sample : mb/jb25319e-8a
Misc : ms47737,vd8514,5,,100,5,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 08 13:16:08 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8459.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed May 08 13:12:13 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.026	65	84591	500.00	ug/L	0.02
4) pentafluorobenzene	10.221	168	141356	50.00	ug/L	0.00
53) 1,4-difluorobenzene	11.136	114	217416	50.00	ug/L	0.00
85) chlorobenzene-d5	14.477	117	200118	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.065	152	111079	50.00	ug/L	0.00

System Monitoring Compounds

46) dibromofluoromethane (s)	10.253	113	62655	46.04	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 92.08%			
47) 1,2-dichloroethane-d4 (s)	10.676	65	80726	46.66	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 93.32%			
77) toluene-d8 (s)	12.846	98	259968	49.03	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 98.06%			
101) 4-bromofluorobenzene (s)	15.763	95	102274	51.41	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 102.82%			

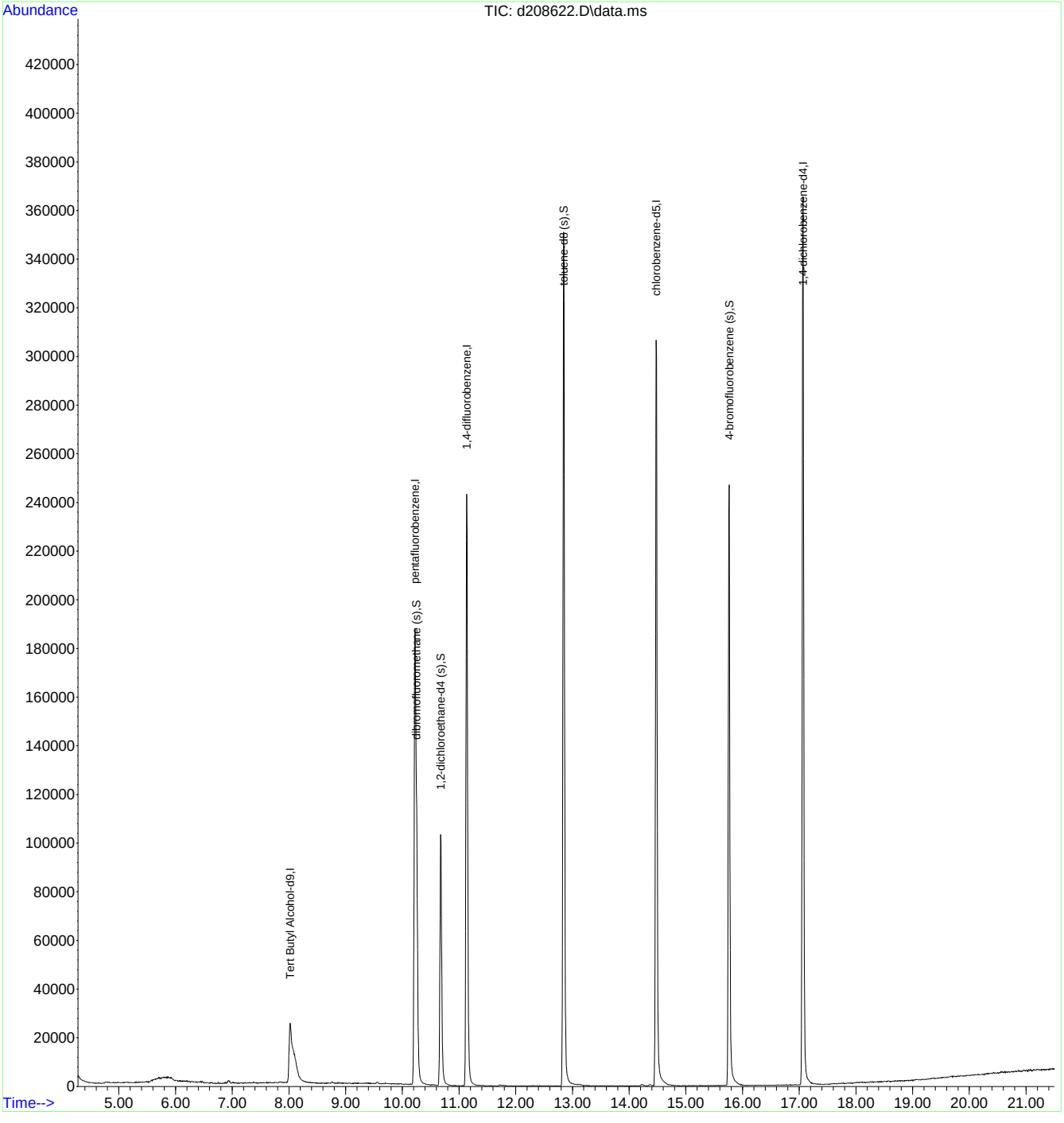
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d208622.D
Acq On : 8 May 2013 10:32 am
Operator : EmilyT
Sample : mb/jb25319e-8a
Misc : ms47737,vd8514,5,,100,5,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 08 13:16:08 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8459.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed May 08 13:12:13 2013
Response via : Initial Calibration



MD8459.M Wed May 08 13:16:15 2013 Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\
Data File : Y133803.D
Acq On : 3 May 2013 12:18 pm
Operator : ROBERTS
Sample : MB
Misc : MS46949,VY5761,5.0,,,,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 06 12:18:57 2013
Quant Method : C:\MSDCHEM\1\METHODS\MY5710.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Fri Apr 05 10:07:58 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.64	65	36500	500.00	ug/L	0.00
4) pentafluorobenzene	9.81	168	96197	50.00	ug/L	0.00
55) 1,4-difluorobenzene	10.73	114	142588	50.00	ug/L	0.00
85) chlorobenzene-d5	13.82	117	126298	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	16.10	152	66201	50.00	ug/L	0.00

System Monitoring Compounds

47) dibromofluoromethane (s)	9.90	113	39297	52.41	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 104.82%			
48) 1,2-dichloroethane-d4 (s)	10.32	65	38113	48.48	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 96.96%			
77) toluene-d8 (s)	12.33	98	136593	52.42	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 104.84%			
101) 4-bromofluorobenzene (s)	14.96	95	50075	47.69	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 95.38%			

Target Compounds Qvalue

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

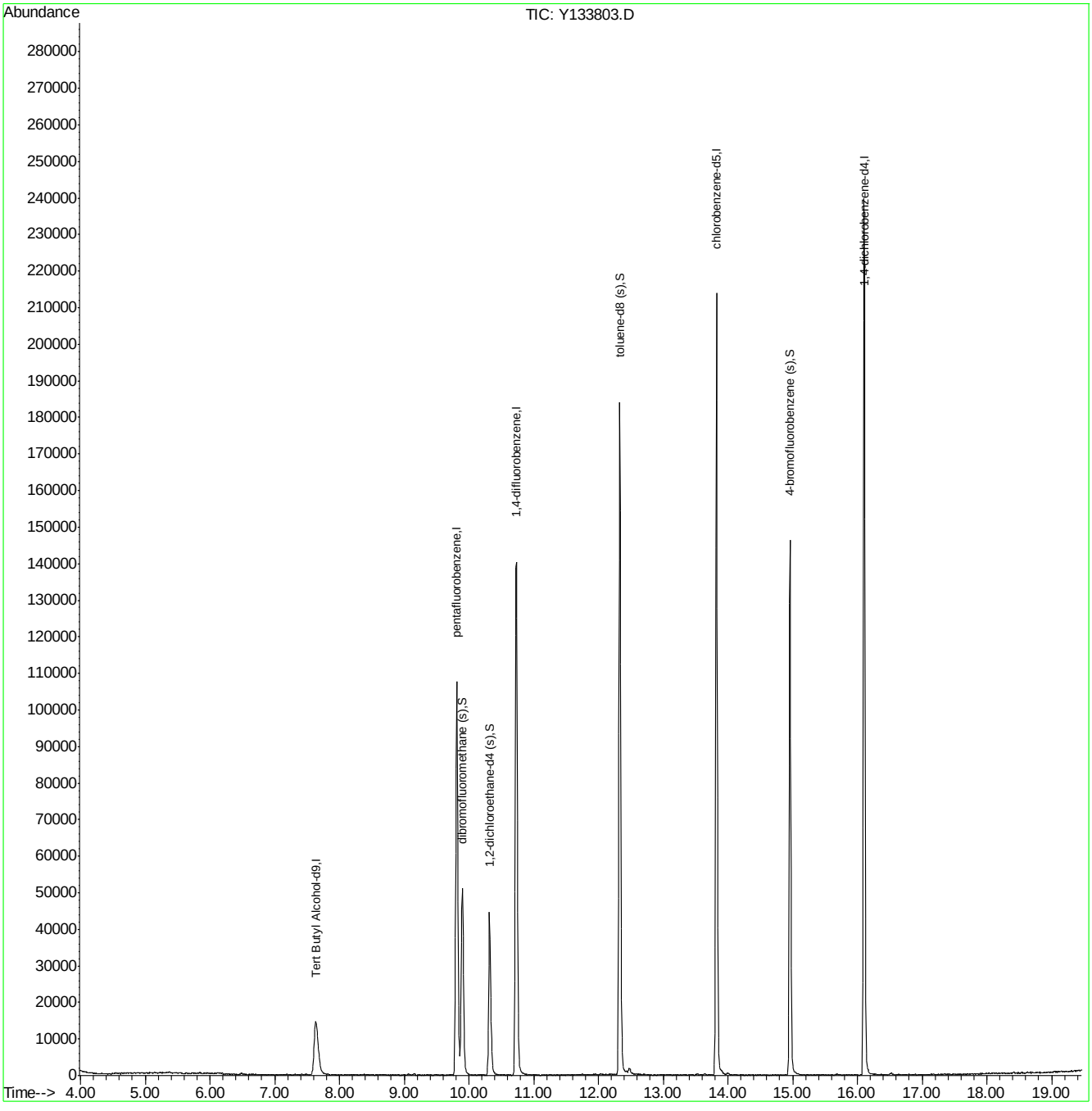
7.2.2

7

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\
Data File : Y133803.D
Acq On : 3 May 2013 12:18 pm
Operator : ROBERTS
Sample : MB
Misc : MS46949,VY5761,5.0,,,,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 06 12:18:57 2013
Quant Method : C:\MSDCHEM\1\METHODS\MY5710.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Fri Apr 05 10:07:58 2013
Response via : Initial Calibration



ACCUTEST LABORATORIES JB35319

New Jersey

ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

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

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

PAGE ___ OF ___

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

FED-EX Tracking #:
Bottle Order Control #:
Accutest Quote #:
Accutest Job #: JB35319

Client / Reporting Information

Company Name: Accutest Laboratories
Street Address: 2235 Route 130
City: Dayton State: NJ Zip: 08810
Project Contact: Kristin Beebe E-mail:
Phone #: 732-355-4559 Fax #:
Sampler(s) Name(s): Phone:

Project Information

Project Name: Philadelphia Refinery AOI-4
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (If different from Report to)

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

Requested Analysis (see TEST CODE sheet)

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

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	%SOL	V8011EDB	B8270SL	PB	METDIG							LAB USE ONLY
1			4/24/2013	11:10		Soil	2					X				X	X	X	X	X							
2			4/25/2013	8:30		Soil	2					X				X	X	X	X	X							
																											15A

Turnaround Time (Business days)

Approved By (Accutest PM): / Date:

- [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

Data Deliverable Information

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

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

Comments / Special Instructions: Due 5/9

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 [signature]	4/26/13 1700	1 FED EX	2 FED EX	4/27/13 10:30	2 [signature]
3		3	4		4
5		5			

Relinquished by Sampler: 1 / 3 / 5
Relinquished by: 5

Custody Seal # 903 [X] Intact [ ] Not intact

Preserved where applicable [ ]

On Ice [X] Cooler Temp. 2.1

JB35319: Chain of Custody
Page 1 of 2
Accutest Labs of New England, Inc.

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB35319 **Client:** ACNJ **Immediate Client Services Action Required:** No

Date / Time Received: 4/27/2013 **Delivery Method:** **Client Service Action Required at Login:** No

Project: PHILLY REFINERY AOI-4 **No. Coolers:** 1 **Airbill #'s:**

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:	Infared gun	
3. Cooler media:	Ice (bag)	

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

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

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

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

Comments

Accutest Laboratories
V:508.481.6200
495 Technology Center West, Bldg One
F: 508.481.7753
Marlborough, MA
www/accutest.com

8.1

8

JB35319: Chain of Custody
Page 2 of 2

Internal Sample Tracking Chronicle

Accutest New Jersey

Job No: JB35319

AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Project No: AOI-4

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB35319-1	Collected: 24-APR-13 11:10 By: SS		Received: 25-APR-13 By:			
S-381 @ 12'_04242013						
JB35319-1	SM21 2540 B MOD.	30-APR-13	HS			%SOL
JB35319-1	SW846 6010C	30-APR-13 20:19	EAL	30-APR-13	DA	PB
JB35319-1	SW846 8011	04-MAY-13 07:40	NK	03-MAY-13	MR	V8011EDB
JB35319-1	SW846 8270C	07-MAY-13 23:50	KR	06-MAY-13	AJ	B8270SL
JB35319-2	Collected: 24-APR-13 08:30 By: SS		Received: 25-APR-13 By:			
S-381 @ 24'_04252013						
JB35319-2	SM21 2540 B MOD.	30-APR-13	HS			%SOL
JB35319-2	SW846 6010C	30-APR-13 20:23	EAL	30-APR-13	DA	PB
JB35319-2	SW846 8011	04-MAY-13 08:04	NK	03-MAY-13	MR	V8011EDB
JB35319-2	SW846 8270C	08-MAY-13 00:13	KR	06-MAY-13	AJ	B8270SL
JB35319-2	SW846 8270C	09-MAY-13 14:03	KR	06-MAY-13	AJ	B8270SL

Accutest Internal Chain of Custody

Job Number: JB35319
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 04/25/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB35319-1.1	Walk In Ref #9	Hamid Siamak	04/30/13 08:08	Retrieve from Storage
JB35319-1.1	Hamid Siamak	Walk In Ref #9	04/30/13 10:16	Return to Storage
JB35319-1.1	Walk In Ref #9	Meredith Tarr	05/06/13 11:19	Retrieve from Storage
JB35319-1.1	Meredith Tarr	Walk In Ref #9	05/06/13 14:54	Return to Storage
JB35319-1.2	Walk In Ref #9	Dorina Antonovici	04/30/13 09:05	Retrieve from Storage
JB35319-1.2	Dorina Antonovici	Walk In Ref #9	04/30/13 09:50	Return to Storage
JB35319-1.2	Walk In Ref #9	Michael Rolo	05/03/13 06:57	Retrieve from Storage
JB35319-1.2	Michael Rolo	Walk In Ref #9	05/03/13 15:23	Return to Storage
JB35319-2.1	Walk In Ref #9	Hamid Siamak	04/30/13 08:08	Retrieve from Storage
JB35319-2.1	Hamid Siamak	Walk In Ref #9	04/30/13 10:16	Return to Storage
JB35319-2.1	Walk In Ref #9	Meredith Tarr	05/06/13 11:17	Retrieve from Storage
JB35319-2.1	Meredith Tarr	Walk In Ref #9	05/06/13 14:54	Return to Storage
JB35319-2.2	Walk In Ref #9	Dorina Antonovici	04/30/13 09:05	Retrieve from Storage
JB35319-2.2	Dorina Antonovici	Walk In Ref #9	04/30/13 09:50	Return to Storage
JB35319-2.2	Walk In Ref #9	Michael Rolo	05/03/13 06:57	Retrieve from Storage
JB35319-2.2	Michael Rolo	Walk In Ref #9	05/03/13 15:23	Return to Storage

New Jersey

ACCUTEST LABORATORIES

GC/MS Semi-volatiles

QC Data Summaries

(Accutest Labs of New England, Inc.)

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: JB35319
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP32964-MB	W11896A.D	1	05/06/13	KR	05/06/13	OP32964	MSW549

The QC reported here applies to the following samples: **Method:** SW846 8270C

JB35319-1, JB35319-2

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	96	33	ug/kg	
56-55-3	Benzo(a)anthracene	ND	96	37	ug/kg	
50-32-8	Benzo(a)pyrene	ND	96	22	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	96	23	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	96	43	ug/kg	
218-01-9	Chrysene	ND	96	39	ug/kg	
86-73-7	Fluorene	ND	96	34	ug/kg	
91-20-3	Naphthalene	ND	96	37	ug/kg	
85-01-8	Phenanthrene	ND	96	29	ug/kg	
129-00-0	Pyrene	ND	96	29	ug/kg	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	87%	30-130%
4165-62-2	Phenol-d5	82%	30-130%
118-79-6	2,4,6-Tribromophenol	90%	30-130%
4165-60-0	Nitrobenzene-d5	86%	30-130%
321-60-8	2-Fluorobiphenyl	93%	30-130%
1718-51-0	Terphenyl-d14	115%	30-130%

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

Blank Spike Summary

Job Number: JB35319
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP32964-BS	W11897.D	1	05/06/13	KR	05/06/13	OP32964	MSW550

The QC reported here applies to the following samples: **Method:** SW846 8270C

JB35319-1, JB35319-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
120-12-7	Anthracene	2490	2160	87	40-140
56-55-3	Benzo(a)anthracene	2490	2410	97	40-140
50-32-8	Benzo(a)pyrene	2490	2080	83	40-140
205-99-2	Benzo(b)fluoranthene	2490	2260	91	40-140
191-24-2	Benzo(g,h,i)perylene	2490	2340	94	40-140
218-01-9	Chrysene	2490	2290	92	40-140
86-73-7	Fluorene	2490	2160	87	40-140
91-20-3	Naphthalene	2490	2060	83	40-140
85-01-8	Phenanthrene	2490	2240	90	40-140
129-00-0	Pyrene	2490	2380	96	40-140

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	80%	30-130%
4165-62-2	Phenol-d5	81%	30-130%
118-79-6	2,4,6-Tribromophenol	90%	30-130%
4165-60-0	Nitrobenzene-d5	81%	30-130%
321-60-8	2-Fluorobiphenyl	88%	30-130%
1718-51-0	Terphenyl-d14	96%	30-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB35319
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP32964-MS	W11898.D	5	05/06/13	KR	05/06/13	OP32964	MSW549
OP32964-MSD	W11899.D	5	05/06/13	KR	05/06/13	OP32964	MSW549
JB35277-22	W11900.D	5	05/06/13	KR	05/06/13	OP32964	MSW549

The QC reported here applies to the following samples: **Method:** SW846 8270C

JB35319-1, JB35319-2

CAS No.	Compound	JB35277-22 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
120-12-7	Anthracene	ND		7040	3540	50	5100	70	36* [a]	40-140/30
56-55-3	Benzo(a)anthracene	ND		7040	4150	59	6040	83	37* [a]	40-140/30
50-32-8	Benzo(a)pyrene	479	J	7040	3240	39* [b]	4820	59	39* [a]	40-140/30
205-99-2	Benzo(b)fluoranthene	707	J	7040	4260	50	6080	73	35* [a]	40-140/30
191-24-2	Benzo(g,h,i)perylene	ND		7040	3630	52	5520	75	41* [a]	40-140/30
218-01-9	Chrysene	583	J	7040	3940	48	5860	72	39* [a]	40-140/30
86-73-7	Fluorene	ND		7040	3410	48	4880	67	35* [a]	40-140/30
91-20-3	Naphthalene	ND		7040	2860	41	3950	54	32* [a]	40-140/30
85-01-8	Phenanthrene	ND		7040	3720	53	5590	76	40* [a]	40-140/30
129-00-0	Pyrene	968	J	7040	4590	51	6690	78	37* [a]	40-140/30

CAS No.	Surrogate Recoveries	MS	MSD	JB35277-22	Limits
367-12-4	2-Fluorophenol	37%	52%	48%	30-130%
4165-62-2	Phenol-d5	39%	54%	47%	30-130%
118-79-6	2,4,6-Tribromophenol	66%	91%	83%	30-130%
4165-60-0	Nitrobenzene-d5	35%	47%	42%	30-130%
321-60-8	2-Fluorobiphenyl	47%	66%	56%	30-130%
1718-51-0	Terphenyl-d14	57%	83%	75%	30-130%

(a) High RPD due to possible matrix interference and/or sample non-homogeneity.
(b) Outside control limits due to possible matrix interference. Refer to Blank Spike.

* = Outside of Control Limits.

Instrument Performance Check (DFTPP)

Job Number: JB35319
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: MSF2937-DFTPP
Lab File ID: F62770.D
Instrument ID: GCMSF
Injection Date: 04/08/13
Injection Time: 08:39

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	5601	47.4		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	6603	55.9		Pass
70	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
127	40.0 - 60.0% of mass 198	5966	50.5		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	11811	100.0		Pass
199	5.0 - 9.0% of mass 198	800	6.77		Pass
275	10.0 - 30.0% of mass 198	2978	25.2		Pass
365	1.0 - 100.0% of mass 198	234	1.98		Pass
441	Present, but less than mass 443	860	7.28	(76.3) [b]	Pass
442	39.0 - 100.0% of mass 198	6440	54.5		Pass
443	17.0 - 23.0% of mass 442	1127	9.54	(17.5) [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
MSF2937-ICC2937	F62772.D	04/08/13	09:28	00:49	Initial cal 80
MSF2937-IC2937	F62773.D	04/08/13	09:52	01:13	Initial cal 1
MSF2937-IC2937	F62774.D	04/08/13	10:16	01:37	Initial cal 2
MSF2937-IC2937	F62775.D	04/08/13	10:40	02:01	Initial cal 5
MSF2937-IC2937	F62776.D	04/08/13	11:04	02:25	Initial cal 10
MSF2937-IC2937	F62777.D	04/08/13	11:28	02:49	Initial cal 20
MSF2937-IC2937	F62778.D	04/08/13	11:53	03:14	Initial cal 50
MSF2937-IC2937	F62779.D	04/08/13	12:17	03:38	Initial cal 120
MSF2937-ICV2937	F62780.D	04/08/13	12:42	04:03	Initial cal verification 20
MSF2937-ICV2937	F62781.D	04/08/13	13:07	04:28	Initial cal verification 50
MSF2937-ICV2937	F62782.D	04/08/13	13:32	04:53	Initial cal verification 20
MSF2937-ICV2937	F62783.D	04/08/13	13:57	05:18	Initial cal verification 20

Instrument Performance Check (DFTPP)

Job Number: JB35319
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: MSF2976-DFTPP
Lab File ID: F63810.D
Instrument ID: GCMSF
Injection Date: 05/09/13
Injection Time: 07:46

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	16363	38.4		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	19952	46.8		Pass
70	Less than 2.0% of mass 69	161	0.38	(0.81) [a]	Pass
127	40.0 - 60.0% of mass 198	19400	45.5		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	42600	100.0		Pass
199	5.0 - 9.0% of mass 198	2873	6.74		Pass
275	10.0 - 30.0% of mass 198	11015	25.9		Pass
365	1.0 - 100.0% of mass 198	1231	2.89		Pass
441	Present, but less than mass 443	4182	9.82	(79.8) [b]	Pass
442	40.0 - 100.0% of mass 198	26640	62.5		Pass
443	17.0 - 23.0% of mass 442	5238	12.3	(19.7) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
MSF2976-CC2937	F63811A.D	05/09/13	08:10	00:24	Continuing cal 50
ZZZZZZ	F63812.D	05/09/13	08:34	00:48	(unrelated sample)
OP32977-MB	F63813.D	05/09/13	08:57	01:11	Method Blank
OP32977-BS	F63814.D	05/09/13	09:21	01:35	Blank Spike
OP32977-BSD	F63815.D	05/09/13	09:45	01:59	Blank Spike Duplicate
OP32977-MS	F63816.D	05/09/13	10:09	02:23	Matrix Spike
OP32977-MSD	F63817.D	05/09/13	10:32	02:46	Matrix Spike Duplicate
JB35527-1	F63818.D	05/09/13	10:55	03:09	(used for QC only; not part of job JB35319)
ZZZZZZ	F63819.D	05/09/13	11:18	03:32	(unrelated sample)
ZZZZZZ	F63820.D	05/09/13	11:42	03:56	(unrelated sample)
ZZZZZZ	F63821.D	05/09/13	12:06	04:20	(unrelated sample)
ZZZZZZ	F63822.D	05/09/13	12:29	04:43	(unrelated sample)
ZZZZZZ	F63824.D	05/09/13	13:16	05:30	(unrelated sample)
ZZZZZZ	F63825.D	05/09/13	13:40	05:54	(unrelated sample)
JB35319-2	F63826.D	05/09/13	14:03	06:17	S-381 @ 24'_04252013

Instrument Performance Check (DFTPP)

Job Number: JB35319
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: MSW505-DFTPP
Lab File ID: W10768.D
Instrument ID: GCMSW
Injection Date: 04/03/13
Injection Time: 19:07

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	26384	39.4		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	29608	44.2		Pass
70	Less than 2.0% of mass 69	157	0.23	(0.53) [a]	Pass
127	40.0 - 60.0% of mass 198	35256	52.7		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	66960	100.0		Pass
199	5.0 - 9.0% of mass 198	4772	7.13		Pass
275	10.0 - 30.0% of mass 198	16345	24.4		Pass
365	1.0 - 100.0% of mass 198	2194	3.28		Pass
441	Present, but less than mass 443	5444	8.13	(74.9) [b]	Pass
442	40.0 - 100.0% of mass 198	36144	54.0		Pass
443	17.0 - 23.0% of mass 442	7268	10.9	(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
MSW505-ICC505	W10769.D	04/03/13	19:31	00:24	Initial cal 50
MSW505-IC505	W10770.D	04/03/13	19:54	00:47	Initial cal 1
MSW505-IC505	W10771.D	04/03/13	20:17	01:10	Initial cal 2
MSW505-IC505	W10772.D	04/03/13	20:40	01:33	Initial cal 5
MSW505-IC505	W10773.D	04/03/13	21:03	01:56	Initial cal 10
MSW505-IC505	W10774.D	04/03/13	21:26	02:19	Initial cal 20
MSW505-IC505	W10775.D	04/03/13	21:49	02:42	Initial cal 80
MSW505-IC505	W10776.D	04/03/13	22:12	03:05	Initial cal 120
MSW505-ICV505	W10777.D	04/03/13	22:36	03:29	Initial cal verification 20
MSW505-ICV505	W10779.D	04/03/13	23:22	04:15	Initial cal verification 20
MSW505-ICV505	W10780.D	04/03/13	23:45	04:38	Initial cal verification 20

Instrument Performance Check (DFTPP)

Job Number: JB35319
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: MSW546-DFTPP
Lab File ID: W11791.D
Instrument ID: GCMSW
Injection Date: 05/03/13
Injection Time: 07:19

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	32312	37.8		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	36856	43.1		Pass
70	Less than 2.0% of mass 69	280	0.33	(0.76) [a]	Pass
127	40.0 - 60.0% of mass 198	42384	49.6		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	85480	100.0		Pass
199	5.0 - 9.0% of mass 198	5878	6.88		Pass
275	10.0 - 30.0% of mass 198	22968	26.9		Pass
365	1.0 - 100.0% of mass 198	2899	3.39		Pass
441	Present, but less than mass 443	9437	11.0	(69.1) [b]	Pass
442	40.0 - 100.0% of mass 198	64696	75.7		Pass
443	17.0 - 23.0% of mass 442	13650	16.0	(21.1) [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
MSW546-ICC546	W11792.D	05/03/13	07:42	00:23	Initial cal 50
MSW546-IC546	W11793.D	05/03/13	08:05	00:46	Initial cal 5
MSW546-IC546	W11794.D	05/03/13	08:27	01:08	Initial cal 10
MSW546-IC546	W11795.D	05/03/13	08:50	01:31	Initial cal 20
MSW546-IC546	W11796.D	05/03/13	09:14	01:55	Initial cal 40
MSW546-IC546	W11797.D	05/03/13	09:36	02:17	Initial cal 80
MSW546-IC546	W11798.D	05/03/13	10:00	02:41	Initial cal 100
MSW546-ICV546	W11799.D	05/03/13	10:23	03:04	Initial cal verification 20
MSW546-ICV546	W11800.D	05/03/13	10:46	03:27	Initial cal verification 50
MSW546-ICV546	W11801.D	05/03/13	11:39	04:20	Initial cal verification 50
MSW546-IC546	W11812.D	05/03/13	16:02	08:43	Initial cal 100

Instrument Performance Check (DFTPP)

Job Number: JB35319
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: MSW548-DFTPP
Lab File ID: W11889.D
Instrument ID: GCMSW
Injection Date: 05/06/13
Injection Time: 16:45

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	37256	34.3		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	43656	40.2		Pass
70	Less than 2.0% of mass 69	202	0.19	(0.46) [a]	Pass
127	40.0 - 60.0% of mass 198	51392	47.4		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	108472	100.0		Pass
199	5.0 - 9.0% of mass 198	7376	6.80		Pass
275	10.0 - 30.0% of mass 198	32000	29.5		Pass
365	1.0 - 100.0% of mass 198	4453	4.11		Pass
441	Present, but less than mass 443	16297	15.0	(78.9) [b]	Pass
442	40.0 - 100.0% of mass 198	103096	95.0		Pass
443	17.0 - 23.0% of mass 442	20656	19.0	(20.0) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
MSW548-CC546	W11890.D	05/06/13	17:06	00:21	Continuing cal 50
MSW550-CC546	W11890.D	05/06/13	17:06	00:21	Continuing cal 50
ZZZZZZ	W11891.D	05/06/13	17:26	00:41	(unrelated sample)
ZZZZZZ	W11892.D	05/06/13	17:49	01:04	(unrelated sample)
MSW550-CC546	W11893A.D	05/06/13	18:11	01:26	Continuing cal 50
MSW549-CC505	W11893.D	05/06/13	18:11	01:26	Continuing cal 50
ZZZZZZ	W11894.D	05/06/13	18:31	01:46	(unrelated sample)
ZZZZZZ	W11895.D	05/06/13	18:54	02:09	(unrelated sample)
ZZZZZZ	W11895A.D	05/06/13	18:55	02:10	(unrelated sample)
OP32979-MB	W11896.D	05/06/13	19:17	02:32	Method Blank
OP32964-MB	W11896A.D	05/06/13	19:18	02:33	Method Blank
OP32979-MB	W11896A.D	05/06/13	19:18	02:33	Method Blank
OP32979-BS	W11897.D	05/06/13	19:40	02:55	Blank Spike
OP32964-BS	W11897.D	05/06/13	19:40	02:55	Blank Spike
OP32964-MS	W11898.D	05/06/13	20:03	03:18	Matrix Spike
OP32964-MSD	W11899.D	05/06/13	20:25	03:40	Matrix Spike Duplicate
JB35277-22	W11900.D	05/06/13	20:49	04:04	(used for QC only; not part of job JB35319)
OP32947-MB	W11901.D	05/06/13	21:12	04:27	Method Blank
OP32947-BS	W11902.D	05/06/13	21:36	04:51	Blank Spike

Instrument Performance Check (DFTPP)

Job Number: JB35319
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: MSW548-DFTPP
Lab File ID: W11889.D
Instrument ID: GCMSW
Injection Date: 05/06/13
Injection Time: 16:45

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
OP32947-MS	W11903.D	05/06/13	22:00	05:15	Matrix Spike
OP32947-MSD	W11904.D	05/06/13	22:23	05:38	Matrix Spike Duplicate
MC20335-1	W11905.D	05/06/13	22:47	06:02	(used for QC only; not part of job JB35319)
ZZZZZZ	W11906.D	05/06/13	23:12	06:27	(unrelated sample)
ZZZZZZ	W11907.D	05/06/13	23:36	06:51	(unrelated sample)
ZZZZZZ	W11908.D	05/07/13	00:00	07:15	(unrelated sample)
ZZZZZZ	W11909.D	05/07/13	00:24	07:39	(unrelated sample)
ZZZZZZ	W11910.D	05/07/13	00:48	08:03	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB35319
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: MSW552-DFTPP
Lab File ID: W11943.D
Instrument ID: GCMSW
Injection Date: 05/07/13
Injection Time: 14:12

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	59072	40.7		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	68360	47.1		Pass
70	Less than 2.0% of mass 69	365	0.25	(0.53) [a]	Pass
127	40.0 - 60.0% of mass 198	74424	51.3		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	145152	100.0		Pass
199	5.0 - 9.0% of mass 198	9849	6.79		Pass
275	10.0 - 30.0% of mass 198	37168	25.6		Pass
365	1.0 - 100.0% of mass 198	4617	3.18		Pass
441	Present, but less than mass 443	15886	10.9	(77.4) [b]	Pass
442	40.0 - 100.0% of mass 198	104704	72.1		Pass
443	17.0 - 23.0% of mass 442	20536	14.1	(19.6) [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
MSW552-CC505	W11945.D	05/07/13	14:58	00:46	Continuing cal 50
OP32974-MB	W11946.D	05/07/13	15:21	01:09	Method Blank
OP32974-BS	W11947.D	05/07/13	15:44	01:32	Blank Spike
OP32974-MS	W11948.D	05/07/13	16:07	01:55	Matrix Spike
OP32974-MSD	W11949.D	05/07/13	16:31	02:19	Matrix Spike Duplicate
MC20500-11	W11950.D	05/07/13	16:54	02:42	(used for QC only; not part of job JB35319)
ZZZZZZ	W11960.D	05/07/13	20:44	06:32	(unrelated sample)
ZZZZZZ	W11961.D	05/07/13	21:07	06:55	(unrelated sample)
ZZZZZZ	W11962.D	05/07/13	21:30	07:18	(unrelated sample)
ZZZZZZ	W11964.D	05/07/13	22:16	08:04	(unrelated sample)
ZZZZZZ	W11965.D	05/07/13	22:39	08:27	(unrelated sample)
ZZZZZZ	W11966.D	05/07/13	23:03	08:51	(unrelated sample)
ZZZZZZ	W11967.D	05/07/13	23:26	09:14	(unrelated sample)
JB35319-1	W11968.D	05/07/13	23:50	09:38	S-381 @ 12'_04242013
JB35319-2	W11969.D	05/08/13	00:13	10:01	S-381 @ 24'_04252013
ZZZZZZ	W11970.D	05/08/13	00:38	10:26	(unrelated sample)
ZZZZZZ	W11971.D	05/08/13	01:02	10:50	(unrelated sample)
ZZZZZZ	W11972.D	05/08/13	01:26	11:14	(unrelated sample)
ZZZZZZ	W11973.D	05/08/13	01:51	11:39	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB35319
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample:	MSW552-DFTPP	**Injection Date:**	05/07/13
Lab File ID:	W11943.D	**Injection Time:**	14:12
Instrument ID:	GCMSW		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	W11974.D	05/08/13	02:15	12:03	(unrelated sample)
ZZZZZZ	W11975.D	05/08/13	02:39	12:27	(unrelated sample)

Semivolatile Internal Standard Area Summary

Job Number: JB35319
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	MSF2976-CC2937	**Injection Date:**	05/09/13
Lab File ID:	F63811A.D	**Injection Time:**	08:10
Instrument ID:	GCMSF	**Method:**	SW846 8270C

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Check Std	32679	3.89	122132	4.87	77523	6.30	149771	7.63	171300	10.41	151365	11.86
Upper Limit [a]	65358	4.39	244264	5.37	155046	6.80	299542	8.13	342600	10.91	302730	12.36
Lower Limit [b]	16340	3.39	61066	4.37	38762	5.80	74886	7.13	85650	9.91	75683	11.36

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
ZZZZZZ	34542	3.88	128152	4.87	83335	6.30	151109	7.62	171925	10.41	158311	11.86
OP32977-MB	34273	3.89	128119	4.87	81735	6.30	152741	7.62	169647	10.41	151379	11.86
OP32977-BS	33600	3.89	123099	4.87	79689	6.30	149703	7.63	170699	10.41	147572	11.86
OP32977-BSD	33290	3.88	122369	4.87	79340	6.30	142120	7.63	161169	10.41	143730	11.86
OP32977-MS	32372	3.89	123529	4.87	73730	6.30	120753	7.62	163218	10.41	154633	11.86
OP32977-MSD	34413	3.88	131751	4.87	82961	6.30	135085	7.63	182420	10.41	164060	11.86
JB35527-1	34556	3.89	133982	4.87	83998	6.30	135172	7.63	180439	10.41	148133	11.86
ZZZZZZ	35951	3.89	146159	4.88	150614	6.33	218556	7.68	197975	10.42	158660	11.87
ZZZZZZ	29717	3.88	101525	4.87	65331	6.30	124233	7.63	159977	10.41	135801	11.86
ZZZZZZ	31861	3.89	105362	4.87	69646	6.30	128155	7.63	152662	10.41	136025	11.86
ZZZZZZ	30934	3.89	141288	4.89	68190	6.31	116200	7.63	145626	10.41	129743	11.86
ZZZZZZ	27225	3.89	101898	4.88	65308	6.31	110074	7.63	147387	10.41	132617	11.87
ZZZZZZ	23861	3.89	93041	4.87	60067	6.30	113546	7.63	144649	10.41	125433	11.86
JB35319-2	25621	3.89	95749	4.88	66753	6.31	104524	7.63	133217	10.41	130674	11.86

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.

Semivolatile Internal Standard Area Summary

Job Number: JB35319
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	MSW549-CC505	**Injection Date:**	05/06/13
Lab File ID:	W11893.D	**Injection Time:**	18:11
Instrument ID:	GCMSW	**Method:**	SW846 8270C

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Check Std	103230	3.35	383650	4.39	245943	5.90	441313	7.19	559878	10.03	504260	11.58
Upper Limit [a]	206460	3.85	767300	4.89	491886	6.40	882626	7.69	1119756	10.53	1008520	12.08
Lower Limit [b]	51615	2.85	191825	3.89	122972	5.40	220657	6.69	279939	9.53	252130	11.08

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
ZZZZZZ	104589	3.35	383947	4.39	243379	5.90	427160	7.18	476875	10.01	484235	11.58
ZZZZZZ	102926	3.35	381296	4.39	247971	5.90	431431	7.19	509111	10.02	491563	11.58
ZZZZZZ	103659	3.35	382615	4.39	247968	5.90	435728	7.19	510387	10.02	498052	11.58
OP32979-MB	117546	3.35	425625	4.39	273701	5.90	462473	7.19	504985	10.01	455681	11.58
OP32979-MB	117546	3.35	426499	4.39	273785	5.90	470075	7.19	507101	10.01	457282	11.58
OP32964-MB	117546	3.35	426499	4.39	273785	5.90	470075	7.19	507101	10.01	457282	11.58
OP32979-BS	117862	3.35	431047	4.39	272518	5.90	457833	7.19	508816	10.02	436042	11.58
OP32964-BS	117862	3.35	431047	4.39	272518	5.90	457833	7.19	508816	10.02	436042	11.58
OP32964-MS	105725	3.35	392800	4.39	249734	5.90	432255	7.19	487722	10.01	492503	11.58
OP32964-MSD	105185	3.35	393916	4.39	247027	5.90	428821	7.19	468945	10.02	481250	11.58
JB35277-22	101725	3.35	378828	4.39	245419	5.90	438817	7.19	495509	10.02	493228	11.58
OP32947-MB	106966	3.35	383165	4.39	238197	5.90	406699	7.19	433427	10.01	426393	11.58
OP32947-BS	115710	3.35	423600	4.39	260551	5.90	445293	7.19	501120	10.02	451705	11.58
OP32947-MS	104118	3.35	382548	4.39	244999	5.90	418415	7.19	494513	10.02	479317	11.58
OP32947-MSD	105332	3.35	386338	4.39	245393	5.90	421787	7.19	484286	10.02	470867	11.58
MC20335-1	104409	3.35	374064	4.39	238748	5.90	407141	7.19	462766	10.02	458932	11.58
ZZZZZZ	109740	3.35	397767	4.39	251654	5.90	426990	7.19	451115	10.02	431619	11.58
ZZZZZZ	117700	3.35	420853	4.39	270396	5.90	462609	7.19	493859	10.02	452014	11.58
ZZZZZZ	117997	3.35	427560	4.39	277145	5.90	465568	7.19	478675	10.01	444553	11.58
ZZZZZZ	121206	3.35	434426	4.39	272583	5.90	462756	7.19	476549	10.02	438730	11.58
ZZZZZZ	120673	3.35	438135	4.39	266468	5.90	452487	7.19	473741	10.01	437333	11.58

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.

Semivolatile Internal Standard Area Summary

Job Number: JB35319
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	MSW550-CC546	**Injection Date:**	05/06/13
Lab File ID:	W11893A.D	**Injection Time:**	18:11
Instrument ID:	GCMSW	**Method:**	SW846 8270C

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Check Std	103246	3.35	383631	4.39	245938	5.90	444686	7.19	559271	10.03	501160	11.58
Upper Limit [a]	206492	3.85	767262	4.89	491876	6.40	889372	7.69	1118542	10.53	1002320	12.08
Lower Limit [b]	51623	2.85	191816	3.89	122969	5.40	222343	6.69	279636	9.53	250580	11.08

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
ZZZZZZ	104589	3.35	383947	4.39	243379	5.90	427160	7.18	476875	10.01	484235	11.58
ZZZZZZ	102926	3.35	381296	4.39	247971	5.90	431431	7.19	509111	10.02	491563	11.58
ZZZZZZ	103659	3.35	382615	4.39	247968	5.90	435728	7.19	510387	10.02	498052	11.58
OP32979-MB	117546	3.35	425625	4.39	273701	5.90	462473	7.19	504985	10.01	455681	11.58
OP32979-MB	117546	3.35	426499	4.39	273785	5.90	470075	7.19	507101	10.01	457282	11.58
OP32964-MB	117546	3.35	426499	4.39	273785	5.90	470075	7.19	507101	10.01	457282	11.58
OP32979-BS	117862	3.35	431047	4.39	272518	5.90	457833	7.19	508816	10.02	436042	11.58
OP32964-BS	117862	3.35	431047	4.39	272518	5.90	457833	7.19	508816	10.02	436042	11.58
OP32964-MS	105725	3.35	392800	4.39	249734	5.90	432255	7.19	487722	10.01	492503	11.58
OP32964-MSD	105185	3.35	393916	4.39	247027	5.90	428821	7.19	468945	10.02	481250	11.58
JB35277-22	101725	3.35	378828	4.39	245419	5.90	438817	7.19	495509	10.02	493228	11.58
OP32947-MB	106966	3.35	383165	4.39	238197	5.90	406699	7.19	433427	10.01	426393	11.58
OP32947-BS	115710	3.35	423600	4.39	260551	5.90	445293	7.19	501120	10.02	451705	11.58
OP32947-MS	104118	3.35	382548	4.39	244999	5.90	418415	7.19	494513	10.02	479317	11.58
OP32947-MSD	105332	3.35	386338	4.39	245393	5.90	421787	7.19	484286	10.02	470867	11.58
MC20335-1	104409	3.35	374064	4.39	238748	5.90	407141	7.19	462766	10.02	458932	11.58
ZZZZZZ	109740	3.35	397767	4.39	251654	5.90	426990	7.19	451115	10.02	431619	11.58
ZZZZZZ	117700	3.35	420853	4.39	270396	5.90	462609	7.19	493859	10.02	452014	11.58
ZZZZZZ	117997	3.35	427560	4.39	277145	5.90	465568	7.19	478675	10.01	444553	11.58
ZZZZZZ	121206	3.35	434426	4.39	272583	5.90	462756	7.19	476549	10.02	438730	11.58
ZZZZZZ	120673	3.35	438135	4.39	266468	5.90	452487	7.19	473741	10.01	437333	11.58

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.

Semivolatile Internal Standard Area Summary

Job Number: JB35319
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	MSW552-CC505	**Injection Date:**	05/07/13
Lab File ID:	W11945.D	**Injection Time:**	14:58
Instrument ID:	GCMSW	**Method:**	SW846 8270C

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Check Std	96477	3.34	358857	4.38	228997	5.89	410577	7.18	506600	10.01	454038	11.57
Upper Limit [a]	192954	3.84	717714	4.88	457994	6.39	821154	7.68	1013200	10.51	908076	12.07
Lower Limit [b]	48239	2.84	179429	3.88	114499	5.39	205289	6.68	253300	9.51	227019	11.07

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
OP32974-MB	89567	3.34	328294	4.38	210315	5.88	380492	7.17	444530	10.00	421793	11.56
OP32974-BS	95981	3.34	353864	4.38	224938	5.88	397858	7.17	482929	10.00	446619	11.56
OP32974-MS	93813	3.33	344042	4.37	224511	5.88	392421	7.18	468544	10.00	433267	11.57
OP32974-MSD	92286	3.34	339477	4.38	218794	5.88	377420	7.18	456601	10.00	423719	11.57
MC20500-11	91386	3.34	330637	4.37	207229	5.88	378549	7.17	430793	10.00	416012	11.56
ZZZZZZ	99213	3.34	361046	4.38	229074	5.88	416038	7.17	471129	10.00	464978	11.56
ZZZZZZ	111629	3.34	410919	4.37	265328	5.88	477755	7.18	481788	10.00	439050	11.56
ZZZZZZ	141061	3.35	409243	4.40	234633	5.94	334655	7.24	540325	10.02	495248	11.57
ZZZZZZ	124709	3.34	470535	4.38	324107	5.90	561728	7.19	538135	10.00	476172	11.56
ZZZZZZ	118325	3.34	432059	4.38	273600	5.88	474023	7.17	500450	10.00	462209	11.57
ZZZZZZ	113272	3.34	417035	4.37	262486	5.88	449383	7.17	485261	10.00	455237	11.57
ZZZZZZ	110132	3.34	402580	4.38	253089	5.88	444081	7.17	472748	10.00	441924	11.56
JB35319-1	112476	3.34	414807	4.38	264702	5.88	454823	7.17	484208	10.00	443003	11.57
JB35319-2	144150	3.35	427571	4.40	250415	5.94	296300	7.23	489719	10.02	452237	11.57
ZZZZZZ	94245	3.34	344830	4.38	228539	5.89	402051	7.17	459976	10.00	446309	11.57
ZZZZZZ	97163	3.33	352845	4.37	237034	5.88	422444	7.17	479171	10.00	465622	11.57
ZZZZZZ	96140	3.34	352762	4.37	227154	5.88	398217	7.17	454428	10.00	438109	11.57
ZZZZZZ	91926	3.34	337508	4.38	216623	5.88	401507	7.17	463435	10.00	442683	11.57
ZZZZZZ	112246	3.34	412452	4.38	260789	5.89	460755	7.17	492727	10.00	450882	11.57
ZZZZZZ	109897	3.34	395931	4.37	244767	5.88	430886	7.17	449355	10.00	419159	11.57

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.

