New Jersey
ACCUTEST LABORATORIES

07/12/13

Technical Report for

Aquaterra Technologies, Inc.

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

AOI-5

Accutest Job Number: JB39339

Sampling Date: 06/11/13

Report to:

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Total number of pages in report: **308**

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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Sample Summary

Aquaterra Technologies, Inc.

Job No: JB39339

Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Project No: AOI-5

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB39339-1	06/11/13	08:30	ED	06/11/13	SO	Soil	AOI5_MW-465_1-2_061113
JB39339-2	06/11/13	09:00	ED	06/11/13	SO	Soil	AOI5_MW-465_3-4_061113
JB39339-3	06/11/13	12:00	ED	06/11/13	SO	Soil	AOI5_MW-462_1-2_061113
JB39339-4	06/11/13	14:00	ED	06/11/13	SO	Soil	AOI5_MW-462_7-8_061113
JB39339-5	06/11/13	10:00	ED	06/11/13	SO	Soil	AOI5_MW-468_8-10' _061113
JB39339-6	06/11/13	13:30	ED	06/11/13	SO	Soil	AOI5_MW-461_0-2' _061113
JB39339-7	06/11/13	14:00	ED	06/11/13	SO	Soil	AOI5_MW-461_2-4' _061113

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Aquaterra Technologies, Inc.	**Job No:**	JB39339
Site:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, P	**Report Date**	7/12/2013 1:58:57 PM

On 06/11/2013, 7 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories at a temperature of 3.5 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB39339 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:** V3C4427

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB39263-1MS, JB39263-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Matrix: SO **Batch ID:** VD8577

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB38864-1MS, JB38864-1MSD were used as the QC samples indicated.
- JB39339-7: Diluted due to high concentration of non-target compound.

Matrix: SO **Batch ID:** VE8979

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB39326-7MS, JB39326-7MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- JB39339-1: Dilution required due to matrix interference.

Extractables by GCMS By Method SW846 8270C

Matrix: SO **Batch ID:** M:OP33636

- The data for SW846 8270C meets quality control requirements.
- JB39339-4: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39339-5: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39339-1: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39339-2: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39339-2: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39339-3: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39339-6: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39339-7: Analysis performed at Accutest Laboratories, Marlborough, MA.

Volatiles by GC By Method SW846 8011

Matrix: SO **Batch ID:** M:OP33623

- The data for SW846 8011 meets quality control requirements.
- JB39339-2: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39339-5: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39339-4: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39339-7: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39339-3: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39339-1: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39339-6: Analysis performed at Accutest Laboratories, Marlborough, MA.

Metals By Method SW846 6010C

Matrix: SO **Batch ID:** M:MP21172

- The data for SW846 6010C meets quality control requirements.
- JB39339-3 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39339-7 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39339-6 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39339-1 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39339-5 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39339-4 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39339-2 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.

Wet Chemistry By Method SM21 2540 B MOD.

Matrix: SO **Batch ID:** M:GN43254

- The data for SM21 2540 B MOD. meets quality control requirements.
- JB39339-7 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39339-6 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39339-4 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39339-3 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39339-2 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39339-1 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39339-5 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**	JB39339
Site:	AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philad	**Report Date**	7/12/2013 10:36:23 AM

7 Sample(s) were collected on 06/11/2013 and were received at Accutest of NJ on 06/11/2013, at Accutest of NE on 06/13/2013 properly preserved, at 1.1 Deg. C and intact. These Samples received an Accutest job number of JB39339. 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:** OP33636

- 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) JB39339-1MS, JB39339-1MSD were used as the QC samples indicated.

Volatiles by GC By Method SW846 8011

Matrix SO **Batch ID:** OP33623

- 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) JB38711-1MS, JB38711-1MSD were used as the QC samples indicated.

Metals By Method SW846 6010C

Matrix SO **Batch ID:** MP21172

- 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) MC21735-5MS, MC21735-5MSD, MC21735-5SDL were used as the QC samples for metals.

Wet Chemistry By Method SM21 2540 B MOD.

Matrix SO **Batch ID:** GN43254

- Sample(s) MC21735-5DUP 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(JB39339).

Summary of Hits

Job Number: JB39339
Account: Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Collected: 06/11/13

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB39339-1	**AOI5_MW-465_1-2_061113**					
Benzene [a]		0.0339 J	0.096	0.011	mg/kg	SW846 8260B
Ethylbenzene [a]		1.06	0.096	0.025	mg/kg	SW846 8260B
Xylene (total) [a]		1.87	0.096	0.013	mg/kg	SW846 8260B
Isopropylbenzene [a]		0.500	0.48	0.0071	mg/kg	SW846 8260B
1,2,4-Trimethylbenzene [a]		8.11	0.48	0.020	mg/kg	SW846 8260B
1,3,5-Trimethylbenzene [a]		2.42	0.48	0.015	mg/kg	SW846 8260B
Naphthalene [b]		1.03	0.12	0.019	mg/kg	SW846 8270C
Phenanthrene [b]		0.0242 J	0.12	0.016	mg/kg	SW846 8270C
Lead [b]		11.7	0.94	0.16	mg/kg	SW846 6010C
JB39339-2	**AOI5_MW-465_3-4_061113**					
Benzene		0.654	0.48	0.058	mg/kg	SW846 8260B
Ethylbenzene		10.7	0.48	0.13	mg/kg	SW846 8260B
Xylene (total)		37.8	0.48	0.067	mg/kg	SW846 8260B
Isopropylbenzene		3.81	2.4	0.036	mg/kg	SW846 8260B
1,2,4-Trimethylbenzene		52.6	2.4	0.10	mg/kg	SW846 8260B
1,3,5-Trimethylbenzene		15.9	2.4	0.077	mg/kg	SW846 8260B
Anthracene [b]		0.0291 J	0.12	0.014	mg/kg	SW846 8270C
Fluorene [b]		0.246	0.12	0.015	mg/kg	SW846 8270C
Naphthalene [b]		18.2	0.58	0.093	mg/kg	SW846 8270C
Phenanthrene [b]		0.215	0.12	0.016	mg/kg	SW846 8270C
Pyrene [b]		0.0295 J	0.12	0.014	mg/kg	SW846 8270C
Lead [b]		8.6	0.94	0.16	mg/kg	SW846 6010C
JB39339-3	**AOI5_MW-462_1-2_061113**					
Lead [b]		13.8	0.92	0.15	mg/kg	SW846 6010C
JB39339-4	**AOI5_MW-462_7-8_061113**					
Methyl Tert Butyl Ether		0.0023	0.00082	0.00019	mg/kg	SW846 8260B
Lead [b]		8.0	0.94	0.16	mg/kg	SW846 6010C
JB39339-5	**AOI5_MW-468_8-10'_061113**					
Benzene		0.0035	0.00092	0.00011	mg/kg	SW846 8260B
Ethylbenzene		0.0049	0.00092	0.00024	mg/kg	SW846 8260B
Xylene (total)		0.0064	0.00092	0.00013	mg/kg	SW846 8260B
Methyl Tert Butyl Ether		0.00033 J	0.00092	0.00022	mg/kg	SW846 8260B
Isopropylbenzene		0.0049	0.0046	0.000069	mg/kg	SW846 8260B
1,2,4-Trimethylbenzene		0.0402	0.0046	0.00019	mg/kg	SW846 8260B
1,3,5-Trimethylbenzene		0.0113	0.0046	0.00015	mg/kg	SW846 8260B

Summary of Hits

Job Number: JB39339
Account: Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Collected: 06/11/13

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Naphthalene [b]		0.0214 J	0.12	0.019	mg/kg	SW846 8270C
Lead [b]		9.4	0.90	0.15	mg/kg	SW846 6010C
JB39339-6	**AOI5_MW-461_0-2'_061113**					
Benzene		0.00019 J	0.00089	0.00011	mg/kg	SW846 8260B
Benzo(a)anthracene [b]		0.0334 J	0.11	0.014	mg/kg	SW846 8270C
Benzo(a)pyrene [b]		0.0337 J	0.11	0.011	mg/kg	SW846 8270C
Benzo(b)fluoranthene [b]		0.0487 J	0.11	0.013	mg/kg	SW846 8270C
Benzo(g,h,i)perylene [b]		0.0392 J	0.11	0.011	mg/kg	SW846 8270C
Chrysene [b]		0.0416 J	0.11	0.013	mg/kg	SW846 8270C
Phenanthrene [b]		0.0193 J	0.11	0.014	mg/kg	SW846 8270C
Pyrene [b]		0.0404 J	0.11	0.012	mg/kg	SW846 8270C
Lead [b]		257	0.88	0.15	mg/kg	SW846 6010C
JB39339-7	**AOI5_MW-461_2-4'_061113**					
Toluene [c]		0.0239 J	0.096	0.010	mg/kg	SW846 8260B
Xylene (total) [c]		0.397	0.096	0.013	mg/kg	SW846 8260B
1,2,4-Trimethylbenzene [c]		0.261 J	0.48	0.020	mg/kg	SW846 8260B
Lead [b]		2.0	0.86	0.14	mg/kg	SW846 6010C

(a) Dilution required due to matrix interference.
(b) Analysis performed at Accutest Laboratories, Marlborough, MA.
(c) Diluted due to high concentration of non-target compound.

New Jersey

ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI5_MW-465_1-2_061113		
Lab Sample ID:	JB39339-1	**Date Sampled:**	06/11/13
Matrix:	SO - Soil	**Date Received:**	06/11/13
Method:	SW846 8260B	**Percent Solids:**	82.0
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	E204309.D	1	06/14/13	OTR	n/a	n/a	VE8979
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	7.2 g	10.0 ml	100 ul
Run #2			

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.0339	0.096	0.011	mg/kg	J
108-88-3	Toluene	ND	0.096	0.010	mg/kg	
100-41-4	Ethylbenzene	1.06	0.096	0.025	mg/kg	
1330-20-7	Xylene (total)	1.87	0.096	0.013	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.096	0.022	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.096	0.013	mg/kg	
98-82-8	Isopropylbenzene	0.500	0.48	0.0071	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	8.11	0.48	0.020	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	2.42	0.48	0.015	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	84%		65-131%
17060-07-0	1,2-Dichloroethane-D4	85%		70-121%
2037-26-5	Toluene-D8	97%		80-128%
460-00-4	4-Bromofluorobenzene	92%		67-131%

(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:	AOI5_MW-465_1-2_061113		
Lab Sample ID:	JB39339-1	**Date Sampled:**	06/11/13
Matrix:	SO - Soil	**Date Received:**	06/11/13
Method:	SW846 8270C SW846 3546	**Percent Solids:**	82.0
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	R31559.D	1	06/19/13	AMA	06/17/13	M:OP33636	M:MSR1148
Run #2							

	Initial Weight	Final Volume
Run #1	20.2 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	0.12	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.12	0.016	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.12	0.013	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.12	0.015	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.12	0.012	mg/kg	
218-01-9	Chrysene	ND	0.12	0.015	mg/kg	
86-73-7	Fluorene	ND	0.12	0.016	mg/kg	
91-20-3	Naphthalene	1.03	0.12	0.019	mg/kg	
85-01-8	Phenanthrene	0.0242	0.12	0.016	mg/kg	J
129-00-0	Pyrene	ND	0.12	0.014	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	65%		30-130%
321-60-8	2-Fluorobiphenyl	74%		30-130%
1718-51-0	Terphenyl-d14	84%		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:	AOI5_MW-465_1-2_061113		
Lab Sample ID:	JB39339-1	**Date Sampled:**	06/11/13
Matrix:	SO - Soil	**Date Received:**	06/11/13
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	82.0
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BK25945.D	1	06/15/13	AMA	06/14/13	M:OP33623	M:GBK894
Run #2							

	Initial Weight	Final Volume
Run #1	30.8 g	50.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0030	0.0011	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	120%		61-167%
460-00-4	Bromofluorobenzene (S)	139%		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:	AOI5_MW-465_1-2_061113		
Lab Sample ID:	JB39339-1	**Date Sampled:**	06/11/13
Matrix:	SO - Soil	**Date Received:**	06/11/13
		Percent Solids:	82.0
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]	11.7	0.94	0.16	mg/kg	1	06/13/13	06/14/13	AMA	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: M:MA15751
(2) Prep QC Batch: M:MP21172

(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:	AOI5_MW-465_3-4_061113		
Lab Sample ID:	JB39339-2	**Date Sampled:**	06/11/13
Matrix:	SO - Soil	**Date Received:**	06/11/13
Method:	SW846 8260B	**Percent Solids:**	82.8
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	E204310.D	1	06/14/13	OTR	n/a	n/a	VE8979
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	7.0 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	0.654	0.48	0.058	mg/kg	
108-88-3	Toluene	ND	0.48	0.051	mg/kg	
100-41-4	Ethylbenzene	10.7	0.48	0.13	mg/kg	
1330-20-7	Xylene (total)	37.8	0.48	0.067	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.48	0.11	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.48	0.065	mg/kg	
98-82-8	Isopropylbenzene	3.81	2.4	0.036	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	52.6	2.4	0.10	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	15.9	2.4	0.077	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	84%		65-131%
17060-07-0	1,2-Dichloroethane-D4	87%		70-121%
2037-26-5	Toluene-D8	96%		80-128%
460-00-4	4-Bromofluorobenzene	94%		67-131%

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:	AOI5_MW-465_3-4_061113		
Lab Sample ID:	JB39339-2	**Date Sampled:**	06/11/13
Matrix:	SO - Soil	**Date Received:**	06/11/13
Method:	SW846 8270C SW846 3546	**Percent Solids:**	82.8
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	R31560.D	1	06/19/13	AMA	06/17/13	M:OP33636	M:MSR1148
Run #2 [a]	W13657.D	5	07/05/13	AMA	06/17/13	M:OP33636	M:MSW623

	Initial Weight	Final Volume
Run #1	20.9 g	1.0 ml
Run #2	20.9 g	1.0 ml

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	0.0291	0.12	0.014	mg/kg	J
56-55-3	Benzo(a)anthracene	ND	0.12	0.015	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.12	0.012	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.12	0.014	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.12	0.012	mg/kg	
218-01-9	Chrysene	ND	0.12	0.014	mg/kg	
86-73-7	Fluorene	0.246	0.12	0.015	mg/kg	
91-20-3	Naphthalene	18.2 [b]	0.58	0.093	mg/kg	
85-01-8	Phenanthrene	0.215	0.12	0.016	mg/kg	
129-00-0	Pyrene	0.0295	0.12	0.014	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	59%	99%	30-130%
321-60-8	2-Fluorobiphenyl	74%	73%	30-130%
1718-51-0	Terphenyl-d14	76%	77%	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:	AOI5_MW-465_3-4_061113		
Lab Sample ID:	JB39339-2	**Date Sampled:**	06/11/13
Matrix:	SO - Soil	**Date Received:**	06/11/13
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	82.8
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BK25946.D	1	06/15/13	AMA	06/14/13	M:OP33623	M:GBK894
Run #2							

	Initial Weight	Final Volume
Run #1	30.9 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)	114%		61-167%
460-00-4	Bromofluorobenzene (S)	131%		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:	AOI5_MW-465_3-4_061113		
Lab Sample ID:	JB39339-2	**Date Sampled:**	06/11/13
Matrix:	SO - Soil	**Date Received:**	06/11/13
		Percent Solids:	82.8
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]	8.6	0.94	0.16	mg/kg	1	06/13/13	06/14/13	AMA	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: M:MA15751
(2) Prep QC Batch: M:MP21172

(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:	AOI5_MW-462_1-2_061113		
Lab Sample ID:	JB39339-3	**Date Sampled:**	06/11/13
Matrix:	SO - Soil	**Date Received:**	06/11/13
Method:	SW846 8260B	**Percent Solids:**	82.6
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C99661.D	1	06/13/13	PS	n/a	n/a	V3C4427
Run #2							

	Initial Weight
Run #1	6.8 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.00089	0.00011	mg/kg	
108-88-3	Toluene	ND	0.00089	0.000093	mg/kg	
100-41-4	Ethylbenzene	ND	0.00089	0.00023	mg/kg	
1330-20-7	Xylene (total)	ND	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	ND	0.0045	0.000066	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0045	0.00019	mg/kg	
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	86%		65-131%
17060-07-0	1,2-Dichloroethane-D4	90%		70-121%
2037-26-5	Toluene-D8	89%		80-128%
460-00-4	4-Bromofluorobenzene	91%		67-131%

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:	AOI5_MW-462_1-2_061113		
Lab Sample ID:	JB39339-3	**Date Sampled:**	06/11/13
Matrix:	SO - Soil	**Date Received:**	06/11/13
Method:	SW846 8270C SW846 3546	**Percent Solids:**	82.6
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	R31561.D	1	06/19/13	AMA	06/17/13	M:OP33636	M:MSR1148
Run #2							

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

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	0.12	0.014	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.12	0.015	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.12	0.013	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.12	0.015	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.12	0.012	mg/kg	
218-01-9	Chrysene	ND	0.12	0.015	mg/kg	
86-73-7	Fluorene	ND	0.12	0.016	mg/kg	
91-20-3	Naphthalene	ND	0.12	0.019	mg/kg	
85-01-8	Phenanthrene	ND	0.12	0.016	mg/kg	
129-00-0	Pyrene	ND	0.12	0.014	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	65%		30-130%
321-60-8	2-Fluorobiphenyl	79%		30-130%
1718-51-0	Terphenyl-d14	85%		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:	AOI5_MW-462_1-2_061113		
Lab Sample ID:	JB39339-3	**Date Sampled:**	06/11/13
Matrix:	SO - Soil	**Date Received:**	06/11/13
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	82.6
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BK25947.D	1	06/15/13	AMA	06/14/13	M:OP33623	M:GBK894
Run #2							

	Initial Weight	Final Volume
Run #1	30.4 g	50.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0030	0.0011	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	123%		61-167%
460-00-4	Bromofluorobenzene (S)	137%		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:	AOI5_MW-462_1-2_061113		
Lab Sample ID:	JB39339-3	**Date Sampled:**	06/11/13
Matrix:	SO - Soil	**Date Received:**	06/11/13
		Percent Solids:	82.6
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]	13.8	0.92	0.15	mg/kg	1	06/13/13	06/14/13	AMA	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: M:MA15751
(2) Prep QC Batch: M:MP21172

(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:	AOI5_MW-462_7-8_061113		
Lab Sample ID:	JB39339-4	**Date Sampled:**	06/11/13
Matrix:	SO - Soil	**Date Received:**	06/11/13
Method:	SW846 8260B	**Percent Solids:**	82.1
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C99662.D	1	06/13/13	PS	n/a	n/a	V3C4427
Run #2							

	Initial Weight
Run #1	7.4 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.00082	0.000098	mg/kg	
108-88-3	Toluene	ND	0.00082	0.000086	mg/kg	
100-41-4	Ethylbenzene	ND	0.00082	0.00022	mg/kg	
1330-20-7	Xylene (total)	ND	0.00082	0.00011	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	0.0023	0.00082	0.00019	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00082	0.00011	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0041	0.000061	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0041	0.00017	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0041	0.00013	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	86%		65-131%
17060-07-0	1,2-Dichloroethane-D4	92%		70-121%
2037-26-5	Toluene-D8	89%		80-128%
460-00-4	4-Bromofluorobenzene	93%		67-131%

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:	AOI5_MW-462_7-8_061113		
Lab Sample ID:	JB39339-4	**Date Sampled:**	06/11/13
Matrix:	SO - Soil	**Date Received:**	06/11/13
Method:	SW846 8270C SW846 3546	**Percent Solids:**	82.1
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	R31562.D	1	06/19/13	AMA	06/17/13	M:OP33636	M:MSR1148
Run #2							

	Initial Weight	Final Volume
Run #1	20.2 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	0.12	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.12	0.016	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.12	0.013	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.12	0.015	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.12	0.012	mg/kg	
218-01-9	Chrysene	ND	0.12	0.015	mg/kg	
86-73-7	Fluorene	ND	0.12	0.016	mg/kg	
91-20-3	Naphthalene	ND	0.12	0.019	mg/kg	
85-01-8	Phenanthrene	ND	0.12	0.016	mg/kg	
129-00-0	Pyrene	ND	0.12	0.014	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	61%		30-130%
321-60-8	2-Fluorobiphenyl	72%		30-130%
1718-51-0	Terphenyl-d14	79%		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:	AOI5_MW-462_7-8_061113		
Lab Sample ID:	JB39339-4	**Date Sampled:**	06/11/13
Matrix:	SO - Soil	**Date Received:**	06/11/13
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	82.1
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BK25948.D	1	06/15/13	AMA	06/14/13	M:OP33623	M:GBK894
Run #2							

	Initial Weight	Final Volume
Run #1	30.4 g	50.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0030	0.0012	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	120%		61-167%
460-00-4	Bromofluorobenzene (S)	135%		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:	AOI5_MW-462_7-8_061113		
Lab Sample ID:	JB39339-4	**Date Sampled:**	06/11/13
Matrix:	SO - Soil	**Date Received:**	06/11/13
		Percent Solids:	82.1
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]	8.0	0.94	0.16	mg/kg	1	06/13/13	06/14/13	AMA	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: M:MA15751
(2) Prep QC Batch: M:MP21172

(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:	AOI5_MW-468_8-10'_061113		
Lab Sample ID:	JB39339-5	**Date Sampled:**	06/11/13
Matrix:	SO - Soil	**Date Received:**	06/11/13
Method:	SW846 8260B	**Percent Solids:**	82.1
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C99663.D	1	06/13/13	PS	n/a	n/a	V3C4427
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	0.0035	0.00092	0.00011	mg/kg	
108-88-3	Toluene	ND	0.00092	0.000097	mg/kg	
100-41-4	Ethylbenzene	0.0049	0.00092	0.00024	mg/kg	
1330-20-7	Xylene (total)	0.0064	0.00092	0.00013	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	0.00033	0.00092	0.00022	mg/kg	J
107-06-2	1,2-Dichloroethane	ND	0.00092	0.00012	mg/kg	
98-82-8	Isopropylbenzene	0.0049	0.0046	0.000069	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	0.0402	0.0046	0.00019	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	0.0113	0.0046	0.00015	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	86%		65-131%
17060-07-0	1,2-Dichloroethane-D4	93%		70-121%
2037-26-5	Toluene-D8	87%		80-128%
460-00-4	4-Bromofluorobenzene	85%		67-131%

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:	AOI5_MW-468_8-10'_061113		
Lab Sample ID:	JB39339-5	**Date Sampled:**	06/11/13
Matrix:	SO - Soil	**Date Received:**	06/11/13
Method:	SW846 8270C SW846 3546	**Percent Solids:**	82.1
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	R31563.D	1	06/19/13	AMA	06/17/13	M:OP33636	M:MSR1148
Run #2							

	Initial Weight	Final Volume
Run #1	20.9 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	0.12	0.014	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.12	0.015	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.12	0.013	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.12	0.015	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.12	0.012	mg/kg	
218-01-9	Chrysene	ND	0.12	0.015	mg/kg	
86-73-7	Fluorene	ND	0.12	0.016	mg/kg	
91-20-3	Naphthalene	0.0214	0.12	0.019	mg/kg	J
85-01-8	Phenanthrene	ND	0.12	0.016	mg/kg	
129-00-0	Pyrene	ND	0.12	0.014	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	67%		30-130%
321-60-8	2-Fluorobiphenyl	76%		30-130%
1718-51-0	Terphenyl-d14	87%		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:	AOI5_MW-468_8-10'_061113		
Lab Sample ID:	JB39339-5	**Date Sampled:**	06/11/13
Matrix:	SO - Soil	**Date Received:**	06/11/13
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	82.1
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BK25949.D	1	06/15/13	AMA	06/14/13	M:OP33623	M:GBK894
Run #2							

	Initial Weight	Final Volume
Run #1	30.3 g	50.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0030	0.0012	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	122%		61-167%
460-00-4	Bromofluorobenzene (S)	133%		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:	AOI5_MW-468_8-10'_061113		
Lab Sample ID:	JB39339-5	**Date Sampled:**	06/11/13
Matrix:	SO - Soil	**Date Received:**	06/11/13
		Percent Solids:	82.1
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]	9.4	0.90	0.15	mg/kg	1	06/13/13	06/14/13	AMA	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: M:MA15751
(2) Prep QC Batch: M:MP21172

(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:	AOI5_MW-461_0-2'_061113		
Lab Sample ID:	JB39339-6	**Date Sampled:**	06/11/13
Matrix:	SO - Soil	**Date Received:**	06/11/13
Method:	SW846 8260B	**Percent Solids:**	91.1
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C99664.D	1	06/13/13	PS	n/a	n/a	V3C4427
Run #2							

	Initial Weight
Run #1	6.2 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.00019	0.00089	0.00011	mg/kg	J
108-88-3	Toluene	ND	0.00089	0.000093	mg/kg	
100-41-4	Ethylbenzene	ND	0.00089	0.00023	mg/kg	
1330-20-7	Xylene (total)	ND	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	ND	0.0044	0.000066	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0044	0.00019	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0044	0.00014	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	85%		65-131%
17060-07-0	1,2-Dichloroethane-D4	89%		70-121%
2037-26-5	Toluene-D8	87%		80-128%
460-00-4	4-Bromofluorobenzene	92%		67-131%

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:	AOI5_MW-461_0-2'_061113		
Lab Sample ID:	JB39339-6	**Date Sampled:**	06/11/13
Matrix:	SO - Soil	**Date Received:**	06/11/13
Method:	SW846 8270C SW846 3546	**Percent Solids:**	91.1
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	R31564.D	1	06/19/13	AMA	06/17/13	M:OP33636	M:MSR1148
Run #2							

	Initial Weight	Final Volume
Run #1	20.8 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	0.11	0.013	mg/kg	
56-55-3	Benzo(a)anthracene	0.0334	0.11	0.014	mg/kg	J
50-32-8	Benzo(a)pyrene	0.0337	0.11	0.011	mg/kg	J
205-99-2	Benzo(b)fluoranthene	0.0487	0.11	0.013	mg/kg	J
191-24-2	Benzo(g,h,i)perylene	0.0392	0.11	0.011	mg/kg	J
218-01-9	Chrysene	0.0416	0.11	0.013	mg/kg	J
86-73-7	Fluorene	ND	0.11	0.014	mg/kg	
91-20-3	Naphthalene	ND	0.11	0.017	mg/kg	
85-01-8	Phenanthrene	0.0193	0.11	0.014	mg/kg	J
129-00-0	Pyrene	0.0404	0.11	0.012	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	63%		30-130%
321-60-8	2-Fluorobiphenyl	78%		30-130%
1718-51-0	Terphenyl-d14	84%		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:	AOI5_MW-461_0-2'_061113		
Lab Sample ID:	JB39339-6	**Date Sampled:**	06/11/13
Matrix:	SO - Soil	**Date Received:**	06/11/13
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	91.1
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BK25950.D	1	06/15/13	AMA	06/14/13	M:OP33623	M:GBK894
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	0.0027	0.0010	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	124%		61-167%
460-00-4	Bromofluorobenzene (S)	138%		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:	AOI5_MW-461_0-2'_061113		
Lab Sample ID:	JB39339-6	**Date Sampled:**	06/11/13
Matrix:	SO - Soil	**Date Received:**	06/11/13
		Percent Solids:	91.1
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]	257	0.88	0.15	mg/kg	1	06/13/13	06/14/13	AMA	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: M:MA15751
(2) Prep QC Batch: M:MP21172

(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:	AOI5_MW-461_2-4'_061113		
Lab Sample ID:	JB39339-7	**Date Sampled:**	06/11/13
Matrix:	SO - Soil	**Date Received:**	06/11/13
Method:	SW846 8260B	**Percent Solids:**	88.5
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	D210121.D	1	06/17/13	ET	n/a	n/a	VD8577
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.3 g	10.0 ml	100 ul
Run #2			

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.096	0.011	mg/kg	
108-88-3	Toluene	0.0239	0.096	0.010	mg/kg	J
100-41-4	Ethylbenzene	ND	0.096	0.025	mg/kg	
1330-20-7	Xylene (total)	0.397	0.096	0.013	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.096	0.023	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.096	0.013	mg/kg	
98-82-8	Isopropylbenzene	ND	0.48	0.0071	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	0.261	0.48	0.020	mg/kg	J
108-67-8	1,3,5-Trimethylbenzene	ND	0.48	0.015	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		65-131%
17060-07-0	1,2-Dichloroethane-D4	106%		70-121%
2037-26-5	Toluene-D8	111%		80-128%
460-00-4	4-Bromofluorobenzene	104%		67-131%

(a) Diluted due to high concentration of non-target compound.

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:	AOI5_MW-461_2-4'_061113		
Lab Sample ID:	JB39339-7	**Date Sampled:**	06/11/13
Matrix:	SO - Soil	**Date Received:**	06/11/13
Method:	SW846 8270C SW846 3546	**Percent Solids:**	88.5
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	R31565.D	1	06/19/13	AMA	06/17/13	M:OP33636	M:MSR1148
Run #2							

	Initial Weight	Final Volume
Run #1	20.8 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	0.11	0.013	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.11	0.014	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.11	0.012	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.11	0.014	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.11	0.011	mg/kg	
218-01-9	Chrysene	ND	0.11	0.013	mg/kg	
86-73-7	Fluorene	ND	0.11	0.014	mg/kg	
91-20-3	Naphthalene	ND	0.11	0.017	mg/kg	
85-01-8	Phenanthrene	ND	0.11	0.015	mg/kg	
129-00-0	Pyrene	ND	0.11	0.013	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	60%		30-130%
321-60-8	2-Fluorobiphenyl	69%		30-130%
1718-51-0	Terphenyl-d14	76%		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:	AOI5_MW-461_2-4'_061113		
Lab Sample ID:	JB39339-7	**Date Sampled:**	06/11/13
Matrix:	SO - Soil	**Date Received:**	06/11/13
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	88.5
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BK25951.D	1	06/15/13	AMA	06/14/13	M:OP33623	M:GBK894
Run #2							

	Initial Weight	Final Volume
Run #1	30.4 g	50.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0028	0.0011	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	122%		61-167%
460-00-4	Bromofluorobenzene (S)	148%		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:	AOI5_MW-461_2-4'_061113		
Lab Sample ID:	JB39339-7	**Date Sampled:**	06/11/13
Matrix:	SO - Soil	**Date Received:**	06/11/13
		Percent Solids:	88.5
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]	2.0	0.86	0.14	mg/kg	1	06/13/13	06/14/13	AMA	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: M:MA15751
(2) Prep QC Batch: M:MP21172

(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

SLC
SUB

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 #: JB39339

Client / Reporting Information

Company Name: AQUATERRA
Street Address: 122 SO. Church St.
City / State / Zip: West Chester PA 19382
Project Contact: Tiffany Dor
E-mail:
Phone #:
Fax #:
Sampler(s) Name(s): Eric Diehl, Luke Mokrycki
Phone #:

Project Information

Project Name: Marcus Hook Refinery A01-5
Street:
City / State:
Project #:
Client Purchase Order #:
Project Manager: Jim Oppenheim

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

Requested Analysis (see TEST CODE sheet): See attached for list of analyses

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	LAB USE ONLY
-1	A015_MW-465_1-2_061113	4683/6519 6520	6/11/13	8:30	EO	SO	5					2	2	1		14B2
-2	A015_MW-465_3-4_061113	4680/6493 6494	6/11/13	9:00	EO	SO	5					2	2	1		4958
-3	A015_MW-462_1-2_061113	4691/6515 6516	6/11/13	12:00	EO	SO	5					2	2	1		
-4	A015_MW-462_7-8_061113	4690/6513 6514	6/11/13	14:00	EO	SO	5					2	2	1		SUB
-5	A015_MW-468_8-10'_061113	4685/6509 6510	6/11/13	1000	LM	SO	5					2	2	1		
-6	A015_MW-461_0-2'_061113	1448/7432 7433	6/11/13	1330	LM	SO	5					2	2	1		
-7	A015_MW-461_2-4'_061113	4674/6481 6482	6/11/13	1400	LM	SO	5					2	2	1		

Field Kits Received

Turnaround Time (Business days)

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

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [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

D.I. slurry voc vials frozen storage
Date: 6-11-13 Time: 2151 Initials: EE

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	6/11/13 1545	1	2	6/11/13 1645	2
3	6/11/13 1930	3	4		4
5		5			

Custody Seal #: [ ] Intact [ ] Not intact
Preserved where applicable: [ ]
On Ice: [x]
Cooler Temp: 3.5°C

JB39339: Chain of Custody
Page 1 of 3

JB39339

Constituents of Concern for Soil
Sunoco Philadelphia Refinery
Philadelphia, Pennsylvania

METALS	CAS No.	Method
Lead (total)	7439-92-1	SW846 6010B/C-LD

VOLATILE ORGANIC COMPOUNDS	CAS No.	Method
1,2-Dichloroethane	107-06-2	SW846 8260B/C-LD
1,2,4-Trimethylbenzene	95-63-6	
1,3,5-Trimethylbenzene	108-67-8	
Benzene	71-43-2	
Cumene	98-82-8	
Ethylbenzene	100-41-4	
Methyl tertiary butyl ether	1634-04-4	
Toluene	108-88-3	
Xylenes (total)	1330-20-7	
Ethylene dibromide	106-93-4	SW846 8011-LD

SEMI-VOLATILE ORGANIC COMPOUNDS	CAS No.	Method
Anthracene	120-12-7	SW846 8270C/D-LD
Benzo(a)anthracene	56-55-3	
Benzo (g,h,i) perylene	191-24-2	
Benzo(a)pyrene	50-32-8	
Benzo(b)fluoranthene	205-99-2	
Chrysene	218-01-9	
Fluorene	86-73-7	
Naphthalene**	91-20-3	
Phenanthrene	85-01-8	
Pyrene	129-00-0	

Notes:

As indicated by the "LD", all samples are to be analyzed using the lowest dilution possible.

**For tank investigations, Naphthalene is to be run using analytical method SW846 8260 and should be appropriately marked on the chain of custody.

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB39339 **Client:** **Project:**

Date / Time Received: 6/11/2013 **Delivery Method:** **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (3.5/3.5); 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:	IR Gun	
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	1	

Quality Control Preservatio	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

JB39339: Chain of Custody
Page 3 of 3

Internal Sample Tracking Chronicle

Aquaterra Technologies, Inc.

Job No: JB39339

Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Project No: AOI-5

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB39339-1 Collected: 11-JUN-13 08:30 By: ED Received: 11-JUN-13 By: AS AOI5_MW-465_1-2_061113						
JB39339-1	SM21 2540 B MOD.	13-JUN-13	AMA			%SOL
JB39339-1	SW846 6010C	14-JUN-13 14:07	AMA	13-JUN-13	AMA	PB
JB39339-1	SW846 8260B	14-JUN-13 14:53	OTR			V8260SL
JB39339-1	SW846 8011	15-JUN-13 15:58	AMA	14-JUN-13	AMA	V8011EDB
JB39339-1	SW846 8270C	19-JUN-13 11:00	AMA	17-JUN-13	AMA	B8270SL
JB39339-2 Collected: 11-JUN-13 09:00 By: ED Received: 11-JUN-13 By: AS AOI5_MW-465_3-4_061113						
JB39339-2	SM21 2540 B MOD.	13-JUN-13	AMA			%SOL
JB39339-2	SW846 6010C	14-JUN-13 12:09	AMA	13-JUN-13	AMA	PB
JB39339-2	SW846 8260B	14-JUN-13 15:23	OTR			V8260SL
JB39339-2	SW846 8011	15-JUN-13 16:21	AMA	14-JUN-13	AMA	V8011EDB
JB39339-2	SW846 8270C	19-JUN-13 11:23	AMA	17-JUN-13	AMA	B8270SL
JB39339-2	SW846 8270C	05-JUL-13 15:26	AMA	17-JUN-13	AMA	B8270SL
JB39339-3 Collected: 11-JUN-13 12:00 By: ED Received: 11-JUN-13 By: AS AOI5_MW-462_1-2_061113						
JB39339-3	SM21 2540 B MOD.	13-JUN-13	AMA			%SOL
JB39339-3	SW846 8260B	13-JUN-13 15:32	PS			V8260SL
JB39339-3	SW846 6010C	14-JUN-13 12:13	AMA	13-JUN-13	AMA	PB
JB39339-3	SW846 8011	15-JUN-13 16:44	AMA	14-JUN-13	AMA	V8011EDB
JB39339-3	SW846 8270C	19-JUN-13 11:46	AMA	17-JUN-13	AMA	B8270SL
JB39339-4 Collected: 11-JUN-13 14:00 By: ED Received: 11-JUN-13 By: AS AOI5_MW-462_7-8_061113						
JB39339-4	SM21 2540 B MOD.	13-JUN-13	AMA			%SOL
JB39339-4	SW846 8260B	13-JUN-13 16:02	PS			V8260SL
JB39339-4	SW846 6010C	14-JUN-13 12:17	AMA	13-JUN-13	AMA	PB
JB39339-4	SW846 8011	15-JUN-13 17:07	AMA	14-JUN-13	AMA	V8011EDB
JB39339-4	SW846 8270C	19-JUN-13 12:09	AMA	17-JUN-13	AMA	B8270SL
JB39339-5 Collected: 11-JUN-13 10:00 By: ED Received: 11-JUN-13 By: AS AOI5_MW-468_8-10'_061113						

Internal Sample Tracking Chronicle

Aquaterra Technologies, Inc.

Job No: JB39339

Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Project No: AOI-5

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB39339-5	SM21 2540 B MOD.	13-JUN-13	AMA			%SOL
JB39339-5	SW846 8260B	13-JUN-13 16:31	PS			V8260SL
JB39339-5	SW846 6010C	14-JUN-13 12:22	AMA	13-JUN-13	AMA	PB
JB39339-5	SW846 8011	15-JUN-13 17:30	AMA	14-JUN-13	AMA	V8011EDB
JB39339-5	SW846 8270C	19-JUN-13 12:33	AMA	17-JUN-13	AMA	B8270SL
JB39339-6	Collected: 11-JUN-13 13:30 By: ED		Received: 11-JUN-13 By: AS			
AOI5_MW-461_0-2' _061113						
JB39339-6	SM21 2540 B MOD.	13-JUN-13	AMA			%SOL
JB39339-6	SW846 8260B	13-JUN-13 17:01	PS			V8260SL
JB39339-6	SW846 6010C	14-JUN-13 12:26	AMA	13-JUN-13	AMA	PB
JB39339-6	SW846 8011	15-JUN-13 17:53	AMA	14-JUN-13	AMA	V8011EDB
JB39339-6	SW846 8270C	19-JUN-13 12:55	AMA	17-JUN-13	AMA	B8270SL
JB39339-7	Collected: 11-JUN-13 14:00 By: ED		Received: 11-JUN-13 By: AS			
AOI5_MW-461_2-4' _061113						
JB39339-7	SM21 2540 B MOD.	13-JUN-13	AMA			%SOL
JB39339-7	SW846 6010C	14-JUN-13 12:30	AMA	13-JUN-13	AMA	PB
JB39339-7	SW846 8011	15-JUN-13 18:16	AMA	14-JUN-13	AMA	V8011EDB
JB39339-7	SW846 8260B	17-JUN-13 20:53	ET			V8260SL
JB39339-7	SW846 8270C	19-JUN-13 13:18	AMA	17-JUN-13	AMA	B8270SL

Accutest Internal Chain of Custody

Job Number: JB39339
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 06/11/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB39339-1.1	Secured Storage	Robert Lofrano	06/12/13 13:38	Retrieve from Storage
JB39339-1.1	Robert Lofrano		06/12/13 14:03	Subcontract
JB39339-1.2	Secured Storage	Robert Lofrano	06/12/13 13:38	Retrieve from Storage
JB39339-1.2	Robert Lofrano		06/12/13 14:03	Subcontract
JB39339-1.3	Secured Storage	Oksana Treglazova	06/13/13 15:57	Retrieve from Storage
JB39339-1.3	Oksana Treglazova	Secured Storage	06/13/13 15:57	Return to Storage
JB39339-1.3	Secured Storage	Oksana Treglazova	06/14/13 14:42	Retrieve from Storage
JB39339-1.3	Oksana Treglazova	Secured Storage	06/14/13 14:42	Return to Storage
JB39339-2.1	Secured Storage	Robert Lofrano	06/12/13 13:38	Retrieve from Storage
JB39339-2.1	Robert Lofrano		06/12/13 14:03	Subcontract
JB39339-2.2	Secured Storage	Robert Lofrano	06/12/13 13:38	Retrieve from Storage
JB39339-2.2	Robert Lofrano		06/12/13 14:03	Subcontract
JB39339-2.3	Secured Storage	Oksana Treglazova	06/13/13 15:57	Retrieve from Storage
JB39339-2.3	Oksana Treglazova	Secured Storage	06/13/13 15:57	Return to Storage
JB39339-2.3	Secured Storage	Oksana Treglazova	06/14/13 14:42	Retrieve from Storage
JB39339-2.3	Oksana Treglazova	Secured Storage	06/14/13 14:42	Return to Storage
JB39339-3.1	Secured Storage	Robert Lofrano	06/12/13 13:38	Retrieve from Storage
JB39339-3.1	Robert Lofrano		06/12/13 14:03	Subcontract
JB39339-3.2	Secured Storage	Robert Lofrano	06/12/13 13:38	Retrieve from Storage
JB39339-3.2	Robert Lofrano		06/12/13 14:03	Subcontract
JB39339-3.4	Secured Storage	Juntae Park	06/13/13 10:33	Retrieve from Storage
JB39339-3.4	Juntae Park	GCMS3C	06/13/13 10:33	Load on Instrument
JB39339-3.4	GCMS3C	Prashant Shukla	06/14/13 11:34	Unload from Instrument
JB39339-3.4	Prashant Shukla	Secured Storage	06/14/13 11:34	Return to Storage
JB39339-4.1	Secured Storage	Robert Lofrano	06/12/13 13:38	Retrieve from Storage
JB39339-4.1	Robert Lofrano		06/12/13 14:03	Subcontract
JB39339-4.2	Secured Storage	Robert Lofrano	06/12/13 13:38	Retrieve from Storage
JB39339-4.2	Robert Lofrano		06/12/13 14:03	Subcontract
JB39339-4.4	Secured Storage	Juntae Park	06/13/13 10:33	Retrieve from Storage
JB39339-4.4	Juntae Park	GCMS3C	06/13/13 10:33	Load on Instrument
JB39339-4.4	GCMS3C	Prashant Shukla	06/14/13 11:34	Unload from Instrument
JB39339-4.4	Prashant Shukla	Secured Storage	06/14/13 11:34	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB39339
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 06/11/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB39339-5.1	Secured Storage	Robert Lofrano	06/12/13 13:38	Retrieve from Storage
JB39339-5.1	Robert Lofrano		06/12/13 14:03	Subcontract
JB39339-5.2	Secured Storage	Robert Lofrano	06/12/13 13:38	Retrieve from Storage
JB39339-5.2	Robert Lofrano		06/12/13 14:03	Subcontract
JB39339-5.4	Secured Storage	Juntae Park	06/13/13 10:33	Retrieve from Storage
JB39339-5.4	Juntae Park	GCMS3C	06/13/13 10:33	Load on Instrument
JB39339-5.4	GCMS3C	Prashant Shukla	06/14/13 11:34	Unload from Instrument
JB39339-5.4	Prashant Shukla	Secured Storage	06/14/13 11:34	Return to Storage
JB39339-6.1	Secured Storage	Robert Lofrano	06/12/13 13:38	Retrieve from Storage
JB39339-6.1	Robert Lofrano		06/12/13 14:03	Subcontract
JB39339-6.2	Secured Storage	Robert Lofrano	06/12/13 13:38	Retrieve from Storage
JB39339-6.2	Robert Lofrano		06/12/13 14:03	Subcontract
JB39339-6.4	Secured Storage	Juntae Park	06/13/13 10:33	Retrieve from Storage
JB39339-6.4	Juntae Park	GCMS3C	06/13/13 10:33	Load on Instrument
JB39339-6.4	GCMS3C	Prashant Shukla	06/14/13 11:34	Unload from Instrument
JB39339-6.4	Prashant Shukla	Secured Storage	06/14/13 11:34	Return to Storage
JB39339-7.1	Secured Storage	Robert Lofrano	06/12/13 13:38	Retrieve from Storage
JB39339-7.1	Robert Lofrano		06/12/13 14:03	Subcontract
JB39339-7.2	Secured Storage	Robert Lofrano	06/12/13 13:38	Retrieve from Storage
JB39339-7.2	Robert Lofrano		06/12/13 14:03	Subcontract
JB39339-7.3	Secured Storage	Emily Tran	06/14/13 16:37	Retrieve from Storage
JB39339-7.3	Emily Tran	Secured Storage	06/14/13 16:37	Return to Storage
JB39339-7.4	Secured Storage	Juntae Park	06/13/13 10:33	Retrieve from Storage
JB39339-7.4	Juntae Park	GCMS3C	06/13/13 10:33	Load on Instrument
JB39339-7.4	GCMS3C	Prashant Shukla	06/14/13 11:34	Unload from Instrument
JB39339-7.4	Prashant Shukla	Secured Storage	06/14/13 11:34	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: JB39339
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
V3C4427-MB	3C99646.D	1	06/13/13	PS	n/a	n/a	V3C4427

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

JB39339-3, JB39339-4, JB39339-5, JB39339-6

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	84%	65-131%
17060-07-0	1,2-Dichloroethane-D4	85%	70-121%
2037-26-5	Toluene-D8	89%	80-128%
460-00-4	4-Bromofluorobenzene	91%	67-131%

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

Method Blank Summary

Job Number: JB39339
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
VE8979-MB	E204301.D	1	06/14/13	OTR	n/a	n/a	VE8979

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

JB39339-1, JB39339-2

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	83%	65-131%
17060-07-0	1,2-Dichloroethane-D4	88%	70-121%
2037-26-5	Toluene-D8	96%	80-128%
460-00-4	4-Bromofluorobenzene	93%	67-131%

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

Method Blank Summary

Job Number: JB39339
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
VD8577-MB	D210105.D	1	06/17/13	ET	n/a	n/a	VD8577

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

JB39339-7

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	102%	65-131%
17060-07-0	1,2-Dichloroethane-D4	109%	70-121%
2037-26-5	Toluene-D8	106%	80-128%
460-00-4	4-Bromofluorobenzene	104%	67-131%

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

Blank Spike Summary

Job Number: JB39339
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
V3C4427-BS	3C99647.D	1	06/13/13	PS	n/a	n/a	V3C4427

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

JB39339-3, JB39339-4, JB39339-5, JB39339-6

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	47.0	94	79-121
107-06-2	1,2-Dichloroethane	50	56.8	114	73-132
100-41-4	Ethylbenzene	50	50.4	101	78-119
98-82-8	Isopropylbenzene	50	51.2	102	75-122
1634-04-4	Methyl Tert Butyl Ether	100	104	104	73-122
108-88-3	Toluene	50	49.6	99	78-121
95-63-6	1,2,4-Trimethylbenzene	50	50.6	101	76-121
108-67-8	1,3,5-Trimethylbenzene	50	50.6	101	74-121
1330-20-7	Xylene (total)	150	150	100	79-120

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	88%	65-131%
17060-07-0	1,2-Dichloroethane-D4	90%	70-121%
2037-26-5	Toluene-D8	88%	80-128%
460-00-4	4-Bromofluorobenzene	86%	67-131%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB39339
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
VE8979-BS	E204302.D	1	06/14/13	OTR	n/a	n/a	VE8979

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

JB39339-1, JB39339-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2550	102	79-121
107-06-2	1,2-Dichloroethane	2500	2510	100	73-132
100-41-4	Ethylbenzene	2500	2500	100	78-119
98-82-8	Isopropylbenzene	2500	2620	105	75-122
1634-04-4	Methyl Tert Butyl Ether	5000	5060	101	73-122
108-88-3	Toluene	2500	2520	101	78-121
95-63-6	1,2,4-Trimethylbenzene	2500	2520	101	76-121
108-67-8	1,3,5-Trimethylbenzene	2500	2530	101	74-121
1330-20-7	Xylene (total)	7500	7600	101	79-120

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	88%	65-131%
17060-07-0	1,2-Dichloroethane-D4	84%	70-121%
2037-26-5	Toluene-D8	96%	80-128%
460-00-4	4-Bromofluorobenzene	93%	67-131%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB39339
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
VD8577-BS	D210106.D	1	06/17/13	ET	n/a	n/a	VD8577

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

JB39339-7

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2410	96	79-121
107-06-2	1,2-Dichloroethane	2500	2770	111	73-132
100-41-4	Ethylbenzene	2500	2490	100	78-119
98-82-8	Isopropylbenzene	2500	2430	97	75-122
1634-04-4	Methyl Tert Butyl Ether	5000	4700	94	73-122
108-88-3	Toluene	2500	2510	100	78-121
95-63-6	1,2,4-Trimethylbenzene	2500	2400	96	76-121
108-67-8	1,3,5-Trimethylbenzene	2500	2200	88	74-121
1330-20-7	Xylene (total)	7500	7650	102	79-120

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	105%	65-131%
17060-07-0	1,2-Dichloroethane-D4	111%	70-121%
2037-26-5	Toluene-D8	107%	80-128%
460-00-4	4-Bromofluorobenzene	103%	67-131%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB39339
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
JB39263-1MS	3C99654.D	1	06/13/13	PS	n/a	n/a	V3C4427
JB39263-1MSD	3C99655.D	1	06/13/13	PS	n/a	n/a	V3C4427
JB39263-1	3C99657.D	1	06/13/13	PS	n/a	n/a	V3C4427

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

JB39339-3, JB39339-4, JB39339-5, JB39339-6

CAS No.	Compound	JB39263-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		123	90.1	73	83.3	69	8	47-130/22
107-06-2	1,2-Dichloroethane	ND		123	108	88	97.9	81	10	46-135/21
100-41-4	Ethylbenzene	1.6	J	123	77.2	61	70.8	57	9	30-139/25
98-82-8	Isopropylbenzene	ND		123	77.3	63	67.6	56	13	30-140/27
1634-04-4	Methyl Tert Butyl Ether	ND		123	112	91	101	84	10	50-127/21
108-88-3	Toluene	0.84	J	123	84.7	68	79.2	65	7	38-136/24
95-63-6	1,2,4-Trimethylbenzene	ND		123	66.5	54	55.7	46	18	20-145/28
108-67-8	1,3,5-Trimethylbenzene	ND		123	67.7	55	57.5	48	16	24-142/28
1330-20-7	Xylene (total)	ND		369	218	59	201	55	8	31-140/26

CAS No.	Surrogate Recoveries	MS	MSD	JB39263-1	Limits
1868-53-7	Dibromofluoromethane	86%	87%	91%	65-131%
17060-07-0	1,2-Dichloroethane-D4	86%	83%	105%	70-121%
2037-26-5	Toluene-D8	88%	88%	88%	80-128%
460-00-4	4-Bromofluorobenzene	96%	93%	100%	67-131%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB39339
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
JB39326-7MS	E204303.D	1	06/14/13	OTR	n/a	n/a	VE8979
JB39326-7MSD	E204304.D	1	06/14/13	OTR	n/a	n/a	VE8979
JB39326-7	E204306.D	1	06/14/13	OTR	n/a	n/a	VE8979

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

JB39339-1, JB39339-2

CAS No.	Compound	JB39326-7 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	22.8	J	2350	2320	98	2320	98	0	47-130/22
107-06-2	1,2-Dichloroethane	ND		2350	2440	104	2480	105	2	46-135/21
100-41-4	Ethylbenzene	ND		2350	2240	95	2240	95	0	30-139/25
98-82-8	Isopropylbenzene	ND		2350	2300	98	2300	98	0	30-140/27
1634-04-4	Methyl Tert Butyl Ether	ND		2350	2550	108	2610	111	2	50-127/21
108-88-3	Toluene	ND		2350	2290	97	2270	96	1	38-136/24
95-63-6	1,2,4-Trimethylbenzene	ND		2350	2280	97	2310	98	1	20-145/28
108-67-8	1,3,5-Trimethylbenzene	ND		2350	2250	96	2280	97	1	24-142/28
1330-20-7	Xylene (total)	ND		7060	6900	98	6950	98	1	31-140/26

CAS No.	Surrogate Recoveries	MS	MSD	JB39326-7	Limits
1868-53-7	Dibromofluoromethane	87%	88%	84%	65-131%
17060-07-0	1,2-Dichloroethane-D4	85%	87%	88%	70-121%
2037-26-5	Toluene-D8	96%	96%	95%	80-128%
460-00-4	4-Bromofluorobenzene	91%	93%	91%	67-131%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB39339
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
JB38864-1MS	D210114.D	1	06/17/13	ET	n/a	n/a	VD8577
JB38864-1MSD	D210115.D	1	06/17/13	ET	n/a	n/a	VD8577
JB38864-1 [a]	D210107.D	1	06/17/13	ET	n/a	n/a	VD8577

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

JB39339-7

CAS No.	Compound	JB38864-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	306		11500	12000	102	12400	105	3	47-130/22
107-06-2	1,2-Dichloroethane	ND		11500	12700	111	13200	115	4	46-135/21
100-41-4	Ethylbenzene	272		11500	12400	106	12900	110	4	30-139/25
98-82-8	Isopropylbenzene	ND		11500	12000	104	12400	108	3	30-140/27
1634-04-4	Methyl Tert Butyl Ether	ND		11500	11200	97	11300	98	1	50-127/21
108-88-3	Toluene	2440		11500	14400	104	14800	108	3	38-136/24
95-63-6	1,2,4-Trimethylbenzene	ND		11500	12000	104	12300	107	2	20-145/28
108-67-8	1,3,5-Trimethylbenzene	ND		11500	11200	97	11400	99	2	24-142/28
1330-20-7	Xylene (total)	1670		34500	37800	105	39700	110	5	31-140/26

CAS No.	Surrogate Recoveries	MS	MSD	JB38864-1	Limits
1868-53-7	Dibromofluoromethane	107%	103%	102%	65-131%
17060-07-0	1,2-Dichloroethane-D4	108%	106%	111%	70-121%
2037-26-5	Toluene-D8	109%	109%	110%	80-128%
460-00-4	4-Bromofluorobenzene	105%	103%	107%	67-131%

(a) Diluted due to high concentration of target compound.

* = Outside of Control Limits.

Instrument Performance Check (BFB)

Job Number: JB39339
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: V3C4359-BFB
Lab File ID: 3C98231.D
Instrument ID: GCMS3C
Injection Date: 05/07/13
Injection Time: 09:38

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	9537	18.0		Pass
75	30.0 - 60.0% of mass 95	24826	46.8		Pass
95	Base peak, 100% relative abundance	53021	100.0		Pass
96	5.0 - 9.0% of mass 95	3626	6.84		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	45546	85.9		Pass
175	5.0 - 9.0% of mass 174	3521	6.64	(7.73) [a]	Pass
176	95.0 - 101.0% of mass 174	44570	84.1	(97.9) [a]	Pass
177	5.0 - 9.0% of mass 176	3147	5.94	(7.06) [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
V3C4359-IC4359	3C98232.D	05/07/13	10:08	00:30	Initial cal 5
V3C4359-IC4359	3C98233.D	05/07/13	10:38	01:00	Initial cal 2
V3C4359-IC4359	3C98234.D	05/07/13	11:07	01:29	Initial cal 1
V3C4359-IC4359	3C98235.D	05/07/13	11:37	01:59	Initial cal 0.5
V3C4359-IC4359	3C98236.D	05/07/13	12:06	02:28	Initial cal 10
V3C4359-IC4359	3C98237.D	05/07/13	12:36	02:58	Initial cal 20
V3C4359-ICC4359	3C98238.D	05/07/13	13:05	03:27	Initial cal 50
V3C4359-IC4359	3C98239.D	05/07/13	13:35	03:57	Initial cal 100
V3C4359-IC4359	3C98240.D	05/07/13	14:04	04:26	Initial cal 200
V3C4359-ICV4359	3C98243.D	05/07/13	19:06	09:28	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JB39339
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: V3C4427-BFB
Lab File ID: 3C99643.D
Instrument ID: GCMS3C
Injection Date: 06/13/13
Injection Time: 07:02

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	8500	18.0		Pass
75	30.0 - 60.0% of mass 95	22823	48.4		Pass
95	Base peak, 100% relative abundance	47139	100.0		Pass
96	5.0 - 9.0% of mass 95	2987	6.34		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	38053	80.7		Pass
175	5.0 - 9.0% of mass 174	3263	6.92	(8.57) [a]	Pass
176	95.0 - 101.0% of mass 174	36515	77.5	(96.0) [a]	Pass
177	5.0 - 9.0% of mass 176	2664	5.65	(7.30) [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
V3C4427-CC4359	3C99644.D	06/13/13	07:31	00:29	Continuing cal 20
V3C4427-MB	3C99646.D	06/13/13	08:33	01:31	Method Blank
V3C4427-BS	3C99647.D	06/13/13	09:02	02:00	Blank Spike
ZZZZZZ	3C99649.D	06/13/13	10:07	03:05	(unrelated sample)
ZZZZZZ	3C99650.D	06/13/13	10:37	03:35	(unrelated sample)
ZZZZZZ	3C99651.D	06/13/13	11:06	04:04	(unrelated sample)
ZZZZZZ	3C99652.D	06/13/13	11:36	04:34	(unrelated sample)
ZZZZZZ	3C99653.D	06/13/13	12:05	05:03	(unrelated sample)
JB39263-1MS	3C99654.D	06/13/13	13:05	06:03	Matrix Spike
JB39263-1MSD	3C99655.D	06/13/13	13:34	06:32	Matrix Spike Duplicate
JB39263-1	3C99657.D	06/13/13	14:33	07:31	(used for QC only; not part of job JB39339)
ZZZZZZ	3C99659.D	06/13/13	15:03	08:01	(unrelated sample)
JB39339-3	3C99661.D	06/13/13	15:32	08:30	AOI5_MW-462_1-2_061113
JB39339-4	3C99662.D	06/13/13	16:02	09:00	AOI5_MW-462_7-8_061113
JB39339-5	3C99663.D	06/13/13	16:31	09:29	AOI5_MW-468_8-10'_061113
JB39339-6	3C99664.D	06/13/13	17:01	09:59	AOI5_MW-461_0-2'_061113
ZZZZZZ	3C99665.D	06/13/13	17:31	10:29	(unrelated sample)
ZZZZZZ	3C99666.D	06/13/13	18:00	10:58	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JB39339
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VD8524-BFB
Lab File ID: D208868.D
Instrument ID: GCMSD
Injection Date: 05/14/13
Injection Time: 17:39

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	10532	17.7		Pass
75	30.0 - 60.0% of mass 95	28104	47.2		Pass
95	Base peak, 100% relative abundance	59570	100.0		Pass
96	5.0 - 9.0% of mass 95	4008	6.73		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	59178	99.3		Pass
175	5.0 - 9.0% of mass 174	4601	7.72	(7.77) [a]	Pass
176	95.0 - 101.0% of mass 174	56389	94.7	(95.3) [a]	Pass
177	5.0 - 9.0% of mass 176	3796	6.37	(6.73) [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
VD8524-IC8524	D208869.D	05/14/13	18:08	00:29	Initial cal 0.5
VD8524-IC8524	D208870.D	05/14/13	18:38	00:59	Initial cal 1
VD8524-IC8524	D208871.D	05/14/13	19:07	01:28	Initial cal 2
VD8524-IC8524	D208872.D	05/14/13	19:36	01:57	Initial cal 5
VD8524-IC8524	D208873.D	05/14/13	20:06	02:27	Initial cal 10
VD8524-IC8524	D208874.D	05/14/13	20:35	02:56	Initial cal 20
VD8524-ICC8524	D208875.D	05/14/13	21:04	03:25	Initial cal 50
VD8524-IC8524	D208876.D	05/14/13	21:33	03:54	Initial cal 100
VD8524-IC8524	D208877.D	05/14/13	22:03	04:24	Initial cal 200
VD8524-ICV8524	D208880.D	05/14/13	23:31	05:52	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JB39339
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VD8577-BFB
Lab File ID: D210102.D
Instrument ID: GCMSD
Injection Date: 06/17/13
Injection Time: 11:02

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	9121	19.7		Pass
75	30.0 - 60.0% of mass 95	25853	55.9		Pass
95	Base peak, 100% relative abundance	46208	100.0		Pass
96	5.0 - 9.0% of mass 95	2851	6.17		Pass
173	Less than 2.0% of mass 174	365	0.79	(0.76) [a]	Pass
174	50.0 - 120.0% of mass 95	47965	103.8		Pass
175	5.0 - 9.0% of mass 174	3862	8.36	(8.05) [a]	Pass
176	95.0 - 101.0% of mass 174	47762	103.4	(99.6) [a]	Pass
177	5.0 - 9.0% of mass 176	3270	7.08	(6.85) [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
VD8577-CC8524	D210103.D	06/17/13	11:34	00:32	Continuing cal 20
VD8577-MB	D210105.D	06/17/13	12:38	01:36	Method Blank
ZZZZZZ	D210105.D	06/17/13	12:38	01:36	(unrelated sample)
VD8577-BS	D210106.D	06/17/13	13:24	02:22	Blank Spike
JB38864-1	D210107.D	06/17/13	14:01	02:59	(used for QC only; not part of job JB39339)
ZZZZZZ	D210108.D	06/17/13	14:30	03:28	(unrelated sample)
ZZZZZZ	D210109.D	06/17/13	15:00	03:58	(unrelated sample)
ZZZZZZ	D210110.D	06/17/13	15:29	04:27	(unrelated sample)
ZZZZZZ	D210111.D	06/17/13	15:59	04:57	(unrelated sample)
ZZZZZZ	D210112.D	06/17/13	16:28	05:26	(unrelated sample)
ZZZZZZ	D210113.D	06/17/13	16:58	05:56	(unrelated sample)
JB38864-1MS	D210114.D	06/17/13	17:27	06:25	Matrix Spike
JB38864-1MSD	D210115.D	06/17/13	17:57	06:55	Matrix Spike Duplicate
ZZZZZZ	D210116.D	06/17/13	18:26	07:24	(unrelated sample)
ZZZZZZ	D210117.D	06/17/13	18:56	07:54	(unrelated sample)
ZZZZZZ	D210119.D	06/17/13	19:54	08:52	(unrelated sample)
ZZZZZZ	D210120.D	06/17/13	20:24	09:22	(unrelated sample)
JB39339-7	D210121.D	06/17/13	20:53	09:51	AOI5_MW-461_2-4'_061113
ZZZZZZ	D210122.D	06/17/13	21:23	10:21	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JB39339
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VE8959-BFB
Lab File ID: E203868.D
Instrument ID: GCMSE
Injection Date: 06/03/13
Injection Time: 08:51

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	10874	17.7		Pass
75	30.0 - 60.0% of mass 95	28973	47.2		Pass
95	Base peak, 100% relative abundance	61445	100.0		Pass
96	5.0 - 9.0% of mass 95	4093	6.66		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	55701	90.7		Pass
175	5.0 - 9.0% of mass 174	4307	7.01	(7.73) [a]	Pass
176	95.0 - 101.0% of mass 174	54797	89.2	(98.4) [a]	Pass
177	5.0 - 9.0% of mass 176	3733	6.08	(6.81) [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
VE8959-IC8959	E203869.D	06/03/13	09:51	01:00	Initial cal 0.5
VE8959-IC8959	E203871.D	06/03/13	10:51	02:00	Initial cal 2
VE8959-IC8959	E203872.D	06/03/13	11:22	02:31	Initial cal 5
VE8959-IC8959	E203873.D	06/03/13	11:52	03:01	Initial cal 10
VE8959-IC8959	E203874.D	06/03/13	12:22	03:31	Initial cal 20
VE8959-ICC8959	E203875.D	06/03/13	12:53	04:02	Initial cal 50
VE8959-IC8959	E203876.D	06/03/13	13:23	04:32	Initial cal 100
VE8959-IC8959	E203877.D	06/03/13	13:53	05:02	Initial cal 200
VE8959-IC8959	E203880.D	06/03/13	15:24	06:33	Initial cal 1
VE8959-ICV8959	E203881.D	06/03/13	16:11	07:20	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JB39339
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VE8979-BFB
Lab File ID: E204297.D
Instrument ID: GCMSE
Injection Date: 06/14/13
Injection Time: 08:28

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	11334	17.6		Pass
75	30.0 - 60.0% of mass 95	29864	46.3		Pass
95	Base peak, 100% relative abundance	64490	100.0		Pass
96	5.0 - 9.0% of mass 95	4284	6.64		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	58184	90.2		Pass
175	5.0 - 9.0% of mass 174	4556	7.06	(7.83) [a]	Pass
176	95.0 - 101.0% of mass 174	57090	88.5	(98.1) [a]	Pass
177	5.0 - 9.0% of mass 176	3979	6.17	(6.97) [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
VE8979-CC8959	E204299.D	06/14/13	09:32	01:04	Continuing cal 20
VE8979-MB	E204301.D	06/14/13	10:43	02:15	Method Blank
VE8979-BS	E204302.D	06/14/13	11:18	02:50	Blank Spike
JB39326-7MS	E204303.D	06/14/13	11:53	03:25	Matrix Spike
JB39326-7MSD	E204304.D	06/14/13	12:23	03:55	Matrix Spike Duplicate
JB39326-7	E204306.D	06/14/13	13:23	04:55	(used for QC only; not part of job JB39339)
ZZZZZZ	E204308.D	06/14/13	14:24	05:56	(unrelated sample)
JB39339-1	E204309.D	06/14/13	14:53	06:25	AOI5_MW-465_1-2_061113
JB39339-2	E204310.D	06/14/13	15:23	06:55	AOI5_MW-465_3-4_061113
ZZZZZZ	E204311.D	06/14/13	15:54	07:26	(unrelated sample)
ZZZZZZ	E204312.D	06/14/13	16:24	07:56	(unrelated sample)
ZZZZZZ	E204313.D	06/14/13	16:54	08:26	(unrelated sample)
ZZZZZZ	E204314.D	06/14/13	17:24	08:56	(unrelated sample)
ZZZZZZ	E204316.D	06/14/13	18:25	09:57	(unrelated sample)
ZZZZZZ	E204317.D	06/14/13	18:55	10:27	(unrelated sample)
ZZZZZZ	E204318.D	06/14/13	19:26	10:58	(unrelated sample)

Volatile Internal Standard Area Summary

Job Number: JB39339
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	V3C4427-CC4359	**Injection Date:**	06/13/13
Lab File ID:	3C99644.D	**Injection Time:**	07:31
Instrument ID:	GCMS3C	**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	49378	7.37	170748	9.59	238692	10.51	188993	13.63	90054	15.93
Upper Limit [a]	98756	7.87	341496	10.09	477384	11.01	377986	14.13	180108	16.43
Lower Limit [b]	24689	6.87	85374	9.09	119346	10.01	94497	13.13	45027	15.43

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
V3C4427-MB	38793	7.36	164152	9.59	228104	10.50	175579	13.63	77143	15.93
V3C4427-BS	48751	7.37	162381	9.59	229475	10.51	180002	13.64	88999	15.93
ZZZZZZ	70293	7.37	167026	9.59	236562	10.51	189046	13.63	86736	15.93
ZZZZZZ	49613	7.37	157196	9.59	220409	10.50	171770	13.64	75675	15.93
ZZZZZZ	46877	7.37	160239	9.59	223515	10.50	172689	13.63	72703	15.93
ZZZZZZ	41585	7.36	154719	9.59	214371	10.51	170047	13.63	73591	15.93
ZZZZZZ	47403	7.37	155239	9.59	217348	10.51	173040	13.63	75808	15.93
JB39263-1MS	41778	7.37	169219	9.59	238882	10.50	177864	13.63	74115	15.93
JB39263-1MSD	46256	7.36	170527	9.59	239437	10.51	180741	13.63	78297	15.93
JB39263-1	62729	7.37	167057	9.59	235530	10.50	179906	13.64	71268	15.93
ZZZZZZ	47907	7.36	164350	9.59	226638	10.51	178125	13.63	77211	15.93
JB39339-3	37548	7.36	162208	9.59	225168	10.50	178060	13.64	77667	15.93
JB39339-4	44220	7.37	166356	9.59	232580	10.51	182906	13.63	81589	15.93
JB39339-5	53070	7.36	161274	9.59	223761	10.51	179157	13.64	86822	15.93
JB39339-6	49072	7.37	168725	9.59	236279	10.51	182876	13.64	79605	15.93
ZZZZZZ	44381	7.37	159328	9.59	222989	10.51	175497	13.63	80051	15.93
ZZZZZZ	49729	7.36	165602	9.59	232328	10.50	178816	13.63	76113	15.93

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

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

Volatile Internal Standard Area Summary

Job Number: JB39339
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	VD8577-CC8524	**Injection Date:**	06/17/13
Lab File ID:	D210103.D	**Injection Time:**	11:34
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	89117	7.99	186676	10.22	240287	11.13	218700	14.47	134560	17.06
Upper Limit [a]	178234	8.49	373352	10.72	480574	11.63	437400	14.97	269120	17.56
Lower Limit [b]	44559	7.49	93338	9.72	120144	10.63	109350	13.97	67280	16.56

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VD8577-MB	61145	8.00	182571	10.22	235802	11.13	213538	14.48	133811	17.06
ZZZZZZ	61145	8.00	182571	10.22	235802	11.13	213538	14.48	133811	17.06
VD8577-BS	87611	7.99	184747	10.22	242232	11.13	221007	14.48	138078	17.06
JB38864-1	72458	7.99	184565	10.21	235869	11.13	217495	14.47	132050	17.06
ZZZZZZ	85169	7.99	182197	10.22	235374	11.13	227760	14.48	153719	17.06
ZZZZZZ	75699	7.99	199770	10.22	255362	11.13	241729	14.48	151382	17.06
ZZZZZZ	85158	7.99	210347	10.22	276390	11.13	254861	14.47	155682	17.06
ZZZZZZ	101715	7.99	213188	10.22	277064	11.13	257015	14.48	157797	17.06
ZZZZZZ	98902	8.00	215031	10.22	282062	11.13	260960	14.48	157939	17.06
ZZZZZZ	103441	8.00	212403	10.22	275609	11.13	258157	14.48	156416	17.06
JB38864-1MS	94496	7.99	208898	10.22	271950	11.13	251225	14.47	156207	17.06
JB38864-1MSD	91851	8.00	210085	10.22	273761	11.13	252642	14.48	157424	17.06
ZZZZZZ	97682	7.98	206449	10.22	271336	11.13	253796	14.48	159276	17.06
ZZZZZZ	97143	8.00	208102	10.22	272053	11.13	256892	14.48	151569	17.06
ZZZZZZ	87541	8.01	207170	10.22	272324	11.13	260153	14.47	169700	17.06
ZZZZZZ	93097	8.00	210979	10.22	278288	11.13	269423	14.48	163775	17.06
JB39339-7 [c]	77677	7.99	210112	10.22	273042	11.13	254200	14.48	158782	17.06
ZZZZZZ	74672	8.00	207697	10.22	274263	11.13	253620	14.48	155814	17.06

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) Diluted due to high concentration of non-target compound.

Volatile Internal Standard Area Summary

Job Number: JB39339
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	VE8979-CC8959	**Injection Date:**	06/14/13
Lab File ID:	E204299.D	**Injection Time:**	09:32
Instrument ID:	GCMSE	**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	146557	7.68	195736	9.86	277634	10.78	257397	14.11	141396	16.68
Upper Limit [a]	293114	8.18	391472	10.36	555268	11.28	514794	14.61	282792	17.18
Lower Limit [b]	73279	7.18	97868	9.36	138817	10.28	128699	13.61	70698	16.18

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VE8979-MB	87841	7.65	204062	9.86	280343	10.78	264141	14.11	147168	16.68
VE8979-BS	120061	7.65	190865	9.86	270068	10.78	256505	14.11	137178	16.68
JB39326-7MS	105135	7.66	187281	9.87	263168	10.78	252060	14.11	136342	16.68
JB39326-7MSD	93458	7.67	188017	9.86	267009	10.78	253166	14.11	138033	16.68
JB39326-7	105790	7.69	200438	9.86	280373	10.78	259310	14.11	149340	16.68
ZZZZZZ	97413	7.66	201939	9.86	280616	10.78	257882	14.11	139340	16.68
JB39339-1 [c]	90274	7.65	199394	9.86	269215	10.78	245451	14.11	136877	16.68
JB39339-2	130128	7.65	203552	9.86	277040	10.78	249727	14.11	136406	16.68
ZZZZZZ	96986	7.66	196299	9.86	267176	10.78	244051	14.11	131756	16.68
ZZZZZZ	108273	7.65	191924	9.86	264621	10.78	248178	14.11	139861	16.68
ZZZZZZ	125028	7.64	203971	9.86	277120	10.78	263040	14.11	147363	16.68
ZZZZZZ	107735	7.66	207113	9.86	287829	10.78	261332	14.11	143047	16.68
ZZZZZZ	102196	7.67	204514	9.86	275475	10.78	214924	14.11	128240	16.68
ZZZZZZ	120683	7.66	202260	9.86	270337	10.78	233404	14.11	136890	16.68
ZZZZZZ	117064	7.67	203704	9.87	272872	10.78	222128	14.11	129405	16.68

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 Surrogate Recovery Summary

Job Number: JB39339
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
JB39339-1	E204309.D	84.0	85.0	97.0	92.0
JB39339-2	E204310.D	84.0	87.0	96.0	94.0
JB39339-3	3C99661.D	86.0	90.0	89.0	91.0
JB39339-4	3C99662.D	86.0	92.0	89.0	93.0
JB39339-5	3C99663.D	86.0	93.0	87.0	85.0
JB39339-6	3C99664.D	85.0	89.0	87.0	92.0
JB39339-7	D210121.D	103.0	106.0	111.0	104.0
JB38864-1MS	D210114.D	107.0	108.0	109.0	105.0
JB38864-1MSD	D210115.D	103.0	106.0	109.0	103.0
JB39263-1MS	3C99654.D	86.0	86.0	88.0	96.0
JB39263-1MSD	3C99655.D	87.0	83.0	88.0	93.0
JB39326-7MS	E204303.D	87.0	85.0	96.0	91.0
JB39326-7MSD	E204304.D	88.0	87.0	96.0	93.0
V3C4427-BS	3C99647.D	88.0	90.0	88.0	86.0
V3C4427-MB	3C99646.D	84.0	85.0	89.0	91.0
VD8577-BS	D210106.D	105.0	111.0	107.0	103.0
VD8577-MB	D210105.D	102.0	109.0	106.0	104.0
VE8979-BS	E204302.D	88.0	84.0	96.0	93.0
VE8979-MB	E204301.D	83.0	88.0	96.0	93.0

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	65-131%
S2 = 1,2-Dichloroethane-D4	70-121%
S3 = Toluene-D8	80-128%
S4 = 4-Bromofluorobenzene	67-131%

Initial Calibration Summary

Job Number: JB39339 **Sample:** V3C4359-ICC4359
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3C98238.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Response Factor Report MS3C

```
Method       : C:\MSDCHEM\1\METHODS\M3C4359.M (RTE Integrator)
Title        : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
Last Update  : Mon May 13 17:58:56 2013
Response via : Initial Calibration

Calibration Files
5   =3C98232.D   10  =3C98236.D   0.5 =3C98235.D   50  =3C98238.D
100 =3C98239.D   1   =3C98234.D   200 =3C98240.D   20  =3C98237.D
2   =3C98233.D       =
```

Compound	5	10	0.5	50	100	1	200	20	2	Avg	%RSD
1) I Tert Butyl Alcohol-d9 ----------ISTD----------											
2) 1,4-dioxane	0.110	0.132		0.133	0.123		0.134	0.132		0.127	7.27
3) tertiary butyl alcohol	1.946	2.238		2.089	1.958	2.207	2.006	2.229	1.715	2.048	8.79
4) Ethanol										0.000	-1.00
5) I pentafluorobenzene ----------ISTD----------											
6) chlorodifluoromethane	0.517	0.534		0.513	0.504	0.540	0.520	0.508	0.518	0.519	2.37
7) dichlorodifluoromethane	0.753	0.775		0.742	0.734	0.742	0.740	0.765	0.643	0.737	5.51
8) chloromethane	0.731	0.725		0.692	0.682	0.878	0.688	0.726	0.733	0.732	8.56
9) vinyl chloride	0.826	0.839	0.994	0.821	0.821	0.955	0.840	0.859	0.845	0.866	7.28
10) bromomethane	0.403	0.418	0.456	0.394	0.393	0.463	0.395	0.409	0.391	0.414	6.67
11) chloroethane	0.384	0.406	0.431	0.385	0.380	0.461	0.380	0.401	0.388	0.402	6.89
12) Vinyl Bromide	0.374	0.410		0.397		0.404		0.400	0.416	0.400	3.61
13) Pentane	0.975	0.971		0.896		0.948		0.886	0.975	0.942	4.31
14) trichlorofluoromethane	0.834	0.864	0.909	0.821	0.806	0.862	0.817	0.854	0.771	0.837	4.78
15) ethyl ether	0.281	0.277		0.257	0.254		0.251	0.262	0.282	0.266	5.01
16) acrolein	0.067	0.066		0.069		0.066		0.066	0.071	0.067	3.10
17) 1,1-dichloroethene	0.469	0.449		0.440	0.434	0.587	0.444	0.434	0.449	0.463	11.09
18) acetone		0.026		0.030	0.028		0.027	0.030		0.028	5.75
19) allyl chloride	0.297	0.312	0.220	0.294	0.291	0.309	0.299	0.283	0.277	0.287	9.57
20) acetonitrile	0.028	0.030		0.033	0.032		0.031	0.030	0.041	0.032	12.53
21) iodomethane	0.753	0.775	0.628	0.761	0.760	0.823	0.774	0.742	0.687	0.745	7.55
22) iso-butyl alcohol	0.014	0.013		0.013	0.014		0.012	0.013		0.013	4.57
23) carbon disulfide											

Initial Calibration Summary

Job Number: JB39339 **Sample:** V3C4359-ICC4359
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3C98238.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

	1.632	1.654	1.425	1.603	1.589	1.775	1.625	1.569	1.523	1.599	5.96
24) methylene chloride											
	0.536	0.522		0.478	0.472		0.473	0.484	0.561	0.504	7.11
25) methyl acetate											
	0.045	0.053		0.058	0.059		0.056	0.055		0.054	8.98
26) methyl tert butyl ether											
	1.145	1.127	1.179	1.118	1.118	1.213	1.081	1.076	1.098	1.128	3.97
27) trans-1,2-dichloroethene											
	0.532	0.528	0.484	0.499	0.491	0.662	0.500	0.485	0.513	0.522	10.63
28) di-isopropyl ether											
	1.668	1.789	1.690	1.739	1.722	1.686	1.716	1.748	1.643	1.711	2.61
29) ethyl tert-butyl ether											
	1.301	1.357	1.304	1.315	1.285	1.210	1.262	1.312	1.234	1.287	3.51
30) 2-butanone											
	0.035	0.039		0.042	0.043		0.040	0.038		0.040	7.87
31) 1,1-dichloroethane											
	0.907	0.932	0.840	0.894	0.882	0.995	0.892	0.867	0.843	0.895	5.34
32) chloroprene											
	0.748	0.808	0.563	0.787	0.760	0.725	0.774	0.781	0.761	0.745	9.71
33) acrylonitrile											
	0.116	0.117		0.122	0.124	0.106	0.117	0.116	0.090	0.114	9.46
34) vinyl acetate											
	0.065	0.074		0.079	0.082		0.079	0.074		0.076	7.81
35) ethyl acetate											
	0.050	0.049		0.051	0.053		0.048	0.048		0.050	3.52
36) 2,2-dichloropropane											
	0.783	0.773	0.708	0.731	0.707	0.859	0.716	0.713	0.719	0.745	6.84
37) cis-1,2-dichloroethene											
	0.550	0.554	0.569	0.530	0.524	0.676	0.533	0.527	0.547	0.557	8.49
38) propionitrile											
	0.046	0.046		0.048	0.049	0.041	0.046	0.045	0.040	0.045	6.74
39) Methyl Acrylate											
	0.040	0.046		0.053	0.054		0.051	0.046		0.048	10.99
40) bromochloromethane											
	0.219	0.225	0.185	0.226	0.223	0.217	0.225	0.220	0.212	0.217	5.87
41) tetrahydrofuran											
	0.147	0.130		0.129	0.129		0.118	0.127	0.165	0.135	11.59
42) chloroform											
	0.804	0.859	0.879	0.830	0.821	0.960	0.827	0.813	0.826	0.846	5.71
43) tert-Butyl Formate											
	0.304	0.314		0.320	0.320		0.307	0.318	0.314	0.314	1.98
44) dibromofluoromethane (s)											
	0.409	0.410	0.518	0.425	0.418	0.431	0.433	0.426	0.463	0.437	7.85
45) 1,2-dichloroethane-d4 (s)											
	0.440	0.428	0.445	0.437	0.432	0.452	0.427	0.426	0.475	0.440	3.57
46) freon 113											
	0.339	0.384		0.373	0.359		0.366	0.368	0.332	0.360	5.20
47) methacrylonitrile											
	0.209	0.209		0.216	0.217		0.205	0.204	0.211	0.210	2.34
48) 1,1,1-trichloroethane											
	0.765	0.785	0.636	0.759	0.745	0.814	0.760	0.740	0.724	0.748	6.59
49) Cyclohexane											
	0.822	0.821	0.747	0.807	0.792	0.912	0.811	0.786	0.764	0.807	5.83
50) Tert Amyl Alcohol											
	0.047	0.047		0.052	0.053		0.050	0.048	0.041	0.048	8.25
51) 2,2,4-trimethylpentane											
	2.019	2.114		2.009	1.933		1.986	1.987	2.404	2.065	7.72
52) tert-amyl methyl ether											
	1.185	1.213	1.379	1.138	1.142	1.240	1.108	1.172	1.160	1.193	6.74

Initial Calibration Summary

Job Number: JB39339 **Sample:** V3C4359-ICC4359
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3C98238.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
53) I   1,4-difluorobenzene   ----------------ISTD--------------------
54)  epichlorohydrin
           0.022 0.024       0.025 0.025       0.023 0.023 0.023   0.024    4.39
55)  n-butyl alcohol
           0.007 0.007       0.008 0.009 0.007 0.008 0.008 0.007   0.008    9.58
56)  carbon tetrachloride
           0.482 0.491 0.403 0.476 0.462 0.523 0.474 0.462 0.438   0.468    7.22
57)  1,1-dichloropropene
           0.494 0.513 0.427 0.498 0.476 0.543 0.491 0.481 0.476   0.489    6.39
58)  hexane
           0.577 0.568       0.505 0.472       0.477 0.508 0.670   0.539   13.12
59)  benzene
           1.487 1.505 1.483 1.454 1.405 1.744 1.438 1.411 1.421   1.483    7.02
60)  heptane
           0.311 0.319 0.228 0.309 0.311 0.325 0.326 0.304 0.302   0.304    9.73
61)  isopropyl acetate
           0.491 0.517       0.542 0.555 0.481 0.524 0.522 0.439   0.509    7.29
62)  1,2-dichloroethane
           0.383 0.385 0.294 0.384 0.375 0.416 0.370 0.376 0.347   0.370    9.12
63)  trichloroethene
           0.353 0.360 0.315 0.352 0.341 0.397 0.351 0.333 0.319   0.347    7.03
64)  ethyl acrylate
           0.301 0.317       0.343 0.341 0.324 0.329 0.311 0.334   0.325    4.52
65)  Tert-Amyl ethyl ether
           0.468 0.480       0.460 0.440       0.433 0.463 0.441   0.455    3.79
66)  2-nitropropane
           0.089 0.090       0.087 0.085       0.079 0.082 0.099   0.087    7.40
67)  2-chloroethyl vinyl ether
           0.112 0.119 0.113 0.127 0.126 0.109 0.125 0.122 0.111   0.118    6.02
68)  methyl methacrylate
           0.057 0.066       0.073 0.074       0.071 0.066 0.050   0.065   13.55
69)  1,2-dichloropropane
           0.345 0.356       0.356 0.348 0.375 0.356 0.345 0.334   0.352    3.42
70)  methylcyclohexane
           0.633 0.685 0.511 0.642 0.616 0.667 0.632 0.646 0.629   0.629    7.78
71)  dibromomethane
           0.162 0.164 0.145 0.163 0.162 0.178 0.160 0.157 0.146   0.160    6.19
72)  bromodichloromethane
           0.409 0.417 0.351 0.425 0.418 0.469 0.426 0.408 0.376   0.411    8.04
73)  cis-1,3-dichloropropene
           0.528 0.537 0.505 0.537 0.525 0.575 0.532 0.517 0.488   0.527    4.58
74)  toluene-d8 (s)
           1.209 1.175       1.221 1.184 1.422 1.238 1.222 1.317   1.249    6.58
75)  4-methyl-2-pentanone
           0.096 0.098       0.099 0.103       0.096 0.093 0.086   0.096    5.72
76)  toluene
           0.867 0.891 0.765 0.870 0.849 0.994 0.877 0.845 0.808   0.863    7.27
77)  3-methyl-1-butanol
           0.007 0.007       0.008 0.008 0.007 0.008 0.007 0.006   0.007   11.35
78)  trans-1,3-dichloropropene
           0.443 0.445 0.359 0.450 0.441 0.507 0.440 0.428 0.410   0.436    8.91
79)  ethyl methacrylate
           0.334 0.348 0.270 0.360 0.364 0.351 0.354 0.342 0.297   0.336    9.38
80)  1,1,2-trichloroethane
           0.198 0.204 0.174 0.202 0.197 0.213 0.194 0.190 0.180   0.195    6.25
81)  2-hexanone
           0.077 0.081       0.088 0.089       0.085 0.080 0.070   0.081    8.18

82) I   chlorobenzene-d5      ----------------ISTD--------------------
83)  tetrachloroethene
```

```
            0.495 0.500 0.424 0.506 0.497 0.533 0.515 0.484 0.458   0.490    6.58
 84)  1,3-dichloropropane
            0.540 0.544 0.462 0.544 0.537 0.593 0.529 0.520 0.496   0.529    6.83
 85)  butyl acetate
            0.207 0.208       0.223 0.228 0.211 0.215 0.217 0.194   0.213    4.94
 86)  dibromochloromethane
            0.357 0.364 0.355 0.375 0.378 0.381 0.378 0.348 0.312   0.361    6.01
 87)  1,2-dibromoethane
            0.291 0.291 0.241 0.299 0.297 0.304 0.287 0.284 0.260   0.284    7.13
 88)  3,3-Dimethyl-1-Butanol
            0.032 0.030 0.029 0.035 0.036 0.030 0.034 0.032 0.030   0.032    8.05
 89)  chlorobenzene
            1.144 1.186 1.003 1.160 1.131 1.309 1.151 1.126 1.071   1.142    7.25
 90)  1,1,1,2-tetrachloroethane
            0.414 0.421 0.367 0.430 0.427 0.456 0.435 0.413 0.378   0.416    6.65
 91)  ethylbenzene
            2.071 2.086 1.945 2.056 2.010 2.313 2.057 2.013 1.967   2.058    5.19
 92)  m,p-xylene
            0.799 0.801 0.720 0.797 0.776 0.857 0.801 0.764 0.753   0.785    4.89
 93)  o-xylene
            0.779 0.776 0.655 0.781 0.767 0.876 0.789 0.748 0.756   0.770    7.38
 94)  styrene
            1.201 1.236 1.186 1.272 1.257 1.404 1.294 1.219 1.152   1.247    5.92
 95)  BUTYL ACRYLATE
            0.596 0.627       0.673       0.663       0.627 0.686   0.645    5.31
 96)  bromoform
            0.215 0.224       0.238 0.244 0.222 0.241 0.220 0.201   0.226    6.51

 97) I   1,4-dichlorobenzene-d ----------------ISTD---------------------
 98)  isopropylbenzene
            4.322 4.379 3.876 4.149 4.056 4.793 4.089 4.124 3.986   4.197    6.47
 99)  4-bromofluorobenzene (s)
            1.282 1.124       1.085 1.051       1.077 1.109         1.121    7.39
100)  bromobenzene
            0.966 1.007 0.912 0.946 0.936 1.079 0.936 0.949 0.913   0.960    5.51
101)  cyclohexanone
            0.050 0.043       0.048 0.039       0.036 0.040 0.043   0.043   11.05
102)  1,1,2,2-tetrachloroethane
            0.799 0.777 0.781 0.773 0.770 0.842 0.726 0.739 0.722   0.770    4.89
103)  trans-1,4-dichloro-2-butene
            0.211 0.201       0.205 0.204 0.237 0.194 0.192 0.224   0.209    7.31
104)  1,2,3-trichloropropane
            0.222 0.210       0.208 0.207 0.166 0.194 0.199 0.209   0.202    8.27
105)  n-propylbenzene
            4.963 4.937 4.645 4.727 4.566 5.577 4.598 4.684 4.610   4.812    6.66
106)  4-Ethyltoluene
            3.896 4.170 4.616 3.977 3.856 4.094 3.914 3.992 4.002   4.057    5.70
107)  2-chlorotoluene
            0.986 1.007 0.908 0.963 0.942 1.174 0.968 0.944 0.925   0.980    8.04
108)  4-chlorotoluene
            1.015 0.982 0.989 0.967 0.934 1.102 0.963 0.933 0.985   0.986    5.17
109)  1,3,5-trimethylbenzene
            3.566 3.574 3.538 3.402 3.353 4.062 3.431 3.391 3.317   3.515    6.42
110)  tert-butylbenzene
            3.130 3.220 2.893 3.018 2.954 3.496 3.052 2.942 2.849   3.061    6.53
111)  pentachloroethane
            0.632 0.646 0.629 0.625 0.631 0.649 0.636 0.607 0.553   0.623    4.66
112)  1,2,4-trimethylbenzene
            3.555 3.494 3.508 3.410 3.320 3.975 3.382 3.346 3.357   3.483    5.79
113)  sec-butylbenzene
```

Initial Calibration Summary

Job Number: JB39339 **Sample:** V3C4359-ICC4359
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3C98238.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
            4.623 4.652 4.380 4.483 4.381 5.244 4.455 4.390 4.276   4.543    6.36
114)  1,3-dichlorobenzene
            1.887 1.881 1.709 1.828 1.789 2.102 1.826 1.813 1.804   1.849    5.86
115)  p-isopropyltoluene
            3.845 3.846 3.743 3.687 3.617 4.356 3.705 3.580 3.558   3.771    6.43
116)  1,4-dichlorobenzene
            1.839 1.899 1.860 1.818 1.797 2.293 1.834 1.788 1.860   1.888    8.25
117)  1,2-dichlorobenzene
            1.736 1.743 1.757 1.702 1.699 2.025 1.699 1.683 1.640   1.743    6.40
118)  1,4-Diethylbenzene
            2.076 2.333 2.709 2.264 2.219 2.361 2.303 2.280 2.255   2.311    7.36
119)  n-butylbenzene
            1.965 2.016 1.755 1.945 1.890 2.351 1.966 1.893 1.904   1.965    8.26
120)  1,2,4,5-Tetramethylbenzene
            3.428 3.756 3.995 3.675 3.534 3.709 3.470 3.622 3.711   3.655    4.68
121)  1,2-dibromo-3-chloropropane
            0.147 0.139       0.132 0.136       0.119 0.132 0.158   0.138    9.10
122)  1,3,5-Trichlorobenzene
            1.463 1.498 1.435 1.476 1.416 1.730 1.353 1.416 1.433   1.469    7.23
123)  1,2,4-trichlorobenzene
            1.144 1.148 1.048 1.200 1.152 1.320 1.056 1.122 1.060   1.139    7.52
124)  hexachlorobutadiene
            0.831 0.837 0.797 0.794 0.761 1.006 0.711 0.810 0.786   0.815    9.93
125)  naphthalene
            2.008 2.014 2.413 2.208 2.155 2.362 1.853 2.016 1.972   2.111    8.86
126)  1,2,3-trichlorobenzene
            1.014 0.982 0.991 1.041 0.980 1.095 0.850 0.996 0.957   0.990    6.67
127)  hexachloroethane
            0.764 0.730 0.763 0.715 0.699 0.783 0.708 0.693 0.699   0.728    4.61
128)  Benzyl chloride
            1.562 1.485 1.729 1.503 1.503 1.668 1.445 1.485 1.535   1.546    6.06
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           M3C4359.M         Mon May 13 18:10:51 2013   MS3C
```

