New Jersey
ACCUTEST LABORATORIES

04/11/13

Technical Report for

Aquaterra Technologies, Inc.

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

AOI-4 Soil

Accutest Job Number: JB31583

Sampling Dates: 03/13/13 - 03/15/13

Report to:

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Total number of pages in report: **503**

ACCREDITED IN ACCORDANCE WITH nelac

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

Nancy Cole
Laboratory Director

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

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Sample Summary

Aquaterra Technologies, Inc.

Job No: JB31583

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

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB31583-1	03/15/13	08:00	LM	03/15/13	SO	Soil	AOI-4_BH-13-94_0-2_031513
JB31583-2	03/15/13	09:00	LM	03/15/13	SO	Soil	AOI-4_BH-13-94_8-10_031513
JB31583-3	03/15/13	12:30	LM	03/15/13	SO	Soil	AOI-4_BH-13-90_8-10'_031513
JB31583-4	03/15/13	10:25	LM	03/15/13	SO	Soil	AOI4-BH-13-104_6-7_31513
JB31583-5	03/15/13	10:00	LM	03/15/13	SO	Soil	AOI4-BH-13-104_0-.5_31513
JB31583-6	03/15/13	08:40	LM	03/15/13	SO	Soil	AOI4-S-381_0-.5_31513
JB31583-7	03/15/13	08:55	LM	03/15/13	SO	Soil	AOI4-S-381_2-3_31513
JB31583-8	03/15/13	09:30	LM	03/15/13	SO	Soil	AOI4-BH-13-86_2-2.5_031513
JB31583-9	03/15/13	10:00	LM	03/15/13	SO	Soil	AOI4-BH-13-86_5.5-6_031513
JB31583-10	03/15/13	11:00	LM	03/15/13	SO	Soil	AOI4-BH-13-85_5.5-6_031513
JB31583-11	03/15/13	13:45	LM	03/15/13	SO	Soil	AOI4-BH-13-84_5.5-6_031513
JB31583-12	03/15/13	14:00	LM	03/15/13	SO	Soil	S-366@14-16_031513
JB31583-13	03/13/13	15:40	LM	03/15/13	SO	Soil	S-367_031313@6'

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

Sample Summary
(continued)

Aquaterra Technologies, Inc.

Job No: JB31583

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

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB31583-14	03/13/13	15:30	LM	03/15/13	SO	Soil	S-367@14'_031313
JB31583-15	03/14/13	15:30	LM	03/15/13	SO	Soil	S-368@14'_031413

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Aquaterra Technologies, Inc.	**Job No**	JB31583
Site:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, P	**Report Date**	4/4/2013 1:39:47 PM

On 03/15/2013, 15 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories at a temperature of 4.1 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB31583 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:** VA7269

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB31583-1DUP, JB31583-2MS were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Matrix: SO **Batch ID:** VA7271

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB31583-12DUP, JB32254-2MS were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- RPD(s) for Duplicate for Benzene are outside control limits. High RPD due to low concentration of hit

Matrix: SO **Batch ID:** VA7277

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB32462-45DUP, JB32462-46MS were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Matrix: SO **Batch ID:** VE8853

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB31856-8MS, JB31856-8MSD were used as the QC samples indicated.
- JB31583-13: Dilution required due to matrix interference.

Matrix: SO **Batch ID:** VE8857

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB31734-2MS, JB31734-2MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- JB31583-7: Dilution required due to matrix interference.

Matrix: SO **Batch ID:** VE8858

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB31623-3MS, JB31623-3MSD were used as the QC samples indicated.

Extractables by GCMS By Method SW846 8270C

Matrix: SO **Batch ID:** M:OP32352

- The data for SW846 8270C meets quality control requirements.
- JB31583-11: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-4: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-3: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-2: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-15: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-14: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-12: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-10: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-1: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-5: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-6: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-13: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-7: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-4: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-8: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-9: Analysis performed at Accutest Laboratories, Marlborough, MA.

Metals By Method SW846 6010C

Matrix: SO **Batch ID:** M:MP20648

- The data for SW846 6010C meets quality control requirements.
- JB31583-10 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-9 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-1 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-2 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-3 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-5 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-8 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-6 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-7 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-4 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.

Matrix: SO **Batch ID:** M:MP20654

- The data for SW846 6010C meets quality control requirements.
- JB31583-13 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-15 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-14 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-11 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-12 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.

Wet Chemistry By Method SM21 2540 B MOD.

Matrix: SO	**Batch ID:** M:GN42067

- The data for SM21 2540 B MOD. meets quality control requirements.
- JB31583-7 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-8 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-6 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-5 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-4 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-3 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-2 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-15 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-14 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-13 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-12 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-11 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-10 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-1 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB31583-9 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**	JB31583
Site:	AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philad	**Report Date**	4/2/2013 10:52:03 AM

15 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were collected on between 03/13/2013 and 03/15/2013 and were received at Accutest on 03/15/2013 properly preserved, at 1.0 Deg. C and intact. These Samples received an Accutest job number of JB31583. 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:** OP32352

- 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) JB31583-1MS, JB31583-1MSD were used as the QC samples indicated.
- JB31583-4 for Nitrobenzene-d5: Outside control limits due to possible matrix interference.

Metals By Method SW846 6010C

Matrix: SO **Batch ID:** MP20648

- 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) JB31413-3MS, JB31413-3MSD, JB31413-3SDL were used as the QC samples for metals.

Matrix: SO **Batch ID:** MP20654

- 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) MC19031-19MS, MC19031-19MSD, MC19031-19SDL were used as the QC samples for metals.

Wet Chemistry By Method SM21 2540 B MOD.

Matrix: SO **Batch ID:** GN42067

- Sample(s) JB31583-1DUP 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(JB31583).

Summary of Hits

Job Number: JB31583
Account: Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Collected: 03/13/13 thru 03/15/13

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB31583-1	**AOI-4_BH-13-94_0-2_031513**					
Benzo(b)fluoranthene [a]		0.150	0.11		mg/kg	SW846 8270C
Lead [a]		43.8	1.1		mg/kg	SW846 6010C
JB31583-2	**AOI-4_BH-13-94_8-10_031513**					
Lead [a]		6.2	1.1		mg/kg	SW846 6010C
JB31583-3	**AOI-4_BH-13-90_8-10'_031513**					
Lead [a]		8.6	1.1		mg/kg	SW846 6010C
JB31583-4	**AOI4-BH-13-104_6-7_31513**					
Benzene		1.96	0.27		mg/kg	SW846 8260B
Toluene		6.55	0.27		mg/kg	SW846 8260B
Ethylbenzene		29.5	0.27		mg/kg	SW846 8260B
Xylene (total)		65.6	0.27		mg/kg	SW846 8260B
Isopropylbenzene		7.31	1.4		mg/kg	SW846 8260B
1,2,4-Trimethylbenzene		75.4	5.5		mg/kg	SW846 8260B
1,3,5-Trimethylbenzene		27.3	1.4		mg/kg	SW846 8260B
Anthracene [a]		2.56	0.12		mg/kg	SW846 8270C
Fluorene [a]		6.14	0.12		mg/kg	SW846 8270C
Naphthalene [a]		21.2	0.61		mg/kg	SW846 8270C
Phenanthrene [a]		21.7	0.61		mg/kg	SW846 8270C
Pyrene [a]		0.697	0.12		mg/kg	SW846 8270C
Lead [a]		7.9	1.1		mg/kg	SW846 6010C
JB31583-5	**AOI4-BH-13-104_0-.5_31513**					
Lead [a]		7.0	1.1		mg/kg	SW846 6010C
JB31583-6	**AOI4-S-381_0-.5_31513**					
Benzo(a)anthracene [a]		0.143	0.12		mg/kg	SW846 8270C
Benzo(b)fluoranthene [a]		0.143	0.12		mg/kg	SW846 8270C
Chrysene [a]		0.158	0.12		mg/kg	SW846 8270C
Phenanthrene [a]		0.598	0.12		mg/kg	SW846 8270C
Pyrene [a]		0.381	0.12		mg/kg	SW846 8270C
Lead [a]		25800	110		mg/kg	SW846 6010C
JB31583-7	**AOI4-S-381_2-3_31513**					
Ethylbenzene [b]		5.54	0.59		mg/kg	SW846 8260B

Summary of Hits

Job Number: JB31583
Account: Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Collected: 03/13/13 thru 03/15/13

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Xylene (total) [b]		17.7	0.59		mg/kg	SW846 8260B
1,2,4-Trimethylbenzene [b]		29.9	2.9		mg/kg	SW846 8260B
1,3,5-Trimethylbenzene [b]		11.9	2.9		mg/kg	SW846 8260B
Naphthalene [a]		1.18	0.12		mg/kg	SW846 8270C
Lead [a]		2650	5.6		mg/kg	SW846 6010C
JB31583-8	**AOI4-BH-13-86_2-2.5_031513**					
Ethylbenzene		0.0206	0.00085		mg/kg	SW846 8260B
Xylene (total)		0.0109	0.00085		mg/kg	SW846 8260B
Isopropylbenzene		0.0143	0.0043		mg/kg	SW846 8260B
1,2,4-Trimethylbenzene		0.0437	0.0043		mg/kg	SW846 8260B
1,3,5-Trimethylbenzene		0.0169	0.0043		mg/kg	SW846 8260B
Lead [a]		7.8	1.1		mg/kg	SW846 6010C
JB31583-9	**AOI4-BH-13-86_5.5-6_031513**					
Benzo(b)fluoranthene [a]		0.122	0.11		mg/kg	SW846 8270C
Pyrene [a]		0.147	0.11		mg/kg	SW846 8270C
Lead [a]		2140	5.4		mg/kg	SW846 6010C
JB31583-10	**AOI4-BH-13-85_5.5-6_031513**					
Lead [a]		6.9	1.1		mg/kg	SW846 6010C
JB31583-11	**AOI4-BH-13-84_5.5-6_031513**					
Lead [a]		6.6	1.0		mg/kg	SW846 6010C
JB31583-12	**S-366@14-16_031513**					
Lead [a]		4.3	0.99		mg/kg	SW846 6010C
JB31583-13	**S-367_031313@6'**					
Lead [a]		6.3	1.0		mg/kg	SW846 6010C
JB31583-14	**S-367@14'_031313**					
Isopropylbenzene		0.0170	0.0058		mg/kg	SW846 8260B
Lead [a]		2.6	1.0		mg/kg	SW846 6010C
JB31583-15	**S-368@14'_031413**					
Ethylbenzene		0.0059	0.0011		mg/kg	SW846 8260B

Summary of Hits

Job Number: JB31583
Account: Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Collected: 03/13/13 thru 03/15/13

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
Xylene (total)	0.0075	0.0011		mg/kg	SW846 8260B
1,2,4-Trimethylbenzene	0.0767	0.0054		mg/kg	SW846 8260B
1,3,5-Trimethylbenzene	0.0316	0.0054		mg/kg	SW846 8260B
Lead [a]	5.5	0.99		mg/kg	SW846 6010C

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

New Jersey

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Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI-4_BH-13-94_0-2_031513		
Lab Sample ID:	JB31583-1	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
Method:	SW846 8260B	**Percent Solids:**	86.2
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	A192940.D	1	03/23/13	OTR	n/a	n/a	VA7269
Run #2							

	Initial Weight
Run #1	5.7 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.0010	mg/kg	
108-88-3	Toluene	ND	0.0010	mg/kg	
100-41-4	Ethylbenzene	ND	0.0010	mg/kg	
1330-20-7	Xylene (total)	ND	0.0010	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0010	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0010	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0010	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0051	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0051	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0051	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		70-130%
17060-07-0	1,2-Dichloroethane-D4	94%		70-122%
2037-26-5	Toluene-D8	108%		81-127%
460-00-4	4-Bromofluorobenzene	109%		66-132%

ND = Not detected
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:	AOI-4_BH-13-94_0-2_031513		
Lab Sample ID:	JB31583-1	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
Method:	SW846 8270C SW846 3546	**Percent Solids:**	86.2
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	U13139.D	1	03/27/13	AMA	03/22/13	M:OP32352	M:MSU672
Run #2							

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

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	0.11	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.11	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.11	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.150	0.11	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.11	mg/kg	
218-01-9	Chrysene	ND	0.11	mg/kg	
86-73-7	Fluorene	ND	0.11	mg/kg	
91-20-3	Naphthalene	ND	0.11	mg/kg	
85-01-8	Phenanthrene	ND	0.11	mg/kg	
129-00-0	Pyrene	ND	0.11	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	69%		30-130%
321-60-8	2-Fluorobiphenyl	77%		30-130%
1718-51-0	Terphenyl-d14	75%		30-130%

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

ND = Not detected
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:	AOI-4_BH-13-94_0-2_031513		
Lab Sample ID:	JB31583-1	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
		Percent Solids:	86.2
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead [a]	43.8	1.1	mg/kg	1	03/22/13	03/26/13	AMA	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: M:MA15385
(2) Prep QC Batch: M:MP20648

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

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI-4_BH-13-94_8-10_031513		
Lab Sample ID:	JB31583-2	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
Method:	SW846 8260B	**Percent Solids:**	80.7
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	A192941.D	1	03/23/13	OTR	n/a	n/a	VA7269
Run #2							

	Initial Weight
Run #1	5.6 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.0011	mg/kg	
108-88-3	Toluene	ND	0.0011	mg/kg	
100-41-4	Ethylbenzene	ND	0.0011	mg/kg	
1330-20-7	Xylene (total)	ND	0.0011	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0011	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0011	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0011	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0055	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0055	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0055	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		70-130%
17060-07-0	1,2-Dichloroethane-D4	93%		70-122%
2037-26-5	Toluene-D8	108%		81-127%
460-00-4	4-Bromofluorobenzene	110%		66-132%

ND = Not detected
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:	AOI-4_BH-13-94_8-10_031513		
Lab Sample ID:	JB31583-2	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
Method:	SW846 8270C SW846 3546	**Percent Solids:**	80.7
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	U13140.D	1	03/27/13	AMA	03/22/13	M:OP32352	M:MSU672
Run #2							

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

BN Special List

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

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	59%		30-130%
321-60-8	2-Fluorobiphenyl	62%		30-130%
1718-51-0	Terphenyl-d14	71%		30-130%

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

ND = Not detected
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:	AOI-4_BH-13-94_8-10_031513		
Lab Sample ID:	JB31583-2	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
		Percent Solids:	80.7
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead [a]	6.2	1.1	mg/kg	1	03/22/13	03/26/13	AMA	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: M:MA15385
(2) Prep QC Batch: M:MP20648

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

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI-4_BH-13-90_8-10'_031513		
Lab Sample ID:	JB31583-3	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
Method:	SW846 8260B	**Percent Solids:**	78.6
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	A192942.D	1	03/23/13	OTR	n/a	n/a	VA7269
Run #2							

	Initial Weight
Run #1	5.5 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.0012	mg/kg	
108-88-3	Toluene	ND	0.0012	mg/kg	
100-41-4	Ethylbenzene	ND	0.0012	mg/kg	
1330-20-7	Xylene (total)	ND	0.0012	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0012	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0012	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0012	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0058	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0058	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0058	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		70-130%
17060-07-0	1,2-Dichloroethane-D4	94%		70-122%
2037-26-5	Toluene-D8	108%		81-127%
460-00-4	4-Bromofluorobenzene	110%		66-132%

ND = Not detected
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:	AOI-4_BH-13-90_8-10'_031513		
Lab Sample ID:	JB31583-3	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
Method:	SW846 8270C SW846 3546	**Percent Solids:**	78.6
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	U13141.D	1	03/27/13	AMA	03/22/13	M:OP32352	M:MSU672
Run #2							

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

BN Special List

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

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	69%		30-130%
321-60-8	2-Fluorobiphenyl	71%		30-130%
1718-51-0	Terphenyl-d14	66%		30-130%

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

ND = Not detected
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:	AOI-4_BH-13-90_8-10'_031513		
Lab Sample ID:	JB31583-3	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
		Percent Solids:	78.6
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead [a]	8.6	1.1	mg/kg	1	03/22/13	03/26/13	AMA	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: M:MA15385
(2) Prep QC Batch: M:MP20648

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

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI4-BH-13-104_6-7_31513		
Lab Sample ID:	JB31583-4	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
Method:	SW846 8260B	**Percent Solids:**	81.3
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	E201482.D	1	03/29/13	OTR	n/a	n/a	VE8858
Run #2	E201462.D	1	03/29/13	OTR	n/a	n/a	VE8857

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.3 g	10.0 ml	40.0 ul
Run #2	6.3 g	10.0 ml	10.0 ul

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	1.96	0.27	mg/kg	
108-88-3	Toluene	6.55	0.27	mg/kg	
100-41-4	Ethylbenzene	29.5	0.27	mg/kg	
1330-20-7	Xylene (total)	65.6	0.27	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.27	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.27	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.27	mg/kg	
98-82-8	Isopropylbenzene	7.31	1.4	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	75.4 [a]	5.5	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	27.3	1.4	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	84%	85%	70-130%
17060-07-0	1,2-Dichloroethane-D4	82%	83%	70-122%
2037-26-5	Toluene-D8	98%	94%	81-127%
460-00-4	4-Bromofluorobenzene	100%	86%	66-132%

(a) Result is from Run# 2

ND = Not detected
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:	AOI4-BH-13-104_6-7_31513		
Lab Sample ID:	JB31583-4	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
Method:	SW846 8270C SW846 3546	**Percent Solids:**	81.3
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	U13142.D	1	03/27/13	AMA	03/22/13	M:OP32352	M:MSU672
Run #2 [a]	U13212.D	5	03/29/13	AMA	03/22/13	M:OP32352	M:MSU674

	Initial Weight	Final Volume
Run #1	20.3 g	1.0 ml
Run #2	20.3 g	1.0 ml

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	2.56	0.12	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.12	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.12	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.12	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.12	mg/kg	
218-01-9	Chrysene	ND	0.12	mg/kg	
86-73-7	Fluorene	6.14	0.12	mg/kg	
91-20-3	Naphthalene	21.2 [b]	0.61	mg/kg	
85-01-8	Phenanthrene	21.7 [b]	0.61	mg/kg	
129-00-0	Pyrene	0.697	0.12	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	148% [c]	126%	30-130%
321-60-8	2-Fluorobiphenyl	65%	74%	30-130%
1718-51-0	Terphenyl-d14	67%	78%	30-130%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.
(b) Result is from Run# 2
(c) Outside control limits due to possible matrix interference.

ND = Not detected
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:	AOI4-BH-13-104_6-7_31513		
Lab Sample ID:	JB31583-4	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
		Percent Solids:	81.3
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead [a]	7.9	1.1	mg/kg	1	03/22/13	03/26/13	AMA	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: M:MA15385
(2) Prep QC Batch: M:MP20648

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

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI4-BH-13-104_0-.5_31513		
Lab Sample ID:	JB31583-5	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
Method:	SW846 8260B	**Percent Solids:**	81.9
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	A192943.D	1	03/23/13	OTR	n/a	n/a	VA7269
Run #2							

	Initial Weight
Run #1	6.1 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.0010	mg/kg	
108-88-3	Toluene	ND	0.0010	mg/kg	
100-41-4	Ethylbenzene	ND	0.0010	mg/kg	
1330-20-7	Xylene (total)	ND	0.0010	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0010	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0010	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0010	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0050	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0050	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0050	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		70-130%
17060-07-0	1,2-Dichloroethane-D4	94%		70-122%
2037-26-5	Toluene-D8	108%		81-127%
460-00-4	4-Bromofluorobenzene	105%		66-132%

ND = Not detected
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:	AOI4-BH-13-104_0-.5_31513		
Lab Sample ID:	JB31583-5	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
Method:	SW846 8270C SW846 3546	**Percent Solids:**	81.9
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	U13143.D	1	03/27/13	AMA	03/22/13	M:OP32352	M:MSU672
Run #2							

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

BN Special List

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

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	66%		30-130%
321-60-8	2-Fluorobiphenyl	72%		30-130%
1718-51-0	Terphenyl-d14	69%		30-130%

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

ND = Not detected
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:	AOI4-BH-13-104_0-.5_31513		
Lab Sample ID:	JB31583-5	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
		Percent Solids:	81.9
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead [a]	7.0	1.1	mg/kg	1	03/22/13	03/26/13	AMA	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: M:MA15385
(2) Prep QC Batch: M:MP20648

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

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI4-S-381_0-.5_31513		
Lab Sample ID:	JB31583-6	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
Method:	SW846 8260B	**Percent Solids:**	83.7
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	A192990.D	1	03/25/13	OTR	n/a	n/a	VA7271
Run #2							

	Initial Weight
Run #1	5.8 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.0010	mg/kg	
108-88-3	Toluene	ND	0.0010	mg/kg	
100-41-4	Ethylbenzene	ND	0.0010	mg/kg	
1330-20-7	Xylene (total)	ND	0.0010	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0010	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0010	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0010	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0051	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0051	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0051	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		70-130%
17060-07-0	1,2-Dichloroethane-D4	92%		70-122%
2037-26-5	Toluene-D8	107%		81-127%
460-00-4	4-Bromofluorobenzene	110%		66-132%

ND = Not detected
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:	AOI4-S-381_0-.5_31513		
Lab Sample ID:	JB31583-6	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
Method:	SW846 8270C SW846 3546	**Percent Solids:**	83.7
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	U13144.D	1	03/27/13	AMA	03/22/13	M:OP32352	M:MSU672
Run #2							

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

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	0.12	mg/kg	
56-55-3	Benzo(a)anthracene	0.143	0.12	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.12	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.143	0.12	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.12	mg/kg	
218-01-9	Chrysene	0.158	0.12	mg/kg	
86-73-7	Fluorene	ND	0.12	mg/kg	
91-20-3	Naphthalene	ND	0.12	mg/kg	
85-01-8	Phenanthrene	0.598	0.12	mg/kg	
129-00-0	Pyrene	0.381	0.12	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	58%		30-130%
321-60-8	2-Fluorobiphenyl	66%		30-130%
1718-51-0	Terphenyl-d14	73%		30-130%

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

ND = Not detected
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:	AOI4-S-381_0-.5_31513		
Lab Sample ID:	JB31583-6	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
		Percent Solids:	83.7
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead [a]	25800	110	mg/kg	100	03/22/13	03/27/13	AMA	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: M:MA15390
(2) Prep QC Batch: M:MP20648

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

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI4-S-381_2-3_31513		
Lab Sample ID:	JB31583-7	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
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]	E201463.D	1	03/29/13	OTR	n/a	n/a	VE8857
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.7 g	10.0 ml	20.0 ul
Run #2			

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.59	mg/kg	
108-88-3	Toluene	ND	0.59	mg/kg	
100-41-4	Ethylbenzene	5.54	0.59	mg/kg	
1330-20-7	Xylene (total)	17.7	0.59	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.59	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.59	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.59	mg/kg	
98-82-8	Isopropylbenzene	ND	2.9	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	29.9	2.9	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	11.9	2.9	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	84%		70-130%
17060-07-0	1,2-Dichloroethane-D4	82%		70-122%
2037-26-5	Toluene-D8	96%		81-127%
460-00-4	4-Bromofluorobenzene	102%		66-132%

(a) Dilution required due to matrix interference.

ND = Not detected
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:	AOI4-S-381_2-3_31513		
Lab Sample ID:	JB31583-7	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
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]	U13145.D	1	03/27/13	AMA	03/22/13	M:OP32352	M:MSU672
Run #2							

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

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	0.12	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.12	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.12	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.12	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.12	mg/kg	
218-01-9	Chrysene	ND	0.12	mg/kg	
86-73-7	Fluorene	ND	0.12	mg/kg	
91-20-3	Naphthalene	1.18	0.12	mg/kg	
85-01-8	Phenanthrene	ND	0.12	mg/kg	
129-00-0	Pyrene	ND	0.12	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	121%		30-130%
321-60-8	2-Fluorobiphenyl	64%		30-130%
1718-51-0	Terphenyl-d14	66%		30-130%

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

ND = Not detected
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:	AOI4-S-381_2-3_31513		
Lab Sample ID:	JB31583-7	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
		Percent Solids:	82.0
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead [a]	2650	5.6	mg/kg	5	03/22/13	03/27/13	AMA	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: M:MA15390
(2) Prep QC Batch: M:MP20648

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

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI4-BH-13-86_2-2.5_031513		
Lab Sample ID:	JB31583-8	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
Method:	SW846 8260B	**Percent Solids:**	80.5
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	A192993.D	1	03/25/13	OTR	n/a	n/a	VA7271
Run #2							

	Initial Weight
Run #1	7.3 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.00085	mg/kg	
108-88-3	Toluene	ND	0.00085	mg/kg	
100-41-4	Ethylbenzene	0.0206	0.00085	mg/kg	
1330-20-7	Xylene (total)	0.0109	0.00085	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00085	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00085	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00085	mg/kg	
98-82-8	Isopropylbenzene	0.0143	0.0043	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	0.0437	0.0043	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	0.0169	0.0043	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		70-130%
17060-07-0	1,2-Dichloroethane-D4	93%		70-122%
2037-26-5	Toluene-D8	105%		81-127%
460-00-4	4-Bromofluorobenzene	100%		66-132%

ND = Not detected
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:	AOI4-BH-13-86_2-2.5_031513		
Lab Sample ID:	JB31583-8	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
Method:	SW846 8270C SW846 3546	**Percent Solids:**	80.5
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	U13146.D	1	03/27/13	AMA	03/22/13	M:OP32352	M:MSU672
Run #2							

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

BN Special List

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

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	75%		30-130%
321-60-8	2-Fluorobiphenyl	68%		30-130%
1718-51-0	Terphenyl-d14	73%		30-130%

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

ND = Not detected
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:	AOI4-BH-13-86_2-2.5_031513		
Lab Sample ID:	JB31583-8	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
		Percent Solids:	80.5
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead [a]	7.8	1.1	mg/kg	1	03/22/13	03/27/13	AMA	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: M:MA15390
(2) Prep QC Batch: M:MP20648

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

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI4-BH-13-86_5.5-6_031513		
Lab Sample ID:	JB31583-9	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
Method:	SW846 8260B	**Percent Solids:**	86.4
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	A192998.D	1	03/25/13	OTR	n/a	n/a	VA7271
Run #2							

	Initial Weight
Run #1	6.6 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.00088	mg/kg	
108-88-3	Toluene	ND	0.00088	mg/kg	
100-41-4	Ethylbenzene	ND	0.00088	mg/kg	
1330-20-7	Xylene (total)	ND	0.00088	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00088	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00088	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00088	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0044	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0044	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0044	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		70-130%
17060-07-0	1,2-Dichloroethane-D4	90%		70-122%
2037-26-5	Toluene-D8	104%		81-127%
460-00-4	4-Bromofluorobenzene	108%		66-132%

ND = Not detected
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:	AOI4-BH-13-86_5.5-6_031513		
Lab Sample ID:	JB31583-9	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
Method:	SW846 8270C SW846 3546	**Percent Solids:**	86.4
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	U13147.D	1	03/27/13	AMA	03/22/13	M:OP32352	M:MSU672
Run #2							

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

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	0.11	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.11	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.11	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.122	0.11	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.11	mg/kg	
218-01-9	Chrysene	ND	0.11	mg/kg	
86-73-7	Fluorene	ND	0.11	mg/kg	
91-20-3	Naphthalene	ND	0.11	mg/kg	
85-01-8	Phenanthrene	ND	0.11	mg/kg	
129-00-0	Pyrene	0.147	0.11	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	65%		30-130%
321-60-8	2-Fluorobiphenyl	72%		30-130%
1718-51-0	Terphenyl-d14	65%		30-130%

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

ND = Not detected
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:	AOI4-BH-13-86_5.5-6_031513		
Lab Sample ID:	JB31583-9	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
		Percent Solids:	86.4
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead [a]	2140	5.4	mg/kg	5	03/22/13	03/27/13	AMA	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: M:MA15390
(2) Prep QC Batch: M:MP20648

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

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI4-BH-13-85_5.5-6_031513		
Lab Sample ID:	JB31583-10	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
Method:	SW846 8260B	**Percent Solids:**	80.1
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	A192996.D	1	03/25/13	OTR	n/a	n/a	VA7271
Run #2							

	Initial Weight
Run #1	7.1 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.00088	mg/kg	
108-88-3	Toluene	ND	0.00088	mg/kg	
100-41-4	Ethylbenzene	ND	0.00088	mg/kg	
1330-20-7	Xylene (total)	ND	0.00088	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00088	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00088	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00088	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0044	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0044	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0044	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		70-130%
17060-07-0	1,2-Dichloroethane-D4	92%		70-122%
2037-26-5	Toluene-D8	107%		81-127%
460-00-4	4-Bromofluorobenzene	109%		66-132%

ND = Not detected
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:	AOI4-BH-13-85_5.5-6_031513		
Lab Sample ID:	JB31583-10	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
Method:	SW846 8270C SW846 3546	**Percent Solids:**	80.1
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	U13148.D	1	03/27/13	AMA	03/22/13	M:OP32352	M:MSU672
Run #2							

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

BN Special List

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

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	60%		30-130%
321-60-8	2-Fluorobiphenyl	63%		30-130%
1718-51-0	Terphenyl-d14	69%		30-130%

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

ND = Not detected
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:	AOI4-BH-13-85_5.5-6_031513		
Lab Sample ID:	JB31583-10	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
		Percent Solids:	80.1
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead [a]	6.9	1.1	mg/kg	1	03/22/13	03/26/13	AMA	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: M:MA15385
(2) Prep QC Batch: M:MP20648

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

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI4-BH-13-84_5.5-6_031513		
Lab Sample ID:	JB31583-11	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
Method:	SW846 8260B	**Percent Solids:**	82.3
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	A192997.D	1	03/25/13	OTR	n/a	n/a	VA7271
Run #2							

	Initial Weight
Run #1	6.9 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.00088	mg/kg	
108-88-3	Toluene	ND	0.00088	mg/kg	
100-41-4	Ethylbenzene	ND	0.00088	mg/kg	
1330-20-7	Xylene (total)	ND	0.00088	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00088	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00088	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00088	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0044	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0044	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0044	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		70-130%
17060-07-0	1,2-Dichloroethane-D4	93%		70-122%
2037-26-5	Toluene-D8	110%		81-127%
460-00-4	4-Bromofluorobenzene	112%		66-132%

ND = Not detected
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:	AOI4-BH-13-84_5.5-6_031513		
Lab Sample ID:	JB31583-11	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
Method:	SW846 8270C SW846 3546	**Percent Solids:**	82.3
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	U13149.D	1	03/27/13	AMA	03/22/13	M:OP32352	M:MSU672
Run #2							

	Initial Weight	Final Volume
Run #1	20.3 g	1.0 ml
Run #2		

BN Special List

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

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	65%		30-130%
321-60-8	2-Fluorobiphenyl	69%		30-130%
1718-51-0	Terphenyl-d14	78%		30-130%

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

ND = Not detected
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:	AOI4-BH-13-84_5.5-6_031513		
Lab Sample ID:	JB31583-11	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
		Percent Solids:	82.3
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead [a]	6.6	1.0	mg/kg	1	03/22/13	03/25/13	AMA	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: M:MA15382
(2) Prep QC Batch: M:MP20654

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

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	S-366@14-16_031513		
Lab Sample ID:	JB31583-12	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
Method:	SW846 8260B	**Percent Solids:**	93.8
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	A192988.D	1	03/25/13	OTR	n/a	n/a	VA7271
Run #2							

	Initial Weight
Run #1	4.8 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.0011	mg/kg	
108-88-3	Toluene	ND	0.0011	mg/kg	
100-41-4	Ethylbenzene	ND	0.0011	mg/kg	
1330-20-7	Xylene (total)	ND	0.0011	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0011	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0011	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0011	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0056	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0056	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0056	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		70-130%
17060-07-0	1,2-Dichloroethane-D4	92%		70-122%
2037-26-5	Toluene-D8	106%		81-127%
460-00-4	4-Bromofluorobenzene	110%		66-132%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	S-366@14-16_031513		
Lab Sample ID:	JB31583-12	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
Method:	SW846 8270C SW846 3546	**Percent Solids:**	93.8
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	U13150.D	1	03/27/13	AMA	03/22/13	M:OP32352	M:MSU672
Run #2							

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

BN Special List

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

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	68%		30-130%
321-60-8	2-Fluorobiphenyl	71%		30-130%
1718-51-0	Terphenyl-d14	72%		30-130%

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

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	S-366@14-16_031513		
Lab Sample ID:	JB31583-12	**Date Sampled:**	03/15/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
		Percent Solids:	93.8
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead [a]	4.3	0.99	mg/kg	1	03/22/13	03/25/13	AMA	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: M:MA15382
(2) Prep QC Batch: M:MP20654

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

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	S-367_031313@6'		
Lab Sample ID:	JB31583-13	**Date Sampled:**	03/13/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
Method:	SW846 8260B	**Percent Solids:**	89.3
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	E201371.D	1	03/27/13	OTR	n/a	n/a	VE8853
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	Units	Q
71-43-2	Benzene	ND	0.095	mg/kg	
108-88-3	Toluene	ND	0.095	mg/kg	
100-41-4	Ethylbenzene	ND	0.095	mg/kg	
1330-20-7	Xylene (total)	ND	0.095	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.095	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.095	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.095	mg/kg	
98-82-8	Isopropylbenzene	ND	0.47	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.47	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.47	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	85%		70-130%
17060-07-0	1,2-Dichloroethane-D4	83%		70-122%
2037-26-5	Toluene-D8	101%		81-127%
460-00-4	4-Bromofluorobenzene	94%		66-132%

(a) Dilution required due to matrix interference.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	S-367_031313@6'		
Lab Sample ID:	JB31583-13	**Date Sampled:**	03/13/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
Method:	SW846 8270C SW846 3546	**Percent Solids:**	89.3
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	U13207.D	1	03/29/13	AMA	03/22/13	M:OP32352	M:MSU674
Run #2							

	Initial Weight	Final Volume
Run #1	20.1 g	1.0 ml
Run #2		

BN Special List

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

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	73%		30-130%
321-60-8	2-Fluorobiphenyl	73%		30-130%
1718-51-0	Terphenyl-d14	78%		30-130%

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

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	S-367_031313@6'		
Lab Sample ID:	JB31583-13	**Date Sampled:**	03/13/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
		Percent Solids:	89.3
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead [a]	6.3	1.0	mg/kg	1	03/22/13	03/25/13	AMA	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: M:MA15382
(2) Prep QC Batch: M:MP20654

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

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	S-367@14'_031313		
Lab Sample ID:	JB31583-14	**Date Sampled:**	03/13/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
Method:	SW846 8260B	**Percent Solids:**	95.3
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	A192989.D	1	03/25/13	OTR	n/a	n/a	VA7271
Run #2							

	Initial Weight
Run #1	4.5 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.0012	mg/kg	
108-88-3	Toluene	ND	0.0012	mg/kg	
100-41-4	Ethylbenzene	ND	0.0012	mg/kg	
1330-20-7	Xylene (total)	ND	0.0012	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0012	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0012	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0012	mg/kg	
98-82-8	Isopropylbenzene	0.0170	0.0058	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0058	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0058	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		70-130%
17060-07-0	1,2-Dichloroethane-D4	120%		70-122%
2037-26-5	Toluene-D8	124%		81-127%
460-00-4	4-Bromofluorobenzene	93%		66-132%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	S-367@14'_031313		
Lab Sample ID:	JB31583-14	**Date Sampled:**	03/13/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
Method:	SW846 8270C SW846 3546	**Percent Solids:**	95.3
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	U13208.D	1	03/29/13	AMA	03/22/13	M:OP32352	M:MSU674
Run #2							

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

BN Special List

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

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	68%		30-130%
321-60-8	2-Fluorobiphenyl	68%		30-130%
1718-51-0	Terphenyl-d14	75%		30-130%

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

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	S-367@14'_031313		
Lab Sample ID:	JB31583-14	**Date Sampled:**	03/13/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
		Percent Solids:	95.3
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead [a]	2.6	1.0	mg/kg	1	03/22/13	03/25/13	AMA	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: M:MA15382
(2) Prep QC Batch: M:MP20654

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

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	S-368@14'_031413		
Lab Sample ID:	JB31583-15	**Date Sampled:**	03/14/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
Method:	SW846 8260B	**Percent Solids:**	84.9
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	A193117.D	1	03/28/13	OTR	n/a	n/a	VA7277
Run #2							

	Initial Weight
Run #1	5.5 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.0011	mg/kg	
108-88-3	Toluene	ND	0.0011	mg/kg	
100-41-4	Ethylbenzene	0.0059	0.0011	mg/kg	
1330-20-7	Xylene (total)	0.0075	0.0011	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0011	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0011	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0011	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0054	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	0.0767	0.0054	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	0.0316	0.0054	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		70-130%
17060-07-0	1,2-Dichloroethane-D4	98%		70-122%
2037-26-5	Toluene-D8	109%		81-127%
460-00-4	4-Bromofluorobenzene	101%		66-132%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	S-368@14'_031413		
Lab Sample ID:	JB31583-15	**Date Sampled:**	03/14/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
Method:	SW846 8270C SW846 3546	**Percent Solids:**	84.9
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	U13210.D	1	03/29/13	AMA	03/22/13	M:OP32352	M:MSU674
Run #2							

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

BN Special List

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

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	68%		30-130%
321-60-8	2-Fluorobiphenyl	73%		30-130%
1718-51-0	Terphenyl-d14	73%		30-130%

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

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	S-368@14'_031413		
Lab Sample ID:	JB31583-15	**Date Sampled:**	03/14/13
Matrix:	SO - Soil	**Date Received:**	03/15/13
		Percent Solids:	84.9
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead [a]	5.5	0.99	mg/kg	1	03/22/13	03/25/13	AMA	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: M:MA15382
(2) Prep QC Batch: M:MP20654

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

RL = Reporting Limit

New Jersey

ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

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

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

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

PAGE 1 OF 2

FED-EX Tracking #:
Bottle Order Control #:
Accutest Quote #:
Accutest Job #: JB31583

Client / Reporting Information

Company Name: AQUATERRA TECHNOLOGIES
Street Address:
City / State / Zip: West Chester PA 19382
Project Contact / E-mail: Tiffany Doerr
Phone # / Fax #:
Sampler(s) Name(s) / Phone #: Patrick Troy, Luke Mikrzycki, Eric Dieck, Evan E

Project Information

Project Name: PHILA REFINERY Ph. Energy Solutions
Street:
City / State: PHILADELPHIA PA
Project #: AOI-4 Soil
Client Purchase Order #:
Project Manager: Jim Epperlein

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

Requested Analysis (see TEST CODE sheet)

6010C LEAD; 8260B: BTEX, MTBE, Styrene, EDB, EDS, TMB's; 8270C: Naphthalene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b), Chrysene, Fluorene, Naphthalene, Pyrene

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	6010C LEAD	8260B	8270C							LAB USE ONLY
1	AOI-4_BH-13-94_0-2-031513		3-15-13	0800	LM	SO	4					1	2	1		X	X	X					-1		
2	AOI-4_BH-13-94_8-10_031513		3-15-13	0900	LM	SO	4					1	2	1		X	X	X					-2		C5
3	AOI-4-BH-13-96_8-10_031513		3-15-13	1230	LM	SO	4					1	2	1		X	X	X					-3		14 Q6
4	AOI4-BH-13-104_6-7_31513		3-15-13	10:15	PT	SO	4					1	2	1		X	X	X					-4		4016
5	AOI4-BH-13-104_0-5_31513		3-15-13	10:00	PT	SO	4					1	2	1		X	X	X					-5		
6	AOI4-S-381_0-5_31513		3-15-13	8:40	PT	SO	4					1	2	1		X	X	X					-6		
7	AOI4-S-381_2-3_31513		3-15-13	8:55	PT	SO	4					1	2	1		X	X	X					-7		
8	AOI4-BH-13-86_2-2.5_031513		3-15-13	9:30	ED	SO	4					1	2	1		X	X	X					-8		
9	AOI4-BH-13-86_5.5-6_031513		3-15-13	10:00	ED	SO	4					1	2	1		X	X	X					-9		
10	AOI4-BH-13-85_5.5-6_031513		3-15-13	11:00	ED	SO	4					1	2	1		X	X	X					-10		
11	AOI4-BH-13-84_5.5-6_031513		3-15-13	13:45	ED	SO	4					1	2	1		X	X	X					-11		
12	S-366@14-16_031513		3-15-13	14:00	EE	SO	4					1	2	1		X	X	X					-12		

Turnaround Time (Business days)

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

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

Data Deliverable Information

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

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: 3/14/13 Time: 13:34 Initials: SLD

~~Field Kits Received~~

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	3/15/13 1430	1	2	3/15/13 1900	2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	[ ] Intact [ ] Not intact	Preserved where applicable [ ] On Ice [ ] Cooler Temp. 4.1°C

1R

S/D

5.1 5

JB31583: Chain of Custody
Page 1 of 4

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

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

FED-EX Tracking #:
Bottle Order Control #:
Accutest Quote #:
Accutest Job #: JB 31583

Client / Reporting Information

Company Name: Aquaterra Technologies, Inc
Street Address:
City: Westchester State: PA Zip: 19382
Project Contact: Tiffani Doerr E-mail:
Phone #: Fax #:
Sampler(s) Name(s): Patrick Troy, Luke Phone #: Martinghi, Eric Orch, Evan E
Project Manager: Jim Oppenheim

Project Information

Project Name: PH Refinery A01-4
Street:
City: Philadelphia State: PA
Project #: Soil Samples A01-4
Client Purchase Order #:

Billing Information (if different from Report to)

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

Requested Analysis (see TEST CODE sheet)

6010C: LEAD
8260B: BTEX, MTBE, Cumene, EDB, EDC, Tot B's
8270C: Anthracene, Benzo(a) Pyrene, Benzo(b) Fluoranthene, Chrysene, Phenanthrene, Naphthalene, Pyrene

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	6010C	8260B	8270C								LAB USE ONLY
13	S-367_031313@6'		3-13-13	15:40	EE	SO	4					1	2	1		X	X	X						-13		
14	S-367@14'_031313		3-13-13	15:30	EE	SO	4					1	2	1		X	X	X						-14		
15	S-368@14'_031413		3-14-13	15:30	EE	SO	4					1	2	1		X	X	X						-15		

Turnaround Time (Business days)

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

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

Data Deliverable Information

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

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

Comments / Special Instructions

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	3-15-13/16:30	1	2	3/15/13 1400	2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	[ ] Intact [ ] Not intact	Preserved where applicable [ ] On Ice [ ] Cooler Temp. 4.1°C

IB

RTA

5.1 5

JB31583: Chain of Custody
Page 2 of 4

SAMPLE #	MEOH VIAL	D.I. VIAL	D.I. VIAL
1	8999	9029	9039
2	8955	9792	9793
3	8951	9027	9037
4	8934	9788	9789
5	519	950	951
6	9010	9056	9026
7	9001	9056	9076
8	523	959	958
9	8974	9041	9031
10	525	952	953
11	521	954	955
12	9068	9049	9059
13	8966	9110	9092
14	8948	9087	9097
15	9007	9051	9061
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18			
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JB31583: Chain of Custody

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Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB31583 **Client:** **Project:**

Date / Time Received: 3/15/2013 **Delivery Method:** **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (4.1/4.1); 0

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

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

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

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

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

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

Comments

Accutest Laboratories
V:732.329.0200

2235 US Highway 130
F: 732.329.3499

Dayton, New Jersey
www/accutest.com

JB31583: Chain of Custody
Page 4 of 4

Internal Sample Tracking Chronicle

Aquaterra Technologies, Inc.

Job No: JB31583

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

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB31583-1 Collected: 15-MAR-13 08:00 By: LM Received: 15-MAR-13 By: SC AOI-4_BH-13-94_0-2_031513						
JB31583-1	SM21 2540 B MOD.	21-MAR-13	AMA			%SOL
JB31583-1	SW846 8260B	23-MAR-13 12:02	OTR			V8260SL
JB31583-1	SW846 6010C	26-MAR-13 22:27	AMA	22-MAR-13	AMA	PB
JB31583-1	SW846 8270C	27-MAR-13 19:18	AMA	22-MAR-13	AMA	B8270SL
JB31583-2 Collected: 15-MAR-13 09:00 By: LM Received: 15-MAR-13 By: SC AOI-4_BH-13-94_8-10_031513						
JB31583-2	SM21 2540 B MOD.	21-MAR-13	AMA			%SOL
JB31583-2	SW846 8260B	23-MAR-13 12:22	OTR			V8260SL
JB31583-2	SW846 6010C	26-MAR-13 22:32	AMA	22-MAR-13	AMA	PB
JB31583-2	SW846 8270C	27-MAR-13 19:41	AMA	22-MAR-13	AMA	B8270SL
JB31583-3 Collected: 15-MAR-13 12:30 By: LM Received: 15-MAR-13 By: SC AOI-4_BH-13-90_8-10'_031513						
JB31583-3	SM21 2540 B MOD.	21-MAR-13	AMA			%SOL
JB31583-3	SW846 8260B	23-MAR-13 13:07	OTR			V8260SL
JB31583-3	SW846 6010C	26-MAR-13 22:46	AMA	22-MAR-13	AMA	PB
JB31583-3	SW846 8270C	27-MAR-13 20:04	AMA	22-MAR-13	AMA	B8270SL
JB31583-4 Collected: 15-MAR-13 10:25 By: LM Received: 15-MAR-13 By: SC AOI4-BH-13-104_6-7_31513						
JB31583-4	SM21 2540 B MOD.	21-MAR-13	AMA			%SOL
JB31583-4	SW846 6010C	26-MAR-13 22:51	AMA	22-MAR-13	AMA	PB
JB31583-4	SW846 8270C	27-MAR-13 20:26	AMA	22-MAR-13	AMA	B8270SL
JB31583-4	SW846 8260B	29-MAR-13 06:53	OTR			V8260SL
JB31583-4	SW846 8270C	29-MAR-13 17:01	AMA	22-MAR-13	AMA	B8270SL
JB31583-4	SW846 8260B	29-MAR-13 18:23	OTR			V8260SL
JB31583-5 Collected: 15-MAR-13 10:00 By: LM Received: 15-MAR-13 By: SC AOI4-BH-13-104_0-.5_31513						
JB31583-5	SM21 2540 B MOD.	21-MAR-13	AMA			%SOL
JB31583-5	SW846 8260B	23-MAR-13 13:26	OTR			V8260SL
JB31583-5	SW846 6010C	26-MAR-13 22:56	AMA	22-MAR-13	AMA	PB

Internal Sample Tracking Chronicle

Aquaterra Technologies, Inc.

Job No: JB31583

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

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB31583-5	SW846 8270C	27-MAR-13 20:49	AMA	22-MAR-13	AMA	B8270SL
JB31583-6	Collected: 15-MAR-13 08:40 By: LM		Received: 15-MAR-13 By: SC			
AOI4-S-381_0-.5_31513						
JB31583-6	SM21 2540 B MOD.	21-MAR-13	AMA			%SOL
JB31583-6	SW846 8260B	25-MAR-13 13:31	OTR			V8260SL
JB31583-6	SW846 6010C	27-MAR-13 13:34	AMA	22-MAR-13	AMA	PB
JB31583-6	SW846 8270C	27-MAR-13 21:11	AMA	22-MAR-13	AMA	B8270SL
JB31583-7	Collected: 15-MAR-13 08:55 By: LM		Received: 15-MAR-13 By: SC			
AOI4-S-381_2-3_31513						
JB31583-7	SM21 2540 B MOD.	21-MAR-13	AMA			%SOL
JB31583-7	SW846 6010C	27-MAR-13 13:39	AMA	22-MAR-13	AMA	PB
JB31583-7	SW846 8270C	27-MAR-13 21:34	AMA	22-MAR-13	AMA	B8270SL
JB31583-7	SW846 8260B	29-MAR-13 07:23	OTR			V8260SL
JB31583-8	Collected: 15-MAR-13 09:30 By: LM		Received: 15-MAR-13 By: SC			
AOI4-BH-13-86_2-2.5_031513						
JB31583-8	SM21 2540 B MOD.	21-MAR-13	AMA			%SOL
JB31583-8	SW846 8260B	25-MAR-13 15:15	OTR			V8260SL
JB31583-8	SW846 6010C	27-MAR-13 13:13	AMA	22-MAR-13	AMA	PB
JB31583-8	SW846 8270C	27-MAR-13 21:57	AMA	22-MAR-13	AMA	B8270SL
JB31583-9	Collected: 15-MAR-13 10:00 By: LM		Received: 15-MAR-13 By: SC			
AOI4-BH-13-86_5.5-6_031513						
JB31583-9	SM21 2540 B MOD.	21-MAR-13	AMA			%SOL
JB31583-9	SW846 8260B	25-MAR-13 17:45	OTR			V8260SL
JB31583-9	SW846 6010C	27-MAR-13 13:43	AMA	22-MAR-13	AMA	PB
JB31583-9	SW846 8270C	27-MAR-13 22:20	AMA	22-MAR-13	AMA	B8270SL
JB31583-10	Collected: 15-MAR-13 11:00 By: LM		Received: 15-MAR-13 By: SC			
AOI4-BH-13-85_5.5-6_031513						
JB31583-10	SM21 2540 B MOD.	21-MAR-13	AMA			%SOL
JB31583-10	SW846 8260B	25-MAR-13 16:44	OTR			V8260SL
JB31583-10	SW846 6010C	26-MAR-13 23:20	AMA	22-MAR-13	AMA	PB

Internal Sample Tracking Chronicle

Aquaterra Technologies, Inc.

Job No: JB31583

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

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB31583-10	SW846 8270C	27-MAR-13 22:43	AMA	22-MAR-13	AMA	B8270SL
JB31583-11 Collected: 15-MAR-13 13:45 By: LM Received: 15-MAR-13 By: SC AOI4-BH-13-84_5.5-6_031513						
JB31583-11	SM21 2540 B MOD.	21-MAR-13	AMA			%SOL
JB31583-11	SW846 6010C	25-MAR-13 15:17	AMA	22-MAR-13	AMA	PB
JB31583-11	SW846 8260B	25-MAR-13 17:15	OTR			V8260SL
JB31583-11	SW846 8270C	27-MAR-13 23:06	AMA	22-MAR-13	AMA	B8270SL
JB31583-12 Collected: 15-MAR-13 14:00 By: LM Received: 15-MAR-13 By: SC S-366@14-16_031513						
JB31583-12	SM21 2540 B MOD.	21-MAR-13	AMA			%SOL
JB31583-12	SW846 8260B	25-MAR-13 12:32	OTR			V8260SL
JB31583-12	SW846 6010C	25-MAR-13 15:31	AMA	22-MAR-13	AMA	PB
JB31583-12	SW846 8270C	27-MAR-13 23:29	AMA	22-MAR-13	AMA	B8270SL
JB31583-13 Collected: 13-MAR-13 15:40 By: LM Received: 15-MAR-13 By: SC S-367_031313@6'						
JB31583-13	SM21 2540 B MOD.	21-MAR-13	AMA			%SOL
JB31583-13	SW846 6010C	25-MAR-13 15:36	AMA	22-MAR-13	AMA	PB
JB31583-13	SW846 8260B	27-MAR-13 07:29	OTR			V8260SL
JB31583-13	SW846 8270C	29-MAR-13 13:56	AMA	22-MAR-13	AMA	B8270SL
JB31583-14 Collected: 13-MAR-13 15:30 By: LM Received: 15-MAR-13 By: SC S-367@14'_031313						
JB31583-14	SM21 2540 B MOD.	21-MAR-13	AMA			%SOL
JB31583-14	SW846 8260B	25-MAR-13 13:02	OTR			V8260SL
JB31583-14	SW846 6010C	25-MAR-13 15:41	AMA	22-MAR-13	AMA	PB
JB31583-14	SW846 8270C	29-MAR-13 14:19	AMA	22-MAR-13	AMA	B8270SL
JB31583-15 Collected: 14-MAR-13 15:30 By: LM Received: 15-MAR-13 By: SC S-368@14'_031413						
JB31583-15	SM21 2540 B MOD.	21-MAR-13	AMA			%SOL
JB31583-15	SW846 6010C	25-MAR-13 15:46	AMA	22-MAR-13	AMA	PB
JB31583-15	SW846 8260B	28-MAR-13 11:05	OTR			V8260SL

Internal Sample Tracking Chronicle

Aquaterra Technologies, Inc.

Job No: JB31583

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

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB31583-15	SW846 8270C	29-MAR-13 16:16	AMA	22-MAR-13	AMA	B8270SL

Accutest Internal Chain of Custody

Job Number: JB31583
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 03/15/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB31583-1.1	Nick Popow		03/20/13 13:29	Subcontract
JB31583-1.3	Secured Storage	Oksana Treglazova	03/22/13 14:00	Retrieve from Storage
JB31583-1.3	Oksana Treglazova	GCMSA	03/22/13 14:00	Load on Instrument
JB31583-1.3	GCMSA	Oksana Treglazova	03/25/13 11:25	Unload from Instrument
JB31583-1.3	Oksana Treglazova	Secured Storage	03/25/13 11:25	Return to Storage
JB31583-1.4	Secured Storage	Oksana Treglazova	03/22/13 14:00	Retrieve from Storage
JB31583-1.4	Oksana Treglazova	GCMSA	03/22/13 14:00	Load on Instrument
JB31583-1.4	GCMSA	Oksana Treglazova	03/25/13 11:25	Unload from Instrument
JB31583-1.4	Oksana Treglazova	Secured Storage	03/25/13 11:25	Return to Storage
JB31583-2.1	Nick Popow		03/20/13 13:29	Subcontract
JB31583-2.3	Secured Storage	Oksana Treglazova	03/22/13 14:00	Retrieve from Storage
JB31583-2.3	Oksana Treglazova	GCMSA	03/22/13 14:00	Load on Instrument
JB31583-2.3	GCMSA	Oksana Treglazova	03/25/13 11:25	Unload from Instrument
JB31583-2.3	Oksana Treglazova	Secured Storage	03/25/13 11:25	Return to Storage
JB31583-2.4	Secured Storage	Oksana Treglazova	03/22/13 14:00	Retrieve from Storage
JB31583-2.4	Oksana Treglazova	GCMSA	03/22/13 14:00	Load on Instrument
JB31583-2.4	GCMSA	Oksana Treglazova	03/25/13 11:25	Unload from Instrument
JB31583-2.4	Oksana Treglazova	Secured Storage	03/25/13 11:25	Return to Storage
JB31583-3.1	Nick Popow		03/20/13 13:29	Subcontract
JB31583-3.4	Secured Storage	Oksana Treglazova	03/22/13 14:00	Retrieve from Storage
JB31583-3.4	Oksana Treglazova	GCMSA	03/22/13 14:00	Load on Instrument
JB31583-3.4	GCMSA	Oksana Treglazova	03/25/13 11:25	Unload from Instrument
JB31583-3.4	Oksana Treglazova	Secured Storage	03/25/13 11:25	Return to Storage
JB31583-4.1	Nick Popow		03/20/13 13:29	Subcontract
JB31583-4.2	Secured Storage	Oksana Treglazova	03/28/13 15:06	Retrieve from Storage
JB31583-4.2	Oksana Treglazova	Secured Storage	03/28/13 15:07	Return to Storage
JB31583-4.2	Secured Storage	Ying Li	03/29/13 13:37	Retrieve from Storage
JB31583-4.2	Ying Li	Secured Storage	03/29/13 13:37	Return to Storage
JB31583-5.1	Nick Popow		03/20/13 13:29	Subcontract
JB31583-5.4	Secured Storage	Oksana Treglazova	03/22/13 14:00	Retrieve from Storage
JB31583-5.4	Oksana Treglazova	GCMSA	03/22/13 14:00	Load on Instrument
JB31583-5.4	GCMSA	Oksana Treglazova	03/25/13 11:25	Unload from Instrument
JB31583-5.4	Oksana Treglazova	Secured Storage	03/25/13 11:25	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB31583
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 03/15/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB31583-6.1	Nick Popow		03/20/13 13:29	Subcontract
JB31583-6.3	Secured Storage	Oksana Treglazova	03/25/13 12:14	Retrieve from Storage
JB31583-6.3	Oksana Treglazova	GCMSA	03/25/13 12:14	Load on Instrument
JB31583-6.3	GCMSA	Oksana Treglazova	03/26/13 12:24	Unload from Instrument
JB31583-6.3	Oksana Treglazova	Secured Storage	03/26/13 12:24	Return to Storage
JB31583-6.4	Secured Storage	Oksana Treglazova	03/22/13 14:00	Retrieve from Storage
JB31583-6.4	Oksana Treglazova	GCMSA	03/22/13 14:00	Load on Instrument
JB31583-6.4	GCMSA	Oksana Treglazova	03/25/13 11:25	Unload from Instrument
JB31583-6.4	Oksana Treglazova	Secured Storage	03/25/13 11:25	Return to Storage
JB31583-7.1	Nick Popow		03/20/13 13:29	Subcontract
JB31583-7.2	Secured Storage	Oksana Treglazova	03/28/13 15:06	Retrieve from Storage
JB31583-7.2	Oksana Treglazova	Secured Storage	03/28/13 15:07	Return to Storage
JB31583-8.1	Nick Popow		03/20/13 13:29	Subcontract
JB31583-8.3	Secured Storage	Oksana Treglazova	03/25/13 12:14	Retrieve from Storage
JB31583-8.3	Oksana Treglazova	GCMSA	03/25/13 12:14	Load on Instrument
JB31583-8.3	GCMSA	Oksana Treglazova	03/26/13 12:24	Unload from Instrument
JB31583-8.3	Oksana Treglazova	Secured Storage	03/26/13 12:24	Return to Storage
JB31583-8.4	Secured Storage	Oksana Treglazova	03/22/13 14:00	Retrieve from Storage
JB31583-8.4	Oksana Treglazova	GCMSA	03/22/13 14:00	Load on Instrument
JB31583-8.4	GCMSA	Oksana Treglazova	03/25/13 11:25	Unload from Instrument
JB31583-8.4	Oksana Treglazova	Secured Storage	03/25/13 11:25	Return to Storage
JB31583-9.1	Nick Popow		03/20/13 13:29	Subcontract
JB31583-9.3	Secured Storage	Oksana Treglazova	03/22/13 14:00	Retrieve from Storage
JB31583-9.3	Oksana Treglazova	GCMSA	03/22/13 14:00	Load on Instrument
JB31583-9.3	GCMSA	Oksana Treglazova	03/25/13 11:25	Unload from Instrument
JB31583-9.3	Oksana Treglazova	Secured Storage	03/25/13 11:25	Return to Storage
JB31583-9.4	Secured Storage	Oksana Treglazova	03/25/13 12:14	Retrieve from Storage
JB31583-9.4	Oksana Treglazova	GCMSA	03/25/13 12:14	Load on Instrument
JB31583-9.4	GCMSA	Oksana Treglazova	03/26/13 12:24	Unload from Instrument
JB31583-9.4	Oksana Treglazova	Secured Storage	03/26/13 12:24	Return to Storage
JB31583-10.1	Nick Popow		03/20/13 13:29	Subcontract

Accutest Internal Chain of Custody

Job Number: JB31583
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 03/15/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB31583-10.3	Secured Storage	Oksana Treglazova	03/25/13 12:14	Retrieve from Storage
JB31583-10.3	Oksana Treglazova	GCMSA	03/25/13 12:14	Load on Instrument
JB31583-10.3	GCMSA	Oksana Treglazova	03/26/13 12:24	Unload from Instrument
JB31583-10.3	Oksana Treglazova	Secured Storage	03/26/13 12:24	Return to Storage
JB31583-10.4	Secured Storage	Oksana Treglazova	03/22/13 14:00	Retrieve from Storage
JB31583-10.4	Oksana Treglazova	GCMSA	03/22/13 14:00	Load on Instrument
JB31583-10.4	GCMSA	Oksana Treglazova	03/25/13 11:25	Unload from Instrument
JB31583-10.4	Oksana Treglazova	Secured Storage	03/25/13 11:25	Return to Storage
JB31583-11.1	Nick Popow		03/20/13 13:29	Subcontract
JB31583-11.3	Secured Storage	Oksana Treglazova	03/25/13 12:14	Retrieve from Storage
JB31583-11.3	Oksana Treglazova	GCMSA	03/25/13 12:14	Load on Instrument
JB31583-11.3	GCMSA	Oksana Treglazova	03/26/13 12:24	Unload from Instrument
JB31583-11.3	Oksana Treglazova	Secured Storage	03/26/13 12:24	Return to Storage
JB31583-11.4	Secured Storage	Oksana Treglazova	03/22/13 14:00	Retrieve from Storage
JB31583-11.4	Oksana Treglazova	GCMSA	03/22/13 14:00	Load on Instrument
JB31583-11.4	GCMSA	Oksana Treglazova	03/25/13 11:25	Unload from Instrument
JB31583-11.4	Oksana Treglazova	Secured Storage	03/25/13 11:25	Return to Storage
JB31583-12.1	Nick Popow		03/20/13 13:29	Subcontract
JB31583-12.3	Secured Storage	Oksana Treglazova	03/25/13 12:14	Retrieve from Storage
JB31583-12.3	Oksana Treglazova	GCMSA	03/25/13 12:14	Load on Instrument
JB31583-12.3	GCMSA	Oksana Treglazova	03/26/13 12:24	Unload from Instrument
JB31583-12.3	Oksana Treglazova	Secured Storage	03/26/13 12:24	Return to Storage
JB31583-12.4	Secured Storage	Oksana Treglazova	03/22/13 14:00	Retrieve from Storage
JB31583-12.4	Oksana Treglazova	GCMSA	03/22/13 14:00	Load on Instrument
JB31583-12.4	GCMSA	Oksana Treglazova	03/25/13 11:25	Unload from Instrument
JB31583-12.4	Oksana Treglazova	Secured Storage	03/25/13 11:25	Return to Storage
JB31583-12.4	Secured Storage	Oksana Treglazova	03/25/13 12:03	Retrieve from Storage
JB31583-12.4	Oksana Treglazova	GCMSA	03/25/13 12:03	Load on Instrument
JB31583-12.4	GCMSA	Oksana Treglazova	03/26/13 12:24	Unload from Instrument
JB31583-12.4	Oksana Treglazova	Secured Storage	03/26/13 12:24	Return to Storage
JB31583-13.1	Nick Popow		03/20/13 13:29	Subcontract
JB31583-13.2	Secured Storage	Oksana Treglazova	03/26/13 16:05	Retrieve from Storage
JB31583-13.2	Oksana Treglazova	Secured Storage	03/26/13 16:05	Return to Storage
JB31583-14.1	Nick Popow		03/20/13 13:29	Subcontract

Accutest Internal Chain of Custody

Job Number: JB31583
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 03/15/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB31583-14.3	Secured Storage	Oksana Treglazova	03/25/13 12:14	Retrieve from Storage
JB31583-14.3	Oksana Treglazova	GCMSA	03/25/13 12:14	Load on Instrument
JB31583-14.3	GCMSA	Oksana Treglazova	03/26/13 12:24	Unload from Instrument
JB31583-14.3	Oksana Treglazova	Secured Storage	03/26/13 12:24	Return to Storage
JB31583-14.4	Secured Storage	Oksana Treglazova	03/22/13 14:00	Retrieve from Storage
JB31583-14.4	Oksana Treglazova	GCMSA	03/22/13 14:00	Load on Instrument
JB31583-14.4	GCMSA	Oksana Treglazova	03/25/13 11:25	Unload from Instrument
JB31583-14.4	Oksana Treglazova	Secured Storage	03/25/13 11:25	Return to Storage
JB31583-14.4	Secured Storage	Oksana Treglazova	03/25/13 12:03	Retrieve from Storage
JB31583-14.4	Oksana Treglazova	GCMSA	03/25/13 12:03	Load on Instrument
JB31583-14.4	GCMSA	Oksana Treglazova	03/26/13 12:24	Unload from Instrument
JB31583-14.4	Oksana Treglazova	Secured Storage	03/26/13 12:24	Return to Storage
JB31583-15.1	Nick Popow		03/20/13 13:29	Subcontract
JB31583-15.2	Secured Storage	Oksana Treglazova	03/27/13 16:19	Retrieve from Storage
JB31583-15.2	Oksana Treglazova	Secured Storage	03/27/13 16:19	Return to Storage
JB31583-15.3	Secured Storage	Oksana Treglazova	03/28/13 10:43	Retrieve from Storage
JB31583-15.3	Oksana Treglazova	GCMSA	03/28/13 10:43	Load on Instrument
JB31583-15.3	GCMSA	Oksana Treglazova	04/01/13 11:28	Unload from Instrument
JB31583-15.3	Oksana Treglazova	Secured Storage	04/01/13 11:28	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: JB31583
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
VA7269-MB	A192937.D	1	03/23/13	OTR	n/a	n/a	VA7269

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

JB31583-1, JB31583-2, JB31583-3, JB31583-5

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	ug/kg	
98-82-8	Isopropylbenzene	ND	5.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/kg	
108-88-3	Toluene	ND	1.0	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	103%	70-130%
17060-07-0	1,2-Dichloroethane-D4	96%	70-122%
2037-26-5	Toluene-D8	106%	81-127%
460-00-4	4-Bromofluorobenzene	108%	66-132%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	system artifact	16.98	8.8	ug/kg	J
	Total TIC, Volatile		0	ug/kg	

Method Blank Summary

Job Number: JB31583
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
VA7271-MB	A192984.D	1	03/25/13	OTR	n/a	n/a	VA7271

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

JB31583-6, JB31583-8, JB31583-9, JB31583-10, JB31583-11, JB31583-12, JB31583-14

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	ug/kg	
98-82-8	Isopropylbenzene	ND	5.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/kg	
108-88-3	Toluene	ND	1.0	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	109%	70-130%
17060-07-0	1,2-Dichloroethane-D4	100%	70-122%
2037-26-5	Toluene-D8	107%	81-127%
460-00-4	4-Bromofluorobenzene	116%	66-132%

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

Method Blank Summary

Job Number: JB31583
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
VE8853-MB	E201359.D	1	03/27/13	OTR	n/a	n/a	VE8853

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

JB31583-13

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	50	ug/kg	
106-93-4	1,2-Dibromoethane	ND	50	ug/kg	
107-06-2	1,2-Dichloroethane	ND	50	ug/kg	
100-41-4	Ethylbenzene	ND	50	ug/kg	
98-82-8	Isopropylbenzene	ND	250	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	50	ug/kg	
108-88-3	Toluene	ND	50	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	250	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	250	ug/kg	
1330-20-7	Xylene (total)	ND	50	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	84%	70-130%
17060-07-0	1,2-Dichloroethane-D4	86%	70-122%
2037-26-5	Toluene-D8	95%	81-127%
460-00-4	4-Bromofluorobenzene	91%	66-132%

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

Method Blank Summary

Job Number: JB31583
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
VA7277-MB	A193113.D	1	03/28/13	OTR	n/a	n/a	VA7277

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

JB31583-15

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	ug/kg	
98-82-8	Isopropylbenzene	ND	5.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/kg	
108-88-3	Toluene	ND	1.0	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	107%	70-130%
17060-07-0	1,2-Dichloroethane-D4	98%	70-122%
2037-26-5	Toluene-D8	109%	81-127%
460-00-4	4-Bromofluorobenzene	116%	66-132%

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

Method Blank Summary

Job Number: JB31583
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
VE8857-MB	E201448.D	1	03/28/13	OTR	n/a	n/a	VE8857

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

JB31583-4, JB31583-7

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	50	ug/kg	
106-93-4	1,2-Dibromoethane	ND	50	ug/kg	
107-06-2	1,2-Dichloroethane	ND	50	ug/kg	
100-41-4	Ethylbenzene	ND	50	ug/kg	
98-82-8	Isopropylbenzene	ND	250	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	50	ug/kg	
108-88-3	Toluene	ND	50	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	250	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	250	ug/kg	
1330-20-7	Xylene (total)	ND	50	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	84%	70-130%
17060-07-0	1,2-Dichloroethane-D4	86%	70-122%
2037-26-5	Toluene-D8	95%	81-127%
460-00-4	4-Bromofluorobenzene	90%	66-132%

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

Method Blank Summary

Job Number: JB31583
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
VE8858-MB	E201469.D	1	03/29/13	OTR	n/a	n/a	VE8858

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

JB31583-4

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	50	ug/kg	
106-93-4	1,2-Dibromoethane	ND	50	ug/kg	
107-06-2	1,2-Dichloroethane	ND	50	ug/kg	
100-41-4	Ethylbenzene	ND	50	ug/kg	
98-82-8	Isopropylbenzene	ND	250	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	50	ug/kg	
108-88-3	Toluene	ND	50	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	250	ug/kg	
1330-20-7	Xylene (total)	ND	50	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	84%	70-130%
17060-07-0	1,2-Dichloroethane-D4	86%	70-122%
2037-26-5	Toluene-D8	97%	81-127%
460-00-4	4-Bromofluorobenzene	90%	66-132%

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

Blank Spike Summary

Job Number: JB31583
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
VA7269-BS	A192938.D	1	03/23/13	OTR	n/a	n/a	VA7269

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

JB31583-1, JB31583-2, JB31583-3, JB31583-5

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	49.2	98	76-117
106-93-4	1,2-Dibromoethane	50	50.2	100	77-122
107-06-2	1,2-Dichloroethane	50	58.5	117	68-134
100-41-4	Ethylbenzene	50	48.2	96	74-119
98-82-8	Isopropylbenzene	50	46.6	93	71-119
1634-04-4	Methyl Tert Butyl Ether	100	99.6	100	72-124
108-88-3	Toluene	50	49.7	99	77-121
95-63-6	1,2,4-Trimethylbenzene	50	46.8	94	72-118
108-67-8	1,3,5-Trimethylbenzene	50	47.5	95	69-118
1330-20-7	Xylene (total)	150	144	96	76-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	102%	70-130%
17060-07-0	1,2-Dichloroethane-D4	96%	70-122%
2037-26-5	Toluene-D8	108%	81-127%
460-00-4	4-Bromofluorobenzene	98%	66-132%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB31583
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
VA7271-BS	A192985.D	1	03/25/13	OTR	n/a	n/a	VA7271

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

JB31583-6, JB31583-8, JB31583-9, JB31583-10, JB31583-11, JB31583-12, JB31583-14

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	53.8	108	76-117
106-93-4	1,2-Dibromoethane	50	58.8	118	77-122
107-06-2	1,2-Dichloroethane	50	63.2	126	68-134
100-41-4	Ethylbenzene	50	55.3	111	74-119
98-82-8	Isopropylbenzene	50	55.9	112	71-119
1634-04-4	Methyl Tert Butyl Ether	100	111	111	72-124
108-88-3	Toluene	50	54.8	110	77-121
95-63-6	1,2,4-Trimethylbenzene	50	56.4	113	72-118
108-67-8	1,3,5-Trimethylbenzene	50	55.4	111	69-118
1330-20-7	Xylene (total)	150	168	112	76-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	102%	70-130%
17060-07-0	1,2-Dichloroethane-D4	96%	70-122%
2037-26-5	Toluene-D8	110%	81-127%
460-00-4	4-Bromofluorobenzene	101%	66-132%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB31583
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
VE8853-BS	E201360.D	1	03/27/13	OTR	n/a	n/a	VE8853

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

JB31583-13

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2240	90	76-117
106-93-4	1,2-Dibromoethane	2500	2410	96	77-122
107-06-2	1,2-Dichloroethane	2500	2320	93	68-134
100-41-4	Ethylbenzene	2500	2170	87	74-119
98-82-8	Isopropylbenzene	2500	2240	90	71-119
1634-04-4	Methyl Tert Butyl Ether	5000	4080	82	72-124
108-88-3	Toluene	2500	2340	94	77-121
95-63-6	1,2,4-Trimethylbenzene	2500	2200	88	72-118
108-67-8	1,3,5-Trimethylbenzene	2500	2150	86	69-118
1330-20-7	Xylene (total)	7500	6720	90	76-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	87%	70-130%
17060-07-0	1,2-Dichloroethane-D4	83%	70-122%
2037-26-5	Toluene-D8	95%	81-127%
460-00-4	4-Bromofluorobenzene	91%	66-132%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB31583
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
VA7277-BS	A193114.D	1	03/28/13	OTR	n/a	n/a	VA7277

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

JB31583-15

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	51.2	102	76-117
106-93-4	1,2-Dibromoethane	50	53.1	106	77-122
107-06-2	1,2-Dichloroethane	50	57.9	116	68-134
100-41-4	Ethylbenzene	50	53.2	106	74-119
98-82-8	Isopropylbenzene	50	53.8	108	71-119
1634-04-4	Methyl Tert Butyl Ether	100	99.1	99	72-124
108-88-3	Toluene	50	51.6	103	77-121
95-63-6	1,2,4-Trimethylbenzene	50	52.8	106	72-118
108-67-8	1,3,5-Trimethylbenzene	50	53.2	106	69-118
1330-20-7	Xylene (total)	150	159	106	76-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	104%	70-130%
17060-07-0	1,2-Dichloroethane-D4	96%	70-122%
2037-26-5	Toluene-D8	107%	81-127%
460-00-4	4-Bromofluorobenzene	100%	66-132%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB31583
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
VE8857-BS	E201449.D	1	03/29/13	OTR	n/a	n/a	VE8857

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

JB31583-4, JB31583-7

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2150	86	76-117
106-93-4	1,2-Dibromoethane	2500	2410	96	77-122
107-06-2	1,2-Dichloroethane	2500	2270	91	68-134
100-41-4	Ethylbenzene	2500	2200	88	74-119
98-82-8	Isopropylbenzene	2500	2190	88	71-119
1634-04-4	Methyl Tert Butyl Ether	5000	4020	80	72-124
108-88-3	Toluene	2500	2380	95	77-121
95-63-6	1,2,4-Trimethylbenzene	2500	2170	87	72-118
108-67-8	1,3,5-Trimethylbenzene	2500	2090	84	69-118
1330-20-7	Xylene (total)	7500	6820	91	76-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	87%	70-130%
17060-07-0	1,2-Dichloroethane-D4	83%	70-122%
2037-26-5	Toluene-D8	95%	81-127%
460-00-4	4-Bromofluorobenzene	87%	66-132%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB31583
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
VE8858-BS	E201470.D	1	03/29/13	OTR	n/a	n/a	VE8858

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

JB31583-4

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2230	89	76-117
106-93-4	1,2-Dibromoethane	2500	2420	97	77-122
107-06-2	1,2-Dichloroethane	2500	2280	91	68-134
100-41-4	Ethylbenzene	2500	2290	92	74-119
98-82-8	Isopropylbenzene	2500	2330	93	71-119
1634-04-4	Methyl Tert Butyl Ether	5000	4130	82	72-124
108-88-3	Toluene	2500	2360	94	77-121
108-67-8	1,3,5-Trimethylbenzene	2500	2220	89	69-118
1330-20-7	Xylene (total)	7500	7120	95	76-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	87%	70-130%
17060-07-0	1,2-Dichloroethane-D4	86%	70-122%
2037-26-5	Toluene-D8	94%	81-127%
460-00-4	4-Bromofluorobenzene	89%	66-132%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: JB31583
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
JB31583-2MS	A192945.D	1	03/23/13	OTR	n/a	n/a	VA7269
JB31583-2	A192941.D	1	03/23/13	OTR	n/a	n/a	VA7269

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

JB31583-1, JB31583-2, JB31583-3, JB31583-5

CAS No.	Compound	JB31583-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Limits
71-43-2	Benzene	ND		54.3	56.9	105	44-130
106-93-4	1,2-Dibromoethane	ND		54.3	47.9	88	41-139
107-06-2	1,2-Dichloroethane	ND		54.3	55.3	102	43-139
100-41-4	Ethylbenzene	ND		54.3	59.1	109	29-137
98-82-8	Isopropylbenzene	ND		54.3	60.9	112	27-138
1634-04-4	Methyl Tert Butyl Ether	ND		54.3	48.9	90	51-128
108-88-3	Toluene	ND		54.3	59.3	109	40-135
95-63-6	1,2,4-Trimethylbenzene	ND		54.3	57.5	106	17-142
108-67-8	1,3,5-Trimethylbenzene	ND		54.3	59.1	109	20-140
1330-20-7	Xylene (total)	ND		163	175	107	28-139

CAS No.	Surrogate Recoveries	MS	JB31583-2	Limits
1868-53-7	Dibromofluoromethane	99%	103%	70-130%
17060-07-0	1,2-Dichloroethane-D4	85%	93%	70-122%
2037-26-5	Toluene-D8	109%	108%	81-127%
460-00-4	4-Bromofluorobenzene	100%	110%	66-132%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: JB31583
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
JB32254-2MS	A192994.D	1	03/25/13	OTR	n/a	n/a	VA7271
JB32254-2	A192991.D	1	03/25/13	OTR	n/a	n/a	VA7271

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

JB31583-6, JB31583-8, JB31583-9, JB31583-10, JB31583-11, JB31583-12, JB31583-14

CAS No.	Compound	JB32254-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Limits
71-43-2	Benzene	2.0		42.5	39.7	89	44-130
106-93-4	1,2-Dibromoethane	ND		42.5	32.6	77	41-139
107-06-2	1,2-Dichloroethane	ND		42.5	35.2	83	43-139
100-41-4	Ethylbenzene	ND		42.5	34.1	80	29-137
98-82-8	Isopropylbenzene	ND		42.5	35.2	83	27-138
1634-04-4	Methyl Tert Butyl Ether	ND		42.5	32.1	75	51-128
108-88-3	Toluene	6.0		42.5	50.5	105	40-135
95-63-6	1,2,4-Trimethylbenzene	ND		42.5	32.8	77	17-142
108-67-8	1,3,5-Trimethylbenzene	ND		42.5	33.5	79	20-140
1330-20-7	Xylene (total)	ND		128	101	79	28-139

CAS No.	Surrogate Recoveries	MS	JB32254-2	Limits
1868-53-7	Dibromofluoromethane	87%	99%	70-130%
17060-07-0	1,2-Dichloroethane-D4	82%	89%	70-122%
2037-26-5	Toluene-D8	109%	105%	81-127%
460-00-4	4-Bromofluorobenzene	104%	107%	66-132%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: JB31583
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
JB32462-46MS	A193122.D	1	03/28/13	OTR	n/a	n/a	VA7277
JB32462-46	A193119.D	1	03/28/13	OTR	n/a	n/a	VA7277

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

JB31583-15

CAS No.	Compound	JB32462-46 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Limits
71-43-2	Benzene	ND		55.9	52.4	94	44-130
106-93-4	1,2-Dibromoethane	ND		55.9	45.4	81	41-139
107-06-2	1,2-Dichloroethane	ND		55.9	52.5	94	43-139
100-41-4	Ethylbenzene	ND		55.9	53.4	96	29-137
98-82-8	Isopropylbenzene	ND		55.9	56.2	101	27-138
1634-04-4	Methyl Tert Butyl Ether	ND		55.9	44.3	79	51-128
108-88-3	Toluene	ND		55.9	53.4	96	40-135
95-63-6	1,2,4-Trimethylbenzene	ND		55.9	53.4	96	17-142
108-67-8	1,3,5-Trimethylbenzene	ND		55.9	54.2	97	20-140
1330-20-7	Xylene (total)	ND		168	159	95	28-139

CAS No.	Surrogate Recoveries	MS	JB32462-46	Limits
1868-53-7	Dibromofluoromethane	99%	100%	70-130%
17060-07-0	1,2-Dichloroethane-D4	84%	89%	70-122%
2037-26-5	Toluene-D8	110%	108%	81-127%
460-00-4	4-Bromofluorobenzene	102%	111%	66-132%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB31583
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
JB31856-8MS	E201361.D	1	03/27/13	OTR	n/a	n/a	VE8853
JB31856-8MSD	E201362.D	1	03/27/13	OTR	n/a	n/a	VE8853
JB31856-8	E201363.D	1	03/27/13	OTR	n/a	n/a	VE8853

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

JB31583-13

CAS No.	Compound	JB31856-8 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		6780	6420	95	6440	95	0	44-130/21
106-93-4	1,2-Dibromoethane	ND		6780	6970	103	6980	103	0	41-139/21
107-06-2	1,2-Dichloroethane	ND		6780	6590	97	6480	96	2	43-139/19
100-41-4	Ethylbenzene	ND		6780	6430	95	6480	96	1	29-137/25
98-82-8	Isopropylbenzene	ND		6780	6430	95	6580	97	2	27-138/26
1634-04-4	Methyl Tert Butyl Ether	ND		6780	6450	95	6180	91	4	51-128/20
108-88-3	Toluene	39.4	J	6780	7030	103	6950	102	1	40-135/22
95-63-6	1,2,4-Trimethylbenzene	ND		6780	6460	95	6500	96	1	17-142/28
108-67-8	1,3,5-Trimethylbenzene	ND		6780	6230	92	6380	94	2	20-140/27
1330-20-7	Xylene (total)	ND		20300	20100	99	20100	99	0	28-139/25

CAS No.	Surrogate Recoveries	MS	MSD	JB31856-8	Limits
1868-53-7	Dibromofluoromethane	87%	87%	86%	70-130%
17060-07-0	1,2-Dichloroethane-D4	90%	85%	86%	70-122%
2037-26-5	Toluene-D8	96%	94%	94%	81-127%
460-00-4	4-Bromofluorobenzene	89%	89%	90%	66-132%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB31583
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
JB31734-2MS	E201450.D	1	03/29/13	OTR	n/a	n/a	VE8857
JB31734-2MSD	E201451.D	1	03/29/13	OTR	n/a	n/a	VE8857
JB31734-2	E201453.D	1	03/29/13	OTR	n/a	n/a	VE8857

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

JB31583-4, JB31583-7

CAS No.	Compound	JB31734-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		3170	2480	78	2340	74	6	44-130/21
106-93-4	1,2-Dibromoethane	ND		3170	3090	98	2990	94	3	41-139/21
107-06-2	1,2-Dichloroethane	ND		3170	2820	89	2740	86	3	43-139/19
100-41-4	Ethylbenzene	ND		3170	2450	77	2310	73	6	29-137/25
98-82-8	Isopropylbenzene	ND		3170	2320	73	2180	69	6	27-138/26
1634-04-4	Methyl Tert Butyl Ether	17.1	J	3170	2730	86	2700	85	1	51-128/20
108-88-3	Toluene	ND		3170	2690	85	2530	80	6	40-135/22
95-63-6	1,2,4-Trimethylbenzene	ND		3170	2570	81	2460	78	4	17-142/28
108-67-8	1,3,5-Trimethylbenzene	ND		3170	2360	74	2250	71	5	20-140/27
1330-20-7	Xylene (total)	49.7	J	9510	7910	83	7500	78	5	28-139/25

CAS No.	Surrogate Recoveries	MS	MSD	JB31734-2	Limits
1868-53-7	Dibromofluoromethane	86%	86%	83%	70-130%
17060-07-0	1,2-Dichloroethane-D4	89%	85%	86%	70-122%
2037-26-5	Toluene-D8	95%	94%	92%	81-127%
460-00-4	4-Bromofluorobenzene	87%	89%	89%	66-132%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB31583
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
JB31623-3MS	E201483.D	1	03/29/13	OTR	n/a	n/a	VE8858
JB31623-3MSD	E201484.D	1	03/29/13	OTR	n/a	n/a	VE8858
JB31623-3 [a]	E201476.D	1	03/29/13	OTR	n/a	n/a	VE8858

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

JB31583-4

CAS No.	Compound	JB31623-3 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		2750	2520	92	2520	92	0	44-130/21
106-93-4	1,2-Dibromoethane	ND		2750	2690	98	2730	99	1	41-139/21
107-06-2	1,2-Dichloroethane	ND		2750	2510	91	2540	92	1	43-139/19
100-41-4	Ethylbenzene	163		2750	2720	93	2740	94	1	29-137/25
98-82-8	Isopropylbenzene	70.3	J	2750	2590	92	2610	92	1	27-138/26
1634-04-4	Methyl Tert Butyl Ether	ND		2750	2390	87	2390	87	0	51-128/20
108-88-3	Toluene	24.3	J	2750	2800	101	2830	102	1	40-135/22
108-67-8	1,3,5-Trimethylbenzene	783		2750	3280	91	3320	92	1	20-140/27
1330-20-7	Xylene (total)	1270		8250	9390	98	9400	99	0	28-139/25

CAS No.	Surrogate Recoveries	MS	MSD	JB31623-3	Limits
1868-53-7	Dibromofluoromethane	86%	86%	83%	70-130%
17060-07-0	1,2-Dichloroethane-D4	82%	81%	83%	70-122%
2037-26-5	Toluene-D8	95%	96%	95%	81-127%
460-00-4	4-Bromofluorobenzene	88%	88%	89%	66-132%

(a) Dilution required due to matrix interference.

* = Outside of Control Limits.

Duplicate Summary

Job Number: JB31583
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
JB31583-1DUP	A192944.D	1	03/23/13	OTR	n/a	n/a	VA7269
JB31583-1	A192940.D	1	03/23/13	OTR	n/a	n/a	VA7269

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

JB31583-1, JB31583-2, JB31583-3, JB31583-5

CAS No.	Compound	JB31583-1 ug/kg	Q	DUP ug/kg	Q	RPD	Limits
71-43-2	Benzene	ND		ND		nc	15
106-93-4	1,2-Dibromoethane	ND		ND		nc	10
107-06-2	1,2-Dichloroethane	ND		ND		nc	10
100-41-4	Ethylbenzene	ND		ND		nc	29
98-82-8	Isopropylbenzene	ND		ND		nc	23
1634-04-4	Methyl Tert Butyl Ether	ND		ND		nc	23
108-88-3	Toluene	ND		ND		nc	21
95-63-6	1,2,4-Trimethylbenzene	ND		ND		nc	10
108-67-8	1,3,5-Trimethylbenzene	ND		ND		nc	12
1330-20-7	Xylene (total)	ND		ND		nc	26

CAS No.	Surrogate Recoveries	DUP	JB31583-1	Limits
1868-53-7	Dibromofluoromethane	106%	104%	70-130%
17060-07-0	1,2-Dichloroethane-D4	96%	94%	70-122%
2037-26-5	Toluene-D8	107%	108%	81-127%
460-00-4	4-Bromofluorobenzene	112%	109%	66-132%

* = Outside of Control Limits.

Duplicate Summary

Job Number: JB31583
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
JB31583-12DUP	A192992.D	1	03/25/13	OTR	n/a	n/a	VA7271
JB31583-12	A192988.D	1	03/25/13	OTR	n/a	n/a	VA7271

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

JB31583-6, JB31583-8, JB31583-9, JB31583-10, JB31583-11, JB31583-12, JB31583-14

CAS No.	Compound	JB31583-12 ug/kg	Q	DUP ug/kg	Q	RPD	Limits
71-43-2	Benzene	0.41		0.25	J	48* [a]	15
106-93-4	1,2-Dibromoethane	ND		ND		nc	10
107-06-2	1,2-Dichloroethane	ND		ND		nc	10
100-41-4	Ethylbenzene	ND		ND		nc	29
98-82-8	Isopropylbenzene	ND		ND		nc	23
1634-04-4	Methyl Tert Butyl Ether	ND		ND		nc	23
108-88-3	Toluene	ND		ND		nc	21
95-63-6	1,2,4-Trimethylbenzene	ND		ND		nc	10
108-67-8	1,3,5-Trimethylbenzene	ND		ND		nc	12
1330-20-7	Xylene (total)	ND		ND		nc	26

CAS No.	Surrogate Recoveries	DUP	JB31583-12	Limits
1868-53-7	Dibromofluoromethane	101%	102%	70-130%
17060-07-0	1,2-Dichloroethane-D4	87%	92%	70-122%
2037-26-5	Toluene-D8	107%	106%	81-127%
460-00-4	4-Bromofluorobenzene	106%	110%	66-132%

(a) High RPD due to low concentration of hit

* = Outside of Control Limits.

Duplicate Summary

Job Number: JB31583
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
JB32462-45DUP	A193121.D	1	03/28/13	OTR	n/a	n/a	VA7277
JB32462-45	A193118.D	1	03/28/13	OTR	n/a	n/a	VA7277

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

JB31583-15

CAS No.	Compound	JB32462-45 ug/kg	Q	DUP ug/kg	Q	RPD	Limits
71-43-2	Benzene	ND		ND		nc	15
106-93-4	1,2-Dibromoethane	ND		ND		nc	10
107-06-2	1,2-Dichloroethane	ND		ND		nc	10
100-41-4	Ethylbenzene	ND		ND		nc	29
98-82-8	Isopropylbenzene	ND		ND		nc	23
1634-04-4	Methyl Tert Butyl Ether	ND		ND		nc	23
108-88-3	Toluene	ND		ND		nc	21
95-63-6	1,2,4-Trimethylbenzene	ND		ND		nc	10
108-67-8	1,3,5-Trimethylbenzene	ND		ND		nc	12
1330-20-7	Xylene (total)	ND		ND		nc	26

CAS No.	Surrogate Recoveries	DUP	JB32462-45	Limits
1868-53-7	Dibromofluoromethane	105%	104%	70-130%
17060-07-0	1,2-Dichloroethane-D4	93%	95%	70-122%
2037-26-5	Toluene-D8	106%	109%	81-127%
460-00-4	4-Bromofluorobenzene	110%	112%	66-132%

* = Outside of Control Limits.

Instrument Performance Check (BFB)

Job Number: JB31583
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VA7222-BFB
Lab File ID: A191856.D
Instrument ID: GCMSA
Injection Date: 02/20/13
Injection Time: 12:14

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	14.95 - 40.0% of mass 95	9740	17.5		Pass
75	30.0 - 60.0% of mass 95	24837	44.5		Pass
95	Base peak, 100% relative abundance	55805	100.0		Pass
96	5.0 - 9.0% of mass 95	3797	6.80		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	51915	93.0		Pass
175	5.0 - 9.0% of mass 174	4176	7.48	(8.04) [a]	Pass
176	95.0 - 101.0% of mass 174	50803	91.0	(97.9) [a]	Pass
177	5.0 - 9.0% of mass 176	3296	5.91	(6.49) [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
VA7222-IC7222	A191857.D	02/20/13	12:54	00:40	Initial cal 0.5
VA7222-IC7222	A191858.D	02/20/13	13:21	01:07	Initial cal 1
VA7222-IC7222	A191859.D	02/20/13	13:53	01:39	Initial cal 2
VA7222-IC7222	A191860.D	02/20/13	14:25	02:11	Initial cal 5
VA7222-IC7222	A191861.D	02/20/13	14:55	02:41	Initial cal 10
VA7222-IC7222	A191862.D	02/20/13	15:24	03:10	Initial cal 20
VA7222-ICC7222	A191863.D	02/20/13	16:09	03:55	Initial cal 50
VA7222-IC7222	A191864.D	02/20/13	16:38	04:24	Initial cal 100
VA7222-IC7222	A191865.D	02/20/13	17:08	04:54	Initial cal 200
VA7222-ICV7222	A191868.D	02/20/13	18:45	06:31	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JB31583
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VA7269-BFB
Lab File ID: A192934.D
Instrument ID: GCMSA
Injection Date: 03/23/13
Injection Time: 08:42

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	14.95 - 40.0% of mass 95	7595	18.6		Pass
75	30.0 - 60.0% of mass 95	19349	47.3		Pass
95	Base peak, 100% relative abundance	40875	100.0		Pass
96	5.0 - 9.0% of mass 95	2712	6.63		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	40528	99.2		Pass
175	5.0 - 9.0% of mass 174	3234	7.91	(7.98) [a]	Pass
176	95.0 - 101.0% of mass 174	40499	99.1	(99.9) [a]	Pass
177	5.0 - 9.0% of mass 176	2486	6.08	(6.14) [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
VA7269-CC7222	A192935.D	03/23/13	09:16	00:34	Continuing cal 20
VA7269-MB	A192937.D	03/23/13	10:18	01:36	Method Blank
VA7269-BS	A192938.D	03/23/13	10:48	02:06	Blank Spike
JB31583-1	A192940.D	03/23/13	12:02	03:20	AOI-4_BH-13-94_0-2_031513
JB31583-2	A192941.D	03/23/13	12:22	03:40	AOI-4_BH-13-94_8-10_031513
JB31583-3	A192942.D	03/23/13	13:07	04:25	AOI-4_BH-13-90_8-10'_031513
JB31583-5	A192943.D	03/23/13	13:26	04:44	AOI4-BH-13-104_0-.5_31513
JB31583-1DUP	A192944.D	03/23/13	14:10	05:28	Duplicate
JB31583-2MS	A192945.D	03/23/13	14:40	05:58	Matrix Spike
ZZZZZZ	A192947.D	03/23/13	15:39	06:57	(unrelated sample)
ZZZZZZ	A192948.D	03/23/13	16:09	07:27	(unrelated sample)
ZZZZZZ	A192949.D	03/23/13	16:38	07:56	(unrelated sample)
ZZZZZZ	A192950.D	03/23/13	17:23	08:41	(unrelated sample)
ZZZZZZ	A192951.D	03/23/13	17:54	09:12	(unrelated sample)
ZZZZZZ	A192952.D	03/23/13	18:23	09:41	(unrelated sample)
ZZZZZZ	A192953.D	03/23/13	18:53	10:11	(unrelated sample)
ZZZZZZ	A192954.D	03/23/13	19:23	10:41	(unrelated sample)
ZZZZZZ	A192955.D	03/23/13	19:52	11:10	(unrelated sample)
ZZZZZZ	A192956.D	03/23/13	20:22	11:40	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JB31583
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VA7271-BFB
Lab File ID: A192982.D
Instrument ID: GCMSA
Injection Date: 03/25/13
Injection Time: 08:52

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	14.95 - 40.0% of mass 95	8947	19.6		Pass
75	30.0 - 60.0% of mass 95	21957	48.0		Pass
95	Base peak, 100% relative abundance	45763	100.0		Pass
96	5.0 - 9.0% of mass 95	3088	6.75		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	45880	100.3		Pass
175	5.0 - 9.0% of mass 174	3742	8.18	(8.16) [a]	Pass
176	95.0 - 101.0% of mass 174	44149	96.5	(96.2) [a]	Pass
177	5.0 - 9.0% of mass 176	2965	6.48	(6.72) [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
VA7271-CC7222	A192983.D	03/25/13	09:29	00:37	Continuing cal 20
VA7271-MB	A192984.D	03/25/13	10:09	01:17	Method Blank
VA7271-BS	A192985.D	03/25/13	10:32	01:40	Blank Spike
JB31583-12	A192988.D	03/25/13	12:32	03:40	S-366@14-16_031513
JB31583-14	A192989.D	03/25/13	13:02	04:10	S-367@14'_031313
JB31583-6	A192990.D	03/25/13	13:31	04:39	AOI4-S-381_0-.5_31513
JB32254-2	A192991.D	03/25/13	14:01	05:09	(used for QC only; not part of job JB31583)
JB31583-12DUP	A192992.D	03/25/13	14:31	05:39	Duplicate
JB31583-8	A192993.D	03/25/13	15:15	06:23	AOI4-BH-13-86_2-2.5_031513
JB32254-2MS	A192994.D	03/25/13	15:44	06:52	Matrix Spike
JB31583-10	A192996.D	03/25/13	16:44	07:52	AOI4-BH-13-85_5.5-6_031513
JB31583-11	A192997.D	03/25/13	17:15	08:23	AOI4-BH-13-84_5.5-6_031513
JB31583-9	A192998.D	03/25/13	17:45	08:53	AOI4-BH-13-86_5.5-6_031513
ZZZZZZ	A192999.D	03/25/13	18:14	09:22	(unrelated sample)
ZZZZZZ	A193000.D	03/25/13	18:44	09:52	(unrelated sample)
ZZZZZZ	A193001.D	03/25/13	19:28	10:36	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JB31583
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VA7277-BFB
Lab File ID: A193111.D
Instrument ID: GCMSA
Injection Date: 03/28/13
Injection Time: 07:42

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	14.95 - 40.0% of mass 95	7472	19.3		Pass
75	30.0 - 60.0% of mass 95	18351	47.5		Pass
95	Base peak, 100% relative abundance	38629	100.0		Pass
96	5.0 - 9.0% of mass 95	2393	6.19		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	39952	103.4		Pass
175	5.0 - 9.0% of mass 174	3194	8.27	(7.99) [a]	Pass
176	95.0 - 101.0% of mass 174	38883	100.7	(97.3) [a]	Pass
177	5.0 - 9.0% of mass 176	2612	6.76	(6.72) [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
VA7277-CC7222	A193112.D	03/28/13	08:19	00:37	Continuing cal 20
VA7277-MB	A193113.D	03/28/13	08:41	00:59	Method Blank
VA7277-BS	A193114.D	03/28/13	09:29	01:47	Blank Spike
ZZZZZZ	A193116.D	03/28/13	10:21	02:39	(unrelated sample)
JB31583-15	A193117.D	03/28/13	11:05	03:23	S-368@14'_031413
JB32462-45	A193118.D	03/28/13	11:35	03:53	(used for QC only; not part of job JB31583)
JB32462-46	A193119.D	03/28/13	12:05	04:23	(used for QC only; not part of job JB31583)
ZZZZZZ	A193120.D	03/28/13	12:44	05:02	(unrelated sample)
JB32462-45DUP	A193121.D	03/28/13	13:14	05:32	Duplicate
JB32462-46MS	A193122.D	03/28/13	13:43	06:01	Matrix Spike
ZZZZZZ	A193124.D	03/28/13	14:41	06:59	(unrelated sample)
ZZZZZZ	A193125.D	03/28/13	15:18	07:36	(unrelated sample)
ZZZZZZ	A193126.D	03/28/13	15:43	08:01	(unrelated sample)
ZZZZZZ	A193127.D	03/28/13	16:13	08:31	(unrelated sample)
ZZZZZZ	A193128.D	03/28/13	16:56	09:14	(unrelated sample)
ZZZZZZ	A193129.D	03/28/13	17:25	09:43	(unrelated sample)
ZZZZZZ	A193130.D	03/28/13	17:55	10:13	(unrelated sample)
ZZZZZZ	A193131.D	03/28/13	18:28	10:46	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JB31583
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VE8801-BFB
Lab File ID: E200194.D
Instrument ID: GCMSE
Injection Date: 02/22/13
Injection Time: 08:23

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	6576	16.7		Pass
75	30.0 - 60.0% of mass 95	17805	45.3		Pass
95	Base peak, 100% relative abundance	39293	100.0		Pass
96	5.0 - 9.0% of mass 95	2733	6.96		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	38072	96.9		Pass
175	5.0 - 9.0% of mass 174	2908	7.40	(7.64) [a]	Pass
176	95.0 - 101.0% of mass 174	36725	93.5	(96.5) [a]	Pass
177	5.0 - 9.0% of mass 176	2537	6.46	(6.91) [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
VE8801-IC8801	E200198.D	02/22/13	10:38	02:15	Initial cal 5
VE8801-IC8801	E200199.D	02/22/13	12:19	03:56	Initial cal 10
VE8801-IC8801	E200200.D	02/22/13	12:49	04:26	Initial cal 20
VE8801-ICC8801	E200201.D	02/22/13	13:19	04:56	Initial cal 50
VE8801-IC8801	E200202.D	02/22/13	13:50	05:27	Initial cal 100
VE8801-IC8801	E200203.D	02/22/13	14:20	05:57	Initial cal 200
VE8801-IC8801	E200206.D	02/22/13	15:50	07:27	Initial cal 1
VE8801-IC8801	E200207.D	02/22/13	16:19	07:56	Initial cal 0.5
VE8801-IC8801	E200208.D	02/22/13	16:49	08:26	Initial cal 2
VE8801-ICV8801	E200209.D	02/22/13	17:19	08:56	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JB31583
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample:	VE8853-BFB	**Injection Date:**	03/26/13
Lab File ID:	E201356.D	**Injection Time:**	23:30
Instrument ID:	GCMSE		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	7373	15.1		Pass
75	30.0 - 60.0% of mass 95	21166	43.3		Pass
95	Base peak, 100% relative abundance	48849	100.0		Pass
96	5.0 - 9.0% of mass 95	3421	7.00		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	50187	102.7		Pass
175	5.0 - 9.0% of mass 174	3927	8.04	(7.82) [a]	Pass
176	95.0 - 101.0% of mass 174	49118	100.6	(97.9) [a]	Pass
177	5.0 - 9.0% of mass 176	3240	6.63	(6.60) [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
VE8853-CC8801	E201357.D	03/27/13	00:00	00:30	Continuing cal 50
VE8853-MB	E201359.D	03/27/13	01:00	01:30	Method Blank
VE8853-BS	E201360.D	03/27/13	01:30	02:00	Blank Spike
JB31856-8MS	E201361.D	03/27/13	02:00	02:30	Matrix Spike
JB31856-8MSD	E201362.D	03/27/13	02:29	02:59	Matrix Spike Duplicate
JB31856-8	E201363.D	03/27/13	03:29	03:59	(used for QC only; not part of job JB31583)
ZZZZZZ	E201364.D	03/27/13	03:59	04:29	(unrelated sample)
ZZZZZZ	E201365.D	03/27/13	04:30	05:00	(unrelated sample)
ZZZZZZ	E201366.D	03/27/13	04:59	05:29	(unrelated sample)
ZZZZZZ	E201367.D	03/27/13	05:29	05:59	(unrelated sample)
ZZZZZZ	E201368.D	03/27/13	05:59	06:29	(unrelated sample)
ZZZZZZ	E201369.D	03/27/13	06:28	06:58	(unrelated sample)
ZZZZZZ	E201370.D	03/27/13	06:58	07:28	(unrelated sample)
JB31583-13	E201371.D	03/27/13	07:29	07:59	S-367_031313@6'
ZZZZZZ	E201372.D	03/27/13	07:59	08:29	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JB31583
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VE8857-BFB
Lab File ID: E201445.D
Instrument ID: GCMSE
Injection Date: 03/28/13
Injection Time: 22:21

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	7650	15.3		Pass
75	30.0 - 60.0% of mass 95	21992	43.9		Pass
95	Base peak, 100% relative abundance	50050	100.0		Pass
96	5.0 - 9.0% of mass 95	3307	6.61		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	50554	101.0		Pass
175	5.0 - 9.0% of mass 174	4165	8.32	(8.24) [a]	Pass
176	95.0 - 101.0% of mass 174	50549	101.0	(100.0) [a]	Pass
177	5.0 - 9.0% of mass 176	3164	6.32	(6.26) [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
VE8857-CC8801	E201446.D	03/28/13	22:51	00:30	Continuing cal 50
VE8857-MB	E201448.D	03/28/13	23:51	01:30	Method Blank
VE8857-BS	E201449.D	03/29/13	00:21	02:00	Blank Spike
JB31734-2MS	E201450.D	03/29/13	00:51	02:30	Matrix Spike
JB31734-2MSD	E201451.D	03/29/13	01:21	03:00	Matrix Spike Duplicate
JB31734-2	E201453.D	03/29/13	02:20	03:59	(used for QC only; not part of job JB31583)
ZZZZZZ	E201454.D	03/29/13	02:51	04:30	(unrelated sample)
ZZZZZZ	E201455.D	03/29/13	03:21	05:00	(unrelated sample)
ZZZZZZ	E201456.D	03/29/13	03:52	05:31	(unrelated sample)
ZZZZZZ	E201457.D	03/29/13	04:22	06:01	(unrelated sample)
ZZZZZZ	E201459.D	03/29/13	05:22	07:01	(unrelated sample)
ZZZZZZ	E201460.D	03/29/13	05:53	07:32	(unrelated sample)
ZZZZZZ	E201461.D	03/29/13	06:23	08:02	(unrelated sample)
JB31583-4	E201462.D	03/29/13	06:53	08:32	AOI4-BH-13-104_6-7_31513
JB31583-7	E201463.D	03/29/13	07:23	09:02	AOI4-S-381_2-3_31513
ZZZZZZ	E201464.D	03/29/13	07:53	09:32	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JB31583
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VE8858-BFB
Lab File ID: E201466.D
Instrument ID: GCMSE
Injection Date: 03/29/13
Injection Time: 09:56

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	7819	15.5		Pass
75	30.0 - 60.0% of mass 95	22978	45.5		Pass
95	Base peak, 100% relative abundance	50536	100.0		Pass
96	5.0 - 9.0% of mass 95	3425	6.78		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	52786	104.5		Pass
175	5.0 - 9.0% of mass 174	4297	8.50	(8.14) [a]	Pass
176	95.0 - 101.0% of mass 174	52109	103.1	(98.7) [a]	Pass
177	5.0 - 9.0% of mass 176	3456	6.84	(6.63) [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
VE8858-CC8801	E201467.D	03/29/13	10:45	00:49	Continuing cal 20
VE8858-MB	E201469.D	03/29/13	11:50	01:54	Method Blank
VE8858-BS	E201470.D	03/29/13	12:21	02:25	Blank Spike
ZZZZZZ	E201471.D	03/29/13	12:51	02:55	(unrelated sample)
ZZZZZZ	E201472.D	03/29/13	13:20	03:24	(unrelated sample)
ZZZZZZ	E201473.D	03/29/13	13:50	03:54	(unrelated sample)
ZZZZZZ	E201474.D	03/29/13	14:21	04:25	(unrelated sample)
ZZZZZZ	E201475.D	03/29/13	14:51	04:55	(unrelated sample)
JB31623-3	E201476.D	03/29/13	15:21	05:25	(used for QC only; not part of job JB31583)
ZZZZZZ	E201477.D	03/29/13	15:51	05:55	(unrelated sample)
ZZZZZZ	E201478.D	03/29/13	16:21	06:25	(unrelated sample)
ZZZZZZ	E201479.D	03/29/13	16:52	06:56	(unrelated sample)
ZZZZZZ	E201480.D	03/29/13	17:22	07:26	(unrelated sample)
JB31583-4	E201482.D	03/29/13	18:23	08:27	AOI4-BH-13-104_6-7_31513
JB31623-3MS	E201483.D	03/29/13	18:53	08:57	Matrix Spike
JB31623-3MSD	E201484.D	03/29/13	19:23	09:27	Matrix Spike Duplicate
ZZZZZZ	E201486.D	03/29/13	20:24	10:28	(unrelated sample)
ZZZZZZ	E201489.D	03/29/13	21:54	11:58	(unrelated sample)

Volatile Internal Standard Area Summary

Job Number: JB31583
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	VA7269-CC7222	**Injection Date:**	03/23/13
Lab File ID:	A192935.D	**Injection Time:**	09:16
Instrument ID:	GCMSA	**Method:**	SW846 8260B

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	68598	7.01	171045	9.34	236650	10.29	226797	13.74	134758	16.37
Upper Limit [a]	137196	7.51	342090	9.84	473300	10.79	453594	14.24	269516	16.87
Lower Limit [b]	34299	6.51	85523	8.84	118325	9.79	113399	13.24	67379	15.87

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VA7269-MB	75407	7.01	180844	9.35	246074	10.29	235678	13.74	124288	16.37
VA7269-BS	69763	7.01	188563	9.35	255639	10.30	247960	13.74	152558	16.37
JB31583-1	71694	7.02	186687	9.35	258139	10.30	252224	13.74	129948	16.38
JB31583-2	72111	7.02	189812	9.35	259876	10.30	259244	13.74	131105	16.37
JB31583-3	71712	7.01	186396	9.34	257953	10.30	260514	13.74	132169	16.37
JB31583-5	68228	7.01	184066	9.35	257330	10.30	253875	13.74	137954	16.37
JB31583-1DUP	73227	7.01	177974	9.35	250537	10.30	250243	13.74	127190	16.37
JB31583-2MS	46818	7.02	182611	9.35	250158	10.30	238128	13.74	140680	16.38
ZZZZZZ	78620	7.02	184798	9.34	253290	10.30	248625	13.74	126677	16.37
ZZZZZZ	60910	7.02	171329	9.35	237554	10.30	231067	13.74	115653	16.38
ZZZZZZ	69696	7.01	182146	9.35	257276	10.30	256404	13.74	129378	16.38
ZZZZZZ	68226	7.01	181256	9.35	253930	10.30	252435	13.74	126637	16.38
ZZZZZZ	67720	7.02	168712	9.35	234781	10.30	239764	13.74	118396	16.37
ZZZZZZ	65450	7.02	169411	9.35	234411	10.30	226403	13.74	120219	16.38
ZZZZZZ	63391	7.02	170206	9.35	230069	10.30	232425	13.74	115856	16.38
ZZZZZZ	63171	7.02	169650	9.35	235940	10.30	225879	13.74	115766	16.37
ZZZZZZ	62641	7.02	166664	9.35	234474	10.30	233390	13.74	116005	16.38
ZZZZZZ	65153	7.01	171112	9.35	238302	10.30	240965	13.74	118404	16.38

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: JB31583
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	VA7271-CC7222	**Injection Date:**	03/25/13
Lab File ID:	A192983.D	**Injection Time:**	09:29
Instrument ID:	GCMSA	**Method:**	SW846 8260B

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	76738	7.03	181508	9.36	243846	10.31	223768	13.76	132582	16.39
Upper Limit [a]	153476	7.53	363016	9.86	487692	10.81	447536	14.26	265164	16.89
Lower Limit [b]	38369	6.53	90754	8.86	121923	9.81	111884	13.26	66291	15.89

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VA7271-MB	69547	7.02	171088	9.36	234635	10.31	217445	13.75	103547	16.39
VA7271-BS	57813	7.04	173898	9.36	234348	10.31	217843	13.75	130521	16.39
JB31583-12	63032	7.03	184996	9.37	248928	10.31	226586	13.76	114951	16.39
JB31583-14	67534	7.03	191903	9.37	264704	10.31	255564	13.76	141163	16.39
JB31583-6	77715	7.03	201802	9.37	274217	10.32	257799	13.76	132677	16.39
JB32254-2	71076	7.03	210314	9.37	281219	10.31	253311	13.76	134304	16.39
JB31583-12DUP	71185	7.03	212220	9.37	282260	10.32	260661	13.76	141211	16.40
JB31583-8	77946	7.04	210100	9.37	292715	10.31	270154	13.76	155963	16.39
JB32254-2MS	56730	7.04	221001	9.37	298048	10.31	266426	13.76	150238	16.39
JB31583-10	69978	7.04	197457	9.37	269455	10.32	254062	13.76	131295	16.39
JB31583-11	83713	7.04	206363	9.37	281461	10.31	269206	13.76	134930	16.40
JB31583-9	82592	7.04	211134	9.37	285496	10.32	260401	13.76	134221	16.39
ZZZZZZ	39345	7.03	96075	9.37	132169	10.32	124538	13.76	65484*	16.40
ZZZZZZ	73333	7.03	216557	9.37	296538	10.32	275637	13.76	148601	16.39
ZZZZZZ	72343	7.04	212079	9.37	295969	10.32	271577	13.75	148121	16.39

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: JB31583
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	VA7277-CC7222	**Injection Date:**	03/28/13
Lab File ID:	A193112.D	**Injection Time:**	08:19
Instrument ID:	GCMSA	**Method:**	SW846 8260B

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	58292	7.01	177529	9.34	242367	10.29	230548	13.73	131924	16.37
Upper Limit [a]	116584	7.51	355058	9.84	484734	10.79	461096	14.23	263848	16.87
Lower Limit [b]	29146	6.51	88765	8.84	121184	9.79	115274	13.23	65962	15.87

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VA7277-MB	61046	7.00	166831	9.34	226949	10.29	216054	13.73	101347	16.37
VA7277-BS	59234	7.00	181318	9.34	247653	10.29	225591	13.73	136445	16.37
ZZZZZZ	75313	7.01	175336	9.34	242472	10.29	220389	13.73	107763	16.37
JB31583-15	72764	7.01	187775	9.34	262083	10.29	256191	13.73	145846	16.36
JB32462-45	65494	7.00	176177	9.34	243440	10.29	230368	13.73	113786	16.37
JB32462-46	69036	7.01	204410	9.34	276666	10.29	257547	13.73	131781	16.36
ZZZZZZ	71041	7.01	187408	9.34	257430	10.29	245361	13.73	120030	16.37
JB32462-45DUP	65911	7.01	187794	9.34	256470	10.29	238278	13.73	122637	16.37
JB32462-46MS	42526	7.01	187527	9.34	253440	10.29	235093	13.73	131400	16.36
ZZZZZZ	58786	7.01	182041	9.34	247469	10.29	233700	13.73	113438	16.37
ZZZZZZ	66468	7.01	184447	9.34	249999	10.29	233886	13.73	118412	16.37
ZZZZZZ	67804	7.01	186117	9.34	248841	10.29	238026	13.73	116356	16.37
ZZZZZZ	63775	7.02	188484	9.34	253040	10.29	240795	13.73	125000	16.37
ZZZZZZ	62029	7.01	190011	9.34	262984	10.29	245931	13.73	122019	16.37
ZZZZZZ	58298	7.00	187804	9.34	252119	10.29	238135	13.73	132227	16.36
ZZZZZZ	62857	7.01	189333	9.34	254428	10.29	243546	13.73	126705	16.36
ZZZZZZ	44672	7.01	182921	9.34	254401	10.29	222134	13.73	106708	16.36

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: JB31583
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	VE8853-CC8801	**Injection Date:**	03/27/13
Lab File ID:	E201357.D	**Injection Time:**	00:00
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	88925	7.71	167741	9.91	226083	10.82	215124	14.15	125264	16.72
Upper Limit [a]	177850	8.21	335482	10.41	452166	11.32	430248	14.65	250528	17.22
Lower Limit [b]	44463	7.21	83871	9.41	113042	10.32	107562	13.65	62632	16.22

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VE8853-MB	94784	7.69	183883	9.91	234824	10.82	219623	14.15	127161	16.72
VE8853-BS	78703	7.69	173553	9.91	221074	10.83	213986	14.15	123623	16.72
JB31856-8MS	69557	7.68	162048	9.90	213374	10.82	205982	14.15	122559	16.72
JB31856-8MSD	70864	7.68	165485	9.90	219577	10.82	209966	14.15	122863	16.72
JB31856-8	79496	7.68	182174	9.90	231431	10.82	218131	14.15	131204	16.72
ZZZZZZ	76358	7.70	181095	9.90	231685	10.82	217056	14.15	130113	16.72
ZZZZZZ	82778	7.68	184355	9.90	234050	10.82	216026	14.15	120155	16.72
ZZZZZZ	78794	7.69	183462	9.90	236080	10.82	213178	14.15	120734	16.72
ZZZZZZ	75276	7.69	186456	9.90	236373	10.82	223557	14.15	130381	16.72
ZZZZZZ	66492	7.68	184304	9.91	232004	10.82	218192	14.15	125490	16.72
ZZZZZZ	71544	7.68	188069	9.90	242765	10.82	228252	14.15	137557	16.72
ZZZZZZ	78809	7.68	181154	9.90	233136	10.82	217001	14.15	136074	16.72
JB31583-13 [c]	71297	7.68	188870	9.90	236358	10.82	208920	14.15	132978	16.72
ZZZZZZ	79697	7.67	189978	9.90	242814	10.82	228663	14.15	135154	16.72

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

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.
(c) Dilution required due to matrix interference.

Volatile Internal Standard Area Summary

Job Number: JB31583
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	VE8857-CC8801	**Injection Date:**	03/28/13
Lab File ID:	E201446.D	**Injection Time:**	22:51
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	75497	7.69	156879	9.91	206244	10.82	198865	14.15	115414	16.72
Upper Limit [a]	150994	8.19	313758	10.41	412488	11.32	397730	14.65	230828	17.22
Lower Limit [b]	37749	7.19	78440	9.41	103122	10.32	99433	13.65	57707	16.22

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VE8857-MB	90743	7.69	171740	9.90	217285	10.83	202987	14.15	121332	16.72
VE8857-BS	70407	7.69	161397	9.91	212377	10.82	203654	14.15	119964	16.72
JB31734-2MS	59902	7.68	158391	9.90	208548	10.82	199347	14.15	118142	16.72
JB31734-2MSD	62598	7.69	164152	9.90	218878	10.82	206113	14.15	121318	16.72
JB31734-2	66164	7.70	171970	9.90	217646	10.82	201222	14.15	122628	16.72
ZZZZZZ	64279	7.69	169240	9.90	218115	10.82	203087	14.15	124285	16.72
ZZZZZZ	65486	7.69	167815	9.90	213973	10.82	199759	14.15	126569	16.72
ZZZZZZ	64497	7.68	165704	9.90	208798	10.82	194913	14.15	121765	16.72
ZZZZZZ	61506	7.67	166745	9.90	205446	10.82	200184	14.15	126398	16.72
ZZZZZZ	66396	7.68	167472	9.90	207544	10.82	195622	14.15	117956	16.72
ZZZZZZ	64335	7.69	166338	9.90	209389	10.82	188228	14.15	112944	16.72
ZZZZZZ	86276	7.68	176883	9.90	213813	10.82	197132	14.15	125314	16.72
JB31583-4	95839	7.70	176640	9.90	221914	10.82	199963	14.15	126312	16.72
JB31583-7 [c]	88670	7.68	178614	9.91	221300	10.82	193110	14.15	118368	16.72
ZZZZZZ	73217	7.68	176109	9.90	230678	10.82	210185	14.15	125491	16.72

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

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.
(c) Dilution required due to matrix interference.

Volatile Internal Standard Area Summary

Job Number: JB31583
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	VE8858-CC8801	**Injection Date:**	03/29/13
Lab File ID:	E201467.D	**Injection Time:**	10:45
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	95201	7.67	166373	9.91	218298	10.82	202042	14.15	120064	16.72
Upper Limit [a]	190402	8.17	332746	10.41	436596	11.32	404084	14.65	240128	17.22
Lower Limit [b]	47601	7.17	83187	9.41	109149	10.32	101021	13.65	60032	16.22

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VE8858-MB	90190	7.69	170427	9.90	216088	10.83	208939	14.15	120960	16.72
VE8858-BS	64905	7.69	159880	9.90	216086	10.82	197926	14.15	115493	16.72
ZZZZZZ	63888	7.68	168142	9.90	217979	10.82	206944	14.15	121753	16.72
ZZZZZZ	66971	7.68	172404	9.90	219464	10.82	203763	14.15	121384	16.72
ZZZZZZ	62784	7.68	169066	9.90	210431	10.82	201063	14.15	126756	16.72
ZZZZZZ	70478	7.68	173548	9.90	219194	10.82	207139	14.15	116507	16.72
ZZZZZZ	72699	7.68	176001	9.91	221561	10.83	203841	14.15	130337	16.72
JB31623-3	71089	7.69	179117	9.90	228389	10.82	208471	14.15	122452	16.72
ZZZZZZ	69659	7.68	179913	9.90	231260	10.82	210800	14.15	120217	16.72
ZZZZZZ	95816	7.69	181831	9.91	231076	10.82	218249	14.15	132563	16.72
ZZZZZZ	79898	7.69	176686	9.90	215841	10.83	187211	14.15	121708	16.72
ZZZZZZ	99820	7.70	183089	9.90	233272	10.82	208247	14.15	117479	16.72
JB31583-4	71345	7.68	170832	9.90	212491	10.82	195940	14.15	118746	16.72
JB31623-3MS	62071	7.70	166273	9.90	219568	10.82	207336	14.15	121816	16.72
JB31623-3MSD	63676	7.69	166580	9.90	217175	10.82	206385	14.15	121115	16.72
ZZZZZZ	75411	7.68	182550	9.91	229394	10.83	213136	14.15	132711	16.72
ZZZZZZ	74182	7.70	177654	9.90	224655	10.82	212437	14.15	128874	16.72

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

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

Volatile Surrogate Recovery Summary

Job Number: JB31583
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
JB31583-1	A192940.D	104.0	94.0	108.0	109.0
JB31583-2	A192941.D	103.0	93.0	108.0	110.0
JB31583-3	A192942.D	103.0	94.0	108.0	110.0
JB31583-4	E201482.D	84.0	82.0	98.0	100.0
JB31583-4	E201462.D	85.0	83.0	94.0	86.0
JB31583-5	A192943.D	104.0	94.0	108.0	105.0
JB31583-6	A192990.D	103.0	92.0	107.0	110.0
JB31583-7	E201463.D	84.0	82.0	96.0	102.0
JB31583-8	A192993.D	103.0	93.0	105.0	100.0
JB31583-9	A192998.D	101.0	90.0	104.0	108.0
JB31583-10	A192996.D	103.0	92.0	107.0	109.0
JB31583-11	A192997.D	105.0	93.0	110.0	112.0
JB31583-12	A192988.D	102.0	92.0	106.0	110.0
JB31583-13	E201371.D	85.0	83.0	101.0	94.0
JB31583-14	A192989.D	101.0	120.0	124.0	93.0
JB31583-15	A193117.D	106.0	98.0	109.0	101.0
JB31583-12DUP	A192992.D	101.0	87.0	107.0	106.0
JB31583-1DUP	A192944.D	106.0	96.0	107.0	112.0
JB31583-2MS	A192945.D	99.0	85.0	109.0	100.0
JB31623-3MS	E201483.D	86.0	82.0	95.0	88.0
JB31623-3MSD	E201484.D	86.0	81.0	96.0	88.0
JB31734-2MS	E201450.D	86.0	89.0	95.0	87.0
JB31734-2MSD	E201451.D	86.0	85.0	94.0	89.0
JB31856-8MS	E201361.D	87.0	90.0	96.0	89.0
JB31856-8MSD	E201362.D	87.0	85.0	94.0	89.0
JB32254-2MS	A192994.D	87.0	82.0	109.0	104.0
JB32462-45DUP	A193121.D	105.0	93.0	106.0	110.0
JB32462-46MS	A193122.D	99.0	84.0	110.0	102.0
VA7269-BS	A192938.D	102.0	96.0	108.0	98.0
VA7269-MB	A192937.D	103.0	96.0	106.0	108.0
VA7271-BS	A192985.D	102.0	96.0	110.0	101.0
VA7271-MB	A192984.D	109.0	100.0	107.0	116.0
VA7277-BS	A193114.D	104.0	96.0	107.0	100.0
VA7277-MB	A193113.D	107.0	98.0	109.0	116.0
VE8853-BS	E201360.D	87.0	83.0	95.0	91.0
VE8853-MB	E201359.D	84.0	86.0	95.0	91.0
VE8857-BS	E201449.D	87.0	83.0	95.0	87.0
VE8857-MB	E201448.D	84.0	86.0	95.0	90.0
VE8858-BS	E201470.D	87.0	86.0	94.0	89.0
VE8858-MB	E201469.D	84.0	86.0	97.0	90.0

Volatile Surrogate Recovery Summary

Job Number: JB31583
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

Surrogate Compounds	Recovery Limits

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

Initial Calibration Summary

Job Number: JB31583 **Sample:** VA7222-ICC7222
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** A191863.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Response Factor Report MSA

```
Method       : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title        : SW 846  8260bB ZB624 60m x 0.25mm x 1.4um
Last Update  : Thu Feb 21 08:12:37 2013
Response via : Initial Calibration

Calibration Files
5   =A191860.D   2   =A191859.D   20  =A191862.D   50  =A191863.D
100 =A191864.D   1   =A191858.D   200 =A191865.D   0.5 =A191857.D
10  =A191861.D       =
```

Compound	5	2	20	50	100	1	200	0.5	10	Avg	%RSD
1) I Tert Butyl Alcohol-d9 ----------ISTD----------											
2) 1,4-dioxane	0.073	0.093	0.091	0.098		0.096		0.085		0.089	10.51
3) ethanol										0.000#	-1.00
4) tertiary butyl alcohol	0.985	0.840	0.988	0.966	1.006	1.013		0.952		0.964	6.09
5) I pentafluorobenzene ----------ISTD----------											
6) chlorotrifluoroethene										0.000#	-1.00
7) chlorodifluoromethane	0.279	0.273	0.277	0.269	0.300	0.262	0.307		0.319	0.286	7.08
8) dichlorodifluoromethane	0.392	0.361	0.396	0.362	0.425	0.388	0.391		0.334	0.381	7.23
9) chloromethane	0.516	0.536	0.483	0.471	0.519	0.594	0.501	0.672	0.431	0.525	13.60
10) vinyl chloride	0.476	0.504	0.470	0.448	0.475	0.594	0.470	0.483	0.419	0.482	9.96
11) bromomethane	0.353	0.386	0.324	0.296	0.303	0.423		0.381	0.285	0.344	14.49
12) chloroethane	0.234	0.244	0.235	0.222	0.237	0.255	0.208		0.203	0.230	7.61
13) vinyl bromide										0.000#	-1.00
14) trichlorofluoromethane	0.484	0.489	0.497	0.469	0.517	0.537	0.495		0.424	0.489	6.84
15) pentane	0.728	0.604	0.628	0.608	0.662	0.886	0.647	0.579	0.658	0.667	13.92
16) ethyl ether	0.201	0.179	0.196	0.188	0.190	0.236	0.200		0.176	0.196	9.53
17) Freon 123a										0.000#	-1.00
18) acrolein	0.061	0.067	0.060	0.059		0.067			0.047	0.060	12.08
19) 1,1-dichloroethene	0.298	0.244	0.319	0.308	0.311	0.278	0.316	0.223	0.328	0.292	12.47
20) acetone	0.098		0.068	0.074	0.082		0.092		0.077	0.082	13.70
21) allyl chloride	0.181		0.213	0.215	0.216		0.218		0.218	0.210	6.81
22) acetonitrile	0.019		0.020	0.024	0.026		0.029		0.020	0.023	17.22

----- Linear regression ----- Coefficient = 0.9977

```
                Response Ratio = -0.03162 + 0.02891 *A

23)  iodomethane
           0.625 0.538 0.682 0.668 0.664 0.571 0.683 0.730 0.676   0.649    9.29
24)  iso-butyl alcohol
           0.012       0.010 0.010 0.012       0.014       0.011   0.011   12.56
25)  carbon disulfide
           1.042 0.947 1.198 1.141 1.145 0.927 1.168 1.119 1.170   1.095    9.11
26)  methylene chloride
           0.407 0.401 0.401 0.392 0.391 0.553 0.394       0.401   0.418   13.20
27)  methyl acetate
           0.226       0.192 0.204 0.225       0.249       0.189   0.214   10.77
28)  methyl tert butyl ether
           1.011 0.796 0.997 0.984 0.987 0.918 1.030 1.137 0.934   0.977    9.44
29)  trans-1,2-dichloroethene
           0.322 0.277 0.361 0.343 0.350 0.300 0.352 0.303 0.348   0.328    8.88
30)  di-isopropyl ether
           1.204 1.158 1.253 1.237 1.291 1.103 1.328 1.200 1.245   1.224    5.54
31)  t-butyl formate
           0.253 0.199 0.253 0.261 0.281       0.298       0.240   0.255   12.39
32)  3,3-dimethyl-1-butanol
           0.034 0.025 0.032 0.035 0.039 0.032 0.044       0.030   0.034   17.00
            ----- Linear regression -----  Coefficient =  0.9949
              Response Ratio = -0.03444 + 0.04394 *A

33)  ethyl tert-butyl ether
           1.110 1.026 1.148 1.138 1.179 1.013 1.232 1.045 1.137   1.114    6.60
34)  2-butanone
                       0.028 0.031 0.034       0.038       0.022   0.031   20.07
            ----- Linear regression -----  Coefficient =  0.9977
              Response Ratio = -0.00374 + 0.03753 *A

35)  1,1-dichloroethane
           0.625 0.533 0.678 0.670 0.660 0.563 0.671 0.585 0.668   0.628    8.68
36)  chloroprene
           0.410 0.403 0.456 0.434 0.470 0.374 0.479       0.459   0.436    8.53
37)  acrylonitrile
           0.107       0.092 0.102 0.107       0.116       0.099   0.104    7.94
38)  vinyl acetate
                       0.038 0.045 0.049       0.053       0.026   0.042   25.07
            ----- Linear regression -----  Coefficient =  0.9992
              Response Ratio = -0.00778 + 0.05460 *A

39)  ethyl acetate
           0.034       0.036 0.039 0.043       0.047       0.031   0.038   16.43
            ----- Linear regression -----  Coefficient =  0.9979
              Response Ratio = -0.00498 + 0.04790 *A

40)  ethyl acrylate
                                                                   0.000#  -1.00
41)  2,2-dichloropropane
           0.428 0.352 0.490 0.475 0.469 0.417 0.474 0.536 0.495   0.460   11.63
42)  cis-1,2-dichloroethene
           0.359 0.325 0.397 0.388 0.394 0.335 0.398 0.408 0.394   0.378    7.99
43)  propionitrile
           0.041       0.036 0.040 0.042       0.046       0.037   0.040    9.28
44)  bromochloromethane
           0.188 0.146 0.194 0.197 0.198 0.163 0.204       0.183   0.184   10.79
45)  tetrahydrofuran
           0.163 0.149 0.121 0.121 0.124       0.126       0.124   0.133   12.44
```

Initial Calibration Summary

Job Number: JB31583 **Sample:** VA7222-ICC7222
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** A191863.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
46)  chloroform
           0.579 0.503 0.639 0.627 0.630 0.600 0.637 0.680 0.636   0.615    8.15
47)  dibromofluoromethane (s)
           0.391 0.421 0.344 0.343 0.365       0.371       0.369   0.372    7.37
48)  1,2-dichloroethane-d4 (s)
           0.430 0.436 0.379 0.380 0.397 0.511 0.407       0.386   0.416   10.66
49)  freon 113
           0.198 0.191 0.233 0.223 0.234       0.242       0.246   0.224    9.52
50)  methacrylonitrile
           0.152       0.163 0.179 0.188       0.205       0.141   0.171   13.88
51)  cyclohexane
           0.451 0.381 0.517 0.497 0.501 0.448 0.512       0.527   0.479   10.26
52)  1,1,1-trichloroethane
           0.454 0.393 0.509 0.497 0.502 0.400 0.514 0.443 0.515   0.470   10.41
53)  tert-amyl methyl ether
           1.080 1.009 1.081 1.061 1.108 0.989 1.168 0.988 1.064   1.061    5.54

54) I   1,4-difluorobenzene   ----------------ISTD---------------------
55)  Di-isobutylene
                                                                   0.000#  -1.00
56)  epichlorohydrin
           0.021       0.019 0.020 0.022       0.024       0.019   0.021    8.97
57)  n-butyl alcohol
           0.005 0.004 0.006 0.007 0.007       0.009       0.004   0.006#  28.54
            ----- Linear regression -----  Coefficient =  0.9953
              Response Ratio = -0.04971 + 0.00855 *A

58)  carbon tetrachloride
           0.280 0.247 0.320 0.316 0.309 0.272 0.316 0.294 0.312   0.296    8.49
59)  1,1-dichloropropene
           0.295 0.262 0.344 0.333 0.328 0.291 0.335 0.318 0.333   0.315    8.60
60)  hexane
           0.243 0.263 0.258 0.256 0.267 0.245 0.266       0.285   0.260    5.15
61)  benzene
           0.964 0.809 1.042 1.020 1.006 0.926 1.021 1.145 1.034   0.996    9.24
62)  Iso-octane
           0.782 0.735 0.902 0.859 0.900 0.674 0.936 0.685 0.953   0.825   13.15
63)  heptane
           0.156 0.151 0.179 0.172 0.182 0.143 0.188       0.187   0.170   10.17
64)  tert amyl alcohol
           0.012       0.009 0.010 0.010       0.012       0.009   0.010   12.42
65)  isopropyl acetate
           0.405       0.421 0.436 0.469       0.507       0.379   0.436   10.51
66)  1,2-dichloroethane
           0.298 0.231 0.316 0.320 0.314 0.258 0.321 0.338 0.305   0.300   11.37
67)  trichloroethene
           0.217 0.195 0.256 0.246 0.247 0.205 0.249 0.246 0.249   0.234    9.66
68)  2-nitropropane
                                                                   0.000#  -1.00
69)  tert-amyl ethyl ether
           0.348 0.312 0.368 0.386 0.404 0.344 0.417 0.272 0.345   0.355   12.70
70)  methylcyclohexane
           0.338 0.332 0.390 0.371 0.399 0.273 0.411 0.308 0.405   0.358   13.48
71)  2-chloroethyl vinyl ether
           0.130 0.109 0.138 0.143 0.149       0.157       0.130   0.136   11.33
72)  methyl methacrylate
           0.146       0.139 0.146 0.151       0.171       0.127   0.147    9.90
73)  1,2-dichloropropane
           0.266 0.223 0.288 0.290 0.290 0.261 0.297 0.295 0.288   0.278    8.60
74)  dibromomethane
```

```
            0.148 0.108 0.152 0.155 0.154 0.119 0.163       0.144   0.143   13.34
 75)  bromodichloromethane
            0.318 0.272 0.349 0.346 0.350 0.287 0.361 0.363 0.332   0.331    9.82
 76)  cis-1,3-dichloropropene
            0.399 0.328 0.439 0.445 0.441 0.333 0.460 0.459 0.421   0.414   12.29
 77)  toluene-d8 (s)
            0.932 0.936 0.900 0.876 0.926 1.170 0.940       0.917   0.949    9.63
 78)  4-methyl-2-pentanone
            0.084 0.065 0.092 0.095 0.096       0.105       0.083   0.089   14.40
 79)  toluene
            0.577 0.505 0.649 0.639 0.641 0.539 0.664 0.739 0.647   0.622   11.35
 80)  3-methyl-1-butanol
            0.011 0.007 0.010 0.011 0.012       0.014       0.009   0.011   19.65
             ----- Linear regression -----  Coefficient =  0.9962
               Response Ratio = -0.02422 + 0.01377 *A

 81)  trans-1,3-dichloropropene
            0.347 0.284 0.384 0.387 0.387 0.286 0.407 0.326 0.355   0.351   12.84
 82)  ethyl methacrylate
            0.260       0.290 0.304 0.314       0.341       0.258   0.295   10.96
 83)  1,1,2-trichloroethane
            0.192 0.144 0.190 0.191 0.193 0.160 0.204 0.196 0.179   0.183   10.37
 84)  2-hexanone
            0.074       0.073 0.083 0.085       0.098       0.065   0.080   14.49

 85) I   chlorobenzene-d5      ----------------ISTD---------------------
 86)  tetrachloroethene
            0.219 0.205 0.260 0.249 0.249 0.212 0.257 0.237 0.256   0.238    8.87
 87)  1,3-dichloropropane
            0.403 0.331 0.405 0.410 0.410 0.380 0.438 0.456 0.395   0.403    8.72
 88)  butyl acetate
            0.151       0.150 0.159 0.179       0.196       0.137   0.162   13.30
 89)  dibromochloromethane
            0.293 0.237 0.306 0.311 0.320 0.244 0.339 0.309 0.291   0.294   11.44
 90)  1,2-dibromoethane
            0.241 0.184 0.246 0.247 0.256 0.217 0.275 0.208 0.237   0.234   11.69
 91)  n-butyl ether
                                                                    0.000#  -1.00
 92)  chlorobenzene
            0.789 0.680 0.851 0.839 0.847 0.731 0.863 0.977 0.840   0.824   10.27
 93)  1,1,1,2-tetrachloroethane
            0.293 0.248 0.320 0.313 0.320 0.261 0.332 0.349 0.304   0.304   10.72
 94)  ethylbenzene
            1.236 1.062 1.386 1.349 1.376 1.167 1.396 1.439 1.372   1.309    9.61
 95)  m,p-xylene
            0.485 0.425 0.547 0.535 0.542 0.464 0.551 0.579 0.553   0.520    9.70
 96)  o-xylene
            0.502 0.420 0.557 0.543 0.552 0.490 0.567 0.620 0.550   0.533   10.58
 97)  styrene
            0.802 0.668 0.917 0.933 0.953 0.735 0.993 0.858 0.884   0.860   12.41
 98)  bromoform
            0.218 0.172 0.217 0.223 0.230 0.195 0.251 0.245 0.202   0.217   11.34

 99) I   1,4-dichlorobenzene-d ----------------ISTD---------------------
100)  isopropylbenzene
            2.077 1.812 2.368 2.291 2.304 2.029 2.294 2.519 2.327   2.225    9.59
101)  cyclohexanone
            0.017       0.017 0.017 0.017       0.018       0.022   0.018   11.27
102)  4-bromofluorobenzene (s)
            0.731 0.848 0.667 0.644 0.688       0.698       0.692   0.710    9.35
```

Initial Calibration Summary

Job Number: JB31583 **Sample:** VA7222-ICC7222
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** A191863.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

103)	bromobenzene										
	0.628	0.557	0.658	0.665	0.666	0.583	0.681	0.725	0.648	0.646	7.84
104)	1,1,2,2-tetrachloroethane										
	0.649	0.533	0.606	0.613	0.621	0.661	0.646	0.861	0.603	0.644	13.93
105)	trans-1,4-dichloro-2-butene										
	0.131	0.119	0.142	0.149	0.153		0.162		0.132	0.141	10.40
106)	1,2,3-trichloropropane										
	0.150	0.111	0.136	0.136	0.140	0.128	0.150	0.171	0.134	0.139	12.02
107)	n-propylbenzene										
	2.469	2.160	2.772	2.716	2.732	2.315	2.713		2.772	2.581	9.17
108)	2-chlorotoluene										
	0.561	0.486	0.622	0.603	0.610	0.518	0.614	0.687	0.610	0.590	10.16
109)	4-chlorotoluene										
	1.634	1.486	1.763	1.758	1.759	1.677	1.773	2.106	1.741	1.744	9.42
110)	p-ethyltoluene										
	2.133	2.085	2.236	2.243	2.391	2.205	2.380	1.943	2.204	2.202	6.34
111)	1,3,5-trimethylbenzene										
	1.898	1.647	2.123	2.058	2.075	1.850	2.051		2.094	1.975	8.29
112)	tert-butylbenzene										
	1.542	1.375	1.761	1.739	1.732	1.506	1.734	1.791	1.731	1.657	8.75
113)	pentachloroethane										
	0.403	0.370	0.444	0.452	0.454	0.380	0.468	0.544	0.426	0.438	11.98
114)	1,2,4-trimethylbenzene										
	1.865	1.673	2.149	2.086	2.070	1.871	2.089	2.402	2.079	2.032	10.20
115)	sec-butylbenzene										
	2.416	2.134	2.744	2.667	2.627	2.455	2.640	3.009	2.741	2.604	9.48
116)	1,3-dichlorobenzene										
	1.177	1.052	1.290	1.270	1.274	1.215	1.300		1.274	1.232	6.77
117)	p-isopropyltoluene										
	2.011	1.774	2.295	2.219	2.224	1.864	2.228	2.520	2.252	2.154	10.73
118)	1,2,3-trimethylbenzene										
										0.000#	-1.00
119)	1,4-dichlorobenzene										
	1.265	1.169	1.330	1.312	1.311	1.356	1.338		1.333	1.302	4.62
120)	p-diethylbenzene										
	1.247	1.243	1.337	1.322	1.425	1.301	1.413	1.097	1.297	1.298	7.58
121)	1,2-dichlorobenzene										
	1.206	1.064	1.254	1.249	1.241	1.187	1.257		1.222	1.210	5.29
122)	n-butylbenzene										
	1.103	0.980	1.274	1.225	1.244	1.058	1.247	1.231	1.273	1.182	9.04
123)	1,2,4,5-tetramethylbenzene										
	1.998	1.952	2.175	2.162	2.266	2.074	2.257	1.730	2.058	2.075	8.14
124)	1,2-dibromo-3-chloropropane										
	0.103	0.071	0.090	0.097	0.096	0.087	0.107		0.089	0.093	12.21
125)	1,3,5-trichlorobenzene										
	0.988	0.890	1.097	1.052	1.038	1.024	1.053		1.073	1.027	6.23
126)	1,2,4-trichlorobenzene										
	0.815	0.736	0.921	0.910	0.901	0.795	0.934		0.881	0.862	8.25
127)	hexachlorobutadiene										
	0.502	0.446	0.574	0.531	0.522	0.509	0.543		0.570	0.525	7.82
128)	naphthalene										
	1.618	1.346	1.687	1.727	1.700	1.604	1.795		1.560	1.630	8.39
129)	1,2,3-trichlorobenzene										
	0.760	0.652	0.838	0.822	0.779	0.767	0.798		0.791	0.776	7.29
130)	hexachloroethane										
	0.372	0.305	0.427	0.427	0.430	0.352	0.440	0.427	0.407	0.399	11.47
131)	Ethylenimine										
										0.000#	-1.00
132)	Bis(chloromethyl)ether										
										0.000#	-1.00

Initial Calibration Summary

Job Number: JB31583 **Sample:** VA7222-ICC7222
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** A191863.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
133)  2-methylnaphthalene
                                                                    0.000#  -1.00
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          MA7222.M          Thu Feb 21 08:15:50 2013   MSA
```

Initial Calibration Verification

Job Number: JB31583 **Sample:** VA7222-ICV7222
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** A191868.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\1\DATA\A191868.D                    Vial: 100
Acq On    : 20 Feb 2013   6:45 pm                    Operator: Oksanat
Sample    : icv7222-50                               Inst    : MSA
Misc      : MS43382,VA7222,5,,,,1                    Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title        : SW 846  8260bB ZB624 60m x 0.25mm x 1.4um
Last Update  : Thu Feb 21 08:12:37 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	109	0.00	7.02
2	M	1,4-dioxane	0.089	0.095	-6.7	115	0.00	11.06
3	M	ethanol		----------NA----------				
4	M	tertiary butyl alcohol	0.964	1.061	-10.1	120	-0.01	7.14
5	I	pentafluorobenzene	1.000	1.000	0.0	96	0.00	9.35
6		chlorotrifluoroethene		----------NA----------				
7	M	chlorodifluoromethane	0.286	0.267	6.6	95	0.00	3.70
8	M	dichlorodifluoromethane	0.381	0.344	9.7	91	0.00	3.68
9	M	chloromethane	0.525	0.554	-5.5	113	0.00	3.98
10	M	vinyl chloride	0.482	0.476	1.2	102	0.00	4.23
11	M	bromomethane	0.344	0.339	1.5	110	0.00	4.82
12	M	chloroethane	0.230	0.253	-10.0	109	0.00	4.99
13		vinyl bromide		----------NA----------				
14	M	trichlorofluoromethane	0.489	0.475	2.9	97	0.00	5.48
15	m	pentane	0.667	0.640	4.0	101	0.00	5.52
16	M	ethyl ether	0.196	0.203	-3.6	104	0.00	5.86
17		Freon 123a		----------NA----------				
18	M	acrolein	0.060	0.065	-8.3	105	0.00	6.11
19	M	1,1-dichloroethene	0.292	0.308	-5.5	96	0.00	6.29
20	M	acetone	0.082	0.097	-18.3	125	-0.02	6.36
21	M	allyl chloride	0.210	0.217	-3.3	97	0.00	6.82
		----------	True	Calc.	% Drift	----------		
22	M	acetonitrile	500.000	493.625	1.3	103	0.00	6.81
		----------	AvgRF	CCRF	% Dev	----------		
23	M	iodomethane	0.649	0.677	-4.3	97	0.00	6.56
24	M	iso-butyl alcohol	0.011	0.012	-9.1	112	0.00	9.67
25	M	carbon disulfide	1.095	1.101	-0.5	92	0.00	6.68
26	M	methylene chloride	0.418	0.407	2.6	99	0.00	7.02
27	M	methyl acetate	0.214	0.215	-0.5	101	0.00	6.84
28	M	methyl tert butyl ether	0.977	1.036	-6.0	101	0.00	7.37
29	M	trans-1,2-dichloroethene	0.328	0.347	-5.8	97	0.00	7.41
30	M	di-isopropyl ether	1.224	1.331	-8.7	103	0.00	8.00
31	m	t-butyl formate	0.255	0.304	-19.2	111	0.00	9.20
		----------	True	Calc.	% Drift	----------		
32	m	3,3-dimethyl-1-butanol	500.000	638.717	-27.7#	144	0.00	13.00
		----------	AvgRF	CCRF	% Dev	----------		
33	M	ethyl tert-butyl ether	1.114	1.200	-7.7	101	0.00	8.50

Initial Calibration Verification

Job Number: JB31583 **Sample:** VA7222-ICV7222
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** A191868.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			True	Calc.	% Drift			
34	M	2-butanone	50.000	53.550	-7.1	111	-0.01	8.78