Semivolatile Surrogate Recovery Summary

Job Number: JB35319
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Method: SW846 8270C **Matrix:** SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
JB35319-1	W11968.D	76.0	82.0	99.0
JB35319-2	W11969.D	91.0	75.0	110.0
JB35319-2	F63826.D	81.0	73.0	65.0
OP32964-BS	W11897.D	81.0	88.0	96.0
OP32964-MB	W11896A.D	86.0	93.0	115.0
OP32964-MS	W11898.D	35.0	47.0	57.0
OP32964-MSD	W11899.D	47.0	66.0	83.0

Surrogate Compounds	Recovery Limits
S1 = Nitrobenzene-d5	30-130%
S2 = 2-Fluorobiphenyl	30-130%
S3 = Terphenyl-d14	30-130%

Initial Calibration Summary

Job Number: JB35319 **Sample:** MSF2937-ICC2937
Account: ALNJ Accutest New Jersey **Lab FileID:** F62772.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Response Factor Report MSF

```
Method       : C:\msdchem\1\MET...\F130408_8270+.m (RTE Integrator)
Title        : SW-864 Method 8270
Last Update  : Wed Apr 10 10:06:30 2013
Response via : Initial Calibration

Calibration Files
120 =f62779.D    80  =f62772.D    20  =f62777.D    5   =f62775.D
2   =f62774.D    10  =f62776.D    50  =f62778.D    1   =f62773.D
    =                =
```

Compound	120	80	20	5	2	10	50	1	Avg	%RSD
1) I 1,4-Dichlorobenzene-d	----------ISTD----------									
2) N-nitrosodimethylamine	0.787	0.802	0.791	0.688		0.724	0.793		0.764	6.11
3) Pyridine	1.491	1.488	1.460	1.275	1.637	1.431	1.484		1.467	7.28
4) Methyl Methanesulfonate	0.692	0.685	0.655	0.636	0.566	0.648	0.694		0.654	6.87
5) Ethyl Methanesulfonate	0.945	0.943	0.933	0.872	0.984	0.888	0.925		0.927	4.03
6) Aniline	0.833	0.823	0.867	0.800	0.785	0.856	0.870		0.833	3.96
7) 2-Fluorophenol	1.213	1.242	1.177	1.111	0.982	1.128	1.244		1.157	8.05
8) bis(2-Chloroethyl)ether	0.850	0.862	0.854	0.805	0.928	0.838	0.873		0.858	4.36
9) Phenol-d5	1.528	1.561	1.501	1.390	1.323	1.487	1.529		1.474	5.82
10) Phenol	1.724	1.730	1.692	1.559	1.485	1.582	1.704	1.529	1.626	6.00
11) 2-Chlorophenol	1.308	1.329	1.296	1.218	1.170	1.257	1.316		1.271	4.62
12) 1,3-Dichlorobenzene	1.453	1.460	1.464	1.496	1.460	1.478	1.470	1.437	1.465	1.18
13) 1,4-Dichlorobenzene	1.585	1.594	1.592	1.584	1.594	1.573	1.547	1.519	1.574	1.72
14) 1,2-Dichlorobenzene	1.408	1.432	1.416	1.433	1.306	1.383	1.455	1.281	1.389	4.54
15) Benzyl alcohol	0.628	0.615	0.539	0.445		0.446	0.552		0.538	14.73
16) bis(2-chloroisopropyl)ether	1.108	1.142	1.147	1.090	1.148	1.124	1.133		1.127	1.93
17) o-cresol	1.242	1.287	1.313	1.186	1.111	1.186	1.284		1.230	5.87
18) Acetophenone	1.841	1.886	1.853	1.793	1.707	1.812	1.859		1.822	3.26
19) Hexachloroethane	0.547	0.553	0.533	0.548	0.577	0.537	0.550		0.549	2.61
20) N-Nitroso-di-n-propylamine	0.925	0.952	0.944	0.914	0.822	0.905	0.954		0.917	5.00
21) m+p-cresols	1.254	1.291	1.244	1.232	1.158	1.302	1.261		1.249	3.78
22) 4-methylphenol	1.254	1.291	1.244	1.232	1.158	1.302	1.261		1.249	3.78
23) Benzaldehyde										

```
            3.966 4.093 4.000 3.950       3.962 4.013 3.832         3.974    1.98

24) I   Naphthalene-d8        ----------------ISTD--------------------
25)  Nitrobenzene-d5
            0.390 0.393 0.379 0.335 0.290 0.372 0.384 0.313         0.357   10.95
26)  Nitrobenzene
            0.383 0.395 0.381 0.370 0.368 0.381 0.385               0.380    2.36
27)  Isophorone
            0.608 0.612 0.600 0.557 0.528 0.566 0.602               0.582    5.48
28)  2-Nitrophenol
            0.207 0.206 0.189 0.167       0.176 0.196               0.190    8.47
29)  2,4-Dimethylphenol
            0.379 0.388 0.377 0.366       0.360 0.378               0.375    2.68
30)  bis(2-Chloroethoxy)methane
            0.391 0.394 0.382 0.354       0.357 0.394               0.379    4.84
31)  Benzoic acid
            0.207 0.202 0.106 0.045       0.067 0.172               0.133   52.58
          ----- Quadratic regression -----                Coefficient =  0.9977
               Response Ratio = -0.03083 + 0.19101 *A + 0.00947 *A^2

32)  2,4-Dichlorophenol
            0.316 0.318 0.292 0.263       0.292 0.315               0.299    7.14
33)  1,2,4-Trichlorobenzene
            0.362 0.365 0.363 0.346 0.328 0.347 0.351               0.352    3.77
34)  Naphthalene
            1.014 1.021 0.999 0.988 0.976 0.983 1.004 0.999         0.998    1.53
35)  2,6-Dichlorophenol
            0.318 0.318 0.313 0.298       0.295 0.313               0.309    3.32
36)  4-Chloroaniline
            0.450 0.446 0.442 0.391       0.409 0.453               0.432    5.93
37)  Hexachlorobutadiene
            0.236 0.234 0.229 0.219 0.220 0.226 0.236               0.228    3.20
38)  4-Chloro-3-methylphenol
            0.333 0.324 0.315 0.292       0.304 0.323               0.315    4.74
39)  2-Methylnaphthalene
            0.720 0.717 0.706 0.680 0.671 0.697 0.695 0.640         0.691    3.85
40)  1-Methylnaphthalene
            0.675 0.671 0.690 0.653 0.663 0.655 0.674 0.644         0.666    2.24
41)  1,2,4,5-Tetrachlorobenzene
            0.428 0.429 0.427 0.410 0.386 0.409 0.417               0.415    3.69
42)  Caprolactam
            0.124 0.126 0.116 0.101       0.105 0.119               0.115    8.55

43) I   Acenaphthene-d10      ----------------ISTD--------------------
44)  Pentachloronitrobenzene
            0.182 0.180 0.175 0.151       0.167 0.181               0.173    6.93
45)  Hexachlorocyclopentadiene
            0.335 0.315 0.253 0.180       0.214 0.299               0.266   22.92
             ----- Linear regression -----  Coefficient =  0.9984
               Response Ratio = -0.07412 + 0.34179 *A

46)  2,4,6-Trichlorophenol
            0.408 0.395 0.378 0.338       0.367 0.399               0.381    6.77
47)  2,4,5-Trichlorophenol
            0.447 0.437 0.435 0.352       0.398 0.442               0.418    8.81
48)  2-Fluorobiphenyl
            1.385 1.332 1.365 1.349 1.205 1.355 1.350 1.294         1.329    4.27
49)  2-Chloronaphthalene
            1.082 1.072 1.061 1.026 1.014 1.063 1.082 0.945         1.043    4.49
50)  Acenaphthylene
```

Initial Calibration Summary

Job Number: JB35319 **Sample:** MSF2937-ICC2937
Account: ALNJ Accutest New Jersey **Lab FileID:** F62772.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
            1.796 1.769 1.754 1.717 1.615 1.743 1.788 1.656         1.730    3.71
51)  Dimethylphthalate
            1.316 1.297 1.312 1.273 1.268 1.284 1.289 1.263         1.288    1.54
52)  2,4-Dinitrotoluene
            0.308 0.301 0.285 0.245       0.278 0.301               0.287    8.08
53)  Acenaphthene
            1.132 1.098 1.117 1.087 1.035 1.114 1.118 1.114         1.102    2.74
54)  2,4-Dinitrophenol
            0.178 0.147 0.074 0.173       0.035 0.129               0.122   46.73
          ----- Quadratic regression -----                Coefficient =  0.9976
              Response Ratio = -0.00475 + 0.08858 *A + 0.03048 *A^2

55)  Dibenzofuran
            1.648 1.650 1.693 1.580 1.518 1.653 1.650 1.559         1.619    3.68
56)  2,6-Dinitrotoluene
            0.413 0.401 0.376 0.336       0.358 0.403               0.381    7.86
57)  4-Nitrophenol
            0.218 0.213 0.178             0.158 0.224               0.198   14.55
58)  2,3,4,6-Tetrachlorophenol
            0.386 0.374 0.341 0.291       0.313 0.360               0.344   10.71
59)  Fluorene
            1.299 1.301 1.279 1.262 1.196 1.303 1.293 1.166         1.262    4.17
60)  4-Chlorophenyl-phenylether
            0.724 0.715 0.708 0.664 0.695 0.703 0.714               0.703    2.78
61)  Diethylphthalate
            1.220 1.191 1.171 1.131 1.089 1.157 1.192 1.157         1.164    3.48
62)  2-nitroaniline
            0.382 0.365 0.337             0.323 0.361               0.354    6.57
63)  3-nitroaniline
            0.318 0.311 0.286 0.263       0.275 0.314               0.295    7.82
64)  4-nitroaniline
            0.321 0.319 0.291 0.257       0.265 0.317               0.295    9.71
65)  1,1'-Biphenyl
            1.370 1.339 1.335 1.305 1.206 1.331 1.361 1.187         1.304    5.33

66) I   Phenanthrene-d10      ----------------ISTD---------------------
67)  4,6-Dinitro-2-methylphenol
            0.150 0.137 0.098 0.044       0.063 0.130               0.104   41.52
             ----- Linear regression -----  Coefficient =  0.9974
              Response Ratio = -0.02441 + 0.15503 *A

68)  n-Nitrosodiphenylamine
            0.525 0.520 0.483 0.480 0.467 0.497 0.511               0.498    4.41
69)  1,2-Diphenylhydrazine
            0.652 0.636 0.596 0.590 0.558 0.609 0.644               0.612    5.50
70)  2,4,6-Tribromophenol
            0.125 0.122 0.110 0.086       0.107 0.117               0.111   12.73
71)  4-Bromophenyl-phenylether
            0.249 0.246 0.233 0.222 0.205 0.233 0.247               0.233    6.78
72)  Hexachlorobenzene
            0.271 0.266 0.254 0.249 0.252 0.259 0.265               0.259    3.15
73)  Pentachlorophenol
            0.123 0.114 0.082 0.046       0.067 0.106               0.090   33.27#
             ----- Linear regression -----  Coefficient =  0.9975
              Response Ratio = -0.01798 + 0.12678 *A

74)  Phenanthrene
            1.053 1.054 1.014 1.004 0.981 1.025 1.046 1.056         1.029    2.70
75)  Anthracene
            1.112 1.108 1.062 1.051 0.993 1.062 1.097 0.997         1.060    4.35
```

9.7.1

9

Initial Calibration Summary

Job Number: JB35319 **Sample:** MSF2937-ICC2937
Account: ALNJ Accutest New Jersey **Lab FileID:** F62772.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
76)  Carbazole
           0.965 0.970 0.934 0.903 0.891 0.933 0.969 0.859         0.928    4.39
77)  Di-n-butylphthalate
           1.133 1.119 1.053 0.987 0.924 1.000 1.128               1.049    7.78
78)  Fluoranthene
           1.256 1.261 1.211 1.177 1.096 1.200 1.257 1.069         1.191    6.19
79)  Atrazine
           0.211 0.208 0.199 0.187 0.180 0.196 0.212               0.199    6.19

80) I   Chrysene-d12          ----------------ISTD---------------------
81)  Benzidine
           0.345 0.523 0.442 0.384       0.451 0.425               0.428   14.26
82)  Pyrene
           1.164 1.165 1.157 1.127 1.079 1.137 1.180 1.134         1.143    2.75
83)  Terphenyl-d14
           0.903 0.919 0.886 0.830 0.846 0.872 0.914 0.814         0.873    4.53
84)  3,3-Dimethylbenzidine
                 0.520 0.452 0.496       0.519 0.389               0.475   11.70
85)  Butylbenzylphthalate
           0.409 0.405 0.388 0.329       0.364 0.397               0.382    8.04
86)  3,3'-Dichlorobenzidine
           0.391 0.419 0.380 0.351       0.371 0.404               0.386    6.25
87)  Benzo[a]anthracene
           1.039 1.034 1.020 0.971 0.977 1.003 1.044 1.006         1.012    2.72
88)  Chrysene
           1.023 1.031 1.030 0.982 1.004 1.019 1.033 0.972         1.012    2.31
89)  bis(2-Ethylhexyl)phthalate
           0.574 0.569 0.528 0.468       0.487 0.559               0.531    8.40

90) I   Perylene-d12          ----------------ISTD---------------------
91)  Di-n-octylphthalate
           1.023 1.015 0.897 0.781       0.837 0.980               0.922   10.85
92)  Benzo[b]fluoranthene
           1.280 1.280 1.271 1.074 1.106 1.212 1.255 1.110         1.199    7.32
93)  Benzo[k]fluoranthene
           1.108 1.092 1.035 1.156 1.049 1.068 1.098 1.096         1.088    3.45
94)  Benzo[a]pyrene
           1.139 1.136 1.117 1.036 1.025 1.068 1.134 0.999         1.082    5.26
95)  Indeno[1,2,3-cd]pyrene
           1.366 1.333 1.307 1.218 1.277 1.275 1.300 1.218         1.287    4.02
96)  Dibenz[a,h]anthracene
           1.139 1.112 1.058 1.030 1.050 1.059 1.074 1.076         1.075    3.27
97)  Benzo[g,h,i]perylene
           1.095 1.073 1.051 1.014 1.069 1.057 1.036 1.029         1.053    2.50
-------------------------------------------------------------------------------
(#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          F130408_8270+.m        Wed Apr 10 10:07:34 2013   R1
```

9.7.1

9

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSF2937-ICV2937
Account: ALNJ Accutest New Jersey **Lab FileID:** F62780.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\F130408\f62780.D          Vial: 8
Acq On    :  8 Apr 2013  12:42 pm                   Operator: KRISTINR
Sample    : ICV2937-20                              Inst    : MSF
Misc      : op32443,msf2937,1000,,,1,1              Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\MET...\F130408_8270+.m (RTE Integrator)
Title        : SW-864 Method 8270
Last Update  : Mon Apr 08 13:02:18 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	102	0.00	4.16
2		N-nitrosodimethylamine	0.764	0.834	-9.2	108	0.00	2.37
3	T	Pyridine	1.467	1.596	-8.8	112	0.00	2.39
4	T	Methyl Methanesulfonate		----------NA----------				
5	T	Ethyl Methanesulfonate		----------NA----------				
6	T	Aniline		----------NA----------				
7	S	2-Fluorophenol		----------NA----------				
8	T	bis(2-Chloroethyl)ether	0.858	0.905	-5.5	108	0.00	3.97
9	S	Phenol-d5		----------NA----------				
10	C	Phenol		----------NA----------				
11	M	2-Chlorophenol		----------NA----------				
12	T	1,3-Dichlorobenzene	1.465	1.587	-8.3	111	0.00	4.13
13	C	1,4-Dichlorobenzene	1.574	1.693	-7.6	109	0.00	4.17
14	T	1,2-Dichlorobenzene	1.389	1.540	-10.9	111	0.00	4.31
15	T	Benzyl alcohol	0.538	0.610	-13.4	116	0.00	4.26
16	T	bis(2-chloroisopropyl)eth	1.127	1.421	-26.1#	126	0.00	4.38
17	T	o-cresol		----------NA----------				
18	T	Acetophenone	1.822	1.992	-9.3	106	0.00	4.48
19	T	Hexachloroethane	0.549	0.584	-6.4	112	0.00	4.55
20	P	N-Nitroso-di-n-propylamin	0.917	1.002	-9.3	108	0.00	4.48
21	T	m+p-cresols		----------NA----------				
22		4-methylphenol		----------NA----------				
23		Benzaldehyde		----------NA----------				
24	I	Naphthalene-d8	1.000	1.000	0.0	103	0.00	5.15
25	S	Nitrobenzene-d5	0.357	0.386	-8.1	105	0.00	4.60
26	T	Nitrobenzene	0.380	0.408	-7.4	110	0.00	4.61
27	T	Isophorone	0.582	0.656	-12.7	112	0.00	4.79
28	C	2-Nitrophenol		----------NA----------				
29	T	2,4-Dimethylphenol		----------NA----------				
30	T	bis(2-Chloroethoxy)methan	0.379	0.402	-6.1	108	0.00	4.95
		----------	True	Calc.	% Drift	----------		
31	T	Benzoic acid		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
32	C	2,4-Dichlorophenol		----------NA----------				
33	M	1,2,4-Trichlorobenzene	0.352	0.387	-9.9	109	0.00	5.12
34	T	Naphthalene	0.998	1.088	-9.0	112	0.00	5.17
35	T	2,6-Dichlorophenol		----------NA----------				
36	T	4-Chloroaniline		----------NA----------				
37	C	Hexachlorobutadiene	0.228	0.260	-14.0	116	0.00	5.30

9.7.2

9

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSF2937-ICV2937
Account: ALNJ Accutest New Jersey **Lab FileID:** F62780.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

38	C	4-Chloro-3-methylphenol		----------NA----------				
39	T	2-Methylnaphthalene	0.691	0.735	-6.4	107	0.00	5.72
40	T	1-Methylnaphthalene	0.666	0.729	-9.5	109	0.00	5.81
41	T	1,2,4,5-Tetrachlorobenzen	0.415	0.442	-6.5	107	0.00	5.89
42		Caprolactam		----------NA----------				
43	I	Acenaphthene-d10	1.000	1.000	0.0	101	0.00	6.60
44	T	Pentachloronitrobenzene	0.173	0.168	2.9	97	0.00	7.91
		----------	True	Calc.	% Drift	----------		
45	P	Hexachlorocyclopentadiene	40.000	39.322	1.7	76	0.00	5.90
		----------	AvgRF	CCRF	% Dev	----------		
46	C	2,4,6-Trichlorophenol		----------NA----------				
47	T	2,4,5-Trichlorophenol		----------NA----------				
48	S	2-Fluorobiphenyl	1.329	1.393	-4.8	103	0.00	6.03
49	T	2-Chloronaphthalene	1.043	1.158	-11.0	110	0.00	6.11
50	M	Acenaphthylene	1.730	1.562	9.7	90	0.00	6.47
51	T	Dimethylphthalate	1.288	1.355	-5.2	105	0.00	6.38
52	T	2,4-Dinitrotoluene	0.287	0.292	-1.7	104	0.00	6.44
53	C	Acenaphthene	1.102	1.226	-11.3	112	0.00	6.62
		----------	True	Calc.	% Drift	----------		
54	P	2,4-Dinitrophenol		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
55	T	Dibenzofuran	1.619	1.676	-3.5	100	0.00	6.76
56	M	2,6-Dinitrotoluene	0.381	0.384	-0.8	104	0.00	6.78
57	P	4-Nitrophenol		----------NA----------				
58	T	2,3,4,6-Tetrachlorophenol		----------NA----------				
59	T	Fluorene	1.262	1.408	-11.6	112	0.00	7.07
60	T	4-Chlorophenyl-phenylethe	0.703	0.769	-9.4	110	0.00	7.05
61	T	Diethylphthalate	1.164	1.255	-7.8	109	0.00	6.99
62	T	2-nitroaniline	0.354	0.365	-3.1	110	0.00	6.22
63	T	3-nitroaniline	0.295	0.264	10.5	94	0.00	6.57
64	T	4-nitroaniline	0.295	0.294	0.3	103	0.00	7.11
65		1,1'-Biphenyl	1.304	1.501	-15.1	114	0.00	6.10
66	I	Phenanthrene-d10	1.000	1.000	0.0	99	0.00	7.96
		----------	True	Calc.	% Drift	----------		
67	T	4,6-Dinitro-2-methylpheno		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
68	C	n-Nitrosodiphenylamine	0.498	0.494	0.8	101	0.00	7.17
69	T	1,2-Diphenylhydrazine	0.612	0.653	-6.7	108	0.00	7.20
70	S	2,4,6-Tribromophenol		----------NA----------				
71	T	4-Bromophenyl-phenylether	0.233	0.241	-3.4	102	0.00	7.51
72	T	Hexachlorobenzene	0.259	0.290	-12.0	112	0.00	7.67
		----------	True	Calc.	% Drift	----------		
73	C	Pentachlorophenol		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
74	T	Phenanthrene	1.029	1.108	-7.8	108	0.00	7.98
75	T	Anthracene	1.060	1.114	-5.1	104	0.00	8.03
76	T	Carbazole	0.928	0.986	-6.3	104	0.00	8.19
77	T	Di-n-butylphthalate	1.049	1.076	-2.6	101	0.00	8.60
78	C	Fluoranthene	1.191	1.332	-11.8	108	0.00	9.25
79		Atrazine		----------NA----------				

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSF2937-ICV2937
Account: ALNJ Accutest New Jersey **Lab FileID:** F62780.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

80	I	Chrysene-d12	1.000	1.000	0.0	99	0.00	10.74
81	T	Benzidine		----------NA----------				
82	M	Pyrene	1.143	1.232	-7.8	106	0.00	9.49
83	S	Terphenyl-d14	0.873	0.908	-4.0	102	0.00	9.66
84		3,3-Dimethylbenzidine		----------NA----------				
85	T	Butylbenzylphthalate	0.382	0.399	-4.5	102	0.00	10.20
86	T	3,3'-Dichlorobenzidine		----------NA----------				
87	T	Benzo[a]anthracene	1.012	1.132	-11.9	110	0.00	10.72
88	T	Chrysene	1.012	1.072	-6.0	104	0.00	10.76
89	T	bis(2-Ethylhexyl)phthalat	0.531	0.548	-3.2	103	0.00	10.82
90	I	Perylene-d12	1.000	1.000	0.0	97	0.00	12.22
91	C	Di-n-octylphthalate	0.922	1.051	-14.0	114	0.00	11.46
92	T	Benzo[b]fluoranthene	1.199	1.282	-7.0	98	0.00	11.84
93	T	Benzo[k]fluoranthene	1.088	1.232	-13.2	116	0.00	11.87
94	C	Benzo[a]pyrene	1.082	1.026	5.1	90	0.00	12.16
95	T	Indeno[1,2,3-cd]pyrene	1.287	1.372	-6.6	102	0.00	13.30
96	T	Dibenz[a,h]anthracene	1.075	1.160	-8.0	106	0.00	13.32
97	T	Benzo[g,h,i]perylene	1.053	1.184	-12.4	110	0.00	13.60

(47.5 %) 29 of 61 compounds'%D > 20

(#) = Out of Range SPCC's out = 1 CCC's out = 10
f62777.D F130408_8270+.m Mon Apr 08 13:07:10 2013 R1

9.7.2

9

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSF2937-ICV2937
Account: ALNJ Accutest New Jersey **Lab FileID:** F62781.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\F130408\f62781.D          Vial: 9
Acq On    :  8 Apr 2013   1:07 pm                   Operator: KRISTINR
Sample    : ICV2937-50                              Inst    : MSF
Misc      : op32443,msf2937,1000,,,1,1              Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\MET...\F130408_8270+.m (RTE Integrator)
Title        : SW-864 Method 8270
Last Update  : Mon Apr 08 13:02:18 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	159	0.00	4.16
2		N-nitrosodimethylamine		----------NA----------				
3	T	Pyridine		----------NA----------				
4	T	Methyl Methanesulfonate		----------NA----------				
5	T	Ethyl Methanesulfonate		----------NA----------				
6	T	Aniline		----------NA----------				
7	S	2-Fluorophenol	1.157	1.249	-8.0	160	0.00	3.27
8	T	bis(2-Chloroethyl)ether		----------NA----------				
9	S	Phenol-d5	1.474	1.519	-3.1	158	0.00	3.91
10	C	Phenol	1.626	1.666	-2.5	156	0.00	3.92
11	M	2-Chlorophenol	1.271	1.364	-7.3	165	0.00	4.03
12	T	1,3-Dichlorobenzene		----------NA----------				
13	C	1,4-Dichlorobenzene		----------NA----------				
14	T	1,2-Dichlorobenzene		----------NA----------				
15	T	Benzyl alcohol		----------NA----------				
16	T	bis(2-chloroisopropyl)eth		----------NA----------				
17	T	o-cresol	1.230	1.219	0.9	151	0.00	4.36
18	T	Acetophenone		----------NA----------				
19	T	Hexachloroethane		----------NA----------				
20	P	N-Nitroso-di-n-propylamin		----------NA----------				
21	T	m+p-cresols	1.249	1.311	-5.0	165	0.00	4.47
22		4-methylphenol	1.249	1.311	-5.0	165	0.00	4.47
23		Benzaldehyde		----------NA----------				
24	I	Naphthalene-d8	1.000	1.000	0.0	161	0.00	5.15
25	S	Nitrobenzene-d5		----------NA----------				
26	T	Nitrobenzene		----------NA----------				
27	T	Isophorone		----------NA----------				
28	C	2-Nitrophenol	0.190	0.207	-8.9	170	0.00	4.86
29	T	2,4-Dimethylphenol	0.375	0.313	16.5	133	0.00	4.88
30	T	bis(2-Chloroethoxy)methan		----------NA----------				
		----------	True	Calc.	% Drift	----------		
31	T	Benzoic acid	50.000	42.771	14.5	138	0.00	4.95
		----------	AvgRF	CCRF	% Dev	----------		
32	C	2,4-Dichlorophenol		----------NA----------				
33	M	1,2,4-Trichlorobenzene		----------NA----------				
34	T	Naphthalene		----------NA----------				
35	T	2,6-Dichlorophenol	0.309	0.317	-2.6	163	0.00	5.23
36	T	4-Chloroaniline		----------NA----------				
37	C	Hexachlorobutadiene		----------NA----------				

9.7.3

9

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSF2937-ICV2937
Account: ALNJ Accutest New Jersey **Lab FileID:** F62781.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

38	C	4-Chloro-3-methylphenol	0.315	0.339	-7.6	169	0.00	5.60
39	T	2-Methylnaphthalene		----------NA----------				
40	T	1-Methylnaphthalene		----------NA----------				
41	T	1,2,4,5-Tetrachlorobenzen		----------NA----------				
42		Caprolactam		----------NA----------				
43	I	Acenaphthene-d10	1.000	1.000	0.0	155	0.00	6.60
44	T	Pentachloronitrobenzene		----------NA----------				
		----------	True	Calc.	% Drift	----------		
45	P	Hexachlorocyclopentadiene		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
46	C	2,4,6-Trichlorophenol	0.381	0.432	-13.4	168	0.00	5.97
47	T	2,4,5-Trichlorophenol	0.418	0.488	-16.7	171	0.00	6.00
48	S	2-Fluorobiphenyl		----------NA----------				
49	T	2-Chloronaphthalene		----------NA----------				
50	M	Acenaphthylene		----------NA----------				
51	T	Dimethylphthalate		----------NA----------				
52	T	2,4-Dinitrotoluene		----------NA----------				
53	C	Acenaphthene		----------NA----------				
		----------	True	Calc.	% Drift	----------		
54	P	2,4-Dinitrophenol	50.000	54.450	-8.9	166	0.00	6.66
		----------	AvgRF	CCRF	% Dev	----------		
55	T	Dibenzofuran		----------NA----------				
56	M	2,6-Dinitrotoluene		----------NA----------				
57	P	4-Nitrophenol	0.198	0.230	-16.2	159	0.00	6.71
58	T	2,3,4,6-Tetrachlorophenol	0.344	0.398	-15.7	171	0.00	6.91
59	T	Fluorene		----------NA----------				
60	T	4-Chlorophenyl-phenylethe		----------NA----------				
61	T	Diethylphthalate		----------NA----------				
62	T	2-nitroaniline		----------NA----------				
63	T	3-nitroaniline		----------NA----------				
64	T	4-nitroaniline		----------NA----------				
65		1,1'-Biphenyl		----------NA----------				
66	I	Phenanthrene-d10	1.000	1.000	0.0	159	0.00	7.96
		----------	True	Calc.	% Drift	----------		
67	T	4,6-Dinitro-2-methylpheno	50.000	49.978	0.0	166	0.00	7.15
		----------	AvgRF	CCRF	% Dev	----------		
68	C	n-Nitrosodiphenylamine		----------NA----------				
69	T	1,2-Diphenylhydrazine		----------NA----------				
70	S	2,4,6-Tribromophenol	0.111	0.122	-9.9	166	0.00	7.31
71	T	4-Bromophenyl-phenylether		----------NA----------				
72	T	Hexachlorobenzene		----------NA----------				
		----------	True	Calc.	% Drift	----------		
73	C	Pentachlorophenol	50.000	58.880	-17.8	190	0.00	7.84
		----------	AvgRF	CCRF	% Dev	----------		
74	T	Phenanthrene		----------NA----------				
75	T	Anthracene		----------NA----------				
76	T	Carbazole		----------NA----------				
77	T	Di-n-butylphthalate		----------NA----------				
78	C	Fluoranthene		----------NA----------				
79		Atrazine		----------NA----------				

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSF2937-ICV2937
Account: ALNJ Accutest New Jersey **Lab FileID:** F62781.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

80	I	Chrysene-d12	1.000	1.000	0.0	156	0.00	10.74
81	T	Benzidine	----------NA----------					
82	M	Pyrene	----------NA----------					
83	S	Terphenyl-d14	----------NA----------					
84		3,3-Dimethylbenzidine	----------NA----------					
85	T	Butylbenzylphthalate	----------NA----------					
86	T	3,3'-Dichlorobenzidine	----------NA----------					
87	T	Benzo[a]anthracene	----------NA----------					
88	T	Chrysene	----------NA----------					
89	T	bis(2-Ethylhexyl)phthalat	----------NA----------					
90	I	Perylene-d12	1.000	1.000	0.0	157	0.00	12.22
91	C	Di-n-octylphthalate	----------NA----------					
92	T	Benzo[b]fluoranthene	----------NA----------					
93	T	Benzo[k]fluoranthene	----------NA----------					
94	C	Benzo[a]pyrene	----------NA----------					
95	T	Indeno[1,2,3-cd]pyrene	----------NA----------					
96	T	Dibenz[a,h]anthracene	----------NA----------					
97	T	Benzo[g,h,i]perylene	----------NA----------					

(0.0 %) 0 of 20 compounds'%D > 20

(#) = Out of Range SPCC's out = 1 CCC's out = 8
f62778.D F130408_8270+.m Tue Apr 09 10:19:42 2013 R1

9.7.3

9

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSF2937-ICV2937
Account: ALNJ Accutest New Jersey **Lab FileID:** F62782.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\F130408\f62782.D          Vial: 10
Acq On    :  8 Apr 2013   1:32 pm                   Operator: KRISTINR
Sample    : ICV2937-20                              Inst    : MSF
Misc      : op32443,msf2937,1000,,,1,1              Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\MET...\F130408_8270+.m (RTE Integrator)
Title        : SW-864 Method 8270
Last Update  : Mon Apr 08 13:02:18 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	86	0.00	4.16
2		N-nitrosodimethylamine		----------NA----------				
3	T	Pyridine		----------NA----------				
4	T	Methyl Methanesulfonate		----------NA----------				
5	T	Ethyl Methanesulfonate		----------NA----------				
6	T	Aniline	0.833	0.740	11.2	73	0.00	3.94
7	S	2-Fluorophenol		----------NA----------				
8	T	bis(2-Chloroethyl)ether		----------NA----------				
9	S	Phenol-d5		----------NA----------				
10	C	Phenol		----------NA----------				
11	M	2-Chlorophenol		----------NA----------				
12	T	1,3-Dichlorobenzene		----------NA----------				
13	C	1,4-Dichlorobenzene		----------NA----------				
14	T	1,2-Dichlorobenzene		----------NA----------				
15	T	Benzyl alcohol		----------NA----------				
16	T	bis(2-chloroisopropyl)eth		----------NA----------				
17	T	o-cresol		----------NA----------				
18	T	Acetophenone		----------NA----------				
19	T	Hexachloroethane		----------NA----------				
20	P	N-Nitroso-di-n-propylamin		----------NA----------				
21	T	m+p-cresols		----------NA----------				
22		4-methylphenol		----------NA----------				
23		Benzaldehyde		----------NA----------				
24	I	Naphthalene-d8	1.000	1.000	0.0	86	0.00	5.15
25	S	Nitrobenzene-d5		----------NA----------				
26	T	Nitrobenzene		----------NA----------				
27	T	Isophorone		----------NA----------				
28	C	2-Nitrophenol		----------NA----------				
29	T	2,4-Dimethylphenol		----------NA----------				
30	T	bis(2-Chloroethoxy)methan		----------NA----------				
		----------	True	Calc.	% Drift	----------		
31	T	Benzoic acid		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
32	C	2,4-Dichlorophenol		----------NA----------				
33	M	1,2,4-Trichlorobenzene		----------NA----------				
34	T	Naphthalene		----------NA----------				
35	T	2,6-Dichlorophenol		----------NA----------				
36	T	4-Chloroaniline	0.432	0.401	7.2	78	0.00	5.22
37	C	Hexachlorobutadiene		----------NA----------				

9.7.4

9

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSF2937-ICV2937
Account: ALNJ Accutest New Jersey **Lab FileID:** F62782.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

38	C	4-Chloro-3-methylphenol		----------NA----------				
39	T	2-Methylnaphthalene		----------NA----------				
40	T	1-Methylnaphthalene		----------NA----------				
41	T	1,2,4,5-Tetrachlorobenzen		----------NA----------				
42		Caprolactam		----------NA----------				
43	I	Acenaphthene-d10	1.000	1.000	0.0	84	0.00	6.60
44	T	Pentachloronitrobenzene		----------NA----------				
		----------	True	Calc.	% Drift	----------		
45	P	Hexachlorocyclopentadiene		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
46	C	2,4,6-Trichlorophenol		----------NA----------				
47	T	2,4,5-Trichlorophenol		----------NA----------				
48	S	2-Fluorobiphenyl		----------NA----------				
49	T	2-Chloronaphthalene		----------NA----------				
50	M	Acenaphthylene		----------NA----------				
51	T	Dimethylphthalate		----------NA----------				
52	T	2,4-Dinitrotoluene		----------NA----------				
53	C	Acenaphthene		----------NA----------				
		----------	True	Calc.	% Drift	----------		
54	P	2,4-Dinitrophenol		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
55	T	Dibenzofuran		----------NA----------				
56	M	2,6-Dinitrotoluene		----------NA----------				
57	P	4-Nitrophenol		----------NA----------				
58	T	2,3,4,6-Tetrachlorophenol		----------NA----------				
59	T	Fluorene		----------NA----------				
60	T	4-Chlorophenyl-phenylethe		----------NA----------				
61	T	Diethylphthalate		----------NA----------				
62	T	2-nitroaniline		----------NA----------				
63	T	3-nitroaniline		----------NA----------				
64	T	4-nitroaniline		----------NA----------				
65		1,1'-Biphenyl		----------NA----------				
66	I	Phenanthrene-d10	1.000	1.000	0.0	82	0.00	7.96
		----------	True	Calc.	% Drift	----------		
67	T	4,6-Dinitro-2-methylpheno		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
68	C	n-Nitrosodiphenylamine		----------NA----------				
69	T	1,2-Diphenylhydrazine		----------NA----------				
70	S	2,4,6-Tribromophenol		----------NA----------				
71	T	4-Bromophenyl-phenylether		----------NA----------				
72	T	Hexachlorobenzene		----------NA----------				
		----------	True	Calc.	% Drift	----------		
73	C	Pentachlorophenol		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
74	T	Phenanthrene		----------NA----------				
75	T	Anthracene		----------NA----------				
76	T	Carbazole		----------NA----------				
77	T	Di-n-butylphthalate		----------NA----------				
78	C	Fluoranthene		----------NA----------				
79		Atrazine		----------NA----------				

9.7.4

9

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSF2937-ICV2937
Account: ALNJ Accutest New Jersey **Lab FileID:** F62782.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

80	I	Chrysene-d12	1.000	1.000	0.0	85	0.00	10.74
81	T	Benzidine	0.428	0.583	-36.2#	112	0.00	9.39
82	M	Pyrene		----------NA----------				
83	S	Terphenyl-d14		----------NA----------				
84		3,3-Dimethylbenzidine		----------NA----------				
85	T	Butylbenzylphthalate		----------NA----------				
86	T	3,3'-Dichlorobenzidine	0.386	0.373	3.4	84	0.00	10.71
87	T	Benzo[a]anthracene		----------NA----------				
88	T	Chrysene		----------NA----------				
89	T	bis(2-Ethylhexyl)phthalat		----------NA----------				
90	I	Perylene-d12	1.000	1.000	0.0	88	0.00	12.22
91	C	Di-n-octylphthalate		----------NA----------				
92	T	Benzo[b]fluoranthene		----------NA----------				
93	T	Benzo[k]fluoranthene		----------NA----------				
94	C	Benzo[a]pyrene		----------NA----------				
95	T	Indeno[1,2,3-cd]pyrene		----------NA----------				
96	T	Dibenz[a,h]anthracene		----------NA----------				
97	T	Benzo[g,h,i]perylene		----------NA----------				

(25.0 %) 1 of 4 compounds'%D > 20

(#) = Out of Range SPCC's out = 2 CCC's out = 13
f62777.D F130408_8270+.m Tue Apr 09 10:21:25 2013 R1

9.7.4

9

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSF2937-ICV2937
Account: ALNJ Accutest New Jersey **Lab FileID:** F62783.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\F130408\f62783.D          Vial: 11
Acq On    :  8 Apr 2013   1:57 pm                   Operator: KRISTINR
Sample    : ICV2937-20                              Inst    : MSF
Misc      : op32443,msf2937,1000,,,1,1              Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\MET...\F130408_8270+.m (RTE Integrator)
Title        : SW-864 Method 8270
Last Update  : Mon Apr 08 13:02:18 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	110	0.00	4.16
2		N-nitrosodimethylamine		----------NA----------				
3	T	Pyridine		----------NA----------				
4	T	Methyl Methanesulfonate		----------NA----------				
5	T	Ethyl Methanesulfonate		----------NA----------				
6	T	Aniline		----------NA----------				
7	S	2-Fluorophenol		----------NA----------				
8	T	bis(2-Chloroethyl)ether		----------NA----------				
9	S	Phenol-d5		----------NA----------				
10	C	Phenol		----------NA----------				
11	M	2-Chlorophenol		----------NA----------				
12	T	1,3-Dichlorobenzene		----------NA----------				
13	C	1,4-Dichlorobenzene		----------NA----------				
14	T	1,2-Dichlorobenzene		----------NA----------				
15	T	Benzyl alcohol		----------NA----------				
16	T	bis(2-chloroisopropyl)eth		----------NA----------				
17	T	o-cresol		----------NA----------				
18	T	Acetophenone		----------NA----------				
19	T	Hexachloroethane		----------NA----------				
20	P	N-Nitroso-di-n-propylamin		----------NA----------				
21	T	m+p-cresols		----------NA----------				
22		4-methylphenol		----------NA----------				
23		Benzaldehyde	3.974	2.854	28.2#	79	0.00	4.48
24	I	Naphthalene-d8	1.000	1.000	0.0	110	0.00	5.15
25	S	Nitrobenzene-d5		----------NA----------				
26	T	Nitrobenzene		----------NA----------				
27	T	Isophorone		----------NA----------				
28	C	2-Nitrophenol		----------NA----------				
29	T	2,4-Dimethylphenol		----------NA----------				
30	T	bis(2-Chloroethoxy)methan		----------NA----------				
		----------	True	Calc.	% Drift	----------		
31	T	Benzoic acid		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
32	C	2,4-Dichlorophenol		----------NA----------				
33	M	1,2,4-Trichlorobenzene		----------NA----------				
34	T	Naphthalene		----------NA----------				
35	T	2,6-Dichlorophenol		----------NA----------				
36	T	4-Chloroaniline		----------NA----------				
37	C	Hexachlorobutadiene		----------NA----------				

9.7.5

9

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSF2937-ICV2937
Account: ALNJ Accutest New Jersey **Lab FileID:** F62783.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

38	C	4-Chloro-3-methylphenol		----------NA----------				
39	T	2-Methylnaphthalene		----------NA----------				
40	T	1-Methylnaphthalene		----------NA----------				
41	T	1,2,4,5-Tetrachlorobenzen		----------NA----------				
42		Caprolactam	0.115	0.117	-1.7	111	0.00	5.45
43	I	Acenaphthene-d10	1.000	1.000	0.0	109	0.00	6.60
44	T	Pentachloronitrobenzene		----------NA----------				
		----------	True	Calc.	% Drift	----------		
45	P	Hexachlorocyclopentadiene		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
46	C	2,4,6-Trichlorophenol		----------NA----------				
47	T	2,4,5-Trichlorophenol		----------NA----------				
48	S	2-Fluorobiphenyl		----------NA----------				
49	T	2-Chloronaphthalene		----------NA----------				
50	M	Acenaphthylene		----------NA----------				
51	T	Dimethylphthalate		----------NA----------				
52	T	2,4-Dinitrotoluene		----------NA----------				
53	C	Acenaphthene		----------NA----------				
		----------	True	Calc.	% Drift	----------		
54	P	2,4-Dinitrophenol		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
55	T	Dibenzofuran		----------NA----------				
56	M	2,6-Dinitrotoluene		----------NA----------				
57	P	4-Nitrophenol		----------NA----------				
58	T	2,3,4,6-Tetrachlorophenol		----------NA----------				
59	T	Fluorene		----------NA----------				
60	T	4-Chlorophenyl-phenylethe		----------NA----------				
61	T	Diethylphthalate		----------NA----------				
62	T	2-nitroaniline		----------NA----------				
63	T	3-nitroaniline		----------NA----------				
64	T	4-nitroaniline		----------NA----------				
65		1,1'-Biphenyl	1.304	1.422	-9.0	116	0.00	6.10
66	I	Phenanthrene-d10	1.000	1.000	0.0	109	0.00	7.96
		----------	True	Calc.	% Drift	----------		
67	T	4,6-Dinitro-2-methylpheno		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
68	C	n-Nitrosodiphenylamine		----------NA----------				
69	T	1,2-Diphenylhydrazine		----------NA----------				
70	S	2,4,6-Tribromophenol		----------NA----------				
71	T	4-Bromophenyl-phenylether		----------NA----------				
72	T	Hexachlorobenzene		----------NA----------				
		----------	True	Calc.	% Drift	----------		
73	C	Pentachlorophenol		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
74	T	Phenanthrene		----------NA----------				
75	T	Anthracene		----------NA----------				
76	T	Carbazole		----------NA----------				
77	T	Di-n-butylphthalate		----------NA----------				
78	C	Fluoranthene		----------NA----------				
79		Atrazine	0.199	0.207	-4.0	114	0.00	7.69

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSF2937-ICV2937
Account: ALNJ Accutest New Jersey **Lab FileID:** F62783.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