Initial Calibration Verification

Job Number: JB39339 **Sample:** V3C4359-ICV4359
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3C98243.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\MSDChem\1\DATA\3C98243.D                    Vial: 13
Acq On    :  7 May 2013   7:06 pm                     Operator: juntaep
Sample    : icv4359-50                                Inst    : MS3C
Misc      : MS47462,V3C4359,5.0,,,,1                  Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3C4359.M (RTE Integrator)
Title        : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
Last Update  : Mon May 13 17:58:56 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 : 150%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	107	0.00	7.37
2		1,4-dioxane	0.127	0.133	-4.7	107	0.00	11.24
3		tertiary butyl alcohol	2.048	2.279	-11.3	117	0.00	7.49
4		Ethanol		----------NA----------				
5	I	pentafluorobenzene	1.000	1.000	0.0	105	0.00	9.59
6		chlorodifluoromethane	0.519	0.611	-17.7	125	0.00	3.98
7		dichlorodifluoromethane	0.737	0.717	2.7	101	0.00	3.96
8		chloromethane	0.732	0.665	9.2	101	0.00	4.32
9		vinyl chloride	0.866	0.801	7.5	102	0.00	4.57
10		bromomethane	0.414	0.386	6.8	103	0.00	5.23
11		chloroethane	0.402	0.375	6.7	102	0.00	5.41
12		Vinyl Bromide	0.400	0.390	2.5	103	0.00	5.76
13		Pentane	0.942	0.894	5.1	105	0.00	5.94
14		trichlorofluoromethane	0.837	0.799	4.5	102	0.01	5.85
15		ethyl ether	0.266	0.255	4.1	104	0.00	6.27
16		acrolein	0.067	0.070	-4.5	107	0.00	6.53
17		1,1-dichloroethene	0.463	0.439	5.2	104	0.00	6.70
18		acetone	0.028	0.032	-14.3	114	-0.01	6.75
19		allyl chloride	0.287	0.297	-3.5	106	0.00	7.23
20		acetonitrile	0.032	0.032	0.0	104	0.00	7.20
21		iodomethane	0.745	0.750	-0.7	103	0.00	6.98
22		iso-butyl alcohol	0.013	0.013	0.0	103	0.00	9.88
23		carbon disulfide	1.599	1.599	0.0	105	0.00	7.10
24		methylene chloride	0.504	0.477	5.4	104	0.00	7.42
25		methyl acetate	0.054	0.059	-9.3	106	0.00	7.21
26		methyl tert butyl ether	1.128	1.131	-0.3	106	0.00	7.74
27		trans-1,2-dichloroethene	0.522	0.490	6.1	103	0.00	7.79
28		di-isopropyl ether	1.711	1.803	-5.4	109	0.00	8.32
29		ethyl tert-butyl ether	1.287	1.353	-5.1	108	0.00	8.78
30		2-butanone	0.040	0.043	-7.5	106	0.00	9.06
31		1,1-dichloroethane	0.895	0.884	1.2	104	0.00	8.35
32		chloroprene	0.745	0.811	-8.9	108	0.00	8.46
33		acrylonitrile	0.114	0.125	-9.6	107	0.00	7.75
34		vinyl acetate	0.076	0.077	-1.3	101	0.00	8.33
35		ethyl acetate	0.050	0.052	-4.0	107	0.00	9.07
36		2,2-dichloropropane	0.745	0.743	0.3	106	0.00	9.09
37		cis-1,2-dichloroethene	0.557	0.527	5.4	104	0.00	9.09
38		propionitrile	0.045	0.047	-4.4	104	0.00	9.16
39		Methyl Acrylate	0.048	0.051	-6.2	101	0.00	9.14
40		bromochloromethane	0.217	0.220	-1.4	102	0.00	9.40
41		tetrahydrofuran	0.135	0.130	3.7	105	0.00	9.44

Initial Calibration Verification

Job Number: JB39339 **Sample:** V3C4359-ICV4359
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3C98243.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

42		chloroform	0.846	0.812	4.0	102	0.00	9.46
43		tert-Butyl Formate	0.314	0.340	-8.3	112	0.00	9.48
44	S	dibromofluoromethane (s)	0.437	0.440	-0.7	108	0.00	9.66
45	S	1,2-dichloroethane-d4 (s)	0.440	0.451	-2.5	108	0.00	10.08
46		freon 113	0.360	0.367	-1.9	103	0.00	6.66
47		methacrylonitrile	0.210	0.211	-0.5	102	0.00	9.34
48		1,1,1-trichloroethane	0.748	0.749	-0.1	103	0.00	9.71
49		Cyclohexane	0.807	0.797	1.2	104	0.00	9.78
50		Tert Amyl Alcohol	0.048	0.049	-2.1	99	0.00	10.01
51		2,2,4-trimethylpentane	2.065	2.074	-0.4	108	0.00	10.13
52		tert-amyl methyl ether	1.193	1.215	-1.8	112	0.00	10.16
53	I	1,4-difluorobenzene	1.000	1.000	0.0	105	0.00	10.52
54		epichlorohydrin	0.024	0.027	-12.5	113	0.00	11.77
55		n-butyl alcohol	0.008	0.009	-12.5	107	0.00	10.64
56		carbon tetrachloride	0.468	0.466	0.4	102	0.00	9.91
57		1,1-dichloropropene	0.489	0.489	0.0	103	0.00	9.88
58		hexane	0.539	0.604	-12.1	125	0.00	8.08
59		benzene	1.483	1.420	4.2	102	0.00	10.15
60		heptane	0.304	0.309	-1.6	104	0.00	10.31
61		isopropyl acetate	0.509	0.579	-13.8	112	0.00	10.06
62		1,2-dichloroethane	0.370	0.369	0.3	101	0.00	10.16
63		trichloroethene	0.347	0.342	1.4	102	0.00	10.86
64		ethyl acrylate	0.325	0.339	-4.3	103	0.00	10.85
65		Tert-Amyl ethyl ether	0.455	0.471	-2.6	107	0.00	11.01
66		2-nitropropane	0.087	0.086	1.1	104	0.00	11.63
67		2-chloroethyl vinyl ether	0.118	0.136	-15.3	111	0.00	11.64
68		methyl methacrylate	0.065	0.071	-9.2	102	0.00	11.12
69		1,2-dichloropropane	0.352	0.349	0.9	103	0.00	11.13
70		methylcyclohexane	0.629	0.718	-14.1	117	0.00	11.07
71		dibromomethane	0.160	0.161	-0.6	103	0.00	11.29
72		bromodichloromethane	0.411	0.416	-1.2	102	0.00	11.41
73		cis-1,3-dichloropropene	0.527	0.532	-0.9	104	0.00	11.86
74	S	toluene-d8 (s)	1.249	1.266	-1.4	108	0.00	12.15
75		4-methyl-2-pentanone	0.096	0.101	-5.2	107	0.00	11.95
76		toluene	0.863	0.862	0.1	104	0.00	12.22
77		3-methyl-1-butanol	0.007	0.008	-14.3	107	0.00	11.97
78		trans-1,3-dichloropropene	0.436	0.446	-2.3	104	0.00	12.41
79		ethyl methacrylate	0.336	0.359	-6.8	104	0.00	12.40
80		1,1,2-trichloroethane	0.195	0.201	-3.1	104	0.00	12.63
81		2-hexanone	0.081	0.089	-9.9	106	0.00	12.79
82	I	chlorobenzene-d5	1.000	1.000	0.0	105	0.00	13.64
83		tetrachloroethene	0.490	0.495	-1.0	103	0.00	12.80
84		1,3-dichloropropane	0.529	0.532	-0.6	102	0.00	12.81
85		butyl acetate	0.213	0.220	-3.3	103	0.00	12.86
86		dibromochloromethane	0.361	0.365	-1.1	102	0.00	13.07
87		1,2-dibromoethane	0.284	0.291	-2.5	102	0.00	13.22
88		3,3-Dimethyl-1-Butanol	0.032	0.034	-6.3	103	0.00	12.96
89		chlorobenzene	1.142	1.131	1.0	102	0.00	13.67
90		1,1,1,2-tetrachloroethane	0.416	0.425	-2.2	104	0.00	13.73
91		ethylbenzene	2.058	2.038	1.0	104	0.00	13.72
92		m,p-xylene	0.785	0.782	0.4	103	0.00	13.83
93		o-xylene	0.770	0.769	0.1	103	0.00	14.24
94		styrene	1.247	1.246	0.1	103	0.00	14.25
95		BUTYL ACRYLATE	0.645	0.662	-2.6	103	0.00	14.06
96		bromoform	0.226	0.237	-4.9	105	0.00	14.52
97	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	105	0.00	15.93
98		isopropylbenzene	4.197	4.102	2.3	104	0.00	14.57

Initial Calibration Verification

Job Number: JB39339 **Sample:** V3C4359-ICV4359
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3C98243.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

99	S	4-bromofluorobenzene (s)	1.121	1.140	-1.7	111	0.00	14.78
100		bromobenzene	0.960	0.929	3.2	103	0.00	14.98
101		cyclohexanone	0.043	0.096	-123.3#	212#	0.00	14.75
102		1,1,2,2-tetrachloroethane	0.770	0.760	1.3	103	0.00	14.88
103		trans-1,4-dichloro-2-bute	0.209	0.203	2.9	104	0.00	14.92
104		1,2,3-trichloropropane	0.202	0.204	-1.0	103	0.00	14.96
105		n-propylbenzene	4.812	4.676	2.8	104	0.00	14.98
106		4-Ethyltoluene	4.057	4.044	0.3	107	0.00	15.08
107		2-chlorotoluene	0.980	0.953	2.8	104	0.00	15.13
108		4-chlorotoluene	0.986	0.954	3.2	104	0.00	15.23
109		1,3,5-trimethylbenzene	3.515	3.376	4.0	104	0.00	15.13
110		tert-butylbenzene	3.061	2.979	2.7	104	0.00	15.47
111		pentachloroethane	0.623	0.627	-0.6	106	0.00	15.56
112		1,2,4-trimethylbenzene	3.483	3.336	4.2	103	0.00	15.52
113		sec-butylbenzene	4.543	4.446	2.1	104	0.00	15.68
114		1,3-dichlorobenzene	1.849	1.814	1.9	104	0.00	15.88
115		p-isopropyltoluene	3.771	3.660	2.9	104	0.00	15.80
116		1,4-dichlorobenzene	1.888	1.808	4.2	105	0.00	15.96
117		1,2-dichlorobenzene	1.743	1.689	3.1	104	0.00	16.35
118		1,4-Diethylbenzene	2.311	2.349	-1.6	109	0.00	16.18
119		n-butylbenzene	1.965	1.943	1.1	105	0.00	16.21
120		1,2,4,5-Tetramethylbenzen	3.655	3.766	-3.0	108	0.00	16.96
121		1,2-dibromo-3-chloropropa	0.138	0.136	1.4	108	0.00	17.12
122		1,3,5-Trichlorobenzene	1.469	1.508	-2.7	107	0.00	17.30
123		1,2,4-trichlorobenzene	1.139	1.213	-6.5	106	0.00	17.93
124		hexachlorobutadiene	0.815	0.794	2.6	105	0.00	18.04
125		naphthalene	2.111	2.162	-2.4	103	0.00	18.21
126		1,2,3-trichlorobenzene	0.990	1.038	-4.8	105	0.00	18.46
127		hexachloroethane	0.728	0.697	4.3	102	0.00	16.60
128		Benzyl chloride	1.546	1.764	-14.1	124	0.00	16.07

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3C98238.D M3C4359.M Mon May 13 18:02:41 2013 MS3C

6.7.2 6

Continuing Calibration Summary

Job Number: JB39339 **Sample:** V3C4427-CC4359
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3C99644.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\3C\v3c4427-28\3C99644.D Vial: 2
Acq On : 13 Jun 2013 7:31 am Operator: prashans
Sample : CC4359-20 Inst : MS3C
Misc : MS49639,V3C4427,5.0,,,,1 Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3C4359.M (RTE Integrator)
Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
Last Update : Mon Sep 13 11:48:20 2010
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	117	0.00	7.37
2		1,4-dioxane	0.127	0.118	7.1	104	-0.01	11.22
3		tertiary butyl alcohol	2.048	1.829	10.7	96	0.00	7.49
4		Ethanol		----------NA----------				
5	I	pentafluorobenzene	1.000	1.000	0.0	109	-0.01	9.59
6		chlorodifluoromethane	0.519	0.451	13.1	97	0.00	3.99
7		dichlorodifluoromethane	0.737	0.864	-17.2	123	0.01	3.97
8		chloromethane	0.732	0.832	-13.7	125	0.00	4.32
9		vinyl chloride	0.866	0.879	-1.5	112	0.00	4.57
10		bromomethane	0.414	0.483	-16.7	129	0.00	5.24
11		chloroethane	0.402	0.415	-3.2	113	0.00	5.42
12		Vinyl Bromide		----------NA----------				
13		Pentane		----------NA----------				
14		trichlorofluoromethane	0.837	1.068	-27.6#	136	0.00	5.84
15		ethyl ether	0.266	0.229	13.9	96	-0.01	6.26
16		acrolein	0.067	0.057	14.9	94	0.00	6.53
17		1,1-dichloroethene	0.463	0.429	7.3	108	0.00	6.70
18		acetone	0.028	0.025	10.7	92	0.00	6.75
19		allyl chloride	0.287	0.263	8.4	102	0.00	7.23
20		acetonitrile	0.032	0.033	-3.1	120	0.00	7.21
21		iodomethane	0.745	0.766	-2.8	113	0.00	6.98
22		iso-butyl alcohol	0.013	0.010	23.1#	82	0.00	9.88
23		carbon disulfide	1.599	1.545	3.4	107	0.00	7.10
24		methylene chloride	0.504	0.557	-10.5	126	0.00	7.41
25		methyl acetate	0.054	0.049	9.3	98	0.00	7.21
26		methyl tert butyl ether	1.128	1.125	0.3	114	0.00	7.74
27		trans-1,2-dichloroethene	0.522	0.487	6.7	110	0.00	7.78
28		di-isopropyl ether	1.711	1.403	18.0	88	0.00	8.32
29		ethyl tert-butyl ether	1.287	1.251	2.8	104	0.00	8.78
30		2-butanone	0.040	0.035	12.5	102	0.00	9.06
31		1,1-dichloroethane	0.895	0.832	7.0	105	0.00	8.35
32		chloroprene	0.745	0.711	4.6	99	-0.01	8.45
33		acrylonitrile	0.114	0.098	14.0	92	0.00	7.74
34		vinyl acetate	0.076	0.063	17.1	93	0.00	8.33
35		ethyl acetate	0.050	0.036	28.0#	82	0.00	9.06
36		2,2-dichloropropane	0.745	0.672	9.8	103	0.00	9.09
37		cis-1,2-dichloroethene	0.557	0.526	5.6	109	0.00	9.09
38		propionitrile	0.045	0.039	13.3	94	0.00	9.15
39		Methyl Acrylate	0.048	0.038	20.8#	90	-0.01	9.14
40		bromochloromethane	0.217	0.217	0.0	107	0.00	9.40
41		tetrahydrofuran	0.135	0.102	24.4#	88	-0.01	9.43

Continuing Calibration Summary

Job Number: JB39339 **Sample:** V3C4427-CC4359
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3C99644.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

42		chloroform	0.846	0.822	2.8	110	0.00	9.45
43		tert-Butyl Formate	0.314	0.312	0.6	107	0.00	9.48
44	S	dibromofluoromethane (s)	0.437	0.375	14.2	96	-0.01	9.65
45	S	1,2-dichloroethane-d4 (s)	0.440	0.396	10.0	101	0.00	10.07
46		freon 113	0.360	0.348	3.3	103	0.00	6.66
47		methacrylonitrile	0.210	0.166	21.0#	89	0.00	9.33
48		1,1,1-trichloroethane	0.748	0.788	-5.3	116	-0.01	9.70
49		Cyclohexane	0.807	0.798	1.1	111	0.00	9.77
50		Tert Amyl Alcohol		----------NA----------				
51		2,2,4-trimethylpentane	2.065	1.705	17.4	94	0.00	10.13
52		tert-amyl methyl ether	1.193	1.163	2.5	108	0.00	10.16
53	I	1,4-difluorobenzene	1.000	1.000	0.0	108	0.00	10.51
54		epichlorohydrin	0.024	0.019	20.8#	89	0.00	11.76
55		n-butyl alcohol	0.008	0.006	25.0#	90	0.00	10.63
56		carbon tetrachloride	0.468	0.505	-7.9	118	0.00	9.90
57		1,1-dichloropropene	0.489	0.469	4.1	105	0.00	9.88
58		hexane	0.539	0.393	27.1#	84	0.00	8.08
59		benzene	1.483	1.339	9.7	103	-0.01	10.14
60		heptane	0.304	0.230	24.3#	82	0.00	10.30
61		isopropyl acetate	0.509	0.856	-68.2#	177	0.00	10.05
62		1,2-dichloroethane	0.370	0.385	-4.1	111	0.00	10.16
63		trichloroethene	0.347	0.340	2.0	110	-0.01	10.85
64		ethyl acrylate		----------NA----------				
65		Tert-Amyl ethyl ether		----------NA----------				
66		2-nitropropane	0.087	0.080	8.0	106	0.00	11.63
67		2-chloroethyl vinyl ether	0.118	0.108	8.5	96	0.00	11.63
68		methyl methacrylate	0.065	0.065	0.0	107	0.00	11.11
69		1,2-dichloropropane	0.352	0.308	12.5	97	-0.01	11.12
70		methylcyclohexane	0.629	0.609	3.2	102	0.00	11.07
71		dibromomethane	0.160	0.154	3.8	106	0.00	11.28
72		bromodichloromethane	0.411	0.408	0.7	108	0.00	11.40
73		cis-1,3-dichloropropene	0.527	0.488	7.4	102	0.00	11.85
74	S	toluene-d8 (s)	1.249	1.103	11.7	98	0.00	12.14
75		4-methyl-2-pentanone	0.096	0.082	14.6	95	0.00	11.94
76		toluene	0.863	0.850	1.5	109	0.00	12.21
77		3-methyl-1-butanol	0.007	0.006	14.3	94	0.00	11.96
78		trans-1,3-dichloropropene	0.436	0.428	1.8	108	0.00	12.41
79		ethyl methacrylate	0.336	0.298	11.3	94	0.00	12.39
80		1,1,2-trichloroethane	0.195	0.180	7.7	102	0.00	12.62
81		2-hexanone	0.081	0.076	6.2	103	0.00	12.79
82	I	chlorobenzene-d5	1.000	1.000	0.0	110	-0.01	13.63
83		tetrachloroethene	0.490	0.479	2.2	109	0.00	12.79
84		1,3-dichloropropane	0.529	0.482	8.9	102	0.00	12.80
85		butyl acetate	0.213	0.174	18.3	89	0.00	12.85
86		dibromochloromethane	0.361	0.356	1.4	113	0.00	13.07
87		1,2-dibromoethane	0.284	0.276	2.8	107	0.00	13.21
88		3,3-Dimethyl-1-Butanol	0.032	0.026	18.8	88	0.00	12.96
89		chlorobenzene	1.142	1.106	3.2	108	-0.01	13.66
90		1,1,1,2-tetrachloroethane	0.416	0.415	0.2	111	0.00	13.73
91		ethylbenzene	2.058	1.993	3.2	109	0.00	13.72
92		m,p-xylene	0.785	0.753	4.1	109	0.00	13.82
93		o-xylene	0.770	0.733	4.8	108	0.00	14.23
94		styrene	1.247	1.141	8.5	103	0.00	14.24
95		BUTYL ACRYLATE		----------NA----------				
96		bromoform	0.226	0.214	5.3	107	0.00	14.52
97	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	108	0.00	15.93
98		isopropylbenzene	4.197	4.247	-1.2	111	0.00	14.57

Continuing Calibration Summary

Job Number: JB39339 **Sample:** V3C4427-CC4359
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3C99644.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

99	S	4-bromofluorobenzene (s)	1.121	0.971	13.4	94	0.00	14.78
100		bromobenzene	0.960	0.935	2.6	106	0.00	14.97
101		cyclohexanone	0.043	0.018	58.1#	49#	0.00	14.74
102		1,1,2,2-tetrachloroethane	0.770	0.691	10.3	101	0.00	14.88
103		trans-1,4-dichloro-2-bute	0.209	0.171	18.2	96	0.00	14.92
104		1,2,3-trichloropropane	0.202	0.200	1.0	108	0.00	14.95
105		n-propylbenzene	4.812	4.705	2.2	108	0.00	14.98
106		4-Ethyltoluene		----------NA----------				
107		2-chlorotoluene	0.980	0.950	3.1	108	0.00	15.12
108		4-chlorotoluene	0.986	0.940	4.7	109	0.00	15.22
109		1,3,5-trimethylbenzene	3.515	3.517	-0.1	112	0.00	15.12
110		tert-butylbenzene	3.061	3.534	-15.5	129	0.00	15.47
111		pentachloroethane	0.623	0.632	-1.4	112	0.00	15.56
112		1,2,4-trimethylbenzene	3.483	3.426	1.6	110	0.00	15.51
113		sec-butylbenzene	4.543	4.508	0.8	111	0.00	15.68
114		1,3-dichlorobenzene	1.849	1.815	1.8	108	0.00	15.87
115		p-isopropyltoluene	3.771	3.698	1.9	111	0.00	15.80
116		1,4-dichlorobenzene	1.888	1.781	5.7	107	0.00	15.95
117		1,2-dichlorobenzene	1.743	1.662	4.6	106	0.00	16.34
118		1,4-Diethylbenzene		----------NA----------				
119		n-butylbenzene	1.965	1.794	8.7	102	0.00	16.21
120		1,2,4,5-Tetramethylbenzen		----------NA----------				
121		1,2-dibromo-3-chloropropa	0.138	0.129	6.5	106	0.00	17.11
122		1,3,5-Trichlorobenzene	1.469	1.458	0.7	111	0.00	17.29
123		1,2,4-trichlorobenzene	1.139	1.111	2.5	107	0.00	17.93
124		hexachlorobutadiene	0.815	0.822	-0.9	109	0.00	18.04
125		naphthalene	2.111	1.935	8.3	103	0.00	18.20
126		1,2,3-trichlorobenzene	0.990	0.974	1.6	105	0.00	18.45
127		hexachloroethane	0.728	0.721	1.0	112	0.00	16.60
128		Benzyl chloride	1.546	1.147	25.8#	83	0.00	16.07

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3C98237.D M3C4359.M Fri Jun 14 10:27:12 2013 ACCNJ

6.7.3

6

Initial Calibration Summary

Job Number: JB39339 **Sample:** VD8524-ICC8524
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D208875.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Response Factor Report MSD

```
Method       : C:\MSDCHEM\1\METHODS\MD8524.M (RTE Integrator)
Title        : SW-846 Method 8260B
Last Update  : Wed May 15 14:00:07 2013
Response via : Initial Calibration

Calibration Files
5   =d208872.D   2   =d208871.D   0.5 =d208869.D   50  =d208875.D
100 =d208876.D   1   =d208870.D   200 =d208877.D   20  =d208874.D
10  =d208873.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	0.079			0.082	0.094		0.102	0.079	0.088	0.087	10.83
3) tertiary butyl alcohol	1.146	1.222		1.195	1.214	0.998	1.079	1.175	1.309	1.167	8.11
4) I pentafluorobenzene ----------ISTD----------											
5) 1,2-dichloro-1,2,2-trifluoroet										0.000#	-1.00
6) chlorodifluoromethane	0.378	0.410		0.429	0.417	0.334	0.407	0.391	0.372	0.392	7.76
7) dichlorodifluoromethane	0.474	0.506		0.550	0.559		0.546	0.505	0.515	0.522	5.86
8) chloromethane	0.430	0.460	0.396	0.458	0.483	0.456	0.505	0.430	0.434	0.450	7.12
9) vinyl chloride	0.479	0.536	0.570	0.585	0.613	0.458	0.660	0.522	0.513	0.548	11.83
10) bromomethane	0.263	0.257	0.290	0.311	0.319	0.270	0.345	0.285	0.292	0.293	9.76
11) chloroethane	0.233	0.239	0.247	0.265	0.270	0.179	0.283	0.240	0.258	0.246	12.15
12) vinyl bromide										0.000#	-1.00
13) trichlorofluoromethane	0.466	0.574		0.655	0.656		0.683	0.606	0.577	0.602	12.15
14) pentane	0.600	0.754		0.601		0.708	0.598	0.642	0.600	0.643	9.88
15) ethyl ether	0.248	0.260		0.259	0.244	0.264	0.243	0.237	0.237	0.249	4.26
16) acrolein	0.091	0.095		0.091	0.093	0.089	0.104	0.085	0.084	0.091	6.66
17) chlorotrifluoroethene										0.000#	-1.00
18) 2-chloropropane	0.705	0.586		0.711	0.667	0.853	0.657	0.668	0.687	0.692	10.93
19) 1,1-dichloroethene	0.383	0.337	0.428	0.388	0.361	0.336	0.361	0.358	0.371	0.369	7.65
20) acetone	0.034			0.044	0.039		0.037	0.037	0.045	0.039	11.03
21) allyl chloride	0.760			0.751	0.681		0.784	0.709	0.657	0.724	6.83
22) acetonitrile	0.024	0.033		0.025	0.024		0.022	0.025	0.027	0.026	13.54
23) acetaldehyde											

Initial Calibration Summary

Job Number: JB39339 **Sample:** VD8524-ICC8524
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D208875.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
                                                                    0.000#  -1.00
24)  iodomethane
           0.707 0.591       0.782 0.750 0.540 0.733 0.703 0.720   0.691   11.93
25)  iso-butyl alcohol
                                                                    0.000#  -1.00
26)  carbon disulfide
           1.216 1.041       1.297 1.217 0.996 1.185 1.212 1.210   1.172    8.59
27)  methylene chloride
           0.387 0.403       0.446 0.408 0.399 0.398 0.398 0.434   0.409    4.97
28)  1-chloropropane
           0.669 0.553       0.726 0.680 0.615 0.653 0.682 0.674   0.657    7.92
29)  methyl acetate
           0.343 0.371       0.344 0.324 0.415 0.314 0.316 0.338   0.346    9.71
30)  methyl tert butyl ether
           1.330 1.127 1.108 1.435 1.336 0.973 1.315 1.323 1.380   1.259   12.10
31)  trans-1,2-dichloroethene
           0.455 0.446       0.441 0.404 0.376 0.419 0.411 0.422   0.422    6.07
32)  di-isopropyl ether
           1.327 1.141 1.017 1.366 1.336 1.054 1.337 1.251 1.259   1.232   10.60
33)  ethyl tert-butyl ether
           1.310 1.197 1.033 1.415 1.380 1.106 1.377 1.302 1.352   1.275   10.47
34)  2-butanone
           0.035             0.058 0.055       0.055 0.049 0.045   0.049   17.17
            ----- Linear regression -----  Coefficient =  0.9996
              Response Ratio = -0.00128 + 0.05545 *A

35)  1,1-dichloroethane
           0.704 0.580       0.755 0.735 0.565 0.772 0.710 0.697   0.690   11.16
36)  chloroprene
           0.586 0.557       0.645 0.629 0.478 0.627 0.575 0.556   0.582    9.29
37)  acrylonitrile
           0.142 0.131       0.171 0.160 0.112 0.157 0.152 0.151   0.147   12.68
38)  vinyl acetate
           0.078             0.098 0.092       0.094 0.085 0.086   0.089    7.96
39)  ethyl acetate
           0.061 0.064       0.070 0.064       0.070 0.055 0.060   0.063    8.62
40)  2,2-dichloropropane
           0.650 0.537       0.655 0.636 0.520 0.623 0.611 0.590   0.603    8.39
41)  cis-1,2-dichloroethene
           0.473 0.322 0.478 0.464 0.460 0.474 0.466 0.435 0.442   0.446   10.94
42)  propionitrile
           0.058 0.049       0.066 0.065       0.066 0.059 0.058   0.060   10.01
43)  bromochloromethane
           0.214 0.198       0.243 0.242       0.232 0.218 0.231   0.225    7.25
44)  tetrahydrofuran
           0.055 0.062       0.061 0.062       0.059 0.055 0.052   0.058    6.79
45)  chloroform
           0.710 0.607 0.563 0.751 0.735 0.626 0.703 0.692 0.707   0.677    9.39
46)  dibromofluoromethane (s)
           0.367 0.333       0.397 0.394 0.394 0.377 0.379 0.348   0.373    6.16
47)  1,2-dichloroethane-d4 (s)
           0.474 0.398       0.504 0.478 0.424 0.461 0.495 0.473   0.464    7.68
48)  freon 113
           0.251 0.233       0.306 0.303       0.279 0.279 0.242   0.270   10.74
49)  methacrylonitrile
           0.270 0.243       0.274 0.270 0.238 0.257 0.256 0.272   0.260    5.35
50)  t-butyl formate
           0.396 0.333       0.446 0.438 0.295 0.414 0.390 0.388   0.387   13.19
51)  1,1,1-trichloroethane
           0.653 0.539 0.546 0.684 0.688 0.518 0.645 0.630 0.644   0.616   10.47
```

Initial Calibration Summary

Job Number: JB39339 **Sample:** VD8524-ICC8524
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D208875.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
52)  tert-amyl methyl ether
           1.372 1.163 1.244 1.434 1.391 1.109 1.352 1.311 1.354   1.303    8.38

53) I   1,4-difluorobenzene   ----------------ISTD--------------------
54)  cyclohexane
           0.404 0.372       0.465 0.475 0.325 0.438 0.431 0.433   0.418   11.86
55)  tert amyl alcohol
           0.012             0.014 0.013       0.012 0.012 0.014   0.013    8.58
56)  2,2,4-trimethylpentane
           0.910 0.856       1.068 1.102 0.941 0.973 0.906 0.826   0.948   10.19
57)  epichlorohydrin
           0.032             0.036 0.035 0.024 0.034 0.033 0.033   0.032   12.44
58)  n-butyl alcohol
           0.009 0.008       0.010 0.010       0.010 0.009 0.009   0.009#   8.33
59)  carbon tetrachloride
           0.416 0.349       0.473 0.461 0.325 0.436 0.426 0.412   0.412   12.42
60)  1,1-dichloropropene
           0.416 0.353 0.277 0.431 0.423 0.303 0.410 0.398 0.383   0.377   14.55
61)  hexane
           0.344 0.335 0.334 0.368 0.377 0.391 0.336 0.323 0.286   0.344    9.17
62)  benzene
           1.174 1.001 0.807 1.242 1.209 1.198 1.185 1.141 1.129   1.121   12.17
63)  heptane
           0.203 0.184       0.211 0.218 0.171 0.193 0.194 0.176   0.194    8.60
64)  isopropyl acetate
           0.569 0.587 0.621 0.629 0.615 0.545 0.584 0.589 0.600   0.593    4.47
65)  1,2-dichloroethane
           0.432 0.351       0.468 0.449 0.325 0.431 0.431 0.432   0.415   11.97
66)  Ethyl Acrylate
           0.389 0.323       0.435 0.416 0.280 0.416 0.405 0.399   0.383   13.96
67)  trichloroethene
           0.294 0.255 0.226 0.314 0.309 0.239 0.301 0.286 0.299   0.280   11.48
68)  2-nitropropane
           0.615 0.448       0.646 0.623       0.655 0.553 0.527   0.581   12.93
69)  2-chloroethyl vinyl ether
           0.143 0.121       0.153 0.154       0.163 0.136 0.130   0.143   10.30
70)  methyl methacrylate
           0.085 0.066       0.103 0.103       0.097 0.090 0.089   0.090   14.30
71)  tert-amyl ethyl ether
           0.493 0.442 0.445 0.555 0.527 0.461 0.530 0.504 0.506   0.496    7.97
72)  1,2-dichloropropane
           0.301 0.227 0.232 0.321 0.313 0.230 0.302 0.285 0.285   0.277   13.51
73)  methylcyclohexane
           0.468 0.419       0.528 0.541 0.437 0.480 0.466 0.426   0.470    9.50
74)  dibromomethane
           0.180 0.148       0.202 0.195 0.133 0.188 0.184 0.184   0.177   13.49
75)  bromodichloromethane
           0.406 0.345       0.443 0.428 0.305 0.428 0.403 0.407   0.396   11.82
76)  cis-1,3-dichloropropene
           0.517 0.431       0.563 0.532 0.389 0.521 0.503 0.518   0.497   11.56
77)  toluene-d8 (s)
           1.029 0.945       1.126 1.080 0.971 1.056 1.047 1.022   1.034    5.58
78)  4-methyl-2-pentanone
           0.111             0.141 0.128       0.129 0.126 0.122   0.126    7.62
79)  toluene
           0.768 0.646 0.529 0.833 0.782 0.645 0.763 0.752 0.754   0.719   13.09
80)  3-methyl-1-butanol
           0.007 0.006       0.011 0.011       0.011 0.009 0.009   0.009#  19.22
            ----- Linear regression -----  Coefficient =  0.9997
              Response Ratio = -0.00512 + 0.01061 *A
```

6.7.4

6

Initial Calibration Summary

Job Number: JB39339 **Sample:** VD8524-ICC8524
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D208875.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
 81)  trans-1,3-dichloropropene
            0.474 0.355       0.540 0.509 0.368 0.498 0.470 0.478   0.462   14.23
 82)  ethyl methacrylate
            0.413 0.324       0.479 0.446       0.441 0.415 0.440   0.423   11.51
 83)  1,1,2-trichloroethane
            0.220 0.179       0.243 0.228 0.175 0.225 0.219 0.215   0.213   11.20
 84)  2-hexanone
            0.093             0.122 0.117       0.118 0.101 0.128   0.113   11.63

 85) I   chlorobenzene-d5      ----------------ISTD---------------------
 86)  tetrachloroethene
            0.424 0.361 0.320 0.459 0.437 0.333 0.436 0.433 0.437   0.405   12.77
 87)  1,3-dichloropropane
            0.499 0.431       0.578 0.545 0.378 0.539 0.527 0.549   0.506   13.39
 88)  butyl acetate
            0.199             0.240 0.232       0.234 0.212 0.215   0.222    7.09
 89)  3,3-dimethyl-1-butanol
            0.033 0.033       0.038 0.040       0.042 0.033 0.032   0.036   11.67
 90)  dibromochloromethane
            0.358 0.305       0.429 0.411 0.305 0.410 0.386 0.398   0.375   12.76
 91)  1,2-dibromoethane
            0.305 0.236       0.354 0.335       0.332 0.317 0.336   0.316   12.21
 92)  chlorobenzene
            0.936 0.836       1.049 1.020 0.694 0.984 0.961 0.964   0.930   12.30
 93)  1,1,1,2-tetrachloroethane
            0.350 0.316       0.409 0.402 0.311 0.389 0.377 0.381   0.367   10.19
 94)  ethylbenzene
            1.489 1.317 1.199 1.683 1.662 1.323 1.615 1.573 1.565   1.492   11.55
 95)  m,p-xylene
            0.617 0.551 0.467 0.709 0.695 0.516 0.677 0.658 0.668   0.617   13.97
 96)  o-xylene
            0.620 0.530 0.477 0.706 0.686 0.501 0.692 0.648 0.645   0.612   14.22
 97)  styrene
            1.004 0.921       1.197 1.164 0.845 1.186 1.069 1.092   1.060   12.10
 98)  bromoform
            0.290 0.262       0.347 0.336       0.332 0.311 0.322   0.314    9.44

 99) I   1,4-dichlorobenzene-d ----------------ISTD---------------------
100)  isopropylbenzene
            2.816 2.436 2.430 2.897 2.751 2.515 2.652 2.740 2.773   2.668    6.38
101)  4-bromofluorobenzene (s)
            0.693 0.726       0.779 0.761 0.673 0.736 0.763 0.759   0.736    5.07
102)  bromobenzene
            0.777 0.639 0.609 0.828 0.790 0.627 0.789 0.778 0.799   0.737   11.64
103)  cyclohexanone
            0.053 0.068       0.046 0.071       0.063 0.073 0.085   0.066   19.70
        ----- Quadratic regression -----                Coefficient =  0.9894
            Response Ratio = -0.01071 + 0.06723 *A + -0.00009 *A^2

104)  1,1,2,2-tetrachloroethane
            0.756 0.694 0.647 0.765 0.721 0.728 0.690 0.709 0.766   0.719    5.48
105)  trans-1,4-dichloro-2-butene
            0.176 0.131       0.205 0.208       0.204 0.187 0.190   0.186   14.35
106)  1,2,3-trichloropropane
            0.219 0.200       0.234 0.224 0.188 0.219 0.220 0.238   0.218    7.68
107)  n-propylbenzene
            3.035 2.724 2.407 3.197 3.071 2.547 3.077 3.066 3.006   2.903    9.47
108)  p-ethyltoluene
            2.536 2.376       2.772 2.633 2.269 2.734 2.667 2.572   2.570    6.74
```

Initial Calibration Summary

Job Number: JB39339 **Sample:** VD8524-ICC8524
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D208875.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
109)  2-chlorotoluene
            0.658 0.614       0.733 0.704 0.581 0.685 0.685 0.673   0.667    7.33
110)  4-chlorotoluene
            1.978 1.928       2.087 1.984 1.912 1.951 1.994 1.966   1.975    2.70
111)  1,3,5-trimethylbenzene
            2.568 2.259 2.972 2.549 2.477 2.378 2.340 2.426 2.482   2.495    8.20
112)  tert-butylbenzene
            2.179 1.950 1.803 2.316 2.245 1.913 2.182 2.209 2.161   2.106    8.25
113)  pentachloroethane
            0.529 0.512 0.536 0.579 0.562 0.466 0.550 0.530 0.540   0.534    6.05
114)  1,2,4-trimethylbenzene
            2.467 2.265 2.122 2.584 2.511 2.254 2.430 2.433 2.434   2.389    6.10
115)  sec-butylbenzene
            3.102 2.787 2.485 3.179 3.114 2.699 3.002 3.001 2.953   2.925    7.73
116)  1,3-dichlorobenzene
            1.397 1.306 1.186 1.547 1.497 1.274 1.439 1.438 1.438   1.391    8.24
117)  p-isopropyltoluene
            2.645 2.432 1.970 2.804 2.763 2.251 2.628 2.611 2.565   2.519   10.51
118)  1,4-dichlorobenzene
            1.488 1.382 1.457 1.604 1.554 1.498 1.495 1.521 1.536   1.504    4.15
119)  Benzyl Chloride
            1.261 1.203       1.447 1.457 1.035 1.382 1.281 1.173   1.280   11.34
120)  p-diethylbenzene
            1.498 1.496       1.744 1.665 1.410 1.632 1.586 1.512   1.568    6.95
121)  1,2-dichlorobenzene
            1.432 1.290 1.153 1.541 1.490 1.254 1.391 1.412 1.420   1.376    8.86
122)  n-butylbenzene
            1.128 1.002       1.360 1.357 0.958 1.263 1.253 1.158   1.185   12.78
123)  1,2,4,5-tetramethylbenzene
            2.226 2.193 2.337 2.721 2.562 1.943 2.391 2.433 2.250   2.339    9.62
124)  1,2-dibromo-3-chloropropane
            0.136 0.161 0.119 0.147 0.147 0.109 0.132 0.140 0.137   0.136   11.27
125)  1,3,5-trichlorobenzene
            1.038 0.865       1.239 1.197       1.073 1.138 1.026   1.082   11.53
126)  1,2,4-trichlorobenzene
            0.680             0.984 0.972       0.913 0.830 0.735   0.852   14.79
127)  hexachlorobutadiene
            0.534 0.474       0.598 0.566 0.438 0.522 0.554 0.504   0.524    9.85
128)  naphthalene
            1.227             1.884 1.876       1.811 1.513 1.319   1.605   18.20
             ----- Linear regression -----  Coefficient =  0.9990
               Response Ratio = -0.05237 + 1.84228 *A

129)  1,2,3-trichlorobenzene
            0.560             0.792 0.794       0.764 0.674 0.588   0.695   15.00
             ----- Linear regression -----  Coefficient =  0.9991
               Response Ratio = -0.01528 + 0.77576 *A

130)  hexachloroethane
            0.509 0.491       0.536 0.531 0.559 0.499 0.502 0.475   0.513    5.33
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           MD8524.M          Wed May 15 14:01:41 2013
```

Initial Calibration Verification

Job Number: JB39339 **Sample:** VD8524-ICV8524
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D208880.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\d208880.D                    Vial: 13
Acq On    : 14 May 2013  11:31 pm                     Operator: EmilyT
Sample    : icv8524-50                                Inst    : MSD
Misc      : ms48015,vd8524,5,,100,5,1                 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\MD8524.M (RTE Integrator)
Title        : SW-846 Method 8260B
Last Update  : Wed May 15 14:00:07 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	103	0.00	7.99
2	M	1,4-dioxane	0.087	0.085	2.3	106	0.00	11.86
3	M	tertiary butyl alcohol	1.167	1.228	-5.2	106	0.00	8.11
4	I	pentafluorobenzene	1.000	1.000	0.0	104	0.00	10.22
5	M	1,2-dichloro-1,2,2-triflu		----------NA----------				
6	M	chlorodifluoromethane	0.392	0.468	-19.4	114	0.00	4.55
7	M	dichlorodifluoromethane	0.522	0.536	-2.7	102	-0.01	4.54
8	M	chloromethane	0.450	0.500	-11.1	114	0.00	4.88
9	M	vinyl chloride	0.548	0.620	-13.1	111	0.00	5.17
10	M	bromomethane	0.293	0.317	-8.2	106	0.00	5.84
11	M	chloroethane	0.246	0.272	-10.6	108	0.00	6.02
12	M	vinyl bromide		----------NA----------				
13	M	trichlorofluoromethane	0.602	0.680	-13.0	108	0.00	6.53
14		pentane	0.643	0.615	4.4	107	0.00	6.62
15	M	ethyl ether	0.249	0.263	-5.6	106	0.00	6.93
16	M	acrolein	0.091	0.093	-2.2	107	0.00	7.15
17	M	chlorotrifluoroethene		----------NA----------				
18	M	2-chloropropane	0.692	0.693	-0.1	102	0.00	7.12
19	M	1,1-dichloroethene	0.369	0.392	-6.2	106	0.00	7.36
20	M	acetone	0.039	0.040	-2.6	96	0.00	7.37
21	M	allyl chloride	0.724	0.709	2.1	99	0.00	7.87
22	M	acetonitrile	0.026	0.024	7.7	98	0.00	7.79
23	M	acetaldehyde		----------NA----------				
24	M	iodomethane	0.691	0.776	-12.3	103	0.00	7.62
25	M	iso-butyl alcohol		----------NA----------				
26	M	carbon disulfide	1.172	1.311	-11.9	106	0.00	7.76
27	M	methylene chloride	0.409	0.424	-3.7	99	0.00	8.04
28	M	1-chloropropane	0.657	0.710	-8.1	102	0.00	8.10
29	M	methyl acetate	0.346	0.322	6.9	98	0.00	7.84
30	M	methyl tert butyl ether	1.259	1.373	-9.1	100	0.00	8.40
31	M	trans-1,2-dichloroethene	0.422	0.425	-0.7	101	0.00	8.43
32	M	di-isopropyl ether	1.232	1.321	-7.2	101	0.00	9.00
33	M	ethyl tert-butyl ether	1.275	1.363	-6.9	100	0.00	9.46
		----------	True	Calc.	% Drift		----------	
34	M	2-butanone	50.000	48.999	2.0	96	0.00	9.67
		----------	AvgRF	CCRF	% Dev		----------	
35	M	1,1-dichloroethane	0.690	0.753	-9.1	104	0.00	8.98
36	M	chloroprene	0.582	0.599	-2.9	97	0.00	9.10
37	M	acrylonitrile	0.147	0.167	-13.6	102	0.00	8.34

Initial Calibration Verification

Job Number: JB39339 **Sample:** VD8524-ICV8524
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D208880.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

38	M	vinyl acetate	0.089	0.087	2.2	93	0.00	8.97
39	M	ethyl acetate	0.063	0.063	0.0	95	0.00	9.70
40	M	2,2-dichloropropane	0.603	0.597	1.0	95	0.00	9.73
41	M	cis-1,2-dichloroethene	0.446	0.453	-1.6	102	0.00	9.70
42	M	propionitrile	0.060	0.063	-5.0	100	0.00	9.74
43	M	bromochloromethane	0.225	0.234	-4.0	101	0.00	10.00
44	M	tetrahydrofuran	0.058	0.058	0.0	100	0.00	10.07
45	M	chloroform	0.677	0.718	-6.1	100	0.00	10.06
46	S	dibromofluoromethane (s)	0.373	0.395	-5.9	104	0.00	10.25
47	S	1,2-dichloroethane-d4 (s)	0.464	0.483	-4.1	100	0.00	10.68
48	M	freon 113	0.270	0.275	-1.9	94	0.00	7.35
49	M	methacrylonitrile	0.260	0.258	0.8	98	0.00	9.94
50	m	t-butyl formate	0.387	0.441	-14.0	103	0.00	10.13
51	M	1,1,1-trichloroethane	0.616	0.691	-12.2	105	0.00	10.35
52	M	tert-amyl methyl ether	1.303	1.400	-7.4	102	0.00	10.83
53	I	1,4-difluorobenzene	1.000	1.000	0.0	103	0.00	11.14
54	M	cyclohexane	0.418	0.445	-6.5	99	0.00	10.44
55		tert amyl alcohol	0.013	0.013	0.0	96	0.00	10.63
56	M	2,2,4-trimethylpentane	0.948	0.873	7.9	84	0.00	10.83
57	M	epichlorohydrin	0.032	0.035	-9.4	103	0.00	12.39
58	M	n-butyl alcohol	0.009	0.010#	-11.1	104	0.00	11.23
59	M	carbon tetrachloride	0.412	0.454	-10.2	99	0.00	10.56
60	M	1,1-dichloropropene	0.377	0.423	-12.2	101	0.00	10.52
61	M	hexane	0.344	0.320	7.0	90	0.00	8.76
62	M	benzene	1.121	1.215	-8.4	101	0.00	10.78
63	M	heptane	0.194	0.164	15.5	80	0.00	10.99
64	M	isopropyl acetate	0.593	0.583	1.7	96	0.00	10.69
65	M	1,2-dichloroethane	0.415	0.447	-7.7	98	0.00	10.77
66		Ethyl Acrylate	0.383	0.433	-13.1	103	0.00	11.48
67	M	trichloroethene	0.280	0.311	-11.1	102	0.00	11.49
68	M	2-nitropropane	0.581	0.641	-10.3	102	0.00	12.28
69	M	2-chloroethyl vinyl ether	0.143	0.153	-7.0	103	0.00	12.28
70	M	methyl methacrylate	0.090	0.101	-12.2	101	0.00	11.76
71	M	tert-amyl ethyl ether	0.496	0.545	-9.9	101	0.00	11.68
72	M	1,2-dichloropropane	0.277	0.316	-14.1	102	0.00	11.75
73	M	methylcyclohexane	0.470	0.481	-2.3	94	0.00	11.75
74	M	dibromomethane	0.177	0.192	-8.5	98	0.00	11.90
75	M	bromodichloromethane	0.396	0.439	-10.9	102	0.00	12.03
76	M	cis-1,3-dichloropropene	0.497	0.536	-7.8	98	0.00	12.51
77	S	toluene-d8 (s)	1.034	1.126	-8.9	103	0.00	12.84
78	M	4-methyl-2-pentanone	0.126	0.132	-4.8	96	0.00	12.62
79	M	toluene	0.719	0.801	-11.4	99	0.00	12.92
		----------	True	Calc.	% Drift	----------		
80	M	3-methyl-1-butanol	1000.000	995.844	0.4	98	0.00	12.62
		----------	AvgRF	CCRF	% Dev	----------		
81	M	trans-1,3-dichloropropene	0.462	0.518	-12.1	99	0.00	13.10
82	M	ethyl methacrylate	0.423	0.457	-8.0	98	0.00	13.12
83	M	1,1,2-trichloroethane	0.213	0.233	-9.4	99	0.00	13.33
84	M	2-hexanone	0.113	0.113	0.0	96	0.00	13.53
85	I	chlorobenzene-d5	1.000	1.000	0.0	102	0.00	14.48
86	M	tetrachloroethene	0.405	0.450	-11.1	100	0.00	13.56
87	M	1,3-dichloropropane	0.506	0.549	-8.5	97	0.00	13.53
88	M	butyl acetate	0.222	0.223	-0.5	95	0.00	13.62
89	m	3,3-dimethyl-1-butanol	0.036	0.036	0.0	95	0.00	13.71
90	M	dibromochloromethane	0.375	0.419	-11.7	100	0.00	13.82
91	M	1,2-dibromoethane	0.316	0.336	-6.3	97	0.00	13.99

Initial Calibration Verification

Job Number: JB39339 **Sample:** VD8524-ICV8524
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D208880.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

92	M	chlorobenzene	0.930	1.019	-9.6	99	0.00	14.51
93	M	1,1,1,2-tetrachloroethane	0.367	0.402	-9.5	100	0.00	14.58
94	M	ethylbenzene	1.492	1.642	-10.1	99	0.00	14.59
95	M	m,p-xylene	0.617	0.708	-14.7	102	0.00	14.71
96	M	o-xylene	0.612	0.685	-11.9	99	0.00	15.17
97	M	styrene	1.060	1.156	-9.1	98	0.00	15.17
98	M	bromoform	0.314	0.336	-7.0	99	0.00	15.44
99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	102	0.00	17.06
100	M	isopropylbenzene	2.668	2.813	-5.4	99	0.00	15.55
101	S	4-bromofluorobenzene (s)	0.736	0.756	-2.7	99	0.00	15.76
102	M	bromobenzene	0.737	0.793	-7.6	98	0.00	15.98
		----------	True	Calc.	% Drift	----------		
103	M	cyclohexanone	500.000	393.773	21.2#	114	0.00	15.71
		----------	AvgRF	CCRF	% Dev	----------		
104	M	1,1,2,2-tetrachloroethane	0.719	0.728	-1.3	97	0.00	15.85
105	M	trans-1,4-dichloro-2-bute	0.186	0.197	-5.9	98	0.00	15.90
106	M	1,2,3-trichloropropane	0.218	0.231	-6.0	101	0.00	15.94
107	M	n-propylbenzene	2.903	3.117	-7.4	100	0.00	16.01
108	M	p-ethyltoluene	2.570	2.785	-8.4	103	0.00	16.12
109	M	2-chlorotoluene	0.667	0.716	-7.3	100	0.00	16.17
110	M	4-chlorotoluene	1.975	1.982	-0.4	97	0.00	16.28
111	M	1,3,5-trimethylbenzene	2.495	2.526	-1.2	101	0.00	16.18
112	M	tert-butylbenzene	2.106	2.267	-7.6	100	0.00	16.57
113	M	pentachloroethane	0.534	0.552	-3.4	98	0.00	16.64
114	M	1,2,4-trimethylbenzene	2.389	2.505	-4.9	99	0.00	16.62
115	M	sec-butylbenzene	2.925	3.132	-7.1	101	0.00	16.81
116	M	1,3-dichlorobenzene	1.391	1.505	-8.2	100	0.00	17.00
117	M	p-isopropyltoluene	2.519	2.790	-10.8	102	0.00	16.94
118	M	1,4-dichlorobenzene	1.504	1.571	-4.5	100	0.00	17.09
119		Benzyl Chloride	1.280	1.315	-2.7	93	0.00	17.22
120	M	p-diethylbenzene	1.568	1.782	-13.6	105	0.00	17.37
121	M	1,2-dichlorobenzene	1.376	1.500	-9.0	100	0.00	17.53
122	M	n-butylbenzene	1.185	1.349	-13.8	102	0.00	17.40
123	M	1,2,4,5-tetramethylbenzen	2.339	2.753	-17.7	104	0.00	18.24
124	M	1,2-dibromo-3-chloropropa	0.136	0.146	-7.4	102	0.00	18.37
125	M	1,3,5-trichlorobenzene	1.082	1.240	-14.6	103	0.00	18.61
126	M	1,2,4-trichlorobenzene	0.852	0.968	-13.6	101	0.00	19.34
127	M	hexachlorobutadiene	0.524	0.611	-16.6	105	0.00	19.49
		----------	True	Calc.	% Drift	----------		
128	M	naphthalene	50.000	50.360	-0.7	98	0.00	19.65
129	M	1,2,3-trichlorobenzene	50.000	50.981	-2.0	100	0.00	19.94
		----------	AvgRF	CCRF	% Dev	----------		
130	M	hexachloroethane	0.513	0.528	-2.9	101	0.00	17.84

(#) = Out of Range SPCC's out = 0 CCC's out = 0
d208875.D MD8524.M Wed May 15 14:02:07 2013

Continuing Calibration Summary

Job Number: JB39339 **Sample:** VD8577-CC8524
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D210103.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\d210103.D                    Vial: 2
Acq On    : 17 Jun 2013  11:34 am                     Operator: EmilyT
Sample    : cc8524-20                                 Inst    : MSD
Misc      : ms49823,vd8577,5,,100,5,1                 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\MD8524.M (RTE Integrator)
Title        : SW-846 Method 8260B
Last Update  : Fri Jun 14 10:55:14 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	98	0.00	7.99
2	M	1,4-dioxane	0.087	0.069	20.7#	86	0.00	11.85
3	M	tertiary butyl alcohol	1.167	1.124	3.7	94	-0.01	8.10
4	I	pentafluorobenzene	1.000	1.000	0.0	93	0.00	10.22
5	M	1,2-dichloro-1,2,2-triflu		----------NA----------				
6	M	chlorodifluoromethane	0.392	0.362	7.7	86	-0.04	4.51
7	M	dichlorodifluoromethane	0.522	0.542	-3.8	100	-0.03	4.52
8	M	chloromethane	0.450	0.477	-6.0	103	0.00	4.89
9	M	vinyl chloride	0.548	0.536	2.2	96	0.00	5.17
10	M	bromomethane	0.293	0.309	-5.5	101	0.00	5.85
11	M	chloroethane	0.246	0.261	-6.1	101	0.00	6.04
12	M	vinyl bromide		----------NA----------				
13	M	trichlorofluoromethane	0.602	0.720	-19.6	110	-0.04	6.49
14		pentane		----------NA----------				
15	M	ethyl ether	0.249	0.211	15.3	83	0.00	6.93
16	M	acrolein	0.091	0.080	12.1	88	0.00	7.15
17	M	chlorotrifluoroethene		----------NA----------				
18	M	2-chloropropane	0.692	0.607	12.3	85	0.00	7.12
19	M	1,1-dichloroethene	0.369	0.336	8.9	87	-0.02	7.35
20	M	acetone	0.039	0.038	2.6	97	0.00	7.38
21	M	allyl chloride	0.724	0.676	6.6	89	0.00	7.87
22	M	acetonitrile	0.026	0.021	19.2	80	0.00	7.80
23	M	acetaldehyde		----------NA----------				
24	M	iodomethane	0.691	0.703	-1.7	93	0.00	7.62
25	M	iso-butyl alcohol		----------NA----------				
26	M	carbon disulfide	1.172	1.091	6.9	84	-0.01	7.75
27	M	methylene chloride	0.409	0.367	10.3	86	-0.01	8.03
28	M	1-chloropropane	0.657	0.682	-3.8	93	0.00	8.09
29	M	methyl acetate	0.346	0.298	13.9	88	0.00	7.84
30	M	methyl tert butyl ether	1.259	1.250	0.7	88	0.00	8.40
31	M	trans-1,2-dichloroethene	0.422	0.367	13.0	83	0.00	8.42
32	M	di-isopropyl ether	1.232	1.098	10.9	82	0.00	9.00
33	M	ethyl tert-butyl ether	1.275	1.197	6.1	85	0.00	9.45
		----------	True	Calc.	% Drift		----------	
34	M	2-butanone	20.000	20.293	-1.5	100	0.00	9.66
		----------	AvgRF	CCRF	% Dev		----------	
35	M	1,1-dichloroethane	0.690	0.646	6.4	85	0.00	8.98
36	M	chloroprene	0.582	0.549	5.7	89	-0.01	9.09
37	M	acrylonitrile	0.147	0.148	-0.7	91	0.00	8.33

Continuing Calibration Summary

Job Number: JB39339 **Sample:** VD8577-CC8524
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D210103.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

38	M	vinyl acetate	0.089	0.081	9.0	89	-0.01	8.96
39	M	ethyl acetate	0.063	0.050	20.6#	86	-0.01	9.69
40	M	2,2-dichloropropane	0.603	0.561	7.0	85	0.00	9.73
41	M	cis-1,2-dichloroethene	0.446	0.412	7.6	88	-0.01	9.69
42	M	propionitrile	0.060	0.060	0.0	95	0.00	9.74
43	M	bromochloromethane	0.225	0.218	3.1	93	-0.01	9.99
44	M	tetrahydrofuran	0.058	0.057	1.7	95	0.00	10.06
45	M	chloroform	0.677	0.697	-3.0	94	0.00	10.06
46	S	dibromofluoromethane (s)	0.373	0.382	-2.4	94	0.00	10.25
47	S	1,2-dichloroethane-d4 (s)	0.464	0.517	-11.4	97	0.00	10.67
48	M	freon 113	0.270	0.274	-1.5	91	-0.02	7.33
49	M	methacrylonitrile	0.260	0.246	5.4	89	0.00	9.94
50	m	t-butyl formate	0.387	0.401	-3.6	96	0.00	10.12
51	M	1,1,1-trichloroethane	0.616	0.648	-5.2	96	0.00	10.34
52	M	tert-amyl methyl ether	1.303	1.201	7.8	85	-0.01	10.82
53	I	1,4-difluorobenzene	1.000	1.000	0.0	88	0.00	11.13
54	M	cyclohexane	0.418	0.385	7.9	79	-0.01	10.44
55		tert amyl alcohol		----------NA----------				
56	M	2,2,4-trimethylpentane	0.948	0.647	31.8#	63	-0.01	10.82
57	M	epichlorohydrin	0.032	0.034	-6.3	92	0.00	12.40
58	M	n-butyl alcohol	0.009	0.010#	-11.1	100	0.00	11.23
59	M	carbon tetrachloride	0.412	0.479	-16.3	100	0.00	10.55
60	M	1,1-dichloropropene	0.377	0.400	-6.1	89	0.00	10.52
61	M	hexane	0.344	0.303	11.9	83	0.00	8.76
62	M	benzene	1.121	1.119	0.2	87	0.00	10.78
63	M	heptane	0.194	0.331	-70.6#	151	0.00	10.98
64	M	isopropyl acetate	0.593	0.578	2.5	87	0.00	10.69
65	M	1,2-dichloroethane	0.415	0.484	-16.6	99	-0.01	10.76
66		Ethyl Acrylate		----------NA----------				
67	M	trichloroethene	0.280	0.287	-2.5	89	0.00	11.49
68	M	2-nitropropane	0.581	0.654	-12.6	105	0.00	12.28
69	M	2-chloroethyl vinyl ether	0.143	0.146	-2.1	94	0.00	12.28
70	M	methyl methacrylate	0.090	0.093	-3.3	91	0.00	11.76
71	M	tert-amyl ethyl ether		----------NA----------				
72	M	1,2-dichloropropane	0.277	0.276	0.4	86	0.00	11.74
73	M	methylcyclohexane	0.470	0.424	9.8	81	0.00	11.75
74	M	dibromomethane	0.177	0.190	-7.3	92	0.00	11.89
75	M	bromodichloromethane	0.396	0.447	-12.9	98	0.00	12.02
76	M	cis-1,3-dichloropropene	0.497	0.504	-1.4	89	0.00	12.51
77	S	toluene-d8 (s)	1.034	1.132	-9.5	96	0.00	12.84
78	M	4-methyl-2-pentanone	0.126	0.129	-2.4	91	0.00	12.63
79	M	toluene	0.719	0.763	-6.1	90	0.00	12.92
		----------	True	Calc.	% Drift	----------		
80	M	3-methyl-1-butanol	400.000	372.666	6.8	90	0.00	12.62
		----------	AvgRF	CCRF	% Dev	----------		
81	M	trans-1,3-dichloropropene	0.462	0.500	-8.2	94	0.00	13.09
82	M	ethyl methacrylate	0.423	0.407	3.8	87	0.00	13.12
83	M	1,1,2-trichloroethane	0.213	0.225	-5.6	91	0.00	13.32
84	M	2-hexanone	0.113	0.107	5.3	93	0.00	13.54
85	I	chlorobenzene-d5	1.000	1.000	0.0	90	0.00	14.47
86	M	tetrachloroethene	0.405	0.436	-7.7	91	0.00	13.55
87	M	1,3-dichloropropane	0.506	0.516	-2.0	88	0.00	13.53
88	M	butyl acetate	0.222	0.203	8.6	86	0.00	13.62
89	m	3,3-dimethyl-1-butanol	0.036	0.035	2.8	96	0.00	13.72
90	M	dibromochloromethane	0.375	0.413	-10.1	97	0.00	13.81
91	M	1,2-dibromoethane	0.316	0.345	-9.2	98	0.00	13.98

Continuing Calibration Summary

Job Number: JB39339 **Sample:** VD8577-CC8524
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D210103.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

92	M	chlorobenzene	0.930	0.969	-4.2	91	0.00	14.51
93	M	1,1,1,2-tetrachloroethane	0.367	0.388	-5.7	93	0.00	14.57
94	M	ethylbenzene	1.492	1.579	-5.8	91	0.00	14.58
95	M	m,p-xylene	0.617	0.682	-10.5	94	0.00	14.70
96	M	o-xylene	0.612	0.686	-12.1	96	0.00	15.16
97	M	styrene	1.060	1.081	-2.0	91	0.00	15.17
98	M	bromoform	0.314	0.334	-6.4	97	0.00	15.43
99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	91	0.00	17.06
100	M	isopropylbenzene	2.668	2.821	-5.7	94	0.00	15.55
101	S	4-bromofluorobenzene (s)	0.736	0.779	-5.8	93	0.00	15.76
102	M	bromobenzene	0.737	0.826	-12.1	97	0.00	15.98
		----------	True	Calc.	% Drift	----------		
103	M	cyclohexanone	200.000	271.795	-35.9#	110	0.00	15.71
		----------	AvgRF	CCRF	% Dev	----------		
104	M	1,1,2,2-tetrachloroethane	0.719	0.749	-4.2	96	0.00	15.84
105	M	trans-1,4-dichloro-2-bute	0.186	0.229	-23.1#	112	0.00	15.90
106	M	1,2,3-trichloropropane	0.218	0.240	-10.1	99	0.00	15.93
107	M	n-propylbenzene	2.903	3.069	-5.7	91	0.00	16.01
108	M	p-ethyltoluene		----------NA----------				
109	M	2-chlorotoluene	0.667	0.714	-7.0	95	0.00	16.16
110	M	4-chlorotoluene	1.975	1.960	0.8	90	0.00	16.27
111	M	1,3,5-trimethylbenzene	2.495	2.415	3.2	91	0.00	16.17
112	M	tert-butylbenzene	2.106	2.200	-4.5	91	0.00	16.57
113	M	pentachloroethane	0.534	0.572	-7.1	98	0.00	16.64
114	M	1,2,4-trimethylbenzene	2.389	2.466	-3.2	92	0.00	16.61
115	M	sec-butylbenzene	2.925	3.101	-6.0	94	0.00	16.81
116	M	1,3-dichlorobenzene	1.391	1.480	-6.4	94	0.00	17.00
117	M	p-isopropyltoluene	2.519	2.690	-6.8	94	0.00	16.94
118	M	1,4-dichlorobenzene	1.504	1.566	-4.1	94	0.00	17.09
119		Benzyl Chloride	1.280	1.624	-26.9#	116	0.00	17.21
120	M	p-diethylbenzene		----------NA----------				
121	M	1,2-dichlorobenzene	1.376	1.475	-7.2	95	0.00	17.52
122	M	n-butylbenzene	1.185	1.263	-6.6	92	0.00	17.40
123	M	1,2,4,5-tetramethylbenzen		----------NA----------				
124	M	1,2-dibromo-3-chloropropa	0.136	0.161	-18.4	105	0.00	18.37
125	M	1,3,5-trichlorobenzene	1.082	1.208	-11.6	97	0.00	18.61
126	M	1,2,4-trichlorobenzene	0.852	0.946	-11.0	104	0.00	19.33
127	M	hexachlorobutadiene	0.524	0.693	-32.3#	114	0.00	19.48
		----------	True	Calc.	% Drift	----------		
128	M	naphthalene	20.000	21.550	-7.8	112	0.00	19.65
129	M	1,2,3-trichlorobenzene	20.000	21.631	-8.2	108	0.00	19.93
		----------	AvgRF	CCRF	% Dev	----------		
130	M	hexachloroethane	0.513	0.520	-1.4	95	0.00	17.83

(#) = Out of Range SPCC's out = 0 CCC's out = 0
d208874.D MD8524.M Mon Jun 17 15:49:43 2013

Initial Calibration Summary

Job Number: JB39339 **Sample:** VE8959-ICC8959
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E203875.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Response Factor Report MSE

```
Method       : C:\MSDCHEM\1\METHODS\ME8959.M (RTE Integrator)
Title        : SW846  8260B,ZB624 60m x 0.25mm x 1.4um
Last Update  : Tue Jun 04 11:33:14 2013
Response via : Initial Calibration

Calibration Files
5   =E203872.D   2   =E203871.D   20  =E203874.D   50  =E203875.D
100 =E203876.D   1   =E203880.D   200 =E203877.D   0.5 =E203869.D
10  =E203873.D       =

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

1)     Tert Butyl Alcohol-d9 ----------------ISTD---------------------
2)  1,4-dioxane
          0.086 0.090 0.103 0.096 0.096       0.107       0.094   0.096    7.60
3)  tertiary butyl alcohol
          1.328 1.292 1.376 1.278 1.256       1.354       1.258   1.306    3.64
4)  ethanol
                                                                  0.000#  -1.00

5) I   pentafluorobenzene    ----------------ISTD---------------------
6)  freon 23
                                                                  0.000#  -1.00
7)  freon 115
                                                                  0.000#  -1.00
8)  freon 143a
                                                                  0.000#  -1.00
9)  freon 152a
                                                                  0.000#  -1.00
10)  chlorotrifluoroethene
                                                                  0.000#  -1.00
11)  chlorodifluoromethane
          0.438 0.479 0.488 0.455 0.492 0.326 0.463       0.453   0.449   11.83
12)  dichlorodifluoromethane
          0.567       0.705 0.615 0.686       0.639       0.688   0.650    8.13
13)  freon 114
                                                                  0.000#  -1.00
14)  freon 142b
                                                                  0.000#  -1.00
15)  chloromethane
          0.857 1.070 0.911 0.832 0.905 0.905 0.820 1.008 0.892   0.911    8.89
16)  vinyl chloride
          0.823       0.913 0.828 0.895       0.828       0.911   0.866    5.10
17)  1,3-Butadiene
                                                                  0.000#  -1.00
18)  acetaldehyde
                                                                  0.000#  -1.00
19)  bromomethane
          0.478 0.559 0.452 0.381 0.327 0.535 0.241       0.454   0.428   24.92
        ----- Quadratic regression -----                Coefficient =  0.9996
            Response Ratio = 0.00920 + 0.41205 *A + -0.04334 *A^2

20)  chloroethane
          0.369 0.437 0.378 0.346 0.348 0.324 0.290       0.372   0.358   12.02
21)  vinyl bromide
                                                                  0.000#  -1.00
```

Initial Calibration Summary

Job Number: JB39339 **Sample:** VE8959-ICC8959
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E203875.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

22)	trichlorofluoromethane										
	0.729	0.915	0.810	0.744	0.773	0.730	0.710	0.651	0.815	0.764	9.94
23)	pentane										
	0.816	0.860	0.807	0.702	0.755	0.717	0.645	0.669	0.814	0.754	9.91
24)	ethyl ether										
	0.268	0.277	0.311	0.293	0.316	0.323	0.295	0.336	0.292	0.301	7.29
25)	freon 141b										
										0.000#	-1.00
26)	freon 123a										
										0.000#	-1.00
27)	freon 123										
										0.000#	-1.00
28)	2-chloropropane										
	0.767	0.733	0.893	0.793	0.843	0.826	0.788	0.735	0.834	0.801	6.59
29)	acrolein										
	0.104	0.100	0.115	0.104	0.074	0.106	0.096	0.113	0.111	0.103	11.93
30)	1,1-dichloroethene										
	0.423	0.404	0.485	0.426	0.462	0.378	0.418	0.322	0.475	0.421	12.07
31)	isopropyl alcohol										
										0.000#	-1.00
32)	acetone										
			0.047	0.047	0.051		0.047		0.040	0.046	8.01
33)	allyl chloride										
	0.845	0.997	1.021	0.802	0.879	1.174	0.786		0.908	0.926	14.10
34)	acetonitrile										
	0.024		0.029	0.031	0.031		0.029		0.030	0.029	9.02
35)	iodomethane										
	0.827	0.757	0.912	0.831	0.896	0.765	0.829	0.725	0.870	0.824	7.78
36)	iso-butyl alcohol										
										0.000#	-1.00
37)	carbon disulfide										
	1.441	1.460	1.648	1.471	1.516	1.474	1.418	1.612	1.595	1.515	5.47
38)	methylene chloride										
	0.512	0.482	0.554	0.504	0.539	0.544	0.493	0.488	0.534	0.517	5.21
39)	1-chloropropane										
	0.908	0.961	0.951	0.809	0.867		0.780		0.915	0.884	7.80
40)	methyl acetate										
	0.390	0.430	0.428	0.393	0.418	0.300	0.379		0.389	0.391	10.60
41)	methyl tert butyl ether										
	1.394	1.396	1.501	1.396	1.470	1.538	1.337	1.403	1.431	1.429	4.37
42)	trans-1,2-dichloroethene										
	0.451	0.461	0.510	0.454	0.478	0.464	0.432	0.374	0.505	0.459	8.85
43)	di-isopropyl ether										
	1.618	1.817	1.650	1.500	1.568	1.520	1.398	1.376	1.527	1.553	8.63
44)	ethyl tert-butyl ether										
	1.470	1.648	1.551	1.434	1.559	1.354	1.369	1.213	1.441	1.449	8.94
45)	2-butanone										
	0.038		0.066	0.066	0.070		0.065		0.061	0.061	18.86

----- Linear regression ----- Coefficient = 0.9983
Response Ratio = 0.00015 + 0.06599 *A

46)	1,1-dichloroethane										
	0.850	0.829	0.944	0.838	0.877	0.899	0.802	0.773	0.909	0.858	6.33
47)	chloroprene										
	0.640	0.685	0.707	0.634	0.678	0.517	0.616		0.652	0.641	9.14
48)	acrylonitrile										
	0.200	0.173	0.215	0.201	0.212	0.216	0.195		0.200	0.201	6.99
49)	vinyl acetate										
	0.074		0.087	0.087	0.092		0.086		0.080	0.084	7.70
50)	ethyl acetate										

Initial Calibration Summary

Job Number: JB39339 **Sample:** VE8959-ICC8959
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E203875.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
            0.063 0.057 0.077 0.072 0.075       0.068       0.069   0.069   10.13
51)  2,2-dichloropropane
            0.635 0.641 0.691 0.601 0.614 0.670 0.561 0.505 0.687   0.623    9.79
52)  cis-1,2-dichloroethene
            0.520 0.512 0.559 0.503 0.523 0.526 0.475 0.501 0.544   0.518    4.75
53)  methyl acrylate
            0.477 0.412 0.511 0.481 0.497 0.385 0.460       0.498   0.465    9.56
54)  propionitrile
            0.080 0.070 0.084 0.078 0.081 0.088 0.072       0.080   0.079    7.16
55)  bromochloromethane
            0.259 0.238 0.284 0.263 0.275 0.246 0.254       0.269   0.261    5.74
56)  tetrahydrofuran
            0.191 0.156 0.198 0.180 0.187 0.190 0.172       0.183   0.182    7.13
57)  chloroform
            0.821 0.804 0.898 0.814 0.842 0.923 0.770 0.796 0.860   0.837    5.95
58)  t-butyl formate
            0.378 0.391 0.404 0.390 0.430 0.310 0.395       0.359   0.382    9.30
59)  Iso-octane
            1.555 1.805 1.678 1.483 1.547 1.368 1.332       1.624   1.549   10.12
60)  dibromofluoromethane (s)
            0.481 0.404 0.470 0.459 0.478 0.464 0.445 0.638 0.442   0.476   13.74
61)  1,2-dichloroethane-d4 (s)
            0.599 0.486 0.557 0.541 0.549 0.533 0.504 0.735 0.540   0.561   12.95
62)  freon 113
            0.294 0.289 0.341 0.309 0.329       0.292       0.330   0.312    6.83
63)  methacrylonitrile
            0.293 0.272 0.336 0.321 0.334 0.324 0.311       0.318   0.314    6.87
64)  1,1,1-trichloroethane
            0.631 0.633 0.732 0.669 0.704 0.629 0.657 0.527 0.697   0.653    9.12
65)  tert-amyl methyl ether
            1.390 1.579 1.403 1.259 1.351 1.324 1.173       1.312   1.349    8.79

66) I   1,4-difluorobenzene   ----------------ISTD---------------------
67)  Di-isobutylene
                                                                    0.000#  -1.00
68)  tert amyl alcohol
            0.017 0.011 0.018 0.017 0.016       0.014       0.016   0.016   14.72
69)  epichlorohydrin
            0.040 0.041 0.043 0.038 0.040       0.037       0.038   0.040    4.84
70)  n-butyl alcohol
            0.012 0.012 0.013 0.012 0.013       0.011       0.011   0.012    7.72
71)  tert-amyl ethyl ether
            0.496 0.429 0.522 0.474 0.503 0.550 0.453       0.470   0.487    7.98
72)  carbon tetrachloride
            0.400 0.394 0.462 0.409 0.433 0.396 0.399 0.336 0.439   0.408    8.72
73)  1,1-dichloropropene
            0.412 0.406 0.473 0.427 0.444 0.419 0.410 0.347 0.460   0.422    8.66
74)  hexane
            0.370 0.437 0.423 0.375 0.404 0.328 0.354       0.397   0.386    9.34
75)  benzene
            1.296 1.297 1.398 1.234 1.273 1.430 1.146 1.306 1.349   1.303    6.51
76)  heptane
            0.231 0.245 0.263 0.243 0.250 0.155 0.230       0.246   0.233   14.26
77)  isopropyl acetate
            0.744 0.746 0.764 0.638 0.671 0.654 0.598       0.706   0.690    8.60
78)  1,2-dichloroethane
            0.451 0.436 0.479 0.439 0.452 0.469 0.419 0.408 0.456   0.446    5.08
79)  ethyl acrylate
            0.395 0.331 0.443 0.413 0.438 0.324 0.405       0.395   0.393   11.21
80)  trichloroethene
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```
            0.323 0.321 0.367 0.330 0.343 0.314 0.313 0.274 0.353   0.327    8.27
 81)  2-nitropropane
                                                                    0.000#  -1.00
 82)  2-chloroethyl vinyl ether
            0.219 0.226 0.225 0.208 0.200 0.176 0.192       0.197   0.205    8.57
 83)  methylcyclohexane
            0.532 0.610 0.579 0.497 0.515 0.439 0.451       0.557   0.523   11.39
 84)  methyl methacrylate
            0.340 0.335 0.378 0.344 0.357 0.313 0.323       0.350   0.343    5.93
 85)  1,2-dichloropropane
            0.352 0.353 0.374 0.335 0.346 0.347 0.317       0.353   0.347    4.71
 86)  dibromomethane
            0.213 0.205 0.230 0.214 0.221 0.220 0.207       0.213   0.215    3.76
 87)  bromodichloromethane
            0.444 0.415 0.485 0.445 0.467 0.466 0.437 0.431 0.455   0.449    4.70
 88)  cis-1,3-dichloropropene
            0.573 0.557 0.627 0.570 0.600 0.559 0.554 0.466 0.591   0.566    7.86
 89)  toluene-d8 (s)
            1.368 1.159 1.332 1.223 1.240 1.190 1.102       1.296   1.239    7.25
 90)  4-methyl-2-pentanone
            0.151 0.125 0.163 0.150 0.154 0.154 0.141       0.150   0.148    7.66
 91)  toluene
            0.840 0.860 0.908 0.797 0.832 0.903 0.760 0.846 0.873   0.847    5.61
 92)  3-methyl-1-butanol
            0.020 0.020 0.021 0.019 0.019 0.018 0.016       0.019   0.019    8.23
 93)  trans-1,3-dichloropropene
            0.511 0.492 0.570 0.525 0.550 0.517 0.504 0.434 0.538   0.516    7.55
 94)  ethyl methacrylate
            0.443 0.399 0.497 0.462 0.487 0.428 0.444       0.448   0.451    6.92
 95)  1,1,2-trichloroethane
            0.269 0.276 0.296 0.267 0.278 0.288 0.256 0.245 0.277   0.273    5.69
 96)  2-hexanone
            0.128 0.106 0.144 0.140 0.149       0.136       0.129   0.133   10.67

 97) I   chlorobenzene-d5      ----------------ISTD---------------------
 98)  cyclohexanone
            0.028 0.032 0.021 0.019 0.019       0.015       0.023   0.022   26.05
          ----- Quadratic regression -----                Coefficient =  0.9992
              Response Ratio = 0.00314 + 0.02148 *A + -0.00017 *A^2

 99)  tetrachloroethene
            0.418 0.445 0.464 0.403 0.411 0.415 0.373 0.406 0.473   0.423    7.48
100)  1,3-dichloropropane
            0.593 0.554 0.619 0.569 0.572 0.642 0.525 0.566 0.602   0.583    6.08
101)  butyl acetate
            0.240 0.261 0.258 0.238 0.245 0.194 0.225       0.233   0.237    8.92
102)  3,3-dimethyl-1-butanol
            0.048 0.048 0.048 0.044 0.044 0.048 0.035       0.043   0.045    9.68
103)  dibromochloromethane
            0.391 0.373 0.424 0.396 0.409 0.404 0.386 0.400 0.397   0.398    3.60
104)  1,2-dibromoethane
            0.367 0.325 0.388 0.363 0.375 0.388 0.348 0.296 0.371   0.358    8.48
105)  n-butyl ether
                                                                    0.000#  -1.00
106)  chlorobenzene
            0.988 1.001 1.059 0.963 0.994 1.103 0.905 1.022 1.014   1.005    5.55
107)  1,1,1,2-tetrachloroethane
            0.362 0.351 0.381 0.351 0.358 0.398 0.337 0.340 0.367   0.361    5.37
108)  ethylbenzene
            1.634 1.626 1.749 1.546 1.552 1.774 1.397 1.736 1.718   1.637    7.51
```

Initial Calibration Summary

Job Number: JB39339 **Sample:** VE8959-ICC8959
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E203875.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

109)	m,p-xylene										
	0.645	0.645	0.696	0.616	0.624	0.700	0.567	0.683	0.682	0.651	6.74
110)	o-xylene										
	0.660	0.635	0.713	0.639	0.643	0.698	0.589	0.715	0.694	0.665	6.42
111)	butyl acrylate										
										0.000#	-1.00
112)	styrene										
	1.063	1.006	1.164	1.060	1.058	1.067	0.967	0.908	1.104	1.044	7.20
113)	bromoform										
	0.279	0.262	0.304	0.301	0.312	0.288	0.296	0.279	0.279	0.289	5.46
114) I	1,4-dichlorobenzene-d ----------ISTD----------										
115)	isopropylbenzene										
	3.051	3.073	3.456	3.037	3.075	3.194	2.760	2.845	3.297	3.087	6.88
116)	4-bromofluorobenzene (s)										
	1.042	0.887	1.021	0.957	0.984	0.973	0.900		0.967	0.967	5.51
117)	bromobenzene										
	0.875	0.870	0.937	0.839	0.861	0.882	0.780	0.837	0.904	0.865	5.14
118)	1,1,2,2-tetrachloroethane										
	0.908	0.890	0.960	0.889	0.905	1.066	0.825		0.888	0.916	7.72
119)	trans-1,4-dichloro-2-butene										
	0.188		0.234	0.229	0.244		0.232		0.201	0.221	9.79
120)	1,2,3-trichloropropane										
	0.256	0.212	0.256	0.237	0.244	0.287	0.224		0.246	0.245	9.29
121)	n-propylbenzene										
	3.448	3.531	3.872	3.357	3.416	3.646	3.024	3.342	3.736	3.486	7.15
122)	p-ethyltoluene										
	3.221	2.318	3.270	2.952	2.962	3.526	2.700	3.413	2.944	3.034	12.33
123)	2-chlorotoluene										
	0.753	0.767	0.821	0.724	0.750	0.844	0.676	0.683	0.807	0.758	7.71
124)	4-chlorotoluene										
	2.230	2.208	2.471	2.204	2.273	2.515	2.037	2.371	2.331	2.294	6.42
125)	1,3,5-trimethylbenzene										
	2.536	2.718	2.800	2.420	2.471	2.884	2.126	2.860	2.726	2.616	9.50
126)	tert-butylbenzene										
	2.244	2.288	2.550	2.222	2.270	2.480	2.103	2.316	2.426	2.322	6.01
127)	pentachloroethane										
	0.535	0.481	0.549	0.512	0.522	0.574	0.501	0.535	0.516	0.525	5.18
128)	1,2,4-trimethylbenzene										
	2.591	2.602	2.873	2.518	2.566	2.827	2.325	3.031	2.738	2.675	7.98
129)	sec-butylbenzene										
	3.255	3.234	3.635	3.246	3.275	3.527	2.986	3.276	3.498	3.326	5.88
130)	1,3-dichlorobenzene										
	1.561	1.570	1.701	1.531	1.579	1.748	1.432	1.609	1.629	1.596	5.82
131)	p-isopropyltoluene										
	2.709	2.701	3.102	2.743	2.797	2.824	2.534	2.665	2.929	2.778	5.89
132)	1,4-dichlorobenzene										
	1.562	1.565	1.692	1.543	1.600	1.749	1.466	1.782	1.599	1.618	6.37
133)	benzyl chloride										
	1.568	1.653	1.692	1.603	1.661	1.480	1.510	1.328	1.511	1.556	7.30
134)	p-diethylbenzene										
	1.792	1.304	1.940	1.762	1.787	1.904	1.611	1.836	1.733	1.741	10.90
135)	1,2-dichlorobenzene										
	1.548	1.537	1.667	1.517	1.563	1.772	1.423	1.736	1.590	1.595	6.96
136)	n-butylbenzene										
	1.389	1.309	1.595	1.413	1.485	1.453	1.367	1.213	1.504	1.414	7.97
137)	1,2,4,5-tetramethylbenzene										
	2.831	2.248	3.097	2.828	2.779	3.225	2.514	2.862	2.731	2.791	10.33
138)	1,2-dibromo-3-chloropropane										
	0.147	0.141	0.172	0.166	0.175	0.160	0.167		0.161	0.161	7.42