			AvgRF	CCRF	% Dev			
35	M	1,1-dichloroethane	0.628	0.681	-8.4	97	0.00	8.00
36	M	chloroprene	0.436	0.426	2.3	94	0.00	8.12
37	M	acrylonitrile	0.104	0.118	-13.5	110	0.00	7.37

			True	Calc.	% Drift			
38	M	vinyl acetate	50.000	52.552	-5.1	107	-0.02	8.02
39	M	ethyl acetate	50.000	57.431	-14.9	123	-0.02	8.79

			AvgRF	CCRF	% Dev			
40		ethyl acrylate		----------NA----------				
41	M	2,2-dichloropropane	0.460	0.458	0.4	92	0.00	8.78
42	M	cis-1,2-dichloroethene	0.378	0.404	-6.9	100	0.00	8.79
43	M	propionitrile	0.040	0.047	-17.5	112	0.00	8.85
44	M	bromochloromethane	0.184	0.204	-10.9	99	-0.01	9.11
45	M	tetrahydrofuran	0.133	0.138	-3.8	110	0.00	9.17
46	M	chloroform	0.615	0.650	-5.7	99	0.00	9.17
47	S	dibromofluoromethane (s)	0.372	0.377	-1.3	105	0.00	9.38
48	S	1,2-dichloroethane-d4 (s)	0.416	0.418	-0.5	105	0.00	9.82
49	M	freon 113	0.224	0.192	14.3	83	-0.01	6.25
50	M	methacrylonitrile	0.171	0.189	-10.5	101	0.00	9.05
51		cyclohexane	0.479	0.481	-0.4	93	0.00	9.50
52	M	1,1,1-trichloroethane	0.470	0.495	-5.3	95	0.00	9.42
53	M	tert-amyl methyl ether	1.061	1.162	-9.5	105	-0.01	9.94
54	I	1,4-difluorobenzene	1.000	1.000	0.0	97	0.00	10.30
55	M	Di-isobutylene		----------NA----------				
56	M	epichlorohydrin	0.021	0.024	-14.3	112	0.00	11.64

			True	Calc.	% Drift			
57	M	n-butyl alcohol	2500.000	2685.037	-7.4	120	0.00	10.46

			AvgRF	CCRF	% Dev			
58	M	carbon tetrachloride	0.296	0.304	-2.7	93	0.00	9.64
59	M	1,1-dichloropropene	0.315	0.325	-3.2	95	0.00	9.62
60	M	hexane	0.260	0.228	12.3	86	0.00	7.73
61	M	benzene	0.996	1.041	-4.5	99	0.00	9.89
62	M	Iso-octane	0.825	0.771	6.5	87	0.00	9.91
63	M	heptane	0.170	0.162	4.7	91	0.00	10.09
64	m	tert amyl alcohol	0.010	0.012	-15.0	113	-0.02	9.79
65	M	isopropyl acetate	0.436	0.520	-19.3	115	0.00	9.84
66	M	1,2-dichloroethane	0.300	0.334	-11.3	101	0.00	9.91
67	M	trichloroethene	0.234	0.250	-6.8	98	0.00	10.65
68	M	2-nitropropane		----------NA----------				
69	m	tert-amyl ethyl ether	0.355	0.403	-14.0	101	0.00	10.83
70	m	methylcyclohexane	0.358	0.339	5.3	88	0.00	10.87
71	M	2-chloroethyl vinyl ether	0.136	0.161	-18.4	109	0.00	11.51
72	M	methyl methacrylate	0.147	0.167	-13.6	110	0.00	10.96
73	M	1,2-dichloropropane	0.278	0.301	-8.3	100	0.00	10.92
74	M	dibromomethane	0.143	0.171	-19.6	107	0.00	11.10
75	M	bromodichloromethane	0.331	0.370	-11.8	103	0.00	11.24
76	M	cis-1,3-dichloropropene	0.414	0.439	-6.0	95	0.00	11.74
77	S	toluene-d8 (s)	0.949	0.937	1.3	103	0.00	12.05
78	M	4-methyl-2-pentanone	0.089	0.104	-16.9	106	0.00	11.85
79	M	toluene	0.622	0.642	-3.2	97	0.00	12.13

Initial Calibration Verification

Job Number: JB31583 **Sample:** VA7222-ICV7222
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** A191868.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			True	Calc.	% Drift			
80	M	3-methyl-1-butanol	1000.000	1056.178	-5.6	115	0.00	11.89

			AvgRF	CCRF	% Dev			
81	M	trans-1,3-dichloropropene	0.351	0.401	-14.2	100	0.00	12.36
82	M	ethyl methacrylate	0.295	0.321	-8.8	102	0.00	12.36
83	M	1,1,2-trichloroethane	0.183	0.208	-13.7	105	0.00	12.59
84	M	2-hexanone	0.080	0.091	-13.7	106	0.00	12.80
85	I	chlorobenzene-d5	1.000	1.000	0.0	95	0.00	13.74
86	M	tetrachloroethene	0.238	0.242	-1.7	93	0.00	12.78
87	M	1,3-dichloropropane	0.403	0.443	-9.9	103	0.00	12.79
88	M	butyl acetate	0.162	0.191	-17.9	115	0.00	12.89
89	M	dibromochloromethane	0.294	0.325	-10.5	100	0.00	13.09
90	M	1,2-dibromoethane	0.234	0.266	-13.7	102	0.00	13.25
91	M	n-butyl ether		----------NA----------				
92	M	chlorobenzene	0.824	0.855	-3.8	97	0.00	13.78
93	M	1,1,1,2-tetrachloroethane	0.304	0.330	-8.6	100	0.00	13.84
94	M	ethylbenzene	1.309	1.360	-3.9	96	0.00	13.84
95	M	m,p-xylene	0.520	0.536	-3.1	96	0.00	13.96
96	M	o-xylene	0.533	0.563	-5.6	99	0.00	14.43
97	M	styrene	0.860	0.950	-10.5	97	0.00	14.45
98	M	bromoform	0.217	0.239	-10.1	102	0.00	14.74
99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	98	0.00	16.38
100	M	isopropylbenzene	2.225	2.238	-0.6	96	0.00	14.82
101	m	cyclohexanone	0.018	0.017	5.6	99	0.00	15.00
102	S	4-bromofluorobenzene (s)	0.710	0.683	3.8	104	0.00	15.05
103	M	bromobenzene	0.646	0.674	-4.3	99	0.00	15.27
104	M	1,1,2,2-tetrachloroethane	0.644	0.630	2.2	101	0.00	15.17
105	M	trans-1,4-dichloro-2-bute	0.141	0.147	-4.3	96	0.00	15.22
106	M	1,2,3-trichloropropane	0.139	0.145	-4.3	105	0.00	15.25
107	M	n-propylbenzene	2.581	2.695	-4.4	97	0.00	15.28
108	M	2-chlorotoluene	0.590	0.600	-1.7	97	0.00	15.45
109	M	4-chlorotoluene	1.744	1.726	1.0	96	0.00	15.56
110	m	p-ethyltoluene		----------NA----------				
111	M	1,3,5-trimethylbenzene	1.975	1.970	0.3	94	0.00	15.46
112	M	tert-butylbenzene	1.657	1.684	-1.6	95	0.00	15.85
113	M	pentachloroethane	0.438	0.465	-6.2	101	0.00	15.94
114	M	1,2,4-trimethylbenzene	2.032	2.075	-2.1	97	0.00	15.90
115	M	sec-butylbenzene	2.604	2.568	1.4	94	0.00	16.09
116	M	1,3-dichlorobenzene	1.232	1.271	-3.2	98	0.00	16.31
117	M	p-isopropyltoluene	2.154	2.253	-4.6	99	0.00	16.23
118	M	1,2,3-trimethylbenzene		----------NA----------				
119	M	1,4-dichlorobenzene	1.302	1.304	-0.2	97	0.00	16.40
120	m	p-diethylbenzene		----------NA----------				
121	M	1,2-dichlorobenzene	1.210	1.269	-4.9	100	0.00	16.84
122	M	n-butylbenzene	1.182	1.199	-1.4	96	0.00	16.70
123	m	1,2,4,5-tetramethylbenzen		----------NA----------				
124	M	1,2-dibromo-3-chloropropa	0.093	0.105	-12.9	106	0.00	17.70
125	M	1,3,5-trichlorobenzene	1.027	1.001	2.5	93	0.00	17.91
126	M	1,2,4-trichlorobenzene	0.862	0.933	-8.2	100	0.00	18.61
127	M	hexachlorobutadiene	0.525	0.534	-1.7	99	0.00	18.73
128	M	naphthalene	1.630	1.797	-10.2	102	0.00	18.91
129	M	1,2,3-trichlorobenzene	0.776	0.819	-5.5	98	0.00	19.19
130	M	hexachloroethane	0.399	0.425	-6.5	98	0.00	17.13
131		Ethylenimine		----------NA----------				
132		Bis(chloromethyl)ether		----------NA----------				
133		2-methylnaphthalene		----------NA----------				

Initial Calibration Verification

Job Number: JB31583 **Sample:** VA7222-ICV7222
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** A191868.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

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   (#) = Out of Range                SPCC's out = 0  CCC's out = 0
    A191863.D  MA7222.M         Thu Feb 21 08:15:53 2013   MSA
```

Continuing Calibration Summary

Job Number: JB31583 **Sample:** VA7269-CC7222
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** A192935.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\1\DATA\A192935.D                    Vial: 100
Acq On    : 23 Mar 2013   9:16 am                    Operator: Oksanat
Sample    : cc7222-20                                Inst    : MSA
Misc      : MS45034,VA7269,5,,,,1                    Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title        : SW 846  8260bB ZB624 60m x 0.25mm x 1.4um
Last Update  : Thu Feb 21 15:26:34 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	84	-0.02	7.01
2	M	1,4-dioxane	0.089	0.082	7.9	75	0.00	11.07
3	M	ethanol		----------NA----------				
4	M	tertiary butyl alcohol	0.964	1.021	-5.9	87	-0.01	7.14
5	I	pentafluorobenzene	1.000	1.000	0.0	72	-0.01	9.34
6		chlorotrifluoroethene		----------NA----------				
7	M	chlorodifluoromethane	0.286	0.309	-8.0	80	-0.01	3.69
8	M	dichlorodifluoromethane	0.381	0.400	-5.0	72	0.00	3.67
9	M	chloromethane	0.525	0.476	9.3	71	-0.04	3.95
10	M	vinyl chloride	0.482	0.506	-5.0	77	-0.03	4.20
11	M	bromomethane	0.344	0.334	2.9	74	-0.01	4.82
12	M	chloroethane	0.230	0.235	-2.2	72	-0.01	4.99
13		vinyl bromide		----------NA----------				
14	M	trichlorofluoromethane	0.489	0.510	-4.3	74	0.00	5.47
15	m	pentane		----------NA----------				
16	M	ethyl ether	0.196	0.177	9.7	65	0.00	5.86
17		Freon 123a		----------NA----------				
18	M	acrolein	0.060	0.054	10.0	65	0.00	6.12
19	M	1,1-dichloroethene	0.292	0.304	-4.1	68	0.00	6.28
20	M	acetone	0.082	0.084	-2.4	88	0.02	6.40
21	M	allyl chloride	0.210	0.208	1.0	70	0.00	6.82
		----------	True	Calc.	% Drift		----------	
22	M	acetonitrile	200.000	189.103	5.4	70	0.01	6.82
		----------	AvgRF	CCRF	% Dev		----------	
23	M	iodomethane	0.649	0.726	-11.9	76	0.00	6.55
24	M	iso-butyl alcohol	0.011	0.011	0.0	79	0.00	9.67
25	M	carbon disulfide	1.095	1.119	-2.2	67	0.00	6.68
26	M	methylene chloride	0.418	0.417	0.2	74	0.00	7.02
27	M	methyl acetate	0.214	0.234	-9.3	87	0.00	6.85
28	M	methyl tert butyl ether	0.977	1.085	-11.1	78	-0.01	7.37
29	M	trans-1,2-dichloroethene	0.328	0.351	-7.0	70	0.00	7.41
30	M	di-isopropyl ether	1.224	1.316	-7.5	75	0.00	8.00
31	m	t-butyl formate	0.255	0.318	-24.7#	90	0.00	9.21
		----------	True	Calc.	% Drift		----------	
32	m	3,3-dimethyl-1-butanol	200.000	200.145	-0.1	78	0.00	13.00
		----------	AvgRF	CCRF	% Dev		----------	
33	M	ethyl tert-butyl ether	1.114	1.264	-13.5	79	-0.01	8.49

Continuing Calibration Summary

Job Number: JB31583 **Sample:** VA7269-CC7222
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** A192935.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

		----------	True	Calc.	% Drift	----------		
34	M	2-butanone	20.000	20.104	-0.5	73	0.01	8.80
		----------	AvgRF	CCRF	% Dev	----------		
35	M	1,1-dichloroethane	0.628	0.697	-11.0	74	0.00	8.00
36	M	chloroprene	0.436	0.505	-15.8	79	0.00	8.13
37	M	acrylonitrile	0.104	0.092	11.5	72	0.02	7.39
		----------	True	Calc.	% Drift	----------		
38	M	vinyl acetate	20.000	19.628	1.9	64	0.00	8.03
39	M	ethyl acetate	20.000	21.193	-6.0	77	0.00	8.81
		----------	AvgRF	CCRF	% Dev	----------		
40		ethyl acrylate		----------NA----------				
41	M	2,2-dichloropropane	0.460	0.545	-18.5	80	0.00	8.78
42	M	cis-1,2-dichloroethene	0.378	0.395	-4.5	71	0.00	8.79
43	M	propionitrile	0.040	0.033	17.5	66	0.01	8.87
44	M	bromochloromethane	0.184	0.199	-8.2	73	-0.01	9.10
45	M	tetrahydrofuran	0.133	0.127	4.5	75	0.00	9.18
46	M	chloroform	0.615	0.699	-13.7	78	0.00	9.17
47	S	dibromofluoromethane (s)	0.372	0.385	-3.5	80	-0.02	9.37
48	S	1,2-dichloroethane-d4 (s)	0.416	0.396	4.8	75	-0.01	9.81
49	M	freon 113	0.224	0.236	-5.4	73	0.00	6.26
50	M	methacrylonitrile	0.171	0.174	-1.8	77	0.01	9.07
51		cyclohexane	0.479	0.429	10.4	59	0.00	9.50
52	M	1,1,1-trichloroethane	0.470	0.547	-16.4	77	-0.01	9.42
53	M	tert-amyl methyl ether	1.061	1.141	-7.5	76	-0.01	9.94
54	I	1,4-difluorobenzene	1.000	1.000	0.0	70	0.00	10.29
55	M	Di-isobutylene		----------NA----------				
56	M	epichlorohydrin	0.021	0.021	0.0	78	0.00	11.65
		----------	True	Calc.	% Drift	----------		
57	M	n-butyl alcohol	1000.000	1019.741	-2.0	78	0.00	10.47
		----------	AvgRF	CCRF	% Dev	----------		
58	M	carbon tetrachloride	0.296	0.349	-17.9	76	0.00	9.64
59	M	1,1-dichloropropene	0.315	0.328	-4.1	67	0.00	9.62
60	M	hexane	0.260	0.249	4.2	68	0.00	7.73
61	M	benzene	0.996	1.009	-1.3	68	0.00	9.89
62	M	Iso-octane	0.825	0.852	-3.3	66	0.00	9.89
63	M	heptane	0.170	0.156	8.2	61	0.00	10.09
64	m	tert amyl alcohol		----------NA----------				
65	M	isopropyl acetate	0.436	0.445	-2.1	74	0.00	9.84
66	M	1,2-dichloroethane	0.300	0.361	-20.3#	80	0.00	9.91
67	M	trichloroethene	0.234	0.256	-9.4	70	0.00	10.66
68	M	2-nitropropane		----------NA----------				
69	m	tert-amyl ethyl ether		----------NA----------				
70	m	methylcyclohexane	0.358	0.349	2.5	63	0.00	10.87
71	M	2-chloroethyl vinyl ether	0.136	0.135	0.7	69	0.00	11.51
72	M	methyl methacrylate	0.147	0.138	6.1	70	0.00	10.97
73	M	1,2-dichloropropane	0.278	0.281	-1.1	68	0.00	10.92
74	M	dibromomethane	0.143	0.164	-14.7	76	0.00	11.10
75	M	bromodichloromethane	0.331	0.388	-17.2	78	0.00	11.24
76	M	cis-1,3-dichloropropene	0.414	0.454	-9.7	73	0.00	11.74
77	S	toluene-d8 (s)	0.949	1.019	-7.4	80	0.00	12.05
78	M	4-methyl-2-pentanone	0.089	0.093	-4.5	71	0.00	11.85
79	M	toluene	0.622	0.653	-5.0	71	0.00	12.13

Continuing Calibration Summary

Job Number: JB31583 **Sample:** VA7269-CC7222
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** A192935.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			True	Calc.	% Drift			
80	M	3-methyl-1-butanol	400.000	421.858	-5.5	78	0.00	11.90

			AvgRF	CCRF	% Dev			
81	M	trans-1,3-dichloropropene	0.351	0.408	-16.2	75	0.00	12.36
82	M	ethyl methacrylate	0.295	0.310	-5.1	75	0.00	12.37
83	M	1,1,2-trichloroethane	0.183	0.197	-7.7	73	0.00	12.59
84	M	2-hexanone	0.080	0.076	5.0	73	0.00	12.81
85	I	chlorobenzene-d5	1.000	1.000	0.0	74	0.00	13.74
86	M	tetrachloroethene	0.238	0.244	-2.5	69	0.00	12.78
87	M	1,3-dichloropropane	0.403	0.401	0.5	73	0.00	12.79
88	M	butyl acetate	0.162	0.151	6.8	74	0.00	12.90
89	M	dibromochloromethane	0.294	0.326	-10.9	79	0.00	13.08
90	M	1,2-dibromoethane	0.234	0.254	-8.5	76	0.00	13.25
91	M	n-butyl ether		----------NA----------				
92	M	chlorobenzene	0.824	0.833	-1.1	72	0.00	13.77
93	M	1,1,1,2-tetrachloroethane	0.304	0.336	-10.5	77	0.00	13.84
94	M	ethylbenzene	1.309	1.301	0.6	69	0.00	13.84
95	M	m,p-xylene	0.520	0.513	1.3	69	0.00	13.96
96	M	o-xylene	0.533	0.531	0.4	70	0.00	14.43
97	M	styrene	0.860	0.870	-1.2	70	0.00	14.45
98	M	bromoform	0.217	0.232	-6.9	79	0.00	14.74
99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	73	0.00	16.37
100	M	isopropylbenzene	2.225	2.221	0.2	68	0.00	14.82
101	m	cyclohexanone	0.018	0.053	-194.4#	228#	0.00	15.00
102	S	4-bromofluorobenzene (s)	0.710	0.716	-0.8	78	0.00	15.05
103	M	bromobenzene	0.646	0.672	-4.0	74	0.00	15.27
104	M	1,1,2,2-tetrachloroethane	0.644	0.632	1.9	76	0.00	15.17
105	M	trans-1,4-dichloro-2-bute	0.141	0.135	4.3	69	0.00	15.22
106	M	1,2,3-trichloropropane	0.139	0.153	-10.1	82	0.00	15.24
107	M	n-propylbenzene	2.581	2.559	0.9	67	0.00	15.29
108	M	2-chlorotoluene	0.590	0.607	-2.9	71	0.00	15.45
109	M	4-chlorotoluene	1.744	1.681	3.6	69	0.00	15.56
110	m	p-ethyltoluene		----------NA----------				
111	M	1,3,5-trimethylbenzene	1.975	2.004	-1.5	69	0.00	15.46
112	M	tert-butylbenzene	1.657	1.668	-0.7	69	0.00	15.85
113	M	pentachloroethane	0.438	0.490	-11.9	80	0.00	15.94
114	M	1,2,4-trimethylbenzene	2.032	2.003	1.4	68	0.00	15.90
115	M	sec-butylbenzene	2.604	2.440	6.3	65	0.00	16.09
116	M	1,3-dichlorobenzene	1.232	1.200	2.6	68	0.00	16.31
117	M	p-isopropyltoluene	2.154	2.058	4.5	65	0.00	16.23
118	M	1,2,3-trimethylbenzene		----------NA----------				
119	M	1,4-dichlorobenzene	1.302	1.233	5.3	67	0.00	16.40
120	m	p-diethylbenzene		----------NA----------				
121	M	1,2-dichlorobenzene	1.210	1.213	-0.2	70	0.00	16.85
122	M	n-butylbenzene	1.182	0.953	19.4	54	0.00	16.70
123	m	1,2,4,5-tetramethylbenzen		----------NA----------				
124	M	1,2-dibromo-3-chloropropa	0.093	0.094	-1.1	77	0.00	17.71
125	M	1,3,5-trichlorobenzene	1.027	0.955	7.0	63	0.00	17.92
126	M	1,2,4-trichlorobenzene	0.862	0.712	17.4	56	0.00	18.61
127	M	hexachlorobutadiene	0.525	0.563	-7.2	71	0.00	18.73
128	M	naphthalene	1.630	1.249	23.4#	54	0.00	18.92
129	M	1,2,3-trichlorobenzene	0.776	0.657	15.3	57	0.00	19.19
130	M	hexachloroethane	0.399	0.468	-17.3	80	0.00	17.13
131		Ethylenimine		----------NA----------				
132		Bis(chloromethyl)ether		----------NA----------				
133		2-methylnaphthalene		----------NA----------				

Continuing Calibration Summary

Job Number: JB31583 **Sample:** VA7269-CC7222
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** A192935.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

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

   (#) = Out of Range                SPCC's out = 0  CCC's out = 0
    A191862.D  MA7222.M         Sat Mar 23 11:00:38 2013   MSA
```

Continuing Calibration Summary

Job Number: JB31583 **Sample:** VA7271-CC7222
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** A192983.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\1\DATA\A192983.D                    Vial: 100
Acq On    : 25 Mar 2013   9:29 am                    Operator: Oksanat
Sample    : cc7222-20                                Inst    : MSA
Misc      : MS45128,VA7271,5,,,,1                    Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title        : SW 846  8260bB ZB624 60m x 0.25mm x 1.4um
Last Update  : Thu Feb 21 15:26:34 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	94	0.00	7.03
2	M	1,4-dioxane	0.089	0.086	3.4	87	0.01	11.08
3	M	ethanol		----------NA----------				
4	M	tertiary butyl alcohol	0.964	1.096	-13.7	105	0.00	7.16
5	I	pentafluorobenzene	1.000	1.000	0.0	76	0.00	9.36
6		chlorotrifluoroethene		----------NA----------				
7	M	chlorodifluoromethane	0.286	0.260	9.1	71	0.01	3.71
8	M	dichlorodifluoromethane	0.381	0.427	-12.1	82	0.02	3.68
9	M	chloromethane	0.525	0.416	20.8#	65	-0.02	3.97
10	M	vinyl chloride	0.482	0.487	-1.0	79	-0.01	4.22
11	M	bromomethane	0.344	0.307	10.8	72	0.00	4.83
12	M	chloroethane	0.230	0.208	9.6	67	0.00	5.01
13		vinyl bromide		----------NA----------				
14	M	trichlorofluoromethane	0.489	0.524	-7.2	80	0.02	5.48
15	m	pentane		----------NA----------				
16	M	ethyl ether	0.196	0.170	13.3	66	0.02	5.89
17		Freon 123a		----------NA----------				
18	M	acrolein	0.060	0.059	1.7	75	0.02	6.14
19	M	1,1-dichloroethene	0.292	0.272	6.8	65	0.01	6.29
20	M	acetone	0.082	0.114	-39.0#	126	0.02	6.40
21	M	allyl chloride	0.210	0.183	12.9	65	0.02	6.84
		----------	True	Calc.	% Drift		----------	
22	M	acetonitrile	200.000	194.199	2.9	77	0.02	6.83
		----------	AvgRF	CCRF	% Dev		----------	
23	M	iodomethane	0.649	0.624	3.9	70	0.01	6.57
24	M	iso-butyl alcohol	0.011	0.013	-18.2	102	0.01	9.69
25	M	carbon disulfide	1.095	0.939	14.2	60	0.01	6.70
26	M	methylene chloride	0.418	0.364	12.9	69	0.01	7.04
27	M	methyl acetate	0.214	0.203	5.1	80	0.02	6.86
28	M	methyl tert butyl ether	0.977	1.035	-5.9	79	0.01	7.39
29	M	trans-1,2-dichloroethene	0.328	0.297	9.5	63	0.02	7.43
30	M	di-isopropyl ether	1.224	1.204	1.6	73	0.00	8.01
31	m	t-butyl formate	0.255	0.307	-20.4#	92	0.01	9.22
		----------	True	Calc.	% Drift		----------	
32	m	3,3-dimethyl-1-butanol	200.000	220.509	-10.3	94	0.01	13.01
		----------	AvgRF	CCRF	% Dev		----------	
33	M	ethyl tert-butyl ether	1.114	1.148	-3.1	76	0.01	8.51

Continuing Calibration Summary

Job Number: JB31583 **Sample:** VA7271-CC7222
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** A192983.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

		----------	True	Calc.	% Drift	----------		
34	M	2-butanone	20.000	22.594	-13.0	91	0.03	8.82
		----------	AvgRF	CCRF	% Dev	----------		
35	M	1,1-dichloroethane	0.628	0.598	4.8	67	0.02	8.02
36	M	chloroprene	0.436	0.449	-3.0	75	0.02	8.14
37	M	acrylonitrile	0.104	0.092	11.5	76	0.03	7.40
		----------	True	Calc.	% Drift	----------		
38	M	vinyl acetate	20.000	21.954	-9.8	80	0.02	8.05
39	M	ethyl acetate	20.000	18.902	5.5	70	0.01	8.82
		----------	AvgRF	CCRF	% Dev	----------		
40		ethyl acrylate		----------NA----------				
41	M	2,2-dichloropropane	0.460	0.474	-3.0	73	0.02	8.80
42	M	cis-1,2-dichloroethene	0.378	0.350	7.4	67	0.02	8.80
43	M	propionitrile	0.040	0.038	5.0	79	0.02	8.88
44	M	bromochloromethane	0.184	0.183	0.5	72	0.01	9.13
45	M	tetrahydrofuran	0.133	0.130	2.3	81	0.02	9.20
46	M	chloroform	0.615	0.602	2.1	72	0.02	9.19
47	S	dibromofluoromethane (s)	0.372	0.393	-5.6	87	0.00	9.39
48	S	1,2-dichloroethane-d4 (s)	0.416	0.407	2.2	82	0.00	9.83
49	M	freon 113	0.224	0.227	-1.3	74	0.01	6.28
50	M	methacrylonitrile	0.171	0.165	3.5	77	0.02	9.08
51		cyclohexane	0.479	0.418	12.7	61	0.01	9.51
52	M	1,1,1-trichloroethane	0.470	0.481	-2.3	72	0.01	9.44
53	M	tert-amyl methyl ether	1.061	1.081	-1.9	76	0.00	9.95
54	I	1,4-difluorobenzene	1.000	1.000	0.0	72	0.01	10.31
55	M	Di-isobutylene		----------NA----------				
56	M	epichlorohydrin	0.021	0.023	-9.5	87	0.02	11.66
		----------	True	Calc.	% Drift	----------		
57	M	n-butyl alcohol	1000.000	1151.966	-15.2	95	0.02	10.48
		----------	AvgRF	CCRF	% Dev	----------		
58	M	carbon tetrachloride	0.296	0.328	-10.8	74	0.01	9.66
59	M	1,1-dichloropropene	0.315	0.301	4.4	63	0.01	9.64
60	M	hexane	0.260	0.250	3.8	70	0.01	7.75
61	M	benzene	0.996	0.902	9.4	63	0.01	9.91
62	M	Iso-octane	0.825	0.880	-6.7	71	0.00	9.91
63	M	heptane	0.170	0.167	1.8	67	0.02	10.11
64	m	tert amyl alcohol		----------NA----------				
65	M	isopropyl acetate	0.436	0.471	-8.0	81	0.02	9.86
66	M	1,2-dichloroethane	0.300	0.344	-14.7	79	0.01	9.93
67	M	trichloroethene	0.234	0.226	3.4	64	0.01	10.67
68	M	2-nitropropane		----------NA----------				
69	m	tert-amyl ethyl ether		----------NA----------				
70	m	methylcyclohexane	0.358	0.364	-1.7	68	0.01	10.89
71	M	2-chloroethyl vinyl ether	0.136	0.137	-0.7	72	0.02	11.53
72	M	methyl methacrylate	0.147	0.144	2.0	75	0.02	10.98
73	M	1,2-dichloropropane	0.278	0.256	7.9	64	0.01	10.94
74	M	dibromomethane	0.143	0.157	-9.8	75	0.01	11.11
75	M	bromodichloromethane	0.331	0.355	-7.3	73	0.01	11.26
76	M	cis-1,3-dichloropropene	0.414	0.417	-0.7	69	0.01	11.75
77	S	toluene-d8 (s)	0.949	1.020	-7.5	82	0.01	12.07
78	M	4-methyl-2-pentanone	0.089	0.097	-9.0	76	0.02	11.87
79	M	toluene	0.622	0.579	6.9	65	0.02	12.15

Continuing Calibration Summary

Job Number: JB31583 **Sample:** VA7271-CC7222
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** A192983.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			True	Calc.	% Drift			
80	M	3-methyl-1-butanol	400.000	464.165	-16.0	90	0.01	11.91

			AvgRF	CCRF	% Dev			
81	M	trans-1,3-dichloropropene	0.351	0.378	-7.7	71	0.02	12.38
82	M	ethyl methacrylate	0.295	0.306	-3.7	76	0.02	12.39
83	M	1,1,2-trichloroethane	0.183	0.184	-0.5	70	0.02	12.61
84	M	2-hexanone	0.080	0.084	-5.0	84	0.02	12.82
85	I	chlorobenzene-d5	1.000	1.000	0.0	73	0.02	13.76
86	M	tetrachloroethene	0.238	0.235	1.3	66	0.01	12.80
87	M	1,3-dichloropropane	0.403	0.404	-0.2	73	0.02	12.81
88	M	butyl acetate	0.162	0.170	-4.9	82	0.02	12.91
89	M	dibromochloromethane	0.294	0.323	-9.9	77	0.01	13.10
90	M	1,2-dibromoethane	0.234	0.255	-9.0	75	0.02	13.27
91	M	n-butyl ether		----------NA----------				
92	M	chlorobenzene	0.824	0.778	5.6	67	0.01	13.79
93	M	1,1,1,2-tetrachloroethane	0.304	0.303	0.3	69	0.01	13.86
94	M	ethylbenzene	1.309	1.183	9.6	62	0.01	13.86
95	M	m,p-xylene	0.520	0.483	7.1	64	0.01	13.98
96	M	o-xylene	0.533	0.476	10.7	62	0.01	14.45
97	M	styrene	0.860	0.813	5.5	65	0.01	14.46
98	M	bromoform	0.217	0.244	-12.4	82	0.01	14.76
99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	72	0.01	16.39
100	M	isopropylbenzene	2.225	2.049	7.9	62	0.01	14.83
101	m	cyclohexanone	0.018	0.094	-422.2#	399#	0.01	15.01
102	S	4-bromofluorobenzene (s)	0.710	0.724	-2.0	78	0.00	15.06
103	M	bromobenzene	0.646	0.653	-1.1	71	0.02	15.28
104	M	1,1,2,2-tetrachloroethane	0.644	0.645	-0.2	76	0.01	15.18
105	M	trans-1,4-dichloro-2-bute	0.141	0.149	-5.7	75	0.01	15.24
106	M	1,2,3-trichloropropane	0.139	0.155	-11.5	82	0.02	15.27
107	M	n-propylbenzene	2.581	2.411	6.6	62	0.01	15.30
108	M	2-chlorotoluene	0.590	0.572	3.1	66	0.02	15.47
109	M	4-chlorotoluene	1.744	1.580	9.4	64	0.01	15.58
110	m	p-ethyltoluene		----------NA----------				
111	M	1,3,5-trimethylbenzene	1.975	1.841	6.8	62	0.02	15.48
112	M	tert-butylbenzene	1.657	1.550	6.5	63	0.01	15.86
113	M	pentachloroethane	0.438	0.455	-3.9	73	0.00	15.95
114	M	1,2,4-trimethylbenzene	2.032	1.912	5.9	64	0.02	15.92
115	M	sec-butylbenzene	2.604	2.317	11.0	60	0.01	16.11
116	M	1,3-dichlorobenzene	1.232	1.194	3.1	66	0.02	16.32
117	M	p-isopropyltoluene	2.154	1.997	7.3	62	0.01	16.25
118	M	1,2,3-trimethylbenzene		----------NA----------				
119	M	1,4-dichlorobenzene	1.302	1.202	7.7	65	0.00	16.41
120	m	p-diethylbenzene		----------NA----------				
121	M	1,2-dichlorobenzene	1.210	1.176	2.8	67	0.01	16.86
122	M	n-butylbenzene	1.182	0.974	17.6	55	0.01	16.72
123	m	1,2,4,5-tetramethylbenzen		----------NA----------				
124	M	1,2-dibromo-3-chloropropa	0.093	0.109	-17.2	87	0.02	17.72
125	M	1,3,5-trichlorobenzene	1.027	1.026	0.1	67	0.01	17.93
126	M	1,2,4-trichlorobenzene	0.862	0.775	10.1	60	0.01	18.62
127	M	hexachlorobutadiene	0.525	0.570	-8.6	71	0.01	18.75
128	M	naphthalene	1.630	1.419	12.9	60	0.01	18.93
129	M	1,2,3-trichlorobenzene	0.776	0.735	5.3	63	0.01	19.21
130	M	hexachloroethane	0.399	0.430	-7.8	72	0.01	17.15
131		Ethylenimine		----------NA----------				
132		Bis(chloromethyl)ether		----------NA----------				
133		2-methylnaphthalene		----------NA----------				

Continuing Calibration Summary

Job Number: JB31583 **Sample:** VA7271-CC7222
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** A192983.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

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

   (#) = Out of Range                SPCC's out = 0  CCC's out = 0
    A191862.D  MA7222.M         Mon Mar 25 17:00:56 2013   MSA
```

Continuing Calibration Summary

Job Number: JB31583 **Sample:** VA7277-CC7222
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** A193112.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\1\DATA\A193112.D                    Vial: 100
Acq On    : 28 Mar 2013   8:19 am                    Operator: Oksanat
Sample    : cc7222-20                                Inst    : MSA
Misc      : MS45514,VA7277,5,,,,1                    Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title        : SW 846  8260bB ZB624 60m x 0.25mm x 1.4um
Last Update  : Thu Feb 21 15:26:34 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	72	-0.02	7.01
2	M	1,4-dioxane	0.089	0.086	3.4	67	0.00	11.06
3	M	ethanol		----------NA----------				
4	M	tertiary butyl alcohol	0.964	1.032	-7.1	75	0.00	7.14
5	I	pentafluorobenzene	1.000	1.000	0.0	74	-0.02	9.34
6		chlorotrifluoroethene		----------NA----------				
7	M	chlorodifluoromethane	0.286	0.283	1.0	76	-0.01	3.69
8	M	dichlorodifluoromethane	0.381	0.419	-10.0	79	0.00	3.67
9	M	chloromethane	0.525	0.463	11.8	71	-0.04	3.95
10	M	vinyl chloride	0.482	0.509	-5.6	80	-0.04	4.19
11	M	bromomethane	0.344	0.333	3.2	76	0.00	4.82
12	M	chloroethane	0.230	0.225	2.2	71	-0.01	4.99
13		vinyl bromide		----------NA----------				
14	M	trichlorofluoromethane	0.489	0.526	-7.6	79	-0.01	5.46
15	m	pentane		----------NA----------				
16	M	ethyl ether	0.196	0.172	12.2	65	0.00	5.86
17		Freon 123a		----------NA----------				
18	M	acrolein	0.060	0.048	20.0	60	0.00	6.12
19	M	1,1-dichloroethene	0.292	0.292	0.0	68	-0.01	6.27
20	M	acetone	0.082	0.077	6.1	83	0.01	6.39
21	M	allyl chloride	0.210	0.207	1.4	72	0.00	6.82
		----------	True	Calc.	% Drift	----------		
22	M	acetonitrile	200.000	196.450	1.8	77	0.01	6.82
		----------	AvgRF	CCRF	% Dev	----------		
23	M	iodomethane	0.649	0.701	-8.0	76	-0.01	6.55
24	M	iso-butyl alcohol	0.011	0.009#	18.2	69	0.00	9.68
25	M	carbon disulfide	1.095	1.107	-1.1	69	0.00	6.68
26	M	methylene chloride	0.418	0.418	0.0	77	-0.02	7.01
27	M	methyl acetate	0.214	0.197	7.9	76	0.01	6.85
28	M	methyl tert butyl ether	0.977	0.995	-1.8	74	-0.02	7.36
29	M	trans-1,2-dichloroethene	0.328	0.342	-4.3	70	0.00	7.41
30	M	di-isopropyl ether	1.224	1.252	-2.3	74	-0.02	7.99
31	m	t-butyl formate	0.255	0.276	-8.2	81	-0.02	9.19
		----------	True	Calc.	% Drift	----------		
32	m	3,3-dimethyl-1-butanol	200.000	171.389	14.3	67	-0.01	12.99
		----------	AvgRF	CCRF	% Dev	----------		
33	M	ethyl tert-butyl ether	1.114	1.160	-4.1	75	-0.02	8.48

Continuing Calibration Summary

Job Number: JB31583 **Sample:** VA7277-CC7222
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** A193112.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

		----------	True	Calc.	% Drift	----------		
34	M	2-butanone	20.000	18.276	8.6	67	0.01	8.80
		----------	AvgRF	CCRF	% Dev	----------		
35	M	1,1-dichloroethane	0.628	0.677	-7.8	74	-0.01	8.00
36	M	chloroprene	0.436	0.486	-11.5	79	0.00	8.12
37	M	acrylonitrile	0.104	0.094	9.6	76	0.00	7.38
		----------	True	Calc.	% Drift	----------		
38	M	vinyl acetate	20.000	18.181	9.1	58	0.00	8.04
39	M	ethyl acetate	20.000	20.756	-3.8	78	0.00	8.81
		----------	AvgRF	CCRF	% Dev	----------		
40		ethyl acrylate		----------NA----------				
41	M	2,2-dichloropropane	0.460	0.552	-20.0#	84	0.00	8.78
42	M	cis-1,2-dichloroethene	0.378	0.386	-2.1	72	0.00	8.78
43	M	propionitrile	0.040	0.031	22.5#	64	0.00	8.87
44	M	bromochloromethane	0.184	0.198	-7.6	76	-0.02	9.10
45	M	tetrahydrofuran	0.133	0.109	18.0	67	0.00	9.17
46	M	chloroform	0.615	0.675	-9.8	79	-0.01	9.16
47	S	dibromofluoromethane (s)	0.372	0.386	-3.8	84	-0.01	9.38
48	S	1,2-dichloroethane-d4 (s)	0.416	0.388	6.7	76	-0.02	9.81
49	M	freon 113	0.224	0.246	-9.8	79	-0.01	6.26
50	M	methacrylonitrile	0.171	0.148	13.5	67	0.00	9.06
51		cyclohexane	0.479	0.430	10.2	62	0.00	9.50
52	M	1,1,1-trichloroethane	0.470	0.556	-18.3	81	0.00	9.42
53	M	tert-amyl methyl ether	1.061	1.049	1.1	72	-0.01	9.94
54	I	1,4-difluorobenzene	1.000	1.000	0.0	72	-0.01	10.29
55	M	Di-isobutylene		----------NA----------				
56	M	epichlorohydrin	0.021	0.020	4.8	73	0.00	11.65
		----------	True	Calc.	% Drift	----------		
57	M	n-butyl alcohol	1000.000	866.753	13.3	63	0.00	10.47
		----------	AvgRF	CCRF	% Dev	----------		
58	M	carbon tetrachloride	0.296	0.353	-19.3	79	-0.01	9.63
59	M	1,1-dichloropropene	0.315	0.334	-6.0	70	-0.01	9.62
60	M	hexane	0.260	0.263	-1.2	73	0.00	7.73
61	M	benzene	0.996	1.016	-2.0	70	-0.01	9.89
62	M	Iso-octane	0.825	0.922	-11.8	74	0.00	9.90
63	M	heptane	0.170	0.179	-5.3	72	0.00	10.09
64	m	tert amyl alcohol		----------NA----------				
65	M	isopropyl acetate	0.436	0.371	14.9	63	0.00	9.84
66	M	1,2-dichloroethane	0.300	0.350	-16.7	80	-0.02	9.90
67	M	trichloroethene	0.234	0.255	-9.0	72	0.00	10.65
68	M	2-nitropropane		----------NA----------				
69	m	tert-amyl ethyl ether		----------NA----------				
70	m	methylcyclohexane	0.358	0.369	-3.1	68	-0.01	10.87
71	M	2-chloroethyl vinyl ether	0.136	0.131	3.7	68	0.00	11.51
72	M	methyl methacrylate	0.147	0.128	12.9	66	0.00	10.96
73	M	1,2-dichloropropane	0.278	0.280	-0.7	70	0.00	10.92
74	M	dibromomethane	0.143	0.153	-7.0	73	0.00	11.09
75	M	bromodichloromethane	0.331	0.376	-13.6	77	-0.01	11.23
76	M	cis-1,3-dichloropropene	0.414	0.441	-6.5	72	0.00	11.74
77	S	toluene-d8 (s)	0.949	1.038	-9.4	83	0.00	12.05
78	M	4-methyl-2-pentanone	0.089	0.081	9.0	63	-0.01	11.85
79	M	toluene	0.622	0.670	-7.7	74	0.00	12.13

Continuing Calibration Summary

Job Number: JB31583 **Sample:** VA7277-CC7222
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** A193112.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			True	Calc.	% Drift			
80	M	3-methyl-1-butanol	400.000	374.347	6.4	68	0.00	11.89

			AvgRF	CCRF	% Dev			
81	M	trans-1,3-dichloropropene	0.351	0.394	-12.3	74	0.00	12.36
82	M	ethyl methacrylate	0.295	0.276	6.4	68	0.00	12.36
83	M	1,1,2-trichloroethane	0.183	0.187	-2.2	71	-0.01	12.58
84	M	2-hexanone	0.080	0.064	20.0	64	0.00	12.81
85	I	chlorobenzene-d5	1.000	1.000	0.0	75	0.00	13.73
86	M	tetrachloroethene	0.238	0.249	-4.6	72	-0.01	12.78
87	M	1,3-dichloropropane	0.403	0.392	2.7	73	0.00	12.79
88	M	butyl acetate	0.162	0.141	13.0	70	0.00	12.89
89	M	dibromochloromethane	0.294	0.319	-8.5	78	-0.01	13.08
90	M	1,2-dibromoethane	0.234	0.236	-0.9	72	0.00	13.25
91	M	n-butyl ether		----------NA----------				
92	M	chlorobenzene	0.824	0.850	-3.2	75	-0.01	13.77
93	M	1,1,1,2-tetrachloroethane	0.304	0.331	-8.9	78	-0.01	13.83
94	M	ethylbenzene	1.309	1.357	-3.7	73	-0.01	13.83
95	M	m,p-xylene	0.520	0.545	-4.8	75	0.00	13.96
96	M	o-xylene	0.533	0.534	-0.2	72	-0.01	14.42
97	M	styrene	0.860	0.884	-2.8	72	-0.01	14.44
98	M	bromoform	0.217	0.228	-5.1	79	-0.01	14.73
99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	71	-0.01	16.37
100	M	isopropylbenzene	2.225	2.392	-7.5	72	0.00	14.82
101	m	cyclohexanone	0.018	0.047	-161.1#	200	0.00	15.00
102	S	4-bromofluorobenzene (s)	0.710	0.741	-4.4	79	0.00	15.05
103	M	bromobenzene	0.646	0.712	-10.2	77	0.00	15.26
104	M	1,1,2,2-tetrachloroethane	0.644	0.592	8.1	70	0.00	15.17
105	M	trans-1,4-dichloro-2-bute	0.141	0.129	8.5	64	0.00	15.22
106	M	1,2,3-trichloropropane	0.139	0.134	3.6	70	0.00	15.25
107	M	n-propylbenzene	2.581	2.740	-6.2	70	0.00	15.28
108	M	2-chlorotoluene	0.590	0.638	-8.1	73	0.00	15.44
109	M	4-chlorotoluene	1.744	1.764	-1.1	71	-0.01	15.55
110	m	p-ethyltoluene		----------NA----------				
111	M	1,3,5-trimethylbenzene	1.975	2.114	-7.0	71	0.00	15.46
112	M	tert-butylbenzene	1.657	1.790	-8.0	72	-0.01	15.84
113	M	pentachloroethane	0.438	0.494	-12.8	79	-0.01	15.94
114	M	1,2,4-trimethylbenzene	2.032	2.120	-4.3	70	0.00	15.90
115	M	sec-butylbenzene	2.604	2.653	-1.9	69	-0.01	16.09
116	M	1,3-dichlorobenzene	1.232	1.283	-4.1	71	0.00	16.30
117	M	p-isopropyltoluene	2.154	2.235	-3.8	69	-0.01	16.22
118	M	1,2,3-trimethylbenzene		----------NA----------				
119	M	1,4-dichlorobenzene	1.302	1.285	1.3	69	0.00	16.40
120	m	p-diethylbenzene		----------NA----------				
121	M	1,2-dichlorobenzene	1.210	1.253	-3.6	71	0.00	16.84
122	M	n-butylbenzene	1.182	1.021	13.6	57	-0.01	16.69
123	m	1,2,4,5-tetramethylbenzen		----------NA----------				
124	M	1,2-dibromo-3-chloropropa	0.093	0.091	2.2	72	0.00	17.70
125	M	1,3,5-trichlorobenzene	1.027	1.034	-0.7	67	0.00	17.91
126	M	1,2,4-trichlorobenzene	0.862	0.741	14.0	57	0.00	18.60
127	M	hexachlorobutadiene	0.525	0.585	-11.4	73	-0.01	18.72
128	M	naphthalene	1.630	1.197	26.6#	51	-0.01	18.91
129	M	1,2,3-trichlorobenzene	0.776	0.656	15.5	56	-0.01	19.18
130	M	hexachloroethane	0.399	0.481	-20.6#	80	-0.01	17.13
131		Ethylenimine		----------NA----------				
132		Bis(chloromethyl)ether		----------NA----------				
133		2-methylnaphthalene		----------NA----------				

Continuing Calibration Summary

Job Number: JB31583 **Sample:** VA7277-CC7222
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** A193112.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

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--------------------------------------------------------------------------

   (#) = Out of Range                SPCC's out = 0  CCC's out = 0
    A191862.D  MA7222.M         Thu Mar 28 15:00:14 2013   MSA
```

Initial Calibration Summary

Job Number: JB31583 **Sample:** VE8801-ICC8801
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E200201.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
                         Response Factor Report  MSE

 Method       : C:\MSDCHEM\1\METHODS\ME8801.M (RTE Integrator)
 Title        : SW846  8260B,ZB624 60m x 0.25mm x 1.4um
 Last Update  : Fri Feb 22 18:41:55 2013
 Response via : Initial Calibration

 Calibration Files
 5   =E200198.D   2   =E200208.D   20  =E200200.D   50  =E200201.D
 100 =E200202.D   1   =E200206.D   200 =E200203.D   0.5 =E200207.D
 10  =E200199.D       =

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

 1)     Tert Butyl Alcohol-d9 ----------------ISTD---------------------
 2)  1,4-dioxane
           0.060       0.094 0.103 0.102       0.099       0.072   0.088   20.14
            ----- Linear regression -----  Coefficient =  0.9994
              Response Ratio = -0.00503 + 0.10041 *A

 3)  tertiary butyl alcohol
           1.046 1.174 1.252 1.237 1.204       1.100       1.210   1.175    6.42
 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
           0.463 0.430 0.589 0.607 0.583       0.561       0.618   0.550   13.38
12)  dichlorodifluoromethane
           0.589 0.626 0.753 0.802 0.764 0.784 0.748       0.796   0.733   10.98
13)  freon 114
                                                                   0.000#  -1.00
14)  freon 142b
                                                                   0.000#  -1.00
15)  chloromethane
           0.703 0.724 0.843 0.871 0.825 0.889 0.799       0.892   0.818    8.81
16)  vinyl chloride
           0.697 0.746 0.861 0.879 0.816 0.897 0.789       0.869   0.819    8.65
17)  1,3-Butadiene
                                                                   0.000#  -1.00
18)  acetaldehyde
                                                                   0.000    1.00
19)  bromomethane
           0.460 0.465 0.499 0.498 0.459 0.626 0.433 0.493 0.529   0.496   11.42
20)  chloroethane
           0.339 0.328 0.400 0.409 0.376 0.384 0.351       0.404   0.374    8.35
21)  vinyl bromide
                                                                   0.000#  -1.00
```

Initial Calibration Summary

Job Number: JB31583 **Sample:** VE8801-ICC8801
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E200201.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
22)  trichlorofluoromethane
           0.703 0.688 0.857 0.883 0.817 0.884 0.793       0.883   0.813    9.82
23)  pentane
           0.866 1.016 1.076 1.089 1.015 1.103 0.989       1.205   1.045    9.49
24)  ethyl ether
           0.315 0.282 0.346 0.328 0.326 0.309 0.315 0.280 0.343   0.316    7.38
25)  freon 141b
                                                                   0.000#  -1.00
26)  freon 123a
                                                                   0.000#  -1.00
27)  freon 123
                                                                   0.000#  -1.00
28)  2-chloropropane
           0.844 0.861 1.046 1.021 0.984 0.807 0.961       1.036   0.945    9.98
29)  acrolein
           0.121 0.114 0.130 0.128       0.116             0.127   0.123    5.44
30)  1,1-dichloroethene
           0.445 0.435 0.539 0.525 0.502 0.345 0.491       0.530   0.476   13.76
31)  isopropyl alcohol
                                                                   0.000#  -1.00
32)  acetone
           0.028       0.053 0.050 0.050       0.048       0.044   0.045   20.12
            ----- Linear regression -----  Coefficient =  0.9986
              Response Ratio = 0.00076 + 0.04797 *A

33)  allyl chloride
           0.778 0.976 0.953 0.957 0.920 0.873 0.882       0.967   0.913    7.33
34)  acetonitrile
           0.028       0.034 0.029 0.026       0.022       0.032   0.029   15.33
            ----- Linear regression -----  Coefficient =  0.9906
              Response Ratio = 0.04112 + 0.02186 *A

35)  iodomethane
           0.893 0.862 1.058 1.053 1.022 0.785 1.002       1.039   0.964   10.71
36)  iso-butyl alcohol
           0.003       0.005 0.005 0.004       0.004       0.005   0.004#  16.56
            ----- Linear regression -----  Coefficient =  0.9995
              Response Ratio = 0.00065 + 0.00447 *A

37)  carbon disulfide
           1.506 1.535 1.822 1.823 1.711 1.441 1.503 1.279 1.804   1.603   12.17
38)  methylene chloride
           0.534 0.662 0.601 0.585 0.573 0.807 0.558       0.604   0.615   13.96
39)  1-chloropropane
           0.832 0.918 0.989 0.953 0.915 0.837 0.875 0.989 0.982   0.921    6.77
40)  methyl acetate
           0.369 0.365 0.477 0.448 0.439 0.388 0.426       0.455   0.421   10.01
41)  methyl tert butyl ether
           1.508 1.458 1.687 1.626 1.590 1.441 1.538 1.168 1.708   1.525   10.71
42)  trans-1,2-dichloroethene
           0.481 0.454 0.547 0.536 0.513 0.405 0.493 0.341 0.545   0.480   14.53
43)  di-isopropyl ether
           1.607 1.718 1.848 1.803 1.727 1.780 1.636 1.939 1.821   1.764    5.91
44)  ethyl tert-butyl ether
           1.595 1.708 1.821 1.806 1.772 1.784 1.719 1.843 1.775   1.758    4.28
45)  2-butanone
           0.034       0.063 0.068 0.070       0.064       0.056   0.059   22.16
            ----- Linear regression -----  Coefficient =  0.9972
              Response Ratio = 0.00040 + 0.06503 *A
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```
46)  1,1-dichloroethane
           0.868 0.862 1.010 0.982 0.937 0.793 0.892 0.617 1.004   0.885   14.01
47)  chloroprene
           0.607 0.556 0.741 0.735 0.708 0.607 0.677       0.724   0.669   10.50
48)  acrylonitrile
           0.199 0.190 0.226 0.216 0.215 0.159 0.208       0.225   0.205   10.78
49)  vinyl acetate
           0.051       0.090 0.090 0.090       0.089       0.078   0.081   19.20
            ----- Linear regression -----  Coefficient =  0.9998
              Response Ratio = -0.00136 + 0.08979 *A

50)  ethyl acetate
           0.057       0.079 0.076 0.079       0.077       0.079   0.075   11.81
51)  2,2-dichloropropane
           0.667 0.702 0.765 0.758 0.707 0.626 0.675       0.793   0.712    7.94
52)  cis-1,2-dichloroethene
           0.545 0.519 0.605 0.579 0.562 0.470 0.540       0.602   0.553    8.11
53)  methyl acrylate
           0.436       0.517 0.497 0.505       0.490       0.513   0.493    6.02
54)  propionitrile
           0.076 0.072 0.088 0.082 0.082 0.060 0.079       0.086   0.078   11.27
55)  bromochloromethane
           0.261 0.239 0.303 0.300 0.298       0.293       0.300   0.285    8.67
56)  tetrahydrofuran
           0.189 0.179 0.211 0.200 0.201       0.195       0.212   0.198    5.81
57)  chloroform
           0.822 0.804 0.946 0.915 0.880 0.791 0.858 0.630 0.941   0.843   11.65
58)  t-butyl formate
           0.423 0.422 0.504 0.510 0.499 0.443 0.498       0.488   0.474    7.87
59)  Iso-octane
           1.216 1.276 1.518 1.541 1.446 1.412 1.407       1.485   1.412    8.09
60)  dibromofluoromethane (s)
           0.485 0.423 0.486 0.504 0.496 0.370 0.489       0.500   0.469   10.11
61)  1,2-dichloroethane-d4 (s)
           0.520 0.475 0.551 0.543 0.535 0.409 0.507       0.585   0.516   10.44
62)  freon 113
           0.311 0.273 0.408 0.413 0.387       0.375       0.386   0.365   14.42
63)  methacrylonitrile
           0.303 0.284 0.351 0.343 0.345       0.345       0.348   0.331    8.04
64)  1,1,1-trichloroethane
           0.673 0.681 0.831 0.819 0.791 0.605 0.774       0.815   0.749   11.24
65)  tert-amyl methyl ether
           1.521 1.627 1.707 1.666 1.617 1.835 1.555 1.850 1.671   1.672    6.72

66) I   1,4-difluorobenzene   ----------------ISTD---------------------
67)  Di-isobutylene
                                                                   0.000#  -1.00
68)  tert amyl alcohol
           0.014 0.012 0.017 0.016 0.014       0.013       0.016   0.015   12.94
69)  epichlorohydrin
           0.036 0.036 0.042 0.041 0.041       0.040       0.040   0.039    6.10
70)  n-butyl alcohol
           0.010 0.009 0.013 0.012 0.011 0.013 0.011       0.011   0.011   12.38
71)  tert-amyl ethyl ether
           0.540 0.493 0.624 0.604 0.575 0.580 0.568 0.381 0.582   0.550   13.35
72)  carbon tetrachloride
           0.439 0.435 0.534 0.519 0.493 0.400 0.480 0.337 0.519   0.462   14.05
73)  1,1-dichloropropene
           0.422 0.450 0.529 0.504 0.484 0.404 0.470       0.517   0.473    9.49
74)  hexane
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            0.320 0.301 0.400 0.402 0.384       0.371       0.398   0.368   11.12
 75)  benzene
            1.345 1.407 1.558 1.465 1.404 1.361 1.346 1.182 1.539   1.401    8.12
 76)  heptane
            0.186 0.169 0.216 0.220 0.209 0.182 0.204       0.226   0.202   10.08
 77)  isopropyl acetate
            0.676 0.698 0.755 0.719 0.713 0.804 0.687       0.745   0.725    5.77
 78)  1,2-dichloroethane
            0.452 0.434 0.500 0.469 0.460 0.379 0.441       0.486   0.453    8.19
 79)  ethyl acrylate
                                                                    0.000#  -1.00
 80)  trichloroethene
            0.322 0.326 0.402 0.387 0.373 0.283 0.361       0.386   0.355   11.51
 81)  2-nitropropane
                                                                    0.000#  -1.00
 82)  2-chloroethyl vinyl ether
            0.218 0.224 0.258 0.252 0.248 0.245 0.234       0.244   0.240    5.71
 83)  methylcyclohexane
            0.493 0.499 0.603 0.589 0.552 0.542 0.533 0.475 0.594   0.542    8.66
 84)  methyl methacrylate
            0.333 0.301 0.390 0.381 0.375 0.280 0.359       0.381   0.350   11.73
 85)  1,2-dichloropropane
            0.353 0.370 0.419 0.390 0.379 0.314 0.364       0.405   0.374    8.69
 86)  dibromomethane
            0.208 0.209 0.244 0.233 0.235 0.150 0.230       0.235   0.218   13.84
 87)  bromodichloromethane
            0.444 0.433 0.518 0.498 0.495 0.429 0.487       0.499   0.476    7.24
 88)  cis-1,3-dichloropropene
            0.557 0.538 0.665 0.654 0.645 0.493 0.626       0.638   0.602   10.59
 89)  toluene-d8 (s)
            1.285 1.236 1.398 1.363 1.310 1.118 1.240 1.081 1.363   1.266    8.66
 90)  4-methyl-2-pentanone
            0.153 0.152 0.169 0.163 0.162       0.156       0.164   0.160    3.97
 91)  toluene
            0.825 0.827 0.970 0.930 0.900 0.763 0.872 0.599 0.964   0.850   13.72
 92)  3-methyl-1-butanol
            0.017 0.018 0.020 0.019 0.019 0.025 0.018       0.019   0.019   13.17
 93)  trans-1,3-dichloropropene
            0.493 0.475 0.587 0.574 0.568 0.405 0.552       0.557   0.526   11.94
 94)  ethyl methacrylate
            0.427 0.392 0.516 0.516 0.510 0.364 0.490       0.493   0.464   13.07
 95)  1,1,2-trichloroethane
            0.270 0.251 0.303 0.292 0.293 0.219 0.284       0.295   0.276   10.24
 96)  2-hexanone
            0.118       0.146 0.149 0.151       0.151       0.138   0.142    9.11

 97) I   chlorobenzene-d5      ----------------ISTD---------------------
 98)  cyclohexanone
            0.014       0.015 0.015 0.014       0.013       0.014   0.014    6.52
 99)  tetrachloroethene
            0.436 0.491 0.508 0.478 0.456 0.393 0.427       0.508   0.462    9.03
100)  1,3-dichloropropane
            0.615 0.603 0.663 0.629 0.621 0.568 0.580 0.454 0.664   0.600   10.62
101)  butyl acetate
            0.235 0.233 0.280 0.269 0.271 0.262 0.257       0.266   0.259    6.50
102)  3,3-dimethyl-1-butanol
            0.042 0.045 0.049 0.045 0.042       0.039       0.044   0.044    7.15
103)  dibromochloromethane
            0.420 0.395 0.476 0.459 0.463 0.373 0.442       0.461   0.436    8.37
104)  1,2-dibromoethane
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            0.381 0.380 0.421 0.396 0.400 0.311 0.382       0.417   0.386    8.89
105)  n-butyl ether
                                                                    0.000#  -1.00
106)  chlorobenzene
            1.071 1.089 1.204 1.154 1.124 1.041 1.067 0.810 1.205   1.085   10.95
107)  1,1,1,2-tetrachloroethane
            0.404 0.397 0.455 0.436 0.418 0.352 0.401 0.287 0.451   0.400   13.19
108)  ethylbenzene
            1.715 1.743 1.967 1.833 1.757 1.589 1.640 1.420 1.961   1.736   10.08
109)  m,p-xylene
            0.679 0.670 0.775 0.731 0.706 0.626 0.670 0.518 0.765   0.682   11.48
110)  o-xylene
            0.687 0.701 0.800 0.751 0.728 0.578 0.701 0.556 0.786   0.699   12.04
111)  butyl acrylate
                                                                    0.000#  -1.00
112)  styrene
            1.121 1.085 1.318 1.238 1.213 0.873 1.159       1.269   1.160   11.99
113)  bromoform
            0.317 0.300 0.366 0.352 0.358 0.258 0.355       0.346   0.332   11.17

114) I   1,4-dichlorobenzene-d ----------------ISTD---------------------
115)  isopropylbenzene
            3.085 3.213 3.641 3.447 3.258 2.964 3.138 2.705 3.496   3.216    8.94
116)  4-bromofluorobenzene (s)
            0.970 0.866 1.016 0.993 0.964 0.796 0.942 0.724 0.978   0.917   10.88
117)  bromobenzene
            0.922 0.880 1.021 0.947 0.916 0.824 0.889 0.643 0.987   0.892   12.33
118)  1,1,2,2-tetrachloroethane
            0.925 0.896 0.986 0.938 0.904 0.850 0.887 0.791 0.957   0.904    6.44
119)  trans-1,4-dichloro-2-butene
            0.185       0.235 0.239 0.242       0.241       0.217   0.227    9.96
120)  1,2,3-trichloropropane
            0.241 0.201 0.263 0.245 0.237       0.238       0.249   0.239    7.91
121)  n-propylbenzene
            3.480 3.631 4.001 3.741 3.557 3.437 3.413 3.031 3.943   3.582    8.25
122)  p-ethyltoluene
            3.128 2.699 3.456 3.296 3.097 3.592 3.055 2.507 3.236   3.119   10.98
123)  2-chlorotoluene
            0.794 0.809 0.875 0.828 0.792 0.758 0.779 0.658 0.841   0.793    7.75
124)  4-chlorotoluene
            2.259 2.344 2.561 2.418 2.310 2.204 2.272 2.127 2.473   2.330    5.83
125)  1,3,5-trimethylbenzene
            2.754 2.773 2.945 2.757 2.608 2.861 2.497 2.527 2.946   2.741    6.08
126)  tert-butylbenzene
            2.262 2.265 2.640 2.542 2.405 2.319 2.333 1.826 2.561   2.350   10.20
127)  pentachloroethane
            0.585 0.550 0.657 0.623 0.599 0.536 0.593 0.491 0.624   0.584    8.76
128)  1,2,4-trimethylbenzene
            2.679 2.592 3.022 2.840 2.712 2.636 2.604 2.423 2.884   2.710    6.64
129)  sec-butylbenzene
            3.134 3.267 3.727 3.578 3.393 3.231 3.234 2.887 3.617   3.341    7.93
130)  1,3-dichlorobenzene
            1.578 1.584 1.799 1.728 1.680 1.584 1.621 1.477 1.739   1.643    6.13
131)  p-isopropyltoluene
            2.645 2.630 3.161 3.033 2.859 2.586 2.720 2.303 3.029   2.774    9.76
132)  1,4-dichlorobenzene
            1.613 1.647 1.816 1.770 1.722 1.545 1.658 1.452 1.768   1.666    7.06
133)  benzyl chloride
            1.350 1.449 1.627 1.743 1.715 1.893 1.662 1.903 1.499   1.649   11.54
134)  p-diethylbenzene
```