80	I	Chrysene-d12	1.000	1.000	0.0	112	0.00	10.74
81	T	Benzidine	----------NA----------					
82	M	Pyrene	----------NA----------					
83	S	Terphenyl-d14	----------NA----------					
84		3,3-Dimethylbenzidine	----------NA----------					
85	T	Butylbenzylphthalate	----------NA----------					
86	T	3,3'-Dichlorobenzidine	----------NA----------					
87	T	Benzo[a]anthracene	----------NA----------					
88	T	Chrysene	----------NA----------					
89	T	bis(2-Ethylhexyl)phthalat	----------NA----------					
90	I	Perylene-d12	1.000	1.000	0.0	112	0.00	12.22
91	C	Di-n-octylphthalate	----------NA----------					
92	T	Benzo[b]fluoranthene	----------NA----------					
93	T	Benzo[k]fluoranthene	----------NA----------					
94	C	Benzo[a]pyrene	----------NA----------					
95	T	Indeno[1,2,3-cd]pyrene	----------NA----------					
96	T	Dibenz[a,h]anthracene	----------NA----------					
97	T	Benzo[g,h,i]perylene	----------NA----------					

(25.0 %) 1 of 4 compounds'%D > 20

(#) = Out of Range SPCC's out = 2 CCC's out = 13
f62777.D F130408_8270+.m Tue Apr 09 10:22:41 2013 R1

9.7.5

9

Continuing Calibration Summary

Job Number: JB35319 **Sample:** MSF2976-CC2937
Account: ALNJ Accutest New Jersey **Lab FileID:** F63811A.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : F:\1\DATA\F130509.E.02.01\f63811A.D          Vial: 100
Acq On    :  9 May 2013   8:10 am                   Operator: kristinr
Sample    : cc2937-50                               Inst    : MSF
Misc      : OP32896,MSF2976,,,,1,1                  Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : F:\1\METHODS\F13..._8270+.E.02.01.m (RTE Integrator)
Title        : SW-864 Method 8270
Last Update  : Wed Apr 24 09:23:10 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	111	-0.16	3.89
2		N-nitrosodimethylamine	0.764	0.745	2.5	104	-0.16	2.12
3	T	Pyridine	1.467	1.321	10.0	99	-0.16	2.12
4	T	Methyl Methanesulfonate	0.654	0.734	-12.2	117	-0.15	2.90
5	T	Ethyl Methanesulfonate	0.927	0.997	-7.6	120	-0.15	3.37
6	T	Aniline	0.833	0.628	24.6#	80	-0.15	3.67
7	S	2-Fluorophenol	1.157	1.200	-3.7	107	-0.15	3.02
8	T	bis(2-Chloroethyl)ether	0.858	0.877	-2.2	112	-0.15	3.71
9	S	Phenol-d5	1.474	1.555	-5.5	113	-0.15	3.66
10	C	Phenol	1.626	1.801	-10.8	117	-0.14	3.67
11	M	2-Chlorophenol	1.271	1.313	-3.3	111	-0.15	3.76
12	T	1,3-Dichlorobenzene	1.465	1.500	-2.4	113	-0.16	3.86
13	C	1,4-Dichlorobenzene	1.574	1.584	-0.6	114	-0.16	3.90
14	T	1,2-Dichlorobenzene	1.389	1.462	-5.3	112	-0.16	4.04
15	T	Benzyl alcohol	0.538	0.374	30.5#	75	-0.15	4.01
16	T	bis(2-chloroisopropyl)eth	1.127	1.119	0.7	110	-0.15	4.11
17	T	o-cresol	1.230	1.212	1.5	105	-0.15	4.11
18	T	Acetophenone	1.822	1.943	-6.6	116	-0.16	4.21
19	T	Hexachloroethane	0.549	0.567	-3.3	114	-0.16	4.27
20	P	N-Nitroso-di-n-propylamin	0.917	1.003	-9.4	117	-0.16	4.22
21	T	m+p-cresols	1.249	1.335	-6.9	118	-0.15	4.22
22		4-methylphenol	1.249	1.335	-6.9	118	-0.15	4.22
23		Benzaldehyde	3.974	4.417	-11.1	122	-0.16	4.21
24	I	Naphthalene-d8	1.000	1.000	0.0	111	-0.16	4.87
25	S	Nitrobenzene-d5	0.357	0.403	-12.9	117	-0.15	4.33
26	T	Nitrobenzene	0.380	0.412	-8.4	119	-0.16	4.34
27	T	Isophorone	0.582	0.631	-8.4	117	-0.16	4.52
28	C	2-Nitrophenol	0.190	0.202	-6.3	115	-0.16	4.59
29	T	2,4-Dimethylphenol	0.375	0.386	-2.9	114	-0.15	4.63
30	T	bis(2-Chloroethoxy)methan	0.379	0.391	-3.2	111	-0.15	4.69
		----------	Amount	Calc.	%Drift		----------	
31	T	Benzoic acid	50.000	62.434	-24.9#	151	-0.15	4.72
		----------	AvgRF	CCRF	%Dev		----------	
32	C	2,4-Dichlorophenol	0.299	0.322	-7.7	114	-0.15	4.78
33	M	1,2,4-Trichlorobenzene	0.352	0.366	-4.0	116	-0.16	4.84
34	T	Naphthalene	0.998	1.037	-3.9	115	-0.16	4.89
35	T	2,6-Dichlorophenol	0.309	0.318	-2.9	113	-0.16	4.96
36	T	4-Chloroaniline	0.432	0.439	-1.6	108	-0.15	4.95
37	C	Hexachlorobutadiene	0.228	0.252	-10.5	119	-0.16	5.03

Continuing Calibration Summary

Job Number: JB35319 **Sample:** MSF2976-CC2937
Account: ALNJ Accutest New Jersey **Lab FileID:** F63811A.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

38	C	4-Chloro-3-methylphenol	0.315	0.343	-8.9	118	-0.15	5.35
39	T	2-Methylnaphthalene	0.691	0.734	-6.2	117	-0.16	5.44
40	T	1-Methylnaphthalene	0.666	0.687	-3.2	114	-0.16	5.53
41	T	1,2,4,5-Tetrachlorobenzen	0.415	0.445	-7.2	119	-0.16	5.61
42		Caprolactam	0.115	0.127	-10.4	119	-0.16	5.21
43	I	Acenaphthene-d10	1.000	1.000	0.0	111	-0.17	6.30
44	T	Pentachloronitrobenzene	0.173	0.202	-16.8	124	-0.19	7.59
		----------	Amount	Calc.	%Drift		----------	
45	P	Hexachlorocyclopentadiene	100.000	60.262	39.7#	66	-0.16	5.62
		----------	AvgRF	CCRF	%Dev		----------	
46	C	2,4,6-Trichlorophenol	0.381	0.411	-7.9	115	-0.16	5.70
47	T	2,4,5-Trichlorophenol	0.418	0.446	-6.7	112	-0.16	5.74
48	S	2-Fluorobiphenyl	1.329	1.405	-5.7	116	-0.16	5.75
49	T	2-Chloronaphthalene	1.043	1.129	-8.2	116	-0.16	5.84
50	M	Acenaphthylene	1.730	1.897	-9.7	118	-0.17	6.18
51	T	Dimethylphthalate	1.288	1.363	-5.8	118	-0.16	6.11
52	T	2,4-Dinitrotoluene	0.287	0.324	-12.9	120	-0.16	6.17
53	C	Acenaphthene	1.102	1.167	-5.9	116	-0.17	6.33
		----------	Amount	Calc.	%Drift		----------	
54	P	2,4-Dinitrophenol	50.000	54.911	-9.8	120	-0.16	6.38
		----------	AvgRF	CCRF	%Dev		----------	
55	T	Dibenzofuran	1.619	1.708	-5.5	115	-0.17	6.46
56	M	2,6-Dinitrotoluene	0.381	0.422	-10.8	116	-0.16	6.51
57	P	4-Nitrophenol	0.198	0.195	1.5	97	-0.15	6.46
58	T	2,3,4,6-Tetrachlorophenol	0.344	0.388	-12.8	120	-0.18	6.61
59	T	Fluorene	1.262	1.377	-9.1	118	-0.18	6.76
60	T	4-Chlorophenyl-phenylethe	0.703	0.758	-7.8	118	-0.18	6.75
61	T	Diethylphthalate	1.164	1.251	-7.5	117	-0.17	6.70
62	T	2-nitroaniline	0.354	0.386	-9.0	119	-0.16	5.95
63	T	3-nitroaniline	0.295	0.320	-8.5	114	-0.16	6.29
64	T	4-nitroaniline	0.295	0.328	-11.2	115	-0.17	6.82
65		1,1'-Biphenyl	1.304	1.428	-9.5	117	-0.16	5.82
66	I	Phenanthrene-d10	1.000	1.000	0.0	115	-0.19	7.63
		----------	Amount	Calc.	%Drift		----------	
67	T	4,6-Dinitro-2-methylpheno	50.000	49.711	0.6	119	-0.18	6.86
		----------	AvgRF	CCRF	%Dev		----------	
68	C	n-Nitrosodiphenylamine	0.498	0.512	-2.8	115	-0.18	6.87
69	T	1,2-Diphenylhydrazine	0.612	0.634	-3.6	113	-0.18	6.89
70	S	2,4,6-Tribromophenol	0.111	0.124	-11.7	121	-0.18	6.99
71	T	4-Bromophenyl-phenylether	0.233	0.249	-6.9	116	-0.18	7.19
72	T	Hexachlorobenzene	0.259	0.272	-5.0	118	-0.19	7.34
		----------	Amount	Calc.	%Drift		----------	
73	C	Pentachlorophenol	50.000	47.885	4.2	116	-0.19	7.52
		----------	AvgRF	CCRF	%Dev		----------	
74	T	Phenanthrene	1.029	1.054	-2.4	116	-0.20	7.65
75	T	Anthracene	1.060	1.105	-4.2	116	-0.20	7.70
76	T	Carbazole	0.928	0.974	-5.0	116	-0.19	7.87
77	T	Di-n-butylphthalate	1.049	1.127	-7.4	115	-0.19	8.27
78	C	Fluoranthene	1.191	1.257	-5.5	115	-0.22	8.90
79		Atrazine	0.199	0.198	0.5	107	-0.18	7.39

Continuing Calibration Summary

Job Number: JB35319 **Sample:** MSF2976-CC2937
Account: ALNJ Accutest New Jersey **Lab FileID:** F63811A.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

80	I	Chrysene-d12	1.000	1.000	0.0	120	-0.20	10.41
81	T	Benzidine	0.428	0.282	34.1#	79	-0.21	9.05
82	M	Pyrene	1.143	1.153	-0.9	117	-0.21	9.14
83	S	Terphenyl-d14	0.873	0.889	-1.8	116	-0.20	9.32
84		3,3-Dimethylbenzidine	0.475	0.266	44.0#	82	-0.19	9.84
85	T	Butylbenzylphthalate	0.382	0.403	-5.5	121	-0.18	9.88
86	T	3,3'-Dichlorobenzidine	0.386	0.420	-8.8	124	-0.19	10.39
87	T	Benzo[a]anthracene	1.012	1.059	-4.6	121	-0.20	10.39
88	T	Chrysene	1.012	1.034	-2.2	120	-0.20	10.44
89	T	bis(2-Ethylhexyl)phthalat	0.531	0.555	-4.5	119	-0.18	10.51
90	I	Perylene-d12	1.000	1.000	0.0	117	-0.22	11.86
91	C	Di-n-octylphthalate	0.922	1.024	-11.1	122	-0.19	11.13
92	T	Benzo[b]fluoranthene	1.199	1.363	-13.7	127	-0.21	11.50
93	T	Benzo[k]fluoranthene	1.088	1.119	-2.8	119	-0.22	11.52
94	C	Benzo[a]pyrene	1.082	1.173	-8.4	121	-0.22	11.81
95	T	Indeno[1,2,3-cd]pyrene	1.287	1.458	-13.3	131	-0.26	12.88
96	T	Dibenz[a,h]anthracene	1.075	1.210	-12.6	131	-0.27	12.88
97	T	Benzo[g,h,i]perylene	1.053	1.109	-5.3	125	-0.29	13.14

(#) = Out of Range SPCC's out = 0 CCC's out = 0
f63268.D F130408_8270+.E.02.01.m Tue May 14 17:24:51 2013

9.7.6

Initial Calibration Summary

Job Number: JB35319 **Sample:** MSW505-ICC505
Account: ALNJ Accutest New Jersey **Lab FileID:** W10769.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Response Factor Report MSW

```
Method       : W:\1\methods\W130402_8270+.M (RTE Integrator)
Title        : AB8270TCL42
Last Update  : Wed Apr 24 13:13:45 2013
Response via : Initial Calibration

Calibration Files
50  =W10769.D    120 =W10776.D    80  =W11452.D    160 =W10003.D
10  =W10773.D    5   =W10772.D    2   =W10771.D    20  =W10774.D
1   =W10770.D        =
```

Compound	50	120	80	160	10	5	2	20	1	Avg	%RSD
1) I 1,4-Dichlorobenzene-d	----------ISTD----------										
2) N-Nitrosodimethylamine	0.789	0.748	0.772		0.813	0.793		0.794		0.785	2.84
3) Pyridine	1.398	1.359	1.381		1.421	1.472	1.314	1.371		1.388	3.59
4) Aniline	2.118	2.046	2.174		2.159	2.110	2.045	2.119		2.110	2.36
5) 2-Fluorophenol	0.997	1.238	1.248		0.994	0.948	1.067	1.233		1.104	11.95
6) bis(2-Chloroethyl)ether	1.024	1.083	0.894		0.959	0.942	0.899	1.210		1.002	11.39
7) Phenol-d5	1.375	1.542	1.584		1.279	1.228	1.421	1.583		1.430	10.15
8) Phenol	1.869	1.800	1.851		1.896	1.833		1.872		1.853	1.82
9) 2-Chlorophenol	1.358	1.350	1.382		1.352	1.345		1.333		1.353	1.21
10) 1,3-Dichlorobenzene	1.523	1.531	1.533		1.534	1.498	1.483	1.490		1.513	1.45
11) 1,4-Dichlorobenzene	1.607	1.608	1.634		1.616	1.621	1.534	1.592	1.627	1.605	1.96
12) 1,2-Dichlorobenzene	1.457	1.458	1.475		1.478	1.439	1.397	1.436	1.431	1.447	1.83
13) Benzyl alcohol	0.777	0.791	0.812		0.654			0.721		0.751	8.49
14) bis(2-chloroisopropyl)ether	1.310	1.119	1.217		1.408	1.373	1.349	1.369	1.382	1.316	7.53
15) o-cresol	1.320	1.268	1.288		1.316	1.325		1.291		1.301	1.73
16) Acetophenone	1.802	1.911	1.994		1.840	1.775	1.906	1.991		1.888	4.58
17) Hexachloroethane	0.598	0.573	0.596		0.607	0.606	0.568	0.602		0.593	2.65
18) N-Nitroso-di-n-propylamine	1.048	0.963	1.016		1.057	1.023	0.977	1.027		1.016	3.41
19) m+p-cresols	1.274	1.381	1.421		1.326	1.300	1.350	1.374		1.347	3.76
20) 4-methylphenol	1.274	1.381	1.421		1.326	1.300	1.350	1.374		1.347	3.76
21) Benzaldehyde	3.845	3.805	4.077		4.015	3.970	4.256	4.354		4.046	5.00
22) I Naphthalene-d8	----------ISTD----------										
23) Nitrobenzene-d5											

9.7.7

9

Initial Calibration Summary

Job Number: JB35319 **Sample:** MSW505-ICC505
Account: ALNJ Accutest New Jersey **Lab FileID:** W10769.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
            0.398 0.385 0.398       0.327 0.316 0.368 0.412         0.372    9.94
24)  Nitrobenzene
            0.395 0.361 0.381       0.423 0.429 0.403 0.412         0.401    5.97
25)  Isophorone
            0.636 0.597 0.619       0.663 0.664 0.621 0.658         0.637    4.06
26)  2-Nitrophenol
            0.208 0.207 0.212       0.200 0.195       0.203         0.204    2.99
27)  2,4-Dimethylphenol
            0.402 0.382 0.393       0.365 0.384       0.400         0.388    3.53
28)  bis(2-Chloroethoxy)methane
            0.413 0.393 0.412       0.415 0.411       0.418         0.410    2.18
29)  Benzoic acid
            0.285 0.267 0.273       0.204             0.248         0.255   12.36
30)  2,4-Dichlorophenol
            0.324 0.328 0.331       0.311 0.298       0.314         0.318    3.93
31)  1,2,4-Trichlorobenzene
            0.361 0.373 0.374       0.347 0.344       0.350         0.358    3.66
32)  Naphthalene
            1.030 0.993 1.029       1.053 1.060 1.031 1.037 1.047   1.035    1.98
33)  2,6-Dichlorophenol
            0.322 0.323 0.331       0.313 0.298       0.315         0.317    3.56
34)  4-Chloroaniline
            0.466 0.456 0.478       0.461 0.456       0.461         0.463    1.79
35)  Hexachlorobutadiene
            0.257 0.250 0.265       0.243 0.237 0.223 0.247         0.246    5.46
36)  4-Chloro-3-methylphenol
            0.343 0.327 0.341       0.339 0.329       0.341         0.337    2.07
37)  2-Methylnaphthalene
            0.779 0.758 0.803       0.786 0.784 0.741 0.773 0.775   0.775    2.43
38)  1-methylnaphthalene
            0.586 0.716 0.735       0.585 0.593 0.701 0.731 0.562   0.651   11.62
39)  Caprolactam
            0.143 0.134 0.143       0.144 0.138 0.121 0.149         0.139    6.62

40) I   Acenaphthene-d10      ----------------ISTD---------------------
41)  Hexachlorocyclopentadiene
            0.312 0.373 0.359       0.210 0.153       0.242         0.275   31.83
             ---- Quadratic regression ----  Coefficient =  0.9990
               Response Ratio = -0.06399 + 0.32225 *A + 0.01052 *A^2

42)  1,2,4,5-Tetrachlorobenzene
            0.547 0.701 0.687       0.502             0.623         0.612   14.18
43)  2,4,6-Trichlorophenol
            0.399 0.416 0.411       0.389 0.359       0.366         0.390    6.00
44)  2,4,5-Trichlorophenol
            0.442 0.453 0.454       0.387             0.414         0.430    6.70
45)  2-Fluorobiphenyl
            1.127 1.418 1.412       1.089 1.067 1.300 1.356         1.253   12.32
46)  2-Chloronaphthalene
            1.145 1.072 1.118       1.075 1.039 0.998 1.058         1.072    4.54
47)  Acenaphthylene
            1.911 1.629 1.783       1.813 1.786 1.700 1.806 1.698   1.766    4.96
48)  Dimethylphthalate
            1.373 1.297 1.335       1.335 1.343 1.315 1.327         1.332    1.78
49)  2,6-Dinitrotoluene
            0.327 0.286 0.319       0.299 0.276       0.306         0.302    6.45
50)  Acenaphthene
            1.152 1.068 1.125       1.104 1.101 1.044 1.109 1.085   1.099    3.04
51)  2,4-Dinitrophenol
            0.174 0.200 0.198       0.118 0.073       0.143         0.151   32.98
```

Initial Calibration Summary

Job Number: JB35319 **Sample:** MSW505-ICC505
Account: ALNJ Accutest New Jersey **Lab FileID:** W10769.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
          ---- Linear regression ----  Coefficient =  0.9983
            Response Ratio = -0.02603 + 0.20758 *A

52)  Dibenzofuran
           1.701 1.669 1.708       1.659 1.646 1.599 1.655 1.683   1.665    2.07
53)  2,4-Dinitrotoluene
           0.412 0.401 0.410       0.392 0.369       0.400         0.397    3.90
54)  4-Nitrophenol
           0.212 0.201 0.206       0.169             0.191         0.196    8.58
55)  2,3,4,6-Tetrachlorophenol
           0.378 0.400 0.393       0.336             0.348         0.371    7.59
56)  Fluorene
           1.447 1.282 1.376       1.350 1.322 1.284 1.359 1.289   1.339    4.25
57)  4-Chlorophenyl-phenylether
           0.814 0.732 0.781       0.738 0.683       0.746         0.749    5.99
58)  Diethylphthalate
           1.342 1.251 1.285       1.352 1.369 1.417 1.332         1.335    4.07
59)  2-nitroaniline
           0.378 0.356 0.372       0.361 0.333       0.368         0.362    4.41
60)  3-nitroaniline
           0.321 0.306 0.323       0.315 0.302       0.318         0.314    2.64
61)  4-nitroaniline
           0.324 0.305 0.317       0.318 0.301       0.321         0.314    2.94
62)  1,1'-Biphenyl
           1.427 1.393 1.420       1.401 1.368 1.355 1.389 1.322   1.384    2.52

63) I   Phenanthrene-d10      ----------------ISTD--------------------
64)  4,6-Dinitro-2-methylphenol
           0.152 0.178 0.169       0.122 0.099       0.133         0.142   21.04
          ---- Quadratic regression ----  Coefficient =  0.9997
            Response Ratio = -0.00836 + 0.14884 *A + 0.01079 *A^2

65)  n-Nitrosodiphenylamine
           0.537 0.567 0.555       0.514 0.503 0.490 0.506         0.525    5.52
66)  1,2-Diphenylhydrazine
           0.829 0.762 0.789       0.824 0.809 0.771 0.810         0.799    3.23
67)  2,4,6-Tribromophenol
           0.118 0.175 0.159       0.107 0.098       0.130         0.131   22.90
          ---- Quadratic regression ----  Coefficient =  0.9968
            Response Ratio = -0.00015 + 0.10265 *A + 0.02449 *A^2

68)  4-Bromophenyl-phenylether
           0.263 0.288 0.283       0.239 0.226       0.240         0.257    9.87
69)  Hexachlorobenzene
           0.319 0.330 0.334       0.270 0.257 0.249 0.276         0.291   12.35
70)  Pentachlorophenol
           0.139 0.150 0.143       0.102 0.082       0.104         0.120   23.07#
          ---- Quadratic regression ----  Coefficient =  0.9995
            Response Ratio = -0.01030 + 0.13702 *A + 0.00563 *A^2

71)  Pentachloronitrobenzene
           0.097 0.121 0.120       0.091             0.111         0.108   12.67
72)  Phenanthrene
           1.100 1.074 1.123       1.050 1.025 1.014 1.024 1.032   1.055    3.78
73)  Anthracene
           1.175 1.108 1.149       1.088 1.071 1.010 1.093 0.999   1.087    5.60
74)  Carbazole
           1.040 1.026 1.042       0.989 0.992 0.923 0.987 0.948   0.994    4.28
75)  Di-n-butylphthalate
           1.273 1.248 1.265       1.224 1.209       1.228         1.241    2.01
```

Initial Calibration Summary

Job Number: JB35319 **Sample:** MSW505-ICC505
Account: ALNJ Accutest New Jersey **Lab FileID:** W10769.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
76)  Fluoranthene
           1.312 1.279 1.306       1.188 1.182 1.088 1.211 1.084   1.206    7.45
77)  Atrazine
           0.223 0.221 0.219       0.216 0.212       0.215         0.218    1.86

78) I   Chrysene-d12          ----------------ISTD--------------------
79)  Benzidine
           0.357 0.319 0.340       0.398 0.352       0.388         0.359    8.32
80)  Pyrene
           1.071 0.994 1.050       1.051 0.991 0.989 1.055 0.991   1.024    3.47
81)  Terphenyl-d14
           0.689 0.881 0.900       0.667 0.632 0.795 0.835         0.771   14.06
82)  3,3'-Dimethylbenzidine
           0.249 0.259 0.288       0.317 0.303       0.371         0.298   14.75
83)  Butylbenzylphthalate
           0.445 0.413 0.431       0.448 0.428 0.394 0.438         0.428    4.41
84)  3,3'-Dichlorobenzidine
           0.459 0.422 0.460       0.409 0.377       0.434         0.427    7.39
85)  Benzo[a]anthracene
           1.148 1.059 1.112       1.047 1.001 0.966 1.071 0.985   1.049    6.00
86)  Chrysene
           1.101 1.059 1.087       1.038 1.018 0.974 1.054 0.966   1.037    4.71
87)  bis(2-Ethylhexyl)phthalate
           0.640 0.613 0.626       0.615 0.572       0.622         0.615    3.71

88) I   Perylene-d12          ----------------ISTD--------------------
89)  Di-n-octylphthalate
           1.063 1.020 1.082       0.989 0.872       1.027         1.009    7.39
90)  Benzo[b]fluoranthene
           1.290 1.273 1.249       1.172 1.128 1.044 1.097 1.054   1.163    8.44
91)  Benzo[k]fluoranthene
           1.173 1.140 1.077       1.030 0.983 0.942 1.184 0.911   1.055    9.98
92)  Benzo[a]pyrene
           1.198 1.202 1.255       1.093 1.047 0.902 1.107 0.877   1.085   12.75
93)  Indeno[1,2,3-cd]pyrene
           1.595 1.586 1.618       1.314 1.232 1.125 1.389 1.094   1.369   15.56
            ---- Linear regression ----  Coefficient =  0.9980
              Response Ratio = -0.04629 + 1.58785 *A

94)  Dibenz[a,h]anthracene
           1.349 1.289 1.330       1.079 1.013 0.922 1.151 0.884   1.127   16.21
            ---- Linear regression ----  Coefficient =  0.9977
              Response Ratio = -0.03789 + 1.30630 *A

95)  Benzo[g,h,i]perylene
           1.215 1.293 1.282       1.064 1.018 0.947 1.082 0.931   1.104   12.97
-------------------------------------------------------------------------------
(#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          W130402_8270+.M        Fri Apr 26 16:13:17 2013
```

9.7.7

9

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSW505-ICV505
Account: ALNJ Accutest New Jersey **Lab FileID:** W10777.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\2\DATA\W130403\W10777.D          Vial: 8
Acq On    :  3 Apr 2013  10:36 pm                   Operator: KRISTINR
Sample    : ICV505-20, BN                           Inst    : MSW
Misc      : op32298,msw505,,,,1,1                   Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\met...\W130402_8270+.M (RTE Integrator)
Title        : AB8270TCL42
Last Update  : Thu Apr 04 08:07:01 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	115	0.00	3.76
2	T	N-Nitrosodimethylamine	0.785	0.845	-7.6	122	0.02	2.00
3	T	Pyridine	1.388	1.447	-4.3	121	0.02	2.01
4	T	Aniline		----------NA----------				
5	S	2-Fluorophenol		----------NA----------				
6	T	bis(2-Chloroethyl)ether	1.002	0.994	0.8	95	0.00	3.59
7	S	Phenol-d5		----------NA----------				
8	C	Phenol		----------NA----------				
9	M	2-Chlorophenol		----------NA----------				
10	T	1,3-Dichlorobenzene	1.513	1.568	-3.6	121	0.00	3.73
11	C	1,4-Dichlorobenzene	1.605	1.632	-1.7	118	0.00	3.78
12	T	1,2-Dichlorobenzene	1.447	1.518	-4.9	122	0.00	3.92
13	T	Benzyl alcohol	0.751	0.763	-1.6	122	0.00	3.88
14	T	bis(2-chloroisopropyl)eth	1.316	1.631	-23.9#	137	0.00	3.99
15	T	o-cresol		----------NA----------				
16	T	Acetophenone	1.888	2.024	-7.2	116	0.00	4.08
17	T	Hexachloroethane	0.593	0.642	-8.3	122	0.00	4.15
18	P	N-Nitroso-di-n-propylamin	1.016	1.099	-8.2	123	0.00	4.10
19	T	m+p-cresols		----------NA----------				
20		4-methylphenol		----------NA----------				
21		Benzaldehyde		----------NA----------				
22	I	Naphthalene-d8	1.000	1.000	0.0	114	0.00	4.75
23	S	Nitrobenzene-d5	0.372	0.403	-8.3	112	0.00	4.20
24	T	Nitrobenzene	0.401	0.428	-6.7	118	0.00	4.22
25	T	Isophorone	0.637	0.706	-10.8	122	0.00	4.39
26	C	2-Nitrophenol		----------NA----------				
27	T	2,4-Dimethylphenol		----------NA----------				
28	T	bis(2-Chloroethoxy)methan	0.410	0.433	-5.6	119	0.00	4.57
29	T	Benzoic acid		----------NA----------				
30	C	2,4-Dichlorophenol		----------NA----------				
31	M	1,2,4-Trichlorobenzene	0.358	0.372	-3.9	122	0.00	4.72
32	T	Naphthalene	1.035	1.102	-6.5	122	0.00	4.77
33	T	2,6-Dichlorophenol		----------NA----------				
34	T	4-Chloroaniline		----------NA----------				
35	C	Hexachlorobutadiene	0.246	0.260	-5.7	120	0.00	4.91
36	C	4-Chloro-3-methylphenol		----------NA----------				
37	T	2-Methylnaphthalene	0.775	0.761	1.8	113	0.00	5.32
38		1-methylnaphthalene	0.651	0.745	-14.4	117	0.00	5.41
39		Caprolactam		----------NA----------				
40	I	Acenaphthene-d10	1.000	1.000	0.0	114	0.00	6.18

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSW505-ICV505
Account: ALNJ Accutest New Jersey **Lab FileID:** W10777.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			Amount	Calc.	%Drift			
41	P	Hexachlorocyclopentadiene	40.000	33.846	15.4	70	0.00	5.50
			AvgRF	CCRF	%Dev			
42	T	1,2,4,5-Tetrachlorobenzen	0.612	0.632	-3.3	116	0.00	5.49
43	C	2,4,6-Trichlorophenol		NA				
44	T	2,4,5-Trichlorophenol		NA				
45	S	2-Fluorobiphenyl	1.253	1.343	-7.2	113	0.00	5.63
46	T	2-Chloronaphthalene	1.072	1.136	-6.0	122	0.00	5.71
47	M	Acenaphthylene	1.766	2.026	-14.7	128	0.00	6.05
48	T	Dimethylphthalate	1.332	1.378	-3.5	119	0.00	5.99
49	T	2,6-Dinitrotoluene	0.302	0.308	-2.0	114	0.00	6.05
50	C	Acenaphthene	1.099	1.172	-6.6	120	0.00	6.20
			Amount	Calc.	%Drift			
51	P	2,4-Dinitrophenol		NA				
			AvgRF	CCRF	%Dev			
52	T	Dibenzofuran	1.665	1.654	0.7	114	0.00	6.34
53	M	2,4-Dinitrotoluene	0.397	0.426	-7.3	122	-0.01	6.37
54	P	4-Nitrophenol		NA				
55	T	2,3,4,6-Tetrachlorophenol		NA				
56	T	Fluorene	1.339	1.450	-8.3	122	0.00	6.63
57	T	4-Chlorophenyl-phenylethe	0.749	0.767	-2.4	117	0.00	6.62
58	T	Diethylphthalate	1.335	1.424	-6.7	122	0.00	6.58
59	T	2-nitroaniline	0.362	0.387	-6.9	120	0.00	5.83
60	T	3-nitroaniline	0.314	0.281	10.5	101	0.00	6.17
61	T	4-nitroaniline	0.314	0.321	-2.2	114	0.00	6.68
62		1,1'-Biphenyl	1.384	1.444	-4.3	119	0.00	5.70
63	I	Phenanthrene-d10	1.000	1.000	0.0	118	0.00	7.48
			Amount	Calc.	%Drift			
64	T	4,6-Dinitro-2-methylpheno		NA				
			AvgRF	CCRF	%Dev			
65	C	n-Nitrosodiphenylamine	0.525	0.495	5.7	115	0.00	6.74
66	T	1,2-Diphenylhydrazine	0.799	0.774	3.1	112	0.00	6.77
			Amount	Calc.	%Drift			
67	S	2,4,6-Tribromophenol		NA				
			AvgRF	CCRF	%Dev			
68	T	4-Bromophenyl-phenylether	0.257	0.243	5.4	119	0.00	7.06
69	T	Hexachlorobenzene	0.291	0.280	3.8	120	0.00	7.20
			Amount	Calc.	%Drift			
70	C	Pentachlorophenol		NA				
			AvgRF	CCRF	%Dev			
71	T	Pentachloronitrobenzene	0.108	0.113	-4.6	120	0.00	7.44
72	T	Phenanthrene	1.055	1.080	-2.4	124	0.00	7.51
73	T	Anthracene	1.087	1.076	1.0	116	0.00	7.55
74	T	Carbazole	0.994	1.022	-2.8	122	-0.01	7.71
75	T	Di-n-butylphthalate	1.241	1.227	1.1	118	0.00	8.13
76	C	Fluoranthene	1.206	1.284	-6.5	124	0.00	8.73
77		Atrazine		NA				
78	I	Chrysene-d12	1.000	1.000	0.0	120	0.00	10.37

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSW505-ICV505
Account: ALNJ Accutest New Jersey **Lab FileID:** W10777.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

79	T	Benzidine	0.359	0.316	12.0	97	0.00	8.89
80	M	Pyrene	1.024	1.058	-3.3	120	-0.01	8.97
81	S	Terphenyl-d14	0.771	0.826	-7.1	118	0.00	9.17
82		3,3'-Dimethylbenzidine		----------NA----------				
83	T	Butylbenzylphthalate	0.428	0.460	-7.5	126	0.00	9.79
84	T	3,3'-Dichlorobenzidine		----------NA----------				
85	T	Benzo[a]anthracene	1.049	1.144	-9.1	128	-0.01	10.35
86	T	Chrysene	1.037	1.066	-2.8	120	0.00	10.40
87	T	bis(2-Ethylhexyl)phthalat	0.615	0.651	-5.9	125	0.00	10.50
88	I	Perylene-d12	1.000	1.000	0.0	121	0.00	11.95
89	C	Di-n-octylphthalate	1.009	1.168	-15.8	137	0.00	11.20
90	T	Benzo[b]fluoranthene	1.163	1.174	7.3	130	-0.01	11.56
91	T	Benzo[k]fluoranthene	1.055	1.142	-8.2	116	-0.02	11.58
92	C	Benzo[a]pyrene	1.085	0.990	8.8	108	-0.02	11.89
		----------	Amount	Calc.	%Drift		----------	
93	T	Indeno[1,2,3-cd]pyrene	40.000	37.068	7.3	120	-0.02	13.01
94	T	Dibenz[a,h]anthracene	40.000	37.904	5.2	122	-0.02	13.02
		----------	AvgRF	CCRF	%Dev		----------	
95	T	Benzo[g,h,i]perylene	1.104	1.128	-2.2	126	-0.02	13.28

(#) = Out of Range SPCC's out = 1 CCC's out = 10
W10774.D W130402_8270+.M Thu Apr 04 08:17:54 2013

9.7.8

9

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSW505-ICV505
Account: ALNJ Accutest New Jersey **Lab FileID:** W10779.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\2\DATA\W130403\W10779.D          Vial: 10
Acq On    :  3 Apr 2013  11:22 pm                   Operator: KRISTINR
Sample    : ICV505-20, Aniline                      Inst    : MSW
Misc      : op32298,msw505,,,,1,1                   Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\met...\W130402_8270+.M (RTE Integrator)
Title        : AB8270TCL42
Last Update  : Thu Apr 04 08:07:01 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	114	0.00	3.76
2	T	N-Nitrosodimethylamine		----------NA----------				
3	T	Pyridine		----------NA----------				
4	T	Aniline	2.110	1.935	8.3	104	0.00	3.55
5	S	2-Fluorophenol		----------NA----------				
6	T	bis(2-Chloroethyl)ether		----------NA----------				
7	S	Phenol-d5		----------NA----------				
8	C	Phenol		----------NA----------				
9	M	2-Chlorophenol		----------NA----------				
10	T	1,3-Dichlorobenzene		----------NA----------				
11	C	1,4-Dichlorobenzene		----------NA----------				
12	T	1,2-Dichlorobenzene		----------NA----------				
13	T	Benzyl alcohol		----------NA----------				
14	T	bis(2-chloroisopropyl)eth		----------NA----------				
15	T	o-cresol		----------NA----------				
16	T	Acetophenone		----------NA----------				
17	T	Hexachloroethane		----------NA----------				
18	P	N-Nitroso-di-n-propylamin		----------NA----------				
19	T	m+p-cresols		----------NA----------				
20		4-methylphenol		----------NA----------				
21		Benzaldehyde		----------NA----------				
22	I	Naphthalene-d8	1.000	1.000	0.0	113	0.00	4.75
23	S	Nitrobenzene-d5		----------NA----------				
24	T	Nitrobenzene		----------NA----------				
25	T	Isophorone		----------NA----------				
26	C	2-Nitrophenol		----------NA----------				
27	T	2,4-Dimethylphenol		----------NA----------				
28	T	bis(2-Chloroethoxy)methan		----------NA----------				
29	T	Benzoic acid		----------NA----------				
30	C	2,4-Dichlorophenol		----------NA----------				
31	M	1,2,4-Trichlorobenzene		----------NA----------				
32	T	Naphthalene		----------NA----------				
33	T	2,6-Dichlorophenol		----------NA----------				
34	T	4-Chloroaniline	0.463	0.420	9.3	103	0.00	4.83
35	C	Hexachlorobutadiene		----------NA----------				
36	C	4-Chloro-3-methylphenol		----------NA----------				
37	T	2-Methylnaphthalene		----------NA----------				
38		1-methylnaphthalene		----------NA----------				
39		Caprolactam		----------NA----------				
40	I	Acenaphthene-d10	1.000	1.000	0.0	112	0.00	6.18

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSW505-ICV505
Account: ALNJ Accutest New Jersey **Lab FileID:** W10779.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			Amount	Calc.	%Drift		
41	P	Hexachlorocyclopentadiene		NA			
			AvgRF	CCRF	%Dev		
42	T	1,2,4,5-Tetrachlorobenzen		NA			
43	C	2,4,6-Trichlorophenol		NA			
44	T	2,4,5-Trichlorophenol		NA			
45	S	2-Fluorobiphenyl		NA			
46	T	2-Chloronaphthalene		NA			
47	M	Acenaphthylene		NA			
48	T	Dimethylphthalate		NA			
49	T	2,6-Dinitrotoluene		NA			
50	C	Acenaphthene		NA			
			Amount	Calc.	%Drift		
51	P	2,4-Dinitrophenol		NA			
			AvgRF	CCRF	%Dev		
52	T	Dibenzofuran		NA			
53	M	2,4-Dinitrotoluene		NA			
54	P	4-Nitrophenol		NA			
55	T	2,3,4,6-Tetrachlorophenol		NA			
56	T	Fluorene		NA			
57	T	4-Chlorophenyl-phenylethe		NA			
58	T	Diethylphthalate		NA			
59	T	2-nitroaniline		NA			
60	T	3-nitroaniline		NA			
61	T	4-nitroaniline		NA			
62		1,1'-Biphenyl		NA			
63	I	Phenanthrene-d10	1.000	1.000	0.0	111	0.00 7.48
			Amount	Calc.	%Drift		
64	T	4,6-Dinitro-2-methylpheno		NA			
			AvgRF	CCRF	%Dev		
65	C	n-Nitrosodiphenylamine		NA			
66	T	1,2-Diphenylhydrazine		NA			
			Amount	Calc.	%Drift		
67	S	2,4,6-Tribromophenol		NA			
			AvgRF	CCRF	%Dev		
68	T	4-Bromophenyl-phenylether		NA			
69	T	Hexachlorobenzene		NA			
			Amount	Calc.	%Drift		
70	C	Pentachlorophenol		NA			
			AvgRF	CCRF	%Dev		
71	T	Pentachloronitrobenzene		NA			
72	T	Phenanthrene		NA			
73	T	Anthracene		NA			
74	T	Carbazole		NA			
75	T	Di-n-butylphthalate		NA			
76	C	Fluoranthene		NA			
77		Atrazine		NA			
78	I	Chrysene-d12	1.000	1.000	0.0	107	-0.01 10.37

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSW505-ICV505
Account: ALNJ Accutest New Jersey **Lab FileID:** W10779.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

79	T	Benzidine		----------NA----------				
80	M	Pyrene		----------NA----------				
81	S	Terphenyl-d14		----------NA----------				
82		3,3'-Dimethylbenzidine		----------NA----------				
83	T	Butylbenzylphthalate		----------NA----------				
84	T	3,3'-Dichlorobenzidine	0.427	0.398	6.8	98	0.00	10.35
85	T	Benzo[a]anthracene		----------NA----------				
86	T	Chrysene		----------NA----------				
87	T	bis(2-Ethylhexyl)phthalat		----------NA----------				
88	I	Perylene-d12	1.000	1.000	0.0	105	0.00	11.95
89	C	Di-n-octylphthalate		----------NA----------				
90	T	Benzo[b]fluoranthene		----------NA----------				
91	T	Benzo[k]fluoranthene		----------NA----------				
92	C	Benzo[a]pyrene		----------NA----------				
		----------	Amount	Calc.	%Drift	----------		
93	T	Indeno[1,2,3-cd]pyrene		----------NA----------				
94	T	Dibenz[a,h]anthracene		----------NA----------				
		----------	AvgRF	CCRF	%Dev	----------		
95	T	Benzo[g,h,i]perylene		----------NA----------				

(#) = Out of Range SPCC's out = 2 CCC's out = 13
W10774.D W130402_8270+.M Thu Apr 04 10:30:48 2013

9.7.9

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSW505-ICV505
Account: ALNJ Accutest New Jersey **Lab FileID:** W10780.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\2\DATA\W130403\W10780.D          Vial: 11
Acq On    :  3 Apr 2013  11:45 pm                   Operator: KRISTINR
Sample    : ICV505-20, TCL                          Inst    : MSW
Misc      : op32298,msw505,,,,1,1                   Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\met...\W130402_8270+.M (RTE Integrator)
Title        : AB8270TCL42
Last Update  : Thu Apr 04 08:07:01 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	133	0.00	3.76
2	T	N-Nitrosodimethylamine		----------NA----------				
3	T	Pyridine		----------NA----------				
4	T	Aniline		----------NA----------				
5	S	2-Fluorophenol		----------NA----------				
6	T	bis(2-Chloroethyl)ether		----------NA----------				
7	S	Phenol-d5		----------NA----------				
8	C	Phenol		----------NA----------				
9	M	2-Chlorophenol		----------NA----------				
10	T	1,3-Dichlorobenzene		----------NA----------				
11	C	1,4-Dichlorobenzene		----------NA----------				
12	T	1,2-Dichlorobenzene		----------NA----------				
13	T	Benzyl alcohol		----------NA----------				
14	T	bis(2-chloroisopropyl)eth		----------NA----------				
15	T	o-cresol		----------NA----------				
16	T	Acetophenone		----------NA----------				
17	T	Hexachloroethane		----------NA----------				
18	P	N-Nitroso-di-n-propylamin		----------NA----------				
19	T	m+p-cresols		----------NA----------				
20		4-methylphenol		----------NA----------				
21		Benzaldehyde	4.046	2.727	32.6#	83	0.00	4.08
22	I	Naphthalene-d8	1.000	1.000	0.0	134	0.00	4.75
23	S	Nitrobenzene-d5		----------NA----------				
24	T	Nitrobenzene		----------NA----------				
25	T	Isophorone		----------NA----------				
26	C	2-Nitrophenol		----------NA----------				
27	T	2,4-Dimethylphenol		----------NA----------				
28	T	bis(2-Chloroethoxy)methan		----------NA----------				
29	T	Benzoic acid		----------NA----------				
30	C	2,4-Dichlorophenol		----------NA----------				
31	M	1,2,4-Trichlorobenzene		----------NA----------				
32	T	Naphthalene		----------NA----------				
33	T	2,6-Dichlorophenol		----------NA----------				
34	T	4-Chloroaniline		----------NA----------				
35	C	Hexachlorobutadiene		----------NA----------				
36	C	4-Chloro-3-methylphenol		----------NA----------				
37	T	2-Methylnaphthalene		----------NA----------				
38		1-methylnaphthalene		----------NA----------				
39		Caprolactam	0.139	0.144	-3.6	129	-0.04	5.06
40	I	Acenaphthene-d10	1.000	1.000	0.0	134	0.00	6.18

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSW505-ICV505
Account: ALNJ Accutest New Jersey **Lab FileID:** W10780.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			Amount	Calc.	%Drift			
41	P	Hexachlorocyclopentadiene		NA				
			AvgRF	CCRF	%Dev			
42	T	1,2,4,5-Tetrachlorobenzen		NA				
43	C	2,4,6-Trichlorophenol		NA				
44	T	2,4,5-Trichlorophenol		NA				
45	S	2-Fluorobiphenyl		NA				
46	T	2-Chloronaphthalene		NA				
47	M	Acenaphthylene		NA				
48	T	Dimethylphthalate		NA				
49	T	2,6-Dinitrotoluene		NA				
50	C	Acenaphthene		NA				
			Amount	Calc.	%Drift			
51	P	2,4-Dinitrophenol		NA				
			AvgRF	CCRF	%Dev			
52	T	Dibenzofuran		NA				
53	M	2,4-Dinitrotoluene		NA				
54	P	4-Nitrophenol		NA				
55	T	2,3,4,6-Tetrachlorophenol		NA				
56	T	Fluorene		NA				
57	T	4-Chlorophenyl-phenylethe		NA				
58	T	Diethylphthalate		NA				
59	T	2-nitroaniline		NA				
60	T	3-nitroaniline		NA				
61	T	4-nitroaniline		NA				
62		1,1'-Biphenyl	1.384	1.380	0.3	134	0.00	5.70
63	I	Phenanthrene-d10	1.000	1.000	0.0	134	0.00	7.48
			Amount	Calc.	%Drift			
64	T	4,6-Dinitro-2-methylpheno		NA				
			AvgRF	CCRF	%Dev			
65	C	n-Nitrosodiphenylamine		NA				
66	T	1,2-Diphenylhydrazine		NA				
			Amount	Calc.	%Drift			
67	S	2,4,6-Tribromophenol		NA				
			AvgRF	CCRF	%Dev			
68	T	4-Bromophenyl-phenylether		NA				
69	T	Hexachlorobenzene		NA				
			Amount	Calc.	%Drift			
70	C	Pentachlorophenol		NA				
			AvgRF	CCRF	%Dev			
71	T	Pentachloronitrobenzene		NA				
72	T	Phenanthrene		NA				
73	T	Anthracene		NA				
74	T	Carbazole		NA				
75	T	Di-n-butylphthalate		NA				
76	C	Fluoranthene		NA				
77		Atrazine	0.218	0.219	-0.5	137	0.00	7.25
78	I	Chrysene-d12	1.000	1.000	0.0	132	0.00	10.37

9.7.10

9

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSW505-ICV505
Account: ALNJ Accutest New Jersey **Lab FileID:** W10780.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
 79 T   Benzidine                          ----------NA----------
 80 M   Pyrene                             ----------NA----------
 81 S   Terphenyl-d14                      ----------NA----------
 82     3,3'-Dimethylbenzidine             ----------NA----------
 83 T   Butylbenzylphthalate               ----------NA----------
 84 T   3,3'-Dichlorobenzidine             ----------NA----------
 85 T   Benzo[a]anthracene                 ----------NA----------
 86 T   Chrysene                           ----------NA----------
 87 T   bis(2-Ethylhexyl)phthalat          ----------NA----------

 88 I   Perylene-d12                1.000   1.000      0.0  129   0.00   11.95
 89 C   Di-n-octylphthalate                ----------NA----------
 90 T   Benzo[b]fluoranthene               ----------NA----------
 91 T   Benzo[k]fluoranthene               ----------NA----------
 92 C   Benzo[a]pyrene                     ----------NA----------

            ----------------------- Amount  Calc.    %Drift   -------------
 93 T   Indeno[1,2,3-cd]pyrene             ----------NA----------
 94 T   Dibenz[a,h]anthracene              ----------NA----------

            ----------------------- AvgRF   CCRF      %Dev   --------------
 95 T   Benzo[g,h,i]perylene               ----------NA----------
-------------------------------------------------------------------------
-------------------------------------------------------------------------

   (#) = Out of Range                SPCC's out = 2  CCC's out = 13
    W10774.D   W130402_8270+.M       Thu Apr 04 10:30:51 2013
```