Initial Calibration Summary

Job Number: JB39339 **Sample:** VE8959-ICC8959
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E203875.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
139)  1,3,5-trichlorobenzene
            1.277 1.214 1.434 1.310 1.348 1.489 1.231 1.305 1.353   1.329    6.73
140)  1,2,4-trichlorobenzene
            1.030 0.976 1.213 1.153 1.199 1.358 1.102 1.047 1.105   1.131   10.18
141)  hexachlorobutadiene
            0.593 0.610 0.669 0.593 0.613 0.683 0.583 0.543 0.652   0.616    7.31
142)  naphthalene
            2.178 2.023 2.479 2.381 2.470 3.114 2.256       2.241   2.393   13.76
143)  MMT
                                                                    0.000#  -1.00
144)  1,2,3-trichlorobenzene
            0.895 0.829 1.024 0.970 1.023 1.228 0.941 0.891 0.916   0.969   11.96
145)  hexachloroethane
            0.483 0.435 0.552 0.516 0.541 0.497 0.525 0.428 0.508   0.499    8.69
146)  Cyclohexane
            0.897 0.917 1.049 0.921 0.950 0.882 0.860 0.766 1.025   0.919    9.25
147)  ethyleinimine
                                                                    0.000#  -1.00
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          ME8959.M          Tue Jun 11 18:07:27 2013   RPT1
```

6.7.7

6

Initial Calibration Verification

Job Number: JB39339 **Sample:** VE8959-ICV8959
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E203881.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\VE old data\E203881.D Vial: 14
Acq On : 3 Jun 2013 4:11 pm Operator: Oksanat
Sample : icv8959-50 Inst : MSE
Misc : MS48940,VE8959,5,,100,5,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\ME8959.M (RTE Integrator)
Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Jun 11 18:05:22 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		Tert Butyl Alcohol-d9	1.000	1.000	0.0	100	0.00	7.65
2	M	1,4-dioxane	0.096	0.096	0.0	100	-0.01	11.50
3	M	tertiary butyl alcohol	1.306	1.505	-15.2	117	-0.01	7.76
4		ethanol		----------NA----------				
5	I	pentafluorobenzene	1.000	1.000	0.0	101	0.00	9.87
6		freon 23		----------NA----------				
7		freon 115		----------NA----------				
8		freon 143a		----------NA----------				
9		freon 152a		----------NA----------				
10	M	chlorotrifluoroethene		----------NA----------				
11	M	chlorodifluoromethane	0.449	0.530	-18.0	118	0.00	4.29
12	M	dichlorodifluoromethane	0.650	0.529	18.6	87	0.00	4.28
13		freon 114		----------NA----------				
14		freon 142b		----------NA----------				
15	M	chloromethane	0.911	0.769	15.6	93	0.00	4.63
16	M	vinyl chloride	0.866	0.694	19.9	85	0.00	4.89
17		1,3-Butadiene		----------NA----------				
18	M	acetaldehyde		----------NA----------				
		----------	True	Calc.	% Drift	----------		
19	M	bromomethane	50.000	53.297	-6.6	106	0.00	5.55
		----------	AvgRF	CCRF	% Dev	----------		
20	M	chloroethane	0.358	0.369	-3.1	108	0.00	5.73
21	M	vinyl bromide		----------NA----------				
22	M	trichlorofluoromethane	0.764	0.678	11.3	92	0.00	6.23
23	M	pentane	0.754	0.658	12.7	95	0.00	6.31
24	M	ethyl ether	0.301	0.302	-0.3	104	0.00	6.61
25		freon 141b		----------NA----------				
26		freon 123a		----------NA----------				
27		freon 123		----------NA----------				
28	m	2-chloropropane	0.801	0.812	-1.4	103	0.00	6.80
29	M	acrolein	0.103	0.116	-12.6	112	-0.01	6.81
30	M	1,1-dichloroethene	0.421	0.428	-1.7	102	0.00	7.04
31	M	isopropyl alcohol		----------NA----------				
32	M	acetone	0.046	0.051	-10.9	109	0.00	7.03
33	M	allyl chloride	0.926	0.783	15.4	99	0.00	7.54
34	M	acetonitrile	0.029	0.036	-24.1#	119	0.00	7.43
35	M	iodomethane	0.824	0.828	-0.5	101	0.00	7.31
36	M	iso-butyl alcohol		----------NA----------				
37	M	carbon disulfide	1.515	1.422	6.1	98	0.00	7.47

Initial Calibration Verification

Job Number: JB39339 **Sample:** VE8959-ICV8959
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E203881.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

38	M	methylene chloride	0.517	0.497	3.9	100	0.00	7.71
39	m	1-chloropropane	0.884	0.813	8.0	102	0.00	7.77
40	M	methyl acetate	0.391	0.415	-6.1	107	0.00	7.50
41	M	methyl tert butyl ether	1.429	1.349	5.6	98	0.00	8.06
42	M	trans-1,2-dichloroethene	0.459	0.436	5.0	97	0.00	8.11
43	M	di-isopropyl ether	1.553	1.593	-2.6	107	0.00	8.65
44	M	ethyl tert-butyl ether	1.449	1.414	2.4	100	0.00	9.11
		----------	True	Calc.	% Drift	----------		
45	M	2-butanone	50.000	51.234	-2.5	103	0.00	9.30
		----------	AvgRF	CCRF	% Dev	----------		
46	M	1,1-dichloroethane	0.858	0.843	1.7	102	0.00	8.64
47	M	chloroprene	0.641	0.675	-5.3	108	0.00	8.76
48	M	acrylonitrile	0.201	0.207	-3.0	104	0.00	7.97
49	M	vinyl acetate	0.084	0.097	-15.5	113	0.00	8.61
50	M	ethyl acetate	0.069	0.077	-11.6	107	0.00	9.33
51	M	2,2-dichloropropane	0.623	0.571	8.3	96	0.00	9.39
52	M	cis-1,2-dichloroethene	0.518	0.486	6.2	98	0.00	9.36
53	m	methyl acrylate	0.465	0.465	0.0	98	0.00	9.41
54	M	propionitrile	0.079	0.079	0.0	102	0.00	9.35
55	M	bromochloromethane	0.261	0.255	2.3	98	0.00	9.66
56	M	tetrahydrofuran	0.182	0.175	3.8	98	0.00	9.72
57	M	chloroform	0.837	0.798	4.7	99	0.00	9.71
58	m	t-butyl formate	0.382	0.340	11.0	88	0.00	9.76
59	M	Iso-octane	1.549	1.471	5.0	100	0.00	10.48
60	S	dibromofluoromethane (s)	0.476	0.419	12.0	92	0.00	9.90
61	S	1,2-dichloroethane-d4 (s)	0.561	0.497	11.4	93	0.00	10.32
62	M	freon 113	0.312	0.312	0.0	102	0.00	7.03
63	M	methacrylonitrile	0.314	0.315	-0.3	99	0.00	9.56
64	M	1,1,1-trichloroethane	0.653	0.651	0.3	98	0.00	10.01
65	M	tert-amyl methyl ether	1.349	1.271	5.8	102	0.00	10.47
66	I	1,4-difluorobenzene	1.000	1.000	0.0	101	0.00	10.78
67	M	Di-isobutylene		----------NA----------				
68	M	tert amyl alcohol	0.016	0.015	6.3	92	0.00	10.25
69	M	epichlorohydrin	0.040	0.039	2.5	103	0.00	12.02
70	M	n-butyl alcohol	0.012	0.012	0.0	98	0.00	10.86
71	M	tert-amyl ethyl ether	0.487	0.420	13.9	89	0.00	11.32
72	M	carbon tetrachloride	0.408	0.401	1.7	99	0.00	10.22
73	M	1,1-dichloropropene	0.422	0.391	7.3	92	0.00	10.18
74	M	hexane	0.386	0.457	-18.4	123	0.00	8.43
75	M	benzene	1.303	1.230	5.6	100	0.00	10.43
76	M	heptane	0.233	0.251	-7.7	104	0.00	10.64
77	M	isopropyl acetate	0.690	0.671	2.8	106	0.00	10.32
78	M	1,2-dichloroethane	0.446	0.433	2.9	99	0.00	10.41
79		ethyl acrylate	0.393	0.396	-0.8	96	0.00	11.11
80	M	trichloroethene	0.327	0.332	-1.5	101	0.00	11.15
81	M	2-nitropropane		----------NA----------				
82	M	2-chloroethyl vinyl ether	0.205	0.247	-20.3#	119	0.00	11.91
83	M	methylcyclohexane	0.523	0.559	-6.9	113	0.00	11.41
84	M	methyl methacrylate	0.343	0.355	-3.5	104	0.00	11.38
85	M	1,2-dichloropropane	0.347	0.332	4.3	99	0.00	11.39
86	M	dibromomethane	0.215	0.212	1.4	99	0.00	11.55
87	M	bromodichloromethane	0.449	0.443	1.3	100	0.00	11.67
88	M	cis-1,3-dichloropropene	0.566	0.523	7.6	92	0.00	12.15
89	S	toluene-d8 (s)	1.239	1.133	8.6	93	0.00	12.48
90	M	4-methyl-2-pentanone	0.148	0.148	0.0	99	0.00	12.23
91	M	toluene	0.847	0.790	6.7	100	0.00	12.56
92	M	3-methyl-1-butanol	0.019	0.018	5.3	95	0.00	12.24

Initial Calibration Verification

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

93	M	trans-1,3-dichloropropene	0.516	0.521	-1.0	100	0.00	12.73
94	M	ethyl methacrylate	0.451	0.457	-1.3	100	0.00	12.73
95	M	1,1,2-trichloroethane	0.273	0.272	0.4	102	0.00	12.96
96	M	2-hexanone	0.133	0.140	-5.3	101	0.00	13.14
97	I	chlorobenzene-d5	1.000	1.000	0.0	101	0.00	14.11
		----------	True	Calc.	% Drift	----------		
98	M	cyclohexanone	500.000	399.466	20.1#	87	0.00	15.31
		----------	AvgRF	CCRF	% Dev	----------		
99	M	tetrachloroethene	0.423	0.405	4.3	101	0.00	13.21
100	M	1,3-dichloropropane	0.583	0.564	3.3	100	0.00	13.16
101	M	butyl acetate	0.237	0.249	-5.1	105	0.00	13.23
102	m	3,3-dimethyl-1-butanol	0.045	0.039	13.3	89	0.00	13.32
103	M	dibromochloromethane	0.398	0.398	0.0	101	0.00	13.46
104	M	1,2-dibromoethane	0.358	0.359	-0.3	99	0.00	13.62
105	M	n-butyl ether		----------NA----------				
106	M	chlorobenzene	1.005	0.967	3.8	101	0.00	14.15
107	M	1,1,1,2-tetrachloroethane	0.361	0.344	4.7	99	0.00	14.20
108	M	ethylbenzene	1.637	1.541	5.9	100	0.00	14.21
109	M	m,p-xylene	0.651	0.615	5.5	101	0.00	14.32
110	M	o-xylene	0.665	0.634	4.7	100	0.00	14.78
111	M	butyl acrylate		----------NA----------				
112	M	styrene	1.044	1.050	-0.6	100	0.00	14.79
113	M	bromoform	0.289	0.300	-3.8	100	0.00	15.07
114	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	101	0.00	16.68
115	M	isopropylbenzene	3.087	3.004	2.7	100	0.00	15.17
116	S	4-bromofluorobenzene (s)	0.967	0.886	8.4	93	0.00	15.38
117	M	bromobenzene	0.865	0.836	3.4	100	0.00	15.61
118	M	1,1,2,2-tetrachloroethane	0.916	0.869	5.1	98	0.00	15.46
119	M	trans-1,4-dichloro-2-bute	0.221	0.234	-5.9	103	0.00	15.51
120	M	1,2,3-trichloropropane	0.245	0.231	5.7	98	0.00	15.55
121	M	n-propylbenzene	3.486	3.433	1.5	103	0.00	15.62
122	M	p-ethyltoluene	3.034	2.756	9.2	94	0.00	15.73
123	M	2-chlorotoluene	0.758	0.732	3.4	102	0.00	15.78
124	M	4-chlorotoluene	2.294	2.188	4.6	100	0.00	15.89
125	M	1,3,5-trimethylbenzene	2.616	2.423	7.4	101	0.00	15.78
126	M	tert-butylbenzene	2.322	2.228	4.0	101	0.00	16.18
127	M	pentachloroethane	0.525	0.508	3.2	100	0.00	16.26
128	M	1,2,4-trimethylbenzene	2.675	2.571	3.9	103	0.00	16.22
129	M	sec-butylbenzene	3.326	3.236	2.7	101	0.00	16.42
130	M	1,3-dichlorobenzene	1.596	1.540	3.5	101	0.00	16.62
131	M	p-isopropyltoluene	2.778	2.848	-2.5	105	0.00	16.54
132	M	1,4-dichlorobenzene	1.618	1.541	4.8	101	0.00	16.71
133		benzyl chloride	1.556	1.584	-1.8	100	0.00	16.82
134	M	p-diethylbenzene	1.741	1.662	4.5	95	0.00	16.97
135	M	1,2-dichlorobenzene	1.595	1.526	4.3	101	0.00	17.14
136	M	n-butylbenzene	1.414	1.431	-1.2	102	0.00	17.00
137	M	1,2,4,5-tetramethylbenzen	2.791	2.682	3.9	96	0.00	17.83
138	M	1,2-dibromo-3-chloropropa	0.161	0.167	-3.7	101	0.00	17.96
139	m	1,3,5-trichlorobenzene	1.329	1.317	0.9	101	0.00	18.20
140	M	1,2,4-trichlorobenzene	1.131	1.155	-2.1	101	0.00	18.92
141	M	hexachlorobutadiene	0.616	0.590	4.2	100	0.00	19.06
142	M	naphthalene	2.393	2.389	0.2	101	0.00	19.22
143		MMT		----------NA----------				
144	M	1,2,3-trichlorobenzene	0.969	0.985	-1.7	102	0.00	19.50
145	M	hexachloroethane	0.499	0.502	-0.6	98	0.00	17.46
146	M	Cyclohexane	0.919	0.901	2.0	99	0.00	10.11

Initial Calibration Verification

Job Number: JB39339 **Sample:** VE8959-ICV8959
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E203881.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
147     ethyleinimine                        ----------NA----------
 ---------------------------------------------------------------------------
 ---------------------------------------------------------------------------

    (#) = Out of Range               SPCC's out = 0  CCC's out = 0
     E203875.D  ME8959.M         Tue Jun 11 18:09:17 2013   RPT1
```

Continuing Calibration Summary

Job Number: JB39339 **Sample:** VE8979-CC8959
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E204299.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E204299.D                    Vial: 3
Acq On    : 14 Jun 2013   9:32 am                     Operator: Oksanat
Sample    : cc8959-20                                 Inst    : MSE
Misc      : MS49520,VE8979,5,,100,5,1                 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\ME8959.M (RTE Integrator)
Title        : SW846  8260B,ZB624 60m x 0.25mm x 1.4um
Last Update  : Tue Jun 11 18:05:22 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		Tert Butyl Alcohol-d9	1.000	1.000	0.0	145	0.03	7.68
2	M	1,4-dioxane	0.096	0.096	0.0	135	0.02	11.53
3	M	tertiary butyl alcohol	1.306	1.169	10.5	123	0.02	7.79
4		ethanol		----------NA----------				
5	I	pentafluorobenzene	1.000	1.000	0.0	112	0.00	9.86
6		freon 23		----------NA----------				
7		freon 115		----------NA----------				
8		freon 143a		----------NA----------				
9		freon 152a		----------NA----------				
10	M	chlorotrifluoroethene		----------NA----------				
11	M	chlorodifluoromethane	0.449	0.426	5.1	98	0.00	4.29
12	M	dichlorodifluoromethane	0.650	0.581	10.6	93	0.00	4.28
13		freon 114		----------NA----------				
14		freon 142b		----------NA----------				
15	M	chloromethane	0.911	0.748	17.9	92	0.00	4.62
16	M	vinyl chloride	0.866	0.753	13.0	93	0.00	4.89
17		1,3-Butadiene		----------NA----------				
18	M	acetaldehyde		----------NA----------				
		----------	True	Calc.	% Drift	----------		
19	M	bromomethane	20.000	18.158	9.2	95	0.00	5.55
		----------	AvgRF	CCRF	% Dev	----------		
20	M	chloroethane	0.358	0.321	10.3	95	0.00	5.74
21	M	vinyl bromide		----------NA----------				
22	M	trichlorofluoromethane	0.764	0.689	9.8	96	0.00	6.23
23	M	pentane		----------NA----------				
24	M	ethyl ether	0.301	0.316	-5.0	114	0.00	6.61
25		freon 141b		----------NA----------				
26		freon 123a		----------NA----------				
27		freon 123		----------NA----------				
28	m	2-chloropropane	0.801	0.891	-11.2	112	0.00	6.80
29	M	acrolein	0.103	0.117	-13.6	114	0.00	6.82
30	M	1,1-dichloroethene	0.421	0.470	-11.6	109	0.00	7.05
31	M	isopropyl alcohol		----------NA----------				
32	M	acetone	0.046	0.056	-21.7#	133	0.02	7.06
33	M	allyl chloride	0.926	0.902	2.6	99	0.00	7.54
34	M	acetonitrile	0.029	0.037	-27.6#	143	0.03	7.46
35	M	iodomethane	0.824	0.884	-7.3	109	0.00	7.31
36	M	iso-butyl alcohol		----------NA----------				
37	M	carbon disulfide	1.515	1.624	-7.2	111	0.00	7.47

Continuing Calibration Summary

Job Number: JB39339 **Sample:** VE8979-CC8959
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E204299.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

38	M	methylene chloride	0.517	0.538	-4.1	109	0.00	7.71
39	m	1-chloropropane	0.884	0.899	-1.7	106	0.00	7.77
40	M	methyl acetate	0.391	0.438	-12.0	115	0.00	7.51
41	M	methyl tert butyl ether	1.429	1.537	-7.6	115	0.00	8.07
42	M	trans-1,2-dichloroethene	0.459	0.493	-7.4	108	0.00	8.11
43	M	di-isopropyl ether	1.553	1.597	-2.8	109	0.00	8.65
44	M	ethyl tert-butyl ether	1.449	1.580	-9.0	114	0.00	9.11
		----------	True	Calc.	% Drift	----------		
45	M	2-butanone	20.000	21.521	-7.6	121	0.01	9.31
		----------	AvgRF	CCRF	% Dev	----------		
46	M	1,1-dichloroethane	0.858	0.915	-6.6	109	0.00	8.64
47	M	chloroprene	0.641	0.627	2.2	100	0.00	8.77
48	M	acrylonitrile	0.201	0.229	-13.9	119	0.00	7.98
49	M	vinyl acetate	0.084	0.084	0.0	108	0.00	8.61
50	M	ethyl acetate	0.069	0.083	-20.3#	120	0.00	9.33
51	M	2,2-dichloropropane	0.623	0.684	-9.8	111	0.00	9.39
52	M	cis-1,2-dichloroethene	0.518	0.528	-1.9	106	0.00	9.37
53	m	methyl acrylate	0.465	0.509	-9.5	112	0.00	9.42
54	M	propionitrile	0.079	0.093	-17.7	124	0.01	9.36
55	M	bromochloromethane	0.261	0.271	-3.8	107	0.00	9.67
56	M	tetrahydrofuran	0.182	0.208	-14.3	117	0.00	9.73
57	M	chloroform	0.837	0.845	-1.0	106	0.00	9.71
58	m	t-butyl formate	0.382	0.423	-10.7	118	0.00	9.76
59	M	Iso-octane	1.549	1.517	2.1	101	0.00	10.48
60	S	dibromofluoromethane (s)	0.476	0.416	12.6	99	0.00	9.91
61	S	1,2-dichloroethane-d4 (s)	0.561	0.493	12.1	99	0.00	10.32
62	M	freon 113	0.312	0.301	3.5	99	0.00	7.03
63	M	methacrylonitrile	0.314	0.337	-7.3	113	0.00	9.56
64	M	1,1,1-trichloroethane	0.653	0.697	-6.7	107	0.00	10.01
65	M	tert-amyl methyl ether	1.349	1.410	-4.5	113	0.00	10.48
66	I	1,4-difluorobenzene	1.000	1.000	0.0	112	0.00	10.78
67	M	Di-isobutylene		----------NA----------				
68	M	tert amyl alcohol		----------NA----------				
69	M	epichlorohydrin	0.040	0.046	-15.0	120	0.00	12.02
70	M	n-butyl alcohol	0.012	0.016	-33.3#	130	0.02	10.88
71	M	tert-amyl ethyl ether		----------NA----------				
72	M	carbon tetrachloride	0.408	0.438	-7.4	106	0.00	10.23
73	M	1,1-dichloropropene	0.422	0.446	-5.7	105	0.00	10.18
74	M	hexane	0.386	0.361	6.5	95	0.00	8.43
75	M	benzene	1.303	1.309	-0.5	105	0.00	10.43
76	M	heptane	0.233	0.222	4.7	94	0.00	10.63
77	M	isopropyl acetate	0.690	0.678	1.7	99	0.00	10.32
78	M	1,2-dichloroethane	0.446	0.447	-0.2	104	0.00	10.41
79		ethyl acrylate		----------NA----------				
80	M	trichloroethene	0.327	0.339	-3.7	103	0.00	11.15
81	M	2-nitropropane		----------NA----------				
82	M	2-chloroethyl vinyl ether	0.205	0.221	-7.8	109	0.00	11.91
83	M	methylcyclohexane	0.523	0.535	-2.3	103	0.00	11.41
84	M	methyl methacrylate	0.343	0.365	-6.4	108	0.00	11.39
85	M	1,2-dichloropropane	0.347	0.366	-5.5	109	0.00	11.39
86	M	dibromomethane	0.215	0.216	-0.5	105	0.00	11.54
87	M	bromodichloromethane	0.449	0.448	0.2	103	0.00	11.67
88	M	cis-1,3-dichloropropene	0.566	0.598	-5.7	106	0.00	12.15
89	S	toluene-d8 (s)	1.239	1.179	4.8	99	0.00	12.48
90	M	4-methyl-2-pentanone	0.148	0.175	-18.2	120	0.00	12.23
91	M	toluene	0.847	0.823	2.8	101	0.00	12.56
92	M	3-methyl-1-butanol	0.019	0.025	-31.6#	131	0.00	12.25

Continuing Calibration Summary

Job Number: JB39339 **Sample:** VE8979-CC8959
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E204299.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

93	M	trans-1,3-dichloropropene	0.516	0.534	-3.5	104	0.00	12.73
94	M	ethyl methacrylate	0.451	0.485	-7.5	109	0.00	12.74
95	M	1,1,2-trichloroethane	0.273	0.275	-0.7	104	0.00	12.96
96	M	2-hexanone	0.133	0.154	-15.8	119	0.00	13.14
97	I	chlorobenzene-d5	1.000	1.000	0.0	108	0.00	14.11
		----------	True	Calc.	% Drift	----------		
98	M	cyclohexanone	200.000	526.531	-163.3#	264	0.00	15.31
		----------	AvgRF	CCRF	% Dev	----------		
99	M	tetrachloroethene	0.423	0.430	-1.7	100	0.00	13.21
100	M	1,3-dichloropropane	0.583	0.592	-1.5	103	0.00	13.16
101	M	butyl acetate	0.237	0.266	-12.2	111	0.00	13.23
102	m	3,3-dimethyl-1-butanol	0.045	0.058	-28.9#	131	0.00	13.32
103	M	dibromochloromethane	0.398	0.403	-1.3	103	0.00	13.46
104	M	1,2-dibromoethane	0.358	0.371	-3.6	103	0.00	13.63
105	M	n-butyl ether		----------NA----------				
106	M	chlorobenzene	1.005	0.993	1.2	101	0.00	14.14
107	M	1,1,1,2-tetrachloroethane	0.361	0.369	-2.2	105	0.00	14.20
108	M	ethylbenzene	1.637	1.635	0.1	101	0.00	14.21
109	M	m,p-xylene	0.651	0.655	-0.6	102	0.00	14.33
110	M	o-xylene	0.665	0.683	-2.7	103	0.00	14.79
111	M	butyl acrylate		----------NA----------				
112	M	styrene	1.044	1.095	-4.9	101	0.00	14.79
113	M	bromoform	0.289	0.300	-3.8	106	0.00	15.07
114	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	112	0.00	16.68
115	M	isopropylbenzene	3.087	3.164	-2.5	103	0.00	15.17
116	S	4-bromofluorobenzene (s)	0.967	0.884	8.6	97	0.00	15.38
117	M	bromobenzene	0.865	0.826	4.5	99	0.00	15.60
118	M	1,1,2,2-tetrachloroethane	0.916	0.908	0.9	106	0.00	15.46
119	M	trans-1,4-dichloro-2-bute	0.221	0.243	-10.0	117	0.00	15.50
120	M	1,2,3-trichloropropane	0.245	0.249	-1.6	109	0.00	15.54
121	M	n-propylbenzene	3.486	3.426	1.7	99	0.00	15.62
122	M	p-ethyltoluene		----------NA----------				
123	M	2-chlorotoluene	0.758	0.747	1.5	102	0.00	15.78
124	M	4-chlorotoluene	2.294	2.210	3.7	101	0.00	15.89
125	M	1,3,5-trimethylbenzene	2.616	2.589	1.0	104	0.00	15.79
126	M	tert-butylbenzene	2.322	2.288	1.5	101	0.00	16.18
127	M	pentachloroethane	0.525	0.528	-0.6	108	0.00	16.26
128	M	1,2,4-trimethylbenzene	2.675	2.598	2.9	102	0.00	16.22
129	M	sec-butylbenzene	3.326	3.350	-0.7	104	0.00	16.41
130	M	1,3-dichlorobenzene	1.596	1.519	4.8	100	0.00	16.62
131	M	p-isopropyltoluene	2.778	2.790	-0.4	101	0.00	16.54
132	M	1,4-dichlorobenzene	1.618	1.484	8.3	99	0.00	16.71
133		benzyl chloride	1.556	1.688	-8.5	112	0.00	16.82
134	M	p-diethylbenzene		----------NA----------				
135	M	1,2-dichlorobenzene	1.595	1.520	4.7	103	0.00	17.15
136	M	n-butylbenzene	1.414	1.373	2.9	97	0.00	17.00
137	M	1,2,4,5-tetramethylbenzen		----------NA----------				
138	M	1,2-dibromo-3-chloropropa	0.161	0.182	-13.0	118	0.00	17.96
139	m	1,3,5-trichlorobenzene	1.329	1.284	3.4	101	0.00	18.21
140	M	1,2,4-trichlorobenzene	1.131	1.089	3.7	101	0.00	18.91
141	M	hexachlorobutadiene	0.616	0.626	-1.6	105	0.00	19.06
142	M	naphthalene	2.393	2.370	1.0	107	0.00	19.23
143		MMT		----------NA----------				
144	M	1,2,3-trichlorobenzene	0.969	0.961	0.8	106	0.00	19.50
145	M	hexachloroethane	0.499	0.523	-4.8	106	0.00	17.46
146	M	Cyclohexane	0.919	1.020	-11.0	109	0.00	10.12

