New Jersey
ACCUTEST LABORATORIES

01/07/13

Technical Report for

Aquaterra Technologies, Inc.

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

AOI-6

Accutest Job Number: JB22962

Sampling Date: 12/04/12

Report to:

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Total number of pages in report: **801**

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Sections: 1 2 3 4 5 6 7 8 9 10 11

Table of Contents

-1-

Section 1: Sample Summary **4**
Section 2: Case Narrative/Conformance Summary **6**
Section 3: Summary of Hits **9**
Section 4: Sample Results **15**
4.1: JB22962-1: BH-12-123_1-1.5' 16
4.2: JB22962-2: BH-12-123_2-2.5' 19
4.3: JB22962-3: BH-12-124_3-3.5' 22
4.4: JB22962-4: BH-12-149_1-1.5' 25
4.5: JB22962-5: BH-12-149_2.5-3' 28
4.6: JB22962-6: BH-12-129_1.5-2' 31
4.7: JB22962-7: BH-12-129_2.5-3' 34
4.8: JB22962-8: BH-12-126_2.5-3' 37
4.9: JB22962-9: BH-12-128_3-3.5' 40
4.10: JB22962-10: BH-12-127_2.5-3' 43
4.11: JB22962-11: BH-12-119_0.5-1' 46
4.12: JB22962-12: BH-12-125_2.5-3' 49
4.13: JB22962-13: BH-12-120_0-1' 52
4.14: JB22962-14: BH-12-104_0.5-1' 55
4.15: JB22962-15: BH-12-130_1-2' 58
4.16: JB22962-16: BH-12-131_1-2' 61
4.17: JB22962-17: BH-12-118_2-2.5' 64
4.18: JB22962-18: BH-12-102_2-2.5' 67
4.19: JB22962-19: BH-12-101_2-3' 70
Section 5: Misc. Forms **73**
5.1: Chain of Custody 74
5.2: Sample Tracking Chronicle 78
5.3: Internal Chain of Custody 83
Section 6: GC/MS Volatiles - QC Data Summaries **100**
6.1: Method Blank Summary 101
6.2: Blank Spike Summary 110
6.3: Matrix Spike/Matrix Spike Duplicate Summary 119
6.4: Instrument Performance Checks (BFB) 128
6.5: Internal Standard Area Summaries 140
6.6: Surrogate Recovery Summaries 149
6.7: Initial and Continuing Calibration Summaries 151
Section 7: GC/MS Volatiles - Raw Data **207**
7.1: Samples 208
7.2: Method Blanks 361
Section 8: GC/MS Semi-volatiles - QC Data Summaries **379**
8.1: Method Blank Summary 380
8.2: Blank Spike Summary 382
8.3: Matrix Spike/Matrix Spike Duplicate Summary 383

Table of Contents

8.4: Instrument Performance Checks (DFTPP) 384
8.5: Internal Standard Area Summaries 398
8.6: Surrogate Recovery Summaries 407
8.7: Initial and Continuing Calibration Summaries 409
Section 9: GC/MS Semi-volatiles - Raw Data 456
9.1: Samples 457
9.2: Method Blanks 696
Section 10: Metals Analysis - QC Data Summaries 700
10.1: Inst QC MA30079: Pb 701
10.2: Inst QC MA30091: Pb 753
10.3: Prep QC MP68545: Pb 787
Section 11: General Chemistry - QC Data Summaries 797
11.1: Percent Solids Raw Data Summary 798

Sample Summary

Aquaterra Technologies, Inc.

Job No: JB22962

Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Project No: AOI-6

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB22962-1	12/04/12	08:00	LM	12/05/12	SO	Soil	BH-12-123_1-1.5'
JB22962-2	12/04/12	08:15	LM	12/05/12	SO	Soil	BH-12-123_2-2.5'
JB22962-3	12/04/12	09:00	LM	12/05/12	SO	Soil	BH-12-124_3-3.5'
JB22962-4	12/04/12	09:15	LM	12/05/12	SO	Soil	BH-12-149_1-1.5'
JB22962-5	12/04/12	09:30	LM	12/05/12	SO	Soil	BH-12-149_2.5-3'
JB22962-6	12/04/12	09:45	LM	12/05/12	SO	Soil	BH-12-129_1.5-2'
JB22962-7	12/04/12	09:50	LM	12/05/12	SO	Soil	BH-12-129_2.5-3'
JB22962-8	12/04/12	10:00	LM	12/05/12	SO	Soil	BH-12-126_2.5-3'
JB22962-9	12/04/12	10:15	LM	12/05/12	SO	Soil	BH-12-128_3-3.5'
JB22962-10	12/04/12	10:20	LM	12/05/12	SO	Soil	BH-12-127_2.5-3'
JB22962-11	12/04/12	10:30	LM	12/05/12	SO	Soil	BH-12-119_0.5-1'
JB22962-12	12/04/12	10:45	LM	12/05/12	SO	Soil	BH-12-125_2.5-3'
JB22962-13	12/04/12	11:00	LM	12/05/12	SO	Soil	BH-12-120_0-1'

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

Sample Summary
(continued)

Aquaterra Technologies, Inc.

Job No: JB22962

Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Project No: AOI-6

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB22962-14	12/04/12	13:00	LM	12/05/12	SO	Soil	BH-12-104_0.5-1'
JB22962-15	12/04/12	11:15	LM	12/05/12	SO	Soil	BH-12-130_1-2'
JB22962-16	12/04/12	11:30	LM	12/05/12	SO	Soil	BH-12-131_1-2'
JB22962-17	12/04/12	11:45	LM	12/05/12	SO	Soil	BH-12-118_2-2.5'
JB22962-18	12/04/12	13:30	LM	12/05/12	SO	Soil	BH-12-102_2-2.5'
JB22962-19	12/04/12	14:00	LM	12/05/12	SO	Soil	BH-12-101_2-3'

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Aquaterra Technologies, Inc.	**Job No**	JB22962
Site:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, P	**Report Date**	12/26/2012 1:37:32 P

On 12/05/2012, 19 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories at a temperature of 3.3 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB22962 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:** V3C4159

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB23312-5MS, JB23312-5MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Matrix: SO **Batch ID:** VD8292

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB22822-20MS, JB22822-20MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Matrix: SO **Batch ID:** VD8294

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB23112-1MS, JB23112-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Matrix: SO **Batch ID:** VD8297

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB23096-6MS, JB23096-6MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- JB22962-15: Diluted due to high concentration of non-target compound.
- JB22962-14: Diluted due to high concentration of non-target compound.
- JB22962-12: Diluted due to high concentration of non-target compound.

Matrix: SO **Batch ID:** VD8298

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB23676-1MS, JB23676-1MSD were used as the QC samples indicated.
- JB22962-16: Dilution required due to matrix interference.

Matrix: SO **Batch ID:** VD8299

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB23096-7MS, JB23096-7MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Volatiles by GCMS By Method SW846 8260B

Matrix: SO **Batch ID:** VD8299

- Matrix Spike Recovery(s) for Methyl Tert Butyl Ether are outside control limits. Outside control limits due to high level in sample relative to spike amount.
- Matrix Spike Duplicate Recovery(s) for Methyl Tert Butyl Ether are outside control limits. Outside control limits due to high level in sample relative to spike amount.
- JB22962-18: Dilution required due to matrix interference.
- JB22962-19: Dilution required due to matrix interference.

Matrix: SO **Batch ID:** VE8698

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB23101-10MS, JB23101-10MSD were used as the QC samples indicated.
- JB22962-4: Diluted due to high concentration of non-target compound.

Matrix: SO **Batch ID:** VE8699

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB23101-14MS, JB23101-14MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Matrix: SO **Batch ID:** VE8700

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB22999-2MS, JB22999-2MSD were used as the QC samples indicated.

Extractables by GCMS By Method SW846 8270D

Matrix: SO **Batch ID:** OP62064

- All samples were extracted within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB22962-1MS, JB22962-1MSD were used as the QC samples indicated.
- Sample(s) JB22962-19 have surrogates outside control limits.
- JB22962-6: Confirmation run for internal standard areas.
- JB22962-8: Dilution required due to matrix interference.
- JB22962-7: Dilution required due to matrix interference.
- JB22962-3: Confirmation run for internal standard areas.
- JB22962-16: Confirmation run for internal standard areas.
- JB22962-11: Confirmation run for internal standard areas.
- JB22962-11: Dilution required due to viscosity of extract matrix.i.s.low.
- JB22962-5: Confirmation run for internal standard areas.
- JB22962-19 for Nitrobenzene-d5: Outside control limits due to matrix interference.
- JB22962-19 for 2-Fluorobiphenyl: Outside control limits due to matrix interference.

Matrix: SO **Batch ID:** OP62177

- The data for SW846 8270D meets quality control requirements.
- JB22962-19: Confirmation run for surrogate recoveries.

Metals By Method SW846 6010C

Matrix: SO	**Batch ID:** MP68545

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB22962-8MS, JB22962-8MSD, JB22962-8SDL were used as the QC samples for metals.

Wet Chemistry By Method SM2540 G-97

Matrix: SO	**Batch ID:** GN76898

- The data for SM2540 G-97 meets quality control requirements.

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

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

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

Summary of Hits

Job Number: JB22962
Account: Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Collected: 12/04/12

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB22962-1	**BH-12-123_1-1.5'**					
Anthracene		0.597	0.039		mg/kg	SW846 8270D
Benzo(a)anthracene		1.79	0.039		mg/kg	SW846 8270D
Benzo(a)pyrene		2.11	0.039		mg/kg	SW846 8270D
Benzo(b)fluoranthene		2.15	0.039		mg/kg	SW846 8270D
Benzo(g,h,i)perylene		1.59	0.039		mg/kg	SW846 8270D
Chrysene		1.87	0.039		mg/kg	SW846 8270D
Fluorene		0.307	0.039		mg/kg	SW846 8270D
Phenanthrene		1.49	0.039		mg/kg	SW846 8270D
Pyrene		2.51	0.039		mg/kg	SW846 8270D
Lead		224	2.4		mg/kg	SW846 6010C
JB22962-2	**BH-12-123_2-2.5'**					
Benzene		2.07	0.049		mg/kg	SW846 8260B
Toluene		0.722	0.049		mg/kg	SW846 8260B
Ethylbenzene		0.464	0.049		mg/kg	SW846 8260B
Xylene (total)		0.924	0.049		mg/kg	SW846 8260B
Naphthalene		1.11	0.25		mg/kg	SW846 8260B
Isopropylbenzene		16.9	1.2		mg/kg	SW846 8260B
1,2,4-Trimethylbenzene		0.593	0.25		mg/kg	SW846 8260B
Anthracene		2.32	0.035		mg/kg	SW846 8270D
Benzo(a)anthracene		8.99	0.35		mg/kg	SW846 8270D
Benzo(a)pyrene		7.91	0.35		mg/kg	SW846 8270D
Benzo(b)fluoranthene		9.36	0.35		mg/kg	SW846 8270D
Benzo(g,h,i)perylene		3.58	0.35		mg/kg	SW846 8270D
Chrysene		8.28	0.35		mg/kg	SW846 8270D
Fluorene		3.39	0.035		mg/kg	SW846 8270D
Phenanthrene		6.10	0.35		mg/kg	SW846 8270D
Pyrene		11.3	0.35		mg/kg	SW846 8270D
Lead		133	2.2		mg/kg	SW846 6010C
JB22962-3	**BH-12-124_3-3.5'**					
Benzene		1380	24		mg/kg	SW846 8260B
Toluene		1640	24		mg/kg	SW846 8260B
Ethylbenzene		5.87	0.47		mg/kg	SW846 8260B
Xylene (total)		22.6	0.47		mg/kg	SW846 8260B
Isopropylbenzene		2110	120		mg/kg	SW846 8260B
1,2,4-Trimethylbenzene		3.46	2.4		mg/kg	SW846 8260B
Phenanthrene		0.0626	0.033		mg/kg	SW846 8270D
Lead		5.5	2.3		mg/kg	SW846 6010C

Summary of Hits

Job Number: JB22962
Account: Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Collected: 12/04/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB22962-4	**BH-12-149_1-1.5'**					
Benzo(a)anthracene		0.0518	0.037		mg/kg	SW846 8270D
Benzo(a)pyrene		0.0576	0.037		mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.0670	0.037		mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.0459	0.037		mg/kg	SW846 8270D
Chrysene		0.0640	0.037		mg/kg	SW846 8270D
Pyrene		0.0804	0.037		mg/kg	SW846 8270D
Lead		27.9	2.6		mg/kg	SW846 6010C
JB22962-5	**BH-12-149_2.5-3'**					
Benzene		517	2.8		mg/kg	SW846 8260B
Toluene		21.2	1.4		mg/kg	SW846 8260B
Isopropylbenzene		74.7	7.0		mg/kg	SW846 8260B
Benzo(a)anthracene		0.403	0.036		mg/kg	SW846 8270D
Benzo(a)pyrene		0.452	0.036		mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.708	0.036		mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.458	0.036		mg/kg	SW846 8270D
Chrysene		0.493	0.036		mg/kg	SW846 8270D
Phenanthrene		0.154	0.036		mg/kg	SW846 8270D
Pyrene		0.601	0.036		mg/kg	SW846 8270D
Lead		127	2.2		mg/kg	SW846 6010C
JB22962-6	**BH-12-129_1.5-2'**					
Benzene		91.6	4.8		mg/kg	SW846 8260B
Toluene		116	4.8		mg/kg	SW846 8260B
Ethylbenzene		0.837	0.048		mg/kg	SW846 8260B
Xylene (total)		3.69	0.048		mg/kg	SW846 8260B
Isopropylbenzene		311	24		mg/kg	SW846 8260B
1,2,4-Trimethylbenzene		0.705	0.24		mg/kg	SW846 8260B
1,3,5-Trimethylbenzene		0.257	0.24		mg/kg	SW846 8260B
Benzo(a)anthracene		0.0699	0.033		mg/kg	SW846 8270D
Benzo(a)pyrene		0.0627	0.033		mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.0687	0.033		mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.0498	0.033		mg/kg	SW846 8270D
Chrysene		0.0711	0.033		mg/kg	SW846 8270D
Phenanthrene		0.0395	0.033		mg/kg	SW846 8270D
Pyrene		0.121	0.033		mg/kg	SW846 8270D
Lead		48.0	2.1		mg/kg	SW846 6010C
JB22962-7	**BH-12-129_2.5-3'**					
Benzene		1850	54		mg/kg	SW846 8260B

Summary of Hits

Job Number: JB22962
Account: Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Collected: 12/04/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Toluene		2070	54		mg/kg	SW846 8260B
Ethylbenzene		12.6	0.27		mg/kg	SW846 8260B
Xylene (total)		51.6	0.27		mg/kg	SW846 8260B
Isopropylbenzene		6600	270		mg/kg	SW846 8260B
1,2,4-Trimethylbenzene		9.43	1.4		mg/kg	SW846 8260B
1,3,5-Trimethylbenzene		3.38	1.4		mg/kg	SW846 8260B
Benzo(a)anthracene [a]		0.177	0.070		mg/kg	SW846 8270D
Benzo(a)pyrene [a]		0.121	0.070		mg/kg	SW846 8270D
Benzo(b)fluoranthene [a]		0.126	0.070		mg/kg	SW846 8270D
Benzo(g,h,i)perylene [a]		0.0832	0.070		mg/kg	SW846 8270D
Chrysene [a]		0.243	0.070		mg/kg	SW846 8270D
Fluorene [a]		0.182	0.070		mg/kg	SW846 8270D
Phenanthrene [a]		0.437	0.070		mg/kg	SW846 8270D
Pyrene [a]		0.406	0.070		mg/kg	SW846 8270D
Lead		107	2.2		mg/kg	SW846 6010C
JB22962-8	**BH-12-126_2.5-3'**					
Benzene		87.2	26		mg/kg	SW846 8260B
Toluene		197	26		mg/kg	SW846 8260B
Ethylbenzene		14.6	0.26		mg/kg	SW846 8260B
Xylene (total)		68.5	0.26		mg/kg	SW846 8260B
Isopropylbenzene		678	130		mg/kg	SW846 8260B
1,2,4-Trimethylbenzene		4.62	1.3		mg/kg	SW846 8260B
1,3,5-Trimethylbenzene		2.08	1.3		mg/kg	SW846 8260B
Chrysene [a]		0.0845	0.073		mg/kg	SW846 8270D
Phenanthrene [a]		0.115	0.073		mg/kg	SW846 8270D
Pyrene [a]		0.123	0.073		mg/kg	SW846 8270D
Lead		8.7	2.3		mg/kg	SW846 6010C
JB22962-9	**BH-12-128_3-3.5'**					
Benzene		535	13		mg/kg	SW846 8260B
Toluene		1050	13		mg/kg	SW846 8260B
Ethylbenzene		57.8	1.3		mg/kg	SW846 8260B
Xylene (total)		248	1.3		mg/kg	SW846 8260B
Isopropylbenzene		919	63		mg/kg	SW846 8260B
1,2,4-Trimethylbenzene		6.32	0.25		mg/kg	SW846 8260B
1,3,5-Trimethylbenzene		2.92	0.25		mg/kg	SW846 8260B
Lead		6.5	2.4		mg/kg	SW846 6010C
JB22962-10	**BH-12-127_2.5-3'**					
Benzene		149	2.5		mg/kg	SW846 8260B
Toluene		339	2.5		mg/kg	SW846 8260B

Summary of Hits

Job Number: JB22962
Account: Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Collected: 12/04/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Ethylbenzene		18.7	2.5		mg/kg	SW846 8260B
Xylene (total)		83.6	2.5		mg/kg	SW846 8260B
Isopropylbenzene		374	13		mg/kg	SW846 8260B
1,2,4-Trimethylbenzene		3.04	0.25		mg/kg	SW846 8260B
1,3,5-Trimethylbenzene		1.41	0.25		mg/kg	SW846 8260B
Lead		13.8	2.3		mg/kg	SW846 6010C
JB22962-11	**BH-12-119_0.5-1'**					
Anthracene [b]		0.219	0.074		mg/kg	SW846 8270D
Benzo(a)anthracene [b]		0.266	0.074		mg/kg	SW846 8270D
Benzo(a)pyrene [b]		0.320	0.074		mg/kg	SW846 8270D
Benzo(b)fluoranthene [b]		0.395	0.074		mg/kg	SW846 8270D
Benzo(g,h,i)perylene [b]		0.587	0.074		mg/kg	SW846 8270D
Chrysene [b]		0.295	0.074		mg/kg	SW846 8270D
Phenanthrene [b]		0.170	0.074		mg/kg	SW846 8270D
Pyrene [b]		0.301	0.074		mg/kg	SW846 8270D
Lead		237	2.5		mg/kg	SW846 6010C
JB22962-12	**BH-12-125_2.5-3'**					
Isopropylbenzene [c]		64.2	12		mg/kg	SW846 8260B
Pyrene		0.0363	0.035		mg/kg	SW846 8270D
Lead		11.4	2.2		mg/kg	SW846 6010C
JB22962-13	**BH-12-120_0-1'**					
Anthracene		0.185	0.043		mg/kg	SW846 8270D
Benzo(a)anthracene		0.127	0.043		mg/kg	SW846 8270D
Benzo(a)pyrene		0.118	0.043		mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.198	0.043		mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.555	0.043		mg/kg	SW846 8270D
Chrysene		0.236	0.043		mg/kg	SW846 8270D
Phenanthrene		0.243	0.043		mg/kg	SW846 8270D
Pyrene		0.300	0.043		mg/kg	SW846 8270D
Lead		309	2.7		mg/kg	SW846 6010C
JB22962-14	**BH-12-104_0.5-1'**					
Benzo(a)anthracene		0.0863	0.038		mg/kg	SW846 8270D
Benzo(a)pyrene		0.0630	0.038		mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.103	0.038		mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.0866	0.038		mg/kg	SW846 8270D
Chrysene		0.0989	0.038		mg/kg	SW846 8270D
Pyrene		0.0825	0.038		mg/kg	SW846 8270D

Summary of Hits

Job Number: JB22962
Account: Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Collected: 12/04/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Lead		161	2.4		mg/kg	SW846 6010C
JB22962-15	**BH-12-130_1-2'**					
Isopropylbenzene [c]		32.9	2.5		mg/kg	SW846 8260B
Anthracene		3.58	0.73		mg/kg	SW846 8270D
Benzo(a)anthracene		3.52	0.036		mg/kg	SW846 8270D
Benzo(a)pyrene		6.52	0.73		mg/kg	SW846 8270D
Benzo(b)fluoranthene		11.3	0.73		mg/kg	SW846 8270D
Benzo(g,h,i)perylene		4.33	0.73		mg/kg	SW846 8270D
Chrysene		9.88	0.73		mg/kg	SW846 8270D
Fluorene		34.6	0.73		mg/kg	SW846 8270D
Phenanthrene		10.0	0.73		mg/kg	SW846 8270D
Pyrene		12.1	0.73		mg/kg	SW846 8270D
Lead		84.4	2.2		mg/kg	SW846 6010C
JB22962-16	**BH-12-131_1-2'**					
Benzene [a]		0.110	0.057		mg/kg	SW846 8260B
Toluene [a]		0.211	0.057		mg/kg	SW846 8260B
Ethylbenzene [a]		0.136	0.057		mg/kg	SW846 8260B
Xylene (total) [a]		0.216	0.057		mg/kg	SW846 8260B
Naphthalene [a]		0.360	0.28		mg/kg	SW846 8260B
Anthracene		0.0602	0.036		mg/kg	SW846 8270D
Benzo(a)anthracene		0.0983	0.036		mg/kg	SW846 8270D
Benzo(a)pyrene		0.116	0.036		mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.0976	0.036		mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.178	0.036		mg/kg	SW846 8270D
Chrysene		0.136	0.036		mg/kg	SW846 8270D
Fluorene		0.122	0.036		mg/kg	SW846 8270D
Phenanthrene		0.174	0.036		mg/kg	SW846 8270D
Pyrene		0.140	0.036		mg/kg	SW846 8270D
Lead		111	2.4		mg/kg	SW846 6010C
JB22962-17	**BH-12-118_2-2.5'**					
Anthracene		0.151	0.035		mg/kg	SW846 8270D
Benzo(a)anthracene		0.608	0.035		mg/kg	SW846 8270D
Benzo(a)pyrene		0.602	0.035		mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.616	0.035		mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.343	0.035		mg/kg	SW846 8270D
Chrysene		0.599	0.035		mg/kg	SW846 8270D
Phenanthrene		0.248	0.035		mg/kg	SW846 8270D
Pyrene		0.728	0.035		mg/kg	SW846 8270D
Lead		93.1	2.3		mg/kg	SW846 6010C

Summary of Hits

Job Number: JB22962
Account: Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Collected: 12/04/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB22962-18	**BH-12-102_2-2.5'**					
Isopropylbenzene [a]		1.18	0.66		mg/kg	SW846 8260B
Anthracene		1.02	0.049		mg/kg	SW846 8270D
Benzo(a)anthracene		0.276	0.049		mg/kg	SW846 8270D
Benzo(a)pyrene		0.246	0.049		mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.376	0.049		mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.304	0.049		mg/kg	SW846 8270D
Chrysene		0.400	0.049		mg/kg	SW846 8270D
Fluorene		5.64	0.25		mg/kg	SW846 8270D
Phenanthrene		10.4	0.25		mg/kg	SW846 8270D
Pyrene		1.05	0.049		mg/kg	SW846 8270D
Lead		283	3.2		mg/kg	SW846 6010C
JB22962-19	**BH-12-101_2-3'**					
Benzene [a]		0.121	0.063		mg/kg	SW846 8260B
Toluene [a]		0.0940	0.063		mg/kg	SW846 8260B
Ethylbenzene [a]		0.0679	0.063		mg/kg	SW846 8260B
Xylene (total) [a]		0.276	0.063		mg/kg	SW846 8260B
Isopropylbenzene [a]		0.382	0.32		mg/kg	SW846 8260B
Benzo(a)anthracene		0.0907	0.037		mg/kg	SW846 8270D
Benzo(a)pyrene		0.112	0.037		mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.122	0.037		mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.0816	0.037		mg/kg	SW846 8270D
Chrysene		0.0917	0.037		mg/kg	SW846 8270D
Phenanthrene		0.0748	0.037		mg/kg	SW846 8270D
Pyrene		0.121	0.037		mg/kg	SW846 8270D
Lead		56.3	2.2		mg/kg	SW846 6010C

(a) Dilution required due to matrix interference.
(b) Dilution required due to viscosity of extract matrix.i.s.low.
(c) Diluted due to high concentration of non-target compound.

New Jersey

ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Accutest LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-123_1-1.5'		
Lab Sample ID:	JB22962-1	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8260B SW846 5035	**Percent Solids:**	84.4
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C93694.D	1	12/13/12	JTP	12/06/12 07:00	n/a	V3C4159
Run #2							

	Initial Weight
Run #1	5.7 g
Run #2	

PA 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	
91-20-3	Naphthalene	ND	0.0052	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	0.0052	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0010	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0052	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0052	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%		70-130%
17060-07-0	1,2-Dichloroethane-D4	91%		70-122%
2037-26-5	Toluene-D8	101%		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 LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-123_1-1.5'		
Lab Sample ID:	JB22962-1	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	84.4
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2M48612.D	1	12/19/12	OYA	12/17/12	OP62064	E2M2082
Run #2							

	Initial Weight	Final Volume
Run #1	30.5 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	0.597	0.039	mg/kg	
56-55-3	Benzo(a)anthracene	1.79	0.039	mg/kg	
50-32-8	Benzo(a)pyrene	2.11	0.039	mg/kg	
205-99-2	Benzo(b)fluoranthene	2.15	0.039	mg/kg	
191-24-2	Benzo(g,h,i)perylene	1.59	0.039	mg/kg	
218-01-9	Chrysene	1.87	0.039	mg/kg	
86-73-7	Fluorene	0.307	0.039	mg/kg	
85-01-8	Phenanthrene	1.49	0.039	mg/kg	
129-00-0	Pyrene	2.51	0.039	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	40%		21-122%
321-60-8	2-Fluorobiphenyl	51%		30-117%
1718-51-0	Terphenyl-d14	74%		31-129%

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:	BH-12-123_1-1.5'		
Lab Sample ID:	JB22962-1	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
		Percent Solids:	84.4
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	224	2.4	mg/kg	1	12/14/12	12/18/12	BL	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30079
(2) Prep QC Batch: MP68545

RL = Reporting Limit

Accutest LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-123_2-2.5'		
Lab Sample ID:	JB22962-2	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8260B SW846 5035	**Percent Solids:**	89.2
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	D203369.D	1	12/14/12	ET	12/06/12 07:00	n/a	VD8292
Run #2	E197998.D	1	12/17/12	OTR	12/06/12 07:00	n/a	VE8698

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.5 g	5.0 ml	100 ul
Run #2	6.5 g	5.0 ml	20.0 ul

PA Leaded Gasoline and Aviation Gas list

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	2.07	0.049	mg/kg	
108-88-3	Toluene	0.722	0.049	mg/kg	
100-41-4	Ethylbenzene	0.464	0.049	mg/kg	
1330-20-7	Xylene (total)	0.924	0.049	mg/kg	
91-20-3	Naphthalene	1.11	0.25	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.049	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.049	mg/kg	
98-82-8	Isopropylbenzene	16.9 [a]	1.2	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.049	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	0.593	0.25	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.25	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%	88%	70-130%
17060-07-0	1,2-Dichloroethane-D4	121%	86%	70-122%
2037-26-5	Toluene-D8	108%	91%	81-127%
460-00-4	4-Bromofluorobenzene	110%	92%	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 LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-123_2-2.5'		
Lab Sample ID:	JB22962-2	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	89.2
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2M48613.D	1	12/19/12	OYA	12/17/12	OP62064	E2M2082
Run #2	2M48637.D	10	12/20/12	OYA	12/17/12	OP62064	E2M2083

	Initial Weight	Final Volume
Run #1	31.8 g	1.0 ml
Run #2	31.8 g	1.0 ml

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	2.32	0.035	mg/kg	
56-55-3	Benzo(a)anthracene	8.99 [a]	0.35	mg/kg	
50-32-8	Benzo(a)pyrene	7.91 [a]	0.35	mg/kg	
205-99-2	Benzo(b)fluoranthene	9.36 [a]	0.35	mg/kg	
191-24-2	Benzo(g,h,i)perylene	3.58 [a]	0.35	mg/kg	
218-01-9	Chrysene	8.28 [a]	0.35	mg/kg	
86-73-7	Fluorene	3.39	0.035	mg/kg	
85-01-8	Phenanthrene	6.10 [a]	0.35	mg/kg	
129-00-0	Pyrene	11.3 [a]	0.35	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	54%	38%	21-122%
321-60-8	2-Fluorobiphenyl	53%	57%	30-117%
1718-51-0	Terphenyl-d14	59%	64%	31-129%

(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

Report of Analysis

Client Sample ID:	BH-12-123_2-2.5'		
Lab Sample ID:	JB22962-2	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
		Percent Solids:	89.2
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	133	2.2	mg/kg	1	12/14/12	12/18/12	BL	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30079
(2) Prep QC Batch: MP68545

RL = Reporting Limit

Accutest LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-124_3-3.5'		
Lab Sample ID:	JB22962-3	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8260B SW846 5035	**Percent Solids:**	89.6
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	D203370.D	1	12/14/12	ET	12/06/12 07:00	n/a	VD8292
Run #2	E197999.D	10	12/17/12	OTR	12/06/12 07:00	n/a	VE8698

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.7 g	5.0 ml	10.0 ul
Run #2	6.7 g	5.0 ml	2.0 ul

PA Leaded Gasoline and Aviation Gas list

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	1380 [a]	24	mg/kg	
108-88-3	Toluene	1640 [a]	24	mg/kg	
100-41-4	Ethylbenzene	5.87	0.47	mg/kg	
1330-20-7	Xylene (total)	22.6	0.47	mg/kg	
91-20-3	Naphthalene	ND	2.4	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.47	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.47	mg/kg	
98-82-8	Isopropylbenzene	2110 [a]	120	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.47	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	3.46	2.4	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	2.4	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%	88%	70-130%
17060-07-0	1,2-Dichloroethane-D4	118%	85%	70-122%
2037-26-5	Toluene-D8	99%	95%	81-127%
460-00-4	4-Bromofluorobenzene	103%	89%	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 LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-124_3-3.5'		
Lab Sample ID:	JB22962-3	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	89.6
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2M48607.D	1	12/19/12	OYA	12/17/12	OP62064	E2M2082
Run #2 [a]	2M48629.D	2	12/19/12	OYA	12/17/12	OP62064	E2M2082

	Initial Weight	Final Volume
Run #1	33.5 g	1.0 ml
Run #2	33.5 g	1.0 ml

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	0.033	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.033	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.033	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.033	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.033	mg/kg	
218-01-9	Chrysene	ND	0.033	mg/kg	
86-73-7	Fluorene	ND	0.033	mg/kg	
85-01-8	Phenanthrene	0.0626	0.033	mg/kg	
129-00-0	Pyrene	ND	0.033	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	113%	110%	21-122%
321-60-8	2-Fluorobiphenyl	108%	68%	30-117%
1718-51-0	Terphenyl-d14	84%	80%	31-129%

(a) Confirmation run for internal standard areas.

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:	BH-12-124_3-3.5'		
Lab Sample ID:	JB22962-3	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
		Percent Solids:	89.6
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	5.5	2.3	mg/kg	1	12/14/12	12/18/12	BL	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30079
(2) Prep QC Batch: MP68545

RL = Reporting Limit

Accutest LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-149_1-1.5'		
Lab Sample ID:	JB22962-4	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8260B SW846 5035	**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]	E198000.D	1	12/17/12	OTR	12/06/12 07:00	n/a	VE8698
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.3 g	5.0 ml	100 ul
Run #2			

PA Leaded Gasoline and Aviation Gas list

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.070	mg/kg	
108-88-3	Toluene	ND	0.070	mg/kg	
100-41-4	Ethylbenzene	ND	0.070	mg/kg	
1330-20-7	Xylene (total)	ND	0.070	mg/kg	
91-20-3	Naphthalene	ND	0.35	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.070	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.070	mg/kg	
98-82-8	Isopropylbenzene	ND	0.35	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.070	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.35	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.35	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	88%		70-130%
17060-07-0	1,2-Dichloroethane-D4	85%		70-122%
2037-26-5	Toluene-D8	93%		81-127%
460-00-4	4-Bromofluorobenzene	92%		66-132%

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

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 LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-149_1-1.5'		
Lab Sample ID:	JB22962-4	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8270D SW846 3550C	**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	2M48614.D	1	12/19/12	OYA	12/17/12	OP62064	E2M2082
Run #2							

	Initial Weight	Final Volume
Run #1	33.1 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	0.037	mg/kg	
56-55-3	Benzo(a)anthracene	0.0518	0.037	mg/kg	
50-32-8	Benzo(a)pyrene	0.0576	0.037	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.0670	0.037	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0459	0.037	mg/kg	
218-01-9	Chrysene	0.0640	0.037	mg/kg	
86-73-7	Fluorene	ND	0.037	mg/kg	
85-01-8	Phenanthrene	ND	0.037	mg/kg	
129-00-0	Pyrene	0.0804	0.037	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	24%		21-122%
321-60-8	2-Fluorobiphenyl	31%		30-117%
1718-51-0	Terphenyl-d14	87%		31-129%

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:	BH-12-149_1-1.5'		
Lab Sample ID:	JB22962-4	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
		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	27.9	2.6	mg/kg	1	12/14/12	12/18/12	BL	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30079
(2) Prep QC Batch: MP68545

RL = Reporting Limit

Accutest LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-149_2.5-3'		
Lab Sample ID:	JB22962-5	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8260B SW846 5035	**Percent Solids:**	85.0
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	E198032.D	1	12/18/12	OTR	12/06/12 07:00	n/a	VE8700
Run #2	E198018.D	1	12/18/12	OTR	12/06/12 07:00	n/a	VE8699

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.2 g	5.0 ml	4.0 ul
Run #2	6.2 g	5.0 ml	2.0 ul

PA Leaded Gasoline and Aviation Gas list

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	517 [a]	2.8	mg/kg	
108-88-3	Toluene	21.2	1.4	mg/kg	
100-41-4	Ethylbenzene	ND	1.4	mg/kg	
1330-20-7	Xylene (total)	ND	1.4	mg/kg	
91-20-3	Naphthalene	ND	7.0	mg/kg	
106-93-4	1,2-Dibromoethane	ND	1.4	mg/kg	
107-06-2	1,2-Dichloroethane	ND	1.4	mg/kg	
98-82-8	Isopropylbenzene	74.7	7.0	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.4	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	7.0	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	7.0	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	90%	88%	70-130%
17060-07-0	1,2-Dichloroethane-D4	87%	89%	70-122%
2037-26-5	Toluene-D8	96%	95%	81-127%
460-00-4	4-Bromofluorobenzene	87%	90%	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 LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-149_2.5-3'		
Lab Sample ID:	JB22962-5	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	85.0
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2M48615.D	1	12/19/12	OYA	12/17/12	OP62064	E2M2082
Run #2 [a]	2M48631.D	2	12/19/12	OYA	12/17/12	OP62064	E2M2082

	Initial Weight	Final Volume
Run #1	32.7 g	1.0 ml
Run #2	32.7 g	1.0 ml

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	0.036	mg/kg	
56-55-3	Benzo(a)anthracene	0.403	0.036	mg/kg	
50-32-8	Benzo(a)pyrene	0.452	0.036	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.708	0.036	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.458	0.036	mg/kg	
218-01-9	Chrysene	0.493	0.036	mg/kg	
86-73-7	Fluorene	ND	0.036	mg/kg	
85-01-8	Phenanthrene	0.154	0.036	mg/kg	
129-00-0	Pyrene	0.601	0.036	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	108%	94%	21-122%
321-60-8	2-Fluorobiphenyl	86%	60%	30-117%
1718-51-0	Terphenyl-d14	83%	68%	31-129%

(a) Confirmation run for internal standard areas.

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:	BH-12-149_2.5-3'		
Lab Sample ID:	JB22962-5	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
		Percent Solids:	85.0
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	127	2.2	mg/kg	1	12/14/12	12/18/12	BL	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30079
(2) Prep QC Batch: MP68545

RL = Reporting Limit

Accutest LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-129_1.5-2'		
Lab Sample ID:	JB22962-6	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8260B SW846 5035	**Percent Solids:**	90.0
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	D203373.D	1	12/14/12	ET	12/06/12 07:00	n/a	VD8292
Run #2	E198019.D	1	12/18/12	OTR	12/06/12 07:00	n/a	VE8699

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.6 g	5.0 ml	100 ul
Run #2	6.6 g	5.0 ml	1.0 ul

PA Leaded Gasoline and Aviation Gas list

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	91.6 [a]	4.8	mg/kg	
108-88-3	Toluene	116 [a]	4.8	mg/kg	
100-41-4	Ethylbenzene	0.837	0.048	mg/kg	
1330-20-7	Xylene (total)	3.69	0.048	mg/kg	
91-20-3	Naphthalene	ND	0.24	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.048	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.048	mg/kg	
98-82-8	Isopropylbenzene	311 [a]	24	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.048	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	0.705	0.24	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	0.257	0.24	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%	90%	70-130%
17060-07-0	1,2-Dichloroethane-D4	120%	88%	70-122%
2037-26-5	Toluene-D8	99%	95%	81-127%
460-00-4	4-Bromofluorobenzene	106%	91%	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 LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-129_1.5-2'		
Lab Sample ID:	JB22962-6	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	90.0
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2M48623.D	1	12/19/12	OYA	12/17/12	OP62064	E2M2082
Run #2 [a]	2M48641.D	2	12/20/12	OYA	12/17/12	OP62064	E2M2083

	Initial Weight	Final Volume
Run #1	33.3 g	1.0 ml
Run #2	33.3 g	1.0 ml

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	0.033	mg/kg	
56-55-3	Benzo(a)anthracene	0.0699	0.033	mg/kg	
50-32-8	Benzo(a)pyrene	0.0627	0.033	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.0687	0.033	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0498	0.033	mg/kg	
218-01-9	Chrysene	0.0711	0.033	mg/kg	
86-73-7	Fluorene	ND	0.033	mg/kg	
85-01-8	Phenanthrene	0.0395	0.033	mg/kg	
129-00-0	Pyrene	0.121	0.033	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	41%	41%	21-122%
321-60-8	2-Fluorobiphenyl	47%	51%	30-117%
1718-51-0	Terphenyl-d14	55%	55%	31-129%

(a) Confirmation run for internal standard areas.

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:	BH-12-129_1.5-2'		
Lab Sample ID:	JB22962-6	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
		Percent Solids:	90.0
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	48.0	2.1	mg/kg	1	12/14/12	12/18/12	BL	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30079
(2) Prep QC Batch: MP68545

RL = Reporting Limit

Accutest LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-129_2.5-3'		
Lab Sample ID:	JB22962-7	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8260B SW846 5035	**Percent Solids:**	88.5
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	D203409.D	1	12/15/12	ET	12/06/12 07:00	n/a	VD8294
Run #2	D203488.D	10	12/17/12	ET	12/06/12 07:00	n/a	VD8297

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.9 g	5.0 ml	20.0 ul
Run #2	5.9 g	5.0 ml	1.0 ul

PA Leaded Gasoline and Aviation Gas list

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	1850 [a]	54	mg/kg	
108-88-3	Toluene	2070 [a]	54	mg/kg	
100-41-4	Ethylbenzene	12.6	0.27	mg/kg	
1330-20-7	Xylene (total)	51.6	0.27	mg/kg	
91-20-3	Naphthalene	ND	1.4	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	6600 [a]	270	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.27	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	9.43	1.4	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	3.38	1.4	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	93%	91%	70-130%
17060-07-0	1,2-Dichloroethane-D4	109%	108%	70-122%
2037-26-5	Toluene-D8	100%	98%	81-127%
460-00-4	4-Bromofluorobenzene	102%	97%	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 LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-129_2.5-3'		
Lab Sample ID:	JB22962-7	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	88.5
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	3E46432.D	2	12/19/12	OYA	12/17/12	OP62064	E3E2018
Run #2							

	Initial Weight	Final Volume
Run #1	32.4 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	0.070	mg/kg	
56-55-3	Benzo(a)anthracene	0.177	0.070	mg/kg	
50-32-8	Benzo(a)pyrene	0.121	0.070	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.126	0.070	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0832	0.070	mg/kg	
218-01-9	Chrysene	0.243	0.070	mg/kg	
86-73-7	Fluorene	0.182	0.070	mg/kg	
85-01-8	Phenanthrene	0.437	0.070	mg/kg	
129-00-0	Pyrene	0.406	0.070	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	56%		21-122%
321-60-8	2-Fluorobiphenyl	54%		30-117%
1718-51-0	Terphenyl-d14	84%		31-129%

(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

Report of Analysis

Client Sample ID:	BH-12-129_2.5-3'		
Lab Sample ID:	JB22962-7	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
		Percent Solids:	88.5
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	107	2.2	mg/kg	1	12/14/12	12/18/12	BL	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30079
(2) Prep QC Batch: MP68545

RL = Reporting Limit

Accutest LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-126_2.5-3'		
Lab Sample ID:	JB22962-8	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8260B SW846 5035	**Percent Solids:**	89.4
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	D203410.D	1	12/15/12	ET	12/06/12 07:00	n/a	VD8294
Run #2	D203489.D	5	12/17/12	ET	12/06/12 07:00	n/a	VD8297

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.2 g	5.0 ml	20.0 ul
Run #2	6.2 g	5.0 ml	1.0 ul

PA Leaded Gasoline and Aviation Gas list

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	87.2 [a]	26	mg/kg	
108-88-3	Toluene	197 [a]	26	mg/kg	
100-41-4	Ethylbenzene	14.6	0.26	mg/kg	
1330-20-7	Xylene (total)	68.5	0.26	mg/kg	
91-20-3	Naphthalene	ND	1.3	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.26	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.26	mg/kg	
98-82-8	Isopropylbenzene	678 [a]	130	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.26	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	4.62	1.3	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	2.08	1.3	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%	91%	70-130%
17060-07-0	1,2-Dichloroethane-D4	111%	109%	70-122%
2037-26-5	Toluene-D8	99%	98%	81-127%
460-00-4	4-Bromofluorobenzene	94%	98%	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 LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-126_2.5-3'		
Lab Sample ID:	JB22962-8	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	89.4
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	3E46433.D	2	12/19/12	OYA	12/17/12	OP62064	E3E2018
Run #2							

	Initial Weight	Final Volume
Run #1	30.7 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	0.073	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.073	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.073	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.073	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.073	mg/kg	
218-01-9	Chrysene	0.0845	0.073	mg/kg	
86-73-7	Fluorene	ND	0.073	mg/kg	
85-01-8	Phenanthrene	0.115	0.073	mg/kg	
129-00-0	Pyrene	0.123	0.073	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	55%		21-122%
321-60-8	2-Fluorobiphenyl	67%		30-117%
1718-51-0	Terphenyl-d14	81%		31-129%

(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

Report of Analysis

Client Sample ID:	BH-12-126_2.5-3'		
Lab Sample ID:	JB22962-8	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
		Percent Solids:	89.4
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	8.7	2.3	mg/kg	1	12/14/12	12/18/12	BL	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30079
(2) Prep QC Batch: MP68545

RL = Reporting Limit

Accutest LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-128_3-3.5'		
Lab Sample ID:	JB22962-9	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8260B SW846 5035	**Percent Solids:**	88.1
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	D203411.D	1	12/15/12	ET	12/06/12 07:00	n/a	VD8294
Run #2	D203490.D	1	12/17/12	ET	12/06/12 07:00	n/a	VD8297
Run #3	D203526.D	5	12/18/12	ET	12/06/12 07:00	n/a	VD8299
Run #4	E198029.D	50	12/18/12	OTR	12/06/12 07:00	n/a	VE8700

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.5 g	5.0 ml	100 ul
Run #2	6.5 g	5.0 ml	2.0 ul
Run #3	6.5 g	5.0 ml	20.0 ul
Run #4	6.5 g	5.0 ml	20.0 ul

PA Leaded Gasoline and Aviation Gas list

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	535 [a]	13	mg/kg	
108-88-3	Toluene	1050 [a]	13	mg/kg	
100-41-4	Ethylbenzene	57.8 [b]	1.3	mg/kg	
1330-20-7	Xylene (total)	248 [b]	1.3	mg/kg	
91-20-3	Naphthalene	ND	0.25	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.050	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.050	mg/kg	
98-82-8	Isopropylbenzene	919 [a]	63	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.050	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	6.32	0.25	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	2.92	0.25	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
1868-53-7	Dibromofluoromethane	91%	93%	93%	70-130%
17060-07-0	1,2-Dichloroethane-D4	106%	109%	107%	70-122%
2037-26-5	Toluene-D8	102%	99%	100%	81-127%
460-00-4	4-Bromofluorobenzene	105%	99%	97%	66-132%

(a) Result is from Run# 4
(b) Result is from Run# 3

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 LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-128_3-3.5'		
Lab Sample ID:	JB22962-9	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	88.1
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2M48609.D	1	12/19/12	OYA	12/17/12	OP62064	E2M2082
Run #2							

	Initial Weight	Final Volume
Run #1	32.3 g	1.0 ml
Run #2		

BN Special List

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

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	30%		21-122%
321-60-8	2-Fluorobiphenyl	36%		30-117%
1718-51-0	Terphenyl-d14	68%		31-129%

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:	BH-12-128_3-3.5'		
Lab Sample ID:	JB22962-9	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
		Percent Solids:	88.1
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	6.5	2.4	mg/kg	1	12/14/12	12/18/12	BL	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30079
(2) Prep QC Batch: MP68545

RL = Reporting Limit

Accutest LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-127_2.5-3'		
Lab Sample ID:	JB22962-10	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8260B SW846 5035	**Percent Solids:**	88.8
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	D203412.D	1	12/15/12	ET	12/06/12 07:00	n/a	VD8294
Run #2	D203491.D	1	12/17/12	ET	12/06/12 07:00	n/a	VD8297

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.4 g	5.0 ml	100 ul
Run #2	6.4 g	5.0 ml	2.0 ul

PA Leaded Gasoline and Aviation Gas list

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	149 [a]	2.5	mg/kg	
108-88-3	Toluene	339 [a]	2.5	mg/kg	
100-41-4	Ethylbenzene	18.7 [a]	2.5	mg/kg	
1330-20-7	Xylene (total)	83.6 [a]	2.5	mg/kg	
91-20-3	Naphthalene	ND	0.25	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.050	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.050	mg/kg	
98-82-8	Isopropylbenzene	374 [a]	13	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.050	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	3.04	0.25	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	1.41	0.25	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	90%	92%	70-130%
17060-07-0	1,2-Dichloroethane-D4	107%	109%	70-122%
2037-26-5	Toluene-D8	99%	99%	81-127%
460-00-4	4-Bromofluorobenzene	95%	99%	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 LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-127_2.5-3'		
Lab Sample ID:	JB22962-10	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	88.8
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2M48618.D	1	12/19/12	OYA	12/17/12	OP62064	E2M2082
Run #2							

	Initial Weight	Final Volume
Run #1	35.3 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	0.032	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.032	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.032	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.032	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.032	mg/kg	
218-01-9	Chrysene	ND	0.032	mg/kg	
86-73-7	Fluorene	ND	0.032	mg/kg	
85-01-8	Phenanthrene	ND	0.032	mg/kg	
129-00-0	Pyrene	ND	0.032	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	39%		21-122%
321-60-8	2-Fluorobiphenyl	41%		30-117%
1718-51-0	Terphenyl-d14	80%		31-129%

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:	BH-12-127_2.5-3'		
Lab Sample ID:	JB22962-10	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
		Percent Solids:	88.8
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	13.8	2.3	mg/kg	1	12/14/12	12/18/12	BL	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30079
(2) Prep QC Batch: MP68545

RL = Reporting Limit

Accutest LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-119_0.5-1'		
Lab Sample ID:	JB22962-11	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8260B SW846 5035	**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	3C93695.D	1	12/13/12	JTP	12/06/12 07:00	n/a	V3C4159
Run #2							

	Initial Weight
Run #1	6.0 g
Run #2	

PA 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	
91-20-3	Naphthalene	ND	0.0051	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	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0010	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	92%		70-130%
17060-07-0	1,2-Dichloroethane-D4	89%		70-122%
2037-26-5	Toluene-D8	100%		81-127%
460-00-4	4-Bromofluorobenzene	106%		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 LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-119_0.5-1'		
Lab Sample ID:	JB22962-11	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8270D SW846 3550C	**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]	2M48625.D	2	12/19/12	OYA	12/17/12	OP62064	E2M2082
Run #2 [b]	2M48639.D	4	12/20/12	OYA	12/17/12	OP62064	E2M2083

	Initial Weight	Final Volume
Run #1	33.1 g	1.0 ml
Run #2	33.1 g	1.0 ml

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	0.219	0.074	mg/kg	
56-55-3	Benzo(a)anthracene	0.266	0.074	mg/kg	
50-32-8	Benzo(a)pyrene	0.320	0.074	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.395	0.074	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.587	0.074	mg/kg	
218-01-9	Chrysene	0.295	0.074	mg/kg	
86-73-7	Fluorene	ND	0.074	mg/kg	
85-01-8	Phenanthrene	0.170	0.074	mg/kg	
129-00-0	Pyrene	0.301	0.074	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	59%	56%	21-122%
321-60-8	2-Fluorobiphenyl	62%	60%	30-117%
1718-51-0	Terphenyl-d14	82%	80%	31-129%

(a) Dilution required due to viscosity of extract matrix.i.s.low.
(b) Confirmation run for internal standard areas.

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:	BH-12-119_0.5-1'		
Lab Sample ID:	JB22962-11	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
		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	237	2.5	mg/kg	1	12/14/12	12/18/12	BL	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30079
(2) Prep QC Batch: MP68545

RL = Reporting Limit

Accutest LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-125_2.5-3'		
Lab Sample ID:	JB22962-12	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8260B SW846 5035	**Percent Solids:**	90.5
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	D203493.D	1	12/17/12	ET	12/06/12 07:00	n/a	VD8297
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.3 g	5.0 ml	2.0 ul
Run #2			

PA Leaded Gasoline and Aviation Gas list

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	2.5	mg/kg	
108-88-3	Toluene	ND	2.5	mg/kg	
100-41-4	Ethylbenzene	ND	2.5	mg/kg	
1330-20-7	Xylene (total)	ND	2.5	mg/kg	
91-20-3	Naphthalene	ND	12	mg/kg	
106-93-4	1,2-Dibromoethane	ND	2.5	mg/kg	
107-06-2	1,2-Dichloroethane	ND	2.5	mg/kg	
98-82-8	Isopropylbenzene	64.2	12	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	2.5	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	12	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	12	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	93%		70-130%
17060-07-0	1,2-Dichloroethane-D4	112%		70-122%
2037-26-5	Toluene-D8	97%		81-127%
460-00-4	4-Bromofluorobenzene	100%		66-132%

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

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 LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-125_2.5-3'		
Lab Sample ID:	JB22962-12	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	90.5
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2M48610.D	1	12/19/12	OYA	12/17/12	OP62064	E2M2082
Run #2							

	Initial Weight	Final Volume
Run #1	31.3 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	0.035	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.035	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.035	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.035	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.035	mg/kg	
218-01-9	Chrysene	ND	0.035	mg/kg	
86-73-7	Fluorene	ND	0.035	mg/kg	
85-01-8	Phenanthrene	ND	0.035	mg/kg	
129-00-0	Pyrene	0.0363	0.035	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	34%		21-122%
321-60-8	2-Fluorobiphenyl	44%		30-117%
1718-51-0	Terphenyl-d14	81%		31-129%

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:	BH-12-125_2.5-3'		
Lab Sample ID:	JB22962-12	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
		Percent Solids:	90.5
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	11.4	2.2	mg/kg	1	12/14/12	12/18/12	BL	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30079
(2) Prep QC Batch: MP68545

RL = Reporting Limit

Accutest LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-120_0-1'		
Lab Sample ID:	JB22962-13	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8260B SW846 5035	**Percent Solids:**	73.8
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C93696.D	1	12/13/12	JTP	12/06/12 07:00	n/a	V3C4159
Run #2							

	Initial Weight
Run #1	5.4 g
Run #2	

PA Leaded Gasoline and Aviation Gas list

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.0013	mg/kg	
108-88-3	Toluene	ND	0.0013	mg/kg	
100-41-4	Ethylbenzene	ND	0.0013	mg/kg	
1330-20-7	Xylene (total)	ND	0.0013	mg/kg	
91-20-3	Naphthalene	ND	0.0063	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0013	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0013	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0063	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0013	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0063	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0063	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%		70-130%
17060-07-0	1,2-Dichloroethane-D4	89%		70-122%
2037-26-5	Toluene-D8	101%		81-127%
460-00-4	4-Bromofluorobenzene	106%		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 LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-120_0-1'		
Lab Sample ID:	JB22962-13	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	73.8
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2M48619.D	1	12/19/12	OYA	12/17/12	OP62064	E2M2082
Run #2							

	Initial Weight	Final Volume
Run #1	31.4 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	0.185	0.043	mg/kg	
56-55-3	Benzo(a)anthracene	0.127	0.043	mg/kg	
50-32-8	Benzo(a)pyrene	0.118	0.043	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.198	0.043	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.555	0.043	mg/kg	
218-01-9	Chrysene	0.236	0.043	mg/kg	
86-73-7	Fluorene	ND	0.043	mg/kg	
85-01-8	Phenanthrene	0.243	0.043	mg/kg	
129-00-0	Pyrene	0.300	0.043	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	29%		21-122%
321-60-8	2-Fluorobiphenyl	30%		30-117%
1718-51-0	Terphenyl-d14	34%		31-129%

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:	BH-12-120_0-1'		
Lab Sample ID:	JB22962-13	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
		Percent Solids:	73.8
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	309	2.7	mg/kg	1	12/14/12	12/18/12	BL	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30079
(2) Prep QC Batch: MP68545

RL = Reporting Limit

Accutest LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-104_0.5-1'		
Lab Sample ID:	JB22962-14	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8260B SW846 5035	**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]	D203492.D	1	12/17/12	ET	12/06/12 08:00	n/a	VD8297
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.8 g	5.0 ml	100 ul
Run #2			

PA Leaded Gasoline and Aviation Gas list

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.063	mg/kg	
108-88-3	Toluene	ND	0.063	mg/kg	
100-41-4	Ethylbenzene	ND	0.063	mg/kg	
1330-20-7	Xylene (total)	ND	0.063	mg/kg	
91-20-3	Naphthalene	ND	0.32	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.063	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.063	mg/kg	
98-82-8	Isopropylbenzene	ND	0.32	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.063	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.32	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.32	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%		70-130%
17060-07-0	1,2-Dichloroethane-D4	110%		70-122%
2037-26-5	Toluene-D8	97%		81-127%
460-00-4	4-Bromofluorobenzene	98%		66-132%

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

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 LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-104_0.5-1'		
Lab Sample ID:	JB22962-14	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8270D SW846 3550C	**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	2M48620.D	1	12/19/12	OYA	12/17/12	OP62064	E2M2082
Run #2							

	Initial Weight	Final Volume
Run #1	31.8 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	0.038	mg/kg	
56-55-3	Benzo(a)anthracene	0.0863	0.038	mg/kg	
50-32-8	Benzo(a)pyrene	0.0630	0.038	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.103	0.038	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0866	0.038	mg/kg	
218-01-9	Chrysene	0.0989	0.038	mg/kg	
86-73-7	Fluorene	ND	0.038	mg/kg	
85-01-8	Phenanthrene	ND	0.038	mg/kg	
129-00-0	Pyrene	0.0825	0.038	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	37%		21-122%
321-60-8	2-Fluorobiphenyl	41%		30-117%
1718-51-0	Terphenyl-d14	62%		31-129%

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:	BH-12-104_0.5-1'		
Lab Sample ID:	JB22962-14	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
		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	161	2.4	mg/kg	1	12/14/12	12/18/12	BL	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30079
(2) Prep QC Batch: MP68545

RL = Reporting Limit

Accutest LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-130_1-2'		
Lab Sample ID:	JB22962-15	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8260B SW846 5035	**Percent Solids:**	87.0
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	D203494.D	1	12/17/12	ET	12/06/12 08:00	n/a	VD8297
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.7 g	5.0 ml	10.0 ul
Run #2			

PA Leaded Gasoline and Aviation Gas list

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.50	mg/kg	
108-88-3	Toluene	ND	0.50	mg/kg	
100-41-4	Ethylbenzene	ND	0.50	mg/kg	
1330-20-7	Xylene (total)	ND	0.50	mg/kg	
91-20-3	Naphthalene	ND	2.5	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.50	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.50	mg/kg	
98-82-8	Isopropylbenzene	32.9	2.5	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.50	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	2.5	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	2.5	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%		70-130%
17060-07-0	1,2-Dichloroethane-D4	111%		70-122%
2037-26-5	Toluene-D8	98%		81-127%
460-00-4	4-Bromofluorobenzene	98%		66-132%

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

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 LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-130_1-2'		
Lab Sample ID:	JB22962-15	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	87.0
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2M48624.D	1	12/19/12	OYA	12/17/12	OP62064	E2M2082
Run #2	3E46443.D	20	12/20/12	OYA	12/17/12	OP62064	E3E2019

	Initial Weight	Final Volume
Run #1	31.7 g	1.0 ml
Run #2	31.7 g	1.0 ml

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	3.58 [a]	0.73	mg/kg	
56-55-3	Benzo(a)anthracene	3.52	0.036	mg/kg	
50-32-8	Benzo(a)pyrene	6.52 [a]	0.73	mg/kg	
205-99-2	Benzo(b)fluoranthene	11.3 [a]	0.73	mg/kg	
191-24-2	Benzo(g,h,i)perylene	4.33 [a]	0.73	mg/kg	
218-01-9	Chrysene	9.88 [a]	0.73	mg/kg	
86-73-7	Fluorene	34.6 [a]	0.73	mg/kg	
85-01-8	Phenanthrene	10.0 [a]	0.73	mg/kg	
129-00-0	Pyrene	12.1 [a]	0.73	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	63%	59%	21-122%
321-60-8	2-Fluorobiphenyl	57%	62%	30-117%
1718-51-0	Terphenyl-d14	62%	83%	31-129%

(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

Report of Analysis

Client Sample ID:	BH-12-130_1-2'		
Lab Sample ID:	JB22962-15	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
		Percent Solids:	87.0
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	84.4	2.2	mg/kg	1	12/14/12	12/18/12	BL	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30091
(2) Prep QC Batch: MP68545

RL = Reporting Limit

Accutest LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-131_1-2'		
Lab Sample ID:	JB22962-16	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8260B SW846 5035	**Percent Solids:**	85.1
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	D203510.D	1	12/18/12	ET	12/06/12 08:00	n/a	VD8298
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.1 g	5.0 ml	100 ul
Run #2			

PA Leaded Gasoline and Aviation Gas list

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	0.110	0.057	mg/kg	
108-88-3	Toluene	0.211	0.057	mg/kg	
100-41-4	Ethylbenzene	0.136	0.057	mg/kg	
1330-20-7	Xylene (total)	0.216	0.057	mg/kg	
91-20-3	Naphthalene	0.360	0.28	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.057	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.057	mg/kg	
98-82-8	Isopropylbenzene	ND	0.28	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.057	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.28	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.28	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%		70-130%
17060-07-0	1,2-Dichloroethane-D4	112%		70-122%
2037-26-5	Toluene-D8	100%		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 LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-131_1-2'		
Lab Sample ID:	JB22962-16	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	85.1
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2M48621.D	1	12/19/12	OYA	12/17/12	OP62064	E2M2082
Run #2 [a]	2M48640.D	2	12/20/12	OYA	12/17/12	OP62064	E2M2083

	Initial Weight	Final Volume
Run #1	33.0 g	1.0 ml
Run #2	33.0 g	1.0 ml

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	0.0602	0.036	mg/kg	
56-55-3	Benzo(a)anthracene	0.0983	0.036	mg/kg	
50-32-8	Benzo(a)pyrene	0.116	0.036	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.0976	0.036	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.178	0.036	mg/kg	
218-01-9	Chrysene	0.136	0.036	mg/kg	
86-73-7	Fluorene	0.122	0.036	mg/kg	
85-01-8	Phenanthrene	0.174	0.036	mg/kg	
129-00-0	Pyrene	0.140	0.036	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	34%	30%	21-122%
321-60-8	2-Fluorobiphenyl	34%	32%	30-117%
1718-51-0	Terphenyl-d14	40%	33%	31-129%

(a) Confirmation run for internal standard areas.

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:	BH-12-131_1-2'		
Lab Sample ID:	JB22962-16	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
		Percent Solids:	85.1
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	111	2.4	mg/kg	1	12/14/12	12/18/12	BL	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30079
(2) Prep QC Batch: MP68545

RL = Reporting Limit

Accutest LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-118_2-2.5'		
Lab Sample ID:	JB22962-17	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8260B SW846 5035	**Percent Solids:**	86.9
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C93697.D	1	12/13/12	JTP	12/06/12 08:00	n/a	V3C4159
Run #2							

	Initial Weight
Run #1	5.8 g
Run #2	

PA Leaded Gasoline and Aviation Gas list

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.00099	mg/kg	
108-88-3	Toluene	ND	0.00099	mg/kg	
100-41-4	Ethylbenzene	ND	0.00099	mg/kg	
1330-20-7	Xylene (total)	ND	0.00099	mg/kg	
91-20-3	Naphthalene	ND	0.0050	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00099	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00099	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0050	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00099	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	93%		70-130%
17060-07-0	1,2-Dichloroethane-D4	94%		70-122%
2037-26-5	Toluene-D8	102%		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 LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-118_2-2.5'		
Lab Sample ID:	JB22962-17	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	86.9
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2M48622.D	1	12/19/12	OYA	12/17/12	OP62064	E2M2082
Run #2							

	Initial Weight	Final Volume
Run #1	32.5 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	0.151	0.035	mg/kg	
56-55-3	Benzo(a)anthracene	0.608	0.035	mg/kg	
50-32-8	Benzo(a)pyrene	0.602	0.035	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.616	0.035	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.343	0.035	mg/kg	
218-01-9	Chrysene	0.599	0.035	mg/kg	
86-73-7	Fluorene	ND	0.035	mg/kg	
85-01-8	Phenanthrene	0.248	0.035	mg/kg	
129-00-0	Pyrene	0.728	0.035	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	26%		21-122%
321-60-8	2-Fluorobiphenyl	39%		30-117%
1718-51-0	Terphenyl-d14	94%		31-129%

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:	BH-12-118_2-2.5'		
Lab Sample ID:	JB22962-17	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
		Percent Solids:	86.9
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	93.1	2.3	mg/kg	1	12/14/12	12/18/12	BL	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30079
(2) Prep QC Batch: MP68545

RL = Reporting Limit

Accutest LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-102_2-2.5'		
Lab Sample ID:	JB22962-18	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8260B SW846 5035	**Percent Solids:**	65.9
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	D203528.D	1	12/18/12	ET	12/06/12 08:00	n/a	VD8299
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	3.6 g	5.0 ml	100 ul
Run #2			

PA Leaded Gasoline and Aviation Gas list

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.13	mg/kg	
108-88-3	Toluene	ND	0.13	mg/kg	
100-41-4	Ethylbenzene	ND	0.13	mg/kg	
1330-20-7	Xylene (total)	ND	0.13	mg/kg	
91-20-3	Naphthalene	ND	0.66	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.13	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.13	mg/kg	
98-82-8	Isopropylbenzene	1.18	0.66	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.13	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.66	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.66	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	93%		70-130%
17060-07-0	1,2-Dichloroethane-D4	109%		70-122%
2037-26-5	Toluene-D8	107%		81-127%
460-00-4	4-Bromofluorobenzene	100%		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 LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-102_2-2.5'		
Lab Sample ID:	JB22962-18	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	65.9
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2M48626.D	1	12/19/12	OYA	12/17/12	OP62064	E2M2082
Run #2	2M48644.D	5	12/20/12	OYA	12/17/12	OP62064	E2M2083

	Initial Weight	Final Volume
Run #1	30.8 g	1.0 ml
Run #2	30.8 g	1.0 ml

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	1.02	0.049	mg/kg	
56-55-3	Benzo(a)anthracene	0.276	0.049	mg/kg	
50-32-8	Benzo(a)pyrene	0.246	0.049	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.376	0.049	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.304	0.049	mg/kg	
218-01-9	Chrysene	0.400	0.049	mg/kg	
86-73-7	Fluorene	5.64 [a]	0.25	mg/kg	
85-01-8	Phenanthrene	10.4 [a]	0.25	mg/kg	
129-00-0	Pyrene	1.05	0.049	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	95%	48%	21-122%
321-60-8	2-Fluorobiphenyl	66%	55%	30-117%
1718-51-0	Terphenyl-d14	92%	69%	31-129%

(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

Report of Analysis

Client Sample ID:	BH-12-102_2-2.5'		
Lab Sample ID:	JB22962-18	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
		Percent Solids:	65.9
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	283	3.2	mg/kg	1	12/14/12	12/18/12	BL	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30079
(2) Prep QC Batch: MP68545

RL = Reporting Limit

Accutest LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-101_2-3'		
Lab Sample ID:	JB22962-19	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8260B SW846 5035	**Percent Solids:**	84.2
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	D203529.D	1	12/18/12	ET	12/06/12 08:00	n/a	VD8299
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.5 g	5.0 ml	100 ul
Run #2			

PA Leaded Gasoline and Aviation Gas list

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	0.121	0.063	mg/kg	
108-88-3	Toluene	0.0940	0.063	mg/kg	
100-41-4	Ethylbenzene	0.0679	0.063	mg/kg	
1330-20-7	Xylene (total)	0.276	0.063	mg/kg	
91-20-3	Naphthalene	ND	0.32	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.063	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.063	mg/kg	
98-82-8	Isopropylbenzene	0.382	0.32	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.063	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.32	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.32	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	91%		70-130%
17060-07-0	1,2-Dichloroethane-D4	106%		70-122%
2037-26-5	Toluene-D8	102%		81-127%
460-00-4	4-Bromofluorobenzene	95%		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 LabLink@706228 12:12 07-Jan-2013

Report of Analysis

Client Sample ID:	BH-12-101_2-3'		
Lab Sample ID:	JB22962-19	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	84.2
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2M48611.D	1	12/19/12	OYA	12/17/12	OP62064	E2M2082
Run #2 [a]	3E46479.D	1	12/21/12	OYA	12/20/12	OP62177	E3E2020

	Initial Weight	Final Volume
Run #1	32.4 g	1.0 ml
Run #2	34.9 g	1.0 ml

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	0.037	mg/kg	
56-55-3	Benzo(a)anthracene	0.0907	0.037	mg/kg	
50-32-8	Benzo(a)pyrene	0.112	0.037	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.122	0.037	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0816	0.037	mg/kg	
218-01-9	Chrysene	0.0917	0.037	mg/kg	
86-73-7	Fluorene	ND	0.037	mg/kg	
85-01-8	Phenanthrene	0.0748	0.037	mg/kg	
129-00-0	Pyrene	0.121	0.037	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	16% [b]	25%	21-122%
321-60-8	2-Fluorobiphenyl	19% [b]	25% [b]	30-117%
1718-51-0	Terphenyl-d14	68%	53%	31-129%

(a) Confirmation run for surrogate recoveries.
(b) Outside control limits 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

Report of Analysis

Client Sample ID:	BH-12-101_2-3'		
Lab Sample ID:	JB22962-19	**Date Sampled:**	12/04/12
Matrix:	SO - Soil	**Date Received:**	12/05/12
		Percent Solids:	84.2
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	56.3	2.2	mg/kg	1	12/14/12	12/18/12	BL	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30079
(2) Prep QC Batch: MP68545

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

SLC

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 #: JB22962

Client / Reporting Information

Company Name: Aquaterra Technologies
Street Address: 122 So. Church St
City: West Chester State: PA Zip: 19382
Project Contact: T. Fanny Doer E-mail:
Phone #: Fax #:
Sampler(s) Name(s): Luke Makrycki Phone #:

Project Information

Project Name: Philadelphia Refinery Soil Samples AOI-6
Street:
City: Philadelphia State: PA
Project #: AOI-6
Client Purchase Order #:
Project Manager: Jim Oppenheim

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

Requested Analysis (see TEST CODE sheet)

Matrix Codes

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

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	LEAD	VOC's 8260B: 1,2 Dichloroethane; 1,3,4 Trimethylbenzene; 1,3,5 Trimethylbenzene; Benzene; Cumene; Ethylbenzene; Ethyl ether; Methyl tertiary butyl ether; Toluene; Xylene (total)	SVOC's 8270C: Anthracene; Benzo (a) anthracene; Benzo (ghi) anthracene; Benzo (b) Pyrene; Benzo (b) fluoranthene; Chrysene; Fluorene; Naphthalene; Phenanthrene; Pyrene	LAB USE ONLY
-1	BH-12-123_1-1.5'		12/4/12	0800	LM	SO	4					1			3	X	X	X	HC29
-2	BH-12-123_2-2.5'			0815								1			3				14B4
-3	BH-12-124_3-3.5			0900								1			3				4012
-4	BH-12-149_1-1.5'			0915								1			3				
-5	BH-12-149_2.5-3'			0930								1			3				
-6	BH-12-129_1.5-2'			0945								1			3				
-7	BH-12-129_2.5-3'			0950								1			3				
-8	BH-12-126_2.5-3'			1000								1			3				
-9	BH12-128_3-3.5'			1015								1			3				
-10	BH-12-127_2.5-3'			1020								1			3				
-11	BH-12-119_0.5-1'			1030								1			3				
-12	BH-12-125_2.5-3'			1045								1			3				

Turnaround Time (Business days)

- [x] Std. 15 Business Days
- [ ] 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:
12/5/12
Rec'd at Exton Service Center

Data Deliverable Information

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

3 Encores in each Bag

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 Luke Makrycki	12/4/12 1600	1	2 12/5 1400	12/5/12 1600	2
3	12/5/12 1830	3	4		4
5		5			

Custody Seal # [ ] Intact [x] Not intact
Preserved where applicable [ ]
On Ice [x]
Cooler Temp. 3.3°C

JB22962: 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 # JB22962

Client / Reporting Information

Company Name: Aquaterra Technologies Inc
Street Address: 122 So Church St
City: West Chester State: PA Zip: 19382
Project Contact: Tiffany Doer E-mail:
Phone #: Fax #:
Sampler(s) Name(s): Luke Motychki Phone #:

Project Information

Project Name: Phila Refinery Soil Samples AOI-6
Street: ~~#~~
City: Philadelphia State: PA
Project #: AOI-6
Client Purchase Order #:
Project Manager: Jim Oppenheim

Billing Information (if different from Report to)

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

Requested Analysis (see TEST CODE sheet)

Matrix Codes

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

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	LEAD	VOC's 8260B: 1,2 Dichloroethane, 1,2,4 Trimethylbenzene, 1,3,5 Trimethylbenzene, Benzene, Cumene, Ethylbenzene, Ethylenedibromide, Methyl Tertiary Butyl Ether, Toluene, Xylenes (Total)	SVOC's 8270C: Anthracene	Benzo(a) Anthracene, Benzo(b) Fluoranthene, Benzo(k) Pyrene, Chrysene, Fluoranthene, Naphthalene, Phenanthrene, Pyrene	LAB USE ONLY
-13	BH-12-120_0-1'		12/4/12	1100	um	SO	4					1			3	X	X	X	X	
-14	BH-12-104_0.5-1'			1300								1			3					
-15	BH-12-130_1-2'			1115								1			3					
-16	BH-12-131_1-2'			1130								1			3					
-17	BH-12-118_2-2.5'			1145								1			3					
	~~BH-12-104_0.5-1'~~	Listed Twice		~~1300~~								~~1~~			~~3~~					
-18	BH-12-102_2-2.5'			1330								1			3					
-19	BH-12-101_2-3'	✓		1400								1			3					

Turnaround Time (Business days)

- [x] Std. 15 Business Days
- [ ] 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:

12/5/12
Rec'd at Exton Service Center

Data Deliverable Information

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

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 Luke Motychki	12/4/12 1600	1 [signature] 12/5 1400	2 [signature]	12/5/12 1600	2 [signature]
Relinquished By Sampler: 3 [signature]	Date Time: 12/5/12 1830	Received By: 3 [signature]	Relinquished By: 4	Date Time:	Received By: 4
Relinquished By: 5	Date Time:	Received By: 5	Custody Seal #	[ ] Intact [x] Not intact	Preserved where applicable [ ]

On Ice [x] Cooler Temp. 3.3°C

2A

5.1 5

JB22962: Chain of Custody
Page 2 of 4

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB22962 **Client:** **Project:**

Date / Time Received: 12/5/2012 **Delivery Method:** **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (3.3/3.3); 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:	IR Gun		
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

JB22962: Chain of Custody
Page 3 of 4

Job Change Order: JB22962_12/12/2012

Requested Date:	12/12/2012	**Received Date:**	12/5/2012
Account Name:	Aquaterra Technologies, Inc.	**Due Date:**	12/19/2012
Project	Sun-Philadelphia Refinery, 3144 Passyunk	**Deliverable:**	COMMB
CSR:	KB	**TAT (Days):**	14

Sample #:
JB22962-ALL

Change: Please upgrade deliverable to REDT2

Above Changes Per: Client / Kristen Ward

Date: 12/12/2012

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

Page 1 of 1

5.1 5

JB22962: Chain of Custody
Page 4 of 4

Internal Sample Tracking Chronicle

Aquaterra Technologies, Inc.

Job No: JB22962

Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Project No: AOI-6

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB22962-1	Collected: 04-DEC-12 08:00 By: LM		Received: 05-DEC-12 By: AS			
BH-12-123_1-1.5'						
JB22962-1	SW846 8260B	13-DEC-12 06:39	JTP			V8260PALGTMB
JB22962-1	SW846 6010C	18-DEC-12 01:33	BL	14-DEC-12	WWZ	PB
JB22962-1	SM2540 G-97	18-DEC-12 15:30	KP			%SOL
JB22962-1	SW846 8270D	19-DEC-12 13:12	OYA	17-DEC-12	JF	B8270PALO
JB22962-2	Collected: 04-DEC-12 08:15 By: LM		Received: 05-DEC-12 By: AS			
BH-12-123_2-2.5'						
JB22962-2	SW846 8260B	14-DEC-12 06:00	ET			V8260PALGTMB
JB22962-2	SW846 8260B	17-DEC-12 19:12	OTR			V8260PALGTMB
JB22962-2	SW846 6010C	18-DEC-12 01:38	BL	14-DEC-12	WWZ	PB
JB22962-2	SM2540 G-97	18-DEC-12 15:30	KP			%SOL
JB22962-2	SW846 8270D	19-DEC-12 13:35	OYA	17-DEC-12	JF	B8270PALO
JB22962-2	SW846 8270D	20-DEC-12 11:11	OYA	17-DEC-12	JF	B8270PALO
JB22962-3	Collected: 04-DEC-12 09:00 By: LM		Received: 05-DEC-12 By: AS			
BH-12-124_3-3.5'						
JB22962-3	SW846 8260B	14-DEC-12 06:29	ET			V8260PALGTMB
JB22962-3	SW846 8260B	17-DEC-12 19:42	OTR			V8260PALGTMB
JB22962-3	SW846 6010C	18-DEC-12 01:44	BL	14-DEC-12	WWZ	PB
JB22962-3	SM2540 G-97	18-DEC-12 15:30	KP			%SOL
JB22962-3	SW846 8270D	19-DEC-12 11:17	OYA	17-DEC-12	JF	B8270PALO
JB22962-3	SW846 8270D	19-DEC-12 19:46	OYA	17-DEC-12	JF	B8270PALO
JB22962-4	Collected: 04-DEC-12 09:15 By: LM		Received: 05-DEC-12 By: AS			
BH-12-149_1-1.5'						
JB22962-4	SW846 8260B	17-DEC-12 20:12	OTR			V8260PALGTMB
JB22962-4	SW846 6010C	18-DEC-12 03:48	BL	14-DEC-12	WWZ	PB
JB22962-4	SM2540 G-97	18-DEC-12 15:30	KP			%SOL
JB22962-4	SW846 8270D	19-DEC-12 13:59	OYA	17-DEC-12	JF	B8270PALO
JB22962-5	Collected: 04-DEC-12 09:30 By: LM		Received: 05-DEC-12 By: AS			
BH-12-149_2.5-3'						
JB22962-5	SW846 6010C	18-DEC-12 03:54	BL	14-DEC-12	WWZ	PB

Internal Sample Tracking Chronicle

Aquaterra Technologies, Inc.

Job No: JB22962

Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Project No: AOI-6

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB22962-5	SW846 8260B	18-DEC-12 05:20	OTR			V8260PALGTMB
JB22962-5	SM2540 G-97	18-DEC-12 15:30	KP			%SOL
JB22962-5	SW846 8260B	18-DEC-12 16:16	OTR			V8260PALGTMB
JB22962-5	SW846 8270D	19-DEC-12 14:22	OYA	17-DEC-12	JF	B8270PALO
JB22962-5	SW846 8270D	19-DEC-12 20:31	OYA	17-DEC-12	JF	B8270PALO
JB22962-6 Collected: 04-DEC-12 09:45 By: LM Received: 05-DEC-12 By: AS BH-12-129_1.5-2'						
JB22962-6	SW846 8260B	14-DEC-12 07:57	ET			V8260PALGTMB
JB22962-6	SW846 6010C	18-DEC-12 04:00	BL	14-DEC-12	WWZ	PB
JB22962-6	SW846 8260B	18-DEC-12 05:50	OTR			V8260PALGTMB
JB22962-6	SM2540 G-97	18-DEC-12 15:30	KP			%SOL
JB22962-6	SW846 8270D	19-DEC-12 17:27	OYA	17-DEC-12	JF	B8270PALO
JB22962-6	SW846 8270D	20-DEC-12 12:51	OYA	17-DEC-12	JF	B8270PALO
JB22962-7 Collected: 04-DEC-12 09:50 By: LM Received: 05-DEC-12 By: AS BH-12-129_2.5-3'						
JB22962-7	SW846 8260B	15-DEC-12 05:55	ET			V8260PALGTMB
JB22962-7	SW846 8260B	17-DEC-12 17:08	ET			V8260PALGTMB
JB22962-7	SW846 6010C	18-DEC-12 04:06	BL	14-DEC-12	WWZ	PB
JB22962-7	SM2540 G-97	18-DEC-12 15:30	KP			%SOL
JB22962-7	SW846 8270D	19-DEC-12 19:03	OYA	17-DEC-12	JF	B8270PALO
JB22962-8 Collected: 04-DEC-12 10:00 By: LM Received: 05-DEC-12 By: AS BH-12-126_2.5-3'						
JB22962-8	SW846 8260B	15-DEC-12 06:25	ET			V8260PALGTMB
JB22962-8	SW846 8260B	17-DEC-12 17:38	ET			V8260PALGTMB
JB22962-8	SW846 6010C	18-DEC-12 01:21	BL	14-DEC-12	WWZ	PB
JB22962-8	SM2540 G-97	18-DEC-12 15:30	KP			%SOL
JB22962-8	SW846 8270D	19-DEC-12 19:26	OYA	17-DEC-12	JF	B8270PALO
JB22962-9 Collected: 04-DEC-12 10:15 By: LM Received: 05-DEC-12 By: AS BH-12-128_3-3.5'						
JB22962-9	SW846 8260B	15-DEC-12 06:54	ET			V8260PALGTMB
JB22962-9	SW846 8260B	17-DEC-12 18:07	ET			V8260PALGTMB
JB22962-9	SW846 6010C	18-DEC-12 04:12	BL	14-DEC-12	WWZ	PB

Internal Sample Tracking Chronicle

Aquaterra Technologies, Inc.

Job No: JB22962

Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Project No: AOI-6

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB22962-9	SW846 8260B	18-DEC-12 11:25	ET			V8260PALGTMB
JB22962-9	SW846 8260B	18-DEC-12 14:46	OTR			V8260PALGTMB
JB22962-9	SM2540 G-97	18-DEC-12 15:30	KP			%SOL
JB22962-9	SW846 8270D	19-DEC-12 12:03	OYA	17-DEC-12	JF	B8270PALO
JB22962-10 Collected: 04-DEC-12 10:20 By: LM BH-12-127_2.5-3'			Received: 05-DEC-12 By: AS			
JB22962-10	SW846 8260B	15-DEC-12 07:24	ET			V8260PALGTMB
JB22962-10	SW846 8260B	17-DEC-12 18:36	ET			V8260PALGTMB
JB22962-10	SW846 6010C	18-DEC-12 04:17	BL	14-DEC-12	WWZ	PB
JB22962-10	SM2540 G-97	18-DEC-12 15:30	KP			%SOL
JB22962-10	SW846 8270D	19-DEC-12 15:31	OYA	17-DEC-12	JF	B8270PALO
JB22962-11 Collected: 04-DEC-12 10:30 By: LM BH-12-119_0.5-1'			Received: 05-DEC-12 By: AS			
JB22962-11	SW846 8260B	13-DEC-12 07:08	JTP			V8260PALGTMB
JB22962-11	SW846 6010C	18-DEC-12 04:23	BL	14-DEC-12	WWZ	PB
JB22962-11	SM2540 G-97	18-DEC-12 15:30	KP			%SOL
JB22962-11	SW846 8270D	19-DEC-12 18:13	OYA	17-DEC-12	JF	B8270PALO
JB22962-11	SW846 8270D	20-DEC-12 12:05	OYA	17-DEC-12	JF	B8270PALO
JB22962-12 Collected: 04-DEC-12 10:45 By: LM BH-12-125_2.5-3'			Received: 05-DEC-12 By: AS			
JB22962-12	SW846 8260B	17-DEC-12 19:35	ET			V8260PALGTMB
JB22962-12	SW846 6010C	18-DEC-12 04:29	BL	14-DEC-12	WWZ	PB
JB22962-12	SM2540 G-97	18-DEC-12 15:30	KP			%SOL
JB22962-12	SW846 8270D	19-DEC-12 12:26	OYA	17-DEC-12	JF	B8270PALO
JB22962-13 Collected: 04-DEC-12 11:00 By: LM BH-12-120_0-1'			Received: 05-DEC-12 By: AS			
JB22962-13	SW846 8260B	13-DEC-12 07:38	JTP			V8260PALGTMB
JB22962-13	SW846 6010C	18-DEC-12 04:35	BL	14-DEC-12	WWZ	PB
JB22962-13	SM2540 G-97	18-DEC-12 15:30	KP			%SOL
JB22962-13	SW846 8270D	19-DEC-12 15:54	OYA	17-DEC-12	JF	B8270PALO

Internal Sample Tracking Chronicle

Aquaterra Technologies, Inc.

Job No: JB22962

Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Project No: AOI-6

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB22962-14 Collected: 04-DEC-12 13:00 By: LM Received: 05-DEC-12 By: AS BH-12-104_0.5-1'						
JB22962-14	SW846 8260B	17-DEC-12 19:06	ET			V8260PALGTMB
JB22962-14	SW846 6010C	18-DEC-12 04:41	BL	14-DEC-12	WWZ	PB
JB22962-14	SM2540 G-97	18-DEC-12 15:30	KP			%SOL
JB22962-14	SW846 8270D	19-DEC-12 16:18	OYA	17-DEC-12	JF	B8270PALO
JB22962-15 Collected: 04-DEC-12 11:15 By: LM Received: 05-DEC-12 By: AS BH-12-130_1-2'						
JB22962-15	SW846 8260B	17-DEC-12 20:05	ET			V8260PALGTMB
JB22962-15	SM2540 G-97	18-DEC-12 15:30	KP			%SOL
JB22962-15	SW846 6010C	18-DEC-12 17:20	BL	14-DEC-12	WWZ	PB
JB22962-15	SW846 8270D	19-DEC-12 17:50	OYA	17-DEC-12	JF	B8270PALO
JB22962-15	SW846 8270D	20-DEC-12 12:30	OYA	17-DEC-12	JF	B8270PALO
JB22962-16 Collected: 04-DEC-12 11:30 By: LM Received: 05-DEC-12 By: AS BH-12-131_1-2'						
JB22962-16	SW846 8260B	18-DEC-12 03:59	ET			V8260PALGTMB
JB22962-16	SW846 6010C	18-DEC-12 05:04	BL	14-DEC-12	WWZ	PB
JB22962-16	SM2540 G-97	18-DEC-12 15:30	KP			%SOL
JB22962-16	SW846 8270D	19-DEC-12 16:41	OYA	17-DEC-12	JF	B8270PALO
JB22962-16	SW846 8270D	20-DEC-12 12:28	OYA	17-DEC-12	JF	B8270PALO
JB22962-17 Collected: 04-DEC-12 11:45 By: LM Received: 05-DEC-12 By: AS BH-12-118_2-2.5'						
JB22962-17	SW846 8260B	13-DEC-12 08:07	JTP			V8260PALGTMB
JB22962-17	SW846 6010C	18-DEC-12 05:10	BL	14-DEC-12	WWZ	PB
JB22962-17	SM2540 G-97	18-DEC-12 15:30	KP			%SOL
JB22962-17	SW846 8270D	19-DEC-12 17:04	OYA	17-DEC-12	JF	B8270PALO
JB22962-18 Collected: 04-DEC-12 13:30 By: LM Received: 05-DEC-12 By: AS BH-12-102_2-2.5'						
JB22962-18	SW846 6010C	18-DEC-12 05:16	BL	14-DEC-12	WWZ	PB
JB22962-18	SW846 8260B	18-DEC-12 12:24	ET			V8260PALGTMB

Internal Sample Tracking Chronicle

Aquaterra Technologies, Inc.

Job No: JB22962

Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Project No: AOI-6

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB22962-18	SM2540 G-97	18-DEC-12 15:30	KP			%SOL
JB22962-18	SW846 8270D	19-DEC-12 18:36	OYA	17-DEC-12	JF	B8270PALO
JB22962-18	SW846 8270D	20-DEC-12 13:14	OYA	17-DEC-12	JF	B8270PALO
JB22962-19	Collected: 04-DEC-12 14:00 By: LM		Received: 05-DEC-12 By: AS			
BH-12-101_2-3'						
JB22962-19	SW846 6010C	18-DEC-12 05:22	BL	14-DEC-12	WWZ	PB
JB22962-19	SW846 8260B	18-DEC-12 12:54	ET			V8260PALGTMB
JB22962-19	SM2540 G-97	18-DEC-12 15:30	KP			%SOL
JB22962-19	SW846 8270D	19-DEC-12 12:49	OYA	17-DEC-12	JF	B8270PALO
JB22962-19	SW846 8270D	21-DEC-12 12:29	OYA	20-DEC-12	JF	B8270PALO

Accutest Internal Chain of Custody

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 12/05/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB22962-1.1	Secured Storage	Mehmet Temizsu	12/14/12 14:19	Retrieve from Storage
JB22962-1.1	Mehmet Temizsu	Secured Staging Area	12/14/12 14:20	Return to Storage
JB22962-1.1	Secured Staging Area	Gina Montenegro	12/14/12 15:12	Retrieve from Storage
JB22962-1.1	Gina Montenegro	Secured Storage	12/14/12 20:32	Return to Storage
JB22962-1.1	Secured Storage	Adam Scott	12/17/12 06:53	Retrieve from Storage
JB22962-1.1	Adam Scott	Secured Staging Area	12/17/12 06:54	Return to Storage
JB22962-1.1	Secured Staging Area	Jamie Farrell	12/17/12 08:21	Retrieve from Storage
JB22962-1.1	Jamie Farrell	Secured Storage	12/17/12 12:01	Return to Storage
JB22962-1.1	Secured Storage	Alfredo Crespo	12/18/12 10:18	Retrieve from Storage
JB22962-1.1	Alfredo Crespo	Krimesh Patel	12/18/12 10:21	Custody Transfer
JB22962-1.1	Krimesh Patel	Secured Storage	12/18/12 16:38	Return to Storage
JB22962-1.1.1	Gina Montenegro	Metals Digestion	12/14/12 17:55	Digestate from JB22962-1.1
JB22962-1.1.2	Jamie Farrell	Organics Prep	12/17/12 08:24	Extract from JB22962-1.1
JB22962-1.1.2	Organics Prep	Jamie Farrell	12/17/12 16:36	Extract from JB22962-1.1
JB22962-1.1.2	Jamie Farrell	Extract Storage	12/17/12 16:36	Return to Storage
JB22962-1.1.2	Extract Storage	Olga Azarihn	12/19/12 11:47	Retrieve from Storage
JB22962-1.1.2	Olga Azarihn	GCMS2M	12/19/12 11:47	Load on Instrument
JB22962-1.1.2	GCMS2M	Olga Azarihn	12/20/12 12:59	Unload from Instrument
JB22962-1.1.2	Olga Azarihn	Extract Freezer	12/20/12 12:59	Return to Storage
JB22962-1.3	Secured Storage	Jayna Patel	12/06/12 07:53	Retrieve from Storage
JB22962-1.3	Jayna Patel	Secured Storage	12/06/12 07:54	Return to Storage
JB22962-1.4	Secured Storage	Jayna Patel	12/06/12 07:53	Retrieve from Storage
JB22962-1.4	Jayna Patel	Secured Storage	12/06/12 07:54	Return to Storage
JB22962-1.4	Secured Storage	Juntae Park	12/08/12 17:20	Retrieve from Storage
JB22962-1.4	Juntae Park	GCMS3C	12/08/12 17:20	Load on Instrument
JB22962-1.4	GCMS3C	Juntae Park	12/11/12 16:13	Unload from Instrument
JB22962-1.4	Juntae Park	Secured Storage	12/11/12 16:13	Return to Storage
JB22962-1.4	Secured Storage	Juntae Park	12/12/12 13:42	Retrieve from Storage
JB22962-1.4	Juntae Park	GCMS3C	12/12/12 13:42	Load on Instrument
JB22962-1.4	GCMS3C	Juntae Park	12/13/12 16:33	Unload from Instrument
JB22962-1.4	Juntae Park	Secured Storage	12/13/12 16:33	Return to Storage
JB22962-1.5	Secured Storage	Jayna Patel	12/06/12 07:53	Retrieve from Storage
JB22962-1.5	Jayna Patel	Secured Storage	12/06/12 07:54	Return to Storage
JB22962-2.1	Secured Storage	Mehmet Temizsu	12/14/12 14:19	Retrieve from Storage
JB22962-2.1	Mehmet Temizsu	Secured Staging Area	12/14/12 14:20	Return to Storage
JB22962-2.1	Secured Staging Area	Gina Montenegro	12/14/12 15:12	Retrieve from Storage
JB22962-2.1	Gina Montenegro	Secured Storage	12/14/12 20:32	Return to Storage
JB22962-2.1	Secured Storage	Adam Scott	12/17/12 06:53	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 12/05/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB22962-2.1	Adam Scott	Secured Staging Area	12/17/12 06:54	Return to Storage
JB22962-2.1	Secured Staging Area	Jamie Farrell	12/17/12 08:21	Retrieve from Storage
JB22962-2.1	Jamie Farrell	Secured Storage	12/17/12 12:01	Return to Storage
JB22962-2.1	Secured Storage	Alfredo Crespo	12/18/12 10:18	Retrieve from Storage
JB22962-2.1	Alfredo Crespo	Krimesh Patel	12/18/12 10:21	Custody Transfer
JB22962-2.1	Krimesh Patel	Secured Storage	12/18/12 16:38	Return to Storage
JB22962-2.1.1	Gina Montenegro	Metals Digestion	12/14/12 17:55	Digestate from JB22962-2.1
JB22962-2.1.2	Jamie Farrell	Organics Prep	12/17/12 08:24	Extract from JB22962-2.1
JB22962-2.1.2	Organics Prep	Jamie Farrell	12/17/12 16:36	Extract from JB22962-2.1
JB22962-2.1.2	Jamie Farrell	Extract Storage	12/17/12 16:36	Return to Storage
JB22962-2.1.2	Extract Storage	Olga Azarihn	12/19/12 11:47	Retrieve from Storage
JB22962-2.1.2	Olga Azarihn	GCMS2M	12/19/12 11:47	Load on Instrument
JB22962-2.1.2	GCMS2M	Olga Azarihn	12/20/12 12:59	Unload from Instrument
JB22962-2.1.2	Olga Azarihn	Extract Freezer	12/20/12 12:59	Return to Storage
JB22962-2.3	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-2.3	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-2.3	Secured Storage	Emily Tran	12/13/12 12:08	Retrieve from Storage
JB22962-2.3	Emily Tran	Secured Storage	12/13/12 16:47	Return to Storage
JB22962-2.3	Secured Storage	Emily Tran	12/14/12 11:45	Retrieve from Storage
JB22962-2.3	Emily Tran	Secured Storage	12/15/12 08:27	Return to Storage
JB22962-2.3	Secured Storage	Oksana Treglazova	12/17/12 15:56	Retrieve from Storage
JB22962-2.3	Oksana Treglazova	Secured Storage	12/17/12 15:57	Return to Storage
JB22962-2.4	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-2.4	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-2.5	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-2.5	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-3.1	Secured Storage	Mehmet Temizsu	12/14/12 14:19	Retrieve from Storage
JB22962-3.1	Mehmet Temizsu	Secured Staging Area	12/14/12 14:20	Return to Storage
JB22962-3.1	Secured Staging Area	Gina Montenegro	12/14/12 15:12	Retrieve from Storage
JB22962-3.1	Gina Montenegro	Secured Storage	12/14/12 20:32	Return to Storage
JB22962-3.1	Secured Storage	Adam Scott	12/17/12 06:53	Retrieve from Storage
JB22962-3.1	Adam Scott	Secured Staging Area	12/17/12 06:54	Return to Storage
JB22962-3.1	Secured Staging Area	Jamie Farrell	12/17/12 08:21	Retrieve from Storage
JB22962-3.1	Jamie Farrell	Secured Storage	12/17/12 12:01	Return to Storage
JB22962-3.1	Secured Storage	Alfredo Crespo	12/18/12 10:18	Retrieve from Storage
JB22962-3.1	Alfredo Crespo	Krimesh Patel	12/18/12 10:21	Custody Transfer
JB22962-3.1	Krimesh Patel	Secured Storage	12/18/12 16:38	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 12/05/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB22962-3.1.1	Gina Montenegro	Metals Digestion	12/14/12 17:55	Digestate from JB22962-3.1
JB22962-3.1.2	Jamie Farrell	Organics Prep	12/17/12 08:24	Extract from JB22962-3.1
JB22962-3.1.2	Organics Prep	Jamie Farrell	12/17/12 16:36	Extract from JB22962-3.1
JB22962-3.1.2	Jamie Farrell	Extract Storage	12/17/12 16:36	Return to Storage
JB22962-3.1.2	Extract Storage	Olga Azarihn	12/19/12 11:47	Retrieve from Storage
JB22962-3.1.2	Olga Azarihn	GCMS2M	12/19/12 11:47	Load on Instrument
JB22962-3.1.2	GCMS2M	Olga Azarihn	12/20/12 12:59	Unload from Instrument
JB22962-3.1.2	Olga Azarihn	Extract Freezer	12/20/12 12:59	Return to Storage
JB22962-3.3	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-3.3	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-3.3	Secured Storage	Emily Tran	12/13/12 12:08	Retrieve from Storage
JB22962-3.3	Emily Tran	Secured Storage	12/13/12 16:47	Return to Storage
JB22962-3.3	Secured Storage	Emily Tran	12/14/12 11:45	Retrieve from Storage
JB22962-3.3	Emily Tran	Secured Storage	12/15/12 08:27	Return to Storage
JB22962-3.3	Secured Storage	Oksana Treglazova	12/17/12 15:56	Retrieve from Storage
JB22962-3.3	Oksana Treglazova	Secured Storage	12/17/12 15:57	Return to Storage
JB22962-3.4	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-3.4	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-3.5	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-3.5	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-4.1	Secured Storage	Mehmet Temizsu	12/14/12 14:19	Retrieve from Storage
JB22962-4.1	Mehmet Temizsu	Secured Staging Area	12/14/12 14:20	Return to Storage
JB22962-4.1	Secured Staging Area	Gina Montenegro	12/14/12 15:12	Retrieve from Storage
JB22962-4.1	Gina Montenegro	Secured Storage	12/14/12 20:32	Return to Storage
JB22962-4.1	Secured Storage	Adam Scott	12/17/12 06:53	Retrieve from Storage
JB22962-4.1	Adam Scott	Secured Staging Area	12/17/12 06:54	Return to Storage
JB22962-4.1	Secured Staging Area	Jamie Farrell	12/17/12 08:21	Retrieve from Storage
JB22962-4.1	Jamie Farrell	Secured Storage	12/17/12 12:01	Return to Storage
JB22962-4.1	Secured Storage	Alfredo Crespo	12/18/12 10:18	Retrieve from Storage
JB22962-4.1	Alfredo Crespo	Krimesh Patel	12/18/12 10:21	Custody Transfer
JB22962-4.1	Krimesh Patel	Secured Storage	12/18/12 16:38	Return to Storage
JB22962-4.1.1	Gina Montenegro	Metals Digestion	12/14/12 17:55	Digestate from JB22962-4.1
JB22962-4.1.2	Jamie Farrell	Organics Prep	12/17/12 08:24	Extract from JB22962-4.1
JB22962-4.1.2	Organics Prep	Jamie Farrell	12/17/12 16:36	Extract from JB22962-4.1
JB22962-4.1.2	Jamie Farrell	Extract Storage	12/17/12 16:36	Return to Storage
JB22962-4.1.2	Extract Storage	Olga Azarihn	12/19/12 11:47	Retrieve from Storage
JB22962-4.1.2	Olga Azarihn	GCMS2M	12/19/12 11:47	Load on Instrument

Accutest Internal Chain of Custody

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 12/05/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB22962-4.1.2	GCMS2M	Olga Azarihn	12/20/12 12:59	Unload from Instrument
JB22962-4.1.2	Olga Azarihn	Extract Freezer	12/20/12 12:59	Return to Storage
JB22962-4.3	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-4.3	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-4.3	Secured Storage	Emily Tran	12/13/12 12:08	Retrieve from Storage
JB22962-4.3	Emily Tran	Secured Storage	12/13/12 16:47	Return to Storage
JB22962-4.3	Secured Storage	Emily Tran	12/14/12 11:45	Retrieve from Storage
JB22962-4.3	Emily Tran	Secured Storage	12/15/12 08:27	Return to Storage
JB22962-4.3	Secured Storage	Oksana Treglazova	12/17/12 15:56	Retrieve from Storage
JB22962-4.3	Oksana Treglazova	Secured Storage	12/17/12 15:57	Return to Storage
JB22962-4.4	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-4.4	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-4.5	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-4.5	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-5.1	Secured Storage	Mehmet Temizsu	12/14/12 14:19	Retrieve from Storage
JB22962-5.1	Mehmet Temizsu	Secured Staging Area	12/14/12 14:20	Return to Storage
JB22962-5.1	Secured Staging Area	Gina Montenegro	12/14/12 15:12	Retrieve from Storage
JB22962-5.1	Gina Montenegro	Secured Storage	12/14/12 20:32	Return to Storage
JB22962-5.1	Secured Storage	Adam Scott	12/17/12 06:53	Retrieve from Storage
JB22962-5.1	Adam Scott	Secured Staging Area	12/17/12 06:54	Return to Storage
JB22962-5.1	Secured Staging Area	Jamie Farrell	12/17/12 08:21	Retrieve from Storage
JB22962-5.1	Jamie Farrell	Secured Storage	12/17/12 12:01	Return to Storage
JB22962-5.1	Secured Storage	Alfredo Crespo	12/18/12 10:18	Retrieve from Storage
JB22962-5.1	Alfredo Crespo	Krimesh Patel	12/18/12 10:21	Custody Transfer
JB22962-5.1	Krimesh Patel	Secured Storage	12/18/12 16:38	Return to Storage
JB22962-5.1.1	Gina Montenegro	Metals Digestion	12/14/12 17:55	Digestate from JB22962-5.1
JB22962-5.1.2	Jamie Farrell	Organics Prep	12/17/12 08:24	Extract from JB22962-5.1
JB22962-5.1.2	Organics Prep	Jamie Farrell	12/17/12 16:36	Extract from JB22962-5.1
JB22962-5.1.2	Jamie Farrell	Extract Storage	12/17/12 16:36	Return to Storage
JB22962-5.1.2	Extract Storage	Olga Azarihn	12/19/12 11:47	Retrieve from Storage
JB22962-5.1.2	Olga Azarihn	GCMS2M	12/19/12 11:47	Load on Instrument
JB22962-5.1.2	GCMS2M	Olga Azarihn	12/20/12 12:59	Unload from Instrument
JB22962-5.1.2	Olga Azarihn	Extract Freezer	12/20/12 12:59	Return to Storage
JB22962-5.3	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-5.3	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-5.3	Secured Storage	Emily Tran	12/13/12 12:08	Retrieve from Storage
JB22962-5.3	Emily Tran	Secured Storage	12/13/12 16:47	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 12/05/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB22962-5.3	Secured Storage	Emily Tran	12/14/12 11:45	Retrieve from Storage
JB22962-5.3	Emily Tran	Secured Storage	12/15/12 08:27	Return to Storage
JB22962-5.3	Secured Storage	Oksana Treglazova	12/17/12 15:56	Retrieve from Storage
JB22962-5.3	Oksana Treglazova	Secured Storage	12/17/12 15:57	Return to Storage
JB22962-5.4	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-5.4	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-5.5	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-5.5	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-6.1	Secured Storage	Mehmet Temizsu	12/14/12 14:19	Retrieve from Storage
JB22962-6.1	Mehmet Temizsu	Secured Staging Area	12/14/12 14:20	Return to Storage
JB22962-6.1	Secured Staging Area	Gina Montenegro	12/14/12 15:12	Retrieve from Storage
JB22962-6.1	Gina Montenegro	Secured Storage	12/14/12 20:32	Return to Storage
JB22962-6.1	Secured Storage	Adam Scott	12/17/12 06:53	Retrieve from Storage
JB22962-6.1	Adam Scott	Secured Staging Area	12/17/12 06:54	Return to Storage
JB22962-6.1	Secured Staging Area	Jamie Farrell	12/17/12 08:21	Retrieve from Storage
JB22962-6.1	Jamie Farrell	Secured Storage	12/17/12 12:01	Return to Storage
JB22962-6.1	Secured Storage	Alfredo Crespo	12/18/12 10:18	Retrieve from Storage
JB22962-6.1	Alfredo Crespo	Krimesh Patel	12/18/12 10:21	Custody Transfer
JB22962-6.1	Krimesh Patel	Secured Storage	12/18/12 16:38	Return to Storage
JB22962-6.1.1	Gina Montenegro	Metals Digestion	12/14/12 17:55	Digestate from JB22962-6.1
JB22962-6.1.2	Jamie Farrell	Organics Prep	12/17/12 08:24	Extract from JB22962-6.1
JB22962-6.1.2	Organics Prep	Jamie Farrell	12/17/12 16:36	Extract from JB22962-6.1
JB22962-6.1.2	Jamie Farrell	Extract Storage	12/17/12 16:36	Return to Storage
JB22962-6.1.2	Extract Storage	Olga Azarihn	12/19/12 11:47	Retrieve from Storage
JB22962-6.1.2	Olga Azarihn	GCMS2M	12/19/12 11:47	Load on Instrument
JB22962-6.1.2	GCMS2M	Olga Azarihn	12/20/12 12:59	Unload from Instrument
JB22962-6.1.2	Olga Azarihn	Extract Freezer	12/20/12 12:59	Return to Storage
JB22962-6.3	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-6.3	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-6.3	Secured Storage	Emily Tran	12/13/12 12:08	Retrieve from Storage
JB22962-6.3	Emily Tran	Secured Storage	12/13/12 16:47	Return to Storage
JB22962-6.3	Secured Storage	Emily Tran	12/14/12 11:45	Retrieve from Storage
JB22962-6.3	Emily Tran	Secured Storage	12/15/12 08:27	Return to Storage
JB22962-6.3	Secured Storage	Oksana Treglazova	12/17/12 15:56	Retrieve from Storage
JB22962-6.3	Oksana Treglazova	Secured Storage	12/17/12 15:57	Return to Storage
JB22962-6.4	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-6.4	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 12/05/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB22962-6.5	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-6.5	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-7.1	Secured Storage	Mehmet Temizsu	12/14/12 14:19	Retrieve from Storage
JB22962-7.1	Mehmet Temizsu	Secured Staging Area	12/14/12 14:20	Return to Storage
JB22962-7.1	Secured Staging Area	Gina Montenegro	12/14/12 15:12	Retrieve from Storage
JB22962-7.1	Gina Montenegro	Secured Storage	12/14/12 20:32	Return to Storage
JB22962-7.1	Secured Storage	Adam Scott	12/17/12 06:53	Retrieve from Storage
JB22962-7.1	Adam Scott	Secured Staging Area	12/17/12 06:54	Return to Storage
JB22962-7.1	Secured Staging Area	Jamie Farrell	12/17/12 08:21	Retrieve from Storage
JB22962-7.1	Jamie Farrell	Secured Storage	12/17/12 12:01	Return to Storage
JB22962-7.1	Secured Storage	Alfredo Crespo	12/18/12 10:18	Retrieve from Storage
JB22962-7.1	Alfredo Crespo	Krimesh Patel	12/18/12 10:21	Custody Transfer
JB22962-7.1	Krimesh Patel	Secured Storage	12/18/12 16:38	Return to Storage
JB22962-7.1.1	Gina Montenegro	Metals Digestion	12/14/12 17:55	Digestate from JB22962-7.1
JB22962-7.1.2	Jamie Farrell	Organics Prep	12/17/12 08:24	Extract from JB22962-7.1
JB22962-7.1.2	Organics Prep	Jamie Farrell	12/17/12 16:36	Extract from JB22962-7.1
JB22962-7.1.2	Jamie Farrell	Extract Storage	12/17/12 16:36	Return to Storage
JB22962-7.1.2	Extract Storage	Olga Azarihn	12/19/12 11:47	Retrieve from Storage
JB22962-7.1.2	Olga Azarihn	GCMS2M	12/19/12 11:47	Load on Instrument
JB22962-7.1.2	GCMS2M	Olga Azarihn	12/19/12 16:41	Unload from Instrument
JB22962-7.1.2	Olga Azarihn	GCMS3E	12/19/12 16:41	Load on Instrument
JB22962-7.1.2	GCMS3E	Olga Azarihn	12/20/12 09:08	Unload from Instrument
JB22962-7.1.2	Olga Azarihn	Extract Freezer	12/20/12 09:08	Return to Storage
JB22962-7.3	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-7.3	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-7.3	Secured Storage	Emily Tran	12/13/12 12:08	Retrieve from Storage
JB22962-7.3	Emily Tran	Secured Storage	12/13/12 16:47	Return to Storage
JB22962-7.3	Secured Storage	Emily Tran	12/17/12 12:26	Retrieve from Storage
JB22962-7.3	Emily Tran	Secured Storage	12/17/12 17:04	Return to Storage
JB22962-7.4	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-7.4	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-7.5	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-7.5	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-8.1	Secured Storage	Mehmet Temizsu	12/14/12 14:19	Retrieve from Storage
JB22962-8.1	Mehmet Temizsu	Secured Staging Area	12/14/12 14:20	Return to Storage
JB22962-8.1	Secured Staging Area	Gina Montenegro	12/14/12 15:12	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 12/05/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB22962-8.1	Gina Montenegro	Secured Storage	12/14/12 20:32	Return to Storage
JB22962-8.1	Secured Storage	Adam Scott	12/17/12 06:53	Retrieve from Storage
JB22962-8.1	Adam Scott	Secured Staging Area	12/17/12 06:54	Return to Storage
JB22962-8.1	Secured Staging Area	Jamie Farrell	12/17/12 08:21	Retrieve from Storage
JB22962-8.1	Jamie Farrell	Secured Storage	12/17/12 12:01	Return to Storage
JB22962-8.1	Secured Storage	Alfredo Crespo	12/18/12 10:18	Retrieve from Storage
JB22962-8.1	Alfredo Crespo	Krimesh Patel	12/18/12 10:21	Custody Transfer
JB22962-8.1	Krimesh Patel	Secured Storage	12/18/12 16:38	Return to Storage
JB22962-8.1.1	Gina Montenegro	Metals Digestion	12/14/12 17:55	Digestate from JB22962-8.1
JB22962-8.1.2	Jamie Farrell	Organics Prep	12/17/12 08:24	Extract from JB22962-8.1
JB22962-8.1.2	Organics Prep	Jamie Farrell	12/17/12 16:36	Extract from JB22962-8.1
JB22962-8.1.2	Jamie Farrell	Extract Storage	12/17/12 16:36	Return to Storage
JB22962-8.1.2	Extract Storage	Olga Azarihn	12/19/12 11:47	Retrieve from Storage
JB22962-8.1.2	Olga Azarihn	GCMS2M	12/19/12 11:47	Load on Instrument
JB22962-8.1.2	GCMS2M	Olga Azarihn	12/19/12 16:41	Unload from Instrument
JB22962-8.1.2	Olga Azarihn	GCMS3E	12/19/12 16:41	Load on Instrument
JB22962-8.1.2	GCMS3E	Olga Azarihn	12/20/12 09:08	Unload from Instrument
JB22962-8.1.2	Olga Azarihn	Extract Freezer	12/20/12 09:08	Return to Storage
JB22962-8.3	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-8.3	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-8.3	Secured Storage	Emily Tran	12/13/12 12:08	Retrieve from Storage
JB22962-8.3	Emily Tran	Secured Storage	12/13/12 16:47	Return to Storage
JB22962-8.3	Secured Storage	Emily Tran	12/17/12 12:26	Retrieve from Storage
JB22962-8.3	Emily Tran	Secured Storage	12/17/12 17:04	Return to Storage
JB22962-8.4	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-8.4	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-8.5	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-8.5	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-9.1	Secured Storage	Mehmet Temizsu	12/14/12 14:19	Retrieve from Storage
JB22962-9.1	Mehmet Temizsu	Secured Staging Area	12/14/12 14:20	Return to Storage
JB22962-9.1	Secured Staging Area	Gina Montenegro	12/14/12 15:12	Retrieve from Storage
JB22962-9.1	Gina Montenegro	Secured Storage	12/14/12 20:32	Return to Storage
JB22962-9.1	Secured Storage	Adam Scott	12/17/12 06:53	Retrieve from Storage
JB22962-9.1	Adam Scott	Secured Staging Area	12/17/12 06:54	Return to Storage
JB22962-9.1	Secured Staging Area	Jamie Farrell	12/17/12 08:21	Retrieve from Storage
JB22962-9.1	Jamie Farrell	Secured Storage	12/17/12 12:01	Return to Storage
JB22962-9.1	Secured Storage	Alfredo Crespo	12/18/12 10:18	Retrieve from Storage
JB22962-9.1	Alfredo Crespo	Krimesh Patel	12/18/12 10:21	Custody Transfer

Accutest Internal Chain of Custody

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 12/05/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB22962-9.1	Krimesh Patel	Secured Storage	12/18/12 16:38	Return to Storage
JB22962-9.1.1	Gina Montenegro	Metals Digestion	12/14/12 17:55	Digestate from JB22962-9.1
JB22962-9.1.2	Jamie Farrell	Organics Prep	12/17/12 08:24	Extract from JB22962-9.1
JB22962-9.1.2	Organics Prep	Jamie Farrell	12/17/12 16:36	Extract from JB22962-9.1
JB22962-9.1.2	Jamie Farrell	Extract Storage	12/17/12 16:36	Return to Storage
JB22962-9.1.2	Extract Storage	Olga Azarihn	12/19/12 11:47	Retrieve from Storage
JB22962-9.1.2	Olga Azarihn	GCMS2M	12/19/12 11:47	Load on Instrument
JB22962-9.1.2	GCMS2M	Olga Azarihn	12/20/12 12:59	Unload from Instrument
JB22962-9.1.2	Olga Azarihn	Extract Freezer	12/20/12 12:59	Return to Storage
JB22962-9.3	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-9.3	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-9.3	Secured Storage	Emily Tran	12/13/12 12:08	Retrieve from Storage
JB22962-9.3	Emily Tran	Secured Storage	12/13/12 16:47	Return to Storage
JB22962-9.3	Secured Storage	Emily Tran	12/17/12 12:26	Retrieve from Storage
JB22962-9.3	Emily Tran	Secured Storage	12/17/12 17:04	Return to Storage
JB22962-9.3	Secured Storage	Ying Li	12/18/12 10:38	Retrieve from Storage
JB22962-9.3	Ying Li	Secured Storage	12/19/12 07:50	Return to Storage
JB22962-9.4	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-9.4	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-9.5	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-9.5	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-10.1	Secured Storage	Mehmet Temizsu	12/14/12 14:19	Retrieve from Storage
JB22962-10.1	Mehmet Temizsu	Secured Staging Area	12/14/12 14:20	Return to Storage
JB22962-10.1	Secured Staging Area	Gina Montenegro	12/14/12 15:12	Retrieve from Storage
JB22962-10.1	Gina Montenegro	Secured Storage	12/14/12 20:32	Return to Storage
JB22962-10.1	Secured Storage	Adam Scott	12/17/12 06:53	Retrieve from Storage
JB22962-10.1	Adam Scott	Secured Staging Area	12/17/12 06:54	Return to Storage
JB22962-10.1	Secured Staging Area	Jamie Farrell	12/17/12 08:21	Retrieve from Storage
JB22962-10.1	Jamie Farrell	Secured Storage	12/17/12 12:01	Return to Storage
JB22962-10.1	Secured Storage	Alfredo Crespo	12/18/12 10:18	Retrieve from Storage
JB22962-10.1	Alfredo Crespo	Krimesh Patel	12/18/12 10:21	Custody Transfer
JB22962-10.1	Krimesh Patel	Secured Storage	12/18/12 16:38	Return to Storage
JB22962-10.1.1	Gina Montenegro	Metals Digestion	12/14/12 17:55	Digestate from JB22962-10.1
JB22962-10.1.2	Jamie Farrell	Organics Prep	12/17/12 08:24	Extract from JB22962-10.1
JB22962-10.1.2	Organics Prep	Jamie Farrell	12/17/12 16:36	Extract from JB22962-10.1
JB22962-10.1.2	Jamie Farrell	Extract Storage	12/17/12 16:36	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 12/05/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB22962-10.1.2	Extract Storage	Olga Azarihn	12/19/12 11:47	Retrieve from Storage
JB22962-10.1.2	Olga Azarihn	GCMS2M	12/19/12 11:47	Load on Instrument
JB22962-10.1.2	GCMS2M	Olga Azarihn	12/20/12 12:59	Unload from Instrument
JB22962-10.1.2	Olga Azarihn	Extract Freezer	12/20/12 12:59	Return to Storage
JB22962-10.3	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-10.3	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-10.3	Secured Storage	Emily Tran	12/13/12 12:08	Retrieve from Storage
JB22962-10.3	Emily Tran	Secured Storage	12/13/12 16:47	Return to Storage
JB22962-10.3	Secured Storage	Emily Tran	12/17/12 12:26	Retrieve from Storage
JB22962-10.3	Emily Tran	Secured Storage	12/17/12 17:04	Return to Storage
JB22962-10.4	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-10.4	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-10.5	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-10.5	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-11.1	Secured Storage	Mehmet Temizsu	12/14/12 14:19	Retrieve from Storage
JB22962-11.1	Mehmet Temizsu	Secured Staging Area	12/14/12 14:20	Return to Storage
JB22962-11.1	Secured Staging Area	Gina Montenegro	12/14/12 15:12	Retrieve from Storage
JB22962-11.1	Gina Montenegro	Secured Storage	12/14/12 20:32	Return to Storage
JB22962-11.1	Secured Storage	Adam Scott	12/17/12 06:53	Retrieve from Storage
JB22962-11.1	Adam Scott	Secured Staging Area	12/17/12 06:54	Return to Storage
JB22962-11.1	Secured Staging Area	Jamie Farrell	12/17/12 08:21	Retrieve from Storage
JB22962-11.1	Jamie Farrell	Secured Storage	12/17/12 12:01	Return to Storage
JB22962-11.1	Secured Storage	Alfredo Crespo	12/18/12 10:18	Retrieve from Storage
JB22962-11.1	Alfredo Crespo	Krimesh Patel	12/18/12 10:21	Custody Transfer
JB22962-11.1	Krimesh Patel	Secured Storage	12/18/12 16:38	Return to Storage
JB22962-11.1.1	Gina Montenegro	Metals Digestion	12/14/12 17:55	Digestate from JB22962-11.1
JB22962-11.1.2	Jamie Farrell	Organics Prep	12/17/12 08:24	Extract from JB22962-11.1
JB22962-11.1.2	Organics Prep	Jamie Farrell	12/17/12 16:36	Extract from JB22962-11.1
JB22962-11.1.2	Jamie Farrell	Extract Storage	12/17/12 16:36	Return to Storage
JB22962-11.1.2	Extract Storage	Olga Azarihn	12/19/12 11:47	Retrieve from Storage
JB22962-11.1.2	Olga Azarihn	GCMS2M	12/19/12 11:47	Load on Instrument
JB22962-11.1.2	GCMS2M	Olga Azarihn	12/20/12 12:59	Unload from Instrument
JB22962-11.1.2	Olga Azarihn	Extract Freezer	12/20/12 12:59	Return to Storage
JB22962-11.3	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-11.3	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-11.4	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 12/05/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB22962-11.4	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-11.4	Secured Storage	Juntae Park	12/08/12 17:20	Retrieve from Storage
JB22962-11.4	Juntae Park	GCMS3C	12/08/12 17:20	Load on Instrument
JB22962-11.4	GCMS3C	Juntae Park	12/11/12 16:13	Unload from Instrument
JB22962-11.4	Juntae Park	Secured Storage	12/11/12 16:13	Return to Storage
JB22962-11.4	Secured Storage	Juntae Park	12/12/12 13:42	Retrieve from Storage
JB22962-11.4	Juntae Park	GCMS3C	12/12/12 13:42	Load on Instrument
JB22962-11.4	GCMS3C	Juntae Park	12/13/12 16:33	Unload from Instrument
JB22962-11.4	Juntae Park	Secured Storage	12/13/12 16:33	Return to Storage
JB22962-11.5	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-11.5	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-12.1	Secured Storage	Mehmet Temizsu	12/14/12 14:19	Retrieve from Storage
JB22962-12.1	Mehmet Temizsu	Secured Staging Area	12/14/12 14:20	Return to Storage
JB22962-12.1	Secured Staging Area	Gina Montenegro	12/14/12 15:12	Retrieve from Storage
JB22962-12.1	Gina Montenegro	Secured Storage	12/14/12 20:32	Return to Storage
JB22962-12.1	Secured Storage	Adam Scott	12/17/12 06:53	Retrieve from Storage
JB22962-12.1	Adam Scott	Secured Staging Area	12/17/12 06:54	Return to Storage
JB22962-12.1	Secured Staging Area	Jamie Farrell	12/17/12 08:21	Retrieve from Storage
JB22962-12.1	Jamie Farrell	Secured Storage	12/17/12 12:01	Return to Storage
JB22962-12.1	Secured Storage	Alfredo Crespo	12/18/12 10:18	Retrieve from Storage
JB22962-12.1	Alfredo Crespo	Krimesh Patel	12/18/12 10:21	Custody Transfer
JB22962-12.1	Krimesh Patel	Secured Storage	12/18/12 16:38	Return to Storage
JB22962-12.1.1	Gina Montenegro	Metals Digestion	12/14/12 17:55	Digestate from JB22962-12.1
JB22962-12.1.2	Jamie Farrell	Organics Prep	12/17/12 08:24	Extract from JB22962-12.1
JB22962-12.1.2	Organics Prep	Jamie Farrell	12/17/12 16:36	Extract from JB22962-12.1
JB22962-12.1.2	Jamie Farrell	Extract Storage	12/17/12 16:36	Return to Storage
JB22962-12.1.2	Extract Storage	Olga Azarihn	12/19/12 11:47	Retrieve from Storage
JB22962-12.1.2	Olga Azarihn	GCMS2M	12/19/12 11:47	Load on Instrument
JB22962-12.1.2	GCMS2M	Olga Azarihn	12/20/12 12:59	Unload from Instrument
JB22962-12.1.2	Olga Azarihn	Extract Freezer	12/20/12 12:59	Return to Storage
JB22962-12.3	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-12.3	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-12.3	Secured Storage	Emily Tran	12/13/12 12:08	Retrieve from Storage
JB22962-12.3	Emily Tran	Secured Storage	12/13/12 16:47	Return to Storage
JB22962-12.3	Secured Storage	Emily Tran	12/17/12 12:26	Retrieve from Storage
JB22962-12.3	Emily Tran	Secured Storage	12/17/12 17:04	Return to Storage
JB22962-12.4	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-12.4	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 12/05/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB22962-12.5	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-12.5	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-13.1	Secured Storage	Mehmet Temizsu	12/14/12 14:19	Retrieve from Storage
JB22962-13.1	Mehmet Temizsu	Secured Staging Area	12/14/12 14:20	Return to Storage
JB22962-13.1	Secured Staging Area	Gina Montenegro	12/14/12 15:12	Retrieve from Storage
JB22962-13.1	Gina Montenegro	Secured Storage	12/14/12 20:32	Return to Storage
JB22962-13.1	Secured Storage	Adam Scott	12/17/12 06:53	Retrieve from Storage
JB22962-13.1	Adam Scott	Secured Staging Area	12/17/12 06:54	Return to Storage
JB22962-13.1	Secured Staging Area	Jamie Farrell	12/17/12 08:21	Retrieve from Storage
JB22962-13.1	Jamie Farrell	Secured Storage	12/17/12 12:01	Return to Storage
JB22962-13.1	Secured Storage	Alfredo Crespo	12/18/12 10:18	Retrieve from Storage
JB22962-13.1	Alfredo Crespo	Krimesh Patel	12/18/12 10:21	Custody Transfer
JB22962-13.1	Krimesh Patel	Secured Storage	12/18/12 16:38	Return to Storage
JB22962-13.1.1	Gina Montenegro	Metals Digestion	12/14/12 17:55	Digestate from JB22962-13.1
JB22962-13.1.2	Jamie Farrell	Organics Prep	12/17/12 08:24	Extract from JB22962-13.1
JB22962-13.1.2	Organics Prep	Jamie Farrell	12/17/12 16:36	Extract from JB22962-13.1
JB22962-13.1.2	Jamie Farrell	Extract Storage	12/17/12 16:36	Return to Storage
JB22962-13.1.2	Extract Storage	Olga Azarihn	12/19/12 11:47	Retrieve from Storage
JB22962-13.1.2	Olga Azarihn	GCMS2M	12/19/12 11:47	Load on Instrument
JB22962-13.1.2	GCMS2M	Olga Azarihn	12/20/12 12:59	Unload from Instrument
JB22962-13.1.2	Olga Azarihn	Extract Freezer	12/20/12 12:59	Return to Storage
JB22962-13.3	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-13.3	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-13.4	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-13.4	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-13.4	Secured Storage	Juntae Park	12/08/12 17:20	Retrieve from Storage
JB22962-13.4	Juntae Park	GCMS3C	12/08/12 17:20	Load on Instrument
JB22962-13.4	GCMS3C	Juntae Park	12/11/12 16:13	Unload from Instrument
JB22962-13.4	Juntae Park	Secured Storage	12/11/12 16:13	Return to Storage
JB22962-13.4	Secured Storage	Juntae Park	12/12/12 13:42	Retrieve from Storage
JB22962-13.4	Juntae Park	GCMS3C	12/12/12 13:42	Load on Instrument
JB22962-13.4	GCMS3C	Juntae Park	12/13/12 16:33	Unload from Instrument
JB22962-13.4	Juntae Park	Secured Storage	12/13/12 16:33	Return to Storage
JB22962-13.5	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-13.5	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-14.1	Secured Storage	Mehmet Temizsu	12/14/12 14:19	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 12/05/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB22962-14.1	Mehmet Temizsu	Secured Staging Area	12/14/12 14:20	Return to Storage
JB22962-14.1	Secured Staging Area	Gina Montenegro	12/14/12 15:12	Retrieve from Storage
JB22962-14.1	Gina Montenegro	Secured Storage	12/14/12 20:32	Return to Storage
JB22962-14.1	Secured Storage	Adam Scott	12/17/12 06:53	Retrieve from Storage
JB22962-14.1	Adam Scott	Secured Staging Area	12/17/12 06:54	Return to Storage
JB22962-14.1	Secured Staging Area	Jamie Farrell	12/17/12 08:21	Retrieve from Storage
JB22962-14.1	Jamie Farrell	Secured Storage	12/17/12 12:01	Return to Storage
JB22962-14.1	Secured Storage	Alfredo Crespo	12/18/12 10:18	Retrieve from Storage
JB22962-14.1	Alfredo Crespo	Krimesh Patel	12/18/12 10:21	Custody Transfer
JB22962-14.1	Krimesh Patel	Secured Storage	12/18/12 16:38	Return to Storage
JB22962-14.1.1	Gina Montenegro	Metals Digestion	12/14/12 17:55	Digestate from JB22962-14.1
JB22962-14.1.2	Jamie Farrell	Organics Prep	12/17/12 08:24	Extract from JB22962-14.1
JB22962-14.1.2	Organics Prep	Jamie Farrell	12/17/12 16:36	Extract from JB22962-14.1
JB22962-14.1.2	Jamie Farrell	Extract Storage	12/17/12 16:36	Return to Storage
JB22962-14.1.2	Extract Storage	Olga Azarihn	12/19/12 11:47	Retrieve from Storage
JB22962-14.1.2	Olga Azarihn	GCMS2M	12/19/12 11:47	Load on Instrument
JB22962-14.1.2	GCMS2M	Olga Azarihn	12/20/12 12:59	Unload from Instrument
JB22962-14.1.2	Olga Azarihn	Extract Freezer	12/20/12 12:59	Return to Storage
JB22962-14.3	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-14.3	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-14.3	Secured Storage	Emily Tran	12/13/12 12:08	Retrieve from Storage
JB22962-14.3	Emily Tran	Secured Storage	12/13/12 16:47	Return to Storage
JB22962-14.3	Secured Storage	Emily Tran	12/17/12 12:26	Retrieve from Storage
JB22962-14.3	Emily Tran	Secured Storage	12/17/12 17:04	Return to Storage
JB22962-14.4	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-14.4	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-14.5	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-14.5	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-15.1	Secured Storage	Mehmet Temizsu	12/14/12 14:19	Retrieve from Storage
JB22962-15.1	Mehmet Temizsu	Secured Staging Area	12/14/12 14:20	Return to Storage
JB22962-15.1	Secured Staging Area	Gina Montenegro	12/14/12 15:12	Retrieve from Storage
JB22962-15.1	Gina Montenegro	Secured Storage	12/14/12 20:32	Return to Storage
JB22962-15.1	Secured Storage	Adam Scott	12/17/12 06:53	Retrieve from Storage
JB22962-15.1	Adam Scott	Secured Staging Area	12/17/12 06:54	Return to Storage
JB22962-15.1	Secured Staging Area	Jamie Farrell	12/17/12 08:21	Retrieve from Storage
JB22962-15.1	Jamie Farrell	Secured Storage	12/17/12 12:01	Return to Storage
JB22962-15.1	Secured Storage	Alfredo Crespo	12/18/12 10:18	Retrieve from Storage
JB22962-15.1	Alfredo Crespo	Krimesh Patel	12/18/12 10:21	Custody Transfer

Accutest Internal Chain of Custody

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 12/05/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB22962-15.1	Krimesh Patel	Secured Storage	12/18/12 16:38	Return to Storage
JB22962-15.1.1	Gina Montenegro	Metals Digestion	12/14/12 17:55	Digestate from JB22962-15.1
JB22962-15.1.2	Jamie Farrell	Organics Prep	12/17/12 08:24	Extract from JB22962-15.1
JB22962-15.1.2	Organics Prep	Jamie Farrell	12/17/12 16:36	Extract from JB22962-15.1
JB22962-15.1.2	Jamie Farrell	Extract Storage	12/17/12 16:36	Return to Storage
JB22962-15.1.2	Extract Storage	Olga Azarihn	12/19/12 11:47	Retrieve from Storage
JB22962-15.1.2	Olga Azarihn	GCMS2M	12/19/12 11:47	Load on Instrument
JB22962-15.1.2	GCMS2M	Olga Azarihn	12/20/12 12:59	Unload from Instrument
JB22962-15.1.2	Olga Azarihn	GCMS3E	12/20/12 12:59	Load on Instrument
JB22962-15.1.2	GCMS3E	Olga Azarihn	12/21/12 09:45	Unload from Instrument
JB22962-15.1.2	Olga Azarihn	Extract Freezer	12/21/12 09:45	Return to Storage
JB22962-15.3	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-15.3	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-15.3	Secured Storage	Emily Tran	12/13/12 12:08	Retrieve from Storage
JB22962-15.3	Emily Tran	Secured Storage	12/13/12 16:47	Return to Storage
JB22962-15.3	Secured Storage	Emily Tran	12/17/12 12:26	Retrieve from Storage
JB22962-15.3	Emily Tran	Secured Storage	12/17/12 17:04	Return to Storage
JB22962-15.4	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-15.4	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-15.5	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-15.5	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-16.1	Secured Storage	Mehmet Temizsu	12/14/12 14:19	Retrieve from Storage
JB22962-16.1	Mehmet Temizsu	Secured Staging Area	12/14/12 14:20	Return to Storage
JB22962-16.1	Secured Staging Area	Gina Montenegro	12/14/12 15:12	Retrieve from Storage
JB22962-16.1	Gina Montenegro	Secured Storage	12/14/12 20:32	Return to Storage
JB22962-16.1	Secured Storage	Adam Scott	12/17/12 06:53	Retrieve from Storage
JB22962-16.1	Adam Scott	Secured Staging Area	12/17/12 06:54	Return to Storage
JB22962-16.1	Secured Staging Area	Jamie Farrell	12/17/12 08:21	Retrieve from Storage
JB22962-16.1	Jamie Farrell	Secured Storage	12/17/12 12:01	Return to Storage
JB22962-16.1	Secured Storage	Alfredo Crespo	12/18/12 10:18	Retrieve from Storage
JB22962-16.1	Alfredo Crespo	Krimesh Patel	12/18/12 10:21	Custody Transfer
JB22962-16.1	Krimesh Patel	Secured Storage	12/18/12 16:38	Return to Storage
JB22962-16.1.1	Gina Montenegro	Metals Digestion	12/14/12 17:55	Digestate from JB22962-16.1
JB22962-16.1.2	Jamie Farrell	Organics Prep	12/17/12 08:24	Extract from JB22962-16.1
JB22962-16.1.2	Organics Prep	Jamie Farrell	12/17/12 16:36	Extract from JB22962-16.1
JB22962-16.1.2	Jamie Farrell	Extract Storage	12/17/12 16:36	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 12/05/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB22962-16.1.2	Extract Storage	Olga Azarihn	12/19/12 11:47	Retrieve from Storage
JB22962-16.1.2	Olga Azarihn	GCMS2M	12/19/12 11:47	Load on Instrument
JB22962-16.1.2	GCMS2M	Olga Azarihn	12/20/12 12:59	Unload from Instrument
JB22962-16.1.2	Olga Azarihn	Extract Freezer	12/20/12 12:59	Return to Storage
JB22962-16.3	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-16.3	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-16.3	Secured Storage	Emily Tran	12/13/12 12:08	Retrieve from Storage
JB22962-16.3	Emily Tran	Secured Storage	12/13/12 16:47	Return to Storage
JB22962-16.3	Secured Storage	Emily Tran	12/17/12 12:26	Retrieve from Storage
JB22962-16.3	Emily Tran	Secured Storage	12/17/12 17:04	Return to Storage
JB22962-16.4	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-16.4	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-16.5	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-16.5	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-17.1	Secured Storage	Mehmet Temizsu	12/14/12 14:19	Retrieve from Storage
JB22962-17.1	Mehmet Temizsu	Secured Staging Area	12/14/12 14:20	Return to Storage
JB22962-17.1	Secured Staging Area	Gina Montenegro	12/14/12 15:12	Retrieve from Storage
JB22962-17.1	Gina Montenegro	Secured Storage	12/14/12 20:32	Return to Storage
JB22962-17.1	Secured Storage	Adam Scott	12/17/12 06:53	Retrieve from Storage
JB22962-17.1	Adam Scott	Secured Staging Area	12/17/12 06:54	Return to Storage
JB22962-17.1	Secured Staging Area	Jamie Farrell	12/17/12 08:21	Retrieve from Storage
JB22962-17.1	Jamie Farrell	Secured Storage	12/17/12 12:01	Return to Storage
JB22962-17.1	Secured Storage	Alfredo Crespo	12/18/12 10:18	Retrieve from Storage
JB22962-17.1	Alfredo Crespo	Krimesh Patel	12/18/12 10:21	Custody Transfer
JB22962-17.1	Krimesh Patel	Secured Storage	12/18/12 16:38	Return to Storage
JB22962-17.1.1	Gina Montenegro	Metals Digestion	12/14/12 17:55	Digestate from JB22962-17.1
JB22962-17.1.2	Jamie Farrell	Organics Prep	12/17/12 08:24	Extract from JB22962-17.1
JB22962-17.1.2	Organics Prep	Jamie Farrell	12/17/12 16:36	Extract from JB22962-17.1
JB22962-17.1.2	Jamie Farrell	Extract Storage	12/17/12 16:36	Return to Storage
JB22962-17.1.2	Extract Storage	Olga Azarihn	12/19/12 11:47	Retrieve from Storage
JB22962-17.1.2	Olga Azarihn	GCMS2M	12/19/12 11:47	Load on Instrument
JB22962-17.1.2	GCMS2M	Olga Azarihn	12/20/12 12:59	Unload from Instrument
JB22962-17.1.2	Olga Azarihn	Extract Freezer	12/20/12 12:59	Return to Storage
JB22962-17.3	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-17.3	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-17.4	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 12/05/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB22962-17.4	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-17.4	Secured Storage	Juntae Park	12/08/12 17:20	Retrieve from Storage
JB22962-17.4	Juntae Park	GCMS3C	12/08/12 17:20	Load on Instrument
JB22962-17.4	GCMS3C	Juntae Park	12/11/12 16:13	Unload from Instrument
JB22962-17.4	Juntae Park	Secured Storage	12/11/12 16:13	Return to Storage
JB22962-17.4	Secured Storage	Juntae Park	12/12/12 13:42	Retrieve from Storage
JB22962-17.4	Juntae Park	GCMS3C	12/12/12 13:42	Load on Instrument
JB22962-17.4	GCMS3C	Juntae Park	12/13/12 16:33	Unload from Instrument
JB22962-17.4	Juntae Park	Secured Storage	12/13/12 16:33	Return to Storage
JB22962-17.5	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-17.5	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-18.1	Secured Storage	Mehmet Temizsu	12/14/12 14:19	Retrieve from Storage
JB22962-18.1	Mehmet Temizsu	Secured Staging Area	12/14/12 14:20	Return to Storage
JB22962-18.1	Secured Staging Area	Gina Montenegro	12/14/12 15:12	Retrieve from Storage
JB22962-18.1	Gina Montenegro	Secured Storage	12/14/12 20:32	Return to Storage
JB22962-18.1	Secured Storage	Adam Scott	12/17/12 06:53	Retrieve from Storage
JB22962-18.1	Adam Scott	Secured Staging Area	12/17/12 06:54	Return to Storage
JB22962-18.1	Secured Staging Area	Jamie Farrell	12/17/12 08:21	Retrieve from Storage
JB22962-18.1	Jamie Farrell	Secured Storage	12/17/12 12:01	Return to Storage
JB22962-18.1	Secured Storage	Alfredo Crespo	12/18/12 10:18	Retrieve from Storage
JB22962-18.1	Alfredo Crespo	Krimesh Patel	12/18/12 10:21	Custody Transfer
JB22962-18.1	Krimesh Patel	Secured Storage	12/18/12 16:38	Return to Storage
JB22962-18.1.1	Gina Montenegro	Metals Digestion	12/14/12 17:55	Digestate from JB22962-18.1
JB22962-18.1.2	Jamie Farrell	Organics Prep	12/17/12 08:24	Extract from JB22962-18.1
JB22962-18.1.2	Organics Prep	Jamie Farrell	12/17/12 16:36	Extract from JB22962-18.1
JB22962-18.1.2	Jamie Farrell	Extract Storage	12/17/12 16:36	Return to Storage
JB22962-18.1.2	Extract Storage	Olga Azarihn	12/19/12 11:47	Retrieve from Storage
JB22962-18.1.2	Olga Azarihn	GCMS2M	12/19/12 11:47	Load on Instrument
JB22962-18.1.2	GCMS2M	Olga Azarihn	12/20/12 12:59	Unload from Instrument
JB22962-18.1.2	Olga Azarihn	Extract Freezer	12/20/12 12:59	Return to Storage
JB22962-18.3	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-18.3	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-18.3	Secured Storage	Emily Tran	12/13/12 12:08	Retrieve from Storage
JB22962-18.3	Emily Tran	Secured Storage	12/13/12 16:47	Return to Storage
JB22962-18.3	Secured Storage	Ying Li	12/18/12 10:38	Retrieve from Storage
JB22962-18.3	Ying Li	Secured Storage	12/19/12 07:50	Return to Storage
JB22962-18.4	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-18.4	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 12/05/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB22962-18.5	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-18.5	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-19.1	Secured Storage	Mehmet Temizsu	12/14/12 14:19	Retrieve from Storage
JB22962-19.1	Mehmet Temizsu	Secured Staging Area	12/14/12 14:20	Return to Storage
JB22962-19.1	Secured Staging Area	Gina Montenegro	12/14/12 15:12	Retrieve from Storage
JB22962-19.1	Gina Montenegro	Secured Storage	12/14/12 20:32	Return to Storage
JB22962-19.1	Secured Storage	Adam Scott	12/17/12 06:53	Retrieve from Storage
JB22962-19.1	Adam Scott	Secured Staging Area	12/17/12 06:54	Return to Storage
JB22962-19.1	Secured Staging Area	Jamie Farrell	12/17/12 08:21	Retrieve from Storage
JB22962-19.1	Jamie Farrell	Secured Storage	12/17/12 12:01	Return to Storage
JB22962-19.1	Secured Storage	Alfredo Crespo	12/18/12 10:18	Retrieve from Storage
JB22962-19.1	Alfredo Crespo	Krimesh Patel	12/18/12 10:21	Custody Transfer
JB22962-19.1	Krimesh Patel	Secured Storage	12/18/12 16:38	Return to Storage
JB22962-19.1	Secured Storage	Jamie Farrell	12/20/12 08:19	Retrieve from Storage
JB22962-19.1	Jamie Farrell	Secured Storage	12/20/12 17:00	Return to Storage
JB22962-19.1.1	Gina Montenegro	Metals Digestion	12/14/12 17:55	Digestate from JB22962-19.1
JB22962-19.1.2	Jamie Farrell	Organics Prep	12/17/12 08:24	Extract from JB22962-19.1
JB22962-19.1.2	Organics Prep	Jamie Farrell	12/17/12 16:36	Extract from JB22962-19.1
JB22962-19.1.2	Jamie Farrell	Extract Storage	12/17/12 16:36	Return to Storage
JB22962-19.1.2	Extract Storage	Olga Azarihn	12/19/12 11:47	Retrieve from Storage
JB22962-19.1.2	Olga Azarihn	GCMS2M	12/19/12 11:47	Load on Instrument
JB22962-19.1.2	GCMS2M	Olga Azarihn	12/20/12 12:59	Unload from Instrument
JB22962-19.1.2	Olga Azarihn	Extract Freezer	12/20/12 12:59	Return to Storage
JB22962-19.1.3	Jamie Farrell	Organics Prep	12/20/12 08:22	Extract from JB22962-19.1
JB22962-19.1.3	Organics Prep	Jamie Farrell	12/20/12 13:06	Extract from JB22962-19.1
JB22962-19.1.3	Jamie Farrell	Extract Storage	12/20/12 13:06	Return to Storage
JB22962-19.1.3	Extract Storage	Olga Azarihn	12/21/12 12:16	Retrieve from Storage
JB22962-19.1.3	Olga Azarihn	GCMS3E	12/21/12 12:16	Load on Instrument
JB22962-19.1.3	GCMS3E	Kristi Schollenberger	12/22/12 11:50	Unload from Instrument
JB22962-19.1.3	Kristi Schollenberger	Extract Freezer	12/22/12 11:50	Return to Storage
JB22962-19.3	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-19.3	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-19.3	Secured Storage	Emily Tran	12/13/12 12:08	Retrieve from Storage
JB22962-19.3	Emily Tran	Secured Storage	12/13/12 16:47	Return to Storage
JB22962-19.3	Secured Storage	Ying Li	12/18/12 10:38	Retrieve from Storage
JB22962-19.3	Ying Li	Secured Storage	12/19/12 07:50	Return to Storage
JB22962-19.4	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 12/05/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB22962-19.4	Jayna Patel	Secured Storage	12/06/12 08:13	Return to Storage
JB22962-19.5	Secured Storage	Jayna Patel	12/06/12 08:13	Retrieve from Storage
JB22962-19.5	Jayna Patel	Secured Storage	12/06/12 08:13	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: JB22962
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
V3C4159-MB	3C93680.D	1	12/12/12	JTP	n/a	n/a	V3C4159

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

JB22962-1, JB22962-11, JB22962-13, JB22962-17

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	
91-20-3	Naphthalene	ND	5.0	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	86%	70-130%
17060-07-0	1,2-Dichloroethane-D4	76%	70-122%
2037-26-5	Toluene-D8	101%	81-127%
460-00-4	4-Bromofluorobenzene	105%	66-132%

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

Method Blank Summary

Job Number: JB22962
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
VD8292-MB	D203355.D	1	12/13/12	ET	n/a	n/a	VD8292

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

JB22962-2, JB22962-3, JB22962-6

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	
1634-04-4	Methyl Tert Butyl Ether	ND	50	ug/kg	
91-20-3	Naphthalene	ND	250	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	96%	70-130%
17060-07-0	1,2-Dichloroethane-D4	120%	70-122%
2037-26-5	Toluene-D8	99%	81-127%
460-00-4	4-Bromofluorobenzene	102%	66-132%

Method Blank Summary

Job Number: JB22962
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
VD8294-MB	D203402.D	1	12/15/12	ET	n/a	n/a	VD8294

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

JB22962-7, JB22962-8, JB22962-9, JB22962-10

CAS No.	Compound	Result	RL	Units	Q
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	
1634-04-4	Methyl Tert Butyl Ether	ND	50	ug/kg	
91-20-3	Naphthalene	ND	250	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	90%	70-130%
17060-07-0	1,2-Dichloroethane-D4	107%	70-122%
2037-26-5	Toluene-D8	97%	81-127%
460-00-4	4-Bromofluorobenzene	97%	66-132%

Method Blank Summary

Job Number: JB22962
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
VE8698-MB	E197980.D	1	12/17/12	OTR	n/a	n/a	VE8698

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

JB22962-2, JB22962-3, JB22962-4

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	
91-20-3	Naphthalene	ND	250	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	87%	70-130%
17060-07-0	1,2-Dichloroethane-D4	87%	70-122%
2037-26-5	Toluene-D8	91%	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: JB22962
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
VD8297-MB	D203476.D	1	12/17/12	ET	n/a	n/a	VD8297

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

JB22962-7, JB22962-8, JB22962-9, JB22962-10, JB22962-12, JB22962-14, JB22962-15

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	
91-20-3	Naphthalene	ND	250	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	90%	70-130%
17060-07-0	1,2-Dichloroethane-D4	107%	70-122%
2037-26-5	Toluene-D8	96%	81-127%
460-00-4	4-Bromofluorobenzene	97%	66-132%

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

Method Blank Summary

Job Number: JB22962
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
VD8298-MB	D203500.D	1	12/17/12	ET	n/a	n/a	VD8298

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

JB22962-16

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	
91-20-3	Naphthalene	ND	250	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	93%	70-130%
17060-07-0	1,2-Dichloroethane-D4	113%	70-122%
2037-26-5	Toluene-D8	98%	81-127%
460-00-4	4-Bromofluorobenzene	96%	66-132%

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

Method Blank Summary

Job Number: JB22962
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
VE8699-MB	E198008.D	1	12/18/12	OTR	n/a	n/a	VE8699

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

JB22962-5, JB22962-6

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	50	ug/kg	
98-82-8	Isopropylbenzene	ND	250	ug/kg	
108-88-3	Toluene	ND	50	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	88%	70-130%
17060-07-0	1,2-Dichloroethane-D4	88%	70-122%
2037-26-5	Toluene-D8	93%	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: JB22962
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
VD8299-MB	D203524.D	1	12/18/12	ET	n/a	n/a	VD8299

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

JB22962-9, JB22962-18, JB22962-19

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	
91-20-3	Naphthalene	ND	250	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	92%	70-130%
17060-07-0	1,2-Dichloroethane-D4	108%	70-122%
2037-26-5	Toluene-D8	97%	81-127%
460-00-4	4-Bromofluorobenzene	97%	66-132%

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

Method Blank Summary

Job Number: JB22962
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
VE8700-MB	E198027.D	1	12/18/12	OTR	n/a	n/a	VE8700

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

JB22962-5, JB22962-9

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	
91-20-3	Naphthalene	ND	250	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	89%	70-130%
17060-07-0	1,2-Dichloroethane-D4	85%	70-122%
2037-26-5	Toluene-D8	93%	81-127%
460-00-4	4-Bromofluorobenzene	88%	66-132%

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

Blank Spike Summary

Job Number: JB22962
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
V3C4159-BS	3C93681.D	1	12/13/12	JTP	n/a	n/a	V3C4159

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

JB22962-1, JB22962-11, JB22962-13, JB22962-17

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	50.5	101	76-117
106-93-4	1,2-Dibromoethane	50	51.6	103	77-122
107-06-2	1,2-Dichloroethane	50	50.4	101	68-134
100-41-4	Ethylbenzene	50	49.3	99	74-119
98-82-8	Isopropylbenzene	50	52.3	105	71-119
1634-04-4	Methyl Tert Butyl Ether	100	96.8	97	72-124
91-20-3	Naphthalene	50	47.9	96	60-127
108-88-3	Toluene	50	50.2	100	77-121
95-63-6	1,2,4-Trimethylbenzene	50	50.8	102	72-118
108-67-8	1,3,5-Trimethylbenzene	50	51.6	103	69-118
1330-20-7	Xylene (total)	150	146	97	76-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	92%	70-130%
17060-07-0	1,2-Dichloroethane-D4	86%	70-122%
2037-26-5	Toluene-D8	101%	81-127%
460-00-4	4-Bromofluorobenzene	101%	66-132%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB22962
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
VD8292-BS	D203356.D	1	12/13/12	ET	n/a	n/a	VD8292

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

JB22962-2, JB22962-3, JB22962-6

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2590	104	76-117
106-93-4	1,2-Dibromoethane	2500	2550	102	77-122
107-06-2	1,2-Dichloroethane	2500	2980	119	68-134
100-41-4	Ethylbenzene	2500	2640	106	74-119
1634-04-4	Methyl Tert Butyl Ether	5000	5100	102	72-124
91-20-3	Naphthalene	2500	2700	108	60-127
108-88-3	Toluene	2500	2510	100	77-121
95-63-6	1,2,4-Trimethylbenzene	2500	2560	102	72-118
108-67-8	1,3,5-Trimethylbenzene	2500	2540	102	69-118
1330-20-7	Xylene (total)	7500	7570	101	76-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	95%	70-130%
17060-07-0	1,2-Dichloroethane-D4	117%	70-122%
2037-26-5	Toluene-D8	100%	81-127%
460-00-4	4-Bromofluorobenzene	100%	66-132%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB22962
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
VD8294-BS	D203403.D	1	12/15/12	ET	n/a	n/a	VD8294

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

JB22962-7, JB22962-8, JB22962-9, JB22962-10

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
106-93-4	1,2-Dibromoethane	2500	2560	102	77-122
107-06-2	1,2-Dichloroethane	2500	2970	119	68-134
100-41-4	Ethylbenzene	2500	2540	102	74-119
1634-04-4	Methyl Tert Butyl Ether	5000	4830	91	72-124
91-20-3	Naphthalene	2500	2750	110	60-127
95-63-6	1,2,4-Trimethylbenzene	2500	2500	100	72-118
108-67-8	1,3,5-Trimethylbenzene	2500	2500	100	69-118
1330-20-7	Xylene (total)	7500	7420	99	76-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	92%	70-130%
17060-07-0	1,2-Dichloroethane-D4	107%	70-122%
2037-26-5	Toluene-D8	100%	81-127%
460-00-4	4-Bromofluorobenzene	96%	66-132%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB22962
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
VE8698-BS	E197981.D	1	12/17/12	OTR	n/a	n/a	VE8698

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

JB22962-2, JB22962-3, JB22962-4

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2490	100	76-117
106-93-4	1,2-Dibromoethane	2500	2560	102	77-122
107-06-2	1,2-Dichloroethane	2500	2350	94	68-134
100-41-4	Ethylbenzene	2500	2390	96	74-119
98-82-8	Isopropylbenzene	2500	2290	92	71-119
1634-04-4	Methyl Tert Butyl Ether	5000	4490	90	72-124
91-20-3	Naphthalene	2500	2050	82	60-127
108-88-3	Toluene	2500	2480	99	77-121
95-63-6	1,2,4-Trimethylbenzene	2500	2320	93	72-118
108-67-8	1,3,5-Trimethylbenzene	2500	2250	90	69-118
1330-20-7	Xylene (total)	7500	7160	95	76-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	92%	70-130%
17060-07-0	1,2-Dichloroethane-D4	83%	70-122%
2037-26-5	Toluene-D8	93%	81-127%
460-00-4	4-Bromofluorobenzene	87%	66-132%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB22962
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
VD8297-BS	D203477.D	1	12/17/12	ET	n/a	n/a	VD8297

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

JB22962-7, JB22962-8, JB22962-9, JB22962-10, JB22962-12, JB22962-14, JB22962-15

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2570	103	76-117
106-93-4	1,2-Dibromoethane	2500	2630	105	77-122
107-06-2	1,2-Dichloroethane	2500	2970	119	68-134
100-41-4	Ethylbenzene	2500	2660	106	74-119
98-82-8	Isopropylbenzene	2500	2640	106	71-119
1634-04-4	Methyl Tert Butyl Ether	5000	4950	99	72-124
91-20-3	Naphthalene	2500	2840	114	60-127
108-88-3	Toluene	2500	2520	101	77-121
95-63-6	1,2,4-Trimethylbenzene	2500	2620	105	72-118
108-67-8	1,3,5-Trimethylbenzene	2500	2550	102	69-118
1330-20-7	Xylene (total)	7500	7760	103	76-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	93%	70-130%
17060-07-0	1,2-Dichloroethane-D4	109%	70-122%
2037-26-5	Toluene-D8	99%	81-127%
460-00-4	4-Bromofluorobenzene	98%	66-132%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB22962
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
VD8298-BS	D203501.D	1	12/17/12	ET	n/a	n/a	VD8298

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

JB22962-16

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2530	101	76-117
106-93-4	1,2-Dibromoethane	2500	2570	103	77-122
107-06-2	1,2-Dichloroethane	2500	3020	121	68-134
100-41-4	Ethylbenzene	2500	2580	103	74-119
98-82-8	Isopropylbenzene	2500	2460	98	71-119
1634-04-4	Methyl Tert Butyl Ether	5000	4850	97	72-124
91-20-3	Naphthalene	2500	2600	104	60-127
108-88-3	Toluene	2500	2430	97	77-121
95-63-6	1,2,4-Trimethylbenzene	2500	2450	98	72-118
108-67-8	1,3,5-Trimethylbenzene	2500	2380	95	69-118
1330-20-7	Xylene (total)	7500	7480	100	76-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	94%	70-130%
17060-07-0	1,2-Dichloroethane-D4	112%	70-122%
2037-26-5	Toluene-D8	99%	81-127%
460-00-4	4-Bromofluorobenzene	96%	66-132%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB22962
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
VE8699-BS	E198009.D	1	12/18/12	OTR	n/a	n/a	VE8699

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

JB22962-5, JB22962-6

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2510	100	76-117
98-82-8	Isopropylbenzene	2500	2320	93	71-119
108-88-3	Toluene	2500	2450	98	77-121

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	94%	70-130%
17060-07-0	1,2-Dichloroethane-D4	88%	70-122%
2037-26-5	Toluene-D8	93%	81-127%
460-00-4	4-Bromofluorobenzene	92%	66-132%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB22962
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
VD8299-BS	D203525.D	1	12/18/12	ET	n/a	n/a	VD8299

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

JB22962-9, JB22962-18, JB22962-19

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2580	103	76-117
106-93-4	1,2-Dibromoethane	2500	2490	100	77-122
107-06-2	1,2-Dichloroethane	2500	2930	117	68-134
100-41-4	Ethylbenzene	2500	2580	103	74-119
98-82-8	Isopropylbenzene	2500	2460	98	71-119
1634-04-4	Methyl Tert Butyl Ether	5000	4820	96	72-124
91-20-3	Naphthalene	2500	2700	108	60-127
108-88-3	Toluene	2500	2450	98	77-121
95-63-6	1,2,4-Trimethylbenzene	2500	2430	97	72-118
108-67-8	1,3,5-Trimethylbenzene	2500	2430	97	69-118
1330-20-7	Xylene (total)	7500	7500	100	76-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	94%	70-130%
17060-07-0	1,2-Dichloroethane-D4	106%	70-122%
2037-26-5	Toluene-D8	99%	81-127%
460-00-4	4-Bromofluorobenzene	94%	66-132%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB22962
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
VE8700-BS	E198028.D	1	12/18/12	OTR	n/a	n/a	VE8700

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

JB22962-5, JB22962-9

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2550	102	76-117
106-93-4	1,2-Dibromoethane	2500	2520	101	77-122
107-06-2	1,2-Dichloroethane	2500	2280	91	68-134
100-41-4	Ethylbenzene	2500	2420	97	74-119
98-82-8	Isopropylbenzene	2500	2340	94	71-119
1634-04-4	Methyl Tert Butyl Ether	5000	4670	93	72-124
91-20-3	Naphthalene	2500	2930	117	60-127
108-88-3	Toluene	2500	2510	100	77-121
95-63-6	1,2,4-Trimethylbenzene	2500	2380	95	72-118
108-67-8	1,3,5-Trimethylbenzene	2500	2280	91	69-118
1330-20-7	Xylene (total)	7500	7140	95	76-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	93%	70-130%
17060-07-0	1,2-Dichloroethane-D4	85%	70-122%
2037-26-5	Toluene-D8	94%	81-127%
460-00-4	4-Bromofluorobenzene	91%	66-132%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB22962
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
JB23312-5MS	3C93682.D	1	12/13/12	JTP	n/a	n/a	V3C4159
JB23312-5MSD	3C93683.D	1	12/13/12	JTP	n/a	n/a	V3C4159
JB23312-5	3C93685.D	1	12/13/12	JTP	n/a	n/a	V3C4159

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

JB22962-1, JB22962-11, JB22962-13, JB22962-17

CAS No.	Compound	JB23312-5 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		65.1	54.6	84	53.9	83	1	44-130/21
106-93-4	1,2-Dibromoethane	ND		65.1	46.2	71	46.2	71	0	41-139/21
107-06-2	1,2-Dichloroethane	ND		65.1	48.8	75	48.9	75	0	43-139/19
100-41-4	Ethylbenzene	ND		65.1	49.9	77	51.2	79	3	29-137/25
98-82-8	Isopropylbenzene	ND		65.1	50.9	78	52.3	80	3	27-138/26
1634-04-4	Methyl Tert Butyl Ether	ND		65.1	49.6	76	47.9	74	3	51-128/20
91-20-3	Naphthalene	ND		65.1	28.9	44	29.8	46	3	10-152/31
108-88-3	Toluene	ND		65.1	52.0	80	52.0	80	0	40-135/22
95-63-6	1,2,4-Trimethylbenzene	ND		65.1	46.3	71	48.5	75	5	17-142/28
108-67-8	1,3,5-Trimethylbenzene	ND		65.1	46.8	72	48.9	75	4	20-140/27
1330-20-7	Xylene (total)	ND		195	145	74	149	76	3	28-139/25

CAS No.	Surrogate Recoveries	MS	MSD	JB23312-5	Limits
1868-53-7	Dibromofluoromethane	87%	87%	93%	70-130%
17060-07-0	1,2-Dichloroethane-D4	74%	73%	89%	70-122%
2037-26-5	Toluene-D8	101%	100%	101%	81-127%
460-00-4	4-Bromofluorobenzene	102%	102%	105%	66-132%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB22962
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
JB22822-20MS	D203357.D	1	12/14/12	ET	n/a	n/a	VD8292
JB22822-20MSD	D203358.D	1	12/14/12	ET	n/a	n/a	VD8292
JB22822-20	D203360.D	1	12/14/12	ET	n/a	n/a	VD8292

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

JB22962-2, JB22962-3, JB22962-6

CAS No.	Compound	JB22822-20 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1830		2780	4230	86	4190	85	1	44-130/21
106-93-4	1,2-Dibromoethane	ND		2780	2690	97	2680	96	0	41-139/21
107-06-2	1,2-Dichloroethane	ND		2780	3140	113	3150	113	0	43-139/19
100-41-4	Ethylbenzene	191		2780	2980	100	2890	97	3	29-137/25
1634-04-4	Methyl Tert Butyl Ether	ND		2780	2750	99	2730	98	1	51-128/20
91-20-3	Naphthalene	500		2780	2980	89	2990	89	0	10-152/31
108-88-3	Toluene	261		2780	2900	95	2810	92	3	40-135/22
95-63-6	1,2,4-Trimethylbenzene	291		2780	2860	92	2820	91	1	17-142/28
108-67-8	1,3,5-Trimethylbenzene	105		2780	2730	94	2710	94	1	20-140/27
1330-20-7	Xylene (total)	407		8350	8390	96	8200	93	2	28-139/25

CAS No.	Surrogate Recoveries	MS	MSD	JB22822-20	Limits
1868-53-7	Dibromofluoromethane	96%	96%	96%	70-130%
17060-07-0	1,2-Dichloroethane-D4	116%	116%	118%	70-122%
2037-26-5	Toluene-D8	100%	100%	100%	81-127%
460-00-4	4-Bromofluorobenzene	97%	99%	104%	66-132%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB22962
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
JB23112-1MS	D203404.D	1	12/15/12	ET	n/a	n/a	VD8294
JB23112-1MSD	D203405.D	1	12/15/12	ET	n/a	n/a	VD8294
JB23112-1	D203407.D	1	12/15/12	ET	n/a	n/a	VD8294

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

JB22962-7, JB22962-8, JB22962-9, JB22962-10

CAS No.	Compound	JB23112-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
106-93-4	1,2-Dibromoethane	ND		4360	3910	90	3880	89	1	41-139/21
107-06-2	1,2-Dichloroethane	ND		4360	4430	102	4410	101	0	43-139/19
100-41-4	Ethylbenzene	ND		4360	4020	92	3930	90	2	29-137/25
1634-04-4	Methyl Tert Butyl Ether	290		4360	4000	85	4010	85	0	51-128/20
91-20-3	Naphthalene	ND		4360	4160	96	4080	94	2	10-152/31
95-63-6	1,2,4-Trimethylbenzene	ND		4360	3860	89	3780	87	2	17-142/28
108-67-8	1,3,5-Trimethylbenzene	ND		4360	3960	91	3840	88	3	20-140/27
1330-20-7	Xylene (total)	ND		13100	11600	89	11400	87	2	28-139/25

CAS No.	Surrogate Recoveries	MS	MSD	JB23112-1	Limits
1868-53-7	Dibromofluoromethane	92%	94%	91%	70-130%
17060-07-0	1,2-Dichloroethane-D4	107%	107%	110%	70-122%
2037-26-5	Toluene-D8	99%	98%	98%	81-127%
460-00-4	4-Bromofluorobenzene	97%	97%	99%	66-132%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB22962
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
JB23101-10MS	E197989.D	1	12/17/12	OTR	n/a	n/a	VE8698
JB23101-10MSD	E197990.D	1	12/17/12	OTR	n/a	n/a	VE8698
JB23101-10	E197992.D	1	12/17/12	OTR	n/a	n/a	VE8698

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

JB22962-2, JB22962-3, JB22962-4

CAS No.	Compound	JB23101-10 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	5260		3590	7560	64	7490	62	1	44-130/21
106-93-4	1,2-Dibromoethane	ND		3590	3920	109	3930	109	0	41-139/21
107-06-2	1,2-Dichloroethane	ND		3590	3460	96	3440	96	1	43-139/19
100-41-4	Ethylbenzene	ND		3590	3380	94	3370	94	0	29-137/25
98-82-8	Isopropylbenzene	ND		3590	3200	89	3200	89	0	27-138/26
1634-04-4	Methyl Tert Butyl Ether	919		3590	4450	98	4410	97	1	51-128/20
91-20-3	Naphthalene	ND		3590	3580	100	3540	99	1	10-152/31
108-88-3	Toluene	106		3590	3600	97	3570	96	1	40-135/22
95-63-6	1,2,4-Trimethylbenzene	ND		3590	3330	93	3320	92	0	17-142/28
108-67-8	1,3,5-Trimethylbenzene	ND		3590	3230	90	3240	90	0	20-140/27
1330-20-7	Xylene (total)	46.4	J	10800	10200	94	10100	93	1	28-139/25

CAS No.	Surrogate Recoveries	MS	MSD	JB23101-10	Limits
1868-53-7	Dibromofluoromethane	93%	91%	88%	70-130%
17060-07-0	1,2-Dichloroethane-D4	85%	83%	85%	70-122%
2037-26-5	Toluene-D8	93%	92%	94%	81-127%
460-00-4	4-Bromofluorobenzene	91%	92%	91%	66-132%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB22962
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
JB23096-6MS	D203484.D	1	12/17/12	ET	n/a	n/a	VD8297
JB23096-6MSD	D203485.D	1	12/17/12	ET	n/a	n/a	VD8297
JB23096-6	D203487.D	1	12/17/12	ET	n/a	n/a	VD8297

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

JB22962-7, JB22962-8, JB22962-9, JB22962-10, JB22962-12, JB22962-14, JB22962-15

CAS No.	Compound	JB23096-6 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	647		4230	4270	86	4540	92	6	44-130/21
106-93-4	1,2-Dibromoethane	ND		4230	3920	93	4060	96	4	41-139/21
107-06-2	1,2-Dichloroethane	ND		4230	4380	104	4570	108	4	43-139/19
100-41-4	Ethylbenzene	1580		4230	5270	87	5550	94	5	29-137/25
98-82-8	Isopropylbenzene	91.2	J	4230	3910	90	4140	96	6	27-138/26
1634-04-4	Methyl Tert Butyl Ether	ND		4230	3700	88	3780	89	2	51-128/20
91-20-3	Naphthalene	ND		4230	4120	97	4330	102	5	10-152/31
108-88-3	Toluene	2670		4230	5920	77	6190	83	4	40-135/22
95-63-6	1,2,4-Trimethylbenzene	945		4230	4560	86	4810	91	5	17-142/28
108-67-8	1,3,5-Trimethylbenzene	189	J	4230	3920	88	4180	94	6	20-140/27
1330-20-7	Xylene (total)	3400		12700	14400	87	15100	92	5	28-139/25

CAS No.	Surrogate Recoveries	MS	MSD	JB23096-6	Limits
1868-53-7	Dibromofluoromethane	93%	94%	91%	70-130%
17060-07-0	1,2-Dichloroethane-D4	106%	106%	107%	70-122%
2037-26-5	Toluene-D8	98%	97%	98%	81-127%
460-00-4	4-Bromofluorobenzene	94%	95%	95%	66-132%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB22962
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
JB23676-1MS	D203502.D	1	12/18/12	ET	n/a	n/a	VD8298
JB23676-1MSD	D203503.D	1	12/18/12	ET	n/a	n/a	VD8298
JB23676-1	D203505.D	1	12/18/12	ET	n/a	n/a	VD8298

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

JB22962-16

CAS No.	Compound	JB23676-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		6360	6790	107	6780	107	0	44-130/21
106-93-4	1,2-Dibromoethane	ND		6360	6890	108	6750	106	2	41-139/21
107-06-2	1,2-Dichloroethane	ND		6360	7880	124	7720	121	2	43-139/19
100-41-4	Ethylbenzene	ND		6360	6870	108	6860	108	0	29-137/25
98-82-8	Isopropylbenzene	ND		6360	6800	107	6770	107	0	27-138/26
1634-04-4	Methyl Tert Butyl Ether	ND		6360	6440	101	6290	99	2	51-128/20
91-20-3	Naphthalene	ND		6360	7200	113	7000	110	3	10-152/31
108-88-3	Toluene	ND		6360	6520	103	6550	103	0	40-135/22
95-63-6	1,2,4-Trimethylbenzene	ND		6360	6590	104	6560	103	0	17-142/28
108-67-8	1,3,5-Trimethylbenzene	ND		6360	6690	105	6690	105	0	20-140/27
1330-20-7	Xylene (total)	ND		19100	20200	106	20000	105	1	28-139/25

CAS No.	Surrogate Recoveries	MS	MSD	JB23676-1	Limits
1868-53-7	Dibromofluoromethane	94%	92%	91%	70-130%
17060-07-0	1,2-Dichloroethane-D4	109%	107%	111%	70-122%
2037-26-5	Toluene-D8	99%	99%	98%	81-127%
460-00-4	4-Bromofluorobenzene	96%	96%	99%	66-132%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB22962
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
JB23101-14MS	E198010.D	1	12/18/12	OTR	n/a	n/a	VE8699
JB23101-14MSD	E198011.D	1	12/18/12	OTR	n/a	n/a	VE8699
JB23101-14	E198013.D	1	12/18/12	OTR	n/a	n/a	VE8699

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

JB22962-5, JB22962-6

CAS No.	Compound	JB23101-14 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	2240		3140	4250	64	4340	67	2	44-130/21
98-82-8	Isopropylbenzene	42.9	J	3140	2500	78	2480	78	1	27-138/26
108-88-3	Toluene	2990		3140	4730	55	4870	60	3	40-135/22

CAS No.	Surrogate Recoveries	MS	MSD	JB23101-14	Limits
1868-53-7	Dibromofluoromethane	92%	93%	90%	70-130%
17060-07-0	1,2-Dichloroethane-D4	87%	88%	89%	70-122%
2037-26-5	Toluene-D8	92%	94%	95%	81-127%
460-00-4	4-Bromofluorobenzene	92%	92%	92%	66-132%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB22962
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
JB23096-7MS	D203536.D	1	12/18/12	ET	n/a	n/a	VD8299
JB23096-7MSD	D203537.D	1	12/18/12	ET	n/a	n/a	VD8299
JB23096-7	D203530.D	1	12/18/12	ET	n/a	n/a	VD8299

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

JB22962-9, JB22962-18, JB22962-19

CAS No.	Compound	JB23096-7 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		4320	4530	105	4590	106	1	44-130/21
106-93-4	1,2-Dibromoethane	ND		4320	4570	106	4560	106	0	41-139/21
107-06-2	1,2-Dichloroethane	ND		4320	5160	119	5330	123	3	43-139/19
100-41-4	Ethylbenzene	ND		4320	4660	108	4720	109	1	29-137/25
98-82-8	Isopropylbenzene	ND		4320	4460	103	4590	106	3	27-138/26
1634-04-4	Methyl Tert Butyl Ether	9150		4320	15800	154* [a]	15800	154* [a]	0	51-128/20
91-20-3	Naphthalene	ND		4320	5110	118	5160	119	1	10-152/31
108-88-3	Toluene	ND		4320	4400	102	4500	104	2	40-135/22
95-63-6	1,2,4-Trimethylbenzene	ND		4320	4340	100	4470	103	3	17-142/28
108-67-8	1,3,5-Trimethylbenzene	ND		4320	4410	102	4510	104	2	20-140/27
1330-20-7	Xylene (total)	ND		13000	13800	106	13800	106	0	28-139/25

CAS No.	Surrogate Recoveries	MS	MSD	JB23096-7	Limits
1868-53-7	Dibromofluoromethane	92%	93%	92%	70-130%
17060-07-0	1,2-Dichloroethane-D4	106%	104%	105%	70-122%
2037-26-5	Toluene-D8	97%	99%	97%	81-127%
460-00-4	4-Bromofluorobenzene	96%	96%	96%	66-132%

(a) Outside control limits due to high level in sample relative to spike amount.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB22962
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
JB22999-2MS	E198033.D	1	12/18/12	OTR	n/a	n/a	VE8700
JB22999-2MSD	E198034.D	1	12/18/12	OTR	n/a	n/a	VE8700
JB22999-2	E198036.D	1	12/18/12	OTR	n/a	n/a	VE8700

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

JB22962-5, JB22962-9

CAS No.	Compound	JB22999-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		3820	3470	91	3430	90	1	44-130/21
106-93-4	1,2-Dibromoethane	ND		3820	3950	103	3920	103	1	41-139/21
107-06-2	1,2-Dichloroethane	ND		3820	3310	87	3300	86	0	43-139/19
100-41-4	Ethylbenzene	ND		3820	3240	85	3200	84	1	29-137/25
98-82-8	Isopropylbenzene	ND		3820	2980	78	3010	79	1	27-138/26
1634-04-4	Methyl Tert Butyl Ether	4220		3820	7420	84	7510	86	1	51-128/20
91-20-3	Naphthalene	ND		3820	4390	115	4460	117	2	10-152/31
108-88-3	Toluene	ND		3820	3400	89	3380	88	1	40-135/22
95-63-6	1,2,4-Trimethylbenzene	ND		3820	3220	84	3250	85	1	17-142/28
108-67-8	1,3,5-Trimethylbenzene	ND		3820	3040	80	3080	81	1	20-140/27
1330-20-7	Xylene (total)	ND		11500	9880	86	9750	85	1	28-139/25

CAS No.	Surrogate Recoveries	MS	MSD	JB22999-2	Limits
1868-53-7	Dibromofluoromethane	90%	92%	88%	70-130%
17060-07-0	1,2-Dichloroethane-D4	81%	83%	85%	70-122%
2037-26-5	Toluene-D8	93%	92%	94%	81-127%
460-00-4	4-Bromofluorobenzene	91%	92%	88%	66-132%

* = Outside of Control Limits.