Initial Calibration Summary

Job Number: JB31583 **Sample:** VE8801-ICC8801
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E200201.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
            1.577 1.297 1.820 1.831 1.697 1.598 1.620 1.191 1.695   1.592   13.68
135)  1,2-dichlorobenzene
            1.579 1.470 1.774 1.714 1.643 1.481 1.579 1.342 1.697   1.587    8.66
136)  n-butylbenzene
            1.201 1.182 1.529 1.475 1.417 1.066 1.343       1.441   1.332   12.33
137)  1,2,4,5-tetramethylbenzene
            2.505 2.016 3.029 2.967 2.567 2.774 2.331       2.753   2.618   12.86
138)  1,2-dibromo-3-chloropropane
            0.135       0.161 0.160 0.146       0.140       0.149   0.148    7.14
139)  1,3,5-trichlorobenzene
            1.015 0.961 1.377 1.350 1.193 1.005 1.078       1.264   1.155   14.13
140)  1,2,4-trichlorobenzene
            0.721       1.032 1.056 0.966       0.895       0.925   0.933   12.90
141)  hexachlorobutadiene
            0.490 0.540 0.617 0.584 0.490 0.580 0.425 0.444 0.579   0.528   12.88
142)  naphthalene
            1.555       2.068 2.084 1.881       1.806       1.826   1.870   10.43
143)  MMT
                                                                    0.000#  -1.00
144)  1,2,3-trichlorobenzene
            0.598       0.833 0.829 0.742       0.690       0.753   0.741   11.96
145)  hexachloroethane
            0.484 0.477 0.615 0.596 0.572 0.430 0.545       0.561   0.535   12.07
146)  Cyclohexane
            0.961 1.008 1.195 1.104 1.038 0.915 1.008       1.186   1.052    9.64
147)  ethyleinimine
                                                                    0.000#  -1.00
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          ME8801.M          Mon Feb 25 09:59:04 2013
```

Initial Calibration Verification

Job Number: JB31583 **Sample:** VE8801-ICV8801
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E200209.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\e-core initial\E200209.D Vial: 16
Acq On : 22 Feb 2013 5:19 pm Operator: OksanaT
Sample : icv8801-50 Inst : MSE
Misc : MS43512,VE8801,5,,100,5,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\ME8801.M (RTE Integrator)
Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
Last Update : Fri Feb 22 18:41:55 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	102	0.01	7.68
		----------	True	Calc.	% Drift	----------		
2	M	1,4-dioxane	1250.000	1187.360	5.0	93	0.00	11.54
		----------	AvgRF	CCRF	% Dev	----------		
3	M	tertiary butyl alcohol	1.175	1.191	-1.4	98	0.00	7.80
4		ethanol		----------NA----------				
5	I	pentafluorobenzene	1.000	1.000	0.0	104	0.00	9.91
6		freon 23		----------NA----------				
7		freon 115		----------NA----------				
8		freon 143a		----------NA----------				
9		freon 152a		----------NA----------				
10	M	chlorotrifluoroethene		----------NA----------				
11	M	chlorodifluoromethane	0.550	0.568	-3.3	97	0.00	4.32
12	M	dichlorodifluoromethane	0.733	0.739	-0.8	96	0.00	4.32
13		freon 114		----------NA----------				
14		freon 142b		----------NA----------				
15	M	chloromethane	0.818	0.915	-11.9	109	0.00	4.66
16	M	vinyl chloride	0.819	0.827	-1.0	98	0.00	4.96
17		1,3-Butadiene		----------NA----------				
18	M	acetaldehyde		----------NA----------				
19	M	bromomethane	0.496	0.500	-0.8	104	0.00	5.59
20	M	chloroethane	0.374	0.421	-12.6	107	0.00	5.77
21	M	vinyl bromide		----------NA----------				
22	M	trichlorofluoromethane	0.813	0.823	-1.2	97	0.00	6.28
23	M	pentane	1.045	1.046	-0.1	100	0.00	6.34
24	M	ethyl ether	0.316	0.323	-2.2	102	0.00	6.65
25		freon 141b		----------NA----------				
26		freon 123a		----------NA----------				
27		freon 123		----------NA----------				
28	m	2-chloropropane	0.945	0.994	-5.2	101	0.00	6.84
29	M	acrolein	0.123	0.124	-0.8	101	0.00	6.85
30	M	1,1-dichloroethene	0.476	0.494	-3.8	98	0.00	7.09
31	M	isopropyl alcohol		----------NA----------				
		----------	True	Calc.	% Drift	----------		
32	M	acetone	50.000	51.965	-3.9	105	0.00	7.07
		----------	AvgRF	CCRF	% Dev	----------		
33	M	allyl chloride	0.913	0.871	4.6	95	0.00	7.58

Initial Calibration Verification

Job Number: JB31583 **Sample:** VE8801-ICV8801
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E200209.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

		----------	True	Calc.	% Drift	----------		
34	M	acetonitrile	500.000	549.696	-9.9	99	0.00	7.46
		----------	AvgRF	CCRF	% Dev	----------		
35	M	iodomethane	0.964	0.978	-1.5	96	0.00	7.35
		----------	True	Calc.	% Drift	----------		
36	M	iso-butyl alcohol	500.000	495.545	0.9	100	0.00	10.22
		----------	AvgRF	CCRF	% Dev	----------		
37	M	carbon disulfide	1.603	1.533	4.4	87	0.00	7.50
38	M	methylene chloride	0.615	0.558	9.3	99	0.00	7.75
39	m	1-chloropropane	0.921	0.922	-0.1	100	0.00	7.81
40	M	methyl acetate	0.421	0.388	7.8	90	0.00	7.54
41	M	methyl tert butyl ether	1.525	1.507	1.2	96	0.00	8.10
42	M	trans-1,2-dichloroethene	0.480	0.501	-4.4	97	0.00	8.14
43	M	di-isopropyl ether	1.764	1.708	3.2	98	0.00	8.69
44	M	ethyl tert-butyl ether	1.758	1.640	6.7	94	0.00	9.15
		----------	True	Calc.	% Drift	----------		
45	M	2-butanone	50.000	46.842	6.3	94	0.00	9.33
		----------	AvgRF	CCRF	% Dev	----------		
46	M	1,1-dichloroethane	0.885	0.968	-9.4	102	0.00	8.68
47	M	chloroprene	0.669	0.648	3.1	91	0.00	8.81
48	M	acrylonitrile	0.205	0.223	-8.8	107	0.00	8.01
		----------	True	Calc.	% Drift	----------		
49	M	vinyl acetate	50.000	51.515	-3.0	105	0.00	8.65
		----------	AvgRF	CCRF	% Dev	----------		
50	M	ethyl acetate	0.075	0.076	-1.3	104	0.00	9.37
51	M	2,2-dichloropropane	0.712	0.676	5.1	93	0.00	9.43
52	M	cis-1,2-dichloroethene	0.553	0.562	-1.6	101	0.00	9.41
53	m	methyl acrylate	0.493	0.493	0.0	103	0.00	9.45
54	M	propionitrile	0.078	0.083	-6.4	105	0.00	9.40
55	M	bromochloromethane	0.285	0.291	-2.1	101	0.00	9.71
56	M	tetrahydrofuran	0.198	0.206	-4.0	107	0.00	9.77
57	M	chloroform	0.843	0.884	-4.9	100	0.00	9.76
58	m	t-butyl formate	0.474	0.486	-2.5	99	0.00	9.80
59	M	Iso-octane	1.412	1.195	15.4	81	0.00	10.53
60	S	dibromofluoromethane (s)	0.469	0.490	-4.5	101	0.00	9.95
61	S	1,2-dichloroethane-d4 (s)	0.516	0.522	-1.2	100	0.00	10.36
62	M	freon 113	0.365	0.324	11.2	81	0.00	7.06
63	M	methacrylonitrile	0.331	0.340	-2.7	103	0.00	9.60
64	M	1,1,1-trichloroethane	0.749	0.785	-4.8	99	0.00	10.05
65	M	tert-amyl methyl ether	1.672	1.525	8.8	95	0.00	10.52
66	I	1,4-difluorobenzene	1.000	1.000	0.0	103	0.00	10.83
67	M	Di-isobutylene		----------NA----------				
68	M	tert amyl alcohol	0.015	0.016	-3.3	103	0.00	10.30
69	M	epichlorohydrin	0.039	0.039	0.0	98	0.00	12.06
70	M	n-butyl alcohol	0.011	0.012	-9.1	101	0.00	10.90
71	M	tert-amyl ethyl ether	0.550	0.568	-3.3	97	0.00	11.36
72	M	carbon tetrachloride	0.462	0.499	-8.0	99	0.00	10.27
73	M	1,1-dichloropropene	0.473	0.489	-3.4	100	0.00	10.22
74	M	hexane	0.368	0.298	19.0	77	0.00	8.48
75	M	benzene	1.401	1.433	-2.3	101	0.00	10.48
76	M	heptane	0.202	0.172	14.9	81	0.00	10.68

Initial Calibration Verification

Job Number: JB31583 **Sample:** VE8801-ICV8801
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E200209.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

77	M	isopropyl acetate	0.725	0.689	5.0	99	0.00	10.36
78	M	1,2-dichloroethane	0.453	0.458	-1.1	101	0.00	10.45
79		ethyl acrylate		----------NA----------				
80	M	trichloroethene	0.355	0.377	-6.2	101	0.00	11.19
81	M	2-nitropropane		----------NA----------				
82	M	2-chloroethyl vinyl ether	0.240	0.243	-1.3	99	0.00	11.95
83	M	methylcyclohexane	0.542	0.470	13.3	82	0.00	11.45
84	M	methyl methacrylate	0.350	0.360	-2.9	97	0.00	11.43
85	M	1,2-dichloropropane	0.374	0.386	-3.2	102	0.00	11.43
86	M	dibromomethane	0.218	0.233	-6.9	103	0.00	11.59
87	M	bromodichloromethane	0.476	0.497	-4.4	103	0.00	11.72
88	M	cis-1,3-dichloropropene	0.602	0.605	-0.5	96	0.00	12.20
89	S	toluene-d8 (s)	1.266	1.325	-4.7	100	0.00	12.53
90	M	4-methyl-2-pentanone	0.160	0.164	-2.5	104	0.00	12.27
91	M	toluene	0.850	0.903	-6.2	100	0.00	12.60
92	M	3-methyl-1-butanol	0.019	0.018	5.3	100	0.00	12.28
93	M	trans-1,3-dichloropropene	0.526	0.551	-4.8	99	0.00	12.77
94	M	ethyl methacrylate	0.464	0.482	-3.9	96	0.00	12.78
95	M	1,1,2-trichloroethane	0.276	0.292	-5.8	104	0.00	13.00
96	M	2-hexanone	0.142	0.144	-1.4	100	0.00	13.18
97	I	chlorobenzene-d5	1.000	1.000	0.0	101	0.00	14.15
98	M	cyclohexanone	0.014	0.014	0.0	94	0.00	15.35
99	M	tetrachloroethene	0.462	0.466	-0.9	99	0.00	13.25
100	M	1,3-dichloropropane	0.600	0.627	-4.5	101	0.00	13.20
101	M	butyl acetate	0.259	0.266	-2.7	100	0.00	13.27
102	m	3,3-dimethyl-1-butanol	0.044	0.053	-20.5#	120	0.00	13.36
103	M	dibromochloromethane	0.436	0.448	-2.8	99	0.00	13.50
104	M	1,2-dibromoethane	0.386	0.397	-2.8	101	0.00	13.67
105	M	n-butyl ether		----------NA----------				
106	M	chlorobenzene	1.085	1.144	-5.4	100	0.00	14.19
107	M	1,1,1,2-tetrachloroethane	0.400	0.425	-6.2	98	0.00	14.25
108	M	ethylbenzene	1.736	1.830	-5.4	101	0.00	14.25
109	M	m,p-xylene	0.682	0.725	-6.3	100	0.00	14.37
110	M	o-xylene	0.699	0.748	-7.0	101	0.00	14.83
111	M	butyl acrylate		----------NA----------				
112	M	styrene	1.160	1.221	-5.3	100	0.00	14.83
113	M	bromoform	0.332	0.348	-4.8	100	0.00	15.11
114	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	104	0.00	16.72
115	M	isopropylbenzene	3.216	3.343	-3.9	101	0.00	15.20
116	S	4-bromofluorobenzene (s)	0.917	0.955	-4.1	100	0.00	15.42
117	M	bromobenzene	0.892	0.915	-2.6	100	0.00	15.65
118	M	1,1,2,2-tetrachloroethane	0.904	0.886	2.0	98	0.00	15.50
119	M	trans-1,4-dichloro-2-bute	0.227	0.214	5.7	93	0.00	15.54
120	M	1,2,3-trichloropropane	0.239	0.236	1.3	100	0.00	15.59
121	M	n-propylbenzene	3.582	3.715	-3.7	103	0.00	15.66
122	M	p-ethyltoluene		----------NA----------				
123	M	2-chlorotoluene	0.793	0.785	1.0	99	0.00	15.83
124	M	4-chlorotoluene	2.330	2.328	0.1	100	0.00	15.93
125	M	1,3,5-trimethylbenzene	2.741	2.631	4.0	99	0.00	15.83
126	M	tert-butylbenzene	2.350	2.474	-5.3	101	0.00	16.22
127	M	pentachloroethane	0.584	0.607	-3.9	101	0.00	16.30
128	M	1,2,4-trimethylbenzene	2.710	2.804	-3.5	103	0.00	16.26
129	M	sec-butylbenzene	3.341	3.448	-3.2	100	0.00	16.45
130	M	1,3-dichlorobenzene	1.643	1.664	-1.3	100	0.00	16.66
131	M	p-isopropyltoluene	2.774	3.009	-8.5	103	0.00	16.58
132	M	1,4-dichlorobenzene	1.666	1.675	-0.5	98	0.00	16.75
133		benzyl chloride	1.649	1.482	10.1	88	0.00	16.86
134	M	p-diethylbenzene		----------NA----------				

Initial Calibration Verification

Job Number: JB31583 **Sample:** VE8801-ICV8801
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E200209.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

135	M	1,2-dichlorobenzene	1.587	1.652	-4.1	100	0.00	17.19
136	M	n-butylbenzene	1.332	1.444	-8.4	102	0.00	17.04
137	M	1,2,4,5-tetramethylbenzen		----------NA----------				
138	M	1,2-dibromo-3-chloropropa	0.148	0.155	-4.7	101	0.00	18.00
139	m	1,3,5-trichlorobenzene	1.155	1.252	-8.4	96	0.00	18.25
140	M	1,2,4-trichlorobenzene	0.933	1.047	-12.2	103	0.00	18.96
141	M	hexachlorobutadiene	0.528	0.549	-4.0	98	0.00	19.10
142	M	naphthalene	1.870	1.992	-6.5	99	0.00	19.27
143		MMT		----------NA----------				
144	M	1,2,3-trichlorobenzene	0.741	0.784	-5.8	98	0.00	19.54
145	M	hexachloroethane	0.535	0.585	-9.3	102	0.00	17.50
146	M	Cyclohexane	1.052	1.065	-1.2	100	0.00	10.16
147		ethyleinimine		----------NA----------				

(#) = Out of Range SPCC's out = 0 CCC's out = 0
E200201.D ME8801.M Mon Feb 25 09:59:18 2013

6.9.7

6

Continuing Calibration Summary

Job Number: JB31583 **Sample:** VE8853-CC8801
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E201357.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E201357.D                    Vial: 27
Acq On    : 27 Mar 2013  12:00 am                     Operator: OksanaT
Sample    : cc8801-50                                 Inst    : MSE
Misc      : MS45211,VE8853,5,,100,5,1                 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\ME8801.M (RTE Integrator)
Title        : SW846  8260B,ZB624 60m x 0.25mm x 1.4um
Last Update  : Mon Feb 25 11:43:47 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	134	0.04	7.71
		----------	True	Calc.	% Drift	----------		
2	M	1,4-dioxane	1250.000	1181.896	5.4	121	0.01	11.55
		----------	AvgRF	CCRF	% Dev	----------		
3	M	tertiary butyl alcohol	1.175	1.185	-0.9	129	0.02	7.82
4		ethanol		----------NA----------				
5	I	pentafluorobenzene	1.000	1.000	0.0	136	0.00	9.91
6		freon 23		----------NA----------				
7		freon 115		----------NA----------				
8		freon 143a		----------NA----------				
9		freon 152a		----------NA----------				
10	M	chlorotrifluoroethene		----------NA----------				
11	M	chlorodifluoromethane	0.550	0.403	26.7#	90	0.00	4.32
12	M	dichlorodifluoromethane	0.733	0.686	6.4	116	0.00	4.31
13		freon 114		----------NA----------				
14		freon 142b		----------NA----------				
15	M	chloromethane	0.818	0.640	21.8#	100	0.00	4.66
16	M	vinyl chloride	0.819	0.755	7.8	116	0.00	4.96
17		1,3-Butadiene		----------NA----------				
18	M	acetaldehyde		----------NA----------				
19	M	bromomethane	0.496	0.441	11.1	120	0.00	5.59
20	M	chloroethane	0.374	0.335	10.4	111	0.00	5.77
21	M	vinyl bromide		----------NA----------				
22	M	trichlorofluoromethane	0.813	0.838	-3.1	129	0.00	6.28
23	M	pentane		----------NA----------				
24	M	ethyl ether	0.316	0.293	7.3	121	0.00	6.65
25		freon 141b		----------NA----------				
26		freon 123a		----------NA----------				
27		freon 123		----------NA----------				
28	m	2-chloropropane	0.945	0.759	19.7	101	0.00	6.84
29	M	acrolein	0.123	0.106	13.8	113	0.00	6.85
30	M	1,1-dichloroethene	0.476	0.441	7.4	114	0.00	7.09
31	M	isopropyl alcohol		----------NA----------				
		----------	True	Calc.	% Drift	----------		
32	M	acetone	50.000	50.175	-0.3	133	0.01	7.07
		----------	AvgRF	CCRF	% Dev	----------		
33	M	allyl chloride	0.913	0.805	11.8	114	0.00	7.58

Continuing Calibration Summary

Job Number: JB31583 **Sample:** VE8853-CC8801
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E201357.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			True	Calc.	% Drift			
34	M	acetonitrile	500.000	559.964	-12.0	132	0.04	7.50

			AvgRF	CCRF	% Dev			
35	M	iodomethane	0.964	0.925	4.0	119	0.01	7.36

			True	Calc.	% Drift			
36	M	iso-butyl alcohol	500.000	473.304	5.3	125	0.00	10.23

			AvgRF	CCRF	% Dev			
37	M	carbon disulfide	1.603	1.341	16.3	100	0.00	7.50
38	M	methylene chloride	0.615	0.512	16.7	119	0.00	7.75
39	m	1-chloropropane	0.921	0.754	18.1	107	0.00	7.81
40	M	methyl acetate	0.421	0.378	10.2	114	0.00	7.54
41	M	methyl tert butyl ether	1.525	1.446	5.2	121	0.00	8.10
42	M	trans-1,2-dichloroethene	0.480	0.464	3.3	117	0.00	8.15
43	M	di-isopropyl ether	1.764	1.403	20.5#	106	0.00	8.69
44	M	ethyl tert-butyl ether	1.758	1.513	13.9	114	0.00	9.15

			True	Calc.	% Drift			
45	M	2-butanone	50.000	50.929	-1.9	134	0.00	9.34

			AvgRF	CCRF	% Dev			
46	M	1,1-dichloroethane	0.885	0.802	9.4	111	0.00	8.68
47	M	chloroprene	0.669	0.636	4.9	117	0.00	8.81
48	M	acrylonitrile	0.205	0.194	5.4	122	0.00	8.02

			True	Calc.	% Drift			
49	M	vinyl acetate	50.000	45.717	8.6	122	0.00	8.65

			AvgRF	CCRF	% Dev			
50	M	ethyl acetate	0.075	0.066	12.0	117	0.00	9.38
51	M	2,2-dichloropropane	0.712	0.566	20.5#	101	0.00	9.42
52	M	cis-1,2-dichloroethene	0.553	0.515	6.9	121	0.00	9.41
53	m	methyl acrylate	0.493	0.448	9.1	122	0.00	9.46
54	M	propionitrile	0.078	0.077	1.3	126	0.00	9.39
55	M	bromochloromethane	0.285	0.282	1.1	127	0.00	9.70
56	M	tetrahydrofuran	0.198	0.178	10.1	121	0.00	9.77
57	M	chloroform	0.843	0.805	4.5	119	0.00	9.76
58	m	t-butyl formate	0.474	0.454	4.2	121	0.00	9.80
59	M	Iso-octane	1.412	1.319	6.6	116	0.00	10.52
60	S	dibromofluoromethane (s)	0.469	0.417	11.1	112	0.00	9.95
61	S	1,2-dichloroethane-d4 (s)	0.516	0.447	13.4	112	0.00	10.36
62	M	freon 113	0.365	0.352	3.6	116	0.00	7.06
63	M	methacrylonitrile	0.331	0.307	7.3	121	0.00	9.61
64	M	1,1,1-trichloroethane	0.749	0.713	4.8	118	0.00	10.05
65	M	tert-amyl methyl ether	1.672	1.373	17.9	112	0.00	10.51
66	I	1,4-difluorobenzene	1.000	1.000	0.0	129	0.00	10.82
67	M	Di-isobutylene		----------NA----------				
68	M	tert amyl alcohol		----------NA----------				
69	M	epichlorohydrin	0.039	0.040	-2.6	127	0.00	12.07
70	M	n-butyl alcohol	0.011	0.012	-9.1	130	0.00	10.91
71	M	tert-amyl ethyl ether		----------NA----------				
72	M	carbon tetrachloride	0.462	0.483	-4.5	120	0.00	10.27
73	M	1,1-dichloropropene	0.473	0.442	6.6	113	0.00	10.23
74	M	hexane	0.368	0.368	0.0	118	0.00	8.48
75	M	benzene	1.401	1.313	6.3	116	0.00	10.47
76	M	heptane	0.202	0.198	2.0	117	0.00	10.68

Continuing Calibration Summary

Job Number: JB31583 **Sample:** VE8853-CC8801
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E201357.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

77	M	isopropyl acetate	0.725	0.633	12.7	114	0.00	10.36
78	M	1,2-dichloroethane	0.453	0.441	2.6	122	0.00	10.45
79		ethyl acrylate		----------NA----------				
80	M	trichloroethene	0.355	0.357	-0.6	119	0.00	11.19
81	M	2-nitropropane		----------NA----------				
82	M	2-chloroethyl vinyl ether	0.240	0.220	8.3	112	0.00	11.95
83	M	methylcyclohexane	0.542	0.527	2.8	115	0.00	11.45
84	M	methyl methacrylate	0.350	0.363	-3.7	123	0.00	11.43
85	M	1,2-dichloropropane	0.374	0.349	6.7	116	0.00	11.43
86	M	dibromomethane	0.218	0.223	-2.3	124	0.00	11.59
87	M	bromodichloromethane	0.476	0.477	-0.2	124	0.00	11.72
88	M	cis-1,3-dichloropropene	0.602	0.590	2.0	117	0.00	12.19
89	S	toluene-d8 (s)	1.266	1.206	4.7	114	0.00	12.52
90	M	4-methyl-2-pentanone	0.160	0.160	0.0	127	0.00	12.27
91	M	toluene	0.850	0.865	-1.8	120	0.00	12.60
92	M	3-methyl-1-butanol	0.019	0.019	0.0	126	0.00	12.28
93	M	trans-1,3-dichloropropene	0.526	0.527	-0.2	119	0.00	12.77
94	M	ethyl methacrylate	0.464	0.477	-2.8	120	0.00	12.77
95	M	1,1,2-trichloroethane	0.276	0.285	-3.3	126	0.00	13.00
96	M	2-hexanone	0.142	0.149	-4.9	129	0.00	13.18
97	I	chlorobenzene-d5	1.000	1.000	0.0	131	0.00	14.15
98	M	cyclohexanone	0.014	0.016	-14.3	143	0.00	15.35
99	M	tetrachloroethene	0.462	0.454	1.7	124	0.00	13.25
100	M	1,3-dichloropropane	0.600	0.573	4.5	119	0.00	13.20
101	M	butyl acetate	0.259	0.249	3.9	121	0.00	13.27
102	m	3,3-dimethyl-1-butanol	0.044	0.043	2.3	127	0.00	13.36
103	M	dibromochloromethane	0.436	0.456	-4.6	130	0.00	13.50
104	M	1,2-dibromoethane	0.386	0.399	-3.4	132	0.00	13.66
105	M	n-butyl ether		----------NA----------				
106	M	chlorobenzene	1.085	1.033	4.8	117	0.00	14.19
107	M	1,1,1,2-tetrachloroethane	0.400	0.397	0.8	119	0.00	14.24
108	M	ethylbenzene	1.736	1.627	6.3	116	0.00	14.25
109	M	m,p-xylene	0.682	0.658	3.5	118	0.00	14.37
110	M	o-xylene	0.699	0.696	0.4	121	0.00	14.83
111	M	butyl acrylate		----------NA----------				
112	M	styrene	1.160	1.150	0.9	122	0.00	14.83
113	M	bromoform	0.332	0.364	-9.6	135	0.00	15.11
114	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	137	0.00	16.72
115	M	isopropylbenzene	3.216	3.072	4.5	122	0.00	15.20
116	S	4-bromofluorobenzene (s)	0.917	0.826	9.9	114	0.00	15.42
117	M	bromobenzene	0.892	0.885	0.8	128	0.00	15.65
118	M	1,1,2,2-tetrachloroethane	0.904	0.876	3.1	128	0.00	15.50
119	M	trans-1,4-dichloro-2-bute	0.227	0.209	7.9	119	0.00	15.55
120	M	1,2,3-trichloropropane	0.239	0.242	-1.3	135	0.00	15.58
121	M	n-propylbenzene	3.582	3.260	9.0	119	0.00	15.66
122	M	p-ethyltoluene		----------NA----------				
123	M	2-chlorotoluene	0.793	0.743	6.3	123	0.00	15.82
124	M	4-chlorotoluene	2.330	2.150	7.7	122	0.00	15.92
125	M	1,3,5-trimethylbenzene	2.741	2.502	8.7	124	0.00	15.82
126	M	tert-butylbenzene	2.350	2.321	1.2	125	0.00	16.21
127	M	pentachloroethane	0.584	0.589	-0.9	129	0.00	16.30
128	M	1,2,4-trimethylbenzene	2.710	2.553	5.8	123	0.00	16.26
129	M	sec-butylbenzene	3.341	3.262	2.4	125	0.00	16.45
130	M	1,3-dichlorobenzene	1.643	1.601	2.6	127	0.00	16.66
131	M	p-isopropyltoluene	2.774	2.789	-0.5	126	0.00	16.58
132	M	1,4-dichlorobenzene	1.666	1.575	5.5	122	0.00	16.75
133		benzyl chloride	1.649	1.475	10.6	116	0.00	16.85
134	M	p-diethylbenzene		----------NA----------				

Continuing Calibration Summary

Job Number: JB31583 **Sample:** VE8853-CC8801
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E201357.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

135	M	1,2-dichlorobenzene	1.587	1.589	-0.1	127	0.00	17.18
136	M	n-butylbenzene	1.332	1.349	-1.3	125	0.00	17.04
137	M	1,2,4,5-tetramethylbenzen		----------NA----------				
138	M	1,2-dibromo-3-chloropropa	0.148	0.163	-10.1	139	0.00	18.00
139	m	1,3,5-trichlorobenzene	1.155	1.268	-9.8	128	0.00	18.24
140	M	1,2,4-trichlorobenzene	0.933	0.997	-6.9	129	0.00	18.96
141	M	hexachlorobutadiene	0.528	0.592	-12.1	139	0.00	19.10
142	M	naphthalene	1.870	2.079	-11.2	136	0.00	19.27
143		MMT		----------NA----------				
144	M	1,2,3-trichlorobenzene	0.741	0.812	-9.6	134	0.00	19.54
145	M	hexachloroethane	0.535	0.562	-5.0	129	0.00	17.49
146	M	Cyclohexane	1.052	0.889	15.5	110	0.00	10.16
147		ethyleinimine		----------NA----------				

(#) = Out of Range SPCC's out = 0 CCC's out = 0
E200201.D ME8801.M Wed Mar 27 17:31:13 2013 RPT1

6.9.8

6

Continuing Calibration Summary

Job Number: JB31583 **Sample:** VE8857-CC8801
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E201446.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E201446.D                    Vial: 29
Acq On    : 28 Mar 2013  10:51 pm                     Operator: OksanaT
Sample    : cc8801-50                                 Inst    : MSE
Misc      : MS45249,VE8857,5,,100,5,1                 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\ME8801.M (RTE Integrator)
Title        : SW846  8260B,ZB624 60m x 0.25mm x 1.4um
Last Update  : Mon Feb 25 11:43:47 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	114	0.02	7.69
		----------	True	Calc.	% Drift		----------	
2	M	1,4-dioxane	1250.000	956.274	23.5#	83	0.00	11.54
		----------	AvgRF	CCRF	% Dev		----------	
3	M	tertiary butyl alcohol	1.175	1.189	-1.2	109	0.00	7.80
4		ethanol		----------NA----------				
5	I	pentafluorobenzene	1.000	1.000	0.0	127	0.00	9.91
6		freon 23		----------NA----------				
7		freon 115		----------NA----------				
8		freon 143a		----------NA----------				
9		freon 152a		----------NA----------				
10	M	chlorotrifluoroethene		----------NA----------				
11	M	chlorodifluoromethane	0.550	0.440	20.0#	92	0.00	4.31
12	M	dichlorodifluoromethane	0.733	0.727	0.8	115	0.00	4.31
13		freon 114		----------NA----------				
14		freon 142b		----------NA----------				
15	M	chloromethane	0.818	0.617	24.6#	90	0.00	4.67
16	M	vinyl chloride	0.819	0.765	6.6	110	0.00	4.96
17		1,3-Butadiene		----------NA----------				
18	M	acetaldehyde		----------NA----------				
19	M	bromomethane	0.496	0.442	10.9	113	0.00	5.59
20	M	chloroethane	0.374	0.318	15.0	99	0.00	5.76
21	M	vinyl bromide		----------NA----------				
22	M	trichlorofluoromethane	0.813	0.835	-2.7	120	-0.01	6.27
23	M	pentane		----------NA----------				
24	M	ethyl ether	0.316	0.275	13.0	106	0.00	6.65
25		freon 141b		----------NA----------				
26		freon 123a		----------NA----------				
27		freon 123		----------NA----------				
28	m	2-chloropropane	0.945	0.718	24.0#	89	0.00	6.84
29	M	acrolein	0.123	0.102	17.1	101	0.00	6.85
30	M	1,1-dichloroethene	0.476	0.423	11.1	102	0.00	7.09
31	M	isopropyl alcohol		----------NA----------				
		----------	True	Calc.	% Drift		----------	
32	M	acetone	50.000	46.044	7.9	114	0.00	7.07
		----------	AvgRF	CCRF	% Dev		----------	
33	M	allyl chloride	0.913	0.729	20.2#	97	0.00	7.57

Continuing Calibration Summary

Job Number: JB31583 **Sample:** VE8857-CC8801
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E201446.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			True	Calc.	% Drift			
34	M	acetonitrile	500.000	541.949	-8.4	120	0.04	7.50

			AvgRF	CCRF	% Dev			
35	M	iodomethane	0.964	0.892	7.5	108	0.00	7.35

			True	Calc.	% Drift			
36	M	iso-butyl alcohol	500.000	422.994	15.4	104	0.00	10.23

			AvgRF	CCRF	% Dev			
37	M	carbon disulfide	1.603	1.311	18.2	91	0.00	7.50
38	M	methylene chloride	0.615	0.481	21.8#	104	0.00	7.75
39	m	1-chloropropane	0.921	0.704	23.6#	94	0.00	7.81
40	M	methyl acetate	0.421	0.499	-18.5	141	0.00	7.54
41	M	methyl tert butyl ether	1.525	1.399	8.3	109	0.00	8.10
42	M	trans-1,2-dichloroethene	0.480	0.436	9.2	103	0.00	8.14
43	M	di-isopropyl ether	1.764	1.364	22.7#	96	0.00	8.69
44	M	ethyl tert-butyl ether	1.758	1.439	18.1	101	0.00	9.15

			True	Calc.	% Drift			
45	M	2-butanone	50.000	48.281	3.4	118	0.00	9.34

			AvgRF	CCRF	% Dev			
46	M	1,1-dichloroethane	0.885	0.761	14.0	98	0.00	8.68
47	M	chloroprene	0.669	0.604	9.7	104	0.00	8.81
48	M	acrylonitrile	0.205	0.180	12.2	105	0.00	8.01

			True	Calc.	% Drift			
49	M	vinyl acetate	50.000	18.599	62.8#	45	0.00	8.66

			AvgRF	CCRF	% Dev			
50	M	ethyl acetate	0.075	0.070	6.7	116	0.00	9.37
51	M	2,2-dichloropropane	0.712	0.553	22.3#	92	0.00	9.42
52	M	cis-1,2-dichloroethene	0.553	0.489	11.6	107	0.00	9.40
53	m	methyl acrylate	0.493	0.415	15.8	106	0.00	9.46
54	M	propionitrile	0.078	0.071	9.0	109	0.00	9.39
55	M	bromochloromethane	0.285	0.265	7.0	112	0.00	9.70
56	M	tetrahydrofuran	0.198	0.166	16.2	105	0.00	9.76
57	M	chloroform	0.843	0.762	9.6	106	0.00	9.76
58	m	t-butyl formate	0.474	0.429	9.5	107	0.00	9.80
59	M	Iso-octane	1.412	1.136	19.5	94	0.00	10.52
60	S	dibromofluoromethane (s)	0.469	0.410	12.6	103	0.00	9.95
61	S	1,2-dichloroethane-d4 (s)	0.516	0.473	8.3	111	0.00	10.37
62	M	freon 113	0.365	0.346	5.2	106	0.00	7.06
63	M	methacrylonitrile	0.331	0.290	12.4	107	0.00	9.60
64	M	1,1,1-trichloroethane	0.749	0.680	9.2	105	0.00	10.05
65	M	tert-amyl methyl ether	1.672	1.309	21.7#	100	0.00	10.51
66	I	1,4-difluorobenzene	1.000	1.000	0.0	118	0.00	10.82
67	M	Di-isobutylene		----------NA----------				
68	M	tert amyl alcohol		----------NA----------				
69	M	epichlorohydrin	0.039	0.039	0.0	111	0.00	12.07
70	M	n-butyl alcohol	0.011	0.011	0.0	104	0.00	10.90
71	M	tert-amyl ethyl ether		----------NA----------				
72	M	carbon tetrachloride	0.462	0.465	-0.6	106	0.00	10.27
73	M	1,1-dichloropropene	0.473	0.427	9.7	100	0.00	10.23
74	M	hexane	0.368	0.381	-3.5	112	0.00	8.47
75	M	benzene	1.401	1.259	10.1	101	0.00	10.48
76	M	heptane	0.202	0.198	2.0	106	0.00	10.67

Continuing Calibration Summary

Job Number: JB31583 **Sample:** VE8857-CC8801
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E201446.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

77	M	isopropyl acetate	0.725	0.630	13.1	103	0.00	10.36
78	M	1,2-dichloroethane	0.453	0.431	4.9	108	0.00	10.46
79		ethyl acrylate		----------NA----------				
80	M	trichloroethene	0.355	0.346	2.5	105	0.00	11.19
81	M	2-nitropropane		----------NA----------				
82	M	2-chloroethyl vinyl ether	0.240	0.220	8.3	103	0.00	11.95
83	M	methylcyclohexane	0.542	0.487	10.1	97	0.00	11.45
84	M	methyl methacrylate	0.350	0.344	1.7	106	0.00	11.42
85	M	1,2-dichloropropane	0.374	0.332	11.2	100	0.00	11.43
86	M	dibromomethane	0.218	0.223	-2.3	113	0.00	11.58
87	M	bromodichloromethane	0.476	0.465	2.3	110	0.00	11.72
88	M	cis-1,3-dichloropropene	0.602	0.577	4.2	104	0.00	12.19
89	S	toluene-d8 (s)	1.266	1.210	4.4	105	0.00	12.52
90	M	4-methyl-2-pentanone	0.160	0.147	8.1	107	0.00	12.27
91	M	toluene	0.850	0.822	3.3	104	0.00	12.60
92	M	3-methyl-1-butanol	0.019	0.017	10.5	104	0.00	12.28
93	M	trans-1,3-dichloropropene	0.526	0.523	0.6	108	0.00	12.77
94	M	ethyl methacrylate	0.464	0.480	-3.4	110	0.00	12.77
95	M	1,1,2-trichloroethane	0.276	0.276	0.0	112	0.00	13.00
96	M	2-hexanone	0.142	0.142	0.0	112	0.00	13.17
97	I	chlorobenzene-d5	1.000	1.000	0.0	121	0.00	14.15
98	M	cyclohexanone	0.014	0.013	7.1	110	0.00	15.35
99	M	tetrachloroethene	0.462	0.441	4.5	112	0.00	13.25
100	M	1,3-dichloropropane	0.600	0.548	8.7	106	0.00	13.20
101	M	butyl acetate	0.259	0.246	5.0	111	0.00	13.27
102	m	3,3-dimethyl-1-butanol	0.044	0.040	9.1	109	0.00	13.36
103	M	dibromochloromethane	0.436	0.446	-2.3	118	0.00	13.49
104	M	1,2-dibromoethane	0.386	0.392	-1.6	120	0.00	13.66
105	M	n-butyl ether	0.000	0.008#	0.0	0#	-0.01	14.10
106	M	chlorobenzene	1.085	1.001	7.7	105	0.00	14.18
107	M	1,1,1,2-tetrachloroethane	0.400	0.388	3.0	108	0.00	14.24
108	M	ethylbenzene	1.736	1.581	8.9	104	0.00	14.25
109	M	m,p-xylene	0.682	0.635	6.9	105	0.00	14.36
110	M	o-xylene	0.699	0.669	4.3	108	0.00	14.82
111	M	butyl acrylate	0.000	0.000#	0.0	0#	0.00	14.93
112	M	styrene	1.160	1.120	3.4	110	0.00	14.83
113	M	bromoform	0.332	0.361	-8.7	124	0.00	15.11
114	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	126	0.00	16.72
115	M	isopropylbenzene	3.216	2.920	9.2	107	0.00	15.20
116	S	4-bromofluorobenzene (s)	0.917	0.821	10.5	104	0.00	15.42
117	M	bromobenzene	0.892	0.858	3.8	114	0.00	15.64
118	M	1,1,2,2-tetrachloroethane	0.904	0.839	7.2	113	0.00	15.50
119	M	trans-1,4-dichloro-2-bute	0.227	0.206	9.3	108	0.00	15.54
120	M	1,2,3-trichloropropane	0.239	0.236	1.3	122	0.00	15.58
121	M	n-propylbenzene	3.582	3.117	13.0	105	0.00	15.66
122	M	p-ethyltoluene		----------NA----------				
123	M	2-chlorotoluene	0.793	0.707	10.8	108	0.00	15.82
124	M	4-chlorotoluene	2.330	2.096	10.0	109	0.00	15.93
125	M	1,3,5-trimethylbenzene	2.741	2.409	12.1	110	0.00	15.82
126	M	tert-butylbenzene	2.350	2.177	7.4	108	0.00	16.21
127	M	pentachloroethane	0.584	0.567	2.9	115	0.00	16.30
128	M	1,2,4-trimethylbenzene	2.710	2.445	9.8	108	0.00	16.26
129	M	sec-butylbenzene	3.341	3.011	9.9	106	0.00	16.45
130	M	1,3-dichlorobenzene	1.643	1.544	6.0	113	0.00	16.66
131	M	p-isopropyltoluene	2.774	2.561	7.7	106	0.00	16.58
132	M	1,4-dichlorobenzene	1.666	1.529	8.2	109	0.00	16.75
133		benzyl chloride	1.649	1.521	7.8	110	0.00	16.86
134	M	p-diethylbenzene		----------NA----------				

Continuing Calibration Summary

Job Number: JB31583 **Sample:** VE8857-CC8801
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E201446.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

135	M	1,2-dichlorobenzene	1.587	1.542	2.8	113	0.00	17.18
136	M	n-butylbenzene	1.332	1.251	6.1	107	0.00	17.03
137	M	1,2,4,5-tetramethylbenzen		----------NA----------				
138	M	1,2-dibromo-3-chloropropa	0.148	0.152	-2.7	120	0.00	18.00
139	m	1,3,5-trichlorobenzene	1.155	1.230	-6.5	115	0.00	18.24
140	M	1,2,4-trichlorobenzene	0.933	1.000	-7.2	119	0.00	18.95
141	M	hexachlorobutadiene	0.528	0.540	-2.3	117	0.00	19.10
142	M	naphthalene	1.870	2.080	-11.2	126	0.00	19.27
143		MMT		----------NA----------				
144	M	1,2,3-trichlorobenzene	0.741	0.801	-8.1	122	0.00	19.54
145	M	hexachloroethane	0.535	0.536	-0.2	113	0.00	17.49
146	M	Cyclohexane	1.052	0.835	20.6#	95	0.00	10.16
147		ethyleinimine		----------NA----------				

(#) = Out of Range SPCC's out = 0 CCC's out = 0
E200201.D ME8801.M Fri Mar 29 12:38:20 2013 RPT1

Continuing Calibration Summary

Job Number: JB31583 **Sample:** VE8858-CC8801
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E201467.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E201467.D                    Vial: 2
Acq On    : 29 Mar 2013  10:45 am                     Operator: OksanaT
Sample    : cc8801-20                                 Inst    : MSE
Misc      : MS45547,VE8858,5,,100,5,1                 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\ME8801.M (RTE Integrator)
Title        : SW846  8260B,ZB624 60m x 0.25mm x 1.4um
Last Update  : Mon Feb 25 11:43:47 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	135	0.00	7.67
		----------	True	Calc.	% Drift	----------		
2	M	1,4-dioxane	500.000	557.336	-11.5	153	0.00	11.54
		----------	AvgRF	CCRF	% Dev	----------		
3	M	tertiary butyl alcohol	1.175	1.198	-2.0	129	0.00	7.79
4		ethanol		----------NA----------				
5	I	pentafluorobenzene	1.000	1.000	0.0	129	0.00	9.91
6		freon 23		----------NA----------				
7		freon 115		----------NA----------				
8		freon 143a		----------NA----------				
9		freon 152a		----------NA----------				
10	M	chlorotrifluoroethene		----------NA----------				
11	M	chlorodifluoromethane	0.550	0.483	12.2	105	0.00	4.32
12	M	dichlorodifluoromethane	0.733	0.776	-5.9	133	0.00	4.30
13		freon 114		----------NA----------				
14		freon 142b		----------NA----------				
15	M	chloromethane	0.818	0.672	17.8	102	0.00	4.66
16	M	vinyl chloride	0.819	0.809	1.2	121	0.00	4.95
17		1,3-Butadiene		----------NA----------				
18	M	acetaldehyde		----------NA----------				
19	M	bromomethane	0.496	0.457	7.9	118	0.00	5.60
20	M	chloroethane	0.374	0.330	11.8	106	0.00	5.76
21	M	vinyl bromide		----------NA----------				
22	M	trichlorofluoromethane	0.813	0.861	-5.9	129	-0.02	6.25
23	M	pentane		----------NA----------				
24	M	ethyl ether	0.316	0.285	9.8	106	0.00	6.65
25		freon 141b		----------NA----------				
26		freon 123a		----------NA----------				
27		freon 123		----------NA----------				
28	m	2-chloropropane	0.945	0.773	18.2	95	0.00	6.84
29	M	acrolein	0.123	0.107	13.0	106	0.00	6.85
30	M	1,1-dichloroethene	0.476	0.446	6.3	107	0.00	7.09
31	M	isopropyl alcohol		----------NA----------				
		----------	True	Calc.	% Drift	----------		
32	M	acetone	20.000	15.881	20.6#	97	0.00	7.06
		----------	AvgRF	CCRF	% Dev	----------		
33	M	allyl chloride	0.913	0.798	12.6	108	0.00	7.57

Continuing Calibration Summary

Job Number: JB31583 **Sample:** VE8858-CC8801
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E201467.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			True	Calc.	% Drift			
34	M	acetonitrile	200.000	193.862	3.1	118	0.01	7.47

			AvgRF	CCRF	% Dev			
35	M	iodomethane	0.964	0.938	2.7	114	0.00	7.35

			True	Calc.	% Drift			
36	M	iso-butyl alcohol	200.000	165.899	17.1	99	0.00	10.23

			AvgRF	CCRF	% Dev			
37	M	carbon disulfide	1.603	1.434	10.5	101	0.00	7.50
38	M	methylene chloride	0.615	0.501	18.5	107	0.00	7.75
39	m	1-chloropropane	0.921	0.747	18.9	97	0.00	7.81
40	M	methyl acetate	0.421	0.523	-24.2#	141	0.00	7.54
41	M	methyl tert butyl ether	1.525	1.428	6.4	109	0.00	8.10
42	M	trans-1,2-dichloroethene	0.480	0.471	1.9	111	0.00	8.14
43	M	di-isopropyl ether	1.764	1.461	17.2	102	0.00	8.69
44	M	ethyl tert-butyl ether	1.758	1.470	16.4	104	0.00	9.14

			True	Calc.	% Drift			
45	M	2-butanone	20.000	16.790	16.1	113	0.00	9.34

			AvgRF	CCRF	% Dev			
46	M	1,1-dichloroethane	0.885	0.806	8.9	103	0.00	8.68
47	M	chloroprene	0.669	0.639	4.5	111	0.00	8.81
48	M	acrylonitrile	0.205	0.182	11.2	104	0.00	8.02

			True	Calc.	% Drift			
49	M	vinyl acetate	20.000	6.579	67.1#	37	0.00	8.66

			AvgRF	CCRF	% Dev			
50	M	ethyl acetate	0.075	0.064	14.7	105	0.00	9.38
51	M	2,2-dichloropropane	0.712	0.680	4.5	114	0.00	9.43
52	M	cis-1,2-dichloroethene	0.553	0.507	8.3	108	0.00	9.41
53	m	methyl acrylate	0.493	0.416	15.6	103	0.00	9.46
54	M	propionitrile	0.078	0.075	3.8	110	0.00	9.40
55	M	bromochloromethane	0.285	0.273	4.2	116	0.00	9.71
56	M	tetrahydrofuran	0.198	0.166	16.2	101	0.00	9.77
57	M	chloroform	0.843	0.804	4.6	109	0.00	9.76
58	m	t-butyl formate	0.474	0.444	6.3	113	0.00	9.80
59	M	Iso-octane	1.412	1.425	-0.9	121	0.00	10.52
60	S	dibromofluoromethane (s)	0.469	0.406	13.4	107	0.00	9.95
61	S	1,2-dichloroethane-d4 (s)	0.516	0.447	13.4	104	0.00	10.36
62	M	freon 113	0.365	0.388	-6.3	122	0.00	7.07
63	M	methacrylonitrile	0.331	0.282	14.8	103	0.00	9.60
64	M	1,1,1-trichloroethane	0.749	0.709	5.3	110	0.00	10.05
65	M	tert-amyl methyl ether	1.672	1.355	19.0	102	0.00	10.52
66	I	1,4-difluorobenzene	1.000	1.000	0.0	122	0.00	10.82
67	M	Di-isobutylene		----------NA----------				
68	M	tert amyl alcohol		----------NA----------				
69	M	epichlorohydrin	0.039	0.039	0.0	114	0.00	12.07
70	M	n-butyl alcohol	0.011	0.013	-18.2	124	0.00	10.90
71	M	tert-amyl ethyl ether		----------NA----------				
72	M	carbon tetrachloride	0.462	0.505	-9.3	115	0.00	10.27
73	M	1,1-dichloropropene	0.473	0.456	3.6	105	0.00	10.22
74	M	hexane	0.368	0.439	-19.3	133	0.00	8.48
75	M	benzene	1.401	1.339	4.4	105	0.00	10.48
76	M	heptane	0.202	0.230	-13.9	130	0.00	10.68

Continuing Calibration Summary

Job Number: JB31583 **Sample:** VE8858-CC8801
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E201467.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

77	M	isopropyl acetate	0.725	0.620	14.5	100	0.00	10.36
78	M	1,2-dichloroethane	0.453	0.440	2.9	107	0.00	10.45
79		ethyl acrylate		----------NA----------				
80	M	trichloroethene	0.355	0.356	-0.3	108	0.00	11.19
81	M	2-nitropropane		----------NA----------				
82	M	2-chloroethyl vinyl ether	0.240	0.226	5.8	107	0.00	11.95
83	M	methylcyclohexane	0.542	0.567	-4.6	114	0.00	11.45
84	M	methyl methacrylate	0.350	0.355	-1.4	111	0.00	11.43
85	M	1,2-dichloropropane	0.374	0.355	5.1	103	0.00	11.43
86	M	dibromomethane	0.218	0.221	-1.4	110	0.00	11.59
87	M	bromodichloromethane	0.476	0.461	3.2	108	0.00	11.71
88	M	cis-1,3-dichloropropene	0.602	0.602	0.0	110	0.00	12.20
89	S	toluene-d8 (s)	1.266	1.184	6.5	103	0.00	12.52
90	M	4-methyl-2-pentanone	0.160	0.153	4.4	110	0.00	12.27
91	M	toluene	0.850	0.849	0.1	107	0.00	12.60
92	M	3-methyl-1-butanol	0.019	0.021	-10.5	127	0.00	12.28
93	M	trans-1,3-dichloropropene	0.526	0.528	-0.4	109	0.00	12.77
94	M	ethyl methacrylate	0.464	0.475	-2.4	112	0.00	12.78
95	M	1,1,2-trichloroethane	0.276	0.276	0.0	111	0.00	13.00
96	M	2-hexanone	0.142	0.140	1.4	117	0.00	13.18
97	I	chlorobenzene-d5	1.000	1.000	0.0	124	0.00	14.15
98	M	cyclohexanone	0.014	0.043	-207.1#	345#	0.00	15.34
99	M	tetrachloroethene	0.462	0.484	-4.8	118	0.00	13.25
100	M	1,3-dichloropropane	0.600	0.584	2.7	109	0.00	13.20
101	M	butyl acetate	0.259	0.257	0.8	114	0.00	13.27
102	m	3,3-dimethyl-1-butanol	0.044	0.052	-18.2	132	0.00	13.36
103	M	dibromochloromethane	0.436	0.451	-3.4	117	0.00	13.50
104	M	1,2-dibromoethane	0.386	0.388	-0.5	114	0.00	13.67
105	M	n-butyl ether		----------NA----------				
106	M	chlorobenzene	1.085	1.052	3.0	108	0.00	14.18
107	M	1,1,1,2-tetrachloroethane	0.400	0.411	-2.7	112	0.00	14.24
108	M	ethylbenzene	1.736	1.711	1.4	107	0.00	14.25
109	M	m,p-xylene	0.682	0.688	-0.9	110	0.00	14.36
110	M	o-xylene	0.699	0.710	-1.6	110	0.00	14.82
111	M	butyl acrylate		----------NA----------				
112	M	styrene	1.160	1.178	-1.6	110	0.00	14.83
113	M	bromoform	0.332	0.356	-7.2	120	0.00	15.11
114	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	131	0.00	16.72
115	M	isopropylbenzene	3.216	3.145	2.2	113	0.00	15.20
116	S	4-bromofluorobenzene (s)	0.917	0.811	11.6	104	0.00	15.42
117	M	bromobenzene	0.892	0.879	1.5	113	0.00	15.64
118	M	1,1,2,2-tetrachloroethane	0.904	0.834	7.7	111	0.00	15.50
119	M	trans-1,4-dichloro-2-bute	0.227	0.199	12.3	111	0.00	15.54
120	M	1,2,3-trichloropropane	0.239	0.226	5.4	113	0.00	15.59
121	M	n-propylbenzene	3.582	3.336	6.9	109	0.00	15.65
122	M	p-ethyltoluene		----------NA----------				
123	M	2-chlorotoluene	0.793	0.748	5.7	112	0.00	15.82
124	M	4-chlorotoluene	2.330	2.159	7.3	110	0.00	15.93
125	M	1,3,5-trimethylbenzene	2.741	2.607	4.9	116	0.00	15.82
126	M	tert-butylbenzene	2.350	2.400	-2.1	119	0.00	16.21
127	M	pentachloroethane	0.584	0.613	-5.0	122	0.00	16.30
128	M	1,2,4-trimethylbenzene	2.710	2.655	2.0	115	0.00	16.26
129	M	sec-butylbenzene	3.341	3.347	-0.2	117	0.00	16.45
130	M	1,3-dichlorobenzene	1.643	1.570	4.4	114	0.00	16.66
131	M	p-isopropyltoluene	2.774	2.826	-1.9	117	0.00	16.58
132	M	1,4-dichlorobenzene	1.666	1.509	9.4	109	0.00	16.75
133		benzyl chloride	1.649	1.722	-4.4	138	0.00	16.86
134	M	p-diethylbenzene		----------NA----------				

Continuing Calibration Summary

Job Number: JB31583 **Sample:** VE8858-CC8801
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E201467.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

135	M	1,2-dichlorobenzene	1.587	1.541	2.9	114	0.00	17.18
136	M	n-butylbenzene	1.332	1.309	1.7	112	0.00	17.04
137	M	1,2,4,5-tetramethylbenzen		----------NA----------				
138	M	1,2-dibromo-3-chloropropa	0.148	0.146	1.4	118	0.00	18.00
139	m	1,3,5-trichlorobenzene	1.155	1.252	-8.4	119	0.00	18.24
140	M	1,2,4-trichlorobenzene	0.933	0.950	-1.8	120	0.00	18.95
141	M	hexachlorobutadiene	0.528	0.630	-19.3	134	0.00	19.10
142	M	naphthalene	1.870	1.872	-0.1	118	0.00	19.27
143		MMT		----------NA----------				
144	M	1,2,3-trichlorobenzene	0.741	0.762	-2.8	120	0.00	19.54
145	M	hexachloroethane	0.535	0.552	-3.2	118	0.00	17.49
146	M	Cyclohexane	1.052	0.938	10.8	103	0.00	10.16
147		ethyleinimine		----------NA----------				

(#) = Out of Range SPCC's out = 0 CCC's out = 0
E200200.D ME8801.M Fri Mar 29 16:39:20 2013 RPT1

6.9.10

6

New Jersey

ACCUTEST LABORATORIES

GC/MS Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A192940.D Vial: 100
Acq On : 23 Mar 2013 12:02 pm Operator: Oksanat
Sample : jb31583-1 Inst : MSA
Misc : MS45128,VA7269,5.7,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 23 13:05 2013 Quant Results File: MA7222.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration
DataAcq Meth : MA7222

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.02	65	71694	500.00	ug/L	0.00
5) pentafluorobenzene	9.35	168	186687	50.00	ug/L	0.00
54) 1,4-difluorobenzene	10.30	114	258139	50.00	ug/L	0.00
85) chlorobenzene-d5	13.74	117	252224	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	16.38	152	129948	50.00	ug/L	0.00

System Monitoring Compounds

47) dibromofluoromethane (s)	9.39	113	72013	51.84	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 103.68%			
48) 1,2-dichloroethane-d4 (s)	9.82	65	73326	47.24	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 94.48%			
77) toluene-d8 (s)	12.06	98	263591	53.77	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 107.54%			
102) 4-bromofluorobenzene (s)	15.05	95	100430	54.44	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 108.88%			

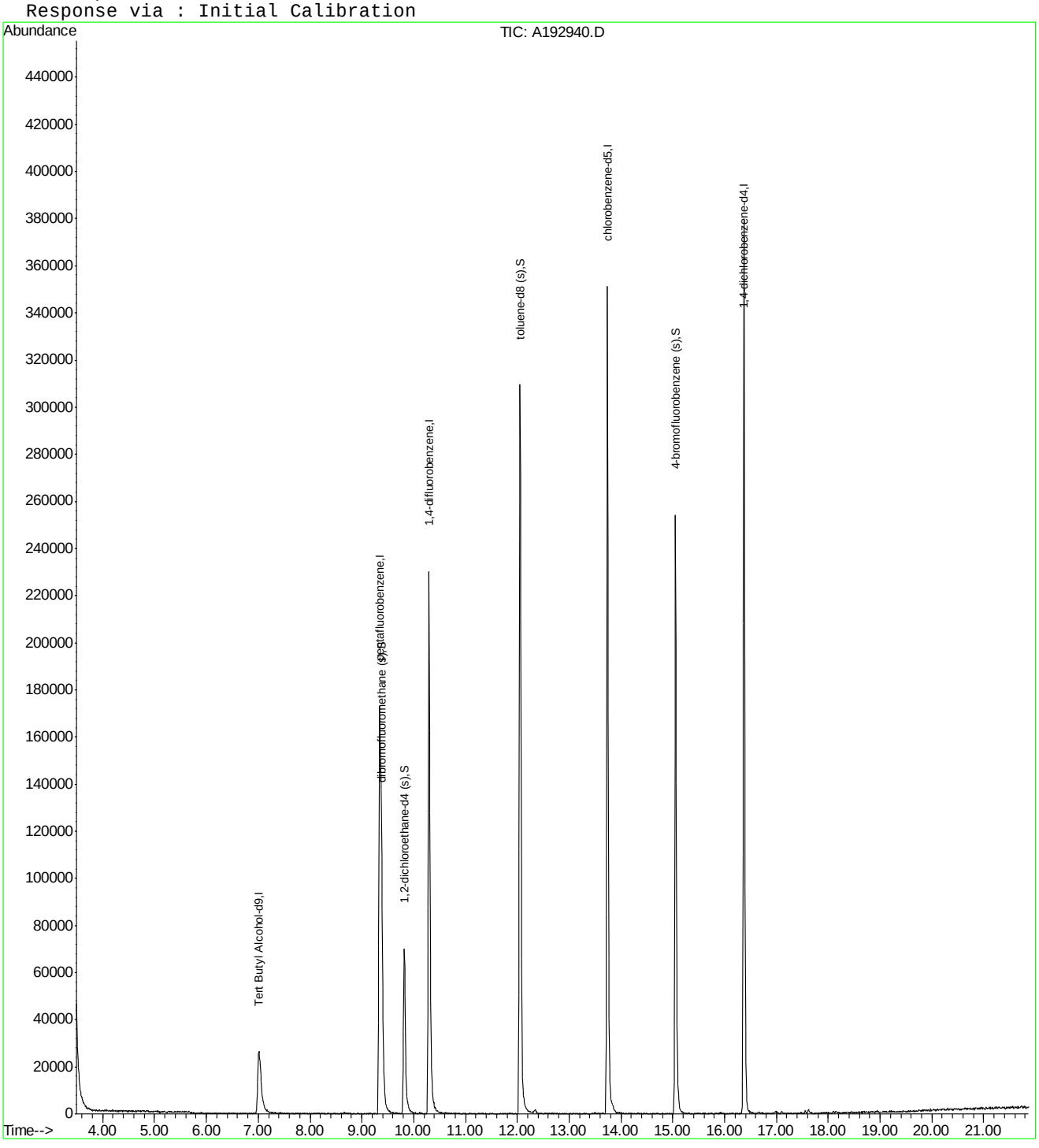
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
A192940.D MA7222.M Sat Mar 23 13:05:41 2013 MSA

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A192940.D Vial: 100
Acq On : 23 Mar 2013 12:02 pm Operator: Oksanat
Sample : jb31583-1 Inst : MSA
Misc : MS45128,VA7269,5.7,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 23 13:05 2013 Quant Results File: MA7222.RES

Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A192941.D Vial: 100
Acq On : 23 Mar 2013 12:22 pm Operator: Oksanat
Sample : jb31583-2 Inst : MSA
Misc : MS45128,VA7269,5.6,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 23 13:06 2013 Quant Results File: MA7222.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration
DataAcq Meth : MA7222

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.02	65	72111	500.00	ug/L	0.00
5) pentafluorobenzene	9.35	168	189812	50.00	ug/L	0.00
54) 1,4-difluorobenzene	10.30	114	259876	50.00	ug/L	0.00
85) chlorobenzene-d5	13.74	117	259244	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	16.37	152	131105	50.00	ug/L	0.00

System Monitoring Compounds

47) dibromofluoromethane (s)	9.38	113	72543	51.36	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 102.72%			
48) 1,2-dichloroethane-d4 (s)	9.82	65	73332	46.47	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 92.94%			
77) toluene-d8 (s)	12.05	98	266501	54.00	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 108.00%			
102) 4-bromofluorobenzene (s)	15.06	95	102656	55.16	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 110.32%			

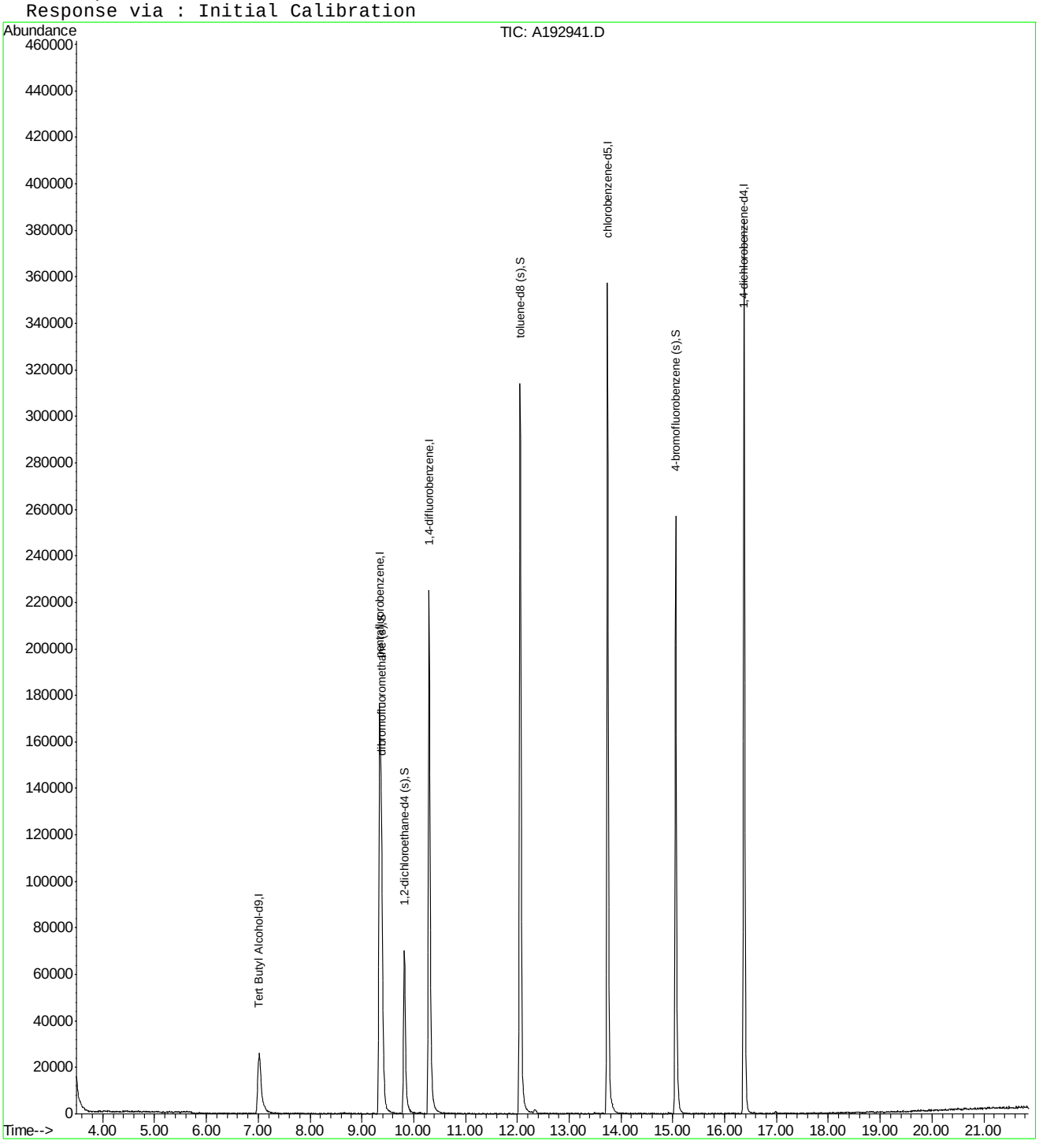
Target Compounds Qvalue

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A192941.D Vial: 100
Acq On : 23 Mar 2013 12:22 pm Operator: Oksanat
Sample : jb31583-2 Inst : MSA
Misc : MS45128,VA7269,5.6,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 23 13:06 2013 Quant Results File: MA7222.RES

Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A192942.D Vial: 100
Acq On : 23 Mar 2013 1:07 pm Operator: Oksanat
Sample : jb31583-3 Inst : MSA
Misc : MS45128,VA7269,5.5,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 25 9:16 2013 Quant Results File: MA7222.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration
DataAcq Meth : MA7222

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.01	65	71712	500.00	ug/L	-0.01
5) pentafluorobenzene	9.34	168	186396	50.00	ug/L	0.00
54) 1,4-difluorobenzene	10.30	114	257953	50.00	ug/L	0.00
85) chlorobenzene-d5	13.74	117	260514	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	16.37	152	132169	50.00	ug/L	0.00

System Monitoring Compounds						
47) dibromofluoromethane (s)	9.38	113	71764	51.74	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 103.48%			
48) 1,2-dichloroethane-d4 (s)	9.82	65	72542	46.81	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 93.62%			
77) toluene-d8 (s)	12.05	98	265014	54.10	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 108.20%			
102) 4-bromofluorobenzene (s)	15.06	95	103556	55.19	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 110.38%			

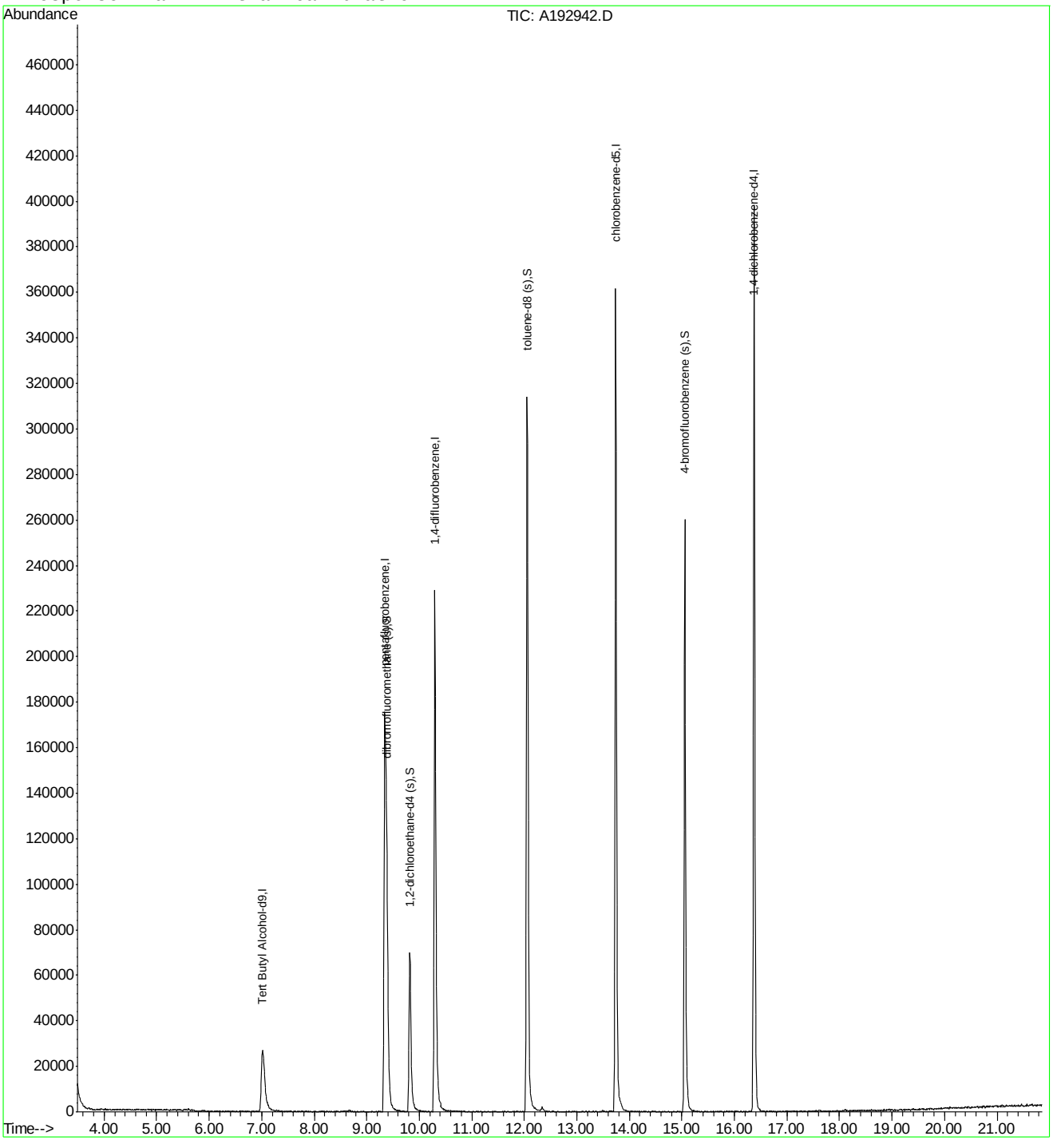
Target Compounds Qvalue

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A192942.D Vial: 100
Acq On : 23 Mar 2013 1:07 pm Operator: Oksanat
Sample : jb31583-3 Inst : MSA
Misc : MS45128,VA7269,5.5,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 25 9:16 2013 Quant Results File: MA7222.RES

Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E201462.D
Acq On : 29 Mar 2013 6:53 am
Operator : OksanaT
Sample : jb31583-4
Misc : MS45128,VE8857,6.3,,10,10,1
ALS Vial : 45 Sample Multiplier: 1

Quant Time: Mar 29 19:00:04 2013
Quant Method : C:\MSDCHEM\1\METHODS\ME8801.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Feb 25 11:43:47 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.702	65	95839	500.00	ug/L	0.03
5) pentafluorobenzene	9.904	168	176640	50.00	ug/L	0.00
66) 1,4-difluorobenzene	10.824	114	221914	50.00	ug/L	0.00
97) chlorobenzene-d5	14.150	117	199963	50.00	ug/L	0.00
114) 1,4-dichlorobenzene-d4	16.718	152	126312	50.00	ug/L	0.00

System Monitoring Compounds

60) dibromofluoromethane (s)	9.945	113	70282	42.40	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 84.80%			
61) 1,2-dichloroethane-d4 (s)	10.364	65	75875	41.64	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 83.28%			
89) toluene-d8 (s)	12.524	98	262752	46.76	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 93.52%			
116) 4-bromofluorobenzene (s)	15.421	95	99208	42.85	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 85.70%			

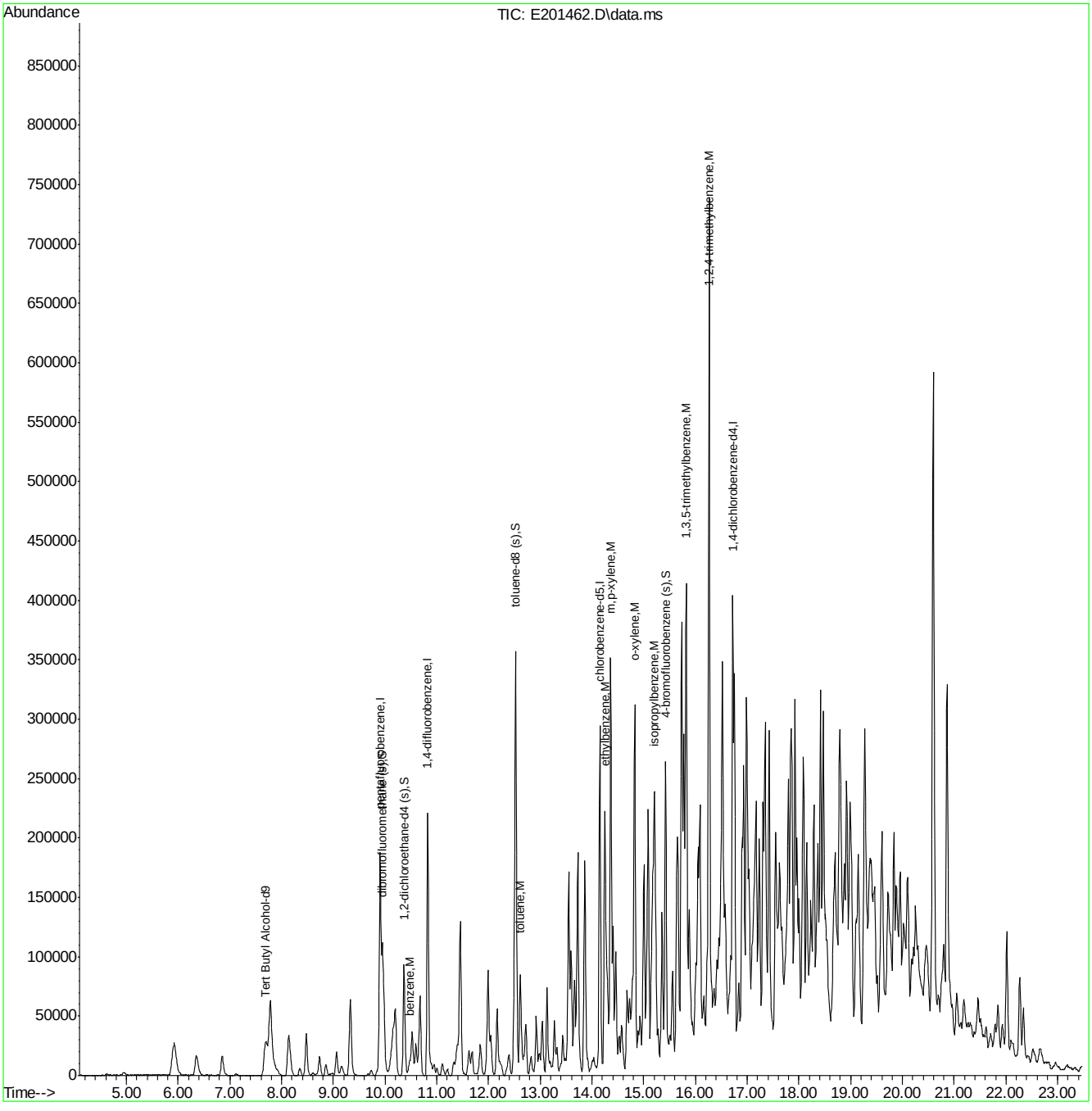
Target Compounds						Qvalue
75) benzene	10.479	78	10875	1.75	ug/L	97
91) toluene	12.602	92	21857	5.79	ug/L	96
108) ethylbenzene	14.250	91	192685	27.75	ug/L	99
109) m,p-xylene	14.360	106	125583	46.03	ug/L	98
110) o-xylene	14.825	106	43031	15.40	ug/L	100
115) isopropylbenzene	15.202	105	51985	6.40	ug/L	95
125) 1,3,5-trimethylbenzene	15.819	105	179453	25.92	ug/L	98
128) 1,2,4-trimethylbenzene	16.258	105	472951	69.07	ug/L	98

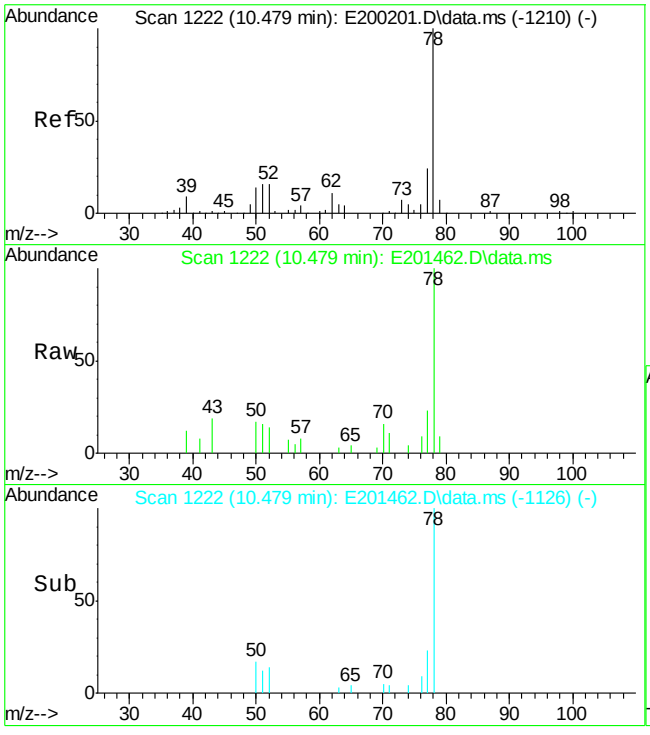
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E201462.D
Acq On : 29 Mar 2013 6:53 am
Operator : OksanaT
Sample : jb31583-4
Misc : MS45128,VE8857,6.3,,10,10,1
ALS Vial : 45 Sample Multiplier: 1

Quant Time: Mar 29 19:00:04 2013
Quant Method : C:\MSDCHEM\1\METHODS\ME8801.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Feb 25 11:43:47 2013
Response via : Initial Calibration

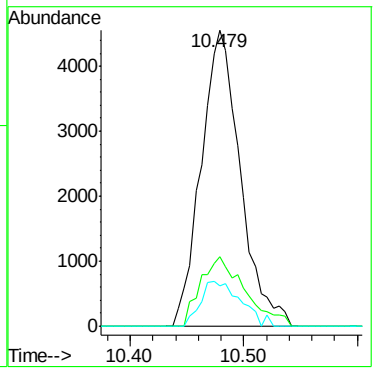


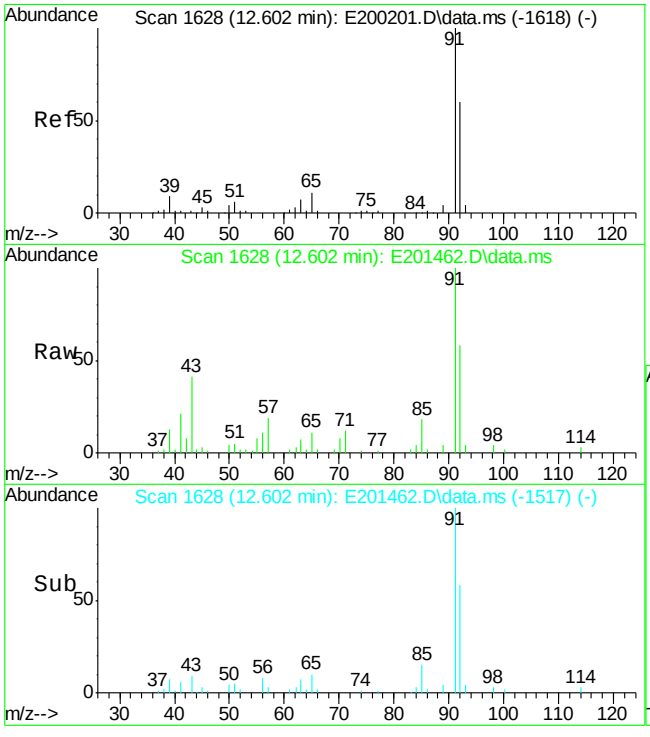


#75
benzene
Concen: 1.75 ug/L
RT: 10.479 min Scan# 1222
Delta R.T. 0.000 min
Lab File: E201462.D
Acq: 29 Mar 2013 6:53 am

Tgt Ion: 78 Resp: 10875

Ion	Ratio	Lower	Upper
78	100		
77	23.3	0.0	53.8
52	13.6	0.0	45.9

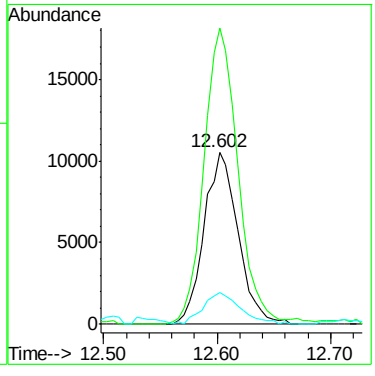




#91
toluene
Concen: 5.79 ug/L
RT: 12.602 min Scan# 1628
Delta R.T. 0.000 min
Lab File: E201462.D
Acq: 29 Mar 2013 6:53 am

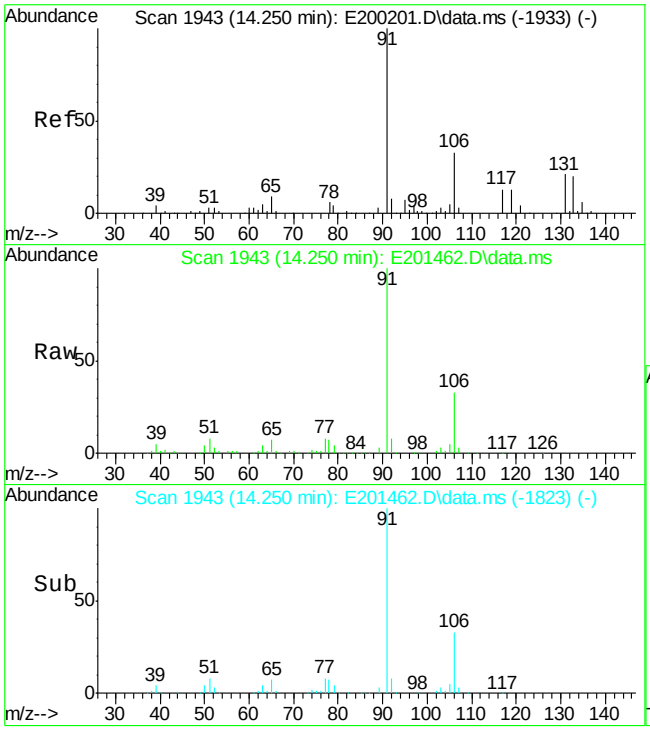
Tgt Ion: 92 Resp: 21857

Ion	Ratio	Lower	Upper
92	100		
91	172.1	136.3	196.3
65	18.3	0.0	48.8



7.1.4

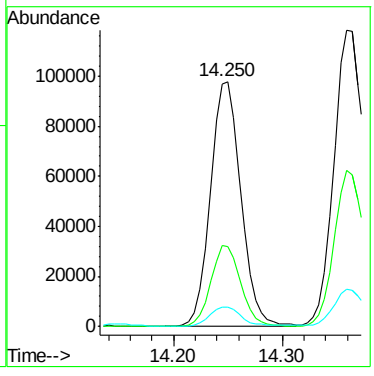
7

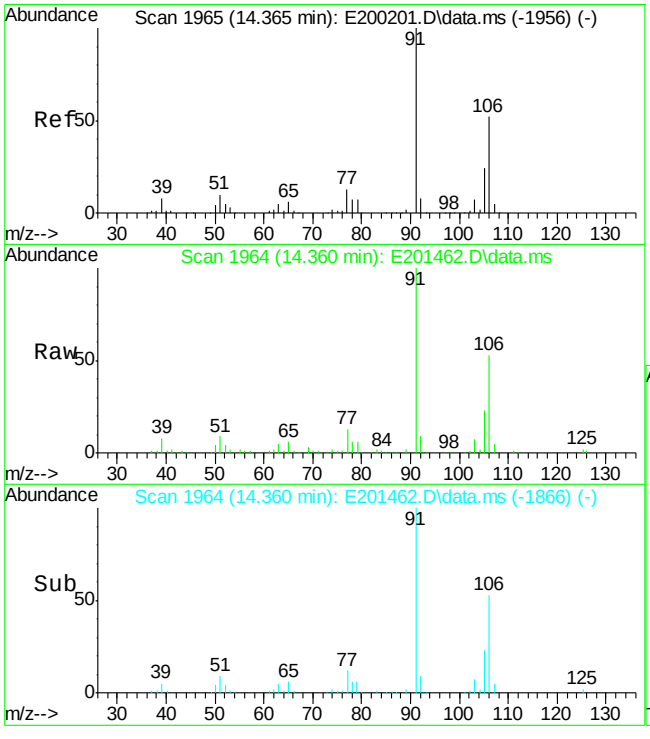


#108
ethylbenzene
Concen: 27.75 ug/L
RT: 14.250 min Scan# 1943
Delta R.T. 0.000 min
Lab File: E201462.D
Acq: 29 Mar 2013 6:53 am

Tgt Ion: 91 Resp: 192685

Ion	Ratio	Lower	Upper
91	100		
106	32.7	2.9	62.9
77	7.8	0.0	38.7

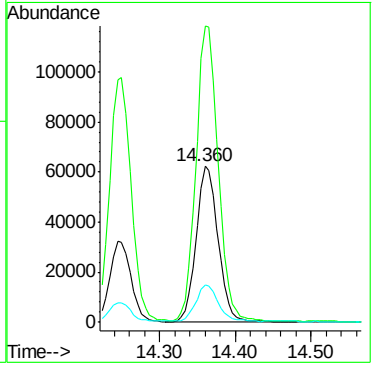




#109
m,p-xylene
Concen: 46.03 ug/L
RT: 14.360 min Scan# 1964
Delta R.T. -0.005 min
Lab File: E201462.D
Acq: 29 Mar 2013 6:53 am

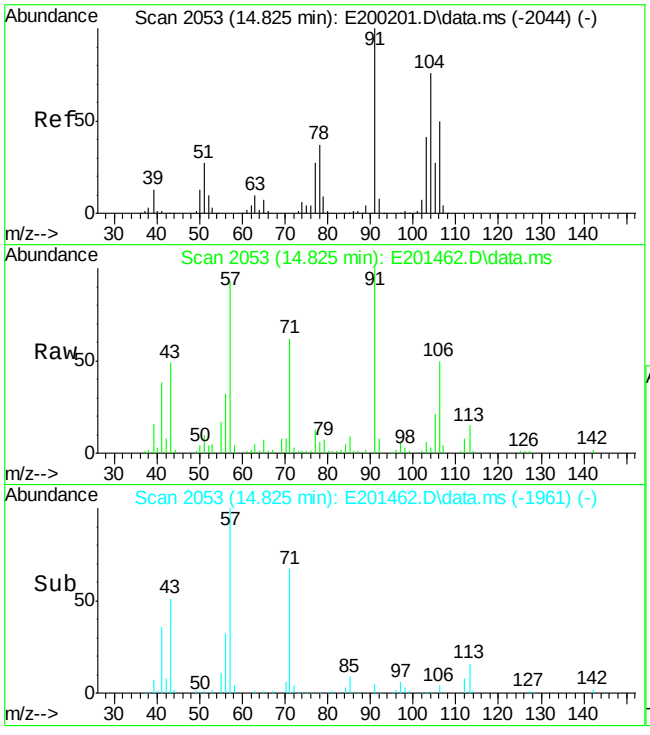
Tgt Ion:106 Resp: 125583

Ion	Ratio	Lower	Upper
106	100		
91	188.6	161.1	221.1
77	23.4	0.0	54.5



7.1.4

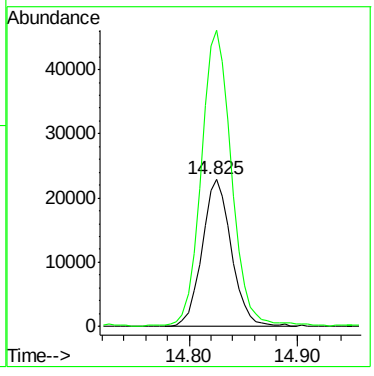
7

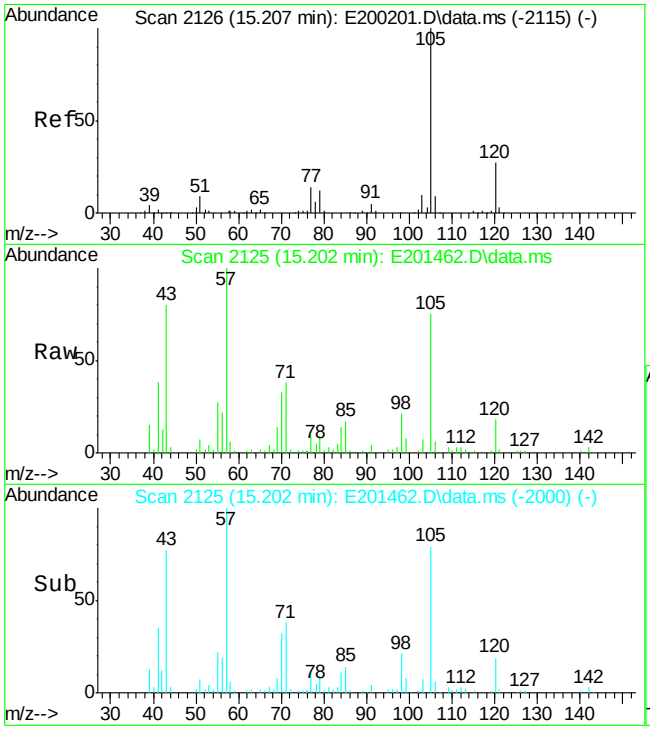


#110
o-xylene
Concen: 15.40 ug/L
RT: 14.825 min Scan# 2053
Delta R.T. 0.000 min
Lab File: E201462.D
Acq: 29 Mar 2013 6:53 am

Tgt Ion:106 Resp: 43031

Ion	Ratio	Lower	Upper
106	100		
91	200.2	170.7	230.7

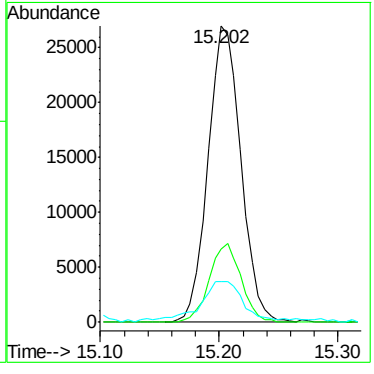


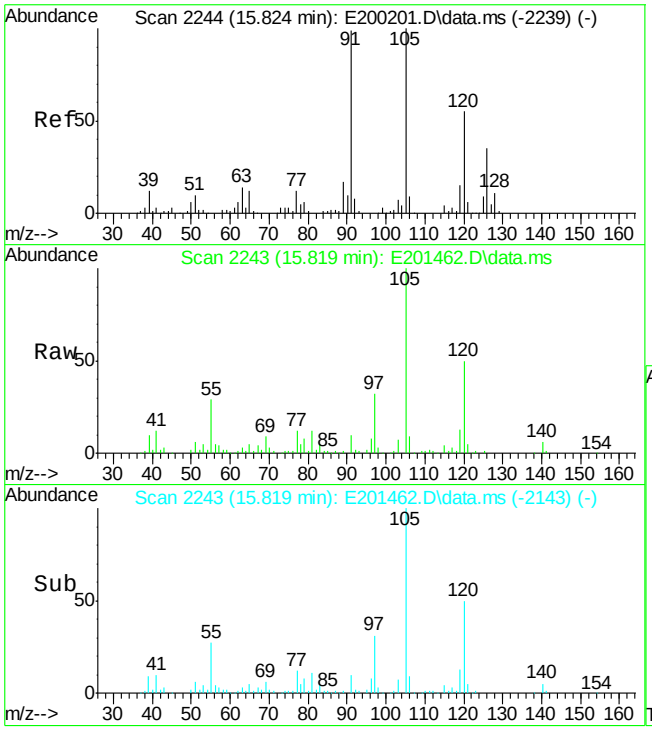


#115
isopropylbenzene
Concen: 6.40 ug/L
RT: 15.202 min Scan# 2125
Delta R.T. -0.005 min
Lab File: E201462.D
Acq: 29 Mar 2013 6:53 am

Tgt Ion:105 Resp: 51985

Ion	Ratio	Lower	Upper
105	100		
120	24.5	0.0	57.0
77	12.7	0.0	44.4

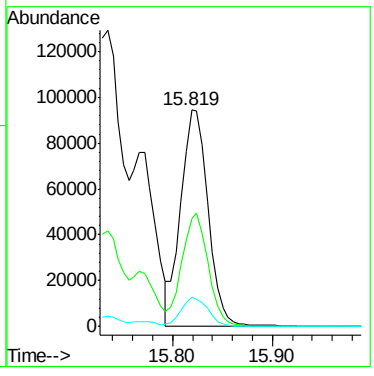


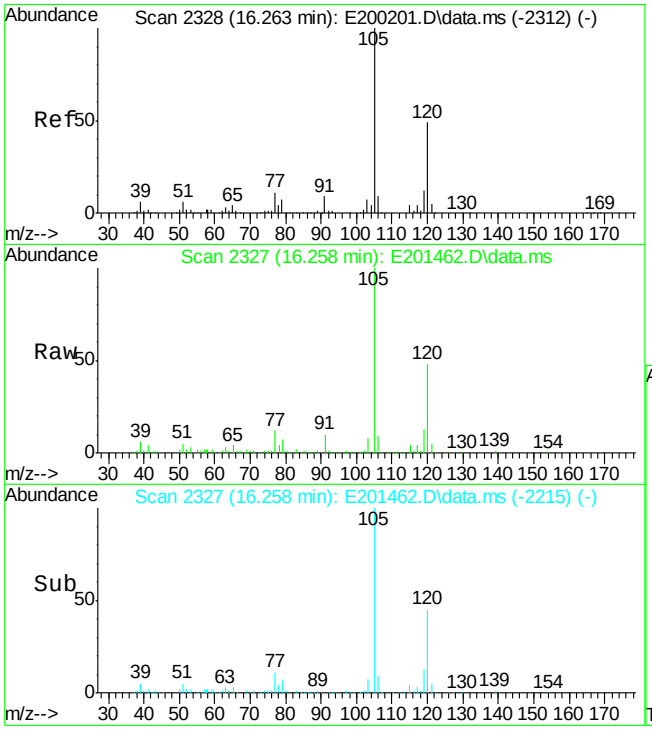


#125
1,3,5-trimethylbenzene
Concen: 25.92 ug/L
RT: 15.819 min Scan# 2243
Delta R.T. -0.005 min
Lab File: E201462.D
Acq: 29 Mar 2013 6:53 am

Tgt Ion:105 Resp: 179453

Ion	Ratio	Lower	Upper
105	100		
120	50.1	21.5	81.5
119	13.3	0.0	43.2

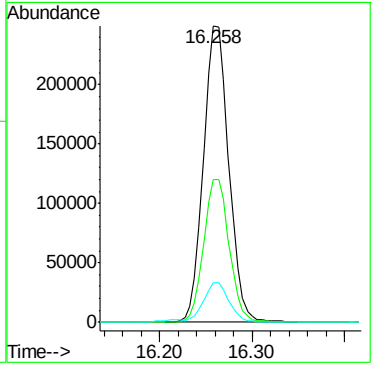




#128
1,2,4-trimethylbenzene
Concen: 69.07 ug/L
RT: 16.258 min Scan# 2327
Delta R.T. -0.005 min
Lab File: E201462.D
Acq: 29 Mar 2013 6:53 am

Tgt Ion:105 Resp: 472951

Ion	Ratio	Lower	Upper
105	100		
120	48.0	19.4	79.4
119	13.4	0.0	43.7



7.1.4

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E201482.D
Acq On : 29 Mar 2013 6:23 pm
Operator : OksanaT
Sample : jb31583-4
Misc : MS45128,VE8858,6.3,,40,10,1
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Mar 29 18:58:19 2013
Quant Method : C:\MSDCHEM\1\METHODS\ME8801.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Feb 25 11:43:47 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.681	65	71345	500.00	ug/L	0.01
5) pentafluorobenzene	9.904	168	170832	50.00	ug/L	0.00
66) 1,4-difluorobenzene	10.824	114	212491	50.00	ug/L	0.00
97) chlorobenzene-d5	14.151	117	195940	50.00	ug/L	0.00
114) 1,4-dichlorobenzene-d4	16.719	152	118746	50.00	ug/L	0.00

System Monitoring Compounds

60) dibromofluoromethane (s)	9.946	113	66987	41.79	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 83.58%			
61) 1,2-dichloroethane-d4 (s)	10.364	65	72695	41.25	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 82.50%			
89) toluene-d8 (s)	12.524	98	264950	49.25	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 98.50%			
116) 4-bromofluorobenzene (s)	15.422	95	108319	49.76	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 99.52%			

Target Compounds

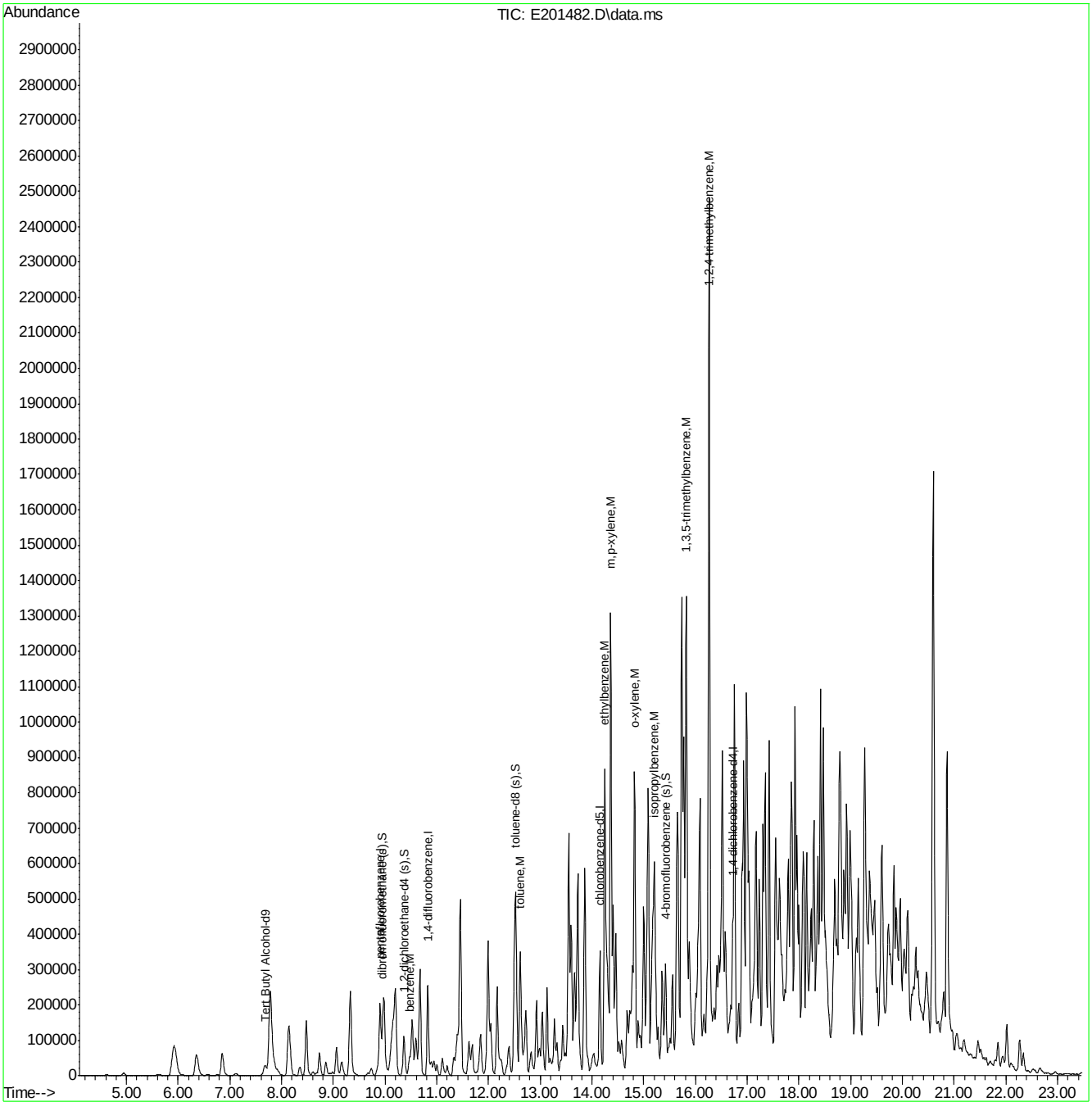
						Qvalue
75) benzene	10.479	78	42754	7.18	ug/L	97
91) toluene	12.603	92	86722	24.01	ug/L	96
108) ethylbenzene	14.245	91	735528	108.11	ug/L	99
109) m,p-xylene	14.360	106	477374	178.58	ug/L	95
110) o-xylene	14.826	106	169502	61.91	ug/L	98
115) isopropylbenzene	15.202	105	204676	26.80	ug/L	98
125) 1,3,5-trimethylbenzene	15.824	105	651560	100.09	ug/L	98
128) 1,2,4-trimethylbenzene	16.264	105	1638545	254.56	ug/L	95

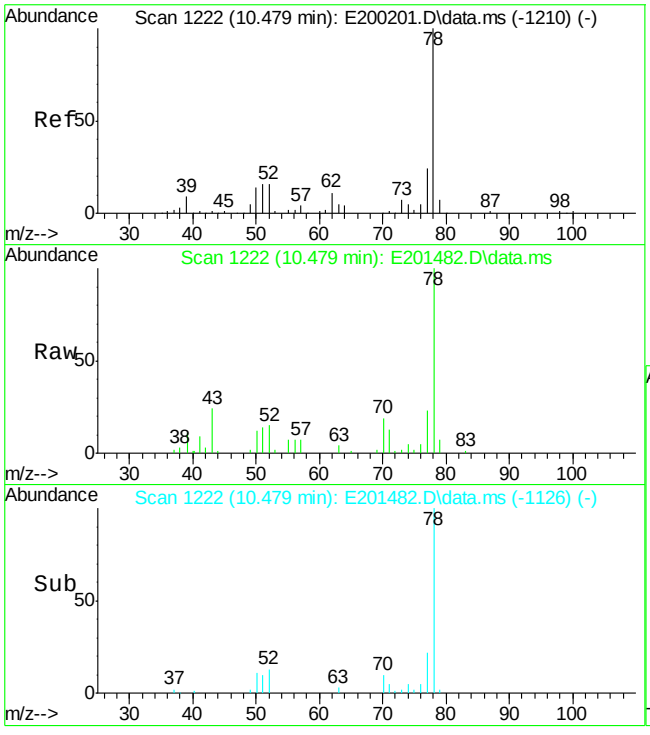
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E201482.D
Acq On : 29 Mar 2013 6:23 pm
Operator : OksanaT
Sample : jb31583-4
Misc : MS45128,VE8858,6.3,,40,10,1
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Mar 29 18:58:19 2013
Quant Method : C:\MSDCHEM\1\METHODS\ME8801.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Feb 25 11:43:47 2013
Response via : Initial Calibration

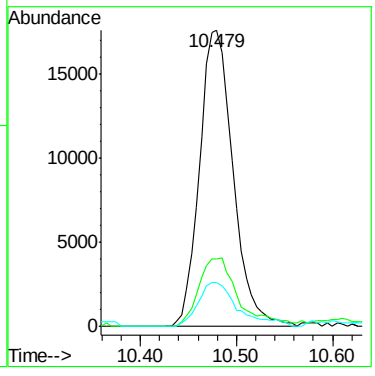


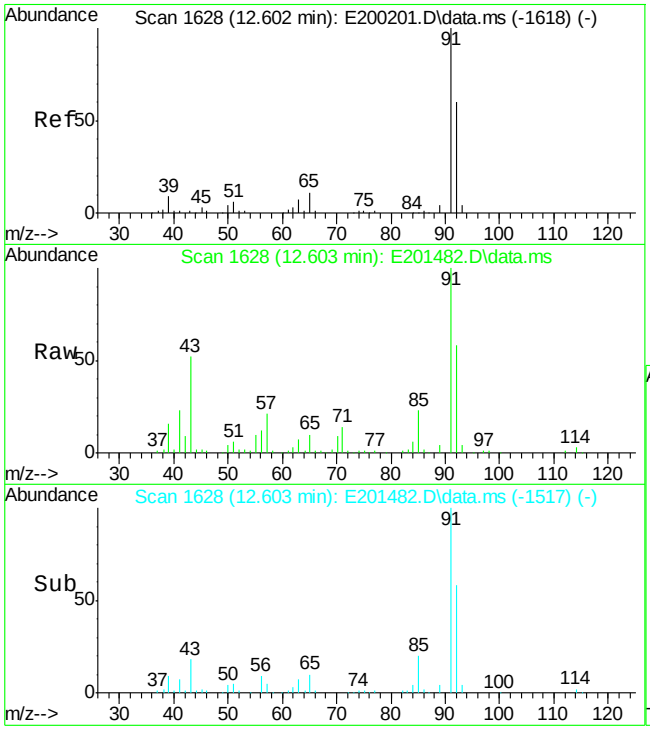


#75
benzene
Concen: 7.18 ug/L
RT: 10.479 min Scan# 1222
Delta R.T. 0.000 min
Lab File: E201482.D
Acq: 29 Mar 2013 6:23 pm

Tgt Ion: 78 Resp: 42754

Ion	Ratio	Lower	Upper
78	100		
77	22.6	0.0	53.8
52	14.8	0.0	45.9

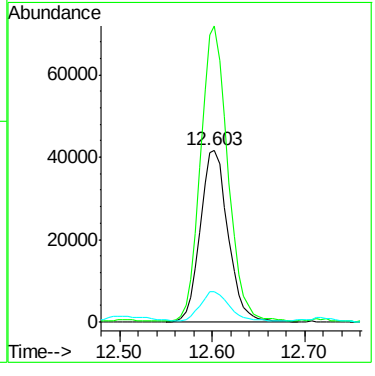


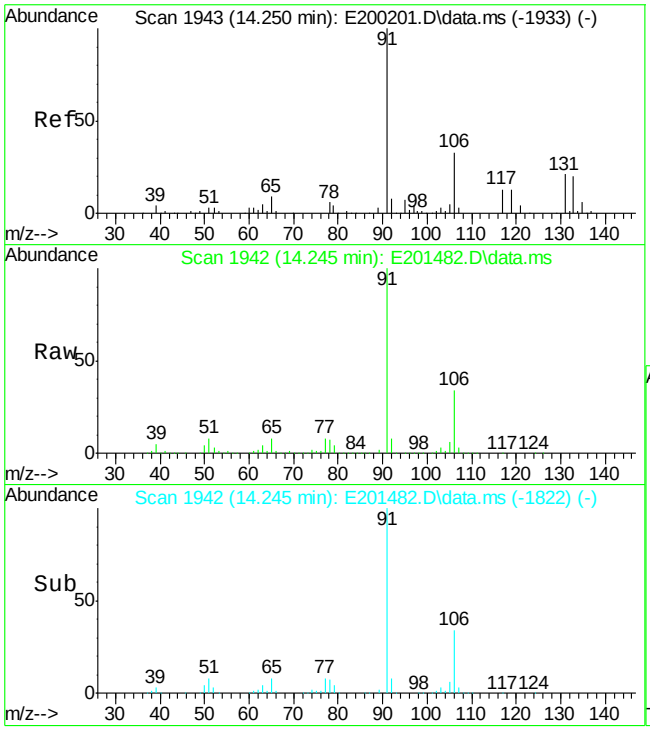


#91
toluene
Concen: 24.01 ug/L
RT: 12.603 min Scan# 1628
Delta R.T. 0.000 min
Lab File: E201482.D
Acq: 29 Mar 2013 6:23 pm

Tgt Ion: 92 Resp: 86722

Ion	Ratio	Lower	Upper
92	100		
91	171.7	136.3	196.3
65	16.6	0.0	48.8

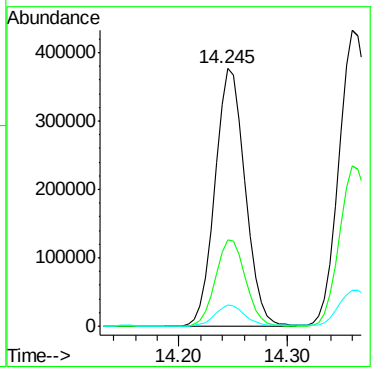


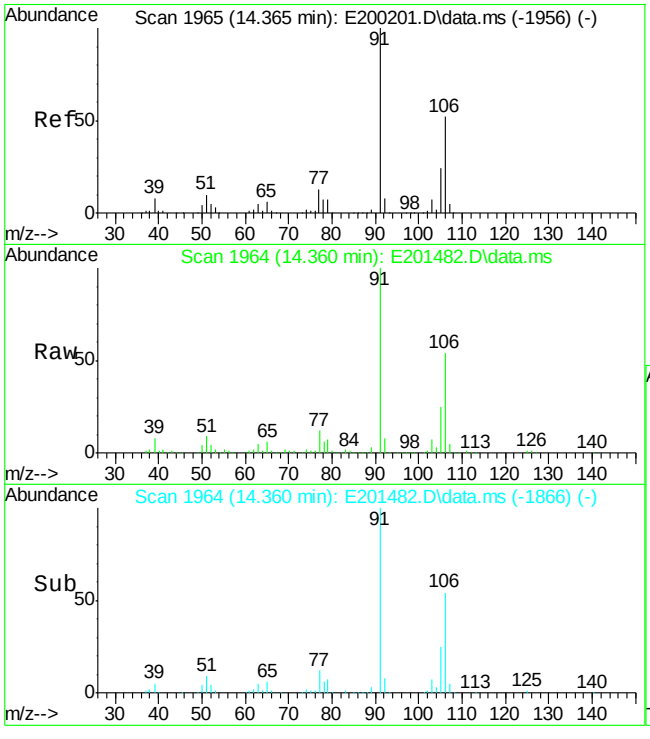


#108
ethylbenzene
Concen: 108.11 ug/L
RT: 14.245 min Scan# 1942
Delta R.T. -0.005 min
Lab File: E201482.D
Acq: 29 Mar 2013 6:23 pm

Tgt Ion: 91 Resp: 735528

Ion	Ratio	Lower	Upper
91	100		
106	33.6	2.9	62.9
77	8.1	0.0	38.7

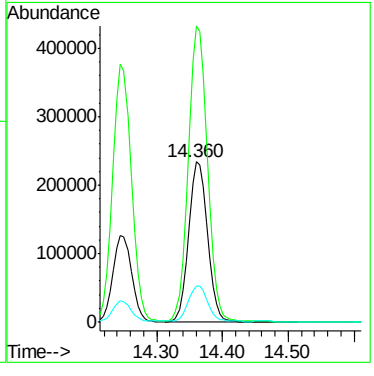


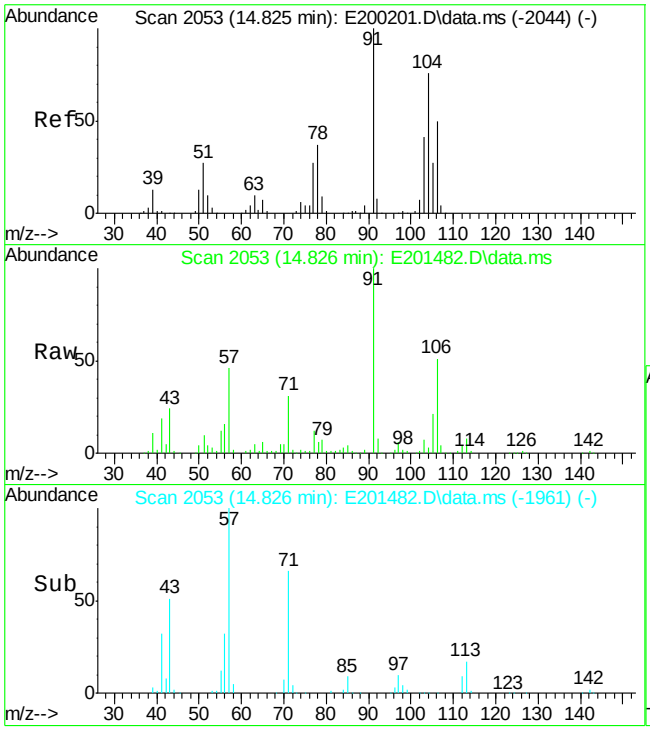


#109
m,p-xylene
Concen: 178.58 ug/L
RT: 14.360 min Scan# 1964
Delta R.T. -0.005 min
Lab File: E201482.D
Acq: 29 Mar 2013 6:23 pm

Tgt Ion:106 Resp: 477374

Ion	Ratio	Lower	Upper
106	100		
91	184.3	161.1	221.1
77	22.3	0.0	54.5

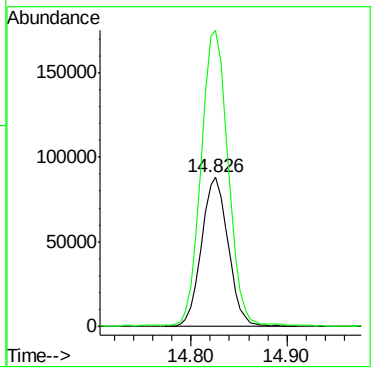


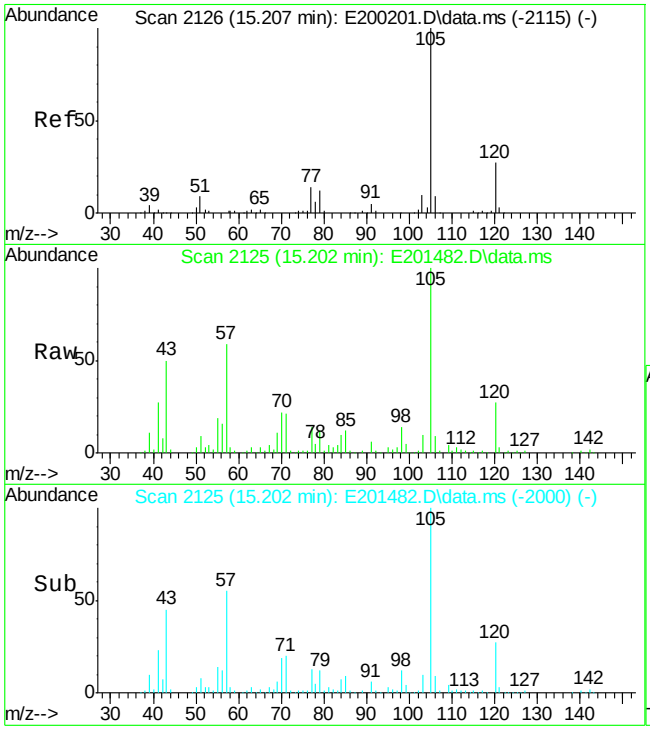


#110
o-xylene
Concen: 61.91 ug/L
RT: 14.826 min Scan# 2053
Delta R.T. 0.000 min
Lab File: E201482.D
Acq: 29 Mar 2013 6:23 pm

Tgt Ion:106 Resp: 169502

Ion	Ratio	Lower	Upper
106	100		
91	197.2	170.7	230.7

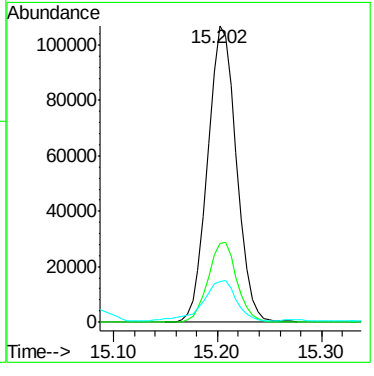


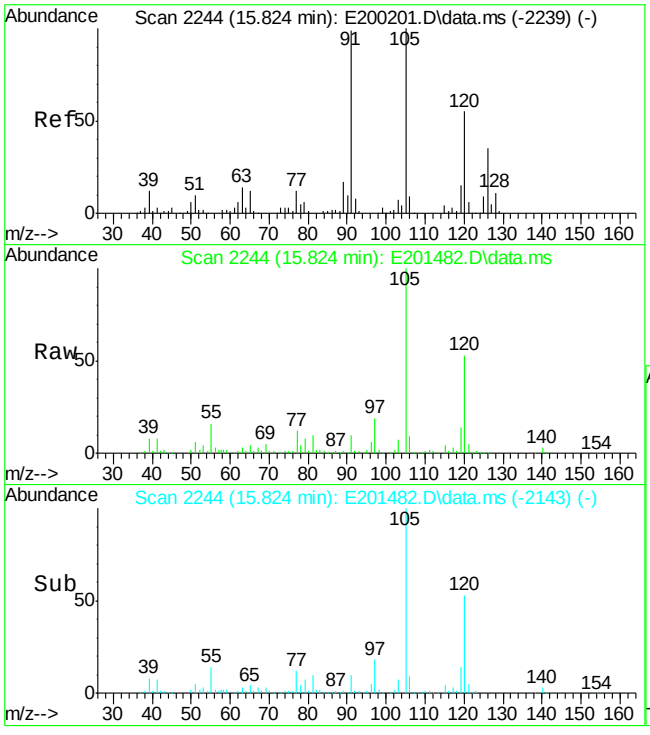


#115
isopropylbenzene
Concen: 26.80 ug/L
RT: 15.202 min Scan# 2125
Delta R.T. -0.005 min
Lab File: E201482.D
Acq: 29 Mar 2013 6:23 pm

Tgt Ion:105 Resp: 204676

Ion	Ratio	Lower	Upper
105	100		
120	26.6	0.0	57.0
77	13.0	0.0	44.4

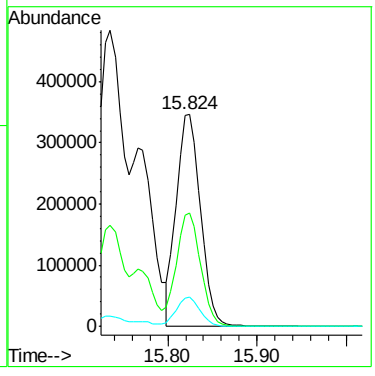


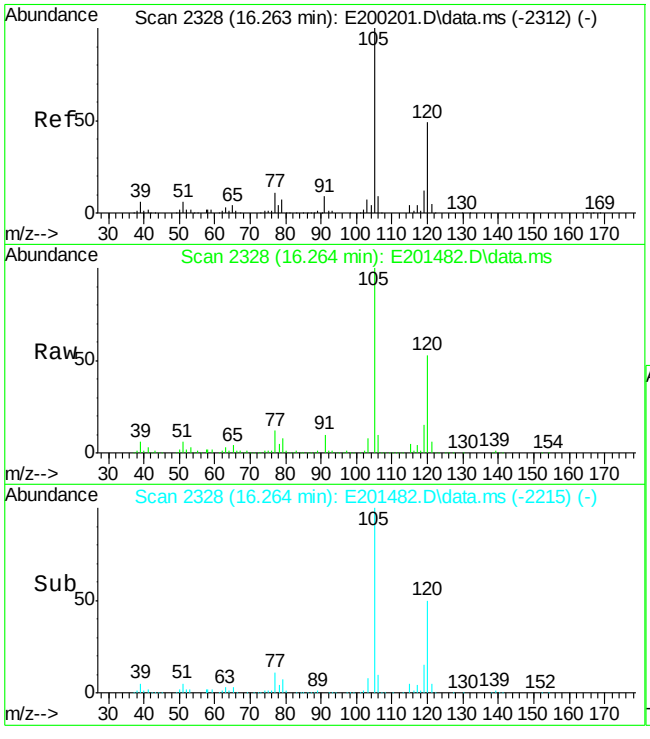


#125
1,3,5-trimethylbenzene
Concen: 100.09 ug/L
RT: 15.824 min Scan# 2244
Delta R.T. 0.000 min
Lab File: E201482.D
Acq: 29 Mar 2013 6:23 pm

Tgt Ion:105 Resp: 651560

Ion	Ratio	Lower	Upper
105	100		
120	53.3	21.5	81.5
119	13.8	0.0	43.2

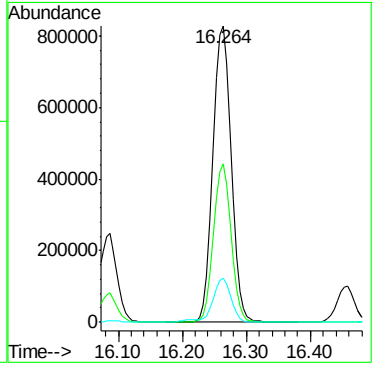




#128
1,2,4-trimethylbenzene
Concen: 254.56 ug/L
RT: 16.264 min Scan# 2328
Delta R.T. 0.000 min
Lab File: E201482.D
Acq: 29 Mar 2013 6:23 pm

Tgt Ion:105 Resp: 1638545

Ion	Ratio	Lower	Upper
105	100		
120	53.3	19.4	79.4
119	14.9	0.0	43.7



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A192943.D Vial: 100
Acq On : 23 Mar 2013 1:26 pm Operator: Oksanat
Sample : jb31583-5 Inst : MSA
Misc : MS45128,VA7269,6.1,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 25 9:17 2013 Quant Results File: MA7222.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration
DataAcq Meth : MA7222

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.01	65	68228	500.00	ug/L	-0.02
5) pentafluorobenzene	9.35	168	184066	50.00	ug/L	0.00
54) 1,4-difluorobenzene	10.30	114	257330	50.00	ug/L	0.00
85) chlorobenzene-d5	13.74	117	253875	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	16.37	152	137954	50.00	ug/L	0.00

System Monitoring Compounds

47) dibromofluoromethane (s)	9.39	113	71063	51.89	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 103.78%			
48) 1,2-dichloroethane-d4 (s)	9.82	65	71686	46.85	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 93.70%			
77) toluene-d8 (s)	12.05	98	264440	54.12	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 108.24%			
102) 4-bromofluorobenzene (s)	15.05	95	102895	52.54	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 105.08%			

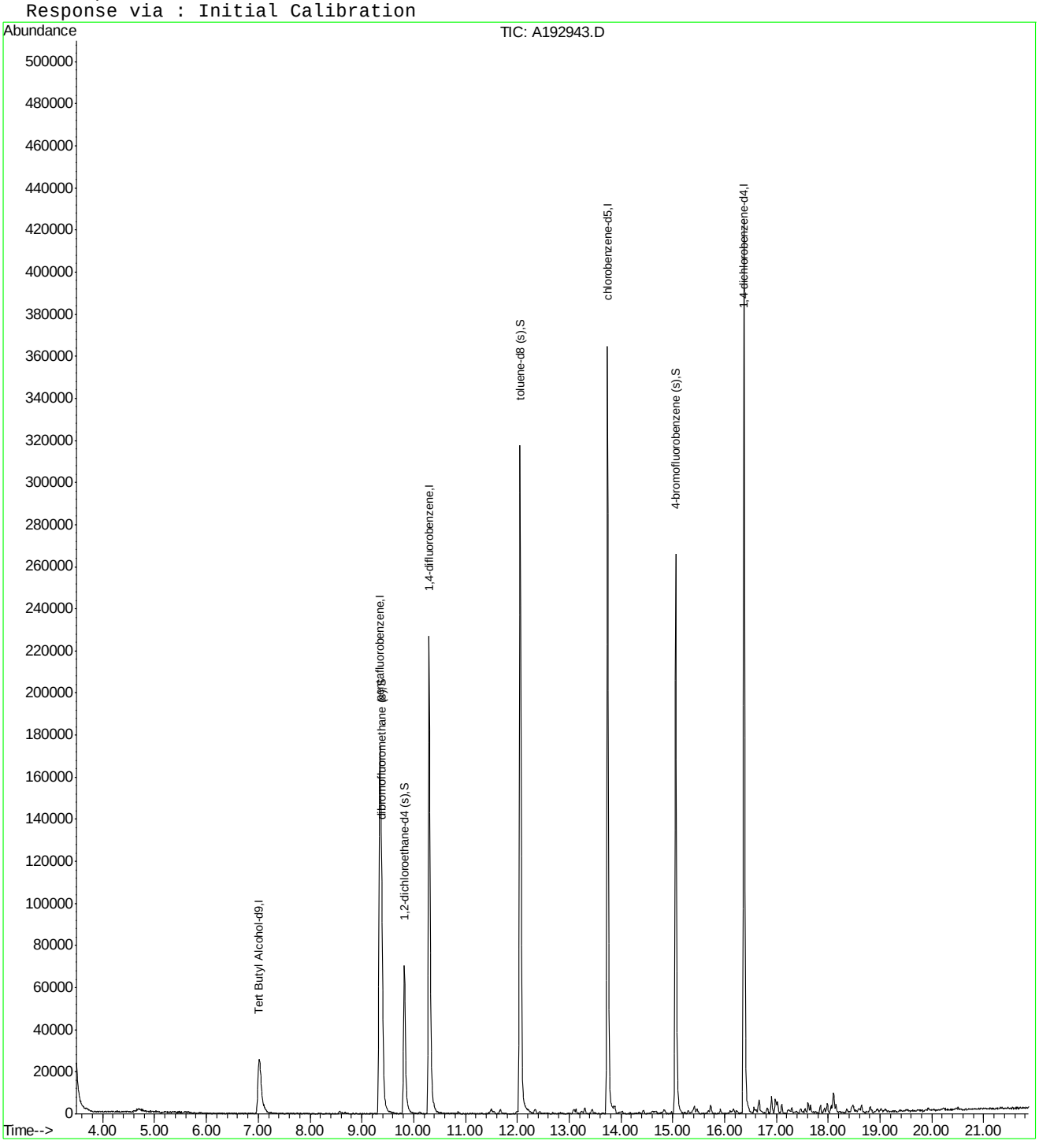
Target Compounds Qvalue

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A192943.D Vial: 100
Acq On : 23 Mar 2013 1:26 pm Operator: Oksanat
Sample : jb31583-5 Inst : MSA
Misc : MS45128,VA7269,6.1,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 25 9:17 2013 Quant Results File: MA7222.RES

Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A192990.D Vial: 100
Acq On : 25 Mar 2013 1:31 pm Operator: Oksanat
Sample : jb31583-6 Inst : MSA
Misc : MS45128,VA7271,5.8,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 25 17:09 2013 Quant Results File: MA7222.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration
DataAcq Meth : MA7222

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.03	65	77715	500.00	ug/L	0.00
5) pentafluorobenzene	9.37	168	201802	50.00	ug/L	0.01
54) 1,4-difluorobenzene	10.32	114	274217	50.00	ug/L	0.02
85) chlorobenzene-d5	13.76	117	257799	50.00	ug/L	0.02
99) 1,4-dichlorobenzene-d4	16.39	152	132677	50.00	ug/L	0.01

System Monitoring Compounds

47) dibromofluoromethane (s)	9.40	113	77310	51.49	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 102.98%			
48) 1,2-dichloroethane-d4 (s)	9.84	65	77521	46.21	ug/L	0.01
Spiked Amount 50.000	Range 74 - 127		Recovery = 92.42%			
77) toluene-d8 (s)	12.07	98	279326	53.64	ug/L	0.02
Spiked Amount 50.000	Range 80 - 122		Recovery = 107.28%			
102) 4-bromofluorobenzene (s)	15.07	95	103202	54.79	ug/L	0.02
Spiked Amount 50.000	Range 78 - 116		Recovery = 109.58%			

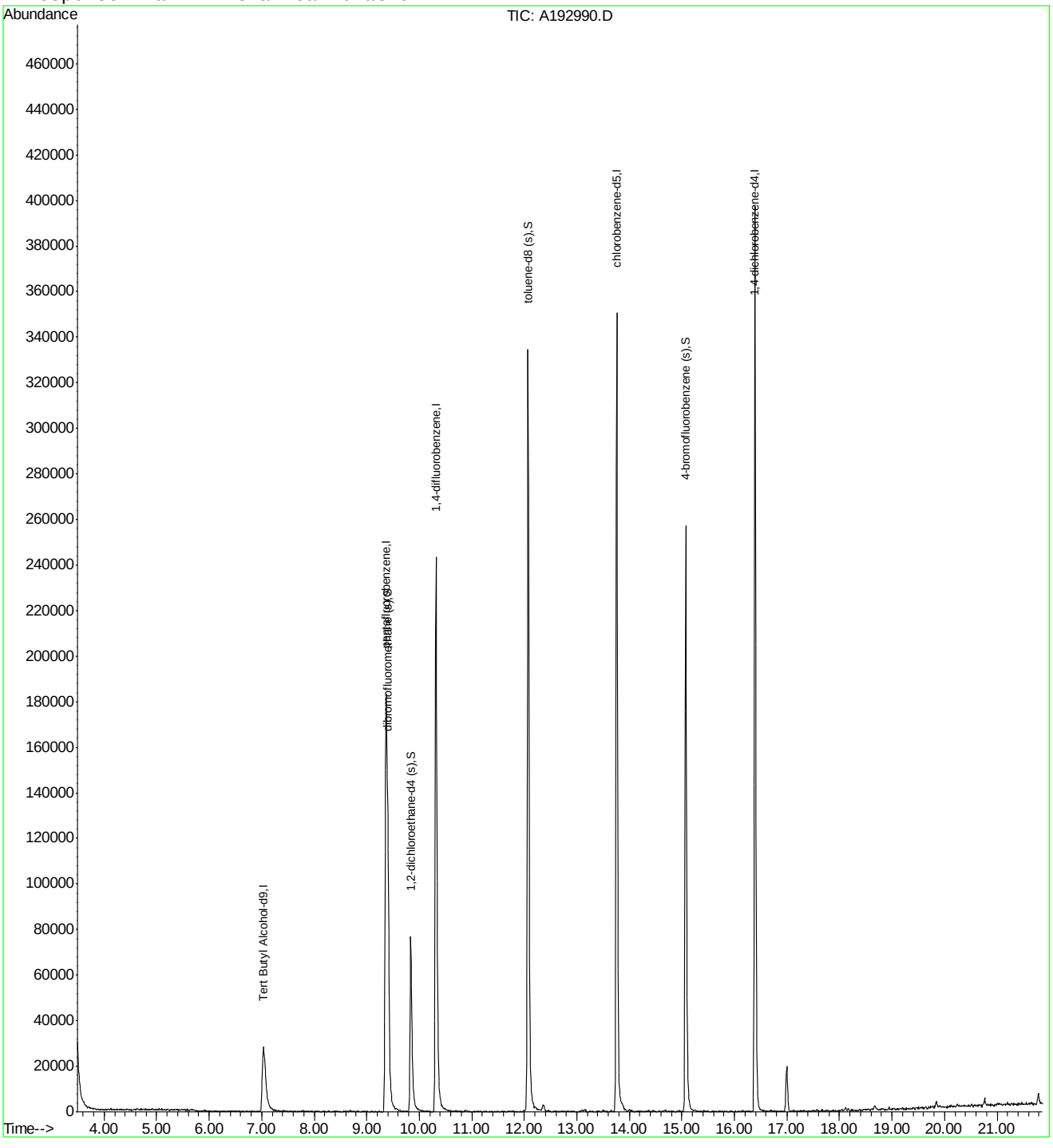
Target Compounds Qvalue

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A192990.D Vial: 100
Acq On : 25 Mar 2013 1:31 pm Operator: Oksanat
Sample : jb31583-6 Inst : MSA
Misc : MS45128,VA7271,5.8,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 25 17:09 2013 Quant Results File: MA7222.RES

Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E201463.D
Acq On : 29 Mar 2013 7:23 am
Operator : OksanaT
Sample : jb31583-7
Misc : MS45128,VE8857,5.7,,20,10,1
ALS Vial : 46 Sample Multiplier: 1

Quant Time: Mar 29 12:56:28 2013
Quant Method : C:\MSDCHEM\1\METHODS\ME8801.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Feb 25 11:43:47 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.681	65	88670	500.00	ug/L	0.01
5) pentafluorobenzene	9.909	168	178614	50.00	ug/L	0.00
66) 1,4-difluorobenzene	10.824	114	221300	50.00	ug/L	0.00
97) chlorobenzene-d5	14.150	117	193110	50.00	ug/L	0.00
114) 1,4-dichlorobenzene-d4	16.718	152	118368	50.00	ug/L	0.00

System Monitoring Compounds

60) dibromofluoromethane (s)	9.945	113	70427	42.02	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 84.04%			
61) 1,2-dichloroethane-d4 (s)	10.364	65	75967	41.23	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 82.46%			
89) toluene-d8 (s)	12.524	98	268984	48.01	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 96.02%			
116) 4-bromofluorobenzene (s)	15.421	95	110651	50.99	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 101.98%			

Target Compounds

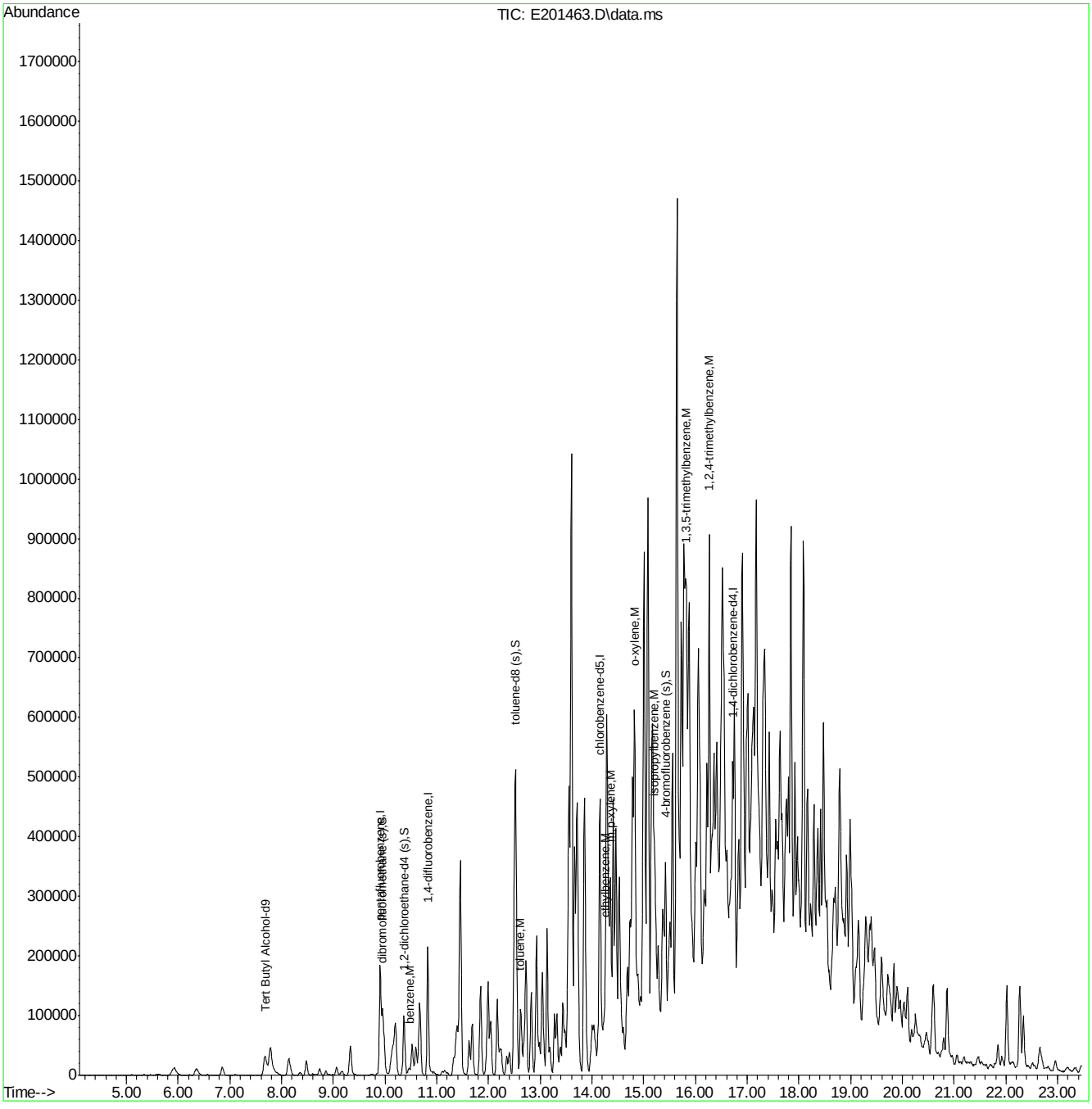
						Qvalue
75) benzene	10.474	78	2547	0.41	ug/L	88
91) toluene	12.608	92	2673	0.71	ug/L	97
108) ethylbenzene	14.250	91	62958	9.39	ug/L	95
109) m,p-xylene	14.365	106	52210	19.82	ug/L	96
110) o-xylene	14.825	106	27380	10.15	ug/L	96
115) isopropylbenzene	15.202	105	25371	3.33	ug/L	99
125) 1,3,5-trimethylbenzene	15.824	105	130763	20.15	ug/L	100
128) 1,2,4-trimethylbenzene	16.263	105	325048	50.66	ug/L	97

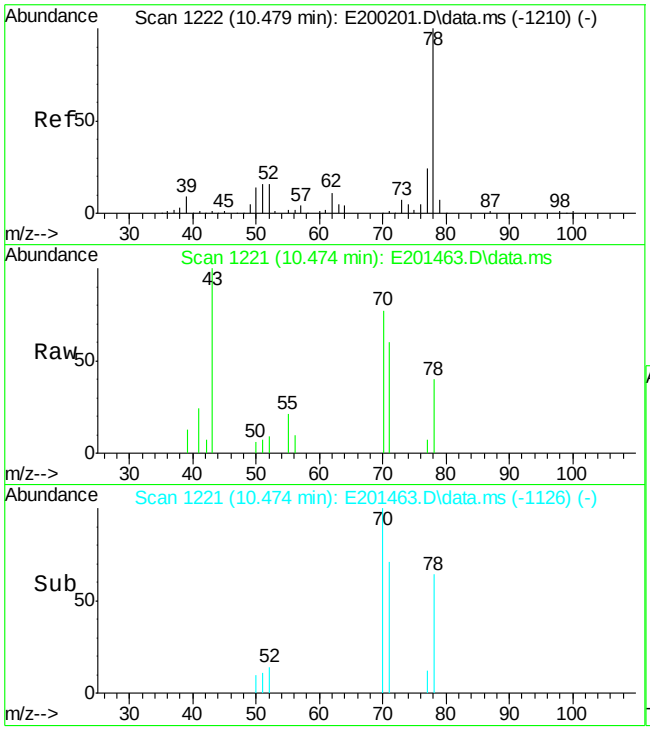
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E201463.D
Acq On : 29 Mar 2013 7:23 am
Operator : OksanaT
Sample : jb31583-7
Misc : MS45128,VE8857,5.7,,20,10,1
ALS Vial : 46 Sample Multiplier: 1

Quant Time: Mar 29 12:56:28 2013
Quant Method : C:\MSDCHEM\1\METHODS\ME8801.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Feb 25 11:43:47 2013
Response via : Initial Calibration

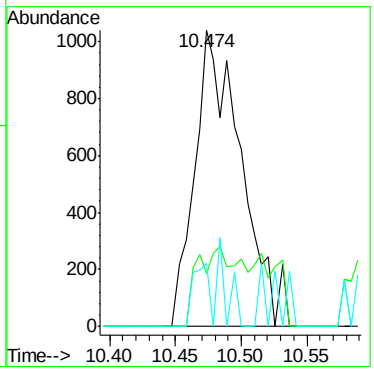


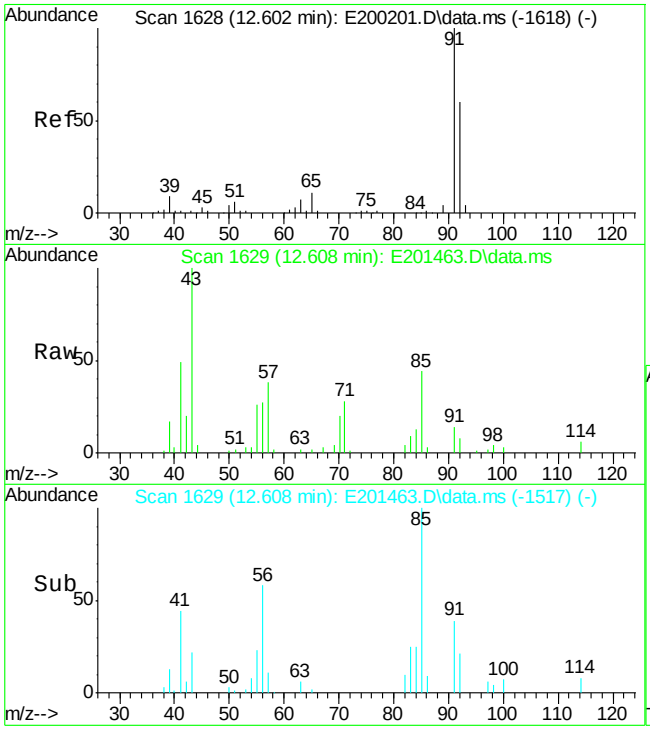


#75
benzene
Concen: 0.41 ug/L
RT: 10.474 min Scan# 1221
Delta R.T. -0.005 min
Lab File: E201463.D
Acq: 29 Mar 2013 7:23 am

Tgt Ion: 78 Resp: 2547

Ion	Ratio	Lower	Upper
78	100		
77	17.9	0.0	53.8
52	21.3	0.0	45.9

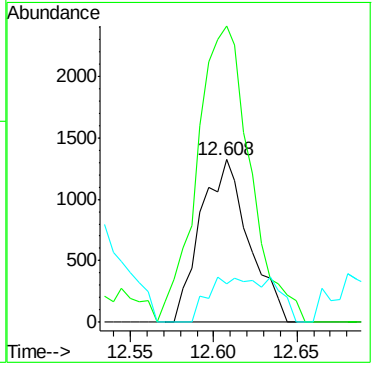




#91
toluene
Concen: 0.71 ug/L
RT: 12.608 min Scan# 1629
Delta R.T. 0.005 min
Lab File: E201463.D
Acq: 29 Mar 2013 7:23 am

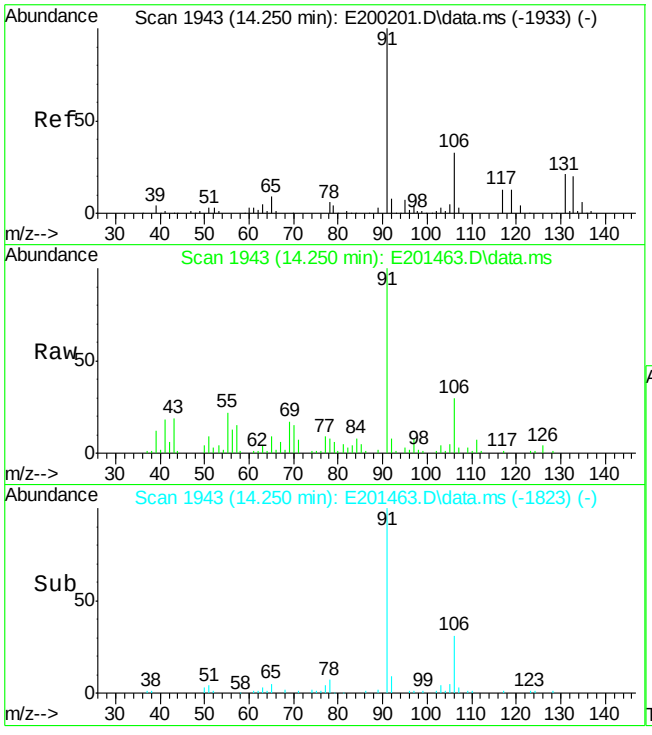
Tgt Ion: 92 Resp: 2673

Ion	Ratio	Lower	Upper
92	100		
91	169.4	136.3	196.3
65	23.7	0.0	48.8



7.1.8

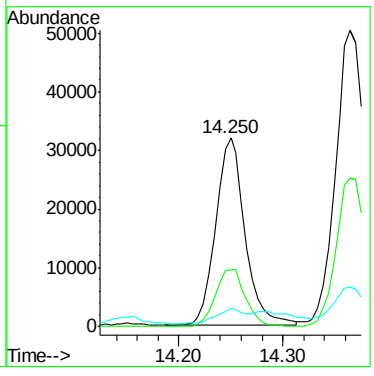
7

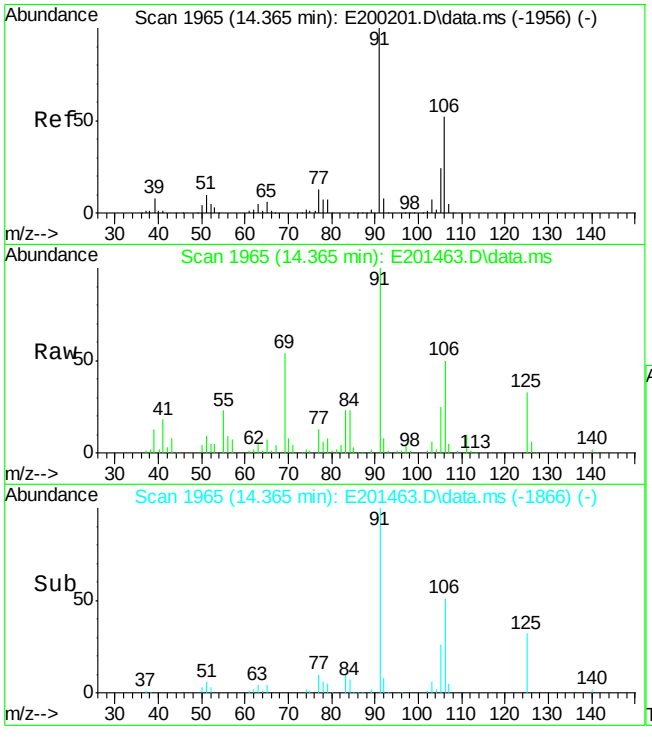


#108
ethylbenzene
Concen: 9.39 ug/L
RT: 14.250 min Scan# 1943
Delta R.T. -0.000 min
Lab File: E201463.D
Acq: 29 Mar 2013 7:23 am

Tgt Ion: 91 Resp: 62958

Ion	Ratio	Lower	Upper
91	100		
106	29.9	2.9	62.9
77	7.9	0.0	38.7

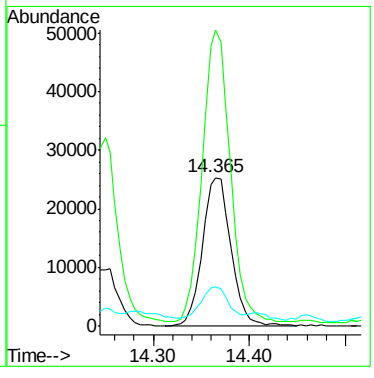


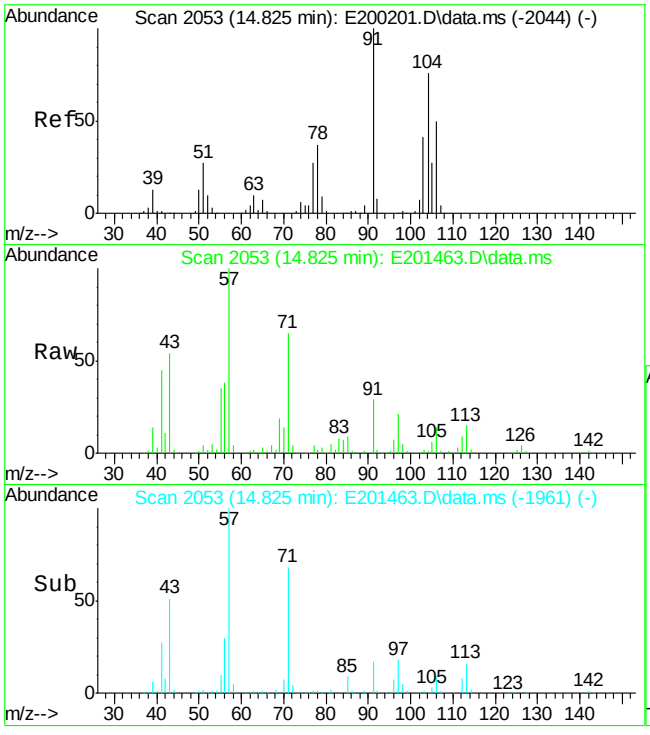


#109
m,p-xylene
Concen: 19.82 ug/L
RT: 14.365 min Scan# 1965
Delta R.T. -0.000 min
Lab File: E201463.D
Acq: 29 Mar 2013 7:23 am

Tgt Ion:106 Resp: 52210

Ion	Ratio	Lower	Upper
106	100		
91	196.3	161.1	221.1
77	21.3	0.0	54.5

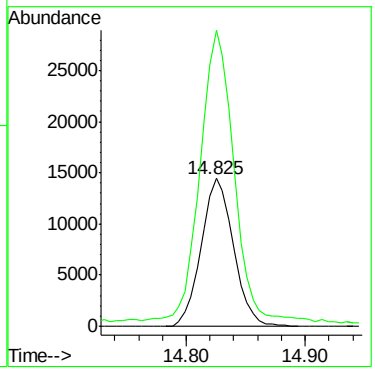


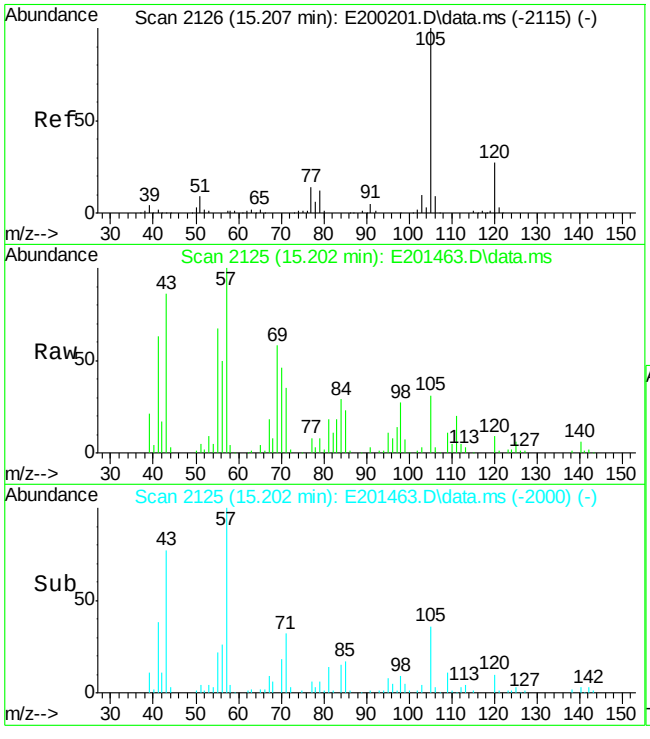


#110
o-xylene
Concen: 10.15 ug/L
RT: 14.825 min Scan# 2053
Delta R.T. -0.000 min
Lab File: E201463.D
Acq: 29 Mar 2013 7:23 am

Tgt Ion:106 Resp: 27380

Ion	Ratio	Lower	Upper
106	100		
91	194.5	170.7	230.7

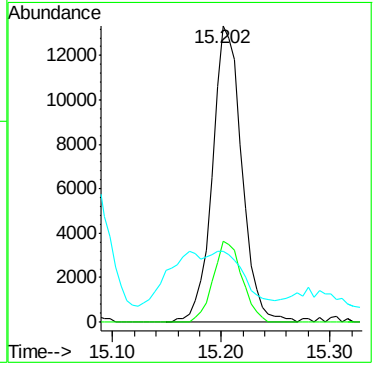


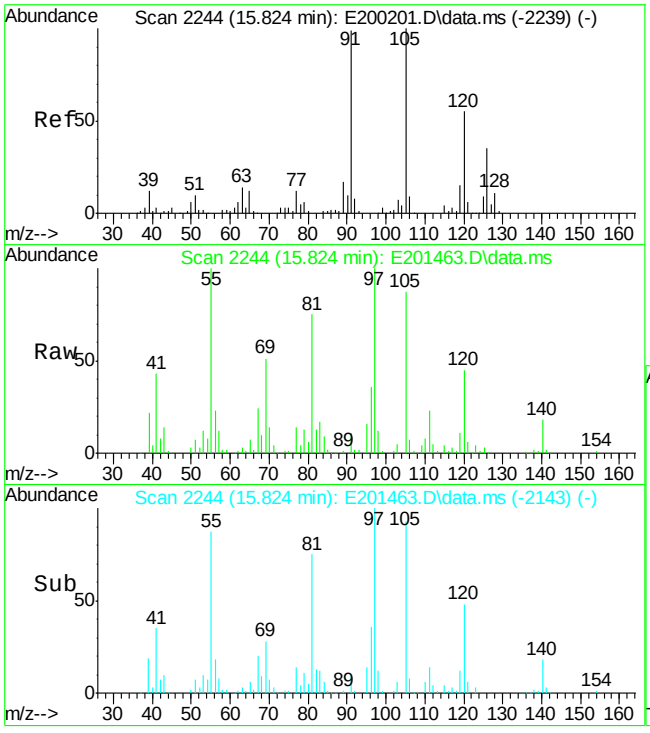


#115
isopropylbenzene
Concen: 3.33 ug/L
RT: 15.202 min Scan# 2125
Delta R.T. -0.005 min
Lab File: E201463.D
Acq: 29 Mar 2013 7:23 am

Tgt Ion:105 Resp: 25371

Ion	Ratio	Lower	Upper
105	100		
120	27.3	0.0	57.0
77	14.2	0.0	44.4

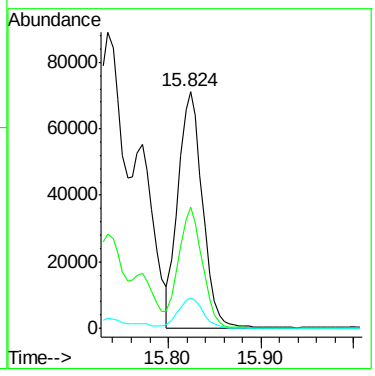


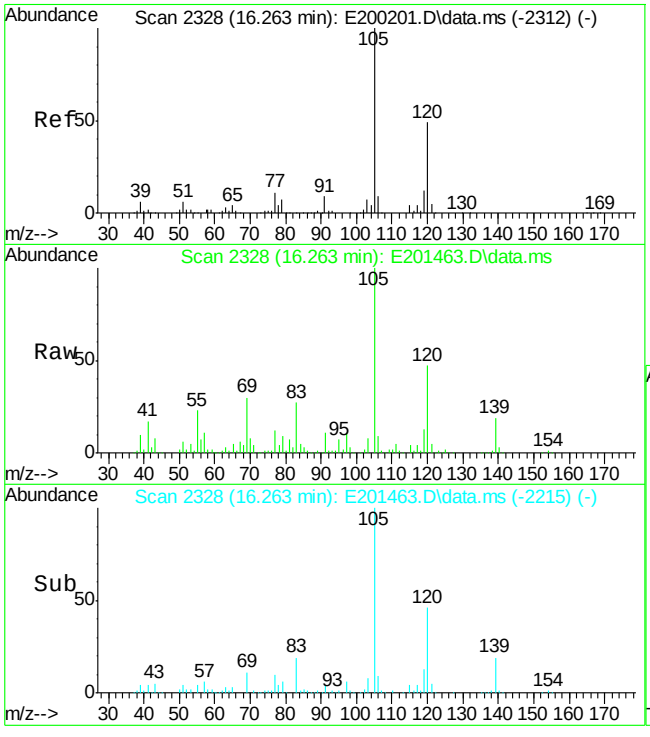


#125
1,3,5-trimethylbenzene
Concen: 20.15 ug/L
RT: 15.824 min Scan# 2244
Delta R.T. -0.000 min
Lab File: E201463.D
Acq: 29 Mar 2013 7:23 am

Tgt Ion:105 Resp: 130763

Ion	Ratio	Lower	Upper
105	100		
120	51.4	21.5	81.5
119	12.8	0.0	43.2

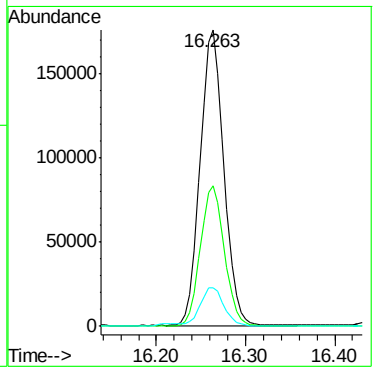




#128
1,2,4-trimethylbenzene
Concen: 50.66 ug/L
RT: 16.263 min Scan# 2328
Delta R.T. -0.000 min
Lab File: E201463.D
Acq: 29 Mar 2013 7:23 am

Tgt Ion:105 Resp: 325048

Ion	Ratio	Lower	Upper
105	100		
120	47.5	19.4	79.4
119	13.0	0.0	43.7



7.1.8

7

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A192993.D Vial: 100
Acq On : 25 Mar 2013 3:15 pm Operator: Oksanat
Sample : jb31583-8 Inst : MSA
Misc : MS45128,VA7271,7.3,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 25 17:14 2013 Quant Results File: MA7222.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration
DataAcq Meth : MA7222

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.04	65	77946	500.00	ug/L	0.02
5) pentafluorobenzene	9.37	168	210100	50.00	ug/L	0.02
54) 1,4-difluorobenzene	10.31	114	292715	50.00	ug/L	0.02
85) chlorobenzene-d5	13.76	117	270154	50.00	ug/L	0.02
99) 1,4-dichlorobenzene-d4	16.39	152	155963	50.00	ug/L	0.02

System Monitoring Compounds						
47) dibromofluoromethane (s)	9.40	113	80634	51.58	ug/L	0.01
Spiked Amount 50.000	Range 81 - 121		Recovery = 103.16%			
48) 1,2-dichloroethane-d4 (s)	9.84	65	81340	46.57	ug/L	0.02
Spiked Amount 50.000	Range 74 - 127		Recovery = 93.14%			
77) toluene-d8 (s)	12.07	98	292984	52.71	ug/L	0.02
Spiked Amount 50.000	Range 80 - 122		Recovery = 105.42%			
102) 4-bromofluorobenzene (s)	15.07	95	110541	49.93	ug/L	0.02
Spiked Amount 50.000	Range 78 - 116		Recovery = 99.86%			

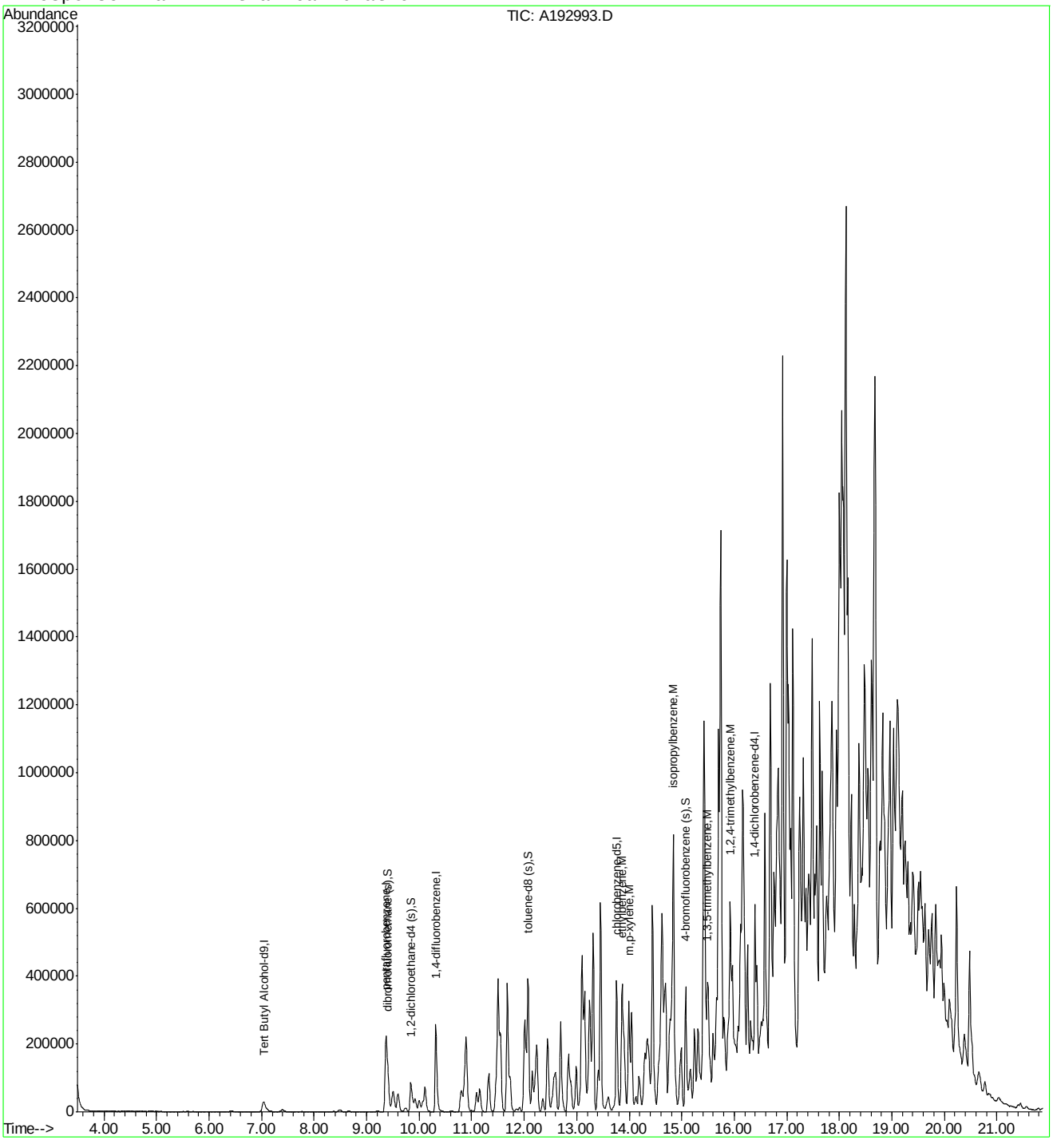
Target Compounds						Qvalue
94) ethylbenzene	13.86	91	171235	24.21	ug/L	97
95) m,p-xylene	13.99	106	36084	12.84	ug/L	92
100) isopropylbenzene	14.84	105	116239	16.75	ug/L	99
111) 1,3,5-trimethylbenzene	15.48	105	122575	19.90	ug/L	100
114) 1,2,4-trimethylbenzene	15.93	105	325554	51.37	ug/L	98

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

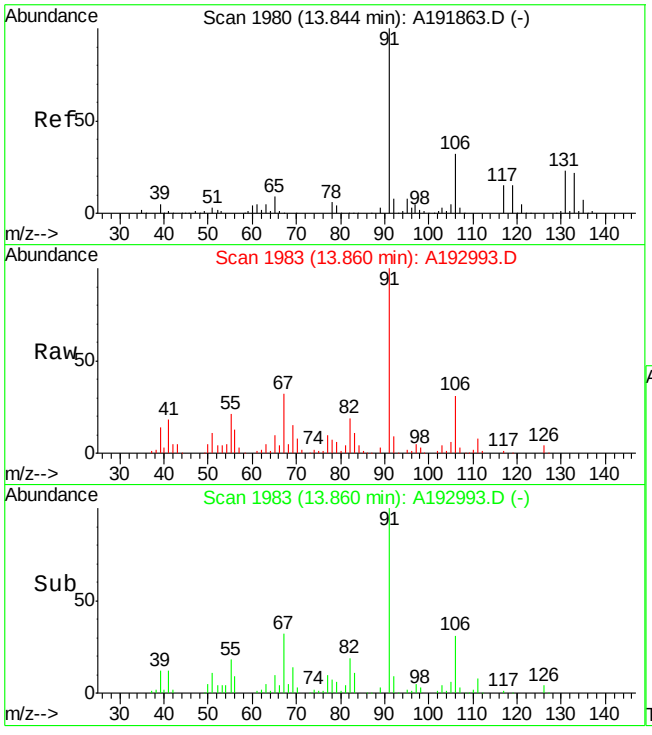
Quantitation Report

Data File : C:\HPCHEM\1\DATA\A192993.D Vial: 100
Acq On : 25 Mar 2013 3:15 pm Operator: Oksanat
Sample : jb31583-8 Inst : MSA
Misc : MS45128,VA7271,7.3,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 25 17:14 2013 Quant Results File: MA7222.RES

Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration



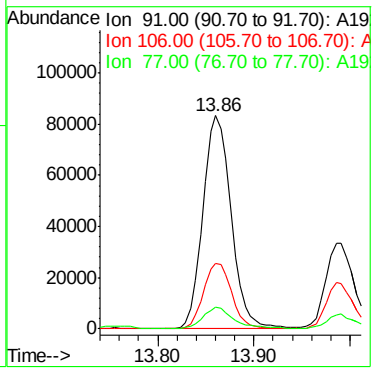
A192993.D MA7222.M Mon Mar 25 17:14:18 2013 MSA Page 2

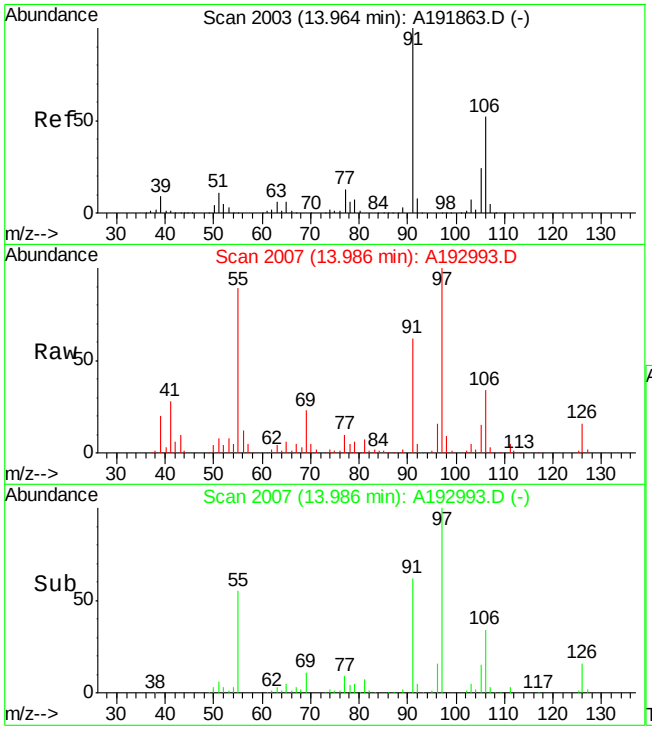


#94
ethylbenzene
Concen: 24.21 ug/L
RT: 13.86 min Scan# 1983
Delta R.T. 0.02 min
Lab File: A192993.D
Acq: 25 Mar 2013 3:15 pm

Tgt Ion: 91 Resp: 171235

Ion	Ratio	Lower	Upper
91	100		
106	30.7	1.9	61.9
77	10.2	0.0	38.4

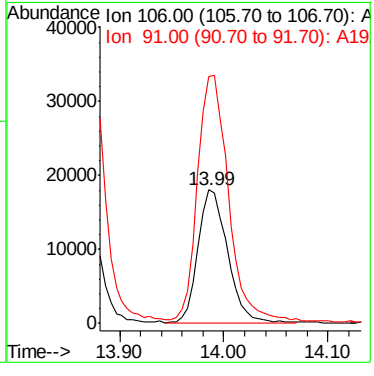


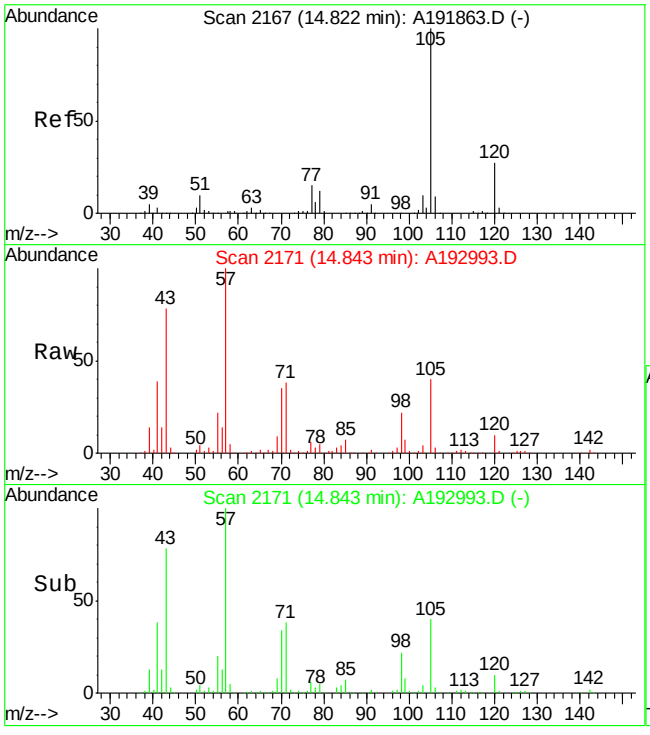


#95
m,p-xylene
Concen: 12.84 ug/L
RT: 13.99 min Scan# 2007
Delta R.T. 0.02 min
Lab File: A192993.D
Acq: 25 Mar 2013 3:15 pm

Tgt Ion:106 Resp: 36084

Ion	Ratio	Lower	Upper
106	100		
91	181.9	164.0	224.0

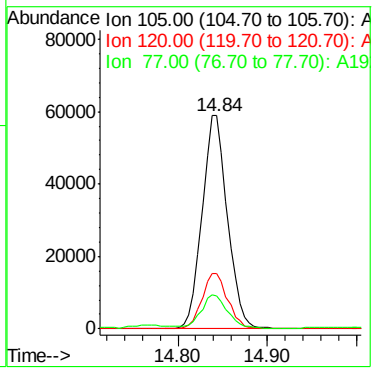


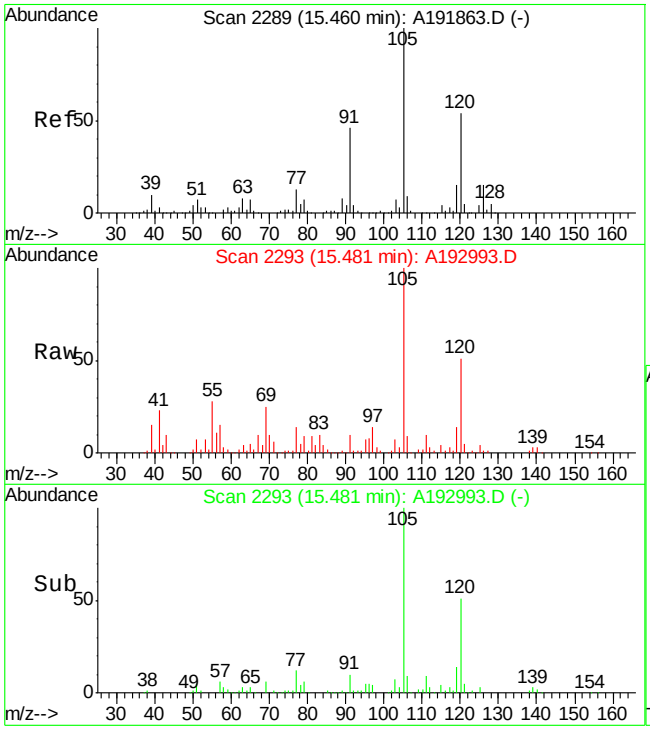


#100
isopropylbenzene
Concen: 16.75 ug/L
RT: 14.84 min Scan# 2171
Delta R.T. 0.02 min
Lab File: A192993.D
Acq: 25 Mar 2013 3:15 pm

Tgt Ion:105 Resp: 116239

Ion	Ratio	Lower	Upper
105	100		
120	25.8	0.0	56.9
77	15.0	0.0	44.9

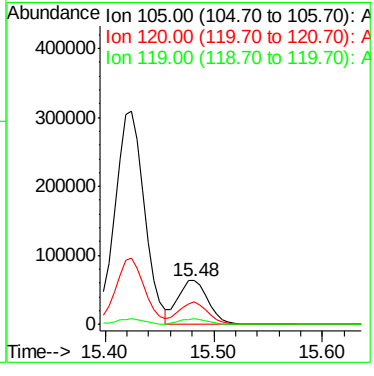


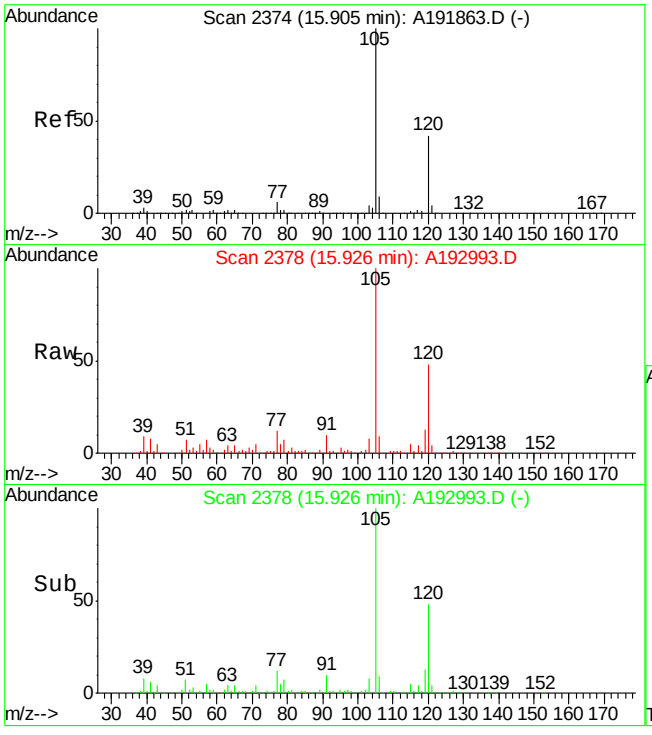


#111
1,3,5-trimethylbenzene
Concen: 19.90 ug/L
RT: 15.48 min Scan# 2293
Delta R.T. 0.02 min
Lab File: A192993.D
Acq: 25 Mar 2013 3:15 pm

Tgt Ion:105 Resp: 122575

Ion	Ratio	Lower	Upper
105	100		
120	51.6	21.5	81.5
119	13.8	0.0	43.3

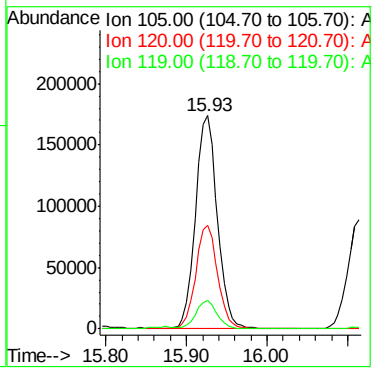




#114
1,2,4-trimethylbenzene
Concen: 51.37 ug/L
RT: 15.93 min Scan# 2378
Delta R.T. 0.02 min
Lab File: A192993.D
Acq: 25 Mar 2013 3:15 pm

Tgt Ion:105 Resp: 325554

Ion	Ratio	Lower	Upper
105	100		
120	48.3	17.0	77.0
119	13.2	0.0	43.0



7.1.9

7

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A192998.D Vial: 100
Acq On : 25 Mar 2013 5:45 pm Operator: Oksanat
Sample : jb31583-9 Inst : MSA
Misc : MS45128,VA7271,6.6,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 26 11:59 2013 Quant Results File: MA7222.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration
DataAcq Meth : MA7222

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.04	65	82592	500.00	ug/L	0.02
5) pentafluorobenzene	9.37	168	211134	50.00	ug/L	0.02
54) 1,4-difluorobenzene	10.32	114	285496	50.00	ug/L	0.02
85) chlorobenzene-d5	13.76	117	260401	50.00	ug/L	0.02
99) 1,4-dichlorobenzene-d4	16.39	152	134221	50.00	ug/L	0.02

System Monitoring Compounds

47) dibromofluoromethane (s)	9.40	113	79664	50.71	ug/L	0.02
Spiked Amount 50.000	Range 81 - 121		Recovery = 101.42%			
48) 1,2-dichloroethane-d4 (s)	9.84	65	79410	45.24	ug/L	0.02
Spiked Amount 50.000	Range 74 - 127		Recovery = 90.48%			
77) toluene-d8 (s)	12.07	98	281654	51.95	ug/L	0.02
Spiked Amount 50.000	Range 80 - 122		Recovery = 103.90%			
102) 4-bromofluorobenzene (s)	15.07	95	102669	53.88	ug/L	0.02
Spiked Amount 50.000	Range 78 - 116		Recovery = 107.76%			

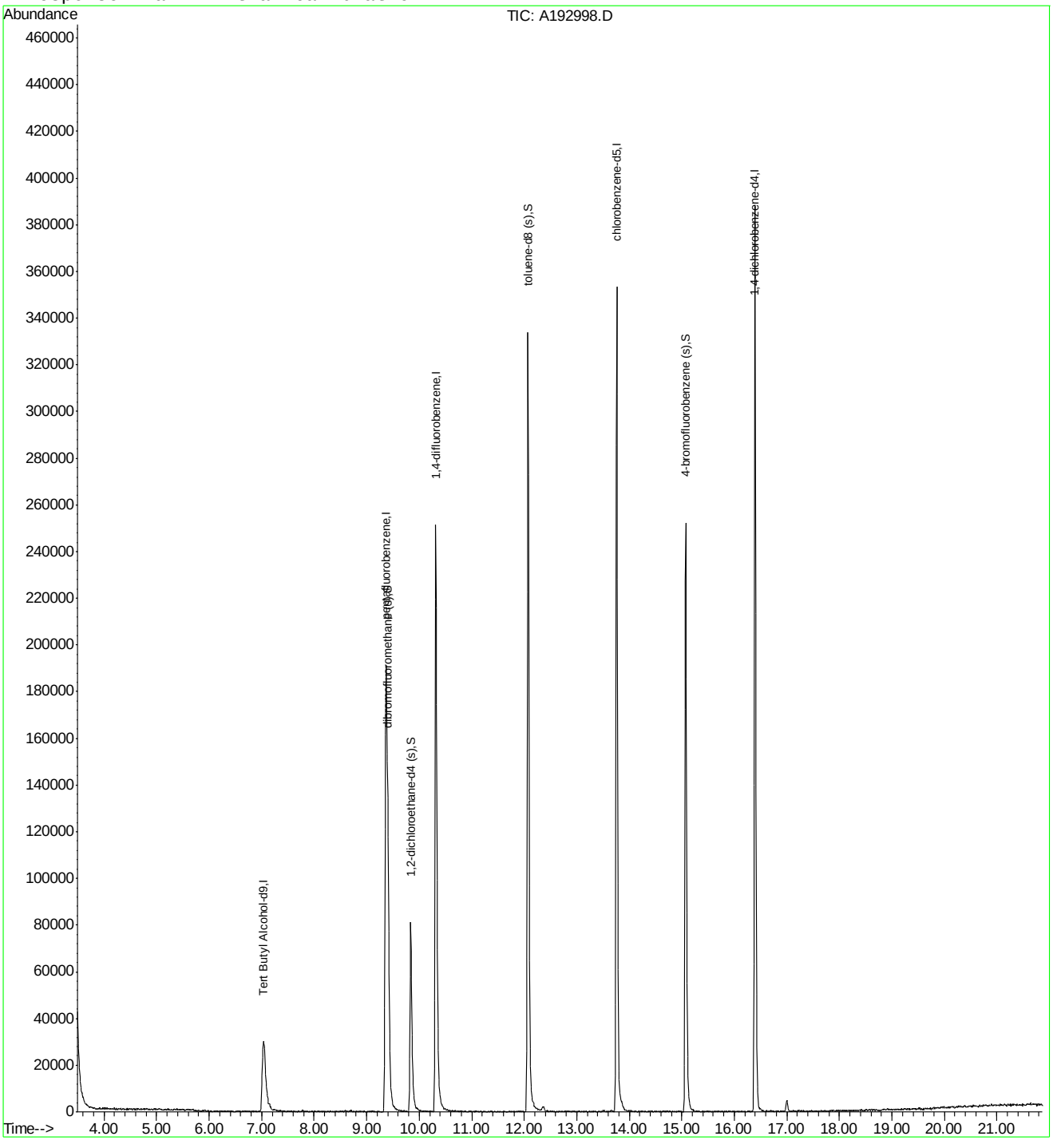
Target Compounds Qvalue

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A192998.D Vial: 100
Acq On : 25 Mar 2013 5:45 pm Operator: Oksanat
Sample : jb31583-9 Inst : MSA
Misc : MS45128,VA7271,6.6,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 26 11:59 2013 Quant Results File: MA7222.RES

Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A192996.D Vial: 100
Acq On : 25 Mar 2013 4:44 pm Operator: Oksanat
Sample : jb31583-10 Inst : MSA
Misc : MS45128,VA7271,7.1,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 25 17:15 2013 Quant Results File: MA7222.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration
DataAcq Meth : MA7222

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.04	65	69978	500.00	ug/L	0.02
5) pentafluorobenzene	9.37	168	197457	50.00	ug/L	0.01
54) 1,4-difluorobenzene	10.32	114	269455	50.00	ug/L	0.02
85) chlorobenzene-d5	13.76	117	254062	50.00	ug/L	0.02
99) 1,4-dichlorobenzene-d4	16.39	152	131295	50.00	ug/L	0.01

System Monitoring Compounds

47) dibromofluoromethane (s)	9.40	113	75864	51.63	ug/L	0.01
Spiked Amount 50.000	Range 81 - 121		Recovery = 103.26%			
48) 1,2-dichloroethane-d4 (s)	9.84	65	75224	45.82	ug/L	0.01
Spiked Amount 50.000	Range 74 - 127		Recovery = 91.64%			
77) toluene-d8 (s)	12.08	98	274494	53.65	ug/L	0.02
Spiked Amount 50.000	Range 80 - 122		Recovery = 107.30%			
102) 4-bromofluorobenzene (s)	15.07	95	101543	54.48	ug/L	0.02
Spiked Amount 50.000	Range 78 - 116		Recovery = 108.96%			

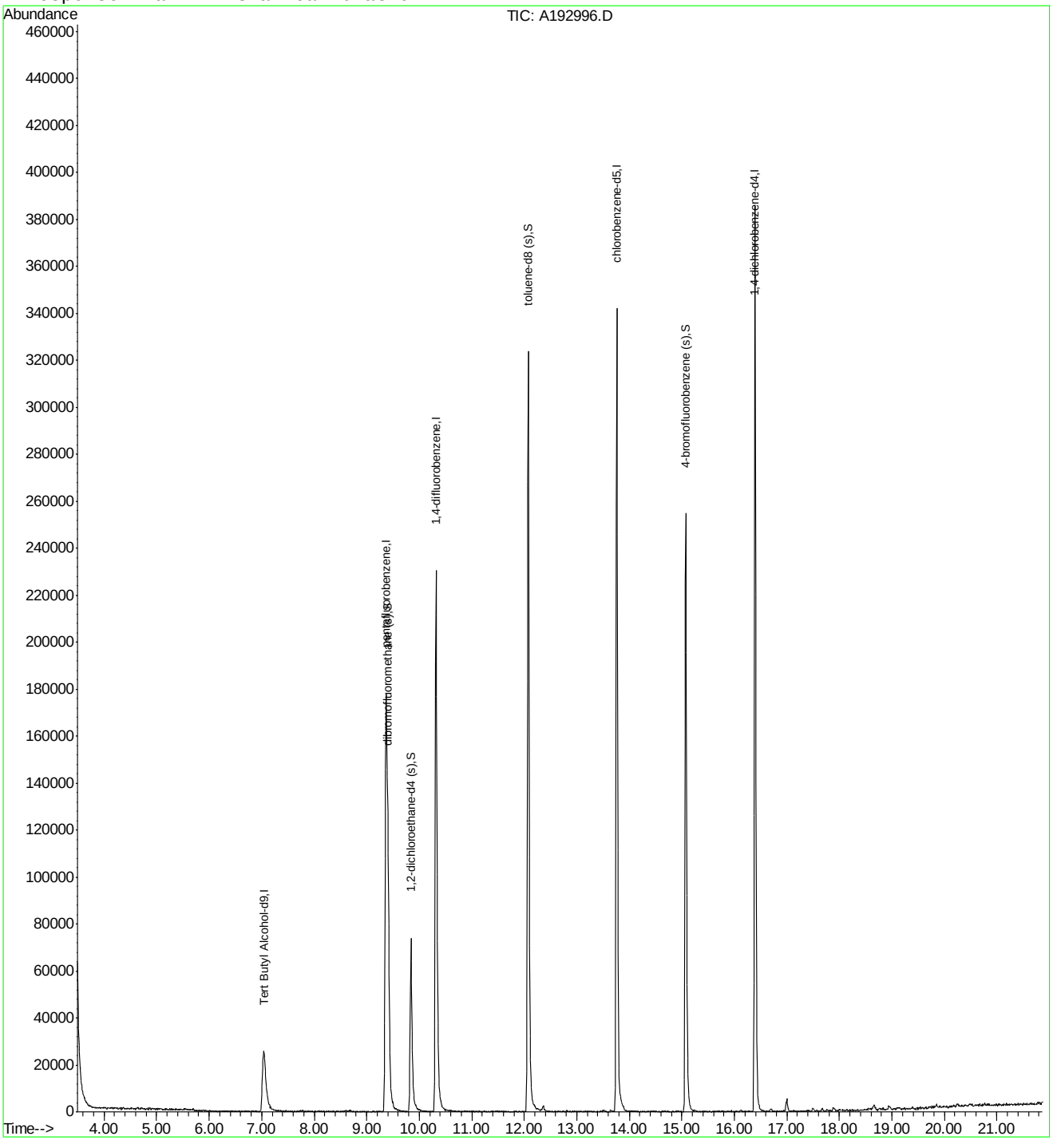
Target Compounds Qvalue

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A192996.D Vial: 100
Acq On : 25 Mar 2013 4:44 pm Operator: Oksanat
Sample : jb31583-10 Inst : MSA
Misc : MS45128,VA7271,7.1,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 25 17:15 2013 Quant Results File: MA7222.RES

Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A192997.D Vial: 100
Acq On : 25 Mar 2013 5:15 pm Operator: Oksanat
Sample : jb31583-11 Inst : MSA
Misc : MS45128,VA7271,6.9,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 26 11:59 2013 Quant Results File: MA7222.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration
DataAcq Meth : MA7222

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.04	65	83713	500.00	ug/L	0.01
5) pentafluorobenzene	9.37	168	206363	50.00	ug/L	0.01
54) 1,4-difluorobenzene	10.31	114	281461	50.00	ug/L	0.01
85) chlorobenzene-d5	13.76	117	269206	50.00	ug/L	0.02
99) 1,4-dichlorobenzene-d4	16.40	152	134930	50.00	ug/L	0.02

System Monitoring Compounds

47) dibromofluoromethane (s)	9.40	113	80743	52.58	ug/L	0.01
Spiked Amount 50.000	Range 81 - 121		Recovery = 105.16%			
48) 1,2-dichloroethane-d4 (s)	9.84	65	80117	46.70	ug/L	0.02
Spiked Amount 50.000	Range 74 - 127		Recovery = 93.40%			
77) toluene-d8 (s)	12.08	98	295150	55.22	ug/L	0.02
Spiked Amount 50.000	Range 80 - 122		Recovery = 110.44%			
102) 4-bromofluorobenzene (s)	15.07	95	106805	55.76	ug/L	0.01
Spiked Amount 50.000	Range 78 - 116		Recovery = 111.52%			

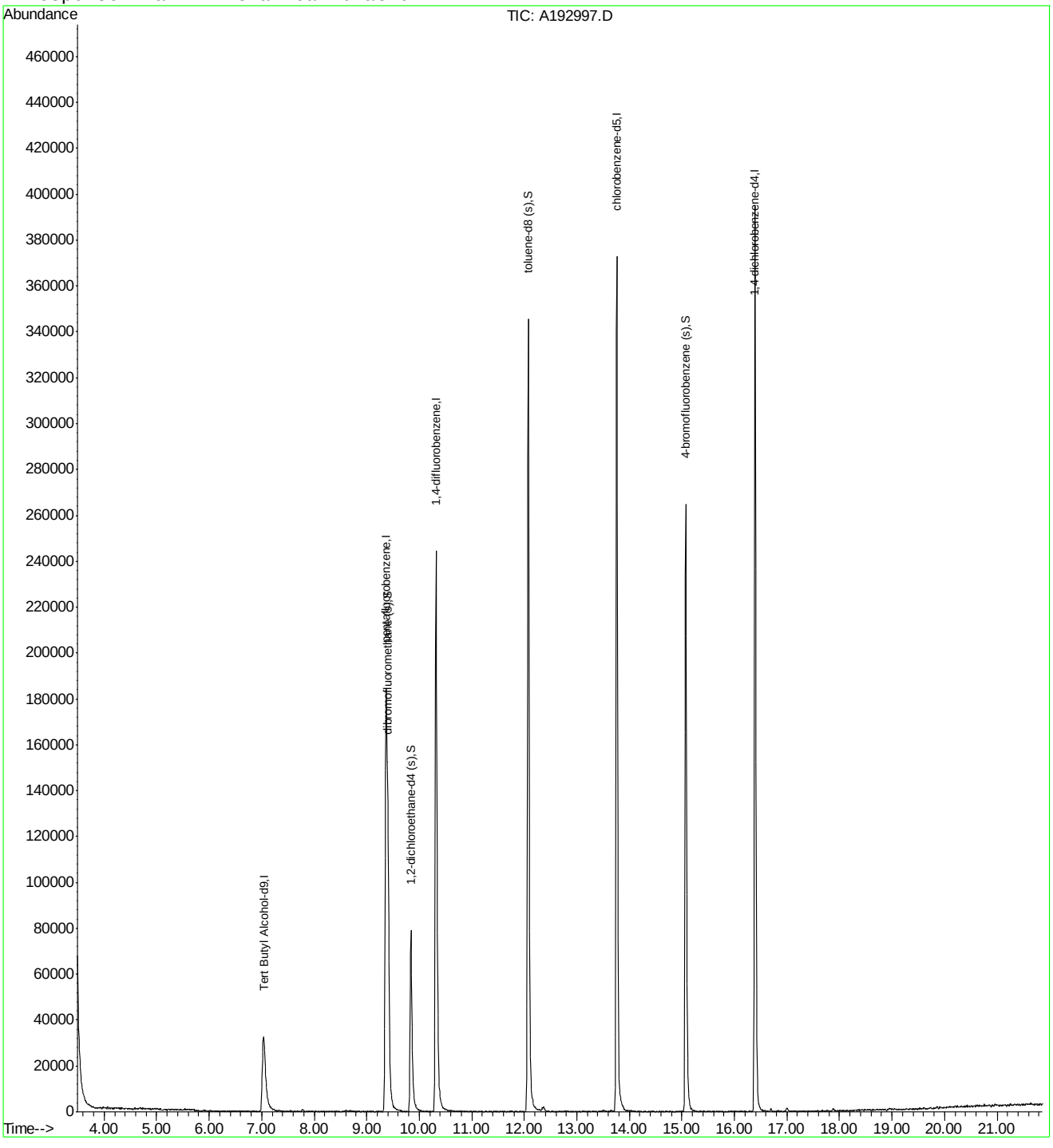
Target Compounds Qvalue

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A192997.D Vial: 100
Acq On : 25 Mar 2013 5:15 pm Operator: Oksanat
Sample : jb31583-11 Inst : MSA
Misc : MS45128,VA7271,6.9,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 26 11:59 2013 Quant Results File: MA7222.RES

Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A192988.D Vial: 100
Acq On : 25 Mar 2013 12:32 pm Operator: Oksanat
Sample : jb31583-12 Inst : MSA
Misc : MS45128,VA7271,4.8,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 25 17:06 2013 Quant Results File: MA7222.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration
DataAcq Meth : MA7222

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.03	65	63032	500.00	ug/L	0.01
5) pentafluorobenzene	9.37	168	184996	50.00	ug/L	0.02
54) 1,4-difluorobenzene	10.31	114	248928	50.00	ug/L	0.02
85) chlorobenzene-d5	13.76	117	226586	50.00	ug/L	0.02
99) 1,4-dichlorobenzene-d4	16.39	152	114951	50.00	ug/L	0.02

System Monitoring Compounds						
47) dibromofluoromethane (s)	9.40	113	69863	50.75	ug/L	0.01
Spiked Amount 50.000	Range 81 - 121		Recovery = 101.50%			
48) 1,2-dichloroethane-d4 (s)	9.83	65	70700	45.97	ug/L	0.01
Spiked Amount 50.000	Range 74 - 127		Recovery = 91.94%			
77) toluene-d8 (s)	12.07	98	249820	52.85	ug/L	0.02
Spiked Amount 50.000	Range 80 - 122		Recovery = 105.70%			
102) 4-bromofluorobenzene (s)	15.07	95	89816	55.04	ug/L	0.02
Spiked Amount 50.000	Range 78 - 116		Recovery = 110.08%			

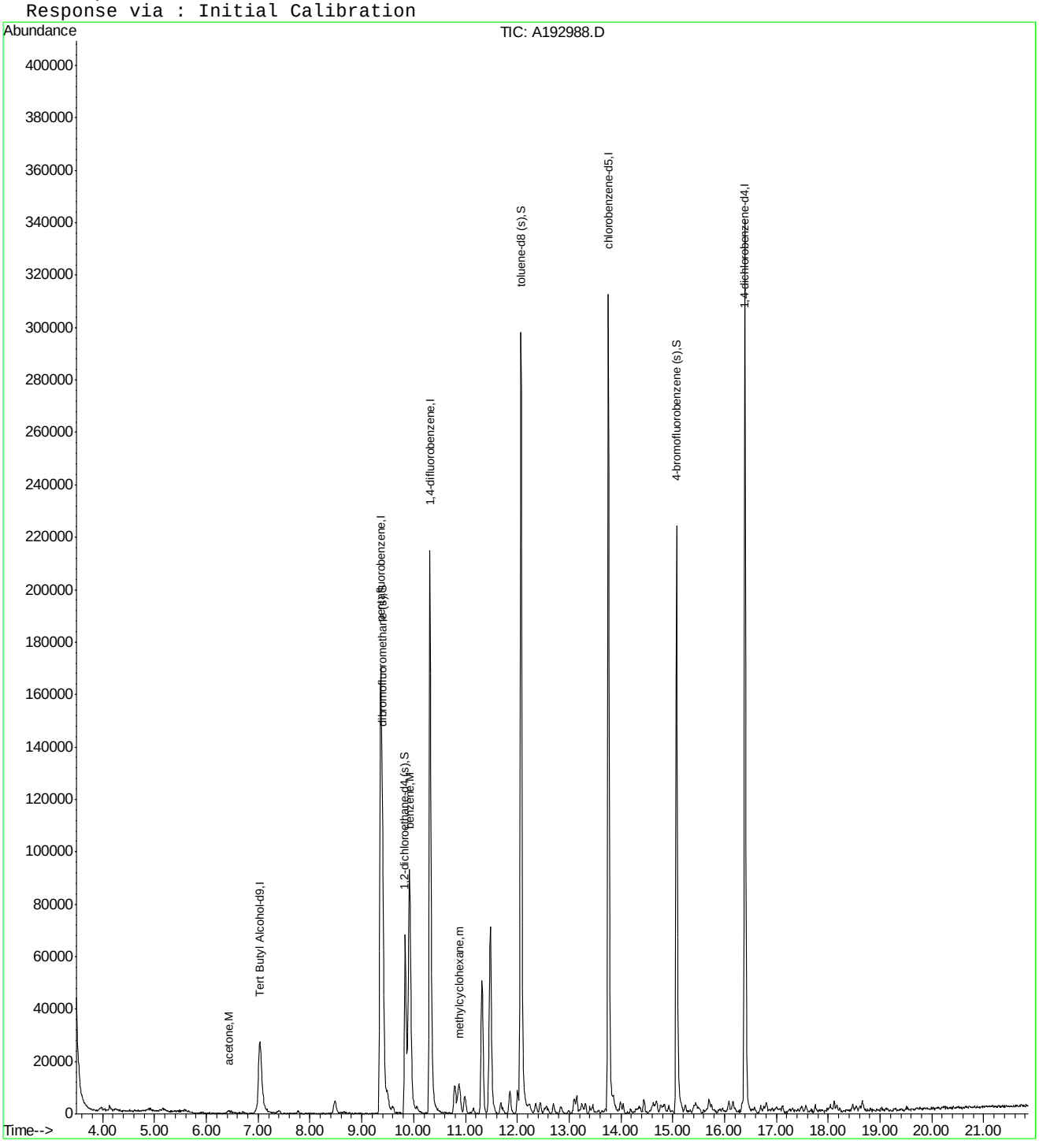
Target Compounds						Qvalue
20) acetone	6.43	43	4709	15.52	ug/L	75
61) benzene	9.93	78	1851	0.37	ug/L	84
70) methylcyclohexane	10.89	83	3420	1.92	ug/L #	94

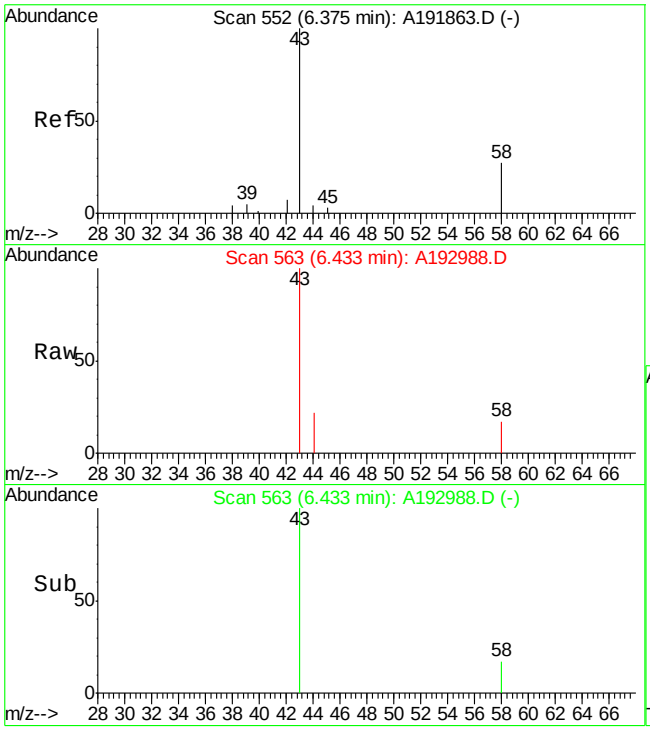
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A192988.D Vial: 100
Acq On : 25 Mar 2013 12:32 pm Operator: Oksanat
Sample : jb31583-12 Inst : MSA
Misc : MS45128,VA7271,4.8,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 25 17:06 2013 Quant Results File: MA7222.RES

Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration

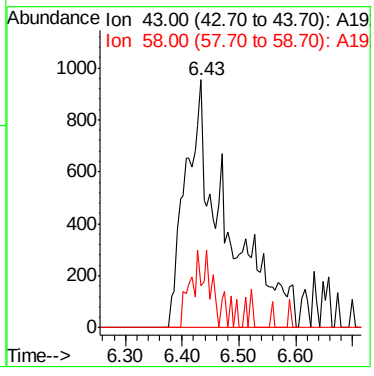


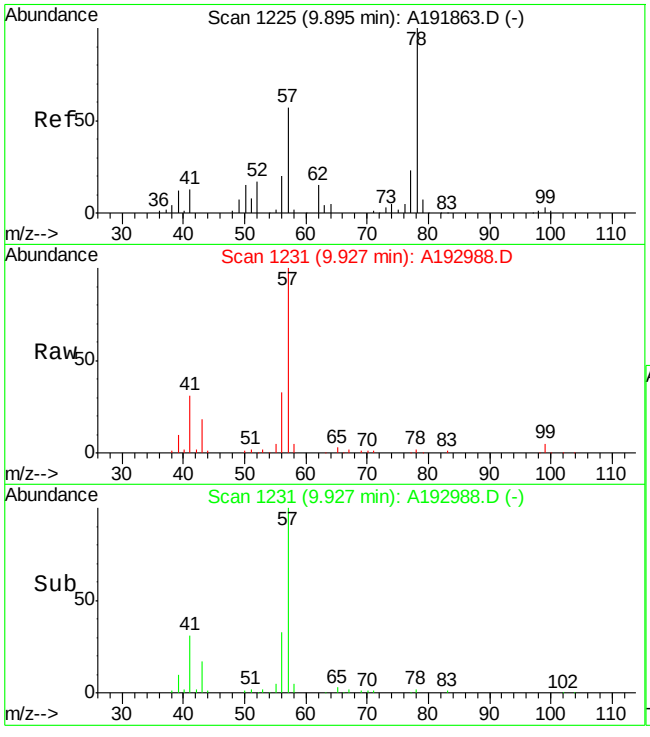


#20
acetone
Concen: 15.52 ug/L
RT: 6.43 min Scan# 563
Delta R.T. 0.06 min
Lab File: A192988.D
Acq: 25 Mar 2013 12:32 pm

Tgt Ion: 43 Resp: 4709

Ion	Ratio	Lower	Upper
43	100		
58	9.3	0.0	50.9

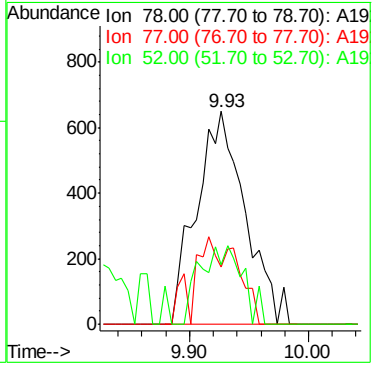


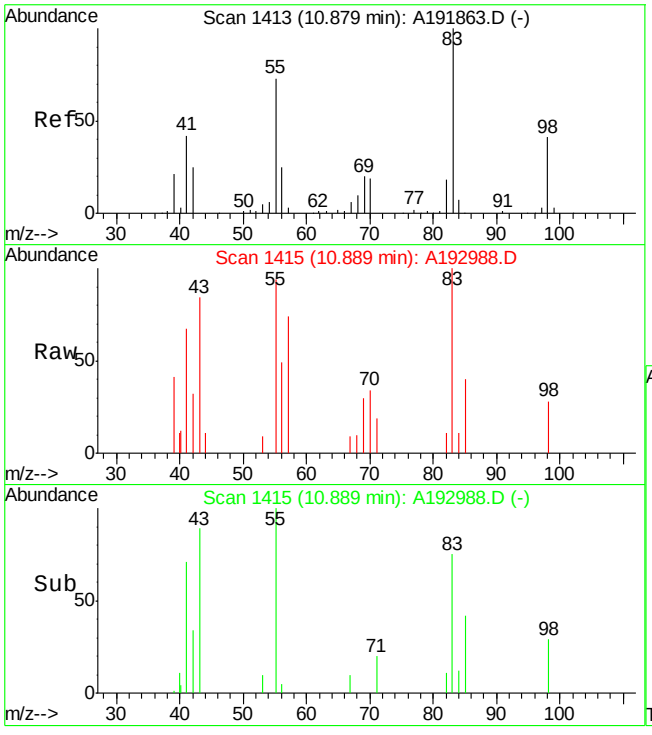


#61
benzene
Concen: 0.37 ug/L
RT: 9.93 min Scan# 1231
Delta R.T. 0.03 min
Lab File: A192988.D
Acq: 25 Mar 2013 12:32 pm

Tgt Ion: 78 Resp: 1851

Ion	Ratio	Lower	Upper
78	100		
77	27.1	0.0	52.8
52	28.2	0.0	47.0

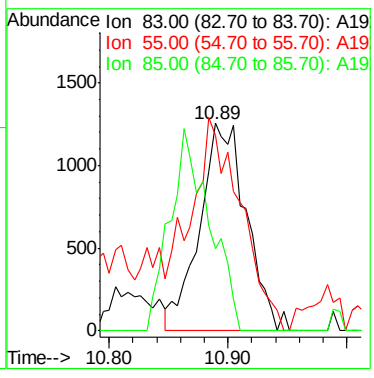




#70
methylcyclohexane
Concen: 1.92 ug/L
RT: 10.89 min Scan# 1415
Delta R.T. 0.01 min
Lab File: A192988.D
Acq: 25 Mar 2013 12:32 pm

Tgt Ion: 83 Resp: 3420

Ion	Ratio	Lower	Upper
83	100		
55	112.3	89.5	149.5
85	83.0	0.0	30.1#



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E201371.D
Acq On : 27 Mar 2013 7:29 am
Operator : OksanaT
Sample : jb31583-13
Misc : MS45128,VE8853,6.3,,100,10,1
ALS Vial : 42 Sample Multiplier: 1

Quant Time: Mar 27 17:51:42 2013
Quant Method : C:\MSDCHEM\1\METHODS\ME8801.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Feb 25 11:43:47 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.676	65	71297	500.00	ug/L	0.00
5) pentafluorobenzene	9.904	168	188870	50.00	ug/L	0.00
66) 1,4-difluorobenzene	10.819	114	236358	50.00	ug/L	0.00
97) chlorobenzene-d5	14.151	117	208920	50.00	ug/L	0.00
114) 1,4-dichlorobenzene-d4	16.724	152	132978	50.00	ug/L	0.00

System Monitoring Compounds						
60) dibromofluoromethane (s)	9.946	113	75552	42.63	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 85.26%			
61) 1,2-dichloroethane-d4 (s)	10.364	65	81333	41.74	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 83.48%			
89) toluene-d8 (s)	12.524	98	301882	50.44	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 100.88%			
116) 4-bromofluorobenzene (s)	15.422	95	114706	47.06	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 94.12%			

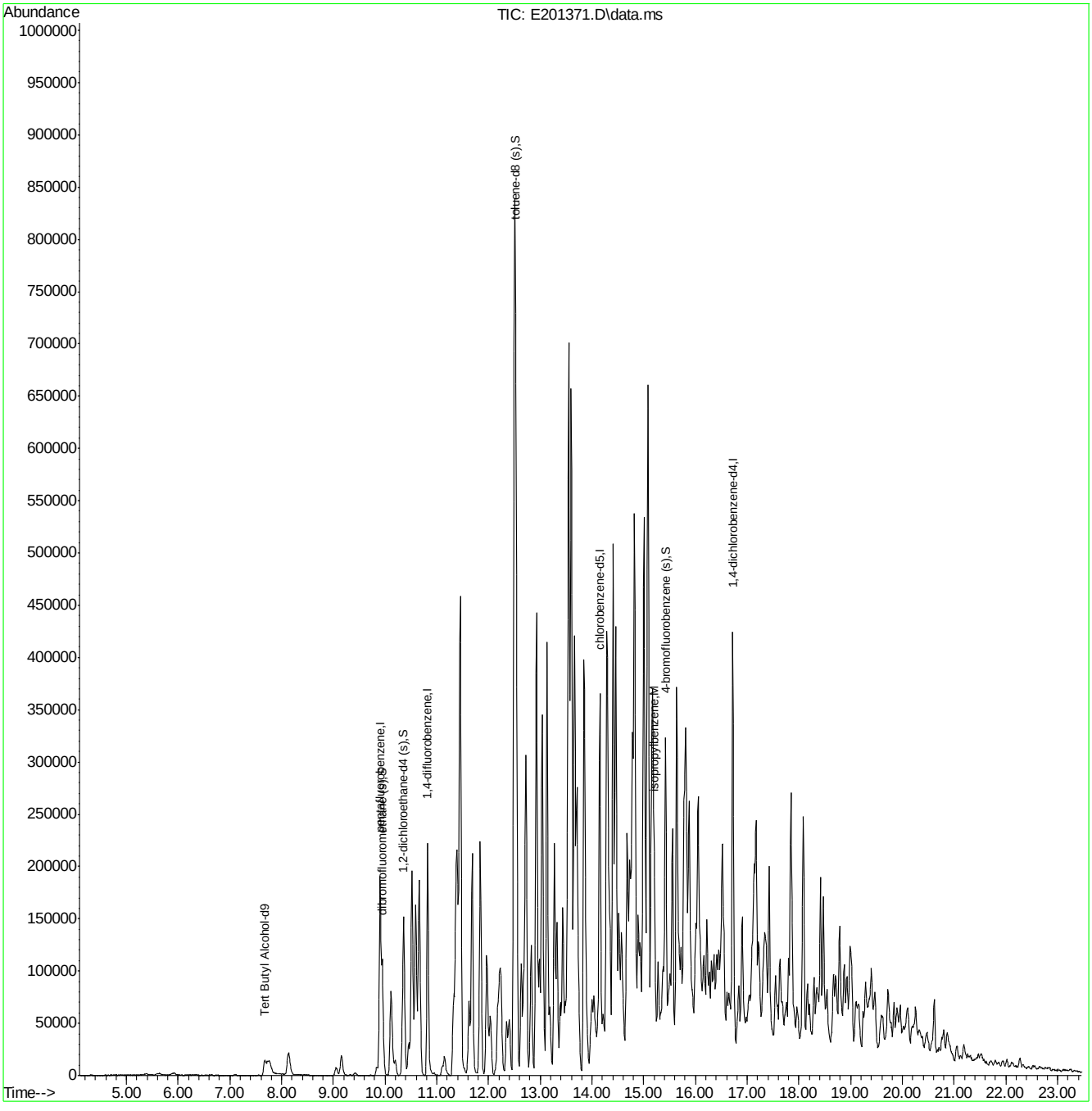
Target Compounds						Qvalue
115) isopropylbenzene	15.202	105	38881	4.55	ug/L	99

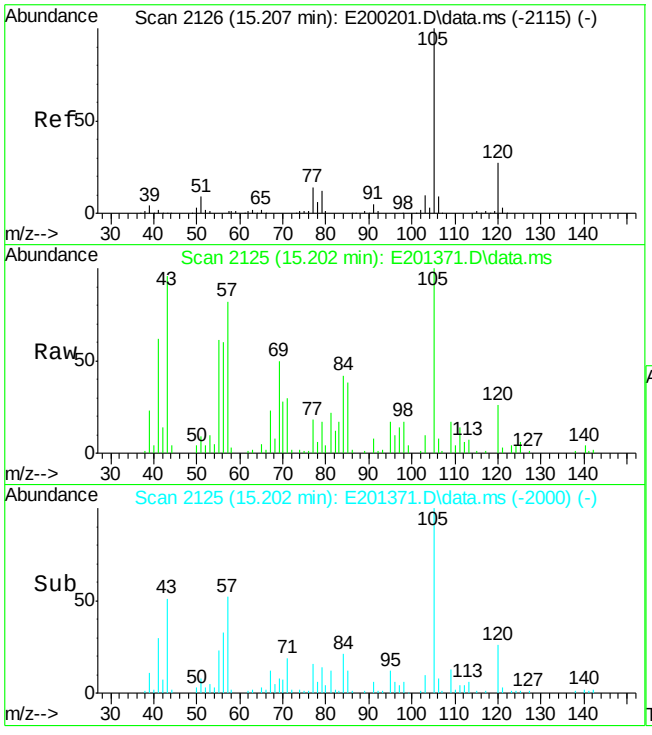
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E201371.D
Acq On : 27 Mar 2013 7:29 am
Operator : OksanaT
Sample : jb31583-13
Misc : MS45128,VE8853,6.3,,100,10,1
ALS Vial : 42 Sample Multiplier: 1

Quant Time: Mar 27 17:51:42 2013
Quant Method : C:\MSDCHEM\1\METHODS\ME8801.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Feb 25 11:43:47 2013
Response via : Initial Calibration

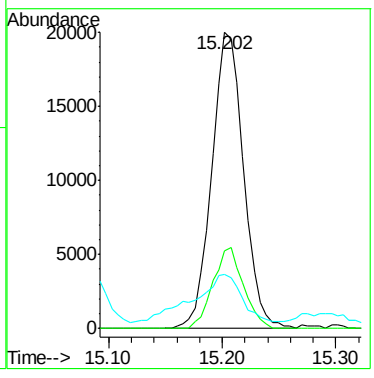




#115
isopropylbenzene
Concen: 4.55 ug/L
RT: 15.202 min Scan# 2125
Delta R.T. -0.005 min
Lab File: E201371.D
Acq: 27 Mar 2013 7:29 am

Tgt Ion:105 Resp: 38881

Ion	Ratio	Lower	Upper
105	100		
120	26.2	0.0	57.0
77	14.6	0.0	44.4



7.1.14

7

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A192989.D Vial: 100
Acq On : 25 Mar 2013 1:02 pm Operator: Oksanat
Sample : jb31583-14 Inst : MSA
Misc : MS45128,VA7271,4.5,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 25 17:09 2013 Quant Results File: MA7222.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration
DataAcq Meth : MA7222

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.03	65	67534	500.00	ug/L	0.01
5) pentafluorobenzene	9.37	168	191903	50.00	ug/L	0.02
54) 1,4-difluorobenzene	10.31	114	264704	50.00	ug/L	0.02
85) chlorobenzene-d5	13.76	117	255564	50.00	ug/L	0.02
99) 1,4-dichlorobenzene-d4	16.39	152	141163	50.00	ug/L	0.02

System Monitoring Compounds						
47) dibromofluoromethane (s)	9.40	113	72290	50.63	ug/L	0.02
Spiked Amount 50.000	Range 81 - 121		Recovery = 101.26%			
48) 1,2-dichloroethane-d4 (s)	9.84	65	95784	60.04	ug/L	0.02
Spiked Amount 50.000	Range 74 - 127		Recovery = 120.08%			
77) toluene-d8 (s)	12.07	98	312693	62.21	ug/L	0.02
Spiked Amount 50.000	Range 80 - 122		Recovery = 124.42%#			
102) 4-bromofluorobenzene (s)	15.07	95	93430	46.62	ug/L	0.02
Spiked Amount 50.000	Range 78 - 116		Recovery = 93.24%			

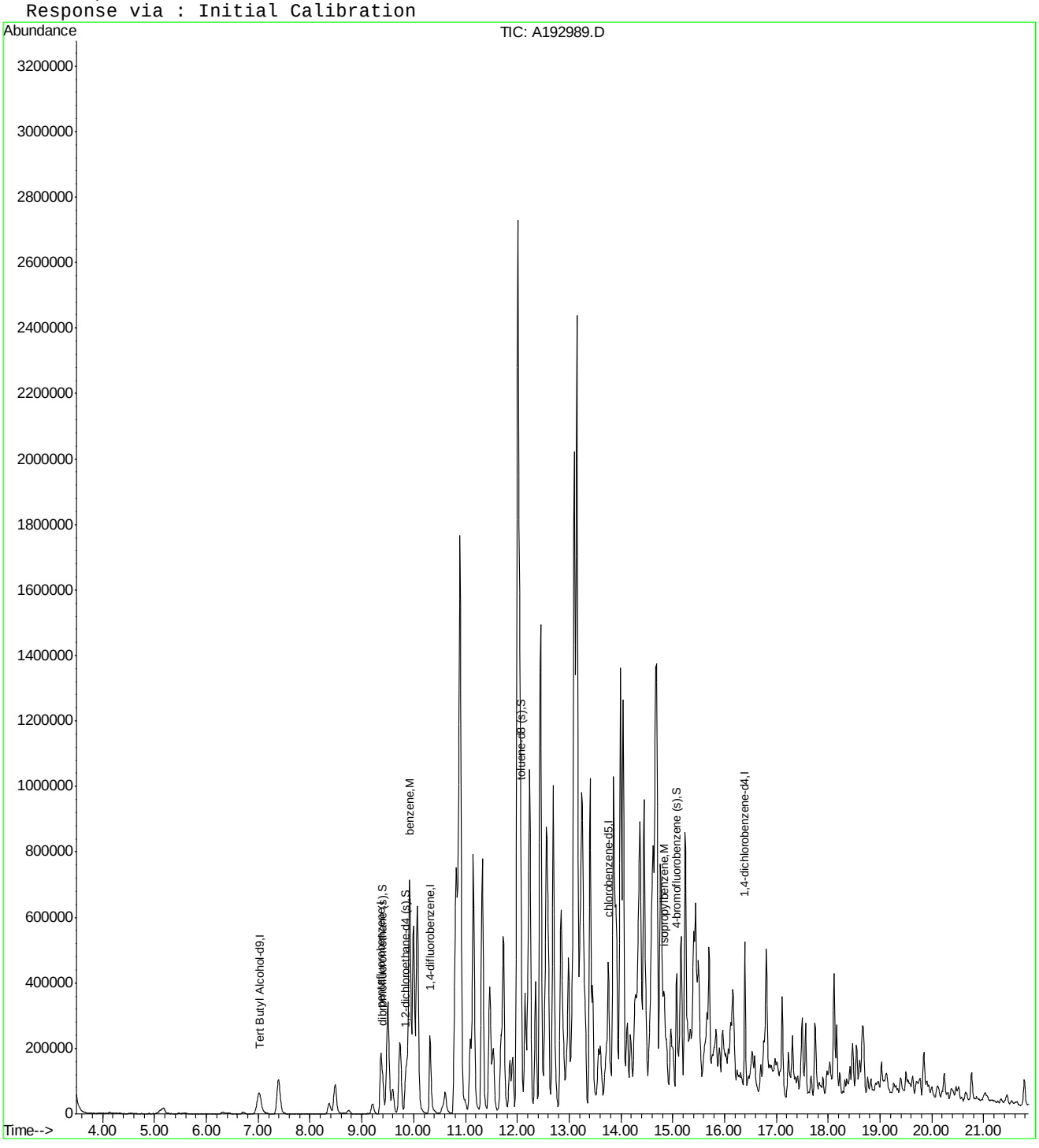
Target Compounds						Qvalue
61) benzene	9.92	78	2460	0.47	ug/L #	1
100) isopropylbenzene	14.84	105	91819	14.62	ug/L	98

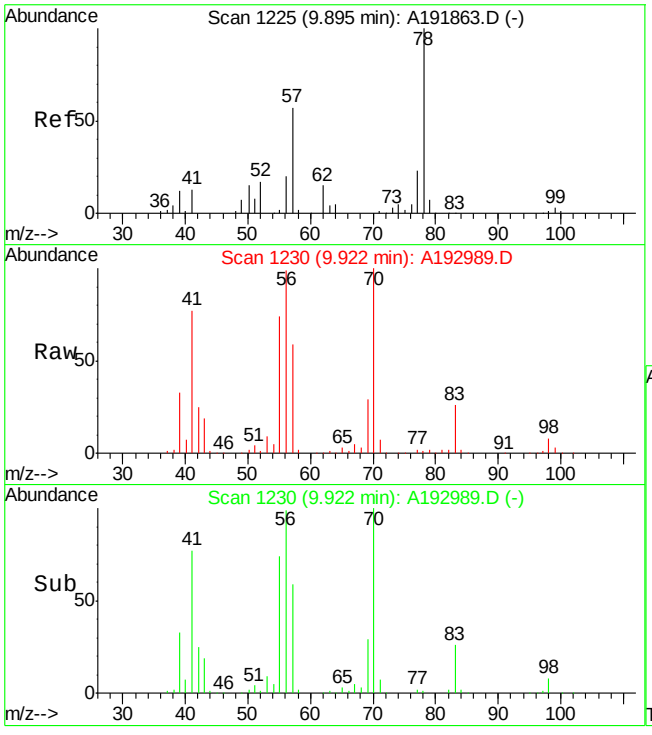
(#) = qualifier out of range (m) = manual integration
A192989.D MA7222.M Mon Mar 25 17:09:09 2013 MSA

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A192989.D Vial: 100
Acq On : 25 Mar 2013 1:02 pm Operator: Oksanat
Sample : jb31583-14 Inst : MSA
Misc : MS45128,VA7271,4.5,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 25 17:09 2013 Quant Results File: MA7222.RES

Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration

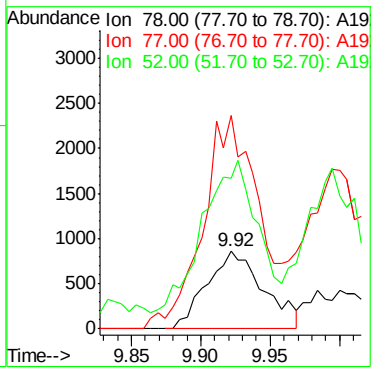


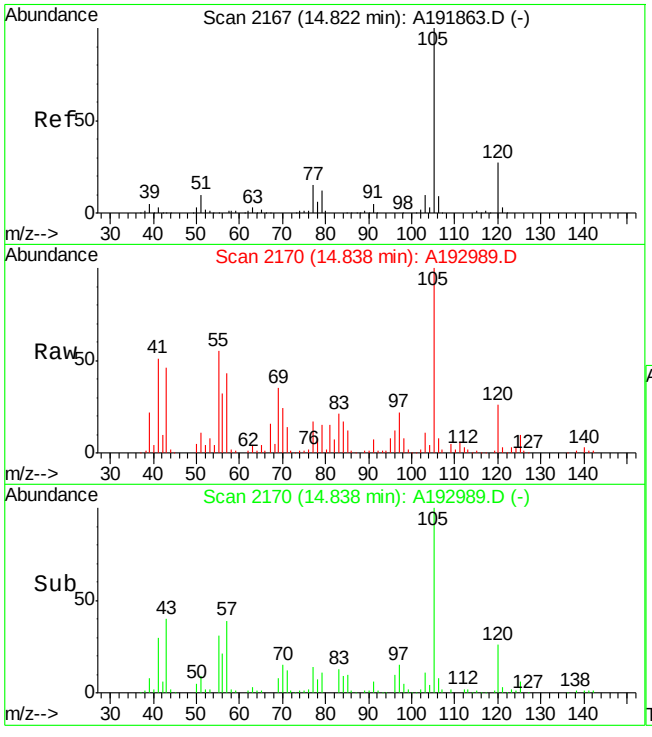


#61
benzene
Concen: 0.47 ug/L
RT: 9.92 min Scan# 1230
Delta R.T. 0.03 min
Lab File: A192989.D
Acq: 25 Mar 2013 1:02 pm

Tgt Ion: 78 Resp: 2460

Ion	Ratio	Lower	Upper
78	100		
77	259.8	0.0	52.8#
52	162.8	0.0	47.0#

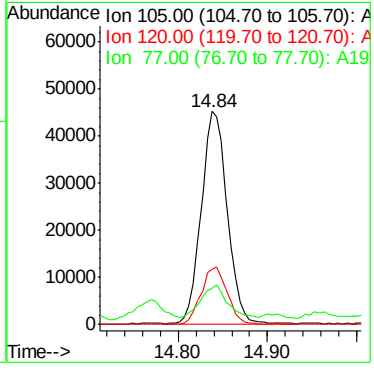




#100
isopropylbenzene
Concen: 14.62 ug/L
RT: 14.84 min Scan# 2170
Delta R.T. 0.02 min
Lab File: A192989.D
Acq: 25 Mar 2013 1:02 pm

Tgt Ion:105 Resp: 91819

Ion	Ratio	Lower	Upper
105	100		
120	25.8	0.0	56.9
77	14.6	0.0	44.9



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A193117.D Vial: 100
Acq On : 28 Mar 2013 11:05 am Operator: Oksanat
Sample : jb31583-15 Inst : MSA
Misc : MS45128,VA7277,5.5,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 28 15:05 2013 Quant Results File: MA7222.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration
DataAcq Meth : MA7222

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.01	65	72764	500.00	ug/L	-0.02
5) pentafluorobenzene	9.34	168	187775	50.00	ug/L	-0.01
54) 1,4-difluorobenzene	10.29	114	262083	50.00	ug/L	0.00
85) chlorobenzene-d5	13.73	117	256191	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	16.36	152	145846	50.00	ug/L	-0.01

System Monitoring Compounds						
47) dibromofluoromethane (s)	9.37	113	74335	53.20	ug/L	-0.02
Spiked Amount 50.000	Range 81 - 121		Recovery = 106.40%			
48) 1,2-dichloroethane-d4 (s)	9.81	65	76278	48.86	ug/L	-0.01
Spiked Amount 50.000	Range 74 - 127		Recovery = 97.72%			
77) toluene-d8 (s)	12.04	98	270062	54.26	ug/L	-0.01
Spiked Amount 50.000	Range 80 - 122		Recovery = 108.52%			
102) 4-bromofluorobenzene (s)	15.05	95	104801	50.62	ug/L	-0.01
Spiked Amount 50.000	Range 78 - 116		Recovery = 101.24%			

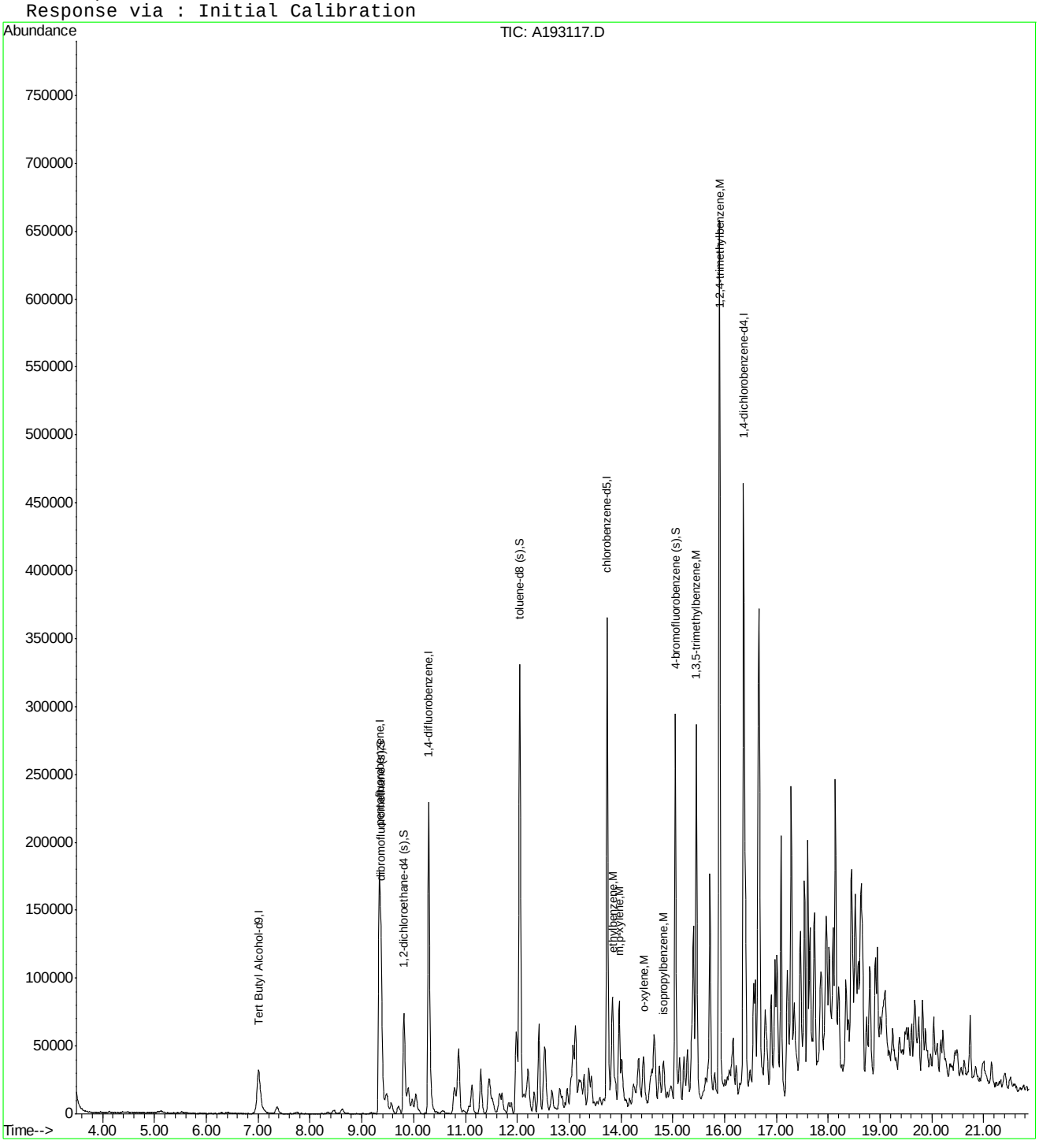
Target Compounds						Qvalue
94) ethylbenzene	13.84	91	36816	5.49	ug/L	96
95) m,p-xylene	13.96	106	14643	5.50	ug/L	97
96) o-xylene	14.43	106	4134	1.51	ug/L	93
100) isopropylbenzene	14.82	105	15798	2.43	ug/L	94
111) 1,3,5-trimethylbenzene	15.45	105	170056	29.53	ug/L	99
114) 1,2,4-trimethylbenzene	15.90	105	424278	71.60	ug/L	99

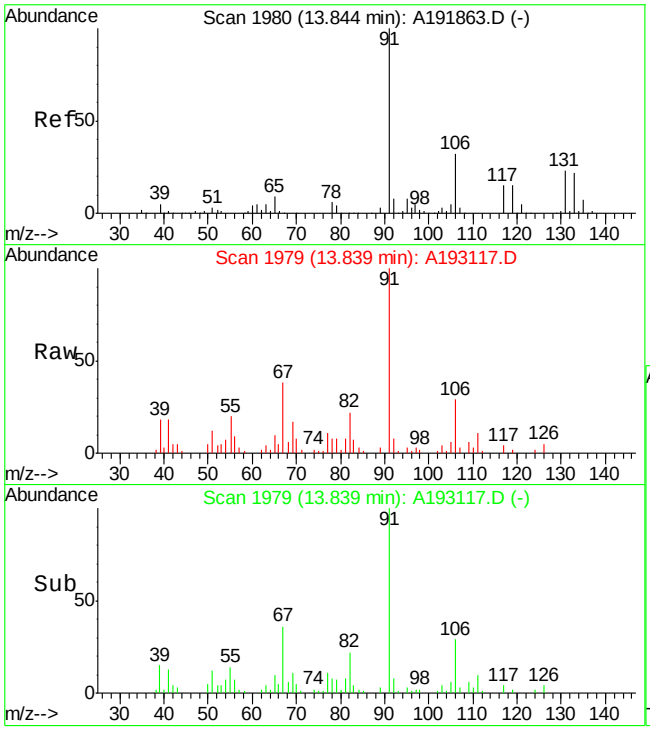
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A193117.D Vial: 100
Acq On : 28 Mar 2013 11:05 am Operator: Oksanat
Sample : jb31583-15 Inst : MSA
Misc : MS45128,VA7277,5.5,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 28 15:05 2013 Quant Results File: MA7222.RES

Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration

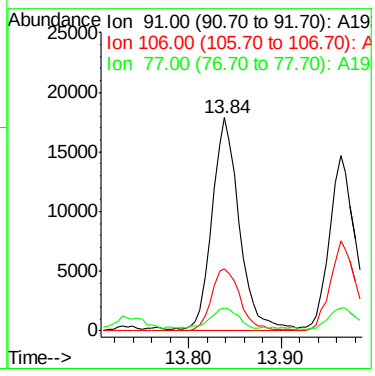


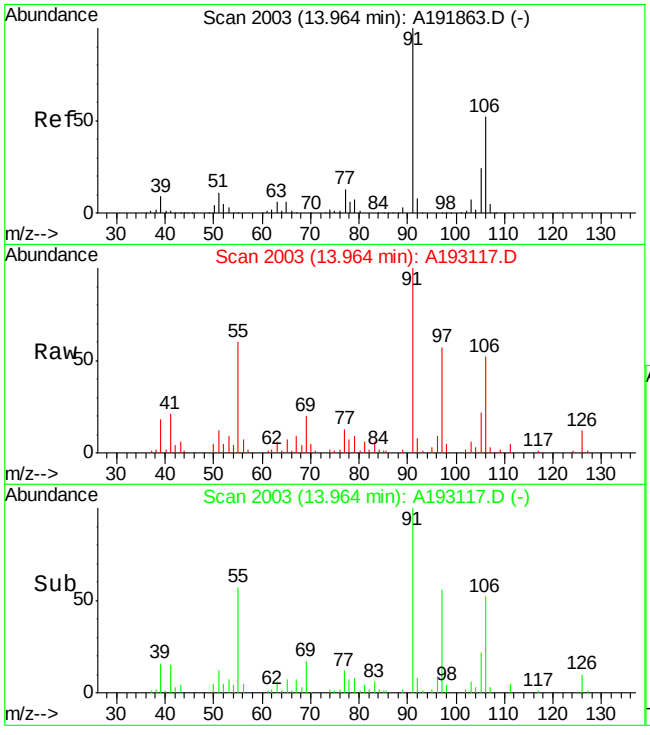


#94
ethylbenzene
Concen: 5.49 ug/L
RT: 13.84 min Scan# 1979
Delta R.T. -0.01 min
Lab File: A193117.D
Acq: 28 Mar 2013 11:05 am

Tgt Ion: 91 Resp: 36816

Ion	Ratio	Lower	Upper
91	100		
106	29.5	1.9	61.9
77	9.4	0.0	38.4

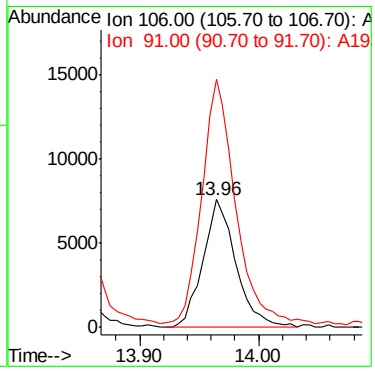


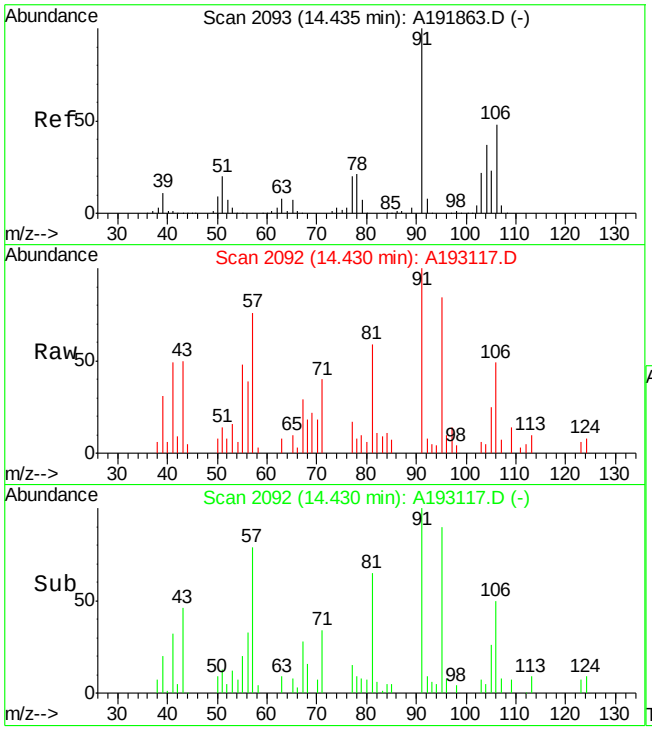


#95
m,p-xylene
Concen: 5.50 ug/L
RT: 13.96 min Scan# 2003
Delta R.T. -0.00 min
Lab File: A193117.D
Acq: 28 Mar 2013 11:05 am

Tgt Ion:106 Resp: 14643

Ion	Ratio	Lower	Upper
106	100		
91	190.2	164.0	224.0

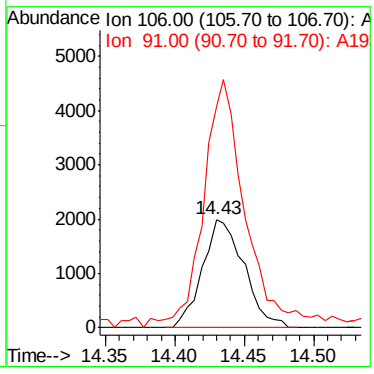


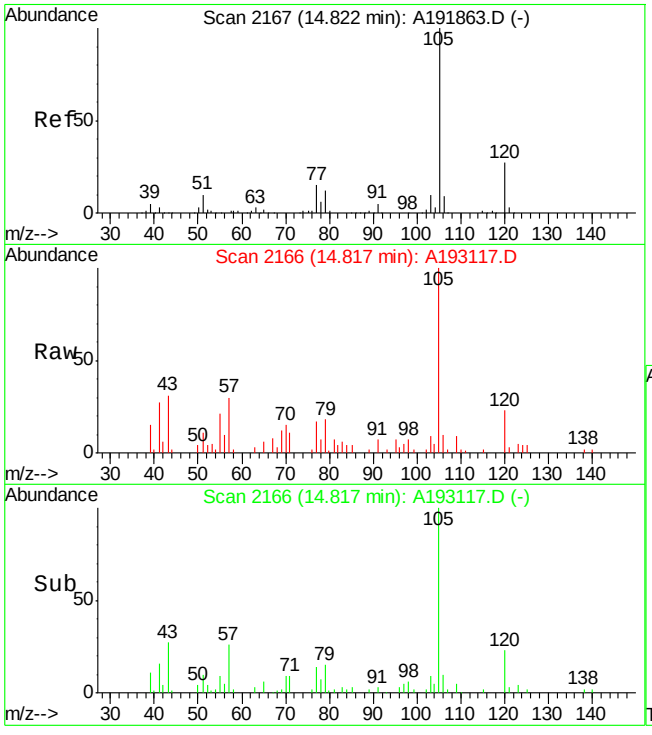


#96
o-xylene
Concen: 1.51 ug/L
RT: 14.43 min Scan# 2092
Delta R.T. -0.01 min
Lab File: A193117.D
Acq: 28 Mar 2013 11:05 am

Tgt Ion:106 Resp: 4134

Ion	Ratio	Lower	Upper
106	100		
91	196.2	176.4	236.4

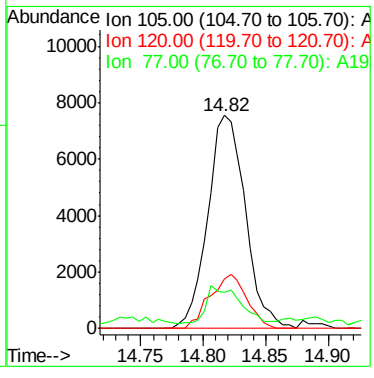


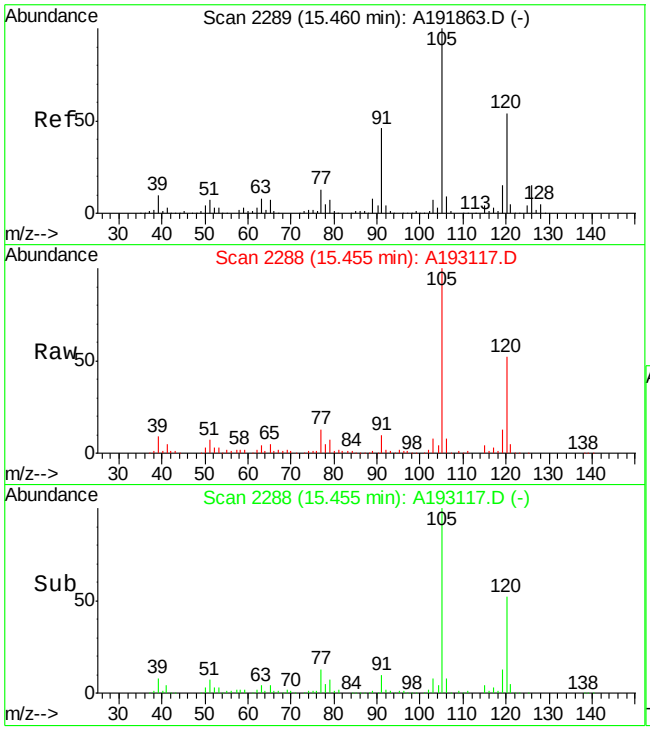


#100
isopropylbenzene
Concen: 2.43 ug/L
RT: 14.82 min Scan# 2166
Delta R.T. -0.01 min
Lab File: A193117.D
Acq: 28 Mar 2013 11:05 am

Tgt Ion:105 Resp: 15798

Ion	Ratio	Lower	Upper
105	100		
120	23.2	0.0	56.9
77	13.8	0.0	44.9

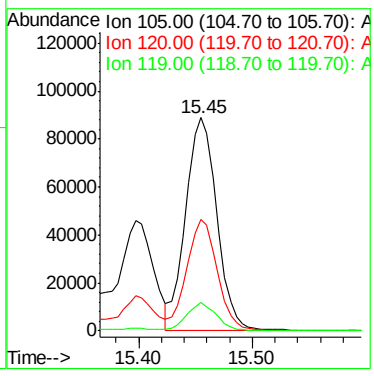


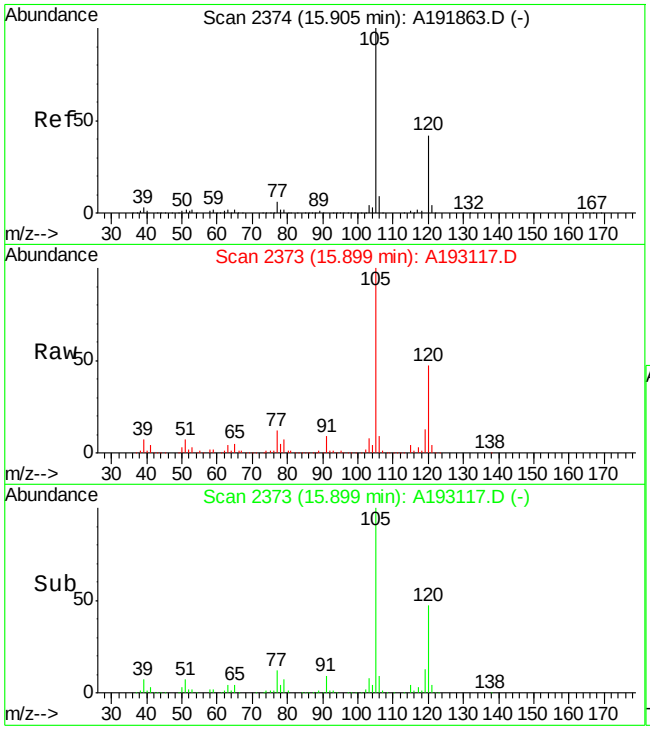


#111
1,3,5-trimethylbenzene
Concen: 29.53 ug/L
RT: 15.45 min Scan# 2288
Delta R.T. -0.01 min
Lab File: A193117.D
Acq: 28 Mar 2013 11:05 am

Tgt Ion:105 Resp: 170056

Ion	Ratio	Lower	Upper
105	100		
120	52.3	21.5	81.5
119	13.3	0.0	43.3

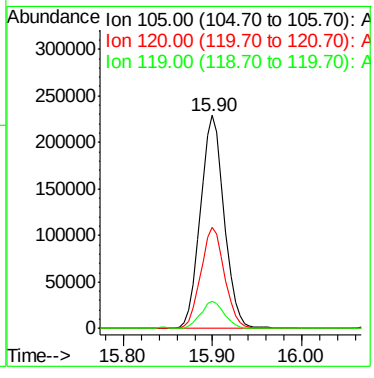




#114
1,2,4-trimethylbenzene
Concen: 71.60 ug/L
RT: 15.90 min Scan# 2373
Delta R.T. -0.01 min
Lab File: A193117.D
Acq: 28 Mar 2013 11:05 am

Tgt Ion:105 Resp: 424278

Ion	Ratio	Lower	Upper
105	100		
120	47.3	17.0	77.0
119	12.6	0.0	43.0



Quantitation Report (QT/LSC Reviewed)

Data File : C:\HPCHEM\1\DATA\A192937.D Vial: 100
Acq On : 23 Mar 2013 10:18 am Operator: Oksanat
Sample : mb Inst : MSA
Misc : MS45034,VA7269,5,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 23 11:01 2013 Quant Results File: MA7222.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration
DataAcq Meth : MA7222

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.01	65	75407	500.00	ug/L	-0.02
5) pentafluorobenzene	9.35	168	180844	50.00	ug/L	0.00
54) 1,4-difluorobenzene	10.29	114	246074	50.00	ug/L	0.00
85) chlorobenzene-d5	13.74	117	235678	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	16.37	152	124288	50.00	ug/L	0.00

System Monitoring Compounds

47) dibromofluoromethane (s)	9.38	113	69460	51.62	ug/L	-0.01
Spiked Amount 50.000	Range 81 - 121		Recovery = 103.24%			
48) 1,2-dichloroethane-d4 (s)	9.82	65	72199	48.02	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 96.04%			
77) toluene-d8 (s)	12.05	98	246767	52.81	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 105.62%			
102) 4-bromofluorobenzene (s)	15.05	95	94927	53.80	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 107.60%			

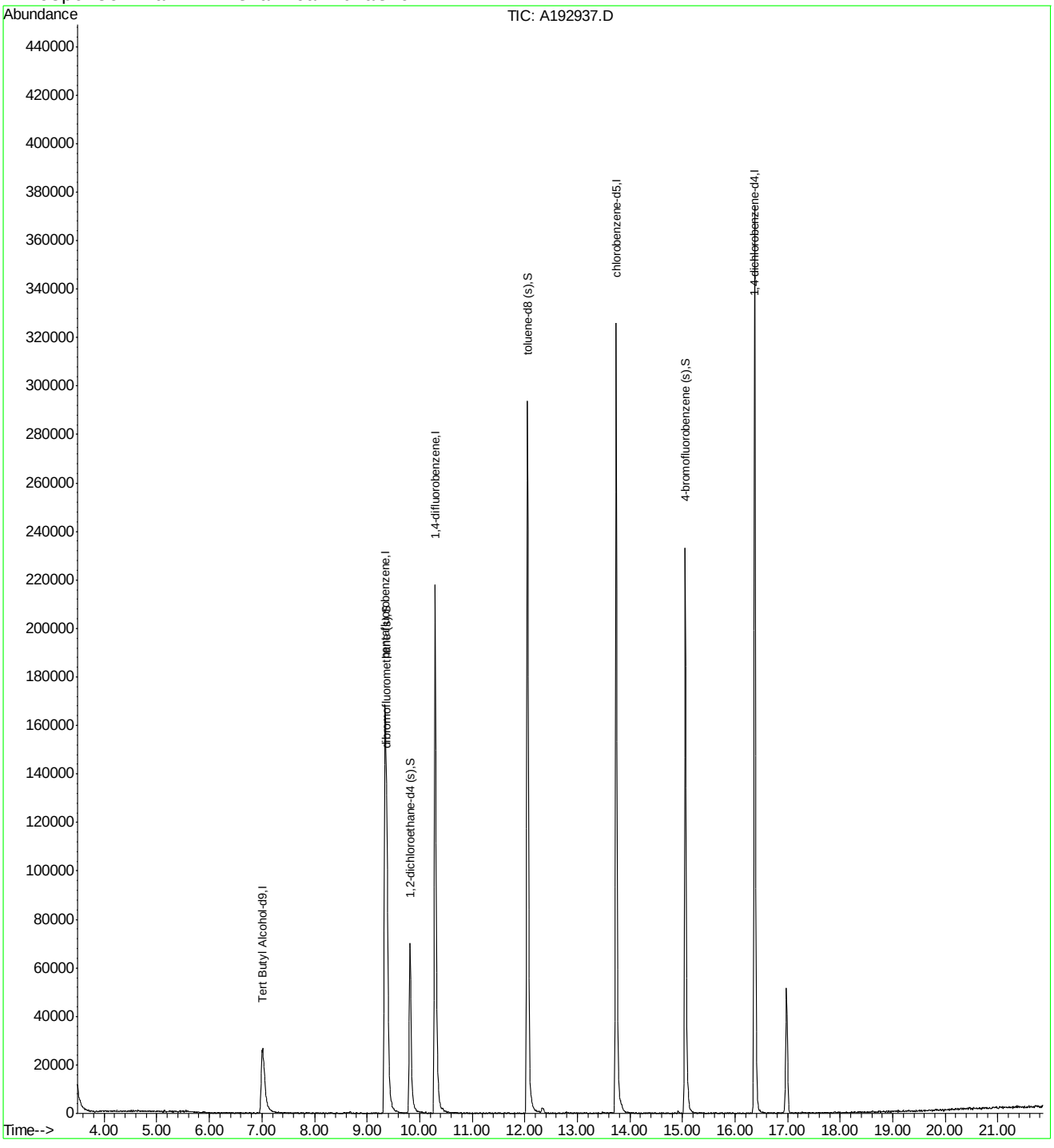
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
A192937.D MA7222.M Sat Mar 23 11:02:18 2013 MSA

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A192937.D Vial: 100
Acq On : 23 Mar 2013 10:18 am Operator: Oksanat
Sample : mb Inst : MSA
Misc : MS45034,VA7269,5,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 23 11:01 2013 Quant Results File: MA7222.RES

Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration



A192937.D MA7222.M Sat Mar 23 11:02:18 2013 MSA Page 2

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A192984.D Vial: 100
Acq On : 25 Mar 2013 10:09 am Operator: Oksanat
Sample : mb Inst : MSA
Misc : MS45128,VA7271,5,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 25 17:01 2013 Quant Results File: MA7222.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration
DataAcq Meth : MA7222

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.02	65	69547	500.00	ug/L	0.00
5) pentafluorobenzene	9.36	168	171088	50.00	ug/L	0.00
54) 1,4-difluorobenzene	10.31	114	234635	50.00	ug/L	0.01
85) chlorobenzene-d5	13.75	117	217445	50.00	ug/L	0.01
99) 1,4-dichlorobenzene-d4	16.39	152	103547	50.00	ug/L	0.01

System Monitoring Compounds						
47) dibromofluoromethane (s)	9.40	113	69316	54.45	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 108.90%			
48) 1,2-dichloroethane-d4 (s)	9.83	65	71146	50.02	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 100.04%			
77) toluene-d8 (s)	12.07	98	237492	53.30	ug/L	0.01
Spiked Amount 50.000	Range 80 - 122		Recovery = 106.60%			
102) 4-bromofluorobenzene (s)	15.07	95	85586	58.22	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 116.44%#			

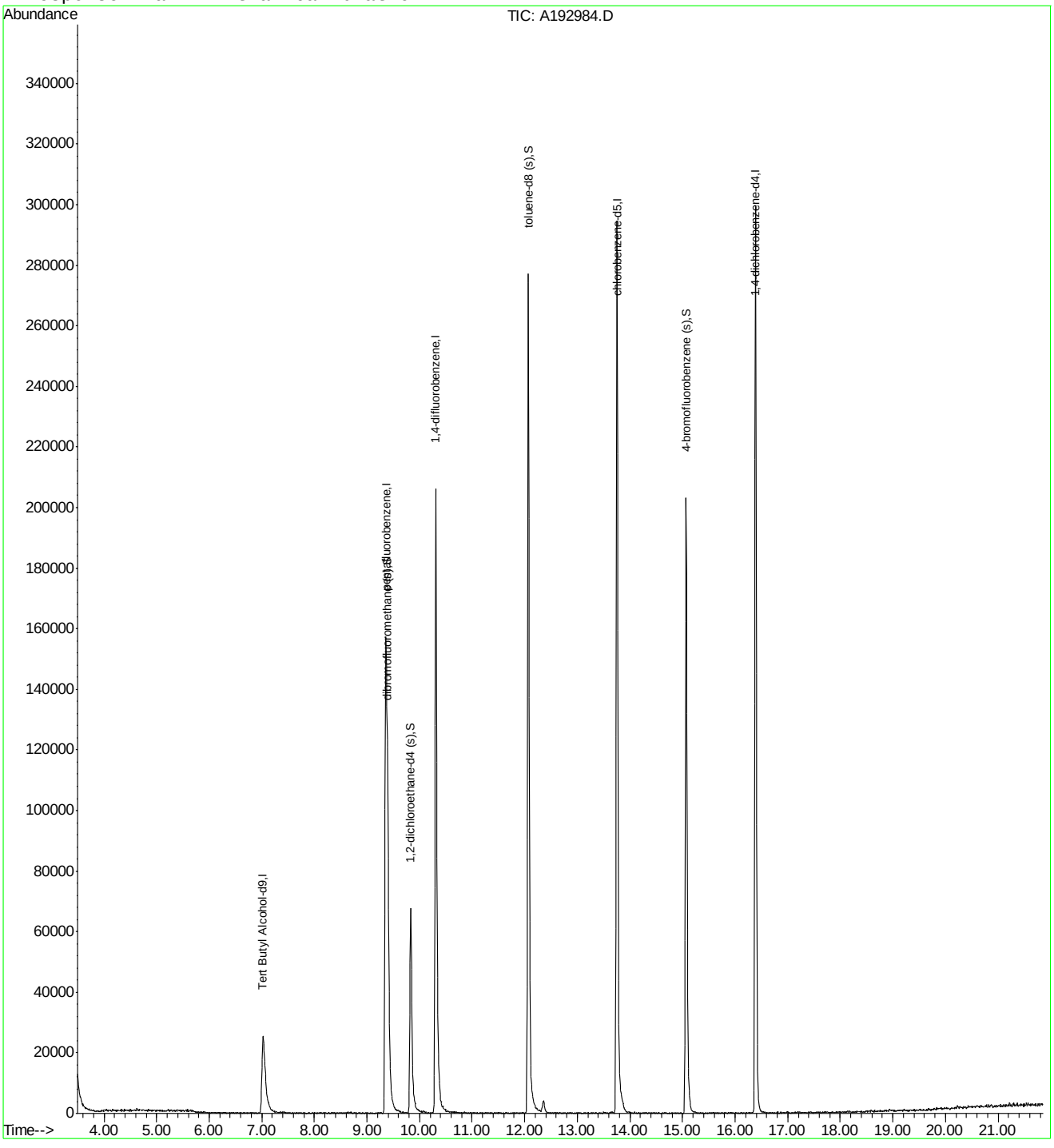
Target Compounds	Qvalue

(#) = qualifier out of range (m) = manual integration
A192984.D MA7222.M Mon Mar 25 17:01:55 2013 MSA

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A192984.D Vial: 100
Acq On : 25 Mar 2013 10:09 am Operator: Oksanat
Sample : mb Inst : MSA
Misc : MS45128,VA7271,5,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 25 17:01 2013 Quant Results File: MA7222.RES

Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration



A192984.D MA7222.M Mon Mar 25 17:01:55 2013 MSA Page 2

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\A193113.D Vial: 100
Acq On : 28 Mar 2013 8:41 am Operator: Oksanat
Sample : mb Inst : MSA
Misc : MS45514,VA7277,5,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 28 15:00 2013 Quant Results File: MA7222.RES

Quant Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration
DataAcq Meth : MA7222

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.00	65	61046	500.00	ug/L	-0.02
5) pentafluorobenzene	9.34	168	166831	50.00	ug/L	-0.01
54) 1,4-difluorobenzene	10.29	114	226949	50.00	ug/L	0.00
85) chlorobenzene-d5	13.73	117	216054	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	16.37	152	101347	50.00	ug/L	0.00

System Monitoring Compounds

47) dibromofluoromethane (s)	9.37	113	66498	53.57	ug/L	-0.01
Spiked Amount 50.000	Range 81 - 121		Recovery = 107.14%			
48) 1,2-dichloroethane-d4 (s)	9.81	65	67651	48.78	ug/L	-0.01
Spiked Amount 50.000	Range 74 - 127		Recovery = 97.56%			
77) toluene-d8 (s)	12.05	98	235693	54.69	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 109.38%			
102) 4-bromofluorobenzene (s)	15.05	95	83315	57.91	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 115.82%			

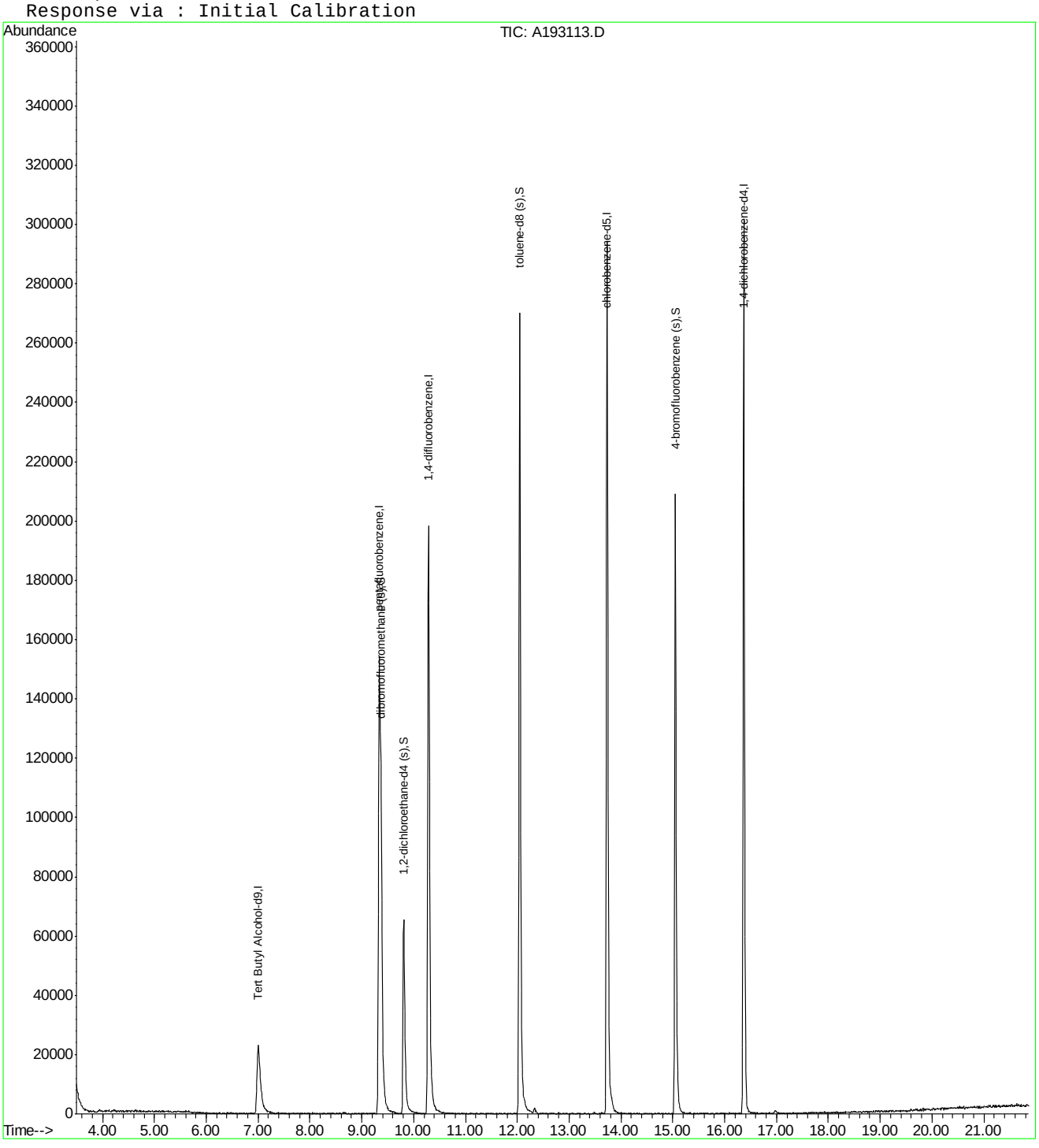
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
A193113.D MA7222.M Thu Mar 28 15:01:01 2013 MSA

Quantitation Report

Data File : C:\HPCHEM\1\DATA\A193113.D Vial: 100
Acq On : 28 Mar 2013 8:41 am Operator: Oksanat
Sample : mb Inst : MSA
Misc : MS45514,VA7277,5,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 28 15:00 2013 Quant Results File: MA7222.RES

Method : C:\HPCHEM\1\METHODS\MA7222.M (RTE Integrator)
Title : SW 846 8260bB ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Feb 21 15:26:34 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E201359.D
Acq On : 27 Mar 2013 1:00 am
Operator : OksanaT
Sample : mb
Misc : MS45375,VE8853,5,,100,5,1
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Mar 27 17:31:58 2013
Quant Method : C:\MSDCHEM\1\METHODS\ME8801.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Feb 25 11:43:47 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.686	65	94784	500.00	ug/L	0.02
5) pentafluorobenzene	9.909	168	183883	50.00	ug/L	0.00
66) 1,4-difluorobenzene	10.824	114	234824	50.00	ug/L	0.00
97) chlorobenzene-d5	14.151	117	219623	50.00	ug/L	0.00
114) 1,4-dichlorobenzene-d4	16.719	152	127161	50.00	ug/L	0.00

System Monitoring Compounds

60) dibromofluoromethane (s)	9.951	113	72058	41.76	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 83.52%			
61) 1,2-dichloroethane-d4 (s)	10.364	65	81534	42.98	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 85.96%			
89) toluene-d8 (s)	12.524	98	281566	47.36	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 94.72%			
116) 4-bromofluorobenzene (s)	15.422	95	106055	45.50	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 91.00%			

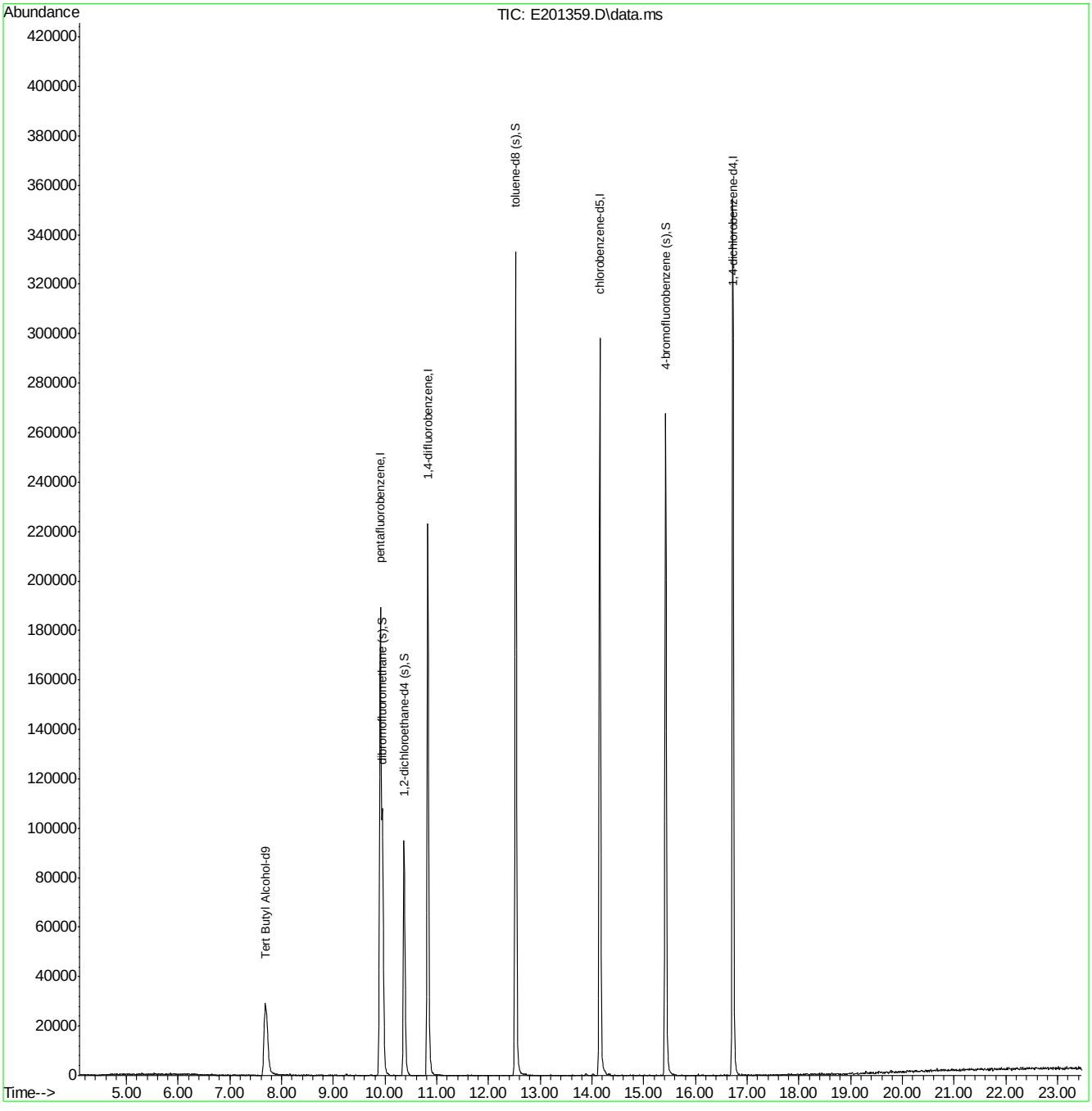
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E201359.D
Acq On : 27 Mar 2013 1:00 am
Operator : OksanaT
Sample : mb
Misc : MS45375,VE8853,5,,100,5,1
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Mar 27 17:31:58 2013
Quant Method : C:\MSDCHEM\1\METHODS\ME8801.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Feb 25 11:43:47 2013
Response via : Initial Calibration



ME8801.M Wed Mar 27 17:32:17 2013 RPT1 Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E201448.D
Acq On : 28 Mar 2013 11:51 pm
Operator : OksanaT
Sample : mb
Misc : MS45249,VE8857,5,,100,5,1
ALS Vial : 31 Sample Multiplier: 1

Quant Time: Mar 29 12:39:02 2013
Quant Method : C:\MSDCHEM\1\METHODS\ME8801.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Feb 25 11:43:47 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.692	65	90743	500.00	ug/L	0.02
5) pentafluorobenzene	9.905	168	171740	50.00	ug/L	0.00
66) 1,4-difluorobenzene	10.825	114	217285	50.00	ug/L	0.00
97) chlorobenzene-d5	14.152	117	202987	50.00	ug/L	0.00
114) 1,4-dichlorobenzene-d4	16.720	152	121332	50.00	ug/L	0.00

System Monitoring Compounds

60) dibromofluoromethane (s)	9.952	113	67631	41.97	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 83.94%			
61) 1,2-dichloroethane-d4 (s)	10.365	65	76578	43.22	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 86.44%			
89) toluene-d8 (s)	12.525	98	260203	47.30	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 94.60%			
116) 4-bromofluorobenzene (s)	15.417	95	99703	44.83	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 89.66%			

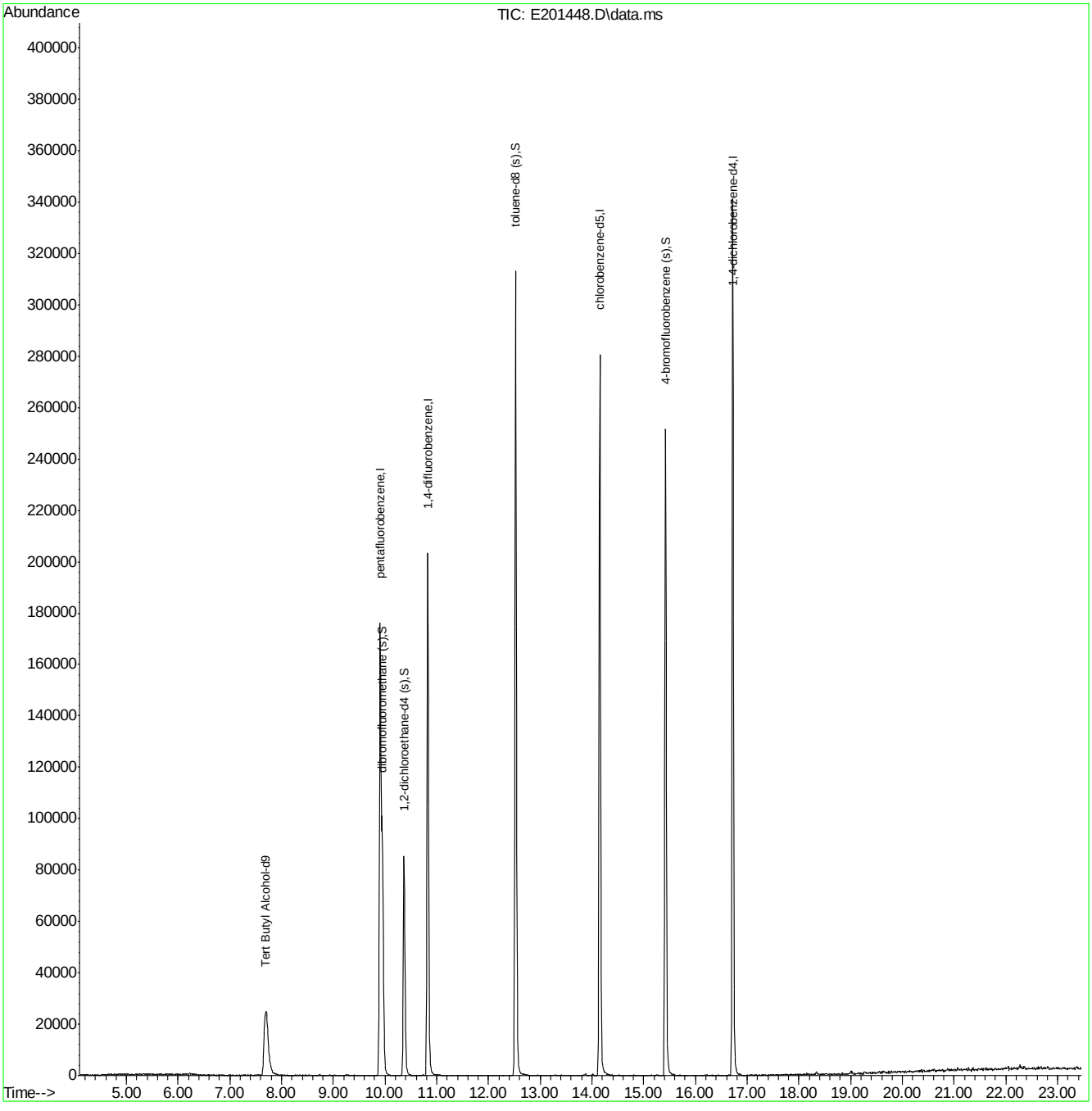
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E201448.D
Acq On : 28 Mar 2013 11:51 pm
Operator : OksanaT
Sample : mb
Misc : MS45249,VE8857,5,,100,5,1
ALS Vial : 31 Sample Multiplier: 1

Quant Time: Mar 29 12:39:02 2013
Quant Method : C:\MSDCHEM\1\METHODS\ME8801.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Feb 25 11:43:47 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E201469.D
Acq On : 29 Mar 2013 11:50 am
Operator : OksanaT
Sample : mb
Misc : MS45547,VE8858,5,,100,5,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Mar 29 16:42:18 2013
Quant Method : C:\MSDCHEM\1\METHODS\ME8801.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Feb 25 11:43:47 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.692	65	90190	500.00	ug/L	0.02
5) pentafluorobenzene	9.905	168	170427	50.00	ug/L	0.00
66) 1,4-difluorobenzene	10.825	114	216088	50.00	ug/L	0.00
97) chlorobenzene-d5	14.151	117	208939	50.00	ug/L	0.00
114) 1,4-dichlorobenzene-d4	16.719	152	120960	50.00	ug/L	0.00

System Monitoring Compounds

60) dibromofluoromethane (s)	9.946	113	66966	41.88	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 83.76%			
61) 1,2-dichloroethane-d4 (s)	10.365	65	75337	42.85	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 85.70%			
89) toluene-d8 (s)	12.525	98	265869	48.59	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 97.18%			
116) 4-bromofluorobenzene (s)	15.422	95	99237	44.75	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 89.50%			

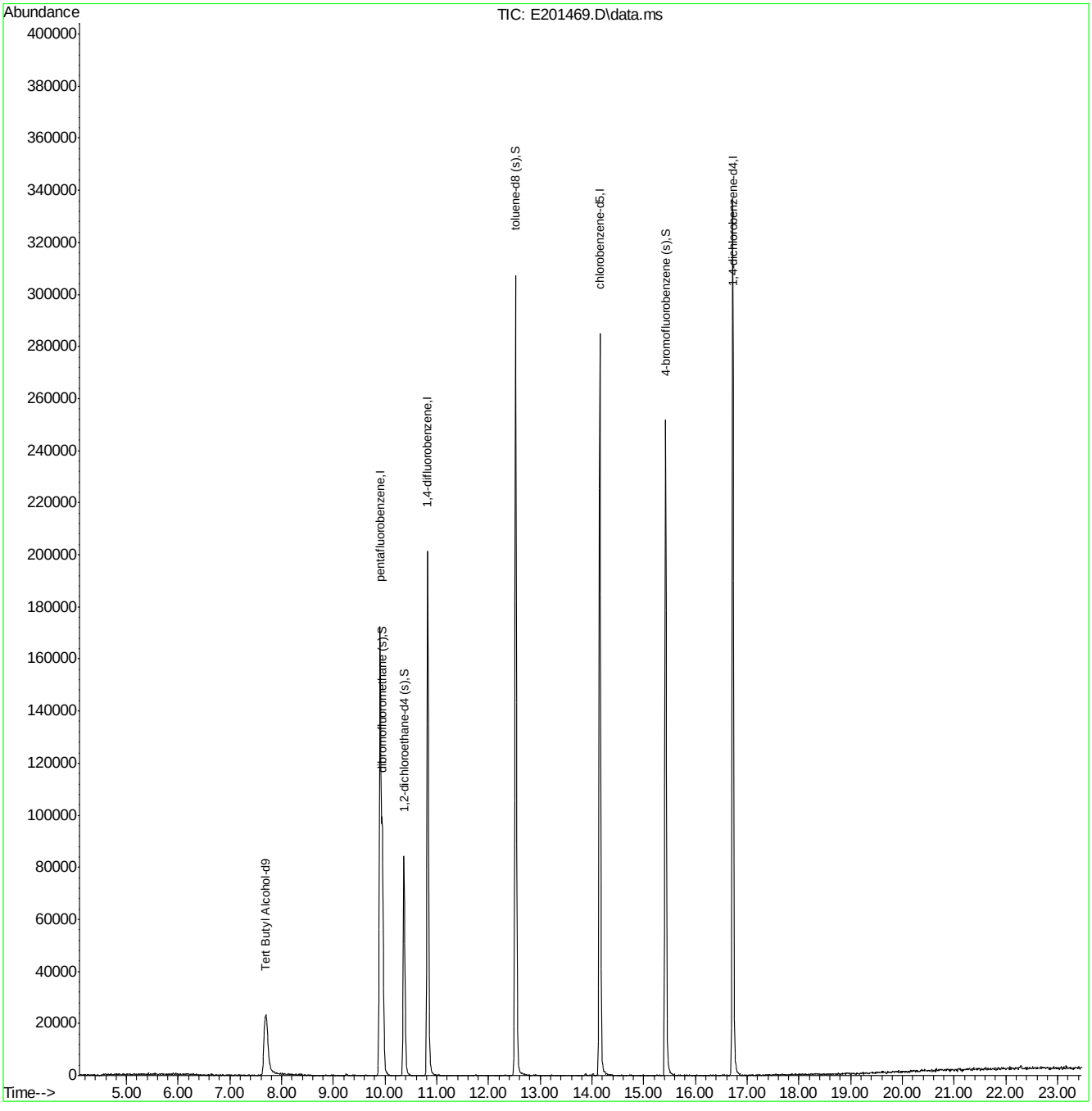
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E201469.D
Acq On : 29 Mar 2013 11:50 am
Operator : OksanaT
Sample : mb
Misc : MS45547,VE8858,5,,100,5,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Mar 29 16:42:18 2013
Quant Method : C:\MSDCHEM\1\METHODS\ME8801.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Feb 25 11:43:47 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 #: JB31583

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 #: 732-329-0200 Fax #:
Sampler(s) Name(s): Phone:

Project Information

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

Billing Information (If different from Report to)

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

Requested Analysis (see TEST CODE sheet)

Matrix Codes

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

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	%SOL	B8270SL	PB								LAB USE ONLY
1			3/15/2013		LM	Soil										X	X	X								
2			3/15/2013		LM	Soil										X	X	X								
3			3/15/2013		LM	Soil										X	X	X								
4			3/15/2013		LM	Soil										X	X	X								
5			3/15/2013		LM	Soil										X	X	X								
6			3/15/2013		LM	Soil										X	X	X								
7			3/15/2013		LM	Soil										X	X	X								
8			3/15/2013		LM	Soil										X	X	X								
9			3/15/2013		LM	Soil										X	X	X								
10			3/15/2013		LM	Soil										X	X	X								
11			3/15/2013		LM	Soil										X	X	X								10D
12			3/15/2013		LM	Soil										X	X	X								

Turnaround Time (Business days)

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

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [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 see Reza or Matt with specific list of PAHs needed for B8270SL. Results due 3/29

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	3/20/13 1700	1 FedX	2 FX	3/21/13 4:00	2
3		3	4		4
5		5			

Custody Seal # ☐ Intact ☐ Not intact
Preserved where applicable ☐
On Ice ☑ Cooler Temp. 1.0°

8.1

8

JB31583: Chain of Custody
Page 1 of 3
Accutest Labs of New England, Inc.

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 #: JB31583

Client / Reporting Information

Company Name: Accutest Laboratories
Street Address: 2235 Route 130
City / State / Zip: Dayton NJ 08810
Project Contact: Kristin Beebe
E-mail:
Phone #: 732-329-0200
Fax #:
Sampler(s) Name(s):
Phone:

Project Information

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

Billing Information (if different from Report to)

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

Requested Analysis (see TEST CODE sheet)

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

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	%SOL	B8270SL	PB	LAB USE ONLY
13			3/13/13		LM	Soil										X	X	X	
14			3/13/13		LM	Soil										X	X	X	
15			3/14/13		LM	Soil										X	X	X	

Turnaround Time (Business days)

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

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [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 see Reza or Matt with specific list of PAHs needed for B8270SL. Results due 3/29

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	3/20/13 13:00	1 FedEx	2 FX	3/21/13 900	2
3		3	4		4
5		5			

Custody Seal #:
[ ] Intact
[ ] Not Intact
Preserved where applicable: [ ]
On Ice: [✓]
Cooler Temp.: 1.0

8.1

8

JB31583: Chain of Custody
Page 2 of 3

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB31583 **Client:** ACNJ **Immediate Client Services Action Required:** No

Date / Time Received: 3/21/2013 **Delivery Method:** **Client Service Action Required at Login:** No

Project: PHILADELPHIA REFINERY **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

Internal Sample Tracking Chronicle

Accutest New Jersey

Job No: JB31583

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

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB31583-1	Collected: 15-MAR-13 08:00 By: LM		Received: 15-MAR-13 By:			
AOI-4_BH-13-94_0-2_031513						
JB31583-1	SM21 2540 B MOD.	21-MAR-13	HS			%SOL
JB31583-1	SW846 6010C	26-MAR-13 22:27	EAL	22-MAR-13	DA	PB
JB31583-1	SW846 8270C	27-MAR-13 19:18	NS	22-MAR-13	AJ	B8270SL
JB31583-2	Collected: 15-MAR-13 09:00 By: LM		Received: 15-MAR-13 By:			
AOI-4_BH-13-94_8-10_031513						
JB31583-2	SM21 2540 B MOD.	21-MAR-13	HS			%SOL
JB31583-2	SW846 6010C	26-MAR-13 22:32	EAL	22-MAR-13	DA	PB
JB31583-2	SW846 8270C	27-MAR-13 19:41	NS	22-MAR-13	AJ	B8270SL
JB31583-3	Collected: 15-MAR-13 12:30 By: LM		Received: 15-MAR-13 By:			
AOI-4_BH-13-90_8-10'_031513						
JB31583-3	SM21 2540 B MOD.	21-MAR-13	HS			%SOL
JB31583-3	SW846 6010C	26-MAR-13 22:46	EAL	22-MAR-13	DA	PB
JB31583-3	SW846 8270C	27-MAR-13 20:04	NS	22-MAR-13	AJ	B8270SL
JB31583-4	Collected: 15-MAR-13 10:25 By: LM		Received: 15-MAR-13 By:			
AOI4-BH-13-104_6-7_31513						
JB31583-4	SM21 2540 B MOD.	21-MAR-13	HS			%SOL
JB31583-4	SW846 6010C	26-MAR-13 22:51	EAL	22-MAR-13	DA	PB
JB31583-4	SW846 8270C	27-MAR-13 20:26	NS	22-MAR-13	AJ	B8270SL
JB31583-4	SW846 8270C	29-MAR-13 17:01	NS	22-MAR-13	AJ	B8270SL
JB31583-5	Collected: 15-MAR-13 10:00 By: LM		Received: 15-MAR-13 By:			
AOI4-BH-13-104_0-.5_31513						
JB31583-5	SM21 2540 B MOD.	21-MAR-13	HS			%SOL
JB31583-5	SW846 6010C	26-MAR-13 22:56	EAL	22-MAR-13	DA	PB
JB31583-5	SW846 8270C	27-MAR-13 20:49	NS	22-MAR-13	AJ	B8270SL
JB31583-6	Collected: 15-MAR-13 08:40 By: LM		Received: 15-MAR-13 By:			
AOI4-S-381_0-.5_31513						
JB31583-6	SM21 2540 B MOD.	21-MAR-13	HS			%SOL

Internal Sample Tracking Chronicle

Accutest New Jersey

Job No: JB31583

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

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB31583-6	SW846 6010C	27-MAR-13 13:34	EAL	22-MAR-13	DA	PB
JB31583-6	SW846 8270C	27-MAR-13 21:11	NS	22-MAR-13	AJ	B8270SL
JB31583-7	Collected: 15-MAR-13 08:55 By: LM		Received: 15-MAR-13 By:			
AOI4-S-381_2-3_31513						
JB31583-7	SM21 2540 B MOD.	21-MAR-13	HS			%SOL
JB31583-7	SW846 6010C	27-MAR-13 13:39	EAL	22-MAR-13	DA	PB
JB31583-7	SW846 8270C	27-MAR-13 21:34	NS	22-MAR-13	AJ	B8270SL
JB31583-8	Collected: 15-MAR-13 09:30 By: LM		Received: 15-MAR-13 By:			
AOI4-BH-13-86_2-2.5_031513						
JB31583-8	SM21 2540 B MOD.	21-MAR-13	HS			%SOL
JB31583-8	SW846 6010C	27-MAR-13 13:13	EAL	22-MAR-13	DA	PB
JB31583-8	SW846 8270C	27-MAR-13 21:57	NS	22-MAR-13	AJ	B8270SL
JB31583-9	Collected: 15-MAR-13 10:00 By: LM		Received: 15-MAR-13 By:			
AOI4-BH-13-86_5.5-6_031513						
JB31583-9	SM21 2540 B MOD.	21-MAR-13	HS			%SOL
JB31583-9	SW846 6010C	27-MAR-13 13:43	EAL	22-MAR-13	DA	PB
JB31583-9	SW846 8270C	27-MAR-13 22:20	NS	22-MAR-13	AJ	B8270SL
JB31583-10	Collected: 15-MAR-13 11:00 By: LM		Received: 15-MAR-13 By:			
AOI4-BH-13-85_5.5-6_031513						
JB31583-10	SM21 2540 B MOD.	21-MAR-13	HS			%SOL
JB31583-10	SW846 6010C	26-MAR-13 23:20	EAL	22-MAR-13	DA	PB
JB31583-10	SW846 8270C	27-MAR-13 22:43	NS	22-MAR-13	AJ	B8270SL
JB31583-11	Collected: 15-MAR-13 13:45 By: LM		Received: 15-MAR-13 By:			
AOI4-BH-13-84_5.5-6_031513						
JB31583-11	SM21 2540 B MOD.	21-MAR-13	HS			%SOL
JB31583-11	SW846 6010C	25-MAR-13 15:17	EAL	22-MAR-13	DA	PB
JB31583-11	SW846 8270C	27-MAR-13 23:06	NS	22-MAR-13	AJ	B8270SL

Internal Sample Tracking Chronicle

Accutest New Jersey

Job No: JB31583

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

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB31583-12 Collected: 15-MAR-13 14:00 By: LM Received: 15-MAR-13 By: S-366@14-16_031513						
JB31583-12	SM21 2540 B MOD.	21-MAR-13	HS			%SOL
JB31583-12	SW846 6010C	25-MAR-13 15:31	EAL	22-MAR-13	DA	PB
JB31583-12	SW846 8270C	27-MAR-13 23:29	NS	22-MAR-13	AJ	B8270SL
JB31583-13 Collected: 13-MAR-13 15:40 By: LM Received: 15-MAR-13 By: S-367_031313@6'						
JB31583-13	SM21 2540 B MOD.	21-MAR-13	HS			%SOL
JB31583-13	SW846 6010C	25-MAR-13 15:36	EAL	22-MAR-13	DA	PB
JB31583-13	SW846 8270C	29-MAR-13 13:56	NS	22-MAR-13	AJ	B8270SL
JB31583-14 Collected: 13-MAR-13 15:30 By: LM Received: 15-MAR-13 By: S-367@14'_031313						
JB31583-14	SM21 2540 B MOD.	21-MAR-13	HS			%SOL
JB31583-14	SW846 6010C	25-MAR-13 15:41	EAL	22-MAR-13	DA	PB
JB31583-14	SW846 8270C	29-MAR-13 14:19	NS	22-MAR-13	AJ	B8270SL
JB31583-15 Collected: 14-MAR-13 15:30 By: LM Received: 15-MAR-13 By: S-368@14'_031413						
JB31583-15	SM21 2540 B MOD.	21-MAR-13	HS			%SOL
JB31583-15	SW846 6010C	25-MAR-13 15:46	EAL	22-MAR-13	DA	PB
JB31583-15	SW846 8270C	29-MAR-13 16:16	NS	22-MAR-13	AJ	B8270SL

Accutest Internal Chain of Custody

Job Number: JB31583
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 03/15/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB31583-1.1	Walk In Ref #9	Mehdi Abdolrahim	03/21/13 14:54	Retrieve from Storage
JB31583-1.1	Mehdi Abdolrahim	Walk In Ref #9	03/21/13 15:37	Return to Storage
JB31583-1.1	Walk In Ref #9	Dorina Antonovici	03/22/13 08:18	Retrieve from Storage
JB31583-1.1	Dorina Antonovici	Walk In Ref #9	03/22/13 10:00	Return to Storage
JB31583-1.1	Walk In Ref #9	Chris Cataldo	03/22/13 16:46	Retrieve from Storage
JB31583-1.1	Chris Cataldo	Walk In Ref #9	03/22/13 23:09	Return to Storage
JB31583-2.1	Walk In Ref #9	Mehdi Abdolrahim	03/21/13 14:54	Retrieve from Storage
JB31583-2.1	Mehdi Abdolrahim	Walk In Ref #9	03/21/13 15:37	Return to Storage
JB31583-2.1	Walk In Ref #9	Dorina Antonovici	03/22/13 08:18	Retrieve from Storage
JB31583-2.1	Dorina Antonovici	Walk In Ref #9	03/22/13 10:00	Return to Storage
JB31583-2.1	Walk In Ref #9	Chris Cataldo	03/22/13 16:46	Retrieve from Storage
JB31583-2.1	Chris Cataldo	Walk In Ref #9	03/22/13 23:09	Return to Storage
JB31583-3.1	Walk In Ref #9	Mehdi Abdolrahim	03/21/13 14:54	Retrieve from Storage
JB31583-3.1	Mehdi Abdolrahim	Walk In Ref #9	03/21/13 15:37	Return to Storage
JB31583-3.1	Walk In Ref #9	Dorina Antonovici	03/22/13 08:18	Retrieve from Storage
JB31583-3.1	Dorina Antonovici	Walk In Ref #9	03/22/13 10:00	Return to Storage
JB31583-3.1	Walk In Ref #9	Chris Cataldo	03/22/13 16:46	Retrieve from Storage
JB31583-3.1	Chris Cataldo	Walk In Ref #9	03/22/13 23:09	Return to Storage
JB31583-4.1	Walk In Ref #9	Mehdi Abdolrahim	03/21/13 14:54	Retrieve from Storage
JB31583-4.1	Mehdi Abdolrahim	Walk In Ref #9	03/21/13 15:37	Return to Storage
JB31583-4.1	Walk In Ref #9	Dorina Antonovici	03/22/13 08:18	Retrieve from Storage
JB31583-4.1	Dorina Antonovici	Walk In Ref #9	03/22/13 10:00	Return to Storage
JB31583-4.1	Walk In Ref #9	Chris Cataldo	03/22/13 16:46	Retrieve from Storage
JB31583-4.1	Chris Cataldo	Walk In Ref #9	03/22/13 23:09	Return to Storage
JB31583-5.1	Walk In Ref #9	Mehdi Abdolrahim	03/21/13 14:54	Retrieve from Storage
JB31583-5.1	Mehdi Abdolrahim	Walk In Ref #9	03/21/13 15:37	Return to Storage
JB31583-5.1	Walk In Ref #9	Dorina Antonovici	03/22/13 08:18	Retrieve from Storage
JB31583-5.1	Dorina Antonovici	Walk In Ref #9	03/22/13 10:00	Return to Storage
JB31583-5.1	Walk In Ref #9	Chris Cataldo	03/22/13 16:46	Retrieve from Storage
JB31583-5.1	Chris Cataldo	Walk In Ref #9	03/22/13 23:09	Return to Storage
JB31583-6.1	Walk In Ref #9	Mehdi Abdolrahim	03/21/13 14:54	Retrieve from Storage
JB31583-6.1	Mehdi Abdolrahim	Walk In Ref #9	03/21/13 15:37	Return to Storage
JB31583-6.1	Walk In Ref #9	Dorina Antonovici	03/22/13 08:18	Retrieve from Storage
JB31583-6.1	Dorina Antonovici	Walk In Ref #9	03/22/13 10:00	Return to Storage
JB31583-6.1	Walk In Ref #9	Chris Cataldo	03/22/13 16:46	Retrieve from Storage
JB31583-6.1	Chris Cataldo	Walk In Ref #9	03/22/13 23:09	Return to Storage
JB31583-7.1	Walk In Ref #9	Mehdi Abdolrahim	03/21/13 14:54	Retrieve from Storage
JB31583-7.1	Mehdi Abdolrahim	Walk In Ref #9	03/21/13 15:37	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB31583
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 03/15/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB31583-7.1	Walk In Ref #9	Dorina Antonovici	03/22/13 08:18	Retrieve from Storage
JB31583-7.1	Dorina Antonovici	Walk In Ref #9	03/22/13 10:00	Return to Storage
JB31583-7.1	Walk In Ref #9	Chris Cataldo	03/22/13 16:46	Retrieve from Storage
JB31583-7.1	Chris Cataldo	Walk In Ref #9	03/22/13 23:09	Return to Storage
JB31583-8.1	Walk In Ref #9	Mehdi Abdolrahim	03/21/13 14:54	Retrieve from Storage
JB31583-8.1	Mehdi Abdolrahim	Walk In Ref #9	03/21/13 15:37	Return to Storage
JB31583-8.1	Walk In Ref #9	Dorina Antonovici	03/22/13 08:18	Retrieve from Storage
JB31583-8.1	Dorina Antonovici	Walk In Ref #9	03/22/13 10:00	Return to Storage
JB31583-8.1	Walk In Ref #9	Chris Cataldo	03/22/13 16:46	Retrieve from Storage
JB31583-8.1	Chris Cataldo	Walk In Ref #9	03/22/13 23:09	Return to Storage
JB31583-9.1	Walk In Ref #9	Mehdi Abdolrahim	03/21/13 14:54	Retrieve from Storage
JB31583-9.1	Mehdi Abdolrahim	Walk In Ref #9	03/21/13 15:37	Return to Storage
JB31583-9.1	Walk In Ref #9	Dorina Antonovici	03/22/13 08:18	Retrieve from Storage
JB31583-9.1	Dorina Antonovici	Walk In Ref #9	03/22/13 10:00	Return to Storage
JB31583-9.1	Walk In Ref #9	Chris Cataldo	03/22/13 16:46	Retrieve from Storage
JB31583-9.1	Chris Cataldo	Walk In Ref #9	03/22/13 23:09	Return to Storage
JB31583-10.1	Walk In Ref #9	Mehdi Abdolrahim	03/21/13 14:54	Retrieve from Storage
JB31583-10.1	Mehdi Abdolrahim	Walk In Ref #9	03/21/13 15:37	Return to Storage
JB31583-10.1	Walk In Ref #9	Dorina Antonovici	03/22/13 08:18	Retrieve from Storage
JB31583-10.1	Dorina Antonovici	Walk In Ref #9	03/22/13 10:00	Return to Storage
JB31583-10.1	Walk In Ref #9	Chris Cataldo	03/22/13 16:46	Retrieve from Storage
JB31583-10.1	Chris Cataldo	Walk In Ref #9	03/22/13 23:09	Return to Storage
JB31583-11.1	Walk In Ref #9	Mehdi Abdolrahim	03/21/13 14:54	Retrieve from Storage
JB31583-11.1	Mehdi Abdolrahim	Walk In Ref #9	03/21/13 15:37	Return to Storage
JB31583-11.1	Walk In Ref #9	Dorina Antonovici	03/22/13 13:43	Retrieve from Storage
JB31583-11.1	Dorina Antonovici	Walk In Ref #9	03/22/13 16:41	Return to Storage
JB31583-11.1	Walk In Ref #9	Thomas Abruzzise	03/22/13 21:24	Retrieve from Storage
JB31583-11.1	Thomas Abruzzise	Walk In Ref #9	03/22/13 23:00	Return to Storage
JB31583-12.1	Walk In Ref #9	Mehdi Abdolrahim	03/21/13 14:54	Retrieve from Storage
JB31583-12.1	Mehdi Abdolrahim	Walk In Ref #9	03/21/13 15:37	Return to Storage
JB31583-12.1	Walk In Ref #9	Dorina Antonovici	03/22/13 13:43	Retrieve from Storage
JB31583-12.1	Dorina Antonovici	Walk In Ref #9	03/22/13 16:41	Return to Storage
JB31583-12.1	Walk In Ref #9	Thomas Abruzzise	03/22/13 21:24	Retrieve from Storage
JB31583-12.1	Thomas Abruzzise	Walk In Ref #9	03/22/13 23:00	Return to Storage
JB31583-13.1	Walk In Ref #9	Mehdi Abdolrahim	03/21/13 14:54	Retrieve from Storage
JB31583-13.1	Mehdi Abdolrahim	Walk In Ref #9	03/21/13 15:37	Return to Storage
JB31583-13.1	Walk In Ref #9	Dorina Antonovici	03/22/13 13:43	Retrieve from Storage
JB31583-13.1	Dorina Antonovici	Walk In Ref #9	03/22/13 16:41	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB31583
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 03/15/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB31583-13.1	Walk In Ref #9	Thomas Abruzzise	03/22/13 21:24	Retrieve from Storage
JB31583-13.1	Thomas Abruzzise	Walk In Ref #9	03/22/13 23:00	Return to Storage
JB31583-14.1	Walk In Ref #9	Mehdi Abdolrahim	03/21/13 14:54	Retrieve from Storage
JB31583-14.1	Mehdi Abdolrahim	Walk In Ref #9	03/21/13 15:37	Return to Storage
JB31583-14.1	Walk In Ref #9	Dorina Antonovici	03/22/13 13:43	Retrieve from Storage
JB31583-14.1	Dorina Antonovici	Walk In Ref #9	03/22/13 16:41	Return to Storage
JB31583-14.1	Walk In Ref #9	Thomas Abruzzise	03/22/13 21:24	Retrieve from Storage
JB31583-14.1	Thomas Abruzzise	Walk In Ref #9	03/22/13 23:00	Return to Storage
JB31583-15.1	Walk In Ref #9	Mehdi Abdolrahim	03/21/13 14:54	Retrieve from Storage
JB31583-15.1	Mehdi Abdolrahim	Walk In Ref #9	03/21/13 15:37	Return to Storage
JB31583-15.1	Walk In Ref #9	Dorina Antonovici	03/22/13 13:43	Retrieve from Storage
JB31583-15.1	Dorina Antonovici	Walk In Ref #9	03/22/13 16:41	Return to Storage
JB31583-15.1	Walk In Ref #9	Thomas Abruzzise	03/22/13 21:24	Retrieve from Storage
JB31583-15.1	Thomas Abruzzise	Walk In Ref #9	03/22/13 23:00	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: JB31583
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
OP32352-MB	U13123.D	1	03/27/13	NS	03/22/13	OP32352	MSU672

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

JB31583-1, JB31583-2, JB31583-3, JB31583-4, JB31583-5, JB31583-6, JB31583-7, JB31583-8, JB31583-9, JB31583-10, JB31583-11, JB31583-12, JB31583-13, JB31583-14, JB31583-15

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	97	ug/kg	
56-55-3	Benzo(a)anthracene	ND	97	ug/kg	
50-32-8	Benzo(a)pyrene	ND	97	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	97	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	97	ug/kg	
218-01-9	Chrysene	ND	97	ug/kg	
86-73-7	Fluorene	ND	97	ug/kg	
91-20-3	Naphthalene	ND	97	ug/kg	
85-01-8	Phenanthrene	ND	97	ug/kg	
129-00-0	Pyrene	ND	97	ug/kg	

CAS No.	Surrogate Recoveries		Limits
4165-60-0	Nitrobenzene-d5	67%	30-130%
321-60-8	2-Fluorobiphenyl	67%	30-130%
1718-51-0	Terphenyl-d14	76%	30-130%

Blank Spike Summary

Job Number: JB31583
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
OP32352-BS	U13124.D	1	03/27/13	NS	03/22/13	OP32352	MSU672

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

JB31583-1, JB31583-2, JB31583-3, JB31583-4, JB31583-5, JB31583-6, JB31583-7, JB31583-8, JB31583-9, JB31583-10, JB31583-11, JB31583-12, JB31583-13, JB31583-14, JB31583-15

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
120-12-7	Anthracene	2460	1930	78	40-140
56-55-3	Benzo(a)anthracene	2460	2040	83	40-140
50-32-8	Benzo(a)pyrene	2460	1910	78	40-140
205-99-2	Benzo(b)fluoranthene	2460	1880	76	40-140
191-24-2	Benzo(g,h,i)perylene	2460	2080	84	40-140
218-01-9	Chrysene	2460	1960	80	40-140
86-73-7	Fluorene	2460	2060	84	40-140
91-20-3	Naphthalene	2460	2030	82	40-140
85-01-8	Phenanthrene	2460	2050	83	40-140
129-00-0	Pyrene	2460	1930	78	40-140

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	74%	30-130%
321-60-8	2-Fluorobiphenyl	76%	30-130%
1718-51-0	Terphenyl-d14	78%	30-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB31583
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
OP32352-MS	U13137.D	1	03/27/13	NS	03/22/13	OP32352	MSU672
OP32352-MSD	U13138.D	1	03/27/13	NS	03/22/13	OP32352	MSU672
JB31583-1	U13139.D	1	03/27/13	NS	03/22/13	OP32352	MSU672

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

JB31583-1, JB31583-2, JB31583-3, JB31583-4, JB31583-5, JB31583-6, JB31583-7, JB31583-8, JB31583-9, JB31583-10, JB31583-11, JB31583-12, JB31583-13, JB31583-14, JB31583-15

CAS No.	Compound	JB31583-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
120-12-7	Anthracene	ND		2850	2250	79	2110	74	6	40-140/30
56-55-3	Benzo(a)anthracene	ND		2850	2360	83	2340	82	1	40-140/30
50-32-8	Benzo(a)pyrene	44.2		2850	2240	77	2180	74	3	40-140/30
205-99-2	Benzo(b)fluoranthene	150		2850	2400	79	2340	76	3	40-140/30
191-24-2	Benzo(g,h,i)perylene	ND		2850	2350	83	2320	81	1	40-140/30
218-01-9	Chrysene	ND		2850	2220	78	2200	77	1	40-140/30
86-73-7	Fluorene	ND		2850	2270	80	2270	79	0	40-140/30
91-20-3	Naphthalene	ND		2850	1800	63	2150	75	18	40-140/30
85-01-8	Phenanthrene	ND		2850	2400	84	2360	82	2	40-140/30
129-00-0	Pyrene	60.4		2850	2160	74	2130	72	1	40-140/30

CAS No.	Surrogate Recoveries	MS	MSD	JB31583-1	Limits
4165-60-0	Nitrobenzene-d5	59%	66%	69%	30-130%
321-60-8	2-Fluorobiphenyl	66%	68%	77%	30-130%
1718-51-0	Terphenyl-d14	74%	71%	75%	30-130%

* = Outside of Control Limits.

Instrument Performance Check (DFTPP)

Job Number: JB31583
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: MSU623-DFTPP
Lab File ID: U12012.D
Instrument ID: GCMSU
Injection Date: 01/29/13
Injection Time: 11:21

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	28277	30.2		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	33448	35.7		Pass
70	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
127	40.0 - 60.0% of mass 198	39693	42.3		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	93779	100.0		Pass
199	5.0 - 9.0% of mass 198	6419	6.84		Pass
275	10.0 - 30.0% of mass 198	22836	24.4		Pass
365	1.0 - 100.0% of mass 198	2453	2.62		Pass
441	Present, but less than mass 443	6526	6.96	(76.1) [b]	Pass
442	40.0 - 100.0% of mass 198	44240	47.2		Pass
443	17.0 - 23.0% of mass 442	8580	9.15	(19.4) [c]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
MSU623-ICC623	U12013.D	01/29/13	11:50	00:29	Initial cal 80
MSU652-ICC652	U12013A.D	01/29/13	11:50	00:29	Initial cal 80
MSU652-IC652	U12014A.D	01/29/13	12:12	00:51	Initial cal 160
MSU623-IC623	U12014.D	01/29/13	12:12	00:51	Initial cal 160
MSU652-IC652	U12015A.D	01/29/13	12:35	01:14	Initial cal 120
MSU623-IC623	U12015.D	01/29/13	12:35	01:14	Initial cal 120
MSU623-IC623	U12016.D	01/29/13	12:57	01:36	Initial cal 50
MSU652-IC652	U12016A.D	01/29/13	12:57	01:36	Initial cal 50
MSU652-IC652	U12017A.D	01/29/13	13:19	01:58	Initial cal 20
MSU623-IC623	U12017.D	01/29/13	13:19	01:58	Initial cal 20
MSU652-IC652	U12018A.D	01/29/13	13:42	02:21	Initial cal 10
MSU623-IC623	U12018.D	01/29/13	13:42	02:21	Initial cal 10
MSU652-IC652	U12019A.D	01/29/13	14:04	02:43	Initial cal 5
MSU623-IC623	U12019.D	01/29/13	14:04	02:43	Initial cal 5
MSU652-IC652	U12020A.D	01/29/13	14:27	03:06	Initial cal 2
MSU623-IC623	U12020.D	01/29/13	14:27	03:06	Initial cal 2

Instrument Performance Check (DFTPP)

Job Number: JB31583
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: MSU672-DFTPP
Lab File ID: U13121.D
Instrument ID: GCMSU
Injection Date: 03/27/13
Injection Time: 11:43

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	78893	31.3		Pass
68	Less than 2.0% of mass 69	373	0.15	(0.41) [a]	Pass
69	Mass 69 relative abundance	91581	36.3		Pass
70	Less than 2.0% of mass 69	522	0.21	(0.57) [a]	Pass
127	40.0 - 60.0% of mass 198	108203	42.9		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	252061	100.0		Pass
199	5.0 - 9.0% of mass 198	16500	6.55		Pass
275	10.0 - 30.0% of mass 198	59614	23.7		Pass
365	1.0 - 100.0% of mass 198	6359	2.52		Pass
441	Present, but less than mass 443	16775	6.66	(82.5) [b]	Pass
442	40.0 - 100.0% of mass 198	102461	40.6		Pass
443	17.0 - 23.0% of mass 442	20340	8.07	(19.9) [c]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
MSU672-CC623	U13122.D	03/27/13	12:51	01:08	Continuing cal 50
OP32352-MB	U13123.D	03/27/13	13:14	01:31	Method Blank
OP32352-BS	U13124.D	03/27/13	13:37	01:54	Blank Spike
ZZZZZZ	U13126.D	03/27/13	14:23	02:40	(unrelated sample)
ZZZZZZ	U13127.D	03/27/13	14:46	03:03	(unrelated sample)
ZZZZZZ	U13128.D	03/27/13	15:09	03:26	(unrelated sample)
ZZZZZZ	U13129.D	03/27/13	15:32	03:49	(unrelated sample)
ZZZZZZ	U13130.D	03/27/13	15:54	04:11	(unrelated sample)
ZZZZZZ	U13131.D	03/27/13	16:17	04:34	(unrelated sample)
ZZZZZZ	U13132.D	03/27/13	16:40	04:57	(unrelated sample)
OP32343-MS	U13133.D	03/27/13	17:03	05:20	Matrix Spike
OP32343-MSD	U13134.D	03/27/13	17:25	05:42	Matrix Spike Duplicate
MC19087-8	U13135.D	03/27/13	17:48	06:05	(used for QC only; not part of job JB31583)
ZZZZZZ	U13136.D	03/27/13	18:10	06:27	(unrelated sample)
OP32352-MS	U13137.D	03/27/13	18:33	06:50	Matrix Spike
OP32352-MSD	U13138.D	03/27/13	18:56	07:13	Matrix Spike Duplicate
JB31583-1	U13139.D	03/27/13	19:18	07:35	AOI-4_BH-13-94_0-2_031513
JB31583-2	U13140.D	03/27/13	19:41	07:58	AOI-4_BH-13-94_8-10_031513
JB31583-3	U13141.D	03/27/13	20:04	08:21	AOI-4_BH-13-90_8-10'_031513

Instrument Performance Check (DFTPP)

Job Number: JB31583
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: MSU672-DFTPP
Lab File ID: U13121.D
Instrument ID: GCMSU
Injection Date: 03/27/13
Injection Time: 11:43

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
JB31583-4	U13142.D	03/27/13	20:26	08:43	AOI4-BH-13-104_6-7_31513
JB31583-5	U13143.D	03/27/13	20:49	09:06	AOI4-BH-13-104_0-.5_31513
JB31583-6	U13144.D	03/27/13	21:11	09:28	AOI4-S-381_0-.5_31513
JB31583-7	U13145.D	03/27/13	21:34	09:51	AOI4-S-381_2-3_31513
JB31583-8	U13146.D	03/27/13	21:57	10:14	AOI4-BH-13-86_2-2.5_031513
JB31583-9	U13147.D	03/27/13	22:20	10:37	AOI4-BH-13-86_5.5-6_031513
JB31583-10	U13148.D	03/27/13	22:43	11:00	AOI4-BH-13-85_5.5-6_031513
JB31583-11	U13149.D	03/27/13	23:06	11:23	AOI4-BH-13-84_5.5-6_031513
JB31583-12	U13150.D	03/27/13	23:29	11:46	S-366@14-16_031513

Instrument Performance Check (DFTPP)

Job Number: JB31583
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: MSU674-DFTPP
Lab File ID: U13194.D
Instrument ID: GCMSU
Injection Date: 03/29/13
Injection Time: 09:01

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	39455	31.9		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	45791	37.0		Pass
70	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
127	40.0 - 60.0% of mass 198	55530	44.9		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	123627	100.0		Pass
199	5.0 - 9.0% of mass 198	8597	6.95		Pass
275	10.0 - 30.0% of mass 198	30120	24.4		Pass
365	1.0 - 100.0% of mass 198	3356	2.71		Pass
441	Present, but less than mass 443	8538	6.91	(84.1) [b]	Pass
442	40.0 - 100.0% of mass 198	54673	44.2		Pass
443	17.0 - 23.0% of mass 442	10150	8.21	(18.6) [c]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
MSU674-CC623	U13195.D	03/29/13	09:24	00:23	Continuing cal 50
OP32419-MB	U13196.D	03/29/13	09:46	00:45	Method Blank
OP32419-BS	U13197.D	03/29/13	10:08	01:07	Blank Spike
OP32419-MS	U13198.D	03/29/13	10:31	01:30	Matrix Spike
OP32419-MSD	U13199.D	03/29/13	10:54	01:53	Matrix Spike Duplicate
ZZZZZZ	U13203.D	03/29/13	12:24	03:23	(unrelated sample)
ZZZZZZ	U13205.D	03/29/13	13:10	04:09	(unrelated sample)
JB31583-13	U13207.D	03/29/13	13:56	04:55	S-367_031313@6'
JB31583-14	U13208.D	03/29/13	14:19	05:18	S-367@14'_031313
JB31583-15	U13210.D	03/29/13	16:16	07:15	S-368@14'_031413
ZZZZZZ	U13211.D	03/29/13	16:39	07:38	(unrelated sample)
JB31583-4	U13212.D	03/29/13	17:01	08:00	AOI4-BH-13-104_6-7_31513

Semivolatile Internal Standard Area Summary

Job Number: JB31583
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	MSU672-CC623	**Injection Date:**	03/27/13
Lab File ID:	U13122.D	**Injection Time:**	12:51
Instrument ID:	GCMSU	**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	93079	3.08	332163	4.05	202834	5.44	368453	6.67	420137	9.40	389140	10.94
Upper Limit [a]	186158	3.58	664326	4.55	405668	5.94	736906	7.17	840274	9.90	778280	11.44
Lower Limit [b]	46540	2.58	166082	3.55	101417	4.94	184227	6.17	210069	8.90	194570	10.44

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
OP32352-MB	130067	3.08	471638	4.05	293045	5.44	511764	6.66	573452	9.39	530185	10.93
OP32352-BS	109997	3.08	383724	4.05	239058	5.44	434929	6.67	484280	9.40	451096	10.94
ZZZZZZ	106608	3.10	398444	4.06	245922	5.45	443345	6.67	548149	9.40	494022	10.94
ZZZZZZ	100237	3.08	364766	4.05	226313	5.44	395130	6.66	459543	9.39	438636	10.93
ZZZZZZ	112238	3.08	412079	4.05	256351	5.44	443440	6.66	526876	9.39	500437	10.94
ZZZZZZ	112844	3.08	411673	4.05	248854	5.44	444633	6.66	504375	9.39	477724	10.94
ZZZZZZ	105154	3.08	380334	4.05	230005	5.44	415908	6.66	505600	9.40	485785	10.94
ZZZZZZ	113219	3.08	403616	4.05	243562	5.44	439371	6.66	533892	9.39	514324	10.94
ZZZZZZ	112738	3.08	411676	4.05	258803	5.44	459322	6.66	551688	9.39	533598	10.94
OP32343-MS	182748	3.08	659045	4.05	386238	5.45	727083	6.67	820967	9.40	797325[c]	10.94
OP32343-MSD	135078	3.08	479985	4.05	286064	5.44	534973	6.67	630154	9.40	608209	10.94
MC19087-8	153754	3.08	547078	4.05	338156	5.44	621802	6.66	734733	9.40	692692	10.94
ZZZZZZ	132221	3.08	480434	4.05	303068	5.44	545237	6.66	626758	9.39	604635	10.94
OP32352-MS	103108	3.08	370647	4.05	224983	5.44	405553	6.67	488730	9.40	477942	10.94
OP32352-MSD	101226	3.08	362551	4.05	226348	5.44	410967	6.67	471708	9.40	461138	10.94
JB31583-1	109809	3.08	397518	4.05	235395	5.44	430535	6.66	509614	9.39	498664	10.94
JB31583-2	109079	3.08	388991	4.05	241650	5.44	436644	6.66	517058	9.39	493235	10.94
JB31583-3	97816	3.08	350858	4.05	213216	5.44	384616	6.66	452263	9.39	440974	10.93
JB31583-4	103158	3.09	322982	4.06	180525	5.50	219347	6.72	574396	9.42	557582	10.94
JB31583-5	116235	3.08	428916	4.05	265872	5.44	477641	6.66	576532	9.39	556094	10.94
JB31583-6	163352	3.08	581436	4.05	352430	5.44	604973	6.67	689871	9.40	664087	10.94
JB31583-7	103831	3.09	276076	4.06	209872	5.45	373881	6.67	500991	9.39	485265	10.94
JB31583-8	121670	3.08	420599	4.05	259350	5.44	433093	6.67	547159	9.40	547228	10.95
JB31583-9	100832	3.08	374127	4.05	226564	5.44	395135	6.67	503474	9.40	489191	10.94
JB31583-10	141059	3.08	507162	4.05	312364	5.44	557492	6.67	643875	9.40	604300	10.94
JB31583-11	151635	3.08	542161	4.05	335254	5.44	607754	6.66	685993	9.40	643378	10.94
JB31583-12	106904	3.08	386651	4.05	239742	5.44	436767	6.66	515447	9.39	486792	10.94

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: JB31583
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	MSU672-CC623	**Injection Date:**	03/27/13
Lab File ID:	U13122.D	**Injection Time:**	12:51
Instrument ID:	GCMSU	**Method:**	SW846 8270C

Lab	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
Sample ID	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**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.
(c) Outside control limits due to possible matrix interference.

Semivolatile Internal Standard Area Summary

Job Number: JB31583
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	MSU674-CC623	**Injection Date:**	03/29/13
Lab File ID:	U13195.D	**Injection Time:**	09:24
Instrument ID:	GCMSU	**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	154883	3.08	552680	4.04	340913	5.44	636274	6.65	691943	9.39	660798	10.93
Upper Limit [a]	309766	3.58	1105360	4.54	681826	5.94	1272548	7.15	1383886	9.89	1321596	11.43
Lower Limit [b]	77442	2.58	276340	3.54	170457	4.94	318137	6.15	345972	8.89	330399	10.43

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
OP32419-MB	160926	3.07	592073	4.04	369726	5.44	660047	6.65	786102	9.38	729083	10.92
OP32419-BS	165626	3.08	580555	4.04	352993	5.44	662312	6.65	754966	9.39	707394	10.93
OP32419-MS	166130	3.08	603619	4.04	355869	5.44	670336	6.65	761553	9.39	729231	10.93
OP32419-MSD	169959	3.08	603635	4.04	362814	5.44	670563	6.65	744255	9.39	704697	10.93
ZZZZZZ	161192	3.07	580417	4.04	359695	5.44	656329	6.65	764477	9.38	715352	10.92
ZZZZZZ	172969	3.07	626548	4.04	382592	5.44	674479	6.65	796559	9.38	748063	10.92
JB31583-13	146732	3.08	526167	4.04	320774	5.44	552092	6.65	691562	9.38	647613	10.93
JB31583-14	149666	3.08	516451	4.04	331090	5.44	571253	6.65	685266	9.38	646730	10.92
JB31583-15	169950	3.08	618015	4.04	375606	5.44	648857	6.65	748119	9.38	686890	10.93
ZZZZZZ	147285	3.07	525315	4.04	326062	5.44	558725	6.65	619145	9.39	601718	10.93
JB31583-4	139251	3.08	447951	4.05	267281	5.46	411799	6.67	696080	9.38	660045	10.92

IS 1 = 1,4-Dichlorobenzene-d4
IS 2 = Naphthalene-d8
IS 3 = Acenaphthene-D10
IS 4 = Phenanthrene-d10
IS 5 = Chrysene-d12
IS 6 = Perylene-d12

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

Semivolatile Surrogate Recovery Summary

Job Number: JB31583
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
JB31583-1	U13139.D	69.0	77.0	75.0
JB31583-2	U13140.D	59.0	62.0	71.0
JB31583-3	U13141.D	69.0	71.0	66.0
JB31583-4	U13212.D	126.0	74.0	78.0
JB31583-4	U13142.D	148.0* [a]	65.0	67.0
JB31583-5	U13143.D	66.0	72.0	69.0
JB31583-6	U13144.D	58.0	66.0	73.0
JB31583-7	U13145.D	121.0	64.0	66.0
JB31583-8	U13146.D	75.0	68.0	73.0
JB31583-9	U13147.D	65.0	72.0	65.0
JB31583-10	U13148.D	60.0	63.0	69.0
JB31583-11	U13149.D	65.0	69.0	78.0
JB31583-12	U13150.D	68.0	71.0	72.0
JB31583-13	U13207.D	73.0	73.0	78.0
JB31583-14	U13208.D	68.0	68.0	75.0
JB31583-15	U13210.D	68.0	73.0	73.0
OP32352-BS	U13124.D	74.0	76.0	78.0
OP32352-MB	U13123.D	67.0	67.0	76.0
OP32352-MS	U13137.D	59.0	66.0	74.0
OP32352-MSD	U13138.D	66.0	68.0	71.0

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

(a) Outside control limits due to possible matrix interference.

Initial Calibration Summary

Job Number: JB31583 **Sample:** MSU623-ICC623
Account: ALNJ Accutest New Jersey **Lab FileID:** U12013.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Response Factor Report MSU