9.7.10

9

Initial Calibration Summary

Job Number: JB35319 **Sample:** MSW546-ICC546
Account: ALNJ Accutest New Jersey **Lab FileID:** W11792.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Response Factor Report MSW

```
Method       : C:\msdchem\1\methods\W130503_AP9+.m (RTE Integrator)
Title        : SW-846 Method 8270
Last Update  : Tue May 07 11:08:49 2013
Response via : Initial Calibration

Calibration Files
50  =w11792.D    5   =w11793.D    10  =w11794.D    20  =w11795.D
80  =w11797.D    40  =w11796.D    100 =w11798.D
```

Compound	50	5	10	20	80	40	100	Avg	%RSD
1) I 1,4-Dichlorobenzene-d	----------ISTD----------								
2) Methyl Methacryla	1.107	1.097	1.100	1.093	1.079	1.089	1.087	1.093	0.85
3)T N-Nitrosodimethyl	0.793	0.735	0.778	0.791	0.794	0.779	0.818	0.784	3.24
4)T Pyridine	1.393	1.396	1.321	1.349	1.450	1.401	1.513	1.403	4.52
5)T Ethyl Methacrylat	1.107	1.097	1.100	1.093	1.079	1.089	1.087	1.093	0.85
6)T 2-Picoline	1.449	1.383	1.384	1.451	1.441	1.422	1.455	1.426	2.18
7)T n-Nitrosomethylet	0.586	0.682	0.586	0.592	0.572	0.578	0.573	0.596	6.55
8)T Methyl Methanesul	0.728	0.709	0.721	0.718	0.717	0.726	0.719	0.720	0.88
9)T n-Nitrosodiethyla	0.620	0.589	0.593	0.607	0.614	0.607	0.621	0.607	2.05
10)T Ethyl Methanesulf	0.922	0.896	0.926	0.923	0.915	0.916	0.918	0.917	1.08
11)T Aniline	2.073	1.936	1.986	2.048	2.124	2.069	2.136	2.053	3.48
12)S 2-Fluorophenol	1.199	1.094	1.131	1.157	1.209	1.190	1.222	1.172	3.97
13)T bis(2-Chloroethyl	1.191	1.150	1.169	1.182	1.209	1.186	1.220	1.187	1.97
14)T Pentachloroethane	0.494	0.460	0.471	0.480	0.483	0.481	0.487	0.479	2.33
15)S Phenol-d5	1.506	1.308	1.387	1.425	1.528	1.487	1.560	1.457	6.08
16)C Phenol	1.639	1.450	1.518	1.576	1.646	1.615	1.697	1.592	5.30
17)M 2-Chlorophenol	1.325	1.177	1.258	1.262	1.335	1.312	1.328	1.285	4.46
18)T 1,3-Dichlorobenze	1.465	1.413	1.436	1.447	1.470	1.446	1.493	1.453	1.78
19)C 1,4-Dichlorobenze	1.555	1.529	1.504	1.530	1.562	1.545	1.594	1.545	1.86
20)T 1,2-Dichlorobenze	1.418	1.353	1.351	1.378	1.450	1.415	1.471	1.405	3.32
21)T Benzyl alcohol	0.758	0.582	0.638	0.709	0.799	0.747	0.827	0.723	12.09
22)T bis(2-chloroisopr	1.127	1.109	1.134	1.131	1.117	1.126	1.112	1.122	0.86
23)T o-cresol	1.238	1.163	1.210	1.211	1.230	1.251	1.223	1.218	2.33
24)T Acetophenone	3.929	3.524	3.752	3.837	3.959	3.905	3.954	3.837	4.08
25)T n-Nitrosopyrrolid	0.690	0.573	0.640	0.652	0.689	0.686	0.702	0.662	6.84
26)T n-Nitrosomorpholi	0.791	0.730	0.759	0.794	0.780	0.789	0.773	0.774	2.93
27)T Hexachloroethane	0.615	0.572	0.566	0.566	0.611	0.592	0.619	0.591	4.01
28)P N-Nitroso-di-n-pr	0.976	0.916	0.924	0.947	0.983	0.972	0.985	0.958	2.99
29)T m+p-cresols	1.416	1.204	1.251	1.305	1.437	1.363	1.465	1.349	7.31
30) 4-methylphenol	1.412	1.200	1.294	1.314	1.442	1.375	1.465	1.357	6.91
31) I Naphthalene-d8	----------ISTD----------								
32)S Nitrobenzene-d5	0.385	0.370	0.379	0.379	0.384	0.380	0.389	0.381	1.58
33)T Nitrobenzene	0.384	0.357	0.366	0.377	0.384	0.371	0.387	0.375	2.95
34)T n-Nitrosopiperidi	0.174	0.159	0.165	0.168	0.177	0.172	0.179	0.170	4.07
35)T Isophorone	0.653	0.633	0.634	0.649	0.653	0.648	0.659	0.647	1.51
36)C 2-Nitrophenol	0.206	0.185	0.194	0.201	0.210	0.204	0.213	0.202	4.75
37)T 2,4-Dimethylpheno	0.380	0.363	0.363	0.374	0.387	0.378	0.388	0.376	2.71
38)T bis(2-Chloroethox	0.515	0.494	0.496	0.506	0.519	0.509	0.528	0.510	2.34
39)T alpha, alpha-Dime	0.060	0.057	0.060	0.063	0.059	0.060	0.059	0.060	3.17
40)T O,O,O-Triethyl ph	0.170	0.173	0.174	0.168	0.173	0.169	0.177	0.172	1.81
41)T Benzoic acid	0.112	0.099	0.073	0.078	0.123	0.091	0.136	0.102	22.89
---- Quadratic regression ---- Coefficient = 0.9983									
Response Ratio = -0.00067 + 0.07345 *A + 0.02523 *A^2									
42)C 2,4-Dichloropheno	0.317	0.276	0.297	0.307	0.328	0.314	0.333	0.310	6.31

9.7.11

9

Initial Calibration Summary

Job Number: JB35319 **Sample:** MSW546-ICC546
Account: ALNJ Accutest New Jersey **Lab FileID:** W11792.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

43)M 1,2,4-Trichlorobe	0.354	0.338	0.342	0.346	0.368	0.350	0.368	0.352	3.36
44)T Naphthalene	1.045	0.984	0.985	1.006	1.045	1.021	1.068	1.022	3.15
45)T 2,6-Dichloropheno	0.330	0.290	0.303	0.313	0.339	0.322	0.352	0.321	6.63
46)T 4-Chloroaniline	0.460	0.418	0.438	0.441	0.487	0.460	0.497	0.457	6.13
47)T Hexachloropropene	0.300	0.270	0.279	0.287	0.303	0.294	0.312	0.292	4.98
48)C Hexachlorobutadie	0.243	0.226	0.234	0.236	0.242	0.236	0.247	0.238	2.89
49)T n-Nitroso-di-n-bu	0.251	0.252	0.244	0.247	0.248	0.250	0.252	0.249	1.21
50)T p-phenylenediamin	0.296	0.331	0.350	0.360	0.249	0.332		0.320	12.86
51)C 4-Chloro-3-methyl	0.329	0.311	0.316	0.323	0.342	0.325	0.343	0.327	3.67
52)T Safrole	0.306	0.276	0.284	0.295	0.322	0.305	0.325	0.302	6.08
53)T 2-Methylnaphthale	0.752	0.709	0.735	0.734	0.760	0.739	0.778	0.744	2.94
54) 1-methylnaphthale	0.705	0.670	0.689	0.689	0.727	0.696	0.749	0.704	3.75
55) I Acenaphthene-d10	----------ISTD----------								
56)P Hexachlorocyclope	0.251	0.058	0.102	0.156	0.290	0.221	0.309	0.198	48.16
---- Quadratic regression ---- Coefficient = 0.9992									
Response Ratio = -0.02961 + 0.21494 *A + 0.04305 *A^2									
57)T 1,2,4,5-Tetrachlo	1.384	1.225	1.260	1.308	1.412	1.358	1.426	1.339	5.75
58)C 2,4,6-Trichloroph	0.389	0.341	0.364	0.369	0.407	0.375	0.415	0.380	6.78
59)T 2,4,5-Trichloroph	0.426	0.387	0.392	0.397	0.447	0.412	0.452	0.416	6.37
60)S 2-Fluorobiphenyl	1.384	1.238	1.298	1.299	1.427	1.357	1.442	1.349	5.52
61)T 2-Chloronaphthale	1.202	1.084	1.105	1.105	1.209	1.176	1.216	1.157	4.91
62)T 1-Chloronaphthale	0.937	0.940	0.952	0.944	0.981	0.899	1.002	0.951	3.49
63)T Isosafrole	0.427	0.408	0.427	0.431	0.439	0.422	0.443	0.428	2.68
64)T 1,4-Naphthoquinon	0.374	0.313	0.362	0.397	0.330	0.400	0.323	0.357	9.95
65)M Acenaphthylene	1.766	1.685	1.712	1.725	1.839	1.748	1.891	1.766	4.17
66)T Dimethylphthalate	1.283	1.216	1.257	1.281	1.318	1.269	1.325	1.278	2.90
67)T 1,3-Dinitrobenzen	0.222	0.189	0.202	0.214	0.237	0.219	0.245	0.218	8.86
68)T 2,6-Dinitrotoluen	0.298	0.274	0.282	0.292	0.317	0.297	0.314	0.296	5.29
69)C Acenaphthene	1.071	1.041	1.028	1.049	1.109	1.063	1.141	1.072	3.73
70)P 2,4-Dinitrophenol	0.163	0.065	0.123	0.128	0.179	0.152	0.184	0.142	28.98
---- Linear regression ---- Coefficient = 0.9970									
Response Ratio = -0.02537 + 0.19051 *A									
71)T Pentachlorobenzen	0.633	0.589	0.594	0.610	0.650	0.627	0.673	0.625	4.84
72)T Dibenzofuran	1.630	1.525	1.563	1.572	1.679	1.591	1.694	1.608	3.89
73)M 2,4-Dinitrotoluen	0.389	0.358	0.367	0.377	0.406	0.391	0.417	0.386	5.40
74)P 4-Nitrophenol	0.222	0.168	0.193	0.203	0.223	0.211	0.222	0.206	9.80
75)T o-toluidine	0.913	0.807	0.835	0.862	0.941	0.887	0.961	0.887	6.30
76)T 1-Naphthylamine	0.634	0.609	0.639	0.633	0.640	0.616	0.652	0.632	2.34
77)T 2,3,4,6-Tetrachlo	0.362	0.305	0.326	0.330	0.381	0.349	0.385	0.348	8.61
78)T 2-Naphthylamine	1.200	1.164	1.188	1.199	1.257	1.207	1.273	1.212	3.18
79)T Fluorene	1.342	1.217	1.237	1.258	1.403	1.309	1.431	1.314	6.28
80)T 4-Chlorophenyl-ph	0.717	0.647	0.668	0.688	0.758	0.693	0.768	0.706	6.35
81)T 5-Nitro-o-toluidi	0.378	0.334	0.345	0.369	0.387	0.375	0.396	0.369	6.02
82)T Diethylphthalate	1.241	1.223	1.221	1.229	1.290	1.241	1.290	1.247	2.39
83)T 2-nitroaniline	0.358	0.319	0.344	0.352	0.371	0.352	0.383	0.354	5.78
84)T 3-nitroaniline	0.317	0.278	0.292	0.305	0.323	0.306	0.333	0.308	6.05
85)T 4-nitroaniline	0.306	0.271	0.290	0.307	0.312	0.308	0.321	0.302	5.52
86) I Phenanthrene-d10	----------ISTD----------								
87) tetraethyl dithio	0.185	0.165	0.167	0.170	0.191	0.178	0.193	0.178	6.47
88)T 4,6-Dinitro-2-met	0.173	0.107	0.123	0.143	0.184	0.163	0.185	0.154	19.86
---- Linear regression ---- Coefficient = 0.9986									
Response Ratio = -0.01976 + 0.19200 *A									
89)T Thionazin	0.122	0.117	0.122	0.120	0.126	0.119	0.126	0.122	2.71
90)T phorate	0.455	0.424	0.433	0.433	0.461	0.443	0.463	0.445	3.44
91)T parathion	0.147	0.135	0.131	0.139	0.148	0.145	0.149	0.142	5.08

9.7.11

9

Initial Calibration Summary

Job Number: JB35319 **Sample:** MSW546-ICC546
Account: ALNJ Accutest New Jersey **Lab FileID:** W11792.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
 92)T methyl parathion  0.227 0.215 0.220 0.233 0.229 0.226 0.232 0.226   2.83
 93)T Disulfoton        0.420 0.380 0.379 0.387 0.422 0.400 0.434 0.403   5.45
 94)T Dimethoate        0.253 0.242 0.245 0.255 0.250 0.252 0.249 0.249   1.83
 95)T Diallate          0.266 0.251 0.246 0.250 0.267 0.255 0.267 0.257   3.49
 96)C Diphenylamine     1.264 1.105 1.109 1.183 1.280 1.237 1.301 1.211   6.63
 97)C n-Nitrosodiphenyl 1.264 1.105 1.109 1.183 1.280 1.237 1.301 1.211   6.63
 98)T 1,2-Diphenylhydra 0.821 0.811 0.791 0.797 0.833 0.810 0.835 0.814   2.08
 99)S 2,4,6-Tribromophe 0.166 0.142 0.144 0.155 0.173 0.157 0.177 0.159   8.44
100)T sym-Trinitrobenze 0.189 0.146 0.163 0.177 0.195 0.183       0.175  10.26
101)T Phenacetin        0.367 0.336 0.344 0.359 0.374 0.361 0.378 0.360   4.20
102)T 4-Bromophenyl-phe 0.269 0.236 0.247 0.254 0.283 0.262 0.287 0.263   7.05
103)T Hexachlorobenzene 0.289 0.265 0.266 0.275 0.299 0.278 0.300 0.282   5.16
104)C Pentachlorophenol 0.123 0.068 0.104 0.102 0.133 0.114 0.135 0.111  20.82#
             ---- Linear regression ----  Coefficient =  0.9974
               Response Ratio = -0.01495 + 0.13938 *A

105)T 4-Aminobiphenyl   1.264 1.105 1.109 1.183 1.280 1.237 1.301 1.211   6.63
106)T Pentachloronitrob 0.231 0.209 0.219 0.226 0.235 0.228 0.233 0.226   4.03
107)T Pronamide         0.386 0.338 0.337 0.356 0.400 0.370 0.397 0.369   7.11
108)T 2-sec-Butyl-4,6-D 0.831 0.595 0.666 0.748 0.860 0.807 0.884 0.770  13.84
109)T Phenanthrene      1.041 0.976 0.976 1.012 1.066 1.023 1.078 1.025   3.92
110)T Anthracene        1.169 1.055 1.077 1.097 1.196 1.144 1.188 1.132   4.94
111)T Carbazole         1.003 0.942 0.949 0.971 1.028 0.984 1.042 0.988   3.86
112)T Di-n-butylphthala 1.217 1.154 1.151 1.174 1.246 1.189 1.234 1.195   3.17
113)T 4-Nitroquinoline- 0.075       0.039 0.057 0.087 0.075 0.092 0.071  27.94
             ---- Linear regression ----  Coefficient =  0.9961
               Response Ratio = -0.02079 + 0.09803 *A

114)T Methapyrilene     0.335 0.375 0.382 0.368 0.314 0.331 0.312 0.345   8.46
115)T Isodrin           0.125 0.120 0.120 0.123 0.129 0.123 0.129 0.124   3.13
116)C Fluoranthene      1.200 1.115 1.147 1.183 1.232 1.191 1.245 1.188   3.83

117) I   Chrysene-d12          ----------------ISTD---------------------
118)T kepone                  0.056 0.059                         0.058   4.25
             ---- Linear regression ----  Coefficient =  1.0000
               Response Ratio = -0.00087 + 0.06282 *A

119)T Famphur                 0.354 0.306                         0.330  10.39
             ---- Linear regression ----  Coefficient =  1.0000
               Response Ratio = 0.01212 + 0.25728 *A

120)T Benzidine         0.467 0.397 0.439 0.472 0.480 0.486 0.470 0.459   6.76
121)M Pyrene            1.033 1.035 1.031 1.019 1.002 1.011 0.986 1.017   1.81
122)S Terphenyl-d14     0.889 0.854 0.847 0.856 0.859 0.871 0.849 0.861   1.72
123)T Aramite           0.052 0.052 0.051 0.051 0.049 0.050 0.047 0.050   3.52
124)T p-Dimethylaminoaz 0.239 0.218 0.227 0.228 0.234 0.235 0.229 0.230   3.06
125)T Chlorobenzilate   0.721 0.650 0.662 0.671 0.695 0.690 0.679 0.681   3.45
126)T 3,3'-Dimethylbenz 1.168 1.173 1.239 1.273 1.261 1.276 1.246 1.234   3.67
127)T Butylbenzylphthal 0.426 0.409 0.416 0.411 0.403 0.416 0.399 0.411   2.16
128)T 2-Acetylaminofluo 0.430 0.385 0.395 0.414 0.410 0.415 0.409 0.408   3.59
129)T 3,3'-Dichlorobenz 0.444 0.426 0.433 0.446 0.437 0.440 0.431 0.437   1.64
130)T Benzo[a]anthracen 1.039 1.027 1.028 1.013 1.001 1.009 0.999 1.016   1.48
131)T Chrysene          0.996 0.986 0.985 0.976 0.964 0.976 0.956 0.977   1.40
132)T bis(2-Ethylhexyl) 0.613 0.591 0.598 0.598 0.588 0.592 0.586 0.595   1.51

133) I   Perylene-d12          ----------------ISTD---------------------
134)C Di-n-octylphthala 1.092 1.002 1.017 1.029 1.092 1.062 1.105 1.057   3.88
135)T 7,12-Dimethylbenz 0.629 0.551 0.567 0.571 0.640 0.611 0.660 0.604   6.89
136)T Benzo[b]fluoranth 1.212 1.263 1.298 1.240 1.268 1.368       1.275   4.25
137)T Benzo[k]fluoranth 1.040 0.945 0.975 1.065 0.994 1.054 1.202 1.039   8.11
```

9.7.11

9

Initial Calibration Summary

Job Number: JB35319 **Sample:** MSW546-ICC546
Account: ALNJ Accutest New Jersey **Lab FileID:** W11792.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
138)C Benzo[a]pyrene    1.080 0.989 1.003 1.015 1.104 1.060 1.121 1.053   4.91
139)T Hexachlorophene                                       0.005 0.005#  0.00
             ---- Linear regression ----  Coefficient =  1.0000
               Response Ratio = 0.00000 + 0.00492 *A

140)T 3-Methylcholanthr 0.676 0.607 0.616 0.628 0.660 0.651 0.678 0.645   4.40
141)T Dibenz(a,j)acridi 0.950 0.879 0.884 0.901 0.973 0.935 0.989 0.930   4.67
142)T Indeno[1,2,3-cd]p 1.400 1.234 1.258 1.299 1.435 1.373 1.464 1.352   6.60
143)T Dibenz[a,h]anthra 1.169 1.023 1.031 1.069 1.215 1.129 1.238 1.125   7.70
144)T Benzo[g,h,i]peryl 1.103 1.031 1.014 1.039 1.116 1.062 1.136 1.071   4.39

145)     1,4-Dichlorobenzene-d ----------------ISTD---------------------
146)  Benzaldehyde      3.845 3.970 4.015 4.354 4.077             4.052   4.66

147)     Naphthalene-d8       ----------------ISTD---------------------
148)  Caprolactam       0.143 0.135 0.144 0.135 0.162             0.144   7.72

149)     Acenaphthene-d10     ----------------ISTD---------------------
150)  1,1'-Biphenyl     1.064 1.235 1.421 1.201 1.357             1.256  11.09

151)     Phenanthrene-d10     ----------------ISTD---------------------
152)  Atrazine          0.171 0.203 0.223 0.193 0.203             0.199   9.53
 ---------------------------------------------------------------------------
 (#) = Out of Range

           W130503_AP9+.m        Tue May 07 11:13:10 2013
```

9.7.11

9

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSW546-ICV546
Account: ALNJ Accutest New Jersey **Lab FileID:** W11799.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\2\DATA\W130503\w11799.D Vial: 7
Acq On : 3 May 2013 10:23 am Operator: kristinr
Sample : ICV546-20, BN Inst : MSW
Misc : op32908,msw546,,,,1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\msdchem\1\methods\W130503_AP9.m (RTE Integrator)
Title : SW-846 Method 8270
Last Update : Mon May 06 14:46:29 2013
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	118	0.00	3.39
2		Methyl Methacrylate		----------NA----------				
3	T	N-Nitrosodimethylamine	0.784	0.816	-4.1	122	0.02	1.55
4	T	Pyridine	1.403	1.477	-5.3	130	0.03	1.55
5	T	Ethyl Methacrylate		----------NA----------				
6	T	2-Picoline		----------NA----------				
7	T	n-Nitrosomethylethylamine		----------NA----------				
8	T	Methyl Methanesulfonate		----------NA----------				
9	T	n-Nitrosodiethylamine		----------NA----------				
10	T	Ethyl Methanesulfonate		----------NA----------				
11	T	Aniline	2.053	1.809	11.9	105	0.04	3.21
12	S	2-Fluorophenol		----------NA----------				
13	T	bis(2-Chloroethyl)ether	1.187	1.231	-3.7	123	0.00	3.21
14	T	Pentachloroethane		----------NA----------				
15	S	Phenol-d5		----------NA----------				
16	C	Phenol		----------NA----------				
17	M	2-Chlorophenol		----------NA----------				
18	T	1,3-Dichlorobenzene	1.453	1.540	-6.0	126	0.00	3.36
19	C	1,4-Dichlorobenzene	1.545	1.583	-2.5	123	0.00	3.40
20	T	1,2-Dichlorobenzene	1.405	1.474	-4.9	127	0.00	3.54
21	T	Benzyl alcohol	0.723	0.798	-10.4	133	0.00	3.53
22	T	bis(2-chloroisopropyl)eth	1.122	1.404	-25.1#	147	0.00	3.64
23	T	o-cresol		----------NA----------				
24	T	Acetophenone	3.837	3.718	3.1	114	0.00	3.73
25	T	n-Nitrosopyrrolidine		----------NA----------				
26	T	n-Nitrosomorpholine		----------NA----------				
27	T	Hexachloroethane	0.591	0.602	-1.9	126	0.00	3.78
28	P	N-Nitroso-di-n-propylamin	0.958	0.978	-2.1	122	-0.01	3.76
29	T	m+p-cresols		----------NA----------				
30		4-methylphenol		----------NA----------				
31	I	Naphthalene-d8	1.000	1.000	0.0	116	0.00	4.43
32	S	Nitrobenzene-d5	0.762	0.762	0.0	116	0.00	3.86
33	T	Nitrobenzene	0.375	0.399	-6.4	123	0.00	3.87
34	T	n-Nitrosopiperidine		----------NA----------				
35	T	Isophorone	0.647	0.665	-2.8	119	0.00	4.06
36	C	2-Nitrophenol		----------NA----------				
36	C	2-Nitrophenol		----------NA----------				
37	T	2,4-Dimethylphenol		----------NA----------				
38	T	bis(2-Chloroethoxy)methan	0.510	0.461	9.6	106	0.00	4.26
39	T	alpha, alpha-Dimethylphen		----------NA----------				
40	T	O,O,O-Triethyl phosphorot		----------NA----------				

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSW546-ICV546
Account: ALNJ Accutest New Jersey **Lab FileID:** W11799.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			Amount	Calc.	%Drift			
41	T	Benzoic acid		NA				
			AvgRF	CCRF	%Dev			
42	C	2,4-Dichlorophenol		NA				
43	M	1,2,4-Trichlorobenzene	0.352	0.377	-7.1	126	0.00	4.40
44	T	Naphthalene	1.022	1.076	-5.3	124	0.00	4.44
45	T	2,6-Dichlorophenol		NA				
46	T	4-Chloroaniline	0.457	0.375	17.9	99	0.00	4.52
47	T	Hexachloropropene		NA				
48	C	Hexachlorobutadiene	0.238	0.259	-8.8	127	0.00	4.60
49	T	n-Nitroso-di-n-butylamine		NA				
50	T	p-phenylenediamine		NA				
51	C	4-Chloro-3-methylphenol		NA				
52	T	Safrole		NA				
53	T	2-Methylnaphthalene	0.744	0.737	0.9	116	0.00	5.03
54		1-methylnaphthalene	0.704	0.719	-2.1	121	0.00	5.12
55	I	Acenaphthene-d10	1.000	1.000	0.0	114	0.00	5.93
			Amount	Calc.	%Drift			
56	P	Hexachlorocyclopentadiene	20.000	13.716	31.4#	72	0.00	5.22
			AvgRF	CCRF	%Dev			
57	T	1,2,4,5-Tetrachlorobenzen	1.339	1.310	2.2	114	0.00	5.21
58	C	2,4,6-Trichlorophenol		NA				
59	T	2,4,5-Trichlorophenol		NA				
60	S	2-Fluorobiphenyl	2.698	2.712	-5.2	120	0.00	5.37
61	T	2-Chloronaphthalene	1.157	1.144	1.1	118	0.00	5.44
62	T	1-Chloronaphthalene		NA				
63	T	Isosafrole		NA				
64	T	1,4-Naphthoquinone		NA				
65	M	Acenaphthylene	1.766	1.951	-10.5	129	0.00	5.80
66	T	Dimethylphthalate	1.278	1.303	-2.0	116	0.00	5.76
67	T	1,3-Dinitrobenzene		NA				
68	T	2,6-Dinitrotoluene	0.296	0.293	1.0	114	0.00	5.82
69	C	Acenaphthene	1.072	1.139	-6.2	124	0.00	5.96
			Amount	Calc.	%Drift			
70	P	2,4-Dinitrophenol		NA				
			AvgRF	CCRF	%Dev			
71	T	Pentachlorobenzene		NA				
72	T	Dibenzofuran	1.608	1.606	0.1	116	0.00	6.10
73	M	2,4-Dinitrotoluene	0.386	0.390	-1.0	118	0.00	6.16
74	P	4-Nitrophenol		NA				
75	T	o-toluidine		NA				
76	T	1-Naphthylamine		NA				
77	T	2,3,4,6-Tetrachlorophenol		NA				
78	T	2-Naphthylamine		NA				
79	T	Fluorene	1.314	1.376	-4.7	125	0.00	6.39
80	T	4-Chlorophenyl-phenylethe	0.706	0.730	-3.4	121	0.00	6.41
81	T	5-Nitro-o-toluidine		NA				
82	T	Diethylphthalate	1.247	1.304	-4.6	121	-0.01	6.37
83	T	2-nitroaniline	0.354	0.352	0.6	114	0.00	5.58
84	T	3-nitroaniline	0.308	0.266	13.6	100	0.00	5.94
85	T	4-nitroaniline	0.302	0.280	7.3	104	-0.01	6.48
86	I	Phenanthrene-d10	1.000	1.000	0.0	111	-0.01	7.23

9.7.12

9

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSW546-ICV546
Account: ALNJ Accutest New Jersey **Lab FileID:** W11799.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			Amount	Calc.	%Drift		
87		tetraethyl dithiopyrophos		----------NA----------			
88	T	4,6-Dinitro-2-methylpheno		----------NA----------			
			AvgRF	CCRF	%Dev		
89	T	Thionazin		----------NA----------			
90	T	phorate		----------NA----------			
91	T	parathion		----------NA----------			
92	T	methyl parathion		----------NA----------			
93	T	Disulfoton		----------NA----------			
94	T	Dimethoate		----------NA----------			
95	T	Diallate		----------NA----------			
96	C	Diphenylamine		----------NA----------			
97	C	n-Nitrosodiphenylamine	1.211	0.998	17.6	94	-0.01 6.52
98	T	1,2-Diphenylhydrazine	0.814	0.746	8.4	104	0.00 6.54
99	S	2,4,6-Tribromophenol		----------NA----------			
100	T	sym-Trinitrobenzene		----------NA----------			
101	T	Phenacetin		----------NA----------			
102	T	4-Bromophenyl-phenylether	0.263	0.262	0.4	114	0.00 6.83
103	T	Hexachlorobenzene	0.282	0.299	-6.0	121	0.00 6.96
			Amount	Calc.	%Drift		
104	C	Pentachlorophenol		----------NA----------			
			AvgRF	CCRF	%Dev		
105	T	4-Aminobiphenyl	1.211	0.998	17.6	94	-0.01 6.52
106	T	Pentachloronitrobenzene	0.226	0.214	5.3	106	-0.01 7.20
107	T	Pronamide		----------NA----------			
108	T	2-sec-Butyl-4,6-Dinitroph		----------NA----------			
109	T	Phenanthrene	1.025	1.087	-6.0	119	0.00 7.25
110	T	Anthracene	1.132	1.088	3.9	110	-0.01 7.29
111	T	Carbazole	0.988	0.980	0.8	112	0.00 7.47
112	T	Di-n-butylphthalate	1.195	1.180	1.3	111	0.00 7.90
			Amount	Calc.	%Drift		
113	T	4-Nitroquinoline-1-oxide		----------NA----------			
			AvgRF	CCRF	%Dev		
114	T	Methapyrilene		----------NA----------			
115	T	Isodrin		----------NA----------			
116	C	Fluoranthene	1.188	1.248	-5.1	117	0.00 8.46
117	I	Chrysene-d12	1.000	1.000	0.0	100	0.00 10.07
			Amount	Calc.	%Drift		
118	T	kepone		----------NA----------			
119	T	Famphur		----------NA----------			
			AvgRF	CCRF	%Dev		
120	T	Benzidine	0.459	0.158	65.6#	33	0.00 8.64
121	M	Pyrene	1.017	1.136	-11.7	111	0.00 8.69
122	S	Terphenyl-d14	1.722	1.794	4.2	104	0.00 8.91
123	T	Aramite		----------NA----------			
124	T	p-Dimethylaminoazobenzene		----------NA----------			
125	T	Chlorobenzilate		----------NA----------			
126	T	3,3'-Dimethylbenzidine		----------NA----------			
127	T	Butylbenzylphthalate	0.411	0.459	-11.7	111	0.00 9.53
128	T	2-Acetylaminofluorene		----------NA----------			
129	T	3,3'-Dichlorobenzidine	0.437	0.300	31.4#	67	0.00 10.07

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSW546-ICV546
Account: ALNJ Accutest New Jersey **Lab FileID:** W11799.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

130	T	Benzo[a]anthracene	1.016	1.136	-11.8	112	0.00	10.05
131	T	Chrysene	0.977	1.047	-7.2	107	-0.01	10.09
132	T	bis(2-Ethylhexyl)phthalat	0.595	0.650	-9.2	108	0.00	10.25
133	I	Perylene-d12	1.000	1.000	0.0	95	-0.01	11.63
134	C	Di-n-octylphthalate	1.057	1.198	-13.3	110	0.00	10.94
135	T	7,12-Dimethylbenz(a)anthr		----------NA----------				
136	T	Benzo[b]fluoranthene	1.275	1.227	3.8	94	-0.01	11.25
137	T	Benzo[k]fluoranthene	1.039	1.184	-14.0	105	-0.02	11.27
138	C	Benzo[a]pyrene	1.053	0.992	5.8	93	0.00	11.58
		----------	Amount	Calc.	%Drift		----------	
139	T	Hexachlorophene		----------NA----------				
		----------	AvgRF	CCRF	%Dev		----------	
140	T	3-Methylcholanthrene		----------NA----------				
141	T	Dibenz(a,j)acridine		----------NA----------				
142	T	Indeno[1,2,3-cd]pyrene	1.352	1.366	-1.0	100	-0.01	12.64
143	T	Dibenz[a,h]anthracene	1.125	1.138	-1.2	101	-0.01	12.64
144	T	Benzo[g,h,i]perylene	1.071	1.094	-2.1	100	-0.01	12.85

(#) = Out of Range SPCC's out = 1 CCC's out = 8
w11795.D W130503_AP9.m Mon May 06 15:35:18 2013

9.7.12

9

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSW546-ICV546
Account: ALNJ Accutest New Jersey **Lab FileID:** W11800.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\2\DATA\W130503\w11800.D          Vial: 8
Acq On    :  3 May 2013  10:46 am                   Operator: kristinr
Sample    : ICV546-50, Acids                        Inst    : MSW
Misc      : op32908,msw546,,,,1,1                   Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\methods\W130503_AP9.m (RTE Integrator)
Title        : SW-846 Method 8270
Last Update  : Mon May 06 14:46:29 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	113	0.00	3.39
2		Methyl Methacrylate		----------NA----------				
3	T	N-Nitrosodimethylamine		----------NA----------				
4	T	Pyridine		----------NA----------				
5	T	Ethyl Methacrylate		----------NA----------				
6	T	2-Picoline		----------NA----------				
7	T	n-Nitrosomethylethylamine		----------NA----------				
8	T	Methyl Methanesulfonate		----------NA----------				
9	T	n-Nitrosodiethylamine		----------NA----------				
10	T	Ethyl Methanesulfonate		----------NA----------				
11	T	Aniline		----------NA----------				
12	S	2-Fluorophenol	2.344	1.247	46.8#	59	0.00	2.49
13	T	bis(2-Chloroethyl)ether		----------NA----------				
14	T	Pentachloroethane		----------NA----------				
15	S	Phenol-d5	2.915	1.490	48.9#	56	0.00	3.19
16	C	Phenol	1.592	1.638	-2.9	113	0.00	3.19
17	M	2-Chlorophenol	1.285	1.370	-6.6	117	0.00	3.26
18	T	1,3-Dichlorobenzene		----------NA----------				
19	C	1,4-Dichlorobenzene		----------NA----------				
20	T	1,2-Dichlorobenzene		----------NA----------				
21	T	Benzyl alcohol		----------NA----------				
22	T	bis(2-chloroisopropyl)eth		----------NA----------				
23	T	o-cresol	1.218	1.220	-0.2	111	-0.02	3.65
24	T	Acetophenone		----------NA----------				
25	T	n-Nitrosopyrrolidine		----------NA----------				
26	T	n-Nitrosomorpholine		----------NA----------				
27	T	Hexachloroethane		----------NA----------				
28	P	N-Nitroso-di-n-propylamin		----------NA----------				
29	T	m+p-cresols	1.349	1.327	1.6	106	0.00	3.78
30		4-methylphenol	1.357	1.327	2.2	106	0.00	3.78
31	I	Naphthalene-d8	1.000	1.000	0.0	113	0.00	4.43
32	S	Nitrobenzene-d5		----------NA----------				
33	T	Nitrobenzene		----------NA----------				
34	T	n-Nitrosopiperidine		----------NA----------				
35	T	Isophorone		----------NA----------				
36	C	2-Nitrophenol	0.202	0.213	-5.4	117	0.00	4.14
37	T	2,4-Dimethylphenol	0.376	0.324	13.8	96	0.00	4.20
38	T	bis(2-Chloroethoxy)methan		----------NA----------				
39	T	alpha, alpha-Dimethylphen		----------NA----------				
40	T	O,O,O-Triethyl phosphorot		----------NA----------				

9.7.13

9

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSW546-ICV546
Account: ALNJ Accutest New Jersey **Lab FileID:** W11800.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			Amount	Calc.	%Drift			
41	T	Benzoic acid	50.000	96.130	-92.3#	260	0.02	4.35
			AvgRF	CCRF	%Dev			
42	C	2,4-Dichlorophenol	0.310	0.333	-7.4	119	0.00	4.34
43	M	1,2,4-Trichlorobenzene		NA				
44	T	Naphthalene		NA				
45	T	2,6-Dichlorophenol	0.321	0.333	-3.7	114	0.00	4.52
46	T	4-Chloroaniline		NA				
47	T	Hexachloropropene		NA				
48	C	Hexachlorobutadiene		NA				
49	T	n-Nitroso-di-n-butylamine		NA				
50	T	p-phenylenediamine		NA				
51	C	4-Chloro-3-methylphenol	0.327	0.334	-2.1	115	0.00	4.97
52	T	Safrole		NA				
53	T	2-Methylnaphthalene		NA				
54		1-methylnaphthalene		NA				
55	I	Acenaphthene-d10	1.000	1.000	0.0	112	0.00	5.93
			Amount	Calc.	%Drift			
56	P	Hexachlorocyclopentadiene		NA				
			AvgRF	CCRF	%Dev			
57	T	1,2,4,5-Tetrachlorobenzen		NA				
58	C	2,4,6-Trichlorophenol	0.380	0.431	-13.4	125	0.00	5.31
59	T	2,4,5-Trichlorophenol	0.416	0.465	-11.8	123	0.00	5.35
60	S	2-Fluorobiphenyl		NA				
61	T	2-Chloronaphthalene		NA				
62	T	1-Chloronaphthalene		NA				
63	T	Isosafrole		NA				
64	T	1,4-Naphthoquinone		NA				
65	M	Acenaphthylene		NA				
66	T	Dimethylphthalate		NA				
67	T	1,3-Dinitrobenzene		NA				
68	T	2,6-Dinitrotoluene		NA				
69	C	Acenaphthene		NA				
			Amount	Calc.	%Drift			
70	P	2,4-Dinitrophenol	50.000	47.703	4.6	112	-0.01	6.04
			AvgRF	CCRF	%Dev			
71	T	Pentachlorobenzene		NA				
72	T	Dibenzofuran		NA				
73	M	2,4-Dinitrotoluene		NA				
74	P	4-Nitrophenol	0.206	0.185	10.2	93	-0.02	6.15
75	T	o-toluidine		NA				
76	T	1-Naphthylamine		NA				
77	T	2,3,4,6-Tetrachlorophenol		NA				
78	T	2-Naphthylamine		NA				
79	T	Fluorene		NA				
80	T	4-Chlorophenyl-phenylethe		NA				
81	T	5-Nitro-o-toluidine		NA				
82	T	Diethylphthalate		NA				
83	T	2-nitroaniline		NA				
84	T	3-nitroaniline		NA				
85	T	4-nitroaniline		NA				
86	I	Phenanthrene-d10	1.000	1.000	0.0	115	-0.01	7.23
87		tetraethyl dithiopyrophos		NA				

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSW546-ICV546
Account: ALNJ Accutest New Jersey **Lab FileID:** W11800.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			Amount	Calc.	%Drift			
88	T	4,6-Dinitro-2-methylpheno	50.000	43.907	12.2	102	-0.01	6.52

			AvgRF	CCRF	%Dev
89	T	Thionazin		NA	
90	T	phorate		NA	
91	T	parathion		NA	
92	T	methyl parathion		NA	
93	T	Disulfoton		NA	
94	T	Dimethoate		NA	
95	T	Diallate		NA	
96	C	Diphenylamine		NA	
97	C	n-Nitrosodiphenylamine		NA	
98	T	1,2-Diphenylhydrazine		NA	
99	S	2,4,6-Tribromophenol	0.318	0.160	49.7#
100	T	sym-Trinitrobenzene		NA	
101	T	Phenacetin		NA	
102	T	4-Bromophenyl-phenylether		NA	
103	T	Hexachlorobenzene		NA	

			Amount	Calc.	%Drift			
104	C	Pentachlorophenol	50.000	53.321	-6.6	128	0.00	7.14

			AvgRF	CCRF	%Dev
105	T	4-Aminobiphenyl		NA	
106	T	Pentachloronitrobenzene		NA	
107	T	Pronamide		NA	
108	T	2-sec-Butyl-4,6-Dinitroph		NA	
109	T	Phenanthrene		NA	
110	T	Anthracene		NA	
111	T	Carbazole		NA	
112	T	Di-n-butylphthalate		NA	

			Amount	Calc.	%Drift			
113	T	4-Nitroquinoline-1-oxide		NA				

			AvgRF	CCRF	%Dev
114	T	Methapyrilene		NA	
115	T	Isodrin		NA	
116	C	Fluoranthene		NA	
117	I	Chrysene-d12	1.000	1.000	0.0

			Amount	Calc.	%Drift			
118	T	kepone		NA				
119	T	Famphur		NA				

			AvgRF	CCRF	%Dev
120	T	Benzidine		NA	
121	M	Pyrene		NA	
122	S	Terphenyl-d14		NA	
123	T	Aramite		NA	
124	T	p-Dimethylaminoazobenzene		NA	
125	T	Chlorobenzilate		NA	
126	T	3,3'-Dimethylbenzidine		NA	
127	T	Butylbenzylphthalate		NA	
128	T	2-Acetylaminofluorene		NA	
129	T	3,3'-Dichlorobenzidine		NA	
130	T	Benzo[a]anthracene		NA	

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSW546-ICV546
Account: ALNJ Accutest New Jersey **Lab FileID:** W11800.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
131 T   Chrysene                              ----------NA----------
132 T   bis(2-Ethylhexyl)phthalat             ----------NA----------

133 I   Perylene-d12                  1.000   1.000      0.0  105  -0.01   11.63
134 C   Di-n-octylphthalate                   ----------NA----------
135 T   7,12-Dimethylbenz(a)anthr             ----------NA----------
136 T   Benzo[b]fluoranthene                  ----------NA----------
137 T   Benzo[k]fluoranthene                  ----------NA----------
138 C   Benzo[a]pyrene                        ----------NA----------

            ----------------------- Amount  Calc.    %Drift   -------------
139 T   Hexachlorophene                       ----------NA----------

            ----------------------- AvgRF   CCRF      %Dev   --------------
140 T   3-Methylcholanthrene                  ----------NA----------
141 T   Dibenz(a,j)acridine                   ----------NA----------
142 T   Indeno[1,2,3-cd]pyrene                ----------NA----------
143 T   Dibenz[a,h]anthracene                 ----------NA----------
144 T   Benzo[g,h,i]perylene                  ----------NA----------
 ---------------------------------------------------------------------------
 ---------------------------------------------------------------------------