Instrument Performance Check (BFB)

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: V3C4143-BFB
Lab File ID: 3C93281.D
Instrument ID: GCMS3C
Injection Date: 11/30/12
Injection Time: 05:55

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	8464	17.0		Pass
75	30.0 - 60.0% of mass 95	23736	47.6		Pass
95	Base peak, 100% relative abundance	49827	100.0		Pass
96	5.0 - 9.0% of mass 95	3335	6.69		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	41584	83.5		Pass
175	5.0 - 9.0% of mass 174	3322	6.67	(7.99) [a]	Pass
176	95.0 - 101.0% of mass 174	40515	81.3	(97.4) [a]	Pass
177	5.0 - 9.0% of mass 176	2767	5.55	(6.83) [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
V3C4143-IC4143	3C93282.D	11/30/12	06:24	00:29	Initial cal 0.5
ZZZZZZ	3C93282A.D	11/30/12	06:24	00:29	(unrelated sample)
V3C4143-IC4143	3C93283.D	11/30/12	06:53	00:58	Initial cal 1
ZZZZZZ	3C93283A.D	11/30/12	06:53	00:58	(unrelated sample)
V3C4143-IC4143	3C93284.D	11/30/12	07:23	01:28	Initial cal 2
ZZZZZZ	3C93284A.D	11/30/12	07:23	01:28	(unrelated sample)
V3C4143-IC4143	3C93285.D	11/30/12	07:52	01:57	Initial cal 5
V3C4143-IC4143	3C93286.D	11/30/12	08:22	02:27	Initial cal 10
V3C4143-IC4143	3C93287.D	11/30/12	08:51	02:56	Initial cal 20
V3C4143-ICC4143	3C93288.D	11/30/12	09:22	03:27	Initial cal 50
V3C4143-IC4143	3C93289.D	11/30/12	09:51	03:56	Initial cal 100
V3C4143-IC4143	3C93290.D	11/30/12	10:20	04:25	Initial cal 200
V3C4143-ICV4143	3C93293.D	11/30/12	11:48	05:53	Initial cal verification 50
ZZZZZZ	3C93297.D	11/30/12	14:04	08:09	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: V3C4159-BFB
Lab File ID: 3C93677.D
Instrument ID: GCMS3C
Injection Date: 12/12/12
Injection Time: 21:52

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	8466	17.2		Pass
75	30.0 - 60.0% of mass 95	23152	47.0		Pass
95	Base peak, 100% relative abundance	49245	100.0		Pass
96	5.0 - 9.0% of mass 95	3423	6.95		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	39669	80.6		Pass
175	5.0 - 9.0% of mass 174	2956	6.00	(7.45) [a]	Pass
176	95.0 - 101.0% of mass 174	37880	76.9	(95.5) [a]	Pass
177	5.0 - 9.0% of mass 176	2484	5.04	(6.56) [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
V3C4159-CC4143	3C93678.D	12/12/12	22:22	00:30	Continuing cal 50
V3C4159-MB	3C93680.D	12/12/12	23:49	01:57	Method Blank
V3C4159-BS	3C93681.D	12/13/12	00:19	02:27	Blank Spike
JB23312-5MS	3C93682.D	12/13/12	00:48	02:56	Matrix Spike
JB23312-5MSD	3C93683.D	12/13/12	01:17	03:25	Matrix Spike Duplicate
JB23312-5	3C93685.D	12/13/12	02:16	04:24	(used for QC only; not part of job JB22962)
ZZZZZZ	3C93686.D	12/13/12	02:45	04:53	(unrelated sample)
ZZZZZZ	3C93687.D	12/13/12	03:14	05:22	(unrelated sample)
ZZZZZZ	3C93688.D	12/13/12	03:43	05:51	(unrelated sample)
ZZZZZZ	3C93689.D	12/13/12	04:13	06:21	(unrelated sample)
ZZZZZZ	3C93690.D	12/13/12	04:42	06:50	(unrelated sample)
ZZZZZZ	3C93692.D	12/13/12	05:41	07:49	(unrelated sample)
ZZZZZZ	3C93693.D	12/13/12	06:10	08:18	(unrelated sample)
JB22962-1	3C93694.D	12/13/12	06:39	08:47	BH-12-123_1-1.5'
JB22962-11	3C93695.D	12/13/12	07:08	09:16	BH-12-119_0.5-1'
JB22962-13	3C93696.D	12/13/12	07:38	09:46	BH-12-120_0-1'
JB22962-17	3C93697.D	12/13/12	08:07	10:15	BH-12-118_2-2.5'

Instrument Performance Check (BFB)

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VD8248-BFB
Lab File ID: D202316.D
Instrument ID: GCMSD
Injection Date: 11/13/12
Injection Time: 12:25

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	11801	18.0		Pass
75	30.0 - 60.0% of mass 95	31122	47.4		Pass
95	Base peak, 100% relative abundance	65621	100.0		Pass
96	5.0 - 9.0% of mass 95	4584	6.99		Pass
173	Less than 2.0% of mass 174	165	0.25	(0.29) [a]	Pass
174	50.0 - 120.0% of mass 95	56354	85.9		Pass
175	5.0 - 9.0% of mass 174	4287	6.53	(7.61) [a]	Pass
176	95.0 - 101.0% of mass 174	55125	84.0	(97.8) [a]	Pass
177	5.0 - 9.0% of mass 176	3613	5.51	(6.55) [b]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VD8248-IC8248	D202317.D	11/13/12	12:59	00:34	Initial cal 0.5
VD8248-IC8248	D202318.D	11/13/12	13:29	01:04	Initial cal 1
VD8248-IC8248	D202319.D	11/13/12	13:58	01:33	Initial cal 2
VD8248-IC8248	D202320.D	11/13/12	14:27	02:02	Initial cal 5
VD8248-IC8248	D202321.D	11/13/12	14:57	02:32	Initial cal 10
VD8248-IC8248	D202322.D	11/13/12	15:26	03:01	Initial cal 20
VD8248-ICC8248	D202323.D	11/13/12	15:55	03:30	Initial cal 50
VD8248-IC8248	D202324.D	11/13/12	16:25	04:00	Initial cal 100
VD8248-IC8248	D202325.D	11/13/12	16:54	04:29	Initial cal 200
VD8248-ICV8248	D202327.D	11/13/12	17:53	05:28	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VD8292-BFB
Lab File ID: D203352.D
Instrument ID: GCMSD
Injection Date: 12/13/12
Injection Time: 21:42

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	10656	22.0		Pass
75	30.0 - 60.0% of mass 95	25336	52.3		Pass
95	Base peak, 100% relative abundance	48418	100.0		Pass
96	5.0 - 9.0% of mass 95	3455	7.14		Pass
173	Less than 2.0% of mass 174	253	0.52	(0.67) [a]	Pass
174	50.0 - 120.0% of mass 95	37760	78.0		Pass
175	5.0 - 9.0% of mass 174	2806	5.80	(7.43) [a]	Pass
176	95.0 - 101.0% of mass 174	36898	76.2	(97.7) [a]	Pass
177	5.0 - 9.0% of mass 176	2387	4.93	(6.47) [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
VD8292-CC8248	D203353.D	12/13/12	22:11	00:29	Continuing cal 50
VD8292-MB	D203355.D	12/13/12	23:10	01:28	Method Blank
VD8292-BS	D203356.D	12/13/12	23:39	01:57	Blank Spike
JB22822-20MS	D203357.D	12/14/12	00:08	02:26	Matrix Spike
JB22822-20MSD	D203358.D	12/14/12	00:38	02:56	Matrix Spike Duplicate
JB22822-20	D203360.D	12/14/12	01:36	03:54	(used for QC only; not part of job JB22962)
ZZZZZZ	D203361.D	12/14/12	02:06	04:24	(unrelated sample)
ZZZZZZ	D203363.D	12/14/12	03:04	05:22	(unrelated sample)
ZZZZZZ	D203364.D	12/14/12	03:33	05:51	(unrelated sample)
ZZZZZZ	D203365.D	12/14/12	04:03	06:21	(unrelated sample)
ZZZZZZ	D203366.D	12/14/12	04:32	06:50	(unrelated sample)
ZZZZZZ	D203367.D	12/14/12	05:01	07:19	(unrelated sample)
ZZZZZZ	D203368.D	12/14/12	05:30	07:48	(unrelated sample)
JB22962-2	D203369.D	12/14/12	06:00	08:18	BH-12-123_2-2.5'
JB22962-3	D203370.D	12/14/12	06:29	08:47	BH-12-124_3-3.5'
JB22962-6	D203373.D	12/14/12	07:57	10:15	BH-12-129_1.5-2'

Instrument Performance Check (BFB)

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VD8294-BFB
Lab File ID: D203399.D
Instrument ID: GCMSD
Injection Date: 12/15/12
Injection Time: 01:03

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	9829	22.0		Pass
75	30.0 - 60.0% of mass 95	23813	53.3		Pass
95	Base peak, 100% relative abundance	44642	100.0		Pass
96	5.0 - 9.0% of mass 95	3104	6.95		Pass
173	Less than 2.0% of mass 174	150	0.34	(0.38) [a]	Pass
174	50.0 - 120.0% of mass 95	39184	87.8		Pass
175	5.0 - 9.0% of mass 174	2904	6.51	(7.41) [a]	Pass
176	95.0 - 101.0% of mass 174	38130	85.4	(97.3) [a]	Pass
177	5.0 - 9.0% of mass 176	2521	5.65	(6.61) [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
VD8294-CC8248	D203400.D	12/15/12	01:32	00:29	Continuing cal 50
VD8294-MB	D203402.D	12/15/12	02:30	01:27	Method Blank
VD8294-BS	D203403.D	12/15/12	02:59	01:56	Blank Spike
JB23112-1MS	D203404.D	12/15/12	03:29	02:26	Matrix Spike
JB23112-1MSD	D203405.D	12/15/12	03:58	02:55	Matrix Spike Duplicate
JB23112-1	D203407.D	12/15/12	04:57	03:54	(used for QC only; not part of job JB22962)
ZZZZZZ	D203408.D	12/15/12	05:26	04:23	(unrelated sample)
JB22962-7	D203409.D	12/15/12	05:55	04:52	BH-12-129_2.5-3'
JB22962-8	D203410.D	12/15/12	06:25	05:22	BH-12-126_2.5-3'
JB22962-9	D203411.D	12/15/12	06:54	05:51	BH-12-128_3-3.5'
JB22962-10	D203412.D	12/15/12	07:24	06:21	BH-12-127_2.5-3'

Instrument Performance Check (BFB)

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VD8297-BFB
Lab File ID: D203472.D
Instrument ID: GCMSD
Injection Date: 12/17/12
Injection Time: 08:35

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	16867	21.8		Pass
75	30.0 - 60.0% of mass 95	40208	52.1		Pass
95	Base peak, 100% relative abundance	77226	100.0		Pass
96	5.0 - 9.0% of mass 95	5131	6.64		Pass
173	Less than 2.0% of mass 174	415	0.54	(0.62) [a]	Pass
174	50.0 - 120.0% of mass 95	67418	87.3		Pass
175	5.0 - 9.0% of mass 174	4993	6.47	(7.41) [a]	Pass
176	95.0 - 101.0% of mass 174	65778	85.2	(97.6) [a]	Pass
177	5.0 - 9.0% of mass 176	4289	5.55	(6.52) [b]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VD8297-CC8248	D203474.D	12/17/12	09:43	01:08	Continuing cal 20
VD8297-MB	D203476.D	12/17/12	10:59	02:24	Method Blank
VD8297-BS	D203477.D	12/17/12	11:38	03:03	Blank Spike
ZZZZZZ	D203478.D	12/17/12	12:15	03:40	(unrelated sample)
ZZZZZZ	D203479.D	12/17/12	12:44	04:09	(unrelated sample)
ZZZZZZ	D203480.D	12/17/12	13:13	04:38	(unrelated sample)
ZZZZZZ	D203481.D	12/17/12	13:43	05:08	(unrelated sample)
ZZZZZZ	D203482.D	12/17/12	14:12	05:37	(unrelated sample)
ZZZZZZ	D203483.D	12/17/12	14:41	06:06	(unrelated sample)
JB23096-6MS	D203484.D	12/17/12	15:11	06:36	Matrix Spike
JB23096-6MSD	D203485.D	12/17/12	15:40	07:05	Matrix Spike Duplicate
JB23096-6	D203487.D	12/17/12	16:39	08:04	(used for QC only; not part of job JB22962)
JB22962-7	D203488.D	12/17/12	17:08	08:33	BH-12-129_2.5-3'
JB22962-8	D203489.D	12/17/12	17:38	09:03	BH-12-126_2.5-3'
JB22962-9	D203490.D	12/17/12	18:07	09:32	BH-12-128_3-3.5'
JB22962-10	D203491.D	12/17/12	18:36	10:01	BH-12-127_2.5-3'
JB22962-14	D203492.D	12/17/12	19:06	10:31	BH-12-104_0.5-1'
JB22962-12	D203493.D	12/17/12	19:35	11:00	BH-12-125_2.5-3'
JB22962-15	D203494.D	12/17/12	20:05	11:30	BH-12-130_1-2'

Instrument Performance Check (BFB)

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VD8298-BFB
Lab File ID: D203497.D
Instrument ID: GCMSD
Injection Date: 12/17/12
Injection Time: 21:33

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	9725	22.5		Pass
75	30.0 - 60.0% of mass 95	23277	53.9		Pass
95	Base peak, 100% relative abundance	43157	100.0		Pass
96	5.0 - 9.0% of mass 95	2899	6.72		Pass
173	Less than 2.0% of mass 174	465	1.08	(1.25) [a]	Pass
174	50.0 - 120.0% of mass 95	37290	86.4		Pass
175	5.0 - 9.0% of mass 174	2801	6.49	(7.51) [a]	Pass
176	95.0 - 101.0% of mass 174	36565	84.7	(98.1) [a]	Pass
177	5.0 - 9.0% of mass 176	2487	5.76	(6.80) [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
VD8298-CC8248	D203498.D	12/17/12	22:04	00:31	Continuing cal 50
VD8298-MB	D203500.D	12/17/12	23:03	01:30	Method Blank
VD8298-BS	D203501.D	12/17/12	23:32	01:59	Blank Spike
JB23676-1MS	D203502.D	12/18/12	00:02	02:29	Matrix Spike
JB23676-1MSD	D203503.D	12/18/12	00:32	02:59	Matrix Spike Duplicate
JB23676-1	D203505.D	12/18/12	01:31	03:58	(used for QC only; not part of job JB22962)
ZZZZZZ	D203506.D	12/18/12	02:00	04:27	(unrelated sample)
ZZZZZZ	D203507.D	12/18/12	02:30	04:57	(unrelated sample)
ZZZZZZ	D203508.D	12/18/12	02:59	05:26	(unrelated sample)
ZZZZZZ	D203509.D	12/18/12	03:29	05:56	(unrelated sample)
JB22962-16	D203510.D	12/18/12	03:59	06:26	BH-12-131_1-2'
ZZZZZZ	D203511.D	12/18/12	04:28	06:55	(unrelated sample)
ZZZZZZ	D203512.D	12/18/12	04:58	07:25	(unrelated sample)
ZZZZZZ	D203513.D	12/18/12	05:27	07:54	(unrelated sample)
ZZZZZZ	D203514.D	12/18/12	05:57	08:24	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VD8299-BFB
Lab File ID: D203521.D
Instrument ID: GCMSD
Injection Date: 12/18/12
Injection Time: 08:48

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	10698	22.2		Pass
75	30.0 - 60.0% of mass 95	24912	51.7		Pass
95	Base peak, 100% relative abundance	48162	100.0		Pass
96	5.0 - 9.0% of mass 95	3268	6.79		Pass
173	Less than 2.0% of mass 174	119	0.25	(0.28) [a]	Pass
174	50.0 - 120.0% of mass 95	43181	89.7		Pass
175	5.0 - 9.0% of mass 174	3111	6.46	(7.20) [a]	Pass
176	95.0 - 101.0% of mass 174	42093	87.4	(97.5) [a]	Pass
177	5.0 - 9.0% of mass 176	2806	5.83	(6.67) [b]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VD8299-CC8248	D203522.D	12/18/12	09:18	00:30	Continuing cal 20
VD8299-MB	D203524.D	12/18/12	10:26	01:38	Method Blank
VD8299-BS	D203525.D	12/18/12	10:56	02:08	Blank Spike
JB22962-9	D203526.D	12/18/12	11:25	02:37	BH-12-128_3-3.5'
ZZZZZZ	D203527.D	12/18/12	11:55	03:07	(unrelated sample)
JB22962-18	D203528.D	12/18/12	12:24	03:36	BH-12-102_2-2.5'
JB22962-19	D203529.D	12/18/12	12:54	04:06	BH-12-101_2-3'
JB23096-7	D203530.D	12/18/12	13:23	04:35	(used for QC only; not part of job JB22962)
ZZZZZZ	D203531.D	12/18/12	13:53	05:05	(unrelated sample)
ZZZZZZ	D203532.D	12/18/12	14:22	05:34	(unrelated sample)
JB23096-7MS	D203536.D	12/18/12	16:20	07:32	Matrix Spike
JB23096-7MSD	D203537.D	12/18/12	16:50	08:02	Matrix Spike Duplicate
ZZZZZZ	D203539.D	12/18/12	17:49	09:01	(unrelated sample)
ZZZZZZ	D203540.D	12/18/12	18:18	09:30	(unrelated sample)
ZZZZZZ	D203542.D	12/18/12	19:17	10:29	(unrelated sample)
ZZZZZZ	D203543.D	12/18/12	19:47	10:59	(unrelated sample)
ZZZZZZ	D203544.D	12/18/12	20:16	11:28	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VE8647-BFB
Lab File ID: E196781.D
Instrument ID: GCMSE
Injection Date: 11/12/12
Injection Time: 10:00

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	7473	20.8		Pass
75	30.0 - 60.0% of mass 95	18645	52.0		Pass
95	Base peak, 100% relative abundance	35877	100.0		Pass
96	5.0 - 9.0% of mass 95	2347	6.54		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	28685	80.0		Pass
175	5.0 - 9.0% of mass 174	2341	6.53	(8.16) [a]	Pass
176	95.0 - 101.0% of mass 174	27698	77.2	(96.6) [a]	Pass
177	5.0 - 9.0% of mass 176	1886	5.26	(6.81) [b]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VE8647-IC8647	E196782.D	11/12/12	11:35	01:35	Initial cal 0.5
VE8647-IC8647	E196783.D	11/12/12	12:05	02:05	Initial cal 1
VE8647-IC8647	E196784.D	11/12/12	12:36	02:36	Initial cal 2
VE8647-IC8647	E196785.D	11/12/12	13:06	03:06	Initial cal 5
VE8647-IC8647	E196786.D	11/12/12	13:36	03:36	Initial cal 10
VE8647-IC8647	E196787.D	11/12/12	14:06	04:06	Initial cal 20
VE8647-ICC8647	E196788.D	11/12/12	14:36	04:36	Initial cal 50
VE8647-IC8647	E196789.D	11/12/12	15:06	05:06	Initial cal 100
VE8647-IC8647	E196790.D	11/12/12	15:36	05:36	Initial cal 200
VE8647-ICV8647	E196793.D	11/12/12	17:07	07:07	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VE8698-BFB
Lab File ID: E197977.D
Instrument ID: GCMSE
Injection Date: 12/17/12
Injection Time: 08:24

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	8502	21.7		Pass
75	30.0 - 60.0% of mass 95	20722	53.0		Pass
95	Base peak, 100% relative abundance	39106	100.0		Pass
96	5.0 - 9.0% of mass 95	2772	7.09		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	30882	79.0		Pass
175	5.0 - 9.0% of mass 174	2573	6.58	(8.33) [a]	Pass
176	95.0 - 101.0% of mass 174	30346	77.6	(98.3) [a]	Pass
177	5.0 - 9.0% of mass 176	1997	5.11	(6.58) [b]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VE8698-CC8647	E197978.D	12/17/12	08:59	00:35	Continuing cal 20
VE8698-MB	E197980.D	12/17/12	10:04	01:40	Method Blank
VE8698-BS	E197981.D	12/17/12	10:34	02:10	Blank Spike
ZZZZZZ	E197982.D	12/17/12	11:09	02:45	(unrelated sample)
ZZZZZZ	E197985.D	12/17/12	12:41	04:17	(unrelated sample)
ZZZZZZ	E197986.D	12/17/12	13:11	04:47	(unrelated sample)
ZZZZZZ	E197987.D	12/17/12	13:41	05:17	(unrelated sample)
ZZZZZZ	E197988.D	12/17/12	14:11	05:47	(unrelated sample)
JB23101-10MS	E197989.D	12/17/12	14:41	06:17	Matrix Spike
JB23101-10MSD	E197990.D	12/17/12	15:11	06:47	Matrix Spike Duplicate
JB23101-10	E197992.D	12/17/12	16:11	07:47	(used for QC only; not part of job JB22962)
ZZZZZZ	E197993.D	12/17/12	16:41	08:17	(unrelated sample)
ZZZZZZ	E197994.D	12/17/12	17:11	08:47	(unrelated sample)
ZZZZZZ	E197995.D	12/17/12	17:41	09:17	(unrelated sample)
ZZZZZZ	E197996.D	12/17/12	18:11	09:47	(unrelated sample)
ZZZZZZ	E197997.D	12/17/12	18:41	10:17	(unrelated sample)
JB22962-2	E197998.D	12/17/12	19:12	10:48	BH-12-123_2-2.5'
JB22962-3	E197999.D	12/17/12	19:42	11:18	BH-12-124_3-3.5'
JB22962-4	E198000.D	12/17/12	20:12	11:48	BH-12-149_1-1.5'

Instrument Performance Check (BFB)

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VE8699-BFB
Lab File ID: E198005.D
Instrument ID: GCMSE
Injection Date: 12/17/12
Injection Time: 22:44

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	7141	20.5		Pass
75	30.0 - 60.0% of mass 95	17881	51.4		Pass
95	Base peak, 100% relative abundance	34776	100.0		Pass
96	5.0 - 9.0% of mass 95	2379	6.84		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	28226	81.2		Pass
175	5.0 - 9.0% of mass 174	2239	6.44	(7.93) [a]	Pass
176	95.0 - 101.0% of mass 174	27930	80.3	(99.0) [a]	Pass
177	5.0 - 9.0% of mass 176	1781	5.12	(6.38) [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
VE8699-CC8647	E198006.D	12/17/12	23:14	00:30	Continuing cal 50
VE8699-MB	E198008.D	12/18/12	00:15	01:31	Method Blank
VE8699-BS	E198009.D	12/18/12	00:46	02:02	Blank Spike
JB23101-14MS	E198010.D	12/18/12	01:16	02:32	Matrix Spike
JB23101-14MSD	E198011.D	12/18/12	01:46	03:02	Matrix Spike Duplicate
JB23101-14	E198013.D	12/18/12	02:47	04:03	(used for QC only; not part of job JB22962)
ZZZZZZ	E198014.D	12/18/12	03:18	04:34	(unrelated sample)
ZZZZZZ	E198015.D	12/18/12	03:48	05:04	(unrelated sample)
ZZZZZZ	E198016.D	12/18/12	04:19	05:35	(unrelated sample)
ZZZZZZ	E198017.D	12/18/12	04:49	06:05	(unrelated sample)
JB22962-5	E198018.D	12/18/12	05:20	06:36	BH-12-149_2.5-3'
JB22962-6	E198019.D	12/18/12	05:50	07:06	BH-12-129_1.5-2'

Instrument Performance Check (BFB)

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VE8700-BFB
Lab File ID: E198023.D
Instrument ID: GCMSE
Injection Date: 12/18/12
Injection Time: 11:06

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	8731	20.0		Pass
75	30.0 - 60.0% of mass 95	22125	50.6		Pass
95	Base peak, 100% relative abundance	43720	100.0		Pass
96	5.0 - 9.0% of mass 95	3008	6.88		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	34744	79.5		Pass
175	5.0 - 9.0% of mass 174	2832	6.48	(8.15) [a]	Pass
176	95.0 - 101.0% of mass 174	34042	77.9	(98.0) [a]	Pass
177	5.0 - 9.0% of mass 176	2395	5.48	(7.04) [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
VE8700-CC8647	E198025.D	12/18/12	12:36	01:30	Continuing cal 20
VE8700-MB	E198027.D	12/18/12	13:44	02:38	Method Blank
VE8700-BS	E198028.D	12/18/12	14:16	03:10	Blank Spike
JB22962-9	E198029.D	12/18/12	14:46	03:40	BH-12-128_3-3.5'
ZZZZZZ	E198030.D	12/18/12	15:16	04:10	(unrelated sample)
ZZZZZZ	E198031.D	12/18/12	15:46	04:40	(unrelated sample)
JB22962-5	E198032.D	12/18/12	16:16	05:10	BH-12-149_2.5-3'
JB22999-2MS	E198033.D	12/18/12	16:47	05:41	Matrix Spike
JB22999-2MSD	E198034.D	12/18/12	17:17	06:11	Matrix Spike Duplicate
JB22999-2	E198036.D	12/18/12	18:18	07:12	(used for QC only; not part of job JB22962)
ZZZZZZ	E198037.D	12/18/12	18:48	07:42	(unrelated sample)
ZZZZZZ	E198039.D	12/18/12	19:49	08:43	(unrelated sample)
ZZZZZZ	E198043.D	12/18/12	21:50	10:44	(unrelated sample)
ZZZZZZ	E198044.D	12/18/12	22:21	11:15	(unrelated sample)
ZZZZZZ	E198045.D	12/18/12	22:51	11:45	(unrelated sample)

Volatile Internal Standard Area Summary

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	V3C4159-CC4143	**Injection Date:**	12/12/12
Lab File ID:	3C93678.D	**Injection Time:**	22:22
Instrument ID:	GCMS3C	**Method:**	SW846 8260B

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	49207	7.40	155245	9.63	231705	10.54	187039	13.67	94358	15.96
Upper Limit [a]	98414	7.90	310490	10.13	463410	11.04	374078	14.17	188716	16.46
Lower Limit [b]	24604	6.90	77623	9.13	115853	10.04	93520	13.17	47179	15.46

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
V3C4159-MB	33867	7.41	158581	9.63	232726	10.55	183870	13.67	83400	15.96
V3C4159-BS	47558	7.40	154445	9.63	230287	10.55	184309	13.67	91035	15.96
JB23312-5MS	31606	7.40	151160	9.63	221460	10.55	173292	13.67	81806	15.96
JB23312-5MSD	32258	7.40	162980	9.63	238613	10.55	185565	13.67	88427	15.96
JB23312-5	57867	7.40	160476	9.63	237211	10.55	192411	13.67	88737	15.96
ZZZZZZ	50609	7.41	154436	9.63	230352	10.55	184975	13.67	85481	15.96
ZZZZZZ	46523	7.41	158951	9.63	236626	10.55	189584	13.67	85393	15.96
ZZZZZZ	47887	7.40	164244	9.63	244702	10.55	197753	13.67	91263	15.96
ZZZZZZ	49593	7.40	153275	9.63	229749	10.54	185122	13.67	86013	15.97
ZZZZZZ	53542	7.40	158439	9.63	235053	10.55	193757	13.67	91295	15.96
ZZZZZZ	46423	7.41	157597	9.63	235119	10.55	189930	13.67	88226	15.96
ZZZZZZ	49378	7.40	163172	9.63	244517	10.55	198147	13.67	92326	15.96
JB22962-1	50815	7.40	156496	9.63	237269	10.55	193592	13.67	89730	15.96
JB22962-11	40718	7.40	139270	9.63	207793	10.55	169051	13.67	76608	15.96
JB22962-13	43934	7.40	153011	9.63	229289	10.55	184112	13.67	84041	15.96
JB22962-17	55625	7.40	158705	9.63	237165	10.55	193628	13.67	90089	15.96

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: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	VD8292-CC8248	**Injection Date:**	12/13/12
Lab File ID:	D203353.D	**Injection Time:**	22:11
Instrument ID:	GCMSD	**Method:**	SW846 8260B

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	79999	8.03	118537	10.26	182019	11.18	172614	14.52	103802	17.10
Upper Limit [a]	159998	8.53	237074	10.76	364038	11.68	345228	15.02	207604	17.60
Lower Limit [b]	40000	7.53	59269	9.76	91010	10.68	86307	14.02	51901	16.60

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VD8292-MB	69863	8.04	111035	10.26	169364	11.17	160703	14.51	95546	17.10
VD8292-BS	80425	8.02	115866	10.26	175856	11.17	167490	14.52	103190	17.10
JB22822-20MS	79632	8.04	114431	10.26	175474	11.18	165649	14.51	108764	17.10
JB22822-20MSD	80096	8.04	121358	10.26	185663	11.17	175647	14.51	112777	17.10
JB22822-20	77020	8.03	118081	10.26	180890	11.18	172138	14.52	106674	17.10
ZZZZZZ	77581	8.02	123304	10.26	187729	11.17	176391	14.52	103008	17.10
ZZZZZZ	75018	8.03	119161	10.26	181010	11.17	170075	14.51	100920	17.10
ZZZZZZ	64634	8.03	114778	10.26	174413	11.17	165785	14.51	97474	17.10
ZZZZZZ	68116	8.03	112980	10.26	173514	11.17	162302	14.51	95844	17.10
ZZZZZZ	64069	8.04	109994	10.26	169547	11.18	159206	14.51	93483	17.10
ZZZZZZ	72910	8.02	110694	10.26	169147	11.18	159325	14.52	92129	17.10
ZZZZZZ	71475	8.03	107823	10.26	164914	11.17	156961	14.51	91924	17.10
JB22962-2	68631	8.04	107343	10.26	165759	11.17	157702	14.52	101256	17.10
JB22962-3	80853	8.02	121330	10.26	186152	11.17	178290	14.52	106326	17.10
JB22962-6	67800	8.04	117116	10.26	182552	11.17	176253	14.52	102726	17.10

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

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

Volatile Internal Standard Area Summary

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	VD8294-CC8248	**Injection Date:**	12/15/12
Lab File ID:	D203400.D	**Injection Time:**	01:32
Instrument ID:	GCMSD	**Method:**	SW846 8260B

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	73425	8.02	124006	10.26	178722	11.18	165835	14.51	101409	17.10
Upper Limit [a]	146850	8.52	248012	10.76	357444	11.68	331670	15.01	202818	17.60
Lower Limit [b]	36713	7.52	62003	9.76	89361	10.68	82918	14.01	50705	16.60

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VD8294-MB	64496	8.04	122223	10.26	176157	11.17	164158	14.52	98831	17.10
VD8294-BS	72436	8.02	122433	10.26	176077	11.17	166842	14.52	100752	17.10
JB23112-1MS	66311	8.03	122371	10.26	178227	11.18	167089	14.51	100752	17.10
JB23112-1MSD	70184	8.03	124178	10.26	180913	11.17	170330	14.51	103167	17.10
JB23112-1	68914	8.03	123213	10.26	179294	11.17	167595	14.52	99195	17.10
ZZZZZZ	71949	8.03	120571	10.25	175943	11.17	165785	14.52	98339	17.10
JB22962-7	72281	8.03	122400	10.26	178849	11.17	175522	14.52	101419	17.10
JB22962-8	73081	8.02	125242	10.26	184024	11.18	175122	14.51	110225	17.10
JB22962-9	79322	8.03	139701	10.27	206748	11.18	200049	14.52	108169	17.10
JB22962-10	80105	8.04	135939	10.26	198383	11.17	186726	14.51	118193	17.10

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

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

Volatile Internal Standard Area Summary

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	VD8297-CC8248	**Injection Date:**	12/17/12
Lab File ID:	D203474.D	**Injection Time:**	09:43
Instrument ID:	GCMSD	**Method:**	SW846 8260B

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	80453	8.02	129507	10.26	186879	11.17	175821	14.51	104991	17.10
Upper Limit [a]	160906	8.52	259014	10.76	373758	11.67	351642	15.01	209982	17.60
Lower Limit [b]	40227	7.52	64754	9.76	93440	10.67	87911	14.01	52496	16.60

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VD8297-MB	64493	8.07	127224	10.25	184213	11.17	169598	14.51	104057	17.10
VD8297-BS	79098	8.02	123677	10.26	182607	11.17	173609	14.52	105739	17.10
ZZZZZZ	76406	8.02	123701	10.26	179282	11.17	167480	14.52	98314	17.10
ZZZZZZ	73127	8.02	125994	10.26	182742	11.17	171328	14.52	100931	17.10
ZZZZZZ	69491	8.02	122363	10.26	176986	11.18	164761	14.52	98104	17.10
ZZZZZZ	70259	8.02	121680	10.26	175514	11.18	166542	14.52	96996	17.10
ZZZZZZ	65126	8.02	117941	10.26	171077	11.17	167472	14.52	105030	17.10
ZZZZZZ	72947	8.03	130834	10.26	190349	11.17	180277	14.52	116447	17.10
JB23096-6MS	83891	8.03	135018	10.26	196207	11.18	183243	14.52	114530	17.10
JB23096-6MSD	83946	8.04	135095	10.26	195518	11.18	181112	14.52	111944	17.10
JB23096-6	77639	8.03	134212	10.26	193902	11.18	181174	14.52	109172	17.10
JB22962-7	82101	8.02	132641	10.26	192480	11.18	181102	14.52	107585	17.10
JB22962-8	79499	8.02	129447	10.26	189971	11.18	178700	14.52	104059	17.10
JB22962-9	57266	8.02	126368	10.26	183765	11.18	171757	14.52	101581	17.10
JB22962-10	59470	8.02	124437	10.26	179889	11.17	171414	14.52	99483	17.10
JB22962-14 [c]	64867	8.03	122523	10.26	178021	11.17	165147	14.52	99067	17.10
JB22962-12 [c]	72523	8.03	120779	10.26	177777	11.18	164836	14.52	97145	17.10
JB22962-15 [c]	69679	8.02	119218	10.26	173107	11.17	163063	14.52	97831	17.10

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

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.
(c) Diluted due to high concentration of non-target compound.

Volatile Internal Standard Area Summary

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	VD8298-CC8248	**Injection Date:**	12/17/12
Lab File ID:	D203498.D	**Injection Time:**	22:04
Instrument ID:	GCMSD	**Method:**	SW846 8260B

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	63820	8.05	113480	10.26	166075	11.18	157081	14.52	99142	17.10
Upper Limit [a]	127640	8.55	226960	10.76	332150	11.68	314162	15.02	198284	17.60
Lower Limit [b]	31910	7.55	56740	9.76	83038	10.68	78541	14.02	49571	16.60

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VD8298-MB	67137	8.03	111606	10.26	163481	11.18	153818	14.52	93927	17.10
VD8298-BS	74744	8.03	113906	10.26	167201	11.17	158683	14.52	100707	17.10
JB23676-1MS	66864	8.03	118436	10.26	172984	11.18	161781	14.52	100701	17.10
JB23676-1MSD	72151	8.04	123966	10.26	178942	11.18	170691	14.52	103903	17.10
JB23676-1	73280	8.04	121247	10.26	176459	11.18	168087	14.52	98965	17.10
ZZZZZZ	75924	8.03	119117	10.26	172988	11.18	162954	14.52	96539	17.10
ZZZZZZ	73121	8.03	115757	10.26	167654	11.17	159267	14.52	95977	17.10
ZZZZZZ	68099	8.03	115447	10.26	166641	11.18	156276	14.52	93560	17.10
ZZZZZZ	68110	8.03	114222	10.26	168340	11.18	157085	14.52	94918	17.10
JB22962-16 [c]	68396	8.04	114658	10.26	166301	11.17	158417	14.52	104090	17.10
ZZZZZZ	80993	8.03	130664	10.26	190271	11.18	175544	14.52	109830	17.10
ZZZZZZ	79101	8.03	136151	10.26	197501	11.17	183454	14.52	115276	17.10
ZZZZZZ	87653	8.05	139011	10.26	199896	11.17	185359	14.52	117199	17.10
ZZZZZZ	85311	8.03	137401	10.26	198840	11.17	185892	14.52	116490	17.10

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

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

Volatile Internal Standard Area Summary

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	VD8299-CC8248	**Injection Date:**	12/18/12
Lab File ID:	D203522.D	**Injection Time:**	09:18
Instrument ID:	GCMSD	**Method:**	SW846 8260B

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	82281	8.02	132299	10.26	191855	11.18	182741	14.52	112104	17.10
Upper Limit [a]	164562	8.52	264598	10.76	383710	11.68	365482	15.02	224208	17.60
Lower Limit [b]	41141	7.52	66150	9.76	95928	10.68	91371	14.02	56052	16.60

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VD8299-MB	74632	8.03	125857	10.26	184118	11.18	171471	14.52	104283	17.10
VD8299-BS	78530	8.03	126737	10.27	183929	11.18	175058	14.52	110913	17.10
JB22962-9	72937	8.03	126157	10.26	183420	11.18	178266	14.52	105728	17.10
ZZZZZZ	70849	8.04	122880	10.26	177104	11.18	168700	14.52	103608	17.10
JB22962-18 [c]	75874	8.04	127465	10.26	185553	11.18	176487	14.52	120585	17.10
JB22962-19 [c]	71287	8.03	136410	10.26	196518	11.18	185728	14.52	115570	17.10
JB23096-7	70598	8.03	135487	10.26	194722	11.18	182582	14.52	113160	17.10
ZZZZZZ	73828	8.03	135034	10.26	195763	11.18	182467	14.52	117660	17.10
ZZZZZZ	81420	8.02	133712	10.26	193597	11.18	186076	14.52	130347	17.11
JB23096-7MS	77886	8.03	138340	10.26	200013	11.17	185174	14.52	117083	17.10
JB23096-7MSD	82228	8.04	137595	10.26	196649	11.17	186523	14.52	115825	17.10
ZZZZZZ	77840	8.03	136823	10.26	197936	11.18	187575	14.52	116410	17.10
ZZZZZZ	76503	8.03	136257	10.26	196384	11.17	182160	14.52	116208	17.10
ZZZZZZ	76999	8.03	136462	10.26	196186	11.18	184224	14.52	112583	17.10
ZZZZZZ	76561	8.03	133666	10.26	191797	11.17	181177	14.52	120089	17.10
ZZZZZZ	79267	8.02	137630	10.26	198669	11.18	184828	14.52	121324	17.10

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

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

Volatile Internal Standard Area Summary

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	VE8698-CC8647	**Injection Date:**	12/17/12
Lab File ID:	E197978.D	**Injection Time:**	08:59
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	65927	7.70	92663	9.92	141036	10.84	131239	14.16	67383	16.73
Upper Limit [a]	131854	8.20	185326	10.42	282072	11.34	262478	14.66	134766	17.23
Lower Limit [b]	32964	7.20	46332	9.42	70518	10.34	65620	13.66	33692	16.23

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VE8698-MB	57501	7.71	95694	9.92	142130	10.84	133222	14.16	71809	16.73
VE8698-BS	59611	7.70	86184	9.92	131742	10.84	125578	14.16	66242	16.73
ZZZZZZ	68890	7.71	88204	9.92	135875	10.83	132313	14.16	66811	16.73
ZZZZZZ	67711	7.71	92969	9.92	144521	10.84	136936	14.16	68470	16.74
ZZZZZZ	61335	7.70	96158	9.92	136479	10.84	112535	14.16	61632	16.74
ZZZZZZ	68481	7.71	103648	9.92	152852	10.84	124809	14.16	65764	16.74
ZZZZZZ	65234	7.70	101794	9.92	147413	10.84	126174	14.16	67583	16.74
JB23101-10MS	62992	7.71	95013	9.92	148237	10.84	142168	14.16	73014	16.73
JB23101-10MSD	64066	7.72	97150	9.92	151993	10.83	144875	14.16	73316	16.73
JB23101-10	72670	7.71	112235	9.92	166683	10.84	159120	14.16	84427	16.73
ZZZZZZ	69554	7.71	112396	9.92	166729	10.84	152854	14.16	80176	16.74
ZZZZZZ	72224	7.71	111956	9.92	169113	10.83	157770	14.16	82395	16.73
ZZZZZZ	70670	7.71	110227	9.92	165202	10.84	155409	14.16	82225	16.73
ZZZZZZ	67177	7.70	111863	9.92	168143	10.84	155352	14.16	81240	16.73
ZZZZZZ	67251	7.71	107876	9.92	162260	10.84	153863	14.16	80952	16.73
JB22962-2	70371	7.70	110832	9.92	163989	10.84	144086	14.16	73027	16.73
JB22962-3	75361	7.71	114603	9.92	166566	10.84	156729	14.17	80312	16.73
JB22962-4 [c]	69036	7.70	111773	9.92	167002	10.84	156399	14.16	81779	16.73

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

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.
(c) Diluted due to high concentration of non-target compound.

Volatile Internal Standard Area Summary

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	VE8699-CC8647	**Injection Date:**	12/17/12
Lab File ID:	E198006.D	**Injection Time:**	23:14
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	62582	7.70	93533	9.93	143820	10.84	138702	14.16	69370	16.73
Upper Limit [a]	125164	8.20	187066	10.43	287640	11.34	277404	14.66	138740	17.23
Lower Limit [b]	31291	7.20	46767	9.43	71910	10.34	69351	13.66	34685	16.23

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VE8699-MB	62428	7.72	100400	9.92	149787	10.84	141010	14.16	75000	16.74
VE8699-BS	63983	7.70	91541	9.92	142198	10.84	135241	14.16	68345	16.73
JB23101-14MS	59105	7.71	90753	9.92	140708	10.84	133928	14.16	68431	16.74
JB23101-14MSD	58251	7.71	89580	9.92	138618	10.84	134872	14.16	69380	16.73
JB23101-14	65113	7.71	101640	9.92	150763	10.84	143568	14.16	75870	16.73
ZZZZZZ	64630	7.71	103622	9.92	149180	10.84	143891	14.16	76323	16.73
ZZZZZZ	63490	7.71	102984	9.92	150510	10.84	144557	14.16	75735	16.73
ZZZZZZ	61909	7.71	102330	9.92	149527	10.83	144695	14.16	75001	16.73
ZZZZZZ	62792	7.71	101949	9.92	150169	10.84	143565	14.16	74700	16.74
JB22962-5	77327	7.70	103618	9.92	148822	10.84	144859	14.16	74410	16.73
JB22962-6	76524	7.71	104729	9.92	154126	10.84	145423	14.16	72489	16.74

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: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	VE8700-CC8647	**Injection Date:**	12/18/12
Lab File ID:	E198025.D	**Injection Time:**	12:36
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	79908	7.70	101348	9.92	155688	10.84	151192	14.17	79477	16.73
Upper Limit [a]	159816	8.20	202696	10.42	311376	11.34	302384	14.67	158954	17.23
Lower Limit [b]	39954	7.20	50674	9.42	77844	10.34	75596	13.67	39739	16.23

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VE8700-MB	62075	7.71	102340	9.92	154343	10.83	142995	14.16	79147	16.73
VE8700-BS	65562	7.69	91869	9.92	142949	10.84	137264	14.16	69748	16.73
JB22962-9	76238	7.70	105573	9.92	153338	10.84	146807	14.16	80552	16.73
ZZZZZZ	74853	7.70	98874	9.92	143645	10.84	129868	14.16	71371	16.73
ZZZZZZ	61430	7.71	107792	9.92	160187	10.83	137837	14.16	72470	16.73
JB22962-5	75799	7.69	109816	9.92	161650	10.84	157172	14.16	84976	16.74
JB22999-2MS	55378	7.70	100013	9.92	154792	10.84	147074	14.16	75856	16.73
JB22999-2MSD	56375	7.71	101341	9.92	158512	10.84	152226	14.16	76911	16.74
JB22999-2	70126	7.71	111576	9.92	169751	10.83	160983	14.16	88027	16.73
ZZZZZZ	64937	7.70	112715	9.92	170748	10.84	159500	14.16	87358	16.74
ZZZZZZ	70749	7.72	109870	9.92	163186	10.84	128703	14.16	73068	16.74
ZZZZZZ	81123	7.69	108165	9.92	158917	10.84	149522	14.16	80570	16.74
ZZZZZZ	66768	7.71	111833	9.92	167860	10.84	158652	14.16	86168	16.73
ZZZZZZ	70381	7.70	116399	9.92	172683	10.84	163226	14.16	88971	16.73

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: JB22962
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
JB22962-1	3C93694.D	94.0	91.0	101.0	105.0
JB22962-2	E197998.D	88.0	86.0	91.0	92.0
JB22962-2	D203369.D	97.0	121.0	108.0	110.0
JB22962-3	E197999.D	88.0	85.0	95.0	89.0
JB22962-3	D203370.D	96.0	118.0	99.0	103.0
JB22962-4	E198000.D	88.0	85.0	93.0	92.0
JB22962-5	E198018.D	88.0	89.0	95.0	90.0
JB22962-5	E198032.D	90.0	87.0	96.0	87.0
JB22962-6	E198019.D	90.0	88.0	95.0	91.0
JB22962-6	D203373.D	97.0	120.0	99.0	106.0
JB22962-7	D203488.D	91.0	108.0	98.0	97.0
JB22962-7	D203409.D	93.0	109.0	100.0	102.0
JB22962-8	D203489.D	91.0	109.0	98.0	98.0
JB22962-8	D203410.D	92.0	111.0	99.0	94.0
JB22962-9	D203490.D	93.0	109.0	99.0	99.0
JB22962-9	D203411.D	91.0	106.0	102.0	105.0
JB22962-9	D203526.D	93.0	107.0	100.0	97.0
JB22962-9	E198029.D	89.0	85.0	95.0	83.0
JB22962-10	D203491.D	92.0	109.0	99.0	99.0
JB22962-10	D203412.D	90.0	107.0	99.0	95.0
JB22962-11	3C93695.D	92.0	89.0	100.0	106.0
JB22962-12	D203493.D	93.0	112.0	97.0	100.0
JB22962-13	3C93696.D	94.0	89.0	101.0	106.0
JB22962-14	D203492.D	92.0	110.0	97.0	98.0
JB22962-15	D203494.D	92.0	111.0	98.0	98.0
JB22962-16	D203510.D	92.0	112.0	100.0	94.0
JB22962-17	3C93697.D	93.0	94.0	102.0	105.0
JB22962-18	D203528.D	93.0	109.0	107.0	100.0
JB22962-19	D203529.D	91.0	106.0	102.0	95.0
JB22822-20MS	D203357.D	96.0	116.0	100.0	97.0
JB22822-20MSD	D203358.D	96.0	116.0	100.0	99.0
JB22999-2MS	E198033.D	90.0	81.0	93.0	91.0
JB22999-2MSD	E198034.D	92.0	83.0	92.0	92.0
JB23096-6MS	D203484.D	93.0	106.0	98.0	94.0
JB23096-6MSD	D203485.D	94.0	106.0	97.0	95.0
JB23096-7MS	D203536.D	92.0	106.0	97.0	96.0
JB23096-7MSD	D203537.D	93.0	104.0	99.0	96.0
JB23101-10MS	E197989.D	93.0	85.0	93.0	91.0
JB23101-10MSD	E197990.D	91.0	83.0	92.0	92.0
JB23101-14MS	E198010.D	92.0	87.0	92.0	92.0

Volatile Surrogate Recovery Summary

Job Number: JB22962
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
JB23101-14MSD	E198011.D	93.0	88.0	94.0	92.0
JB23112-1MS	D203404.D	92.0	107.0	99.0	97.0
JB23112-1MSD	D203405.D	94.0	107.0	98.0	97.0
JB23312-5MS	3C93682.D	87.0	74.0	101.0	102.0
JB23312-5MSD	3C93683.D	87.0	73.0	100.0	102.0
JB23676-1MS	D203502.D	94.0	109.0	99.0	96.0
JB23676-1MSD	D203503.D	92.0	107.0	99.0	96.0
V3C4159-BS	3C93681.D	92.0	86.0	101.0	101.0
V3C4159-MB	3C93680.D	86.0	76.0	101.0	105.0
VD8292-BS	D203356.D	95.0	117.0	100.0	100.0
VD8292-MB	D203355.D	96.0	120.0	99.0	102.0
VD8294-BS	D203403.D	92.0	107.0	100.0	96.0
VD8294-MB	D203402.D	90.0	107.0	97.0	97.0
VD8297-BS	D203477.D	93.0	109.0	99.0	98.0
VD8297-MB	D203476.D	90.0	107.0	96.0	97.0
VD8298-BS	D203501.D	94.0	112.0	99.0	96.0
VD8298-MB	D203500.D	93.0	113.0	98.0	96.0
VD8299-BS	D203525.D	94.0	106.0	99.0	94.0
VD8299-MB	D203524.D	92.0	108.0	97.0	97.0
VE8698-BS	E197981.D	92.0	83.0	93.0	87.0
VE8698-MB	E197980.D	87.0	87.0	91.0	90.0
VE8699-BS	E198009.D	94.0	88.0	93.0	92.0
VE8699-MB	E198008.D	88.0	88.0	93.0	91.0
VE8700-BS	E198028.D	93.0	85.0	94.0	91.0
VE8700-MB	E198027.D	89.0	85.0	93.0	88.0

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

Initial Calibration Summary

Job Number: JB22962 **Sample:** V3C4143-ICC4143
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3C93288.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Response Factor Report MS3C

```
Method       : C:\MSDCHEM\1\METHODS\M3C4143.M (RTE Integrator)
Title        : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
Last Update  : Fri Nov 30 15:18:13 2012
Response via : Initial Calibration

Calibration Files
5   =3C93285.D   10  =3C93286.D   0.5 =3C93282.D   50  =3C93288.D
100 =3C93289.D   1   =3C93283.D   200 =3C93290.D   20  =3C93287.D
2   =3C93284.D       =
```

Compound	5	10	0.5	50	100	1	200	20	2	Avg	%RSD
1) I Tert Butyl Alcohol-d9 ----------ISTD----------											
2) 1,4-dioxane	0.156	0.151		0.131	0.137		0.146	0.146	0.128	0.142	7.32
3) tertiary butyl alcohol	1.610	1.523		1.421	1.328	1.626	1.375	1.506	1.261	1.456	9.06
4) I pentafluorobenzene ----------ISTD----------											
5) chlorodifluoromethane	0.437	0.441		0.430	0.375		0.376	0.420	0.462	0.420	7.85
6) dichlorodifluoromethane	0.594	0.548	0.617	0.599	0.518	0.565	0.519	0.584	0.560	0.567	6.08
7) chloromethane	0.634	0.609		0.597	0.551	0.778	0.548	0.608	0.654	0.622	11.68
8) vinyl chloride	0.694	0.649	0.750	0.681	0.609	0.713	0.603	0.670	0.678	0.672	7.00
9) bromomethane	0.427	0.423	0.497	0.408	0.384	0.442	0.360	0.410	0.408	0.418	9.15
10) chloroethane	0.384	0.374	0.423	0.377	0.351	0.338	0.358	0.378	0.365	0.372	6.46
11) Vinyl Bromide										0.000#	-1.00
12) Pentane	0.710	0.786		0.711	0.603		0.651	0.632	0.778	0.696	10.20
13) trichlorofluoromethane	0.777	0.716	0.833	0.763	0.668	0.814	0.669	0.747	0.738	0.747	7.70
14) ethyl ether	0.294	0.294		0.265	0.249		0.253	0.269	0.294	0.274	7.17
15) acrolein	0.060	0.063		0.066	0.061		0.063	0.063		0.063	3.24
16) 1,1-dichloroethene	0.436	0.428	0.491	0.404	0.355	0.445	0.377	0.390	0.391	0.413	9.97
17) acetone	0.029	0.030		0.031	0.028		0.029	0.030		0.029	3.32
18) allyl chloride	0.288	0.281		0.269	0.227	0.251	0.247	0.258	0.221	0.255	9.29
19) acetonitrile	0.034	0.031		0.030	0.027		0.028	0.030		0.030	8.26
20) iodomethane	0.836	0.822	0.779	0.783	0.718	0.791	0.740	0.769	0.691	0.770	6.10
21) iso-butyl alcohol	0.013	0.012		0.013	0.012	0.013	0.012	0.013	0.012	0.013	4.86
22) carbon disulfide	1.534	1.510	1.572	1.453	1.297	1.519	1.354	1.412	1.307	1.440	7.12
23) methylene chloride											

```
            0.828 0.638       0.516 0.452       0.459 0.559         0.575   24.59
             ----- Linear regression -----  Coefficient =  0.9992
               Response Ratio = 0.04193 + 0.44672 *A

24)  methyl acetate
            0.052 0.061       0.067 0.059       0.061 0.063         0.061    8.22
25)  methyl tert butyl ether
            1.345 1.354 1.641 1.343 1.232 1.475 1.233 1.311 1.255   1.354    9.71
26)  trans-1,2-dichloroethene
            0.516 0.502       0.461 0.423 0.531 0.435 0.461 0.464   0.474    8.12
27)  di-isopropyl ether
            1.525 1.572 1.334 1.545 1.443 1.306 1.451 1.500 1.462   1.460    6.21
28)  ethyl tert-butyl ether
            1.492 1.522 1.305 1.506 1.404 1.276 1.414 1.464 1.453   1.426    6.07
29)  2-butanone
            0.033 0.039       0.044 0.040       0.040 0.039         0.039    9.28
30)  1,1-dichloroethane
            0.892 0.877 0.912 0.833 0.766 0.830 0.789 0.821 0.770   0.832    6.34
31)  chloroprene
            0.643 0.679       0.699 0.619       0.637 0.651 0.605   0.648    5.03
32)  acrylonitrile
            0.117 0.118 0.120 0.122 0.110 0.114 0.114 0.117 0.096   0.114    6.76
33)  vinyl acetate
            0.055 0.067       0.073 0.067       0.067 0.065         0.066    9.24
34)  ethyl acetate
            0.044 0.046       0.048 0.044       0.045 0.044         0.045    3.62
35)  2,2-dichloropropane
            0.714 0.709 0.737 0.675 0.605 0.688 0.630 0.664 0.626   0.672    6.64
36)  cis-1,2-dichloroethene
            0.561 0.556       0.515 0.476 0.555 0.489 0.510 0.497   0.520    6.39
37)  propionitrile
            0.044 0.044       0.047 0.043 0.040 0.044 0.046 0.039   0.044    5.88
38)  Methyl Acrylate
            0.041 0.047       0.054 0.050       0.054 0.050         0.049   10.12
39)  bromochloromethane
            0.241 0.247 0.194 0.235 0.217 0.218 0.226 0.233 0.208   0.224    7.49
40)  tetrahydrofuran
            0.142 0.129       0.129 0.115       0.117 0.126 0.142   0.129    8.31
41)  chloroform
            0.880 0.853 0.924 0.811 0.756 0.856 0.782 0.800 0.762   0.825    6.90
42)  tert-Butyl Formate
            0.379 0.372 0.329 0.400 0.371 0.348 0.378 0.381 0.367   0.370    5.52
43)  dibromofluoromethane (s)
            0.430 0.433       0.421 0.396 0.501 0.408 0.417 0.473   0.435    8.06
44)  1,2-dichloroethane-d4 (s)
            0.511 0.489       0.468 0.438       0.446 0.453 0.513   0.474    6.46
45)  freon 113
            0.324 0.335       0.348 0.288       0.300 0.326 0.298   0.317    6.97
46)  methacrylonitrile
            0.206 0.204 0.202 0.207 0.190 0.198 0.193 0.201 0.206   0.201    3.00
47)  1,1,1-trichloroethane
            0.754 0.752 0.744 0.724 0.655 0.670 0.683 0.708 0.665   0.706    5.54
48)  Cyclohexane
            0.707 0.723 0.670 0.700 0.602 0.640 0.648 0.689 0.619   0.667    6.27
49)  Tert Amyl Alcohol
            0.046 0.045       0.050 0.046       0.048 0.046         0.047    3.81
50)  2,2,4-trimethylpentane
            1.657 1.720       1.666 1.405       1.481 1.590 1.556   1.582    7.02
51)  tert-amyl methyl ether
            1.477 1.433 1.672 1.412 1.323 1.396 1.350 1.372 1.449   1.431    7.14
```

```
52) I   1,4-difluorobenzene   ----------------ISTD--------------------
53)  epichlorohydrin
            0.021 0.021       0.023 0.021       0.021 0.022 0.018   0.021    7.28
54)  n-butyl alcohol
            0.007 0.007 0.006 0.008 0.008 0.007 0.008 0.007 0.006   0.007#   9.60
55)  carbon tetrachloride
            0.469 0.447 0.458 0.445 0.399 0.433 0.415 0.436 0.376   0.431    6.88
56)  1,1-dichloropropene
            0.443 0.440 0.435 0.419 0.379 0.430 0.391 0.411 0.380   0.414    6.09
57)  hexane
            0.504 0.450       0.396 0.326       0.341 0.389         0.401   16.70
             ----- Linear regression -----  Coefficient =  0.9975
               Response Ratio = 0.02453 + 0.33272 *A

58)  benzene
            1.380 1.381 1.594 1.289 1.202 1.407 1.216 1.270 1.206   1.327    9.63
59)  heptane
            0.216 0.229       0.222 0.188       0.200 0.212 0.207   0.210    6.43
60)  isopropyl acetate
            0.493 0.476 0.489 0.518 0.479 0.467 0.484 0.491 0.471   0.485    3.13
61)  1,2-dichloroethane
            0.427 0.418 0.391 0.403 0.376 0.385 0.377 0.400 0.367   0.394    5.11
62)  trichloroethene
            0.336 0.332 0.319 0.310 0.290 0.305 0.295 0.307 0.275   0.308    6.42
63)  ethyl acrylate
            0.284 0.283       0.304 0.288 0.230 0.296 0.283 0.267   0.279    8.06
64)  Tert-Amyl ethyl ether
            0.544 0.549 0.556 0.529 0.514 0.509 0.518 0.519 0.526   0.529    3.12
65)  2-nitropropane
            0.100 0.092       0.092 0.085 0.096 0.086 0.093 0.101   0.093    6.12
66)  2-chloroethyl vinyl ether
            0.119 0.119 0.102 0.125 0.119 0.105 0.124 0.123 0.110   0.116    7.44
67)  methyl methacrylate
            0.067 0.071       0.074 0.070       0.072 0.070         0.071    3.40
68)  1,2-dichloropropane
            0.330 0.337 0.344 0.323 0.303 0.324 0.310 0.320 0.296   0.321    4.88
69)  methylcyclohexane
            0.527 0.524       0.539 0.453       0.480 0.517 0.495   0.505    6.01
70)  dibromomethane
            0.179 0.176       0.172 0.162 0.161 0.164 0.168 0.162   0.168    4.31
71)  bromodichloromethane
            0.423 0.434 0.473 0.426 0.404 0.429 0.412 0.415 0.373   0.421    6.31
72)  cis-1,3-dichloropropene
            0.523 0.527 0.561 0.507 0.486 0.486 0.491 0.499 0.452   0.503    6.17
73)  toluene-d8 (s)
            1.136 1.190       1.100 1.031       1.046 1.100 1.271   1.125    7.42
74)  4-methyl-2-pentanone
            0.093 0.095       0.101 0.092       0.094 0.096         0.095    3.40
75)  toluene
            0.859 0.862       0.802 0.756 0.910 0.768 0.794 0.760   0.814    6.97
76)  3-methyl-1-butanol
            0.007 0.006       0.008 0.007 0.007 0.008 0.008 0.006   0.007#  11.72
77)  trans-1,3-dichloropropene
            0.464 0.465 0.513 0.446 0.422 0.428 0.426 0.438 0.396   0.444    7.55
78)  ethyl methacrylate
            0.327 0.342       0.356 0.340 0.325 0.348 0.340 0.287   0.333    6.40
79)  1,1,2-trichloroethane
            0.204 0.209 0.220 0.203 0.192 0.208 0.194 0.201 0.182   0.202    5.56
80)  2-hexanone
```

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            0.092 0.081       0.087 0.082       0.085 0.082 0.076   0.084    6.12

 81) I   chlorobenzene-d5      ----------------ISTD---------------------
 82)  tetrachloroethene
            0.443 0.435 0.440 0.409 0.379 0.381 0.386 0.407 0.379   0.407    6.64
 83)  1,3-dichloropropane
            0.543 0.543 0.578 0.526 0.493 0.527 0.503 0.521 0.495   0.526    5.19
 84)  butyl acetate
            0.206 0.201       0.209 0.195 0.156 0.197 0.204 0.204   0.196    8.68
 85)  dibromochloromethane
            0.373 0.372 0.368 0.373 0.362 0.351 0.370 0.356 0.319   0.360    4.78
 86)  1,2-dibromoethane
            0.302 0.302 0.304 0.298 0.279 0.276 0.285 0.299 0.262   0.290    5.12
 87)  3,3-Dimethyl-1-Butanol
            0.025 0.025 0.030 0.031 0.029 0.033 0.030 0.028 0.025   0.029   10.15
 88)  chlorobenzene
            1.167 1.158 1.184 1.063 1.015 1.118 1.027 1.081 0.971   1.087    6.88
 89)  1,1,1,2-tetrachloroethane
            0.434 0.431 0.417 0.407 0.388 0.399 0.400 0.406 0.369   0.406    4.96
 90)  ethylbenzene
            1.949 1.936 2.107 1.800 1.690 1.957 1.714 1.815 1.704   1.852    7.72
 91)  m,p-xylene
            0.765 0.770 0.872 0.702 0.669 0.745 0.674 0.709 0.651   0.729    9.39
 92)  o-xylene
            0.786 0.783 0.871 0.723 0.684 0.750 0.695 0.727 0.639   0.740    9.19
 93)  styrene
            1.177 1.191 1.350 1.153 1.130 1.158 1.151 1.128 1.001   1.160    7.76
 94)  BUTYL ACRYLATE
                                                                    0.000#  -1.00
 95)  bromoform
            0.238 0.238 0.210 0.239 0.229 0.227 0.238 0.230 0.200   0.228    6.06

 96) I   1,4-dichlorobenzene-d ----------------ISTD---------------------
 97)  isopropylbenzene
            3.773 3.740 3.914 3.432 3.231 3.572 3.298 3.514 3.290   3.529    6.82
 98)  4-bromofluorobenzene (s)
            1.117 1.085       0.947 0.927       0.932 0.969         0.996    8.32
 99)  bromobenzene
            0.954 0.930       0.861 0.838 0.993 0.842 0.888 0.803   0.889    7.32
100)  cyclohexanone
            0.023 0.024       0.024 0.021 0.021 0.023 0.022 0.021   0.023    6.20
101)  1,1,2,2-tetrachloroethane
            0.772 0.751 0.885 0.736 0.686 0.814 0.703 0.743 0.695   0.754    8.42
102)  trans-1,4-dichloro-2-butene
            0.191 0.188       0.181 0.166 0.190 0.173 0.184 0.162   0.179    6.23
103)  1,2,3-trichloropropane
            0.219 0.207 0.196 0.206 0.190 0.192 0.193 0.205 0.199   0.201    4.64
104)  n-propylbenzene
            4.252 4.227 4.443 3.761 3.577 3.987 3.618 3.863 3.585   3.924    8.22
105)  4-Ethyltoluene
            3.687 3.674       3.236 3.192 3.384 3.185 3.338 3.592   3.411    6.20
106)  2-chlorotoluene
            0.939 0.934 1.019 0.817 0.788 0.945 0.794 0.854 0.776   0.874    9.97
107)  4-chlorotoluene
            0.929 0.941       0.813 0.802 0.876 0.802 0.833 0.770   0.846    7.43
108)  1,3,5-trimethylbenzene
            3.115 3.162 3.189 2.819 2.716 3.094 2.780 2.948 2.633   2.940    7.12
109)  tert-butylbenzene
            2.801 2.764 3.063 2.505 2.342 2.720 2.438 2.597 2.365   2.622    9.04
110)  pentachloroethane
```

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            0.612 0.592 0.579 0.564 0.546 0.561 0.561 0.574 0.502   0.566    5.45
111)  1,2,4-trimethylbenzene
            3.119 3.206 3.287 2.827 2.775 3.050 2.783 2.926 2.653   2.958    7.36
112)  sec-butylbenzene
            4.085 3.985 4.142 3.570 3.369 3.750 3.438 3.727 3.366   3.715    8.15
113)  1,3-dichlorobenzene
            1.740 1.807       1.549 1.557 1.724 1.542 1.595 1.542   1.632    6.58
114)  p-isopropyltoluene
            3.342 3.303 3.660 2.884 2.793 3.144 2.809 3.042 2.768   3.083    9.95
115)  1,4-dichlorobenzene
            1.810 1.795       1.555 1.562 1.810 1.551 1.622 1.555   1.657    7.50
116)  1,2-dichlorobenzene
            1.702 1.701       1.521 1.516 1.696 1.502 1.604 1.497   1.593    5.95
117)  1,4-Diethylbenzene
            1.983 2.000       1.693 1.735 1.831 1.707 1.815 1.798   1.820    6.42
118)  n-butylbenzene
            1.653 1.694 1.735 1.431 1.414 1.485 1.404 1.523 1.324   1.518    9.50
119)  1,2,4,5-Tetramethylbenzene
            3.114 3.193       2.691 2.801 2.974 2.693 2.914 2.926   2.913    6.26
120)  1,2-dibromo-3-chloropropane
            0.156 0.137       0.133 0.123       0.123 0.134 0.156   0.138   10.01
121)  1,3,5-Trichlorobenzene
            1.238 1.303       1.047 1.082 1.225 1.017 1.131 1.006   1.131    9.91
122)  1,2,4-trichlorobenzene
            0.990 1.051       0.903 0.940 0.964 0.887 0.938 0.839   0.939    6.94
123)  hexachlorobutadiene
            0.707 0.706       0.571 0.558 0.613 0.522 0.674 0.602   0.619   11.29
124)  naphthalene
            1.888 1.942       2.015 1.982       1.959 1.992         1.963    2.28
125)  1,2,3-trichlorobenzene
            0.931 0.990       0.875 0.875 0.929 0.822 0.925 0.773   0.890    7.74
126)  hexachloroethane
            0.658 0.637 0.760 0.591 0.573 0.633 0.587 0.613 0.570   0.625    9.47
127)  Benzyl chloride
            1.025 0.951       0.939 0.891 1.191 0.913 0.956 1.020   0.986    9.67
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           M3C4143.M         Fri Nov 30 15:43:00 2012   MS3C
```

Initial Calibration Verification

Job Number: JB22962 **Sample:** V3C4143-ICV4143
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3C93293.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\3C\v3c4143FINAL\3C93293.D Vial: 30
Acq On : 30 Nov 2012 11:48 am Operator: JUNTAEP
Sample : icv4143-50 Inst : MS3C
Misc : MS37093,V3C4143,5.0,,,,1 Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3C4143.M (RTE Integrator)
Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
Last Update : Mon Sep 13 11:48:20 2010
Response via : Multiple Level Calibration

Min. RRF : 0.010 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	85	0.00	7.41
2	1,4-dioxane	0.142	0.148	-4.2	96	0.00	11.27
3	tertiary butyl alcohol	1.456	1.491	-2.4	89	0.00	7.53
4 I	pentafluorobenzene	1.000	1.000	0.0	97	0.00	9.63
5	chlorodifluoromethane	0.420	0.374	11.0	85	0.00	4.01
6	dichlorodifluoromethane	0.567	0.521	8.1	85	0.00	3.98
7	chloromethane	0.622	0.574	7.7	94	0.00	4.34
8	vinyl chloride	0.672	0.620	7.7	89	0.00	4.59
9	bromomethane	0.418	0.405	3.1	97	0.00	5.27
10	chloroethane	0.372	0.366	1.6	94	0.00	5.44
11	Vinyl Bromide		----------NA----------				
12	Pentane	0.696	0.668	4.0	92	0.00	5.96
13	trichlorofluoromethane	0.747	0.692	7.4	88	-0.01	5.87
14	ethyl ether	0.274	0.267	2.6	98	0.00	6.29
15	acrolein	0.063	0.065	-3.2	95	0.00	6.57
16	1,1-dichloroethene	0.413	0.397	3.9	96	0.00	6.73
17	acetone	0.029	0.029	0.0	92	0.00	6.79
18	allyl chloride	0.255	0.237	7.1	86	0.00	7.26
19	acetonitrile	0.030	0.028	6.7	91	0.00	7.24
20	iodomethane	0.770	0.785	-1.9	98	0.00	7.02
21	iso-butyl alcohol	0.013	0.012	7.7	87	0.00	9.92
22	carbon disulfide	1.440	1.414	1.8	95	0.00	7.14
	----------	True	Calc.	% Drift	----------		
23	methylene chloride	50.000	53.154	-6.3	98	0.00	7.46
	----------	AvgRF	CCRF	% Dev	----------		
24	methyl acetate	0.061	0.057	6.6	82	0.00	7.24
25	methyl tert butyl ether	1.354	1.259	7.0	92	0.00	7.77
26	trans-1,2-dichloroethene	0.474	0.462	2.5	98	0.00	7.82
27	di-isopropyl ether	1.460	1.530	-4.8	97	0.00	8.35
28	ethyl tert-butyl ether	1.426	1.455	-2.0	94	0.00	8.82
29	2-butanone	0.039	0.040	-2.6	89	0.00	9.09
30	1,1-dichloroethane	0.832	0.832	0.0	97	0.00	8.39
31	chloroprene	0.648	0.608	6.2	85	0.00	8.49
32	acrylonitrile	0.114	0.119	-4.4	95	0.00	7.78
33	vinyl acetate	0.066	0.077	-16.7	103	0.00	8.37
34	ethyl acetate	0.045	0.045	0.0	91	0.00	9.10
35	2,2-dichloropropane	0.672	0.653	2.8	94	0.00	9.12
36	cis-1,2-dichloroethene	0.520	0.517	0.6	98	0.00	9.13
37	propionitrile	0.044	0.045	-2.3	93	0.00	9.20

Initial Calibration Verification

Job Number: JB22962 **Sample:** V3C4143-ICV4143
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3C93293.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

38		Methyl Acrylate	0.049	0.050	-2.0	90	0.00	9.18
39		bromochloromethane	0.224	0.238	-6.2	99	0.00	9.44
40		tetrahydrofuran	0.129	0.123	4.7	93	0.00	9.47
41		chloroform	0.825	0.819	0.7	98	0.00	9.49
42		tert-Butyl Formate	0.370	0.393	-6.2	96	0.00	9.52
43	S	dibromofluoromethane (s)	0.435	0.424	2.5	98	0.00	9.69
44	S	1,2-dichloroethane-d4 (s)	0.474	0.472	0.4	98	0.00	10.11
45		freon 113	0.317	0.295	6.9	82	0.00	6.69
46		methacrylonitrile	0.201	0.197	2.0	92	0.00	9.38
47		1,1,1-trichloroethane	0.706	0.711	-0.7	96	0.00	9.74
48		Cyclohexane	0.667	0.668	-0.1	93	0.00	9.80
49		Tert Amyl Alcohol	0.047	0.041	12.8	80	0.00	10.05
50		2,2,4-trimethylpentane	1.582	1.520	3.9	89	0.00	10.16
51		tert-amyl methyl ether	1.431	1.367	4.5	94	0.00	10.20
52	I	1,4-difluorobenzene	1.000	1.000	0.0	97	0.00	10.55
53		epichlorohydrin	0.021	0.021	0.0	91	0.00	11.81
54		n-butyl alcohol	0.007	0.008#	-14.3	93	0.00	10.67
55		carbon tetrachloride	0.431	0.431	0.0	94	0.00	9.94
56		1,1-dichloropropene	0.414	0.408	1.4	95	0.00	9.91
		----------	True	Calc.	% Drift	----------		
57		hexane	50.000	50.919	-1.8	89	0.00	8.10
		----------	AvgRF	CCRF	% Dev	----------		
58		benzene	1.327	1.292	2.6	98	0.00	10.18
59		heptane	0.210	0.206	1.9	91	0.00	10.33
60		isopropyl acetate	0.485	0.537	-10.7	101	0.00	10.09
61		1,2-dichloroethane	0.394	0.400	-1.5	97	0.00	10.20
62		trichloroethene	0.308	0.309	-0.3	97	0.00	10.89
63		ethyl acrylate	0.279	0.296	-6.1	95	0.00	10.89
64		Tert-Amyl ethyl ether	0.529	0.545	-3.0	101	0.00	11.03
65		2-nitropropane	0.093	0.089	4.3	94	0.00	11.67
66		2-chloroethyl vinyl ether	0.116	0.124	-6.9	96	0.00	11.68
67		methyl methacrylate	0.071	0.071	0.0	93	0.00	11.15
68		1,2-dichloropropane	0.321	0.329	-2.5	99	0.00	11.16
69		methylcyclohexane	0.505	0.481	4.8	87	0.00	11.10
70		dibromomethane	0.168	0.169	-0.6	95	0.00	11.32
71		bromodichloromethane	0.421	0.428	-1.7	98	0.00	11.45
72		cis-1,3-dichloropropene	0.503	0.507	-0.8	98	0.00	11.89
73	S	toluene-d8 (s)	1.125	1.097	2.5	97	0.00	12.17
74		4-methyl-2-pentanone	0.095	0.096	-1.1	93	0.00	11.98
75		toluene	0.814	0.810	0.5	98	0.00	12.25
76		3-methyl-1-butanol	0.007	0.007#	0.0	88	0.00	12.00
77		trans-1,3-dichloropropene	0.444	0.441	0.7	96	0.00	12.45
78		ethyl methacrylate	0.333	0.347	-4.2	95	0.00	12.43
79		1,1,2-trichloroethane	0.202	0.201	0.5	96	0.00	12.66
80		2-hexanone	0.084	0.084	0.0	94	0.00	12.82
81	I	chlorobenzene-d5	1.000	1.000	0.0	97	0.00	13.67
82		tetrachloroethene	0.407	0.402	1.2	95	0.00	12.82
83		1,3-dichloropropane	0.526	0.529	-0.6	97	0.00	12.84
84		butyl acetate	0.196	0.205	-4.6	95	0.00	12.89
85		dibromochloromethane	0.360	0.376	-4.4	98	0.00	13.10
86		1,2-dibromoethane	0.290	0.299	-3.1	97	0.00	13.26
87		3,3-Dimethyl-1-Butanol	0.029	0.029	0.0	91	0.00	12.99
88		chlorobenzene	1.087	1.088	-0.1	99	0.00	13.70
89		1,1,1,2-tetrachloroethane	0.406	0.421	-3.7	100	0.00	13.76
90		ethylbenzene	1.852	1.821	1.7	98	0.00	13.75
91		m,p-xylene	0.729	0.712	2.3	98	0.00	13.85

Initial Calibration Verification

Job Number: JB22962 **Sample:** V3C4143-ICV4143
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3C93293.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

92		o-xylene	0.740	0.731	1.2	98	0.00	14.27
93		styrene	1.160	1.183	-2.0	99	0.00	14.28
94		BUTYL ACRYLATE		----------NA----------				
95		bromoform	0.228	0.233	-2.2	94	0.00	14.55
96	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	95	0.00	15.96
97		isopropylbenzene	3.529	3.509	0.6	97	0.00	14.60
98	S	4-bromofluorobenzene (s)	0.996	1.002	-0.6	101	0.00	14.81
99		bromobenzene	0.889	0.892	-0.3	99	0.00	15.01
100		cyclohexanone	0.023	0.020	13.0	81	0.00	14.78
101		1,1,2,2-tetrachloroethane	0.754	0.732	2.9	95	0.00	14.92
102		trans-1,4-dichloro-2-bute	0.179	0.168	6.1	89	0.00	14.96
103		1,2,3-trichloropropane	0.201	0.206	-2.5	95	0.00	14.99
104		n-propylbenzene	3.924	3.881	1.1	98	0.00	15.01
105		4-Ethyltoluene	3.411	3.474	-1.8	102	0.00	15.11
106		2-chlorotoluene	0.874	0.857	1.9	100	0.00	15.16
107		4-chlorotoluene	0.846	0.849	-0.4	99	0.00	15.25
108		1,3,5-trimethylbenzene	2.940	2.958	-0.6	100	0.00	15.15
109		tert-butylbenzene	2.622	2.589	1.3	98	0.00	15.50
110		pentachloroethane	0.566	0.589	-4.1	100	0.00	15.59
111		1,2,4-trimethylbenzene	2.958	2.976	-0.6	100	0.00	15.55
112		sec-butylbenzene	3.715	3.698	0.5	99	0.00	15.71
113		1,3-dichlorobenzene	1.632	1.645	-0.8	101	0.00	15.91
114		p-isopropyltoluene	3.083	3.038	1.5	100	0.00	15.83
115		1,4-dichlorobenzene	1.657	1.648	0.5	101	0.00	15.99
116		1,2-dichlorobenzene	1.593	1.602	-0.6	100	0.00	16.38
117		1,4-Diethylbenzene	1.820	1.889	-3.8	106	0.00	16.21
118		n-butylbenzene	1.518	1.532	-0.9	102	0.00	16.24
119		1,2,4,5-Tetramethylbenzen	2.913	3.050	-4.7	108	0.00	16.99
120		1,2-dibromo-3-chloropropa	0.138	0.128	7.2	92	0.00	17.15
121		1,3,5-Trichlorobenzene	1.131	1.143	-1.1	104	0.00	17.33
122		1,2,4-trichlorobenzene	0.939	0.974	-3.7	103	0.00	17.96
123		hexachlorobutadiene	0.619	0.641	-3.6	107	0.00	18.07
124		naphthalene	1.963	2.022	-3.0	96	0.00	18.25
125		1,2,3-trichlorobenzene	0.890	0.923	-3.7	100	0.00	18.50
126		hexachloroethane	0.625	0.621	0.6	100	0.00	16.63
127		Benzyl chloride	0.986	0.918	6.9	93	0.00	16.11

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3C93288.D M3C4143.M Fri Nov 30 15:35:20 2012 ACCNJ

6.7.2

6

Continuing Calibration Summary

Job Number: JB22962 **Sample:** V3C4159-CC4143
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3C93678.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\3C\v3c4158-59\3C93678.D    Vial: 26
Acq On    : 12 Dec 2012  10:22 pm                    Operator: JUNTAEP
Sample    : cc4143-50                                Inst    : MS3C
Misc      : MS40093,V3C4159,5.0,,,,1                 Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3C4143.M (RTE Integrator)
Title        : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
Last Update  : Mon Sep 13 11:48:20 2010
Response via : Multiple Level Calibration

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

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	111	0.00	7.40
2	1,4-dioxane	0.142	0.139	2.1	118	0.00	11.26
3	tertiary butyl alcohol	1.456	1.427	2.0	111	-0.02	7.51
4 I	pentafluorobenzene	1.000	1.000	0.0	113	0.00	9.63
5	chlorodifluoromethane	0.420	0.396	5.7	104	-0.01	4.00
6	dichlorodifluoromethane	0.567	0.562	0.9	106	-0.01	3.98
7	chloromethane	0.622	0.550	11.6	104	-0.01	4.34
8	vinyl chloride	0.672	0.649	3.4	108	-0.01	4.59
9	bromomethane	0.418	0.390	6.7	108	-0.02	5.26
10	chloroethane	0.372	0.374	-0.5	112	-0.02	5.43
11	Vinyl Bromide		----------NA----------				
12	Pentane		----------NA----------				
13	trichlorofluoromethane	0.747	0.746	0.1	111	0.00	5.87
14	ethyl ether	0.274	0.249	9.1	106	0.00	6.29
15	acrolein	0.063	0.064	-1.6	109	0.00	6.56
16	1,1-dichloroethene	0.413	0.367	11.1	103	-0.01	6.72
17	acetone	0.029	0.030	-3.4	112	0.00	6.79
18	allyl chloride	0.255	0.261	-2.4	109	0.00	7.26
19	acetonitrile	0.030	0.029	3.3	110	-0.01	7.24
20	iodomethane	0.770	0.689	10.5	99	-0.01	7.01
21	iso-butyl alcohol	0.013	0.012	7.7	106	0.00	9.92
22	carbon disulfide	1.440	1.305	9.4	102	-0.01	7.13
	----------	True	Calc.	% Drift	----------		
23	methylene chloride	50.000	50.082	-0.2	107	0.00	7.45
	----------	AvgRF	CCRF	% Dev	----------		
24	methyl acetate	0.061	0.067	-9.8	113	0.00	7.24
25	methyl tert butyl ether	1.354	1.246	8.0	105	0.00	7.76
26	trans-1,2-dichloroethene	0.474	0.439	7.4	108	0.00	7.82
27	di-isopropyl ether	1.460	1.600	-9.6	117	0.00	8.34
28	ethyl tert-butyl ether	1.426	1.562	-9.5	117	0.00	8.81
29	2-butanone	0.039	0.042	-7.7	108	0.00	9.09
30	1,1-dichloroethane	0.832	0.789	5.2	107	0.00	8.39
31	chloroprene	0.648	0.703	-8.5	114	0.00	8.49
32	acrylonitrile	0.114	0.113	0.9	105	-0.01	7.78
33	vinyl acetate	0.066	0.072	-9.1	112	-0.01	8.36
34	ethyl acetate	0.045	0.047	-4.4	112	0.00	9.10
35	2,2-dichloropropane	0.672	0.651	3.1	109	0.00	9.12
36	cis-1,2-dichloroethene	0.520	0.489	6.0	107	0.00	9.12
37	propionitrile	0.044	0.044	0.0	107	0.00	9.20

Continuing Calibration Summary

Job Number: JB22962 **Sample:** V3C4159-CC4143
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3C93678.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

38		Methyl Acrylate	0.049	0.051	-4.1	107	0.00	9.18
39		bromochloromethane	0.224	0.221	1.3	106	0.00	9.44
40		tetrahydrofuran	0.129	0.121	6.2	106	0.00	9.47
41		chloroform	0.825	0.781	5.3	109	0.00	9.48
42		tert-Butyl Formate	0.370	0.406	-9.7	115	0.00	9.51
43	S	dibromofluoromethane (s)	0.435	0.401	7.8	108	0.00	9.69
44	S	1,2-dichloroethane-d4 (s)	0.474	0.408	13.9	99	0.00	10.11
45		freon 113	0.317	0.347	-9.5	113	0.00	6.69
46		methacrylonitrile	0.201	0.189	6.0	103	-0.01	9.37
47		1,1,1-trichloroethane	0.706	0.676	4.2	106	0.00	9.74
48		Cyclohexane	0.667	0.662	0.7	107	0.00	9.80
49		Tert Amyl Alcohol		----------NA----------				
50		2,2,4-trimethylpentane	1.582	1.776	-12.3	121	0.00	10.15
51		tert-amyl methyl ether	1.431	1.464	-2.3	117	0.00	10.20
52	I	1,4-difluorobenzene	1.000	1.000	0.0	117	0.00	10.54
53		epichlorohydrin	0.021	0.023	-9.5	120	0.00	11.80
54		n-butyl alcohol	0.007	0.008#	-14.3	112	0.00	10.67
55		carbon tetrachloride	0.431	0.393	8.8	104	0.00	9.93
56		1,1-dichloropropene	0.414	0.394	4.8	110	0.00	9.91
		----------	True	Calc.	% Drift	----------		
57		hexane	50.000	57.362	-14.7	120	0.00	8.10
		----------	AvgRF	CCRF	% Dev	----------		
58		benzene	1.327	1.215	8.4	111	0.00	10.18
59		heptane	0.210	0.237	-12.9	125	0.00	10.33
60		isopropyl acetate	0.485	0.452	6.8	102	0.00	10.09
61		1,2-dichloroethane	0.394	0.369	6.3	107	0.00	10.20
62		trichloroethene	0.308	0.296	3.9	112	0.00	10.89
63		ethyl acrylate		----------NA----------				
64		Tert-Amyl ethyl ether		----------NA----------				
65		2-nitropropane	0.093	0.088	5.4	113	0.00	11.67
66		2-chloroethyl vinyl ether	0.116	0.146	-25.9#	137	0.00	11.67
67		methyl methacrylate	0.071	0.066	7.0	104	0.00	11.15
68		1,2-dichloropropane	0.321	0.307	4.4	112	0.00	11.15
69		methylcyclohexane	0.505	0.550	-8.9	120	0.00	11.10
70		dibromomethane	0.168	0.158	6.0	108	0.00	11.32
71		bromodichloromethane	0.421	0.401	4.8	111	0.00	11.44
72		cis-1,3-dichloropropene	0.503	0.493	2.0	114	0.00	11.89
73	S	toluene-d8 (s)	1.125	1.138	-1.2	121	0.00	12.17
74		4-methyl-2-pentanone	0.095	0.092	3.2	108	0.00	11.98
75		toluene	0.814	0.771	5.3	113	0.00	12.25
76		3-methyl-1-butanol	0.007	0.008#	-14.3	111	0.00	12.00
77		trans-1,3-dichloropropene	0.444	0.432	2.7	114	0.00	12.45
78		ethyl methacrylate	0.333	0.331	0.6	109	0.00	12.42
79		1,1,2-trichloroethane	0.202	0.193	4.5	112	0.00	12.66
80		2-hexanone	0.084	0.080	4.8	107	0.00	12.82
81	I	chlorobenzene-d5	1.000	1.000	0.0	116	0.00	13.67
82		tetrachloroethene	0.407	0.375	7.9	106	0.00	12.82
83		1,3-dichloropropane	0.526	0.499	5.1	110	0.00	12.84
84		butyl acetate	0.196	0.208	-6.1	115	0.00	12.88
85		dibromochloromethane	0.360	0.345	4.2	107	0.00	13.10
86		1,2-dibromoethane	0.290	0.280	3.4	109	0.00	13.25
87		3,3-Dimethyl-1-Butanol	0.029	0.029	0.0	110	0.00	12.99
88		chlorobenzene	1.087	1.028	5.4	112	0.00	13.70
89		1,1,1,2-tetrachloroethane	0.406	0.381	6.2	109	0.00	13.76
90		ethylbenzene	1.852	1.753	5.3	113	0.00	13.75
91		m,p-xylene	0.729	0.685	6.0	113	0.00	13.85

Continuing Calibration Summary

Job Number: JB22962 **Sample:** V3C4159-CC4143
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3C93678.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

92		o-xylene	0.740	0.691	6.6	111	0.00	14.27
93		styrene	1.160	1.103	4.9	111	0.00	14.28
94		BUTYL ACRYLATE		----------NA----------				
95		bromoform	0.228	0.212	7.0	103	0.00	14.55
96	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	111	0.00	15.96
97		isopropylbenzene	3.529	3.464	1.8	112	0.00	14.60
98	S	4-bromofluorobenzene (s)	0.996	0.981	1.5	115	0.00	14.81
99		bromobenzene	0.889	0.849	4.5	109	0.00	15.00
100		cyclohexanone	0.023	0.019	17.4	88	0.00	14.78
101		1,1,2,2-tetrachloroethane	0.754	0.724	4.0	109	0.00	14.91
102		trans-1,4-dichloro-2-bute	0.179	0.184	-2.8	113	0.00	14.96
103		1,2,3-trichloropropane	0.201	0.194	3.5	104	0.00	14.99
104		n-propylbenzene	3.924	3.923	0.0	116	0.00	15.00
105		4-Ethyltoluene		----------NA----------				
106		2-chlorotoluene	0.874	0.831	4.9	113	0.00	15.15
107		4-chlorotoluene	0.846	0.848	-0.2	116	0.00	15.25
108		1,3,5-trimethylbenzene	2.940	2.912	1.0	115	0.00	15.15
109		tert-butylbenzene	2.622	2.508	4.3	111	0.00	15.50
110		pentachloroethane	0.566	0.561	0.9	110	0.00	15.59
111		1,2,4-trimethylbenzene	2.958	2.928	1.0	115	0.00	15.54
112		sec-butylbenzene	3.715	3.695	0.5	115	0.00	15.71
113		1,3-dichlorobenzene	1.632	1.608	1.5	115	0.00	15.90
114		p-isopropyltoluene	3.083	3.033	1.6	117	0.00	15.82
115		1,4-dichlorobenzene	1.657	1.619	2.3	115	0.00	15.99
116		1,2-dichlorobenzene	1.593	1.534	3.7	112	0.00	16.38
117		1,4-Diethylbenzene		----------NA----------				
118		n-butylbenzene	1.518	1.541	-1.5	119	0.00	16.24
119		1,2,4,5-Tetramethylbenzen		----------NA----------				
120		1,2-dibromo-3-chloropropa	0.138	0.120	13.0	100	0.00	17.15
121		1,3,5-Trichlorobenzene	1.131	1.197	-5.8	127	0.00	17.32
122		1,2,4-trichlorobenzene	0.939	0.983	-4.7	121	0.00	17.96
123		hexachlorobutadiene	0.619	0.604	2.4	117	0.00	18.07
124		naphthalene	1.963	1.831	6.7	101	0.00	18.24
125		1,2,3-trichlorobenzene	0.890	0.866	2.7	110	0.00	18.49
126		hexachloroethane	0.625	0.604	3.4	113	0.00	16.63
127		Benzyl chloride	0.986	1.216	-23.3#	144	0.00	16.10

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3C93288.D M3C4143.M Thu Dec 13 14:00:10 2012 ACCNJ

6.7.3

6

Initial Calibration Summary

Job Number: JB22962 **Sample:** VD8248-ICC8248
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D202323.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
                         Response Factor Report  MSD

 Method       : C:\MSDCHEM\1\METHODS\MD8248.M (RTE Integrator)
 Title        : SW-846 Method 8260B
 Last Update  : Wed Nov 14 09:27:47 2012
 Response via : Initial Calibration

 Calibration Files
 5   =d202320.D   2   =d202319.D   0.5 =d202317.D   50  =d202323.D
 100 =d202324.D   1   =d202318.D   200 =d202325.D   20  =d202322.D
 10  =d202321.D       =

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

 1) I   Tert Butyl Alcohol-d9 ----------------ISTD--------------------
 2)  1,4-dioxane
           0.095             0.099 0.085       0.111 0.085 0.095   0.095   10.43
 3)  tertiary butyl alcohol
           1.196 1.328       1.194 1.145       1.101 1.087 1.138   1.170    6.94

 4) I   pentafluorobenzene    ----------------ISTD--------------------
 5)  1,2-dichloro-1,2,2-trifluoroet
                                                                     0.000#  -1.00
 6)  chlorodifluoromethane
           0.516 0.472       0.537 0.560 0.471 0.536 0.491 0.417   0.500    9.30
 7)  dichlorodifluoromethane
           0.703 0.625       0.787 0.818 0.644 0.766 0.739 0.787   0.734    9.61
 8)  chloromethane
           0.690 0.704 0.727 0.722 0.759 0.739 0.756 0.644 0.720   0.718    4.97
 9)  vinyl chloride
           0.765 0.744 0.770 0.838 0.880 0.836 0.836 0.771 0.802   0.805    5.60
10)  bromomethane
           0.442 0.456 0.368 0.460 0.478 0.450 0.344 0.425 0.462   0.432   10.56
11)  chloroethane
           0.423 0.411 0.348 0.430 0.451 0.421 0.425 0.401 0.436   0.416    7.06
12)  vinyl bromide
                                                                     0.000#  -1.00
13)  trichlorofluoromethane
           0.797 0.654       0.855 0.903 0.780 0.844 0.809 0.833   0.809    9.06
14)  pentane
           1.068 1.232       1.009 1.080 1.021       0.968 1.136   1.073    8.25
15)  ethyl ether
           0.356 0.390       0.342 0.350 0.469 0.346 0.314 0.367   0.367   12.73
16)  acrolein
           0.147 0.137 0.124 0.136 0.135 0.136 0.166 0.116 0.160   0.140   11.36
17)  chlorotrifluoroethene
                                                                     0.000#  -1.00
18)  2-chloropropane
           0.942 1.026 0.625 0.940 1.007 1.034 0.965 0.877 0.987   0.934   13.47
19)  1,1-dichloroethene
           0.525 0.544       0.506 0.540 0.635 0.519 0.466 0.546   0.535    9.00
20)  acetone
           0.035             0.061 0.061       0.061 0.048 0.055   0.054   19.83
            ----- Linear regression -----  Coefficient =  0.9997
              Response Ratio = -0.00256 + 0.06204 *A

21)  allyl chloride
           1.275 1.206 1.457 1.309 1.311 1.350 1.401 1.157 1.344   1.312    7.02
```

Initial Calibration Summary

Job Number: JB22962 **Sample:** VD8248-ICC8248
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D202323.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

22)	acetonitrile										
		0.061	0.072		0.060	0.058		0.058	0.057	0.062	0.061	8.02
23)	acetaldehyde											
											0.000#	-1.00
24)	iodomethane											
		0.882	0.861	0.853	0.924	0.986	0.912	0.952	0.835	0.968	0.908	5.94
25)	iso-butyl alcohol											
											0.000#	-1.00
26)	carbon disulfide											
		1.722	1.716	1.790	1.764	1.884	1.801	1.788	1.598	1.844	1.767	4.69
27)	methylene chloride											
		0.608	0.666		0.590	0.616	0.750	0.595	0.533	0.615	0.622	10.22
28)	1-chloropropane											
		0.929	0.970	1.026	0.903	1.004	1.077	0.968	0.839	0.960	0.964	7.25
29)	methyl acetate											
		0.513	0.571	0.466	0.529	0.529	0.600	0.513	0.476	0.450	0.516	9.41
30)	methyl tert butyl ether											
		1.711	1.822	2.313	1.788	1.858	1.915	1.811	1.616	1.904	1.860	10.43
31)	trans-1,2-dichloroethene											
		0.561	0.593		0.552	0.571	0.650	0.553	0.503	0.583	0.571	7.33
32)	di-isopropyl ether											
		1.810	1.860	1.438	1.865	1.873	1.746	1.845	1.685	1.533	1.740	9.10
33)	ethyl tert-butyl ether											
		1.807	1.853	1.433	1.897	1.904	1.689	1.880	1.707	1.570	1.749	9.36
34)	2-butanone											
		0.055			0.070	0.073		0.075	0.062	0.067	0.067	11.14
35)	1,1-dichloroethane											
		0.919	0.928	0.982	0.951	1.002	0.928	0.974	0.866	0.986	0.948	4.49
36)	chloroprene											
		0.769	0.751		0.821	0.854	0.696	0.833	0.727	0.626	0.760	10.12
37)	acrylonitrile											
		0.232	0.237	0.273	0.246	0.252	0.229	0.246	0.221	0.261	0.244	6.73
38)	vinyl acetate											
		0.091	0.092		0.112	0.112		0.110	0.102	0.085	0.101	11.06
39)	ethyl acetate											
		0.084	0.080		0.090	0.084	0.078	0.084	0.082	0.076	0.082	5.20
40)	2,2-dichloropropane											
		0.798	0.816	0.912	0.782	0.828	0.871	0.786	0.730	0.854	0.820	6.60
41)	cis-1,2-dichloroethene											
		0.608	0.638	0.799	0.598	0.615	0.724	0.598	0.543	0.629	0.639	12.04
42)	propionitrile											
		0.090	0.096	0.122	0.097	0.099	0.091	0.096	0.086	0.102	0.098	10.38
43)	bromochloromethane											
		0.282	0.289	0.296	0.294	0.307	0.265	0.298	0.263	0.311	0.289	5.80
44)	tetrahydrofuran											
		0.076	0.079		0.086	0.089		0.088	0.075	0.087	0.083	7.25
45)	chloroform											
		0.882	0.892	1.006	0.921	0.956	0.908	0.928	0.833	0.960	0.921	5.47
46)	dibromofluoromethane (s)											
		0.462	0.498	0.588	0.493	0.507	0.500	0.496	0.441	0.467	0.495	8.33
47)	1,2-dichloroethane-d4 (s)											
		0.563	0.567	0.545	0.592	0.598	0.564	0.587	0.533	0.574	0.569	3.72
48)	freon 113											
		0.406	0.324		0.423	0.438		0.429	0.394	0.331	0.392	11.89
49)	methacrylonitrile											
		0.372	0.373	0.431	0.383	0.392	0.405	0.383	0.351	0.406	0.388	6.09
50)	t-butyl formate											
		0.619	0.601	0.435	0.651	0.660	0.566	0.645	0.584	0.542	0.589	11.95
51)	1,1,1-trichloroethane											
		0.792	0.776	0.871	0.836	0.887	0.787	0.855	0.757	0.859	0.825	5.71

Initial Calibration Summary

Job Number: JB22962 **Sample:** VD8248-ICC8248
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D202323.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
52)  tert-amyl methyl ether
           1.822 1.904 1.515 1.898 1.911 1.758 1.885 1.703 1.574   1.774    8.41

53) I   1,4-difluorobenzene   ----------------ISTD--------------------
54)  cyclohexane
           0.544 0.473 0.469 0.565 0.590 0.549 0.569 0.511 0.600   0.541    8.79
55)  tert amyl alcohol
           0.017 0.016       0.017 0.016 0.014 0.017 0.015 0.017   0.016    7.15
56)  2,2,4-trimethylpentane
           1.383 1.182 1.002 1.496 1.551 1.227 1.568 1.342 1.175   1.325   14.62
57)  epichlorohydrin
           0.047 0.050 0.039 0.049 0.048 0.048 0.048 0.045 0.044   0.046    7.38
58)  n-butyl alcohol
           0.014 0.016 0.012 0.014 0.014 0.018 0.014 0.013 0.013   0.014   12.44
59)  carbon tetrachloride
           0.457 0.435 0.452 0.485 0.510 0.458 0.497 0.428 0.501   0.469    6.35
60)  1,1-dichloropropene
           0.462 0.445 0.490 0.472 0.498 0.467 0.480 0.417 0.491   0.469    5.42
61)  hexane
           0.425 0.374 0.360 0.439 0.450 0.407 0.440 0.396 0.346   0.404    9.32
62)  benzene
           1.388 1.362 1.573 1.434 1.472 1.470 1.425 1.257 1.482   1.429    6.20
63)  heptane
           0.262 0.216       0.273 0.277       0.274 0.249 0.212   0.252   10.96
64)  isopropyl acetate
           0.741 0.759 0.613 0.765 0.757 0.755 0.751 0.688 0.633   0.718    8.17
65)  1,2-dichloroethane
           0.454 0.454 0.501 0.484 0.495 0.456 0.481 0.421 0.495   0.471    5.60
66)  Ethyl Acrylate
           0.470 0.485 0.445 0.515 0.518 0.495 0.517 0.444 0.499   0.487    5.97
67)  trichloroethene
           0.341 0.316 0.363 0.358 0.370 0.340 0.359 0.311 0.360   0.346    6.09
68)  2-nitropropane
           1.021 1.012 0.917 1.074 1.070 1.044 1.047 0.940 0.913   1.004    6.40
69)  2-chloroethyl vinyl ether
           0.258 0.259 0.196 0.278 0.277 0.246 0.272 0.246 0.234   0.252   10.24
70)  methyl methacrylate
           0.098 0.099 0.101 0.115 0.121 0.091 0.118 0.099 0.111   0.106    9.82
71)  tert-amyl ethyl ether
           0.592 0.582 0.549 0.604 0.613 0.589 0.613 0.526 0.595   0.585    4.99
72)  1,2-dichloropropane
           0.355 0.355 0.363 0.382 0.395 0.379 0.388 0.334 0.379   0.370    5.26
73)  methylcyclohexane
           0.626 0.533       0.653 0.675 0.530 0.662 0.590 0.517   0.598   10.82
74)  dibromomethane
           0.211 0.216 0.243 0.236 0.240 0.210 0.236 0.203 0.239   0.226    6.90
75)  bromodichloromethane
           0.446 0.436 0.463 0.494 0.503 0.423 0.499 0.416 0.487   0.463    7.34
76)  cis-1,3-dichloropropene
           0.589 0.601 0.685 0.629 0.644 0.620 0.626 0.556 0.657   0.623    6.12
77)  toluene-d8 (s)
           1.221 1.245 1.402 1.287 1.291 1.294 1.259 1.164 1.246   1.268    5.11
78)  4-methyl-2-pentanone
           0.153 0.163 0.182 0.172 0.176 0.141 0.173 0.151 0.173   0.165    8.40
79)  toluene
           0.884 0.876 1.031 0.919 0.951 0.906 0.921 0.822 0.949   0.918    6.36
80)  3-methyl-1-butanol
           0.014 0.014 0.010 0.015 0.014 0.017 0.014 0.013 0.013   0.014   13.12
81)  trans-1,3-dichloropropene
           0.555 0.576 0.689 0.603 0.619 0.595 0.604 0.526 0.611   0.598    7.59
```

Initial Calibration Summary

Job Number: JB22962 **Sample:** VD8248-ICC8248
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D202323.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
 82)  ethyl methacrylate
            0.472 0.458 0.543 0.546 0.572 0.472 0.559 0.472 0.524   0.513    8.68
 83)  1,1,2-trichloroethane
            0.269 0.252 0.301 0.287 0.297 0.277 0.291 0.259 0.303   0.282    6.60
 84)  2-hexanone
            0.133 0.132 0.151 0.154 0.164 0.132 0.165 0.135 0.151   0.146    9.25

 85) I   chlorobenzene-d5      ----------------ISTD--------------------
 86)  tetrachloroethene
            0.406 0.402 0.429 0.433 0.445 0.415 0.421 0.387 0.445   0.420    4.72
 87)  1,3-dichloropropane
            0.574 0.595 0.681 0.618 0.626 0.593 0.609 0.547 0.632   0.608    6.25
 88)  butyl acetate
            0.274 0.289 0.200 0.297 0.285 0.314 0.283 0.268 0.264   0.275   11.66
 89)  3,3-dimethyl-1-butanol
            0.049 0.050 0.039 0.052 0.049 0.065 0.052 0.046 0.046   0.050   13.82
 90)  dibromochloromethane
            0.380 0.382 0.403 0.429 0.440 0.381 0.430 0.365 0.415   0.403    6.67
 91)  1,2-dibromoethane
            0.354 0.360 0.384 0.386 0.394 0.349 0.383 0.340 0.394   0.372    5.61
 92)  chlorobenzene
            1.022 1.017 1.191 1.052 1.078 1.057 1.048 0.945 1.080   1.055    6.20
 93)  1,1,1,2-tetrachloroethane
            0.366 0.363 0.451 0.405 0.410 0.398 0.405 0.348 0.407   0.395    7.95
 94)  ethylbenzene
            1.747 1.776 2.054 1.817 1.868 1.881 1.807 1.618 1.886   1.828    6.50
 95)  m,p-xylene
            0.691 0.693 0.771 0.724 0.737 0.714 0.716 0.642 0.743   0.714    5.19
 96)  o-xylene
            0.690 0.672 0.772 0.717 0.740 0.700 0.727 0.636 0.745   0.711    5.83
 97)  styrene
            1.085 1.073 1.235 1.232 1.276 1.139 1.252 1.055 1.207   1.173    7.29
 98)  bromoform
            0.297 0.291 0.367 0.340 0.357 0.287 0.357 0.286 0.325   0.323   10.33

 99) I   1,4-dichlorobenzene-d ----------------ISTD--------------------
100)  isopropylbenzene
            3.038 3.042 3.541 2.996 3.083 3.082 2.962 2.768 3.168   3.075    6.72
101)  4-bromofluorobenzene (s)
            0.904 0.966       0.871 0.874 1.080 0.863 0.793 0.869   0.903    9.56
102)  bromobenzene
            0.805 0.834 1.050 0.828 0.841 0.876 0.816 0.749 0.864   0.852    9.75
103)  cyclohexanone
            0.013 0.016 0.014 0.024 0.018 0.012 0.021 0.015 0.016   0.017   23.48
             ----- Linear regression -----  Coefficient =  0.9924
               Response Ratio = -0.00571 + 0.02063 *A

104)  1,1,2,2-tetrachloroethane
            0.858 0.902       0.857 0.866 0.945 0.846 0.775 0.915   0.871    5.93
105)  trans-1,4-dichloro-2-butene
            0.242 0.254 0.337 0.268 0.273 0.259 0.271 0.231 0.270   0.267   11.13
106)  1,2,3-trichloropropane
            0.259 0.258 0.321 0.256 0.261 0.240 0.252 0.233 0.274   0.262    9.63
107)  n-propylbenzene
            3.454 3.529 4.100 3.449 3.552 3.704 3.408 3.144 3.653   3.555    7.32
108)  p-ethyltoluene
            2.979 2.998 3.451 2.834 2.883 3.204 2.834 2.635 2.994   2.979    7.90
109)  2-chlorotoluene
            0.743 0.750 0.843 0.726 0.748 0.752 0.730 0.668 0.771   0.748    6.14
110)  4-chlorotoluene
```

Initial Calibration Summary

Job Number: JB22962 **Sample:** VD8248-ICC8248
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D202323.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
            2.241 2.326 3.066 2.225 2.287 2.508 2.241 1.994 2.352   2.360   12.59
111)  1,3,5-trimethylbenzene
            2.630 2.622 3.231 2.600 2.672 2.745 2.656 2.379 2.737   2.697    8.42
112)  tert-butylbenzene
            2.274 2.266 2.861 2.320 2.385 2.393 2.302 2.123 2.395   2.369    8.58
113)  pentachloroethane
            0.505 0.522 0.635 0.515 0.531 0.533 0.531 0.470 0.528   0.530    8.32
114)  1,2,4-trimethylbenzene
            2.702 2.665 3.410 2.696 2.772 2.907 2.707 2.423 2.850   2.793    9.60
115)  sec-butylbenzene
            3.412 3.334 4.034 3.389 3.529 3.571 3.365 3.134 3.611   3.487    7.18
116)  1,3-dichlorobenzene
            1.584 1.591 1.967 1.585 1.623 1.652 1.569 1.424 1.658   1.628    8.87
117)  p-isopropyltoluene
            2.918 2.903 3.583 2.836 2.968 3.085 2.838 2.615 2.982   2.970    8.89
118)  1,4-dichlorobenzene
            1.607 1.691 2.179 1.653 1.683 1.696 1.624 1.469 1.722   1.702   11.38
119)  Benzyl Chloride
            2.063 2.130 2.102 2.020 1.919 2.390 1.874 1.854 1.827   2.020    8.82
120)  p-diethylbenzene
            1.742 1.862 2.325 1.714 1.745 1.951 1.725 1.575 1.780   1.824   11.75
121)  1,2-dichlorobenzene
            1.565 1.610 2.037 1.583 1.602 1.683 1.540 1.433 1.675   1.636   10.23
122)  n-butylbenzene
            1.484 1.487 1.839 1.534 1.612 1.550 1.560 1.366 1.581   1.557    8.19
123)  1,2,4,5-tetramethylbenzene
            2.987 2.976 3.184 2.773 2.641 3.070 2.572 2.629 2.965   2.866    7.61
124)  1,2-dibromo-3-chloropropane
            0.188 0.226       0.166 0.159       0.157 0.159 0.186   0.177   14.24
125)  1,3,5-trichlorobenzene
            1.287 1.294 1.738 1.269 1.216 1.347 1.161 1.199 1.375   1.321   12.94
126)  1,2,4-trichlorobenzene
            1.004 1.003       1.059 0.950 0.939 0.931 1.000 1.139   1.003    6.93
127)  hexachlorobutadiene
            0.633 0.671       0.597 0.535 0.724 0.532 0.589 0.683   0.620   11.27
128)  naphthalene
            2.390 2.392       2.375 2.040 2.405 1.990 2.308 2.676   2.322    9.41
129)  1,2,3-trichlorobenzene
            0.858 0.868       0.848 0.705 0.868 0.677 0.849 0.975   0.831   11.56
130)  hexachloroethane
            0.577 0.629 0.686 0.547 0.549 0.637 0.561 0.496 0.544   0.581   10.11
 ----------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           MD8248.M          Wed Nov 14 10:02:39 2012
```

Initial Calibration Verification

Job Number: JB22962 **Sample:** VD8248-ICV8248
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D202327.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\d202327.D Vial: 12
Acq On : 13 Nov 2012 5:53 pm Operator: EmilyT
Sample : ICV8248-50 Inst : MSD
Misc : ms38524,vd8248,5,,100,5,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method : C:\MSDCHEM\1\METHODS\MD8248.M (RTE Integrator)
Title : SW-846 Method 8260B
Last Update : Wed Nov 14 09:27:47 2012
Response via : Multiple Level Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	96	0.00	8.04
2	M	1,4-dioxane	0.095	0.089	6.3	86	0.00	11.91
3	M	tertiary butyl alcohol	1.170	1.200	-2.6	97	0.00	8.15
4	I	pentafluorobenzene	1.000	1.000	0.0	98	0.00	10.27
5	M	1,2-dichloro-1,2,2-triflu		----------NA----------				
6	M	chlorodifluoromethane	0.500	0.509	-1.8	93	0.00	4.58
7	M	dichlorodifluoromethane	0.734	0.751	-2.3	94	0.00	4.56
8	M	chloromethane	0.718	0.700	2.5	95	0.00	4.92
9	M	vinyl chloride	0.805	0.808	-0.4	95	0.00	5.21
10	M	bromomethane	0.432	0.460	-6.5	98	0.00	5.87
11	M	chloroethane	0.416	0.427	-2.6	97	0.00	6.06
12	M	vinyl bromide		----------NA----------				
13	M	trichlorofluoromethane	0.809	0.843	-4.2	97	0.00	6.58
14		pentane	1.073	1.109	-3.4	108	0.00	6.65
15	M	ethyl ether	0.367	0.350	4.6	101	0.00	6.97
16	M	acrolein	0.140	0.135	3.6	97	0.00	7.20
17	M	chlorotrifluoroethene		----------NA----------				
18	M	2-chloropropane	0.934	0.962	-3.0	101	0.00	7.17
19	M	1,1-dichloroethene	0.535	0.520	2.8	101	0.00	7.40
		----------	True	Calc.	% Drift	----------		
20	M	acetone	50.000	50.676	-1.4	97	0.00	7.42
		----------	AvgRF	CCRF	% Dev	----------		
21	M	allyl chloride	1.312	1.259	4.0	94	0.00	7.91
22	M	acetonitrile	0.061	0.060	1.6	97	0.00	7.85
23	M	acetaldehyde		----------NA----------				
24	M	iodomethane	0.908	0.957	-5.4	102	0.00	7.67
25	M	iso-butyl alcohol		----------NA----------				
26	M	carbon disulfide	1.767	1.810	-2.4	101	0.00	7.81
27	M	methylene chloride	0.622	0.599	3.7	100	0.00	8.08
28	M	1-chloropropane	0.964	0.934	3.1	102	0.00	8.14
29	M	methyl acetate	0.516	0.490	5.0	91	0.00	7.89
30	M	methyl tert butyl ether	1.860	1.780	4.3	98	0.00	8.45
31	M	trans-1,2-dichloroethene	0.571	0.554	3.0	99	0.00	8.47
32	M	di-isopropyl ether	1.740	1.887	-8.4	99	0.00	9.05
33	M	ethyl tert-butyl ether	1.749	1.862	-6.5	96	0.00	9.51
34	M	2-butanone	0.067	0.076	-13.4	105	0.00	9.71
35	M	1,1-dichloroethane	0.948	0.969	-2.2	100	0.00	9.02
36	M	chloroprene	0.760	0.764	-0.5	91	0.00	9.14
37	M	acrylonitrile	0.244	0.251	-2.9	100	0.00	8.39

Initial Calibration Verification

Job Number: JB22962 **Sample:** VD8248-ICV8248
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D202327.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

38	M	vinyl acetate	0.101	0.125	-23.8#	110	0.00	9.01
39	M	ethyl acetate	0.082	0.089	-8.5	97	0.00	9.74
40	M	2,2-dichloropropane	0.820	0.775	5.5	97	0.00	9.78
41	M	cis-1,2-dichloroethene	0.639	0.604	5.5	99	0.00	9.75
42	M	propionitrile	0.098	0.097	1.0	98	0.00	9.79
43	M	bromochloromethane	0.289	0.300	-3.8	100	0.00	10.05
44	M	tetrahydrofuran	0.083	0.087	-4.8	100	0.00	10.11
45	M	chloroform	0.921	0.927	-0.7	99	0.00	10.11
46	S	dibromofluoromethane (s)	0.495	0.492	0.6	98	0.00	10.30
47	S	1,2-dichloroethane-d4 (s)	0.569	0.590	-3.7	98	0.00	10.72
48	M	freon 113	0.392	0.411	-4.8	95	0.00	7.38
49	M	methacrylonitrile	0.388	0.389	-0.3	100	0.00	9.99
50	m	t-butyl formate	0.589	0.662	-12.4	100	0.00	10.17
51	M	1,1,1-trichloroethane	0.825	0.859	-4.1	101	0.00	10.40
52	M	tert-amyl methyl ether	1.774	1.850	-4.3	96	0.00	10.88
53	I	1,4-difluorobenzene	1.000	1.000	0.0	100	0.00	11.18
54	M	cyclohexane	0.541	0.571	-5.5	101	0.00	10.49
55		tert amyl alcohol	0.016	0.017	-3.1	97	0.00	10.67
56	M	2,2,4-trimethylpentane	1.325	1.317	0.6	88	0.00	10.88
57	M	epichlorohydrin	0.046	0.046	0.0	94	0.00	12.44
58	M	n-butyl alcohol	0.014	0.015	-7.1	101	0.00	11.27
59	M	carbon tetrachloride	0.469	0.493	-5.1	101	0.00	10.60
60	M	1,1-dichloropropene	0.469	0.474	-1.1	100	0.00	10.57
61	M	hexane	0.404	0.407	-0.7	93	0.00	8.80
62	M	benzene	1.429	1.425	0.3	99	0.00	10.83
63	M	heptane	0.252	0.282	-11.9	104	0.00	11.02
64	M	isopropyl acetate	0.718	0.765	-6.5	100	0.00	10.74
65	M	1,2-dichloroethane	0.471	0.482	-2.3	100	0.00	10.82
66		Ethyl Acrylate	0.487	0.517	-6.2	100	0.00	11.52
67	M	trichloroethene	0.346	0.354	-2.3	99	0.00	11.53
68	M	2-nitropropane	1.004	1.079	-7.5	100	0.00	12.33
69	M	2-chloroethyl vinyl ether	0.252	0.281	-11.5	101	0.00	12.33
70	M	methyl methacrylate	0.106	0.114	-7.5	99	0.00	11.80
71	M	tert-amyl ethyl ether	0.585	0.597	-2.1	99	0.00	11.72
72	M	1,2-dichloropropane	0.370	0.382	-3.2	100	0.00	11.80
73	M	methylcyclohexane	0.598	0.625	-4.5	96	0.00	11.80
74	M	dibromomethane	0.226	0.234	-3.5	99	0.00	11.94
75	M	bromodichloromethane	0.463	0.486	-5.0	98	0.00	12.07
76	M	cis-1,3-dichloropropene	0.623	0.624	-0.2	99	0.00	12.56
77	S	toluene-d8 (s)	1.268	1.251	1.3	97	0.00	12.89
78	M	4-methyl-2-pentanone	0.165	0.172	-4.2	100	0.00	12.67
79	M	toluene	0.918	0.919	-0.1	100	0.00	12.97
80	M	3-methyl-1-butanol	0.014	0.014	0.0	93	0.00	12.66
81	M	trans-1,3-dichloropropene	0.598	0.599	-0.2	99	0.00	13.15
82	M	ethyl methacrylate	0.513	0.544	-6.0	100	0.00	13.16
83	M	1,1,2-trichloroethane	0.282	0.291	-3.2	101	0.00	13.38
84	M	2-hexanone	0.146	0.163	-11.6	106	0.00	13.58
85	I	chlorobenzene-d5	1.000	1.000	0.0	102	0.00	14.52
86	M	tetrachloroethene	0.420	0.433	-3.1	102	0.00	13.60
87	M	1,3-dichloropropane	0.608	0.617	-1.5	102	0.00	13.58
88	M	butyl acetate	0.275	0.291	-5.8	100	0.00	13.66
89	m	3,3-dimethyl-1-butanol	0.050	0.047	6.0	92	0.00	13.75
90	M	dibromochloromethane	0.403	0.429	-6.5	102	0.00	13.86
91	M	1,2-dibromoethane	0.372	0.389	-4.6	102	0.00	14.03
92	M	chlorobenzene	1.055	1.065	-0.9	103	0.00	14.56
93	M	1,1,1,2-tetrachloroethane	0.395	0.402	-1.8	101	0.00	14.62
94	M	ethylbenzene	1.828	1.830	-0.1	102	0.00	14.63
95	M	m,p-xylene	0.714	0.725	-1.5	102	0.00	14.75

Initial Calibration Verification

Job Number: JB22962 **Sample:** VD8248-ICV8248
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D202327.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

96	M	o-xylene	0.711	0.726	-2.1	103	0.00	15.21
97	M	styrene	1.173	1.236	-5.4	102	0.00	15.21
98	M	bromoform	0.323	0.347	-7.4	104	0.00	15.48
99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	102	0.00	17.11
100	M	isopropylbenzene	3.075	3.004	2.3	102	0.00	15.60
101	S	4-bromofluorobenzene (s)	0.903	0.862	4.5	101	0.00	15.80
102	M	bromobenzene	0.852	0.832	2.3	103	0.00	16.03
		----------	True	Calc.	% Drift	----------		
103	M	cyclohexanone	500.000	445.841	10.8	75	0.00	15.76
		----------	AvgRF	CCRF	% Dev	----------		
104	M	1,1,2,2-tetrachloroethane	0.871	0.855	1.8	102	0.00	15.89
105	M	trans-1,4-dichloro-2-bute	0.267	0.266	0.4	101	0.00	15.95
106	M	1,2,3-trichloropropane	0.262	0.261	0.4	104	0.00	15.99
107	M	n-propylbenzene	3.555	3.473	2.3	103	0.00	16.05
108	M	p-ethyltoluene	2.979	2.904	2.5	105	0.00	16.17
109	M	2-chlorotoluene	0.748	0.726	2.9	102	0.00	16.21
110	M	4-chlorotoluene	2.360	2.247	4.8	103	0.00	16.32
111	M	1,3,5-trimethylbenzene	2.697	2.567	4.8	101	0.00	16.22
112	M	tert-butylbenzene	2.369	2.307	2.6	101	0.00	16.62
113	M	pentachloroethane	0.530	0.508	4.2	101	0.00	16.69
114	M	1,2,4-trimethylbenzene	2.793	2.685	3.9	102	0.00	16.66
115	M	sec-butylbenzene	3.487	3.385	2.9	102	0.00	16.86
116	M	1,3-dichlorobenzene	1.628	1.591	2.3	102	0.00	17.05
117	M	p-isopropyltoluene	2.970	2.840	4.4	102	0.00	16.98
118	M	1,4-dichlorobenzene	1.702	1.639	3.7	101	0.00	17.14
119		Benzyl Chloride	2.020	1.846	8.6	93	0.00	17.26
120	M	p-diethylbenzene	1.824	1.698	6.9	101	0.00	17.41
121	M	1,2-dichlorobenzene	1.636	1.571	4.0	101	0.00	17.57
122	M	n-butylbenzene	1.557	1.528	1.9	102	0.00	17.44
123	M	1,2,4,5-tetramethylbenzen	2.866	2.746	4.2	101	0.00	18.28
124	M	1,2-dibromo-3-chloropropa	0.177	0.164	7.3	101	0.00	18.42
125	M	1,3,5-trichlorobenzene	1.321	1.242	6.0	100	0.00	18.65
126	M	1,2,4-trichlorobenzene	1.003	1.029	-2.6	99	0.00	19.39
127	M	hexachlorobutadiene	0.620	0.583	6.0	100	0.00	19.53
128	M	naphthalene	2.322	2.329	-0.3	100	0.00	19.70
129	M	1,2,3-trichlorobenzene	0.831	0.824	0.8	99	0.00	19.99
130	M	hexachloroethane	0.581	0.541	6.9	101	0.00	17.88

(#) = Out of Range SPCC's out = 0 CCC's out = 0
d202323.D MD8248.M Wed Nov 14 10:02:12 2012

Continuing Calibration Summary

Job Number: JB22962 **Sample:** VD8292-CC8248
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D203353.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\d203353.D                    Vial: 27
Acq On    : 13 Dec 2012  10:11 pm                     Operator: EmilyT
Sample    : CC8248-50                                 Inst    : MSD
Misc      : ms39878,vd8292,5,,100,5,1                 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\MSDCHEM\1\METHODS\MD8248.M (RTE Integrator)
Title        : SW-846 Method 8260B
Last Update  : Wed Nov 28 10:39:36 2012
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	74	-0.01	8.03
2	M	1,4-dioxane	0.095	0.087	8.4	65	-0.02	11.89
3	M	tertiary butyl alcohol	1.170	1.227	-4.9	76	-0.01	8.14
4	I	pentafluorobenzene	1.000	1.000	0.0	75	0.00	10.26
5	M	1,2-dichloro-1,2,2-triflu		----------NA----------				
6	M	chlorodifluoromethane	0.500	0.710	-42.0#	99	0.00	4.58
7	M	dichlorodifluoromethane	0.734	0.584	20.4#	56	0.00	4.57
8	M	chloromethane	0.718	0.697	2.9	72	0.00	4.92
9	M	vinyl chloride	0.805	0.795	1.2	71	0.00	5.21
10	M	bromomethane	0.432	0.386	10.6	63	0.00	5.87
11	M	chloroethane	0.416	0.410	1.4	71	0.00	6.06
12	M	vinyl bromide		----------NA----------				
13	M	trichlorofluoromethane	0.809	0.837	-3.5	73	0.00	6.58
14		pentane		----------NA----------				
15	M	ethyl ether	0.367	0.335	8.7	73	-0.01	6.97
16	M	acrolein	0.140	0.130	7.1	72	-0.01	7.18
17	M	chlorotrifluoroethene		----------NA----------				
18	M	2-chloropropane	0.934	1.207	-29.2#	96	0.00	7.16
19	M	1,1-dichloroethene	0.535	0.479	10.5	71	0.00	7.39
		----------	True	Calc.	% Drift	----------		
20	M	acetone	50.000	51.807	-3.6	76	-0.01	7.41
		----------	AvgRF	CCRF	% Dev	----------		
21	M	allyl chloride	1.312	1.255	4.3	72	0.00	7.91
22	M	acetonitrile	0.061	0.067	-9.8	83	0.00	7.83
23	M	acetaldehyde		----------NA----------				
24	M	iodomethane	0.908	0.842	7.3	68	-0.01	7.66
25	M	iso-butyl alcohol	0.000	0.004#	0.0	0#	-0.01	10.51
26	M	carbon disulfide	1.767	1.813	-2.6	77	0.00	7.80
27	M	methylene chloride	0.622	0.566	9.0	72	0.00	8.08
28	M	1-chloropropane	0.964	1.135	-17.7	94	0.00	8.14
29	M	methyl acetate	0.516	0.627	-21.5#	89	0.00	7.88
30	M	methyl tert butyl ether	1.860	1.832	1.5	77	0.00	8.44
31	M	trans-1,2-dichloroethene	0.571	0.513	10.2	70	0.00	8.47
32	M	di-isopropyl ether	1.740	2.194	-26.1#	88	-0.01	9.03
33	M	ethyl tert-butyl ether	1.749	2.059	-17.7	81	-0.01	9.49
34	M	2-butanone	0.067	0.075	-11.9	79	-0.01	9.70
35	M	1,1-dichloroethane	0.948	1.006	-6.1	79	0.00	9.02
36	M	chloroprene	0.760	0.985	-29.6#	90	0.00	9.14
37	M	acrylonitrile	0.244	0.253	-3.7	77	-0.01	8.38

Continuing Calibration Summary

Job Number: JB22962 **Sample:** VD8292-CC8248
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D203353.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

38	M	vinyl acetate	0.101	0.107	-5.9	72	0.00	9.00
39	M	ethyl acetate	0.082	0.103	-25.6#	86	-0.01	9.73
40	M	2,2-dichloropropane	0.820	0.807	1.6	77	0.00	9.77
41	M	cis-1,2-dichloroethene	0.639	0.553	13.5	69	0.00	9.74
42	M	propionitrile	0.098	0.100	-2.0	77	-0.01	9.78
43	M	bromochloromethane	0.289	0.269	6.9	68	0.00	10.05
44	M	tetrahydrofuran	0.083	0.082	1.2	72	-0.01	10.10
45	M	chloroform	0.921	0.936	-1.6	76	0.00	10.10
46	S	dibromofluoromethane (s)	0.495	0.475	4.0	72	0.00	10.29
47	S	1,2-dichloroethane-d4 (s)	0.569	0.665	-16.9	84	0.00	10.72
48	M	freon 113	0.392	0.388	1.0	69	0.00	7.38
49	M	methacrylonitrile	0.388	0.440	-13.4	86	0.00	9.98
50	m	t-butyl formate	0.589	0.712	-20.9#	82	-0.01	10.17
51	M	1,1,1-trichloroethane	0.825	0.888	-7.6	80	0.00	10.39
52	M	tert-amyl methyl ether	1.774	1.952	-10.0	77	0.00	10.87
53	I	1,4-difluorobenzene	1.000	1.000	0.0	76	0.00	11.18
54	M	cyclohexane	0.541	0.532	1.7	72	0.00	10.49
55		tert amyl alcohol		----------NA----------				
56	M	2,2,4-trimethylpentane	1.325	1.424	-7.5	73	0.00	10.87
57	M	epichlorohydrin	0.046	0.052	-13.0	81	0.00	12.44
58	M	n-butyl alcohol	0.014	0.014	0.0	76	-0.01	11.26
59	M	carbon tetrachloride	0.469	0.500	-6.6	79	0.00	10.59
60	M	1,1-dichloropropene	0.469	0.471	-0.4	76	0.00	10.56
61	M	hexane	0.404	0.453	-12.1	79	0.00	8.80
62	M	benzene	1.429	1.378	3.6	73	0.00	10.82
63	M	heptane	0.252	0.268	-6.3	75	0.00	11.02
64	M	isopropyl acetate	0.718	0.893	-24.4#	89	0.00	10.73
65	M	1,2-dichloroethane	0.471	0.527	-11.9	83	-0.01	10.80
66		Ethyl Acrylate		----------NA----------				
67	M	trichloroethene	0.346	0.335	3.2	72	0.00	11.53
68	M	2-nitropropane	1.004	1.245	-24.0#	89	0.00	12.32
69	M	2-chloroethyl vinyl ether	0.252	0.286	-13.5	79	0.00	12.32
70	M	methyl methacrylate	0.106	0.104	1.9	69	0.00	11.79
71	M	tert-amyl ethyl ether		----------NA----------				
72	M	1,2-dichloropropane	0.370	0.387	-4.6	77	0.00	11.79
73	M	methylcyclohexane	0.598	0.588	1.7	69	0.00	11.79
74	M	dibromomethane	0.226	0.225	0.4	73	0.00	11.93
75	M	bromodichloromethane	0.463	0.492	-6.3	76	0.00	12.06
76	M	cis-1,3-dichloropropene	0.623	0.603	3.2	73	0.00	12.55
77	S	toluene-d8 (s)	1.268	1.266	0.2	75	0.00	12.88
78	M	4-methyl-2-pentanone	0.165	0.179	-8.5	80	-0.01	12.66
79	M	toluene	0.918	0.853	7.1	71	0.00	12.96
80	M	3-methyl-1-butanol	0.014	0.013	7.1	71	-0.01	12.65
81	M	trans-1,3-dichloropropene	0.598	0.587	1.8	74	0.00	13.14
82	M	ethyl methacrylate	0.513	0.537	-4.7	75	0.00	13.15
83	M	1,1,2-trichloroethane	0.282	0.278	1.4	74	0.00	13.37
84	M	2-hexanone	0.146	0.166	-13.7	82	0.00	13.57
85	I	chlorobenzene-d5	1.000	1.000	0.0	75	0.00	14.52
86	M	tetrachloroethene	0.420	0.384	8.6	67	0.00	13.59
87	M	1,3-dichloropropane	0.608	0.614	-1.0	75	0.00	13.57
88	M	butyl acetate	0.275	0.329	-19.6	83	0.00	13.65
89	m	3,3-dimethyl-1-butanol	0.050	0.054	-8.0	78	-0.01	13.74
90	M	dibromochloromethane	0.403	0.406	-0.7	71	0.00	13.85
91	M	1,2-dibromoethane	0.372	0.357	4.0	69	0.00	14.03
92	M	chlorobenzene	1.055	0.982	6.9	70	0.00	14.55
93	M	1,1,1,2-tetrachloroethane	0.395	0.373	5.6	69	0.00	14.61
94	M	ethylbenzene	1.828	1.750	4.3	72	0.00	14.62
95	M	m,p-xylene	0.714	0.652	8.7	68	0.00	14.74

Continuing Calibration Summary

Job Number: JB22962 **Sample:** VD8292-CC8248
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D203353.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

96	M	o-xylene	0.711	0.667	6.2	70	0.00	15.20
97	M	styrene	1.173	1.116	4.9	68	0.00	15.20
98	M	bromoform	0.323	0.301	6.8	67	0.00	15.47
99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	72	0.00	17.10
100	M	isopropylbenzene	3.075	2.939	4.4	70	0.00	15.59
101	S	4-bromofluorobenzene (s)	0.903	0.904	-0.1	74	-0.01	15.79
102	M	bromobenzene	0.852	0.753	11.6	65	0.00	16.02
		----------	True	Calc.	% Drift	----------		
103	M	cyclohexanone	500.000	682.881	-36.6#	81	0.00	15.75
		----------	AvgRF	CCRF	% Dev	----------		
104	M	1,1,2,2-tetrachloroethane	0.871	0.867	0.5	72	0.00	15.88
105	M	trans-1,4-dichloro-2-bute	0.267	0.295	-10.5	79	-0.01	15.93
106	M	1,2,3-trichloropropane	0.262	0.248	5.3	69	0.00	15.98
107	M	n-propylbenzene	3.555	3.403	4.3	71	0.00	16.04
108	M	p-ethyltoluene		----------NA----------				
109	M	2-chlorotoluene	0.748	0.700	6.4	69	0.10	16.31
110	M	4-chlorotoluene	2.360	2.235	5.3	72	0.00	16.31
111	M	1,3,5-trimethylbenzene	2.697	2.567	4.8	71	0.00	16.21
112	M	tert-butylbenzene	2.369	2.208	6.8	68	0.00	16.61
113	M	pentachloroethane	0.530	0.510	3.8	71	0.00	16.68
114	M	1,2,4-trimethylbenzene	2.793	2.591	7.2	69	0.00	16.65
115	M	sec-butylbenzene	3.487	3.232	7.3	68	0.00	16.85
116	M	1,3-dichlorobenzene	1.628	1.431	12.1	65	0.00	17.04
117	M	p-isopropyltoluene	2.970	2.653	10.7	67	0.00	16.98
118	M	1,4-dichlorobenzene	1.702	1.488	12.6	65	0.00	17.13
119		Benzyl Chloride	2.020	1.681	16.8	60	0.00	17.25
120	M	p-diethylbenzene		----------NA----------				
121	M	1,2-dichlorobenzene	1.636	1.458	10.9	66	0.00	17.57
122	M	n-butylbenzene	1.557	1.406	9.7	66	0.00	17.44
123	M	1,2,4,5-tetramethylbenzen		----------NA----------				
124	M	1,2-dibromo-3-chloropropa	0.177	0.189	-6.8	82	-0.01	18.40
125	M	1,3,5-trichlorobenzene	1.321	1.169	11.5	66	0.00	18.64
126	M	1,2,4-trichlorobenzene	1.003	1.015	-1.2	69	0.00	19.38
127	M	hexachlorobutadiene	0.620	0.533	14.0	64	0.00	19.52
128	M	naphthalene	2.322	2.426	-4.5	73	0.00	19.70
129	M	1,2,3-trichlorobenzene	0.831	0.825	0.7	70	-0.01	19.97
130	M	hexachloroethane	0.581	0.523	10.0	68	0.00	17.87

(#) = Out of Range SPCC's out = 0 CCC's out = 0
d202323.D MD8248.M Fri Dec 14 07:55:33 2012

Continuing Calibration Summary

Job Number: JB22962 **Sample:** VD8294-CC8248
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D203400.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\d203400.D                    Vial: 27
Acq On    : 15 Dec 2012   1:32 am                     Operator: EmilyT
Sample    : CC8248-50                                 Inst    : MSD
Misc      : ms39999,vd8294,5,,100,5,1                 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\MSDCHEM\1\METHODS\MD8248.M (RTE Integrator)
Title        : SW-846 Method 8260B
Last Update  : Wed Nov 28 10:39:36 2012
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	68	-0.02	8.02
2	M	1,4-dioxane	0.095	0.081	14.7	55	-0.02	11.89
3	M	tertiary butyl alcohol	1.170	1.198	-2.4	68	-0.02	8.13
4	I	pentafluorobenzene	1.000	1.000	0.0	78	0.00	10.26
5	M	1,2-dichloro-1,2,2-triflu		----------NA----------				
6	M	chlorodifluoromethane	0.500	0.621	-24.2#	90	0.00	4.58
7	M	dichlorodifluoromethane	0.734	0.908	-23.7#	90	0.00	4.56
8	M	chloromethane	0.718	0.817	-13.8	89	0.00	4.92
9	M	vinyl chloride	0.805	0.901	-11.9	84	0.00	5.21
10	M	bromomethane	0.432	0.436	-0.9	74	0.00	5.87
11	M	chloroethane	0.416	0.434	-4.3	79	0.00	6.06
12	M	vinyl bromide		----------NA----------				
13	M	trichlorofluoromethane	0.809	0.939	-16.1	86	0.00	6.58
14		pentane		----------NA----------				
15	M	ethyl ether	0.367	0.300	18.3	69	-0.01	6.97
16	M	acrolein	0.140	0.107	23.6#	61	-0.01	7.19
17	M	chlorotrifluoroethene		----------NA----------				
18	M	2-chloropropane	0.934	1.059	-13.4	88	-0.01	7.16
19	M	1,1-dichloroethene	0.535	0.436	18.5	67	0.00	7.39
		----------	True	Calc.	% Drift	----------		
20	M	acetone	50.000	45.266	9.5	69	-0.01	7.41
		----------	AvgRF	CCRF	% Dev	----------		
21	M	allyl chloride	1.312	1.167	11.1	70	0.00	7.90
22	M	acetonitrile	0.061	0.060	1.6	78	-0.01	7.83
23	M	acetaldehyde	0.000	0.000#	0.0	0#	-0.11	5.56
24	M	iodomethane	0.908	0.796	12.3	67	-0.01	7.66
25	M	iso-butyl alcohol	0.000	0.003#	0.0	0#	-0.01	10.51
26	M	carbon disulfide	1.767	1.590	10.0	71	0.00	7.80
27	M	methylene chloride	0.622	0.501	19.5	66	-0.01	8.07
28	M	1-chloropropane	0.964	1.013	-5.1	88	0.00	8.14
29	M	methyl acetate	0.516	0.573	-11.0	85	-0.01	7.88
30	M	methyl tert butyl ether	1.860	1.584	14.8	69	-0.01	8.44
31	M	trans-1,2-dichloroethene	0.571	0.459	19.6	65	0.00	8.47
32	M	di-isopropyl ether	1.740	2.031	-16.7	85	-0.01	9.03
33	M	ethyl tert-butyl ether	1.749	1.871	-7.0	77	-0.01	9.49
34	M	2-butanone	0.067	0.065	3.0	72	0.00	9.71
35	M	1,1-dichloroethane	0.948	0.872	8.0	72	0.00	9.02
36	M	chloroprene	0.760	0.901	-18.6	86	0.00	9.14
37	M	acrylonitrile	0.244	0.217	11.1	69	-0.01	8.38

Continuing Calibration Summary

Job Number: JB22962 **Sample:** VD8294-CC8248
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D203400.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

38	M	vinyl acetate	0.101	0.097	4.0	68	-0.01	9.00
39	M	ethyl acetate	0.082	0.093	-13.4	81	-0.01	9.73
40	M	2,2-dichloropropane	0.820	0.666	18.8	67	-0.01	9.77
41	M	cis-1,2-dichloroethene	0.639	0.492	23.0#	64	-0.01	9.74
42	M	propionitrile	0.098	0.084	14.3	68	-0.01	9.78
43	M	bromochloromethane	0.289	0.246	14.9	66	0.00	10.04
44	M	tetrahydrofuran	0.083	0.073	12.0	67	-0.02	10.10
45	M	chloroform	0.921	0.819	11.1	70	0.00	10.10
46	S	dibromofluoromethane (s)	0.495	0.465	6.1	74	0.00	10.29
47	S	1,2-dichloroethane-d4 (s)	0.569	0.614	-7.9	81	0.00	10.72
48	M	freon 113	0.392	0.405	-3.3	75	0.00	7.39
49	M	methacrylonitrile	0.388	0.378	2.6	77	0.00	9.98
50	m	t-butyl formate	0.589	0.632	-7.3	76	-0.01	10.17
51	M	1,1,1-trichloroethane	0.825	0.784	5.0	73	0.00	10.39
52	M	tert-amyl methyl ether	1.774	1.750	1.4	72	0.00	10.87
53	I	1,4-difluorobenzene	1.000	1.000	0.0	75	0.00	11.18
54	M	cyclohexane	0.541	0.519	4.1	69	0.00	10.49
55		tert amyl alcohol		----------NA----------				
56	M	2,2,4-trimethylpentane	1.325	1.533	-15.7	77	0.00	10.87
57	M	epichlorohydrin	0.046	0.046	0.0	70	0.00	12.44
58	M	n-butyl alcohol	0.014	0.012	14.3	65	-0.02	11.25
59	M	carbon tetrachloride	0.469	0.481	-2.6	74	0.00	10.60
60	M	1,1-dichloropropene	0.469	0.443	5.5	71	0.00	10.56
61	M	hexane	0.404	0.469	-16.1	80	0.00	8.80
62	M	benzene	1.429	1.266	11.4	66	0.00	10.82
63	M	heptane	0.252	0.266	-5.6	73	0.00	11.02
64	M	isopropyl acetate	0.718	0.850	-18.4	83	-0.01	10.73
65	M	1,2-dichloroethane	0.471	0.481	-2.1	75	-0.01	10.80
66		Ethyl Acrylate		----------NA----------				
67	M	trichloroethene	0.346	0.314	9.2	66	0.00	11.53
68	M	2-nitropropane	1.004	1.141	-13.6	80	0.00	12.32
69	M	2-chloroethyl vinyl ether	0.252	0.261	-3.6	71	0.00	12.32
70	M	methyl methacrylate	0.106	0.094	11.3	61	-0.01	11.79
71	M	tert-amyl ethyl ether		----------NA----------				
72	M	1,2-dichloropropane	0.370	0.345	6.8	68	0.00	11.79
73	M	methylcyclohexane	0.598	0.628	-5.0	72	0.00	11.79
74	M	dibromomethane	0.226	0.207	8.4	66	0.00	11.93
75	M	bromodichloromethane	0.463	0.449	3.0	68	0.00	12.07
76	M	cis-1,3-dichloropropene	0.623	0.548	12.0	65	0.00	12.55
77	S	toluene-d8 (s)	1.268	1.244	1.9	73	0.00	12.88
78	M	4-methyl-2-pentanone	0.165	0.154	6.7	68	-0.01	12.66
79	M	toluene	0.918	0.782	14.8	64	0.00	12.96
80	M	3-methyl-1-butanol	0.014	0.012	14.3	63	-0.01	12.65
81	M	trans-1,3-dichloropropene	0.598	0.517	13.5	64	0.00	13.14
82	M	ethyl methacrylate	0.513	0.474	7.6	65	-0.01	13.15
83	M	1,1,2-trichloroethane	0.282	0.248	12.1	65	0.00	13.37
84	M	2-hexanone	0.146	0.146	0.0	71	-0.01	13.57
85	I	chlorobenzene-d5	1.000	1.000	0.0	72	0.00	14.51
86	M	tetrachloroethene	0.420	0.377	10.2	63	0.00	13.59
87	M	1,3-dichloropropane	0.608	0.561	7.7	66	0.00	13.57
88	M	butyl acetate	0.275	0.300	-9.1	73	0.00	13.66
89	m	3,3-dimethyl-1-butanol	0.050	0.051	-2.0	71	-0.01	13.74
90	M	dibromochloromethane	0.403	0.391	3.0	66	0.00	13.85
91	M	1,2-dibromoethane	0.372	0.339	8.9	63	-0.01	14.03
92	M	chlorobenzene	1.055	0.919	12.9	63	0.00	14.55
93	M	1,1,1,2-tetrachloroethane	0.395	0.358	9.4	64	-0.01	14.61
94	M	ethylbenzene	1.828	1.632	10.7	65	0.00	14.62
95	M	m,p-xylene	0.714	0.623	12.7	62	0.00	14.74

Continuing Calibration Summary

Job Number: JB22962 **Sample:** VD8294-CC8248
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D203400.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

96	M	o-xylene	0.711	0.621	12.7	62	0.00	15.20
97	M	styrene	1.173	1.039	11.4	61	0.00	15.20
98	M	bromoform	0.323	0.293	9.3	62	0.00	15.48
99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	70	0.00	17.10
100	M	isopropylbenzene	3.075	2.719	11.6	64	0.00	15.59
101	S	4-bromofluorobenzene (s)	0.903	0.864	4.3	69	-0.01	15.79
102	M	bromobenzene	0.852	0.716	16.0	61	0.00	16.02
		----------	True	Calc.	% Drift	----------		
103	M	cyclohexanone	500.000	581.712	-16.3	68	-0.01	15.75
		----------	AvgRF	CCRF	% Dev	----------		
104	M	1,1,2,2-tetrachloroethane	0.871	0.775	11.0	63	0.00	15.88
105	M	trans-1,4-dichloro-2-bute	0.267	0.252	5.6	66	0.00	15.94
106	M	1,2,3-trichloropropane	0.262	0.226	13.7	62	0.00	15.98
107	M	n-propylbenzene	3.555	3.182	10.5	65	0.00	16.05
108	M	p-ethyltoluene		----------NA----------				
109	M	2-chlorotoluene	0.748	0.629	15.9	61	0.00	16.20
110	M	4-chlorotoluene	2.360	2.000	15.3	63	0.00	16.31
111	M	1,3,5-trimethylbenzene	2.697	2.350	12.9	63	0.00	16.21
112	M	tert-butylbenzene	2.369	2.076	12.4	63	0.00	16.61
113	M	pentachloroethane	0.530	0.486	8.3	66	0.00	16.68
114	M	1,2,4-trimethylbenzene	2.793	2.386	14.6	62	0.00	16.65
115	M	sec-butylbenzene	3.487	3.069	12.0	63	0.00	16.85
116	M	1,3-dichlorobenzene	1.628	1.351	17.0	60	0.00	17.04
117	M	p-isopropyltoluene	2.970	2.533	14.7	63	0.00	16.98
118	M	1,4-dichlorobenzene	1.702	1.400	17.7	59	0.00	17.13
119		Benzyl Chloride	2.020	1.454	28.0#	50	-0.01	17.25
120	M	p-diethylbenzene		----------NA----------				
121	M	1,2-dichlorobenzene	1.636	1.347	17.7	60	-0.01	17.56
122	M	n-butylbenzene	1.557	1.314	15.6	60	0.00	17.44
123	M	1,2,4,5-tetramethylbenzen		----------NA----------				
124	M	1,2-dibromo-3-chloropropa	0.177	0.162	8.5	68	0.00	18.41
125	M	1,3,5-trichlorobenzene	1.321	1.118	15.4	62	0.00	18.64
126	M	1,2,4-trichlorobenzene	1.003	0.969	3.4	64	0.00	19.38
127	M	hexachlorobutadiene	0.620	0.557	10.2	65	0.00	19.52
128	M	naphthalene	2.322	2.208	4.9	65	0.00	19.70
129	M	1,2,3-trichlorobenzene	0.831	0.796	4.2	66	-0.01	19.97
130	M	hexachloroethane	0.581	0.518	10.8	66	0.00	17.87

(#) = Out of Range SPCC's out = 0 CCC's out = 0
d202323.D MD8248.M Mon Dec 17 08:24:10 2012

6.7.7

6

Continuing Calibration Summary

Job Number: JB22962 **Sample:** VD8297-CC8248
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D203474.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\d203474.D                    Vial: 55
Acq On    : 17 Dec 2012   9:43 am                     Operator: EmilyT
Sample    : cc8248-20                                 Inst    : MSD
Misc      : ms39999,vd8297,5,,100,5,1                 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\MSDCHEM\1\METHODS\MD8248.M (RTE Integrator)
Title        : SW-846 Method 8260B
Last Update  : Wed Nov 28 10:39:36 2012
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	77	-0.02	8.02
2	M	1,4-dioxane	0.095	0.089	6.3	81	-0.02	11.89
3	M	tertiary butyl alcohol	1.170	1.310	-12.0	92	-0.02	8.14
4	I	pentafluorobenzene	1.000	1.000	0.0	83	0.00	10.26
5	M	1,2-dichloro-1,2,2-triflu		----------NA----------				
6	M	chlorodifluoromethane	0.500	0.613	-22.6#	104	0.00	4.59
7	M	dichlorodifluoromethane	0.734	0.845	-15.1	95	0.00	4.57
8	M	chloromethane	0.718	0.753	-4.9	97	-0.01	4.91
9	M	vinyl chloride	0.805	0.725	9.9	78	0.00	5.20
10	M	bromomethane	0.432	0.336	22.2#	66	0.00	5.87
11	M	chloroethane	0.416	0.407	2.2	85	0.00	6.06
12	M	vinyl bromide		----------NA----------				
13	M	trichlorofluoromethane	0.809	0.903	-11.6	93	0.00	6.58
14		pentane		----------NA----------				
15	M	ethyl ether	0.367	0.338	7.9	90	-0.01	6.97
16	M	acrolein	0.140	0.139	0.7	100	0.00	7.19
17	M	chlorotrifluoroethene		----------NA----------				
18	M	2-chloropropane	0.934	1.154	-23.6#	110	-0.01	7.16
19	M	1,1-dichloroethene	0.535	0.471	12.0	84	-0.01	7.39
		----------	True	Calc.	% Drift	----------		
20	M	acetone	20.000	20.274	-1.4	98	-0.02	7.41
		----------	AvgRF	CCRF	% Dev	----------		
21	M	allyl chloride	1.312	1.331	-1.4	96	0.00	7.90
22	M	acetonitrile	0.061	0.073	-19.7	108	-0.01	7.83
23	M	acetaldehyde		----------NA----------				
24	M	iodomethane	0.908	0.868	4.4	87	-0.01	7.66
25	M	iso-butyl alcohol	0.000	0.004#	0.0	0#	-0.01	10.51
26	M	carbon disulfide	1.767	1.715	2.9	89	-0.01	7.79
27	M	methylene chloride	0.622	0.560	10.0	88	-0.01	8.07
28	M	1-chloropropane	0.964	1.137	-17.9	113	0.00	8.14
29	M	methyl acetate	0.516	0.631	-22.3#	110	0.00	7.88
30	M	methyl tert butyl ether	1.860	1.847	0.7	95	-0.01	8.44
31	M	trans-1,2-dichloroethene	0.571	0.512	10.3	85	0.00	8.47
32	M	di-isopropyl ether	1.740	2.106	-21.0#	104	-0.01	9.03
33	M	ethyl tert-butyl ether	1.749	1.951	-11.5	95	-0.01	9.49
34	M	2-butanone	0.067	0.076	-13.4	103	-0.01	9.70
35	M	1,1-dichloroethane	0.948	0.973	-2.6	94	-0.01	9.02
36	M	chloroprene	0.760	0.894	-17.6	102	0.00	9.14
37	M	acrylonitrile	0.244	0.261	-7.0	99	-0.01	8.38

Continuing Calibration Summary

Job Number: JB22962 **Sample:** VD8297-CC8248
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D203474.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

38	M	vinyl acetate	0.101	0.102	-1.0	83	0.00	9.01
39	M	ethyl acetate	0.082	0.097	-18.3	99	-0.01	9.73
40	M	2,2-dichloropropane	0.820	0.883	-7.7	101	0.00	9.77
41	M	cis-1,2-dichloroethene	0.639	0.551	13.8	85	-0.01	9.74
42	M	propionitrile	0.098	0.102	-4.1	99	-0.01	9.78
43	M	bromochloromethane	0.289	0.280	3.1	89	0.00	10.04
44	M	tetrahydrofuran	0.083	0.083	0.0	93	-0.02	10.10
45	M	chloroform	0.921	0.931	-1.1	93	-0.01	10.09
46	S	dibromofluoromethane (s)	0.495	0.457	7.7	86	-0.01	10.29
47	S	1,2-dichloroethane-d4 (s)	0.569	0.606	-6.5	95	0.00	10.72
48	M	freon 113	0.392	0.407	-3.8	86	0.00	7.39
49	M	methacrylonitrile	0.388	0.459	-18.3	109	0.00	9.98
50	m	t-butyl formate	0.589	0.675	-14.6	96	-0.01	10.17
51	M	1,1,1-trichloroethane	0.825	0.873	-5.8	96	0.00	10.39
52	M	tert-amyl methyl ether	1.774	1.846	-4.1	90	0.00	10.87
53	I	1,4-difluorobenzene	1.000	1.000	0.0	78	-0.01	11.17
54	M	cyclohexane	0.541	0.590	-9.1	90	0.00	10.49
55		tert amyl alcohol	0.016	0.018	-12.5	95	-0.01	10.66
56	M	2,2,4-trimethylpentane	1.325	1.600	-20.8#	93	0.00	10.87
57	M	epichlorohydrin	0.046	0.054	-17.4	95	0.00	12.44
58	M	n-butyl alcohol	0.014	0.015	-7.1	87	-0.02	11.25
59	M	carbon tetrachloride	0.469	0.529	-12.8	97	0.00	10.60
60	M	1,1-dichloropropene	0.469	0.499	-6.4	93	0.00	10.56
61	M	hexane	0.404	0.513	-27.0#	101	0.00	8.80
62	M	benzene	1.429	1.421	0.6	88	0.00	10.82
63	M	heptane	0.252	0.304	-20.6#	95	0.00	11.02
64	M	isopropyl acetate	0.718	0.929	-29.4#	106	-0.01	10.73
65	M	1,2-dichloroethane	0.471	0.550	-16.8	102	-0.01	10.80
66		Ethyl Acrylate	0.487	0.543	-11.5	96	0.00	11.52
67	M	trichloroethene	0.346	0.353	-2.0	89	0.00	11.53
68	M	2-nitropropane	1.004	1.263	-25.8#	105	-0.01	12.32
69	M	2-chloroethyl vinyl ether	0.252	0.287	-13.9	91	0.00	12.32
70	M	methyl methacrylate	0.106	0.107	-0.9	85	-0.01	11.79
71	M	tert-amyl ethyl ether	0.585	0.487	16.8	72	-0.01	11.71
72	M	1,2-dichloropropane	0.370	0.398	-7.6	93	-0.01	11.79
73	M	methylcyclohexane	0.598	0.652	-9.0	86	0.00	11.79
74	M	dibromomethane	0.226	0.240	-6.2	93	-0.01	11.93
75	M	bromodichloromethane	0.463	0.510	-10.2	96	0.00	12.07
76	M	cis-1,3-dichloropropene	0.623	0.651	-4.5	92	0.00	12.55
77	S	toluene-d8 (s)	1.268	1.255	1.0	84	0.00	12.88
78	M	4-methyl-2-pentanone	0.165	0.186	-12.7	97	-0.01	12.66
79	M	toluene	0.918	0.898	2.2	85	0.00	12.96
80	M	3-methyl-1-butanol	0.014	0.013	7.1	79	-0.01	12.65
81	M	trans-1,3-dichloropropene	0.598	0.620	-3.7	92	0.00	13.14
82	M	ethyl methacrylate	0.513	0.550	-7.2	91	-0.01	13.15
83	M	1,1,2-trichloroethane	0.282	0.288	-2.1	87	0.00	13.37
84	M	2-hexanone	0.146	0.171	-17.1	99	0.00	13.57
85	I	chlorobenzene-d5	1.000	1.000	0.0	75	0.00	14.51
86	M	tetrachloroethene	0.420	0.435	-3.6	85	0.00	13.59
87	M	1,3-dichloropropane	0.608	0.655	-7.7	90	0.00	13.57
88	M	butyl acetate	0.275	0.330	-20.0	93	0.00	13.66
89	m	3,3-dimethyl-1-butanol	0.050	0.054	-8.0	89	-0.01	13.74
90	M	dibromochloromethane	0.403	0.436	-8.2	90	0.00	13.85
91	M	1,2-dibromoethane	0.372	0.385	-3.5	85	-0.01	14.03
92	M	chlorobenzene	1.055	1.066	-1.0	85	0.00	14.55
93	M	1,1,1,2-tetrachloroethane	0.395	0.407	-3.0	88	0.00	14.61
94	M	ethylbenzene	1.828	1.865	-2.0	87	0.00	14.62
95	M	m,p-xylene	0.714	0.716	-0.3	84	0.00	14.74

Continuing Calibration Summary

Job Number: JB22962 **Sample:** VD8297-CC8248
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D203474.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

96	M	o-xylene	0.711	0.695	2.3	82	0.00	15.20
97	M	styrene	1.173	1.174	-0.1	84	0.00	15.20
98	M	bromoform	0.323	0.328	-1.5	86	0.00	15.48
99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	73	0.00	17.10
100	M	isopropylbenzene	3.075	3.158	-2.7	84	0.00	15.59
101	S	4-bromofluorobenzene (s)	0.903	0.877	2.9	81	-0.01	15.79
102	M	bromobenzene	0.852	0.834	2.1	82	0.00	16.02
		----------	True	Calc.	% Drift	----------		
103	M	cyclohexanone	200.000	298.941	-49.5#	143	0.00	15.75
		----------	AvgRF	CCRF	% Dev	----------		
104	M	1,1,2,2-tetrachloroethane	0.871	0.925	-6.2	88	0.00	15.88
105	M	trans-1,4-dichloro-2-bute	0.267	0.317	-18.7	101	-0.01	15.94
106	M	1,2,3-trichloropropane	0.262	0.278	-6.1	88	0.00	15.98
107	M	n-propylbenzene	3.555	3.688	-3.7	86	0.00	16.05
108	M	p-ethyltoluene	2.979	2.900	2.7	81	0.00	16.16
109	M	2-chlorotoluene	0.748	0.729	2.5	80	0.00	16.20
110	M	4-chlorotoluene	2.360	2.328	1.4	86	0.00	16.31
111	M	1,3,5-trimethylbenzene	2.697	2.717	-0.7	84	0.00	16.21
112	M	tert-butylbenzene	2.369	2.369	0.0	82	0.00	16.61
113	M	pentachloroethane	0.530	0.553	-4.3	87	0.00	16.68
114	M	1,2,4-trimethylbenzene	2.793	2.780	0.5	84	0.00	16.65
115	M	sec-butylbenzene	3.487	3.564	-2.2	84	0.00	16.85
116	M	1,3-dichlorobenzene	1.628	1.555	4.5	80	0.00	17.04
117	M	p-isopropyltoluene	2.970	2.947	0.8	83	0.00	16.98
118	M	1,4-dichlorobenzene	1.702	1.617	5.0	81	0.00	17.13
119		Benzyl Chloride	2.020	2.005	0.7	79	0.00	17.25
120	M	p-diethylbenzene	1.824	1.761	3.5	82	0.00	17.40
121	M	1,2-dichlorobenzene	1.636	1.551	5.2	80	0.00	17.57
122	M	n-butylbenzene	1.557	1.592	-2.2	86	0.00	17.44
123	M	1,2,4,5-tetramethylbenzen	2.866	2.811	1.9	79	0.00	18.27
124	M	1,2-dibromo-3-chloropropa	0.177	0.187	-5.6	86	0.00	18.41
125	M	1,3,5-trichlorobenzene	1.321	1.287	2.6	79	0.00	18.64
126	M	1,2,4-trichlorobenzene	1.003	1.143	-14.0	84	0.00	19.38
127	M	hexachlorobutadiene	0.620	0.645	-4.0	81	0.00	19.53
128	M	naphthalene	2.322	2.601	-12.0	83	0.00	19.70
129	M	1,2,3-trichlorobenzene	0.831	0.966	-16.2	84	0.00	19.98
130	M	hexachloroethane	0.581	0.567	2.4	84	0.00	17.87

(#) = Out of Range SPCC's out = 0 CCC's out = 0
d202322.D MD8248.M Mon Dec 17 16:34:41 2012

6.7.8

6

Continuing Calibration Summary

Job Number: JB22962 **Sample:** VD8298-CC8248
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D203498.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\d203498.D Vial: 27
Acq On : 17 Dec 2012 10:04 pm Operator: EmilyT
Sample : cc8248-50 Inst : MSD
Misc : ms39981,vd8298,5,,100,5,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method : C:\MSDCHEM\1\METHODS\MD8248.M (RTE Integrator)
Title : SW-846 Method 8260B
Last Update : Wed Nov 28 10:39:36 2012
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	59	0.01	8.05
2	M	1,4-dioxane	0.095	0.073	23.2#	43#	0.00	11.92
3	M	tertiary butyl alcohol	1.170	0.852	27.2#	42#	0.00	8.16
4	I	pentafluorobenzene	1.000	1.000	0.0	72	0.00	10.26
5	M	1,2-dichloro-1,2,2-triflu		----------NA----------				
6	M	chlorodifluoromethane	0.500	0.643	-28.6#	86	0.00	4.58
7	M	dichlorodifluoromethane	0.734	0.901	-22.8#	82	0.00	4.56
8	M	chloromethane	0.718	0.762	-6.1	76	0.00	4.91
9	M	vinyl chloride	0.805	0.831	-3.2	71	0.00	5.21
10	M	bromomethane	0.432	0.389	10.0	61	0.00	5.88
11	M	chloroethane	0.416	0.400	3.8	67	0.00	6.06
12	M	vinyl bromide		----------NA----------				
13	M	trichlorofluoromethane	0.809	0.924	-14.2	77	0.00	6.58
14		pentane		----------NA----------				
15	M	ethyl ether	0.367	0.322	12.3	67	0.00	6.97
16	M	acrolein	0.140	0.124	11.4	65	0.00	7.20
17	M	chlorotrifluoroethene		----------NA----------				
18	M	2-chloropropane	0.934	1.158	-24.0#	88	0.00	7.16
19	M	1,1-dichloroethene	0.535	0.474	11.4	67	0.00	7.40
		----------	True	Calc.	% Drift	----------		
20	M	acetone	50.000	45.154	9.7	63	0.00	7.41
		----------	AvgRF	CCRF	% Dev	----------		
21	M	allyl chloride	1.312	1.475	-12.4	81	0.00	7.91
22	M	acetonitrile	0.061	0.043	29.5#	51	0.07	7.91
23	M	acetaldehyde		----------NA----------				
24	M	iodomethane	0.908	0.847	6.7	66	0.00	7.67
25	M	iso-butyl alcohol		----------NA----------				
26	M	carbon disulfide	1.767	1.737	1.7	71	0.00	7.80
27	M	methylene chloride	0.622	0.549	11.7	67	0.00	8.08
28	M	1-chloropropane	0.964	1.175	-21.9#	93	0.00	8.14
29	M	methyl acetate	0.516	0.573	-11.0	78	0.00	7.88
30	M	methyl tert butyl ether	1.860	1.764	5.2	71	0.00	8.44
31	M	trans-1,2-dichloroethene	0.571	0.511	10.5	66	0.00	8.47
32	M	di-isopropyl ether	1.740	2.101	-20.7#	81	0.00	9.04
33	M	ethyl tert-butyl ether	1.749	1.899	-8.6	72	0.00	9.50
34	M	2-butanone	0.067	0.071	-6.0	73	0.00	9.71
35	M	1,1-dichloroethane	0.948	0.981	-3.5	74	0.00	9.03
36	M	chloroprene	0.760	0.942	-23.9#	82	0.00	9.14
37	M	acrylonitrile	0.244	0.228	6.6	66	0.00	8.39

Continuing Calibration Summary

Job Number: JB22962 **Sample:** VD8298-CC8248
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D203498.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

38	M	vinyl acetate	0.101	0.097	4.0	62	0.00	9.00
39	M	ethyl acetate	0.082	0.091	-11.0	73	-0.01	9.73
40	M	2,2-dichloropropane	0.820	0.687	16.2	63	0.00	9.78
41	M	cis-1,2-dichloroethene	0.639	0.548	14.2	66	0.00	9.75
42	M	propionitrile	0.098	0.083	15.3	62	0.00	9.79
43	M	bromochloromethane	0.289	0.272	5.9	66	0.00	10.05
44	M	tetrahydrofuran	0.083	0.080	3.6	67	-0.01	10.10
45	M	chloroform	0.921	0.934	-1.4	73	0.00	10.10
46	S	dibromofluoromethane (s)	0.495	0.475	4.0	69	0.00	10.30
47	S	1,2-dichloroethane-d4 (s)	0.569	0.636	-11.8	77	0.00	10.72
48	M	freon 113	0.392	0.410	-4.6	69	0.00	7.39
49	M	methacrylonitrile	0.388	0.436	-12.4	81	0.00	9.98
50	m	t-butyl formate	0.589	0.622	-5.6	68	0.00	10.17
51	M	1,1,1-trichloroethane	0.825	0.900	-9.1	77	0.00	10.40
52	M	tert-amyl methyl ether	1.774	1.787	-0.7	67	0.00	10.87
53	I	1,4-difluorobenzene	1.000	1.000	0.0	70	0.00	11.18
54	M	cyclohexane	0.541	0.592	-9.4	73	0.00	10.49
55		tert amyl alcohol		----------NA----------				
56	M	2,2,4-trimethylpentane	1.325	1.561	-17.8	73	0.00	10.87
57	M	epichlorohydrin	0.046	0.050	-8.7	71	0.00	12.44
58	M	n-butyl alcohol	0.014	0.012	14.3	60	0.00	11.27
59	M	carbon tetrachloride	0.469	0.546	-16.4	79	0.00	10.60
60	M	1,1-dichloropropene	0.469	0.492	-4.9	73	0.00	10.56
61	M	hexane	0.404	0.473	-17.1	75	0.00	8.80
62	M	benzene	1.429	1.400	2.0	68	0.00	10.83
63	M	heptane	0.252	0.262	-4.0	67	0.00	11.02
64	M	isopropyl acetate	0.718	0.937	-30.5#	86	0.00	10.73
65	M	1,2-dichloroethane	0.471	0.541	-14.9	78	0.00	10.81
66		Ethyl Acrylate		----------NA----------				
67	M	trichloroethene	0.346	0.356	-2.9	69	0.00	11.53
68	M	2-nitropropane	1.004	1.200	-19.5	78	0.00	12.32
69	M	2-chloroethyl vinyl ether	0.252	0.262	-4.0	66	0.00	12.32
70	M	methyl methacrylate	0.106	0.103	2.8	62	0.00	11.79
71	M	tert-amyl ethyl ether		----------NA----------				
72	M	1,2-dichloropropane	0.370	0.390	-5.4	71	0.00	11.79
73	M	methylcyclohexane	0.598	0.656	-9.7	70	0.00	11.79
74	M	dibromomethane	0.226	0.231	-2.2	68	0.00	11.93
75	M	bromodichloromethane	0.463	0.508	-9.7	72	0.00	12.06
76	M	cis-1,3-dichloropropene	0.623	0.606	2.7	67	0.00	12.56
77	S	toluene-d8 (s)	1.268	1.252	1.3	68	0.00	12.89
78	M	4-methyl-2-pentanone	0.165	0.185	-12.1	75	0.00	12.67
79	M	toluene	0.918	0.864	5.9	66	0.00	12.96
80	M	3-methyl-1-butanol	0.014	0.011	21.4#	55	0.00	12.66
81	M	trans-1,3-dichloropropene	0.598	0.582	2.7	67	0.00	13.14
82	M	ethyl methacrylate	0.513	0.542	-5.7	69	0.00	13.15
83	M	1,1,2-trichloroethane	0.282	0.276	2.1	67	0.00	13.37
84	M	2-hexanone	0.146	0.169	-15.8	76	0.00	13.57
85	I	chlorobenzene-d5	1.000	1.000	0.0	68	0.00	14.52
86	M	tetrachloroethene	0.420	0.426	-1.4	67	0.00	13.60
87	M	1,3-dichloropropane	0.608	0.621	-2.1	69	0.00	13.57
88	M	butyl acetate	0.275	0.310	-12.7	71	0.00	13.65
89	m	3,3-dimethyl-1-butanol	0.050	0.047	6.0	61	0.00	13.75
90	M	dibromochloromethane	0.403	0.423	-5.0	67	0.00	13.85
91	M	1,2-dibromoethane	0.372	0.371	0.3	66	0.00	14.03
92	M	chlorobenzene	1.055	1.017	3.6	66	0.00	14.55
93	M	1,1,1,2-tetrachloroethane	0.395	0.401	-1.5	68	0.00	14.61
94	M	ethylbenzene	1.828	1.826	0.1	69	0.00	14.62
95	M	m,p-xylene	0.714	0.693	2.9	65	0.00	14.74

Continuing Calibration Summary

Job Number: JB22962 **Sample:** VD8298-CC8248
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D203498.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

96	M	o-xylene	0.711	0.701	1.4	67	0.00	15.20
97	M	styrene	1.173	1.168	0.4	65	0.00	15.21
98	M	bromoform	0.323	0.329	-1.9	66	0.00	15.48
99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	68	0.00	17.10
100	M	isopropylbenzene	3.075	3.043	1.0	70	0.00	15.59
101	S	4-bromofluorobenzene (s)	0.903	0.859	4.9	67	0.00	15.80
102	M	bromobenzene	0.852	0.772	9.4	64	0.00	16.02
		----------	True	Calc.	% Drift	----------		
103	M	cyclohexanone	500.000	510.852	-2.2	58	0.00	15.76
		----------	AvgRF	CCRF	% Dev	----------		
104	M	1,1,2,2-tetrachloroethane	0.871	0.830	4.7	66	0.00	15.89
105	M	trans-1,4-dichloro-2-bute	0.267	0.270	-1.1	69	0.00	15.94
106	M	1,2,3-trichloropropane	0.262	0.248	5.3	66	0.00	15.98
107	M	n-propylbenzene	3.555	3.515	1.1	70	0.00	16.05
108	M	p-ethyltoluene	2.979	2.800	6.0	68	0.00	16.16
109	M	2-chlorotoluene	0.748	0.693	7.4	65	0.00	16.20
110	M	4-chlorotoluene	2.360	2.205	6.6	68	0.00	16.31
111	M	1,3,5-trimethylbenzene	2.697	2.622	2.8	69	0.00	16.21
112	M	tert-butylbenzene	2.369	2.282	3.7	67	0.00	16.61
113	M	pentachloroethane	0.530	0.528	0.4	70	0.00	16.68
114	M	1,2,4-trimethylbenzene	2.793	2.670	4.4	68	0.00	16.66
115	M	sec-butylbenzene	3.487	3.453	1.0	70	0.00	16.85
116	M	1,3-dichlorobenzene	1.628	1.468	9.8	63	0.00	17.04
117	M	p-isopropyltoluene	2.970	2.824	4.9	68	0.00	16.98
118	M	1,4-dichlorobenzene	1.702	1.511	11.2	63	0.00	17.13
119		Benzyl Chloride	2.020	1.246	38.3#	42#	0.00	17.25
120	M	p-diethylbenzene	1.824	1.748	4.2	70	0.00	17.40
121	M	1,2-dichlorobenzene	1.636	1.479	9.6	64	0.00	17.57
122	M	n-butylbenzene	1.557	1.523	2.2	68	0.00	17.44
123	M	1,2,4,5-tetramethylbenzen	2.866	2.728	4.8	67	0.00	18.27
124	M	1,2-dibromo-3-chloropropa	0.177	0.174	1.7	72	0.00	18.41
125	M	1,3,5-trichlorobenzene	1.321	1.224	7.3	66	0.00	18.65
126	M	1,2,4-trichlorobenzene	1.003	1.077	-7.4	70	0.00	19.38
127	M	hexachlorobutadiene	0.620	0.595	4.0	68	0.00	19.52
128	M	naphthalene	2.322	2.377	-2.4	68	0.00	19.70
129	M	1,2,3-trichlorobenzene	0.831	0.886	-6.6	71	0.00	19.98
130	M	hexachloroethane	0.581	0.561	3.4	70	0.00	17.88

(#) = Out of Range SPCC's out = 0 CCC's out = 0
d202323.D MD8248.M Tue Dec 18 10:03:21 2012

6.7.9

6

Continuing Calibration Summary

Job Number: JB22962 **Sample:** VD8299-CC8248
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D203522.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\d203522.D                    Vial: 51
Acq On    : 18 Dec 2012   9:18 am                     Operator: EmilyT
Sample    : cc8248-20                                 Inst    : MSD
Misc      : ms39981,vd8299,5,,100,5,1                 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\MSDCHEM\1\METHODS\MD8248.M (RTE Integrator)
Title        : SW-846 Method 8260B
Last Update  : Wed Nov 28 10:39:36 2012
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	78	-0.02	8.02
2	M	1,4-dioxane	0.095	0.077	18.9	72	-0.01	11.90
3	M	tertiary butyl alcohol	1.170	1.249	-6.8	90	-0.01	8.14
4	I	pentafluorobenzene	1.000	1.000	0.0	85	0.00	10.26
5	M	1,2-dichloro-1,2,2-triflu		----------NA----------				
6	M	chlorodifluoromethane	0.500	0.634	-26.8#	110	0.00	4.58
7	M	dichlorodifluoromethane	0.734	0.860	-17.2	99	0.00	4.57
8	M	chloromethane	0.718	0.728	-1.4	96	-0.01	4.91
9	M	vinyl chloride	0.805	0.838	-4.1	93	0.00	5.20
10	M	bromomethane	0.432	0.394	8.8	79	0.00	5.88
11	M	chloroethane	0.416	0.410	1.4	87	0.00	6.06
12	M	vinyl bromide		----------NA----------				
13	M	trichlorofluoromethane	0.809	0.927	-14.6	97	0.00	6.58
14		pentane		----------NA----------				
15	M	ethyl ether	0.367	0.336	8.4	91	-0.01	6.96
16	M	acrolein	0.140	0.139	0.7	102	0.00	7.19
17	M	chlorotrifluoroethene		----------NA----------				
18	M	2-chloropropane	0.934	1.171	-25.4#	114	0.00	7.16
19	M	1,1-dichloroethene	0.535	0.493	7.9	90	0.00	7.39
		----------	True	Calc.	% Drift	----------		
20	M	acetone	20.000	22.022	-10.1	109	-0.01	7.41
		----------	AvgRF	CCRF	% Dev	----------		
21	M	allyl chloride	1.312	1.247	5.0	92	0.00	7.91
22	M	acetonitrile	0.061	0.067	-9.8	100	0.00	7.83
23	M	acetaldehyde		----------NA----------				
24	M	iodomethane	0.908	0.887	2.3	90	0.00	7.67
25	M	iso-butyl alcohol		----------NA----------				
26	M	carbon disulfide	1.767	1.794	-1.5	96	0.00	7.80
27	M	methylene chloride	0.622	0.553	11.1	88	0.00	8.08
28	M	1-chloropropane	0.964	1.159	-20.2#	118	0.00	8.14
29	M	methyl acetate	0.516	0.594	-15.1	106	0.00	7.88
30	M	methyl tert butyl ether	1.860	1.793	3.6	94	0.00	8.44
31	M	trans-1,2-dichloroethene	0.571	0.516	9.6	87	0.00	8.47
32	M	di-isopropyl ether	1.740	2.129	-22.4#	108	0.00	9.04
33	M	ethyl tert-butyl ether	1.749	1.949	-11.4	97	0.00	9.50
34	M	2-butanone	0.067	0.069	-3.0	95	0.00	9.71
35	M	1,1-dichloroethane	0.948	0.976	-3.0	96	0.00	9.02
36	M	chloroprene	0.760	0.916	-20.5#	107	0.00	9.14
37	M	acrylonitrile	0.244	0.244	0.0	94	0.00	8.38