Continuing Calibration Summary

Job Number: JB39339 **Sample:** VE8979-CC8959
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E204299.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
147     ethyleinimine                        ----------NA----------
 ---------------------------------------------------------------------------
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    (#) = Out of Range               SPCC's out = 0  CCC's out = 0
     E203874.D  ME8959.M         Fri Jun 14 14:59:30 2013   RPT1
```

New Jersey

ACCUTEST LABORATORIES

GC/MS Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E204309.D
Acq On : 14 Jun 2013 2:53 pm
Operator : Oksanat
Sample : jb39339-1
Misc : MS49834,VE8979,7.2,,100,10,1
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jun 14 15:27:16 2013
Quant Method : C:\MSDCHEM\1\METHODS\ME8959.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Jun 11 18:05:22 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.650	65	90274	500.00	ug/L	0.00
5) pentafluorobenzene	9.863	168	199394	50.00	ug/L	0.00
66) 1,4-difluorobenzene	10.778	114	269215	50.00	ug/L	0.00
97) chlorobenzene-d5	14.109	117	245451	50.00	ug/L	0.00
114) 1,4-dichlorobenzene-d4	16.683	152	136877	50.00	ug/L	0.00

System Monitoring Compounds						
60) dibromofluoromethane (s)	9.904	113	79697	42.02	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 84.04%			
61) 1,2-dichloroethane-d4 (s)	10.323	65	95569	42.75	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 85.50%			
89) toluene-d8 (s)	12.483	98	322227	48.31	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 96.62%			
116) 4-bromofluorobenzene (s)	15.380	95	122203	46.19	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 92.38%			

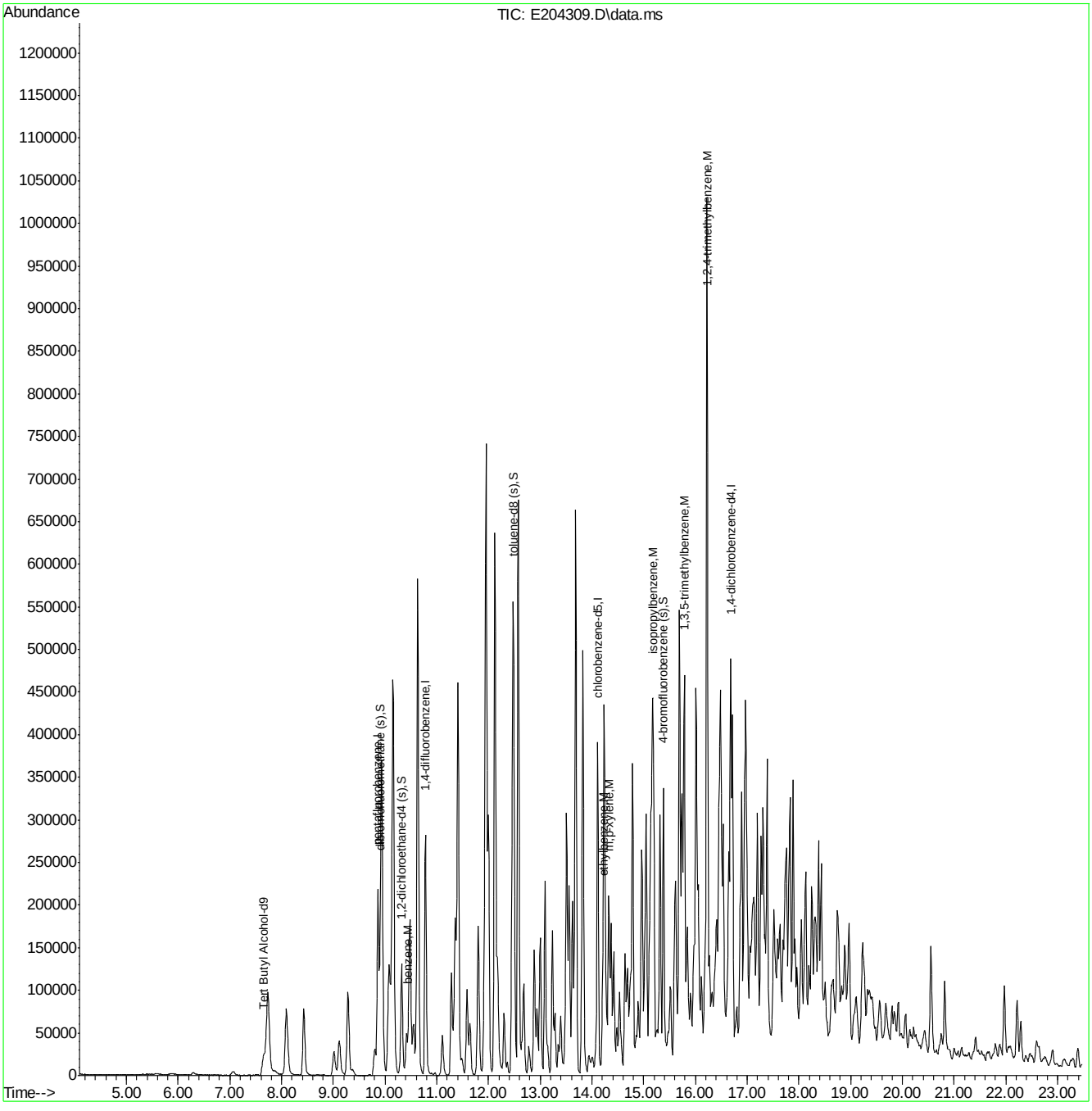
Target Compounds						Qvalue
75) benzene	10.443	78	2489	0.35	ug/L	96
108) ethylbenzene	14.209	91	89073	11.08	ug/L	99
109) m,p-xylene	14.329	106	62527	19.57	ug/L	96
115) isopropylbenzene	15.166	105	44205	5.23	ug/L	100
125) 1,3,5-trimethylbenzene	15.783	105	180913	25.27	ug/L	100
128) 1,2,4-trimethylbenzene	16.222	105	620859	84.79	ug/L	98

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

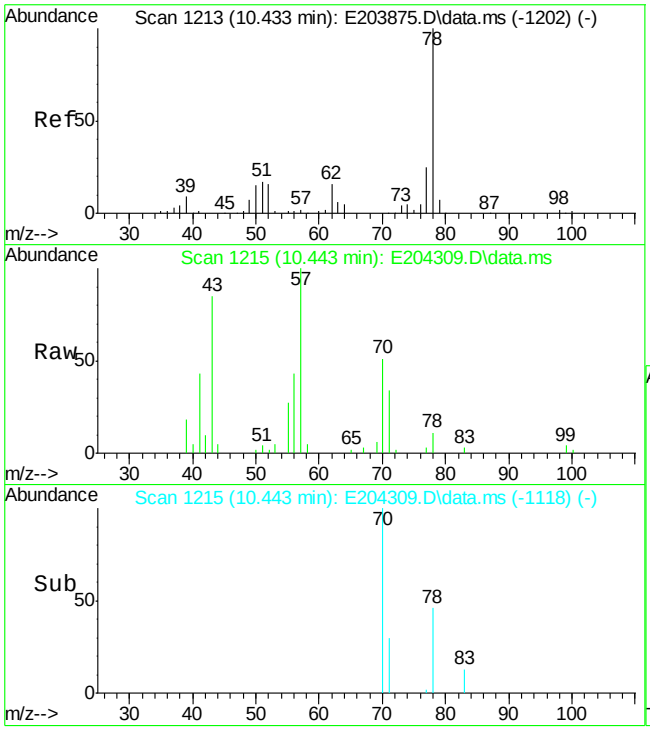
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E204309.D
Acq On : 14 Jun 2013 2:53 pm
Operator : Oksanat
Sample : jb39339-1
Misc : MS49834,VE8979,7.2,,100,10,1
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jun 14 15:27:16 2013
Quant Method : C:\MSDCHEM\1\METHODS\ME8959.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Jun 11 18:05:22 2013
Response via : Initial Calibration



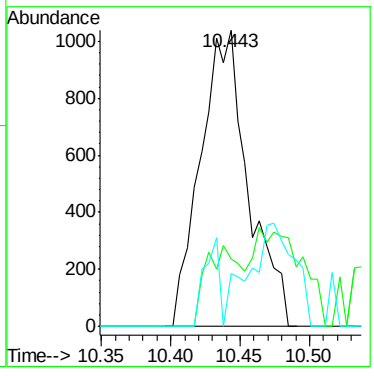
ME8959.M Fri Jun 14 15:27:29 2013 RPT1 Page: 2

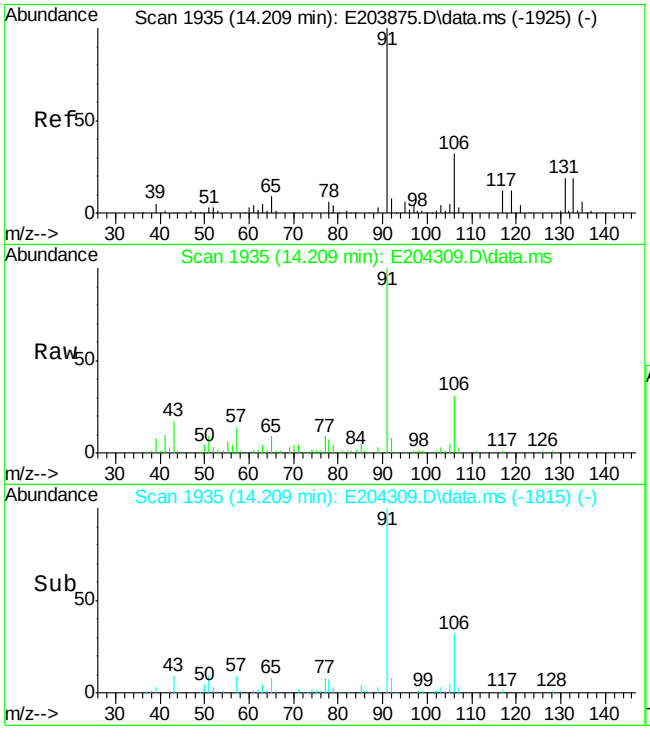


#75
benzene
Concen: 0.35 ug/L
RT: 10.443 min Scan# 1215
Delta R.T. 0.010 min
Lab File: E204309.D
Acq: 14 Jun 2013 2:53 pm

Tgt Ion: 78 Resp: 2489

Ion	Ratio	Lower	Upper
78	100		
77	22.8	0.0	54.5
52	17.7	0.0	45.9

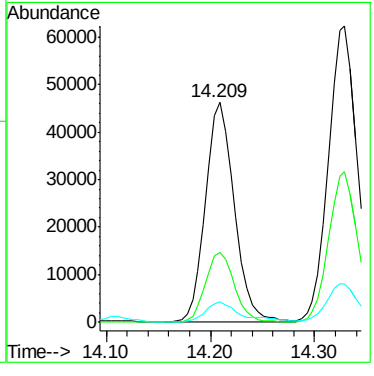


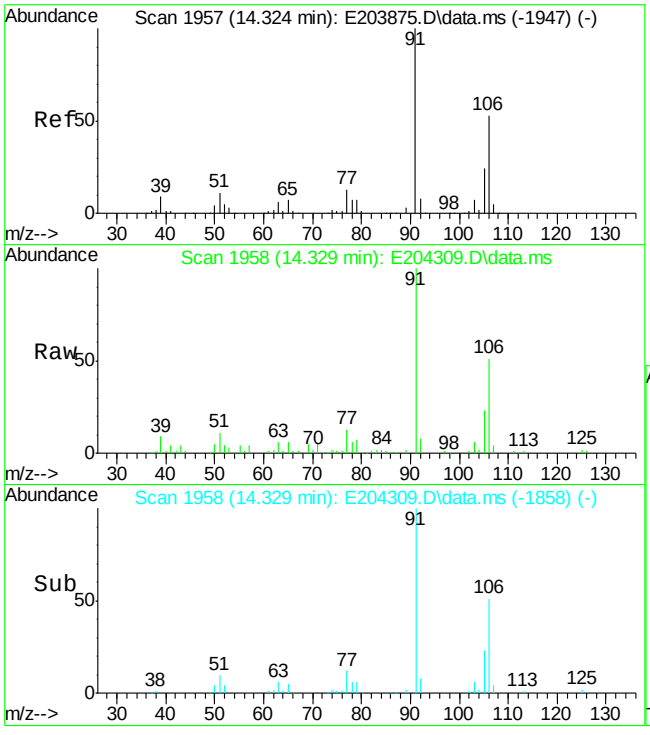


#108
ethylbenzene
Concen: 11.08 ug/L
RT: 14.209 min Scan# 1935
Delta R.T. -0.001 min
Lab File: E204309.D
Acq: 14 Jun 2013 2:53 pm

Tgt Ion: 91 Resp: 89073

Ion	Ratio	Lower	Upper
91	100		
106	31.5	2.1	62.1
77	9.0	0.0	38.7

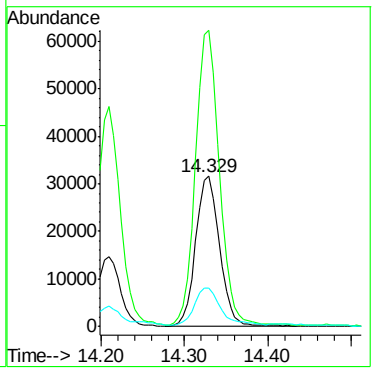


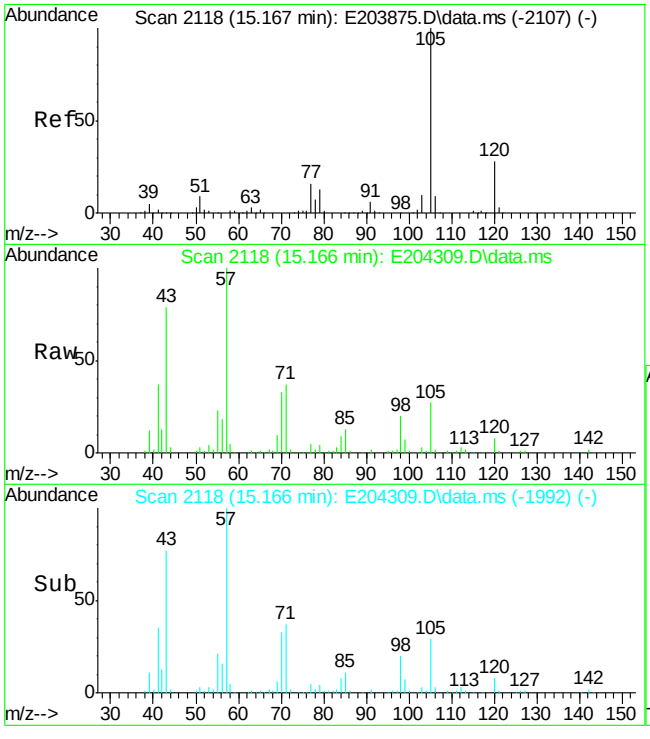


#109
m,p-xylene
Concen: 19.57 ug/L
RT: 14.329 min Scan# 1958
Delta R.T. 0.005 min
Lab File: E204309.D
Acq: 14 Jun 2013 2:53 pm

Tgt Ion:106 Resp: 62527

Ion	Ratio	Lower	Upper
106	100		
91	196.2	160.4	220.4
77	24.4	0.0	55.3

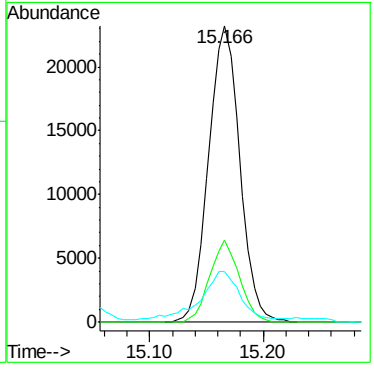


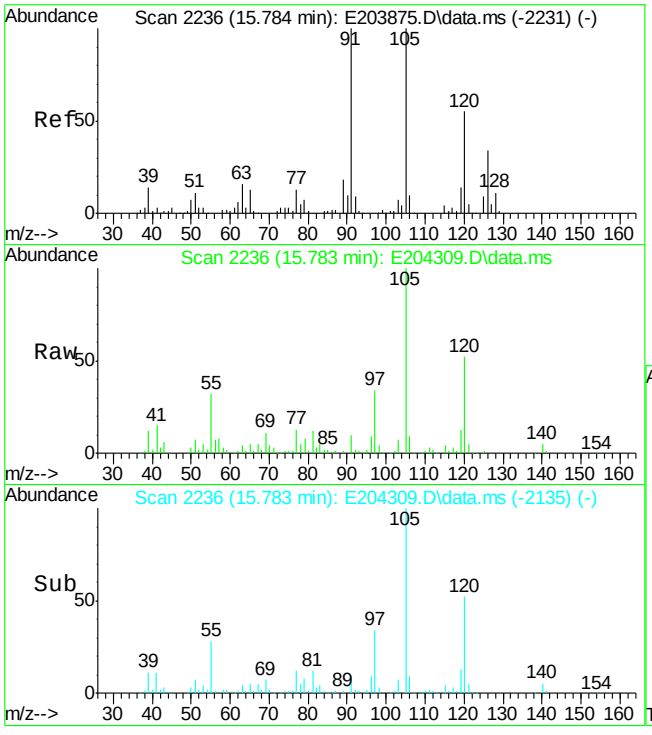


#115
isopropylbenzene
Concen: 5.23 ug/L
RT: 15.166 min Scan# 2118
Delta R.T. -0.001 min
Lab File: E204309.D
Acq: 14 Jun 2013 2:53 pm

Tgt Ion:105 Resp: 44205

Ion	Ratio	Lower	Upper
105	100		
120	27.8	0.0	58.0
77	15.7	0.0	45.6

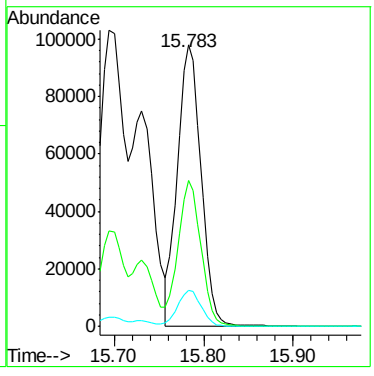


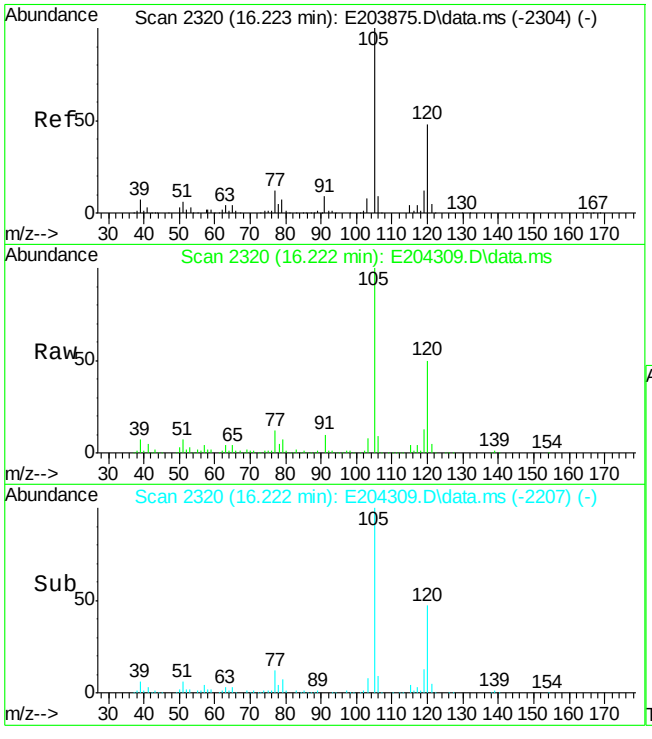


#125
1,3,5-trimethylbenzene
Concen: 25.27 ug/L
RT: 15.783 min Scan# 2236
Delta R.T. -0.001 min
Lab File: E204309.D
Acq: 14 Jun 2013 2:53 pm

Tgt Ion:105 Resp: 180913

Ion	Ratio	Lower	Upper
105	100		
120	51.5	21.4	81.4
119	12.9	0.0	42.8

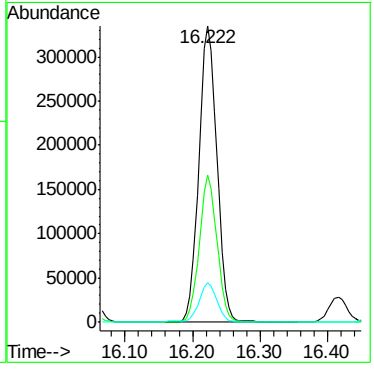




#128
1,2,4-trimethylbenzene
Concen: 84.79 ug/L
RT: 16.222 min Scan# 2320
Delta R.T. -0.001 min
Lab File: E204309.D
Acq: 14 Jun 2013 2:53 pm

Tgt Ion:105 Resp: 620859

Ion	Ratio	Lower	Upper
105	100		
120	49.5	18.2	78.2
119	13.4	0.0	43.0



ACCUTEST LABORATORIES JB39339

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E204310.D
Acq On : 14 Jun 2013 3:23 pm
Operator : Oksanat
Sample : jb39339-2
Misc : MS49834,VE8979,7.0,,20,10,1
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jun 14 16:52:03 2013
Quant Method : C:\MSDCHEM\1\METHODS\ME8959.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Jun 11 18:05:22 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.651	65	130128	500.00	ug/L	0.00
5) pentafluorobenzene	9.863	168	203552	50.00	ug/L	0.00
66) 1,4-difluorobenzene	10.784	114	277040	50.00	ug/L	0.00
97) chlorobenzene-d5	14.110	117	249727	50.00	ug/L	0.00
114) 1,4-dichlorobenzene-d4	16.683	152	136406	50.00	ug/L	0.00

System Monitoring Compounds

60) dibromofluoromethane (s)	9.905	113	81441	42.06	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 84.12%			
61) 1,2-dichloroethane-d4 (s)	10.323	65	99572	43.63	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 87.26%			
89) toluene-d8 (s)	12.483	98	330022	48.09	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 96.18%			
116) 4-bromofluorobenzene (s)	15.381	95	124021	47.03	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 94.06%			

Target Compounds

						Qvalue
75) benzene	10.438	78	9773	1.35	ug/L	100
108) ethylbenzene	14.209	91	181668	22.22	ug/L	99
109) m,p-xylene	14.324	106	254614	78.32	ug/L	98
115) isopropylbenzene	15.166	105	66445	7.89	ug/L	98
125) 1,3,5-trimethylbenzene	15.784	105	234963	32.93	ug/L	99
128) 1,2,4-trimethylbenzene	16.223	105	794218	108.84	ug/L	98

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

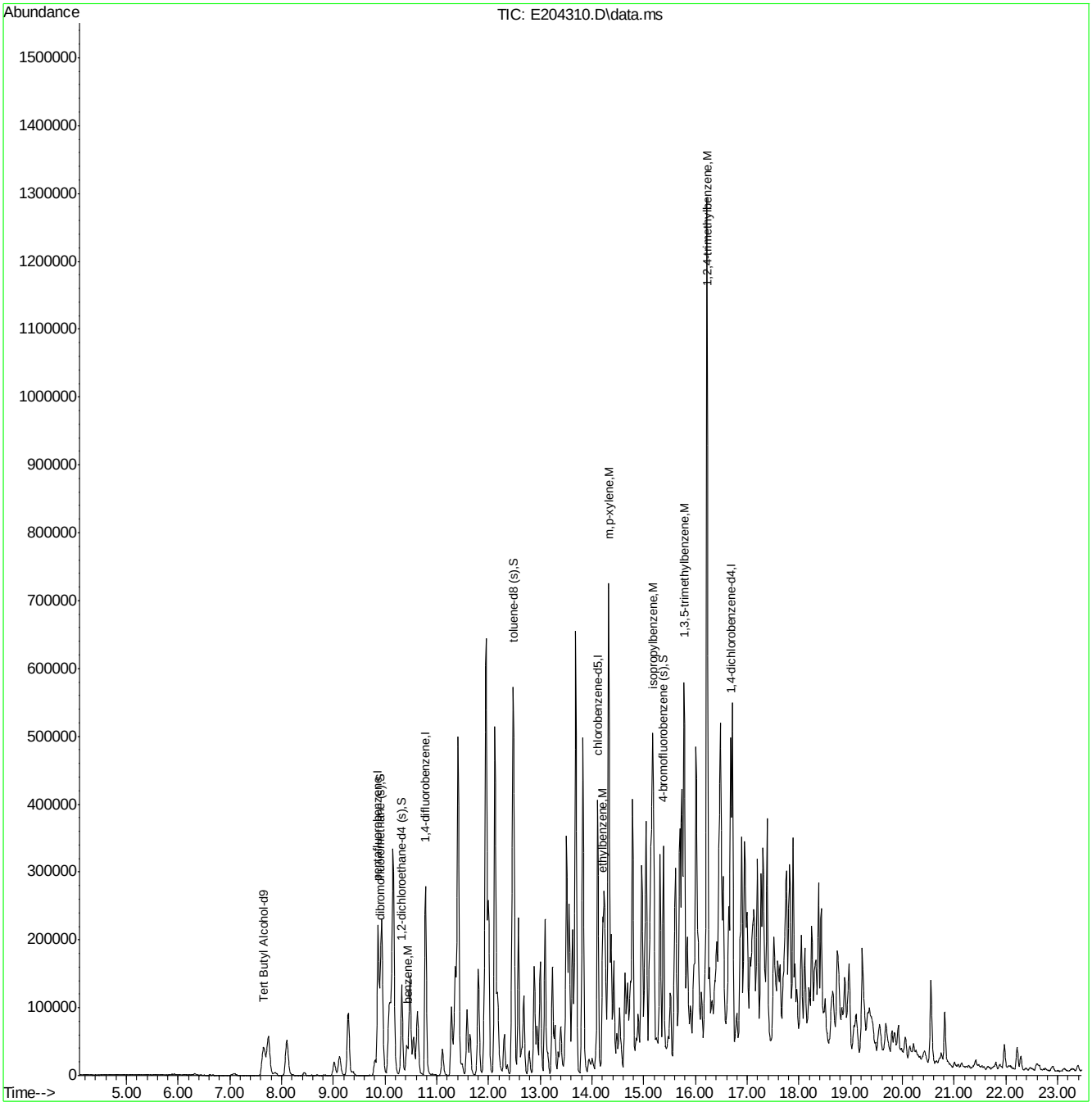
7.1.2

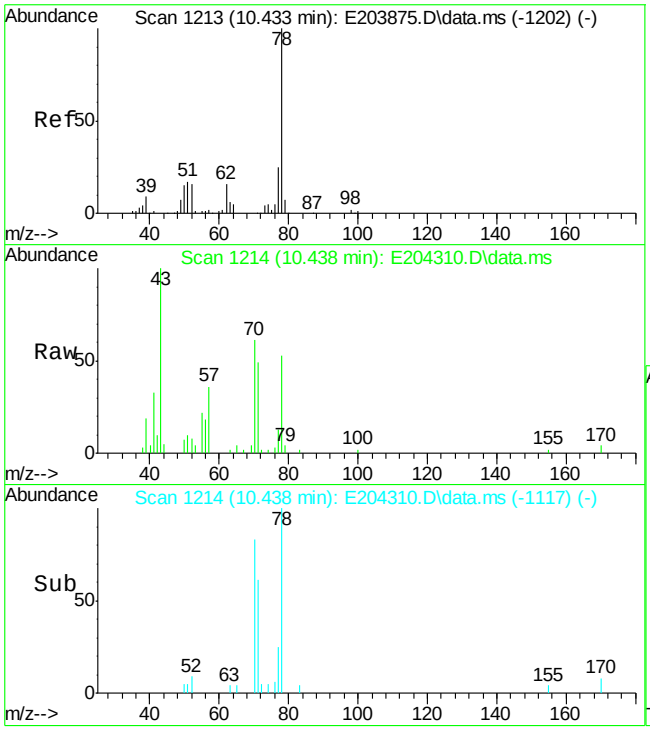
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E204310.D
Acq On : 14 Jun 2013 3:23 pm
Operator : Oksanat
Sample : jb39339-2
Misc : MS49834,VE8979,7.0,,20,10,1
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jun 14 16:52:03 2013
Quant Method : C:\MSDCHEM\1\METHODS\ME8959.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Jun 11 18:05:22 2013
Response via : Initial Calibration

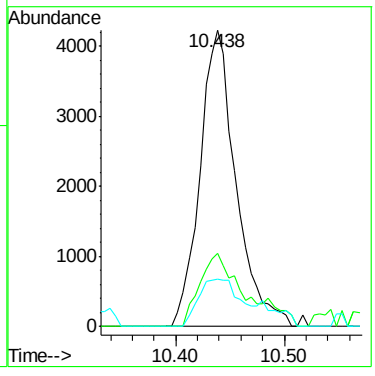


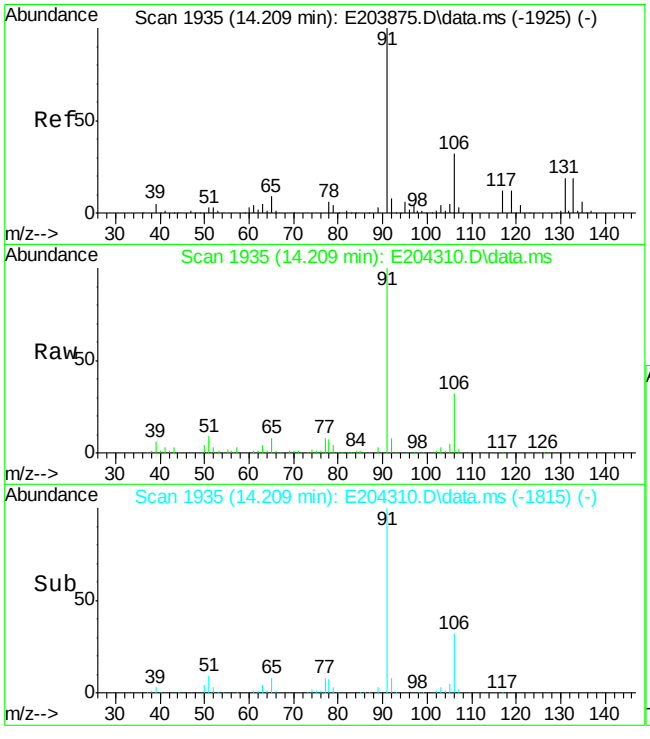


#75
benzene
Concen: 1.35 ug/L
RT: 10.438 min Scan# 1214
Delta R.T. 0.005 min
Lab File: E204310.D
Acq: 14 Jun 2013 3:23 pm

Tgt Ion: 78 Resp: 9773

Ion	Ratio	Lower	Upper
78	100		
77	24.6	0.0	54.5
52	15.9	0.0	45.9

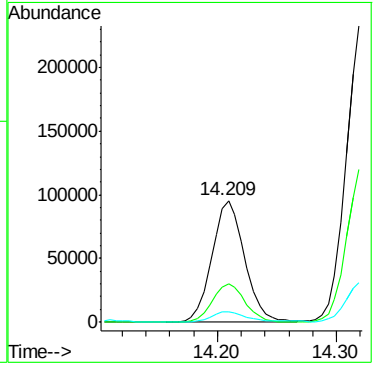


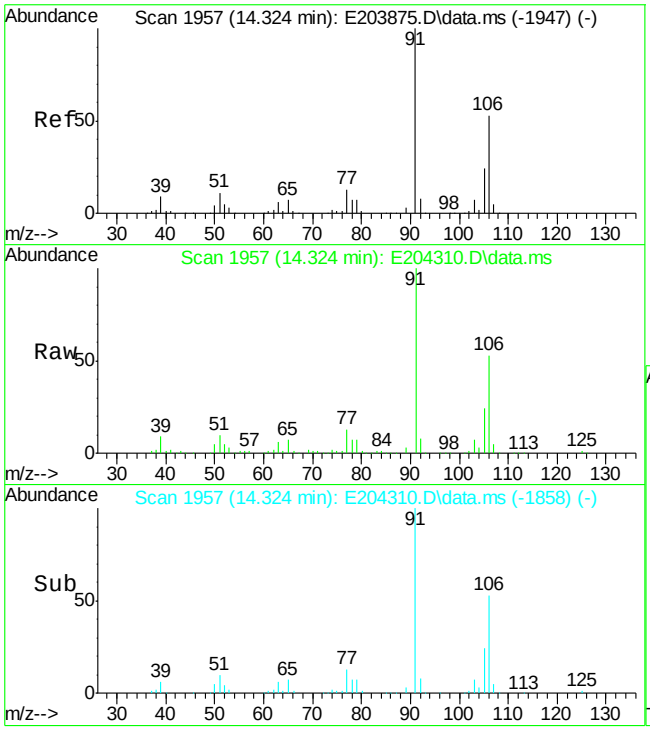


#108
ethylbenzene
Concen: 22.22 ug/L
RT: 14.209 min Scan# 1935
Delta R.T. -0.000 min
Lab File: E204310.D
Acq: 14 Jun 2013 3:23 pm

Tgt Ion: 91 Resp: 181668

Ion	Ratio	Lower	Upper
91	100		
106	31.7	2.1	62.1
77	8.4	0.0	38.7

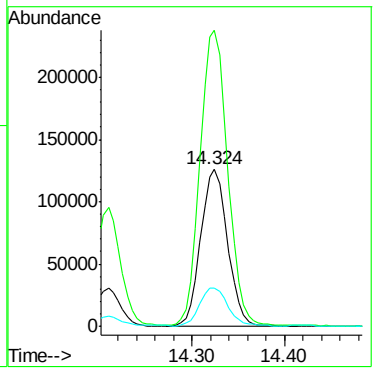


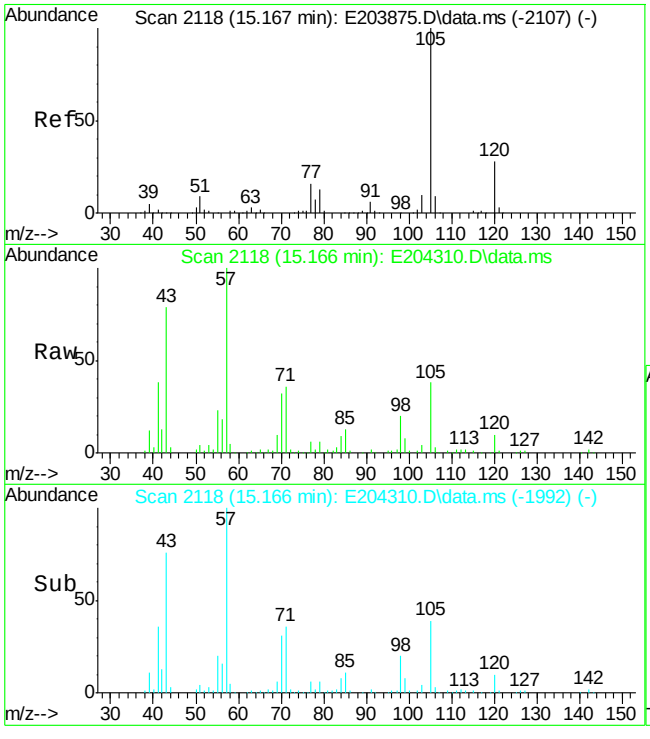


#109
m,p-xylene
Concen: 78.32 ug/L
RT: 14.324 min Scan# 1957
Delta R.T. -0.000 min
Lab File: E204310.D
Acq: 14 Jun 2013 3:23 pm

Tgt Ion:106 Resp: 254614

Ion	Ratio	Lower	Upper
106	100		
91	187.8	160.4	220.4
77	24.1	0.0	55.3

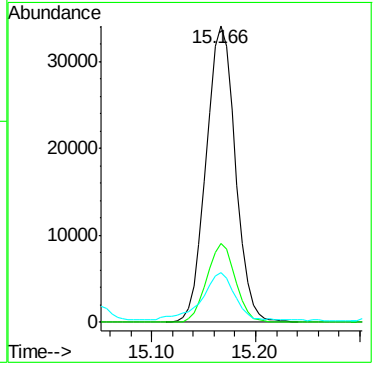


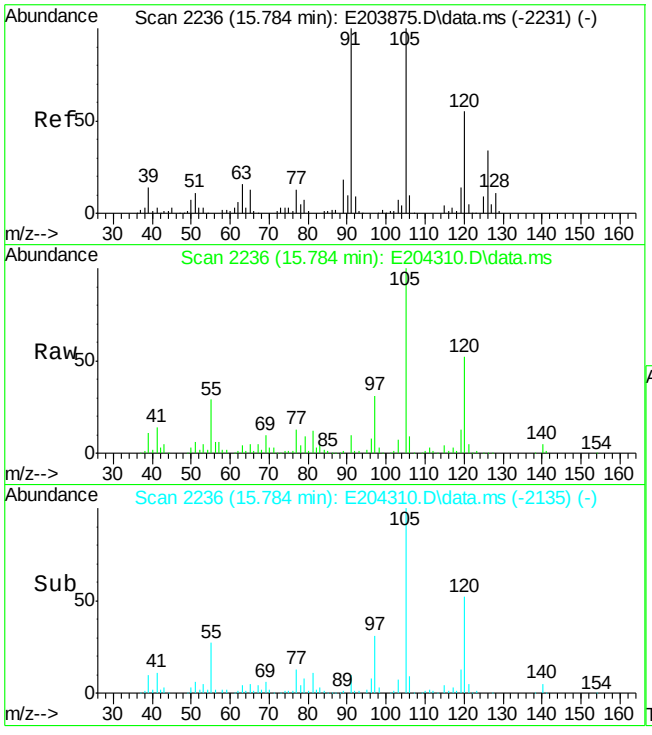


#115
isopropylbenzene
Concen: 7.89 ug/L
RT: 15.166 min Scan# 2118
Delta R.T. -0.000 min
Lab File: E204310.D
Acq: 14 Jun 2013 3:23 pm

Tgt Ion:105 Resp: 66445

Ion	Ratio	Lower	Upper
105	100		
120	26.7	0.0	58.0
77	15.6	0.0	45.6

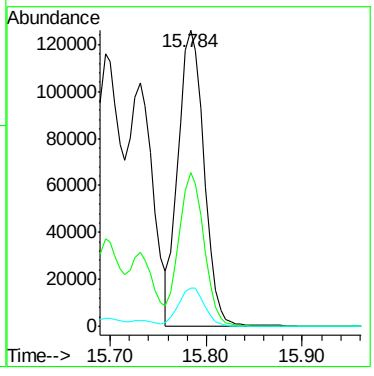


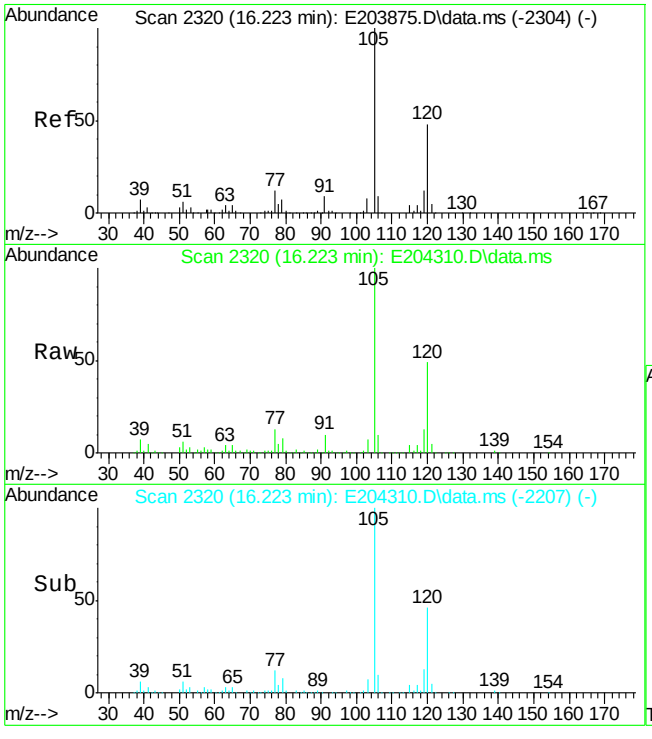


#125
1,3,5-trimethylbenzene
Concen: 32.93 ug/L
RT: 15.784 min Scan# 2236
Delta R.T. -0.000 min
Lab File: E204310.D
Acq: 14 Jun 2013 3:23 pm

Tgt Ion:105 Resp: 234963

Ion	Ratio	Lower	Upper
105	100		
120	51.8	21.4	81.4
119	13.1	0.0	42.8

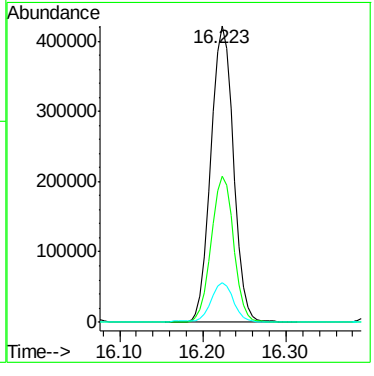




#128
1,2,4-trimethylbenzene
Concen: 108.84 ug/L
RT: 16.223 min Scan# 2320
Delta R.T. -0.000 min
Lab File: E204310.D
Acq: 14 Jun 2013 3:23 pm

Tgt Ion:105 Resp: 794218

Ion	Ratio	Lower	Upper
105	100		
120	49.4	18.2	78.2
119	13.4	0.0	43.0



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\3C\v3c4427-28\
Data File : 3C99661.D
Acq On : 13 Jun 2013 3:32 pm
Operator : prashans
Sample : jb39339-3
Misc : MS49834,V3C4427,6.8,,,,1
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jun 14 10:53:29 2013
Quant Method : C:\MSDCHEM\1\METHODS\M3C4359.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue May 28 09:01:21 2013
Response via : Initial Calibration

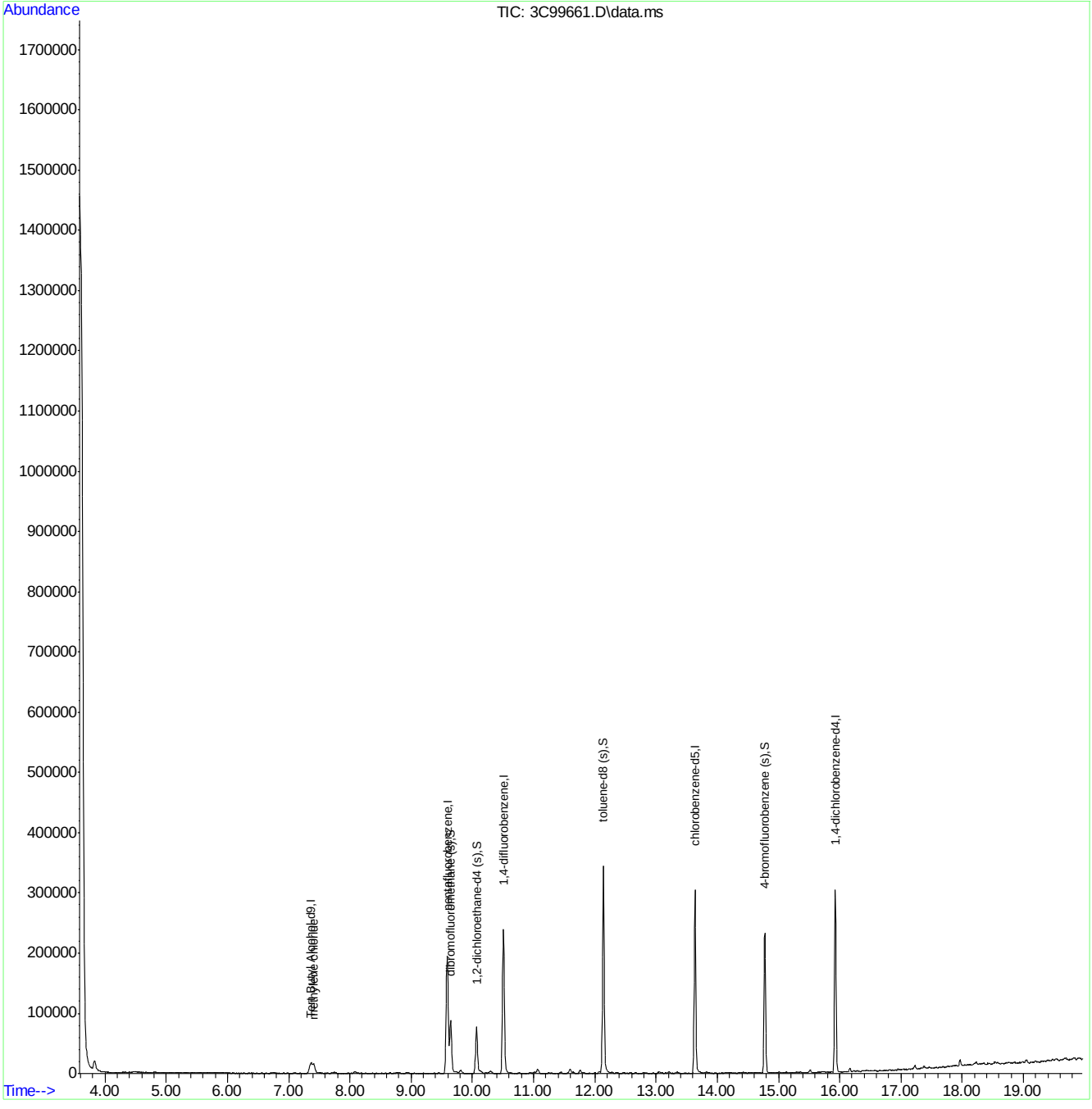
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	7.361	65	37548	500.00	ug/L	-0.01
5) pentafluorobenzene	9.589	168	162208	50.00	ug/L	-0.01
53) 1,4-difluorobenzene	10.505	114	225168	50.00	ug/L	-0.01
82) chlorobenzene-d5	13.638	117	178060	50.00	ug/L	0.00
97) 1,4-dichlorobenzene-d4	15.928	152	77667	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	9.647	113	61104	43.10	ug/L	-0.01
Spiked Amount 50.000	Range 65 - 131		Recovery = 86.20%			
45) 1,2-dichloroethane-d4 (s)	10.071	65	64385	45.06	ug/L	0.00
Spiked Amount 50.000	Range 70 - 121		Recovery = 90.12%			
74) toluene-d8 (s)	12.137	98	251224	44.67	ug/L	-0.01
Spiked Amount 50.000	Range 80 - 128		Recovery = 89.34%			
99) 4-bromofluorobenzene (s)	14.778	95	79020	45.36	ug/L	0.00
Spiked Amount 50.000	Range 67 - 131		Recovery = 90.72%			
Target Compounds						Qvalue
24) methylene chloride	7.408	84	6930	4.24	ug/L	98

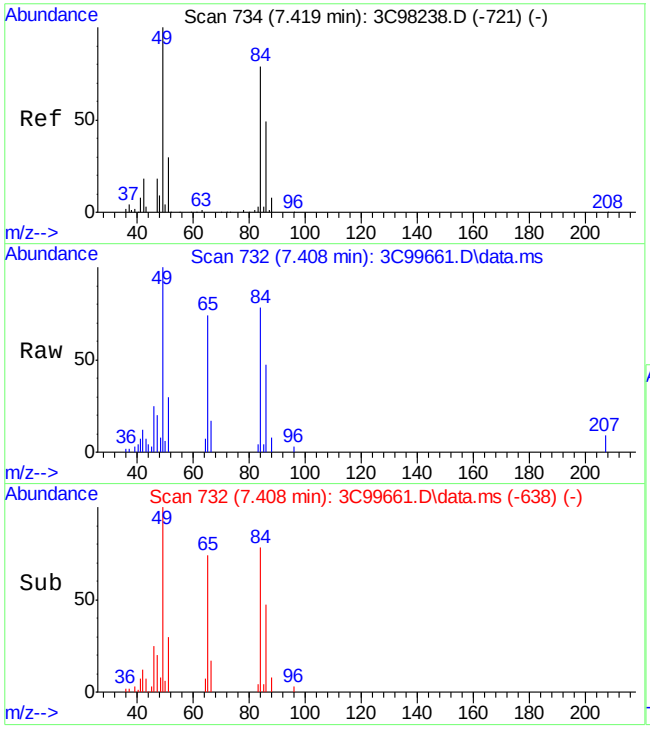
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\3C\v3c4427-28\
Data File : 3C99661.D
Acq On : 13 Jun 2013 3:32 pm
Operator : prashans
Sample : jb39339-3
Misc : MS49834,V3C4427,6.8,,,,1
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jun 14 10:53:29 2013
Quant Method : C:\MSDCHEM\1\METHODS\M3C4359.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue May 28 09:01:21 2013
Response via : Initial Calibration

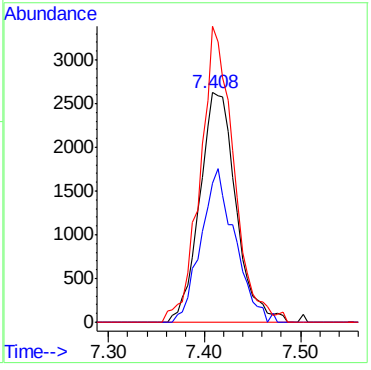




#24
methylene chloride
Concen: 4.24 ug/L
RT: 7.408 min Scan# 732
Delta R.T. -0.011 min
Lab File: 3C99661.D
Acq: 13 Jun 2013 3:32 pm

Tgt Ion: 84 Resp: 6930

Ion	Ratio	Lower	Upper
84	100		
86	60.7	43.6	81.0
49	129.0	89.0	165.2



7.1.3

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\3C\v3c4427-28\
Data File : 3C99662.D
Acq On : 13 Jun 2013 4:02 pm
Operator : prashans
Sample : jb39339-4
Misc : MS49834,V3C4427,7.4,,,,1
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jun 14 10:52:30 2013
Quant Method : C:\MSDCHEM\1\METHODS\M3C4359.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue May 28 09:01:21 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	7.367	65	44220	500.00	ug/L	0.00
5) pentafluorobenzene	9.589	168	166356	50.00	ug/L	-0.01
53) 1,4-difluorobenzene	10.510	114	232580	50.00	ug/L	0.00
82) chlorobenzene-d5	13.632	117	182906	50.00	ug/L	-0.01
97) 1,4-dichlorobenzene-d4	15.928	152	81589	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	9.647	113	62429	42.94	ug/L	-0.01
Spiked Amount 50.000	Range 65 - 131		Recovery = 85.88%			
45) 1,2-dichloroethane-d4 (s)	10.065	65	67296	45.92	ug/L	0.00
Spiked Amount 50.000	Range 70 - 121		Recovery = 91.84%			
74) toluene-d8 (s)	12.142	98	257897	44.40	ug/L	0.00
Spiked Amount 50.000	Range 80 - 128		Recovery = 88.80%			
99) 4-bromofluorobenzene (s)	14.778	95	84946	46.42	ug/L	0.00
Spiked Amount 50.000	Range 67 - 131		Recovery = 92.84%			
Target Compounds						Qvalue
24) methylene chloride	7.419	84	6264	3.74	ug/L	90
26) methyl tert butyl ether	7.727	73	10686	2.85	ug/L	93

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

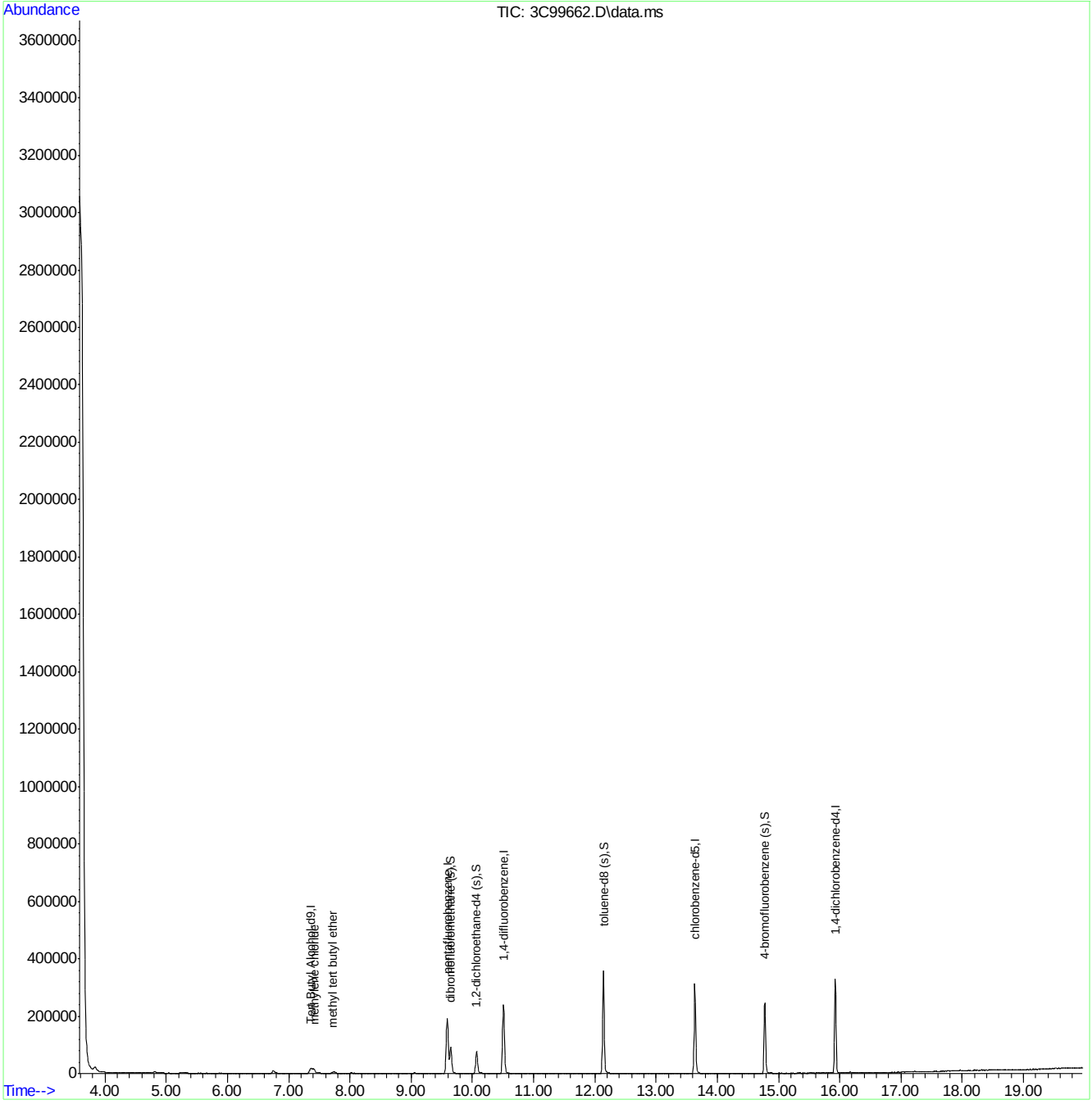
7.1.4

7

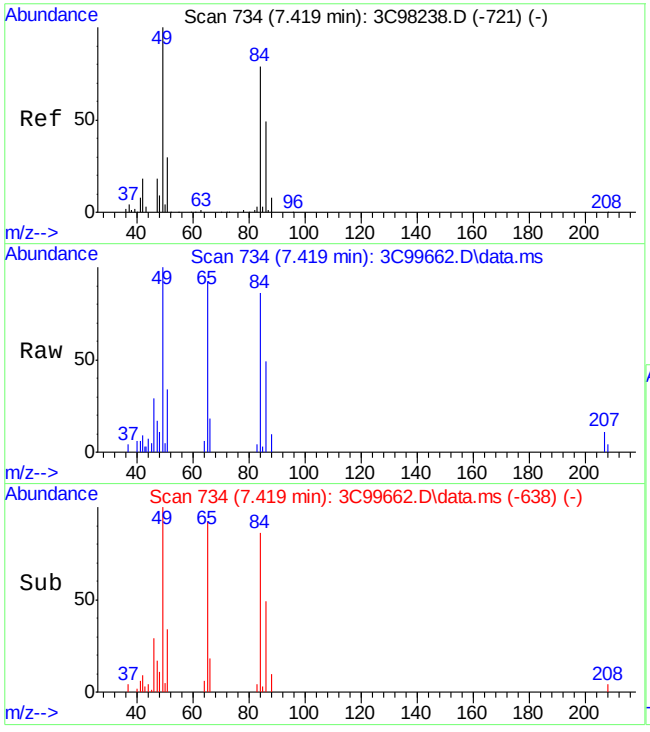
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\3C\v3c4427-28\
Data File : 3C99662.D
Acq On : 13 Jun 2013 4:02 pm
Operator : prashans
Sample : jb39339-4
Misc : MS49834,V3C4427,7.4,,,,1
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jun 14 10:52:30 2013
Quant Method : C:\MSDCHEM\1\METHODS\M3C4359.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue May 28 09:01:21 2013
Response via : Initial Calibration



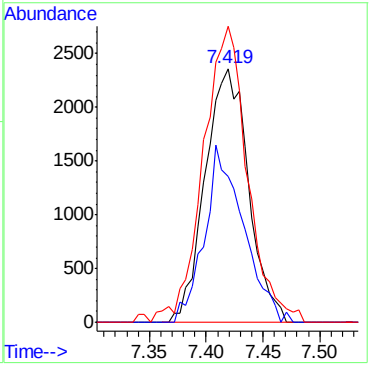
M3C4359.M Fri Jun 14 11:51:21 2013 ACCNJ Page: 2

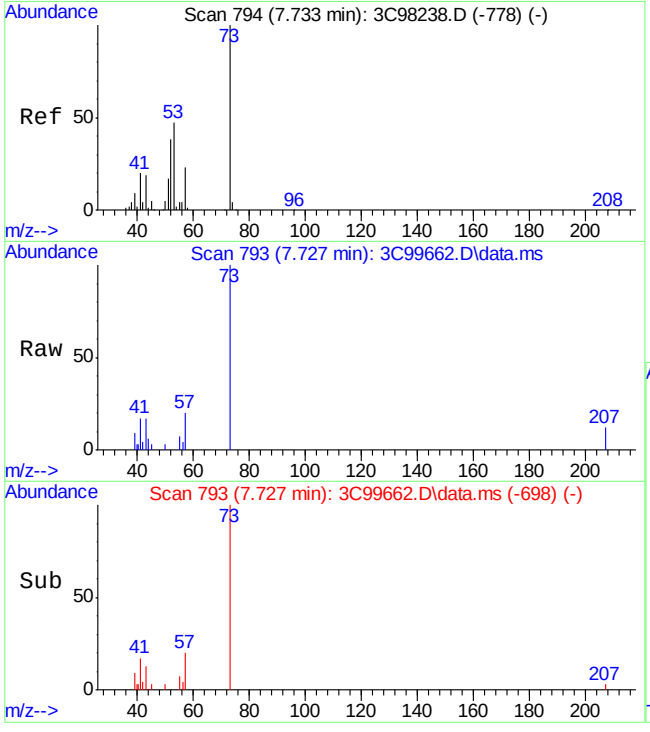


#24
methylene chloride
Concen: 3.74 ug/L
RT: 7.419 min Scan# 734
Delta R.T. -0.000 min
Lab File: 3C99662.D
Acq: 13 Jun 2013 4:02 pm

Tgt Ion: 84 Resp: 6264

Ion	Ratio	Lower	Upper
84	100		
86	57.4	43.6	81.0
49	112.8	89.0	165.2

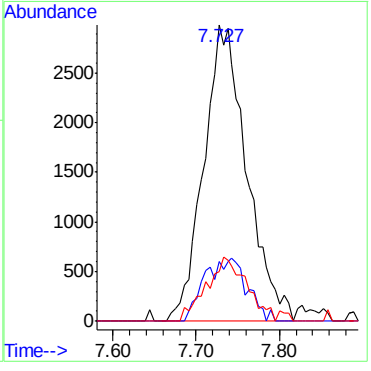




#26
methyl tert butyl ether
Concen: 2.85 ug/L
RT: 7.727 min Scan# 793
Delta R.T. -0.005 min
Lab File: 3C99662.D
Acq: 13 Jun 2013 4:02 pm

Tgt Ion: 73 Resp: 10686

Ion	Ratio	Lower	Upper
73	100		
57	20.0	0.0	53.4
43	16.5	0.0	49.6



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\3C\v3c4427-28\
Data File : 3C99663.D
Acq On : 13 Jun 2013 4:31 pm
Operator : prashans
Sample : jb39339-5
Misc : MS49834,V3C4427,6.6,,,,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jun 14 10:53:55 2013
Quant Method : C:\MSDCHEM\1\METHODS\M3C4359.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue May 28 09:01:21 2013
Response via : Initial Calibration

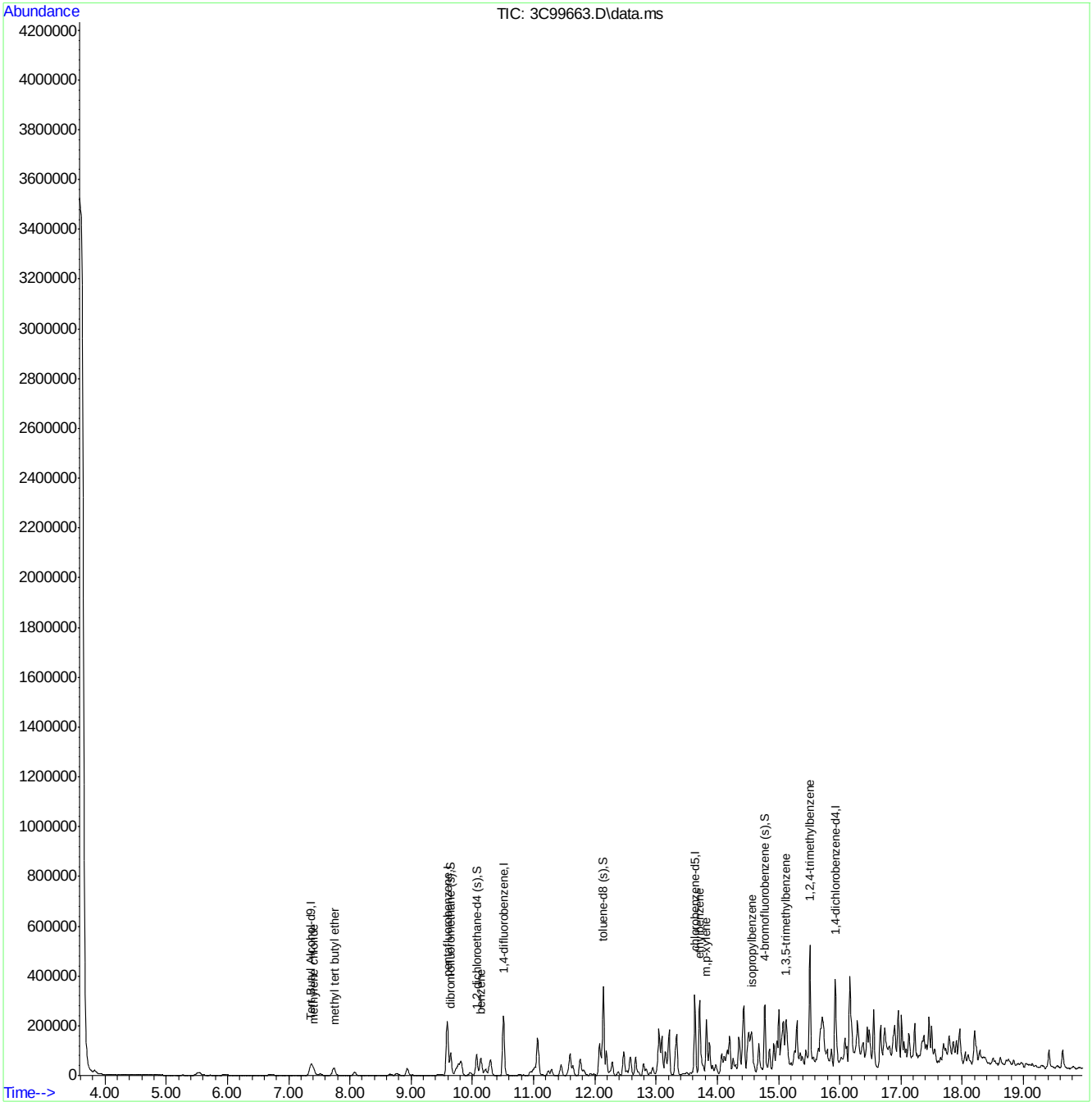
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	7.356	65	53070	500.00	ug/L	-0.02
5) pentafluorobenzene	9.589	168	161274	50.00	ug/L	-0.01
53) 1,4-difluorobenzene	10.510	114	223761	50.00	ug/L	0.00
82) chlorobenzene-d5	13.638	117	179157	50.00	ug/L	0.00
97) 1,4-dichlorobenzene-d4	15.928	152	86822	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	9.647	113	60782	43.12	ug/L	-0.01
Spiked Amount 50.000	Range 65 - 131		Recovery = 86.24%			
45) 1,2-dichloroethane-d4 (s)	10.071	65	65999	46.46	ug/L	0.00
Spiked Amount 50.000	Range 70 - 121		Recovery = 92.92%			
74) toluene-d8 (s)	12.137	98	242084	43.32	ug/L	-0.01
Spiked Amount 50.000	Range 80 - 128		Recovery = 86.64%			
99) 4-bromofluorobenzene (s)	14.778	95	82591	42.42	ug/L	0.00
Spiked Amount 50.000	Range 67 - 131		Recovery = 84.84%			
Target Compounds						Qvalue
24) methylene chloride	7.408	84	9284	5.71	ug/L	90
26) methyl tert butyl ether	7.748	73	1297	0.36	ug/L #	1
59) benzene	10.139	78	25423	3.83	ug/L	99
91) ethylbenzene	13.716	91	38945	5.28	ug/L	97
92) m,p-xylene	13.821	106	19479	6.92	ug/L	91
98) isopropylbenzene	14.569	105	39003	5.35	ug/L	98
109) 1,3,5-trimethylbenzene	15.123	105	74654	12.23	ug/L	97
112) 1,2,4-trimethylbenzene	15.510	105	263185	43.52	ug/L	99

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

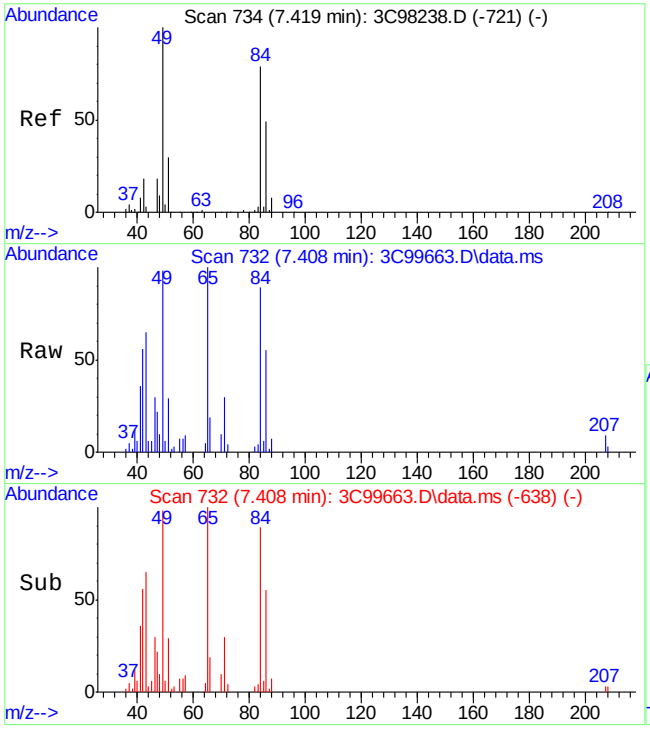
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\3C\v3c4427-28\
Data File : 3C99663.D
Acq On : 13 Jun 2013 4:31 pm
Operator : prashans
Sample : jb39339-5
Misc : MS49834,V3C4427,6.6,,,,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jun 14 10:53:55 2013
Quant Method : C:\MSDCHEM\1\METHODS\M3C4359.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue May 28 09:01:21 2013
Response via : Initial Calibration



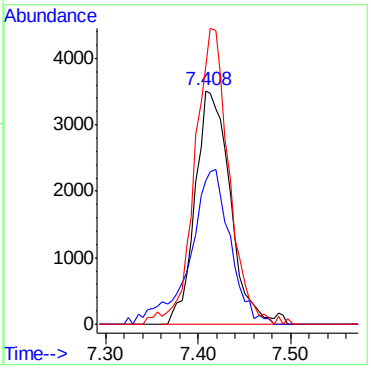
M3C4359.M Fri Jun 14 11:51:24 2013 ACCNJ Page: 2

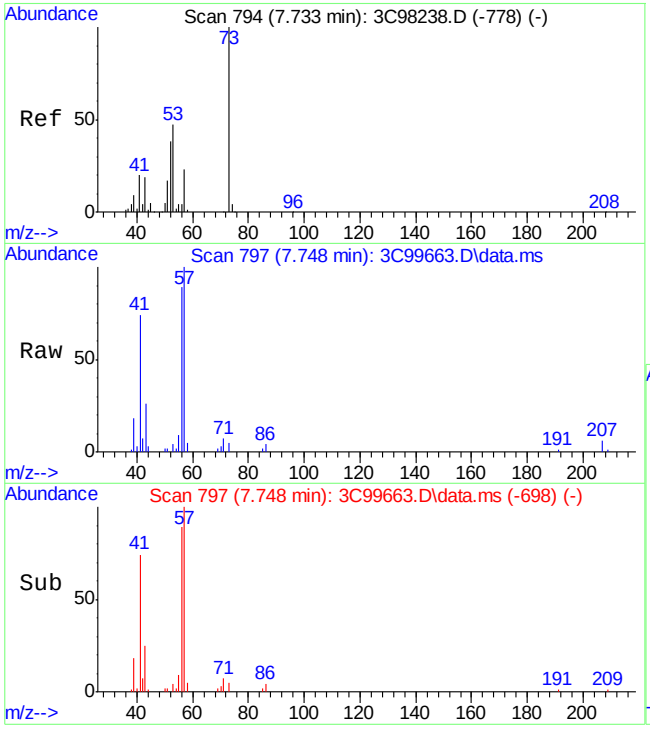


#24
methylene chloride
Concen: 5.71 ug/L
RT: 7.408 min Scan# 732
Delta R.T. -0.011 min
Lab File: 3C99663.D
Acq: 13 Jun 2013 4:31 pm

Tgt Ion: 84 Resp: 9284

Ion	Ratio	Lower	Upper
84	100		
86	61.5	43.6	81.0
49	110.3	89.0	165.2

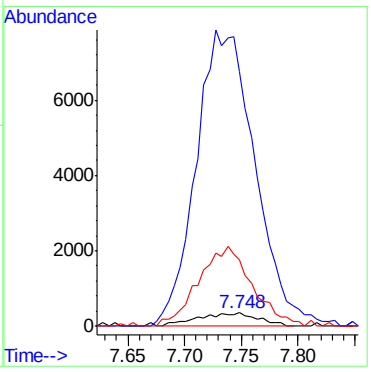


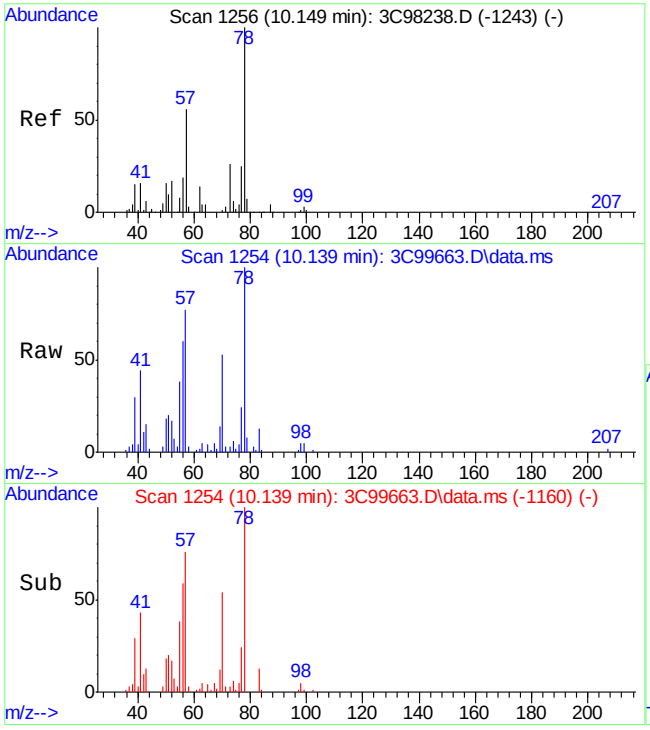


#26
methyl tert butyl ether
Concen: 0.36 ug/L
RT: 7.748 min Scan# 797
Delta R.T. 0.016 min
Lab File: 3C99663.D
Acq: 13 Jun 2013 4:31 pm

Tgt Ion: 73 Resp: 1297

Ion	Ratio	Lower	Upper
73	100		
57	1906.8	0.0	53.4#
43	495.2	0.0	49.6#

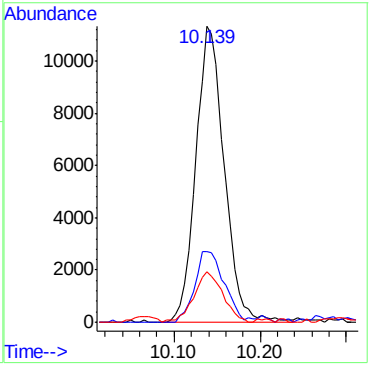


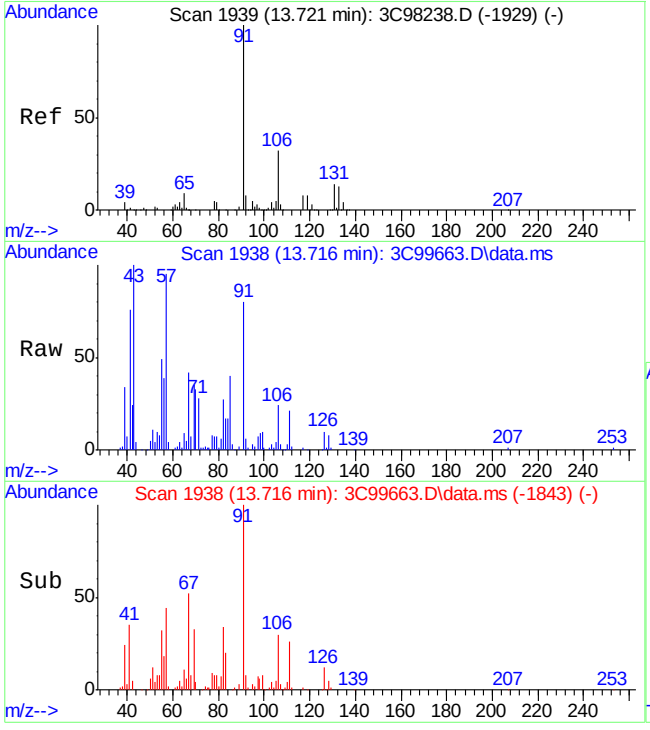


#59
benzene
Concen: 3.83 ug/L
RT: 10.139 min Scan# 1254
Delta R.T. -0.010 min
Lab File: 3C99663.D
Acq: 13 Jun 2013 4:31 pm

Tgt Ion: 78 Resp: 25423

Ion	Ratio	Lower	Upper
78	100		
77	24.0	0.0	54.6
52	17.0	0.0	46.5

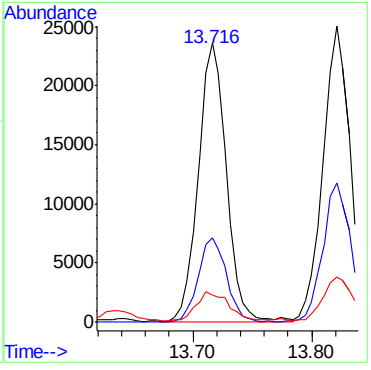


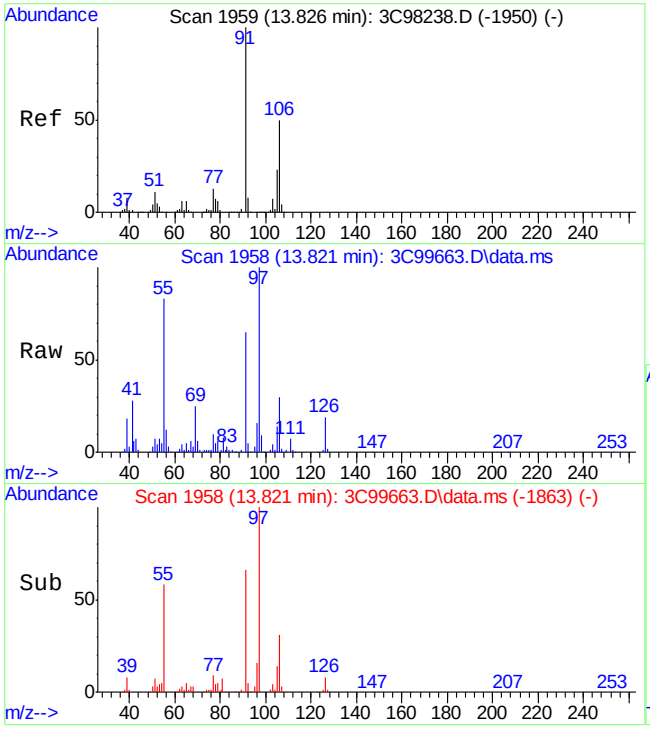


#91
ethylbenzene
Concen: 5.28 ug/L
RT: 13.716 min Scan# 1938
Delta R.T. -0.005 min
Lab File: 3C99663.D
Acq: 13 Jun 2013 4:31 pm

Tgt Ion: 91 Resp: 38945

Ion	Ratio	Lower	Upper
91	100		
106	30.2	1.7	61.7
77	9.3	0.0	38.6

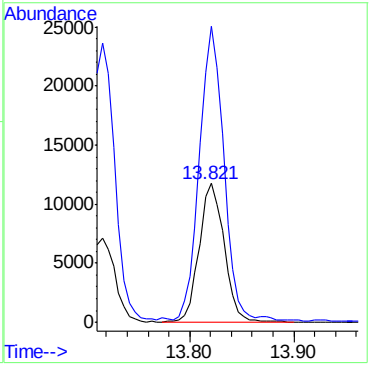


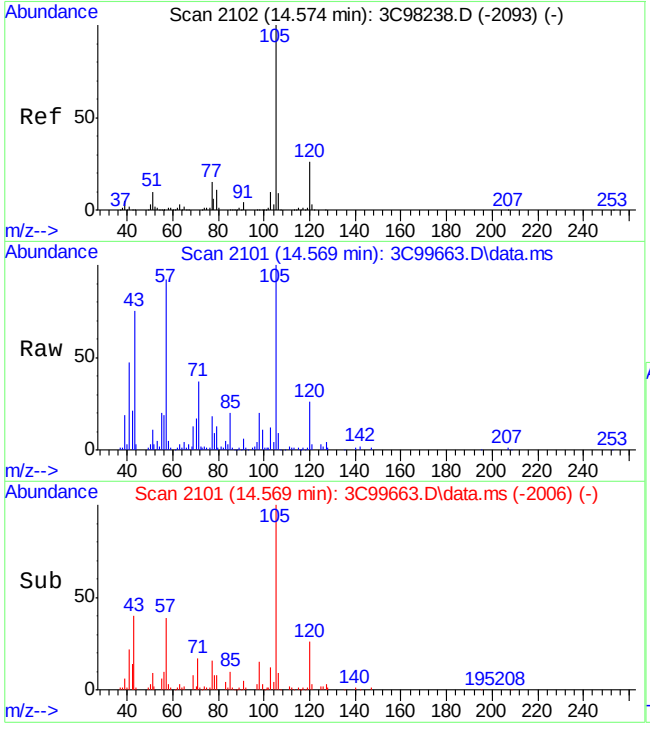


#92
m,p-xylene
Concen: 6.92 ug/L
RT: 13.821 min Scan# 1958
Delta R.T. -0.005 min
Lab File: 3C99663.D
Acq: 13 Jun 2013 4:31 pm

Tgt Ion:106 Resp: 19479

Ion	Ratio	Lower	Upper
106	100		
91	212.2	138.8	257.8

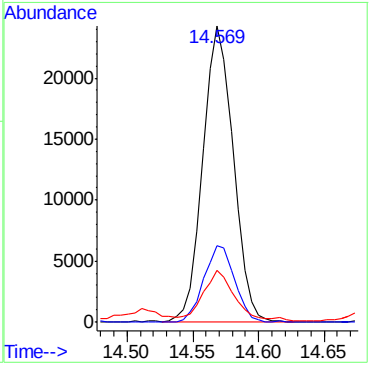




#98
isopropylbenzene
Concen: 5.35 ug/L
RT: 14.569 min Scan# 2101
Delta R.T. -0.005 min
Lab File: 3C99663.D
Acq: 13 Jun 2013 4:31 pm

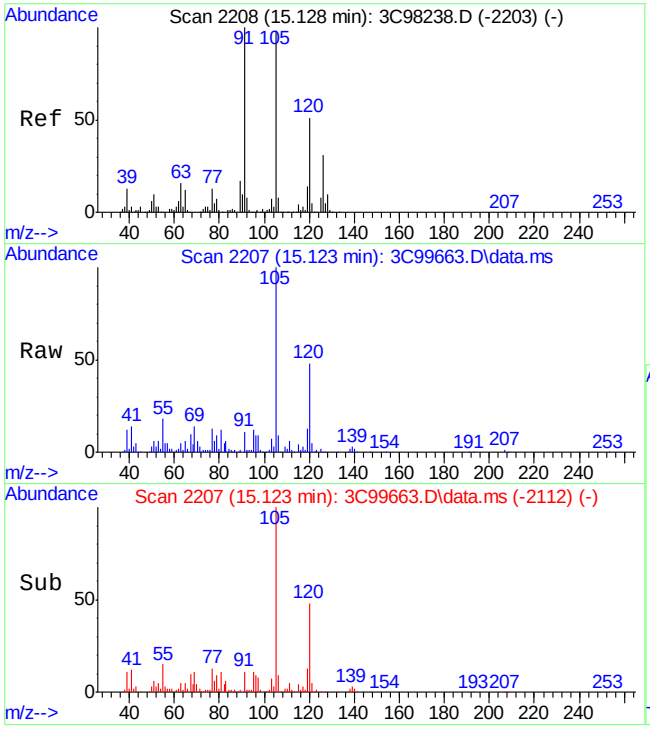
Tgt Ion:105 Resp: 39003

Ion	Ratio	Lower	Upper
105	100		
120	25.7	0.0	56.4
77	16.9	0.0	45.3



7.1.5

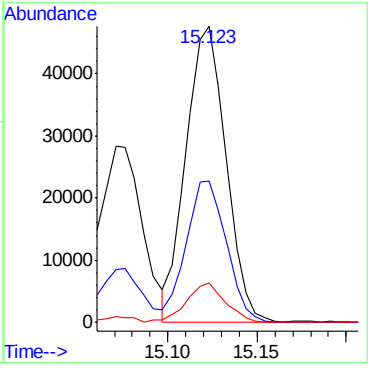
7

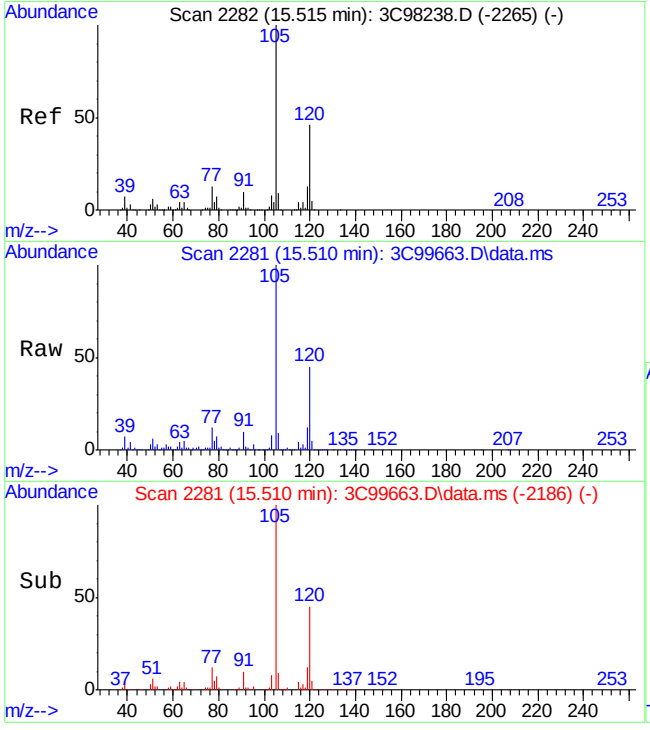


#109
1,3,5-trimethylbenzene
Concen: 12.23 ug/L
RT: 15.123 min Scan# 2207
Delta R.T. -0.005 min
Lab File: 3C99663.D
Acq: 13 Jun 2013 4:31 pm

Tgt Ion:105 Resp: 74654

Ion	Ratio	Lower	Upper
105	100		
120	47.7	20.0	80.0
119	13.0	0.0	42.9

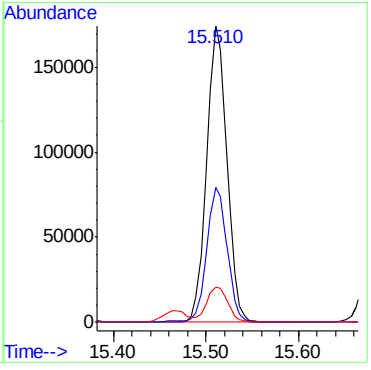




#112
1,2,4-trimethylbenzene
Concen: 43.52 ug/L
RT: 15.510 min Scan# 2281
Delta R.T. -0.005 min
Lab File: 3C99663.D
Acq: 13 Jun 2013 4:31 pm

Tgt Ion:105 Resp: 263185

Ion	Ratio	Lower	Upper
105	100		
120	45.3	15.8	75.8
119	11.9	0.0	42.9



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\3C\v3c4427-28\
Data File : 3C99664.D
Acq On : 13 Jun 2013 5:01 pm
Operator : prashans
Sample : jb39339-6
Misc : MS49834,V3C4427,6.2,,,,1
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jun 14 10:53:09 2013
Quant Method : C:\MSDCHEM\1\METHODS\M3C4359.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue May 28 09:01:21 2013
Response via : Initial Calibration

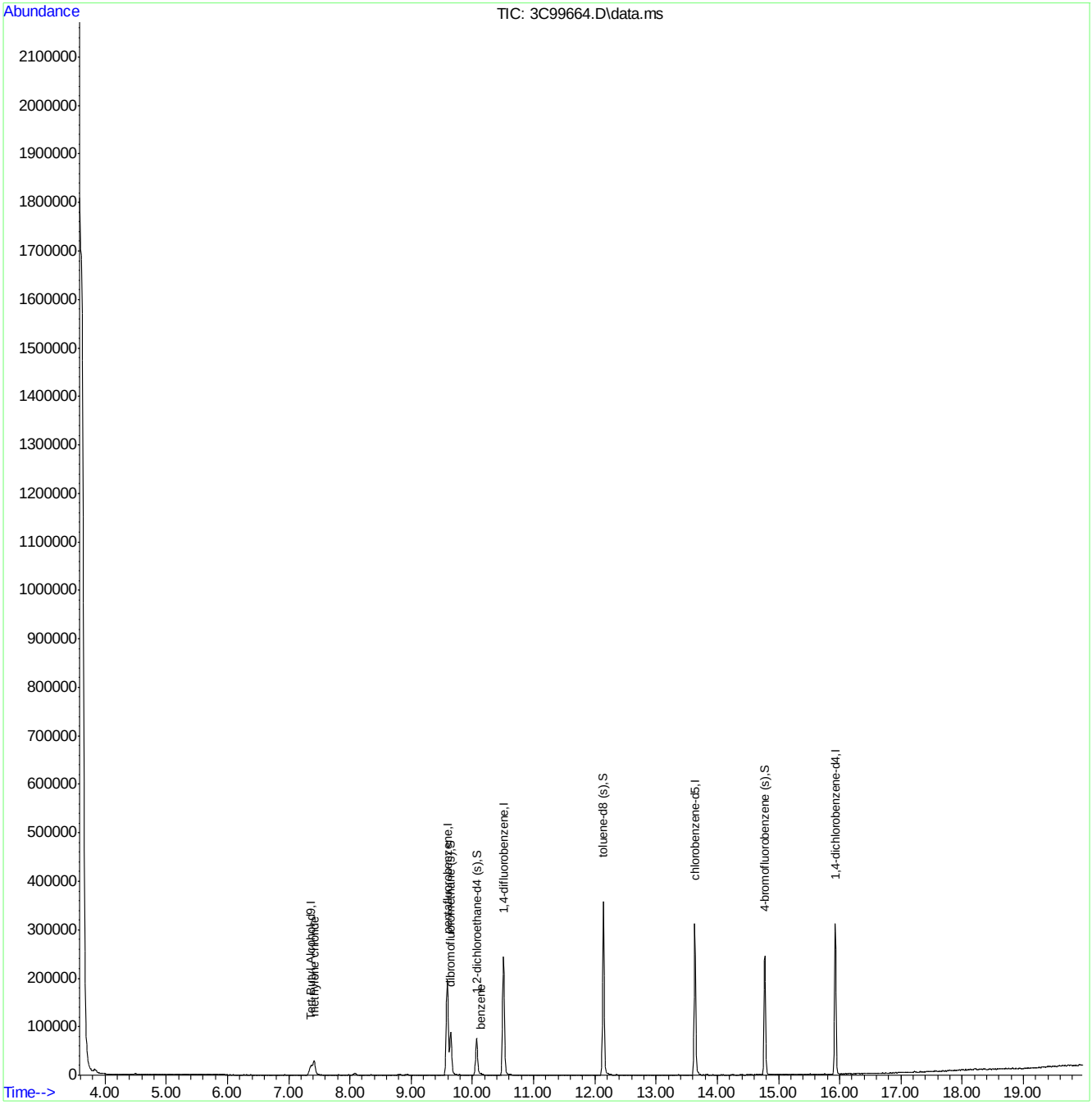
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	7.367	65	49072	500.00	ug/L	0.00
5) pentafluorobenzene	9.589	168	168725	50.00	ug/L	-0.01
53) 1,4-difluorobenzene	10.510	114	236279	50.00	ug/L	0.00
82) chlorobenzene-d5	13.638	117	182876	50.00	ug/L	0.00
97) 1,4-dichlorobenzene-d4	15.929	152	79605	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	9.647	113	62640	42.48	ug/L	0.00
Spiked Amount 50.000	Range 65 - 131		Recovery = 84.96%			
45) 1,2-dichloroethane-d4 (s)	10.071	65	65935	44.36	ug/L	0.00
Spiked Amount 50.000	Range 70 - 121		Recovery = 88.72%			
74) toluene-d8 (s)	12.137	98	255746	43.34	ug/L	-0.01
Spiked Amount 50.000	Range 80 - 128		Recovery = 86.68%			
99) 4-bromofluorobenzene (s)	14.778	95	81908	45.88	ug/L	0.00
Spiked Amount 50.000	Range 67 - 131		Recovery = 91.76%			
Target Compounds						Qvalue
24) methylene chloride	7.414	84	15806	9.30	ug/L	90
59) benzene	10.144	78	1472	0.21	ug/L	94

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

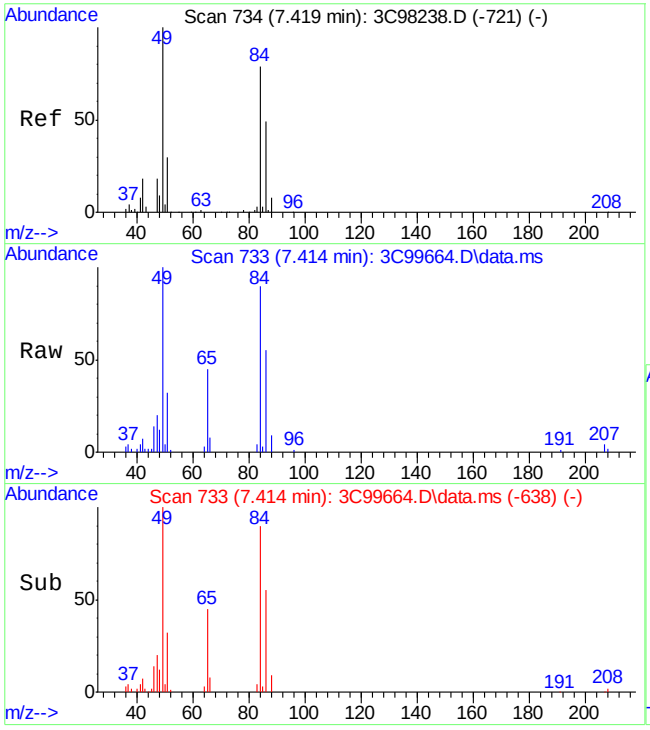
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\3C\v3c4427-28\
Data File : 3C99664.D
Acq On : 13 Jun 2013 5:01 pm
Operator : prashans
Sample : jb39339-6
Misc : MS49834,V3C4427,6.2,,,,1
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jun 14 10:53:09 2013
Quant Method : C:\MSDCHEM\1\METHODS\M3C4359.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue May 28 09:01:21 2013
Response via : Initial Calibration



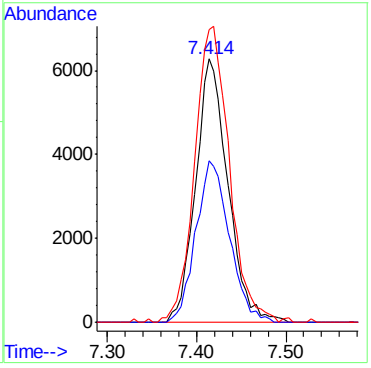
M3C4359.M Fri Jun 14 11:51:29 2013 ACCNJ

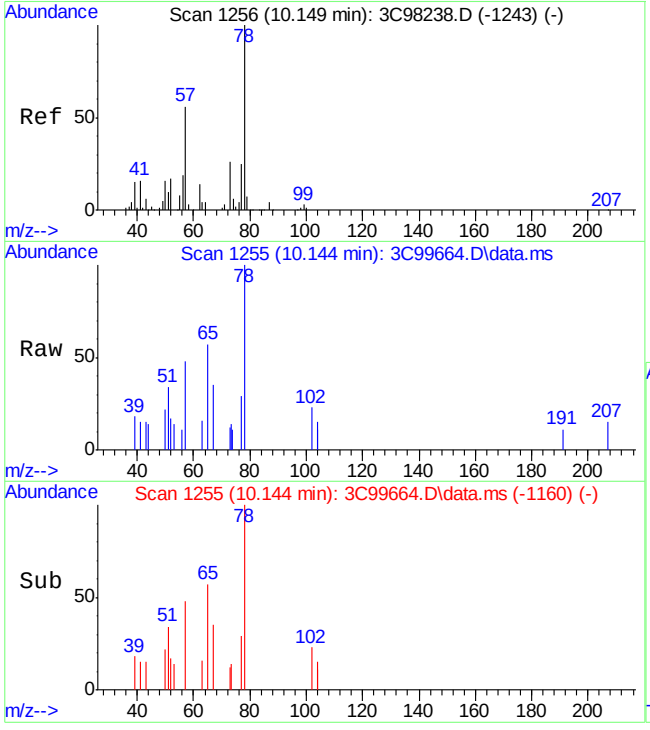


#24
methylene chloride
Concen: 9.30 ug/L
RT: 7.414 min Scan# 733
Delta R.T. -0.005 min
Lab File: 3C99664.D
Acq: 13 Jun 2013 5:01 pm

Tgt Ion: 84 Resp: 15806

Ion	Ratio	Lower	Upper
84	100		
86	61.1	43.6	81.0
49	111.3	89.0	165.2

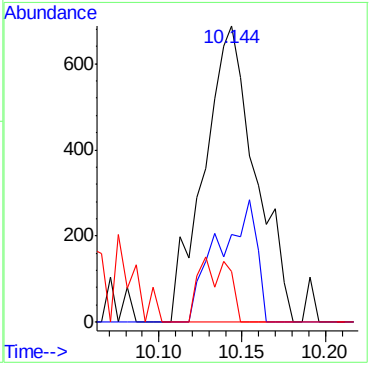




#59
benzene
Concen: 0.21 ug/L
RT: 10.144 min Scan# 1255
Delta R.T. -0.005 min
Lab File: 3C99664.D
Acq: 13 Jun 2013 5:01 pm

Tgt Ion: 78 Resp: 1472

Ion	Ratio	Lower	Upper
78	100		
77	29.4	0.0	54.6
52	17.0	0.0	46.5



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d210121.D
Acq On : 17 Jun 2013 8:53 pm
Operator : EmilyT
Sample : jb39339-7
Misc : ms49834,vd8577,6.3,,100,10,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jun 18 08:33:24 2013
Quant Method : C:\msdchem\1\METHODS\MD8524.M
Quant Title : SW-846 Method 8260B
QLast Update : Fri Jun 14 10:55:14 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.990	65	77677	500.00	ug/L	0.00
4) pentafluorobenzene	10.218	168	210112	50.00	ug/L	0.00
53) 1,4-difluorobenzene	11.128	114	273042	50.00	ug/L	-0.01
85) chlorobenzene-d5	14.475	117	254200	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.064	152	158782	50.00	ug/L	0.00

System Monitoring Compounds						
46) dibromofluoromethane (s)	10.244	113	80459	51.27	ug/L	0.00
Spiked Amount 50.000	Range 65 - 131		Recovery = 102.54%			
47) 1,2-dichloroethane-d4 (s)	10.673	65	103096	52.92	ug/L	0.00
Spiked Amount 50.000	Range 70 - 121		Recovery = 105.84%			
77) toluene-d8 (s)	12.838	98	314179	55.61	ug/L	-0.01
Spiked Amount 50.000	Range 80 - 128		Recovery = 111.22%			
101) 4-bromofluorobenzene (s)	15.757	95	121319	51.88	ug/L	0.00
Spiked Amount 50.000	Range 67 - 131		Recovery = 103.76%			

Target Compounds						Qvalue
79) toluene	12.911	92	974	0.25	ug/L #	62
95) m,p-xylene	14.705	106	12954	4.13	ug/L	98
114) 1,2,4-trimethylbenzene	16.620	105	20592	2.71	ug/L	89

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

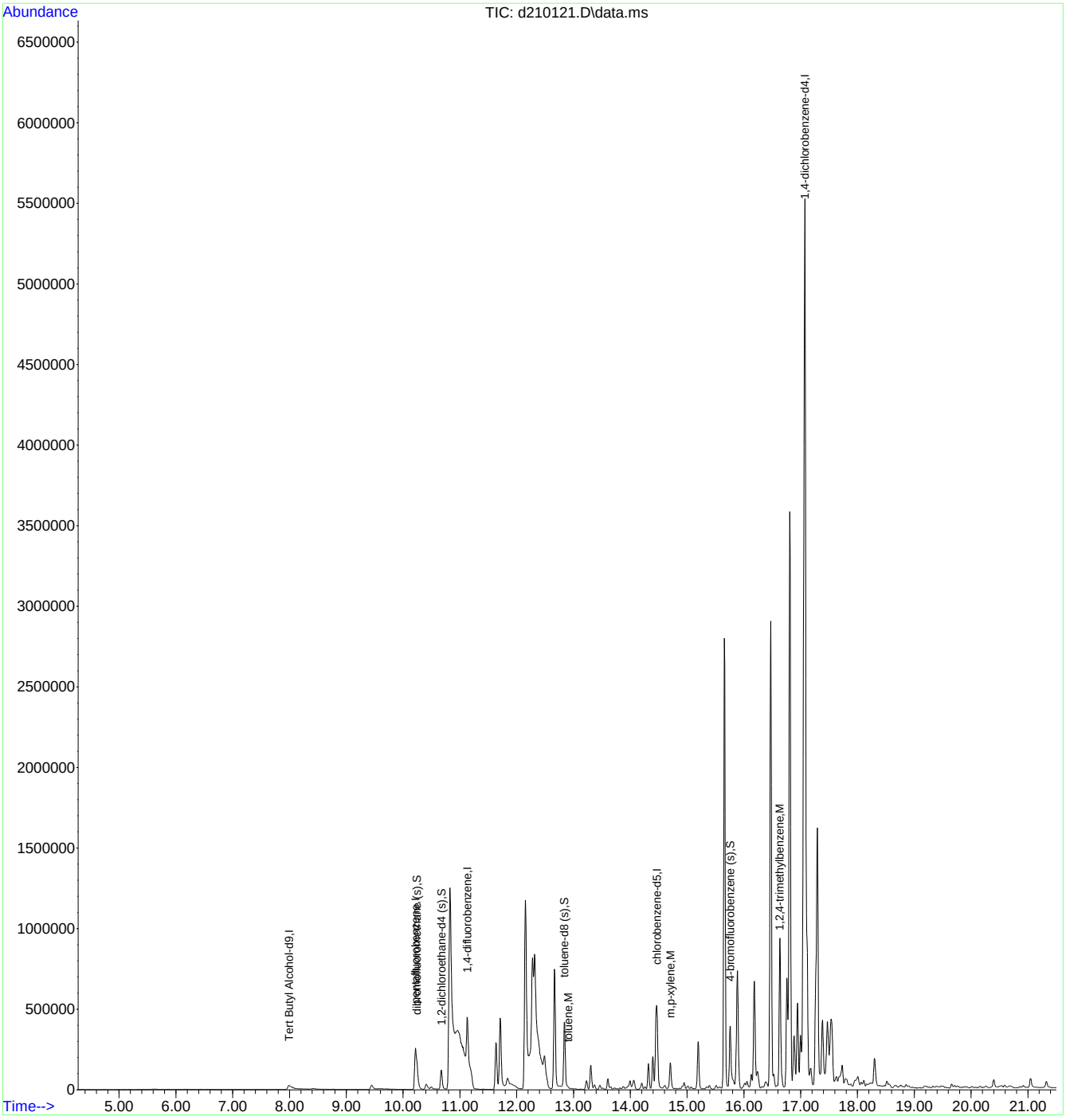
7.1.7

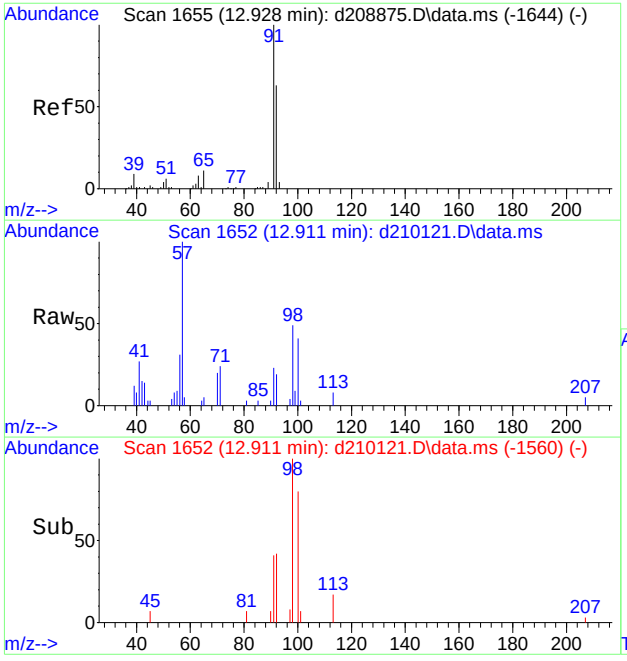
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d210121.D
Acq On : 17 Jun 2013 8:53 pm
Operator : EmilyT
Sample : jb39339-7
Misc : ms49834,vd8577,6.3,,100,10,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jun 18 08:33:24 2013
Quant Method : C:\msdchem\1\METHODS\MD8524.M
Quant Title : SW-846 Method 8260B
QLast Update : Fri Jun 14 10:55:14 2013
Response via : Initial Calibration

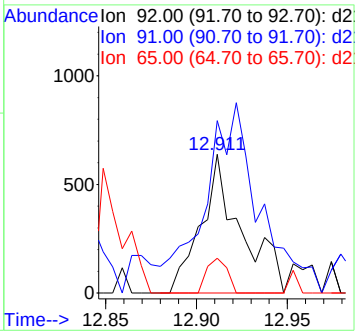


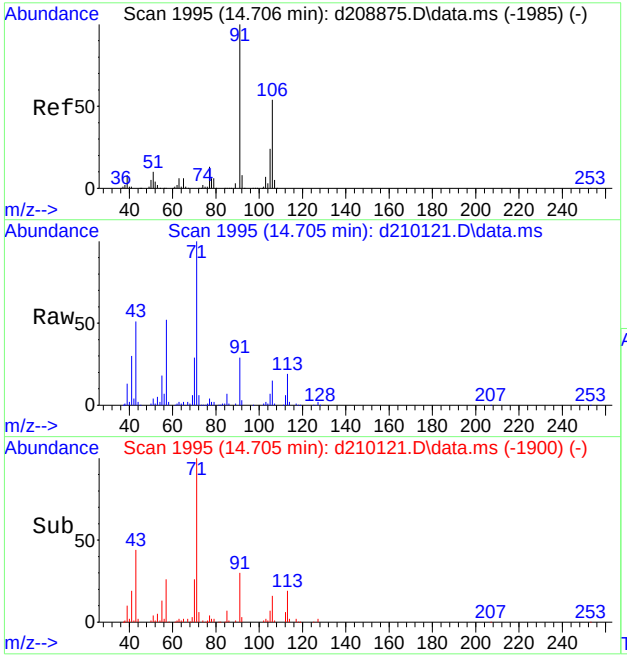


#79
toluene
Concen: 0.25 ug/L
RT: 12.911 min Scan# 1652
Delta R.T. -0.016 min
Lab File: d210121.D
Acq: 17 Jun 2013 8:53 pm

Tgt Ion: 92 Resp: 974

Ion	Ratio	Lower	Upper
92	100		
91	105.0	128.3	188.3#
65	25.2	0.0	47.2

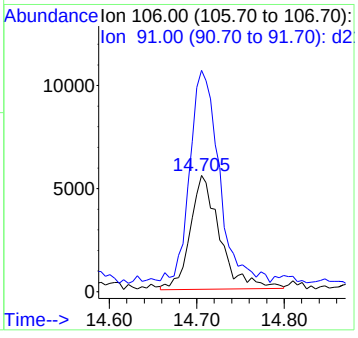




#95
m,p-xylene
Concen: 4.13 ug/L
RT: 14.705 min Scan# 1995
Delta R.T. -0.001 min
Lab File: d210121.D
Acq: 17 Jun 2013 8:53 pm

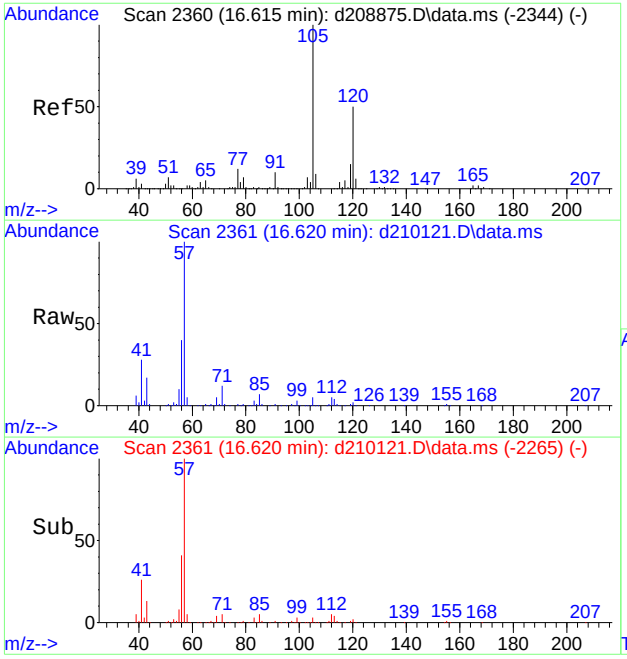
Tgt Ion:106 Resp: 12954

Ion	Ratio	Lower	Upper
106	100		
91	189.1	130.4	242.2



7.1.7

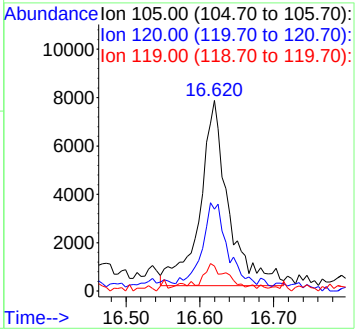
7



#114
1,2,4-trimethylbenzene
Concen: 2.71 ug/L
RT: 16.620 min Scan# 2361
Delta R.T. 0.005 min
Lab File: d210121.D
Acq: 17 Jun 2013 8:53 pm

Tgt Ion:105 Resp: 20592

Ion	Ratio	Lower	Upper
105	100		
120	41.4	19.5	79.5
119	11.2	0.0	44.8



7.1.7

Quantitation Report (QT/LSC Reviewed)

Data Path : C:\msdchem\1\DATA\3C\v3c4427-28\
Data File : 3C99646.D
Acq On : 13 Jun 2013 8:33 am
Operator : prashans
Sample : MB
Misc : MS49760,V3C4427,5.0,,,,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 14 11:09:49 2013
Quant Method : C:\MSDCHEM\1\METHODS\M3C4359.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue May 28 09:01:21 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	7.356	65	38793	500.00	ug/L	-0.02
5) pentafluorobenzene	9.589	168	164152	50.00	ug/L	-0.01
53) 1,4-difluorobenzene	10.505	114	228104	50.00	ug/L	-0.01
82) chlorobenzene-d5	13.632	117	175579	50.00	ug/L	-0.01
97) 1,4-dichlorobenzene-d4	15.928	152	77143	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	9.647	113	60312	42.04	ug/L	-0.01
Spiked Amount 50.000	Range 65 - 131		Recovery = 84.08%			
45) 1,2-dichloroethane-d4 (s)	10.065	65	61816	42.75	ug/L	0.00
Spiked Amount 50.000	Range 70 - 121		Recovery = 85.50%			
74) toluene-d8 (s)	12.136	98	252107	44.25	ug/L	-0.01
Spiked Amount 50.000	Range 80 - 128		Recovery = 88.50%			
99) 4-bromofluorobenzene (s)	14.772	95	78519	45.38	ug/L	-0.01
Spiked Amount 50.000	Range 67 - 131		Recovery = 90.76%			

Target Compounds Qvalue

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

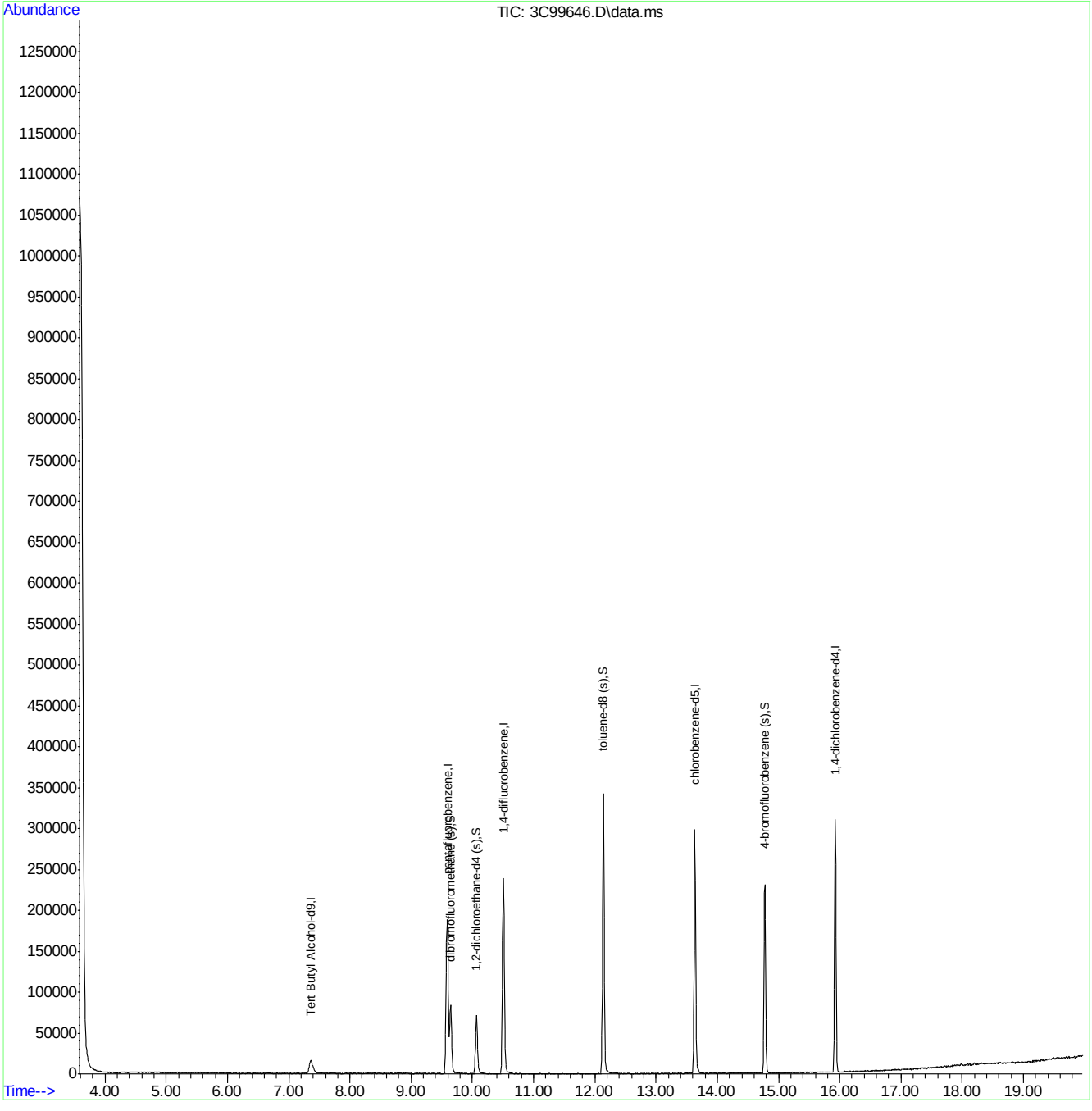
7.2.1

7

Quantitation Report (QT/LSC Reviewed)

Data Path : C:\msdchem\1\DATA\3C\v3c4427-28\
Data File : 3C99646.D
Acq On : 13 Jun 2013 8:33 am
Operator : prashans
Sample : MB
Misc : MS49760,V3C4427,5.0,,,,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 14 11:09:49 2013
Quant Method : C:\MSDCHEM\1\METHODS\M3C4359.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue May 28 09:01:21 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d210105.D
Acq On : 17 Jun 2013 12:38 pm
Operator : EmilyT
Sample : mb/jb25319f-17a
Misc : ms49337,vd8577,5,,100,5,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 17 15:53:32 2013
Quant Method : C:\msdchem\1\METHODS\MD8524.M
Quant Title : SW-846 Method 8260B
QLast Update : Fri Jun 14 10:55:14 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.001	65	61145	500.00	ug/L	0.01
4) pentafluorobenzene	10.218	168	182571	50.00	ug/L	0.00
53) 1,4-difluorobenzene	11.128	114	235802	50.00	ug/L	-0.01
85) chlorobenzene-d5	14.476	117	213538	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.059	152	133811	50.00	ug/L	0.00

System Monitoring Compounds

46) dibromofluoromethane (s)	10.250	113	69750	51.15	ug/L	0.00
Spiked Amount 50.000	Range 65 - 131		Recovery = 102.30%			
47) 1,2-dichloroethane-d4 (s)	10.673	65	92639	54.72	ug/L	0.00
Spiked Amount 50.000	Range 70 - 121		Recovery = 109.44%			
77) toluene-d8 (s)	12.839	98	259577	53.21	ug/L	-0.01
Spiked Amount 50.000	Range 80 - 128		Recovery = 106.42%			
101) 4-bromofluorobenzene (s)	15.757	95	102376	51.95	ug/L	0.00
Spiked Amount 50.000	Range 67 - 131		Recovery = 103.90%			

Target Compounds Qvalue

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

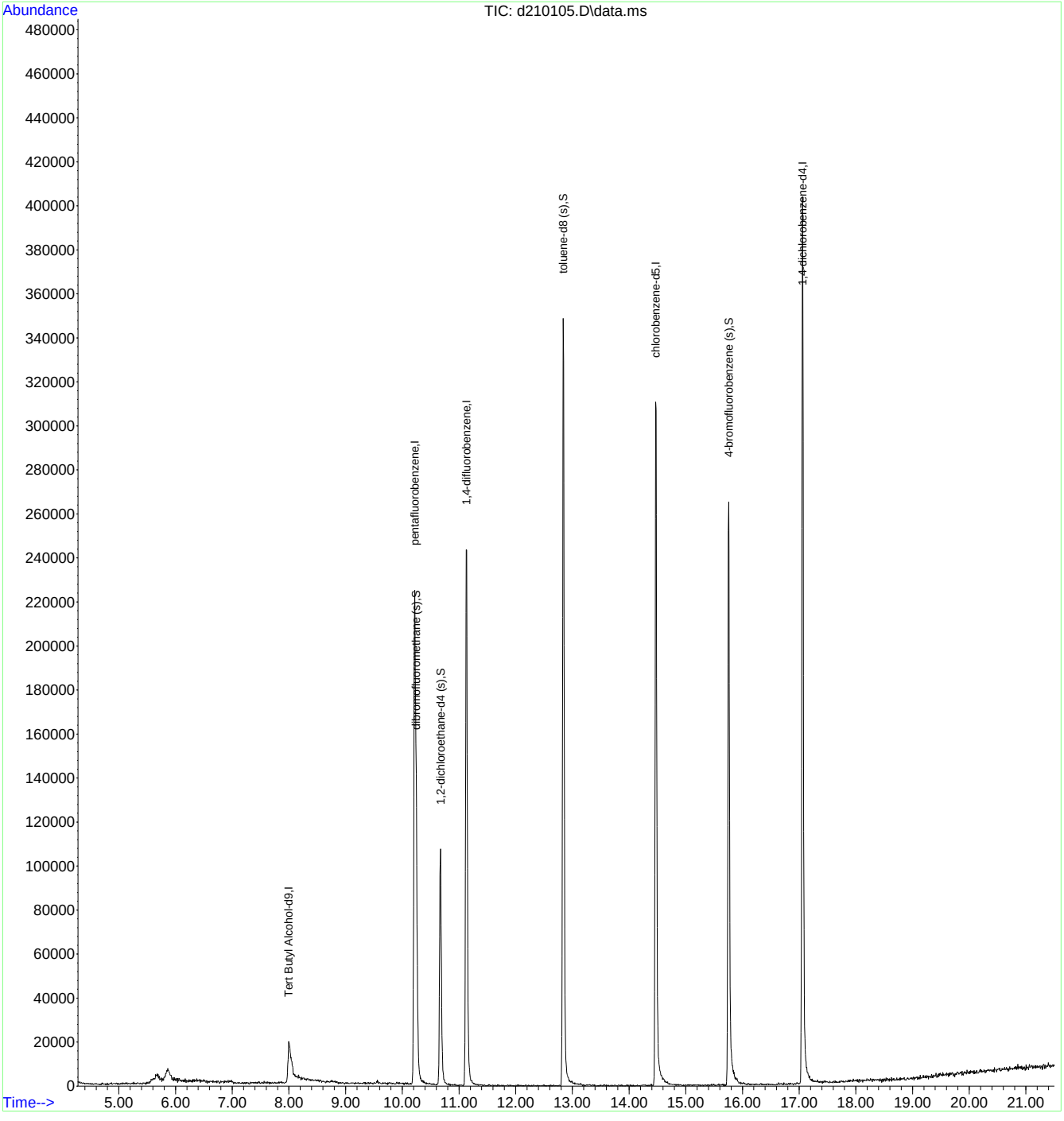
7.2.2

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d210105.D
Acq On : 17 Jun 2013 12:38 pm
Operator : EmilyT
Sample : mb/jb25319f-17a
Misc : ms49337,vd8577,5,,100,5,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 17 15:53:32 2013
Quant Method : C:\msdchem\1\METHODS\MD8524.M
Quant Title : SW-846 Method 8260B
QLast Update : Fri Jun 14 10:55:14 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E204301.D
Acq On : 14 Jun 2013 10:43 am
Operator : Oksanat
Sample : mb
Misc : MS49520,VE8979,5,,100,5,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jun 14 15:00:51 2013
Quant Method : C:\MSDCHEM\1\METHODS\ME8959.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Jun 11 18:05:22 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.650	65	87841	500.00	ug/L	0.00
5) pentafluorobenzene	9.862	168	204062	50.00	ug/L	0.00
66) 1,4-difluorobenzene	10.777	114	280343	50.00	ug/L	0.00
97) chlorobenzene-d5	14.109	117	264141	50.00	ug/L	0.00
114) 1,4-dichlorobenzene-d4	16.682	152	147168	50.00	ug/L	0.00

System Monitoring Compounds

60) dibromofluoromethane (s)	9.904	113	80531	41.48	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 82.96%			
61) 1,2-dichloroethane-d4 (s)	10.317	65	100504	43.93	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 87.86%			
89) toluene-d8 (s)	12.482	98	332179	47.83	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 95.66%			
116) 4-bromofluorobenzene (s)	15.380	95	131987	46.40	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 92.80%			

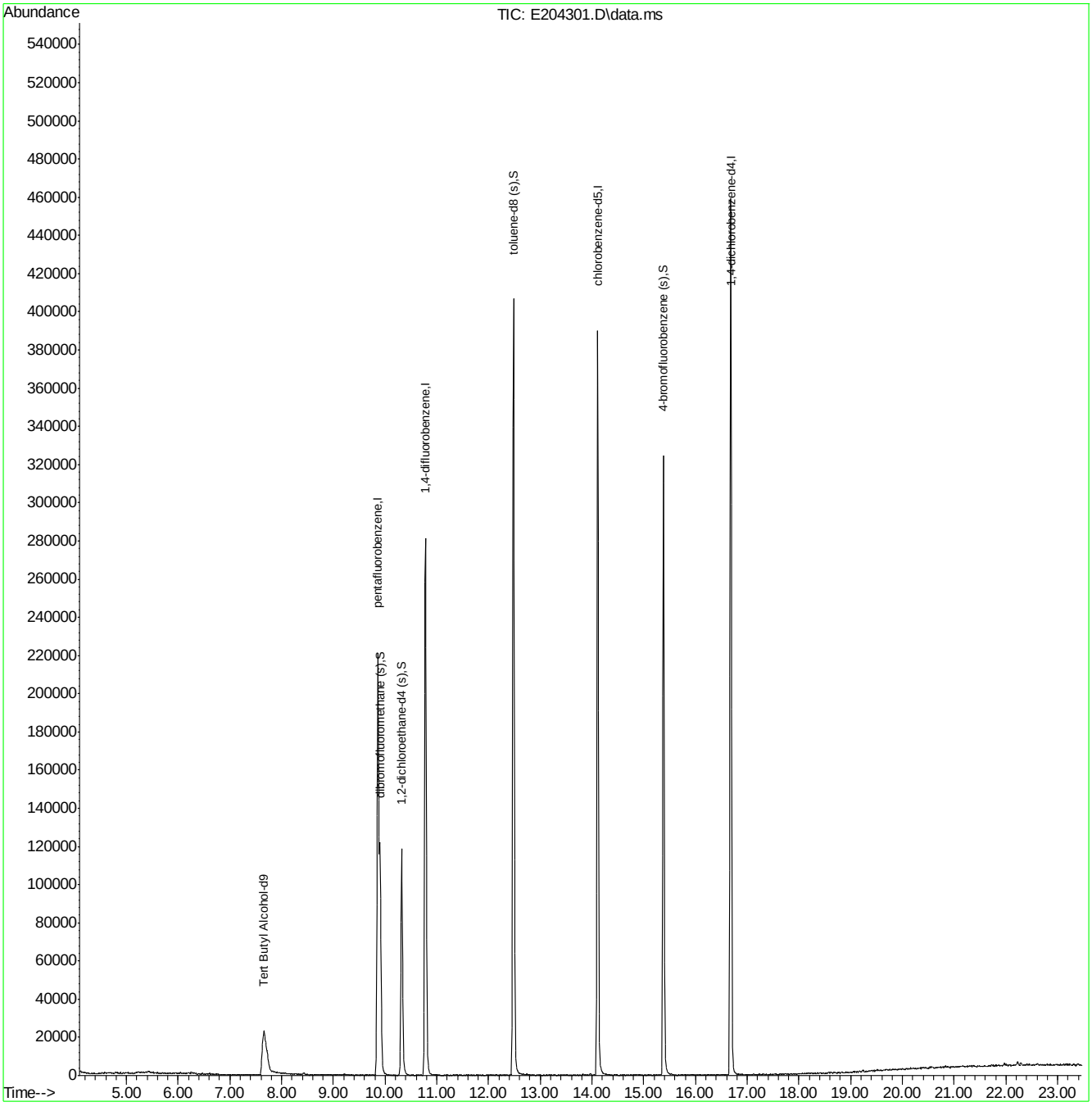
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E204301.D
Acq On : 14 Jun 2013 10:43 am
Operator : Oksanat
Sample : mb
Misc : MS49520,VE8979,5,,100,5,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jun 14 15:00:51 2013
Quant Method : C:\MSDCHEM\1\METHODS\ME8959.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Jun 11 18:05:22 2013
Response via : Initial Calibration



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 # JB39339

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: Marcus Hook Refinery
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (If different from Report to)

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

Requested Analysis (see TEST CODE sheet)

Matrix Codes

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

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	%SOL	V8011EDB	B8270SL	PB	METDIG							LAB USE ONLY
1			6/11/2013	8:30		Soil	2					X				X	X	X	X	X							
2			6/11/2013	9:00		Soil	2					X				X	X	X	X	X							
3			6/11/2013	12:00		Soil	2					X				X	X	X	X	X							
4			6/11/2013	14:00		Soil	2					X				X	X	X	X	X							
5			6/11/2013	10:00		Soil	2					X				X	X	X	X	X							
6			6/11/2013	13:30		Soil	2					X				X	X	X	X	X							
7			6/11/2013	14:00		Soil	2					X				X	X	X	X	X							
																											12C

Turnaround Time (Business days)

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

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [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

Please send 300ml jar and 60ml jar to ALNE only.
Methanol kits to remain here for analysis.

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	6-12-13 1700	1 FEDEX	2 Fedex	6/13/13 9:30	2
3		3	4		4
5		5			

Custody Seal # 747 [ ] Intact [ ] Not intact Preserved where applicable [ ] On Ice [X] Cooler Temp. 1.10

JB39339: Chain of Custody
Page 1 of 2
Accutest Labs of New England, Inc.

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Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB39339 **Client:** ACNJ **Immediate Client Services Action Required:** No

Date / Time Received: 6/13/2013 **Delivery Method:** **Client Service Action Required at Login:** No

Project: SUB **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

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JB39339: Chain of Custody
Page 2 of 2

Internal Sample Tracking Chronicle

Accutest New Jersey

Job No: JB39339

AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Project No: AOI-5

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB39339-1 Collected: 11-JUN-13 08:30 By: ED Received: 11-JUN-13 By: AOI5_MW-465_1-2_061113						
JB39339-1	SM21 2540 B MOD.	13-JUN-13	HS			%SOL
JB39339-1	SW846 6010C	14-JUN-13 14:07	EAL	13-JUN-13	DA	PB
JB39339-1	SW846 8011	15-JUN-13 15:58	NK	14-JUN-13	BJ	V8011EDB
JB39339-1	SW846 8270C	19-JUN-13 11:00	KR	17-JUN-13	PA	B8270SL
JB39339-2 Collected: 11-JUN-13 09:00 By: ED Received: 11-JUN-13 By: AOI5_MW-465_3-4_061113						
JB39339-2	SM21 2540 B MOD.	13-JUN-13	HS			%SOL
JB39339-2	SW846 6010C	14-JUN-13 12:09	EAL	13-JUN-13	DA	PB
JB39339-2	SW846 8011	15-JUN-13 16:21	NK	14-JUN-13	BJ	V8011EDB
JB39339-2	SW846 8270C	19-JUN-13 11:23	KR	17-JUN-13	PA	B8270SL
JB39339-2	SW846 8270C	05-JUL-13 15:26	WK	17-JUN-13	PA	B8270SL
JB39339-3 Collected: 11-JUN-13 12:00 By: ED Received: 11-JUN-13 By: AOI5_MW-462_1-2_061113						
JB39339-3	SM21 2540 B MOD.	13-JUN-13	HS			%SOL
JB39339-3	SW846 6010C	14-JUN-13 12:13	EAL	13-JUN-13	DA	PB
JB39339-3	SW846 8011	15-JUN-13 16:44	NK	14-JUN-13	BJ	V8011EDB
JB39339-3	SW846 8270C	19-JUN-13 11:46	KR	17-JUN-13	PA	B8270SL
JB39339-4 Collected: 11-JUN-13 14:00 By: ED Received: 11-JUN-13 By: AOI5_MW-462_7-8_061113						
JB39339-4	SM21 2540 B MOD.	13-JUN-13	HS			%SOL
JB39339-4	SW846 6010C	14-JUN-13 12:17	EAL	13-JUN-13	DA	PB
JB39339-4	SW846 8011	15-JUN-13 17:07	NK	14-JUN-13	BJ	V8011EDB
JB39339-4	SW846 8270C	19-JUN-13 12:09	KR	17-JUN-13	PA	B8270SL
JB39339-5 Collected: 11-JUN-13 10:00 By: ED Received: 11-JUN-13 By: AOI5_MW-468_8-10'_061113						
JB39339-5	SM21 2540 B MOD.	13-JUN-13	HS			%SOL
JB39339-5	SW846 6010C	14-JUN-13 12:22	EAL	13-JUN-13	DA	PB
JB39339-5	SW846 8011	15-JUN-13 17:30	NK	14-JUN-13	BJ	V8011EDB
JB39339-5	SW846 8270C	19-JUN-13 12:33	KR	17-JUN-13	PA	B8270SL

Internal Sample Tracking Chronicle

Accutest New Jersey

Job No: JB39339

AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Project No: AOI-5

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB39339-6 Collected: 11-JUN-13 13:30 By: ED Received: 11-JUN-13 By: AOI5_MW-461_0-2' _061113						
JB39339-6	SM21 2540 B MOD.	13-JUN-13	HS			%SOL
JB39339-6	SW846 6010C	14-JUN-13 12:26	EAL	13-JUN-13	DA	PB
JB39339-6	SW846 8011	15-JUN-13 17:53	NK	14-JUN-13	BJ	V8011EDB
JB39339-6	SW846 8270C	19-JUN-13 12:55	KR	17-JUN-13	PA	B8270SL
JB39339-7 Collected: 11-JUN-13 14:00 By: ED Received: 11-JUN-13 By: AOI5_MW-461_2-4' _061113						
JB39339-7	SM21 2540 B MOD.	13-JUN-13	HS			%SOL
JB39339-7	SW846 6010C	14-JUN-13 12:30	EAL	13-JUN-13	DA	PB
JB39339-7	SW846 8011	15-JUN-13 18:16	NK	14-JUN-13	BJ	V8011EDB
JB39339-7	SW846 8270C	19-JUN-13 13:18	KR	17-JUN-13	PA	B8270SL

Accutest Internal Chain of Custody

Job Number: JB39339
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 06/11/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB39339-1.1	Walk In Ref #9	Mehdi Abdolrahim	06/13/13 14:25	Retrieve from Storage
JB39339-1.1	Mehdi Abdolrahim	Walk In Ref #9	06/13/13 16:32	Return to Storage
JB39339-1.1	Walk In Ref #9	Bijan Jafari	06/14/13 08:08	Retrieve from Storage
JB39339-1.1	Bijan Jafari	Walk In Ref #9	06/14/13 16:23	Return to Storage
JB39339-1.1	Walk In Ref #9	Michael Rolo	06/17/13 08:37	Retrieve from Storage
JB39339-1.1	Michael Rolo	Walk In Ref #9	06/17/13 14:51	Return to Storage
JB39339-1.2	Walk In Ref #9	Dorina Antonovici	06/13/13 15:07	Retrieve from Storage
JB39339-1.2	Dorina Antonovici	Walk In Ref #9	06/13/13 16:38	Return to Storage
JB39339-1.2	Walk In Ref #9	Chris Cataldo	06/14/13 14:16	Retrieve from Storage
JB39339-1.2	Chris Cataldo	Walk In Ref #9	06/17/13 16:05	Return to Storage
JB39339-2.1	Walk In Ref #9	Mehdi Abdolrahim	06/13/13 14:25	Retrieve from Storage
JB39339-2.1	Mehdi Abdolrahim	Walk In Ref #9	06/13/13 16:32	Return to Storage
JB39339-2.1	Walk In Ref #9	Bijan Jafari	06/14/13 08:08	Retrieve from Storage
JB39339-2.1	Bijan Jafari	Walk In Ref #9	06/14/13 16:23	Return to Storage
JB39339-2.1	Walk In Ref #9	Michael Rolo	06/17/13 08:37	Retrieve from Storage
JB39339-2.1	Michael Rolo	Walk In Ref #9	06/17/13 14:51	Return to Storage
JB39339-2.2	Walk In Ref #9	Dorina Antonovici	06/13/13 15:07	Retrieve from Storage
JB39339-2.2	Dorina Antonovici	Walk In Ref #9	06/13/13 16:38	Return to Storage
JB39339-2.2	Walk In Ref #9	Chris Cataldo	06/14/13 14:16	Retrieve from Storage
JB39339-2.2	Chris Cataldo	Walk In Ref #9	06/17/13 16:05	Return to Storage
JB39339-3.1	Walk In Ref #9	Mehdi Abdolrahim	06/13/13 14:25	Retrieve from Storage
JB39339-3.1	Mehdi Abdolrahim	Walk In Ref #9	06/13/13 16:32	Return to Storage
JB39339-3.1	Walk In Ref #9	Bijan Jafari	06/14/13 08:08	Retrieve from Storage
JB39339-3.1	Bijan Jafari	Walk In Ref #9	06/14/13 16:23	Return to Storage
JB39339-3.1	Walk In Ref #9	Michael Rolo	06/17/13 08:37	Retrieve from Storage
JB39339-3.1	Michael Rolo	Walk In Ref #9	06/17/13 14:51	Return to Storage
JB39339-3.2	Walk In Ref #9	Dorina Antonovici	06/13/13 15:07	Retrieve from Storage
JB39339-3.2	Dorina Antonovici	Walk In Ref #9	06/13/13 16:38	Return to Storage
JB39339-3.2	Walk In Ref #9	Chris Cataldo	06/14/13 14:16	Retrieve from Storage
JB39339-3.2	Chris Cataldo	Walk In Ref #9	06/17/13 16:05	Return to Storage
JB39339-4.1	Walk In Ref #9	Mehdi Abdolrahim	06/13/13 14:25	Retrieve from Storage
JB39339-4.1	Mehdi Abdolrahim	Walk In Ref #9	06/13/13 16:32	Return to Storage
JB39339-4.1	Walk In Ref #9	Bijan Jafari	06/14/13 08:08	Retrieve from Storage
JB39339-4.1	Bijan Jafari	Walk In Ref #9	06/14/13 16:23	Return to Storage
JB39339-4.1	Walk In Ref #9	Michael Rolo	06/17/13 08:37	Retrieve from Storage
JB39339-4.1	Michael Rolo	Walk In Ref #9	06/17/13 14:51	Return to Storage
JB39339-4.2	Walk In Ref #9	Dorina Antonovici	06/13/13 15:07	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB39339
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 06/11/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB39339-4.2	Dorina Antonovici	Walk In Ref #9	06/13/13 16:38	Return to Storage
JB39339-4.2	Walk In Ref #9	Chris Cataldo	06/14/13 14:16	Retrieve from Storage
JB39339-4.2	Chris Cataldo	Walk In Ref #9	06/17/13 16:05	Return to Storage
JB39339-5.1	Walk In Ref #9	Mehdi Abdolrahim	06/13/13 14:25	Retrieve from Storage
JB39339-5.1	Mehdi Abdolrahim	Walk In Ref #9	06/13/13 16:32	Return to Storage
JB39339-5.1	Walk In Ref #9	Bijan Jafari	06/14/13 08:08	Retrieve from Storage
JB39339-5.1	Bijan Jafari	Walk In Ref #9	06/14/13 16:23	Return to Storage
JB39339-5.1	Walk In Ref #9	Michael Rolo	06/17/13 08:37	Retrieve from Storage
JB39339-5.1	Michael Rolo	Walk In Ref #9	06/17/13 14:51	Return to Storage
JB39339-5.2	Walk In Ref #9	Dorina Antonovici	06/13/13 15:07	Retrieve from Storage
JB39339-5.2	Dorina Antonovici	Walk In Ref #9	06/13/13 16:38	Return to Storage
JB39339-5.2	Walk In Ref #9	Chris Cataldo	06/14/13 14:16	Retrieve from Storage
JB39339-5.2	Chris Cataldo	Walk In Ref #9	06/17/13 16:05	Return to Storage
JB39339-6.1	Walk In Ref #9	Mehdi Abdolrahim	06/13/13 14:25	Retrieve from Storage
JB39339-6.1	Mehdi Abdolrahim	Walk In Ref #9	06/13/13 16:32	Return to Storage
JB39339-6.1	Walk In Ref #9	Bijan Jafari	06/14/13 08:08	Retrieve from Storage
JB39339-6.1	Bijan Jafari	Walk In Ref #9	06/14/13 16:23	Return to Storage
JB39339-6.1	Walk In Ref #9	Michael Rolo	06/17/13 08:37	Retrieve from Storage
JB39339-6.1	Michael Rolo	Walk In Ref #9	06/17/13 14:51	Return to Storage
JB39339-6.2	Walk In Ref #9	Dorina Antonovici	06/13/13 15:07	Retrieve from Storage
JB39339-6.2	Dorina Antonovici	Walk In Ref #9	06/13/13 16:38	Return to Storage
JB39339-6.2	Walk In Ref #9	Chris Cataldo	06/14/13 14:16	Retrieve from Storage
JB39339-6.2	Chris Cataldo	Walk In Ref #9	06/17/13 16:05	Return to Storage
JB39339-7.1	Walk In Ref #9	Mehdi Abdolrahim	06/13/13 14:25	Retrieve from Storage
JB39339-7.1	Mehdi Abdolrahim	Walk In Ref #9	06/13/13 16:32	Return to Storage
JB39339-7.1	Walk In Ref #9	Bijan Jafari	06/14/13 08:08	Retrieve from Storage
JB39339-7.1	Bijan Jafari	Walk In Ref #9	06/14/13 16:23	Return to Storage
JB39339-7.1	Walk In Ref #9	Michael Rolo	06/17/13 08:37	Retrieve from Storage
JB39339-7.1	Michael Rolo	Walk In Ref #9	06/17/13 14:51	Return to Storage
JB39339-7.2	Walk In Ref #9	Dorina Antonovici	06/13/13 15:07	Retrieve from Storage
JB39339-7.2	Dorina Antonovici	Walk In Ref #9	06/13/13 16:38	Return to Storage
JB39339-7.2	Walk In Ref #9	Chris Cataldo	06/14/13 14:16	Retrieve from Storage
JB39339-7.2	Chris Cataldo	Walk In Ref #9	06/17/13 16:05	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: JB39339
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
OP33636-MB	R31555.D	1	06/19/13	KR	06/17/13	OP33636	MSR1148

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

JB39339-1, JB39339-2, JB39339-3, JB39339-4, JB39339-5, JB39339-6, JB39339-7

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	100	12	ug/kg	
56-55-3	Benzo(a)anthracene	ND	100	13	ug/kg	
50-32-8	Benzo(a)pyrene	ND	100	11	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	100	12	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	100	9.9	ug/kg	
218-01-9	Chrysene	ND	100	12	ug/kg	
86-73-7	Fluorene	ND	100	13	ug/kg	
91-20-3	Naphthalene	ND	100	16	ug/kg	
85-01-8	Phenanthrene	ND	100	13	ug/kg	
129-00-0	Pyrene	ND	100	12	ug/kg	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	60%	30-130%
4165-62-2	Phenol-d5	59%	30-130%
118-79-6	2,4,6-Tribromophenol	66%	30-130%
4165-60-0	Nitrobenzene-d5	53%	30-130%
321-60-8	2-Fluorobiphenyl	64%	30-130%
1718-51-0	Terphenyl-d14	75%	30-130%

Blank Spike Summary

Job Number: JB39339
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
OP33636-BS	R31556.D	1	06/19/13	KR	06/17/13	OP33636	MSR1148

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

JB39339-1, JB39339-2, JB39339-3, JB39339-4, JB39339-5, JB39339-6, JB39339-7

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
120-12-7	Anthracene	2490	1970	79	40-140
56-55-3	Benzo(a)anthracene	2490	2250	91	40-140
50-32-8	Benzo(a)pyrene	2490	1910	77	40-140
205-99-2	Benzo(b)fluoranthene	2490	2300	93	40-140
191-24-2	Benzo(g,h,i)perylene	2490	2190	88	40-140
218-01-9	Chrysene	2490	2150	87	40-140
86-73-7	Fluorene	2490	1950	78	40-140
91-20-3	Naphthalene	2490	2380	96	40-140
85-01-8	Phenanthrene	2490	2080	84	40-140
129-00-0	Pyrene	2490	2030	82	40-140

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	69%	30-130%
4165-62-2	Phenol-d5	68%	30-130%
118-79-6	2,4,6-Tribromophenol	84%	30-130%
4165-60-0	Nitrobenzene-d5	61%	30-130%
321-60-8	2-Fluorobiphenyl	75%	30-130%
1718-51-0	Terphenyl-d14	86%	30-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB39339
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
OP33636-MS	R31557.D	1	06/19/13	KR	06/17/13	OP33636	MSR1148
OP33636-MSD	R31558.D	1	06/19/13	KR	06/17/13	OP33636	MSR1148
JB39339-1	R31559.D	1	06/19/13	KR	06/17/13	OP33636	MSR1148

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

JB39339-1, JB39339-2, JB39339-3, JB39339-4, JB39339-5, JB39339-6, JB39339-7

CAS No.	Compound	JB39339-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
120-12-7	Anthracene	ND		2930	2500	85	2390	82	4	40-140/30
56-55-3	Benzo(a)anthracene	ND		2930	2850	97	2670	92	7	40-140/30
50-32-8	Benzo(a)pyrene	ND		2930	2430	83	2290	79	6	40-140/30
205-99-2	Benzo(b)fluoranthene	ND		2930	2890	99	2650	91	9	40-140/30
191-24-2	Benzo(g,h,i)perylene	ND		2930	2720	93	2580	88	5	40-140/30
218-01-9	Chrysene	ND		2930	2700	92	2550	87	6	40-140/30
86-73-7	Fluorene	ND		2930	2500	85	2390	82	4	40-140/30
91-20-3	Naphthalene	1030		2930	3790	94	3970	101	5	40-140/30
85-01-8	Phenanthrene	24.2	J	2930	2600	88	2490	85	4	40-140/30
129-00-0	Pyrene	ND		2930	2540	87	2380	82	7	40-140/30

CAS No.	Surrogate Recoveries	MS	MSD	JB39339-1	Limits
367-12-4	2-Fluorophenol	73%	69%		30-130%
4165-62-2	Phenol-d5	70%	69%		30-130%
118-79-6	2,4,6-Tribromophenol	90%	87%		30-130%
4165-60-0	Nitrobenzene-d5	70%	69%	65%	30-130%
321-60-8	2-Fluorobiphenyl	78%	77%	74%	30-130%
1718-51-0	Terphenyl-d14	88%	85%	84%	30-130%

* = Outside of Control Limits.

Instrument Performance Check (DFTPP)

Job Number: JB39339
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: MSR1128-DFTPP
Lab File ID: R30967.D
Instrument ID: GCMSR
Injection Date: 05/30/13
Injection Time: 07:23

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	8712	39.1		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	9649	43.3		Pass
70	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
127	40.0 - 60.0% of mass 198	10803	48.5		Pass
197	Less than 1.0% of mass 198	91	0.41		Pass
198	Base peak, 100% relative abundance	22289	100.0		Pass
199	5.0 - 9.0% of mass 198	1599	7.17		Pass
275	10.0 - 30.0% of mass 198	5321	23.9		Pass
365	1.0 - 100.0% of mass 198	649	2.91		Pass
441	Present, but less than mass 443	2539	11.4	(85.0) [b]	Pass
442	40.0 - 100.0% of mass 198	15916	71.4		Pass
443	17.0 - 23.0% of mass 442	2986	13.4	(18.8) [c]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
MSR1128-ICC1128	R30970.D	05/30/13	08:31	01:08	Initial cal 50
MSR1128-IC1128	R30971.D	05/30/13	08:54	01:31	Initial cal 2
MSR1128-IC1128	R30972.D	05/30/13	09:17	01:54	Initial cal 5
MSR1128-IC1128	R30973.D	05/30/13	09:40	02:17	Initial cal 10
MSR1128-IC1128	R30974.D	05/30/13	10:03	02:40	Initial cal 20
MSR1128-IC1128	R30975.D	05/30/13	10:26	03:03	Initial cal 80
MSR1128-IC1128	R30976.D	05/30/13	10:49	03:26	Initial cal 120
MSR1128-IC1128	R30977.D	05/30/13	11:12	03:49	Initial cal 160
MSR1128-ICV1128	R30978.D	05/30/13	11:35	04:12	Initial cal verification 50
MSR1128-ICV1128	R30979.D	05/30/13	12:01	04:38	Initial cal verification 20
MSR1128-ICV1128	R30980.D	05/30/13	12:24	05:01	Initial cal verification 20
OP33361-MB	R30981.D	05/30/13	12:47	05:24	Method Blank
OP33361-BS	R30982.D	05/30/13	13:10	05:47	Blank Spike
ZZZZZZ	R30983.D	05/30/13	13:33	06:10	(unrelated sample)
OP33248-MB	R30984.D	05/30/13	13:56	06:33	Method Blank
OP33248-BS	R30985.D	05/30/13	14:19	06:56	Blank Spike
OP33248-MS	R30986.D	05/30/13	14:42	07:19	Matrix Spike
OP33248-MSD	R30987.D	05/30/13	15:05	07:42	Matrix Spike Duplicate
MC21000-8	R30988.D	05/30/13	15:28	08:05	(used for QC only; not part of job JB39339)

Instrument Performance Check (DFTPP)

Job Number: JB39339
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: MSR1128-DFTPP
Lab File ID: R30967.D
Instrument ID: GCMSR
Injection Date: 05/30/13
Injection Time: 07:23

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	R30989.D	05/30/13	15:51	08:28	(unrelated sample)
ZZZZZZ	R30990.D	05/30/13	16:15	08:52	(unrelated sample)
ZZZZZZ	R30991.D	05/30/13	16:38	09:15	(unrelated sample)
ZZZZZZ	R30992.D	05/30/13	17:01	09:38	(unrelated sample)
ZZZZZZ	R30993.D	05/30/13	17:24	10:01	(unrelated sample)
ZZZZZZ	R30994.D	05/30/13	17:47	10:24	(unrelated sample)
ZZZZZZ	R30995.D	05/30/13	18:10	10:47	(unrelated sample)
ZZZZZZ	R30996.D	05/30/13	18:33	11:10	(unrelated sample)
ZZZZZZ	R30997.D	05/30/13	18:56	11:33	(unrelated sample)
ZZZZZZ	R30998.D	05/30/13	19:19	11:56	(unrelated sample)
ZZZZZZ	R30999.D	05/30/13	19:42	12:19	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB39339
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: MSR1148-DFTPP
Lab File ID: R31551.D
Instrument ID: GCMSR
Injection Date: 06/19/13
Injection Time: 07:52

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	22429	33.5		Pass
68	Less than 2.0% of mass 69	117	0.17	(0.46) [a]	Pass
69	Mass 69 relative abundance	25347	37.9		Pass
70	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
127	40.0 - 60.0% of mass 198	30211	45.2		Pass
197	Less than 1.0% of mass 198	465	0.70		Pass
198	Base peak, 100% relative abundance	66861	100.0		Pass
199	5.0 - 9.0% of mass 198	4844	7.24		Pass
275	10.0 - 30.0% of mass 198	16910	25.3		Pass
365	1.0 - 100.0% of mass 198	1924	2.88		Pass
441	Present, but less than mass 443	8984	13.4	(79.4) [b]	Pass
442	40.0 - 100.0% of mass 198	61867	92.5		Pass
443	17.0 - 23.0% of mass 442	11318	16.9	(18.3) [c]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
MSR1148-CC1128	R31552.D	06/19/13	08:17	00:25	Continuing cal 80
OP33599-MB	R31553.D	06/19/13	08:41	00:49	Method Blank
OP33599-BS	R31554.D	06/19/13	09:04	01:12	Blank Spike
OP33636-MB	R31555.D	06/19/13	09:27	01:35	Method Blank
OP33636-BS	R31556.D	06/19/13	09:51	01:59	Blank Spike
OP33636-MS	R31557.D	06/19/13	10:14	02:22	Matrix Spike
OP33636-MSD	R31558.D	06/19/13	10:37	02:45	Matrix Spike Duplicate
JB39339-1	R31559.D	06/19/13	11:00	03:08	AOI5_MW-465_1-2_061113
JB39339-2	R31560.D	06/19/13	11:23	03:31	AOI5_MW-465_3-4_061113
JB39339-3	R31561.D	06/19/13	11:46	03:54	AOI5_MW-462_1-2_061113
JB39339-4	R31562.D	06/19/13	12:09	04:17	AOI5_MW-462_7-8_061113
JB39339-5	R31563.D	06/19/13	12:33	04:41	AOI5_MW-468_8-10' _061113
JB39339-6	R31564.D	06/19/13	12:55	05:03	AOI5_MW-461_0-2' _061113
JB39339-7	R31565.D	06/19/13	13:18	05:26	AOI5_MW-461_2-4' _061113
ZZZZZZ	R31566.D	06/19/13	13:42	05:50	(unrelated sample)
ZZZZZZ	R31567.D	06/19/13	14:05	06:13	(unrelated sample)
ZZZZZZ	R31568.D	06/19/13	14:28	06:36	(unrelated sample)
ZZZZZZ	R31569.D	06/19/13	14:51	06:59	(unrelated sample)
ZZZZZZ	R31570.D	06/19/13	15:14	07:22	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB39339
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: MSW610-DFTPP
Lab File ID: W13336.D
Instrument ID: GCMSW
Injection Date: 06/26/13
Injection Time: 17:39

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	24875	33.6		Pass
68	Less than 2.0% of mass 69	293	0.40	(1.03) [a]	Pass
69	Mass 69 relative abundance	28395	38.4		Pass
70	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
127	40.0 - 60.0% of mass 198	35669	48.2		Pass
197	Less than 1.0% of mass 198	274	0.37		Pass
198	Base peak, 100% relative abundance	74037	100.0		Pass
199	5.0 - 9.0% of mass 198	5220	7.05		Pass
275	10.0 - 30.0% of mass 198	17663	23.9		Pass
365	1.0 - 100.0% of mass 198	2050	2.77		Pass
441	Present, but less than mass 443	3777	5.10	(29.9) [b]	Pass
442	40.0 - 100.0% of mass 198	68720	92.8		Pass
443	17.0 - 23.0% of mass 442	12636	17.1	(18.4) [c]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
MSW610-ICC610	W13338.D	06/26/13	18:47	01:08	Initial cal 50
MSW611-CC579	W13338A.D	06/26/13	18:47	01:08	Continuing cal 50
MSW610-IC610	W13339.D	06/26/13	19:10	01:31	Initial cal 2
MSW610-IC610	W13340.D	06/26/13	19:34	01:55	Initial cal 5
MSW610-IC610	W13341.D	06/26/13	19:57	02:18	Initial cal 10
MSW610-IC610	W13342.D	06/26/13	20:20	02:41	Initial cal 20
MSW610-IC610	W13343.D	06/26/13	20:43	03:04	Initial cal 80
MSW610-IC610	W13344.D	06/26/13	21:06	03:27	Initial cal 120
MSW610-IC610	W13345.D	06/26/13	21:29	03:50	Initial cal 160
MSW610-IC610	W13347.D	06/26/13	22:14	04:35	Initial cal 5
MSW610-IC610	W13348.D	06/26/13	22:37	04:58	Initial cal 10
MSW610-IC610	W13349.D	06/26/13	23:01	05:22	Initial cal 20
MSW610-IC610	W13350.D	06/26/13	23:24	05:45	Initial cal 50
MSW610-IC610	W13351.D	06/26/13	23:48	06:09	Initial cal 80
MSW610-IC610	W13352.D	06/27/13	00:11	06:32	Initial cal 120
MSW610-IC610	W13353.D	06/27/13	00:34	06:55	Initial cal 160
ZZZZZZ	W13355.D	06/27/13	01:21	07:42	(unrelated sample)
ZZZZZZ	W13356.D	06/27/13	01:45	08:06	(unrelated sample)
ZZZZZZ	W13357.D	06/27/13	02:08	08:29	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB39339
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: MSW623-DFTPP
Lab File ID: W13650.D
Instrument ID: GCMSW
Injection Date: 07/05/13
Injection Time: 12:27

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	17197	36.0		Pass
68	Less than 2.0% of mass 69	90	0.19	(0.46) [a]	Pass
69	Mass 69 relative abundance	19487	40.8		Pass
70	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
127	40.0 - 60.0% of mass 198	24160	50.5		Pass
197	Less than 1.0% of mass 198	98	0.21		Pass
198	Base peak, 100% relative abundance	47803	100.0		Pass
199	5.0 - 9.0% of mass 198	3268	6.84		Pass
275	10.0 - 30.0% of mass 198	11301	23.6		Pass
365	0.8 - 100.0% of mass 198	1343	2.81		Pass
441	Present, but less than mass 443	6534	13.7	(79.7) [b]	Pass
442	40.0 - 100.0% of mass 198	41021	85.8		Pass
443	17.0 - 23.0% of mass 442	8198	17.1	(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
MSW623-CC610	W13651.D	07/05/13	13:05	00:38	Continuing cal 80
MSW623-CC610	W13652.D	07/05/13	13:28	01:01	Continuing cal 120
ZZZZZZ	W13653.D	07/05/13	13:52	01:25	(unrelated sample)
OP33892-MB	W13654.D	07/05/13	14:16	01:49	Method Blank
OP33892-BS	W13655.D	07/05/13	14:39	02:12	Blank Spike
OP33891-MB	W13656.D	07/05/13	15:03	02:36	Method Blank
JB39339-2	W13657.D	07/05/13	15:26	02:59	AOI5_MW-465_3-4_061113
OP33891-BS	W13658.D	07/05/13	15:50	03:23	Blank Spike
OP33891-MS	W13659.D	07/05/13	16:13	03:46	Matrix Spike
OP33891-MSD	W13660.D	07/05/13	16:37	04:10	Matrix Spike Duplicate
ZZZZZZ	W13661.D	07/05/13	17:01	04:34	(unrelated sample)
ZZZZZZ	W13662.D	07/05/13	17:24	04:57	(unrelated sample)
ZZZZZZ	W13663.D	07/05/13	17:48	05:21	(unrelated sample)
ZZZZZZ	W13664.D	07/05/13	18:11	05:44	(unrelated sample)
ZZZZZZ	W13665.D	07/05/13	18:35	06:08	(unrelated sample)
ZZZZZZ	W13666.D	07/05/13	18:58	06:31	(unrelated sample)
ZZZZZZ	W13667.D	07/05/13	19:22	06:55	(unrelated sample)
ZZZZZZ	W13668.D	07/05/13	19:46	07:19	(unrelated sample)
ZZZZZZ	W13669.D	07/05/13	20:09	07:42	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB39339
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: MSW623-DFTPP
Lab File ID: W13650.D
Instrument ID: GCMSW
Injection Date: 07/05/13
Injection Time: 12:27

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	W13670.D	07/05/13	20:33	08:06	(unrelated sample)
ZZZZZZ	W13671.D	07/05/13	20:56	08:29	(unrelated sample)
ZZZZZZ	W13672.D	07/05/13	21:19	08:52	(unrelated sample)
ZZZZZZ	W13673.D	07/05/13	21:43	09:16	(unrelated sample)
ZZZZZZ	W13674.D	07/05/13	22:06	09:39	(unrelated sample)
ZZZZZZ	W13675.D	07/05/13	22:30	10:03	(unrelated sample)
OP33892-MS	W13676.D	07/05/13	22:53	10:26	Matrix Spike
OP33892-MSD	W13677.D	07/05/13	23:16	10:49	Matrix Spike Duplicate
ZZZZZZ	W13678.D	07/05/13	23:40	11:13	(unrelated sample)
ZZZZZZ	W13679.D	07/06/13	00:03	11:36	(unrelated sample)
JB41083-4A	W13680.D	07/06/13	00:26	11:59	(used for QC only; not part of job JB39339)

Semivolatile Internal Standard Area Summary

Job Number: JB39339
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	MSR1148-CC1128	**Injection Date:**	06/19/13
Lab File ID:	R31552.D	**Injection Time:**	08:17
Instrument ID:	GCMSR	**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	89573	4.02	349886	5.07	209135	6.59	356913	7.96	395912	10.90	372209	12.49
Upper Limit [a]	179146	4.52	699772	5.57	418270	7.09	713826	8.46	791824	11.40	744418	12.99
Lower Limit [b]	44787	3.52	174943	4.57	104568	6.09	178457	7.46	197956	10.40	186105	11.99

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
OP33599-MB	76682	4.02	299281	5.06	179213	6.59	313221	7.96	352123	10.90	342452	12.49
OP33599-BS	84989	4.02	325311	5.06	189380	6.59	324836	7.96	351707	10.90	332316	12.49
OP33636-MB	77529	4.02	300243	5.06	175920	6.59	308147	7.96	334887	10.90	319443	12.48
OP33636-BS	79084	4.02	306653	5.06	177904	6.59	298870	7.96	329355	10.90	311294	12.49
OP33636-MS	73935	4.02	282290	5.06	166379	6.59	281096	7.96	312112	10.90	297813	12.49
OP33636-MSD	84563	4.02	322219	5.07	188832	6.59	313494	7.96	350562	10.90	331155	12.49
JB39339-1	79420	4.02	304544	5.06	178909	6.59	304997	7.96	338972	10.90	325576	12.49
JB39339-2	87376	4.03	337401	5.08	186134	6.59	309698	7.96	343882	10.90	322598	12.49
JB39339-3	76787	4.02	299212	5.06	174113	6.59	300788	7.96	322448	10.89	304235	12.48
JB39339-4	81557	4.02	314602	5.06	184153	6.59	312508	7.96	344974	10.90	325121	12.48
JB39339-5	78747	4.02	300050	5.06	176287	6.59	300139	7.96	336873	10.90	316029	12.48
JB39339-6	77082	4.02	291161	5.06	172041	6.59	293652	7.96	325681	10.90	312247	12.49
JB39339-7	78384	4.01	294360	5.06	173194	6.59	295251	7.96	326784	10.90	313103	12.49
ZZZZZZ	82099	4.02	315875	5.06	184343	6.59	312849	7.96	346780	10.90	347902	12.49
ZZZZZZ	69040	4.02	267782	5.06	162842	6.59	280093	7.96	311390	10.90	305062	12.49
ZZZZZZ	76984	4.02	302826	5.06	179504	6.59	308855	7.96	343445	10.90	332271	12.49
ZZZZZZ	74443	4.02	288387	5.06	172458	6.59	287680	7.96	318991	10.90	308513	12.49
ZZZZZZ	75059	4.02	288012	5.06	171473	6.59	284717	7.96	313776	10.90	301117	12.49

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: JB39339
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	MSW623-CC610	**Injection Date:**	07/05/13
Lab File ID:	W13651.D	**Injection Time:**	13:05
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	81118	3.84	320684	4.89	192779	6.42	345588	7.77	362118	10.69	339948	12.27
Upper Limit [a]	162236	4.34	641368	5.39	385558	6.92	691176	8.27	724236	11.19	679896	12.77
Lower Limit [b]	40559	3.34	160342	4.39	96390	5.92	172794	7.27	181059	10.19	169974	11.77

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	75644	3.84	287120	4.89	174961	6.41	303403	7.76	331721	10.68	314274	12.26
OP33892-MB	73076	3.84	280608	4.89	166238	6.41	289443	7.76	311886	10.68	278819	12.26
OP33892-BS	82147	3.84	319772	4.89	190013	6.41	325196	7.77	334304	10.68	305241	12.26
OP33891-MB	77540	3.84	296974	4.89	178419	6.41	307452	7.76	323604	10.68	292645	12.25
JB39339-2	78147	3.84	299343	4.89	180809	6.41	314921	7.76	356324	10.68	328058	12.26
OP33891-BS	84167	3.84	319719	4.89	194773	6.41	330917	7.77	344721	10.68	311634	12.26
OP33891-MS	90314	3.86	322178	4.90	207741	6.41	356692	7.76	366449	10.68	333968	12.26
OP33891-MSD	84789	3.86	313863	4.90	198412	6.41	345828	7.76	354235	10.69	323931	12.27
ZZZZZZ	84634	3.84	330000	4.89	197074	6.41	339483	7.76	363695	10.68	332434	12.26
ZZZZZZ	90878	3.85	350687	4.89	204173	6.41	344056	7.76	356115	10.68	319314	12.26
ZZZZZZ	83212	3.87	263213	4.91	190097	6.41	331983	7.76	343975	10.68	309146	12.26
ZZZZZZ	86456	3.88	305566	4.88	200623	6.41	336558	7.76	350137	10.68	321203	12.26
ZZZZZZ	89670	3.88	330271	4.89	208296	6.41	354595	7.76	377055	10.68	341345	12.26
ZZZZZZ	85579	3.89	308793	4.87	200678	6.41	310316	7.76	357612	10.68	319760	12.26
ZZZZZZ	83187	3.87	283547	4.90	192951	6.41	333254	7.76	331993	10.68	297538	12.26
ZZZZZZ	88946	3.86	318866	4.89	203022	6.41	349998	7.76	359617	10.68	324405	12.26
ZZZZZZ	93289	3.87	287838	4.90	215732	6.41	368246	7.76	369154	10.68	329329	12.26
ZZZZZZ	91089	3.87	291018	4.90	213235	6.41	362931	7.76	369775	10.68	321397	12.26
ZZZZZZ	89512	3.86	279042	4.90	206310	6.41	356468	7.76	360479	10.68	319824	12.26
ZZZZZZ	89817	3.84	346842	4.89	202958	6.41	335240	7.76	334862	10.68	303348	12.27
ZZZZZZ	86542	3.86	312726	4.90	198944	6.42	329824	7.77	327574	10.68	303569	12.27
ZZZZZZ	85063	3.88	190680	4.90	187975	6.41	331747	7.76	350652	10.68	323124	12.27
ZZZZZZ	80231	3.88	292020	4.90	179257	6.41	306415	7.76	324754	10.68	296097	12.26
OP33892-MS	87777	3.86	318757	4.90	207760	6.41	355639	7.77	354943	10.68	317605	12.27
OP33892-MSD	88737	3.87	300366	4.90	209274	6.41	359057	7.77	355640	10.69	325854	12.27
ZZZZZZ	87763	3.84	335511	4.89	196477	6.41	325729	7.76	327258	10.68	310999	12.27
ZZZZZZ	98108	3.86	344536	4.90	220105	6.41	367064	7.77	366576	10.69	329528	12.27
JB41083-4A	93913	3.87	303666	4.90	215431	6.41	366947	7.77	373748	10.68	334569	12.27

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

Semivolatile Internal Standard Area Summary

Job Number: JB39339
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	MSW623-CC610	**Injection Date:**	07/05/13
Lab File ID:	W13651.D	**Injection Time:**	13:05
Instrument ID:	GCMSW	**Method:**	SW846 8270C

Lab Sample ID	IS 1 AREA	IS 1 RT	IS 2 AREA	IS 2 RT	IS 3 AREA	IS 3 RT	IS 4 AREA	IS 4 RT	IS 5 AREA	IS 5 RT	IS 6 AREA	IS 6 RT

(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: JB39339
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
JB39339-1	R31559.D	65.0	74.0	84.0
JB39339-2	W13657.D	99.0	73.0	77.0
JB39339-2	R31560.D	59.0	74.0	76.0
JB39339-3	R31561.D	65.0	79.0	85.0
JB39339-4	R31562.D	61.0	72.0	79.0
JB39339-5	R31563.D	67.0	76.0	87.0
JB39339-6	R31564.D	63.0	78.0	84.0
JB39339-7	R31565.D	60.0	69.0	76.0
OP33636-BS	R31556.D	61.0	75.0	86.0
OP33636-MB	R31555.D	53.0	64.0	75.0
OP33636-MS	R31557.D	70.0	78.0	88.0
OP33636-MSD	R31558.D	69.0	77.0	85.0

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

Initial Calibration Summary

Job Number: JB39339 **Sample:** MSR1128-ICC1128
Account: ALNJ Accutest New Jersey **Lab FileID:** R30970.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Response Factor Report MSR

Method : C:\msdchem\1\met...\R130530_8270+.m (RTE Integrator)
Title : SW-864 Method 8270
Last Update : Thu May 30 14:53:36 2013
Response via : Initial Calibration

Calibration Files
160 =R30977.D 120 =R30976.D 80 =R30975.D 20 =R30974.D
5 =R30972.D 2 =R30971.D 10 =R30973.D 50 =R30970.D

Compound	160	120	80	20	5	2	10	50	Avg	%RSD
1) I 1,4-Dichlorobenzene-d					ISTD					
2) N-nitrosodim	0.804	0.758	0.796	0.844	0.808		0.825	0.807	0.806	3.31
3) Pyridine	1.452	1.367	1.453	1.536	1.436		1.445	1.492	1.455	3.57
4) Aniline		0.735	0.804	0.829	0.848	0.835	0.829	0.790	0.810	4.76
5) 2-Fluorophen	1.324	1.295	1.322	1.391	1.282	1.275	1.296	1.286	1.309	2.89
6) bis(2-Chloro	0.982	0.966	1.006	1.049	1.022	0.999	1.047	1.020	1.011	2.89
7) Phenol-d5	1.714	1.664	1.688	1.757	1.612	1.614	1.694	1.716	1.683	3.00
8) Phenol	1.887	1.832	1.742	1.759	1.693	1.635	1.723	1.772	1.755	4.47
9) 2-Chlorophen	1.458	1.415	1.465	1.483	1.452	1.412	1.447	1.467	1.450	1.73
10) 1,3-Dichloro	1.556	1.498	1.555	1.580	1.542	1.569	1.587	1.584	1.559	1.87
11) 1,4-Dichloro	1.635	1.591	1.644	1.626	1.646	1.608	1.671	1.649	1.634	1.53
12) 1,2-Dichloro	1.502	1.438	1.494	1.478	1.505	1.438	1.516	1.518	1.486	2.17
13) Benzyl alcoh	0.825	0.791	0.814	0.790	0.707		0.700	0.817	0.778	6.76
14) bis(2-chloro	1.514	1.494	1.576	1.570	1.678	1.607	1.642	1.653	1.592	4.13
15) o-cresol	1.242	1.206	1.256	1.271	1.272	1.127	1.318	1.324	1.252	5.07
16) Acetophenone	1.980	1.910	1.927	1.940	1.976	1.991	1.971	2.018	1.964	1.83
17) Hexachloroet	0.616	0.589	0.611	0.584	0.596	0.590	0.605	0.628	0.602	2.56
18) N-Nitroso-di	0.962	0.920	0.974	0.951	0.936	0.978	0.974	1.005	0.963	2.74
19) m+p-cresols	1.362	1.308	1.330	1.321	1.321	1.274	1.364	1.383	1.333	2.65
20) 4-methylphen	1.362	1.308	1.330	1.321	1.321	1.274	1.364	1.383	1.333	2.65
21) I 1,4-Dichlorobenzene-d					ISTD					
22) Benzaldehyde		3.741	3.832	3.823	3.758		3.802	3.789	3.791	0.94
23) I Naphthalene-d8					ISTD					
24) Nitrobenzene	0.394	0.392	0.400	0.405	0.388	0.399	0.411	0.397	0.398	1.83
25) Nitrobenzene	0.391	0.383	0.400	0.400	0.401	0.391	0.413	0.399	0.397	2.20
26) Isophorone	0.679	0.668	0.693	0.694	0.689	0.702	0.721	0.707	0.694	2.38
27) 2-Nitropheno	0.202	0.196	0.201	0.201	0.184		0.196	0.202	0.197	3.23
28) 2,4-Dimethyl	0.371	0.360	0.377	0.382	0.367		0.397	0.377	0.376	3.14
29) bis(2-Chloro	0.408	0.394	0.411	0.405	0.407		0.429	0.415	0.410	2.56
30) Benzoic acid	0.295	0.283	0.285	0.241			0.206	0.282	0.265	13.07
31) 2,4-Dichloro	0.319	0.306	0.314	0.315	0.305		0.311	0.322	0.313	2.05
32) 1,2,4-Trichl	0.336	0.327	0.337	0.343	0.341	0.350	0.353	0.337	0.341	2.40
33) Naphthalene	1.070	1.054	1.072	1.072	1.065	1.062	1.115	1.089	1.075	1.78
34) 2,6-Dichloro	0.311	0.302	0.312	0.311	0.309		0.317	0.315	0.311	1.62
35) 4-Chloroanil	0.456	0.441	0.457	0.453	0.443		0.472	0.465	0.455	2.41
36) Hexachlorobu	0.198	0.196	0.204	0.205	0.201	0.200	0.205	0.205	0.202	1.75
37) 4-Chloro-3-m	0.315	0.304	0.304	0.297	0.313		0.313	0.317	0.309	2.37
38) 2-Methylnaph	0.720	0.710	0.699	0.709	0.790	0.728	0.745	0.741	0.730	3.94
39) 1-Methylnaph	0.695	0.680	0.675	0.690	0.732	0.738	0.717	0.701	0.704	3.30
40) 1,2,4,5-Tetr	0.367	0.364	0.362	0.379	0.399	0.387	0.398	0.373	0.378	3.90
41) I Naphthalene-d8a					ISTD					
42) Caprolactam		0.125	0.120	0.107	0.082		0.100	0.112	0.108	14.21

Initial Calibration Summary

Job Number: JB39339 **Sample:** MSR1128-ICC1128
Account: ALNJ Accutest New Jersey **Lab FileID:** R30970.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

43)	I Acenaphthene-d10	----------ISTD----------									
44)	Pentachloron	0.191	0.184	0.181	0.180		0.165	0.183	0.181	4.79
45)	Hexachlorocy	0.389	0.373	0.375	0.356	0.317	0.353	0.388	0.364	6.90
46)	2,4,6-Trichl	0.416	0.399	0.387	0.406	0.393	0.413	0.422	0.405	3.14
47)	2,4,5-Trichl	0.450	0.423	0.403	0.412	0.405	0.428	0.450	0.424	4.62
48)	2-Fluorobiph	1.439	1.394	1.312	1.428	1.371	1.388	1.489	1.441	1.408	3.82
49)	2-Chloronaph	1.166	1.130	1.093	1.161	1.136	1.155	1.217	1.198	1.157	3.37
50)	Acenaphthyle	1.884	1.832	1.799	1.906	1.905	1.814	1.966	1.931	1.880	3.15
51)	Dimethylphth	1.387	1.331	1.293	1.363	1.362	1.350	1.422	1.414	1.365	3.13
52)	2,4-Dinitrot	0.413	0.396	0.418	0.400	0.374		0.400	0.426	0.404	4.24
53)	Acenaphthene	1.234	1.208	1.247	1.248	1.269	1.233	1.307	1.267	1.252	2.37
54)	2,4-Dinitrop	0.220	0.203	0.206	0.160				0.205	0.199	11.55
55)	Dibenzofuran	1.707	1.654	1.737	1.731	1.744	1.675	1.758	1.760	1.721	2.26
56)	2,6-Dinitrot	0.323	0.307	0.305	0.306	0.284		0.307	0.329	0.309	4.68
57)	4-Nitropheno	0.281	0.255	0.272	0.267			0.248	0.271	0.266	4.51
58)	2,3,4,6-Tetr	0.374	0.357	0.366	0.349	0.325		0.357	0.370	0.357	4.64
59)	Fluorene	1.370	1.327	1.389	1.397	1.391	1.386	1.398	1.398	1.382	1.73
60)	4-Chlorophen	0.678	0.660	0.689	0.695	0.693	0.690	0.714	0.697	0.690	2.26
61)	Diethylphtha	1.311	1.269	1.335	1.333	1.362	1.301	1.388	1.345	1.330	2.78
62)	2-nitroanili	0.418	0.399	0.390	0.406	0.373	0.332	0.393	0.426	0.392	7.53
63)	3-nitroanili	0.347	0.334	0.336	0.346			0.351	0.359	0.346	2.62
64)	4-nitroanili	0.343	0.335	0.358	0.349			0.344	0.357	0.348	2.54
65)	Acenaphthene-d10a	----------ISTD----------									
66)	1,1'-Bipheny	1.451	1.416	1.397	1.441	1.351	1.414	1.411	1.412	2.29
67)	I Phenanthrene-d10	----------ISTD----------									
68)	4,6-Dinitro-	0.153	0.153	0.157	0.138		0.141	0.163	0.151	6.26
69)	n-Nitrosodip	0.548	0.560	0.572	0.587	0.569	0.559	0.674	0.604	0.584	6.90
70)	1,2-Diphenyl	0.837	0.836	0.868	0.780	0.885	0.877	0.901	0.921	0.863	5.14
71)	2,4,6-Tribro	0.131	0.127	0.123	0.125	0.117		0.143	0.134	0.129	6.67
72)	4-Bromopheny	0.240	0.229	0.239	0.244	0.232	0.253	0.272	0.248	0.245	5.52
73)	Hexachlorobe	0.255	0.244	0.254	0.255	0.258	0.256	0.296	0.266	0.261	5.93
74)	Pentachlorop	0.183	0.177	0.171	0.159			0.141	0.176	0.168	9.08
75)	Phenanthrene	1.157	1.152	1.163	1.181	1.185	1.195	1.198	1.211	1.180	1.79
76)	Anthracene	1.219	1.198	1.220	1.246	1.216	1.188	1.258	1.275	1.228	2.44
77)	Carbazole	1.080	1.084	1.114	1.100	1.092	1.040	1.140	1.147	1.100	3.15
78)	Di-n-butylph	1.274	1.324	1.352	1.346	1.114		1.382	1.389	1.311	7.27
79)	Fluoranthene	1.291	1.112	1.268	1.324	1.047	1.216	1.290	1.101	1.206	8.70
80)	I Phenanthrene-d10a	----------ISTD----------									
81)	Atrazine	0.199	0.198	0.184	0.158		0.178	0.195	0.185	8.40
82)	I Chrysene-d12	----------ISTD----------									
83)	Benzidine			0.531	0.586	0.497		0.522	0.491	0.525	7.17
84)	Pyrene	1.207	1.117	1.471	1.469	1.233	1.405	1.265	1.277	1.306	9.91
85)	Terphenyl-d1	0.846	0.787	1.010	0.990	0.825	0.965	0.893	0.892	0.901	8.99
86)	3,3-Dimethyl			0.594	0.629	0.646		0.660	0.601	0.626	4.53
87)	Butylbenzylp	0.493	0.461	0.603	0.519	0.516		0.531	0.538	0.523	8.37
88)	3,3'-Dichlor	0.437	0.416	0.464	0.445	0.421		0.447	0.472	0.443	4.61
89)	Benzo[a]anth	1.087	1.009	1.138	1.120	1.109	1.142	1.131	1.147	1.110	4.08
90)	Chrysene	1.055	1.087	1.085	1.068	1.067	1.047	1.132	1.102	1.080	2.55
91)	bis(2-Ethylh	0.760	0.776	0.750	0.739	0.718		0.864	0.774	0.769	6.06
92)	I Perylene-d12	----------ISTD----------									
93)	Di-n-octylph	1.378	1.329	1.333	1.279	1.206		1.285	1.369	1.311	4.55
94)	Benzo[b]fluo	1.384	1.371	1.344	1.194	1.265	1.111	1.275	1.227	1.271	7.38
95)	Benzo[k]fluo	1.114	1.076	1.150	1.242	1.061	0.907	1.218	1.317	1.136	11.19
96)	Benzo[a]pyre	1.147	1.132	1.156	1.109	1.079	1.025	1.117	1.164	1.116	4.12
97)	Indeno[1,2,3	1.205	1.314	1.399	1.559	1.472	1.195	1.304	1.633	1.385	11.54

Initial Calibration Summary

Job Number: JB39339 **Sample:** MSR1128-ICC1128
Account: ALNJ Accutest New Jersey **Lab FileID:** R30970.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
98) Dibenz[a,h]a 0.987 1.065 1.133 1.262 1.171 0.901 1.041 1.317 1.110  12.55
99) Benzo[g,h,i] 0.955 1.061 1.140 1.282 1.210 0.889 1.095 1.325 1.120  13.57
---------------------------------------------------------------------------
(#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          R130530_8270+.m        Fri May 31 12:37:32 2013
```