    (#) = Out of Range                 SPCC's out = 1  CCC's out = 8
     w11792.D   W130503_AP9.m       Mon May 06 15:53:06 2013
```

9.7.13

9

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSW546-ICV546
Account: ALNJ Accutest New Jersey **Lab FileID:** W11801.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\2\DATA\W130503\w11801.D Vial: 9
Acq On : 3 May 2013 11:39 am Operator: kristinr
Sample : ICV546-50, AP9 Inst : MSW
Misc : op32908,msw546,,,,1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\msdchem\1\methods\W130503_AP9.m (RTE Integrator)
Title : SW-846 Method 8270
Last Update : Mon May 06 15:54:08 2013
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	112	0.00	3.39
2		Methyl Methacrylate	1.093	1.075	1.6	108	0.02	1.83
3	T	N-Nitrosodimethylamine		----------NA----------				
4	T	Pyridine		----------NA----------				
5	T	Ethyl Methacrylate	1.093	1.075	1.6	108	0.02	1.83
6	T	2-Picoline	1.426	1.567	-9.9	121	0.00	2.03
7	T	n-Nitrosomethylethylamine	0.596	0.600	-0.7	114	0.00	2.14
8	T	Methyl Methanesulfonate		----------NA----------				
9	T	n-Nitrosodiethylamine	0.607	0.641	-5.6	115	0.00	2.63
10	T	Ethyl Methanesulfonate		----------NA----------				
11	T	Aniline		----------NA----------				
12	S	2-Fluorophenol		----------NA----------				
13	T	bis(2-Chloroethyl)ether		----------NA----------				
14	T	Pentachloroethane	0.479	0.477	0.4	108	0.00	3.16
15	S	Phenol-d5		----------NA----------				
16	C	Phenol		----------NA----------				
17	M	2-Chlorophenol		----------NA----------				
18	T	1,3-Dichlorobenzene		----------NA----------				
19	C	1,4-Dichlorobenzene		----------NA----------				
20	T	1,2-Dichlorobenzene		----------NA----------				
21	T	Benzyl alcohol		----------NA----------				
22	T	bis(2-chloroisopropyl)eth		----------NA----------				
23	T	o-cresol		----------NA----------				
24	T	Acetophenone		----------NA----------				
25	T	n-Nitrosopyrrolidine	0.662	0.693	-4.7	112	-0.01	3.73
26	T	n-Nitrosomorpholine	0.774	0.735	5.0	104	0.00	3.75
27	T	Hexachloroethane		----------NA----------				
28	P	N-Nitroso-di-n-propylamin		----------NA----------				
29	T	m+p-cresols		----------NA----------				
30		4-methylphenol		----------NA----------				
31	I	Naphthalene-d8	1.000	1.000	0.0	110	0.00	4.43
32	S	Nitrobenzene-d5		----------NA----------				
33	T	Nitrobenzene		----------NA----------				
34	T	n-Nitrosopiperidine	0.170	0.191	-12.4	121	0.00	3.99
35	T	Isophorone		----------NA----------				
36	C	2-Nitrophenol		----------NA----------				
37	T	2,4-Dimethylphenol		----------NA----------				
38	T	bis(2-Chloroethoxy)methan		----------NA----------				
39	T	alpha, alpha-Dimethylphen	0.060	0.062	-3.3	114	-0.01	6.99
40	T	O,O,O-Triethyl phosphorot	0.172	0.184	-7.0	119	0.00	4.27

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSW546-ICV546
Account: ALNJ Accutest New Jersey **Lab FileID:** W11801.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			Amount	Calc.	%Drift			
41	T	Benzoic acid		NA				
			AvgRF	CCRF	%Dev			
42	C	2,4-Dichlorophenol		NA				
43	M	1,2,4-Trichlorobenzene		NA				
44	T	Naphthalene		NA				
45	T	2,6-Dichlorophenol		NA				
46	T	4-Chloroaniline		NA				
47	T	Hexachloropropene	0.292	0.326	-11.6	120	0.00	4.54
48	C	Hexachlorobutadiene		NA				
49	T	n-Nitroso-di-n-butylamine	0.249	0.270	-8.4	119	0.00	4.83
50	T	p-phenylenediamine	0.320	0.121	62.2#	45#	0.00	4.83
51	C	4-Chloro-3-methylphenol		NA				
52	T	Safrole	0.302	0.327	-8.3	118	0.00	4.97
53	T	2-Methylnaphthalene		NA				
54		1-methylnaphthalene		NA				
55	I	Acenaphthene-d10	1.000	1.000	0.0	111	0.00	5.93
			Amount	Calc.	%Drift			
56	P	Hexachlorocyclopentadiene		NA				
			AvgRF	CCRF	%Dev			
57	T	1,2,4,5-Tetrachlorobenzen		NA				
58	C	2,4,6-Trichlorophenol		NA				
59	T	2,4,5-Trichlorophenol		NA				
60	S	2-Fluorobiphenyl		NA				
61	T	2-Chloronaphthalene		NA				
62	T	1-Chloronaphthalene	0.951	1.054	-10.8	125	0.00	5.47
63	T	Isosafrole	0.428	0.461	-7.7	120	0.00	5.41
64	T	1,4-Naphthoquinone	0.357	0.383	-7.3	114	0.00	5.61
65	M	Acenaphthylene		NA				
66	T	Dimethylphthalate		NA				
67	T	1,3-Dinitrobenzene	0.218	0.232	-6.4	116	0.00	5.79
68	T	2,6-Dinitrotoluene		NA				
69	C	Acenaphthene		NA				
			Amount	Calc.	%Drift			
70	P	2,4-Dinitrophenol		NA				
			AvgRF	CCRF	%Dev			
71	T	Pentachlorobenzene	0.625	0.698	-11.7	123	0.00	6.12
72	T	Dibenzofuran		NA				
73	M	2,4-Dinitrotoluene		NA				
74	P	4-Nitrophenol		NA				
75	T	o-toluidine	0.887	0.363	59.1#	44#	0.00	3.77
76	T	1-Naphthylamine	0.632	0.224	64.6#	39#	0.00	6.18
77	T	2,3,4,6-Tetrachlorophenol		NA				
78	T	2-Naphthylamine	1.212	0.456	62.4#	42#	0.00	6.24
79	T	Fluorene		NA				
80	T	4-Chlorophenyl-phenylethe		NA				
81	T	5-Nitro-o-toluidine	0.369	0.230	37.7#	67	0.00	6.46
82	T	Diethylphthalate		NA				
83	T	2-nitroaniline		NA				
84	T	3-nitroaniline		NA				
85	T	4-nitroaniline		NA				
86	I	Phenanthrene-d10	1.000	1.000	0.0	112	0.00	7.23
87		tetraethyl dithiopyrophos	0.178	0.202	-13.5	123	0.00	6.76

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSW546-ICV546
Account: ALNJ Accutest New Jersey **Lab FileID:** W11801.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			Amount	Calc.	%Drift			
88	T	4,6-Dinitro-2-methylpheno		NA				
			AvgRF	CCRF	%Dev			
89	T	Thionazin	0.122	0.129	-5.7	118	0.00	6.45
90	T	phorate	0.445	0.448	-0.7	110	0.00	6.82
91	T	parathion	0.142	0.155	-9.2	118	0.00	8.08
92	T	methyl parathion	0.226	0.241	-6.6	119	0.00	7.67
93	T	Disulfoton	0.403	0.363	9.9	97	0.00	7.30
94	T	Dimethoate	0.249	0.262	-5.2	116	-0.01	6.99
95	T	Diallate	0.257	0.282	-9.7	119	0.00	6.81
96	C	Diphenylamine	1.211	0.721	40.5#	64	0.00	6.52
97	C	n-Nitrosodiphenylamine	1.211	0.721	40.5#	64	0.00	6.52
98	T	1,2-Diphenylhydrazine		NA				
99	S	2,4,6-Tribromophenol		NA				
100	T	sym-Trinitrobenzene	0.175	0.192	-9.7	114	-0.02	6.88
101	T	Phenacetin	0.360	0.389	-8.1	119	0.00	6.86
102	T	4-Bromophenyl-phenylether		NA				
103	T	Hexachlorobenzene		NA				
			Amount	Calc.	%Drift			
104	C	Pentachlorophenol		NA				
			AvgRF	CCRF	%Dev			
105	T	4-Aminobiphenyl	1.211	0.721	40.5#	64	0.00	6.52
106	T	Pentachloronitrobenzene	0.226	0.127	43.8#	62	-0.01	7.20
107	T	Pronamide	0.369	0.411	-11.4	119	0.00	7.20
108	T	2-sec-Butyl-4,6-Dinitroph	0.770	0.526	31.7#	71	0.00	7.33
109	T	Phenanthrene		NA				
110	T	Anthracene		NA				
111	T	Carbazole		NA				
112	T	Di-n-butylphthalate		NA				
			Amount	Calc.	%Drift			
113	T	4-Nitroquinoline-1-oxide	50.000	46.178	7.6	110	-0.01	8.07
			AvgRF	CCRF	%Dev			
114	T	Methapyrilene	0.345	0.365	-5.8	122	-0.01	8.19
115	T	Isodrin	0.124	0.134	-8.1	120	0.00	8.30
116	C	Fluoranthene		NA				
117	I	Chrysene-d12	1.000	1.000	0.0	104	-0.01	10.07
			Amount	Calc.	%Drift			
118	T	kepone	50.000	39.948	20.1#	0	0.22	9.72
119	T	Famphur	50.000	31.692	36.6#	0	-0.01	9.47
			AvgRF	CCRF	%Dev			
120	T	Benzidine		NA				
121	M	Pyrene		NA				
122	S	Terphenyl-d14		NA				
123	T	Aramite	0.050	0.052	-4.0	104	0.00	8.94
124	T	p-Dimethylaminoazobenzene	0.230	0.274	-19.1	119	0.00	9.10
125	T	Chlorobenzilate	0.681	0.766	-12.5	111	0.00	9.17
126	T	3,3'-Dimethylbenzidine		NA				
127	T	Butylbenzylphthalate		NA				
128	T	2-Acetylaminofluorene	0.408	0.457	-12.0	111	0.00	9.78
129	T	3,3'-Dichlorobenzidine		NA				
130	T	Benzo[a]anthracene		NA				

Initial Calibration Verification

Job Number: JB35319 **Sample:** MSW546-ICV546
Account: ALNJ Accutest New Jersey **Lab FileID:** W11801.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

131	T	Chrysene		----------NA----------				
132	T	bis(2-Ethylhexyl)phthalat		----------NA----------				
133	I	Perylene-d12	1.000	1.000	0.0	103	0.00	11.63
134	C	Di-n-octylphthalate		----------NA----------				
135	T	7,12-Dimethylbenz(a)anthr	0.604	0.665	-10.1	108	0.00	11.26
136	T	Benzo[b]fluoranthene		----------NA----------				
137	T	Benzo[k]fluoranthene		----------NA----------				
138	C	Benzo[a]pyrene		----------NA----------				
		----------	Amount	Calc.	%Drift		----------	
139	T	Hexachlorophene	-1.000	46.858	0.0	0	-0.08	11.42
		----------	AvgRF	CCRF	%Dev		----------	
140	T	3-Methylcholanthrene	0.645	0.732	-13.5	111	0.00	11.96
141	T	Dibenz(a,j)acridine	0.930	1.016	-9.2	110	0.00	12.49
142	T	Indeno[1,2,3-cd]pyrene		----------NA----------				
143	T	Dibenz[a,h]anthracene		----------NA----------				
144	T	Benzo[g,h,i]perylene		----------NA----------				

(#) = Out of Range SPCC's out = 2 CCC's out = 14
w11792.D W130503_AP9.m Mon May 06 15:57:21 2013

9.7.14

9

Continuing Calibration Summary

Job Number: JB35319 **Sample:** MSW550-CC546
Account: ALNJ Accutest New Jersey **Lab FileID:** W11893A.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\2\DATA\W130506\W11893A.D          Vial: 100
Acq On    :  6 May 2013   6:11 pm                    Operator: kristinr
Sample    : cc546-50                                 Inst    : MSW
Misc      : op32964,msw550,,,,1,1                    Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\methods\W130503_AP9+.m (RTE Integrator)
Title        : SW-846 Method 8270
Last Update  : Tue May 07 11:08:49 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	116	-0.03	3.35
2		Methyl Methacrylate		----------NA----------				
3	T	N-Nitrosodimethylamine		----------NA----------				
4	T	Pyridine		----------NA----------				
5	T	Ethyl Methacrylate		----------NA----------				
6	T	2-Picoline		----------NA----------				
7	T	n-Nitrosomethylethylamine		----------NA----------				
8	T	Methyl Methanesulfonate		----------NA----------				
9	T	n-Nitrosodiethylamine		----------NA----------				
10	T	Ethyl Methanesulfonate		----------NA----------				
11	T	Aniline		----------NA----------				
12	S	2-Fluorophenol		----------NA----------				
13	T	bis(2-Chloroethyl)ether		----------NA----------				
14	T	Pentachloroethane		----------NA----------				
15	S	Phenol-d5		----------NA----------				
16	C	Phenol		----------NA----------				
17	M	2-Chlorophenol		----------NA----------				
18	T	1,3-Dichlorobenzene		----------NA----------				
19	C	1,4-Dichlorobenzene		----------NA----------				
20	T	1,2-Dichlorobenzene		----------NA----------				
21	T	Benzyl alcohol		----------NA----------				
22	T	bis(2-chloroisopropyl)eth		----------NA----------				
23	T	o-cresol		----------NA----------				
24	T	Acetophenone		----------NA----------				
25	T	n-Nitrosopyrrolidine		----------NA----------				
26	T	n-Nitrosomorpholine		----------NA----------				
27	T	Hexachloroethane		----------NA----------				
28	P	N-Nitroso-di-n-propylamin		----------NA----------				
29	T	m+p-cresols		----------NA----------				
30		4-methylphenol		----------NA----------				
31	I	Naphthalene-d8	1.000	1.000	0.0	115	-0.03	4.39
32	S	Nitrobenzene-d5		----------NA----------				
33	T	Nitrobenzene		----------NA----------				
34	T	n-Nitrosopiperidine		----------NA----------				
35	T	Isophorone		----------NA----------				
36	C	2-Nitrophenol		----------NA----------				
37	T	2,4-Dimethylphenol		----------NA----------				
38	T	bis(2-Chloroethoxy)methan		----------NA----------				
39	T	alpha, alpha-Dimethylphen		----------NA----------				
40	T	O,O,O-Triethyl phosphorot		----------NA----------				

Continuing Calibration Summary

Job Number: JB35319 **Sample:** MSW550-CC546
Account: ALNJ Accutest New Jersey **Lab FileID:** W11893A.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			Amount	Calc.	%Drift		
41	T	Benzoic acid		NA			
			AvgRF	CCRF	%Dev		
42	C	2,4-Dichlorophenol		NA			
43	M	1,2,4-Trichlorobenzene		NA			
44	T	Naphthalene		NA			
45	T	2,6-Dichlorophenol		NA			
46	T	4-Chloroaniline		NA			
47	T	Hexachloropropene		NA			
48	C	Hexachlorobutadiene		NA			
49	T	n-Nitroso-di-n-butylamine		NA			
50	T	p-phenylenediamine		NA			
51	C	4-Chloro-3-methylphenol		NA			
52	T	Safrole		NA			
53	T	2-Methylnaphthalene		NA			
54		1-methylnaphthalene		NA			
55	I	Acenaphthene-d10	1.000	1.000	0.0	113	-0.04 5.90
			Amount	Calc.	%Drift		
56	P	Hexachlorocyclopentadiene		NA			
			AvgRF	CCRF	%Dev		
57	T	1,2,4,5-Tetrachlorobenzen		NA			
58	C	2,4,6-Trichlorophenol		NA			
59	T	2,4,5-Trichlorophenol		NA			
60	S	2-Fluorobiphenyl		NA			
61	T	2-Chloronaphthalene		NA			
62	T	1-Chloronaphthalene		NA			
63	T	Isosafrole		NA			
64	T	1,4-Naphthoquinone		NA			
65	M	Acenaphthylene		NA			
66	T	Dimethylphthalate		NA			
67	T	1,3-Dinitrobenzene		NA			
68	T	2,6-Dinitrotoluene		NA			
69	C	Acenaphthene		NA			
			Amount	Calc.	%Drift		
70	P	2,4-Dinitrophenol		NA			
			AvgRF	CCRF	%Dev		
71	T	Pentachlorobenzene		NA			
72	T	Dibenzofuran		NA			
73	M	2,4-Dinitrotoluene		NA			
74	P	4-Nitrophenol		NA			
75	T	o-toluidine		NA			
76	T	1-Naphthylamine		NA			
77	T	2,3,4,6-Tetrachlorophenol		NA			
78	T	2-Naphthylamine		NA			
79	T	Fluorene		NA			
80	T	4-Chlorophenyl-phenylethe		NA			
81	T	5-Nitro-o-toluidine		NA			
82	T	Diethylphthalate		NA			
83	T	2-nitroaniline		NA			
84	T	3-nitroaniline		NA			
85	T	4-nitroaniline		NA			
86	I	Phenanthrene-d10	1.000	1.000	0.0	117	-0.05 7.19
87		tetraethyl dithiopyrophos		NA			

9.7.15

9

Continuing Calibration Summary

Job Number: JB35319 **Sample:** MSW550-CC546
Account: ALNJ Accutest New Jersey **Lab FileID:** W11893A.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			Amount	Calc.	%Drift		
88	T	4,6-Dinitro-2-methylpheno		NA			
			AvgRF	CCRF	%Dev		
89	T	Thionazin		NA			
90	T	phorate		NA			
91	T	parathion		NA			
92	T	methyl parathion		NA			
93	T	Disulfoton		NA			
94	T	Dimethoate		NA			
95	T	Diallate		NA			
96	C	Diphenylamine		NA			
97	C	n-Nitrosodiphenylamine		NA			
98	T	1,2-Diphenylhydrazine		NA			
99	S	2,4,6-Tribromophenol		NA			
100	T	sym-Trinitrobenzene		NA			
101	T	Phenacetin		NA			
102	T	4-Bromophenyl-phenylether		NA			
103	T	Hexachlorobenzene		NA			
			Amount	Calc.	%Drift		
104	C	Pentachlorophenol		NA			
			AvgRF	CCRF	%Dev		
105	T	4-Aminobiphenyl		NA			
106	T	Pentachloronitrobenzene		NA			
107	T	Pronamide		NA			
108	T	2-sec-Butyl-4,6-Dinitroph		NA			
109	T	Phenanthrene		NA			
110	T	Anthracene		NA			
111	T	Carbazole		NA			
112	T	Di-n-butylphthalate		NA			
			Amount	Calc.	%Drift		
113	T	4-Nitroquinoline-1-oxide		NA			
			AvgRF	CCRF	%Dev		
114	T	Methapyrilene		NA			
115	T	Isodrin		NA			
116	C	Fluoranthene		NA			
117	I	Chrysene-d12	1.000	1.000	0.0	118	-0.05 10.03
			Amount	Calc.	%Drift		
118	T	kepone		NA			
119	T	Famphur		NA			
			AvgRF	CCRF	%Dev		
120	T	Benzidine		NA			
121	M	Pyrene		NA			
122	S	Terphenyl-d14		NA			
123	T	Aramite		NA			
124	T	p-Dimethylaminoazobenzene		NA			
125	T	Chlorobenzilate		NA			
126	T	3,3'-Dimethylbenzidine		NA			
127	T	Butylbenzylphthalate		NA			
128	T	2-Acetylaminofluorene		NA			
129	T	3,3'-Dichlorobenzidine		NA			
130	T	Benzo[a]anthracene		NA			

Continuing Calibration Summary

Job Number: JB35319 **Sample:** MSW550-CC546
Account: ALNJ Accutest New Jersey **Lab FileID:** W11893A.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

131	T	Chrysene		----------NA----------				
132	T	bis(2-Ethylhexyl)phthalat		----------NA----------				
133	I	Perylene-d12	1.000	1.000	0.0	114	-0.06	11.58
134	C	Di-n-octylphthalate		----------NA----------				
135	T	7,12-Dimethylbenz(a)anthr		----------NA----------				
136	T	Benzo[b]fluoranthene		----------NA----------				
137	T	Benzo[k]fluoranthene		----------NA----------				
138	C	Benzo[a]pyrene		----------NA----------				
		----------	Amount	Calc.	%Drift	----------		
139	T	Hexachlorophene		----------NA----------				
		----------	AvgRF	CCRF	%Dev	----------		
140	T	3-Methylcholanthrene		----------NA----------				
141	T	Dibenz(a,j)acridine		----------NA----------				
142	T	Indeno[1,2,3-cd]pyrene		----------NA----------				
143	T	Dibenz[a,h]anthracene		----------NA----------				
144	T	Benzo[g,h,i]perylene		----------NA----------				
145		1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	162	-0.04	3.35
146		Benzaldehyde	4.052	3.997	1.4	169	0.00	3.70
147		Naphthalene-d8a	1.000	1.000	0.0	153	0.01	4.39
148		Caprolactam	0.144	0.126	12.5	135	0.05	4.79
149		Acenaphthene-d10a	1.000	1.000	0.0	113	-0.04	5.90
150		1,1'-Biphenyl	1.256	1.492	-18.8	159	0.07	5.41
151		Phenanthrene-d10a	1.000	1.000	0.0	116	-0.05	7.19
152		Atrazine	0.199	0.226	-13.6	153	0.17	7.01

(#) = Out of Range SPCC's out = 2 CCC's out = 14
w11792.D W130503_AP9+.m Tue May 07 11:41:31 2013

9.7.15

9

Continuing Calibration Summary

Job Number: JB35319 **Sample:** MSW549-CC505
Account: ALNJ Accutest New Jersey **Lab FileID:** W11893.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\2\DATA\W130506\W11893.D          Vial: 100
Acq On    :  6 May 2013   6:11 pm                   Operator: kristinr
Sample    : cc505-50                                Inst    : MSW
Misc      : op32964,msw549,,,,1,1                   Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\met...\W130402_8270+.M (RTE Integrator)
Title        : AB8270TCL42
Last Update  : Wed Apr 24 13:13:45 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	162	-0.04	3.35
2	T	N-Nitrosodimethylamine	0.785	0.756	3.7	155	-0.21	1.50
3	T	Pyridine	1.388	1.328	4.3	154	-0.21	1.50
4	T	Aniline	2.110	1.893	10.3	145	-0.06	3.14
5	S	2-Fluorophenol	1.104	1.159	-5.0	189	-0.12	2.45
6	T	bis(2-Chloroethyl)ether	1.002	1.063	-6.1	168	-0.05	3.19
7	S	Phenol-d5	1.430	1.477	-3.3	174	-0.04	3.16
8	C	Phenol	1.853	1.729	6.7	150	-0.04	3.16
9	M	2-Chlorophenol	1.353	1.312	3.0	157	-0.05	3.23
10	T	1,3-Dichlorobenzene	1.513	1.469	2.9	156	-0.04	3.32
11	C	1,4-Dichlorobenzene	1.605	1.557	3.0	157	-0.04	3.36
12	T	1,2-Dichlorobenzene	1.447	1.423	1.7	158	-0.03	3.51
13	T	Benzyl alcohol	0.751	0.805	-7.2	168	-0.02	3.50
14	T	bis(2-chloroisopropyl)eth	1.316	1.137	13.6	141	0.00	3.62
15	T	o-cresol	1.301	1.218	6.4	150	0.00	3.63
16	T	Acetophenone	1.888	1.892	-0.2	170	0.00	3.70
17	T	Hexachloroethane	0.593	0.601	-1.3	163	0.00	3.75
18	P	N-Nitroso-di-n-propylamin	1.016	0.935	8.0	145	0.00	3.73
19	T	m+p-cresols	1.347	1.327	1.5	169	0.02	3.75
20		4-methylphenol	1.347	1.325	1.6	169	0.02	3.75
21		Benzaldehyde	4.046	3.997	1.2	169	0.00	3.70
22	I	Naphthalene-d8	1.000	1.000	0.0	153	0.01	4.39
23	S	Nitrobenzene-d5	0.372	0.387	-4.0	149	-0.03	3.83
24	T	Nitrobenzene	0.401	0.385	4.0	149	-0.04	3.84
25	T	Isophorone	0.637	0.612	3.9	148	-0.01	4.03
26	C	2-Nitrophenol	0.204	0.206	-1.0	152	0.00	4.10
27	T	2,4-Dimethylphenol	0.388	0.381	1.8	145	0.01	4.17
28	T	bis(2-Chloroethoxy)methan	0.410	0.386	5.9	143	0.02	4.23
29	T	Benzoic acid	0.255	0.266	-4.3	143	0.03	4.32
30	C	2,4-Dichlorophenol	0.318	0.325	-2.2	154	0.02	4.32
31	M	1,2,4-Trichlorobenzene	0.358	0.362	-1.1	154	0.00	4.36
32	T	Naphthalene	1.035	1.067	-3.1	159	0.01	4.41
33	T	2,6-Dichlorophenol	0.317	0.330	-4.1	157	0.03	4.50
34	T	4-Chloroaniline	0.463	0.457	1.3	150	0.03	4.49
35	C	Hexachlorobutadiene	0.246	0.253	-2.8	152	0.03	4.57
36	C	4-Chloro-3-methylphenol	0.337	0.319	5.3	143	0.09	4.94
37	T	2-Methylnaphthalene	0.775	0.757	2.3	149	0.07	5.00
38		1-methylnaphthalene	0.651	0.705	-8.3	185	0.08	5.09
39		Caprolactam	0.139	0.127	8.6	136	0.05	4.79
40	I	Acenaphthene-d10	1.000	1.000	0.0	152	0.10	5.90

Continuing Calibration Summary

Job Number: JB35319 **Sample:** MSW549-CC505
Account: ALNJ Accutest New Jersey **Lab FileID:** W11893.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			Amount	Calc.	%Drift			
41	P	Hexachlorocyclopentadiene	100.000	62.410	37.6#	90	0.05	5.19
			AvgRF	CCRF	%Dev			
42	T	1,2,4,5-Tetrachlorobenzen	0.612	0.654	-6.9	182	0.04	5.17
43	C	2,4,6-Trichlorophenol	0.390	0.394	-1.0	150	0.06	5.28
44	T	2,4,5-Trichlorophenol	0.430	0.439	-2.1	151	0.07	5.33
45	S	2-Fluorobiphenyl	1.253	1.407	-12.3	190	0.06	5.33
46	T	2-Chloronaphthalene	1.072	1.152	-7.5	153	0.06	5.41
47	M	Acenaphthylene	1.766	1.832	-3.7	146	0.09	5.77
48	T	Dimethylphthalate	1.332	1.322	0.8	146	0.10	5.73
49	T	2,6-Dinitrotoluene	0.302	0.309	-2.3	144	0.10	5.79
50	C	Acenaphthene	1.099	1.148	-4.5	151	0.10	5.93
			Amount	Calc.	%Drift			
51	P	2,4-Dinitrophenol	50.000	42.735	14.5	137	0.13	6.01
			AvgRF	CCRF	%Dev			
52	T	Dibenzofuran	1.665	1.664	0.1	149	0.12	6.07
53	M	2,4-Dinitrotoluene	0.397	0.409	-3.0	151	0.13	6.14
54	P	4-Nitrophenol	0.196	0.199	-1.5	143	0.16	6.12
55	T	2,3,4,6-Tetrachlorophenol	0.371	0.360	3.0	145	0.14	6.23
56	T	Fluorene	1.339	1.424	-6.3	150	0.14	6.37
57	T	4-Chlorophenyl-phenylethe	0.749	0.755	-0.8	141	0.15	6.37
58	T	Diethylphthalate	1.335	1.274	4.6	144	0.15	6.34
59	T	2-nitroaniline	0.362	0.362	0.0	146	0.08	5.54
60	T	3-nitroaniline	0.314	0.316	-0.6	150	0.11	5.91
61	T	4-nitroaniline	0.314	0.309	1.6	145	0.15	6.45
62		1,1'-Biphenyl	1.384	1.492	-7.8	159	0.07	5.41
63	I	Phenanthrene-d10	1.000	1.000	0.0	151	0.15	7.19
			Amount	Calc.	%Drift			
64	T	4,6-Dinitro-2-methylpheno	50.000	48.368	3.3	149	0.15	6.49
			AvgRF	CCRF	%Dev			
65	C	n-Nitrosodiphenylamine	0.525	0.533	-1.5	150	0.14	6.49
66	T	1,2-Diphenylhydrazine	0.799	0.745	6.8	136	0.14	6.51
			Amount	Calc.	%Drift			
67	S	2,4,6-Tribromophenol	50.000	58.496	-17.0	206	0.14	6.59
			AvgRF	CCRF	%Dev			
68	T	4-Bromophenyl-phenylether	0.257	0.259	-0.8	149	0.15	6.79
69	T	Hexachlorobenzene	0.291	0.303	-4.1	143	0.14	6.92
			Amount	Calc.	%Drift			
70	C	Pentachlorophenol	50.000	41.923	16.2	122	0.16	7.11
			AvgRF	CCRF	%Dev			
71	T	Pentachloronitrobenzene	0.108	0.112	-3.7	175	0.16	7.17
72	T	Phenanthrene	1.055	1.083	-2.7	149	0.15	7.21
73	T	Anthracene	1.087	1.144	-5.2	147	0.15	7.26
74	T	Carbazole	0.994	1.022	-2.8	148	0.16	7.44
75	T	Di-n-butylphthalate	1.241	1.212	2.3	144	0.20	7.86
76	C	Fluoranthene	1.206	1.267	-5.1	146	0.18	8.42
77		Atrazine	0.218	0.226	-3.7	153	0.17	7.01
78	I	Chrysene-d12	1.000	1.000	0.0	149	0.16	10.03

Continuing Calibration Summary

Job Number: JB35319 **Sample:** MSW549-CC505
Account: ALNJ Accutest New Jersey **Lab FileID:** W11893.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

79	T	Benzidine	0.359	0.375	-4.5	156	0.15	8.59
80	M	Pyrene	1.024	1.053	-2.8	147	0.14	8.65
81	S	Terphenyl-d14	0.771	0.853	-10.6	184	0.16	8.86
82		3,3'-Dimethylbenzidine	0.298	0.462	-55.0#	276#	0.17	9.42
83	T	Butylbenzylphthalate	0.428	0.408	4.7	137	0.18	9.48
84	T	3,3'-Dichlorobenzidine	0.427	0.426	0.2	139	0.18	10.03
85	T	Benzo[a]anthracene	1.049	1.044	0.5	136	0.16	10.01
86	T	Chrysene	1.037	1.005	3.1	136	0.16	10.06
87	T	bis(2-Ethylhexyl)phthalat	0.615	0.593	3.6	138	0.21	10.21
88	I	Perylene-d12	1.000	1.000	0.0	138	0.16	11.58
89	C	Di-n-octylphthalate	1.009	1.082	-7.2	140	0.18	10.89
90	T	Benzo[b]fluoranthene	1.163	1.297	-11.5	138	0.15	11.21
91	T	Benzo[k]fluoranthene	1.055	1.098	-4.1	129	0.14	11.23
92	C	Benzo[a]pyrene	1.085	1.150	-6.0	132	0.15	11.53
		----------	Amount	Calc.	%Drift		----------	
93	T	Indeno[1,2,3-cd]pyrene	100.000	92.148	7.9	125	0.15	12.59
94	T	Dibenz[a,h]anthracene	100.000	95.716	4.3	126	0.15	12.61
		----------	AvgRF	CCRF	%Dev		----------	
95	T	Benzo[g,h,i]perylene	1.104	1.119	-1.4	127	0.13	12.81

(#) = Out of Range SPCC's out = 0 CCC's out = 0
W10769.D W130402_8270+.M Mon May 06 18:42:15 2013

9.7.16

9

Continuing Calibration Summary

Job Number: JB35319 **Sample:** MSW552-CC505
Account: ALNJ Accutest New Jersey **Lab FileID:** W11945.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\2\DATA\W1305076\W11945.D          Vial: 100
Acq On    :  7 May 2013   2:58 pm                    Operator: kristinr
Sample    : cc505-50                                 Inst    : MSW
Misc      : op32964,msw552,,,,1,1                    Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\met...\W130402_8270+.M (RTE Integrator)
Title        : AB8270TCL42
Last Update  : Wed Apr 24 13:13:45 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	152	-0.05	3.34
2	T	N-Nitrosodimethylamine	0.785	0.822	-4.7	158	-0.23	1.48
3	T	Pyridine	1.388	1.531	-10.3	166	-0.23	1.48
4	T	Aniline	2.110	1.902	9.9	136	-0.07	3.12
5	S	2-Fluorophenol	1.104	1.202	-8.9	183	-0.13	2.44
6	T	bis(2-Chloroethyl)ether	1.002	1.060	-5.8	157	-0.07	3.17
7	S	Phenol-d5	1.430	1.486	-3.9	164	-0.05	3.15
8	C	Phenol	1.853	1.734	6.4	141	-0.05	3.15
9	M	2-Chlorophenol	1.353	1.323	2.2	148	-0.06	3.22
10	T	1,3-Dichlorobenzene	1.513	1.480	2.2	147	-0.06	3.31
11	C	1,4-Dichlorobenzene	1.605	1.548	3.6	146	-0.05	3.35
12	T	1,2-Dichlorobenzene	1.447	1.427	1.4	148	-0.04	3.50
13	T	Benzyl alcohol	0.751	0.659	12.3	129	-0.02	3.49
14	T	bis(2-chloroisopropyl)eth	1.316	1.144	13.1	132	-0.02	3.60
15	T	o-cresol	1.301	1.331	-2.3	153	0.00	3.62
16	T	Acetophenone	1.888	1.871	0.9	157	-0.02	3.69
17	T	Hexachloroethane	0.593	0.593	0.0	150	-0.02	3.73
18	P	N-Nitroso-di-n-propylamin	1.016	0.939	7.6	136	0.00	3.72
19	T	m+p-cresols	1.347	1.341	0.4	160	0.00	3.73
20		4-methylphenol	1.347	1.344	0.2	160	0.00	3.73
21		Benzaldehyde	4.046	4.039	0.2	159	-0.01	3.69
22	I	Naphthalene-d8	1.000	1.000	0.0	144	0.00	4.38