Continuing Calibration Summary

Job Number: JB22962 **Sample:** VD8299-CC8248
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D203522.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

38	M	vinyl acetate	0.101	0.096	5.0	80	0.00	9.00
39	M	ethyl acetate	0.082	0.097	-18.3	100	-0.01	9.73
40	M	2,2-dichloropropane	0.820	0.718	12.4	84	0.00	9.77
41	M	cis-1,2-dichloroethene	0.639	0.554	13.3	87	0.00	9.74
42	M	propionitrile	0.098	0.097	1.0	95	0.00	9.78
43	M	bromochloromethane	0.289	0.272	5.9	88	0.00	10.05
44	M	tetrahydrofuran	0.083	0.079	4.8	90	-0.01	10.10
45	M	chloroform	0.921	0.924	-0.3	94	0.00	10.10
46	S	dibromofluoromethane (s)	0.495	0.463	6.5	89	0.00	10.29
47	S	1,2-dichloroethane-d4 (s)	0.569	0.600	-5.4	96	0.00	10.72
48	M	freon 113	0.392	0.433	-10.5	94	0.00	7.39
49	M	methacrylonitrile	0.388	0.427	-10.1	104	0.00	9.98
50	m	t-butyl formate	0.589	0.647	-9.8	94	0.00	10.17
51	M	1,1,1-trichloroethane	0.825	0.880	-6.7	99	0.00	10.40
52	M	tert-amyl methyl ether	1.774	1.817	-2.4	91	0.00	10.87
53	I	1,4-difluorobenzene	1.000	1.000	0.0	80	0.00	11.18
54	M	cyclohexane	0.541	0.595	-10.0	94	0.00	10.49
55		tert amyl alcohol	0.016	0.018	-12.5	98	-0.01	10.66
56	M	2,2,4-trimethylpentane	1.325	1.491	-12.5	89	0.00	10.87
57	M	epichlorohydrin	0.046	0.047	-2.2	85	0.00	12.44
58	M	n-butyl alcohol	0.014	0.014	0.0	84	-0.01	11.26
59	M	carbon tetrachloride	0.469	0.537	-14.5	101	0.00	10.60
60	M	1,1-dichloropropene	0.469	0.498	-6.2	96	0.00	10.56
61	M	hexane	0.404	0.464	-14.9	94	0.00	8.80
62	M	benzene	1.429	1.414	1.0	90	0.00	10.82
63	M	heptane	0.252	0.245	2.8	79	0.00	11.02
64	M	isopropyl acetate	0.718	0.880	-22.6#	103	0.00	10.73
65	M	1,2-dichloroethane	0.471	0.539	-14.4	103	0.00	10.81
66		Ethyl Acrylate	0.487	0.517	-6.2	94	0.00	11.52
67	M	trichloroethene	0.346	0.347	-0.3	90	0.00	11.53
68	M	2-nitropropane	1.004	1.150	-14.5	98	0.00	12.32
69	M	2-chloroethyl vinyl ether	0.252	0.264	-4.8	86	0.00	12.32
70	M	methyl methacrylate	0.106	0.100	5.7	81	0.00	11.79
71	M	tert-amyl ethyl ether	0.585	0.492	15.9	75	0.00	11.72
72	M	1,2-dichloropropane	0.370	0.386	-4.3	93	0.00	11.79
73	M	methylcyclohexane	0.598	0.646	-8.0	88	0.00	11.79
74	M	dibromomethane	0.226	0.232	-2.7	92	0.00	11.93
75	M	bromodichloromethane	0.463	0.502	-8.4	97	0.00	12.06
76	M	cis-1,3-dichloropropene	0.623	0.611	1.9	88	0.00	12.55
77	S	toluene-d8 (s)	1.268	1.264	0.3	87	0.00	12.89
78	M	4-methyl-2-pentanone	0.165	0.170	-3.0	91	0.00	12.67
79	M	toluene	0.918	0.891	2.9	87	0.00	12.96
80	M	3-methyl-1-butanol	0.014	0.012	14.3	75	0.00	12.65
81	M	trans-1,3-dichloropropene	0.598	0.587	1.8	90	0.00	13.14
82	M	ethyl methacrylate	0.513	0.528	-2.9	90	0.00	13.15
83	M	1,1,2-trichloroethane	0.282	0.278	1.4	86	0.00	13.37
84	M	2-hexanone	0.146	0.159	-8.9	95	0.00	13.57
85	I	chlorobenzene-d5	1.000	1.000	0.0	78	0.00	14.52
86	M	tetrachloroethene	0.420	0.430	-2.4	87	0.00	13.60
87	M	1,3-dichloropropane	0.608	0.616	-1.3	88	0.00	13.57
88	M	butyl acetate	0.275	0.301	-9.5	88	0.00	13.66
89	m	3,3-dimethyl-1-butanol	0.050	0.048	4.0	82	0.00	13.74
90	M	dibromochloromethane	0.403	0.418	-3.7	90	0.00	13.86
91	M	1,2-dibromoethane	0.372	0.370	0.5	85	0.00	14.03
92	M	chlorobenzene	1.055	1.051	0.4	87	0.00	14.55
93	M	1,1,1,2-tetrachloroethane	0.395	0.394	0.3	89	0.00	14.61
94	M	ethylbenzene	1.828	1.859	-1.7	90	0.00	14.62
95	M	m,p-xylene	0.714	0.702	1.7	86	0.00	14.74

Continuing Calibration Summary

Job Number: JB22962 **Sample:** VD8299-CC8248
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D203522.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

96	M	o-xylene	0.711	0.710	0.1	87	0.00	15.20
97	M	styrene	1.173	1.166	0.6	86	0.00	15.21
98	M	bromoform	0.323	0.311	3.7	85	0.00	15.48
99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	78	0.00	17.10
100	M	isopropylbenzene	3.075	3.096	-0.7	88	0.00	15.59
101	S	4-bromofluorobenzene (s)	0.903	0.861	4.7	85	0.00	15.80
102	M	bromobenzene	0.852	0.810	4.9	85	0.00	16.02
		----------	True	Calc.	% Drift	----------		
103	M	cyclohexanone	200.000	263.385	-31.7#	134	0.00	15.75
		----------	AvgRF	CCRF	% Dev	----------		
104	M	1,1,2,2-tetrachloroethane	0.871	0.863	0.9	87	0.00	15.89
105	M	trans-1,4-dichloro-2-bute	0.267	0.271	-1.5	92	0.00	15.94
106	M	1,2,3-trichloropropane	0.262	0.247	5.7	83	0.00	15.98
107	M	n-propylbenzene	3.555	3.617	-1.7	90	0.00	16.05
108	M	p-ethyltoluene	2.979	2.935	1.5	87	0.00	16.16
109	M	2-chlorotoluene	0.748	0.717	4.1	84	0.00	16.21
110	M	4-chlorotoluene	2.360	2.260	4.2	89	0.00	16.31
111	M	1,3,5-trimethylbenzene	2.697	2.602	3.5	86	0.00	16.21
112	M	tert-butylbenzene	2.369	2.256	4.8	83	0.00	16.61
113	M	pentachloroethane	0.530	0.535	-0.9	89	0.00	16.68
114	M	1,2,4-trimethylbenzene	2.793	2.704	3.2	88	0.00	16.66
115	M	sec-butylbenzene	3.487	3.455	0.9	87	0.00	16.85
116	M	1,3-dichlorobenzene	1.628	1.541	5.3	85	0.00	17.04
117	M	p-isopropyltoluene	2.970	2.865	3.5	86	0.00	16.98
118	M	1,4-dichlorobenzene	1.702	1.593	6.4	85	0.00	17.13
119		Benzyl Chloride	2.020	1.310	35.1#	55	0.00	17.25
120	M	p-diethylbenzene	1.824	1.776	2.6	89	0.00	17.40
121	M	1,2-dichlorobenzene	1.636	1.547	5.4	85	0.00	17.57
122	M	n-butylbenzene	1.557	1.539	1.2	88	0.00	17.44
123	M	1,2,4,5-tetramethylbenzen	2.866	2.738	4.5	82	0.00	18.27
124	M	1,2-dibromo-3-chloropropa	0.177	0.182	-2.8	90	0.00	18.41
125	M	1,3,5-trichlorobenzene	1.321	1.233	6.7	81	0.00	18.65
126	M	1,2,4-trichlorobenzene	1.003	1.058	-5.5	83	0.00	19.38
127	M	hexachlorobutadiene	0.620	0.608	1.9	81	0.00	19.53
128	M	naphthalene	2.322	2.463	-6.1	84	0.00	19.70
129	M	1,2,3-trichlorobenzene	0.831	0.912	-9.7	84	0.00	19.98
130	M	hexachloroethane	0.581	0.546	6.0	86	0.00	17.87

(#) = Out of Range SPCC's out = 0 CCC's out = 0
d202322.D MD8248.M Tue Dec 18 13:39:34 2012

6.7.10

6

Initial Calibration Summary

Job Number: JB22962 **Sample:** VE8647-ICC8647
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E196788.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Response Factor Report MSE

```
Method       : C:\MSDCHEM\1\METHODS\ME8647.M (RTE Integrator)
Title        : SW846  8260B,ZB624 60m x 0.25mm x 1.4um
Last Update  : Tue Nov 13 09:20:53 2012
Response via : Initial Calibration

Calibration Files
5   =E196785.D   2   =E196784.D   20  =E196787.D   50  =E196788.D
100 =E196789.D   1   =E196783.D   200 =E196790.D   0.5 =E196782.D
10  =E196786.D       =

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

1)     Tert Butyl Alcohol-d9 ----------------ISTD---------------------
2)  1,4-dioxane
          0.079       0.093 0.088 0.079       0.076       0.078   0.082    8.19
3)  tertiary butyl alcohol
          1.353 1.181 1.308 1.214 1.232       1.107       1.255   1.235    6.55
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
          0.703       0.796 0.747 0.790       0.770       0.725   0.755    4.87
12)  dichlorodifluoromethane
          0.818 0.713 0.962 0.893 0.901 0.649 0.851       0.925   0.839   12.89
13)  freon 114
                                                                  0.000#  -1.00
14)  freon 142b
                                                                  0.000#  -1.00
15)  chloromethane
          0.813 0.719 0.909 0.898 0.927 0.816 0.925       0.875   0.860    8.42
16)  vinyl chloride
          0.865 0.745 0.966 0.925 0.975 0.798 0.956       0.944   0.897    9.54
17)  acetaldehyde
                                                                  0.000#  -1.00
18)  bromomethane
          0.497 0.439 0.501 0.485 0.507 0.379 0.493       0.512   0.476    9.58
19)  chloroethane
          0.407 0.289 0.425 0.429 0.457 0.204 0.443       0.427   0.385   23.28
           ----- Linear regression -----  Coefficient =  0.9996
             Response Ratio = -0.00460 + 0.44622 *A

20)  vinyl bromide
                                                                  0.000#  -1.00
21)  trichlorofluoromethane
          0.945 0.746 1.074 0.993 1.004       0.960       1.015   0.962   10.83
```

Initial Calibration Summary

Job Number: JB22962 **Sample:** VE8647-ICC8647
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E196788.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
22)  pentane
           1.218 1.290 1.350 1.155 1.209       1.161       1.279   1.237    5.79
23)  ethyl ether
           0.351 0.308 0.379 0.365 0.384       0.378       0.402   0.367    8.27
24)  freon 141b
                                                                   0.000#  -1.00
25)  freon 123a
                                                                   0.000#  -1.00
26)  freon 123
                                                                   0.000#  -1.00
27)  2-chloropropane
           0.975 0.815 1.141 1.077 1.135 0.840 1.123       1.226   1.042   14.37
28)  acrolein
           0.136 0.128 0.154 0.142       0.133             0.151   0.141    7.34
29)  1,1-dichloroethene
           0.493 0.389 0.551 0.506 0.518 0.381 0.503       0.590   0.491   14.80
30)  isopropyl alcohol
                                                                   0.000#  -1.00
31)  acetone
                       0.086 0.075 0.077       0.069       0.092   0.080   11.47
32)  allyl chloride
           1.276 1.302 1.301 1.196 1.127 1.338 1.076       1.411   1.253    8.93
33)  acetonitrile
           0.045 0.040 0.051 0.045 0.047       0.044       0.048   0.046    7.46
34)  iodomethane
           0.841 0.734 0.946 0.915 0.949 0.724 0.948       1.007   0.883   11.99
35)  iso-butyl alcohol
                                                                   0.000#  -1.00
36)  carbon disulfide
           1.682 1.611 1.935 1.767 1.742 1.755 1.765 1.466 2.089   1.757   10.14
37)  methylene chloride
           0.560 0.489 0.630 0.607 0.619 0.415 0.617       0.667   0.575   14.59
38)  1-chloropropane
           1.135 1.147 1.265 1.148 1.171 1.169 1.127       1.349   1.189    6.55
39)  methyl acetate
           0.587 0.421 0.641 0.587 0.606       0.593       0.618   0.579   12.51
40)  methyl tert butyl ether
           2.004 1.853 2.186 2.032 2.000 2.011 1.915 2.063 2.344   2.045    7.09
41)  trans-1,2-dichloroethene
           0.509 0.480 0.596 0.540 0.548 0.503 0.523       0.624   0.541    8.96
42)  di-isopropyl ether
           2.239 1.832 2.255 2.079 2.064 1.864 1.948       2.266   2.068    8.48
43)  ethyl tert-butyl ether
           2.327 1.873 2.406 2.256 2.265 1.876 2.162       2.405   2.196    9.75
44)  2-butanone
                       0.093 0.089 0.090       0.088       0.089   0.090    2.17
45)  1,1-dichloroethane
           1.106 1.058 1.253 1.127 1.129 0.989 1.066       1.313   1.130    9.34
46)  chloroprene
           1.078 0.859 1.143 1.044 1.073 0.743 1.012       1.098   1.006   13.48
47)  acrylonitrile
           0.249 0.224 0.286 0.269 0.277 0.219 0.272       0.295   0.261   10.78
48)  vinyl acetate
           0.059       0.099 0.093 0.100       0.096       0.080   0.088   18.15
            ----- Linear regression -----  Coefficient =  0.9993
              Response Ratio = -0.00161 + 0.09705 *A

49)  ethyl acetate
           0.080       0.106 0.102 0.104       0.100       0.083   0.096   11.64
50)  2,2-dichloropropane
```

Initial Calibration Summary

Job Number: JB22962 **Sample:** VE8647-ICC8647
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E196788.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
            0.961 0.896 1.050 0.922 0.872 0.973 0.819       1.123   0.952   10.30
51)  cis-1,2-dichloroethene
            0.583 0.583 0.664 0.601 0.595 0.510 0.575 0.501 0.714   0.592   11.27
52)  methyl acrylate
            0.585       0.679 0.618 0.619       0.605       0.629   0.622    5.09
53)  propionitrile
            0.105 0.089 0.115 0.102 0.102 0.085 0.097       0.121   0.102   12.00
54)  bromochloromethane
            0.278 0.218 0.317 0.303 0.305 0.130 0.295       0.342   0.273   24.98
             ----- Linear regression -----  Coefficient =  0.9996
               Response Ratio = 0.00347 + 0.29644 *A

55)  tetrahydrofuran
            0.253 0.199 0.282 0.260 0.257       0.251       0.293   0.256   11.63
56)  chloroform
            1.096 1.055 1.191 1.100 1.075 1.091 1.010 0.976 1.251   1.094    7.72
57)  t-butyl formate
            0.679 0.562 0.690 0.655 0.659 0.541 0.629       0.671   0.636    8.74
58)  Iso-octane
            2.242 1.918 2.448 2.130 2.143 1.820 2.087       2.341   2.141    9.68
59)  dibromofluoromethane (s)
            0.477 0.487 0.560 0.517 0.546       0.522       0.506   0.516    5.80
60)  1,2-dichloroethane-d4 (s)
            0.772 0.819 0.842 0.763 0.756 0.685 0.687 0.637 0.775   0.748    8.89
61)  freon 113
            0.364       0.409 0.375 0.382       0.377       0.406   0.385    4.69
62)  methacrylonitrile
            0.446 0.353 0.492 0.471 0.486 0.390 0.475       0.509   0.453   12.02
63)  1,1,1-trichloroethane
            0.869 0.813 1.025 0.956 0.950 0.839 0.903       1.066   0.927    9.56
64)  tert-amyl methyl ether
            2.140 1.833 2.086 1.899 1.869 1.845 1.776       2.109   1.945    7.37

65) I   1,4-difluorobenzene   ----------------ISTD---------------------
66)  Di-isobutylene
                                                                        0.000#  -1.00
67)  tert amyl alcohol
            0.021       0.022 0.020 0.018       0.017       0.022   0.020   10.39
68)  epichlorohydrin
            0.055 0.041 0.055 0.051 0.051       0.050       0.051   0.050    9.06
69)  n-butyl alcohol
            0.015 0.012 0.017 0.015 0.014       0.013       0.016   0.015   10.89
70)  tert-amyl ethyl ether
            0.655 0.730 0.690 0.631 0.615 0.612 0.592       0.672   0.650    7.14
71)  carbon tetrachloride
            0.531 0.463 0.604 0.530 0.514 0.512 0.490       0.625   0.533   10.27
72)  1,1-dichloropropene
            0.520 0.488 0.585 0.518 0.514 0.484 0.493       0.604   0.526    8.52
73)  hexane
            0.564 0.441 0.620 0.548 0.554 0.501 0.546       0.584   0.545    9.89
74)  benzene
            1.439 1.462 1.601 1.402 1.373 1.462 1.314 1.427 1.695   1.464    7.96
75)  heptane
            0.306 0.260 0.354 0.314 0.313       0.298       0.324   0.310    9.21
76)  isopropyl acetate
            1.029 0.800 0.967 0.859 0.840 0.845 0.798       1.046   0.898   11.25
77)  1,2-dichloroethane
            0.611 0.580 0.668 0.608 0.592 0.606 0.553 0.559 0.714   0.610    8.44
78)  ethyl acrylate
            0.554 0.545 0.647 0.610 0.607       0.583       0.603   0.593    5.94
```

Initial Calibration Summary

Job Number: JB22962 **Sample:** VE8647-ICC8647
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E196788.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
 79)  trichloroethene
            0.356 0.346 0.414 0.371 0.366 0.333 0.340       0.425   0.369    9.16
 80)  2-nitropropane
                                                                    0.000#  -1.00
 81)  2-chloroethyl vinyl ether
            0.207 0.152 0.219 0.208 0.205 0.162 0.198       0.206   0.195   12.29
 82)  methylcyclohexane
            0.708 0.568 0.714 0.612 0.591 0.511 0.583       0.696   0.623   12.01
 83)  methyl methacrylate
            0.418 0.419 0.473 0.410 0.402 0.332 0.388       0.483   0.415   11.47
 84)  1,2-dichloropropane
            0.382 0.381 0.431 0.384 0.373 0.378 0.355       0.473   0.395    9.63
 85)  dibromomethane
            0.242 0.194 0.265 0.248 0.246 0.166 0.237       0.283   0.235   16.03
             ----- Linear regression -----  Coefficient =  0.9995
               Response Ratio = 0.00529 + 0.23734 *A

 86)  bromodichloromethane
            0.562 0.538 0.618 0.570 0.567 0.494 0.534 0.537 0.647   0.563    8.19
 87)  cis-1,3-dichloropropene
            0.695 0.661 0.785 0.718 0.700 0.649 0.670 0.558 0.816   0.695   10.90
 88)  toluene-d8 (s)
            1.372 1.451 1.527 1.326 1.314 1.234 1.203 1.352 1.384   1.351    7.41
 89)  4-methyl-2-pentanone
            0.189 0.178 0.209 0.189 0.182       0.175       0.224   0.192    9.22
 90)  toluene
            0.915 0.841 1.043 0.917 0.897 0.906 0.869 0.768 1.111   0.919   11.16
 91)  3-methyl-1-butanol
            0.031       0.029 0.025 0.023       0.021       0.027   0.026   14.15
 92)  trans-1,3-dichloropropene
            0.642 0.640 0.744 0.667 0.656 0.604 0.621 0.569 0.782   0.658   10.17
 93)  ethyl methacrylate
            0.566 0.500 0.648 0.570 0.560 0.513 0.525 0.426 0.661   0.552   13.22
 94)  1,1,2-trichloroethane
            0.300 0.289 0.328 0.307 0.304 0.256 0.290 0.232 0.346   0.295   11.65
 95)  2-hexanone
            0.164       0.209 0.189 0.192       0.183       0.207   0.190    8.70

 96) I   chlorobenzene-d5      ----------------ISTD--------------------
 97)  cyclohexanone
            0.118 0.135 0.116 0.091 0.085 0.147 0.065       0.127   0.110   25.07
          ----- Quadratic regression -----                Coefficient =  0.9991
               Response Ratio = 0.02645 + 0.10187 *A + -0.00094 *A^2

 98)  tetrachloroethene
            0.408 0.380 0.456 0.387 0.374 0.375 0.343       0.462   0.398   10.47
 99)  1,3-dichloropropane
            0.675 0.696 0.733 0.664 0.637 0.688 0.587 0.761 0.777   0.691    8.70
100)  butyl acetate
            0.365 0.241 0.345 0.309 0.302       0.279       0.338   0.311   13.61
101)  3,3-dimethyl-1-butanol
            0.064       0.059 0.052 0.049       0.044       0.059   0.054   13.51
102)  dibromochloromethane
            0.445 0.449 0.496 0.454 0.444 0.469 0.416 0.433 0.521   0.459    7.04
103)  1,2-dibromoethane
            0.372 0.371 0.435 0.404 0.399 0.345 0.382 0.335 0.454   0.389   10.03
104)  n-butyl ether
                                                                    0.000#  -1.00
105)  chlorobenzene
            1.014 0.999 1.146 1.037 1.016 0.984 0.951 1.049 1.190   1.043    7.41
```

Initial Calibration Summary

Job Number: JB22962 **Sample:** VE8647-ICC8647
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E196788.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
106)  1,1,1,2-tetrachloroethane
            0.388 0.375 0.431 0.382 0.367 0.357 0.345 0.447 0.454   0.394   10.16
107)  ethylbenzene
            1.855 1.837 2.053 1.792 1.715 1.786 1.550 1.924 2.165   1.853    9.77
108)  m,p-xylene
            0.710 0.698 0.770 0.688 0.661 0.675 0.618 0.739 0.815   0.708    8.35
109)  o-xylene
            0.734 0.728 0.812 0.716 0.690 0.730 0.644 0.716 0.857   0.736    8.58
110)  butyl acrylate
                                                                    0.000#  -1.00
111)  styrene
            1.179 1.151 1.361 1.203 1.146 1.077 1.062 1.068 1.426   1.186   10.86
112)  bromoform
            0.295 0.284 0.342 0.327 0.312 0.297 0.292 0.316 0.355   0.313    7.69

113) I   1,4-dichlorobenzene-d ----------------ISTD---------------------
114)  isopropylbenzene
            3.768 3.726 4.197 3.717 3.603 3.715 3.387 3.804 4.350   3.807    7.71
115)  4-bromofluorobenzene (s)
            1.104 1.245 1.175 1.042 1.052 1.094 1.010       1.100   1.103    6.89
116)  bromobenzene
            0.828 0.864 0.940 0.854 0.857 0.878 0.814 0.907 1.029   0.886    7.45
117)  1,1,2,2-tetrachloroethane
            1.008 1.223 1.168 1.044 1.046 1.281 1.019 1.370 1.202   1.151   11.22
118)  trans-1,4-dichloro-2-butene
            0.255 0.255 0.354 0.339 0.340       0.339       0.355   0.320   13.95
119)  1,2,3-trichloropropane
            0.280 0.268 0.310 0.292 0.287 0.283 0.275 0.235 0.338   0.285    9.90
120)  n-propylbenzene
            4.299 4.344 4.687 4.060 3.957 4.335 3.732 4.255 4.952   4.291    8.55
121)  p-ethyltoluene
            3.778 3.928 3.824 3.432 3.376 3.601 3.282 2.635 3.588   3.494   11.08
122)  2-chlorotoluene
            0.783 0.790 0.859 0.768 0.763 0.726 0.748 0.736 0.936   0.790    8.50
123)  4-chlorotoluene
            2.718 2.655 2.985 2.778 2.694 2.646 2.581 3.308 3.172   2.837    9.06
124)  1,3,5-trimethylbenzene
            3.106 3.186 3.348 2.926 2.872 3.185 2.627 3.582 3.652   3.165   10.49
125)  tert-butylbenzene
            2.646 2.728 3.084 2.743 2.656 2.769 2.527 2.740 3.143   2.782    7.27
126)  pentachloroethane
            0.553 0.602 0.615 0.558 0.539 0.527 0.531 0.499 0.631   0.562    7.94
127)  1,2,4-trimethylbenzene
            3.069 3.120 3.432 3.079 2.972 2.980 2.828 3.294 3.637   3.157    8.03
128)  sec-butylbenzene
            3.794 3.723 4.416 3.949 3.894 3.686 3.660 3.572 4.506   3.911    8.52
129)  1,3-dichlorobenzene
            1.561 1.604 1.773 1.652 1.637 1.606 1.590 1.763 1.946   1.681    7.35
130)  p-isopropyltoluene
            3.052 3.012 3.641 3.282 3.176 2.819 3.034 3.127 3.751   3.210    9.47
131)  1,4-dichlorobenzene
            1.479 1.520 1.743 1.648 1.635 1.543 1.567 1.833 1.795   1.640    7.69
132)  benzyl chloride
            2.126 1.613 2.183 2.180 2.172 1.430 2.101       2.033   1.980   14.72
133)  p-diethylbenzene
            1.790 1.799 2.083 1.921 1.906 1.393 1.822       1.890   1.825   10.86
134)  1,2-dichlorobenzene
            1.509 1.470 1.750 1.653 1.626 1.561 1.550 1.737 1.824   1.631    7.37
135)  n-butylbenzene
            1.533 1.295 1.832 1.693 1.699 1.212 1.654       1.842   1.595   14.64
```

Initial Calibration Summary

Job Number: JB22962 **Sample:** VE8647-ICC8647
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E196788.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
136)  1,2,4,5-tetramethylbenzene
            2.697 2.671 3.310 3.152 3.089       2.888       2.959   2.966    7.95
137)  1,2-dibromo-3-chloropropane
            0.186 0.167 0.237 0.237 0.231       0.233       0.242   0.219   13.57
138)  1,3,5-trichlorobenzene
            0.902 0.791 1.285 1.251 1.238 0.651 1.169 0.771 1.239   1.033   24.30
             ----- Linear regression -----  Coefficient =  0.9989
               Response Ratio = 0.01408 + 1.18164 *A

139)  1,2,4-trichlorobenzene
            0.571       0.935 0.995 1.032       1.013       0.851   0.900   19.32
             ----- Linear regression -----  Coefficient =  0.9998
               Response Ratio = -0.03133 + 1.02628 *A

140)  hexachlorobutadiene
            0.408 0.401 0.572 0.527 0.508       0.475       0.539   0.490   13.38
141)  naphthalene
            1.274       2.136 2.323 2.462       2.483       1.888   2.094   21.94
             ----- Linear regression -----  Coefficient =  0.9999
               Response Ratio = -0.14334 + 2.51953 *A

142)  MMT
                                                                    0.000#  -1.00
143)  1,2,3-trichlorobenzene
            0.441       0.743 0.799 0.842       0.851       0.667   0.724   21.34
             ----- Linear regression -----  Coefficient =  1.0000
               Response Ratio = -0.04629 + 0.86246 *A

144)  hexachloroethane
            0.592 0.534 0.695 0.660 0.666 0.512 0.649       0.710   0.627   11.69
145)  Cyclohexane
            1.053 1.007 1.189 1.041 1.027 0.942 1.015       1.249   1.065    9.54
146)  ethyleinimine
                                                                    0.000#  -1.00
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           ME8647.M          Tue Nov 13 09:56:58 2012   RPT1
```

6.7.11

6

Initial Calibration Verification

Job Number: JB22962 **Sample:** VE8647-ICV8647
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E196793.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E196793.D Vial: 13
Acq On : 12 Nov 2012 5:07 pm Operator: OksanaT
Sample : ICV8647-50 Inst : MSE
Misc : MS38281,VE8647,5,,100,5,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\ME8647.M (RTE Integrator)
Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Nov 13 09:20:53 2012
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	113	0.00	7.71
2	M	1,4-dioxane	0.082	0.079	3.7	102	0.00	11.56
3	M	tertiary butyl alcohol	1.235	1.211	1.9	113	0.00	7.83
4		ethanol		----------NA----------				
5	I	pentafluorobenzene	1.000	1.000	0.0	108	0.00	9.93
6		freon 23		----------NA----------				
7		freon 115		----------NA----------				
8		freon 143a		----------NA----------				
9		freon 152a		----------NA----------				
10	M	chlorotrifluoroethene		----------NA----------				
11	M	chlorodifluoromethane	0.755	0.794	-5.2	115	0.00	4.32
12	M	dichlorodifluoromethane	0.839	0.773	7.9	94	0.00	4.32
13		freon 114		----------NA----------				
14		freon 142b		----------NA----------				
15	M	chloromethane	0.860	0.989	-15.0	119	0.00	4.67
16	M	vinyl chloride	0.897	0.895	0.2	105	0.00	4.95
17	M	acetaldehyde		----------NA----------				
18	M	bromomethane	0.476	0.477	-0.2	107	0.00	5.60
		----------	True	Calc.	% Drift	----------		
19	M	chloroethane	50.000	51.129	-2.3	114	0.00	5.78
		----------	AvgRF	CCRF	% Dev	----------		
20	M	vinyl bromide		----------NA----------				
21	M	trichlorofluoromethane	0.962	0.985	-2.4	107	0.00	6.30
22	M	pentane	1.237	1.268	-2.5	119	0.00	6.37
23	M	ethyl ether	0.367	0.391	-6.5	116	0.00	6.67
24		freon 141b		----------NA----------				
25		freon 123a		----------NA----------				
26		freon 123		----------NA----------				
27	m	2-chloropropane	1.042	1.145	-9.9	115	0.00	6.87
28	M	acrolein	0.141	0.160	-13.5	123	0.00	6.88
29	M	1,1-dichloroethene	0.491	0.512	-4.3	110	0.00	7.11
30	M	isopropyl alcohol		----------NA----------				
31	M	acetone	0.080	0.071	11.3	102	0.00	7.10
32	M	allyl chloride	1.253	1.170	6.6	106	0.00	7.60
33	M	acetonitrile	0.046	0.050	-8.7	120	0.02	7.50
34	M	iodomethane	0.883	0.902	-2.2	107	0.00	7.38
35	M	iso-butyl alcohol		----------NA----------				
36	M	carbon disulfide	1.757	1.798	-2.3	110	0.00	7.55
37	M	methylene chloride	0.575	0.614	-6.8	110	0.00	7.78

Initial Calibration Verification

Job Number: JB22962 **Sample:** VE8647-ICV8647
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E196793.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

38	m	1-chloropropane	1.189	1.213	-2.0	114	0.00	7.83
39	M	methyl acetate	0.579	0.571	1.4	105	-0.01	7.55
40	M	methyl tert butyl ether	2.045	1.893	7.5	101	0.00	8.13
41	M	trans-1,2-dichloroethene	0.541	0.522	3.5	105	0.00	8.17
42	M	di-isopropyl ether	2.068	2.165	-4.7	113	0.00	8.71
43	M	ethyl tert-butyl ether	2.196	2.208	-0.5	106	0.00	9.17
44	M	2-butanone	0.090	0.083	7.8	101	0.00	9.36
45	M	1,1-dichloroethane	1.130	1.157	-2.4	111	0.00	8.70
46	M	chloroprene	1.006	0.959	4.7	100	0.00	8.83
47	M	acrylonitrile	0.261	0.286	-9.6	115	0.00	8.04
		----------	True	Calc.	% Drift	----------		
48	M	vinyl acetate	50.000	56.831	-13.7	126	0.00	8.67
		----------	AvgRF	CCRF	% Dev	----------		
49	M	ethyl acetate	0.096	0.108	-12.5	116	0.00	9.39
50	M	2,2-dichloropropane	0.952	0.845	11.2	99	0.00	9.45
51	M	cis-1,2-dichloroethene	0.592	0.603	-1.9	109	0.00	9.42
52	m	methyl acrylate	0.622	0.645	-3.7	113	0.00	9.47
53	M	propionitrile	0.102	0.111	-8.8	118	0.00	9.41
		----------	True	Calc.	% Drift	----------		
54	M	bromochloromethane	50.000	48.658	2.7	105	0.00	9.73
		----------	AvgRF	CCRF	% Dev	----------		
55	M	tetrahydrofuran	0.256	0.282	-10.2	117	0.00	9.78
56	M	chloroform	1.094	1.077	1.6	106	0.00	9.78
57	m	t-butyl formate	0.636	0.645	-1.4	107	0.00	9.82
58	M	Iso-octane	2.141	1.912	10.7	97	0.00	10.54
59	S	dibromofluoromethane (s)	0.516	0.529	-2.5	111	0.00	9.97
60	S	1,2-dichloroethane-d4 (s)	0.748	0.740	1.1	105	0.00	10.39
61	M	freon 113	0.385	0.359	6.8	104	0.00	7.09
62	M	methacrylonitrile	0.453	0.493	-8.8	113	0.00	9.62
63	M	1,1,1-trichloroethane	0.927	0.925	0.2	105	0.00	10.07
64	M	tert-amyl methyl ether	1.945	1.841	5.3	105	0.00	10.53
65	I	1,4-difluorobenzene	1.000	1.000	0.0	111	0.00	10.84
66	M	Di-isobutylene		----------NA----------				
67	M	tert amyl alcohol	0.020	0.020	2.5	106	0.00	10.32
68	M	epichlorohydrin	0.050	0.048	4.0	105	0.00	12.08
69	M	n-butyl alcohol	0.015	0.016	-6.7	118	0.00	10.92
70	M	tert-amyl ethyl ether	0.650	0.572	12.0	100	0.00	11.37
71	M	carbon tetrachloride	0.533	0.500	6.2	104	0.00	10.29
72	M	1,1-dichloropropene	0.526	0.501	4.8	107	0.00	10.24
73	M	hexane	0.545	0.479	12.1	97	0.00	8.49
74	M	benzene	1.464	1.406	4.0	111	0.00	10.50
75	M	heptane	0.310	0.308	0.6	108	0.00	10.69
76	M	isopropyl acetate	0.898	0.884	1.6	114	0.00	10.38
77	M	1,2-dichloroethane	0.610	0.575	5.7	105	0.00	10.47
78		ethyl acrylate	0.593	0.610	-2.9	111	0.00	11.17
79	M	trichloroethene	0.369	0.369	0.0	110	0.00	11.21
80	M	2-nitropropane		----------NA----------				
81	M	2-chloroethyl vinyl ether	0.195	0.207	-6.2	110	0.00	11.97
82	M	methylcyclohexane	0.623	0.572	8.2	104	0.00	11.47
83	M	methyl methacrylate	0.415	0.406	2.2	109	0.00	11.44
84	M	1,2-dichloropropane	0.395	0.384	2.8	111	0.00	11.45
		----------	True	Calc.	% Drift	----------		
85	M	dibromomethane	50.000	50.454	-0.9	109	0.00	11.60

Initial Calibration Verification

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Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E196793.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			AvgRF	CCRF	% Dev			
86	M	bromodichloromethane	0.563	0.562	0.2	109	0.00	11.74
87	M	cis-1,3-dichloropropene	0.695	0.671	3.5	103	0.00	12.21
88	S	toluene-d8 (s)	1.351	1.345	0.4	112	0.00	12.54
89	M	4-methyl-2-pentanone	0.192	0.191	0.5	112	0.00	12.29
90	M	toluene	0.919	0.902	1.8	109	0.00	12.62
91	M	3-methyl-1-butanol	0.026	0.023	11.5	104	0.00	12.31
92	M	trans-1,3-dichloropropene	0.658	0.645	2.0	107	0.00	12.79
93	M	ethyl methacrylate	0.552	0.559	-1.3	108	0.00	12.79
94	M	1,1,2-trichloroethane	0.295	0.307	-4.1	111	0.00	13.02
95	M	2-hexanone	0.190	0.194	-2.1	114	0.00	13.19
96	I	chlorobenzene-d5	1.000	1.000	0.0	108	0.00	14.17
			True	Calc.	% Drift			
97	M	cyclohexanone	500.000	317.380	36.5#	76	0.00	15.37
			AvgRF	CCRF	% Dev			
98	M	tetrachloroethene	0.398	0.378	5.0	106	0.00	13.26
99	M	1,3-dichloropropane	0.691	0.659	4.6	107	0.00	13.22
100	M	butyl acetate	0.311	0.316	-1.6	111	0.00	13.29
101	m	3,3-dimethyl-1-butanol	0.054	0.051	5.6	105	0.00	13.38
102	M	dibromochloromethane	0.459	0.439	4.4	104	0.00	13.51
103	M	1,2-dibromoethane	0.389	0.397	-2.1	106	0.00	13.68
104	M	n-butyl ether		----------NA----------				
105	M	chlorobenzene	1.043	1.024	1.8	107	0.00	14.20
106	M	1,1,1,2-tetrachloroethane	0.394	0.376	4.6	106	0.00	14.26
107	M	ethylbenzene	1.853	1.774	4.3	107	0.00	14.26
108	M	m,p-xylene	0.708	0.675	4.7	106	0.00	14.38
109	M	o-xylene	0.736	0.706	4.1	107	0.00	14.84
110	M	butyl acrylate		----------NA----------				
111	M	styrene	1.186	1.149	3.1	103	0.00	14.84
112	M	bromoform	0.313	0.305	2.6	101	0.00	15.12
113	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	104	0.00	16.74
114	M	isopropylbenzene	3.807	3.766	1.1	105	0.00	15.22
115	S	4-bromofluorobenzene (s)	1.103	1.107	-0.4	110	0.00	15.43
116	M	bromobenzene	0.886	0.870	1.8	106	0.00	15.66
117	M	1,1,2,2-tetrachloroethane	1.151	1.066	7.4	106	0.00	15.52
118	M	trans-1,4-dichloro-2-bute	0.320	0.327	-2.2	100	0.00	15.56
119	M	1,2,3-trichloropropane	0.285	0.292	-2.5	104	0.00	15.60
120	M	n-propylbenzene	4.291	4.253	0.9	109	0.00	15.67
121	M	p-ethyltoluene	3.494	3.492	0.1	106	0.00	15.78
122	M	2-chlorotoluene	0.790	0.775	1.9	105	0.00	15.84
123	M	4-chlorotoluene	2.837	2.754	2.9	103	0.00	15.94
124	M	1,3,5-trimethylbenzene	3.165	2.973	6.1	106	0.00	15.84
125	M	tert-butylbenzene	2.782	2.747	1.3	104	0.00	16.23
126	M	pentachloroethane	0.562	0.553	1.6	103	0.00	16.31
127	M	1,2,4-trimethylbenzene	3.157	3.123	1.1	105	0.00	16.28
128	M	sec-butylbenzene	3.911	4.017	-2.7	106	0.00	16.47
129	M	1,3-dichlorobenzene	1.681	1.658	1.4	104	0.00	16.68
130	M	p-isopropyltoluene	3.210	3.394	-5.7	107	0.00	16.59
131	M	1,4-dichlorobenzene	1.640	1.604	2.2	101	0.00	16.77
132		benzyl chloride	1.980	1.989	-0.5	95	0.00	16.87
133	M	p-diethylbenzene	1.825	1.907	-4.5	103	0.00	17.01
134	M	1,2-dichlorobenzene	1.631	1.632	-0.1	103	0.00	17.20
135	M	n-butylbenzene	1.595	1.722	-8.0	106	0.00	17.05
136	M	1,2,4,5-tetramethylbenzen	2.966	3.087	-4.1	102	0.00	17.88
137	M	1,2-dibromo-3-chloropropa	0.219	0.227	-3.7	99	0.00	18.02

Initial Calibration Verification

Job Number: JB22962 **Sample:** VE8647-ICV8647
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E196793.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
            ----------------------- True    Calc.   % Drift  ------------
138 m   1,3,5-trichlorobenzene     50.000  51.602     -3.2  102   0.00   18.26
139 M   1,2,4-trichlorobenzene     50.000  51.024     -2.0  106   0.00   18.97

            ----------------------- AvgRF   CCRF     % Dev   -------------
140 M   hexachlorobutadiene         0.490   0.493     -0.6   97   0.00   19.12

            ----------------------- True    Calc.   % Drift  ------------
141 M   naphthalene                50.000  47.957      4.1  102   0.00   19.28

            ----------------------- AvgRF   CCRF     % Dev   -------------
142     MMT                                ----------NA----------

            ----------------------- True    Calc.   % Drift  ------------
143 M   1,2,3-trichlorobenzene     50.000  47.859      4.3  101   0.00   19.56

            ----------------------- AvgRF   CCRF     % Dev   -------------
144 M   hexachloroethane            0.627   0.664     -5.9  105   0.00   17.51
145 M   Cyclohexane                 1.065   1.121     -5.3  112   0.00   10.18
146     ethyleinimine                      ----------NA----------
 ---------------------------------------------------------------------------
 ---------------------------------------------------------------------------

    (#) = Out of Range              SPCC's out = 0  CCC's out = 0
     E196788.D  ME8647.M         Tue Nov 13 09:59:40 2012   RPT1
```

Continuing Calibration Summary

Job Number: JB22962 **Sample:** VE8698-CC8647
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E197978.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E197978.D Vial: 2
Acq On : 17 Dec 2012 8:59 am Operator: OksanaT
Sample : cc8647-20 Inst : MSE
Misc : MS40068,VE8698,5,,100,5,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\ME8647.M (RTE Integrator)
Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Nov 13 15:53:05 2012
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	101	0.00	7.70
2	M	1,4-dioxane	0.082	0.110	-34.1#	120	0.00	11.56
3	M	tertiary butyl alcohol	1.235	1.569	-27.0#	122	-0.02	7.81
4		ethanol		----------NA----------				
5	I	pentafluorobenzene	1.000	1.000	0.0	119	0.00	9.92
6		freon 23		----------NA----------				
7		freon 115	0.000	1.053	0.0	0#	0.02	4.34
8		freon 143a		----------NA----------				
9		freon 152a		----------NA----------				
10	M	chlorotrifluoroethene		----------NA----------				
11	M	chlorodifluoromethane	0.755	0.689	8.7	103	0.04	4.35
12	M	dichlorodifluoromethane	0.839	1.053	-25.5#	131	0.02	4.34
13		freon 114		----------NA----------				
14		freon 142b		----------NA----------				
15	M	chloromethane	0.860	1.027	-19.4	135	0.00	4.67
16	M	vinyl chloride	0.897	1.053	-17.4	130	0.00	4.95
17	M	acetaldehyde		----------NA----------				
18	M	bromomethane	0.476	0.536	-12.6	128	0.00	5.60
		----------	True	Calc.	% Drift	----------		
19	M	chloroethane	20.000	21.196	-6.0	129	0.00	5.78
		----------	AvgRF	CCRF	% Dev	----------		
20	M	vinyl bromide		----------NA----------				
21	M	trichlorofluoromethane	0.962	1.063	-10.5	118	0.00	6.30
22	M	pentane		----------NA----------				
23	M	ethyl ether	0.367	0.396	-7.9	125	0.00	6.67
24		freon 141b		----------NA----------				
25		freon 123a		----------NA----------				
26		freon 123		----------NA----------				
27	m	2-chloropropane	1.042	1.368	-31.3#	143	0.00	6.86
28	M	acrolein	0.141	0.151	-7.1	116	0.00	6.87
29	M	1,1-dichloroethene	0.491	0.577	-17.5	125	0.00	7.11
30	M	isopropyl alcohol		----------NA----------				
31	M	acetone	0.080	0.062	22.5#	86	-0.02	7.08
32	M	allyl chloride	1.253	0.954	23.9#	88	0.00	7.59
33	M	acetonitrile	0.046	0.045	2.2	106	0.00	7.49
34	M	iodomethane	0.883	1.048	-18.7	132	0.00	7.37
35	M	iso-butyl alcohol		----------NA----------				
36	M	carbon disulfide	1.757	1.608	8.5	99	-0.02	7.52
37	M	methylene chloride	0.575	0.668	-16.2	127	-0.01	7.77

Continuing Calibration Summary

Job Number: JB22962 **Sample:** VE8698-CC8647
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E197978.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

38	m	1-chloropropane	1.189	1.249	-5.0	118	0.00	7.83
39	M	methyl acetate	0.579	0.602	-4.0	112	0.00	7.56
40	M	methyl tert butyl ether	2.045	2.118	-3.6	116	-0.02	8.11
41	M	trans-1,2-dichloroethene	0.541	0.602	-11.3	121	0.00	8.16
42	M	di-isopropyl ether	2.068	2.337	-13.0	124	-0.01	8.70
43	M	ethyl tert-butyl ether	2.196	2.258	-2.8	112	0.00	9.16
44	M	2-butanone	0.090	0.083	7.8	107	0.00	9.36
45	M	1,1-dichloroethane	1.130	1.232	-9.0	117	0.00	8.70
46	M	chloroprene	1.006	0.991	1.5	103	0.00	8.82
47	M	acrylonitrile	0.261	0.293	-12.3	122	0.00	8.03
		----------	True	Calc.	% Drift	----------		
48	M	vinyl acetate	20.000	20.015	-0.1	112	0.00	8.68
		----------	AvgRF	CCRF	% Dev	----------		
49	M	ethyl acetate	0.096	0.110	-14.6	124	0.00	9.39
50	M	2,2-dichloropropane	0.952	1.041	-9.3	118	0.00	9.44
51	M	cis-1,2-dichloroethene	0.592	0.664	-12.2	119	0.00	9.42
52	m	methyl acrylate	0.622	0.507	18.5	89	0.00	9.47
53	M	propionitrile	0.102	0.118	-15.7	123	0.00	9.41
		----------	True	Calc.	% Drift	----------		
54	M	bromochloromethane	20.000	20.993	-5.0	121	0.00	9.72
		----------	AvgRF	CCRF	% Dev	----------		
55	M	tetrahydrofuran	0.256	0.305	-19.1	129	0.00	9.78
56	M	chloroform	1.094	1.145	-4.7	115	0.00	9.77
57	m	t-butyl formate	0.636	0.680	-6.9	118	0.00	9.82
58	M	Iso-octane	2.141	1.978	7.6	96	0.00	10.53
59	S	dibromofluoromethane (s)	0.516	0.473	8.3	101	0.00	9.96
60	S	1,2-dichloroethane-d4 (s)	0.748	0.629	15.9	89	0.00	10.38
61	M	freon 113	0.385	0.375	2.6	109	0.00	7.09
62	M	methacrylonitrile	0.453	0.492	-8.6	119	0.00	9.62
63	M	1,1,1-trichloroethane	0.927	1.010	-9.0	118	0.00	10.06
64	M	tert-amyl methyl ether	1.945	1.997	-2.7	114	0.00	10.53
65	I	1,4-difluorobenzene	1.000	1.000	0.0	119	0.00	10.84
66	M	Di-isobutylene		----------NA----------				
67	M	tert amyl alcohol		----------NA----------				
68	M	epichlorohydrin	0.050	0.054	-8.0	117	0.00	12.08
69	M	n-butyl alcohol	0.015	0.015	0.0	107	0.00	10.92
70	M	tert-amyl ethyl ether		----------NA----------				
71	M	carbon tetrachloride	0.533	0.563	-5.6	111	0.00	10.29
72	M	1,1-dichloropropene	0.526	0.572	-8.7	117	0.00	10.24
73	M	hexane	0.545	0.495	9.2	95	0.00	8.49
74	M	benzene	1.464	1.610	-10.0	120	0.00	10.49
75	M	heptane	0.310	0.273	11.9	92	0.00	10.69
76	M	isopropyl acetate	0.898	0.911	-1.4	112	0.00	10.38
77	M	1,2-dichloroethane	0.610	0.615	-0.8	110	0.00	10.47
78		ethyl acrylate		----------NA----------				
79	M	trichloroethene	0.369	0.411	-11.4	119	0.00	11.20
80	M	2-nitropropane		----------NA----------				
81	M	2-chloroethyl vinyl ether	0.195	0.242	-24.1#	132	0.00	11.97
82	M	methylcyclohexane	0.623	0.610	2.1	102	0.00	11.46
83	M	methyl methacrylate	0.415	0.444	-7.0	112	0.00	11.44
84	M	1,2-dichloropropane	0.395	0.462	-17.0	128	0.00	11.44
		----------	True	Calc.	% Drift	----------		
85	M	dibromomethane	20.000	20.641	-3.2	116	0.00	11.60

Continuing Calibration Summary

Job Number: JB22962 **Sample:** VE8698-CC8647
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E197978.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			AvgRF	CCRF	% Dev			
86	M	bromodichloromethane	0.563	0.593	-5.3	114	0.00	11.73
87	M	cis-1,3-dichloropropene	0.695	0.765	-10.1	116	0.00	12.21
88	S	toluene-d8 (s)	1.351	1.259	6.8	98	0.00	12.54
89	M	4-methyl-2-pentanone	0.192	0.204	-6.2	117	0.00	12.29
90	M	toluene	0.919	0.988	-7.5	113	0.00	12.61
91	M	3-methyl-1-butanol	0.026	0.024	7.7	99	0.00	12.30
92	M	trans-1,3-dichloropropene	0.658	0.683	-3.8	109	0.00	12.79
93	M	ethyl methacrylate	0.552	0.603	-9.2	111	0.00	12.79
94	M	1,1,2-trichloroethane	0.295	0.334	-13.2	121	0.00	13.01
95	M	2-hexanone	0.190	0.182	4.2	104	0.00	13.19
96	I	chlorobenzene-d5	1.000	1.000	0.0	115	0.00	14.16
			True	Calc.	% Drift			
97	M	cyclohexanone	200.000	31.386	84.3#	22	0.00	15.36
			AvgRF	CCRF	% Dev			
98	M	tetrachloroethene	0.398	0.463	-16.3	116	0.00	13.26
99	M	1,3-dichloropropane	0.691	0.741	-7.2	116	0.00	13.21
100	M	butyl acetate	0.311	0.319	-2.6	106	0.00	13.28
101	m	3,3-dimethyl-1-butanol	0.054	0.055	-1.9	107	0.00	13.38
102	M	dibromochloromethane	0.459	0.485	-5.7	112	0.00	13.51
103	M	1,2-dibromoethane	0.389	0.438	-12.6	115	0.00	13.68
104	M	n-butyl ether		----------NA----------				
105	M	chlorobenzene	1.043	1.150	-10.3	115	0.00	14.20
106	M	1,1,1,2-tetrachloroethane	0.394	0.432	-9.6	115	0.00	14.26
107	M	ethylbenzene	1.853	1.990	-7.4	111	0.00	14.26
108	M	m,p-xylene	0.708	0.751	-6.1	112	0.00	14.38
109	M	o-xylene	0.736	0.789	-7.2	111	0.00	14.84
110	M	butyl acrylate		----------NA----------				
111	M	styrene	1.186	1.268	-6.9	107	0.00	14.84
112	M	bromoform	0.313	0.344	-9.9	115	0.00	15.12
113	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	112	0.00	16.73
114	M	isopropylbenzene	3.807	3.974	-4.4	106	0.00	15.21
115	S	4-bromofluorobenzene (s)	1.103	0.992	10.1	94	0.00	15.43
116	M	bromobenzene	0.886	0.972	-9.7	116	0.00	15.66
117	M	1,1,2,2-tetrachloroethane	1.151	1.189	-3.3	114	0.00	15.51
118	M	trans-1,4-dichloro-2-bute	0.320	0.320	0.0	101	0.00	15.56
119	M	1,2,3-trichloropropane	0.285	0.305	-7.0	110	0.00	15.60
120	M	n-propylbenzene	4.291	4.458	-3.9	106	0.00	15.67
121	M	p-ethyltoluene		----------NA----------				
122	M	2-chlorotoluene	0.790	0.914	-15.7	119	0.00	15.84
123	M	4-chlorotoluene	2.837	2.917	-2.8	109	0.00	15.94
124	M	1,3,5-trimethylbenzene	3.165	3.231	-2.1	108	0.00	15.83
125	M	tert-butylbenzene	2.782	2.476	11.0	90	0.00	16.22
126	M	pentachloroethane	0.562	0.633	-12.6	115	0.00	16.31
127	M	1,2,4-trimethylbenzene	3.157	3.276	-3.8	107	0.00	16.27
128	M	sec-butylbenzene	3.911	4.057	-3.7	103	0.00	16.46
129	M	1,3-dichlorobenzene	1.681	1.755	-4.4	111	0.00	16.68
130	M	p-isopropyltoluene	3.210	3.293	-2.6	101	0.00	16.59
131	M	1,4-dichlorobenzene	1.640	1.715	-4.6	110	0.00	16.76
132		benzyl chloride	1.980	1.973	0.4	101	0.00	16.87
133	M	p-diethylbenzene		----------NA----------				
134	M	1,2-dichlorobenzene	1.631	1.798	-10.2	115	0.00	17.20
135	M	n-butylbenzene	1.595	1.628	-2.1	99	0.00	17.05
136	M	1,2,4,5-tetramethylbenzen		----------NA----------				
137	M	1,2-dibromo-3-chloropropa	0.219	0.220	-0.5	104	0.00	18.02

Continuing Calibration Summary

Job Number: JB22962 **Sample:** VE8698-CC8647
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E197978.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
            ----------------------- True    Calc.   % Drift  ------------
138 m   1,3,5-trichlorobenzene     20.000  20.702     -3.5  110   0.00   18.26
139 M   1,2,4-trichlorobenzene     20.000  18.742      6.3  106   0.00   18.97

            ----------------------- AvgRF   CCRF     % Dev   -------------
140 M   hexachlorobutadiene         0.490   0.590    -20.4# 115   0.00   19.11

            ----------------------- True    Calc.   % Drift  ------------
141 M   naphthalene                20.000  17.604     12.0   97   0.00   19.28

            ----------------------- AvgRF   CCRF     % Dev   -------------
142     MMT                                ----------NA----------

            ----------------------- True    Calc.   % Drift  ------------
143 M   1,2,3-trichlorobenzene     20.000  19.623      1.9  110   0.00   19.55

            ----------------------- AvgRF   CCRF     % Dev   -------------
144 M   hexachloroethane            0.627   0.659     -5.1  106   0.00   17.50
145 M   Cyclohexane                 1.065   1.222    -14.7  115   0.00   10.18
146     ethyleinimine                      ----------NA----------
 ---------------------------------------------------------------------------
 ---------------------------------------------------------------------------

    (#) = Out of Range              SPCC's out = 0  CCC's out = 0
     E196787.D  ME8647.M         Mon Dec 17 15:20:12 2012   RPT1
```

6.7.13

6

Continuing Calibration Summary

Job Number: JB22962 **Sample:** VE8699-CC8647
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E198006.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E198006.D                    Vial: 30
Acq On    : 17 Dec 2012  11:14 pm                     Operator: OksanaT
Sample    : cc8647-50                                 Inst    : MSE
Misc      : MS39980,VE8699,5,,100,5,1                 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\ME8647.M (RTE Integrator)
Title        : SW846  8260B,ZB624 60m x 0.25mm x 1.4um
Last Update  : Tue Nov 13 15:53:05 2012
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	106	0.00	7.70
2	M	1,4-dioxane	0.082	0.096	-17.1	115	0.00	11.56
3	M	tertiary butyl alcohol	1.235	1.552	-25.7#	135	-0.01	7.81
4		ethanol		----------NA----------				
5	I	pentafluorobenzene	1.000	1.000	0.0	126	0.00	9.93
6		freon 23		----------NA----------				
7		freon 115		----------NA----------				
8		freon 143a		----------NA----------				
9		freon 152a		----------NA----------				
10	M	chlorotrifluoroethene		----------NA----------				
11	M	chlorodifluoromethane	0.755	0.835	-10.6	140	0.03	4.34
12	M	dichlorodifluoromethane	0.839	0.921	-9.8	130	0.00	4.33
13		freon 114		----------NA----------				
14		freon 142b		----------NA----------				
15	M	chloromethane	0.860	0.978	-13.7	137	0.00	4.68
16	M	vinyl chloride	0.897	0.978	-9.0	133	0.00	4.96
17	M	acetaldehyde		----------NA----------				
18	M	bromomethane	0.476	0.504	-5.9	131	0.00	5.61
		----------	True	Calc.	% Drift	----------		
19	M	chloroethane	50.000	50.614	-1.2	131	0.00	5.78
		----------	AvgRF	CCRF	% Dev	----------		
20	M	vinyl bromide		----------NA----------				
21	M	trichlorofluoromethane	0.962	0.950	1.2	120	0.00	6.30
22	M	pentane		----------NA----------				
23	M	ethyl ether	0.367	0.387	-5.4	133	0.00	6.66
24		freon 141b		----------NA----------				
25		freon 123a		----------NA----------				
26		freon 123		----------NA----------				
27	m	2-chloropropane	1.042	1.229	-17.9	143	0.00	6.86
28	M	acrolein	0.141	0.148	-5.0	131	-0.01	6.87
29	M	1,1-dichloroethene	0.491	0.505	-2.9	125	-0.01	7.10
30	M	isopropyl alcohol		----------NA----------				
31	M	acetone	0.080	0.070	12.5	117	-0.02	7.09
32	M	allyl chloride	1.253	1.161	7.3	122	0.00	7.59
33	M	acetonitrile	0.046	0.058	-26.1#	160	-0.01	7.48
34	M	iodomethane	0.883	0.966	-9.4	133	0.00	7.37
35	M	iso-butyl alcohol		----------NA----------				
36	M	carbon disulfide	1.757	2.044	-16.3	145	-0.02	7.52
37	M	methylene chloride	0.575	0.621	-8.0	129	-0.01	7.77

Continuing Calibration Summary

Job Number: JB22962 **Sample:** VE8699-CC8647
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E198006.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

38	m	1-chloropropane	1.189	1.199	-0.8	131	-0.01	7.82
39	M	methyl acetate	0.579	0.706	-21.9#	151	-0.01	7.55
40	M	methyl tert butyl ether	2.045	1.969	3.7	122	-0.01	8.12
41	M	trans-1,2-dichloroethene	0.541	0.546	-0.9	127	-0.01	8.16
42	M	di-isopropyl ether	2.068	2.434	-17.7	147	0.00	8.71
43	M	ethyl tert-butyl ether	2.196	2.393	-9.0	133	0.00	9.16
44	M	2-butanone	0.090	0.078	13.3	110	0.00	9.36
45	M	1,1-dichloroethane	1.130	1.148	-1.6	128	0.00	8.70
46	M	chloroprene	1.006	1.058	-5.2	127	0.00	8.82
47	M	acrylonitrile	0.261	0.289	-10.7	135	0.00	8.03
		----------	True	Calc.	% Drift	----------		
48	M	vinyl acetate	50.000	49.690	0.6	128	0.00	8.67
		----------	AvgRF	CCRF	% Dev	----------		
49	M	ethyl acetate	0.096	0.120	-25.0#	148	0.00	9.39
50	M	2,2-dichloropropane	0.952	0.807	15.2	110	0.00	9.44
51	M	cis-1,2-dichloroethene	0.592	0.596	-0.7	125	0.00	9.42
52	m	methyl acrylate	0.622	0.658	-5.8	134	0.00	9.47
53	M	propionitrile	0.102	0.110	-7.8	135	0.00	9.41
		----------	True	Calc.	% Drift	----------		
54	M	bromochloromethane	50.000	49.650	0.7	124	0.00	9.72
		----------	AvgRF	CCRF	% Dev	----------		
55	M	tetrahydrofuran	0.256	0.282	-10.2	136	0.00	9.77
56	M	chloroform	1.094	1.046	4.4	119	0.00	9.77
57	m	t-butyl formate	0.636	0.693	-9.0	133	0.00	9.82
58	M	Iso-octane	2.141	1.888	11.8	111	0.00	10.53
59	S	dibromofluoromethane (s)	0.516	0.483	6.4	117	0.00	9.97
60	S	1,2-dichloroethane-d4 (s)	0.748	0.655	12.4	108	0.00	10.38
61	M	freon 113	0.385	0.404	-4.9	136	0.00	7.09
62	M	methacrylonitrile	0.453	0.500	-10.4	133	0.00	9.62
63	M	1,1,1-trichloroethane	0.927	0.911	1.7	120	0.00	10.07
64	M	tert-amyl methyl ether	1.945	1.980	-1.8	131	0.00	10.53
65	I	1,4-difluorobenzene	1.000	1.000	0.0	124	0.00	10.84
66	M	Di-isobutylene	0.000	0.103	0.0	0#	0.00	10.84
67	M	tert amyl alcohol		----------NA----------				
68	M	epichlorohydrin	0.050	0.052	-4.0	127	0.00	12.07
69	M	n-butyl alcohol	0.015	0.015	0.0	126	0.00	10.92
70	M	tert-amyl ethyl ether		----------NA----------				
71	M	carbon tetrachloride	0.533	0.493	7.5	116	0.00	10.28
72	M	1,1-dichloropropene	0.526	0.505	4.0	121	0.00	10.24
73	M	hexane	0.545	0.533	2.2	121	0.00	8.49
74	M	benzene	1.464	1.452	0.8	128	0.00	10.49
75	M	heptane	0.310	0.254	18.1	100	0.00	10.69
76	M	isopropyl acetate	0.898	0.969	-7.9	140	0.00	10.37
77	M	1,2-dichloroethane	0.610	0.568	6.9	116	0.00	10.47
78		ethyl acrylate		----------NA----------				
79	M	trichloroethene	0.369	0.378	-2.4	127	0.00	11.21
80	M	2-nitropropane		----------NA----------				
81	M	2-chloroethyl vinyl ether	0.195	0.239	-22.6#	142	0.00	11.96
82	M	methylcyclohexane	0.623	0.602	3.4	122	0.00	11.46
83	M	methyl methacrylate	0.415	0.431	-3.9	130	0.00	11.44
84	M	1,2-dichloropropane	0.395	0.426	-7.8	138	0.00	11.44
		----------	True	Calc.	% Drift	----------		
85	M	dibromomethane	50.000	51.043	-2.1	124	0.00	11.60

Continuing Calibration Summary

Job Number: JB22962 **Sample:** VE8699-CC8647
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E198006.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			AvgRF	CCRF	% Dev			
86	M	bromodichloromethane	0.563	0.552	2.0	120	0.00	11.73
87	M	cis-1,3-dichloropropene	0.695	0.689	0.9	119	0.00	12.21
88	S	toluene-d8 (s)	1.351	1.257	7.0	118	0.00	12.53
89	M	4-methyl-2-pentanone	0.192	0.192	0.0	126	0.00	12.29
90	M	toluene	0.919	0.893	2.8	121	0.00	12.61
91	M	3-methyl-1-butanol	0.026	0.024	7.7	120	0.00	12.30
92	M	trans-1,3-dichloropropene	0.658	0.634	3.6	118	0.00	12.79
93	M	ethyl methacrylate	0.552	0.575	-4.2	125	0.00	12.79
94	M	1,1,2-trichloroethane	0.295	0.318	-7.8	129	0.00	13.01
95	M	2-hexanone	0.190	0.180	5.3	119	0.00	13.19
96	I	chlorobenzene-d5	1.000	1.000	0.0	122	0.00	14.16
			True	Calc.	% Drift			
97	M	cyclohexanone	500.000	69.422	86.1#	22	0.00	15.36
			AvgRF	CCRF	% Dev			
98	M	tetrachloroethene	0.398	0.380	4.5	120	0.00	13.26
99	M	1,3-dichloropropane	0.691	0.671	2.9	124	0.00	13.21
100	M	butyl acetate	0.311	0.336	-8.0	133	0.00	13.28
101	m	3,3-dimethyl-1-butanol	0.054	0.052	3.7	122	0.00	13.38
102	M	dibromochloromethane	0.459	0.434	5.4	117	0.00	13.51
103	M	1,2-dibromoethane	0.389	0.399	-2.6	121	0.00	13.68
104	M	n-butyl ether		----------NA----------				
105	M	chlorobenzene	1.043	1.025	1.7	121	0.00	14.20
106	M	1,1,1,2-tetrachloroethane	0.394	0.380	3.6	121	0.00	14.26
107	M	ethylbenzene	1.853	1.730	6.6	118	0.00	14.26
108	M	m,p-xylene	0.708	0.652	7.9	116	0.00	14.38
109	M	o-xylene	0.736	0.688	6.5	118	0.00	14.84
110	M	butyl acrylate		----------NA----------				
111	M	styrene	1.186	1.135	4.3	115	0.00	14.84
112	M	bromoform	0.313	0.313	0.0	117	0.00	15.12
113	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	118	0.00	16.73
114	M	isopropylbenzene	3.807	3.485	8.5	111	0.00	15.21
115	S	4-bromofluorobenzene (s)	1.103	1.028	6.8	116	0.00	15.43
116	M	bromobenzene	0.886	0.879	0.8	121	0.00	15.66
117	M	1,1,2,2-tetrachloroethane	1.151	1.103	4.2	125	0.00	15.51
118	M	trans-1,4-dichloro-2-bute	0.320	0.303	5.3	106	0.00	15.56
119	M	1,2,3-trichloropropane	0.285	0.273	4.2	110	0.00	15.60
120	M	n-propylbenzene	4.291	3.861	10.0	112	0.00	15.67
121	M	p-ethyltoluene		----------NA----------				
122	M	2-chlorotoluene	0.790	0.799	-1.1	123	0.00	15.84
123	M	4-chlorotoluene	2.837	2.630	7.3	112	0.00	15.94
124	M	1,3,5-trimethylbenzene	3.165	2.785	12.0	112	0.00	15.84
125	M	tert-butylbenzene	2.782	2.436	12.4	105	0.00	16.23
126	M	pentachloroethane	0.562	0.560	0.4	118	0.00	16.31
127	M	1,2,4-trimethylbenzene	3.157	2.808	11.1	108	0.00	16.27
128	M	sec-butylbenzene	3.911	3.404	13.0	102	0.00	16.46
129	M	1,3-dichlorobenzene	1.681	1.590	5.4	114	0.00	16.67
130	M	p-isopropyltoluene	3.210	2.792	13.0	100	0.00	16.59
131	M	1,4-dichlorobenzene	1.640	1.576	3.9	113	0.00	16.76
132		benzyl chloride	1.980	1.717	13.3	93	0.00	16.87
133	M	p-diethylbenzene		----------NA----------				
134	M	1,2-dichlorobenzene	1.631	1.588	2.6	113	0.00	17.19
135	M	n-butylbenzene	1.595	1.399	12.3	97	0.00	17.05
136	M	1,2,4,5-tetramethylbenzen		----------NA----------				
137	M	1,2-dibromo-3-chloropropa	0.219	0.204	6.8	102	0.00	18.01

Continuing Calibration Summary

Job Number: JB22962 **Sample:** VE8699-CC8647
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E198006.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			True	Calc.	% Drift			
138	m	1,3,5-trichlorobenzene	50.000	44.627	10.7	101	0.00	18.26
139	M	1,2,4-trichlorobenzene	50.000	40.646	18.7	95	0.00	18.97
			AvgRF	CCRF	% Dev			
140	M	hexachlorobutadiene	0.490	0.439	10.4	98	0.00	19.11
			True	Calc.	% Drift			
141	M	naphthalene	50.000	37.018	26.0#	87	0.00	19.28
			AvgRF	CCRF	% Dev			
142		MMT		----------NA----------				
			True	Calc.	% Drift			
143	M	1,2,3-trichlorobenzene	50.000	39.480	21.0#	94	0.00	19.56
			AvgRF	CCRF	% Dev			
144	M	hexachloroethane	0.627	0.583	7.0	104	0.00	17.50
145	M	Cyclohexane	1.065	1.082	-1.6	123	0.00	10.17
146		ethyleinimine		----------NA----------				

(#) = Out of Range SPCC's out = 0 CCC's out = 0
E196788.D ME8647.M Tue Dec 18 15:43:14 2012 RPT1

Continuing Calibration Summary

Job Number: JB22962 **Sample:** VE8700-CC8647
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E198025.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E198025.D                    Vial: 5
Acq On    : 18 Dec 2012  12:36 pm                     Operator: OksanaT
Sample    : cc8647-20                                 Inst    : MSE
Misc      : MS40270,VE8700,5,,100,5,1                 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\ME8647.M (RTE Integrator)
Title        : SW846  8260B,ZB624 60m x 0.25mm x 1.4um
Last Update  : Tue Nov 13 15:53:05 2012
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	123	0.00	7.70
2	M	1,4-dioxane	0.082	0.063	23.2#	84	0.00	11.56
3	M	tertiary butyl alcohol	1.235	1.144	7.4	108	0.00	7.82
4		ethanol		----------NA----------				
5	I	pentafluorobenzene	1.000	1.000	0.0	131	0.00	9.92
6		freon 23		----------NA----------				
7		freon 115		----------NA----------				
8		freon 143a		----------NA----------				
9		freon 152a		----------NA----------				
10	M	chlorotrifluoroethene		----------NA----------				
11	M	chlorodifluoromethane	0.755	0.593	21.5#	97	0.03	4.34
12	M	dichlorodifluoromethane	0.839	0.888	-5.8	120	0.01	4.34
13		freon 114		----------NA----------				
14		freon 142b		----------NA----------				
15	M	chloromethane	0.860	0.964	-12.1	138	0.00	4.67
16	M	vinyl chloride	0.897	1.004	-11.9	136	0.00	4.95
17	M	acetaldehyde		----------NA----------				
18	M	bromomethane	0.476	0.527	-10.7	137	0.00	5.61
		----------	True	Calc.	% Drift	----------		
19	M	chloroethane	20.000	20.753	-3.8	139	0.00	5.78
		----------	AvgRF	CCRF	% Dev	----------		
20	M	vinyl bromide		----------NA----------				
21	M	trichlorofluoromethane	0.962	0.924	4.0	112	0.00	6.29
22	M	pentane		----------NA----------				
23	M	ethyl ether	0.367	0.390	-6.3	134	0.00	6.66
24		freon 141b		----------NA----------				
25		freon 123a		----------NA----------				
26		freon 123		----------NA----------				
27	m	2-chloropropane	1.042	1.309	-25.6#	150	0.00	6.86
28	M	acrolein	0.141	0.158	-12.1	133	0.00	6.87
29	M	1,1-dichloroethene	0.491	0.548	-11.6	130	0.00	7.11
30	M	isopropyl alcohol		----------NA----------				
31	M	acetone	0.080	0.062	22.5#	94	0.00	7.09
32	M	allyl chloride	1.253	1.243	0.8	125	0.00	7.59
33	M	acetonitrile	0.046	0.047	-2.2	122	0.01	7.50
34	M	iodomethane	0.883	1.008	-14.2	139	0.00	7.37
35	M	iso-butyl alcohol		----------NA----------				
36	M	carbon disulfide	1.757	2.226	-26.7#	150	-0.02	7.52
37	M	methylene chloride	0.575	0.652	-13.4	135	0.00	7.77

Continuing Calibration Summary

Job Number: JB22962 **Sample:** VE8700-CC8647
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E198025.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

38	m	1-chloropropane	1.189	1.203	-1.2	124	0.00	7.83
39	M	methyl acetate	0.579	0.570	1.6	116	0.00	7.55
40	M	methyl tert butyl ether	2.045	1.996	2.4	119	-0.01	8.11
41	M	trans-1,2-dichloroethene	0.541	0.579	-7.0	127	0.00	8.16
42	M	di-isopropyl ether	2.068	2.105	-1.8	122	0.00	8.71
43	M	ethyl tert-butyl ether	2.196	2.027	7.7	110	0.00	9.16
44	M	2-butanone	0.090	0.074	17.8	105	0.00	9.36
45	M	1,1-dichloroethane	1.130	1.193	-5.6	124	0.00	8.70
46	M	chloroprene	1.006	0.878	12.7	100	0.00	8.82
47	M	acrylonitrile	0.261	0.288	-10.3	131	0.00	8.04
		----------	True	Calc.	% Drift	----------		
48	M	vinyl acetate	20.000	18.421	7.9	112	0.00	8.67
		----------	AvgRF	CCRF	% Dev	----------		
49	M	ethyl acetate	0.096	0.093	3.1	115	0.00	9.39
50	M	2,2-dichloropropane	0.952	0.957	-0.5	119	0.00	9.45
51	M	cis-1,2-dichloroethene	0.592	0.623	-5.2	122	0.00	9.42
52	m	methyl acrylate	0.622	0.654	-5.1	126	0.00	9.47
53	M	propionitrile	0.102	0.114	-11.8	129	0.00	9.42
		----------	True	Calc.	% Drift	----------		
54	M	bromochloromethane	20.000	19.333	3.3	122	0.00	9.72
		----------	AvgRF	CCRF	% Dev	----------		
55	M	tetrahydrofuran	0.256	0.271	-5.9	126	0.00	9.78
56	M	chloroform	1.094	1.069	2.3	117	0.00	9.77
57	m	t-butyl formate	0.636	0.644	-1.3	122	0.00	9.82
58	M	Iso-octane	2.141	1.786	16.6	95	0.00	10.54
59	S	dibromofluoromethane (s)	0.516	0.477	7.6	111	0.00	9.97
60	S	1,2-dichloroethane-d4 (s)	0.748	0.635	15.1	99	0.00	10.38
61	M	freon 113	0.385	0.351	8.8	112	0.00	7.08
62	M	methacrylonitrile	0.453	0.486	-7.3	129	0.00	9.62
63	M	1,1,1-trichloroethane	0.927	0.921	0.6	117	0.00	10.07
64	M	tert-amyl methyl ether	1.945	1.747	10.2	109	0.00	10.53
65	I	1,4-difluorobenzene	1.000	1.000	0.0	132	0.00	10.84
66	M	Di-isobutylene		----------NA----------				
67	M	tert amyl alcohol		----------NA----------				
68	M	epichlorohydrin	0.050	0.050	0.0	119	0.00	12.08
69	M	n-butyl alcohol	0.015	0.015	0.0	117	0.00	10.92
70	M	tert-amyl ethyl ether		----------NA----------				
71	M	carbon tetrachloride	0.533	0.512	3.9	111	0.00	10.29
72	M	1,1-dichloropropene	0.526	0.528	-0.4	119	0.00	10.24
73	M	hexane	0.545	0.433	20.6#	92	0.00	8.49
74	M	benzene	1.464	1.509	-3.1	124	0.00	10.49
75	M	heptane	0.310	0.228	26.5#	85	0.00	10.69
76	M	isopropyl acetate	0.898	0.820	8.7	112	0.00	10.37
77	M	1,2-dichloroethane	0.610	0.549	10.0	108	0.00	10.47
78		ethyl acrylate		----------NA----------				
79	M	trichloroethene	0.369	0.379	-2.7	121	0.00	11.21
80	M	2-nitropropane		----------NA----------				
81	M	2-chloroethyl vinyl ether	0.195	0.279	-43.1#	168	0.00	11.96
82	M	methylcyclohexane	0.623	0.541	13.2	100	0.00	11.47
83	M	methyl methacrylate	0.415	0.417	-0.5	116	0.00	11.44
84	M	1,2-dichloropropane	0.395	0.432	-9.4	132	0.00	11.45
		----------	True	Calc.	% Drift	----------		
85	M	dibromomethane	20.000	18.978	5.1	118	0.00	11.60

Continuing Calibration Summary

Job Number: JB22962 **Sample:** VE8700-CC8647
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E198025.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			AvgRF	CCRF	% Dev			
86	M	bromodichloromethane	0.563	0.539	4.3	115	0.00	11.73
87	M	cis-1,3-dichloropropene	0.695	0.704	-1.3	118	0.00	12.21
88	S	toluene-d8 (s)	1.351	1.265	6.4	109	0.00	12.53
89	M	4-methyl-2-pentanone	0.192	0.193	-0.5	122	0.00	12.29
90	M	toluene	0.919	0.920	-0.1	116	0.00	12.61
91	M	3-methyl-1-butanol	0.026	0.025	3.8	114	0.00	12.29
92	M	trans-1,3-dichloropropene	0.658	0.627	4.7	111	0.00	12.79
93	M	ethyl methacrylate	0.552	0.543	1.6	110	0.00	12.79
94	M	1,1,2-trichloroethane	0.295	0.307	-4.1	123	0.00	13.02
95	M	2-hexanone	0.190	0.177	6.8	111	0.00	13.19
96	I	chlorobenzene-d5	1.000	1.000	0.0	132	0.00	14.17
			True	Calc.	% Drift			
97	M	cyclohexanone	200.000	23.561	88.2#	21	0.00	15.36
			AvgRF	CCRF	% Dev			
98	M	tetrachloroethene	0.398	0.388	2.5	112	0.00	13.26
99	M	1,3-dichloropropane	0.691	0.652	5.6	117	0.00	13.21
100	M	butyl acetate	0.311	0.293	5.8	112	0.00	13.29
101	m	3,3-dimethyl-1-butanol	0.054	0.058	-7.4	130	-0.01	13.37
102	M	dibromochloromethane	0.459	0.418	8.9	111	0.00	13.51
103	M	1,2-dibromoethane	0.389	0.379	2.6	115	0.00	13.68
104	M	n-butyl ether		----------NA----------				
105	M	chlorobenzene	1.043	1.027	1.5	118	0.00	14.20
106	M	1,1,1,2-tetrachloroethane	0.394	0.376	4.6	115	0.00	14.25
107	M	ethylbenzene	1.853	1.827	1.4	118	0.00	14.26
108	M	m,p-xylene	0.708	0.671	5.2	115	0.00	14.37
109	M	o-xylene	0.736	0.696	5.4	113	0.00	14.84
110	M	butyl acrylate		----------NA----------				
111	M	styrene	1.186	1.182	0.3	115	0.00	14.84
112	M	bromoform	0.313	0.300	4.2	116	0.00	15.12
113	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	132	0.00	16.73
114	M	isopropylbenzene	3.807	3.535	7.1	111	0.00	15.22
115	S	4-bromofluorobenzene (s)	1.103	0.985	10.7	111	0.00	15.43
116	M	bromobenzene	0.886	0.834	5.9	117	0.00	15.66
117	M	1,1,2,2-tetrachloroethane	1.151	1.021	11.3	115	0.00	15.51
118	M	trans-1,4-dichloro-2-bute	0.320	0.313	2.2	117	0.00	15.56
119	M	1,2,3-trichloropropane	0.285	0.259	9.1	111	0.00	15.60
120	M	n-propylbenzene	4.291	3.996	6.9	113	0.00	15.67
121	M	p-ethyltoluene		----------NA----------				
122	M	2-chlorotoluene	0.790	0.792	-0.3	122	0.00	15.83
123	M	4-chlorotoluene	2.837	2.613	7.9	116	0.00	15.94
124	M	1,3,5-trimethylbenzene	3.165	2.873	9.2	113	0.00	15.83
125	M	tert-butylbenzene	2.782	2.435	12.5	104	0.00	16.23
126	M	pentachloroethane	0.562	0.544	3.2	117	0.00	16.31
127	M	1,2,4-trimethylbenzene	3.157	2.906	8.0	112	0.00	16.27
128	M	sec-butylbenzene	3.911	3.648	6.7	109	0.00	16.47
129	M	1,3-dichlorobenzene	1.681	1.572	6.5	117	0.00	16.67
130	M	p-isopropyltoluene	3.210	2.974	7.4	108	0.00	16.59
131	M	1,4-dichlorobenzene	1.640	1.546	5.7	117	0.00	16.76
132		benzyl chloride	1.980	1.922	2.9	116	0.00	16.87
133	M	p-diethylbenzene		----------NA----------				
134	M	1,2-dichlorobenzene	1.631	1.569	3.8	118	0.00	17.19
135	M	n-butylbenzene	1.595	1.579	1.0	114	0.00	17.05
136	M	1,2,4,5-tetramethylbenzen		----------NA----------				
137	M	1,2-dibromo-3-chloropropa	0.219	0.216	1.4	120	0.00	18.01

Continuing Calibration Summary

Job Number: JB22962 **Sample:** VE8700-CC8647
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** E198025.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
            ----------------------- True    Calc.   % Drift  ------------
138 m   1,3,5-trichlorobenzene     20.000  20.606     -3.0  129   0.00   18.26
139 M   1,2,4-trichlorobenzene     20.000  24.004    -20.0# 163   0.00   18.97

            ----------------------- AvgRF   CCRF     % Dev   -------------
140 M   hexachlorobutadiene         0.490   0.560    -14.3  129   0.00   19.12

            ----------------------- True    Calc.   % Drift  ------------
141 M   naphthalene                20.000  24.419    -22.1# 168   0.00   19.28

            ----------------------- AvgRF   CCRF     % Dev   -------------
142     MMT                                ----------NA----------

            ----------------------- True    Calc.   % Drift  ------------
143 M   1,2,3-trichlorobenzene     20.000  24.878    -24.4# 170   0.00   19.56

            ----------------------- AvgRF   CCRF     % Dev   -------------
144 M   hexachloroethane            0.627   0.582      7.2  111   0.00   17.51
145 M   Cyclohexane                 1.065   1.126     -5.7  125   0.00   10.18
146     ethyleinimine                      ----------NA----------
 ---------------------------------------------------------------------------
 ---------------------------------------------------------------------------

    (#) = Out of Range              SPCC's out = 0  CCC's out = 0
     E196787.D  ME8647.M         Tue Dec 18 15:58:39 2012   RPT1
```

New Jersey

ACCUTEST LABORATORIES

GC/MS Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\3C\v3c4158-59\
Data File : 3C93694.D
Acq On : 13 Dec 2012 6:39 am
Operator : JUNTAEP
Sample : jb22962-1
Misc : MS39893,V3C4159,5.7,,,,1
ALS Vial : 42 Sample Multiplier: 1

Quant Time: Dec 13 14:10:28 2012
Quant Method : C:\MSDCHEM\1\METHODS\M3C4143.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Fri Nov 30 15:18:13 2012
Response via : Initial Calibration

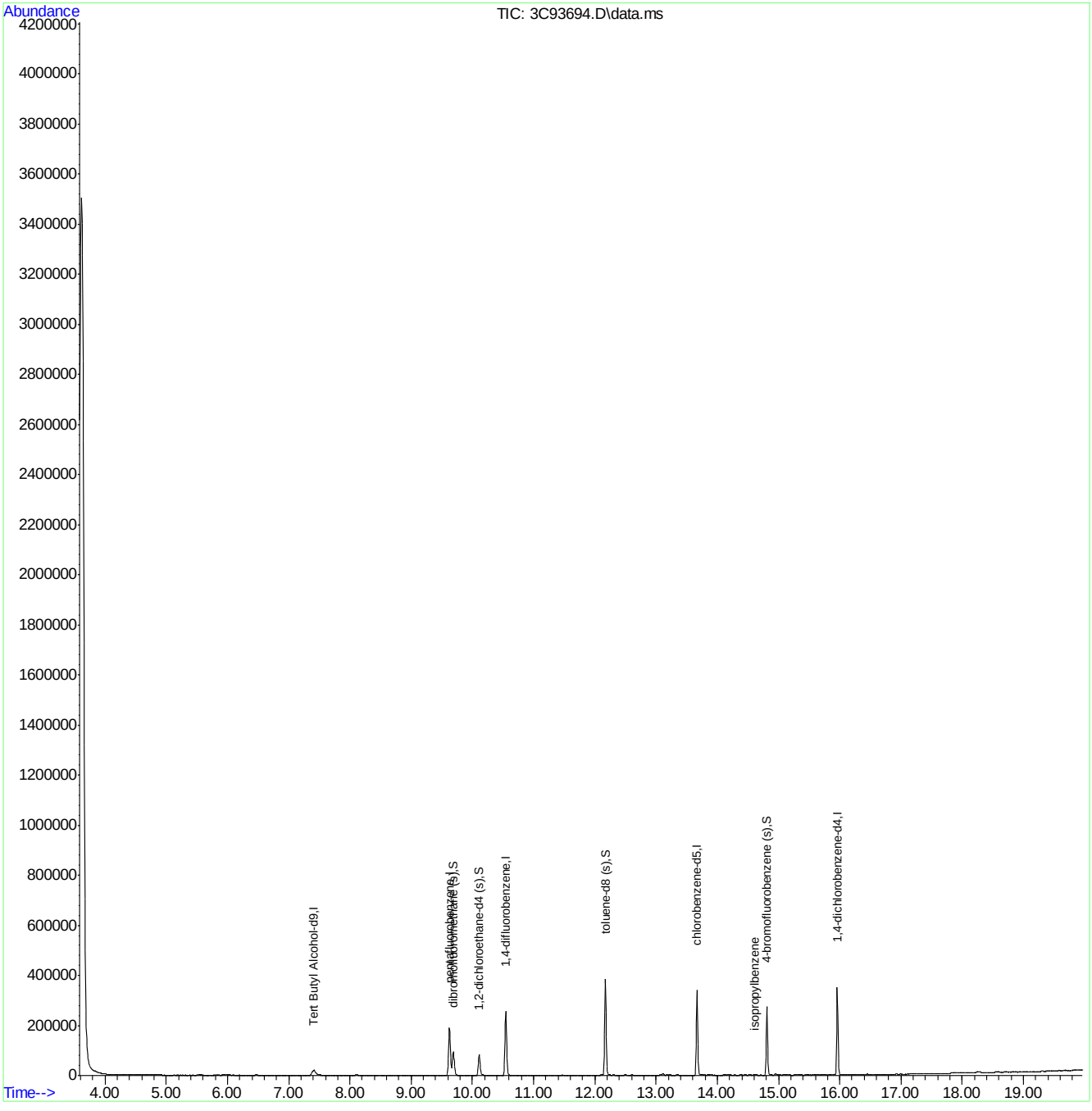
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	7.403	65	50815	500.00	ug/L	0.00
4) pentafluorobenzene	9.626	168	156496	50.00	ug/L	0.00
52) 1,4-difluorobenzene	10.546	114	237269	50.00	ug/L	0.00
81) chlorobenzene-d5	13.669	117	193592	50.00	ug/L	0.00
96) 1,4-dichlorobenzene-d4	15.960	152	89730	50.00	ug/L	0.00
System Monitoring Compounds						
43) dibromofluoromethane (s)	9.689	113	63987	47.02	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 94.04%			
44) 1,2-dichloroethane-d4 (s)	10.112	65	67426	45.45	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 90.90%			
73) toluene-d8 (s)	12.173	98	270616	50.69	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 101.38%			
98) 4-bromofluorobenzene (s)	14.809	95	94209	52.70	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 105.40%			
Target Compounds						Qvalue
97) isopropylbenzene	14.605	105	2049	0.32	ug/L	92

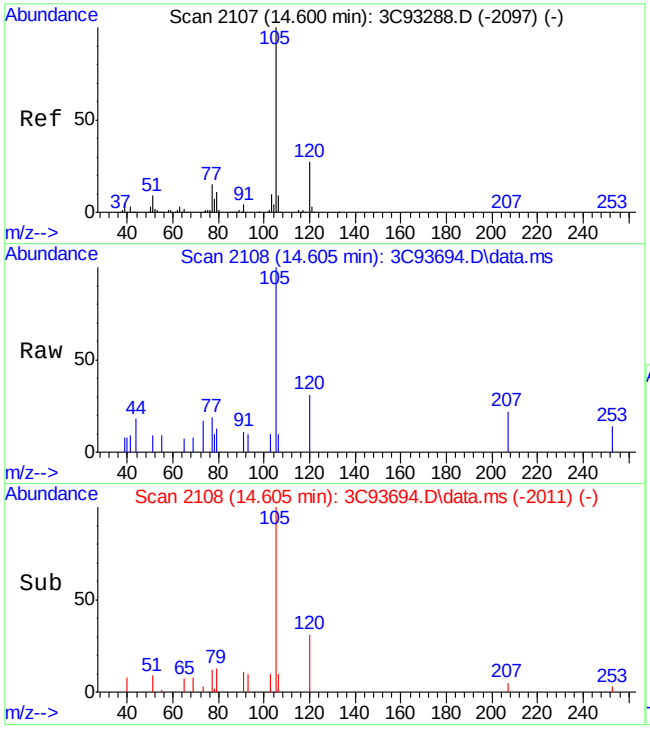
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\3C\v3c4158-59\
Data File : 3C93694.D
Acq On : 13 Dec 2012 6:39 am
Operator : JUNTAEP
Sample : jb22962-1
Misc : MS39893,V3C4159,5.7,,,,1
ALS Vial : 42 Sample Multiplier: 1

Quant Time: Dec 13 14:10:28 2012
Quant Method : C:\MSDCHEM\1\METHODS\M3C4143.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Fri Nov 30 15:18:13 2012
Response via : Initial Calibration

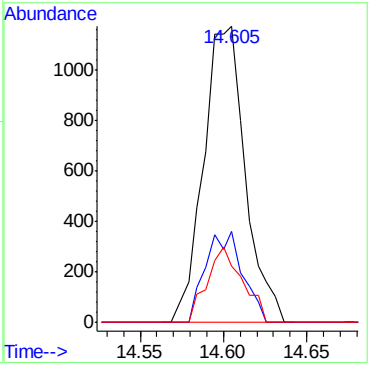




#97
isopropylbenzene
Concen: 0.32 ug/L
RT: 14.605 min Scan# 2108
Delta R.T. 0.005 min
Lab File: 3C93694.D
Acq: 13 Dec 2012 6:39 am

Tgt Ion:105 Resp: 2049

Ion	Ratio	Lower	Upper
105	100		
120	30.6	0.0	56.8
77	19.0	0.0	45.5



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203369.D
Acq On : 14 Dec 2012 6:00 am
Operator : EmilyT
Sample : JB22962-2
Misc : ms39893,vd8292,6.5,,100,5,1
ALS Vial : 43 Sample Multiplier: 1

Quant Time: Dec 14 08:20:51 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.037	65	68631	500.00 ug/L	0.00
4) pentafluorobenzene	10.255	168	107343	50.00 ug/L	-0.01
53) 1,4-difluorobenzene	11.170	114	165759	50.00 ug/L	-0.01
85) chlorobenzene-d5	14.518	117	157702	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.101	152	101256	50.00 ug/L	0.00

System Monitoring Compounds					
46) dibromofluoromethane (s)	10.292	113	51576	48.55 ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 97.10%		
47) 1,2-dichloroethane-d4 (s)	10.715	65	73626	60.25 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 120.50%		
77) toluene-d8 (s)	12.881	98	226752	53.96 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 107.92%		
101) 4-bromofluorobenzene (s)	15.794	95	100709	55.10 ug/L	-0.01
Spiked Amount 50.000	Range 66 - 132		Recovery = 110.20%		

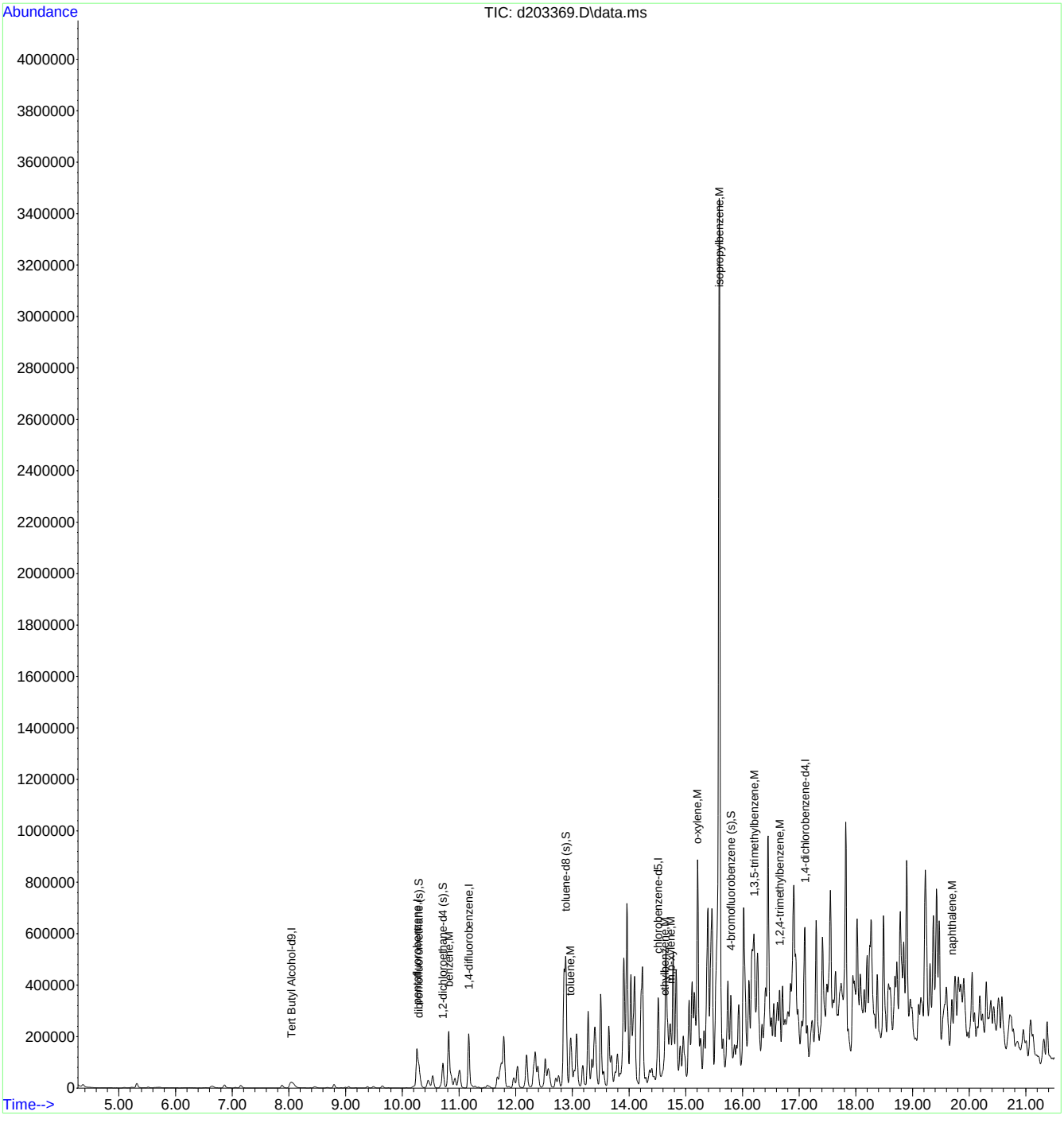
Target Compounds					Qvalue
62) benzene	10.820	78	199696	42.14 ug/L	97
79) toluene	12.959	92	44648	14.68 ug/L	99
94) ethylbenzene	14.622	91	54392	9.43 ug/L	98
95) m,p-xylene	14.737	106	34730	15.41 ug/L	90
96) o-xylene	15.197	106	7589	3.38 ug/L	97
100) isopropylbenzene	15.590	105	1905019	305.87 ug/L	95
111) 1,3,5-trimethylbenzene	16.212	105	26620	4.87 ug/L	96
114) 1,2,4-trimethylbenzene	16.651	105	68239	12.07 ug/L	96
128) naphthalene	19.695	128	105985	22.54 ug/L	99

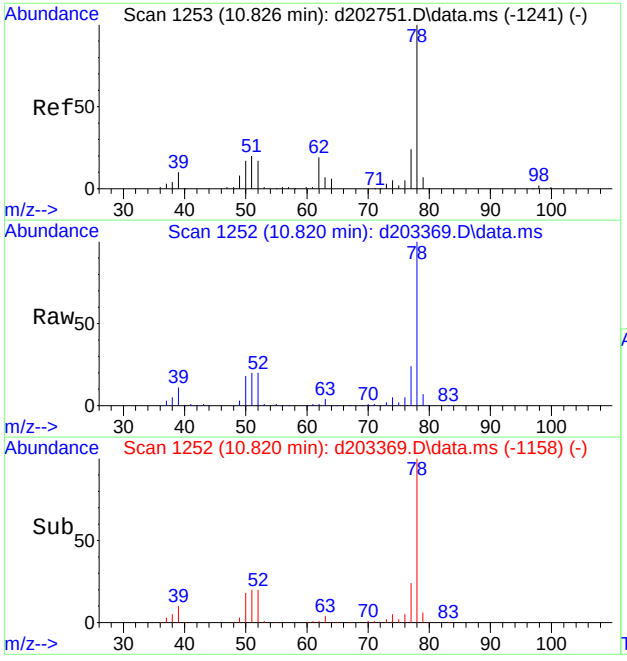
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203369.D
Acq On : 14 Dec 2012 6:00 am
Operator : EmilyT
Sample : JB22962-2
Misc : ms39893,vd8292,6.5,,100,5,1
ALS Vial : 43 Sample Multiplier: 1

Quant Time: Dec 14 08:20:51 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

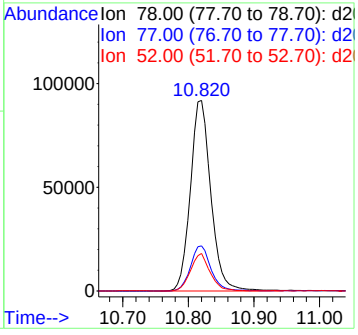


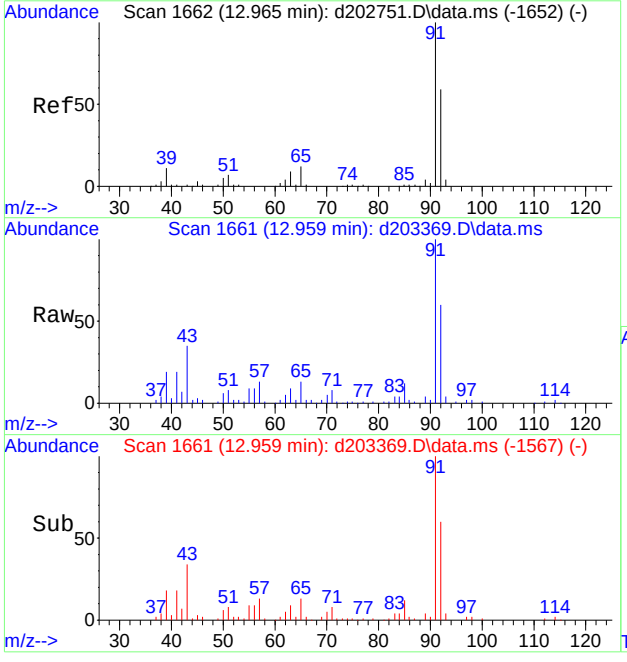


#62
benzene
Concen: 42.14 ug/L
RT: 10.820 min Scan# 1252
Delta R.T. -0.008 min
Lab File: d203369.D
Acq: 14 Dec 2012 6:00 am

Tgt Ion: 78 Resp: 199696

Ion	Ratio	Lower	Upper
78	100		
77	23.8	0.0	53.8
52	19.7	0.0	46.8

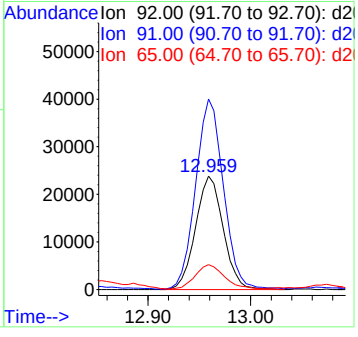


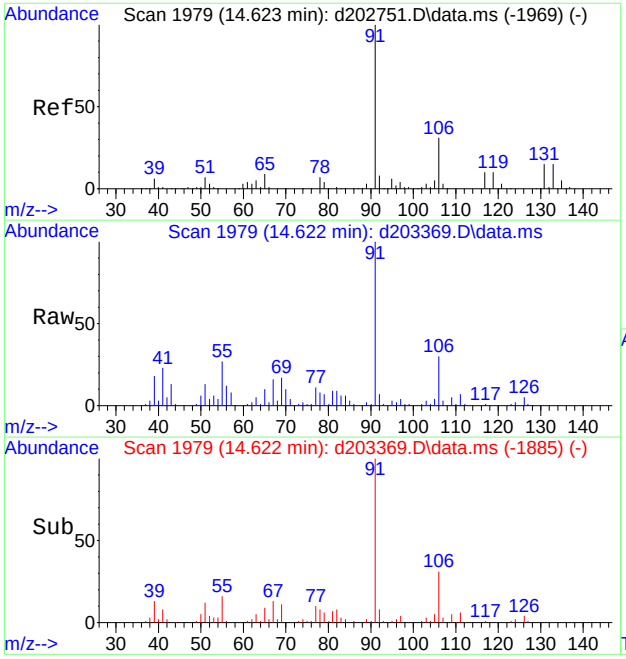


#79
toluene
Concen: 14.68 ug/L
RT: 12.959 min Scan# 1661
Delta R.T. -0.008 min
Lab File: d203369.D
Acq: 14 Dec 2012 6:00 am

Tgt Ion: 92 Resp: 44648

Ion	Ratio	Lower	Upper
92	100		
91	167.4	136.4	196.4
65	21.0	0.0	49.2

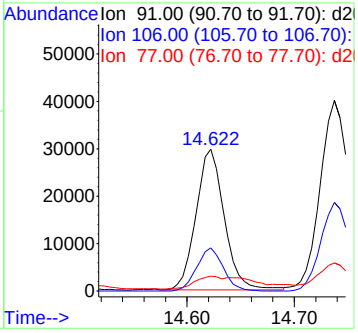


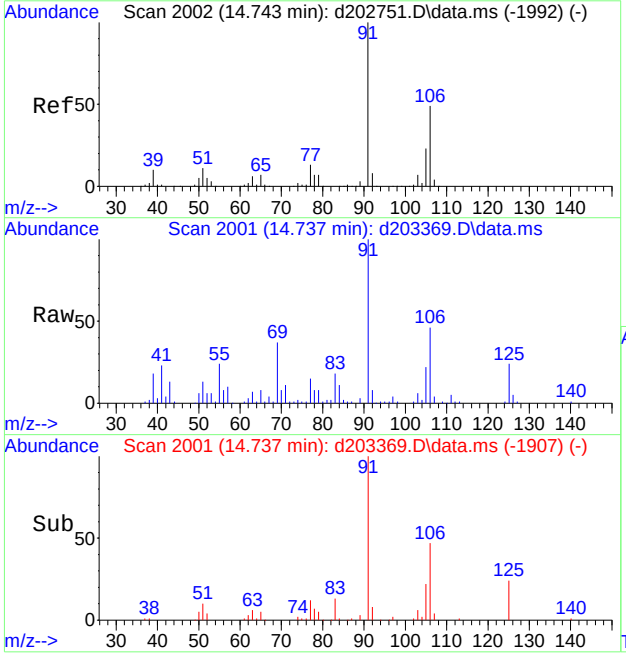


#94
ethylbenzene
Concen: 9.43 ug/L
RT: 14.622 min Scan# 1979
Delta R.T. -0.008 min
Lab File: d203369.D
Acq: 14 Dec 2012 6:00 am

Tgt Ion: 91 Resp: 54392

Ion	Ratio	Lower	Upper
91	100		
106	30.7	2.1	62.1
77	9.1	0.0	38.6

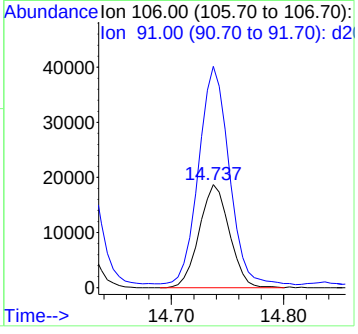




#95
m,p-xylene
Concen: 15.41 ug/L
RT: 14.737 min Scan# 2001
Delta R.T. -0.008 min
Lab File: d203369.D
Acq: 14 Dec 2012 6:00 am

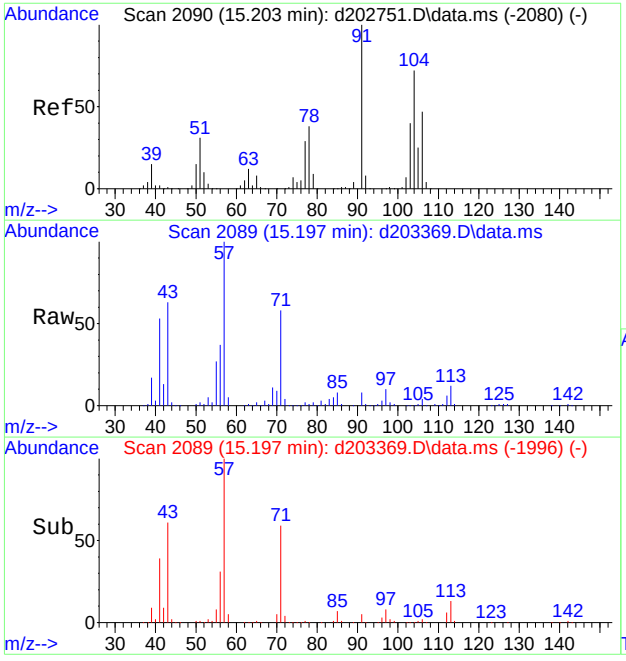
Tgt Ion:106 Resp: 34730

Ion	Ratio	Lower	Upper
106	100		
91	211.4	137.7	255.7



7.1.2

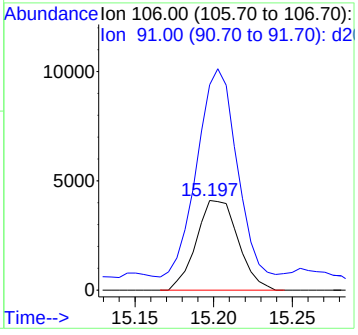
7

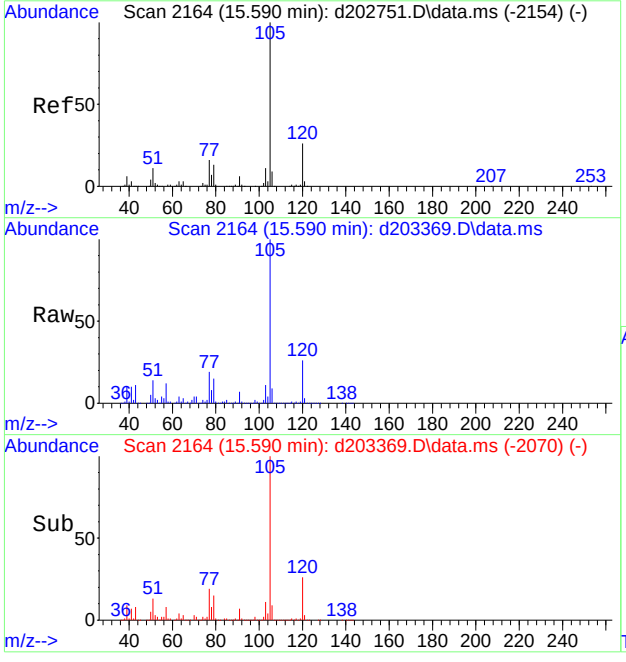


#96
o-xylene
Concen: 3.38 ug/L
RT: 15.197 min Scan# 2089
Delta R.T. -0.013 min
Lab File: d203369.D
Acq: 14 Dec 2012 6:00 am

Tgt Ion:106 Resp: 7589

Ion	Ratio	Lower	Upper
106	100		
91	214.6	147.4	273.8

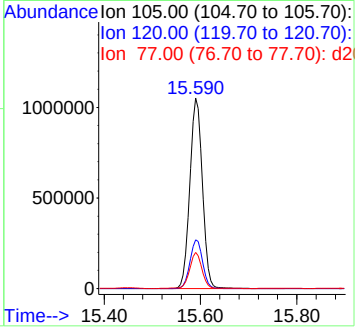




#100
isopropylbenzene
Concen: 305.87 ug/L
RT: 15.590 min Scan# 2164
Delta R.T. -0.008 min
Lab File: d203369.D
Acq: 14 Dec 2012 6:00 am

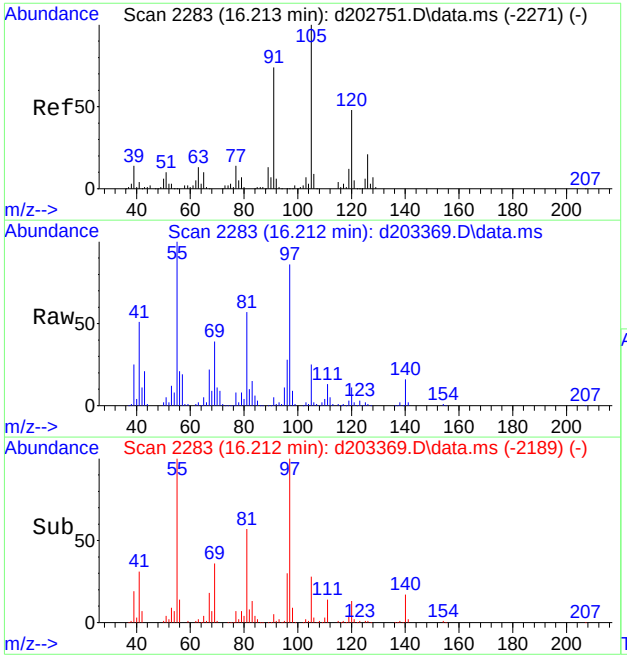
Tgt Ion:105 Resp: 1905019

Ion	Ratio	Lower	Upper
105	100		
120	25.6	0.0	56.7
77	18.9	0.0	44.9



7.1.2

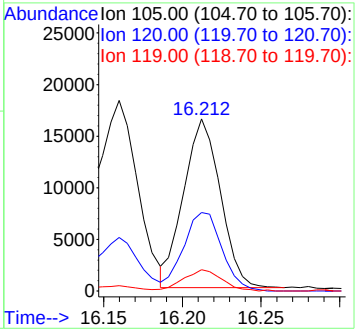
7

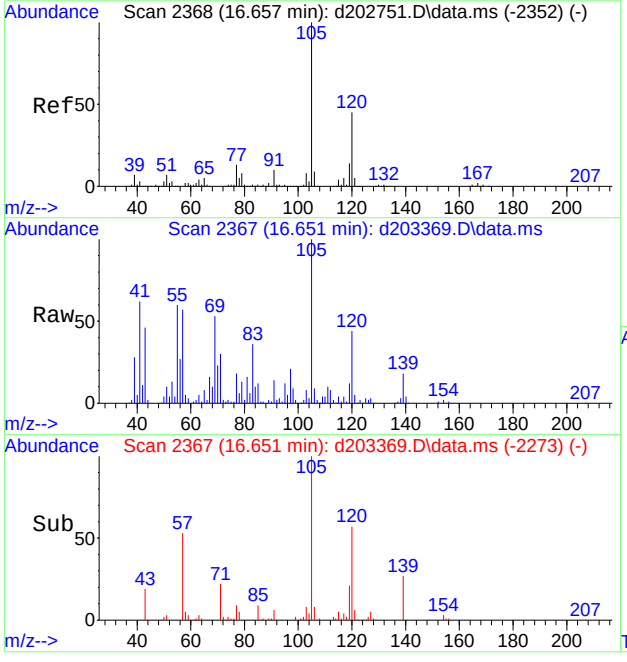


#111
1,3,5-trimethylbenzene
Concen: 4.87 ug/L
RT: 16.212 min Scan# 2283
Delta R.T. -0.008 min
Lab File: d203369.D
Acq: 14 Dec 2012 6:00 am

Tgt Ion:105 Resp: 26620

Ion	Ratio	Lower	Upper
105	100		
120	46.6	19.9	79.9
119	12.7	0.0	42.6

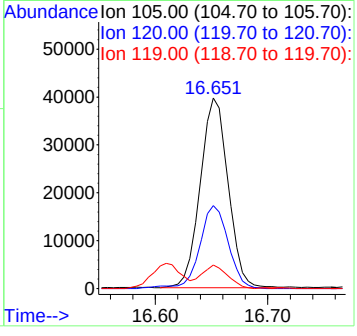


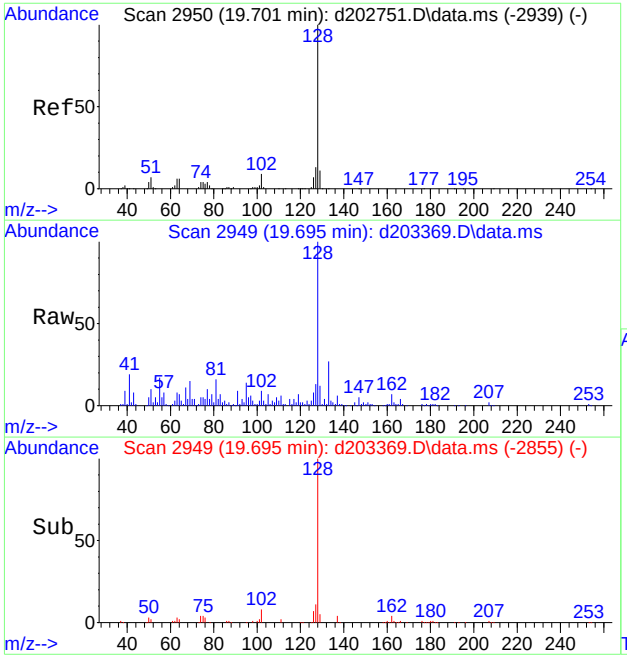


#114
1,2,4-trimethylbenzene
Concen: 12.07 ug/L
RT: 16.651 min Scan# 2367
Delta R.T. -0.008 min
Lab File: d203369.D
Acq: 14 Dec 2012 6:00 am

Tgt Ion:105 Resp: 68239

Ion	Ratio	Lower	Upper
105	100		
120	43.8	16.5	76.5
119	12.1	0.0	43.8

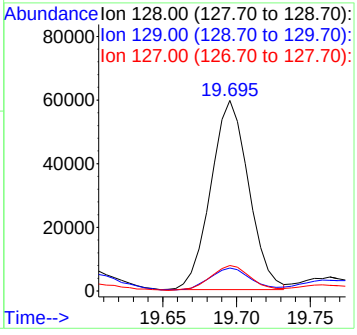




#128
naphthalene
Concen: 22.54 ug/L
RT: 19.695 min Scan# 2949
Delta R.T. -0.008 min
Lab File: d203369.D
Acq: 14 Dec 2012 6:00 am

Tgt Ion:128 Resp: 105985

Ion	Ratio	Lower	Upper
128	100		
129	11.5	0.0	41.0
127	13.0	0.0	42.7



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E197998.D
Acq On : 17 Dec 2012 7:12 pm
Operator : OksanaT
Sample : jb22962-2
Misc : MS39893,VE8698,6.5,,20,5,1
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Dec 18 13:25:15 2012
Quant Method : C:\MSDCHEM\1\METHODS\ME8647.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Nov 13 15:53:05 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.703	65	70371	500.00	ug/L	0.00
5) pentafluorobenzene	9.920	168	110832	50.00	ug/L	0.00
65) 1,4-difluorobenzene	10.835	114	163989	50.00	ug/L	0.00
96) chlorobenzene-d5	14.162	117	144086	50.00	ug/L	0.00
113) 1,4-dichlorobenzene-d4	16.735	152	73027	50.00	ug/L	0.00

System Monitoring Compounds						
59) dibromofluoromethane (s)	9.962	113	50337	43.97	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 87.94%			
60) 1,2-dichloroethane-d4 (s)	10.380	65	71665	43.21	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 86.42%			
88) toluene-d8 (s)	12.535	98	201483	45.46	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 90.92%			
115) 4-bromofluorobenzene (s)	15.433	95	74329	46.15	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 92.30%			

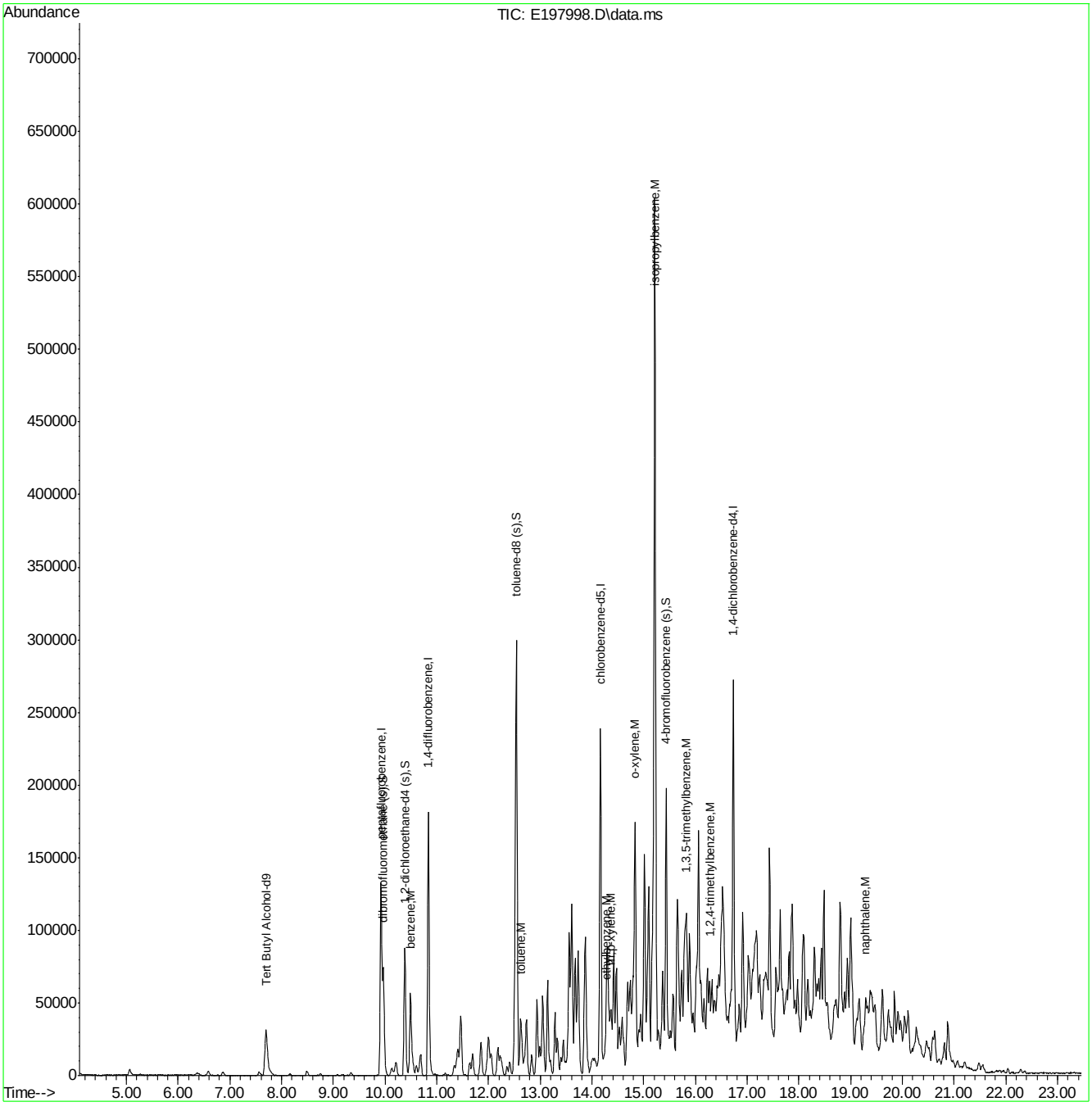
Target Compounds						Qvalue
74) benzene	10.495	78	59790	12.45	ug/L	98
90) toluene	12.619	92	12320	4.09	ug/L	99
107) ethylbenzene	14.261	91	13526	2.53	ug/L	99
108) m,p-xylene	14.376	106	8210	4.02	ug/L	89
109) o-xylene	14.836	106	1616	0.76	ug/L #	78
114) isopropylbenzene	15.213	105	382725	68.83	ug/L	99
124) 1,3,5-trimethylbenzene	15.830	105	5565	1.20	ug/L	97
127) 1,2,4-trimethylbenzene	16.275	105	12945	2.81	ug/L	94
141) naphthalene	19.282	128	18595	7.90	ug/L	94

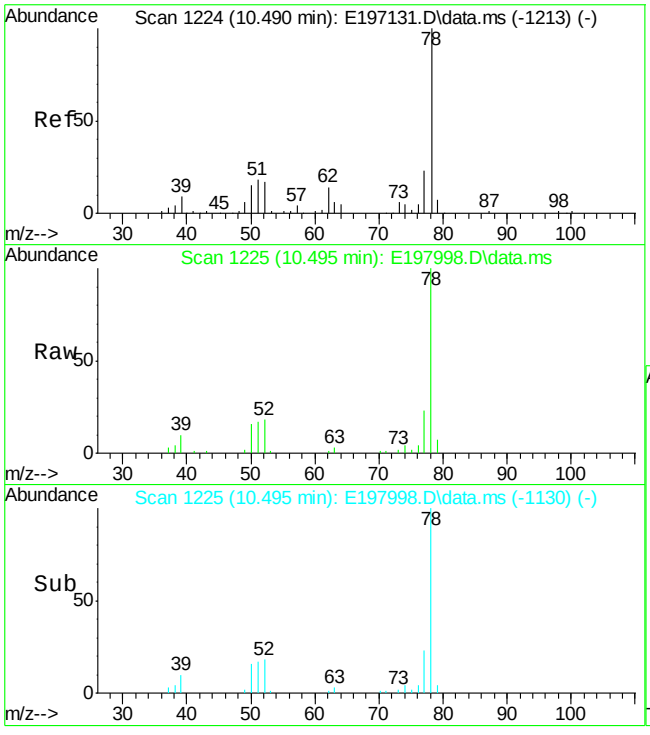
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E197998.D
Acq On : 17 Dec 2012 7:12 pm
Operator : OksanaT
Sample : jb22962-2
Misc : MS39893,VE8698,6.5,,20,5,1
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Dec 18 13:25:15 2012
Quant Method : C:\MSDCHEM\1\METHODS\ME8647.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Nov 13 15:53:05 2012
Response via : Initial Calibration

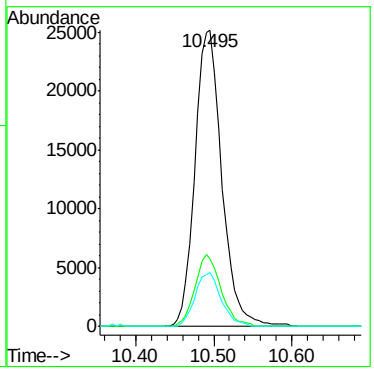


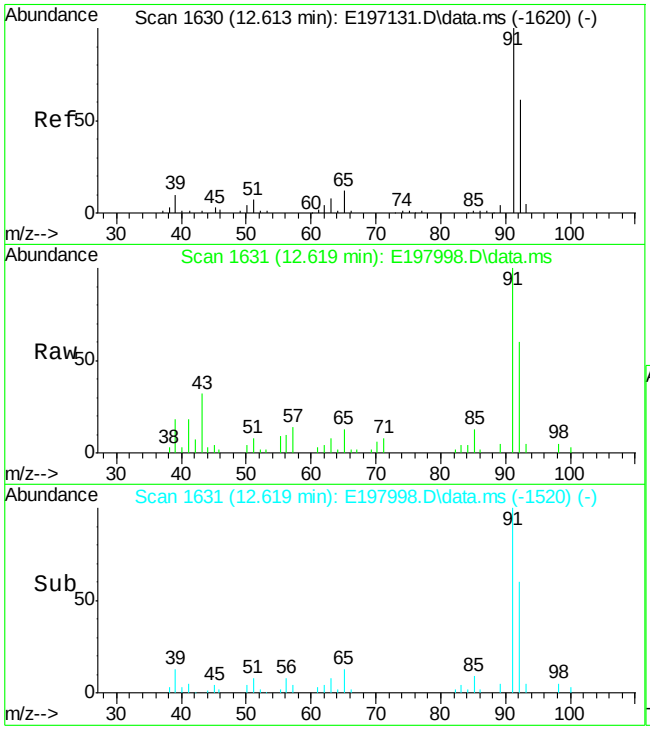


#74
benzene
Concen: 12.45 ug/L
RT: 10.495 min Scan# 1225
Delta R.T. -0.001 min
Lab File: E197998.D
Acq: 17 Dec 2012 7:12 pm

Tgt Ion: 78 Resp: 59790

Ion	Ratio	Lower	Upper
78	100		
77	22.8	0.0	54.3
52	18.0	0.0	47.9

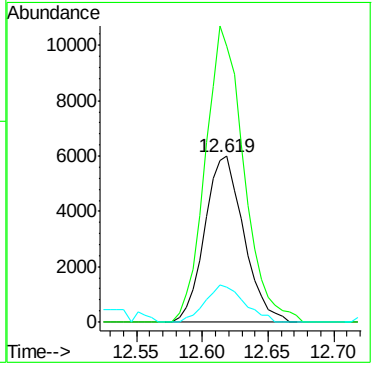


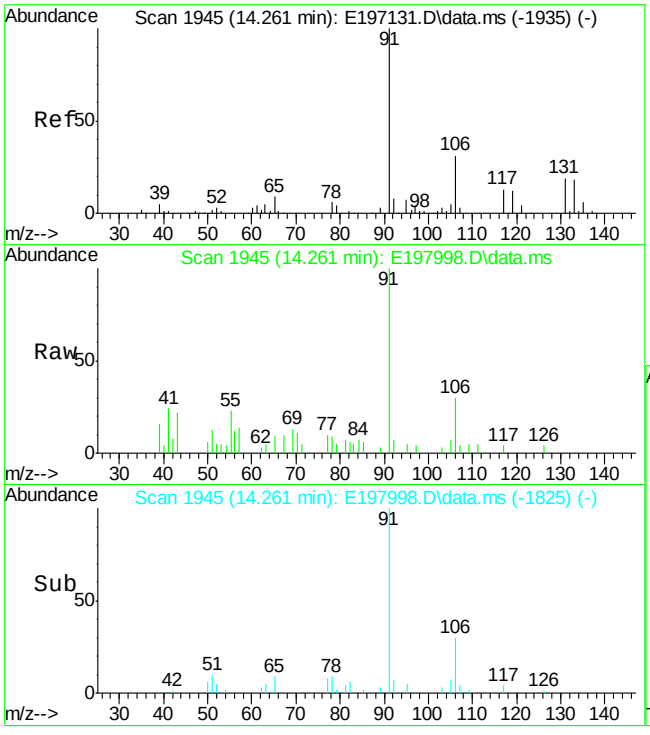


#90
toluene
Concen: 4.09 ug/L
RT: 12.619 min Scan# 1631
Delta R.T. -0.001 min
Lab File: E197998.D
Acq: 17 Dec 2012 7:12 pm

Tgt Ion: 92 Resp: 12320

Ion	Ratio	Lower	Upper
92	100		
91	166.2	137.9	197.9
65	20.9	0.0	50.7

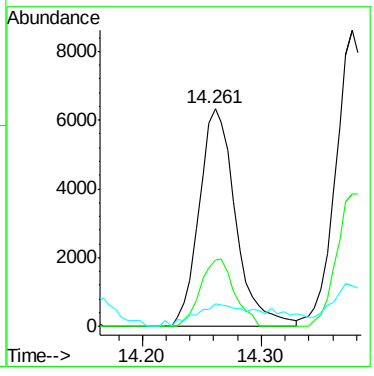


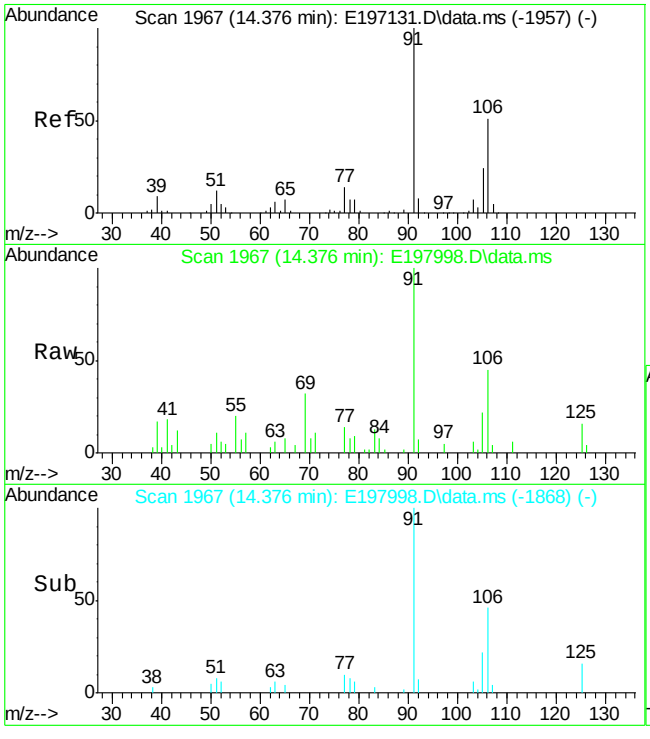


#107
ethylbenzene
Concen: 2.53 ug/L
RT: 14.261 min Scan# 1945
Delta R.T. -0.001 min
Lab File: E197998.D
Acq: 17 Dec 2012 7:12 pm

Tgt Ion: 91 Resp: 13526

Ion	Ratio	Lower	Upper
91	100		
106	30.2	0.5	60.5
77	8.0	0.0	39.0

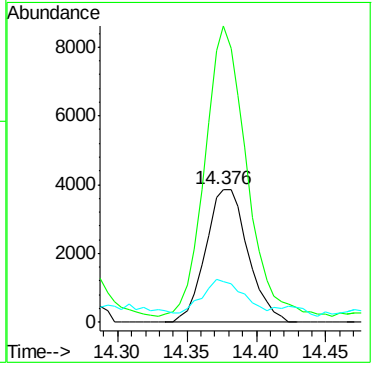




#108
m,p-xylene
Concen: 4.02 ug/L
RT: 14.376 min Scan# 1967
Delta R.T. -0.001 min
Lab File: E197998.D
Acq: 17 Dec 2012 7:12 pm

Tgt Ion:106 Resp: 8210

Ion	Ratio	Lower	Upper
106	100		
91	217.4	170.7	230.7
77	21.5	0.0	57.5



7.1.3

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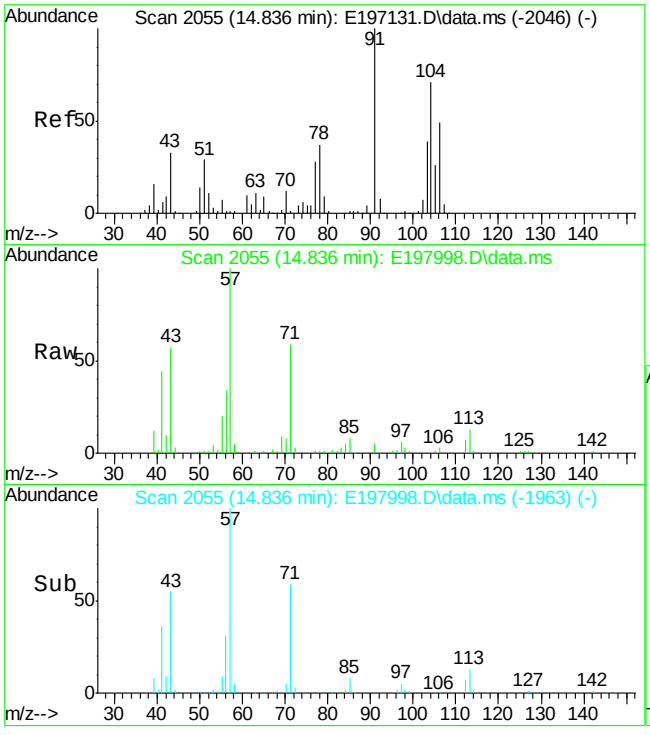
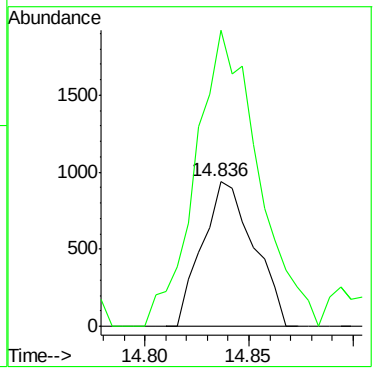
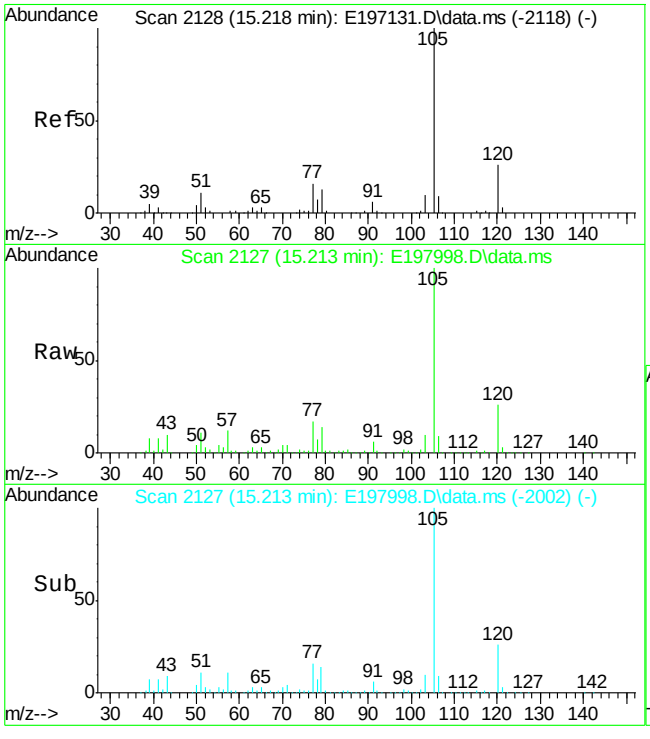


#109
o-xylene
Concen: 0.76 ug/L
RT: 14.836 min Scan# 2055
Delta R.T. -0.001 min
Lab File: E197998.D
Acq: 17 Dec 2012 7:12 pm

Tgt Ion:106 Resp: 1616

Ion	Ratio	Lower	Upper
106	100		
91	180.3	185.3	245.3#

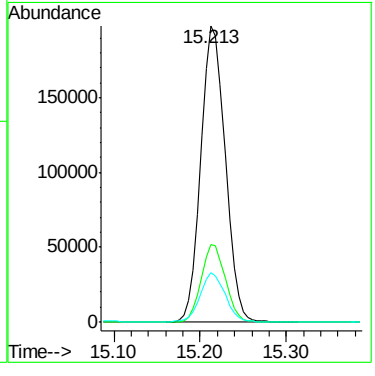


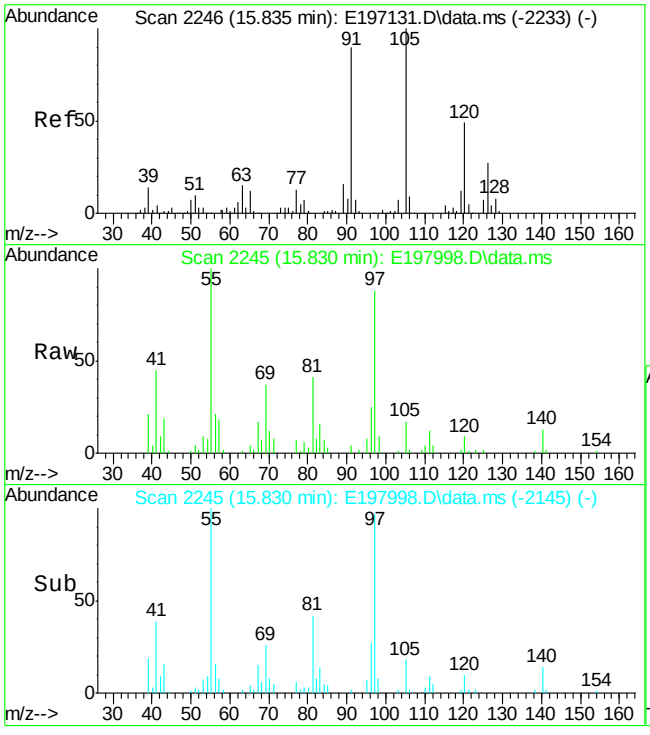


#114
isopropylbenzene
Concen: 68.83 ug/L
RT: 15.213 min Scan# 2127
Delta R.T. -0.006 min
Lab File: E197998.D
Acq: 17 Dec 2012 7:12 pm

Tgt Ion:105 Resp: 382725

Ion	Ratio	Lower	Upper
105	100		
120	26.0	0.0	56.4
77	16.4	0.0	47.0

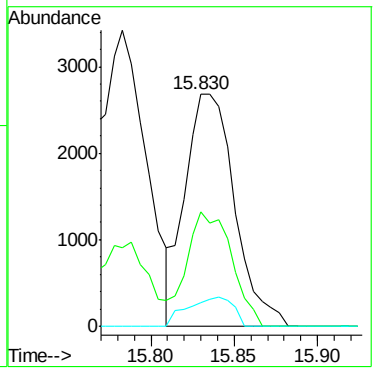


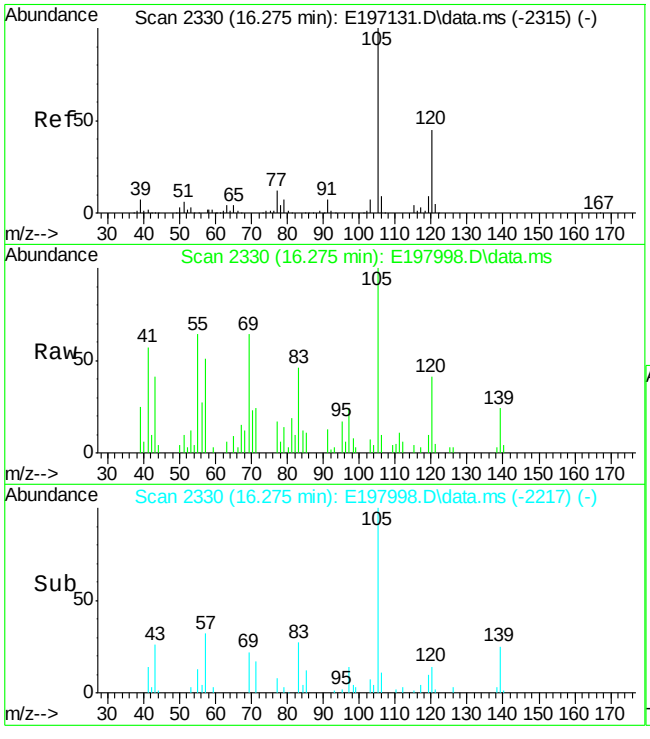


#124
1,3,5-trimethylbenzene
Concen: 1.20 ug/L
RT: 15.830 min Scan# 2245
Delta R.T. -0.006 min
Lab File: E197998.D
Acq: 17 Dec 2012 7:12 pm

Tgt Ion:105 Resp: 5565

Ion	Ratio	Lower	Upper
105	100		
120	49.4	18.2	78.2
119	10.1	0.0	43.0

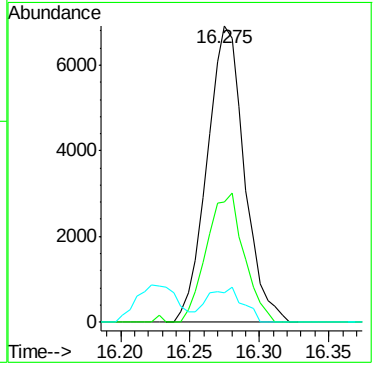




#127
1,2,4-trimethylbenzene
Concen: 2.81 ug/L
RT: 16.275 min Scan# 2330
Delta R.T. -0.001 min
Lab File: E197998.D
Acq: 17 Dec 2012 7:12 pm

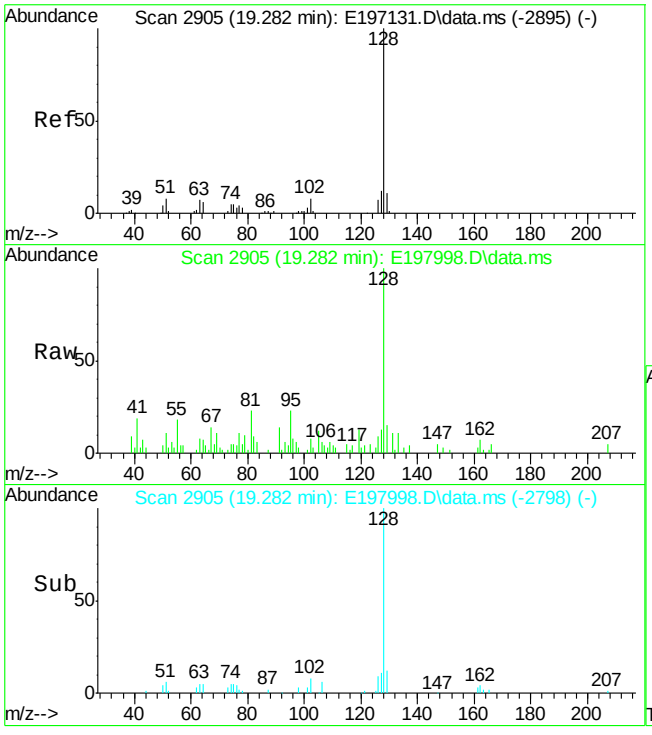
Tgt Ion:105 Resp: 12945

Ion	Ratio	Lower	Upper
105	100		
120	40.7	14.3	74.3
119	9.8	0.0	42.7



7.1.3

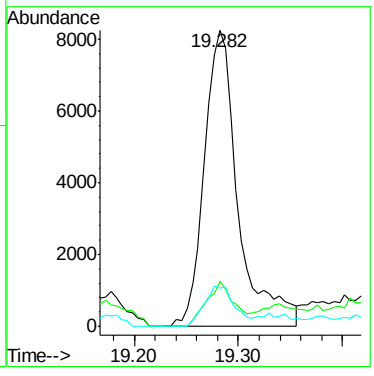
7



#141
naphthalene
Concen: 7.90 ug/L
RT: 19.282 min Scan# 2905
Delta R.T. 0.000 min
Lab File: E197998.D
Acq: 17 Dec 2012 7:12 pm

Tgt Ion:128 Resp: 18595

Ion	Ratio	Lower	Upper
128	100		
129	15.3	0.0	41.1
127	12.8	0.0	44.0



7.1.3

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203370.D
Acq On : 14 Dec 2012 6:29 am
Operator : EmilyT
Sample : JB22962-3
Misc : ms39893,vd8292,6.7,,10,5,1
ALS Vial : 44 Sample Multiplier: 1

Quant Time: Dec 14 08:24:09 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.021	65	80853	500.00 ug/L	-0.02
4) pentafluorobenzene	10.260	168	121330	50.00 ug/L	0.00
53) 1,4-difluorobenzene	11.175	114	186152	50.00 ug/L	0.00
85) chlorobenzene-d5	14.517	117	178290	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.101	152	106326	50.00 ug/L	0.00

System Monitoring Compounds

46) dibromofluoromethane (s)	10.291	113	57406	47.81 ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 95.62%		
47) 1,2-dichloroethane-d4 (s)	10.720	65	81824	59.24 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 118.48%		
77) toluene-d8 (s)	12.885	98	232559	49.28 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 98.56%		
101) 4-bromofluorobenzene (s)	15.798	95	98645	51.39 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 102.78%		

Target Compounds

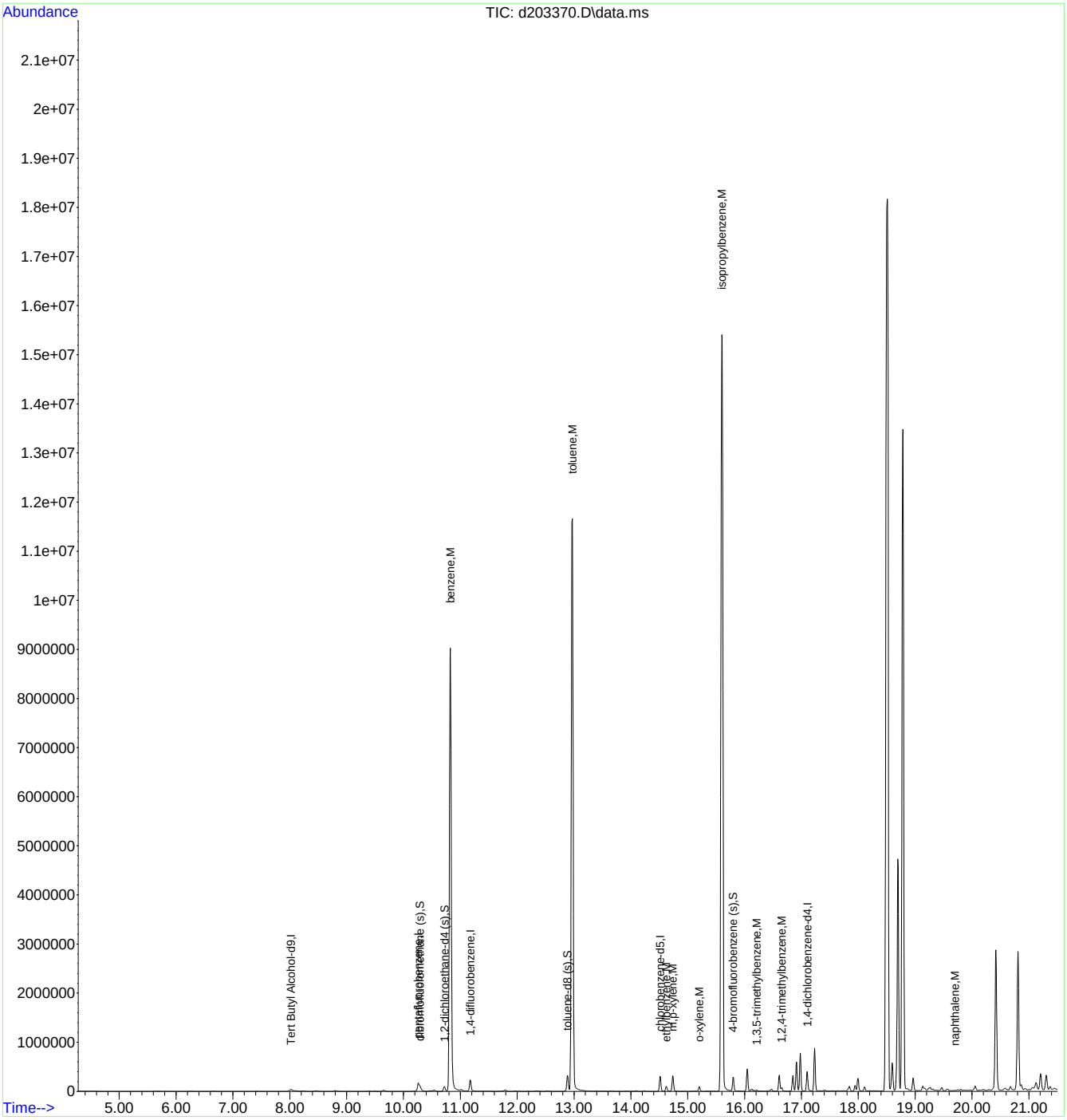
					Qvalue
62) benzene	10.825	78	7868794	1478.56 ug/L	78
79) toluene	12.969	92	5743905	1681.30 ug/L #	75
94) ethylbenzene	14.622	91	80644	12.37 ug/L	96
95) m,p-xylene	14.737	106	95232	37.38 ug/L	91
96) o-xylene	15.202	106	26096	10.29 ug/L	92
100) isopropylbenzene	15.605	105	10844251	1658.15 ug/L	63
111) 1,3,5-trimethylbenzene	16.212	105	14672	2.56 ug/L	98
114) 1,2,4-trimethylbenzene	16.651	105	43253	7.28 ug/L	95
128) naphthalene	19.700	128	4983	1.01 ug/L	96

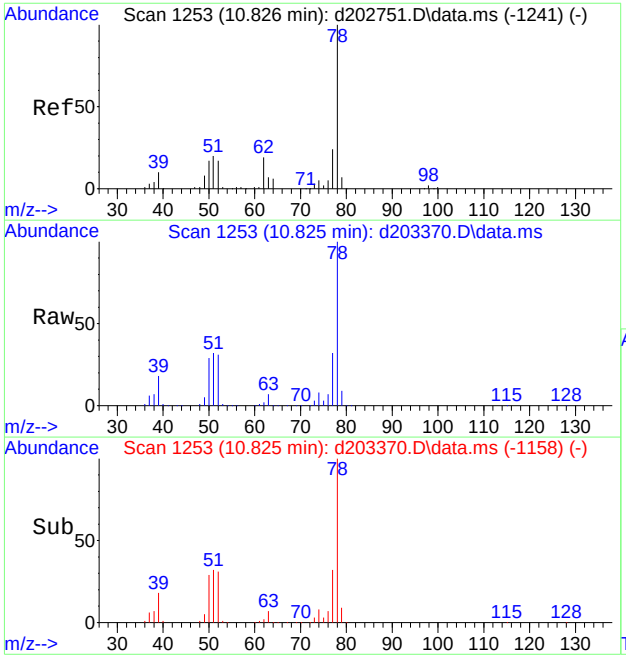
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203370.D
Acq On : 14 Dec 2012 6:29 am
Operator : EmilyT
Sample : JB22962-3
Misc : ms39893,vd8292,6.7,,10,5,1
ALS Vial : 44 Sample Multiplier: 1

Quant Time: Dec 14 08:24:09 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

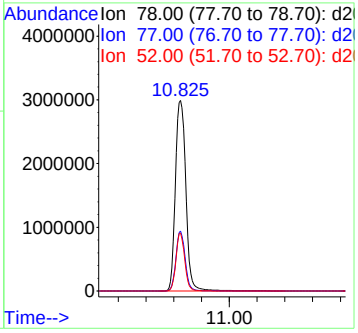


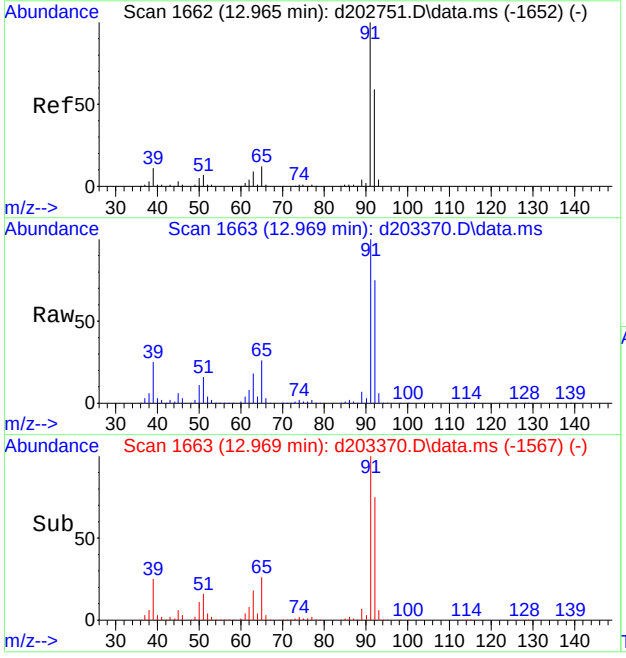


#62
benzene
Concen: 1478.56 ug/L
RT: 10.825 min Scan# 1253
Delta R.T. -0.003 min
Lab File: d203370.D
Acq: 14 Dec 2012 6:29 am

Tgt Ion: 78 Resp: 7868794

Ion	Ratio	Lower	Upper
78	100		
77	31.5	0.0	53.8
52	30.5	0.0	46.8

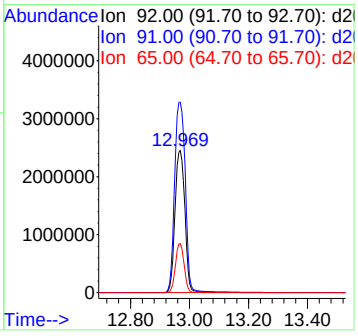


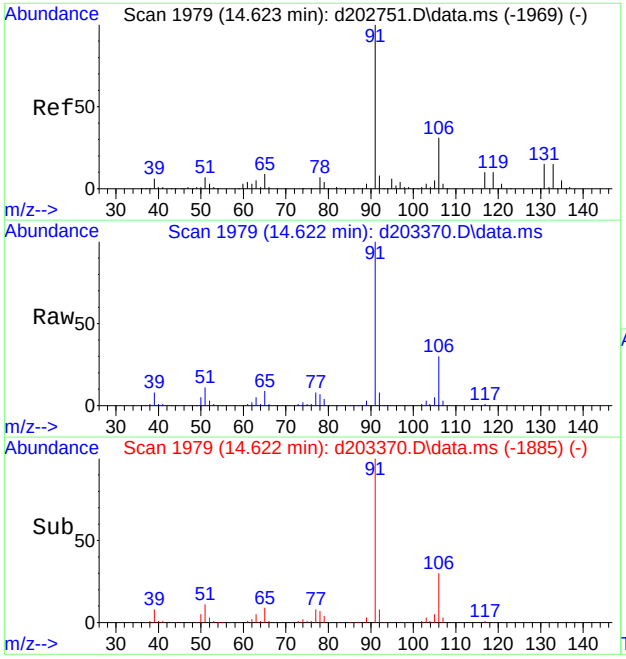


#79
toluene
Concen: 1681.30 ug/L
RT: 12.969 min Scan# 1663
Delta R.T. 0.002 min
Lab File: d203370.D
Acq: 14 Dec 2012 6:29 am

Tgt Ion: 92 Resp: 5743905

Ion	Ratio	Lower	Upper
92	100		
91	133.9	136.4	196.4#
65	34.4	0.0	49.2

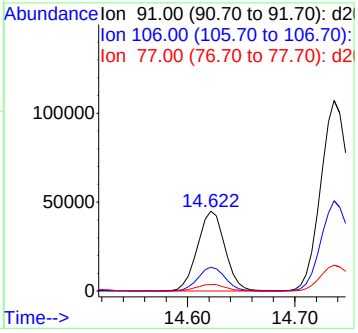


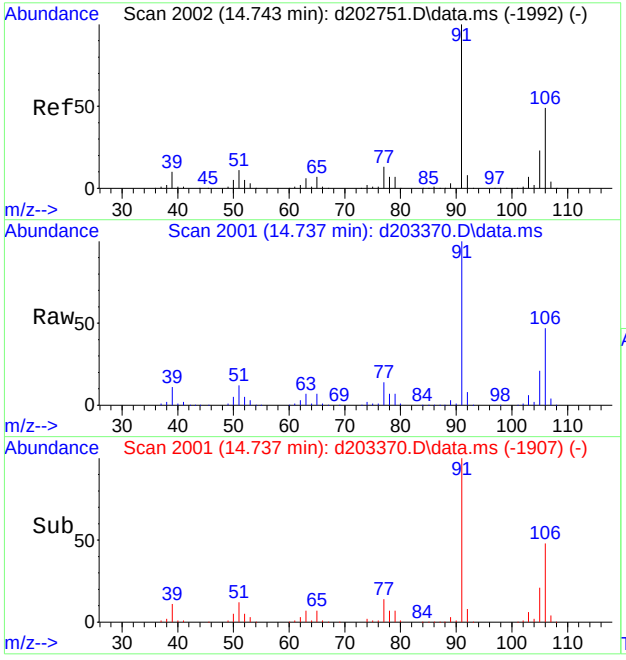


#94
ethylbenzene
Concen: 12.37 ug/L
RT: 14.622 min Scan# 1979
Delta R.T. -0.009 min
Lab File: d203370.D
Acq: 14 Dec 2012 6:29 am

Tgt Ion: 91 Resp: 80644

Ion	Ratio	Lower	Upper
91	100		
106	29.7	2.1	62.1
77	8.1	0.0	38.6

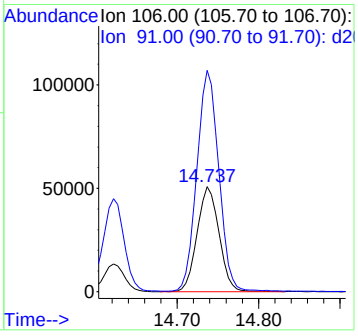




#95
m,p-xylene
Concen: 37.38 ug/L
RT: 14.737 min Scan# 2001
Delta R.T. -0.008 min
Lab File: d203370.D
Acq: 14 Dec 2012 6:29 am

Tgt Ion:106 Resp: 95232

Ion	Ratio	Lower	Upper
106	100		
91	210.2	137.7	255.7



7.1.4

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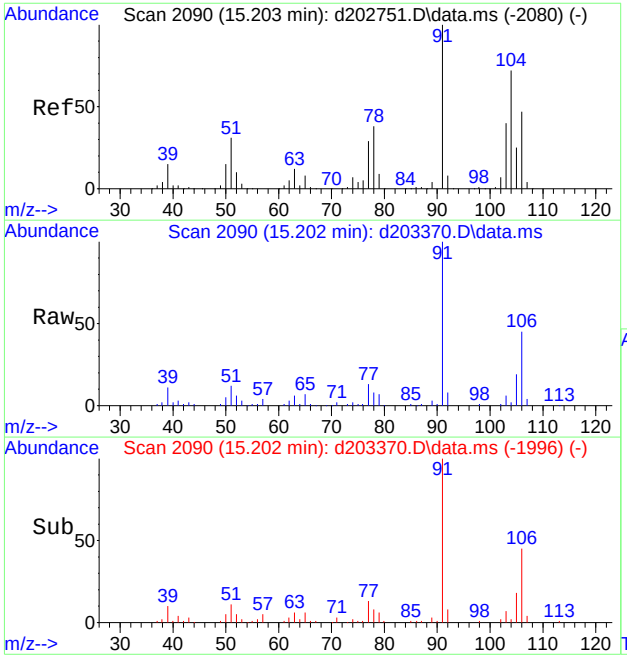
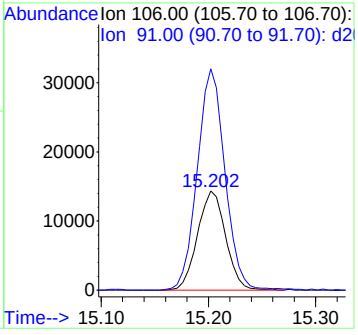
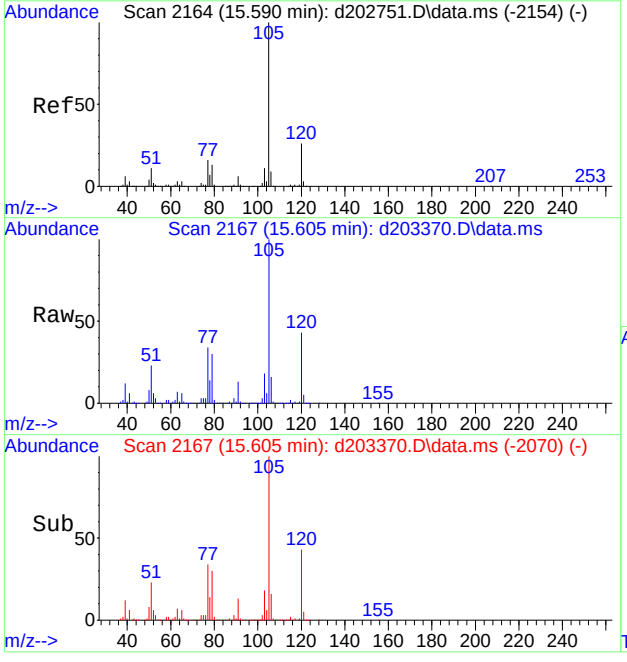


#96
o-xylene
Concen: 10.29 ug/L
RT: 15.202 min Scan# 2090
Delta R.T. -0.009 min
Lab File: d203370.D
Acq: 14 Dec 2012 6:29 am

Tgt Ion:106 Resp: 26096

Ion	Ratio	Lower	Upper
106	100		
91	223.1	147.4	273.8

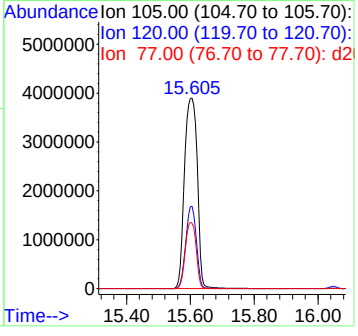




#100
isopropylbenzene
Concen: 1658.15 ug/L
RT: 15.605 min Scan# 2167
Delta R.T. 0.007 min
Lab File: d203370.D
Acq: 14 Dec 2012 6:29 am

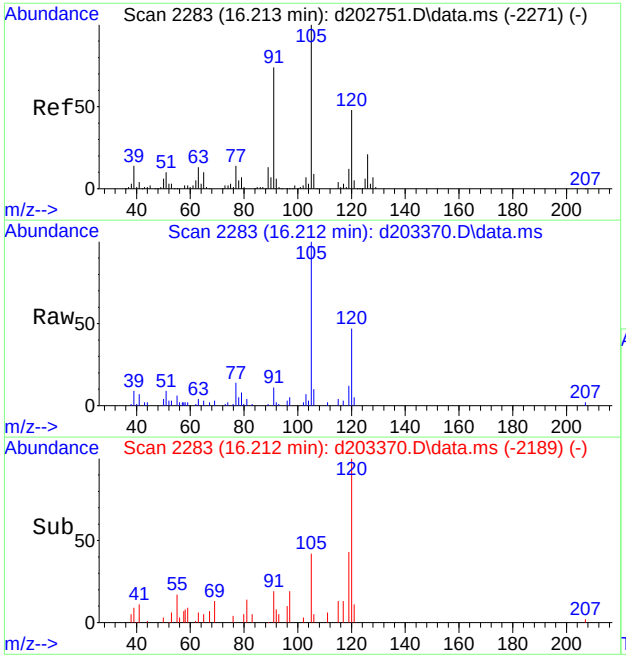
Tgt Ion:105 Resp:10844251

Ion	Ratio	Lower	Upper
105	100		
120	43.2	0.0	56.7
77	34.3	0.0	44.9



7.1.4

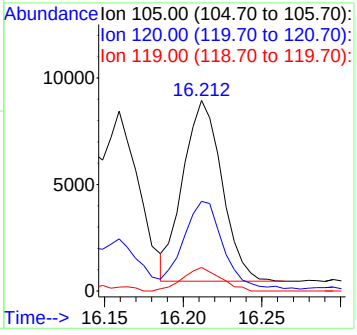
7

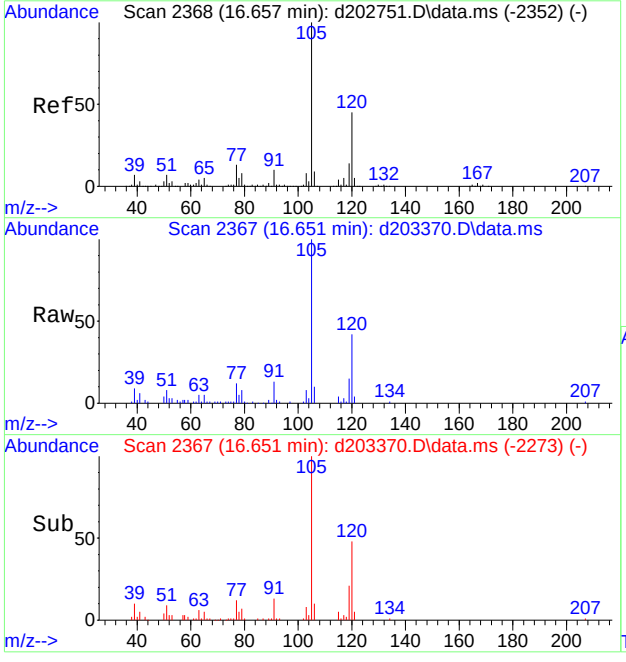


#111
1,3,5-trimethylbenzene
Concen: 2.56 ug/L
RT: 16.212 min Scan# 2283
Delta R.T. -0.009 min
Lab File: d203370.D
Acq: 14 Dec 2012 6:29 am

Tgt Ion:105 Resp: 14672

Ion	Ratio	Lower	Upper
105	100		
120	48.2	19.9	79.9
119	13.0	0.0	42.6

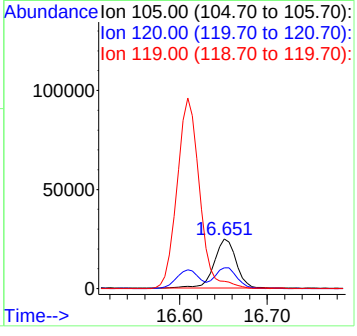




#114
1,2,4-trimethylbenzene
Concen: 7.28 ug/L
RT: 16.651 min Scan# 2367
Delta R.T. -0.008 min
Lab File: d203370.D
Acq: 14 Dec 2012 6:29 am

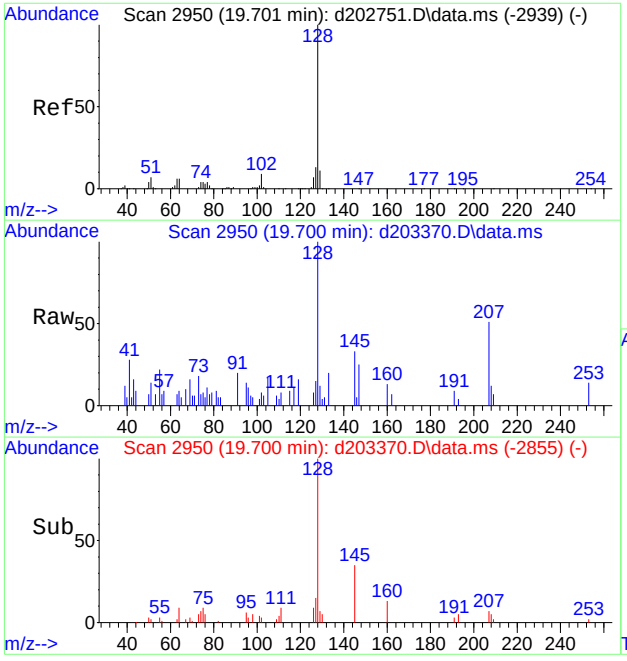
Tgt Ion:105 Resp: 43253

Ion	Ratio	Lower	Upper
105	100		
120	42.3	16.5	76.5
119	14.2	0.0	43.8



7.1.4

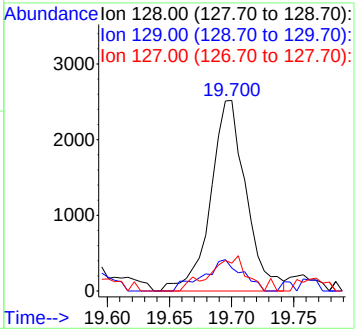
7



#128
naphthalene
Concen: 1.01 ug/L
RT: 19.700 min Scan# 2950
Delta R.T. -0.003 min
Lab File: d203370.D
Acq: 14 Dec 2012 6:29 am

Tgt Ion:128 Resp: 4983

Ion	Ratio	Lower	Upper
128	100		
129	12.0	0.0	41.0
127	14.6	0.0	42.7



7.1.4

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E197999.D
Acq On : 17 Dec 2012 7:42 pm
Operator : OksanaT
Sample : jb22962-3
Misc : MS39893,VE8698,6.7,,2,5,10
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Dec 18 13:21:54 2012
Quant Method : C:\MSDCHEM\1\METHODS\ME8647.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Nov 13 15:53:05 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.707	65	75361	500.00	ug/L	0.00
5) pentafluorobenzene	9.925	168	114603	50.00	ug/L	0.00
65) 1,4-difluorobenzene	10.840	114	166566	50.00	ug/L	0.00
96) chlorobenzene-d5	14.166	117	156729	50.00	ug/L	0.00
113) 1,4-dichlorobenzene-d4	16.734	152	80312	50.00	ug/L	0.00

System Monitoring Compounds

59) dibromofluoromethane (s)	9.966	113	52034	43.95	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 87.90%			
60) 1,2-dichloroethane-d4 (s)	10.385	65	73029	42.58	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 85.16%			
88) toluene-d8 (s)	12.540	98	214541	47.66	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 95.32%			
115) 4-bromofluorobenzene (s)	15.437	95	79091	44.65	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 89.30%			