Initial Calibration Verification

Job Number: JB39339 **Sample:** MSR1128-ICV1128
Account: ALNJ Accutest New Jersey **Lab FileID:** R30978.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\data\R13030\R30978.D            Vial: 8
Acq On    : 30 May 2013  11:35 am                    Operator: kristinr
Sample    : ICV1128-50                               Inst    : MSR
Misc      : op33100,msr1128,,,,1,1                   Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\met...\R130530_8270+.m (RTE Integrator)
Title        : SW-864 Method 8270
Last Update  : Thu May 30 14:53:36 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	71	0.00	4.20
2		N-nitrosodimethylamine		----------NA----------				
3	T	Pyridine		----------NA----------				
4	T	Aniline		----------NA----------				
5	S	2-Fluorophenol	1.309	1.281	2.1	71	0.00	3.26
6	T	bis(2-Chloroethyl)ether		----------NA----------				
7	S	Phenol-d5	1.683	1.557	7.5	65	0.00	3.94
8	C	Phenol	1.755	1.681	4.2	68	0.00	3.95
9	M	2-Chlorophenol	1.450	1.408	2.9	68	0.00	4.07
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	1.252	1.212	3.2	65	0.00	4.42
16	T	Acetophenone		----------NA----------				
17	T	Hexachloroethane		----------NA----------				
18	P	N-Nitroso-di-n-propylamin		----------NA----------				
19	T	m+p-cresols	1.333	1.298	2.6	67	0.00	4.54
20		4-methylphenol	1.333	1.298	2.6	67	0.00	4.54
21	I	1,4-Dichlorobenzene-d4A		----------NA----------				
22		Benzaldehyde		----------NA----------				
23	I	Naphthalene-d8	1.000	1.000	0.0	68	0.00	5.25
24	S	Nitrobenzene-d5		----------NA----------				
25	T	Nitrobenzene		----------NA----------				
26	T	Isophorone		----------NA----------				
27	C	2-Nitrophenol	0.197	0.194	1.5	66	0.00	4.95
28	T	2,4-Dimethylphenol	0.376	0.369	1.9	67	0.00	4.97
29	T	bis(2-Chloroethoxy)methan		----------NA----------				
30	T	Benzoic acid	0.265	0.288	-8.7	70	-0.02	5.06
31	C	2,4-Dichlorophenol	0.313	0.301	3.8	64	0.00	5.14
32	M	1,2,4-Trichlorobenzene		----------NA----------				
33	T	Naphthalene		----------NA----------				
34	T	2,6-Dichlorophenol	0.311	0.307	1.3	67	0.00	5.34
35	T	4-Chloroaniline		----------NA----------				
36	C	Hexachlorobutadiene		----------NA----------				
37	C	4-Chloro-3-methylphenol	0.309	0.302	2.3	65	0.00	5.75
38	T	2-Methylnaphthalene		----------NA----------				
39	T	1-Methylnaphthalene		----------NA----------				
40	T	1,2,4,5-Tetrachlorobenzen		----------NA----------				

Initial Calibration Verification

Job Number: JB39339 **Sample:** MSR1128-ICV1128
Account: ALNJ Accutest New Jersey **Lab FileID:** R30978.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

41	I	Naphthalene-d8a		----------NA----------				
42		Caprolactam		----------NA----------				
43	I	Acenaphthene-d10	1.000	1.000	0.0	65	0.00	6.79
44	T	Pentachloronitrobenzene		----------NA----------				
45	P	Hexachlorocyclopentadiene		----------NA----------				
46	C	2,4,6-Trichlorophenol	0.405	0.409	-1.0	63	0.00	6.13
47	T	2,4,5-Trichlorophenol	0.424	0.446	-5.2	65	0.00	6.17
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----------				
54	P	2,4-Dinitrophenol	0.199	0.167	16.1	53	0.00	6.85
55	T	Dibenzofuran		----------NA----------				
56	M	2,6-Dinitrotoluene		----------NA----------				
57	P	4-Nitrophenol	0.266	0.267	-0.4	64	0.00	6.91
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		Acenaphthene-d10a		----------NA----------				
66		1,1'-Biphenyl		----------NA----------				
67	I	Phenanthrene-d10	1.000	1.000	0.0	66	0.00	8.18
68	T	4,6-Dinitro-2-methylpheno		----------NA----------				
69	C	n-Nitrosodiphenylamine		----------NA----------				
70	T	1,2-Diphenylhydrazine		----------NA----------				
71	S	2,4,6-Tribromophenol	0.129	0.116	10.1	57	0.00	7.52
72	T	4-Bromophenyl-phenylether		----------NA----------				
73	T	Hexachlorobenzene		----------NA----------				
74	C	Pentachlorophenol	0.168	0.169	-0.6	64	0.00	8.06
75	T	Phenanthrene		----------NA----------				
76	T	Anthracene		----------NA----------				
77	T	Carbazole		----------NA----------				
78	T	Di-n-butylphthalate		----------NA----------				
79	C	Fluoranthene		----------NA----------				
80	I	Phenanthrene-d10a		----------NA----------				
81		Atrazine		----------NA----------				
82	I	Chrysene-d12	1.000	1.000	0.0	73	0.00	11.14
83	T	Benzidine		----------NA----------				
84	M	Pyrene		----------NA----------				
85	S	Terphenyl-d14		----------NA----------				
86		3,3-Dimethylbenzidine		----------NA----------				
87	T	Butylbenzylphthalate		----------NA----------				
88	T	3,3'-Dichlorobenzidine		----------NA----------				
89	T	Benzo[a]anthracene		----------NA----------				
90	T	Chrysene		----------NA----------				
91	T	bis(2-Ethylhexyl)phthalat		----------NA----------				
92	I	Perylene-d12	1.000	1.000	0.0	66	0.00	12.74
93	C	Di-n-octylphthalate		----------NA----------				

Initial Calibration Verification

Job Number: JB39339 **Sample:** MSR1128-ICV1128
Account: ALNJ Accutest New Jersey **Lab FileID:** R30978.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

94	T	Benzo[b]fluoranthene	----------NA----------	
95	T	Benzo[k]fluoranthene	----------NA----------	
96	C	Benzo[a]pyrene	----------NA----------	
97	T	Indeno[1,2,3-cd]pyrene	----------NA----------	
98	T	Dibenz[a,h]anthracene	----------NA----------	
99	T	Benzo[g,h,i]perylene	----------NA----------	

(#) = Out of Range SPCC's out = 2 CCC's out = 7
R30970.D R130530_8270+.m Thu May 30 14:55:23 2013

9.7.2

9

Initial Calibration Verification

Job Number: JB39339 **Sample:** MSR1128-ICV1128
Account: ALNJ Accutest New Jersey **Lab FileID:** R30979.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\data\R13030\R30979.D            Vial: 9
Acq On    : 30 May 2013  12:01 pm                    Operator: kristinr
Sample    : ICV1128-20                               Inst    : MSR
Misc      : op33100,msr1128,,,,1,1                   Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\met...\R130530_8270+.m (RTE Integrator)
Title        : SW-864 Method 8270
Last Update  : Thu May 30 14:53:36 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	100	0.00	4.20
2		N-nitrosodimethylamine	0.806	0.898	-11.4	106	0.00	2.38
3	T	Pyridine	1.455	1.511	-3.8	98	0.01	2.39
4	T	Aniline		----------NA----------				
5	S	2-Fluorophenol		----------NA----------				
6	T	bis(2-Chloroethyl)ether	1.011	1.026	-1.5	97	0.00	4.01
7	S	Phenol-d5		----------NA----------				
8	C	Phenol		----------NA----------				
9	M	2-Chlorophenol		----------NA----------				
10	T	1,3-Dichlorobenzene	1.559	1.624	-4.2	102	0.00	4.18
11	C	1,4-Dichlorobenzene	1.634	1.687	-3.2	103	0.00	4.22
12	T	1,2-Dichlorobenzene	1.486	1.556	-4.7	105	0.00	4.37
13	T	Benzyl alcohol	0.778	0.749	3.7	94	0.00	4.33
14	T	bis(2-chloroisopropyl)eth	1.592	1.942	-22.0#	123	0.00	4.44
15	T	o-cresol		----------NA----------				
16	T	Acetophenone	1.964	1.890	3.8	97	0.00	4.54
17	T	Hexachloroethane	0.602	0.647	-7.5	110	0.00	4.61
18	P	N-Nitroso-di-n-propylamin	0.963	1.003	-4.2	105	-0.01	4.55
19	T	m+p-cresols		----------NA----------				
20		4-methylphenol		----------NA----------				
21	I	1,4-Dichlorobenzene-d4A		----------NA----------				
22		Benzaldehyde		----------NA----------				
23	I	Naphthalene-d8	1.000	1.000	0.0	103	0.00	5.25
24	S	Nitrobenzene-d5	0.398	0.385	3.3	97	0.00	4.67
25	T	Nitrobenzene	0.397	0.392	1.3	100	0.00	4.69
26	T	Isophorone	0.694	0.673	3.0	99	0.00	4.87
27	C	2-Nitrophenol		----------NA----------				
28	T	2,4-Dimethylphenol		----------NA----------				
29	T	bis(2-Chloroethoxy)methan	0.410	0.414	-1.0	105	0.00	5.05
30	T	Benzoic acid		----------NA----------				
31	C	2,4-Dichlorophenol		----------NA----------				
32	M	1,2,4-Trichlorobenzene	0.341	0.357	-4.7	107	0.00	5.22
33	T	Naphthalene	1.075	1.106	-2.9	106	0.00	5.27
34	T	2,6-Dichlorophenol		----------NA----------				
35	T	4-Chloroaniline		----------NA----------				
36	C	Hexachlorobutadiene	0.202	0.218	-7.9	109	0.00	5.42
37	C	4-Chloro-3-methylphenol		----------NA----------				
38	T	2-Methylnaphthalene	0.730	0.710	2.7	103	0.00	5.86
39	T	1-Methylnaphthalene	0.704	0.695	1.3	103	0.00	5.95
40	T	1,2,4,5-Tetrachlorobenzen	0.378	0.376	0.5	102	0.00	6.04

Initial Calibration Verification

Job Number: JB39339 **Sample:** MSR1128-ICV1128
Account: ALNJ Accutest New Jersey **Lab FileID:** R30979.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

41	I	Naphthalene-d8a		----------NA----------				
42		Caprolactam		----------NA----------				
43	I	Acenaphthene-d10	1.000	1.000	0.0	102	0.00	6.79
44	T	Pentachloronitrobenzene	0.181	0.175	3.3	99	0.00	8.14
45	P	Hexachlorocyclopentadiene	0.364	0.196	46.2#	56	0.00	6.06
46	C	2,4,6-Trichlorophenol		----------NA----------				
47	T	2,4,5-Trichlorophenol		----------NA----------				
48	S	2-Fluorobiphenyl	1.408	1.459	-3.6	104	0.00	6.20
49	T	2-Chloronaphthalene	1.157	1.251	-8.1	110	0.00	6.28
50	M	Acenaphthylene	1.880	1.532	18.5	82	0.00	6.65
51	T	Dimethylphthalate	1.365	1.384	-1.4	104	0.00	6.58
52	T	2,4-Dinitrotoluene	0.404	0.397	1.7	101	0.00	6.99
53	C	Acenaphthene	1.252	1.312	-4.8	107	0.00	6.82
54	P	2,4-Dinitrophenol		----------NA----------				
55	T	Dibenzofuran	1.721	1.744	-1.3	103	0.00	6.95
56	M	2,6-Dinitrotoluene	0.309	0.308	0.3	103	0.00	6.64
57	P	4-Nitrophenol		----------NA----------				
58	T	2,3,4,6-Tetrachlorophenol		----------NA----------				
59	T	Fluorene	1.382	1.435	-3.8	105	0.00	7.27
60	T	4-Chlorophenyl-phenylethe	0.690	0.709	-2.8	104	0.00	7.27
61	T	Diethylphthalate	1.330	1.376	-3.5	105	0.00	7.21
62	T	2-nitroaniline	0.392	0.419	-6.9	105	0.00	6.41
63	T	3-nitroaniline	0.346	0.293	15.3	86	0.00	6.77
64	T	4-nitroaniline	0.348	0.317	8.9	93	-0.01	7.33
65		Acenaphthene-d10a		----------NA----------				
66		1,1'-Biphenyl		----------NA----------				
67	I	Phenanthrene-d10	1.000	1.000	0.0	101	0.00	8.18
68	T	4,6-Dinitro-2-methylpheno		----------NA----------				
69	C	n-Nitrosodiphenylamine	0.584	0.547	6.3	94	0.00	7.38
70	T	1,2-Diphenylhydrazine	0.863	0.788	8.7	102	0.00	7.41
71	S	2,4,6-Tribromophenol		----------NA----------				
72	T	4-Bromophenyl-phenylether	0.245	0.238	2.9	98	0.00	7.73
73	T	Hexachlorobenzene	0.261	0.267	-2.3	106	0.00	7.88
74	C	Pentachlorophenol		----------NA----------				
75	T	Phenanthrene	1.180	1.220	-3.4	104	0.00	8.21
76	T	Anthracene	1.228	1.220	0.7	99	0.00	8.25
77	T	Carbazole	1.100	1.114	-1.3	102	0.00	8.42
78	T	Di-n-butylphthalate	1.311	1.276	2.7	96	0.00	8.83
79	C	Fluoranthene	1.206	1.303	-8.0	99	0.00	9.48
80	I	Phenanthrene-d10a		----------NA----------				
81		Atrazine		----------NA----------				
82	I	Chrysene-d12	1.000	1.000	0.0	96	0.00	11.15
83	T	Benzidine		----------NA----------				
84	M	Pyrene	1.306	1.386	-6.1	91	0.00	9.74
85	S	Terphenyl-d14	0.901	0.846	6.1	82	0.00	9.92
86		3,3-Dimethylbenzidine		----------NA----------				
87	T	Butylbenzylphthalate	0.523	0.529	-1.1	98	0.00	10.52
88	T	3,3'-Dichlorobenzidine		----------NA----------				
89	T	Benzo[a]anthracene	1.110	1.189	-7.1	102	0.00	11.12
90	T	Chrysene	1.080	1.107	-2.5	99	0.00	11.18
91	T	bis(2-Ethylhexyl)phthalat	0.769	0.752	2.2	98	0.00	11.22
92	I	Perylene-d12	1.000	1.000	0.0	109	0.00	12.74
93	C	Di-n-octylphthalate	1.311	1.188	9.4	101	0.00	11.91

Initial Calibration Verification

Job Number: JB39339 **Sample:** MSR1128-ICV1128
Account: ALNJ Accutest New Jersey **Lab FileID:** R30979.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

94	T	Benzo[b]fluoranthene	1.271	1.048	17.5	96	-0.01	12.34
95	T	Benzo[k]fluoranthene	1.136	1.143	-0.6	100	0.00	12.37
96	C	Benzo[a]pyrene	1.116	1.051	5.8	103	0.00	12.68
97	T	Indeno[1,2,3-cd]pyrene	1.385	1.431	-3.3	100	-0.01	13.87
98	T	Dibenz[a,h]anthracene	1.110	1.176	-5.9	102	-0.01	13.88
99	T	Benzo[g,h,i]perylene	1.120	1.200	-7.1	102	-0.01	14.18

(#) = Out of Range SPCC's out = 2 CCC's out = 6
R30974.D R130530_8270+.m Fri May 31 12:35:15 2013

9.7.3

9

Initial Calibration Verification

Job Number: JB39339 **Sample:** MSR1128-ICV1128
Account: ALNJ Accutest New Jersey **Lab FileID:** R30980.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\data\R13030\R30980.D            Vial: 10
Acq On    : 30 May 2013  12:24 pm                    Operator: kristinr
Sample    : ICV1128-20                               Inst    : MSR
Misc      : op33100,msr1128,,,,1,1                   Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\met...\R130530_8270+.m (RTE Integrator)
Title        : SW-864 Method 8270
Last Update  : Thu May 30 14:53:36 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	93	0.00	4.20
2		N-nitrosodimethylamine		----------NA----------				
3	T	Pyridine		----------NA----------				
4	T	Aniline	0.810	0.756	6.7	85	0.00	3.98
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	I	1,4-Dichlorobenzene-d4A	1.000	1.000	0.0	61	-0.07	4.20
22		Benzaldehyde		----------NA----------				
23	I	Naphthalene-d8	1.000	1.000	0.0	94	0.00	5.25
24	S	Nitrobenzene-d5		----------NA----------				
25	T	Nitrobenzene		----------NA----------				
26	T	Isophorone		----------NA----------				
27	C	2-Nitrophenol		----------NA----------				
28	T	2,4-Dimethylphenol		----------NA----------				
29	T	bis(2-Chloroethoxy)methan		----------NA----------				
30	T	Benzoic acid		----------NA----------				
31	C	2,4-Dichlorophenol		----------NA----------				
32	M	1,2,4-Trichlorobenzene		----------NA----------				
33	T	Naphthalene		----------NA----------				
34	T	2,6-Dichlorophenol		----------NA----------				
35	T	4-Chloroaniline	0.455	0.417	8.4	86	0.00	5.34
36	C	Hexachlorobutadiene		----------NA----------				
37	C	4-Chloro-3-methylphenol		----------NA----------				
38	T	2-Methylnaphthalene		----------NA----------				
39	T	1-Methylnaphthalene		----------NA----------				
40	T	1,2,4,5-Tetrachlorobenzen		----------NA----------				

Initial Calibration Verification

Job Number: JB39339 **Sample:** MSR1128-ICV1128
Account: ALNJ Accutest New Jersey **Lab FileID:** R30980.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

41	I	Naphthalene-d8a	1.000	1.000	0.0	60	-0.07	5.25
42		Caprolactam		----------NA----------				
43	I	Acenaphthene-d10	1.000	1.000	0.0	89	0.00	6.79
44	T	Pentachloronitrobenzene		----------NA----------				
45	P	Hexachlorocyclopentadiene		----------NA----------				
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----------				
54	P	2,4-Dinitrophenol		----------NA----------				
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		Acenaphthene-d10a	1.000	1.000	0.0	56	-0.07	6.79
66		1,1'-Biphenyl		----------NA----------				
67	I	Phenanthrene-d10	1.000	1.000	0.0	94	0.00	8.18
68	T	4,6-Dinitro-2-methylpheno		----------NA----------				
69	C	n-Nitrosodiphenylamine		----------NA----------				
70	T	1,2-Diphenylhydrazine		----------NA----------				
71	S	2,4,6-Tribromophenol		----------NA----------				
72	T	4-Bromophenyl-phenylether		----------NA----------				
73	T	Hexachlorobenzene		----------NA----------				
74	C	Pentachlorophenol		----------NA----------				
75	T	Phenanthrene		----------NA----------				
76	T	Anthracene		----------NA----------				
77	T	Carbazole		----------NA----------				
78	T	Di-n-butylphthalate		----------NA----------				
79	C	Fluoranthene		----------NA----------				
80	I	Phenanthrene-d10a	1.000	1.000	0.0	58	-0.08	8.18
81		Atrazine		----------NA----------				
82	I	Chrysene-d12	1.000	1.000	0.0	90	0.00	11.14
83	T	Benzidine	0.525	0.712	-35.6#	110	0.00	9.64
84	M	Pyrene		----------NA----------				
85	S	Terphenyl-d14		----------NA----------				
86		3,3-Dimethylbenzidine		----------NA----------				
87	T	Butylbenzylphthalate		----------NA----------				
88	T	3,3'-Dichlorobenzidine	0.443	0.420	5.2	85	0.00	11.12
89	T	Benzo[a]anthracene		----------NA----------				
90	T	Chrysene		----------NA----------				
91	T	bis(2-Ethylhexyl)phthalat		----------NA----------				
92	I	Perylene-d12	1.000	1.000	0.0	111	0.00	12.74
93	C	Di-n-octylphthalate		----------NA----------				

Initial Calibration Verification

Job Number: JB39339 **Sample:** MSR1128-ICV1128
Account: ALNJ Accutest New Jersey **Lab FileID:** R30980.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
94 T   Benzo[b]fluoranthene              ----------NA----------
95 T   Benzo[k]fluoranthene              ----------NA----------
96 C   Benzo[a]pyrene                    ----------NA----------
97 T   Indeno[1,2,3-cd]pyrene            ----------NA----------
98 T   Dibenz[a,h]anthracene             ----------NA----------
99 T   Benzo[g,h,i]perylene              ----------NA----------
--------------------------------------------------------------------------
--------------------------------------------------------------------------

   (#) = Out of Range                SPCC's out = 4  CCC's out = 13
    R30974.D   R130530_8270+.m       Fri May 31 12:37:23 2013
```

9.7.4

9

Initial Calibration Verification

Job Number: JB39339 **Sample:** MSR1146-ICV1128
Account: ALNJ Accutest New Jersey **Lab FileID:** R31498.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\data\R130618\R31498.D          Vial: 100
Acq On    : 18 Jun 2013   9:30 am                   Operator: kristinr
Sample    : icv1128-50                              Inst    : MSR
Misc      : op33604,msr1146,1000,,,1,1              Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\met...\R130530_8270+.m (RTE Integrator)
Title        : SW-864 Method 8270
Last Update  : Tue Jun 25 14:19:44 2013
Response via : Multiple Level Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	61	0.06	4.03
2		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	I	1,4-Dichlorobenzene-d4A	1.000	1.000	0.0	73	0.06	4.03
22		Benzaldehyde		----------NA----------				
23	I	Naphthalene-d8	1.000	1.000	0.0	60	0.06	5.08
24	S	Nitrobenzene-d5		----------NA----------				
25	T	Nitrobenzene		----------NA----------				
26	T	Isophorone		----------NA----------				
27	C	2-Nitrophenol		----------NA----------				
28	T	2,4-Dimethylphenol		----------NA----------				
29	T	bis(2-Chloroethoxy)methan		----------NA----------				
30	T	Benzoic acid		----------NA----------				
31	C	2,4-Dichlorophenol		----------NA----------				
32	M	1,2,4-Trichlorobenzene		----------NA----------				
33	T	Naphthalene		----------NA----------				
34	T	2,6-Dichlorophenol		----------NA----------				
35	T	4-Chloroaniline		----------NA----------				
36	C	Hexachlorobutadiene		----------NA----------				
37	C	4-Chloro-3-methylphenol		----------NA----------				
38	T	2-Methylnaphthalene		----------NA----------				
39	T	1-Methylnaphthalene		----------NA----------				
40	T	1,2,4,5-Tetrachlorobenzen		----------NA----------				

9.7.5

9

Initial Calibration Verification

Job Number: JB39339 **Sample:** MSR1146-ICV1128
Account: ALNJ Accutest New Jersey **Lab FileID:** R31498.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

41	I	Naphthalene-d8a	1.000	1.000	0.0	77	0.06	5.08
42		Caprolactam		----------NA----------				
43	I	Acenaphthene-d10	1.000	1.000	0.0	60	0.06	6.60
44	T	Pentachloronitrobenzene		----------NA----------				
45	P	Hexachlorocyclopentadiene		----------NA----------				
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----------				
54	P	2,4-Dinitrophenol		----------NA----------				
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		Acenaphthene-d10a	1.000	1.000	0.0	75	0.06	6.60
66		1,1'-Biphenyl		----------NA----------				
67	I	Phenanthrene-d10	1.000	1.000	0.0	63	0.06	7.97
68	T	4,6-Dinitro-2-methylpheno		----------NA----------				
69	C	n-Nitrosodiphenylamine		----------NA----------				
70	T	1,2-Diphenylhydrazine		----------NA----------				
71	S	2,4,6-Tribromophenol		----------NA----------				
72	T	4-Bromophenyl-phenylether		----------NA----------				
73	T	Hexachlorobenzene		----------NA----------				
74	C	Pentachlorophenol		----------NA----------				
75	T	Phenanthrene		----------NA----------				
76	T	Anthracene		----------NA----------				
77	T	Carbazole		----------NA----------				
78	T	Di-n-butylphthalate		----------NA----------				
79	C	Fluoranthene		----------NA----------				
80	I	Phenanthrene-d10a	1.000	1.000	0.0	76	0.06	7.97
81		Atrazine		----------NA----------				
82	I	Chrysene-d12	1.000	1.000	0.0	76	0.08	10.91
83	T	Benzidine		----------NA----------				
84	M	Pyrene		----------NA----------				
85	S	Terphenyl-d14		----------NA----------				
86		3,3-Dimethylbenzidine	0.626	0.745	-19.0	95	0.08	10.27
87	T	Butylbenzylphthalate		----------NA----------				
88	T	3,3'-Dichlorobenzidine		----------NA----------				
89	T	Benzo[a]anthracene		----------NA----------				
90	T	Chrysene		----------NA----------				
91	T	bis(2-Ethylhexyl)phthalat		----------NA----------				
92	I	Perylene-d12	1.000	1.000	0.0	81	0.07	12.50
93	C	Di-n-octylphthalate		----------NA----------				

Initial Calibration Verification

Job Number: JB39339 **Sample:** MSR1146-ICV1128
Account: ALNJ Accutest New Jersey **Lab FileID:** R31498.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
 94 T   Benzo[b]fluoranthene                ----------NA----------
 95 T   Benzo[k]fluoranthene                ----------NA----------
 96 C   Benzo[a]pyrene                      ----------NA----------
 97 T   Indeno[1,2,3-cd]pyrene              ----------NA----------
 98 T   Dibenz[a,h]anthracene               ----------NA----------
 99 T   Benzo[g,h,i]perylene                ----------NA----------

100     Naphthalene-d8b             1.000   1.000      0.0   57   0.08    5.08
101     o-Toluic Acid                      ----------NA----------

            ----------------------- Amount  Calc.    %Drift   -------------
102     m-Toluic Acid                      ----------NA----------

            ----------------------- AvgRF   CCRF      %Dev   --------------
103     p-Toluic Acid                      ----------NA----------
 ---------------------------------------------------------------------------
 ---------------------------------------------------------------------------

    (#) = Out of Range                SPCC's out = 4  CCC's out = 13
     R31732.D   R130530_8270+.m       Thu Jun 27 19:00:28 2013
```

9.7.5

9

Continuing Calibration Summary

Job Number: JB39339 **Sample:** MSR1148-CC1128
Account: ALNJ Accutest New Jersey **Lab FileID:** R31552.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\data\R130619\R31552.D          Vial: 100
Acq On    : 19 Jun 2013   8:17 am                   Operator: kristinr
Sample    : cc1128-80                               Inst    : MSR
Misc      : op33604,msr1148,1000,,,1,1              Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\met...\R130530_8270+.m (RTE Integrator)
Title        : SW-864 Method 8270
Last Update  : Wed Jun 12 13:16:47 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	143	-0.19	4.02
2		N-nitrosodimethylamine	0.806	0.734	8.9	132	-0.19	2.19
3	T	Pyridine	1.455	1.327	8.8	130	-0.19	2.19
4	T	Aniline	0.810	0.783	3.3	139	-0.19	3.79
5	S	2-Fluorophenol	1.309	1.255	4.1	136	-0.18	3.09
6	T	bis(2-Chloroethyl)ether	1.011	0.852	15.7	121	-0.19	3.83
7	S	Phenol-d5	1.683	1.609	4.4	136	-0.16	3.78
8	C	Phenol	1.755	1.753	0.1	144	-0.17	3.79
9	M	2-Chlorophenol	1.450	1.435	1.0	140	-0.18	3.89
10	T	1,3-Dichlorobenzene	1.559	1.511	3.1	139	-0.19	3.99
11	C	1,4-Dichlorobenzene	1.634	1.589	2.8	138	-0.19	4.03
12	T	1,2-Dichlorobenzene	1.486	1.444	2.8	138	-0.19	4.18
13	T	Benzyl alcohol	0.778	0.764	1.8	134	-0.17	4.15
14	T	bis(2-chloroisopropyl)eth	1.592	1.246	21.7#	113	-0.18	4.26
15	T	o-cresol	1.252	1.230	1.8	140	-0.17	4.25
16	T	Acetophenone	1.964	1.838	6.4	136	-0.19	4.36
17	T	Hexachloroethane	0.602	0.560	7.0	131	-0.19	4.42
18	P	N-Nitroso-di-n-propylamin	0.963	0.872	9.4	128	-0.18	4.39
19	T	m+p-cresols	1.333	1.304	2.2	140	-0.17	4.37
20		4-methylphenol	1.333	1.304	2.2	140	-0.17	4.37
21	I	1,4-Dichlorobenzene-d4A	1.000	1.000	0.0	83	-0.25	4.02
22		Benzaldehyde		----------NA----------				
23	I	Naphthalene-d8	1.000	1.000	0.0	148	-0.19	5.07
24	S	Nitrobenzene-d5	0.398	0.354	11.1	131	-0.19	4.49
25	T	Nitrobenzene	0.397	0.352	11.3	131	-0.18	4.51
26	T	Isophorone	0.694	0.612	11.8	131	-0.19	4.69
27	C	2-Nitrophenol	0.197	0.201	-2.0	148	-0.19	4.77
28	T	2,4-Dimethylphenol	0.376	0.345	8.2	136	-0.17	4.80
29	T	bis(2-Chloroethoxy)methan	0.410	0.382	6.8	138	-0.19	4.87
30	T	Benzoic acid	0.265	0.269	-1.5	140	-0.15	4.94
31	C	2,4-Dichlorophenol	0.313	0.311	0.6	147	-0.18	4.97
32	M	1,2,4-Trichlorobenzene	0.341	0.334	2.1	147	-0.19	5.03
33	T	Naphthalene	1.075	1.044	2.9	144	-0.19	5.09
34	T	2,6-Dichlorophenol	0.311	0.305	1.9	145	-0.18	5.16
35	T	4-Chloroaniline	0.455	0.450	1.1	146	-0.18	5.16
36	C	Hexachlorobutadiene	0.202	0.192	5.0	139	-0.19	5.23
37	C	4-Chloro-3-methylphenol	0.309	0.296	4.2	144	-0.17	5.57
38	T	2-Methylnaphthalene	0.730	0.731	-0.1	155	-0.19	5.67
39	T	1-Methylnaphthalene	0.704	0.677	3.8	149	-0.19	5.77
40	T	1,2,4,5-Tetrachlorobenzen	0.378	0.362	4.2	148	-0.19	5.85

Continuing Calibration Summary

Job Number: JB39339 **Sample:** MSR1148-CC1128
Account: ALNJ Accutest New Jersey **Lab FileID:** R31552.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

41	I	Naphthalene-d8a	1.000	1.000	0.0	85	-0.26	5.07
42		Caprolactam	----------NA----------					
43	I	Acenaphthene-d10	1.000	1.000	0.0	148	-0.20	6.59
44	T	Pentachloronitrobenzene	0.181	0.162	10.5	132	-0.22	7.93
45	P	Hexachlorocyclopentadiene	0.364	0.312	14.3	123	-0.20	5.86
46	C	2,4,6-Trichlorophenol	0.405	0.393	3.0	150	-0.19	5.94
47	T	2,4,5-Trichlorophenol	0.424	0.419	1.2	154	-0.19	5.98
48	S	2-Fluorobiphenyl	1.408	1.360	3.4	153	-0.19	6.00
49	T	2-Chloronaphthalene	1.157	1.117	3.5	151	-0.19	6.09
50	M	Acenaphthylene	1.880	1.842	2.0	151	-0.19	6.46
51	T	Dimethylphthalate	1.365	1.326	2.9	152	-0.19	6.39
52	T	2,4-Dinitrotoluene	0.404	0.399	1.2	141	-0.19	6.81
53	C	Acenaphthene	1.252	1.178	5.9	140	-0.20	6.62
54	P	2,4-Dinitrophenol	0.199	0.202	-1.5	145	-0.19	6.67
55	T	Dibenzofuran	1.721	1.667	3.1	142	-0.20	6.76
56	M	2,6-Dinitrotoluene	0.309	0.310	-0.3	151	-0.19	6.46
57	P	4-Nitrophenol	0.266	0.225	15.4	122	-0.17	6.74
58	T	2,3,4,6-Tetrachlorophenol	0.357	0.364	-2.0	147	-0.20	6.91
59	T	Fluorene	1.382	1.343	2.8	143	-0.21	7.07
60	T	4-Chlorophenyl-phenylethe	0.690	0.670	2.9	144	-0.20	7.06
61	T	Diethylphthalate	1.330	1.242	6.6	138	-0.19	7.01
62	T	2-nitroaniline	0.392	0.391	0.3	148	-0.19	6.22
63	T	3-nitroaniline	0.346	0.333	3.8	147	-0.19	6.59
64	T	4-nitroaniline	0.348	0.330	5.2	136	-0.19	7.15
65		Acenaphthene-d10a	1.000	1.000	0.0	87	-0.27	6.59
66		1,1'-Biphenyl	----------NA----------					
67	I	Phenanthrene-d10	1.000	1.000	0.0	144	-0.22	7.96
68	T	4,6-Dinitro-2-methylpheno	0.151	0.160	-6.0	147	-0.19	7.18
69	C	n-Nitrosodiphenylamine	0.584	0.560	4.1	141	-0.20	7.19
70	T	1,2-Diphenylhydrazine	0.863	0.762	11.7	126	-0.20	7.21
71	S	2,4,6-Tribromophenol	0.129	0.130	-0.8	152	-0.21	7.31
72	T	4-Bromophenyl-phenylether	0.245	0.241	1.6	145	-0.21	7.52
73	T	Hexachlorobenzene	0.261	0.252	3.4	143	-0.22	7.67
74	C	Pentachlorophenol	0.168	0.162	3.6	137	-0.21	7.85
75	T	Phenanthrene	1.180	1.135	3.8	141	-0.22	7.99
76	T	Anthracene	1.228	1.183	3.7	140	-0.22	8.03
77	T	Carbazole	1.100	1.063	3.4	137	-0.22	8.21
78	T	Di-n-butylphthalate	1.311	1.320	-0.7	141	-0.22	8.61
79	C	Fluoranthene	1.206	1.256	-4.1	143	-0.24	9.25
80	I	Phenanthrene-d10a	1.000	1.000	0.0	84	-0.30	7.96
81		Atrazine	----------NA----------					
82	I	Chrysene-d12	1.000	1.000	0.0	172	-0.25	10.90
83	T	Benzidine	0.525	0.355	32.4#	115	-0.23	9.41
84	M	Pyrene	1.306	1.208	7.5	142	-0.24	9.50
85	S	Terphenyl-d14	0.901	0.861	4.4	147	-0.23	9.69
86		3,3-Dimethylbenzidine	0.626	0.434	30.7#	126	-0.23	10.26
87	T	Butylbenzylphthalate	0.523	0.499	4.6	143	-0.23	10.30
88	T	3,3'-Dichlorobenzidine	0.443	0.438	1.1	163	-0.24	10.89
89	T	Benzo[a]anthracene	1.110	1.076	3.1	163	-0.24	10.89
90	T	Chrysene	1.080	1.036	4.1	165	-0.24	10.94
91	T	bis(2-Ethylhexyl)phthalat	0.769	0.741	3.6	170	-0.23	10.99
92	I	Perylene-d12	1.000	1.000	0.0	175	-0.25	12.49
93	C	Di-n-octylphthalate	1.311	1.284	2.1	169	-0.23	11.67

Continuing Calibration Summary

Job Number: JB39339 **Sample:** MSR1148-CC1128
Account: ALNJ Accutest New Jersey **Lab FileID:** R31552.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

94	T	Benzo[b]fluoranthene	1.271	1.248	1.8	163	-0.25	12.10
95	T	Benzo[k]fluoranthene	1.136	1.167	-2.7	178	-0.24	12.13
96	C	Benzo[a]pyrene	1.116	1.114	0.2	169	-0.25	12.43
97	T	Indeno[1,2,3-cd]pyrene	1.385	1.378	0.5	173	-0.32	13.57
98	T	Dibenz[a,h]anthracene	1.110	1.109	0.1	171	-0.31	13.58
99	T	Benzo[g,h,i]perylene	1.120	1.114	0.5	171	-0.34	13.86

(#) = Out of Range SPCC's out = 0 CCC's out = 0
R30975.D R130530_8270+.m Thu Jun 20 10:12:05 2013

Initial Calibration Summary

Job Number: JB39339 **Sample:** MSW610-ICC610
Account: ALNJ Accutest New Jersey **Lab FileID:** W13338.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Response Factor Report MSW

Method : C:\msdchem\1\met...\W130626_8270+.m (RTE Integrator)
Title : SW-864 Method 8270
Last Update : Thu Jul 04 10:22:09 2013
Response via : Initial Calibration

Calibration Files
160 =w13353.D 120 =w13352.D 80 =w13351.D 20 =w13349.D
5 =w13347.D 2 =w13339.D 10 =w13348.D 50 =w13350.D

Compound	160	120	80	20	5	2	10	50	Avg	%RSD
1) I 1,4-Dichlorobenzene-d					ISTD					
2) N-nitrosodim	0.955	0.942	0.938	0.962	0.927		0.900	0.879	0.929	3.21
3) Pyridine	1.739	1.716	1.718	1.742	1.704		1.716	1.573	1.701	3.41
4) Aniline	2.207	2.212	2.229	2.318	2.271	2.184	2.237	2.148	2.226	2.34
5) 2-Fluorophen	1.349	1.344	1.322	1.348	1.330	1.299	1.340	1.281	1.327	1.86
6) bis(2-Chloro	1.017	1.005	0.995	1.009	1.029	0.981	1.019	0.963	1.002	2.18
7) Phenol-d5	1.843	1.835	1.833	1.858	1.864	1.752	1.838	1.779	1.825	2.14
8) Phenol	1.929	1.918	1.934	1.955	1.918	1.894	1.898	1.842	1.911	1.78
9) 2-Chlorophen	1.384	1.355	1.346	1.359	1.347	1.331	1.311	1.284	1.340	2.30
10) 1,3-Dichloro	1.516	1.499	1.498	1.542	1.530	1.569	1.530	1.437	1.515	2.57
11) 1,4-Dichloro	1.604	1.586	1.575	1.593	1.625	1.575	1.616	1.501	1.584	2.41
12) 1,2-Dichloro	1.458	1.445	1.434	1.492	1.470	1.444	1.442	1.373	1.445	2.39
13) Benzyl alcoh	1.038	1.002	0.955	1.003	0.894		0.969	0.894	0.965	5.73
14) bis(2-chloro	1.414	1.397	1.403	1.439	1.444	1.454	1.438	1.328	1.415	2.88
15) o-cresol	1.338	1.328	1.325	1.338	1.334	1.288	1.335	1.263	1.319	2.11
16) Acetophenone	2.124	2.115	2.120	2.206	2.227	2.301	2.204	2.079	2.172	3.42
17) Hexachloroet	0.613	0.616	0.609	0.628	0.619	0.640	0.634	0.599	0.620	2.18
18) N-Nitroso-di	1.055	1.041	1.036	1.047	1.059	0.989	1.049	0.988	1.033	2.76
19) m+p-cresols	1.396	1.393	1.398	1.454	1.501	1.400	1.446	1.360	1.419	3.17
20) 4-methylphen	1.396	1.393	1.398	1.454	1.501	1.400	1.446	1.360	1.419	3.17
21) I 1,4-Dichlorobenzene-d					ISTD					
22) Benzaldehyde			1.225	1.202	1.215		1.230	1.257	1.226	1.68
23) I Naphthalene-d8					ISTD					
24) Nitrobenzene	0.437	0.432	0.430	0.455	0.442	0.446	0.444	0.421	0.438	2.43
25) Nitrobenzene	0.442	0.440	0.437	0.470	0.453	0.440	0.460	0.421	0.446	3.41
26) Isophorone	0.783	0.763	0.757	0.798	0.780	0.774	0.796	0.738	0.774	2.61
27) 2-Nitropheno	0.195	0.192	0.189	0.188	0.180		0.182	0.177	0.186	3.60
28) 2,4-Dimethyl	0.404	0.400	0.401	0.417	0.391		0.409	0.384	0.401	2.68
29) bis(2-Chloro	0.451	0.441	0.441	0.458	0.460		0.447	0.428	0.447	2.48
30) Benzoic acid	0.350	0.342	0.327	0.303			0.271	0.307	0.317	9.17
31) 2,4-Dichloro	0.305	0.300	0.297	0.309	0.292		0.293	0.289	0.298	2.45
32) 1,2,4-Trichl	0.311	0.311	0.308	0.328	0.318	0.302	0.322	0.302	0.313	2.93
33) Naphthalene	1.026	1.015	1.021	1.086	1.042	1.033	1.046	0.992	1.033	2.66
34) 2,6-Dichloro	0.292	0.288	0.291	0.311	0.291		0.291	0.282	0.292	3.08
35) 4-Chloroanil	0.436	0.435	0.443	0.457	0.438		0.444	0.422	0.439	2.41
36) Hexachlorobu	0.198	0.196	0.200	0.220	0.220	0.212	0.211	0.195	0.206	5.05
37) 4-Chloro-3-m	0.353	0.349	0.349	0.364	0.344		0.360	0.340	0.351	2.44
38) 2-Methylnaph	0.675	0.671	0.671	0.709	0.684	0.670	0.680	0.653	0.677	2.34
39) 1-Methylnaph	0.644	0.649	0.651	0.677	0.680	0.673	0.688	0.640	0.663	2.82
40) 1,2,4,5-Tetr	0.334	0.335	0.343	0.377	0.373	0.368	0.371	0.345	0.356	5.01
41) I Naphthalene-d8a					ISTD					
42) Caprolactam	0.172	0.169	0.172	0.171	0.161		0.167	0.175	0.169	2.64

Initial Calibration Summary

Job Number: JB39339 **Sample:** MSW610-ICC610
Account: ALNJ Accutest New Jersey **Lab FileID:** W13338.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

43) I Acenaphthene-d10	----------ISTD----------									
44) Pentachloron	0.171	0.175	0.172	0.177			0.169	0.169	0.172	1.81
45) Hexachlorocy	0.371	0.370	0.362	0.325	0.256		0.288	0.338	0.330	13.43
46) 2,4,6-Trichl	0.396	0.389	0.388	0.395	0.370		0.377	0.377	0.385	2.56
47) 2,4,5-Trichl	0.422	0.419	0.420	0.422	0.385		0.414	0.403	0.412	3.31
48) 2-Fluorobiph	1.280	1.280	1.302	1.363	1.341	1.372	1.353	1.289	1.322	2.93
49) 2-Chloronaph	1.071	1.065	1.081	1.088	1.082	1.073	1.061	1.032	1.069	1.65
50) Acenaphthyle	1.663	1.680	1.722	1.794	1.737	1.758	1.770	1.690	1.727	2.68
51) Dimethylphth	1.292	1.285	1.278	1.305	1.296	1.337	1.336	1.247	1.297	2.30
52) 2,4-Dinitrot	0.389	0.385	0.388	0.373	0.337		0.361	0.360	0.370	5.16
53) Acenaphthene	1.059	1.052	1.077	1.104	1.061	1.108	1.066	1.043	1.071	2.20
54) 2,4-Dinitrop	0.224	0.217	0.210	0.172				0.186	0.202	10.92
55) Dibenzofuran	1.510	1.514	1.513	1.596	1.565	1.554	1.560	1.492	1.538	2.32
56) 2,6-Dinitrot	0.283	0.283	0.289	0.285	0.253		0.266	0.276	0.276	4.58
57) 4-Nitropheno	0.308	0.305	0.309	0.289			0.267	0.293	0.295	5.54
58) 2,3,4,6-Tetr	0.355	0.361	0.358	0.366	0.342		0.351	0.348	0.354	2.31
59) Fluorene	1.147	1.158	1.214	1.278	1.225	1.270	1.254	1.205	1.219	3.99
60) 4-Chlorophen	0.544	0.561	0.596	0.643	0.638	0.642	0.632	0.592	0.606	6.39
61) Diethylphtha	1.268	1.275	1.276	1.320	1.293	1.401	1.285	1.220	1.292	4.03
62) 2-nitroanili	0.396	0.387	0.378	0.365	0.328		0.345	0.358	0.365	6.56
63) 3-nitroanili	0.334	0.328	0.321	0.321			0.298	0.305	0.318	4.26
64) 4-nitroanili	0.340	0.333	0.332	0.321			0.303	0.315	0.324	4.20
65) Acenaphthene-d10a	----------ISTD----------									
66) 1,1'-Bipheny	1.270	1.362	1.347	1.374	1.396		1.401	1.410	1.366	3.49
67) I Phenanthrene-d10	----------ISTD----------									
68) 4,6-Dinitro-	0.159	0.157	0.156	0.145			0.129	0.140	0.148	7.98
69) n-Nitrosodip	0.519	0.524	0.535	0.563	0.538	0.544	0.548	0.518	0.536	2.91
70) 1,2-Diphenyl	0.896	0.896	0.801	0.854	0.813	0.835	0.809	0.774	0.835	5.32
71) 2,4,6-Tribro	0.119	0.120	0.122	0.129	0.127		0.119	0.119	0.122	3.45
72) 4-Bromopheny	0.215	0.217	0.222	0.235	0.223	0.229	0.226	0.216	0.223	3.11
73) Hexachlorobe	0.213	0.212	0.218	0.232	0.238	0.225	0.231	0.210	0.222	4.83
74) Pentachlorop	0.161	0.158	0.157	0.148			0.133	0.143	0.150	7.03
75) Phenanthrene	0.993	1.008	1.018	1.084	1.082	1.065	1.053	1.003	1.038	3.55
76) Anthracene	0.971	1.003	1.049	1.135	1.113	1.119	1.082	1.026	1.062	5.60
77) Carbazole	0.960	0.956	0.973	1.030	1.000	0.995	0.981	0.932	0.978	3.10
78) Di-n-butylph	1.213	1.239	1.244	1.315	1.294		1.266	1.203	1.253	3.25
79) Fluoranthene	1.107	1.130	1.146	1.227	1.206	1.201	1.174	1.110	1.163	3.96
80) I Phenanthrene-d10a	----------ISTD----------									
81) Atrazine		0.219	0.224	0.224	0.227		0.218	0.223	0.222	1.51
82) I Chrysene-d12	----------ISTD----------									
83) Benzidine			0.469	0.472	0.460		0.473	0.443	0.464	2.69
84) Pyrene	1.129	1.122	1.154	1.169	1.144	1.177	1.158	1.097	1.144	2.32
85) Terphenyl-d1	0.823	0.830	0.851	0.884	0.899	0.881	0.900	0.836	0.863	3.66
86) 3,3-Dimethyl			0.615	0.642	0.684		0.680	0.603	0.645	5.71
87) Butylbenzylp	0.524	0.512	0.512	0.512	0.515		0.515	0.488	0.511	2.18
88) 3,3'-Dichlor	0.401	0.406	0.414	0.428	0.403		0.428	0.400	0.412	2.96
89) Benzo[a]anth	1.012	1.028	1.050	1.111	1.103	1.145	1.107	1.030	1.073	4.57
90) Chrysene	1.017	1.019	1.031	1.078	1.076	1.091	1.058	0.999	1.046	3.25
91) bis(2-Ethylh	0.751	0.741	0.733	0.743	0.706		0.724	0.692	0.727	2.97
92) I Perylene-d12	----------ISTD----------									
93) Di-n-octylph	1.331	1.321	1.332	1.353	1.270		1.308	1.294	1.316	2.09
94) Benzo[b]fluo	1.240	1.195	1.201	1.238	1.286	1.284	1.236	1.132	1.227	4.13
95) Benzo[k]fluo	1.240	1.035	1.067	1.179	1.083	1.074	1.130	1.127	1.117	6.00
96) Benzo[a]pyre	1.050	1.047	1.062	1.106	1.078	1.111	1.084	1.031	1.071	2.68
97) Indeno[1,2,3	1.249	1.229	1.234	1.310	1.237	1.286	1.279	1.226	1.256	2.50

Initial Calibration Summary

Job Number: JB39339 **Sample:** MSW610-ICC610
Account: ALNJ Accutest New Jersey **Lab FileID:** W13338.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
 98) Dibenz[a,h]a 0.990 0.989 1.007 1.083 1.032 1.020 1.034 1.004 1.020   2.99
 99) Benzo[g,h,i] 1.046 1.032 1.031 1.085 1.025 1.042 1.051 1.006 1.040   2.20

100)     Naphthalene-d8b       ----------------ISTD---------------------
101) o-Toluic Aci 0.271 0.259 0.258 0.223 0.181       0.206 0.250 0.235  14.04
102) m-Toluic Aci 0.322 0.286 0.275 0.210 0.169       0.191 0.256 0.244  22.70
             ---- Quadratic regression ----  Coefficient =  0.9990
               Response Ratio = -0.00709 + 0.21885 *A + 0.02594 *A^2