```
Method       : C:\msdchem\1\METHODS\U130129_8270.m (RTE Integrator)
Title        : SW-864 Method 8270
Last Update  : Fri Mar 29 11:20:02 2013
Response via : Initial Calibration

Calibration Files
2   =U12020.D    5   =U12019.D    10  =U12018.D    50  =U13162.D
80  =U12955.D    120 =U12015.D    20  =U12017.D    160 =U12014.D

 Compound         2     5     10    50    80    120   20    160   Avg %RSD
-------------------------------------------------------------------------------

1) I   1,4-Dichlorobenzene-d ----------------ISTD---------------------
2) N-Nitrosodim 0.710 0.738 0.799 0.836 0.831 0.770 0.802 0.826 0.789   5.84
3) Pyridine     1.217 1.370 1.558 1.570 1.549 1.472 1.494 1.531 1.470   8.21
4) Aniline            2.119 2.122 2.138 2.041 1.862 2.113 1.918 2.045   5.44
5) 2-Fluorophen       1.305 1.299 1.349 1.319 1.264 1.287 1.305 1.304   2.02
6) bis(2-Chloro       1.399 1.360 1.031 1.328 1.263 1.345 1.293 1.288   9.46
7) Phenol-d5          1.542 1.600 1.628 1.574 1.499 1.604 1.517 1.567   3.08
8) Phenol             1.822 1.829 1.838 1.735 1.565 1.813       1.767   5.99
            ---- Quadratic regression ----  Coefficient =  0.9998
              Response Ratio = -0.05736 + 2.09347 *A + -0.16906 *A^2

9) 2-Chlorophen 1.352 1.412 1.443 1.433 1.391 1.336 1.440 1.364 1.396   3.01
10) 1,3-Dichloro 1.612 1.658 1.628 1.566 1.534 1.410 1.606 1.456 1.559   5.59
11) 1,4-Dichloro      1.717 1.691 1.644 1.542 1.515 1.663       1.629   5.03
12) 1,2-Dichloro      1.559 1.547 1.507 1.413 1.309 1.539       1.479   6.68
            ---- Quadratic regression ----  Coefficient =  1.0000
              Response Ratio = -0.01584 + 1.64858 *A + -0.11165 *A^2

13) Benzyl alcoh 0.696 0.838 0.853 0.875 0.815 0.762 0.851 0.786 0.810   7.30
14) bis(2-chloro 1.597 1.671 1.604 1.587 1.529 1.416 1.594 1.437 1.554   5.66
15) o-cresol     1.190 1.227 1.251 1.256 1.200 1.108 1.277 1.141 1.206   4.84
16) Acetophenone 1.814 1.872 1.877 1.866 1.798 1.668 1.874 1.697 1.808   4.62
17) Hexachloroet 0.604 0.613 0.611 0.616 0.583 0.559 0.606 0.557 0.594   4.10
18) N-Nitroso-di 0.907 0.937 0.927 0.921 0.874 0.798 0.933       0.900   5.52
            ---- Quadratic regression ----  Coefficient =  0.9999
              Response Ratio = -0.01436 + 1.02444 *A + -0.07359 *A^2

19) m+p-cresols  1.240 1.303 1.297 1.238 1.183 1.078 1.287 1.106 1.217   7.12
            ---- Linear regression ----  Coefficient =  0.9975
              Response Ratio = 0.14577 + 1.09021 *A

20) 4-methylphen 1.240 1.303 1.297 1.238 1.183 1.078 1.287 1.106 1.217   7.12
            ---- Linear regression ----  Coefficient =  0.9975
              Response Ratio = 0.14577 + 1.09021 *A


21) I   Naphthalene-d8        ----------------ISTD---------------------
22) Nitrobenzene 0.368 0.412 0.375 0.380 0.366 0.358 0.417 0.351 0.378   6.38
23) Nitrobenzene      0.379 0.376 0.378 0.353 0.338 0.388 0.348 0.366   5.16
24) Isophorone   0.656 0.649 0.676 0.693 0.659 0.634 0.679 0.652 0.662   2.89
25) 2-Nitropheno      0.196 0.204 0.220 0.209 0.218 0.214 0.217 0.211   4.10
26) 2,4-Dimethyl 0.339 0.357 0.366 0.370 0.354 0.338 0.363 0.338 0.353   3.76
27) bis(2-Chloro 0.424 0.432 0.439 0.437 0.414 0.395 0.432 0.400 0.422   3.98
28) Benzoic acid            0.200 0.259 0.251 0.264 0.228 0.266 0.245  10.66
            ---- Linear regression ----  Coefficient =  0.9995
              Response Ratio = -0.02076 + 0.27004 *A
```

```
29) 2,4-Dichloro       0.319 0.336 0.343 0.326 0.311 0.339 0.311 0.326   4.06
30) 1,2,4-Trichl 0.381 0.375 0.387 0.381 0.361 0.345 0.381 0.344 0.369   4.64
31) Naphthalene  1.150 1.113 1.100 1.049 0.972 0.930 1.069 0.923 1.038   8.33
            ---- Linear regression ----  Coefficient =  0.9985
              Response Ratio = 0.06226 + 0.91674 *A

32) 2,6-Dichloro       0.331 0.330 0.330 0.304 0.293 0.334       0.320   5.37
33) 4-Chloroanil       0.482 0.482 0.470 0.433 0.405 0.487       0.460   7.26
            ---- Linear regression ----  Coefficient =  0.9954
              Response Ratio = 0.03576 + 0.40381 *A

34) Hexachlorobu 0.225 0.232 0.235 0.233 0.218 0.213 0.236 0.208 0.225   4.80
35) 4-Chloro-3-m       0.273 0.300 0.313 0.301 0.287 0.300 0.285 0.294   4.44
36) 2-Methylnaph 0.754 0.767 0.774 0.745 0.698 0.666 0.770       0.739   5.58
            ---- Linear regression ----  Coefficient =  0.9976
              Response Ratio = 0.03422 + 0.66879 *A

37) 1-Methylnaph 0.727 0.754 0.750 0.747 0.701 0.669 0.755       0.729   4.49
            ---- Linear regression ----  Coefficient =  0.9977
              Response Ratio = 0.02941 + 0.67373 *A

38) 1,2,4,5-Tetr 0.408 0.400 0.411 0.411 0.393 0.368 0.411 0.357 0.395   5.33
            ---- Linear regression ----  Coefficient =  0.9971
              Response Ratio = 0.02432 + 0.35951 *A


39) I   Acenaphthene-d10      ----------------ISTD--------------------
40) Pentachloron       0.185 0.200 0.201 0.195 0.192 0.195 0.193 0.194   2.76
41) Hexachlorocy             0.223 0.344 0.335 0.388 0.267 0.370 0.321  19.78
            ---- Linear regression ----  Coefficient =  0.9963
              Response Ratio = -0.05662 + 0.38852 *A

42) 2,4,6-Trichl             0.409 0.424 0.407 0.425 0.415 0.410 0.415   1.85
43) 2,4,5-Trichl             0.457 0.468 0.453 0.449 0.453 0.443 0.454   1.87
44) 2-Fluorobiph 1.455 1.436 1.479 1.405 1.314 1.323 1.427       1.406   4.53
45) 2-Chloronaph 1.211 1.229 1.245 1.216 1.165 1.139 1.219       1.203   3.13
46) Acenaphthyle 1.903 1.947 2.008 1.898 1.768 1.732 1.940       1.885   5.30
            ---- Linear regression ----  Coefficient =  0.9986
              Response Ratio = 0.07313 + 1.72856 *A

47) Dimethylphth 1.398 1.369 1.427 1.390 1.361 1.337 1.400 1.316 1.375   2.64
48) 2,6-Dinitrot             0.326 0.341 0.335 0.331 0.333 0.342 0.335   1.86
49) Acenaphthene 1.211 1.197 1.219 1.183 1.113 1.117 1.235       1.182   4.14
50) 2,4-Dinitrop             0.068 0.127 0.130 0.166 0.100 0.165 0.126  29.93
            ---- Quadratic regr., Force(0,0) ----  Coefficient =  0.9941
              Response Ratio = 0.00000 + 0.11043 *A + 0.01453 *A^2

51) Dibenzofuran       1.779 1.821 1.728 1.621 1.567 1.778       1.716   5.85
            ---- Linear regression ----  Coefficient =  0.9984
              Response Ratio = 0.09537 + 1.55732 *A

52) 2,4-Dinitrot       0.404 0.422 0.429 0.415 0.407 0.419 0.416 0.416   2.03
53) 4-Nitropheno             0.201 0.232 0.229 0.222 0.219 0.226 0.222   4.95
54) 2,3,4,6-Tetr       0.320 0.354 0.392 0.383 0.390 0.371 0.388 0.371   7.06
55) Fluorene     1.383 1.384 1.400 1.350 1.246 1.188 1.373       1.332   6.14
            ---- Linear regression ----  Coefficient =  0.9972
              Response Ratio = 0.06598 + 1.19307 *A

56) 4-Chlorophen       0.696 0.713 0.705 0.658 0.629 0.704       0.684   4.87
```

Initial Calibration Summary

Job Number: JB31583 **Sample:** MSU623-ICC623
Account: ALNJ Accutest New Jersey **Lab FileID:** U12013.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
57) Diethylphtha 2.194 2.334 2.426 2.425 2.361 2.214 2.423 2.244 2.328   4.21
58) 2-nitroanili 0.358 0.398 0.417 0.426 0.415 0.416 0.418 0.413 0.408   5.28
59) 3-nitroanili 0.288 0.327 0.363 0.365 0.345 0.355 0.351 0.342 0.342   7.33
60) 4-nitroanili 0.303 0.347 0.373 0.379 0.374 0.359 0.370 0.367 0.359   6.86

61) I   Phenanthrene-d10      ----------------ISTD---------------------
62) 4,6-Dinitro-             0.108 0.147 0.138 0.148 0.128 0.147 0.136  11.69
            ---- Linear regression ----  Coefficient =  0.9989
              Response Ratio = -0.01123 + 0.15007 *A

63) n-Nitrosodip 0.554 0.559 0.579 0.561 0.528 0.516 0.561 0.492 0.544   5.35
            ---- Linear regression ----  Coefficient =  0.9978
              Response Ratio = 0.03060 + 0.49657 *A

64) 1,2-Diphenyl 0.735 0.775 0.788 0.735 0.685 0.674 0.748       0.734   5.79
65) 2,4,6-Tribro       0.105 0.115 0.122 0.118 0.122 0.118 0.118 0.117   4.90
66) 4-Bromopheny 0.246 0.250 0.262 0.256 0.247 0.252 0.253 0.235 0.250   3.18
67) Hexachlorobe 0.275 0.280 0.277 0.274 0.263 0.264 0.262 0.250 0.268   3.73
68) Pentachlorop       0.103 0.126 0.170 0.162 0.171 0.143 0.168 0.149  17.44
            ---- Linear regression ----  Coefficient =  0.9993
              Response Ratio = -0.00971 + 0.17112 *A

69) Phenanthrene 1.207 1.184 1.186 1.123 1.034 0.981 1.142 0.928 1.098   9.51
            ---- Linear regression ----  Coefficient =  0.9956
              Response Ratio = 0.09324 + 0.93583 *A

70) Anthracene   1.184 1.230 1.240 1.179 1.095 1.041 1.200       1.167   6.25
            ---- Linear regression ----  Coefficient =  0.9972
              Response Ratio = 0.05825 + 1.04533 *A

71) Carbazole    1.052 1.098 1.091 1.080 1.027 0.975 1.081 0.964 1.046   5.00
            ---- Quadratic regression ----  Coefficient =  0.9997
              Response Ratio = 0.00676 + 1.08487 *A + -0.03196 *A^2

72) Di-n-butylph 1.253 1.348 1.395 1.385 1.324 1.262 1.381 1.216 1.320   5.21
            ---- Quadratic regression ----  Coefficient =  0.9999
              Response Ratio = -0.00829 + 1.44278 *A + -0.05689 *A^2

73) Fluoranthene 1.245 1.249 1.310 1.303 1.206 1.142 1.290       1.249   4.81

74) I   Chrysene-d12          ----------------ISTD---------------------
75) Benzidine    0.576 0.644 0.674 0.658 0.630 0.626 0.682       0.641   5.57
76) Pyrene       1.240 1.274 1.288 1.250 1.225 1.202 1.252 1.176 1.238   2.97
77) Terphenyl-d1 0.877 0.915 0.913 0.919 0.925 0.913 0.901 0.899 0.908   1.68
78) 3,3-Dimethyl       0.676 0.724 0.693 0.643 0.651 0.721       0.685   4.98
79) Butylbenzylp 0.465 0.511 0.552 0.560 0.553 0.548 0.553 0.553 0.537   6.07
80) 3,3'-Dichlor       0.444 0.461 0.480 0.465 0.463 0.481 0.469 0.466   2.69
81) Benzo[a]anth 1.183 1.172 1.184 1.188 1.146 1.178 1.201 1.165 1.177   1.40
82) Chrysene     1.139 1.118 1.153 1.109 1.111 1.072 1.129 1.070 1.113   2.66
83) bis(2-Ethylh 0.623 0.710 0.773 0.807 0.802 0.803 0.785 0.786 0.761   8.40

84) I   Perylene-d12          ----------------ISTD---------------------
85) Di-n-octylph 0.939 1.196 1.306 1.444 1.407 1.341 1.363       1.285  13.39
86) Benzo[b]fluo 1.167 1.207 1.263 1.283 1.306 1.241 1.243 1.408 1.265   5.70
            ---- Linear regression ----  Coefficient =  0.9944
              Response Ratio = -0.05954 + 1.35962 *A

87) Benzo[k]fluo 1.208 1.259 1.298 1.291 1.185 1.152 1.275       1.238   4.59
88) Benzo[a]pyre 1.024 1.095 1.157 1.222 1.181 1.144 1.165 1.129 1.140   5.24
89) Indeno[1,2,3 1.246 1.327 1.402 1.459 1.443 1.410 1.398 1.386 1.384   4.94
```

Initial Calibration Summary

Job Number: JB31583 **Sample:** MSU623-ICC623
Account: ALNJ Accutest New Jersey **Lab FileID:** U12013.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
90) Dibenz[a,h]a 1.040 1.132 1.181 1.214 1.187 1.118 1.171 1.078 1.140   5.21
91) Benzo[g,h,i] 1.060 1.129 1.177 1.210 1.193 1.158 1.160 1.138 1.153   4.00
-------------------------------------------------------------------------------
(#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          U130129_8270.m        Mon Apr 01 14:23:28 2013
```

Initial Calibration Verification

Job Number: JB31583 **Sample:** MSU625-ICV623
Account: ALNJ Accutest New Jersey **Lab FileID:** U12034.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\U130130\U12034.D          Vial: 4
Acq On    : 30 Jan 2013  10:42 am                   Operator: NatalyaS
Sample    : icv623-20                               Inst    : MSU
Misc      : op31805,msu625,,,,1,1                   Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\U130129_8270.m (RTE Integrator)
Title        : SW-864 Method 8270
Last Update  : Thu Jan 31 10:40:34 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	126	0.00	3.34
2	T	N-Nitrosodimethylamine	0.789	0.798	-1.1	126	0.02	1.56
3	T	Pyridine	1.470	1.398	4.9	118	0.02	1.58
4	T	Aniline		----------NA----------				
5	S	2-Fluorophenol		----------NA----------				
6	T	bis(2-Chloroethyl)ether	1.288	1.238	3.9	116	0.00	3.15
7	S	Phenol-d5		----------NA----------				
		----------	Amount	Calc.	%Drift	----------		
8	C	Phenol		----------NA----------				
		----------	AvgRF	CCRF	%Dev	----------		
9	M	2-Chlorophenol		----------NA----------				
10	T	1,3-Dichlorobenzene	1.559	1.542	1.1	121	0.00	3.29
11	C	1,4-Dichlorobenzene	1.629	1.597	2.0	121	0.00	3.35
		----------	Amount	Calc.	%Drift	----------		
12	T	1,2-Dichlorobenzene	20.000	18.781	6.1	120	0.00	3.46
		----------	AvgRF	CCRF	%Dev	----------		
13	T	Benzyl alcohol	0.810	0.814	-0.5	121	0.00	3.45
14	T	bis(2-chloroisopropyl)eth	1.554	1.779	-14.5	141	0.00	3.55
15	T	o-cresol		----------NA----------				
16	T	Acetophenone	1.808	1.727	4.5	116	0.00	3.65
17	T	Hexachloroethane	0.594	0.592	0.3	123	0.00	3.71
		----------	Amount	Calc.	%Drift	----------		
18	P	N-Nitroso-di-n-propylamin	20.000	18.464	7.7	120	-0.01	3.65
19	T	m+p-cresols		----------NA----------				
20		4-methylphenol		----------NA----------				
		----------	AvgRF	CCRF	%Dev	----------		
21	I	Naphthalene-d8	1.000	1.000	0.0	127	0.00	4.31
22	S	Nitrobenzene-d5	0.378	0.370	2.1	113	0.00	3.76
23	T	Nitrobenzene	0.366	0.349	4.6	115	0.00	3.78
24	T	Isophorone	0.662	0.621	6.2	116	-0.02	3.96
25	C	2-Nitrophenol		----------NA----------				
26	T	2,4-Dimethylphenol		----------NA----------				
27	T	bis(2-Chloroethoxy)methan	0.422	0.360	14.7	106	0.00	4.14
		----------	Amount	Calc.	%Drift	----------		

9.7.2

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Initial Calibration Verification

Job Number: JB31583 **Sample:** MSU625-ICV623
Account: ALNJ Accutest New Jersey **Lab FileID:** U12034.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

28 T	Benzoic acid		----------NA----------				
	----------	AvgRF	CCRF	%Dev	----------		
29 C	2,4-Dichlorophenol		----------NA----------				
30 M	1,2,4-Trichlorobenzene	0.369	0.367	0.5	123	0.00	4.27
	----------	Amount	Calc.	%Drift	----------		
31 T	Naphthalene	20.000	19.855	0.7	123	0.00	4.33
	----------	AvgRF	CCRF	%Dev	----------		
32 T	2,6-Dichlorophenol		----------NA----------				
	----------	Amount	Calc.	%Drift	----------		
33 T	4-Chloroaniline	20.000	16.774	16.1	107	-0.01	4.38
	----------	AvgRF	CCRF	%Dev	----------		
34 C	Hexachlorobutadiene	0.225	0.231	-2.7	124	0.00	4.43
35 C	4-Chloro-3-methylphenol		----------NA----------				
	----------	Amount	Calc.	%Drift	----------		
36 T	2-Methylnaphthalene	20.000	18.755	6.2	115	0.00	4.88
37 T	1-Methylnaphthalene	20.000	19.406	3.0	120	0.00	4.96
38 T	1,2,4,5-Tetrachlorobenzen	20.000	18.709	6.5	119	0.00	5.02
	----------	AvgRF	CCRF	%Dev	----------		
39 I	Acenaphthene-d10	1.000	1.000	0.0	122	0.00	5.72
40 T	Pentachloronitrobenzene	0.194	0.172	11.3	107	0.00	6.82
	----------	Amount	Calc.	%Drift	----------		
41 P	Hexachlorocyclopentadiene	20.000	11.844	40.8#	53	0.00	5.01
	----------	AvgRF	CCRF	%Dev	----------		
42 C	2,4,6-Trichlorophenol		----------NA----------				
43 T	2,4,5-Trichlorophenol		----------NA----------				
44 S	2-Fluorobiphenyl	1.406	1.360	3.3	116	0.00	5.19
45 T	2-Chloronaphthalene	1.203	1.218	-1.2	122	0.00	5.27
	----------	Amount	Calc.	%Drift	----------		
46 M	Acenaphthylene	20.000	20.711	-3.6	121	0.00	5.60
	----------	AvgRF	CCRF	%Dev	----------		
47 T	Dimethylphthalate	1.375	1.293	6.0	112	-0.01	5.53
48 T	2,6-Dinitrotoluene	0.335	0.312	6.9	114	-0.01	5.57
49 C	Acenaphthene	1.182	1.162	1.7	114	0.00	5.74
	----------	Amount	Calc.	%Drift	----------		
50 P	2,4-Dinitrophenol		----------NA----------				
51 T	Dibenzofuran	20.000	18.887	5.6	114	0.00	5.89
	----------	AvgRF	CCRF	%Dev	----------		
52 M	2,4-Dinitrotoluene	0.416	0.393	5.5	114	-0.01	5.90
53 P	4-Nitrophenol		----------NA----------				
54 T	2,3,4,6-Tetrachlorophenol		----------NA----------				
	----------	Amount	Calc.	%Drift	----------		
55 T	Fluorene	20.000	20.623	-3.1	121	0.00	6.17
	----------	AvgRF	CCRF	%Dev	----------		
56 T	4-Chlorophenyl-phenylethe	0.684	0.692	-1.2	120	0.00	6.18

Initial Calibration Verification

Job Number: JB31583 **Sample:** MSU625-ICV623
Account: ALNJ Accutest New Jersey **Lab FileID:** U12034.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

57	T	Diethylphthalate	2.328	2.154	7.5	108	0.00	7.58
58	T	2-nitroaniline	0.408	0.407	0.2	119	0.00	5.37
59	T	3-nitroaniline	0.342	0.297	13.2	103	-0.01	5.70
60	T	4-nitroaniline	0.359	0.330	8.1	109	-0.02	6.20
61	I	Phenanthrene-d10	1.000	1.000	0.0	120	0.00	6.97
		----------	Amount	Calc.	%Drift		----------	
62	T	4,6-Dinitro-2-methylpheno		----------NA----------				
63	C	n-Nitrosodiphenylamine	20.000	17.906	10.5	109	-0.01	6.28
		----------	AvgRF	CCRF	%Dev		----------	
64	T	1,2-Diphenylhydrazine	0.734	0.692	5.7	111	-0.01	6.30
65	S	2,4,6-Tribromophenol	0.117	0.186	-59.0#	189	0.00	6.37
66	T	4-Bromophenyl-phenylether	0.250	0.239	4.4	114	0.00	6.58
67	T	Hexachlorobenzene	0.268	0.263	1.9	121	0.00	6.63
		----------	Amount	Calc.	%Drift		----------	
68	C	Pentachlorophenol		----------NA----------				
69	T	Phenanthrene	20.000	19.456	2.7	116	-0.01	6.99
70	T	Anthracene	20.000	18.936	5.3	111	-0.01	7.04
71	T	Carbazole	20.000	19.063	4.7	115	-0.01	7.20
72	T	Di-n-butylphthalate	20.000	17.754	11.2	108	0.00	7.58
		----------	AvgRF	CCRF	%Dev		----------	
73	C	Fluoranthene	1.249	1.244	0.4	116	-0.01	8.17
74	I	Chrysene-d12	1.000	1.000	0.0	118	-0.01	9.77
75	T	Benzidine	0.641	0.283	55.9#	49#	-0.01	8.35
76	M	Pyrene	1.238	1.199	3.2	113	-0.01	8.41
77	S	Terphenyl-d14	0.908	0.819	9.8	107	0.00	8.62
78		3,3-Dimethylbenzidine		----------NA----------				
79	T	Butylbenzylphthalate	0.537	0.503	6.3	107	0.00	9.20
80	T	3,3'-Dichlorobenzidine	0.466	0.269	42.3#	66	-0.01	9.76
81	T	Benzo[a]anthracene	1.177	1.148	2.5	112	-0.01	9.75
82	T	Chrysene	1.113	1.055	5.2	110	-0.01	9.80
83	T	bis(2-Ethylhexyl)phthalat	0.761	0.723	5.0	108	-0.01	9.90
84	I	Perylene-d12	1.000	1.000	0.0	113	0.00	11.32
85	C	Di-n-octylphthalate	1.285	1.367	-6.4	113	-0.01	10.63
		----------	Amount	Calc.	%Drift		----------	
86	T	Benzo[b]fluoranthene	20.000	20.785	-3.9	117	-0.02	10.93
		----------	AvgRF	CCRF	%Dev		----------	
87	T	Benzo[k]fluoranthene	1.238	1.126	9.0	100	-0.02	10.96
88	C	Benzo[a]pyrene	1.140	1.063	6.8	103	-0.01	11.26
89	T	Indeno[1,2,3-cd]pyrene	1.384	1.294	6.5	104	-0.02	12.31
90	T	Dibenz[a,h]anthracene	1.140	1.109	2.7	107	-0.02	12.32
91	T	Benzo[g,h,i]perylene	1.153	1.109	3.8	108	-0.02	12.53

(#) = Out of Range SPCC's out = 1 CCC's out = 6
U12017.D U130129_8270.m Thu Jan 31 13:36:17 2013

9.7.2

9

Initial Calibration Verification

Job Number: JB31583 **Sample:** MSU625-ICV623
Account: ALNJ Accutest New Jersey **Lab FileID:** U12035.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\U130130\U12035.D          Vial: 5
Acq On    : 30 Jan 2013  12:16 pm                   Operator: NatalyaS
Sample    : icv623-50                               Inst    : MSU
Misc      : op31805,msu625,,,,1,1                   Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\U130129_8270.m (RTE Integrator)
Title        : SW-864 Method 8270
Last Update  : Thu Jan 31 10:40:34 2013
Response via : Multiple Level Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	116	0.00	3.34
2	T	N-Nitrosodimethylamine		----------NA----------				
3	T	Pyridine		----------NA----------				
4	T	Aniline		----------NA----------				
5	S	2-Fluorophenol	1.304	1.265	3.0	109	0.00	2.42
6	T	bis(2-Chloroethyl)ether		----------NA----------				
7	S	Phenol-d5	1.567	1.480	5.6	106	0.00	3.09
		----------	Amount	Calc.	%Drift		----------	
8	C	Phenol	50.000	43.149	13.7	102	0.00	3.10
		----------	AvgRF	CCRF	%Dev		----------	
9	M	2-Chlorophenol	1.396	1.346	3.6	109	0.00	3.19
10	T	1,3-Dichlorobenzene		----------NA----------				
11	C	1,4-Dichlorobenzene		----------NA----------				
		----------	Amount	Calc.	%Drift		----------	
12	T	1,2-Dichlorobenzene		----------NA----------				
		----------	AvgRF	CCRF	%Dev		----------	
13	T	Benzyl alcohol		----------NA----------				
14	T	bis(2-chloroisopropyl)eth		----------NA----------				
15	T	o-cresol	1.206	1.150	4.6	107	0.00	3.54
16	T	Acetophenone		----------NA----------				
17	T	Hexachloroethane		----------NA----------				
		----------	Amount	Calc.	%Drift		----------	
18	P	N-Nitroso-di-n-propylamin		----------NA----------				
19	T	m+p-cresols	100.000	101.264	-1.3	109	-0.01	3.66
20		4-methylphenol	100.000	101.264	-1.3	109	-0.01	3.66
		----------	AvgRF	CCRF	%Dev		----------	
21	I	Naphthalene-d8	1.000	1.000	0.0	113	0.00	4.32
22	S	Nitrobenzene-d5	0.378	0.184	51.3#	55	0.00	3.76
23	T	Nitrobenzene		----------NA----------				
24	T	Isophorone		----------NA----------				
25	C	2-Nitrophenol	0.211	0.213	-0.9	109	0.00	4.02
26	T	2,4-Dimethylphenol	0.353	0.293	17.0	89	0.00	4.07
27	T	bis(2-Chloroethoxy)methan		----------NA----------				
		----------	Amount	Calc.	%Drift		----------	

9.7.3

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Initial Calibration Verification

Job Number: JB31583 **Sample:** MSU625-ICV623
Account: ALNJ Accutest New Jersey **Lab FileID:** U12035.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

28	T	Benzoic acid	50.000	42.346	15.3	92	-0.03	4.18
			AvgRF	CCRF	%Dev			
29	C	2,4-Dichlorophenol	0.326	0.328	-0.6	108	0.00	4.21
30	M	1,2,4-Trichlorobenzene		NA				
			Amount	Calc.	%Drift			
31	T	Naphthalene	50.000	-1.708	103.4#	2	0.05	4.39
			AvgRF	CCRF	%Dev			
32	T	2,6-Dichlorophenol	0.320	0.321	-0.3	110	0.00	4.39
			Amount	Calc.	%Drift			
33	T	4-Chloroaniline	50.000	-2.954	105.9#	1	0.00	4.39
			AvgRF	CCRF	%Dev			
34	C	Hexachlorobutadiene		NA				
35	C	4-Chloro-3-methylphenol	0.294	0.289	1.7	104	0.00	4.79
			Amount	Calc.	%Drift			
36	T	2-Methylnaphthalene		NA				
37	T	1-Methylnaphthalene		NA				
38	T	1,2,4,5-Tetrachlorobenzen		NA				
			AvgRF	CCRF	%Dev			
39	I	Acenaphthene-d10	1.000	1.000	0.0	111	0.00	5.72
40	T	Pentachloronitrobenzene		NA				
			Amount	Calc.	%Drift			
41	P	Hexachlorocyclopentadiene		NA				
			AvgRF	CCRF	%Dev			
42	C	2,4,6-Trichlorophenol	0.415	0.422	-1.7	111	0.00	5.12
43	T	2,4,5-Trichlorophenol	0.454	0.458	-0.9	109	0.00	5.14
44	S	2-Fluorobiphenyl		NA				
45	T	2-Chloronaphthalene		NA				
			Amount	Calc.	%Drift			
46	M	Acenaphthylene	50.000	-0.725	101.4#	2	-0.42	5.19
			AvgRF	CCRF	%Dev			
47	T	Dimethylphthalate		NA				
48	T	2,6-Dinitrotoluene		NA				
49	C	Acenaphthene		NA				
			Amount	Calc.	%Drift			
50	P	2,4-Dinitrophenol	50.000	32.085	35.8#	68	0.00	5.80
51	T	Dibenzofuran		NA				
			AvgRF	CCRF	%Dev			
52	M	2,4-Dinitrotoluene		NA				
53	P	4-Nitrophenol	0.222	0.196	11.7	94	0.00	5.86
54	T	2,3,4,6-Tetrachlorophenol	0.371	0.378	-1.9	107	0.00	6.00
			Amount	Calc.	%Drift			
55	T	Fluorene	50.000	-1.672	103.3#	1	0.19	6.37
			AvgRF	CCRF	%Dev			
56	T	4-Chlorophenyl-phenylethe		NA				

9.7.3

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Initial Calibration Verification

Job Number: JB31583 **Sample:** MSU625-ICV623
Account: ALNJ Accutest New Jersey **Lab FileID:** U12035.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

57	T	Diethylphthalate		----------NA----------				
58	T	2-nitroaniline		----------NA----------				
59	T	3-nitroaniline		----------NA----------				
60	T	4-nitroaniline		----------NA----------				
61	I	Phenanthrene-d10	1.000	1.000	0.0	106	0.00	6.97
		----------	Amount	Calc.	%Drift		----------	
62	T	4,6-Dinitro-2-methylpheno	50.000	41.591	16.8	84	-0.01	6.23
63	C	n-Nitrosodiphenylamine	50.000	-2.038	104.1#	1	0.08	6.37
		----------	AvgRF	CCRF	%Dev		----------	
64	T	1,2-Diphenylhydrazine		----------NA----------				
65	S	2,4,6-Tribromophenol	0.117	0.120	-2.6	105	0.00	6.37
66	T	4-Bromophenyl-phenylether		----------NA----------				
67	T	Hexachlorobenzene		----------NA----------				
		----------	Amount	Calc.	%Drift		----------	
68	C	Pentachlorophenol	50.000	49.965	0.1	102	-0.01	6.81
69	T	Phenanthrene		----------NA----------				
70	T	Anthracene		----------NA----------				
71	T	Carbazole		----------NA----------				
72	T	Di-n-butylphthalate		----------NA----------				
		----------	AvgRF	CCRF	%Dev		----------	
73	C	Fluoranthene		----------NA----------				
74	I	Chrysene-d12	1.000	1.000	0.0	103	-0.01	9.77
75	T	Benzidine		----------NA----------				
76	M	Pyrene		----------NA----------				
77	S	Terphenyl-d14	0.908	0.457	49.7#	51	0.00	8.62
78		3,3-Dimethylbenzidine		----------NA----------				
79	T	Butylbenzylphthalate		----------NA----------				
80	T	3,3'-Dichlorobenzidine		----------NA----------				
81	T	Benzo[a]anthracene		----------NA----------				
82	T	Chrysene		----------NA----------				
83	T	bis(2-Ethylhexyl)phthalat		----------NA----------				
84	I	Perylene-d12	1.000	1.000	0.0	102	0.00	11.32
85	C	Di-n-octylphthalate		----------NA----------				
		----------	Amount	Calc.	%Drift		----------	
86	T	Benzo[b]fluoranthene		----------NA----------				
		----------	AvgRF	CCRF	%Dev		----------	
87	T	Benzo[k]fluoranthene	1.238	0.003#	99.8#	0#	0.34	11.32
88	C	Benzo[a]pyrene	1.140	0.003#	99.7#	0#	0.05	11.32
89	T	Indeno[1,2,3-cd]pyrene		----------NA----------				
90	T	Dibenz[a,h]anthracene		----------NA----------				
91	T	Benzo[g,h,i]perylene		----------NA----------				

(#) = Out of Range SPCC's out = 0 CCC's out = 7
U12016.D U130129_8270.m Thu Jan 31 13:36:50 2013

9.7.3

9

Initial Calibration Verification

Job Number: JB31583 **Sample:** MSU626-ICV623
Account: ALNJ Accutest New Jersey **Lab FileID:** U12058.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\U130131\U12058.D          Vial: 1
Acq On    : 31 Jan 2013  11:22 am                   Operator: NatalyaS
Sample    : icv623-20                               Inst    : MSU
Misc      : op31771,msu626,,,,1,1                   Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\U130129_8270.m (RTE Integrator)
Title        : SW-864 Method 8270
Last Update  : Thu Jan 31 10:40:34 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   80   0.00    3.34
2 T   N-Nitrosodimethylamine       0.789   0.756      4.2   76   0.00    1.54
3 T   Pyridine                     1.470   1.368      6.9   73   0.00    1.56
4 T   Aniline                      2.045   1.876      8.3   71   0.00    3.10
5 S   2-Fluorophenol                      ----------NA----------
6 T   bis(2-Chloroethyl)ether              ----------NA----------
7 S   Phenol-d5                           ----------NA----------

          ----------------------- Amount  Calc.    %Drift   -------------
8 C   Phenol                             ----------NA----------

          ----------------------- AvgRF   CCRF      %Dev   --------------
9 M   2-Chlorophenol                     ----------NA----------
10 T  1,3-Dichlorobenzene                ----------NA----------
11 C  1,4-Dichlorobenzene                ----------NA----------

          ----------------------- Amount  Calc.    %Drift   -------------
12 T  1,2-Dichlorobenzene                ----------NA----------

          ----------------------- AvgRF   CCRF      %Dev   --------------
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----------

          ----------------------- Amount  Calc.    %Drift   -------------
18 P  N-Nitroso-di-n-propylamin          ----------NA----------
19 T  m+p-cresols                        ----------NA----------
20    4-methylphenol                     ----------NA----------


          ----------------------- AvgRF   CCRF      %Dev   --------------
21 I  Naphthalene-d8               1.000   1.000      0.0   81   0.00    4.31
22 S  Nitrobenzene-d5                    ----------NA----------
23 T  Nitrobenzene                       ----------NA----------
24 T  Isophorone                         ----------NA----------
25 C  2-Nitrophenol                      ----------NA----------
26 T  2,4-Dimethylphenol                 ----------NA----------
27 T  bis(2-Chloroethoxy)methan          ----------NA----------

          ----------------------- Amount  Calc.    %Drift   -------------
```

9.7.4

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Initial Calibration Verification

Job Number: JB31583 **Sample:** MSU626-ICV623
Account: ALNJ Accutest New Jersey **Lab FileID:** U12058.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

28	T	Benzoic acid		----------NA----------				
		----------	AvgRF	CCRF	%Dev	----------		
29	C	2,4-Dichlorophenol		----------NA----------				
30	M	1,2,4-Trichlorobenzene		----------NA----------				
		----------	Amount	Calc.	%Drift	----------		
31	T	Naphthalene	20.000	-2.021	110.1#	2	0.05	4.38
		----------	AvgRF	CCRF	%Dev	----------		
32	T	2,6-Dichlorophenol		----------NA----------				
		----------	Amount	Calc.	%Drift	----------		
33	T	4-Chloroaniline	20.000	17.190	14.0	70	-0.01	4.38
		----------	AvgRF	CCRF	%Dev	----------		
34	C	Hexachlorobutadiene		----------NA----------				
35	C	4-Chloro-3-methylphenol		----------NA----------				
		----------	Amount	Calc.	%Drift	----------		
36	T	2-Methylnaphthalene		----------NA----------				
37	T	1-Methylnaphthalene		----------NA----------				
38	T	1,2,4,5-Tetrachlorobenzen		----------NA----------				
		----------	AvgRF	CCRF	%Dev	----------		
39	I	Acenaphthene-d10	1.000	1.000	0.0	79	0.00	5.72
40	T	Pentachloronitrobenzene		----------NA----------				
		----------	Amount	Calc.	%Drift	----------		
41	P	Hexachlorocyclopentadiene		----------NA----------				
		----------	AvgRF	CCRF	%Dev	----------		
42	C	2,4,6-Trichlorophenol		----------NA----------				
43	T	2,4,5-Trichlorophenol		----------NA----------				
44	S	2-Fluorobiphenyl		----------NA----------				
45	T	2-Chloronaphthalene		----------NA----------				
		----------	Amount	Calc.	%Drift	----------		
46	M	Acenaphthylene		----------NA----------				
		----------	AvgRF	CCRF	%Dev	----------		
47	T	Dimethylphthalate		----------NA----------				
48	T	2,6-Dinitrotoluene		----------NA----------				
49	C	Acenaphthene		----------NA----------				
		----------	Amount	Calc.	%Drift	----------		
50	P	2,4-Dinitrophenol		----------NA----------				
51	T	Dibenzofuran		----------NA----------				
		----------	AvgRF	CCRF	%Dev	----------		
52	M	2,4-Dinitrotoluene		----------NA----------				
53	P	4-Nitrophenol		----------NA----------				
54	T	2,3,4,6-Tetrachlorophenol		----------NA----------				
		----------	Amount	Calc.	%Drift	----------		
55	T	Fluorene	20.000	-1.221	106.1#	3	0.10	6.27
		----------	AvgRF	CCRF	%Dev	----------		
56	T	4-Chlorophenyl-phenylethe		----------NA----------				

9.7.4

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Initial Calibration Verification

Job Number: JB31583 **Sample:** MSU626-ICV623
Account: ALNJ Accutest New Jersey **Lab FileID:** U12058.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

57	T	Diethylphthalate		----------NA----------				
58	T	2-nitroaniline	0.408	0.366	10.3	69	0.00	5.37
59	T	3-nitroaniline	0.342	0.320	6.4	72	-0.01	5.70
60	T	4-nitroaniline	0.359	0.313	12.8	67	-0.03	6.19
61	I	Phenanthrene-d10	1.000	1.000	0.0	81	0.00	6.97
		----------	Amount	Calc.	%Drift		----------	
62	T	4,6-Dinitro-2-methylpheno		----------NA----------				
63	C	n-Nitrosodiphenylamine	20.000	21.589	-7.9	86	-0.02	6.27
		----------	AvgRF	CCRF	%Dev		----------	
64	T	1,2-Diphenylhydrazine		----------NA----------				
65	S	2,4,6-Tribromophenol		----------NA----------				
66	T	4-Bromophenyl-phenylether		----------NA----------				
67	T	Hexachlorobenzene		----------NA----------				
		----------	Amount	Calc.	%Drift		----------	
68	C	Pentachlorophenol		----------NA----------				
69	T	Phenanthrene		----------NA----------				
70	T	Anthracene		----------NA----------				
71	T	Carbazole		----------NA----------				
72	T	Di-n-butylphthalate		----------NA----------				
		----------	AvgRF	CCRF	%Dev		----------	
73	C	Fluoranthene		----------NA----------				
74	I	Chrysene-d12	1.000	1.000	0.0	80	-0.01	9.77
75	T	Benzidine	0.641	0.714	-11.4	84	-0.01	8.35
76	M	Pyrene		----------NA----------				
77	S	Terphenyl-d14		----------NA----------				
78		3,3-Dimethylbenzidine		----------NA----------				
79	T	Butylbenzylphthalate		----------NA----------				
80	T	3,3'-Dichlorobenzidine	0.466	0.413	11.4	69	-0.01	9.76
81	T	Benzo[a]anthracene		----------NA----------				
82	T	Chrysene		----------NA----------				
83	T	bis(2-Ethylhexyl)phthalat		----------NA----------				
84	I	Perylene-d12	1.000	1.000	0.0	78	0.00	11.32
85	C	Di-n-octylphthalate		----------NA----------				
		----------	Amount	Calc.	%Drift		----------	
86	T	Benzo[b]fluoranthene		----------NA----------				
		----------	AvgRF	CCRF	%Dev		----------	
87	T	Benzo[k]fluoranthene	1.238	0.007#	99.4#	0#	0.34	11.32
88	C	Benzo[a]pyrene	1.140	0.007#	99.4#	0#	0.05	11.32
89	T	Indeno[1,2,3-cd]pyrene		----------NA----------				
90	T	Dibenz[a,h]anthracene		----------NA----------				
91	T	Benzo[g,h,i]perylene		----------NA----------				

(#) = Out of Range SPCC's out = 1 CCC's out = 12
U12017.D U130129_8270.m Mon Feb 04 12:18:37 2013

Continuing Calibration Summary

Job Number: JB31583 **Sample:** MSU672-CC623
Account: ALNJ Accutest New Jersey **Lab FileID:** U13122.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\U130327\U13122.D          Vial: 100
Acq On    : 27 Mar 2013  12:51 pm                   Operator: NatalyaS
Sample    : cc623-50                                Inst    : MSU
Misc      : op32346,msu672,,,,1,1                   Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\U130129_8270.m (RTE Integrator)
Title        : SW-864 Method 8270
Last Update  : Thu Mar 28 10:38:36 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	105	0.00	3.08
2	T	N-Nitrosodimethylamine	0.789	0.854	-8.2	107	0.00	1.27
3	T	Pyridine	1.470	1.570	-6.8	105	0.00	1.28
4	T	Aniline	2.045	1.966	3.9	97	0.00	2.84
5	S	2-Fluorophenol	1.304	1.347	-3.3	105	0.00	2.16
6	T	bis(2-Chloroethyl)ether	1.288	1.336	-3.7	136	0.00	2.90
7	S	Phenol-d5	1.567	1.507	3.8	97	0.00	2.84
		----------	Amount	Calc.	%Drift		----------	
8	C	Phenol	50.000	48.490	3.0	102	0.00	2.85
		----------	AvgRF	CCRF	%Dev		----------	
9	M	2-Chlorophenol	1.396	1.396	0.0	102	0.00	2.92
10	T	1,3-Dichlorobenzene	1.559	1.625	-4.2	109	0.00	3.03
11	C	1,4-Dichlorobenzene	1.629	1.690	-3.7	108	0.00	3.09
		----------	Amount	Calc.	%Drift		----------	
12	T	1,2-Dichlorobenzene	50.000	52.161	-4.3	108	0.00	3.20
		----------	AvgRF	CCRF	%Dev		----------	
13	T	Benzyl alcohol	0.810	0.599	26.0#	72	0.00	3.20
14	T	bis(2-chloroisopropyl)eth	1.554	1.431	7.9	95	0.00	3.30
15	T	o-cresol	1.206	1.206	0.0	101	0.00	3.29
16	T	Acetophenone	1.808	1.851	-2.4	104	0.00	3.39
17	T	Hexachloroethane	0.594	0.637	-7.2	109	0.00	3.45
		----------	Amount	Calc.	%Drift		----------	
18	P	N-Nitroso-di-n-propylamin	50.000	47.962	4.1	101	0.00	3.40
19	T	m+p-cresols	100.000	106.529	-6.5	104	0.00	3.42
20		4-methylphenol	100.000	106.529	-6.5	104	0.00	3.42
		----------	AvgRF	CCRF	%Dev		----------	
21	I	Naphthalene-d8	1.000	1.000	0.0	102	0.00	4.05
22	S	Nitrobenzene-d5	0.378	0.383	-1.3	103	0.00	3.50
23	T	Nitrobenzene	0.366	0.380	-3.8	103	0.00	3.52
24	T	Isophorone	0.662	0.675	-2.0	100	0.00	3.71
25	C	2-Nitrophenol	0.211	0.219	-3.8	102	0.00	3.76
26	T	2,4-Dimethylphenol	0.353	0.368	-4.2	102	0.00	3.82
27	T	bis(2-Chloroethoxy)methan	0.422	0.427	-1.2	100	0.00	3.89
		----------	Amount	Calc.	%Drift		----------	

Continuing Calibration Summary

Job Number: JB31583 **Sample:** MSU672-CC623
Account: ALNJ Accutest New Jersey **Lab FileID:** U13122.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

28	T	Benzoic acid	50.000	53.352	-6.7	107	0.00	3.95
		----------	AvgRF	CCRF	%Dev	----------		
29	C	2,4-Dichlorophenol	0.326	0.352	-8.0	105	0.00	3.96
30	M	1,2,4-Trichlorobenzene	0.369	0.408	-10.6	110	0.00	4.01
		----------	Amount	Calc.	%Drift	----------		
31	T	Naphthalene	50.000	54.903	-9.8	103	0.00	4.06
		----------	AvgRF	CCRF	%Dev	----------		
32	T	2,6-Dichlorophenol	0.320	0.331	-3.4	103	0.00	4.13
		----------	Amount	Calc.	%Drift	----------		
33	T	4-Chloroaniline	50.000	55.138	-10.3	103	0.00	4.13
		----------	AvgRF	CCRF	%Dev	----------		
34	C	Hexachlorobutadiene	0.225	0.264	-17.3	116	0.00	4.17
35	C	4-Chloro-3-methylphenol	0.294	0.312	-6.1	102	0.00	4.53
		----------	Amount	Calc.	%Drift	----------		
36	T	2-Methylnaphthalene	50.000	54.878	-9.8	105	0.00	4.62
37	T	1-Methylnaphthalene	50.000	53.818	-7.6	103	0.00	4.69
38	T	1,2,4,5-Tetrachlorobenzen	50.000	60.713	-21.4#	114	0.00	4.75
		----------	AvgRF	CCRF	%Dev	----------		
39	I	Acenaphthene-d10	1.000	1.000	0.0	104	0.00	5.44
40	T	Pentachloronitrobenzene	0.194	0.225	-16.0	116	0.00	6.53
		----------	Amount	Calc.	%Drift	----------		
41	P	Hexachlorocyclopentadiene	50.000	40.512	19.0	81	0.00	4.74
		----------	AvgRF	CCRF	%Dev	----------		
42	C	2,4,6-Trichlorophenol	0.415	0.447	-7.7	110	0.00	4.86
43	T	2,4,5-Trichlorophenol	0.454	0.502	-10.6	111	0.00	4.89
44	S	2-Fluorobiphenyl	1.406	1.458	-3.7	108	0.00	4.92
45	T	2-Chloronaphthalene	1.203	1.252	-4.1	107	0.00	5.00
		----------	Amount	Calc.	%Drift	----------		
46	M	Acenaphthylene	50.000	54.502	-9.0	106	0.00	5.33
		----------	AvgRF	CCRF	%Dev	----------		
47	T	Dimethylphthalate	1.375	1.452	-5.6	108	0.00	5.27
48	T	2,6-Dinitrotoluene	0.335	0.338	-0.9	103	0.00	5.32
49	C	Acenaphthene	1.182	1.232	-4.2	108	0.00	5.47
		----------	Amount	Calc.	%Drift	----------		
50	P	2,4-Dinitrophenol	50.000	62.157	-24.3#	135	0.00	5.54
51	T	Dibenzofuran	50.000	54.113	-8.2	106	0.00	5.61
		----------	AvgRF	CCRF	%Dev	----------		
52	M	2,4-Dinitrotoluene	0.416	0.438	-5.3	106	0.00	5.64
53	P	4-Nitrophenol	0.222	0.201	9.5	90	0.00	5.62
54	T	2,3,4,6-Tetrachlorophenol	0.371	0.404	-8.9	107	0.00	5.73
		----------	Amount	Calc.	%Drift	----------		
55	T	Fluorene	50.000	55.589	-11.2	106	0.00	5.89
		----------	AvgRF	CCRF	%Dev	----------		
56	T	4-Chlorophenyl-phenylethe	0.684	0.728	-6.4	107	0.00	5.91

9.7.5
9

Continuing Calibration Summary

Job Number: JB31583 **Sample:** MSU672-CC623
Account: ALNJ Accutest New Jersey **Lab FileID:** U13122.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

57	T	Diethylphthalate	2.328	2.604	-11.9	112	0.00	7.27
58	T	2-nitroaniline	0.408	0.410	-0.5	100	0.00	5.10
59	T	3-nitroaniline	0.342	0.358	-4.7	102	0.00	5.44
60	T	4-nitroaniline	0.359	0.347	3.3	95	0.00	5.94
61	I	Phenanthrene-d10	1.000	1.000	0.0	108	0.00	6.67
		----------	Amount	Calc.	%Drift		----------	
62	T	4,6-Dinitro-2-methylpheno	50.000	52.849	-5.7	110	0.00	5.97
63	C	n-Nitrosodiphenylamine	50.000	52.221	-4.4	104	0.00	6.01
		----------	AvgRF	CCRF	%Dev		----------	
64	T	1,2-Diphenylhydrazine	0.734	0.733	0.1	107	0.00	6.03
65	S	2,4,6-Tribromophenol	0.117	0.126	-7.7	111	0.00	6.09
66	T	4-Bromophenyl-phenylether	0.250	0.271	-8.4	114	0.00	6.30
67	T	Hexachlorobenzene	0.268	0.284	-6.0	112	0.00	6.34
		----------	Amount	Calc.	%Drift		----------	
68	C	Pentachlorophenol	50.000	46.979	6.0	97	0.00	6.52
69	T	Phenanthrene	50.000	55.889	-11.8	108	0.00	6.68
70	T	Anthracene	50.000	52.932	-5.9	105	0.00	6.73
71	T	Carbazole	50.000	49.237	1.5	103	0.00	6.90
72	T	Di-n-butylphthalate	50.000	52.648	-5.3	112	0.00	7.27
		----------	AvgRF	CCRF	%Dev		----------	
73	C	Fluoranthene	1.249	1.294	-3.6	107	0.00	7.82
74	I	Chrysene-d12	1.000	1.000	0.0	111	0.00	9.40
75	T	Benzidine	0.641	0.516	19.5	87	0.00	8.01
76	M	Pyrene	1.238	1.198	3.2	107	0.00	8.05
77	S	Terphenyl-d14	0.908	0.892	1.8	108	0.00	8.27
78		3,3-Dimethylbenzidine	0.685	0.550	19.7	88	0.00	8.81
79	T	Butylbenzylphthalate	0.537	0.534	0.6	106	0.00	8.86
80	T	3,3'-Dichlorobenzidine	0.466	0.474	-1.7	110	0.00	9.40
81	T	Benzo[a]anthracene	1.177	1.156	1.8	108	0.00	9.39
82	T	Chrysene	1.113	1.079	3.1	108	0.00	9.43
83	T	bis(2-Ethylhexyl)phthalat	0.761	0.795	-4.5	110	0.00	9.56
84	I	Perylene-d12	1.000	1.000	0.0	110	0.00	10.94
85	C	Di-n-octylphthalate	1.285	1.442	-12.2	110	0.00	10.29
		----------	Amount	Calc.	%Drift		----------	
86	T	Benzo[b]fluoranthene	50.000	51.732	-3.5	117	0.00	10.56
		----------	AvgRF	CCRF	%Dev		----------	
87	T	Benzo[k]fluoranthene	1.238	1.163	6.1	99	0.00	10.59
88	C	Benzo[a]pyrene	1.140	1.207	-5.9	109	0.00	10.88
89	T	Indeno[1,2,3-cd]pyrene	1.384	1.447	-4.6	109	0.00	11.93
90	T	Dibenz[a,h]anthracene	1.140	1.174	-3.0	107	0.00	11.95
91	T	Benzo[g,h,i]perylene	1.153	1.182	-2.5	108	0.00	12.15

(#) = Out of Range SPCC's out = 0 CCC's out = 0
U13122.D U130129_8270.m Thu Mar 28 10:38:55 2013

9.7.5

9

Continuing Calibration Summary

Job Number: JB31583 **Sample:** MSU674-CC623
Account: ALNJ Accutest New Jersey **Lab FileID:** U13195.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\U130329\U13195.D          Vial: 100
Acq On    : 29 Mar 2013   9:24 am                   Operator: NatalyaS
Sample    : cc623-50                                Inst    : MSU
Misc      : op32346,msu674,,,,1,1                   Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\U130129_8270.m (RTE Integrator)
Title        : SW-864 Method 8270
Last Update  : Fri Mar 29 11:20:02 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	175	0.00	3.08
2	T	N-Nitrosodimethylamine	0.789	0.791	-0.3	166	0.00	1.29
3	T	Pyridine	1.470	1.511	-2.8	168	0.00	1.30
4	T	Aniline	2.045	1.936	5.3	158	0.00	2.84
5	S	2-Fluorophenol	1.304	1.320	-1.2	171	0.00	2.17
6	T	bis(2-Chloroethyl)ether	1.288	1.161	9.9	197	0.00	2.90
7	S	Phenol-d5	1.567	1.490	4.9	160	0.00	2.84
		----------	Amount	Calc.	%Drift		----------	
8	C	Phenol	50.000	49.088	1.8	172	0.00	2.85
		----------	AvgRF	CCRF	%Dev		----------	
9	M	2-Chlorophenol	1.396	1.428	-2.3	174	0.00	2.92
10	T	1,3-Dichlorobenzene	1.559	1.565	-0.4	175	0.00	3.03
11	C	1,4-Dichlorobenzene	1.629	1.614	0.9	172	0.00	3.09
		----------	Amount	Calc.	%Drift		----------	
12	T	1,2-Dichlorobenzene	50.000	50.737	-1.5	176	0.00	3.19
		----------	AvgRF	CCRF	%Dev		----------	
13	T	Benzyl alcohol	0.810	0.193	76.2#	39#	-0.01	3.28
14	T	bis(2-chloroisopropyl)eth	1.554	1.401	9.8	154	0.00	3.29
15	T	o-cresol	1.206	1.276	-5.8	178	0.00	3.29
16	T	Acetophenone	1.808	1.846	-2.1	173	0.00	3.39
17	T	Hexachloroethane	0.594	0.625	-5.2	177	0.00	3.44
		----------	Amount	Calc.	%Drift		----------	
18	P	N-Nitroso-di-n-propylamin	50.000	47.875	4.3	168	0.00	3.41
19	T	m+p-cresols	100.000	105.527	-5.5	171	0.00	3.42
20		4-methylphenol	100.000	105.527	-5.5	171	0.00	3.42
		----------	AvgRF	CCRF	%Dev		----------	
21	I	Naphthalene-d8	1.000	1.000	0.0	170	0.00	4.04
22	S	Nitrobenzene-d5	0.378	0.387	-2.4	173	0.00	3.50
23	T	Nitrobenzene	0.366	0.380	-3.8	171	0.00	3.52
24	T	Isophorone	0.662	0.681	-2.9	168	0.00	3.70
25	C	2-Nitrophenol	0.211	0.227	-7.6	176	0.00	3.76
26	T	2,4-Dimethylphenol	0.353	0.376	-6.5	173	0.00	3.82
27	T	bis(2-Chloroethoxy)methan	0.422	0.424	-0.5	166	0.00	3.89
		----------	Amount	Calc.	%Drift		----------	

Continuing Calibration Summary

Job Number: JB31583 **Sample:** MSU674-CC623
Account: ALNJ Accutest New Jersey **Lab FileID:** U13195.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

28	T	Benzoic acid	50.000	56.005	-12.0	188	-0.01	3.96
		----------	AvgRF	CCRF	%Dev	----------		
29	C	2,4-Dichlorophenol	0.326	0.363	-11.3	181	0.00	3.96
30	M	1,2,4-Trichlorobenzene	0.369	0.402	-8.9	180	0.00	4.00
		----------	Amount	Calc.	%Drift	----------		
31	T	Naphthalene	50.000	53.351	-6.7	167	0.00	4.06
		----------	AvgRF	CCRF	%Dev	----------		
32	T	2,6-Dichlorophenol	0.320	0.326	-1.9	168	-0.01	4.12
		----------	Amount	Calc.	%Drift	----------		
33	T	4-Chloroaniline	50.000	52.890	-5.8	165	0.00	4.12
		----------	AvgRF	CCRF	%Dev	----------		
34	C	Hexachlorobutadiene	0.225	0.266	-18.2	195	0.00	4.16
35	C	4-Chloro-3-methylphenol	0.294	0.331	-12.6	180	0.00	4.53
		----------	Amount	Calc.	%Drift	----------		
36	T	2-Methylnaphthalene	50.000	56.627	-13.3	179	0.00	4.61
37	T	1-Methylnaphthalene	50.000	54.352	-8.7	172	0.00	4.69
38	T	1,2,4,5-Tetrachlorobenzen	50.000	61.249	-22.5#	191	-0.01	4.74
		----------	AvgRF	CCRF	%Dev	----------		
39	I	Acenaphthene-d10	1.000	1.000	0.0	175	0.00	5.44
40	T	Pentachloronitrobenzene	0.194	0.229	-18.0	198	0.00	6.52
		----------	Amount	Calc.	%Drift	----------		
41	P	Hexachlorocyclopentadiene	50.000	44.578	10.8	153	-0.01	4.73
		----------	AvgRF	CCRF	%Dev	----------		
42	C	2,4,6-Trichlorophenol	0.415	0.428	-3.1	177	0.00	4.85
43	T	2,4,5-Trichlorophenol	0.454	0.530	-16.7	198	0.03	4.89
44	S	2-Fluorobiphenyl	1.406	1.428	-1.6	177	0.00	4.92
45	T	2-Chloronaphthalene	1.203	1.200	0.2	172	0.00	5.00
		----------	Amount	Calc.	%Drift	----------		
46	M	Acenaphthylene	50.000	54.118	-8.2	177	0.00	5.33
		----------	AvgRF	CCRF	%Dev	----------		
47	T	Dimethylphthalate	1.375	1.494	-8.7	188	-0.01	5.26
48	T	2,6-Dinitrotoluene	0.335	0.367	-9.6	188	-0.01	5.31
49	C	Acenaphthene	1.182	1.203	-1.8	178	0.00	5.47
		----------	Amount	Calc.	%Drift	----------		
50	P	2,4-Dinitrophenol	50.000	63.155	-26.3#	231	0.00	5.54
51	T	Dibenzofuran	50.000	54.120	-8.2	178	0.00	5.61
		----------	AvgRF	CCRF	%Dev	----------		
52	M	2,4-Dinitrotoluene	0.416	0.444	-6.7	181	0.00	5.64
53	P	4-Nitrophenol	0.222	0.209	5.9	157	0.00	5.63
54	T	2,3,4,6-Tetrachlorophenol	0.371	0.424	-14.3	189	-0.01	5.72
		----------	Amount	Calc.	%Drift	----------		
55	T	Fluorene	50.000	55.369	-10.7	178	0.00	5.88
		----------	AvgRF	CCRF	%Dev	----------		
56	T	4-Chlorophenyl-phenylethe	0.684	0.753	-10.1	187	-0.01	5.90

Continuing Calibration Summary

Job Number: JB31583 **Sample:** MSU674-CC623
Account: ALNJ Accutest New Jersey **Lab FileID:** U13195.D
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

57	T	Diethylphthalate	2.328	2.629	-12.9	189	-0.01	7.27
58	T	2-nitroaniline	0.408	0.429	-5.1	176	0.00	5.10
59	T	3-nitroaniline	0.342	0.350	-2.3	167	0.00	5.44
60	T	4-nitroaniline	0.359	0.345	3.9	159	0.00	5.94
61	I	Phenanthrene-d10	1.000	1.000	0.0	186	-0.01	6.65
		----------	Amount	Calc.	%Drift		----------	
62	T	4,6-Dinitro-2-methylpheno	50.000	57.719	-15.4	208	0.00	5.97
63	C	n-Nitrosodiphenylamine	50.000	53.253	-6.5	183	-0.01	6.00
		----------	AvgRF	CCRF	%Dev		----------	
64	T	1,2-Diphenylhydrazine	0.734	0.747	-1.8	189	-0.01	6.03
65	S	2,4,6-Tribromophenol	0.117	0.130	-11.1	198	0.00	6.08
66	T	4-Bromophenyl-phenylether	0.250	0.272	-8.8	198	-0.01	6.29
67	T	Hexachlorobenzene	0.268	0.288	-7.5	196	0.00	6.33
		----------	Amount	Calc.	%Drift		----------	
68	C	Pentachlorophenol	50.000	51.317	-2.6	183	-0.01	6.51
69	T	Phenanthrene	50.000	54.591	-9.2	182	-0.01	6.68
70	T	Anthracene	50.000	51.888	-3.8	179	-0.01	6.72
71	T	Carbazole	50.000	49.995	0.0	181	-0.01	6.89
72	T	Di-n-butylphthalate	50.000	51.695	-3.4	189	-0.01	7.27
		----------	AvgRF	CCRF	%Dev		----------	
73	C	Fluoranthene	1.249	1.298	-3.9	185	-0.01	7.82
74	I	Chrysene-d12	1.000	1.000	0.0	183	-0.02	9.39
75	T	Benzidine	0.641	0.523	18.4	146	-0.01	8.00
76	M	Pyrene	1.238	1.264	-2.1	185	-0.01	8.04
77	S	Terphenyl-d14	0.908	0.944	-4.0	188	-0.01	8.26
78		3,3-Dimethylbenzidine	0.685	0.573	16.4	151	-0.01	8.80
79	T	Butylbenzylphthalate	0.537	0.590	-9.9	193	-0.01	8.85
80	T	3,3'-Dichlorobenzidine	0.466	0.497	-6.7	190	-0.02	9.39
81	T	Benzo[a]anthracene	1.177	1.225	-4.1	189	-0.02	9.37
82	T	Chrysene	1.113	1.115	-0.2	184	-0.02	9.42
83	T	bis(2-Ethylhexyl)phthalat	0.761	0.862	-13.3	196	-0.02	9.54
84	I	Perylene-d12	1.000	1.000	0.0	187	-0.02	10.93
85	C	Di-n-octylphthalate	1.285	1.512	-17.7	196	-0.02	10.27
		----------	Amount	Calc.	%Drift		----------	
86	T	Benzo[b]fluoranthene	50.000	52.273	-4.5	200	-0.02	10.54
		----------	AvgRF	CCRF	%Dev		----------	
87	T	Benzo[k]fluoranthene	1.238	1.200	3.1	174	-0.01	10.58
88	C	Benzo[a]pyrene	1.140	1.209	-6.1	185	-0.01	10.87
89	T	Indeno[1,2,3-cd]pyrene	1.384	1.488	-7.5	191	-0.02	11.92
90	T	Dibenz[a,h]anthracene	1.140	1.202	-5.4	185	-0.02	11.94
91	T	Benzo[g,h,i]perylene	1.153	1.212	-5.1	187	-0.02	12.14

(#) = Out of Range SPCC's out = 0 CCC's out = 0
U13162.D U130129_8270.m Fri Mar 29 15:14:54 2013

New Jersey

ACCUTEST LABORATORIES

GC/MS Semi-volatiles

Raw Data

(Accutest Labs of New England, Inc.)