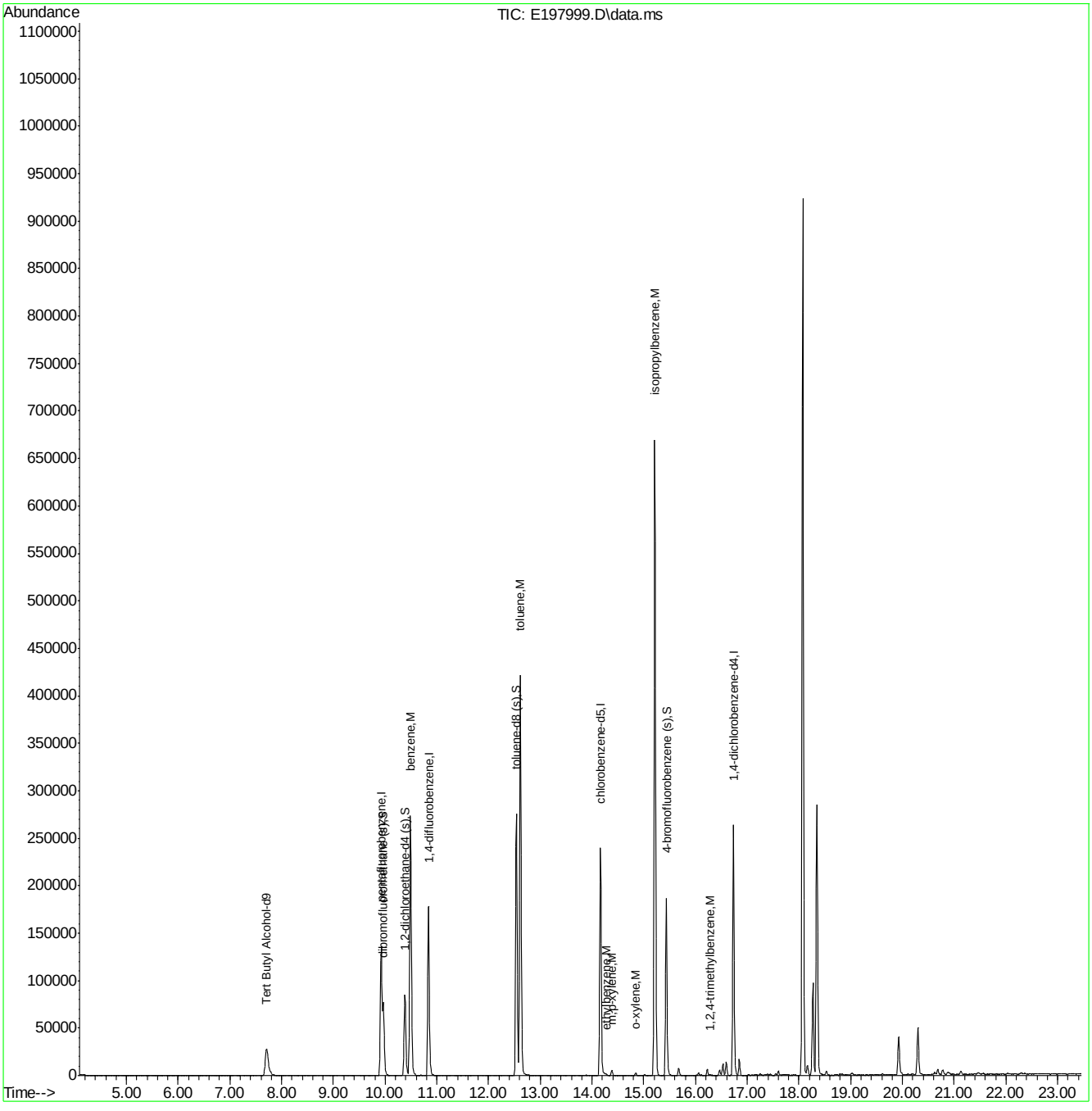
Target Compounds						Qvalue
74) benzene	10.489	78	284249	58.29	ug/L	100
90) toluene	12.613	92	211075	68.98	ug/L	99
107) ethylbenzene	14.271	91	2190	0.38	ug/L	85
108) m,p-xylene	14.381	106	2477	1.12	ug/L	98
109) o-xylene	14.841	106	623	0.27	ug/L	99
114) isopropylbenzene	15.212	105	543176	88.82	ug/L	100
127) 1,2,4-trimethylbenzene	16.279	105	944	0.19	ug/L	91

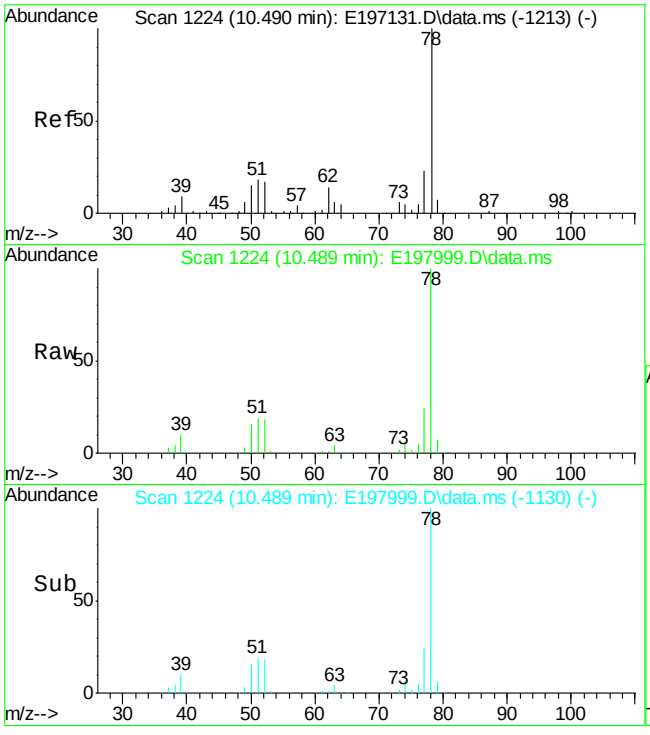
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E197999.D
Acq On : 17 Dec 2012 7:42 pm
Operator : OksanaT
Sample : jb22962-3
Misc : MS39893,VE8698,6.7,,2,5,10
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Dec 18 13:21:54 2012
Quant Method : C:\MSDCHEM\1\METHODS\ME8647.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Nov 13 15:53:05 2012
Response via : Initial Calibration

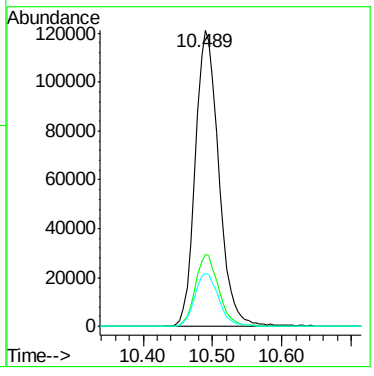


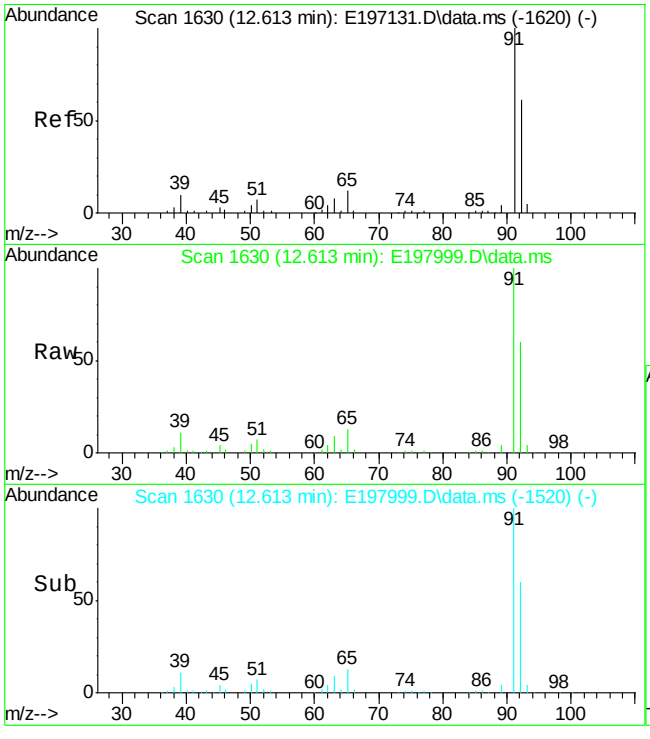


#74
benzene
Concen: 58.29 ug/L
RT: 10.489 min Scan# 1224
Delta R.T. -0.007 min
Lab File: E197999.D
Acq: 17 Dec 2012 7:42 pm

Tgt Ion: 78 Resp: 284249

Ion	Ratio	Lower	Upper
78	100		
77	24.1	0.0	54.3
52	17.9	0.0	47.9

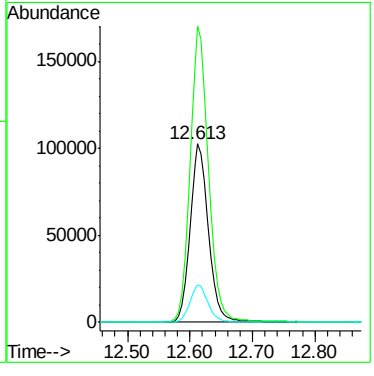




#90
toluene
Concen: 68.98 ug/L
RT: 12.613 min Scan# 1630
Delta R.T. -0.007 min
Lab File: E197999.D
Acq: 17 Dec 2012 7:42 pm

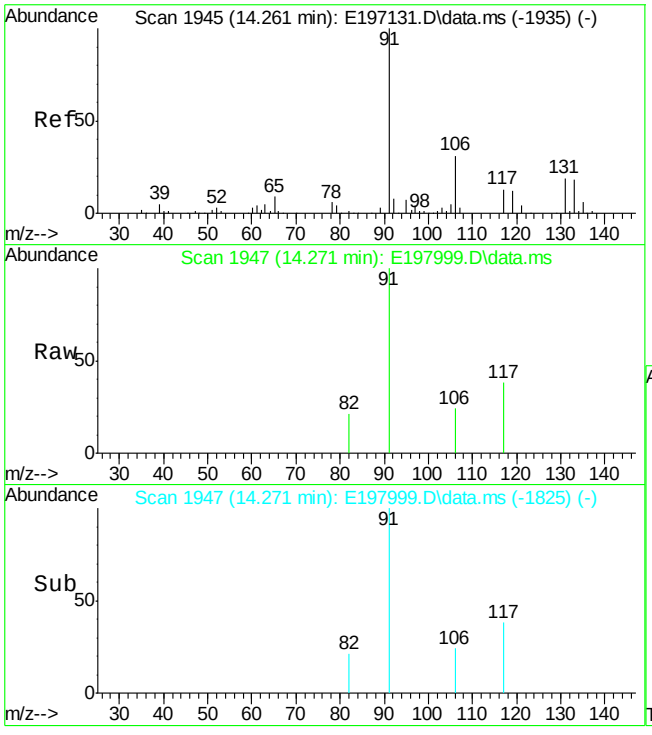
Tgt Ion: 92 Resp: 211075

Ion	Ratio	Lower	Upper
92	100		
91	166.0	137.9	197.9
65	20.8	0.0	50.7



7.1.5

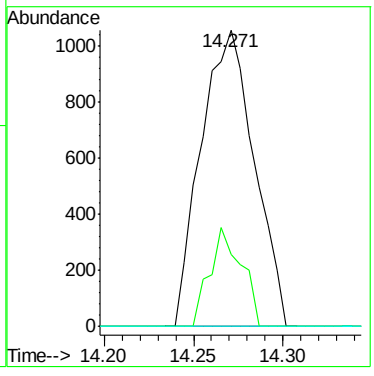
7

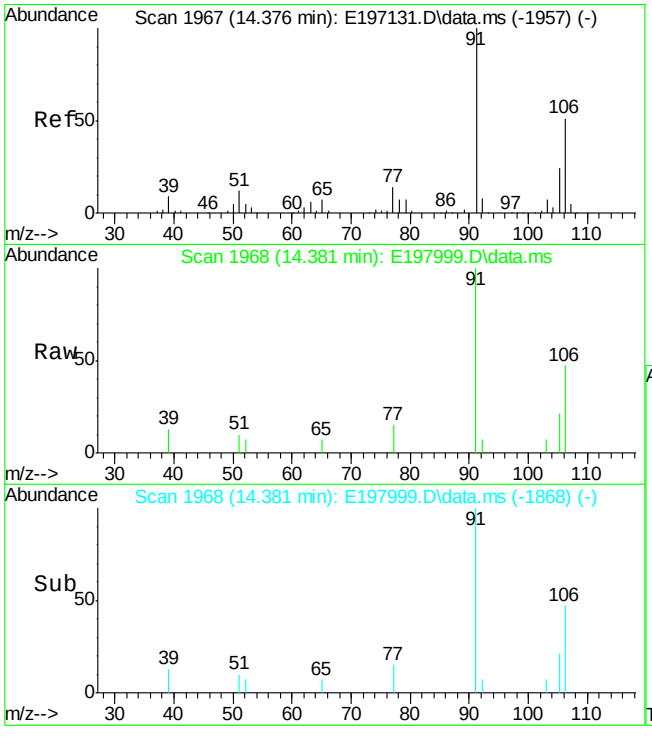


#107
ethylbenzene
Concen: 0.38 ug/L
RT: 14.271 min Scan# 1947
Delta R.T. 0.009 min
Lab File: E197999.D
Acq: 17 Dec 2012 7:42 pm

Tgt Ion: 91 Resp: 2190

Ion	Ratio	Lower	Upper
91	100		
106	24.1	0.5	60.5
77	0.0	0.0	39.0

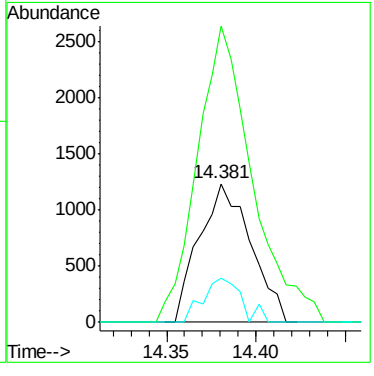




#108
m,p-xylene
Concen: 1.12 ug/L
RT: 14.381 min Scan# 1968
Delta R.T. 0.004 min
Lab File: E197999.D
Acq: 17 Dec 2012 7:42 pm

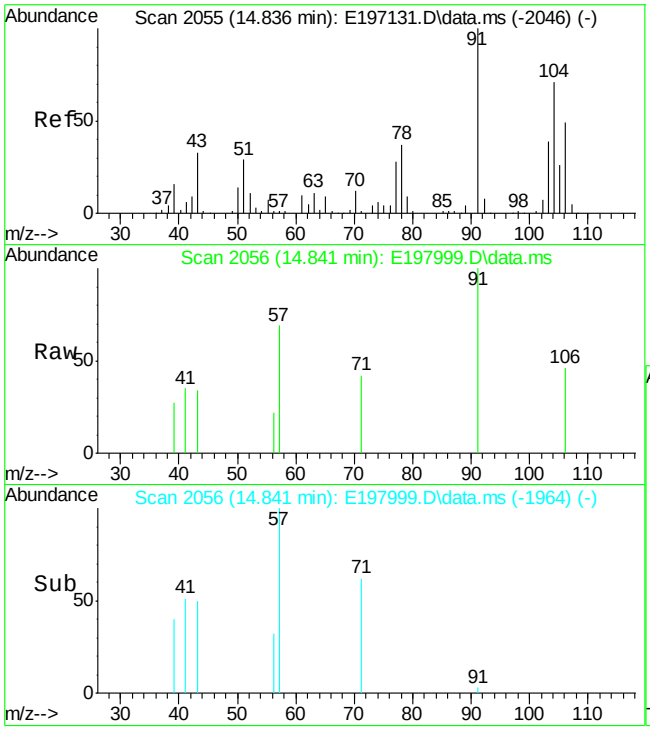
Tgt Ion:106 Resp: 2477

Ion	Ratio	Lower	Upper
106	100		
91	199.4	170.7	230.7
77	31.5	0.0	57.5



7.1.5

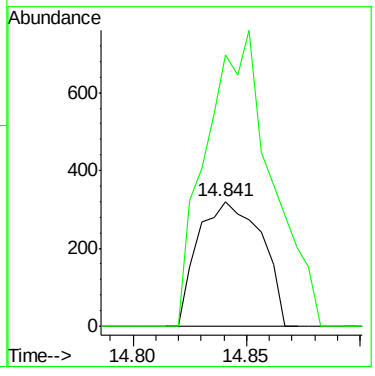
7

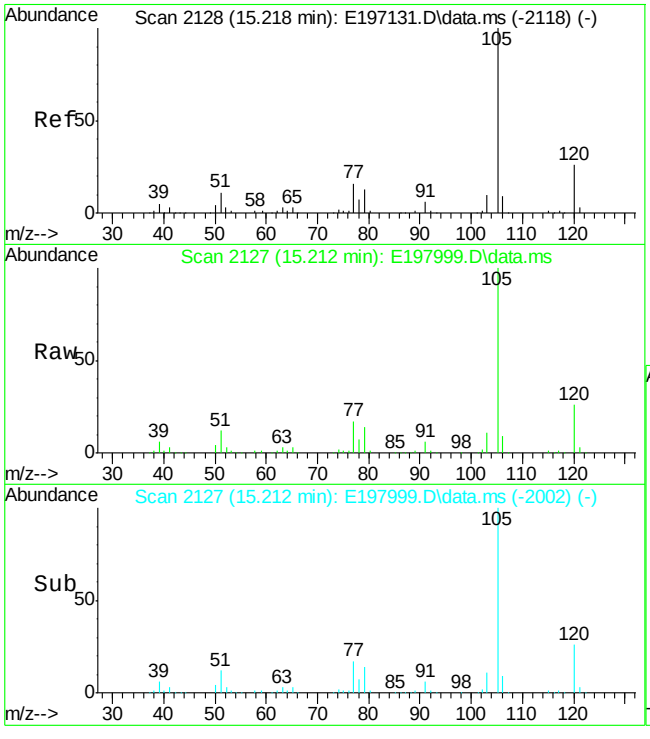


#109
o-xylene
Concen: 0.27 ug/L
RT: 14.841 min Scan# 2056
Delta R.T. 0.004 min
Lab File: E197999.D
Acq: 17 Dec 2012 7:42 pm

Tgt Ion:106 Resp: 623

Ion	Ratio	Lower	Upper
106	100		
91	216.8	185.3	245.3

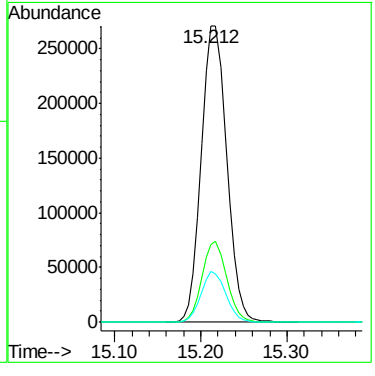


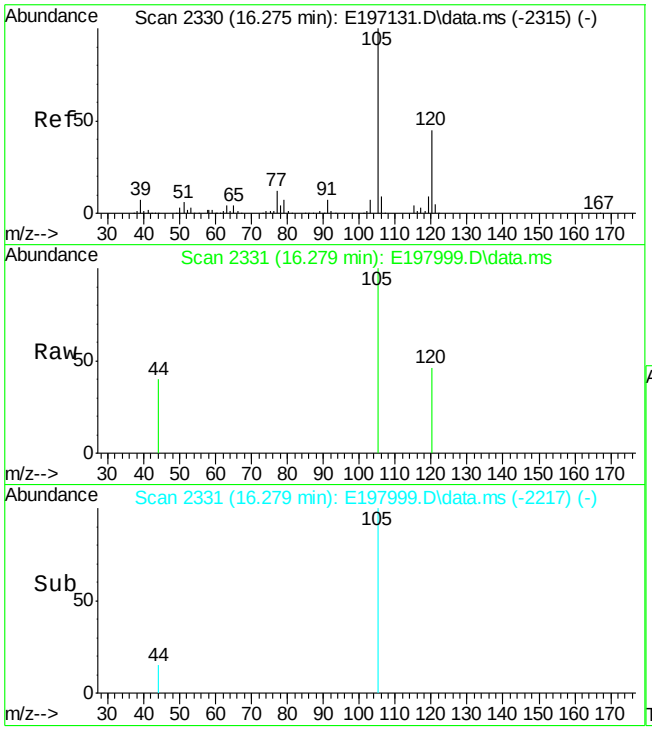


#114
isopropylbenzene
Concen: 88.82 ug/L
RT: 15.212 min Scan# 2127
Delta R.T. -0.007 min
Lab File: E197999.D
Acq: 17 Dec 2012 7:42 pm

Tgt Ion:105 Resp: 543176

Ion	Ratio	Lower	Upper
105	100		
120	26.3	0.0	56.4
77	17.1	0.0	47.0

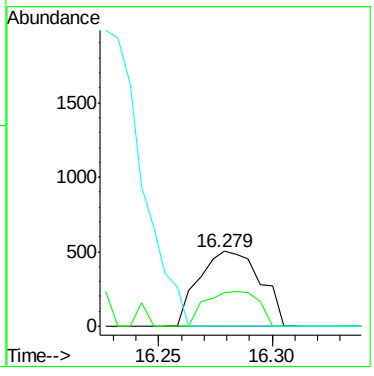




#127
1,2,4-trimethylbenzene
Concen: 0.19 ug/L
RT: 16.279 min Scan# 2331
Delta R.T. 0.004 min
Lab File: E197999.D
Acq: 17 Dec 2012 7:42 pm

Tgt Ion:105 Resp: 944

Ion	Ratio	Lower	Upper
105	100		
120	45.5	14.3	74.3
119	0.0	0.0	42.7



7.1.5

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E198000.D
Acq On : 17 Dec 2012 8:12 pm
Operator : OksanaT
Sample : jb22962-4
Misc : MS39893,VE8698,5.3,,100,5,1
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Dec 18 13:25:58 2012
Quant Method : C:\MSDCHEM\1\METHODS\ME8647.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Nov 13 15:53:05 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.702	65	69036	500.00	ug/L	0.00
5) pentafluorobenzene	9.920	168	111773	50.00	ug/L	0.00
65) 1,4-difluorobenzene	10.835	114	167002	50.00	ug/L	0.00
96) chlorobenzene-d5	14.161	117	156399	50.00	ug/L	0.00
113) 1,4-dichlorobenzene-d4	16.735	152	81779	50.00	ug/L	0.00

System Monitoring Compounds						
59) dibromofluoromethane (s)	9.962	113	50847	44.04	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 88.08%			
60) 1,2-dichloroethane-d4 (s)	10.380	65	71500	42.75	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 85.50%			
88) toluene-d8 (s)	12.535	98	210173	46.57	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 93.14%			
115) 4-bromofluorobenzene (s)	15.432	95	82921	45.97	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 91.94%			

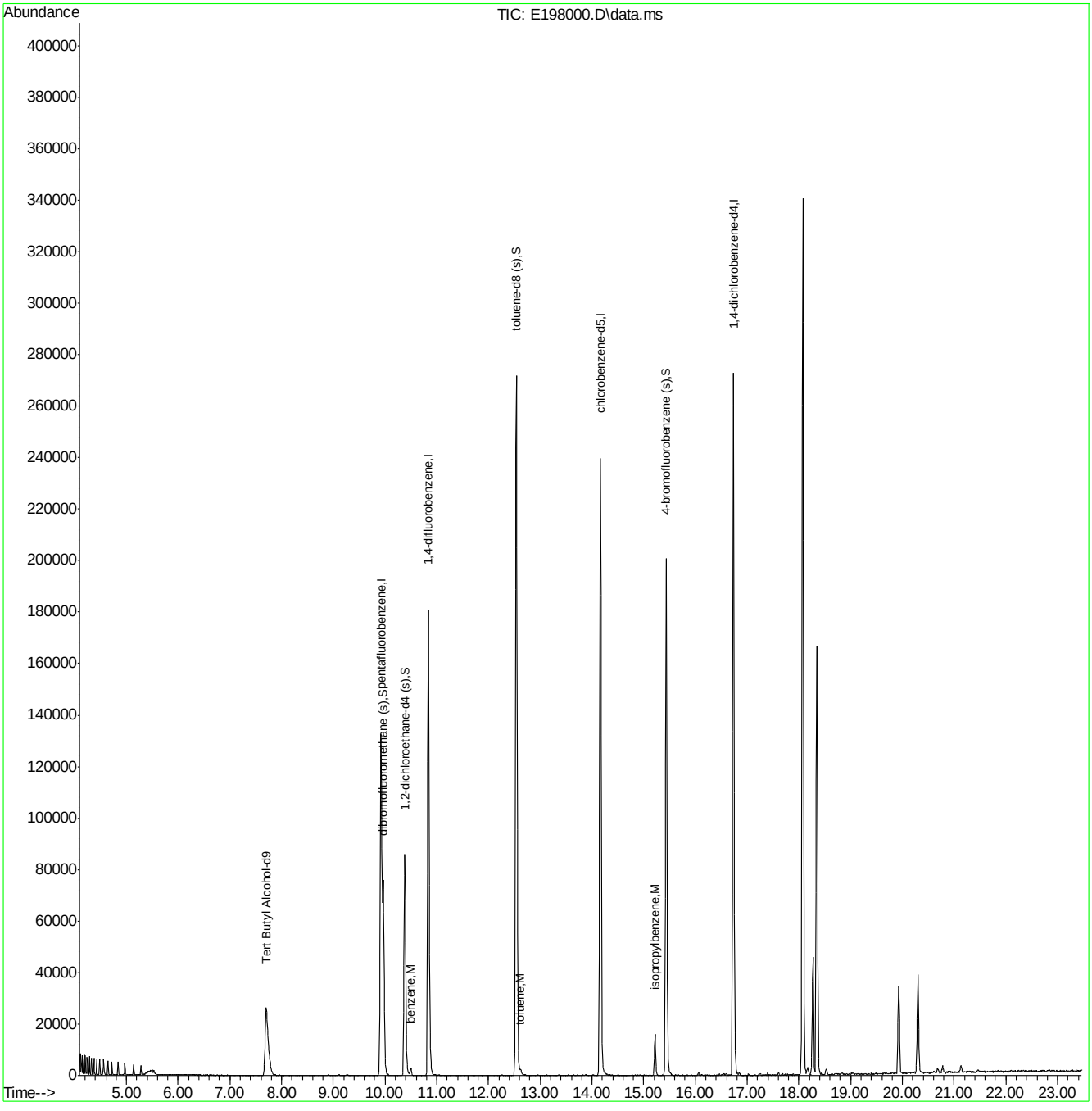
Target Compounds						Qvalue
74) benzene	10.490	78	3560	0.73	ug/L	95
90) toluene	12.619	92	982	0.32	ug/L	88
114) isopropylbenzene	15.218	105	13152	2.11	ug/L	96

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

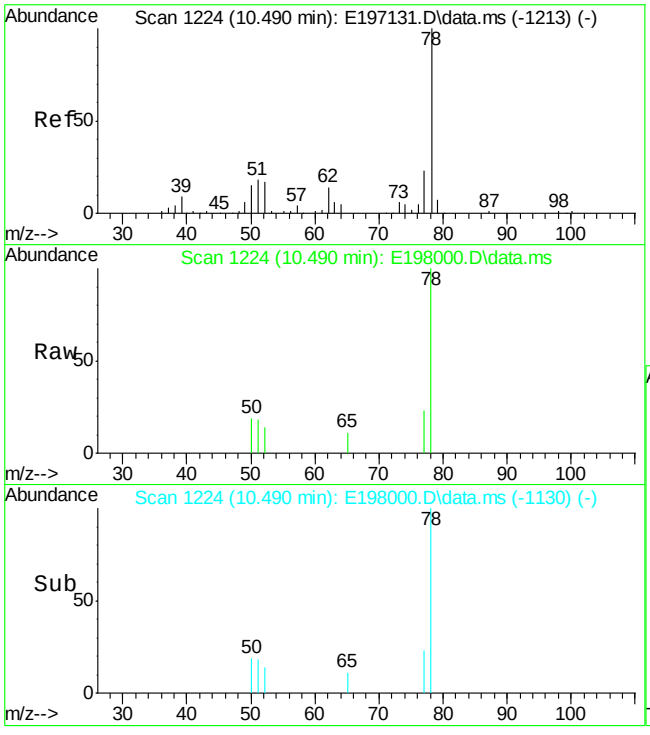
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E198000.D
Acq On : 17 Dec 2012 8:12 pm
Operator : OksanaT
Sample : jb22962-4
Misc : MS39893,VE8698,5.3,,100,5,1
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Dec 18 13:25:58 2012
Quant Method : C:\MSDCHEM\1\METHODS\ME8647.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Nov 13 15:53:05 2012
Response via : Initial Calibration



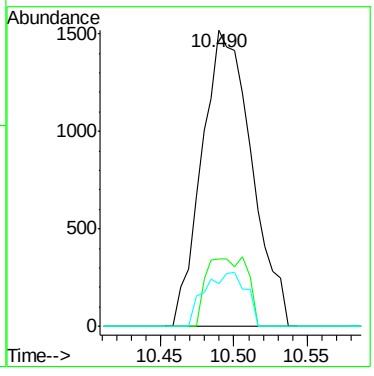
ME8647.M Tue Dec 18 13:26:10 2012 RPT1 Page: 2

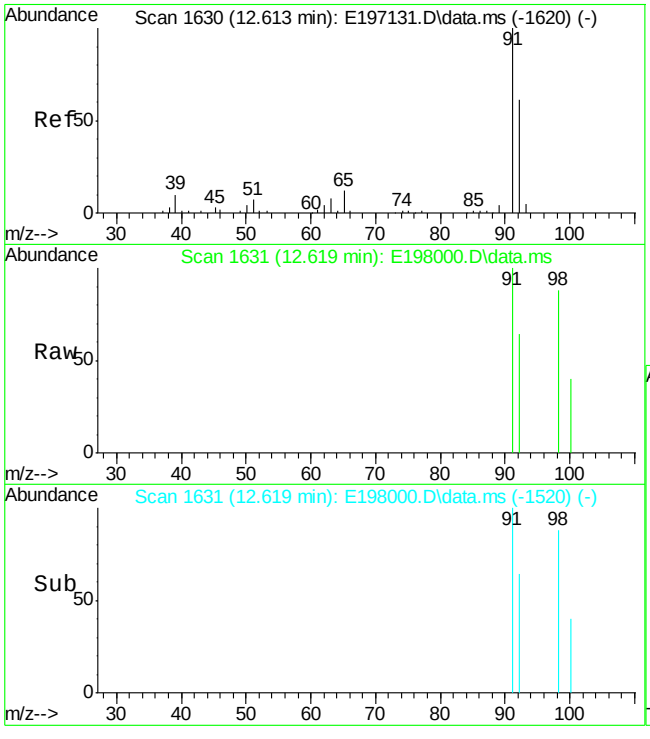


#74
benzene
Concen: 0.73 ug/L
RT: 10.490 min Scan# 1224
Delta R.T. -0.006 min
Lab File: E198000.D
Acq: 17 Dec 2012 8:12 pm

Tgt Ion: 78 Resp: 3560

Ion	Ratio	Lower	Upper
78	100		
77	22.6	0.0	54.3
52	14.5	0.0	47.9

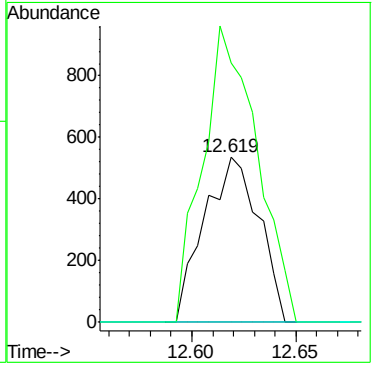


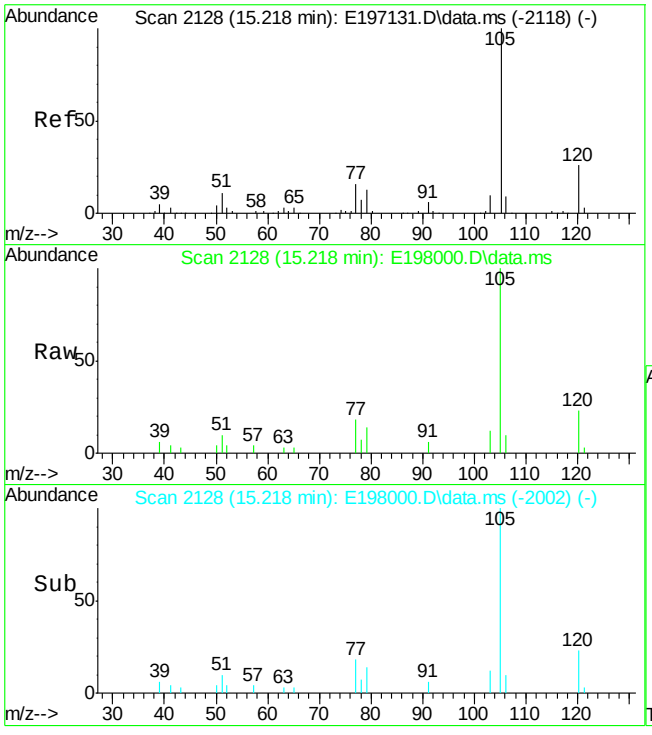


#90
toluene
Concen: 0.32 ug/L
RT: 12.619 min Scan# 1631
Delta R.T. -0.001 min
Lab File: E198000.D
Acq: 17 Dec 2012 8:12 pm

Tgt Ion: 92 Resp: 982

Ion	Ratio	Lower	Upper
92	100		
91	156.8	137.9	197.9
65	0.0	0.0	50.7

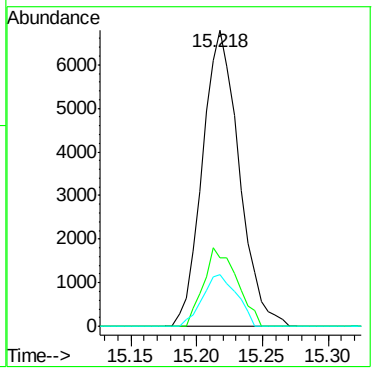




#114
isopropylbenzene
Concen: 2.11 ug/L
RT: 15.218 min Scan# 2128
Delta R.T. -0.001 min
Lab File: E198000.D
Acq: 17 Dec 2012 8:12 pm

Tgt Ion:105 Resp: 13152

Ion	Ratio	Lower	Upper
105	100		
120	23.1	0.0	56.4
77	17.5	0.0	47.0



7.1.6

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E198018.D
Acq On : 18 Dec 2012 5:20 am
Operator : OksanaT
Sample : jb22962-5
Misc : MS39893,VE8699,6.2,,2,5,1
ALS Vial : 42 Sample Multiplier: 1

Quant Time: Dec 18 13:28:10 2012
Quant Method : C:\MSDCHEM\1\METHODS\ME8647.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Nov 13 15:53:05 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.702	65	77327	500.00	ug/L	0.00
5) pentafluorobenzene	9.919	168	103618	50.00	ug/L	0.00
65) 1,4-difluorobenzene	10.840	114	148822	50.00	ug/L	0.00
96) chlorobenzene-d5	14.161	117	144859	50.00	ug/L	0.00
113) 1,4-dichlorobenzene-d4	16.734	152	74410	50.00	ug/L	0.00

System Monitoring Compounds

59) dibromofluoromethane (s)	9.967	113	47345	44.23	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 88.46%			
60) 1,2-dichloroethane-d4 (s)	10.380	65	69122	44.58	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 89.16%			
88) toluene-d8 (s)	12.535	98	191707	47.66	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 95.32%			
115) 4-bromofluorobenzene (s)	15.432	95	73813	44.98	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 89.96%			

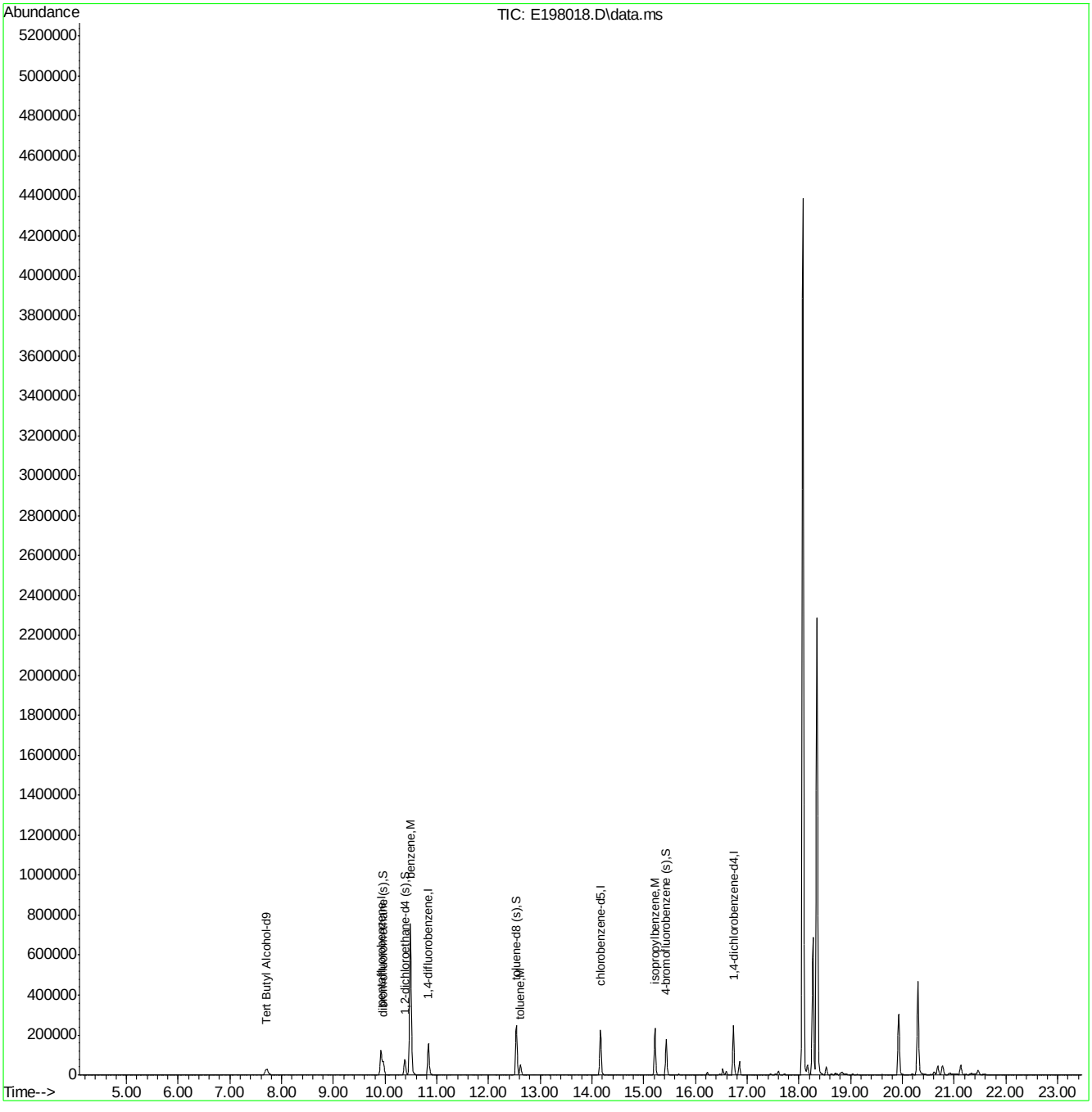
Target Compounds						Qvalue
74) benzene	10.490	78	800941	183.81	ug/L	99
90) toluene	12.613	92	25960	9.49	ug/L	99
114) isopropylbenzene	15.218	105	182537	32.22	ug/L	99

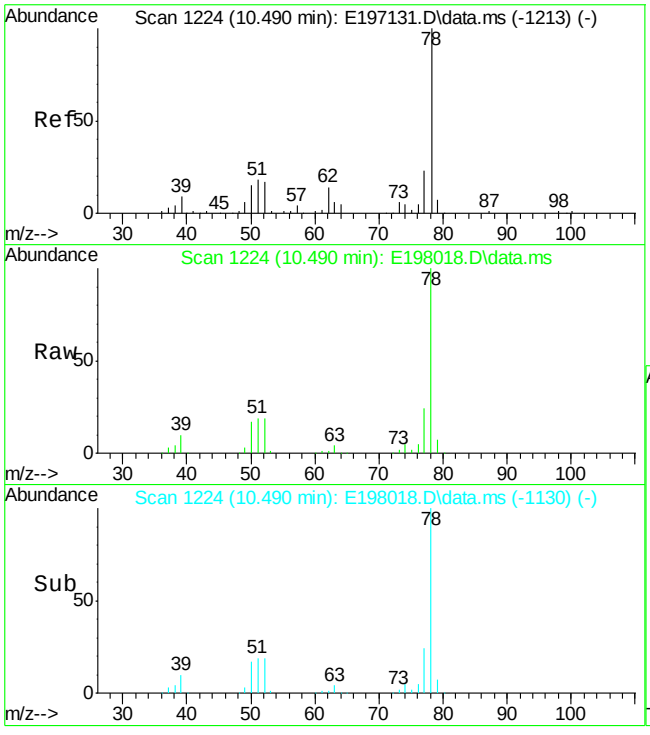
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E198018.D
Acq On : 18 Dec 2012 5:20 am
Operator : OksanaT
Sample : jb22962-5
Misc : MS39893,VE8699,6.2,,2,5,1
ALS Vial : 42 Sample Multiplier: 1

Quant Time: Dec 18 13:28:10 2012
Quant Method : C:\MSDCHEM\1\METHODS\ME8647.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Nov 13 15:53:05 2012
Response via : Initial Calibration

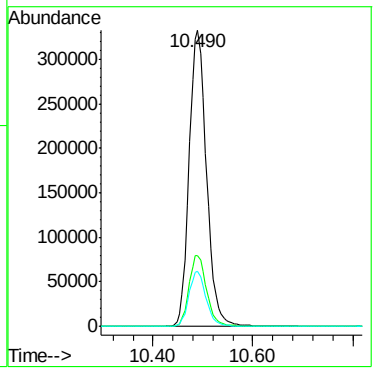


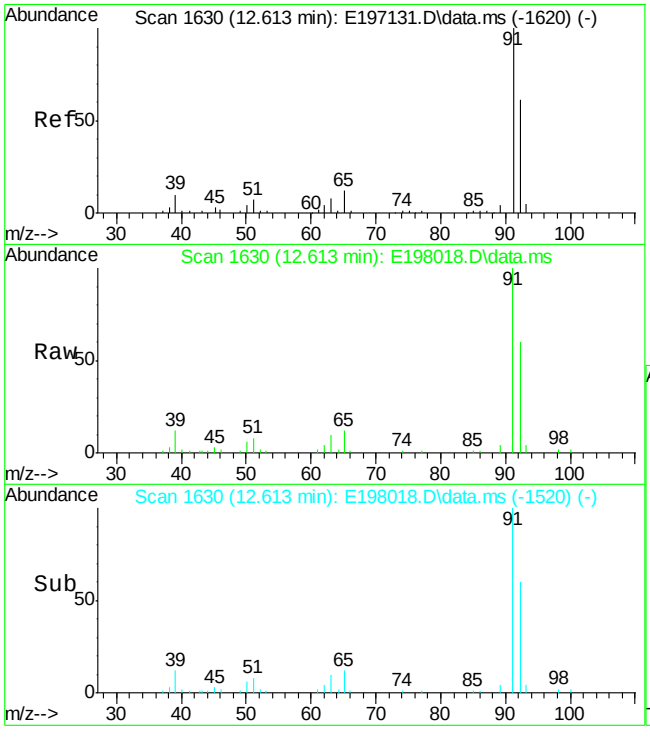


#74
benzene
Concen: 183.81 ug/L
RT: 10.490 min Scan# 1224
Delta R.T. -0.007 min
Lab File: E198018.D
Acq: 18 Dec 2012 5:20 am

Tgt Ion: 78 Resp: 800941

Ion	Ratio	Lower	Upper
78	100		
77	24.1	0.0	54.3
52	18.6	0.0	47.9

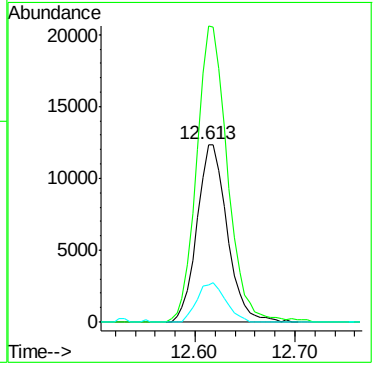


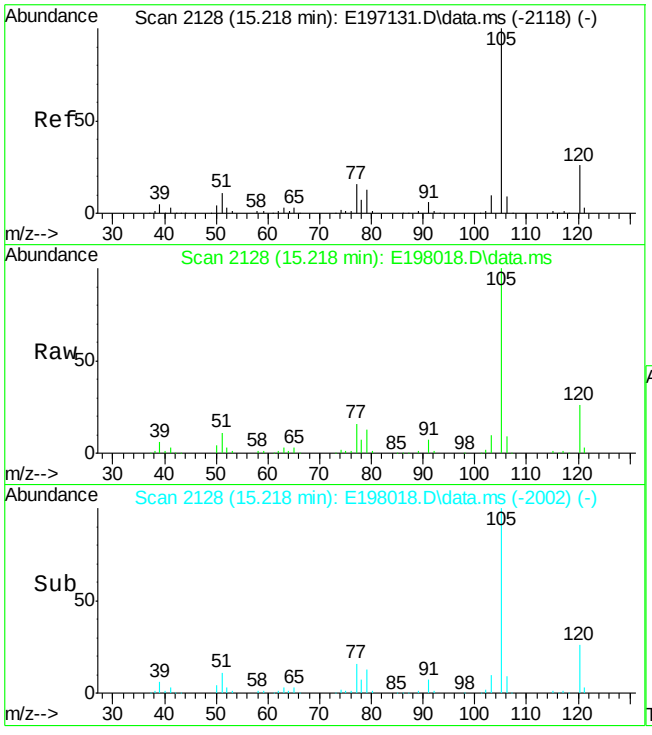


#90
toluene
Concen: 9.49 ug/L
RT: 12.613 min Scan# 1630
Delta R.T. -0.007 min
Lab File: E198018.D
Acq: 18 Dec 2012 5:20 am

Tgt Ion: 92 Resp: 25960

Ion	Ratio	Lower	Upper
92	100		
91	166.7	137.9	197.9
65	20.8	0.0	50.7

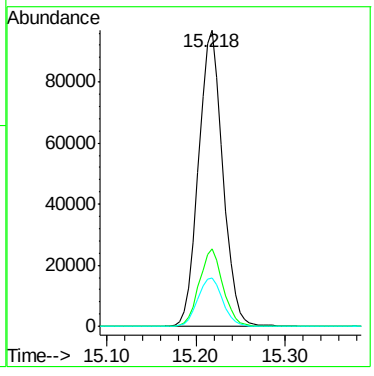




#114
isopropylbenzene
Concen: 32.22 ug/L
RT: 15.218 min Scan# 2128
Delta R.T. -0.001 min
Lab File: E198018.D
Acq: 18 Dec 2012 5:20 am

Tgt Ion:105 Resp: 182537

Ion	Ratio	Lower	Upper
105	100		
120	26.2	0.0	56.4
77	16.3	0.0	47.0



7.1.7

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E198032.D
Acq On : 18 Dec 2012 4:16 pm
Operator : OksanaT
Sample : jb22962-5
Misc : MS39893,VE8700,6.2,,4,5,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Dec 18 16:56:18 2012
Quant Method : C:\MSDCHEM\1\METHODS\ME8647.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Nov 13 15:53:05 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.693	65	75799	500.00	ug/L	-0.02
5) pentafluorobenzene	9.921	168	109816	50.00	ug/L	0.00
65) 1,4-difluorobenzene	10.836	114	161650	50.00	ug/L	0.00
96) chlorobenzene-d5	14.162	117	157172	50.00	ug/L	0.00
113) 1,4-dichlorobenzene-d4	16.735	152	84976	50.00	ug/L	0.00

System Monitoring Compounds

59) dibromofluoromethane (s)	9.962	113	51228	45.16	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 90.32%			
60) 1,2-dichloroethane-d4 (s)	10.381	65	71196	43.32	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 86.64%			
88) toluene-d8 (s)	12.536	98	209522	47.96	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 95.92%			
115) 4-bromofluorobenzene (s)	15.433	95	81299	43.38	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 86.76%			

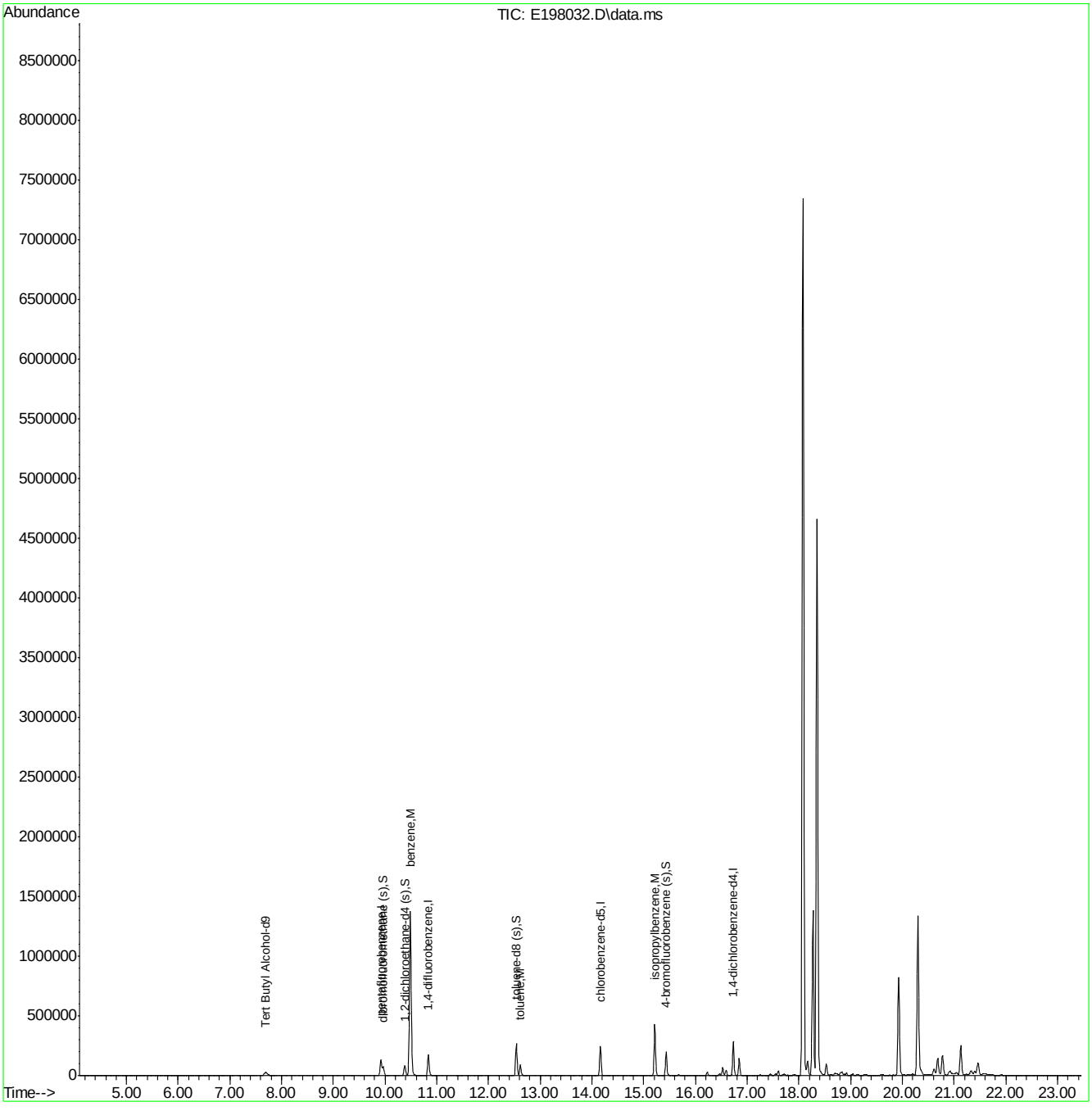
Target Compounds						Qvalue
74) benzene	10.485	78	1461690	308.84	ug/L	98
90) toluene	12.614	92	44765	15.07	ug/L	98
114) isopropylbenzene	15.214	105	343707	53.12	ug/L	99

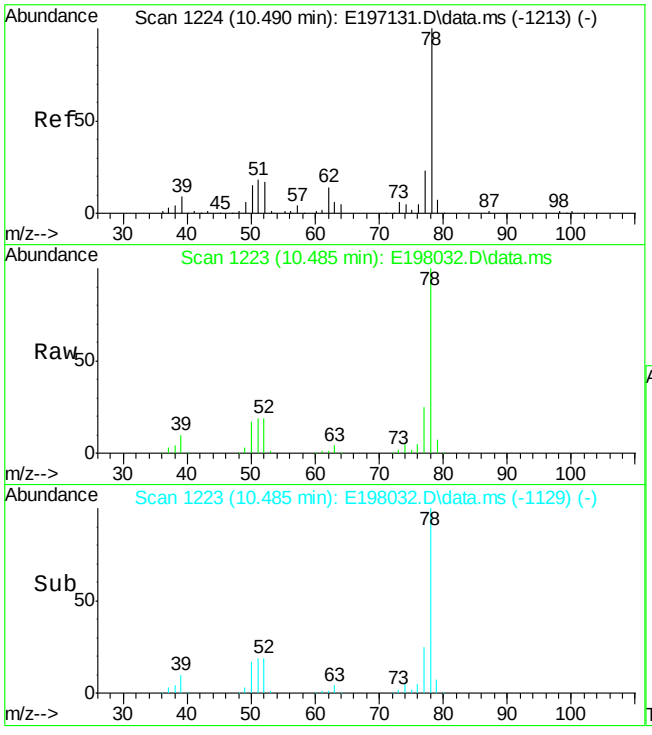
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E198032.D
Acq On : 18 Dec 2012 4:16 pm
Operator : OksanaT
Sample : jb22962-5
Misc : MS39893,VE8700,6.2,,4,5,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Dec 18 16:56:18 2012
Quant Method : C:\MSDCHEM\1\METHODS\ME8647.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Nov 13 15:53:05 2012
Response via : Initial Calibration

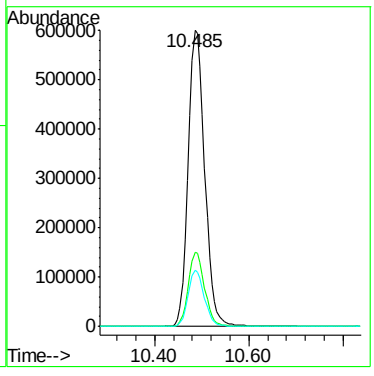


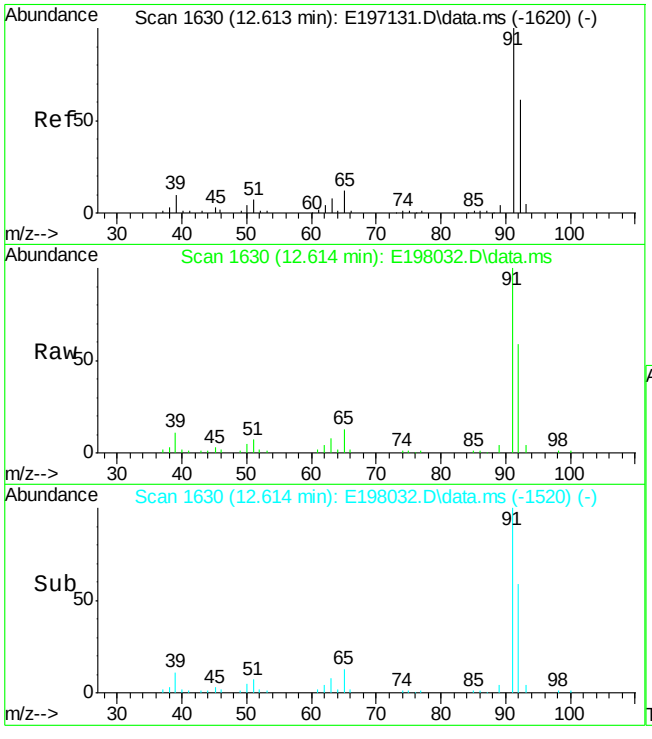


#74
benzene
Concen: 308.84 ug/L
RT: 10.485 min Scan# 1223
Delta R.T. -0.011 min
Lab File: E198032.D
Acq: 18 Dec 2012 4:16 pm

Tgt Ion: 78 Resp: 1461690

Ion	Ratio	Lower	Upper
78	100		
77	24.9	0.0	54.3
52	18.9	0.0	47.9

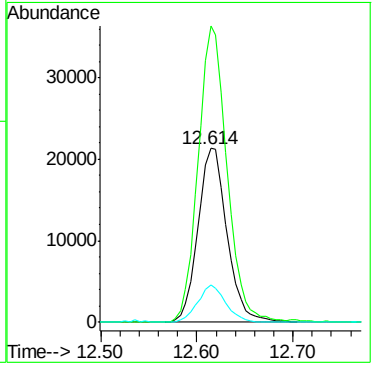




#90
toluene
Concen: 15.07 ug/L
RT: 12.614 min Scan# 1630
Delta R.T. -0.005 min
Lab File: E198032.D
Acq: 18 Dec 2012 4:16 pm

Tgt Ion: 92 Resp: 44765

Ion	Ratio	Lower	Upper
92	100		
91	170.4	137.9	197.9
65	21.7	0.0	50.7



7.1.8

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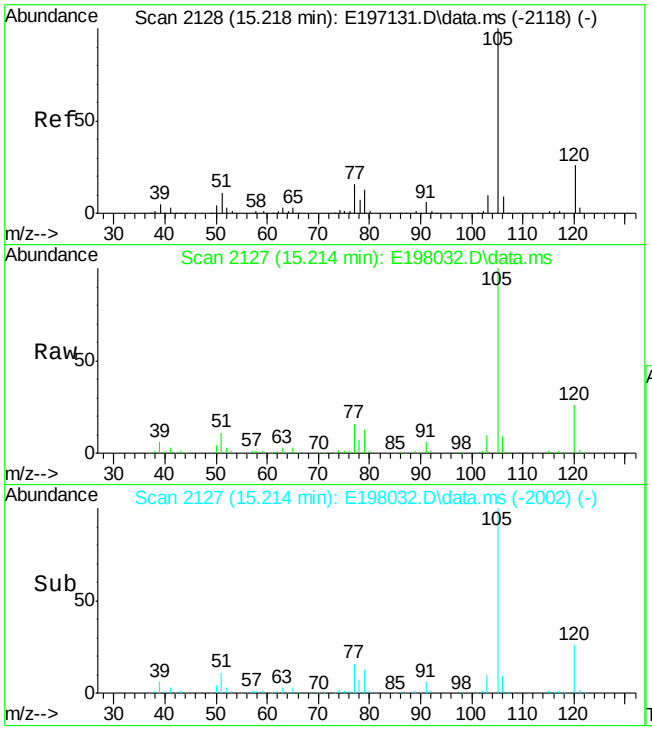
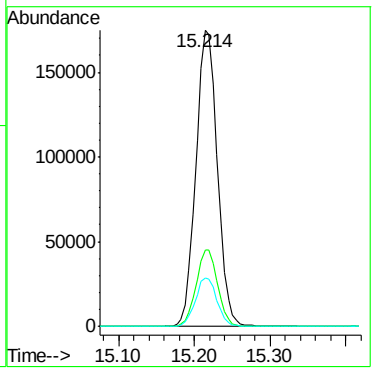


#114
isopropylbenzene
Concen: 53.12 ug/L
RT: 15.214 min Scan# 2127
Delta R.T. -0.005 min
Lab File: E198032.D
Acq: 18 Dec 2012 4:16 pm

Tgt Ion:105 Resp: 343707

Ion	Ratio	Lower	Upper
105	100		
120	25.8	0.0	56.4
77	16.4	0.0	47.0



7.1.8

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203373.D
Acq On : 14 Dec 2012 7:57 am
Operator : EmilyT
Sample : JB22962-6
Misc : ms39893,vd8292,6.6,,100,5,1
ALS Vial : 47 Sample Multiplier: 1

Quant Time: Dec 14 08:32:43 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.036	65	67800	500.00 ug/L	0.00
4) pentafluorobenzene	10.259	168	117116	50.00 ug/L	0.00
53) 1,4-difluorobenzene	11.175	114	182552	50.00 ug/L	0.00
85) chlorobenzene-d5	14.517	117	176253	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.100	152	102726	50.00 ug/L	0.00

System Monitoring Compounds					
46) dibromofluoromethane (s)	10.291	113	56284	48.56 ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 97.12%		
47) 1,2-dichloroethane-d4 (s)	10.720	65	79705	59.79 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 119.58%		
77) toluene-d8 (s)	12.885	98	229977	49.69 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 99.38%		
101) 4-bromofluorobenzene (s)	15.803	95	98477	53.11 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 106.22%		

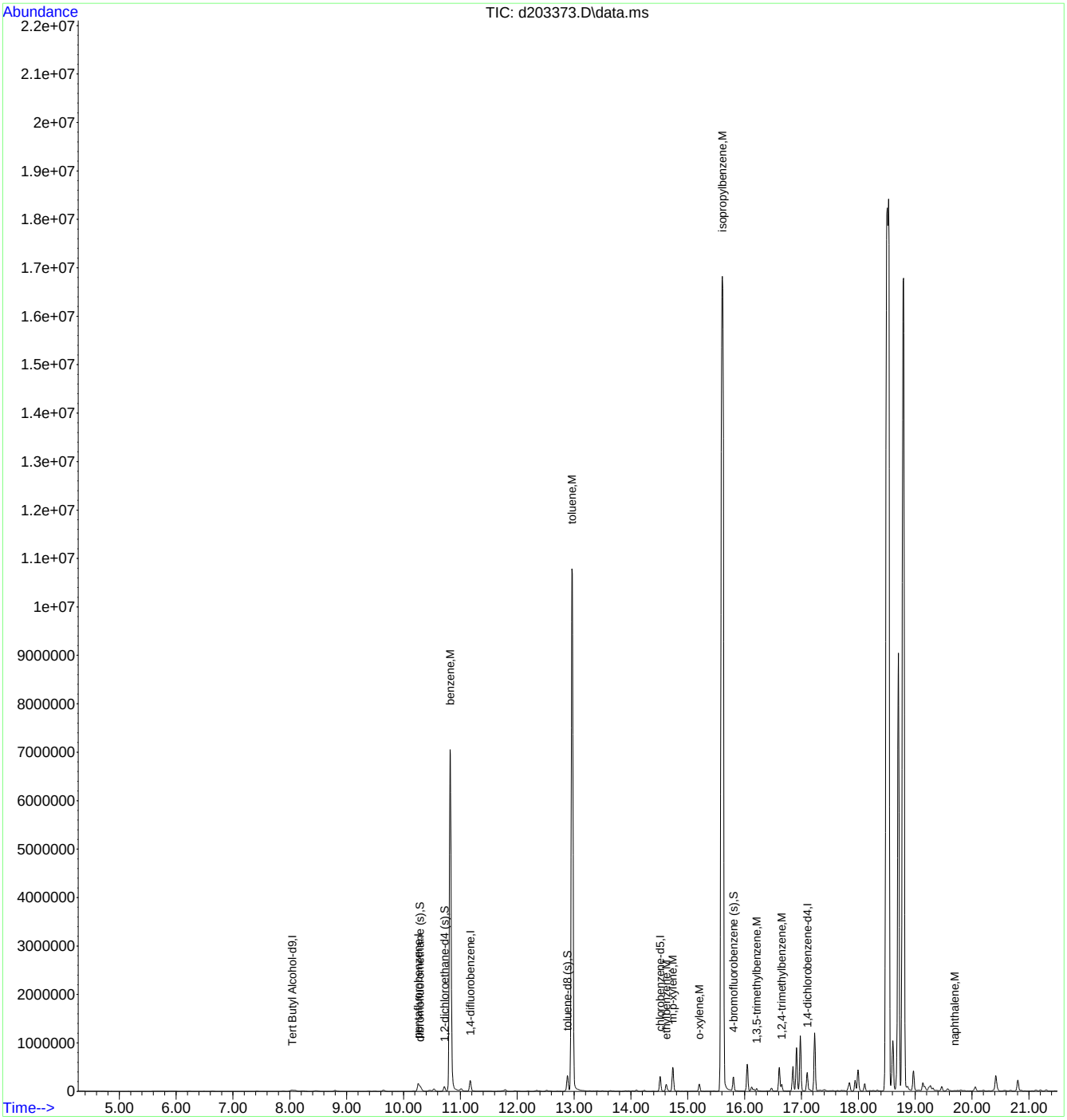
Target Compounds					Qvalue
62) benzene	10.819	78	6308864	1208.83 ug/L	85
79) toluene	12.963	92	5168662	1542.76 ug/L	77
94) ethylbenzene	14.621	91	113180	17.56 ug/L	96
95) m,p-xylene	14.736	106	152078	60.39 ug/L	88
96) o-xylene	15.202	106	42876	17.11 ug/L	95
100) isopropylbenzene	15.610	105	13946272	2207.19 ug/L	54
111) 1,3,5-trimethylbenzene	16.211	105	29835	5.38 ug/L	97
114) 1,2,4-trimethylbenzene	16.651	105	84842	14.79 ug/L	98
128) naphthalene	19.700	128	5434	1.14 ug/L	94

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

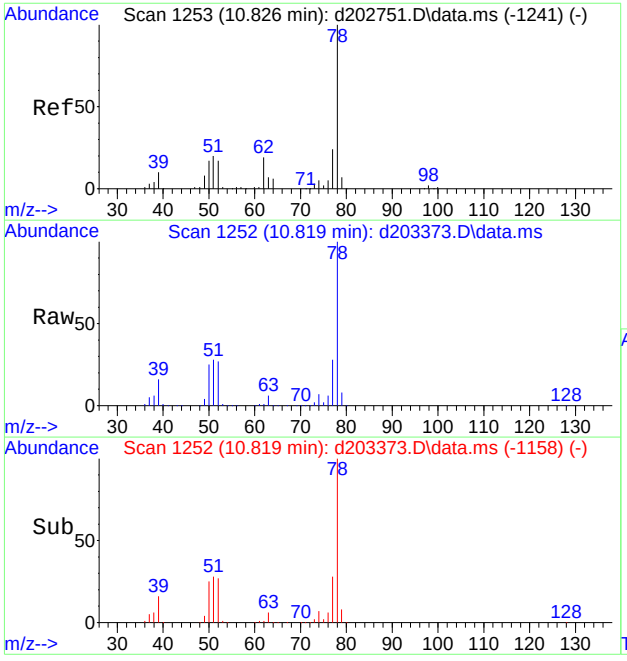
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203373.D
Acq On : 14 Dec 2012 7:57 am
Operator : EmilyT
Sample : JB22962-6
Misc : ms39893,vd8292,6.6,,100,5,1
ALS Vial : 47 Sample Multiplier: 1

Quant Time: Dec 14 08:32:43 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration



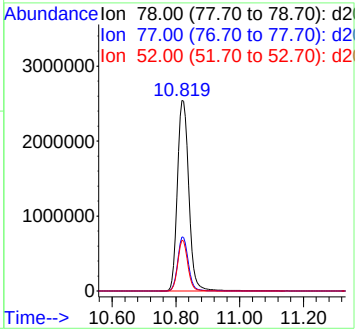
MD8248.M Fri Dec 14 08:33:22 2012 Page: 2

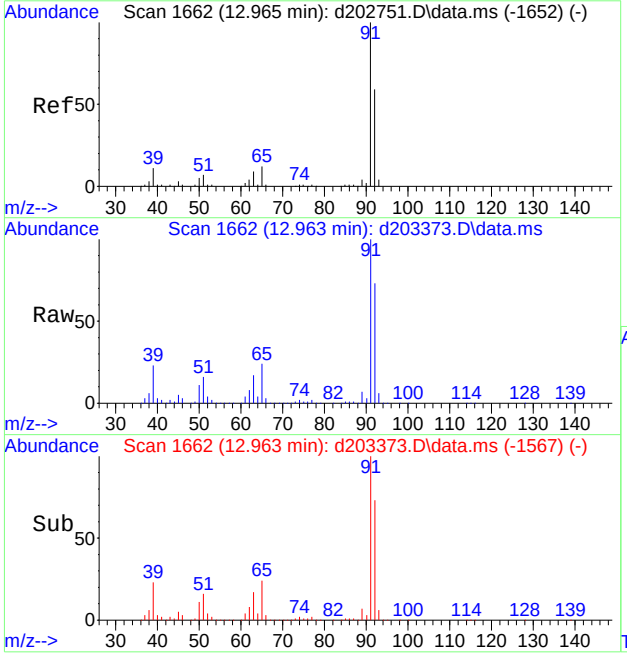


#62
benzene
Concen: 1208.83 ug/L
RT: 10.819 min Scan# 1252
Delta R.T. -0.009 min
Lab File: d203373.D
Acq: 14 Dec 2012 7:57 am

Tgt Ion: 78 Resp: 6308864

Ion	Ratio	Lower	Upper
78	100		
77	28.4	0.0	53.8
52	26.7	0.0	46.8

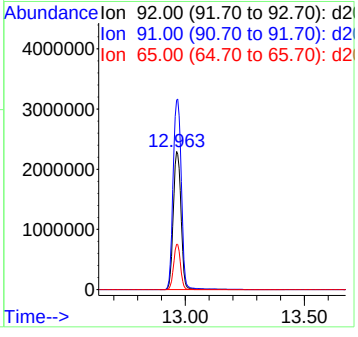




#79
toluene
Concen: 1542.76 ug/L
RT: 12.963 min Scan# 1662
Delta R.T. -0.004 min
Lab File: d203373.D
Acq: 14 Dec 2012 7:57 am

Tgt Ion: 92 Resp: 5168662

Ion	Ratio	Lower	Upper
92	100		
91	137.0	136.4	196.4
65	32.8	0.0	49.2



7.1.9

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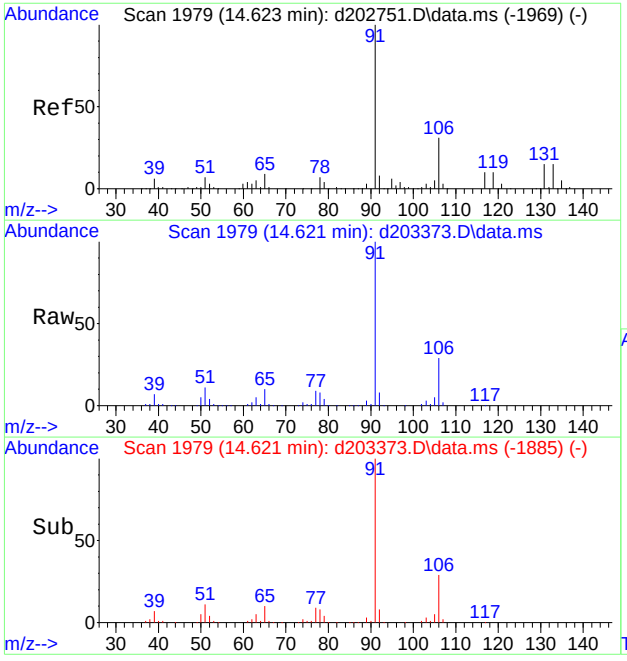
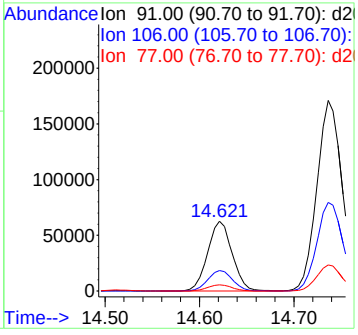
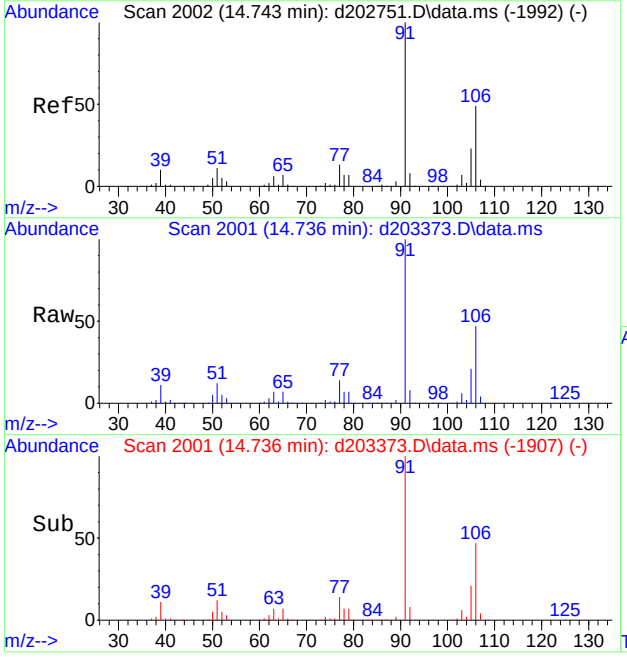


#94
ethylbenzene
Concen: 17.56 ug/L
RT: 14.621 min Scan# 1979
Delta R.T. -0.009 min
Lab File: d203373.D
Acq: 14 Dec 2012 7:57 am

Tgt Ion: 91 Resp: 113180

Ion	Ratio	Lower	Upper
91	100		
106	29.3	2.1	62.1
77	8.7	0.0	38.6

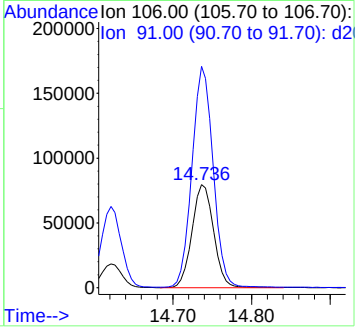


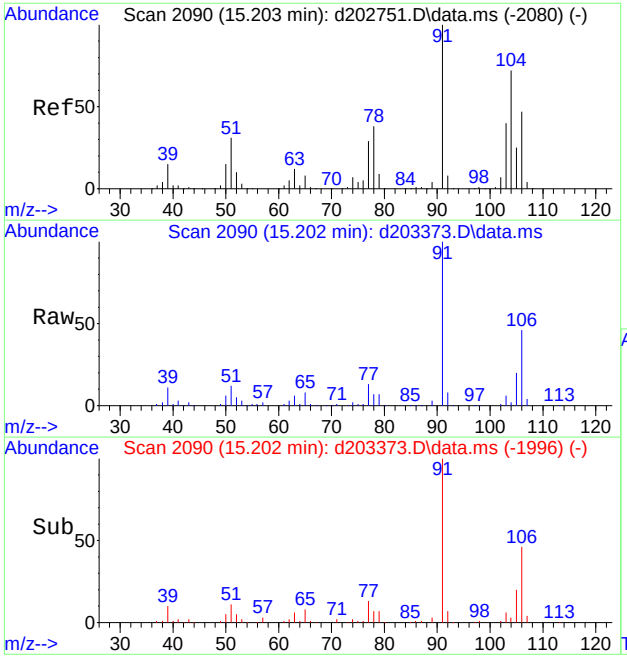


#95
m,p-xylene
Concen: 60.39 ug/L
RT: 14.736 min Scan# 2001
Delta R.T. -0.009 min
Lab File: d203373.D
Acq: 14 Dec 2012 7:57 am

Tgt Ion:106 Resp: 152078

Ion	Ratio	Lower	Upper
106	100		
91	214.4	137.7	255.7

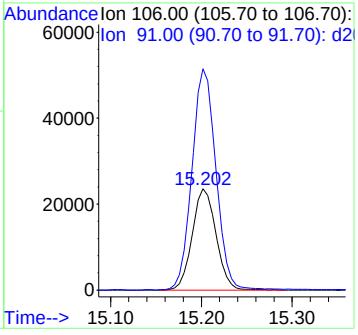


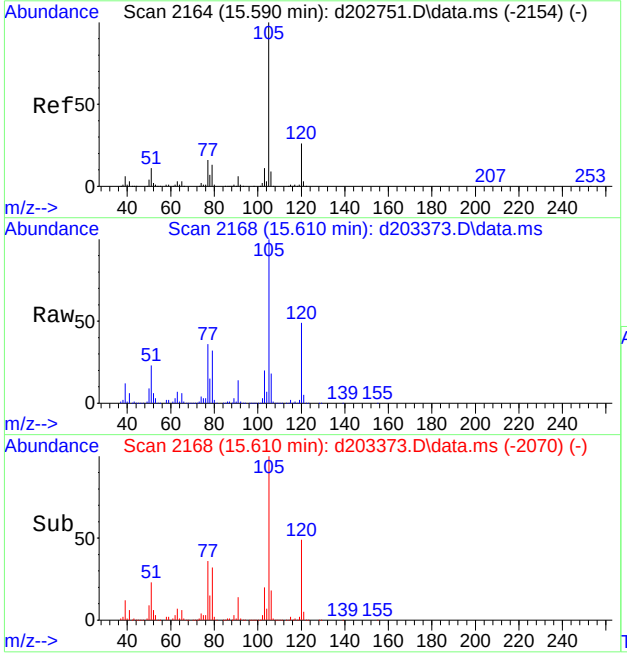


#96
o-xylene
Concen: 17.11 ug/L
RT: 15.202 min Scan# 2090
Delta R.T. -0.009 min
Lab File: d203373.D
Acq: 14 Dec 2012 7:57 am

Tgt Ion:106 Resp: 42876

Ion	Ratio	Lower	Upper
106	100		
91	217.9	147.4	273.8

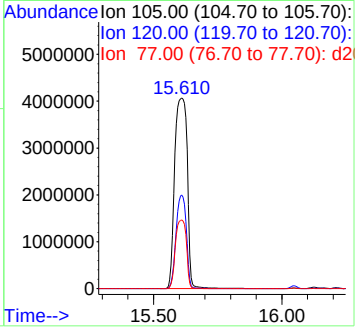


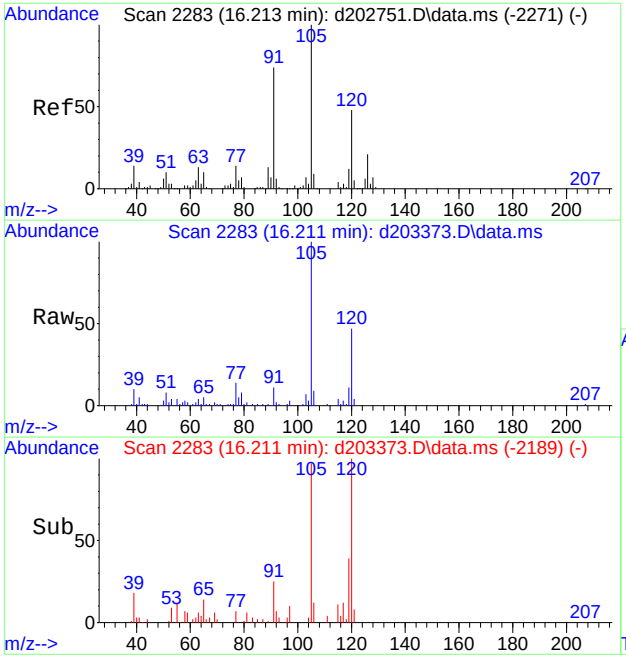


#100
isopropylbenzene
Concen: 2207.19 ug/L
RT: 15.610 min Scan# 2168
Delta R.T. 0.012 min
Lab File: d203373.D
Acq: 14 Dec 2012 7:57 am

Tgt Ion:105 Resp:13946272

Ion	Ratio	Lower	Upper
105	100		
120	49.1	0.0	56.7
77	36.0	0.0	44.9

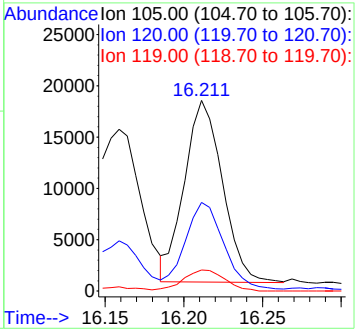


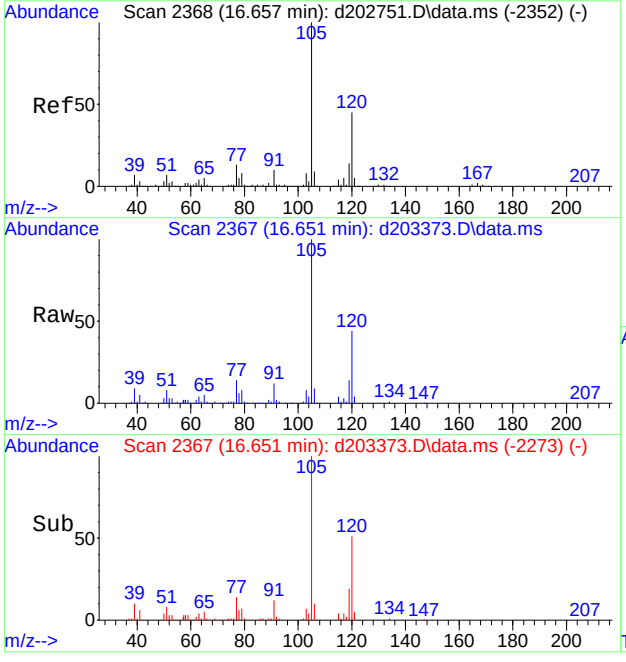


#111
1,3,5-trimethylbenzene
Concen: 5.38 ug/L
RT: 16.211 min Scan# 2283
Delta R.T. -0.009 min
Lab File: d203373.D
Acq: 14 Dec 2012 7:57 am

Tgt Ion:105 Resp: 29835

Ion	Ratio	Lower	Upper
105	100		
120	47.8	19.9	79.9
119	11.6	0.0	42.6

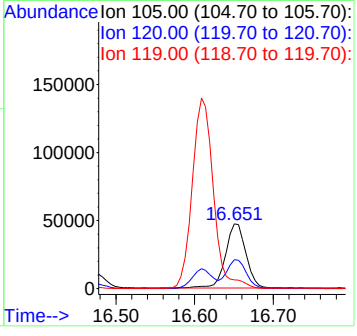


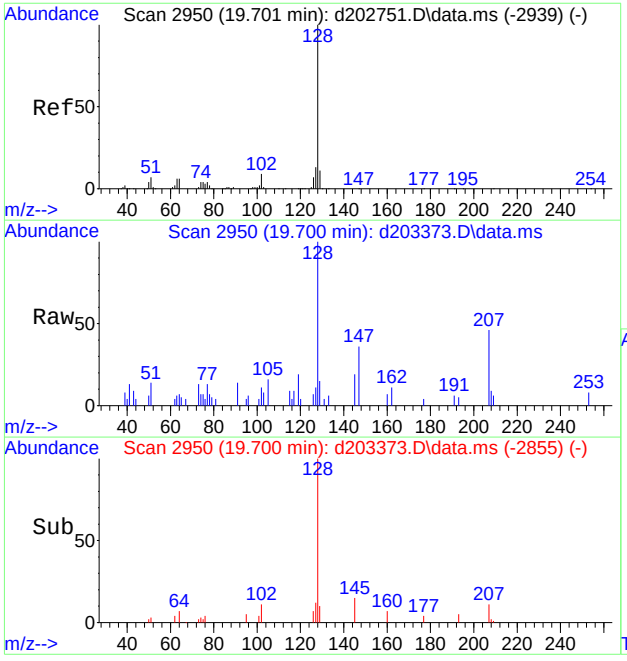


#114
1,2,4-trimethylbenzene
Concen: 14.79 ug/L
RT: 16.651 min Scan# 2367
Delta R.T. -0.009 min
Lab File: d203373.D
Acq: 14 Dec 2012 7:57 am

Tgt Ion:105 Resp: 84842

Ion	Ratio	Lower	Upper
105	100		
120	44.6	16.5	76.5
119	13.8	0.0	43.8

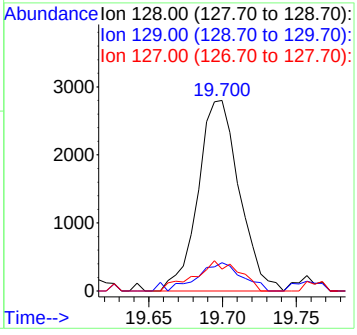




#128
naphthalene
Concen: 1.14 ug/L
RT: 19.700 min Scan# 2950
Delta R.T. -0.004 min
Lab File: d203373.D
Acq: 14 Dec 2012 7:57 am

Tgt Ion:128 Resp: 5434

Ion	Ratio	Lower	Upper
128	100		
129	14.8	0.0	41.0
127	11.4	0.0	42.7



7.1.9

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E198019.D
Acq On : 18 Dec 2012 5:50 am
Operator : OksanaT
Sample : jb22962-6
Misc : MS39893,VE8699,6.6,,1,5,1
ALS Vial : 43 Sample Multiplier: 1

Quant Time: Dec 18 13:29:12 2012
Quant Method : C:\MSDCHEM\1\METHODS\ME8647.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Nov 13 15:53:05 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.708	65	76524	500.00	ug/L	0.00
5) pentafluorobenzene	9.920	168	104729	50.00	ug/L	0.00
65) 1,4-difluorobenzene	10.841	114	154126	50.00	ug/L	0.00
96) chlorobenzene-d5	14.162	117	145423	50.00	ug/L	0.00
113) 1,4-dichlorobenzene-d4	16.735	152	72489	50.00	ug/L	0.00

System Monitoring Compounds

59) dibromofluoromethane (s)	9.962	113	48810	45.12	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 90.24%			
60) 1,2-dichloroethane-d4 (s)	10.380	65	69269	44.20	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 88.40%			
88) toluene-d8 (s)	12.535	98	196904	47.27	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 94.54%			
115) 4-bromofluorobenzene (s)	15.433	95	72694	45.47	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 90.94%			

Target Compounds

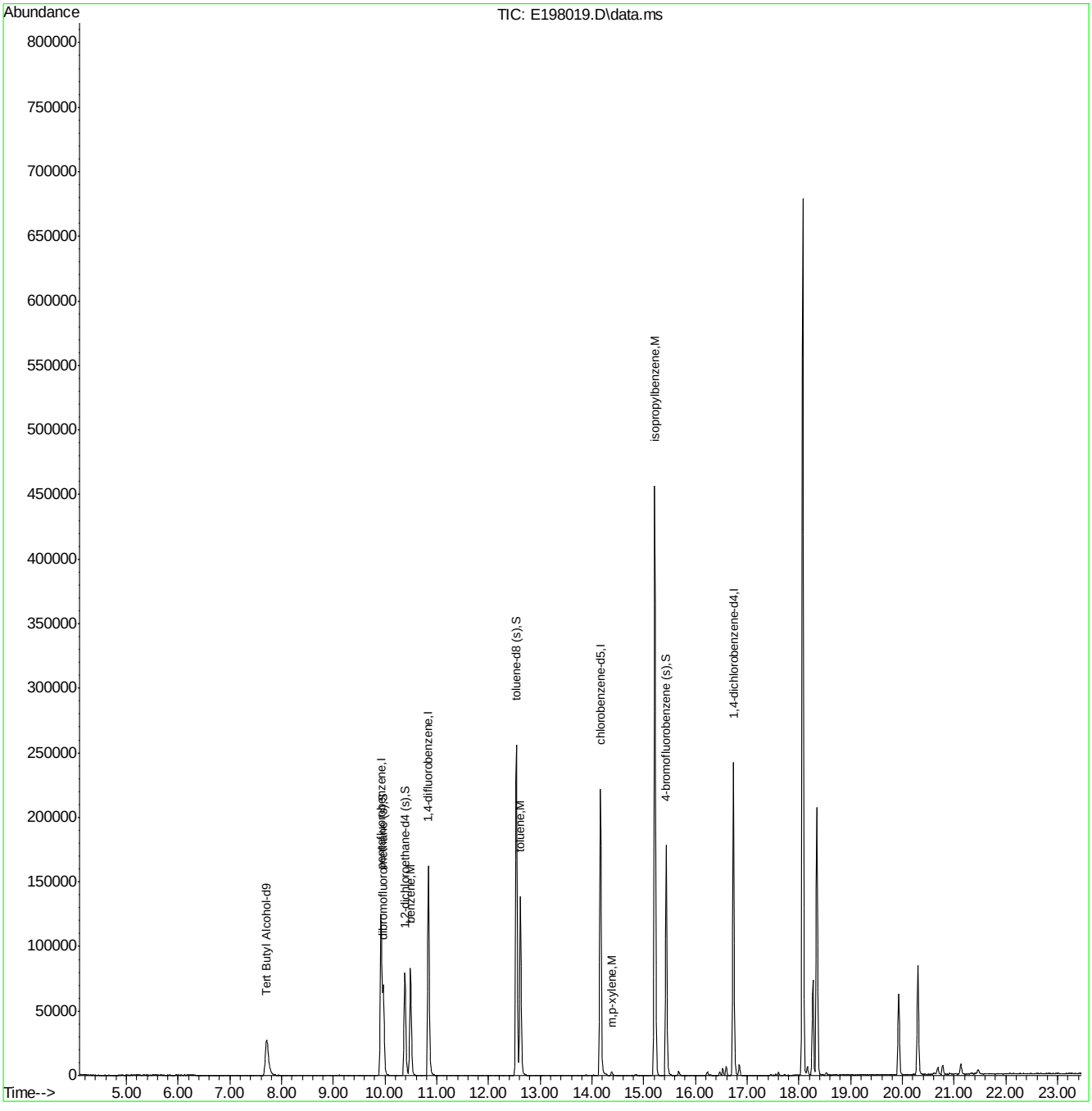
						Qvalue
74) benzene	10.490	78	86717	19.22	ug/L	98
90) toluene	12.614	92	68860	24.32	ug/L	98
108) m,p-xylene	14.382	106	1270	0.62	ug/L	83
114) isopropylbenzene	15.213	105	360218	65.26	ug/L	99

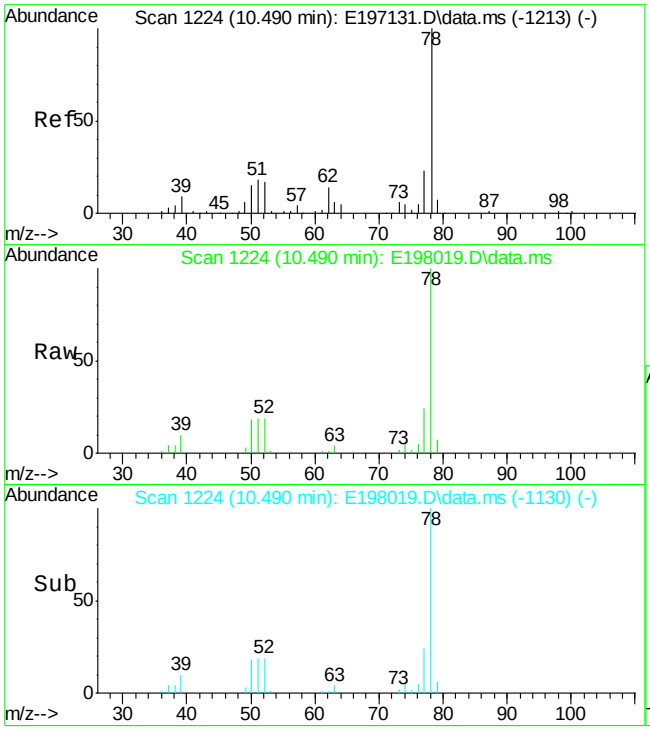
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E198019.D
Acq On : 18 Dec 2012 5:50 am
Operator : OksanaT
Sample : jb22962-6
Misc : MS39893,VE8699,6.6,,1,5,1
ALS Vial : 43 Sample Multiplier: 1

Quant Time: Dec 18 13:29:12 2012
Quant Method : C:\MSDCHEM\1\METHODS\ME8647.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Nov 13 15:53:05 2012
Response via : Initial Calibration

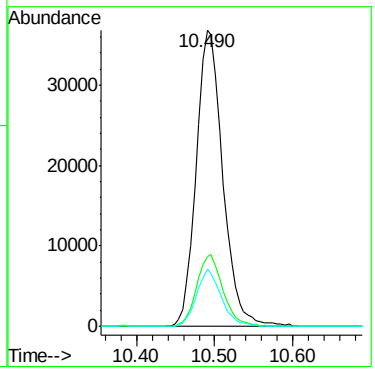


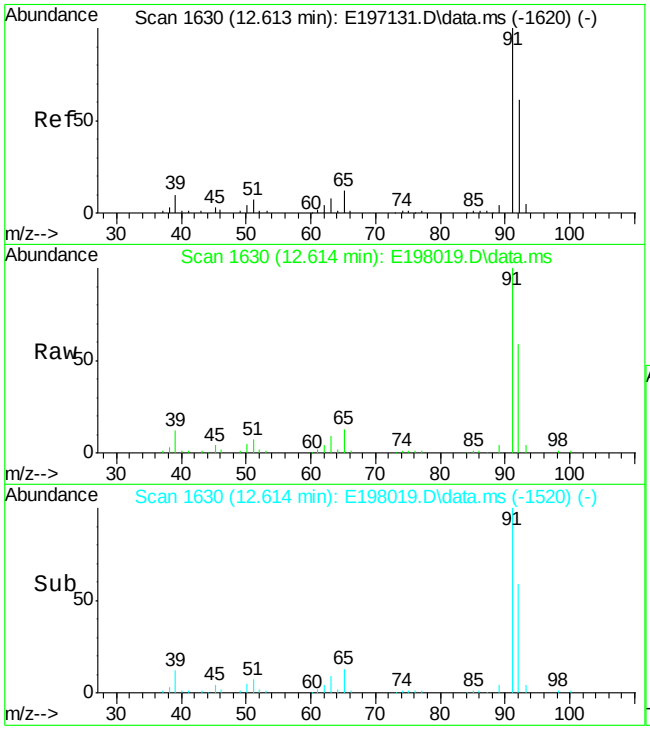


#74
benzene
Concen: 19.22 ug/L
RT: 10.490 min Scan# 1224
Delta R.T. -0.006 min
Lab File: E198019.D
Acq: 18 Dec 2012 5:50 am

Tgt Ion: 78 Resp: 86717

Ion	Ratio	Lower	Upper
78	100		
77	23.5	0.0	54.3
52	19.2	0.0	47.9

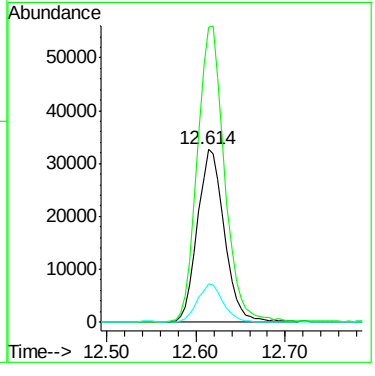


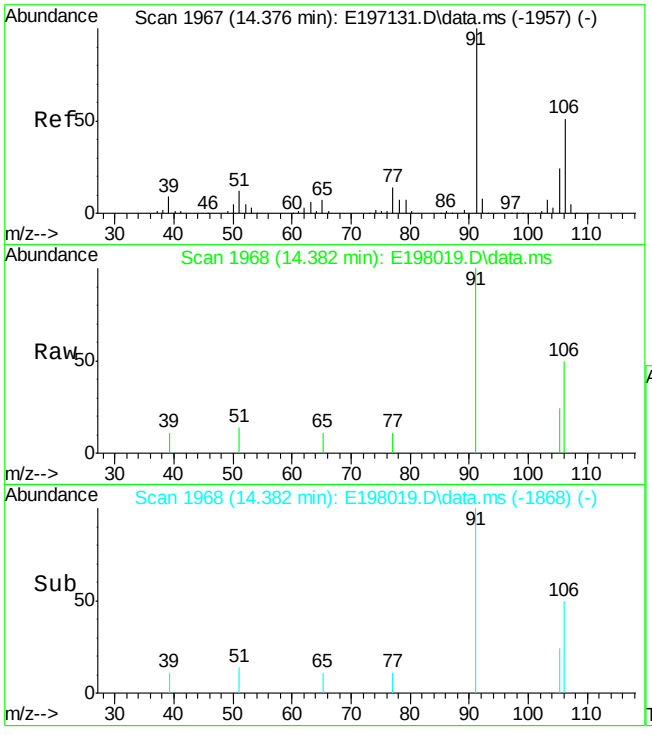


#90
toluene
Concen: 24.32 ug/L
RT: 12.614 min Scan# 1630
Delta R.T. -0.006 min
Lab File: E198019.D
Acq: 18 Dec 2012 5:50 am

Tgt Ion: 92 Resp: 68860

Ion	Ratio	Lower	Upper
92	100		
91	170.4	137.9	197.9
65	22.3	0.0	50.7

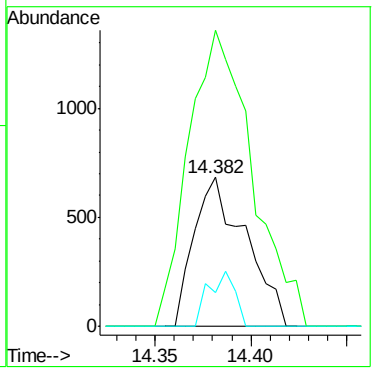


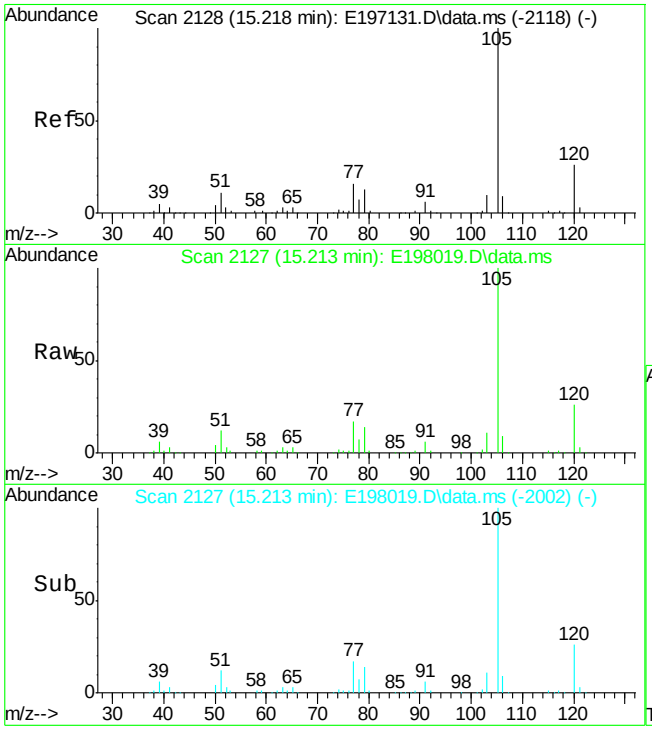


#108
m,p-xylene
Concen: 0.62 ug/L
RT: 14.382 min Scan# 1968
Delta R.T. 0.005 min
Lab File: E198019.D
Acq: 18 Dec 2012 5:50 am

Tgt Ion:106 Resp: 1270

Ion	Ratio	Lower	Upper
106	100		
91	173.4	170.7	230.7
77	22.8	0.0	57.5

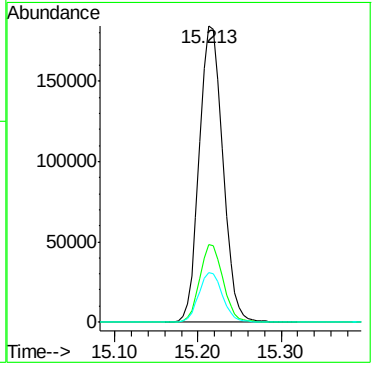




#114
isopropylbenzene
Concen: 65.26 ug/L
RT: 15.213 min Scan# 2127
Delta R.T. -0.006 min
Lab File: E198019.D
Acq: 18 Dec 2012 5:50 am

Tgt Ion:105 Resp: 360218

Ion	Ratio	Lower	Upper
105	100		
120	26.2	0.0	56.4
77	16.7	0.0	47.0



Manual Integrations APPROVED (compounds with "m" flag)
Kanya Veerawat 12/20/12 03:32

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203409.D
Acq On : 15 Dec 2012 5:55 am
Operator : EmilyT
Sample : JB22962-7
Misc : ms39893,vd8294,5.9,,20,5,1
ALS Vial : 36 Sample Multiplier: 1

Quant Time: Dec 17 08:31:37 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.026	65	72281	500.00 ug/L	-0.01
4) pentafluorobenzene	10.259	168	122400	50.00 ug/L	0.00
53) 1,4-difluorobenzene	11.175	114	178849	50.00 ug/L	0.00
85) chlorobenzene-d5	14.517	117	175522	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.100	152	101419	50.00 ug/L	0.00

System Monitoring Compounds

46) dibromofluoromethane (s)	10.291	113	56540	46.68 ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 93.36%		
47) 1,2-dichloroethane-d4 (s)	10.720	65	75677	54.31 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 108.62%		
77) toluene-d8 (s)	12.890	98	227273	50.12 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 100.24%		
101) 4-bromofluorobenzene (s)	15.814	95	93782	51.23 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 102.46%		

Target Compounds					Qvalue
62) benzene	10.824	78	12813273	2505.95 ug/L	54
79) toluene	12.974	92	9625276	2932.46 ug/L #	65
94) ethylbenzene	14.621	91	297592	46.36 ug/L	97
95) m,p-xylene	14.736	106	374126	149.18 ug/L	93
96) o-xylene	15.202	106	101353	40.61 ug/L	96
100) isopropylbenzene	15.641	105	20439327m	3276.50 ug/L	
111) 1,3,5-trimethylbenzene	16.211	105	68020	12.43 ug/L	97
114) 1,2,4-trimethylbenzene	16.656	105	196548	34.70 ug/L	97
128) naphthalene	19.700	128	15564	3.30 ug/L	98

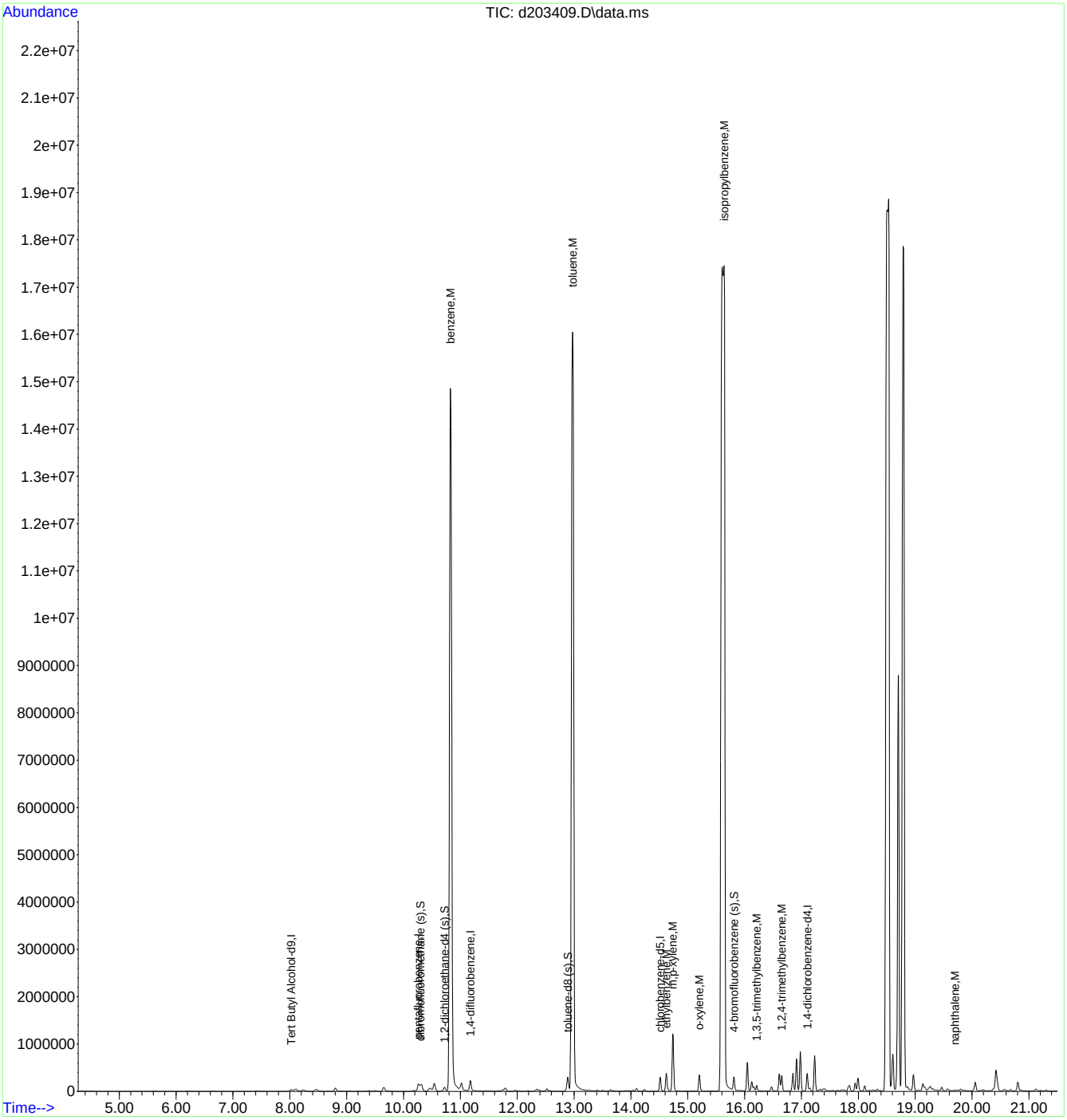
(#) = qualifier out of range (m) = manual integration (+) = signals summed

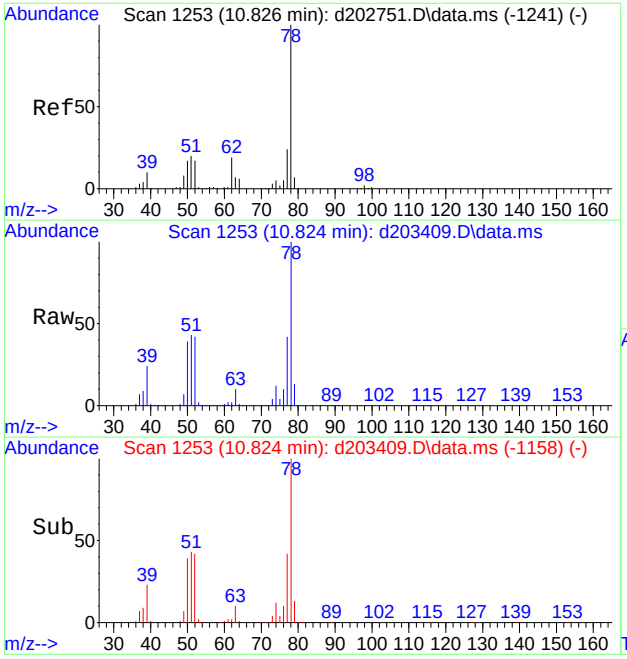
7.1.11
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203409.D
Acq On : 15 Dec 2012 5:55 am
Operator : EmilyT
Sample : JB22962-7
Misc : ms39893,vd8294,5.9,,20,5,1
ALS Vial : 36 Sample Multiplier: 1

Quant Time: Dec 17 08:31:37 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

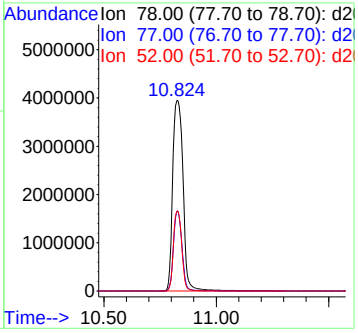


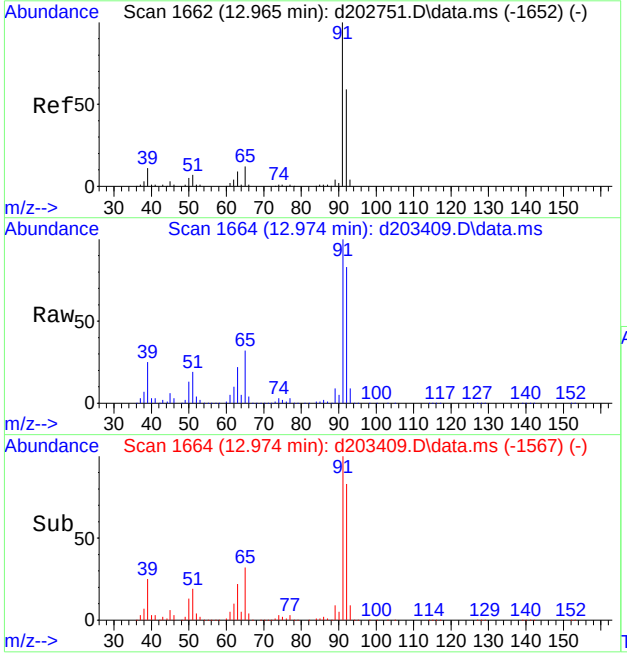


#62
benzene
Concen: 2505.95 ug/L
RT: 10.824 min Scan# 1253
Delta R.T. -0.004 min
Lab File: d203409.D
Acq: 15 Dec 2012 5:55 am

Tgt Ion: 78 Resp:12813273

Ion	Ratio	Lower	Upper
78	100		
77	42.0	0.0	53.8
52	42.0	0.0	46.8

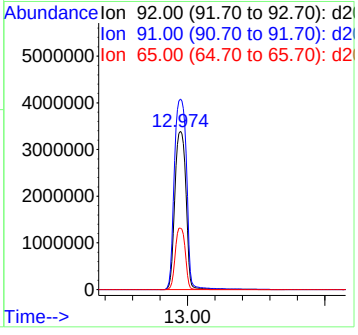


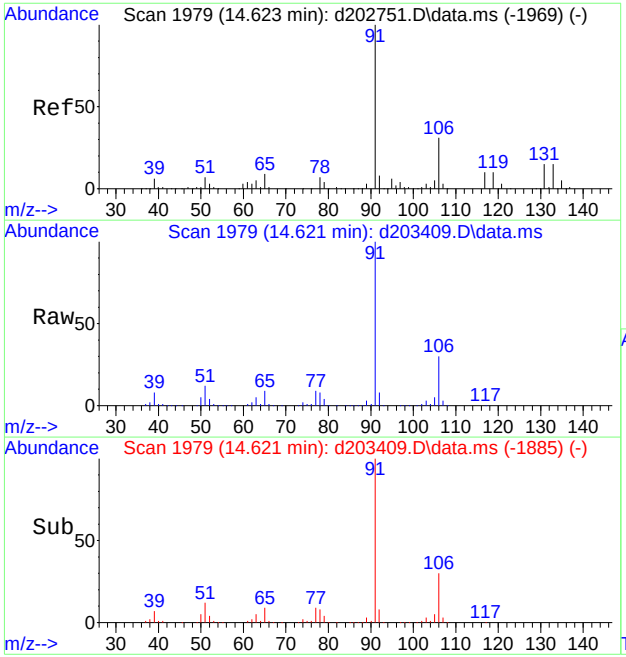


#79
toluene
Concen: 2932.46 ug/L
RT: 12.974 min Scan# 1664
Delta R.T. 0.007 min
Lab File: d203409.D
Acq: 15 Dec 2012 5:55 am

Tgt Ion: 92 Resp: 9625276

Ion	Ratio	Lower	Upper
92	100		
91	120.2	136.4	196.4#
65	38.7	0.0	49.2

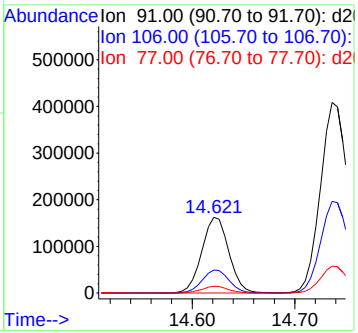


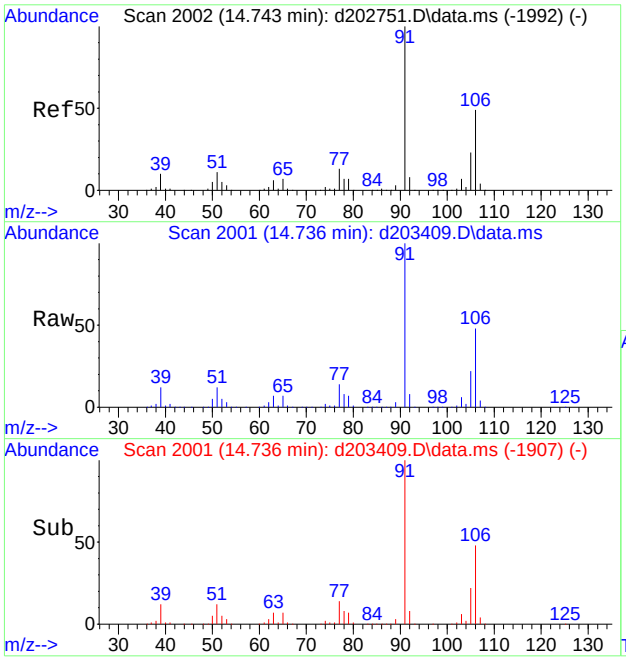


#94
ethylbenzene
Concen: 46.36 ug/L
RT: 14.621 min Scan# 1979
Delta R.T. -0.009 min
Lab File: d203409.D
Acq: 15 Dec 2012 5:55 am

Tgt Ion: 91 Resp: 297592

Ion	Ratio	Lower	Upper
91	100		
106	30.4	2.1	62.1
77	8.9	0.0	38.6

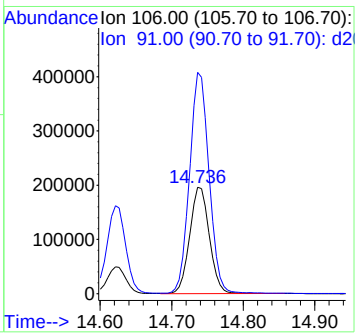




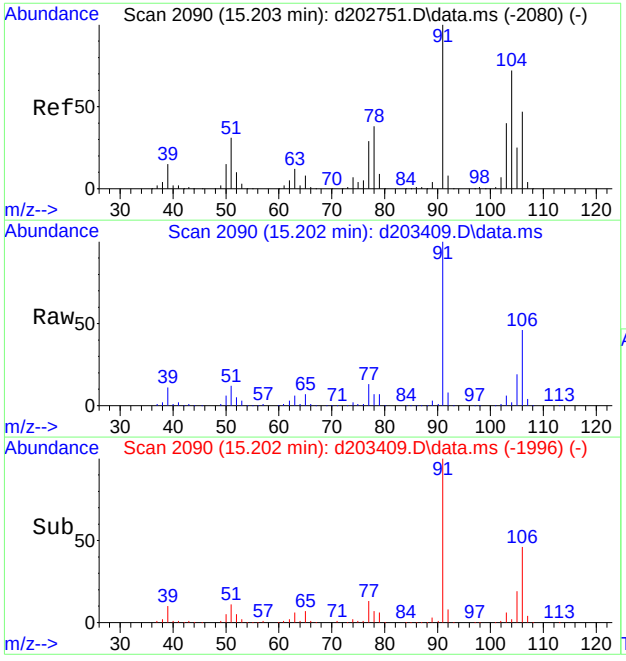
#95
m,p-xylene
Concen: 149.18 ug/L
RT: 14.736 min Scan# 2001
Delta R.T. -0.009 min
Lab File: d203409.D
Acq: 15 Dec 2012 5:55 am

Tgt Ion:106 Resp: 374126

Ion	Ratio	Lower	Upper
106	100		
91	207.8	137.7	255.7



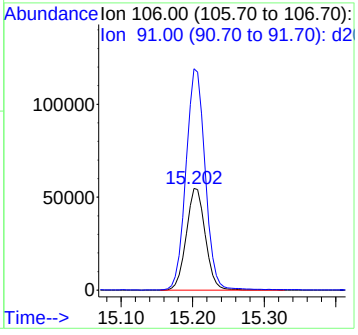
7.1.11

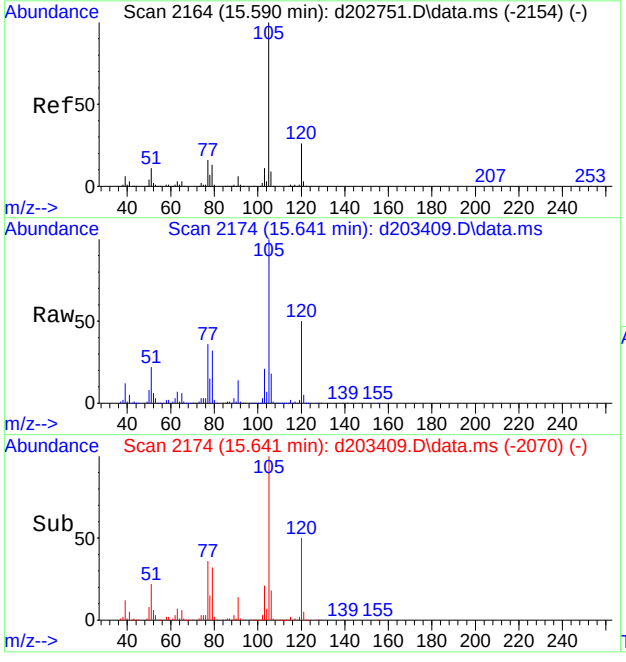


#96
o-xylene
Concen: 40.61 ug/L
RT: 15.202 min Scan# 2090
Delta R.T. -0.009 min
Lab File: d203409.D
Acq: 15 Dec 2012 5:55 am

Tgt Ion:106 Resp: 101353

Ion	Ratio	Lower	Upper
106	100		
91	217.4	147.4	273.8

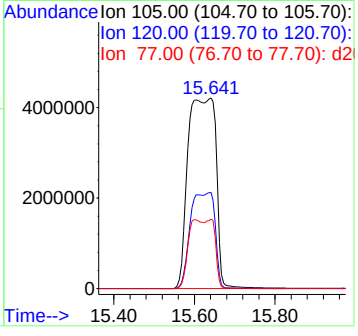




#100
isopropylbenzene
Concen: 3276.50 ug/L m
RT: 15.641 min Scan# 2174
Delta R.T. 0.043 min
Lab File: d203409.D
Acq: 15 Dec 2012 5:55 am

Tgt Ion:105 Resp:20439327

Ion	Ratio	Lower	Upper
105	100		
120	50.5	0.0	56.7
77	36.4	0.0	44.9



7.1.11

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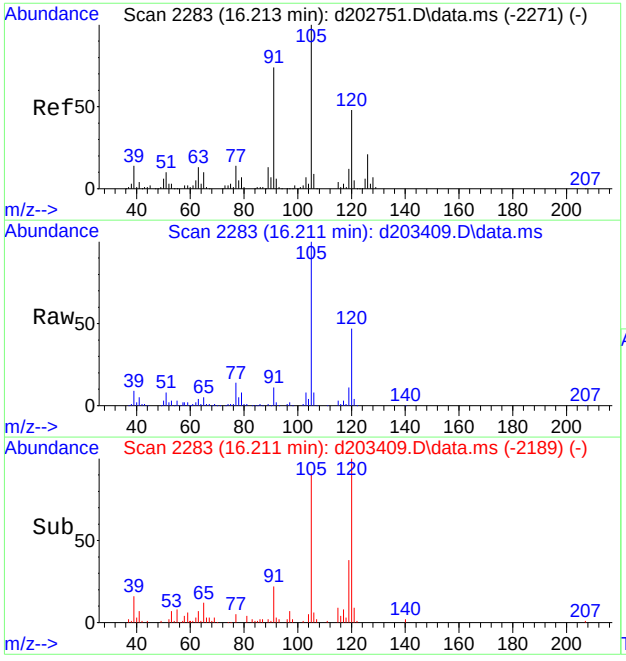
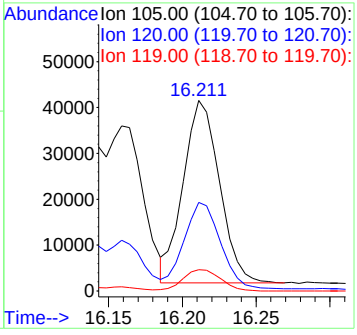
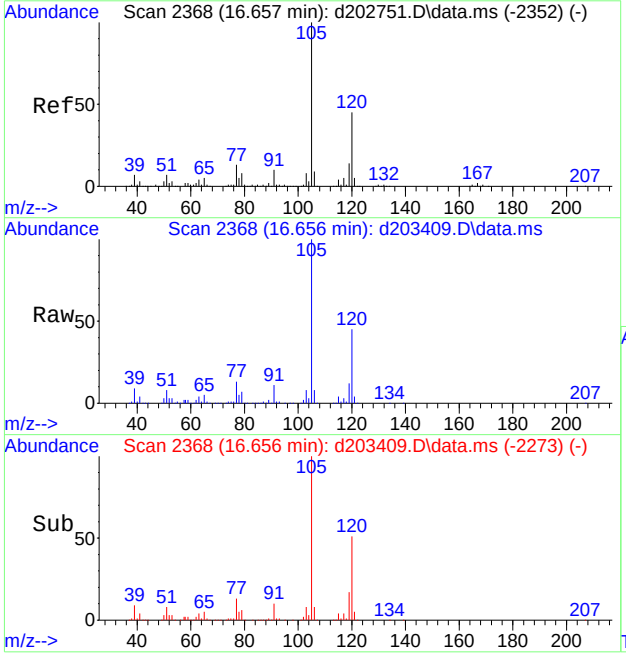


#111
1,3,5-trimethylbenzene
Concen: 12.43 ug/L
RT: 16.211 min Scan# 2283
Delta R.T. -0.009 min
Lab File: d203409.D
Acq: 15 Dec 2012 5:55 am

Tgt Ion:105 Resp: 68020

Ion	Ratio	Lower	Upper
105	100		
120	47.4	19.9	79.9
119	11.7	0.0	42.6

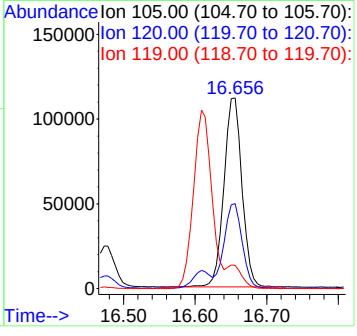




#114
1,2,4-trimethylbenzene
Concen: 34.70 ug/L
RT: 16.656 min Scan# 2368
Delta R.T. -0.004 min
Lab File: d203409.D
Acq: 15 Dec 2012 5:55 am

Tgt Ion:105 Resp: 196548

Ion	Ratio	Lower	Upper
105	100		
120	44.8	16.5	76.5
119	12.3	0.0	43.8



7.1.11

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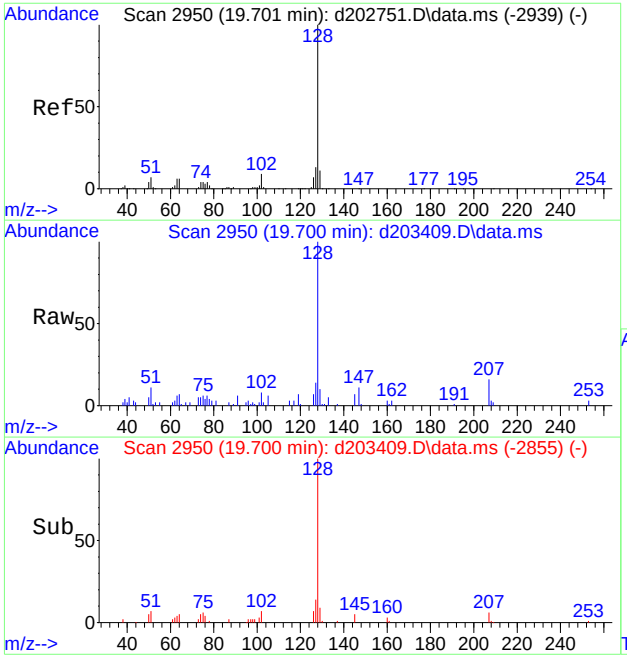
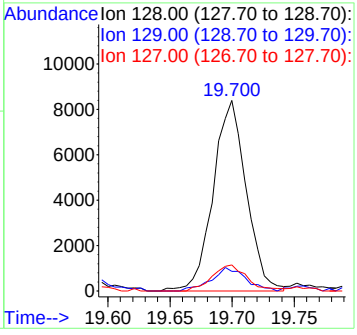


#128
naphthalene
Concen: 3.30 ug/L
RT: 19.700 min Scan# 2950
Delta R.T. -0.004 min
Lab File: d203409.D
Acq: 15 Dec 2012 5:55 am

Tgt Ion:128 Resp: 15564

Ion	Ratio	Lower	Upper
128	100		
129	10.4	0.0	41.0
127	13.8	0.0	42.7



7.1.11

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203488.D
Acq On : 17 Dec 2012 5:08 pm
Operator : EmilyT
Sample : jb22962-7
Misc : ms39893,vd8297,5.9,,1,5,10
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Dec 17 17:54:12 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

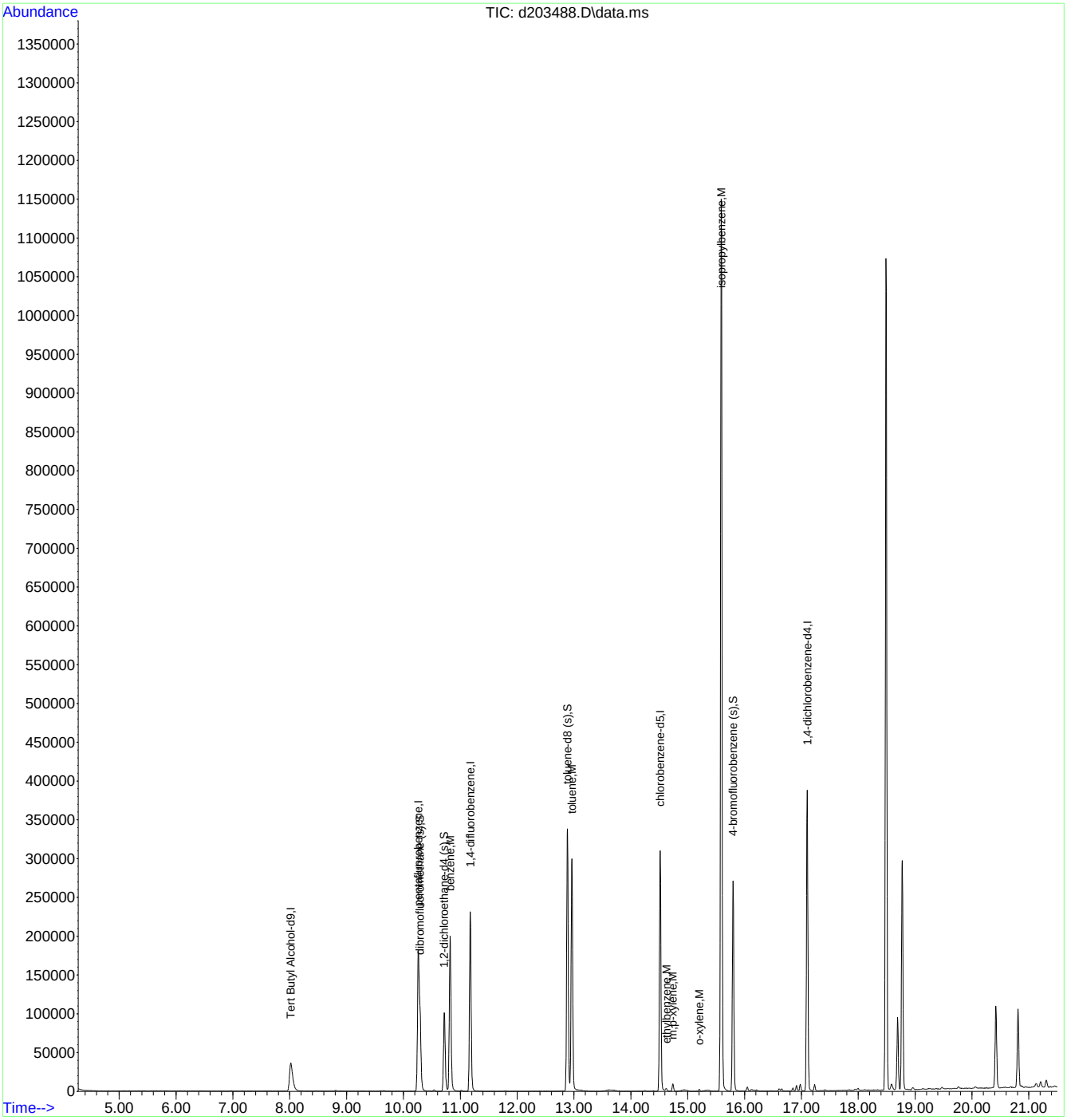
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.022	65	82101	500.00 ug/L	-0.02
4) pentafluorobenzene	10.260	168	132641	50.00 ug/L	0.00
53) 1,4-difluorobenzene	11.176	114	192480	50.00 ug/L	0.00
85) chlorobenzene-d5	14.518	117	181102	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.101	152	107585	50.00 ug/L	0.00
System Monitoring Compounds					
46) dibromofluoromethane (s)	10.292	113	59629	45.43 ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 90.86%		
47) 1,2-dichloroethane-d4 (s)	10.715	65	81821	54.19 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 108.38%		
77) toluene-d8 (s)	12.886	98	238782	48.93 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 97.86%		
101) 4-bromofluorobenzene (s)	15.799	95	94120	48.46 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 96.92%		
Target Compounds					Qvalue
62) benzene	10.820	78	186891	33.96 ug/L	98
79) toluene	12.964	92	134443	38.06 ug/L	96
94) ethylbenzene	14.628	91	2652	0.40 ug/L	88
95) m,p-xylene	14.743	106	3050	1.18 ug/L	91
96) o-xylene	15.208	106	816	0.32 ug/L	89
100) isopropylbenzene	15.590	105	803674	121.45 ug/L	98

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

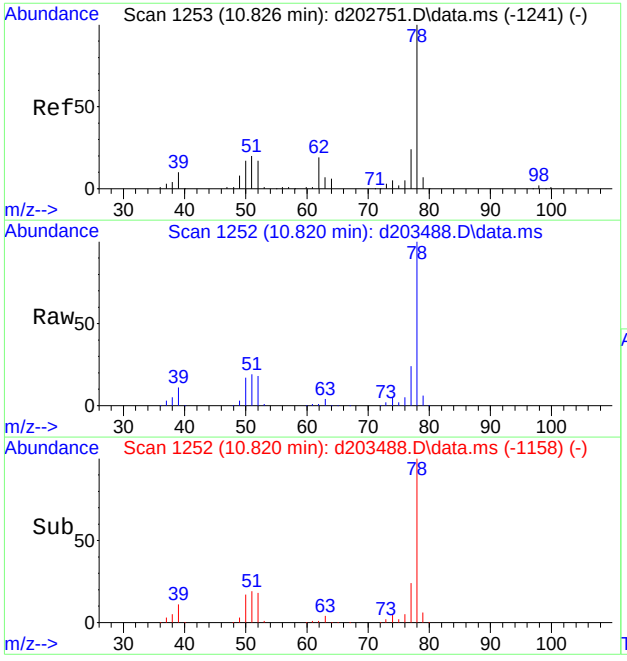
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203488.D
Acq On : 17 Dec 2012 5:08 pm
Operator : EmilyT
Sample : jb22962-7
Misc : ms39893,vd8297,5.9,,1,5,10
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Dec 17 17:54:12 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration



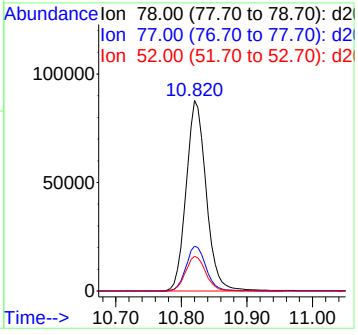
MD8248.M Mon Dec 17 17:55:46 2012 Page: 2

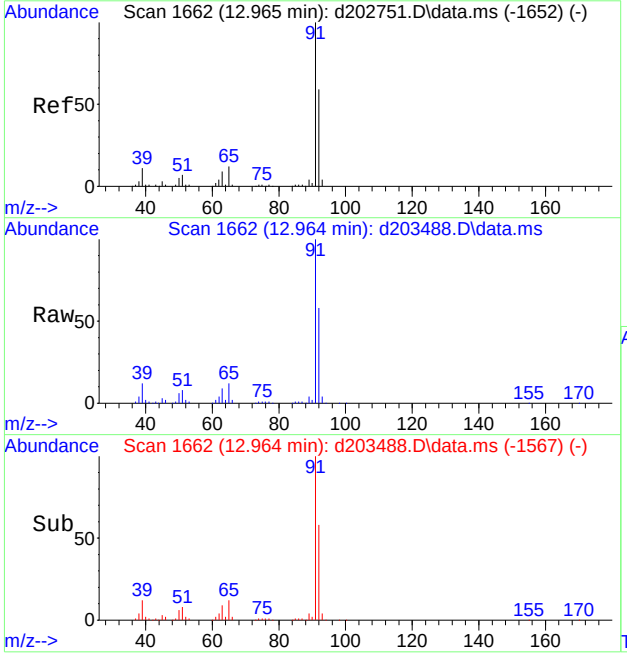


#62
benzene
Concen: 33.96 ug/L
RT: 10.820 min Scan# 1252
Delta R.T. -0.008 min
Lab File: d203488.D
Acq: 17 Dec 2012 5:08 pm

Tgt Ion: 78 Resp: 186891

Ion	Ratio	Lower	Upper
78	100		
77	23.6	0.0	53.8
52	18.2	0.0	46.8

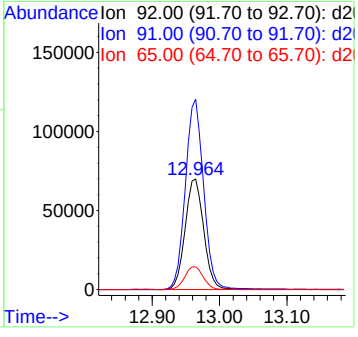




#79
toluene
Concen: 38.06 ug/L
RT: 12.964 min Scan# 1662
Delta R.T. -0.003 min
Lab File: d203488.D
Acq: 17 Dec 2012 5:08 pm

Tgt Ion: 92 Resp: 134443

Ion	Ratio	Lower	Upper
92	100		
91	171.8	136.4	196.4
65	20.4	0.0	49.2



7.1.12

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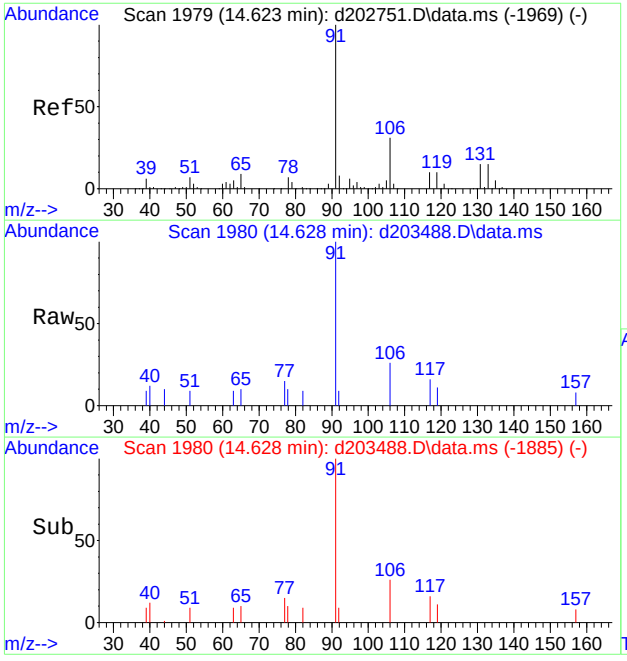
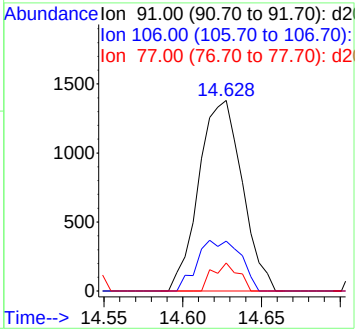
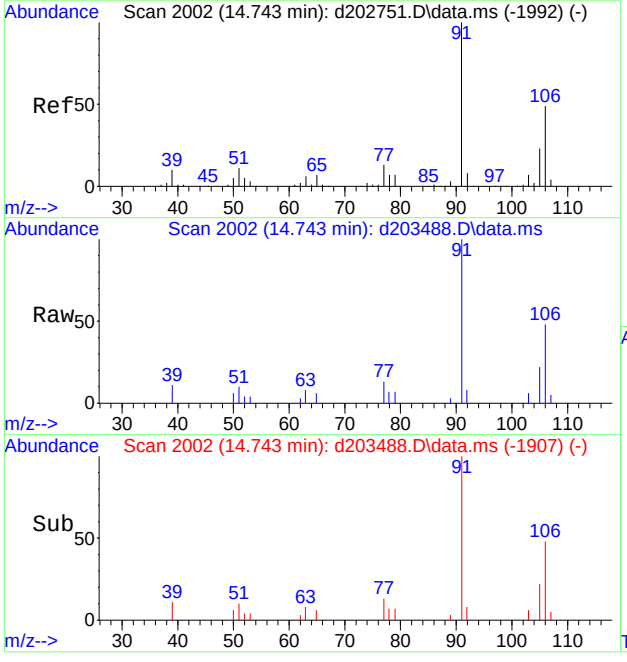


#94
ethylbenzene
Concen: 0.40 ug/L
RT: 14.628 min Scan# 1980
Delta R.T. -0.003 min
Lab File: d203488.D
Acq: 17 Dec 2012 5:08 pm

Tgt Ion: 91 Resp: 2652

Ion	Ratio	Lower	Upper
91	100		
106	26.3	2.1	62.1
77	14.7	0.0	38.6

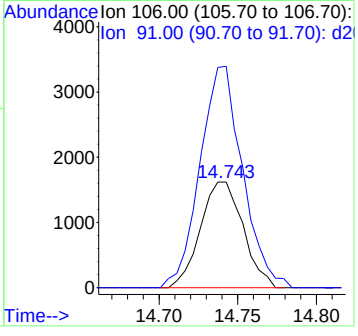




#95
m,p-xylene
Concen: 1.18 ug/L
RT: 14.743 min Scan# 2002
Delta R.T. -0.003 min
Lab File: d203488.D
Acq: 17 Dec 2012 5:08 pm

Tgt Ion:106 Resp: 3050

Ion	Ratio	Lower	Upper
106	100		
91	209.6	137.7	255.7



7.1.12

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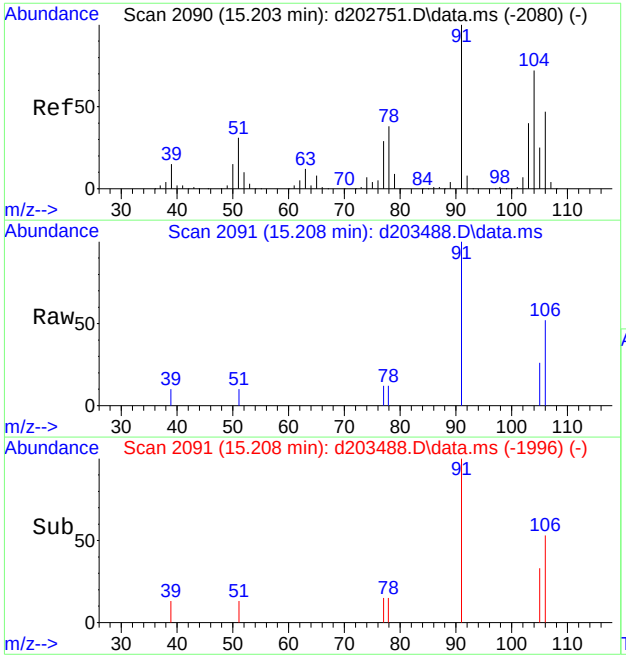
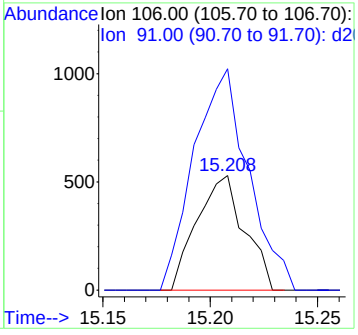
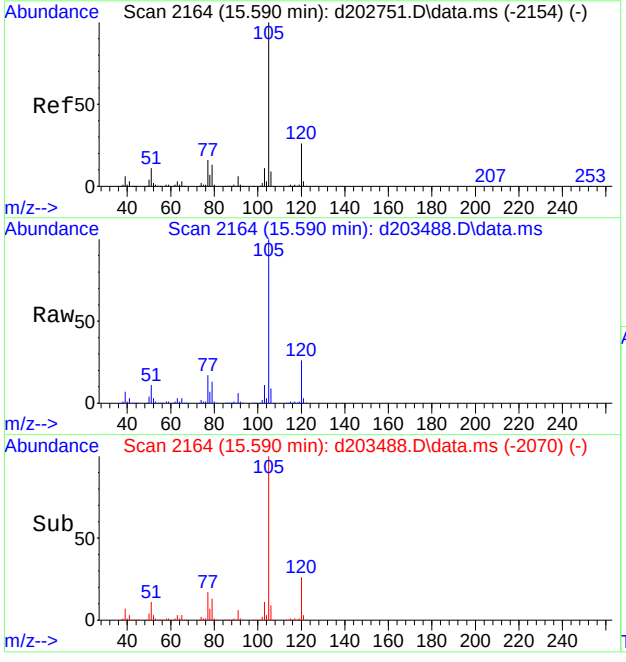


#96
o-xylene
Concen: 0.32 ug/L
RT: 15.208 min Scan# 2091
Delta R.T. -0.003 min
Lab File: d203488.D
Acq: 17 Dec 2012 5:08 pm

Tgt Ion:106 Resp: 816

Ion	Ratio	Lower	Upper
106	100		
91	193.4	147.4	273.8

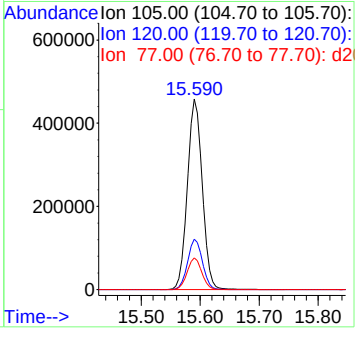




#100
isopropylbenzene
Concen: 121.45 ug/L
RT: 15.590 min Scan# 2164
Delta R.T. -0.008 min
Lab File: d203488.D
Acq: 17 Dec 2012 5:08 pm

Tgt Ion:105 Resp: 803674

Ion	Ratio	Lower	Upper
105	100		
120	26.5	0.0	56.7
77	16.7	0.0	44.9



7.1.12

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203410.D
Acq On : 15 Dec 2012 6:25 am
Operator : EmilyT
Sample : JB22962-8
Misc : ms39893,vd8294,6.2,,20,5,1
ALS Vial : 37 Sample Multiplier: 1

Quant Time: Dec 17 08:32:53 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.022	65	73081	500.00 ug/L	-0.02
4) pentafluorobenzene	10.260	168	125242	50.00 ug/L	0.00
53) 1,4-difluorobenzene	11.176	114	184024	50.00 ug/L	0.00
85) chlorobenzene-d5	14.512	117	175122	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.101	152	110225	50.00 ug/L	0.00

System Monitoring Compounds					
46) dibromofluoromethane (s)	10.292	113	57281	46.22 ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 92.44%		
47) 1,2-dichloroethane-d4 (s)	10.715	65	79103	55.49 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 110.98%		
77) toluene-d8 (s)	12.881	98	230467	49.40 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 98.80%		
101) 4-bromofluorobenzene (s)	15.799	95	93444	46.96 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 93.92%		

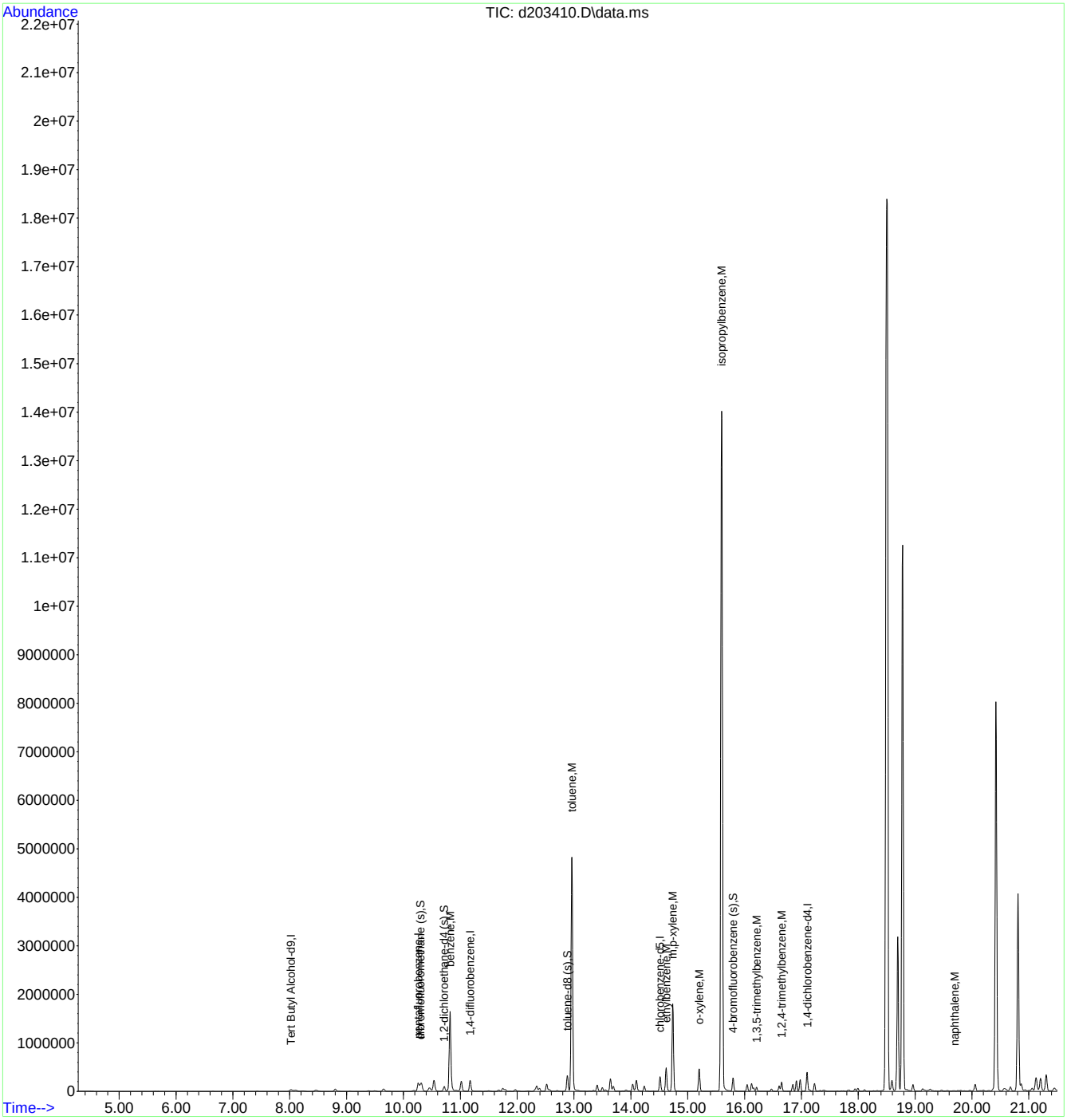
Target Compounds					Qvalue
62) benzene	10.820	78	1487925	282.82 ug/L	96
79) toluene	12.964	92	2126652	629.69 ug/L	95
94) ethylbenzene	14.622	91	367472	57.38 ug/L	99
95) m,p-xylene	14.737	106	535729	214.10 ug/L	94
96) o-xylene	15.203	106	134885	54.17 ug/L	94
100) isopropylbenzene	15.595	105	8948386	1319.86 ug/L	70
111) 1,3,5-trimethylbenzene	16.212	105	48536	8.16 ug/L	100
114) 1,2,4-trimethylbenzene	16.652	105	111438	18.10 ug/L	97
128) naphthalene	19.690	128	6101	1.19 ug/L	95

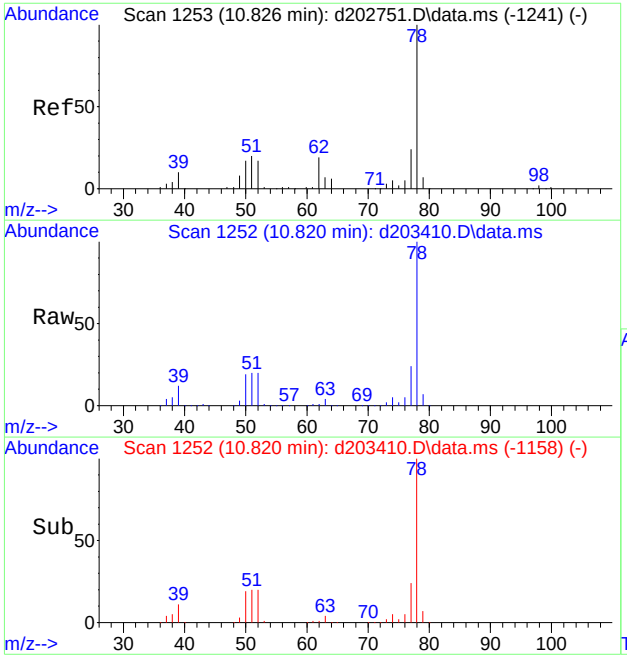
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203410.D
Acq On : 15 Dec 2012 6:25 am
Operator : EmilyT
Sample : JB22962-8
Misc : ms39893,vd8294,6.2,,20,5,1
ALS Vial : 37 Sample Multiplier: 1

Quant Time: Dec 17 08:32:53 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

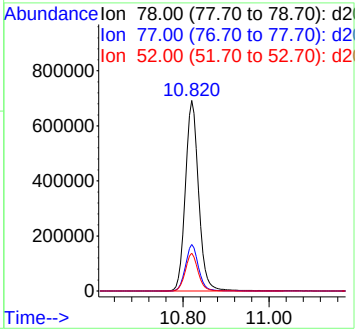


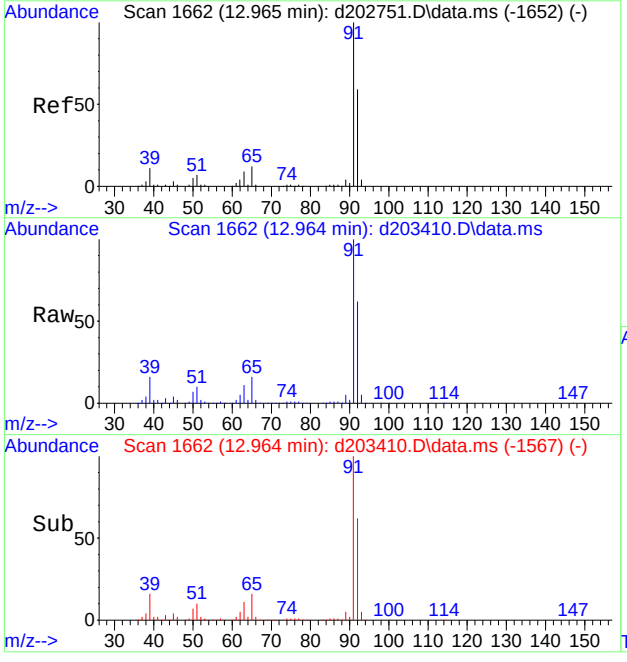


#62
benzene
Concen: 282.82 ug/L
RT: 10.820 min Scan# 1252
Delta R.T. -0.008 min
Lab File: d203410.D
Acq: 15 Dec 2012 6:25 am

Tgt Ion: 78 Resp: 1487925

Ion	Ratio	Lower	Upper
78	100		
77	24.4	0.0	53.8
52	19.8	0.0	46.8

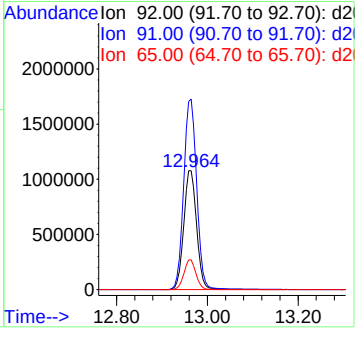




#79
toluene
Concen: 629.69 ug/L
RT: 12.964 min Scan# 1662
Delta R.T. -0.003 min
Lab File: d203410.D
Acq: 15 Dec 2012 6:25 am

Tgt Ion: 92 Resp: 2126652

Ion	Ratio	Lower	Upper
92	100		
91	160.1	136.4	196.4
65	24.9	0.0	49.2



7.1.13

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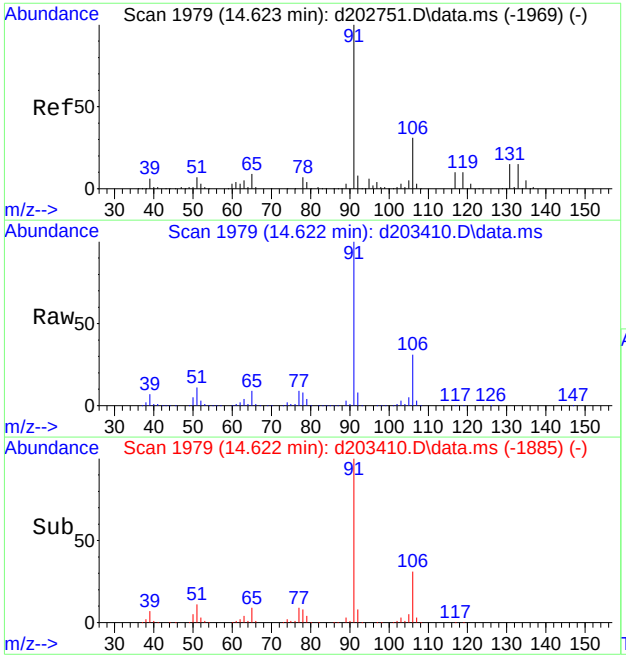
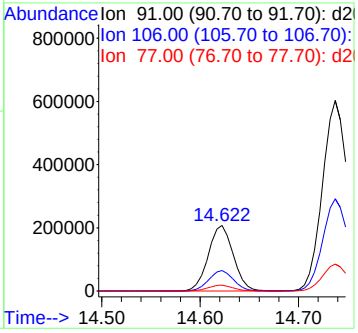
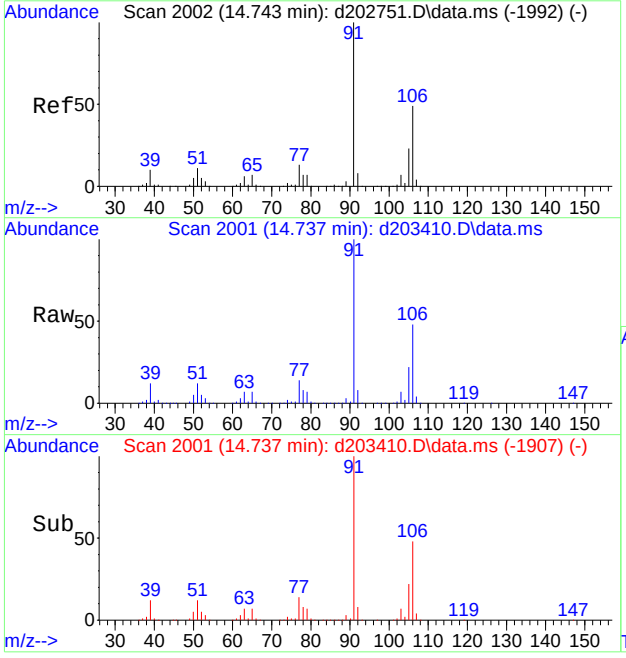


#94
ethylbenzene
Concen: 57.38 ug/L
RT: 14.622 min Scan# 1979
Delta R.T. -0.008 min
Lab File: d203410.D
Acq: 15 Dec 2012 6:25 am

Tgt Ion: 91 Resp: 367472

Ion	Ratio	Lower	Upper
91	100		
106	31.2	2.1	62.1
77	8.8	0.0	38.6

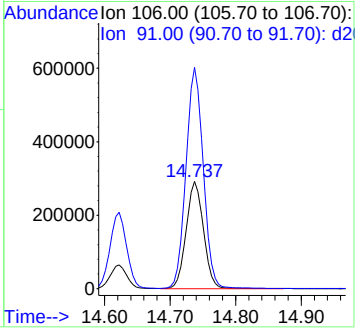




#95
m,p-xylene
Concen: 214.10 ug/L
RT: 14.737 min Scan# 2001
Delta R.T. -0.008 min
Lab File: d203410.D
Acq: 15 Dec 2012 6:25 am

Tgt Ion:106 Resp: 535729

Ion	Ratio	Lower	Upper
106	100		
91	206.3	137.7	255.7



7.1.13

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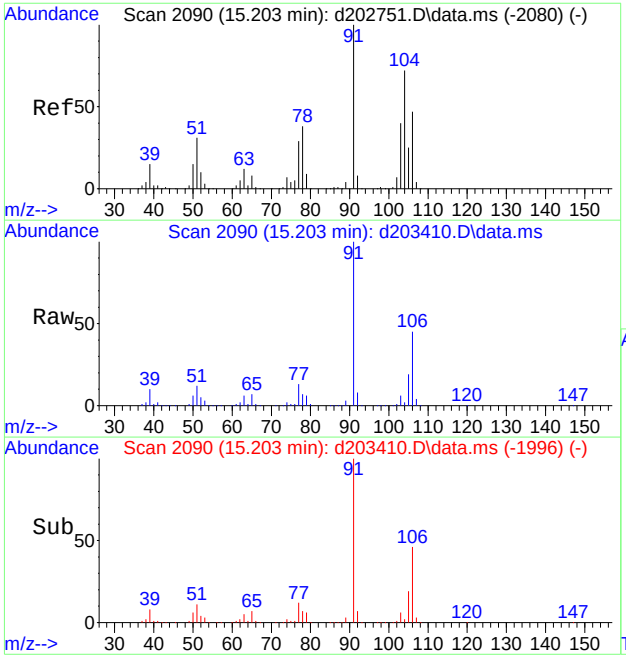
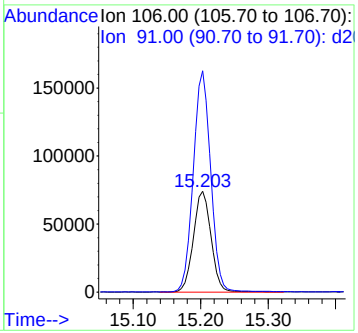
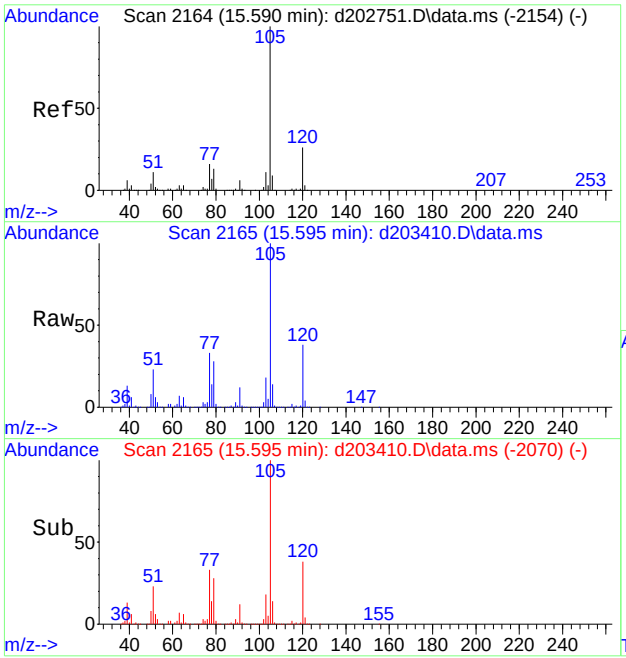


#96
o-xylene
Concen: 54.17 ug/L
RT: 15.203 min Scan# 2090
Delta R.T. -0.008 min
Lab File: d203410.D
Acq: 15 Dec 2012 6:25 am

Tgt Ion:106 Resp: 134885

Ion	Ratio	Lower	Upper
106	100		
91	219.6	147.4	273.8

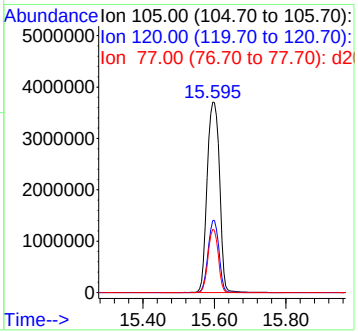


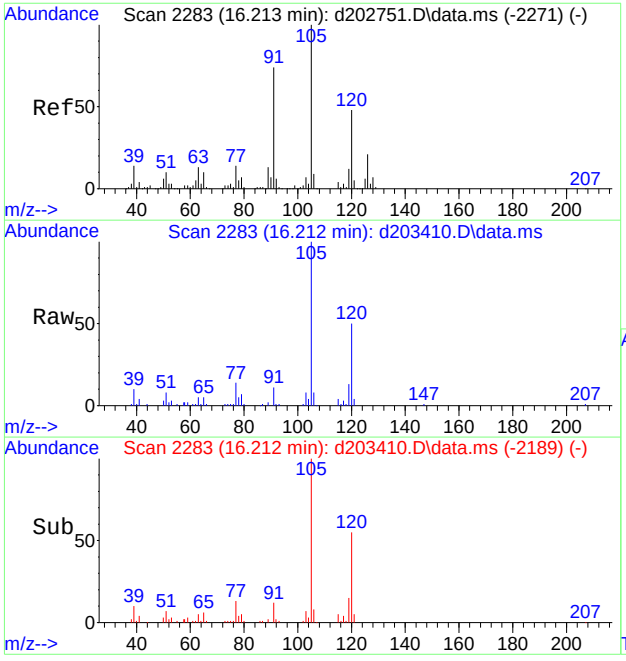


#100
isopropylbenzene
Concen: 1319.86 ug/L
RT: 15.595 min Scan# 2165
Delta R.T. -0.003 min
Lab File: d203410.D
Acq: 15 Dec 2012 6:25 am

Tgt Ion:105 Resp: 8948386

Ion	Ratio	Lower	Upper
105	100		
120	37.8	0.0	56.7
77	33.3	0.0	44.9

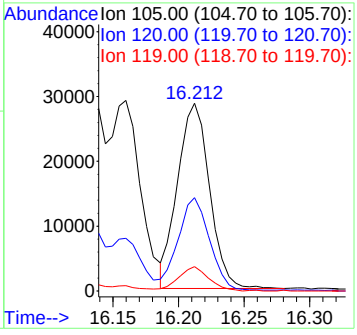


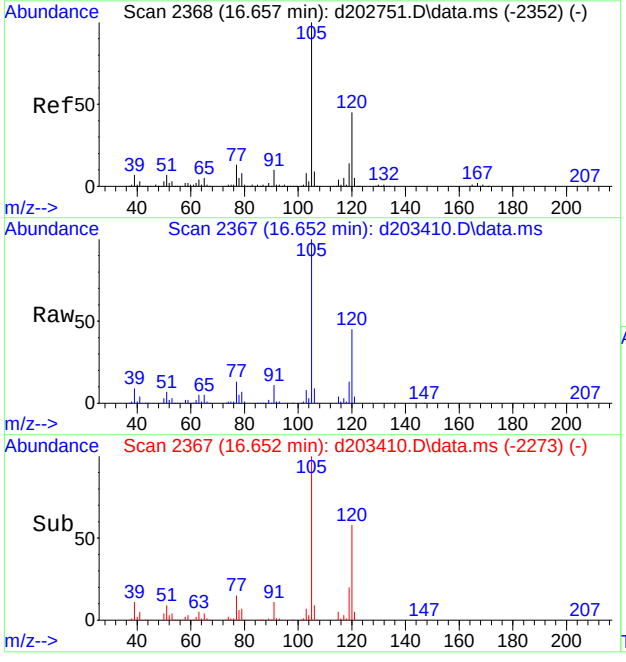


#111
1,3,5-trimethylbenzene
Concen: 8.16 ug/L
RT: 16.212 min Scan# 2283
Delta R.T. -0.008 min
Lab File: d203410.D
Acq: 15 Dec 2012 6:25 am

Tgt Ion:105 Resp: 48536

Ion	Ratio	Lower	Upper
105	100		
120	49.8	19.9	79.9
119	12.7	0.0	42.6

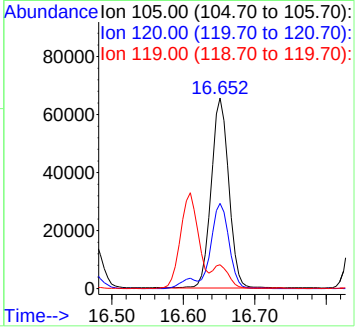




#114
1,2,4-trimethylbenzene
Concen: 18.10 ug/L
RT: 16.652 min Scan# 2367
Delta R.T. -0.008 min
Lab File: d203410.D
Acq: 15 Dec 2012 6:25 am

Tgt Ion:105 Resp: 111438

Ion	Ratio	Lower	Upper
105	100		
120	44.9	16.5	76.5
119	12.5	0.0	43.8



7.1.13

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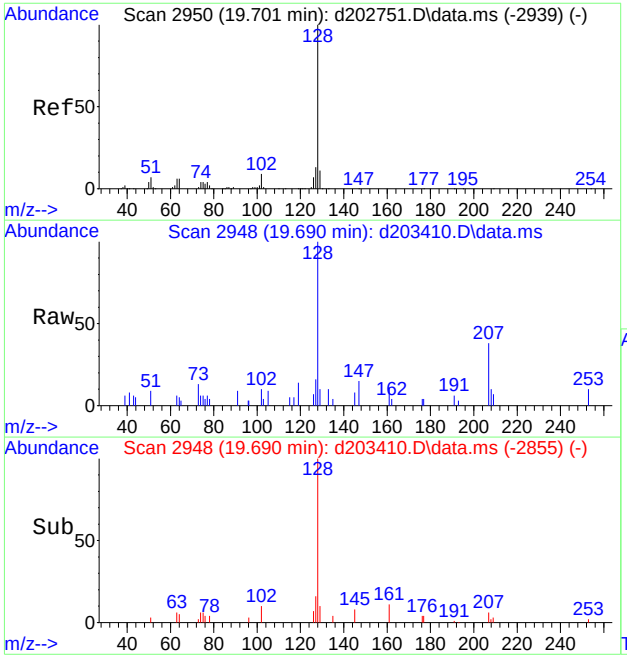
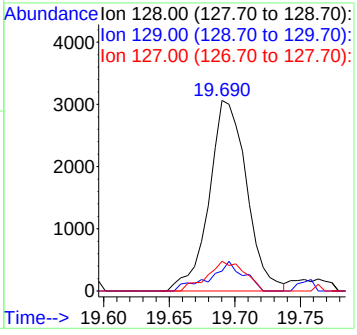


#128
naphthalene
Concen: 1.19 ug/L
RT: 19.690 min Scan# 2948
Delta R.T. -0.013 min
Lab File: d203410.D
Acq: 15 Dec 2012 6:25 am

Tgt Ion:128 Resp: 6101

Ion	Ratio	Lower	Upper
128	100		
129	10.4	0.0	41.0
127	15.7	0.0	42.7



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203489.D
Acq On : 17 Dec 2012 5:38 pm
Operator : EmilyT
Sample : jb22962-8
Misc : ms39893,vd8297,6.2,,1,5,5
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Dec 18 09:30:29 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.022	65	79499	500.00 ug/L	-0.02
4) pentafluorobenzene	10.260	168	129447	50.00 ug/L	0.00
53) 1,4-difluorobenzene	11.176	114	189971	50.00 ug/L	0.00
85) chlorobenzene-d5	14.518	117	178700	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.101	152	104059	50.00 ug/L	0.00

System Monitoring Compounds					
46) dibromofluoromethane (s)	10.292	113	58270	45.49 ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 90.98%		
47) 1,2-dichloroethane-d4 (s)	10.720	65	79954	54.26 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 108.52%		
77) toluene-d8 (s)	12.886	98	235460	48.89 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 97.78%		
101) 4-bromofluorobenzene (s)	15.799	95	92468	49.23 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 98.46%		

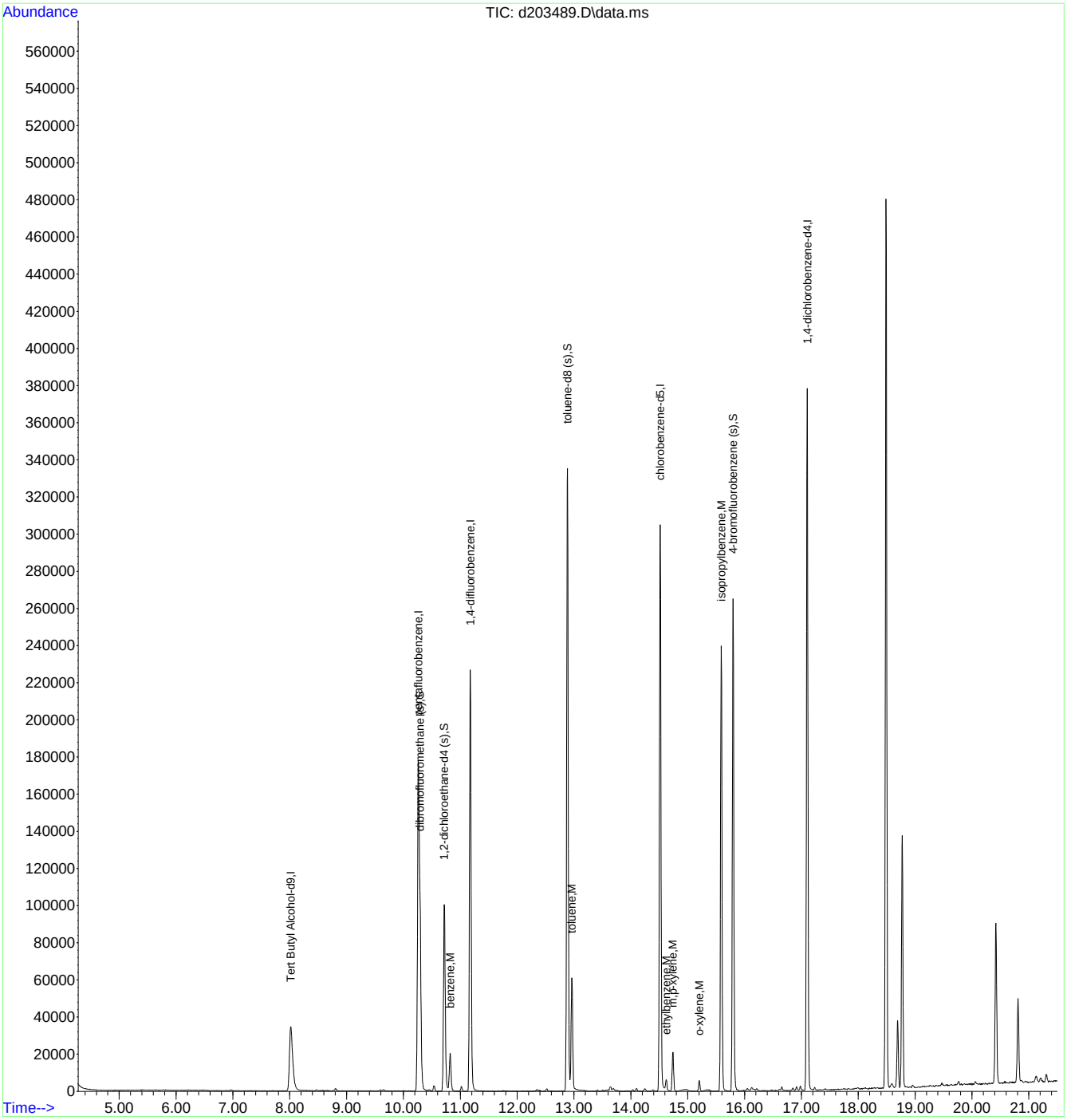
Target Compounds					Qvalue
62) benzene	10.820	78	18557	3.42 ug/L	93
79) toluene	12.964	92	26950	7.73 ug/L	95
94) ethylbenzene	14.622	91	4904	0.75 ug/L	94
95) m,p-xylene	14.742	106	6531	2.56 ug/L	98
96) o-xylene	15.203	106	1646	0.65 ug/L	94
100) isopropylbenzene	15.590	105	170140	26.58 ug/L	98