103) p-Toluic Aci 0.335 0.327 0.375 0.397 0.349       0.370 0.398 0.364   7.79
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          W130626_8270+.m        Thu Jul 04 10:24:07 2013
```

9.7.7

9

Initial Calibration Verification

Job Number: JB39339 **Sample:** MSW612-ICV610
Account: ALNJ Accutest New Jersey **Lab FileID:** W13363.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\2\DATA\W130627\w13363.D          Vial: 1
Acq On    : 27 Jun 2013   8:43 am                   Operator: kristinr
Sample    : icv610-50                               Inst    : MSW
Misc      : op33722,msw612,,,,1,1                   Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\met...\W130626_8270+.m (RTE Integrator)
Title        : SW-864 Method 8270
Last Update  : Thu Jul 04 10:22:09 2013
Response via : Multiple Level Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	113	0.00	3.87
2		N-nitrosodimethylamine	0.929	0.982	-5.7	127	0.01	2.02
3	T	Pyridine	1.701	1.714	-0.8	124	0.00	2.02
4	T	Aniline	2.226	1.992	10.5	105	0.00	3.65
5	S	2-Fluorophenol	1.327	1.345	-1.4	119	0.00	2.94
6	T	bis(2-Chloroethyl)ether	1.002	0.996	0.6	117	0.00	3.69
7	S	Phenol-d5	1.825	1.774	2.8	113	0.00	3.63
8	C	Phenol	1.911	2.004	-4.9	123	0.00	3.64
9	M	2-Chlorophenol	1.340	1.414	-5.5	125	0.00	3.74
10	T	1,3-Dichlorobenzene	1.515	1.527	-0.8	121	0.00	3.85
11	C	1,4-Dichlorobenzene	1.584	1.570	0.9	119	0.00	3.89
12	T	1,2-Dichlorobenzene	1.445	1.470	-1.7	121	0.00	4.04
13	T	Benzyl alcohol	0.965	0.880	8.8	112	0.00	4.01
14	T	bis(2-chloroisopropyl)eth	1.415	1.637	-15.7	140	0.00	4.12
15	T	o-cresol	1.319	1.359	-3.0	122	0.00	4.11
16	T	Acetophenone	2.172	2.079	4.3	113	0.00	4.22
17	T	Hexachloroethane	0.620	0.634	-2.3	120	0.00	4.28
18	P	N-Nitroso-di-n-propylamin	1.033	1.054	-2.0	121	0.00	4.24
19	T	m+p-cresols	1.419	1.454	-2.5	121	0.00	4.23
20		4-methylphenol	1.419	1.454	-2.5	121	0.00	4.23
21	I	1,4-Dichlorobenzene-d4A	1.000	1.000	0.0	105	0.00	3.87
22		Benzaldehyde	1.021	0.589	42.3#	49#	0.00	3.54
23	I	Naphthalene-d8	1.000	1.000	0.0	113	0.00	4.93
24	S	Nitrobenzene-d5	0.438	0.428	2.3	115	0.00	4.34
25	T	Nitrobenzene	0.446	0.438	1.8	118	0.00	4.36
26	T	Isophorone	0.774	0.736	4.9	113	0.00	4.55
27	C	2-Nitrophenol	0.186	0.198	-6.5	127	0.00	4.63
28	T	2,4-Dimethylphenol	0.401	0.434	-8.2	128	0.00	4.66
29	T	bis(2-Chloroethoxy)methan	0.447	0.449	-0.4	119	0.00	4.74
30	T	Benzoic acid	0.317	0.380	-19.9	140	0.00	4.77
31	C	2,4-Dichlorophenol	0.298	0.320	-7.4	126	0.00	4.82
32	M	1,2,4-Trichlorobenzene	0.313	0.325	-3.8	122	0.00	4.89
33	T	Naphthalene	1.033	1.411	-36.6#	161	0.00	4.94
34	T	2,6-Dichlorophenol	0.292	0.314	-7.5	126	0.00	5.02
35	T	4-Chloroaniline	0.439	0.342	22.1#	92	0.00	5.01
36	C	Hexachlorobutadiene	0.206	0.214	-3.9	124	0.00	5.10
37	C	4-Chloro-3-methylphenol	0.351	0.371	-5.7	124	0.00	5.43
38	T	2-Methylnaphthalene	0.677	0.663	2.1	115	0.00	5.53
39	T	1-Methylnaphthalene	0.663	0.641	3.3	113	0.00	5.62
40	T	1,2,4,5-Tetrachlorobenzen	0.356	0.341	4.2	112	0.00	5.71

Initial Calibration Verification

Job Number: JB39339 **Sample:** MSW612-ICV610
Account: ALNJ Accutest New Jersey **Lab FileID:** W13363.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

41	I	Naphthalene-d8a	1.000	1.000	0.0	104	0.00	4.93
42		Caprolactam	0.169	0.175	-3.6	104	-0.02	5.29
43	I	Acenaphthene-d10	1.000	1.000	0.0	116	0.00	6.45
44	T	Pentachloronitrobenzene	0.172	0.165	4.1	113	0.00	7.77
45	P	Hexachlorocyclopentadiene	0.330	0.184	44.2#	63	0.00	5.73
46	C	2,4,6-Trichlorophenol	0.385	0.394	-2.3	121	0.00	5.80
47	T	2,4,5-Trichlorophenol	0.412	0.448	-8.7	129	0.00	5.84
48	S	2-Fluorobiphenyl	1.322	1.321	0.1	119	0.00	5.87
49	T	2-Chloronaphthalene	1.069	1.080	-1.0	121	0.00	5.95
50	M	Acenaphthylene	1.727	1.232	28.7#	84	0.00	6.31
51	T	Dimethylphthalate	1.297	1.237	4.6	115	0.00	6.26
52	T	2,4-Dinitrotoluene	0.370	0.383	-3.5	123	0.00	6.65
53	C	Acenaphthene	1.071	1.082	-1.0	120	0.00	6.47
54	P	2,4-Dinitrophenol	0.202	0.204	-1.0	127	0.00	6.52
55	T	Dibenzofuran	1.538	1.468	4.6	114	0.00	6.61
56	M	2,6-Dinitrotoluene	0.276	0.277	-0.4	116	0.00	6.31
57	P	4-Nitrophenol	0.295	0.310	-5.1	122	0.00	6.59
58	T	2,3,4,6-Tetrachlorophenol	0.354	0.377	-6.5	125	0.00	6.77
59	T	Fluorene	1.219	1.248	-2.4	120	0.00	6.92
60	T	4-Chlorophenyl-phenylethe	0.606	0.608	-0.3	119	0.00	6.92
61	T	Diethylphthalate	1.292	1.280	0.9	122	0.00	6.88
62	T	2-nitroaniline	0.365	0.368	-0.8	119	0.00	6.07
63	T	3-nitroaniline	0.318	0.240	24.5#	91	0.00	6.43
64	T	4-nitroaniline	0.324	0.305	5.9	112	0.00	6.98
65		Acenaphthene-d10a	1.000	1.000	0.0	105	0.00	6.45
66		1,1'-Biphenyl	1.195	1.314	-10.0	98	0.00	5.94
67	I	Phenanthrene-d10	1.000	1.000	0.0	114	0.00	7.80
68	T	4,6-Dinitro-2-methylpheno	0.148	0.164	-10.8	134	0.00	7.02
69	C	n-Nitrosodiphenylamine	0.536	0.494	7.8	109	0.00	7.04
70	T	1,2-Diphenylhydrazine	0.835	0.790	5.4	117	0.00	7.07
71	S	2,4,6-Tribromophenol	0.122	0.117	4.1	112	0.00	7.16
72	T	4-Bromophenyl-phenylether	0.223	0.216	3.1	114	0.00	7.37
73	T	Hexachlorobenzene	0.222	0.223	-0.5	121	0.00	7.52
74	C	Pentachlorophenol	0.150	0.163	-8.7	130	0.00	7.69
75	T	Phenanthrene	1.038	1.038	0.0	118	0.00	7.83
76	T	Anthracene	1.062	1.033	2.7	115	0.00	7.87
77	T	Carbazole	0.978	0.952	2.7	117	0.00	8.04
78	T	Di-n-butylphthalate	1.253	1.187	5.3	113	0.00	8.48
79	C	Fluoranthene	1.163	1.179	-1.4	121	0.00	9.09
80	I	Phenanthrene-d10a	1.000	1.000	0.0	102	0.00	7.80
81		Atrazine	0.191	0.224	-17.3	103	0.00	7.58
82	I	Chrysene-d12	1.000	1.000	0.0	113	0.00	10.73
83	T	Benzidine	0.464	0.402	13.4	102	0.00	9.25
84	M	Pyrene	1.144	1.116	2.4	115	0.00	9.33
85	S	Terphenyl-d14	0.863	0.819	5.1	110	0.00	9.54
86		3,3-Dimethylbenzidine		----------NA----------				
87	T	Butylbenzylphthalate	0.511	0.512	-0.2	118	0.00	10.16
88	T	3,3'-Dichlorobenzidine	0.412	0.260	36.9#	73	0.00	10.72
89	T	Benzo[a]anthracene	1.073	1.108	-3.3	121	0.00	10.71
90	T	Chrysene	1.046	1.021	2.4	115	0.00	10.76
91	T	bis(2-Ethylhexyl)phthalat	0.727	0.712	2.1	116	0.00	10.88
92	I	Perylene-d12	1.000	1.000	0.0	113	0.00	12.31
93	C	Di-n-octylphthalate	1.316	1.335	-1.4	116	0.00	11.57

Initial Calibration Verification

Job Number: JB39339 **Sample:** MSW612-ICV610
Account: ALNJ Accutest New Jersey **Lab FileID:** W13363.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

94	T	Benzo[b]fluoranthene	1.227	1.240	-1.1	123	0.00	11.92
95	T	Benzo[k]fluoranthene	1.117	1.053	5.7	105	0.00	11.94
96	C	Benzo[a]pyrene	1.071	0.967	9.7	106	0.00	12.25
97	T	Indeno[1,2,3-cd]pyrene	1.256	1.263	-0.6	116	0.00	13.36
98	T	Dibenz[a,h]anthracene	1.020	1.045	-2.5	117	0.00	13.37
99	T	Benzo[g,h,i]perylene	1.040	1.053	-1.2	118	0.00	13.63
100		Naphthalene-d8b	1.000	1.000	0.0	104	0.00	4.93
101		o-Toluic Acid	0.235	0.082	65.1#	34#	-0.12	5.10
			Amount	Calc.	%Drift			
102		m-Toluic Acid	50.000	132.243	-164.5#	326	-0.41	4.93
			AvgRF	CCRF	%Dev			
103		p-Toluic Acid	0.364	0.010#	97.3#	3#	0.15	5.53

(#) = Out of Range SPCC's out = 0 CCC's out = 0
w13350.D W130626_8270+.m Thu Jul 04 10:32:03 2013

9.7.8

9

Continuing Calibration Summary

Job Number: JB39339 **Sample:** MSW623-CC610
Account: ALNJ Accutest New Jersey **Lab FileID:** W13651.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\2\DATA\W130705\w13651.D Vial: 3
Acq On : 5 Jul 2013 1:05 pm Operator: williamk
Sample : CC610-80 Inst : MSW
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : W:\1\methods\W130626_8270+.m (RTE Integrator)
Title : SW-864 Method 8270
Last Update : Thu Jul 04 10:22:09 2013
Response via : Multiple Level Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	90	-0.03	3.84
2		N-nitrosodimethylamine	0.929	0.981	-5.6	94	-0.02	1.99
3	T	Pyridine	1.701	1.784	-4.9	93	-0.03	1.99
4	T	Aniline	2.226	2.217	0.4	89	-0.03	3.62
5	S	2-Fluorophenol	1.327	1.349	-1.7	92	-0.03	2.91
6	T	bis(2-Chloroethyl)ether	1.002	0.985	1.7	89	-0.03	3.66
7	S	Phenol-d5	1.825	1.841	-0.9	90	-0.02	3.61
8	C	Phenol	1.911	1.938	-1.4	90	-0.03	3.61
9	M	2-Chlorophenol	1.340	1.358	-1.3	91	-0.03	3.71
10	T	1,3-Dichlorobenzene	1.515	1.507	0.5	90	-0.03	3.81
11	C	1,4-Dichlorobenzene	1.584	1.596	-0.8	91	-0.04	3.85
12	T	1,2-Dichlorobenzene	1.445	1.461	-1.1	91	-0.04	4.00
13	T	Benzyl alcohol	0.965	0.999	-3.5	94	-0.03	3.97
14	T	bis(2-chloroisopropyl)eth	1.415	1.331	5.9	85	-0.03	4.09
15	T	o-cresol	1.319	1.357	-2.9	92	-0.03	4.08
16	T	Acetophenone	2.172	2.186	-0.6	93	-0.03	4.19
17	T	Hexachloroethane	0.620	0.619	0.2	91	-0.03	4.25
18	P	N-Nitroso-di-n-propylamin	1.033	1.026	0.7	89	-0.03	4.21
19	T	m+p-cresols	1.419	1.428	-0.6	92	-0.03	4.20
20		4-methylphenol	1.419	1.428	-0.6	92	-0.03	4.20
21	I	1,4-Dichlorobenzene-d4A	1.000	1.000	0.0	92	-0.03	3.84
22		Benzaldehyde	1.021	0.044#	95.7#	3#	0.07	3.62
23	I	Naphthalene-d8	1.000	1.000	0.0	92	-0.03	4.89
24	S	Nitrobenzene-d5	0.438	0.418	4.6	89	-0.03	4.31
25	T	Nitrobenzene	0.446	0.430	3.6	90	-0.03	4.33
26	T	Isophorone	0.774	0.754	2.6	91	-0.03	4.52
27	C	2-Nitrophenol	0.186	0.187	-0.5	91	-0.03	4.59
28	T	2,4-Dimethylphenol	0.401	0.399	0.5	91	-0.03	4.63
29	T	bis(2-Chloroethoxy)methan	0.447	0.440	1.6	91	-0.03	4.71
30	T	Benzoic acid	0.317	0.316	0.3	89	0.00	4.76
31	C	2,4-Dichlorophenol	0.298	0.298	0.0	92	-0.03	4.79
32	M	1,2,4-Trichlorobenzene	0.313	0.304	2.9	90	-0.03	4.86
33	T	Naphthalene	1.033	1.023	1.0	92	-0.03	4.91
34	T	2,6-Dichlorophenol	0.292	0.289	1.0	91	-0.03	4.98
35	T	4-Chloroaniline	0.439	0.437	0.5	90	-0.03	4.98
36	C	Hexachlorobutadiene	0.206	0.193	6.3	88	-0.03	5.06
37	C	4-Chloro-3-methylphenol	0.351	0.349	0.6	92	-0.03	5.40
38	T	2-Methylnaphthalene	0.677	0.669	1.2	91	-0.03	5.50
39	T	1-Methylnaphthalene	0.663	0.653	1.5	92	-0.03	5.59
40	T	1,2,4,5-Tetrachlorobenzen	0.356	0.339	4.8	90	-0.03	5.68

Continuing Calibration Summary

Job Number: JB39339 **Sample:** MSW623-CC610
Account: ALNJ Accutest New Jersey **Lab FileID:** W13651.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

41	I	Naphthalene-d8a	1.000	1.000	0.0	94	-0.03	4.89
42		Caprolactam	0.169	0.002#	98.8#	1#	0.19	5.50
43	I	Acenaphthene-d10	1.000	1.000	0.0	92	-0.03	6.42
44	T	Pentachloronitrobenzene	0.172	0.169	1.7	90	-0.03	7.74
45	P	Hexachlorocyclopentadiene	0.330	0.333	-0.9	84	-0.03	5.69
46	C	2,4,6-Trichlorophenol	0.385	0.387	-0.5	92	-0.03	5.77
47	T	2,4,5-Trichlorophenol	0.412	0.408	1.0	89	-0.03	5.81
48	S	2-Fluorobiphenyl	1.322	1.294	2.1	91	-0.03	5.83
49	T	2-Chloronaphthalene	1.069	1.065	0.4	91	-0.03	5.92
50	M	Acenaphthylene	1.727	1.715	0.7	91	-0.03	6.28
51	T	Dimethylphthalate	1.297	1.284	1.0	92	-0.03	6.23
52	T	2,4-Dinitrotoluene	0.370	0.387	-4.6	92	-0.03	6.62
53	C	Acenaphthene	1.071	1.063	0.7	91	-0.03	6.44
54	P	2,4-Dinitrophenol	0.202	0.194	4.0	85	-0.03	6.49
55	T	Dibenzofuran	1.538	1.504	2.2	91	-0.03	6.58
56	M	2,6-Dinitrotoluene	0.276	0.283	-2.5	90	-0.03	6.28
57	P	4-Nitrophenol	0.295	0.273	7.5	81	-0.02	6.57
58	T	2,3,4,6-Tetrachlorophenol	0.354	0.352	0.6	90	-0.03	6.74
59	T	Fluorene	1.219	1.184	2.9	90	-0.03	6.89
60	T	4-Chlorophenyl-phenylethe	0.606	0.576	5.0	89	-0.03	6.89
61	T	Diethylphthalate	1.292	1.279	1.0	92	-0.03	6.85
62	T	2-nitroaniline	0.365	0.376	-3.0	91	-0.03	6.04
63	T	3-nitroaniline	0.318	0.317	0.3	91	-0.03	6.40
64	T	4-nitroaniline	0.324	0.327	-0.9	90	-0.03	6.96
65		Acenaphthene-d10a	1.000	1.000	0.0	92	-0.03	6.42
66		1,1'-Biphenyl	1.195	0.003#	99.7#	0#	-0.26	5.68
67	I	Phenanthrene-d10	1.000	1.000	0.0	93	-0.03	7.77
68	T	4,6-Dinitro-2-methylpheno	0.148	0.148	0.0	88	-0.03	6.99
69	C	n-Nitrosodiphenylamine	0.536	0.522	2.6	91	-0.03	7.01
70	T	1,2-Diphenylhydrazine	0.835	0.882	-5.6	102	-0.03	7.04
71	S	2,4,6-Tribromophenol	0.122	0.117	4.1	89	-0.03	7.13
72	T	4-Bromophenyl-phenylether	0.223	0.211	5.4	88	-0.03	7.34
73	T	Hexachlorobenzene	0.222	0.210	5.4	89	-0.03	7.48
74	C	Pentachlorophenol	0.150	0.155	-3.3	92	-0.03	7.66
75	T	Phenanthrene	1.038	1.000	3.7	91	-0.03	7.79
76	T	Anthracene	1.062	1.022	3.8	90	-0.03	7.84
77	T	Carbazole	0.978	0.950	2.9	91	-0.03	8.01
78	T	Di-n-butylphthalate	1.253	1.221	2.6	91	-0.04	8.45
79	C	Fluoranthene	1.163	1.106	4.9	90	-0.04	9.05
80	I	Phenanthrene-d10a	1.000	1.000	0.0	1#	0.02	7.82
81		Atrazine	0.191	2.317	-1113.1#	12#	0.07	7.66
82	I	Chrysene-d12	1.000	1.000	0.0	90	-0.04	10.69
83	T	Benzidine	0.464	0.437	5.8	84	-0.04	9.21
84	M	Pyrene	1.144	1.128	1.4	88	-0.04	9.29
85	S	Terphenyl-d14	0.863	0.833	3.5	88	-0.04	9.50
86		3,3-Dimethylbenzidine	0.645	0.584	9.5	85	-0.04	10.06
87	T	Butylbenzylphthalate	0.511	0.507	0.8	89	-0.04	10.12
88	T	3,3'-Dichlorobenzidine	0.412	0.402	2.4	87	-0.03	10.68
89	T	Benzo[a]anthracene	1.073	1.052	2.0	90	-0.04	10.67
90	T	Chrysene	1.046	1.039	0.7	90	-0.03	10.73
91	T	bis(2-Ethylhexyl)phthalat	0.727	0.733	-0.8	90	-0.04	10.84
92	I	Perylene-d12	1.000	1.000	0.0	90	-0.04	12.27
93	C	Di-n-octylphthalate	1.316	1.327	-0.8	89	-0.04	11.53

Continuing Calibration Summary

Job Number: JB39339 **Sample:** MSW623-CC610
Account: ALNJ Accutest New Jersey **Lab FileID:** W13651.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

94	T	Benzo[b]fluoranthene	1.227	1.213	1.1	90	-0.04	11.88
95	T	Benzo[k]fluoranthene	1.117	1.062	4.9	89	-0.03	11.91
96	C	Benzo[a]pyrene	1.071	1.064	0.7	90	-0.04	12.21
97	T	Indeno[1,2,3-cd]pyrene	1.256	1.244	1.0	90	-0.04	13.32
98	T	Dibenz[a,h]anthracene	1.020	1.000	2.0	89	-0.04	13.33
99	T	Benzo[g,h,i]perylene	1.040	1.032	0.8	90	-0.04	13.59
100		Naphthalene-d8b	1.000	1.000	0.0	94	-0.03	4.89
101		o-Toluic Acid	0.235	0.073	68.9#	27#	-0.15	5.06
			Amount	Calc.	%Drift			
102		m-Toluic Acid	80.000	132.243	-65.3#	171	-0.44	4.89
			AvgRF	CCRF	%Dev			
103		p-Toluic Acid	0.364	0.011#	97.0#	3#	0.12	5.50

(#) = Out of Range SPCC's out = 0 CCC's out = 0
w13351.D W130626_8270+.m Fri Jul 05 14:35:06 2013

9.7.9

9

Continuing Calibration Summary

Job Number: JB39339 **Sample:** MSW623-CC610
Account: ALNJ Accutest New Jersey **Lab FileID:** W13652.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\2\DATA\W130705\w13652.D          Vial: 4
Acq On    :  5 Jul 2013   1:28 pm                   Operator: williamk
Sample    : CC610-120                               Inst    : MSW
Misc      : OP33773,MSW623,,,,1,1                   Multiplr: 1.00
MS Integration Params: rteint.p

Method       : W:\1\methods\W130626_8270+.m (RTE Integrator)
Title        : SW-864 Method 8270
Last Update  : Thu Jul 11 14:07:03 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	90	-0.04	3.84
2		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	I	1,4-Dichlorobenzene-d4A	1.000	1.000	0.0	103	-0.04	3.84
22		Benzaldehyde	1.016	0.957	5.8	100	-0.03	3.51
23	I	Naphthalene-d8	1.000	1.000	0.0	90	-0.04	4.89
24	S	Nitrobenzene-d5		----------NA----------				
25	T	Nitrobenzene		----------NA----------				
26	T	Isophorone		----------NA----------				
27	C	2-Nitrophenol		----------NA----------				
28	T	2,4-Dimethylphenol		----------NA----------				
29	T	bis(2-Chloroethoxy)methan		----------NA----------				
30	T	Benzoic acid		----------NA----------				
31	C	2,4-Dichlorophenol		----------NA----------				
32	M	1,2,4-Trichlorobenzene		----------NA----------				
33	T	Naphthalene		----------NA----------				
34	T	2,6-Dichlorophenol		----------NA----------				
35	T	4-Chloroaniline		----------NA----------				
36	C	Hexachlorobutadiene		----------NA----------				
37	C	4-Chloro-3-methylphenol		----------NA----------				
38	T	2-Methylnaphthalene		----------NA----------				
39	T	1-Methylnaphthalene		----------NA----------				
40	T	1,2,4,5-Tetrachlorobenzen		----------NA----------				

Continuing Calibration Summary

Job Number: JB39339 **Sample:** MSW623-CC610
Account: ALNJ Accutest New Jersey **Lab FileID:** W13652.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

41	I	Naphthalene-d8a	1.000	1.000	0.0	104	-0.04	4.89
42		Caprolactam	0.169	0.163	3.6	100	0.00	5.32
43	I	Acenaphthene-d10	1.000	1.000	0.0	88	-0.04	6.41
44	T	Pentachloronitrobenzene	----------NA----------					
45	P	Hexachlorocyclopentadiene	----------NA----------					
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----------					
54	P	2,4-Dinitrophenol	----------NA----------					
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		Acenaphthene-d10a	1.000	1.000	0.0	103	-0.04	6.41
66		1,1'-Biphenyl	1.195	1.323	-10.7	100	-0.03	5.91
67	I	Phenanthrene-d10	1.000	1.000	0.0	90	-0.04	7.77
68	T	4,6-Dinitro-2-methylpheno	----------NA----------					
69	C	n-Nitrosodiphenylamine	----------NA----------					
70	T	1,2-Diphenylhydrazine	----------NA----------					
71	S	2,4,6-Tribromophenol	----------NA----------					
72	T	4-Bromophenyl-phenylether	----------NA----------					
73	T	Hexachlorobenzene	----------NA----------					
74	C	Pentachlorophenol	----------NA----------					
75	T	Phenanthrene	----------NA----------					
76	T	Anthracene	----------NA----------					
77	T	Carbazole	----------NA----------					
78	T	Di-n-butylphthalate	----------NA----------					
79	C	Fluoranthene	----------NA----------					
80	I	Phenanthrene-d10a	1.000	1.000	0.0	101	-0.04	7.77
81		Atrazine	0.191	0.217	-13.6	100	-0.03	7.55
82	I	Chrysene-d12	1.000	1.000	0.0	91	-0.04	10.69
83	T	Benzidine	----------NA----------					
84	M	Pyrene	----------NA----------					
85	S	Terphenyl-d14	----------NA----------					
86		3,3-Dimethylbenzidine	----------NA----------					
87	T	Butylbenzylphthalate	----------NA----------					
88	T	3,3'-Dichlorobenzidine	----------NA----------					
89	T	Benzo[a]anthracene	----------NA----------					
90	T	Chrysene	----------NA----------					
91	T	bis(2-Ethylhexyl)phthalat	----------NA----------					
92	I	Perylene-d12	----------NA----------					
93	C	Di-n-octylphthalate	----------NA----------					

Continuing Calibration Summary

Job Number: JB39339 **Sample:** MSW623-CC610
Account: ALNJ Accutest New Jersey **Lab FileID:** W13652.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

94	T	Benzo[b]fluoranthene	----------NA----------					
95	T	Benzo[k]fluoranthene	----------NA----------					
96	C	Benzo[a]pyrene	----------NA----------					
97	T	Indeno[1,2,3-cd]pyrene	----------NA----------					
98	T	Dibenz[a,h]anthracene	----------NA----------					
99	T	Benzo[g,h,i]perylene	----------NA----------					
100		Naphthalene-d8b	1.000	1.000	0.0	104	-0.04	4.89
101		o-Toluic Acid	0.235	0.253	-7.7	101	0.00	5.22
		----------	Amount	Calc.	%Drift		----------	
102		m-Toluic Acid	120.000	117.202	2.3	104	0.03	5.36
		----------	AvgRF	CCRF	%Dev		----------	
103		p-Toluic Acid	0.364	0.323	11.3	103	0.03	5.41

(#) = Out of Range SPCC's out = 4 CCC's out = 13
w13352.D W130626_8270+.m Thu Jul 11 14:08:23 2013

9.7.10

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\1\data\R130619\
Data File : R31559.D
Acq On : 19 Jun 2013 11:00 am
Operator : kristinr
Sample : JB39339-1
Misc : op33636,msr1148,20.17,,,1,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jul 05 09:52:25 2013
Quant Method : W:\1\methods\R130530_8270+.m
Quant Title : SW-864 Method 8270
QLast Update : Tue Jun 25 14:19:44 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.015	152	79420	40.00	ppm	0.05
21) 1,4-Dichlorobenzene-d4A	4.015	152	79420	40.00	PPM	0.05
23) Naphthalene-d8	5.062	136	304544	40.00	ppm	0.04
41) Naphthalene-d8a	5.062	136	304544	40.00	ppm	# 0.04
43) Acenaphthene-d10	6.585	164	178909	40.00	ppm	0.04
65) Acenaphthene-d10a	6.585	164	178909	40.00	ppm	0.04
67) Phenanthrene-d10	7.956	188	304997	40.00	ppm	0.05
80) Phenanthrene-d10a	7.956	188	304997	40.00	ppm	0.05
82) Chrysene-d12	10.897	240	338972	40.00	ppm	0.06
92) Perylene-d12	12.485	264	325576	40.00	ppm	0.06
100) Naphthalene-d8b	5.286	136	1258	40.00	ug/mL	0.28
System Monitoring Compounds						
5) 2-Fluorophenol	3.092	112	90718	34.91	ppm	0.05
Spiked Amount 100.000	Range 30 - 130		Recovery = 34.91%			
7) Phenol-d5	3.768	99	113667	34.03	ppm	0.04
Spiked Amount 100.000	Range 30 - 130		Recovery = 34.03%			
24) Nitrobenzene-d5	4.486	82	97964	32.30	ppm	0.04
Spiked Amount 50.000	Range 30 - 130		Recovery = 64.60%			
48) 2-Fluorobiphenyl	5.997	172	231755	36.80	ppm	0.04
Spiked Amount 50.000	Range 30 - 130		Recovery = 73.60%			
71) 2,4,6-Tribromophenol	7.309	330	37851	38.63	ppm	0.05
Spiked Amount 100.000	Range 30 - 130		Recovery = 38.63%			
85) Terphenyl-d14	9.685	244	320417	41.97	ppm	0.06
Spiked Amount 50.000	Range 30 - 130		Recovery = 83.94%			
Target Compounds						Qvalue
33) Naphthalene	5.080	128	139338	17.03	ppm	98
38) 2-Methylnaphthalene	5.668	142	164031	29.50	ppm	100
39) 1-Methylnaphthalene	5.762	142	102975	19.22	ppm	99
75) Phenanthrene	7.979	178	3600	0.40	ppm	93

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

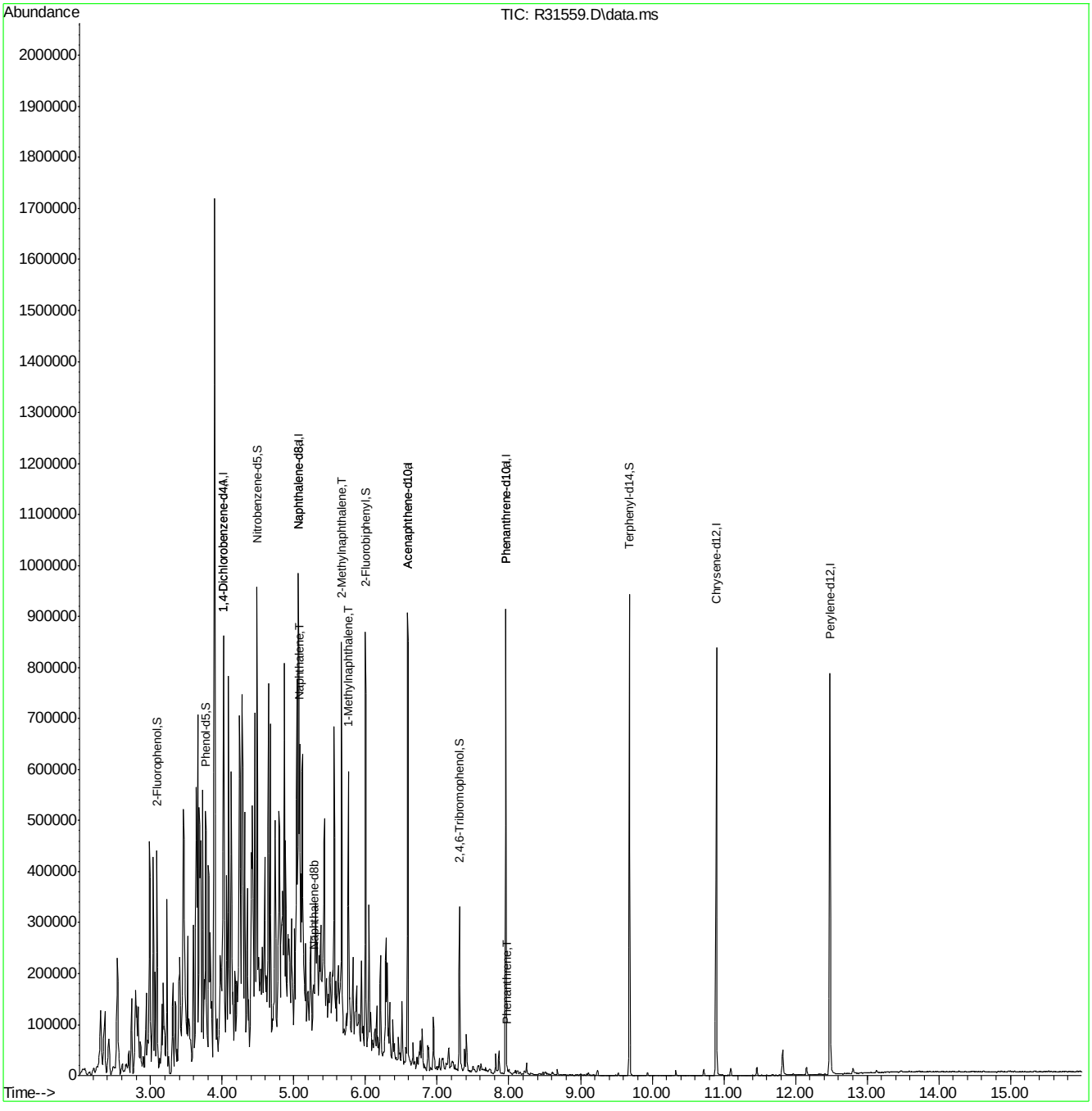
10.1.1

10

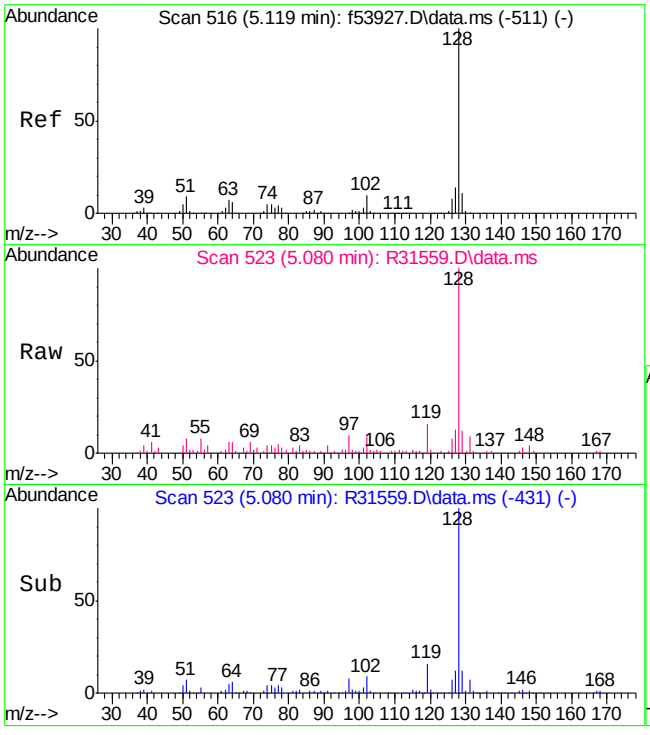
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\R130619\
Data File : R31559.D
Acq On : 19 Jun 2013 11:00 am
Operator : kristinr
Sample : JB39339-1
Misc : op33636,msr1148,20.17,,,1,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jul 05 09:52:25 2013
Quant Method : W:\1\methods\R130530_8270+.m
Quant Title : SW-864 Method 8270
QLast Update : Tue Jun 25 14:19:44 2013
Response via : Initial Calibration



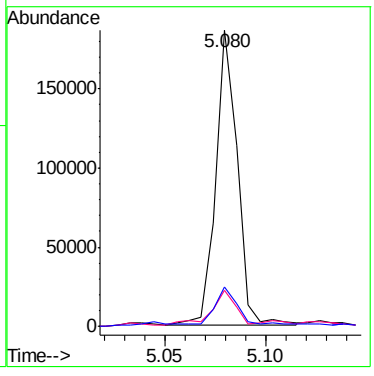
R130530_8270+.m Fri Jul 05 09:52:33 2013 Page: 2

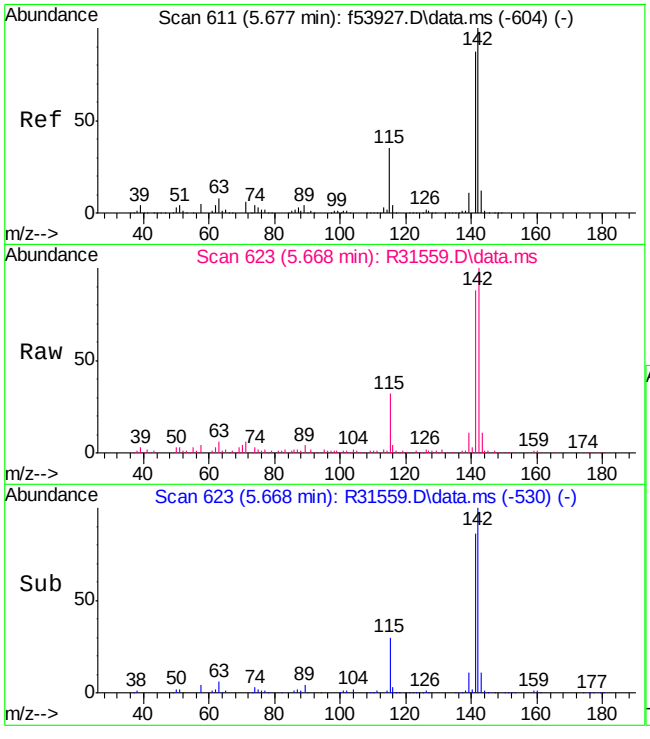


#33
Naphthalene
Concen: 17.03 ppm
RT: 5.080 min Scan# 523
Delta R.T. 0.040 min
Lab File: R31559.D
Acq: 19 Jun 2013 11:00 am

Tgt Ion:128 Resp: 139338

Ion	Ratio	Lower	Upper
128	100		
129	11.6	0.0	40.1
127	12.6	0.0	42.3

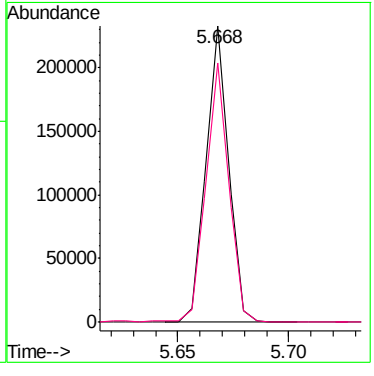


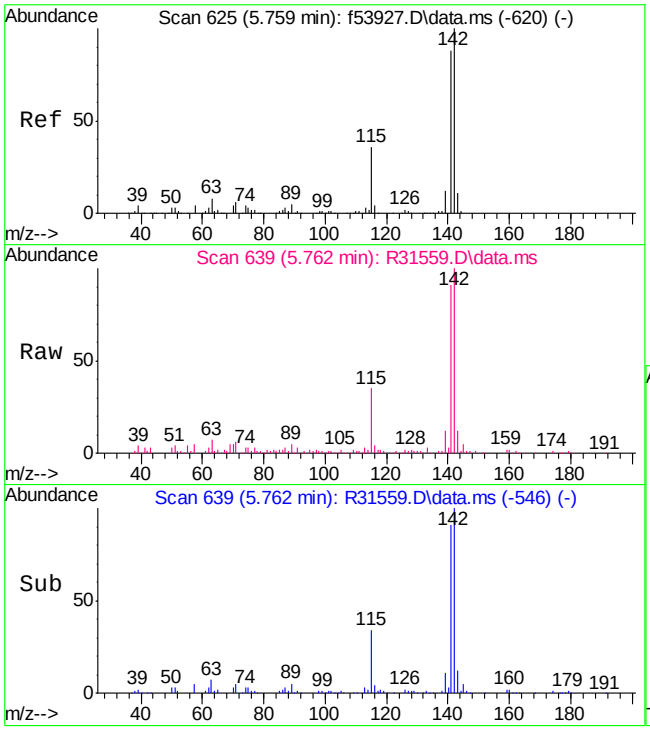


#38
2-Methylnaphthalene
Concen: 29.50 ppm
RT: 5.668 min Scan# 623
Delta R.T. 0.046 min
Lab File: R31559.D
Acq: 19 Jun 2013 11:00 am

Tgt Ion:142 Resp: 164031

Ion	Ratio	Lower	Upper
142	100		
141	87.5	57.2	117.2

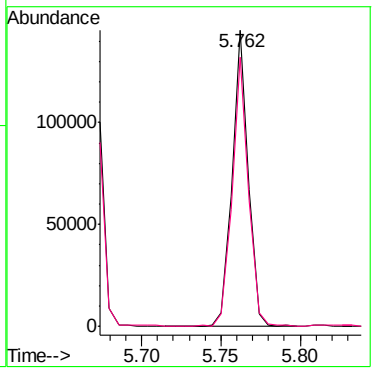


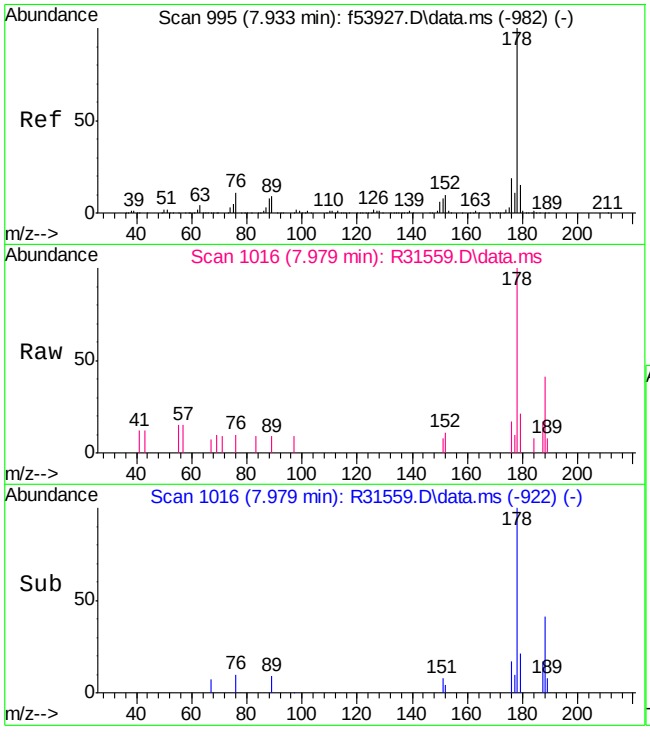


#39
1-Methylnaphthalene
Concen: 19.22 ppm
RT: 5.762 min Scan# 639
Delta R.T. 0.046 min
Lab File: R31559.D
Acq: 19 Jun 2013 11:00 am

Tgt Ion:142 Resp: 102975

Ion	Ratio	Lower	Upper
142	100		
141	90.6	70.0	110.0

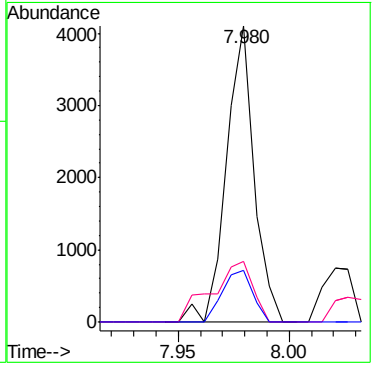




#75
Phenanthrene
Concen: 0.40 ppm
RT: 7.979 min Scan# 1016
Delta R.T. 0.052 min
Lab File: R31559.D
Acq: 19 Jun 2013 11:00 am

Tgt Ion:178 Resp: 3600

Ion	Ratio	Lower	Upper
178	100		
179	20.6	0.0	45.2
176	17.4	0.0	48.6



Manual Integrations APPROVED (compounds with "m" flag)
Doug Yargeau
07/11/13 19:23

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\R130619\
Data File : R31560.D
Acq On : 19 Jun 2013 11:23 am
Operator : kristinr
Sample : JB39339-2
Misc : op33636,msr1148,20.87,,,1,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jul 05 09:57:18 2013
Quant Method : W:\1\methods\R130530_8270+.m
Quant Title : SW-864 Method 8270
QLast Update : Tue Jun 25 14:19:44 2013
Response via : Initial Calibration

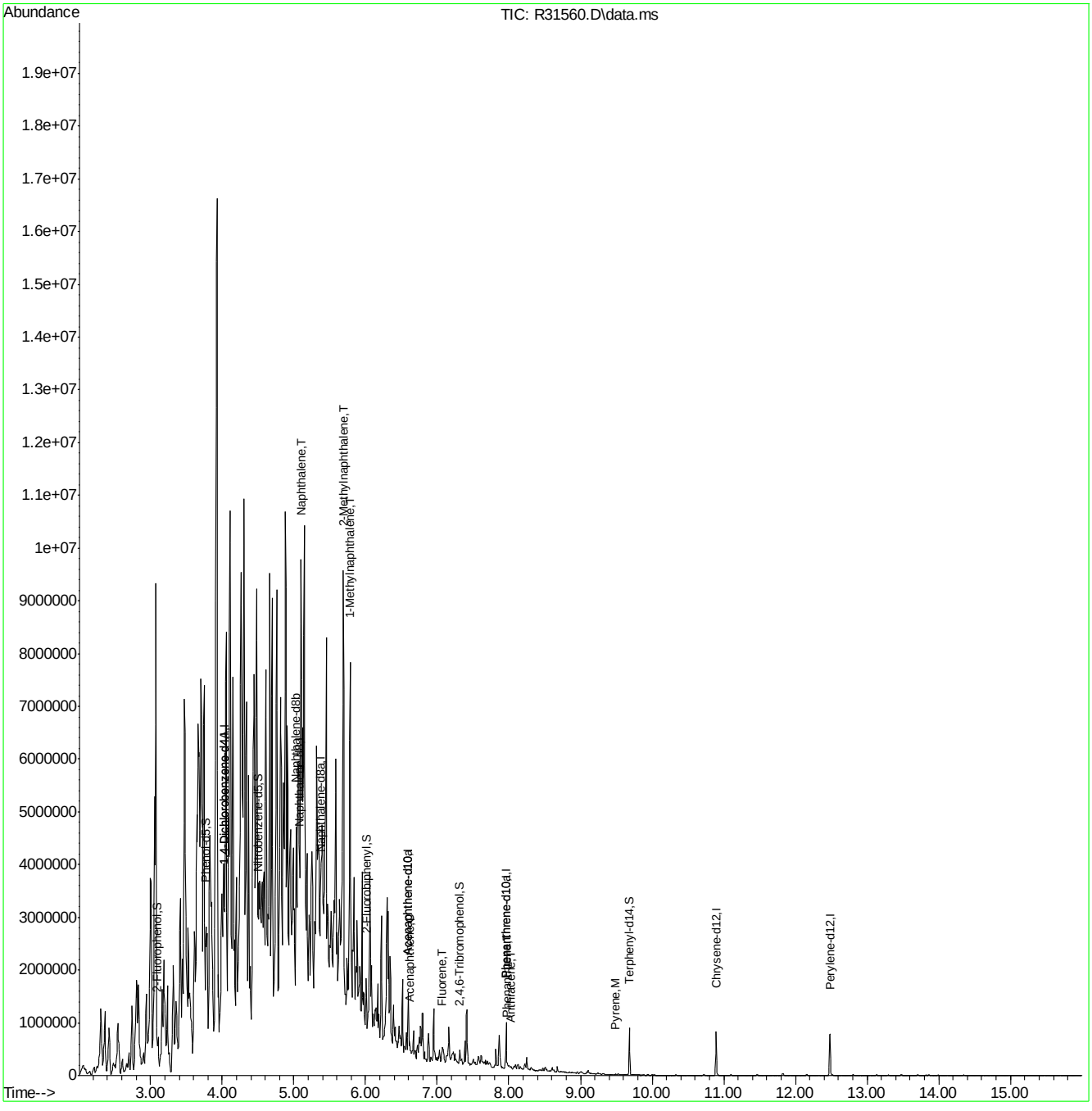
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.027	152	87376	40.00	ppm	0.06
21) 1,4-Dichlorobenzene-d4A	4.027	152	87700	40.00	PPM	0.06
23) Naphthalene-d8	5.080	136	337401	40.00	ppm	0.06
41) Naphthalene-d8a	5.368	136	12826	40.00	ppm	0.35
43) Acenaphthene-d10	6.591	164	186134	40.00	ppm	0.05
65) Acenaphthene-d10a	6.591	164	186134	40.00	ppm	0.05
67) Phenanthrene-d10	7.962	188	309698	40.00	ppm	0.05
80) Phenanthrene-d10a	7.962	188	309698	40.00	ppm	0.05
82) Chrysene-d12	10.897	240	343882	40.00	ppm	0.06
92) Perylene-d12	12.485	264	322598	40.00	ppm	0.06
100) Naphthalene-d8b	5.033	136	9132	40.00	ug/mL	# 0.03
System Monitoring Compounds						
5) 2-Fluorophenol	3.092	112	92036	32.19	ppm	0.05
Spiked Amount 100.000	Range 30 - 130		Recovery = 32.19%			
7) Phenol-d5	3.774	99	120675	32.83	ppm	0.05
Spiked Amount 100.000	Range 30 - 130		Recovery = 32.83%			
24) Nitrobenzene-d5	4.497	82	99826	29.71	ppm	0.05
Spiked Amount 50.000	Range 30 - 130		Recovery = 59.42%			
48) 2-Fluorobiphenyl	6.009	172	242923	37.08	ppm	0.05
Spiked Amount 50.000	Range 30 - 130		Recovery = 74.16%			
71) 2,4,6-Tribromophenol	7.315	330	36614	36.80	ppm	0.05
Spiked Amount 100.000	Range 30 - 130		Recovery = 36.80%			
85) Terphenyl-d14	9.685	244	295205	38.12	ppm	0.06
Spiked Amount 50.000	Range 30 - 130		Recovery = 76.24%			
Target Compounds						Qvalue
33) Naphthalene	5.103	128	2803945	309.28	ppm	99
38) 2-Methylnaphthalene	5.691	142	2410095	391.22	ppm	100
39) 1-Methylnaphthalene	5.786	142	1516042	255.43	ppm	99
53) Acenaphthene	6.621	153	18446	3.17	ppm	75
59) Fluorene	7.068	166	27335m	4.25	ppm	
75) Phenanthrene	7.980	178	33887	3.71	ppm	98
76) Anthracene	8.027	178	4783m	0.50	ppm	
84) Pyrene	9.491	202	5713	0.51	ppm	96

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

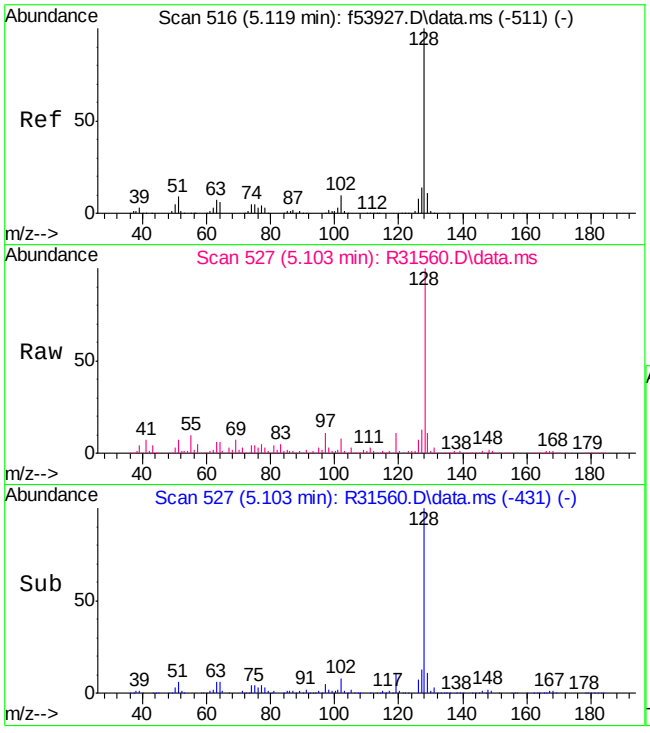
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\R130619\
Data File : R31560.D
Acq On : 19 Jun 2013 11:23 am
Operator : kristinr
Sample : JB39339-2
Misc : op33636,msr1148,20.87,,,1,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jul 05 09:57:18 2013
Quant Method : W:\1\methods\R130530_8270+.m
Quant Title : SW-864 Method 8270
QLast Update : Tue Jun 25 14:19:44 2013
Response via : Initial Calibration



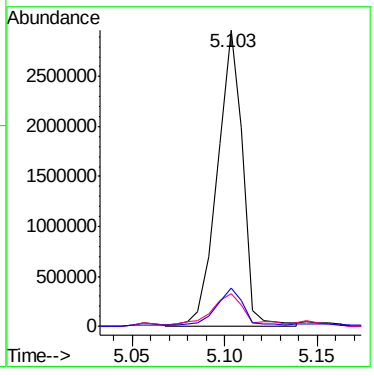
R130530_8270+.m Fri Jul 05 09:57:26 2013 Page: 2

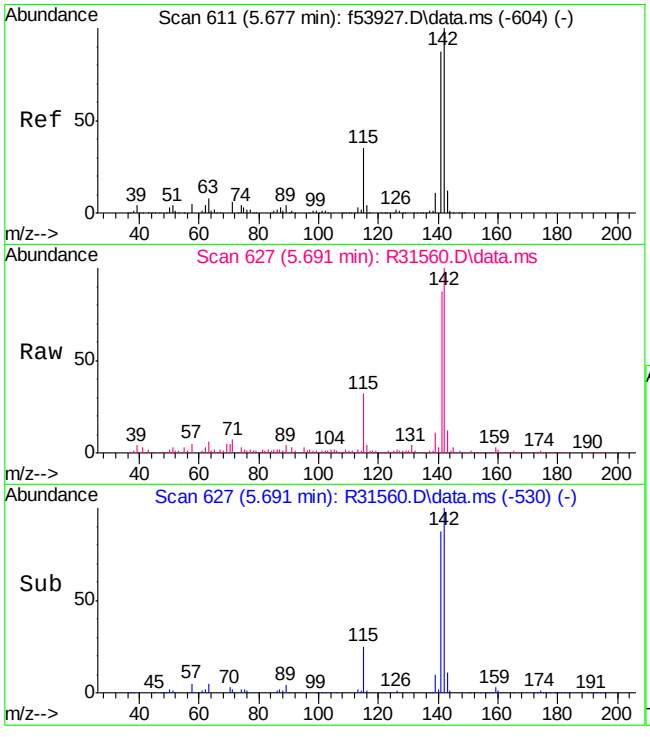


#33
Naphthalene
Concen: 309.28 ppm
RT: 5.103 min Scan# 527
Delta R.T. 0.064 min
Lab File: R31560.D
Acq: 19 Jun 2013 11:23 am

Tgt Ion:128 Resp: 2803945

Ion	Ratio	Lower	Upper
128	100		
129	10.7	0.0	40.1
127	12.5	0.0	42.3

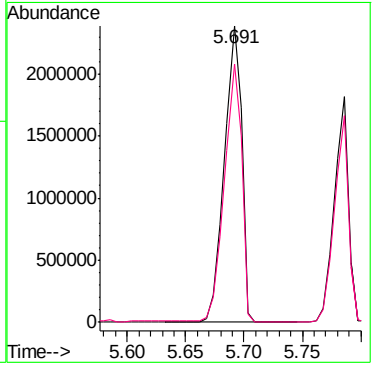


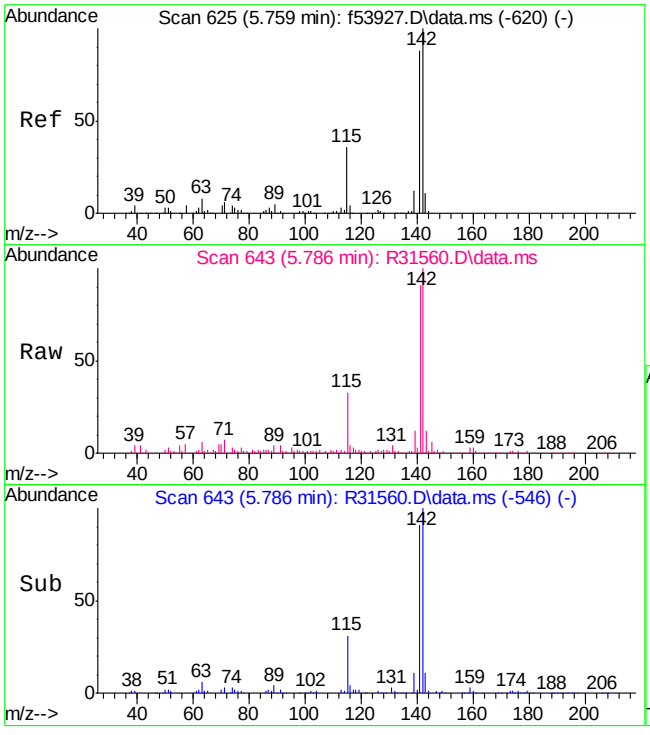


#38
2-Methylnaphthalene
Concen: 391.22 ppm
RT: 5.691 min Scan# 627
Delta R.T. 0.070 min
Lab File: R31560.D
Acq: 19 Jun 2013 11:23 am

Tgt Ion:142 Resp: 2410095

Ion	Ratio	Lower	Upper
142	100		
141	87.0	57.2	117.2

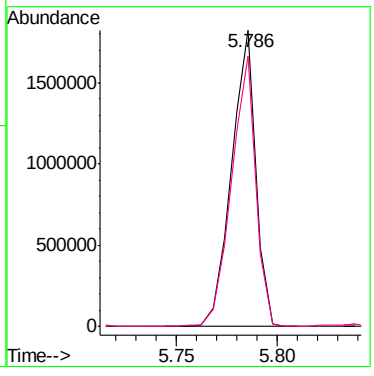


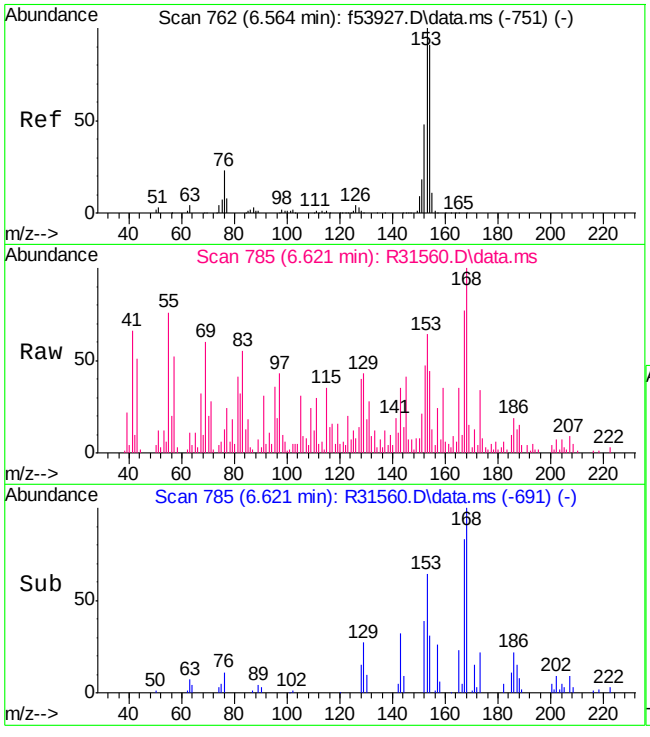


#39
1-Methylnaphthalene
Concen: 255.43 ppm
RT: 5.786 min Scan# 643
Delta R.T. 0.069 min
Lab File: R31560.D
Acq: 19 Jun 2013 11:23 am

Tgt Ion:142 Resp: 1516042

Ion	Ratio	Lower	Upper
142	100		
141	91.2	70.0	110.0

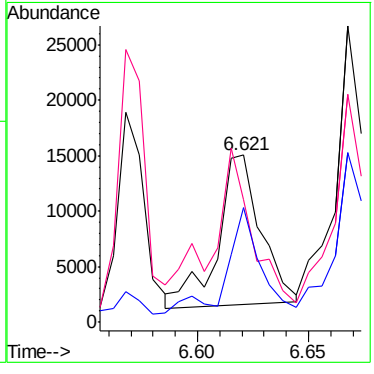


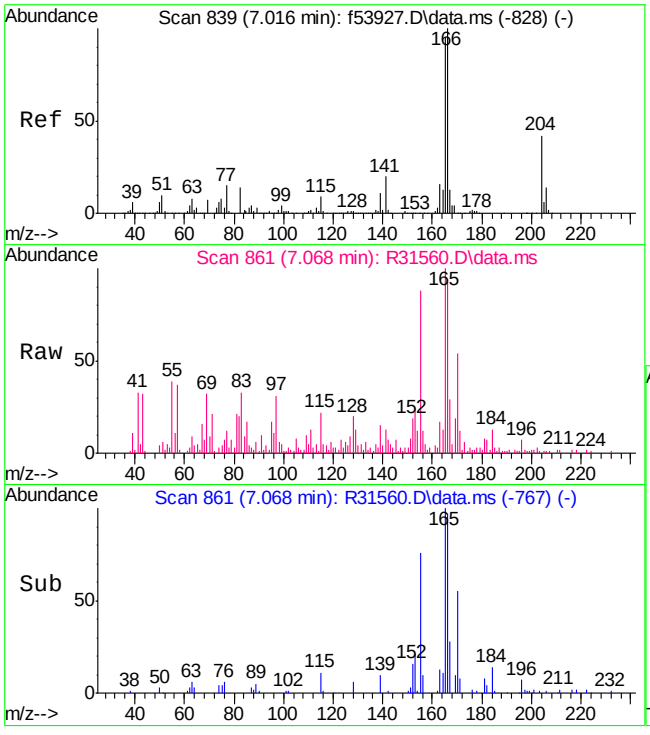


#53
Acenaphthene
Concen: 3.17 ppm
RT: 6.621 min Scan# 785
Delta R.T. 0.052 min
Lab File: R31560.D
Acq: 19 Jun 2013 11:23 am

Tgt Ion:153 Resp: 18446

Ion	Ratio	Lower	Upper
153	100		
152	73.5	15.5	75.5
154	75.0	60.3	120.3

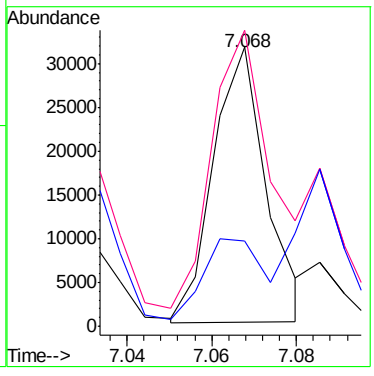


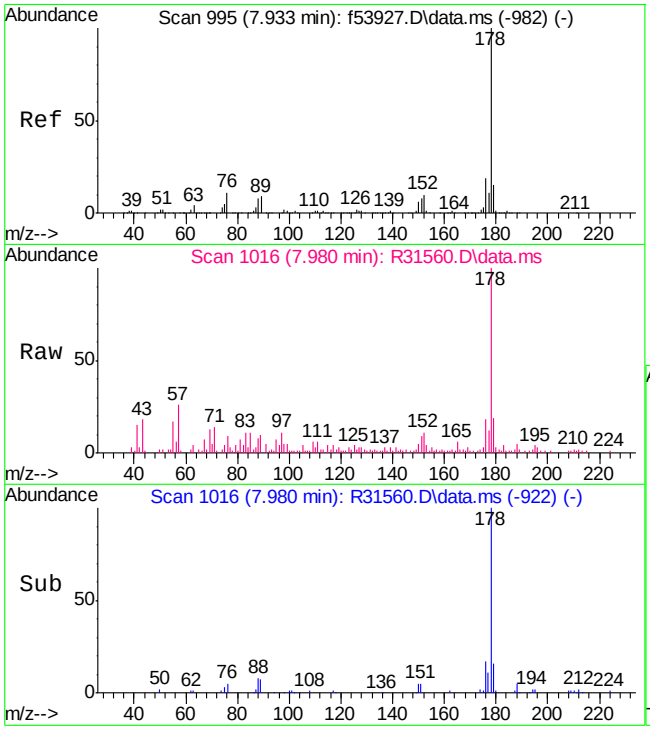


#59
Fluorene
Concen: 4.25 ppm m
RT: 7.068 min Scan# 861
Delta R.T. 0.052 min
Lab File: R31560.D
Acq: 19 Jun 2013 11:23 am

Tgt Ion:166 Resp: 27335

Ion	Ratio	Lower	Upper
166	100		
165	106.2	65.2	125.2
167	30.6	0.0	43.9

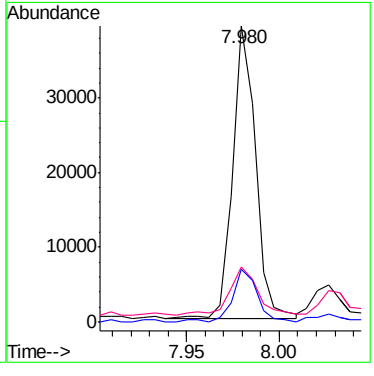


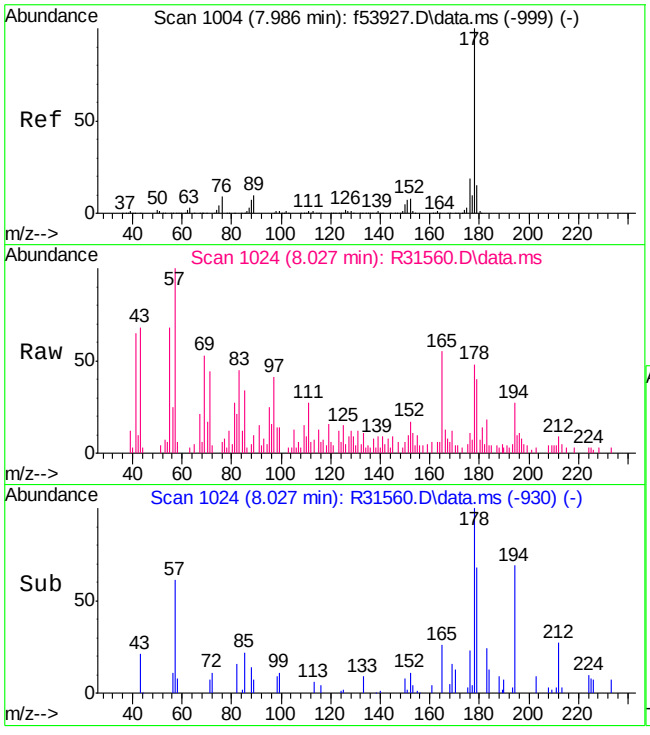


#75
Phenanthrene
Concen: 3.71 ppm
RT: 7.980 min Scan# 1016
Delta R.T. 0.052 min
Lab File: R31560.D
Acq: 19 Jun 2013 11:23 am

Tgt Ion:178 Resp: 33887

Ion	Ratio	Lower	Upper
178	100		
179	16.3	0.0	45.2
176	18.2	0.0	48.6

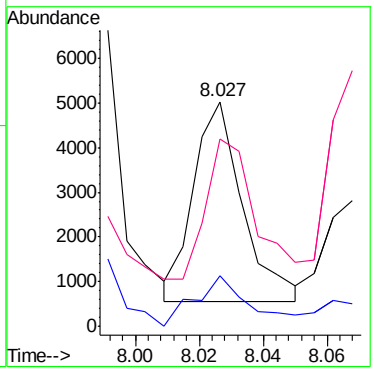


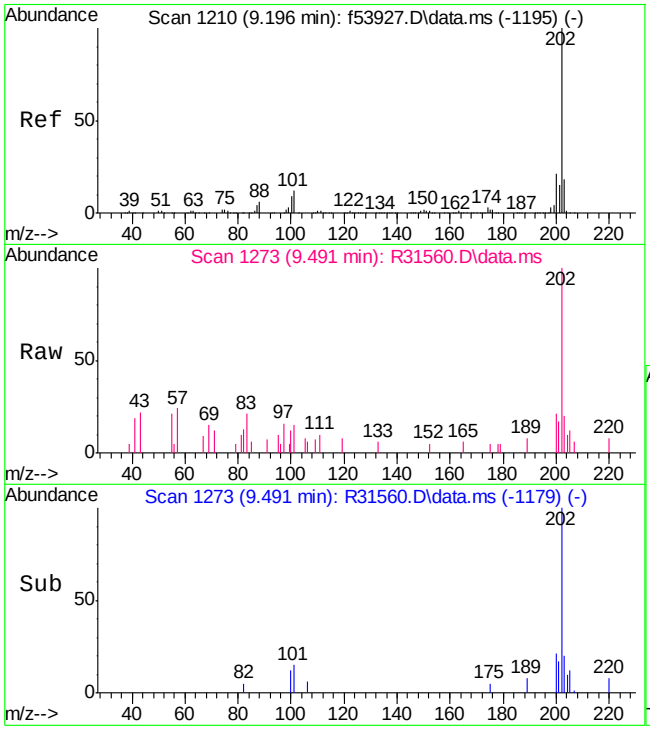


#76
Anthracene
Concen: 0.50 ppm m
RT: 8.027 min Scan# 1024
Delta R.T. 0.052 min
Lab File: R31560.D
Acq: 19 Jun 2013 11:23 am

Tgt Ion:178 Resp: 4783

Ion	Ratio	Lower	Upper
178	100		
179	83.4	0.0	45.9#
176	22.6	0.0	48.6

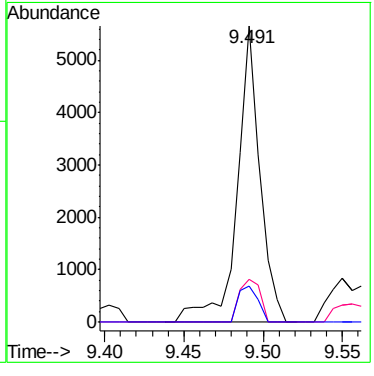




#84
Pyrene
Concen: 0.51 ppm
RT: 9.491 min Scan# 1273
Delta R.T. 0.052 min
Lab File: R31560.D
Acq: 19 Jun 2013 11:23 am

Tgt Ion:202 Resp: 5713

Ion	Ratio	Lower	Upper
202	100		
101	14.5	0.0	43.1
100	12.2	0.0	40.6



Manual Integrations APPROVED (compounds with "m" flag)
Doug Yargeau
07/11/13 19:23

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\W130705\
Data File : w13657.D
Acq On : 5 Jul 2013 3:26 pm
Operator : williamk
Sample : jb39339-2
Misc : OP33636,MSW623,20.87,,,1,5
ALS Vial : 40 Sample Multiplier: 1

Quant Time: Jul 11 14:14:13 2013
Quant Method : W:\1\methods\W130626_8270+.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Jul 11 14:07:03 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.841	152	78147	40.00	ppm	-0.03
21) 1,4-Dichlorobenzene-d4A	3.841	152	78147	40.00	PPM	-0.03
23) Naphthalene-d8	4.893	136	299343	40.00	ppm	-0.03
41) Naphthalene-d8a	4.893	136	299343	40.00	ppm	-0.03
43) Acenaphthene-d10	6.410	164	180809	40.00	ppm	-0.04
65) Acenaphthene-d10a	6.410	164	180809	40.00	ppm	-0.04
67) Phenanthrene-d10	7.762	188	314921	40.00	ppm	-0.04
80) Phenanthrene-d10a	7.762	188	314921	40.00	ppm	-0.04
82) Chrysene-d12	10.679	240	356324	40.00	ppm	-0.05
92) Perylene-d12	12.260	264	328058	40.00	ppm	-0.05
100) Naphthalene-d8b	4.893	136	299343	40.00	ug/mL	-0.03
System Monitoring Compounds						
5) 2-Fluorophenol	2.911	112	19124	7.38	ppm	-0.03
Spiked Amount 100.000	Range 30 - 130		Recovery	=	7.38%#	
7) Phenol-d5	3.600	99	28785	8.07	ppm	-0.03
Spiked Amount 100.000	Range 30 - 130		Recovery	=	8.07%#	
24) Nitrobenzene-d5	4.311	82	32400	9.88	ppm	-0.03
Spiked Amount 50.000	Range 30 - 130		Recovery	=	19.76%#	
48) 2-Fluorobiphenyl	5.828	172	43701	7.31	ppm	-0.04
Spiked Amount 50.000	Range 30 - 130		Recovery	=	14.62%#	
71) 2,4,6-Tribromophenol	7.121	330	6238	6.48	ppm	-0.04
Spiked Amount 100.000	Range 30 - 130		Recovery	=	6.48%#	
85) Terphenyl-d14	9.487	244	59339	7.72	ppm	-0.05
Spiked Amount 50.000	Range 30 - 130		Recovery	=	15.44%#	
Target Compounds						Qvalue
33) Naphthalene	4.909	128	485191	62.79	ppm	98
38) 2-Methylnaphthalene	5.497	142	419252	82.80	ppm	99
39) 1-Methylnaphthalene	5.593	142	265630	53.55	ppm	99
59) Fluorene	6.880	166	4896m	0.89	ppm	
66) 1,1'-Biphenyl	5.903	154	27429	4.44	ppm	100
75) Phenanthrene	7.783	178	7446	0.91	ppm	96
84) Pyrene	9.279	202	1138	0.11	ppm	71

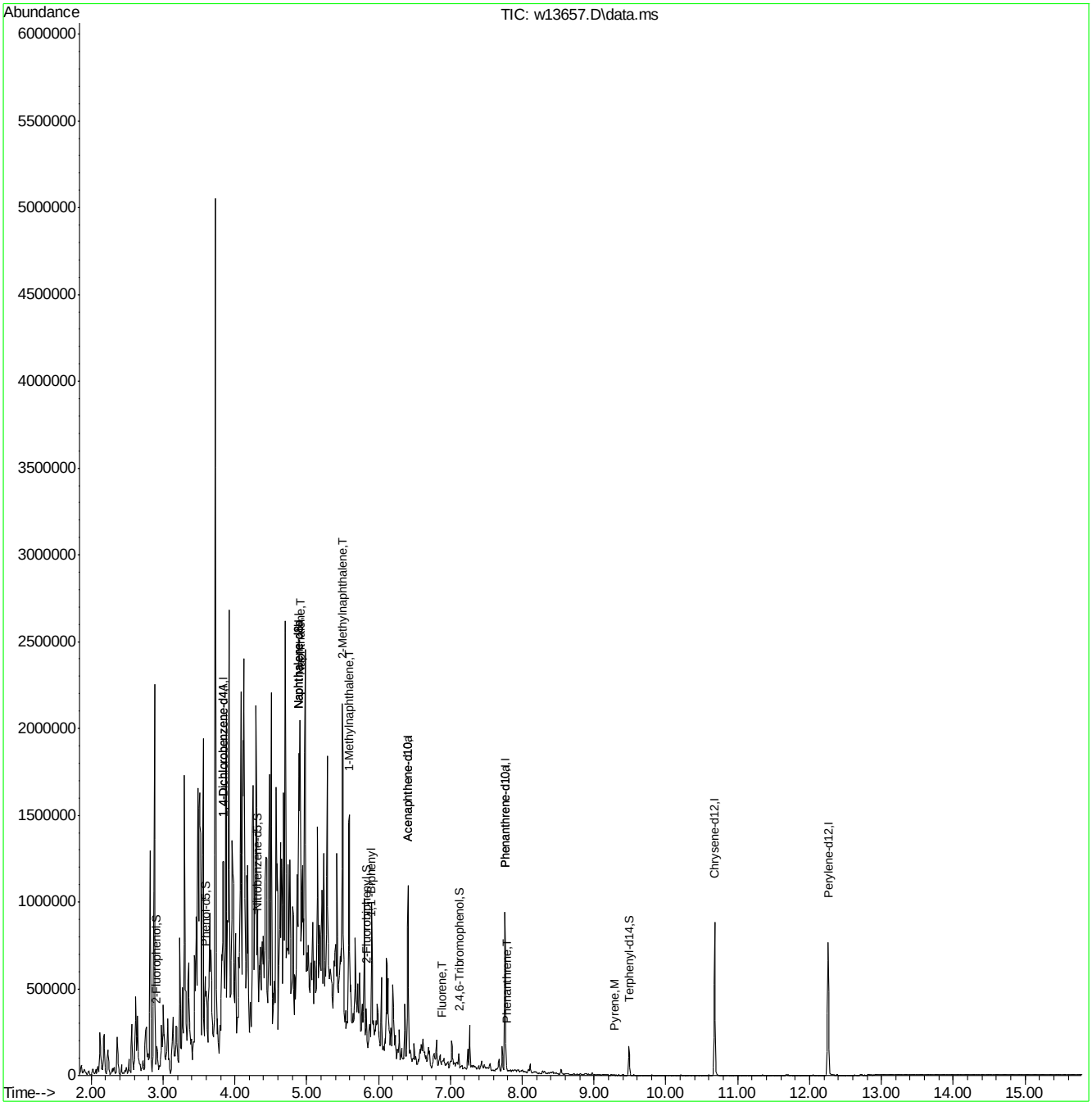
(#) = qualifier out of range (m) = manual integration (+) = signals summed

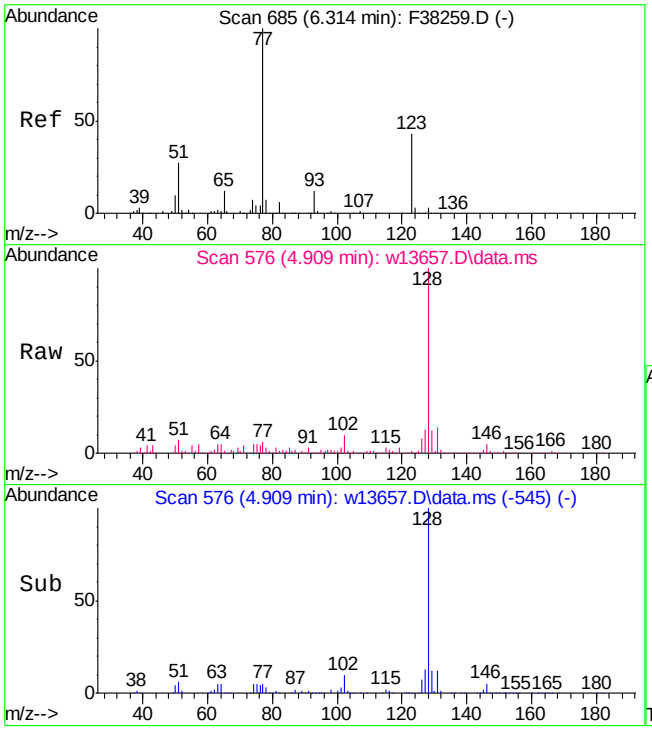
10.1.3 10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\W130705\
Data File : w13657.D
Acq On : 5 Jul 2013 3:26 pm
Operator : williamk
Sample : jb39339-2
Misc : OP33636,MSW623,20.87,,,1,5
ALS Vial : 40 Sample Multiplier: 1

Quant Time: Jul 11 14:14:13 2013
Quant Method : W:\1\methods\W130626_8270+.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Jul 11 14:07:03 2013
Response via : Initial Calibration

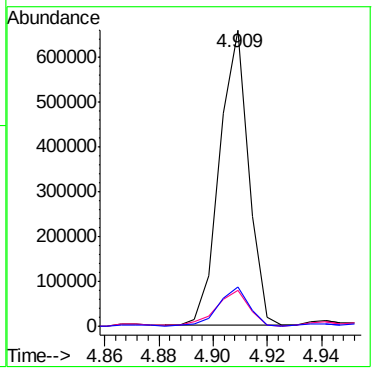


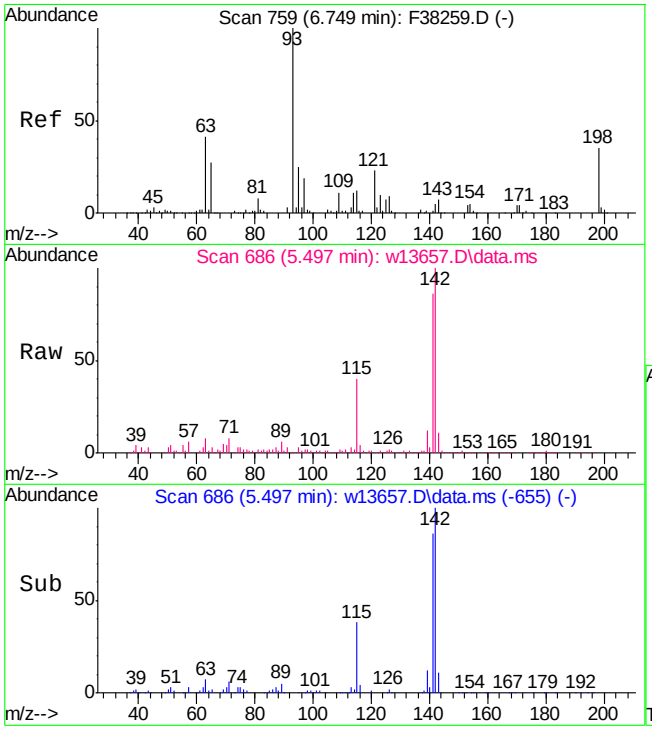


#33
Naphthalene
Concen: 62.79 ppm
RT: 4.909 min Scan# 576
Delta R.T. -0.032 min
Lab File: w13657.D
Acq: 5 Jul 2013 3:26 pm

Tgt Ion:128 Resp: 485191

Ion	Ratio	Lower	Upper
128	100		
129	11.9	0.0	40.9
127	13.1	0.0	42.9

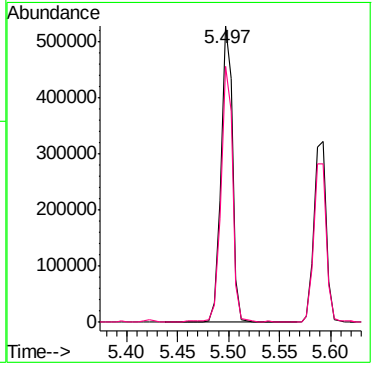


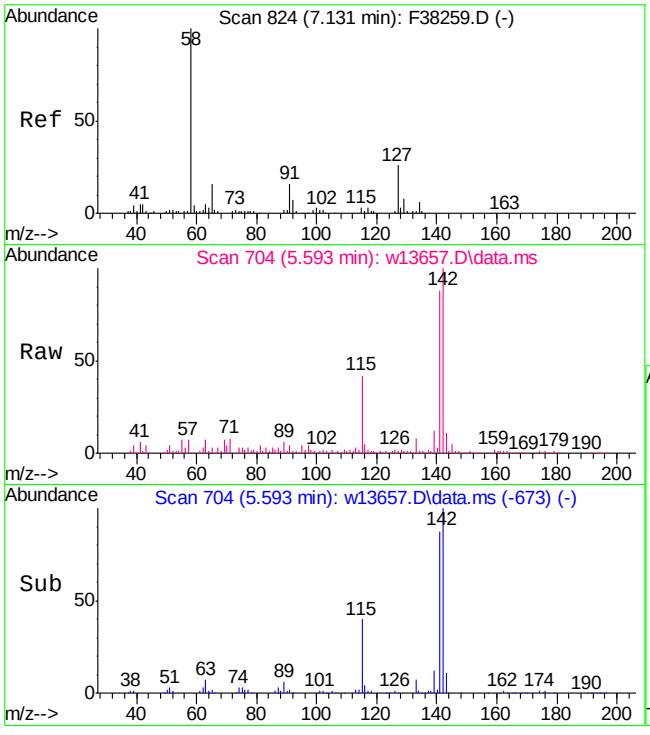


#38
2-Methylnaphthalene
Concen: 82.80 ppm
RT: 5.497 min Scan# 686
Delta R.T. -0.032 min
Lab File: w13657.D
Acq: 5 Jul 2013 3:26 pm

Tgt Ion:142 Resp: 419252

Ion	Ratio	Lower	Upper
142	100		
141	86.3	57.6	117.6

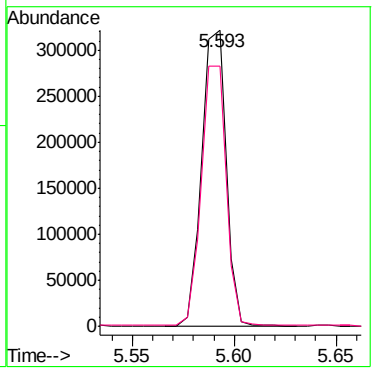


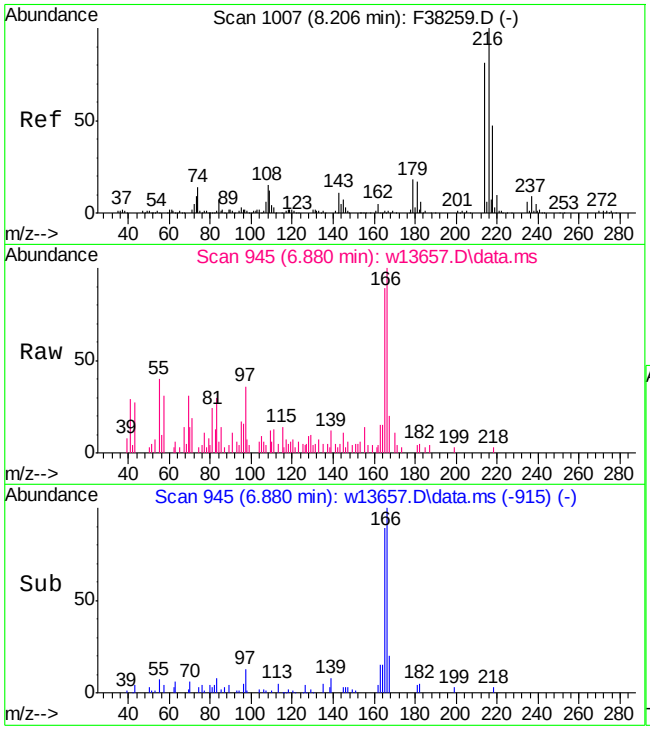


#39
1-Methylnaphthalene
Concen: 53.55 ppm
RT: 5.593 min Scan# 704
Delta R.T. -0.032 min
Lab File: w13657.D
Acq: 5 Jul 2013 3:26 pm

Tgt Ion:142 Resp: 265630

Ion	Ratio	Lower	Upper
142	100		
141	87.8	68.5	108.5

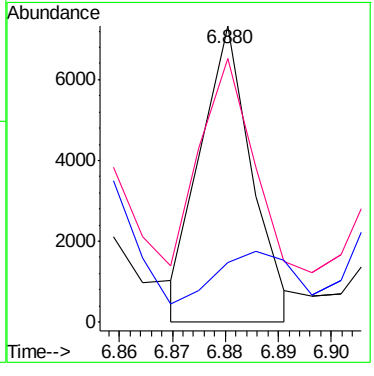




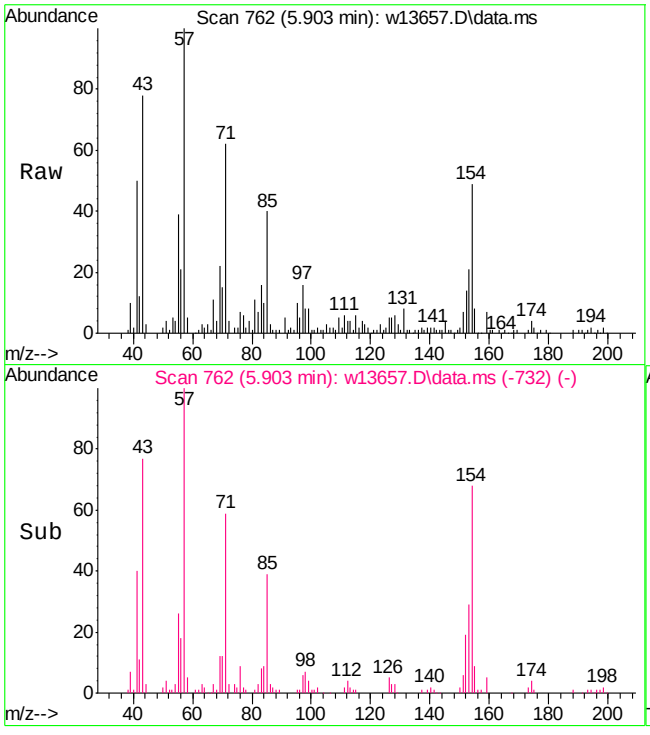
#59
Fluorene
Concen: 0.89 ppm m
RT: 6.880 min Scan# 945
Delta R.T. -0.038 min
Lab File: w13657.D
Acq: 5 Jul 2013 3:26 pm

Tgt Ion:166 Resp: 4896

Ion	Ratio	Lower	Upper
166	100		
165	88.9	64.6	124.6
167	20.2	0.0	43.5



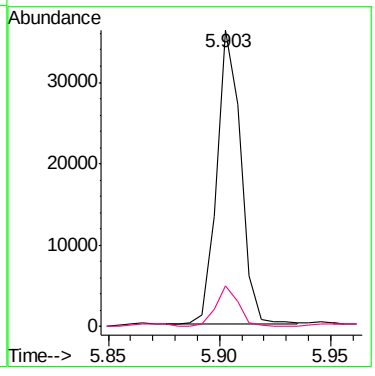
10.1.3 10

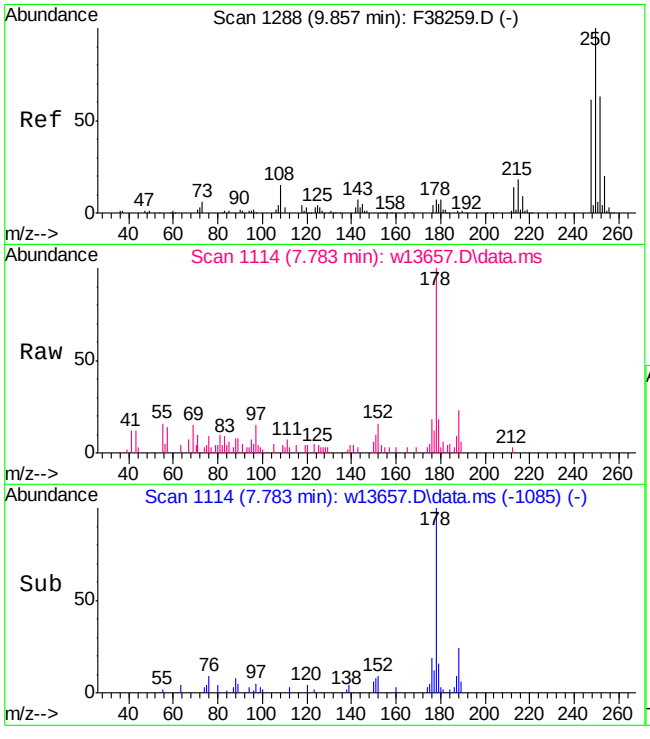


#66
1,1'-Biphenyl
Concen: 4.44 ppm
RT: 5.903 min Scan# 762
Delta R.T. -0.037 min
Lab File: w13657.D
Acq: 5 Jul 2013 3:26 pm

Tgt Ion:154 Resp: 27429

Ion	Ratio	Lower	Upper
154	100		
76	13.7	11.1	16.7

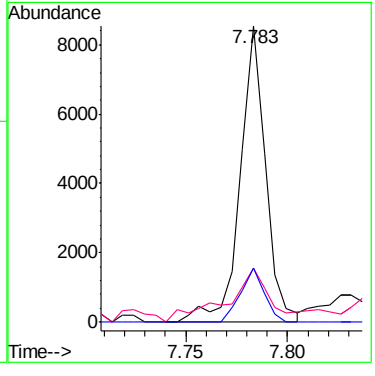




#75
Phenanthrene
Concen: 0.91 ppm
RT: 7.783 min Scan# 1114
Delta R.T. -0.043 min
Lab File: w13657.D
Acq: 5 Jul 2013 3:26 pm

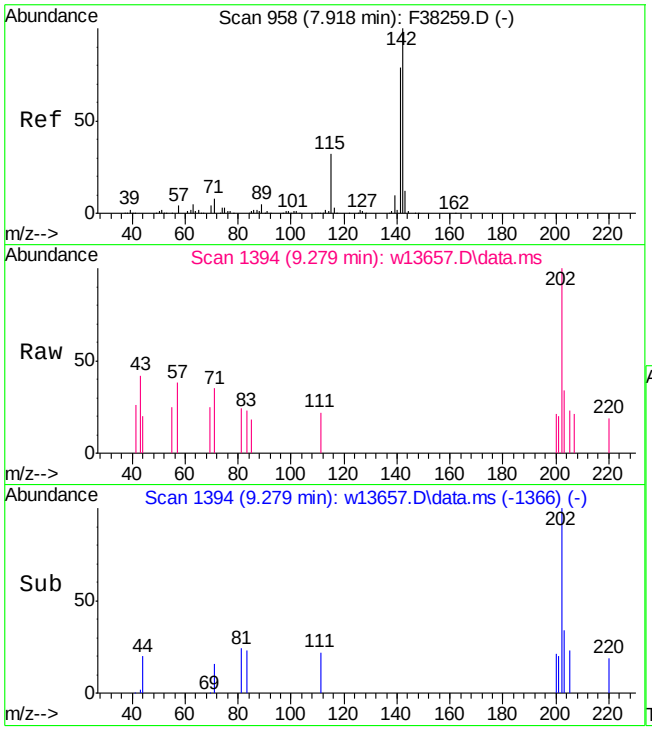
Tgt Ion:178 Resp: 7446

Ion	Ratio	Lower	Upper
178	100		
179	18.2	0.0	45.7
176	18.2	0.0	49.6



10.1.3

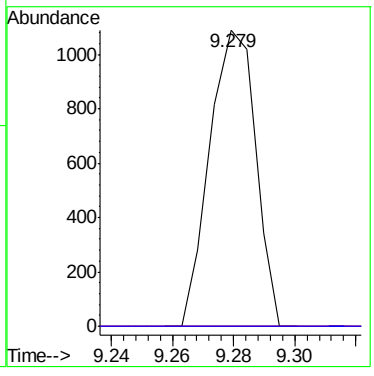
10



#84
Pyrene
Concen: 0.11 ppm
RT: 9.279 min Scan# 1394
Delta R.T. -0.048 min
Lab File: w13657.D
Acq: 5 Jul 2013 3:26 pm

Tgt Ion:202 Resp: 1138

Ion	Ratio	Lower	Upper
202	100		
101	0.0	0.0	42.4
100	0.0	0.0	39.5



10.1.3

10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\R130619\
Data File : R31561.D
Acq On : 19 Jun 2013 11:46 am
Operator : kristinr
Sample : JB39339-3
Misc : op33636,msr1148,20.43,,,1,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jul 05 09:58:18 2013
Quant Method : W:\1\methods\R130530_8270+.m
Quant Title : SW-864 Method 8270
QLast Update : Tue Jun 25 14:19:44 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.015	152	76787	40.00	ppm	0.05
21) 1,4-Dichlorobenzene-d4A	4.015	152	76787	40.00	PPM	0.05
23) Naphthalene-d8	5.062	136	299212	40.00	ppm	0.04
41) Naphthalene-d8a	5.062	136	299212	40.00	ppm	0.04
43) Acenaphthene-d10	6.586	164	174113	40.00	ppm	0.04
65) Acenaphthene-d10a	6.586	164	174113	40.00	ppm	0.04
67) Phenanthrene-d10	7.956	188	300788	40.00	ppm	0.05
80) Phenanthrene-d10a	7.956	188	300788	40.00	ppm	0.05
82) Chrysene-d12	10.891	240	322448	40.00	ppm	0.05
92) Perylene-d12	12.479	264	304235	40.00	ppm	0.06
100) Naphthalene-d8b	5.062	136	299212	40.00	ug/mL	# 0.06
System Monitoring Compounds						
5) 2-Fluorophenol	3.092	112	93342	37.15	ppm	0.05
Spiked Amount 100.000	Range 30 - 130		Recovery = 37.15%			
7) Phenol-d5	3.768	99	113835	35.24	ppm	0.04
Spiked Amount 100.000	Range 30 - 130		Recovery = 35.24%			
24) Nitrobenzene-d5	4.486	82	96522	32.39	ppm	0.04
Spiked Amount 50.000	Range 30 - 130		Recovery = 64.78%			
48) 2-Fluorobiphenyl	5.997	172	240690	39.28	ppm	0.04
Spiked Amount 50.000	Range 30 - 130		Recovery = 78.56%			
71) 2,4,6-Tribromophenol	7.309	330	38100	39.43	ppm	0.05
Spiked Amount 100.000	Range 30 - 130		Recovery = 39.43%			
85) Terphenyl-d14	9.685	244	308290	42.45	ppm	0.06
Spiked Amount 50.000	Range 30 - 130		Recovery = 84.90%			

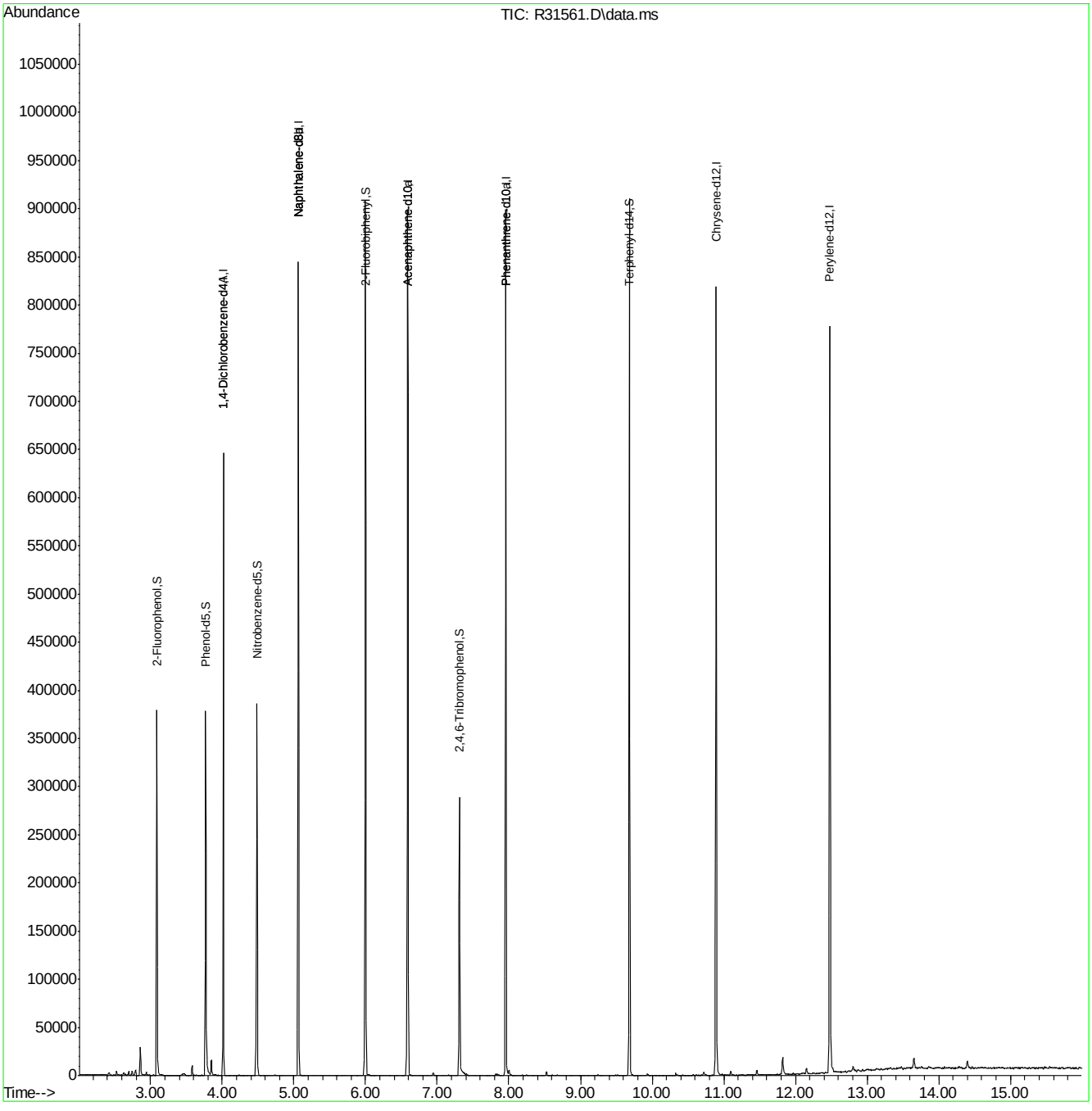
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\R130619\
Data File : R31561.D
Acq On : 19 Jun 2013 11:46 am
Operator : kristinr
Sample : JB39339-3
Misc : op33636,msr1148,20.43,,,1,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jul 05 09:58:18 2013
Quant Method : W:\1\methods\R130530_8270+.m
Quant Title : SW-864 Method 8270
QLast Update : Tue Jun 25 14:19:44 2013
Response via : Initial Calibration



R130530_8270+.m Fri Jul 05 09:58:23 2013 Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\R130619\
Data File : R31562.D
Acq On : 19 Jun 2013 12:09 pm
Operator : kristinr
Sample : JB39339-4
Misc : op33636,msr1148,20.16,,,1,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jul 05 09:58:56 2013
Quant Method : W:\1\methods\R130530_8270+.m
Quant Title : SW-864 Method 8270
QLast Update : Tue Jun 25 14:19:44 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.015	152	81557	40.00	ppm	0.05
21) 1,4-Dichlorobenzene-d4A	4.015	152	81557	40.00	PPM	0.05
23) Naphthalene-d8	5.062	136	314602	40.00	ppm	0.04
41) Naphthalene-d8a	5.062	136	314602	40.00	ppm	0.04
43) Acenaphthene-d10	6.585	164	184153	40.00	ppm	0.04
65) Acenaphthene-d10a	6.585	164	184153	40.00	ppm	0.04
67) Phenanthrene-d10	7.956	188	312508	40.00	ppm	0.05
80) Phenanthrene-d10a	7.956	188	312508	40.00	ppm	0.05
82) Chrysene-d12	10.897	240	344974	40.00	ppm	0.06
92) Perylene-d12	12.479	264	325121	40.00	ppm	0.06
100) Naphthalene-d8b	5.062	136	314602	40.00	ug/mL	# 0.06
System Monitoring Compounds						
5) 2-Fluorophenol	3.092	112	90605	33.95	ppm	0.05
Spiked Amount 100.000	Range 30 - 130		Recovery = 33.95%			
7) Phenol-d5	3.768	99	110325	32.16	ppm	0.04
Spiked Amount 100.000	Range 30 - 130		Recovery = 32.16%			
24) Nitrobenzene-d5	4.486	82	95535	30.49	ppm	0.04
Spiked Amount 50.000	Range 30 - 130		Recovery = 60.98%			
48) 2-Fluorobiphenyl	5.997	172	232638	35.89	ppm	0.04
Spiked Amount 50.000	Range 30 - 130		Recovery = 71.78%			
71) 2,4,6-Tribromophenol	7.309	330	35152	35.01	ppm	0.05
Spiked Amount 100.000	Range 30 - 130		Recovery = 35.01%			
85) Terphenyl-d14	9.685	244	307499	39.58	ppm	0.06
Spiked Amount 50.000	Range 30 - 130		Recovery = 79.16%			

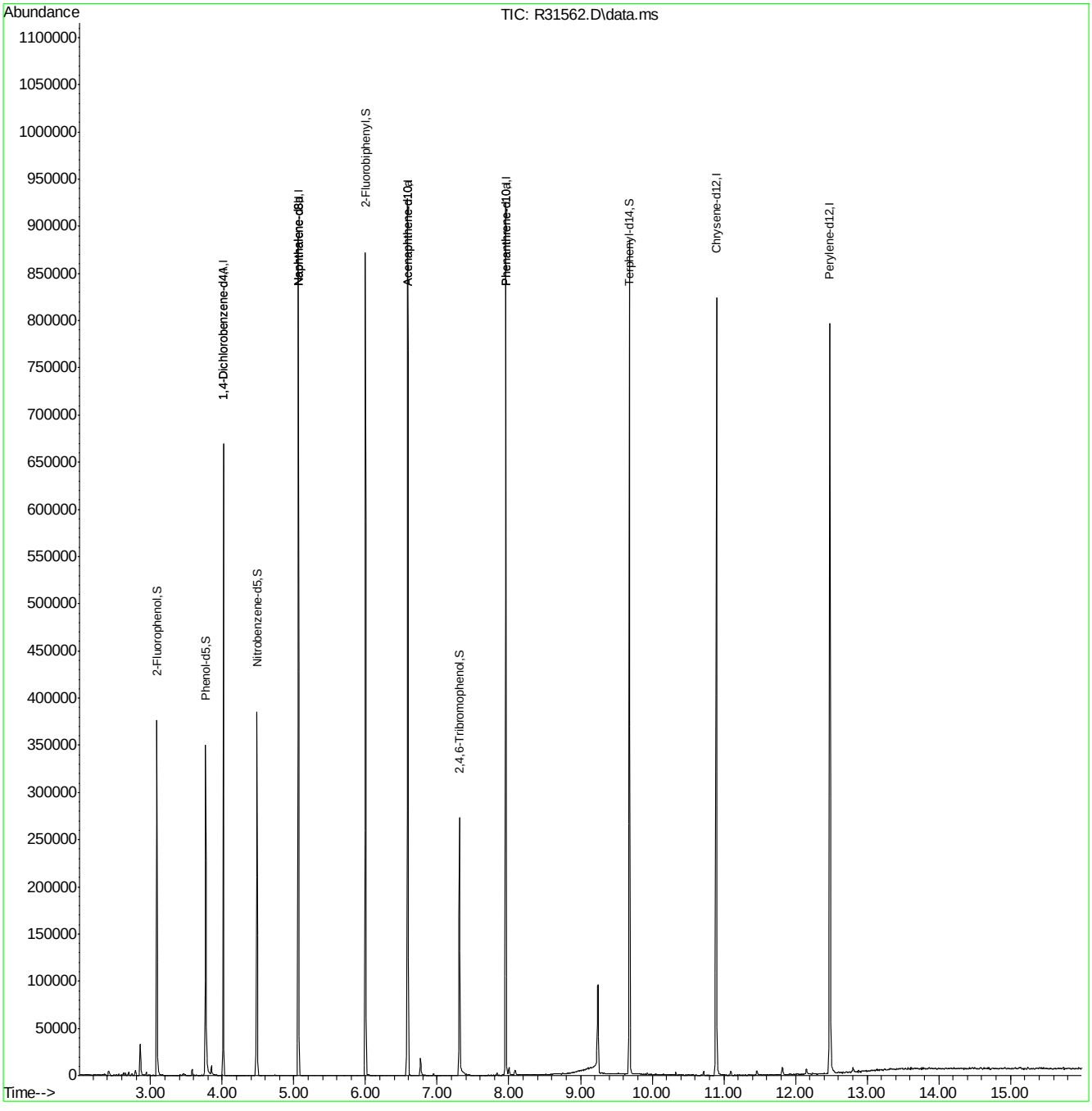
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\R130619\
Data File : R31562.D
Acq On : 19 Jun 2013 12:09 pm
Operator : kristinr
Sample : JB39339-4
Misc : op33636,msr1148,20.16,,,1,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jul 05 09:58:56 2013
Quant Method : W:\1\methods\R130530_8270+.m
Quant Title : SW-864 Method 8270
QLast Update : Tue Jun 25 14:19:44 2013
Response via : Initial Calibration



R130530_8270+.m Fri Jul 05 09:59:02 2013 Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\R130619\
Data File : R31563.D
Acq On : 19 Jun 2013 12:33 pm
Operator : kristinr
Sample : JB39339-5
Misc : op33636,msr1148,20.87,,,1,1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jul 05 09:59:49 2013
Quant Method : W:\1\methods\R130530_8270+.m
Quant Title : SW-864 Method 8270
QLast Update : Tue Jun 25 14:19:44 2013
Response via : Initial Calibration

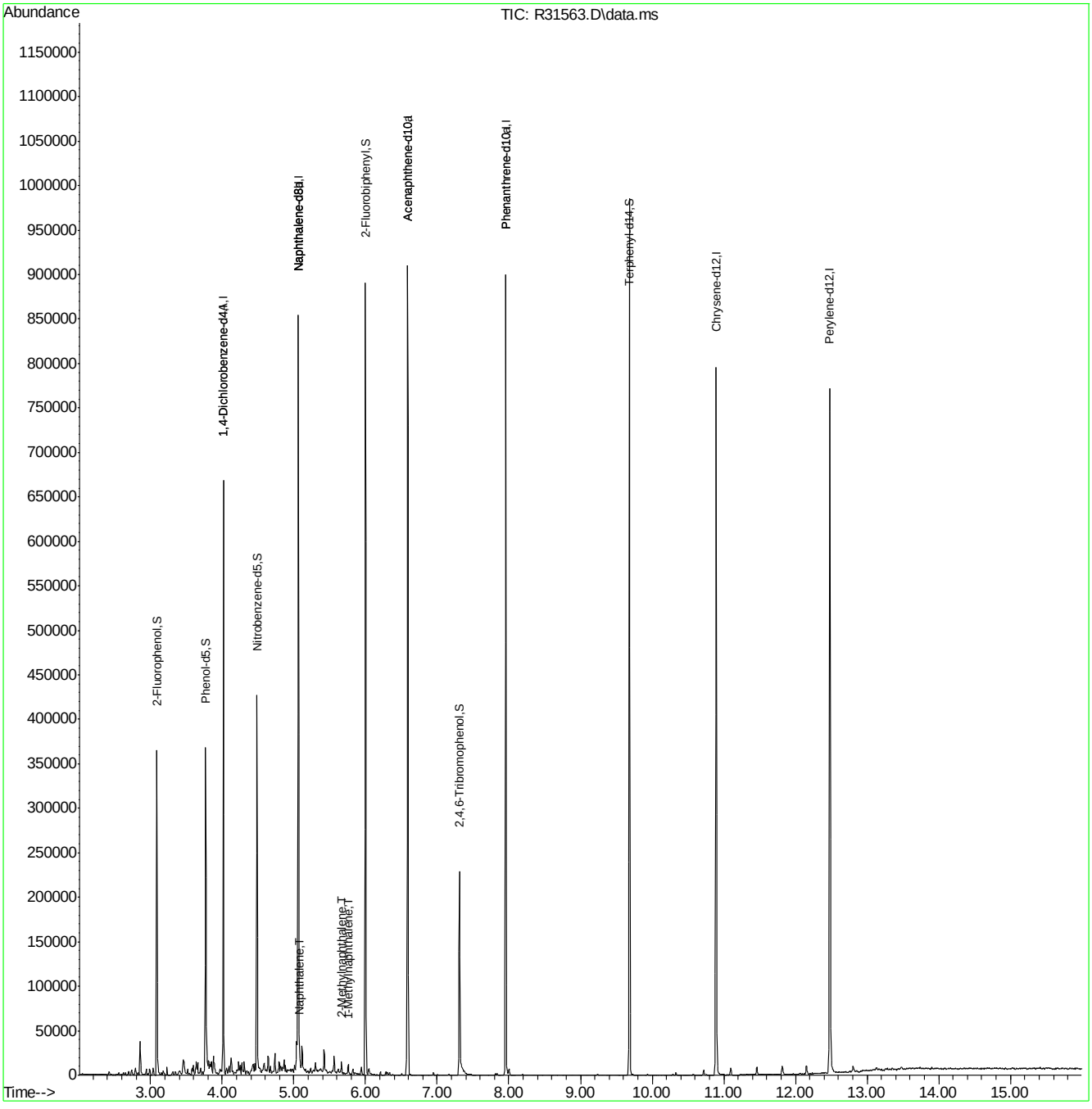
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.015	152	78747	40.00	ppm	0.05
21) 1,4-Dichlorobenzene-d4A	4.015	152	78747	40.00	PPM	0.05
23) Naphthalene-d8	5.062	136	300050	40.00	ppm	0.04
41) Naphthalene-d8a	5.062	136	300050	40.00	ppm	# 0.04
43) Acenaphthene-d10	6.586	164	176287	40.00	ppm	0.04
65) Acenaphthene-d10a	6.586	164	176287	40.00	ppm	0.04
67) Phenanthrene-d10	7.956	188	300139	40.00	ppm	0.05
80) Phenanthrene-d10a	7.956	188	300139	40.00	ppm	0.05
82) Chrysene-d12	10.897	240	336873	40.00	ppm	0.06
92) Perylene-d12	12.479	264	316029	40.00	ppm	0.06
100) Naphthalene-d8b	5.062	136	300050	40.00	ug/mL	# 0.06
System Monitoring Compounds						
5) 2-Fluorophenol	3.092	112	94592	36.71	ppm	0.05
Spiked Amount 100.000	Range 30 - 130		Recovery = 36.71%			
7) Phenol-d5	3.768	99	114557	34.59	ppm	0.04
Spiked Amount 100.000	Range 30 - 130		Recovery = 34.59%			
24) Nitrobenzene-d5	4.486	82	99547	33.32	ppm	0.04
Spiked Amount 50.000	Range 30 - 130		Recovery = 66.64%			
48) 2-Fluorobiphenyl	5.997	172	236626	38.14	ppm	0.04
Spiked Amount 50.000	Range 30 - 130		Recovery = 76.28%			
71) 2,4,6-Tribromophenol	7.309	330	37128	38.50	ppm	0.05
Spiked Amount 100.000	Range 30 - 130		Recovery = 38.50%			
85) Terphenyl-d14	9.685	244	329512	43.43	ppm	0.06
Spiked Amount 50.000	Range 30 - 130		Recovery = 86.86%			
Target Compounds						Qvalue
33) Naphthalene	5.080	128	2961	0.37	ppm	91
38) 2-Methylnaphthalene	5.668	142	3854	0.70	ppm	90
39) 1-Methylnaphthalene	5.762	142	3261	0.62	ppm	98

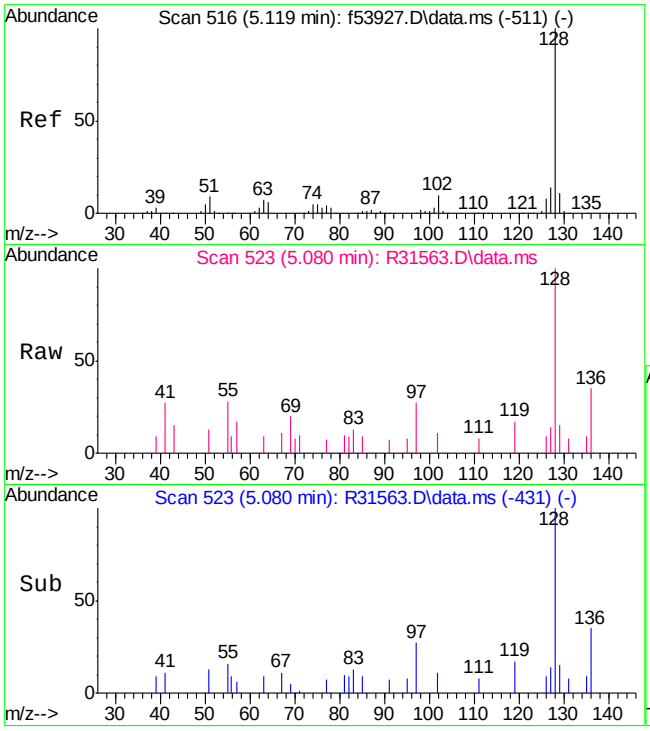
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\R130619\
Data File : R31563.D
Acq On : 19 Jun 2013 12:33 pm
Operator : kristinr
Sample : JB39339-5
Misc : op33636,msr1148,20.87,,,1,1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jul 05 09:59:49 2013
Quant Method : W:\1\methods\R130530_8270+.m
Quant Title : SW-864 Method 8270
QLast Update : Tue Jun 25 14:19:44 2013
Response via : Initial Calibration

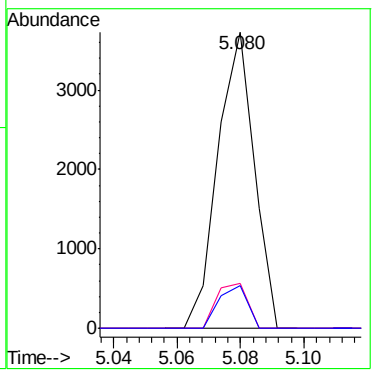


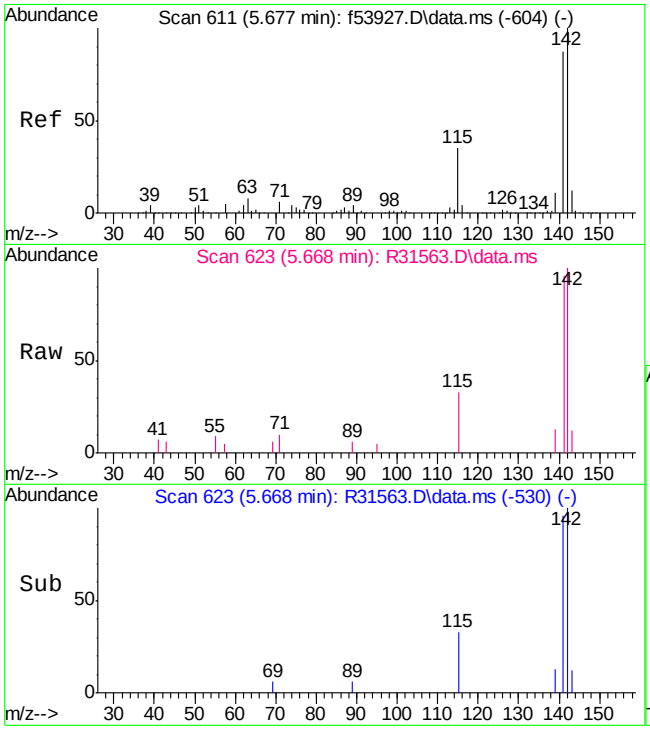


#33
Naphthalene
Concen: 0.37 ppm
RT: 5.080 min Scan# 523
Delta R.T. 0.040 min
Lab File: R31563.D
Acq: 19 Jun 2013 12:33 pm

Tgt Ion:128 Resp: 2961

Ion	Ratio	Lower	Upper
128	100		
129	15.1	0.0	40.1
127	14.3	0.0	42.3

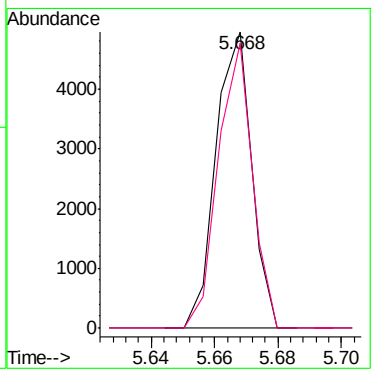


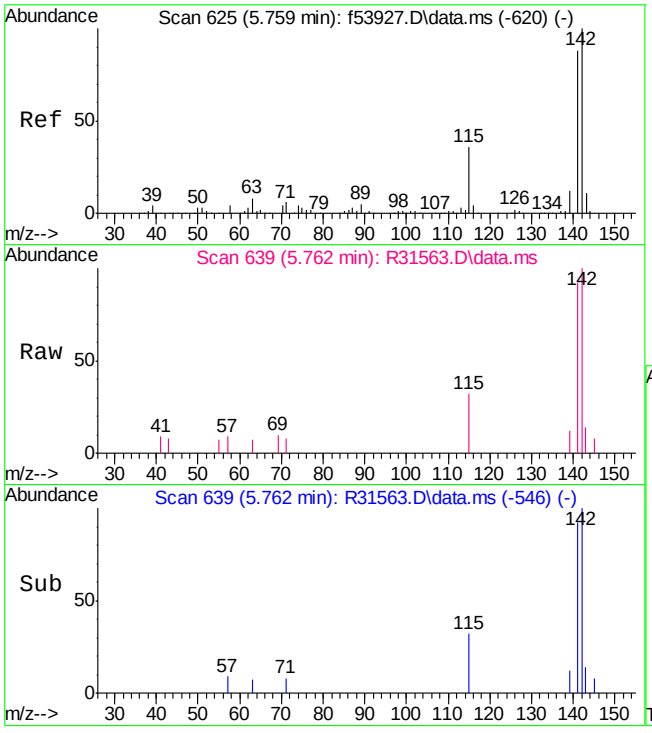


#38
2-Methylnaphthalene
Concen: 0.70 ppm
RT: 5.668 min Scan# 623
Delta R.T. 0.046 min
Lab File: R31563.D
Acq: 19 Jun 2013 12:33 pm

Tgt Ion:142 Resp: 3854

Ion	Ratio	Lower	Upper
142	100		
141	96.2	57.2	117.2

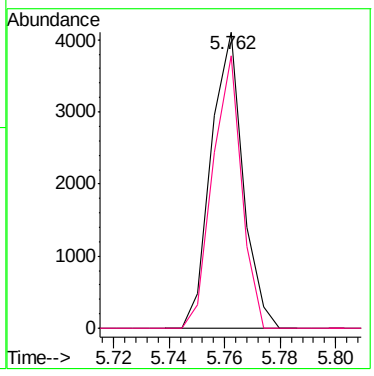




#39
1-Methylnaphthalene
Concen: 0.62 ppm
RT: 5.762 min Scan# 639
Delta R.T. 0.046 min
Lab File: R31563.D
Acq: 19 Jun 2013 12:33 pm

Tgt Ion:142 Resp: 3261

Ion	Ratio	Lower	Upper
142	100		
141	92.2	70.0	110.0



10.1.6

10

Manual Integrations APPROVED (compounds with "m" flag)
Doug Yargeau
07/05/13 10:43

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\R130619\
Data File : R31564.D
Acq On : 19 Jun 2013 12:55 pm
Operator : kristinr
Sample : JB39339-6
Misc : op33636,msr1148,20.80,,,1,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 05 10:02:57 2013
Quant Method : W:\1\methods\R130530_8270+.m
Quant Title : SW-864 Method 8270
QLast Update : Tue Jun 25 14:19:44 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.015	152	77082	40.00	ppm	0.05
21) 1,4-Dichlorobenzene-d4A	4.015	152	77082	40.00	PPM	0.05
23) Naphthalene-d8	5.062	136	291161	40.00	ppm	0.04
41) Naphthalene-d8a	5.062	136	291161	40.00	ppm	0.04
43) Acenaphthene-d10	6.586	164	172041	40.00	ppm	0.04
65) Acenaphthene-d10a	6.586	164	172041	40.00	ppm	0.04
67) Phenanthrene-d10	7.956	188	293652	40.00	ppm	0.05
80) Phenanthrene-d10a	7.956	188	293652	40.00	ppm	0.05
82) Chrysene-d12	10.897	240	325681	40.00	ppm	0.06
92) Perylene-d12	12.485	264	312247	40.00	ppm	0.06
100) Naphthalene-d8b	5.062	136	291161	40.00	ug/mL	# 0.06
System Monitoring Compounds						
5) 2-Fluorophenol	3.092	112	87323	34.62	ppm	0.05
Spiked Amount 100.000	Range 30 - 130		Recovery = 34.62%			
7) Phenol-d5	3.774	99	110272	34.01	ppm	0.05
Spiked Amount 100.000	Range 30 - 130		Recovery = 34.01%			
24) Nitrobenzene-d5	4.486	82	91863	31.68	ppm	0.04
Spiked Amount 50.000	Range 30 - 130		Recovery = 63.36%			
48) 2-Fluorobiphenyl	5.997	172	235501	38.89	ppm	0.04
Spiked Amount 50.000	Range 30 - 130		Recovery = 77.78%			
71) 2,4,6-Tribromophenol	7.315	330	39634	42.01	ppm	0.05
Spiked Amount 100.000	Range 30 - 130		Recovery = 42.01%			
85) Terphenyl-d14	9.685	244	309117	42.14	ppm	0.06
Spiked Amount 50.000	Range 30 - 130		Recovery = 84.28%			
Target Compounds						Qvalue
33) Naphthalene	5.080	128	1869	0.24	ppm	83
38) 2-Methylnaphthalene	5.668	142	2208	0.42	ppm	84
75) Phenanthrene	7.980	178	3162	0.36	ppm	88
79) Fluoranthene	9.238	202	8552	0.97	ppm	100
84) Pyrene	9.491	202	8144	0.77	ppm	96
89) Benzo[a]anthracene	10.874	228	5716	0.63	ppm	87
90) Chrysene	10.921	228	6936	0.79	ppm	85
94) Benzo[b]fluoranthene	12.079	252	9153m	0.92	ppm	
95) Benzo[k]fluoranthene	12.103	252	4211m	0.48	ppm	
96) Benzo[a]pyrene	12.420	252	5565	0.64	ppm	90
97) Indeno[1,2,3-cd]pyrene	13.544	276	5070	0.47	ppm	88
98) Dibenz[a,h]anthracene	13.556	278	2237	0.26	ppm	84
99) Benzo[g,h,i]perylene	13.826	276	6490	0.74	ppm	73

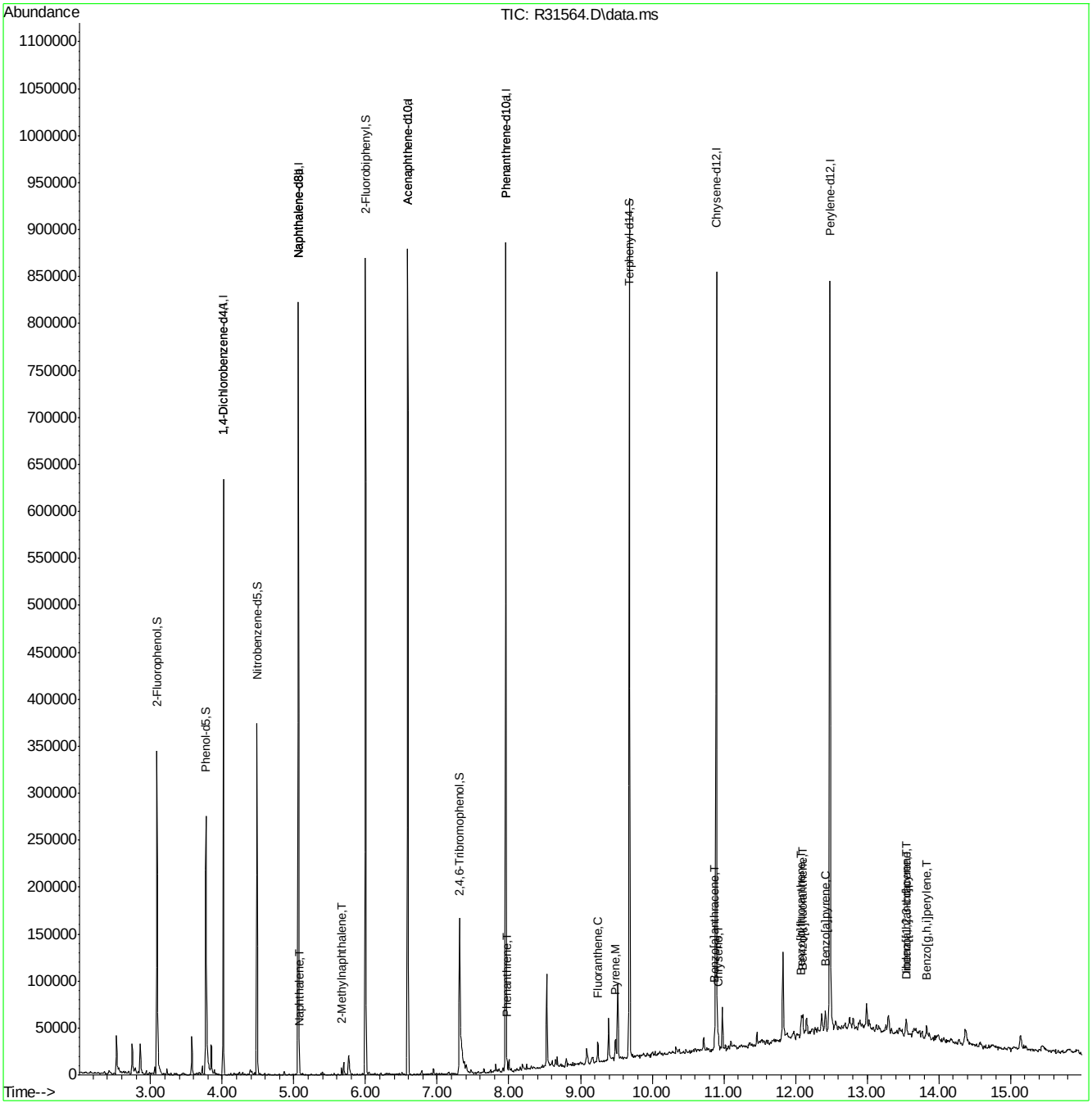
(#) = qualifier out of range (m) = manual integration (+) = signals summed

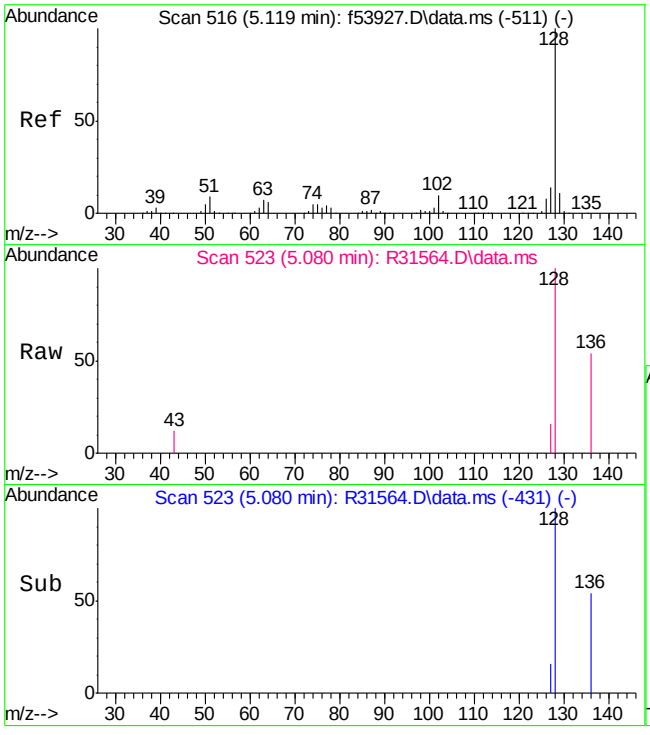
10.1.7
10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\R130619\
Data File : R31564.D
Acq On : 19 Jun 2013 12:55 pm
Operator : kristinr
Sample : JB39339-6
Misc : op33636,msr1148,20.80,,,1,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 05 10:02:57 2013
Quant Method : W:\1\methods\R130530_8270+.m
Quant Title : SW-864 Method 8270
QLast Update : Tue Jun 25 14:19:44 2013
Response via : Initial Calibration

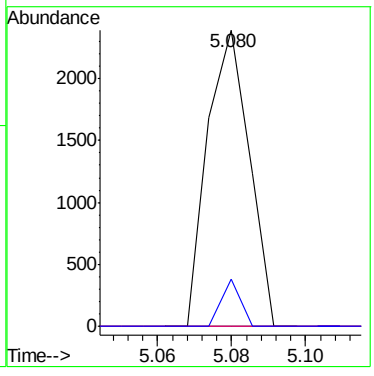


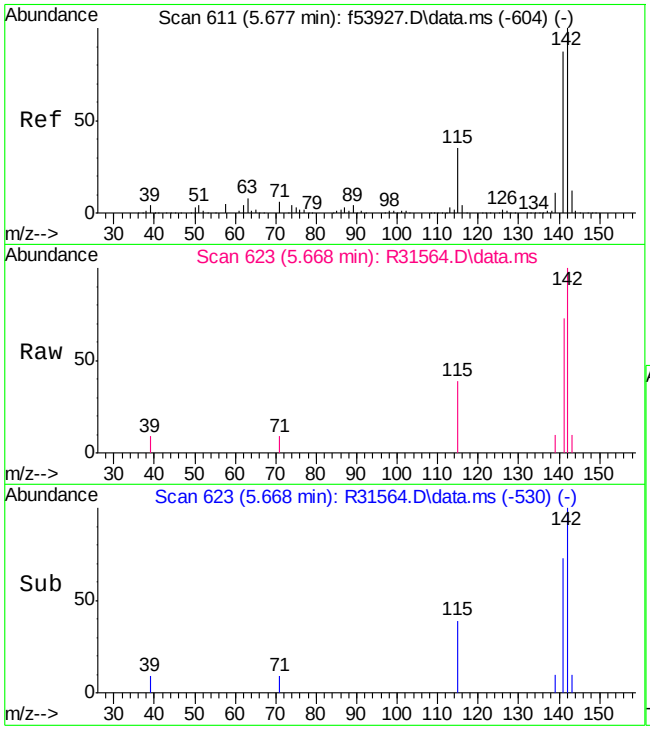


#33
Naphthalene
Concen: 0.24 ppm
RT: 5.080 min Scan# 523
Delta R.T. 0.040 min
Lab File: R31564.D
Acq: 19 Jun 2013 12:55 pm

Tgt Ion:128 Resp: 1869

Ion	Ratio	Lower	Upper
128	100		
129	0.0	0.0	40.1
127	15.8	0.0	42.3

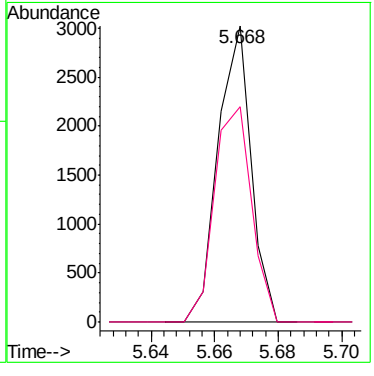




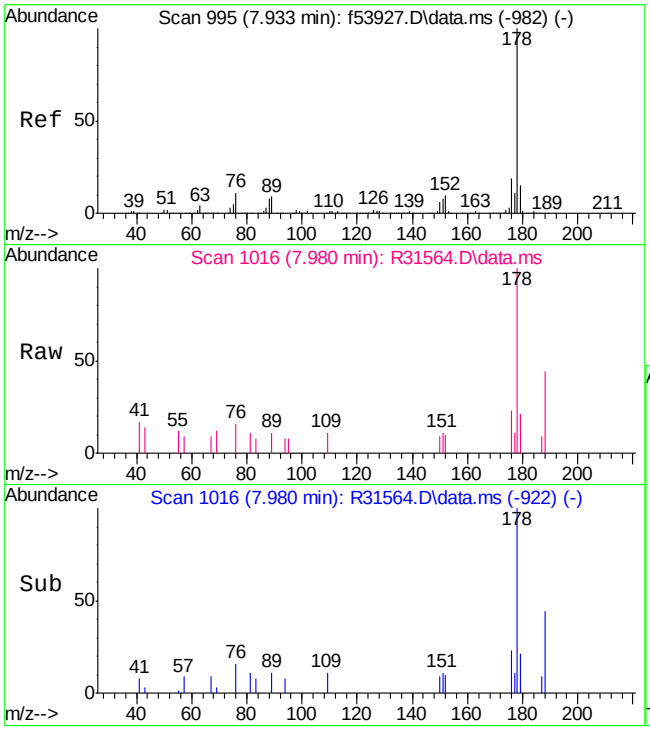
#38
2-Methylnaphthalene
Concen: 0.42 ppm
RT: 5.668 min Scan# 623
Delta R.T. 0.046 min
Lab File: R31564.D
Acq: 19 Jun 2013 12:55 pm

Tgt Ion:142 Resp: 2208

Ion	Ratio	Lower	Upper
142	100		
141	72.6	57.2	117.2



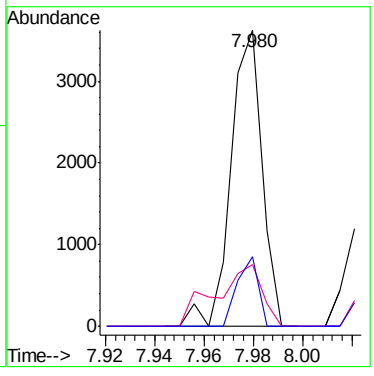
10.1.7
10

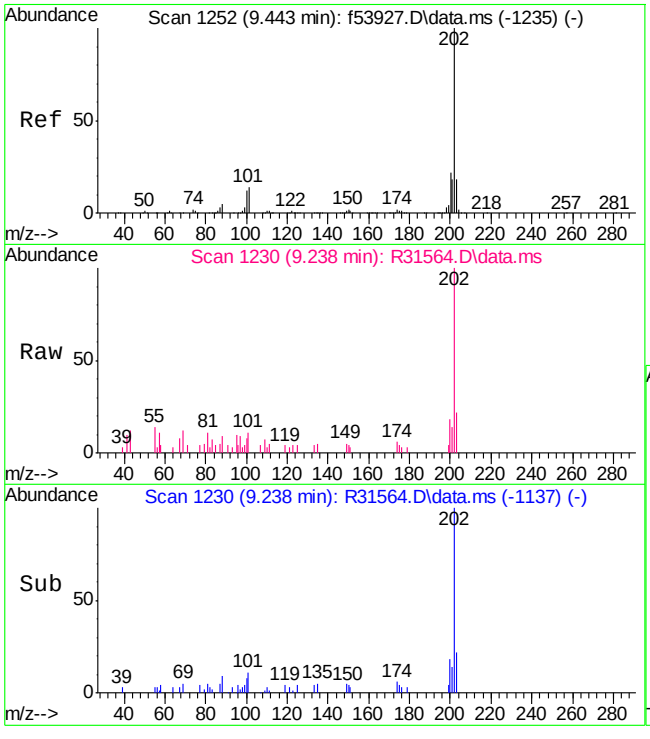


#75
Phenanthrene
Concen: 0.36 ppm
RT: 7.980 min Scan# 1016
Delta R.T. 0.052 min
Lab File: R31564.D
Acq: 19 Jun 2013 12:55 pm

Tgt Ion:178 Resp: 3162

Ion	Ratio	Lower	Upper
178	100		
179	20.8	0.0	45.2
176	23.4	0.0	48.6

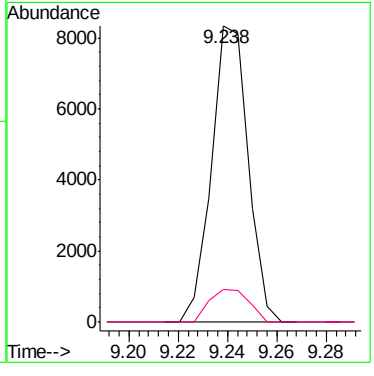


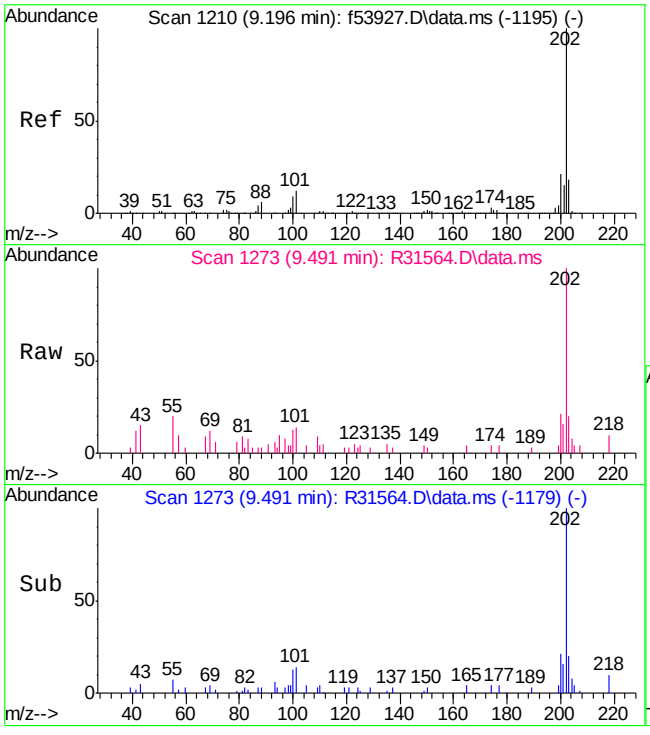


#79
Fluoranthene
Concen: 0.97 ppm
RT: 9.238 min Scan# 1230
Delta R.T. 0.046 min
Lab File: R31564.D
Acq: 19 Jun 2013 12:55 pm

Tgt Ion:202 Resp: 8552

Ion	Ratio	Lower	Upper
202	100		
101	11.2	0.0	41.0

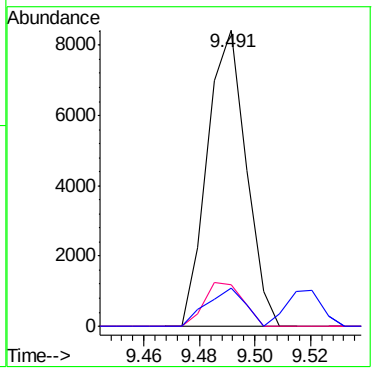


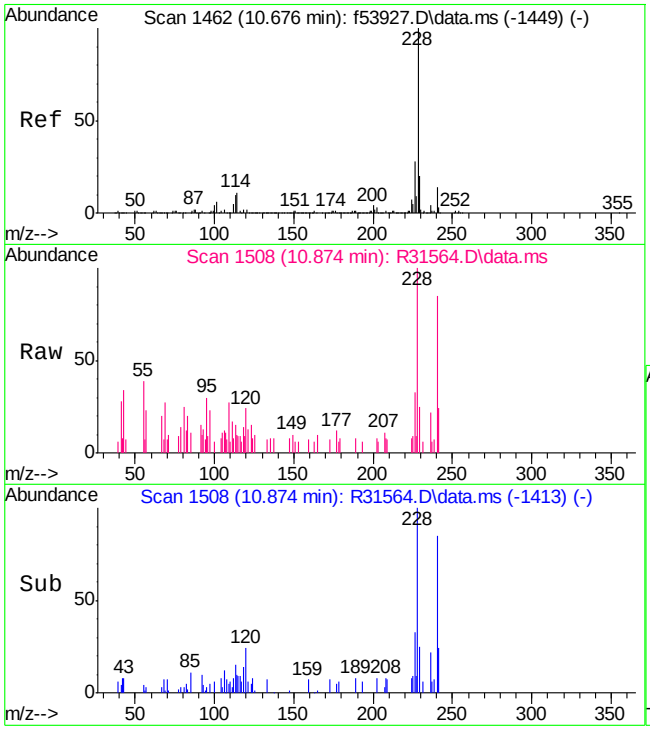


#84
Pyrene
Concen: 0.77 ppm
RT: 9.491 min Scan# 1273
Delta R.T. 0.052 min
Lab File: R31564.D
Acq: 19 Jun 2013 12:55 pm

Tgt Ion:202 Resp: 8144

Ion	Ratio	Lower	Upper
202	100		
101	13.9	0.0	43.1
100	12.8	0.0	40.6

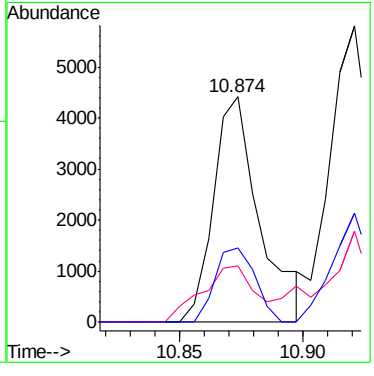


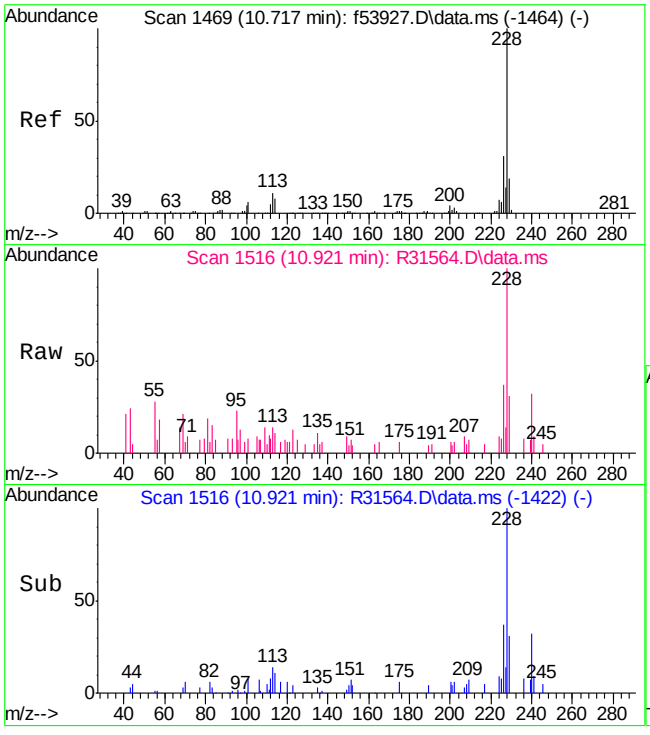


#89
Benzo[a]anthracene
Concen: 0.63 ppm
RT: 10.874 min Scan# 1508
Delta R.T. 0.058 min
Lab File: R31564.D
Acq: 19 Jun 2013 12:55 pm

Tgt Ion:228 Resp: 5716

Ion	Ratio	Lower	Upper
228	100		
229	24.9	0.0	49.1
226	32.9	0.0	56.0

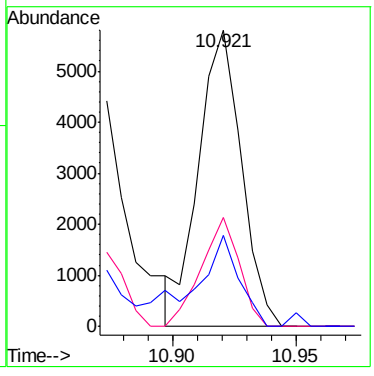


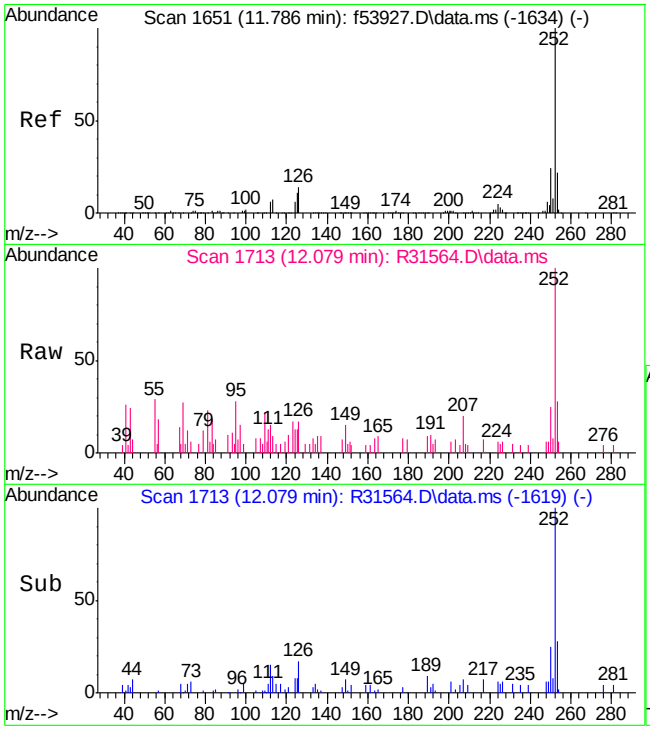


#90
Chrysene
Concen: 0.79 ppm
RT: 10.921 min Scan# 1516
Delta R.T. 0.052 min
Lab File: R31564.D
Acq: 19 Jun 2013 12:55 pm

Tgt Ion:228 Resp: 6936

Ion	Ratio	Lower	Upper
228	100		
226	36.6	0.0	59.0
229	26.1	0.0	48.7

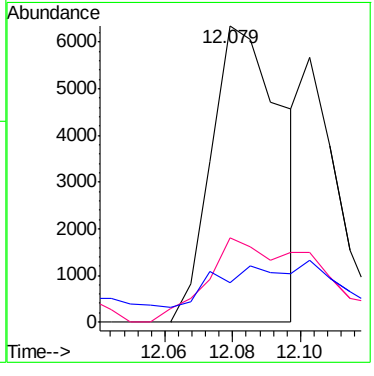


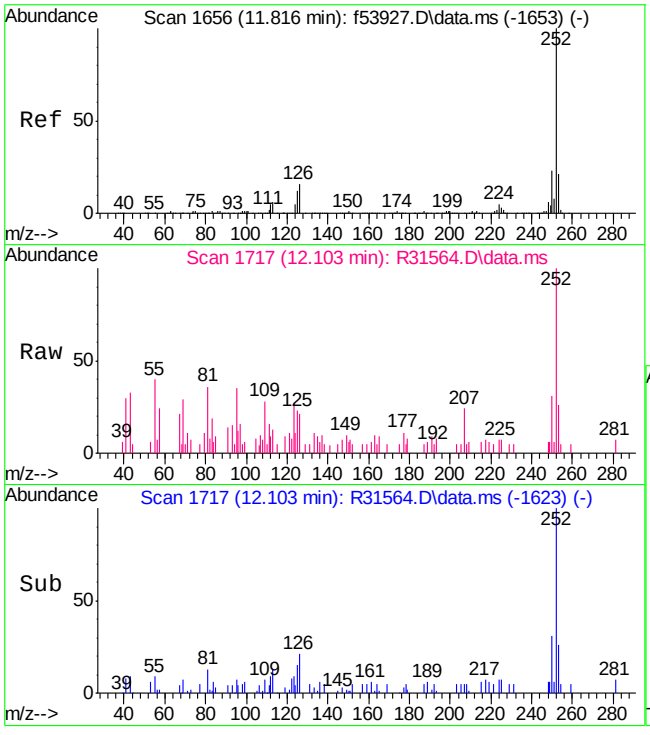


#94
Benzo[b]fluoranthene
Concen: 0.92 ppm m
RT: 12.079 min Scan# 1713
Delta R.T. 0.052 min
Lab File: R31564.D
Acq: 19 Jun 2013 12:55 pm

Tgt Ion:252 Resp: 9153

Ion	Ratio	Lower	Upper
252	100		
253	28.4	0.0	50.9
125	13.1	0.0	41.8

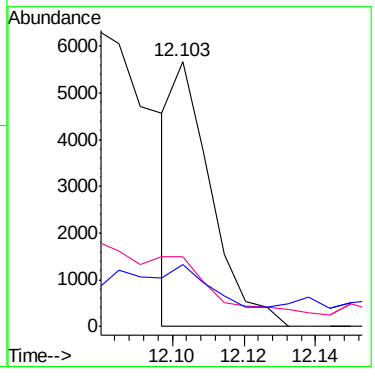


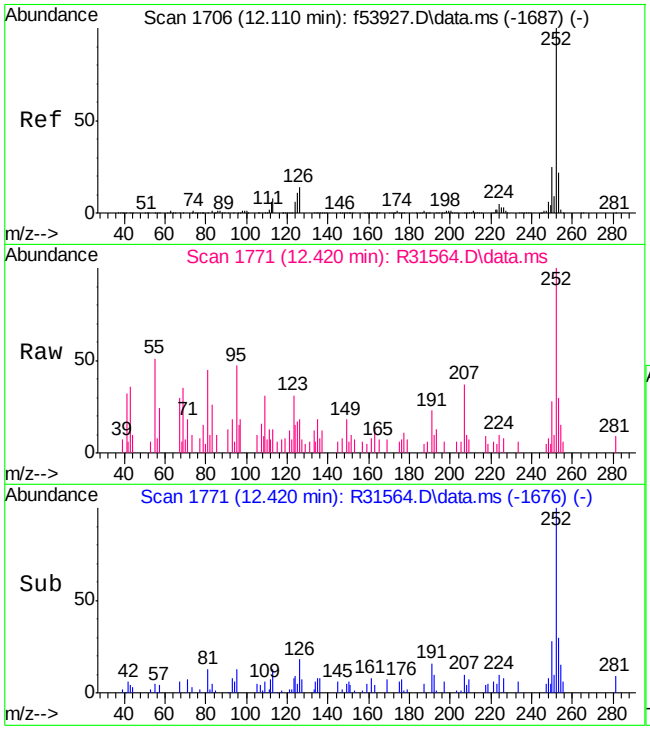


#95
Benzo[k]fluoranthene
Concen: 0.48 ppm m
RT: 12.103 min Scan# 1717
Delta R.T. 0.052 min
Lab File: R31564.D
Acq: 19 Jun 2013 12:55 pm

Tgt Ion:252 Resp: 4211

Ion	Ratio	Lower	Upper
252	100		
253	26.4	0.0	51.4
125	23.2	0.0	42.0

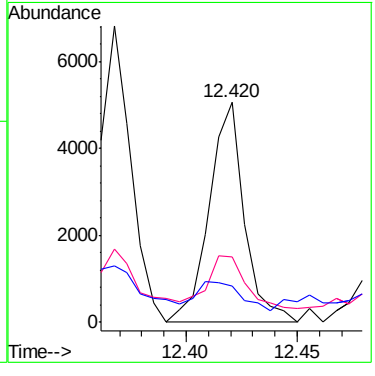


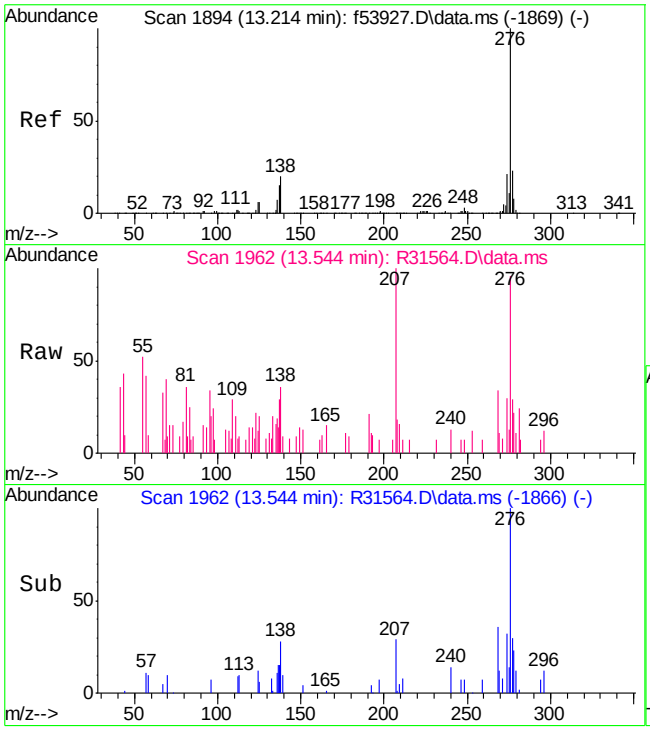


#96
Benzo[a]pyrene
Concen: 0.64 ppm
RT: 12.420 min Scan# 1771
Delta R.T. 0.058 min
Lab File: R31564.D
Acq: 19 Jun 2013 12:55 pm

Tgt Ion:252 Resp: 5565

Ion	Ratio	Lower	Upper
252	100		
253	23.4	0.0	50.5
125	7.2	0.0	43.2

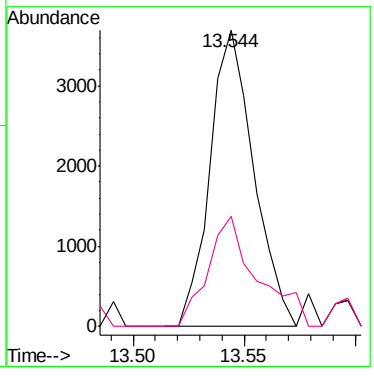


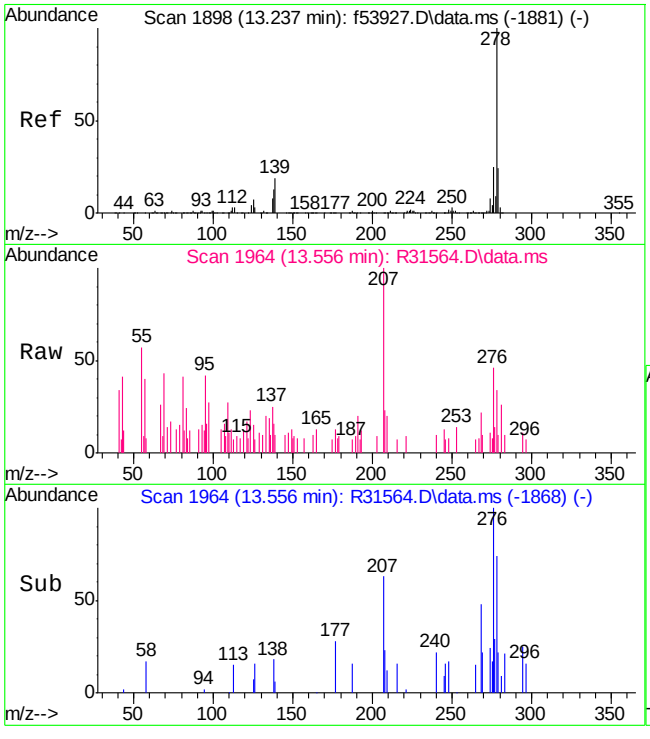


#97
Indeno[1,2,3-cd]pyrene
Concen: 0.47 ppm
RT: 13.544 min Scan# 1962
Delta R.T. 0.064 min
Lab File: R31564.D
Acq: 19 Jun 2013 12:55 pm

Tgt Ion:276 Resp: 5070

Ion	Ratio	Lower	Upper
276	100		
138	37.0	0.6	60.6

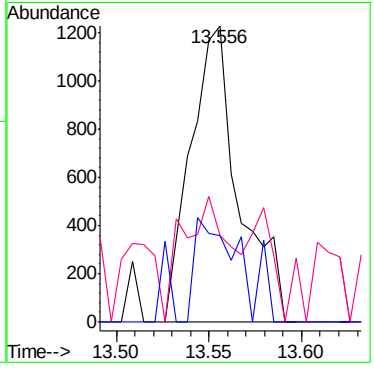


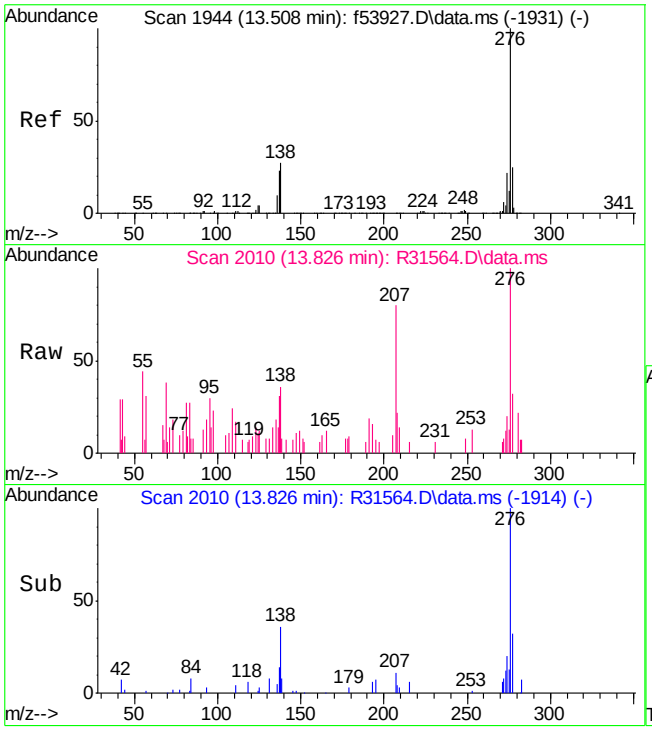


#98
Dibenz[a,h]anthracene
Concen: 0.26 ppm
RT: 13.556 min Scan# 1964
Delta R.T. 0.064 min
Lab File: R31564.D
Acq: 19 Jun 2013 12:55 pm

Tgt Ion:278 Resp: 2237

Ion	Ratio	Lower	Upper
278	100		
139	29.3	0.0	48.9
279	29.2	0.0	54.2

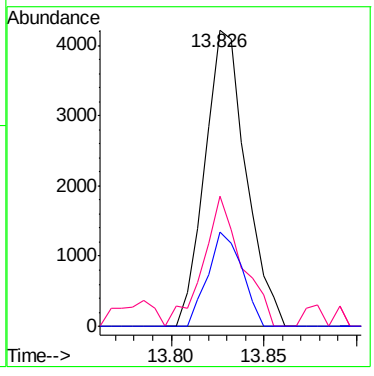




#99
Benzo[g,h,i]perylene
Concen: 0.74 ppm
RT: 13.826 min Scan# 2010
Delta R.T. 0.064 min
Lab File: R31564.D
Acq: 19 Jun 2013 12:55 pm

Tgt Ion:276 Resp: 6490

Ion	Ratio	Lower	Upper
276	100		
138	44.0	0.0	55.6
277	31.7	0.0	53.3



10.1.7

10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\R130619\
Data File : R31565.D
Acq On : 19 Jun 2013 1:18 pm
Operator : kristinr
Sample : JB39339-7
Misc : op33636,msr1148,20.84,,,1,1
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jul 05 10:04:16 2013
Quant Method : W:\1\methods\R130530_8270+.m
Quant Title : SW-864 Method 8270
QLast Update : Tue Jun 25 14:19:44 2013
Response via : Initial Calibration

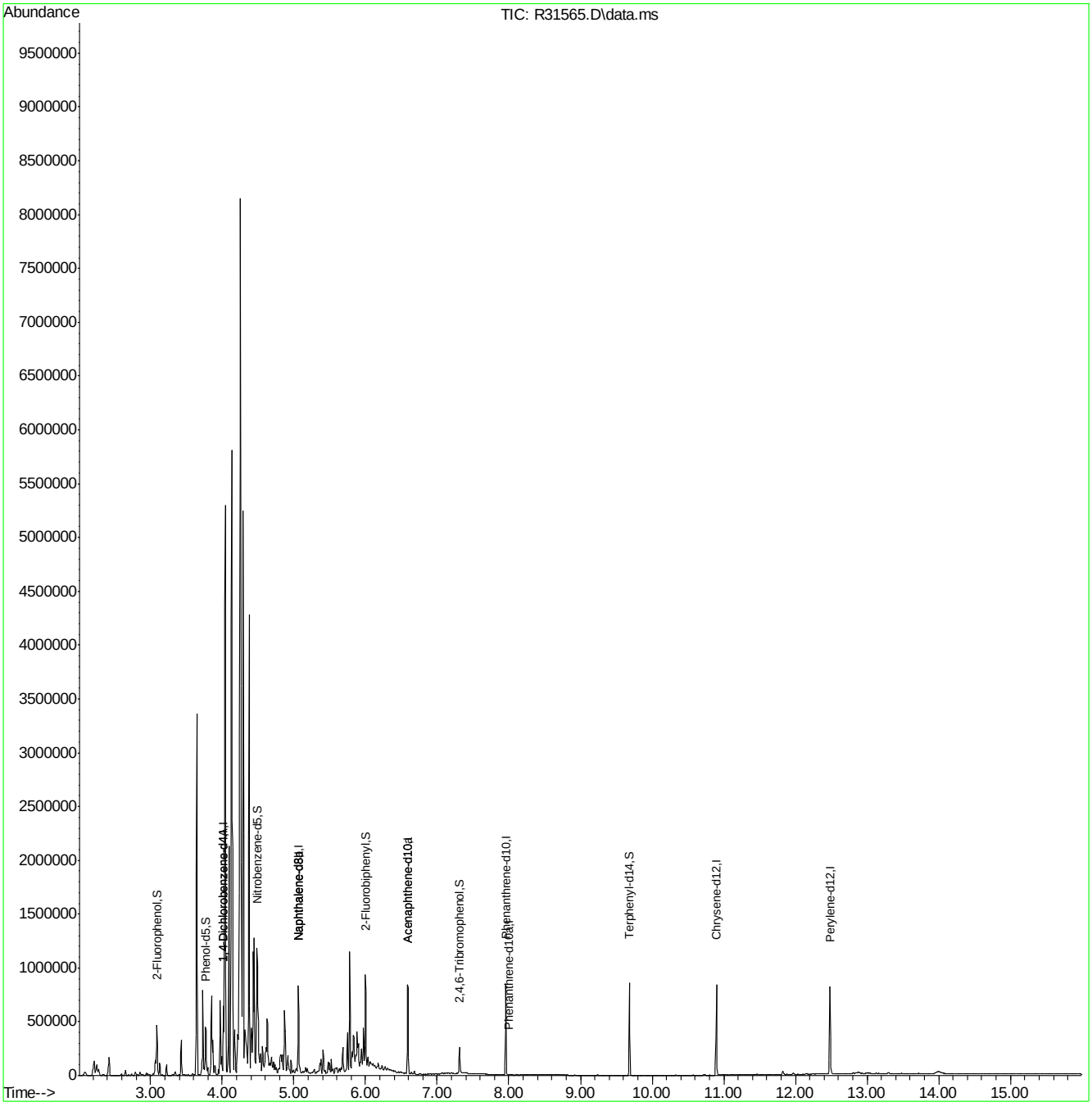
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.015	152	78384	40.00	ppm	0.05
21) 1,4-Dichlorobenzene-d4A	4.015	152	78384	40.00	PPM	0.05
23) Naphthalene-d8	5.062	136	294360	40.00	ppm	0.04
41) Naphthalene-d8a	5.062	136	294360	40.00	ppm	# 0.04
43) Acenaphthene-d10	6.591	164	173194	40.00	ppm	0.05
65) Acenaphthene-d10a	6.591	164	173194	40.00	ppm	0.05
67) Phenanthrene-d10	7.956	188	295251	40.00	ppm	0.05
80) Phenanthrene-d10a	8.003	188	4207	40.00	ppm	0.09
82) Chrysene-d12	10.897	240	326784	40.00	ppm	0.06
92) Perylene-d12	12.485	264	313103	40.00	ppm	0.06
100) Naphthalene-d8b	5.062	136	294360	40.00	ug/mL	# 0.06
System Monitoring Compounds						
5) 2-Fluorophenol	3.091	112	79632	31.05	ppm	0.05
Spiked Amount 100.000	Range 30 - 130		Recovery = 31.05%			
7) Phenol-d5	3.768	99	102955	31.23	ppm	0.04
Spiked Amount 100.000	Range 30 - 130		Recovery = 31.23%			
24) Nitrobenzene-d5	4.486	82	87623	29.89	ppm	0.04
Spiked Amount 50.000	Range 30 - 130		Recovery = 59.78%			
48) 2-Fluorobiphenyl	5.997	172	211087	34.63	ppm	0.04
Spiked Amount 50.000	Range 30 - 130		Recovery = 69.26%			
71) 2,4,6-Tribromophenol	7.309	330	32107	33.85	ppm	0.05
Spiked Amount 100.000	Range 30 - 130		Recovery = 33.85%			
85) Terphenyl-d14	9.685	244	278935	37.90	ppm	0.06
Spiked Amount 50.000	Range 30 - 130		Recovery = 75.80%			
Target Compounds						Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\R130619\
Data File : R31565.D
Acq On : 19 Jun 2013 1:18 pm
Operator : kristinr
Sample : JB39339-7
Misc : op33636,msr1148,20.84,,,1,1
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jul 05 10:04:16 2013
Quant Method : W:\1\methods\R130530_8270+.m
Quant Title : SW-864 Method 8270
QLast Update : Tue Jun 25 14:19:44 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\R130619\
Data File : R31555.D
Acq On : 19 Jun 2013 9:27 am
Operator : kristinr
Sample : op33636-mb
Misc : op33636,msr1148,20.08,,,1,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jul 03 17:42:13 2013
Quant Method : W:\1\methods\R130530_8270+.m
Quant Title : SW-864 Method 8270
QLast Update : Tue Jun 25 14:19:44 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.015	152	77529	40.00	ppm	0.05
21) 1,4-Dichlorobenzene-d4A	4.015	152	77529	40.00	PPM	0.05
23) Naphthalene-d8	5.062	136	300243	40.00	ppm	0.04
41) Naphthalene-d8a	5.062	136	300243	40.00	ppm	0.04
43) Acenaphthene-d10	6.586	164	175920	40.00	ppm	0.04
65) Acenaphthene-d10a	6.586	164	175920	40.00	ppm	0.04
67) Phenanthrene-d10	7.956	188	308147	40.00	ppm	0.05
80) Phenanthrene-d10a	7.956	188	308147	40.00	ppm	0.05
82) Chrysene-d12	10.897	240	334887	40.00	ppm	0.06
92) Perylene-d12	12.479	264	319443	40.00	ppm	0.06
100) Naphthalene-d8b	5.062	136	300243	40.00	ug/mL	# 0.06
System Monitoring Compounds						
5) 2-Fluorophenol	3.092	112	76320	30.08	ppm	0.05
Spiked Amount 100.000	Range 30 - 130		Recovery = 30.08%			
7) Phenol-d5	3.768	99	95721	29.35	ppm	0.04
Spiked Amount 100.000	Range 30 - 130		Recovery = 29.35%#			
24) Nitrobenzene-d5	4.486	82	79947	26.74	ppm	0.04
Spiked Amount 50.000	Range 30 - 130		Recovery = 53.48%			
48) 2-Fluorobiphenyl	5.997	172	198210	32.01	ppm	0.04
Spiked Amount 50.000	Range 30 - 130		Recovery = 64.02%			
71) 2,4,6-Tribromophenol	7.309	330	32703	33.03	ppm	0.05
Spiked Amount 100.000	Range 30 - 130		Recovery = 33.03%			
85) Terphenyl-d14	9.685	244	283150	37.54	ppm	0.06
Spiked Amount 50.000	Range 30 - 130		Recovery = 75.08%			

Target Compounds Qvalue

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

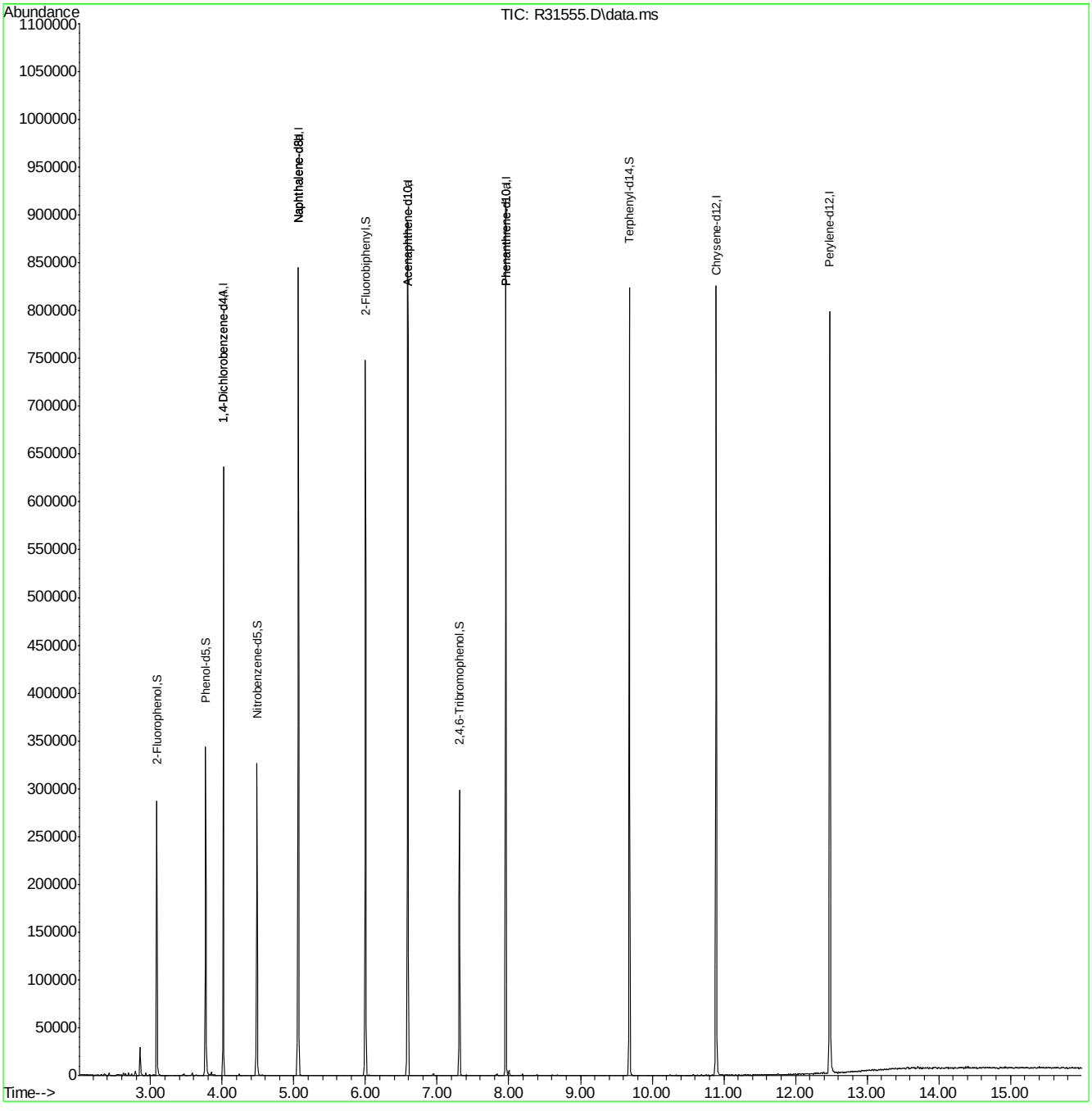
10.2.1

10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\R130619\
Data File : R31555.D
Acq On : 19 Jun 2013 9:27 am
Operator : kristinr
Sample : op33636-mb
Misc : op33636,msr1148,20.08,,,1,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jul 03 17:42:13 2013
Quant Method : W:\1\methods\R130530_8270+.m
Quant Title : SW-864 Method 8270
QLast Update : Tue Jun 25 14:19:44 2013
Response via : Initial Calibration



R130530_8270+.m Wed Jul 03 18:01:01 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: JB39339
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
OP33623-MB	BK25926.D	1	06/15/13	NK	06/14/13	OP33623	GBK894

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

JB39339-1, JB39339-2, JB39339-3, JB39339-4, JB39339-5, JB39339-6, JB39339-7

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)	118%	61-167%
460-00-4	Bromofluorobenzene (S)	141%	61-167%

Blank Spike Summary

Job Number: JB39339
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
OP33623-BS	BK25927.D	1	06/15/13	NK	06/14/13	OP33623	GBK894

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

JB39339-1, JB39339-2, JB39339-3, JB39339-4, JB39339-5, JB39339-6, JB39339-7

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
106-93-4	1,2-Dibromoethane	33	40.4	122	56-140

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	Bromofluorobenzene (S)	111%	61-167%
460-00-4	Bromofluorobenzene (S)	135%	61-167%

11.2.1

11

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB39339
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
OP33623-MS	BK25934.D	1	06/15/13	NK	06/14/13	OP33623	GBK894
OP33623-MSD	BK25935.D	1	06/15/13	NK	06/14/13	OP33623	GBK894
JB38711-1	BK25936.D	1	06/15/13	NK	06/14/13	OP33623	GBK894

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

JB39339-1, JB39339-2, JB39339-3, JB39339-4, JB39339-5, JB39339-6, JB39339-7

CAS No.	Compound	JB38711-1 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		37.8	47.9	127	50.3	134	5	48-141/27

CAS No.	Surrogate Recoveries	MS	MSD	JB38711-1	Limits
460-00-4	Bromofluorobenzene (S)	122%	123%	127%	61-167%
460-00-4	Bromofluorobenzene (S)	141%	142%	145%	61-167%

11.3.1

11

* = Outside of Control Limits.

Volatile Surrogate Recovery Summary

Job Number: JB39339
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]
JB39339-1	BK25945.D	120.0	139.0
JB39339-2	BK25946.D	114.0	131.0
JB39339-3	BK25947.D	123.0	137.0
JB39339-4	BK25948.D	120.0	135.0
JB39339-5	BK25949.D	122.0	133.0
JB39339-6	BK25950.D	124.0	138.0
JB39339-7	BK25951.D	122.0	148.0
OP33623-BS	BK25927.D	111.0	135.0
OP33623-MB	BK25926.D	118.0	141.0
OP33623-MS	BK25934.D	122.0	141.0
OP33623-MSD	BK25935.D	123.0	142.0

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: JB39339
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	GBK894-ICC894	**Injection Date:**	06/15/13
Lab File ID:	BK25917.D	**Injection Time:**	04:57
Instrument ID:	GCBK	**Method:**	SW846 8011

	S1 [a] RT	S1 [b] RT
Check Std	4.75	5.16

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
OP33624-MB	BK25923.D	06/15/13	07:26	4.76	5.16
ZZZZZZ	BK25924.D	06/15/13	07:55	4.76	5.16
ZZZZZZ	BK25925.D	06/15/13	08:18	4.76	5.16
OP33623-MB	BK25926.D	06/15/13	08:41	4.76	5.16
OP33623-BS	BK25927.D	06/15/13	09:04	4.76	5.15
ZZZZZZ	BK25928.D	06/15/13	09:28	4.76	5.16
ZZZZZZ	BK25929.D	06/15/13	09:51	4.76	5.15
ZZZZZZ	BK25930.D	06/15/13	10:13	4.76	5.15
ZZZZZZ	BK25931.D	06/15/13	10:36	4.76	5.16
ZZZZZZ	BK25932.D	06/15/13	10:59	4.76	5.16

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: JB39339
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	GBK894-CC894	**Injection Date:**	06/15/13
Lab File ID:	BK25933.D	**Injection Time:**	11:22
Instrument ID:	GCBK	**Method:**	SW846 8011

	S1 [a] RT	S1 [b] RT
Check Std	4.76	5.15

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
OP33623-MS	BK25934.D	06/15/13	11:46	4.76	5.16
OP33623-MSD	BK25935.D	06/15/13	12:09	4.76	5.15
JB38711-1	BK25936.D	06/15/13	12:32	4.76	5.16
ZZZZZZ	BK25937.D	06/15/13	12:55	4.76	5.16
ZZZZZZ	BK25938.D	06/15/13	13:18	4.76	5.15
ZZZZZZ	BK25939.D	06/15/13	13:40	4.76	5.15
ZZZZZZ	BK25940.D	06/15/13	14:03	4.76	5.15
ZZZZZZ	BK25941.D	06/15/13	14:27	4.76	5.16
ZZZZZZ	BK25942.D	06/15/13	14:49	4.76	5.15
ZZZZZZ	BK25943.D	06/15/13	15:12	4.76	5.15

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: JB39339
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	GBK894-CC894	**Injection Date:**	06/15/13
Lab File ID:	BK25944.D	**Injection Time:**	15:35
Instrument ID:	GCBK	**Method:**	SW846 8011

	S1 [a] RT	S1 [b] RT
Check Std	4.76	5.16

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
JB39339-1	BK25945.D	06/15/13	15:58	4.76	5.15
JB39339-2	BK25946.D	06/15/13	16:21	4.76	5.15
JB39339-3	BK25947.D	06/15/13	16:44	4.76	5.15
JB39339-4	BK25948.D	06/15/13	17:07	4.76	5.15
JB39339-5	BK25949.D	06/15/13	17:30	4.76	5.15
JB39339-6	BK25950.D	06/15/13	17:53	4.76	5.15
JB39339-7	BK25951.D	06/15/13	18:16	4.76	5.15
GBK894-ECC894	BK25952.D	06/15/13	18:39	4.76	5.15

Surrogate Compounds

S1 = Bromofluorobenzene (S)

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

Initial Calibration Summary

Job Number: JB39339 **Sample:** GBK894-ICC894
Account: ALNJ Accutest New Jersey **Lab FileID:** BK25917.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Response Factor Report GCBK