Manual Integrations APPROVED (compounds with "m" flag)
Doug Yargeau
03/29/13 15:11

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130327\
Data File : U13139.D
Acq On : 27 Mar 2013 7:18 pm
Operator : NatalyaS
Sample : JB31583-1
Misc : op32352,msu672,20.44,,,1,1
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Mar 29 10:47:51 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Mar 28 10:38:36 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1,4-Dichlorobenzene-d4	3.076	152	109809	40.00 ppb	0.00
21) Naphthalene-d8	4.046	136	397518	40.00 ppb	0.00
39) Acenaphthene-d10	5.444	164	235395	40.00 ppb	0.00
61) Phenanthrene-d10	6.660	188	430535	40.00 ppb	0.00
74) Chrysene-d12	9.392	240	509614	40.00 ppb	0.00
84) Perylene-d12	10.938	264	498664	40.00 ppb	0.00
System Monitoring Compounds					
5) 2-Fluorophenol	2.171	112	237057	66.21 ppb	0.01
Spiked Amount 100.000	Range 10 - 110		Recovery = 66.21%		
7) Phenol-d5	2.847	99	279593	65.01 ppb	0.00
Spiked Amount 100.000	Range 10 - 110		Recovery = 65.01%		
22) Nitrobenzene-d5	3.499	82	130211	34.64 ppb	0.00
Spiked Amount 50.000	Range 30 - 119		Recovery = 69.28%		
44) 2-Fluorobiphenyl	4.921	172	318409	38.49 ppb	0.00
Spiked Amount 50.000	Range 40 - 110		Recovery = 76.98%		
65) 2,4,6-Tribromophenol	6.084	330	110347	87.73 ppb	0.00
Spiked Amount 100.000	Range 10 - 157		Recovery = 87.73%		
77) Terphenyl-d14	8.270	244	434320	37.56 ppb	0.00
Spiked Amount 50.000	Range 30 - 124		Recovery = 75.12%		
Target Compounds					Qvalue
31) Naphthalene	4.063	128	1422	Below Cal	68
46) Acenaphthylene	4.921	152	15955	Below Cal #	1
55) Fluorene	6.084	166	5887	Below Cal	82
63) n-Nitrosodiphenylamine	6.084	169	3588	Below Cal #	39
69) Phenanthrene	6.684	178	8261	Below Cal	93
70) Anthracene	6.731	178	1816	Below Cal	97
71) Carbazole	6.901	167	1085	Below Cal	61
73) Fluoranthene	7.824	202	17831	1.33 ppb	97
76) Pyrene	8.047	202	16779	1.06 ppb	94
86) Benzo[b]fluoranthene	10.556	252	15014m	2.64 ppb	
87) Benzo[k]fluoranthene	10.579	252	4649m	0.30 ppb	
88) Benzo[a]pyrene	10.873	252	11073	0.78 ppb	94
89) Indeno[1,2,3-cd]pyrene	11.925	276	8743	0.51 ppb	97
90) Dibenz[a,h]anthracene	11.942	278	3449	0.24 ppb	93
91) Benzo[g,h,i]perylene	12.148	276	8481	0.59 ppb	90

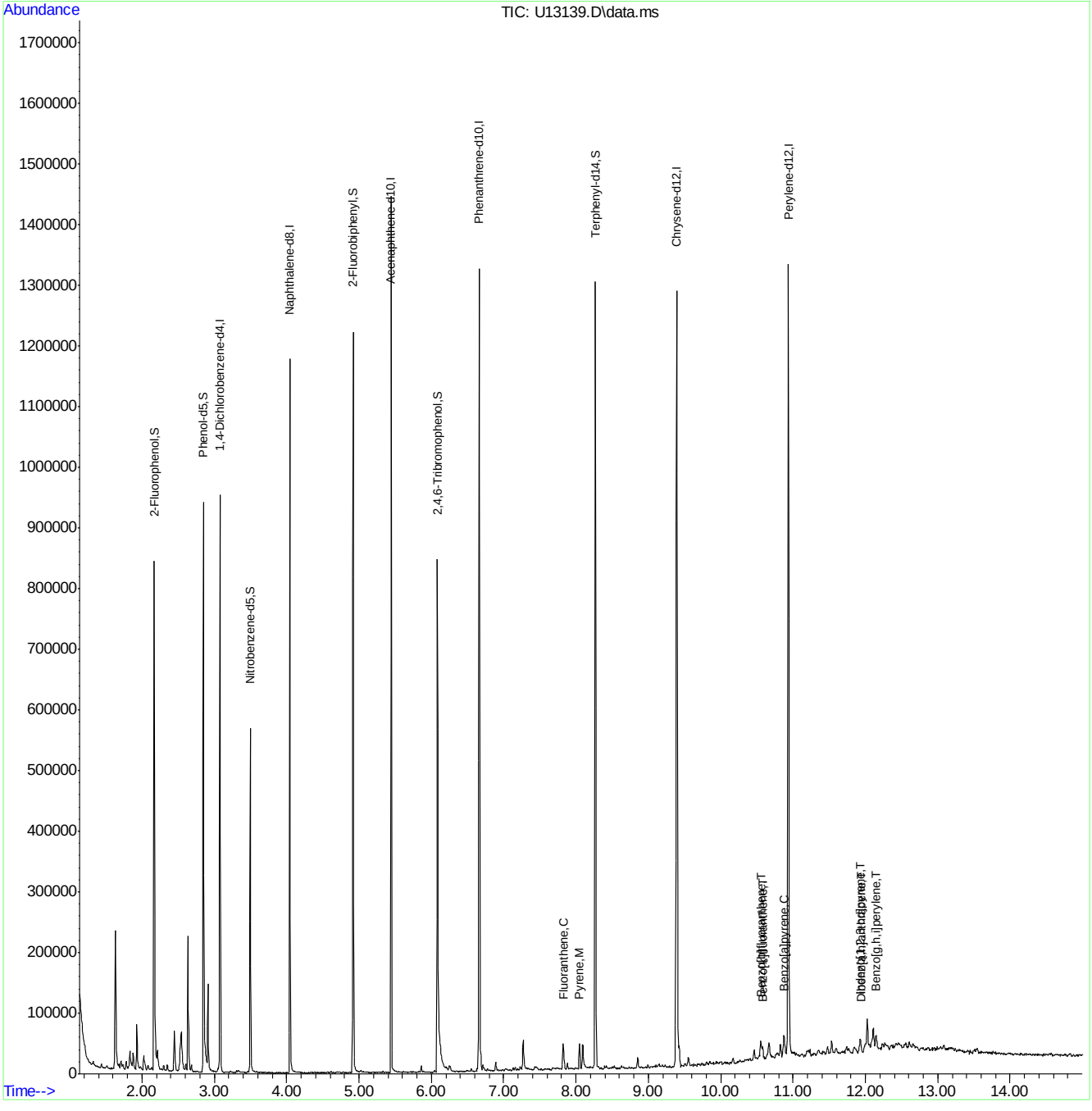
(#) = qualifier out of range (m) = manual integration (+) = signals summed

10.1.1 10

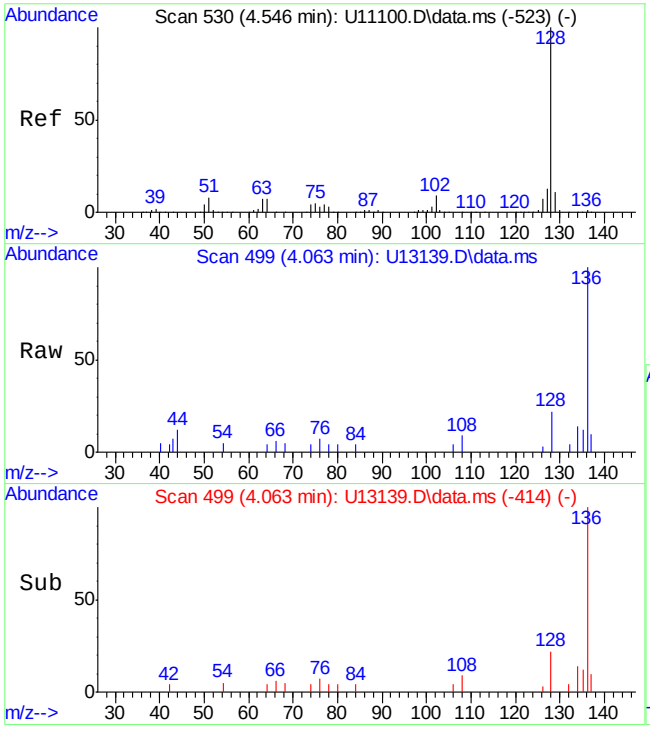
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130327\
Data File : U13139.D
Acq On : 27 Mar 2013 7:18 pm
Operator : NatalyaS
Sample : JB31583-1
Misc : op32352,msu672,20.44,,,1,1
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Mar 29 10:47:51 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Mar 28 10:38:36 2013
Response via : Initial Calibration



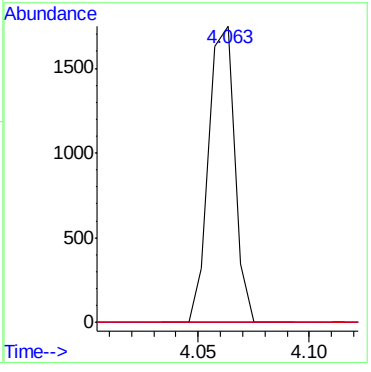
U130129_8270.m Fri Mar 29 10:47:58 2013 Page: 2

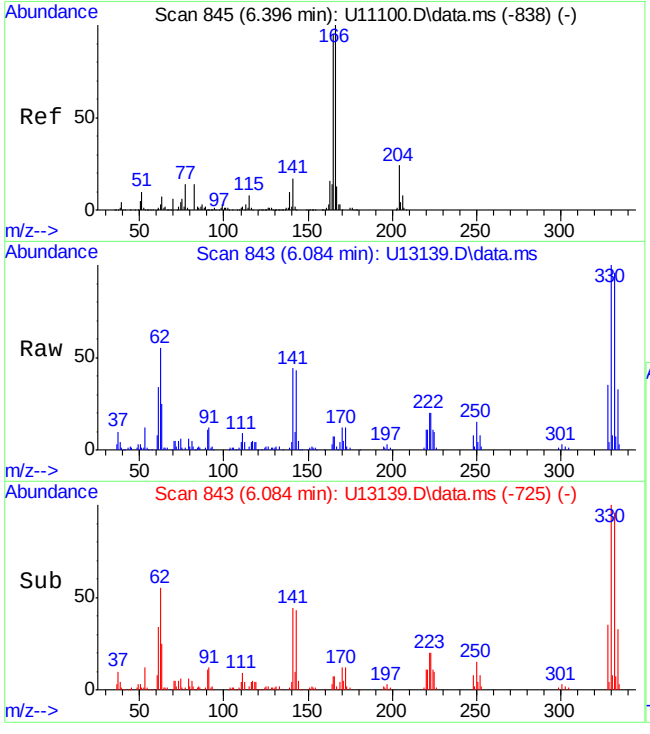


#31
Naphthalene
Concen: Below Cal
RT: 4.063 min Scan# 499
Delta R.T. -0.000 min
Lab File: U13139.D
Acq: 27 Mar 2013 7:18 pm

Tgt Ion:128 Resp: 1422

Ion	Ratio	Lower	Upper
128	100		
129	0.0	0.0	41.2
127	0.0	0.0	43.6

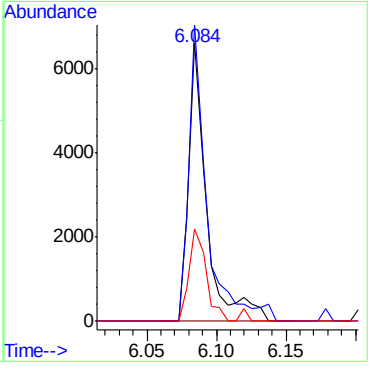




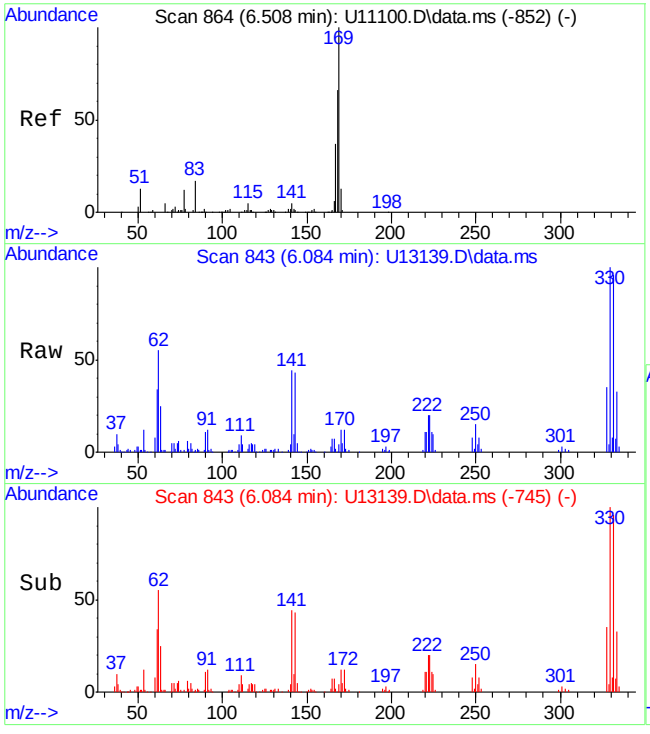
#55
Fluorene
Concen: Below Cal
RT: 6.084 min Scan# 843
Delta R.T. 0.194 min
Lab File: U13139.D
Acq: 27 Mar 2013 7:18 pm

Tgt Ion:166 Resp: 5887

Ion	Ratio	Lower	Upper
166	100		
165	106.3	63.2	123.2
167	33.1	0.0	43.3



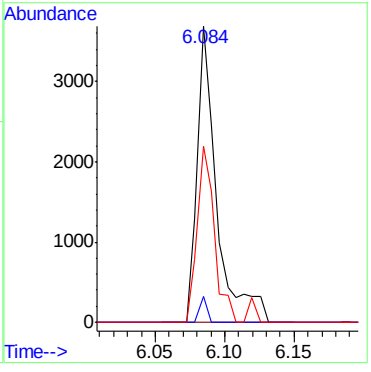
10.1.1
10

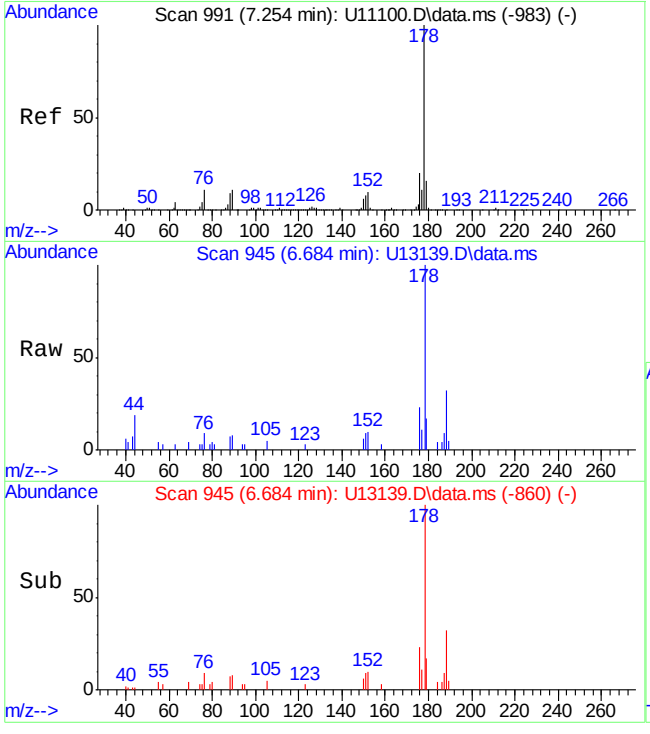


#63
n-Nitrosodiphenylamine
Concen: Below Cal
RT: 6.084 min Scan# 843
Delta R.T. 0.076 min
Lab File: U13139.D
Acq: 27 Mar 2013 7:18 pm

Tgt Ion:169 Resp: 3588

Ion	Ratio	Lower	Upper
169	100		
168	8.7	33.9	93.9#
167	59.4	4.0	64.0

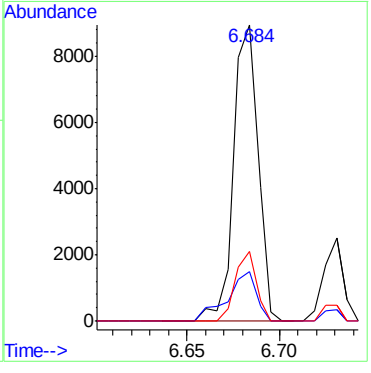




#69
Phenanthrene
Concen: Below Cal
RT: 6.684 min Scan# 945
Delta R.T. -0.000 min
Lab File: U13139.D
Acq: 27 Mar 2013 7:18 pm

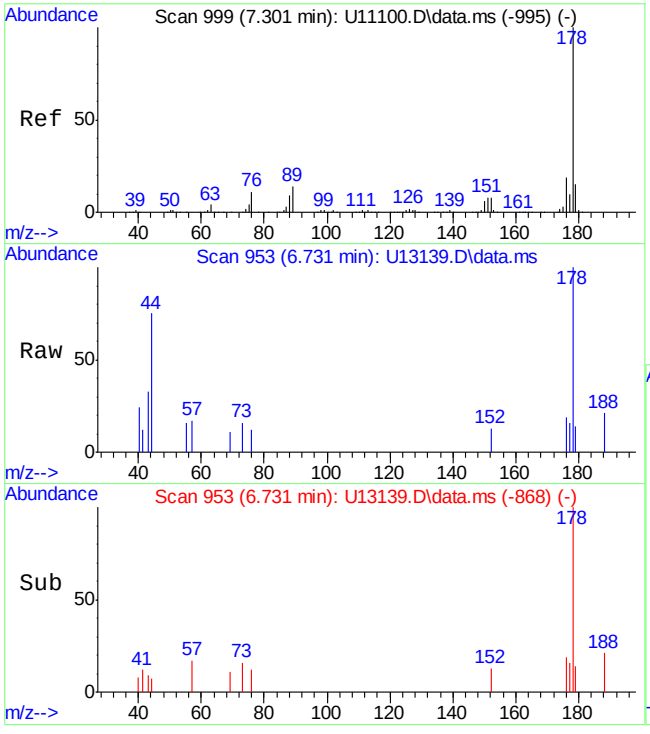
Tgt Ion:178 Resp: 8261

Ion	Ratio	Lower	Upper
178	100		
179	16.9	0.0	45.7
176	23.4	0.0	48.8



10.1.1

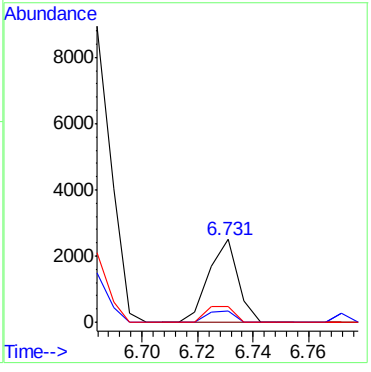
10

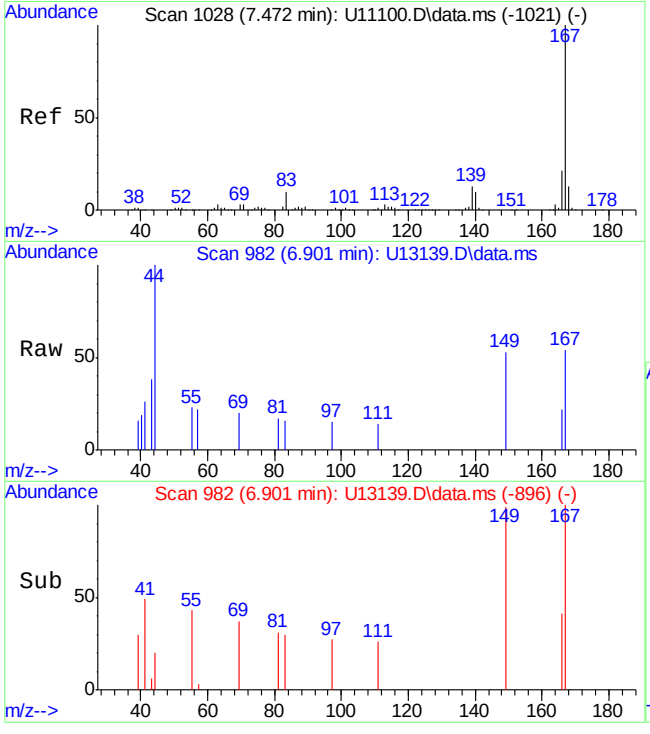


#70
Anthracene
Concen: Below Cal
RT: 6.731 min Scan# 953
Delta R.T. -0.000 min
Lab File: U13139.D
Acq: 27 Mar 2013 7:18 pm

Tgt Ion:178 Resp: 1816

Ion	Ratio	Lower	Upper
178	100		
179	13.9	0.0	45.1
176	19.5	0.0	48.3

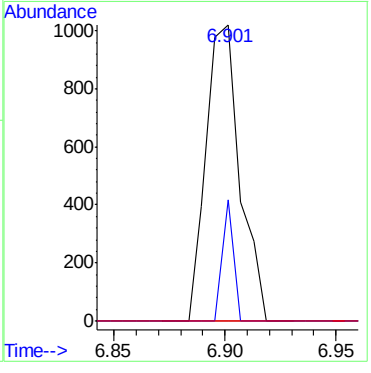




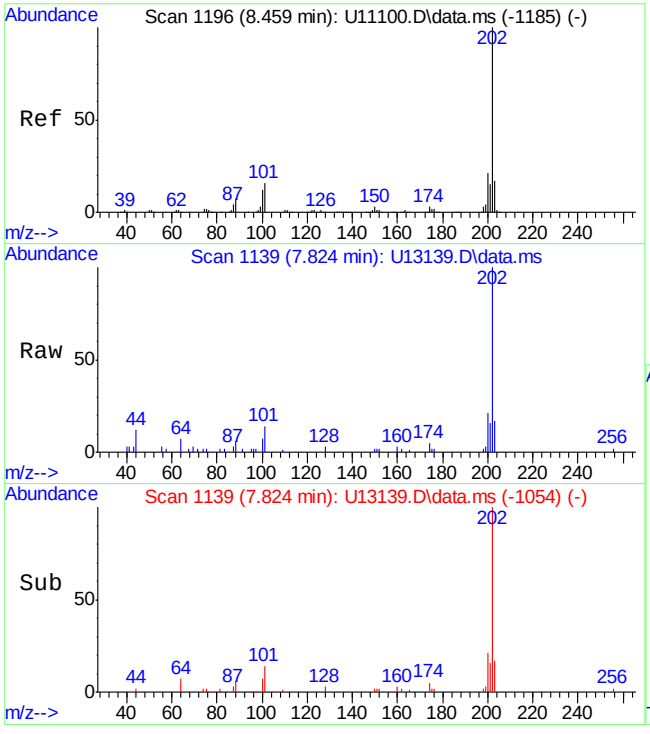
#71
Carbazole
Concen: Below Cal
RT: 6.901 min Scan# 982
Delta R.T. 0.006 min
Lab File: U13139.D
Acq: 27 Mar 2013 7:18 pm

Tgt Ion:167 Resp: 1085

Ion	Ratio	Lower	Upper
167	100		
166	41.0	0.0	50.9
139	0.0	0.0	43.1



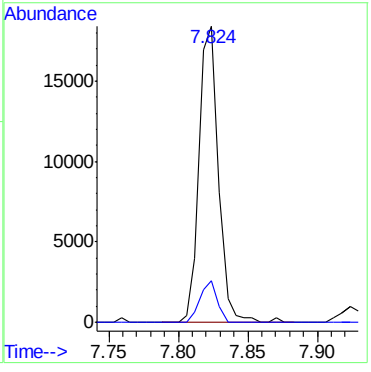
10.1.1
10

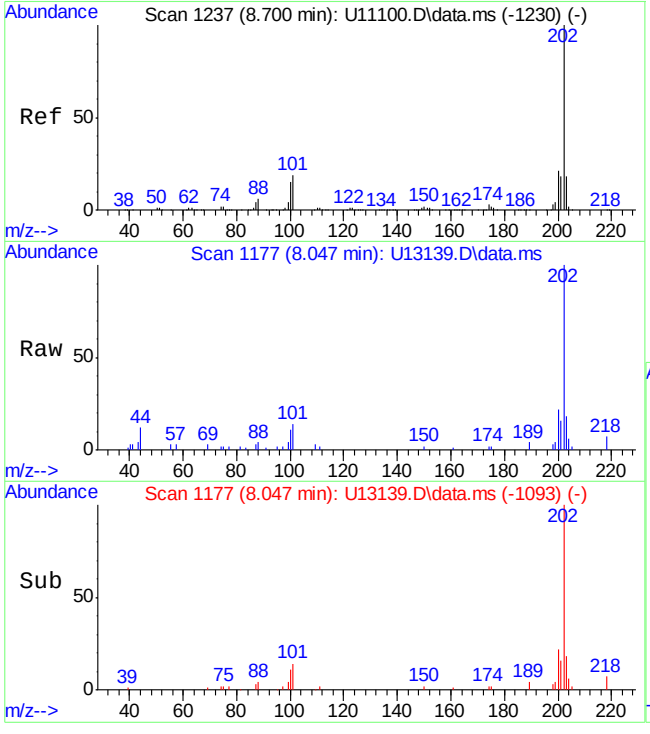


#73
Fluoranthene
Concen: 1.33 ppb
RT: 7.824 min Scan# 1139
Delta R.T. -0.000 min
Lab File: U13139.D
Acq: 27 Mar 2013 7:18 pm

Tgt Ion:202 Resp: 17831

Ion	Ratio	Lower	Upper
202	100		
101	13.9	0.0	42.6

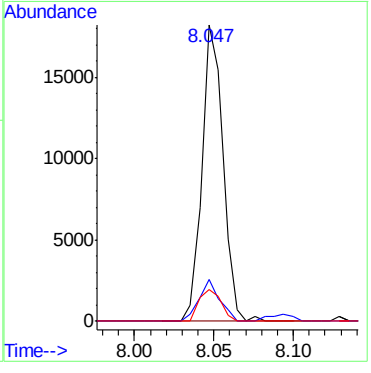


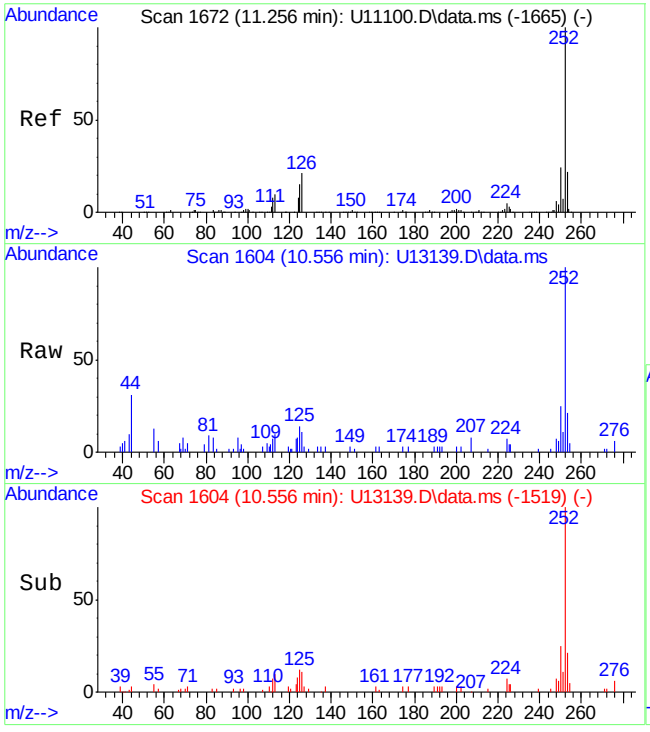


#76
Pyrene
Concen: 1.06 ppb
RT: 8.047 min Scan# 1177
Delta R.T. -0.006 min
Lab File: U13139.D
Acq: 27 Mar 2013 7:18 pm

Tgt Ion:202 Resp: 16779

Ion	Ratio	Lower	Upper
202	100		
101	14.2	0.0	46.3
100	10.7	0.0	43.6

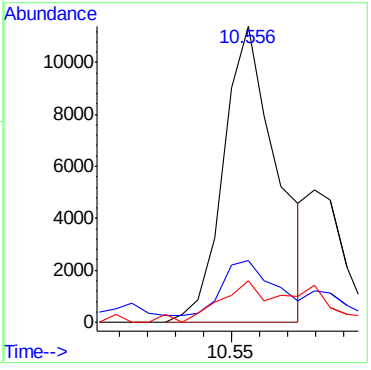


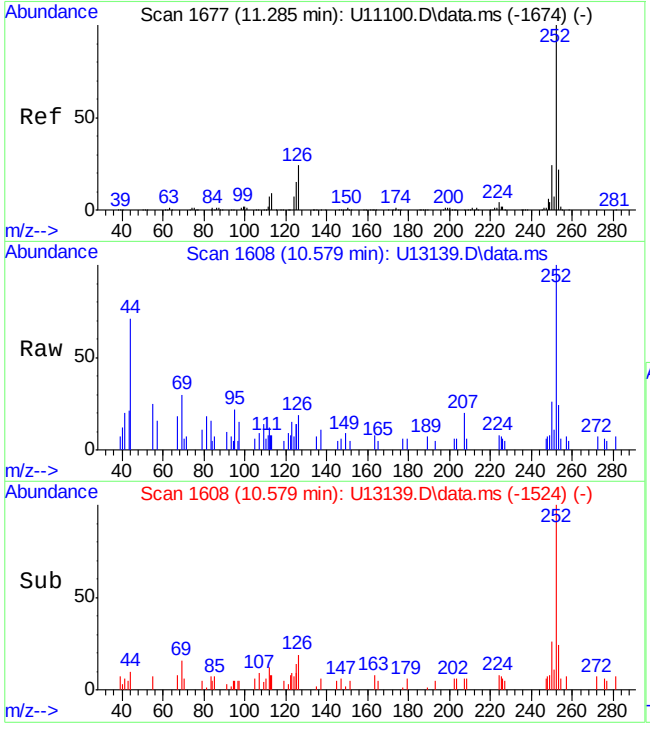


#86
Benzo[b]fluoranthene
Concen: 2.64 ppb m
RT: 10.556 min Scan# 1604
Delta R.T. -0.000 min
Lab File: U13139.D
Acq: 27 Mar 2013 7:18 pm

Tgt Ion:252 Resp: 15014

Ion	Ratio	Lower	Upper
252	100		
253	20.9	0.0	51.5
125	13.9	0.0	42.8

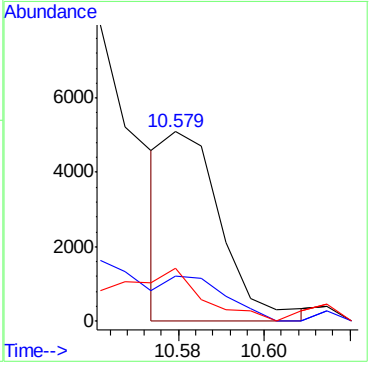


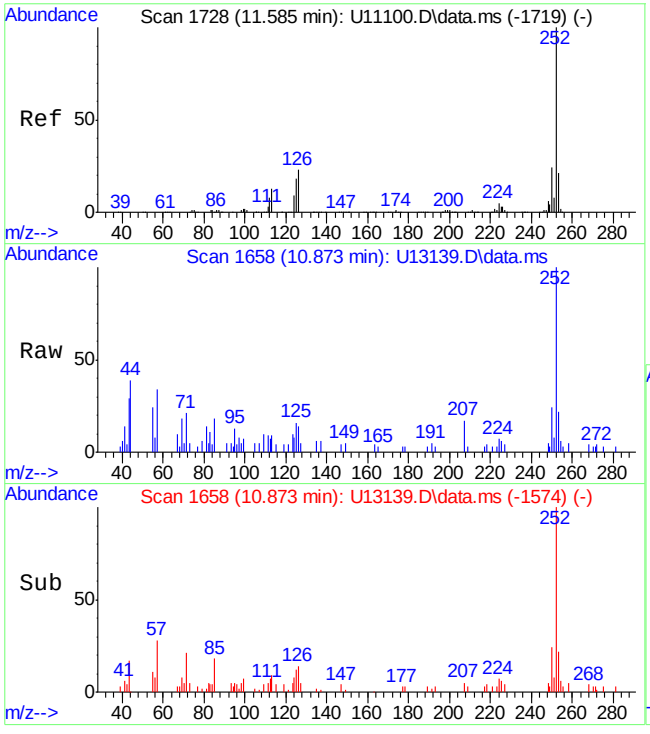


#87
Benzo[k]fluoranthene
Concen: 0.30 ppb m
RT: 10.579 min Scan# 1608
Delta R.T. -0.006 min
Lab File: U13139.D
Acq: 27 Mar 2013 7:18 pm

Tgt Ion:252 Resp: 4649

Ion	Ratio	Lower	Upper
252	100		
253	23.9	0.0	51.6
125	14.1	0.0	43.3

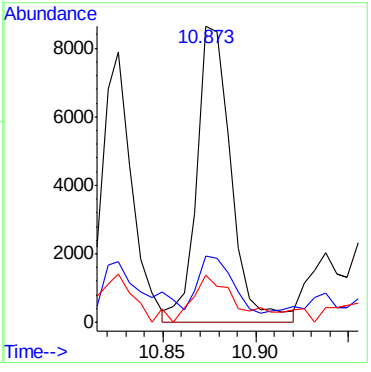


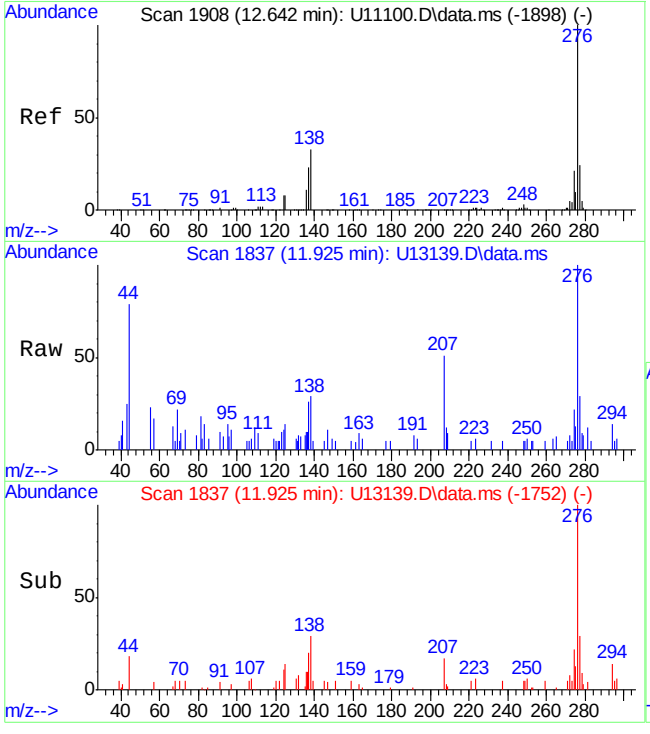


#88
Benzo[a]pyrene
Concen: 0.78 ppb
RT: 10.873 min Scan# 1658
Delta R.T. -0.006 min
Lab File: U13139.D
Acq: 27 Mar 2013 7:18 pm

Tgt Ion:252 Resp: 11073

Ion	Ratio	Lower	Upper
252	100		
253	18.0	0.0	51.9
125	12.4	0.0	43.0

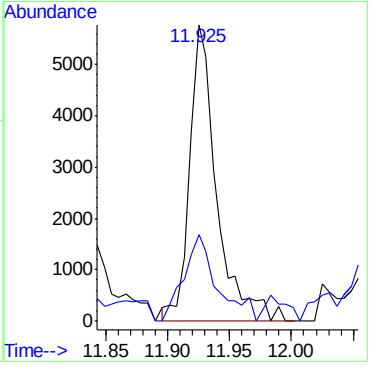


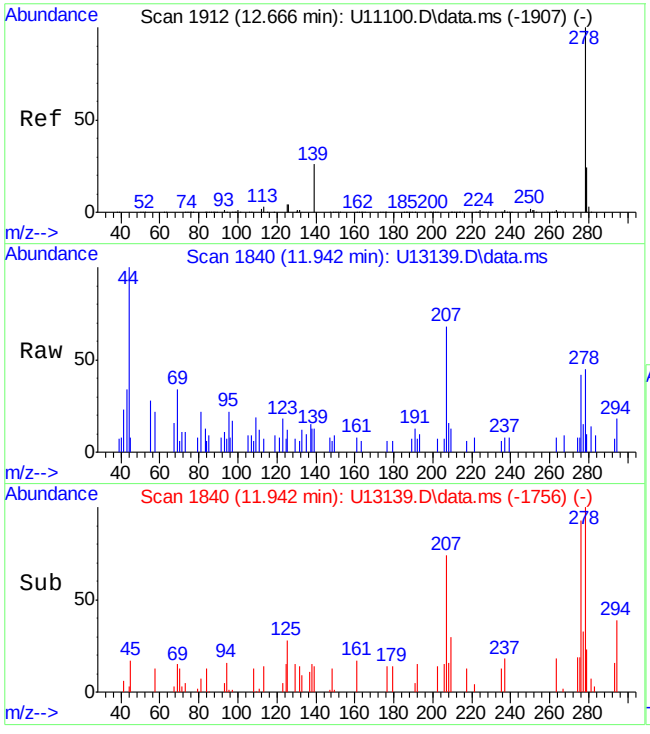


#89
Indeno[1,2,3-cd]pyrene
Concen: 0.51 ppb
RT: 11.925 min Scan# 1837
Delta R.T. -0.000 min
Lab File: U13139.D
Acq: 27 Mar 2013 7:18 pm

Tgt Ion:276 Resp: 8743

Ion	Ratio	Lower	Upper
276	100		
138	29.1	0.0	57.6

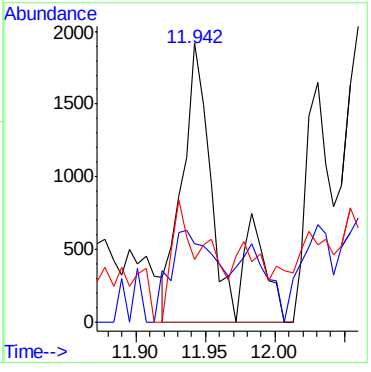


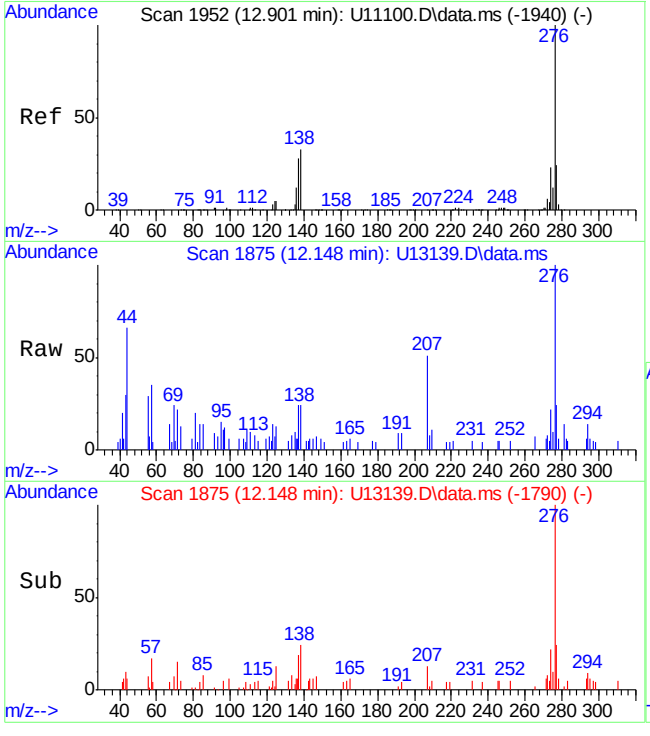


#90
Dibenz[a,h]anthracene
Concen: 0.24 ppb
RT: 11.942 min Scan# 1840
Delta R.T. -0.006 min
Lab File: U13139.D
Acq: 27 Mar 2013 7:18 pm

Tgt Ion:278 Resp: 3449

Ion	Ratio	Lower	Upper
278	100		
139	12.7	0.0	48.4
279	22.6	0.0	53.9

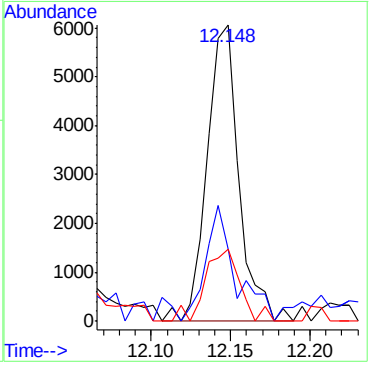




#91
Benzo[g,h,i]perylene
Concen: 0.59 ppb
RT: 12.148 min Scan# 1875
Delta R.T. -0.000 min
Lab File: U13139.D
Acq: 27 Mar 2013 7:18 pm

Tgt Ion:276 Resp: 8481

Ion	Ratio	Lower	Upper
276	100		
138	19.7	0.0	59.8
277	24.3	0.0	54.3



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130327\
Data File : U13140.D
Acq On : 27 Mar 2013 7:41 pm
Operator : NatalyaS
Sample : JB31583-2
Misc : op32352,msu672,20.38,,,1,1
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Mar 29 10:48:33 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Mar 28 10:38:36 2013
Response via : Initial Calibration

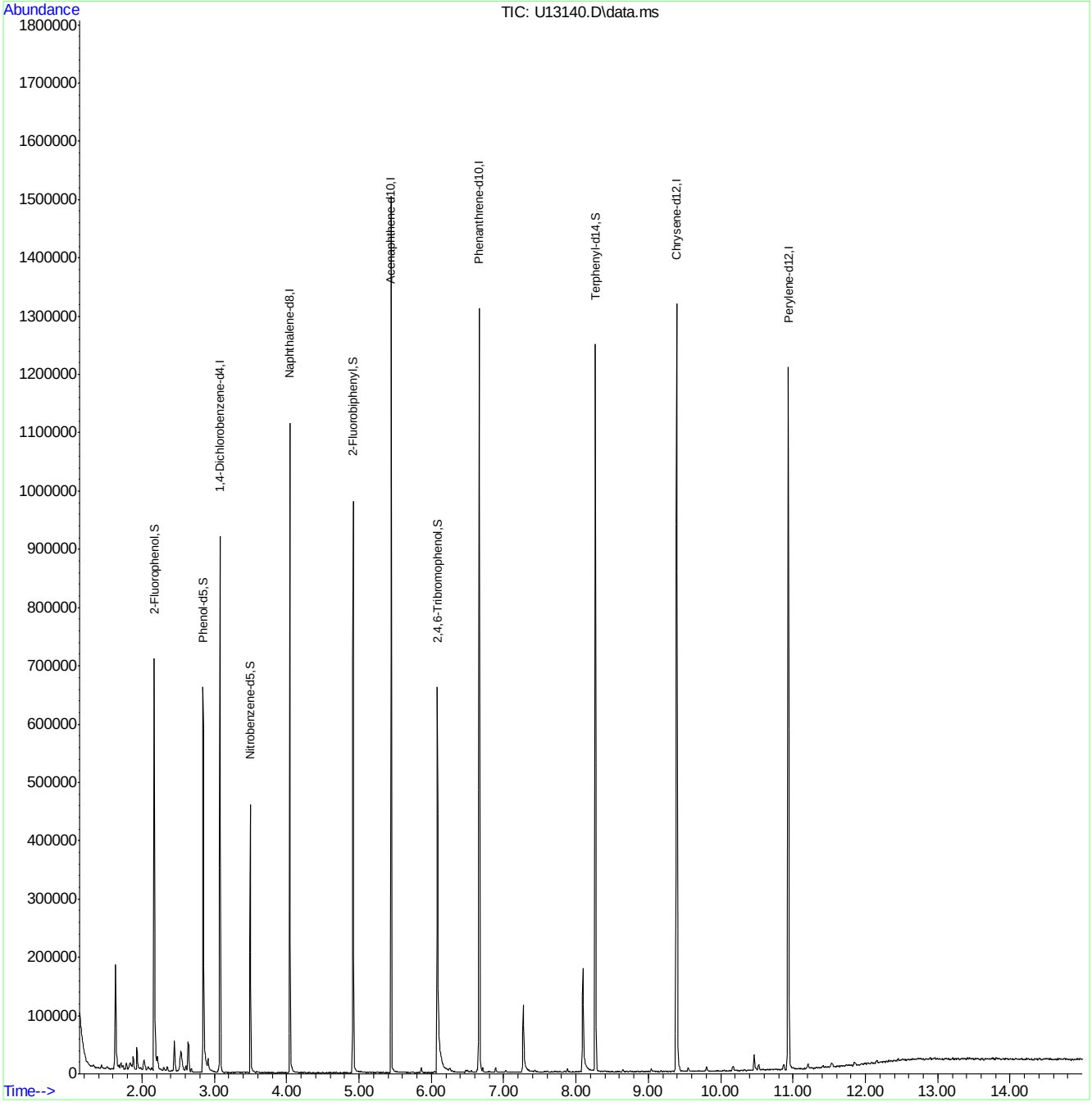
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.076	152	109079	40.00	ppb	0.00
21) Naphthalene-d8	4.046	136	388991	40.00	ppb	0.00
39) Acenaphthene-d10	5.444	164	241650	40.00	ppb	0.00
61) Phenanthrene-d10	6.660	188	436644	40.00	ppb	0.00
74) Chrysene-d12	9.392	240	517058	40.00	ppb	0.00
84) Perylene-d12	10.938	264	493235	40.00	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	2.171	112	197445	55.52	ppb	0.01
Spiked Amount 100.000	Range 10 - 110		Recovery = 55.52%			
7) Phenol-d5	2.841	99	231491	54.19	ppb	0.00
Spiked Amount 100.000	Range 10 - 110		Recovery = 54.19%			
22) Nitrobenzene-d5	3.499	82	107696	29.28	ppb	0.00
Spiked Amount 50.000	Range 30 - 119		Recovery = 58.56%			
44) 2-Fluorobiphenyl	4.921	172	263240	31.00	ppb	0.00
Spiked Amount 50.000	Range 40 - 110		Recovery = 62.00%			
65) 2,4,6-Tribromophenol	6.085	330	96963	76.01	ppb	0.00
Spiked Amount 100.000	Range 10 - 157		Recovery = 76.01%			
77) Terphenyl-d14	8.270	244	418637	35.68	ppb	0.00
Spiked Amount 50.000	Range 30 - 124		Recovery = 71.36%			
Target Compounds						Qvalue
46) Acenaphthylene	4.921	152	13016	Below Cal	#	1
55) Fluorene	6.085	166	4931	Below Cal		82
63) n-Nitrosodiphenylamine	6.085	169	2495	Below Cal	#	22

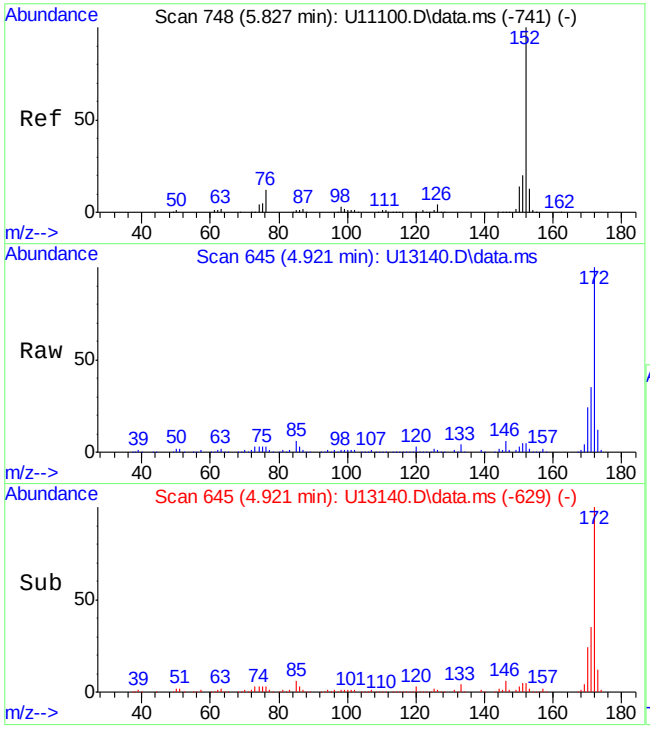
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130327\
Data File : U13140.D
Acq On : 27 Mar 2013 7:41 pm
Operator : NatalyaS
Sample : JB31583-2
Misc : op32352,msu672,20.38,,,1,1
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Mar 29 10:48:33 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Mar 28 10:38:36 2013
Response via : Initial Calibration

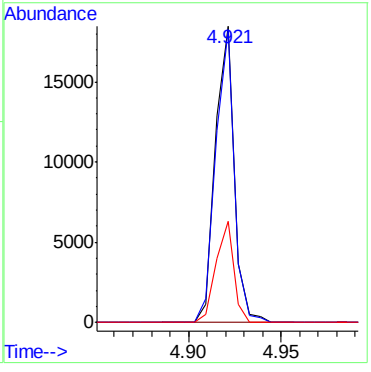


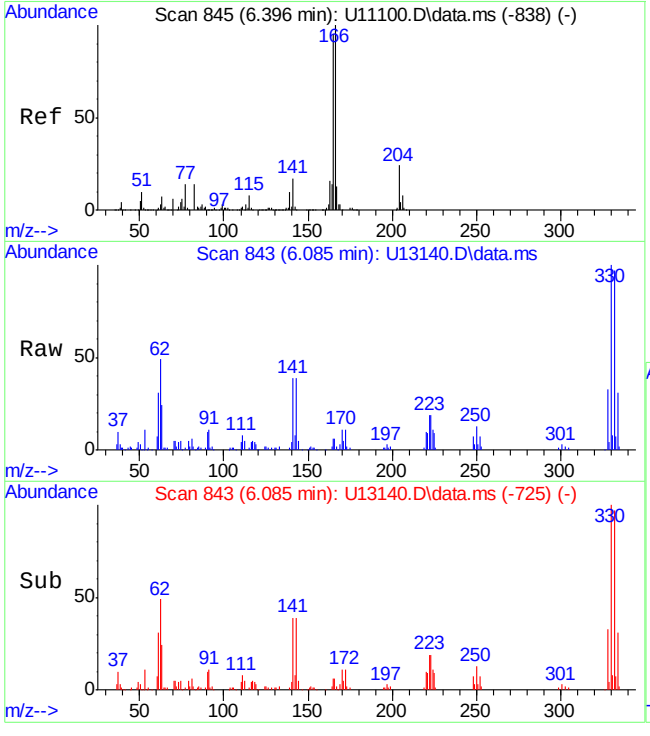


#46
Acenaphthylene
Concen: Below Cal
RT: 4.921 min Scan# 645
Delta R.T. -0.406 min
Lab File: U13140.D
Acq: 27 Mar 2013 7:41 pm

Tgt Ion:152 Resp: 13016

Ion	Ratio	Lower	Upper
152	100		
151	99.0	0.0	49.7#
153	34.3	0.0	43.1

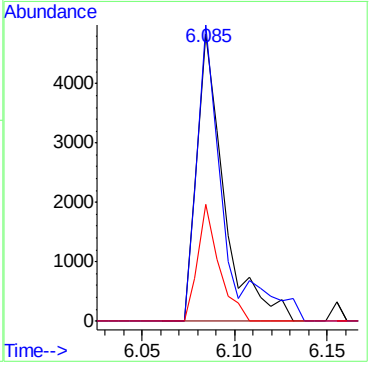


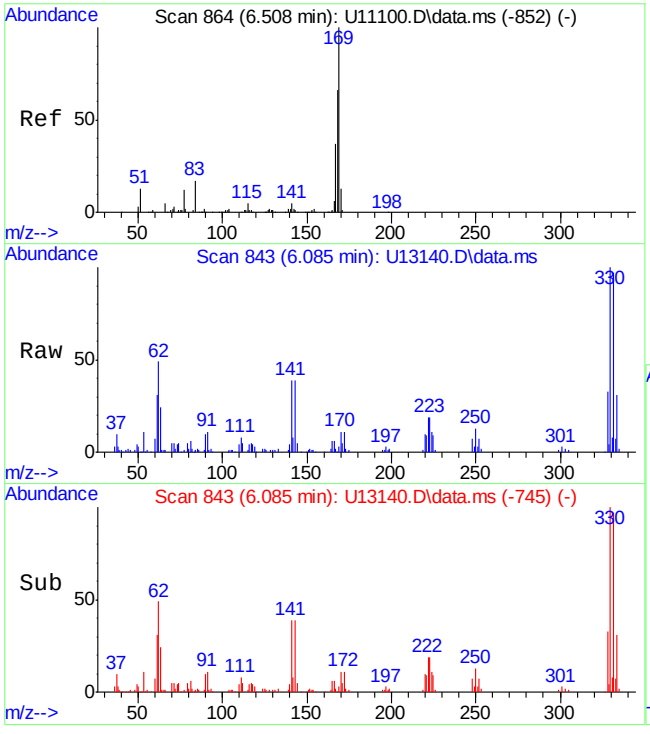


#55
Fluorene
Concen: Below Cal
RT: 6.085 min Scan# 843
Delta R.T. 0.194 min
Lab File: U13140.D
Acq: 27 Mar 2013 7:41 pm

Tgt Ion:166 Resp: 4931

Ion	Ratio	Lower	Upper
166	100		
165	103.3	63.2	123.2
167	40.7	0.0	43.3

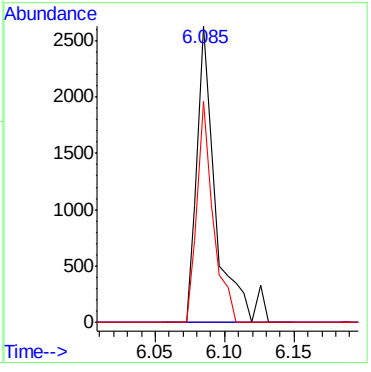




#63
n-Nitrosodiphenylamine
Concen: Below Cal
RT: 6.085 min Scan# 843
Delta R.T. 0.076 min
Lab File: U13140.D
Acq: 27 Mar 2013 7:41 pm

Tgt Ion:169 Resp: 2495

Ion	Ratio	Lower	Upper
169	100		
168	0.0	33.9	93.9#
167	74.7	4.0	64.0#



10.1.2

10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130327\
Data File : U13141.D
Acq On : 27 Mar 2013 8:04 pm
Operator : NatalyaS
Sample : JB31583-3
Misc : op32352,msu672,20.81,,,1,1
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Mar 29 10:49:13 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Mar 28 10:38:36 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.076	152	97816	40.00	ppb	0.00
21) Naphthalene-d8	4.046	136	350858	40.00	ppb	0.00
39) Acenaphthene-d10	5.444	164	213216	40.00	ppb	0.00
61) Phenanthrene-d10	6.661	188	384616	40.00	ppb	0.00
74) Chrysene-d12	9.393	240	452263	40.00	ppb	0.00
84) Perylene-d12	10.932	264	440974	40.00	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	2.166	112	209002	65.53	ppb	0.00
Spiked Amount 100.000	Range 10 - 110		Recovery = 65.53%			
7) Phenol-d5	2.841	99	237881	62.09	ppb	0.00
Spiked Amount 100.000	Range 10 - 110		Recovery = 62.09%			
22) Nitrobenzene-d5	3.499	82	113934	34.34	ppb	0.00
Spiked Amount 50.000	Range 30 - 119		Recovery = 68.68%			
44) 2-Fluorobiphenyl	4.921	172	266189	35.53	ppb	0.00
Spiked Amount 50.000	Range 40 - 110		Recovery = 71.06%			
65) 2,4,6-Tribromophenol	6.085	330	85848	76.40	ppb	0.00
Spiked Amount 100.000	Range 10 - 157		Recovery = 76.40%			
77) Terphenyl-d14	8.270	244	337197	32.86	ppb	0.00
Spiked Amount 50.000	Range 30 - 124		Recovery = 65.72%			
Target Compounds						Qvalue
46) Acenaphthylene	4.921	152	13288	Below Cal	#	1
55) Fluorene	6.085	166	3802	Below Cal		88
63) n-Nitrosodiphenylamine	6.085	169	2343	Below Cal	#	44

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

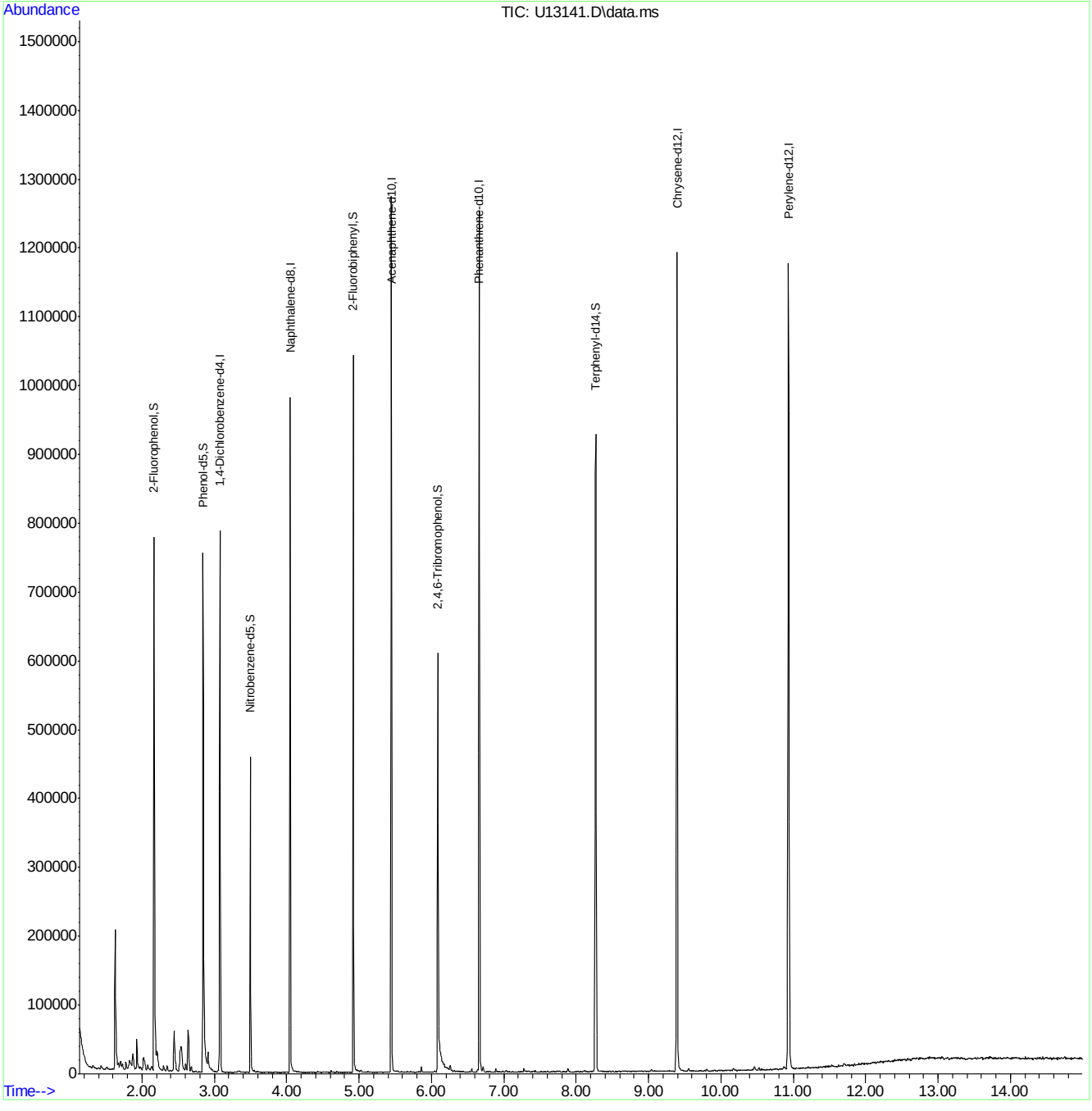
10.1.3

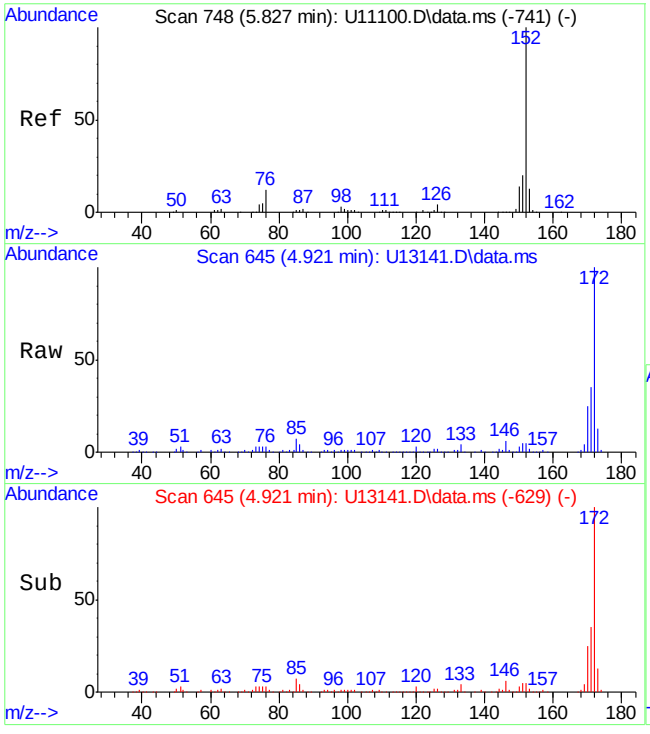
10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130327\
Data File : U13141.D
Acq On : 27 Mar 2013 8:04 pm
Operator : NatalyaS
Sample : JB31583-3
Misc : op32352,msu672,20.81,,,1,1
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Mar 29 10:49:13 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Mar 28 10:38:36 2013
Response via : Initial Calibration

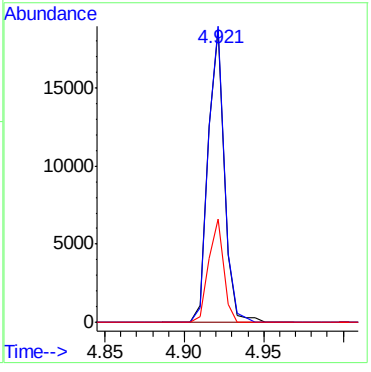


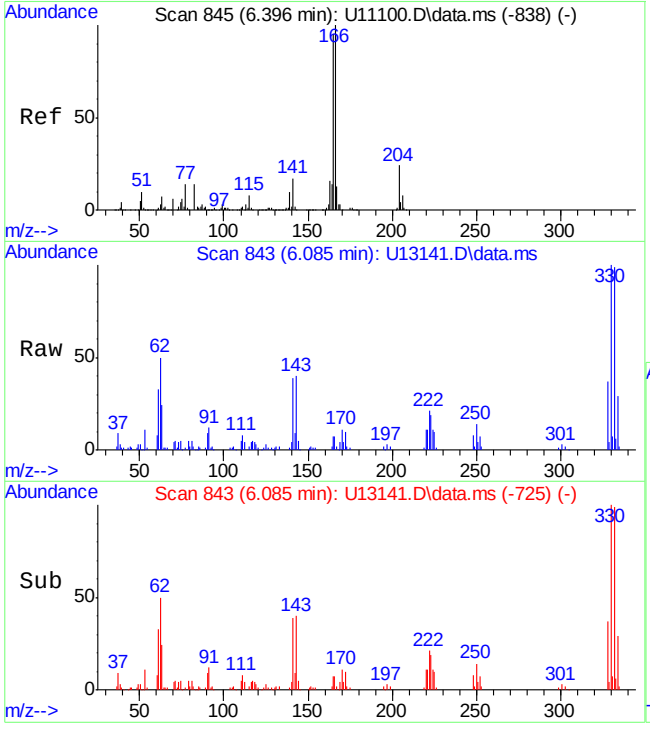


#46
Acenaphthylene
Concen: Below Cal
RT: 4.921 min Scan# 645
Delta R.T. -0.405 min
Lab File: U13141.D
Acq: 27 Mar 2013 8:04 pm

Tgt Ion:152 Resp: 13288

Ion	Ratio	Lower	Upper
152	100		
151	101.0	0.0	49.7#
153	35.1	0.0	43.1

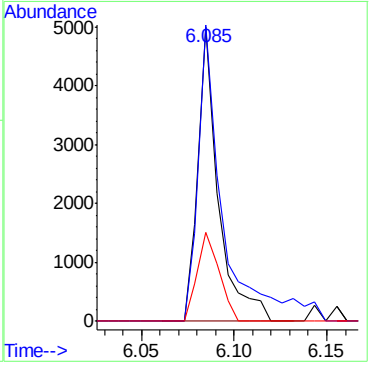


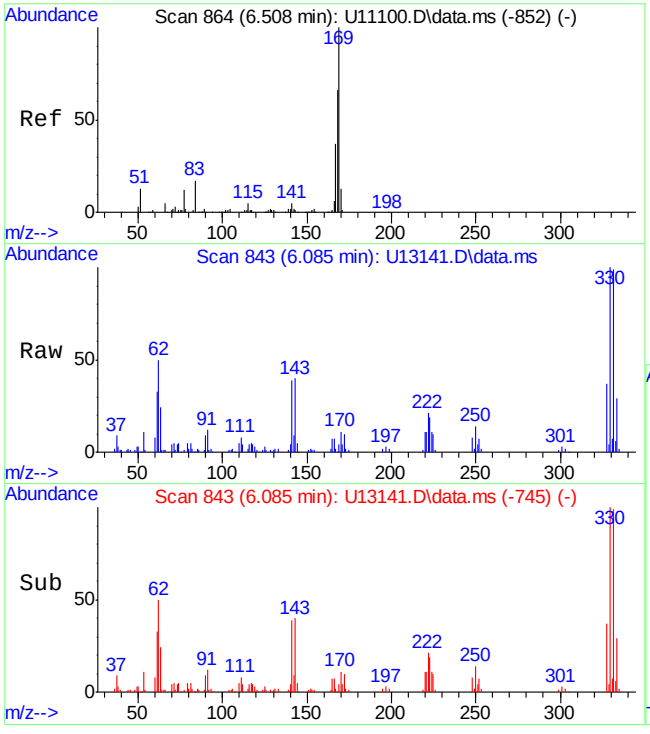


#55
Fluorene
Concen: Below Cal
RT: 6.085 min Scan# 843
Delta R.T. 0.194 min
Lab File: U13141.D
Acq: 27 Mar 2013 8:04 pm

Tgt Ion:166 Resp: 3802

Ion	Ratio	Lower	Upper
166	100		
165	100.7	63.2	123.2
167	30.1	0.0	43.3

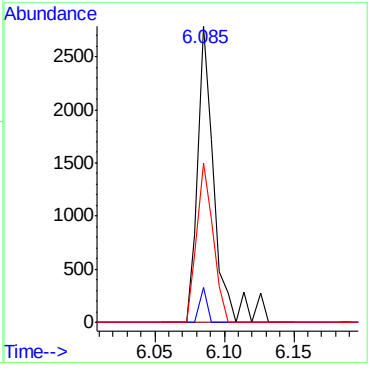




#63
n-Nitrosodiphenylamine
Concen: Below Cal
RT: 6.085 min Scan# 843
Delta R.T. 0.076 min
Lab File: U13141.D
Acq: 27 Mar 2013 8:04 pm

Tgt Ion:169 Resp: 2343

Ion	Ratio	Lower	Upper
169	100		
168	11.8	33.9	93.9#
167	53.9	4.0	64.0



10.1.3

10

Manual Integrations APPROVED (compounds with "m" flag)
Doug Yargeau
04/01/13 18:18

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130327\
Data File : U13142.D
Acq On : 27 Mar 2013 8:26 pm
Operator : NatalyaS
Sample : JB31583-4
Misc : op32352,msu672,20.26,,,1,1
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Mar 29 10:51:08 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Mar 28 10:38:36 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.088	152	103158	40.00	ppb	0.01
21) Naphthalene-d8	4.064	136	322982	40.00	ppb	0.02
39) Acenaphthene-d10	5.503	164	180525	40.00	ppb	0.06
61) Phenanthrene-d10	6.719	188	219347	40.00	ppb	0.05
74) Chrysene-d12	9.416	240	574396	40.00	ppb	0.02
84) Perylene-d12	10.944	264	557582	40.00	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	2.172	112	210576	62.61	ppb	0.01
Spiked Amount 100.000	Range 10 - 110		Recovery = 62.61%			
7) Phenol-d5	2.847	99	223206	55.25	ppb	0.00
Spiked Amount 100.000	Range 10 - 110		Recovery = 55.25%			
22) Nitrobenzene-d5	3.511	82	226088	74.02	ppb	0.01
Spiked Amount 50.000	Range 30 - 119		Recovery = 148.04%#			
44) 2-Fluorobiphenyl	4.957	172	206299	32.52	ppb	0.04
Spiked Amount 50.000	Range 40 - 110		Recovery = 65.04%			
65) 2,4,6-Tribromophenol	6.155	330	82974	129.48	ppb	0.06
Spiked Amount 100.000	Range 10 - 157		Recovery = 129.48%			
77) Terphenyl-d14	8.306	244	437075	33.53	ppb	0.04
Spiked Amount 50.000	Range 30 - 124		Recovery = 67.06%			
Target Compounds						Qvalue
9) 2-Chlorophenol	3.053	128	2395	0.67	ppb #	1
19) m+p-cresols	3.499	108	7977	Below Cal		91
20) 4-methylphenol	3.499	108	7977	Below Cal		89
31) Naphthalene	4.087	128	1951342m	260.90	ppb	
36) 2-Methylnaphthalene	4.663	142	5635584	1041.55	ppb	100
37) 1-Methylnaphthalene	4.739	142	3753100	688.15	ppb	100
46) Acenaphthylene	4.963	152	10597	Below Cal		66
51) Dibenzofuran	5.673	168	433263m	59.19	ppb	
55) Fluorene	5.950	166	556803m	101.20	ppb	
69) Phenanthrene	6.749	178	1735330m	334.17	ppb	
70) Anthracene	6.790	178	254225m	42.12	ppb	
76) Pyrene	8.100	202	204045	11.47	ppb	94

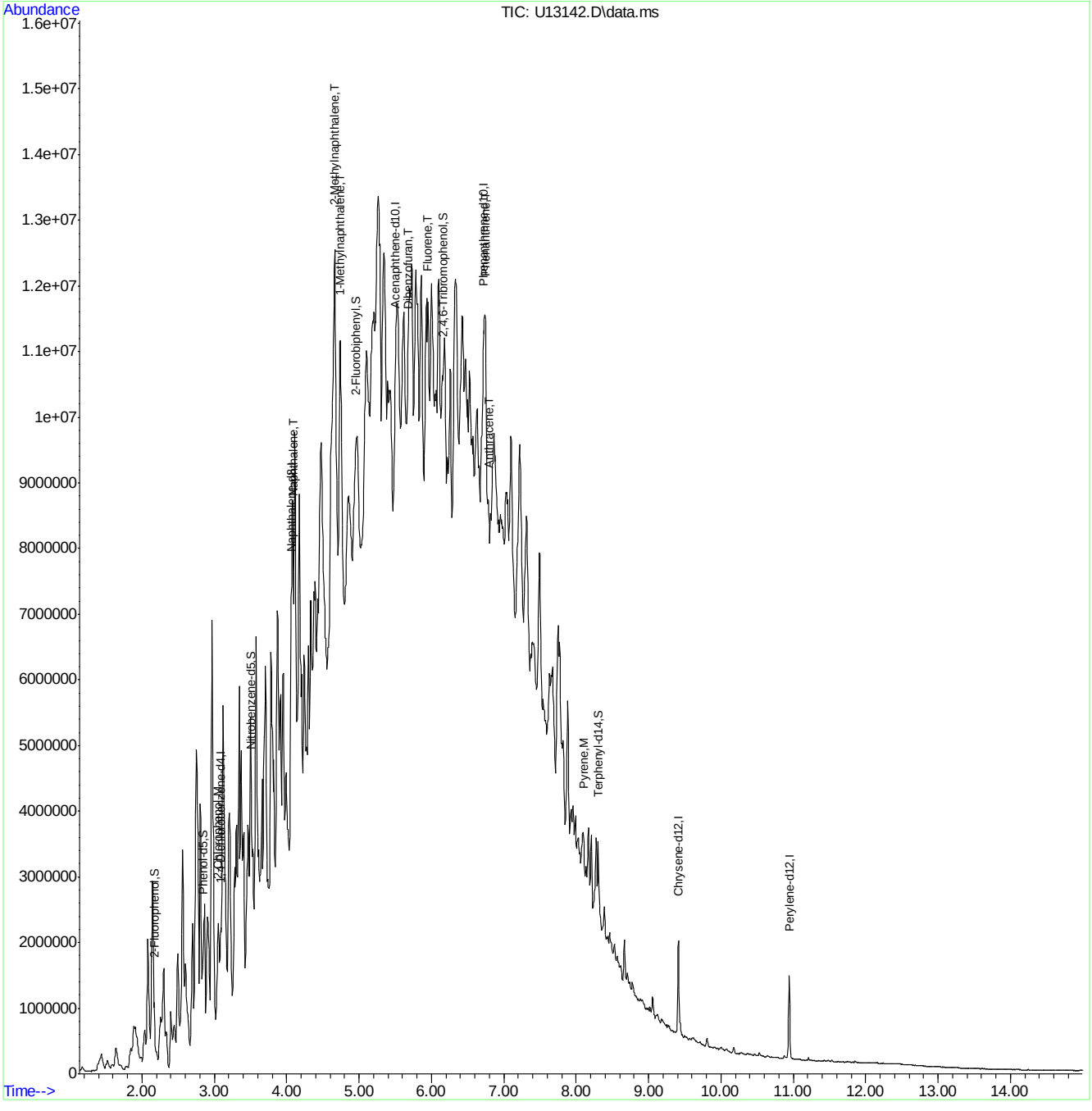
(#) = qualifier out of range (m) = manual integration (+) = signals summed

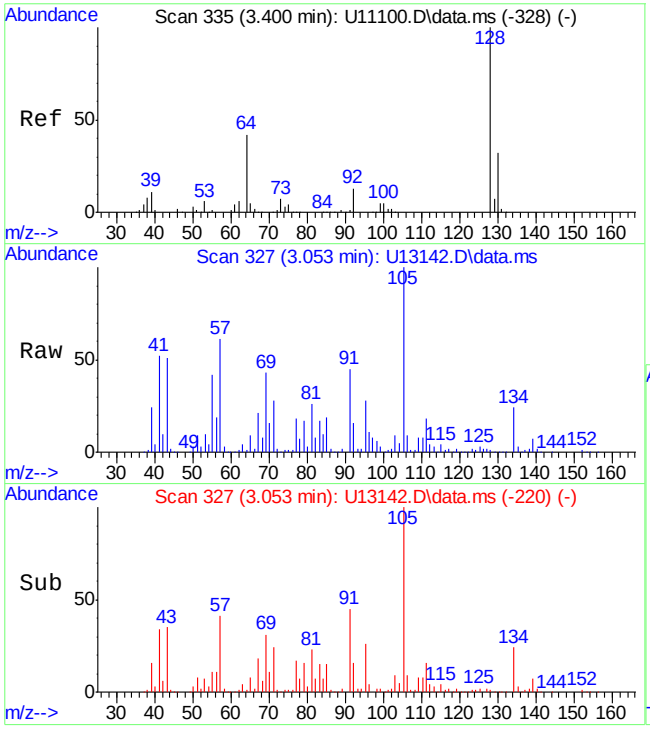
10.1.4 10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130327\
Data File : U13142.D
Acq On : 27 Mar 2013 8:26 pm
Operator : NatalyaS
Sample : JB31583-4
Misc : op32352,msu672,20.26,,,1,1
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Mar 29 10:51:08 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Mar 28 10:38:36 2013
Response via : Initial Calibration

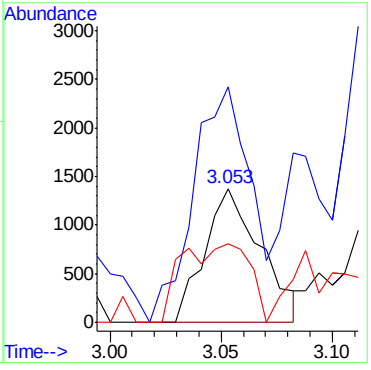


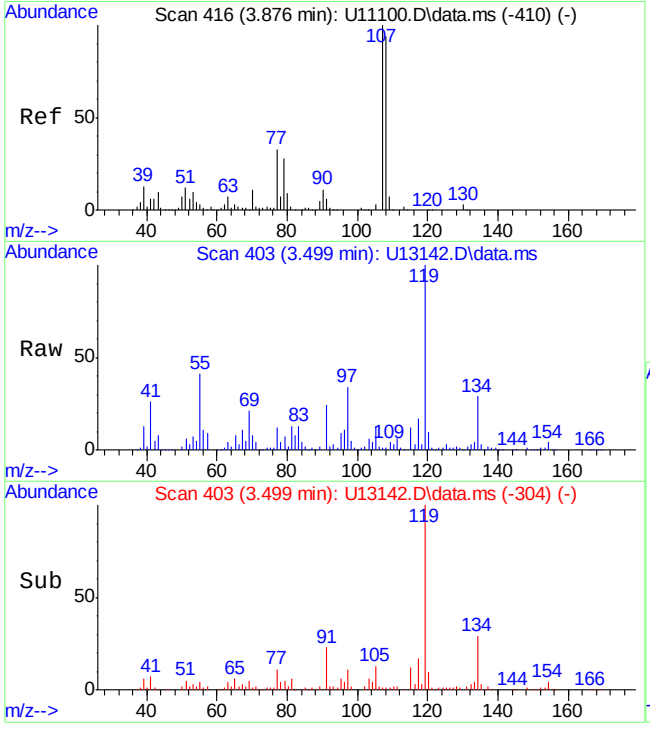


#9
2-Chlorophenol
Concen: 0.67 ppb
RT: 3.053 min Scan# 327
Delta R.T. 0.129 min
Lab File: U13142.D
Acq: 27 Mar 2013 8:26 pm

Tgt Ion:128 Resp: 2395

Ion	Ratio	Lower	Upper
128	100		
64	148.6	20.6	80.6#
130	59.2	1.9	61.9

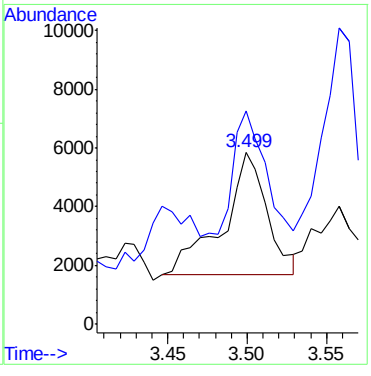


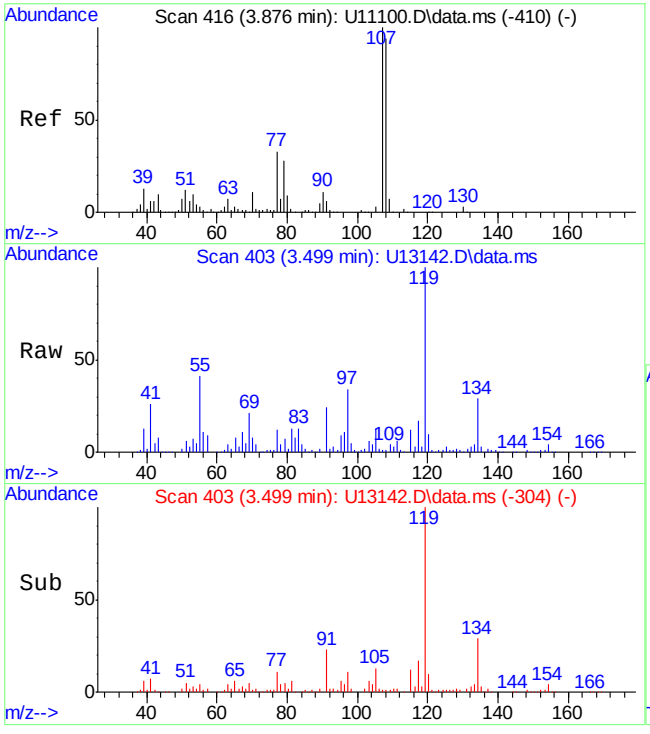


#19
m+p-cresols
Concen: Below Cal
RT: 3.499 min Scan# 403
Delta R.T. 0.082 min
Lab File: U13142.D
Acq: 27 Mar 2013 8:26 pm

Tgt Ion:108 Resp: 7977

Ion	Ratio	Lower	Upper
108	100		
107	98.2	77.8	137.8

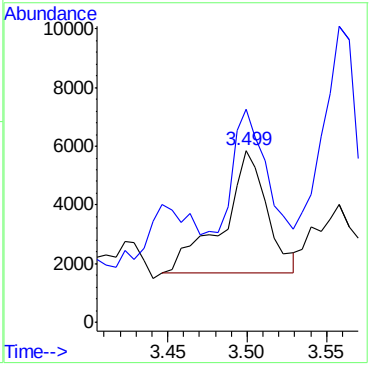


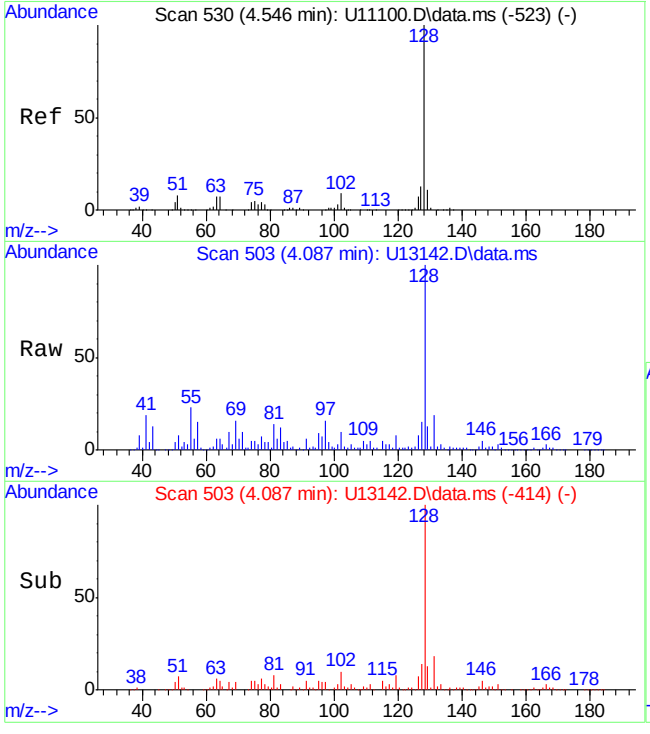


#20
4-methylphenol
Concen: Below Cal
RT: 3.499 min Scan# 403
Delta R.T. 0.082 min
Lab File: U13142.D
Acq: 27 Mar 2013 8:26 pm

Tgt Ion:108 Resp: 7977

Ion	Ratio	Lower	Upper
108	100		
107	98.2	77.1	143.1

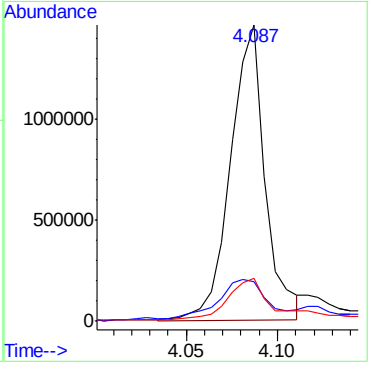




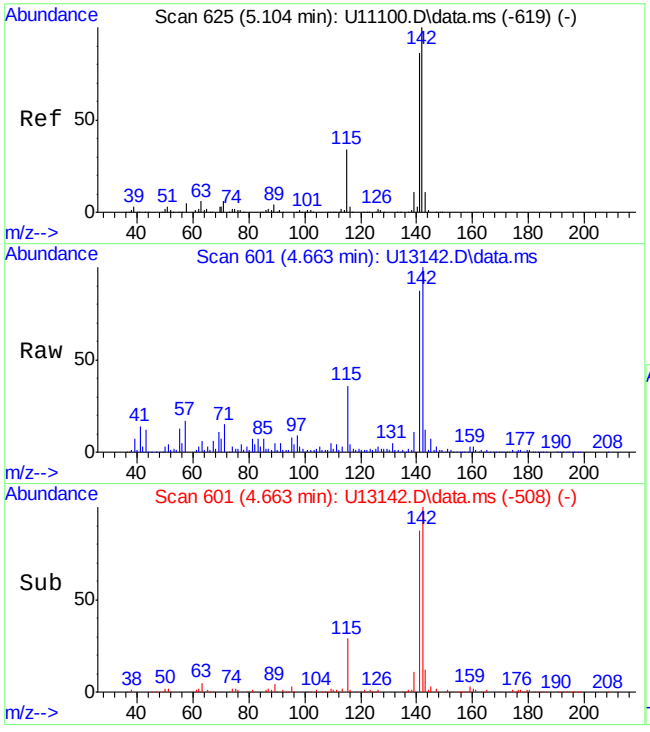
#31
Naphthalene
Concen: 260.90 ppb m
RT: 4.087 min Scan# 503
Delta R.T. 0.024 min
Lab File: U13142.D
Acq: 27 Mar 2013 8:26 pm

Tgt Ion:128 Resp: 1951342

Ion	Ratio	Lower	Upper
128	100		
129	13.1	0.0	41.2
127	14.6	0.0	43.6



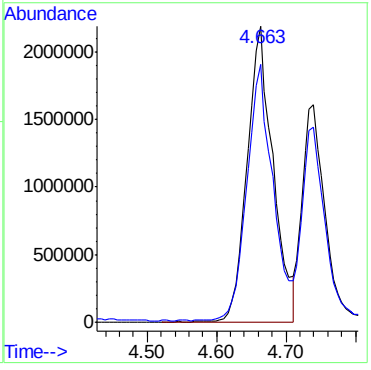
10.1.4
10

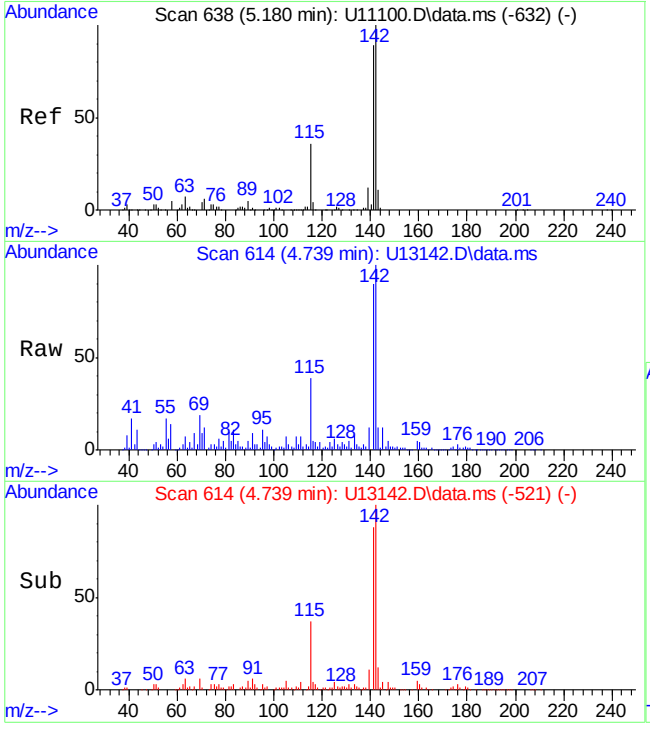


#36
2-Methylnaphthalene
Concen: 1041.55 ppb
RT: 4.663 min Scan# 601
Delta R.T. 0.047 min
Lab File: U13142.D
Acq: 27 Mar 2013 8:26 pm

Tgt Ion:142 Resp: 5635584

Ion	Ratio	Lower	Upper
142	100		
141	86.8	56.7	116.7

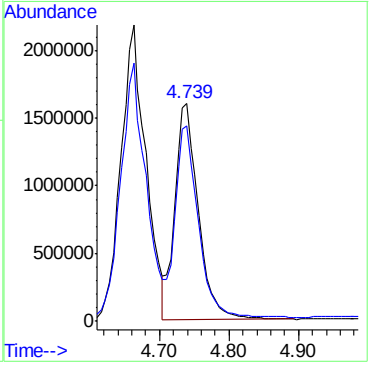


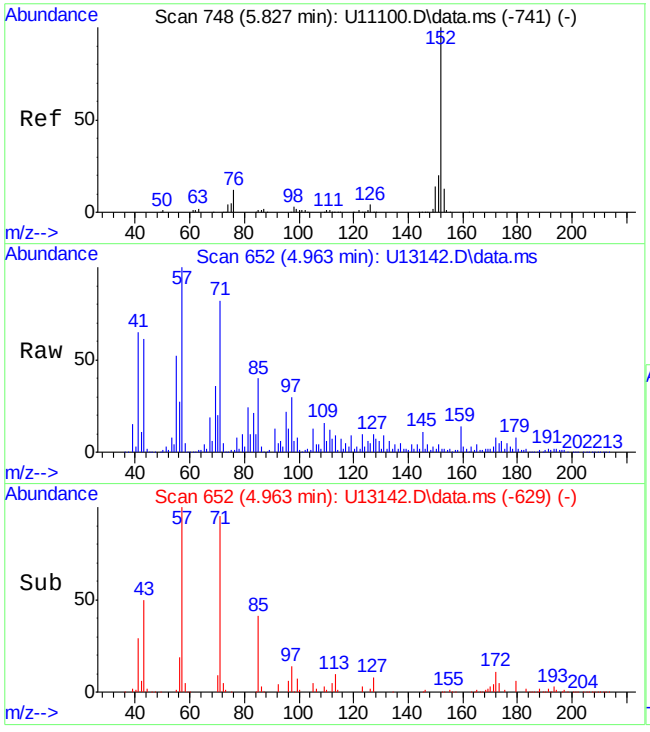


#37
1-Methylnaphthalene
Concen: 688.15 ppb
RT: 4.739 min Scan# 614
Delta R.T. 0.047 min
Lab File: U13142.D
Acq: 27 Mar 2013 8:26 pm

Tgt Ion:142 Resp: 3753100

Ion	Ratio	Lower	Upper
142	100		
141	88.7	68.6	108.6

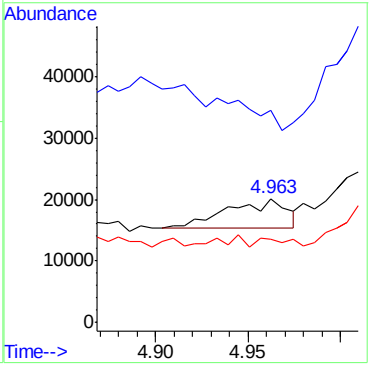


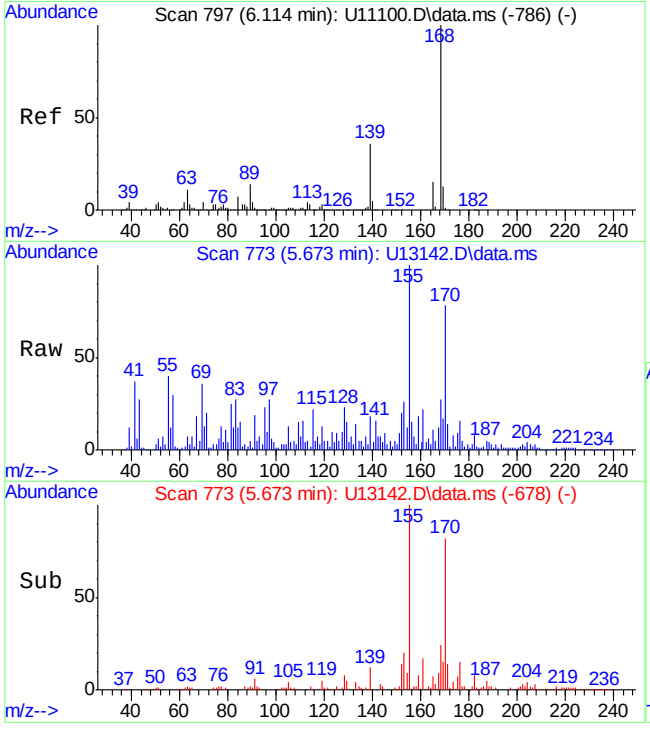


#46
Acenaphthylene
Concen: Below Cal
RT: 4.963 min Scan# 652
Delta R.T. -0.364 min
Lab File: U13142.D
Acq: 27 Mar 2013 8:26 pm

Tgt Ion:152 Resp: 10597

Ion	Ratio	Lower	Upper
152	100		
151	41.8	0.0	49.7
153	8.5	0.0	43.1

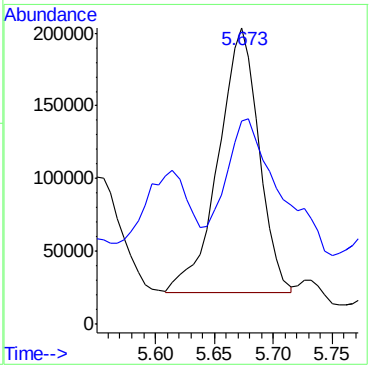


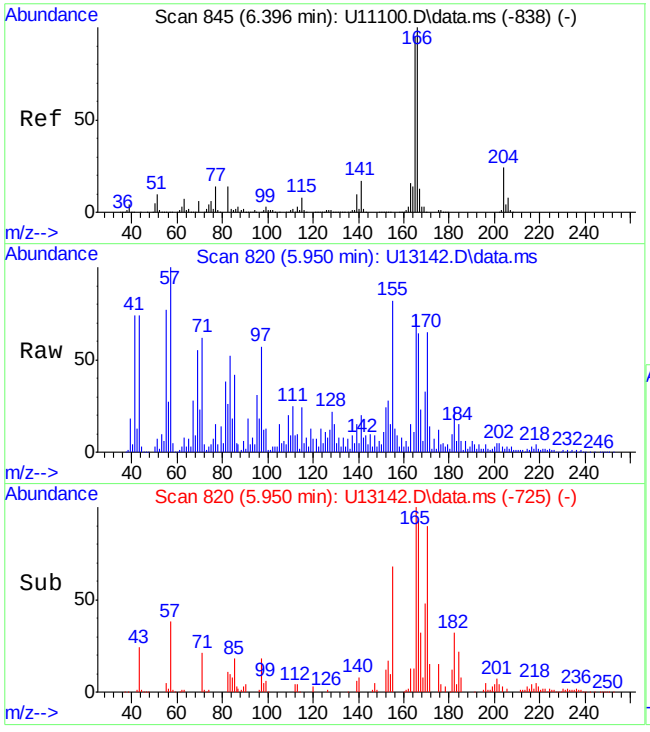


#51
Dibenzofuran
Concen: 59.19 ppb m
RT: 5.673 min Scan# 773
Delta R.T. 0.059 min
Lab File: U13142.D
Acq: 27 Mar 2013 8:26 pm

Tgt Ion:168 Resp: 433263

Ion	Ratio	Lower	Upper
168	100		
139	68.4	7.0	67.0#

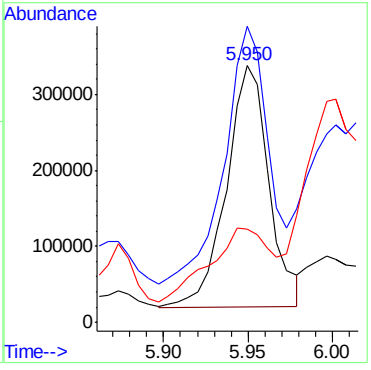


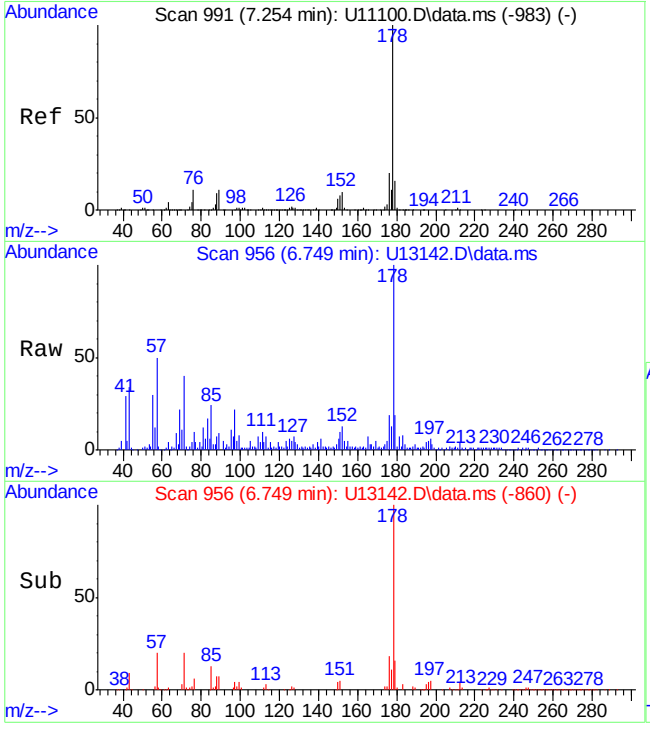


#55
Fluorene
Concen: 101.20 ppb m
RT: 5.950 min Scan# 820
Delta R.T. 0.059 min
Lab File: U13142.D
Acq: 27 Mar 2013 8:26 pm

Tgt Ion:166 Resp: 556803

Ion	Ratio	Lower	Upper
166	100		
165	115.3	63.2	123.2
167	36.4	0.0	43.3

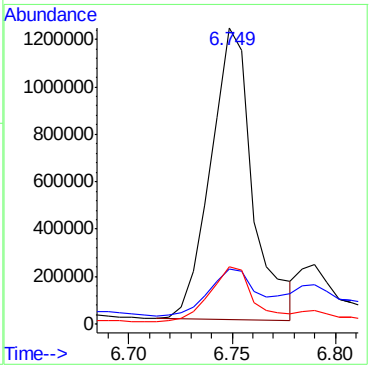




#69
Phenanthrene
Concen: 334.17 ppb m
RT: 6.749 min Scan# 956
Delta R.T. 0.065 min
Lab File: U13142.D
Acq: 27 Mar 2013 8:26 pm

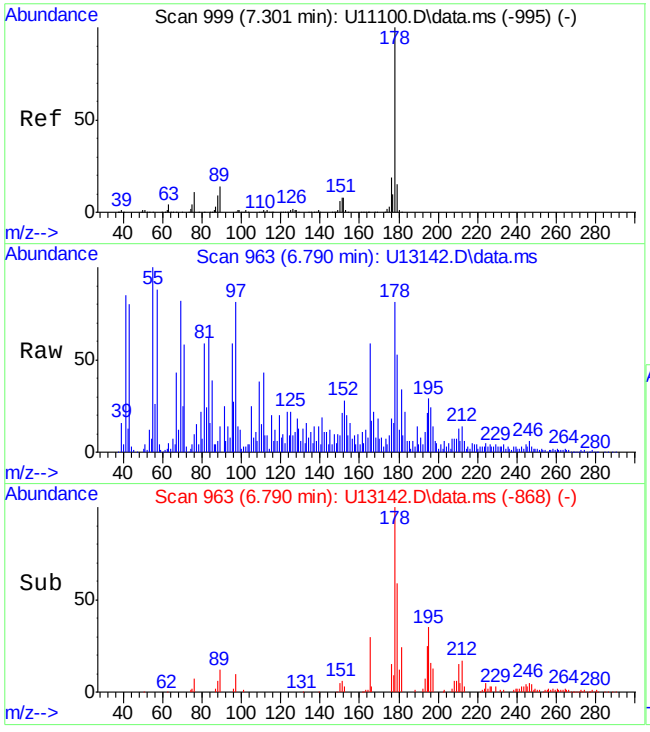
Tgt Ion:178 Resp: 1735330

Ion	Ratio	Lower	Upper
178	100		
179	18.6	0.0	45.7
176	19.2	0.0	48.8



10.1.4

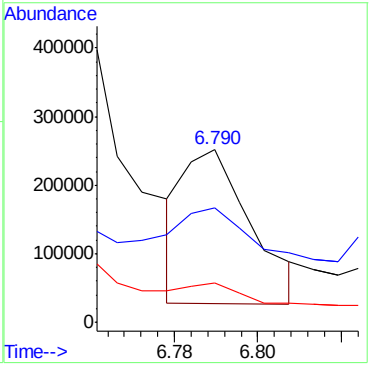
10

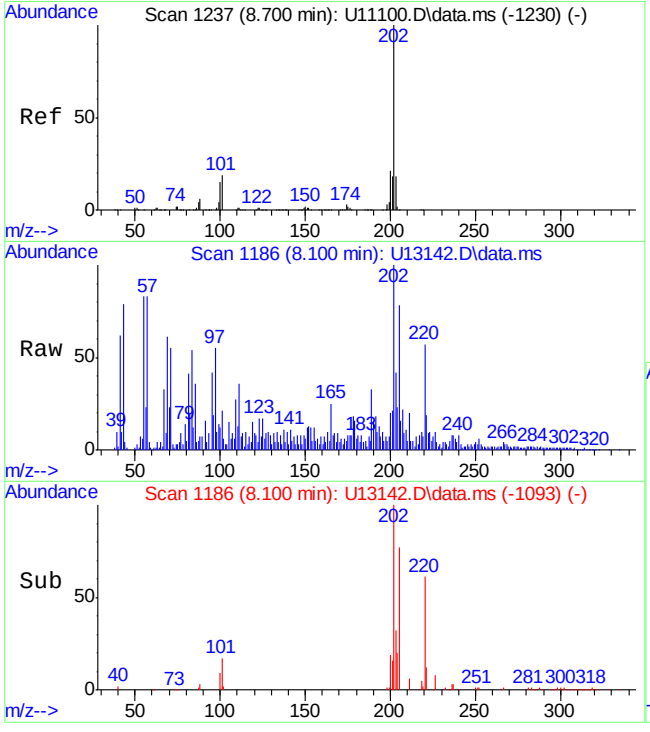


#70
Anthracene
Concen: 42.12 ppb m
RT: 6.790 min Scan# 963
Delta R.T. 0.059 min
Lab File: U13142.D
Acq: 27 Mar 2013 8:26 pm

Tgt Ion:178 Resp: 254225

Ion	Ratio	Lower	Upper
178	100		
179	65.9	0.0	45.1#
176	22.7	0.0	48.3

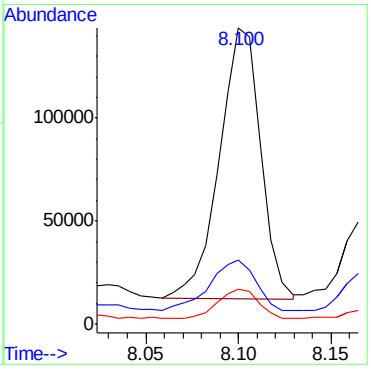




#76
Pyrene
Concen: 11.47 ppb
RT: 8.100 min Scan# 1186
Delta R.T. 0.047 min
Lab File: U13142.D
Acq: 27 Mar 2013 8:26 pm

Tgt Ion:202 Resp: 204045

Ion	Ratio	Lower	Upper
202	100		
101	18.7	0.0	46.3
100	11.1	0.0	43.6



Manual Integrations APPROVED (compounds with "m" flag)
Doug Yargeau 04/01/13 18:18

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130329\
Data File : U13212.D
Acq On : 29 Mar 2013 5:01 pm
Operator : NatalyaS
Sample : jb31583-4
Misc : op32352,msu674,20.26,,,1,5
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Apr 01 10:47:42 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Fri Mar 29 11:20:02 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.076	152	139251	40.00	ppb	0.00
21) Naphthalene-d8	4.046	136	447951	40.00	ppb	0.00
39) Acenaphthene-d10	5.456	164	267281	40.00	ppb	0.01
61) Phenanthrene-d10	6.672	188	411799	40.00	ppb	0.00
74) Chrysene-d12	9.381	240	696080	40.00	ppb	-0.02
84) Perylene-d12	10.920	264	660045	40.00	ppb	-0.02
System Monitoring Compounds						
5) 2-Fluorophenol	2.171	112	59755	13.16	ppb	0.00
Spiked Amount 100.000	Range 10 - 110		Recovery = 13.16%			
7) Phenol-d5	2.841	99	55661m	10.21	ppb	0.00
Spiked Amount 100.000	Range 10 - 110		Recovery = 10.21%			
22) Nitrobenzene-d5	3.499	82	53275m	12.58	ppb	0.00
Spiked Amount 50.000	Range 30 - 119		Recovery = 25.16%#			
44) 2-Fluorobiphenyl	4.921	172	69053m	7.35	ppb	0.00
Spiked Amount 50.000	Range 40 - 110		Recovery = 14.70%#			
65) 2,4,6-Tribromophenol	6.102	330	23677	19.68	ppb	0.01
Spiked Amount 100.000	Range 10 - 157		Recovery = 19.68%			
77) Terphenyl-d14	8.264	244	123223	7.80	ppb	0.00
Spiked Amount 50.000	Range 30 - 124		Recovery = 15.60%#			
Target Compounds						Qvalue
19) m+p-cresols	3.488	108	3789	Below Cal		86
20) 4-methylphenol	3.488	108	3789	Below Cal		84
31) Naphthalene	4.063	128	745848m	69.93	ppb	
36) 2-Methylnaphthalene	4.627	142	2151544	285.22	ppb	98
37) 1-Methylnaphthalene	4.704	142	1258919	165.11	ppb	100
51) Dibenzofuran	5.620	168	174721m	14.34	ppb	
52) 2,4-Dinitrotoluene	5.638	165	68991	24.81	ppb	66
55) Fluorene	5.902	166	241712m	28.11	ppb	
69) Phenanthrene	6.696	178	727065m	71.48	ppb	
70) Anthracene	6.737	178	102804m	7.32	ppb	
73) Fluoranthene	7.824	202	21455	1.67	ppb	98
76) Pyrene	8.047	202	60891	2.83	ppb	95

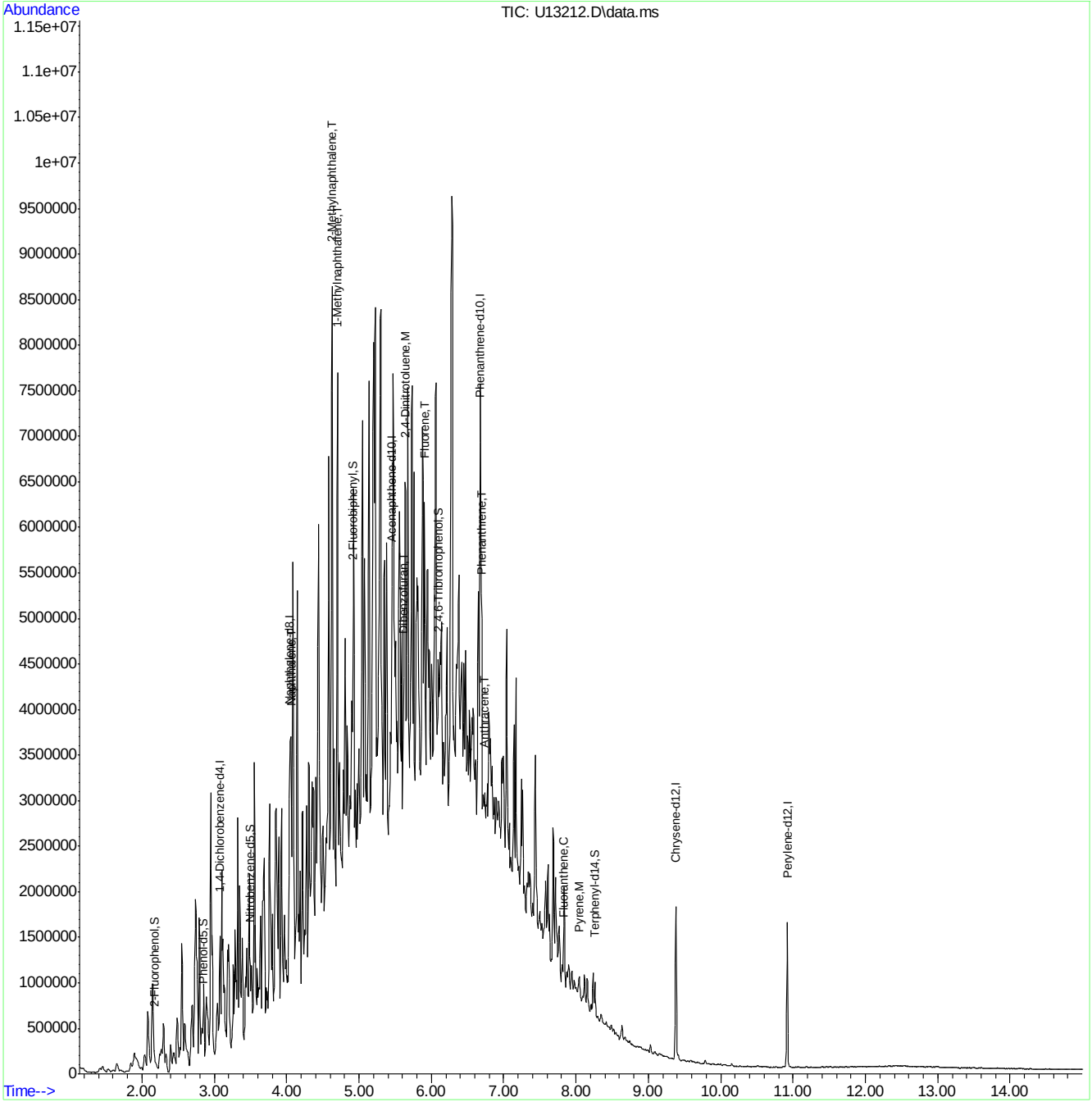
(#) = qualifier out of range (m) = manual integration (+) = signals summed

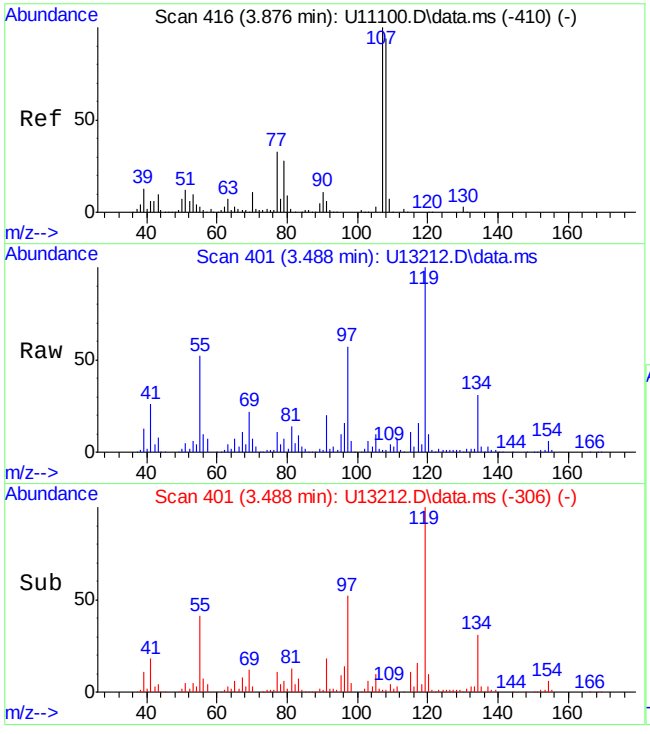
10.1.5 10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130329\
Data File : U13212.D
Acq On : 29 Mar 2013 5:01 pm
Operator : NatalyaS
Sample : jb31583-4
Misc : op32352,msu674,20.26,,,1,5
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Apr 01 10:47:42 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Fri Mar 29 11:20:02 2013
Response via : Initial Calibration

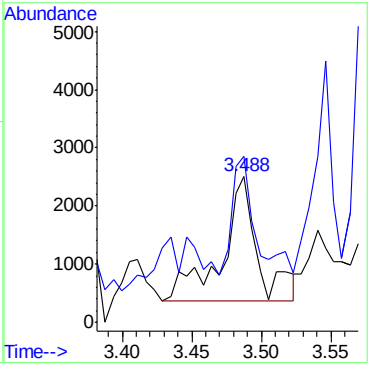


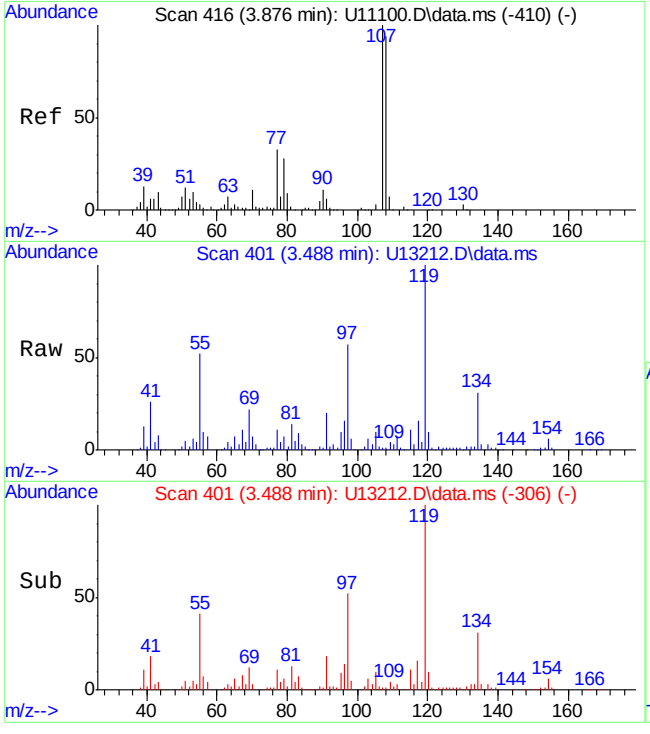


#19
m+p-cresols
Concen: Below Cal
RT: 3.488 min Scan# 401
Delta R.T. 0.059 min
Lab File: U13212.D
Acq: 29 Mar 2013 5:01 pm

Tgt Ion:108 Resp: 3789

Ion	Ratio	Lower	Upper
108	100		
107	93.7	77.8	137.8

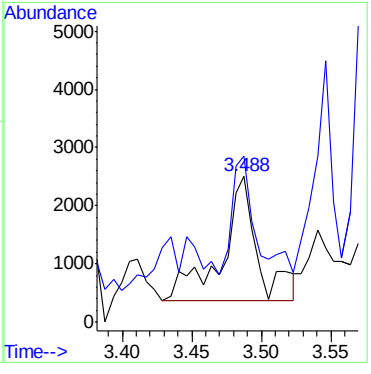


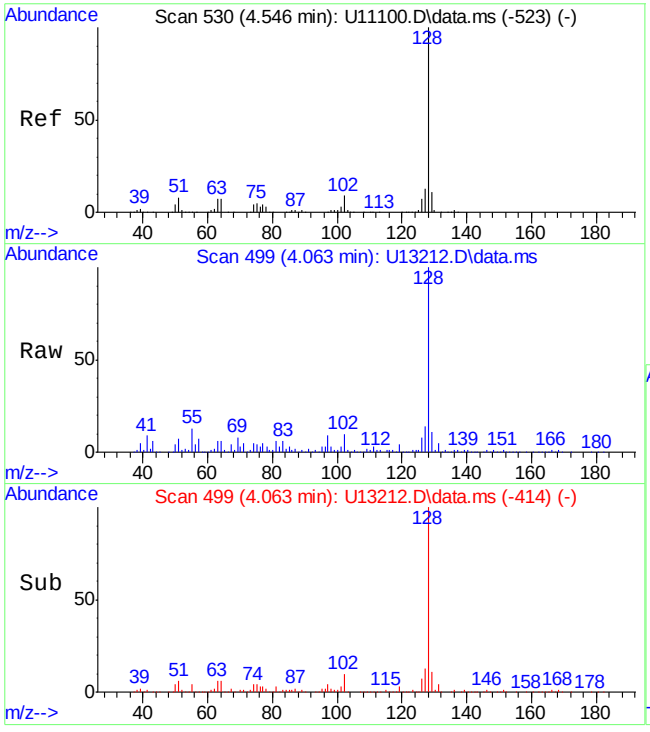


#20
4-methylphenol
Concen: Below Cal
RT: 3.488 min Scan# 401
Delta R.T. 0.059 min
Lab File: U13212.D
Acq: 29 Mar 2013 5:01 pm

Tgt Ion:108 Resp: 3789

Ion	Ratio	Lower	Upper
108	100		
107	93.7	77.1	143.1

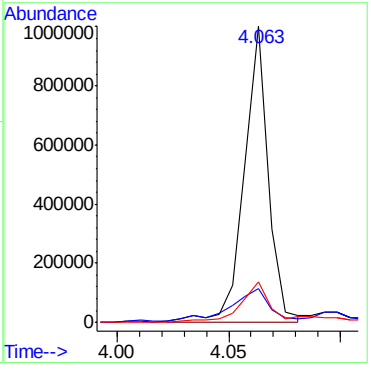


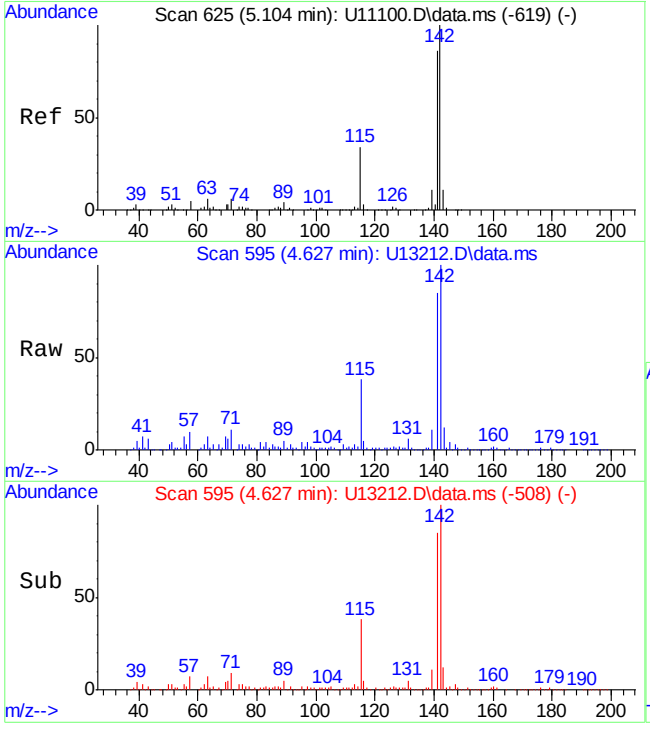


#31
Naphthalene
Concen: 69.93 ppb m
RT: 4.063 min Scan# 499
Delta R.T. 0.000 min
Lab File: U13212.D
Acq: 29 Mar 2013 5:01 pm

Tgt Ion:128 Resp: 745848

Ion	Ratio	Lower	Upper
128	100		
129	11.4	0.0	41.2
127	13.5	0.0	43.6

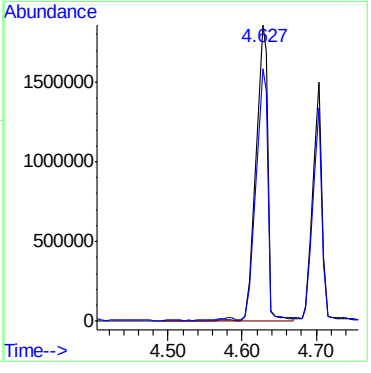




#36
2-Methylnaphthalene
Concen: 285.22 ppb
RT: 4.627 min Scan# 595
Delta R.T. 0.012 min
Lab File: U13212.D
Acq: 29 Mar 2013 5:01 pm

Tgt Ion:142 Resp: 2151544

Ion	Ratio	Lower	Upper
142	100		
141	85.2	56.7	116.7



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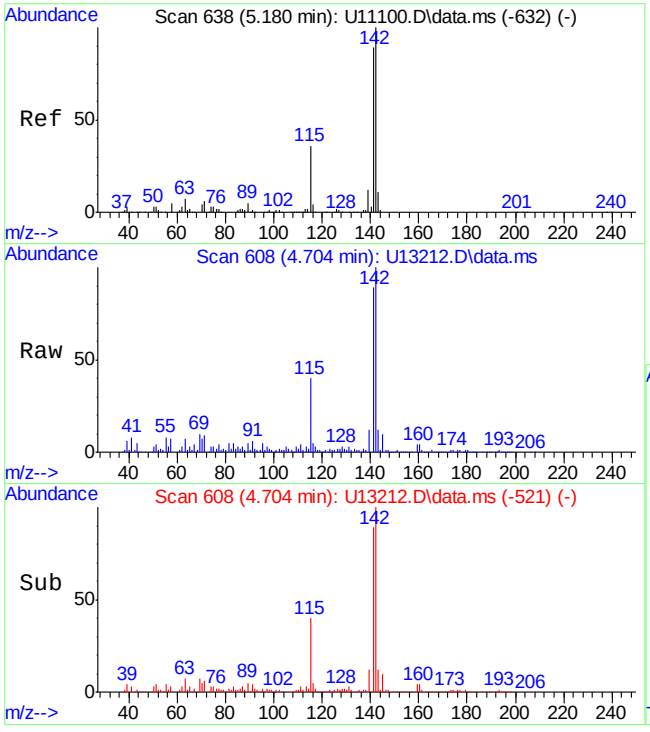
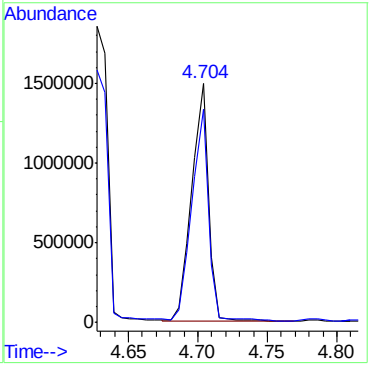
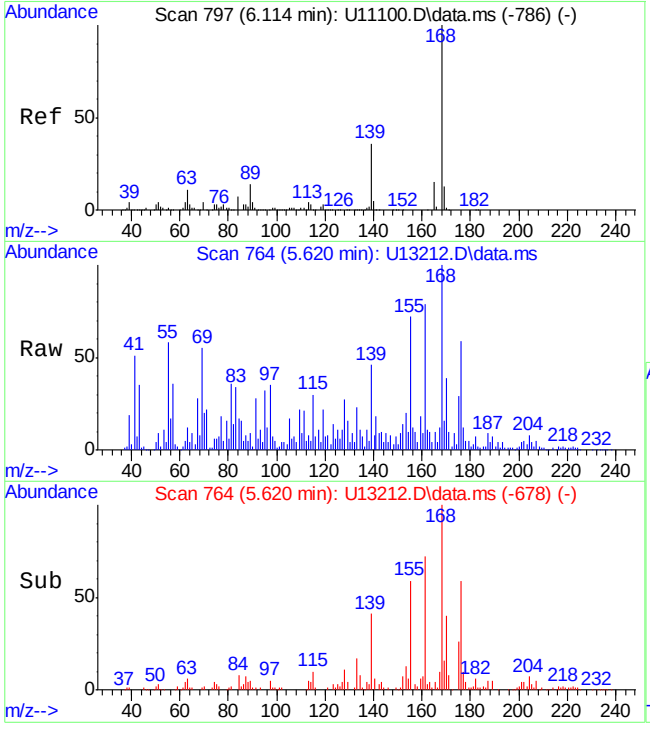


#37
1-Methylnaphthalene
Concen: 165.11 ppb
RT: 4.704 min Scan# 608
Delta R.T. 0.012 min
Lab File: U13212.D
Acq: 29 Mar 2013 5:01 pm

Tgt Ion:142 Resp: 1258919

Ion	Ratio	Lower	Upper
142	100		
141	88.8	68.6	108.6

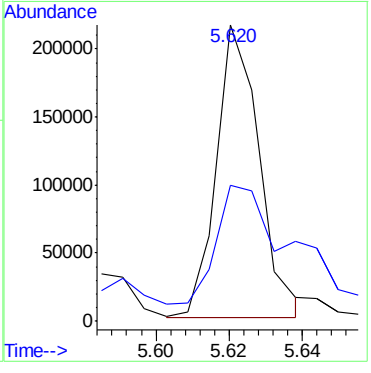


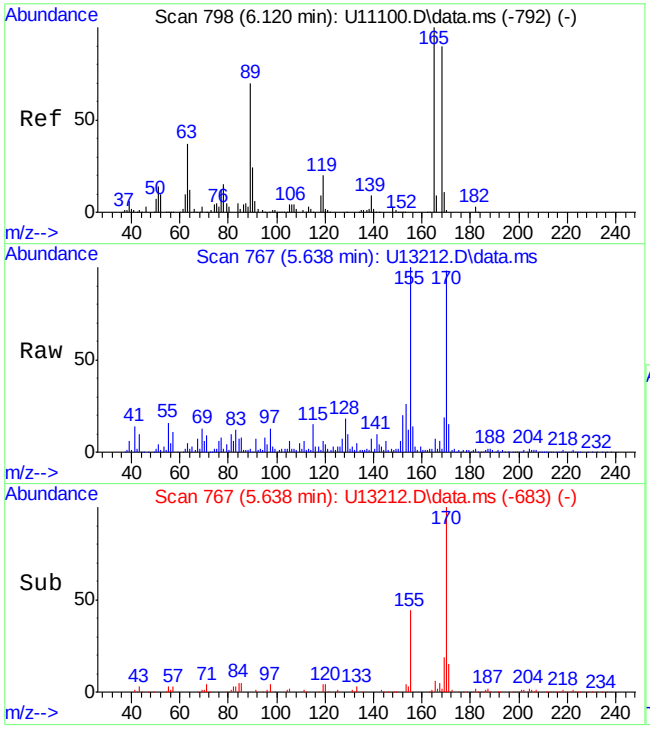


#51
Dibenzofuran
Concen: 14.34 ppb m
RT: 5.620 min Scan# 764
Delta R.T. 0.006 min
Lab File: U13212.D
Acq: 29 Mar 2013 5:01 pm

Tgt Ion:168 Resp: 174721

Ion	Ratio	Lower	Upper
168	100		
139	45.8	7.0	67.0

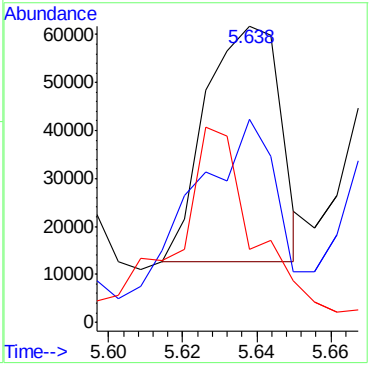


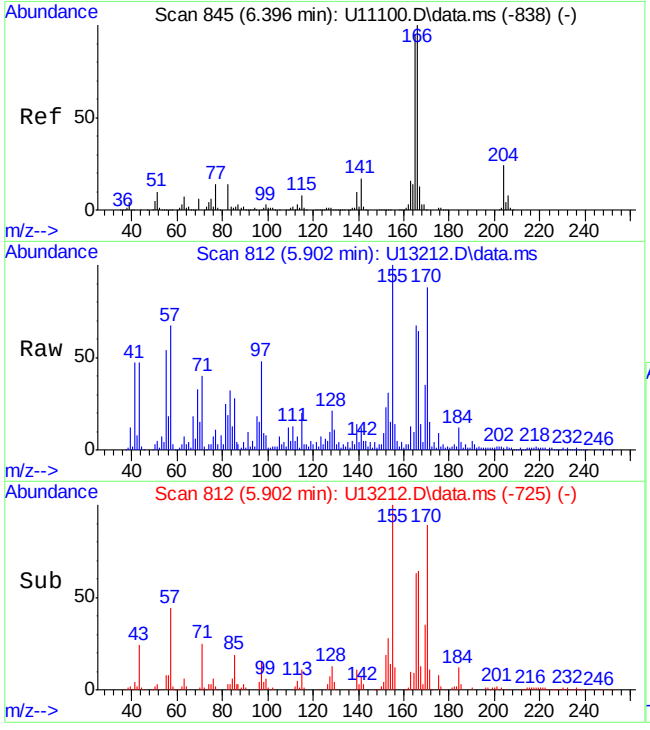


#52
2,4-Dinitrotoluene
Concen: 24.81 ppb
RT: 5.638 min Scan# 767
Delta R.T. -0.006 min
Lab File: U13212.D
Acq: 29 Mar 2013 5:01 pm

Tgt Ion:165 Resp: 68991

Ion	Ratio	Lower	Upper
165	100		
63	64.4	12.4	72.4
182	13.6	0.0	34.8

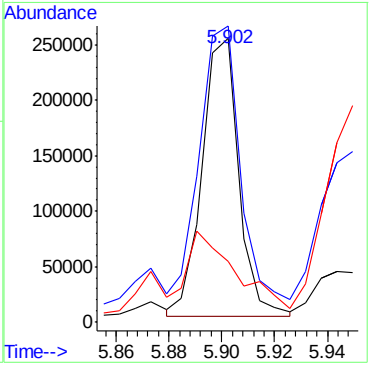


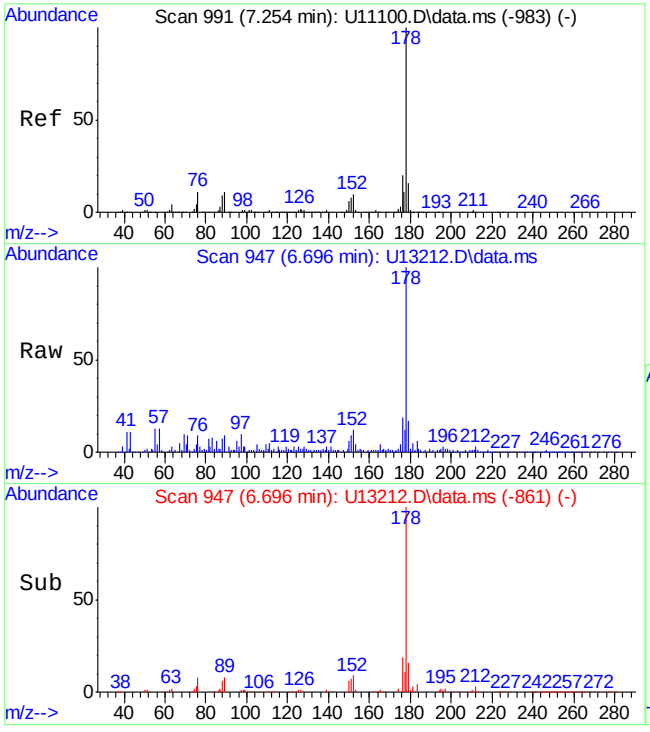


#55
Fluorene
Concen: 28.11 ppb m
RT: 5.902 min Scan# 812
Delta R.T. 0.012 min
Lab File: U13212.D
Acq: 29 Mar 2013 5:01 pm

Tgt Ion:166 Resp: 241712

Ion	Ratio	Lower	Upper
166	100		
165	104.3	63.2	123.2
167	21.6	0.0	43.3

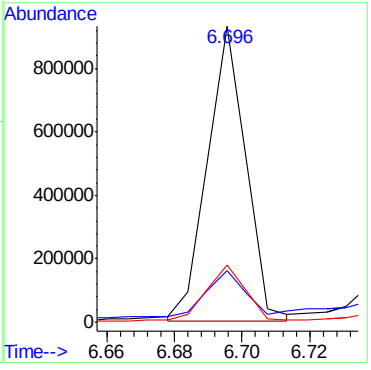


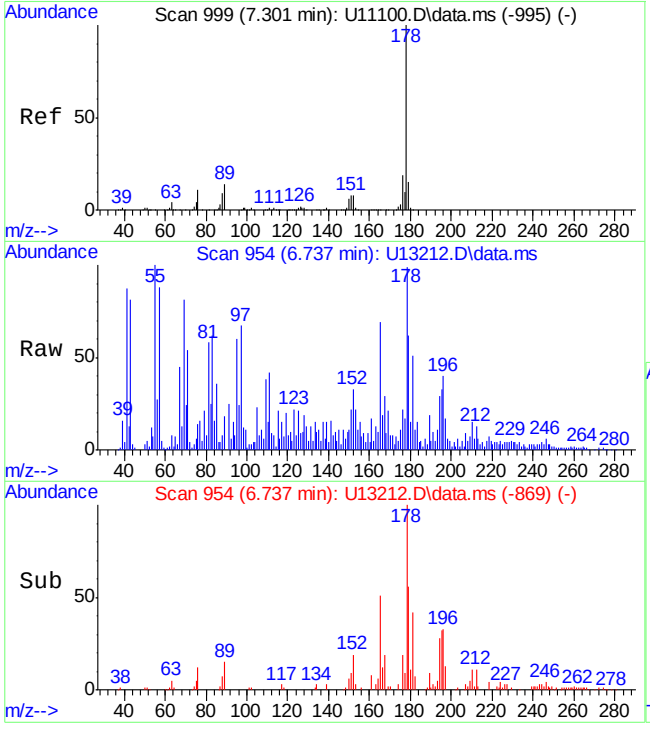


#69
Phenanthrene
Concen: 71.48 ppb m
RT: 6.696 min Scan# 947
Delta R.T. 0.006 min
Lab File: U13212.D
Acq: 29 Mar 2013 5:01 pm

Tgt Ion:178 Resp: 727065

Ion	Ratio	Lower	Upper
178	100		
179	17.4	0.0	45.7
176	19.5	0.0	48.8

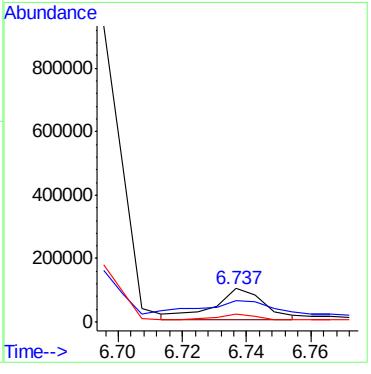




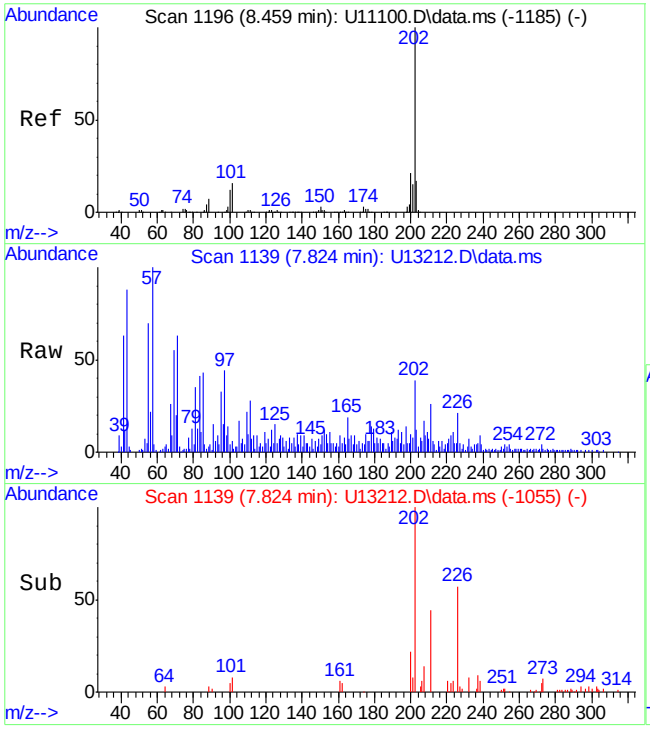
#70
Anthracene
Concen: 7.32 ppb m
RT: 6.737 min Scan# 954
Delta R.T. 0.000 min
Lab File: U13212.D
Acq: 29 Mar 2013 5:01 pm