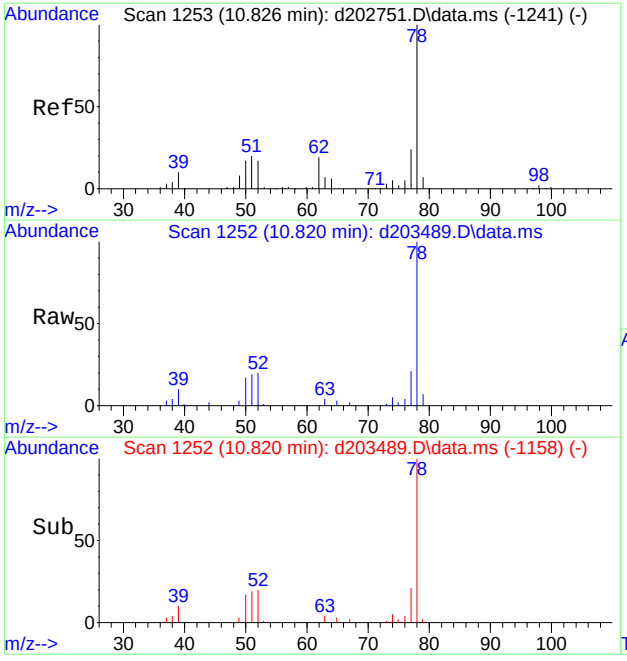
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203489.D
Acq On : 17 Dec 2012 5:38 pm
Operator : EmilyT
Sample : jb22962-8
Misc : ms39893,vd8297,6.2,,1,5,5
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Dec 18 09:30:29 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

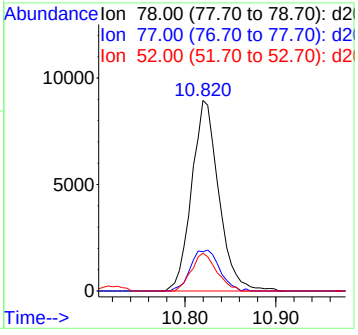


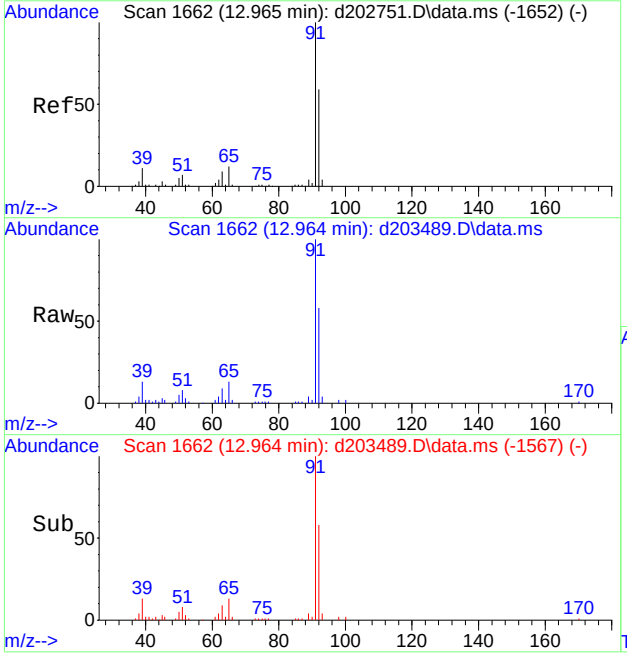


#62
benzene
Concen: 3.42 ug/L
RT: 10.820 min Scan# 1252
Delta R.T. -0.008 min
Lab File: d203489.D
Acq: 17 Dec 2012 5:38 pm

Tgt Ion: 78 Resp: 18557

Ion	Ratio	Lower	Upper
78	100		
77	20.6	0.0	53.8
52	19.9	0.0	46.8

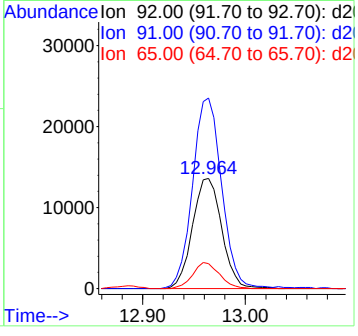


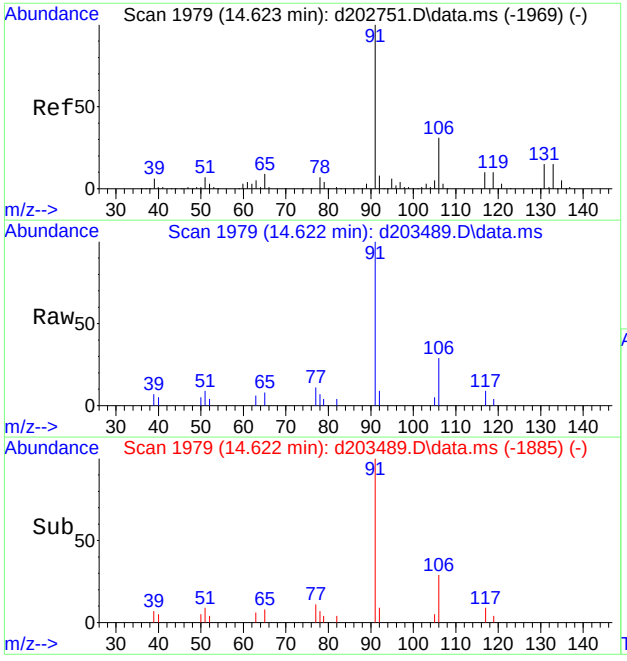


#79
toluene
Concen: 7.73 ug/L
RT: 12.964 min Scan# 1662
Delta R.T. -0.003 min
Lab File: d203489.D
Acq: 17 Dec 2012 5:38 pm

Tgt Ion: 92 Resp: 26950

Ion	Ratio	Lower	Upper
92	100		
91	172.8	136.4	196.4
65	22.8	0.0	49.2

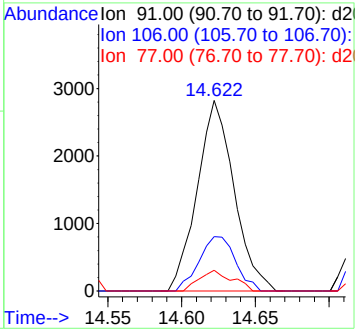


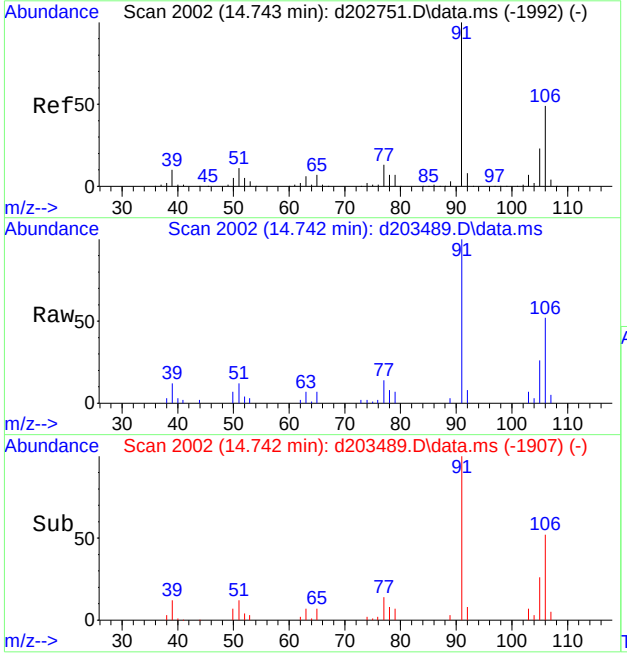


#94
ethylbenzene
Concen: 0.75 ug/L
RT: 14.622 min Scan# 1979
Delta R.T. -0.008 min
Lab File: d203489.D
Acq: 17 Dec 2012 5:38 pm

Tgt Ion: 91 Resp: 4904

Ion	Ratio	Lower	Upper
91	100		
106	28.6	2.1	62.1
77	10.9	0.0	38.6

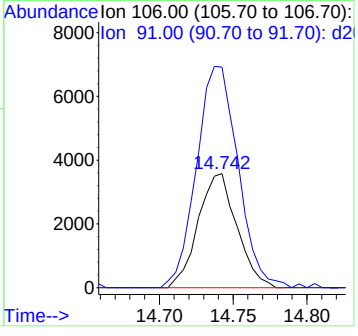


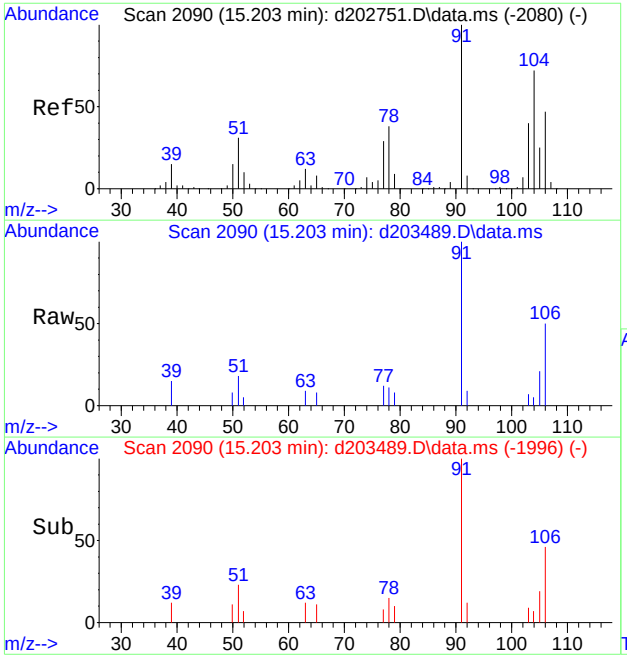


#95
m,p-xylene
Concen: 2.56 ug/L
RT: 14.742 min Scan# 2002
Delta R.T. -0.003 min
Lab File: d203489.D
Acq: 17 Dec 2012 5:38 pm

Tgt Ion:106 Resp: 6531

Ion	Ratio	Lower	Upper
106	100		
91	193.3	137.7	255.7

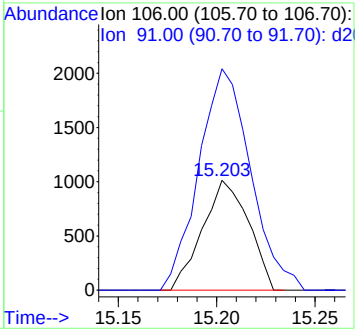


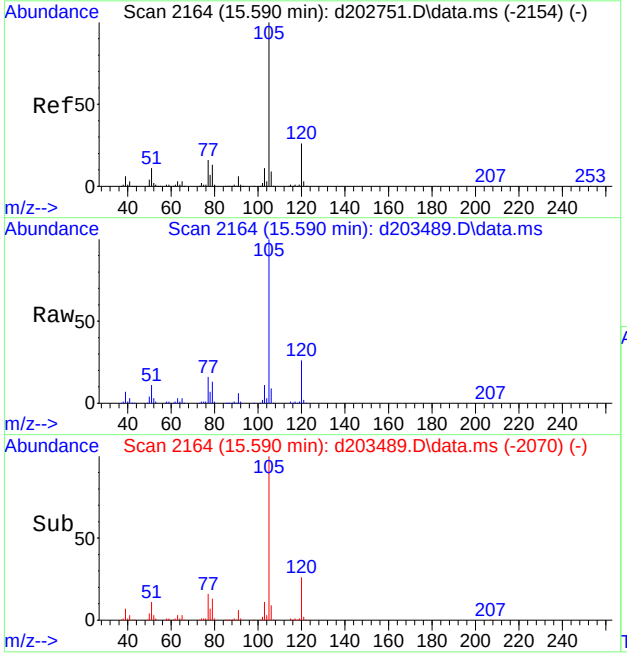


#96
o-xylene
Concen: 0.65 ug/L
RT: 15.203 min Scan# 2090
Delta R.T. -0.008 min
Lab File: d203489.D
Acq: 17 Dec 2012 5:38 pm

Tgt Ion:106 Resp: 1646

Ion	Ratio	Lower	Upper
106	100		
91	201.7	147.4	273.8

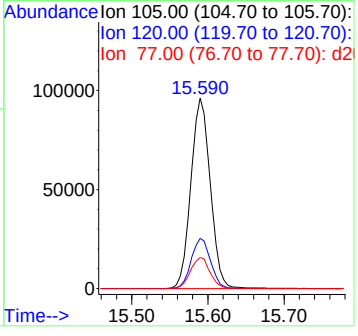




#100
isopropylbenzene
Concen: 26.58 ug/L
RT: 15.590 min Scan# 2164
Delta R.T. -0.008 min
Lab File: d203489.D
Acq: 17 Dec 2012 5:38 pm

Tgt Ion:105 Resp: 170140

Ion	Ratio	Lower	Upper
105	100		
120	26.3	0.0	56.7
77	16.4	0.0	44.9



7.1.14

7

Manual Integrations APPROVED (compounds with "m" flag)
Kanya Veerawat 12/20/12 03:47

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203411.D
Acq On : 15 Dec 2012 6:54 am
Operator : EmilyT
Sample : JB22962-9
Misc : ms39893,vd8294,6.5,,100,5,1
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Dec 17 08:34:30 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.032	65	79322	500.00 ug/L	0.00
4) pentafluorobenzene	10.265	168	139701	50.00 ug/L	0.00
53) 1,4-difluorobenzene	11.181	114	206748	50.00 ug/L	0.00
85) chlorobenzene-d5	14.518	117	200049	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.101	152	108169	50.00 ug/L	0.00

System Monitoring Compounds

46) dibromofluoromethane (s)	10.297	113	62737	45.38 ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 90.76%		
47) 1,2-dichloroethane-d4 (s)	10.726	65	84238	52.97 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 105.94%		
77) toluene-d8 (s)	12.901	98	266548	50.85 ug/L	0.01
Spiked Amount 50.000	Range 81 - 127		Recovery = 101.70%		
101) 4-bromofluorobenzene (s)	15.815	95	102408	52.45 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 104.90%		

Target Compounds

					Qvalue
62) benzene	10.841	78	18987801	3212.42 ug/L	43
79) toluene	13.011	92	18607251m	4903.96 ug/L	
94) ethylbenzene	14.627	91	5895095	805.84 ug/L	91
95) m,p-xylene	14.753	106	6328012	2213.86 ug/L	70
96) o-xylene	15.208	106	2131487	749.29 ug/L	99
100) isopropylbenzene	15.647	105	22599631m	3396.73 ug/L	
111) 1,3,5-trimethylbenzene	16.212	105	338392	58.00 ug/L	97
114) 1,2,4-trimethylbenzene	16.651	105	757369	125.36 ug/L	97
128) naphthalene	19.695	128	15319	3.05 ug/L	96

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

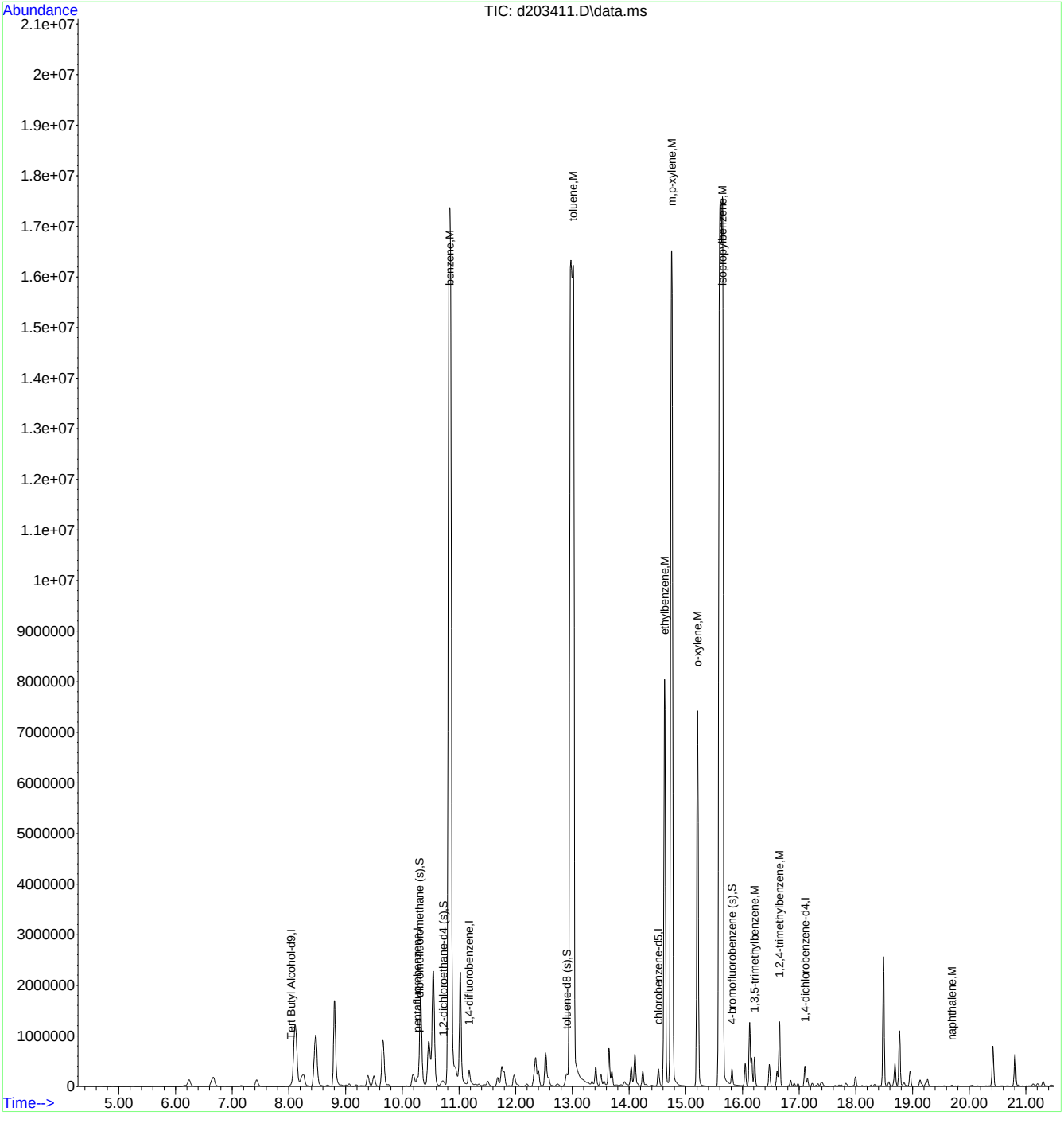
7.1.15

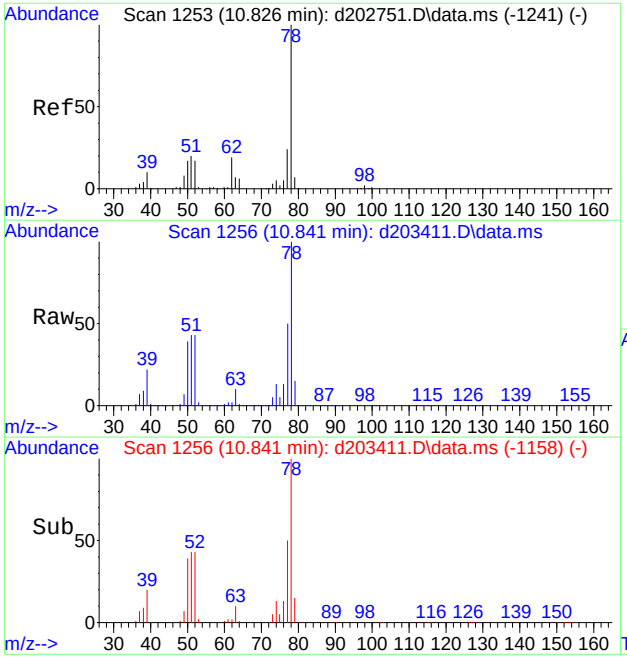
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203411.D
Acq On : 15 Dec 2012 6:54 am
Operator : EmilyT
Sample : JB22962-9
Misc : ms39893,vd8294,6.5,,100,5,1
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Dec 17 08:34:30 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

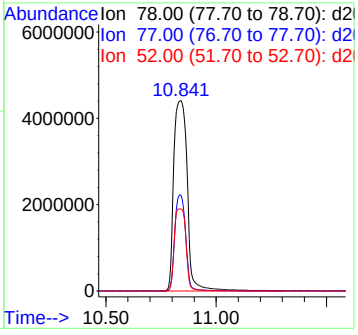


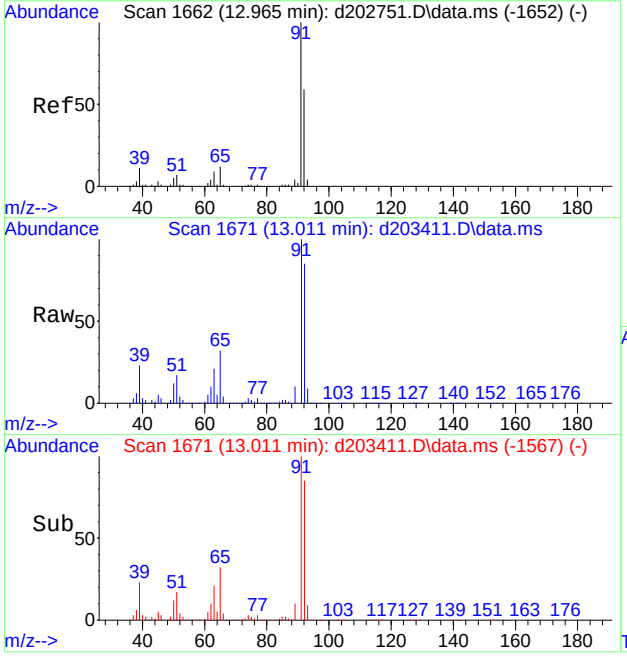


#62
benzene
Concen: 3212.42 ug/L
RT: 10.841 min Scan# 1256
Delta R.T. 0.013 min
Lab File: d203411.D
Acq: 15 Dec 2012 6:54 am

Tgt Ion: 78 Resp:18987801

Ion	Ratio	Lower	Upper
78	100		
77	50.1	0.0	53.8
52	43.2	0.0	46.8

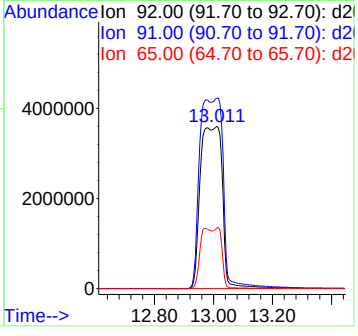


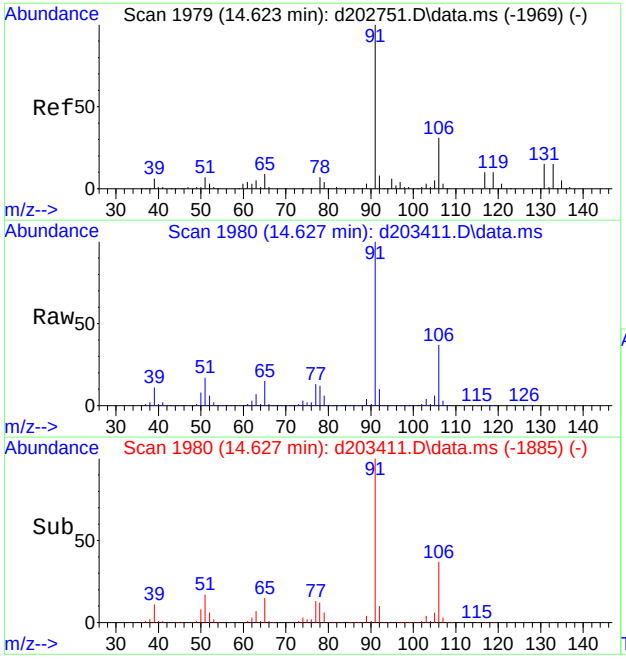


#79
toluene
Concen: 4903.96 ug/L m
RT: 13.011 min Scan# 1671
Delta R.T. 0.044 min
Lab File: d203411.D
Acq: 15 Dec 2012 6:54 am

Tgt Ion: 92 Resp:18607251

Ion	Ratio	Lower	Upper
92	100		
91	117.3	136.4	196.4#
65	37.1	0.0	49.2

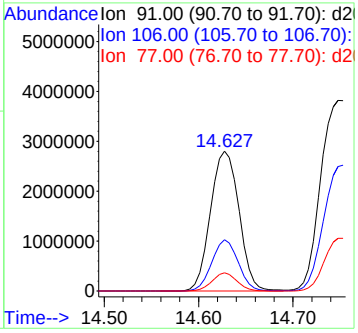


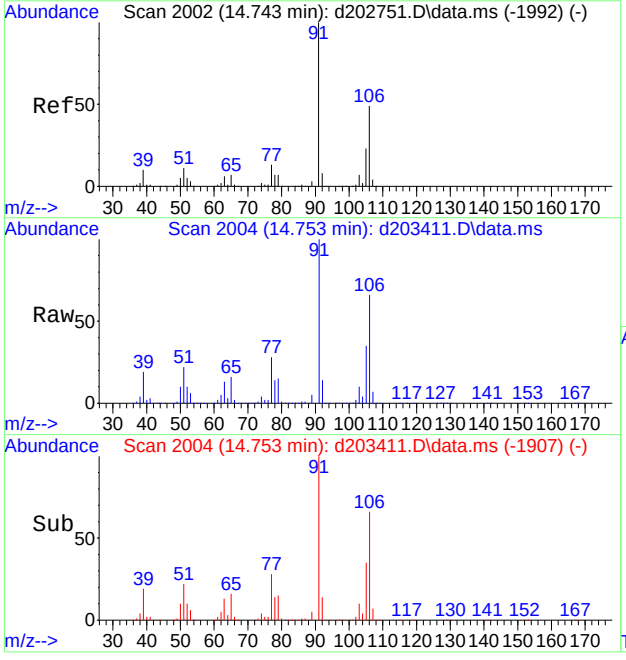


#94
ethylbenzene
Concen: 805.84 ug/L
RT: 14.627 min Scan# 1980
Delta R.T. -0.003 min
Lab File: d203411.D
Acq: 15 Dec 2012 6:54 am

Tgt Ion: 91 Resp: 5895095

Ion	Ratio	Lower	Upper
91	100		
106	36.6	2.1	62.1
77	13.0	0.0	38.6

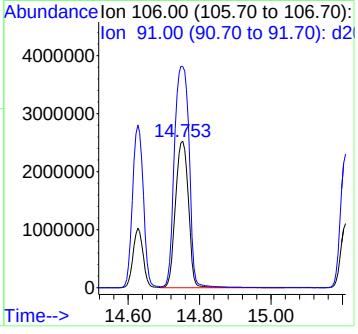




#95
m,p-xylene
Concen: 2213.86 ug/L
RT: 14.753 min Scan# 2004
Delta R.T. 0.008 min
Lab File: d203411.D
Acq: 15 Dec 2012 6:54 am

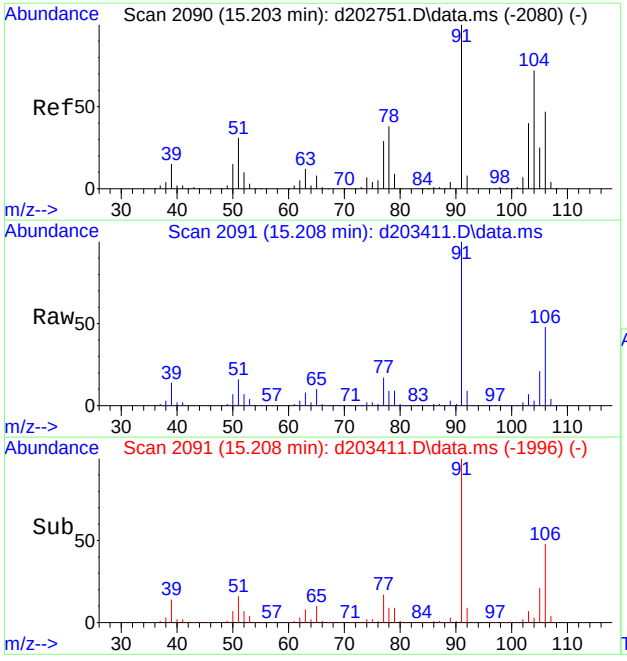
Tgt Ion:106 Resp: 6328012

Ion	Ratio	Lower	Upper
106	100		
91	151.0	137.7	255.7



7.1.15

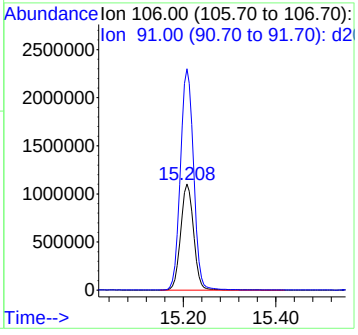
7

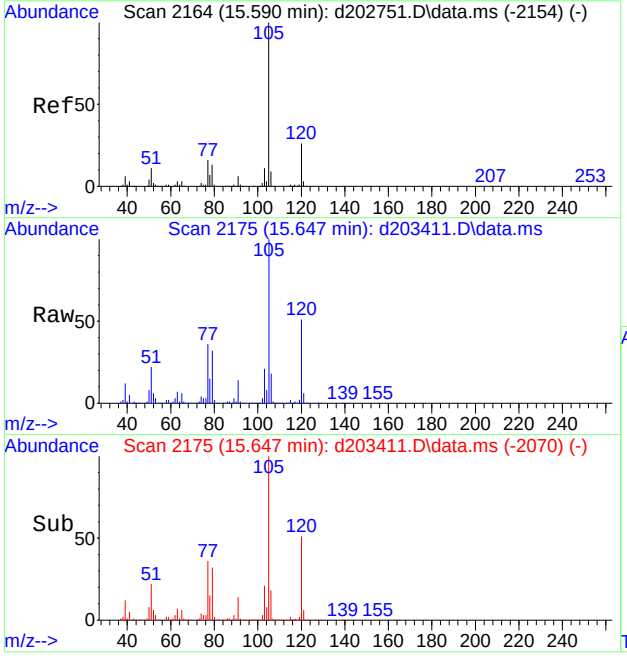


#96
o-xylene
Concen: 749.29 ug/L
RT: 15.208 min Scan# 2091
Delta R.T. -0.003 min
Lab File: d203411.D
Acq: 15 Dec 2012 6:54 am

Tgt Ion:106 Resp: 2131487

Ion	Ratio	Lower	Upper
106	100		
91	208.4	147.4	273.8

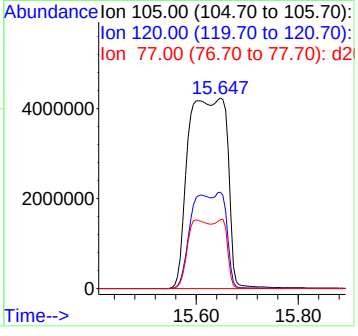




#100
isopropylbenzene
Concen: 3396.73 ug/L m
RT: 15.647 min Scan# 2175
Delta R.T. 0.050 min
Lab File: d203411.D
Acq: 15 Dec 2012 6:54 am

Tgt Ion:105 Resp:22599631

Ion	Ratio	Lower	Upper
105	100		
120	50.6	0.0	56.7
77	36.1	0.0	44.9



7.1.15

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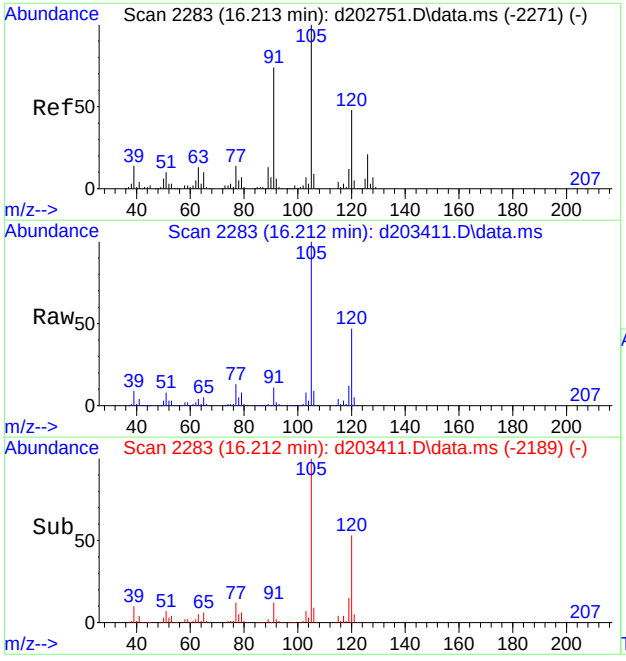
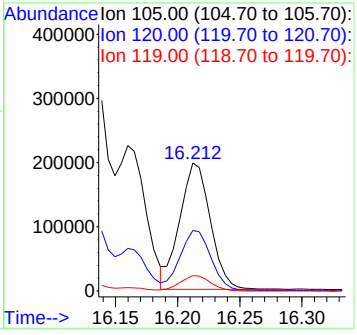
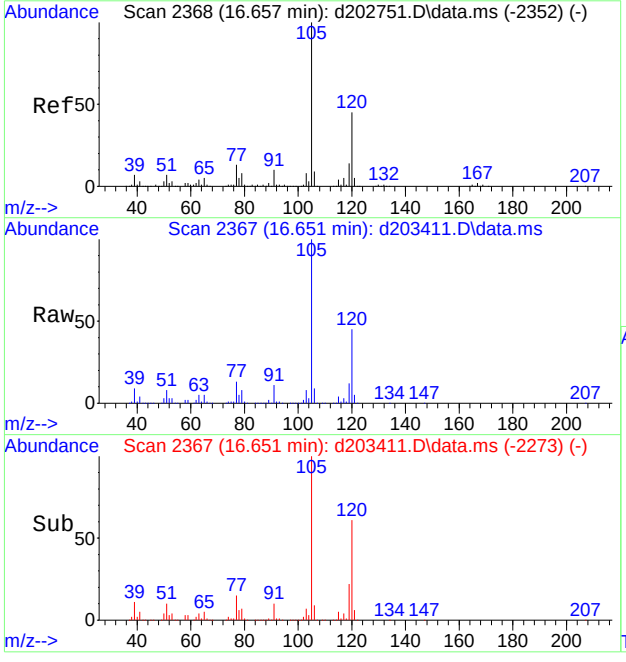


#111
1,3,5-trimethylbenzene
Concen: 58.00 ug/L
RT: 16.212 min Scan# 2283
Delta R.T. -0.008 min
Lab File: d203411.D
Acq: 15 Dec 2012 6:54 am

Tgt Ion:105 Resp: 338392

Ion	Ratio	Lower	Upper
105	100		
120	47.6	19.9	79.9
119	12.1	0.0	42.6

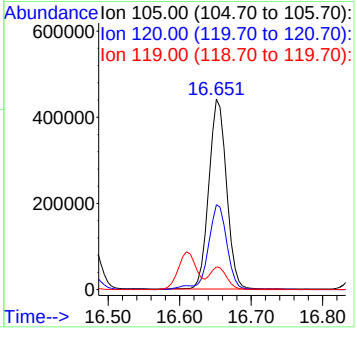


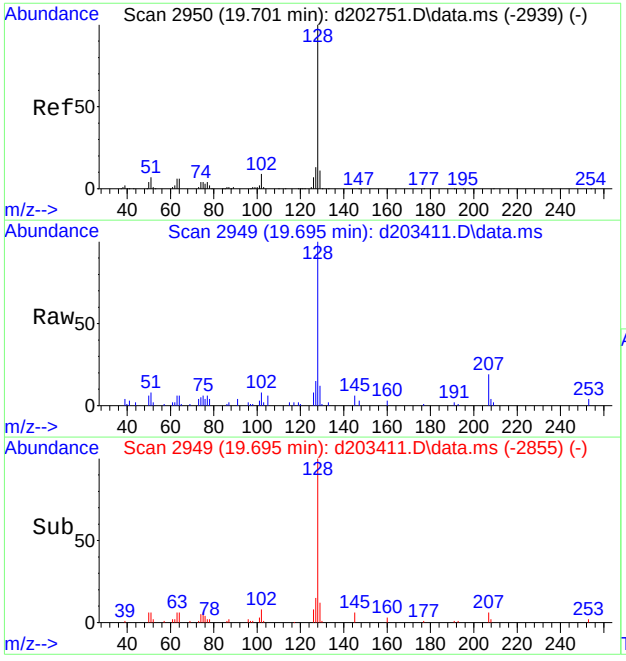


#114
1,2,4-trimethylbenzene
Concen: 125.36 ug/L
RT: 16.651 min Scan# 2367
Delta R.T. -0.008 min
Lab File: d203411.D
Acq: 15 Dec 2012 6:54 am

Tgt Ion:105 Resp: 757369

Ion	Ratio	Lower	Upper
105	100		
120	44.7	16.5	76.5
119	11.9	0.0	43.8

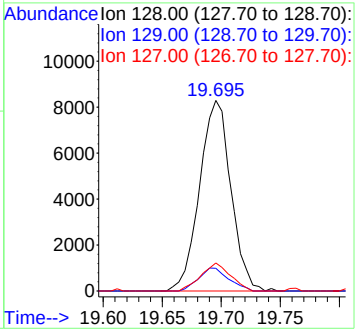




#128
naphthalene
Concen: 3.05 ug/L
RT: 19.695 min Scan# 2949
Delta R.T. -0.008 min
Lab File: d203411.D
Acq: 15 Dec 2012 6:54 am

Tgt Ion:128 Resp: 15319

Ion	Ratio	Lower	Upper
128	100		
129	12.0	0.0	41.0
127	14.8	0.0	42.7



7.1.15

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203490.D
Acq On : 17 Dec 2012 6:07 pm
Operator : EmilyT
Sample : jb22962-9
Misc : ms39893,vd8297,6.5,,2,5,1
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Dec 18 09:32:39 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.021	65	57266	500.00 ug/L	-0.02
4) pentafluorobenzene	10.260	168	126368	50.00 ug/L	0.00
53) 1,4-difluorobenzene	11.175	114	183765	50.00 ug/L	0.00
85) chlorobenzene-d5	14.517	117	171757	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.101	152	101581	50.00 ug/L	0.00

System Monitoring Compounds

46) dibromofluoromethane (s)	10.297	113	58253	46.58 ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 93.16%		
47) 1,2-dichloroethane-d4 (s)	10.720	65	78446	54.53 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 109.06%		
77) toluene-d8 (s)	12.885	98	230624	49.50 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 99.00%		
101) 4-bromofluorobenzene (s)	15.799	95	90345	49.27 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 98.54%		

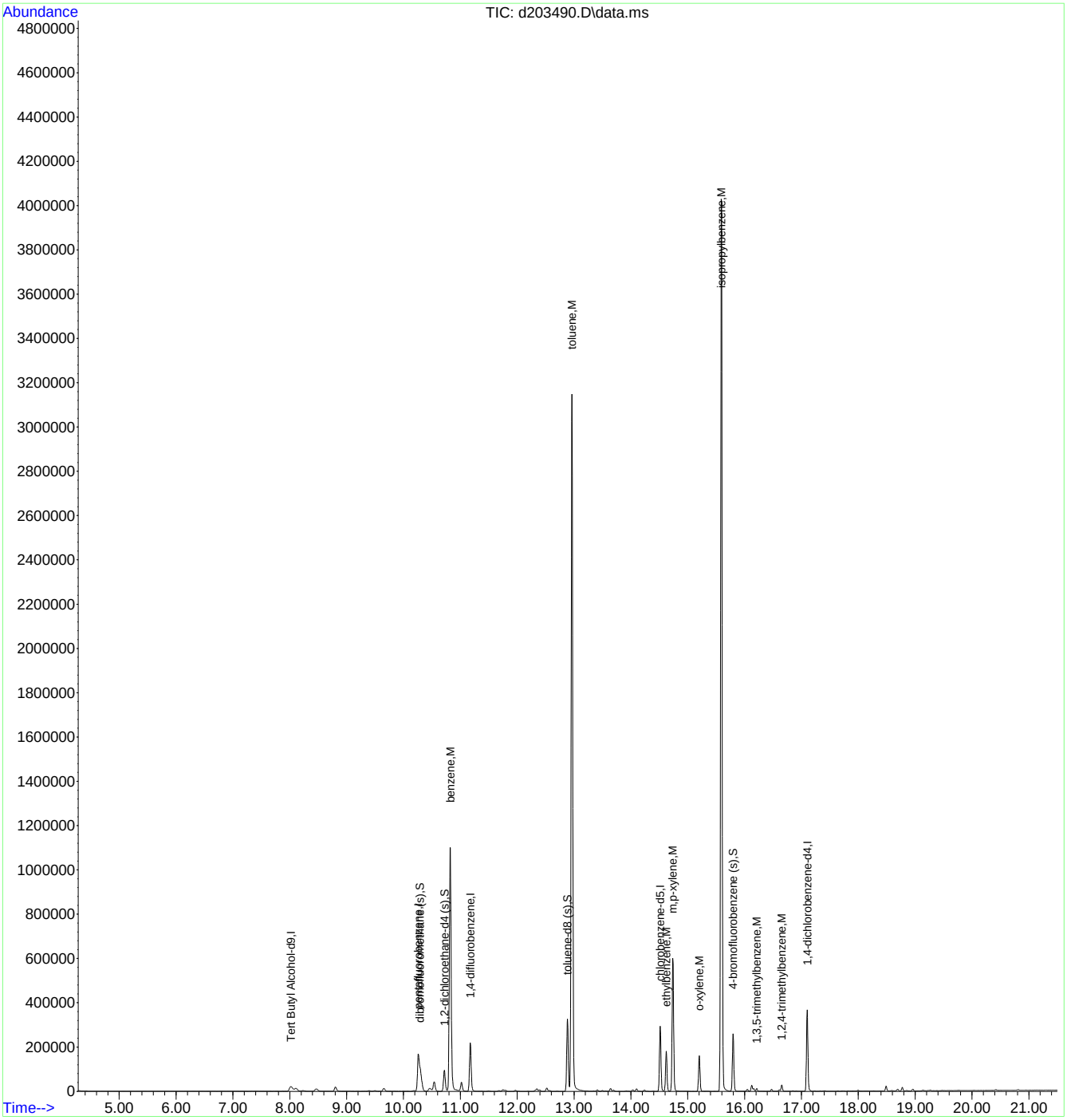
Target Compounds					Qvalue
62) benzene	10.825	78	1067444	203.18 ug/L	97
79) toluene	12.964	92	1397469	414.37 ug/L	97
94) ethylbenzene	14.622	91	138672	22.08 ug/L	98
95) m,p-xylene	14.737	106	185946	75.77 ug/L	92
96) o-xylene	15.202	106	46195	18.91 ug/L	92
100) isopropylbenzene	15.595	105	2741739	438.81 ug/L	96
111) 1,3,5-trimethylbenzene	16.212	105	8266	1.51 ug/L	97
114) 1,2,4-trimethylbenzene	16.651	105	17392	3.07 ug/L	97

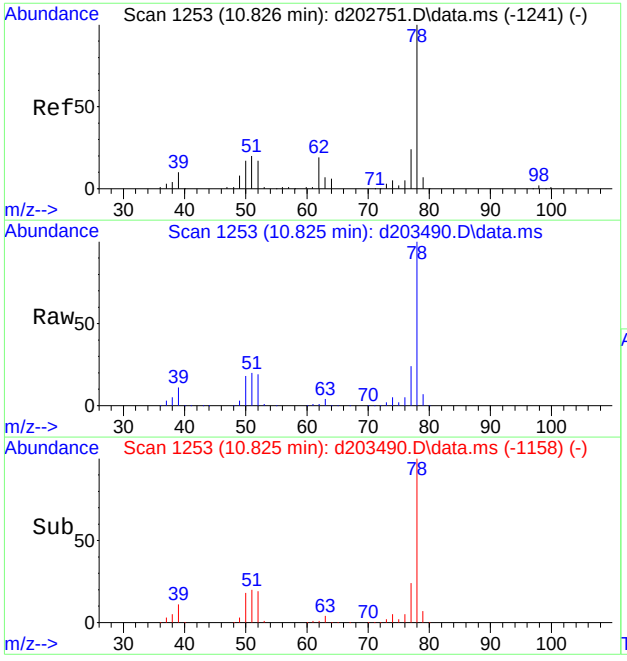
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203490.D
Acq On : 17 Dec 2012 6:07 pm
Operator : EmilyT
Sample : jb22962-9
Misc : ms39893,vd8297,6.5,,2,5,1
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Dec 18 09:32:39 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

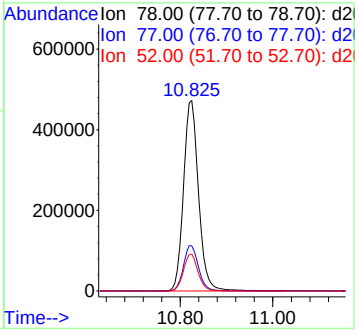


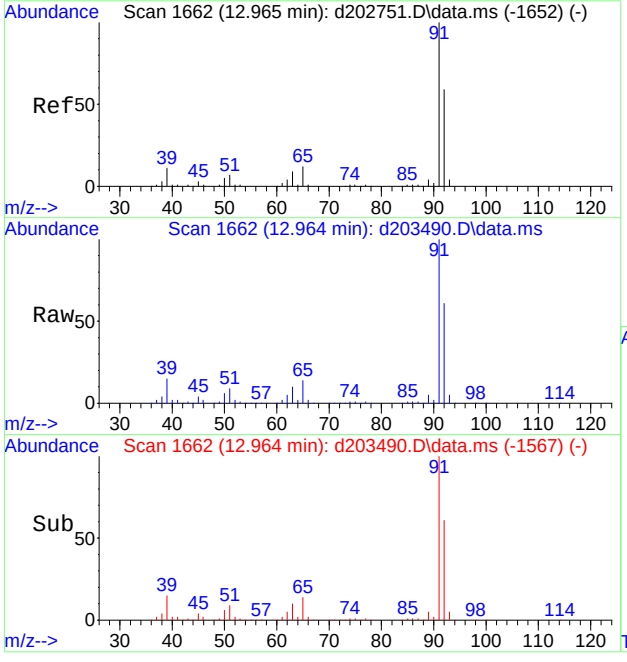


#62
benzene
Concen: 203.18 ug/L
RT: 10.825 min Scan# 1253
Delta R.T. -0.003 min
Lab File: d203490.D
Acq: 17 Dec 2012 6:07 pm

Tgt Ion: 78 Resp: 1067444

Ion	Ratio	Lower	Upper
78	100		
77	23.7	0.0	53.8
52	19.4	0.0	46.8

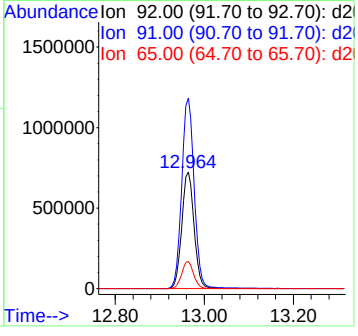




#79
toluene
Concen: 414.37 ug/L
RT: 12.964 min Scan# 1662
Delta R.T. -0.003 min
Lab File: d203490.D
Acq: 17 Dec 2012 6:07 pm

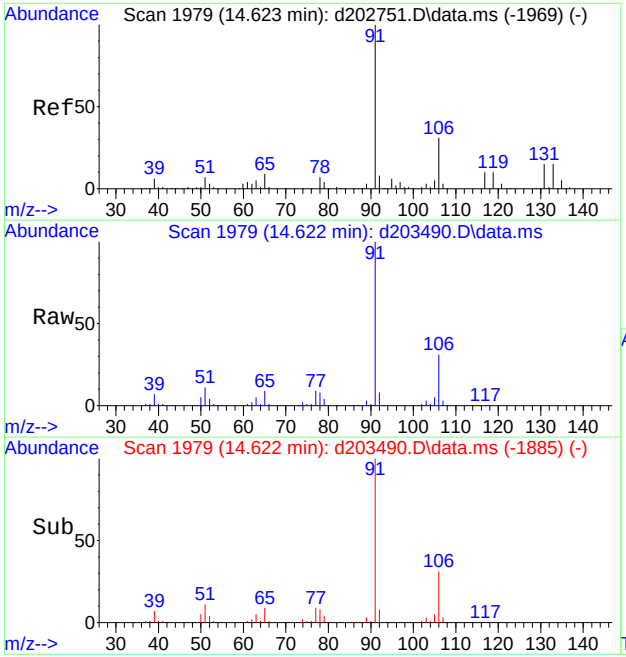
Tgt Ion: 92 Resp: 1397469

Ion	Ratio	Lower	Upper
92	100		
91	163.2	136.4	196.4
65	23.2	0.0	49.2



7.1.16

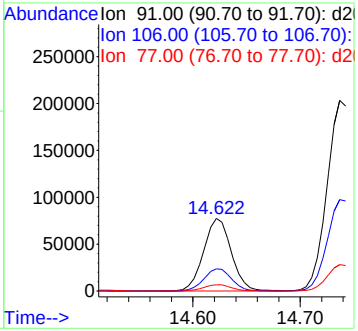
7

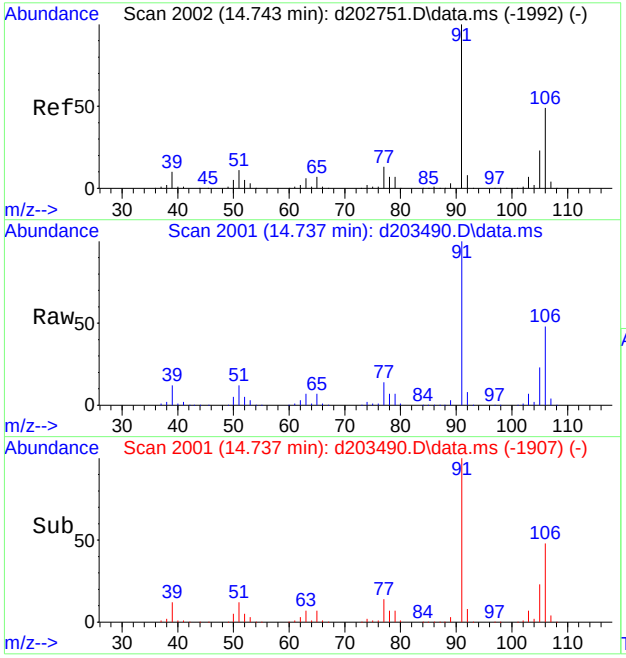


#94
ethylbenzene
Concen: 22.08 ug/L
RT: 14.622 min Scan# 1979
Delta R.T. -0.008 min
Lab File: d203490.D
Acq: 17 Dec 2012 6:07 pm

Tgt Ion: 91 Resp: 138672

Ion	Ratio	Lower	Upper
91	100		
106	30.7	2.1	62.1
77	8.6	0.0	38.6

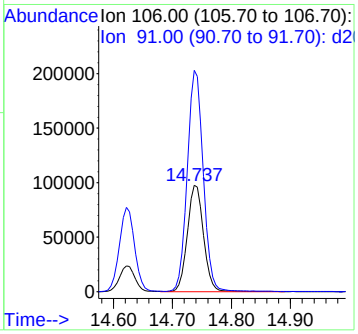




#95
m,p-xylene
Concen: 75.77 ug/L
RT: 14.737 min Scan# 2001
Delta R.T. -0.008 min
Lab File: d203490.D
Acq: 17 Dec 2012 6:07 pm

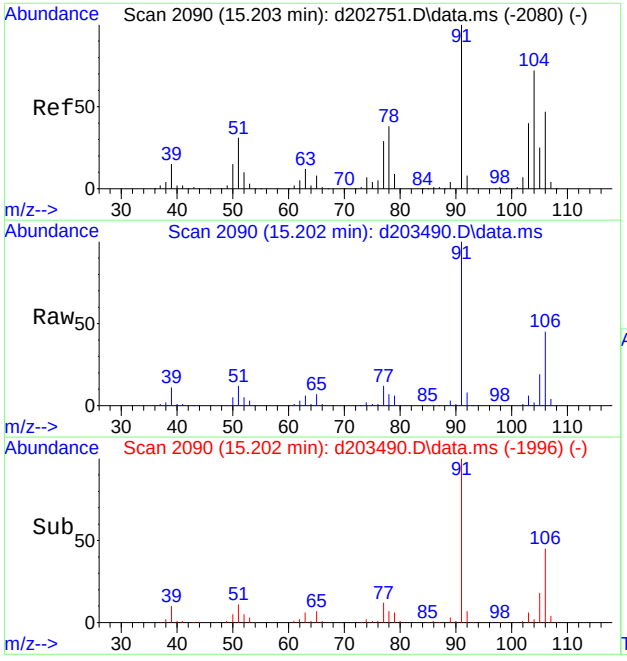
Tgt Ion:106 Resp: 185946

Ion	Ratio	Lower	Upper
106	100		
91	208.0	137.7	255.7



7.1.16

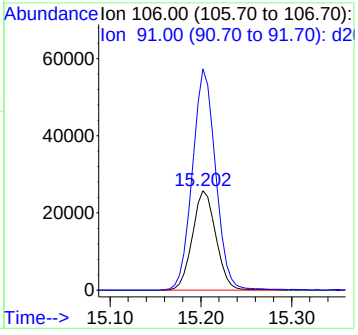
7

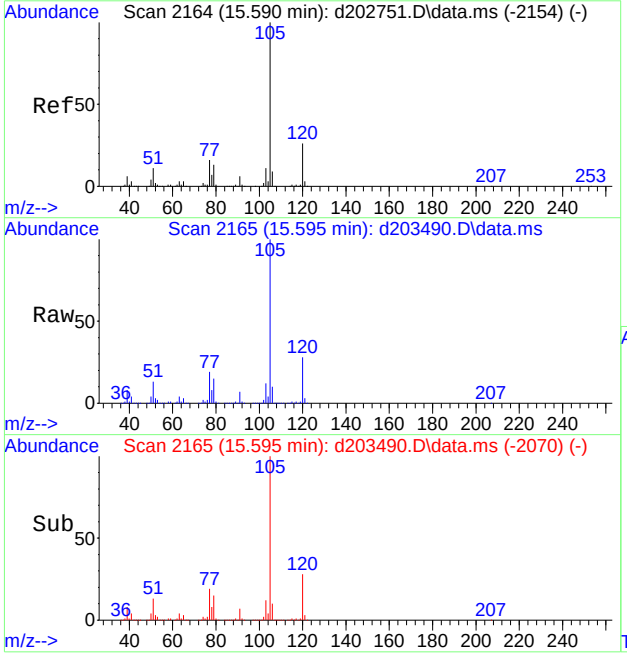


#96
o-xylene
Concen: 18.91 ug/L
RT: 15.202 min Scan# 2090
Delta R.T. -0.008 min
Lab File: d203490.D
Acq: 17 Dec 2012 6:07 pm

Tgt Ion:106 Resp: 46195

Ion	Ratio	Lower	Upper
106	100		
91	222.8	147.4	273.8

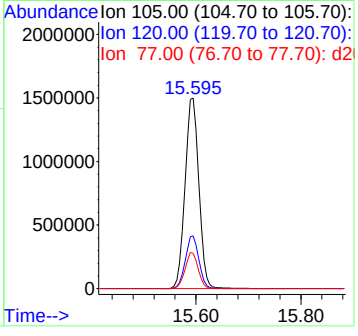


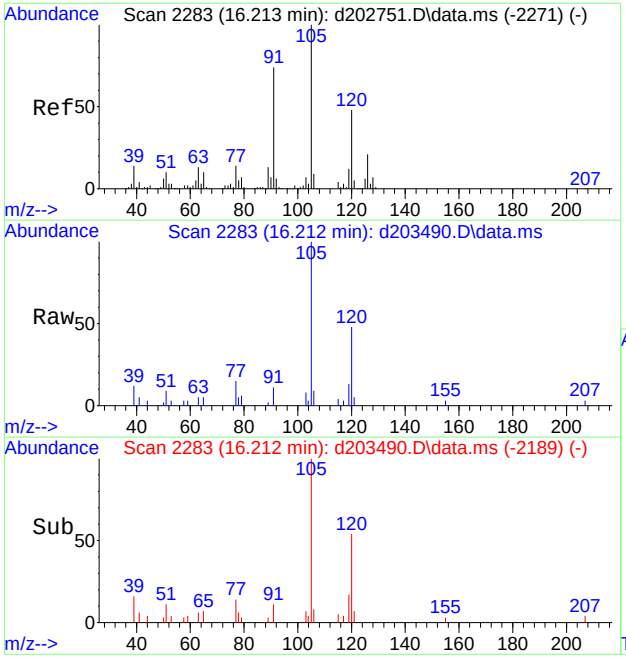


#100
isopropylbenzene
Concen: 438.81 ug/L
RT: 15.595 min Scan# 2165
Delta R.T. -0.003 min
Lab File: d203490.D
Acq: 17 Dec 2012 6:07 pm

Tgt Ion:105 Resp: 2741739

Ion	Ratio	Lower	Upper
105	100		
120	27.7	0.0	56.7
77	18.6	0.0	44.9

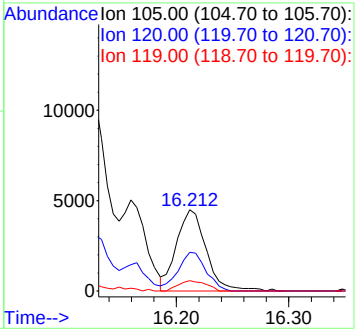


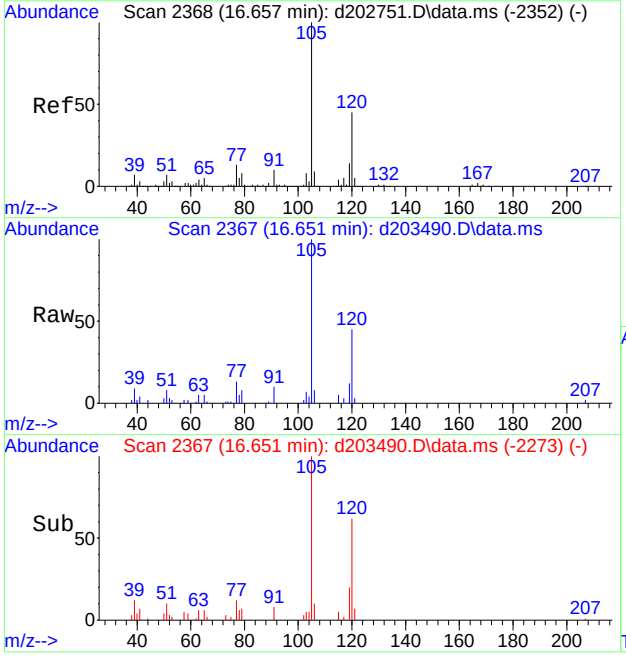


#111
1,3,5-trimethylbenzene
Concen: 1.51 ug/L
RT: 16.212 min Scan# 2283
Delta R.T. -0.008 min
Lab File: d203490.D
Acq: 17 Dec 2012 6:07 pm

Tgt Ion:105 Resp: 8266

Ion	Ratio	Lower	Upper
105	100		
120	47.5	19.9	79.9
119	12.9	0.0	42.6

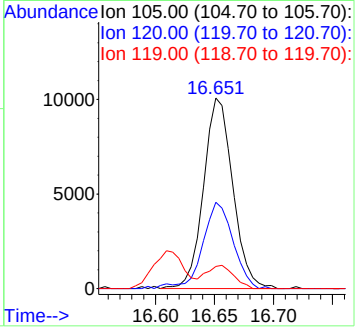




#114
1,2,4-trimethylbenzene
Concen: 3.07 ug/L
RT: 16.651 min Scan# 2367
Delta R.T. -0.008 min
Lab File: d203490.D
Acq: 17 Dec 2012 6:07 pm

Tgt Ion:105 Resp: 17392

Ion	Ratio	Lower	Upper
105	100		
120	45.3	16.5	76.5
119	11.6	0.0	43.8



7.1.16

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203526.D
Acq On : 18 Dec 2012 11:25 am
Operator : EmilyT
Sample : jb22962-9
Misc : ms39893,vd8299,6.5,,20,5,5
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 18 15:23:11 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.027	65	72937	500.00 ug/L	-0.01
4) pentafluorobenzene	10.260	168	126157	50.00 ug/L	0.00
53) 1,4-difluorobenzene	11.176	114	183420	50.00 ug/L	0.00
85) chlorobenzene-d5	14.518	117	178266	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.101	152	105728	50.00 ug/L	0.00

System Monitoring Compounds

46) dibromofluoromethane (s)	10.292	113	58285	46.69 ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 93.38%		
47) 1,2-dichloroethane-d4 (s)	10.721	65	76771	53.46 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 106.92%		
77) toluene-d8 (s)	12.886	98	232295	49.95 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 99.90%		
101) 4-bromofluorobenzene (s)	15.799	95	92933	48.69 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 97.38%		

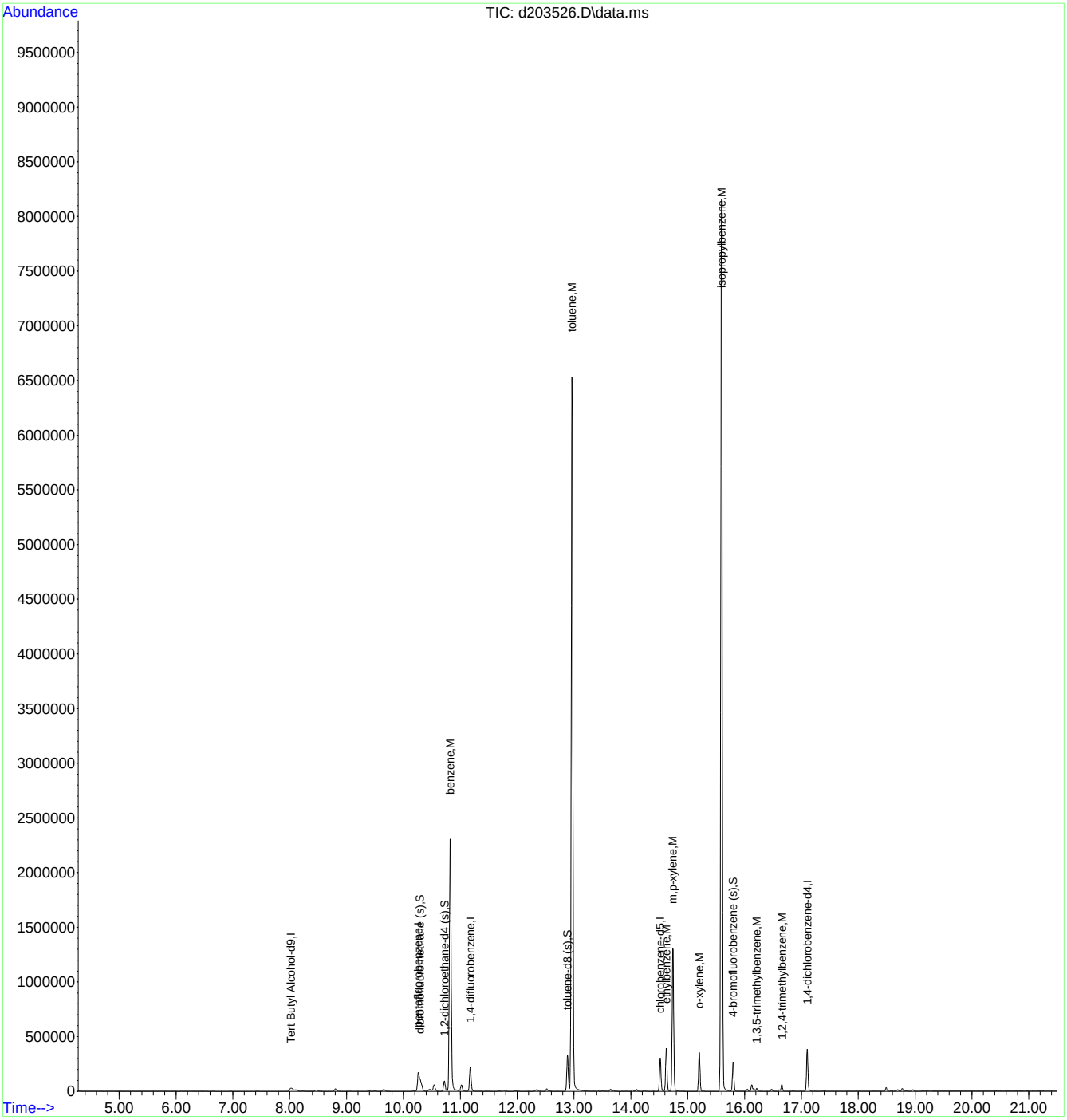
Target Compounds					Qvalue
62) benzene	10.820	78	2121582	404.59 ug/L	95
79) toluene	12.964	92	2859691	849.53 ug/L	89
94) ethylbenzene	14.622	91	298738	45.83 ug/L	98
95) m,p-xylene	14.743	106	399292	156.76 ug/L	96
96) o-xylene	15.203	106	100634	39.70 ug/L	94
100) isopropylbenzene	15.595	105	5137297	789.96 ug/L	87
111) 1,3,5-trimethylbenzene	16.217	105	16685	2.93 ug/L	96
114) 1,2,4-trimethylbenzene	16.657	105	37877	6.41 ug/L	99

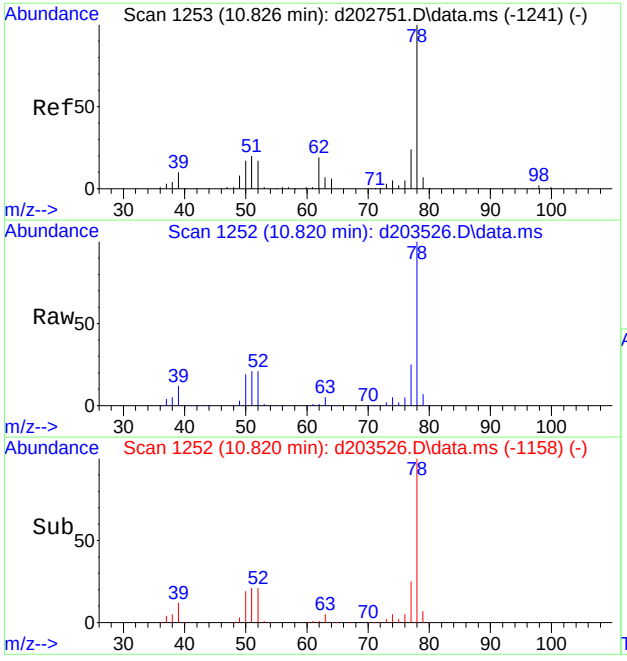
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203526.D
Acq On : 18 Dec 2012 11:25 am
Operator : EmilyT
Sample : jb22962-9
Misc : ms39893,vd8299,6.5,,20,5,5
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 18 15:23:11 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

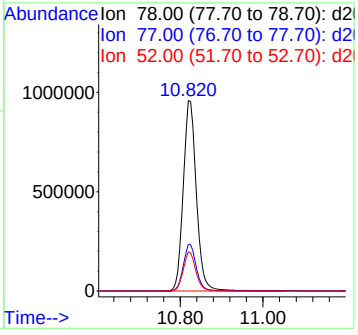


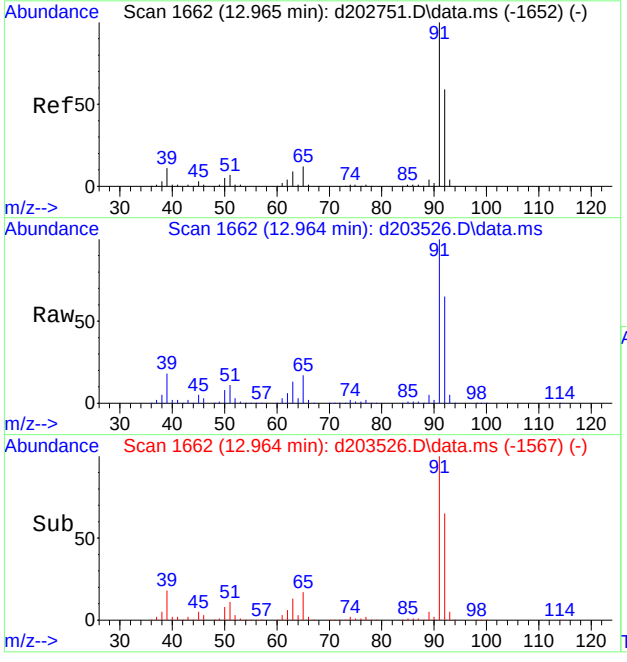


#62
benzene
Concen: 404.59 ug/L
RT: 10.820 min Scan# 1252
Delta R.T. -0.008 min
Lab File: d203526.D
Acq: 18 Dec 2012 11:25 am

Tgt Ion: 78 Resp: 2121582

Ion	Ratio	Lower	Upper
78	100		
77	24.6	0.0	53.8
52	20.6	0.0	46.8

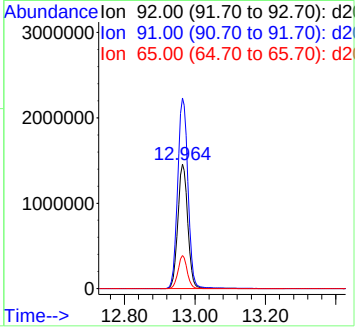


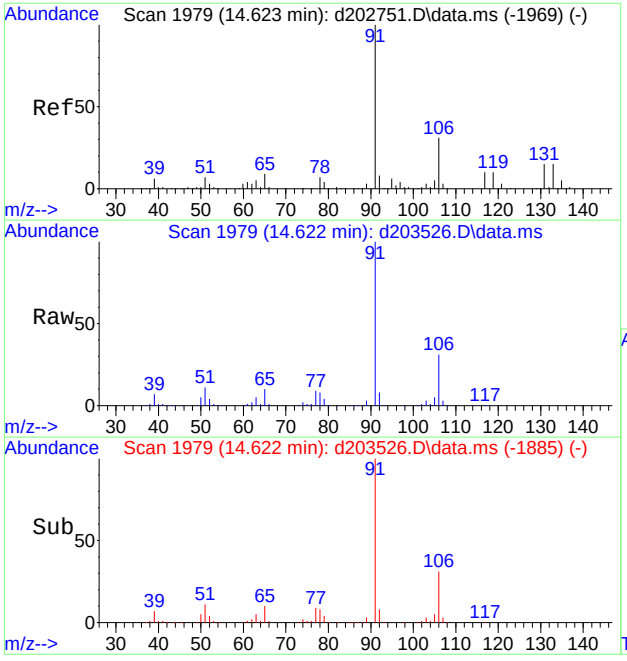


#79
toluene
Concen: 849.53 ug/L
RT: 12.964 min Scan# 1662
Delta R.T. -0.003 min
Lab File: d203526.D
Acq: 18 Dec 2012 11:25 am

Tgt Ion: 92 Resp: 2859691

Ion	Ratio	Lower	Upper
92	100		
91	152.9	136.4	196.4
65	26.7	0.0	49.2

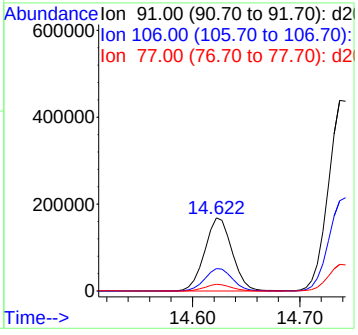


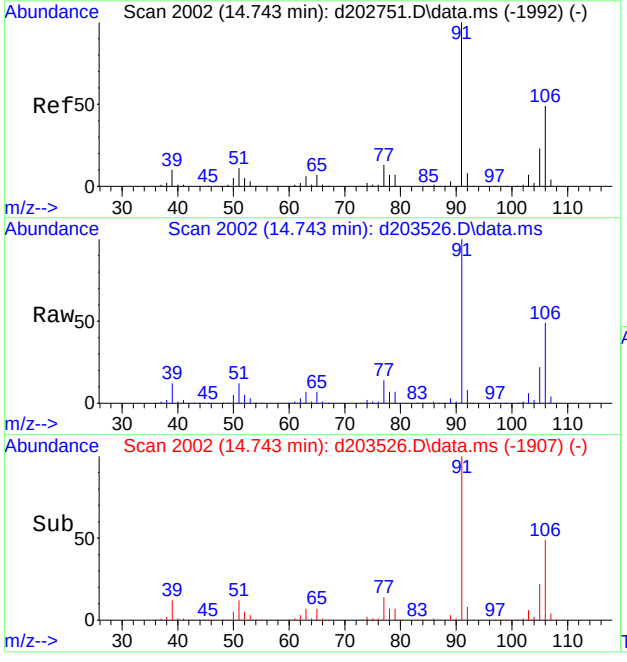


#94
ethylbenzene
Concen: 45.83 ug/L
RT: 14.622 min Scan# 1979
Delta R.T. -0.008 min
Lab File: d203526.D
Acq: 18 Dec 2012 11:25 am

Tgt Ion: 91 Resp: 298738

Ion	Ratio	Lower	Upper
91	100		
106	30.6	2.1	62.1
77	9.2	0.0	38.6

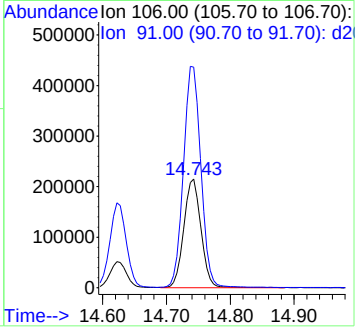


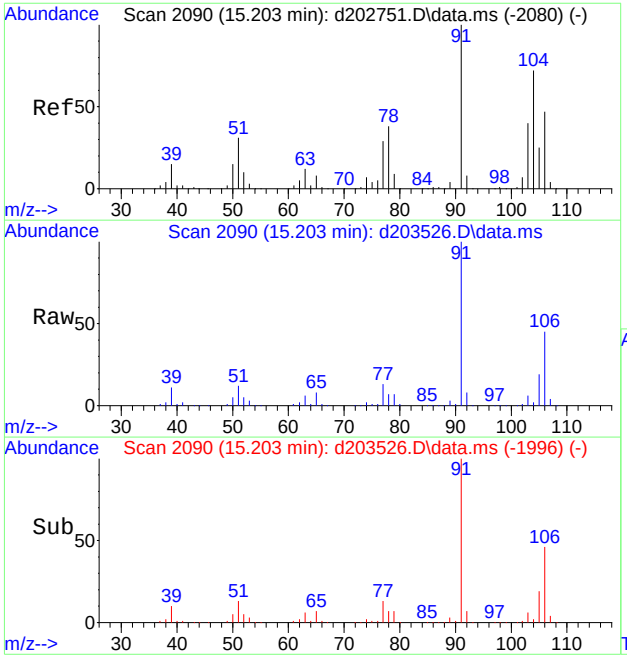


#95
m,p-xylene
Concen: 156.76 ug/L
RT: 14.743 min Scan# 2002
Delta R.T. -0.003 min
Lab File: d203526.D
Acq: 18 Dec 2012 11:25 am

Tgt Ion:106 Resp: 399292

Ion	Ratio	Lower	Upper
106	100		
91	203.0	137.7	255.7

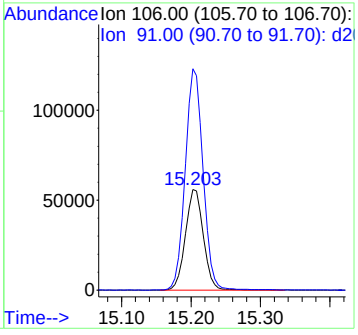


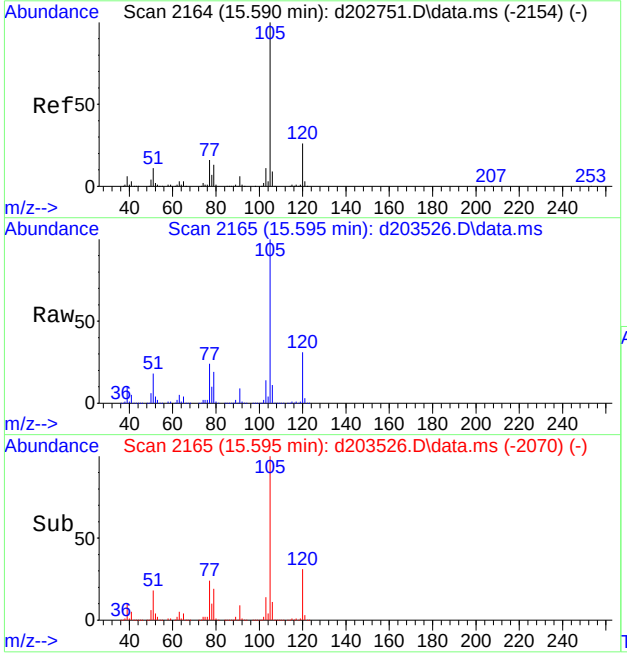


#96
o-xylene
Concen: 39.70 ug/L
RT: 15.203 min Scan# 2090
Delta R.T. -0.008 min
Lab File: d203526.D
Acq: 18 Dec 2012 11:25 am

Tgt Ion:106 Resp: 100634

Ion	Ratio	Lower	Upper
106	100		
91	219.7	147.4	273.8

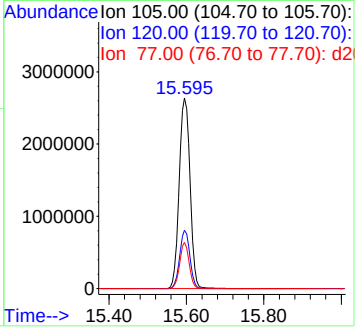


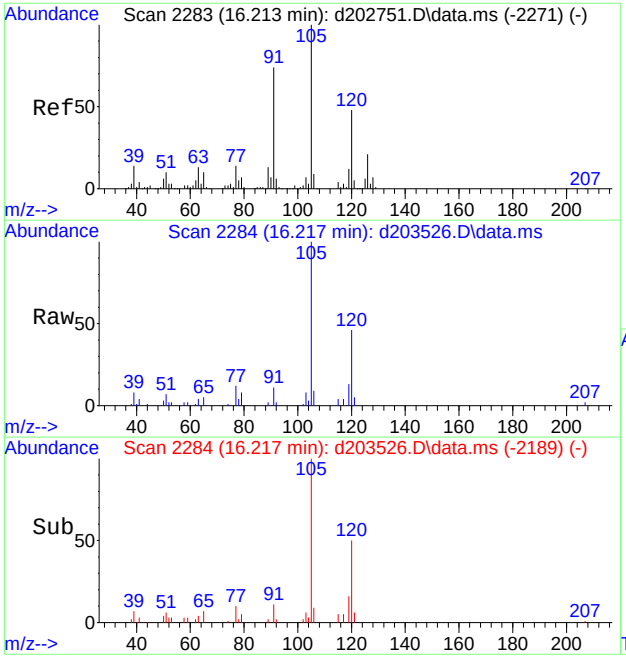


#100
isopropylbenzene
Concen: 789.96 ug/L
RT: 15.595 min Scan# 2165
Delta R.T. -0.003 min
Lab File: d203526.D
Acq: 18 Dec 2012 11:25 am

Tgt Ion:105 Resp: 5137297

Ion	Ratio	Lower	Upper
105	100		
120	30.6	0.0	56.7
77	24.3	0.0	44.9

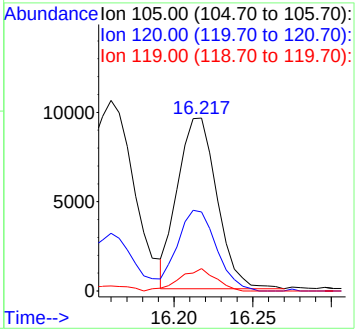


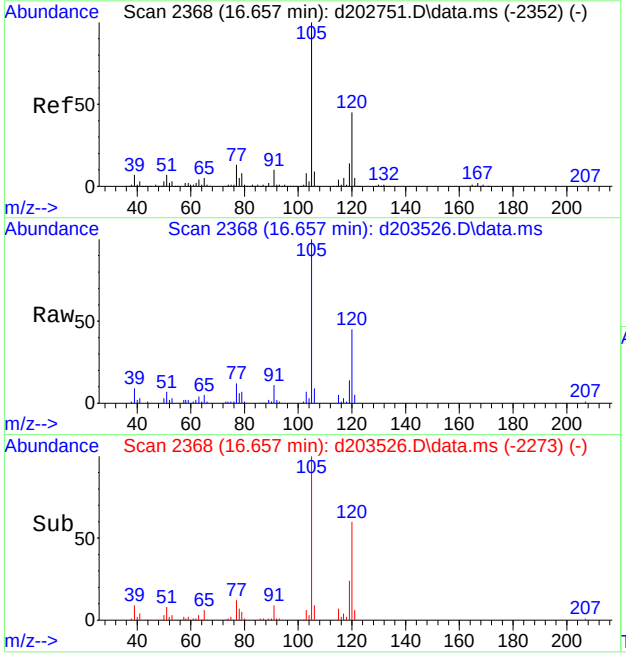


#111
1,3,5-trimethylbenzene
Concen: 2.93 ug/L
RT: 16.217 min Scan# 2284
Delta R.T. -0.003 min
Lab File: d203526.D
Acq: 18 Dec 2012 11:25 am

Tgt Ion:105 Resp: 16685

Ion	Ratio	Lower	Upper
105	100		
120	46.3	19.9	79.9
119	13.1	0.0	42.6

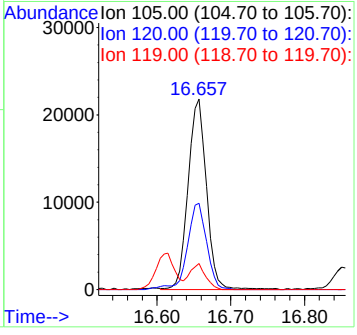




#114
1,2,4-trimethylbenzene
Concen: 6.41 ug/L
RT: 16.657 min Scan# 2368
Delta R.T. -0.003 min
Lab File: d203526.D
Acq: 18 Dec 2012 11:25 am

Tgt Ion:105 Resp: 37877

Ion	Ratio	Lower	Upper
105	100		
120	45.4	16.5	76.5
119	13.7	0.0	43.8



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E198029.D
Acq On : 18 Dec 2012 2:46 pm
Operator : OksanaT
Sample : jb22962-9
Misc : MS39893,VE8700,6.5,,20,5,50
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Dec 18 15:13:03 2012
Quant Method : C:\MSDCHEM\1\METHODS\ME8647.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Nov 13 15:53:05 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.701	65	76238	500.00	ug/L	0.00
5) pentafluorobenzene	9.919	168	105573	50.00	ug/L	0.00
65) 1,4-difluorobenzene	10.839	114	153338	50.00	ug/L	0.00
96) chlorobenzene-d5	14.161	117	146807	50.00	ug/L	0.00
113) 1,4-dichlorobenzene-d4	16.734	152	80552	50.00	ug/L	0.00

System Monitoring Compounds						
59) dibromofluoromethane (s)	9.966	113	48482	44.46	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 88.92%			
60) 1,2-dichloroethane-d4 (s)	10.379	65	66762	42.26	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 84.52%			
88) toluene-d8 (s)	12.534	98	196583	47.44	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 94.88%			
115) 4-bromofluorobenzene (s)	15.437	95	73477	41.36	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 82.72%			

Target Compounds						Qvalue
74) benzene	10.489	78	190471	42.43	ug/L	99
90) toluene	12.612	92	233853	83.01	ug/L	99
97) cyclohexanone	15.222	55	173	Below Cal	#	63
107) ethylbenzene	14.260	91	25125	4.62	ug/L	97
108) m,p-xylene	14.375	106	33226	15.98	ug/L	93
109) o-xylene	14.840	106	8657	4.00	ug/L	100
114) isopropylbenzene	15.217	105	447346	72.93	ug/L	99
124) 1,3,5-trimethylbenzene	15.839	105	1489	0.29	ug/L	81
127) 1,2,4-trimethylbenzene	16.274	105	3289	0.65	ug/L	89
138) 1,3,5-trichlorobenzene	18.266	180	540	Below Cal	#	43

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

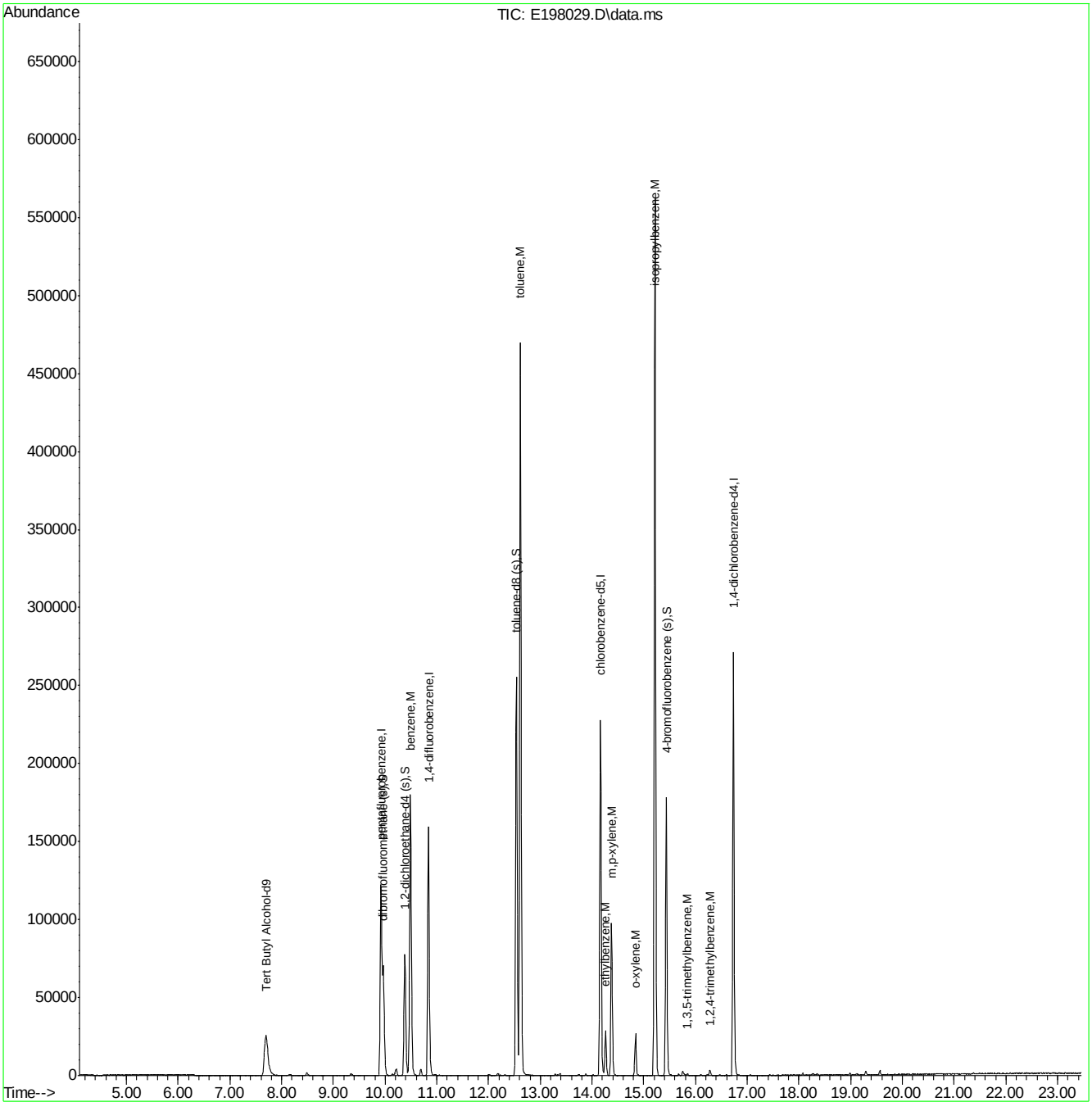
7.1.18

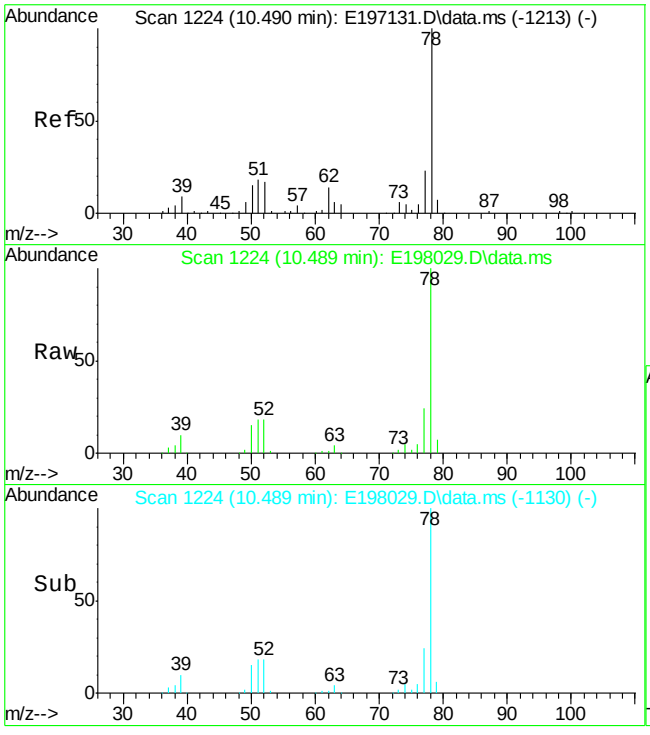
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E198029.D
Acq On : 18 Dec 2012 2:46 pm
Operator : OksanaT
Sample : jb22962-9
Misc : MS39893,VE8700,6.5,,20,5,50
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Dec 18 15:13:03 2012
Quant Method : C:\MSDCHEM\1\METHODS\ME8647.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Nov 13 15:53:05 2012
Response via : Initial Calibration

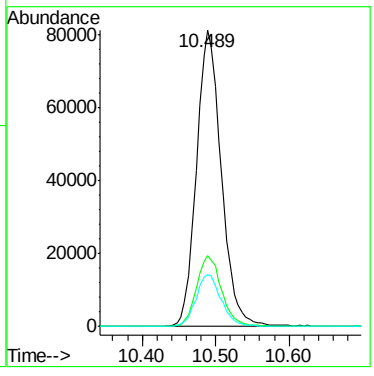


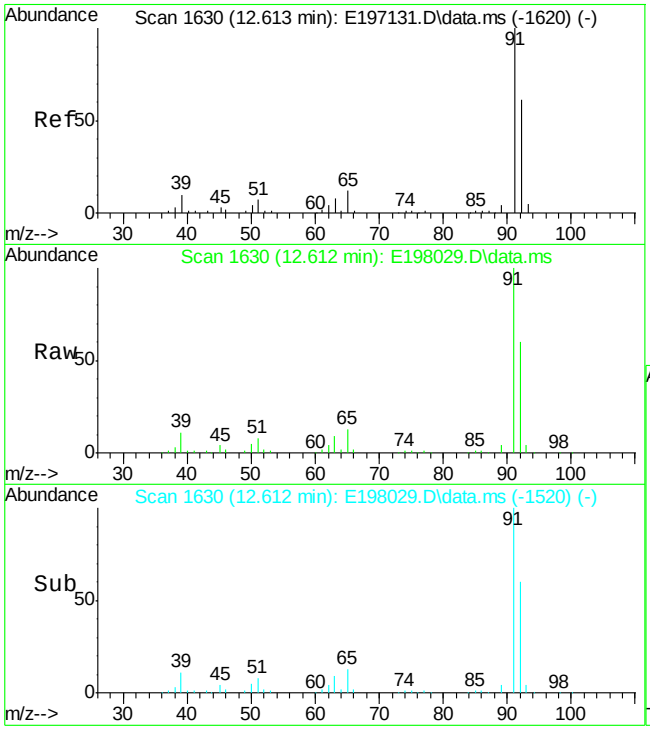


#74
benzene
Concen: 42.43 ug/L
RT: 10.489 min Scan# 1224
Delta R.T. -0.007 min
Lab File: E198029.D
Acq: 18 Dec 2012 2:46 pm

Tgt Ion: 78 Resp: 190471

Ion	Ratio	Lower	Upper
78	100		
77	24.0	0.0	54.3
52	17.5	0.0	47.9

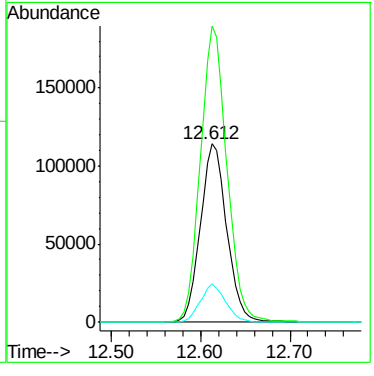




#90
toluene
Concen: 83.01 ug/L
RT: 12.612 min Scan# 1630
Delta R.T. -0.007 min
Lab File: E198029.D
Acq: 18 Dec 2012 2:46 pm

Tgt Ion: 92 Resp: 233853

Ion	Ratio	Lower	Upper
92	100		
91	166.1	137.9	197.9
65	21.4	0.0	50.7



7.1.18

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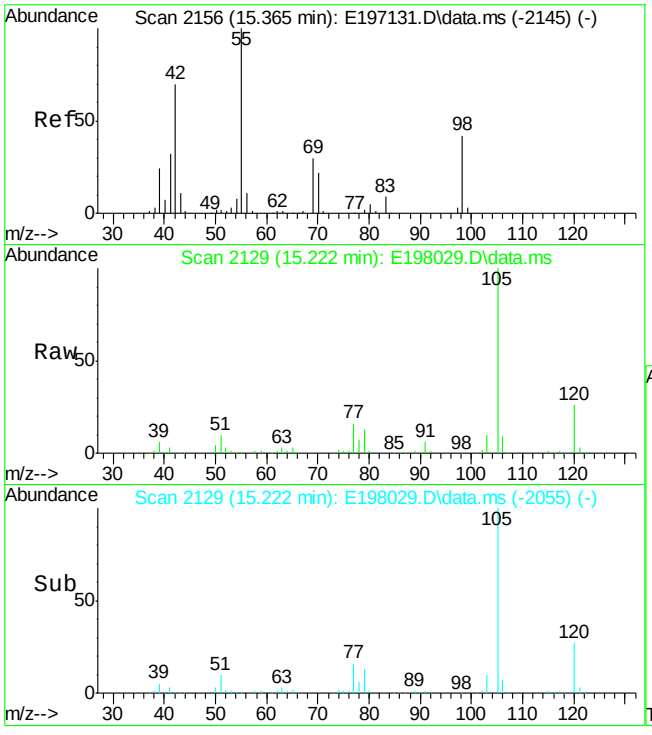
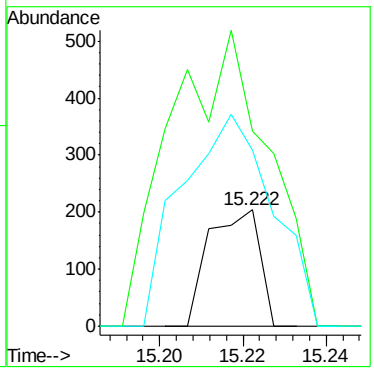
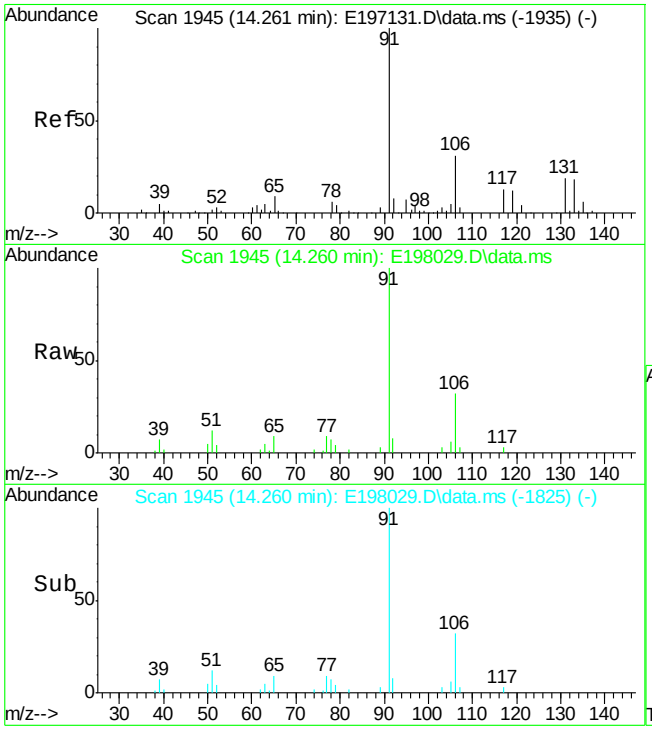


#97
cyclohexanone
Concen: Below Cal
RT: 15.222 min Scan# 2129
Delta R.T. -0.143 min
Lab File: E198029.D
Acq: 18 Dec 2012 2:46 pm

Tgt Ion: 55 Resp: 173

Ion	Ratio	Lower	Upper
55	100		
42	36.8	44.3	104.3#
98	58.6	12.4	72.4

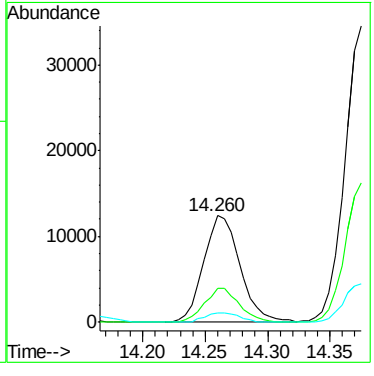


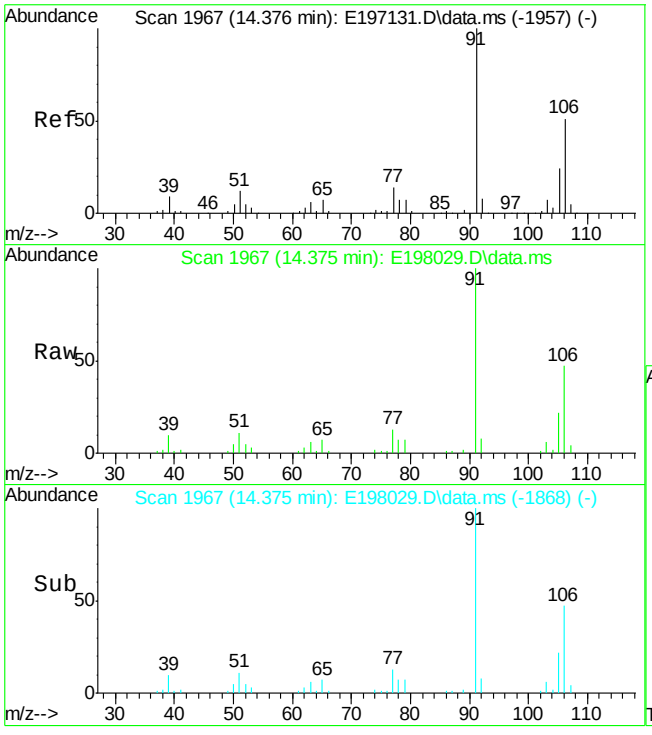


#107
ethylbenzene
Concen: 4.62 ug/L
RT: 14.260 min Scan# 1945
Delta R.T. -0.002 min
Lab File: E198029.D
Acq: 18 Dec 2012 2:46 pm

Tgt Ion: 91 Resp: 25125

Ion	Ratio	Lower	Upper
91	100		
106	32.2	0.5	60.5
77	8.6	0.0	39.0

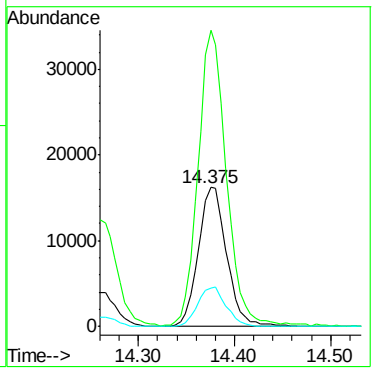


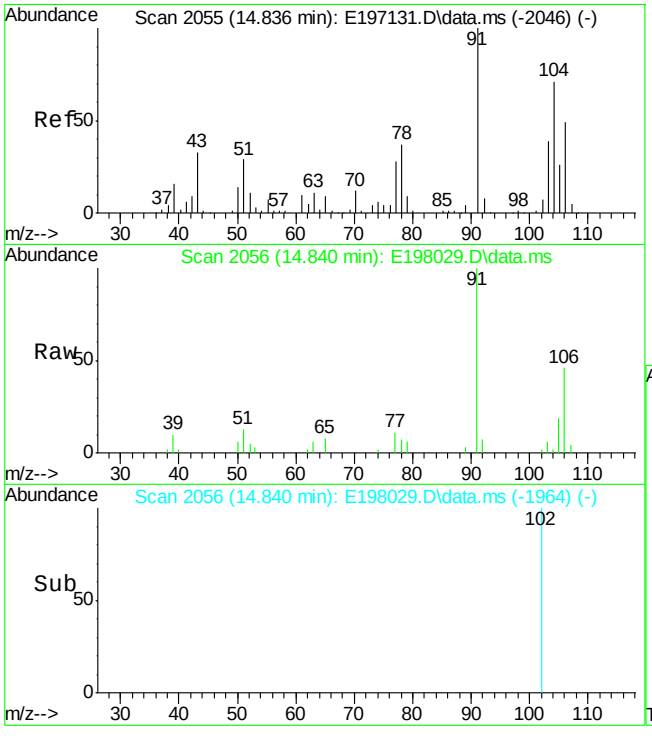


#108
m,p-xylene
Concen: 15.98 ug/L
RT: 14.375 min Scan# 1967
Delta R.T. -0.002 min
Lab File: E198029.D
Acq: 18 Dec 2012 2:46 pm

Tgt Ion:106 Resp: 33226

Ion	Ratio	Lower	Upper
106	100		
91	211.9	170.7	230.7
77	27.7	0.0	57.5

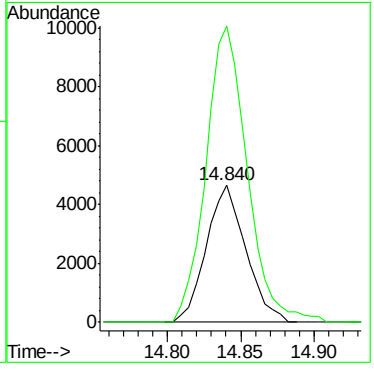


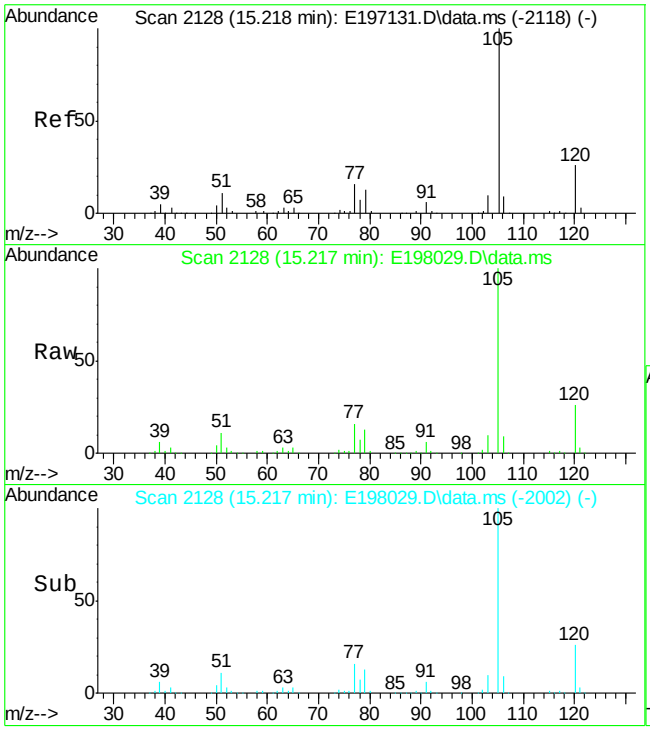


#109
o-xylene
Concen: 4.00 ug/L
RT: 14.840 min Scan# 2056
Delta R.T. 0.003 min
Lab File: E198029.D
Acq: 18 Dec 2012 2:46 pm

Tgt Ion:106 Resp: 8657

Ion	Ratio	Lower	Upper
106	100		
91	215.5	185.3	245.3

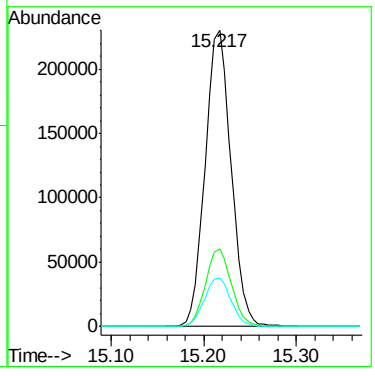


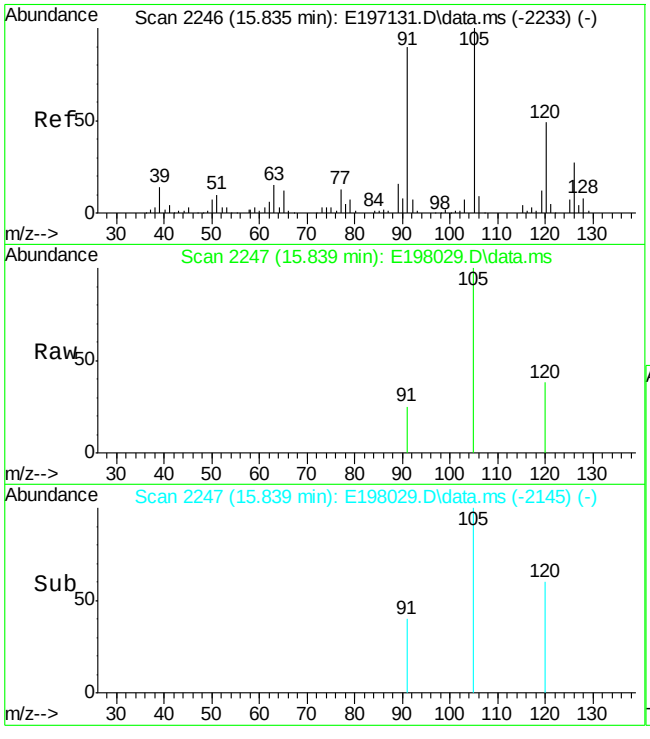


#114
isopropylbenzene
Concen: 72.93 ug/L
RT: 15.217 min Scan# 2128
Delta R.T. -0.002 min
Lab File: E198029.D
Acq: 18 Dec 2012 2:46 pm

Tgt Ion:105 Resp: 447346

Ion	Ratio	Lower	Upper
105	100		
120	26.3	0.0	56.4
77	16.3	0.0	47.0

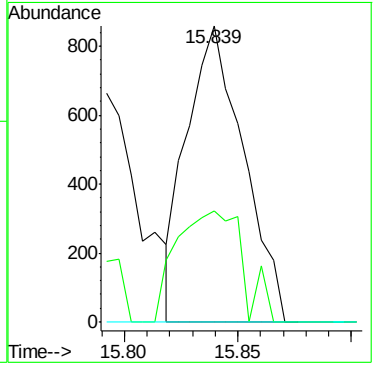




#124
1,3,5-trimethylbenzene
Concen: 0.29 ug/L
RT: 15.839 min Scan# 2247
Delta R.T. 0.003 min
Lab File: E198029.D
Acq: 18 Dec 2012 2:46 pm

Tgt Ion:105 Resp: 1489

Ion	Ratio	Lower	Upper
105	100		
120	37.6	18.2	78.2
119	0.0	0.0	43.0



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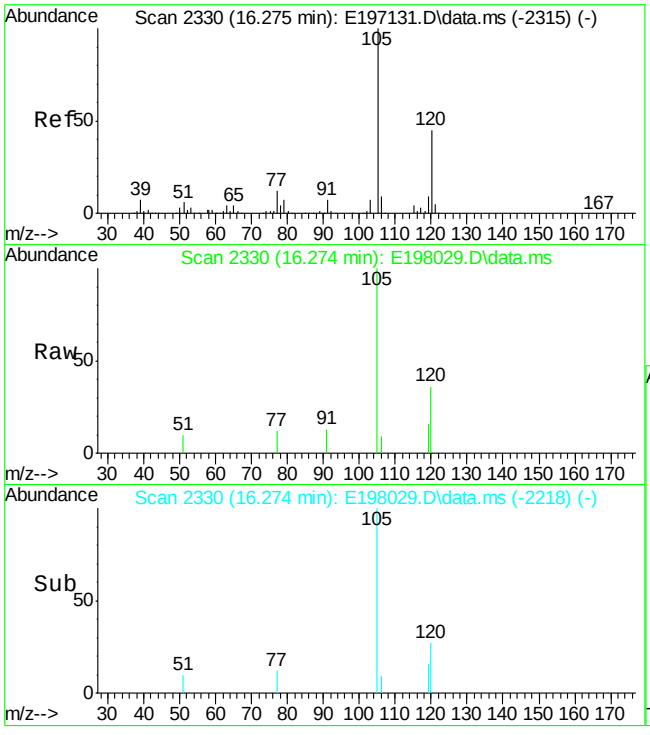
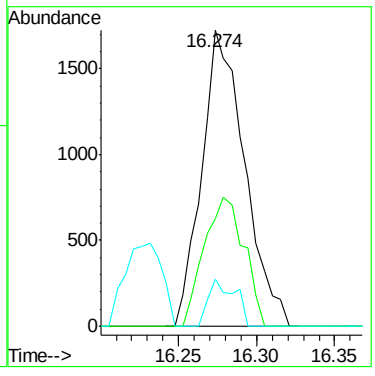
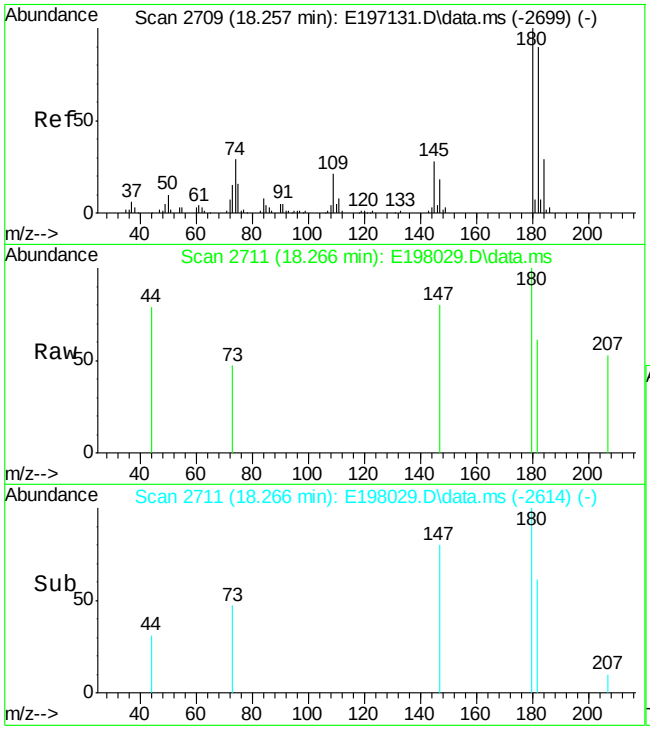


#127
1,2,4-trimethylbenzene
Concen: 0.65 ug/L
RT: 16.274 min Scan# 2330
Delta R.T. -0.002 min
Lab File: E198029.D
Acq: 18 Dec 2012 2:46 pm

Tgt Ion:105 Resp: 3289

Ion	Ratio	Lower	Upper
105	100		
120	36.5	14.3	74.3
119	16.1	0.0	42.7

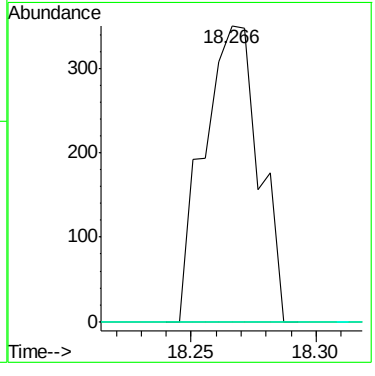




#138
1,3,5-trichlorobenzene
Concen: Below Cal
RT: 18.266 min Scan# 2711
Delta R.T. 0.009 min
Lab File: E198029.D
Acq: 18 Dec 2012 2:46 pm

Tgt Ion:180 Resp: 540

Ion	Ratio	Lower	Upper
180	100		
145	0.0	21.2	39.4#
74	0.0	22.8	42.4#



7.1.18

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Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203412.D
Acq On : 15 Dec 2012 7:24 am
Operator : EmilyT
Sample : JB22962-10
Misc : ms39893,vd8294,6.4,,100,5,1
ALS Vial : 39 Sample Multiplier: 1

Quant Time: Dec 17 08:36:04 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.045	65	80105	500.00 ug/L	0.00
4) pentafluorobenzene	10.262	168	135939	50.00 ug/L	0.00
53) 1,4-difluorobenzene	11.172	114	198383	50.00 ug/L	-0.01
85) chlorobenzene-d5	14.514	117	186726	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.098	152	118193	50.00 ug/L	-0.01
System Monitoring Compounds					
46) dibromofluoromethane (s)	10.288	113	60695	45.12 ug/L	-0.01
Spiked Amount 50.000	Range 70 - 130		Recovery = 90.24%		
47) 1,2-dichloroethane-d4 (s)	10.717	65	82451	53.28 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 106.56%		
77) toluene-d8 (s)	12.888	98	248614	49.43 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 98.86%		
101) 4-bromofluorobenzene (s)	15.801	95	101697	47.66 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 95.32%		

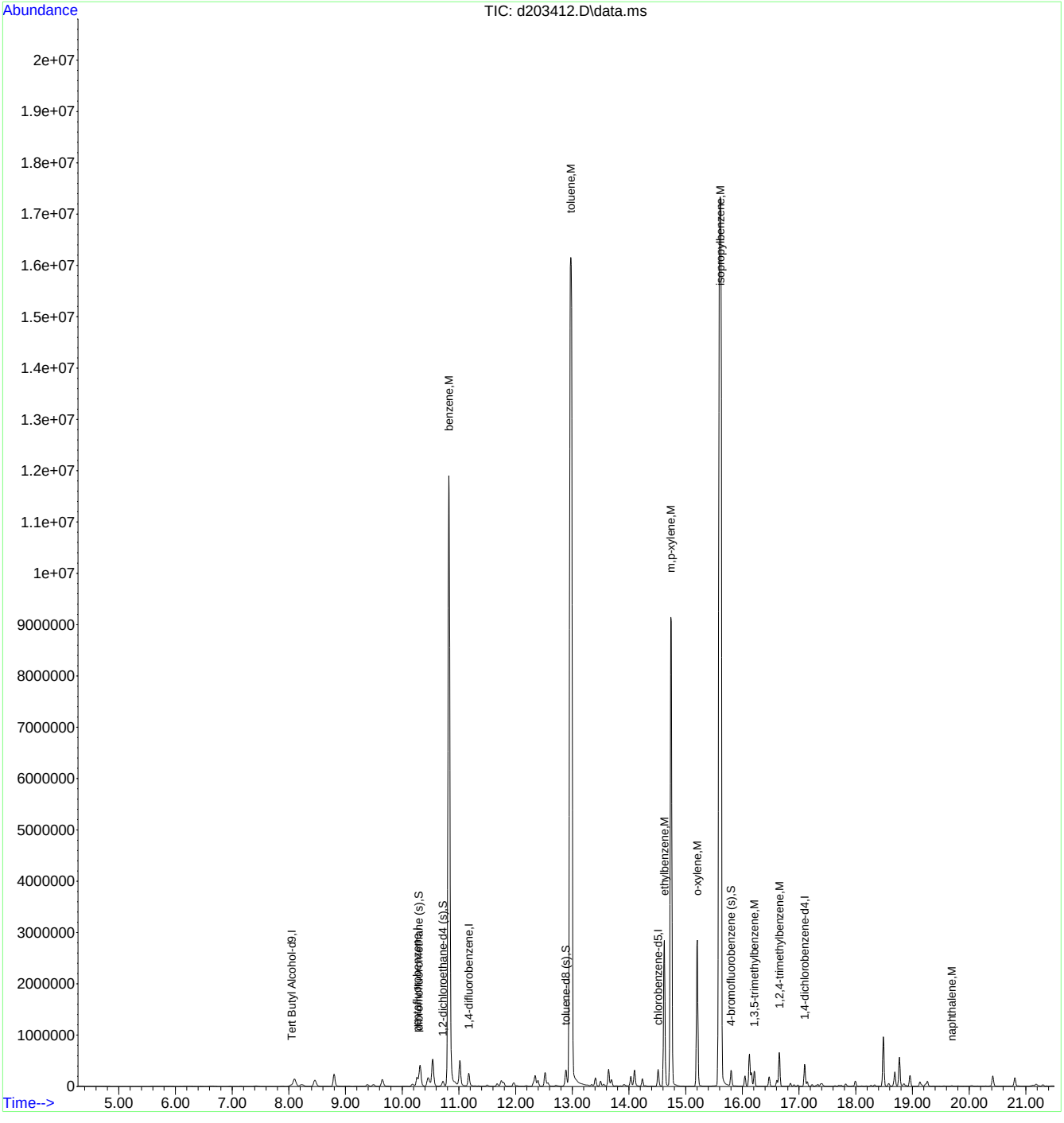
Target Compounds					Qvalue
62) benzene	10.822	78	9995723	1762.42 ug/L	67
79) toluene	12.971	92	10752988	2953.46 ug/L #	64
94) ethylbenzene	14.624	91	2129568	311.88 ug/L	99
95) m,p-xylene	14.744	106	2786169	1044.29 ug/L	98
96) o-xylene	15.205	106	796735	300.06 ug/L	95
100) isopropylbenzene	15.613	105	14966204	2058.65 ug/L	53
111) 1,3,5-trimethylbenzene	16.209	105	178220	27.96 ug/L	97
114) 1,2,4-trimethylbenzene	16.653	105	398906	60.43 ug/L	98
128) naphthalene	19.692	128	11281	2.06 ug/L	94

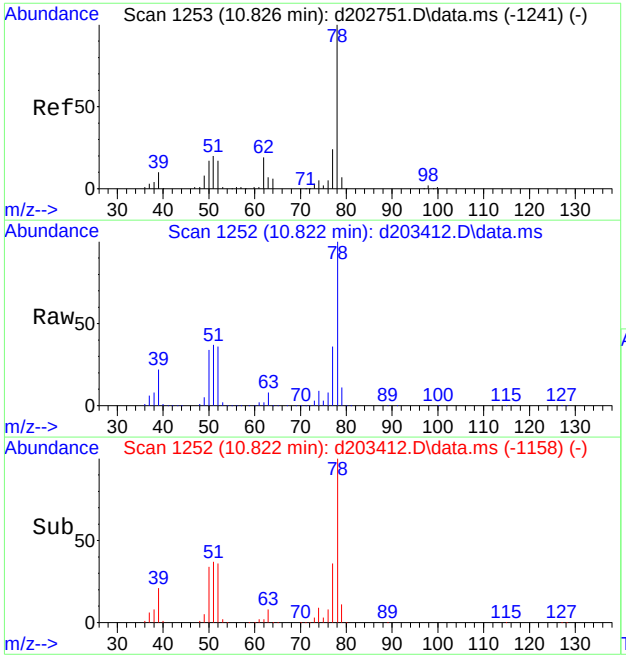
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203412.D
Acq On : 15 Dec 2012 7:24 am
Operator : EmilyT
Sample : JB22962-10
Misc : ms39893,vd8294,6.4,,100,5,1
ALS Vial : 39 Sample Multiplier: 1

Quant Time: Dec 17 08:36:04 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

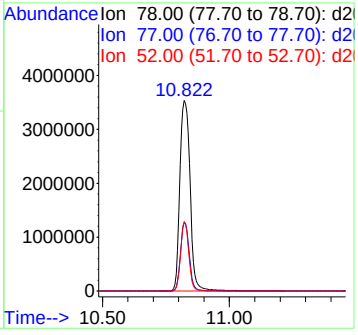


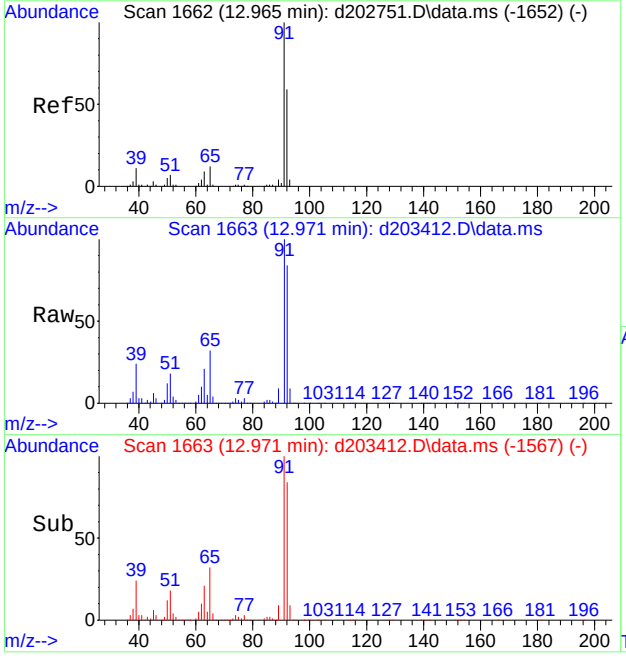


#62
benzene
Concen: 1762.42 ug/L
RT: 10.822 min Scan# 1252
Delta R.T. -0.006 min
Lab File: d203412.D
Acq: 15 Dec 2012 7:24 am

Tgt Ion: 78 Resp: 9995723

Ion	Ratio	Lower	Upper
78	100		
77	35.8	0.0	53.8
52	36.5	0.0	46.8

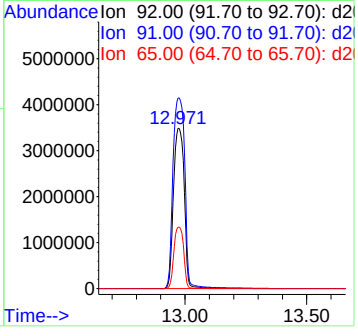


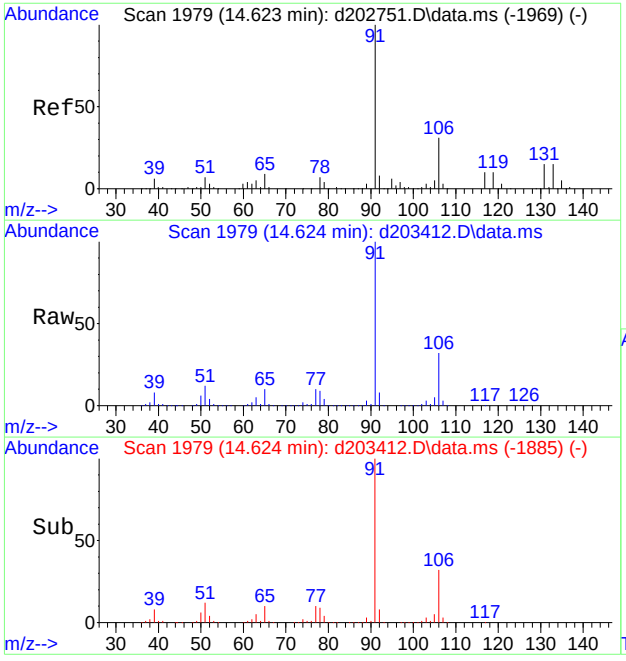


#79
toluene
Concen: 2953.46 ug/L
RT: 12.971 min Scan# 1663
Delta R.T. 0.004 min
Lab File: d203412.D
Acq: 15 Dec 2012 7:24 am

Tgt Ion: 92 Resp:10752988

Ion	Ratio	Lower	Upper
92	100		
91	118.8	136.4	196.4#
65	38.4	0.0	49.2

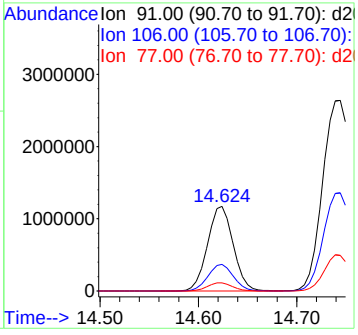


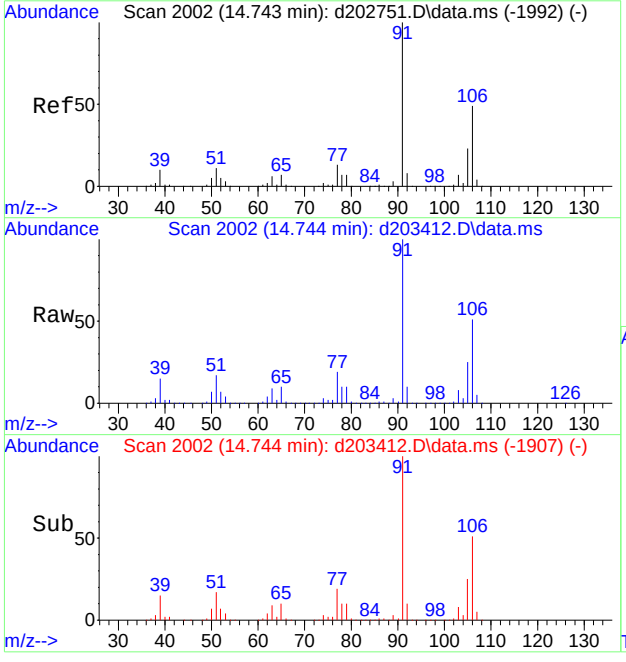


#94
ethylbenzene
Concen: 311.88 ug/L
RT: 14.624 min Scan# 1979
Delta R.T. -0.006 min
Lab File: d203412.D
Acq: 15 Dec 2012 7:24 am

Tgt Ion: 91 Resp: 2129568

Ion	Ratio	Lower	Upper
91	100		
106	31.6	2.1	62.1
77	9.6	0.0	38.6

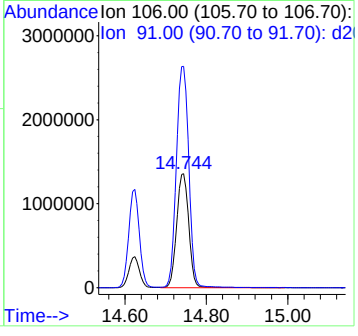




#95
m,p-xylene
Concen: 1044.29 ug/L
RT: 14.744 min Scan# 2002
Delta R.T. -0.001 min
Lab File: d203412.D
Acq: 15 Dec 2012 7:24 am

Tgt Ion:106 Resp: 2786169

Ion	Ratio	Lower	Upper
106	100		
91	194.4	137.7	255.7



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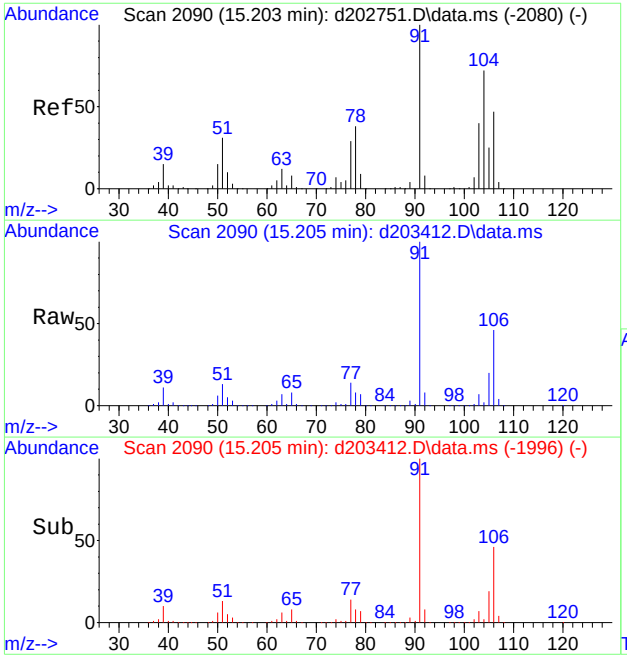
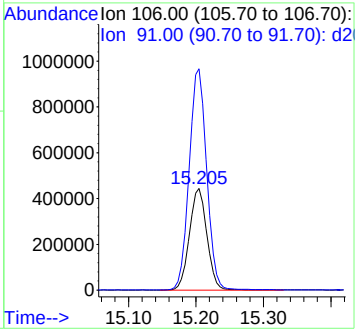
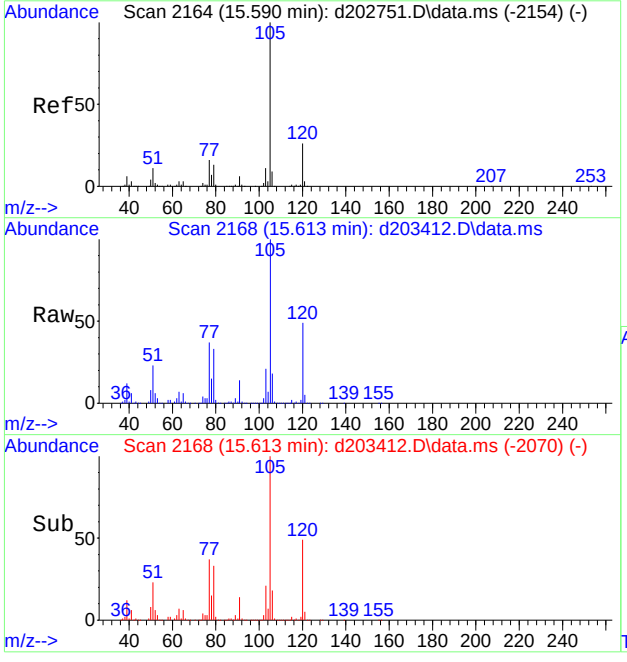


#96
o-xylene
Concen: 300.06 ug/L
RT: 15.205 min Scan# 2090
Delta R.T. -0.006 min
Lab File: d203412.D
Acq: 15 Dec 2012 7:24 am

Tgt Ion:106 Resp: 796735

Ion	Ratio	Lower	Upper
106	100		
91	217.7	147.4	273.8

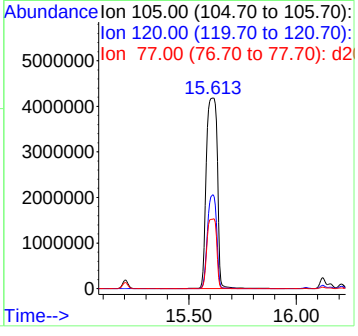


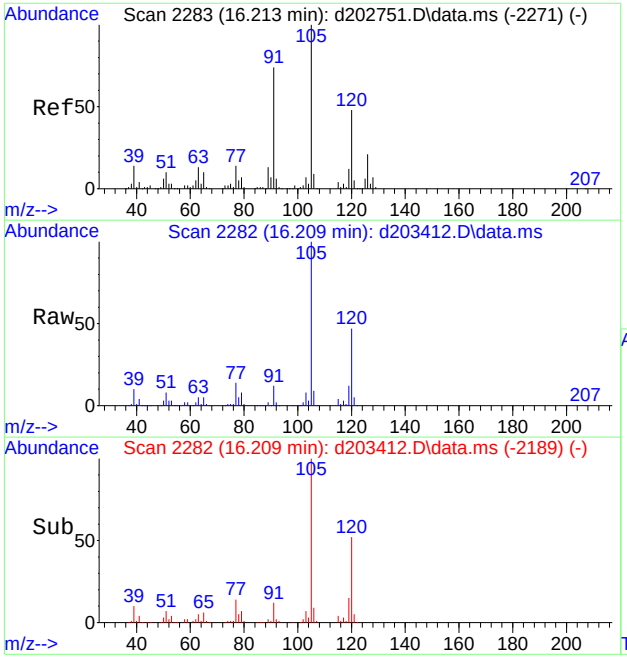


#100
isopropylbenzene
Concen: 2058.65 ug/L
RT: 15.613 min Scan# 2168
Delta R.T. 0.015 min
Lab File: d203412.D
Acq: 15 Dec 2012 7:24 am

Tgt Ion:105 Resp:14966204

Ion	Ratio	Lower	Upper
105	100		
120	49.3	0.0	56.7
77	36.5	0.0	44.9

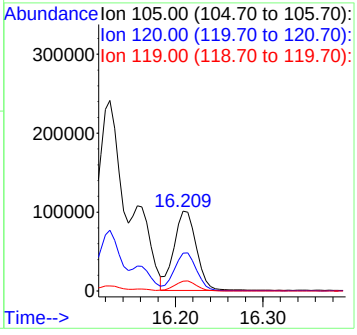


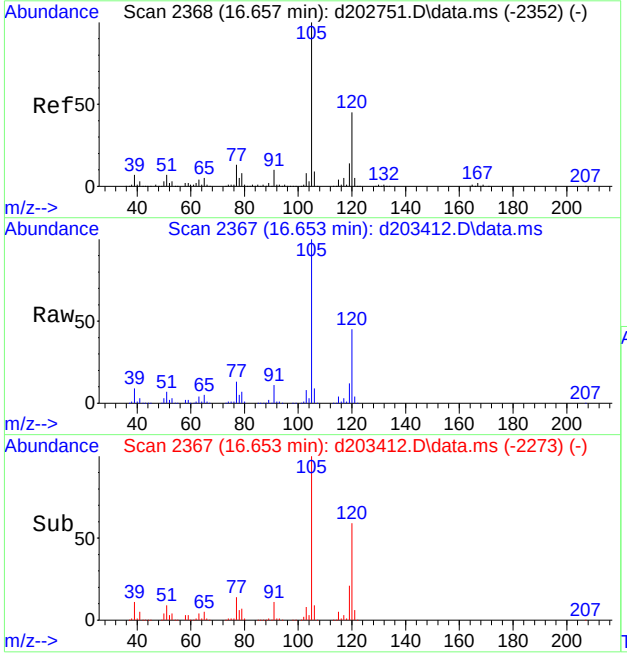


#111
1,3,5-trimethylbenzene
Concen: 27.96 ug/L
RT: 16.209 min Scan# 2282
Delta R.T. -0.011 min
Lab File: d203412.D
Acq: 15 Dec 2012 7:24 am

Tgt Ion:105 Resp: 178220

Ion	Ratio	Lower	Upper
105	100		
120	47.6	19.9	79.9
119	12.6	0.0	42.6

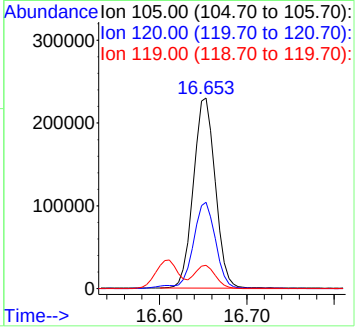




#114
1,2,4-trimethylbenzene
Concen: 60.43 ug/L
RT: 16.653 min Scan# 2367
Delta R.T. -0.006 min
Lab File: d203412.D
Acq: 15 Dec 2012 7:24 am

Tgt Ion:105 Resp: 398906

Ion	Ratio	Lower	Upper
105	100		
120	45.4	16.5	76.5
119	12.3	0.0	43.8



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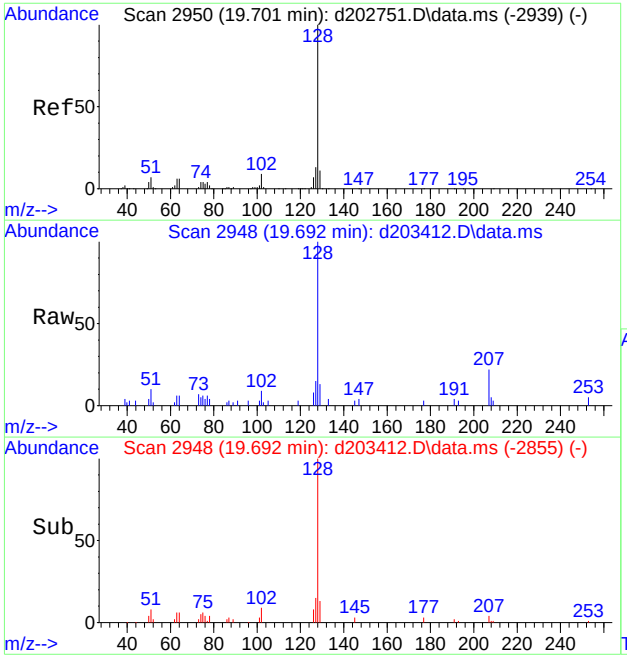
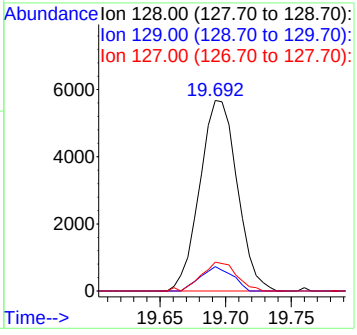


#128
naphthalene
Concen: 2.06 ug/L
RT: 19.692 min Scan# 2948
Delta R.T. -0.011 min
Lab File: d203412.D
Acq: 15 Dec 2012 7:24 am

Tgt Ion:128 Resp: 11281

Ion	Ratio	Lower	Upper
128	100		
129	12.8	0.0	41.0
127	15.2	0.0	42.7



7.1.19

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203491.D
Acq On : 17 Dec 2012 6:36 pm
Operator : EmilyT
Sample : jb22962-10
Misc : ms39893,vd8297,6.4,,2,5,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Dec 18 09:35:20 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

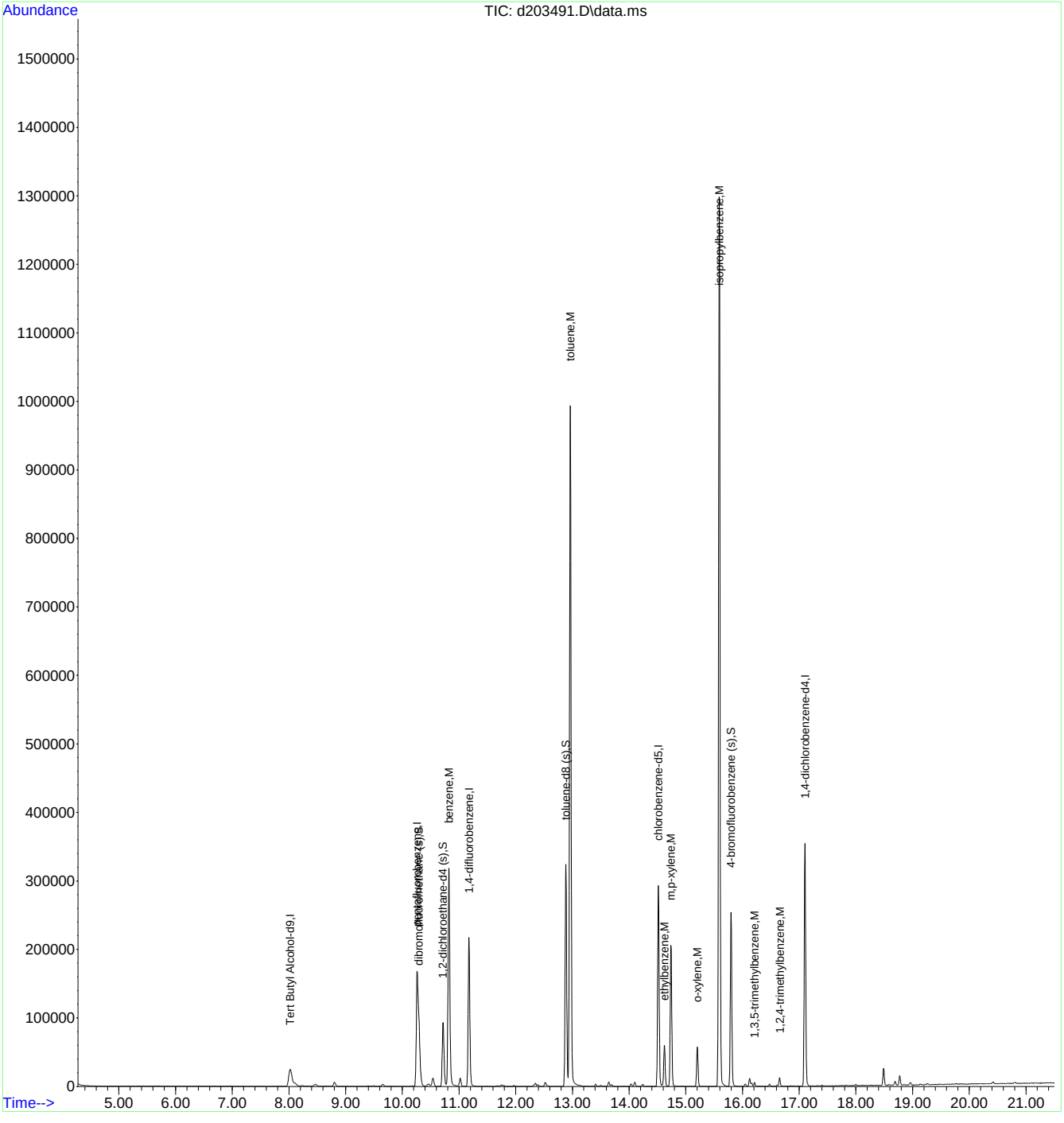
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.021	65	59470	500.00 ug/L	-0.02
4) pentafluorobenzene	10.260	168	124437	50.00 ug/L	0.00
53) 1,4-difluorobenzene	11.175	114	179889	50.00 ug/L	0.00
85) chlorobenzene-d5	14.517	117	171414	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.101	152	99483	50.00 ug/L	0.00
System Monitoring Compounds					
46) dibromofluoromethane (s)	10.291	113	56422	45.82 ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 91.64%		
47) 1,2-dichloroethane-d4 (s)	10.720	65	77187	54.49 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 108.98%		
77) toluene-d8 (s)	12.885	98	225937	49.54 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 99.08%		
101) 4-bromofluorobenzene (s)	15.798	95	88711	49.40 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 98.80%		
Target Compounds					Qvalue
62) benzene	10.825	78	305487	59.40 ug/L	99
79) toluene	12.964	92	445178	134.85 ug/L	98
94) ethylbenzene	14.622	91	46638	7.44 ug/L	98
95) m,p-xylene	14.737	106	64638	26.39 ug/L	92
96) o-xylene	15.202	106	16724	6.86 ug/L	92
100) isopropylbenzene	15.589	105	911138	148.90 ug/L	98
111) 1,3,5-trimethylbenzene	16.212	105	3586	0.67 ug/L	98
114) 1,2,4-trimethylbenzene	16.651	105	7702	1.39 ug/L	97

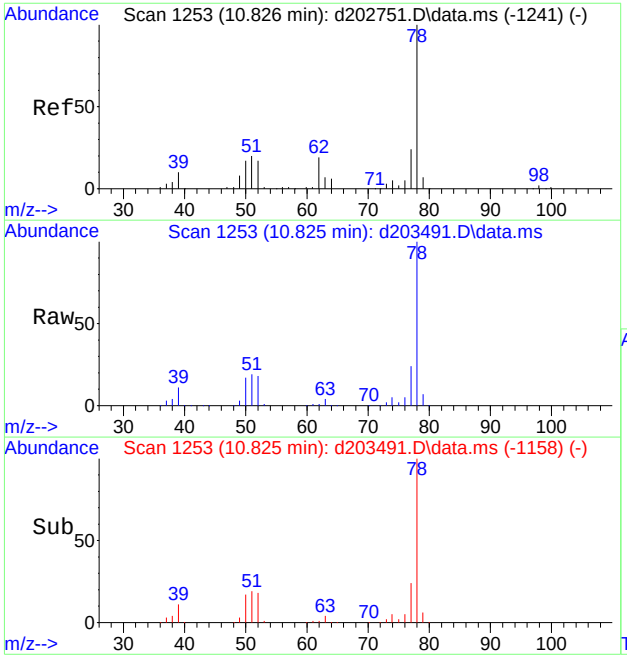
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203491.D
Acq On : 17 Dec 2012 6:36 pm
Operator : EmilyT
Sample : jb22962-10
Misc : ms39893,vd8297,6.4,,2,5,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Dec 18 09:35:20 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

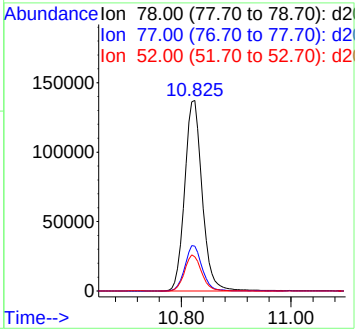


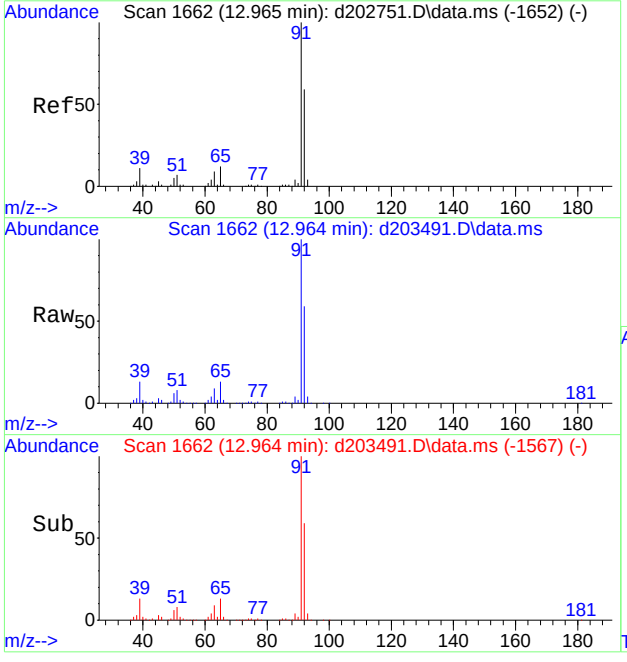


#62
benzene
Concen: 59.40 ug/L
RT: 10.825 min Scan# 1253
Delta R.T. -0.003 min
Lab File: d203491.D
Acq: 17 Dec 2012 6:36 pm

Tgt Ion: 78 Resp: 305487

Ion	Ratio	Lower	Upper
78	100		
77	23.5	0.0	53.8
52	18.0	0.0	46.8

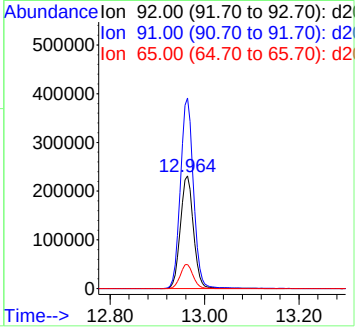


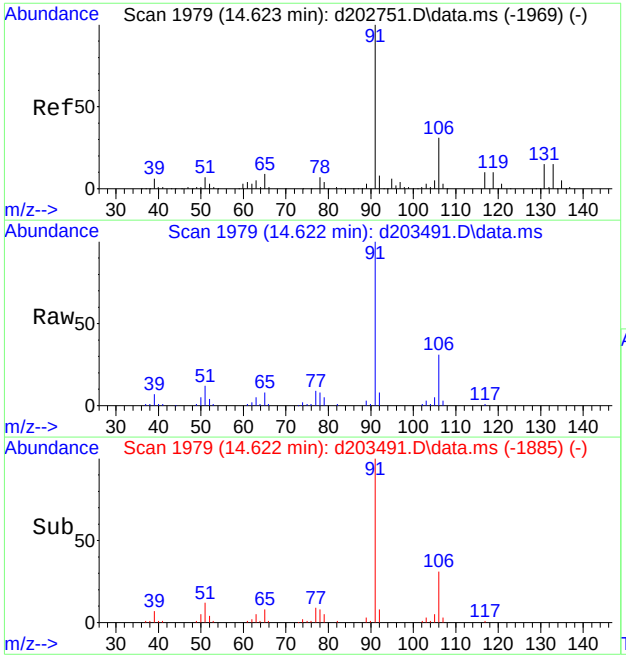


#79
toluene
Concen: 134.85 ug/L
RT: 12.964 min Scan# 1662
Delta R.T. -0.003 min
Lab File: d203491.D
Acq: 17 Dec 2012 6:36 pm

Tgt Ion: 92 Resp: 445178

Ion	Ratio	Lower	Upper
92	100		
91	169.2	136.4	196.4
65	21.5	0.0	49.2

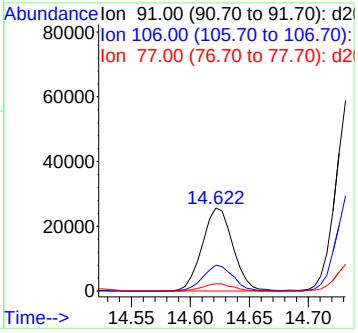


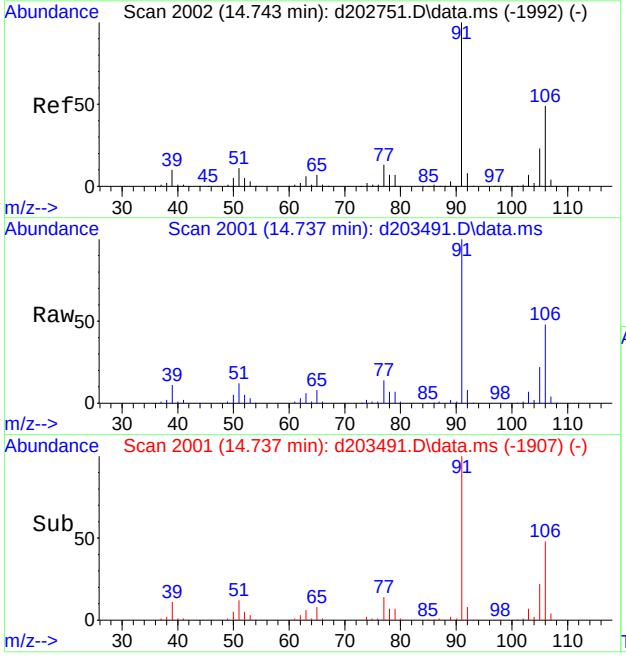


#94
ethylbenzene
Concen: 7.44 ug/L
RT: 14.622 min Scan# 1979
Delta R.T. -0.009 min
Lab File: d203491.D
Acq: 17 Dec 2012 6:36 pm

Tgt Ion: 91 Resp: 46638

Ion	Ratio	Lower	Upper
91	100		
106	31.1	2.1	62.1
77	8.9	0.0	38.6

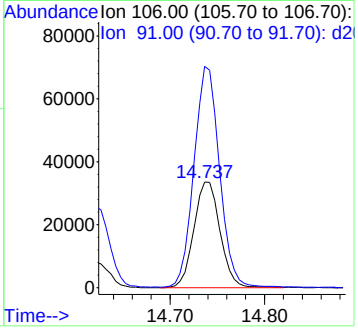


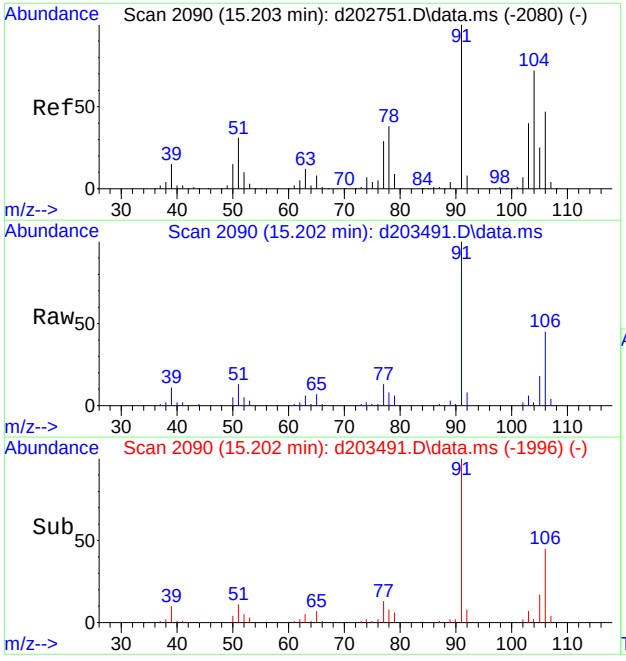


#95
m,p-xylene
Concen: 26.39 ug/L
RT: 14.737 min Scan# 2001
Delta R.T. -0.009 min
Lab File: d203491.D
Acq: 17 Dec 2012 6:36 pm

Tgt Ion:106 Resp: 64638

Ion	Ratio	Lower	Upper
106	100		
91	209.2	137.7	255.7

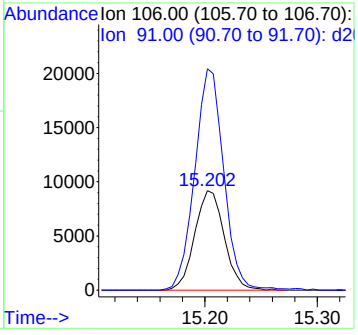


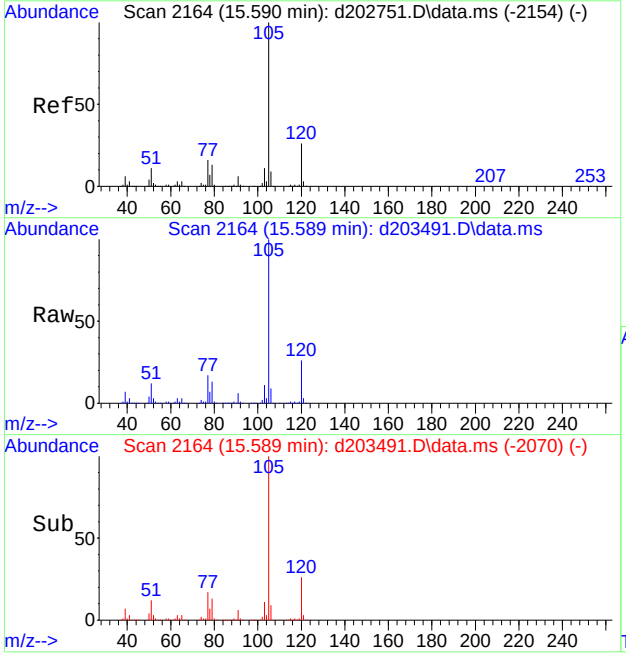


#96
o-xylene
Concen: 6.86 ug/L
RT: 15.202 min Scan# 2090
Delta R.T. -0.009 min
Lab File: d203491.D
Acq: 17 Dec 2012 6:36 pm

Tgt Ion:106 Resp: 16724

Ion	Ratio	Lower	Upper
106	100		
91	222.7	147.4	273.8

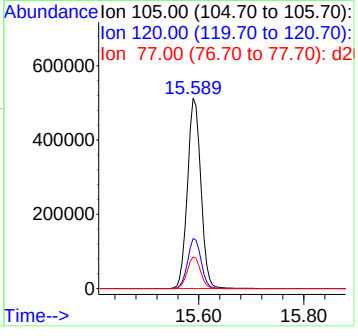


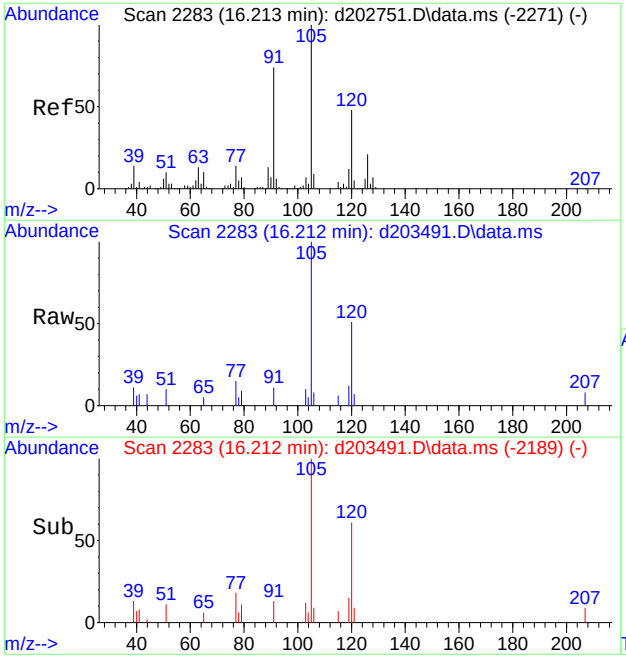


#100
isopropylbenzene
Concen: 148.90 ug/L
RT: 15.589 min Scan# 2164
Delta R.T. -0.009 min
Lab File: d203491.D
Acq: 17 Dec 2012 6:36 pm

Tgt Ion:105 Resp: 911138

Ion	Ratio	Lower	Upper
105	100		
120	26.4	0.0	56.7
77	16.6	0.0	44.9

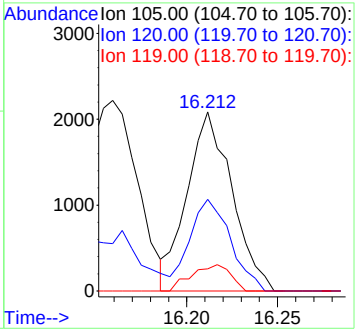


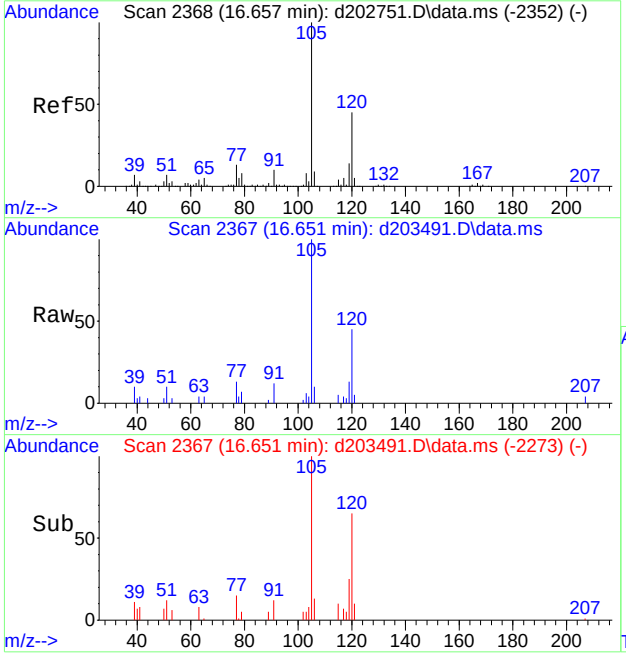


#111
1,3,5-trimethylbenzene
Concen: 0.67 ug/L
RT: 16.212 min Scan# 2283
Delta R.T. -0.009 min
Lab File: d203491.D
Acq: 17 Dec 2012 6:36 pm

Tgt Ion:105 Resp: 3586

Ion	Ratio	Lower	Upper
105	100		
120	51.2	19.9	79.9
119	12.3	0.0	42.6

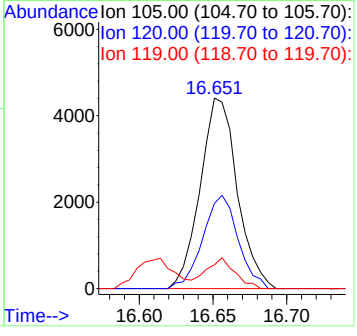




#114
1,2,4-trimethylbenzene
Concen: 1.39 ug/L
RT: 16.651 min Scan# 2367
Delta R.T. -0.009 min
Lab File: d203491.D
Acq: 17 Dec 2012 6:36 pm

Tgt Ion:105 Resp: 7702

Ion	Ratio	Lower	Upper
105	100		
120	44.7	16.5	76.5
119	12.6	0.0	43.8



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\3C\v3c4158-59\
Data File : 3C93695.D
Acq On : 13 Dec 2012 7:08 am
Operator : JUNTAEP
Sample : jb22962-11
Misc : MS39893,V3C4159,6.0,,,,1
ALS Vial : 43 Sample Multiplier: 1

Quant Time: Dec 13 14:11:13 2012
Quant Method : C:\MSDCHEM\1\METHODS\M3C4143.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Fri Nov 30 15:18:13 2012
Response via : Initial Calibration

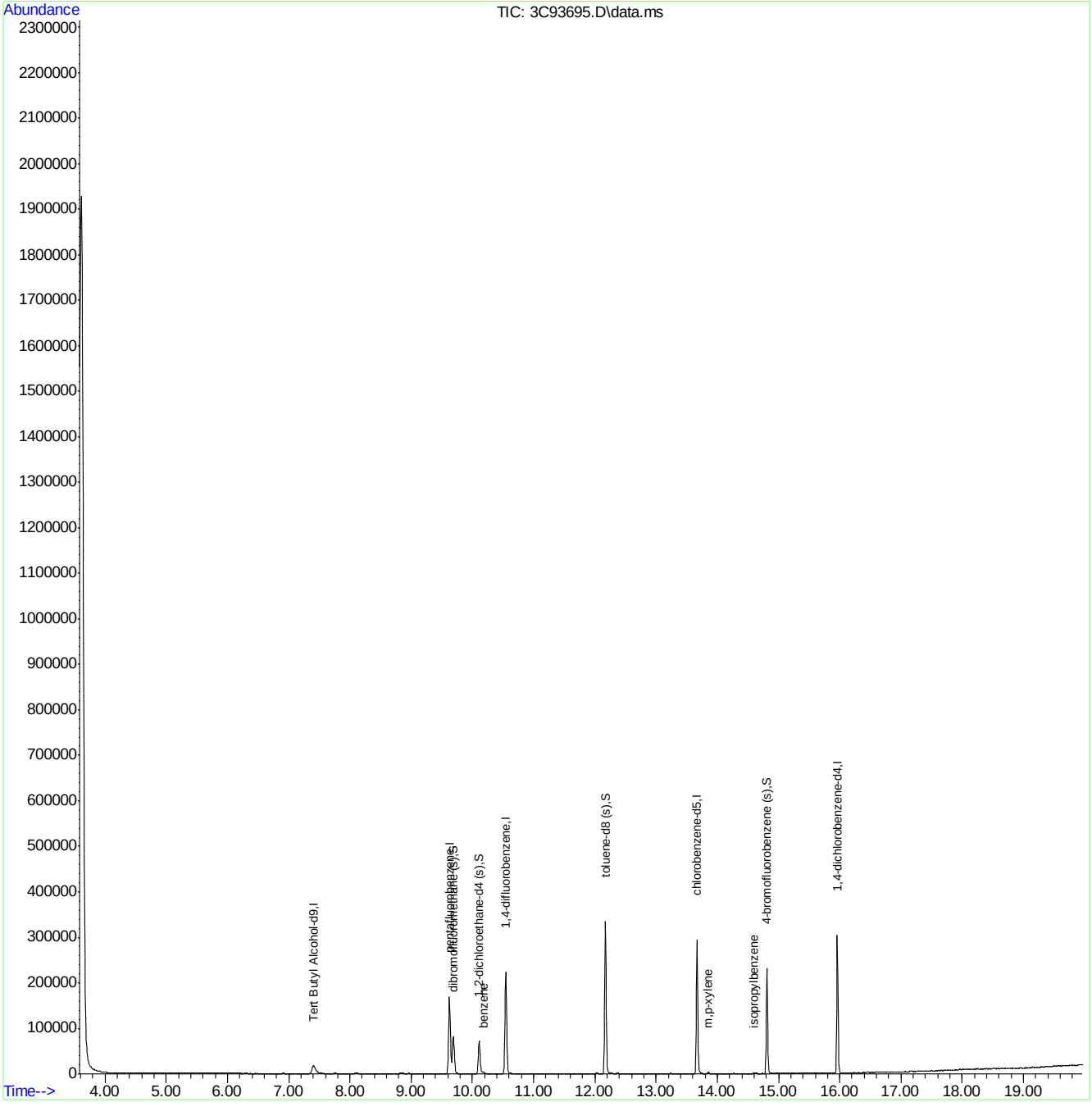
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	7.403	65	40718	500.00	ug/L	0.00
4) pentafluorobenzene	9.626	168	139270	50.00	ug/L	0.00
52) 1,4-difluorobenzene	10.546	114	207793	50.00	ug/L	0.00
81) chlorobenzene-d5	13.669	117	169051	50.00	ug/L	0.00
96) 1,4-dichlorobenzene-d4	15.960	152	76608	50.00	ug/L	0.00
System Monitoring Compounds						
43) dibromofluoromethane (s)	9.689	113	55775	46.06	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 92.12%			
44) 1,2-dichloroethane-d4 (s)	10.112	65	58424	44.26	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 88.52%			
73) toluene-d8 (s)	12.173	98	234156	50.09	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 100.18%			
98) 4-bromofluorobenzene (s)	14.809	95	81067	53.12	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 106.24%			
Target Compounds						Qvalue
58) benzene	10.180	78	3041	0.55	ug/L	94
91) m,p-xylene	13.847	106	897	0.36	ug/L	88
97) isopropylbenzene	14.600	105	1397	0.26	ug/L	88

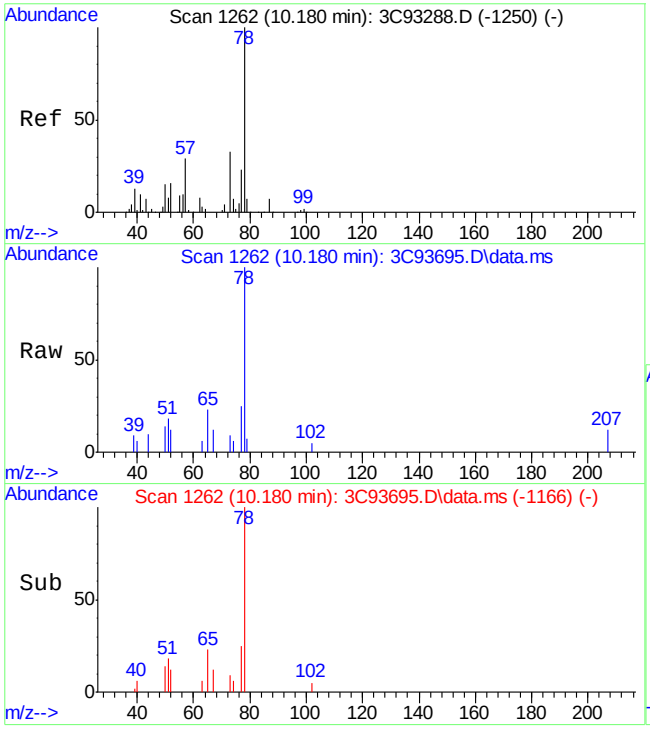
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\3C\v3c4158-59\
Data File : 3C93695.D
Acq On : 13 Dec 2012 7:08 am
Operator : JUNTAEP
Sample : jb22962-11
Misc : MS39893,V3C4159,6.0,,,,1
ALS Vial : 43 Sample Multiplier: 1

Quant Time: Dec 13 14:11:13 2012
Quant Method : C:\MSDCHEM\1\METHODS\M3C4143.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Fri Nov 30 15:18:13 2012
Response via : Initial Calibration

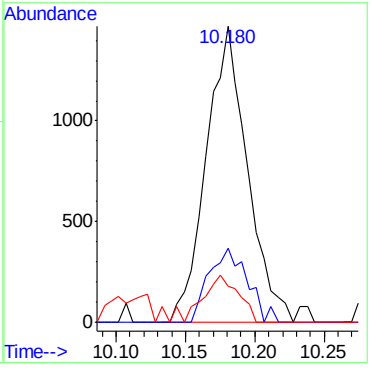


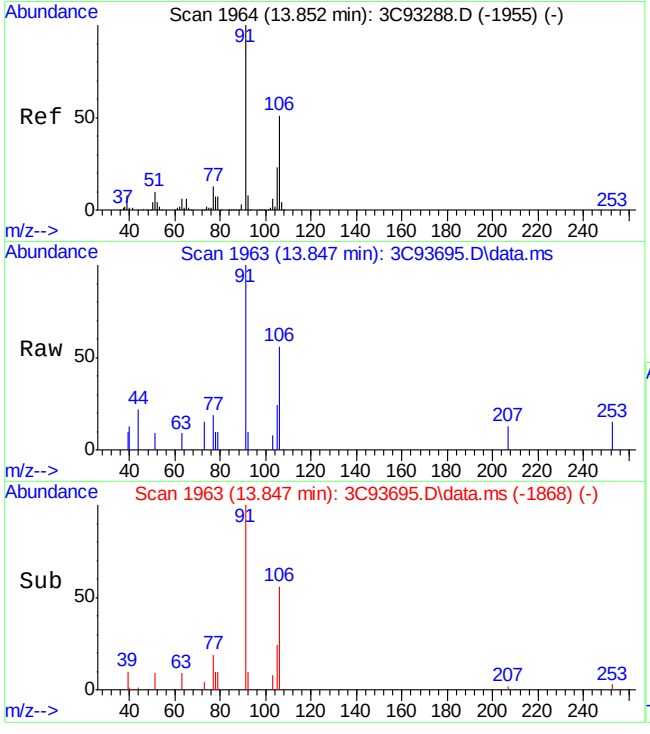


#58
benzene
Concen: 0.55 ug/L
RT: 10.180 min Scan# 1262
Delta R.T. -0.000 min
Lab File: 3C93695.D
Acq: 13 Dec 2012 7:08 am

Tgt Ion: 78 Resp: 3041

Ion	Ratio	Lower	Upper
78	100		
77	24.9	0.0	53.3
52	12.3	0.0	46.2

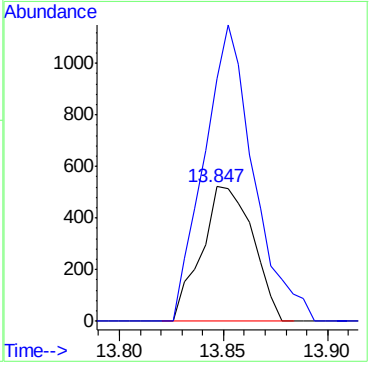


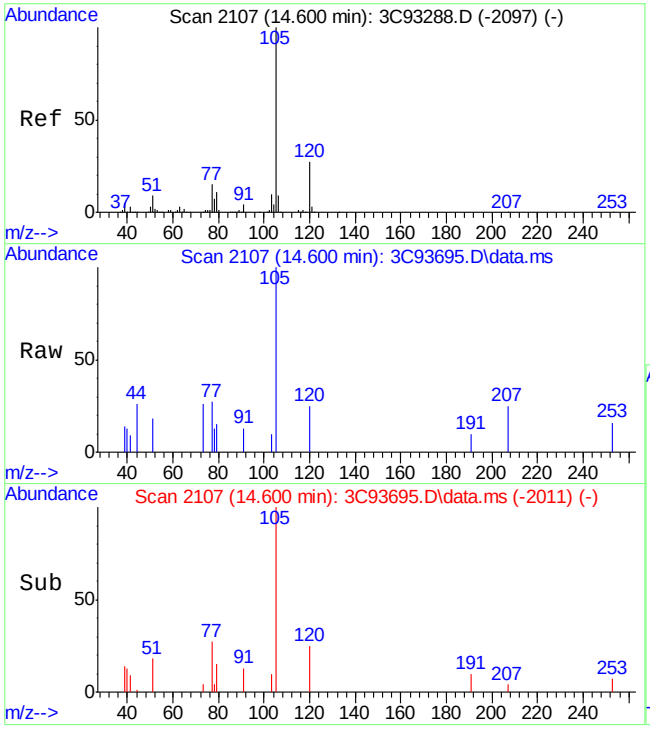


#91
m,p-xylene
Concen: 0.36 ug/L
RT: 13.847 min Scan# 1963
Delta R.T. -0.005 min
Lab File: 3C93695.D
Acq: 13 Dec 2012 7:08 am