23	S	Nitrobenzene-d5	0.372	0.385	-3.5	139	-0.05	3.81
24	T	Nitrobenzene	0.401	0.384	4.2	139	-0.05	3.83
25	T	Isophorone	0.637	0.610	4.2	138	-0.02	4.02
26	C	2-Nitrophenol	0.204	0.203	0.5	141	-0.02	4.09
27	T	2,4-Dimethylphenol	0.388	0.370	4.6	132	0.00	4.16
28	T	bis(2-Chloroethoxy)methan	0.410	0.389	5.1	135	0.00	4.22
29	T	Benzoic acid	0.255	0.269	-5.5	135	0.02	4.30
30	C	2,4-Dichlorophenol	0.318	0.320	-0.6	142	0.00	4.30
31	M	1,2,4-Trichlorobenzene	0.358	0.358	0.0	142	0.00	4.35
32	T	Naphthalene	1.035	1.058	-2.2	147	0.00	4.39
33	T	2,6-Dichlorophenol	0.317	0.318	-0.3	142	0.02	4.48
34	T	4-Chloroaniline	0.463	0.451	2.6	139	0.02	4.48
35	C	Hexachlorobutadiene	0.246	0.247	-0.4	138	0.02	4.55
36	C	4-Chloro-3-methylphenol	0.337	0.314	6.8	132	0.08	4.93
37	T	2-Methylnaphthalene	0.775	0.764	1.4	141	0.06	4.98
38		1-methylnaphthalene	0.651	0.707	-8.6	173	0.06	5.07
39		Caprolactam	0.139	0.126	9.4	126	0.04	4.77
40	I	Acenaphthene-d10	1.000	1.000	0.0	142	0.09	5.89

Continuing Calibration Summary

Job Number: JB35319 **Sample:** MSW552-CC505
Account: ALNJ Accutest New Jersey **Lab FileID:** W11945.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			Amount	Calc.	%Drift			
41	P	Hexachlorocyclopentadiene	100.000	76.980	23.0#	108	0.03	5.17
			AvgRF	CCRF	%Dev			
42	T	1,2,4,5-Tetrachlorobenzen	0.612	0.655	-7.0	169	0.03	5.16
43	C	2,4,6-Trichlorophenol	0.390	0.383	1.8	136	0.05	5.27
44	T	2,4,5-Trichlorophenol	0.430	0.427	0.7	137	0.05	5.32
45	S	2-Fluorobiphenyl	1.253	1.395	-11.3	175	0.05	5.32
46	T	2-Chloronaphthalene	1.072	1.138	-6.2	141	0.05	5.40
47	M	Acenaphthylene	1.766	1.838	-4.1	136	0.07	5.75
48	T	Dimethylphthalate	1.332	1.299	2.5	134	0.09	5.72
49	T	2,6-Dinitrotoluene	0.302	0.306	-1.3	132	0.09	5.78
50	C	Acenaphthene	1.099	1.150	-4.6	141	0.09	5.91
			Amount	Calc.	%Drift			
51	P	2,4-Dinitrophenol	50.000	47.731	4.5	144	0.12	6.00
			AvgRF	CCRF	%Dev			
52	T	Dibenzofuran	1.665	1.663	0.1	138	0.10	6.05
53	M	2,4-Dinitrotoluene	0.397	0.401	-1.0	138	0.12	6.12
54	P	4-Nitrophenol	0.196	0.188	4.1	126	0.16	6.12
55	T	2,3,4,6-Tetrachlorophenol	0.371	0.325	12.4	122	0.12	6.21
56	T	Fluorene	1.339	1.405	-4.9	137	0.12	6.35
57	T	4-Chlorophenyl-phenylethe	0.749	0.739	1.3	128	0.13	6.36
58	T	Diethylphthalate	1.335	1.253	6.1	132	0.14	6.33
59	T	2-nitroaniline	0.362	0.356	1.7	133	0.07	5.53
60	T	3-nitroaniline	0.314	0.311	1.0	137	0.10	5.90
61	T	4-nitroaniline	0.314	0.303	3.5	132	0.14	6.44
62		1,1'-Biphenyl	1.384	1.487	-7.4	148	0.05	5.39
63	I	Phenanthrene-d10	1.000	1.000	0.0	140	0.14	7.18
			Amount	Calc.	%Drift			
64	T	4,6-Dinitro-2-methylpheno	50.000	50.962	-1.9	147	0.14	6.48
			AvgRF	CCRF	%Dev			
65	C	n-Nitrosodiphenylamine	0.525	0.534	-1.7	140	0.13	6.47
66	T	1,2-Diphenylhydrazine	0.799	0.760	4.9	129	0.13	6.50
			Amount	Calc.	%Drift			
67	S	2,4,6-Tribromophenol	50.000	55.288	-10.6	179	0.13	6.58
			AvgRF	CCRF	%Dev			
68	T	4-Bromophenyl-phenylether	0.257	0.262	-1.9	140	0.14	6.78
69	T	Hexachlorobenzene	0.291	0.293	-0.7	129	0.13	6.91
			Amount	Calc.	%Drift			
70	C	Pentachlorophenol	50.000	42.853	14.3	116	0.14	7.09
			AvgRF	CCRF	%Dev			
71	T	Pentachloronitrobenzene	0.108	0.106	1.9	155	0.14	7.15
72	T	Phenanthrene	1.055	1.073	-1.7	137	0.14	7.20
73	T	Anthracene	1.087	1.112	-2.3	133	0.13	7.24
74	T	Carbazole	0.994	1.001	-0.7	135	0.15	7.42
75	T	Di-n-butylphthalate	1.241	1.197	3.5	132	0.18	7.85
76	C	Fluoranthene	1.206	1.246	-3.3	133	0.16	8.40
77		Atrazine	0.218	0.207	5.0	130	0.16	7.00
78	I	Chrysene-d12	1.000	1.000	0.0	135	0.15	10.01

Continuing Calibration Summary

Job Number: JB35319 **Sample:** MSW552-CC505
Account: ALNJ Accutest New Jersey **Lab FileID:** W11945.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

79	T	Benzidine	0.359	0.317	11.7	120	0.14	8.58
80	M	Pyrene	1.024	1.048	-2.3	132	0.12	8.63
81	S	Terphenyl-d14	0.771	0.865	-12.2	169	0.14	8.85
82		3,3'-Dimethylbenzidine	0.298	0.367	-23.2#	199	0.16	9.40
83	T	Butylbenzylphthalate	0.428	0.411	4.0	125	0.17	9.47
84	T	3,3'-Dichlorobenzidine	0.427	0.421	1.4	124	0.16	10.01
85	T	Benzo[a]anthracene	1.049	1.049	0.0	123	0.15	9.99
86	T	Chrysene	1.037	1.025	1.2	126	0.14	10.04
87	T	bis(2-Ethylhexyl)phthalat	0.615	0.598	2.8	126	0.19	10.19
88	I	Perylene-d12	1.000	1.000	0.0	124	0.14	11.57
89	C	Di-n-octylphthalate	1.009	1.084	-7.4	127	0.17	10.88
90	T	Benzo[b]fluoranthene	1.163	1.279	-10.0	123	0.13	11.19
91	T	Benzo[k]fluoranthene	1.055	1.137	-7.8	120	0.13	11.22
92	C	Benzo[a]pyrene	1.085	1.160	-6.9	120	0.13	11.51
		----------	Amount	Calc.	%Drift		----------	
93	T	Indeno[1,2,3-cd]pyrene	100.000	92.463	7.5	113	0.14	12.58
94	T	Dibenz[a,h]anthracene	100.000	95.449	4.6	113	0.14	12.60
		----------	AvgRF	CCRF	%Dev		----------	
95	T	Benzo[g,h,i]perylene	1.104	1.131	-2.4	116	0.12	12.79

(#) = Out of Range SPCC's out = 0 CCC's out = 0
W10769.D W130402_8270+.M Wed May 08 09:32:44 2013

9.7.17

9

New Jersey

ACCUTEST LABORATORIES

GC/MS Semi-volatiles

Raw Data

(Accutest Labs of New England, Inc.)

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\W130507\
Data File : W11968.D
Acq On : 7 May 2013 11:50 pm
Operator : kristinr
Sample : JB35319-1
Misc : op32964,msw552,20.53,,,1,1
ALS Vial : 38 Sample Multiplier: 1

Quant Time: May 09 12:46:12 2013
Quant Method : C:\msdchem\1\methods\W130402_8270+.M
Quant Title : AB8270TCL42
QLast Update : Wed Apr 24 13:13:45 2013
Response via : Initial Calibration

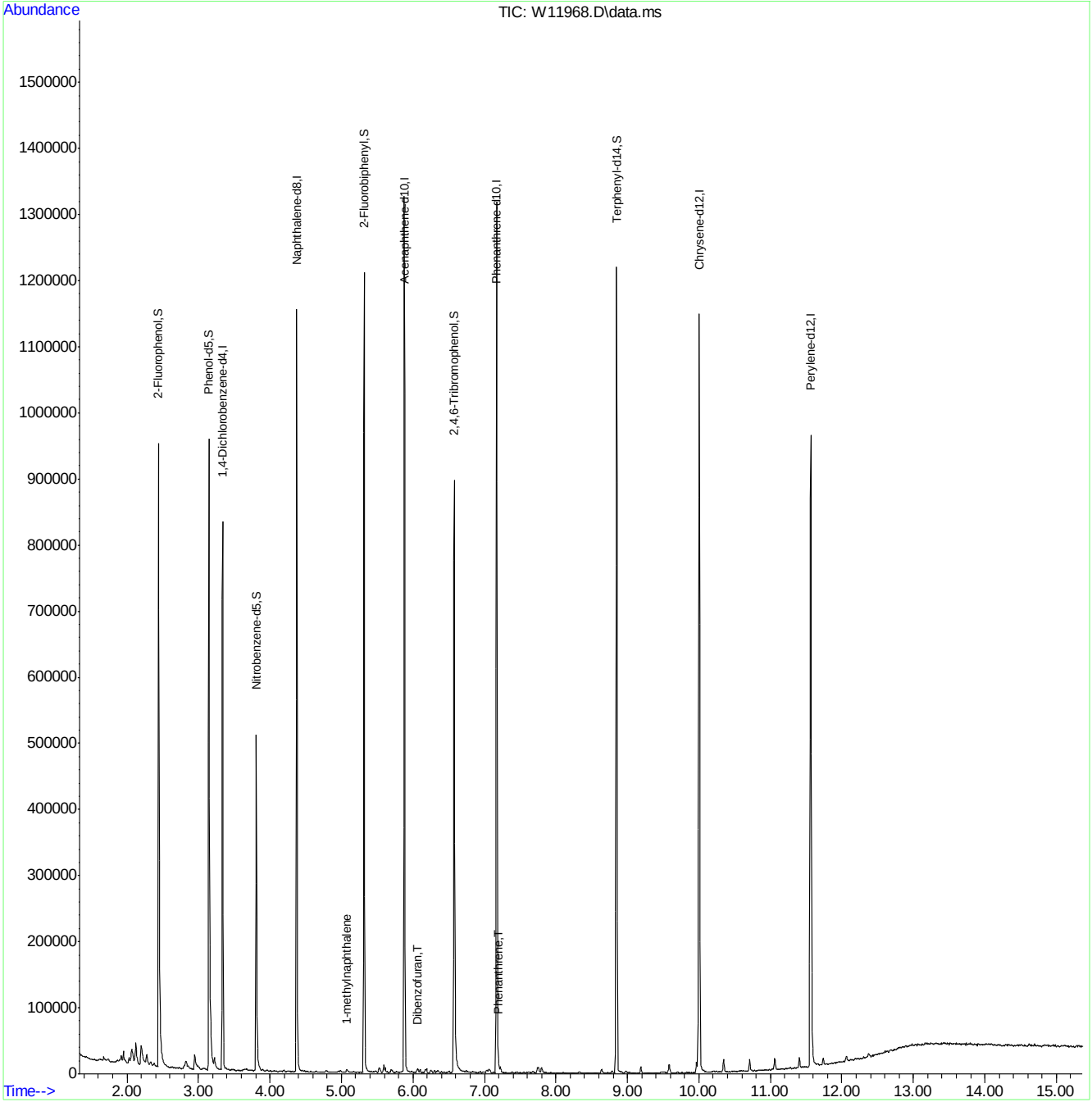
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.341	152	112476	40.00	µg/mL	0.00
22) Naphthalene-d8	4.375	136	414807	40.00	µg/mL	0.00
40) Acenaphthene-d10	5.879	164	264702	40.00	µg/mL	0.00
63) Phenanthrene-d10	7.172	188	454823	40.00	µg/mL	0.00
78) Chrysene-d12	10.004	240	484208	40.00	µg/mL	0.00
88) Perylene-d12	11.567	264	443003	40.00	µg/mL	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	2.442	112	255452	82.32	µg/mL	-0.08
Spiked Amount 100.000	Range 21 - 110		Recovery = 82.32%			
7) Phenol-d5	3.147	99	296244	73.66	µg/mL	0.00
Spiked Amount 100.000	Range 10 - 110		Recovery = 73.66%			
23) Nitrobenzene-d5	3.811	82	145751	37.79	µg/mL	-0.04
Spiked Amount 50.000	Range 34 - 114		Recovery = 75.58%			
45) 2-Fluorobiphenyl	5.321	172	341651	41.21	µg/mL	-0.03
Spiked Amount 50.000	Range 43 - 116		Recovery = 82.42%			
67) 2,4,6-Tribromophenol	6.578	330	133657	78.15	µg/mL	0.00
Spiked Amount 100.000	Range 10 - 123		Recovery = 78.15%			
81) Terphenyl-d14	8.846	244	461543	49.43	µg/mL	0.01
Spiked Amount 50.000	Range 33 - 141		Recovery = 98.86%			
Target Compounds						Qvalue
38) 1-methylnaphthalene	5.074	142	1777	0.26	µg/mL	97
52) Dibenzofuran	6.055	168	2339	0.21	µg/mL	94
72) Phenanthrene	7.195	178	3660	0.31	µg/mL	94

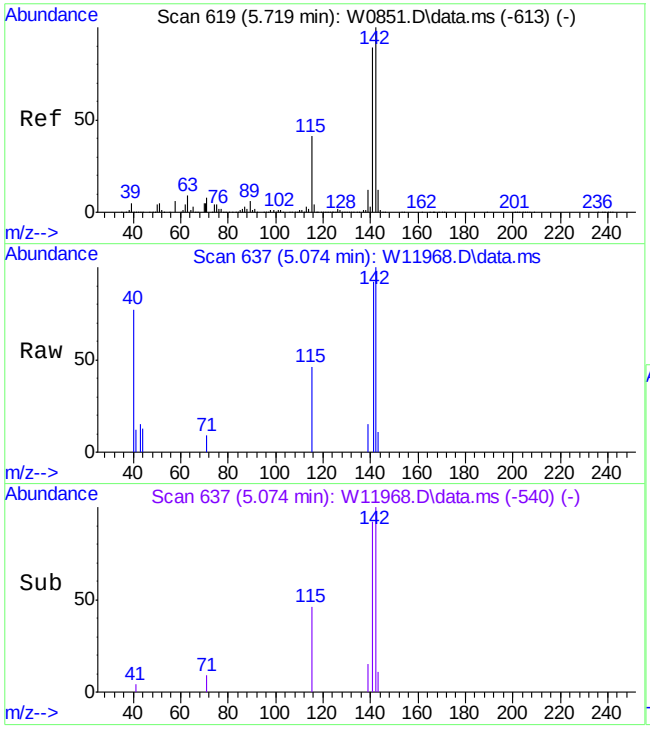
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\W130507\
Data File : W11968.D
Acq On : 7 May 2013 11:50 pm
Operator : kristinr
Sample : JB35319-1
Misc : op32964,msw552,20.53,,,1,1
ALS Vial : 38 Sample Multiplier: 1

Quant Time: May 09 12:46:12 2013
Quant Method : C:\msdchem\1\methods\W130402_8270+.M
Quant Title : AB8270TCL42
QLast Update : Wed Apr 24 13:13:45 2013
Response via : Initial Calibration

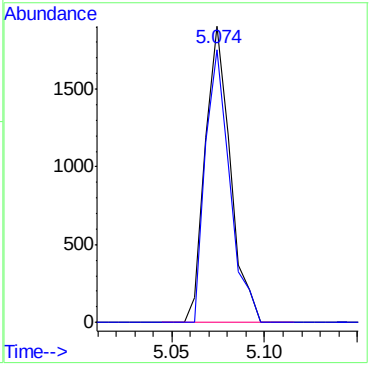


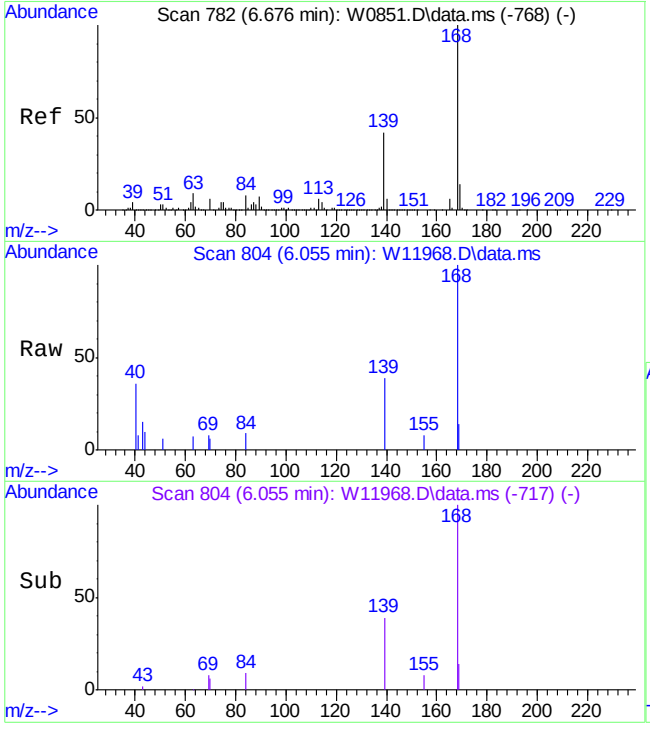


#38
1-methylnaphthalene
Concen: 0.26 µg/mL
RT: 5.074 min Scan# 637
Delta R.T. 0.072 min
Lab File: W11968.D
Acq: 7 May 2013 11:50 pm

Tgt Ion:142 Resp: 1777

Ion	Ratio	Lower	Upper
142	100		
141	92.0	71.0	106.4

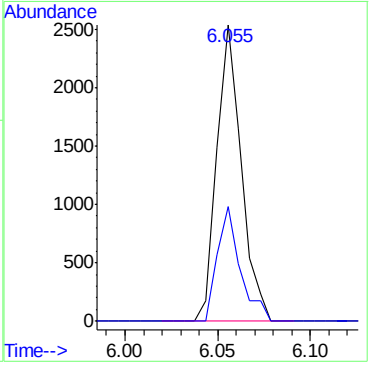


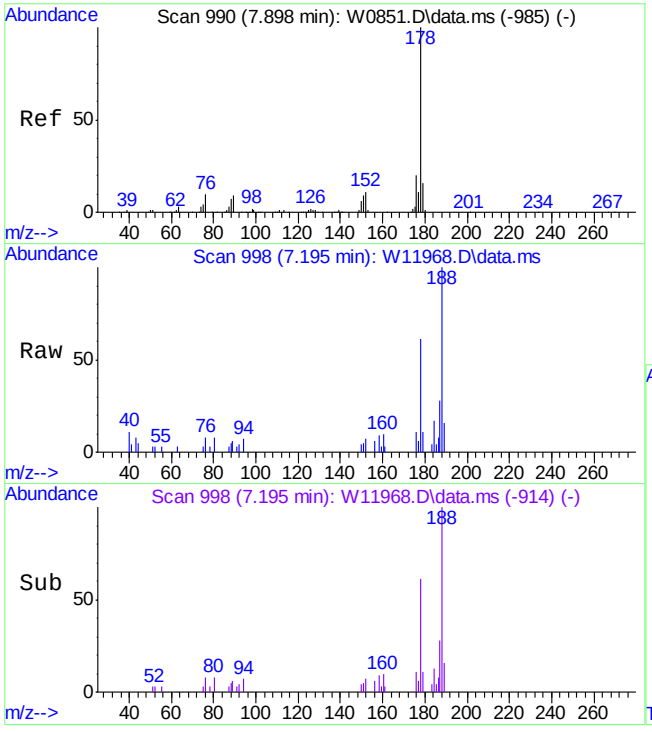


#52
Dibenzofuran
Concen: 0.21 µg/mL
RT: 6.055 min Scan# 804
Delta R.T. 0.014 min
Lab File: W11968.D
Acq: 7 May 2013 11:50 pm

Tgt Ion:168 Resp: 2339

Ion	Ratio	Lower	Upper
168	100		
139	38.6	12.4	72.4

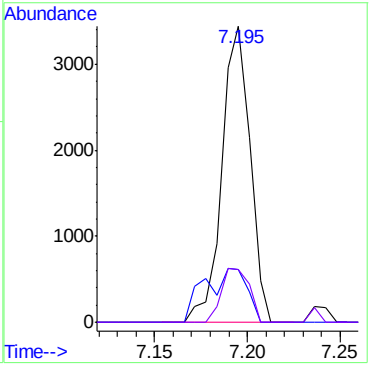




#72
Phenanthrene
Concen: 0.31 µg/mL
RT: 7.195 min Scan# 998
Delta R.T. -0.006 min
Lab File: W11968.D
Acq: 7 May 2013 11:50 pm

Tgt Ion:178 Resp: 3660

Ion	Ratio	Lower	Upper
178	100		
179	18.0	0.0	45.1
176	17.9	0.0	50.0



10.1.1

10

Quantitation Report (QT Reviewed)

Data Path : F:\1\DATA\F130509.E.02.01\
Data File : f63826.D
Acq On : 9 May 2013 2:03 pm
Operator : kristinr
Sample : jb35319-2
Misc : op32964,msf2976,20.4,,,1,5
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 09 17:31:51 2013
Quant Method : F:\1\METHODS\F130408_8270+.E.02.01.m
Quant Title : SW-864 Method 8270
QLast Update : Wed Apr 24 09:23:10 2013
Response via : Initial Calibration

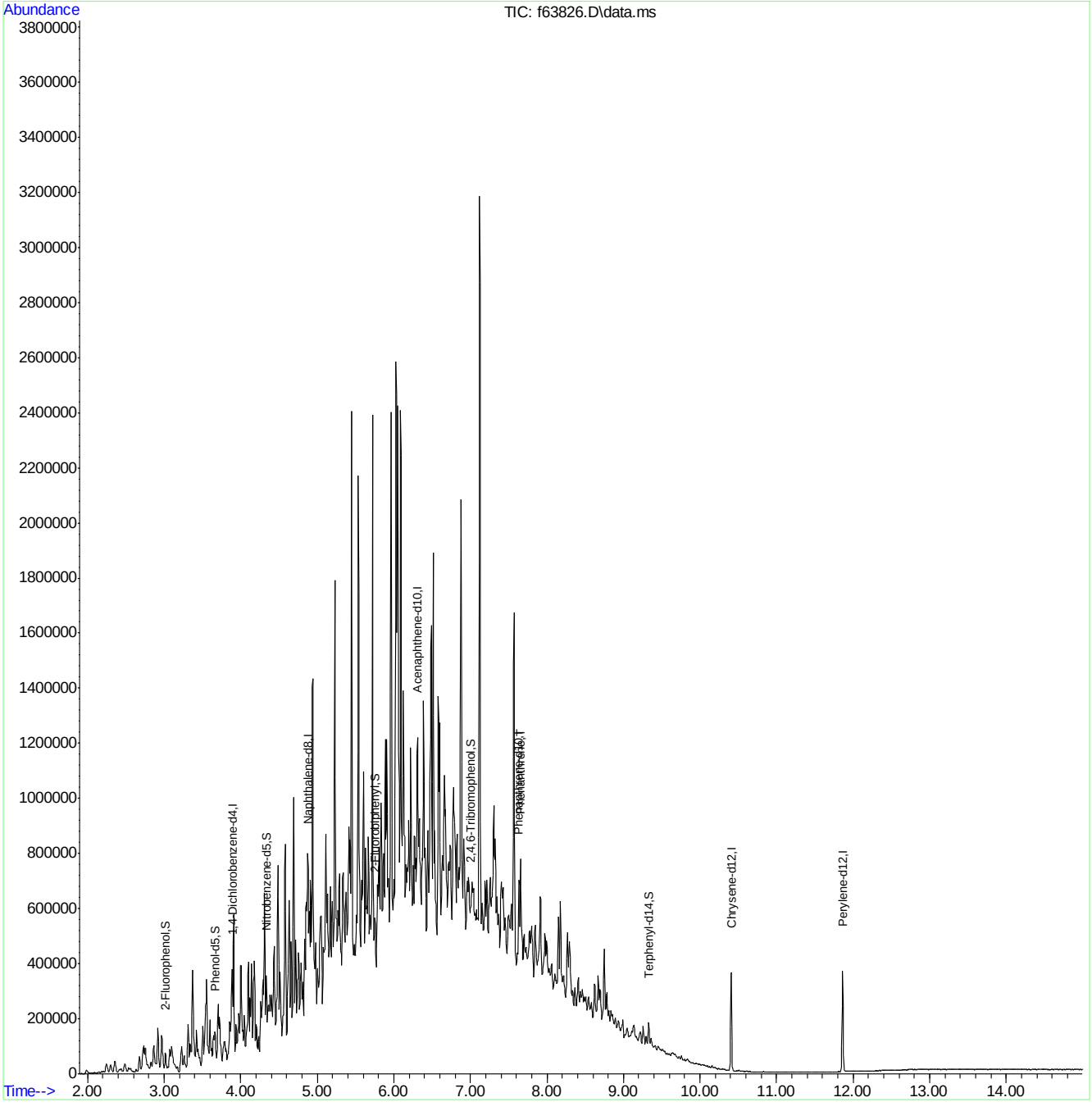
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.891	152	25621	40.00	ppm	-0.15
24) Naphthalene-d8	4.878	136	95749	40.00	ppm	-0.16
43) Acenaphthene-d10	6.312	164	66753	40.00	ppm	-0.16
66) Phenanthrene-d10	7.633	188	104524	40.00	ppm	-0.19
80) Chrysene-d12	10.412	240	133217	40.00	ppm	-0.20
90) Perylene-d12	11.863	264	130674	40.00	ppm	-0.22
System Monitoring Compounds						
7) 2-Fluorophenol	3.022	112	9661	13.04	ppm	-0.14
Spiked Amount 100.000	Range 30 - 130		Recovery = 13.04%#			
9) Phenol-d5	3.668	99	11879	12.58	ppm	-0.14
Spiked Amount 100.000	Range 30 - 130		Recovery = 12.58%#			
25) Nitrobenzene-d5	4.332	82	6925	8.10	ppm	-0.15
Spiked Amount 50.000	Range 30 - 130		Recovery = 16.20%#			
48) 2-Fluorobiphenyl	5.754	172	16161	7.28	ppm	-0.16
Spiked Amount 50.000	Range 30 - 130		Recovery = 14.56%#			
70) 2,4,6-Tribromophenol	7.005	330	4157	14.32	ppm	-0.17
Spiked Amount 100.000	Range 30 - 130		Recovery = 14.32%#			
83) Terphenyl-d14	9.331	244	18840	6.48	ppm	-0.19
Spiked Amount 50.000	Range 30 - 130		Recovery = 12.96%#			
Target Compounds						Qvalue
74) Phenanthrene	7.657	178	120723	44.90	ppm	97

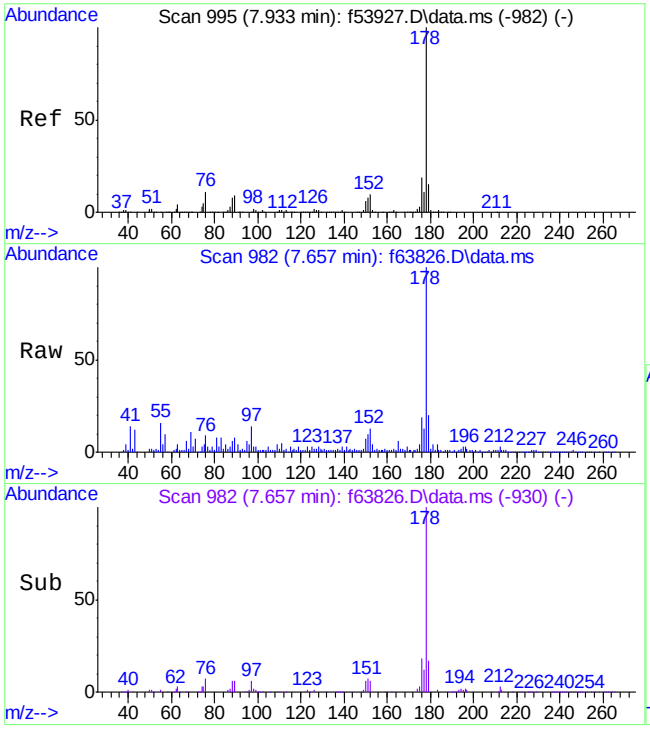
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : F:\1\DATA\F130509.E.02.01\
Data File : f63826.D
Acq On : 9 May 2013 2:03 pm
Operator : kristinr
Sample : jb35319-2
Misc : op32964,msf2976,20.4,,,1,5
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 09 17:31:51 2013
Quant Method : F:\1\METHODS\F130408_8270+.E.02.01.m
Quant Title : SW-864 Method 8270
QLast Update : Wed Apr 24 09:23:10 2013
Response via : Initial Calibration

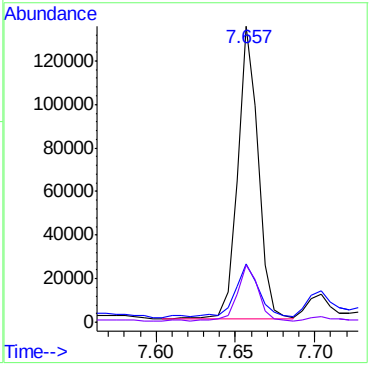




#74
Phenanthrene
Concen: 44.90 ppm
RT: 7.657 min Scan# 982
Delta R.T. -0.193 min
Lab File: f63826.D
Acq: 9 May 2013 2:03 pm

Tgt Ion:178 Resp: 120723

Ion	Ratio	Lower	Upper
178	100		
179	18.2	0.0	45.4
176	19.0	0.0	49.3



10.1.2

10

Manual Integrations APPROVED (compounds with "m" flag)
Doug Yargeau
05/10/13 09:38

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\W130507\
Data File : W11969.D
Acq On : 8 May 2013 12:13 am
Operator : kristinr
Sample : JB35319-2
Misc : op32964,msw552,20.41,,,1,1
ALS Vial : 39 Sample Multiplier: 1

Quant Time: May 09 12:49:56 2013
Quant Method : C:\msdchem\1\methods\W130402_8270+.M
Quant Title : AB8270TCL42
QLast Update : Wed Apr 24 13:13:45 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.347	152	144150	40.00	µg/mL	0.00
22) Naphthalene-d8	4.399	136	427571	40.00	µg/mL	0.02
40) Acenaphthene-d10	5.938	164	250415	40.00	µg/mL	0.05
63) Phenanthrene-d10	7.231	188	296300	40.00	µg/mL	0.05
78) Chrysene-d12	10.016	240	489719	40.00	µg/mL	0.00
88) Perylene-d12	11.567	264	452237	40.00	µg/mL	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	2.442	112	244682	61.53	µg/mL	-0.08
Spiked Amount 100.000	Range 21 - 110		Recovery = 61.53%			
7) Phenol-d5	3.147	99	292363	56.72	µg/mL	0.00
Spiked Amount 100.000	Range 10 - 110		Recovery = 56.72%			
23) Nitrobenzene-d5	3.823	82	181112m	45.55	µg/mL	-0.03
Spiked Amount 50.000	Range 34 - 114		Recovery = 91.10%			
45) 2-Fluorobiphenyl	5.356	172	292485	37.30	µg/mL	0.00
Spiked Amount 50.000	Range 43 - 116		Recovery = 74.60%			
67) 2,4,6-Tribromophenol	6.643	330	119525	98.90	µg/mL	0.07
Spiked Amount 100.000	Range 10 - 123		Recovery = 98.90%			
81) Terphenyl-d14	8.876	244	519322	55.00	µg/mL	0.04
Spiked Amount 50.000	Range 33 - 141		Recovery = 110.00%			
Target Compounds						Qvalue
32) Naphthalene	4.416	128	1051317m	95.03	µg/mL	
37) 2-Methylnaphthalene	5.039	142	4638432	559.94	µg/mL	98
38) 1-methylnaphthalene	5.121	142	4033176m	579.44	µg/mL	
50) Acenaphthene	5.967	153	351643	51.12	µg/mL	83
52) Dibenzofuran	6.108	168	526520m	50.51	µg/mL	
56) Fluorene	6.408	166	729122	87.00	µg/mL	91
72) Phenanthrene	7.260	178	2129081m	272.38	µg/mL	
73) Anthracene	7.301	178	249896m	31.04	µg/mL	
80) Pyrene	8.670	202	240422	19.18	µg/mL	94
85) Benzo[a]anthracene	9.998	228	6252m	0.49	µg/mL	
86) Chrysene	10.039	228	13728m	1.08	µg/mL	
87) bis(2-Ethylhexyl)phtha...	10.163	149	5181m	0.69	µg/mL	

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

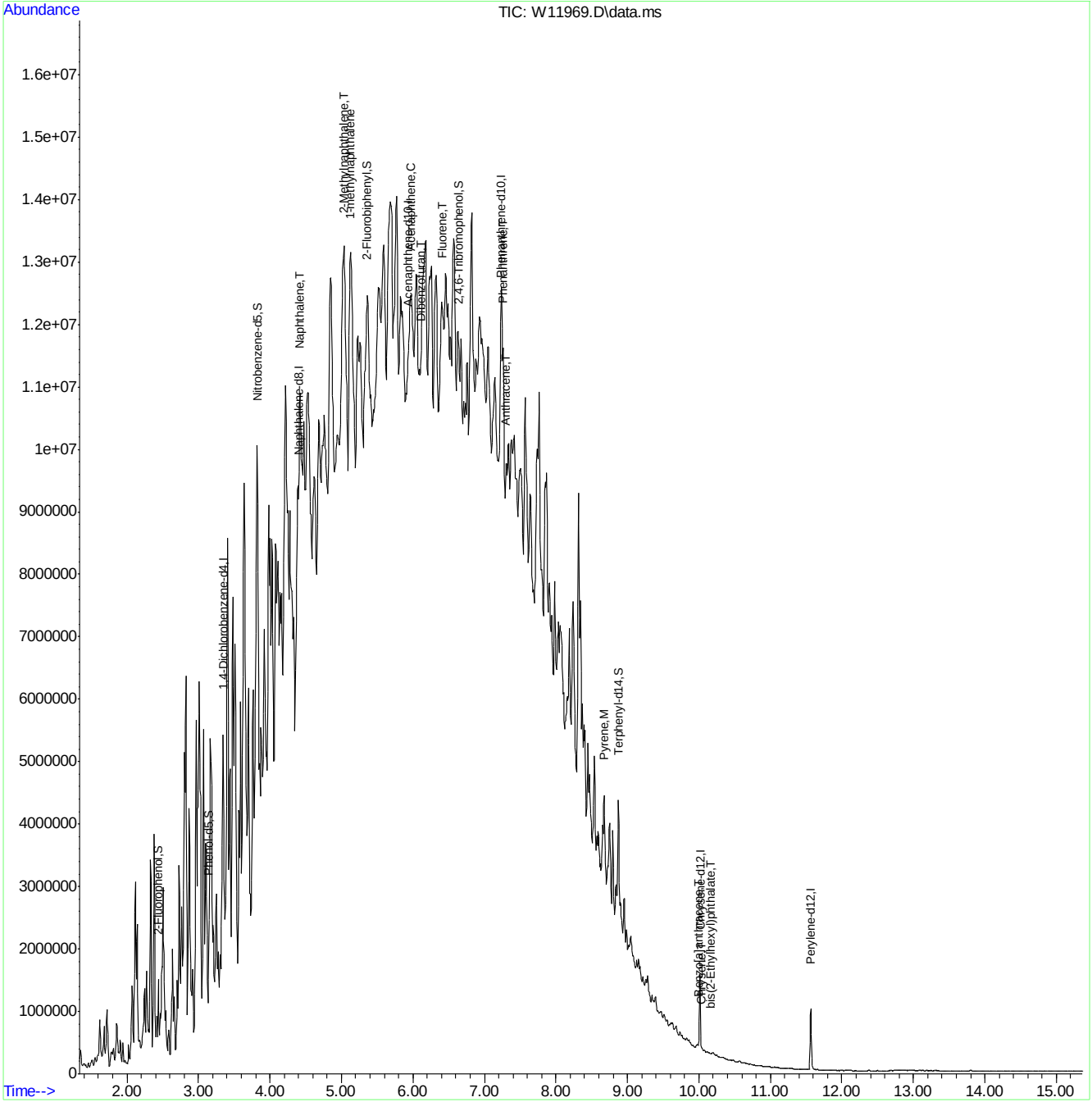
10.1.3

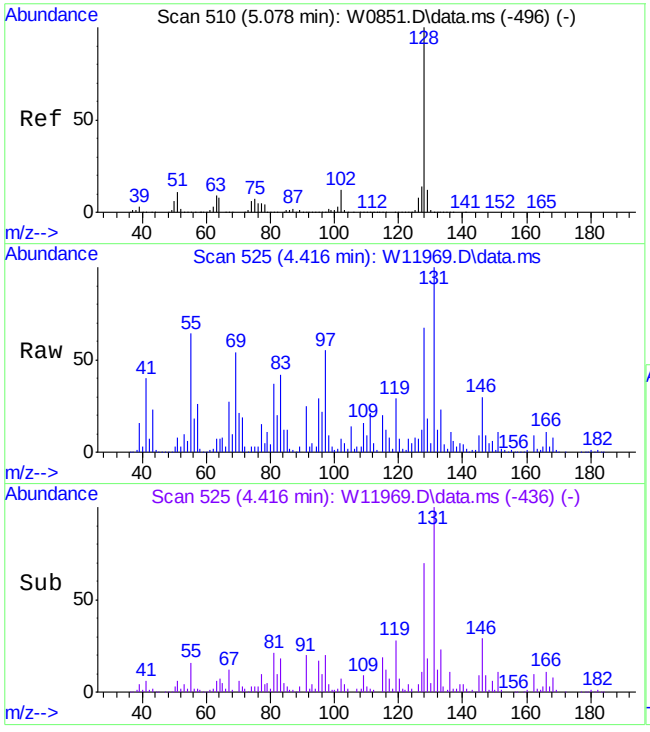
10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\W130507\
Data File : W11969.D
Acq On : 8 May 2013 12:13 am
Operator : kristinr
Sample : JB35319-2
Misc : op32964,msw552,20.41,,,1,1
ALS Vial : 39 Sample Multiplier: 1

Quant Time: May 09 12:49:56 2013
Quant Method : C:\msdchem\1\methods\W130402_8270+.M
Quant Title : AB8270TCL42
QLast Update : Wed Apr 24 13:13:45 2013
Response via : Initial Calibration

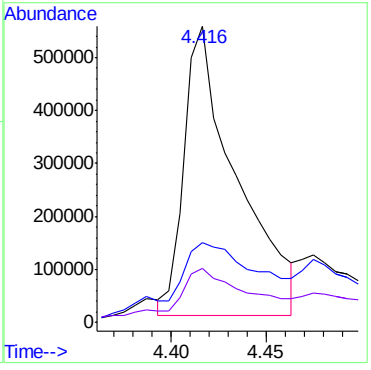


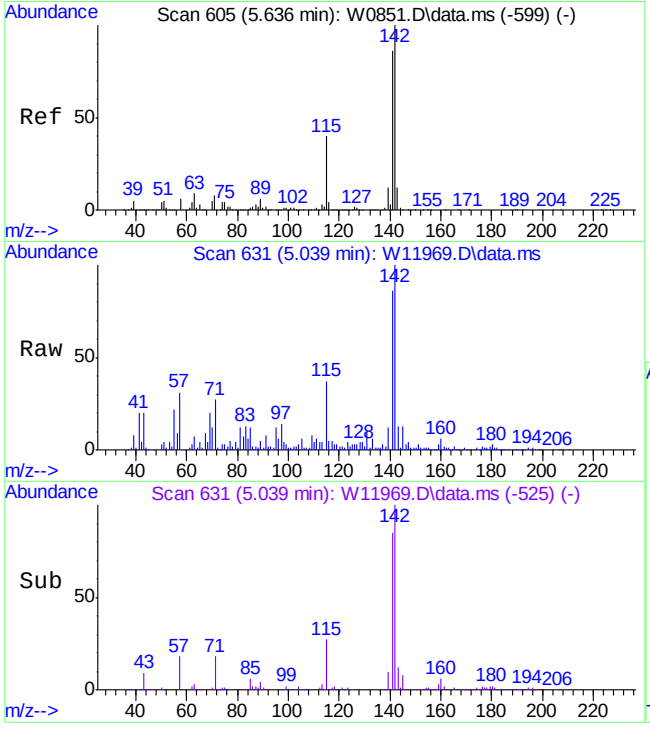


#32
Naphthalene
Concen: 95.03 µg/mL m
RT: 4.416 min Scan# 525
Delta R.T. 0.024 min
Lab File: W11969.D
Acq: 8 May 2013 12:13 am

Tgt Ion:128 Resp: 1051317

Ion	Ratio	Lower	Upper
128	100		
129	26.9	0.0	41.0
127	18.2	0.0	43.3

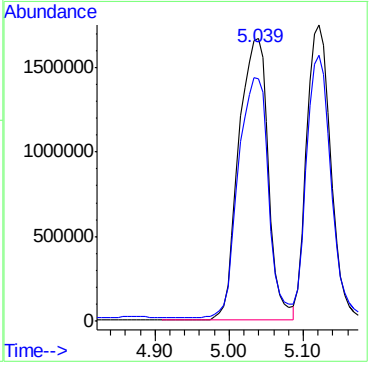


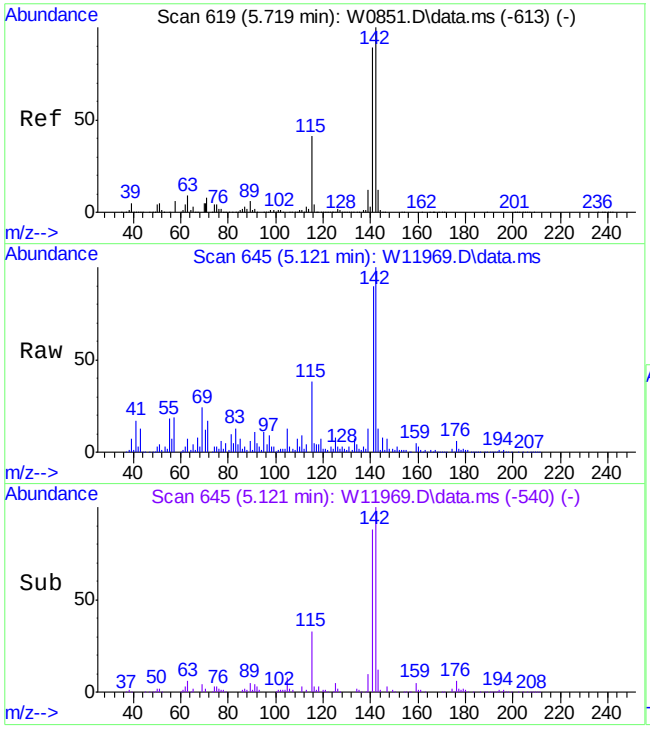


#37
2-Methylnaphthalene
Concen: 559.94 µg/mL
RT: 5.039 min Scan# 631
Delta R.T. 0.122 min
Lab File: W11969.D
Acq: 8 May 2013 12:13 am

Tgt Ion:142 Resp: 4638432

Ion	Ratio	Lower	Upper
142	100		
141	84.9	56.4	116.4

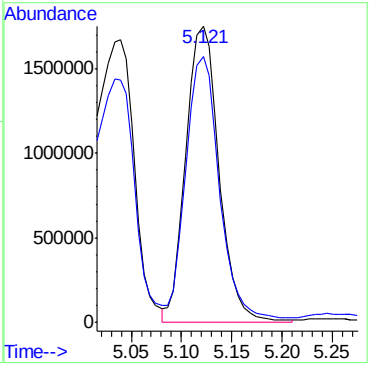


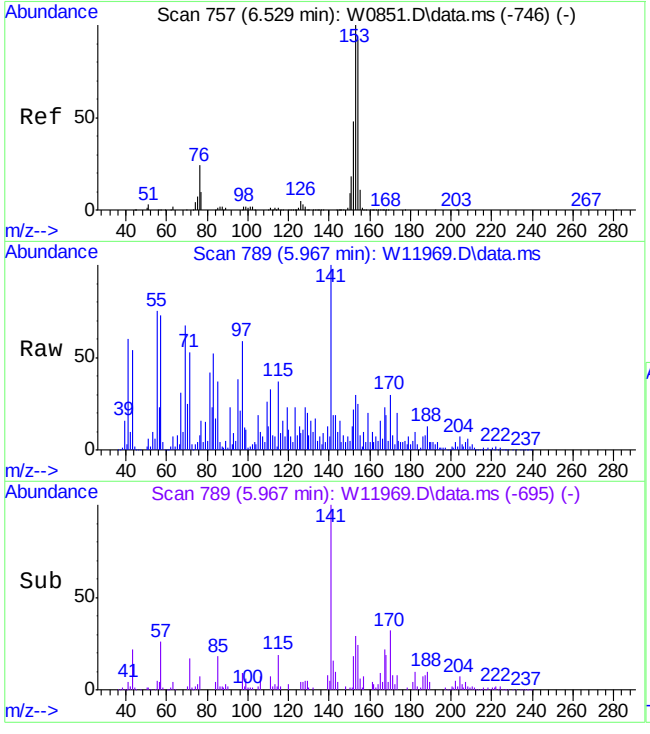


#38
1-methylnaphthalene
Concen: 579.44 µg/mL m
RT: 5.121 min Scan# 645
Delta R.T. 0.119 min
Lab File: W11969.D
Acq: 8 May 2013 12:13 am

Tgt Ion:142 Resp: 4033176

Ion	Ratio	Lower	Upper
142	100		
141	89.7	71.0	106.4

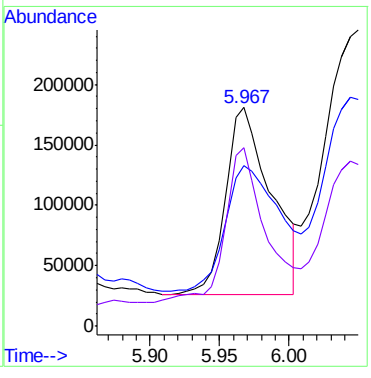




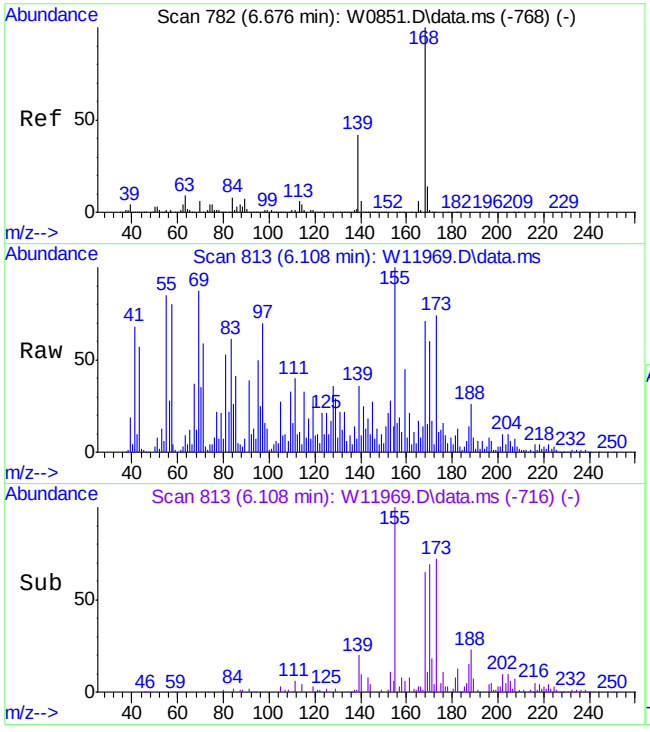
#50
Acenaphthene
Concen: 51.12 µg/mL
RT: 5.967 min Scan# 789
Delta R.T. 0.053 min
Lab File: W11969.D
Acq: 8 May 2013 12:13 am

Tgt Ion:153 Resp: 351643

Ion	Ratio	Lower	Upper
153	100		
152	67.3	18.8	78.8
154	81.4	61.9	121.9



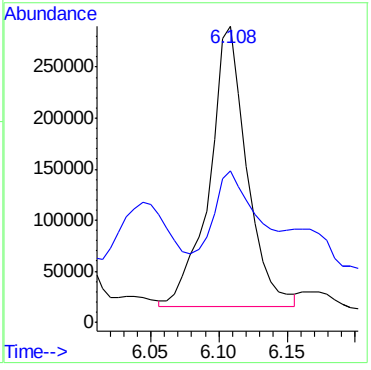
10.1.3 10

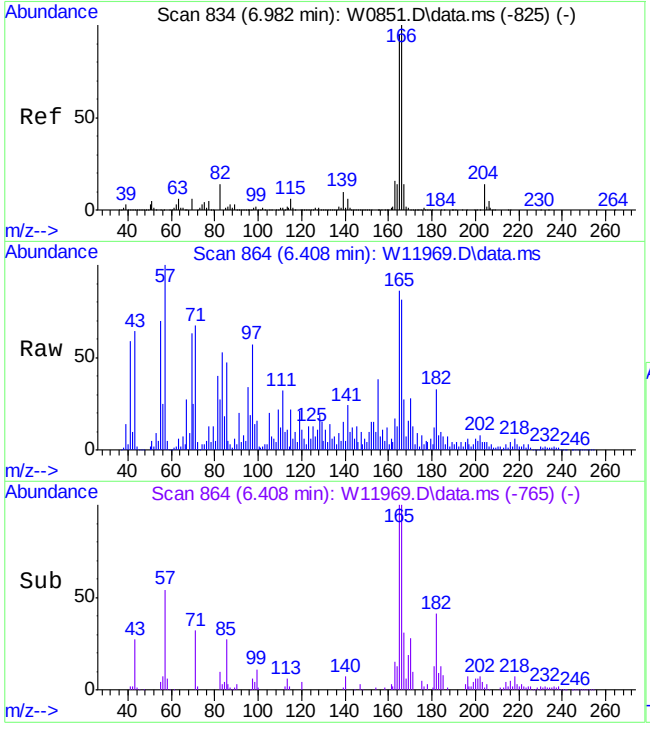


#52
Dibenzofuran
Concen: 50.51 µg/mL m
RT: 6.108 min Scan# 813
Delta R.T. 0.067 min
Lab File: W11969.D
Acq: 8 May 2013 12:13 am

Tgt Ion:168 Resp: 526520

Ion	Ratio	Lower	Upper
168	100		
139	51.0	12.4	72.4

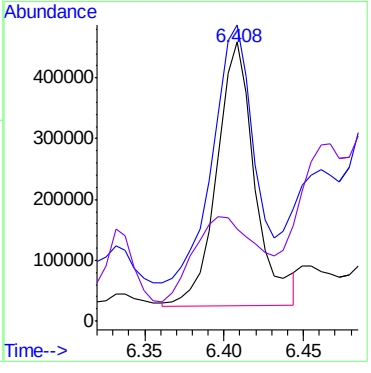




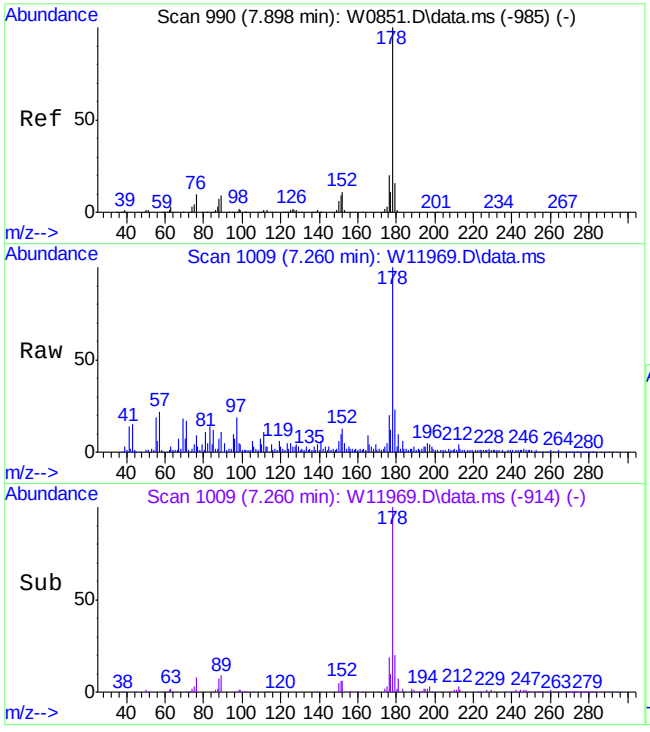
#56
Fluorene
Concen: 87.00 µg/mL
RT: 6.408 min Scan# 864
Delta R.T. 0.083 min
Lab File: W11969.D
Acq: 8 May 2013 12:13 am

Tgt Ion:166 Resp: 729122

Ion	Ratio	Lower	Upper
166	100		
165	98.7	64.1	124.1
167	28.0	0.0	43.8



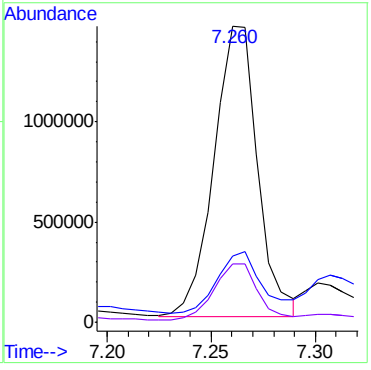
10.1.3 10

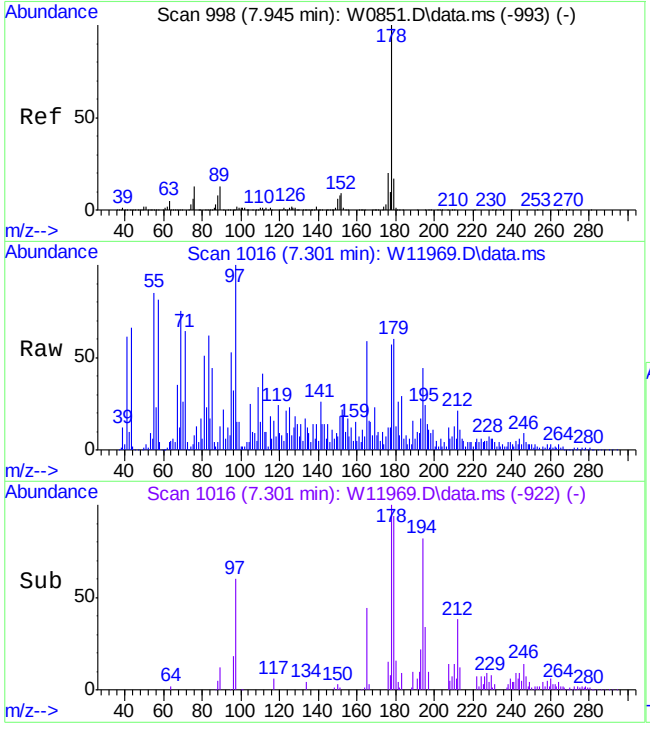


#72
Phenanthrene
Concen: 272.38 µg/mL m
RT: 7.260 min Scan# 1009
Delta R.T. 0.059 min
Lab File: W11969.D
Acq: 8 May 2013 12:13 am

Tgt Ion:178 Resp: 2129081

Ion	Ratio	Lower	Upper
178	100		
179	22.5	0.0	45.1
176	19.8	0.0	50.0

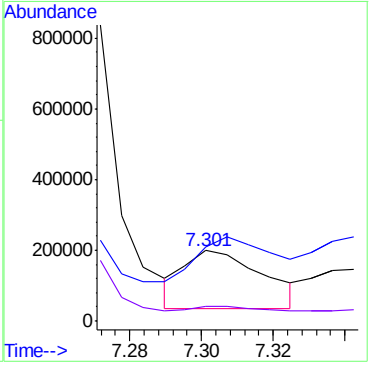


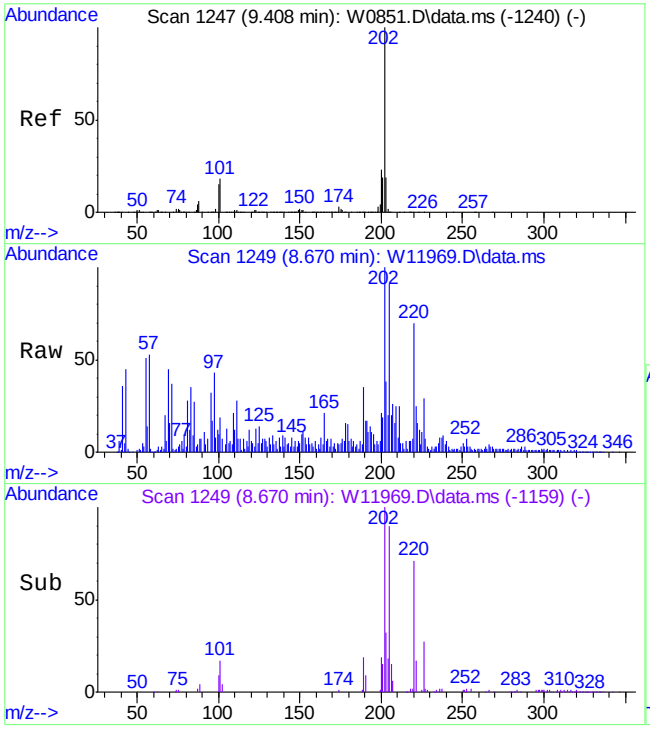


#73
Anthracene
Concen: 31.04 µg/mL m
RT: 7.301 min Scan# 1016
Delta R.T. 0.054 min
Lab File: W11969.D
Acq: 8 May 2013 12:13 am

Tgt Ion:178 Resp: 249896

Ion	Ratio	Lower	Upper
178	100		
179	106.0	0.0	45.6#
176	21.1	0.0	49.6

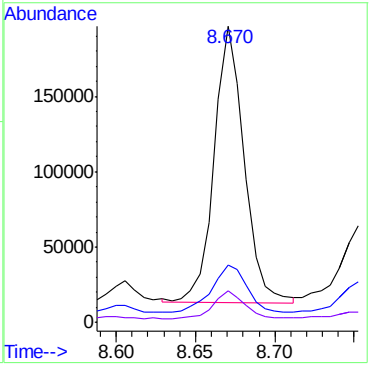


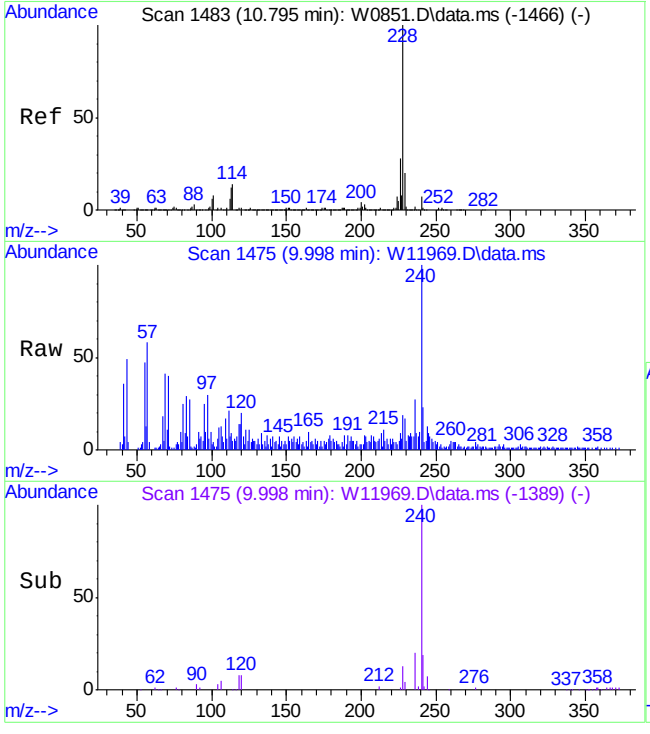


#80
Pyrene
Concen: 19.18 µg/mL
RT: 8.670 min Scan# 1249
Delta R.T. 0.029 min
Lab File: W11969.D
Acq: 8 May 2013 12:13 am

Tgt Ion:202 Resp: 240422

Ion	Ratio	Lower	Upper
202	100		
101	17.4	0.0	44.2
100	9.9	0.0	41.3

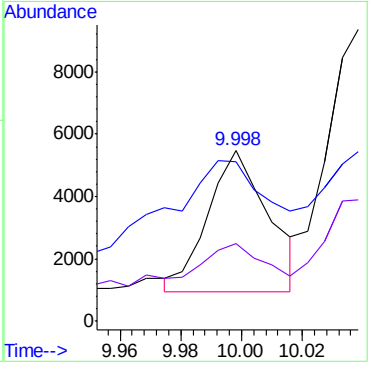


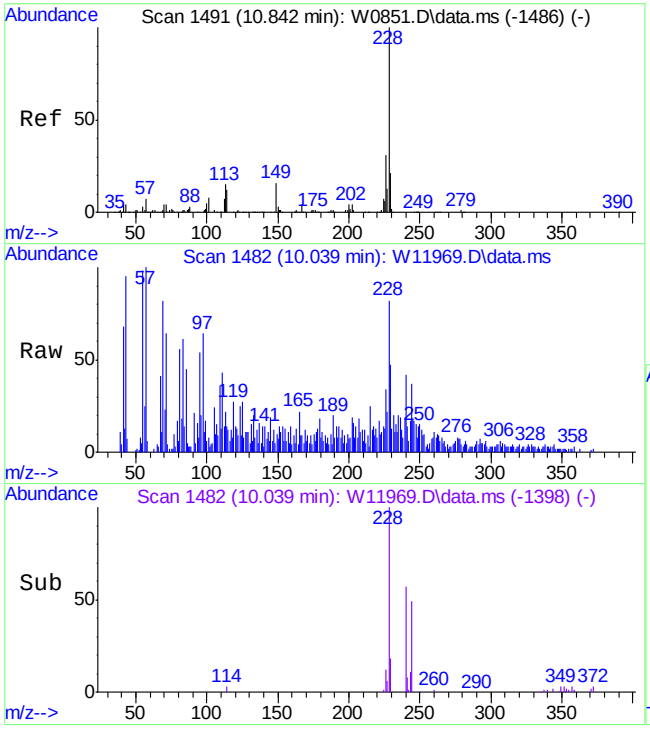


#85
Benzo[a]anthracene
Concen: 0.49 µg/mL m
RT: 9.998 min Scan# 1475
Delta R.T. 0.006 min
Lab File: W11969.D
Acq: 8 May 2013 12:13 am

Tgt Ion:228 Resp: 6252

Ion	Ratio	Lower	Upper
228	100		
229	93.8	0.0	49.9#
226	45.7	0.0	57.4

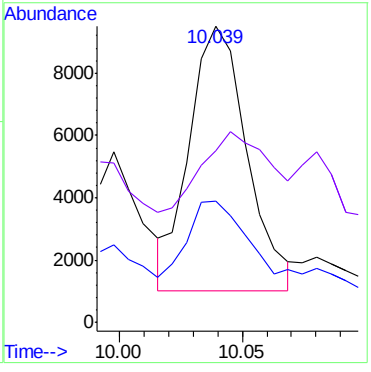


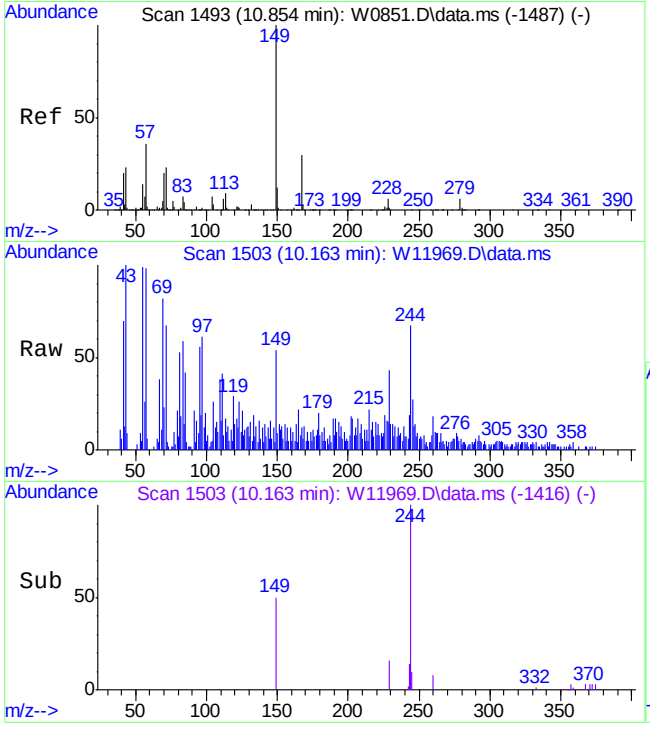


#86
Chrysene
Concen: 1.08 µg/mL m
RT: 10.039 min Scan# 1482
Delta R.T. -0.005 min
Lab File: W11969.D
Acq: 8 May 2013 12:13 am

Tgt Ion:228 Resp: 13728

Ion	Ratio	Lower	Upper
228	100		
226	41.0	0.2	60.2
229	58.0	0.0	50.1#

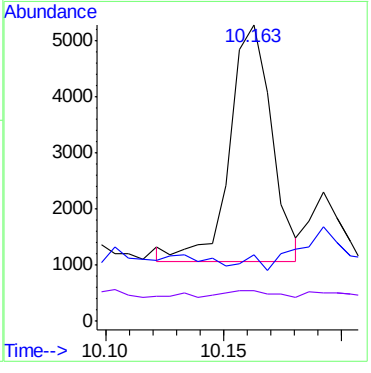




#87
bis(2-Ethylhexyl)phthalate
Concen: 0.69 µg/mL m
RT: 10.163 min Scan# 1503
Delta R.T. 0.013 min
Lab File: W11969.D
Acq: 8 May 2013 12:13 am

Tgt Ion:149 Resp: 5181

Ion	Ratio	Lower	Upper
149	100		
167	22.2	0.0	59.0
279	10.3	0.0	37.1



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\W130506\
Data File : W11896a.D
Acq On : 6 May 2013 7:17 pm
Operator : kristinr
Sample : op32979-mb, 64
Misc : OP32979,MSW549,20.86,,,1,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 06 19:36:09 2013
Quant Method : C:\msdchem\1\methods\W130402_8270+.M
Quant Title : AB8270TCL42
QLast Update : Wed Apr 24 13:13:45 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.352	152	117546	40.00	µg/mL	-0.04
22) Naphthalene-d8	4.386	136	426499	40.00	µg/mL	0.00
40) Acenaphthene-d10	5.896	164	273785	40.00	µg/mL	0.10
63) Phenanthrene-d10	7.189	188	470075	40.00	µg/mL	0.15
78) Chrysene-d12	10.015	240	507101	40.00	µg/mL	0.15
88) Perylene-d12	11.578	264	457282	40.00	µg/mL	0.15
System Monitoring Compounds						
5) 2-Fluorophenol	2.453	112	281405	86.77	µg/mL	-0.11
Spiked Amount 100.000	Range 21 - 110		Recovery = 86.77%			
7) Phenol-d5	3.158	99	344768	82.03	µg/mL	-0.04
Spiked Amount 100.000	Range 10 - 110		Recovery = 82.03%			
23) Nitrobenzene-d5	3.822	82	169612	42.77	µg/mL	-0.04
Spiked Amount 50.000	Range 34 - 114		Recovery = 85.54%			
45) 2-Fluorobiphenyl	5.332	172	400511	46.71	µg/mL	0.06
Spiked Amount 50.000	Range 43 - 116		Recovery = 93.42%			
67) 2,4,6-Tribromophenol	6.589	330	166480	89.88	µg/mL	0.14
Spiked Amount 100.000	Range 10 - 123		Recovery = 89.88%			
81) Terphenyl-d14	8.863	244	560425	57.32	µg/mL	0.16
Spiked Amount 50.000	Range 33 - 141		Recovery = 114.64%			

Target Compounds Qvalue

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

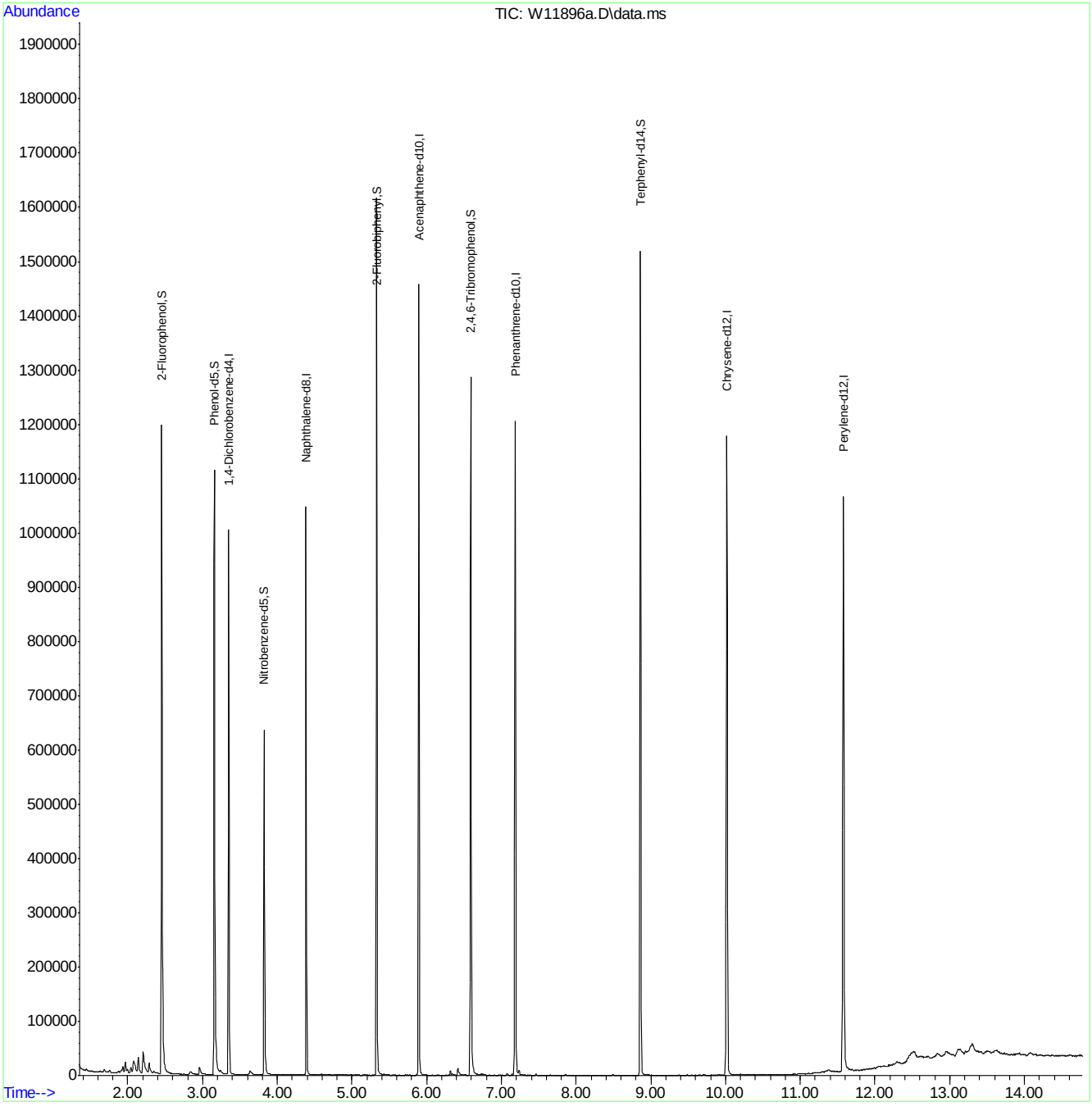
10.2.1

10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\W130506\
Data File : W11896a.D
Acq On : 6 May 2013 7:17 pm
Operator : kristinr
Sample : op32979-mb, 64
Misc : OP32979,MSW549,20.86,,,1,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 06 19:36:09 2013
Quant Method : C:\msdchem\1\methods\W130402_8270+.M
Quant Title : AB8270TCL42
QLast Update : Wed Apr 24 13:13:45 2013
Response via : Initial Calibration



W130402_8270+.M Mon May 06 19:36:16 2013 Page: 2

New Jersey

ACCUTEST LABORATORIES

GC Volatiles

QC Data Summaries

(Accutest Labs of New England, Inc.)

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: JB35319
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP32931-MB	BK24283.D	1	05/03/13	NK	05/03/13	OP32931	GBK854

The QC reported here applies to the following samples: **Method:** SW846 8011

JB35319-1, JB35319-2

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	2.5	0.95	ug/kg	

CAS No.	Surrogate Recoveries		Limits
460-00-4	Bromofluorobenzene (S)	109%	61-167%
460-00-4	Bromofluorobenzene (S)	141%	61-167%

Blank Spike Summary

Job Number: JB35319
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP32931-BS	BK24284.D	1	05/03/13	NK	05/03/13	OP32931	GBK854

The QC reported here applies to the following samples: **Method:** SW846 8011

JB35319-1, JB35319-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
106-93-4	1,2-Dibromoethane	32.8	41.5	127	56-140

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	Bromofluorobenzene (S)	109%	61-167%
460-00-4	Bromofluorobenzene (S)	133%	61-167%

11.2.1

11

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB35319
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP32931-MS	BK24285.D	1	05/03/13	NK	05/03/13	OP32931	GBK854
OP32931-MSD	BK24286.D	1	05/03/13	NK	05/03/13	OP32931	GBK854
JB35341-5	BK24287.D	1	05/03/13	NK	05/03/13	OP32931	GBK854

The QC reported here applies to the following samples: **Method:** SW846 8011

JB35319-1, JB35319-2

CAS No.	Compound	JB35341-5 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
106-93-4	1,2-Dibromoethane	ND		36.8	46.3	126	48.1	131	4	48-141/27

CAS No.	Surrogate Recoveries	MS	MSD	JB35341-5	Limits
460-00-4	Bromofluorobenzene (S)	96%	105%	123%	61-167%
460-00-4	Bromofluorobenzene (S)	122%	128%	167%	61-167%

11.3.1

11

* = Outside of Control Limits.

Volatile Surrogate Recovery Summary

Job Number: JB35319
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Method: SW846 8011 **Matrix:** SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 [a]	S1 [b]
JB35319-1	BK24312.D	112.0	149.0
JB35319-2	BK24313.D	106.0	149.0
OP32931-BS	BK24284.D	109.0	133.0
OP32931-MB	BK24283.D	109.0	141.0
OP32931-MS	BK24285.D	96.0	122.0
OP32931-MSD	BK24286.D	105.0	128.0

Surrogate Compounds	Recovery Limits
S1 = Bromofluorobenzene (S)	61-167%

(a) Recovery from GC signal #2
(b) Recovery from GC signal #1

GC Surrogate Retention Time Summary

Job Number: JB35319
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	GBK854-ICC854	**Injection Date:**	05/03/13
Lab File ID:	BK24272.D	**Injection Time:**	15:49
Instrument ID:	GCBK	**Method:**	SW846 8011

	S1 [a] RT	S1 [b] RT
Check Std	4.35	4.70

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
OP32930-MB	BK24278.D	05/03/13	18:15	4.35	4.70
OP32930-BS	BK24279.D	05/03/13	18:39	4.35	4.70
OP32930-MS	BK24280.D	05/03/13	19:03	4.35	4.70
OP32930-MSD	BK24281.D	05/03/13	19:27	4.35	4.70
JB34989-1	BK24282.D	05/03/13	19:51	4.35	4.70
OP32931-MB	BK24283.D	05/03/13	20:14	4.35	4.70
OP32931-BS	BK24284.D	05/03/13	20:37	4.35	4.70
OP32931-MS	BK24285.D	05/03/13	21:01	4.35	4.70
OP32931-MSD	BK24286.D	05/03/13	21:25	4.35	4.70
JB35341-5	BK24287.D	05/03/13	21:49	4.35	4.70

Surrogate Compounds

S1 = Bromofluorobenzene (S)

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

GC Surrogate Retention Time Summary

Job Number: JB35319
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	GBK854-CC854	**Injection Date:**	05/04/13
Lab File ID:	BK24310.D	**Injection Time:**	06:54
Instrument ID:	GCBK	**Method:**	SW846 8011

	S1 [a] RT	S1 [b] RT
Check Std	4.35	4.70

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
ZZZZZZ	BK24311.D	05/04/13	07:17	4.35	4.70
JB35319-1	BK24312.D	05/04/13	07:40	4.35	4.70
JB35319-2	BK24313.D	05/04/13	08:04	4.35	4.70
ZZZZZZ	BK24314.D	05/04/13	08:27	4.35	4.70
ZZZZZZ	BK24315.D	05/04/13	08:50	4.35	4.70
ZZZZZZ	BK24316.D	05/04/13	09:13	4.35	4.70
ZZZZZZ	BK24317.D	05/04/13	09:37	4.35	4.70
ZZZZZZ	BK24318.D	05/04/13	10:00	4.35	4.70
ZZZZZZ	BK24319.D	05/04/13	10:24	4.35	4.70
ZZZZZZ	BK24320.D	05/04/13	10:48	4.35	4.70

Surrogate Compounds

S1 = Bromofluorobenzene (S)

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

Initial Calibration Summary

Job Number: JB35319 **Sample:** GBK854-ICC854
Account: ALNJ Accutest New Jersey **Lab FileID:** BK24272.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
                         Response Factor Report  GCBK

  Method       : C:\msdchem\1\METHODS\EDS130503.M (ChemStation Integrator)
  Title        : EDB /Rtx35/DB1701
  Last Update  : Fri May 03 17:49:54 2013
  Response via : Initial Calibration

  Calibration Files
  1   =BK24271.d   2   =BK24272.d   3   =BK24273.d   4   =BK24274.d
  5      =BK24275.d    6      =BK24276.d

        Compound              1     2     3     4     5     6     Avg    %RSD
  ---------------------------------------------------------------------------
  1)     1,2-Dibromoethane   2.222 2.262 2.386 2.355 2.337 2.245 2.301 E8   2.91
  2) s   4-Bromofluorobenzen 1.184 1.191 1.207 1.138 1.120 1.128 1.161 E7   3.17
  3)     1,2-Dibromo-3-chlor 4.586 4.420 4.328 4.191 4.191 3.936 4.275 E8   5.22

Signal #2

  1)     1,2-Dibromoethane   2.858 2.792 2.878 2.763 2.434 2.253 2.663 E6   9.66
  2) s   4-Bromofluorobenzen 1.870 1.979 2.000 1.922 1.976 1.986 1.955 E5   2.54
  3)     1,2-Dibromo-3-chlor 5.464 5.319 5.101 4.957 4.890 4.615 5.057 E6   6.05
 ---------------------------------------------------------------------------
 (#) = Out of Range

           EDS130503.M        Mon May 06 07:09:13 2013
```