Tgt Ion:178 Resp: 102804

Ion	Ratio	Lower	Upper
178	100		
179	62.4	0.0	45.1#
176	22.5	0.0	48.3



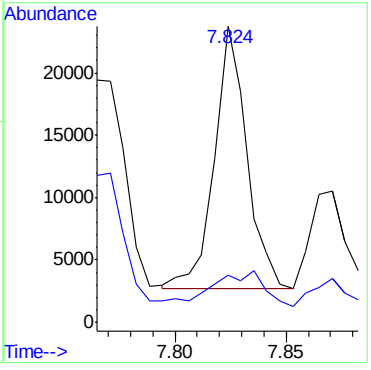
10.1.5
10

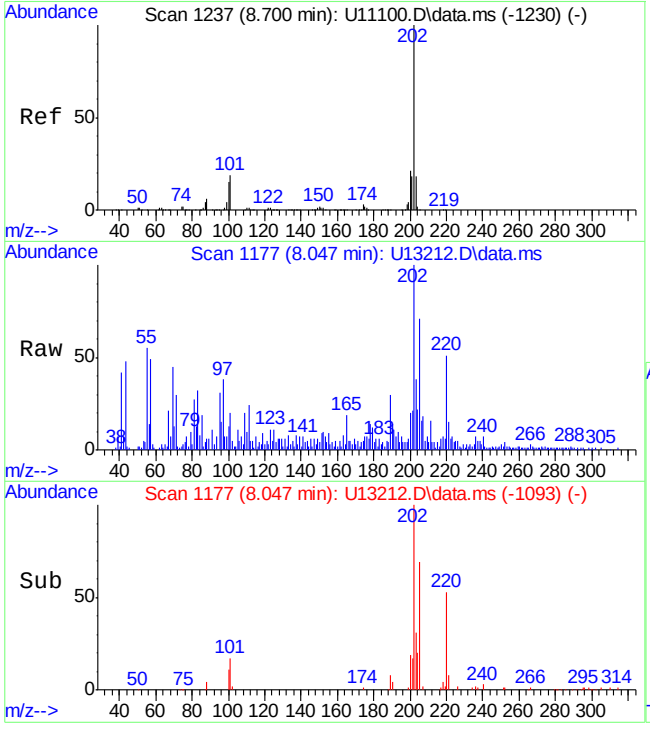


#73
Fluoranthene
Concen: 1.67 ppb
RT: 7.824 min Scan# 1139
Delta R.T. -0.006 min
Lab File: U13212.D
Acq: 29 Mar 2013 5:01 pm

Tgt Ion:202 Resp: 21455

Ion	Ratio	Lower	Upper
202	100		
101	12.0	0.0	42.6

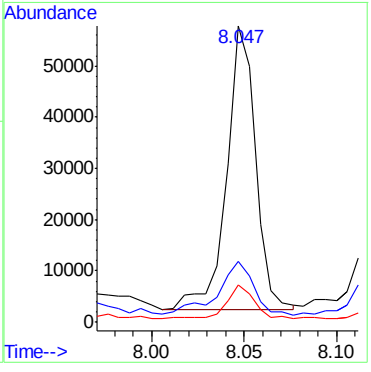




#76
Pyrene
Concen: 2.83 ppb
RT: 8.047 min Scan# 1177
Delta R.T. -0.006 min
Lab File: U13212.D
Acq: 29 Mar 2013 5:01 pm

Tgt Ion:202 Resp: 60891

Ion	Ratio	Lower	Upper
202	100		
101	18.8	0.0	46.3
100	12.1	0.0	43.6



Manual Integrations APPROVED (compounds with "m" flag)
Doug Yargeau 03/29/13 15:11

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130327\
Data File : U13143.D
Acq On : 27 Mar 2013 8:49 pm
Operator : NatalyaS
Sample : JB31583-5
Misc : op32352,msu672,20.37,,,1,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Mar 29 10:52:03 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Mar 28 10:38:36 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1,4-Dichlorobenzene-d4	3.076	152	116235m	40.00 ppb	0.00
21) Naphthalene-d8	4.046	136	428916	40.00 ppb	0.00
39) Acenaphthene-d10	5.444	164	265872	40.00 ppb	0.00
61) Phenanthrene-d10	6.660	188	477641	40.00 ppb	0.00
74) Chrysene-d12	9.393	240	576532	40.00 ppb	0.00
84) Perylene-d12	10.938	264	556094	40.00 ppb	0.00
System Monitoring Compounds					
5) 2-Fluorophenol	2.171	112	248238	65.50 ppb	0.01
Spiked Amount 100.000	Range 10 - 110		Recovery = 65.50%		
7) Phenol-d5	2.847	99	289614	63.62 ppb	0.00
Spiked Amount 100.000	Range 10 - 110		Recovery = 63.62%		
22) Nitrobenzene-d5	3.499	82	133469	32.91 ppb	0.00
Spiked Amount 50.000	Range 30 - 119		Recovery = 65.82%		
44) 2-Fluorobiphenyl	4.921	172	334125	35.76 ppb	0.00
Spiked Amount 50.000	Range 40 - 110		Recovery = 71.52%		
65) 2,4,6-Tribromophenol	6.085	330	113269	81.17 ppb	0.00
Spiked Amount 100.000	Range 10 - 157		Recovery = 81.17%		
77) Terphenyl-d14	8.270	244	453394	34.66 ppb	0.00
Spiked Amount 50.000	Range 30 - 124		Recovery = 69.32%		
Target Compounds					Qvalue
46) Acenaphthylene	4.921	152	16644	Below Cal	# 1
55) Fluorene	6.085	166	5765	Below Cal	90
63) n-Nitrosodiphenylamine	6.085	169	2886	Below Cal	# 24

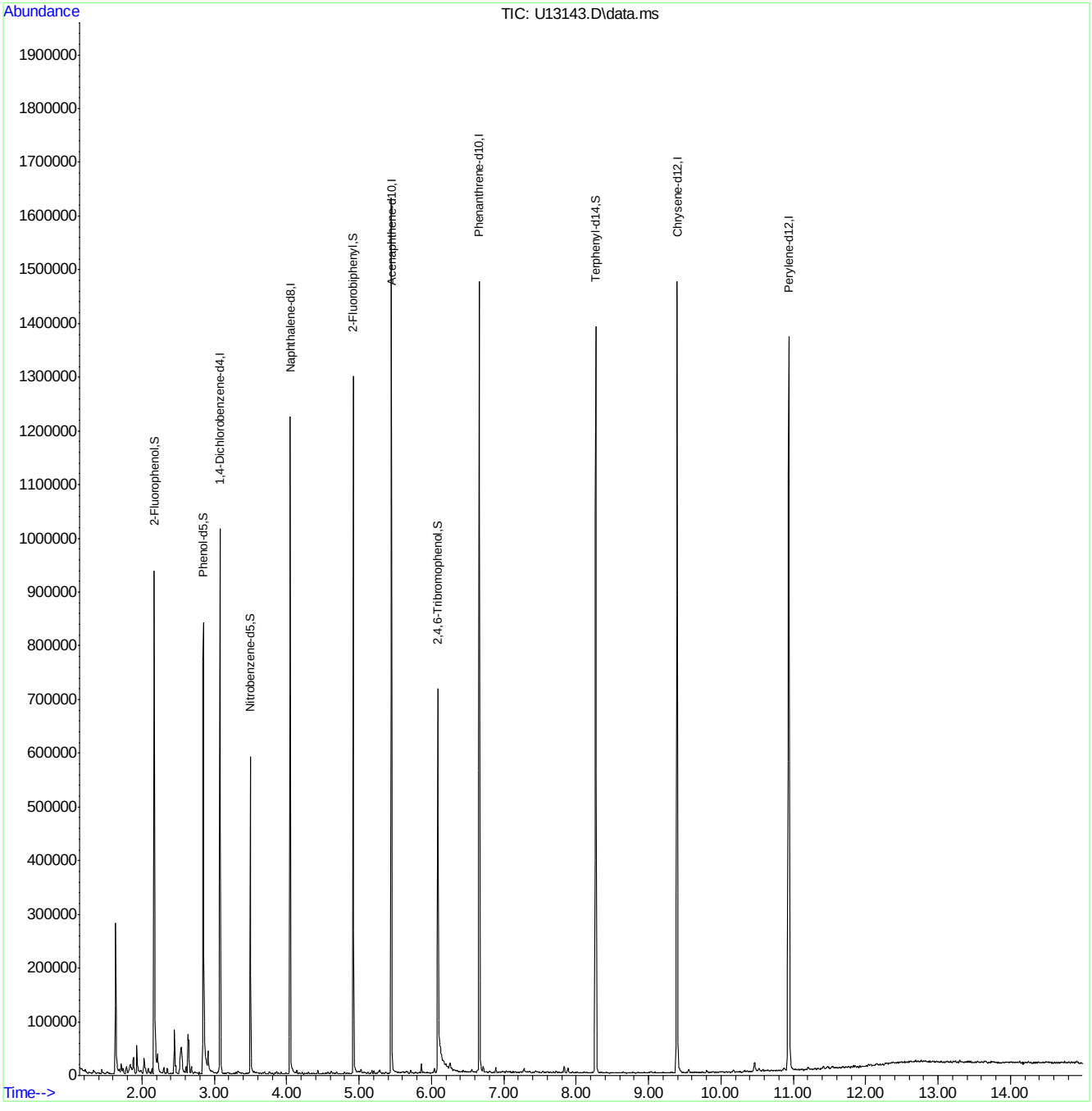
(#) = qualifier out of range (m) = manual integration (+) = signals summed

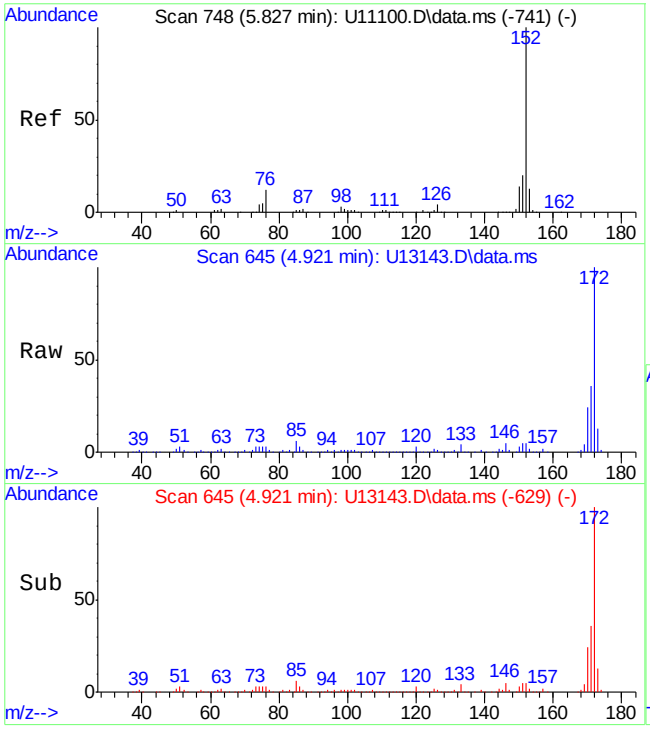
10.1.6 10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130327\
Data File : U13143.D
Acq On : 27 Mar 2013 8:49 pm
Operator : NatalyaS
Sample : JB31583-5
Misc : op32352,msu672,20.37,,,1,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Mar 29 10:52:03 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Mar 28 10:38:36 2013
Response via : Initial Calibration

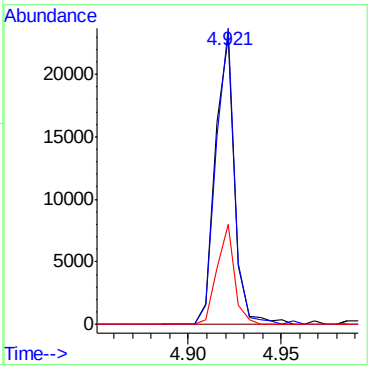


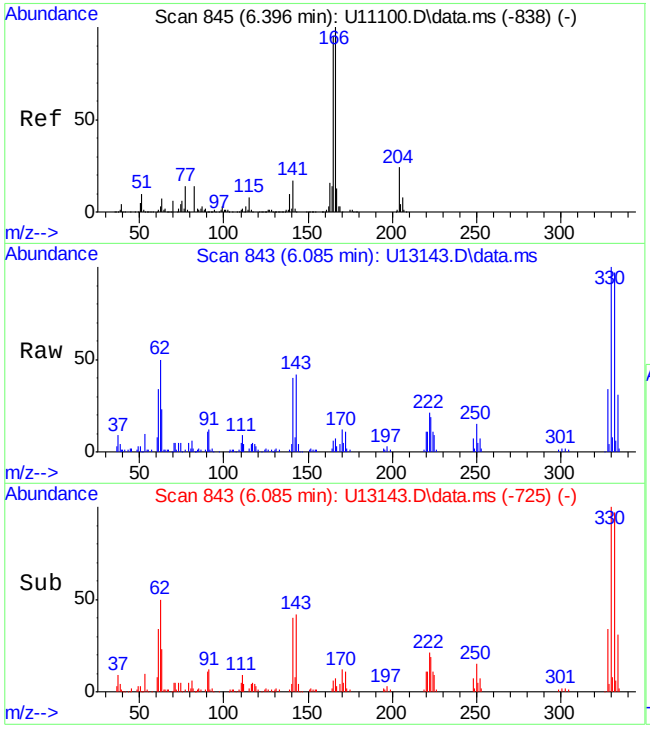


#46
Acenaphthylene
Concen: Below Cal
RT: 4.921 min Scan# 645
Delta R.T. -0.406 min
Lab File: U13143.D
Acq: 27 Mar 2013 8:49 pm

Tgt Ion:152 Resp: 16644

Ion	Ratio	Lower	Upper
152	100		
151	103.0	0.0	49.7#
153	34.6	0.0	43.1

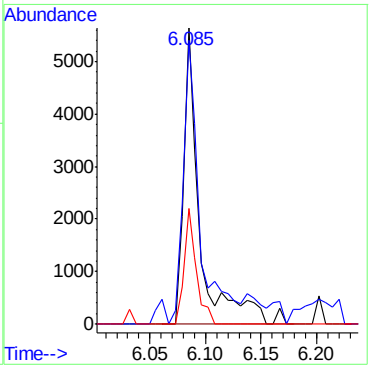




#55
Fluorene
Concen: Below Cal
RT: 6.085 min Scan# 843
Delta R.T. 0.194 min
Lab File: U13143.D
Acq: 27 Mar 2013 8:49 pm

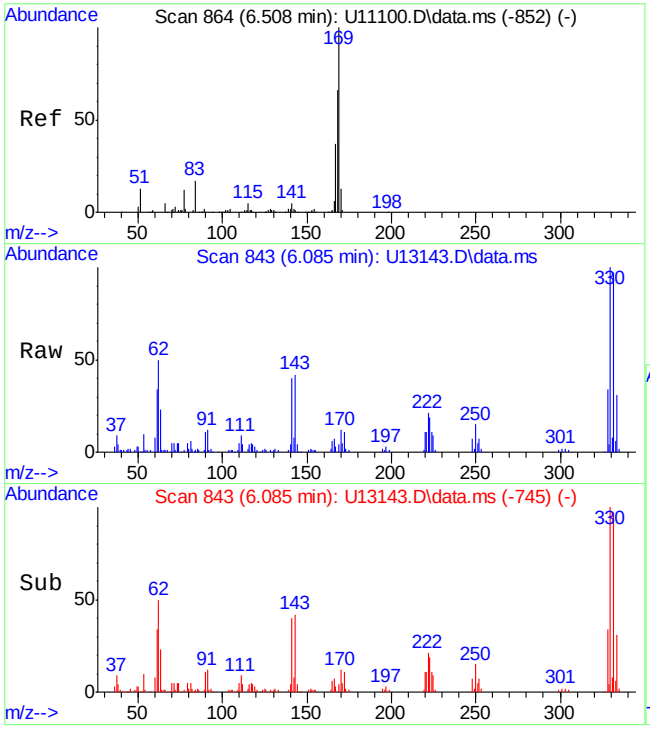
Tgt Ion:166 Resp: 5765

Ion	Ratio	Lower	Upper
166	100		
165	91.0	63.2	123.2
167	39.2	0.0	43.3



10.1.6

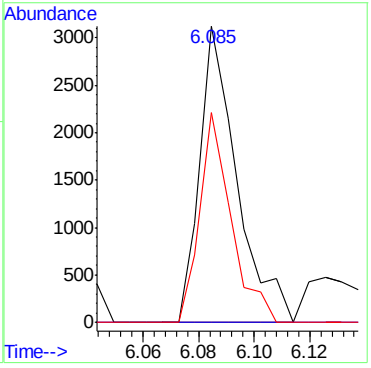
10



#63
n-Nitrosodiphenylamine
Concen: Below Cal
RT: 6.085 min Scan# 843
Delta R.T. 0.076 min
Lab File: U13143.D
Acq: 27 Mar 2013 8:49 pm

Tgt Ion:169 Resp: 2886

Ion	Ratio	Lower	Upper
169	100		
168	0.0	33.9	93.9#
167	70.8	4.0	64.0#



10.1.6

10

Manual Integrations APPROVED (compounds with "m" flag)
Doug Yargeau
03/29/13 15:11

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130327\
Data File : U13144.D
Acq On : 27 Mar 2013 9:11 pm
Operator : NatalyaS
Sample : JB31583-6
Misc : op32352,msu672,20.16,,,1,1
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Mar 29 10:53:24 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Mar 28 10:38:36 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.082	152	163352	40.00	ppb	0.00
21) Naphthalene-d8	4.046	136	581436	40.00	ppb	0.00
39) Acenaphthene-d10	5.444	164	352430	40.00	ppb	0.00
61) Phenanthrene-d10	6.666	188	604973	40.00	ppb	0.00
74) Chrysene-d12	9.399	240	689871	40.00	ppb	0.00
84) Perylene-d12	10.944	264	664087	40.00	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	2.172	112	295503	55.48	ppb	0.01
Spiked Amount 100.000	Range 10 - 110		Recovery = 55.48%			
7) Phenol-d5	2.847	99	355465	55.56	ppb	0.00
Spiked Amount 100.000	Range 10 - 110		Recovery = 55.56%			
22) Nitrobenzene-d5	3.499	82	160406	29.17	ppb	0.00
Spiked Amount 50.000	Range 30 - 119		Recovery = 58.34%			
44) 2-Fluorobiphenyl	4.921	172	406211	32.80	ppb	0.00
Spiked Amount 50.000	Range 40 - 110		Recovery = 65.60%			
65) 2,4,6-Tribromophenol	6.091	330	147923	83.70	ppb	0.00
Spiked Amount 100.000	Range 10 - 157		Recovery = 83.70%			
77) Terphenyl-d14	8.270	244	572242	36.55	ppb	0.00
Spiked Amount 50.000	Range 30 - 124		Recovery = 73.10%			
Target Compounds						Qvalue
33) 4-Chloroaniline	4.064	127	5986	Below Cal		100
36) 2-Methylnaphthalene	4.616	142	96881	7.92	ppb	95
37) 1-Methylnaphthalene	4.692	142	40746	2.41	ppb	100
46) Acenaphthylene	5.333	152	3169	Below Cal	#	5
51) Dibenzofuran	5.615	168	8432	Below Cal		87
55) Fluorene	5.885	166	8108	Below Cal	#	68
63) n-Nitrosodiphenylamine	5.938	169	12678	Below Cal		74
69) Phenanthrene	6.684	178	199110	10.08	ppb	98
70) Anthracene	6.731	178	46955	0.74	ppb	99
71) Carbazole	6.796	167	1871	Below Cal		69
73) Fluoranthene	7.824	202	26390	1.40	ppb	95
76) Pyrene	8.053	202	137466	6.44	ppb	93
81) Benzo[a]anthracene	9.387	228	48981	2.41	ppb	95
82) Chrysene	9.422	228	51112m	2.66	ppb	
86) Benzo[b]fluoranthene	10.556	252	14826m	2.41	ppb	
88) Benzo[a]pyrene	10.879	252	27259	1.44	ppb	95
89) Indeno[1,2,3-cd]pyrene	11.925	276	10608m	0.46	ppb	
91) Benzo[g,h,i]perylene	12.142	276	26299m	1.37	ppb	

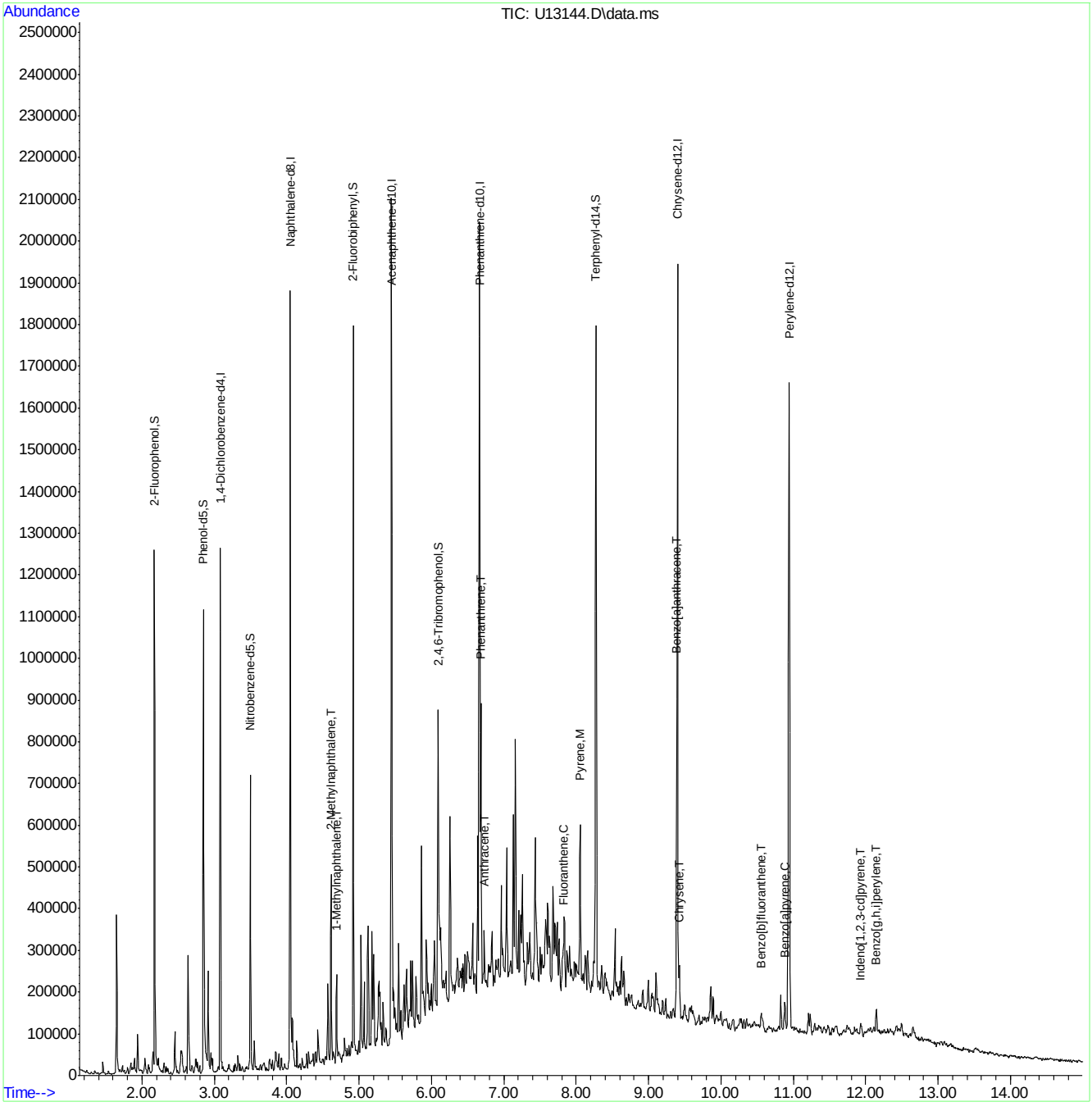
(#) = qualifier out of range (m) = manual integration (+) = signals summed

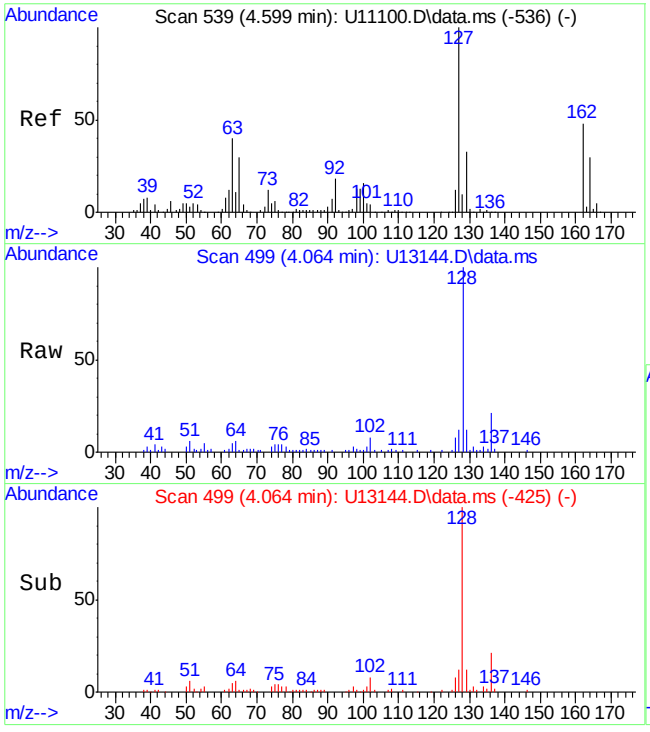
10.1.7
10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130327\
Data File : U13144.D
Acq On : 27 Mar 2013 9:11 pm
Operator : NatalyaS
Sample : JB31583-6
Misc : op32352,msu672,20.16,,,1,1
ALS Vial : 21 Sample Multiplier: 1

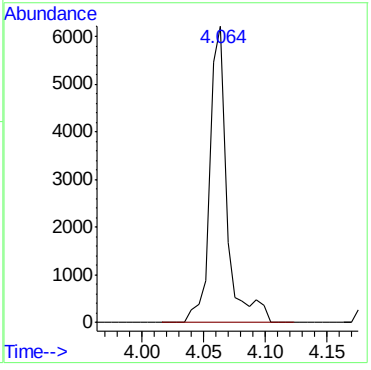
Quant Time: Mar 29 10:53:24 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Mar 28 10:38:36 2013
Response via : Initial Calibration

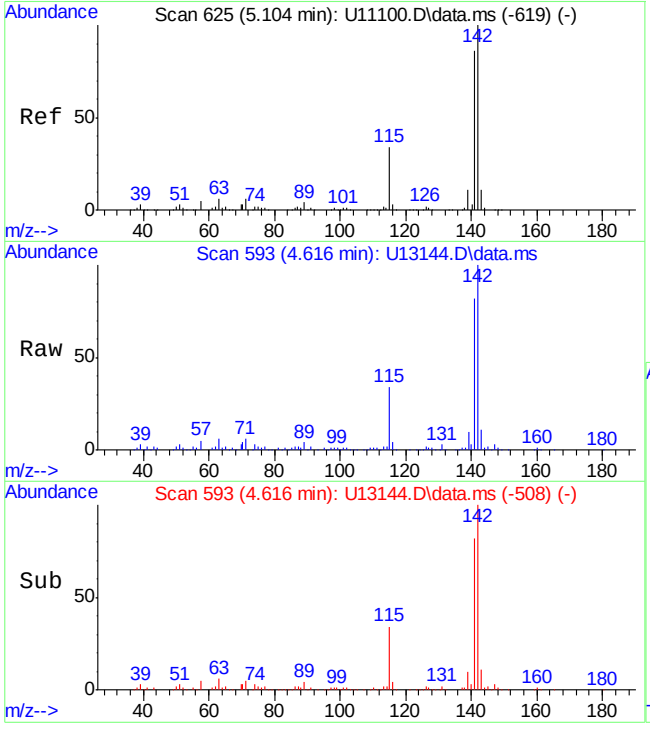




#33
4-Chloroaniline
Concen: Below Cal
RT: 4.064 min Scan# 499
Delta R.T. -0.065 min
Lab File: U13144.D
Acq: 27 Mar 2013 9:11 pm

Tgt Ion:127 Resp: 5986

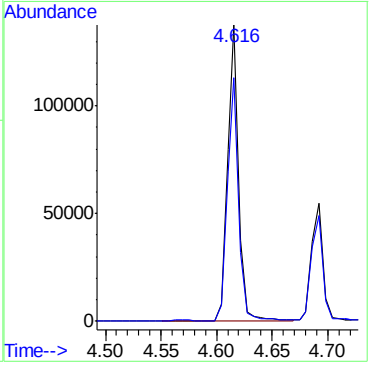




#36
2-Methylnaphthalene
Concen: 7.92 ppb
RT: 4.616 min Scan# 593
Delta R.T. 0.000 min
Lab File: U13144.D
Acq: 27 Mar 2013 9:11 pm

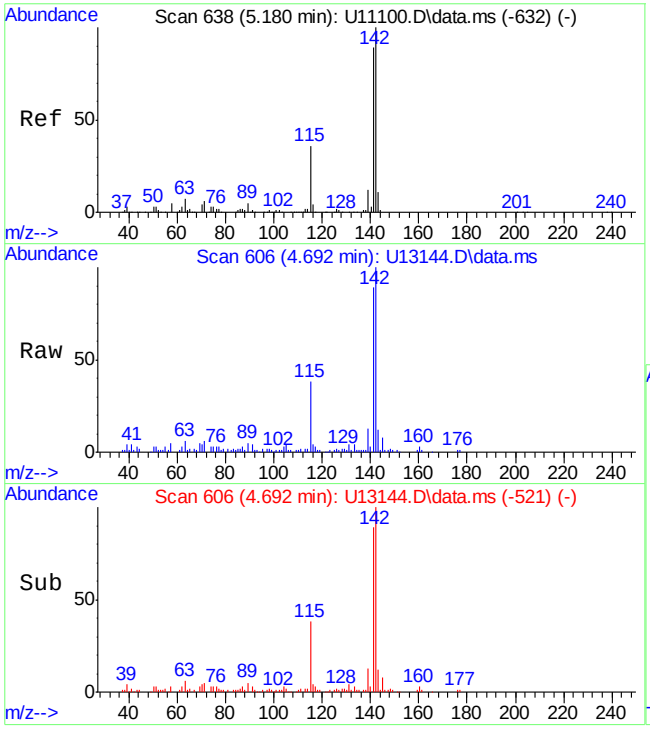
Tgt Ion:142 Resp: 96881

Ion	Ratio	Lower	Upper
142	100		
141	82.2	56.7	116.7



10.1.7

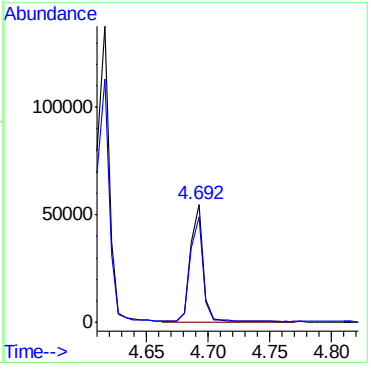
10

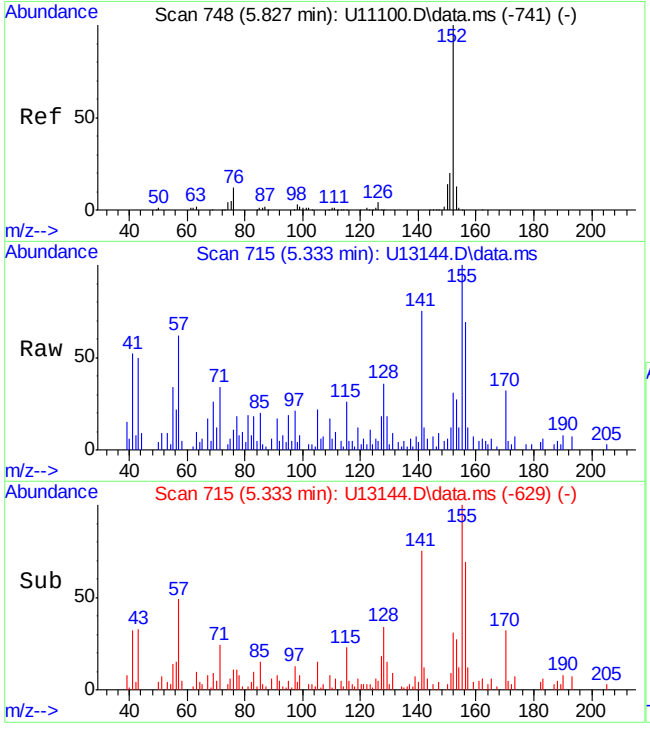


#37
1-Methylnaphthalene
Concen: 2.41 ppb
RT: 4.692 min Scan# 606
Delta R.T. 0.000 min
Lab File: U13144.D
Acq: 27 Mar 2013 9:11 pm

Tgt Ion:142 Resp: 40746

Ion	Ratio	Lower	Upper
142	100		
141	88.4	68.6	108.6

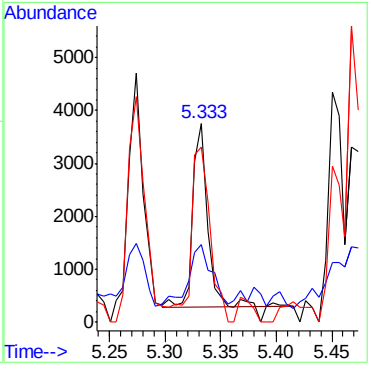


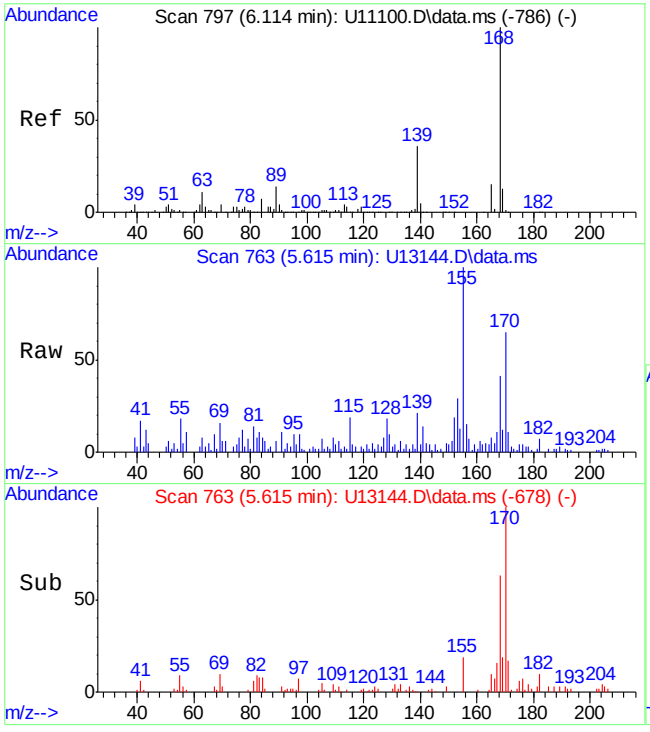


#46
Acenaphthylene
Concen: Below Cal
RT: 5.333 min Scan# 715
Delta R.T. 0.006 min
Lab File: U13144.D
Acq: 27 Mar 2013 9:11 pm

Tgt Ion:152 Resp: 3169

Ion	Ratio	Lower	Upper
152	100		
151	35.2	0.0	49.7
153	87.1	0.0	43.1#

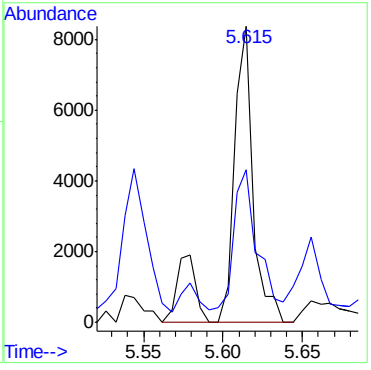


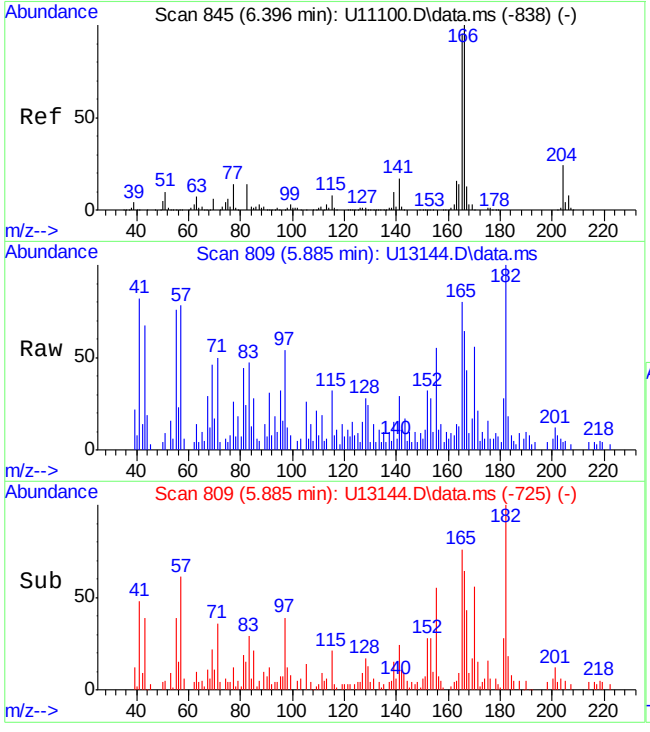


#51
Dibenzofuran
Concen: Below Cal
RT: 5.615 min Scan# 763
Delta R.T. 0.000 min
Lab File: U13144.D
Acq: 27 Mar 2013 9:11 pm

Tgt Ion:168 Resp: 8432

Ion	Ratio	Lower	Upper
168	100		
139	44.9	7.0	67.0

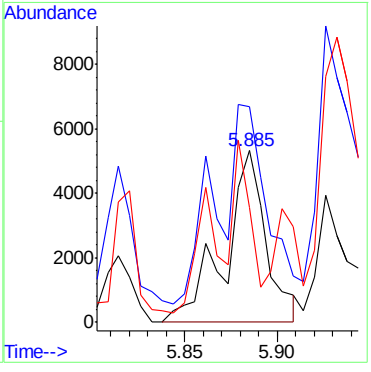


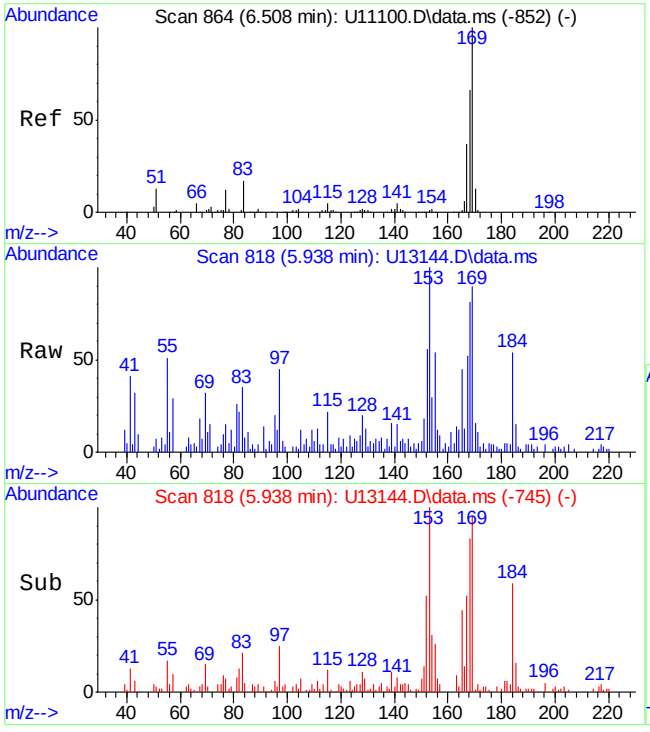


#55
Fluorene
Concen: Below Cal
RT: 5.885 min Scan# 809
Delta R.T. -0.006 min
Lab File: U13144.D
Acq: 27 Mar 2013 9:11 pm

Tgt Ion:166 Resp: 8108

Ion	Ratio	Lower	Upper
166	100		
165	112.8	63.2	123.2
167	59.9	0.0	43.3#

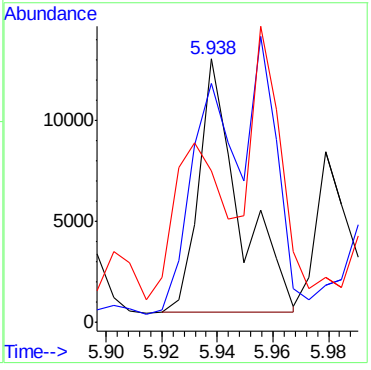


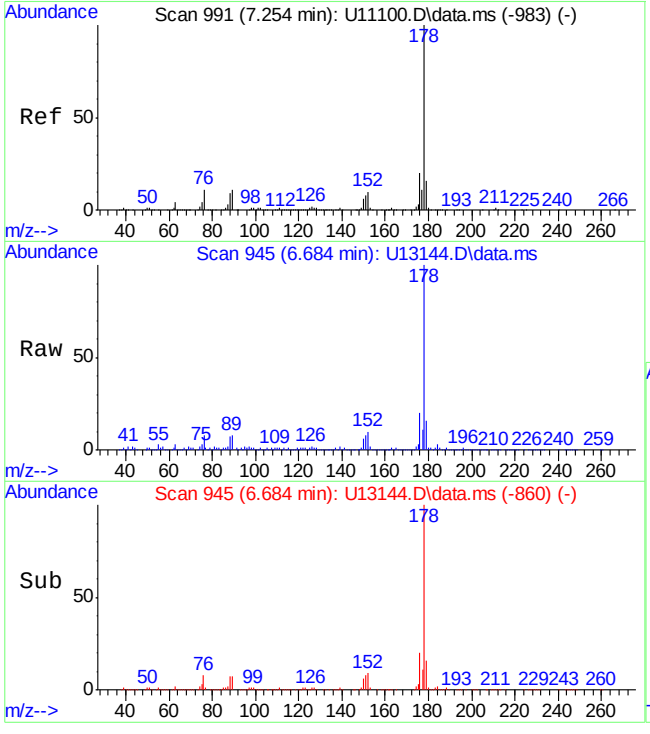


#63
n-Nitrosodiphenylamine
Concen: Below Cal
RT: 5.938 min Scan# 818
Delta R.T. -0.071 min
Lab File: U13144.D
Acq: 27 Mar 2013 9:11 pm

Tgt Ion:169 Resp: 12678

Ion	Ratio	Lower	Upper
169	100		
168	89.1	33.9	93.9
167	41.9	4.0	64.0

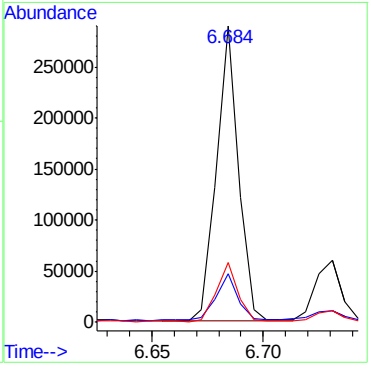


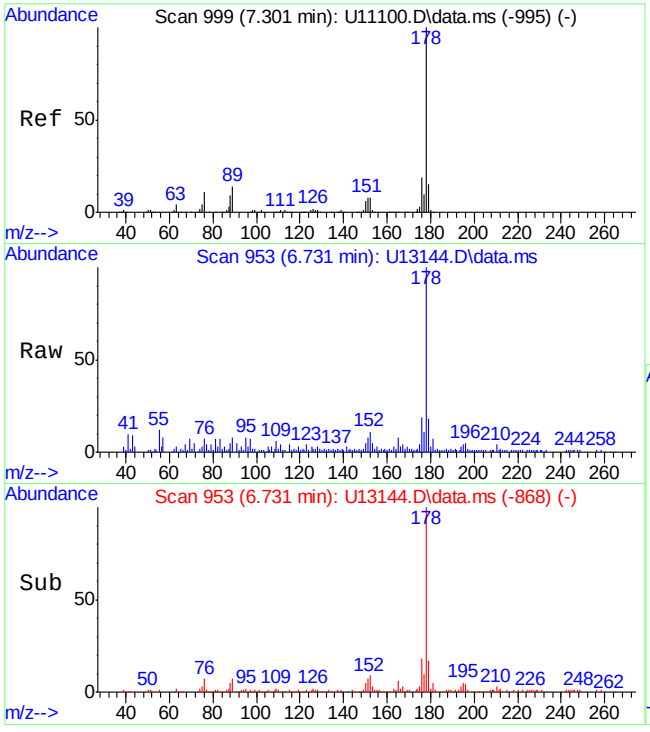


#69
Phenanthrene
Concen: 10.08 ppb
RT: 6.684 min Scan# 945
Delta R.T. 0.000 min
Lab File: U13144.D
Acq: 27 Mar 2013 9:11 pm

Tgt Ion:178 Resp: 199110

Ion	Ratio	Lower	Upper
178	100		
179	15.6	0.0	45.7
176	20.0	0.0	48.8

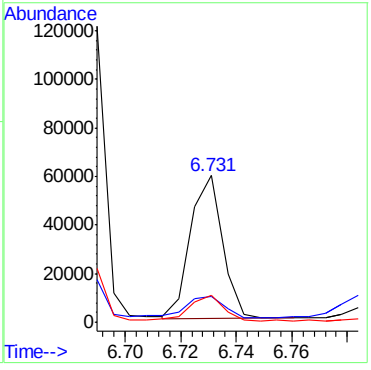


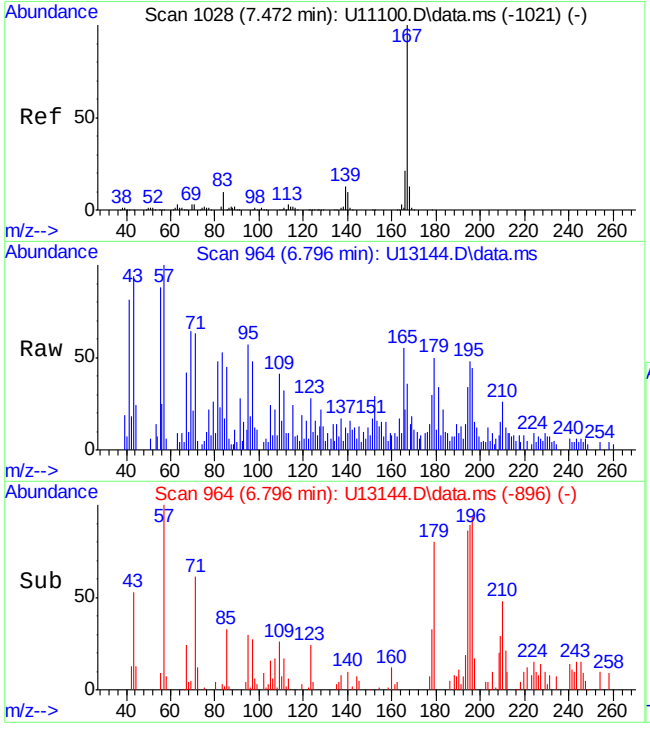


#70
Anthracene
Concen: 0.74 ppb
RT: 6.731 min Scan# 953
Delta R.T. 0.000 min
Lab File: U13144.D
Acq: 27 Mar 2013 9:11 pm

Tgt Ion:178 Resp: 46955

Ion	Ratio	Lower	Upper
178	100		
179	14.8	0.0	45.1
176	18.1	0.0	48.3

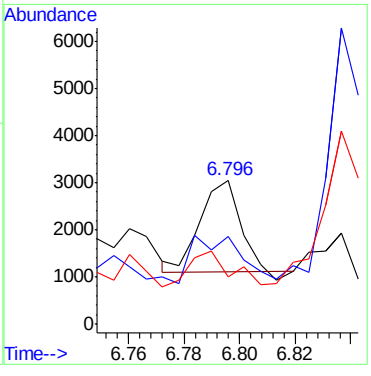


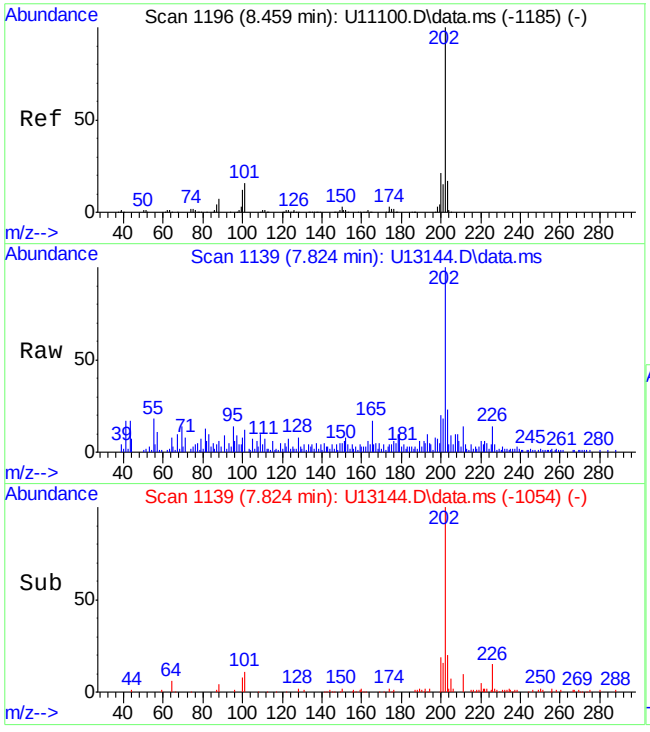


#71
Carbazole
Concen: Below Cal
RT: 6.796 min Scan# 964
Delta R.T. -0.100 min
Lab File: U13144.D
Acq: 27 Mar 2013 9:11 pm

Tgt Ion:167 Resp: 1871

Ion	Ratio	Lower	Upper
167	100		
166	43.7	0.0	50.9
139	12.0	0.0	43.1

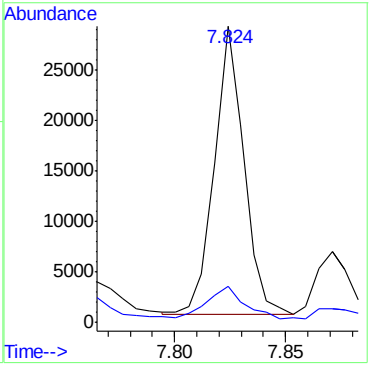


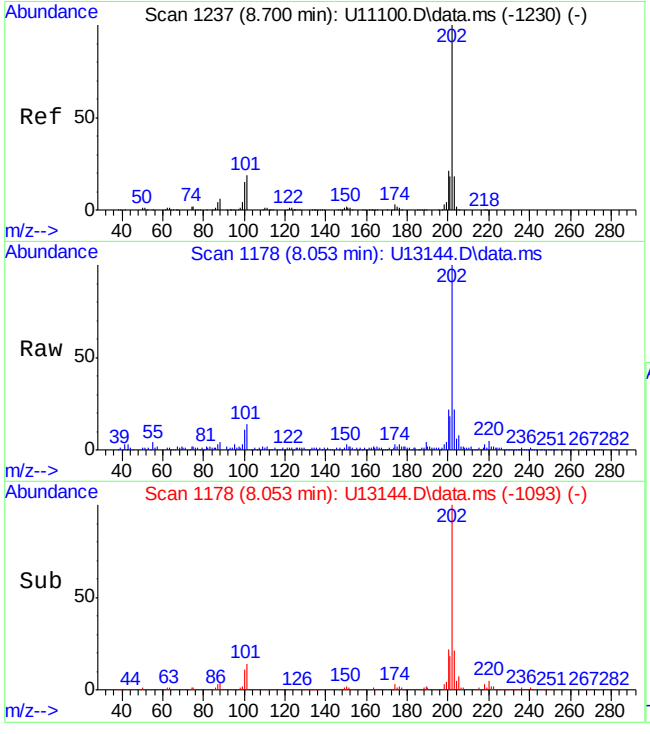


#73
Fluoranthene
Concen: 1.40 ppb
RT: 7.824 min Scan# 1139
Delta R.T. 0.000 min
Lab File: U13144.D
Acq: 27 Mar 2013 9:11 pm

Tgt Ion:202 Resp: 26390

Ion	Ratio	Lower	Upper
202	100		
101	10.7	0.0	42.6

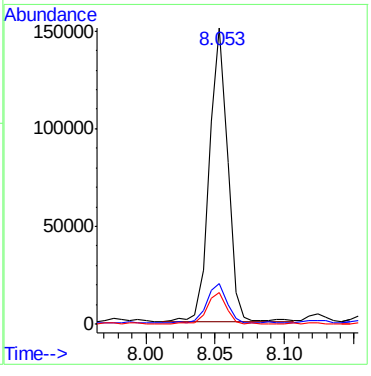


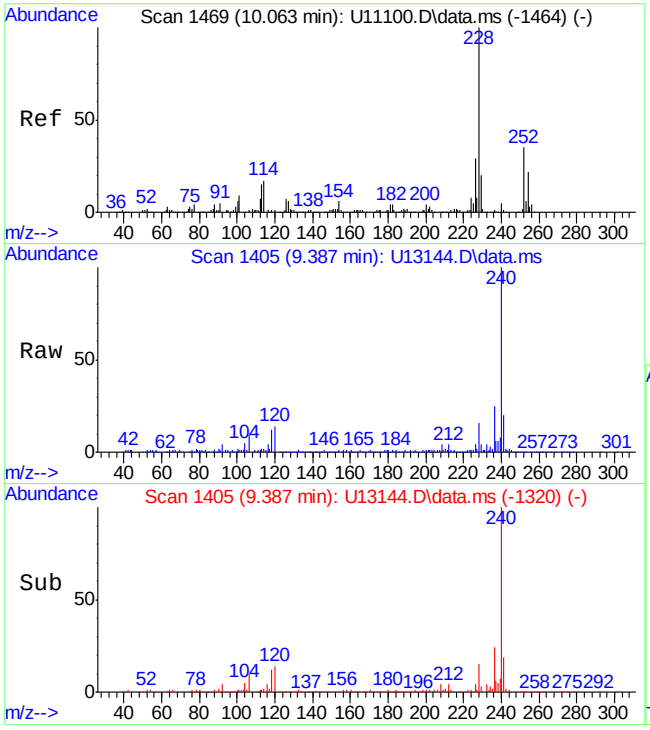


#76
Pyrene
Concen: 6.44 ppb
RT: 8.053 min Scan# 1178
Delta R.T. 0.000 min
Lab File: U13144.D
Acq: 27 Mar 2013 9:11 pm

Tgt Ion:202 Resp: 137466

Ion	Ratio	Lower	Upper
202	100		
101	13.5	0.0	46.3
100	10.6	0.0	43.6

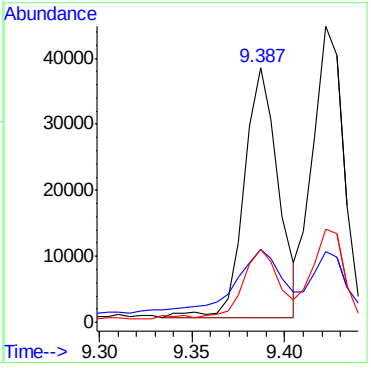


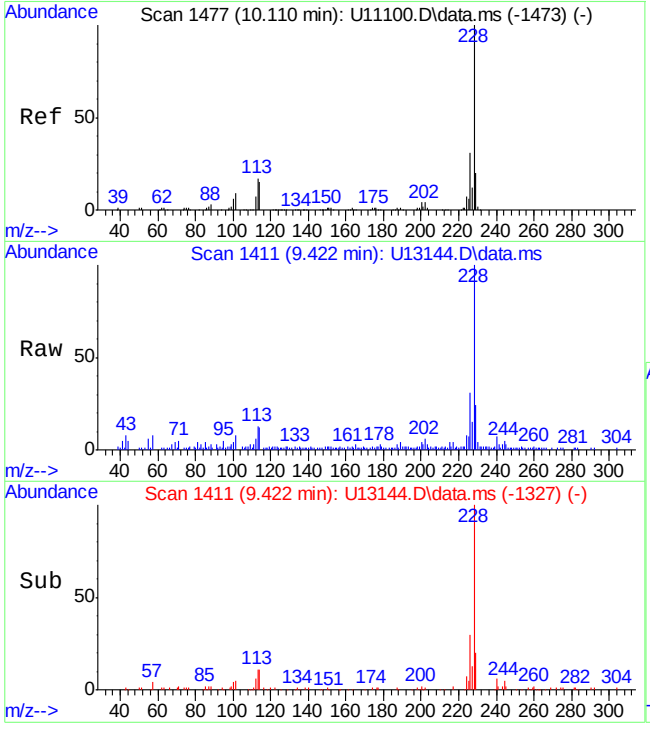


#81
Benzo[a]anthracene
Concen: 2.41 ppb
RT: 9.387 min Scan# 1405
Delta R.T. 0.000 min
Lab File: U13144.D
Acq: 27 Mar 2013 9:11 pm

Tgt Ion:228 Resp: 48981

Ion	Ratio	Lower	Upper
228	100		
229	24.4	0.0	49.5
226	26.6	0.0	56.2

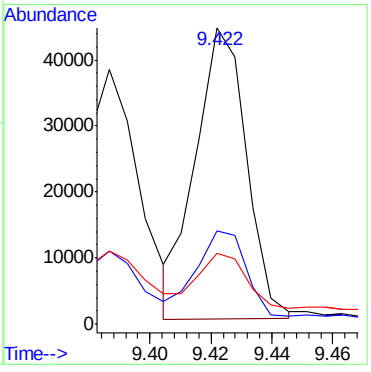


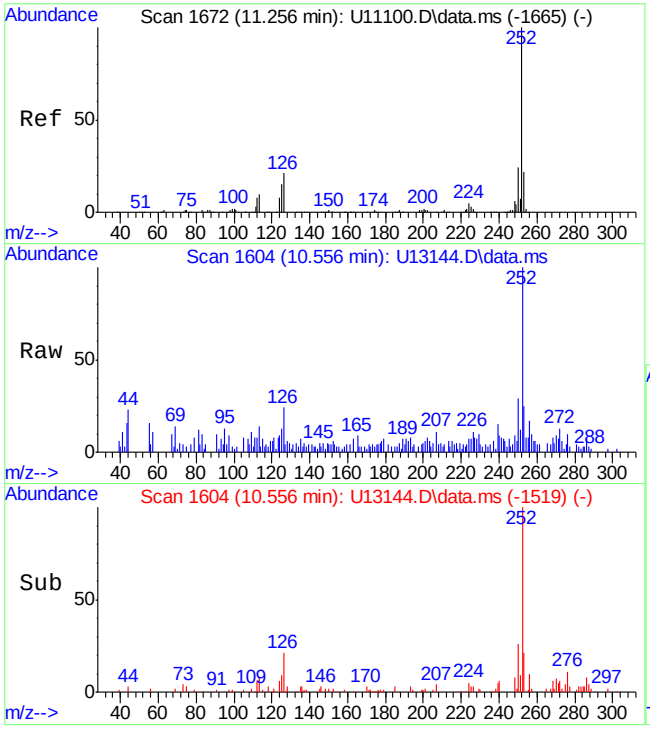


#82
Chrysene
Concen: 2.66 ppb m
RT: 9.422 min Scan# 1411
Delta R.T. -0.006 min
Lab File: U13144.D
Acq: 27 Mar 2013 9:11 pm

Tgt Ion:228 Resp: 51112

Ion	Ratio	Lower	Upper
228	100		
226	31.3	0.0	58.8
229	24.0	0.0	49.7

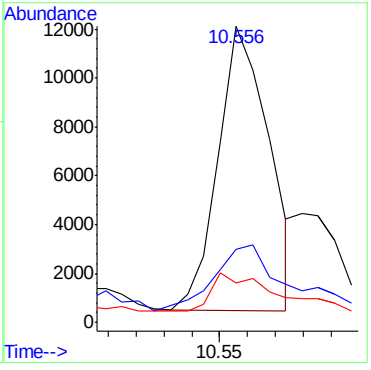


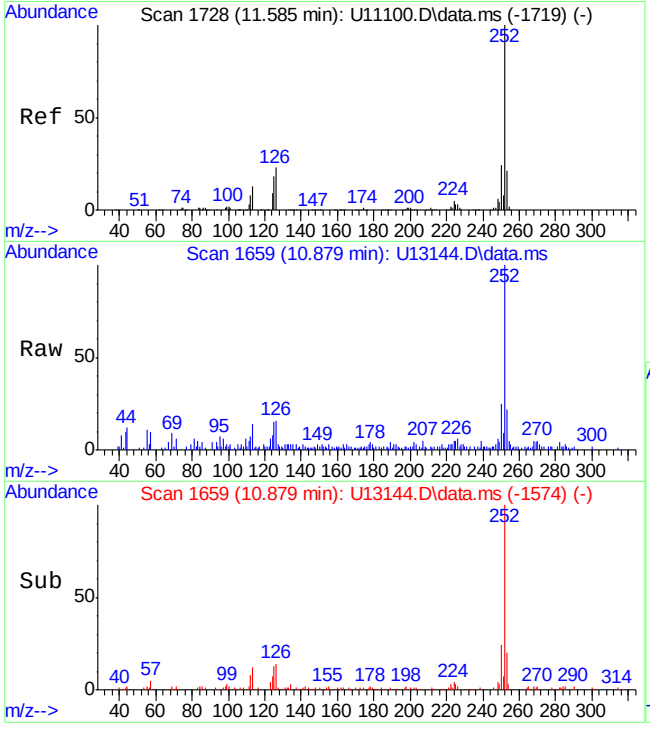


#86
Benzo[b]fluoranthene
Concen: 2.41 ppb m
RT: 10.556 min Scan# 1604
Delta R.T. 0.000 min
Lab File: U13144.D
Acq: 27 Mar 2013 9:11 pm

Tgt Ion:252 Resp: 14826

Ion	Ratio	Lower	Upper
252	100		
253	24.6	0.0	51.5
125	13.3	0.0	42.8

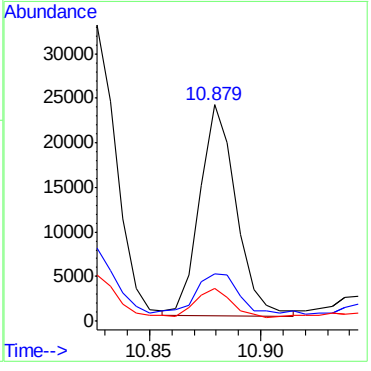




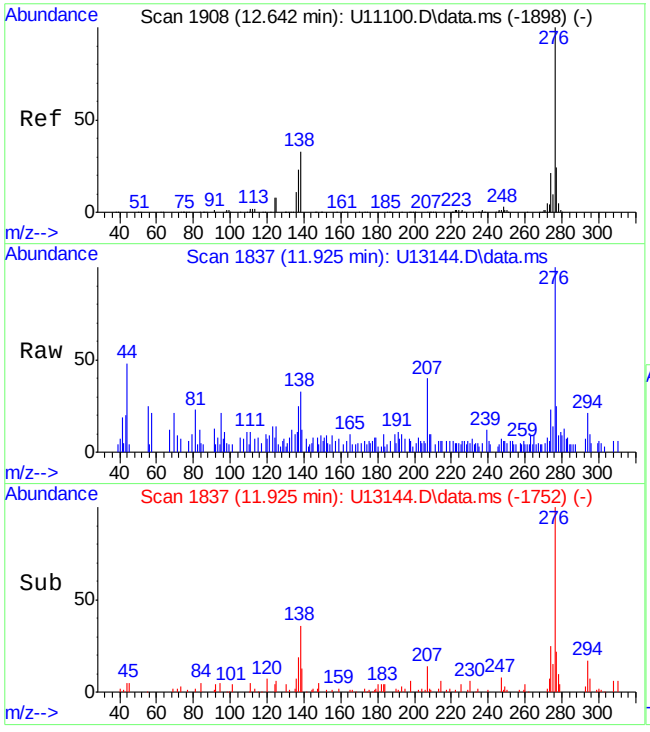
#88
Benzo[a]pyrene
Concen: 1.44 ppb
RT: 10.879 min Scan# 1659
Delta R.T. 0.000 min
Lab File: U13144.D
Acq: 27 Mar 2013 9:11 pm

Tgt Ion:252 Resp: 27259

Ion	Ratio	Lower	Upper
252	100		
253	18.2	0.0	51.9
125	13.2	0.0	43.0



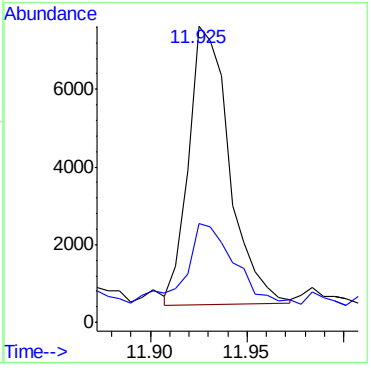
10.1.7 10

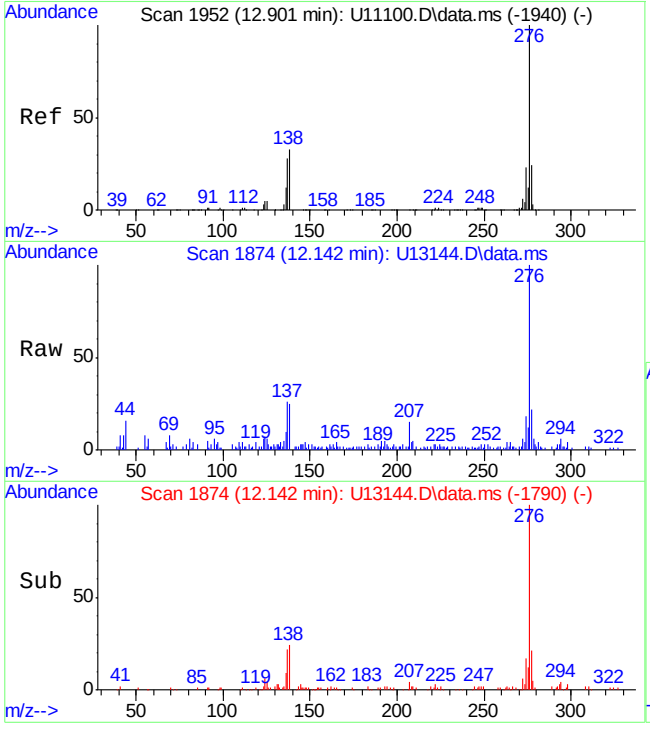


#89
Indeno[1,2,3-cd]pyrene
Concen: 0.46 ppb m
RT: 11.925 min Scan# 1837
Delta R.T. 0.000 min
Lab File: U13144.D
Acq: 27 Mar 2013 9:11 pm

Tgt Ion:276 Resp: 10608

Ion	Ratio	Lower	Upper
276	100		
138	33.2	0.0	57.6

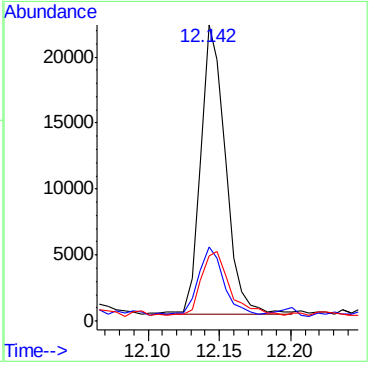




#91
Benzo[g,h,i]perylene
Concen: 1.37 ppb m
RT: 12.142 min Scan# 1874
Delta R.T. -0.006 min
Lab File: U13144.D
Acq: 27 Mar 2013 9:11 pm

Tgt Ion:276 Resp: 26299

Ion	Ratio	Lower	Upper
276	100		
138	25.0	0.0	59.8
277	22.1	0.0	54.3



10.1.7

10

Manual Integrations APPROVED (compounds with "m" flag)
Doug Yargeau
03/29/13 15:11

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130327\
Data File : U13145.D
Acq On : 27 Mar 2013 9:34 pm
Operator : NatalyaS
Sample : JB31583-7
Misc : op32352,msu672,20.50,,,1,1
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Mar 29 10:54:51 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Mar 28 10:38:36 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.088	152	103831	40.00	ppb	0.01
21) Naphthalene-d8	4.057	136	276076	40.00	ppb	0.01
39) Acenaphthene-d10	5.450	164	209872	40.00	ppb	0.00
61) Phenanthrene-d10	6.666	188	373881	40.00	ppb	0.00
74) Chrysene-d12	9.392	240	500991	40.00	ppb	0.00
84) Perylene-d12	10.938	264	485265	40.00	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	2.171	112	205939	60.83	ppb	0.01
Spiked Amount 100.000	Range 10 - 110		Recovery = 60.83%			
7) Phenol-d5	2.847	99	207059	50.92	ppb	0.00
Spiked Amount 100.000	Range 10 - 110		Recovery = 50.92%			
22) Nitrobenzene-d5	3.505	82	158126m	60.57	ppb	0.00
Spiked Amount 50.000	Range 30 - 119		Recovery = 121.14%#			
44) 2-Fluorobiphenyl	4.927	172	234945	31.86	ppb	0.00
Spiked Amount 50.000	Range 40 - 110		Recovery = 63.72%			
65) 2,4,6-Tribromophenol	6.102	330	91520	83.79	ppb	0.01
Spiked Amount 100.000	Range 10 - 157		Recovery = 83.79%			
77) Terphenyl-d14	8.270	244	373358	32.84	ppb	0.00
Spiked Amount 50.000	Range 30 - 124		Recovery = 65.68%			
Target Compounds						Qvalue
31) Naphthalene	4.075	128	142668m	19.83	ppb	
36) 2-Methylnaphthalene	4.627	142	172871	35.40	ppb	97
37) 1-Methylnaphthalene	4.704	142	191339	39.40	ppb	100
46) Acenaphthylene	5.338	152	3562	Below Cal	#	1
49) Acenaphthene	5.473	153	3785m	0.61	ppb	
51) Dibenzofuran	5.614	168	5423	Below Cal		91
55) Fluorene	5.891	166	6071	Below Cal		83
63) n-Nitrosodiphenylamine	6.002	169	9328	Below Cal	#	35
69) Phenanthrene	6.684	178	13439	Below Cal		96
70) Anthracene	6.731	178	1746	Below Cal		62
71) Carbazole	6.760	167	2214	Below Cal		88

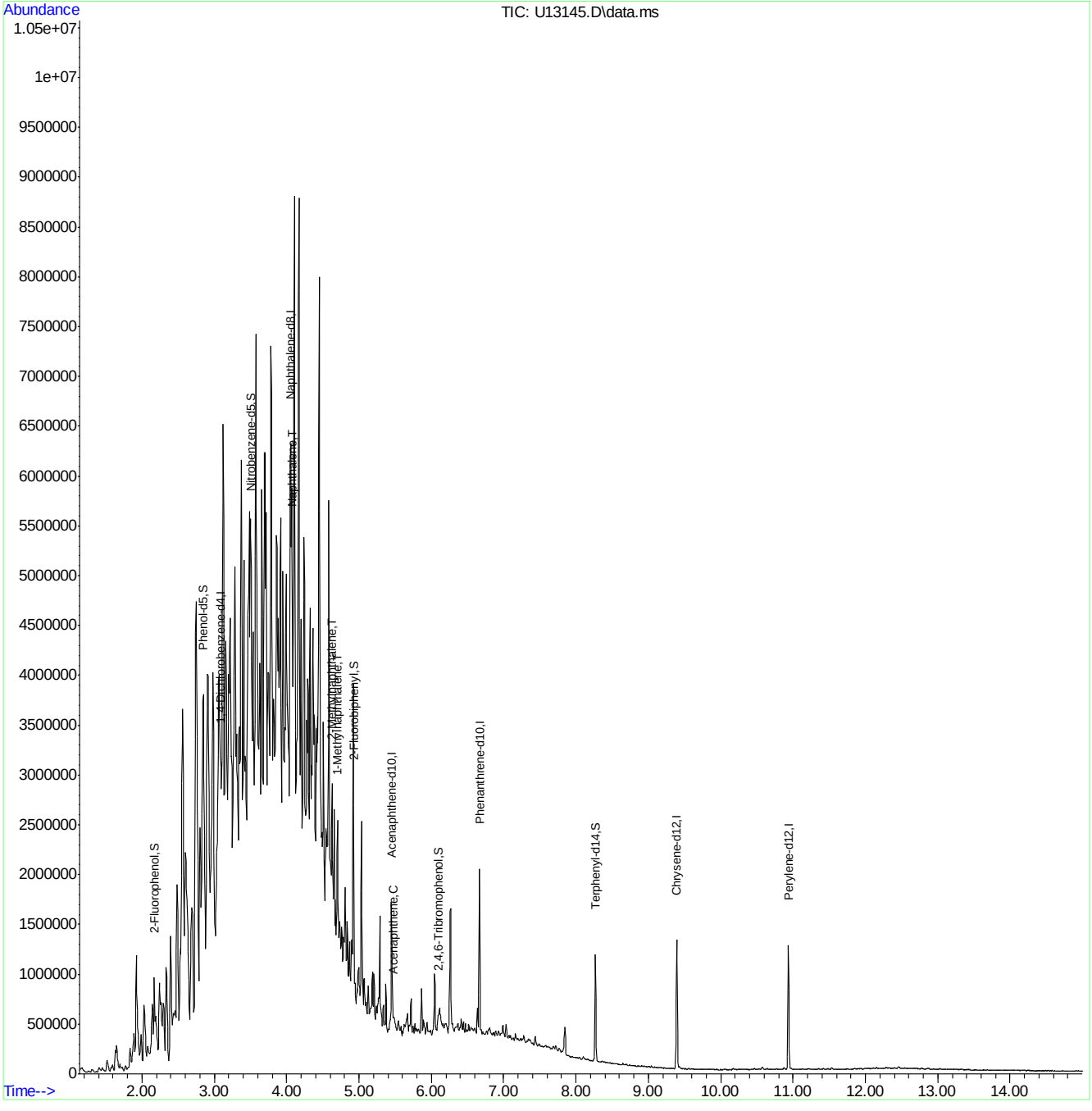
(#) = qualifier out of range (m) = manual integration (+) = signals summed

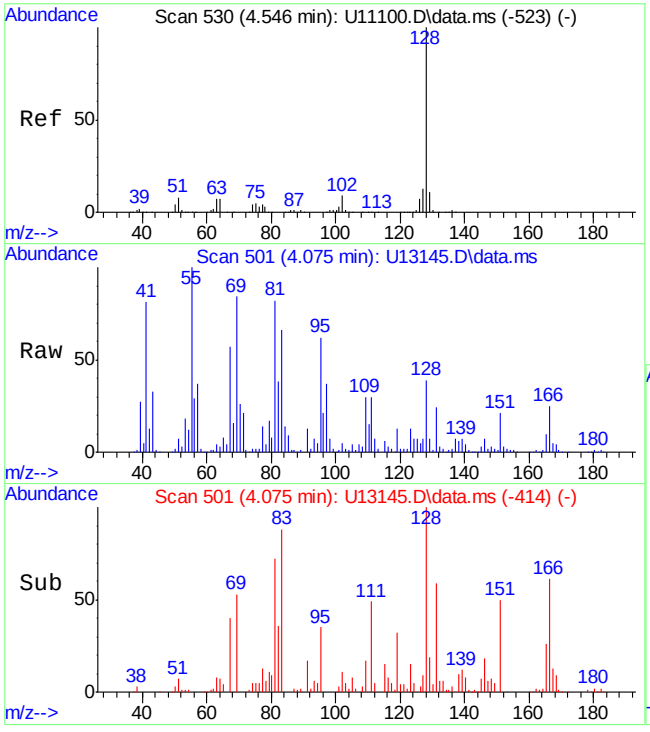
10.1.8 10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130327\
Data File : U13145.D
Acq On : 27 Mar 2013 9:34 pm
Operator : NatalyaS
Sample : JB31583-7
Misc : op32352,msu672,20.50,,,1,1
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Mar 29 10:54:51 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Mar 28 10:38:36 2013
Response via : Initial Calibration

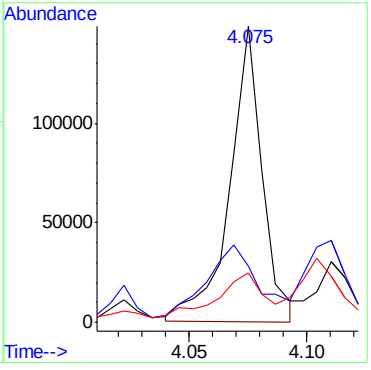


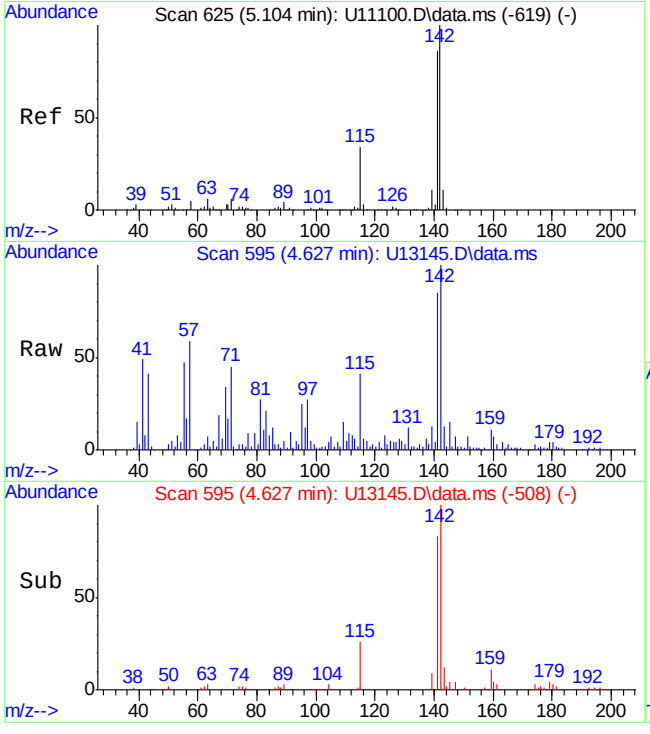


#31
Naphthalene
Concen: 19.83 ppb m
RT: 4.075 min Scan# 501
Delta R.T. 0.012 min
Lab File: U13145.D
Acq: 27 Mar 2013 9:34 pm

Tgt Ion:128 Resp: 142668

Ion	Ratio	Lower	Upper
128	100		
129	18.9	0.0	41.2
127	16.6	0.0	43.6

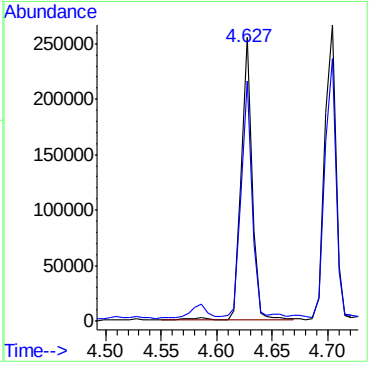


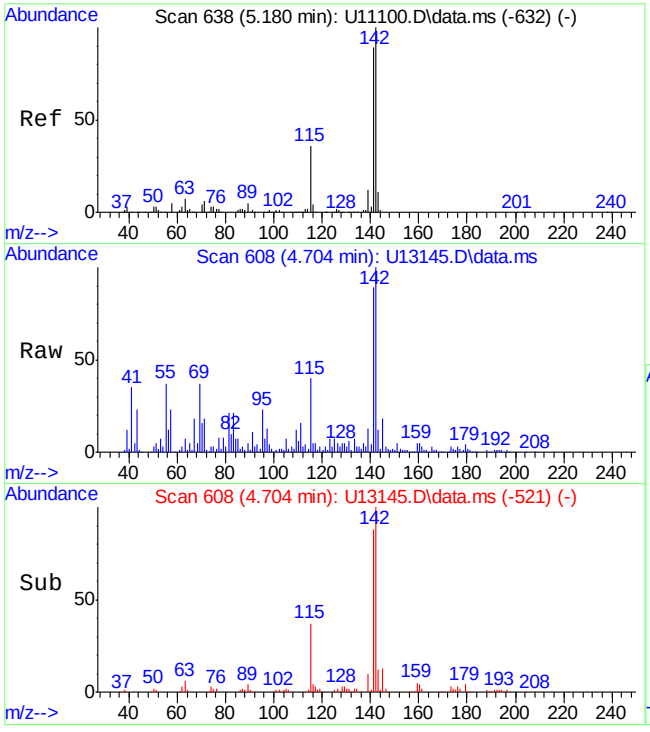


#36
2-Methylnaphthalene
Concen: 35.40 ppb
RT: 4.627 min Scan# 595
Delta R.T. 0.012 min
Lab File: U13145.D
Acq: 27 Mar 2013 9:34 pm

Tgt Ion:142 Resp: 172871

Ion	Ratio	Lower	Upper
142	100		
141	83.9	56.7	116.7

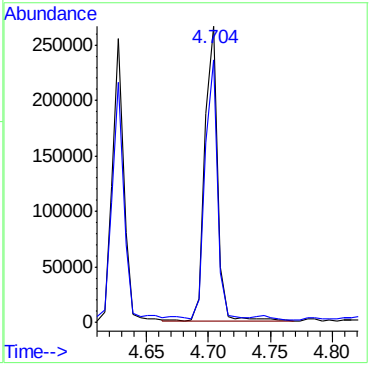


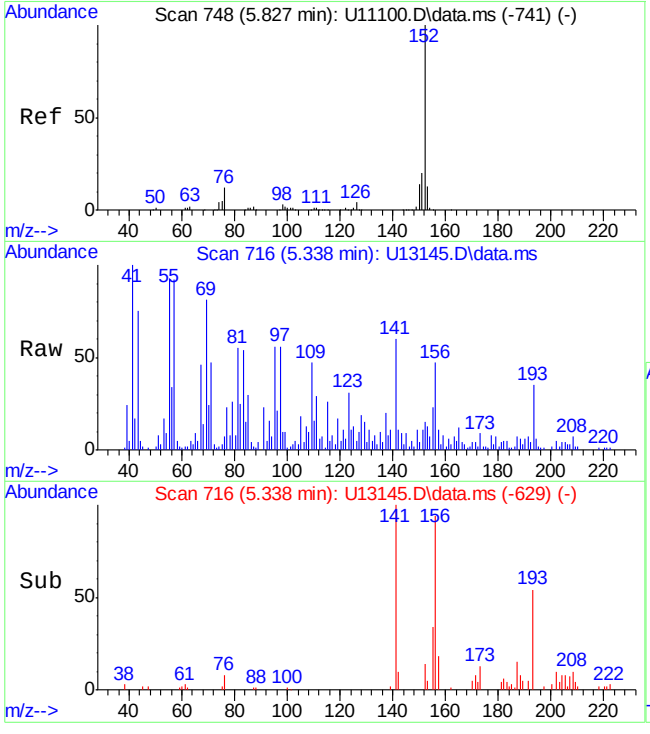


#37
1-Methylnaphthalene
Concen: 39.40 ppb
RT: 4.704 min Scan# 608
Delta R.T. 0.012 min
Lab File: U13145.D
Acq: 27 Mar 2013 9:34 pm

Tgt Ion:142 Resp: 191339

Ion	Ratio	Lower	Upper
142	100		
141	88.4	68.6	108.6

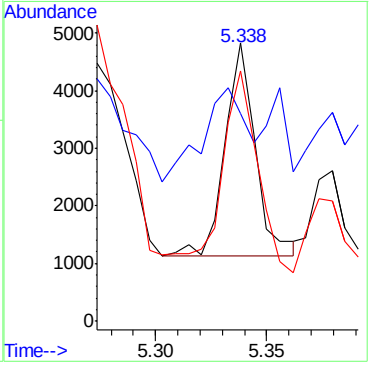


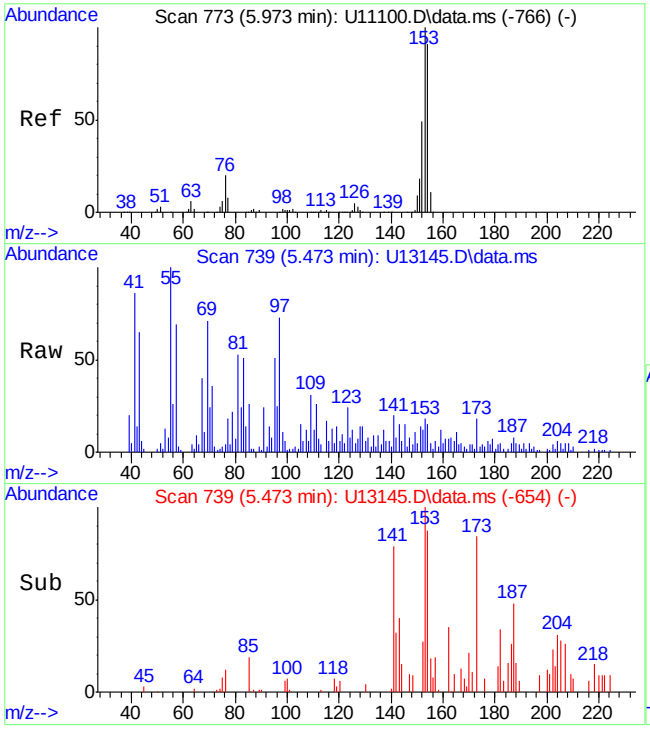


#46
Acenaphthylene
Concen: Below Cal
RT: 5.338 min Scan# 716
Delta R.T. 0.012 min
Lab File: U13145.D
Acq: 27 Mar 2013 9:34 pm

Tgt Ion:152 Resp: 3562

Ion	Ratio	Lower	Upper
152	100		
151	32.4	0.0	49.7
153	94.9	0.0	43.1#

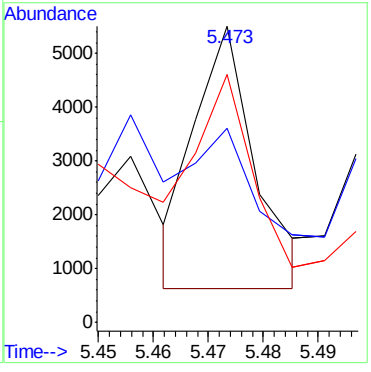


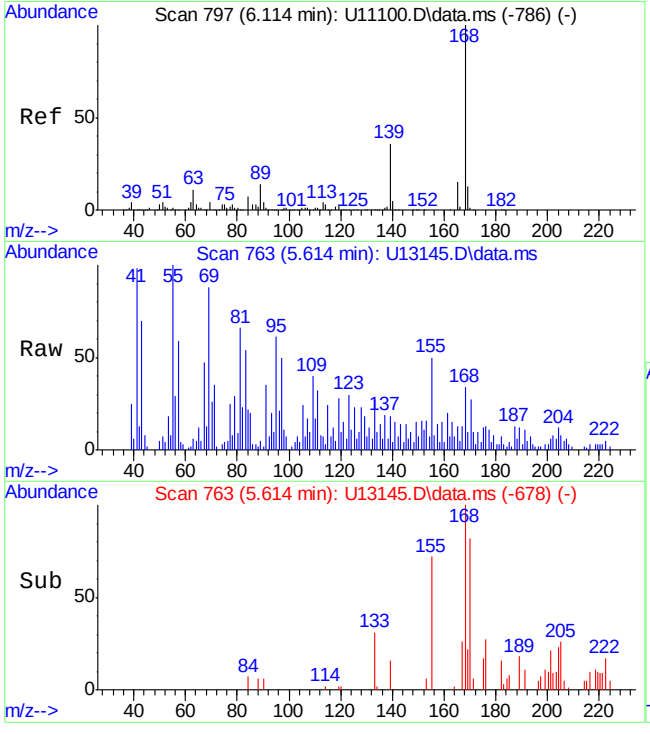


#49
Acenaphthene
Concen: 0.61 ppb m
RT: 5.473 min Scan# 739
Delta R.T. -0.000 min
Lab File: U13145.D
Acq: 27 Mar 2013 9:34 pm

Tgt Ion:153 Resp: 3785

Ion	Ratio	Lower	Upper
153	100		
152	65.7	16.6	76.6
154	83.6	64.3	124.3

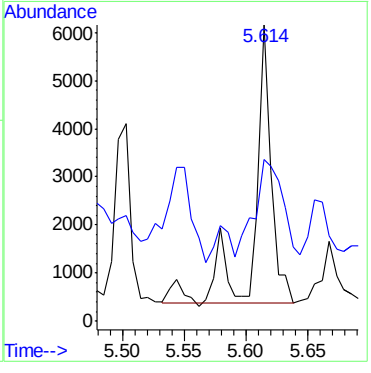


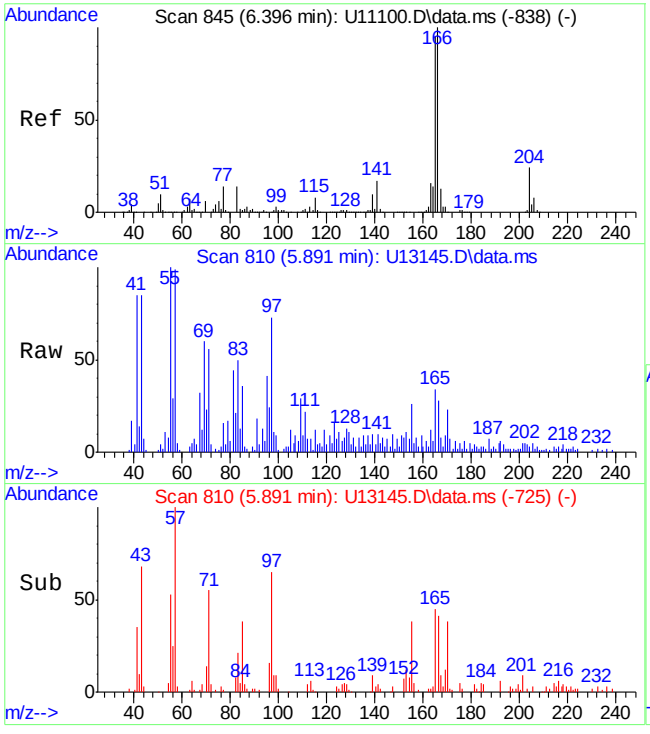


#51
Dibenzofuran
Concen: Below Cal
RT: 5.614 min Scan# 763
Delta R.T. -0.000 min
Lab File: U13145.D
Acq: 27 Mar 2013 9:34 pm

Tgt Ion:168 Resp: 5423

Ion	Ratio	Lower	Upper
168	100		
139	31.4	7.0	67.0

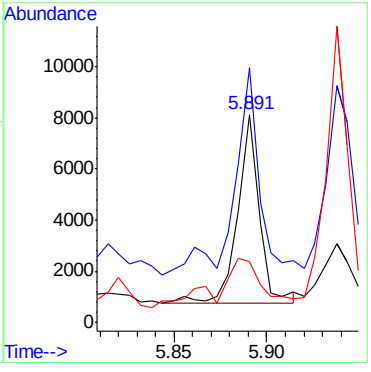


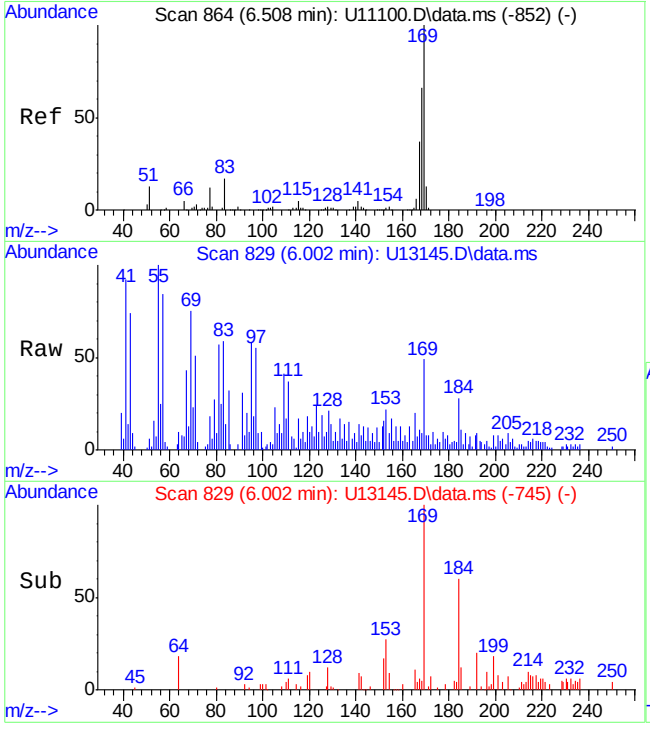


#55
Fluorene
Concen: Below Cal
RT: 5.891 min Scan# 810
Delta R.T. -0.000 min
Lab File: U13145.D
Acq: 27 Mar 2013 9:34 pm

Tgt Ion:166 Resp: 6071

Ion	Ratio	Lower	Upper
166	100		
165	109.6	63.2	123.2
167	20.5	0.0	43.3

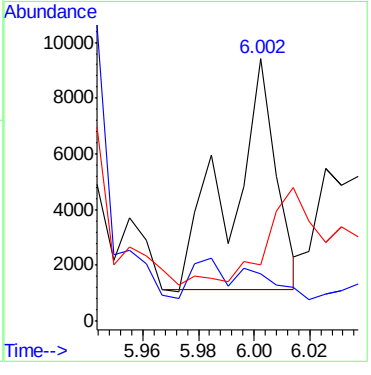


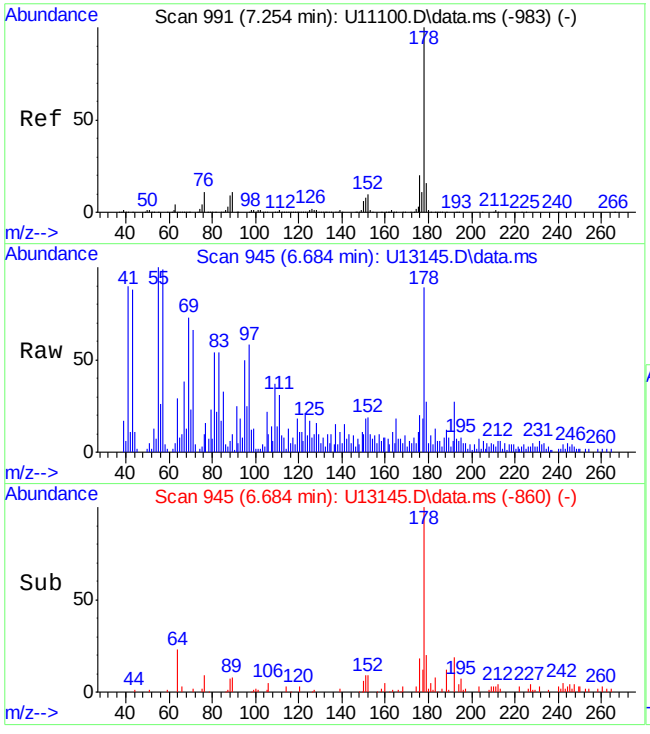


#63
n-Nitrosodiphenylamine
Concen: Below Cal
RT: 6.002 min Scan# 829
Delta R.T. -0.006 min
Lab File: U13145.D
Acq: 27 Mar 2013 9:34 pm

Tgt Ion:169 Resp: 9328

Ion	Ratio	Lower	Upper
169	100		
168	9.3	33.9	93.9#
167	2.0	4.0	64.0#

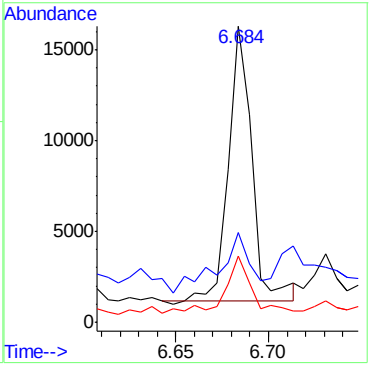


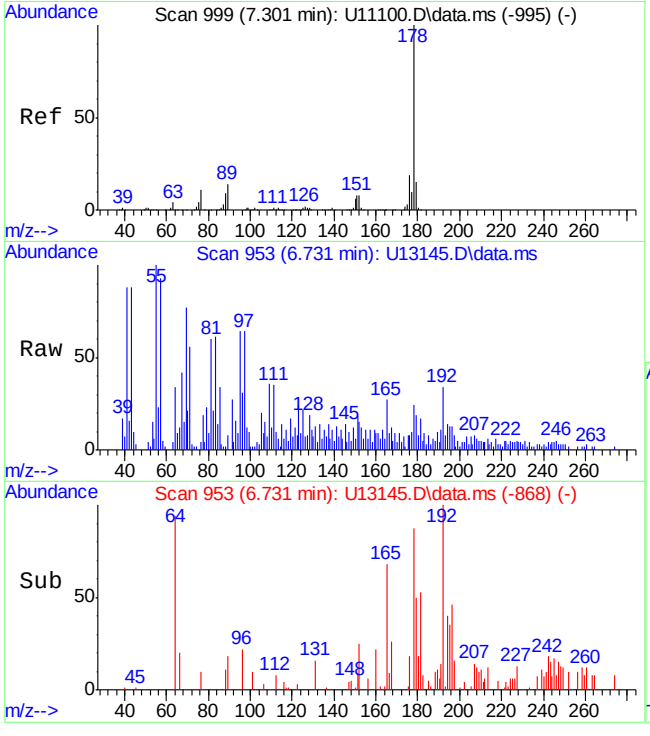


#69
Phenanthrene
Concen: Below Cal
RT: 6.684 min Scan# 945
Delta R.T. -0.000 min
Lab File: U13145.D
Acq: 27 Mar 2013 9:34 pm

Tgt Ion:178 Resp: 13439

Ion	Ratio	Lower	Upper
178	100		
179	16.8	0.0	45.7
176	20.9	0.0	48.8

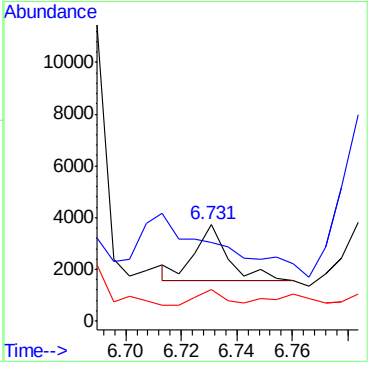




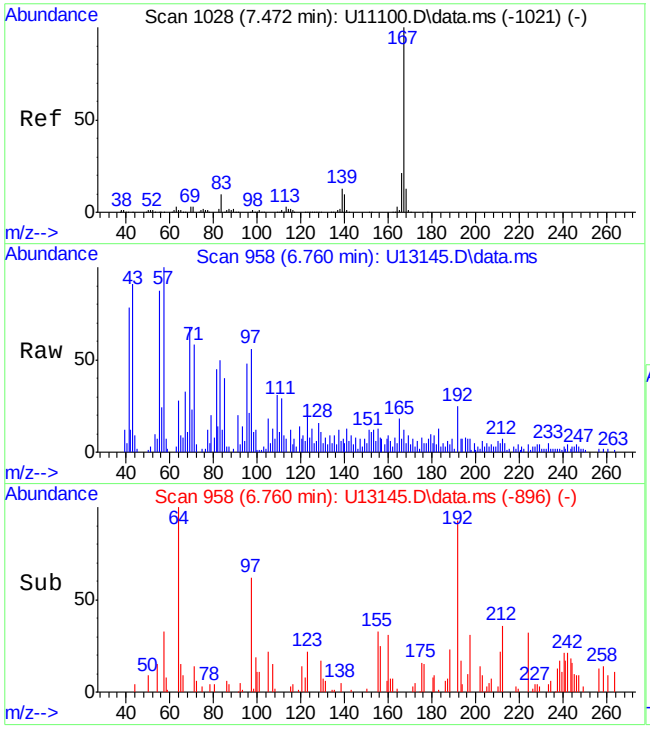
#70
Anthracene
Concen: Below Cal
RT: 6.731 min Scan# 953
Delta R.T. -0.000 min
Lab File: U13145.D
Acq: 27 Mar 2013 9:34 pm

Tgt Ion:178 Resp: 1746

Ion	Ratio	Lower	Upper
178	100		
179	39.5	0.0	45.1
176	27.3	0.0	48.3



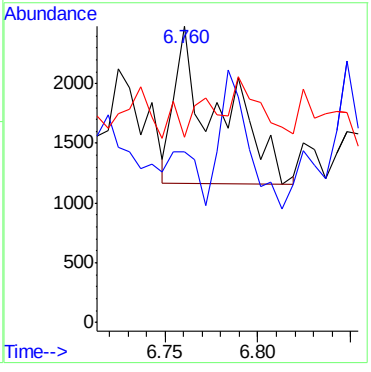
10.1.8 10



#71
Carbazole
Concen: Below Cal
RT: 6.760 min Scan# 958
Delta R.T. -0.135 min
Lab File: U13145.D
Acq: 27 Mar 2013 9:34 pm

Tgt Ion:167 Resp: 2214

Ion	Ratio	Lower	Upper
167	100		
166	21.2	0.0	50.9
139	1.0	0.0	43.1



10.1.8

10

Manual Integrations APPROVED (compounds with "m" flag)
Doug Yargeau
03/29/13 15:11

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130327\
Data File : U13146.D
Acq On : 27 Mar 2013 9:57 pm
Operator : NatalyaS
Sample : JB31583-8
Misc : op32352,msu672,20.77,,,1,1
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Mar 29 10:56:05 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Mar 28 10:38:36 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.076	152	121670	40.00	ppb	0.00
21) Naphthalene-d8	4.046	136	420599	40.00	ppb	0.00
39) Acenaphthene-d10	5.444	164	259350	40.00	ppb	0.00
61) Phenanthrene-d10	6.666	188	433093	40.00	ppb	0.00
74) Chrysene-d12	9.404	240	547159	40.00	ppb	0.00
84) Perylene-d12	10.950	264	547228	40.00	ppb	0.01
System Monitoring Compounds						
5) 2-Fluorophenol	2.172	112	250439	63.13	ppb	0.01
Spiked Amount 100.000	Range 10 - 110		Recovery = 63.13%			
7) Phenol-d5	2.847	99	282475	59.28	ppb	0.00
Spiked Amount 100.000	Range 10 - 110		Recovery = 59.28%			
22) Nitrobenzene-d5	3.499	82	148953	37.45	ppb	0.00
Spiked Amount 50.000	Range 30 - 119		Recovery = 74.90%			
44) 2-Fluorobiphenyl	4.921	172	309338	33.94	ppb	0.00
Spiked Amount 50.000	Range 40 - 110		Recovery = 67.88%			
65) 2,4,6-Tribromophenol	6.091	330	109546	86.58	ppb	0.00
Spiked Amount 100.000	Range 10 - 157		Recovery = 86.58%			
77) Terphenyl-d14	8.276	244	450896	36.31	ppb	0.00
Spiked Amount 50.000	Range 30 - 124		Recovery = 72.62%			
Target Compounds						Qvalue
19) m+p-cresols	3.611	108	1101	Below Cal	#	48
20) 4-methylphenol	3.611	108	1101	Below Cal	#	47
31) Naphthalene	4.064	128	32000m	0.60	ppb	
33) 4-Chloroaniline	4.181	127	2459	Below Cal		100
36) 2-Methylnaphthalene	4.616	142	82419	9.67	ppb	99
37) 1-Methylnaphthalene	4.692	142	76897	9.11	ppb	100
46) Acenaphthylene	5.338	152	6506	Below Cal	#	1
51) Dibenzofuran	5.497	168	3599	Below Cal		94
55) Fluorene	5.891	166	12431	Below Cal		95
69) Phenanthrene	6.684	178	34503	Below Cal		78
70) Anthracene	6.684	178	30514m	0.47	ppb	

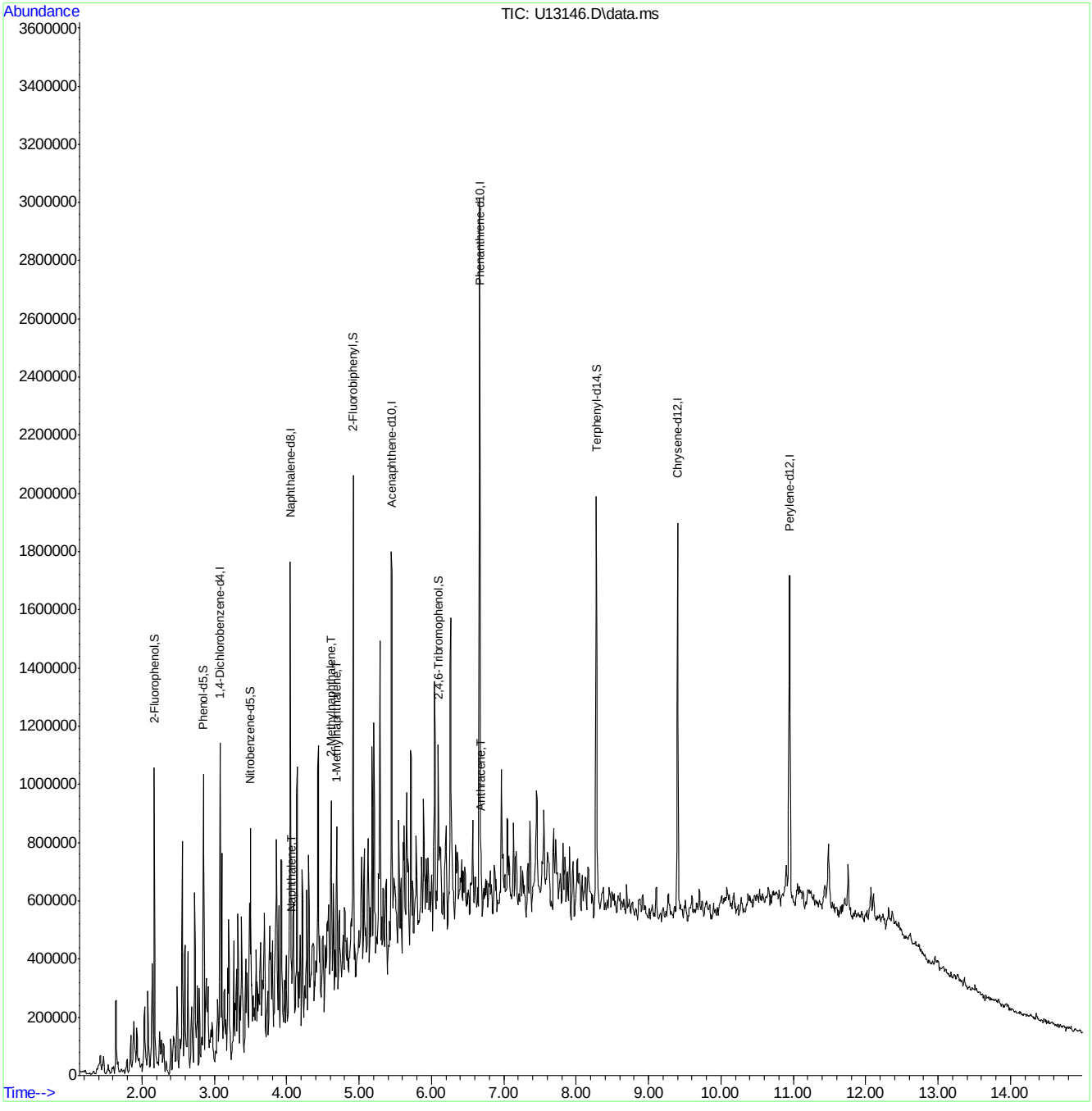
(#) = qualifier out of range (m) = manual integration (+) = signals summed

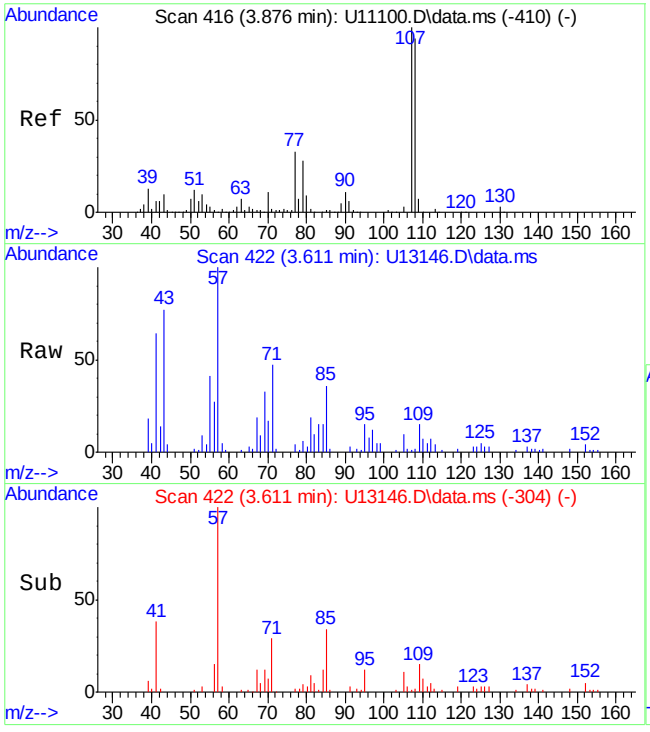
10.1.9 10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130327\
Data File : U13146.D
Acq On : 27 Mar 2013 9:57 pm
Operator : NatalyaS
Sample : JB31583-8
Misc : op32352,msu672,20.77,,,1,1
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Mar 29 10:56:05 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Mar 28 10:38:36 2013
Response via : Initial Calibration

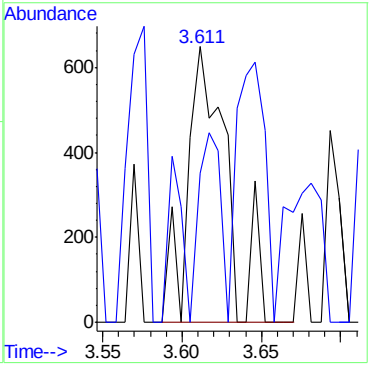


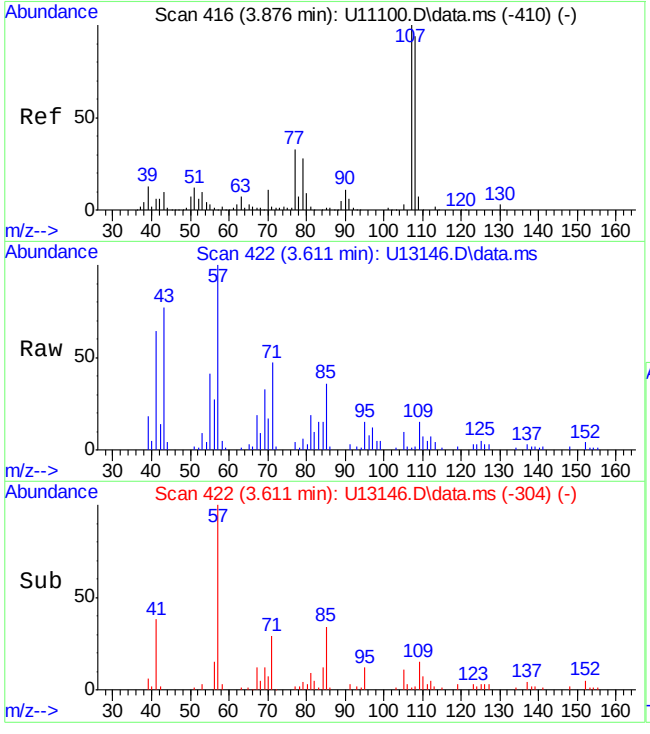


#19
m+p-cresols
Concen: Below Cal
RT: 3.611 min Scan# 422
Delta R.T. 0.194 min
Lab File: U13146.D
Acq: 27 Mar 2013 9:57 pm

Tgt Ion:108 Resp: 1101

Ion	Ratio	Lower	Upper
108	100		
107	53.8	77.8	137.8#

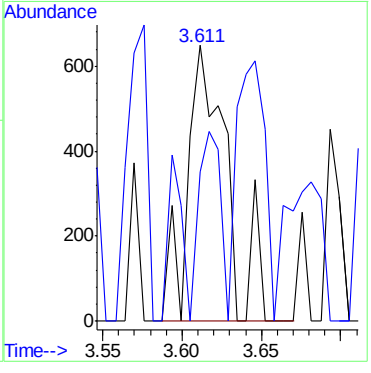


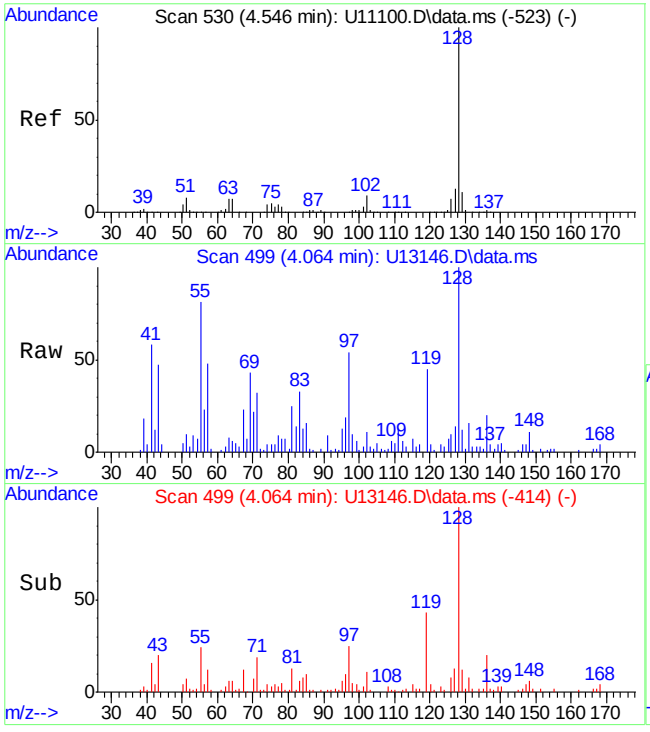


#20
4-methylphenol
Concen: Below Cal
RT: 3.611 min Scan# 422
Delta R.T. 0.194 min
Lab File: U13146.D
Acq: 27 Mar 2013 9:57 pm

Tgt Ion:108 Resp: 1101

Ion	Ratio	Lower	Upper
108	100		
107	53.8	77.1	143.1#

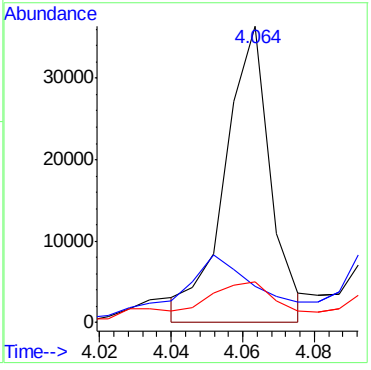


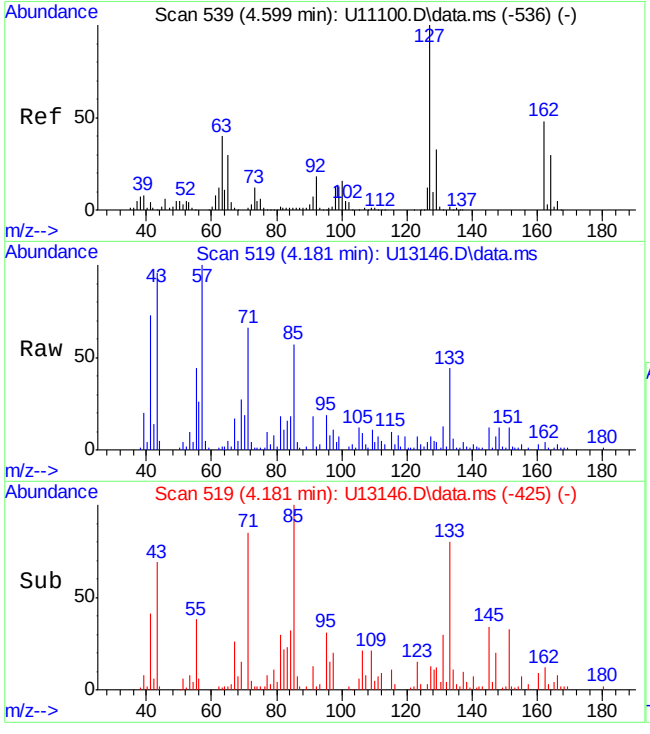


#31
Naphthalene
Concen: 0.60 ppb m
RT: 4.064 min Scan# 499
Delta R.T. 0.000 min
Lab File: U13146.D
Acq: 27 Mar 2013 9:57 pm

Tgt Ion:128 Resp: 32000

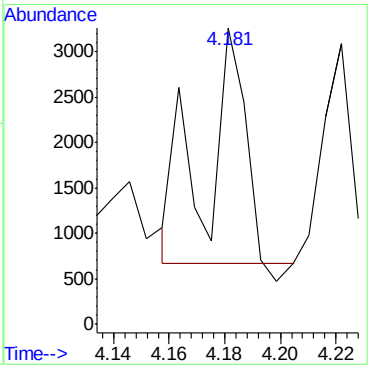
Ion	Ratio	Lower	Upper
128	100		
129	12.3	0.0	41.2
127	13.6	0.0	43.6



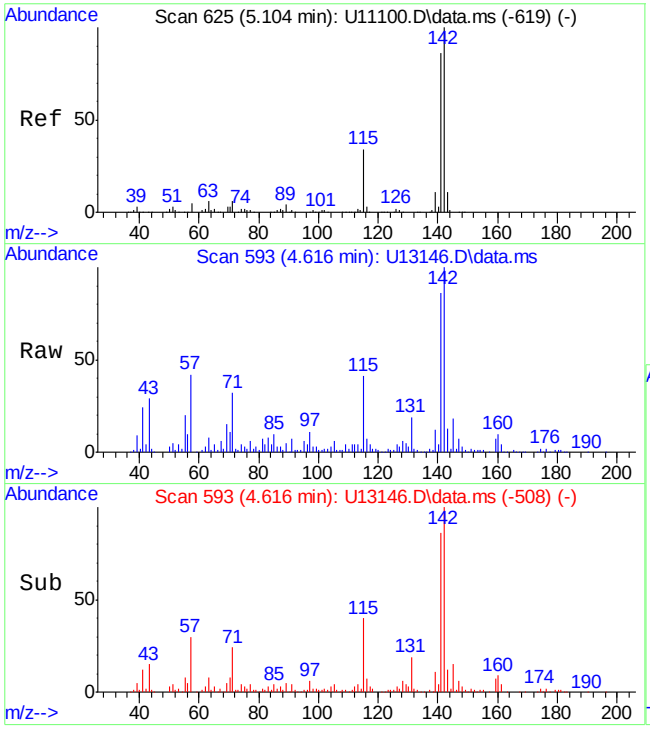


#33
4-Chloroaniline
Concen: Below Cal
RT: 4.181 min Scan# 519
Delta R.T. 0.053 min
Lab File: U13146.D
Acq: 27 Mar 2013 9:57 pm

Tgt Ion:127 Resp: 2459



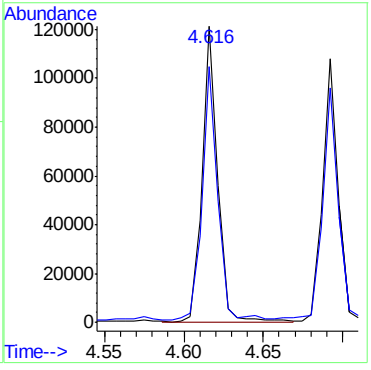
ACCUTEST LABORATORIES JB31583

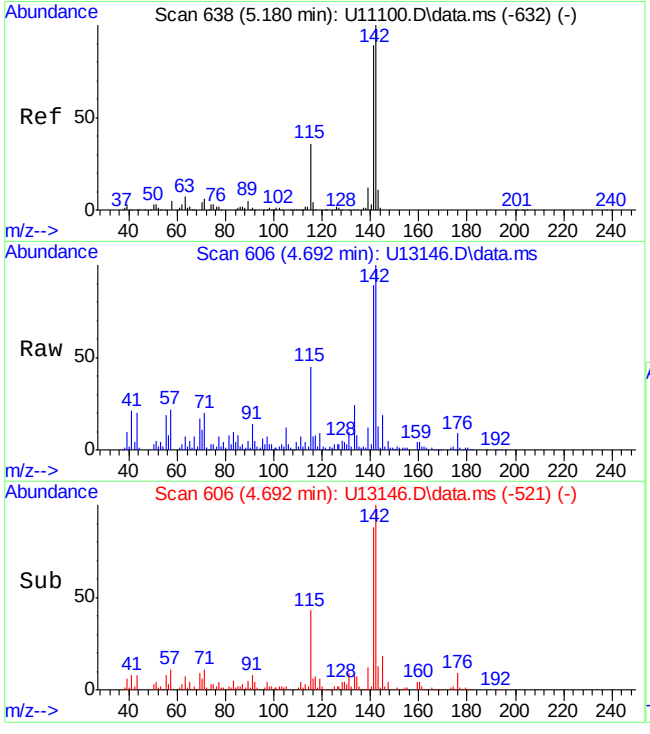


#36
2-Methylnaphthalene
Concen: 9.67 ppb
RT: 4.616 min Scan# 593
Delta R.T. 0.000 min
Lab File: U13146.D
Acq: 27 Mar 2013 9:57 pm

Tgt Ion:142 Resp: 82419

Ion	Ratio	Lower	Upper
142	100		
141	86.0	56.7	116.7

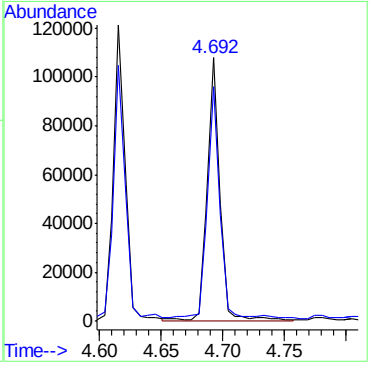


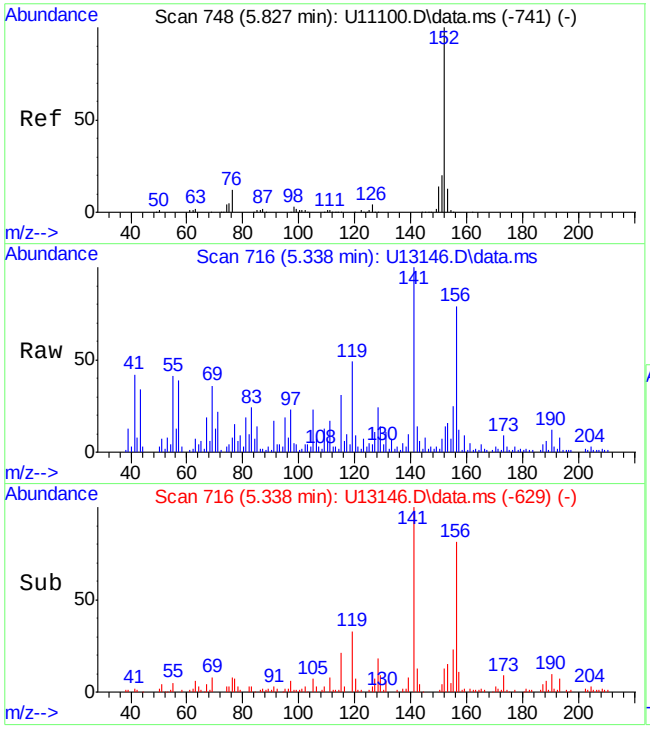


#37
1-Methylnaphthalene
Concen: 9.11 ppb
RT: 4.692 min Scan# 606
Delta R.T. 0.000 min
Lab File: U13146.D
Acq: 27 Mar 2013 9:57 pm

Tgt Ion:142 Resp: 76897

Ion	Ratio	Lower	Upper
142	100		
141	88.2	68.6	108.6

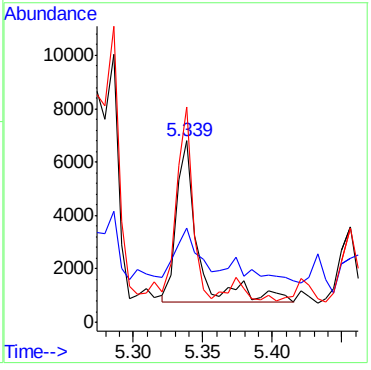


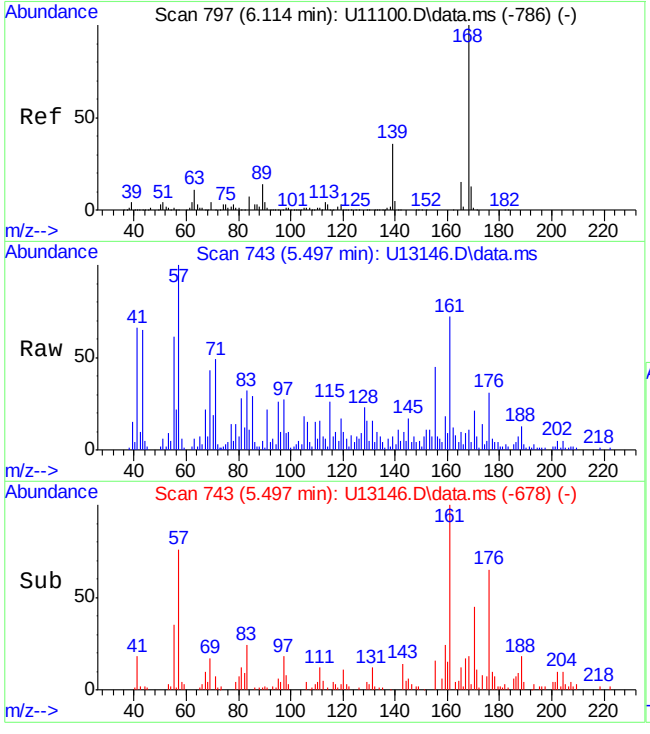


#46
Acenaphthylene
Concen: Below Cal
RT: 5.338 min Scan# 716
Delta R.T. 0.012 min
Lab File: U13146.D
Acq: 27 Mar 2013 9:57 pm

Tgt Ion:152 Resp: 6506

Ion	Ratio	Lower	Upper
152	100		
151	32.3	0.0	49.7
153	117.6	0.0	43.1#

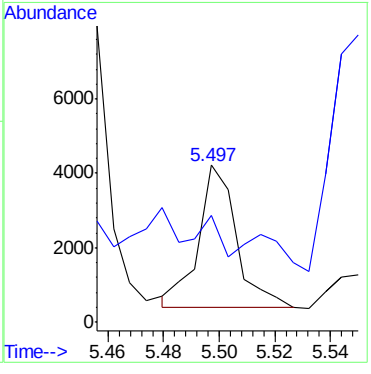


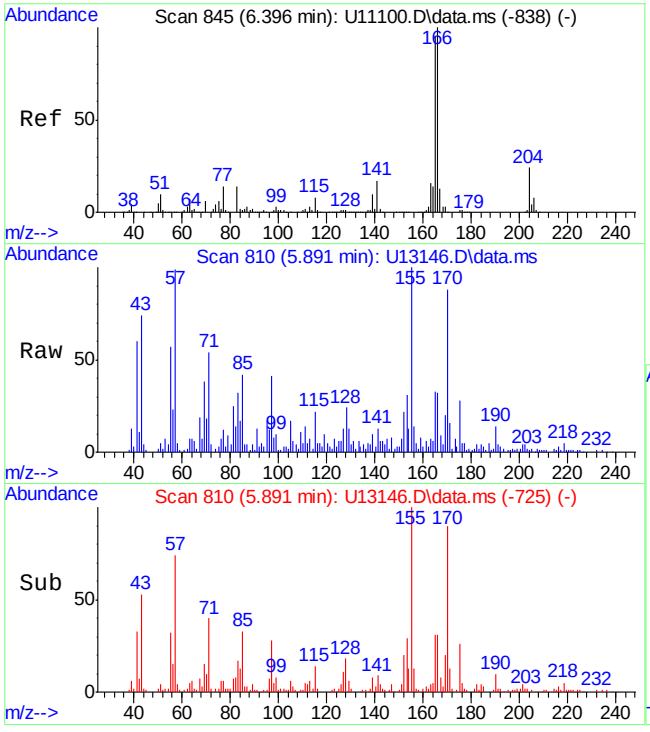


#51
Dibenzofuran
Concen: Below Cal
RT: 5.497 min Scan# 743
Delta R.T. -0.118 min
Lab File: U13146.D
Acq: 27 Mar 2013 9:57 pm

Tgt Ion:168 Resp: 3599

Ion	Ratio	Lower	Upper
168	100		
139	33.6	7.0	67.0

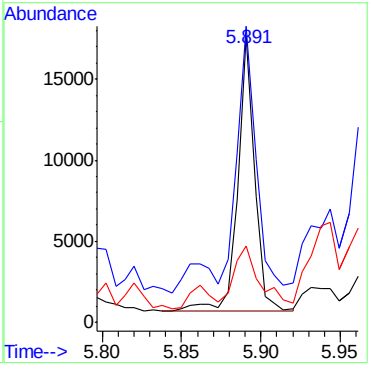


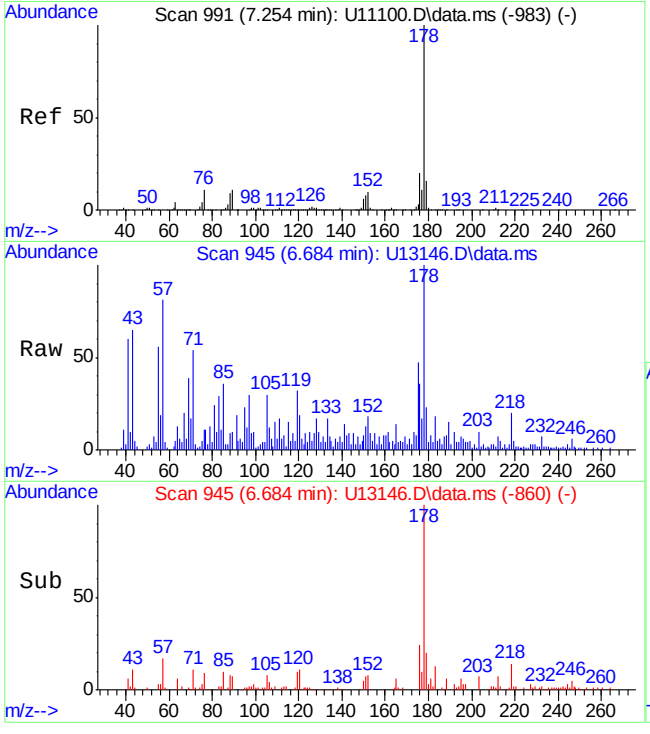


#55
Fluorene
Concen: Below Cal
RT: 5.891 min Scan# 810
Delta R.T. 0.000 min
Lab File: U13146.D
Acq: 27 Mar 2013 9:57 pm

Tgt Ion:166 Resp: 12431

Ion	Ratio	Lower	Upper
166	100		
165	95.4	63.2	123.2
167	21.6	0.0	43.3

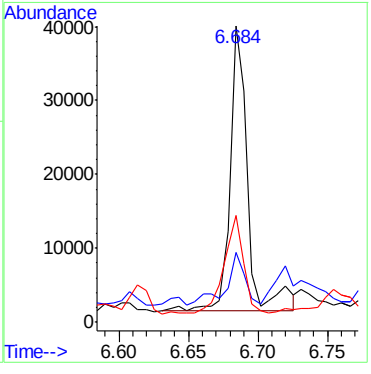


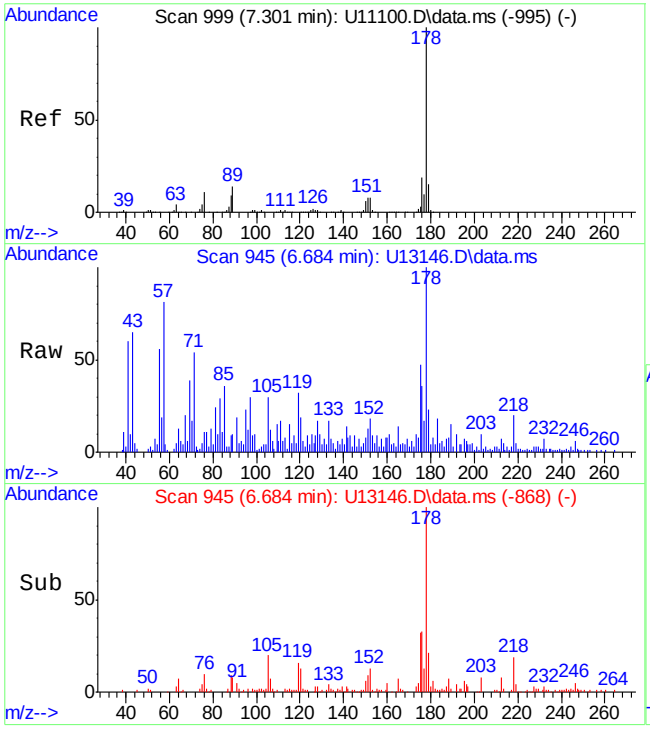


#69
Phenanthrene
Concen: Below Cal
RT: 6.684 min Scan# 945
Delta R.T. -0.000 min
Lab File: U13146.D
Acq: 27 Mar 2013 9:57 pm

Tgt Ion:178 Resp: 34503

Ion	Ratio	Lower	Upper
178	100		
179	18.1	0.0	45.7
176	34.8	0.0	48.8

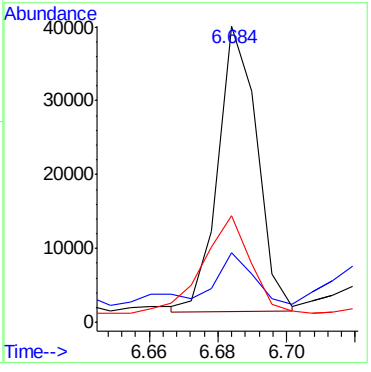




#70
Anthracene
Concen: 0.47 ppb m
RT: 6.684 min Scan# 945
Delta R.T. -0.047 min
Lab File: U13146.D
Acq: 27 Mar 2013 9:57 pm

Tgt Ion:178 Resp: 30514

Ion	Ratio	Lower	Upper
178	100		
179	23.4	0.0	45.1
176	36.1	0.0	48.3



10.1.9

10

Manual Integrations APPROVED (compounds with "m" flag)
Doug Yargeau
03/29/13 15:11

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130327\
Data File : U13147.D
Acq On : 27 Mar 2013 10:20 pm
Operator : NatalyaS
Sample : JB31583-9
Misc : op32352,msu672,20.41,,,1,1
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Mar 29 10:57:24 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Mar 28 10:38:36 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.076	152	100832	40.00	ppb	0.00
21) Naphthalene-d8	4.046	136	374127	40.00	ppb	0.00
39) Acenaphthene-d10	5.444	164	226564	40.00	ppb	0.00
61) Phenanthrene-d10	6.666	188	395135	40.00	ppb	0.00
74) Chrysene-d12	9.399	240	503474	40.00	ppb	0.00
84) Perylene-d12	10.938	264	489191	40.00	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	2.172	112	214665	65.30	ppb	0.01
Spiked Amount 100.000	Range 10 - 110		Recovery = 65.30%			
7) Phenol-d5	2.847	99	241149	61.06	ppb	0.00
Spiked Amount 100.000	Range 10 - 110		Recovery = 61.06%			
22) Nitrobenzene-d5	3.499	82	114690	32.42	ppb	0.00
Spiked Amount 50.000	Range 30 - 119		Recovery = 64.84%			
44) 2-Fluorobiphenyl	4.921	172	286085	35.93	ppb	0.00
Spiked Amount 50.000	Range 40 - 110		Recovery = 71.86%			
65) 2,4,6-Tribromophenol	6.091	330	92712	80.31	ppb	0.00
Spiked Amount 100.000	Range 10 - 157		Recovery = 80.31%			
77) Terphenyl-d14	8.270	244	372770	32.63	ppb	0.00
Spiked Amount 50.000	Range 30 - 124		Recovery = 65.26%			
Target Compounds						Qvalue
31) Naphthalene	4.063	128	12420	Below Cal		94
33) 4-Chloroaniline	4.058	127	1303	Below Cal		100
36) 2-Methylnaphthalene	4.616	142	28600	2.53	ppb	99
46) Acenaphthylene	5.333	152	1270	Below Cal	#	19
51) Dibenzofuran	5.615	168	2652	Below Cal		67
55) Fluorene	6.091	166	4364	Below Cal		93
63) n-Nitrosodiphenylamine	6.002	169	3628	Below Cal	#	33
69) Phenanthrene	6.684	178	54332	1.89	ppb	97
70) Anthracene	6.731	178	13319	Below Cal		97
71) Carbazole	6.901	167	1956	Below Cal		80
76) Pyrene	8.053	202	40389	2.59	ppb	93
81) Benzo[a]anthracene	9.387	228	18074	1.22	ppb	92
82) Chrysene	9.422	228	15655	1.12	ppb	97
86) Benzo[b]fluoranthene	10.556	252	6545m	2.15	ppb	
88) Benzo[a]pyrene	10.879	252	10602	0.76	ppb	94
91) Benzo[g,h,i]perylene	12.142	276	12585	0.89	ppb	90

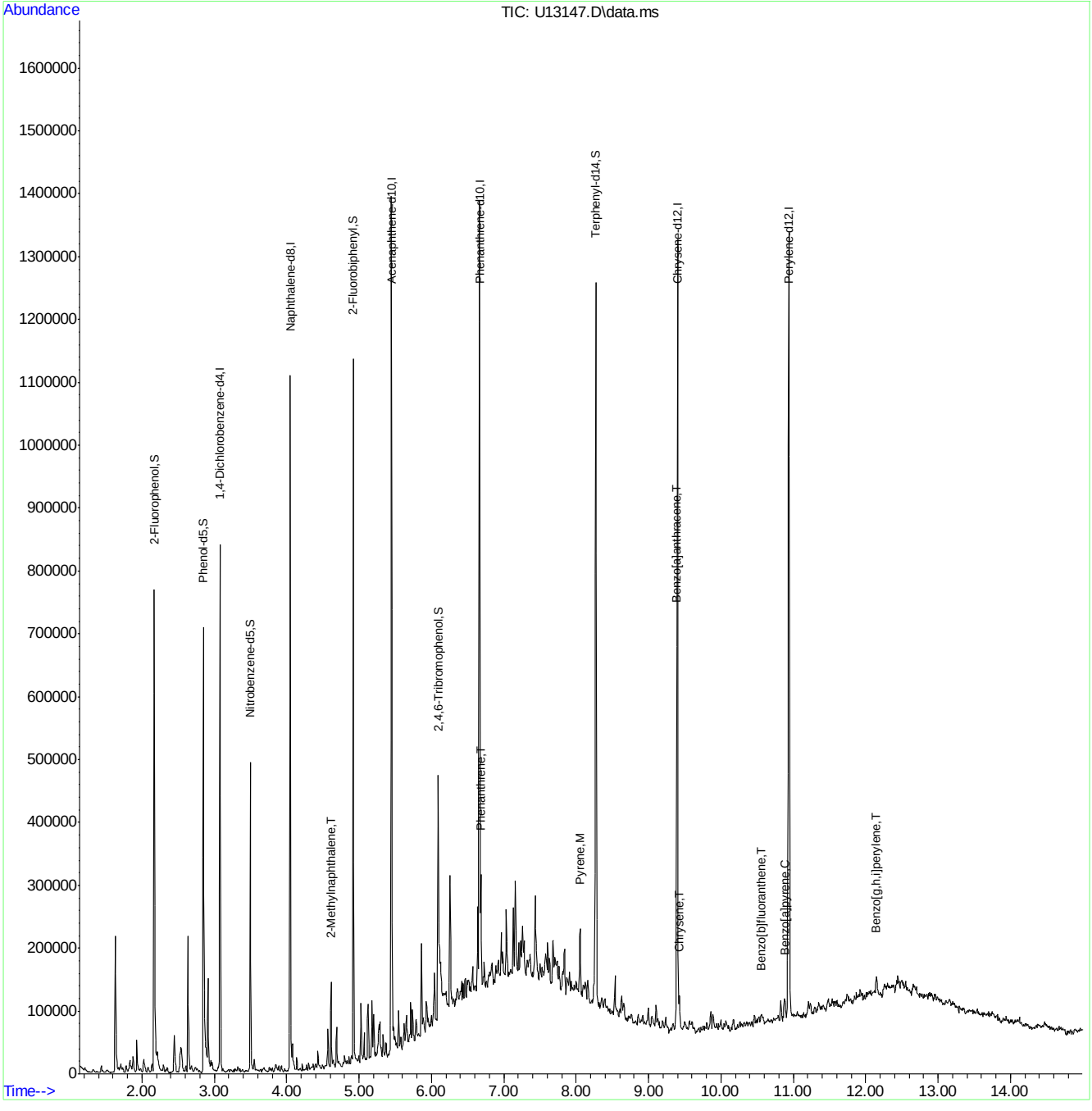
(#) = qualifier out of range (m) = manual integration (+) = signals summed

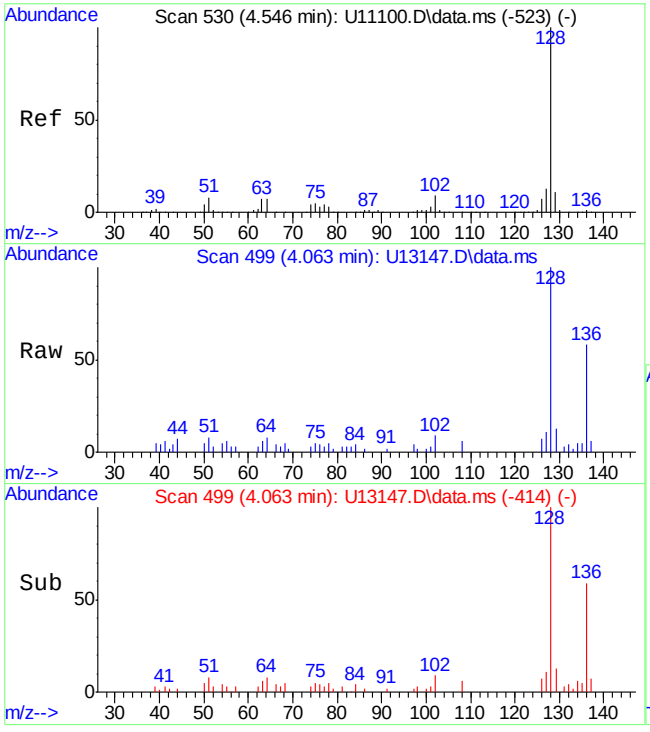
10.1.10 10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130327\
Data File : U13147.D
Acq On : 27 Mar 2013 10:20 pm
Operator : NatalyaS
Sample : JB31583-9
Misc : op32352,msu672,20.41,,,1,1
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Mar 29 10:57:24 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Mar 28 10:38:36 2013
Response via : Initial Calibration