Tgt Ion:106 Resp: 897

Ion	Ratio	Lower	Upper
106	100		
91	180.1	138.4	257.0

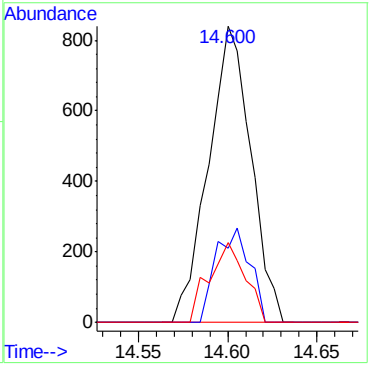




#97
isopropylbenzene
Concen: 0.26 ug/L
RT: 14.600 min Scan# 2107
Delta R.T. -0.000 min
Lab File: 3C93695.D
Acq: 13 Dec 2012 7:08 am

Tgt Ion:105 Resp: 1397

Ion	Ratio	Lower	Upper
105	100		
120	24.9	0.0	56.8
77	27.0	0.0	45.5



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203493.D
Acq On : 17 Dec 2012 7:35 pm
Operator : EmilyT
Sample : jb22962-12
Misc : ms39893,vd8297,6.3,,2,5,1
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Dec 18 09:38:13 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

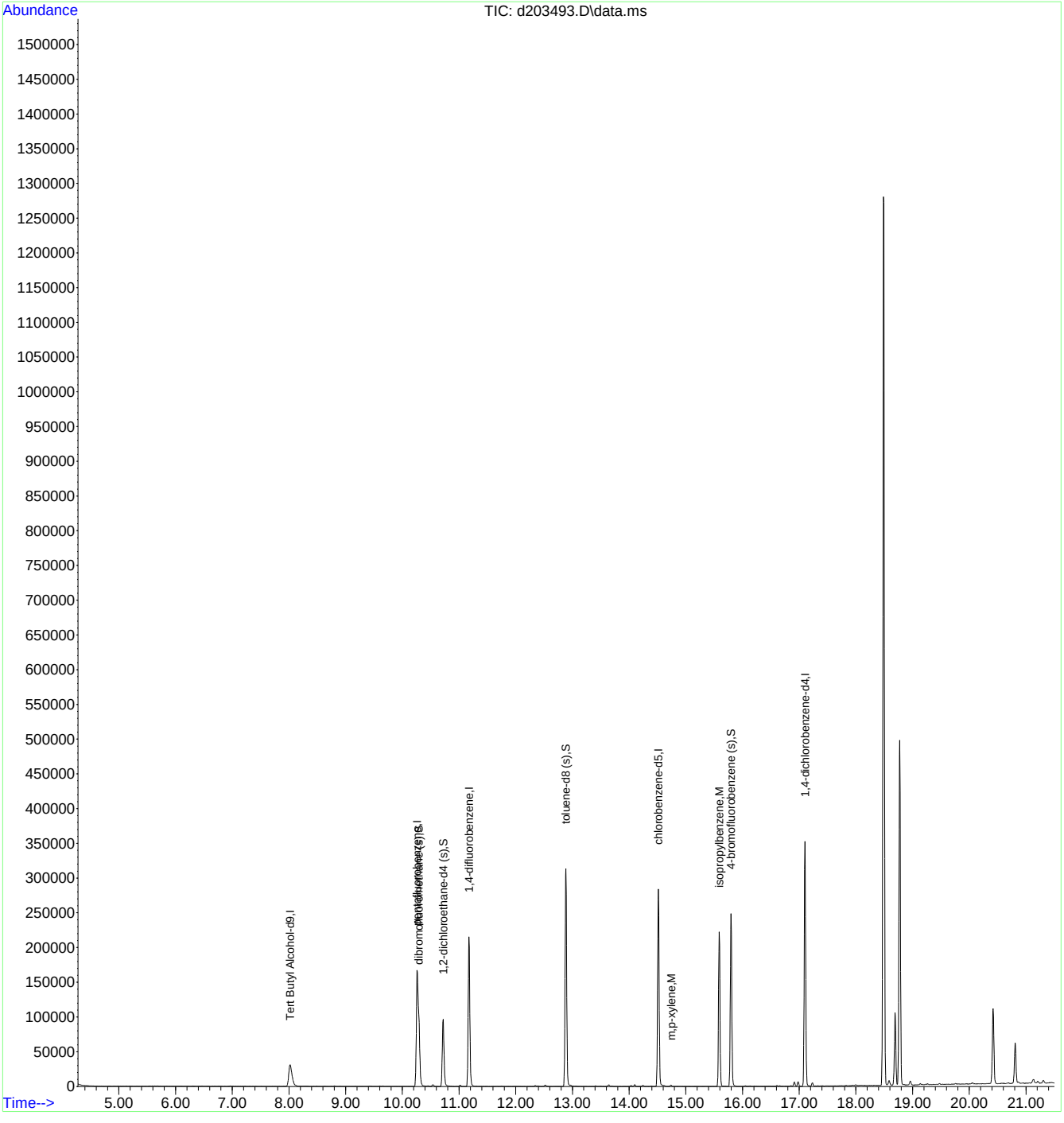
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.027	65	72523	500.00 ug/L	-0.01
4) pentafluorobenzene	10.260	168	120779	50.00 ug/L	0.00
53) 1,4-difluorobenzene	11.175	114	177777	50.00 ug/L	0.00
85) chlorobenzene-d5	14.517	117	164836	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.101	152	97145	50.00 ug/L	0.00
System Monitoring Compounds					
46) dibromofluoromethane (s)	10.291	113	55364	46.32 ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 92.64%		
47) 1,2-dichloroethane-d4 (s)	10.720	65	77087	56.07 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 112.14%		
77) toluene-d8 (s)	12.885	98	219061	48.60 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 97.20%		
101) 4-bromofluorobenzene (s)	15.799	95	87587	49.95 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 99.90%		
Target Compounds					Qvalue
95) m,p-xylene	14.737	106	708	0.30 ug/L	71
100) isopropylbenzene	15.589	105	156302	26.16 ug/L	98

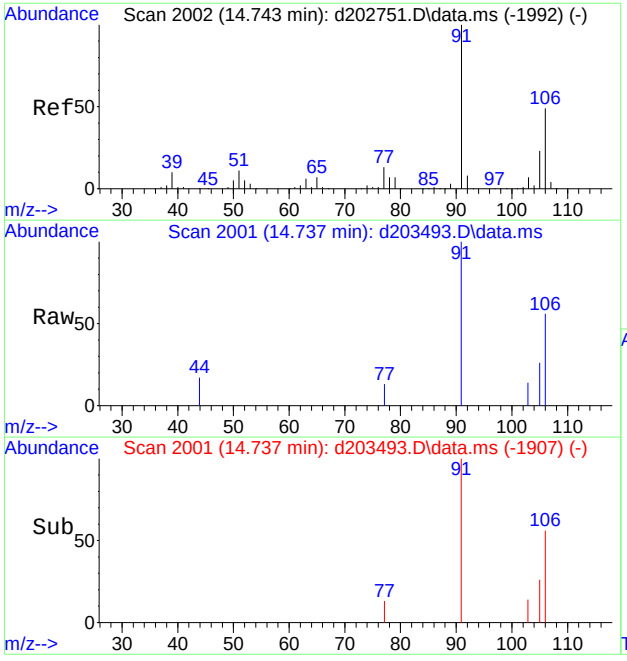
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203493.D
Acq On : 17 Dec 2012 7:35 pm
Operator : EmilyT
Sample : jb22962-12
Misc : ms39893,vd8297,6.3,,2,5,1
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Dec 18 09:38:13 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

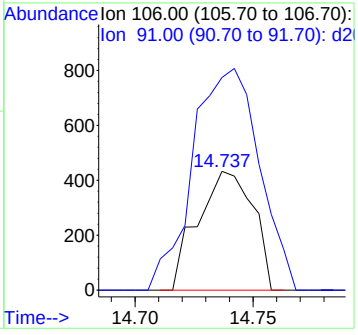


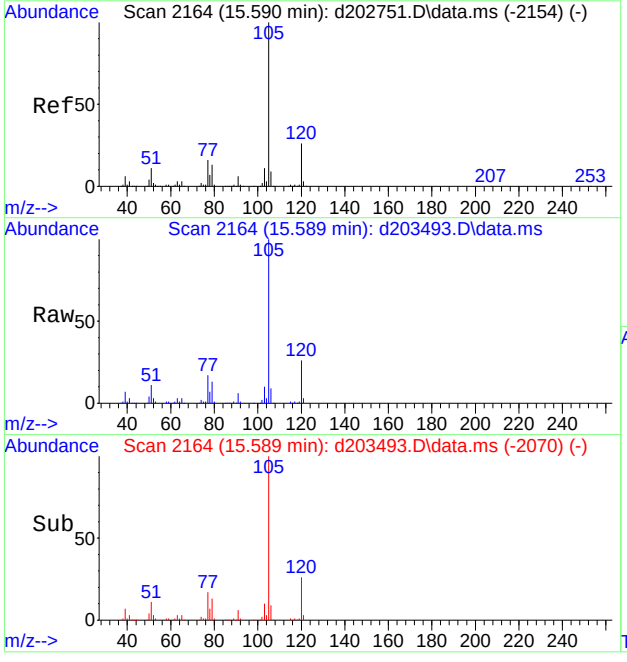


#95
m,p-xylene
Concen: 0.30 ug/L
RT: 14.737 min Scan# 2001
Delta R.T. -0.008 min
Lab File: d203493.D
Acq: 17 Dec 2012 7:35 pm

Tgt Ion:106 Resp: 708

Ion	Ratio	Lower	Upper
106	100		
91	152.7	137.7	255.7

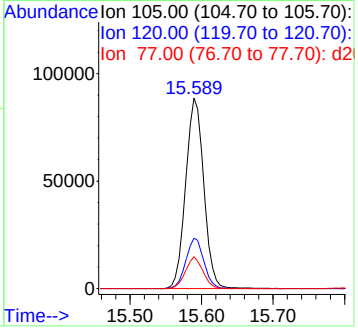




#100
isopropylbenzene
Concen: 26.16 ug/L
RT: 15.589 min Scan# 2164
Delta R.T. -0.008 min
Lab File: d203493.D
Acq: 17 Dec 2012 7:35 pm

Tgt Ion:105 Resp: 156302

Ion	Ratio	Lower	Upper
105	100		
120	26.5	0.0	56.7
77	16.8	0.0	44.9



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\3C\v3c4158-59\
Data File : 3C93696.D
Acq On : 13 Dec 2012 7:38 am
Operator : JUNTAEP
Sample : jb22962-13
Misc : MS39893,V3C4159,5.4,,,,1
ALS Vial : 44 Sample Multiplier: 1

Quant Time: Dec 13 14:13:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\M3C4143.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Fri Nov 30 15:18:13 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	7.398	65	43934	500.00	ug/L	-0.01
4) pentafluorobenzene	9.626	168	153011	50.00	ug/L	0.00
52) 1,4-difluorobenzene	10.546	114	229289	50.00	ug/L	0.00
81) chlorobenzene-d5	13.669	117	184112	50.00	ug/L	0.00
96) 1,4-dichlorobenzene-d4	15.960	152	84041	50.00	ug/L	0.00
System Monitoring Compounds						
43) dibromofluoromethane (s)	9.689	113	62628	47.07	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 94.14%			
44) 1,2-dichloroethane-d4 (s)	10.107	65	64210	44.27	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 88.54%			
73) toluene-d8 (s)	12.173	98	260327	50.46	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 100.92%			
98) 4-bromofluorobenzene (s)	14.809	95	88374	52.78	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 105.56%			

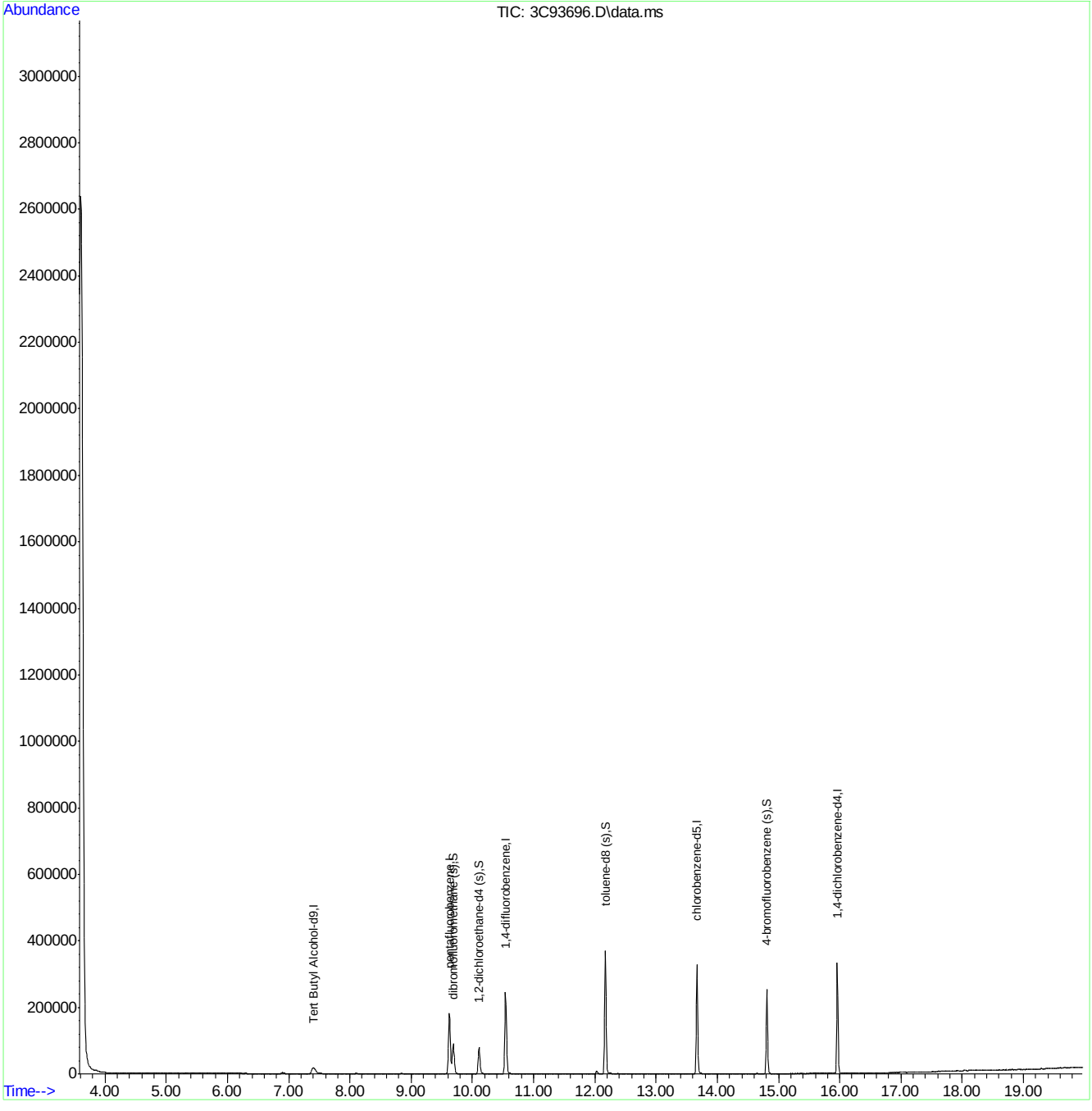
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\3C\v3c4158-59\
Data File : 3C93696.D
Acq On : 13 Dec 2012 7:38 am
Operator : JUNTAEP
Sample : jb22962-13
Misc : MS39893,V3C4159,5.4,,,,1
ALS Vial : 44 Sample Multiplier: 1

Quant Time: Dec 13 14:13:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\M3C4143.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Fri Nov 30 15:18:13 2012
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203492.D
Acq On : 17 Dec 2012 7:06 pm
Operator : EmilyT
Sample : jb22962-14
Misc : ms39893,vd8297,5.8,,100,5,1
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Dec 18 09:36:33 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

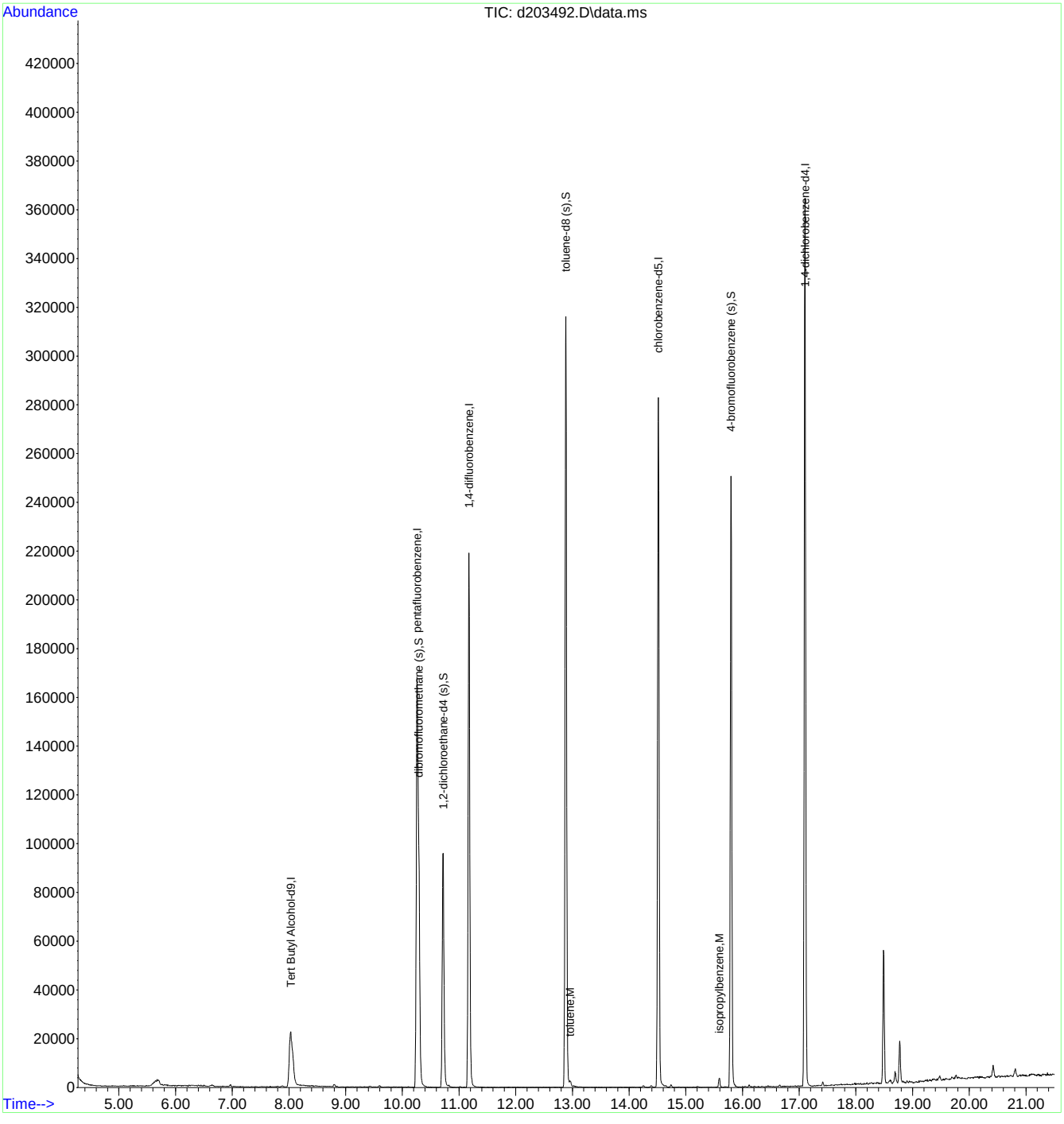
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.032	65	64867	500.00 ug/L	0.00
4) pentafluorobenzene	10.260	168	122523	50.00 ug/L	0.00
53) 1,4-difluorobenzene	11.175	114	178021	50.00 ug/L	0.00
85) chlorobenzene-d5	14.517	117	165147	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.101	152	99067	50.00 ug/L	0.00
System Monitoring Compounds					
46) dibromofluoromethane (s)	10.291	113	55549	45.81 ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 91.62%		
47) 1,2-dichloroethane-d4 (s)	10.720	65	76830	55.09 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 110.18%		
77) toluene-d8 (s)	12.885	98	219810	48.70 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 97.40%		
101) 4-bromofluorobenzene (s)	15.798	95	88052	49.24 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 98.48%		
Target Compounds					Qvalue
79) toluene	12.958	92	798	0.24 ug/L	94
100) isopropylbenzene	15.589	105	3391	0.56 ug/L	94

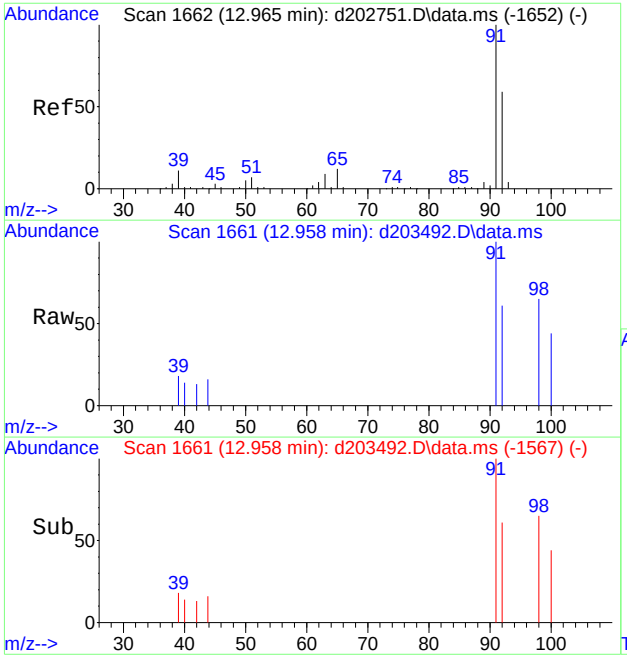
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203492.D
Acq On : 17 Dec 2012 7:06 pm
Operator : EmilyT
Sample : jb22962-14
Misc : ms39893,vd8297,5.8,,100,5,1
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Dec 18 09:36:33 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

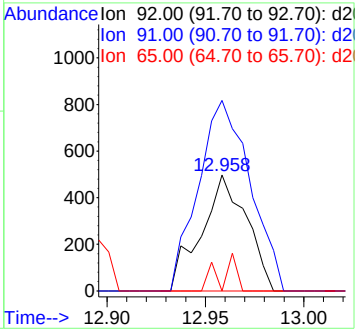


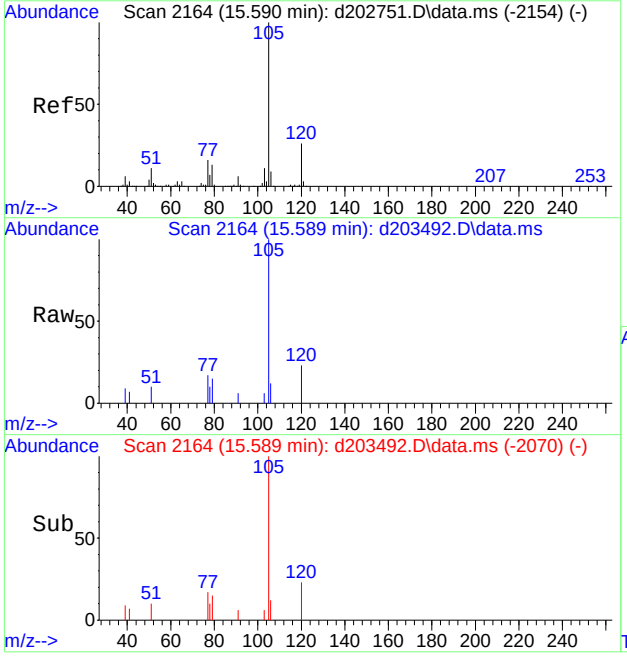


#79
toluene
Concen: 0.24 ug/L
RT: 12.958 min Scan# 1661
Delta R.T. -0.009 min
Lab File: d203492.D
Acq: 17 Dec 2012 7:06 pm

Tgt Ion: 92 Resp: 798

Ion	Ratio	Lower	Upper
92	100		
91	164.1	136.4	196.4
65	0.0	0.0	49.2

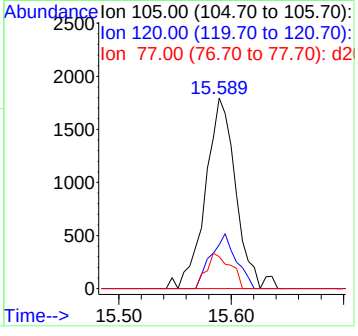




#100
isopropylbenzene
Concen: 0.56 ug/L
RT: 15.589 min Scan# 2164
Delta R.T. -0.008 min
Lab File: d203492.D
Acq: 17 Dec 2012 7:06 pm

Tgt Ion:105 Resp: 3391

Ion	Ratio	Lower	Upper
105	100		
120	23.0	0.0	56.7
77	16.8	0.0	44.9



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203494.D
Acq On : 17 Dec 2012 8:05 pm
Operator : EmilyT
Sample : jb22962-15
Misc : ms39893,vd8297,6.7,,10,5,1
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Dec 18 09:40:28 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

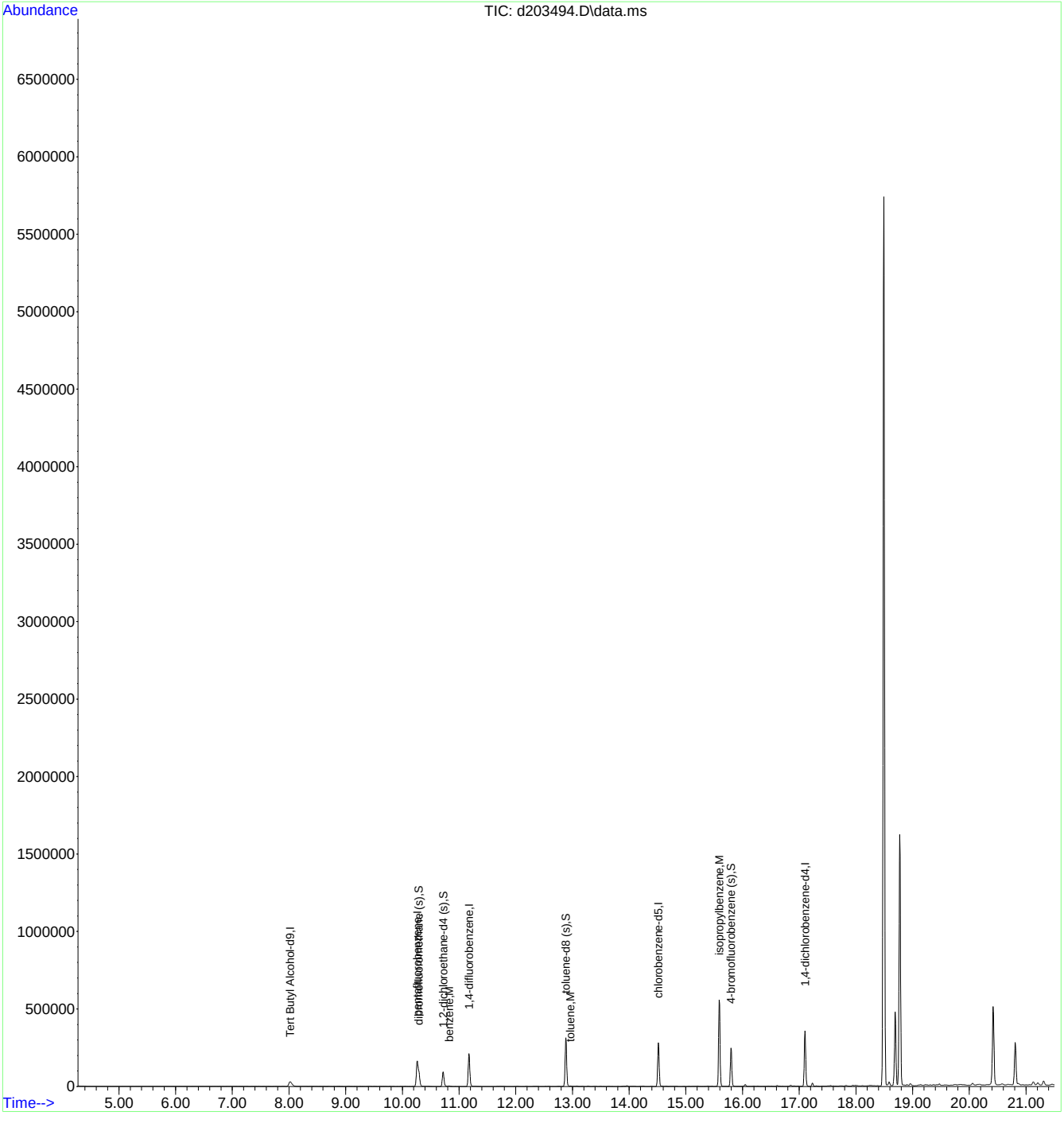
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.021	65	69679	500.00 ug/L	-0.02
4) pentafluorobenzene	10.259	168	119218	50.00 ug/L	0.00
53) 1,4-difluorobenzene	11.174	114	173107	50.00 ug/L	0.00
85) chlorobenzene-d5	14.516	117	163063	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.100	152	97831	50.00 ug/L	0.00
System Monitoring Compounds					
46) dibromofluoromethane (s)	10.290	113	54282	46.01 ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 92.02%		
47) 1,2-dichloroethane-d4 (s)	10.719	65	75485	55.62 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 111.24%		
77) toluene-d8 (s)	12.885	98	216040	49.22 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 98.44%		
101) 4-bromofluorobenzene (s)	15.798	95	86912	49.21 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 98.42%		
Target Compounds					Qvalue
62) benzene	10.824	78	3309	0.67 ug/L	93
79) toluene	12.963	92	1101	0.35 ug/L	85
100) isopropylbenzene	15.589	105	393398	65.38 ug/L	98

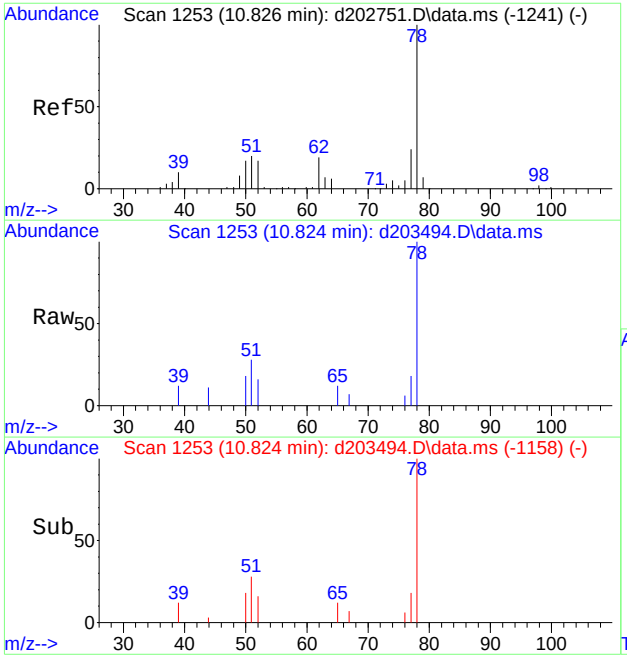
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203494.D
Acq On : 17 Dec 2012 8:05 pm
Operator : EmilyT
Sample : jb22962-15
Misc : ms39893,vd8297,6.7,,10,5,1
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Dec 18 09:40:28 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

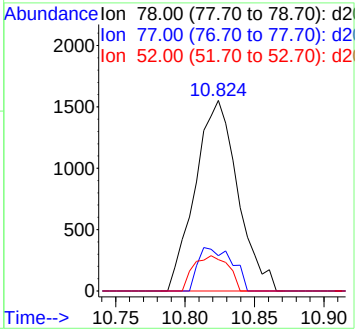


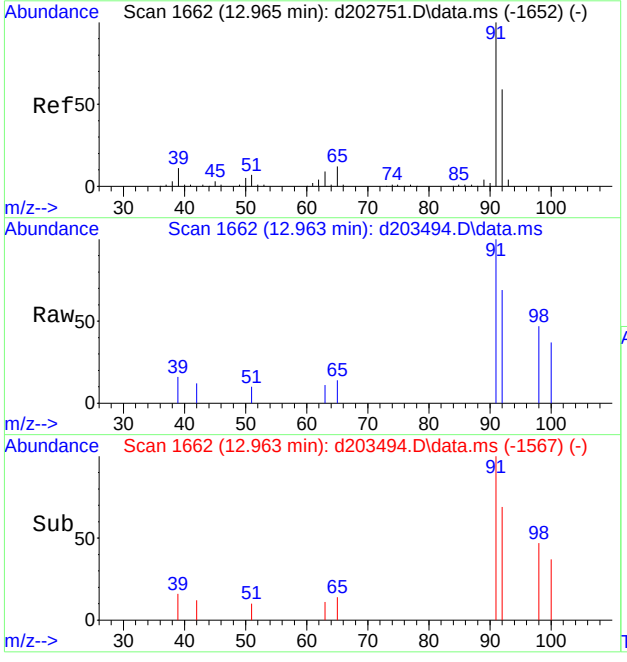


#62
benzene
Concen: 0.67 ug/L
RT: 10.824 min Scan# 1253
Delta R.T. -0.004 min
Lab File: d203494.D
Acq: 17 Dec 2012 8:05 pm

Tgt Ion: 78 Resp: 3309

Ion	Ratio	Lower	Upper
78	100		
77	18.5	0.0	53.8
52	16.4	0.0	46.8

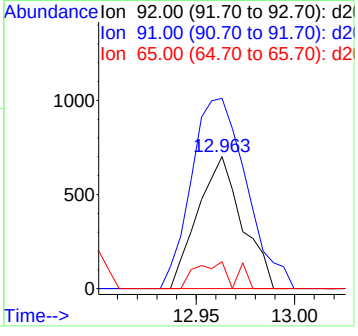


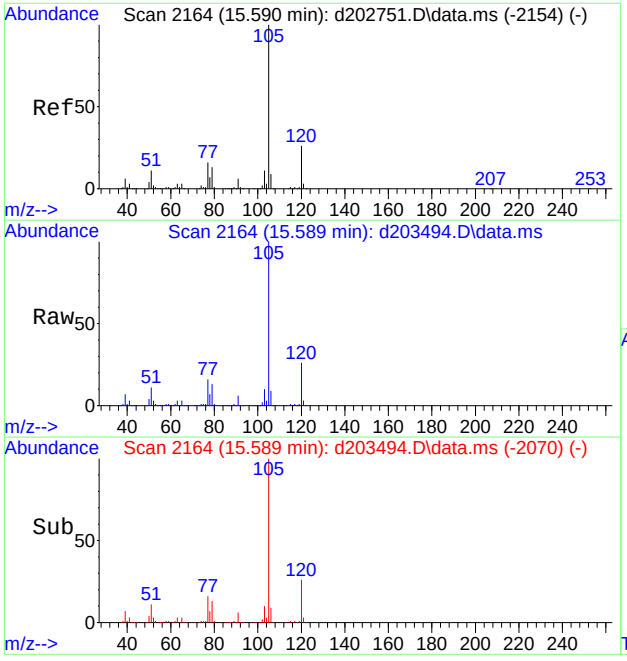


#79
toluene
Concen: 0.35 ug/L
RT: 12.963 min Scan# 1662
Delta R.T. -0.004 min
Lab File: d203494.D
Acq: 17 Dec 2012 8:05 pm

Tgt Ion: 92 Resp: 1101

Ion	Ratio	Lower	Upper
92	100		
91	144.2	136.4	196.4
65	20.4	0.0	49.2

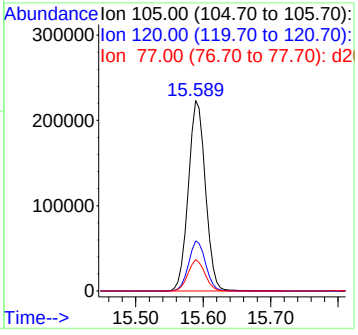




#100
isopropylbenzene
Concen: 65.38 ug/L
RT: 15.589 min Scan# 2164
Delta R.T. -0.009 min
Lab File: d203494.D
Acq: 17 Dec 2012 8:05 pm

Tgt Ion:105 Resp: 393398

Ion	Ratio	Lower	Upper
105	100		
120	26.4	0.0	56.7
77	16.5	0.0	44.9



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203510.D
Acq On : 18 Dec 2012 3:59 am
Operator : EmilyT
Sample : JB22962-16
Misc : ms39893,vd8298,6.1,,100,5,1
ALS Vial : 39 Sample Multiplier: 1

Quant Time: Dec 18 10:22:19 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.037	65	68396	500.00 ug/L	0.00
4) pentafluorobenzene	10.260	168	114658	50.00 ug/L	0.00
53) 1,4-difluorobenzene	11.175	114	166301	50.00 ug/L	0.00
85) chlorobenzene-d5	14.517	117	158417	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.101	152	104090	50.00 ug/L	0.00

System Monitoring Compounds					
46) dibromofluoromethane (s)	10.291	113	52323	46.11 ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 92.22%		
47) 1,2-dichloroethane-d4 (s)	10.715	65	73069	55.98 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 111.96%		
77) toluene-d8 (s)	12.885	98	211649	50.20 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 100.40%		
101) 4-bromofluorobenzene (s)	15.798	95	87965	46.81 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 93.62%		

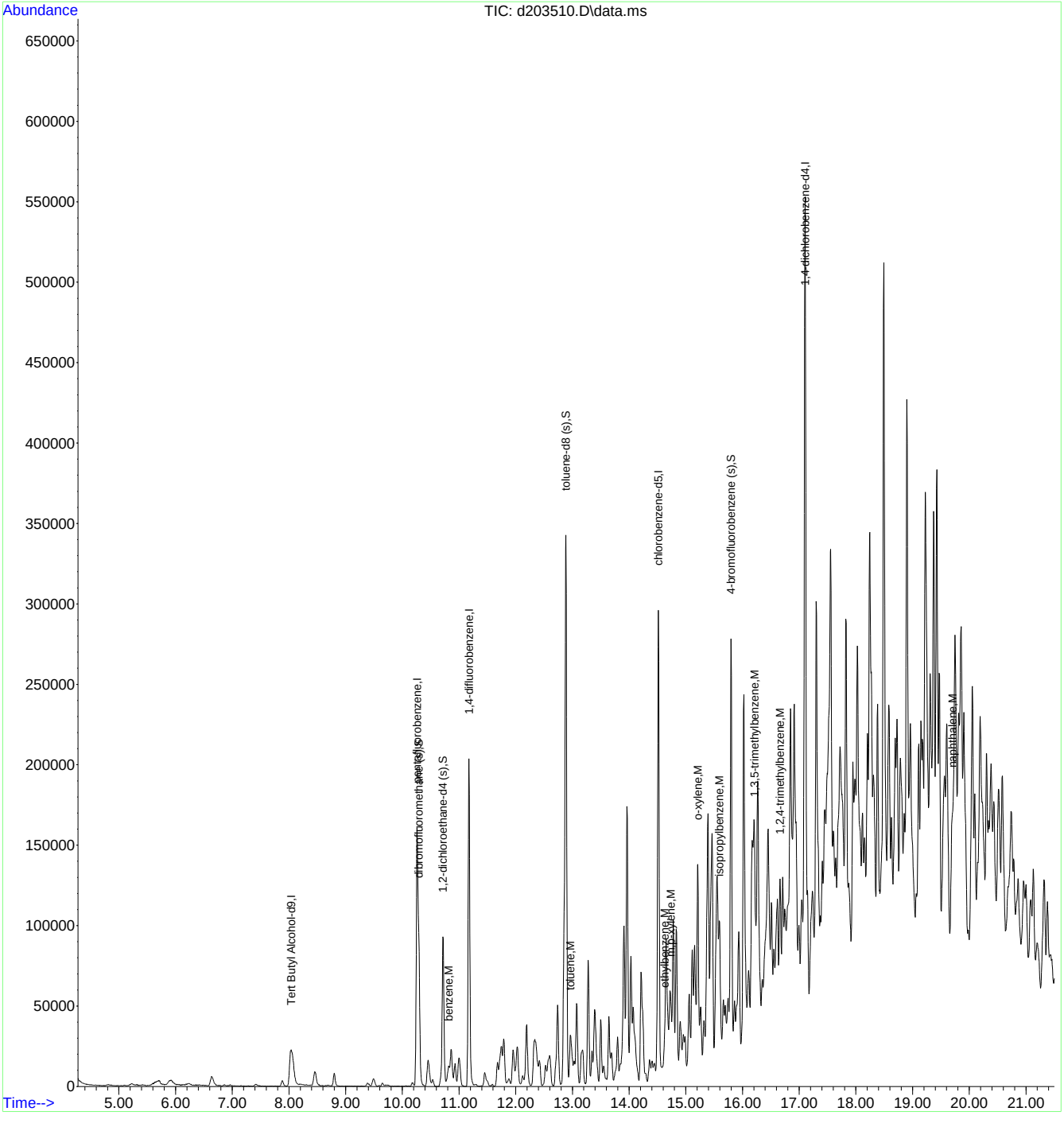
Target Compounds					Qvalue
62) benzene	10.819	78	9206	1.94 ug/L	97
79) toluene	12.964	92	11311	3.71 ug/L	90
94) ethylbenzene	14.622	91	13821	2.39 ug/L	95
95) m,p-xylene	14.742	106	6687	2.95 ug/L	92
96) o-xylene	15.207	106	1875	0.83 ug/L	90
100) isopropylbenzene	15.589	105	27537	4.30 ug/L	99
111) 1,3,5-trimethylbenzene	16.217	105	2085	0.37 ug/L	98
114) 1,2,4-trimethylbenzene	16.656	105	8316	1.43 ug/L	92
128) naphthalene	19.700	128	30582	6.33 ug/L	96

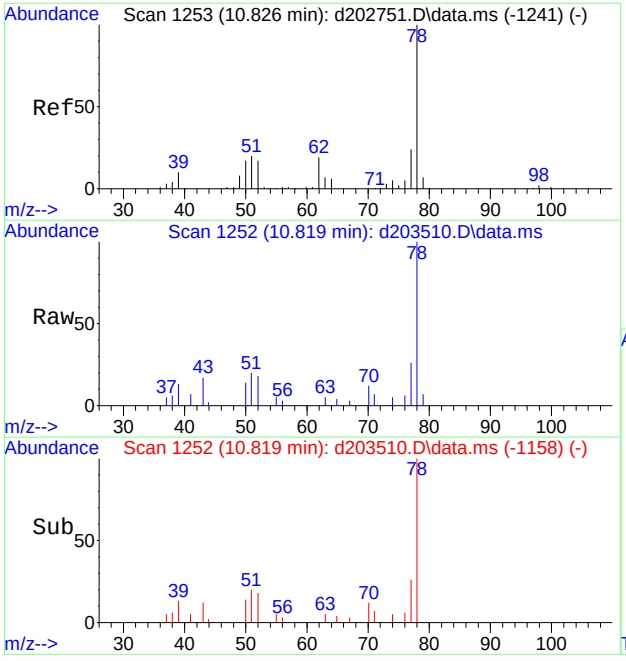
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203510.D
Acq On : 18 Dec 2012 3:59 am
Operator : EmilyT
Sample : JB22962-16
Misc : ms39893,vd8298,6.1,,100,5,1
ALS Vial : 39 Sample Multiplier: 1

Quant Time: Dec 18 10:22:19 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

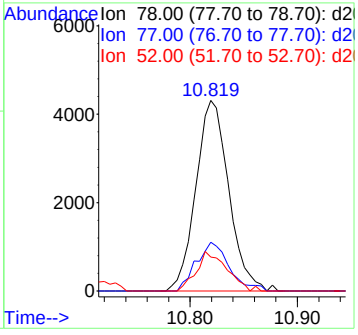


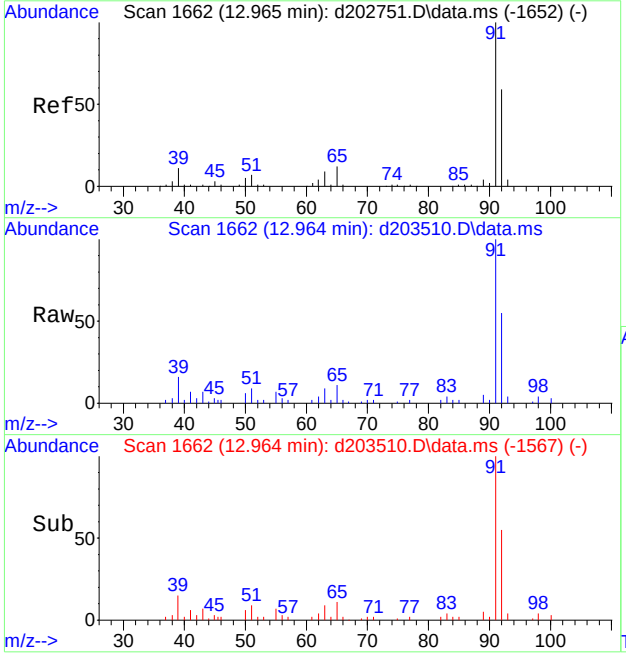


#62
benzene
Concen: 1.94 ug/L
RT: 10.819 min Scan# 1252
Delta R.T. -0.009 min
Lab File: d203510.D
Acq: 18 Dec 2012 3:59 am

Tgt Ion: 78 Resp: 9206

Ion	Ratio	Lower	Upper
78	100		
77	25.6	0.0	53.8
52	17.8	0.0	46.8

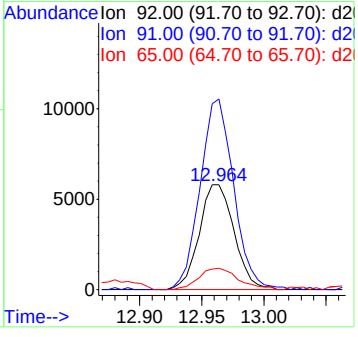


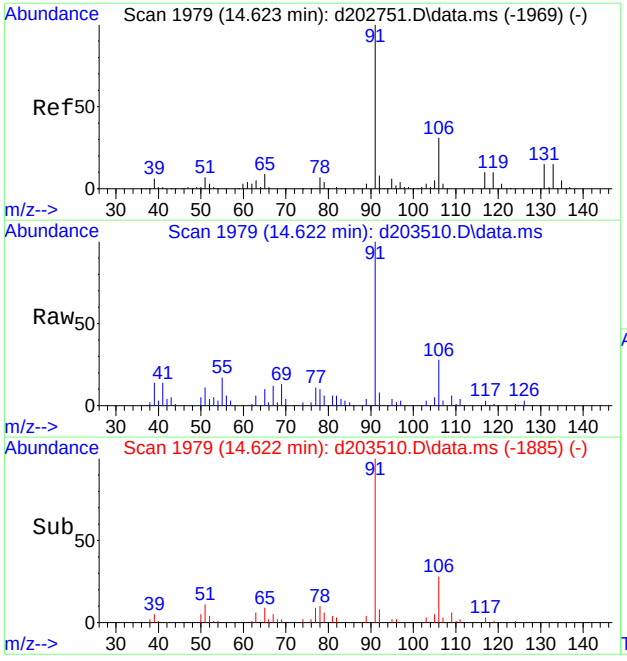


#79
toluene
Concen: 3.71 ug/L
RT: 12.964 min Scan# 1662
Delta R.T. -0.003 min
Lab File: d203510.D
Acq: 18 Dec 2012 3:59 am

Tgt Ion: 92 Resp: 11311

Ion	Ratio	Lower	Upper
92	100		
91	181.5	136.4	196.4
65	20.3	0.0	49.2

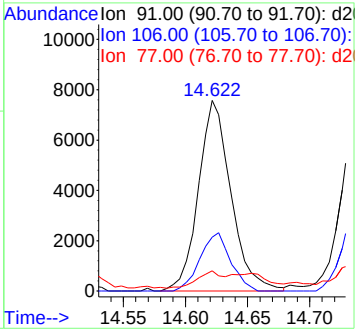


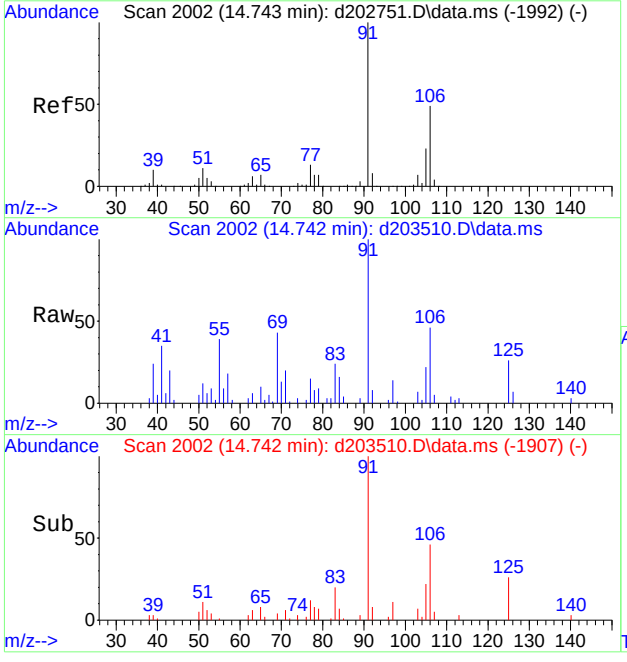


#94
ethylbenzene
Concen: 2.39 ug/L
RT: 14.622 min Scan# 1979
Delta R.T. -0.009 min
Lab File: d203510.D
Acq: 18 Dec 2012 3:59 am

Tgt Ion: 91 Resp: 13821

Ion	Ratio	Lower	Upper
91	100		
106	28.3	2.1	62.1
77	8.6	0.0	38.6

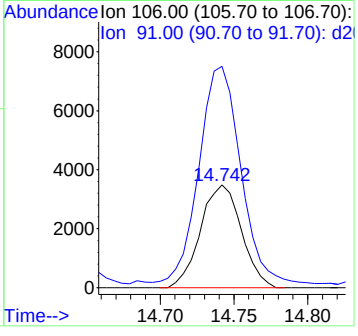


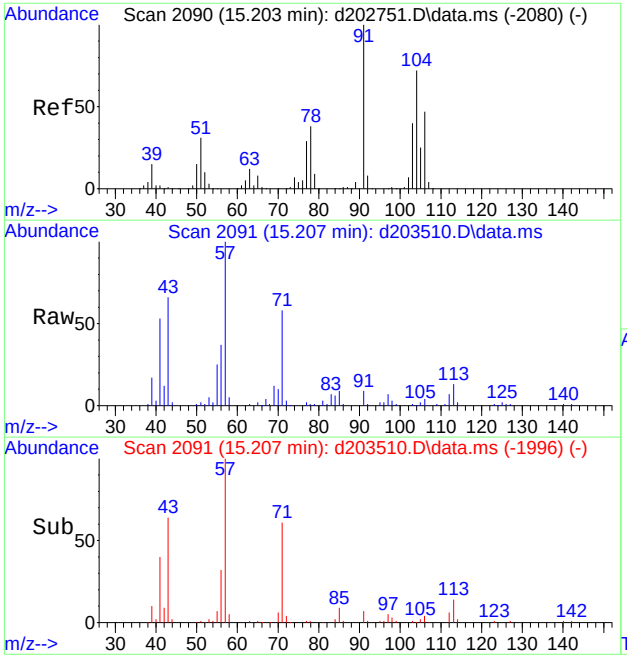


#95
m,p-xylene
Concen: 2.95 ug/L
RT: 14.742 min Scan# 2002
Delta R.T. -0.003 min
Lab File: d203510.D
Acq: 18 Dec 2012 3:59 am

Tgt Ion:106 Resp: 6687

Ion	Ratio	Lower	Upper
106	100		
91	209.4	137.7	255.7

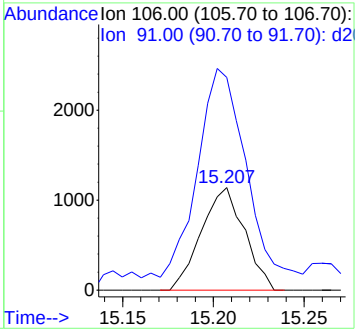


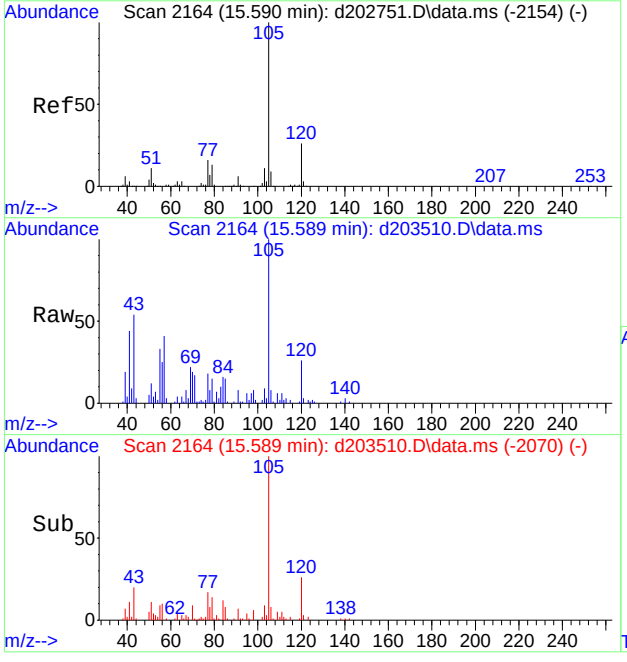


#96
o-xylene
Concen: 0.83 ug/L
RT: 15.207 min Scan# 2091
Delta R.T. -0.003 min
Lab File: d203510.D
Acq: 18 Dec 2012 3:59 am

Tgt Ion:106 Resp: 1875

Ion	Ratio	Lower	Upper
106	100		
91	194.7	147.4	273.8

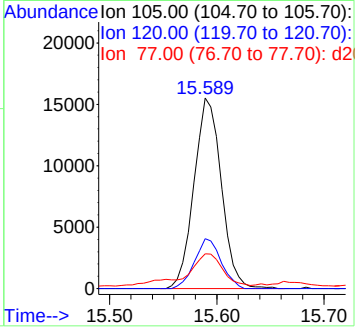


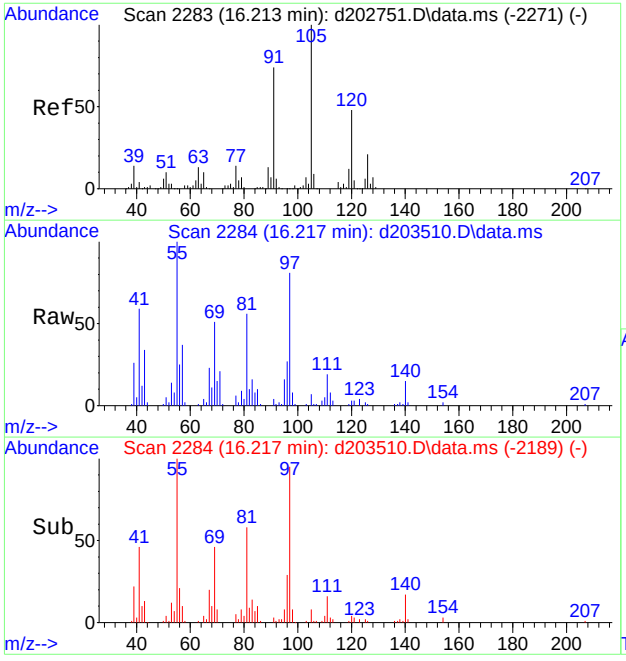


#100
isopropylbenzene
Concen: 4.30 ug/L
RT: 15.589 min Scan# 2164
Delta R.T. -0.009 min
Lab File: d203510.D
Acq: 18 Dec 2012 3:59 am

Tgt Ion:105 Resp: 27537

Ion	Ratio	Lower	Upper
105	100		
120	26.2	0.0	56.7
77	14.4	0.0	44.9

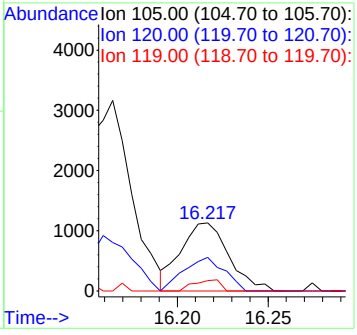


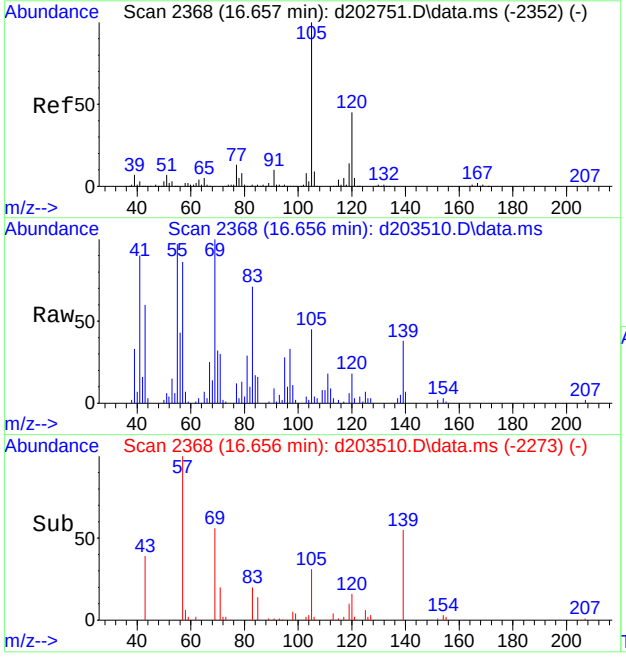


#111
1,3,5-trimethylbenzene
Concen: 0.37 ug/L
RT: 16.217 min Scan# 2284
Delta R.T. -0.003 min
Lab File: d203510.D
Acq: 18 Dec 2012 3:59 am

Tgt Ion:105 Resp: 2085

Ion	Ratio	Lower	Upper
105	100		
120	49.6	19.9	79.9
119	15.3	0.0	42.6

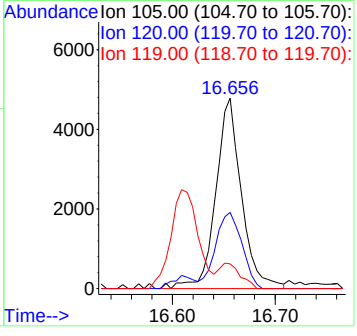


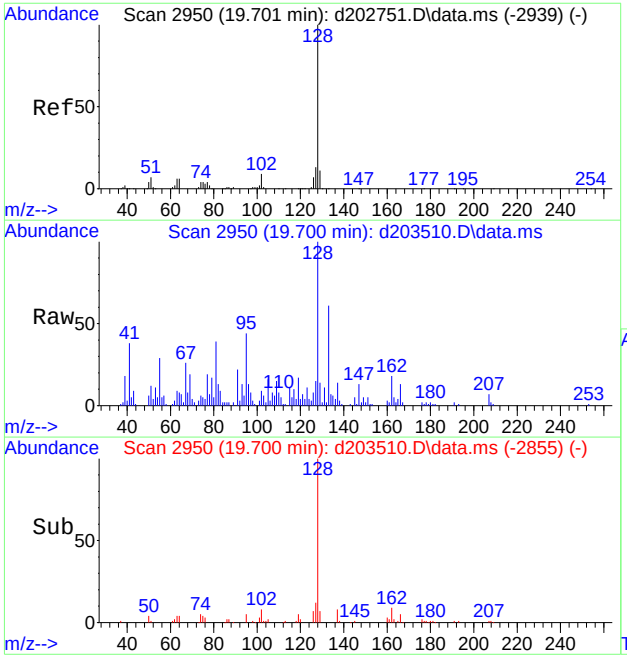


#114
1,2,4-trimethylbenzene
Concen: 1.43 ug/L
RT: 16.656 min Scan# 2368
Delta R.T. -0.003 min
Lab File: d203510.D
Acq: 18 Dec 2012 3:59 am

Tgt Ion:105 Resp: 8316

Ion	Ratio	Lower	Upper
105	100		
120	40.1	16.5	76.5
119	13.0	0.0	43.8

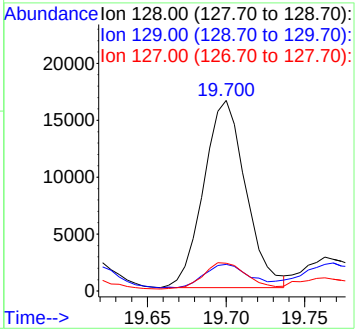




#128
naphthalene
Concen: 6.33 ug/L
RT: 19.700 min Scan# 2950
Delta R.T. -0.003 min
Lab File: d203510.D
Acq: 18 Dec 2012 3:59 am

Tgt Ion:128 Resp: 30582

Ion	Ratio	Lower	Upper
128	100		
129	12.6	0.0	41.0
127	13.9	0.0	42.7



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\3C\v3c4158-59\
Data File : 3C93697.D
Acq On : 13 Dec 2012 8:07 am
Operator : JUNTAEP
Sample : jb22962-17
Misc : MS39893,V3C4159,5.8,,,,1
ALS Vial : 45 Sample Multiplier: 1

Quant Time: Dec 20 11:04:12 2012
Quant Method : C:\MSDCHEM\1\METHODS\M3C4143.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Fri Nov 30 15:18:13 2012
Response via : Initial Calibration

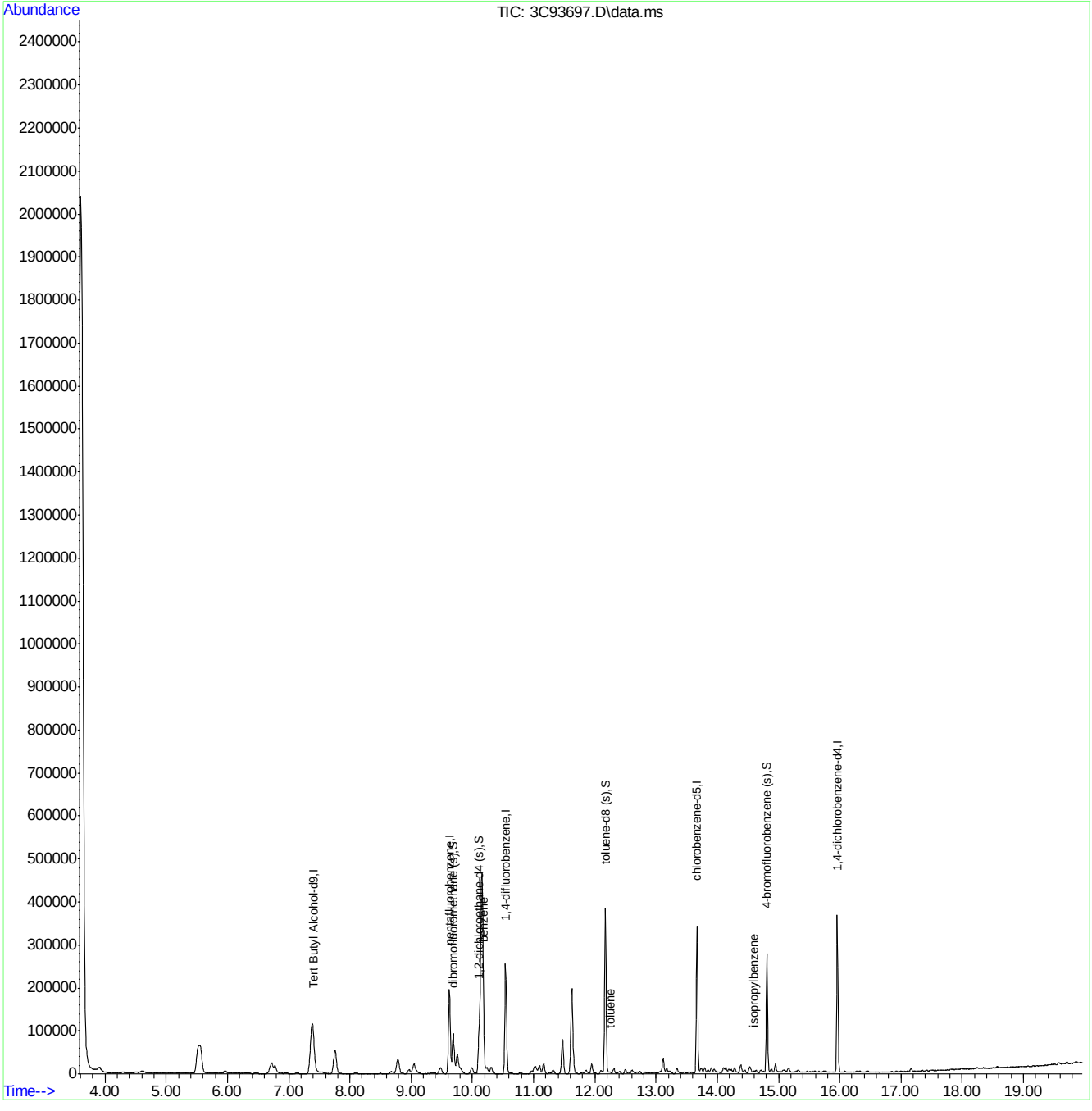
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	7.403	65	55625	500.00	ug/L	0.00
4) pentafluorobenzene	9.626	168	158705	50.00	ug/L	0.00
52) 1,4-difluorobenzene	10.547	114	237165	50.00	ug/L	0.00
81) chlorobenzene-d5	13.669	117	193628	50.00	ug/L	0.00
96) 1,4-dichlorobenzene-d4	15.960	152	90089	50.00	ug/L	0.00
System Monitoring Compounds						
43) dibromofluoromethane (s)	9.689	113	63854	46.27	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 92.54%			
44) 1,2-dichloroethane-d4 (s)	10.112	65	70969	47.18	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 94.36%			
73) toluene-d8 (s)	12.173	98	272612	51.09	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 102.18%			
98) 4-bromofluorobenzene (s)	14.809	95	94533	52.67	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 105.34%			
Target Compounds						Qvalue
58) benzene	10.180	78	3236	0.51	ug/L	68
75) toluene	12.246	92	1019	0.26	ug/L	99
97) isopropylbenzene	14.600	105	2010	0.32	ug/L	89

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

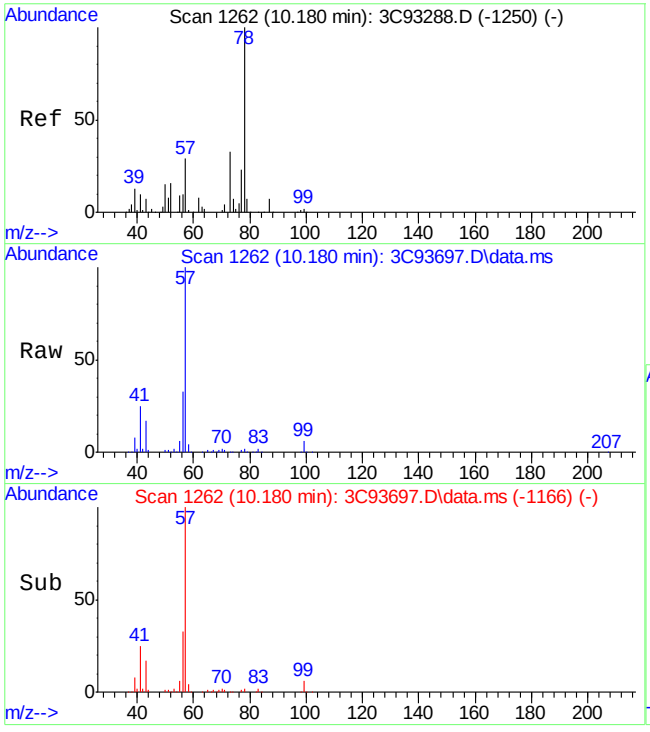
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\3C\v3c4158-59\
Data File : 3C93697.D
Acq On : 13 Dec 2012 8:07 am
Operator : JUNTAEP
Sample : jb22962-17
Misc : MS39893,V3C4159,5.8,,,,1
ALS Vial : 45 Sample Multiplier: 1

Quant Time: Dec 20 11:04:12 2012
Quant Method : C:\MSDCHEM\1\METHODS\M3C4143.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Fri Nov 30 15:18:13 2012
Response via : Initial Calibration



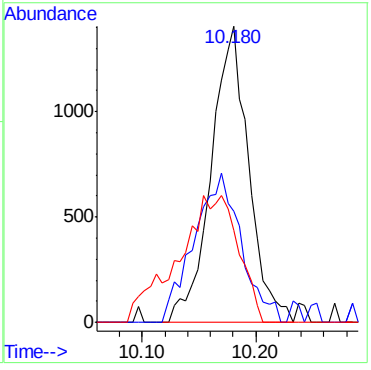
M3C4143.M Thu Dec 20 11:04:32 2012 ACCNJ Page: 2

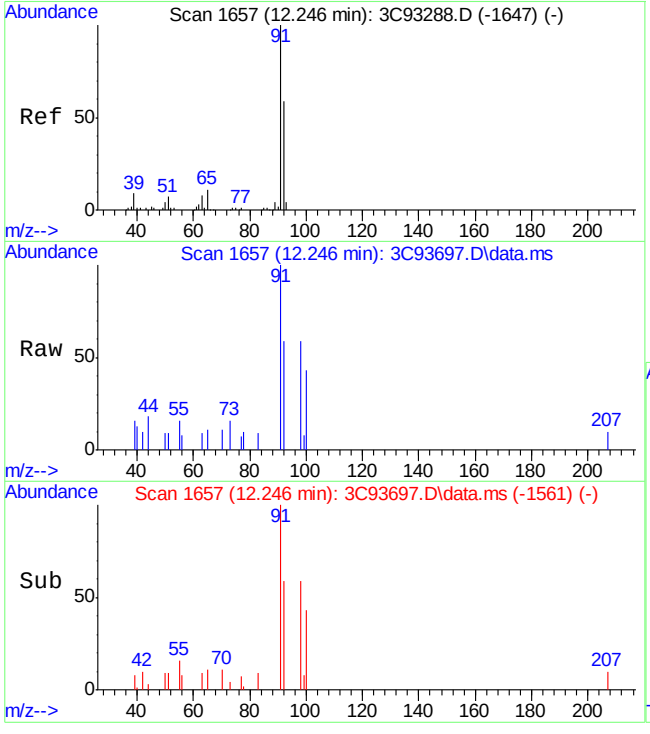


#58
benzene
Concen: 0.51 ug/L
RT: 10.180 min Scan# 1262
Delta R.T. 0.000 min
Lab File: 3C93697.D
Acq: 13 Dec 2012 8:07 am

Tgt Ion: 78 Resp: 3236

Ion	Ratio	Lower	Upper
78	100		
77	37.7	0.0	53.3
52	31.1	0.0	46.2

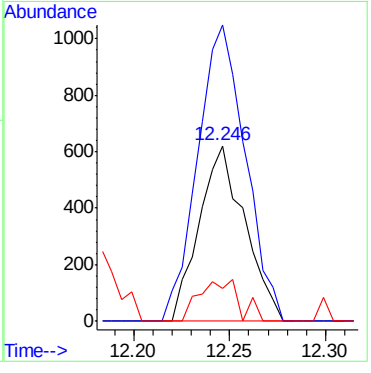


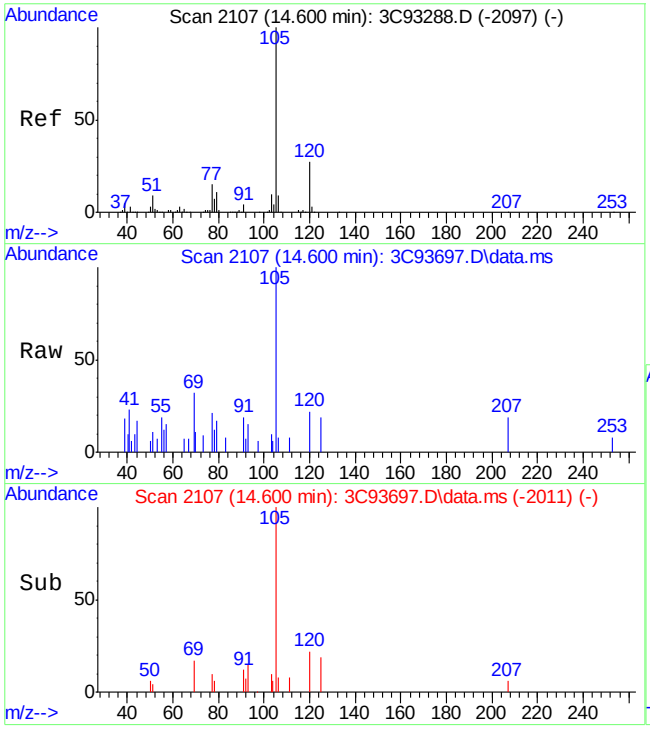


#75
toluene
Concen: 0.26 ug/L
RT: 12.246 min Scan# 1657
Delta R.T. 0.000 min
Lab File: 3C93697.D
Acq: 13 Dec 2012 8:07 am

Tgt Ion: 92 Resp: 1019

Ion	Ratio	Lower	Upper
92	100		
91	168.6	139.5	199.5
65	18.6	0.0	49.3

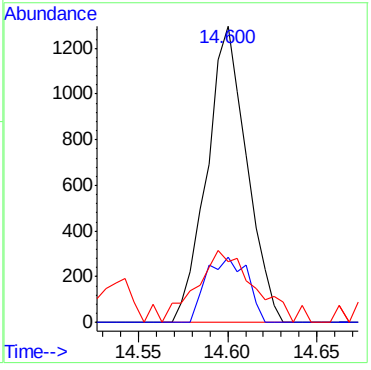




#97
isopropylbenzene
Concen: 0.32 ug/L
RT: 14.600 min Scan# 2107
Delta R.T. 0.000 min
Lab File: 3C93697.D
Acq: 13 Dec 2012 8:07 am

Tgt Ion:105 Resp: 2010

Ion	Ratio	Lower	Upper
105	100		
120	21.8	0.0	56.8
77	20.6	0.0	45.5



7.1.27

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203528.D
Acq On : 18 Dec 2012 12:24 pm
Operator : EmilyT
Sample : jb22962-18
Misc : ms39893,vd8299,3.6,,100,5,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Dec 18 13:35:44 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.038	65	75874	500.00 ug/L	0.00
4) pentafluorobenzene	10.261	168	127465	50.00 ug/L	0.00
53) 1,4-difluorobenzene	11.176	114	185553	50.00 ug/L	0.00
85) chlorobenzene-d5	14.518	117	176487	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.102	152	120585	50.00 ug/L	0.00

System Monitoring Compounds					
46) dibromofluoromethane (s)	10.292	113	58948	46.73 ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 93.46%		
47) 1,2-dichloroethane-d4 (s)	10.716	65	78779	54.29 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 108.58%		
77) toluene-d8 (s)	12.886	98	252498	53.67 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 107.34%		
101) 4-bromofluorobenzene (s)	15.799	95	108468	49.83 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 99.66%		

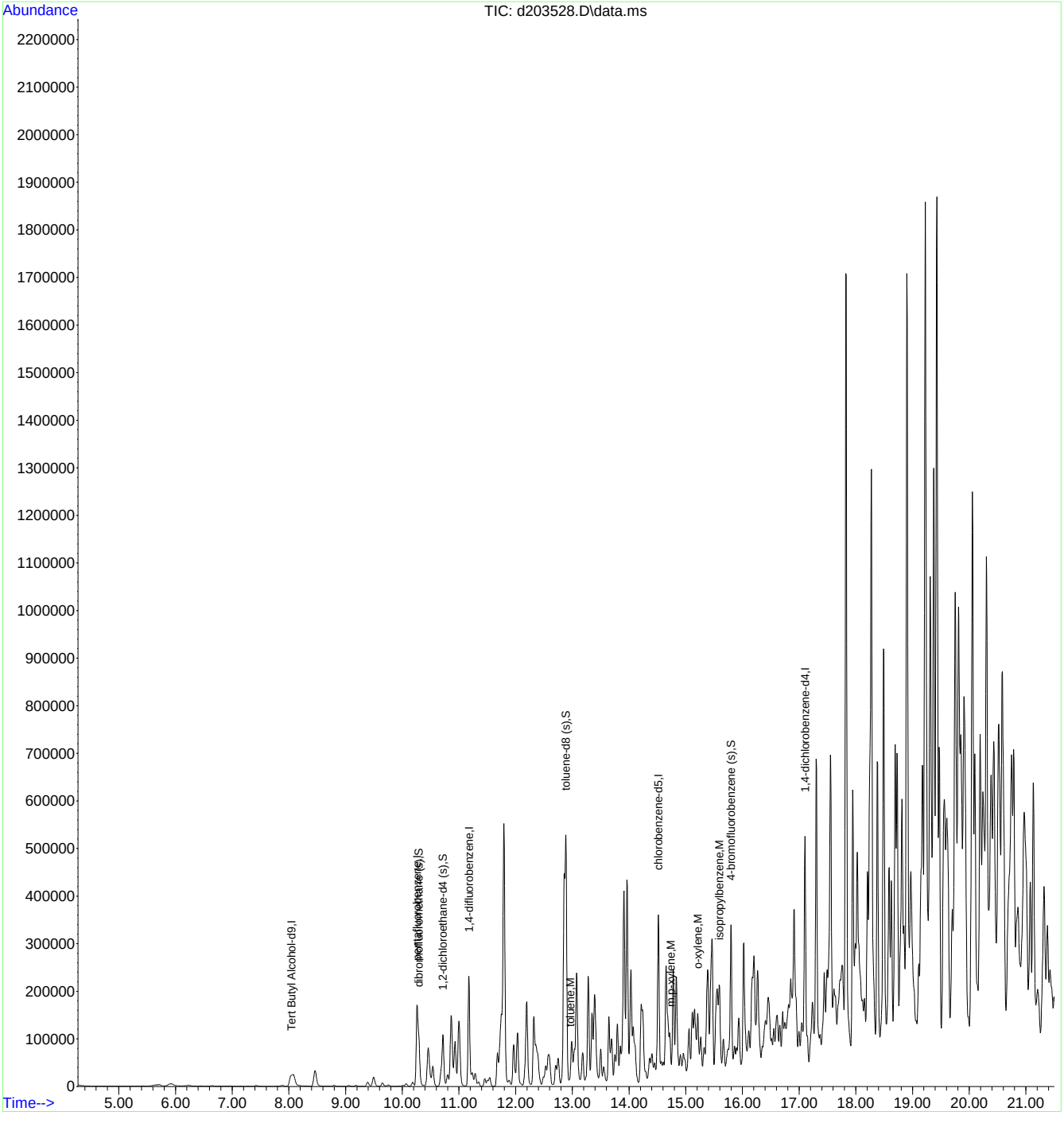
Target Compounds					Qvalue
79) toluene	12.959	92	1418	0.42 ug/L	88
95) m,p-xylene	14.738	106	1193	0.47 ug/L	74
96) o-xylene	15.208	106	658	0.26 ug/L	69
100) isopropylbenzene	15.590	105	66668	8.99 ug/L	97

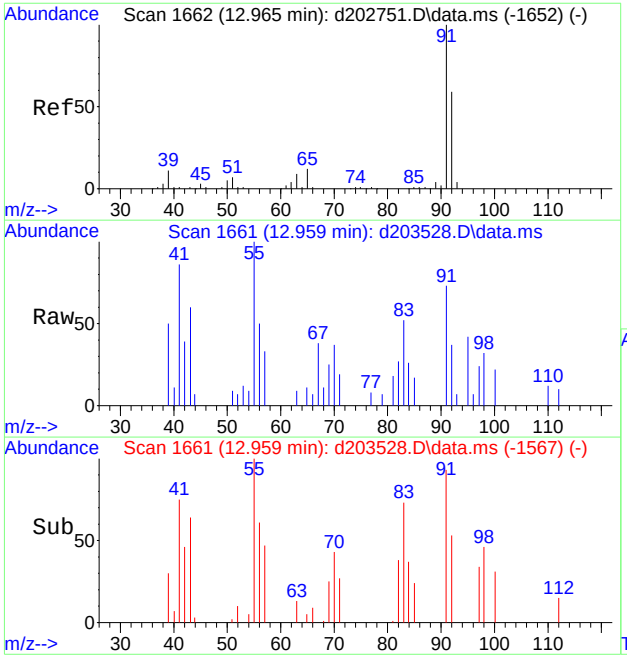
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203528.D
Acq On : 18 Dec 2012 12:24 pm
Operator : EmilyT
Sample : jb22962-18
Misc : ms39893,vd8299,3.6,,100,5,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Dec 18 13:35:44 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

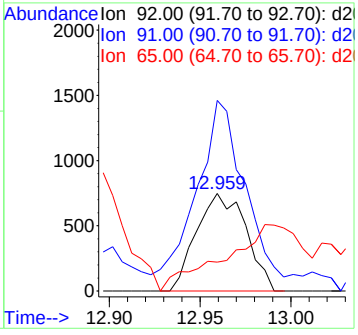


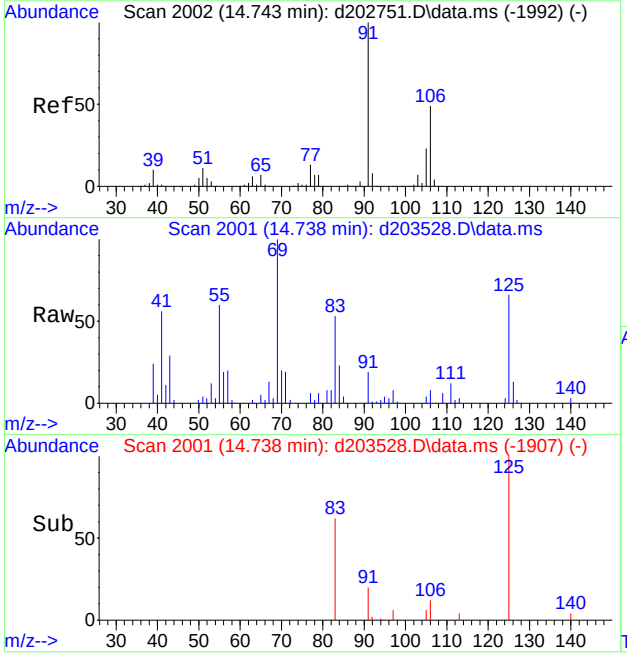


#79
toluene
Concen: 0.42 ug/L
RT: 12.959 min Scan# 1661
Delta R.T. -0.008 min
Lab File: d203528.D
Acq: 18 Dec 2012 12:24 pm

Tgt Ion: 92 Resp: 1418

Ion	Ratio	Lower	Upper
92	100		
91	181.3	136.4	196.4
65	29.6	0.0	49.2

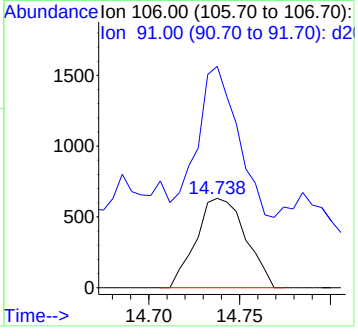


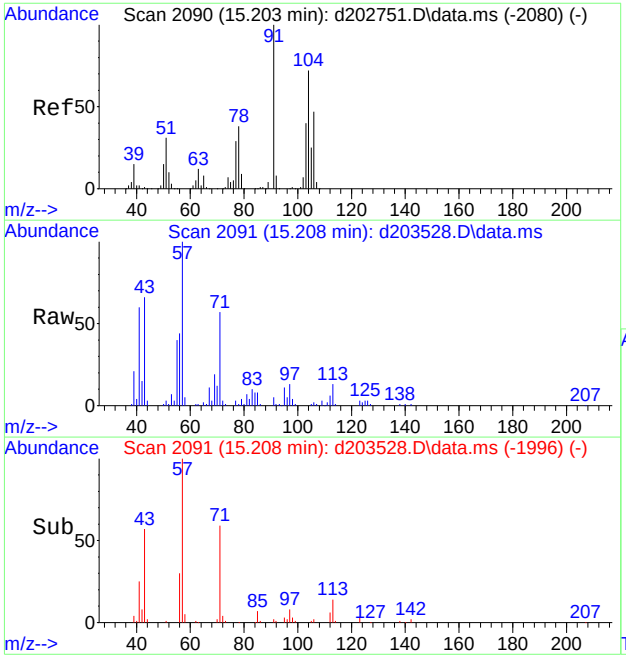


#95
m,p-xylene
Concen: 0.47 ug/L
RT: 14.738 min Scan# 2001
Delta R.T. -0.008 min
Lab File: d203528.D
Acq: 18 Dec 2012 12:24 pm

Tgt Ion:106 Resp: 1193

Ion	Ratio	Lower	Upper
106	100		
91	157.7	137.7	255.7

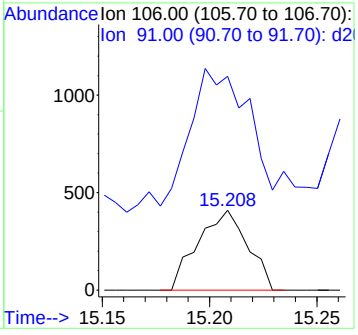


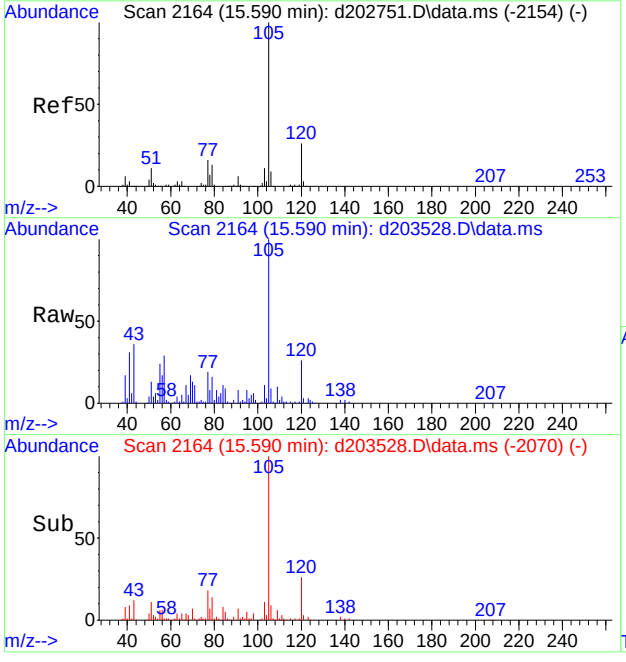


#96
o-xylene
Concen: 0.26 ug/L
RT: 15.208 min Scan# 2091
Delta R.T. -0.002 min
Lab File: d203528.D
Acq: 18 Dec 2012 12:24 pm

Tgt Ion:106 Resp: 658

Ion	Ratio	Lower	Upper
106	100		
91	162.4	147.4	273.8

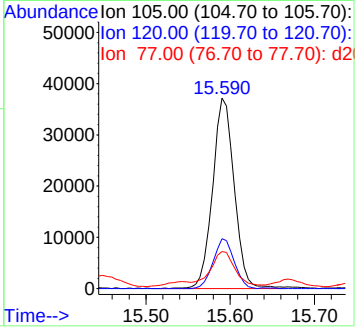




#100
isopropylbenzene
Concen: 8.99 ug/L
RT: 15.590 min Scan# 2164
Delta R.T. -0.008 min
Lab File: d203528.D
Acq: 18 Dec 2012 12:24 pm

Tgt Ion:105 Resp: 66668

Ion	Ratio	Lower	Upper
105	100		
120	26.2	0.0	56.7
77	17.6	0.0	44.9



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203529.D
Acq On : 18 Dec 2012 12:54 pm
Operator : EmilyT
Sample : JB22962-19
Misc : ms39893,vd8299,5.5,,100,5,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Dec 18 13:37:22 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.032	65	71287	500.00 ug/L	0.00
4) pentafluorobenzene	10.260	168	136410	50.00 ug/L	0.00
53) 1,4-difluorobenzene	11.175	114	196518	50.00 ug/L	0.00
85) chlorobenzene-d5	14.517	117	185728	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.101	152	115570	50.00 ug/L	0.00

System Monitoring Compounds					
46) dibromofluoromethane (s)	10.291	113	61647	45.67 ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 91.34%		
47) 1,2-dichloroethane-d4 (s)	10.715	65	82154	52.91 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 105.82%		
77) toluene-d8 (s)	12.885	98	253576	50.89 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 101.78%		
101) 4-bromofluorobenzene (s)	15.799	95	98788	47.35 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 94.70%		

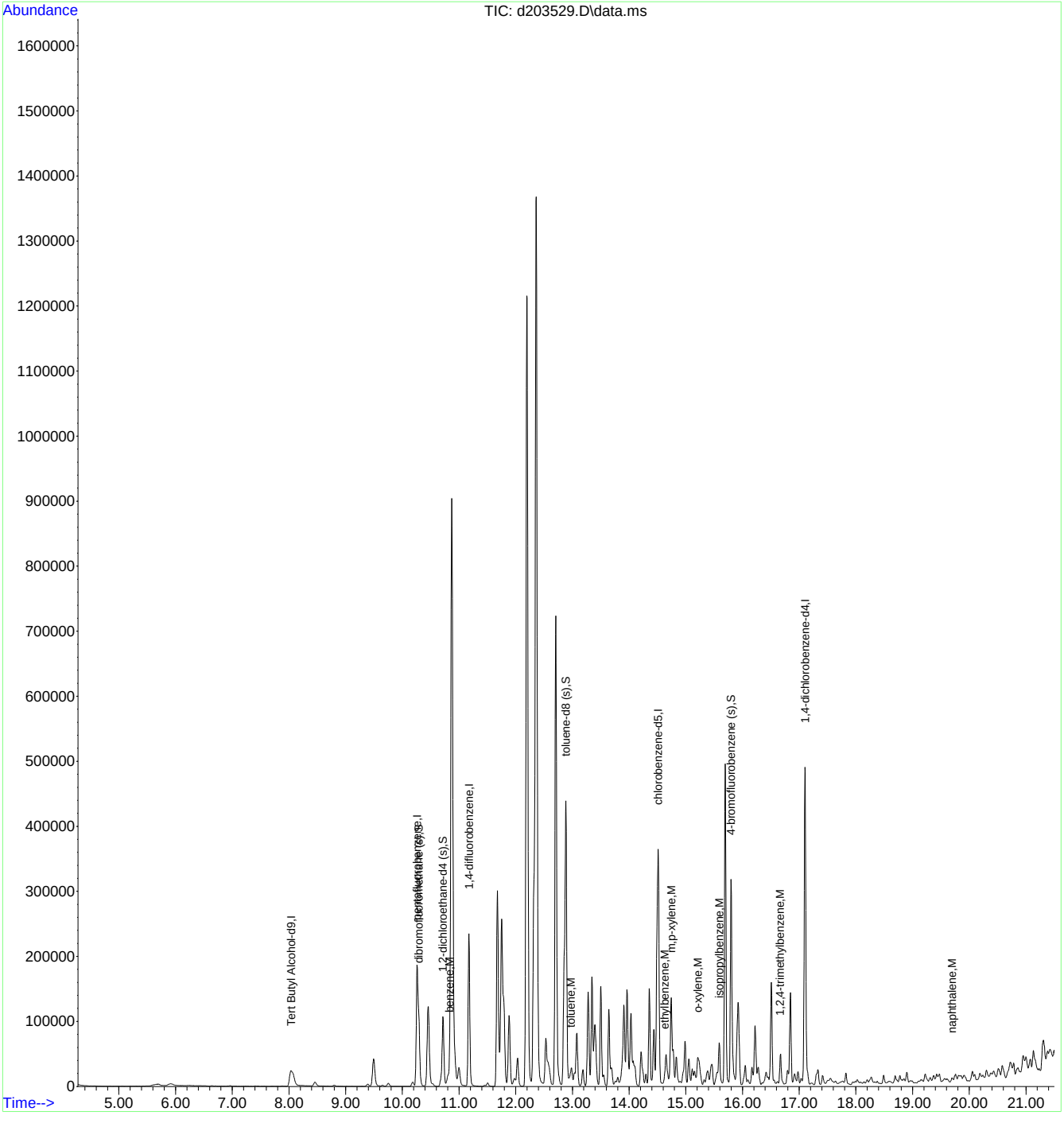
Target Compounds					Qvalue
62) benzene	10.825	78	10692	1.90 ug/L	93
79) toluene	12.964	92	5349	1.48 ug/L	97
94) ethylbenzene	14.622	91	7282	1.07 ug/L	94
95) m,p-xylene	14.742	106	10653	4.01 ug/L	100
96) o-xylene	15.208	106	901	0.34 ug/L	80
100) isopropylbenzene	15.589	105	42882	6.03 ug/L	98
114) 1,2,4-trimethylbenzene	16.656	105	2500	0.39 ug/L	97
128) naphthalene	19.700	128	3275	0.61 ug/L	92

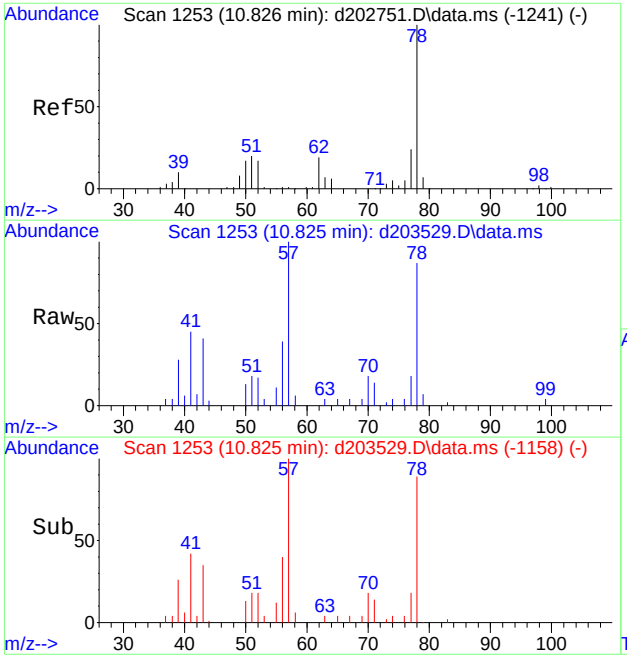
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203529.D
Acq On : 18 Dec 2012 12:54 pm
Operator : EmilyT
Sample : JB22962-19
Misc : ms39893,vd8299,5.5,,100,5,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Dec 18 13:37:22 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

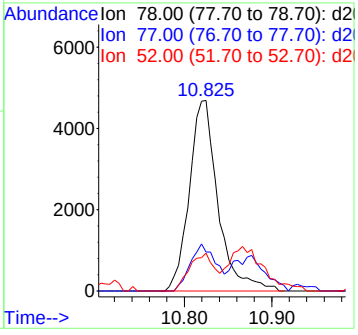


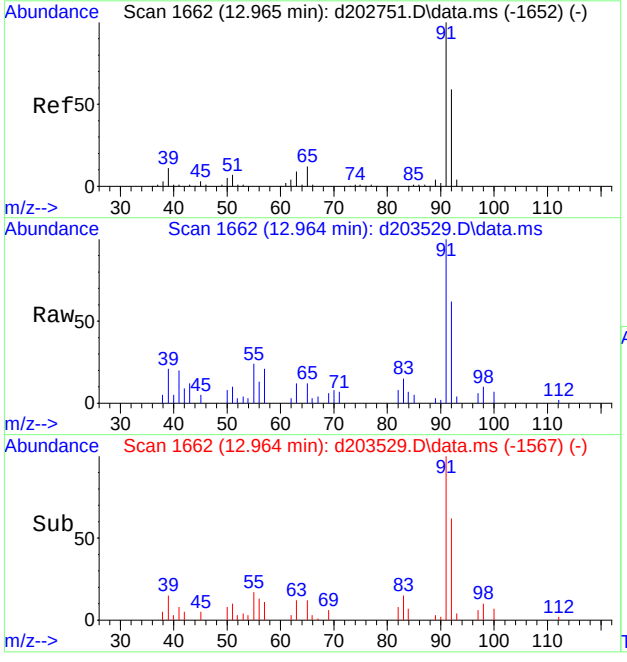


#62
benzene
Concen: 1.90 ug/L
RT: 10.825 min Scan# 1253
Delta R.T. -0.003 min
Lab File: d203529.D
Acq: 18 Dec 2012 12:54 pm

Tgt Ion: 78 Resp: 10692

Ion	Ratio	Lower	Upper
78	100		
77	20.5	0.0	53.8
52	19.8	0.0	46.8

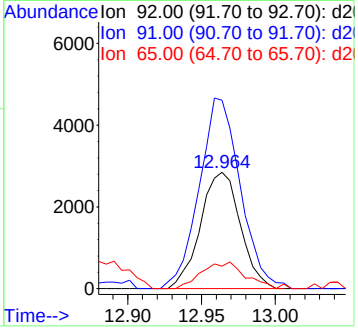


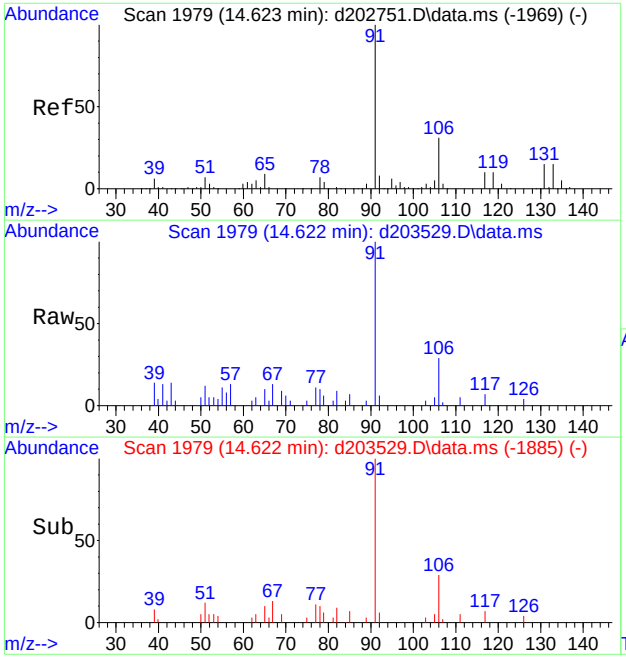


#79
toluene
Concen: 1.48 ug/L
RT: 12.964 min Scan# 1662
Delta R.T. -0.003 min
Lab File: d203529.D
Acq: 18 Dec 2012 12:54 pm

Tgt Ion: 92 Resp: 5349

Ion	Ratio	Lower	Upper
92	100		
91	162.0	136.4	196.4
65	19.2	0.0	49.2

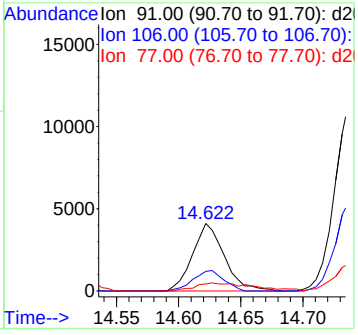


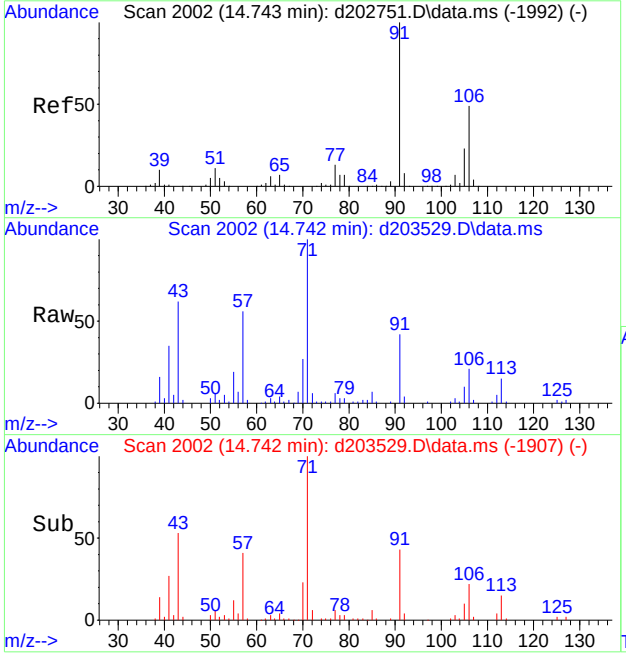


#94
ethylbenzene
Concen: 1.07 ug/L
RT: 14.622 min Scan# 1979
Delta R.T. -0.008 min
Lab File: d203529.D
Acq: 18 Dec 2012 12:54 pm

Tgt Ion: 91 Resp: 7282

Ion	Ratio	Lower	Upper
91	100		
106	28.9	2.1	62.1
77	10.5	0.0	38.6

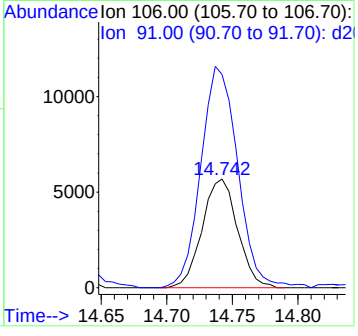


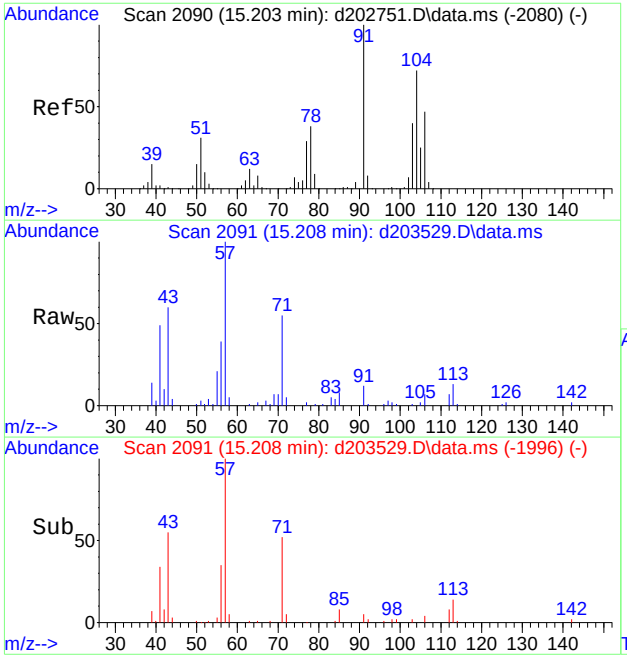


#95
m,p-xylene
Concen: 4.01 ug/L
RT: 14.742 min Scan# 2002
Delta R.T. -0.003 min
Lab File: d203529.D
Acq: 18 Dec 2012 12:54 pm

Tgt Ion:106 Resp: 10653

Ion	Ratio	Lower	Upper
106	100		
91	196.2	137.7	255.7

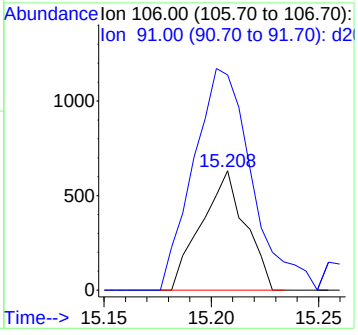


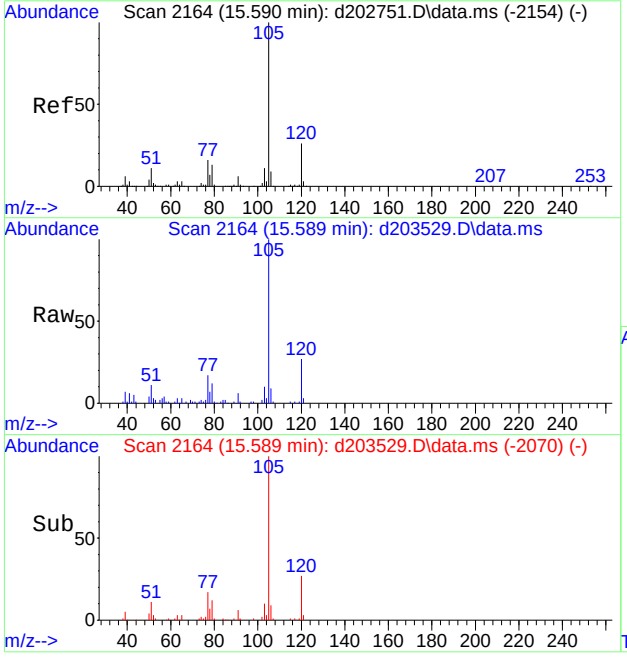


#96
o-xylene
Concen: 0.34 ug/L
RT: 15.208 min Scan# 2091
Delta R.T. -0.003 min
Lab File: d203529.D
Acq: 18 Dec 2012 12:54 pm

Tgt Ion:106 Resp: 901

Ion	Ratio	Lower	Upper
106	100		
91	180.1	147.4	273.8

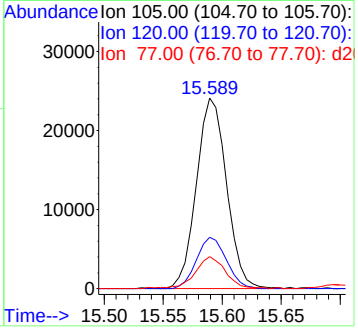


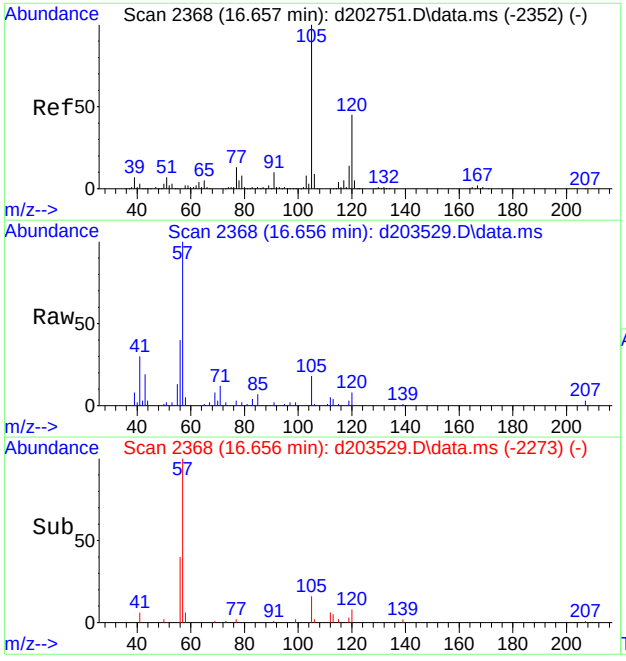


#100
isopropylbenzene
Concen: 6.03 ug/L
RT: 15.589 min Scan# 2164
Delta R.T. -0.008 min
Lab File: d203529.D
Acq: 18 Dec 2012 12:54 pm

Tgt Ion:105 Resp: 42882

Ion	Ratio	Lower	Upper
105	100		
120	27.0	0.0	56.7
77	16.8	0.0	44.9

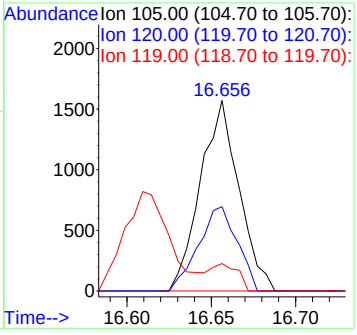


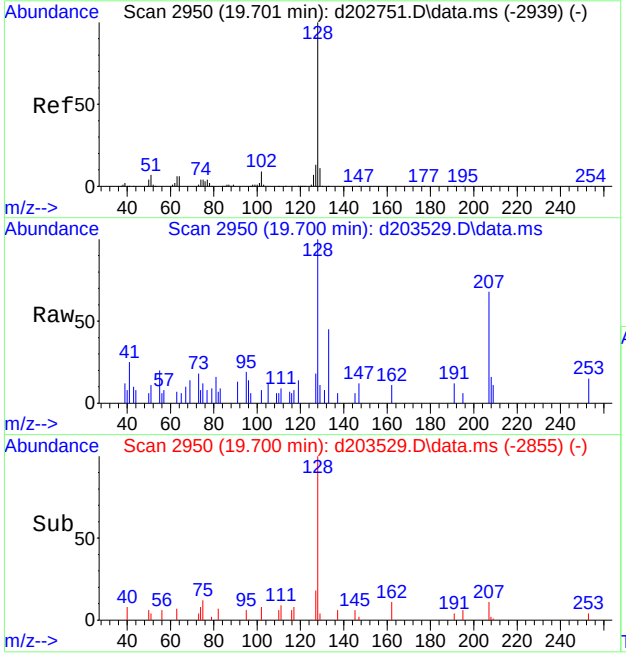


#114
1,2,4-trimethylbenzene
Concen: 0.39 ug/L
RT: 16.656 min Scan# 2368
Delta R.T. -0.003 min
Lab File: d203529.D
Acq: 18 Dec 2012 12:54 pm

Tgt Ion:105 Resp: 2500

Ion	Ratio	Lower	Upper
105	100		
120	44.4	16.5	76.5
119	14.4	0.0	43.8

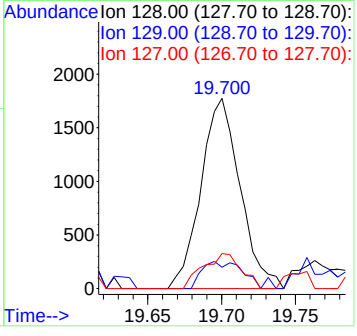




#128
naphthalene
Concen: 0.61 ug/L
RT: 19.700 min Scan# 2950
Delta R.T. -0.003 min
Lab File: d203529.D
Acq: 18 Dec 2012 12:54 pm

Tgt Ion:128 Resp: 3275

Ion	Ratio	Lower	Upper
128	100		
129	11.2	0.0	41.0
127	18.4	0.0	42.7



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\3C\v3c4158-59\
Data File : 3C93680.D
Acq On : 12 Dec 2012 11:49 pm
Operator : JUNTAEP
Sample : mb
Misc : MS40067,V3C4159,5.0,,,,1
ALS Vial : 28 Sample Multiplier: 1

Quant Time: Dec 13 14:01:08 2012
Quant Method : C:\MSDCHEM\1\METHODS\M3C4143.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Fri Nov 30 15:18:13 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	7.408	65	33867	500.00	ug/L	0.00
4) pentafluorobenzene	9.626	168	158581	50.00	ug/L	0.00
52) 1,4-difluorobenzene	10.546	114	232726	50.00	ug/L	0.00
81) chlorobenzene-d5	13.669	117	183870	50.00	ug/L	0.00
96) 1,4-dichlorobenzene-d4	15.965	152	83400	50.00	ug/L	0.00
System Monitoring Compounds						
43) dibromofluoromethane (s)	9.689	113	59516	43.16	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 86.32%			
44) 1,2-dichloroethane-d4 (s)	10.112	65	57375	38.17	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 76.34%			
73) toluene-d8 (s)	12.173	98	263267	50.28	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 100.56%			
98) 4-bromofluorobenzene (s)	14.809	95	87503	52.66	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 105.32%			

Target Compounds Qvalue

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

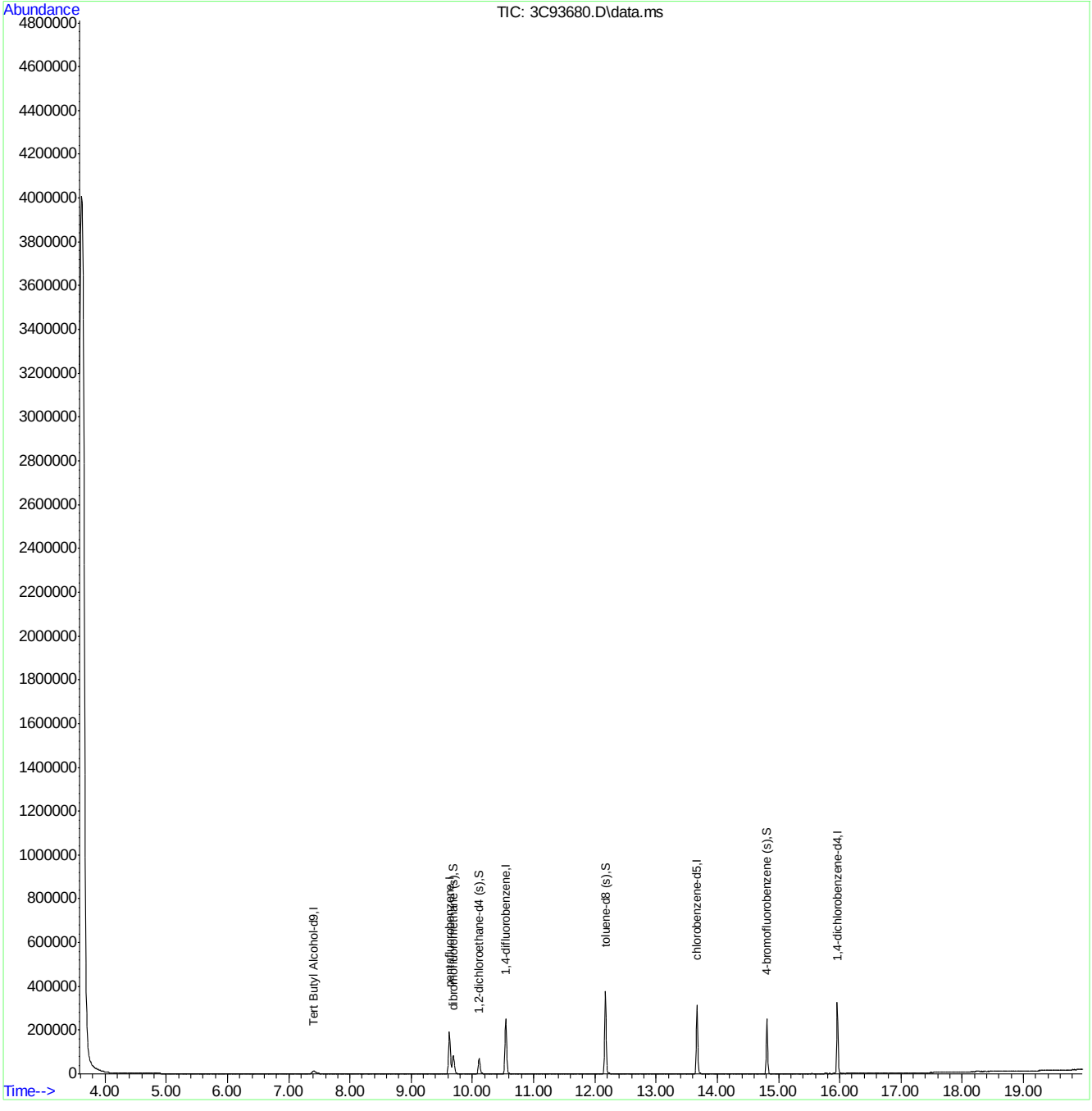
7.2.1

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\3C\v3c4158-59\
Data File : 3C93680.D
Acq On : 12 Dec 2012 11:49 pm
Operator : JUNTAEP
Sample : mb
Misc : MS40067,V3C4159,5.0,,,,1
ALS Vial : 28 Sample Multiplier: 1

Quant Time: Dec 13 14:01:08 2012
Quant Method : C:\MSDCHEM\1\METHODS\M3C4143.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Fri Nov 30 15:18:13 2012
Response via : Initial Calibration



M3C4143.M Thu Dec 13 14:14:57 2012 ACCNJ

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203355.D
Acq On : 13 Dec 2012 11:10 pm
Operator : EmilyT
Sample : MB
Misc : ms39878,vd8292,5,,100,5,1
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Dec 14 07:56:49 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.042	65	69863	500.00	ug/L	0.00
4) pentafluorobenzene	10.260	168	111035	50.00	ug/L	0.00
53) 1,4-difluorobenzene	11.170	114	169364	50.00	ug/L	-0.01
85) chlorobenzene-d5	14.512	117	160703	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.101	152	95546	50.00	ug/L	0.00

System Monitoring Compounds						
46) dibromofluoromethane (s)	10.291	113	52504	47.78	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 95.56%			
47) 1,2-dichloroethane-d4 (s)	10.715	65	75653	59.86	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 119.72%			
77) toluene-d8 (s)	12.880	98	211761	49.32	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 98.64%			
101) 4-bromofluorobenzene (s)	15.798	95	88150	51.11	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 102.22%			

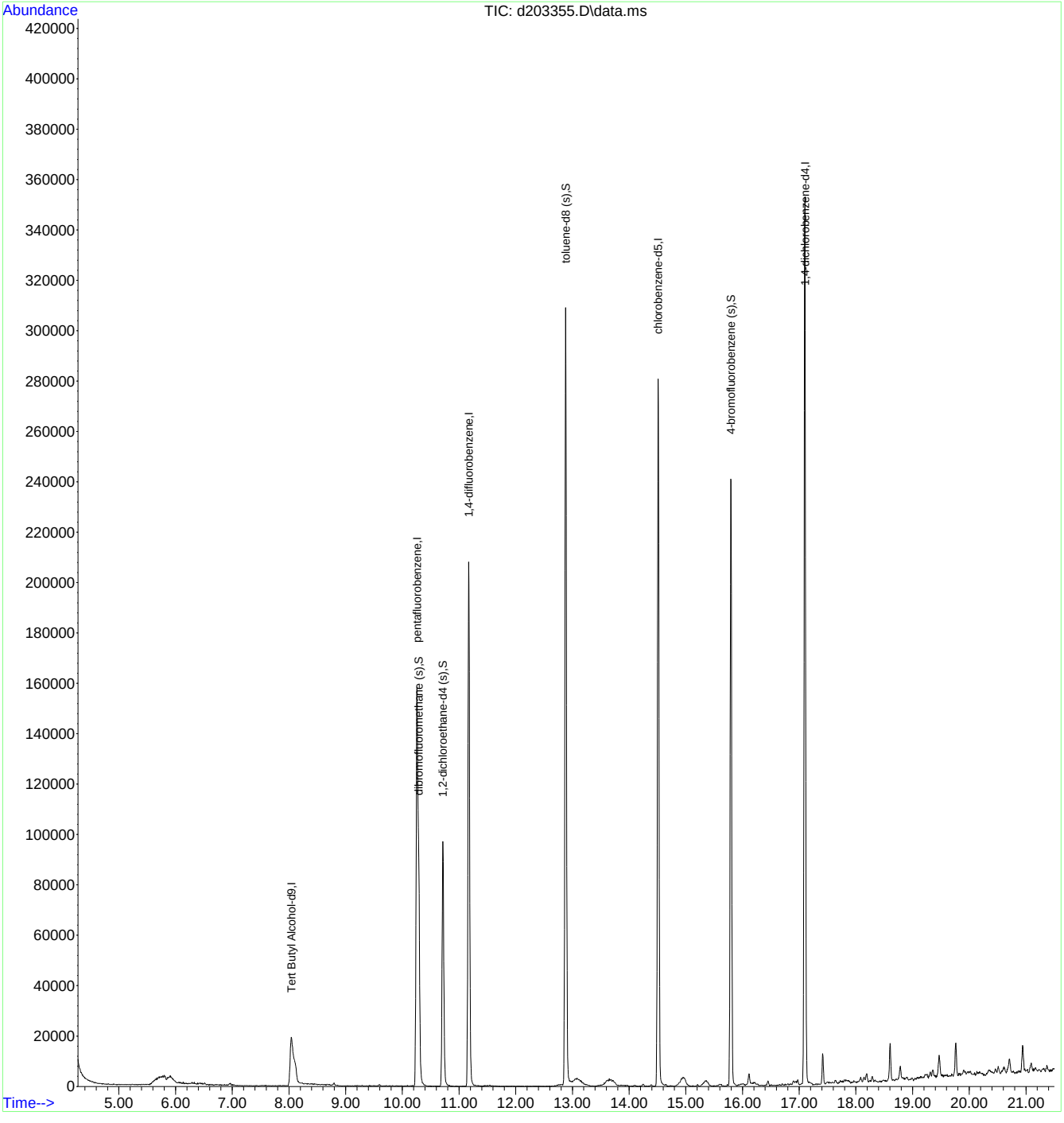
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203355.D
Acq On : 13 Dec 2012 11:10 pm
Operator : EmilyT
Sample : MB
Misc : ms39878,vd8292,5,,100,5,1
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Dec 14 07:56:49 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203402.D
Acq On : 15 Dec 2012 2:30 am
Operator : EmilyT
Sample : MB
Misc : ms39999,vd8294,5,,100,5,1
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Dec 17 08:25:01 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.037	65	64496	500.00	ug/L	0.00
4) pentafluorobenzene	10.259	168	122223	50.00	ug/L	0.00
53) 1,4-difluorobenzene	11.175	114	176157	50.00	ug/L	0.00
85) chlorobenzene-d5	14.517	117	164158	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.100	152	98831	50.00	ug/L	0.00

System Monitoring Compounds

46) dibromofluoromethane (s)	10.291	113	54496	45.06	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 90.12%			
47) 1,2-dichloroethane-d4 (s)	10.714	65	74523	53.56	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 107.12%			
77) toluene-d8 (s)	12.880	98	217231	48.64	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 97.28%			
101) 4-bromofluorobenzene (s)	15.793	95	86459	48.46	ug/L	-0.01
Spiked Amount 50.000	Range 66 - 132		Recovery = 96.92%			

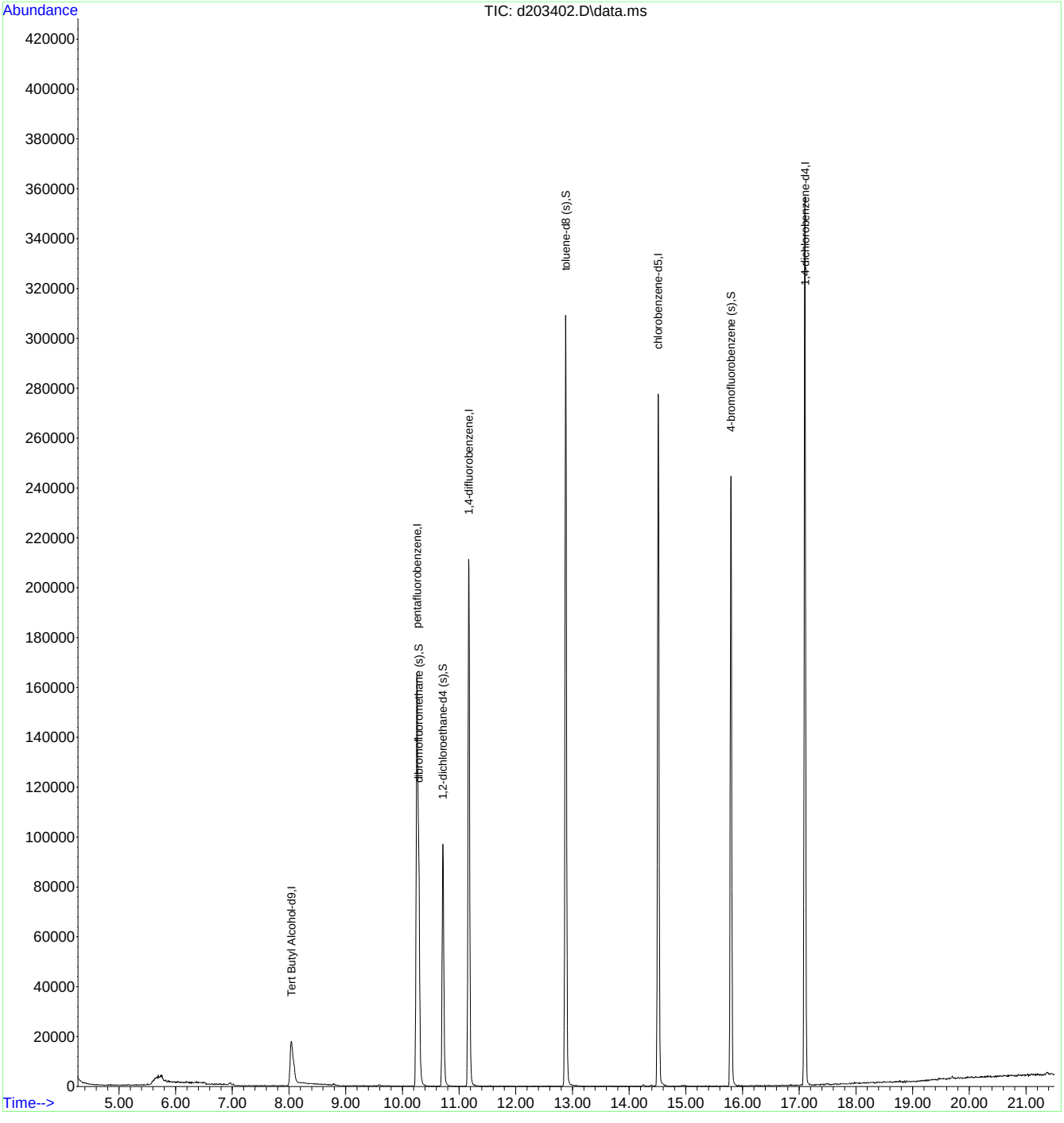
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203402.D
Acq On : 15 Dec 2012 2:30 am
Operator : EmilyT
Sample : MB
Misc : ms39999,vd8294,5,,100,5,1
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Dec 17 08:25:01 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203476.D
Acq On : 17 Dec 2012 10:59 am
Operator : EmilyT
Sample : mb
Misc : ms39999,vd8297,5,,100,5,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Dec 17 16:35:48 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.068	65	64493	500.00 ug/L	0.03
4) pentafluorobenzene	10.254	168	127224	50.00 ug/L	-0.01
53) 1,4-difluorobenzene	11.170	114	184213	50.00 ug/L	-0.01
85) chlorobenzene-d5	14.512	117	169598	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.101	152	104057	50.00 ug/L	0.00

System Monitoring Compounds

46) dibromofluoromethane (s)	10.286	113	56456	44.84 ug/L	-0.01
Spiked Amount 50.000	Range 70 - 130		Recovery = 89.68%		
47) 1,2-dichloroethane-d4 (s)	10.715	65	77150	53.27 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 106.54%		
77) toluene-d8 (s)	12.880	98	224961	48.17 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 96.34%		
101) 4-bromofluorobenzene (s)	15.798	95	90944	48.42 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 96.84%		

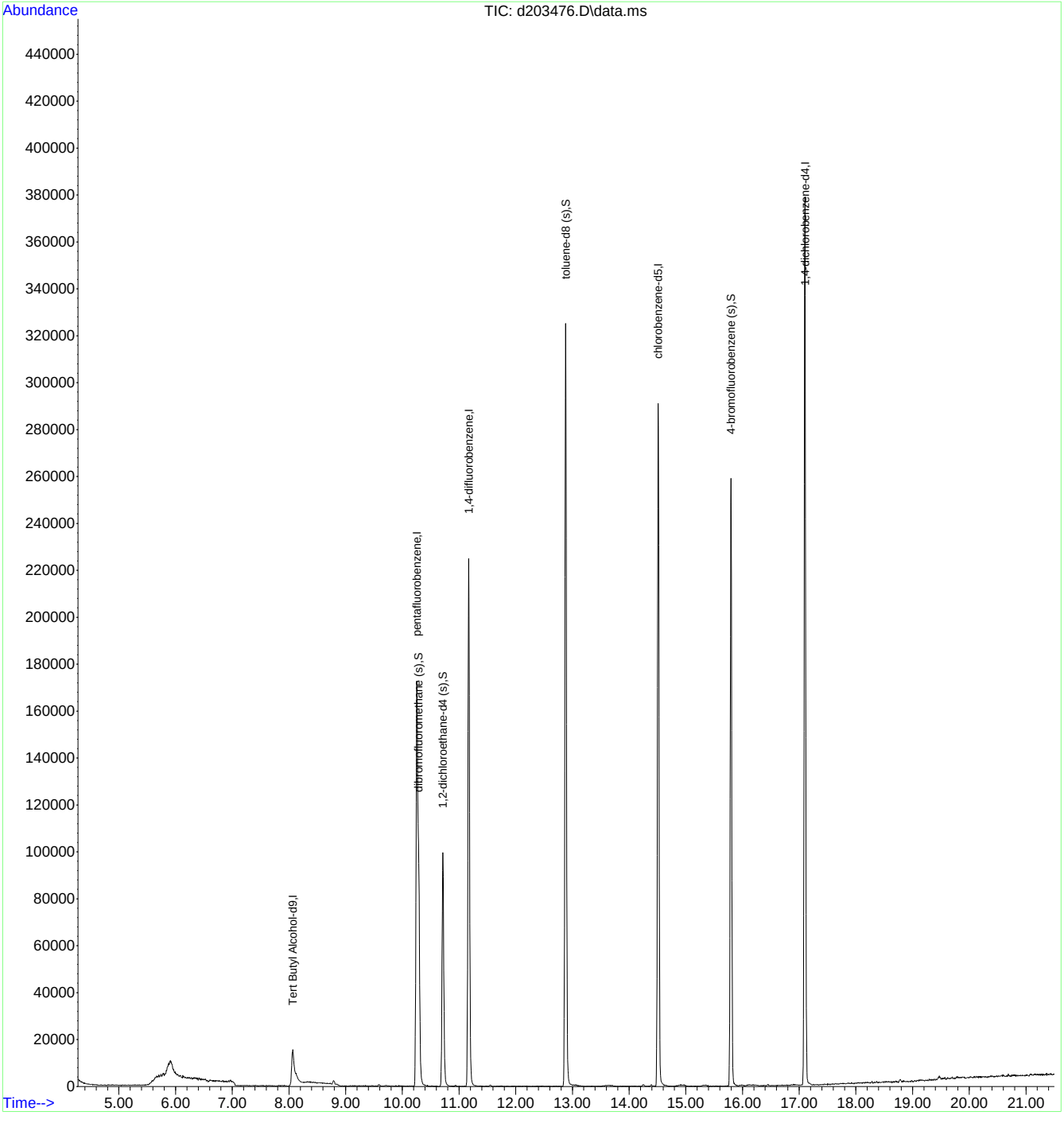
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203476.D
Acq On : 17 Dec 2012 10:59 am
Operator : EmilyT
Sample : mb
Misc : ms39999,vd8297,5,,100,5,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Dec 17 16:35:48 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203500.D
Acq On : 17 Dec 2012 11:03 pm
Operator : EmilyT
Sample : mb
Misc : ms40350,vd8298,5,,100,5,1
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Dec 18 10:06:12 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.032	65	67137	500.00	ug/L	0.00
4) pentafluorobenzene	10.261	168	111606	50.00	ug/L	0.00
53) 1,4-difluorobenzene	11.176	114	163481	50.00	ug/L	0.00
85) chlorobenzene-d5	14.518	117	153818	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.102	152	93927	50.00	ug/L	0.00

System Monitoring Compounds						
46) dibromofluoromethane (s)	10.292	113	51159	46.32	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 92.64%			
47) 1,2-dichloroethane-d4 (s)	10.716	65	71629	56.38	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 112.76%			
77) toluene-d8 (s)	12.886	98	203426	49.08	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 98.16%			
101) 4-bromofluorobenzene (s)	15.799	95	81534	48.09	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 96.18%			

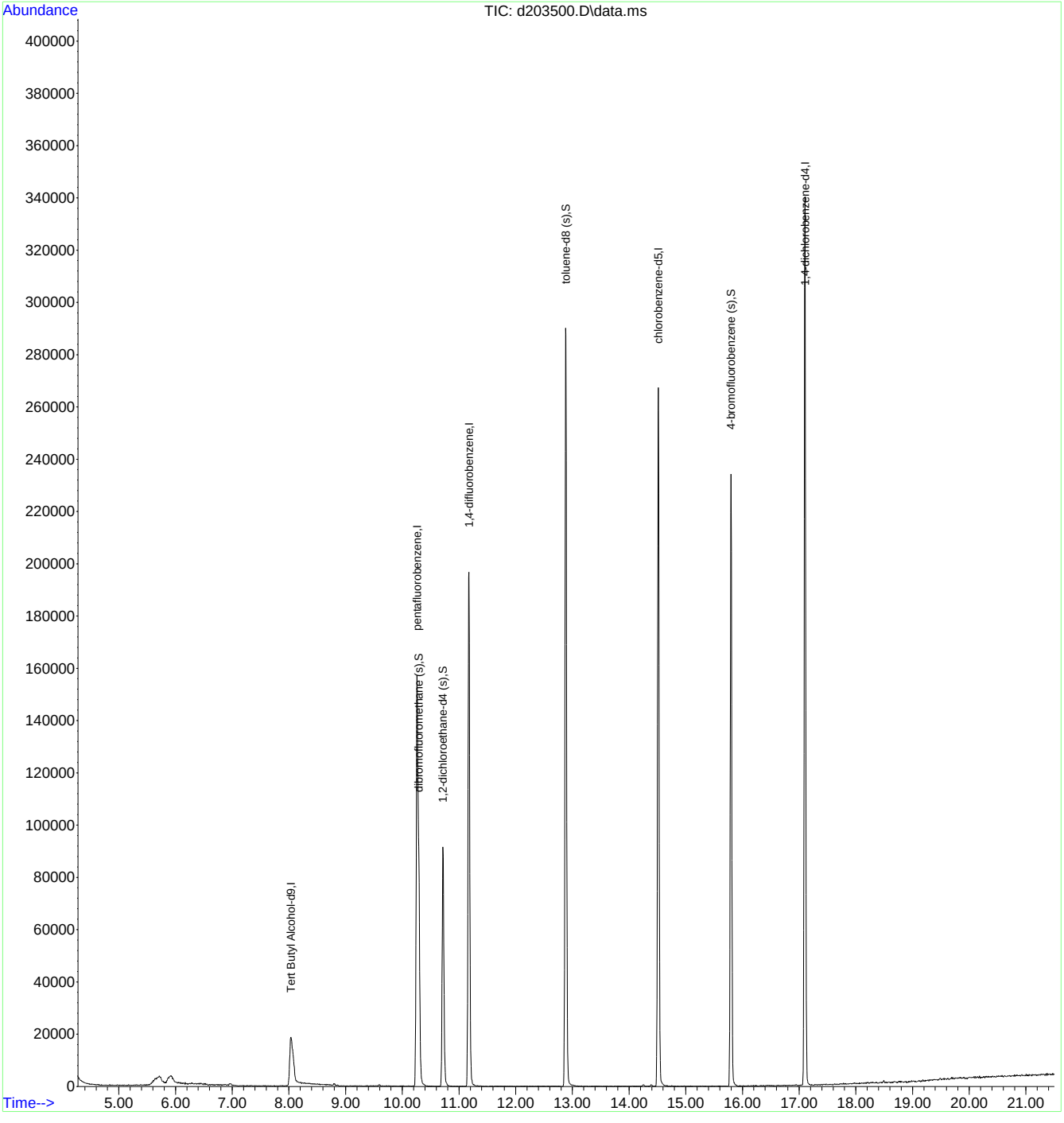
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203500.D
Acq On : 17 Dec 2012 11:03 pm
Operator : EmilyT
Sample : mb
Misc : ms40350,vd8298,5,,100,5,1
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Dec 18 10:06:12 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203524.D
Acq On : 18 Dec 2012 10:26 am
Operator : EmilyT
Sample : mb
Misc : ms39981,vd8299,5,,100,5,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 18 13:40:34 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.027	65	74632	500.00	ug/L	-0.01
4) pentafluorobenzene	10.260	168	125857	50.00	ug/L	0.00
53) 1,4-difluorobenzene	11.175	114	184118	50.00	ug/L	0.00
85) chlorobenzene-d5	14.517	117	171471	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.101	152	104283	50.00	ug/L	0.00

System Monitoring Compounds

46) dibromofluoromethane (s)	10.291	113	57316	46.02	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 92.04%			
47) 1,2-dichloroethane-d4 (s)	10.715	65	77678	54.22	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 108.44%			
77) toluene-d8 (s)	12.886	98	227231	48.68	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 97.36%			
101) 4-bromofluorobenzene (s)	15.799	95	91487	48.60	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 97.20%			

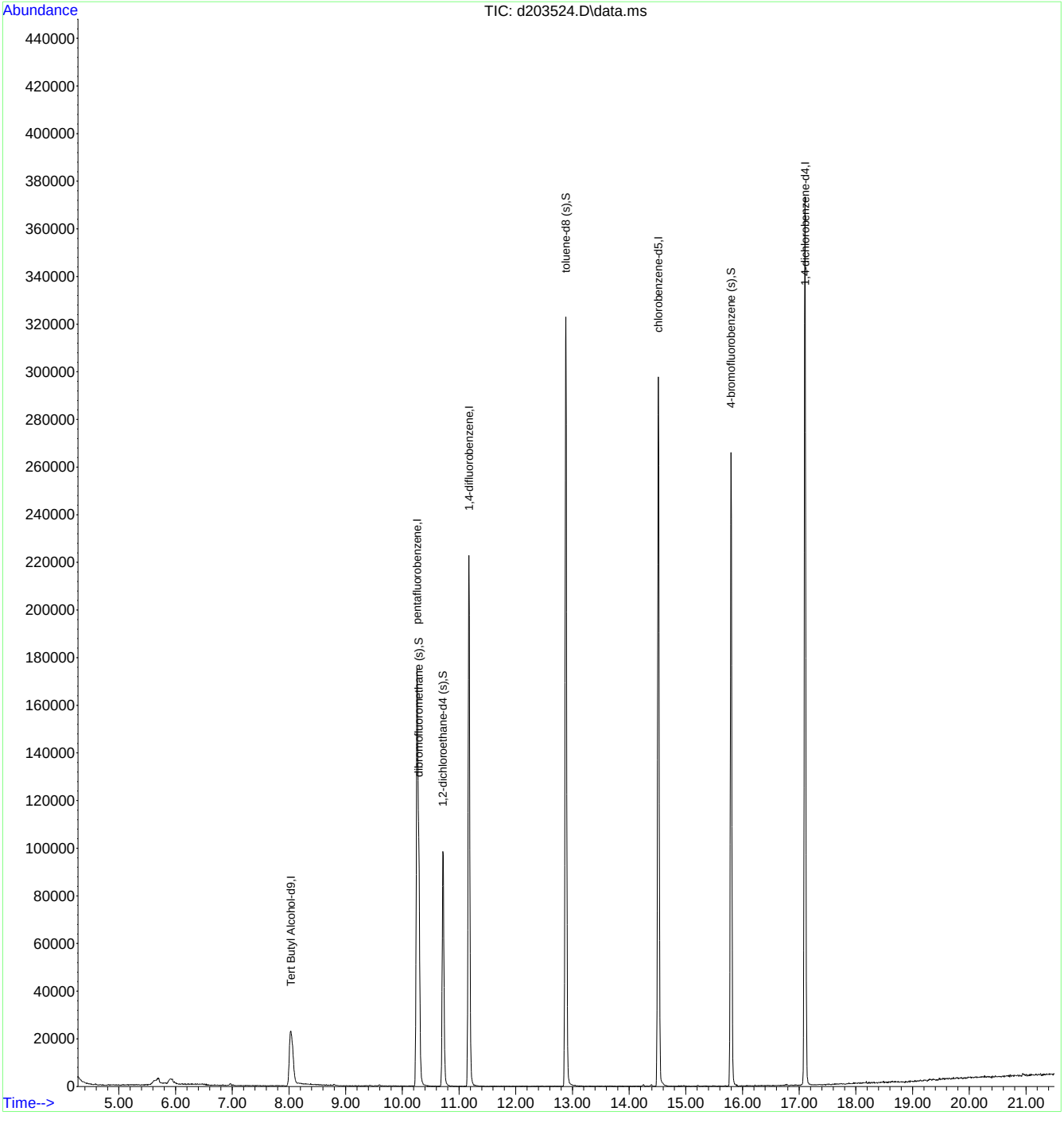
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d203524.D
Acq On : 18 Dec 2012 10:26 am
Operator : EmilyT
Sample : mb
Misc : ms39981,vd8299,5,,100,5,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 18 13:40:34 2012
Quant Method : C:\MSDCHEM\1\METHODS\MD8248.M
Quant Title : SW-846 Method 8260B
QLast Update : Wed Nov 28 10:39:36 2012
Response via : Initial Calibration



ACCUTEST LABORATORIES JB22962

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E197980.D
Acq On : 17 Dec 2012 10:04 am
Operator : OksanaT
Sample : mb
Misc : MS40356,VE8698,5,,100,5,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 17 15:21:18 2012
Quant Method : C:\MSDCHEM\1\METHODS\ME8647.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Nov 13 15:53:05 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.714	65	57501	500.00	ug/L	0.00
5) pentafluorobenzene	9.916	168	95694	50.00	ug/L	-0.01
65) 1,4-difluorobenzene	10.836	114	142130	50.00	ug/L	0.00
96) chlorobenzene-d5	14.163	117	133222	50.00	ug/L	0.00
113) 1,4-dichlorobenzene-d4	16.731	152	71809	50.00	ug/L	0.00

System Monitoring Compounds

59) dibromofluoromethane (s)	9.963	113	43236	43.74	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 87.48%			
60) 1,2-dichloroethane-d4 (s)	10.381	65	62606	43.72	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 87.44%			
88) toluene-d8 (s)	12.536	98	175407	45.66	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 91.32%			
115) 4-bromofluorobenzene (s)	15.434	95	70937	44.79	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 89.58%			

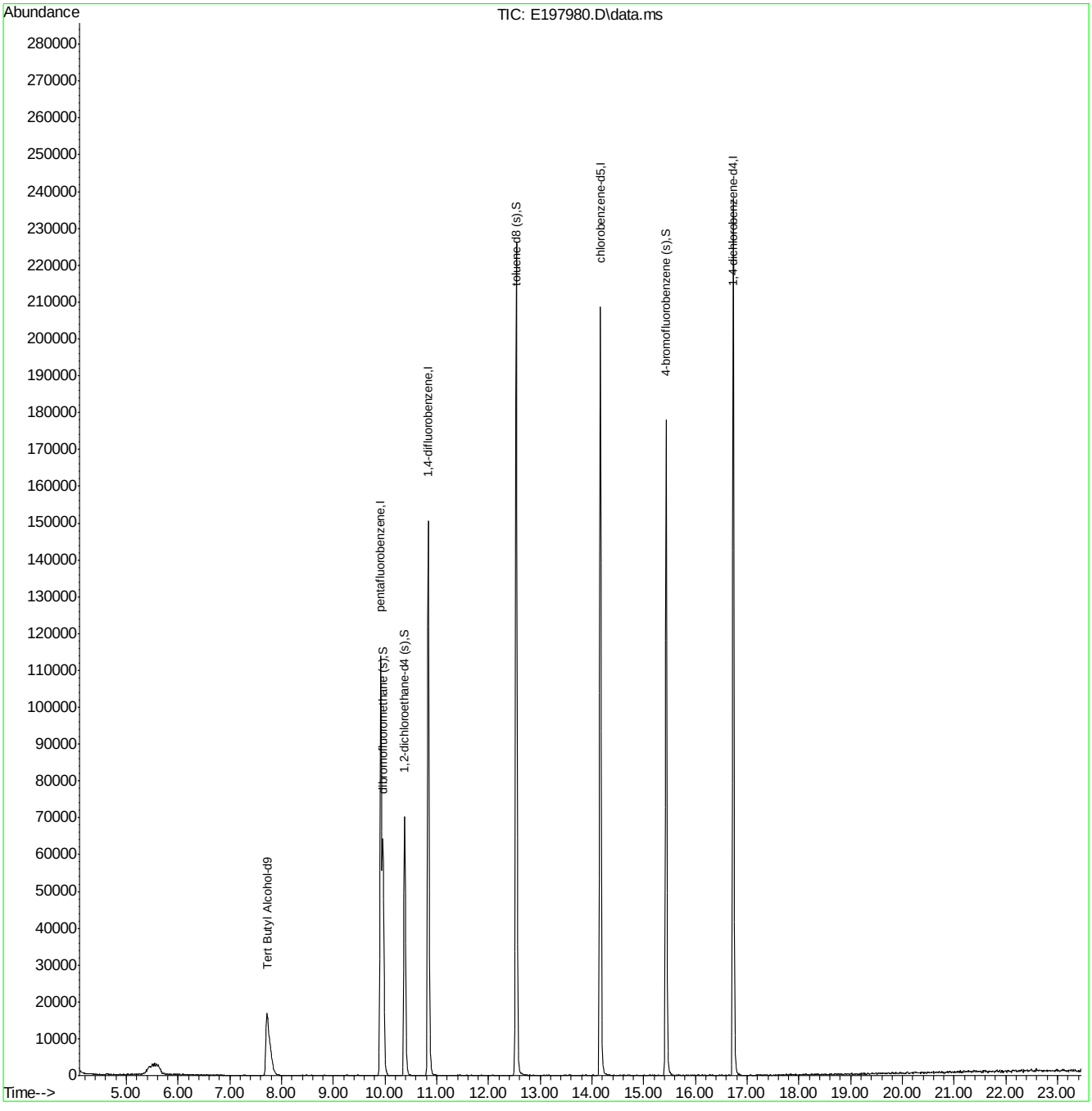
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E197980.D
Acq On : 17 Dec 2012 10:04 am
Operator : OksanaT
Sample : mb
Misc : MS40356,VE8698,5,,100,5,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 17 15:21:18 2012
Quant Method : C:\MSDCHEM\1\METHODS\ME8647.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Nov 13 15:53:05 2012
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E198008.D
Acq On : 18 Dec 2012 12:15 am
Operator : OksanaT
Sample : mb
Misc : MS39980,VE8699,5,,100,5,1
ALS Vial : 32 Sample Multiplier: 1

Quant Time: Dec 18 15:44:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\ME8647.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Nov 13 15:53:05 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.718	65	62428	500.00	ug/L	0.00
5) pentafluorobenzene	9.920	168	100400	50.00	ug/L	0.00
65) 1,4-difluorobenzene	10.835	114	149787	50.00	ug/L	0.00
96) chlorobenzene-d5	14.162	117	141010	50.00	ug/L	0.00
113) 1,4-dichlorobenzene-d4	16.735	152	75000	50.00	ug/L	0.00

System Monitoring Compounds

59) dibromofluoromethane (s)	9.962	113	45419	43.79	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 87.58%			
60) 1,2-dichloroethane-d4 (s)	10.380	65	66053	43.96	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 87.92%			
88) toluene-d8 (s)	12.535	98	188825	46.64	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 93.28%			
115) 4-bromofluorobenzene (s)	15.433	95	74984	45.33	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 90.66%			

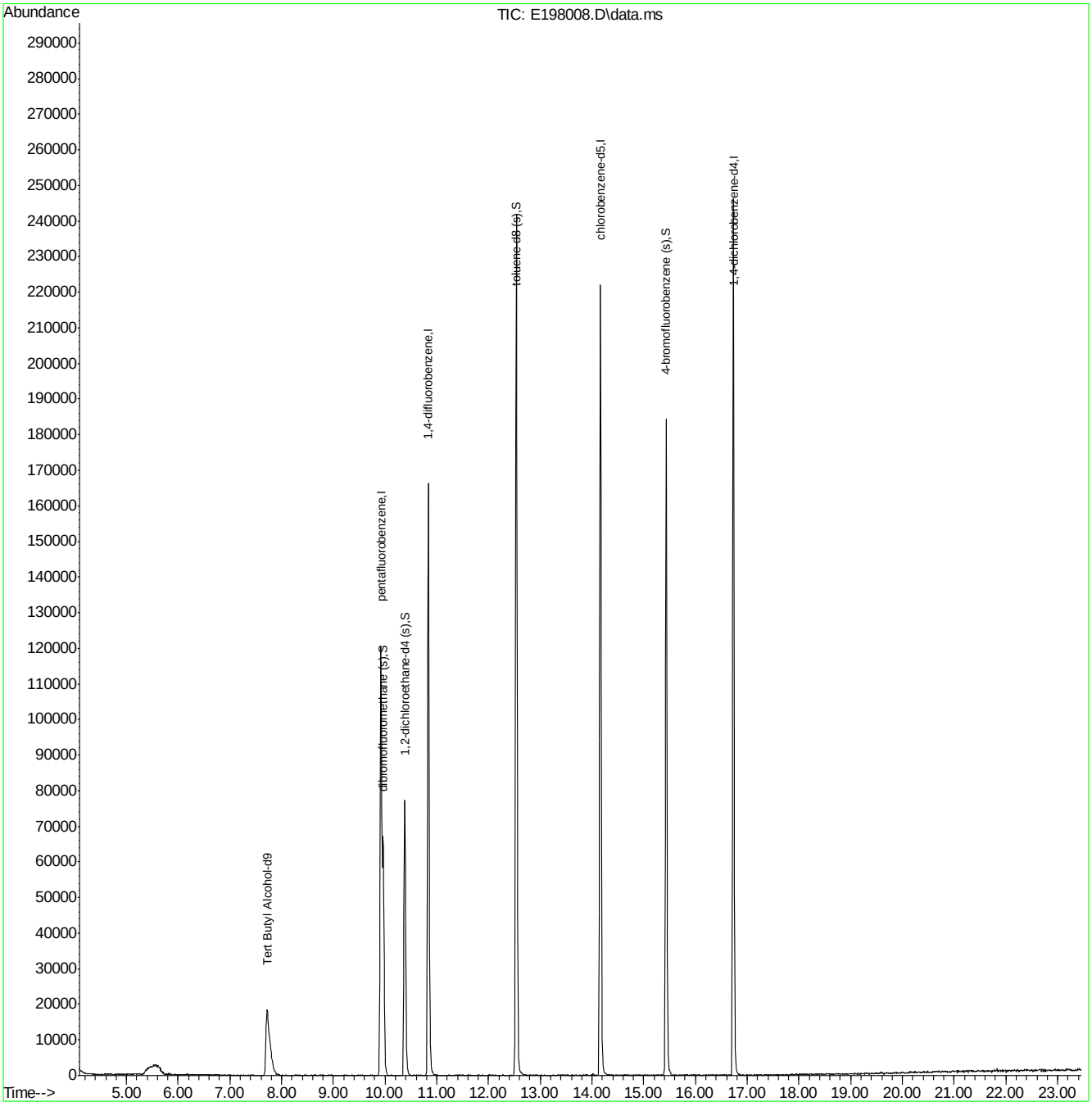
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E198008.D
Acq On : 18 Dec 2012 12:15 am
Operator : OksanaT
Sample : mb
Misc : MS39980,VE8699,5,,100,5,1
ALS Vial : 32 Sample Multiplier: 1

Quant Time: Dec 18 15:44:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\ME8647.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Nov 13 15:53:05 2012
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E198027.D
Acq On : 18 Dec 2012 1:44 pm
Operator : OksanaT
Sample : mb
Misc : MS40270,VE8700,5,,100,5,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 18 15:59:48 2012
Quant Method : C:\MSDCHEM\1\METHODS\ME8647.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Nov 13 15:53:05 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.707	65	62075	500.00	ug/L	0.00
5) pentafluorobenzene	9.919	168	102340	50.00	ug/L	0.00
65) 1,4-difluorobenzene	10.835	114	154343	50.00	ug/L	0.00
96) chlorobenzene-d5	14.161	117	142995	50.00	ug/L	0.00
113) 1,4-dichlorobenzene-d4	16.734	152	79147	50.00	ug/L	0.00

System Monitoring Compounds

59) dibromofluoromethane (s)	9.961	113	46937	44.40	ug/L	0.00
Spiked Amount 50.000	Range 81 - 121		Recovery = 88.80%			
60) 1,2-dichloroethane-d4 (s)	10.380	65	65074	42.49	ug/L	0.00
Spiked Amount 50.000	Range 74 - 127		Recovery = 84.98%			
88) toluene-d8 (s)	12.534	98	193511	46.39	ug/L	0.00
Spiked Amount 50.000	Range 80 - 122		Recovery = 92.78%			
115) 4-bromofluorobenzene (s)	15.432	95	76685	43.93	ug/L	0.00
Spiked Amount 50.000	Range 78 - 116		Recovery = 87.86%			

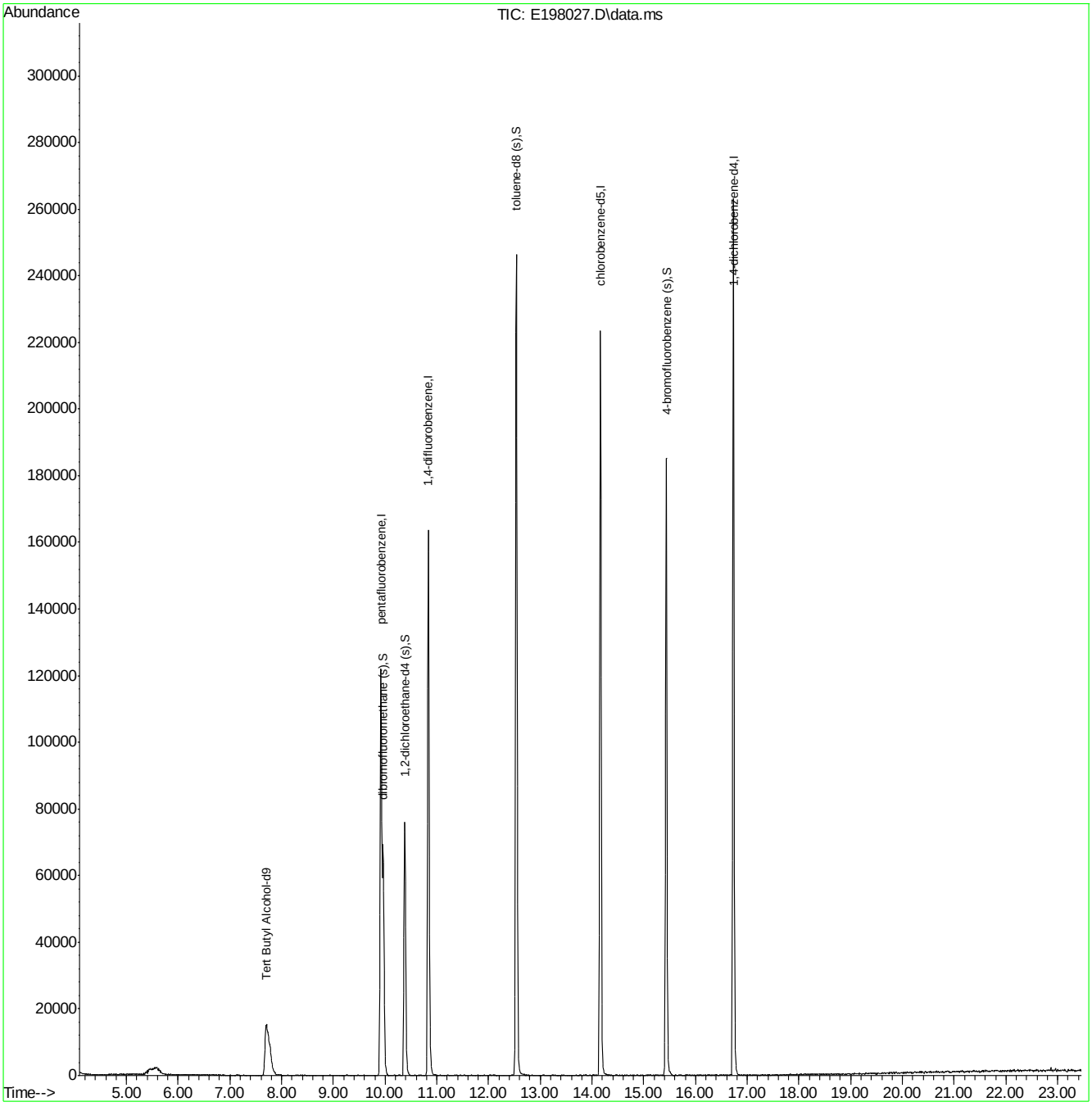
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E198027.D
Acq On : 18 Dec 2012 1:44 pm
Operator : OksanaT
Sample : mb
Misc : MS40270,VE8700,5,,100,5,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 18 15:59:48 2012
Quant Method : C:\MSDCHEM\1\METHODS\ME8647.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Nov 13 15:53:05 2012
Response via : Initial Calibration



New Jersey

ACCUTEST LABORATORIES

GC/MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: JB22962
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
OP62064-MB1	2M48605.D	1	12/19/12	OYA	12/17/12	OP62064	E2M2082

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

JB22962-1, JB22962-2, JB22962-3, JB22962-4, JB22962-5, JB22962-6, JB22962-7, JB22962-8, JB22962-9, JB22962-10, JB22962-11, JB22962-12, JB22962-13, JB22962-14, JB22962-15, JB22962-16, JB22962-17, JB22962-18, JB22962-19

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

CAS No.	Surrogate Recoveries		Limits
4165-60-0	Nitrobenzene-d5	50%	21-122%
321-60-8	2-Fluorobiphenyl	55%	30-117%
1718-51-0	Terphenyl-d14	76%	31-129%

Method Blank Summary

Job Number: JB22962
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
OP62064-MB1	3E46431.D	1	12/19/12	OYA	12/17/12	OP62064	E3E2018

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

JB22962-1, JB22962-2, JB22962-3, JB22962-4, JB22962-5, JB22962-6, JB22962-7, JB22962-8, JB22962-9, JB22962-10, JB22962-11, JB22962-12, JB22962-13, JB22962-14, JB22962-15, JB22962-16, JB22962-17, JB22962-18, JB22962-19

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

CAS No.	Surrogate Recoveries		Limits
4165-60-0	Nitrobenzene-d5	49%	21-122%
321-60-8	2-Fluorobiphenyl	59%	30-117%
1718-51-0	Terphenyl-d14	77%	31-129%

Blank Spike Summary

Job Number: JB22962
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
OP62064-BS1	2M48606.D	1	12/19/12	OYA	12/17/12	OP62064	E2M2082

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

JB22962-1, JB22962-2, JB22962-3, JB22962-4, JB22962-5, JB22962-6, JB22962-7, JB22962-8, JB22962-9, JB22962-10, JB22962-11, JB22962-12, JB22962-13, JB22962-14, JB22962-15, JB22962-16, JB22962-17, JB22962-18, JB22962-19

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
120-12-7	Anthracene	1430	1240	87	59-121
56-55-3	Benzo(a)anthracene	1430	1160	81	54-119
50-32-8	Benzo(a)pyrene	1430	1270	89	59-122
205-99-2	Benzo(b)fluoranthene	1430	1420	99	45-133
191-24-2	Benzo(g,h,i)perylene	1430	1190	83	57-122
218-01-9	Chrysene	1430	1140	80	55-120
86-73-7	Fluorene	1430	1230	86	57-117
85-01-8	Phenanthrene	1430	1180	83	58-118
129-00-0	Pyrene	1430	1100	77	54-122

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzenene-d5	65%	21-122%
321-60-8	2-Fluorobiphenyl	71%	30-117%
1718-51-0	Terphenyl-d14	95%	31-129%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB22962
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
OP62064-MS	2M48627.D	1	12/19/12	OYA	12/17/12	OP62064	E2M2082
OP62064-MSD	2M48628.D	1	12/19/12	OYA	12/17/12	OP62064	E2M2082
JB22962-1	2M48612.D	1	12/19/12	OYA	12/17/12	OP62064	E2M2082

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

JB22962-1, JB22962-2, JB22962-3, JB22962-4, JB22962-5, JB22962-6, JB22962-7, JB22962-8, JB22962-9, JB22962-10, JB22962-11, JB22962-12, JB22962-13, JB22962-14, JB22962-15, JB22962-16, JB22962-17, JB22962-18, JB22962-19

CAS No.	Compound	JB22962-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
120-12-7	Anthracene	597		1950	1830	63	2170	81	17	33-130/30
56-55-3	Benzo(a)anthracene	1790		1950	2830	53	3210	73	13	29-127/33
50-32-8	Benzo(a)pyrene	2110		1950	3720	83	3960	95	6	28-134/34
205-99-2	Benzo(b)fluoranthene	2150		1950	4580	125	4740	133	3	19-143/38
191-24-2	Benzo(g,h,i)perylene	1590		1950	3300	88	3530	100	7	27-135/34
218-01-9	Chrysene	1870		1950	3090	63	3300	74	7	29-129/32
86-73-7	Fluorene	307		1950	1620	67	1780	76	9	32-125/32
85-01-8	Phenanthrene	1490		1950	2350	44	2740	64	15	28-132/34
129-00-0	Pyrene	2510		1950	3330	42	3610	57	8	27-132/33

CAS No.	Surrogate Recoveries	MS	MSD	JB22962-1	Limits
4165-60-0	Nitrobenzene-d5	53%	60%	40%	21-122%
321-60-8	2-Fluorobiphenyl	56%	62%	51%	30-117%
1718-51-0	Terphenyl-d14	66%	71%	74%	31-129%

* = Outside of Control Limits.