```
Method       : C:\msdchem\1\METHODS\EDS130615.M (ChemStation Integrator)
Title        : EDB /Rtx35/DB1701
Last Update  : Sat Jun 15 09:48:18 2013
Response via : Initial Calibration

Calibration Files
1   =BK25916.d   2   =BK25917.d   3   =BK25918.d   4   =BK25919.d
5      =BK25920.d    6      =BK25921.d

      Compound              1     2     3     4     5     6     Avg    %RSD
---------------------------------------------------------------------------
1)     1,2-Dibromoethane   2.272 2.318 2.274 2.276 2.294 2.371 2.301 E8   1.67
2) s   4-Bromofluorobenzen 1.308 1.354 1.318 1.333 1.347 1.343 1.334 E7   1.32
3)     1,2-Dibromo-3-chlor 4.071 4.082 3.964 3.995 4.020 4.048 4.030 E8   1.13

Signal #2

1)     1,2-Dibromoethane   2.690 2.656 2.681 2.701 2.638 2.663 2.672 E6   0.88
2) s   4-Bromofluorobenzen 1.912 2.016 2.055 2.052 2.064 2.040 2.023 E5   2.81
3)     1,2-Dibromo-3-chlor 5.633 5.438 5.366 5.276 5.231 5.208 5.359 E6   2.98
---------------------------------------------------------------------------
(#) = Out of Range

          EDS130615.M        Sat Jun 15 09:51:05 2013
```

11.6.1

11

Initial Calibration Verification

Job Number: JB39339 **Sample:** GBK894-ICV894
Account: ALNJ Accutest New Jersey **Lab FileID:** BK25922.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Signal #1 : C:\msdchem\1\DATA\BK...15\BK25922.d\ECD1A.ch Vial: 47
Signal #2 : C:\msdchem\1\DATA\BK130615\BK25922.d\ECD2B.ch
Acq On    : 15 Jun 2013   7:02 am                    Operator: nickk
Sample    : icv894-20,edb soil                       Inst    : GCBK
Misc      : op33624,gbk894,30,,,50,,s                Multiplr: 1.00
IntFile Signal #1: events.e     IntFile Signal #2: events2.e

Method       : C:\msdchem\1\METHODS\EDS130615.M (ChemStation Integrator)
Title        : EDB /Rtx35/DB1701
Last Update  : Sat Jun 15 09:48:18 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      230.105 240.199 E6  -4.4  104   0.00    3.89- 3.95
 2 s   4-Bromofluorobenzene    13.339  15.316 E6 -14.8  113   0.00    5.13- 5.19
 3     1,2-Dibromo-3-chloropr 403.005 430.435 E6  -6.8  105   0.00    6.57- 6.63

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

 1     1,2-Dibromoethane        2.672   2.824 E6  -5.7  106   0.00    3.66- 3.72
 2 s   4-Bromofluorobenzene   202.318 207.967 E3  -2.8  103   0.00    4.73- 4.79
 3     1,2-Dibromo-3-chloropr   5.359   5.662 E6  -5.7  104   0.00    6.41- 6.47
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    BK25917.d  EDS130615.M       Sat Jun 15 09:51:00 2013
```

11.6.2

11

Continuing Calibration Summary

Job Number: JB39339 **Sample:** GBK894-CC894
Account: ALNJ Accutest New Jersey **Lab FileID:** BK25933.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\BK...15\BK25933.d\ECD1A.ch Vial: 91
 Signal #2 : C:\msdchem\1\DATA\BK130615\BK25933.d\ECD2B.ch
 Acq On    : 15 Jun 2013  11:22 am                    Operator: nickk
 Sample    : cc894-10,edb soil                        Inst    : GCBK
 Misc      : op33624,gbk894,30,,,50,,s                Multiplr: 1.00
 IntFile Signal #1: events.e     IntFile Signal #2: events2.e

 Method       : C:\msdchem\1\METHODS\EDS130615.M (ChemStation Integrator)
 Title        : EDB /Rtx35/DB1701
 Last Update  : Sat Jun 15 09:48:18 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      230.105 229.880 E6   0.1  101   0.00    3.89- 3.95
 2 s   4-Bromofluorobenzene    13.339  12.946 E6   2.9   98   0.00    5.12- 5.18
 3     1,2-Dibromo-3-chloropr 403.005 396.397 E6   1.6  100   0.00    6.57- 6.63