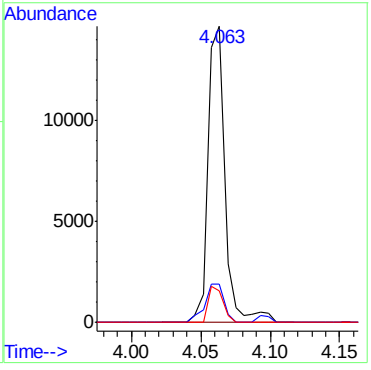


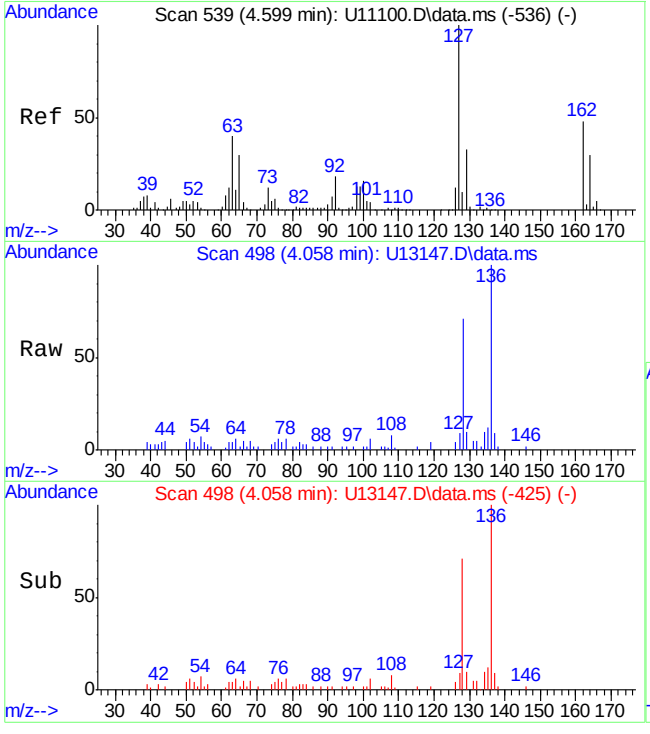


#31
Naphthalene
Concen: Below Cal
RT: 4.063 min Scan# 499
Delta R.T. -0.000 min
Lab File: U13147.D
Acq: 27 Mar 2013 10:20 pm

Tgt Ion:128 Resp: 12420

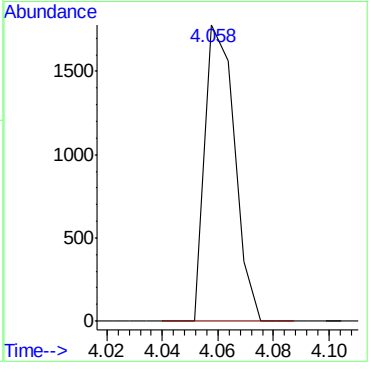
Ion	Ratio	Lower	Upper
128	100		
129	12.9	0.0	41.2
127	10.7	0.0	43.6

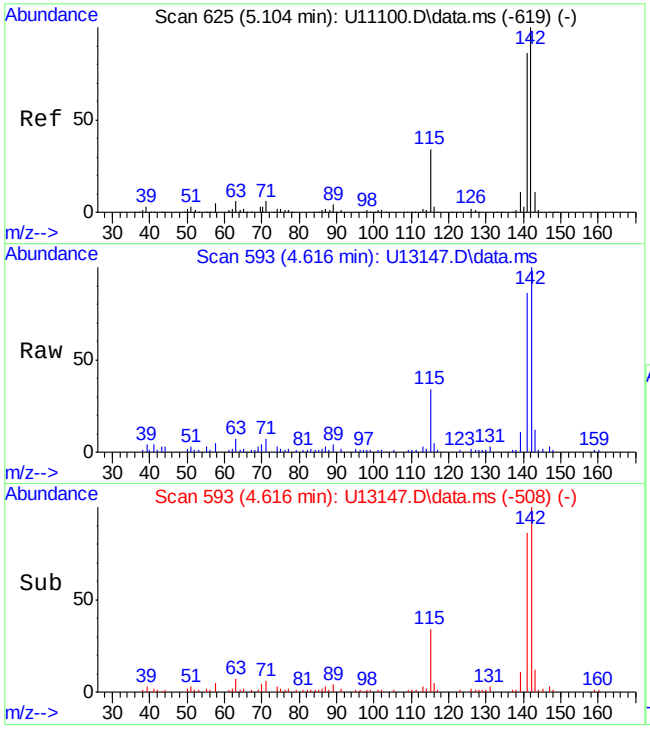




#33
4-Chloroaniline
Concen: Below Cal
RT: 4.058 min Scan# 498
Delta R.T. -0.071 min
Lab File: U13147.D
Acq: 27 Mar 2013 10:20 pm

Tgt Ion:127 Resp: 1303

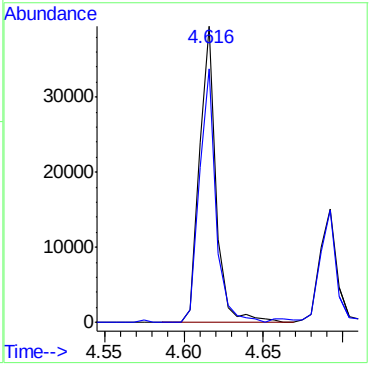


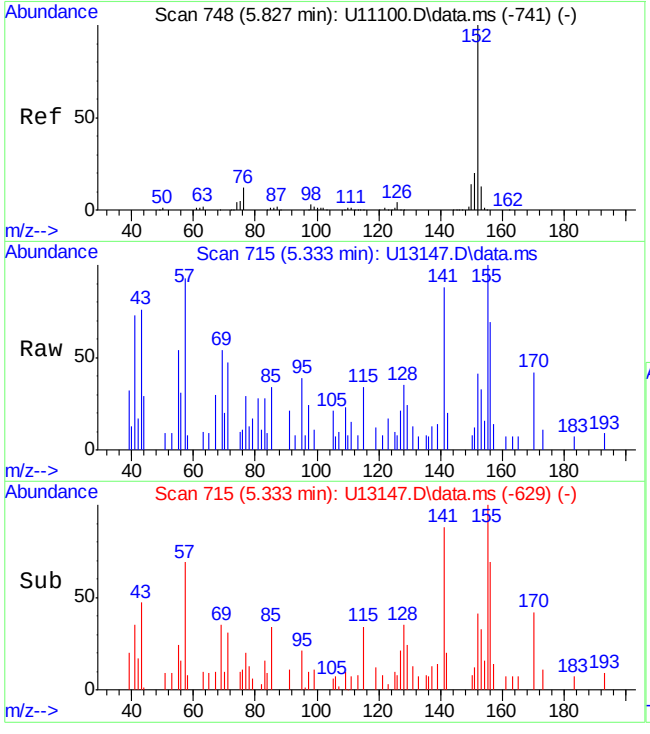


#36
2-Methylnaphthalene
Concen: 2.53 ppb
RT: 4.616 min Scan# 593
Delta R.T. -0.000 min
Lab File: U13147.D
Acq: 27 Mar 2013 10:20 pm

Tgt Ion:142 Resp: 28600

Ion	Ratio	Lower	Upper
142	100		
141	85.6	56.7	116.7

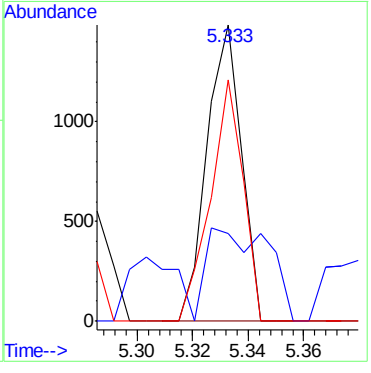


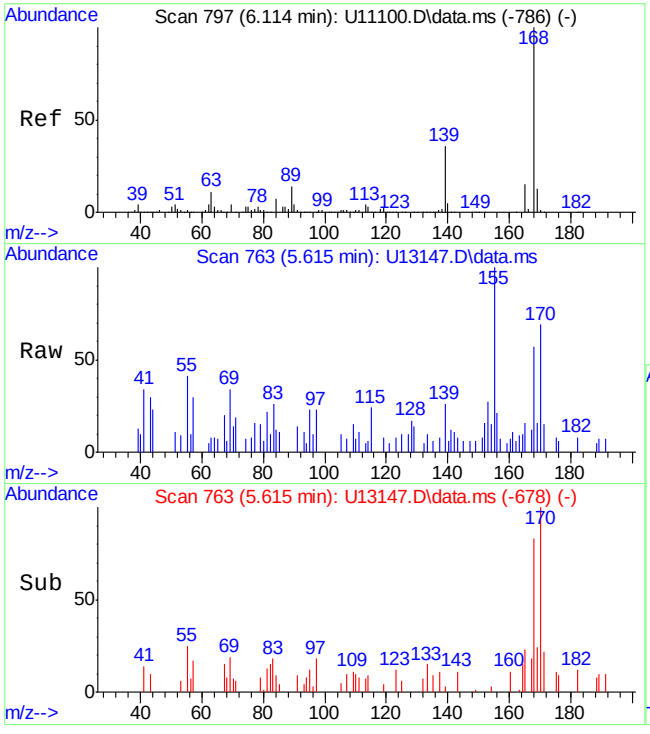


#46
Acenaphthylene
Concen: Below Cal
RT: 5.333 min Scan# 715
Delta R.T. 0.006 min
Lab File: U13147.D
Acq: 27 Mar 2013 10:20 pm

Tgt Ion:152 Resp: 1270

Ion	Ratio	Lower	Upper
152	100		
151	29.5	0.0	49.7
153	81.4	0.0	43.1#

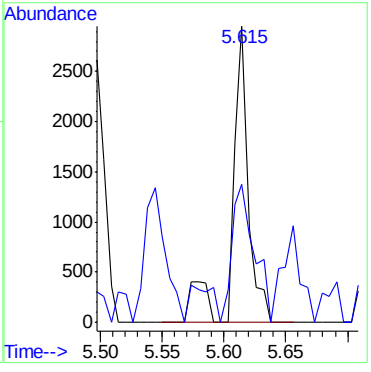


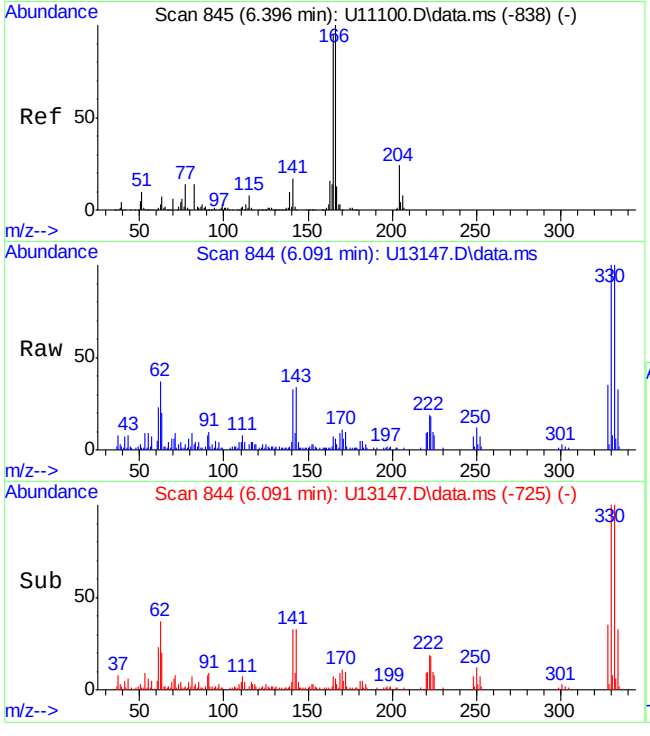


#51
Dibenzofuran
Concen: Below Cal
RT: 5.615 min Scan# 763
Delta R.T. -0.000 min
Lab File: U13147.D
Acq: 27 Mar 2013 10:20 pm

Tgt Ion:168 Resp: 2652

Ion	Ratio	Lower	Upper
168	100		
139	17.3	7.0	67.0

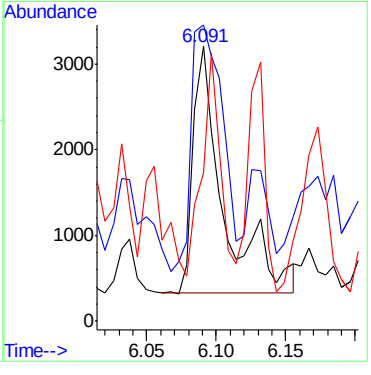




#55
Fluorene
Concen: Below Cal
RT: 6.091 min Scan# 844
Delta R.T. 0.200 min
Lab File: U13147.D
Acq: 27 Mar 2013 10:20 pm

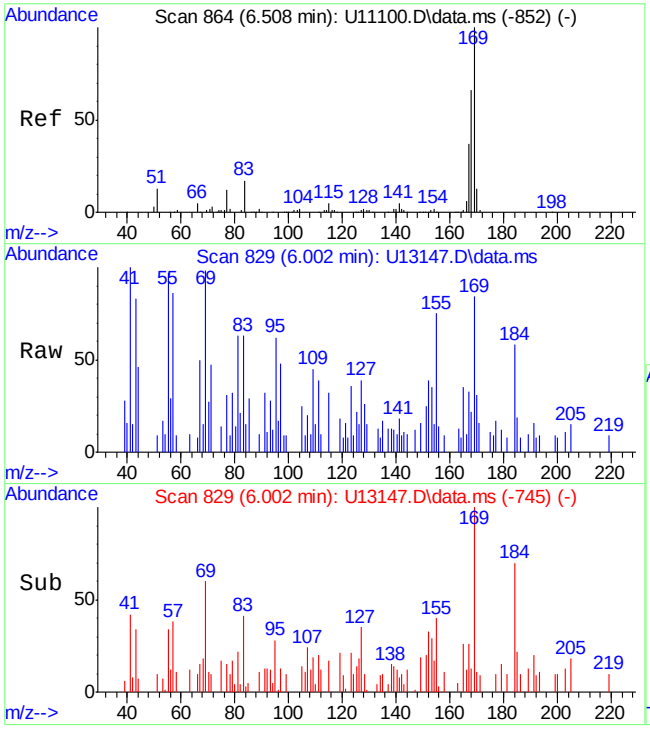
Tgt Ion:166 Resp: 4364

Ion	Ratio	Lower	Upper
166	100		
165	90.8	63.2	123.2
167	27.5	0.0	43.3



10.1.10

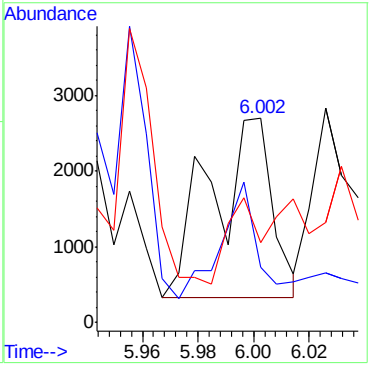
10

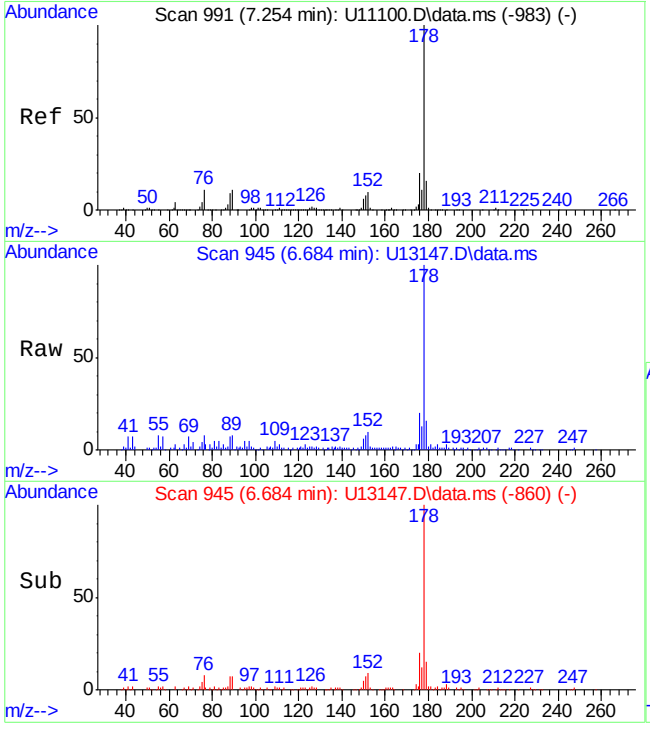


#63
n-Nitrosodiphenylamine
Concen: Below Cal
RT: 6.002 min Scan# 829
Delta R.T. -0.006 min
Lab File: U13147.D
Acq: 27 Mar 2013 10:20 pm

Tgt Ion:169 Resp: 3628

Ion	Ratio	Lower	Upper
169	100		
168	7.9	33.9	93.9#
167	0.0	4.0	64.0#

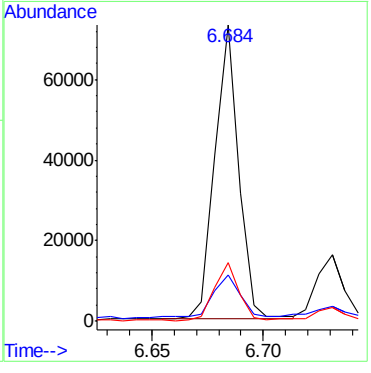




#69
Phenanthrene
Concen: 1.89 ppb
RT: 6.684 min Scan# 945
Delta R.T. -0.000 min
Lab File: U13147.D
Acq: 27 Mar 2013 10:20 pm

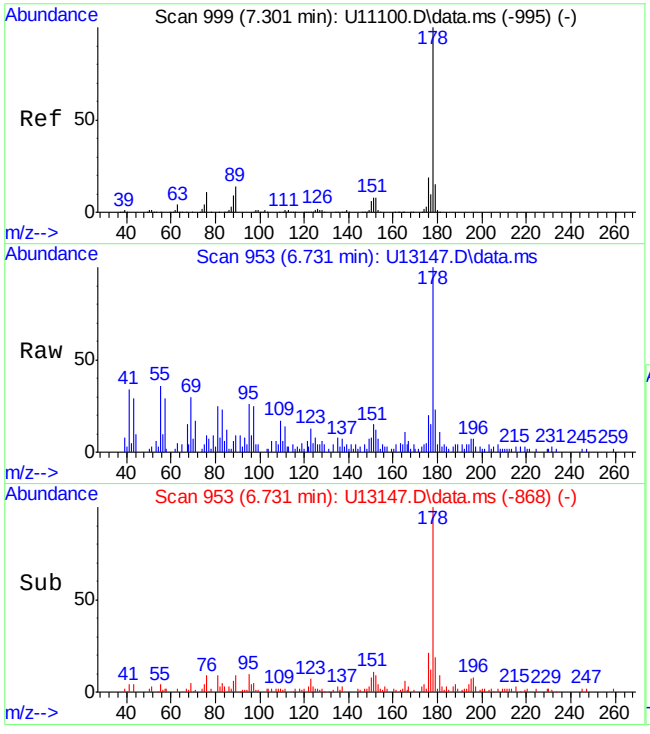
Tgt Ion:178 Resp: 54332

Ion	Ratio	Lower	Upper
178	100		
179	14.2	0.0	45.7
176	19.7	0.0	48.8



10.1.10

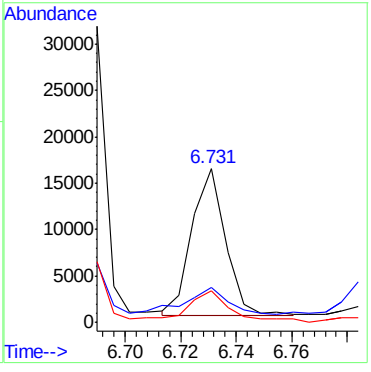
10

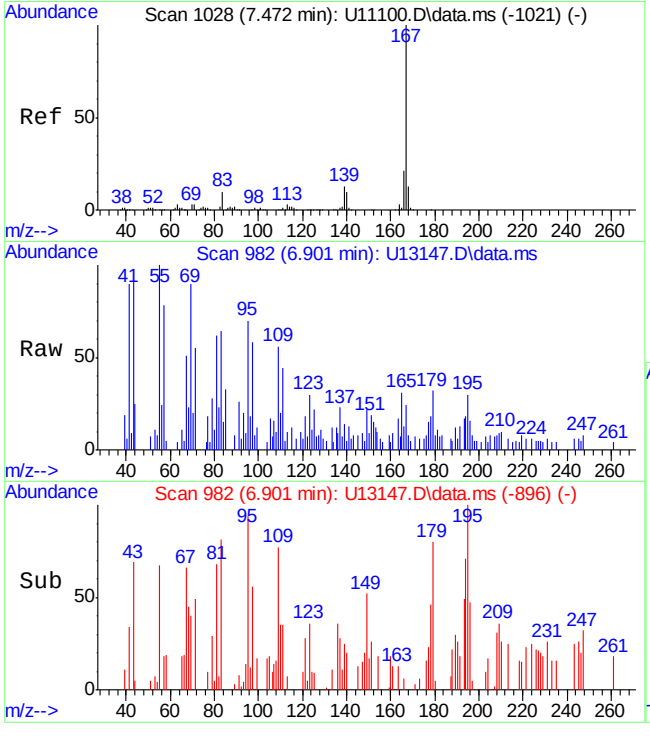


#70
Anthracene
Concen: Below Cal
RT: 6.731 min Scan# 953
Delta R.T. -0.000 min
Lab File: U13147.D
Acq: 27 Mar 2013 10:20 pm

Tgt Ion:178 Resp: 13319

Ion	Ratio	Lower	Upper
178	100		
179	16.7	0.0	45.1
176	19.2	0.0	48.3

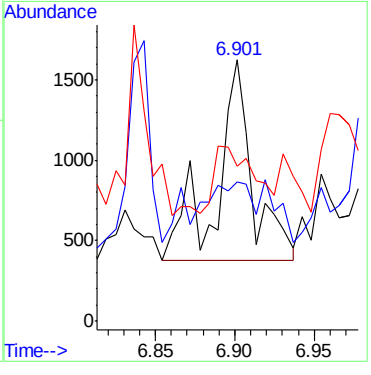


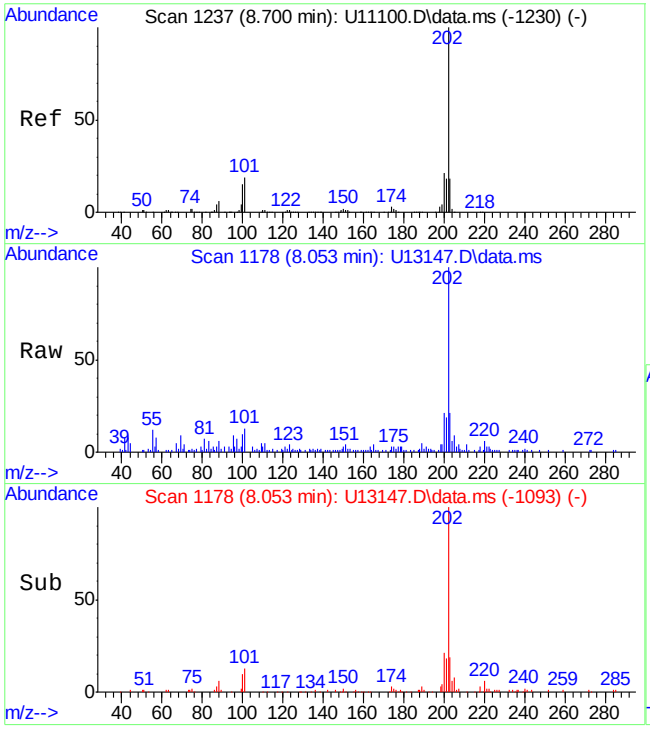


#71
Carbazole
Concen: Below Cal
RT: 6.901 min Scan# 982
Delta R.T. 0.006 min
Lab File: U13147.D
Acq: 27 Mar 2013 10:20 pm

Tgt Ion:167 Resp: 1956

Ion	Ratio	Lower	Upper
167	100		
166	30.0	0.0	50.9
139	4.7	0.0	43.1

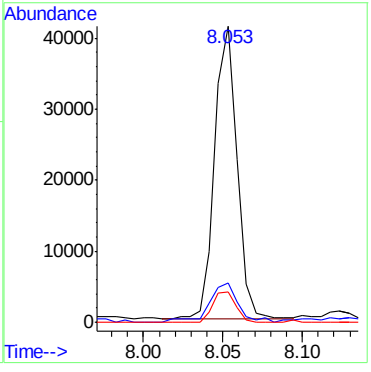


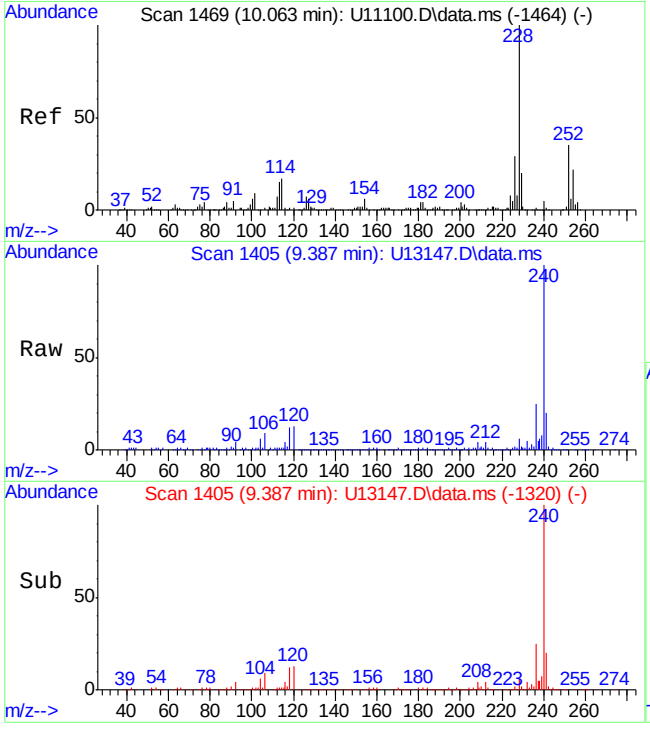


#76
Pyrene
Concen: 2.59 ppb
RT: 8.053 min Scan# 1178
Delta R.T. -0.000 min
Lab File: U13147.D
Acq: 27 Mar 2013 10:20 pm

Tgt Ion:202 Resp: 40389

Ion	Ratio	Lower	Upper
202	100		
101	13.3	0.0	46.3
100	10.3	0.0	43.6

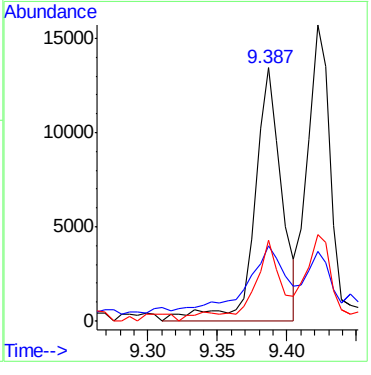


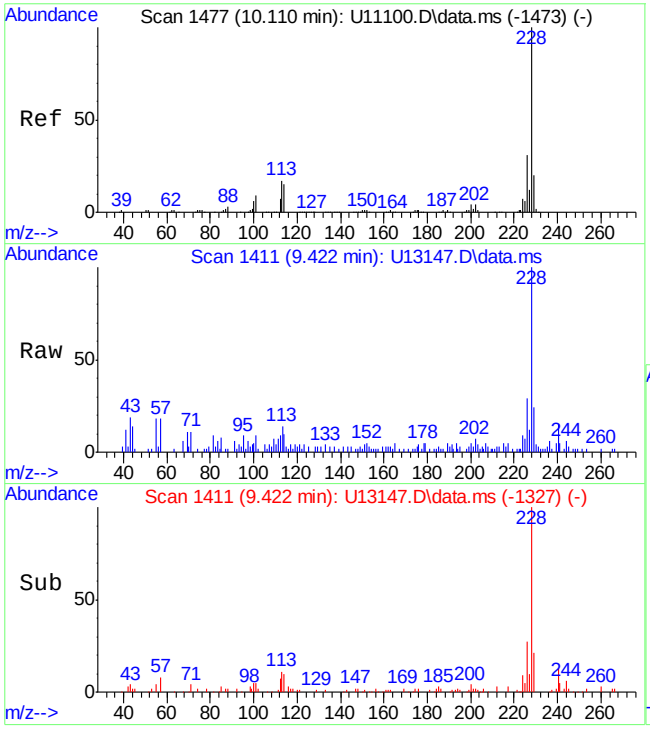


#81
Benzo[a]anthracene
Concen: 1.22 ppb
RT: 9.387 min Scan# 1405
Delta R.T. -0.000 min
Lab File: U13147.D
Acq: 27 Mar 2013 10:20 pm

Tgt Ion:228 Resp: 18074

Ion	Ratio	Lower	Upper
228	100		
229	24.3	0.0	49.5
226	29.2	0.0	56.2

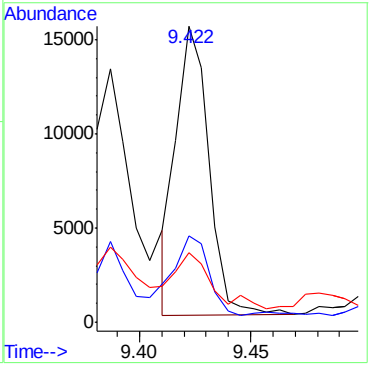


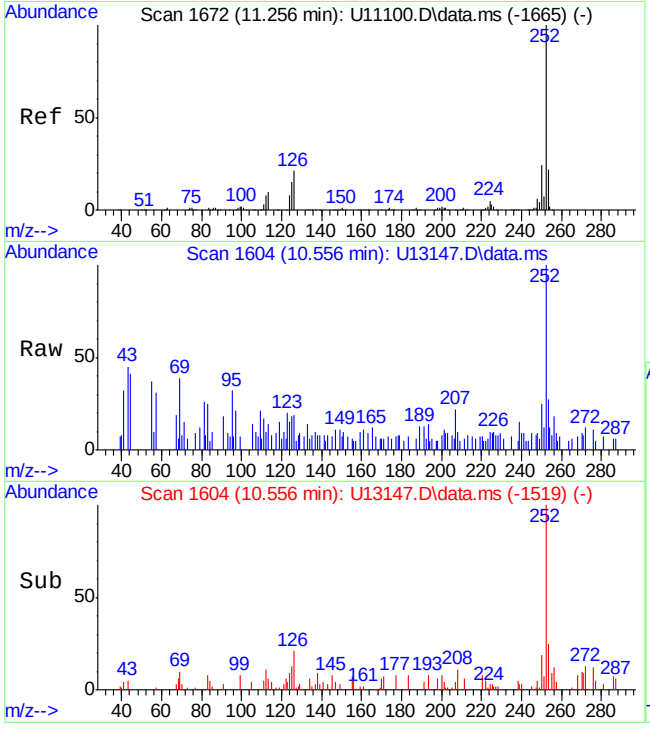


#82
Chrysene
Concen: 1.12 ppb
RT: 9.422 min Scan# 1411
Delta R.T. -0.006 min
Lab File: U13147.D
Acq: 27 Mar 2013 10:20 pm

Tgt Ion:228 Resp: 15655

Ion	Ratio	Lower	Upper
228	100		
226	27.0	0.0	58.8
229	18.6	0.0	49.7

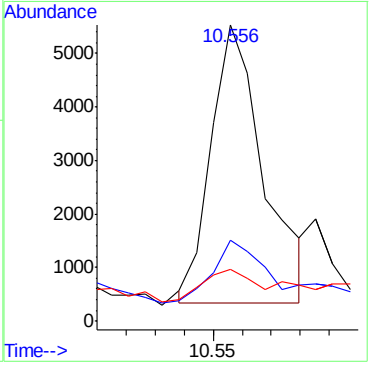


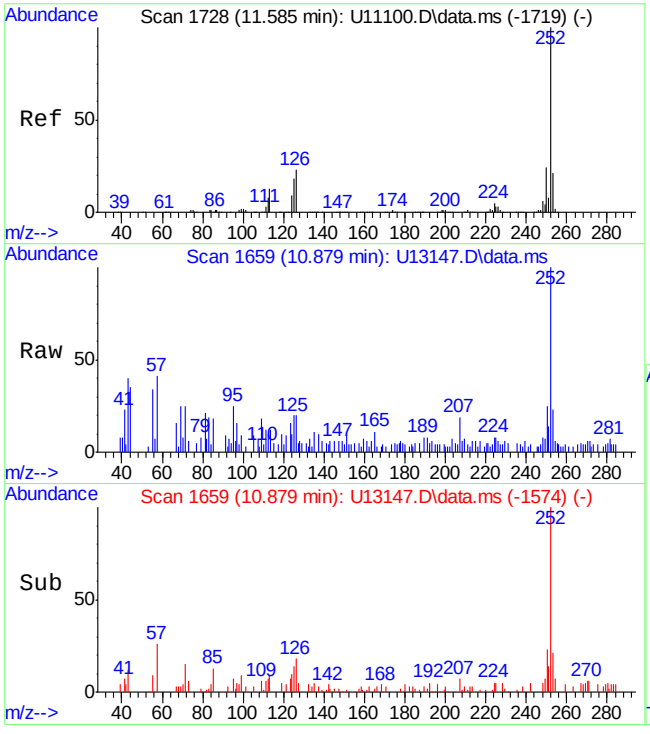


#86
Benzo[b]fluoranthene
Concen: 2.15 ppb m
RT: 10.556 min Scan# 1604
Delta R.T. -0.000 min
Lab File: U13147.D
Acq: 27 Mar 2013 10:20 pm

Tgt Ion:252 Resp: 6545

Ion	Ratio	Lower	Upper
252	100		
253	27.2	0.0	51.5
125	17.6	0.0	42.8

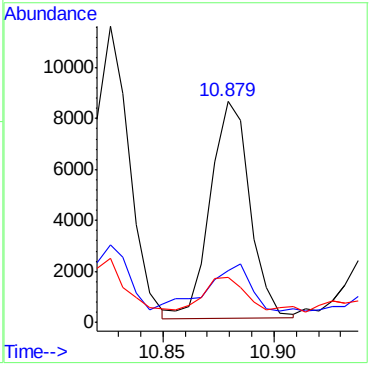


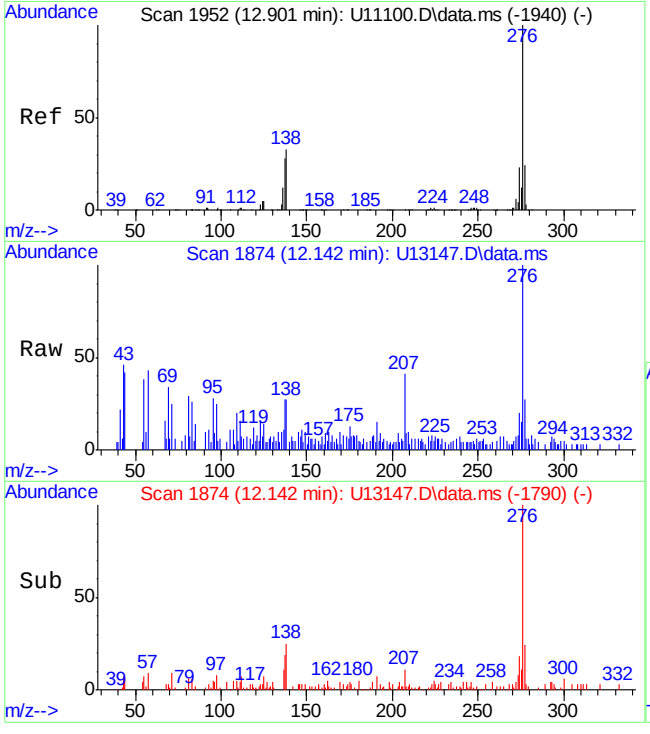


#88
Benzo[a]pyrene
Concen: 0.76 ppb
RT: 10.879 min Scan# 1659
Delta R.T. -0.000 min
Lab File: U13147.D
Acq: 27 Mar 2013 10:20 pm

Tgt Ion:252 Resp: 10602

Ion	Ratio	Lower	Upper
252	100		
253	18.1	0.0	51.9
125	14.4	0.0	43.0

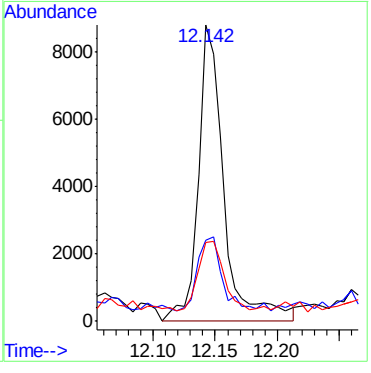




#91
Benzo[g,h,i]perylene
Concen: 0.89 ppb
RT: 12.142 min Scan# 1874
Delta R.T. -0.006 min
Lab File: U13147.D
Acq: 27 Mar 2013 10:20 pm

Tgt Ion:276 Resp: 12585

Ion	Ratio	Lower	Upper
276	100		
138	21.9	0.0	59.8
277	22.3	0.0	54.3



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130327\
Data File : U13148.D
Acq On : 27 Mar 2013 10:43 pm
Operator : NatalyaS
Sample : JB31583-10
Misc : op32352,msu672,20.39,,,1,1
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Mar 29 10:57:59 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Mar 28 10:38:36 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.076	152	141059	40.00	ppb	0.00
21) Naphthalene-d8	4.046	136	507162	40.00	ppb	0.00
39) Acenaphthene-d10	5.444	164	312364	40.00	ppb	0.00
61) Phenanthrene-d10	6.666	188	557492	40.00	ppb	0.00
74) Chrysene-d12	9.399	240	643875	40.00	ppb	0.00
84) Perylene-d12	10.938	264	604300	40.00	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	2.172	112	262966	57.18	ppb	0.01
Spiked Amount 100.000	Range 10 - 110		Recovery = 57.18%			
7) Phenol-d5	2.847	99	298748	54.07	ppb	0.00
Spiked Amount 100.000	Range 10 - 110		Recovery = 54.07%			
22) Nitrobenzene-d5	3.499	82	144731	30.18	ppb	0.00
Spiked Amount 50.000	Range 30 - 119		Recovery = 60.36%			
44) 2-Fluorobiphenyl	4.921	172	346503	31.57	ppb	0.00
Spiked Amount 50.000	Range 40 - 110		Recovery = 63.14%			
65) 2,4,6-Tribromophenol	6.091	330	115246	70.76	ppb	0.00
Spiked Amount 100.000	Range 10 - 157		Recovery = 70.76%			
77) Terphenyl-d14	8.270	244	507168	34.71	ppb	0.00
Spiked Amount 50.000	Range 30 - 124		Recovery = 69.42%			
Target Compounds						Qvalue
46) Acenaphthylene	4.921	152	17311	Below Cal	#	1
55) Fluorene	6.085	166	5276	Below Cal		90
63) n-Nitrosodiphenylamine	6.085	169	3104	Below Cal	#	40

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

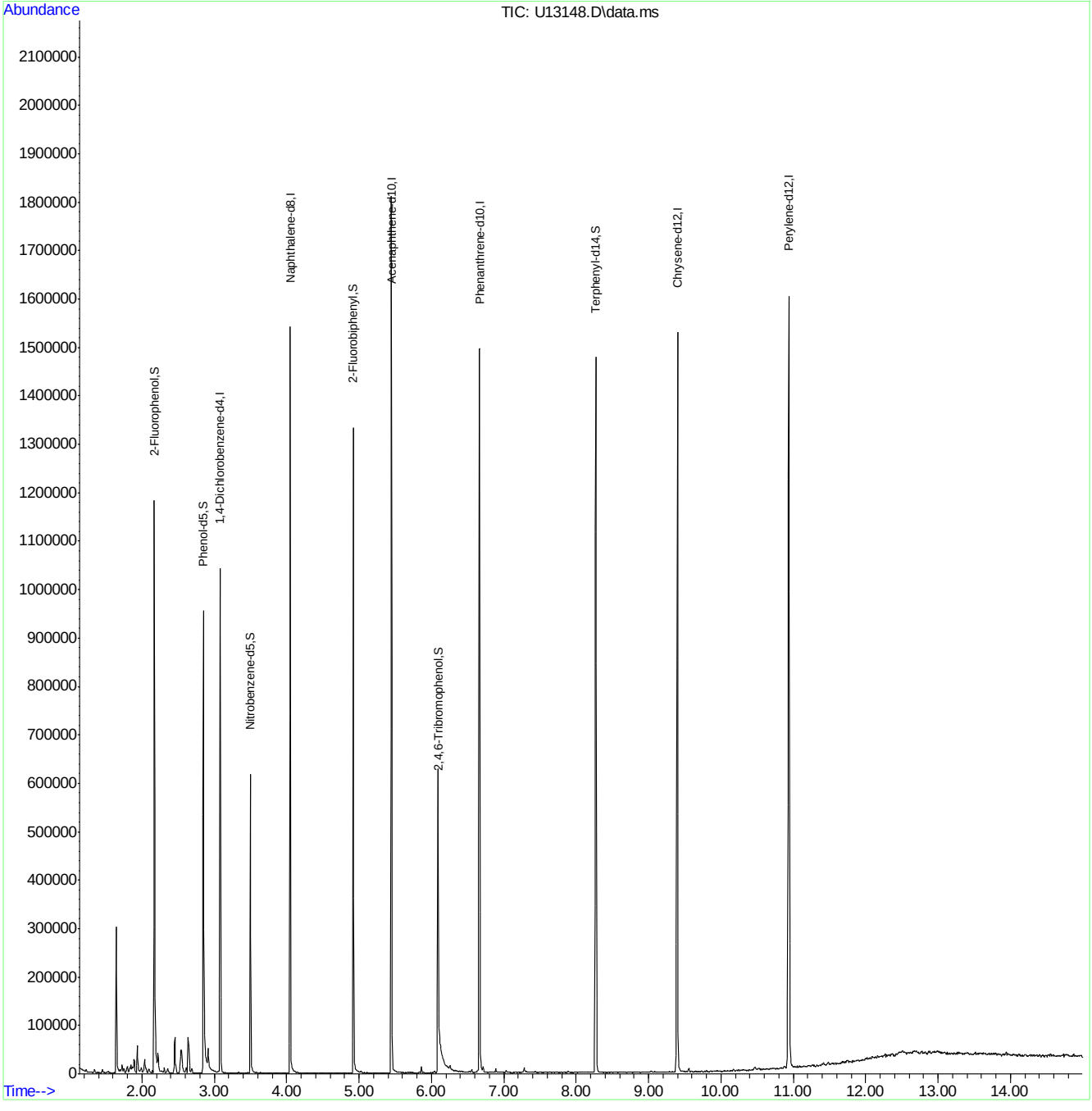
10.1.11

10

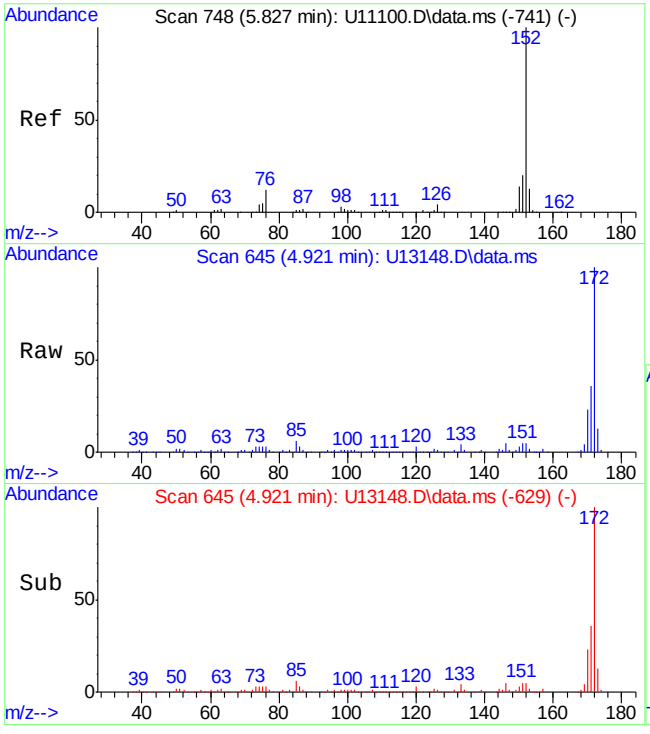
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130327\
Data File : U13148.D
Acq On : 27 Mar 2013 10:43 pm
Operator : NatalyaS
Sample : JB31583-10
Misc : op32352,msu672,20.39,,,1,1
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Mar 29 10:57:59 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Mar 28 10:38:36 2013
Response via : Initial Calibration



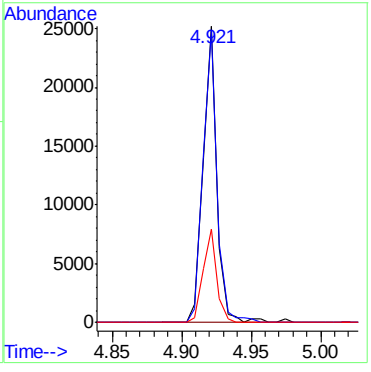
U130129_8270.m Fri Mar 29 10:58:02 2013 Page: 2

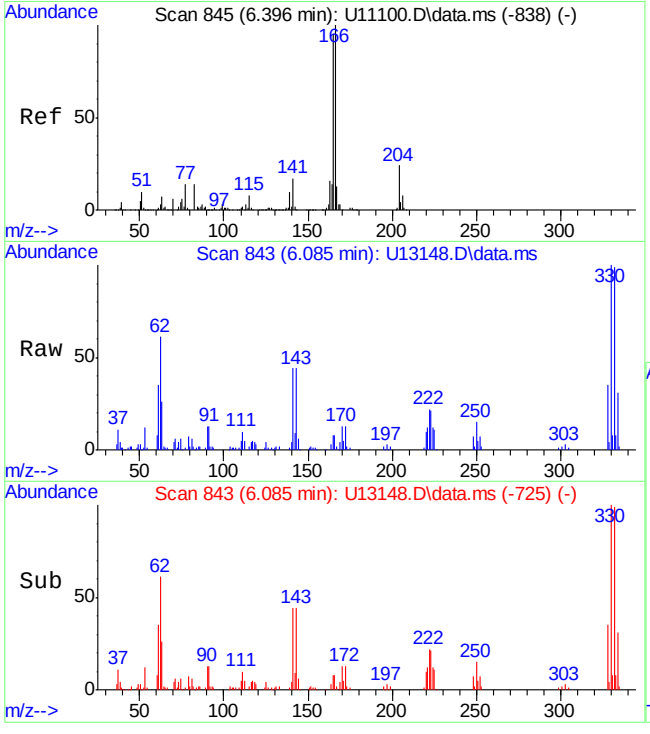


#46
Acenaphthylene
Concen: Below Cal
RT: 4.921 min Scan# 645
Delta R.T. -0.405 min
Lab File: U13148.D
Acq: 27 Mar 2013 10:43 pm

Tgt Ion:152 Resp: 17311

Ion	Ratio	Lower	Upper
152	100		
151	98.6	0.0	49.7#
153	31.3	0.0	43.1

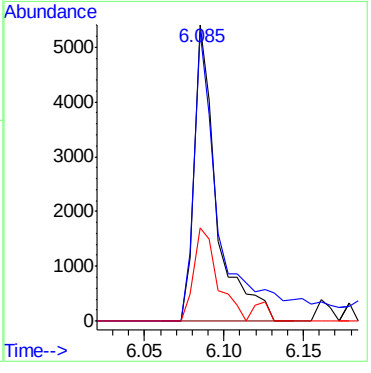


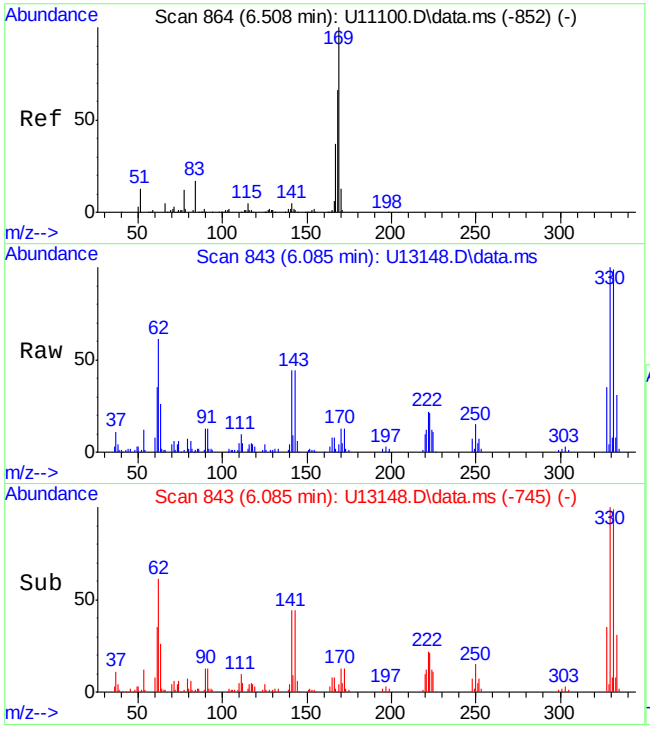


#55
Fluorene
Concen: Below Cal
RT: 6.085 min Scan# 843
Delta R.T. 0.194 min
Lab File: U13148.D
Acq: 27 Mar 2013 10:43 pm

Tgt Ion:166 Resp: 5276

Ion	Ratio	Lower	Upper
166	100		
165	97.6	63.2	123.2
167	31.5	0.0	43.3

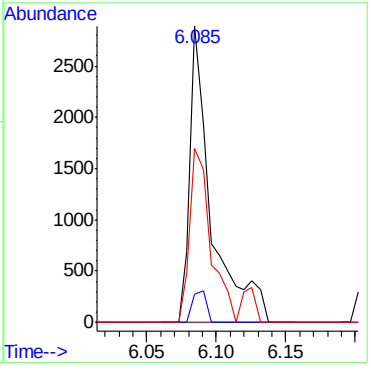




#63
n-Nitrosodiphenylamine
Concen: Below Cal
RT: 6.085 min Scan# 843
Delta R.T. 0.076 min
Lab File: U13148.D
Acq: 27 Mar 2013 10:43 pm

Tgt Ion:169 Resp: 3104

Ion	Ratio	Lower	Upper
169	100		
168	9.6	33.9	93.9#
167	58.9	4.0	64.0



10.1.11

10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130327\
Data File : U13149.D
Acq On : 27 Mar 2013 11:06 pm
Operator : NatalyaS
Sample : JB31583-11
Misc : op32352,msu672,20.32,,,1,1
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Mar 29 10:58:37 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Mar 28 10:38:36 2013
Response via : Initial Calibration

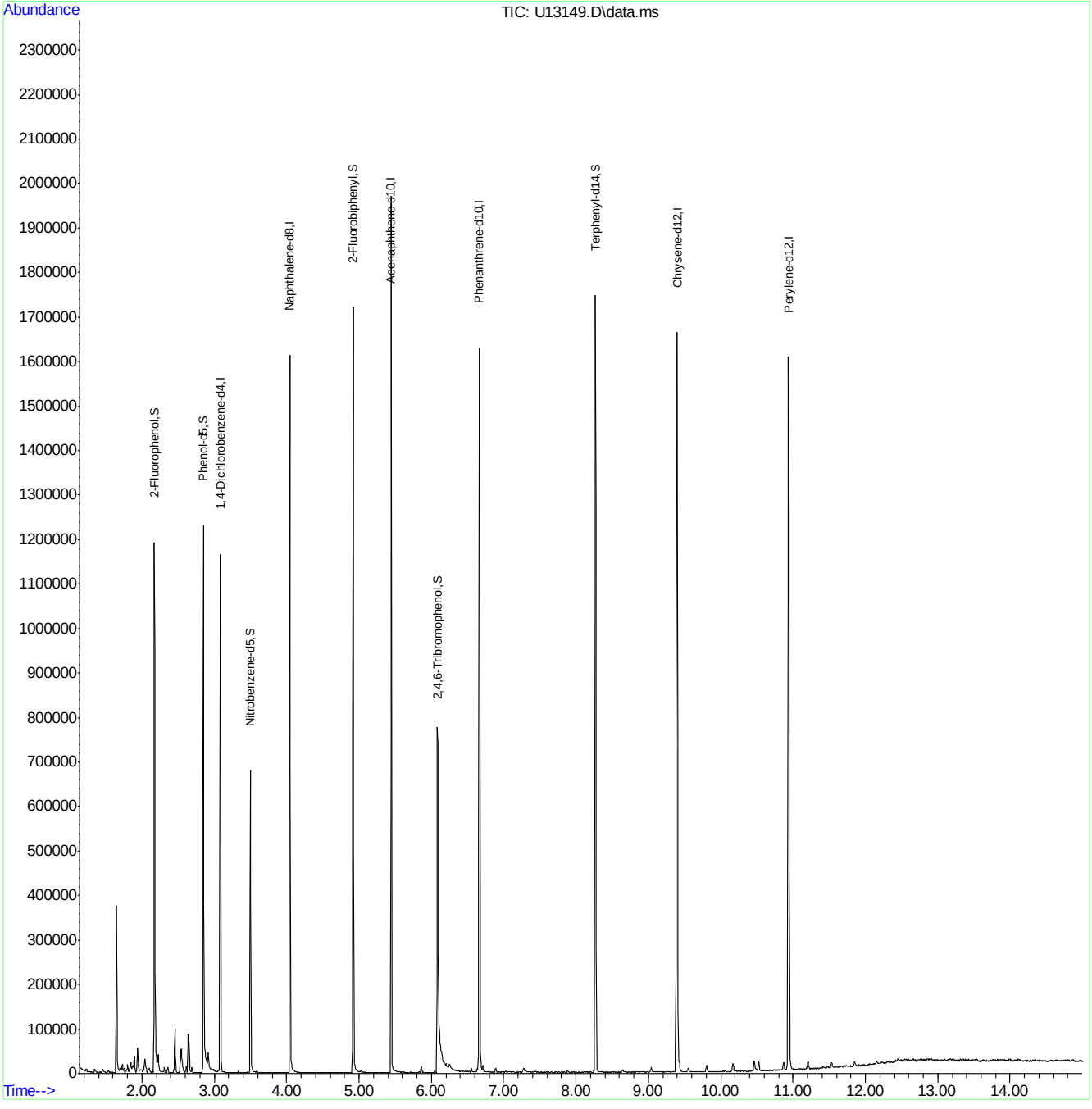
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.082	152	151635	40.00	ppb	0.00
21) Naphthalene-d8	4.046	136	542161	40.00	ppb	0.00
39) Acenaphthene-d10	5.444	164	335254	40.00	ppb	0.00
61) Phenanthrene-d10	6.660	188	607754	40.00	ppb	0.00
74) Chrysene-d12	9.398	240	685993	40.00	ppb	0.00
84) Perylene-d12	10.938	264	643378	40.00	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	2.171	112	300825	60.85	ppb	0.01
Spiked Amount 100.000	Range 10 - 110		Recovery = 60.85%			
7) Phenol-d5	2.847	99	355052	59.78	ppb	0.00
Spiked Amount 100.000	Range 10 - 110		Recovery = 59.78%			
22) Nitrobenzene-d5	3.499	82	165899	32.36	ppb	0.00
Spiked Amount 50.000	Range 30 - 119		Recovery = 64.72%			
44) 2-Fluorobiphenyl	4.921	172	405141	34.39	ppb	0.00
Spiked Amount 50.000	Range 40 - 110		Recovery = 68.78%			
65) 2,4,6-Tribromophenol	6.090	330	145156	81.75	ppb	0.00
Spiked Amount 100.000	Range 10 - 157		Recovery = 81.75%			
77) Terphenyl-d14	8.270	244	609627	39.16	ppb	0.00
Spiked Amount 50.000	Range 30 - 124		Recovery = 78.32%			
Target Compounds						Qvalue
46) Acenaphthylene	4.921	152	20138	Below Cal	#	1
55) Fluorene	6.085	166	7103	Below Cal		90
63) n-Nitrosodiphenylamine	6.085	169	3980	Below Cal	#	45

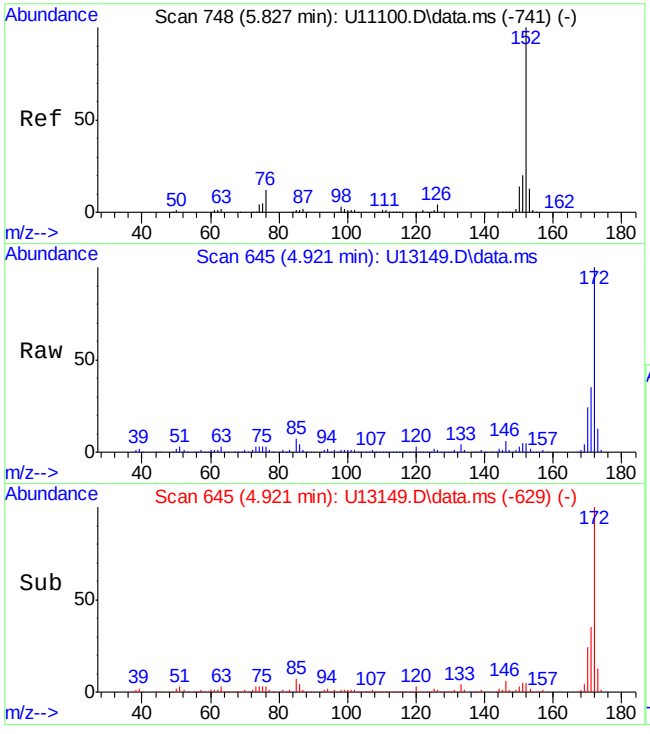
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130327\
Data File : U13149.D
Acq On : 27 Mar 2013 11:06 pm
Operator : NatalyaS
Sample : JB31583-11
Misc : op32352,msu672,20.32,,,1,1
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Mar 29 10:58:37 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Mar 28 10:38:36 2013
Response via : Initial Calibration

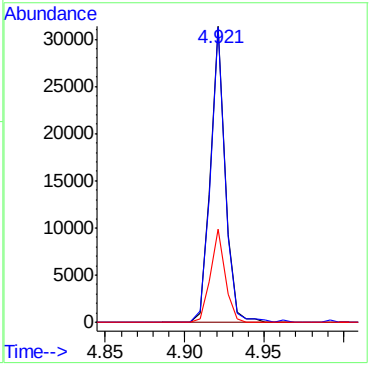


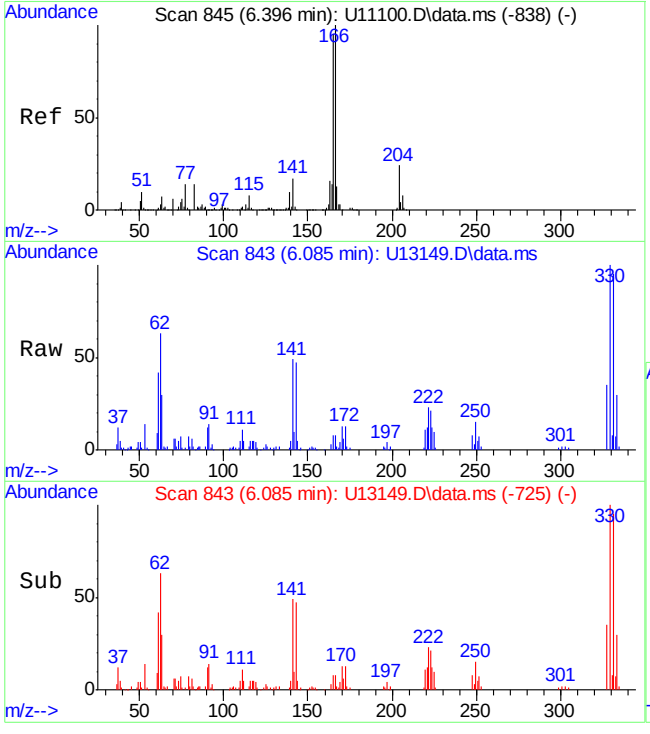


#46
Acenaphthylene
Concen: Below Cal
RT: 4.921 min Scan# 645
Delta R.T. -0.406 min
Lab File: U13149.D
Acq: 27 Mar 2013 11:06 pm

Tgt Ion:152 Resp: 20138

Ion	Ratio	Lower	Upper
152	100		
151	99.7	0.0	49.7#
153	31.7	0.0	43.1

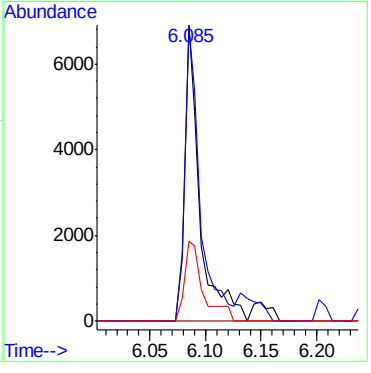




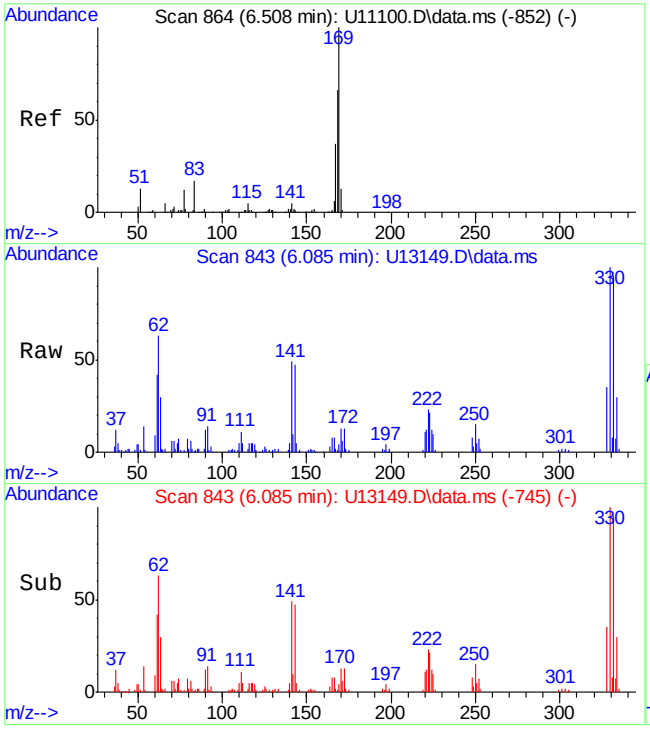
#55
Fluorene
Concen: Below Cal
RT: 6.085 min Scan# 843
Delta R.T. 0.194 min
Lab File: U13149.D
Acq: 27 Mar 2013 11:06 pm

Tgt Ion:166 Resp: 7103

Ion	Ratio	Lower	Upper
166	100		
165	99.0	63.2	123.2
167	27.1	0.0	43.3



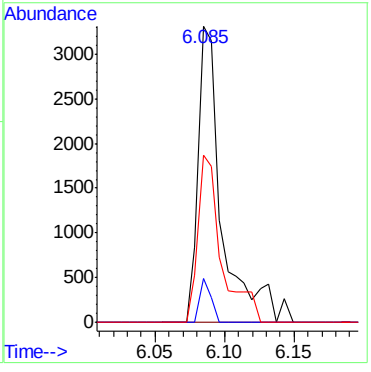
10.1.12 10



#63
n-Nitrosodiphenylamine
Concen: Below Cal
RT: 6.085 min Scan# 843
Delta R.T. 0.076 min
Lab File: U13149.D
Acq: 27 Mar 2013 11:06 pm

Tgt Ion:169 Resp: 3980

Ion	Ratio	Lower	Upper
169	100		
168	15.0	33.9	93.9#
167	56.6	4.0	64.0



10.1.12
10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130327\
Data File : U13150.D
Acq On : 27 Mar 2013 11:29 pm
Operator : NatalyaS
Sample : JB31583-12
Misc : op32352,msu672,20.49,,,1,1
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Mar 29 10:59:14 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Mar 28 10:38:36 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.076	152	106904	40.00	ppb	0.00
21) Naphthalene-d8	4.046	136	386651	40.00	ppb	0.00
39) Acenaphthene-d10	5.444	164	239742	40.00	ppb	0.00
61) Phenanthrene-d10	6.660	188	436767	40.00	ppb	0.00
74) Chrysene-d12	9.393	240	515447	40.00	ppb	0.00
84) Perylene-d12	10.938	264	486792	40.00	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	2.172	112	228646	65.60	ppb	0.01
Spiked Amount 100.000	Range 10 - 110		Recovery = 65.60%			
7) Phenol-d5	2.847	99	261225	62.39	ppb	0.00
Spiked Amount 100.000	Range 10 - 110		Recovery = 62.39%			
22) Nitrobenzene-d5	3.499	82	123965	33.90	ppb	0.00
Spiked Amount 50.000	Range 30 - 119		Recovery = 67.80%			
44) 2-Fluorobiphenyl	4.921	172	300959	35.72	ppb	0.00
Spiked Amount 50.000	Range 40 - 110		Recovery = 71.44%			
65) 2,4,6-Tribromophenol	6.091	330	96507	75.63	ppb	0.00
Spiked Amount 100.000	Range 10 - 157		Recovery = 75.63%			
77) Terphenyl-d14	8.270	244	419081	35.83	ppb	0.00
Spiked Amount 50.000	Range 30 - 124		Recovery = 71.66%			
Target Compounds						Qvalue
46) Acenaphthylene	4.921	152	15444	Below Cal	#	1
55) Fluorene	6.085	166	4689	Below Cal	#	76
63) n-Nitrosodiphenylamine	6.085	169	2804	Below Cal	#	24

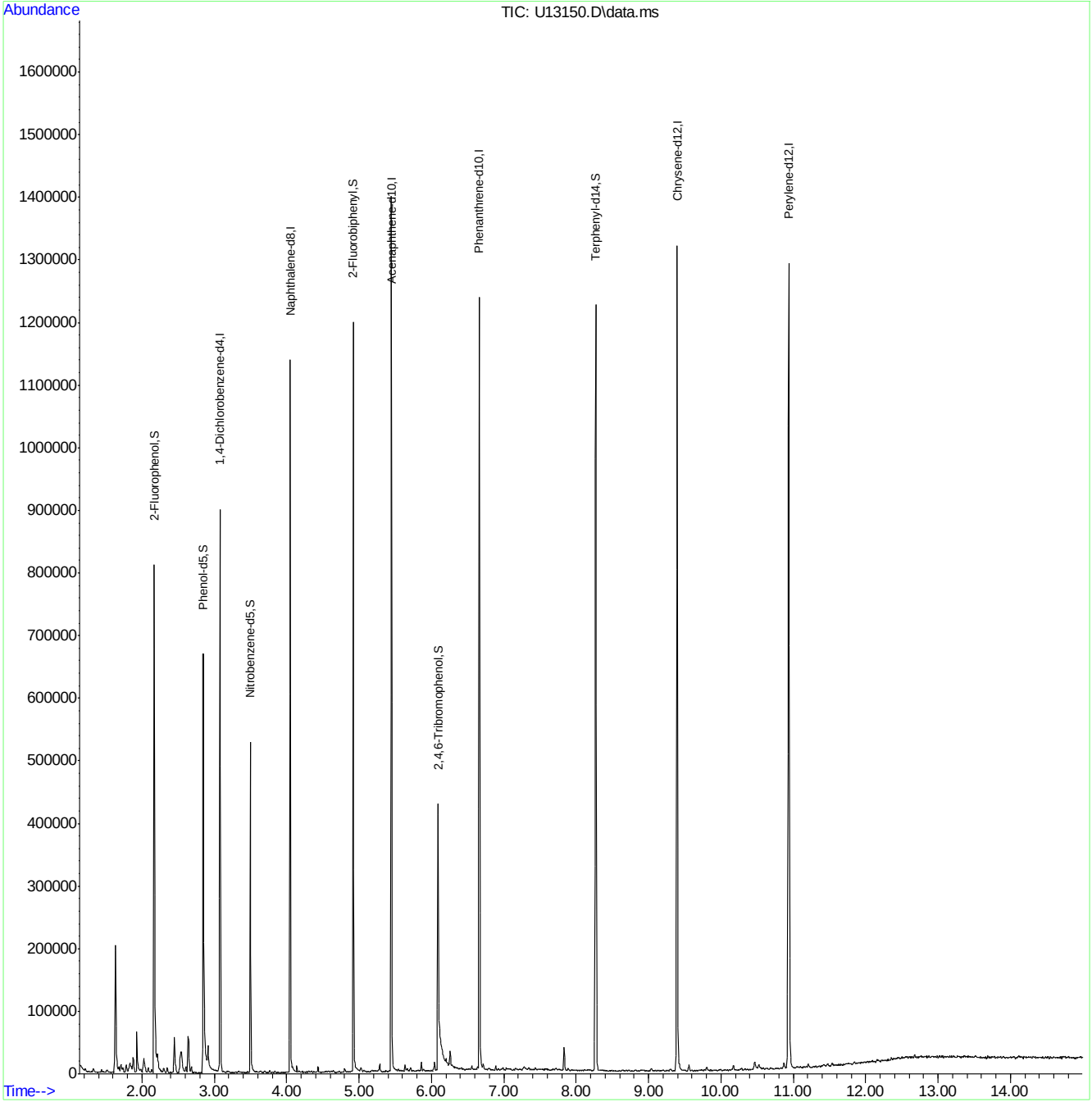
(#) = qualifier out of range (m) = manual integration (+) = signals summed

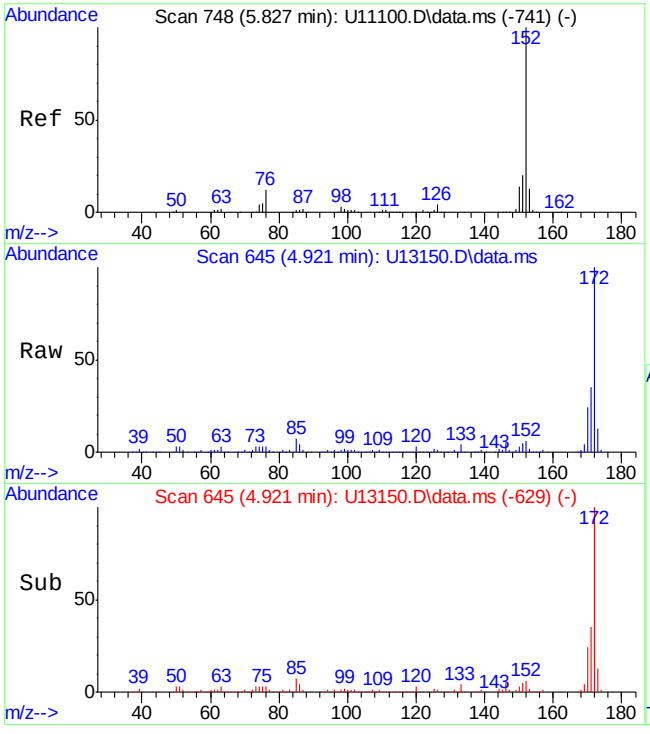
10.1.13 10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130327\
Data File : U13150.D
Acq On : 27 Mar 2013 11:29 pm
Operator : NatalyaS
Sample : JB31583-12
Misc : op32352,msu672,20.49,,,1,1
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Mar 29 10:59:14 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Mar 28 10:38:36 2013
Response via : Initial Calibration

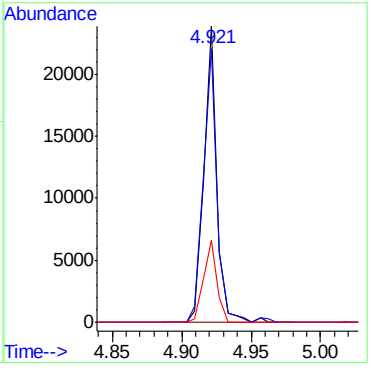


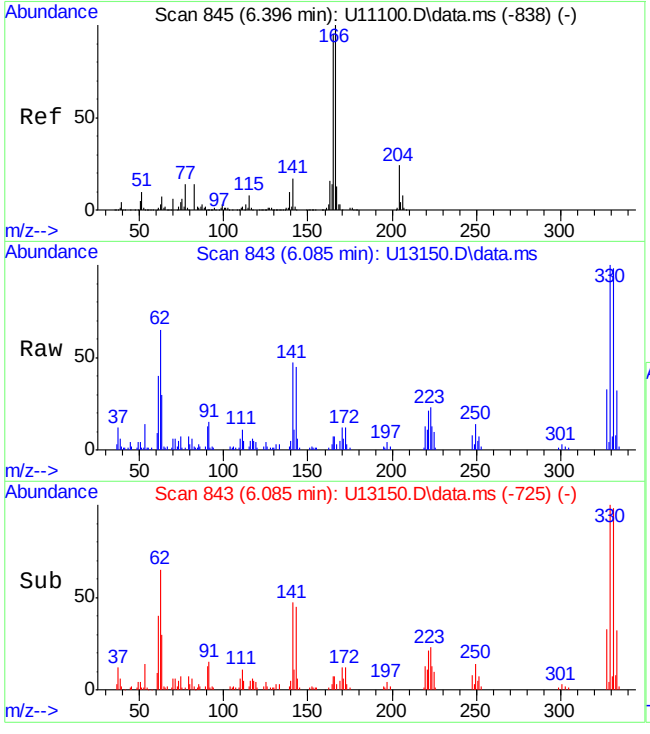


#46
Acenaphthylene
Concen: Below Cal
RT: 4.921 min Scan# 645
Delta R.T. -0.405 min
Lab File: U13150.D
Acq: 27 Mar 2013 11:29 pm

Tgt Ion:152 Resp: 15444

Ion	Ratio	Lower	Upper
152	100		
151	92.3	0.0	49.7#
153	27.6	0.0	43.1

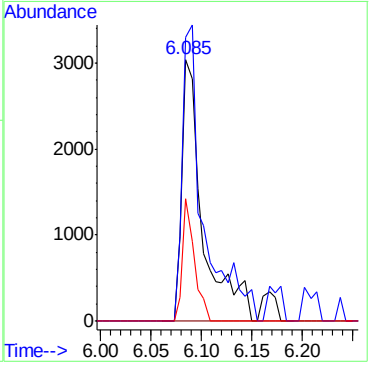




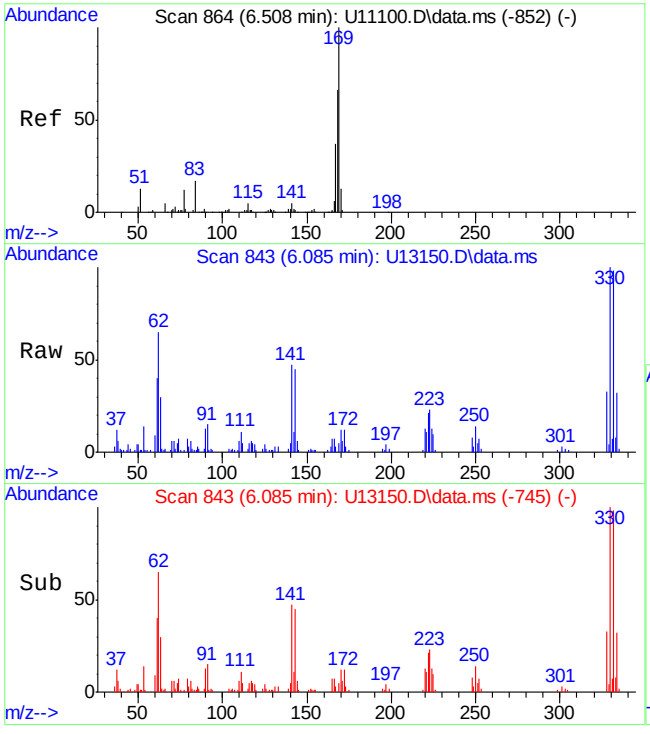
#55
Fluorene
Concen: Below Cal
RT: 6.085 min Scan# 843
Delta R.T. 0.194 min
Lab File: U13150.D
Acq: 27 Mar 2013 11:29 pm

Tgt Ion:166 Resp: 4689

Ion	Ratio	Lower	Upper
166	100		
165	108.4	63.2	123.2
167	46.8	0.0	43.3#



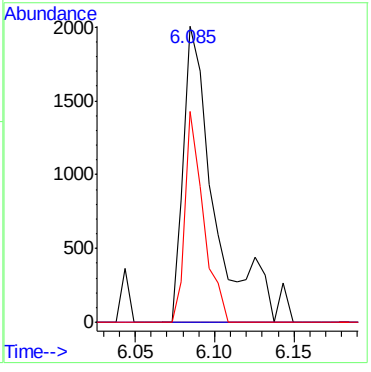
10.1.13 10



#63
n-Nitrosodiphenylamine
Concen: Below Cal
RT: 6.085 min Scan# 843
Delta R.T. 0.076 min
Lab File: U13150.D
Acq: 27 Mar 2013 11:29 pm

Tgt Ion:169 Resp: 2804

Ion	Ratio	Lower	Upper
169	100		
168	0.0	33.9	93.9#
167	71.1	4.0	64.0#



10.1.13

10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130329\
Data File : U13207.D
Acq On : 29 Mar 2013 1:56 pm
Operator : NatalyaS
Sample : jb31583-13
Misc : op32352,msu674,20.11,,,1,1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Mar 29 15:23:52 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Fri Mar 29 11:20:02 2013
Response via : Initial Calibration

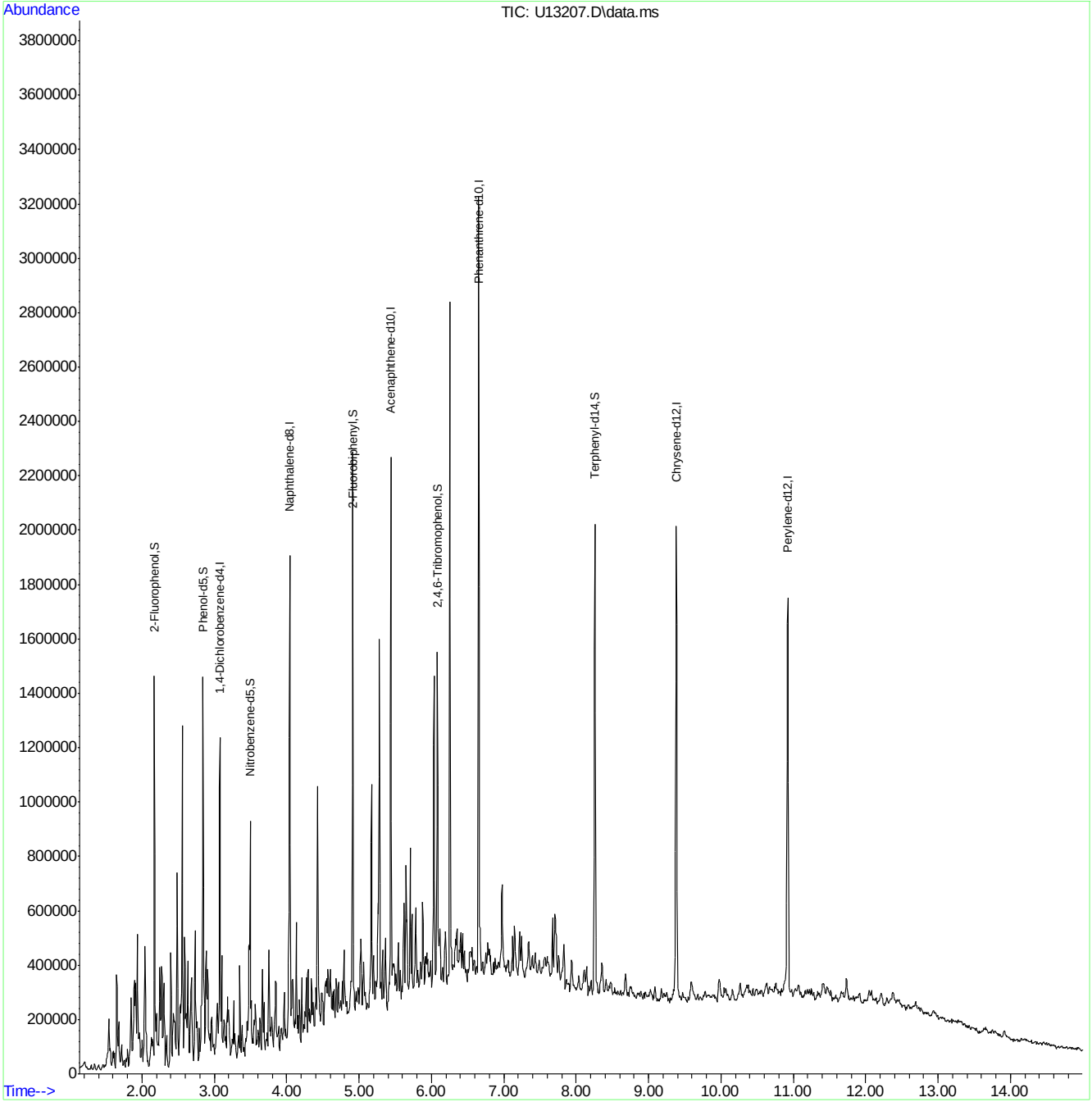
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1,4-Dichlorobenzene-d4	3.076	152	146732	40.00 ppb	0.00
21) Naphthalene-d8	4.040	136	526167	40.00 ppb	0.00
39) Acenaphthene-d10	5.438	164	320774	40.00 ppb	0.00
61) Phenanthrene-d10	6.655	188	552092	40.00 ppb	-0.01
74) Chrysene-d12	9.381	240	691562	40.00 ppb	-0.02
84) Perylene-d12	10.926	264	647613	40.00 ppb	-0.02
System Monitoring Compounds					
5) 2-Fluorophenol	2.172	112	329715	68.92 ppb	0.00
Spiked Amount 100.000	Range 10 - 110		Recovery = 68.92%		
7) Phenol-d5	2.841	99	375642	65.36 ppb	0.00
Spiked Amount 100.000	Range 10 - 110		Recovery = 65.36%		
22) Nitrobenzene-d5	3.494	82	182619	36.70 ppb	-0.01
Spiked Amount 50.000	Range 30 - 119		Recovery = 73.40%		
44) 2-Fluorobiphenyl	4.915	172	409748	36.35 ppb	0.00
Spiked Amount 50.000	Range 40 - 110		Recovery = 72.70%		
65) 2,4,6-Tribromophenol	6.079	330	149113	92.45 ppb	-0.01
Spiked Amount 100.000	Range 10 - 157		Recovery = 92.45%		
77) Terphenyl-d14	8.259	244	610480	38.90 ppb	-0.01
Spiked Amount 50.000	Range 30 - 124		Recovery = 77.80%		
Target Compounds					Qvalue
19) m+p-cresols	3.605	108	1576	Below Cal	# 45
20) 4-methylphenol	3.605	108	1576	Below Cal	# 44
31) Naphthalene	4.046	128	9800	Below Cal	# 1
33) 4-Chloroaniline	4.152	127	1598	Below Cal	100
36) 2-Methylnaphthalene	4.551	142	1544	Below Cal	98
37) 1-Methylnaphthalene	4.551	142	1544	Below Cal	83
46) Acenaphthylene	5.327	152	5102	Below Cal	# 1
51) Dibenzofuran	5.603	168	10243	Below Cal	98
71) Carbazole	7.072	167	1812	Below Cal	75

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

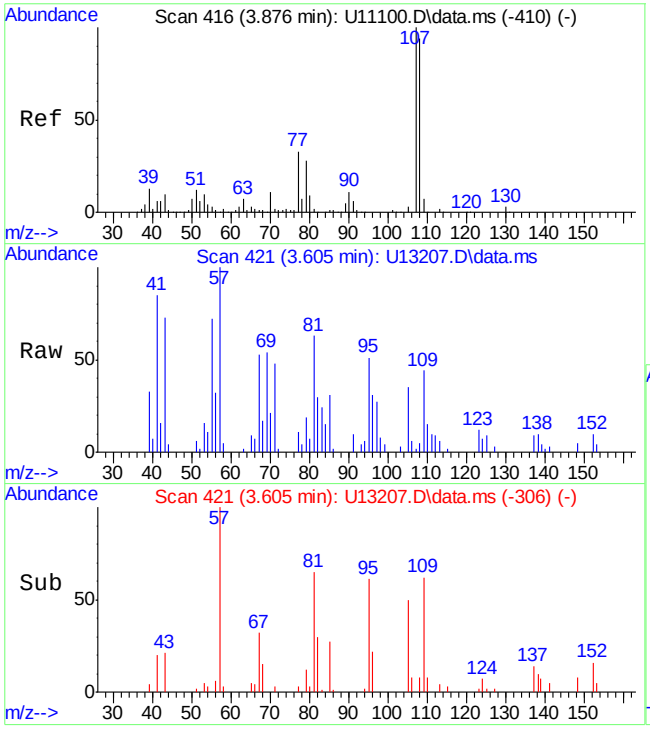
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130329\
Data File : U13207.D
Acq On : 29 Mar 2013 1:56 pm
Operator : NatalyaS
Sample : jb31583-13
Misc : op32352,msu674,20.11,,,1,1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Mar 29 15:23:52 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Fri Mar 29 11:20:02 2013
Response via : Initial Calibration



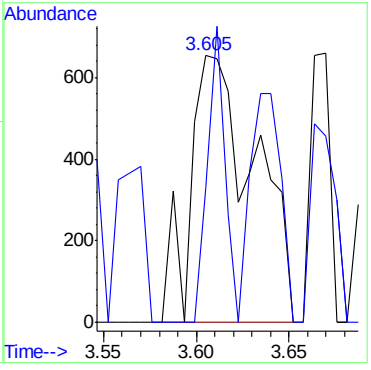
U130129_8270.m Mon Apr 01 10:42:38 2013 Page: 2

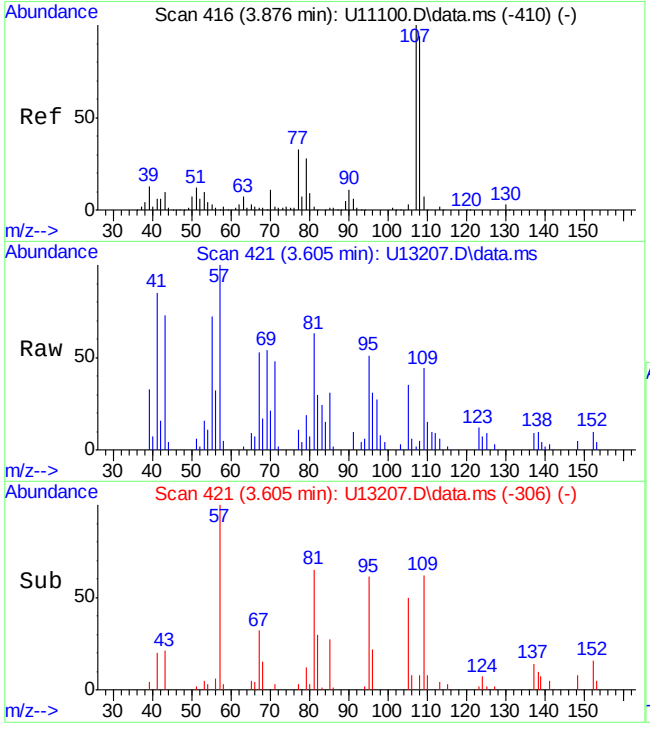


#19
m+p-cresols
Concen: Below Cal
RT: 3.605 min Scan# 421
Delta R.T. 0.176 min
Lab File: U13207.D
Acq: 29 Mar 2013 1:56 pm

Tgt Ion:108 Resp: 1576

Ion	Ratio	Lower	Upper
108	100		
107	50.5	77.8	137.8#

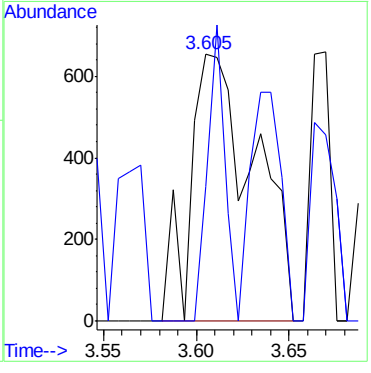


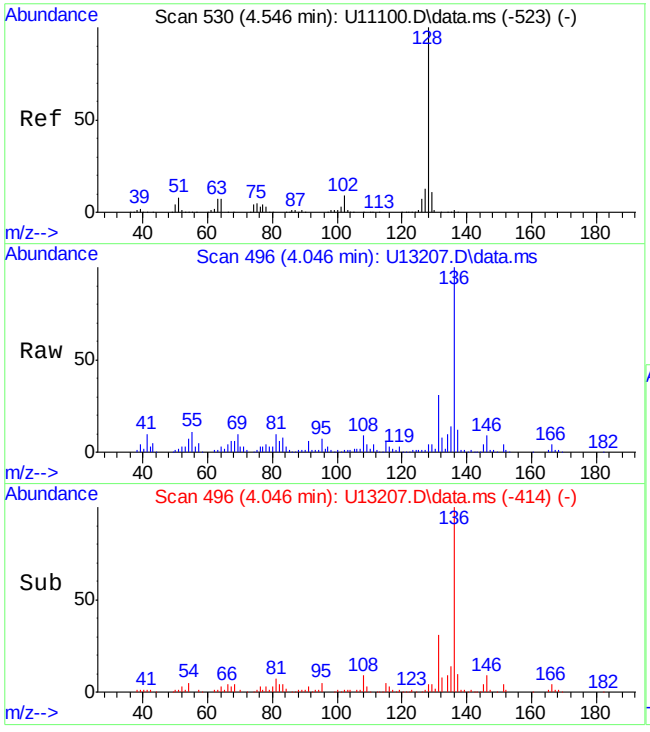


#20
4-methylphenol
Concen: Below Cal
RT: 3.605 min Scan# 421
Delta R.T. 0.176 min
Lab File: U13207.D
Acq: 29 Mar 2013 1:56 pm

Tgt Ion:108 Resp: 1576

Ion	Ratio	Lower	Upper
108	100		
107	50.5	77.1	143.1#

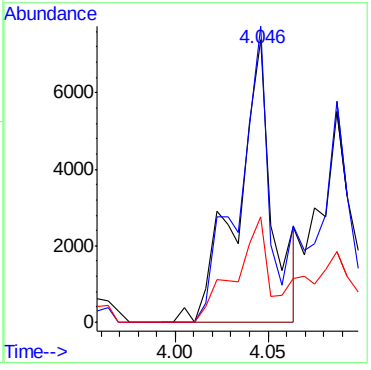


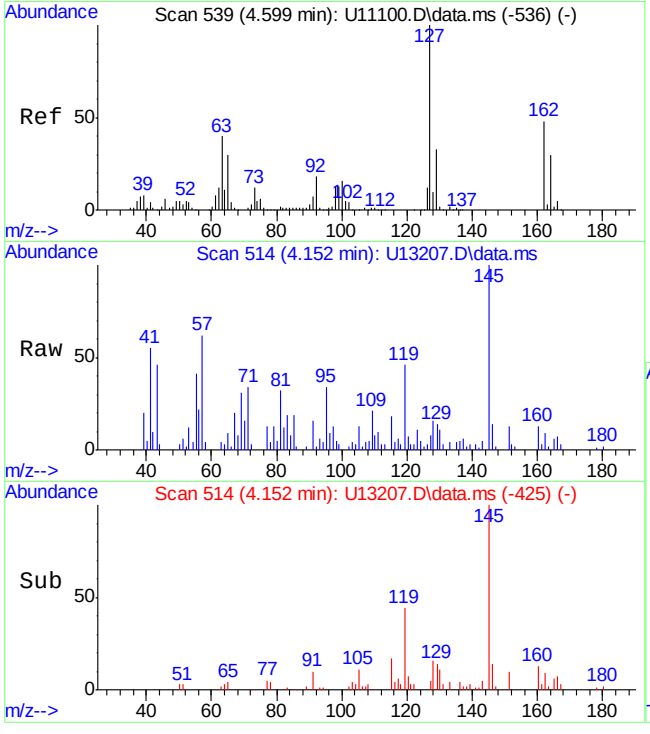


#31
Naphthalene
Concen: Below Cal
RT: 4.046 min Scan# 496
Delta R.T. -0.017 min
Lab File: U13207.D
Acq: 29 Mar 2013 1:56 pm

Tgt Ion:128 Resp: 9800

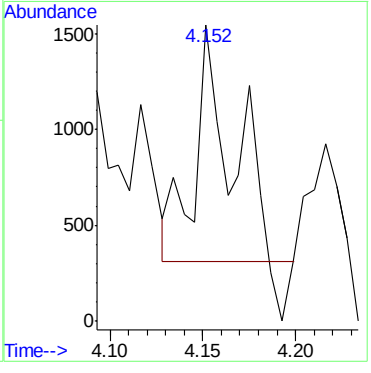
Ion	Ratio	Lower	Upper
128	100		
129	104.8	0.0	41.2#
127	37.3	0.0	43.6

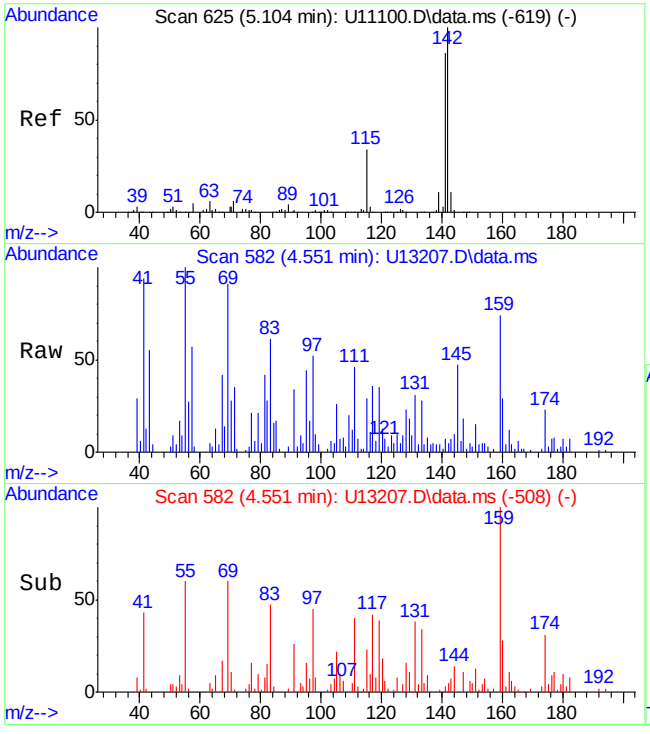




#33
4-Chloroaniline
Concen: Below Cal
RT: 4.152 min Scan# 514
Delta R.T. 0.024 min
Lab File: U13207.D
Acq: 29 Mar 2013 1:56 pm

Tgt Ion:127 Resp: 1598

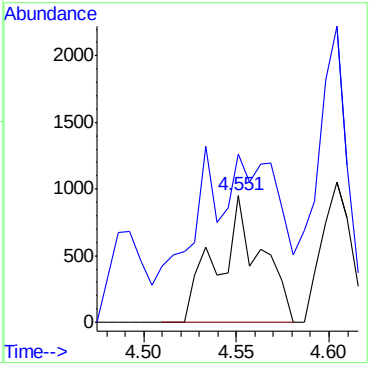


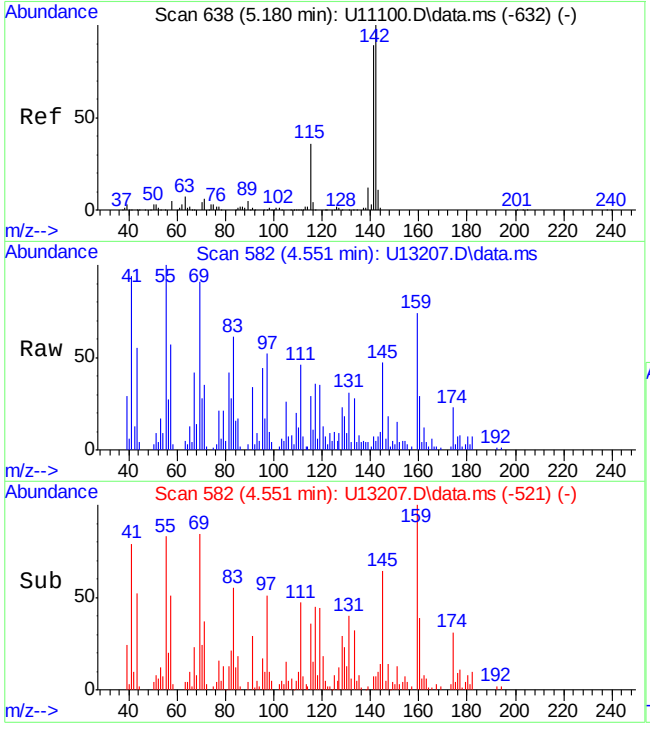


#36
2-Methylnaphthalene
Concen: Below Cal
RT: 4.551 min Scan# 582
Delta R.T. -0.064 min
Lab File: U13207.D
Acq: 29 Mar 2013 1:56 pm

Tgt Ion:142 Resp: 1544

Ion	Ratio	Lower	Upper
142	100		
141	88.3	56.7	116.7

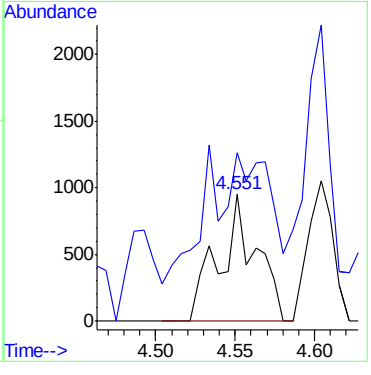


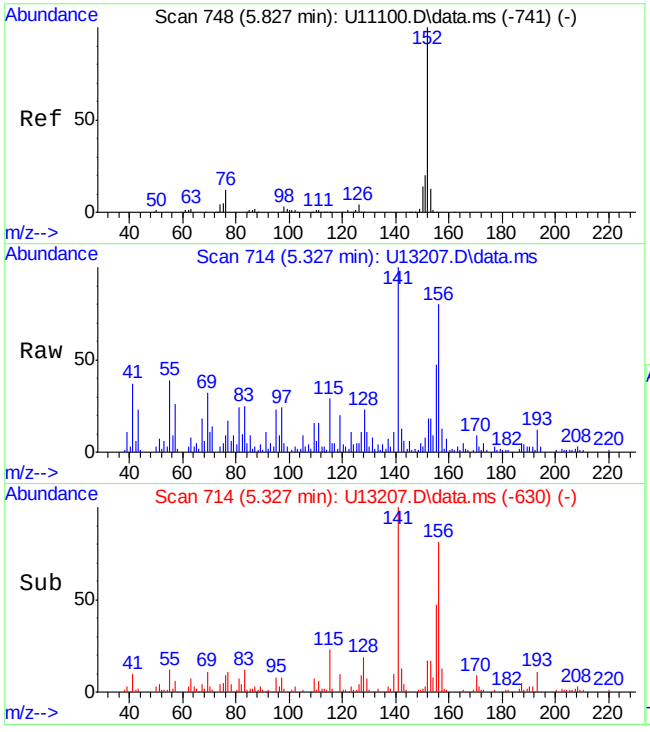


#37
1-Methylnaphthalene
Concen: Below Cal
RT: 4.551 min Scan# 582
Delta R.T. -0.141 min
Lab File: U13207.D
Acq: 29 Mar 2013 1:56 pm

Tgt Ion:142 Resp: 1544

Ion	Ratio	Lower	Upper
142	100		
141	104.1	68.6	108.6

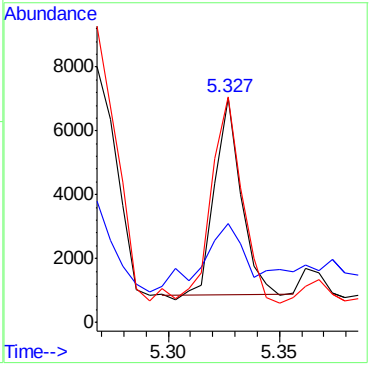


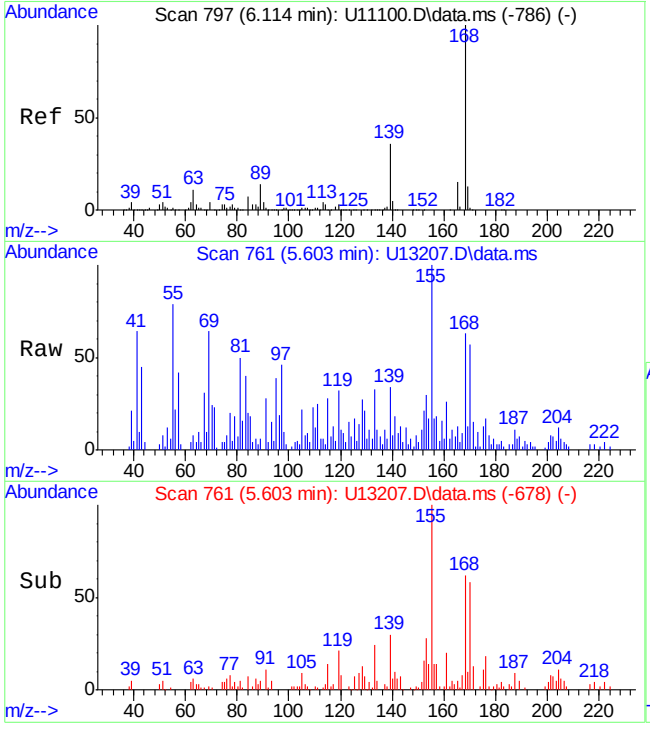


#46
Acenaphthylene
Concen: Below Cal
RT: 5.327 min Scan# 714
Delta R.T. -0.006 min
Lab File: U13207.D
Acq: 29 Mar 2013 1:56 pm

Tgt Ion:152 Resp: 5102

Ion	Ratio	Lower	Upper
152	100		
151	31.6	0.0	49.7
153	102.1	0.0	43.1#

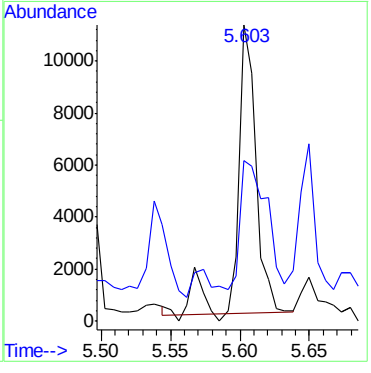


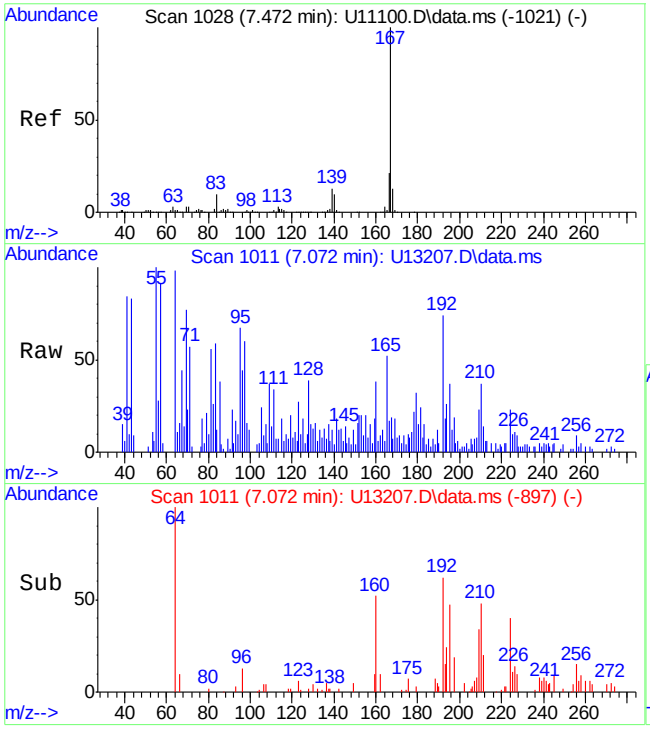


#51
Dibenzofuran
Concen: Below Cal
RT: 5.603 min Scan# 761
Delta R.T. -0.012 min
Lab File: U13207.D
Acq: 29 Mar 2013 1:56 pm

Tgt Ion:168 Resp: 10243

Ion	Ratio	Lower	Upper
168	100		
139	38.5	7.0	67.0

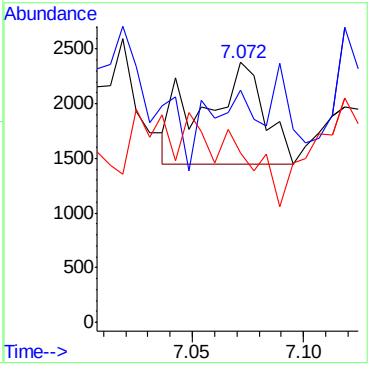




#71
Carbazole
Concen: Below Cal
RT: 7.072 min Scan# 1011
Delta R.T. 0.171 min
Lab File: U13207.D
Acq: 29 Mar 2013 1:56 pm

Tgt Ion:167 Resp: 1812

Ion	Ratio	Lower	Upper
167	100		
166	38.1	0.0	50.9
139	10.4	0.0	43.1



10.1.14 10

Manual Integrations APPROVED (compounds with "m" flag)
Doug Yargeau
04/01/13 18:21

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130329\
Data File : U13208.D
Acq On : 29 Mar 2013 2:19 pm
Operator : NatalyaS
Sample : jb31583-14
Misc : op32352,msu674,20.76,,1,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 29 15:27:02 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Fri Mar 29 11:20:02 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.076	152	149666	40.00	ppb	0.00
21) Naphthalene-d8	4.040	136	516451	40.00	ppb	0.00
39) Acenaphthene-d10	5.438	164	331090	40.00	ppb	0.00
61) Phenanthrene-d10	6.655	188	571253	40.00	ppb	-0.01
74) Chrysene-d12	9.381	240	685266	40.00	ppb	-0.02
84) Perylene-d12	10.920	264	646730	40.00	ppb	-0.02
System Monitoring Compounds						
5) 2-Fluorophenol	2.172	112	293848	60.22	ppb	0.00
Spiked Amount 100.000	Range 10 - 110		Recovery = 60.22%			
7) Phenol-d5	2.841	99	346813	59.16	ppb	0.00
Spiked Amount 100.000	Range 10 - 110		Recovery = 59.16%			
22) Nitrobenzene-d5	3.494	82	165143	33.81	ppb	-0.01
Spiked Amount 50.000	Range 30 - 119		Recovery = 67.62%			
44) 2-Fluorobiphenyl	4.915	172	395723	34.01	ppb	0.00
Spiked Amount 50.000	Range 40 - 110		Recovery = 68.02%			
65) 2,4,6-Tribromophenol	6.079	330	135637	81.27	ppb	-0.01
Spiked Amount 100.000	Range 10 - 157		Recovery = 81.27%			
77) Terphenyl-d14	8.259	244	586788	37.74	ppb	-0.01
Spiked Amount 50.000	Range 30 - 124		Recovery = 75.48%			
Target Compounds						Qvalue
3) Pyridine	1.649	79	1429	0.26	ppb	68
6) bis(2-Chloroethyl)ether	2.841	63	1255	0.26	ppb #	1
8) Phenol	3.135	94	1063	1.23	ppb	95
19) m+p-cresols	3.764	108	1771	Below Cal	#	68
20) 4-methylphenol	3.764	108	1771	Below Cal		70
33) 4-Chloroaniline	4.175	127	1478	Below Cal		100
36) 2-Methylnaphthalene	4.610	142	27598m	1.15	ppb	
46) Acenaphthylene	5.327	152	3380	Below Cal	#	4
51) Dibenzofuran	5.603	168	6366	Below Cal		79
69) Phenanthrene	6.672	178	27385	Below Cal		98
70) Anthracene	6.672	178	27385	Below Cal		98
71) Carbazole	7.148	167	2788	Below Cal		45
83) bis(2-Ethylhexyl)phtha...	9.545	149	218484	16.76	ppb	54
85) Di-n-octylphthalate	10.274	149	30113m	1.45	ppb	

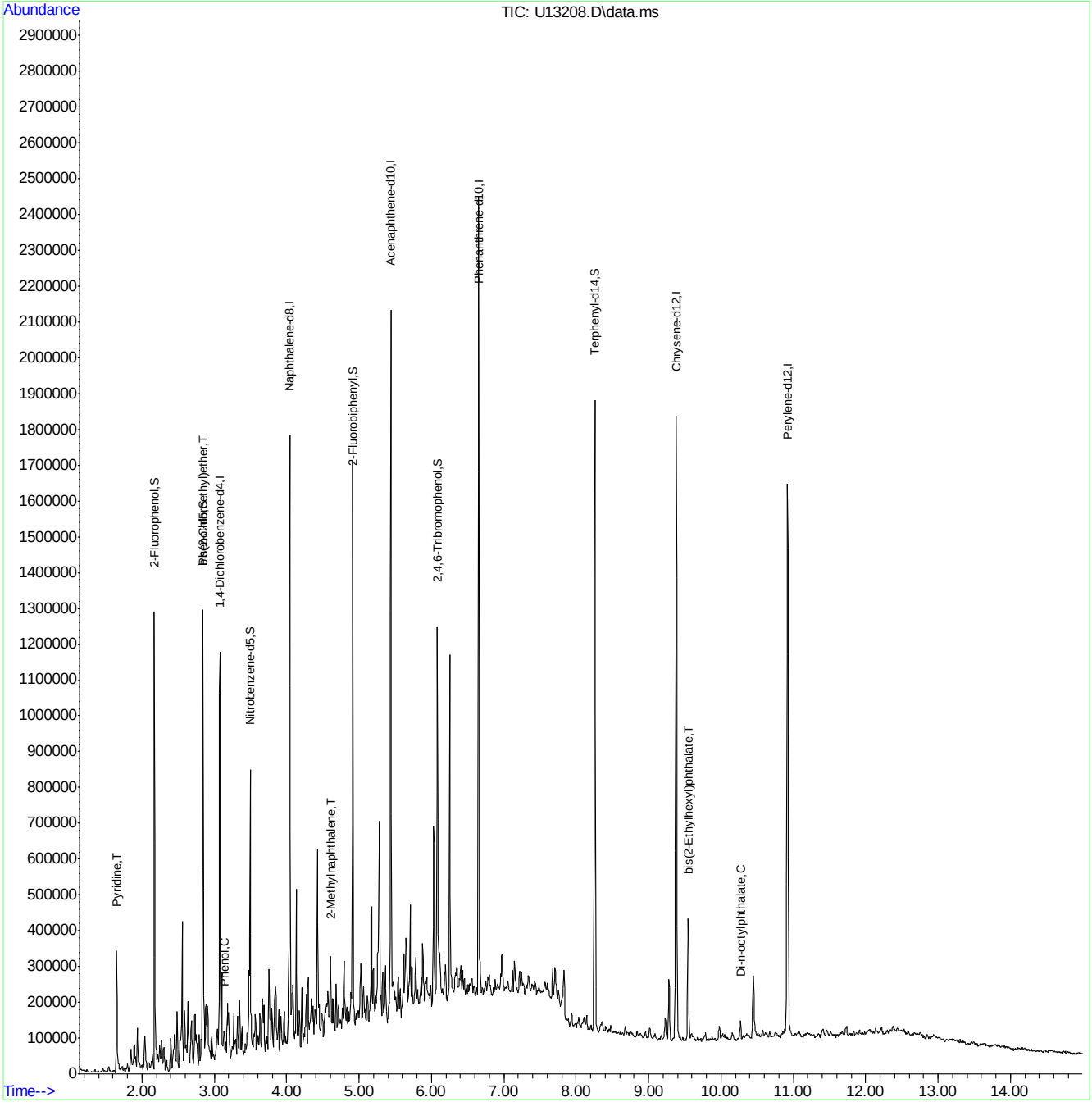
(#) = qualifier out of range (m) = manual integration (+) = signals summed

10.1.15 10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130329\
Data File : U13208.D
Acq On : 29 Mar 2013 2:19 pm
Operator : NatalyaS
Sample : jb31583-14
Misc : op32352,msu674,20.76,,1,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 29 15:27:02 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Fri Mar 29 11:20:02 2013
Response via : Initial Calibration



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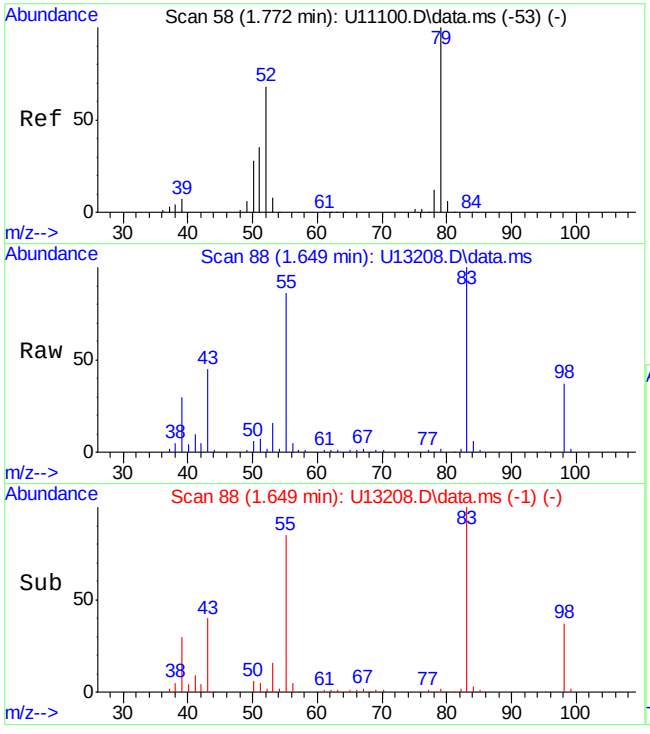
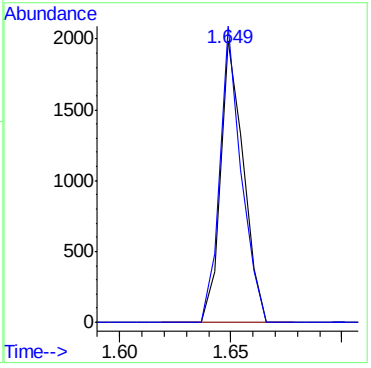
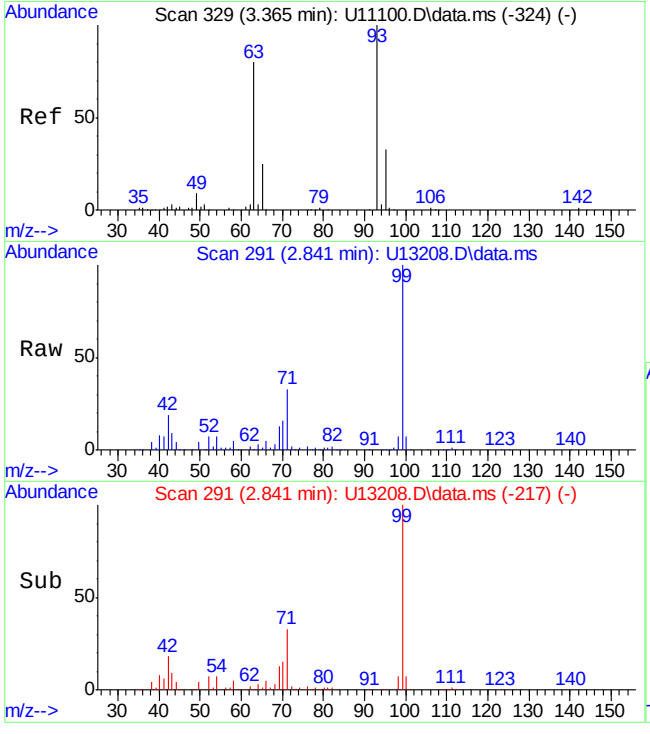


#3
Pyridine
Concen: 0.26 ppb
RT: 1.649 min Scan# 88
Delta R.T. 0.353 min
Lab File: U13208.D
Acq: 29 Mar 2013 2:19 pm

Tgt Ion: 79 Resp: 1429

Ion	Ratio	Lower	Upper
79	100		
52	105.2	47.7	107.7

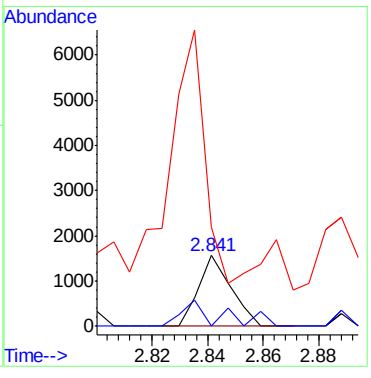


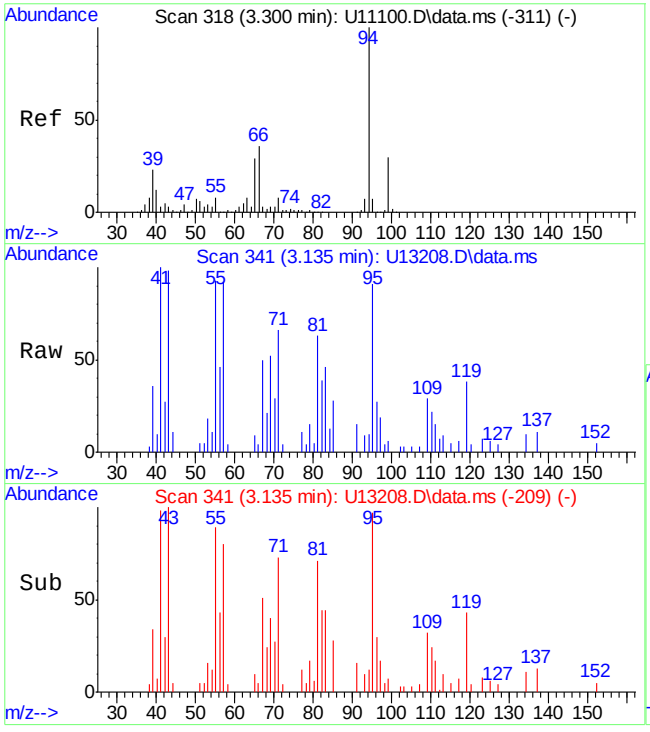


#6
bis(2-Chloroethyl)ether
Concen: 0.26 ppb
RT: 2.841 min Scan# 291
Delta R.T. -0.065 min
Lab File: U13208.D
Acq: 29 Mar 2013 2:19 pm

Tgt Ion: 63 Resp: 1255

Ion	Ratio	Lower	Upper
63	100		
93	0.0	91.8	151.8#
95	88.8	8.9	68.9#

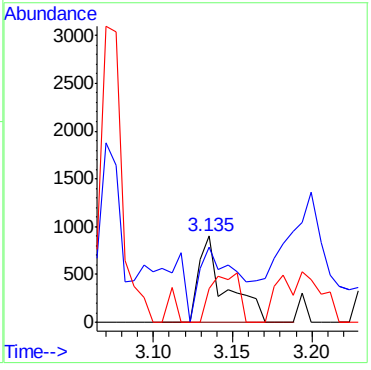


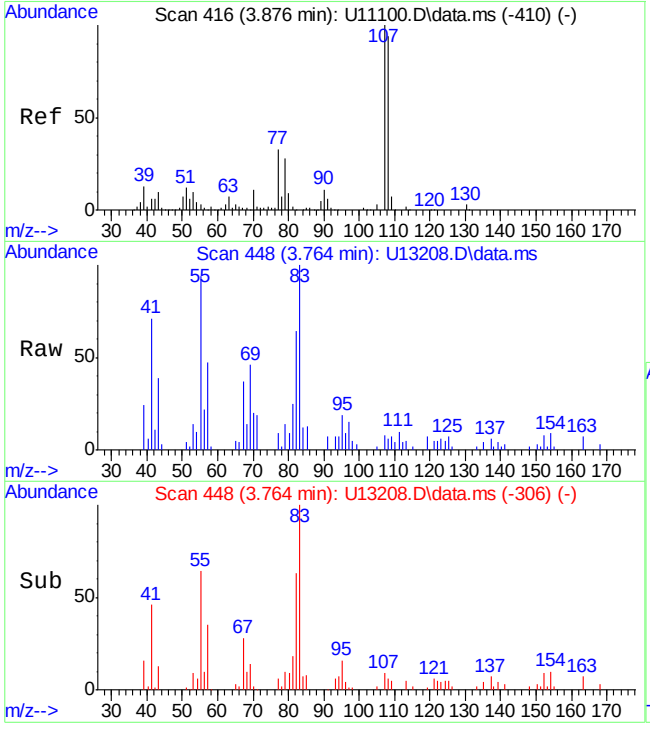


#8
Phenol
Concen: 1.23 ppb
RT: 3.135 min Scan# 341
Delta R.T. 0.276 min
Lab File: U13208.D
Acq: 29 Mar 2013 2:19 pm

Tgt Ion: 94 Resp: 1063

Ion	Ratio	Lower	Upper
94	100		
65	24.8	0.6	60.6
66	39.1	9.4	69.4

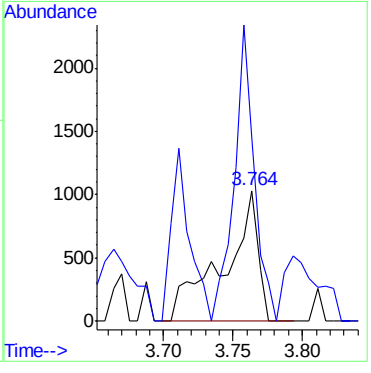




#19
m+p-cresols
Concen: Below Cal
RT: 3.764 min Scan# 448
Delta R.T. 0.335 min
Lab File: U13208.D
Acq: 29 Mar 2013 2:19 pm

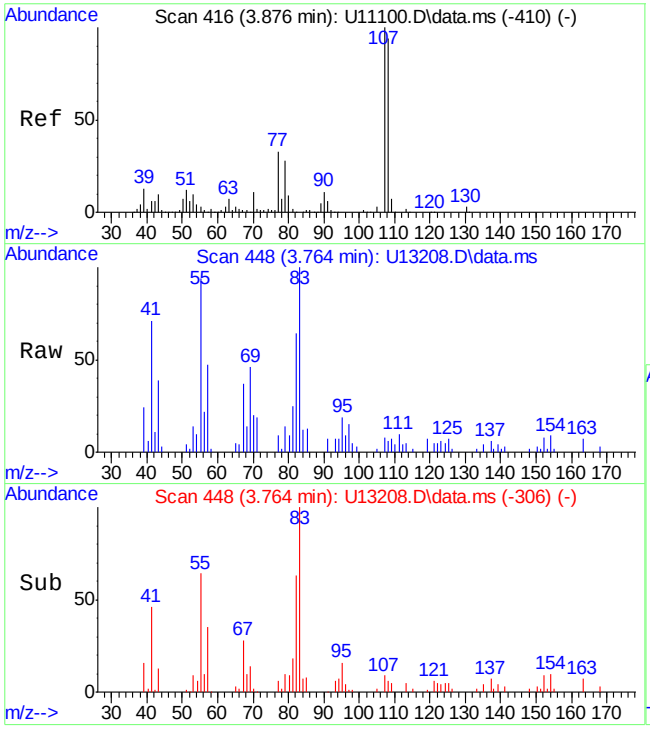
Tgt Ion:108 Resp: 1771

Ion	Ratio	Lower	Upper
108	100		
107	141.4	77.8	137.8#



10.1.15

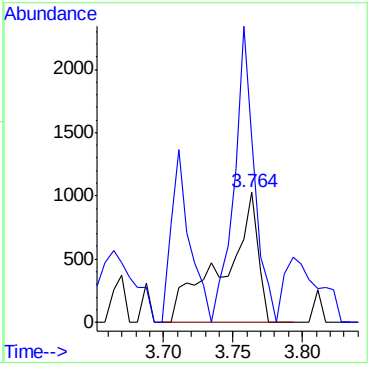
10

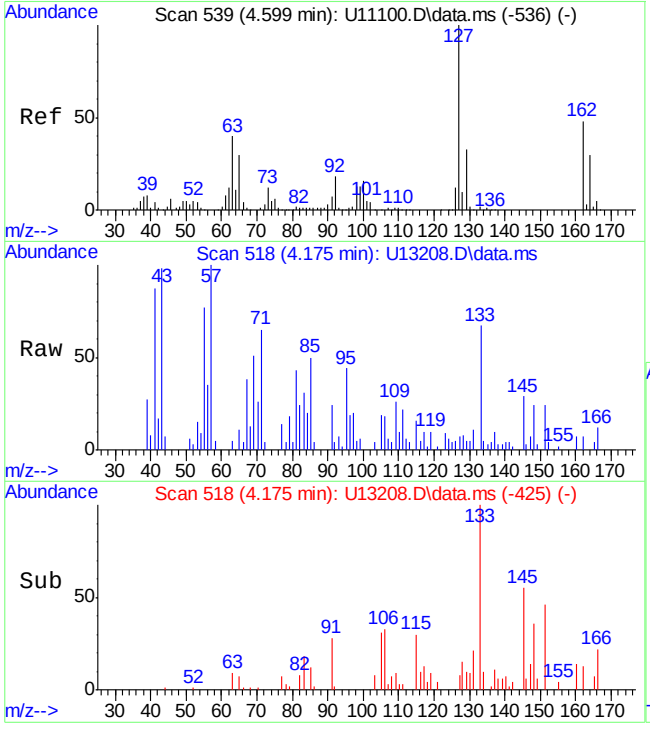


#20
4-methylphenol
Concen: Below Cal
RT: 3.764 min Scan# 448
Delta R.T. 0.335 min
Lab File: U13208.D
Acq: 29 Mar 2013 2:19 pm

Tgt Ion:108 Resp: 1771

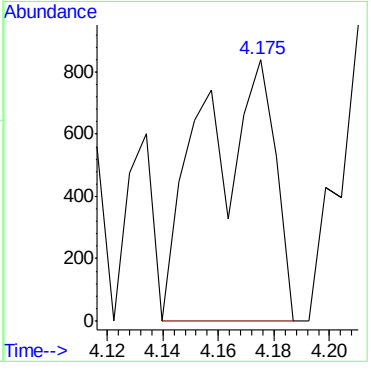
Ion	Ratio	Lower	Upper
108	100		
107	141.4	77.1	143.1



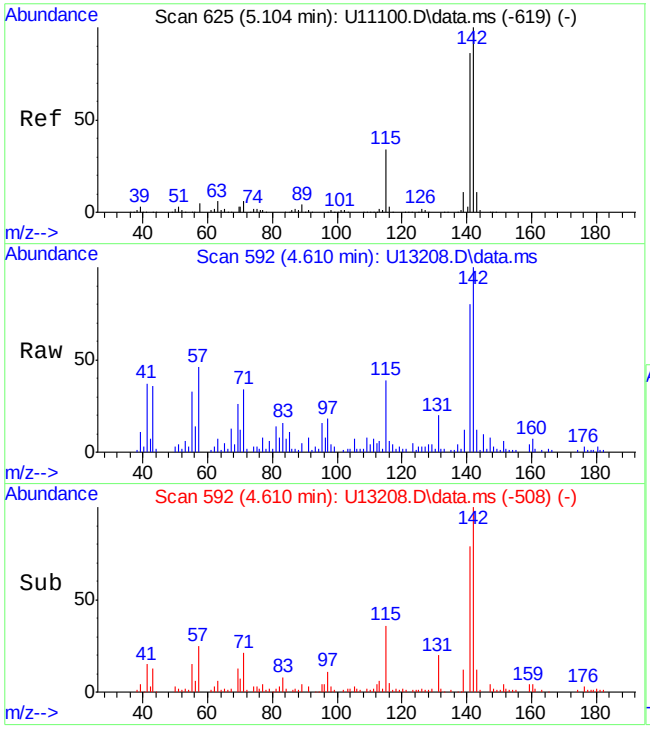


#33
4-Chloroaniline
Concen: Below Cal
RT: 4.175 min Scan# 518
Delta R.T. 0.047 min
Lab File: U13208.D
Acq: 29 Mar 2013 2:19 pm

Tgt Ion:127 Resp: 1478



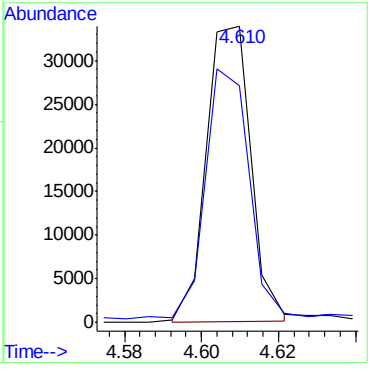
ACCUTEST LABORATORIES JB31583

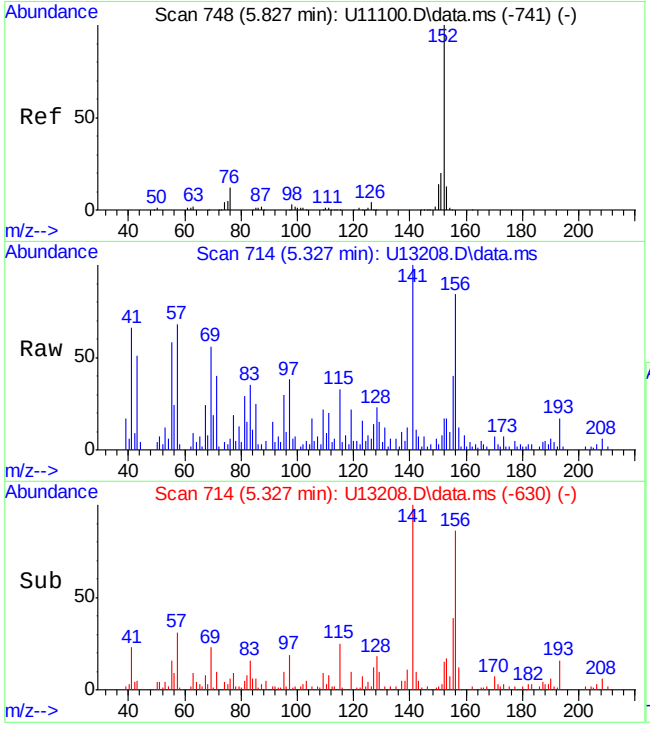


#36
2-Methylnaphthalene
Concen: 1.15 ppb m
RT: 4.610 min Scan# 592
Delta R.T. -0.006 min
Lab File: U13208.D
Acq: 29 Mar 2013 2:19 pm

Tgt Ion:142 Resp: 27598

Ion	Ratio	Lower	Upper
142	100		
141	80.0	56.7	116.7

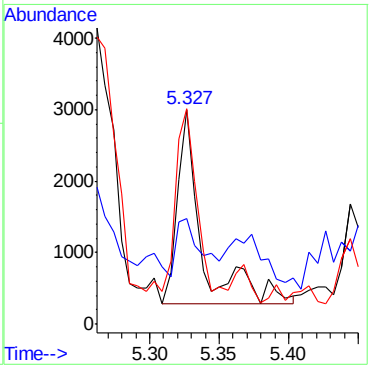


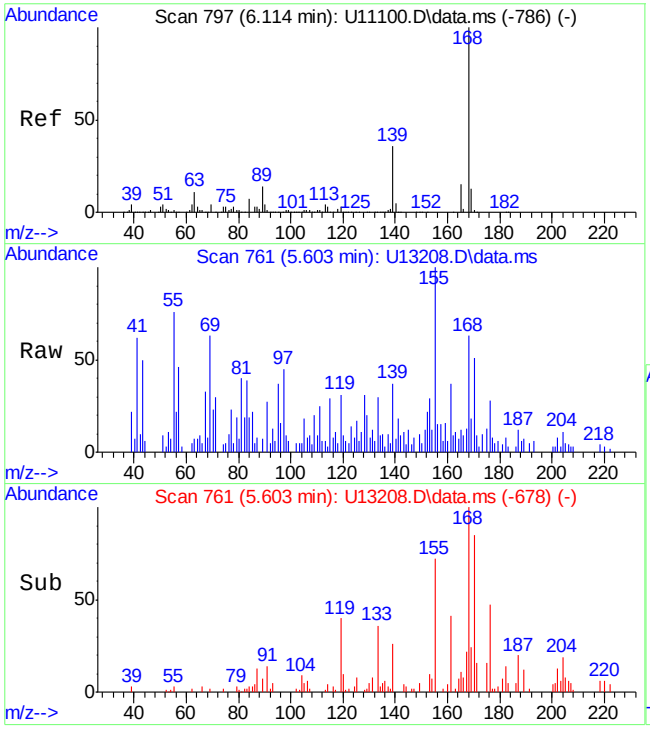


#46
Acenaphthylene
Concen: Below Cal
RT: 5.327 min Scan# 714
Delta R.T. -0.006 min
Lab File: U13208.D
Acq: 29 Mar 2013 2:19 pm

Tgt Ion:152 Resp: 3380

Ion	Ratio	Lower	Upper
152	100		
151	30.7	0.0	49.7
153	94.4	0.0	43.1#

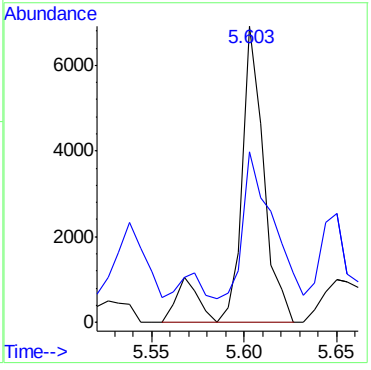


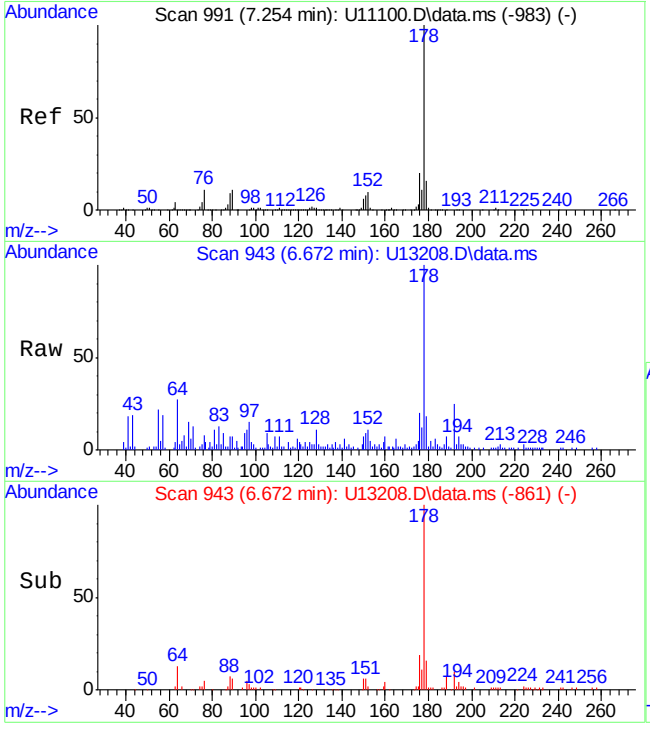


#51
Dibenzofuran
Concen: Below Cal
RT: 5.603 min Scan# 761
Delta R.T. -0.012 min
Lab File: U13208.D
Acq: 29 Mar 2013 2:19 pm

Tgt Ion:168 Resp: 6366

Ion	Ratio	Lower	Upper
168	100		
139	49.2	7.0	67.0

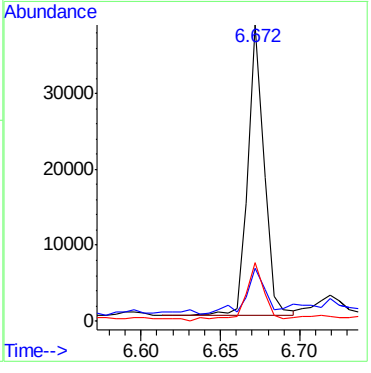


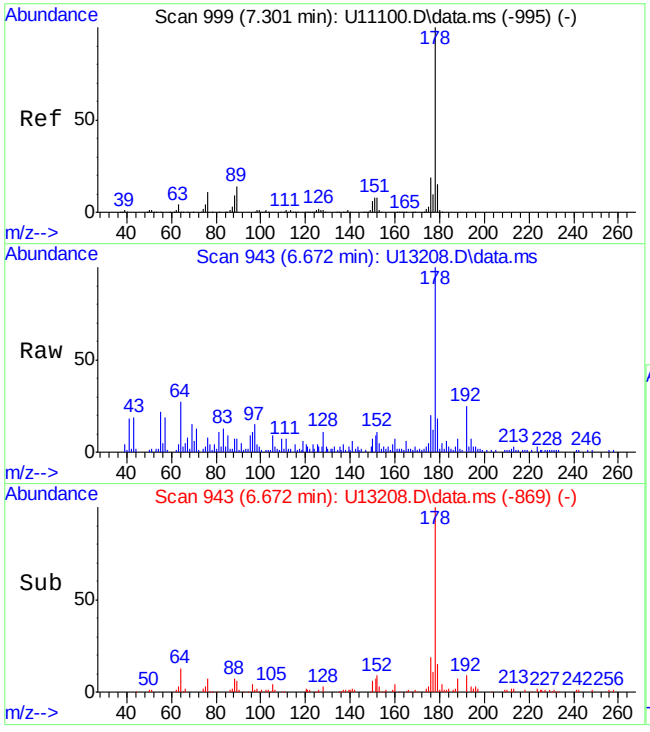


#69
Phenanthrene
Concen: Below Cal
RT: 6.672 min Scan# 943
Delta R.T. -0.018 min
Lab File: U13208.D
Acq: 29 Mar 2013 2:19 pm

Tgt Ion:178 Resp: 27385

Ion	Ratio	Lower	Upper
178	100		
179	14.9	0.0	45.7
176	19.5	0.0	48.8

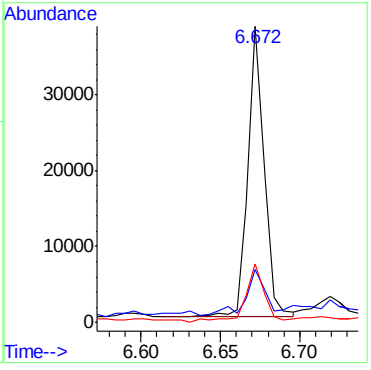


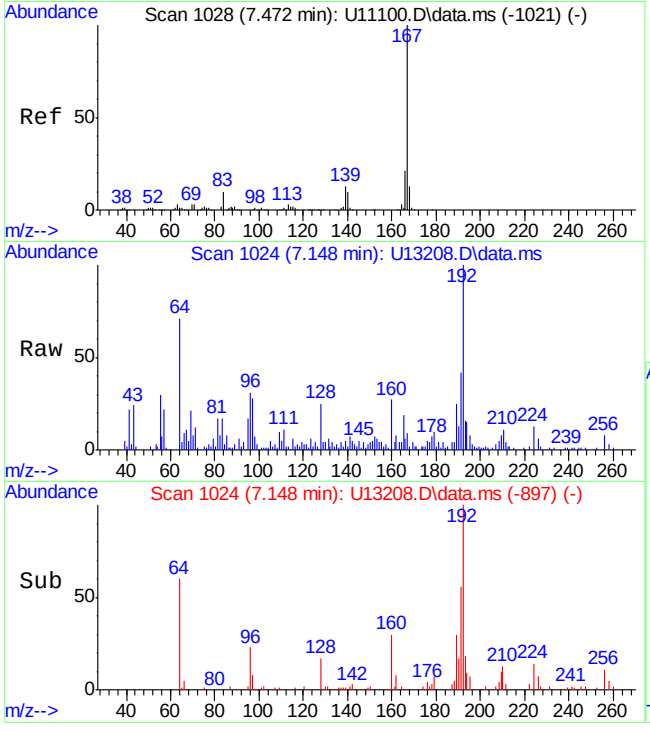


#70
Anthracene
Concen: Below Cal
RT: 6.672 min Scan# 943
Delta R.T. -0.065 min
Lab File: U13208.D
Acq: 29 Mar 2013 2:19 pm

Tgt Ion:178 Resp: 27385

Ion	Ratio	Lower	Upper
178	100		
179	14.9	0.0	45.1
176	19.5	0.0	48.3

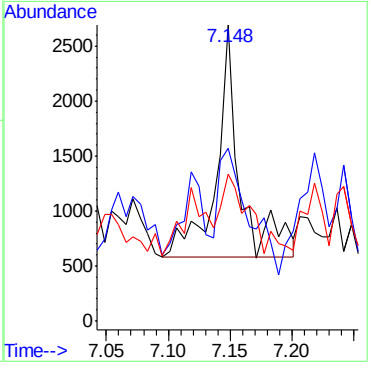




#71
Carbazole
Concen: Below Cal
RT: 7.148 min Scan# 1024
Delta R.T. 0.247 min
Lab File: U13208.D
Acq: 29 Mar 2013 2:19 pm

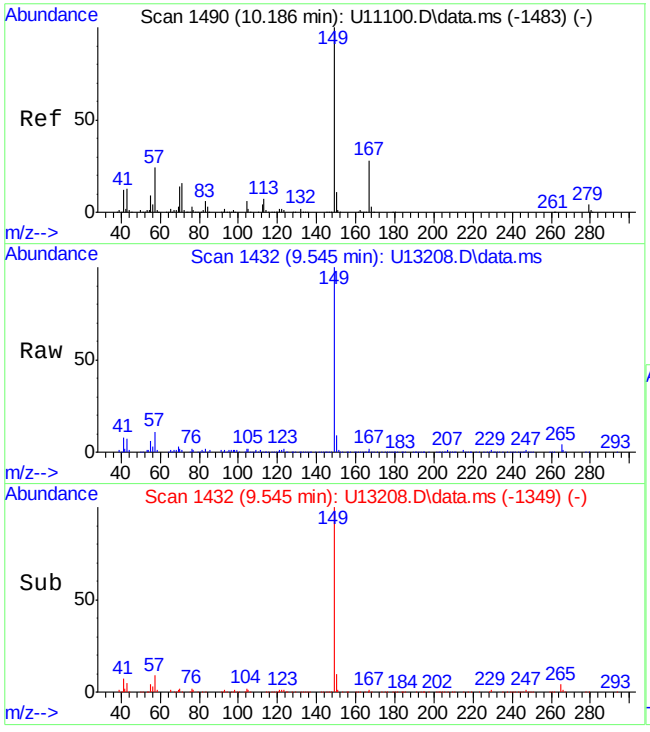
Tgt Ion:167 Resp: 2788

Ion	Ratio	Lower	Upper
167	100		
166	45.8	0.0	50.9
139	35.7	0.0	43.1



10.1.15

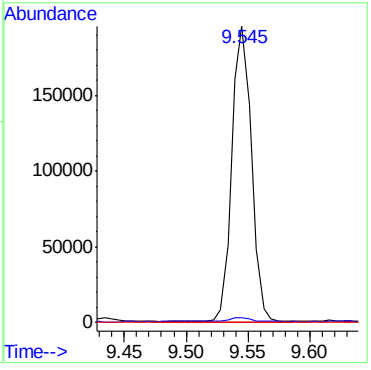
10

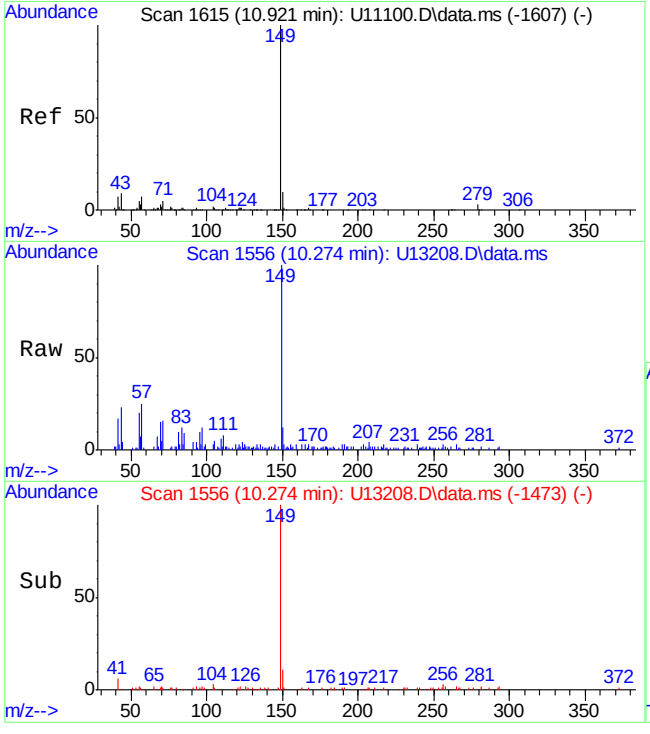


#83
bis(2-Ethylhexyl)phthalate
Concen: 16.76 ppb
RT: 9.545 min Scan# 1432
Delta R.T. -0.012 min
Lab File: U13208.D
Acq: 29 Mar 2013 2:19 pm