11.6.1

11

Initial Calibration Verification

Job Number: JB35319 **Sample:** GBK854-ICV854
Account: ALNJ Accutest New Jersey **Lab FileID:** BK24277.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Signal #1 : C:\msdchem\1\DATA\BK...03\BK24277.d\ECD1A.ch Vial: 57
Signal #2 : C:\msdchem\1\DATA\BK130503\BK24277.d\ECD2B.ch
Acq On    :  3 May 2013   5:51 pm                    Operator: nickk
Sample    : icv854-20,edb soil                       Inst    : GCBK
Misc      : op32930,gbk854,30,,,50,,s                Multiplr: 1.00
IntFile Signal #1: events.e     IntFile Signal #2: events2.e

Method       : C:\msdchem\1\METHODS\EDS130503.M (ChemStation Integrator)
Title        : EDB /Rtx35/DB1701
Last Update  : Fri May 03 17:49:54 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  85%  Max. R.T. Dev  0.50min
Max. RRF Dev :  15%     Max. Rel. Area : 115%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	RT Window
1	1,2-Dibromoethane	230.128	225.915 E6	1.8	100	0.00	3.45- 3.51
2 s	4-Bromofluorobenzene	11.614	13.345 E6	-14.9	112	0.00	4.67- 4.73
3	1,2-Dibromo-3-chloropr	427.537	402.853 E6	5.8	91	0.00	6.10- 6.16

***** Signal #2 *****

1	1,2-Dibromoethane	2.663	2.910 E6	-9.3	104	0.00	3.26- 3.32
2 s	4-Bromofluorobenzene	195.524	196.403 E3	-0.4	99	0.00	4.32- 4.38
3	1,2-Dibromo-3-chloropr	5.057	5.294 E6	-4.7	100	0.00	5.99- 6.05

(#) = Out of Range SPCC's out = 0 CCC's out = 0
BK24272.d EDS130503.M Mon May 06 07:09:00 2013

11.6.2

11

Continuing Calibration Summary

Job Number: JB35319 **Sample:** GBK854-CC854
Account: ALNJ Accutest New Jersey **Lab FileID:** BK24288.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Signal #1 : C:\msdchem\1\DATA\BK...03\BK24288.d\ECD1A.ch Vial: 100
Signal #2 : C:\msdchem\1\DATA\BK130503\BK24288.d\ECD2B.ch
Acq On    :  3 May 2013  10:14 pm                    Operator: nickk
Sample    : cc854-10,edb soil                        Inst    : GCBK
Misc      : op32930,gbk854,30,,,50,,s                Multiplr: 1.00
IntFile Signal #1: events.e     IntFile Signal #2: events2.e

Method       : C:\msdchem\1\METHODS\EDS130503.M (ChemStation Integrator)
Title        : EDB /Rtx35/DB1701
Last Update  : Fri May 03 17:49:54 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  85%  Max. R.T. Dev  0.50min
Max. RRF Dev :  15%     Max. Rel. Area : 115%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	RT Window
1	1,2-Dibromoethane	230.128	248.275 E6	-7.9	104	0.00	3.45- 3.51
2 s	4-Bromofluorobenzene	11.614	12.333 E6	-6.2	102	0.00	4.67- 4.73
3	1,2-Dibromo-3-chloropr	427.537	451.083 E6	-5.5	104	0.00	6.10- 6.16

***** Signal #2 *****

1	1,2-Dibromoethane	2.663	2.787 E6	-4.7	97	0.00	3.26- 3.32
2 s	4-Bromofluorobenzene	195.524	206.365 E3	-5.5	103	0.00	4.32- 4.38
3	1,2-Dibromo-3-chloropr	5.057	5.346 E6	-5.7	105	0.00	5.99- 6.05

(#) = Out of Range SPCC's out = 0 CCC's out = 0
BK24273.d EDS130503.M Mon May 06 07:19:57 2013

11.6.3

11

Continuing Calibration Summary

Job Number: JB35319 **Sample:** GBK854-CC854
Account: ALNJ Accutest New Jersey **Lab FileID:** BK24310.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\BK...03\BK24310.d\ECD1A.ch Vial: 99
 Signal #2 : C:\msdchem\1\DATA\BK130503\BK24310.d\ECD2B.ch
 Acq On    :  4 May 2013   6:54 am                    Operator: nickk
 Sample    : cc854-10,edb soil                        Inst    : GCBK
 Misc      : op32931,gbk854,30,,,50,,s                Multiplr: 1.00
 IntFile Signal #1: events.e     IntFile Signal #2: events2.e

 Method       : C:\msdchem\1\METHODS\EDS130503.M (ChemStation Integrator)
 Title        : EDB /Rtx35/DB1701
 Last Update  : Fri May 03 17:49:54 2013
 Response via : Multiple Level Calibration

 Min. RRF     :   0.000  Min. Rel. Area :  85%  Max. R.T. Dev  0.50min
 Max. RRF Dev :  15%     Max. Rel. Area : 115%

        Compound                AvgRF   CCRF      %Dev Area% Dev(min)RT Window
 ---------------------------------------------------------------------------
 1     1,2-Dibromoethane      230.128 226.625 E6   1.5   95   0.00    3.44- 3.50
 2 s   4-Bromofluorobenzene    11.614  11.758 E6  -1.2   97   0.00    4.67- 4.73
 3     1,2-Dibromo-3-chloropr 427.537 418.832 E6   2.0   97   0.00    6.09- 6.15

*****  Signal #2   *****

 1     1,2-Dibromoethane        2.663   2.761 E6  -3.7   96   0.00    3.26- 3.32
 2 s   4-Bromofluorobenzene   195.524 188.127 E3   3.8   94   0.00    4.32- 4.38
 3     1,2-Dibromo-3-chloropr   5.057   4.801 E6   5.1   94   0.00    5.99- 6.05
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    BK24273.d  EDS130503.M       Mon May 06 07:17:29 2013
```

11.6.4

11

Continuing Calibration Summary

Job Number: JB35319 **Sample:** GBK854-CC854
Account: ALNJ Accutest New Jersey **Lab FileID:** BK24321.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Signal #1 : C:\msdchem\1\DATA\BK...03\BK24321.d\ECD1A.ch Vial: 99
Signal #2 : C:\msdchem\1\DATA\BK130503\BK24321.d\ECD2B.ch
Acq On    :  4 May 2013  11:11 am                    Operator: nickk
Sample    : cc854-10,edb soil                        Inst    : GCBK
Misc      : op32931,gbk854,30,,,50,,s                Multiplr: 1.00
IntFile Signal #1: events.e     IntFile Signal #2: events2.e

Method       : C:\msdchem\1\METHODS\EDS130503.M (ChemStation Integrator)
Title        : EDB /Rtx35/DB1701
Last Update  : Fri May 03 17:49:54 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  85%  Max. R.T. Dev  0.50min
Max. RRF Dev :  15%     Max. Rel. Area : 115%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	RT Window
1	1,2-Dibromoethane	230.128	233.205 E6	-1.3	98	0.00	3.45- 3.51
2 s	4-Bromofluorobenzene	11.614	12.065 E6	-3.9	100	0.00	4.67- 4.73
3	1,2-Dibromo-3-chloropr	427.537	444.828 E6	-4.0	103	0.00	6.10- 6.16

***** Signal #2 *****

1	1,2-Dibromoethane	2.663	2.863 E6	-7.5	99	0.00	3.26- 3.32
2 s	4-Bromofluorobenzene	195.524	192.022 E3	1.8	96	0.00	4.32- 4.38
3	1,2-Dibromo-3-chloropr	5.057	5.207 E6	-3.0	102	0.00	5.99- 6.05

(#) = Out of Range SPCC's out = 0 CCC's out = 0
BK24273.d EDS130503.M Mon May 06 07:16:12 2013

11.6.5

11

New Jersey

ACCUTEST LABORATORIES

GC Volatiles

Raw Data

(Accutest Labs of New England, Inc.)

Manual Integrations APPROVED (compounds with "m" flag)
Sona Liskova
05/06/13 17:02

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\BK130503\
Data File : BK24312.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 May 2013 7:40 am
Operator : nickk
Sample : jb35319-1,op32931
Misc : op32931,gbk854,30.13,,,50,,s
ALS Vial : 32 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: May 06 07:39:30 2013
Quant Method : C:\msdchem\1\METHODS\EDS130503.M
Quant Title : EDB /Rtx35/DB1701
QLast Update : Fri May 03 17:49:54 2013
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	RT#1	RT#2	Resp#1	Resp#2	ug/L	ug/L
System Monitoring Compounds						
2) s 4-Bromofl...	4.702	4.351	866.0E6	10991856	74.570m	56.217m
Spiked Amount 50.000 Range 26 - 158 Recovery = 149.14% 112.43%						
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D.	N.D.
3) 1,2-Dibro...	0.000	0.000	0	0	N.D.	N.D.

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

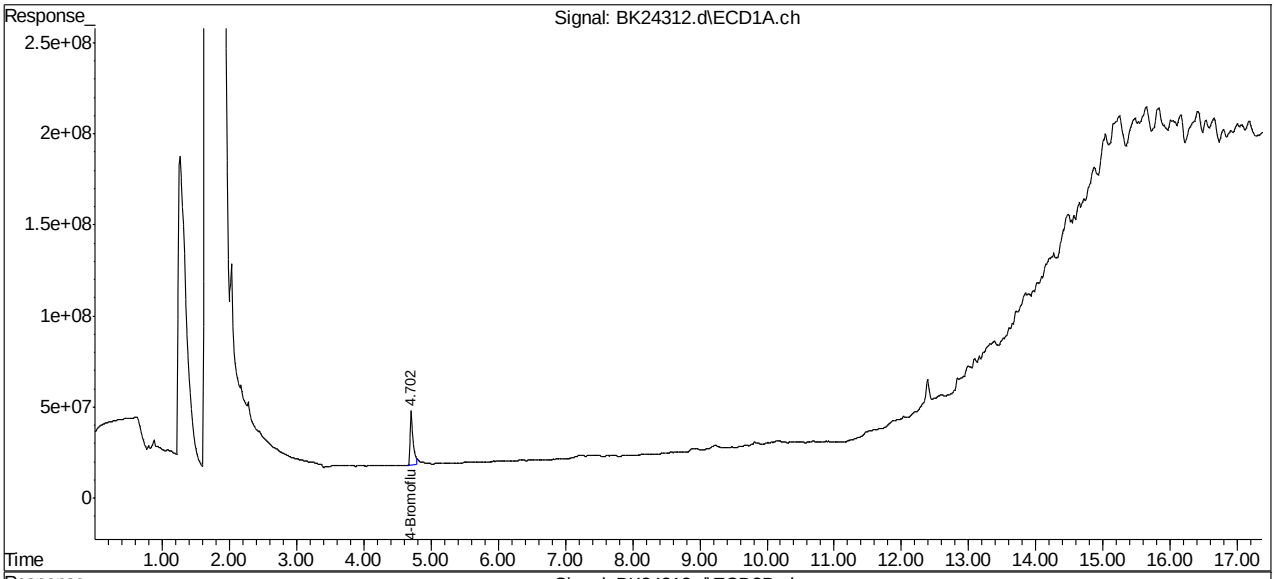
12.1.1
12

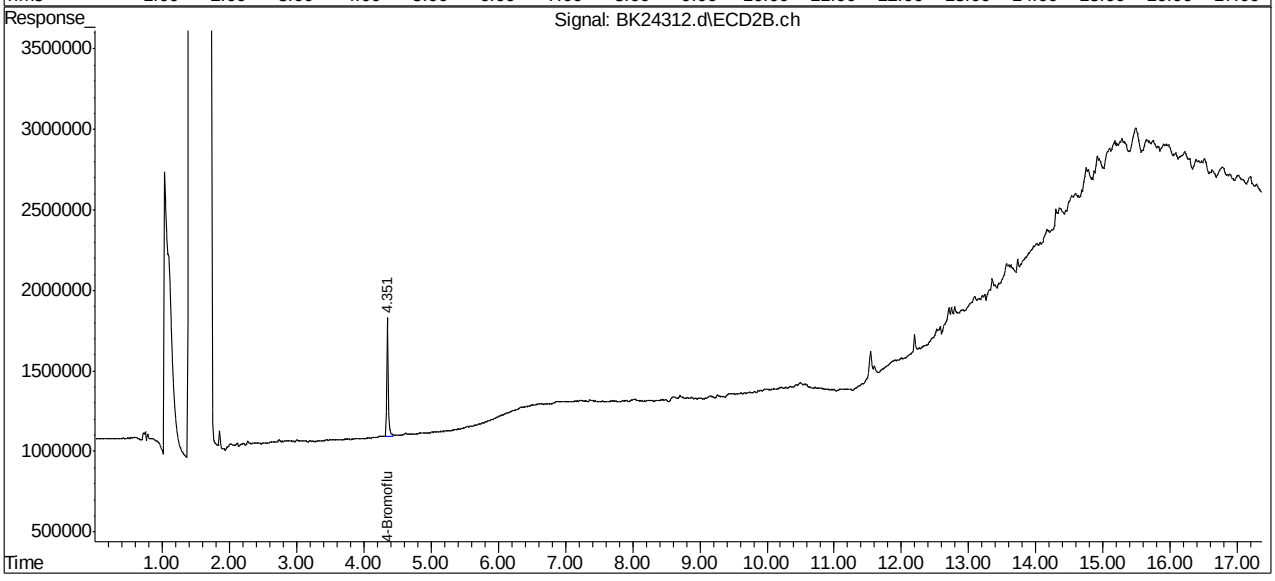
Quantitation Report (QT Reviewed)

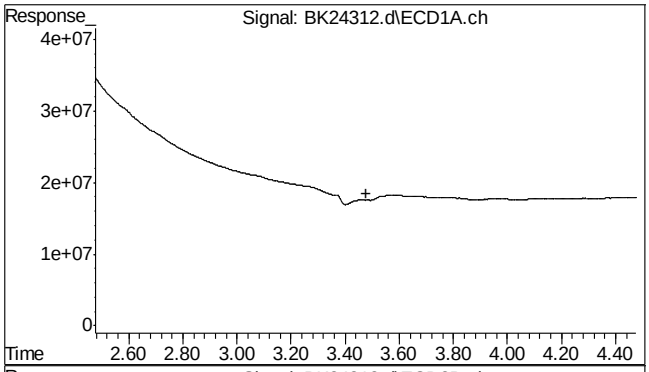
Data Path : C:\msdchem\1\DATA\BK130503\
Data File : BK24312.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 May 2013 7:40 am
Operator : nickk
Sample : jb35319-1,op32931
Misc : op32931,gbk854,30.13,,,50,,s
ALS Vial : 32 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: May 06 07:39:30 2013
Quant Method : C:\msdchem\1\METHODS\EDS130503.M
Quant Title : EDB /Rtx35/DB1701
QLast Update : Fri May 03 17:49:54 2013
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

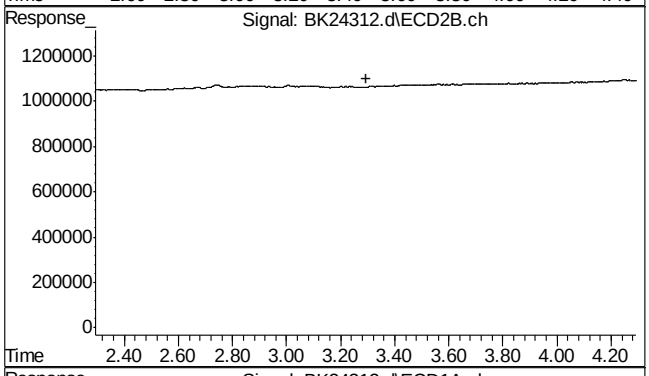






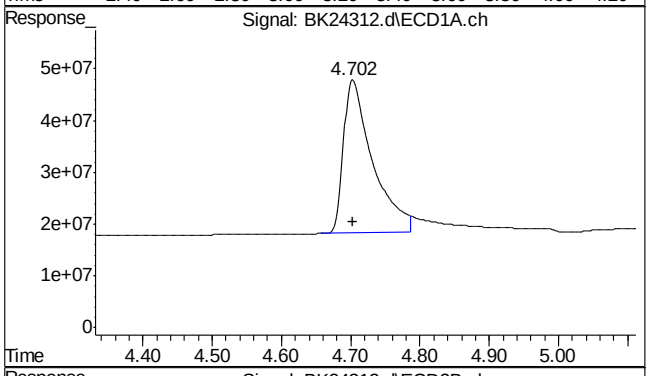
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.476 min
Response: 0
Conc: N.D.



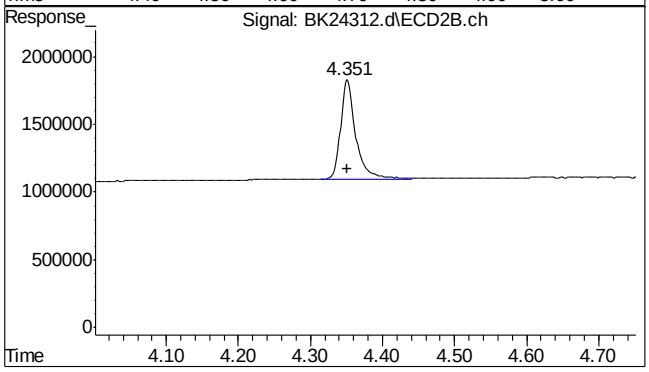
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.293 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene

R.T.: 4.702 min
Delta R.T.: 0.000 min
Response: 866036218
Conc: 74.57 ug/L m

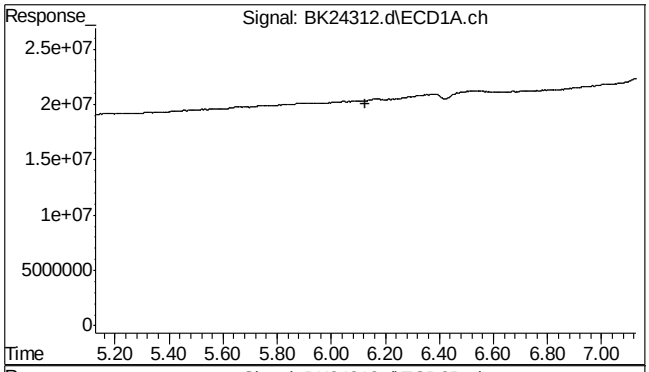


#2 4-Bromofluorobenzene

R.T.: 4.351 min
Delta R.T.: 0.000 min
Response: 10991856
Conc: 56.22 ug/L m

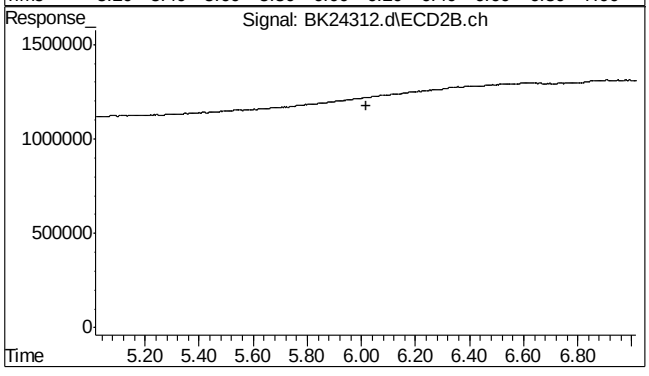
12.1.1

12



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.127 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.016 min
Response: 0
Conc: N.D.

Manual Integrations
APPROVED
(compounds with "m" flag)
Sona Liskova
05/06/13 17:02

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\BK130503\
Data File : BK24313.d
Signal(s) : Signal #1: ECD1A.ch  Signal #2: ECD2B.ch
Acq On    :  4 May 2013   8:04 am
Operator  : nickk
Sample    : jb35319-2,op32931
Misc      : op32931,gbk854,30.54,,,50,,s
ALS Vial  : 33   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: May 06 07:40:08 2013
Quant Method : C:\msdchem\1\METHODS\EDS130503.M
Quant Title  : EDB /Rtx35/DB1701
QLast Update : Fri May 03 17:49:54 2013
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.     :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :

      Compound         RT#1      RT#2    Resp#1   Resp#2   ug/L    ug/L
  ---------------------------------------------------------------------------

  System Monitoring Compounds
2) s   4-Bromofl...    4.700     4.348   864.6E6 10361176   74.446m   52.992m#
 Spiked Amount     50.000 Range  26 - 158  Recovery   =  148.89%   105.98%

  Target Compounds
1)     1,2-Dibro...    0.000     0.000         0        0    N.D.      N.D.
3)     1,2-Dibro...    0.000     0.000         0        0    N.D.      N.D.
  ---------------------------------------------------------------------------

 (f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25%  (m)=manual int.
```

12.1.2

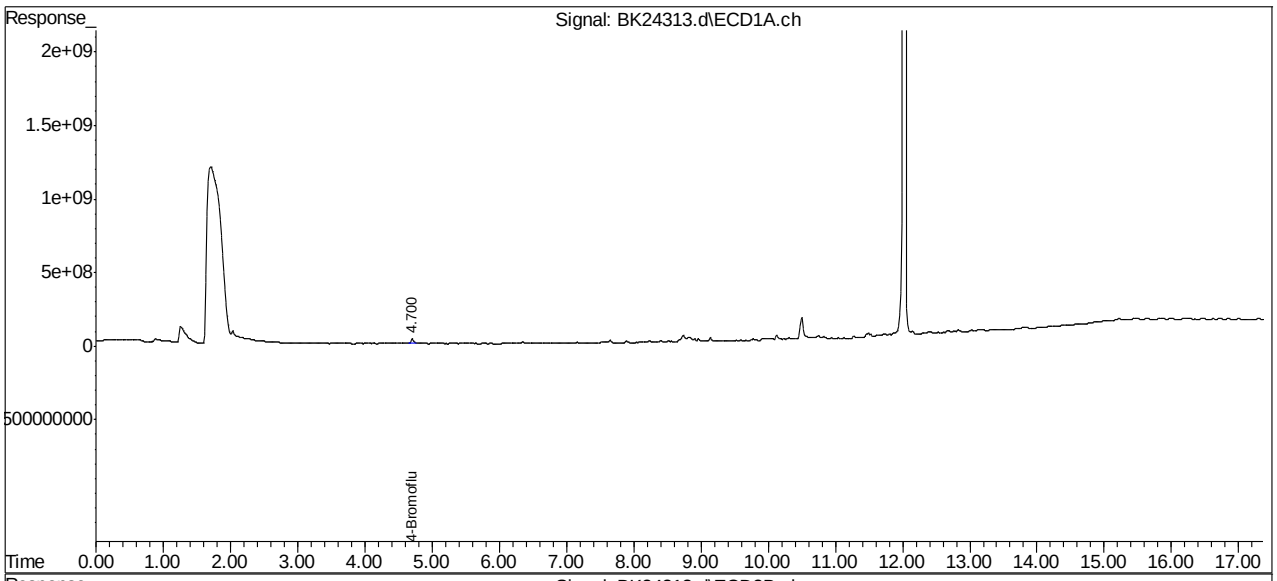
12

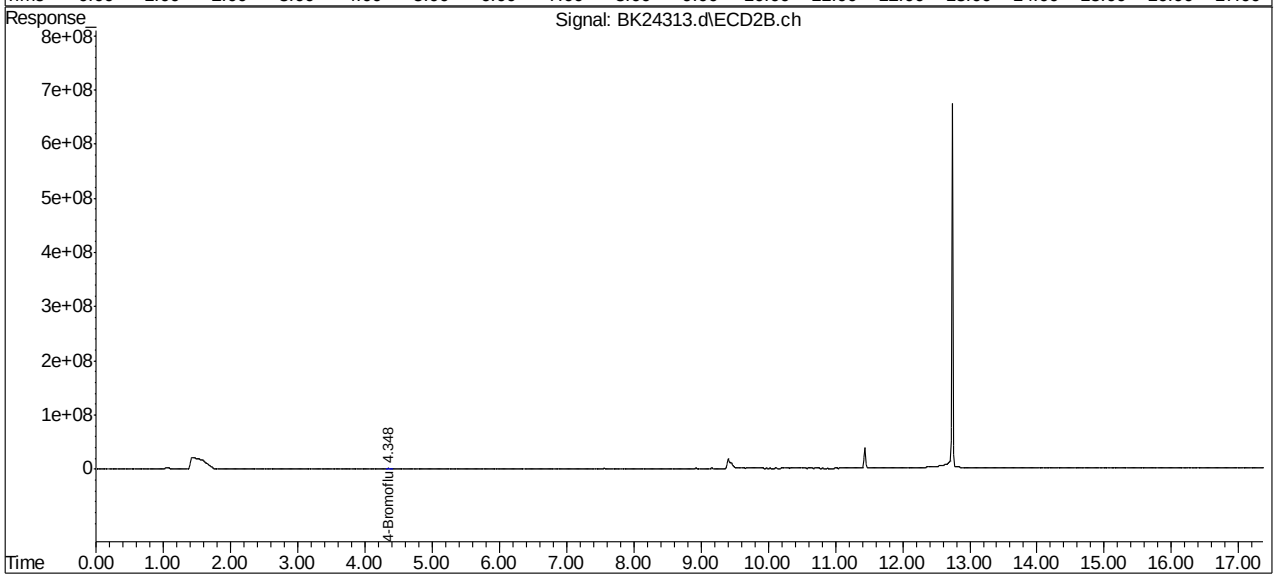
Quantitation Report (QT Reviewed)

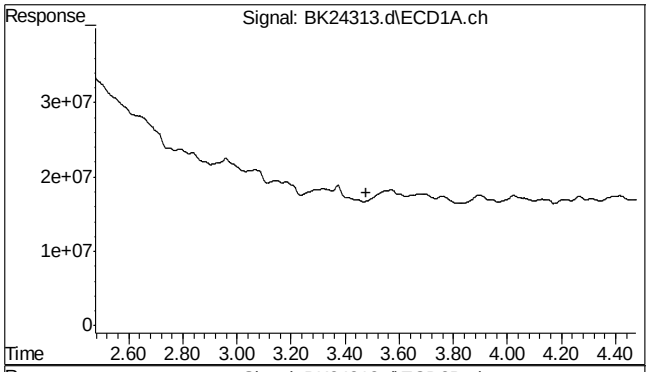
Data Path : C:\msdchem\1\DATA\BK130503\
Data File : BK24313.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 May 2013 8:04 am
Operator : nickk
Sample : jb35319-2,op32931
Misc : op32931,gbk854,30.54,,,50,,s
ALS Vial : 33 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: May 06 07:40:08 2013
Quant Method : C:\msdchem\1\METHODS\EDS130503.M
Quant Title : EDB /Rtx35/DB1701
QLast Update : Fri May 03 17:49:54 2013
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

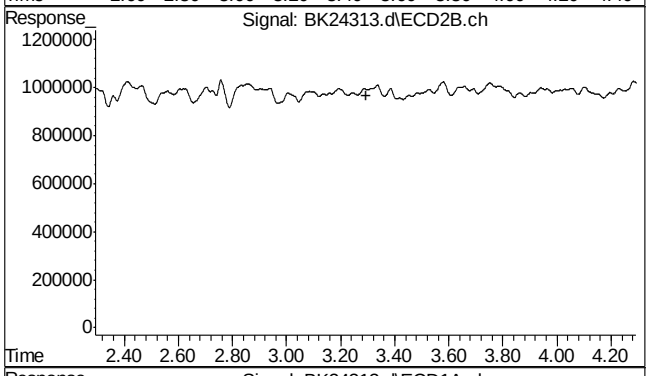






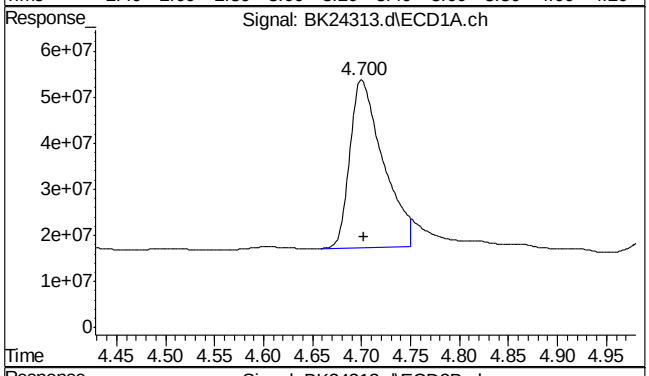
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.476 min
Response: 0
Conc: N.D.