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

 1     1,2-Dibromoethane        2.672   2.742 E6  -2.6  102   0.00    3.66- 3.72
 2 s   4-Bromofluorobenzene   202.318 201.898 E3   0.2   98   0.00    4.73- 4.79
 3     1,2-Dibromo-3-chloropr   5.359   5.364 E6  -0.1  100   0.00    6.41- 6.47
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    BK25918.d  EDS130615.M       Sun Jun 16 09:14:16 2013
```

11.6.3

11

Continuing Calibration Summary

Job Number: JB39339 **Sample:** GBK894-CC894
Account: ALNJ Accutest New Jersey **Lab FileID:** BK25944.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Signal #1 : C:\msdchem\1\DATA\BK...15\BK25944.d\ECD1A.ch Vial: 91
Signal #2 : C:\msdchem\1\DATA\BK130615\BK25944.d\ECD2B.ch
Acq On    : 15 Jun 2013   3:35 pm                    Operator: nickk
Sample    : cc894-10,edb soil                        Inst    : GCBK
Misc      : op33624,gbk894,30,,,50,,s                Multiplr: 1.00
IntFile Signal #1: events.e     IntFile Signal #2: events2.e

Method       : C:\msdchem\1\METHODS\EDS130615.M (ChemStation Integrator)
Title        : EDB /Rtx35/DB1701
Last Update  : Sat Jun 15 09:48:18 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	230.105	230.785 E6	-0.3	101	0.00	3.89- 3.95
2 s	4-Bromofluorobenzene	13.339	13.514 E6	-1.3	103	0.00	5.13- 5.19
3	1,2-Dibromo-3-chloropr	403.005	409.602 E6	-1.6	103	0.00	6.57- 6.63

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

1	1,2-Dibromoethane	2.672	2.744 E6	-2.7	102	0.00	3.66- 3.72
2 s	4-Bromofluorobenzene	202.318	204.905 E3	-1.3	100	0.00	4.73- 4.79
3	1,2-Dibromo-3-chloropr	5.359	5.546 E6	-3.5	103	0.00	6.41- 6.47

(#) = Out of Range SPCC's out = 0 CCC's out = 0
BK25918.d EDS130615.M Sun Jun 16 09:18:24 2013

11.6.4

11

Continuing Calibration Summary

Job Number: JB39339 **Sample:** GBK894-ECC894
Account: ALNJ Accutest New Jersey **Lab FileID:** BK25952.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\BK...15\BK25952.d\ECD1A.ch Vial: 92
 Signal #2 : C:\msdchem\1\DATA\BK130615\BK25952.d\ECD2B.ch
 Acq On    : 15 Jun 2013   6:39 pm                    Operator: nickk
 Sample    : ecc894-10,edb soil                       Inst    : GCBK
 Misc      : op33624,gbk894,30,,,50,,s                Multiplr: 1.00
 IntFile Signal #1: events.e     IntFile Signal #2: events2.e

 Method       : C:\msdchem\1\METHODS\EDS130615.M (ChemStation Integrator)
 Title        : EDB /Rtx35/DB1701
 Last Update  : Sat Jun 15 09:48:18 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      230.105 216.767 E6   5.8   95   0.00    3.89- 3.95
 2 s   4-Bromofluorobenzene    13.339  13.152 E6   1.4  100   0.00    5.12- 5.18
 3     1,2-Dibromo-3-chloropr 403.005 375.923 E6   6.7   95   0.00    6.57- 6.63

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

 1     1,2-Dibromoethane        2.672   2.825 E6  -5.7  105   0.00    3.66- 3.72
 2 s   4-Bromofluorobenzene   202.318 203.718 E3  -0.7   99   0.00    4.73- 4.79
 3     1,2-Dibromo-3-chloropr   5.359   5.492 E6  -2.5  102   0.00    6.41- 6.47
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    BK25918.d  EDS130615.M       Sun Jun 16 09:20:26 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)
Andri Piluri
06/17/13 09:23

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\BK130615\
Data File : BK25945.d
Signal(s) : Signal #1: ECD1A.ch  Signal #2: ECD2B.ch
Acq On    : 15 Jun 2013   3:58 pm
Operator  : nickk
Sample    : jb39339-1,op33623
Misc      : op33623,gbk894,30.77,,,50,,s
ALS Vial  : 71   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jun 16 09:18:44 2013
Quant Method : C:\msdchem\1\METHODS\EDS130615.M
Quant Title  : EDB /Rtx35/DB1701
QLast Update : Sat Jun 15 09:48:18 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...    5.154     4.756   928.8E6 12098597   69.631m   59.800m
 Spiked Amount     50.000 Range  26 - 158  Recovery   =  139.26%   119.60%

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

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

12.1.1

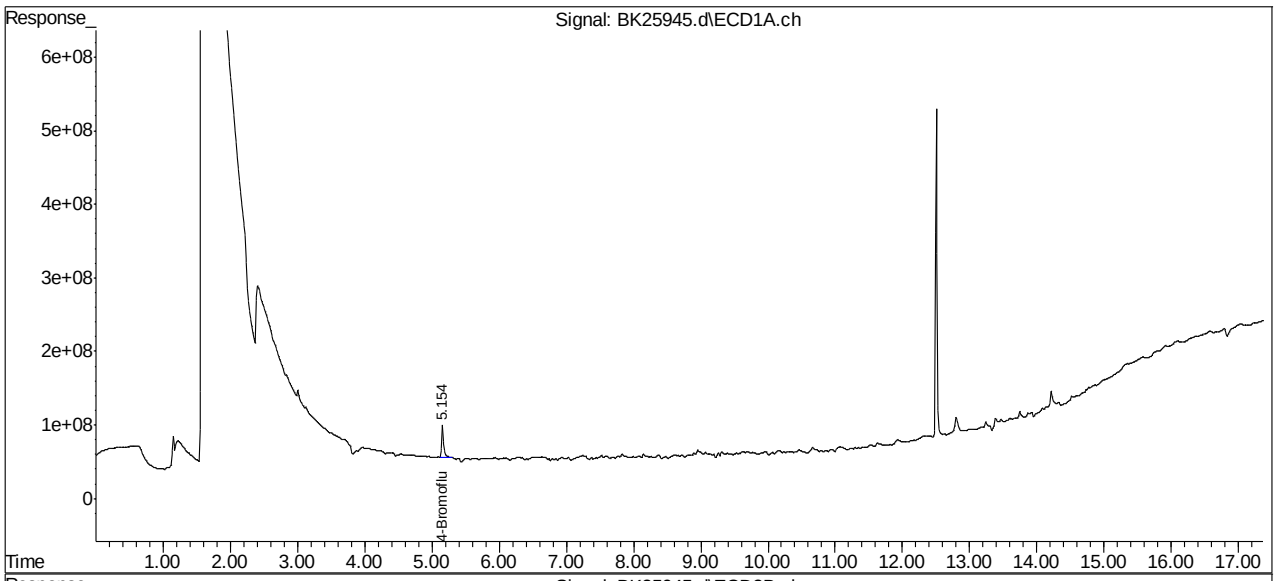
12

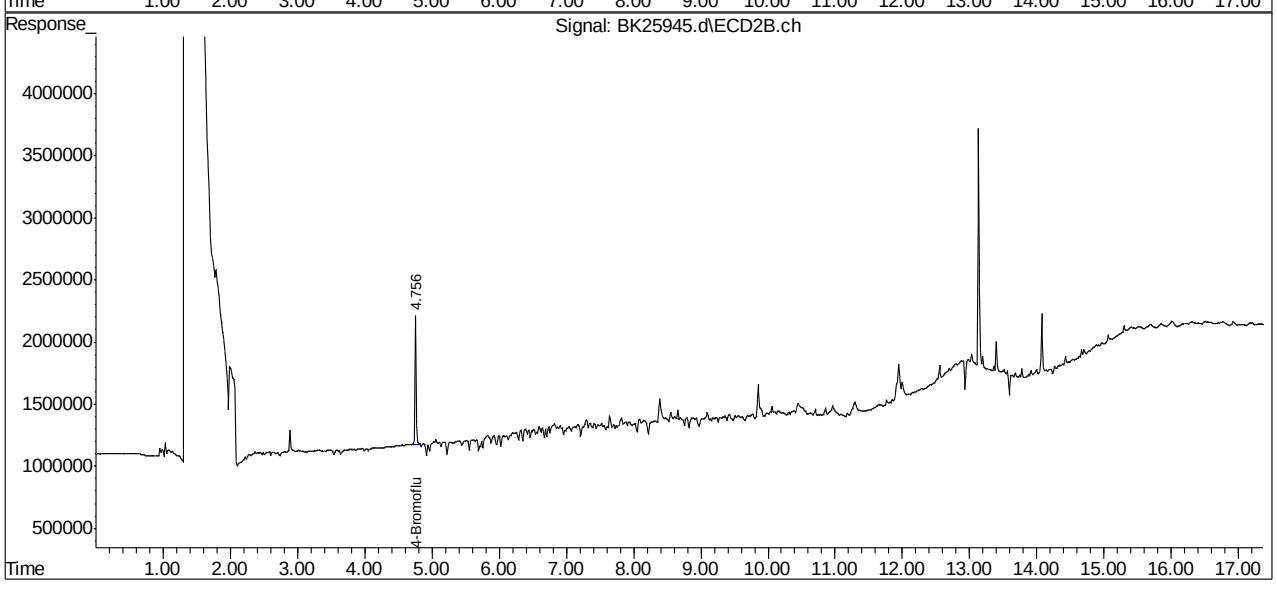
Quantitation Report (QT Reviewed)

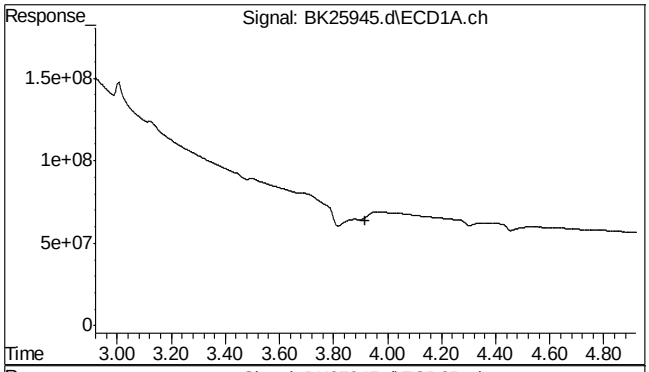
Data Path : C:\msdchem\1\DATA\BK130615\
Data File : BK25945.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 15 Jun 2013 3:58 pm
Operator : nickk
Sample : jb39339-1,op33623
Misc : op33623,gbk894,30.77,,,50,,s
ALS Vial : 71 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jun 16 09:18:44 2013
Quant Method : C:\msdchem\1\METHODS\EDS130615.M
Quant Title : EDB /Rtx35/DB1701
QLast Update : Sat Jun 15 09:48:18 2013
Response via : Initial Calibration
Integrator: ChemStation

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

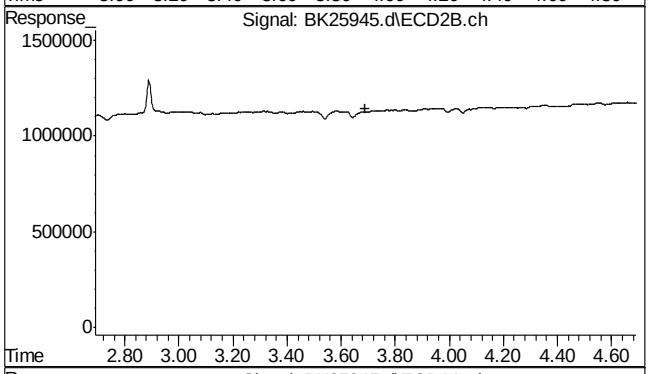






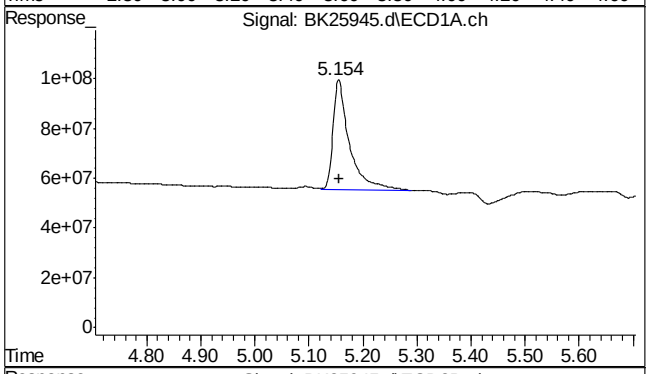
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.919 min
Response: 0
Conc: N.D.



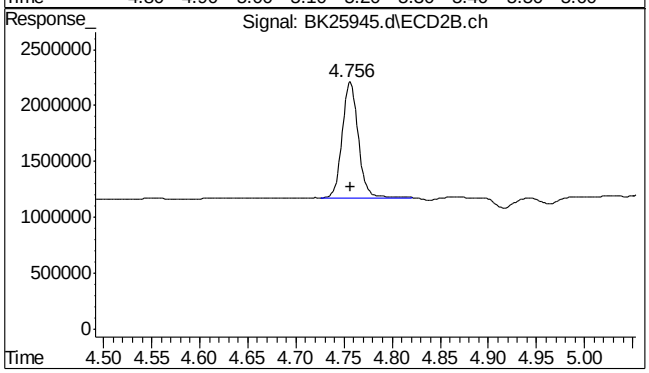
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.690 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene

R.T.: 5.154 min
Delta R.T.: -0.002 min
Response: 928795706
Conc: 69.63 ug/L m

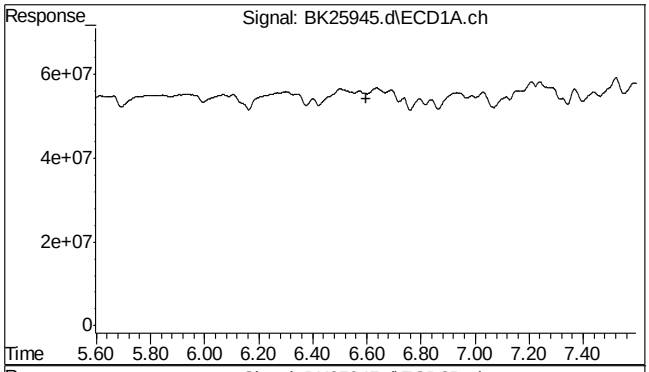


#2 4-Bromofluorobenzene

R.T.: 4.756 min
Delta R.T.: -0.001 min
Response: 12098597
Conc: 59.80 ug/L m

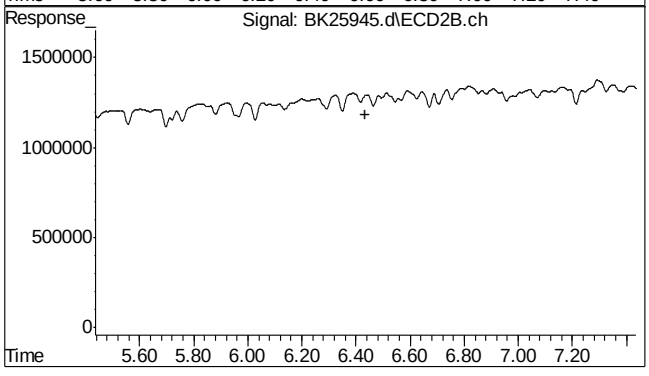
12.1.1

12



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.596 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.435 min
Response: 0
Conc: N.D.

12.1.1

12

Manual Integrations APPROVED (compounds with "m" flag)
Andri Piluri
06/17/13 09:23

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\BK130615\
Data File : BK25946.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 15 Jun 2013 4:21 pm
Operator : nickk
Sample : jb39339-2,op33623
Misc : op33623,gbk894,30.91,,,50,,s
ALS Vial : 72 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jun 16 09:19:05 2013
Quant Method : C:\msdchem\1\METHODS\EDS130615.M
Quant Title : EDB /Rtx35/DB1701
QLast Update : Sat Jun 15 09:48:18 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...	5.154	4.756	871.3E6	11509941	65.319m	56.890m
Spiked Amount	50.000	Range	26 - 158	Recovery	= 130.64%	113.78%
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d

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

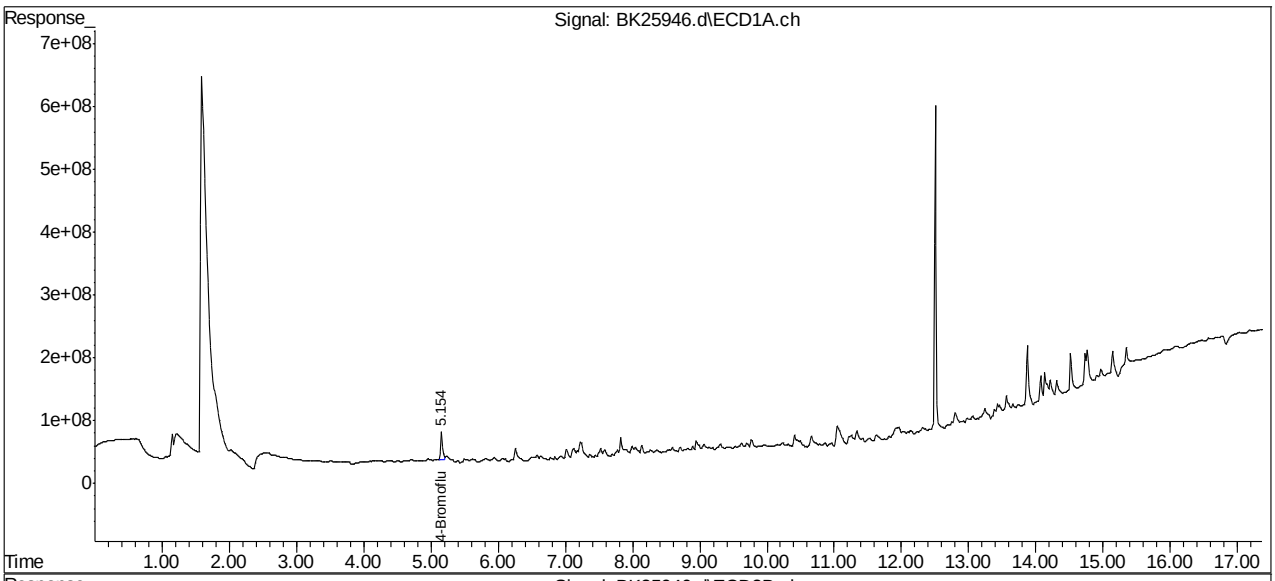
12.1.2
12

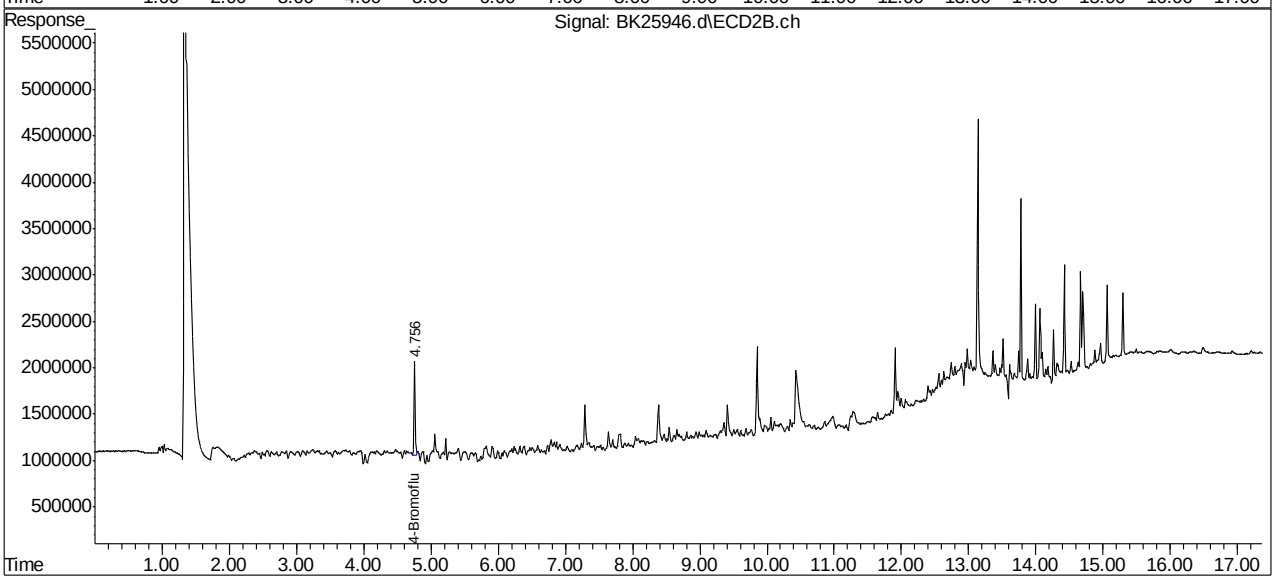
Quantitation Report (QT Reviewed)

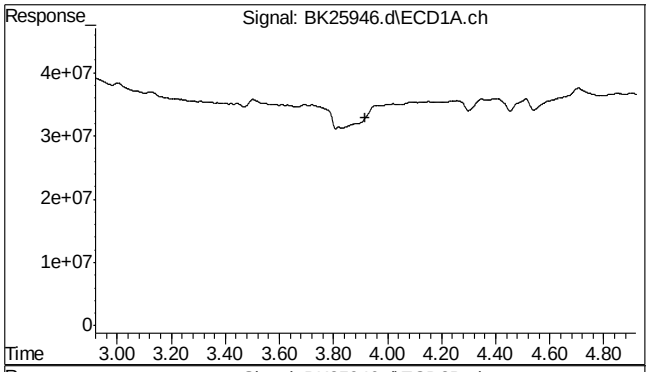
Data Path : C:\msdchem\1\DATA\BK130615\
Data File : BK25946.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 15 Jun 2013 4:21 pm
Operator : nickk
Sample : jb39339-2,op33623
Misc : op33623,gbk894,30.91,,,50,,s
ALS Vial : 72 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jun 16 09:19:05 2013
Quant Method : C:\msdchem\1\METHODS\EDS130615.M
Quant Title : EDB /Rtx35/DB1701
QLast Update : Sat Jun 15 09:48:18 2013
Response via : Initial Calibration
Integrator: ChemStation

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

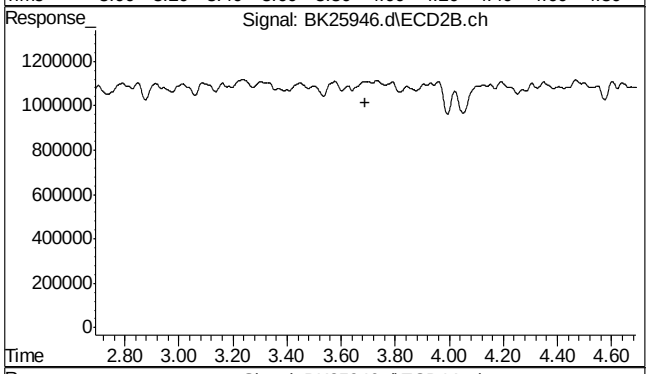






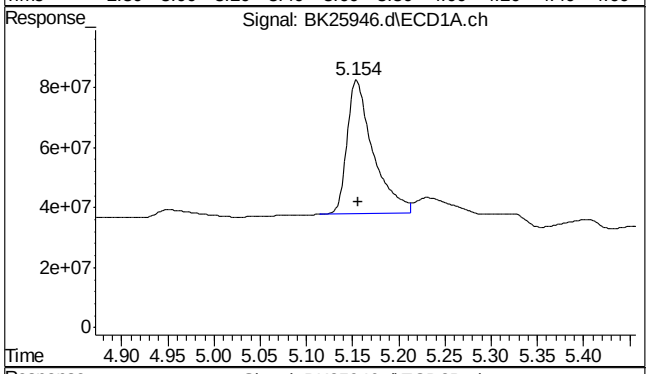
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.919 min
Response: 0
Conc: N.D.



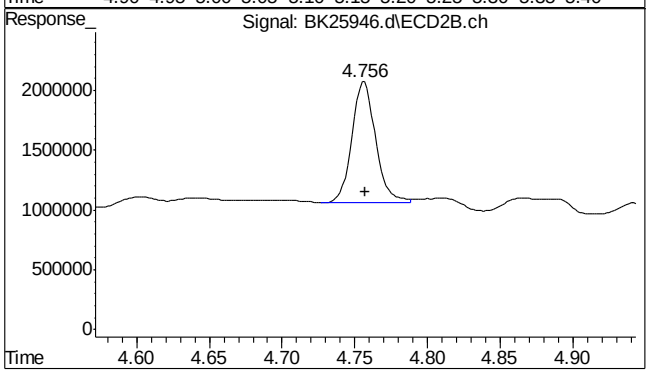
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.690 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene

R.T.: 5.154 min
Delta R.T.: -0.002 min
Response: 871281236
Conc: 65.32 ug/L m

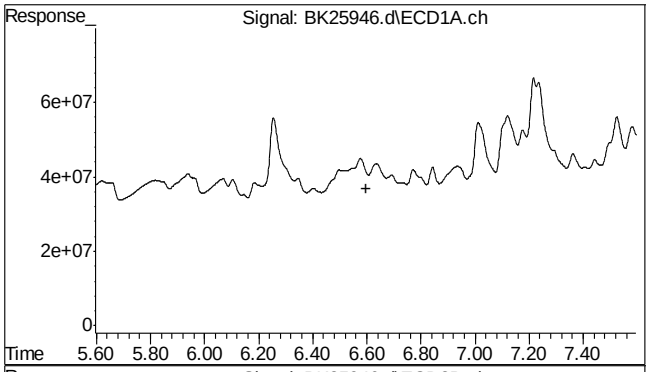


#2 4-Bromofluorobenzene

R.T.: 4.756 min
Delta R.T.: -0.001 min
Response: 11509941
Conc: 56.89 ug/L m

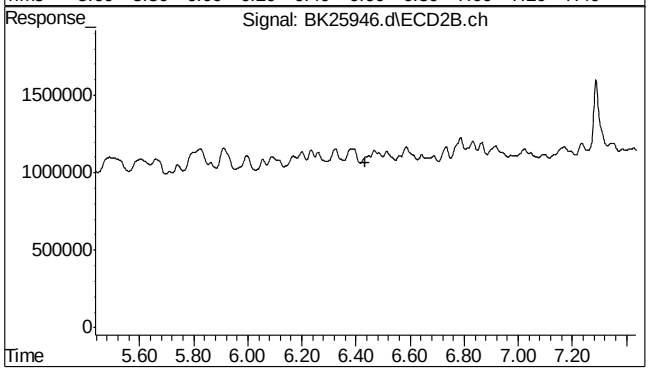
12.1.2

12



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.596 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.435 min
Response: 0
Conc: N.D.

12.1.2

12

Manual Integrations APPROVED (compounds with "m" flag)
Andri Piluri
06/17/13 09:23

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\BK130615\
Data File : BK25947.d
Signal(s) : Signal #1: ECD1A.ch  Signal #2: ECD2B.ch
Acq On    : 15 Jun 2013   4:44 pm
Operator  : nickk
Sample    : jb39339-3,op33623
Misc      : op33623,gbk894,30.44,,,50,,s
ALS Vial  : 73   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jun 16 09:19:19 2013
Quant Method : C:\msdchem\1\METHODS\EDS130615.M
Quant Title  : EDB /Rtx35/DB1701
QLast Update : Sat Jun 15 09:48:18 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...	5.155	4.757	916.1E6	12489181	68.675m	61.730m
Spiked Amount 50.000	Range 26 - 158	Recovery = 137.35%			123.46%	
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d

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

12.1.3

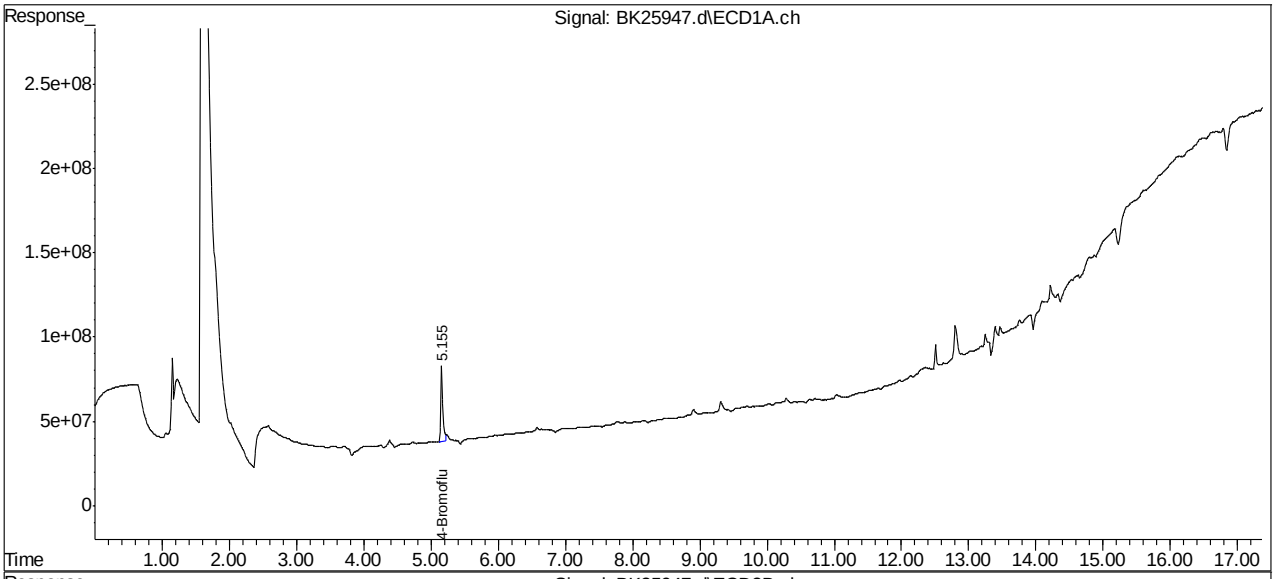
12

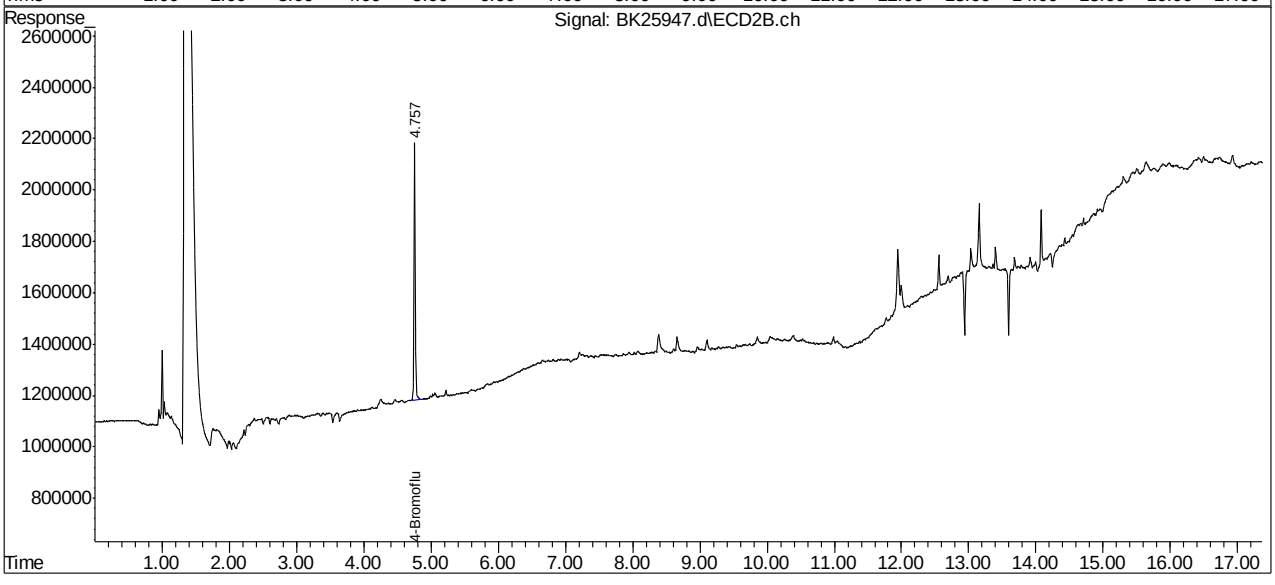
Quantitation Report (QT Reviewed)

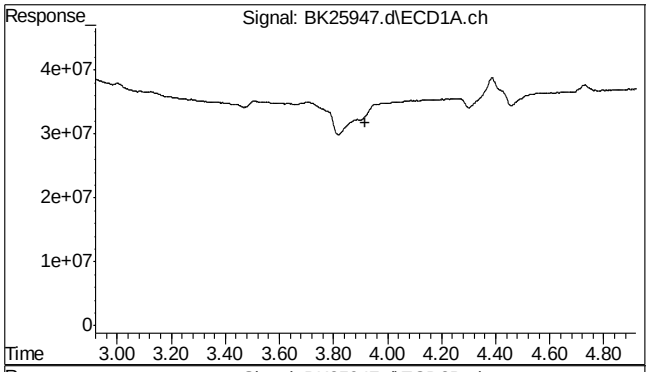
Data Path : C:\msdchem\1\DATA\BK130615\
Data File : BK25947.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 15 Jun 2013 4:44 pm
Operator : nickk
Sample : jb39339-3,op33623
Misc : op33623,gbk894,30.44,,,50,,s
ALS Vial : 73 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jun 16 09:19:19 2013
Quant Method : C:\msdchem\1\METHODS\EDS130615.M
Quant Title : EDB /Rtx35/DB1701
QLast Update : Sat Jun 15 09:48:18 2013
Response via : Initial Calibration
Integrator: ChemStation

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

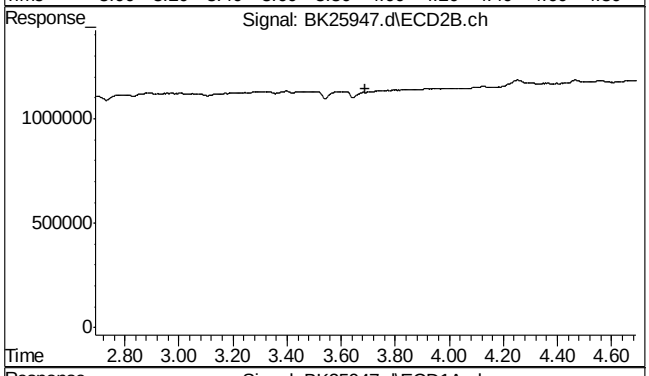






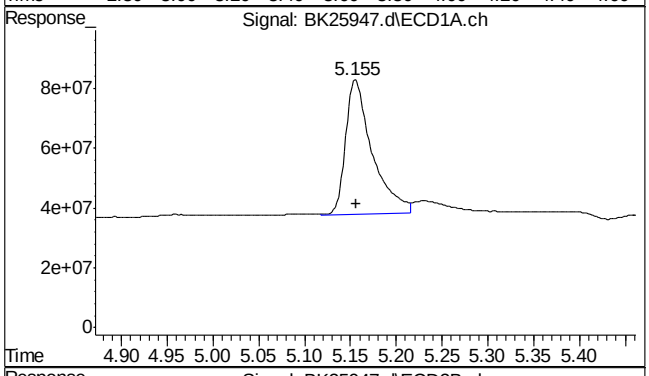
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.919 min
Response: 0
Conc: N.D.



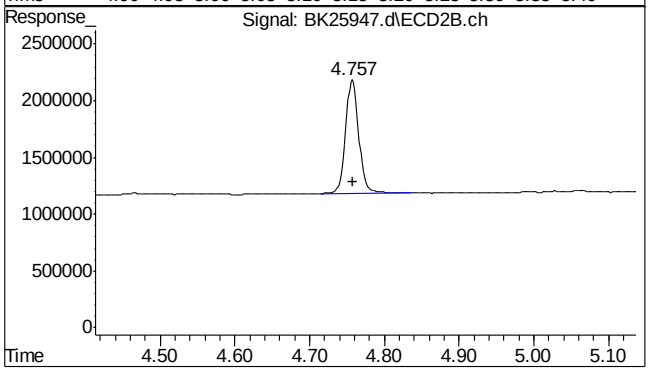
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.690 min
Response: 0
Conc: N.D.



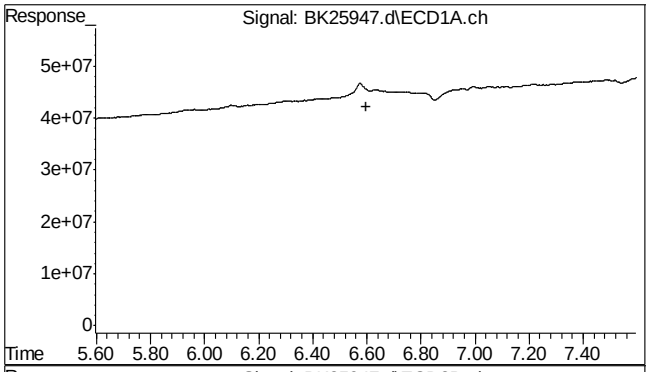
#2 4-Bromofluorobenzene

R.T.: 5.155 min
Delta R.T.: -0.001 min
Response: 916050765
Conc: 68.68 ug/L m



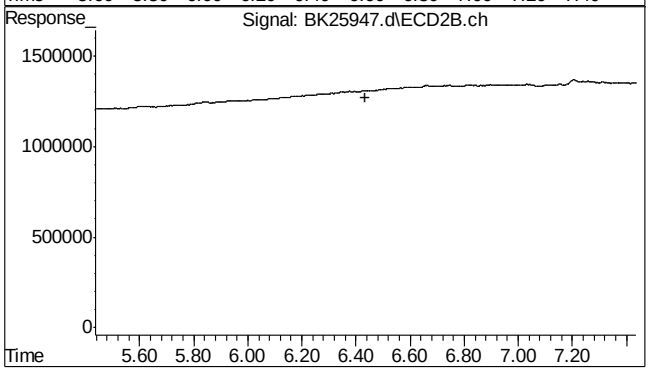
#2 4-Bromofluorobenzene

R.T.: 4.757 min
Delta R.T.: 0.000 min
Response: 12489181
Conc: 61.73 ug/L m



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.596 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.435 min
Response: 0
Conc: N.D.

12.1.3

12

Manual Integrations APPROVED (compounds with "m" flag)
Andri Piluri
06/17/13 09:23

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\BK130615\
Data File : BK25948.d
Signal(s) : Signal #1: ECD1A.ch  Signal #2: ECD2B.ch
Acq On    : 15 Jun 2013   5:07 pm
Operator  : nickk
Sample    : jb39339-4,op33623
Misc      : op33623,gbk894,30.42,,,50,,s
ALS Vial  : 74   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jun 16 09:19:34 2013
Quant Method : C:\msdchem\1\METHODS\EDS130615.M
Quant Title  : EDB /Rtx35/DB1701
QLast Update : Sat Jun 15 09:48:18 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...    5.155     4.757   900.6E6 12154640   67.515m   60.077m
 Spiked Amount     50.000 Range  26 - 158  Recovery   =  135.03%   120.15%

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

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

12.1.4

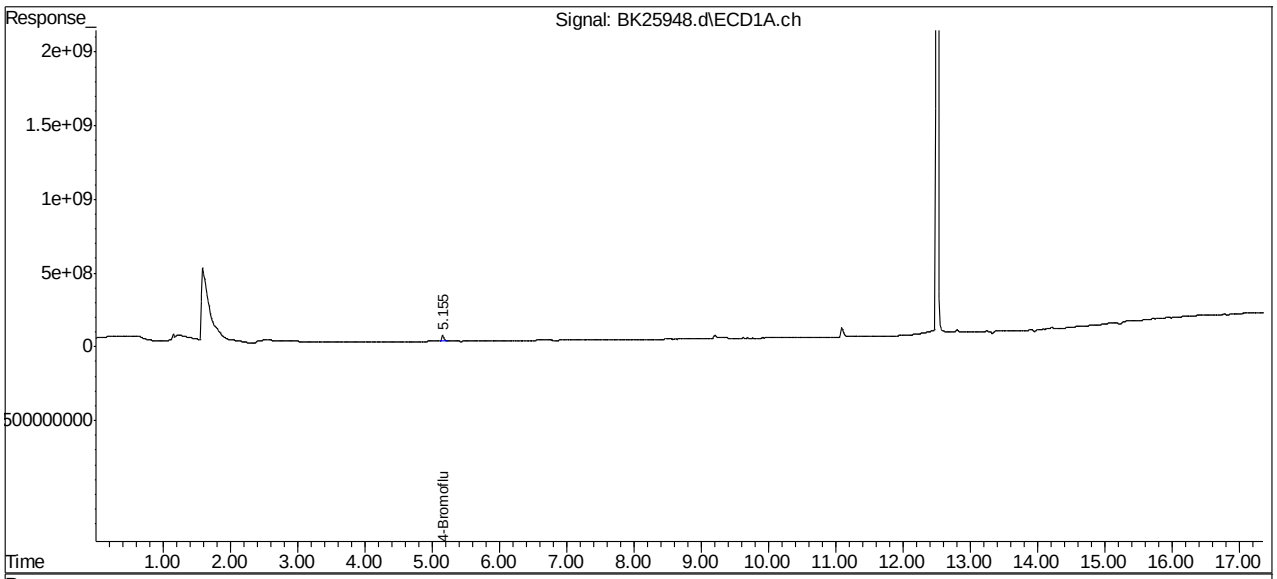
12

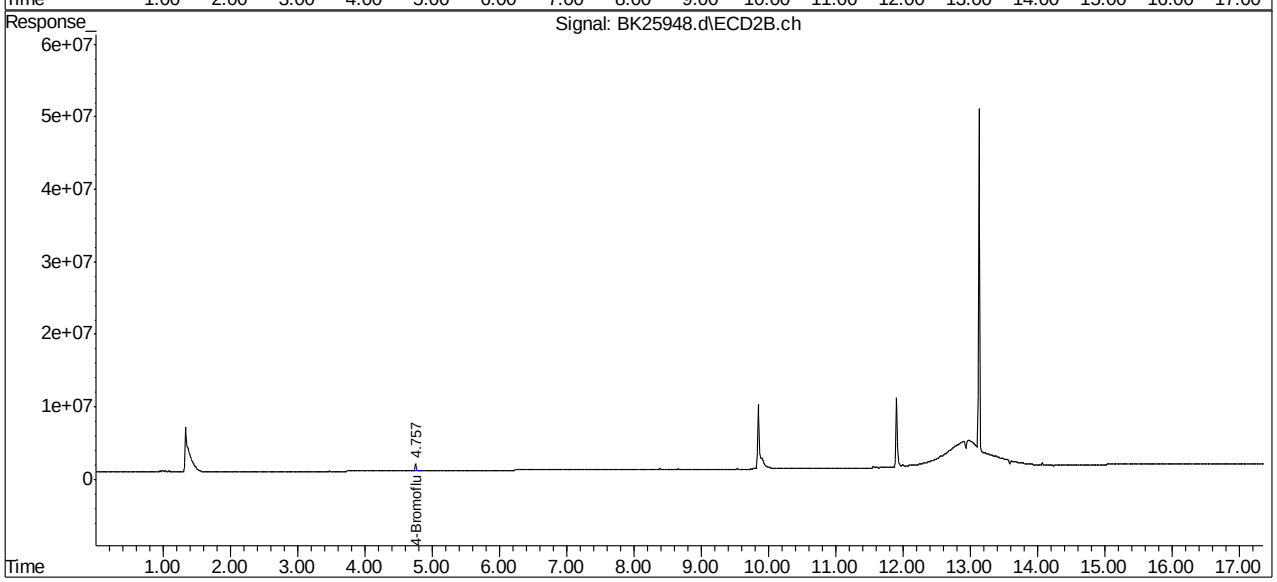
Quantitation Report (QT Reviewed)

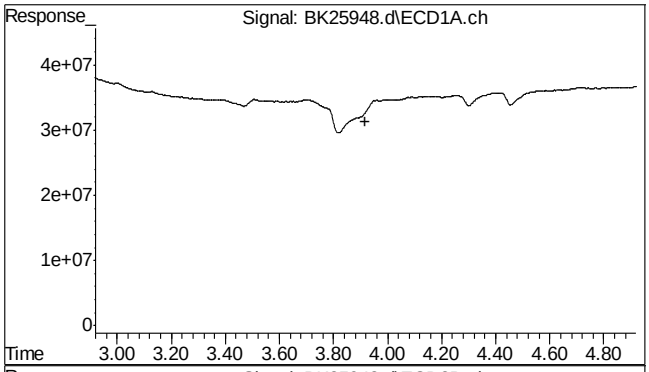
Data Path : C:\msdchem\1\DATA\BK130615\
Data File : BK25948.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 15 Jun 2013 5:07 pm
Operator : nickk
Sample : jb39339-4,op33623
Misc : op33623,gbk894,30.42,,,50,,s
ALS Vial : 74 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jun 16 09:19:34 2013
Quant Method : C:\msdchem\1\METHODS\EDS130615.M
Quant Title : EDB /Rtx35/DB1701
QLast Update : Sat Jun 15 09:48:18 2013
Response via : Initial Calibration
Integrator: ChemStation

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

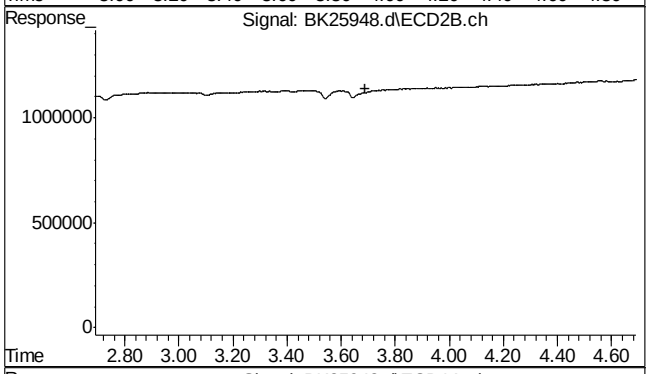






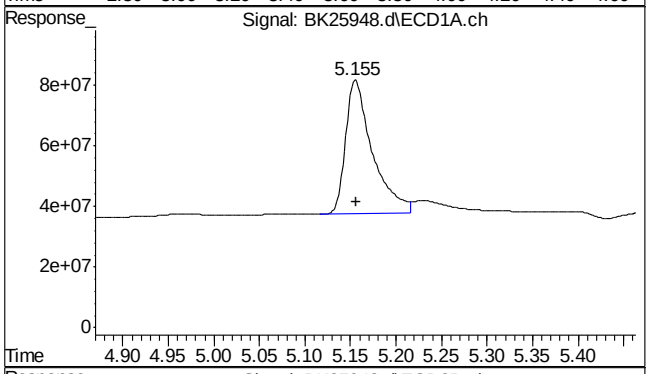
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.919 min
Response: 0
Conc: N.D.



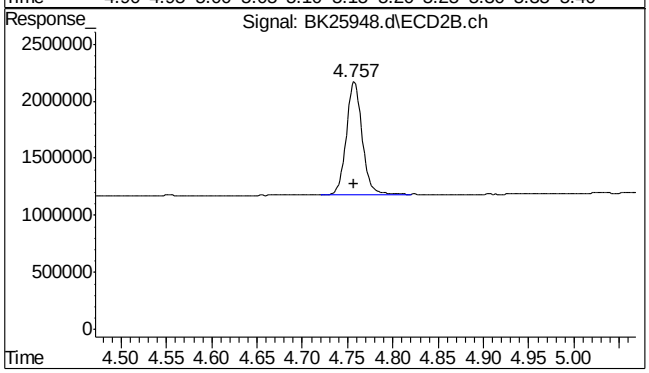
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.690 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene

R.T.: 5.155 min
Delta R.T.: -0.001 min
Response: 900573000
Conc: 67.51 ug/L m

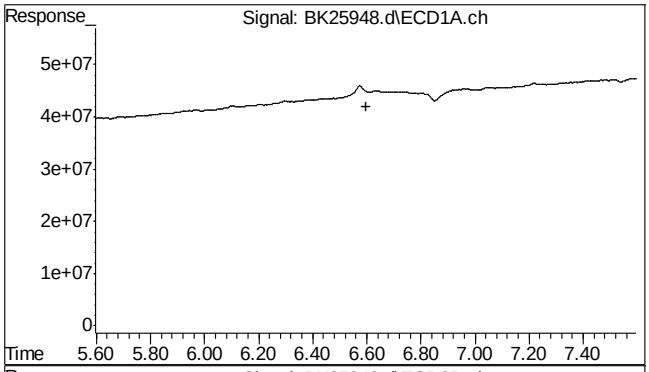


#2 4-Bromofluorobenzene

R.T.: 4.757 min
Delta R.T.: 0.000 min
Response: 12154640
Conc: 60.08 ug/L m

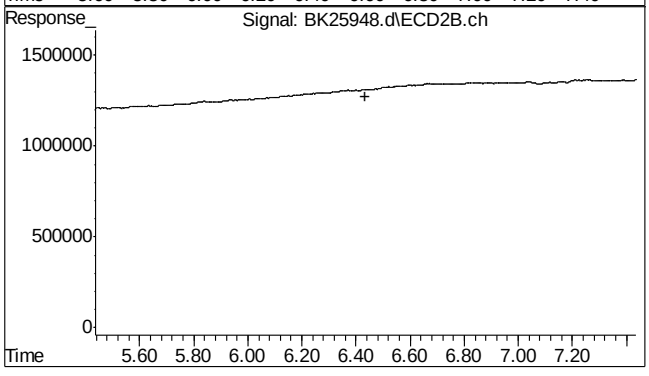
12.1.4

12



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.596 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.435 min
Response: 0
Conc: N.D.

12.1.4

12

Manual Integrations APPROVED (compounds with "m" flag)
Andri Piluri
06/17/13 09:23

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\BK130615\
Data File : BK25949.d
Signal(s) : Signal #1: ECD1A.ch  Signal #2: ECD2B.ch
Acq On    : 15 Jun 2013   5:30 pm
Operator  : nickk
Sample    : jb39339-5,op33623
Misc      : op33623,gbk894,30.29,,,50,,s
ALS Vial  : 75   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jun 16 09:19:48 2013
Quant Method : C:\msdchem\1\METHODS\EDS130615.M
Quant Title  : EDB /Rtx35/DB1701
QLast Update : Sat Jun 15 09:48:18 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...    5.154     4.756   885.8E6 12323057   66.408m   60.909m
 Spiked Amount     50.000 Range  26 - 158  Recovery   =  132.82%   121.82%

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

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

12.1.5

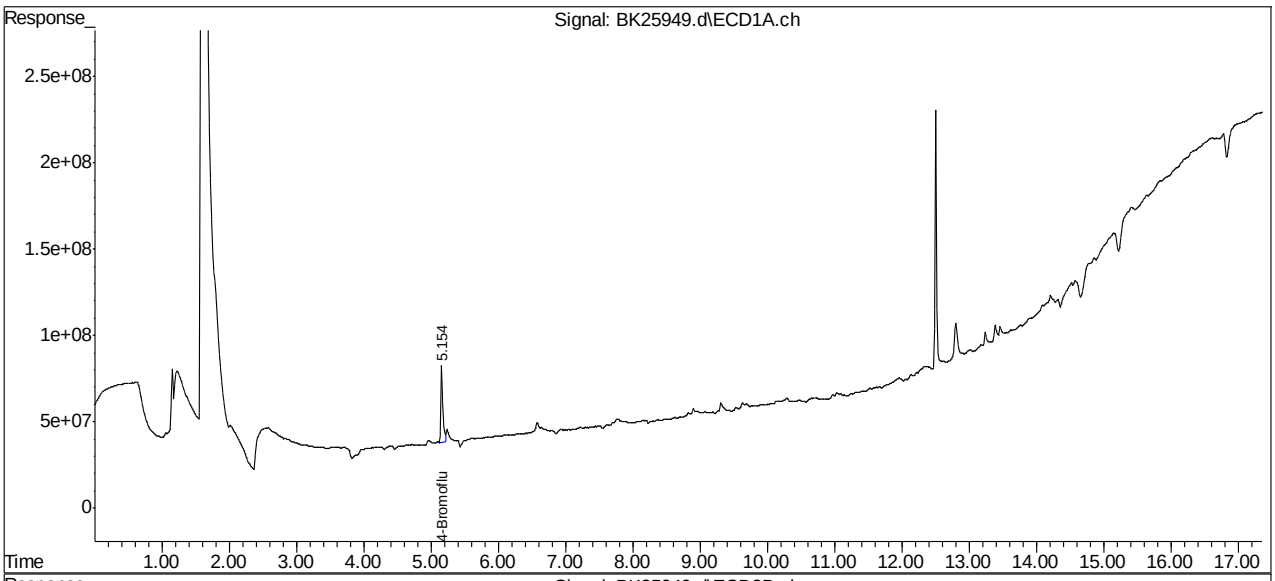
12

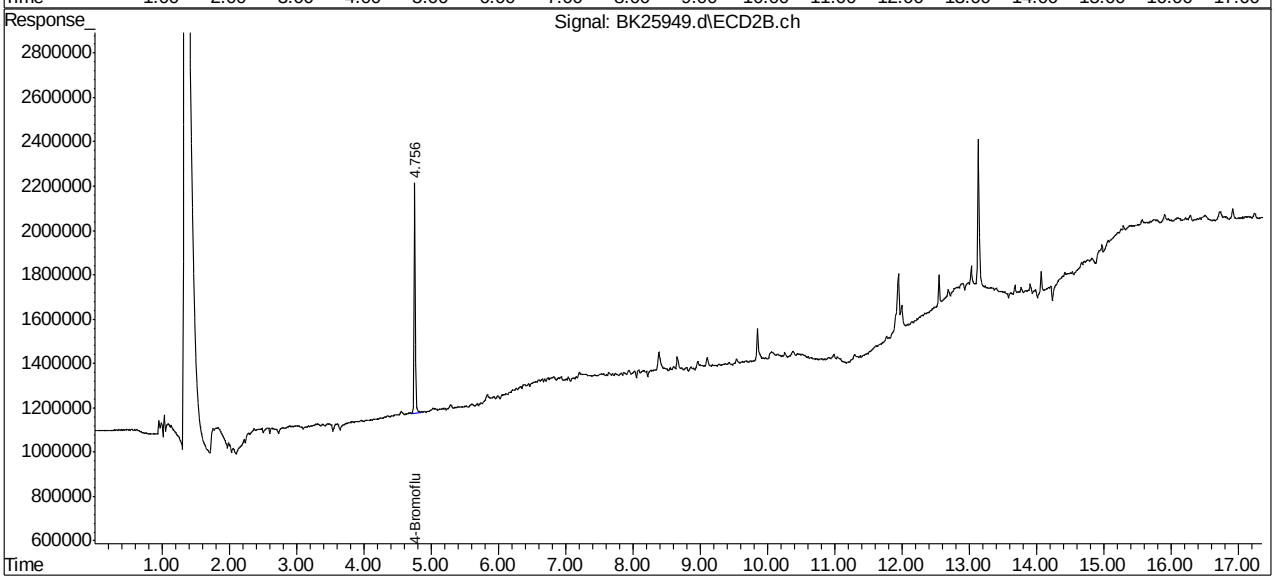
Quantitation Report (QT Reviewed)

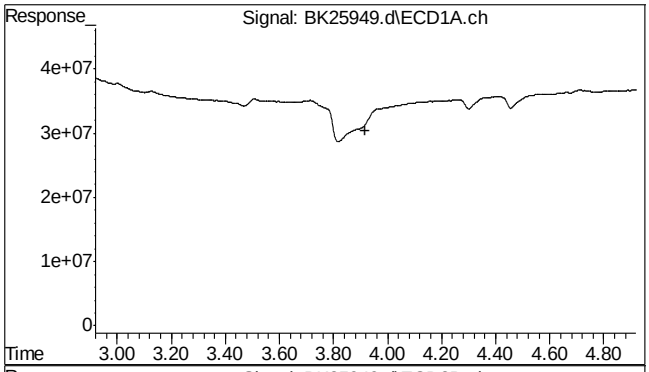
Data Path : C:\msdchem\1\DATA\BK130615\
Data File : BK25949.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 15 Jun 2013 5:30 pm
Operator : nickk
Sample : jb39339-5,op33623
Misc : op33623,gbk894,30.29,,,50,,s
ALS Vial : 75 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jun 16 09:19:48 2013
Quant Method : C:\msdchem\1\METHODS\EDS130615.M
Quant Title : EDB /Rtx35/DB1701
QLast Update : Sat Jun 15 09:48:18 2013
Response via : Initial Calibration
Integrator: ChemStation

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

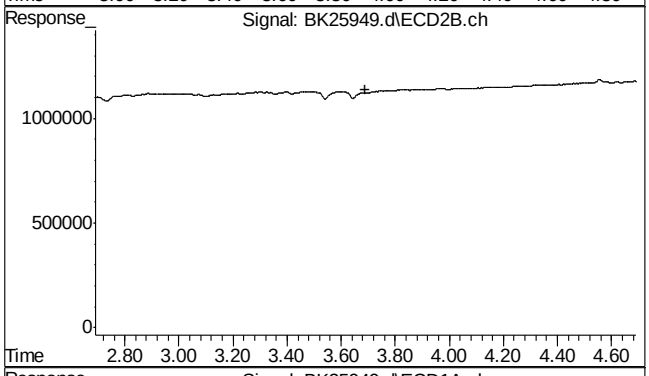






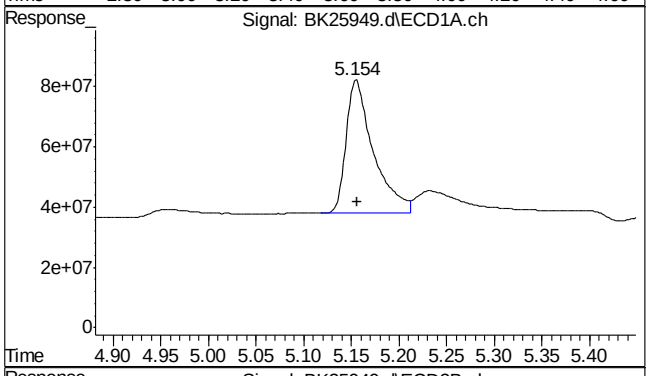
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.919 min
Response: 0
Conc: N.D.



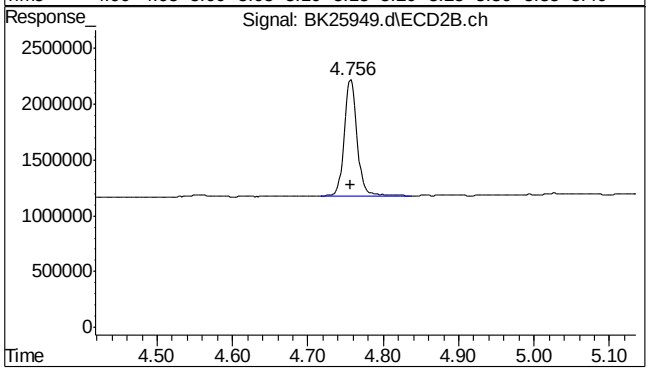
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.690 min
Response: 0
Conc: N.D.



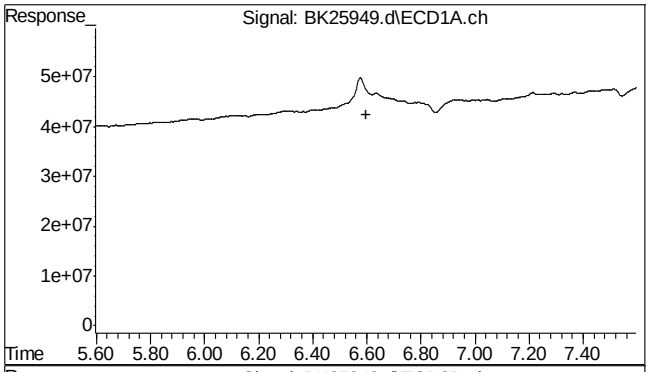
#2 4-Bromofluorobenzene

R.T.: 5.154 min
Delta R.T.: -0.002 min
Response: 885803735
Conc: 66.41 ug/L m



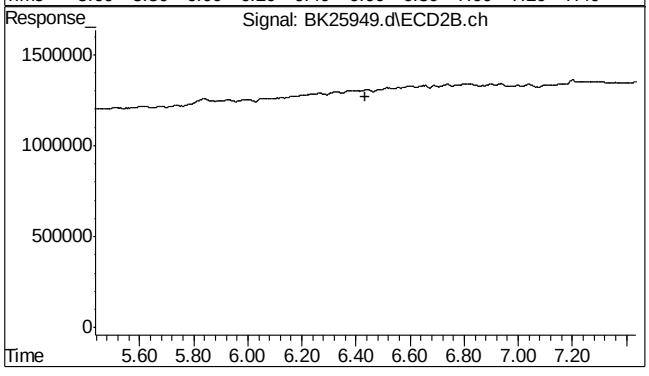
#2 4-Bromofluorobenzene

R.T.: 4.756 min
Delta R.T.: 0.000 min
Response: 12323057
Conc: 60.91 ug/L m



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.596 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.435 min
Response: 0
Conc: N.D.

Manual Integrations APPROVED (compounds with "m" flag)
Andri Piluri
06/17/13 09:23

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\BK130615\
Data File : BK25950.d
Signal(s) : Signal #1: ECD1A.ch  Signal #2: ECD2B.ch
Acq On    : 15 Jun 2013   5:53 pm
Operator  : nickk
Sample    : jb39339-6,op33623
Misc      : op33623,gbk894,30.45,,,50,,s
ALS Vial  : 76   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jun 16 09:20:04 2013
Quant Method : C:\msdchem\1\METHODS\EDS130615.M
Quant Title  : EDB /Rtx35/DB1701
QLast Update : Sat Jun 15 09:48:18 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...    5.154     4.757   918.3E6 12512991   68.847m   61.848m
 Spiked Amount     50.000 Range  26 - 158  Recovery   =  137.69%   123.70%

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

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

12.1.6

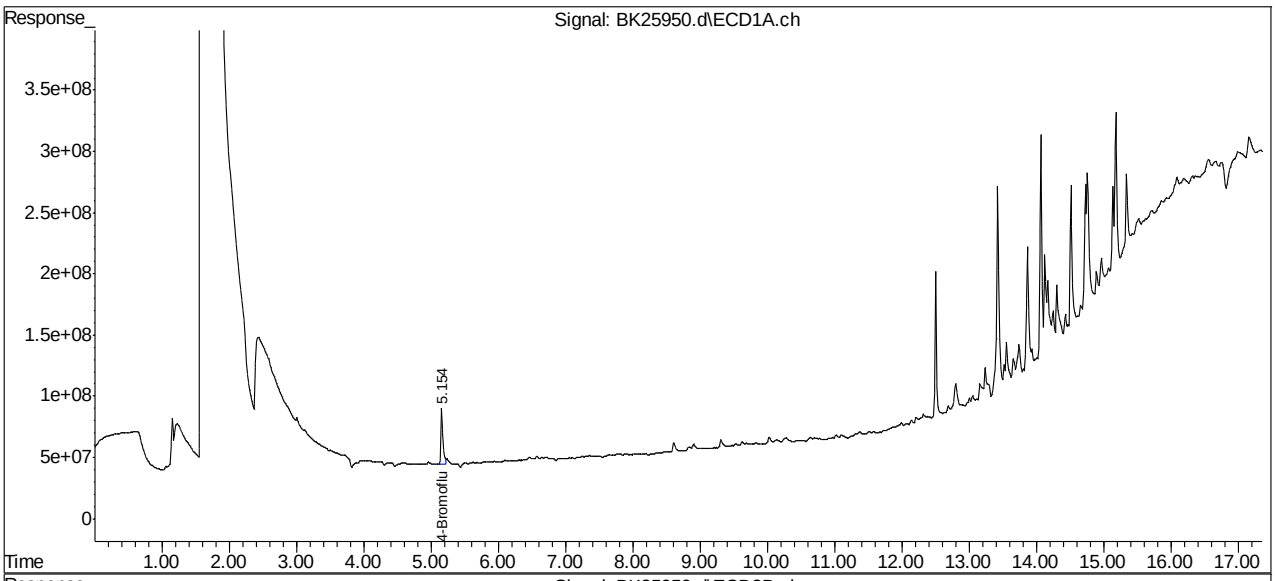
12

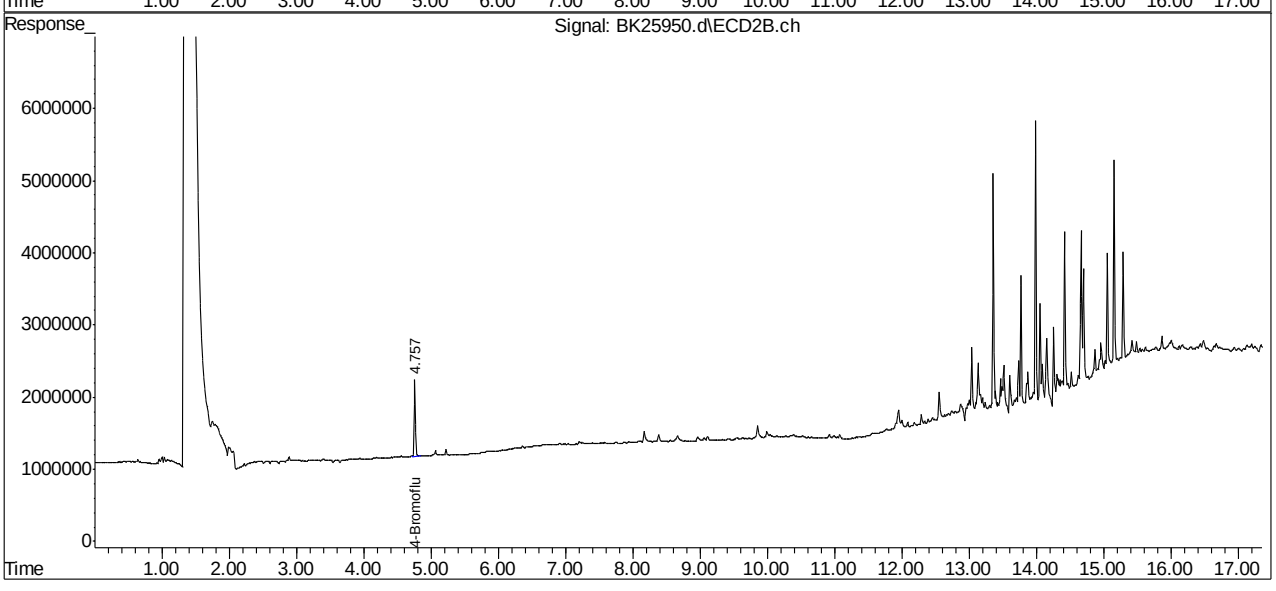
Quantitation Report (QT Reviewed)

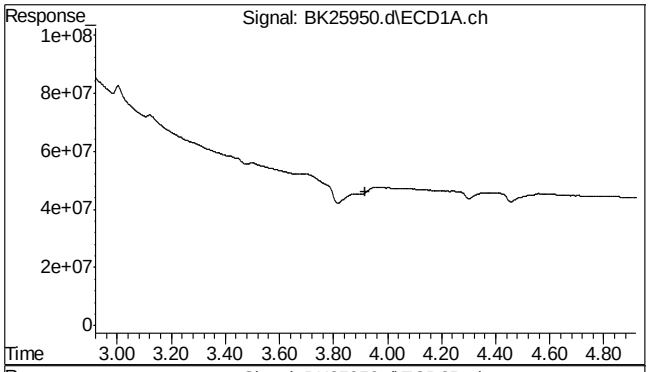
Data Path : C:\msdchem\1\DATA\BK130615\
Data File : BK25950.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 15 Jun 2013 5:53 pm
Operator : nickk
Sample : jb39339-6,op33623
Misc : op33623,gbk894,30.45,,,50,,s
ALS Vial : 76 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jun 16 09:20:04 2013
Quant Method : C:\msdchem\1\METHODS\EDS130615.M
Quant Title : EDB /Rtx35/DB1701
QLast Update : Sat Jun 15 09:48:18 2013
Response via : Initial Calibration
Integrator: ChemStation

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

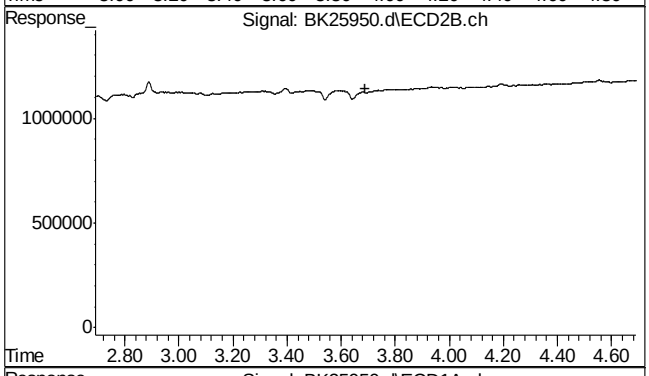






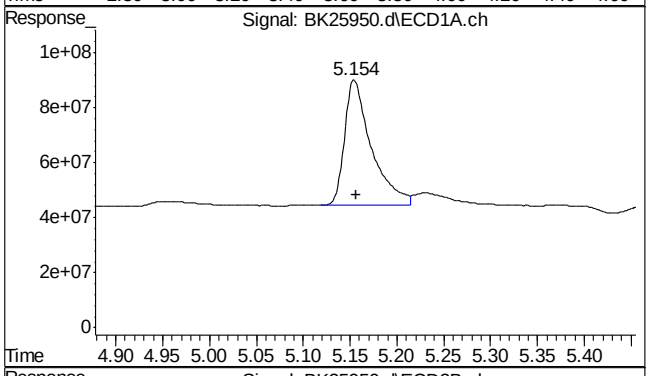
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.919 min
Response: 0
Conc: N.D.



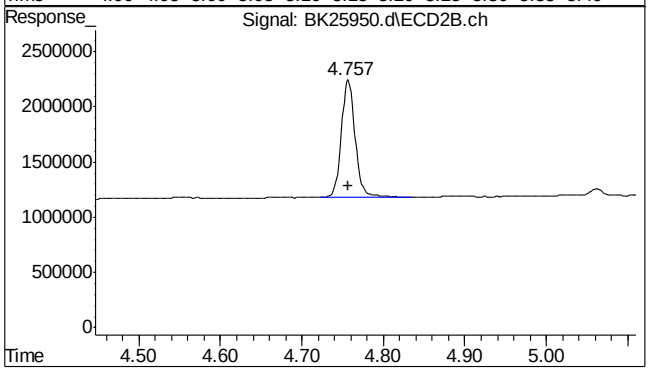
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.690 min
Response: 0
Conc: N.D.



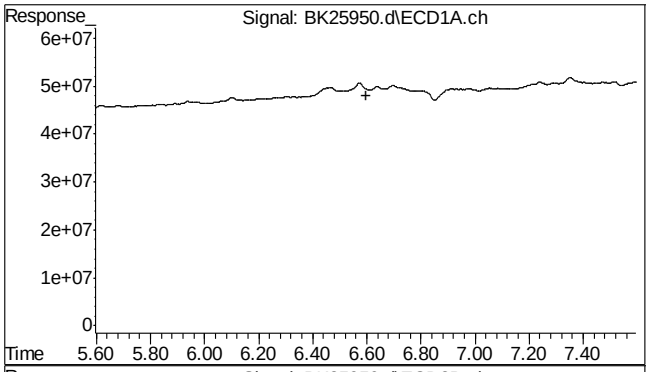
#2 4-Bromofluorobenzene

R.T.: 5.154 min
Delta R.T.: -0.002 min
Response: 918336621
Conc: 68.85 ug/L m



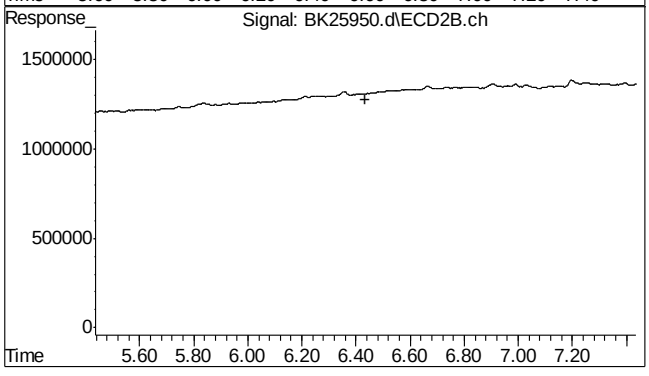
#2 4-Bromofluorobenzene

R.T.: 4.757 min
Delta R.T.: 0.000 min
Response: 12512991
Conc: 61.85 ug/L m



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.596 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.435 min
Response: 0
Conc: N.D.

12.1.6

12

Manual Integrations APPROVED (compounds with "m" flag)
Andri Piluri
06/17/13 09:23

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\BK130615\
Data File : BK25951.d
Signal(s) : Signal #1: ECD1A.ch  Signal #2: ECD2B.ch
Acq On    : 15 Jun 2013   6:16 pm
Operator  : nickk
Sample    : jb39339-7,op33623
Misc      : op33623,gbk894,30.43,,,50,,s
ALS Vial  : 77   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jun 16 09:20:21 2013
Quant Method : C:\msdchem\1\METHODS\EDS130615.M
Quant Title  : EDB /Rtx35/DB1701
QLast Update : Sat Jun 15 09:48:18 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...    5.154     4.756   988.3E6 12299022   74.090m   60.791m
 Spiked Amount     50.000 Range  26 - 158  Recovery   =  148.18%   121.58%

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

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

12.1.7

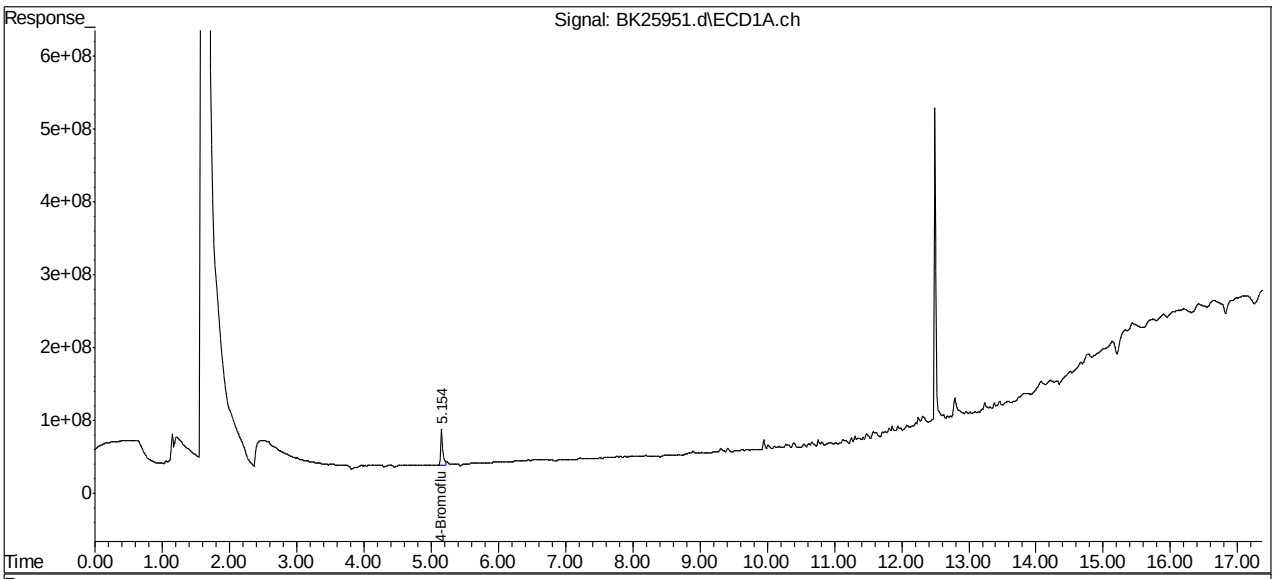
12

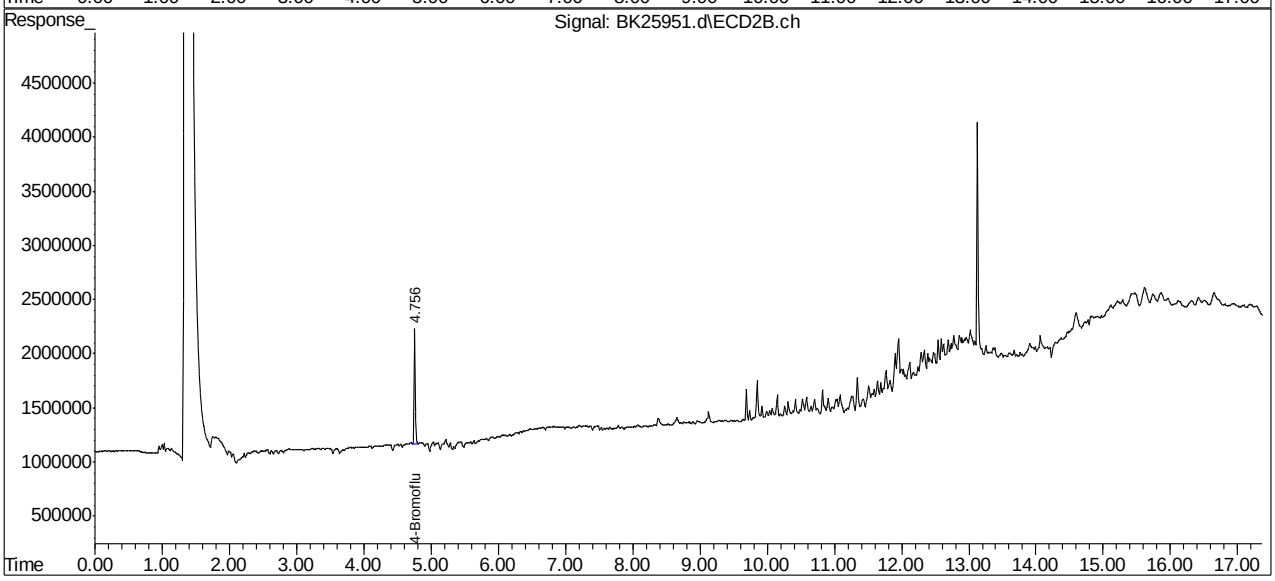
Quantitation Report (QT Reviewed)

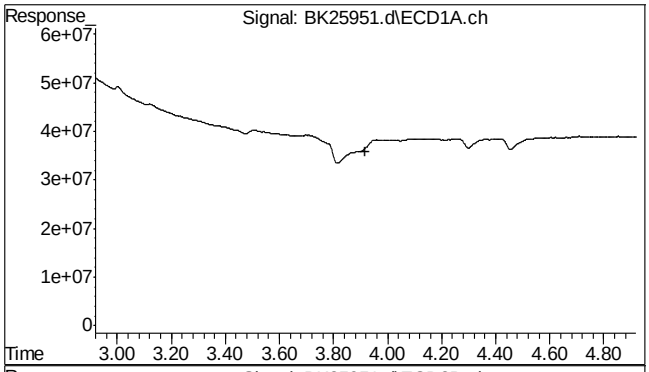
Data Path : C:\msdchem\1\DATA\BK130615\
Data File : BK25951.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 15 Jun 2013 6:16 pm
Operator : nickk
Sample : jb39339-7,op33623
Misc : op33623,gbk894,30.43,,,50,,s
ALS Vial : 77 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jun 16 09:20:21 2013
Quant Method : C:\msdchem\1\METHODS\EDS130615.M
Quant Title : EDB /Rtx35/DB1701
QLast Update : Sat Jun 15 09:48:18 2013
Response via : Initial Calibration
Integrator: ChemStation

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

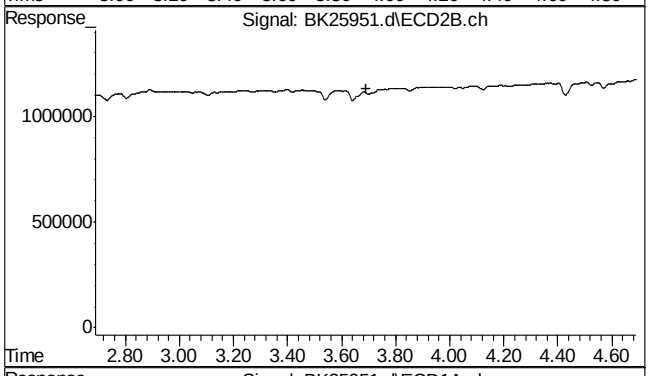






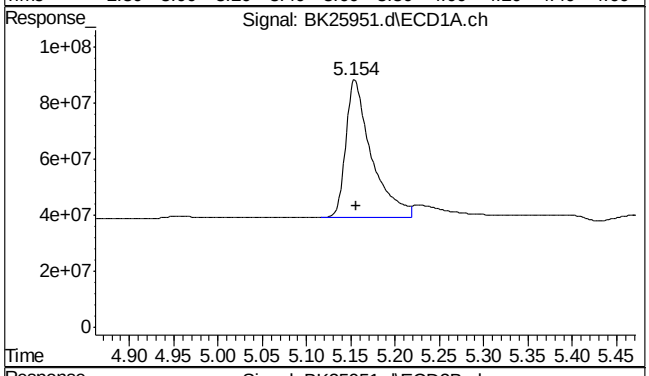
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.919 min
Response: 0
Conc: N.D.



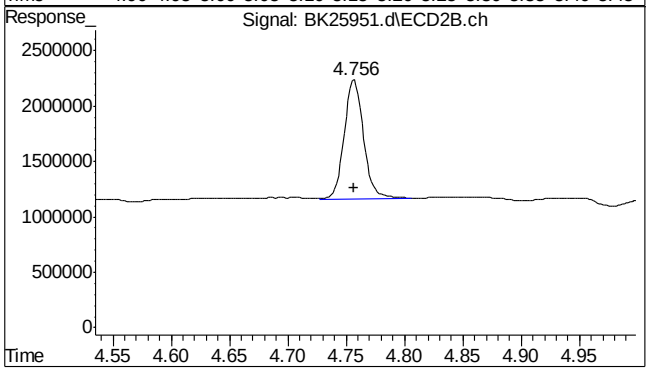
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.690 min
Response: 0
Conc: N.D.



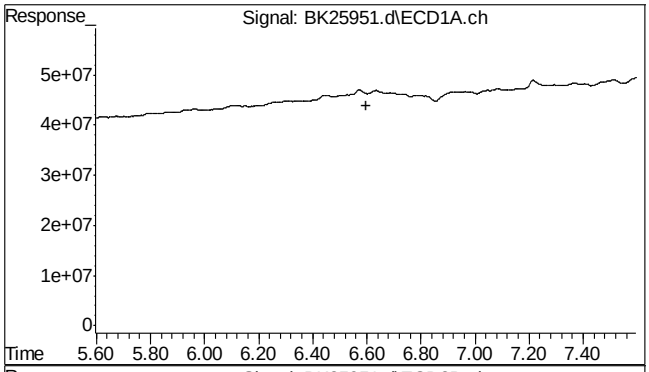
#2 4-Bromofluorobenzene

R.T.: 5.154 min
Delta R.T.: -0.002 min
Response: 988274595
Conc: 74.09 ug/L m



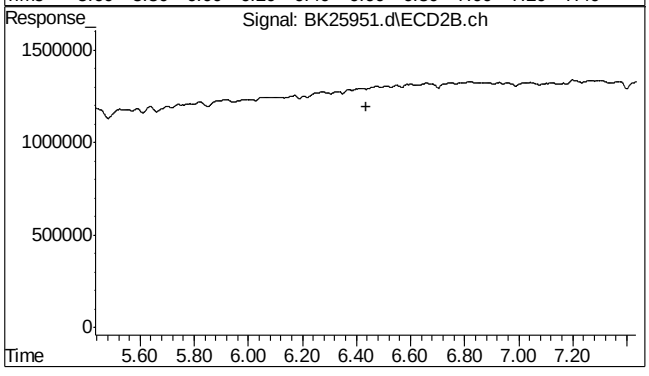
#2 4-Bromofluorobenzene

R.T.: 4.756 min
Delta R.T.: 0.000 min
Response: 12299022
Conc: 60.79 ug/L m



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.596 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.435 min
Response: 0
Conc: N.D.

12.1.7

12

Manual Integrations
APPROVED
(compounds with "m" flag)
Andri Piluri
06/17/13 09:23

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\BK130615\
Data File : BK25926.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 15 Jun 2013 8:41 am
Operator : nickk
Sample : op33623-mb
Misc : op33623,gbk894,30.36,,,50,,s
ALS Vial : 54 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jun 15 09:54:39 2013
Quant Method : C:\msdchem\1\METHODS\EDS130615.M
Quant Title : EDB /Rtx35/DB1701
QLast Update : Sat Jun 15 09:48:18 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...	5.156	4.757	941.8E6	11968840	70.605m	59.159m
Spiked Amount	50.000	Range	26 - 158	Recovery	= 141.21%	118.32%
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d

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

12.2.1
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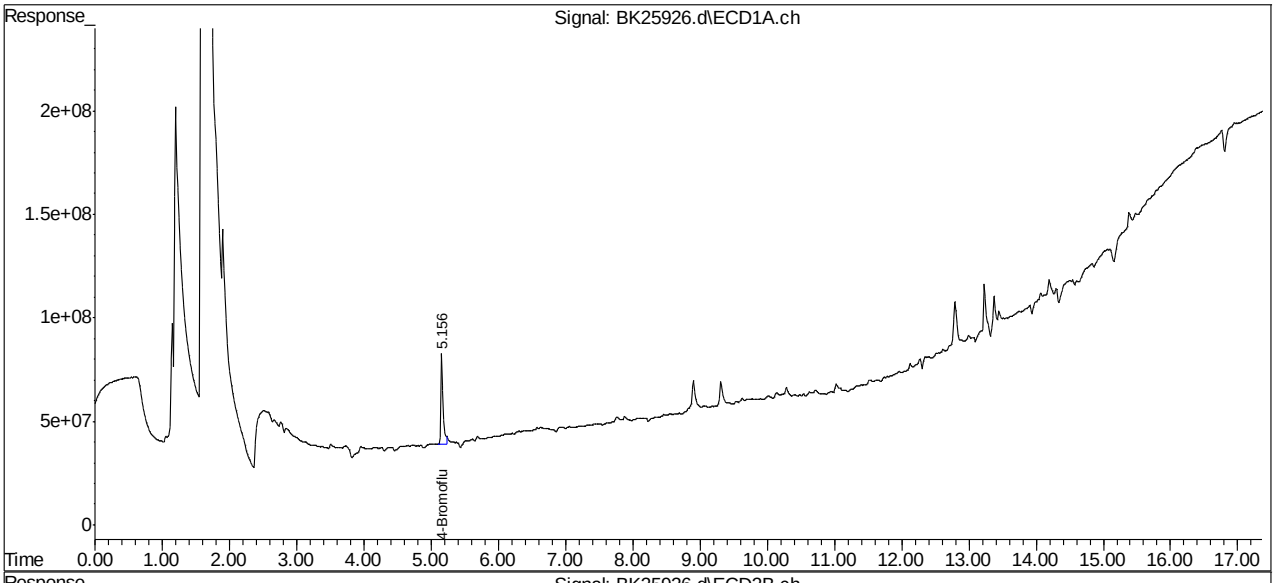
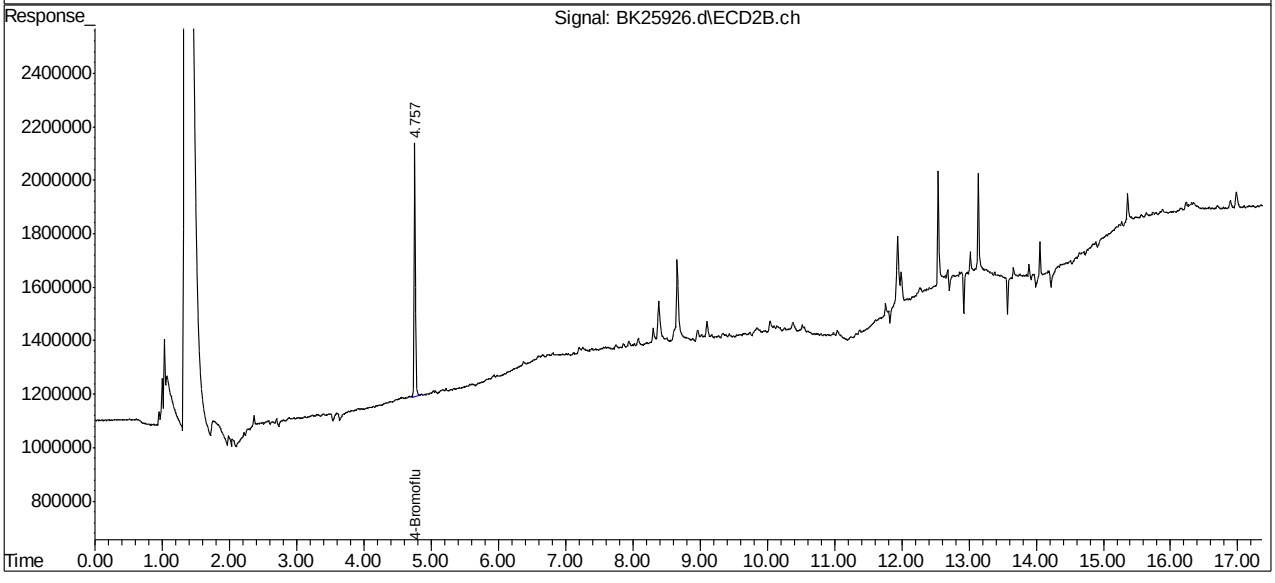
Quantitation Report (QT Reviewed)

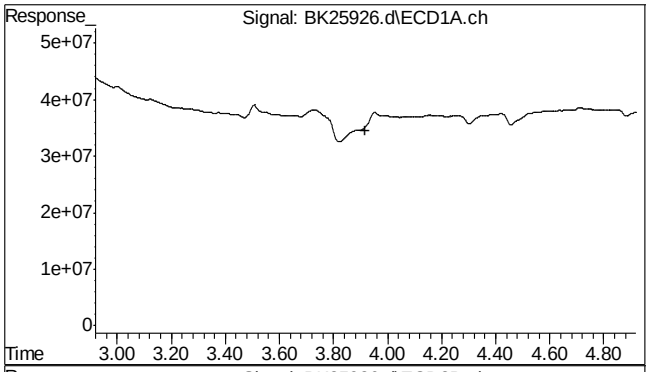
Data Path : C:\msdchem\1\DATA\BK130615\
Data File : BK25926.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 15 Jun 2013 8:41 am
Operator : nickk
Sample : op33623-mb
Misc : op33623,gbk894,30.36,,,50,,s
ALS Vial : 54 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jun 15 09:54:39 2013
Quant Method : C:\msdchem\1\METHODS\EDS130615.M
Quant Title : EDB /Rtx35/DB1701
QLast Update : Sat Jun 15 09:48:18 2013
Response via : Initial Calibration
Integrator: ChemStation

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

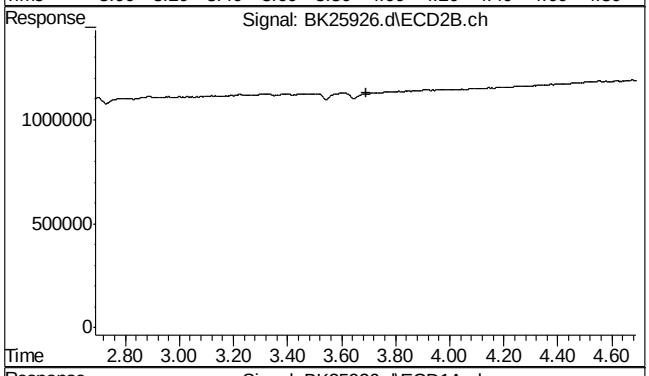






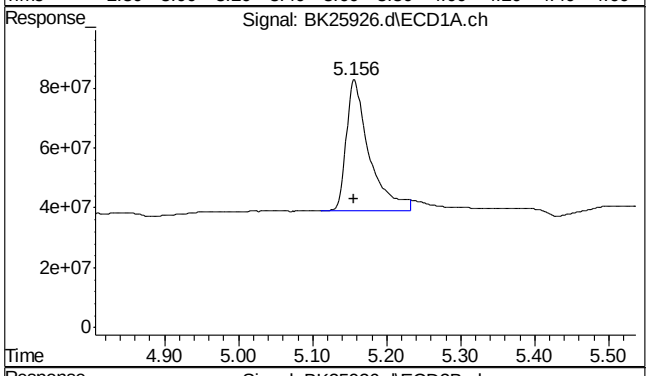
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.919 min
Response: 0
Conc: N.D.



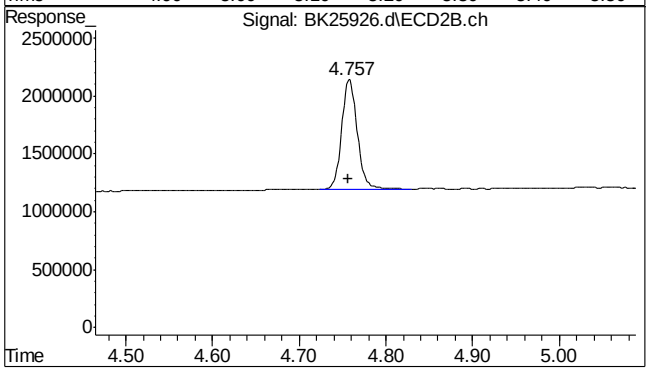
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.690 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene

R.T.: 5.156 min
Delta R.T.: 0.000 min
Response: 941788679
Conc: 70.60 ug/L m



#2 4-Bromofluorobenzene

R.T.: 4.757 min
Delta R.T.: 0.000 min
Response: 11968840
Conc: 59.16 ug/L m

12.2.1

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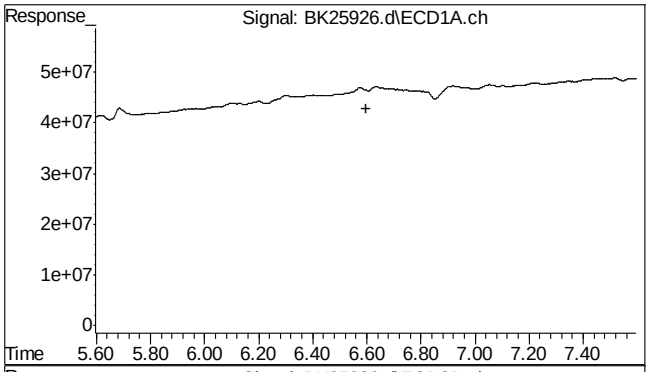
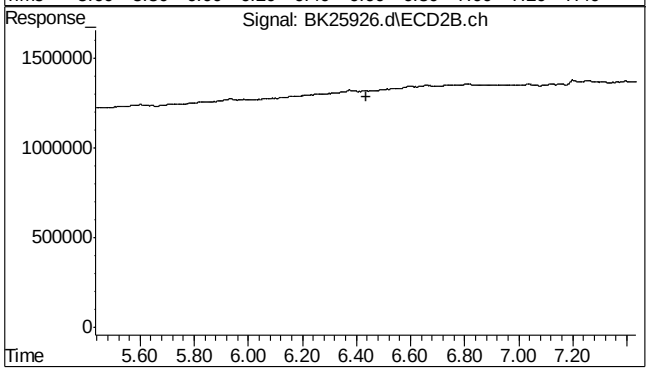


#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.596 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.435 min
Response: 0
Conc: N.D.

12.2.1

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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: JB39339
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB061413M1.ICP Date Analyzed: 06/14/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15751
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
10:17	MA15751-STD1	1		STD1
10:21	MA15751-STD2	1		STD2
10:25	MA15751-STD3	1		STD3
10:30	MA15751-STD4	1		STD4
10:34	MA15751-ICV1	1		
10:42	MA15751-ICB1	1		
10:47	MA15751-CCV1	1		
10:51	MA15751-CCB1	1		
10:56	MA15751-CRIA1	1		
11:02	MA15751-ICSA1	1		
11:09	MA15751-ICSAB1	1		
11:13	MP21172-B1	1		
11:17	MP21172-MB1	1		
11:22	MP21172-S1	1		
11:26	MP21172-S2	1		
11:30	MC21735-5	1		(sample used for QC only; not part of login JB39339)
11:34	MP21172-SD1	5		
11:39	MP21172-B2	1		
11:43	MA15751-CCV2	1		
11:47	MA15751-CCB2	1		
11:51	MP21172-LC1	1		
11:56	ZZZZZZ	1		
12:00	ZZZZZZ	1		
12:04	ZZZZZZ	1		DNR: CARY OVER, SEE RERUN.
12:09	JB39339-2	1		
12:13	JB39339-3	1		
12:17	JB39339-4	1		
12:22	JB39339-5	1		
12:26	JB39339-6	1		
12:30	JB39339-7	1		
12:35	MA15751-CCV3	1		
12:39	ZZZZZZ	1		DNR: SEE RERUN FOR CCB.
12:56	MA15751-CCB3	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB39339
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB061413M1.ICP Date Analyzed: 06/14/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15751
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
13:02	ZZZZZZ	1		
13:07	ZZZZZZ	1		
13:11	ZZZZZZ	1		
13:15	ZZZZZZ	1		
13:19	ZZZZZZ	1		
13:24	ZZZZZZ	1		
13:28	ZZZZZZ	1		
13:32	ZZZZZZ	1		
13:37	ZZZZZZ	10		
13:41	ZZZZZZ	5		
13:45	MA15751-CCV4	1		
13:50	MA15751-CCB4	1		
13:54	ZZZZZZ	10		
13:58	ZZZZZZ	10		
14:02	ZZZZZZ	10		
14:07	JB39339-1	1		
---------->	Last reportable sample/prep for job JB39339			
14:11	ZZZZZZ	10		
14:16	ZZZZZZ	1		DNR: SEE RERUN FOR CRIA.
14:31	MA15751-CRIA2	1		
14:35	MA15751-ICSA2	1		
14:39	MA15751-ICSAB2	1		
14:44	MA15751-CCV5	1		
14:49	MA15751-CCB5	1		
---------->	Last reportable CCB for job JB39339			

Refer to raw data for calibration curve and standards.

INTERNAL STANDARD SUMMARY

Login Number: JB39339
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB061413M1.ICP Date Analyzed: 06/14/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15751
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
10:17	MA15751-STD1	2293 R	70577 R	11491 R
10:21	MA15751-STD2	2298	70425	11710
10:25	MA15751-STD3			11720
10:30	MA15751-STD4	2297	70035	11457
10:34	MA15751-ICV1	2294	70251	11663
10:42	MA15751-ICB1	2299	71150	11547
10:47	MA15751-CCV1	2312	70868	11600
10:51	MA15751-CCB1	2320	70652	11545
10:56	MA15751-CRIA1	2332	70228	11655
11:02	MA15751-ICSA1	2141	65006	11395
11:09	MA15751-ICSAB1	2145	64637	11391
11:13	MP21172-B1	2324	70100	11668
11:17	MP21172-MB1	2349	70895	11652
11:22	MP21172-S1	2411	72379	11975
11:26	MP21172-S2	2418	72920	12053
11:30	MC21735-5	2456	73630	12185
11:34	MP21172-SD1	2385	70767	11815
11:39	MP21172-B2	2331	69856	11842
11:43	MA15751-CCV2	2344	70759	11761
11:47	MA15751-CCB2	2342	70579	11637
11:51	MP21172-LC1	2490	75835	12808
11:56	ZZZZZZ	2456	74601	12656
12:00	ZZZZZZ	2419	73702	12544
12:04	ZZZZZZ	2569	78508	13245
12:09	JB39339-2	2529	76841	12834
12:13	JB39339-3	2590	78367	13203
12:17	JB39339-4	2566	78164	13189
12:22	JB39339-5	2619	79117	13541
12:26	JB39339-6	2450	75545	12961
12:30	JB39339-7	2588	78562	13358
12:35	MA15751-CCV3	2324	71178	12027
12:39	ZZZZZZ	2318	70480	11877
12:56	MA15751-CCB3	2286	70723	11853

INTERNAL STANDARD SUMMARY

Login Number: JB39339
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB061413M1.ICP Date Analyzed: 06/14/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15751
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
13:02	ZZZZZZ	2423	74420	12411
13:07	ZZZZZZ	2431	74974	12315
13:11	ZZZZZZ	2462	74391	12506
13:15	ZZZZZZ	2420	73341	12367
13:19	ZZZZZZ	2435	73550	12557
13:24	ZZZZZZ	2427	73168	12458
13:28	ZZZZZZ	2391	74332	12601
13:32	ZZZZZZ	2403	73302	12440
13:37	ZZZZZZ	2284	69885	12108
13:41	ZZZZZZ	2293	71165	12278
13:45	MA15751-CCV4	2307	71142	11920
13:50	MA15751-CCB4	2315	70950	11858
13:54	ZZZZZZ	2380	72505	12201
13:58	ZZZZZZ	2378	72054	11949
14:02	ZZZZZZ	2349	71246	11757
14:07	JB39339-1	2601	78109	13274
14:11	ZZZZZZ	2377	70630	11835
14:16	ZZZZZZ	2360	70623	11601
14:31	MA15751-CRIA2	2364	70865	11527
14:35	MA15751-ICSA2	2193	64571	11331
14:39	MA15751-ICSAB2	2182	64841	11342
14:44	MA15751-CCV5	2386	70867	11577
14:49	MA15751-CCB5	2389	70906	11781

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: JB39339
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB061413M1.ICP Date Analyzed: 06/14/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15751 Units: ug/l

Time:			10:42		10:51		11:47		12:56	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	12								
Antimony	10	1.1								
Arsenic	10	1.7	anr							
Barium	50	.32	anr							
Beryllium	4.0	.1								
Boron	100	1.1	anr							
Cadmium	4.0	.25	anr							
Calcium	5000	21	anr							
Chromium	10	.48	anr							
Cobalt	50	.29								
Copper	25	.93	anr							
Gold	50	1.5								
Iron	100	3.5	anr							
Lead	10	1.2	0.20	<10	0.70	<10	0.0	<10	-0.40	<10
Magnesium	5000	30								
Manganese	15	.16								
Molybdenum	100	.31								
Nickel	40	.45	anr							
Palladium	50	2.2								
Platinum	50	6.4								
Potassium	5000	54								
Selenium	10	1.7	anr							
Silicon	100	2								
Silver	5.0	.81	anr							
Sodium	5000	16								
Strontium	10	.12								
Thallium	10	1.2								
Tin	100	.87								
Titanium	50	.66	anr							
Tungsten	100	9.3								
Vanadium	10	.82								
Zinc	20	.45	anr							
Zirconium	50	.45								

(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB39339
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB061413M1.ICP Date Analyzed: 06/14/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15751 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB39339
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB061413M1.ICP Date Analyzed: 06/14/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15751 Units: ug/l

Time:			13:50		14:49	
Sample ID:			CCB4		CCB5	
Metal	RL	IDL	raw	final	raw	final
Aluminum	200	12				
Antimony	10	1.1				
Arsenic	10	1.7	anr			
Barium	50	.32	anr			
Beryllium	4.0	.1				
Boron	100	1.1	anr			
Cadmium	4.0	.25	anr			
Calcium	5000	21	anr			
Chromium	10	.48	anr			
Cobalt	50	.29				
Copper	25	.93	anr			
Gold	50	1.5				
Iron	100	3.5	anr			
Lead	10	1.2	0.60	<10	0.20	<10
Magnesium	5000	30				
Manganese	15	.16				
Molybdenum	100	.31				
Nickel	40	.45	anr			
Palladium	50	2.2				
Platinum	50	6.4				
Potassium	5000	54				
Selenium	10	1.7	anr			
Silicon	100	2				
Silver	5.0	.81	anr			
Sodium	5000	16				
Strontium	10	.12				
Thallium	10	1.2				
Tin	100	.87				
Titanium	50	.66	anr			
Tungsten	100	9.3				
Vanadium	10	.82				
Zinc	20	.45	anr			
Zirconium	50	.45				

(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB39339
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB061413M1.ICP Date Analyzed: 06/14/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15751 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB39339
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB061413M1.ICP Date Analyzed: 06/14/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15751 Units: ug/l

Time:		10:34			10:47			11:43	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Boron	anr								
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt									
Copper	anr								
Gold									
Iron	anr								
Lead	3000	2930	97.7	2000	1930	96.5	2000	1920	96.0
Magnesium									
Manganese									
Molybdenum									
Nickel	anr								
Palladium									
Platinum									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium									
Strontium									
Thallium									
Tin									
Titanium	anr								
Tungsten									
Vanadium									
Zinc	anr								
Zirconium									

(*) Outside of QC limits

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB39339
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB061413M1.ICP Date Analyzed: 06/14/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15751 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

13.1.3

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CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB39339
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB061413M1.ICP Date Analyzed: 06/14/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15751 Units: ug/l

Time:		12:35			13:45			14:44	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Boron	anr								
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt									
Copper	anr								
Gold									
Iron	anr								
Lead	2000	1940	97.0	2000	1940	97.0	2000	1880	94.0
Magnesium									
Manganese									
Molybdenum									
Nickel	anr								
Palladium									
Platinum									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium									
Strontium									
Thallium									
Tin									
Titanium	anr								
Tungsten									
Vanadium									
Zinc	anr								
Zirconium									

(*) Outside of QC limits

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB39339
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB061413M1.ICP Date Analyzed: 06/14/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15751 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

13.1.3

13

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB39339
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB061413M1.ICP Date Analyzed: 06/14/13 Methods: SW846 6010C
QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA15751 Units: ug/l

Time:			10:56		14:31	
Sample ID:	CRI	CRIA	CRIA1		CRIA2	
Metal	True	True	Results	% Rec	Results	% Rec
Aluminum	200	200				
Antimony	6.0	10				
Arsenic	4.0	10	anr			
Barium	50	50	anr			
Beryllium	4.0	4.0				
Boron	100	100	anr			
Cadmium	4.0	4.0	anr			
Calcium	5000	5000	anr			
Chromium	10	10	anr			
Cobalt	50	50				
Copper	25	25	anr			
Gold	50	50				
Iron	100	100	anr			
Lead	5.0	10	9.8	98.0	9.6	96.0
Magnesium	5000	5000				
Manganese	15	15				
Molybdenum	100	100				
Nickel	40	40	anr			
Palladium	50	50				
Platinum	50	50				
Potassium	5000	5000				
Selenium	10	10	anr			
Silicon	100	100				
Silver	5.0	5.0	anr			
Sodium	5000	5000				
Strontium	10	10				
Thallium	5.0	10				
Tin	100	100				
Titanium	50	50	anr			
Tungsten	100	100				
Vanadium	10	10				
Zinc	20	20	anr			
Zirconium	50	50				

(*) Outside of QC limits

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB39339
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB061413M1.ICP Date Analyzed: 06/14/13 Methods: SW846 6010C
QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA15751 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: JB39339
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB061413M1.ICP Date Analyzed: 06/14/13 Methods: SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA15751 Units: ug/l

Time:			11:02		11:09		14:35		14:39	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1		ICSA2		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	500000	500000	508000	101.6	508000	101.6	502000	100.4	509000	101.8
Antimony		2000	0.30		2040	102.0	0.50		1990	99.5
Arsenic		2000	0.60		2030	101.5	2.0		1980	99.0
Barium		500	0.30		508	101.6	0.20		502	100.4
Beryllium		500	0.20		480	96.0	0.10		483	96.6
Boron		1000	6.1		1010	101.0	4.9		991	99.1
Cadmium		1000	0.40		1020	102.0	0.30		1010	101.0
Calcium	500000	500000	462000	92.4	462000	92.4	458000	91.6	462000	92.4
Chromium		500	-0.10		487	97.4	-0.20		484	96.8
Cobalt		500	1.4		478	95.6	1.4		469	93.8
Copper		500	2.2		501	100.2	2.7		491	98.2
Gold		500	-0.50		495	99.0	0.0		497	99.4
Iron	200000	200000	190000	95.0	189000	94.5	186000	93.0	185000	92.5
Lead		1000	0.20		898	89.8	0.0		877	87.7
Magnesium	500000	500000	501000	100.2	499000	99.8	503000	100.6	499000	99.8
Manganese		500	1.2		493	98.6	1.3		498	99.6
Molybdenum		1000	-0.30		955	95.5	-0.40		938	93.8
Nickel		1000	-1.8		870	87.0	-1.6		839	83.9
Palladium		500	-31		499	99.8	-28		506	101.2
Platinum		500	-22		477	95.4	-21		467	93.4
Potassium			61.4		84.3		106		107	
Selenium		2000	-4.0		1960	98.0	-4.0		1890	94.5
Silicon		2000	49.9		2150	107.5	47.2		2080	104.0
Silver		1000	0.60		1060	106.0	0.10		1060	106.0
Sodium			163		135		117		101	
Strontium		1000	1.2		1010	101.0	1.4		1000	100.0
Thallium		2000	0.80		1880	94.0	1.8		1850	92.5
Tin		1000	0.50		972	97.2	1.2		963	96.3
Titanium		500	8.4		509	101.8	8.8		506	101.2
Tungsten		2000	-37		1870	93.5	-41		1860	93.0
Vanadium		500	-0.30		504	100.8	0.30		504	100.8
Zinc		1000	-0.20		903	90.3	-0.40		883	88.3
Zirconium		500	-0.20		454	90.8	-0.20		455	91.0

(*) Outside of QC limits

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB39339
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB061413M1.ICP Date Analyzed: 06/14/13 Methods: SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA15751 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB39339
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP21172
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 06/13/13

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	0.010	<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: JB39339
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP21172 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date:

Metal

Associated samples MP21172: JB39339-1, JB39339-2, JB39339-3, JB39339-4, JB39339-5, JB39339-6, JB39339-7

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: JB39339
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP21172
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 06/13/13

Metal	MC21735-5 Original	MS	Spikelot MPICP	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	anr				
Barium	anr				
Beryllium					
Boron	anr				
Cadmium	anr				
Calcium					
Chromium	anr				
Cobalt					
Copper	anr				
Gold					
Iron					
Lead	2.2	92.0	101	89.1	75-125
Magnesium					
Manganese					
Molybdenum					
Nickel	anr				
Palladium					
Platinum					
Potassium					
Selenium	anr				
Silicon					
Silver	anr				
Sodium					
Strontium					
Thallium					
Tin					
Titanium	anr				
Tungsten					
Vanadium					
Zinc	anr				
Zirconium					

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB39339
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP21172 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date:

Metal

Associated samples MP21172: JB39339-1, JB39339-2, JB39339-3, JB39339-4, JB39339-5, JB39339-6, JB39339-7

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: JB39339
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP21172
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 06/13/13

Metal	MC21735-5 Original	MSD	Spikelot MPICP	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium	anr					
Beryllium						
Boron	anr					
Cadmium	anr					
Calcium						
Chromium	anr					
Cobalt						
Copper	anr					
Gold						
Iron						
Lead	2.2	92.0	101	89.1	0.0	20
Magnesium						
Manganese						
Molybdenum						
Nickel	anr					
Palladium						
Platinum						
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium						
Strontium						
Thallium						
Tin						
Titanium	anr					
Tungsten						
Vanadium						
Zinc	anr					
Zirconium						

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB39339
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP21172 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date:

Metal

Associated samples MP21172: JB39339-1, JB39339-2, JB39339-3, JB39339-4, JB39339-5, JB39339-6, JB39339-7

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: JB39339
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP21172
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:			06/13/13					06/13/13	
Metal	BSP Result	Spikelot MPICP	% Rec	QC Limits	BSD Result	Spikelot MPICP	% Rec	BSD RPD	QC Limit
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Boron	anr								
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt									
Copper	anr								
Gold									
Iron									
Lead	93.2	100	93.2	80-120	92.6	100	92.6	0.6	20
Magnesium									
Manganese									
Molybdenum									
Nickel	anr								
Palladium									
Platinum									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium									
Strontium									
Thallium									
Tin									
Titanium	anr								
Tungsten									
Vanadium									
Zinc	anr								
Zirconium									

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB39339
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP21172 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date:

Metal

Associated samples MP21172: JB39339-1, JB39339-2, JB39339-3, JB39339-4, JB39339-5, JB39339-6, JB39339-7

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB39339
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP21172
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 06/13/13

Metal	LCS Result	Spikelot MPLCS80	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Boron	anr			
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper	anr			
Gold				
Iron				
Lead	111	115	96.5	82-119
Magnesium				
Manganese				
Molybdenum				
Nickel	anr			
Palladium				
Platinum				
Potassium				
Selenium	anr			
Silicon				
Silver	anr			
Sodium				
Strontium				
Thallium				
Tin				
Titanium	anr			
Tungsten				
Vanadium				
Zinc	anr			
Zirconium				

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB39339
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP21172 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date:

Metal

Associated samples MP21172: JB39339-1, JB39339-2, JB39339-3, JB39339-4, JB39339-5, JB39339-6, JB39339-7

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB39339
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP21172
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 06/13/13

Metal	MC21735-5 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Boron	anr			
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper	anr			
Gold				
Iron				
Lead	22.4	22.4	0.0	0-10
Magnesium				
Manganese				
Molybdenum				
Nickel	anr			
Palladium				
Platinum				
Potassium				
Selenium	anr			
Silicon				
Silver	anr			
Sodium				
Strontium				
Thallium				
Tin				
Titanium	anr			
Tungsten				
Vanadium				
Zinc	anr			
Zirconium				

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB39339
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP21172 Methods: SW846 6010C
Matrix Type: SOLID Units: ug/l

Prep Date:

Metal

Associated samples MP21172: JB39339-1, JB39339-2, JB39339-3, JB39339-4, JB39339-5, JB39339-6, JB39339-7

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

New Jersey

ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Percent Solids Raw Data Summary

Percent Solids Raw Data Summary

Job Number: JB39339
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: JB39339-1 **Analyzed:** 13-JUN-13 by HS **Method:** SM21 2540 B MOD.
ClientID: AOI5_MW-465_1-2_061113

Wet Weight (Total)	33.904	g
Tare Weight	21.646	g
Dry Weight (Total)	31.693	g
Solids, Percent	82	%

Sample: JB39339-2 **Analyzed:** 13-JUN-13 by HS **Method:** SM21 2540 B MOD.
ClientID: AOI5_MW-465_3-4_061113

Wet Weight (Total)	35.244	g
Tare Weight	20.597	g
Dry Weight (Total)	32.724	g
Solids, Percent	82.8	%

Sample: JB39339-3 **Analyzed:** 13-JUN-13 by HS **Method:** SM21 2540 B MOD.
ClientID: AOI5_MW-462_1-2_061113

Wet Weight (Total)	30.074	g
Tare Weight	18.637	g
Dry Weight (Total)	28.079	g
Solids, Percent	82.6	%

Sample: JB39339-4 **Analyzed:** 13-JUN-13 by HS **Method:** SM21 2540 B MOD.
ClientID: AOI5_MW-462_7-8_061113

Wet Weight (Total)	29.812	g
Tare Weight	20.987	g
Dry Weight (Total)	28.229	g
Solids, Percent	82.1	%

Sample: JB39339-5 **Analyzed:** 13-JUN-13 by HS **Method:** SM21 2540 B MOD.
ClientID: AOI5_MW-468_8-10'_061113

Wet Weight (Total)	29.918	g
Tare Weight	20.513	g
Dry Weight (Total)	28.233	g
Solids, Percent	82.1	%

Sample: JB39339-6 **Analyzed:** 13-JUN-13 by HS **Method:** SM21 2540 B MOD.
ClientID: AOI5_MW-461_0-2'_061113

Wet Weight (Total)	37.366	g
Tare Weight	27.486	g
Dry Weight (Total)	36.482	g
Solids, Percent	91.1	%

Percent Solids Raw Data Summary

Job Number: JB39339
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: JB39339-7 **Analyzed:** 13-JUN-13 by HS **Method:** SM21 2540 B MOD.
ClientID: AOI5_MW-461_2-4' _061113

Wet Weight (Total)	34.435	g
Tare Weight	22.88	g
Dry Weight (Total)	33.101	g
Solids, Percent	88.5	%

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: JB39339
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: JB39339-1 **Analyzed:** 13-JUN-13 by AMA **Method:** SM21 2540 B MOD.
ClientID: AOI5_MW-465_1-2_061113

Wet Weight (Total)	33.904	g
Tare Weight	21.646	g
Dry Weight (Total)	31.693	g
Solids, Percent	82	%

Sample: JB39339-2 **Analyzed:** 13-JUN-13 by AMA **Method:** SM21 2540 B MOD.
ClientID: AOI5_MW-465_3-4_061113

Wet Weight (Total)	35.244	g
Tare Weight	20.597	g
Dry Weight (Total)	32.724	g
Solids, Percent	82.8	%

Sample: JB39339-3 **Analyzed:** 13-JUN-13 by AMA **Method:** SM21 2540 B MOD.
ClientID: AOI5_MW-462_1-2_061113

Wet Weight (Total)	30.074	g
Tare Weight	18.637	g
Dry Weight (Total)	28.079	g
Solids, Percent	82.6	%

Sample: JB39339-4 **Analyzed:** 13-JUN-13 by AMA **Method:** SM21 2540 B MOD.
ClientID: AOI5_MW-462_7-8_061113

Wet Weight (Total)	29.812	g
Tare Weight	20.987	g
Dry Weight (Total)	28.229	g
Solids, Percent	82.1	%

Sample: JB39339-5 **Analyzed:** 13-JUN-13 by AMA **Method:** SM21 2540 B MOD.
ClientID: AOI5_MW-468_8-10'_061113

Wet Weight (Total)	29.918	g
Tare Weight	20.513	g
Dry Weight (Total)	28.233	g
Solids, Percent	82.1	%

Sample: JB39339-6 **Analyzed:** 13-JUN-13 by AMA **Method:** SM21 2540 B MOD.
ClientID: AOI5_MW-461_0-2'_061113

Wet Weight (Total)	37.366	g
Tare Weight	27.486	g
Dry Weight (Total)	36.482	g
Solids, Percent	91.1	%

Percent Solids Raw Data Summary

Job Number: JB39339
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: JB39339-7 **Analyzed:** 13-JUN-13 by AMA **Method:** SM21 2540 B MOD.
ClientID: AOI5_MW-461_2-4' _061113

Wet Weight (Total)	34.435	g
Tare Weight	22.88	g
Dry Weight (Total)	33.101	g
Solids, Percent	88.5	%