Tgt Ion:149 Resp: 218484

Ion	Ratio	Lower	Upper
149	100		
167	1.3	0.0	58.5
279	0.1	0.0	35.5

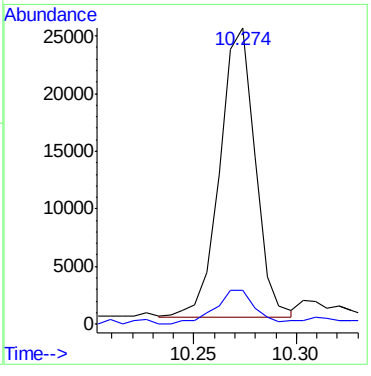




#85
Di-n-octylphthalate
Concen: 1.45 ppb m
RT: 10.274 min Scan# 1556
Delta R.T. -0.012 min
Lab File: U13208.D
Acq: 29 Mar 2013 2:19 pm

Tgt Ion:149 Resp: 30113

Ion	Ratio	Lower	Upper
149	100		
150	11.6	0.0	39.7



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130329\
Data File : U13210.D
Acq On : 29 Mar 2013 4:16 pm
Operator : NatalyaS
Sample : jb31583-15
Misc : op32352,msu674,20.48,,,1,1
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Apr 01 10:43:39 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Fri Mar 29 11:20:02 2013
Response via : Initial Calibration

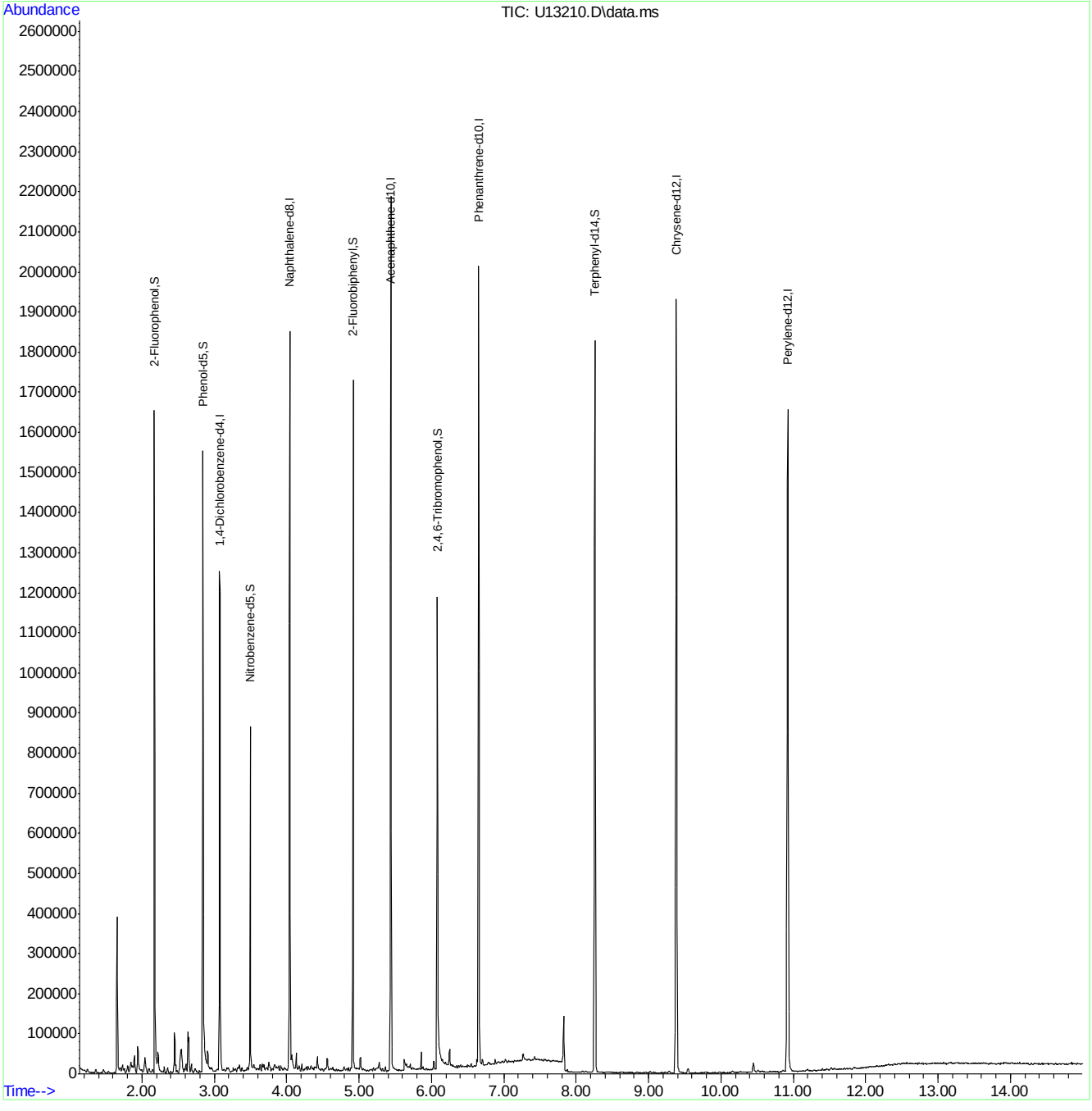
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1,4-Dichlorobenzene-d4	3.076	152	169950	40.00 ppb	0.00
21) Naphthalene-d8	4.040	136	618015	40.00 ppb	0.00
39) Acenaphthene-d10	5.438	164	375606	40.00 ppb	0.00
61) Phenanthrene-d10	6.654	188	648857	40.00 ppb	-0.01
74) Chrysene-d12	9.381	240	748119	40.00 ppb	-0.02
84) Perylene-d12	10.926	264	686890	40.00 ppb	-0.02
System Monitoring Compounds					
5) 2-Fluorophenol	2.171	112	363644	65.63 ppb	0.00
Spiked Amount 100.000	Range 10 - 110		Recovery = 65.63%		
7) Phenol-d5	2.841	99	424043	63.71 ppb	0.00
Spiked Amount 100.000	Range 10 - 110		Recovery = 63.71%		
22) Nitrobenzene-d5	3.493	82	199331	34.11 ppb	-0.01
Spiked Amount 50.000	Range 30 - 119		Recovery = 68.22%		
44) 2-Fluorobiphenyl	4.915	172	478680	36.27 ppb	0.00
Spiked Amount 50.000	Range 40 - 110		Recovery = 72.54%		
65) 2,4,6-Tribromophenol	6.079	330	147658	77.90 ppb	-0.01
Spiked Amount 100.000	Range 10 - 157		Recovery = 77.90%		
77) Terphenyl-d14	8.259	244	619952	36.52 ppb	-0.01
Spiked Amount 50.000	Range 30 - 124		Recovery = 73.04%		
Target Compounds					Qvalue
31) Naphthalene	4.052	128	1640	Below Cal	68
46) Acenaphthylene	4.915	152	23722	Below Cal #	1
55) Fluorene	6.079	166	7683	Below Cal	89
63) n-Nitrosodiphenylamine	6.079	169	5692	Below Cal #	42
69) Phenanthrene	6.672	178	1324	Below Cal	91
70) Anthracene	6.672	178	1324	Below Cal	89

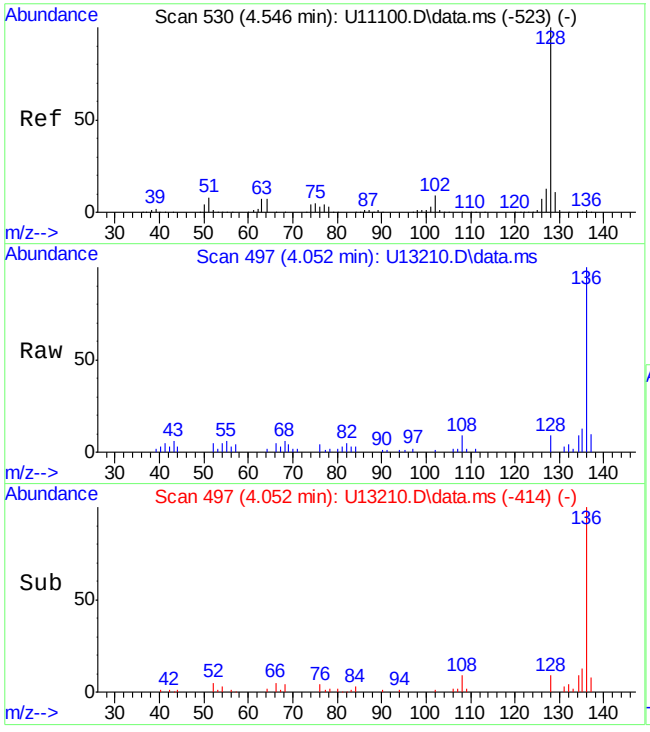
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130329\
Data File : U13210.D
Acq On : 29 Mar 2013 4:16 pm
Operator : NatalyaS
Sample : jb31583-15
Misc : op32352,msu674,20.48,,,1,1
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Apr 01 10:43:39 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Fri Mar 29 11:20:02 2013
Response via : Initial Calibration

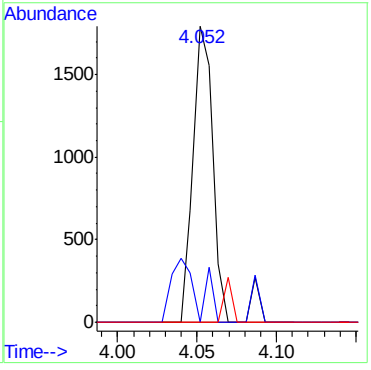


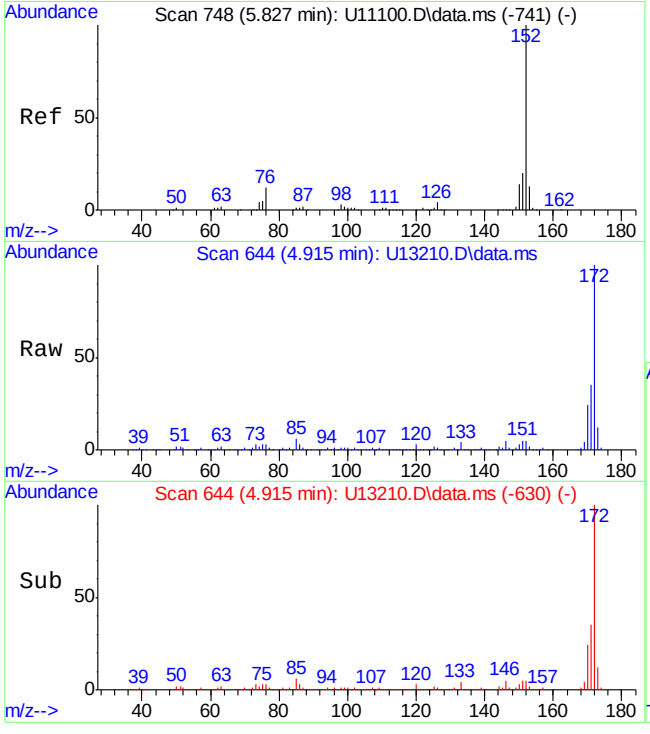


#31
Naphthalene
Concen: Below Cal
RT: 4.052 min Scan# 497
Delta R.T. -0.012 min
Lab File: U13210.D
Acq: 29 Mar 2013 4:16 pm

Tgt Ion:128 Resp: 1640

Ion	Ratio	Lower	Upper
128	100		
129	0.0	0.0	41.2
127	0.0	0.0	43.6

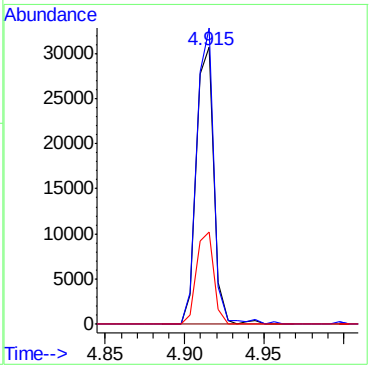


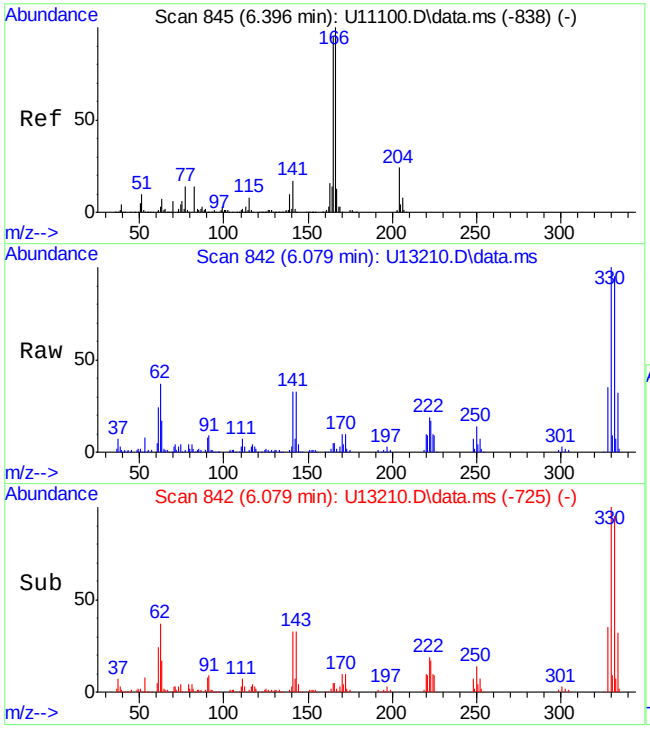


#46
Acenaphthylene
Concen: Below Cal
RT: 4.915 min Scan# 644
Delta R.T. -0.417 min
Lab File: U13210.D
Acq: 29 Mar 2013 4:16 pm

Tgt Ion:152 Resp: 23722

Ion	Ratio	Lower	Upper
152	100		
151	106.7	0.0	49.7#
153	33.0	0.0	43.1

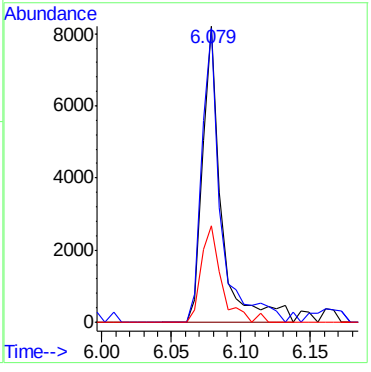


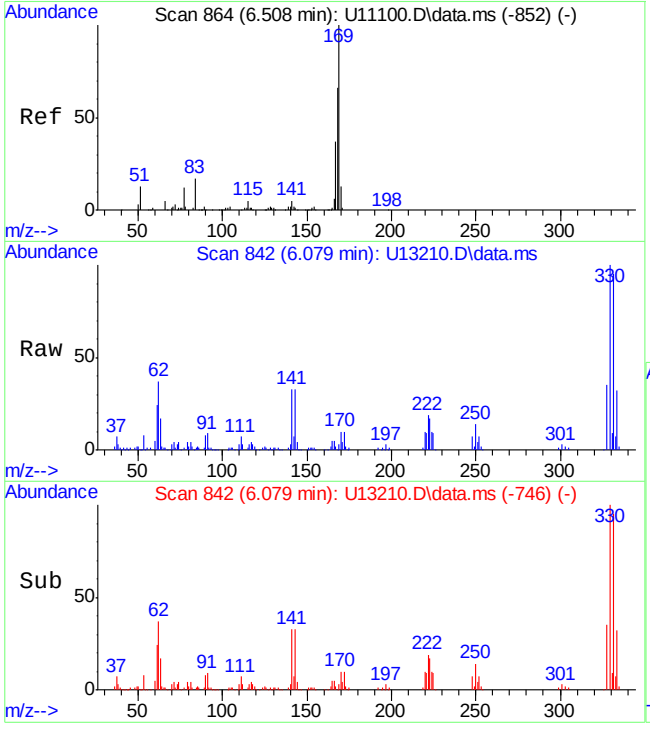


#55
Fluorene
Concen: Below Cal
RT: 6.079 min Scan# 842
Delta R.T. 0.188 min
Lab File: U13210.D
Acq: 29 Mar 2013 4:16 pm

Tgt Ion:166 Resp: 7683

Ion	Ratio	Lower	Upper
166	100		
165	99.1	63.2	123.2
167	32.7	0.0	43.3

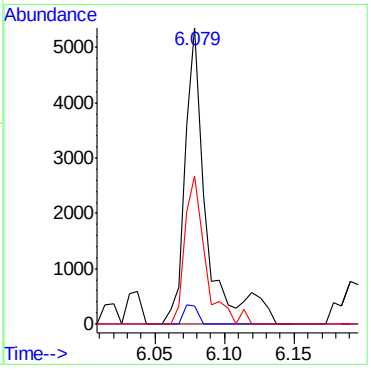


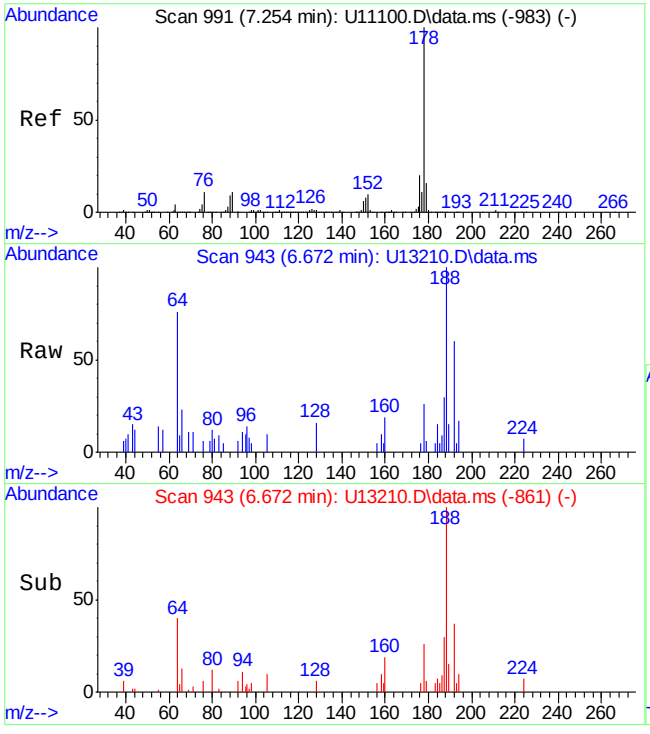


#63
n-Nitrosodiphenylamine
Concen: Below Cal
RT: 6.079 min Scan# 842
Delta R.T. 0.065 min
Lab File: U13210.D
Acq: 29 Mar 2013 4:16 pm

Tgt Ion:169 Resp: 5692

Ion	Ratio	Lower	Upper
169	100		
168	6.2	33.9	93.9#
167	50.1	4.0	64.0

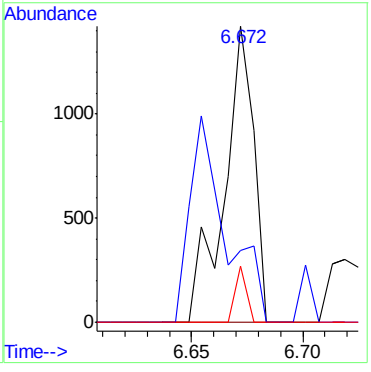


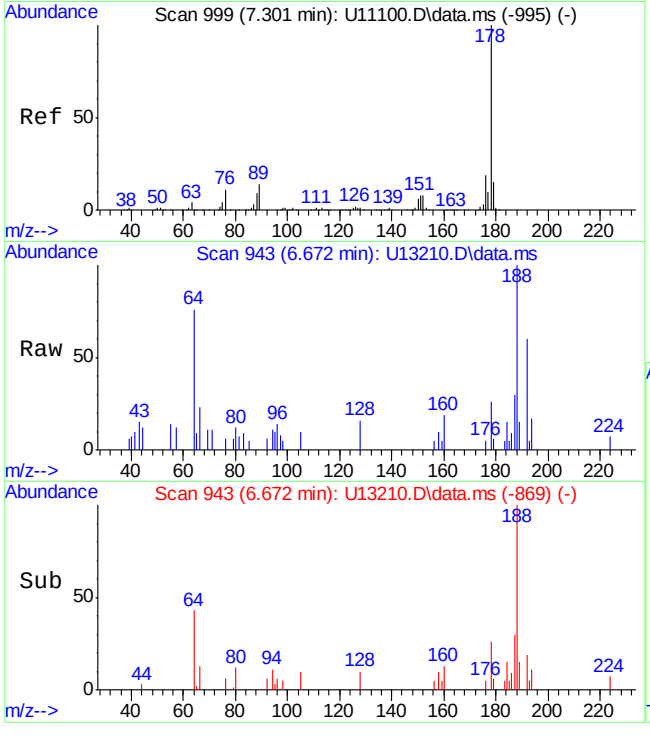


#69
Phenanthrene
Concen: Below Cal
RT: 6.672 min Scan# 943
Delta R.T. -0.018 min
Lab File: U13210.D
Acq: 29 Mar 2013 4:16 pm

Tgt Ion:178 Resp: 1324

Ion	Ratio	Lower	Upper
178	100		
179	24.2	0.0	45.7
176	18.9	0.0	48.8

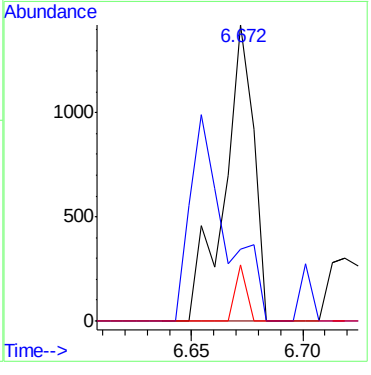




#70
Anthracene
Concen: Below Cal
RT: 6.672 min Scan# 943
Delta R.T. -0.065 min
Lab File: U13210.D
Acq: 29 Mar 2013 4:16 pm

Tgt Ion:178 Resp: 1324

Ion	Ratio	Lower	Upper
178	100		
179	24.2	0.0	45.1
176	18.9	0.0	48.3



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130327\
Data File : U13123.D
Acq On : 27 Mar 2013 1:14 pm
Operator : NatalyaS
Sample : op32352-mb
Misc : op32352,msu672,20.69,,,1,1
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 28 10:46:28 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Mar 28 10:38:36 2013
Response via : Initial Calibration

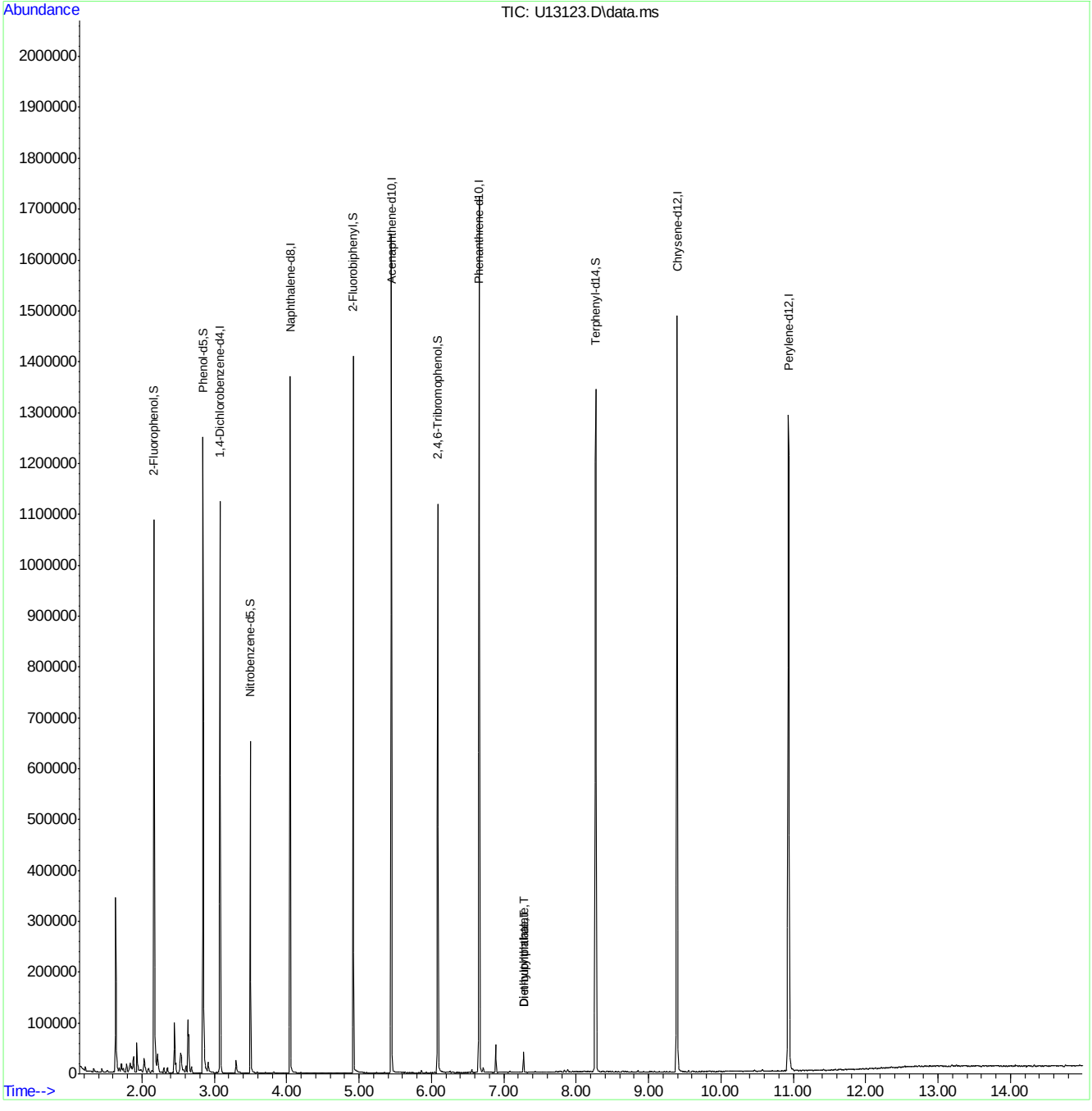
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.076	152	130067	40.00	ppb	0.00
21) Naphthalene-d8	4.046	136	471638	40.00	ppb	0.00
39) Acenaphthene-d10	5.444	164	293045	40.00	ppb	0.00
61) Phenanthrene-d10	6.661	188	511764	40.00	ppb	0.00
74) Chrysene-d12	9.393	240	573452	40.00	ppb	0.00
84) Perylene-d12	10.932	264	530185	40.00	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	2.166	112	268566	63.33	ppb	0.00
Spiked Amount 100.000	Range 10 - 110		Recovery = 63.33%			
7) Phenol-d5	2.841	99	318710	62.56	ppb	0.00
Spiked Amount 100.000	Range 10 - 110		Recovery = 62.56%			
22) Nitrobenzene-d5	3.499	82	148298	33.25	ppb	0.00
Spiked Amount 50.000	Range 30 - 119		Recovery = 66.50%			
44) 2-Fluorobiphenyl	4.921	172	345603	33.56	ppb	0.00
Spiked Amount 50.000	Range 40 - 110		Recovery = 67.12%			
65) 2,4,6-Tribromophenol	6.085	330	104065	69.60	ppb	0.00
Spiked Amount 100.000	Range 10 - 157		Recovery = 69.60%			
77) Terphenyl-d14	8.270	244	494989	38.04	ppb	0.00
Spiked Amount 50.000	Range 30 - 124		Recovery = 76.08%			
Target Compounds						Qvalue
46) Acenaphthylene	4.921	152	17888	Below Cal	#	1
55) Fluorene	6.085	166	6091	Below Cal		87
57) Diethylphthalate	7.272	149	19569	1.15	ppb	67
63) n-Nitrosodiphenylamine	6.085	169	3037	Below Cal	#	30
72) Di-n-butylphthalate	7.272	149	19573	1.29	ppb	97

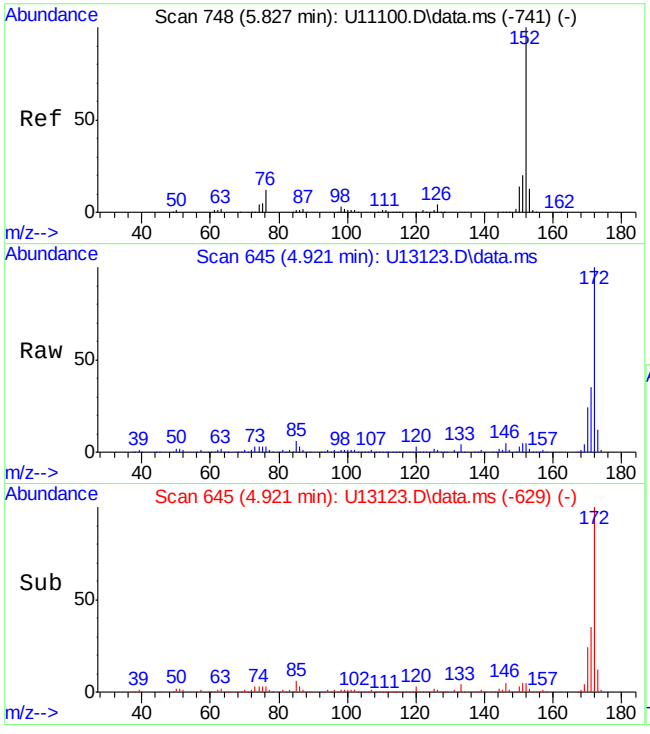
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U130327\
Data File : U13123.D
Acq On : 27 Mar 2013 1:14 pm
Operator : NatalyaS
Sample : op32352-mb
Misc : op32352,msu672,20.69,,,1,1
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 28 10:46:28 2013
Quant Method : C:\msdchem\1\METHODS\U130129_8270.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Mar 28 10:38:36 2013
Response via : Initial Calibration

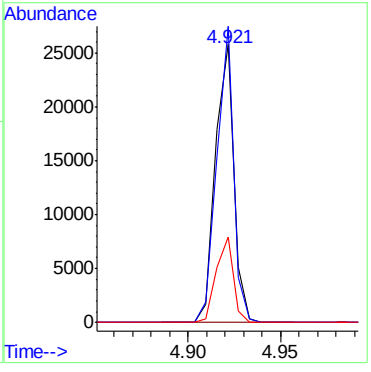


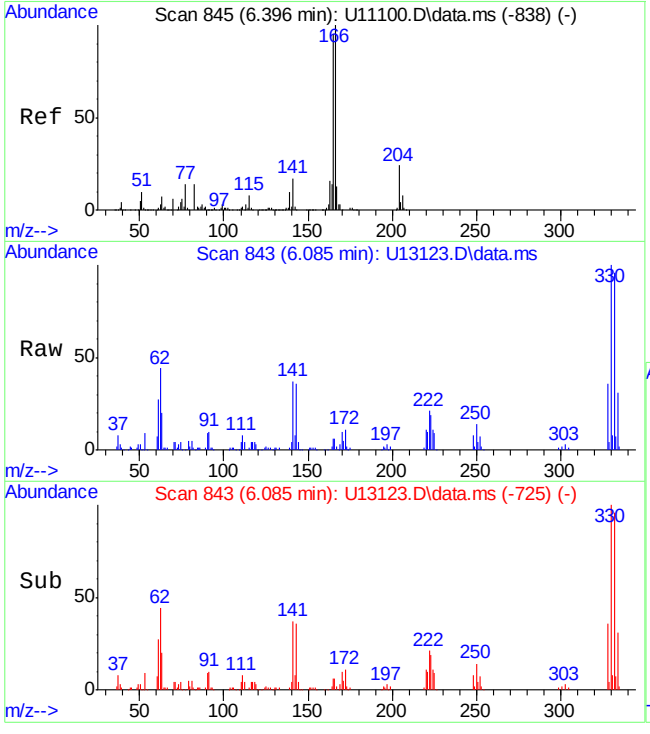


#46
Acenaphthylene
Concen: Below Cal
RT: 4.921 min Scan# 645
Delta R.T. -0.405 min
Lab File: U13123.D
Acq: 27 Mar 2013 1:14 pm

Tgt Ion:152 Resp: 17888

Ion	Ratio	Lower	Upper
152	100		
151	106.5	0.0	49.7#
153	30.7	0.0	43.1

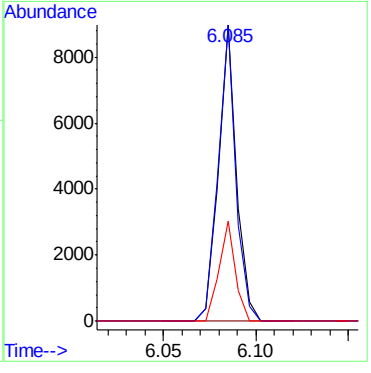




#55
Fluorene
Concen: Below Cal
RT: 6.085 min Scan# 843
Delta R.T. 0.194 min
Lab File: U13123.D
Acq: 27 Mar 2013 1:14 pm

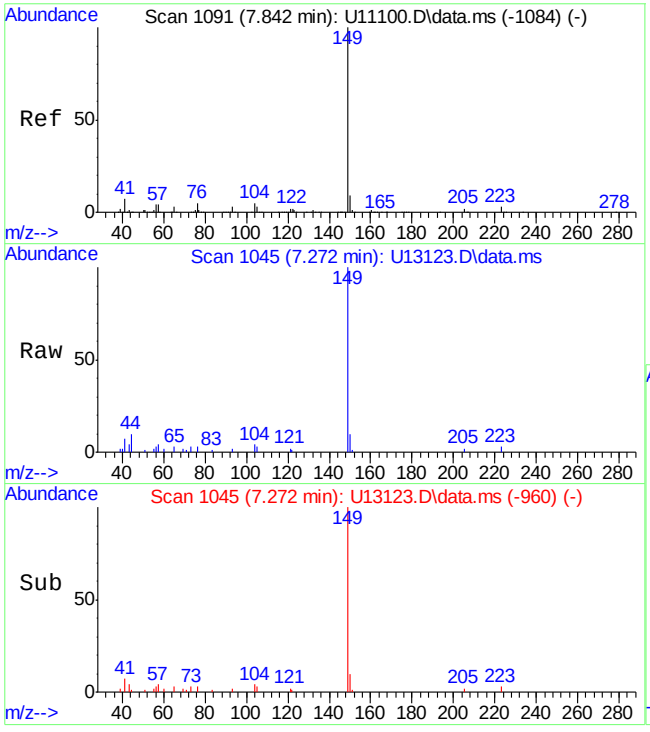
Tgt Ion:166 Resp: 6091

Ion	Ratio	Lower	Upper
166	100		
165	100.1	63.2	123.2
167	33.7	0.0	43.3



10.2.1

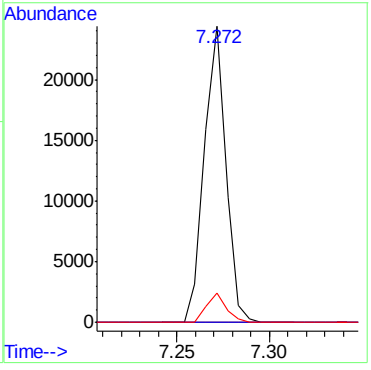
10

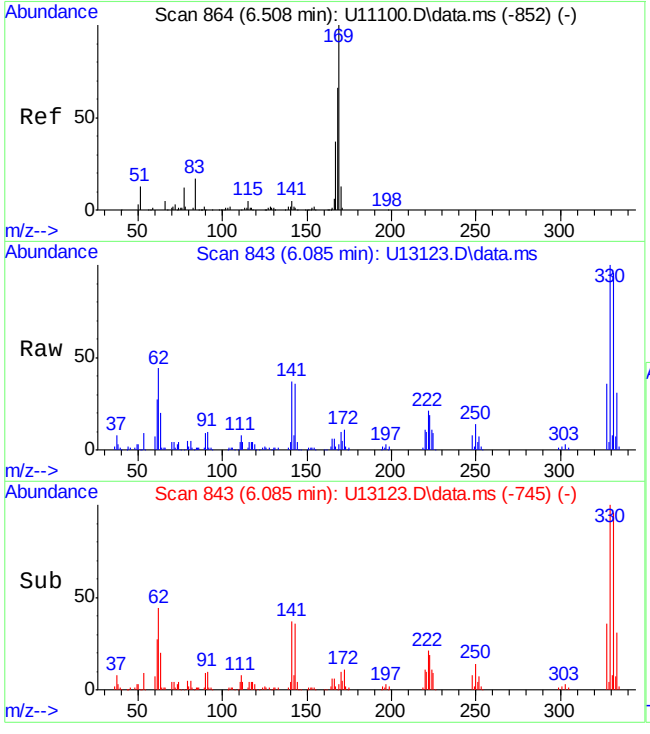


#57
Diethylphthalate
Concen: 1.15 ppb
RT: 7.272 min Scan# 1045
Delta R.T. 0.000 min
Lab File: U13123.D
Acq: 27 Mar 2013 1:14 pm

Tgt Ion:149 Resp: 19569

Ion	Ratio	Lower	Upper
149	100		
177	0.0	0.0	52.6
150	9.9	0.0	42.2

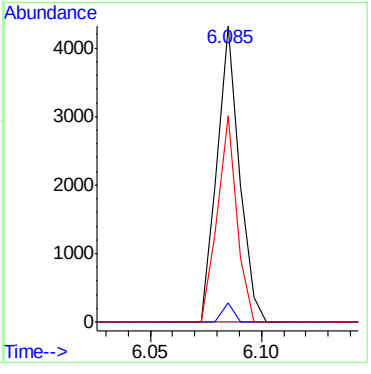




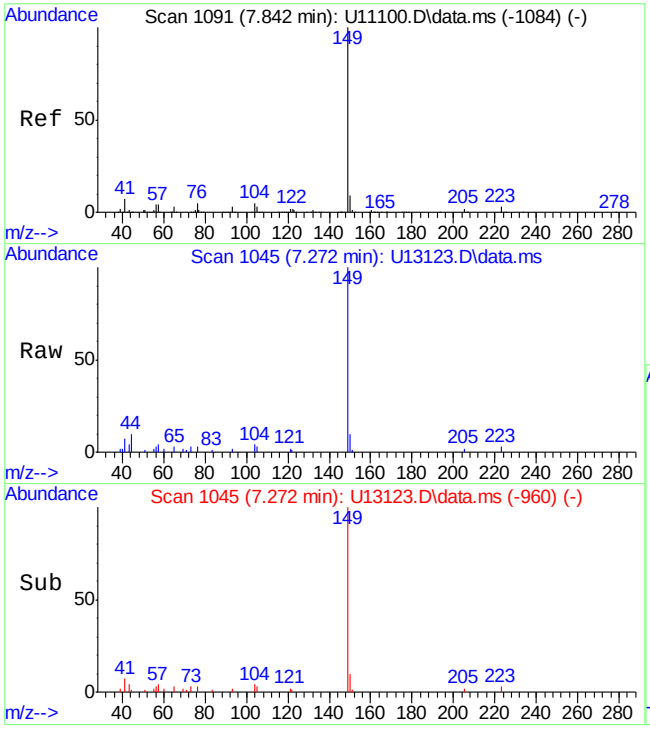
#63
n-Nitrosodiphenylamine
Concen: Below Cal
RT: 6.085 min Scan# 843
Delta R.T. 0.076 min
Lab File: U13123.D
Acq: 27 Mar 2013 1:14 pm

Tgt Ion:169 Resp: 3037

Ion	Ratio	Lower	Upper
169	100		
168	6.4	33.9	93.9#
167	69.8	4.0	64.0#



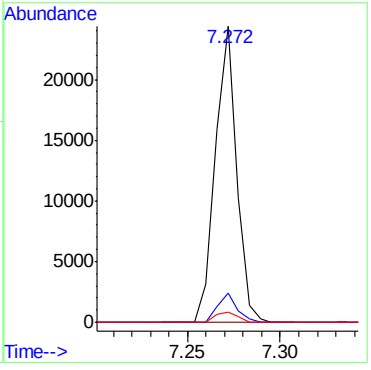
10.2.1
10



#72
Di-n-butylphthalate
Concen: 1.29 ppb
RT: 7.272 min Scan# 1045
Delta R.T. 0.000 min
Lab File: U13123.D
Acq: 27 Mar 2013 1:14 pm

Tgt Ion:149 Resp: 19573

Ion	Ratio	Lower	Upper
149	100		
150	9.9	0.0	39.2
104	3.6	0.0	35.2



10.2.1

10

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: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032513M1.ICP Date Analyzed: 03/25/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15382
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
10:44	MA15382-STD1	1		STD1
10:49	MA15382-STD2	1		STD2
10:54	MA15382-STD3	1		STD3
10:59	MA15382-STD4	1		STD4
11:03	MA15382-ICV1	1		
11:11	MA15382-ICB1	1		
11:16	ZZZZZZ	1		DNR: HIGH RSD, SEE RERUN FOR CCV.
11:21	MA15382-CCV1	1		
11:33	MA15382-CCB1	1		
11:39	MA15382-CRIA1	1		
11:44	MA15382-ICSA1	1		
11:49	MA15382-ICSAB1	1		
11:54	MP20655-B1	1		
11:59	MP20655-MB1	1		
12:04	MP20655-S1	1		
12:09	MP20655-S2	1		
12:13	MC19157-7	1		(sample used for QC only; not part of login JB31583)
12:18	MP20655-SD1	5		
12:23	MP20655-LC1	1		
12:28	MA15382-CCV2	1		
12:33	MA15382-CCB2	1		
12:37	ZZZZZZ	1		
12:42	ZZZZZZ	1		
12:47	ZZZZZZ	1		
12:52	ZZZZZZ	1		
12:57	ZZZZZZ	1		
13:01	ZZZZZZ	1		
13:06	ZZZZZZ	1		
13:11	ZZZZZZ	1		
13:16	ZZZZZZ	1		DNR: HIGH RSD, SEE RERUN.
13:21	ZZZZZZ	1		
13:25	MA15382-CCV3	1		
13:30	MA15382-CCB3	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032513M1.ICP Date Analyzed: 03/25/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15382
Parameters: Pb

	Time	Sample Description	Dilution Factor	PS Recov	Comments
	13:35	ZZZZZZ	1		
	13:40	ZZZZZZ	1		
	13:45	ZZZZZZ	1		
	13:50	ZZZZZZ	1		
	13:55	ZZZZZZ	1		
	14:00	ZZZZZZ	1		
	14:04	ZZZZZZ	1		
	14:09	ZZZZZZ	1		
	14:14	ZZZZZZ	1		
	14:19	MP20655-PS1	1		
	14:24	MA15382-CCV4	1		
	14:29	MA15382-CCB4	1		
	14:34	MP20655-S1	5		
	14:39	MP20654-B1	1		
	14:43	MP20654-MB1	1		
	14:48	MP20654-S1	1		
	14:53	MP20654-S2	1		
	14:58	MC19031-19	1		(sample used for QC only; not part of login JB31583)
	15:03	MP20654-SD1	5		
	15:07	MP20654-B2	1		
	15:12	MP20654-LC1	1		
	15:17	JB31583-11	1		
	15:22	MA15382-CCV5	1		
	15:27	MA15382-CCB5	1		
	15:31	JB31583-12	1		
	15:36	JB31583-13	1		
	15:41	JB31583-14	1		
	15:46	JB31583-15	1		
---------->	Last reportable sample/prep for job JB31583				
	15:51	ZZZZZZ	1		
	15:56	ZZZZZZ	1		
	16:01	ZZZZZZ	1		
	16:06	ZZZZZZ	1		
	16:11	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032513M1.ICP Date Analyzed: 03/25/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15382
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
16:15	ZZZZZZ	1		
16:20	MA15382-CCV6	1		
16:25	MA15382-CCB6	1		
16:30	ZZZZZZ	1		
16:35	ZZZZZZ	1		
16:40	ZZZZZZ	1		
16:45	ZZZZZZ	1		
16:50	ZZZZZZ	1		
16:55	ZZZZZZ	1		
17:00	ZZZZZZ	1		
17:05	ZZZZZZ	1		
17:10	ZZZZZZ	1		
17:14	ZZZZZZ	2		
17:19	MA15382-CCV7	1		
17:24	MA15382-CCB7	1		
17:29	MA15382-CRIA2	1		
17:34	MA15382-ICSA2	1		
17:39	MA15382-ICSAB2	1		
17:44	MA15382-CCV8	1		
17:48	MA15382-CCB8	1		
---------->	Last reportable CCB for job JB31583			
17:53	MP20663-B1	1		
17:58	MP20663-MB1	1		
18:03	MP20663-S1	1		
18:08	MP20663-S2	1		
18:12	JB31881-13	1		(sample used for QC only; not part of login JB31583)
18:17	MP20663-SD1	5		
18:22	MP20663-LC1	1		
18:27	ZZZZZZ	1		
18:32	ZZZZZZ	1		
18:37	ZZZZZZ	1		
18:41	MA15382-CCV9	1		
18:46	MA15382-CCB9	1		
18:51	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032513M1.ICP Date Analyzed: 03/25/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15382
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
18:56	ZZZZZZ	1		
19:01	ZZZZZZ	1		
19:05	ZZZZZZ	1		
19:10	ZZZZZZ	1		
19:15	ZZZZZZ	1		
19:20	ZZZZZZ	1		
19:25	ZZZZZZ	1		
19:30	ZZZZZZ	1		
19:34	ZZZZZZ	1		
19:39	MA15382-CCV10	1		
19:44	MA15382-CCB10	1		
19:49	ZZZZZZ	1		
19:54	ZZZZZZ	1		
19:58	ZZZZZZ	1		
20:03	ZZZZZZ	1		
20:08	ZZZZZZ	1		
20:13	ZZZZZZ	1		
20:18	ZZZZZZ	1		
20:23	MA15382-CRIA3	1		
20:27	MA15382-ICSA3	1		
20:32	MA15382-ICSAB3	1		
20:37	MA15382-CCV11	1		
20:42	MA15382-CCB11	1		

Refer to raw data for calibration curve and standards.

INTERNAL STANDARD SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032513M1.ICP Date Analyzed: 03/25/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15382
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
10:44	MA15382-STD1	4805 R	103680 R	13582 R
10:49	MA15382-STD2	4770	102970	13519
10:54	MA15382-STD3			13514
10:59	MA15382-STD4	4822	105050	13454
11:03	MA15382-ICV1	4790	103000	13474
11:11	MA15382-ICB1	4838	102590	13267
11:16	ZZZZZZ	4803	104710	13326
11:21	MA15382-CCV1	4837	103770	13543
11:33	MA15382-CCB1	4798	103510	13639
11:39	MA15382-CRIA1	4823	103050	13394
11:44	MA15382-ICSA1	4413	90215	13062
11:49	MA15382-ICSAB1	4435	94842	12980
11:54	MP20655-B1	4771	102680	13088
11:59	MP20655-MB1	4853	103720	13354
12:04	MP20655-S1	4954	106870	14087
12:09	MP20655-S2	4894	105860	14022
12:13	MC19157-7	5006	108000	14170
12:18	MP20655-SD1	4911	104190	12608
12:23	MP20655-LC1	5282	111560	14371
12:28	MA15382-CCV2	4811	101350	13226
12:33	MA15382-CCB2	4830	102630	13030
12:37	ZZZZZZ	5172	107800	14248
12:42	ZZZZZZ	5139	107430	13680
12:47	ZZZZZZ	5262	111040	14109
12:52	ZZZZZZ	5241	109550	14163
12:57	ZZZZZZ	5248	109760	14203
13:01	ZZZZZZ	5140	106410	14008
13:06	ZZZZZZ	5233	109170	14219
13:11	ZZZZZZ	5243	109270	14299
13:16	ZZZZZZ	5066	106790	14056
13:21	ZZZZZZ	5652	118780	15421
13:25	MA15382-CCV3	4835	102360	13160
13:30	MA15382-CCB3	4831	100950	13074

INTERNAL STANDARD SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032513M1.ICP Date Analyzed: 03/25/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15382
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
13:35	ZZZZZZ	5166	109890	14509
13:40	ZZZZZZ	5285	114560	14607
13:45	ZZZZZZ	5017	106490	13919
13:50	ZZZZZZ	5438	115220	14828
13:55	ZZZZZZ	5574	117950	15222
14:00	ZZZZZZ	5222	108520	13856
14:04	ZZZZZZ	5305	112090	14411
14:09	ZZZZZZ	4656	101740	13498
14:14	ZZZZZZ	5137	109040	14283
14:19	MP20655-PS1	5035	106360	13947
14:24	MA15382-CCV4	4873	101120	13120
14:29	MA15382-CCB4	4826	100790	13144
14:34	MP20655-S1	4922	102220	13176
14:39	MP20654-B1	4803	99790	12909
14:43	MP20654-MB1	4894	101240	13152
14:48	MP20654-S1	5156	107010	13786
14:53	MP20654-S2	5196	108130	14027
14:58	MC19031-19	5275	110500	14143
15:03	MP20654-SD1	4976	102300	13110
15:07	MP20654-B2	4791	99329	12972
15:12	MP20654-LC1	5263	111110	14146
15:17	JB31583-11	5956	123420	15887
15:22	MA15382-CCV5	4828	100840	12961
15:27	MA15382-CCB5	4837	99883	13016
15:31	JB31583-12	5141	105920	13532
15:36	JB31583-13	5129	105590	13511
15:41	JB31583-14	5047	104090	13453
15:46	JB31583-15	5286	109420	13892
15:51	ZZZZZZ	5501	116300	15273
15:56	ZZZZZZ	5426	113810	14798
16:01	ZZZZZZ	5352	115820	14876
16:06	ZZZZZZ	5226	108690	13975
16:11	ZZZZZZ	5606	114990	14699

INTERNAL STANDARD SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032513M1.ICP Date Analyzed: 03/25/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15382
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
16:15	ZZZZZZ	5600	113560	15097
16:20	MA15382-CCV6	4861	99400	12813
16:25	MA15382-CCB6	4832	99438	12912
16:30	ZZZZZZ	5642	117520	15203
16:35	ZZZZZZ	5558	114740	14617
16:40	ZZZZZZ	5877	122880	15955
16:45	ZZZZZZ	5408	111460	14362
16:50	ZZZZZZ	5602	116210	15114
16:55	ZZZZZZ	5145	102910	13332
17:00	ZZZZZZ	5066	107250	13805
17:05	ZZZZZZ	4793	110450	14747
17:10	ZZZZZZ	5131	103560	13557
17:14	ZZZZZZ	4740	99324	13062
17:19	MA15382-CCV7	4857	99336	12783
17:24	MA15382-CCB7	4854	99314	12658
17:29	MA15382-CRIA2	4858	99278	12392
17:34	MA15382-ICSA2	4450	91444	12322
17:39	MA15382-ICSAB2	4457	91549	12451
17:44	MA15382-CCV8	4880	98744	12699
17:48	MA15382-CCB8	4841	98626	12726
17:53	MP20663-B1	4786	98429	12574
17:58	MP20663-MB1	4816	99257	12716
18:03	MP20663-S1	4798	99013	12796
18:08	MP20663-S2	4833	98650	12891
18:12	JB31881-13	4927	100670	13048
18:17	MP20663-SD1	4833	99669	12862
18:22	MP20663-LC1	5262	107670	14165
18:27	ZZZZZZ	5227	107710	13965
18:32	ZZZZZZ	5203	108040	13768
18:37	ZZZZZZ	5208	107530	13980
18:41	MA15382-CCV9	4828	100490	13130
18:46	MA15382-CCB9	4849	99385	12824
18:51	ZZZZZZ	5138	106890	13641

INTERNAL STANDARD SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032513M1.ICP Date Analyzed: 03/25/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15382
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
18:56	ZZZZZZ	5345	110900	14400
19:01	ZZZZZZ	4894	101020	13224
19:05	ZZZZZZ	4917	101890	13277
19:10	ZZZZZZ	4893	100370	13146
19:15	ZZZZZZ	4871	101120	12467
19:20	ZZZZZZ	4896	98943	13262
19:25	ZZZZZZ	5510	115440	14630
19:30	ZZZZZZ	5526	109120	14837
19:34	ZZZZZZ	5522	113940	14717
19:39	MA15382-CCV10	4824	99980	12957
19:44	MA15382-CCB10	4830	99953	12889
19:49	ZZZZZZ	5370	111950	14382
19:54	ZZZZZZ	5534	114650	14782
19:58	ZZZZZZ	5388	112060	14442
20:03	ZZZZZZ	5590	115960	15096
20:08	ZZZZZZ	5805	120020	15612
20:13	ZZZZZZ	5433	110540	14308
20:18	ZZZZZZ	4839	99545	12914
20:23	MA15382-CRIA3	4845	99768	13004
20:27	MA15382-ICSA3	4458	92671	12557
20:32	MA15382-ICSAB3	4456	93289	12593
20:37	MA15382-CCV11	4855	100310	13014
20:42	MA15382-CCB11	4836	99790	12919

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: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032513M1.ICP Date Analyzed: 03/25/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15382 Units: ug/l

Time:			11:11		11:33		12:33		13:30	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	27	anr							
Antimony	10	1.1	anr							
Arsenic	10	1.5	anr							
Barium	50	.67	anr							
Beryllium	4.0	.24	anr							
Boron	100	.93								
Cadmium	4.0	.23	anr							
Calcium	5000	23	anr							
Chromium	10	.72	anr							
Cobalt	50	.25	anr							
Copper	25	.63	anr							
Gold	50	2.3								
Iron	100	3.8	anr							
Lead	10	1.5	-0.20	<10	0.10	<10	0.20	<10	-0.10	<10
Magnesium	5000	31	anr							
Manganese	15	.15	anr							
Molybdenum	100	.49								
Nickel	40	.36	anr							
Palladium	50	4.6								
Platinum	50	8.8								
Potassium	5000	79	anr							
Selenium	10	2.5	anr							
Silicon	100	7.7								
Silver	5.0	.61	anr							
Sodium	5000	24	anr							
Strontium	10	.24								
Thallium	10	1.3	anr							
Tin	100	.47								
Titanium	50	.47								
Tungsten	100	6.1								
Vanadium	10	1	anr							
Zinc	20	.24	anr							
Zirconium	50	.73								

(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032513M1.ICP Date Analyzed: 03/25/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15382 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

11.1.2

11

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032513M1.ICP Date Analyzed: 03/25/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15382 Units: ug/l

Time:			14:29		15:27		16:25		17:24	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	27	anr							
Antimony	10	1.1	anr							
Arsenic	10	1.5	anr							
Barium	50	.67	anr							
Beryllium	4.0	.24	anr							
Boron	100	.93								
Cadmium	4.0	.23	anr							
Calcium	5000	23	anr							
Chromium	10	.72	anr							
Cobalt	50	.25	anr							
Copper	25	.63	anr							
Gold	50	2.3								
Iron	100	3.8	anr							
Lead	10	1.5	0.30	<10	0.0	<10	0.0	<10	-0.30	<10
Magnesium	5000	31	anr							
Manganese	15	.15	anr							
Molybdenum	100	.49								
Nickel	40	.36	anr							
Palladium	50	4.6								
Platinum	50	8.8								
Potassium	5000	79	anr							
Selenium	10	2.5	anr							
Silicon	100	7.7								
Silver	5.0	.61	anr							
Sodium	5000	24	anr							
Strontium	10	.24								
Thallium	10	1.3	anr							
Tin	100	.47								
Titanium	50	.47								
Tungsten	100	6.1								
Vanadium	10	1	anr							
Zinc	20	.24	anr							
Zirconium	50	.73								

(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032513M1.ICP Date Analyzed: 03/25/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15382 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

11.1.2

11

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032513M1.ICP Date Analyzed: 03/25/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15382 Units: ug/l

Time:			17:48	
Sample ID:			CCB8	
Metal	RL	IDL	raw	final
Aluminum	200	27	anr	
Antimony	10	1.1	anr	
Arsenic	10	1.5	anr	
Barium	50	.67	anr	
Beryllium	4.0	.24	anr	
Boron	100	.93		
Cadmium	4.0	.23	anr	
Calcium	5000	23	anr	
Chromium	10	.72	anr	
Cobalt	50	.25	anr	
Copper	25	.63	anr	
Gold	50	2.3		
Iron	100	3.8	anr	
Lead	10	1.5	0.30	<10
Magnesium	5000	31	anr	
Manganese	15	.15	anr	
Molybdenum	100	.49		
Nickel	40	.36	anr	
Palladium	50	4.6		
Platinum	50	8.8		
Potassium	5000	79	anr	
Selenium	10	2.5	anr	
Silicon	100	7.7		
Silver	5.0	.61	anr	
Sodium	5000	24	anr	
Strontium	10	.24		
Thallium	10	1.3	anr	
Tin	100	.47		
Titanium	50	.47		
Tungsten	100	6.1		
Vanadium	10	1	anr	
Zinc	20	.24	anr	
Zirconium	50	.73		

(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032513M1.ICP Date Analyzed: 03/25/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15382 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

11.1.2

11

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032513M1.ICP Date Analyzed: 03/25/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15382 Units: ug/l

Time:		11:03			11:21			12:28	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Gold									
Iron	anr								
Lead	3000	2930	97.7	2000	1920	96.0	2000	1940	97.0
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Platinum									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								
Zirconium									

(*) Outside of QC limits

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032513M1.ICP Date Analyzed: 03/25/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15382 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

11.1.3

11

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032513M1.ICP Date Analyzed: 03/25/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15382 Units: ug/l

Time:		13:25			14:24			15:22	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Gold									
Iron	anr								
Lead	2000	1940	97.0	2000	1960	98.0	2000	1970	98.5
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Platinum									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								
Zirconium									

(*) Outside of QC limits

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032513M1.ICP Date Analyzed: 03/25/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15382 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

11.1.3

11

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032513M1.ICP Date Analyzed: 03/25/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15382 Units: ug/l

Time:		16:20			17:19			17:44	
Sample ID:	CCV	CCV6		CCV	CCV7		CCV	CCV8	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Gold									
Iron	anr								
Lead	2000	1960	98.0	2000	1980	99.0	2000	1960	98.0
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Platinum									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								
Zirconium									

(*) Outside of QC limits

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032513M1.ICP Date Analyzed: 03/25/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15382 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

11.1.3

11

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032513M1.ICP Date Analyzed: 03/25/13 Methods: SW846 6010C
QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA15382 Units: ug/l

Time:			11:39		17:29	
Sample ID:	CRI	CRIA	CRIA1		CRIA2	
Metal	True	True	Results	% Rec	Results	% Rec
Aluminum	200	200	anr			
Antimony	6.0	10	anr			
Arsenic	4.0	10	anr			
Barium	50	50	anr			
Beryllium	4.0	4.0	anr			
Boron	100	100				
Cadmium	4.0	4.0	anr			
Calcium	5000	5000	anr			
Chromium	10	10	anr			
Cobalt	50	50	anr			
Copper	25	25	anr			
Gold	50	50				
Iron	100	100	anr			
Lead	5.0	10	10.5	105.0	9.9	99.0
Magnesium	5000	5000	anr			
Manganese	15	15	anr			
Molybdenum	100	100				
Nickel	40	40	anr			
Palladium	50	50				
Platinum	50	50				
Potassium	5000	5000	anr			
Selenium	10	10	anr			
Silicon	100	100				
Silver	5.0	5.0	anr			
Sodium	5000	5000	anr			
Strontium	10	10				
Thallium	5.0	10	anr			
Tin	100	100				
Titanium	50	50				
Tungsten	100	100				
Vanadium	10	10	anr			
Zinc	20	20	anr			
Zirconium	50	50				

(*) Outside of QC limits

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032513M1.ICP Date Analyzed: 03/25/13 Methods: SW846 6010C
QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA15382 Units: ug/l

Time:
Sample ID:
Metal

(anr) Analyte not requested

11.1.4

11

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032513M1.ICP Date Analyzed: 03/25/13 Methods: SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA15382 Units: ug/l

Time:			11:44		11:49		17:34		17:39	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1		ICSA2		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	500000	500000	519000	103.8	529000	105.8	558000	111.6	550000	110.0
Antimony		2000	2.1		1960	98.0	1.0		1890	94.5
Arsenic		2000	-0.20		2000	100.0	-1.0		2010	100.5
Barium		500	-1.0		513	102.6	-0.70		535	107.0
Beryllium		500	0.10		484	96.8	0.10		501	100.2
Boron		1000	2.3		970	97.0	1.6		974	97.4
Cadmium		1000	0.40		985	98.5	0.10		975	97.5
Calcium	500000	500000	469000	93.8	465000	93.0	463000	92.6	462000	92.4
Chromium		500	0.0		469	93.8	-0.20		479	95.8
Cobalt		500	0.10		442	88.4	-0.10		433	86.6
Copper		500	1.7		499	99.8	2.2		512	102.4
Gold		500	-27		462	92.4	-30		478	95.6
Iron	200000	200000	190000	95.0	191000	95.5	191000	95.5	190000	95.0
Lead		1000	-0.60		876	87.6	1.8		890	89.0
Magnesium	500000	500000	516000	103.2	520000	104.0	542000	108.4	538000	107.6
Manganese		500	1.2		473	94.6	0.90		470	94.0
Molybdenum		1000	-2.4		929	92.9	-2.6		913	91.3
Nickel		1000	-0.80		870	87.0	-0.90		873	87.3
Palladium		500	-30		488	97.6	-24		502	100.4
Platinum		500	-2.8		496	99.2	-7.6		487	97.4
Potassium			102		70.3		238		280	
Selenium		2000	0.20		1910	95.5	-1.2		1860	93.0
Silicon		2000	42.7		2070	103.5	42.7		2090	104.5
Silver		1000	0.60		1060	106.0	-0.10		1070	107.0
Sodium			361		389		346		374	
Strontium		1000	0.80		1010	101.0	1.5		1040	104.0
Thallium		2000	-0.40		1760	88.0	-0.60		1770	88.5
Tin		1000	-1.3		925	92.5	-1.2		893	89.3
Titanium		500	8.5		482	96.4	7.8		488	97.6
Tungsten		2000	-18		1970	98.5	-34		1970	98.5
Vanadium		500	1.3		480	96.0	1.6		487	97.4
Zinc		1000	0.40		883	88.3	1.3		878	87.8
Zirconium		500	13.4		452	90.4	12.4		465	93.0

(*) Outside of QC limits

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032513M1.ICP Date Analyzed: 03/25/13 Methods: SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA15382 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

11.1.5

11

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15385
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
10:10	MA15385-STD1	1		STD1
10:15	MA15385-STD2	1		STD2
10:20	MA15385-STD3	1		STD3
10:25	MA15385-STD4	1		STD4
10:30	MA15385-ICV1	1		
10:39	MA15385-ICB1	1		
10:44	MA15385-CCV1	1		
10:50	MA15385-CCB1	1		
10:55	MA15385-CRI1	1		
11:00	MA15385-ICSA1	1		
11:05	MA15385-ICSAB1	1		
11:10	MP20656-B1	1		
11:15	MP20656-MB1	1		
11:20	MP20656-S1	1		
11:24	MP20656-S2	1		
11:29	ZZZZZZ	1		DNR: HIGH RSD, SEE RERUN.
11:34	MP20656-SD1	5		
11:39	MP20656-B2	1		
11:44	MA15385-CCV2	1		
11:51	MA15385-CCB2	1		
11:56	ZZZZZZ	1		
12:01	ZZZZZZ	1		
12:06	ZZZZZZ	1		
12:11	ZZZZZZ	1		
12:16	ZZZZZZ	1		
12:21	ZZZZZZ	1		
12:26	ZZZZZZ	1		
12:31	ZZZZZZ	1		
12:36	ZZZZZZ	1		DNR: WRONG ACID PRESERVED BOTTLE, NEED REPREP AND RERUN.
12:41	ZZZZZZ	1		
12:57	MA15385-CCV3	1		
13:04	MA15385-CCB3	1		
13:11	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15385
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
13:16	ZZZZZZ	1		
13:21	ZZZZZZ	1		
13:26	ZZZZZZ	1		
13:31	ZZZZZZ	1		
13:36	ZZZZZZ	1		
13:41	ZZZZZZ	1		
13:47	ZZZZZZ	1		
13:51	ZZZZZZ	1		
13:57	MC19134-9	1		(sample used for QC only; not part of login JB31583)
14:02	MA15385-CCV4	1		
14:12	MA15385-CCB4	1		
14:17	ZZZZZZ	1		
14:22	ZZZZZZ	1		DNR: FOR CONFIRMATION ONLY.
14:42	MP20667-B1	1		
14:47	MP20667-MB1	1		
14:52	MP20667-S1	1		
14:57	MP20667-S2	1		
15:01	MC19189-1F	1		(sample used for QC only; not part of login JB31583)
15:06	MP20667-SD1	5		
15:11	MP20667-B2	1		
15:16	ZZZZZZ	1		
15:21	MA15385-CCV5	1		
15:28	MA15385-CCB5	1		
15:33	ZZZZZZ	1		
15:38	ZZZZZZ	1		
15:43	ZZZZZZ	1		
15:49	ZZZZZZ	1		
15:54	ZZZZZZ	1		
15:59	ZZZZZZ	1		
16:04	ZZZZZZ	1		
16:09	ZZZZZZ	1		
16:14	ZZZZZZ	1		
16:19	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15385
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
16:23	MA15385-CCV6	1		
16:30	MA15385-CCB6	1		
16:35	ZZZZZZ	1		
16:40	ZZZZZZ	1		
16:45	ZZZZZZ	1		
16:50	ZZZZZZ	1		
16:59	ZZZZZZ	1		
17:04	ZZZZZZ	1		
17:09	ZZZZZZ	1		
17:14	ZZZZZZ	1		
17:19	MA15385-CCV7	1		
17:23	MA15385-CCB7	1		
17:28	MA15385-CRI2	1		
17:33	MA15385-ICSA2	1		
17:38	MA15385-ICSAB2	1		
17:43	MA15385-CCV8	1		
17:55	MA15385-CCB8	1		
18:05	MP20666-B1	1		
18:09	MP20666-MB1	1		
18:14	MP20666-S1	1		
18:19	MP20666-S2	1		
18:24	MC19148-16	1		(sample used for QC only; not part of login JB31583)
18:29	MP20666-SD1	5		
18:34	MP20666-B2	1		
18:38	ZZZZZZ	1		
18:43	ZZZZZZ	1		
18:48	ZZZZZZ	1		
18:53	MA15385-CCV9	1		
18:58	MA15385-CCB9	1		
19:03	ZZZZZZ	1		
19:08	ZZZZZZ	1		
19:13	ZZZZZZ	1		
19:17	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15385
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
19:22	ZZZZZZ	1		
19:27	ZZZZZZ	1		
19:32	ZZZZZZ	1		
19:37	ZZZZZZ	1		
19:42	ZZZZZZ	1		
19:47	ZZZZZZ	1		
19:52	MA15385-CCV10	1		
19:56	MA15385-CCB10	1		
20:01	ZZZZZZ	1		
20:06	ZZZZZZ	1		
20:11	ZZZZZZ	1		
20:16	ZZZZZZ	1		
20:21	ZZZZZZ	1		
20:26	ZZZZZZ	1		
20:31	ZZZZZZ	100		
20:35	ZZZZZZ	100		
20:40	MA15385-CCV11	1		
20:45	MA15385-CCB11	1		
20:50	MA15385-CRI3	1		
20:55	MA15385-CRIA1	1		
21:00	MP20648-B1	1		
21:04	MP20648-MB1	1		
21:09	MP20648-S1	1		
21:14	MP20648-S2	1		
21:19	JB31413-3	1		(sample used for QC only; not part of login JB31583)
21:24	MP20648-SD1	5		
21:29	MP20648-LC1	1		
21:33	ZZZZZZ	1		
21:38	MA15385-CCV12	1		
21:43	MA15385-CCB12	1		
21:48	ZZZZZZ	1		
21:53	ZZZZZZ	1		
21:58	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15385
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
22:02	ZZZZZZ	1		
22:07	ZZZZZZ	1		
22:12	ZZZZZZ	1		
22:17	ZZZZZZ	1		
22:22	ZZZZZZ	1		
22:27	JB31583-1	1		
22:32	JB31583-2	1		
22:36	MA15385-CCV13	1		
22:41	MA15385-CCB13	1		
22:46	JB31583-3	1		
22:51	JB31583-4	1		
22:56	JB31583-5	1		
23:00	JB31583-6	1		PB OVER RANGE.
23:06	JB31583-7	1		PB OVER RANGE.
23:10	JB31583-8	1		PB HIHG RSD, POSSIBLE CARRY OVER.
23:15	JB31583-9	1		PB OVER RANGE.
23:20	JB31583-10	1		
---------->	Last reportable sample/prep for job JB31583			
23:25	ZZZZZZ	1		
23:30	ZZZZZZ	1		
23:35	MA15385-CCV14	1		
23:40	MA15385-CCB14	1		
23:44	ZZZZZZ	1		DNR.
23:49	ZZZZZZ	1		DNR.
23:54	MA15385-CRIA2	1		
23:59	MA15385-CRIB1	1		
00:04	ZZZZZZ	1		DNR.
00:09	ZZZZZZ	1		DNR.
00:14	ZZZZZZ	1		DNR.
00:19	ZZZZZZ	1		DNR.
00:23	ZZZZZZ	1		DNR.
00:28	ZZZZZZ	5		DNR.
00:33	ZZZZZZ	1		DNR.
00:38	MA15385-CCV15	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15385
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
00:43	MA15385-CCB15	1		
00:48	ZZZZZZ	1		
00:53	ZZZZZZ	1		
00:58	MA15385-CRIB2	1		
01:03	MA15385-ICSA3	1		
01:08	MA15385-ICSAB3	1		
01:13	MA15385-CCV16	1		
01:18	MA15385-CCB16	1		

----------> Last reportable CCB for job JB31583
Refer to raw data for calibration curve and standards.

INTERNAL STANDARD SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15385
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
10:10	MA15385-STD1	4710 R	103180 R	13357 R
10:15	MA15385-STD2	4620	101520	12901
10:20	MA15385-STD3			13219
10:25	MA15385-STD4	4614	100840	12990
10:30	MA15385-ICV1	4583	100690	13323
10:39	MA15385-ICB1	4650	101210	13081
10:44	MA15385-CCV1	4701	102030	13210
10:50	MA15385-CCB1	4706	101790	13102
10:55	MA15385-CRI1	4658	101190	13122
11:00	MA15385-ICSA1	4204	93025	12754
11:05	MA15385-ICSAB1	4198	91695	12437
11:10	MP20656-B1	4593	99464	12905
11:15	MP20656-MB1	4675	100920	13042
11:20	MP20656-S1	4489	98273	12826
11:24	MP20656-S2	4512	98631	13179
11:29	ZZZZZZ	4523	97817	13706
11:34	MP20656-SD1	4664	101730	13123
11:39	MP20656-B2	4636	100590	12807
11:44	MA15385-CCV2	4658	101140	13044
11:51	MA15385-CCB2	4714	100520	12855
11:56	ZZZZZZ	4663	101300	13063
12:01	ZZZZZZ	4641	100280	13232
12:06	ZZZZZZ	4571	99908	13276
12:11	ZZZZZZ	5332	118650	16532
12:16	ZZZZZZ	4838	107370	15125
12:21	ZZZZZZ	3721	83008	12374
12:26	ZZZZZZ	4364	97140	14085
12:31	ZZZZZZ	3766	82116	12964
12:36	ZZZZZZ	4200	91705	12828
12:41	ZZZZZZ	4930	109690	15298
12:57	MA15385-CCV3	4693	101700	13203
13:04	MA15385-CCB3	4679	101260	13125
13:11	ZZZZZZ	4600	104850	16387

INTERNAL STANDARD SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15385
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
13:16	ZZZZZZ	4513	98862	12854
13:21	ZZZZZZ	4544	98665	13071
13:26	ZZZZZZ	4560	99553	12925
13:31	ZZZZZZ	4386	95822	12745
13:36	ZZZZZZ	4506	97631	12832
13:41	ZZZZZZ	4241	90454	12784
13:47	ZZZZZZ	4558	98597	13072
13:51	ZZZZZZ	4401	94580	12830
13:57	MC19134-9	4509	98766	12808
14:02	MA15385-CCV4	4731	101180	12866
14:12	MA15385-CCB4	4719	102080	12821
14:17	ZZZZZZ	4447	95278	12802
14:22	ZZZZZZ	4441	96312	12649
14:42	MP20667-B1	4676	100230	13198
14:47	MP20667-MB1	4674	101790	12797
14:52	MP20667-S1	4458	96494	12506
14:57	MP20667-S2	4452	97170	12728
15:01	MC19189-1F	4467	96507	12799
15:06	MP20667-SD1	4714	100350	12728
15:11	MP20667-B2	4693	100930	12787
15:16	ZZZZZZ	4513	97360	12651
15:21	MA15385-CCV5	4741	100160	12743
15:28	MA15385-CCB5	4757	100590	12767
15:33	ZZZZZZ	4302	93769	12494
15:38	ZZZZZZ	4281	93200	12481
15:43	ZZZZZZ	5330	116340	15414
15:49	ZZZZZZ	5332	116240	15228
15:54	ZZZZZZ	4323	94375	12467
15:59	ZZZZZZ	4327	94888	12627
16:04	ZZZZZZ	4711	104190	13876
16:09	ZZZZZZ	4692	103040	14002
16:14	ZZZZZZ	4707	102410	13289
16:19	ZZZZZZ	4706	101630	13318

INTERNAL STANDARD SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15385
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
16:23	MA15385-CCV6	4754	102730	13107
16:30	MA15385-CCB6	4733	100990	12988
16:35	ZZZZZZ	4467	97164	12775
16:40	ZZZZZZ	4443	95620	12679
16:45	ZZZZZZ	4367	96558	12817
16:50	ZZZZZZ	4342	97150	12966
16:59	ZZZZZZ	4450	97129	12764
17:04	ZZZZZZ	4447	96796	12641
17:09	ZZZZZZ	4415	95678	12676
17:14	ZZZZZZ	4385	96525	12611
17:19	MA15385-CCV7	4685	101660	12940
17:23	MA15385-CCB7	4721	100940	12871
17:28	MA15385-CRI2	4708	101840	12795
17:33	MA15385-ICSA2	4309	93732	12403
17:38	MA15385-ICSAB2	4295	92361	12370
17:43	MA15385-CCV8	4695	102070	12950
17:55	MA15385-CCB8	4594	100640	12810
18:05	MP20666-B1	4604	100070	12685
18:09	MP20666-MB1	4696	100800	12745
18:14	MP20666-S1	4524	98929	12833
18:19	MP20666-S2	4515	98735	12619
18:24	MC19148-16	4568	99406	12966
18:29	MP20666-SD1	4663	101230	13126
18:34	MP20666-B2	4597	100810	12827
18:38	ZZZZZZ	4226	92930	12823
18:43	ZZZZZZ	4185	90902	12599
18:48	ZZZZZZ	4645	101250	12893
18:53	MA15385-CCV9	4620	102310	12903
18:58	MA15385-CCB9	4654	100860	12978
19:03	ZZZZZZ	4608	103420	12769
19:08	ZZZZZZ	4658	102220	13178
19:13	ZZZZZZ	4572	98817	12922
19:17	ZZZZZZ	4620	99976	12673

INTERNAL STANDARD SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15385
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
19:22	ZZZZZZ	4612	99155	12484
19:27	ZZZZZZ	4600	98884	12584
19:32	ZZZZZZ	4653	100690	12600
19:37	ZZZZZZ	4674	99418	12731
19:42	ZZZZZZ	4663	100680	12727
19:47	ZZZZZZ	4481	96248	12458
19:52	MA15385-CCV10	4726	101990	12661
19:56	MA15385-CCB10	4719	101830	12710
20:01	ZZZZZZ	4739	103610	13241
20:06	ZZZZZZ	4520	100370	13172
20:11	ZZZZZZ	4489	98106	12898
20:16	ZZZZZZ	4723	102950	12948
20:21	ZZZZZZ	4525	98809	12563
20:26	ZZZZZZ	4617	99923	12517
20:31	ZZZZZZ	4713	101160	12575
20:35	ZZZZZZ	4745	101750	12603
20:40	MA15385-CCV11	4735	101630	12656
20:45	MA15385-CCB11	4723	100530	12645
20:50	MA15385-CRI3	4719	100450	12575
20:55	MA15385-CRIA1	4729	102110	12817
21:00	MP20648-B1	4653	100420	12530
21:04	MP20648-MB1	4753	102550	12823
21:09	MP20648-S1	4852	104280	13129
21:14	MP20648-S2	4889	105750	13256
21:19	JB31413-3	4987	109090	13163
21:24	MP20648-SD1	4813	101340	13047
21:29	MP20648-LC1	5169	112430	14230
21:33	ZZZZZZ	5084	110060	13756
21:38	MA15385-CCV12	4718	101080	12789
21:43	MA15385-CCB12	4709	101940	12752
21:48	ZZZZZZ	5258	114300	13779
21:53	ZZZZZZ	5386	117140	14406
21:58	ZZZZZZ	5313	113230	14162

INTERNAL STANDARD SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15385
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
22:02	ZZZZZZ	5411	113710	14826
22:07	ZZZZZZ	5313	114140	14412
22:12	ZZZZZZ	5269	113710	14286
22:17	ZZZZZZ	4852	106820	13690
22:22	ZZZZZZ	4858	106040	13423
22:27	JB31583-1	5046	107120	14319
22:32	JB31583-2	5612	120840	14876
22:36	MA15385-CCV13	4742	101530	12591
22:41	MA15385-CCB13	4701	100990	12643
22:46	JB31583-3	5596	120900	14951
22:51	JB31583-4	5466	118250	14910
22:56	JB31583-5	5575	120830	14606
23:00	JB31583-6	4701	105870	13761
23:06	JB31583-7	5206	113100	14061
23:10	JB31583-8	5316	115100	14446
23:15	JB31583-9	4944	108980	13680
23:20	JB31583-10	5417	117390	14659
23:25	ZZZZZZ	5477	118820	14658
23:30	ZZZZZZ	4970	107480	13461
23:35	MA15385-CCV14	4709	102260	12814
23:40	MA15385-CCB14	4702	100360	12608
23:44	ZZZZZZ	5356	116400	14734
23:49	ZZZZZZ	4719	101220	12703
23:54	MA15385-CRIA2	4736	102310	12671
23:59	MA15385-CRIB1	4726	102170	12839
00:04	ZZZZZZ	4374	94189	12657
00:09	ZZZZZZ	4694	101370	12851
00:14	ZZZZZZ	4367	94337	12656
00:19	ZZZZZZ	4406	94774	12740
00:23	ZZZZZZ	4384	93948	12544
00:28	ZZZZZZ	4639	99469	12791
00:33	ZZZZZZ	4376	93351	12742
00:38	MA15385-CCV15	4724	102290	12670

INTERNAL STANDARD SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15385
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
00:43	MA15385-CCB15	4733	101680	12644
00:48	ZZZZZZ	4396	91389	12666
00:53	ZZZZZZ	4325	93032	12727
00:58	MA15385-CRIB2	4757	102680	12725
01:03	MA15385-ICSA3	4361	94502	12524
01:08	MA15385-ICSAB3	4352	94332	12302
01:13	MA15385-CCV16	4763	103020	12883
01:18	MA15385-CCB16	4750	101790	12743

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: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15385 Units: ug/l

Time:			10:39		10:50		11:51		13:04	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	27								
Antimony	6.0	1.1	anr							
Arsenic	4.0	1.5	anr							
Barium	50	.67	anr							
Beryllium	4.0	.24	anr							
Boron	100	.93								
Cadmium	4.0	.23	anr							
Calcium	5000	23								
Chromium	10	.72	anr							
Cobalt	50	.25								
Copper	25	.63	anr							
Gold	50	2.3								
Iron	100	3.8	anr							
Lead	5.0	1.5	0.20	<5.0	-0.50	<5.0	0.0	<5.0	1.6	<5.0
Magnesium	5000	31								
Manganese	15	.15	anr							
Molybdenum	100	.49								
Nickel	40	.36	anr							
Palladium	50	4.6								
Platinum	50	8.8								
Potassium	5000	79								
Selenium	10	2.5	anr							
Silicon	100	7.7								
Silver	5.0	.61	anr							
Sodium	5000	24	anr							
Strontium	10	.24								
Thallium	5.0	1.3	anr							
Tin	100	.47								
Titanium	50	.47								
Tungsten	100	6.1								
Vanadium	10	1	anr							
Zinc	20	.24	anr							
Zirconium	50	.73								

(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15385 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

11.2.2

11

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15385 Units: ug/l

Time:			14:12		15:28		16:30		17:23	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	27								
Antimony	6.0	1.1	anr							
Arsenic	4.0	1.5	anr							
Barium	50	.67	anr							
Beryllium	4.0	.24	anr							
Boron	100	.93								
Cadmium	4.0	.23	anr							
Calcium	5000	23								
Chromium	10	.72	anr							
Cobalt	50	.25								
Copper	25	.63	anr							
Gold	50	2.3								
Iron	100	3.8	anr							
Lead	5.0	1.5	0.60	<5.0	-0.10	<5.0	0.0	<5.0	0.80	<5.0
Magnesium	5000	31								
Manganese	15	.15	anr							
Molybdenum	100	.49								
Nickel	40	.36	anr							
Palladium	50	4.6								
Platinum	50	8.8								
Potassium	5000	79								
Selenium	10	2.5	anr							
Silicon	100	7.7								
Silver	5.0	.61	anr							
Sodium	5000	24	anr							
Strontium	10	.24								
Thallium	5.0	1.3	anr							
Tin	100	.47								
Titanium	50	.47								
Tungsten	100	6.1								
Vanadium	10	1	anr							
Zinc	20	.24	anr							
Zirconium	50	.73								

(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15385 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

11.2.2

11

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15385 Units: ug/l

Time:			17:55		18:58		19:56		20:45	
Sample ID:			CCB8		CCB9		CCB10		CCB11	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	27								
Antimony	6.0	1.1	anr							
Arsenic	4.0	1.5	anr							
Barium	50	.67	anr							
Beryllium	4.0	.24	anr							
Boron	100	.93								
Cadmium	4.0	.23	anr							
Calcium	5000	23								
Chromium	10	.72	anr							
Cobalt	50	.25								
Copper	25	.63	anr							
Gold	50	2.3								
Iron	100	3.8	anr							
Lead	5.0	1.5	0.30	<5.0	0.30	<5.0	0.30	<5.0	0.0	<5.0
Magnesium	5000	31								
Manganese	15	.15	anr							
Molybdenum	100	.49								
Nickel	40	.36	anr							
Palladium	50	4.6								
Platinum	50	8.8								
Potassium	5000	79								
Selenium	10	2.5	anr							
Silicon	100	7.7								
Silver	5.0	.61	anr							
Sodium	5000	24	anr							
Strontium	10	.24								
Thallium	5.0	1.3	anr							
Tin	100	.47								
Titanium	50	.47								
Tungsten	100	6.1								
Vanadium	10	1	anr							
Zinc	20	.24	anr							
Zirconium	50	.73								

(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15385 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

11.2.2

11

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15385 Units: ug/l

Time:			21:43		22:41		23:40		00:43	
Sample ID:			CCB12		CCB13		CCB14		CCB15	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	27								
Antimony	6.0	1.1	anr							
Arsenic	4.0	1.5	anr							
Barium	50	.67	anr							
Beryllium	4.0	.24	anr							
Boron	100	.93								
Cadmium	4.0	.23	anr							
Calcium	5000	23								
Chromium	10	.72	anr							
Cobalt	50	.25								
Copper	25	.63	anr							
Gold	50	2.3								
Iron	100	3.8	anr							
Lead	5.0	1.5	0.10	<5.0	0.20	<5.0	0.40	<5.0	0.20	<5.0
Magnesium	5000	31								
Manganese	15	.15	anr							
Molybdenum	100	.49								
Nickel	40	.36	anr							
Palladium	50	4.6								
Platinum	50	8.8								
Potassium	5000	79								
Selenium	10	2.5	anr							
Silicon	100	7.7								
Silver	5.0	.61	anr							
Sodium	5000	24	anr							
Strontium	10	.24								
Thallium	5.0	1.3	anr							
Tin	100	.47								
Titanium	50	.47								
Tungsten	100	6.1								
Vanadium	10	1	anr							
Zinc	20	.24	anr							
Zirconium	50	.73								

(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15385 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

11.2.2

11

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15385 Units: ug/l

Time:			01:18	
Sample ID:			CCB16	
Metal	RL	IDL	raw	final
Aluminum	200	27		
Antimony	6.0	1.1	anr	
Arsenic	4.0	1.5	anr	
Barium	50	.67	anr	
Beryllium	4.0	.24	anr	
Boron	100	.93		
Cadmium	4.0	.23	anr	
Calcium	5000	23		
Chromium	10	.72	anr	
Cobalt	50	.25		
Copper	25	.63	anr	
Gold	50	2.3		
Iron	100	3.8	anr	
Lead	5.0	1.5	0.60	<5.0
Magnesium	5000	31		
Manganese	15	.15	anr	
Molybdenum	100	.49		
Nickel	40	.36	anr	
Palladium	50	4.6		
Platinum	50	8.8		
Potassium	5000	79		
Selenium	10	2.5	anr	
Silicon	100	7.7		
Silver	5.0	.61	anr	
Sodium	5000	24	anr	
Strontium	10	.24		
Thallium	5.0	1.3	anr	
Tin	100	.47		
Titanium	50	.47		
Tungsten	100	6.1		
Vanadium	10	1	anr	
Zinc	20	.24	anr	
Zirconium	50	.73		

(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15385 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

11.2.2

11

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15385 Units: ug/l

Time:		10:30			10:44			11:44	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt									
Copper	anr								
Gold									
Iron	anr								
Lead	3000	2970	99.0	2000	1960	98.0	2000	1990	99.5
Magnesium									
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Platinum									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								
Zirconium									

(*) Outside of QC limits

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15385 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

11.2.3

11

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15385 Units: ug/l

Time:		12:57			14:02			15:21	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt									
Copper	anr								
Gold									
Iron	anr								
Lead	2000	1970	98.5	2000	1990	99.5	2000	1990	99.5
Magnesium									
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Platinum									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								
Zirconium									

(*) Outside of QC limits

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15385 Units: ug/l

Time:
Sample ID:
Metal

(anr) Analyte not requested

11.2.3

11

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15385 Units: ug/l

Time:		16:23			17:19			17:43	
Sample ID:	CCV	CCV6		CCV	CCV7		CCV	CCV8	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt									
Copper	anr								
Gold									
Iron	anr								
Lead	2000	1970	98.5	2000	1990	99.5	2000	1960	98.0
Magnesium									
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Platinum									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								
Zirconium									

(*) Outside of QC limits

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15385 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

11.2.3

11

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15385 Units: ug/l

Time:		18:53			19:52			20:40	
Sample ID:	CCV	CCV9		CCV	CCV10		CCV	CCV11	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt									
Copper	anr								
Gold									
Iron	anr								
Lead	2000	1970	98.5	2000	1930	96.5	2000	1930	96.5
Magnesium									
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Platinum									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								
Zirconium									

(*) Outside of QC limits

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15385 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

11.2.3

11

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15385 Units: ug/l

Time:		21:38			22:36			23:35	
Sample ID:	CCV	CCV12		CCV	CCV13		CCV	CCV14	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt									
Copper	anr								
Gold									
Iron	anr								
Lead	2000	1930	96.5	2000	1940	97.0	2000	1940	97.0
Magnesium									
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Platinum									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								
Zirconium									

(*) Outside of QC limits

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15385 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

11.2.3

11

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15385 Units: ug/l

Time:		00:38			01:13	
Sample ID:	CCV	CCV15		CCV	CCV16	
Metal	True	Results	% Rec	True	Results	% Rec
Aluminum						
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Boron						
Cadmium	anr					
Calcium						
Chromium	anr					
Cobalt						
Copper	anr					
Gold						
Iron	anr					
Lead	2000	1930	96.5	2000	1930	96.5
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	anr					
Palladium						
Platinum						
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium	anr					
Strontium						
Thallium	anr					
Tin						
Titanium						
Tungsten						
Vanadium	anr					
Zinc	anr					
Zirconium						

(*) Outside of QC limits

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15385 Units: ug/l

Time:
Sample ID:
Metal

(anr) Analyte not requested

11.2.3

11

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA15385 Units: ug/l

Time:			10:55		17:28		20:50		20:55	
Sample ID:	CRI	CRIA	CRI1		CRI2		CRI3		CRIA1	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	200	200								
Antimony	6.0	10	anr							
Arsenic	4.0	10	anr							
Barium	50	50	anr							
Beryllium	4.0	4.0	anr							
Boron	100	100								
Cadmium	4.0	4.0	anr							
Calcium	5000	5000								
Chromium	10	10	anr							
Cobalt	50	50								
Copper	25	25	anr							
Gold	50	50								
Iron	100	100	anr							
Lead	5.0	10	5.1	102.0	4.7	94.0	5.5	110.0	10.6	106.0
Magnesium	5000	5000								
Manganese	15	15	anr							
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	anr							
Strontium	10	10								
Thallium	5.0	10	anr							
Tin	100	100								
Titanium	50	50								
Tungsten	100	100								
Vanadium	10	10	anr							
Zinc	20	20	anr							
Zirconium	50	50								

(*) Outside of QC limits

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA15385 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

11.2.4

11

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA15385 Units: ug/l

Time:			23:54	
Sample ID:	CRI	CRIA	CRIA2	
Metal	True	True	Results	% Rec
Aluminum	200	200		
Antimony	6.0	10	anr	
Arsenic	4.0	10	anr	
Barium	50	50	anr	
Beryllium	4.0	4.0	anr	
Boron	100	100		
Cadmium	4.0	4.0	anr	
Calcium	5000	5000		
Chromium	10	10	anr	
Cobalt	50	50		
Copper	25	25	anr	
Gold	50	50		
Iron	100	100	anr	
Lead	5.0	10	10.2	102.0
Magnesium	5000	5000		
Manganese	15	15	anr	
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	anr	
Strontium	10	10		
Thallium	5.0	10	anr	
Tin	100	100		
Titanium	50	50		
Tungsten	100	100		
Vanadium	10	10	anr	
Zinc	20	20	anr	
Zirconium	50	50		

(*) Outside of QC limits

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA15385 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

11.2.4

11

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA15385 Units: ug/l

Time:		23:59		00:58	
Sample ID:	CRIB	CRIB1		CRIB2	
Metal	True	Results	% Rec	Results	% Rec
Aluminum	200				
Antimony	6.0				
Arsenic	10				
Barium	500				
Beryllium	4.0				
Boron	100				
Cadmium	4.0				
Calcium	5000				
Chromium	10				
Cobalt	50				
Copper	25				
Gold	50				
Iron	100				
Lead	10	9.6	96.0	9.8	98.0
Magnesium	5000				
Manganese	15				
Molybdenum	100				
Nickel	40				
Palladium	50				
Platinum	50				
Potassium	5000				
Selenium	25				
Silicon	100				
Silver	5.0				
Sodium	5000				
Strontium	10				
Thallium	5.0				
Tin	100				
Titanium	50				
Tungsten	100				
Vanadium	10				
Zinc	100				
Zirconium	50				

(*) Outside of QC limits

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA15385 Units: ug/l

Time:
Sample ID:
Metal

(anr) Analyte not requested

11.2.5

11

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA15385 Units: ug/l

Time:			11:00		11:05		17:33		17:38	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1		ICSA2		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	500000	500000	529000	105.8	550000	110.0	533000	106.6	532000	106.4
Antimony		2000	1.1		2090	104.5	0.60		2020	101.0
Arsenic		2000	1.3		2070	103.5	3.6		2020	101.0
Barium		500	-1.0		519	103.8	-0.70		510	102.0
Beryllium		500	0.20		490	98.0	0.30		476	95.2
Boron		1000	2.4		1010	101.0	1.9		983	98.3
Cadmium		1000	0.70		1030	103.0	0.70		1010	101.0
Calcium	500000	500000	474000	94.8	487000	97.4	473000	94.6	476000	95.2
Chromium		500	1.0		493	98.6	1.4		485	97.0
Cobalt		500	0.40		465	93.0	0.20		455	91.0
Copper		500	2.5		517	103.4	2.4		505	101.0
Gold		500	2.3		503	100.6	3.2		492	98.4
Iron	200000	200000	195000	97.5	199000	99.5	191000	95.5	191000	95.5
Lead		1000	2.8		909	90.9	2.4		890	89.0
Magnesium	500000	500000	529000	105.8	544000	108.8	525000	105.0	527000	105.4
Manganese		500	1.1		502	100.4	1.2		490	98.0
Molybdenum		1000	-2.7		978	97.8	-2.9		957	95.7
Nickel		1000	-0.40		907	90.7	-0.60		888	88.8
Palladium		500	-29		488	97.6	-27		477	95.4
Platinum		500	1.2		501	100.2	-0.80		488	97.6
Potassium			62.5		94.6		250		288	
Selenium		2000	-0.80		2000	100.0	-2.0		1950	97.5
Silicon		2000	40.1		2030	101.5	38.0		1970	98.5
Silver		1000	1.1		1110	111.0	0.60		1080	108.0
Sodium			367		394		885		960	
Strontium		1000	1.0		1020	102.0	1.0		999	99.9
Thallium		2000	-1.1		1820	91.0	-1.1		1780	89.0
Tin		1000	-0.90		957	95.7	-1.3		937	93.7
Titanium		500	7.8		494	98.8	8.0		484	96.8
Tungsten		2000	-21		1970	98.5	-30		1880	94.0
Vanadium		500	1.0		496	99.2	1.2		486	97.2
Zinc		1000	1.6		922	92.2	2.0		908	90.8
Zirconium		500	11.5		449	89.8	11.2		440	88.0

(*) Outside of QC limits

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA15385 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

11.2.6

11

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA15385 Units: ug/l

Time:			01:03		01:08	
Sample ID:	ICSA	ICSAB	ICSA3		ICSAB3	
Metal	True	True	Results	% Rec	Results	% Rec
Aluminum	500000	500000	518000	103.6	515000	103.0
Antimony		2000	1.5		2000	100.0
Arsenic		2000	1.4		1970	98.5
Barium		500	-0.80		496	99.2
Beryllium		500	0.10		459	91.8
Boron		1000	1.8		961	96.1
Cadmium		1000	1.0		991	99.1
Calcium	500000	500000	456000	91.2	464000	92.8
Chromium		500	1.3		472	94.4
Cobalt		500	0.40		449	89.8
Copper		500	1.4		484	96.8
Gold		500	3.2		472	94.4
Iron	200000	200000	180000	90.0	182000	91.0
Lead		1000	1.3		871	87.1
Magnesium	500000	500000	501000	100.2	506000	101.2
Manganese		500	1.0		478	95.6
Molybdenum		1000	-2.9		943	94.3
Nickel		1000	-0.50		870	87.0
Palladium		500	-29		458	91.6
Platinum		500	-2.1		477	95.4
Potassium			238		245	
Selenium		2000	-1.6		1930	96.5
Silicon		2000	36.7		1930	96.5
Silver		1000	0.90		1050	105.0
Sodium			2060		1380	
Strontium		1000	0.90		971	97.1
Thallium		2000	-1.2		1730	86.5
Tin		1000	-0.90		931	93.1
Titanium		500	7.9		470	94.0
Tungsten		2000	-26		1840	92.0
Vanadium		500	0.70		471	94.2
Zinc		1000	0.90		898	89.8
Zirconium		500	11.8		429	85.8

(*) Outside of QC limits

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA032613M1.ICP Date Analyzed: 03/26/13 Methods: SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA15385 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

11.2.6

11

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15390
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
09:21	MA15390-STD1	1		STD1
09:25	MA15390-STD2	1		STD2
09:29	MA15390-STD3	1		STD3
09:34	MA15390-STD4	1		STD4
09:38	MA15390-ICV1	1		
09:45	MA15390-ICB1	1		
09:50	MA15390-CCV1	1		
09:57	MA15390-CCB1	1		
10:02	MA15390-CRIA1	1		
10:06	MA15390-ICSA1	1		
10:10	MA15390-ICSAB1	1		
10:15	ZZZZZZ	1		
10:19	MP20668-B1	1		
10:23	MP20668-MB1	1		
10:28	MP20668-S1	1		FE OVER RANGE.
10:32	MP20668-S2	1		FE OVER RANGE.
10:36	MC19188-1	1		(sample used for QC only; not part of login JB31583)
10:41	MP20668-SD1	5		
10:45	MA15390-CCV2	1		
10:51	MA15390-CCB2	1		
10:56	MP20668-B2	1		
11:00	MP20668-LC1	1		
11:04	ZZZZZZ	1		
11:08	ZZZZZZ	1		
11:12	ZZZZZZ	1		
11:17	ZZZZZZ	1		
11:21	ZZZZZZ	1		
11:25	ZZZZZZ	1		
11:30	ZZZZZZ	1		
11:34	ZZZZZZ	1		
11:38	MA15390-CCV3	1		
11:50	MA15390-CCB3	1		
11:54	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15390
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
11:59	ZZZZZZ	1		
12:03	ZZZZZZ	1		
12:07	ZZZZZZ	1		
12:12	ZZZZZZ	1		
12:16	ZZZZZZ	1		
12:20	ZZZZZZ	1		
12:25	ZZZZZZ	1		
12:29	ZZZZZZ	1		
12:34	ZZZZZZ	1		
12:38	MA15390-CCV4	1		
12:46	MA15390-CCB4	1		
12:51	ZZZZZZ	1		
12:56	ZZZZZZ	1		DNR: FOR CONFIRMATION ONLY.
13:13	JB31583-8	1		
13:17	MP20668-S1	3		
13:21	MP20668-S2	3		
13:26	ZZZZZZ	5		
13:30	ZZZZZZ	5		
13:34	JB31583-6	100		
13:39	JB31583-7	5		
13:43	JB31583-9	5		
---------->	Last reportable sample/prep for job JB31583			
13:47	MA15390-CCV5	1		
13:53	MA15390-CCB5	1		
14:05	MP20668-PS1	1		
14:09	MP20664-B1	1		
14:14	MP20664-MB1	1		
14:18	MP20664-S1	1		
14:22	MP20664-S2	1		
14:27	JB31485-12	1		(sample used for QC only; not part of login JB31583)
14:31	MP20664-SD1	5		
14:35	MP20664-LC1	1		
14:39	ZZZZZZ	1		
14:44	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15390
Parameters: Pb

	Time	Sample Description	Dilution Factor	PS Recov	Comments
	14:48	MA15390-CCV6	1		
	14:55	MA15390-CCB6	1		
	14:59	ZZZZZZ	1		
	15:04	ZZZZZZ	1		
	15:08	ZZZZZZ	1		
	15:12	ZZZZZZ	1		
	15:17	ZZZZZZ	1		
	15:21	ZZZZZZ	1		
	15:25	ZZZZZZ	1		
	15:30	ZZZZZZ	1		
	15:34	ZZZZZZ	1		
	15:38	ZZZZZZ	1		
	15:43	MA15390-CCV7	1		
	15:49	MA15390-CCB7	1		
	15:53	ZZZZZZ	1		
	15:57	ZZZZZZ	1		
	16:02	ZZZZZZ	1		
	16:06	ZZZZZZ	1		
	16:10	ZZZZZZ	1		
	16:15	ZZZZZZ	1		
	16:19	ZZZZZZ	1		
	16:29	MA15390-CRIA2	1		
	16:34	MA15390-ICSA2	1		
	16:38	MA15390-ICSAB2	1		
	16:43	MA15390-CCV8	1		
	16:50	MA15390-CCB8	1		
---------->	Last reportable CCB for job JB31583				
	16:54	MP20671-B1	1		
	16:58	MP20671-MB1	1		
	17:03	MP20671-S1	1		
	17:07	MP20671-S2	1		
	17:12	MC19188-23	1		(sample used for QC only; not part of login JB31583)
	17:16	MP20671-SD1	5		
	17:21	MP20671-B2	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15390
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
17:25	MP20671-LC1	1		
17:29	ZZZZZZ	1		
17:33	ZZZZZZ	1		
17:38	MA15390-CCV9	1		
17:42	MA15390-CCB9	1		
17:47	ZZZZZZ	1		
17:51	ZZZZZZ	1		
17:56	ZZZZZZ	1		
18:00	ZZZZZZ	1		
18:04	ZZZZZZ	1		
18:09	ZZZZZZ	1		
18:13	ZZZZZZ	1		
18:17	ZZZZZZ	1		
18:22	ZZZZZZ	1		
18:26	ZZZZZZ	1		
18:31	MA15390-CCV10	1		
18:35	MA15390-CCB10	1		
18:39	ZZZZZZ	1		
18:44	ZZZZZZ	1		
18:48	ZZZZZZ	1		
18:53	ZZZZZZ	1		
18:57	ZZZZZZ	1		
19:01	ZZZZZZ	1		
19:06	ZZZZZZ	1		
19:10	MP20673-B1	1		
19:14	MP20673-MB1	1		
19:19	MP20673-S1	1		
19:23	MA15390-CCV11	1		
19:27	MA15390-CCB11	1		
19:32	MP20673-S2	1		
19:36	MC19188-60	1		(sample used for QC only; not part of login JB31583)
19:41	MP20673-SD1	5		
19:45	MP20673-B2	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15390
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
19:49	MP20673-LC1	1		
19:53	ZZZZZZ	1		
19:58	ZZZZZZ	1		
20:02	ZZZZZZ	1		
20:06	ZZZZZZ	1		
20:11	ZZZZZZ	1		
20:15	MA15390-CCV12	1		
20:19	MA15390-CCB12	1		
20:24	ZZZZZZ	1		
20:28	ZZZZZZ	1		
20:32	ZZZZZZ	1		
20:37	ZZZZZZ	1		
20:41	ZZZZZZ	1		
20:45	ZZZZZZ	1		
20:50	ZZZZZZ	1		
20:54	ZZZZZZ	1		
20:59	ZZZZZZ	1		
21:03	ZZZZZZ	1		
21:08	MA15390-CCV13	1		
21:12	MA15390-CCB13	1		
21:16	ZZZZZZ	1		
21:21	ZZZZZZ	1		
21:25	ZZZZZZ	1		
21:29	ZZZZZZ	1		
21:34	ZZZZZZ	1		RINSECONF
21:38	MA15390-CRIA3	1		
21:43	MA15390-ICSA3	1		
21:47	MA15390-ICSAB3	1		
21:52	MA15390-CCV14	1		
21:56	MA15390-CCB14	1		
22:00	MP20677-B1	1		
22:05	MP20677-MB1	1		
22:09	MP20677-S1	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15390
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
22:13	MP20677-S2	1		
22:18	MC19188-86	1		(sample used for QC only; not part of login JB31583)
22:22	MP20677-SD1	5		
22:27	MP20677-B2	1		
22:31	MP20677-LC1	1		
22:35	ZZZZZZ	1		
22:40	ZZZZZZ	1		
22:44	MA15390-CCV15	1		
22:48	MA15390-CCB15	1		
22:53	ZZZZZZ	1		
22:57	ZZZZZZ	1		
23:01	ZZZZZZ	1		
23:06	ZZZZZZ	1		
23:10	ZZZZZZ	1		
23:15	ZZZZZZ	1		
23:19	ZZZZZZ	1		
23:24	ZZZZZZ	1		
23:28	ZZZZZZ	1		
23:32	ZZZZZZ	1		
23:37	MA15390-CCV16	1		
23:41	MA15390-CCB16	1		
23:46	ZZZZZZ	1		
23:50	ZZZZZZ	1		
23:54	ZZZZZZ	1		
23:59	ZZZZZZ	1		
00:03	ZZZZZZ	1		
00:08	ZZZZZZ	1		
00:12	ZZZZZZ	1		
00:17	ZZZZZZ	1		RINSECONF
00:21	MA15390-CRIA4	1		
00:25	MA15390-CRIB1	1		
00:30	MA15390-CCV17	1		
00:34	MA15390-CCB17	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15390
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
00:38	MP20675-B1	1		
00:43	MP20675-MB1	1		
00:47	MP20675-S1	1		
00:52	MP20675-S2	1		
00:56	JB31887-1	1		(sample used for QC only; not part of login JB31583)
01:01	MP20675-SD1	5		
01:05	MP20675-B2	1		
01:09	MP20675-LB1	1		
01:14	ZZZZZZ	1		
01:18	ZZZZZZ	1		
01:23	MA15390-CCV18	1		
01:27	MA15390-CCB18	1		
01:32	ZZZZZZ	1		
01:36	ZZZZZZ	1		
01:41	ZZZZZZ	1		
01:45	ZZZZZZ	1		
01:50	MA15390-CRIB2	1		
01:54	MA15390-ICSA4	1		
01:59	MA15390-ICSAB4	1		
02:03	MA15390-CCV19	1		
02:07	MA15390-CCB19	1		

Refer to raw data for calibration curve and standards.

INTERNAL STANDARD SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15390
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
09:21	MA15390-STD1	1214 R	49988 R	11526 R
09:25	MA15390-STD2	1212	49562	11558
09:29	MA15390-STD3			11477
09:34	MA15390-STD4	1214	51886	12011
09:38	MA15390-ICV1	1204	50815	12038
09:45	MA15390-ICB1	1219	51130	12068
09:50	MA15390-CCV1	1205	51035	12171
09:57	MA15390-CCB1	1223	51090	12013
10:02	MA15390-CRIA1	1207	50920	11910
10:06	MA15390-ICSA1	1091	47749	12062
10:10	MA15390-ICSAB1	1092	47194	11828
10:15	ZZZZZZ	1363	58907	14188
10:19	MP20668-B1	1211	51729	12239
10:23	MP20668-MB1	1231	52334	12233
10:28	MP20668-S1	1278	56067	13543
10:32	MP20668-S2	1204	53385	12813
10:36	MC19188-1	1234	55606	12924
10:41	MP20668-SD1	1220	51810	12244
10:45	MA15390-CCV2	1192	51107	12160
10:51	MA15390-CCB2	1220	51145	12116
10:56	MP20668-B2	1197	51280	12181
11:00	MP20668-LC1	1316	56640	13565
11:04	ZZZZZZ	1293	54979	13201
11:08	ZZZZZZ	1235	53189	12939
11:12	ZZZZZZ	1279	54690	13009
11:17	ZZZZZZ	1207	52854	12585
11:21	ZZZZZZ	1203	52193	12547
11:25	ZZZZZZ	1282	55020	13269
11:30	ZZZZZZ	1302	56513	13691
11:34	ZZZZZZ	1241	53427	12809
11:38	MA15390-CCV3	1199	52007	12400
11:50	MA15390-CCB3	1226	52115	12199
11:54	ZZZZZZ	1278	54770	13266

INTERNAL STANDARD SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15390
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
11:59	ZZZZZZ	1249	53208	13022
12:03	ZZZZZZ	1266	55144	13262
12:07	ZZZZZZ	1310	57166	14071
12:12	ZZZZZZ	1237	53217	13081
12:16	ZZZZZZ	1252	54324	13358
12:20	ZZZZZZ	1218	52834	12772
12:25	ZZZZZZ	1317	57407	14254
12:29	ZZZZZZ	1274	55705	13718
12:34	ZZZZZZ	1255	54603	13467
12:38	MA15390-CCV4	1205	51763	12399
12:46	MA15390-CCB4	1220	52319	12394
12:51	ZZZZZZ	1407	61200	14904
12:56	ZZZZZZ	1274	55109	13212
13:13	JB31583-8	1353	58405	14150
13:17	MP20668-S1	1225	53150	12925
13:21	MP20668-S2	1209	52505	12613
13:26	ZZZZZZ	1212	51731	12330
13:30	ZZZZZZ	1212	52002	12538
13:34	JB31583-6	1220	52298	12345
13:39	JB31583-7	1232	52523	12733
13:43	JB31583-9	1225	52776	12668
13:47	MA15390-CCV5	1195	51609	12246
13:53	MA15390-CCB5	1215	52097	12211
14:05	MP20668-PS1	1227	54406	13187
14:09	MP20664-B1	1203	51651	12331
14:14	MP20664-MB1	1217	52087	12434
14:18	MP20664-S1	1278	55424	13500
14:22	MP20664-S2	1285	55708	13454
14:27	JB31485-12	1302	55576	13331
14:31	MP20664-SD1	1224	52552	12584
14:35	MP20664-LC1	1316	56597	13936
14:39	ZZZZZZ	1355	57726	14308
14:44	ZZZZZZ	1235	53115	13002

INTERNAL STANDARD SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15390
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
14:48	MA15390-CCV6	1208	51807	12320
14:55	MA15390-CCB6	1221	52200	12458
14:59	ZZZZZZ	1277	55175	13498
15:04	ZZZZZZ	1292	55626	13545
15:08	ZZZZZZ	1360	58527	14272
15:12	ZZZZZZ	1341	58047	13879
15:17	ZZZZZZ	1398	60051	14601
15:21	ZZZZZZ	1287	55268	13552
15:25	ZZZZZZ	1237	53380	12937
15:30	ZZZZZZ	1282	55227	13281
15:34	ZZZZZZ	1341	57440	13857
15:38	ZZZZZZ	1309	56378	13528
15:43	MA15390-CCV7	1222	52160	12406
15:49	MA15390-CCB7	1232	52085	12236
15:53	ZZZZZZ	1381	58692	13973
15:57	ZZZZZZ	1364	58501	14066
16:02	ZZZZZZ	1322	56614	13088
16:06	ZZZZZZ	1337	57032	13665
16:10	ZZZZZZ	1278	54484	13131
16:15	ZZZZZZ	1263	53752	12985
16:19	ZZZZZZ	1334	56926	13529
16:29	MA15390-CRIA2	1232	52193	12080
16:34	MA15390-ICSA2	1097	47828	11977
16:38	MA15390-ICSAB2	1099	48138	11936
16:43	MA15390-CCV8	1217	51647	12185
16:50	MA15390-CCB8	1235	52193	12240
16:54	MP20671-B1	1216	51868	12119
16:58	MP20671-MB1	1233	52024	12166
17:03	MP20671-S1	1396	60898	14753
17:07	MP20671-S2	1399	61483	14685
17:12	MC19188-23	1428	61764	14642
17:16	MP20671-SD1	1271	53682	12682
17:21	MP20671-B2	1211	51439	12190

INTERNAL STANDARD SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15390
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
17:25	MP20671-LC1	1330	57078	13599
17:29	ZZZZZZ	1262	53435	12940
17:33	ZZZZZZ	1321	56365	13990
17:38	MA15390-CCV9	1216	51963	12306
17:42	MA15390-CCB9	1239	52811	12131
17:47	ZZZZZZ	1341	57070	13993
17:51	ZZZZZZ	1173	50930	12445
17:56	ZZZZZZ	1374	58809	13985
18:00	ZZZZZZ	1353	58122	13944
18:04	ZZZZZZ	1256	53250	12683
18:09	ZZZZZZ	1224	52083	12312
18:13	ZZZZZZ	1396	60631	14392
18:17	ZZZZZZ	1372	58305	13874
18:22	ZZZZZZ	1370	58405	14055
18:26	ZZZZZZ	1229	53210	12884
18:31	MA15390-CCV10	1230	52288	12211
18:35	MA15390-CCB10	1243	51855	12066
18:39	ZZZZZZ	1241	54117	13113
18:44	ZZZZZZ	1186	51625	12221
18:48	ZZZZZZ	1168	51524	12168
18:53	ZZZZZZ	1198	52332	12183
18:57	ZZZZZZ	1245	53650	12751
19:01	ZZZZZZ	1360	58365	13852
19:06	ZZZZZZ	1322	56121	13400
19:10	MP20673-B1	1225	51642	12028
19:14	MP20673-MB1	1244	52496	12281
19:19	MP20673-S1	1262	55130	13259
19:23	MA15390-CCV11	1231	52558	12320
19:27	MA15390-CCB11	1241	52410	12139
19:32	MP20673-S2	1262	55064	13099
19:36	MC19188-60	1262	55128	13086
19:41	MP20673-SD1	1234	52943	12498
19:45	MP20673-B2	1221	52257	12079

INTERNAL STANDARD SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15390
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
19:49	MP20673-LC1	1320	56592	13465
19:53	ZZZZZZ	1312	56624	13658
19:58	ZZZZZZ	1376	59733	14352
20:02	ZZZZZZ	1329	57479	13456
20:06	ZZZZZZ	1264	53766	12755
20:11	ZZZZZZ	1270	55302	13080
20:15	MA15390-CCV12	1223	52283	12261
20:19	MA15390-CCB12	1244	52650	11978
20:24	ZZZZZZ	1301	54875	13329
20:28	ZZZZZZ	1342	57590	13689
20:32	ZZZZZZ	1328	57124	13574
20:37	ZZZZZZ	1325	56510	13493
20:41	ZZZZZZ	1391	58915	13865
20:45	ZZZZZZ	1385	58960	13982
20:50	ZZZZZZ	1227	52549	12488
20:54	ZZZZZZ	1263	53503	12687
20:59	ZZZZZZ	1353	58455	14079
21:03	ZZZZZZ	1355	58938	14124
21:08	MA15390-CCV13	1225	52567	12385
21:12	MA15390-CCB13	1232	52914	12308
21:16	ZZZZZZ	1204	52267	12492
21:21	ZZZZZZ	1232	52813	12418
21:25	ZZZZZZ	1253	54816	12955
21:29	ZZZZZZ	1277	57500	13670
21:34	ZZZZZZ	1240	52582	12086
21:38	MA15390-CRIA3	1240	52844	12158
21:43	MA15390-ICSA3	1116	48673	11918
21:47	MA15390-ICSAB3	1099	48187	12019
21:52	MA15390-CCV14	1223	52184	12239
21:56	MA15390-CCB14	1234	52636	12224
22:00	MP20677-B1	1213	52342	12319
22:05	MP20677-MB1	1241	53109	12426
22:09	MP20677-S1	1363	59798	14278

INTERNAL STANDARD SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15390
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
22:13	MP20677-S2	1377	60289	14343
22:18	MC19188-86	1378	60028	14258
22:22	MP20677-SD1	1258	54009	12655
22:27	MP20677-B2	1208	52014	12323
22:31	MP20677-LC1	1328	57671	13667
22:35	ZZZZZZ	1249	55406	13247
22:40	ZZZZZZ	1141	52114	12441
22:44	MA15390-CCV15	1212	52752	12391
22:48	MA15390-CCB15	1235	52827	12329
22:53	ZZZZZZ	1284	55907	13380
22:57	ZZZZZZ	1301	57432	13624
23:01	ZZZZZZ	1295	56725	13772
23:06	ZZZZZZ	1282	56160	13622
23:10	ZZZZZZ	1223	53131	12585
23:15	ZZZZZZ	1372	60702	14752
23:19	ZZZZZZ	1347	59540	14277
23:24	ZZZZZZ	1231	53830	12623
23:28	ZZZZZZ	1382	60404	14481
23:32	ZZZZZZ	1333	57833	13762
23:37	MA15390-CCV16	1216	52268	12382
23:41	MA15390-CCB16	1229	52623	12294
23:46	ZZZZZZ	1231	53443	12738
23:50	ZZZZZZ	1240	53804	12550
23:54	ZZZZZZ	1340	58901	13806
23:59	ZZZZZZ	1328	57760	13701
00:03	ZZZZZZ	1299	56510	13591
00:08	ZZZZZZ	1322	57261	13702
00:12	ZZZZZZ	1345	58747	13986
00:17	ZZZZZZ	1235	52561	12427
00:21	MA15390-CRIA4	1222	53034	12483
00:25	MA15390-CRIB1	1226	52640	12509
00:30	MA15390-CCV17	1224	52837	12378
00:34	MA15390-CCB17	1233	52710	12374

INTERNAL STANDARD SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15390
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
00:38	MP20675-B1	1220	52428	12488
00:43	MP20675-MB1	1220	53146	12246
00:47	MP20675-S1	1243	52836	12580
00:52	MP20675-S2	1249	53311	12676
00:56	JB31887-1	1264	53498	12681
01:01	MP20675-SD1	1249	53874	12706
01:05	MP20675-B2	1253	52810	12543
01:09	MP20675-LB1	1265	53984	13122
01:14	ZZZZZZ	1243	53435	12872
01:18	ZZZZZZ	1258	54221	12886
01:23	MA15390-CCV18	1206	52931	12594
01:27	MA15390-CCB18	1222	52720	12316
01:32	ZZZZZZ	1223	52681	12423
01:36	ZZZZZZ	1218	52913	12522
01:41	ZZZZZZ	1218	52581	12698
01:45	ZZZZZZ	1260	53431	12741
01:50	MA15390-CRIB2	1240	53600	12596
01:54	MA15390-ICSA4	1104	48882	12313
01:59	MA15390-ICSAB4	1097	48956	12151
02:03	MA15390-CCV19	1205	52750	12378
02:07	MA15390-CCB19	1222	52817	12244

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: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15390 Units: ug/l

Time:			09:45		09:57		10:51		11:50	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	15								
Antimony	6.0	1	anr							
Arsenic	10	1.7	anr							
Barium	500	.41	anr							
Beryllium	4.0	.17	anr							
Boron	100	.57								
Cadmium	4.0	.35	anr							
Calcium	5000	5.2								
Chromium	10	.6	anr							
Cobalt	50	.28	anr							
Copper	25	1.1	anr							
Gold	50	2.3								
Iron	100	5.4	anr							
Lead	10	.9	-0.20	<10	-0.80	<10	-1.7	<10	-0.40	<10
Magnesium	5000	40								
Manganese	15	.15								
Molybdenum	100	.34	anr							
Nickel	40	.43	anr							
Palladium	50	2.4								
Platinum	50	10								
Potassium	5000	57								
Selenium	25	1.6	anr							
Silicon	100	11								
Silver	5.0	.92	anr							
Sodium	5000	19								
Strontium	10	.2								
Thallium	5.0	1.2	anr							
Tin	100	.8								
Titanium	50	1.1								
Tungsten	100	8.6								
Vanadium	10	1.1	anr							
Zinc	100	.32	anr							
Zirconium	50	.56								

(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15390 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

11.3.2

11

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15390 Units: ug/l

Time:			12:46		13:53		14:55		15:49	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	15								
Antimony	6.0	1	anr							
Arsenic	10	1.7	anr							
Barium	500	.41	anr							
Beryllium	4.0	.17	anr							
Boron	100	.57								
Cadmium	4.0	.35	anr							
Calcium	5000	5.2								
Chromium	10	.6	anr							
Cobalt	50	.28	anr							
Copper	25	1.1	anr							
Gold	50	2.3								
Iron	100	5.4	anr							
Lead	10	.9	-0.20	<10	0.10	<10	-0.10	<10	0.40	<10
Magnesium	5000	40								
Manganese	15	.15								
Molybdenum	100	.34	anr							
Nickel	40	.43	anr							
Palladium	50	2.4								
Platinum	50	10								
Potassium	5000	57								
Selenium	25	1.6	anr							
Silicon	100	11								
Silver	5.0	.92	anr							
Sodium	5000	19								
Strontium	10	.2								
Thallium	5.0	1.2	anr							
Tin	100	.8								
Titanium	50	1.1								
Tungsten	100	8.6								
Vanadium	10	1.1	anr							
Zinc	100	.32	anr							
Zirconium	50	.56								

(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15390 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

11.3.2

11

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15390 Units: ug/l

Time:			16:50	
Sample ID:			CCB8	
Metal	RL	IDL	raw	final
Aluminum	200	15		
Antimony	6.0	1	anr	
Arsenic	10	1.7	anr	
Barium	500	.41	anr	
Beryllium	4.0	.17	anr	
Boron	100	.57		
Cadmium	4.0	.35	anr	
Calcium	5000	5.2		
Chromium	10	.6	anr	
Cobalt	50	.28	anr	
Copper	25	1.1	anr	
Gold	50	2.3		
Iron	100	5.4	anr	
Lead	10	.9	-0.90	<10
Magnesium	5000	40		
Manganese	15	.15		
Molybdenum	100	.34	anr	
Nickel	40	.43	anr	
Palladium	50	2.4		
Platinum	50	10		
Potassium	5000	57		
Selenium	25	1.6	anr	
Silicon	100	11		
Silver	5.0	.92	anr	
Sodium	5000	19		
Strontium	10	.2		
Thallium	5.0	1.2	anr	
Tin	100	.8		
Titanium	50	1.1		
Tungsten	100	8.6		
Vanadium	10	1.1	anr	
Zinc	100	.32	anr	
Zirconium	50	.56		

(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15390 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

11.3.2

11

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15390 Units: ug/l

Time:		09:38			09:50			10:45	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt	anr								
Copper	anr								
Gold									
Iron	anr								
Lead	3000	3040	101.3	2000	2000	100.0	2000	2070	103.5
Magnesium									
Manganese									
Molybdenum	anr								
Nickel	anr								
Palladium									
Platinum									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								
Zirconium									

(*) Outside of QC limits

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15390 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

11.3.3

11

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15390 Units: ug/l

Time:		11:38			12:38			13:47	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt	anr								
Copper	anr								
Gold									
Iron	anr								
Lead	2000	2050	102.5	2000	2040	102.0	2000	2010	100.5
Magnesium									
Manganese									
Molybdenum	anr								
Nickel	anr								
Palladium									
Platinum									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								
Zirconium									

(*) Outside of QC limits

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15390 Units: ug/l

Time:
Sample ID:
Metal

(anr) Analyte not requested

11.3.3

11

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15390 Units: ug/l

Time:		14:48			15:43			16:43	
Sample ID:	CCV	CCV6		CCV	CCV7		CCV	CCV8	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt	anr								
Copper	anr								
Gold									
Iron	anr								
Lead	2000	2000	100.0	2000	1970	98.5	2000	1990	99.5
Magnesium									
Manganese									
Molybdenum	anr								
Nickel	anr								
Palladium									
Platinum									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								
Zirconium									

(*) Outside of QC limits

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15390 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

11.3.3

11

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA15390 Units: ug/l

Time:			10:02		16:29	
Sample ID:	CRI	CRIA	CRIA1		CRIA2	
Metal	True	True	Results	% Rec	Results	% Rec
Aluminum	200	200				
Antimony	6.0	10	anr			
Arsenic	4.0	10	anr			
Barium	50	50	anr			
Beryllium	4.0	4.0	anr			
Boron	100	100				
Cadmium	4.0	4.0	anr			
Calcium	5000	5000				
Chromium	10	10	anr			
Cobalt	50	50	anr			
Copper	25	25	anr			
Gold	50	50				
Iron	100	100	anr			
Lead	5.0	10	9.3	93.0	9.5	95.0
Magnesium	5000	5000				
Manganese	15	15				
Molybdenum	100	100	anr			
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	anr			
Tin	100	100				
Titanium	50	50				
Tungsten	100	100				
Vanadium	10	10	anr			
Zinc	20	20	anr			
Zirconium	50	50				

(*) Outside of QC limits

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA15390 Units: ug/l

Time:
Sample ID:
Metal

(anr) Analyte not requested

11.3.4

11

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA15390 Units: ug/l

Time:			10:06		10:10		16:34		16:38	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1		ICSA2		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	500000	500000	516000	103.2	521000	104.2	507000	101.4	520000	104.0
Antimony		2000	0.0		2270	113.5	1.6		2230	111.5
Arsenic		2000	-0.90		2190	109.5	-1.3		2150	107.5
Barium		500	-1.0		505	101.0	-0.90		494	98.8
Beryllium		500	0.10		463	92.6	0.10		455	91.0
Boron		1000	2.9		1140	114.0	2.1		1110	111.0
Cadmium		1000	0.20		1120	112.0	0.10		1100	110.0
Calcium	500000	500000	455000	91.0	470000	94.0	454000	90.8	455000	91.0
Chromium		500	0.20		490	98.0	0.10		478	95.6
Cobalt		500	1.7		519	103.8	2.7		510	102.0
Copper		500	0.70		534	106.8	0.70		522	104.4
Gold		500	1.1		505	101.0	0.50		495	99.0
Iron	200000	200000	188000	94.0	189000	94.5	184000	92.0	183000	91.5
Lead		1000	6.1		1040	104.0	6.3		1020	102.0
Magnesium	500000	500000	500000	100.0	503000	100.6	494000	98.8	495000	99.0
Manganese		500	0.70		499	99.8	0.80		489	97.8
Molybdenum		1000	-1.7		1060	106.0	-1.6		1050	105.0
Nickel		1000	-2.8		1020	102.0	-3.0		1000	100.0
Palladium		500	-33		505	101.0	-33		500	100.0
Platinum		500	-22		484	96.8	-25		479	95.8
Potassium			35.7		47.2		111		81.2	
Selenium		2000	-0.40		2150	107.5	-2.4		2110	105.5
Silicon		2000	-20		2200	110.0	-20		2150	107.5
Silver		1000	0.60		1090	109.0	0.90		1060	106.0
Sodium			347		379		345		380	
Strontium		1000	0.80		978	97.8	0.70		953	95.3
Thallium		2000	-2.0		2160	108.0	-3.3		2130	106.5
Tin		1000	0.20		1100	110.0	0.50		1080	108.0
Titanium		500	8.3		521	104.2	8.3		507	101.4
Tungsten		2000	-31		1930	96.5	-55		1890	94.5
Vanadium		500	0.50		519	103.8	-0.40		514	102.8
Zinc		1000	-0.80		967	96.7	-0.60		949	94.9
Zirconium		500	1.0		477	95.4	0.80		460	92.0

(*) Outside of QC limits

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032713M1.ICP Date Analyzed: 03/27/13 Methods: SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA15390 Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

11.3.5

11

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20648
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 03/22/13

Metal	RL	IDL	MDL	MB raw	final
Aluminum	20	2.7	3.6		
Antimony	1.0	.11	.15		
Arsenic	1.0	.15	.21		
Barium	5.0	.067	.073		
Beryllium	0.40	.024	.024		
Boron	10	.093	.11		
Cadmium	0.40	.023	.042		
Calcium	500	2.3	6.3		
Chromium	1.0	.072	.095		
Cobalt	5.0	.025	.047		
Copper	2.5	.063	.56		
Gold	5.0	.23	.43		
Iron	10	.38	.87		
Lead	1.0	.15	.17	-0.050	<1.0
Magnesium	500	3.1	5.1		
Manganese	1.5	.015	.04		
Molybdenum	10	.049	.07		
Nickel	4.0	.036	.044		
Palladium	5.0	.46	.64		
Platinum	5.0	.88	1.5		
Potassium	500	7.9	8.6		
Selenium	1.0	.25	.35		
Silicon	10	.77	3.3		
Silver	0.50	.061	.13		
Sodium	500	2.4	3.3		
Strontium	1.0	.024	.03		
Thallium	1.0	.13	.13		
Tin	10	.047	.14		
Titanium	5.0	.047	.14		
Tungsten	10	.61	.94		
Vanadium	1.0	.1	.13		
Zinc	2.0	.024	.16		
Zirconium	5.0	.073	.088		

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20648 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date:

Metal

Associated samples MP20648: JB31583-1, JB31583-2, JB31583-3, JB31583-4, JB31583-5, JB31583-6, JB31583-7, JB31583-8, JB31583-9, JB31583-10

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: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20648
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 03/22/13

Metal	JB31413-3 Original	MS	Spikelot MPICP	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Gold					
Iron					
Lead	2.9	93.1	101	89.6	75-125
Magnesium					
Manganese					
Molybdenum					
Nickel					
Palladium					
Platinum					
Potassium					
Selenium					
Silicon					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Tungsten					
Vanadium					
Zinc					
Zirconium					

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20648 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date:

Metal

Associated samples MP20648: JB31583-1, JB31583-2, JB31583-3, JB31583-4, JB31583-5, JB31583-6, JB31583-7, JB31583-8, JB31583-9, JB31583-10

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: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20648
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 03/22/13

Metal	JB31413-3 Original	MSD	Spikelot MPICP	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Gold						
Iron						
Lead	2.9	92.1	101	88.6	1.1	20
Magnesium						
Manganese						
Molybdenum						
Nickel						
Palladium						
Platinum						
Potassium						
Selenium						
Silicon						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium						
Zinc						
Zirconium						

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20648 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date:

Metal

Associated samples MP20648: JB31583-1, JB31583-2, JB31583-3, JB31583-4, JB31583-5, JB31583-6, JB31583-7, JB31583-8, JB31583-9, JB31583-10

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: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20648
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:			03/22/13				03/22/13	
Metal	BSP Result	Spikelot MPICP	% Rec	QC Limits	LCS Result	Spikelot MPLCS78	% Rec	QC Limits
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Boron								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Gold								
Iron								
Lead	94.6	100	94.6	80-120	86.0	91.7	93.8	82-118
Magnesium								
Manganese								
Molybdenum								
Nickel								
Palladium								
Platinum								
Potassium								
Selenium								
Silicon								
Silver								
Sodium								
Strontium								
Thallium								
Tin								
Titanium								
Tungsten								
Vanadium								
Zinc								
Zirconium								

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20648
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

Associated samples MP20648: JB31583-1, JB31583-2, JB31583-3, JB31583-4, JB31583-5, JB31583-6, JB31583-7, JB31583-8, JB31583-9, JB31583-10

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20648
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 03/22/13

Metal	JB31413-3 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Gold				
Iron				
Lead	29.1	29.9	2.7	0-10
Magnesium				
Manganese				
Molybdenum				
Nickel				
Palladium				
Platinum				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				
Zirconium				

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20648 Methods: SW846 6010C
Matrix Type: SOLID Units: ug/l

Prep Date:

Metal

Associated samples MP20648: JB31583-1, JB31583-2, JB31583-3, JB31583-4, JB31583-5, JB31583-6, JB31583-7, JB31583-8, JB31583-9, JB31583-10

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

11.4.4

11

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20654
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 03/22/13

Metal	RL	IDL	MDL	MB raw	final
Aluminum	20	2.7	3.6		
Antimony	1.0	.11	.15		
Arsenic	1.0	.15	.21		
Barium	5.0	.067	.073		
Beryllium	0.40	.024	.024		
Boron	10	.093	.11		
Cadmium	0.40	.023	.042		
Calcium	500	2.3	6.3		
Chromium	1.0	.072	.095		
Cobalt	5.0	.025	.047		
Copper	2.5	.063	.56		
Gold	5.0	.23	.43		
Iron	10	.38	.87		
Lead	1.0	.15	.17	-0.050	<1.0
Magnesium	500	3.1	5.1		
Manganese	1.5	.015	.04		
Molybdenum	10	.049	.07		
Nickel	4.0	.036	.044		
Palladium	5.0	.46	.64		
Platinum	5.0	.88	1.5		
Potassium	500	7.9	8.6		
Selenium	1.0	.25	.35		
Silicon	10	.77	3.3		
Silver	0.50	.061	.13		
Sodium	500	2.4	3.3		
Strontium	1.0	.024	.03		
Thallium	1.0	.13	.13		
Tin	10	.047	.14		
Titanium	5.0	.047	.14		
Tungsten	10	.61	.94		
Vanadium	1.0	.1	.13		
Zinc	2.0	.024	.16		
Zirconium	5.0	.073	.088		

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20654 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date:

Metal

Associated samples MP20654: JB31583-11, JB31583-12, JB31583-13, JB31583-14, JB31583-15

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: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20654
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 03/22/13

Metal	MC19031-19 Original	MS	Spikelot MPICP	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	anr				
Barium	anr				
Beryllium					
Boron					
Cadmium	anr				
Calcium					
Chromium	anr				
Cobalt					
Copper	anr				
Gold					
Iron					
Lead	5.9	93.2	100	86.9	75-125
Magnesium					
Manganese					
Molybdenum					
Nickel	anr				
Palladium					
Platinum					
Potassium					
Selenium	anr				
Silicon					
Silver	anr				
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Tungsten					
Vanadium					
Zinc	anr				
Zirconium					

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20654 | Methods: SW846 6010C
Matrix Type: SOLID | Units: mg/kg

Prep Date:

Metal

Associated samples MP20654: JB31583-11, JB31583-12, JB31583-13, JB31583-14, JB31583-15

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: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20654
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 03/22/13

Metal	MC19031-19 Original	MSD	Spikelot MPICP	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium	anr					
Beryllium						
Boron						
Cadmium	anr					
Calcium						
Chromium	anr					
Cobalt						
Copper	anr					
Gold						
Iron						
Lead	5.9	92.6	100	86.3	0.6	20
Magnesium						
Manganese						
Molybdenum						
Nickel	anr					
Palladium						
Platinum						
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium						
Zinc	anr					
Zirconium						

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20654 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date:

Metal

Associated samples MP20654: JB31583-11, JB31583-12, JB31583-13, JB31583-14, JB31583-15

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: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20654
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:			03/22/13					03/22/13	
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									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt									
Copper	anr								
Gold									
Iron									
Lead	96.9	100	96.9	80-120	97.0	100	97.0	0.1	20
Magnesium									
Manganese									
Molybdenum									
Nickel	anr								
Palladium									
Platinum									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium									
Strontium									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									
Zinc	anr								
Zirconium									

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20654
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

Associated samples MP20654: JB31583-11, JB31583-12, JB31583-13, JB31583-14, JB31583-15

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: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20654
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 03/22/13

Metal	LCS Result	Spikelot MPLCS78	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper	anr			
Gold				
Iron				
Lead	86.9	91.7	94.8	82-118
Magnesium				
Manganese				
Molybdenum				
Nickel	anr			
Palladium				
Platinum				
Potassium				
Selenium	anr			
Silicon				
Silver	anr			
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc	anr			
Zirconium				

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20654 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date:

Metal

Associated samples MP20654: JB31583-11, JB31583-12, JB31583-13, JB31583-14, JB31583-15

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20654
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 03/22/13

Metal	MC19031-19 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper	anr			
Gold				
Iron				
Lead	59.3	60.6	2.2	0-10
Magnesium				
Manganese				
Molybdenum				
Nickel	anr			
Palladium				
Platinum				
Potassium				
Selenium	anr			
Silicon				
Silver	anr			
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc	anr			
Zirconium				

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB31583
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP20654
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal

Associated samples MP20654: JB31583-11, JB31583-12, JB31583-13, JB31583-14, JB31583-15

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

11.5.4

11

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: JB31583
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: JB31583-1 **Analyzed:** 21-MAR-13 by HS **Method:** SM21 2540 B MOD.
ClientID: AOI-4_BH-13-94_0-2_031513

Wet Weight (Total)	41.172	g
Tare Weight	30.994	g
Dry Weight (Total)	39.765	g
Solids, Percent	86.2	%

Sample: JB31583-2 **Analyzed:** 21-MAR-13 by HS **Method:** SM21 2540 B MOD.
ClientID: AOI-4_BH-13-94_8-10_031513

Wet Weight (Total)	30.694	g
Tare Weight	21.123	g
Dry Weight (Total)	28.846	g
Solids, Percent	80.7	%

Sample: JB31583-3 **Analyzed:** 21-MAR-13 by HS **Method:** SM21 2540 B MOD.
ClientID: AOI-4_BH-13-90_8-10'_031513

Wet Weight (Total)	34.128	g
Tare Weight	21.999	g
Dry Weight (Total)	31.529	g
Solids, Percent	78.6	%

Sample: JB31583-4 **Analyzed:** 21-MAR-13 by HS **Method:** SM21 2540 B MOD.
ClientID: AOI4-BH-13-104_6-7_31513

Wet Weight (Total)	31.569	g
Tare Weight	21.076	g
Dry Weight (Total)	29.61	g
Solids, Percent	81.3	%

Sample: JB31583-5 **Analyzed:** 21-MAR-13 by HS **Method:** SM21 2540 B MOD.
ClientID: AOI4-BH-13-104_0-.5_31513

Wet Weight (Total)	30.521	g
Tare Weight	18.837	g
Dry Weight (Total)	28.407	g
Solids, Percent	81.9	%

Sample: JB31583-6 **Analyzed:** 21-MAR-13 by HS **Method:** SM21 2540 B MOD.
ClientID: AOI4-S-381_0-.5_31513

Wet Weight (Total)	30.946	g
Tare Weight	21.274	g
Dry Weight (Total)	29.367	g
Solids, Percent	83.7	%

Percent Solids Raw Data Summary

Job Number: JB31583
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: JB31583-7 **Analyzed:** 21-MAR-13 by HS **Method:** SM21 2540 B MOD.
ClientID: AOI4-S-381_2-3_31513

Wet Weight (Total)	27.217	g
Tare Weight	17.043	g
Dry Weight (Total)	25.385	g
Solids, Percent	82	%

Sample: JB31583-8 **Analyzed:** 21-MAR-13 by HS **Method:** SM21 2540 B MOD.
ClientID: AOI4-BH-13-86_2-2.5_031513

Wet Weight (Total)	38.042	g
Tare Weight	26.935	g
Dry Weight (Total)	35.88	g
Solids, Percent	80.5	%

Sample: JB31583-9 **Analyzed:** 21-MAR-13 by HS **Method:** SM21 2540 B MOD.
ClientID: AOI4-BH-13-86_5.5-6_031513

Wet Weight (Total)	28.694	g
Tare Weight	19.828	g
Dry Weight (Total)	27.492	g
Solids, Percent	86.4	%

Sample: JB31583-10 **Analyzed:** 21-MAR-13 by HS **Method:** SM21 2540 B MOD.
ClientID: AOI4-BH-13-85_5.5-6_031513

Wet Weight (Total)	35.747	g
Tare Weight	24.082	g
Dry Weight (Total)	33.421	g
Solids, Percent	80.1	%

Sample: JB31583-11 **Analyzed:** 21-MAR-13 by HS **Method:** SM21 2540 B MOD.
ClientID: AOI4-BH-13-84_5.5-6_031513

Wet Weight (Total)	43.977	g
Tare Weight	25.679	g
Dry Weight (Total)	40.741	g
Solids, Percent	82.3	%

Sample: JB31583-12 **Analyzed:** 21-MAR-13 by HS **Method:** SM21 2540 B MOD.
ClientID: S-366@14-16_031513

Wet Weight (Total)	40.503	g
Tare Weight	26.654	g
Dry Weight (Total)	39.645	g
Solids, Percent	93.8	%

Percent Solids Raw Data Summary

Job Number: JB31583
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: JB31583-13 **Analyzed:** 21-MAR-13 by HS **Method:** SM21 2540 B MOD.
ClientID: S-367_031313@6'

Wet Weight (Total)	33.346	g
Tare Weight	20.519	g
Dry Weight (Total)	31.975	g
Solids, Percent	89.3	%

Sample: JB31583-14 **Analyzed:** 21-MAR-13 by HS **Method:** SM21 2540 B MOD.
ClientID: S-367@14'_031313

Wet Weight (Total)	44.984	g
Tare Weight	30.774	g
Dry Weight (Total)	44.322	g
Solids, Percent	95.3	%

Sample: JB31583-15 **Analyzed:** 21-MAR-13 by HS **Method:** SM21 2540 B MOD.
ClientID: S-368@14'_031413

Wet Weight (Total)	33.836	g
Tare Weight	25.026	g
Dry Weight (Total)	32.505	g
Solids, Percent	84.9	%

New Jersey

ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Percent Solids Raw Data Summary

Percent Solids Raw Data Summary

Job Number: JB31583
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: JB31583-1 **Analyzed:** 21-MAR-13 by AMA **Method:** SM21 2540 B MOD.
ClientID: AOI-4_BH-13-94_0-2_031513

Wet Weight (Total)	41.172	g
Tare Weight	30.994	g
Dry Weight (Total)	39.765	g
Solids, Percent	86.2	%

Sample: JB31583-2 **Analyzed:** 21-MAR-13 by AMA **Method:** SM21 2540 B MOD.
ClientID: AOI-4_BH-13-94_8-10_031513

Wet Weight (Total)	30.694	g
Tare Weight	21.123	g
Dry Weight (Total)	28.846	g
Solids, Percent	80.7	%

Sample: JB31583-3 **Analyzed:** 21-MAR-13 by AMA **Method:** SM21 2540 B MOD.
ClientID: AOI-4_BH-13-90_8-10'_031513

Wet Weight (Total)	34.128	g
Tare Weight	21.999	g
Dry Weight (Total)	31.529	g
Solids, Percent	78.6	%

Sample: JB31583-4 **Analyzed:** 21-MAR-13 by AMA **Method:** SM21 2540 B MOD.
ClientID: AOI4-BH-13-104_6-7_31513

Wet Weight (Total)	31.569	g
Tare Weight	21.076	g
Dry Weight (Total)	29.61	g
Solids, Percent	81.3	%

Sample: JB31583-5 **Analyzed:** 21-MAR-13 by AMA **Method:** SM21 2540 B MOD.
ClientID: AOI4-BH-13-104_0-.5_31513

Wet Weight (Total)	30.521	g
Tare Weight	18.837	g
Dry Weight (Total)	28.407	g
Solids, Percent	81.9	%

Sample: JB31583-6 **Analyzed:** 21-MAR-13 by AMA **Method:** SM21 2540 B MOD.
ClientID: AOI4-S-381_0-.5_31513

Wet Weight (Total)	30.946	g
Tare Weight	21.274	g
Dry Weight (Total)	29.367	g
Solids, Percent	83.7	%

Percent Solids Raw Data Summary

Job Number: JB31583
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: JB31583-7 **Analyzed:** 21-MAR-13 by AMA **Method:** SM21 2540 B MOD.
ClientID: AOI4-S-381_2-3_31513

Wet Weight (Total)	27.217	g
Tare Weight	17.043	g
Dry Weight (Total)	25.385	g
Solids, Percent	82	%

Sample: JB31583-8 **Analyzed:** 21-MAR-13 by AMA **Method:** SM21 2540 B MOD.
ClientID: AOI4-BH-13-86_2-2.5_031513

Wet Weight (Total)	38.042	g
Tare Weight	26.935	g
Dry Weight (Total)	35.88	g
Solids, Percent	80.5	%

Sample: JB31583-9 **Analyzed:** 21-MAR-13 by AMA **Method:** SM21 2540 B MOD.
ClientID: AOI4-BH-13-86_5.5-6_031513

Wet Weight (Total)	28.694	g
Tare Weight	19.828	g
Dry Weight (Total)	27.492	g
Solids, Percent	86.4	%

Sample: JB31583-10 **Analyzed:** 21-MAR-13 by AMA **Method:** SM21 2540 B MOD.
ClientID: AOI4-BH-13-85_5.5-6_031513

Wet Weight (Total)	35.747	g
Tare Weight	24.082	g
Dry Weight (Total)	33.421	g
Solids, Percent	80.1	%

Sample: JB31583-11 **Analyzed:** 21-MAR-13 by AMA **Method:** SM21 2540 B MOD.
ClientID: AOI4-BH-13-84_5.5-6_031513

Wet Weight (Total)	43.977	g
Tare Weight	25.679	g
Dry Weight (Total)	40.741	g
Solids, Percent	82.3	%

Sample: JB31583-12 **Analyzed:** 21-MAR-13 by AMA **Method:** SM21 2540 B MOD.
ClientID: S-366@14-16_031513

Wet Weight (Total)	40.503	g
Tare Weight	26.654	g
Dry Weight (Total)	39.645	g
Solids, Percent	93.8	%

Percent Solids Raw Data Summary

Job Number: JB31583
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: JB31583-13 **Analyzed:** 21-MAR-13 by AMA **Method:** SM21 2540 B MOD.
ClientID: S-367_031313@6'

Wet Weight (Total)	33.346	g
Tare Weight	20.519	g
Dry Weight (Total)	31.975	g
Solids, Percent	89.3	%

Sample: JB31583-14 **Analyzed:** 21-MAR-13 by AMA **Method:** SM21 2540 B MOD.
ClientID: S-367@14'_031313

Wet Weight (Total)	44.984	g
Tare Weight	30.774	g
Dry Weight (Total)	44.322	g
Solids, Percent	95.3	%

Sample: JB31583-15 **Analyzed:** 21-MAR-13 by AMA **Method:** SM21 2540 B MOD.
ClientID: S-368@14'_031413

Wet Weight (Total)	33.836	g
Tare Weight	25.026	g
Dry Weight (Total)	32.505	g
Solids, Percent	84.9	%