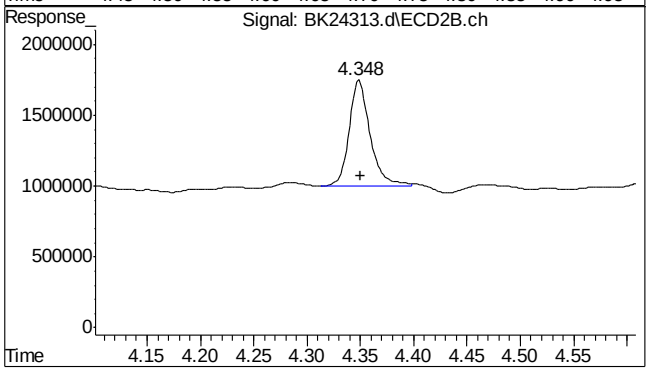
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.293 min
Response: 0
Conc: N.D.



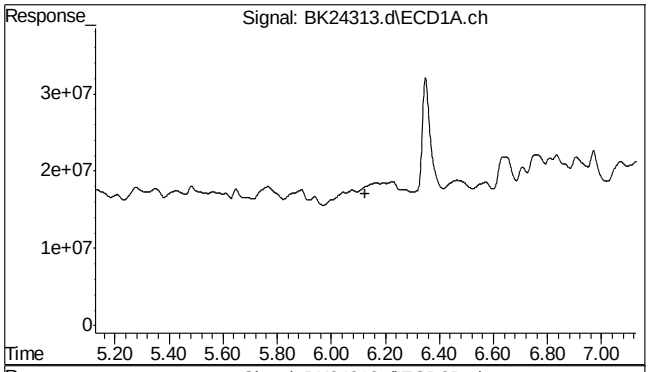
#2 4-Bromofluorobenzene

R.T.: 4.700 min
Delta R.T.: -0.003 min
Response: 864603028
Conc: 74.45 ug/L m



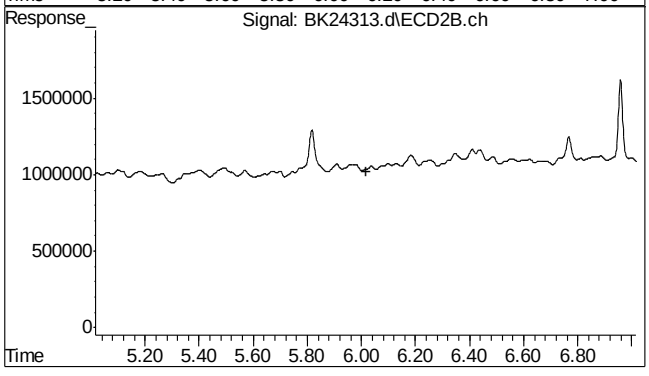
#2 4-Bromofluorobenzene

R.T.: 4.348 min
Delta R.T.: -0.002 min
Response: 10361176
Conc: 52.99 ug/L m



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.127 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.016 min
Response: 0
Conc: N.D.

12.1.2

12

Manual Integrations
APPROVED
(compounds with "m" flag)
Sona Liskova
05/06/13 17:02

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\BK130503\
Data File : BK24283.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 3 May 2013 8:14 pm
Operator : nickk
Sample : op32931-mb
Misc : op32931,gbk854,30.39,,,50,,s
ALS Vial : 6 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: May 06 07:25:07 2013
Quant Method : C:\msdchem\1\METHODS\EDS130503.M
Quant Title : EDB /Rtx35/DB1701
QLast Update : Fri May 03 17:49:54 2013
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	RT#1	RT#2	Resp#1	Resp#2	ug/L	ug/L
System Monitoring Compounds						
2) s 4-Bromofl...	4.703	4.351	816.1E6	10694319	70.274m	54.696m
Spiked Amount	50.000	Range	26 - 158	Recovery	= 140.55%	109.39%
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D.	N.D.
3) 1,2-Dibro...	0.000	0.000	0	0	N.D.	N.D.

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

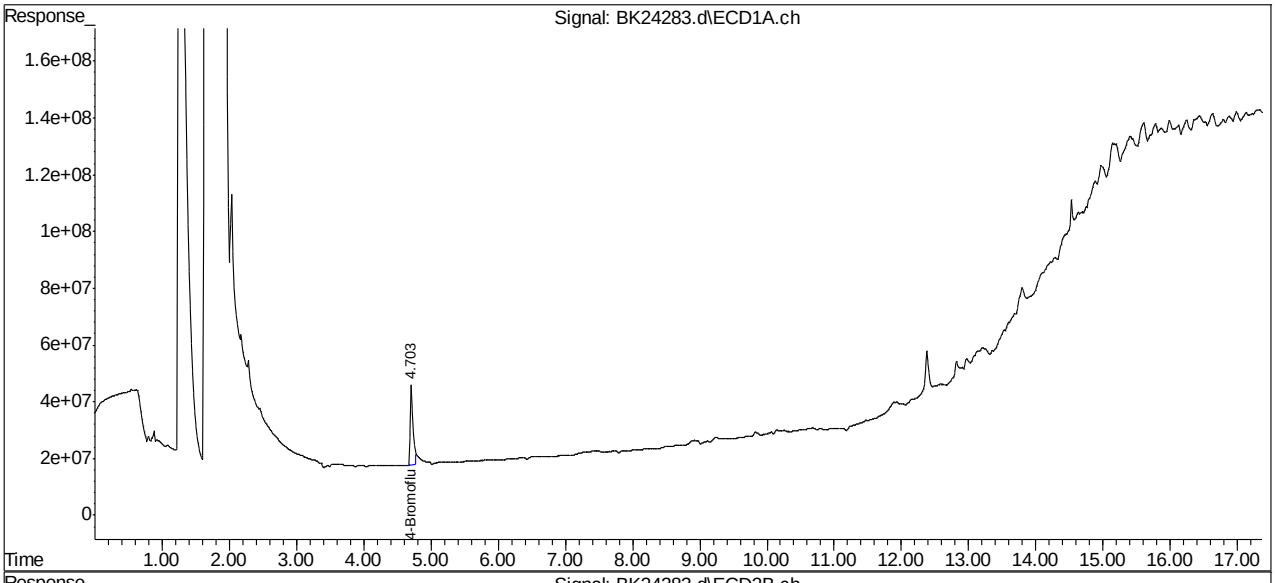
12.2.1
12

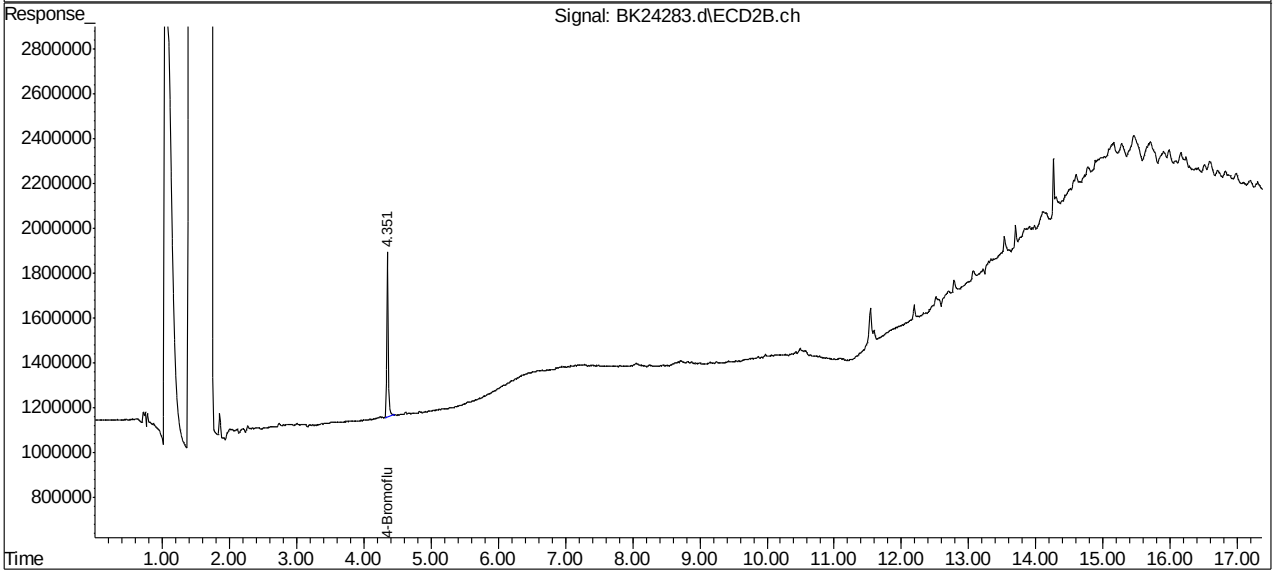
Quantitation Report (QT Reviewed)

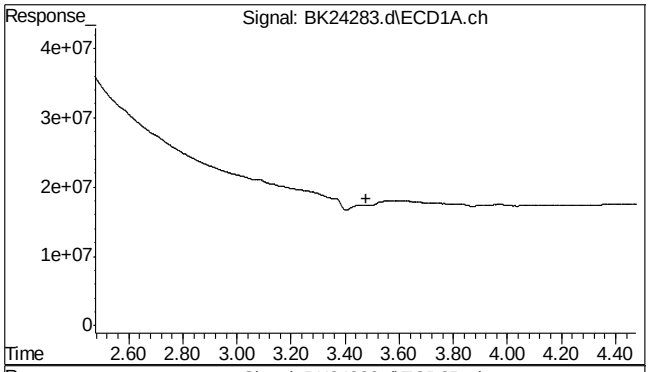
Data Path : C:\msdchem\1\DATA\BK130503\
Data File : BK24283.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 3 May 2013 8:14 pm
Operator : nickk
Sample : op32931-mb
Misc : op32931,gbk854,30.39,,,50,,s
ALS Vial : 6 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: May 06 07:25:07 2013
Quant Method : C:\msdchem\1\METHODS\EDS130503.M
Quant Title : EDB /Rtx35/DB1701
QLast Update : Fri May 03 17:49:54 2013
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

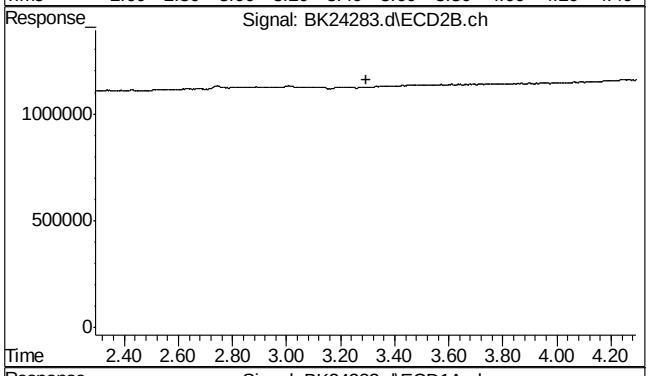






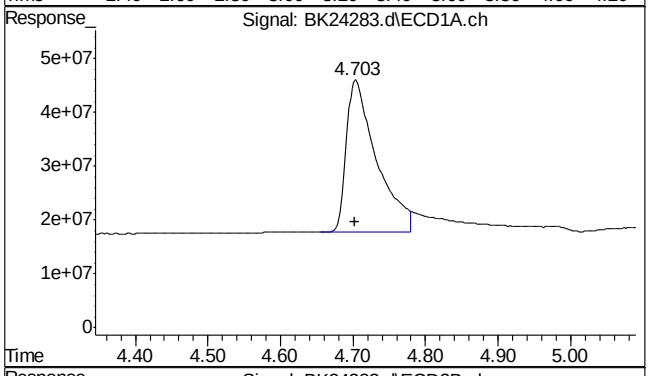
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.476 min
Response: 0
Conc: N.D.



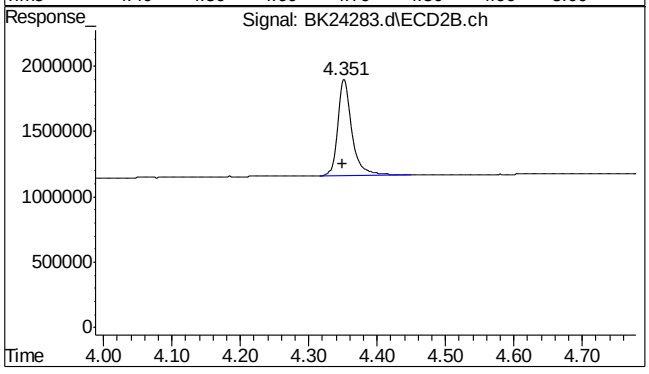
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.293 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene

R.T.: 4.703 min
Delta R.T.: 0.000 min
Response: 816149026
Conc: 70.27 ug/L m

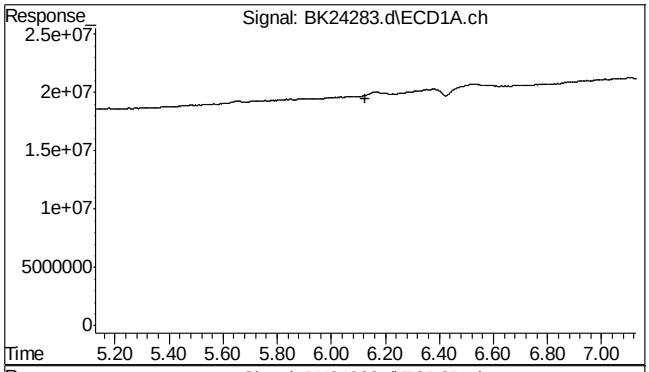


#2 4-Bromofluorobenzene

R.T.: 4.351 min
Delta R.T.: 0.000 min
Response: 10694319
Conc: 54.70 ug/L m

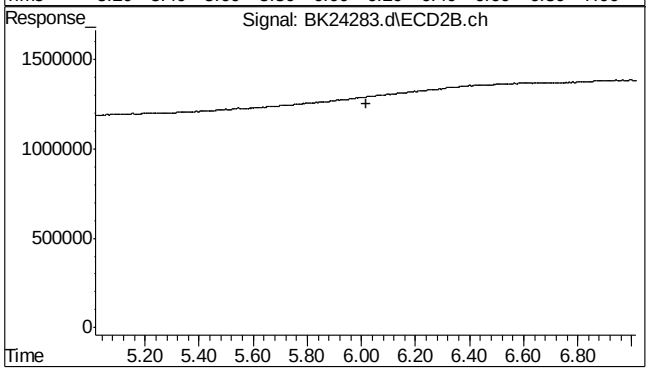
12.2.1

12



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.127 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.016 min
Response: 0
Conc: N.D.

12.2.1

12

New Jersey
ACCUTEST LABORATORIES

Metals Analysis

QC Data Summaries

(Accutest Labs of New England, Inc.)

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: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB043013M2.ICP Date Analyzed: 04/30/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15519
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
15:04	MA15519-STD1	1		STD1
15:09	MA15519-STD2	1		STD2
15:13	MA15519-STD3	1		STD3
15:17	MA15519-STD4	1		STD4
15:22	MA15519-ICV1	1		
15:29	MA15519-ICB1	1		
15:33	MA15519-CCV1	1		
15:37	MA15519-CCB1	1		
15:41	MA15519-CRIA1	1		
15:46	MA15519-ICSA1	1		
15:50	MA15519-ICSAB1	1		
15:54	MP20860-B1	1		
15:59	MP20860-MB1	1		
16:03	MP20860-S1	1		
16:07	MP20860-S2	1		
16:11	MC20238-6	1		(sample used for QC only; not part of login JB35319)
16:16	MP20860-SD1	5		
16:20	MP20860-B2	1		
16:24	MA15519-CCV2	1		
16:28	MA15519-CCB2	1		
16:33	MP20860-LC1	1		
16:37	MP20860-S3	1		
16:41	MP20860-S4	1		
16:46	MC20194-2	1		(sample used for QC only; not part of login JB35319)
16:50	ZZZZZZ	1		
16:54	ZZZZZZ	1		
17:01	ZZZZZZ	5		
17:16	ZZZZZZ	1		
17:21	ZZZZZZ	1		
17:25	ZZZZZZ	5		
17:30	ZZZZZZ	1		DNR: SEE RERUN FOR CCV.
18:00	MA15519-CCV3	1		
18:09	MA15519-CCB3	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB043013M2.ICP Date Analyzed: 04/30/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15519
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
18:13	ZZZZZZ	1		
18:18	ZZZZZZ	1		
18:22	ZZZZZZ	1		
18:26	ZZZZZZ	1		
18:31	ZZZZZZ	1		
18:35	ZZZZZZ	1		
18:40	ZZZZZZ	1		
18:44	ZZZZZZ	1		
18:48	ZZZZZZ	1		
18:53	ZZZZZZ	1		
18:57	MA15519-CCV4	1		
19:01	MA15519-CCB4	1		
19:06	ZZZZZZ	1		
19:10	ZZZZZZ	1		
19:14	ZZZZZZ	1		
19:18	ZZZZZZ	1		
19:23	MP20860-PS1	1		
19:27	MP20863-B1	1		
19:31	MP20863-MB1	1		
19:36	MP20863-S1	1		MS OUT FOR CR, NEED PS.
19:40	MP20863-S2	1		
19:45	MP20863-SD1	5		
19:49	MA15519-CCV5	1		
19:53	MA15519-CCB5	1		
19:58	JB35204-3	1		(sample used for QC only; not part of login JB35319)
20:02	MP20863-LC1	1		
20:06	ZZZZZZ	1		
20:10	ZZZZZZ	1		
20:15	ZZZZZZ	1		
20:19	JB35319-1	1		
20:23	JB35319-2	1		
----------> Last reportable sample/prep for job JB35319				
20:28	ZZZZZZ	1		
20:32	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB043013M2.ICP Date Analyzed: 04/30/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15519
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
20:36	ZZZZZZ	1		
20:41	MA15519-CCV6	1		
20:45	MA15519-CCB6	1		
20:49	ZZZZZZ	1		
20:54	ZZZZZZ	1		
20:58	ZZZZZZ	1		
21:02	ZZZZZZ	1		
21:06	ZZZZZZ	1		
21:11	ZZZZZZ	1		
21:15	ZZZZZZ	1		
21:19	ZZZZZZ	1		
21:24	ZZZZZZ	1		
21:28	ZZZZZZ	1		
21:33	MA15519-CCV7	1		
21:37	MA15519-CCB7	1		
21:41	ZZZZZZ	1		
21:45	MP20860-S3	3		
21:50	MP20860-S4	3		
21:54	ZZZZZZ	1		RINSECONF
21:58	MA15519-CRIA2	1		
22:03	MA15519-ICSA2	1		
22:07	MA15519-ICSAB2	1		
22:11	MA15519-CCV8	1		
22:16	MA15519-CCB8	1		

----------> Last reportable CCB for job JB35319
Refer to raw data for calibration curve and standards.

INTERNAL STANDARD SUMMARY

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB043013M2.ICP Date Analyzed: 04/30/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15519
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
15:04	MA15519-STD1	1747 R	51992 R	8633 R
15:09	MA15519-STD2	1710	52927	8740
15:13	MA15519-STD3			8642
15:17	MA15519-STD4	1737	52326	8820
15:22	MA15519-ICV1	1699	51782	8508
15:29	MA15519-ICB1	1696	52213	8685
15:33	MA15519-CCV1	1710	53896	8704
15:37	MA15519-CCB1	1713	52301	8708
15:41	MA15519-CRIA1	1711	52479	8702
15:46	MA15519-ICSA1	1577	48985	8622
15:50	MA15519-ICSAB1	1548	48629	8506
15:54	MP20860-B1	1703	52218	8673
15:59	MP20860-MB1	1721	53265	8795
16:03	MP20860-S1	1851	57050	9668
16:07	MP20860-S2	1841	57269	9765
16:11	MC20238-6	1863	57364	9810
16:16	MP20860-SD1	1747	53137	8916
16:20	MP20860-B2	1687	51977	8723
16:24	MA15519-CCV2	1698	51574	8636
16:28	MA15519-CCB2	1730	52816	8820
16:33	MP20860-LC1	1816	56033	9478
16:37	MP20860-S3	1699	52751	8764
16:41	MP20860-S4	1703	52825	8887
16:46	MC20194-2	1701	52657	8945
16:50	ZZZZZZ	1841	56921	9648
16:54	ZZZZZZ	1799	56099	9551
17:01	ZZZZZZ	1723	52422	8725
17:16	ZZZZZZ	1699	51508	8619
17:21	ZZZZZZ	1668	50793	8488
17:25	ZZZZZZ	1715	52097	8605
17:30	ZZZZZZ	1717	52570	8780
18:00	MA15519-CCV3	1735	51994	8725
18:09	MA15519-CCB3	1711	52398	8559

INTERNAL STANDARD SUMMARY

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB043013M2.ICP Date Analyzed: 04/30/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15519
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
18:13	ZZZZZZ	1826	56209	9496
18:18	ZZZZZZ	1781	55007	9274
18:22	ZZZZZZ	1785	55267	9696
18:26	ZZZZZZ	1897	59180	9964
18:31	ZZZZZZ	1900	59020	9941
18:35	ZZZZZZ	1833	56798	9618
18:40	ZZZZZZ	1857	57167	9674
18:44	ZZZZZZ	1907	58680	9942
18:48	ZZZZZZ	1926	58496	10117
18:53	ZZZZZZ	1798	54333	9203
18:57	MA15519-CCV4	1723	52266	8753
19:01	MA15519-CCB4	1740	51813	8644
19:06	ZZZZZZ	1771	53964	9131
19:10	ZZZZZZ	1802	54974	9268
19:14	ZZZZZZ	1793	54146	9081
19:18	ZZZZZZ	1787	54621	9222
19:23	MP20860-PS1	1879	57735	9879
19:27	MP20863-B1	1738	52326	8772
19:31	MP20863-MB1	1755	52373	8927
19:36	MP20863-S1	1877	57903	9912
19:40	MP20863-S2	1825	56702	9503
19:45	MP20863-SD1	1741	52693	8940
19:49	MA15519-CCV5	1704	51721	8692
19:53	MA15519-CCB5	1706	52231	8643
19:58	JB35204-3	1825	57534	9729
20:02	MP20863-LC1	1813	55590	9288
20:06	ZZZZZZ	1906	58927	9919
20:10	ZZZZZZ	1770	54863	9177
20:15	ZZZZZZ	1729	55509	9415
20:19	JB35319-1	1930	59773	9998
20:23	JB35319-2	1974	60590	10184
20:28	ZZZZZZ	1729	54113	9289
20:32	ZZZZZZ	1812	55591	9514

INTERNAL STANDARD SUMMARY

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB043013M2.ICP Date Analyzed: 04/30/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15519
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
20:36	ZZZZZZ	1839	56641	9583
20:41	MA15519-CCV6	1712	52140	8776
20:45	MA15519-CCB6	1711	52297	8619
20:49	ZZZZZZ	1896	58695	9868
20:54	ZZZZZZ	1819	56465	9598
20:58	ZZZZZZ	1990	60479	10156
21:02	ZZZZZZ	1880	57102	9681
21:06	ZZZZZZ	1713	52188	8789
21:11	ZZZZZZ	1681	52092	8977
21:15	ZZZZZZ	1698	52739	9175
21:19	ZZZZZZ	1686	52397	8922
21:24	ZZZZZZ	1778	53943	9086
21:28	ZZZZZZ	1700	52238	8935
21:33	MA15519-CCV7	1725	52128	8900
21:37	MA15519-CCB7	1743	52401	8572
21:41	ZZZZZZ	1696	52143	8848
21:45	MP20860-S3	1749	52533	8928
21:50	MP20860-S4	1735	52572	8926
21:54	ZZZZZZ	1748	52231	8727
21:58	MA15519-CRIA2	1748	52083	8646
22:03	MA15519-ICSA2	1576	48700	8513
22:07	MA15519-ICSAB2	1585	48607	8403
22:11	MA15519-CCV8	1713	51477	8761
22:16	MA15519-CCB8	1738	52421	8749

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB043013M2.ICP Date Analyzed: 04/30/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15519 Units: ug/l

Time:			15:29		15:37		16:28		18:09	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	12	anr							
Antimony	10	1.1	anr							
Arsenic	10	1.7	anr							
Barium	50	.32	anr							
Beryllium	4.0	.1	anr							
Boron	100	1.1	anr							
Cadmium	4.0	.25	anr							
Calcium	5000	21	anr							
Chromium	10	.48	anr							
Cobalt	50	.29	anr							
Copper	25	.93	anr							
Gold	50	1.5								
Iron	100	3.5	anr							
Lead	10	1.2	0.50	<10	0.40	<10	1.3	<10	0.90	<10
Magnesium	5000	30	anr							
Manganese	15	.16	anr							
Molybdenum	100	.31								
Nickel	40	.45	anr							
Palladium	50	2.2								
Platinum	50	6.4								
Potassium	5000	54	anr							
Selenium	10	1.7	anr							
Silicon	100	2								
Silver	5.0	.81	anr							
Sodium	5000	16	anr							
Strontium	10	.12	anr							
Thallium	10	1.2	anr							
Tin	100	.87								
Titanium	50	.66	anr							
Tungsten	100	9.3								
Vanadium	10	.82	anr							
Zinc	20	.45	anr							
Zirconium	50	.45								

(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB043013M2.ICP Date Analyzed: 04/30/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15519 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB043013M2.ICP Date Analyzed: 04/30/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15519 Units: ug/l

Time:			19:01		19:53		20:45		21:37	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	12	anr							
Antimony	10	1.1	anr							
Arsenic	10	1.7	anr							
Barium	50	.32	anr							
Beryllium	4.0	.1	anr							
Boron	100	1.1	anr							
Cadmium	4.0	.25	anr							
Calcium	5000	21	anr							
Chromium	10	.48	anr							
Cobalt	50	.29	anr							
Copper	25	.93	anr							
Gold	50	1.5								
Iron	100	3.5	anr							
Lead	10	1.2	0.80	<10	1.9	<10	1.0	<10	0.80	<10
Magnesium	5000	30	anr							
Manganese	15	.16	anr							
Molybdenum	100	.31								
Nickel	40	.45	anr							
Palladium	50	2.2								
Platinum	50	6.4								
Potassium	5000	54	anr							
Selenium	10	1.7	anr							
Silicon	100	2								
Silver	5.0	.81	anr							
Sodium	5000	16	anr							
Strontium	10	.12	anr							
Thallium	10	1.2	anr							
Tin	100	.87								
Titanium	50	.66	anr							
Tungsten	100	9.3								
Vanadium	10	.82	anr							
Zinc	20	.45	anr							
Zirconium	50	.45								

(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB043013M2.ICP Date Analyzed: 04/30/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15519 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB043013M2.ICP Date Analyzed: 04/30/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15519 Units: ug/l

Time:			22:16	
Sample ID:			CCB8	
Metal	RL	IDL	raw	final
Aluminum	200	12	anr	
Antimony	10	1.1	anr	
Arsenic	10	1.7	anr	
Barium	50	.32	anr	
Beryllium	4.0	.1	anr	
Boron	100	1.1	anr	
Cadmium	4.0	.25	anr	
Calcium	5000	21	anr	
Chromium	10	.48	anr	
Cobalt	50	.29	anr	
Copper	25	.93	anr	
Gold	50	1.5		
Iron	100	3.5	anr	
Lead	10	1.2	1.4	<10
Magnesium	5000	30	anr	
Manganese	15	.16	anr	
Molybdenum	100	.31		
Nickel	40	.45	anr	
Palladium	50	2.2		
Platinum	50	6.4		
Potassium	5000	54	anr	
Selenium	10	1.7	anr	
Silicon	100	2		
Silver	5.0	.81	anr	
Sodium	5000	16	anr	
Strontium	10	.12	anr	
Thallium	10	1.2	anr	
Tin	100	.87		
Titanium	50	.66	anr	
Tungsten	100	9.3		
Vanadium	10	.82	anr	
Zinc	20	.45	anr	
Zirconium	50	.45		

(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB043013M2.ICP Date Analyzed: 04/30/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15519 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB043013M2.ICP Date Analyzed: 04/30/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15519 Units: ug/l

Time:		15:22			15:33			16:24	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Boron	anr								
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Gold									
Iron	anr								
Lead	3000	2990	99.7	2000	1980	99.0	2000	1980	99.0
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Platinum									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium	anr								
Thallium	anr								
Tin									
Titanium	anr								
Tungsten									
Vanadium	anr								
Zinc	anr								
Zirconium									

(*) Outside of QC limits

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB043013M2.ICP Date Analyzed: 04/30/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15519 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

13.1.3

13

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB043013M2.ICP Date Analyzed: 04/30/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15519 Units: ug/l

Time:		18:00			18:57			19:49	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Boron	anr								
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Gold									
Iron	anr								
Lead	2000	1950	97.5	2000	1970	98.5	2000	1970	98.5
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Platinum									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium	anr								
Thallium	anr								
Tin									
Titanium	anr								
Tungsten									
Vanadium	anr								
Zinc	anr								
Zirconium									

(*) Outside of QC limits

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB043013M2.ICP Date Analyzed: 04/30/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15519 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

13.1.3

13

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB043013M2.ICP Date Analyzed: 04/30/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15519 Units: ug/l

Time:		20:41			21:33			22:11	
Sample ID:	CCV	CCV6		CCV	CCV7		CCV	CCV8	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Boron	anr								
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Gold									
Iron	anr								
Lead	2000	2000	100.0	2000	1980	99.0	2000	1960	98.0
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Platinum									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium	anr								
Thallium	anr								
Tin									
Titanium	anr								
Tungsten									
Vanadium	anr								
Zinc	anr								
Zirconium									

(*) Outside of QC limits

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB043013M2.ICP Date Analyzed: 04/30/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15519 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

13.1.3

13

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB043013M2.ICP Date Analyzed: 04/30/13 Methods: SW846 6010C
QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA15519 Units: ug/l

Time:			15:41		21:58	
Sample ID:	CRI	CRIA	CRIA1		CRIA2	
Metal	True	True	Results	% Rec	Results	% Rec
Aluminum	200	200	anr			
Antimony	6.0	10	anr			
Arsenic	4.0	10	anr			
Barium	50	50	anr			
Beryllium	4.0	4.0	anr			
Boron	100	100	anr			
Cadmium	4.0	4.0	anr			
Calcium	5000	5000	anr			
Chromium	10	10	anr			
Cobalt	50	50	anr			
Copper	25	25	anr			
Gold	50	50				
Iron	100	100	anr			
Lead	5.0	10	10.4	104.0	11.4	114.0
Magnesium	5000	5000	anr			
Manganese	15	15	anr			
Molybdenum	100	100				
Nickel	40	40	anr			
Palladium	50	50				
Platinum	50	50				
Potassium	5000	5000	anr			
Selenium	10	10	anr			
Silicon	100	100				
Silver	5.0	5.0	anr			
Sodium	5000	5000	anr			
Strontium	10	10	anr			
Thallium	5.0	10	anr			
Tin	100	100				
Titanium	50	50	anr			
Tungsten	100	100				
Vanadium	10	10	anr			
Zinc	20	20	anr			
Zirconium	50	50				

(*) Outside of QC limits

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB043013M2.ICP Date Analyzed: 04/30/13 Methods: SW846 6010C
QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA15519 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

13.1.4

13

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB043013M2.ICP Date Analyzed: 04/30/13 Methods: SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA15519 Units: ug/l

Time:			15:46		15:50		22:03		22:07	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1		ICSA2		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	500000	500000	500000	100.0	508000	101.6	511000	102.2	516000	103.2
Antimony		2000	1.9		2120	106.0	0.80		2090	104.5
Arsenic		2000	-2.5		2080	104.0	-0.40		2150	107.5
Barium		500	-0.70		509	101.8	-0.20		518	103.6
Beryllium		500	0.20		473	94.6	0.10		487	97.4
Boron		1000	4.5		1070	107.0	3.2		1070	107.0
Cadmium		1000	0.20		1050	105.0	0.10		1070	107.0
Calcium	500000	500000	453000	90.6	447000	89.4	461000	92.2	458000	91.6
Chromium		500	0.60		496	99.2	-0.20		499	99.8
Cobalt		500	2.4		514	102.8	2.2		504	100.8
Copper		500	0.80		521	104.2	2.1		521	104.2
Gold		500	2.9		482	96.4	-0.10		484	96.8
Iron	200000	200000	183000	91.5	183000	91.5	185000	92.5	187000	93.5
Lead		1000	2.2		976	97.6	0.30		967	96.7
Magnesium	500000	500000	482000	96.4	481000	96.2	473000	94.6	481000	96.2
Manganese		500	0.90		490	98.0	1.0		501	100.2
Molybdenum		1000	-1.2		1010	101.0	-0.80		993	99.3
Nickel		1000	-1.5		937	93.7	-1.4		943	94.3
Palladium		500	-53		467	93.4	-63		476	95.2
Platinum		500	-18		471	94.2	-20		483	96.6
Potassium			65.9		48.2		225		169	
Selenium		2000	-2.1		2000	100.0	-4.7		1980	99.0
Silicon		2000	48.8		2200	110.0	49.9		2200	110.0
Silver		1000	-0.20		1060	106.0	0.60		1050	105.0
Sodium			62.5		61.5		88.0		87.3	
Strontium		1000	1.4		975	97.5	1.2		971	97.1
Thallium		2000	-1.1		1980	99.0	-1.9		2010	100.5
Tin		1000	0.30		1030	103.0	0.70		1040	104.0
Titanium		500	9.8		502	100.4	9.9		507	101.4
Tungsten		2000	-26		1880	94.0	-24		1960	98.0
Vanadium		500	-0.30		500	100.0	-0.70		498	99.6
Zinc		1000	-0.10		953	95.3	-0.30		938	93.8
Zirconium		500	1.3		445	89.0	1.3		438	87.6

(*) Outside of QC limits

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB043013M2.ICP Date Analyzed: 04/30/13 Methods: SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA15519 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

13.1.5
13

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20863
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 04/30/13

Metal	RL	IDL	MDL	MB raw	final
Aluminum	20	1.2	3.6		
Antimony	1.0	.11	.15		
Arsenic	1.0	.17	.21		
Barium	5.0	.032	.073		
Beryllium	0.40	.01	.024		
Boron	10	.11	.11		
Cadmium	0.40	.025	.042		
Calcium	500	2.1	6.3		
Chromium	1.0	.048	.095		
Cobalt	5.0	.029	.047		
Copper	2.5	.093	.56		
Gold	5.0	.15	.43		
Iron	10	.35	.87		
Lead	1.0	.12	.17	0.050	<1.0
Magnesium	500	3	5.1		
Manganese	1.5	.016	.04		
Molybdenum	10	.031	.07		
Nickel	4.0	.045	.044		
Palladium	5.0	.22	.64		
Platinum	5.0	.64	1.5		
Potassium	500	5.4	8.6		
Selenium	1.0	.17	.35		
Silicon	10	.2	3.3		
Silver	0.50	.081	.13		
Sodium	500	1.6	3.3		
Strontium	1.0	.012	.03		
Thallium	1.0	.12	.13		
Tin	10	.087	.14		
Titanium	5.0	.066	.14		
Tungsten	10	.93	.94		
Vanadium	1.0	.082	.13		
Zinc	2.0	.045	.16		
Zirconium	5.0	.045	.088		

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20863 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date:

Metal

Associated samples MP20863: JB35319-1, JB35319-2

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: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20863
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 04/30/13

Metal	JB35204-3 Original	MS	Spikelot MPICP	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium	anr				
Calcium					
Chromium	anr				
Cobalt					
Copper					
Gold					
Iron					
Lead	71.8	168	99.8	96.4	75-125
Magnesium					
Manganese					
Molybdenum					
Nickel					
Palladium					
Platinum					
Potassium					
Selenium					
Silicon					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Tungsten					
Vanadium					
Zinc					
Zirconium					

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20863 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date:

Metal

Associated samples MP20863: JB35319-1, JB35319-2

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: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20863
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 04/30/13

Metal	JB35204-3 Original	MSD	Spikelot MPICP	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium	anr					
Calcium						
Chromium	anr					
Cobalt						
Copper						
Gold						
Iron						
Lead	71.8	171	99.8	99.4	1.8	20
Magnesium						
Manganese						
Molybdenum						
Nickel						
Palladium						
Platinum						
Potassium						
Selenium						
Silicon						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium						
Zinc						
Zirconium						

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20863 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date:

Metal

Associated samples MP20863: JB35319-1, JB35319-2

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: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20863
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:		04/30/13				04/30/13		
Metal	BSP Result	Spikelot MPICP	% Rec	QC Limits	LCS Result	Spikelot MPLCS78	% Rec	QC Limits
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Boron								
Cadmium	anr							
Calcium								
Chromium	anr							
Cobalt								
Copper								
Gold								
Iron								
Lead	98.6	100	98.6	80-120	83.7	91.7	91.3	82-118
Magnesium								
Manganese								
Molybdenum								
Nickel								
Palladium								
Platinum								
Potassium								
Selenium								
Silicon								
Silver								
Sodium								
Strontium								
Thallium								
Tin								
Titanium								
Tungsten								
Vanadium								
Zinc								
Zirconium								

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20863 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date:

Metal

Associated samples MP20863: JB35319-1, JB35319-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20863
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 04/30/13

Metal	JB35204-3 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper				
Gold				
Iron				
Lead	726	807	11.2 (a)	0-10
Magnesium				
Manganese				
Molybdenum				
Nickel				
Palladium				
Platinum				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				
Zirconium				

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20863 Methods: SW846 6010C
Matrix Type: SOLID Units: ug/l

Prep Date:

Metal

Associated samples MP20863: JB35319-1, JB35319-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) Serial dilution indicates possible matrix interference.

POST DIGESTATE SPIKE SUMMARY

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20863
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 04/30/13

Metal	Sample ml	Final ml	JB35204-3 Raw	Corr.**	PS ug/l	Spike ml	Spike ug/ml	Spike ug/l	% Rec	QC Limits
Aluminum										
Antimony										
Arsenic										
Barium										
Beryllium										
Boron										
Cadmium										
Calcium										
Chromium										
Cobalt										
Copper										
Gold										
Iron										
Lead										
Magnesium										
Manganese										
Molybdenum										
Nickel										
Palladium										
Platinum										
Potassium										
Selenium										
Silicon										
Silver										
Sodium										
Strontium										
Thallium										
Tin										
Titanium										
Tungsten										
Vanadium										
Zinc										
Zirconium										

POST DIGESTATE SPIKE SUMMARY

Login Number: JB35319
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20863 Methods: SW846 6010C
Matrix Type: SOLID Units: ug/l

Prep Date:

Metal

Associated samples MP20863: JB35319-1, JB35319-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(**) Corr. sample result = Raw * (sample volume / final volume)
(anr) Analyte not requested

New Jersey

ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Percent Solids Raw Data Summary

Percent Solids Raw Data Summary

Job Number: JB35319
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: JB35319-1 **Analyzed:** 30-APR-13 by HS **Method:** SM21 2540 B MOD.
ClientID: S-381 @ 12'_04242013

Wet Weight (Total)	36.95	g
Tare Weight	26.238	g
Dry Weight (Total)	35.352	g
Solids, Percent	85.1	%

Sample: JB35319-2 **Analyzed:** 30-APR-13 by HS **Method:** SM21 2540 B MOD.
ClientID: S-381 @ 24'_04252013

Wet Weight (Total)	19.365	g
Tare Weight	2.639	g
Dry Weight (Total)	16.834	g
Solids, Percent	84.9	%

New Jersey

ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Percent Solids Raw Data Summary

Percent Solids Raw Data Summary

Job Number: JB35319
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: JB35319-1 **Analyzed:** 30-APR-13 by AMA **Method:** SM21 2540 B MOD.
ClientID: S-381 @ 12'_04242013

Wet Weight (Total)	36.95	g
Tare Weight	26.238	g
Dry Weight (Total)	35.352	g
Solids, Percent	85.1	%

Sample: JB35319-2 **Analyzed:** 30-APR-13 by AMA **Method:** SM21 2540 B MOD.
ClientID: S-381 @ 24'_04252013

Wet Weight (Total)	19.365	g
Tare Weight	2.639	g
Dry Weight (Total)	16.834	g
Solids, Percent	84.9	%