Instrument Performance Check (DFTPP)

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E2M2013-DFTPP
Lab File ID: 2M46670.D
Instrument ID: GCMS2M
Injection Date: 10/02/12
Injection Time: 14:01

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	29430	41.1		Pass
68	Less than 2.0% of mass 69	394	0.55	(1.41) [a]	Pass
69	Mass 69 relative abundance	27877	38.9		Pass
70	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
127	40.0 - 60.0% of mass 198	37690	52.6		Pass
197	Less than 1.0% of mass 198	309	0.43		Pass
198	Base peak, 100% relative abundance	71618	100.0		Pass
199	5.0 - 9.0% of mass 198	4898	6.84		Pass
275	10.0 - 30.0% of mass 198	15179	21.2		Pass
365	1.0 - 100.0% of mass 198	1725	2.41		Pass
441	Present, but less than mass 443	6265	8.75	(73.6) [b]	Pass
442	40.0 - 100.0% of mass 198	44074	61.5		Pass
443	17.0 - 23.0% of mass 442	8508	11.9	(19.3) [c]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E2M2013-IC2013	2M46671.D	10/02/12	14:14	00:13	Initial cal 100
E2M2013-IC2013	2M46672.D	10/02/12	14:38	00:37	Initial cal 2
E2M2013-IC2013	2M46673.D	10/02/12	15:03	01:02	Initial cal 80
E2M2013-IC2013	2M46674.D	10/02/12	15:27	01:26	Initial cal 10
E2M2013-IC2013	2M46675.D	10/02/12	15:51	01:50	Initial cal 5
E2M2013-IC2013	2M46676.D	10/02/12	16:15	02:14	Initial cal 1
E2M2013-IC2013	2M46677.D	10/02/12	16:39	02:38	Initial cal 25
E2M2013-ICC2013	2M46678.D	10/02/12	17:03	03:02	Initial cal 50
E2M2013-ICV2009	2M46679.D	10/02/12	17:27	03:26	Initial cal verification 50
E2M2013-ICV2013	2M46680.D	10/02/12	17:51	03:50	Initial cal verification 50
E2M2013-ICV2013	2M46681.D	10/02/12	18:15	04:14	Initial cal verification 50
E2M2013-ICV2013	2M46682.D	10/02/12	18:40	04:39	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E2M2034-DFTPP
Lab File ID: 2M47225.D
Instrument ID: GCMS2M
Injection Date: 10/22/12
Injection Time: 10:12

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	45508	42.4		Pass
68	Less than 2.0% of mass 69	855	0.80	(1.86) [a]	Pass
69	Mass 69 relative abundance	45846	42.7		Pass
70	Less than 2.0% of mass 69	313	0.29	(0.68) [a]	Pass
127	40.0 - 60.0% of mass 198	58629	54.6		Pass
197	Less than 1.0% of mass 198	246	0.23		Pass
198	Base peak, 100% relative abundance	107368	100.0		Pass
199	5.0 - 9.0% of mass 198	7318	6.82		Pass
275	10.0 - 30.0% of mass 198	26496	24.7		Pass
365	1.0 - 100.0% of mass 198	3155	2.94		Pass
441	Present, but less than mass 443	10895	10.1	(75.2) [b]	Pass
442	40.0 - 100.0% of mass 198	75786	70.6		Pass
443	17.0 - 23.0% of mass 442	14484	13.5	(19.1) [c]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E2M2034-IC2034	2M47226.D	10/22/12	10:25	00:13	Initial cal 25
E2M2034-IC2034	2M47227.D	10/22/12	10:50	00:38	Initial cal 100
E2M2034-IC2034	2M47228.D	10/22/12	11:13	01:01	Initial cal 1
E2M2034-IC2034	2M47229.D	10/22/12	11:44	01:32	Initial cal 80
E2M2034-IC2034	2M47230.D	10/22/12	12:07	01:55	Initial cal 2
E2M2034-ICC2034	2M47231.D	10/22/12	12:36	02:24	Initial cal 50
E2M2034-IC2034	2M47232.D	10/22/12	12:59	02:47	Initial cal 5
E2M2034-IC2034	2M47233.D	10/22/12	13:22	03:10	Initial cal 10
E2M2034-ICV2034	2M47234.D	10/22/12	13:45	03:33	Initial cal verification 50
E2M2034-ICV2034	2M47235.D	10/22/12	14:08	03:56	Initial cal verification 50
E2M2034-ICV2034	2M47236.D	10/22/12	14:30	04:18	Initial cal verification 50
E2M2034-ICV2034	2M47237.D	10/22/12	14:53	04:41	Initial cal verification 50
E2M2034-ICV2034	2M47238.D	10/22/12	15:16	05:04	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E2M2082-DFTPP
Lab File ID: 2M48602.D
Instrument ID: GCMS2M
Injection Date: 12/19/12
Injection Time: 09:29

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	7691	55.7		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	7487	54.2		Pass
70	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
127	40.0 - 60.0% of mass 198	8135	58.9		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	13819	100.0		Pass
199	5.0 - 9.0% of mass 198	961	6.95		Pass
275	10.0 - 30.0% of mass 198	3501	25.3		Pass
365	1.0 - 100.0% of mass 198	419	3.03		Pass
441	Present, but less than mass 443	1760	12.7	(74.6) [b]	Pass
442	40.0 - 100.0% of mass 198	11881	86.0		Pass
443	17.0 - 23.0% of mass 442	2359	17.1	(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
E2M2082-CC2034	2M48603.D	12/19/12	09:42	00:13	Continuing cal 25
E2M2082-CC2013	2M48604.D	12/19/12	10:07	00:38	Continuing cal 25
OP62064-MB1	2M48605.D	12/19/12	10:30	01:01	Method Blank
OP62064-BS1	2M48606.D	12/19/12	10:53	01:24	Blank Spike
JB22962-3	2M48607.D	12/19/12	11:17	01:48	BH-12-124_3-3.5'
ZZZZZZ	2M48608.D	12/19/12	11:40	02:11	(unrelated sample)
JB22962-9	2M48609.D	12/19/12	12:03	02:34	BH-12-128_3-3.5'
JB22962-12	2M48610.D	12/19/12	12:26	02:57	BH-12-125_2.5-3'
JB22962-19	2M48611.D	12/19/12	12:49	03:20	BH-12-101_2-3'
JB22962-1	2M48612.D	12/19/12	13:12	03:43	BH-12-123_1-1.5'
JB22962-2	2M48613.D	12/19/12	13:35	04:06	BH-12-123_2-2.5'
JB22962-4	2M48614.D	12/19/12	13:59	04:30	BH-12-149_1-1.5'
JB22962-5	2M48615.D	12/19/12	14:22	04:53	BH-12-149_2.5-3'
JB22962-10	2M48618.D	12/19/12	15:31	06:02	BH-12-127_2.5-3'
JB22962-13	2M48619.D	12/19/12	15:54	06:25	BH-12-120_0-1'
JB22962-14	2M48620.D	12/19/12	16:18	06:49	BH-12-104_0.5-1'
JB22962-16	2M48621.D	12/19/12	16:41	07:12	BH-12-131_1-2'
JB22962-17	2M48622.D	12/19/12	17:04	07:35	BH-12-118_2-2.5'
JB22962-6	2M48623.D	12/19/12	17:27	07:58	BH-12-129_1.5-2'

Instrument Performance Check (DFTPP)

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E2M2082-DFTPP
Lab File ID: 2M48602.D
Instrument ID: GCMS2M
Injection Date: 12/19/12
Injection Time: 09:29

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
JB22962-15	2M48624.D	12/19/12	17:50	08:21	BH-12-130_1-2'
JB22962-11	2M48625.D	12/19/12	18:13	08:44	BH-12-119_0.5-1'
JB22962-18	2M48626.D	12/19/12	18:36	09:07	BH-12-102_2-2.5'
OP62064-MS	2M48627.D	12/19/12	18:59	09:30	Matrix Spike
OP62064-MSD	2M48628.D	12/19/12	19:22	09:53	Matrix Spike Duplicate
JB22962-3	2M48629.D	12/19/12	19:46	10:17	BH-12-124_3-3.5'
JB22962-5	2M48631.D	12/19/12	20:31	11:02	BH-12-149_2.5-3'

Instrument Performance Check (DFTPP)

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E2M2083-DFTPP
Lab File ID: 2M48632.D
Instrument ID: GCMS2M
Injection Date: 12/20/12
Injection Time: 09:21

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	5971	52.3		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	5900	51.7		Pass
70	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
127	40.0 - 60.0% of mass 198	6443	56.5		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	11413	100.0		Pass
199	5.0 - 9.0% of mass 198	769	6.74		Pass
275	10.0 - 30.0% of mass 198	2980	26.1		Pass
365	1.0 - 100.0% of mass 198	432	3.79		Pass
441	Present, but less than mass 443	1614	14.1	(79.5) [b]	Pass
442	40.0 - 100.0% of mass 198	11228	98.4		Pass
443	17.0 - 23.0% of mass 442	2031	17.8	(18.1) [c]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E2M2083-CC2034	2M48633.D	12/20/12	09:34	00:13	Continuing cal 25
E2M2083-CC2013	2M48634.D	12/20/12	09:57	00:36	Continuing cal 50
OP62137-MB1	2M48635.D	12/20/12	10:20	00:59	Method Blank
OP62137-BS1	2M48636.D	12/20/12	10:43	01:22	Blank Spike
JB22962-2	2M48637.D	12/20/12	11:11	01:50	BH-12-123_2-2.5'
JB22962-11	2M48639.D	12/20/12	12:05	02:44	BH-12-119_0.5-1'
JB22962-16	2M48640.D	12/20/12	12:28	03:07	BH-12-131_1-2'
JB22962-6	2M48641.D	12/20/12	12:51	03:30	BH-12-129_1.5-2'
JB22962-18	2M48644.D	12/20/12	13:14	03:53	BH-12-102_2-2.5'
ZZZZZZ	2M48642.D	12/20/12	13:37	04:16	(unrelated sample)
ZZZZZZ	2M48643.D	12/20/12	14:00	04:39	(unrelated sample)
ZZZZZZ	2M48645.D	12/20/12	14:23	05:02	(unrelated sample)
ZZZZZZ	2M48646.D	12/20/12	14:46	05:25	(unrelated sample)
ZZZZZZ	2M48647.D	12/20/12	15:09	05:48	(unrelated sample)
ZZZZZZ	2M48648.D	12/20/12	15:32	06:11	(unrelated sample)
ZZZZZZ	2M48649.D	12/20/12	15:55	06:34	(unrelated sample)
ZZZZZZ	2M48650.D	12/20/12	16:18	06:57	(unrelated sample)
JB23299-1	2M48651.D	12/20/12	16:41	07:20	(used for QC only; not part of job JB22962)
OP62137-MS	2M48652.D	12/20/12	17:05	07:44	Matrix Spike

Instrument Performance Check (DFTPP)

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E2M2083-DFTPP
Lab File ID: 2M48632.D
Instrument ID: GCMS2M
Injection Date: 12/20/12
Injection Time: 09:21

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
OP62137-MSD	2M48653.D	12/20/12	17:28	08:07	Matrix Spike Duplicate

Instrument Performance Check (DFTPP)

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E3E1983-DFTPP
Lab File ID: 3E45517.D
Instrument ID: GCMS3E
Injection Date: 11/15/12
Injection Time: 16:51

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	18010	33.3		Pass
68	Less than 2.0% of mass 69	378	0.70	(1.85) [a]	Pass
69	Mass 69 relative abundance	20426	37.8		Pass
70	Less than 2.0% of mass 69	95	0.18	(0.47) [a]	Pass
127	40.0 - 60.0% of mass 198	26948	49.8		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	54088	100.0		Pass
199	5.0 - 9.0% of mass 198	3776	6.98		Pass
275	10.0 - 30.0% of mass 198	13614	25.2		Pass
365	1.0 - 100.0% of mass 198	1669	3.09		Pass
441	Present, but less than mass 443	4662	8.62	(78.0) [b]	Pass
442	40.0 - 100.0% of mass 198	30845	57.0		Pass
443	17.0 - 23.0% of mass 442	5979	11.1	(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
E3E1983-IC1983	3E45518.D	11/15/12	17:12	00:21	Initial cal 100
E3E1983-IC1983	3E45519.D	11/15/12	17:35	00:44	Initial cal 80
E3E1983-ICC1983	3E45520.D	11/15/12	17:58	01:07	Initial cal 50
E3E1983-IC1983	3E45521.D	11/15/12	18:21	01:30	Initial cal 25
E3E1983-IC1983	3E45522.D	11/15/12	18:44	01:53	Initial cal 10
E3E1983-IC1983	3E45523.D	11/15/12	19:07	02:16	Initial cal 5
E3E1983-IC1983	3E45524.D	11/15/12	19:30	02:39	Initial cal 2
E3E1983-IC1983	3E45525.D	11/15/12	19:54	03:03	Initial cal 1

Instrument Performance Check (DFTPP)

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E3E1991-DFTPP
Lab File ID: 3E45692.D
Instrument ID: GCMS3E
Injection Date: 11/26/12
Injection Time: 10:35

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	3080	34.1		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	3491	38.7		Pass
70	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
127	40.0 - 60.0% of mass 198	4549	50.4		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	9028	100.0		Pass
199	5.0 - 9.0% of mass 198	603	6.68		Pass
275	10.0 - 30.0% of mass 198	2307	25.6		Pass
365	1.0 - 100.0% of mass 198	248	2.75		Pass
441	Present, but less than mass 443	768	8.51	(82.5) [b]	Pass
442	40.0 - 100.0% of mass 198	4808	53.3		Pass
443	17.0 - 23.0% of mass 442	931	10.3	(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
E3E1991-ICC1991	3E45693.D	11/26/12	10:48	00:13	Initial cal 50
E3E1991-IC1991	3E45694.D	11/26/12	11:17	00:42	Initial cal 25
E3E1991-IC1991	3E45695.D	11/26/12	11:40	01:05	Initial cal 1
E3E1991-IC1991	3E45696.D	11/26/12	12:03	01:28	Initial cal 100
E3E1991-IC1991	3E45697.D	11/26/12	12:36	02:01	Initial cal 2
E3E1991-IC1991	3E45698.D	11/26/12	13:00	02:25	Initial cal 5
E3E1991-IC1991	3E45699.D	11/26/12	13:23	02:48	Initial cal 10
E3E1991-IC1991	3E45700.D	11/26/12	13:46	03:11	Initial cal 80
E3E1991-ICV1991	3E45701.D	11/26/12	14:09	03:34	Initial cal verification 50
E3E1991-ICV1991	3E45703.D	11/26/12	14:56	04:21	Initial cal verification 50
E3E1991-ICV1991	3E45704.D	11/26/12	15:19	04:44	Initial cal verification 50
E3E1991-ICV1991	3E45705.D	11/26/12	15:42	05:07	Initial cal verification 50
E3E1991-ICV1991	3E45706.D	11/26/12	16:08	05:33	Initial cal verification 50
E3E1991-ICV1991	3E45707.D	11/26/12	16:32	05:57	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E3E2018-DFTPP
Lab File ID: 3E46406.D
Instrument ID: GCMS3E
Injection Date: 12/19/12
Injection Time: 09:01

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	3192	35.0		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	3575	39.2		Pass
70	Less than 2.0% of mass 69	23	0.25	(0.64) [a]	Pass
127	40.0 - 60.0% of mass 198	4487	49.2		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	9121	100.0		Pass
199	5.0 - 9.0% of mass 198	610	6.69		Pass
275	10.0 - 30.0% of mass 198	2573	28.2		Pass
365	1.0 - 100.0% of mass 198	255	2.80		Pass
441	Present, but less than mass 443	912	10.00	(87.0) [b]	Pass
442	40.0 - 100.0% of mass 198	5433	59.6		Pass
443	17.0 - 23.0% of mass 442	1048	11.5	(19.3) [c]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3E2018-CC1991	3E46407.D	12/19/12	09:17	00:16	Continuing cal 50
E3E2018-CC1983	3E46408.D	12/19/12	09:41	00:40	Continuing cal 50
OP62124-MB1	3E46409.D	12/19/12	10:07	01:06	Method Blank
OP62124-BS1	3E46410.D	12/19/12	10:31	01:30	Blank Spike
ZZZZZZ	3E46411.D	12/19/12	10:54	01:53	(unrelated sample)
ZZZZZZ	3E46412.D	12/19/12	11:17	02:16	(unrelated sample)
ZZZZZZ	3E46413.D	12/19/12	11:41	02:40	(unrelated sample)
ZZZZZZ	3E46414.D	12/19/12	12:04	03:03	(unrelated sample)
ZZZZZZ	3E46415.D	12/19/12	12:27	03:26	(unrelated sample)
ZZZZZZ	3E46416.D	12/19/12	12:51	03:50	(unrelated sample)
ZZZZZZ	3E46417.D	12/19/12	13:14	04:13	(unrelated sample)
ZZZZZZ	3E46418.D	12/19/12	13:37	04:36	(unrelated sample)
ZZZZZZ	3E46419.D	12/19/12	14:01	05:00	(unrelated sample)
ZZZZZZ	3E46420.D	12/19/12	14:24	05:23	(unrelated sample)
ZZZZZZ	3E46421.D	12/19/12	14:47	05:46	(unrelated sample)
JB23169-1	3E46422.D	12/19/12	15:11	06:10	(used for QC only; not part of job JB22962)
ZZZZZZ	3E46423.D	12/19/12	15:34	06:33	(unrelated sample)
ZZZZZZ	3E46424.D	12/19/12	15:57	06:56	(unrelated sample)
ZZZZZZ	3E46425.D	12/19/12	16:20	07:19	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E3E2018-DFTPP
Lab File ID: 3E46406.D
Instrument ID: GCMS3E
Injection Date: 12/19/12
Injection Time: 09:01

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	3E46426.D	12/19/12	16:44	07:43	(unrelated sample)
ZZZZZZ	3E46427.D	12/19/12	17:07	08:06	(unrelated sample)
OP62124-MS	3E46428.D	12/19/12	17:30	08:29	Matrix Spike
OP62124-MSD	3E46429.D	12/19/12	17:54	08:53	Matrix Spike Duplicate
ZZZZZZ	3E46430.D	12/19/12	18:17	09:16	(unrelated sample)
OP62064-MB1	3E46431.D	12/19/12	18:40	09:39	Method Blank
JB22962-7	3E46432.D	12/19/12	19:03	10:02	BH-12-129_2.5-3'
JB22962-8	3E46433.D	12/19/12	19:26	10:25	BH-12-126_2.5-3'

Instrument Performance Check (DFTPP)

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E3E2019-DFTPP
Lab File ID: 3E46434.D
Instrument ID: GCMS3E
Injection Date: 12/20/12
Injection Time: 09:11

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	3280	37.4		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	3823	43.6		Pass
70	Less than 2.0% of mass 69	35	0.40	(0.92) [a]	Pass
127	40.0 - 60.0% of mass 198	4543	51.8		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	8770	100.0		Pass
199	5.0 - 9.0% of mass 198	605	6.90		Pass
275	10.0 - 30.0% of mass 198	2527	28.8		Pass
365	1.0 - 100.0% of mass 198	217	2.47		Pass
441	Present, but less than mass 443	826	9.42	(87.9) [b]	Pass
442	40.0 - 100.0% of mass 198	5075	57.9		Pass
443	17.0 - 23.0% of mass 442	940	10.7	(18.5) [c]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3E2019-CC1991	3E46435.D	12/20/12	09:24	00:13	Continuing cal 25
E3E2019-CC1983	3E46436.D	12/20/12	09:47	00:36	Continuing cal 50
OP62168-MB1	3E46437.D	12/20/12	10:11	01:00	Method Blank
OP62168-BS1	3E46438.D	12/20/12	10:34	01:23	Blank Spike
ZZZZZZ	3E46439.D	12/20/12	10:57	01:46	(unrelated sample)
ZZZZZZ	3E46441.D	12/20/12	11:44	02:33	(unrelated sample)
ZZZZZZ	3E46442.D	12/20/12	12:07	02:56	(unrelated sample)
JB22962-15	3E46443.D	12/20/12	12:30	03:19	BH-12-130_1-2'
ZZZZZZ	3E46444.D	12/20/12	12:54	03:43	(unrelated sample)
ZZZZZZ	3E46445.D	12/20/12	13:17	04:06	(unrelated sample)
ZZZZZZ	3E46446.D	12/20/12	13:40	04:29	(unrelated sample)
ZZZZZZ	3E46447.D	12/20/12	14:03	04:52	(unrelated sample)
ZZZZZZ	3E46448.D	12/20/12	14:27	05:16	(unrelated sample)
ZZZZZZ	3E46463.D	12/20/12	14:50	05:39	(unrelated sample)
OP62177-MB1	3E46464.D	12/20/12	15:13	06:02	Method Blank
JB24231-1	3E46465.D	12/20/12	15:36	06:25	(used for QC only; not part of job JB22962)
ZZZZZZ	3E46466.D	12/20/12	15:59	06:48	(unrelated sample)
ZZZZZZ	3E46467.D	12/20/12	16:23	07:12	(unrelated sample)
ZZZZZZ	3E46468.D	12/20/12	16:46	07:35	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E3E2019-DFTPP
Lab File ID: 3E46434.D
Instrument ID: GCMS3E
Injection Date: 12/20/12
Injection Time: 09:11

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	3E46469.D	12/20/12	17:09	07:58	(unrelated sample)
ZZZZZZ	3E46470.D	12/20/12	17:33	08:22	(unrelated sample)
ZZZZZZ	3E46471.D	12/20/12	17:56	08:45	(unrelated sample)
ZZZZZZ	3E46449.D	12/20/12	18:19	09:08	(unrelated sample)
ZZZZZZ	3E46450.D	12/20/12	18:42	09:31	(unrelated sample)
ZZZZZZ	3E46451.D	12/20/12	19:05	09:54	(unrelated sample)
JB24119-1	3E46454.D	12/20/12	19:29	10:18	(used for QC only; not part of job JB22962)
OP62168-MS	3E46461.D	12/20/12	19:52	10:41	Matrix Spike
OP62168-MSD	3E46462.D	12/20/12	20:15	11:04	Matrix Spike Duplicate

Instrument Performance Check (DFTPP)

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E3E2020-DFTPP
Lab File ID: 3E46472.D
Instrument ID: GCMS3E
Injection Date: 12/21/12
Injection Time: 09:18

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	3688	41.1		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	4060	45.2		Pass
70	Less than 2.0% of mass 69	34	0.38	(0.84) [a]	Pass
127	40.0 - 60.0% of mass 198	4679	52.1		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	8975	100.0		Pass
199	5.0 - 9.0% of mass 198	587	6.54		Pass
275	10.0 - 30.0% of mass 198	2580	28.7		Pass
365	1.0 - 100.0% of mass 198	250	2.79		Pass
441	Present, but less than mass 443	936	10.4	(88.0) [b]	Pass
442	40.0 - 100.0% of mass 198	5431	60.5		Pass
443	17.0 - 23.0% of mass 442	1064	11.9	(19.6) [c]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3E2020-CC1991	3E46473.D	12/21/12	09:30	00:12	Continuing cal 50
E3E2020-CC1983	3E46474.D	12/21/12	09:54	00:36	Continuing cal 25
OP62203-MB1	3E46475.D	12/21/12	10:52	01:34	Method Blank
OP62203-BS1	3E46476.D	12/21/12	11:15	01:57	Blank Spike
OP62177-BS1	3E46477.D	12/21/12	11:39	02:21	Blank Spike
ZZZZZZ	3E46478.D	12/21/12	12:06	02:48	(unrelated sample)
JB22962-19	3E46479.D	12/21/12	12:29	03:11	BH-12-101_2-3'
ZZZZZZ	3E46480.D	12/21/12	12:52	03:34	(unrelated sample)
JB24255-11	3E46481.D	12/21/12	13:16	03:58	(used for QC only; not part of job JB22962)
ZZZZZZ	3E46482.D	12/21/12	13:39	04:21	(unrelated sample)
ZZZZZZ	3E46483.D	12/21/12	14:03	04:45	(unrelated sample)
ZZZZZZ	3E46484.D	12/21/12	14:26	05:08	(unrelated sample)
ZZZZZZ	3E46485.D	12/21/12	14:49	05:31	(unrelated sample)
ZZZZZZ	3E46486.D	12/21/12	15:13	05:55	(unrelated sample)
ZZZZZZ	3E46487.D	12/21/12	15:36	06:18	(unrelated sample)
ZZZZZZ	3E46488.D	12/21/12	16:00	06:42	(unrelated sample)
ZZZZZZ	3E46489.D	12/21/12	16:23	07:05	(unrelated sample)
ZZZZZZ	3E46490.D	12/21/12	16:46	07:28	(unrelated sample)
ZZZZZZ	3E46491.D	12/21/12	17:10	07:52	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E3E2020-DFTPP
Lab File ID: 3E46472.D
Instrument ID: GCMS3E
Injection Date: 12/21/12
Injection Time: 09:18

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	3E46492.D	12/21/12	17:33	08:15	(unrelated sample)
ZZZZZZ	3E46493.D	12/21/12	17:57	08:39	(unrelated sample)
ZZZZZZ	3E46494.D	12/21/12	18:20	09:02	(unrelated sample)
ZZZZZZ	3E46495.D	12/21/12	18:43	09:25	(unrelated sample)
ZZZZZZ	3E46496.D	12/21/12	19:07	09:49	(unrelated sample)
ZZZZZZ	3E46497.D	12/21/12	19:30	10:12	(unrelated sample)
ZZZZZZ	3E46498.D	12/21/12	19:54	10:36	(unrelated sample)
ZZZZZZ	3E46499.D	12/21/12	20:17	10:59	(unrelated sample)
ZZZZZZ	3E46500.D	12/21/12	20:41	11:23	(unrelated sample)

Semivolatile Internal Standard Area Summary

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	E2M2082-CC2034	**Injection Date:**	12/19/12
Lab File ID:	2M48603.D	**Injection Time:**	09:42
Instrument ID:	GCMS2M	**Method:**	SW846 8270D

	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	309079	2.38	1565277	3.90	1019397	6.46	1806301	8.69	2051798	12.51	1748433	13.92
Upper Limit [a]	618158	2.88	3130554	4.40	2038794	6.96	3612602	9.19	4103596	13.01	3496866	14.42
Lower Limit [b]	154540	1.88	782639	3.40	509699	5.96	903151	8.19	1025899	12.01	874217	13.42

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
OP62064-MB1	211730	2.38	982361	3.90	649584	6.46	1171618	8.68	1353847	12.50	1268602	13.92
OP62064-BS1	213013	2.37	994794	3.90	634147	6.46	1110063	8.69	1284554	12.51	1118629	13.92
JB22962-3	236154	2.38	557986*	4.08	639594	6.50	1081362	8.71	1170572	12.50	1072533	13.92
ZZZZZZ	199699	2.38	1006101	3.90	651140	6.46	1204526	8.68	1412425	12.50	1296738	13.92
JB22962-9	195182	2.38	910059	3.90	595020	6.46	1053469	8.68	1165882	12.50	1023965	13.92
JB22962-12	186708	2.37	904298	3.91	621932	6.46	1080064	8.69	1062874	12.51	901712	13.92
JB22962-19	245726	2.38	1154929	3.90	745684	6.46	1329602	8.68	1331134	12.51	1112471	13.92
JB22962-1	212590	2.37	1032070	3.90	671096	6.46	1120967	8.70	1172957	12.52	1066627	13.94
JB22962-2	240364	2.38	1153429	3.90	725936	6.47	1262205	8.71	1450146	12.55	1373729	13.97
JB22962-4	249172	2.38	1159454	3.91	735867	6.47	1224988	8.69	1146887	12.51	961717	13.93
JB22962-5	219054	2.39	494240*	4.17	601004	6.52	1098524	8.73	1041258	12.52	868004*	13.93
JB22962-10	264170	2.38	1266746	3.90	791776	6.46	1316600	8.70	1257132	12.52	1099193	13.93
JB22962-13	202372	2.38	984064	3.90	616350	6.47	997867	8.70	1074904	12.54	1223180	13.96
JB22962-14	249895	2.38	1181072	3.91	758475	6.48	1226198	8.71	1146529	12.53	1306522	13.95
JB22962-16	176217	2.38	888047	3.91	582026	6.49	1007531	8.73	924731*	12.54	898836	13.96
JB22962-17	215032	2.39	1048922	3.91	650617	6.48	1104481	8.71	1075058	12.54	974366	13.95
JB22962-6	199553	2.38	925437	3.93	634623	6.48	1042400	8.71	963093*	12.53	864184*	13.95
JB22962-15	172378	2.39	711686*	3.97	551893	6.49	945241	8.73	1141885	12.57	1163536	14.00
JB22962-11 [c]	220234	2.39	1044614	3.91	632872	6.48	1004344	8.72	951766*	12.54	903803	13.96
JB22962-18	58228*	2.38	361535*	3.92	273249*	6.54	473089*	8.80	276556*	12.55	267678*	13.96
OP62064-MS	170811	2.39	865986	3.91	526327	6.49	846567*	8.72	910508*	12.55	864072*	13.97
OP62064-MSD	167452	2.39	851254	3.91	518556	6.49	852679*	8.73	959399*	12.56	952122	13.97
JB22962-3 [d]	203864	2.39	560914*	4.04	589626	6.51	1017187	8.73	1015262*	12.54	842283*	13.95
JB22962-5 [d]	187060	2.40	466060*	4.07	529608	6.51	931042	8.73	956150*	12.54	844418*	13.95

IS 1 = 1,4-Dichlorobenzene-d4
IS 2 = Naphthalene-d8
IS 3 = Acenaphthene-D10
IS 4 = Phenanthrene-d10
IS 5 = Chrysene-d12
IS 6 = Perylene-d12

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

Semivolatile Internal Standard Area Summary

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	E2M2082-CC2034	**Injection Date:**	12/19/12
Lab File ID:	2M48603.D	**Injection Time:**	09:42
Instrument ID:	GCMS2M	**Method:**	SW846 8270D

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**

(d) Confirmation run for internal standard areas.

Semivolatile Internal Standard Area Summary

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	E2M2083-CC2034	**Injection Date:**	12/20/12
Lab File ID:	2M48633.D	**Injection Time:**	09:34
Instrument ID:	GCMS2M	**Method:**	SW846 8270D

	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	216221	2.37	1014170	3.89	609848	6.45	1042954	8.68	1138981	12.50	1036925	13.91
Upper Limit [a]	432442	2.87	2028340	4.39	1219696	6.95	2085908	9.18	2277962	13.00	2073850	14.41
Lower Limit [b]	108111	1.87	507085	3.39	304924	5.95	521477	8.18	569491	12.00	518463	13.41

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
OP62137-MB1	139291	2.37	614288	3.89	389364	6.45	669349	8.68	762127	12.50	747831	13.90
OP62137-BS1	170798	2.37	767196	3.89	478651	6.45	835602	8.68	957949	12.50	882771	13.91
JB22962-2	179497	2.37	787803	3.89	486013	6.45	854852	8.68	1019087	12.50	965122	13.91
JB22962-11 [c]	188339	2.37	851018	3.89	531059	6.45	890581	8.67	990273	12.50	951607	13.92
JB22962-16 [c]	173826	2.37	737503	3.89	458549	6.45	793462	8.68	917145	12.51	876702	13.92
JB22962-6 [c]	210680	2.37	918795	3.90	585917	6.45	1000432	8.68	1090172	12.50	988947	13.92
JB22962-18	177348	2.37	836689	3.90	574136	6.48	1028917	8.73	947151	12.51	881816	13.92
ZZZZZZ	162476	2.37	735871	3.90	461955	6.45	785572	8.68	861986	12.51	727529	13.92
ZZZZZZ	155450	2.37	729622	3.89	464411	6.45	789205	8.68	894401	12.51	768520	13.92
ZZZZZZ	158430	2.37	752462	3.89	470729	6.45	804736	8.68	861196	12.50	794101	13.92
ZZZZZZ	196132	2.37	889519	3.89	552685	6.45	915541	8.68	959269	12.51	942736	13.93
ZZZZZZ	154698	2.37	727786	3.90	447485	6.46	771673	8.70	794422	12.52	780145	13.94
ZZZZZZ	178548	2.38	851346	3.90	533165	6.46	923087	8.70	928462	12.52	773567	13.94
ZZZZZZ	162138	2.38	781066	3.90	503180	6.48	916986	8.72	1344856	12.56	1663241	14.00
ZZZZZZ	171748	2.38	834861	3.91	538801	6.48	914129	8.71	836413	12.54	749344	13.95
JB23299-1	164501	2.38	799301	3.91	513606	6.48	846889	8.71	908212	12.54	815322	13.95
OP62137-MS	167641	2.38	858555	3.91	552499	6.48	934698	8.72	953045	12.54	848769	13.96
OP62137-MSD	146193	2.38	736980	3.91	459372	6.48	776933	8.72	838033	12.55	746677	13.96

IS 1 = 1,4-Dichlorobenzene-d4
IS 2 = Naphthalene-d8
IS 3 = Acenaphthene-D10
IS 4 = Phenanthrene-d10
IS 5 = Chrysene-d12
IS 6 = Perylene-d12

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.
(c) Confirmation run for internal standard areas.

Semivolatile Internal Standard Area Summary

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	E3E2018-CC1991	**Injection Date:**	12/19/12
Lab File ID:	3E46407.D	**Injection Time:**	09:17
Instrument ID:	GCMS3E	**Method:**	SW846 8270D

	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	162548	2.72	608738	4.30	335844	6.90	518557	9.14	500531	12.86	419063	14.25
Upper Limit [a]	325096	3.22	1217476	4.80	671688	7.40	1037114	9.64	1001062	13.36	838126	14.75
Lower Limit [b]	81274	2.22	304369	3.80	167922	6.40	259279	8.64	250266	12.36	209532	13.75

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
OP62124-MB1	158156	2.72	680438	4.30	367269	6.90	567486	9.14	539800	12.85	493178	14.24
OP62124-BS1	168746	2.72	665661	4.30	389177	6.90	612519	9.14	591573	12.86	501597	14.25
ZZZZZZ	147451	2.72	596658	4.30	327219	6.90	516536	9.14	517139	12.85	462293	14.24
ZZZZZZ	153328	2.72	577266	4.30	324032	6.90	527837	9.14	524653	12.85	468176	14.24
ZZZZZZ	157334	2.72	615946	4.30	326604	6.90	575036	9.14	548202	12.86	486524	14.25
ZZZZZZ	161083	2.72	653794	4.30	347399	6.90	548370	9.14	541666	12.86	473473	14.25
ZZZZZZ	168526	2.72	675508	4.30	372929	6.90	571173	9.14	536190	12.86	503076	14.25
ZZZZZZ	169090	2.72	639800	4.30	378742	6.90	557512	9.14	543118	12.86	486735	14.25
ZZZZZZ	150757	2.72	625419	4.30	353935	6.91	538093	9.16	478547	12.87	445780	14.26
ZZZZZZ	167420	2.72	694801	4.30	371095	6.90	563934	9.14	537844	12.86	489081	14.25
ZZZZZZ	164716	2.72	660926	4.30	367855	6.90	576563	9.14	533938	12.86	449040	14.25
ZZZZZZ	156250	2.72	601078	4.30	355382	6.90	559754	9.14	534528	12.86	471385	14.25
ZZZZZZ	162291	2.72	635910	4.30	366912	6.91	521480	9.14	511463	12.87	468715	14.25
JB23169-1	170811	2.72	695400	4.30	355085	6.90	556248	9.14	541388	12.87	486172	14.25
ZZZZZZ	147136	2.72	616817	4.30	342036	6.90	506774	9.14	498925	12.86	462508	14.25
ZZZZZZ	162976	2.72	638487	4.30	345394	6.90	546568	9.14	511107	12.86	475727	14.25
ZZZZZZ	150346	2.72	600854	4.30	327246	6.90	512707	9.14	495814	12.86	458557	14.25
ZZZZZZ	161700	2.72	639095	4.30	393636	6.90	539027	9.14	544095	12.86	500352	14.25
ZZZZZZ	158719	2.72	648907	4.30	396183	6.93	443303	9.27	502859	12.91	419812	14.26
OP62124-MS	167188	2.72	654370	4.31	370775	6.91	577399	9.15	543791	12.87	481116	14.26
OP62124-MSD	160212	2.72	694992	4.31	339361	6.91	550608	9.15	514961	12.87	463793	14.26
ZZZZZZ	146751	2.72	600460	4.31	344215	6.92	533171	9.16	507779	12.86	459304	14.25
OP62064-MB1	147060	2.72	655456	4.30	364557	6.91	568764	9.14	555274	12.86	492366	14.25
JB22962-7 [c]	162380	2.73	683592	4.43	369001	6.93	527961	9.16	489743	12.87	444493	14.25
JB22962-8 [c]	143234	2.72	605621	4.37	333104	6.91	507245	9.15	477093	12.86	437316	14.25

IS 1 = 1,4-Dichlorobenzene-d4
IS 2 = Naphthalene-d8
IS 3 = Acenaphthene-D10
IS 4 = Phenanthrene-d10
IS 5 = Chrysene-d12
IS 6 = Perylene-d12

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

Semivolatile Internal Standard Area Summary

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	E3E2018-CC1991	**Injection Date:**	12/19/12
Lab File ID:	3E46407.D	**Injection Time:**	09:17
Instrument ID:	GCMS3E	**Method:**	SW846 8270D

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**

(c) Dilution required due to matrix interference.

Semivolatile Internal Standard Area Summary

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	E3E2019-CC1991	**Injection Date:**	12/20/12
Lab File ID:	3E46435.D	**Injection Time:**	09:24
Instrument ID:	GCMS3E	**Method:**	SW846 8270D

	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	132143	2.71	517596	4.29	294031	6.89	481777	9.13	498083	12.84	418593	14.22
Upper Limit [a]	264286	3.21	1035192	4.79	588062	7.39	963554	9.63	996166	13.34	837186	14.72
Lower Limit [b]	66072	2.21	258798	3.79	147016	6.39	240889	8.63	249042	12.34	209297	13.72

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
OP62168-MB1	144195	2.71	539063	4.29	312216	6.89	491790	9.12	505661	12.84	433828	14.22
OP62168-BS1	148311	2.71	572827	4.29	307285	6.89	483372	9.13	469258	12.84	412921	14.22
ZZZZZZ	148242	2.71	610555	4.29	332608	6.91	544658	9.16	403770	12.91	373063	14.33
ZZZZZZ	146765	2.71	624630	4.30	325430	6.90	478513	9.14	471768	12.86	410423	14.25
ZZZZZZ	127824	2.71	505173	4.30	283303	6.90	450693	9.14	435739	12.86	401105	14.25
JB22962-15	111975	2.71	439837	4.30	249955	6.90	394233	9.14	385337	12.86	345576	14.25
ZZZZZZ	3153*	2.72	10765*	4.30	4667*	6.90	6653*	9.14	7356*	12.85	7806*	14.24
ZZZZZZ	151687	2.71	597522	4.30	333368	6.90	535974	9.14	508263	12.85	467509	14.24
ZZZZZZ	163966	2.71	637025	4.30	351745	6.90	547359	9.14	515539	12.85	481641	14.24
ZZZZZZ	155809	2.71	618241	4.30	356796	6.90	544961	9.14	517555	12.85	477665	14.25
ZZZZZZ	153843	2.71	622701	4.30	395247	6.90	636527	9.14	595256	12.85	525643	14.24
ZZZZZZ	166144	2.71	662136	4.30	356931	6.90	566278	9.14	581229	12.85	496196	14.24
OP62177-MB1	142750	2.71	588056	4.30	335954	6.90	481963	9.13	450129	12.85	404614	14.24
JB24231-1	158883	2.71	727072	4.30	391274	6.90	643960	9.13	576377	12.85	514115	14.24
ZZZZZZ	157565	2.71	670184	4.30	352307	6.90	513044	9.13	503426	12.85	474798	14.24
ZZZZZZ	137902	2.71	559719	4.30	316393	6.90	524658	9.14	501034	12.85	458413	14.24
ZZZZZZ	153922	2.71	615770	4.29	345453	6.90	491502	9.13	499383	12.85	449199	14.23
ZZZZZZ	143042	2.71	577768	4.30	370182	6.90	571688	9.13	560534	12.85	517301	14.23
ZZZZZZ	164191	2.71	667305	4.29	370467	6.90	533307	9.13	519447	12.85	484792	14.23
ZZZZZZ	138466	2.71	581165	4.29	301003	6.89	481231	9.13	470254	12.85	421794	14.24
ZZZZZZ	167844	2.71	665424	4.30	361981	6.90	525255	9.14	504053	12.85	464735	14.24
ZZZZZZ	161549	2.71	669742	4.30	365509	6.90	542788	9.14	510156	12.86	480743	14.24
ZZZZZZ	161139	2.71	676559	4.30	337283	6.90	580037	9.14	499099	12.85	473830	14.24
JB24119-1	151872	2.71	581165	4.30	327332	6.90	499868	9.14	472772	12.85	439308	14.24
OP62168-MS	158432	2.71	667346	4.30	384839	6.90	527642	9.14	494201	12.86	452060	14.25
OP62168-MSD	164755	2.71	653693	4.30	358699	6.90	514878	9.14	493273	12.86	445344	14.24

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.

Semivolatile Internal Standard Area Summary

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	E3E2019-CC1991	**Injection Date:**	12/20/12
Lab File ID:	3E46435.D	**Injection Time:**	09:24
Instrument ID:	GCMS3E	**Method:**	SW846 8270D

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**

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

Semivolatile Internal Standard Area Summary

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	E3E2020-CC1991	**Injection Date:**	12/21/12
Lab File ID:	3E46473.D	**Injection Time:**	09:30
Instrument ID:	GCMS3E	**Method:**	SW846 8270D

	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	129578	2.70	523296	4.28	304328	6.88	471693	9.12	461387	12.84	383998	14.23
Upper Limit [a]	259156	3.20	1046592	4.78	608656	7.38	943386	9.62	922774	13.34	767996	14.73
Lower Limit [b]	64789	2.20	261648	3.78	152164	6.38	235847	8.62	230694	12.34	191999	13.73

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
OP62203-MB1	135064	2.70	545660	4.28	302509	6.88	465619	9.12	477486	12.84	440761	14.22
OP62203-BS1	143175	2.70	590418	4.28	311655	6.88	473545	9.12	482749	12.84	414274	14.22
OP62177-BS1	134658	2.70	518316	4.28	296884	6.88	428983	9.12	427334	12.84	372773	14.22
ZZZZZZ	149443	2.70	604331	4.28	314602	6.88	483113	9.12	473019	12.84	423421	14.22
JB22962-19 [c]	143150	2.70	562759	4.28	326135	6.88	489494	9.12	496748	12.84	450521	14.22
ZZZZZZ	129879	2.70	508773	4.28	279528	6.88	432463	9.11	430392	12.83	376510	14.22
JB24255-11	141735	2.70	582180	4.28	284363	6.88	458576	9.12	457518	12.84	427301	14.22
ZZZZZZ	145787	2.70	612980	4.28	315523	6.88	487064	9.11	508543	12.83	446379	14.22
ZZZZZZ	147754	2.70	601768	4.28	316229	6.88	474939	9.11	488538	12.83	450078	14.22
ZZZZZZ	145109	2.70	586030	4.28	304978	6.88	449024	9.11	461737	12.83	425780	14.22
ZZZZZZ	141779	2.70	560387	4.28	317584	6.88	466005	9.11	454691	12.83	412129	14.22
ZZZZZZ	140701	2.70	547854	4.28	296680	6.88	436816	9.11	436482	12.83	427181	14.22
ZZZZZZ	142668	2.70	573614	4.28	315499	6.88	447550	9.11	429061	12.83	347439	14.22
ZZZZZZ	145391	2.70	559462	4.28	297038	6.88	422603	9.11	419475	12.83	409995	14.22
ZZZZZZ	149182	2.70	582522	4.28	324278	6.88	464605	9.11	503399	12.83	461722	14.22
ZZZZZZ	145169	2.70	602418	4.28	324211	6.88	493662	9.11	530620	12.83	463241	14.22
ZZZZZZ	140921	2.70	598195	4.28	324156	6.88	475839	9.11	461809	12.83	421193	14.22
ZZZZZZ	161733	2.70	650809	4.28	337462	6.88	511035	9.11	534183	12.83	459105	14.22
ZZZZZZ	147159	2.70	592411	4.28	304373	6.88	487247	9.11	492996	12.83	439047	14.22
ZZZZZZ	142401	2.70	572813	4.28	308125	6.88	452678	9.11	418605	12.83	403492	14.22
ZZZZZZ	148450	2.70	611085	4.28	329355	6.88	520363	9.11	468059	12.83	424257	14.22
ZZZZZZ	146384	2.70	592493	4.28	286523	6.88	475458	9.11	481960	12.83	443890	14.22
ZZZZZZ	150850	2.70	615574	4.28	357224	6.88	510447	9.11	520211	12.83	452188	14.22
ZZZZZZ	141439	2.70	602240	4.28	295394	6.88	464904	9.11	448367	12.83	408871	14.22
ZZZZZZ	155907	2.70	625321	4.28	352808	6.88	581315	9.12	506618	12.84	461114	14.22
ZZZZZZ	164140	2.70	669159	4.28	336087	6.88	523538	9.12	507825	12.84	460522	14.23

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.

Semivolatile Internal Standard Area Summary

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	E3E2020-CC1991	**Injection Date:**	12/21/12
Lab File ID:	3E46473.D	**Injection Time:**	09:30
Instrument ID:	GCMS3E	**Method:**	SW846 8270D

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**

(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.
(c) Confirmation run for surrogate recoveries.

Semivolatile Surrogate Recovery Summary

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Method: SW846 8270D **Matrix:** SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
JB22962-1	2M48612.D	40.0	51.0	74.0
JB22962-2	2M48637.D	38.0	57.0	64.0
JB22962-2	2M48613.D	54.0	53.0	59.0
JB22962-3	2M48629.D	110.0	68.0	80.0
JB22962-3	2M48607.D	113.0	108.0	84.0
JB22962-4	2M48614.D	24.0	31.0	87.0
JB22962-5	2M48631.D	94.0	60.0	68.0
JB22962-5	2M48615.D	108.0	86.0	83.0
JB22962-6	2M48641.D	41.0	51.0	55.0
JB22962-6	2M48623.D	41.0	47.0	55.0
JB22962-7	3E46432.D	56.0	54.0	84.0
JB22962-8	3E46433.D	55.0	67.0	81.0
JB22962-9	2M48609.D	30.0	36.0	68.0
JB22962-10	2M48618.D	39.0	41.0	80.0
JB22962-11	2M48639.D	56.0	60.0	80.0
JB22962-11	2M48625.D	59.0	62.0	82.0
JB22962-12	2M48610.D	34.0	44.0	81.0
JB22962-13	2M48619.D	29.0	30.0	34.0
JB22962-14	2M48620.D	37.0	41.0	62.0
JB22962-15	3E46443.D	59.0	62.0	83.0
JB22962-15	2M48624.D	63.0	57.0	62.0
JB22962-16	2M48640.D	30.0	32.0	33.0
JB22962-16	2M48621.D	34.0	34.0	40.0
JB22962-17	2M48622.D	26.0	39.0	94.0
JB22962-18	2M48644.D	48.0	55.0	69.0
JB22962-18	2M48626.D	95.0	66.0	92.0
JB22962-19	3E46479.D	25.0	25.0* [a]	53.0
JB22962-19	2M48611.D	16.0* [a]	19.0* [a]	68.0
OP62064-BS1	2M48606.D	65.0	71.0	95.0
OP62064-MB1	2M48605.D	50.0	55.0	76.0
OP62064-MB1	3E46431.D	49.0	59.0	77.0
OP62064-MS	2M48627.D	53.0	56.0	66.0
OP62064-MSD	2M48628.D	60.0	62.0	71.0

Surrogate Compounds	Recovery Limits
S1 = Nitrobenzene-d5	21-122%
S2 = 2-Fluorobiphenyl	30-117%
S3 = Terphenyl-d14	31-129%

Semivolatile Surrogate Recovery Summary

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Method: SW846 8270D **Matrix:** SO

Samples and QC shown here apply to the above method

Surrogate Compounds	Recovery Limits

(a) Outside control limits due to matrix interference.

Initial Calibration Summary

Job Number: JB22962 **Sample:** E2M2013-ICC2013
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M46678.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
                          Response Factor Report  MS2M

  Method       : C:\MSDCHEM\1\METHODS\M2M2013.M (RTE Integrator)
  Title        : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
  Last Update  : Wed Oct 03 09:24:42 2012
  Response via : Initial Calibration

  Calibration Files
  2   =2m46672.D   5   =2m46675.D   25  =2m46677.D   80  =2m46673.D
  100 =2m46671.D   50  =2m46678.D   1   =2m46676.D   10  =2m46674.D

   Compound         2     5     25    80    100   50    1     10    Avg %RSD
  ---------------------------------------------------------------------------

102)     1,4-Dichlorobenzene-d ----------------ISTD---------------------
103) Benzaldehyde 1.132 1.122 1.168 1.169 1.096 1.007 1.173 1.182 1.131   5.17

104)     Acenaphthene-d10a     ----------------ISTD---------------------
105) 1,2,4,5-Tetr 0.467 0.461 0.471 0.478 0.497 0.475 0.489 0.482 0.478   2.44
106) 2-bromonapht 0.574 0.570 0.593 0.615 0.649 0.611 0.585 0.596 0.599   4.29

107)     Chrysene-d12a         ----------------ISTD---------------------
108) Benzidine          0.562 0.669 0.569 0.572 0.529       0.584 0.581   8.11
109) 1-chloroocta 0.406 0.404 0.454 0.463 0.481 0.457 0.351 0.447 0.433   9.82

110)     Phenanthrene-d10a     ----------------ISTD---------------------
111) Atrazine     0.101 0.095 0.108 0.115 0.123 0.111 0.088 0.106 0.106  10.61
112) o-terphenyl  0.539 0.545 0.585 0.613 0.656 0.601 0.549 0.582 0.584   6.84

113) I   Naphthalene-d8a       ----------------ISTD---------------------
114) hydroquinone 0.240 0.269 0.327 0.377 0.408 0.414 0.293 0.298 0.328  19.81
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           M2M2009.M         Wed Oct 03 09:25:36 2012   MS2M
```

8.7.1

8

Initial Calibration Verification

Job Number: JB22962 **Sample:** E2M2013-ICV2013
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M46680.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e2m2013\2m46680.D          Vial: 11
Acq On    :  2 Oct 2012   5:51 pm                    Operator: olgaa
Sample    : icv2013-50                               Inst    : MS2M
Misc      : op60024,e2m2013,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2M2009.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
Last Update  : Wed Oct 03 09:37:56 2012
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
104	Acenaphthene-d10a	1.000	1.000	0.0	88	0.00	7.28
105	1,2,4,5-Tetrachlorobenzen	0.478	0.455	4.8	85	0.00	6.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2m46678.D M2M2009.M Wed Oct 03 12:46:45 2012 MS2M

8.7.2

8

Initial Calibration Verification

Job Number: JB22962 **Sample:** E2M2013-ICV2013
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M46681.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e2m2013\2m46681.D          Vial: 12
Acq On    :  2 Oct 2012   6:15 pm                    Operator: olgaa
Sample    : icv2013-50                               Inst    : MS2M
Misc      : op60024,e2m2013,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2M2009.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
Last Update  : Wed Oct 03 09:37:56 2012
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
102	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	144	0.00	3.03
103	Benzaldehyde	1.131	1.168	-3.3	167	0.00	2.58
108	Phenanthrene-d10a	1.000	1.000	0.0	128	0.00	9.53
109	Atrazine	0.106	0.127	-19.8	147	0.00	9.38

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2m46678.D M2M2009.M Wed Oct 03 12:49:22 2012 MS2M

8.7.3

8

Initial Calibration Verification

Job Number: JB22962 **Sample:** E2M2013-ICV2013
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M46682.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e2m2013\2m46682.D          Vial: 13
Acq On    :  2 Oct 2012   6:40 pm                    Operator: olgaa
Sample    : icv2013-50                               Inst    : MS2M
Misc      : op60024,e2m2013,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2M2009.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
Last Update  : Wed Oct 03 09:37:56 2012
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
106	Chrysene-d12a	1.000	1.000	0.0	123	0.00	13.16
107	Benzidine	0.581	0.897	-54.4#	209	0.00	11.69

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2m46678.D M2M2009.M Wed Oct 03 12:50:33 2012 MS2M

8.7.4

8

Initial Calibration Summary

Job Number: JB22962 **Sample:** E2M2034-ICC2034
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M47231.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Response Factor Report MS2M

Method : C:\msdchem\1\METHODS\M2M2034.M (RTE Integrator)
Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
Last Update : Mon Oct 22 13:58:41 2012
Response via : Initial Calibration

Calibration Files
2 =2m47230.D 5 =2m47232.D 25 =2m47226.D 80 =2m47229.D
100 =2m47227.D 50 =2m47231.D 1 =2m47228.D 10 =2m47233.D

Compound	2	5	25	80	100	50	1	10	Avg	%RSD
1) I 1,4-Dichlorobenzene-d					ISTD					
2) 1,4-Dioxane	0.594	0.572	0.640	0.557	0.565	0.599	0.698	0.579	0.600	7.83
3) Pyridine	1.809	1.630	1.625	1.604	1.611	1.673	2.017	1.684	1.707	8.30
4) N-Nitrosodim	1.138	1.036	1.079	1.034	1.034	1.060	1.244	1.117	1.093	6.64
5) 2-Fluorophen	1.444	1.384	1.414	1.468	1.462	1.406	1.562	1.505	1.456	3.97
6) Indene	2.818	2.644	2.783	2.561	2.511	2.782	3.006	2.823	2.741	5.86
7) Cumene	3.887	3.659	3.762	3.422	3.356	3.748	4.095	3.821	3.719	6.48
8) Phenol-d5	2.042	1.936	1.861	1.900	1.847	1.852	2.094	2.077	1.951	5.34
9) Phenol	2.182	2.134	2.169	2.062	1.986	2.168	2.278	2.247	2.153	4.39
10) Aniline	2.524	2.285	1.943	1.774	1.741	1.838	2.706	2.240	2.131	17.03
11) bis(2-Chloro	1.706	1.618	1.600	1.548	1.499	1.602	1.798	1.711	1.635	5.93
12) 2-Chlorophen	1.612	1.520	1.561	1.524	1.503	1.550	1.740	1.621	1.579	4.92
13) Decane	1.987	1.902	1.900	1.676	1.611	1.908	2.131	1.993	1.888	9.00
14) 1,3-Dichloro	1.806	1.680	1.694	1.639	1.625	1.674	1.923	1.778	1.727	5.84
15) 1,4-Dichloro	1.898	1.744	1.738	1.672	1.666	1.710	2.120	1.817	1.796	8.46
16) Benzyl alcoh	1.134	1.076	1.113	1.104	1.087	1.103	1.187	1.165	1.121	3.44
17) 1,2-Dichloro	1.753	1.622	1.602	1.573	1.545	1.583	1.873	1.691	1.655	6.71
18) Acetophenone	2.386	2.210	2.253	2.211	2.135	2.293	2.310	2.406	2.276	4.05
19) 2-Methylphen	1.471	1.431	1.467	1.454	1.417	1.467	1.603	1.555	1.483	4.28
20) 2,2'-oxybis(	2.801	2.702	2.522	2.492	2.370	2.602	2.971	2.890	2.669	7.82
21) 3&4-Methylph	1.593	1.542	1.596	1.597	1.578	1.630	1.575	1.698	1.601	2.89
22) n-Nitroso-di	1.430	1.352	1.290	1.307	1.267	1.319	1.472	1.446	1.360	5.76
23) Hexachloroet	0.544	0.497	0.515	0.512	0.512	0.508	0.575	0.535	0.525	4.82
24) I Naphthalene-d8					ISTD					
25) Nitrobenzene	0.453	0.422	0.406	0.403	0.405	0.413	0.485	0.447	0.429	6.88
26) Nitrobenzene	0.463	0.448	0.432	0.422	0.419	0.437	0.517	0.470	0.451	7.14
27) Quinoline	0.775	0.699	0.754	0.708	0.702	0.744	0.807	0.755	0.743	5.11
28) Isophorone	0.796	0.755	0.724	0.682	0.664	0.723	0.854	0.805	0.750	8.67
29) 2-Nitropheno	0.219	0.201	0.213	0.208	0.209	0.211	0.223	0.224	0.214	3.69
30) 2,4-Dimethyl	0.285	0.303	0.323	0.355	0.357	0.356	0.310	0.328	0.327	8.29
31) Benzoic acid		0.236	0.278	0.328	0.323	0.315		0.306	0.298	11.80
32) bis(2-Chloro	0.437	0.416	0.412	0.402	0.401	0.414	0.463	0.448	0.424	5.29
33) 2,4-Dichloro	0.296	0.275	0.291	0.283	0.285	0.288	0.301	0.301	0.290	3.16
34) 2,6-Dichloro	0.293	0.280	0.287	0.276	0.276	0.283	0.317	0.296	0.289	4.79
35) 1,3,5-Trichl	0.324	0.292	0.311	0.289	0.293	0.304	0.357	0.313	0.310	7.16
36) 1,2,4-Trichl	0.323	0.296	0.295	0.289	0.295	0.293	0.350	0.310	0.306	6.76
37) 1,2,3-Trichl	0.309	0.285	0.300	0.281	0.286	0.294	0.328	0.302	0.298	5.18
38) Naphthalene	1.192	1.101	1.097	1.005	0.995	1.088	1.276	1.150	1.113	8.39
39) 4-Chloroanil	0.503	0.463	0.437	0.412	0.405	0.428	0.537	0.481	0.458	10.09
40) 2,3-Dichloro	0.365	0.335	0.353	0.339	0.339	0.352	0.381	0.363	0.353	4.42
41) Caprolactam	0.194	0.189	0.193	0.198	0.192	0.206	0.201	0.214	0.198	4.30
42) Hexachlorobu	0.175	0.162	0.161	0.161	0.167	0.161	0.194	0.173	0.169	6.73
43) 4-Chloro-3-m	0.347	0.318	0.337	0.337	0.333	0.350	0.366	0.362	0.344	4.57
44) 2-Methylnaph	0.715	0.662	0.662	0.640	0.635	0.666	0.760	0.720	0.683	6.47
45) 1-Methylnaph	0.737	0.690	0.710	0.673	0.660	0.703	0.786	0.734	0.712	5.65

Initial Calibration Summary

Job Number: JB22962 **Sample:** E2M2034-ICC2034
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M47231.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

46)	Dimethylnaph	0.635	0.608	0.639	0.617	0.612	0.640	0.679	0.659	0.636	3.84
47)	I Acenaphthene-d10	----------ISTD----------									
48)	Hexachlorocy	0.242	0.250	0.301	0.330	0.340	0.316	0.216	0.305	0.287	15.75
49)	2,4,6-Trichl	0.346	0.314	0.350	0.347	0.350	0.346	0.349	0.344	0.343	3.52
50)	2,4,5-Trichl	0.353	0.334	0.369	0.371	0.376	0.375	0.384	0.373	0.367	4.37
51)	2-Fluorobiph	1.398	1.289	1.260	1.237	1.241	1.238	1.520	1.339	1.315	7.64
52)	2-Chloronaph	1.278	1.159	1.146	1.123	1.124	1.133	1.377	1.216	1.195	7.64
53)	Biphenyl	1.642	1.513	1.555	1.456	1.457	1.545	1.756	1.585	1.564	6.38
54)	2-Nitroanili	0.446	0.424	0.430	0.447	0.435	0.449	0.440	0.495	0.446	4.92
55)	Dimethylphth	1.513	1.349	1.342	1.329	1.313	1.352	1.575	1.441	1.402	6.92
56)	Acenaphthyle	1.986	1.854	1.951	1.819	1.782	1.941	2.128	1.992	1.932	5.75
57)	2,6-Dinitrot	0.310	0.281	0.306	0.315	0.314	0.309	0.318	0.321	0.309	3.99
58)	3-Nitroanili	0.396	0.378	0.401	0.390	0.391	0.397	0.413	0.422	0.398	3.44
59)	Acenaphthene	1.318	1.210	1.216	1.148	1.136	1.220	1.414	1.275	1.242	7.38
60)	2,4-Dinitrop			0.159	0.195	0.199	0.173		0.163	0.178	10.25
61)	4-Nitropheno	0.151	0.135	0.172	0.191	0.187	0.193	0.150	0.189	0.171	13.37
62)	Dibenzofuran	1.826	1.671	1.647	1.593	1.570	1.635	1.945	1.745	1.704	7.49
63)	2,4-Dinitrot	0.425	0.404	0.428	0.435	0.433	0.430	0.421	0.453	0.429	3.18
64)	2,3,4,6-Tetr	0.250	0.226	0.271	0.292	0.295	0.282	0.276	0.272	0.271	8.39
65)	Diethylphtha	1.567	1.416	1.399	1.392	1.368	1.425	1.630	1.499	1.462	6.43
66)	Fluorene	1.405	1.288	1.324	1.281	1.266	1.333	1.492	1.368	1.345	5.63
67)	4-Chlorophen	0.640	0.587	0.586	0.588	0.595	0.590	0.671	0.622	0.610	5.19
68)	4-Nitroanili	0.399	0.363	0.390	0.393	0.388	0.400	0.423	0.417	0.397	4.68
69)	I Phenanthrene-d10	----------ISTD----------									
70)	4,6-Dinitro-	0.104	0.116	0.159	0.166	0.168	0.164		0.158	0.148	17.83
71)	n-Nitrosodip	0.670	0.631	0.631	0.607	0.610	0.616	0.729	0.653	0.643	6.36
72)	1,2-Diphenyl	1.126	1.070	1.028	1.010	0.978	1.032	1.203	1.129	1.072	7.02
73)	2,4,6-Tribro	0.088	0.084	0.088	0.103	0.108	0.091	0.097	0.094	0.094	8.86
74)	4-Bromopheny	0.210	0.195	0.205	0.208	0.213	0.201	0.228	0.208	0.208	4.74
75)	Hexachlorobe	0.236	0.214	0.212	0.223	0.227	0.212	0.248	0.220	0.224	5.65
76)	Pentachlorop		0.084	0.130	0.147	0.152	0.135		0.119	0.128	19.14
77)	Phenanthrene	1.298	1.202	1.195	1.126	1.122	1.171	1.442	1.241	1.225	8.58
78)	Anthracene	1.269	1.157	1.205	1.142	1.132	1.178	1.385	1.243	1.214	6.93
79)	Carbazole	1.208	1.128	1.187	1.081	1.072	1.156	1.382	1.189	1.175	8.29
80)	Di-n-butylph	1.533	1.446	1.492	1.414	1.393	1.485	1.675	1.573	1.502	6.12
81)	Fluoranthene	1.204	1.132	1.199	1.136	1.144	1.212	1.433	1.205	1.208	8.02
82)	Octadecane	0.686	0.652	0.665	0.600	0.577	0.664	0.724	0.706	0.659	7.59
83)	I Chrysene-d12	----------ISTD----------									
84)	Pyrene	1.350	1.230	1.280	1.173	1.186	1.235	1.622	1.272	1.294	11.13
85)	Terphenyl-d1	0.818	0.758	0.762	0.768	0.787	0.751	1.034	0.788	0.808	11.61
86)	Butylbenzylp	0.717	0.650	0.685	0.633	0.624	0.666	0.867	0.708	0.694	11.18
87)	Butyl steara	0.423	0.406	0.422	0.373	0.359	0.412	0.511	0.445	0.419	11.11
88)	Benzo[a]anth	1.279	1.134	1.184	1.129	1.131	1.163	1.643	1.179	1.230	14.12
89)	3,3'-Dichlor	0.481	0.442	0.458	0.474	0.484	0.460	0.606	0.465	0.484	10.60
90)	Chrysene	1.286	1.160	1.135	1.124	1.135	1.144	1.598	1.175	1.220	13.24
91)	bis(2-Ethylh	1.006	0.922	0.972	0.895	0.886	0.955	1.235	0.988	0.982	11.28
92)	I Perylene-d12	----------ISTD----------									
93)	Di-n-octylph	1.706	1.622	1.880	1.623	1.595	1.808	2.128	1.775	1.767	10.03
94)	Benzo[b]fluo	1.312	1.202	1.342	1.428	1.616	1.319	1.637	1.286	1.393	11.29
95)	Benzo[k]fluo	1.289	1.268	1.297	1.130	0.956	1.362	1.500	1.225	1.253	12.81
96)	Benzo[a]pyre	1.161	1.080	1.209	1.139	1.152	1.204	1.387	1.130	1.183	7.80
97)	Indeno[1,2,3	1.305	1.246	1.421	1.370	1.399	1.410	1.525	1.313	1.374	6.26
98)	Dibenz(a,h)a	0.921	0.873	1.052	0.972	0.993	1.031	1.055	0.939	0.979	6.73
99)	Dibenz[a,h]a	1.082	1.023	1.202	1.189	1.222	1.200	1.202	1.110	1.154	6.29
100)	7,12-Dimethy	0.508	0.480	0.538	0.636	0.649	0.607	0.652	0.504	0.572	12.56
101)	Benzo[g,h,i]	1.152	1.092	1.191	1.155	1.181	1.200	1.278	1.134	1.173	4.66

8.7.5

8

Initial Calibration Summary

Job Number: JB22962 **Sample:** E2M2034-ICC2034
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M47231.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
-------------------------------------------------------------------------------
(#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          M2M2034.M         Mon Oct 22 14:35:25 2012   MS2M
```

Initial Calibration Verification

Job Number: JB22962 **Sample:** E2M2034-ICV2034
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M47234.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e2m2034\2m47234.D          Vial: 10
Acq On    : 22 Oct 2012   1:45 pm                     Operator: olgaa
Sample    : icv2034-50                                Inst    : MS2M
Misc      : op60718,e2m2034,                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2M2034.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
Last Update  : Tue Oct 23 14:27:29 2012
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	89	0.01	2.78
9	t	Phenol	2.153	1.953	9.3	80	0.01	2.57
12	t	2-Chlorophenol	1.579	1.482	6.1	85	0.01	2.61
19	t	2-Methylphenol	1.483	1.391	6.2	85	0.00	3.22
21	t	3&4-Methylphenol	1.601	1.471	8.1	80	0.00	3.41
24	I	Naphthalene-d8	1.000	1.000	0.0	85	0.00	4.37
29	t	2-Nitrophenol	0.214	0.198	7.5	80	0.01	3.92
30	t	2,4-Dimethylphenol	0.327	0.376	-15.0	90	0.01	4.09
31	t	Benzoic acid	0.298	0.265	11.1	72	0.04	4.38
33	t	2,4-Dichlorophenol	0.290	0.277	4.5	82	0.00	4.27
34	t	2,6-Dichlorophenol	0.289	0.275	4.8	83	0.01	4.58
43	t	4-Chloro-3-methylphenol	0.344	0.317	7.8	77	0.00	5.41
47	I	Acenaphthene-d10	1.000	1.000	0.0	81	0.01	6.98
49	t	2,4,6-Trichlorophenol	0.343	0.335	2.3	79	0.00	5.94
50	t	2,4,5-Trichlorophenol	0.367	0.365	0.5	79	0.00	6.00
60	t	2,4-Dinitrophenol	0.178	0.148	16.9	70	0.00	7.21
61	t	4-Nitrophenol	0.171	0.170	0.6	72	0.00	7.50
64		2,3,4,6-Tetrachlorophenol	0.271	0.259	4.4	75	0.00	7.61
69	I	Phenanthrene-d10	1.000	1.000	0.0	79	0.00	9.22
70	t	4,6-Dinitro-2-methylpheno	0.148	0.149	-0.7	72	0.00	8.06
76	t	Pentachlorophenol	0.128	0.114	10.9	66	0.00	9.12

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2m47272.D M2M2034.M Tue Oct 23 16:06:52 2012 MS2M

Initial Calibration Verification

Job Number: JB22962 **Sample:** E2M2034-ICV2034
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M47235.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\e2m2034\2m47235.D Vial: 11
Acq On : 22 Oct 2012 2:08 pm Operator: olgaa
Sample : icv2034-50 Inst : MS2M
Misc : op60718,e2m2034, Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M2M2034.M (RTE Integrator)
Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
Last Update : Tue Oct 23 14:27:29 2012
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	124	0.01	2.79
3	t	Pyridine	1.707	1.474	13.6	109	0.00	0.96
4	t	N-Nitrosodimethylamine	1.093	0.994	9.1	116	0.00	0.96
11	t	bis(2-Chloroethyl)ether	1.635	1.515	7.3	117	0.01	2.58
14	t	1,3-Dichlorobenzene	1.727	1.590	7.9	118	0.01	2.74
15	t	1,4-Dichlorobenzene	1.796	1.629	9.3	118	0.01	2.80
16	t	Benzyl alcohol	1.121	1.027	8.4	115	0.02	3.02
17	t	1,2-Dichlorobenzene	1.655	1.541	6.9	120	0.01	3.00
20	t	2,2'-oxybis(1-Chloropropa	2.669	2.353	11.8	112	0.01	3.20
22	t	n-Nitroso-di-n-propylamin	1.360	1.168	14.1	110	0.01	3.36
23	t	Hexachloroethane	0.525	0.484	7.8	118	0.01	3.36
24	I	Naphthalene-d8	1.000	1.000	0.0	119	0.01	4.38
26	t	Nitrobenzene	0.451	0.414	8.2	113	0.02	3.50
28	t	Isophorone	0.750	0.715	4.7	118	0.01	3.81
32	t	bis(2-Chloroethoxy)methan	0.424	0.422	0.5	122	0.02	4.19
36	t	1,2,4-Trichlorobenzene	0.306	0.289	5.6	118	0.01	4.34
38	t	Naphthalene	1.113	1.033	7.2	113	0.01	4.41
42	t	Hexachlorobutadiene	0.169	0.160	5.3	118	0.01	4.71
44	t	2-Methylnaphthalene	0.683	0.582	14.8	104	0.01	5.41
47	I	Acenaphthene-d10	1.000	1.000	0.0	115	0.02	6.99
48	t	Hexachlorocyclopentadiene	0.287	0.266	7.3	96	0.01	5.77
52	t	2-Chloronaphthalene	1.195	1.108	7.3	112	0.01	6.12
54	t	2-Nitroaniline	0.446	0.405	9.2	103	0.02	6.41
55	t	Dimethylphthalate	1.402	1.269	9.5	108	0.02	6.80
56	t	Acenaphthylene	1.932	1.624	15.9	96	0.01	6.74
57	t	2,6-Dinitrotoluene	0.309	0.294	4.9	109	0.02	6.87
58	t	3-Nitroaniline	0.398	0.341	14.3	99	0.02	7.06
59	t	Acenaphthene	1.242	1.137	8.5	107	0.02	7.04
62	t	Dibenzofuran	1.704	1.535	9.9	108	0.01	7.29
63	t	2,4-Dinitrotoluene	0.429	0.394	8.2	105	0.02	7.46
65	t	Diethylphthalate	1.462	1.324	9.4	107	0.02	7.91
66	t	Fluorene	1.345	1.276	5.1	110	0.01	7.81
67	t	4-Chlorophenyl-phenylethe	0.610	0.567	7.0	110	0.02	7.90
68	t	4-Nitroaniline	0.397	0.366	7.8	105	0.02	8.02
69	I	Phenanthrene-d10	1.000	1.000	0.0	110	0.01	9.23
71	t	n-Nitrosodiphenylamine	0.643	0.594	7.6	106	0.02	8.12
72	t	1,2-Diphenylhydrazine	1.072	1.043	2.7	111	0.02	8.13
74	t	4-Bromophenyl-phenylether	0.208	0.203	2.4	112	0.02	8.63
75	t	Hexachlorobenzene	0.224	0.214	4.5	111	0.01	8.79

Initial Calibration Verification

Job Number: JB22962 **Sample:** E2M2034-ICV2034
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M47235.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

77	t	Phenanthrene	1.225	1.151	6.0	108	0.01	9.26
78	t	Anthracene	1.214	1.179	2.9	110	0.02	9.33
79	t	Carbazole	1.175	1.103	6.1	105	0.02	9.67
80	t	Di-n-butylphthalate	1.502	1.432	4.7	106	0.02	10.48
81	t	Fluoranthene	1.208	1.136	6.0	103	0.01	11.10
83	I	Chrysene-d12	1.000	1.000	0.0	108	0.01	12.93
84	t	Pyrene	1.294	1.208	6.6	105	0.01	11.40
86	t	Butylbenzylphthalate	0.694	0.644	7.2	104	0.01	12.49
88	t	Benzo[a]anthracene	1.230	1.119	9.0	104	0.01	12.91
89	t	3,3'-Dichlorobenzidine	0.484	0.385	20.5	90	0.00	12.96
90	t	Chrysene	1.220	1.152	5.6	109	0.01	12.95
91	t	bis(2-Ethylhexyl)phthalat	0.982	0.911	7.2	103	0.01	13.20
92	I	Perylene-d12	1.000	1.000	0.0	112	0.01	14.31
93	t	Di-n-octylphthalate	1.767	1.681	4.9	104	0.01	13.80
94	t	Benzo[b]fluoranthene	1.393	1.351	3.0	115	0.01	13.99
95	t	Benzo[k]fluoranthene	1.253	1.099	12.3	91	0.01	14.01
96	t	Benzo[a]pyrene	1.183	1.148	3.0	107	0.01	14.25
97	t	Indeno[1,2,3-cd]pyrene	1.374	1.303	5.2	104	0.01	15.13
99	t	Dibenz[a,h]anthracene	1.154	1.097	4.9	103	0.01	15.15
101	t	Benzo[g,h,i]perylene	1.173	1.151	1.9	108	0.01	15.31

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2m47272.D M2M2034.M Tue Oct 23 16:10:59 2012 MS2M

8.7.7

8

Initial Calibration Verification

Job Number: JB22962 **Sample:** E2M2034-ICV2034
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M47236.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e2m2034\2m47236.D          Vial: 12
Acq On    : 22 Oct 2012   2:30 pm                     Operator: olgaa
Sample    : icv2034-50                                Inst    : MS2M
Misc      : op60718,e2m2034,                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2M2034.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
Last Update  : Tue Oct 23 14:27:29 2012
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	92	0.01	2.79
2	t	1,4-Dioxane	0.600	0.731	-21.8	112	0.00	0.83
6	t	Indene	2.741	3.143	-14.7	104	0.00	3.10
7	t	Cumene	3.719	4.327	-16.3	106	0.01	2.05
13	t	Decane	1.888	2.091	-10.8	101	0.00	2.68
18	t	Acetophenone	2.276	2.570	-12.9	103	0.00	3.30
24	I	Naphthalene-d8	1.000	1.000	0.0	88	0.00	4.37
27	t	Quinoline	0.743	0.829	-11.6	98	0.00	4.89
40	t	2,3-Dichloroaniline	0.353	0.362	-2.5	91	0.02	5.92
41	t	Caprolactam	0.198	0.212	-7.1	91	-0.01	5.02
45	t	1-Methylnaphthalene	0.712	0.791	-11.1	99	0.01	5.56
46	t	Dimethylnaphthalene	0.636	0.726	-14.2	100	0.01	6.37
47	I	Acenaphthene-d10	1.000	1.000	0.0	87	0.01	6.98
53	t	Biphenyl	1.564	1.713	-9.5	96	0.01	6.15
69	I	Phenanthrene-d10	1.000	1.000	0.0	85	0.00	9.22
82	t	Octadecane	0.659	0.727	-10.3	93	0.02	9.39
92	I	Perylene-d12	1.000	1.000	0.0	74	0.00	14.30
100	t	7,12-Dimethylbenz(a)anthr	0.572	0.668	-16.8	82	0.00	14.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2m47272.D M2M2034.M Tue Oct 23 16:14:35 2012 MS2M

8.7.8

8

Initial Calibration Verification

Job Number: JB22962 **Sample:** E2M2034-ICV2034
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M47237.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e2m2034\2m47237.D          Vial: 13
Acq On    : 22 Oct 2012   2:53 pm                    Operator: olgaa
Sample    : icv2034-50                               Inst    : MS2M
Misc      : op60718,e2m2034,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2M2034.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
Last Update  : Tue Oct 23 14:27:29 2012
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	101	0.01	2.79
5	S	2-Fluorophenol	1.456	1.541	-5.8	111	0.01	1.70
8	S	Phenol-d5	1.951	1.930	1.1	106	0.01	2.56
24	I	Naphthalene-d8	1.000	1.000	0.0	99	0.00	4.37
25	S	Nitrobenzene-d5	0.429	0.426	0.7	102	0.01	3.48
47	I	Acenaphthene-d10	1.000	1.000	0.0	96	0.01	6.98
51	S	2-Fluorobiphenyl	1.315	1.315	0.0	102	0.01	6.04
69	I	Phenanthrene-d10	1.000	1.000	0.0	94	0.00	9.22
73	S	2,4,6-Tribromophenol	0.094	0.093	1.1	95	0.00	8.22
83	I	Chrysene-d12	1.000	1.000	0.0	89	0.00	12.92
85	S	Terphenyl-d14	0.808	0.925	-14.5	109	0.01	11.76

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 2m47272.D  M2M2034.M        Tue Oct 23 16:16:30 2012   MS2M
```

8.7.9

8

Initial Calibration Verification

Job Number: JB22962 **Sample:** E2M2034-ICV2034
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M47238.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e2m2034\2m47238.D          Vial: 14
Acq On    : 22 Oct 2012   3:16 pm                    Operator: olgaa
Sample    : icv2034-50                               Inst    : MS2M
Misc      : op60718,e2m2034,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2M2034.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
Last Update  : Tue Oct 23 14:27:29 2012
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	140	0.01	2.79
10		Aniline	2.131	2.294	-7.6	174	0.01	2.50
24	I	Naphthalene-d8	1.000	1.000	0.0	141	0.01	4.38
39	t	4-Chloroaniline	0.458	0.426	7.0	140	0.01	4.58

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 2m47272.D  M2M2034.M        Tue Oct 23 16:18:11 2012   MS2M
```

8.7.10

8

Continuing Calibration Summary

Job Number: JB22962 **Sample:** E2M2082-CC2034
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M48603.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e2m2082\2m48603.D          Vial: 2
Acq On    : 19 Dec 2012   9:42 am                    Operator: olgaa
Sample    : cc2034-25                                Inst    : MS2M
Misc      : op62037,e2m2082,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2M2034.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
Last Update  : Wed Dec 19 15:25:19 2012
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	77	0.00	2.38
2	t	1,4-Dioxane	0.600	0.428	28.7#	52	0.00	0.65
3	t	Pyridine	1.707	1.073	37.1#	51	0.00	0.76
4	t	N-Nitrosodimethylamine	1.093	0.681	37.7#	49	0.00	0.76
5	S	2-Fluorophenol	1.456	1.155	20.7#	63	0.00	1.42
6	t	Indene	2.741	2.832	-3.3	78	0.00	2.67
7	t	Cumene	3.719	3.576	3.8	73	0.00	1.69
8	S	Phenol-d5	1.951	1.854	5.0	77	0.00	2.21
9	t	Phenol	2.153	2.120	1.5	75	0.00	2.22
10		Aniline	2.131	1.676	21.4#	66	0.00	2.13
11	t	bis(2-Chloroethyl)ether	1.635	1.534	6.2	74	0.00	2.20
12	t	2-Chlorophenol	1.579	1.573	0.4	78	0.00	2.23
13	t	Decane	1.888	1.664	11.9	68	0.00	2.28
14	t	1,3-Dichlorobenzene	1.727	1.654	4.2	75	0.00	2.34
15	t	1,4-Dichlorobenzene	1.796	1.735	3.4	77	0.00	2.39
16	t	Benzyl alcohol	1.121	1.107	1.2	77	0.00	2.62
17	t	1,2-Dichlorobenzene	1.655	1.660	-0.3	80	0.00	2.59
18	t	Acetophenone	2.276	2.525	-10.9	86	0.00	2.89
19	t	2-Methylphenol	1.483	1.508	-1.7	79	0.00	2.84
20	t	2,2'-oxybis(1-Chloropropa	2.669	2.225	16.6	68	0.00	2.77
21	t	3&4-Methylphenol	1.601	1.703	-6.4	82	0.00	3.04
22	t	n-Nitroso-di-n-propylamin	1.360	1.397	-2.7	83	0.00	2.94
23	t	Hexachloroethane	0.525	0.559	-6.5	84	0.00	2.90
24	I	Naphthalene-d8	1.000	1.000	0.0	92	0.00	3.90
25	S	Nitrobenzene-d5	0.429	0.394	8.2	89	0.00	3.05
26	t	Nitrobenzene	0.451	0.458	-1.6	97	0.00	3.07
27	t	Quinoline	0.743	0.749	-0.8	91	0.00	4.43
28	t	Isophorone	0.750	0.705	6.0	89	0.00	3.37
29	t	2-Nitrophenol	0.214	0.202	5.6	87	0.00	3.48
30	t	2,4-Dimethylphenol	0.327	0.332	-1.5	94	0.00	3.67
31	t	Benzoic acid	0.298	0.127	57.4#	42	0.00	4.02
32	t	bis(2-Chloroethoxy)methan	0.424	0.367	13.4	82	0.00	3.74
33	t	2,4-Dichlorophenol	0.290	0.293	-1.0	92	0.00	3.85
34	t	2,6-Dichlorophenol	0.289	0.285	1.4	91	0.00	4.13
35		1,3,5-Trichlorobenzene	0.310	0.295	4.8	87	0.00	3.46
36	t	1,2,4-Trichlorobenzene	0.306	0.293	4.2	91	0.00	3.88
37		1,2,3-Trichlorobenzene	0.298	0.301	-1.0	92	0.00	4.19
38	t	Naphthalene	1.113	1.060	4.8	89	0.00	3.92
39	t	4-Chloroaniline	0.458	0.423	7.6	89	0.00	4.13
40	t	2,3-Dichloroaniline	0.353	0.377	-6.8	98	0.00	5.43
41	t	Caprolactam	0.198	0.192	3.0	91	0.00	4.63

Continuing Calibration Summary

Job Number: JB22962 **Sample:** E2M2082-CC2034
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M48603.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

42	t	Hexachlorobutadiene	0.169	0.171	-1.2	97	0.00	4.22
43	t	4-Chloro-3-methylphenol	0.344	0.368	-7.0	100	0.00	5.02
44	t	2-Methylnaphthalene	0.683	0.661	3.2	92	0.00	4.91
45	t	1-Methylnaphthalene	0.712	0.812	-14.0	105	0.00	5.06
46	t	Dimethylnaphthalene	0.636	0.689	-8.3	99	0.00	5.86
47	I	Acenaphthene-d10	1.000	1.000	0.0	106	0.00	6.46
48	t	Hexachlorocyclopentadiene	0.287	0.134	53.3#	47	0.00	5.26
49	t	2,4,6-Trichlorophenol	0.343	0.302	12.0	91	0.00	5.49
50	t	2,4,5-Trichlorophenol	0.367	0.320	12.8	92	0.00	5.59
51	S	2-Fluorobiphenyl	1.315	1.169	11.1	98	0.00	5.54
52	t	2-Chloronaphthalene	1.195	1.101	7.9	102	0.00	5.62
53	t	Biphenyl	1.564	1.455	7.0	99	0.00	5.65
54	t	2-Nitroaniline	0.446	0.434	2.7	107	0.00	5.94
55	t	Dimethylphthalate	1.402	1.391	0.8	110	0.00	6.30
56	t	Acenaphthylene	1.932	1.870	3.2	101	0.00	6.22
57	t	2,6-Dinitrotoluene	0.309	0.314	-1.6	109	0.00	6.39
58	t	3-Nitroaniline	0.398	0.385	3.3	102	0.00	6.59
59	t	Acenaphthene	1.242	1.188	4.3	103	0.00	6.51
62	t	Dibenzofuran	1.704	1.649	3.2	106	0.00	6.77
63	t	2,4-Dinitrotoluene	0.429	0.467	-8.9	115	0.00	7.01
64		2,3,4,6-Tetrachlorophenol	0.271	0.137	49.4#	54	0.00	7.14
65	t	Diethylphthalate	1.462	1.562	-6.8	118	0.00	7.40
66	t	Fluorene	1.345	1.399	-4.0	112	0.00	7.29
67	t	4-Chlorophenyl-phenylethe	0.610	0.627	-2.8	113	0.00	7.37
68	t	4-Nitroaniline	0.397	0.413	-4.0	112	0.00	7.55
69	I	Phenanthrene-d10	1.000	1.000	0.0	121	0.00	8.69
70	t	4,6-Dinitro-2-methylpheno	0.148	0.073	50.7#	56	0.00	7.65
71	t	n-Nitrosodiphenylamine	0.643	0.595	7.5	115	0.00	7.60
72	t	1,2-Diphenylhydrazine	1.072	0.965	10.0	114	0.00	7.60
73	S	2,4,6-Tribromophenol	0.094	0.094	0.0	131	0.00	7.72
74	t	4-Bromophenyl-phenylether	0.208	0.204	1.9	121	0.00	8.10
75	t	Hexachlorobenzene	0.224	0.232	-3.6	133	0.00	8.26
77	t	Phenanthrene	1.225	1.143	6.7	116	0.00	8.72
78	t	Anthracene	1.214	1.156	4.8	116	0.00	8.80
79	t	Carbazole	1.175	1.157	1.5	118	0.00	9.16
80	t	Di-n-butylphthalate	1.502	1.572	-4.7	128	0.00	9.94
81	t	Fluoranthene	1.208	1.238	-2.5	125	0.00	10.56
82	t	Octadecane	0.659	0.562	14.7	103	0.00	8.86
83	I	Chrysene-d12	1.000	1.000	0.0	141	0.00	12.51
84	t	Pyrene	1.294	1.149	11.2	126	0.00	10.87
85	S	Terphenyl-d14	0.808	0.736	8.9	136	0.00	11.27
86	t	Butylbenzylphthalate	0.694	0.662	4.6	136	0.00	12.05
87		Butyl stearate	0.419	0.337	19.6	112	0.00	12.20
88	t	Benzo[a]anthracene	1.230	1.174	4.6	140	0.00	12.49
89	t	3,3'-Dichlorobenzidine	0.484	0.427	11.8	131	0.00	12.56
90	t	Chrysene	1.220	1.057	13.4	131	0.00	12.54
91	t	bis(2-Ethylhexyl)phthalat	0.982	0.929	5.4	135	0.00	12.80
92	I	Perylene-d12	1.000	1.000	0.0	136	0.00	13.92
93	t	Di-n-octylphthalate	1.767	1.904	-7.8	138	0.00	13.41
94	t	Benzo[b]fluoranthene	1.393	1.384	0.6	140	0.00	13.60
95	t	Benzo[k]fluoranthene	1.253	1.350	-7.7	142	0.00	13.62
96	t	Benzo[a]pyrene	1.183	1.184	-0.1	133	0.00	13.87
97	t	Indeno[1,2,3-cd]pyrene	1.374	1.414	-2.9	135	0.00	14.76
98	t	Dibenz(a,h)acridine	0.979	1.045	-6.7	135	0.00	14.61
99	t	Dibenz[a,h]anthracene	1.154	1.195	-3.6	135	0.00	14.77
100	t	7,12-Dimethylbenz(a)anthr	0.572	0.508	11.2	129	0.00	13.60

Continuing Calibration Summary

Job Number: JB22962 **Sample:** E2M2082-CC2034
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M48603.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
101 t   Benzo[g,h,i]perylene        1.173   1.107      5.6  127   0.00   14.93

 ---------------------------------------------------------------------------
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    (#) = Out of Range               SPCC's out = 0  CCC's out = 0
     2m46677.D  M2M2034.M        Wed Dec 19 15:25:47 2012   MS2M
```

Continuing Calibration Summary

Job Number: JB22962 **Sample:** E2M2082-CC2013
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M48604.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e2m2082\2m48604.D          Vial: 3
Acq On    : 19 Dec 2012  10:07 am                     Operator: olgaa
Sample    : cc2013-25                                 Inst    : MS2M
Misc      : op62037,e2m2082,                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2M2034.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
Last Update  : Wed Dec 19 15:25:19 2012
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.
102	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	102	0.00	2.38
103	Benzaldehyde	1.131	1.127	0.4	98	-0.06	1.99
104	Acenaphthene-d10a	1.000	1.000	0.0	141	0.00	6.46
105	1,2,4,5-Tetrachlorobenzen	0.478	0.421	11.9	126	-0.11	5.23
106	Chrysene-d12a	1.000	1.000	0.0	203	0.00	12.51
107	Benzidine	0.581	0.538	7.4	163	-0.16	10.91
108	Phenanthrene-d10a	1.000	1.000	0.0	158	0.00	8.69
109	Atrazine	0.106	0.121	-14.2	178	-0.11	8.58

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2m46677.D M2M2034.M Wed Dec 19 15:28:25 2012 MS2M

8.7.12

8

Continuing Calibration Summary

Job Number: JB22962 **Sample:** E2M2083-CC2034
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M48633.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e2m2083\2m48633.D          Vial: 2
Acq On    : 20 Dec 2012   9:34 am                    Operator: olgaa
Sample    : cc2034-25                                Inst    : MS2M
Misc      : op62064,e2m2083,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2M2034.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
Last Update  : Wed Dec 19 09:59:45 2012
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	54	-0.02	2.37
3	t	Pyridine	1.707	0.954	44.1#	32	-0.01	0.75
4	t	N-Nitrosodimethylamine	1.093	0.607	44.5#	30	-0.01	0.75
5	S	2-Fluorophenol	1.456	1.048	28.0#	40	-0.01	1.42
6	t	Indene	2.741	2.699	1.5	52	-0.02	2.66
7	t	Cumene	3.719	3.533	5.0	51	-0.02	1.69
8	S	Phenol-d5	1.951	1.685	13.6	49	0.00	2.21
9	t	Phenol	2.153	1.893	12.1	47	0.00	2.22
10		Aniline	2.131	1.526	28.4#	42	-0.02	2.12
11	t	bis(2-Chloroethyl)ether	1.635	1.411	13.7	48	-0.02	2.19
12	t	2-Chlorophenol	1.579	1.464	7.3	51	-0.01	2.23
13	t	Decane	1.888	1.762	6.7	50	-0.02	2.27
14	t	1,3-Dichlorobenzene	1.727	1.640	5.0	52	-0.02	2.33
15	t	1,4-Dichlorobenzene	1.796	1.706	5.0	53	-0.02	2.38
16	t	Benzyl alcohol	1.121	0.914	18.5	44	-0.02	2.61
17	t	1,2-Dichlorobenzene	1.655	1.598	3.4	54	-0.02	2.58
18	t	Acetophenone	2.276	2.265	0.5	54	-0.02	2.88
19	t	2-Methylphenol	1.483	1.356	8.6	50	-0.02	2.84
20	t	2,2'-oxybis(1-Chloropropa	2.669	2.078	22.1#	44	-0.02	2.76
21	t	3&4-Methylphenol	1.601	1.443	9.9	49	0.00	3.04
22	t	n-Nitroso-di-n-propylamin	1.360	1.226	9.9	51	-0.03	2.93
23	t	Hexachloroethane	0.525	0.570	-8.6	60	-0.02	2.90
24	I	Naphthalene-d8	1.000	1.000	0.0	59	-0.02	3.89
25	S	Nitrobenzene-d5	0.429	0.397	7.5	58	-0.02	3.04
26	t	Nitrobenzene	0.451	0.559	-23.9#	77	-0.02	3.06
27	t	Quinoline	0.743	0.694	6.6	55	-0.03	4.42
28	t	Isophorone	0.750	0.644	14.1	53	-0.03	3.36
29	t	2-Nitrophenol	0.214	0.198	7.5	55	-0.01	3.47
30	t	2,4-Dimethylphenol	0.327	0.328	-0.3	60	-0.02	3.67
32	t	bis(2-Chloroethoxy)methan	0.424	0.360	15.1	52	-0.02	3.73
33	t	2,4-Dichlorophenol	0.290	0.273	5.9	56	0.00	3.85
34	t	2,6-Dichlorophenol	0.289	0.275	4.8	57	-0.02	4.12
35		1,3,5-Trichlorobenzene	0.310	0.300	3.2	57	-0.02	3.45
36	t	1,2,4-Trichlorobenzene	0.306	0.294	3.9	59	-0.02	3.87
37		1,2,3-Trichlorobenzene	0.298	0.299	-0.3	59	-0.02	4.19
38	t	Naphthalene	1.113	1.036	6.9	56	-0.03	3.91
39	t	4-Chloroaniline	0.458	0.409	10.7	56	-0.02	4.13
40	t	2,3-Dichloroaniline	0.353	0.352	0.3	59	-0.02	5.42
41	t	Caprolactam	0.198	0.162	18.2	50	-0.09	4.59
42	t	Hexachlorobutadiene	0.169	0.174	-3.0	64	-0.02	4.21
43	t	4-Chloro-3-methylphenol	0.344	0.341	0.9	60	-0.02	5.02

Continuing Calibration Summary

Job Number: JB22962 **Sample:** E2M2083-CC2034
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M48633.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

44	t	2-Methylnaphthalene	0.683	0.640	6.3	58	-0.02	4.91
45	t	1-Methylnaphthalene	0.712	0.773	-8.6	65	-0.02	5.05
46	t	Dimethylnaphthalene	0.636	0.658	-3.5	61	-0.03	5.85
47	I	Acenaphthene-d10	1.000	1.000	0.0	63	-0.03	6.45
48	t	Hexachlorocyclopentadiene	0.287	0.113	60.6#	24	-0.02	5.25
49	t	2,4,6-Trichlorophenol	0.343	0.302	12.0	55	-0.02	5.48
50	t	2,4,5-Trichlorophenol	0.367	0.338	7.9	58	0.00	5.59
51	S	2-Fluorobiphenyl	1.315	1.211	7.9	61	-0.03	5.53
52	t	2-Chloronaphthalene	1.195	1.131	5.4	63	-0.03	5.61
53	t	Biphenyl	1.564	1.481	5.3	60	-0.03	5.64
54	t	2-Nitroaniline	0.446	0.433	2.9	64	-0.02	5.93
55	t	Dimethylphthalate	1.402	1.355	3.4	64	-0.03	6.29
56	t	Acenaphthylene	1.932	1.867	3.4	61	-0.03	6.21
57	t	2,6-Dinitrotoluene	0.309	0.295	4.5	61	-0.02	6.38
58	t	3-Nitroaniline	0.398	0.366	8.0	58	-0.02	6.59
59	t	Acenaphthene	1.242	1.191	4.1	62	-0.03	6.50
62	t	Dibenzofuran	1.704	1.619	5.0	62	-0.03	6.76
63	t	2,4-Dinitrotoluene	0.429	0.444	-3.5	66	-0.02	7.01
65	t	Diethylphthalate	1.462	1.515	-3.6	69	-0.03	7.39
66	t	Fluorene	1.345	1.353	-0.6	65	-0.03	7.28
67	t	4-Chlorophenyl-phenylethe	0.610	0.607	0.5	66	-0.03	7.36
68	t	4-Nitroaniline	0.397	0.380	4.3	62	-0.03	7.54
69	I	Phenanthrene-d10	1.000	1.000	0.0	70	-0.03	8.68
70	t	4,6-Dinitro-2-methylpheno	0.148	0.092	37.8#	41	0.00	7.66
71	t	n-Nitrosodiphenylamine	0.643	0.590	8.2	66	-0.03	7.59
72	t	1,2-Diphenylhydrazine	1.072	0.977	8.9	67	-0.03	7.59
73	S	2,4,6-Tribromophenol	0.094	0.090	4.3	72	-0.02	7.72
74	t	4-Bromophenyl-phenylether	0.208	0.209	-0.5	71	-0.03	8.09
75	t	Hexachlorobenzene	0.224	0.230	-2.7	76	-0.03	8.25
77	t	Phenanthrene	1.225	1.135	7.3	67	-0.03	8.71
78	t	Anthracene	1.214	1.139	6.2	66	-0.03	8.79
79	t	Carbazole	1.175	1.128	4.0	67	-0.02	9.15
80	t	Di-n-butylphthalate	1.502	1.523	-1.4	72	-0.03	9.93
81	t	Fluoranthene	1.208	1.203	0.4	70	-0.03	10.55
82	t	Octadecane	0.659	0.553	16.1	58	-0.03	8.84
83	I	Chrysene-d12	1.000	1.000	0.0	78	-0.02	12.50
84	t	Pyrene	1.294	1.153	10.9	70	-0.03	10.86
85	S	Terphenyl-d14	0.808	0.742	8.2	76	-0.03	11.26
86	t	Butylbenzylphthalate	0.694	0.667	3.9	76	-0.02	12.04
87		Butyl stearate	0.419	0.335	20.0	62	-0.02	12.19
88	t	Benzo[a]anthracene	1.230	1.182	3.9	78	-0.02	12.48
89	t	3,3'-Dichlorobenzidine	0.484	0.433	10.5	74	-0.02	12.55
90	t	Chrysene	1.220	1.071	12.2	74	-0.03	12.52
91	t	bis(2-Ethylhexyl)phthalat	0.982	0.936	4.7	75	-0.02	12.79
92	I	Perylene-d12	1.000	1.000	0.0	81	-0.02	13.91
93	t	Di-n-octylphthalate	1.767	1.814	-2.7	78	-0.03	13.40
94	t	Benzo[b]fluoranthene	1.393	1.649	-18.4	99	-0.03	13.59
95	t	Benzo[k]fluoranthene	1.253	1.068	14.8	66	-0.03	13.61
96	t	Benzo[a]pyrene	1.183	1.193	-0.8	80	-0.02	13.86
97	t	Indeno[1,2,3-cd]pyrene	1.374	1.531	-11.4	87	-0.02	14.76
98	t	Dibenz(a,h)acridine	0.979	1.133	-15.7	87	-0.02	14.60
99	t	Dibenz[a,h]anthracene	1.154	1.285	-11.4	86	-0.02	14.77
100	t	7,12-Dimethylbenz(a)anthr	0.572	0.485	15.2	73	-0.02	13.59
101	t	Benzo[g,h,i]perylene	1.173	1.234	-5.2	84	-0.02	14.93

Continuing Calibration Summary

Job Number: JB22962 **Sample:** E2M2083-CC2034
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M48633.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
(#) = Out of Range                SPCC's out = 0  CCC's out = 0
 2m46677.D  M2M2034.M        Thu Dec 20 13:17:15 2012   MS2M
```

Continuing Calibration Summary

Job Number: JB22962 **Sample:** E2M2083-CC2013
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M48634.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e2m2083\2m48634.D          Vial: 3
Acq On    : 20 Dec 2012   9:57 am                    Operator: olgaa
Sample    : cc2013-50                                Inst    : MS2M
Misc      : op62064,e2m2083,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2M2034.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
Last Update  : Wed Dec 19 09:59:45 2012
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.
102	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	64	-0.02	2.37
103	Benzaldehyde	1.131	0.833	26.3#	53	-0.09	1.98
104	Acenaphthene-d10a	1.000	1.000	0.0	79	-0.03	6.45
105	1,2,4,5-Tetrachlorobenzen	0.478	0.438	8.4	73	-0.12	5.22
106	Chrysene-d12a	1.000	1.000	0.0	108	-0.03	12.50
107	Benzidine	0.581	0.448	22.9#	91	-0.13	10.90
108	Phenanthrene-d10a	1.000	1.000	0.0	83	-0.03	8.68
109	Atrazine	0.106	0.124	-17.0	93	-0.12	8.57

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2m48581.D M2M2034.M Thu Dec 20 13:20:47 2012 MS2M

8.7.14

8

Initial Calibration Summary

Job Number: JB22962 **Sample:** E3E1983-ICC1983
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E45520.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
                         Response Factor Report  MS3E

  Method       : C:\MSDCHEM\1\METHODS\M3E1983.M (RTE Integrator)
  Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
  Last Update  : Fri Nov 16 15:04:41 2012
  Response via : Initial Calibration

  Calibration Files
  2   =3e45524.D   5   =3e45523.D   25  =3e45521.D   80  =3e45519.D
  100 =3e45518.D   50  =3e45520.D   1   =3e45525.D   10  =3e45522.D

   Compound         2     5     25    80    100   50    1     10    Avg %RSD
  ---------------------------------------------------------------------------

102)     1,4-Dichlorobenzene-d ----------------ISTD---------------------
103) Benzaldehyde 1.125 1.318 1.150 1.122 1.110 1.126 1.100 1.142 1.149   6.10

104)     Acenaphthene-d10a     ----------------ISTD---------------------
105) 1,2,4,5-Tetr 0.506 0.562 0.485 0.489 0.493 0.478 0.484 0.472 0.496   5.74
106) 2-bromonapht 0.540 0.616 0.555 0.545 0.547 0.529 0.518 0.532 0.548   5.45

107)     Phenanthrene-d10a     ----------------ISTD---------------------
108) Atrazine     0.075 0.105 0.111 0.119 0.123 0.113       0.100 0.107  15.14
109) o-terphenyl  0.522 0.614 0.564 0.591 0.593 0.568 0.471 0.543 0.558   8.16

110) I   Chrysene-d12a         ----------------ISTD---------------------
111) benzidine    0.435 0.599 0.690 0.688 0.536 0.673       0.609 0.604  15.49
112) 1-chloroocta 0.145 0.220 0.247 0.252 0.252 0.250       0.227 0.228  16.94

113) I   naphthalene-d8a       ----------------ISTD---------------------
114) hydroquinone 0.245 0.280 0.337 0.379 0.390 0.357 0.235 0.289 0.314  19.11
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           M3E1982.M         Fri Nov 16 15:05:27 2012   MS3E
```

8.7.15

8

Initial Calibration Verification

Job Number: JB22962 **Sample:** E3E1986-ICV1983
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E45556A.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3e1986\3e45556a.D        Vial: 5
Acq On    : 16 Nov 2012   2:22 pm                   Operator: olgaa
Sample    : icv1983-50                              Inst    : MS3E
Misc      : op61052,e3e1986,                        Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3E1982.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Fri Nov 16 15:04:41 2012
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
104	Acenaphthene-d10a	1.000	1.000	0.0	77	0.00	7.18
105	1,2,4,5-Tetrachlorobenzen	0.496	0.479	3.4	77	0.00	5.92

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3e45520.D M3E1982.M Fri Nov 16 15:44:41 2012 MS3E

8.7.16

8

Initial Calibration Verification

Job Number: JB22962 **Sample:** E3E1986-ICV1983
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E45557A.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3e1986\3e45557a.D        Vial: 6
Acq On    : 16 Nov 2012   2:45 pm                   Operator: olgaa
Sample    : icv1983-50                              Inst    : MS3E
Misc      : op61052,e3e1986,                        Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3E1982.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Fri Nov 16 15:04:41 2012
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
102	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	78	0.00	2.94
103	Benzaldehyde	1.149	1.290	-12.3	90	0.00	2.50
107	Phenanthrene-d10a	1.000	1.000	0.0	74	0.00	9.42
108	Atrazine	0.107	0.133	-24.3	87	0.00	9.27

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3e45520.D M3E1982.M Fri Nov 16 15:46:13 2012 MS3E

8.7.17

8

Initial Calibration Verification

Job Number: JB22962 **Sample:** E3E1986-ICV1983
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E45560.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3e1986\3e45560.D          Vial: 9
Acq On    : 16 Nov 2012   4:55 pm                     Operator: olgaa
Sample    : icv1983-50                                Inst    : MS3E
Misc      : op61052,e3e1986,                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3E1982.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Fri Nov 16 17:33:00 2012
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
110	I	Chrysene-d12a	1.000	1.000	0.0	157	0.00	13.08
111	T	benzidine	0.604	0.789	-30.6#	184	0.00	11.60

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3e45520.D M3E1982.M Fri Nov 16 17:33:43 2012 MS3E

8.7.18

8

Initial Calibration Summary

Job Number: JB22962 **Sample:** E3E1991-ICC1991
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E45693.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Response Factor Report MS3E

Method : C:\msdchem\1\METHODS\M3E1991.M (RTE Integrator)
Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update : Mon Nov 26 14:30:30 2012
Response via : Initial Calibration

Calibration Files
2 =3e45697.D 5 =3e45698.D 25 =3e45694.D 80 =3e45700.D
100 =3e45696.D 50 =3e45693.D 1 =3e45695.D 10 =3e45699.D

Compound	2	5	25	80	100	50	1	10	Avg	%RSD
1) I 1,4-Dichlorobenzene-d	----------ISTD----------									
2) 1,4-Dioxane	0.627	0.597	0.525	0.541	0.529	0.529	0.602	0.560	0.564	7.05
3) Pyridine	1.738	1.538	1.398	1.424	1.398	1.375	1.515	1.474	1.482	8.02
4) N-Nitrosodim	0.958	0.936	0.839	0.862	0.848	0.844	0.924	0.866	0.885	5.32
5) 2-Fluorophen	1.476	1.429	1.344	1.390	1.367	1.348	1.442	1.353	1.394	3.57
6) Indene	2.730	2.585	2.402	2.370	2.290	2.345	2.580	2.436	2.467	6.07
7) Cumene	3.663	3.426	3.152	3.069	2.925	3.068	3.561	3.255	3.265	8.00
8) Phenol-d5	1.845	1.786	1.627	1.642	1.617	1.609	1.776	1.666	1.696	5.42
9) Phenol	2.065	1.985	1.831	1.703	1.666	1.669	1.973	1.872	1.846	8.41
10) Aniline	2.294	2.141	1.970	1.887	1.794	1.943	2.145	1.981	2.019	8.03
11) bis(2-Chloro	1.458	1.368	1.225	1.215	1.187	1.200	1.371	1.252	1.284	7.81
12) 2-Chlorophen	1.707	1.596	1.474	1.477	1.449	1.458	1.696	1.503	1.545	6.90
13) Decane	1.149	1.111	1.001	0.964	0.938	0.971	1.276	1.023	1.054	10.99
14) 1,3-Dichloro	1.926	1.819	1.640	1.666	1.620	1.620	1.904	1.681	1.734	7.40
15) 1,4-Dichloro	1.952	1.839	1.667	1.690	1.627	1.646	1.923	1.736	1.760	7.26
16) Benzyl alcoh	1.043	1.000	0.935	0.931	0.914	0.923	0.983	0.938	0.958	4.74
17) 1,2-Dichloro	1.873	1.719	1.559	1.553	1.490	1.527	1.786	1.609	1.640	8.40
18) Acetophenone	2.021	1.939	1.795	1.803	1.771	1.764	1.943	1.813	1.856	5.21
19) 2-Methylphen	1.474	1.407	1.303	1.283	1.260	1.265	1.372	1.309	1.334	5.71
20) 2,2'-oxybis(	0.585	0.543	0.504	0.500	0.494	0.487	0.560	0.514	0.523	6.73
21) 3&4-Methylph	1.536	1.471	1.383	1.394	1.372	1.357	1.466	1.383	1.420	4.46
22) n-Nitroso-di	1.050	0.982	0.892	0.893	0.887	0.881	1.029	0.907	0.940	7.38
23) Hexachloroet	0.547	0.519	0.488	0.502	0.499	0.480	0.527	0.487	0.506	4.51
24) I Naphthalene-d8	----------ISTD----------									
25) Nitrobenzene	0.356	0.339	0.329	0.328	0.325	0.320	0.355	0.326	0.335	4.13
26) Nitrobenzene	0.372	0.353	0.343	0.337	0.331	0.332	0.362	0.339	0.346	4.28
27) Quinoline	0.811	0.777	0.733	0.734	0.734	0.721	0.812	0.741	0.758	4.89
28) Isophorone	0.657	0.637	0.605	0.595	0.586	0.592	0.659	0.613	0.618	4.75
29) 2-Nitropheno	0.212	0.201	0.212	0.215	0.213	0.211	0.197	0.201	0.208	3.27
30) 2,4-Dimethyl	0.327	0.324	0.328	0.334	0.331	0.329	0.332	0.314	0.327	1.94
31) Benzoic acid		0.196	0.264	0.305	0.312	0.256		0.236	0.261	16.57
32) bis(2-Chloro	0.394	0.371	0.352	0.349	0.347	0.342	0.392	0.356	0.363	5.66
33) 2,4-Dichloro	0.342	0.321	0.314	0.312	0.311	0.306	0.324	0.313	0.318	3.56
34) 2,6-Dichloro	0.338	0.321	0.306	0.309	0.305	0.303	0.320	0.306	0.313	3.89
35) 1,3,5-Trichl	0.372	0.348	0.328	0.327	0.325	0.321	0.365	0.332	0.340	5.76
36) 1,2,4-Trichl	0.367	0.342	0.322	0.321	0.319	0.313	0.349	0.328	0.333	5.59
37) 1,2,3-Trichl	0.344	0.329	0.310	0.309	0.300	0.301	0.340	0.313	0.318	5.39
38) Naphthalene	1.268	1.193	1.093	1.048	0.985	1.053	1.258	1.123	1.127	9.15
39) 4-Chloroanil	0.513	0.486	0.461	0.444	0.430	0.447	0.475	0.457	0.464	5.66
40) 2,3-Dichloro	0.416	0.384	0.371	0.371	0.363	0.363	0.392	0.373	0.379	4.70
41) Caprolactam	0.132	0.127	0.121	0.123	0.126	0.120	0.113	0.119	0.123	4.86
42) Hexachlorobu	0.181	0.168	0.159	0.158	0.156	0.155	0.178	0.161	0.165	6.10
43) 4-Chloro-3-m	0.317	0.305	0.300	0.302	0.301	0.296	0.310	0.288	0.302	2.89
44) 2-Methylnaph	0.690	0.657	0.617	0.630	0.606	0.626	0.692	0.625	0.643	5.14
45) 1-Methylnaph	0.720	0.676	0.630	0.613	0.598	0.609	0.705	0.645	0.650	7.09

Initial Calibration Summary

Job Number: JB22962 **Sample:** E3E1991-ICC1991
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E45693.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
46) Dimethylnaph 0.695 0.679 0.651 0.640 0.629 0.635 0.687 0.657 0.659   3.80

47) I   Acenaphthene-d10      ----------------ISTD---------------------
48) Hexachlorocy 0.245 0.256 0.300 0.310 0.314 0.311 0.217 0.262 0.277  13.20
49) 2,4,6-Trichl 0.356 0.347 0.347 0.346 0.346 0.349 0.338 0.338 0.346   1.68
50) 2,4,5-Trichl 0.419 0.362 0.384 0.378 0.378 0.380 0.360 0.365 0.378   4.98
51) 2-Fluorobiph 1.454 1.383 1.298 1.247 1.201 1.261 1.445 1.294 1.323   7.08
52) 2-Chloronaph 1.296 1.220 1.163 1.125 1.086 1.146 1.300 1.162 1.187   6.58
53) Biphenyl     1.694 1.602 1.498 1.416 1.364 1.466 1.703 1.515 1.532   8.09
54) 2-Nitroanili 0.280 0.284 0.288 0.288 0.287 0.288 0.266 0.267 0.281   3.33
55) Dimethylphth 1.422 1.360 1.283 1.241 1.229 1.260 1.409 1.266 1.309   5.85
56) Acenaphthyle 2.004 1.981 1.904 1.848 1.763 1.883 1.982 1.869 1.904   4.29
57) 2,6-Dinitrot 0.255 0.267 0.296 0.304 0.307 0.304 0.248 0.272 0.282   8.48
58) 3-Nitroanili 0.335 0.340 0.344 0.345 0.346 0.349 0.303 0.322 0.336   4.63
59) Acenaphthene 1.323 1.260 1.182 1.136 1.099 1.157 1.322 1.180 1.207   7.01
60) 2,4-Dinitrop       0.091 0.148 0.174 0.185 0.167       0.099 0.144  27.70
         ----- Quadratic regression -----                Coefficient =  0.9996
              Response Ratio = -0.02179 + 0.15647 *A + 0.00643 *A^2

61) 4-Nitropheno 0.119 0.125 0.144 0.148 0.151 0.148 0.096 0.130 0.133  14.33
62) Dibenzofuran 1.728 1.691 1.606 1.519 1.473 1.553 1.750 1.581 1.613   6.26
63) 2,4-Dinitrot 0.350 0.386 0.412 0.415 0.422 0.417 0.327 0.371 0.388   9.18
64) 2,3,4,6-Tetr 0.285 0.282 0.289 0.292 0.295 0.292 0.281 0.279 0.287   2.07
65) Diethylphtha 1.391 1.338 1.264 1.238 1.224 1.250 1.376 1.240 1.290   5.21
66) Fluorene     1.444 1.429 1.353 1.323 1.292 1.340 1.436 1.359 1.372   4.16
67) 4-Chlorophen 0.666 0.642 0.606 0.593 0.592 0.599 0.642 0.595 0.617   4.66
68) 4-Nitroanili 0.336 0.340 0.359 0.359 0.365 0.361 0.291 0.327 0.342   7.24

69) I   Phenanthrene-d10      ----------------ISTD---------------------
70) 4,6-Dinitro-             0.142 0.161 0.165 0.158       0.109 0.147  15.69
71) n-Nitrosodip 0.688 0.671 0.635 0.635 0.611 0.635 0.685 0.626 0.648   4.47
72) 1,2-Diphenyl 0.825 0.792 0.766 0.755 0.735 0.767 0.821 0.756 0.777   4.17
73) 2,4,6-Tribro 0.088 0.083 0.084 0.087 0.087 0.087 0.079 0.080 0.085   4.34
74) 4-Bromopheny 0.215 0.212 0.203 0.207 0.206 0.204 0.216 0.200 0.208   2.82
75) Hexachlorobe 0.224 0.213 0.203 0.205 0.204 0.203 0.228 0.202 0.210   4.91
76) Pentachlorop 0.130 0.134 0.152 0.159 0.162 0.159 0.126 0.133 0.145  10.29
77) Phenanthrene 1.336 1.260 1.175 1.145 1.106 1.178 1.349 1.184 1.217   7.29
78) Anthracene   1.282 1.271 1.216 1.180 1.115 1.199 1.288 1.198 1.219   4.87
79) Carbazole    1.209 1.200 1.146 1.136 1.098 1.153 1.217 1.140 1.162   3.60
80) Di-n-butylph 1.296 1.327 1.350 1.339 1.310 1.380 1.256 1.285 1.318   2.99
81) Fluoranthene 1.227 1.234 1.206 1.192 1.164 1.212 1.199 1.171 1.201   2.06
82) Octadecane   0.367 0.377 0.373 0.372 0.366 0.374 0.376 0.364 0.371   1.30

83) I   Chrysene-d12          ----------------ISTD---------------------
84) Pyrene       1.343 1.351 1.304 1.288 1.235 1.295 1.345 1.285 1.306   3.02
85) Terphenyl-d1 0.855 0.847 0.845 0.847 0.835 0.845 0.827 0.807 0.838   1.84
86) Butylbenzylp 0.558 0.575 0.613 0.630 0.619 0.626 0.527 0.562 0.589   6.51
87) Butyl steara 0.201 0.226 0.249 0.252 0.249 0.255 0.188 0.217 0.230  11.23
88) Benzo[a]anth 1.216 1.176 1.140 1.137 1.112 1.155 1.284 1.110 1.166   5.05
89) 3,3'-Dichlor 0.414 0.406 0.415 0.422 0.431 0.424 0.393 0.392 0.412   3.43
90) Chrysene     1.212 1.152 1.072 1.052 1.010 1.065 1.163 1.075 1.100   6.18
91) bis(2-Ethylh 0.955 0.788 0.870 0.850 0.823 0.863 0.860 0.782 0.849   6.43

92) I   Perylene-d12          ----------------ISTD---------------------
93) Di-n-octylph 1.598 1.357 1.685 1.770 1.708 1.751 1.295 1.394 1.570  12.23
94) Benzo[b]fluo 1.396 1.200 1.292 1.390 1.584 1.365 1.209 1.158 1.324  10.54
95) Benzo[k]fluo 1.289 1.347 1.272 1.296 1.101 1.309 1.336 1.308 1.282   6.02
96) Benzo[a]pyre 1.169 1.098 1.181 1.205 1.191 1.211 1.096 1.084 1.154   4.58
97) Indeno[1,2,3 1.281 1.235 1.319 1.371 1.408 1.357 1.207 1.261 1.305   5.41
98) Dibenz(a,h)a 0.908 0.855 0.976 1.031 1.064 1.022 0.752 0.860 0.934  11.54
```

8.7.19

8

Initial Calibration Summary

Job Number: JB22962 **Sample:** E3E1991-ICC1991
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E45693.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
 99) Dibenz[a,h]a 1.023 1.032 1.121 1.139 1.186 1.141 1.011 1.041 1.087   6.18
100) 7,12-Dimethy 0.596 0.582 0.633 0.713 0.735 0.701 0.561 0.559 0.635  11.31
101) Benzo[g,h,i] 1.059 1.049 1.090 1.125 1.140 1.110 1.027 1.070 1.084   3.62

 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          M3E1991.M         Tue Nov 27 09:49:43 2012   MS3E
```

Initial Calibration Verification

Job Number: JB22962 **Sample:** E3E1991-ICV1991
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E45701.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3e1991\3e45701.D          Vial: 10
Acq On    : 26 Nov 2012   2:09 pm                    Operator: olgaa
Sample    : icv1991-50                               Inst    : MS3E
Misc      : op61340,e3e1991,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M3E1991.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Mon Nov 26 14:30:30 2012
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	97	0.00	2.88
9	t	Phenol	1.846	1.616	12.5	94	0.00	2.62
12	t	2-Chlorophenol	1.545	1.427	7.6	95	0.00	2.69
19	t	2-Methylphenol	1.334	1.221	8.5	93	0.00	3.29
21	t	3&4-Methylphenol	1.420	1.283	9.6	91	0.00	3.48
24	I	Naphthalene-d8	1.000	1.000	0.0	95	0.00	4.48
29	t	2-Nitrophenol	0.208	0.206	1.0	92	0.00	4.01
30	t	2,4-Dimethylphenol	0.327	0.339	-3.7	97	0.00	4.17
31	t	Benzoic acid	0.261	0.253	3.1	94	0.00	4.43
33	t	2,4-Dichlorophenol	0.318	0.309	2.8	96	0.00	4.35
34	t	2,6-Dichlorophenol	0.313	0.305	2.6	95	0.00	4.67
43	t	4-Chloro-3-methylphenol	0.302	0.291	3.6	93	-0.02	5.47
47	I	Acenaphthene-d10	1.000	1.000	0.0	94	0.00	7.10
49	t	2,4,6-Trichlorophenol	0.346	0.349	-0.9	94	-0.01	6.03
50	t	2,4,5-Trichlorophenol	0.378	0.384	-1.6	95	-0.02	6.08
		----------	True	Calc.	% Drift		----------	
60	t	2,4-Dinitrophenol	100.000	87.206	12.8	70	-0.01	7.30
		----------	AvgRF	CCRF	% Dev		----------	
61	t	4-Nitrophenol	0.133	0.136	-2.3	86	0.00	7.53
64		2,3,4,6-Tetrachlorophenol	0.287	0.281	2.1	90	0.00	7.70
69	I	Phenanthrene-d10	1.000	1.000	0.0	92	0.00	9.34
70	t	4,6-Dinitro-2-methylpheno	0.147	0.139	5.4	81	-0.02	8.15
76	t	Pentachlorophenol	0.145	0.150	-3.4	86	-0.01	9.21

```
(#) = Out of Range                SPCC's out = 0  CCC's out = 0
 3e45693.D  M3E1991.M        Mon Nov 26 14:32:18 2012   MS3E
```

Initial Calibration Verification

Job Number: JB22962 **Sample:** E3E1991-ICV1991
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E45703.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3e1991\3e45703.D          Vial: 12
Acq On    : 26 Nov 2012   2:56 pm                    Operator: olgaa
Sample    : icv1991-50                               Inst    : MS3E
Misc      : op61340,e3e1991,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M3E1991.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Mon Nov 26 14:30:30 2012
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	96	0.00	2.88
5	S	2-Fluorophenol	1.394	1.322	5.2	94	0.00	1.76
8	S	Phenol-d5	1.696	1.525	10.1	91	0.00	2.60
24	I	Naphthalene-d8	1.000	1.000	0.0	93	0.00	4.48
25	S	Nitrobenzene-d5	0.335	0.336	-0.3	97	0.00	3.57
47	I	Acenaphthene-d10	1.000	1.000	0.0	91	0.00	7.10
51	S	2-Fluorobiphenyl	1.323	1.369	-3.5	99	0.00	6.15
69	I	Phenanthrene-d10	1.000	1.000	0.0	90	0.00	9.34
73	S	2,4,6-Tribromophenol	0.085	0.088	-3.5	91	-0.01	8.33
83	I	Chrysene-d12	1.000	1.000	0.0	79	-0.01	13.01
85	S	Terphenyl-d14	0.838	0.953	-13.7	89	0.00	11.86

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 3e45693.D  M3E1991.M        Mon Nov 26 15:16:14 2012   MS3E
```

Initial Calibration Verification

Job Number: JB22962 **Sample:** E3E1991-ICV1991
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E45704.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3e1991\3e45704.D          Vial: 13
Acq On    : 26 Nov 2012   3:19 pm                    Operator: olgaa
Sample    : icv1991-50                               Inst    : MS3E
Misc      : op61340,e3e1991,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M3E1991.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Mon Nov 26 15:47:45 2012
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	103	0.00	2.88
2	t	1,4-Dioxane	0.564	0.527	6.6	102	0.00	0.88
6	t	Indene	2.467	2.558	-3.7	112	0.00	3.20
7	t	Cumene	3.265	3.235	0.9	108	0.00	2.14
13	t	Decane	1.054	0.995	5.6	105	0.00	2.78
18	t	Acetophenone	1.856	1.920	-3.4	112	0.00	3.40
24	I	Naphthalene-d8	1.000	1.000	0.0	103	0.00	4.48
27	t	Quinoline	0.758	0.755	0.4	108	0.00	4.99
40	t	2,3-Dichloroaniline	0.379	0.363	4.2	103	0.00	6.02
41	t	Caprolactam	0.123	0.116	5.7	99	0.00	5.12
45	t	1-Methylnaphthalene	0.650	0.655	-0.8	110	0.00	5.67
46	t	Dimethylnaphthalene	0.659	0.695	-5.5	112	0.00	6.48
47	I	Acenaphthene-d10	1.000	1.000	0.0	105	0.00	7.10
53	t	Biphenyl	1.532	1.570	-2.5	113	0.00	6.27
69	I	Phenanthrene-d10	1.000	1.000	0.0	104	0.00	9.34
82	t	Octadecane	0.371	0.398	-7.3	111	0.00	9.50
92	I	Perylene-d12	1.000	1.000	0.0	96	0.00	14.39
100	t	7,12-Dimethylbenz(a)anthr	0.635	0.619	2.5	85	0.00	14.10

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 3e45704.D  M3E1991.M        Mon Nov 26 15:48:36 2012   MS3E
```

8.7.22

8

Initial Calibration Verification

Job Number: JB22962 **Sample:** E3E1991-ICV1991
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E45705.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3e1991\3e45705.D          Vial: 14
Acq On    : 26 Nov 2012   3:42 pm                    Operator: olgaa
Sample    : icv1991-50                               Inst    : MS3E
Misc      : op61340,e3e1991,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M3E1991.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Mon Nov 26 15:47:45 2012
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	110	0.00	2.88
3	t	Pyridine	1.482	1.150	22.4	92	0.00	1.01
4	t	N-Nitrosodimethylamine	0.885	0.706	20.2	92	0.00	1.01
11	t	bis(2-Chloroethyl)ether	1.284	1.143	11.0	104	0.00	2.67
14	t	1,3-Dichlorobenzene	1.734	1.535	11.5	104	0.00	2.84
15	t	1,4-Dichlorobenzene	1.760	1.533	12.9	102	0.00	2.90
16	t	Benzyl alcohol	0.958	0.847	11.6	101	0.00	3.10
17	t	1,2-Dichlorobenzene	1.640	1.434	12.6	103	0.00	3.10
20	t	2,2'-oxybis(1-Chloropropa	0.523	0.463	11.5	104	0.00	3.29
22	t	n-Nitroso-di-n-propylamin	0.940	0.772	17.9	96	0.00	3.46
23	t	Hexachloroethane	0.506	0.477	5.7	109	0.00	3.46
24	I	Naphthalene-d8	1.000	1.000	0.0	108	0.00	4.48
26	t	Nitrobenzene	0.346	0.306	11.6	100	0.00	3.60
28	t	Isophorone	0.618	0.543	12.1	99	0.00	3.91
32	t	bis(2-Chloroethoxy)methan	0.363	0.342	5.8	108	0.00	4.29
36	t	1,2,4-Trichlorobenzene	0.333	0.316	5.1	109	0.00	4.45
38	t	Naphthalene	1.127	0.985	12.6	101	0.00	4.51
42	t	Hexachlorobutadiene	0.165	0.161	2.4	112	0.00	4.83
44	t	2-Methylnaphthalene	0.643	0.585	9.0	101	0.00	5.52
47	I	Acenaphthene-d10	1.000	1.000	0.0	110	0.00	7.10
48	t	Hexachlorocyclopentadiene	0.277	0.256	7.6	90	0.00	5.89
52	t	2-Chloronaphthalene	1.187	1.069	9.9	102	0.00	6.23
54	t	2-Nitroaniline	0.281	0.249	11.4	95	0.00	6.50
55	t	Dimethylphthalate	1.309	1.159	11.5	101	0.00	6.91
56	t	Acenaphthylene	1.904	1.563	17.9	91	0.00	6.85
57	t	2,6-Dinitrotoluene	0.282	0.272	3.5	98	0.00	6.97
58	t	3-Nitroaniline	0.336	0.275	18.2	86	0.00	7.15
59	t	Acenaphthene	1.207	1.072	11.2	102	0.00	7.15
62	t	Dibenzofuran	1.613	1.501	6.9	106	0.00	7.40
63	t	2,4-Dinitrotoluene	0.388	0.344	11.3	90	0.00	7.55
65	t	Diethylphthalate	1.290	1.133	12.2	99	-0.01	8.03
66	t	Fluorene	1.372	1.242	9.5	102	0.00	7.93
67	t	4-Chlorophenyl-phenylethe	0.617	0.571	7.5	105	0.00	8.01
68	t	4-Nitroaniline	0.342	0.313	8.5	95	-0.01	8.10
69	I	Phenanthrene-d10	1.000	1.000	0.0	109	0.00	9.34
71	t	n-Nitrosodiphenylamine	0.648	0.551	15.0	95	0.00	8.22
72	t	1,2-Diphenylhydrazine	0.777	0.690	11.2	98	0.00	8.24
74	t	4-Bromophenyl-phenylether	0.208	0.194	6.7	104	0.00	8.74

Initial Calibration Verification

Job Number: JB22962 **Sample:** E3E1991-ICV1991
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E45705.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

75	t	Hexachlorobenzene	0.210	0.192	8.6	103	0.00	8.90
77	t	Phenanthrene	1.217	1.090	10.4	101	0.00	9.38
78	t	Anthracene	1.219	1.103	9.5	101	0.00	9.44
79	t	Carbazole	1.162	1.037	10.8	98	0.00	9.77
80	t	Di-n-butylphthalate	1.318	1.194	9.4	95	0.00	10.59
81	t	Fluoranthene	1.201	1.084	9.7	98	0.00	11.21
83	I	Chrysene-d12	1.000	1.000	0.0	104	0.01	13.02
84	t	Pyrene	1.306	1.193	8.7	96	0.00	11.51
86	t	Butylbenzylphthalate	0.589	0.550	6.6	91	0.00	12.58
88	t	Benzo[a]anthracene	1.166	1.039	10.9	94	0.00	13.00
90	t	Chrysene	1.100	1.014	7.8	99	0.00	13.05
91	t	bis(2-Ethylhexyl)phthalat	0.849	0.751	11.5	91	0.00	13.30
92	I	Perylene-d12	1.000	1.000	0.0	109	0.00	14.40
93	t	Di-n-octylphthalate	1.570	1.448	7.8	90	0.00	13.90
94	t	Benzo[b]fluoranthene	1.324	1.207	8.8	97	0.00	14.07
95	t	Benzo[k]fluoranthene	1.282	1.072	16.4	89	0.00	14.10
96	t	Benzo[a]pyrene	1.154	1.072	7.1	97	0.00	14.34
97	t	Indeno[1,2,3-cd]pyrene	1.305	1.230	5.7	99	0.00	15.22
99	t	Dibenz[a,h]anthracene	1.087	1.030	5.2	99	0.00	15.25
101	t	Benzo[g,h,i]perylene	1.084	1.045	3.6	103	0.00	15.40

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3e45704.D M3E1991.M Mon Nov 26 16:06:11 2012 MS3E

8.7.23

8

Initial Calibration Verification

Job Number: JB22962 **Sample:** E3E1991-ICV1991
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E45706.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3e1991\3e45706.D          Vial: 15
Acq On    : 26 Nov 2012   4:08 pm                    Operator: olgaa
Sample    : icv1991-50                               Inst    : MS3E
Misc      : op61340,e3e1991,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M3E1991.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Mon Nov 26 15:47:45 2012
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	172	0.00	2.88
10		Aniline	2.019	1.764	12.6	157	0.00	2.59
24	I	Naphthalene-d8	1.000	1.000	0.0	171	0.00	4.48
39	t	4-Chloroaniline	0.464	0.418	9.9	160	0.00	4.68

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3e45704.D M3E1991.M Mon Nov 26 16:27:37 2012 MS3E

Initial Calibration Verification

Job Number: JB22962 **Sample:** E3E1991-ICV1991
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E45707.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3e1991\3e45707.D          Vial: 16
Acq On    : 26 Nov 2012   4:32 pm                    Operator: olgaa
Sample    : icv1991-50                               Inst    : MS3E
Misc      : op61340,e3e1991,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M3E1991.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Mon Nov 26 15:47:45 2012
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
83	I	Chrysene-d12	1.000	1.000	0.0	191	0.00	13.02
89	t	3,3'-Dichlorobenzidine	0.412	0.430	-4.4	193	0.00	13.06

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3e45704.D M3E1991.M Mon Nov 26 16:51:50 2012 MS3E

Continuing Calibration Summary

Job Number: JB22962 **Sample:** E3E2018-CC1991
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E46407.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3e2018\3e46407.D          Vial: 2
Acq On    : 19 Dec 2012   9:17 am                    Operator: olgaa
Sample    : cc1991-50                                Inst    : MS3E
Misc      : op61971,e3e2018,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3E1991.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Thu Dec 06 10:24:01 2012
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	89	-0.08	2.72
2	t	1,4-Dioxane	0.564	0.512	9.2	87	-0.04	0.80
3	t	Pyridine	1.482	1.328	10.4	86	-0.04	0.93
4	t	N-Nitrosodimethylamine	0.885	0.802	9.4	85	-0.04	0.93
5	S	2-Fluorophenol	1.394	1.330	4.6	88	-0.08	1.66
6	t	Indene	2.467	2.603	-5.5	99	-0.09	3.03
7	t	Cumene	3.265	3.059	6.3	89	-0.07	2.00
8	S	Phenol-d5	1.696	1.808	-6.6	100	-0.11	2.51
9	t	Phenol	1.846	1.939	-5.0	104	-0.11	2.52
10		Aniline	2.019	1.729	14.4	80	-0.09	2.44
11	t	bis(2-Chloroethyl)ether	1.284	1.426	-11.1	106	-0.07	2.52
12	t	2-Chlorophenol	1.545	1.558	-0.8	96	-0.09	2.55
13	t	Decane	1.054	1.265	-20.0	117	-0.07	2.62
14	t	1,3-Dichlorobenzene	1.734	1.631	5.9	90	-0.08	2.68
15	t	1,4-Dichlorobenzene	1.760	1.661	5.6	90	-0.08	2.74
16	t	Benzyl alcohol	0.958	1.007	-5.1	98	-0.09	2.95
17	t	1,2-Dichlorobenzene	1.640	1.545	5.8	91	-0.09	2.94
18	t	Acetophenone	1.856	1.896	-2.2	96	-0.07	3.24
19	t	2-Methylphenol	1.334	1.401	-5.0	99	-0.11	3.17
20	t	2,2'-oxybis(1-Chloropropa	0.523	0.519	0.8	95	-0.08	3.13
21	t	3&4-Methylphenol	1.420	1.555	-9.5	102	-0.12	3.36
22	t	n-Nitroso-di-n-propylamin	0.940	0.944	-0.4	96	-0.08	3.30
23	t	Hexachloroethane	0.506	0.486	4.0	90	-0.09	3.29
24	I	Naphthalene-d8	1.000	1.000	0.0	86	-0.09	4.30
25	S	Nitrobenzene-d5	0.335	0.360	-7.5	97	-0.09	3.41
26	t	Nitrobenzene	0.346	0.378	-9.2	98	-0.09	3.43
27	t	Quinoline	0.758	0.803	-5.9	96	-0.08	4.83
28	t	Isophorone	0.618	0.642	-3.9	94	-0.08	3.75
29	t	2-Nitrophenol	0.208	0.230	-10.6	94	-0.09	3.85
30	t	2,4-Dimethylphenol	0.327	0.319	2.4	84	-0.11	4.03
31	t	Benzoic acid	0.261	0.286	-9.6	96	-0.06	4.36
32	t	bis(2-Chloroethoxy)methan	0.363	0.379	-4.4	96	-0.09	4.12
33	t	2,4-Dichlorophenol	0.318	0.291	8.5	82	-0.11	4.21
34	t	2,6-Dichlorophenol	0.313	0.310	1.0	88	-0.10	4.51
35		1,3,5-Trichlorobenzene	0.340	0.320	5.9	86	-0.09	3.85
36	t	1,2,4-Trichlorobenzene	0.333	0.298	10.5	82	-0.09	4.27
37		1,2,3-Trichlorobenzene	0.318	0.308	3.1	89	-0.09	4.60
38	t	Naphthalene	1.127	1.102	2.2	90	-0.09	4.33
39	t	4-Chloroaniline	0.464	0.485	-4.5	94	-0.10	4.52
40	t	2,3-Dichloroaniline	0.379	0.338	10.8	81	-0.10	5.84
41	t	Caprolactam	0.123	0.145	-17.9	104	-0.04	5.03

Continuing Calibration Summary

Job Number: JB22962 **Sample:** E3E2018-CC1991
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E46407.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

42	t	Hexachlorobutadiene	0.165	0.154	6.7	86	-0.09	4.63
43	t	4-Chloro-3-methylphenol	0.302	0.313	-3.6	91	-0.12	5.37
44	t	2-Methylnaphthalene	0.643	0.655	-1.9	90	-0.09	5.33
45	t	1-Methylnaphthalene	0.650	0.625	3.8	89	-0.09	5.48
46	t	Dimethylnaphthalene	0.659	0.606	8.0	83	-0.10	6.29
47	I	Acenaphthene-d10	1.000	1.000	0.0	82	-0.10	6.90
48	t	Hexachlorocyclopentadiene	0.277	0.272	1.8	72	-0.10	5.69
49	t	2,4,6-Trichlorophenol	0.346	0.358	-3.5	84	-0.10	5.88
50	t	2,4,5-Trichlorophenol	0.378	0.389	-2.9	84	-0.11	5.95
51	S	2-Fluorobiphenyl	1.323	1.246	5.8	81	-0.09	5.97
52	t	2-Chloronaphthalene	1.187	1.137	4.2	81	-0.10	6.04
53	t	Biphenyl	1.532	1.473	3.9	83	-0.09	6.08
54	t	2-Nitroaniline	0.281	0.299	-6.4	85	-0.10	6.33
55	t	Dimethylphthalate	1.309	1.255	4.1	82	-0.09	6.72
56	t	Acenaphthylene	1.904	1.905	-0.1	83	-0.10	6.66
57	t	2,6-Dinitrotoluene	0.282	0.316	-12.1	85	-0.09	6.79
58	t	3-Nitroaniline	0.336	0.373	-11.0	88	-0.10	6.99
59	t	Acenaphthene	1.207	1.184	1.9	84	-0.10	6.95
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	100.000	117.064	-17.1	97	-0.08	7.15
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.133	0.110	17.3	61	-0.14	7.45
62	t	Dibenzofuran	1.613	1.526	5.4	81	-0.10	7.21
63	t	2,4-Dinitrotoluene	0.388	0.422	-8.8	83	-0.08	7.39
64		2,3,4,6-Tetrachlorophenol	0.287	0.287	0.0	81	-0.10	7.54
65	t	Diethylphthalate	1.290	1.200	7.0	79	-0.09	7.84
66	t	Fluorene	1.372	1.327	3.3	81	-0.10	7.73
67	t	4-Chlorophenyl-phenylethe	0.617	0.608	1.5	83	-0.10	7.81
68	t	4-Nitroaniline	0.342	0.369	-7.9	84	-0.10	7.94
69	I	Phenanthrene-d10	1.000	1.000	0.0	82	-0.10	9.14
70	t	4,6-Dinitro-2-methylpheno	0.147	0.175	-19.0	91	-0.07	8.01
71	t	n-Nitrosodiphenylamine	0.648	0.634	2.2	82	-0.10	8.04
72	t	1,2-Diphenylhydrazine	0.777	0.858	-10.4	92	-0.10	8.04
73	S	2,4,6-Tribromophenol	0.085	0.097	-14.1	91	-0.10	8.15
74	t	4-Bromophenyl-phenylether	0.208	0.210	-1.0	85	-0.10	8.54
75	t	Hexachlorobenzene	0.210	0.219	-4.3	89	-0.09	8.70
76	t	Pentachlorophenol	0.145	0.149	-2.8	77	-0.10	9.05
77	t	Phenanthrene	1.217	1.141	6.2	80	-0.10	9.18
78	t	Anthracene	1.219	1.163	4.6	80	-0.10	9.24
79	t	Carbazole	1.162	1.139	2.0	81	-0.11	9.58
80	t	Di-n-butylphthalate	1.318	1.345	-2.0	80	-0.10	10.39
81	t	Fluoranthene	1.201	1.226	-2.1	83	-0.10	11.02
82	t	Octadecane	0.371	0.443	-19.4	97	-0.10	9.30
83	I	Chrysene-d12	1.000	1.000	0.0	81	-0.08	12.86
84	t	Pyrene	1.306	1.316	-0.8	83	-0.10	11.32
85	S	Terphenyl-d14	0.838	0.891	-6.3	86	-0.09	11.68
86	t	Butylbenzylphthalate	0.589	0.607	-3.1	79	-0.09	12.42
87		Butyl stearate	0.230	0.310	-34.8#	99	-0.07	12.55
88	t	Benzo[a]anthracene	1.166	1.171	-0.4	83	-0.07	12.84
89	t	3,3'-Dichlorobenzidine	0.412	0.444	-7.8	85	-0.08	12.90
90	t	Chrysene	1.100	1.080	1.8	83	-0.07	12.89
91	t	bis(2-Ethylhexyl)phthalat	0.849	0.853	-0.5	81	-0.08	13.14
92	I	Perylene-d12	1.000	1.000	0.0	83	-0.07	14.25
93	t	Di-n-octylphthalate	1.570	1.686	-7.4	80	-0.07	13.74

Continuing Calibration Summary

Job Number: JB22962 **Sample:** E3E2018-CC1991
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E46407.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

94	t	Benzo[b]fluoranthene	1.324	1.437	-8.5	87	-0.07	13.92
95	t	Benzo[k]fluoranthene	1.282	1.267	1.2	80	-0.07	13.95
96	t	Benzo[a]pyrene	1.154	1.242	-7.6	85	-0.07	14.20
97	t	Indeno[1,2,3-cd]pyrene	1.305	1.430	-9.6	87	-0.07	15.07
98	t	Dibenz(a,h)acridine	0.934	1.071	-14.7	87	-0.07	14.92
99	t	Dibenz[a,h]anthracene	1.087	1.191	-9.6	86	-0.07	15.10
100	t	7,12-Dimethylbenz(a)anthr	0.635	0.627	1.3	74	-0.07	13.95
101	t	Benzo[g,h,i]perylene	1.084	1.197	-10.4	89	-0.07	15.25

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3e46091.D M3E1991.M Wed Dec 19 14:52:10 2012 MS3E

8.7.26

8

Continuing Calibration Summary

Job Number: JB22962 **Sample:** E3E2018-CC1983
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E46408.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3e2018\3e46408.D          Vial: 3
Acq On    : 19 Dec 2012   9:41 am                    Operator: olgaa
Sample    : cc1983-50                                Inst    : MS3E
Misc      : op61971,e3e2018,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3E1991.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Thu Dec 06 10:24:01 2012
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.
102	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	78	-0.08	2.72
103	Benzaldehyde	1.149	0.923	19.7	64	-0.09	2.29
104	Acenaphthene-d10a	1.000	1.000	0.0	70	-0.10	6.90
105	1,2,4,5-Tetrachlorobenzen	0.496	0.470	5.2	69	-0.11	5.65
106	Phenanthrene-d10a	1.000	1.000	0.0	71	-0.11	9.14
107	Atrazine	0.107	0.120	-12.1	76	-0.13	9.01
108 I	Chrysene-d12a	1.000	1.000	0.0	74	-0.09	12.85
109 T	benzidine	0.604	0.464	23.2#	51	-0.10	11.34

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 3e46091.D  M3E1991.M        Wed Dec 19 14:53:39 2012   MS3E
```

8.7.27

8

Continuing Calibration Summary

Job Number: JB22962 **Sample:** E3E2019-CC1991
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E46435.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3e2019\3e46435.D          Vial: 2
Acq On    : 20 Dec 2012   9:24 am                    Operator: olgaa
Sample    : cc1991-25                                Inst    : MS3E
Misc      : op62064,e3e2019,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3E1991.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Thu Dec 06 10:24:01 2012
Response via : Multiple Level Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	71	-0.09	2.71
2	t	1,4-Dioxane	0.564	0.566	-0.4	77	-0.04	0.79
3	t	Pyridine	1.482	1.343	9.4	69	-0.05	0.92
4	t	N-Nitrosodimethylamine	0.885	0.858	3.1	73	-0.05	0.92
5	S	2-Fluorophenol	1.394	1.431	-2.7	76	-0.09	1.65
6	t	Indene	2.467	2.608	-5.7	78	-0.10	3.02
7	t	Cumene	3.265	3.442	-5.4	78	-0.08	1.99
8	S	Phenol-d5	1.696	1.803	-6.3	79	-0.12	2.49
9	t	Phenol	1.846	1.942	-5.2	76	-0.12	2.51
10		Aniline	2.019	1.809	10.4	66	-0.09	2.44
11	t	bis(2-Chloroethyl)ether	1.284	1.446	-12.6	84	-0.09	2.51
12	t	2-Chlorophenol	1.545	1.571	-1.7	76	-0.10	2.54
13	t	Decane	1.054	1.318	-25.0#	94	-0.09	2.61
14	t	1,3-Dichlorobenzene	1.734	1.654	4.6	72	-0.09	2.67
15	t	1,4-Dichlorobenzene	1.760	1.705	3.1	73	-0.09	2.72
16	t	Benzyl alcohol	0.958	1.038	-8.4	79	-0.10	2.94
17	t	1,2-Dichlorobenzene	1.640	1.568	4.4	72	-0.10	2.93
18	t	Acetophenone	1.856	1.888	-1.7	75	-0.09	3.23
19	t	2-Methylphenol	1.334	1.396	-4.6	76	-0.12	3.15
20	t	2,2'-oxybis(1-Chloropropa	0.523	0.512	2.1	73	-0.09	3.12
21	t	3&4-Methylphenol	1.420	1.499	-5.6	77	-0.13	3.34
22	t	n-Nitroso-di-n-propylamin	0.940	0.961	-2.2	77	-0.10	3.29
23	t	Hexachloroethane	0.506	0.475	6.1	69	-0.10	3.28
24	I	Naphthalene-d8	1.000	1.000	0.0	73	-0.10	4.29
25	S	Nitrobenzene-d5	0.335	0.338	-0.9	75	-0.10	3.40
26	t	Nitrobenzene	0.346	0.361	-4.3	77	-0.10	3.42
27	t	Quinoline	0.758	0.739	2.5	73	-0.10	4.82
28	t	Isophorone	0.618	0.641	-3.7	77	-0.10	3.74
29	t	2-Nitrophenol	0.208	0.220	-5.8	75	-0.10	3.84
30	t	2,4-Dimethylphenol	0.327	0.302	7.6	67	-0.12	4.01
31	t	Benzoic acid	0.261	0.301	-15.3	83	-0.13	4.29
32	t	bis(2-Chloroethoxy)methan	0.363	0.380	-4.7	79	-0.10	4.10
33	t	2,4-Dichlorophenol	0.318	0.287	9.7	67	-0.12	4.20
34	t	2,6-Dichlorophenol	0.313	0.275	12.1	65	-0.11	4.50
35		1,3,5-Trichlorobenzene	0.340	0.315	7.4	70	-0.10	3.84
36	t	1,2,4-Trichlorobenzene	0.333	0.299	10.2	67	-0.10	4.26
37		1,2,3-Trichlorobenzene	0.318	0.291	8.5	68	-0.10	4.59
38	t	Naphthalene	1.127	1.098	2.6	73	-0.10	4.32
39	t	4-Chloroaniline	0.464	0.436	6.0	69	-0.11	4.50
40	t	2,3-Dichloroaniline	0.379	0.339	10.6	66	-0.12	5.83
41	t	Caprolactam	0.123	0.146	-18.7	87	-0.10	4.97

Continuing Calibration Summary

Job Number: JB22962 **Sample:** E3E2019-CC1991
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E46435.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

42	t	Hexachlorobutadiene	0.165	0.149	9.7	68	-0.10	4.62
43	t	4-Chloro-3-methylphenol	0.302	0.317	-5.0	77	-0.14	5.35
44	t	2-Methylnaphthalene	0.643	0.664	-3.3	78	-0.11	5.32
45	t	1-Methylnaphthalene	0.650	0.654	-0.6	75	-0.11	5.47
46	t	Dimethylnaphthalene	0.659	0.615	6.7	69	-0.11	6.28
47	I	Acenaphthene-d10	1.000	1.000	0.0	70	-0.12	6.89
48	t	Hexachlorocyclopentadiene	0.277	0.240	13.4	56	-0.11	5.68
49	t	2,4,6-Trichlorophenol	0.346	0.345	0.3	70	-0.12	5.86
50	t	2,4,5-Trichlorophenol	0.378	0.378	0.0	69	-0.13	5.93
51	S	2-Fluorobiphenyl	1.323	1.257	5.0	68	-0.11	5.95
52	t	2-Chloronaphthalene	1.187	1.128	5.0	68	-0.11	6.02
53	t	Biphenyl	1.532	1.483	3.2	70	-0.11	6.06
54	t	2-Nitroaniline	0.281	0.301	-7.1	74	-0.12	6.31
55	t	Dimethylphthalate	1.309	1.262	3.6	69	-0.11	6.70
56	t	Acenaphthylene	1.904	1.949	-2.4	72	-0.11	6.65
57	t	2,6-Dinitrotoluene	0.282	0.310	-9.9	74	-0.11	6.77
58	t	3-Nitroaniline	0.336	0.370	-10.1	76	-0.12	6.97
59	t	Acenaphthene	1.207	1.192	1.2	71	-0.11	6.93
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	50.000	59.602	-19.2	86	-0.10	7.14
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.133	0.098	26.3#	48	-0.16	7.44
62	t	Dibenzofuran	1.613	1.547	4.1	68	-0.11	7.19
63	t	2,4-Dinitrotoluene	0.388	0.421	-8.5	72	-0.10	7.37
64		2,3,4,6-Tetrachlorophenol	0.287	0.281	2.1	68	-0.12	7.52
65	t	Diethylphthalate	1.290	1.226	5.0	68	-0.11	7.82
66	t	Fluorene	1.372	1.348	1.7	70	-0.11	7.71
67	t	4-Chlorophenyl-phenylethe	0.617	0.617	0.0	72	-0.11	7.80
68	t	4-Nitroaniline	0.342	0.381	-11.4	75	-0.13	7.91
69	I	Phenanthrene-d10	1.000	1.000	0.0	73	-0.12	9.13
70	t	4,6-Dinitro-2-methylpheno	0.147	0.165	-12.2	85	-0.10	7.99
71	t	n-Nitrosodiphenylamine	0.648	0.630	2.8	73	-0.12	8.01
72	t	1,2-Diphenylhydrazine	0.777	0.838	-7.9	80	-0.11	8.03
73	S	2,4,6-Tribromophenol	0.085	0.095	-11.8	83	-0.12	8.13
74	t	4-Bromophenyl-phenylether	0.208	0.205	1.4	74	-0.11	8.53
75	t	Hexachlorobenzene	0.210	0.213	-1.4	77	-0.11	8.68
76	t	Pentachlorophenol	0.145	0.138	4.8	67	-0.12	9.03
77	t	Phenanthrene	1.217	1.166	4.2	73	-0.12	9.15
78	t	Anthracene	1.219	1.185	2.8	72	-0.12	9.22
79	t	Carbazole	1.162	1.130	2.8	72	-0.13	9.57
80	t	Di-n-butylphthalate	1.318	1.332	-1.1	72	-0.12	10.37
81	t	Fluoranthene	1.201	1.245	-3.7	76	-0.12	10.99
82	t	Octadecane	0.371	0.423	-14.0	83	-0.11	9.28
83	I	Chrysene-d12	1.000	1.000	0.0	78	-0.10	12.84
84	t	Pyrene	1.306	1.252	4.1	75	-0.11	11.30
85	S	Terphenyl-d14	0.838	0.858	-2.4	80	-0.11	11.67
86	t	Butylbenzylphthalate	0.589	0.569	3.4	73	-0.10	12.41
87		Butyl stearate	0.230	0.284	-23.5#	90	-0.09	12.53
88	t	Benzo[a]anthracene	1.166	1.177	-0.9	81	-0.09	12.83
89	t	3,3'-Dichlorobenzidine	0.412	0.451	-9.5	85	-0.10	12.89
90	t	Chrysene	1.100	1.112	-1.1	81	-0.10	12.87
91	t	bis(2-Ethylhexyl)phthalat	0.849	0.827	2.6	75	-0.09	13.13
92	I	Perylene-d12	1.000	1.000	0.0	77	-0.10	14.22
93	t	Di-n-octylphthalate	1.570	1.634	-4.1	75	-0.09	13.73

Continuing Calibration Summary

Job Number: JB22962 **Sample:** E3E2019-CC1991
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E46435.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

94	t	Benzo[b]fluoranthene	1.324	1.374	-3.8	82	-0.09	13.90
95	t	Benzo[k]fluoranthene	1.282	1.341	-4.6	81	-0.10	13.92
96	t	Benzo[a]pyrene	1.154	1.254	-8.7	82	-0.09	14.18
97	t	Indeno[1,2,3-cd]pyrene	1.305	1.381	-5.8	81	-0.09	15.05
98	t	Dibenz(a,h)acridine	0.934	1.038	-11.1	82	-0.10	14.90
99	t	Dibenz[a,h]anthracene	1.087	1.184	-8.9	81	-0.09	15.07
100	t	7,12-Dimethylbenz(a)anthr	0.635	0.579	8.8	70	-0.10	13.92
101	t	Benzo[g,h,i]perylene	1.084	1.187	-9.5	84	-0.10	15.22

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3e45521.D M3E1991.M Thu Dec 20 12:39:35 2012 MS3E

8.7.28

8

Continuing Calibration Summary

Job Number: JB22962 **Sample:** E3E2019-CC1983
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E46436.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3e2019\3e46436.D          Vial: 3
Acq On    : 20 Dec 2012   9:47 am                     Operator: olgaa
Sample    : cc1983-50                                 Inst    : MS3E
Misc      : op62064,e3e2019,                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3E1991.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Thu Dec 06 10:24:01 2012
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.
102	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	68	-0.09	2.71
103	Benzaldehyde	1.149	0.916	20.3#	56	-0.10	2.28
104	Acenaphthene-d10a	1.000	1.000	0.0	63	-0.12	6.89
105	1,2,4,5-Tetrachlorobenzen	0.496	0.484	2.4	64	-0.12	5.63
106	Phenanthrene-d10a	1.000	1.000	0.0	63	-0.12	9.12
107	Atrazine	0.107	0.121	-13.1	67	-0.14	9.00
108 I	Chrysene-d12a	1.000	1.000	0.0	66	-0.10	12.84
109 T	benzidine	0.604	0.459	24.0#	45	-0.11	11.33

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3e46091.D M3E1991.M Thu Dec 20 12:41:11 2012 MS3E

8.7.29

8

Continuing Calibration Summary

Job Number: JB22962 **Sample:** E3E2020-CC1991
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E46473.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3e2020\3e46473.D          Vial: 2
Acq On    : 21 Dec 2012   9:30 am                    Operator: olgaa
Sample    : cc1991-50                                Inst    : MS3E
Misc      : op62168,e3e2020,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3E1991.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Thu Dec 06 10:24:01 2012
Response via : Multiple Level Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	71	-0.10	2.70
2	t	1,4-Dioxane	0.564	0.576	-2.1	78	-0.05	0.79
3	t	Pyridine	1.482	1.548	-4.5	80	-0.05	0.92
4	t	N-Nitrosodimethylamine	0.885	0.946	-6.9	80	-0.05	0.92
5	S	2-Fluorophenol	1.394	1.463	-4.9	77	-0.10	1.64
6	t	Indene	2.467	2.475	-0.3	75	-0.10	3.01
7	t	Cumene	3.265	3.369	-3.2	78	-0.09	1.98
8	S	Phenol-d5	1.696	1.816	-7.1	80	-0.13	2.48
9	t	Phenol	1.846	1.966	-6.5	84	-0.13	2.50
10		Aniline	2.019	1.731	14.3	63	-0.10	2.42
11	t	bis(2-Chloroethyl)ether	1.284	1.469	-14.4	87	-0.09	2.50
12	t	2-Chlorophenol	1.545	1.510	2.3	74	-0.11	2.54
13	t	Decane	1.054	1.363	-29.3#	100	-0.09	2.61
14	t	1,3-Dichlorobenzene	1.734	1.638	5.5	72	-0.10	2.66
15	t	1,4-Dichlorobenzene	1.760	1.657	5.9	72	-0.10	2.72
16	t	Benzyl alcohol	0.958	1.054	-10.0	81	-0.11	2.93
17	t	1,2-Dichlorobenzene	1.640	1.535	6.4	72	-0.10	2.92
18	t	Acetophenone	1.856	1.849	0.4	75	-0.10	3.22
19	t	2-Methylphenol	1.334	1.343	-0.7	76	-0.13	3.15
20	t	2,2'-oxybis(1-Chloropropa	0.523	0.493	5.7	72	-0.10	3.11
21	t	3&4-Methylphenol	1.420	1.523	-7.3	80	-0.13	3.34
22	t	n-Nitroso-di-n-propylamin	0.940	0.940	0.0	76	-0.10	3.29
23	t	Hexachloroethane	0.506	0.449	11.3	67	-0.11	3.27
24	I	Naphthalene-d8	1.000	1.000	0.0	74	-0.11	4.28
25	S	Nitrobenzene-d5	0.335	0.339	-1.2	79	-0.10	3.39
26	t	Nitrobenzene	0.346	0.356	-2.9	80	-0.10	3.41
27	t	Quinoline	0.758	0.753	0.7	78	-0.09	4.82
28	t	Isophorone	0.618	0.613	0.8	77	-0.10	3.73
29	t	2-Nitrophenol	0.208	0.212	-1.9	74	-0.11	3.83
30	t	2,4-Dimethylphenol	0.327	0.309	5.5	70	-0.13	4.01
31	t	Benzoic acid	0.261	0.333	-27.6#	97	-0.07	4.35
32	t	bis(2-Chloroethoxy)methan	0.363	0.371	-2.2	80	-0.11	4.09
33	t	2,4-Dichlorophenol	0.318	0.289	9.1	70	-0.13	4.19
34	t	2,6-Dichlorophenol	0.313	0.288	8.0	71	-0.12	4.49
35		1,3,5-Trichlorobenzene	0.340	0.292	14.1	68	-0.11	3.83
36	t	1,2,4-Trichlorobenzene	0.333	0.297	10.8	70	-0.11	4.25
37		1,2,3-Trichlorobenzene	0.318	0.285	10.4	70	-0.11	4.58
38	t	Naphthalene	1.127	1.116	1.0	79	-0.11	4.31
39	t	4-Chloroaniline	0.464	0.440	5.2	73	-0.12	4.49
40	t	2,3-Dichloroaniline	0.379	0.346	8.7	71	-0.12	5.82
41	t	Caprolactam	0.123	0.150	-22.0#	92	-0.07	4.99

Continuing Calibration Summary

Job Number: JB22962 **Sample:** E3E2020-CC1991
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E46473.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

42	t	Hexachlorobutadiene	0.165	0.142	13.9	68	-0.11	4.61
43	t	4-Chloro-3-methylphenol	0.302	0.316	-4.6	79	-0.14	5.35
44	t	2-Methylnaphthalene	0.643	0.652	-1.4	77	-0.11	5.31
45	t	1-Methylnaphthalene	0.650	0.639	1.7	78	-0.11	5.46
46	t	Dimethylnaphthalene	0.659	0.640	2.9	75	-0.12	6.27
47	I	Acenaphthene-d10	1.000	1.000	0.0	74	-0.12	6.88
48	t	Hexachlorocyclopentadiene	0.277	0.268	3.2	64	-0.12	5.67
49	t	2,4,6-Trichlorophenol	0.346	0.349	-0.9	74	-0.12	5.85
50	t	2,4,5-Trichlorophenol	0.378	0.384	-1.6	75	-0.13	5.93
51	S	2-Fluorobiphenyl	1.323	1.238	6.4	73	-0.12	5.94
52	t	2-Chloronaphthalene	1.187	1.124	5.3	73	-0.11	6.02
53	t	Biphenyl	1.532	1.474	3.8	75	-0.11	6.06
54	t	2-Nitroaniline	0.281	0.326	-16.0	84	-0.12	6.31
55	t	Dimethylphthalate	1.309	1.315	-0.5	78	-0.11	6.70
56	t	Acenaphthylene	1.904	1.963	-3.1	78	-0.12	6.64
57	t	2,6-Dinitrotoluene	0.282	0.320	-13.5	78	-0.11	6.77
58	t	3-Nitroaniline	0.336	0.359	-6.8	77	-0.13	6.96
59	t	Acenaphthene	1.207	1.190	1.4	77	-0.12	6.93
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	100.000	119.646	-19.6	90	-0.10	7.14
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.133	0.116	12.8	58	-0.17	7.43
62	t	Dibenzofuran	1.613	1.514	6.1	73	-0.12	7.19
63	t	2,4-Dinitrotoluene	0.388	0.420	-8.2	75	-0.10	7.37
64		2,3,4,6-Tetrachlorophenol	0.287	0.286	0.3	73	-0.12	7.52
65	t	Diethylphthalate	1.290	1.170	9.3	70	-0.12	7.81
66	t	Fluorene	1.372	1.296	5.5	72	-0.12	7.71
67	t	4-Chlorophenyl-phenylethe	0.617	0.592	4.1	74	-0.12	7.79
68	t	4-Nitroaniline	0.342	0.365	-6.7	75	-0.12	7.92
69	I	Phenanthrene-d10	1.000	1.000	0.0	75	-0.12	9.12
70	t	4,6-Dinitro-2-methylpheno	0.147	0.176	-19.7	84	-0.09	7.99
71	t	n-Nitrosodiphenylamine	0.648	0.621	4.2	73	-0.12	8.01
72	t	1,2-Diphenylhydrazine	0.777	0.871	-12.1	85	-0.12	8.02
73	S	2,4,6-Tribromophenol	0.085	0.098	-15.3	84	-0.12	8.13
74	t	4-Bromophenyl-phenylether	0.208	0.206	1.0	75	-0.12	8.52
75	t	Hexachlorobenzene	0.210	0.212	-1.0	78	-0.11	8.68
76	t	Pentachlorophenol	0.145	0.148	-2.1	70	-0.12	9.03
77	t	Phenanthrene	1.217	1.145	5.9	73	-0.12	9.15
78	t	Anthracene	1.219	1.164	4.5	73	-0.12	9.22
79	t	Carbazole	1.162	1.087	6.5	71	-0.13	9.57
80	t	Di-n-butylphthalate	1.318	1.358	-3.0	74	-0.12	10.37
81	t	Fluoranthene	1.201	1.124	6.4	69	-0.12	10.99
82	t	Octadecane	0.371	0.454	-22.4#	91	-0.12	9.28
83	I	Chrysene-d12	1.000	1.000	0.0	75	-0.10	12.84
84	t	Pyrene	1.306	1.298	0.6	75	-0.12	11.30
85	S	Terphenyl-d14	0.838	0.829	1.1	74	-0.11	11.67
86	t	Butylbenzylphthalate	0.589	0.619	-5.1	74	-0.10	12.40
87		Butyl stearate	0.230	0.324	-40.9#	95	-0.10	12.53
88	t	Benzo[a]anthracene	1.166	1.175	-0.8	76	-0.10	12.82
89	t	3,3'-Dichlorobenzidine	0.412	0.437	-6.1	77	-0.10	12.88
90	t	Chrysene	1.100	1.068	2.9	75	-0.09	12.87
91	t	bis(2-Ethylhexyl)phthalat	0.849	0.854	-0.6	74	-0.10	13.12
92	I	Perylene-d12	1.000	1.000	0.0	76	-0.09	14.23
93	t	Di-n-octylphthalate	1.570	1.726	-9.9	75	-0.09	13.73

Continuing Calibration Summary

Job Number: JB22962 **Sample:** E3E2020-CC1991
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E46473.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

94	t	Benzo[b]fluoranthene	1.324	1.487	-12.3	83	-0.09	13.91
95	t	Benzo[k]fluoranthene	1.282	1.225	4.4	71	-0.08	13.94
96	t	Benzo[a]pyrene	1.154	1.224	-6.1	77	-0.09	14.18
97	t	Indeno[1,2,3-cd]pyrene	1.305	1.417	-8.6	79	-0.09	15.06
98	t	Dibenz(a,h)acridine	0.934	1.060	-13.5	79	-0.09	14.91
99	t	Dibenz[a,h]anthracene	1.087	1.196	-10.0	79	-0.09	15.07
100	t	7,12-Dimethylbenz(a)anthr	0.635	0.636	-0.2	69	-0.09	13.93
101	t	Benzo[g,h,i]perylene	1.084	1.190	-9.8	81	-0.09	15.23

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3e46091.D M3E1991.M Fri Dec 21 13:12:34 2012 MS3E

8.7.30

8

Continuing Calibration Summary

Job Number: JB22962 **Sample:** E3E2020-CC1983
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E46474.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3e2020\3e46474.D          Vial: 3
Acq On    : 21 Dec 2012   9:54 am                    Operator: olgaa
Sample    : cc1983-25                                Inst    : MS3E
Misc      : op62168,e3e2020,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3E1991.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Thu Dec 06 10:24:01 2012
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.
102	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	61	-0.10	2.70
103	Benzaldehyde	1.149	1.226	-6.7	66	-0.10	2.28
104	Acenaphthene-d10a	1.000	1.000	0.0	67	-0.12	6.88
105	1,2,4,5-Tetrachlorobenzen	0.496	0.440	11.3	61	-0.13	5.63
106	Phenanthrene-d10a	1.000	1.000	0.0	68	-0.13	9.12
107	Atrazine	0.107	0.121	-13.1	74	-0.16	8.98
108 I	Chrysene-d12a	1.000	1.000	0.0	68	-0.10	12.84
109 T	benzidine	0.604	0.471	22.0#	46	-0.12	11.31

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 3e45521.D  M3E1991.M        Fri Dec 21 13:14:00 2012   MS3E
```

8.7.31

8

New Jersey

ACCUTEST LABORATORIES

GC/MS Semi-volatiles

Raw Data

Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
12/19/12 23:23

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48612.D
Acq On : 19 Dec 2012 1:12 pm
Operator : olgaa
Sample : jb22962-1
Misc : op62064,e2m2082,30.5
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Dec 19 15:36:33 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.373	152	212590	40.00	ppb	-0.02
24) Naphthalene-d8	3.898	136	1032070	40.00	ppb	-0.02
47) Acenaphthene-d10	6.460	164	671096	40.00	ppb	-0.02
69) Phenanthrene-d10	8.695	188	1120967	40.00	ppb	-0.01
83) Chrysene-d12	12.520	240	1172957	40.00	ppb	0.00
92) Perylene-d12	13.937	264	1066627	40.00	ppb	0.01
102) 1,4-Dichlorobenzene-d4a	2.373	152	212590	40.00	ppb	-0.02
104) Acenaphthene-d10a	6.460	164	671096	40.00	ppb	-0.02
106) Chrysene-d12a	12.520	240	1172957	40.00	ppb	0.00
108) Phenanthrene-d10a	8.695	188	1120967	40.00	ppb	-0.01
110) Chrysene-d12b	12.520	240	1172957	40.00	ppb	0.00

System Monitoring Compounds						
5) 2-Fluorophenol	1.427	112	169240	21.88	ppb	0.00
Spiked Amount 50.000			Recovery = 43.76%			
8) Phenol-d5	2.224	99	261192	25.19	ppb	0.00
Spiked Amount 50.000			Recovery = 50.38%			
25) Nitrobenzene-d5	3.053	82	221177	19.97	ppb	-0.01
Spiked Amount 50.000			Recovery = 39.94%			
51) 2-Fluorobiphenyl	5.540	172	562705	25.50	ppb	-0.02
Spiked Amount 50.000			Recovery = 51.00%			
73) 2,4,6-Tribromophenol	7.722	330	99085	37.61	ppb	-0.02
Spiked Amount 50.000			Recovery = 75.22%			
85) Terphenyl-d14	11.284	244	871777	36.78	ppb	0.00
Spiked Amount 50.000			Recovery = 73.56%			

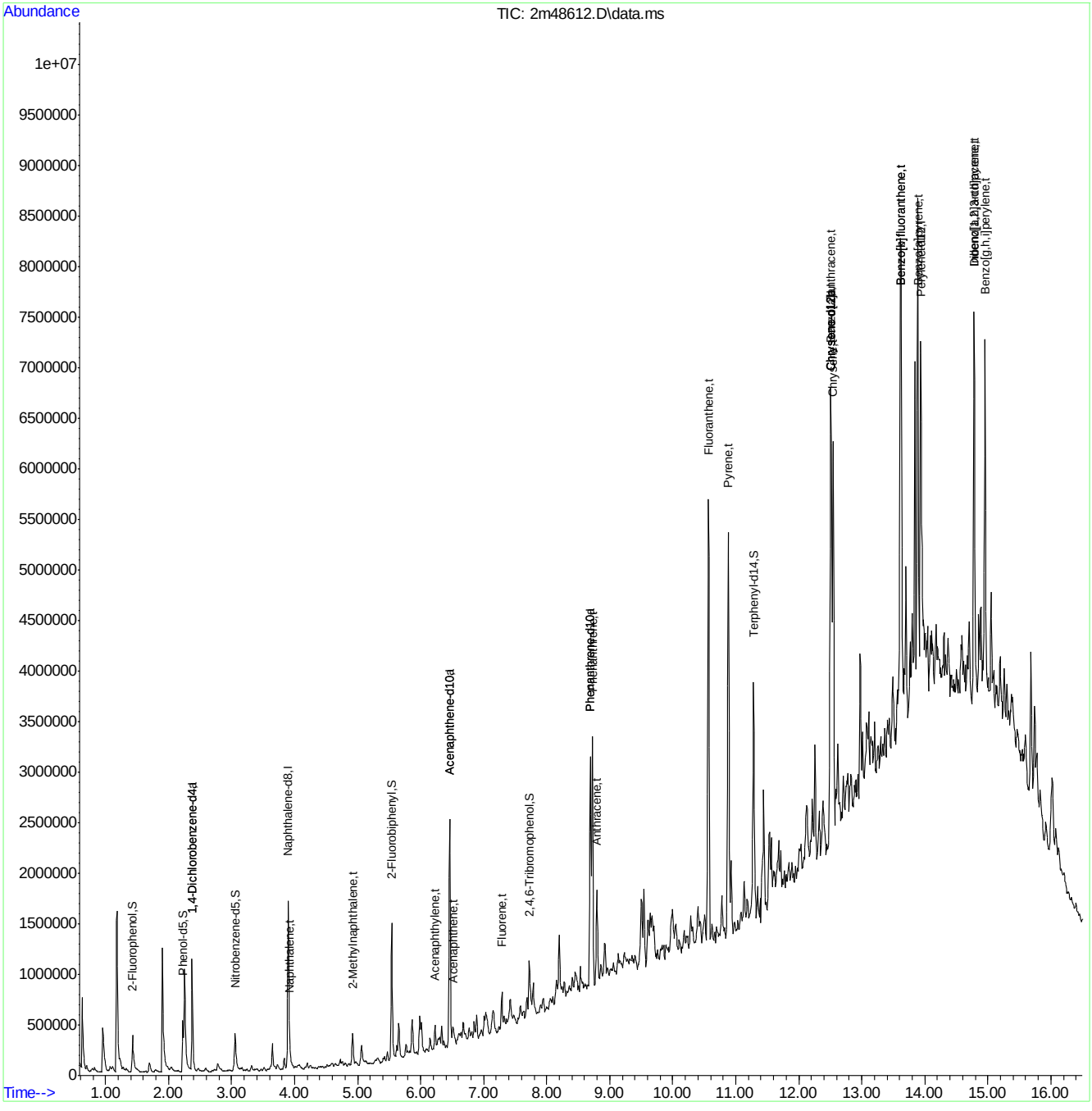
Target Compounds						Qvalue
38) Naphthalene	3.924	128	98590	3.43	ppb	95
44) 2-Methylnaphthalene	4.919	141	109645	6.22	ppb	96
56) Acenaphthylene	6.230	152	156500	4.83	ppb	99
59) Acenaphthene	6.508	153	67119	3.22	ppb	98
66) Fluorene	7.289	166	178346	7.91	ppb	98
77) Phenanthrene	8.727	178	1318407	38.42	ppb	99
78) Anthracene	8.797	178	523145	15.38	ppb	96
81) Fluoranthene	10.567	202	2529028	74.71	ppb	98
84) Pyrene	10.883	202	2449365	64.56	ppb	99
88) Benzo[a]anthracene	12.504	228	1659692	46.00	ppb	96
90) Chrysene	12.546	228	1721318	48.13	ppb	98
94) Benzo[b]fluoranthene	13.616	252	2055488m	55.35	ppb	
95) Benzo[k]fluoranthene	13.622	252	1022407m	30.59	ppb	
96) Benzo[a]pyrene	13.889	252	1709741	54.20	ppb	95
97) Indeno[1,2,3-cd]pyrene	14.782	276	1337614	36.52	ppb	98
99) Dibenz[a,h]anthracene	14.788	278	504537m	16.40	ppb	
101) Benzo[g,h,i]perylene	14.959	276	1280431	40.95	ppb	93

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

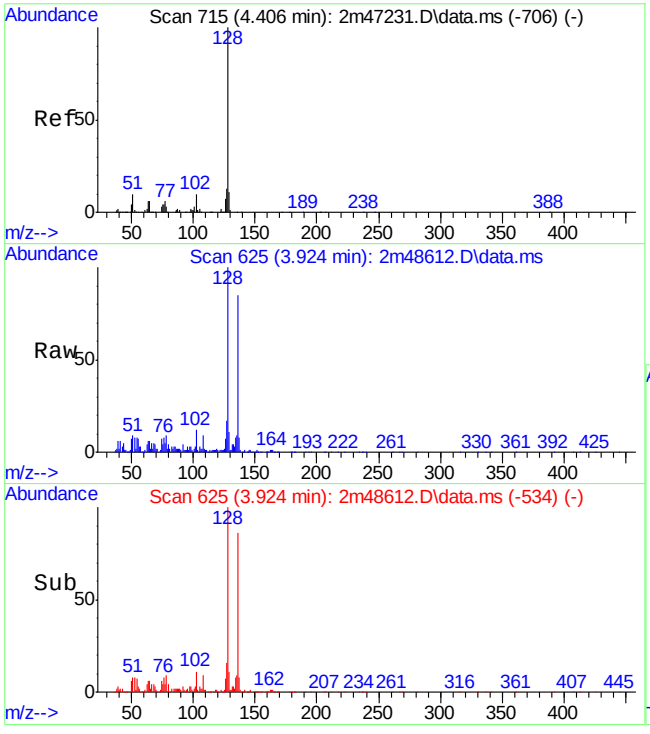
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48612.D
Acq On : 19 Dec 2012 1:12 pm
Operator : olgaa
Sample : jb22962-1
Misc : op62064,e2m2082,30.5
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Dec 19 15:36:33 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration



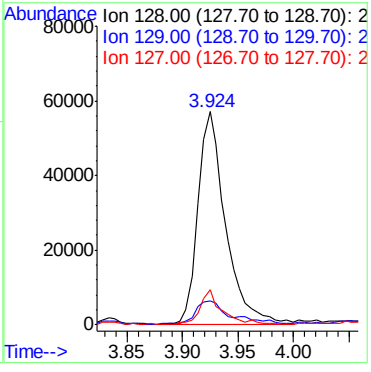
M2M2034.M Wed Dec 19 15:36:42 2012 MS2M Page: 2

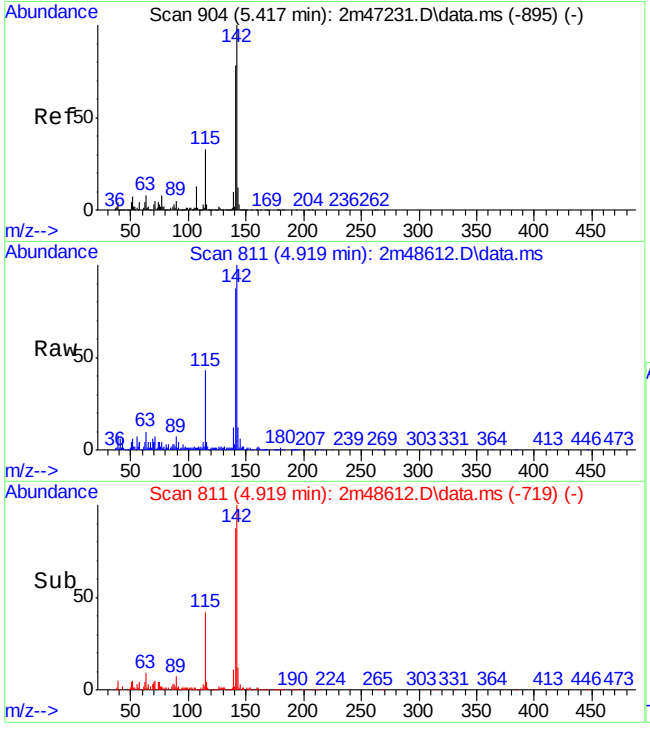


#38
Naphthalene
Concen: 3.43 ppb
RT: 3.924 min Scan# 625
Delta R.T. -0.016 min
Lab File: 2m48612.D
Acq: 19 Dec 2012 1:12 pm

Tgt Ion:128 Resp: 98590

Ion	Ratio	Lower	Upper
128	100		
129	10.8	0.0	40.9
127	16.5	0.0	43.3

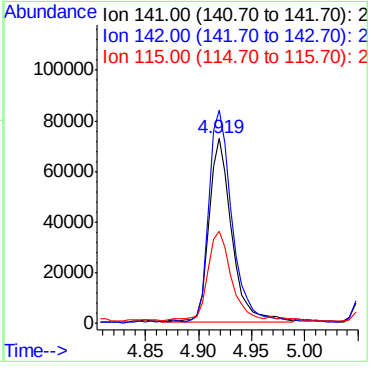


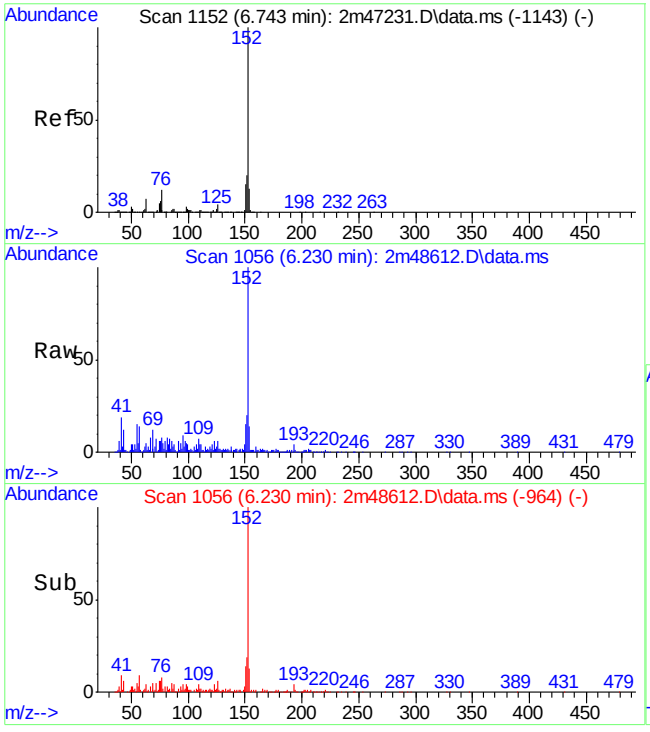


#44
2-Methylnaphthalene
Concen: 6.22 ppb
RT: 4.919 min Scan# 811
Delta R.T. -0.011 min
Lab File: 2m48612.D
Acq: 19 Dec 2012 1:12 pm

Tgt Ion:141 Resp: 109645

Ion	Ratio	Lower	Upper
141	100		
142	114.2	81.7	141.7
115	48.4	12.0	72.0

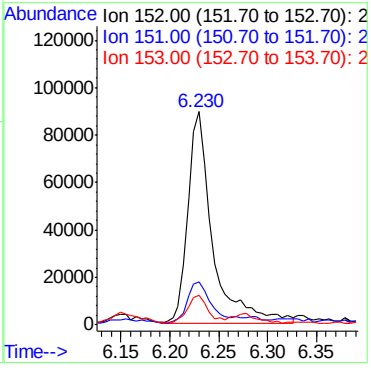


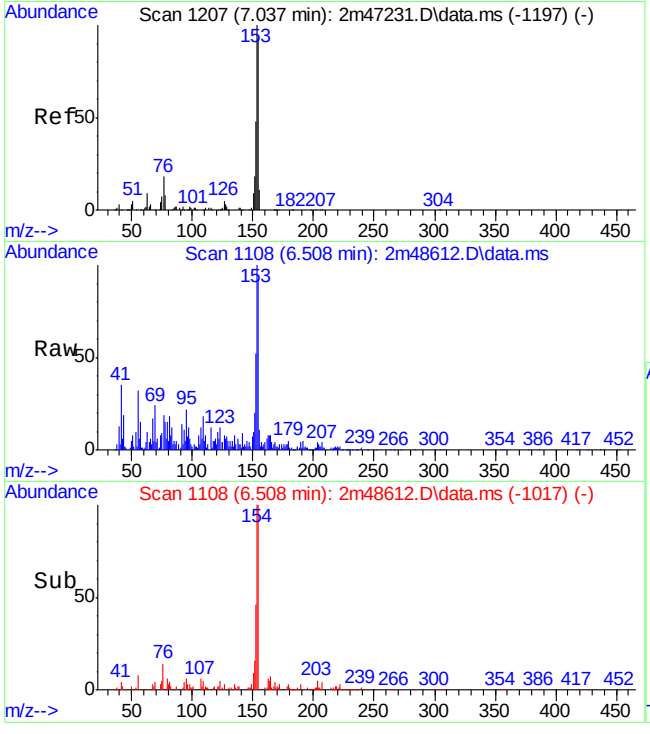


#56
Acenaphthylene
Concen: 4.83 ppb
RT: 6.230 min Scan# 1056
Delta R.T. -0.011 min
Lab File: 2m48612.D
Acq: 19 Dec 2012 1:12 pm

Tgt Ion:152 Resp: 156500

Ion	Ratio	Lower	Upper
152	100		
151	18.8	0.0	49.4
153	13.1	0.0	43.0

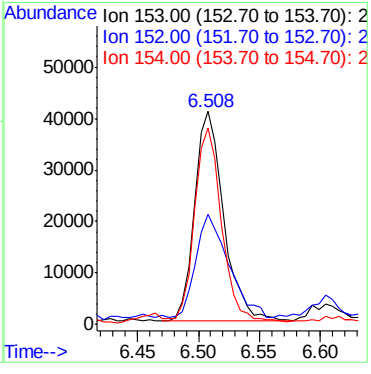




#59
Acenaphthene
Concen: 3.22 ppb
RT: 6.508 min Scan# 1108
Delta R.T. -0.016 min
Lab File: 2m48612.D
Acq: 19 Dec 2012 1:12 pm

Tgt Ion:153 Resp: 67119

Ion	Ratio	Lower	Upper
153	100		
152	47.5	15.8	75.8
154	91.4	59.7	119.7



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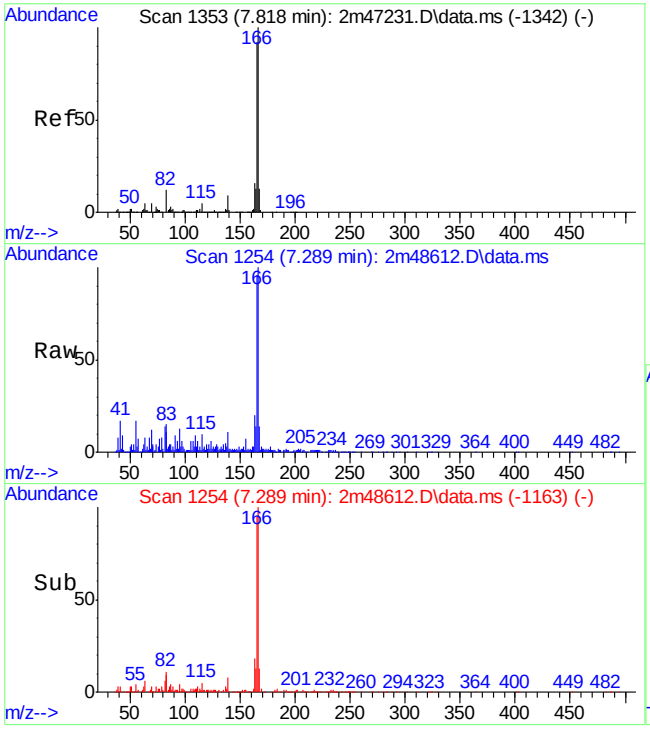
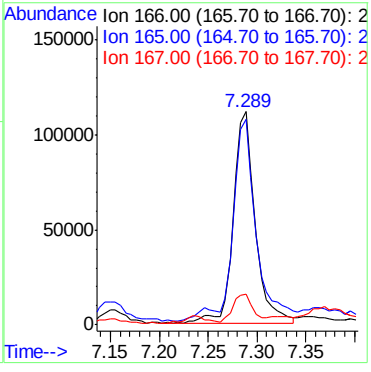
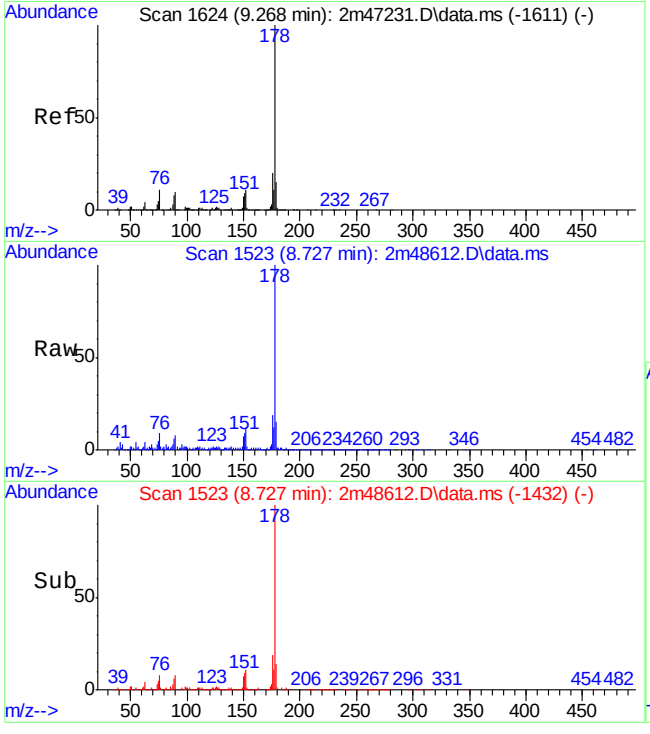


#66
Fluorene
Concen: 7.91 ppb
RT: 7.289 min Scan# 1254
Delta R.T. -0.016 min
Lab File: 2m48612.D
Acq: 19 Dec 2012 1:12 pm

Tgt Ion:166 Resp: 178346

Ion	Ratio	Lower	Upper
166	100		
165	93.8	61.9	121.9
167	12.5	0.0	43.1

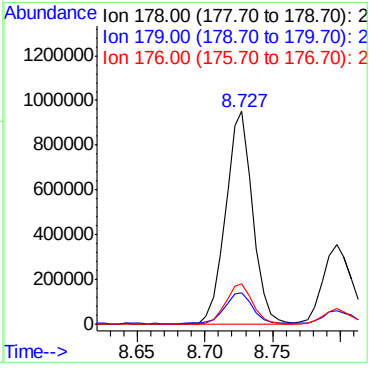




#77
Phenanthrene
Concen: 38.42 ppb
RT: 8.727 min Scan# 1523
Delta R.T. -0.016 min
Lab File: 2m48612.D
Acq: 19 Dec 2012 1:12 pm

Tgt Ion:178 Resp: 1318407

Ion	Ratio	Lower	Upper
178	100		
179	14.4	0.0	44.9
176	19.0	0.0	49.1



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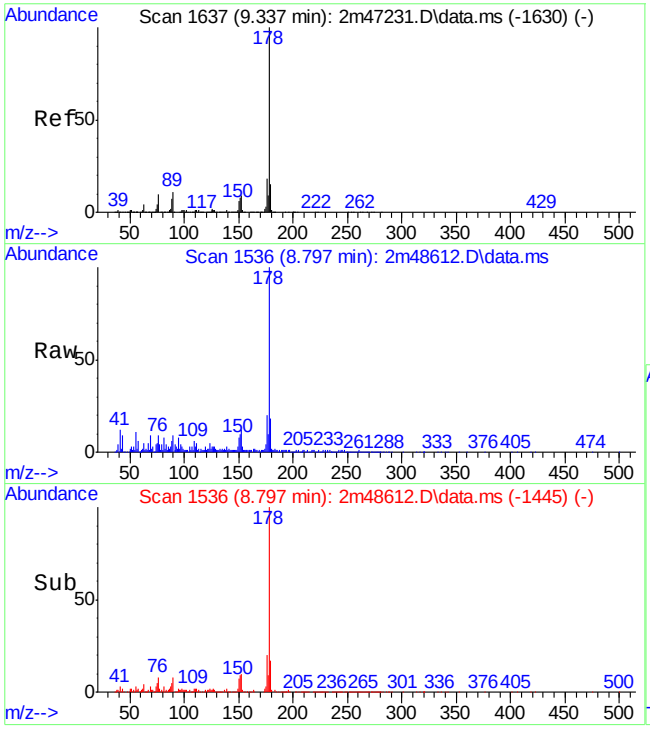
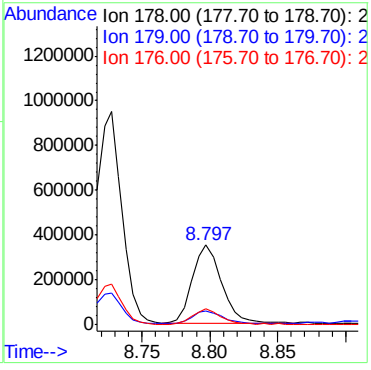
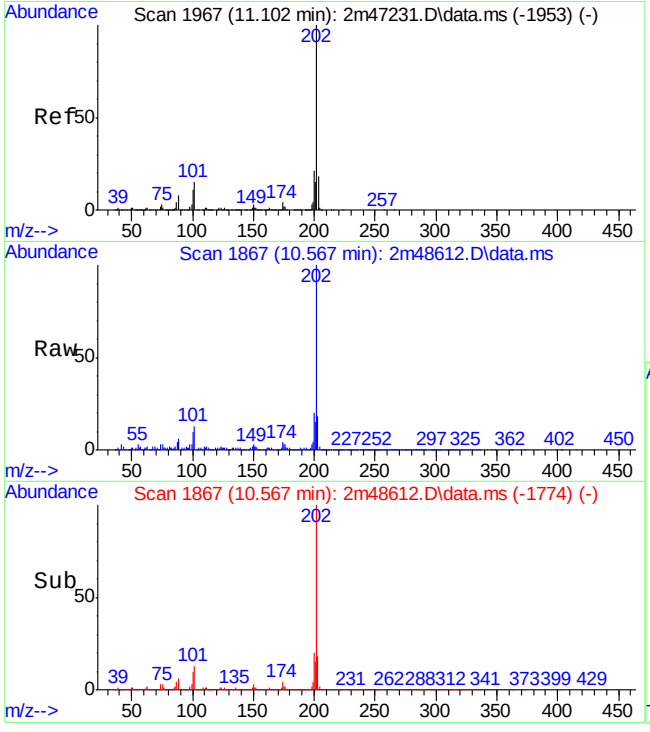


#78
Anthracene
Concen: 15.38 ppb
RT: 8.797 min Scan# 1536
Delta R.T. -0.016 min
Lab File: 2m48612.D
Acq: 19 Dec 2012 1:12 pm

Tgt Ion:178 Resp: 523145

Ion	Ratio	Lower	Upper
178	100		
179	16.5	0.0	44.3
176	19.7	0.0	48.3

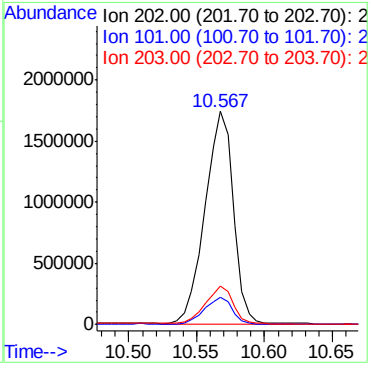




#81
Fluoranthene
Concen: 74.71 ppb
RT: 10.567 min Scan# 1867
Delta R.T. -0.005 min
Lab File: 2m48612.D
Acq: 19 Dec 2012 1:12 pm

Tgt Ion:202 Resp: 2529028

Ion	Ratio	Lower	Upper
202	100		
101	12.4	0.0	43.8
203	17.4	0.0	47.5



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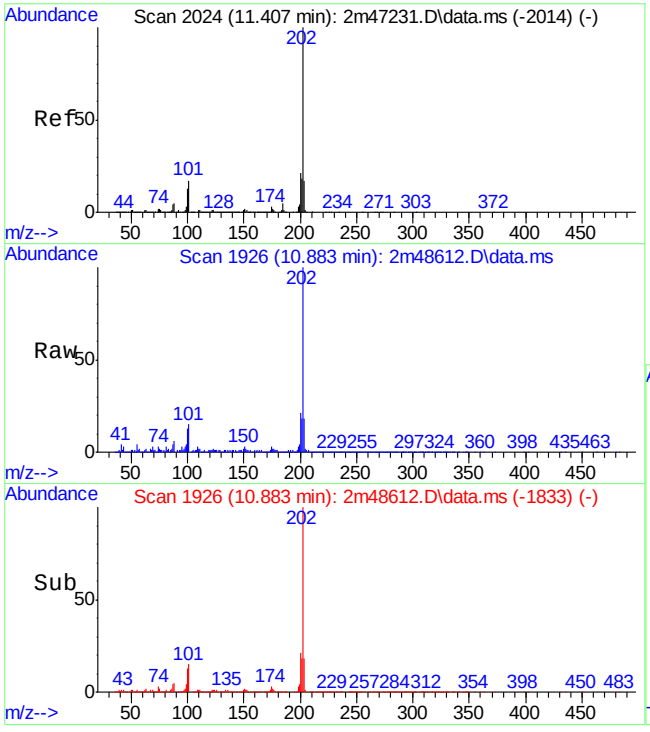
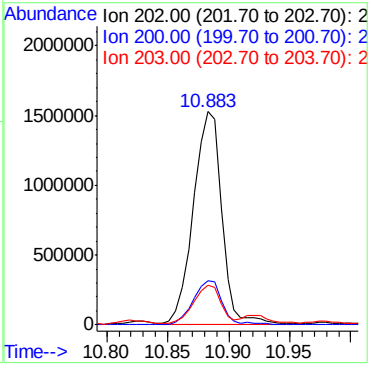
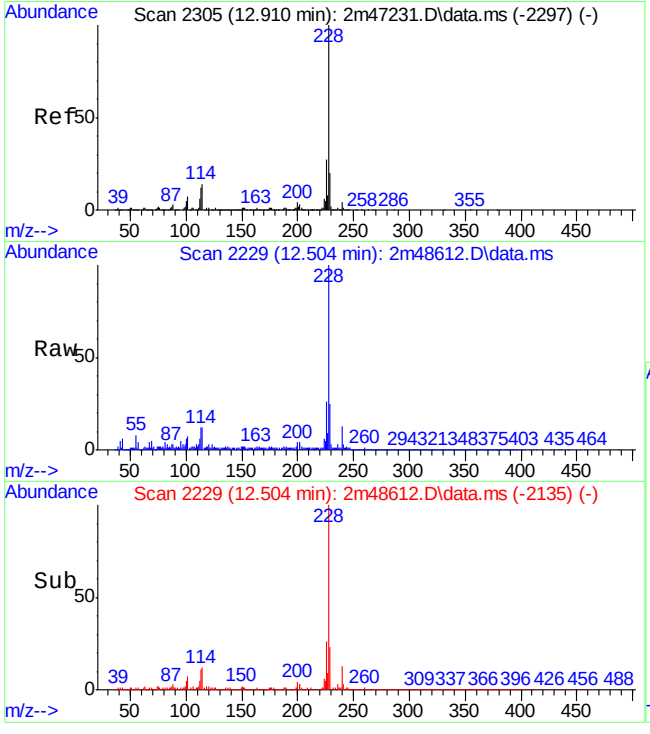


#84
Pyrene
Concen: 64.56 ppb
RT: 10.883 min Scan# 1926
Delta R.T. -0.005 min
Lab File: 2m48612.D
Acq: 19 Dec 2012 1:12 pm

Tgt Ion:202 Resp: 2449365

Ion	Ratio	Lower	Upper
202	100		
200	20.6	0.0	51.3
203	17.7	0.0	47.6

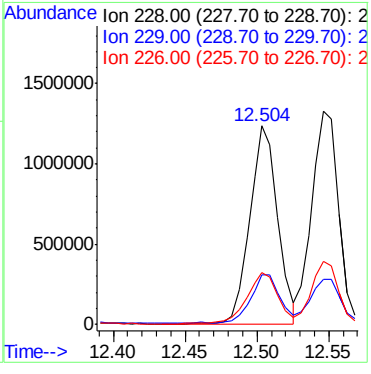




#88
Benzo[a]anthracene
Concen: 46.00 ppb
RT: 12.504 min Scan# 2229
Delta R.T. 0.000 min
Lab File: 2m48612.D
Acq: 19 Dec 2012 1:12 pm

Tgt Ion:228 Resp: 1659692

Ion	Ratio	Lower	Upper
228	100		
229	23.5	0.0	49.3
226	26.0	0.0	56.0



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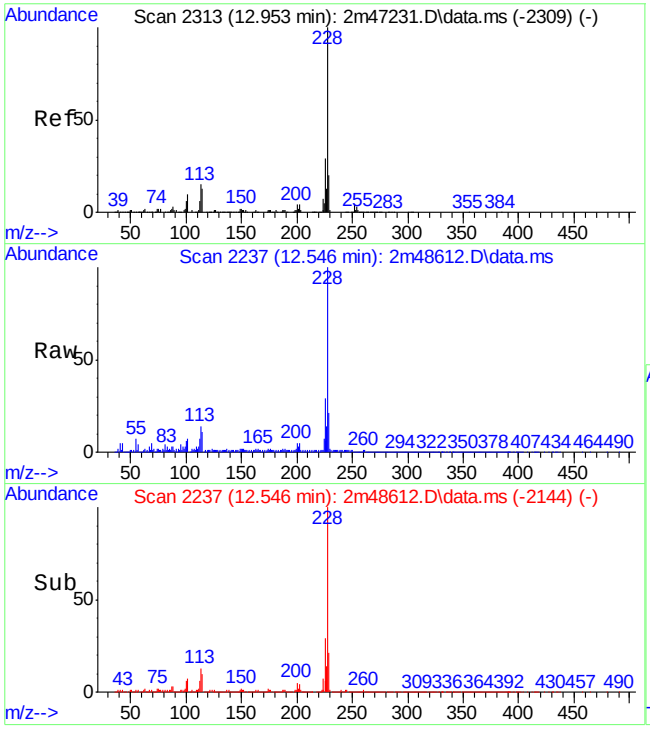
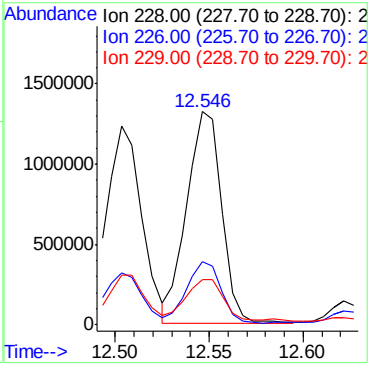
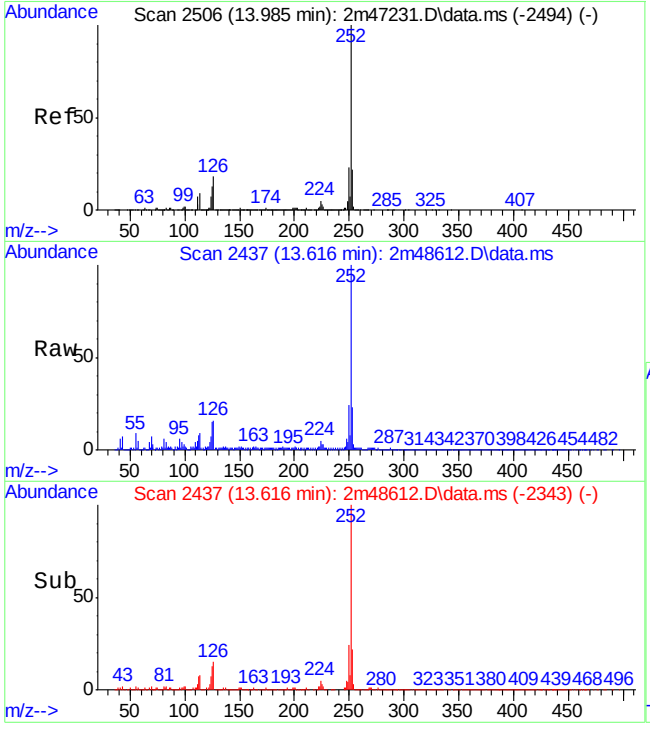


#90
Chrysene
Concen: 48.13 ppb
RT: 12.546 min Scan# 2237
Delta R.T. -0.005 min
Lab File: 2m48612.D
Acq: 19 Dec 2012 1:12 pm

Tgt Ion:228 Resp: 1721318

Ion	Ratio	Lower	Upper
228	100		
226	28.9	0.0	57.7
229	19.2	0.0	49.3

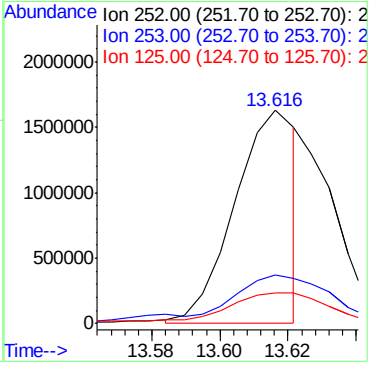


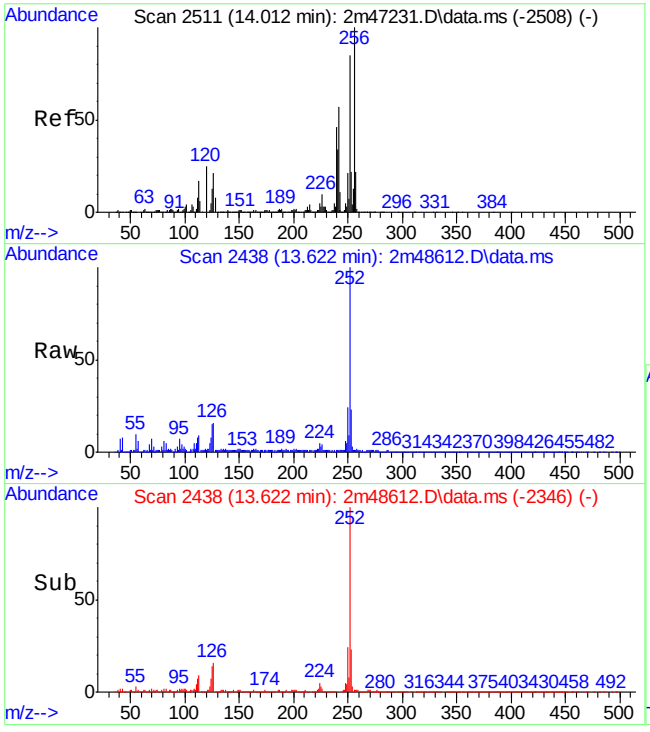


#94
Benzo[b]fluoranthene
Concen: 55.35 ppb m
RT: 13.616 min Scan# 2437
Delta R.T. 0.000 min
Lab File: 2m48612.D
Acq: 19 Dec 2012 1:12 pm

Tgt Ion:252 Resp: 2055488

Ion	Ratio	Lower	Upper
252	100		
253	22.8	0.0	51.6
125	14.6	0.0	40.1

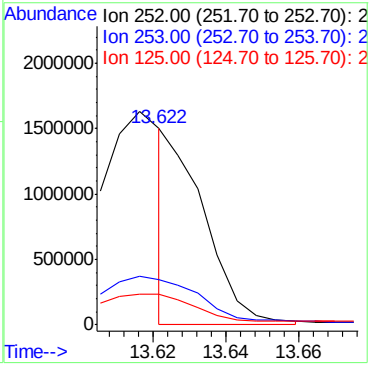


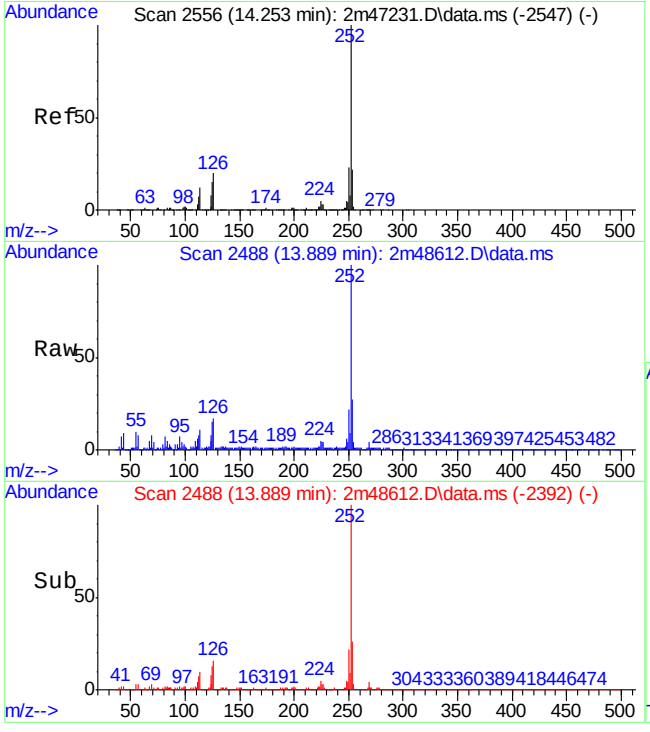


#95
Benzo[k]fluoranthene
Concen: 30.59 ppb m
RT: 13.622 min Scan# 2438
Delta R.T. -0.011 min
Lab File: 2m48612.D
Acq: 19 Dec 2012 1:12 pm

Tgt Ion:252 Resp: 1022407

Ion	Ratio	Lower	Upper
252	100		
253	23.0	0.0	52.7
125	15.4	0.0	42.9

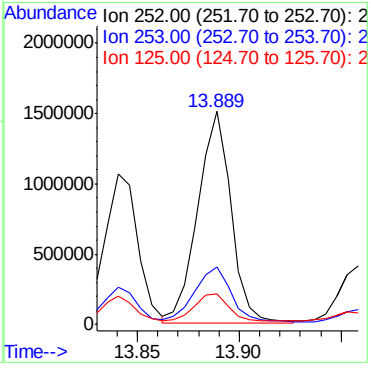




#96
Benzo[a]pyrene
Concen: 54.20 ppb
RT: 13.889 min Scan# 2488
Delta R.T. 0.011 min
Lab File: 2m48612.D
Acq: 19 Dec 2012 1:12 pm

Tgt Ion:252 Resp: 1709741

Ion	Ratio	Lower	Upper
252	100		
253	25.7	0.0	52.4
125	13.1	0.0	42.7



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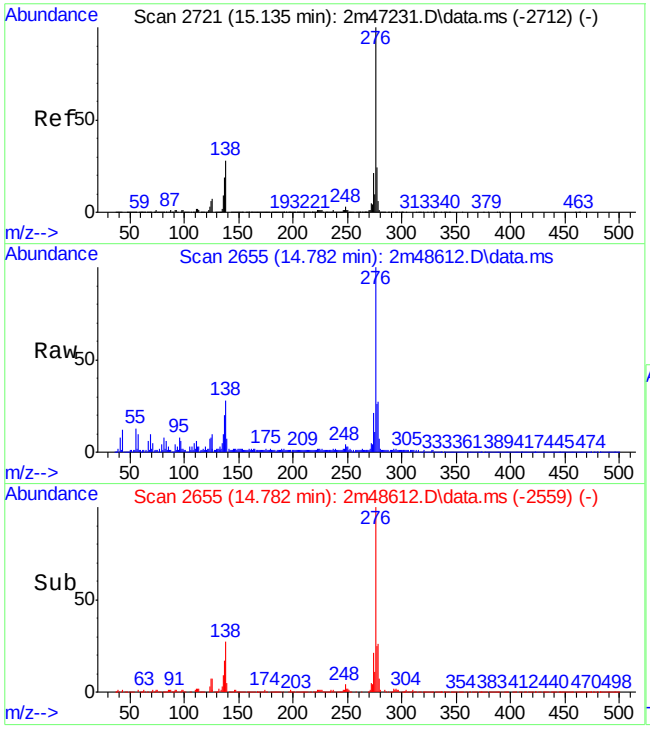
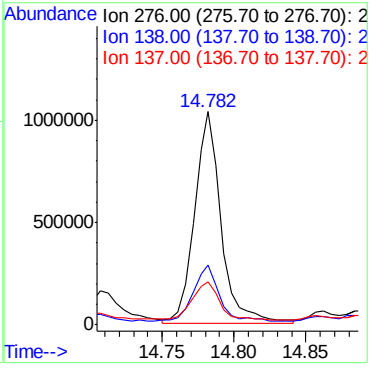
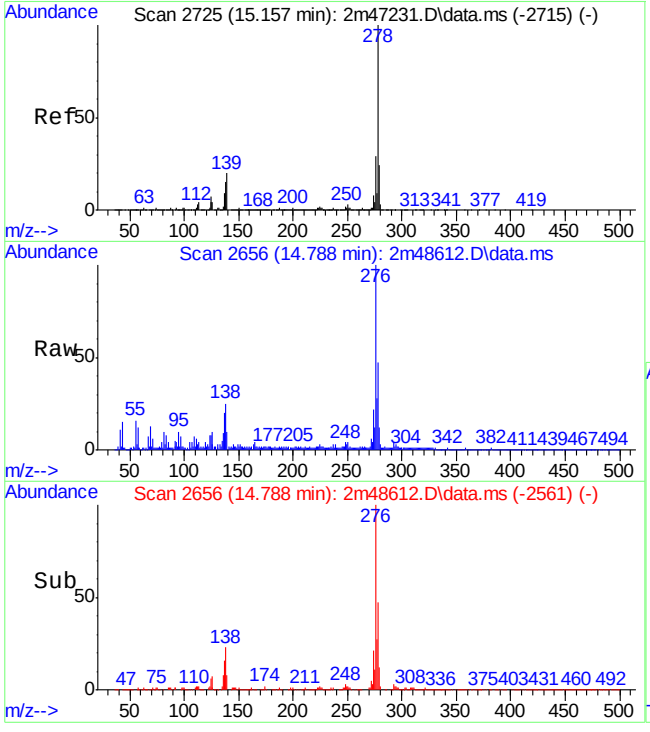


#97
Indeno[1,2,3-cd]pyrene
Concen: 36.52 ppb
RT: 14.782 min Scan# 2655
Delta R.T. 0.011 min
Lab File: 2m48612.D
Acq: 19 Dec 2012 1:12 pm

Tgt Ion:276 Resp: 1337614

Ion	Ratio	Lower	Upper
276	100		
138	26.6	0.0	57.6
137	17.8	0.0	48.9

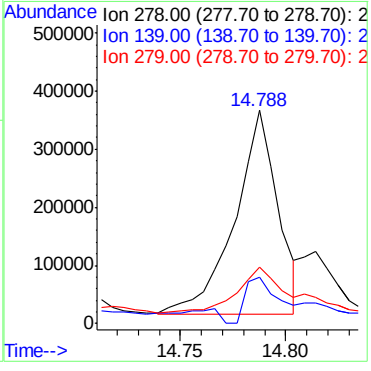


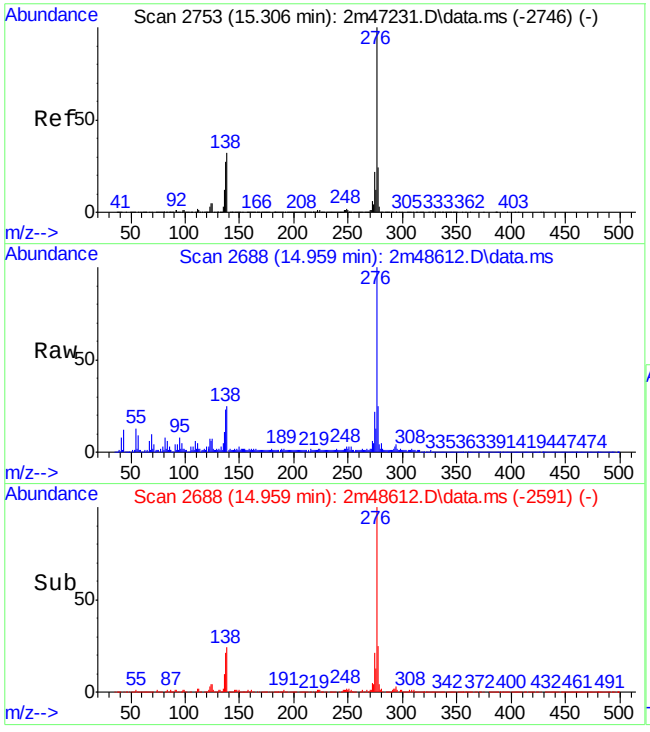


#99
Dibenz[a,h]anthracene
Concen: 16.40 ppb m
RT: 14.788 min Scan# 2656
Delta R.T. 0.006 min
Lab File: 2m48612.D
Acq: 19 Dec 2012 1:12 pm

Tgt Ion:278 Resp: 504537

Ion	Ratio	Lower	Upper
278	100		
139	21.9	0.0	52.4
279	26.4	0.0	54.1

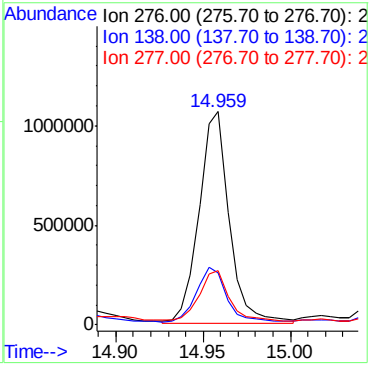




#101
Benzo[g,h,i]perylene
Concen: 40.95 ppb
RT: 14.959 min Scan# 2688
Delta R.T. 0.016 min
Lab File: 2m48612.D
Acq: 19 Dec 2012 1:12 pm

Tgt Ion:276 Resp: 1280431

Ion	Ratio	Lower	Upper
276	100		
138	23.4	0.1	60.1
277	23.7	0.0	53.2



9.1.1

9

Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 12/21/12 18:23

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48613.D
Acq On : 19 Dec 2012 1:35 pm
Operator : olgaa
Sample : jb22962-2
Misc : op62064,e2m2082,31.8
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Dec 19 15:40:30 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 15:38:35 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.379	152	240364	40.00	ppb	0.00
24) Naphthalene-d8	3.903	136	1153429	40.00	ppb	0.00
47) Acenaphthene-d10	6.470	164	725936	40.00	ppb	0.00
69) Phenanthrene-d10	8.711	188	1262205	40.00	ppb	0.00
83) Chrysene-d12	12.552	240	1450146	40.00	ppb	0.00
92) Perylene-d12	13.969	264	1373729	40.00	ppb	0.00
102) 1,4-Dichlorobenzene-d4a	2.379	152	240364	40.00	ppb	0.00
104) Acenaphthene-d10a	6.470	164	725936	40.00	ppb	0.00
106) Chrysene-d12a	12.552	240	1450146	40.00	ppb	0.00
108) Phenanthrene-d10a	8.711	188	1262205	40.00	ppb	0.00
110) Chrysene-d12b	12.552	240	1450146	40.00	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	1.426	112	223793	25.58	ppb	0.00
Spiked Amount 50.000			Recovery	=	51.16%	
8) Phenol-d5	2.229	99	322943	27.55	ppb	0.00
Spiked Amount 50.000			Recovery	=	55.10%	
25) Nitrobenzene-d5	3.052	82	336258	27.17	ppb	0.00
Spiked Amount 50.000			Recovery	=	54.34%	
51) 2-Fluorobiphenyl	5.550	172	634487	26.58	ppb	0.00
Spiked Amount 50.000			Recovery	=	53.16%	
73) 2,4,6-Tribromophenol	7.738	330	89620	30.21	ppb	0.00
Spiked Amount 50.000			Recovery	=	60.42%	
85) Terphenyl-d14	11.305	244	858418	29.29	ppb	0.00
Spiked Amount 50.000			Recovery	=	58.58%	
Target Compounds						Qvalue
38) Naphthalene	3.930	128	375016m	11.68	ppb	
44) 2-Methylnaphthalene	4.924	141	454035	23.07	ppb	91
56) Acenaphthylene	6.235	152	285917	8.16	ppb	94
59) Acenaphthene	6.518	153	427584	18.97	ppb	93
66) Fluorene	7.305	166	2346891	96.17	ppb	100
77) Phenanthrene	8.754	178	7027165	181.86	ppb	98
78) Anthracene	8.818	178	2522716	65.86	ppb	98
81) Fluoranthene	10.626	202	16658662	437.02	ppb	94
84) Pyrene	10.936	202	15783117	336.51	ppb	98
88) Benzo[a]anthracene	12.541	228	10888596	244.12	ppb	95
90) Chrysene	12.589	228	10030866	226.84	ppb	97
94) Benzo[b]fluoranthene	13.664	252	14629149m	305.89	ppb	
95) Benzo[k]fluoranthene	13.669	252	2622488m	60.92	ppb	
96) Benzo[a]pyrene	13.932	252	9286158	228.58	ppb	88
97) Indeno[1,2,3-cd]pyrene	14.825	276	5784732	122.63	ppb	95
99) Dibenz[a,h]anthracene	14.825	278	2435341m	61.45	ppb	
101) Benzo[g,h,i]perylene	14.996	276	4669665	115.95	ppb	96

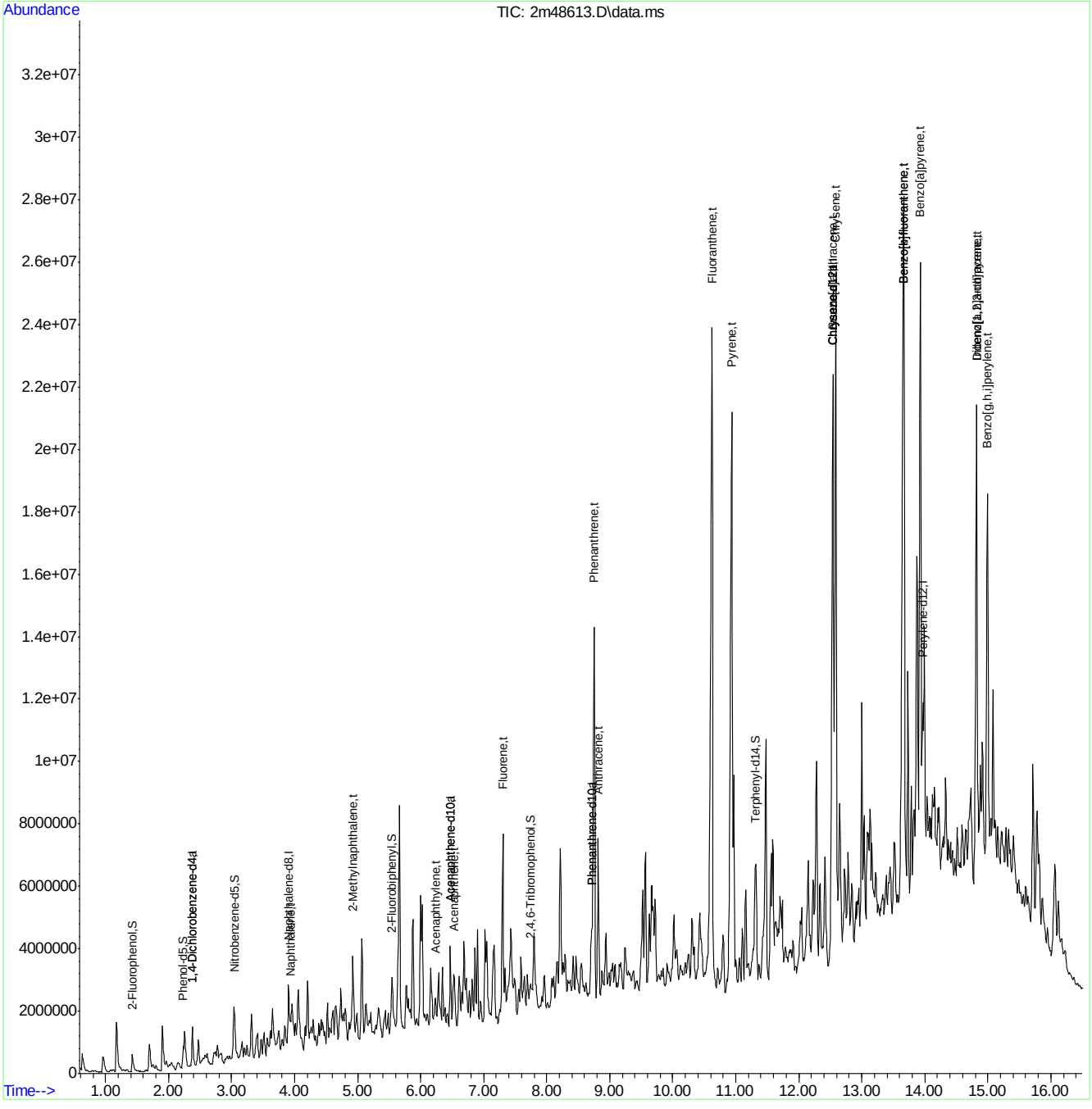
(#) = qualifier out of range (m) = manual integration (+) = signals summed

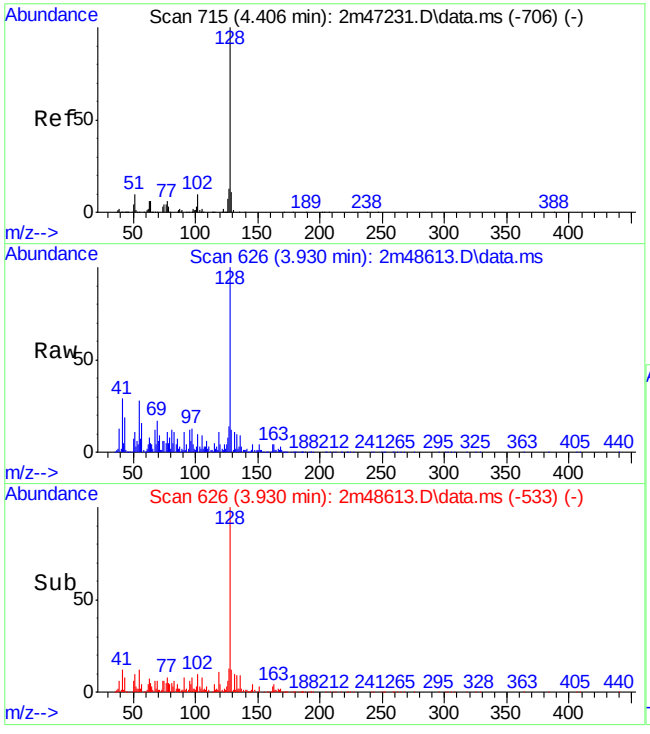
9.1.2
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48613.D
Acq On : 19 Dec 2012 1:35 pm
Operator : olgaa
Sample : jb22962-2
Misc : op62064,e2m2082,31.8
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Dec 19 15:40:30 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 15:38:35 2012
Response via : Initial Calibration

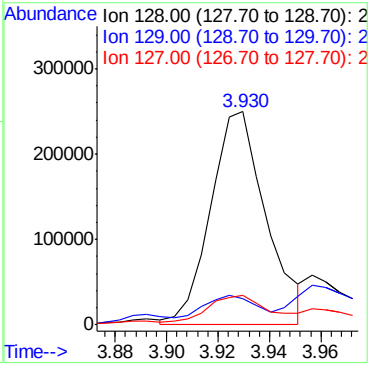


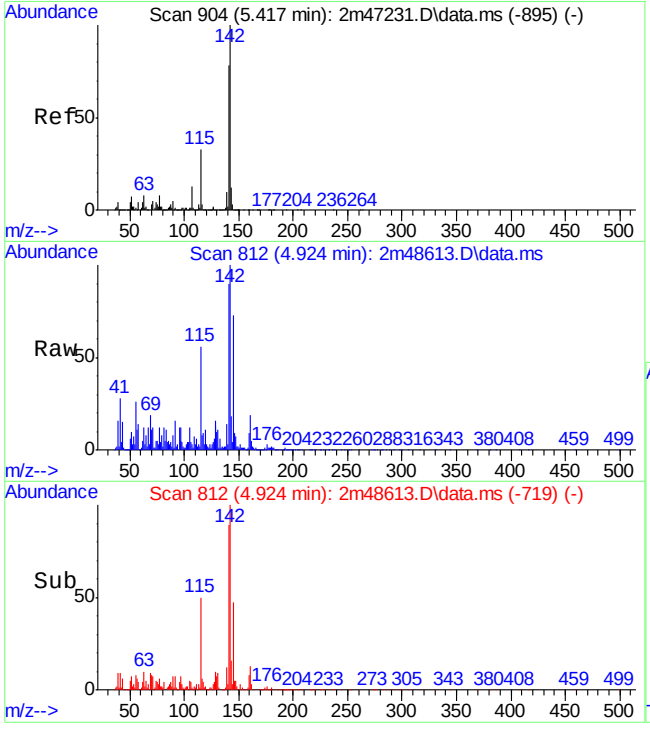


#38
Naphthalene
Concen: 11.68 ppb m
RT: 3.930 min Scan# 626
Delta R.T. 0.000 min
Lab File: 2m48613.D
Acq: 19 Dec 2012 1:35 pm

Tgt Ion:128 Resp: 375016

Ion	Ratio	Lower	Upper
128	100		
129	12.1	0.0	41.1
127	13.7	0.0	42.9

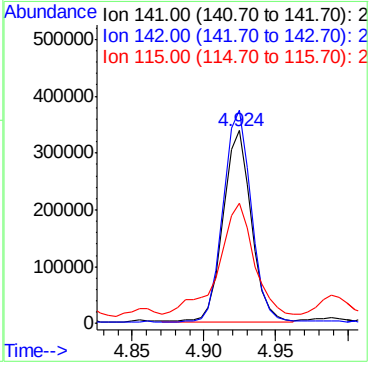




#44
2-Methylnaphthalene
Concen: 23.07 ppb
RT: 4.924 min Scan# 812
Delta R.T. 0.000 min
Lab File: 2m48613.D
Acq: 19 Dec 2012 1:35 pm

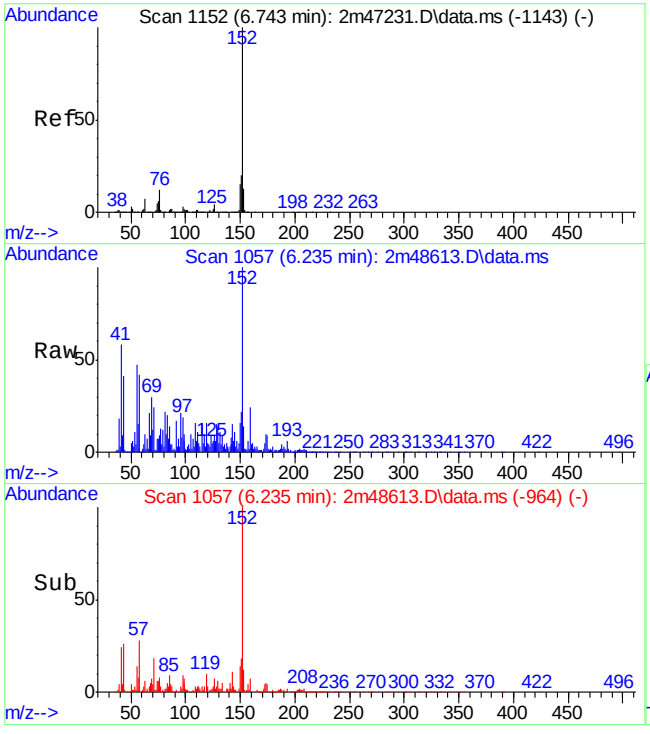
Tgt Ion:141 Resp: 454035

Ion	Ratio	Lower	Upper
141	100		
142	111.2	87.1	147.1
115	58.5	15.9	75.9



9.1.2

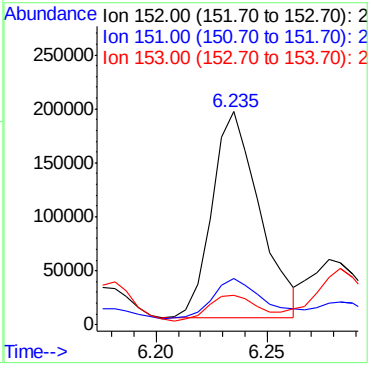
9

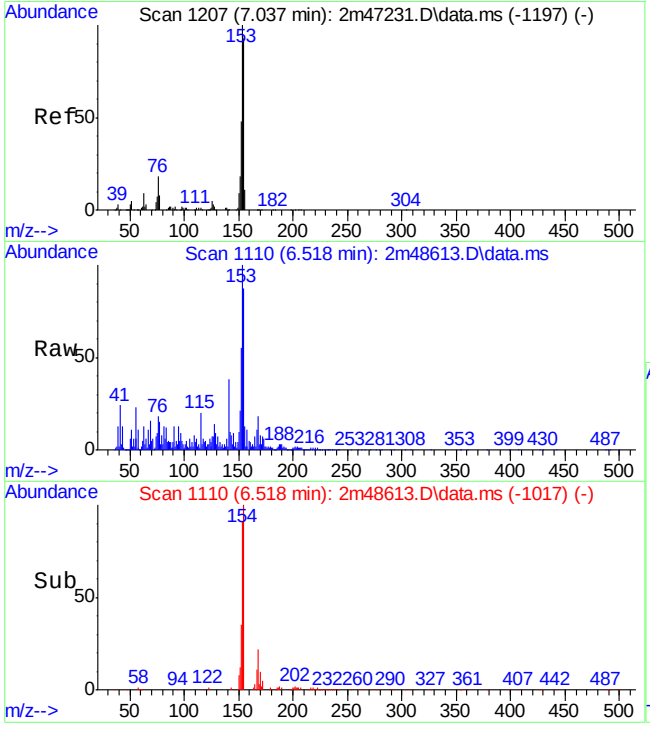


#56
Acenaphthylene
Concen: 8.16 ppb
RT: 6.235 min Scan# 1057
Delta R.T. 0.000 min
Lab File: 2m48613.D
Acq: 19 Dec 2012 1:35 pm

Tgt Ion:152 Resp: 285917

Ion	Ratio	Lower	Upper
152	100		
151	18.2	0.0	49.7
153	9.6	0.0	43.9

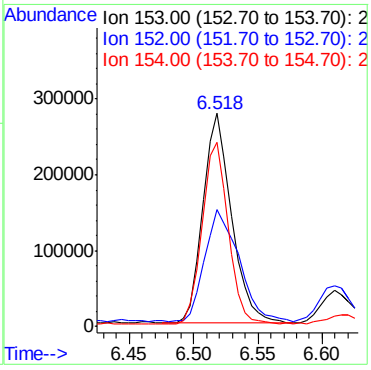




#59
Acenaphthene
Concen: 18.97 ppb
RT: 6.518 min Scan# 1110
Delta R.T. 0.000 min
Lab File: 2m48613.D
Acq: 19 Dec 2012 1:35 pm

Tgt Ion:153 Resp: 427584

Ion	Ratio	Lower	Upper
153	100		
152	53.2	16.4	76.4
154	87.0	61.6	121.6



9.1.2

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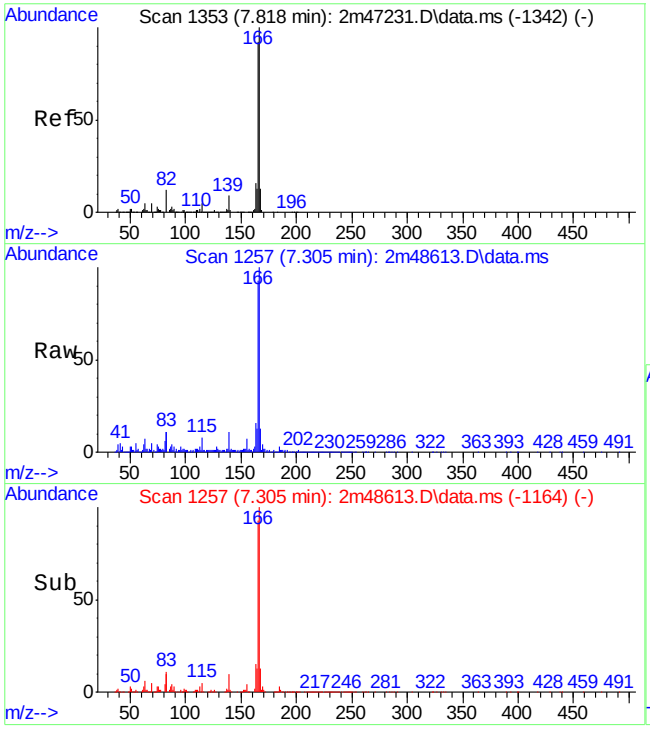
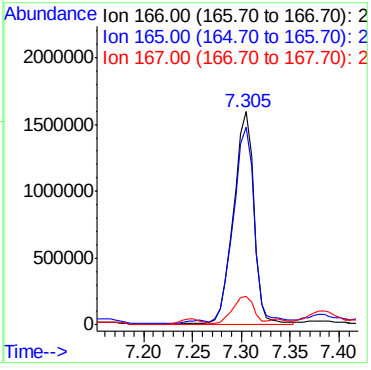
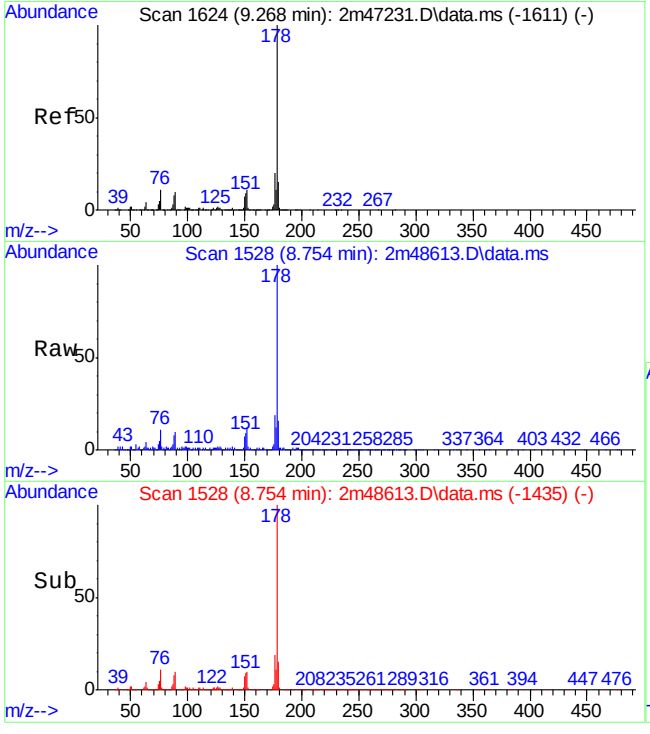


#66
Fluorene
Concen: 96.17 ppb
RT: 7.305 min Scan# 1257
Delta R.T. 0.000 min
Lab File: 2m48613.D
Acq: 19 Dec 2012 1:35 pm

Tgt Ion:166 Resp: 2346891

Ion	Ratio	Lower	Upper
166	100		
165	92.1	61.9	121.9
167	12.4	0.0	43.3

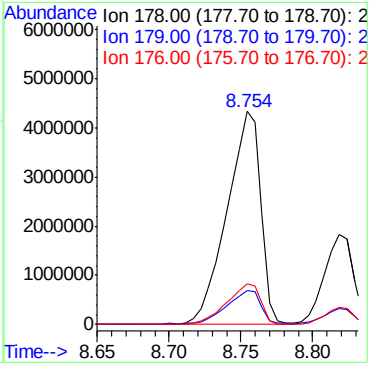


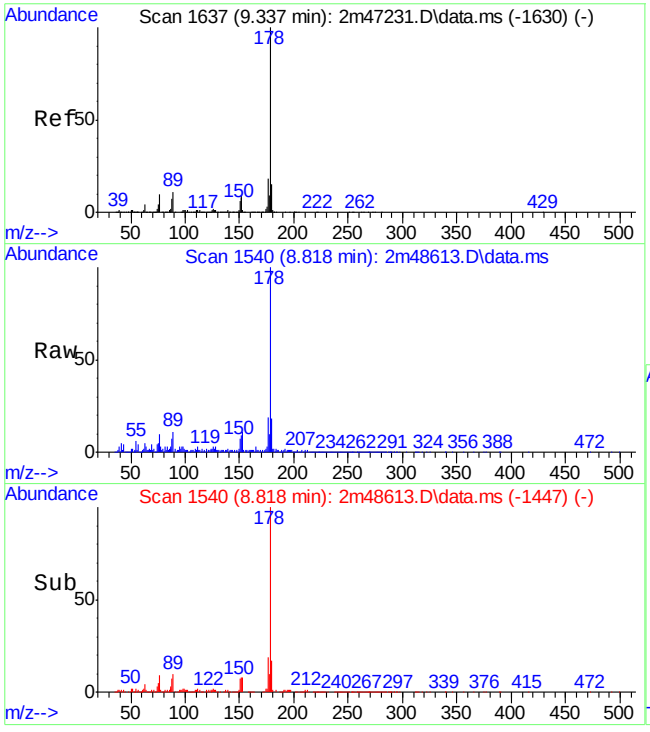


#77
Phenanthrene
Concen: 181.86 ppb
RT: 8.754 min Scan# 1528
Delta R.T. 0.000 min
Lab File: 2m48613.D
Acq: 19 Dec 2012 1:35 pm

Tgt Ion:178 Resp: 7027165

Ion	Ratio	Lower	Upper
178	100		
179	15.6	0.0	44.7
176	19.1	0.0	48.7

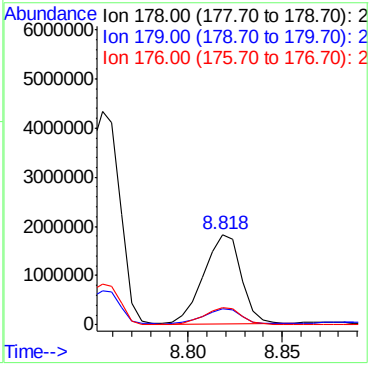


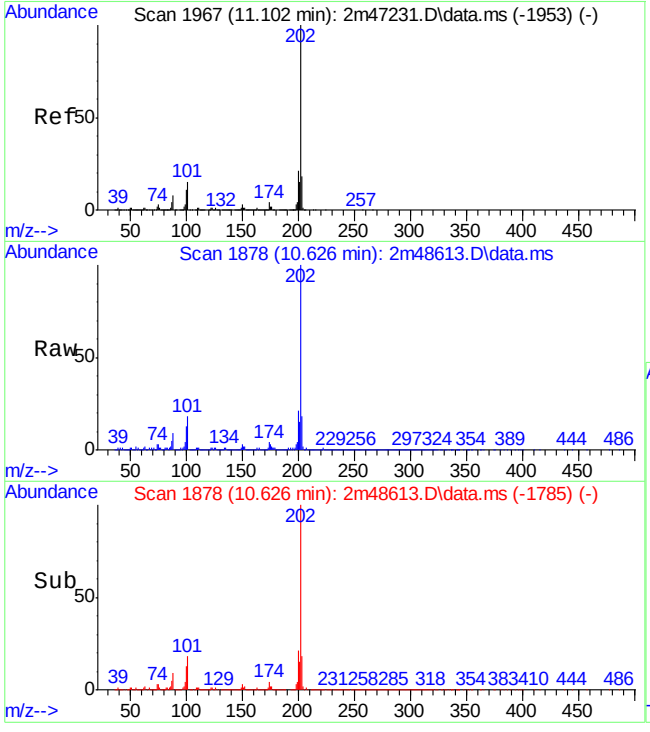


#78
Anthracene
Concen: 65.86 ppb
RT: 8.818 min Scan# 1540
Delta R.T. 0.000 min
Lab File: 2m48613.D
Acq: 19 Dec 2012 1:35 pm

Tgt Ion:178 Resp: 2522716

Ion	Ratio	Lower	Upper
178	100		
179	16.8	0.0	44.7
176	18.6	0.0	48.5

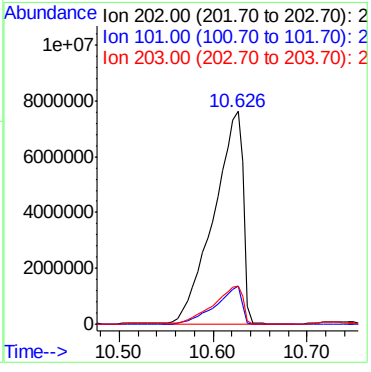


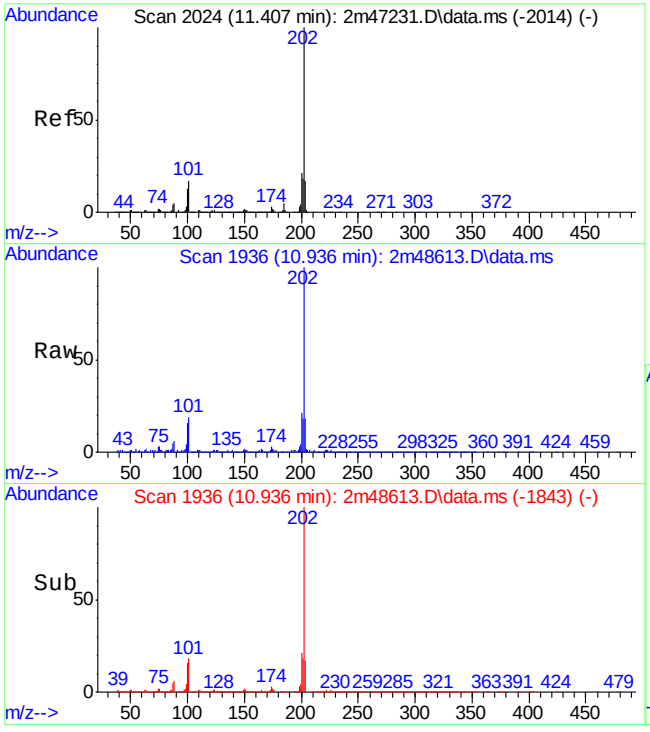


#81
Fluoranthene
Concen: 437.02 ppb
RT: 10.626 min Scan# 1878
Delta R.T. 0.000 min
Lab File: 2m48613.D
Acq: 19 Dec 2012 1:35 pm

Tgt Ion:202 Resp:16658662

Ion	Ratio	Lower	Upper
202	100		
101	17.7	0.0	42.8
203	18.0	0.0	47.6

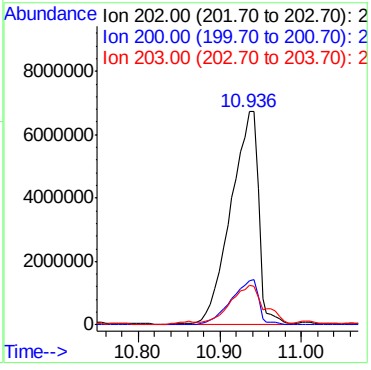


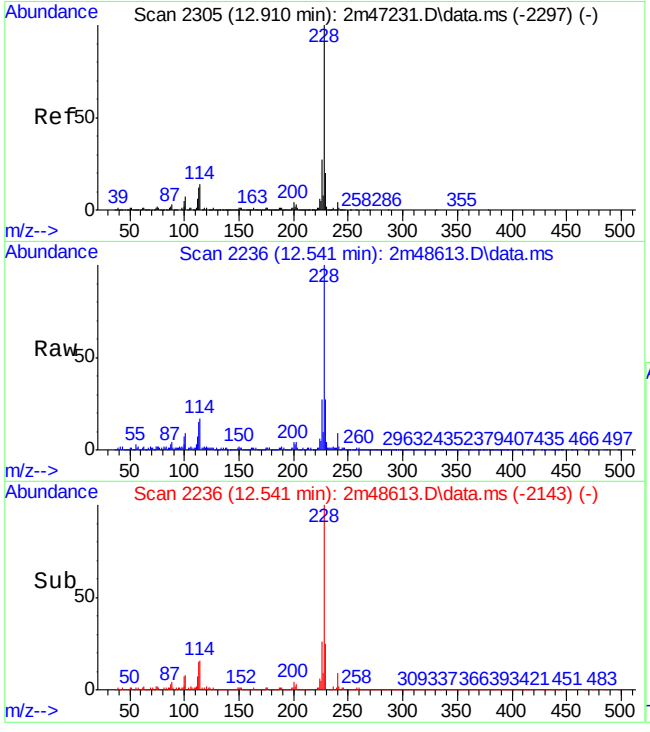


#84
Pyrene
Concen: 336.51 ppb
RT: 10.936 min Scan# 1936
Delta R.T. 0.000 min
Lab File: 2m48613.D
Acq: 19 Dec 2012 1:35 pm

Tgt Ion:202 Resp:15783117

Ion	Ratio	Lower	Upper
202	100		
200	20.9	0.0	50.1
203	18.0	0.0	46.9

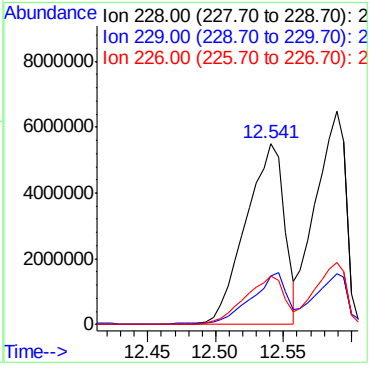




#88
Benzo[a]anthracene
Concen: 244.12 ppb
RT: 12.541 min Scan# 2236
Delta R.T. 0.000 min
Lab File: 2m48613.D
Acq: 19 Dec 2012 1:35 pm

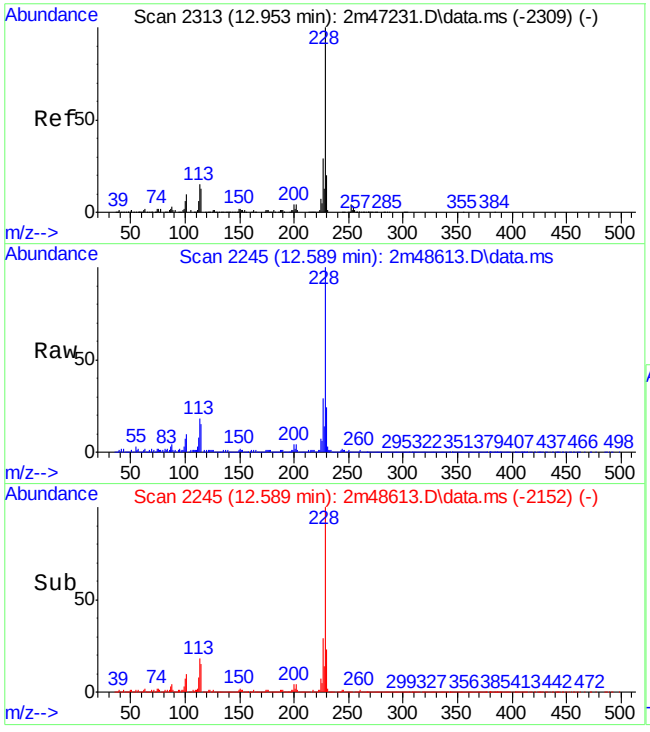
Tgt Ion:228 Resp:10888596

Ion	Ratio	Lower	Upper
228	100		
229	25.5	0.0	50.0
226	26.1	0.0	56.0



9.1.2

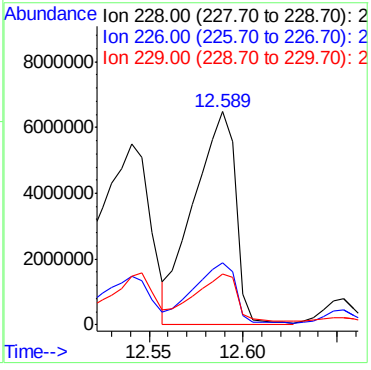
9

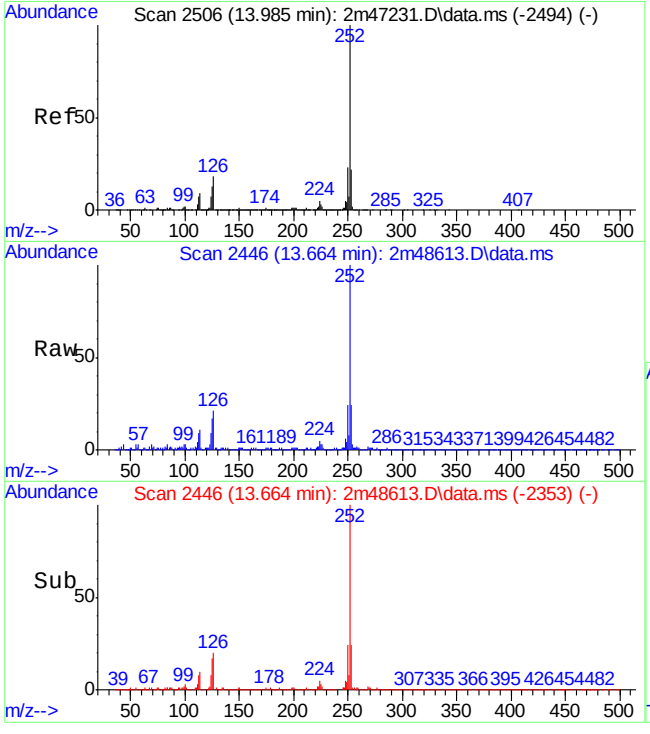


#90
Chrysene
Concen: 226.84 ppb
RT: 12.589 min Scan# 2245
Delta R.T. 0.000 min
Lab File: 2m48613.D
Acq: 19 Dec 2012 1:35 pm

Tgt Ion:228 Resp:10030866

Ion	Ratio	Lower	Upper
228	100		
226	28.9	0.0	57.7
229	21.5	0.0	50.0

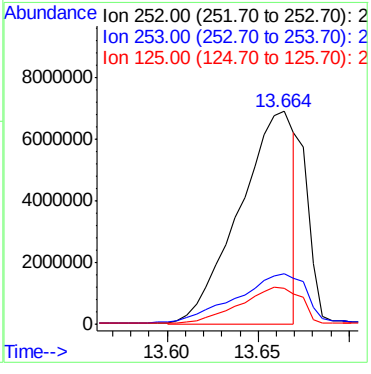


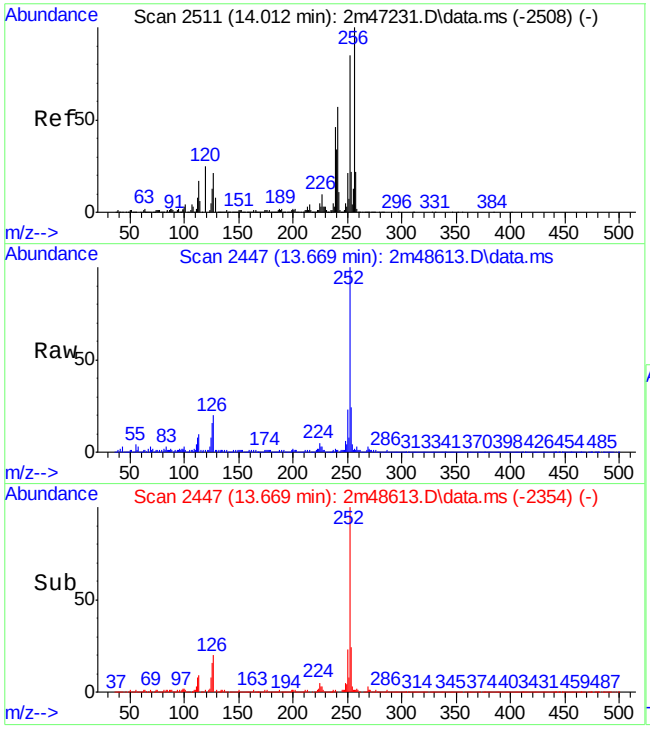


#94
Benzo[b]fluoranthene
Concen: 305.89 ppb m
RT: 13.664 min Scan# 2446
Delta R.T. 0.000 min
Lab File: 2m48613.D
Acq: 19 Dec 2012 1:35 pm

Tgt Ion:252 Resp:14629149

Ion	Ratio	Lower	Upper
252	100		
253	23.9	0.0	53.8
125	17.0	0.0	41.1

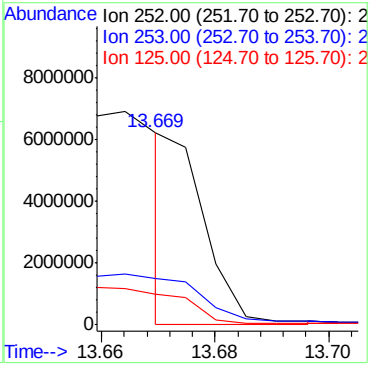


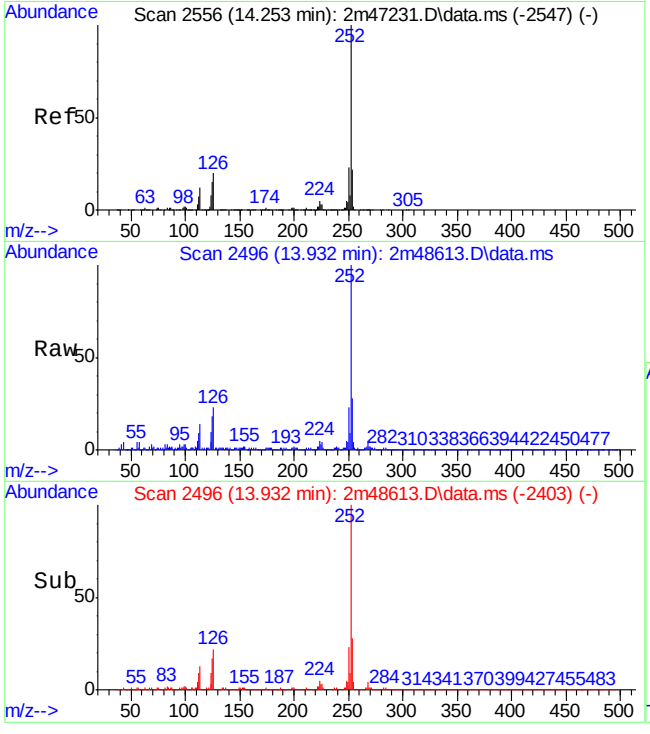


#95
Benzo[k]fluoranthene
Concen: 60.92 ppb m
RT: 13.669 min Scan# 2447
Delta R.T. 0.000 min
Lab File: 2m48613.D
Acq: 19 Dec 2012 1:35 pm

Tgt Ion:252 Resp: 2622488

Ion	Ratio	Lower	Upper
252	100		
253	24.3	0.0	51.1
125	16.1	0.0	40.8

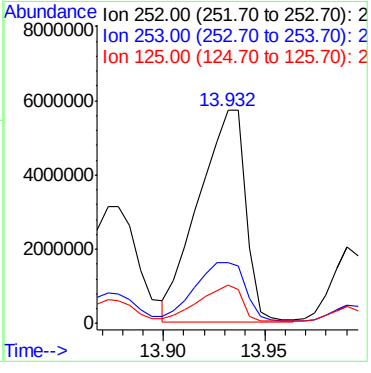




#96
Benzo[a]pyrene
Concen: 228.58 ppb
RT: 13.932 min Scan# 2496
Delta R.T. 0.000 min
Lab File: 2m48613.D
Acq: 19 Dec 2012 1:35 pm

Tgt Ion:252 Resp: 9286158

Ion	Ratio	Lower	Upper
252	100		
253	27.8	0.0	51.7
125	17.2	0.0	43.4



9.1.2

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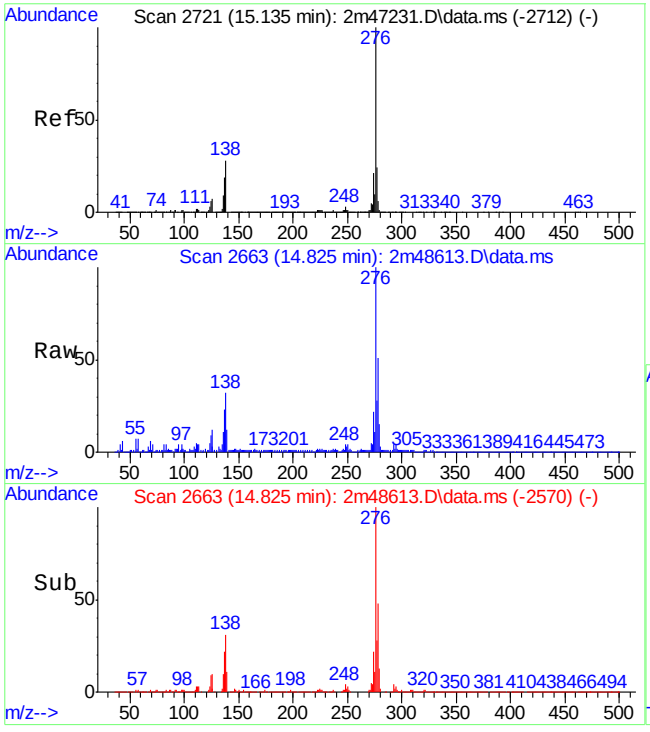
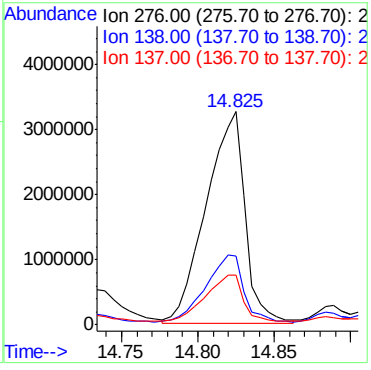
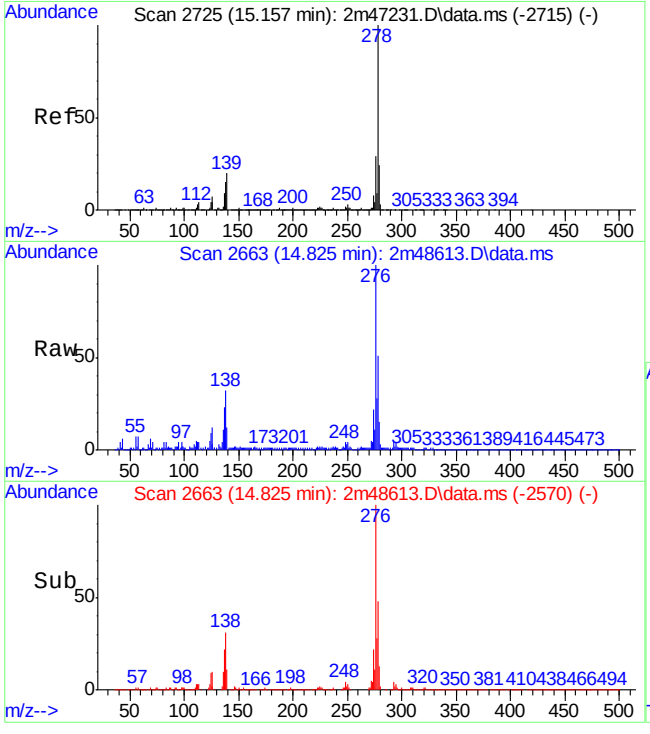


#97
Indeno[1,2,3-cd]pyrene
Concen: 122.63 ppb
RT: 14.825 min Scan# 2663
Delta R.T. 0.000 min
Lab File: 2m48613.D
Acq: 19 Dec 2012 1:35 pm

Tgt Ion:276 Resp: 5784732

Ion	Ratio	Lower	Upper
276	100		
138	31.5	0.0	58.7
137	22.3	0.0	49.9

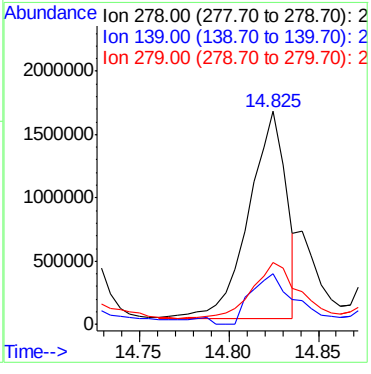




#99
Dibenz[a,h]anthracene
Concen: 61.45 ppb m
RT: 14.825 min Scan# 2663
Delta R.T. 0.000 min
Lab File: 2m48613.D
Acq: 19 Dec 2012 1:35 pm

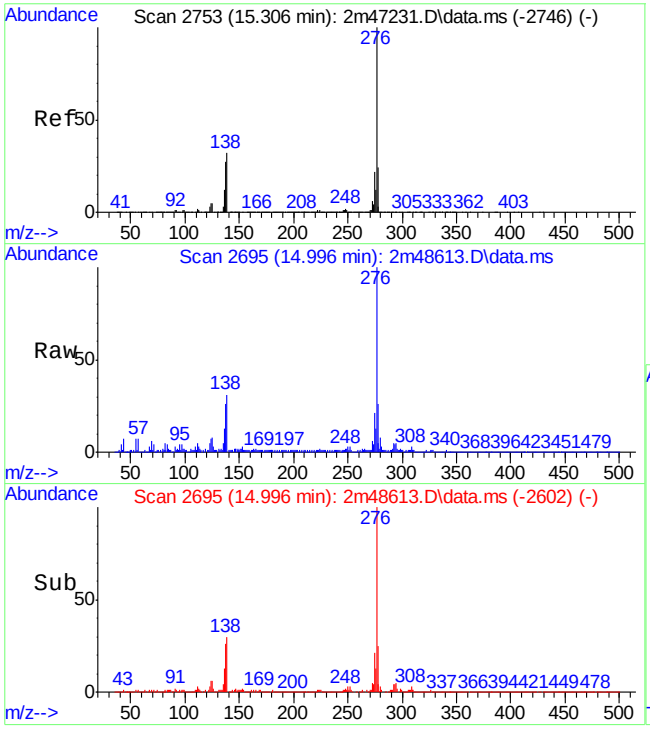
Tgt Ion:278 Resp: 2435341

Ion	Ratio	Lower	Upper
278	100		
139	24.0	0.0	49.7
279	29.0	0.0	53.7



9.1.2

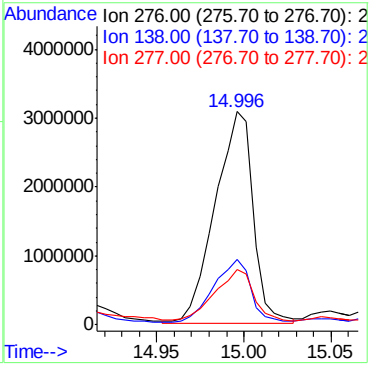
9



#101
Benzo[g,h,i]perylene
Concen: 115.95 ppb
RT: 14.996 min Scan# 2695
Delta R.T. 0.000 min
Lab File: 2m48613.D
Acq: 19 Dec 2012 1:35 pm

Tgt Ion:276 Resp: 4669665

Ion	Ratio	Lower	Upper
276	100		
138	30.0	0.0	56.7
277	24.2	0.0	53.6



9.1.2

9

Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 12/21/12 18:23

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2083\
Data File : 2m48637.D
Acq On : 20 Dec 2012 11:11 am
Operator : olgaa
Sample : jb22962-2
Misc : op62064,e2m2083,31.8,,,1,10
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Dec 20 13:22:46 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.368	152	179497	40.00	ppb	-0.02
24) Naphthalene-d8	3.892	136	787803	40.00	ppb	-0.02
47) Acenaphthene-d10	6.449	164	486013	40.00	ppb	-0.03
69) Phenanthrene-d10	8.679	188	854852	40.00	ppb	-0.03
83) Chrysene-d12	12.504	240	1019087	40.00	ppb	-0.02
92) Perylene-d12	13.910	264	965122	40.00	ppb	-0.02
102) 1,4-Dichlorobenzene-d4a	2.368	152	179497	40.00	ppb	-0.02
104) Acenaphthene-d10a	6.449	164	486013	40.00	ppb	-0.03
106) Chrysene-d12a	12.504	240	1019087	40.00	ppb	-0.02
108) Phenanthrene-d10a	8.679	188	854852	40.00	ppb	-0.03
110) Chrysene-d12b	12.504	240	1019087	40.00	ppb	-0.02

System Monitoring Compounds						
5) 2-Fluorophenol	1.443	112	16799	2.57	ppb	0.02
Spiked Amount 50.000			Recovery	=	5.14%	
8) Phenol-d5	2.261	99	20884	2.39	ppb	0.04
Spiked Amount 50.000			Recovery	=	4.78%	
25) Nitrobenzene-d5	3.085	82	16157	1.91	ppb	0.02
Spiked Amount 50.000			Recovery	=	3.82%	
51) 2-Fluorobiphenyl	5.540	172	45869	2.87	ppb	-0.02
Spiked Amount 50.000			Recovery	=	5.74%	
73) 2,4,6-Tribromophenol	7.738	330	5498m	2.74	ppb	0.00
Spiked Amount 50.000			Recovery	=	5.48%	
85) Terphenyl-d14	11.263	244	66079	3.21	ppb	-0.03
Spiked Amount 50.000			Recovery	=	6.42%	

Target Compounds						Qvalue
38) Naphthalene	3.914	128	31740	1.45	ppb	97
44) 2-Methylnaphthalene	4.914	141	31702	2.36	ppb	94
56) Acenaphthylene	6.224	152	22528	0.96	ppb	96
59) Acenaphthene	6.502	153	32071	2.13	ppb	94
66) Fluorene	7.278	166	158263	9.69	ppb	99
77) Phenanthrene	8.711	178	452476	17.29	ppb	99
78) Anthracene	8.786	178	165758	6.39	ppb	99
81) Fluoranthene	10.546	202	1105752	42.83	ppb	97
84) Pyrene	10.862	202	1056270	32.05	ppb	97
88) Benzo[a]anthracene	12.488	228	799428	25.50	ppb	95
90) Chrysene	12.525	228	729857	23.49	ppb	99
94) Benzo[b]fluoranthene	13.589	252	892354m	26.56	ppb	
95) Benzo[k]fluoranthene	13.600	252	336819m	11.14	ppb	
96) Benzo[a]pyrene	13.862	252	640768	22.45	ppb	94
97) Indeno[1,2,3-cd]pyrene	14.755	276	365181	11.02	ppb	93
99) Dibenz[a,h]anthracene	14.766	278	145583	5.23	ppb	84
101) Benzo[g,h,i]perylene	14.932	276	286931	10.14	ppb	87

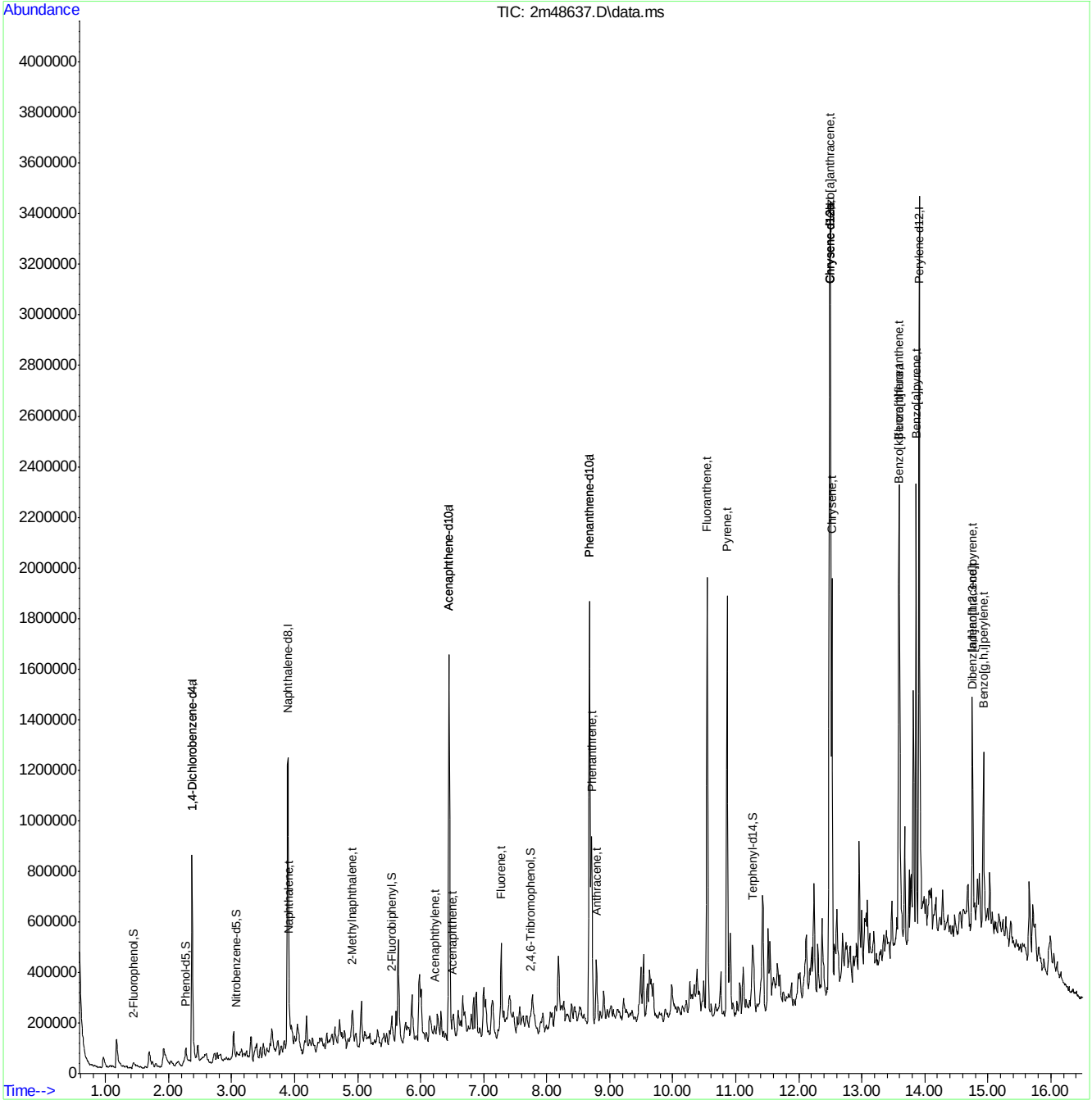
(#) = qualifier out of range (m) = manual integration (+) = signals summed

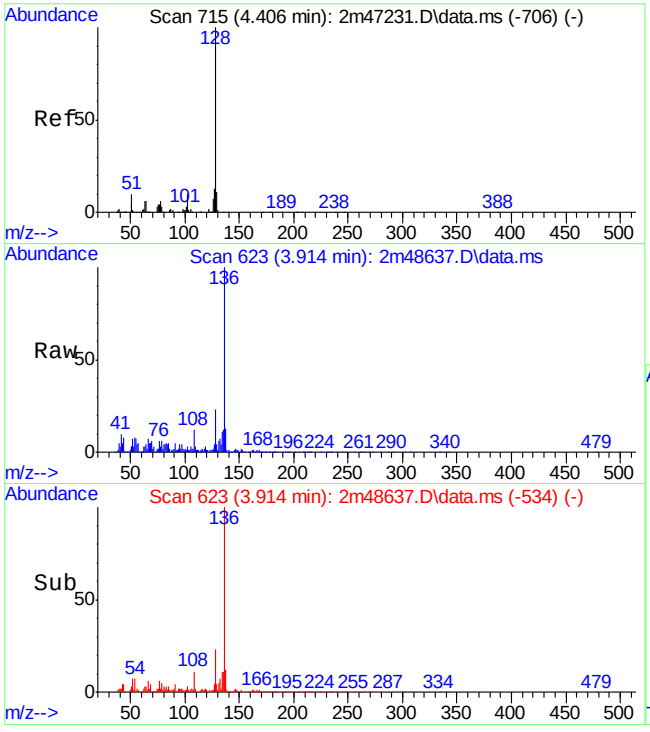
9.1.3
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2083\
Data File : 2m48637.D
Acq On : 20 Dec 2012 11:11 am
Operator : olgaa
Sample : jb22962-2
Misc : op62064,e2m2083,31.8,,,1,10
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Dec 20 13:22:46 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration

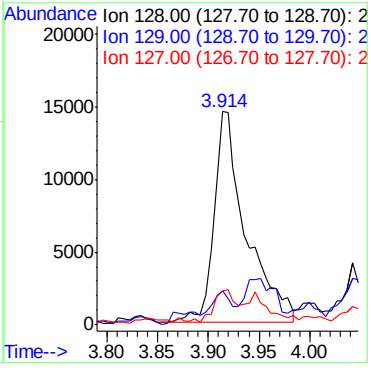


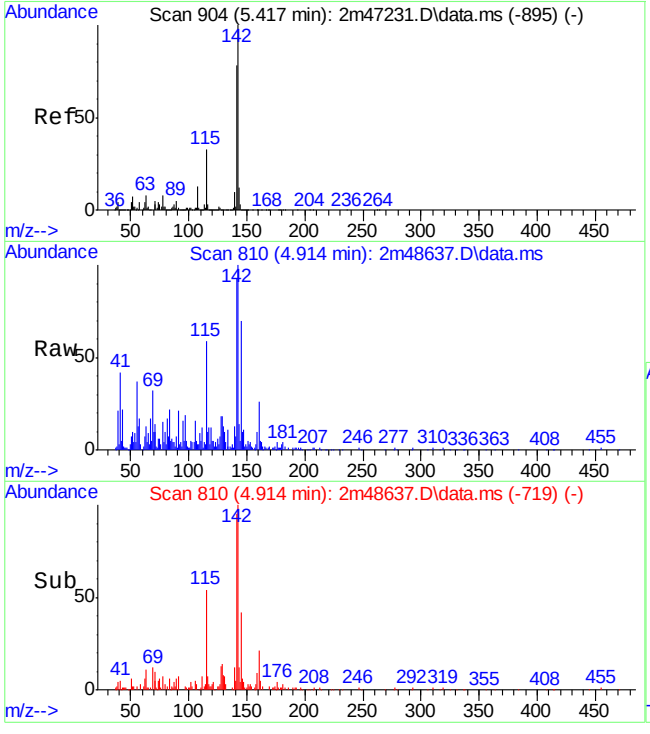


#38
Naphthalene
Concen: 1.45 ppb
RT: 3.914 min Scan# 623
Delta R.T. -0.027 min
Lab File: 2m48637.D
Acq: 20 Dec 2012 11:11 am

Tgt Ion:128 Resp: 31740

Ion	Ratio	Lower	Upper
128	100		
129	13.1	0.0	40.9
127	13.1	0.0	43.3

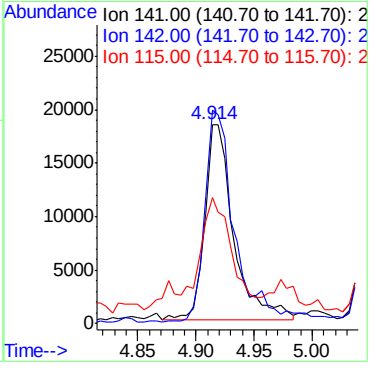


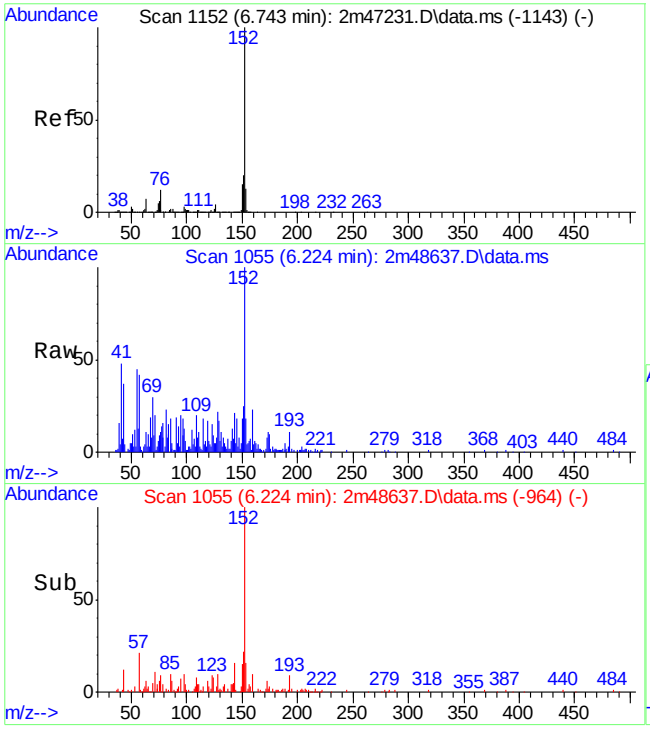


#44
2-Methylnaphthalene
Concen: 2.36 ppb
RT: 4.914 min Scan# 810
Delta R.T. -0.016 min
Lab File: 2m48637.D
Acq: 20 Dec 2012 11:11 am

Tgt Ion:141 Resp: 31702

Ion	Ratio	Lower	Upper
141	100		
142	107.3	81.7	141.7
115	49.1	12.0	72.0

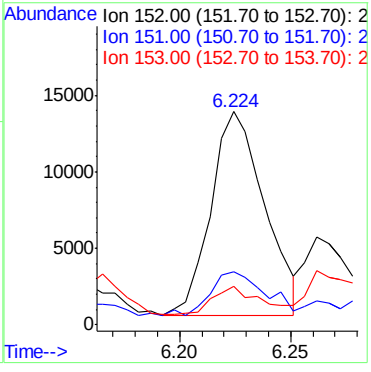


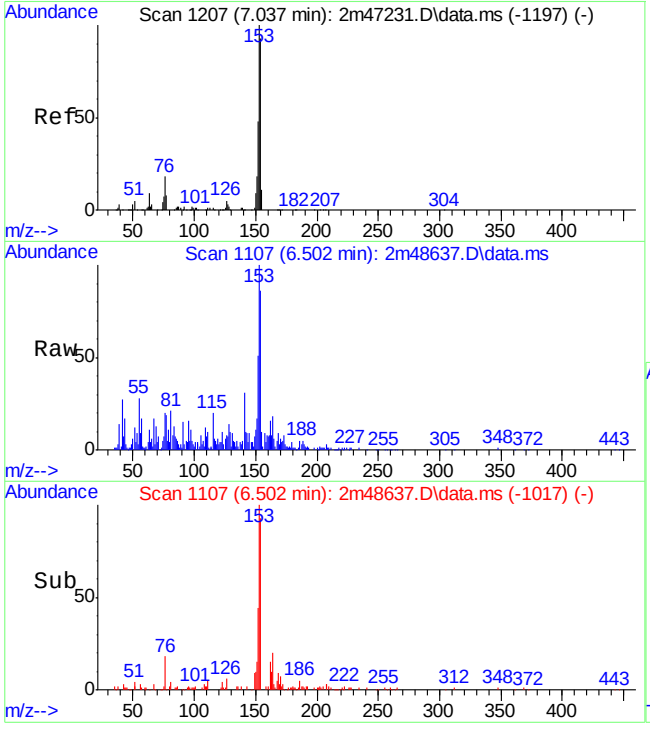


#56
Acenaphthylene
Concen: 0.96 ppb
RT: 6.224 min Scan# 1055
Delta R.T. -0.016 min
Lab File: 2m48637.D
Acq: 20 Dec 2012 11:11 am

Tgt Ion:152 Resp: 22528

Ion	Ratio	Lower	Upper
152	100		
151	22.3	0.0	49.4
153	12.8	0.0	43.0

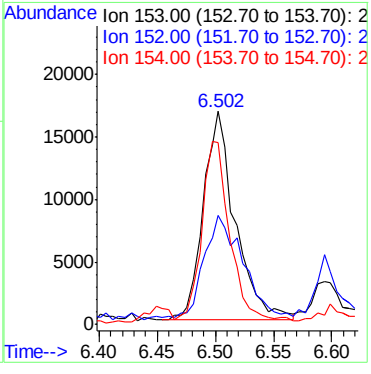




#59
Acenaphthene
Concen: 2.13 ppb
RT: 6.502 min Scan# 1107
Delta R.T. -0.021 min
Lab File: 2m48637.D
Acq: 20 Dec 2012 11:11 am

Tgt Ion:153 Resp: 32071

Ion	Ratio	Lower	Upper
153	100		
152	49.4	15.8	75.8
154	83.7	59.7	119.7



9.1.3

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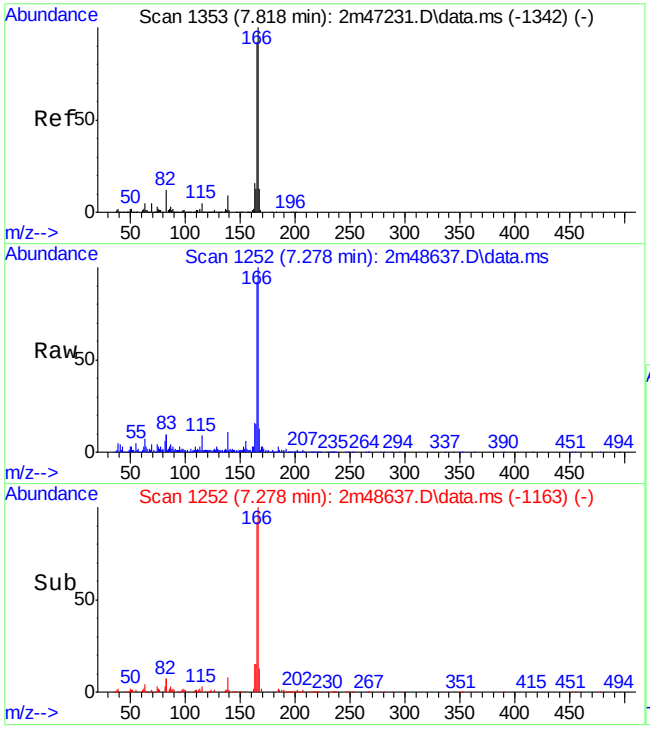
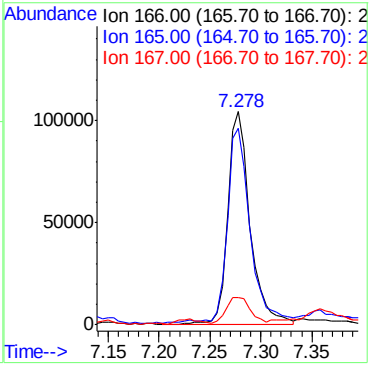
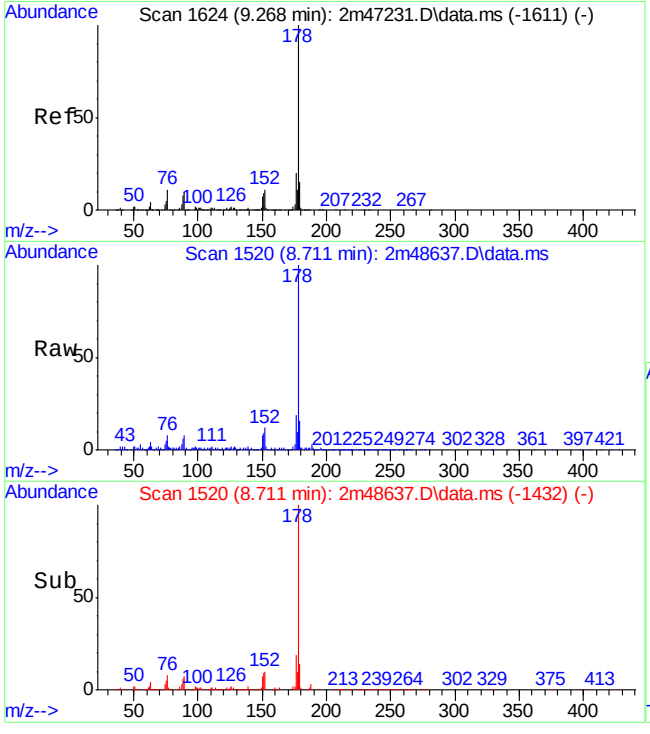


#66
Fluorene
Concen: 9.69 ppb
RT: 7.278 min Scan# 1252
Delta R.T. -0.027 min
Lab File: 2m48637.D
Acq: 20 Dec 2012 11:11 am

Tgt Ion:166 Resp: 158263

Ion	Ratio	Lower	Upper
166	100		
165	91.1	61.9	121.9
167	11.3	0.0	43.1

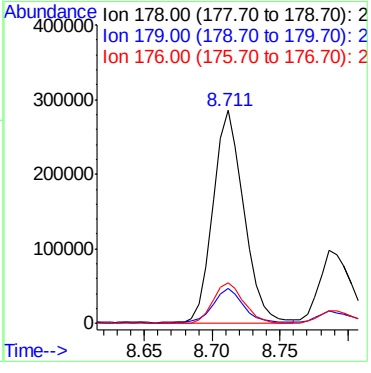


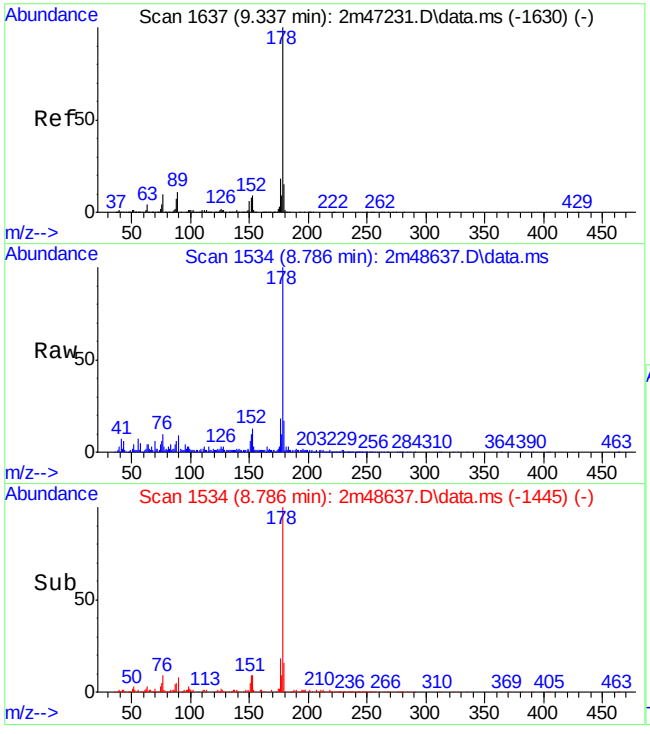


#77
Phenanthrene
Concen: 17.29 ppb
RT: 8.711 min Scan# 1520
Delta R.T. -0.032 min
Lab File: 2m48637.D
Acq: 20 Dec 2012 11:11 am

Tgt Ion:178 Resp: 452476

Ion	Ratio	Lower	Upper
178	100		
179	15.8	0.0	44.9
176	19.3	0.0	49.1

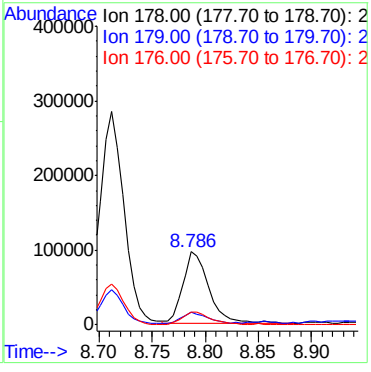


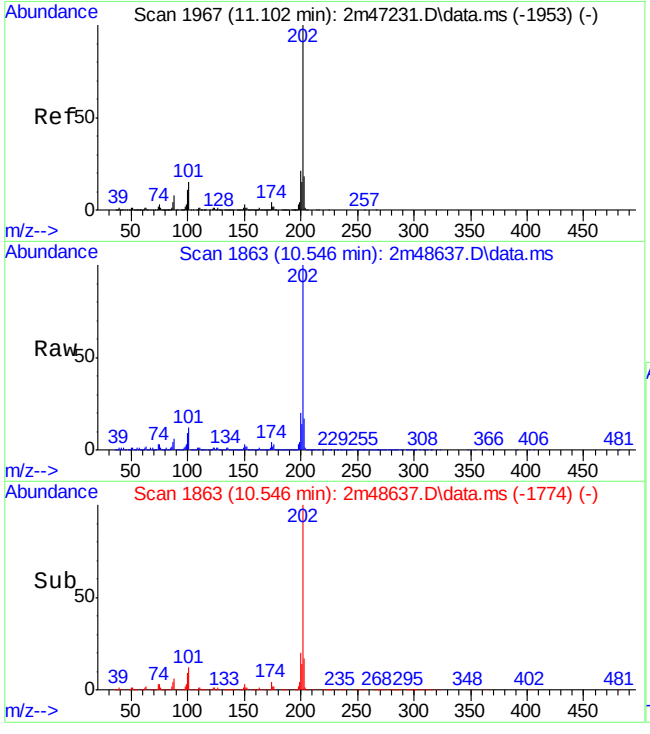


#78
Anthracene
Concen: 6.39 ppb
RT: 8.786 min Scan# 1534
Delta R.T. -0.027 min
Lab File: 2m48637.D
Acq: 20 Dec 2012 11:11 am

Tgt Ion:178 Resp: 165758

Ion	Ratio	Lower	Upper
178	100		
179	15.0	0.0	44.3
176	17.7	0.0	48.3

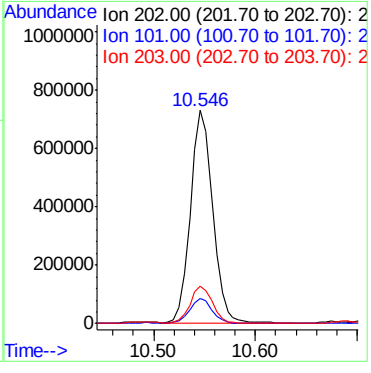


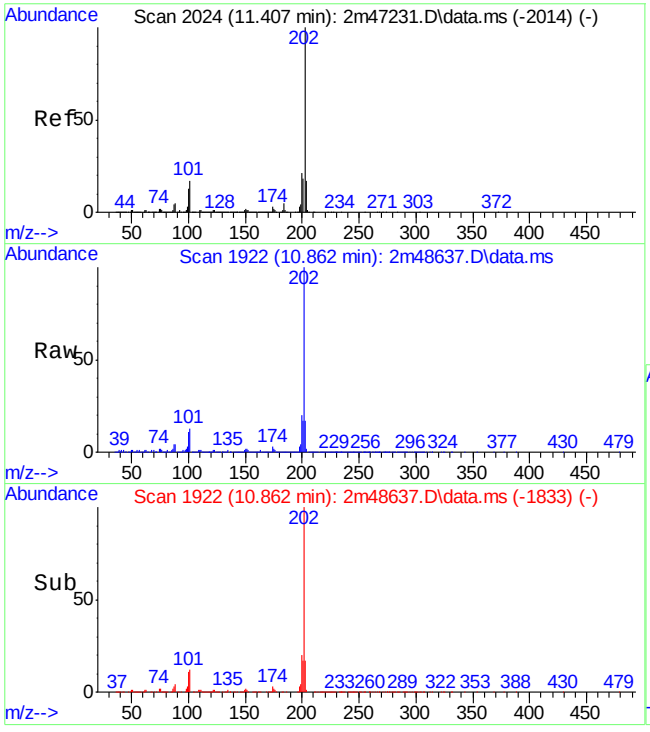


#81
Fluoranthene
Concen: 42.83 ppb
RT: 10.546 min Scan# 1863
Delta R.T. -0.027 min
Lab File: 2m48637.D
Acq: 20 Dec 2012 11:11 am

Tgt Ion:202 Resp: 1105752

Ion	Ratio	Lower	Upper
202	100		
101	11.5	0.0	43.8
203	17.2	0.0	47.5

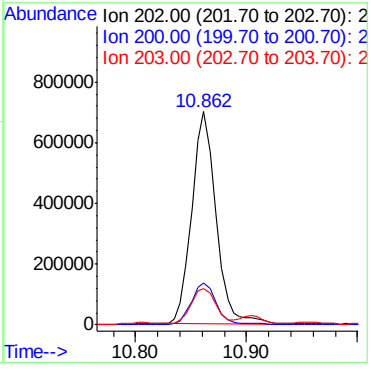


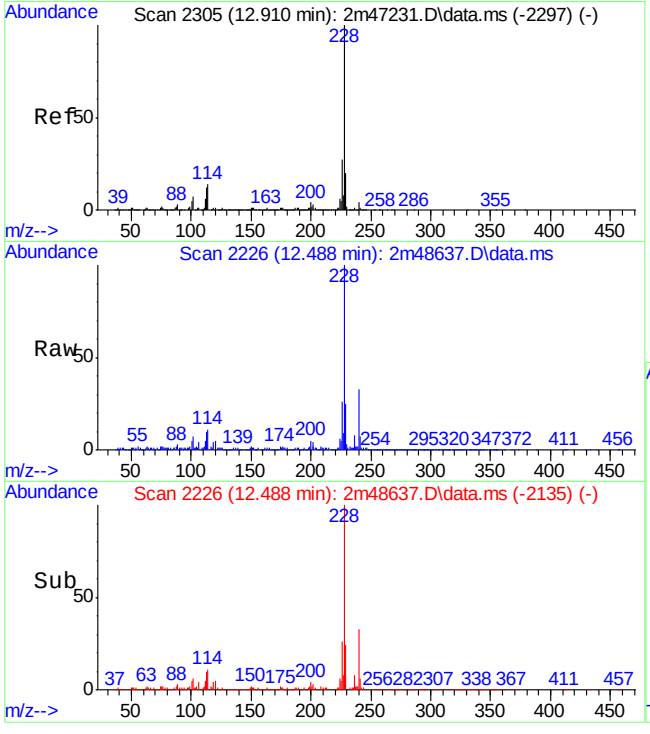


#84
Pyrene
Concen: 32.05 ppb
RT: 10.862 min Scan# 1922
Delta R.T. -0.027 min
Lab File: 2m48637.D
Acq: 20 Dec 2012 11:11 am

Tgt Ion:202 Resp: 1056270

Ion	Ratio	Lower	Upper
202	100		
200	19.8	0.0	51.3
203	16.4	0.0	47.6

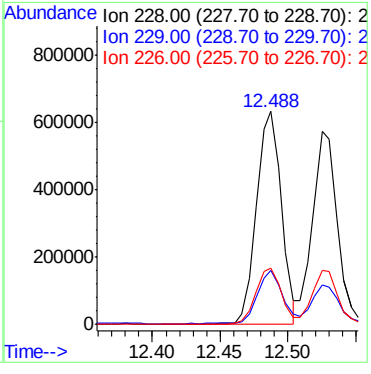




#88
Benzo[a]anthracene
Concen: 25.50 ppb
RT: 12.488 min Scan# 2226
Delta R.T. -0.016 min
Lab File: 2m48637.D
Acq: 20 Dec 2012 11:11 am

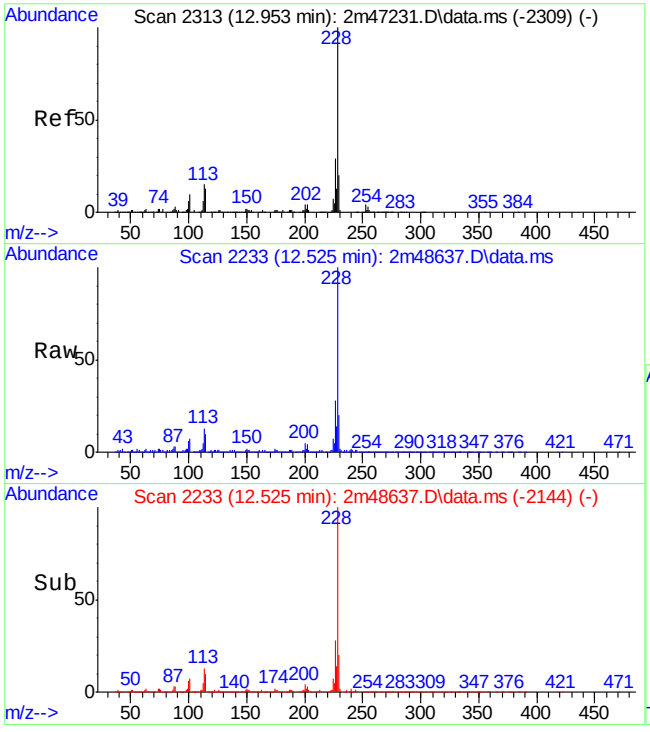
Tgt Ion:228 Resp: 799428

Ion	Ratio	Lower	Upper
228	100		
229	24.2	0.0	49.3
226	26.0	0.0	56.0



9.1.3

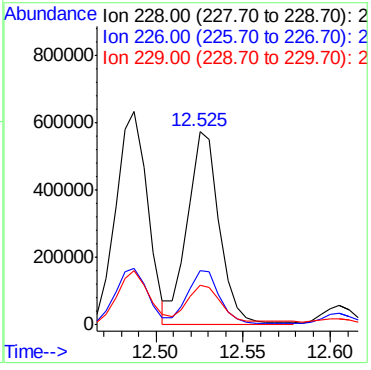
9

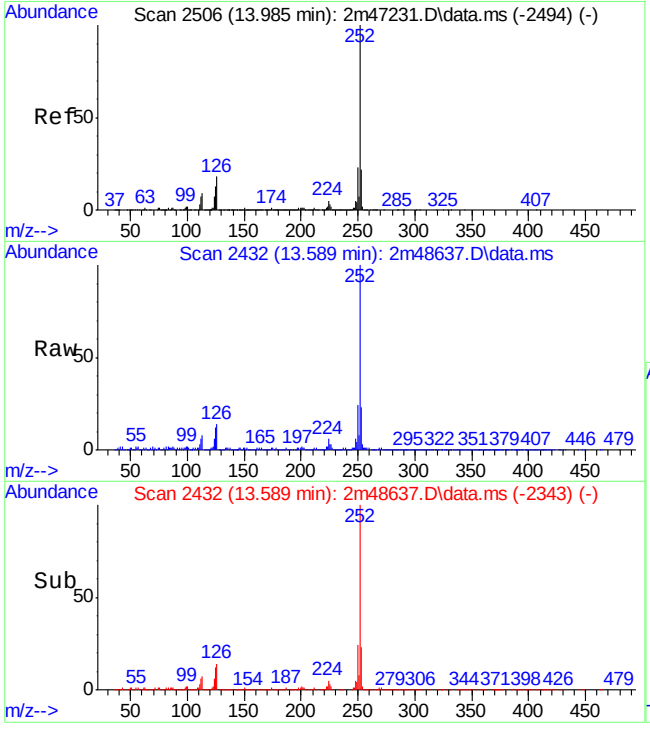


#90
Chrysene
Concen: 23.49 ppb
RT: 12.525 min Scan# 2233
Delta R.T. -0.027 min
Lab File: 2m48637.D
Acq: 20 Dec 2012 11:11 am

Tgt Ion:228 Resp: 729857

Ion	Ratio	Lower	Upper
228	100		
226	27.4	0.0	57.7
229	18.2	0.0	49.3

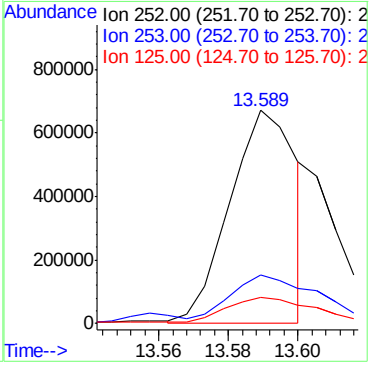


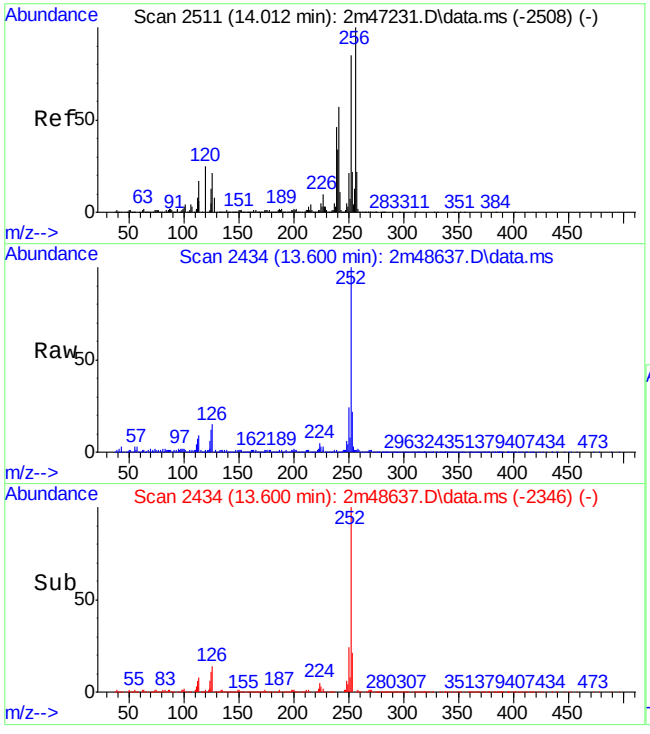


#94
Benzo[b]fluoranthene
Concen: 26.56 ppb m
RT: 13.589 min Scan# 2432
Delta R.T. -0.027 min
Lab File: 2m48637.D
Acq: 20 Dec 2012 11:11 am

Tgt Ion:252 Resp: 892354

Ion	Ratio	Lower	Upper
252	100		
253	23.0	0.0	51.6
125	12.5	0.0	40.1

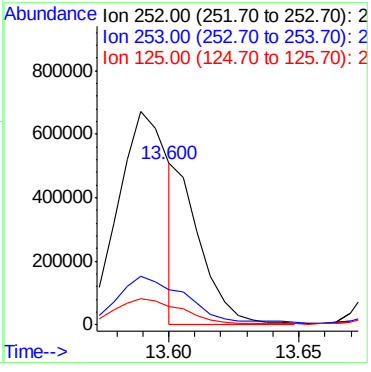


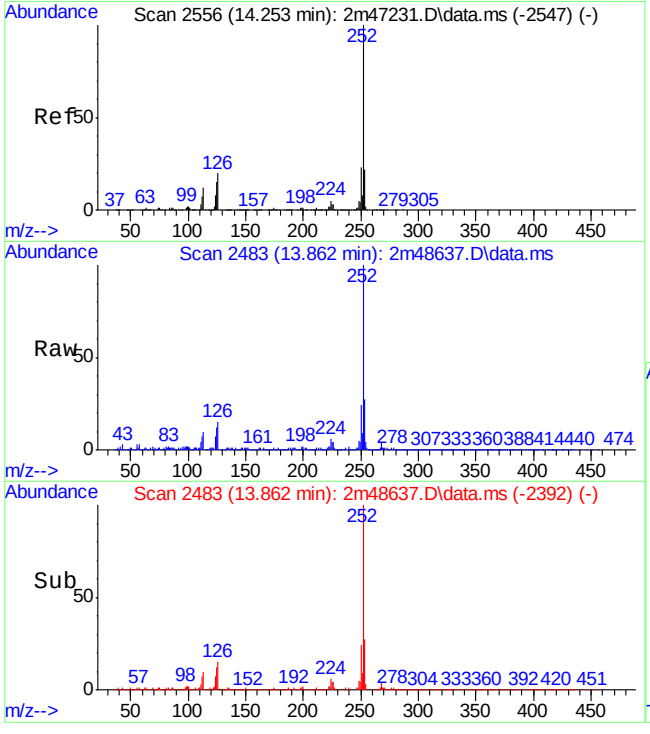


#95
Benzo[k]fluoranthene
Concen: 11.14 ppb m
RT: 13.600 min Scan# 2434
Delta R.T. -0.032 min
Lab File: 2m48637.D
Acq: 20 Dec 2012 11:11 am

Tgt Ion:252 Resp: 336819

Ion	Ratio	Lower	Upper
252	100		
253	21.6	0.0	52.7
125	11.6	0.0	42.9

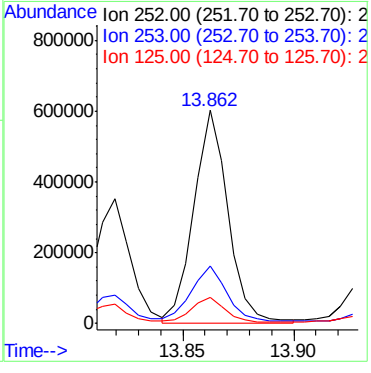




#96
Benzo[a]pyrene
Concen: 22.45 ppb
RT: 13.862 min Scan# 2483
Delta R.T. -0.016 min
Lab File: 2m48637.D
Acq: 20 Dec 2012 11:11 am

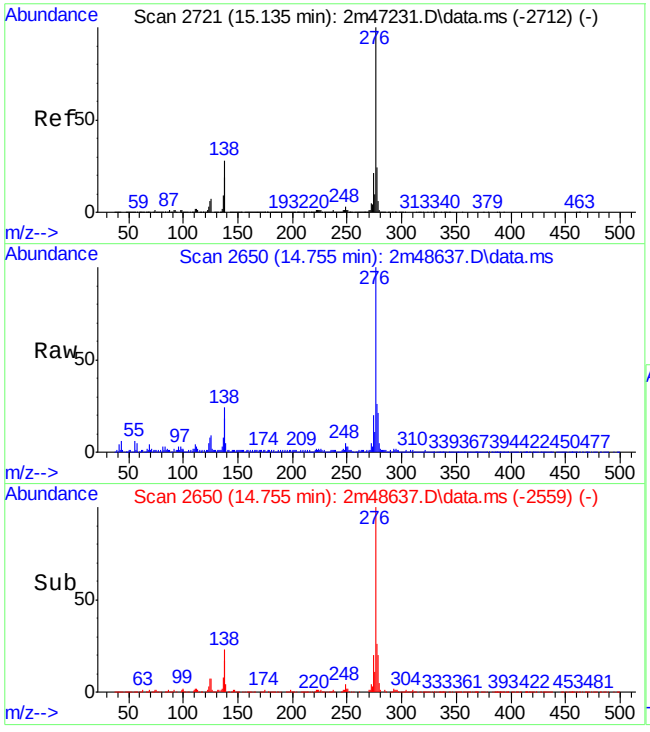
Tgt Ion:252 Resp: 640768

Ion	Ratio	Lower	Upper
252	100		
253	25.9	0.0	52.4
125	11.8	0.0	42.7



9.1.3

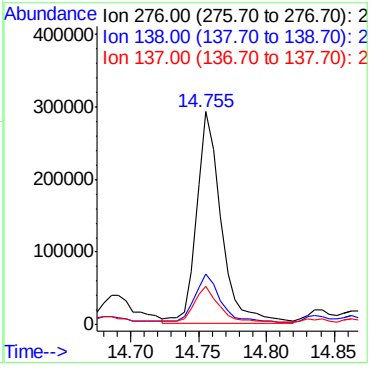
9

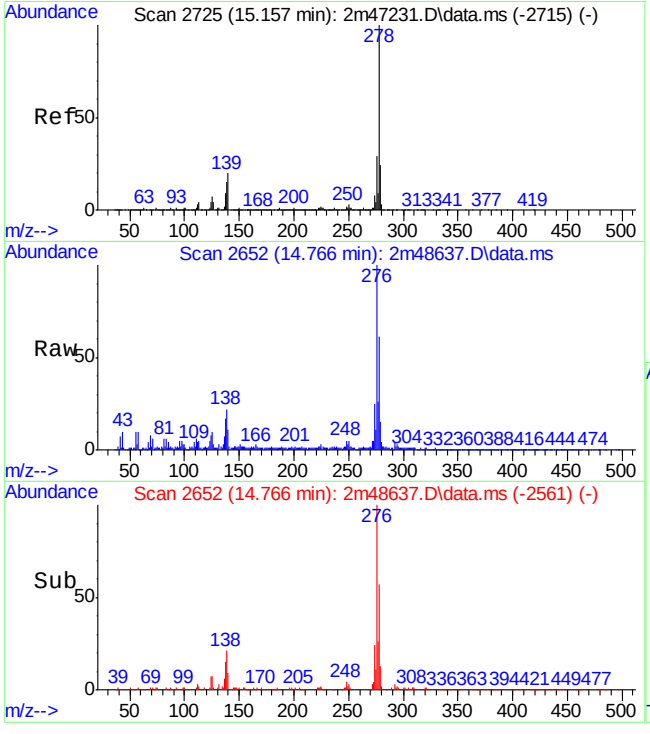


#97
Indeno[1,2,3-cd]pyrene
Concen: 11.02 ppb
RT: 14.755 min Scan# 2650
Delta R.T. -0.016 min
Lab File: 2m48637.D
Acq: 20 Dec 2012 11:11 am

Tgt Ion:276 Resp: 365181

Ion	Ratio	Lower	Upper
276	100		
138	22.9	0.0	57.6
137	17.2	0.0	48.9

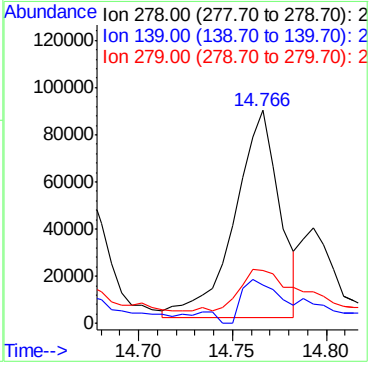


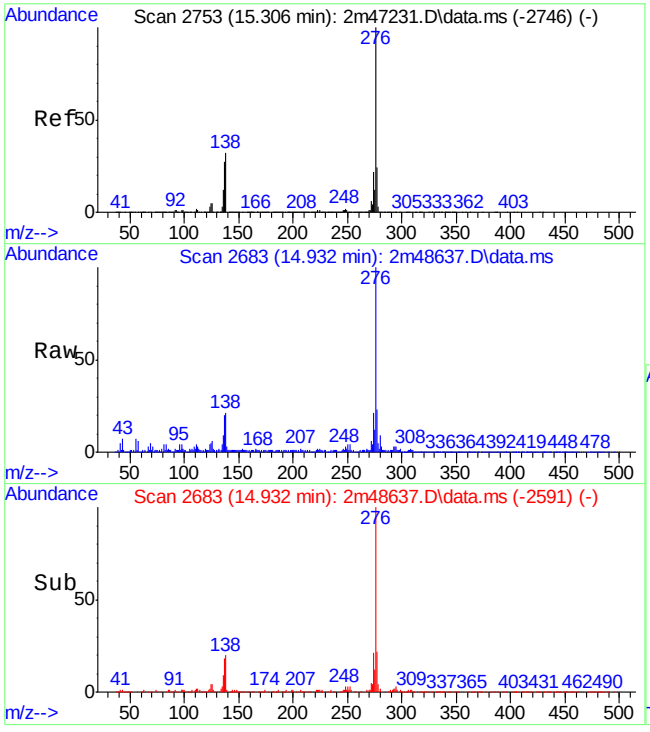


#99
Dibenz[a,h]anthracene
Concen: 5.23 ppb
RT: 14.766 min Scan# 2652
Delta R.T. -0.016 min
Lab File: 2m48637.D
Acq: 20 Dec 2012 11:11 am

Tgt Ion:278 Resp: 145583

Ion	Ratio	Lower	Upper
278	100		
139	14.0	0.0	52.4
279	16.7	0.0	54.1

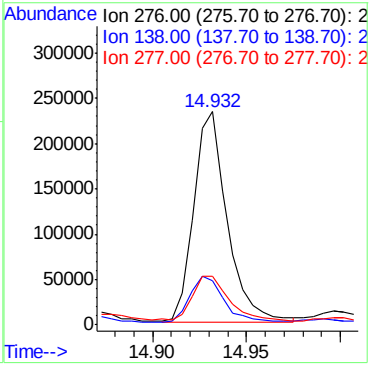




#101
Benzo[g,h,i]perylene
Concen: 10.14 ppb
RT: 14.932 min Scan# 2683
Delta R.T. -0.011 min
Lab File: 2m48637.D
Acq: 20 Dec 2012 11:11 am

Tgt Ion:276 Resp: 286931

Ion	Ratio	Lower	Upper
276	100		
138	19.8	0.1	60.1
277	21.1	0.0	53.2



9.1.3

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48607.D
Acq On : 19 Dec 2012 11:17 am
Operator : olgaa
Sample : jb22962-3
Misc : op62064,e2m2082,33.5
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Dec 19 15:30:58 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 12:28:32 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.384	152	236154	40.00	ppb	0.00
24) Naphthalene-d8	4.080	136	557986	40.00	ppb	0.00
47) Acenaphthene-d10	6.497	164	639594	40.00	ppb	0.00
69) Phenanthrene-d10	8.706	188	1081362	40.00	ppb	0.00
83) Chrysene-d12	12.504	240	1170572	40.00	ppb	0.00
92) Perylene-d12	13.916	264	1072533	40.00	ppb	0.00
102) 1,4-Dichlorobenzene-d4a	2.384	152	236154	40.00	ppb	0.00
104) Acenaphthene-d10a	6.497	164	639594	40.00	ppb	0.00
106) Chrysene-d12a	12.504	240	1170572	40.00	ppb	0.00
108) Phenanthrene-d10a	8.706	188	1081362	40.00	ppb	0.00
110) Chrysene-d12b	12.504	240	1170572	40.00	ppb	0.00

System Monitoring Compounds						
5) 2-Fluorophenol	1.427	112	232499	27.05	ppb	0.00
Spiked Amount 50.000			Recovery = 54.10%			
8) Phenol-d5	2.224	99	341231	29.62	ppb	0.00
Spiked Amount 50.000			Recovery = 59.24%			
25) Nitrobenzene-d5	3.069	82	338071	56.47	ppb	0.00
Spiked Amount 50.000			Recovery = 112.94%			
51) 2-Fluorobiphenyl	5.673	172	1134873	53.96	ppb	0.00
Spiked Amount 50.000			Recovery = 107.92%			
73) 2,4,6-Tribromophenol	7.738	330	115216	45.34	ppb	0.00
Spiked Amount 50.000			Recovery = 90.68%			
85) Terphenyl-d14	11.273	244	990330	41.87	ppb	0.00
Spiked Amount 50.000			Recovery = 83.74%			

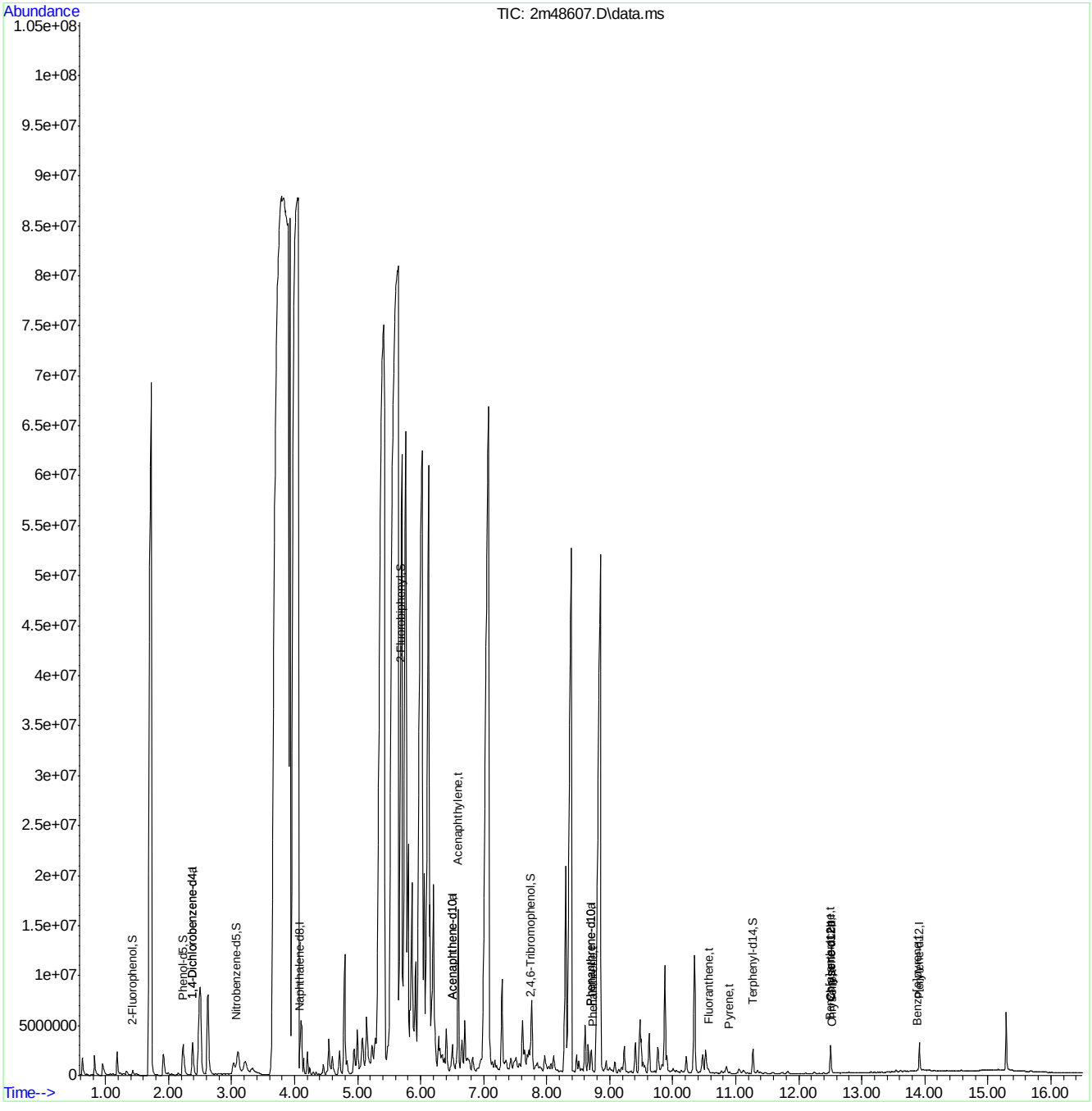
Target Compounds						Qvalue
56) Acenaphthylene	6.599	152	698176	22.60	ppb	82
77) Phenanthrene	8.738	178	62242	1.88	ppb	93
81) Fluoranthene	10.573	202	46412	1.42	ppb	97
84) Pyrene	10.888	202	36027	0.95	ppb	85
88) Benzo[a]anthracene	12.488	228	22687	0.63	ppb	99
90) Chrysene	12.536	228	21103	0.59	ppb	85
96) Benzo[a]pyrene	13.873	252	17045	0.54	ppb	96

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

Quantitation Report (QT Reviewed)

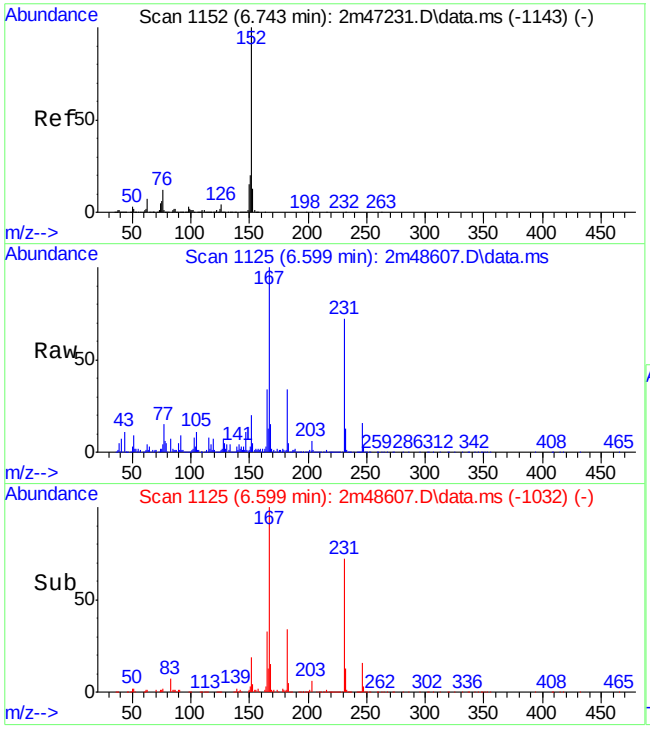
Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48607.D
Acq On : 19 Dec 2012 11:17 am
Operator : olgaa
Sample : jb22962-3
Misc : op62064,e2m2082,33.5
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Dec 19 15:30:58 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 12:28:32 2012
Response via : Initial Calibration



M2M2034.M Wed Dec 19 15:31:14 2012 MS2M

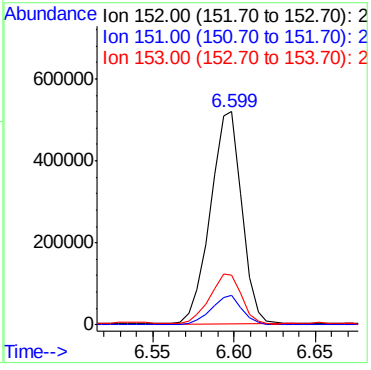
Page: 2

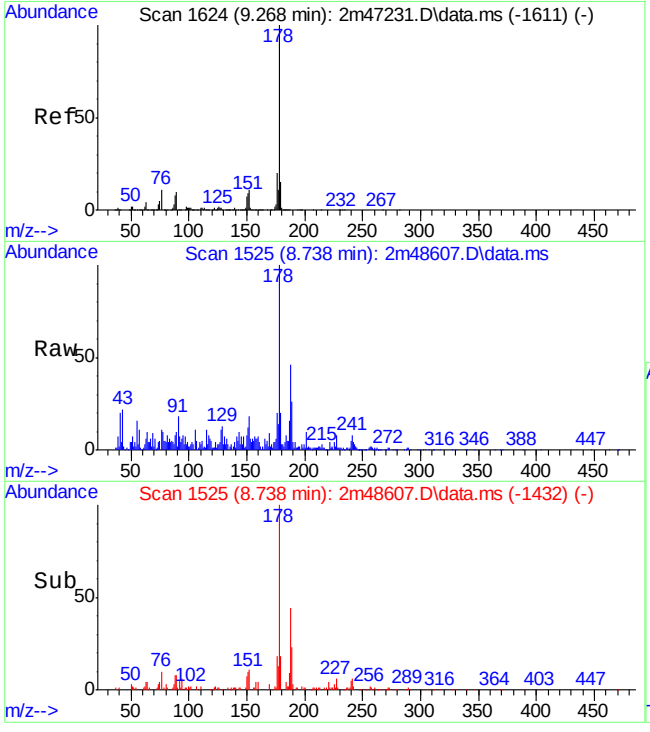


#56
Acenaphthylene
Concen: 22.60 ppb
RT: 6.599 min Scan# 1125
Delta R.T. 0.000 min
Lab File: 2m48607.D
Acq: 19 Dec 2012 11:17 am

Tgt Ion:152 Resp: 698176

Ion	Ratio	Lower	Upper
152	100		
151	13.5	0.0	49.4
153	22.6	0.0	43.0

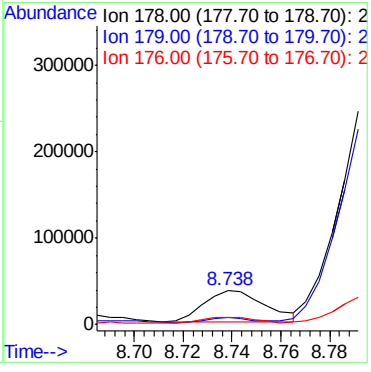




#77
Phenanthrene
Concen: 1.88 ppb
RT: 8.738 min Scan# 1525
Delta R.T. 0.000 min
Lab File: 2m48607.D
Acq: 19 Dec 2012 11:17 am

Tgt Ion:178 Resp: 62242

Ion	Ratio	Lower	Upper
178	100		
179	10.2	0.0	44.9
176	17.8	0.0	49.1



9.1.4

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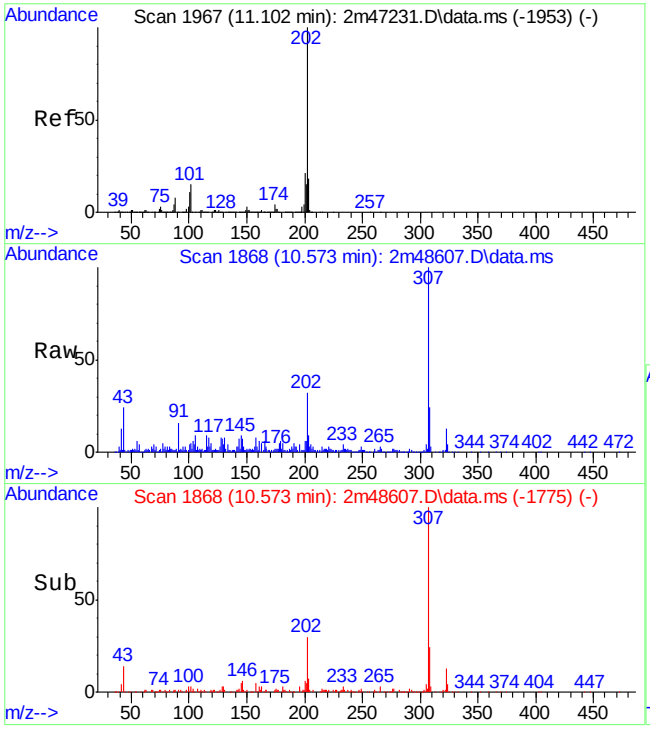
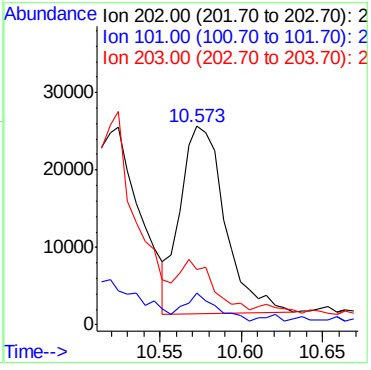
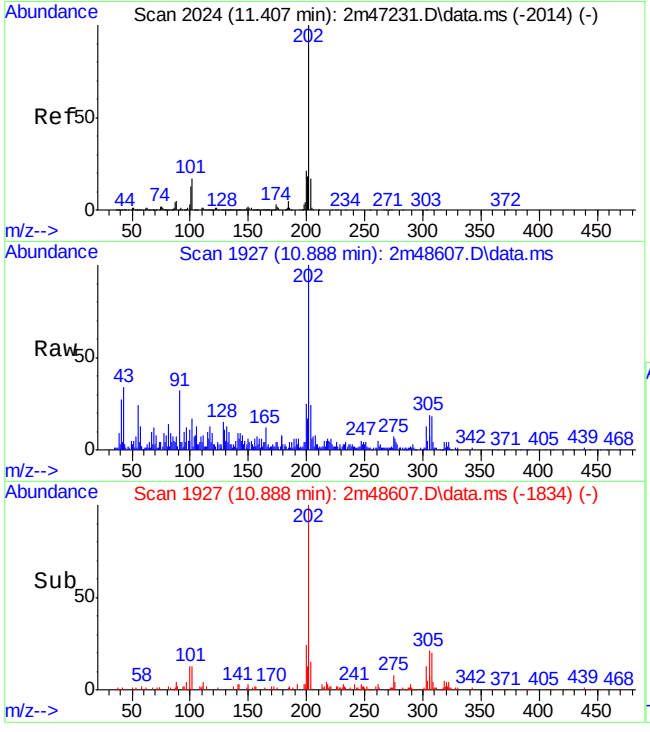


#81
Fluoranthene
Concen: 1.42 ppb
RT: 10.573 min Scan# 1868
Delta R.T. 0.000 min
Lab File: 2m48607.D
Acq: 19 Dec 2012 11:17 am

Tgt Ion:202 Resp: 46412

Ion	Ratio	Lower	Upper
202	100		
101	13.0	0.0	43.8
203	15.8	0.0	47.5

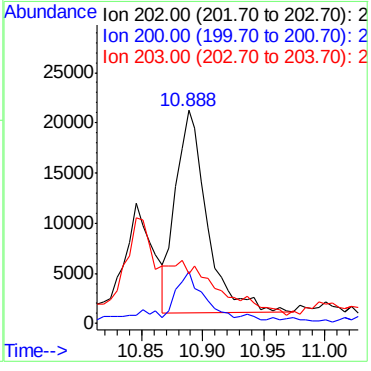




#84
Pyrene
Concen: 0.95 ppb
RT: 10.888 min Scan# 1927
Delta R.T. 0.000 min
Lab File: 2m48607.D
Acq: 19 Dec 2012 11:17 am

Tgt Ion:202 Resp: 36027

Ion	Ratio	Lower	Upper
202	100		
200	26.2	0.0	51.3
203	8.2	0.0	47.6



9.1.4

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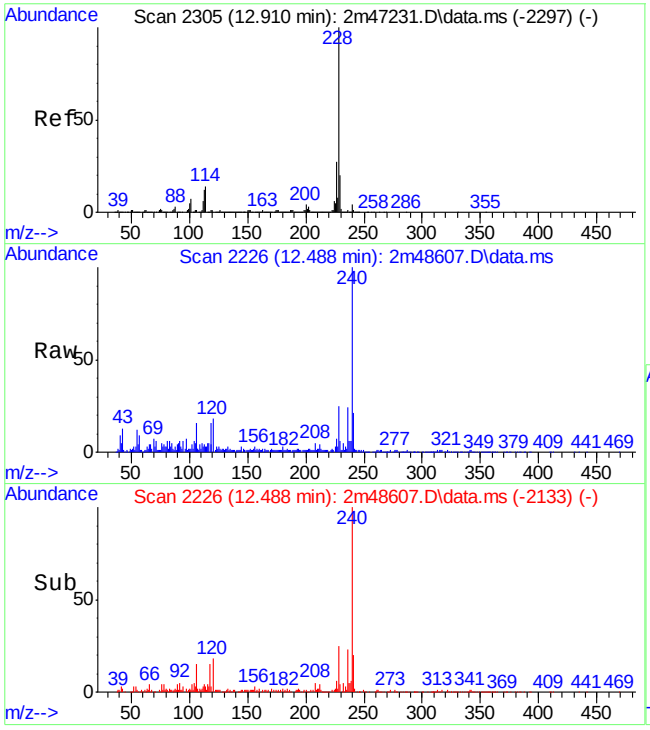
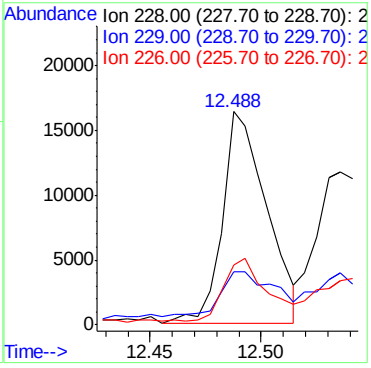
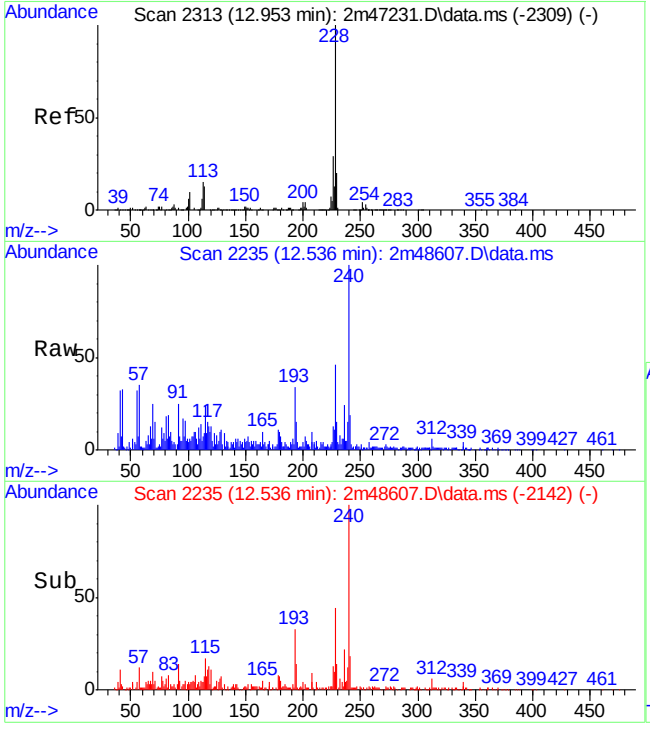


#88
Benzo[a]anthracene
Concen: 0.63 ppb
RT: 12.488 min Scan# 2226
Delta R.T. 0.000 min
Lab File: 2m48607.D
Acq: 19 Dec 2012 11:17 am

Tgt Ion:228 Resp: 22687

Ion	Ratio	Lower	Upper
228	100		
229	19.5	0.0	49.3
226	25.0	0.0	56.0

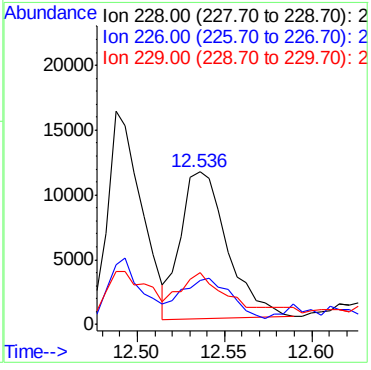




#90
Chrysene
Concen: 0.59 ppb
RT: 12.536 min Scan# 2235
Delta R.T. 0.000 min
Lab File: 2m48607.D
Acq: 19 Dec 2012 11:17 am

Tgt Ion:228 Resp: 21103

Ion	Ratio	Lower	Upper
228	100		
226	18.8	0.0	57.7
229	24.3	0.0	49.3



9.1.4

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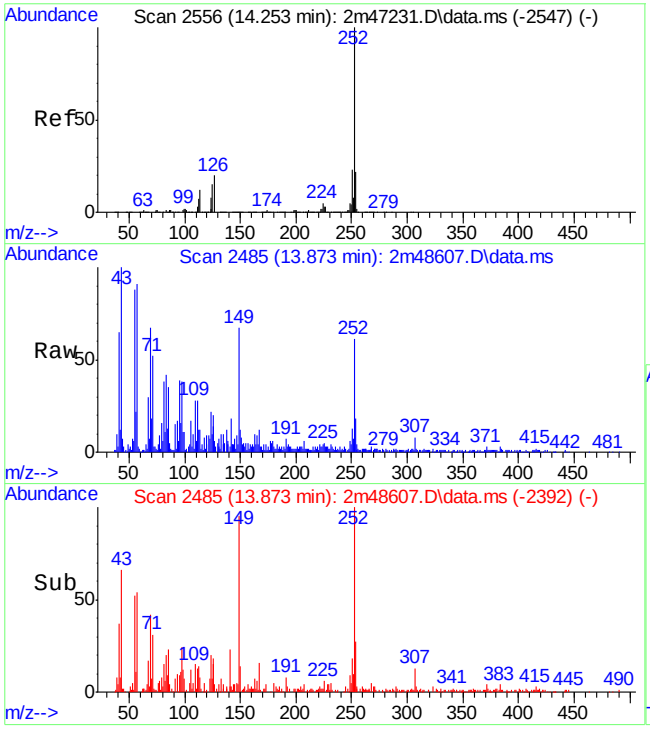
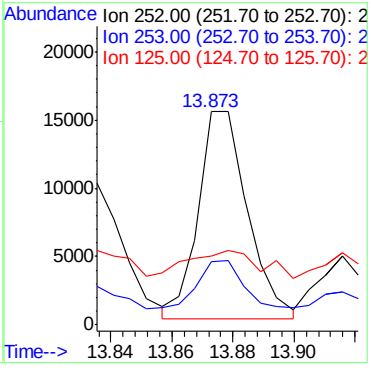


#96
Benzo[a]pyrene
Concen: 0.54 ppb
RT: 13.873 min Scan# 2485
Delta R.T. 0.000 min
Lab File: 2m48607.D
Acq: 19 Dec 2012 11:17 am

Tgt Ion:252 Resp: 17045

Ion	Ratio	Lower	Upper
252	100		
253	23.3	0.0	52.4
125	9.9	0.0	42.7



9.1.4

9

Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 12/21/12 18:27

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48629.D
Acq On : 19 Dec 2012 7:46 pm
Operator : olgaa
Sample : jb22962-3cfi
Misc : op62064,e2m2082,33.5,,,1,2
ALS Vial : 28 Sample Multiplier: 1

Quant Time: Dec 23 08:15:21 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration

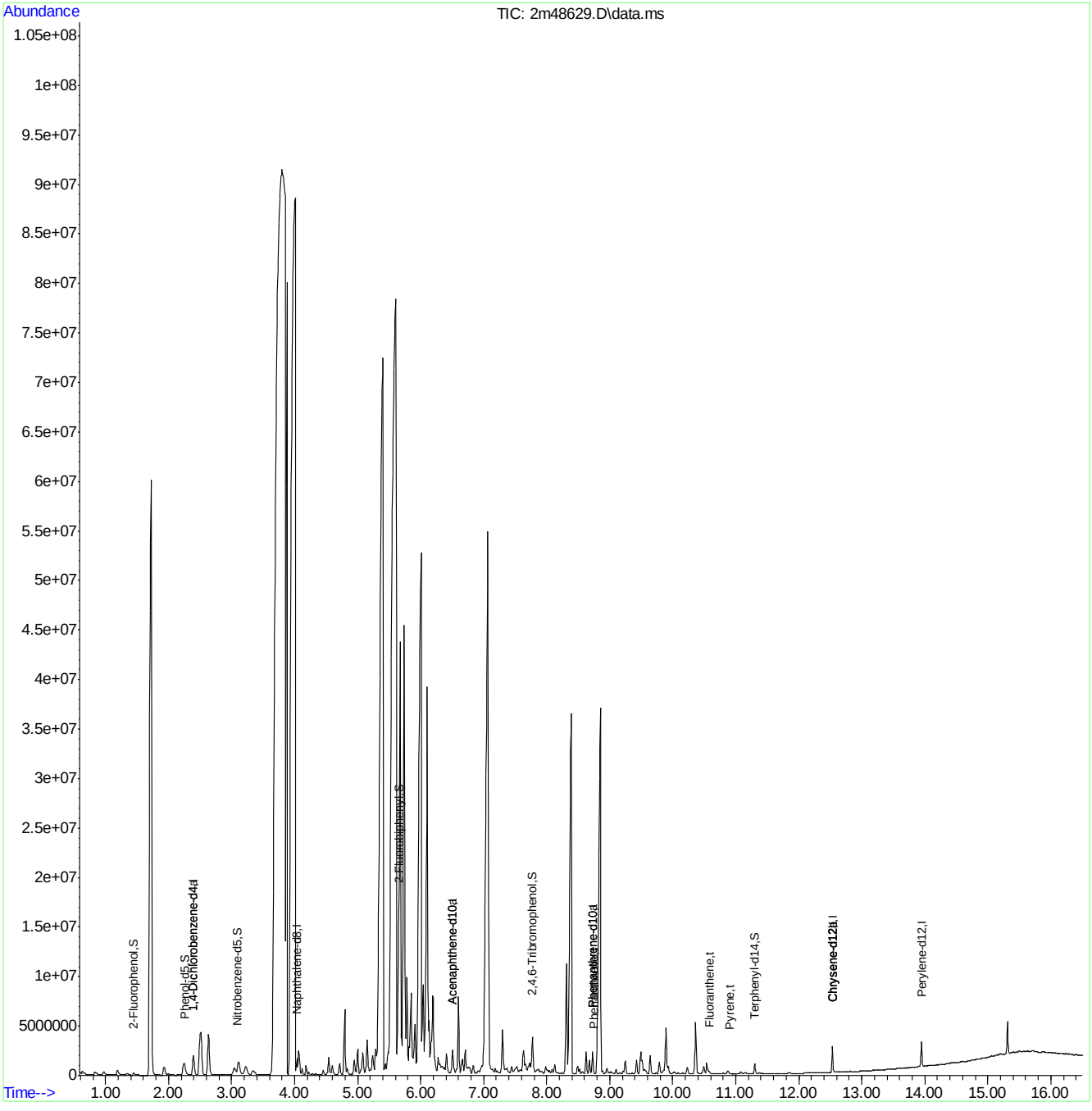
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.395	152	203864	40.00	ppb	0.00
24) Naphthalene-d8	4.037	136	560914	40.00	ppb	0.12
47) Acenaphthene-d10	6.508	164	589626	40.00	ppb	0.03
69) Phenanthrene-d10	8.727	188	1017187	40.00	ppb	0.02
83) Chrysene-d12	12.536	240	1015262	40.00	ppb	0.01
92) Perylene-d12	13.948	264	842283	40.00	ppb	0.02
102) 1,4-Dichlorobenzene-d4a	2.395	152	203864	40.00	ppb	0.00
104) Acenaphthene-d10a	6.508	164	589626	40.00	ppb	0.03
106) Chrysene-d12a	12.536	240	1015262	40.00	ppb	0.01
108) Phenanthrene-d10a	8.727	188	1017187	40.00	ppb	0.02
110) Chrysene-d12b	12.536	240	1015262	40.00	ppb	0.01
System Monitoring Compounds						
5) 2-Fluorophenol	1.443	112	77931	10.50	ppb	0.02
Spiked Amount 50.000			Recovery = 21.00%			
8) Phenol-d5	2.256	99	136844	13.76	ppb	0.04
Spiked Amount 50.000			Recovery = 27.52%			
25) Nitrobenzene-d5	3.079	82	165595	27.52	ppb	0.02
Spiked Amount 50.000			Recovery = 55.04%			
51) 2-Fluorobiphenyl	5.647	172	329397m	16.99	ppb	0.09
Spiked Amount 50.000			Recovery = 33.98%			
73) 2,4,6-Tribromophenol	7.765	330	52375	21.91	ppb	0.03
Spiked Amount 50.000			Recovery = 43.82%			
85) Terphenyl-d14	11.300	244	408188	19.90	ppb	0.01
Spiked Amount 50.000			Recovery = 39.80%			
Target Compounds						Qvalue
77) Phenanthrene	8.759	178	30555	0.98	ppb	88
81) Fluoranthene	10.594	202	19355	0.63	ppb	77
84) Pyrene	10.910	202	17271	0.53	ppb	80

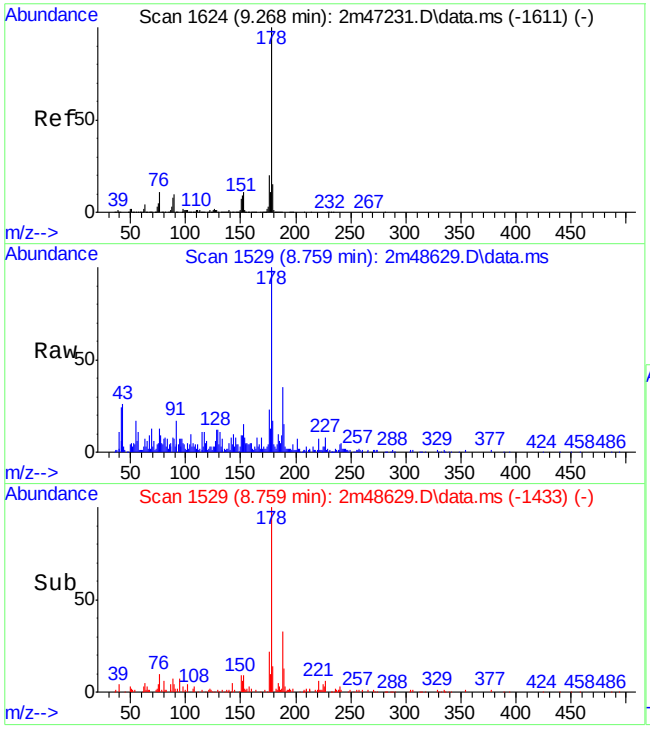
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48629.D
Acq On : 19 Dec 2012 7:46 pm
Operator : olgaa
Sample : jb22962-3cfi
Misc : op62064,e2m2082,33.5,,,1,2
ALS Vial : 28 Sample Multiplier: 1

Quant Time: Dec 23 08:15:21 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration

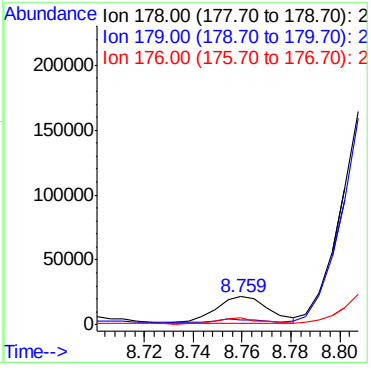


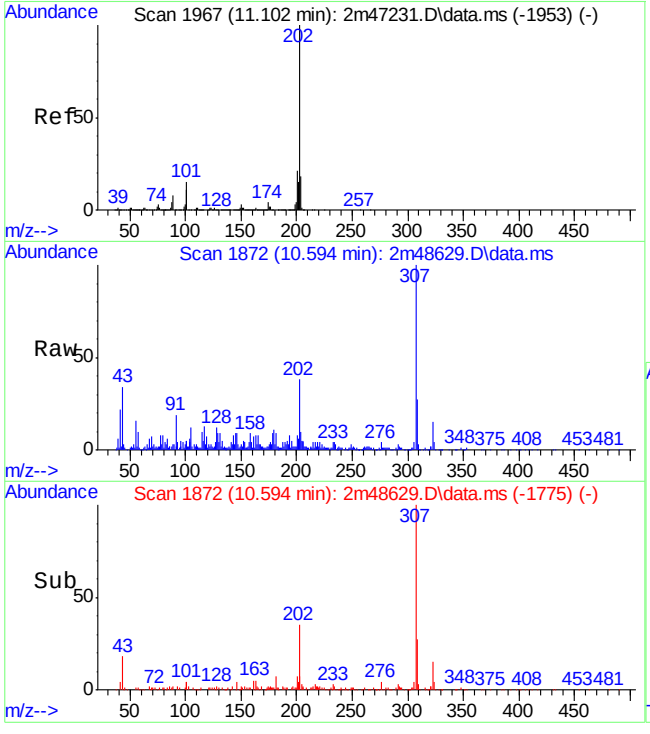


#77
Phenanthrene
Concen: 0.98 ppb
RT: 8.759 min Scan# 1529
Delta R.T. 0.016 min
Lab File: 2m48629.D
Acq: 19 Dec 2012 7:46 pm

Tgt Ion:178 Resp: 30555

Ion	Ratio	Lower	Upper
178	100		
179	7.6	0.0	44.9
176	22.9	0.0	49.1

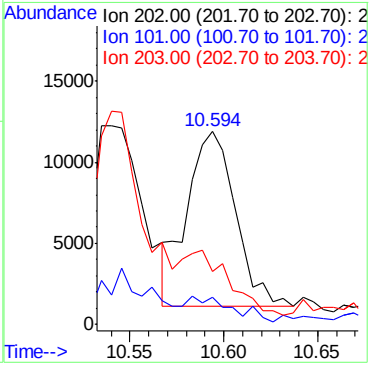




#81
Fluoranthene
Concen: 0.63 ppb
RT: 10.594 min Scan# 1872
Delta R.T. 0.021 min
Lab File: 2m48629.D
Acq: 19 Dec 2012 7:46 pm

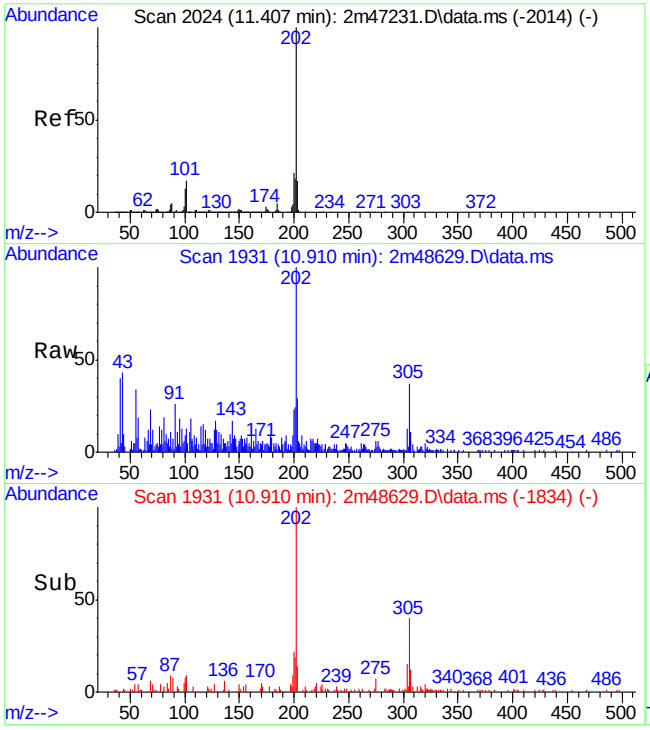
Tgt Ion:202 Resp: 19355

Ion	Ratio	Lower	Upper
202	100		
101	8.8	0.0	43.8
203	4.1	0.0	47.5



9.1.5

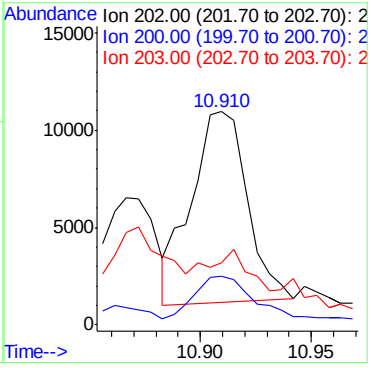
9



#84
Pyrene
Concen: 0.53 ppb
RT: 10.910 min Scan# 1931
Delta R.T. 0.021 min
Lab File: 2m48629.D
Acq: 19 Dec 2012 7:46 pm

Tgt Ion:202 Resp: 17271

Ion	Ratio	Lower	Upper
202	100		
200	24.6	0.0	51.3
203	2.4	0.0	47.6



9.1.5

9

Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
12/19/12 23:23

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48614.D
Acq On : 19 Dec 2012 1:59 pm
Operator : olgaa
Sample : jb22962-4
Misc : op62064,e2m2082,33.1
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Dec 19 15:42:39 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.379	152	249172	40.00	ppb	-0.01
24) Naphthalene-d8	3.914	136	1159454	40.00	ppb	0.00
47) Acenaphthene-d10	6.465	164	735867	40.00	ppb	-0.02
69) Phenanthrene-d10	8.690	188	1224988	40.00	ppb	-0.02
83) Chrysene-d12	12.509	240	1146887	40.00	ppb	-0.02
92) Perylene-d12	13.926	264	961717	40.00	ppb	0.00
102) 1,4-Dichlorobenzene-d4a	2.379	152	249172	40.00	ppb	-0.01
104) Acenaphthene-d10a	6.465	164	735867	40.00	ppb	-0.02
106) Chrysene-d12a	12.509	240	1146887	40.00	ppb	-0.02
108) Phenanthrene-d10a	8.690	188	1224988	40.00	ppb	-0.02
110) Chrysene-d12b	12.509	240	1146887	40.00	ppb	-0.02

System Monitoring Compounds						
5) 2-Fluorophenol	1.427	112	120067	13.24	ppb	0.00
Spiked Amount 50.000			Recovery = 26.48%			
8) Phenol-d5	2.234	99	200140	16.47	ppb	0.02
Spiked Amount 50.000			Recovery = 32.94%			
25) Nitrobenzene-d5	3.058	82	149572	12.02	ppb	0.00
Spiked Amount 50.000			Recovery = 24.04%			
51) 2-Fluorobiphenyl	5.556	172	374718	15.49	ppb	0.00
Spiked Amount 50.000			Recovery = 30.98%			
73) 2,4,6-Tribromophenol	7.727	330	120079	41.71	ppb	-0.01
Spiked Amount 50.000			Recovery = 83.42%			
85) Terphenyl-d14	11.279	244	1011812	43.66	ppb	-0.01
Spiked Amount 50.000			Recovery = 87.32%			

Target Compounds						Qvalue
56) Acenaphthylene	6.230	152	36620m	1.03	ppb	
77) Phenanthrene	8.727	178	28545	0.76	ppb	88
81) Fluoranthene	10.557	202	74612	2.02	ppb	96
84) Pyrene	10.872	202	80246	2.16	ppb	96
88) Benzo[a]anthracene	12.493	228	49178	1.39	ppb	83
90) Chrysene	12.536	228	60247	1.72	ppb	98
94) Benzo[b]fluoranthene	13.600	252	60338m	1.80	ppb	
95) Benzo[k]fluoranthene	13.605	252	38359m	1.27	ppb	
96) Benzo[a]pyrene	13.873	252	44077	1.55	ppb	90
97) Indeno[1,2,3-cd]pyrene	14.766	276	38507	1.17	ppb	89
101) Benzo[g,h,i]perylene	14.943	276	34808m	1.23	ppb	

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

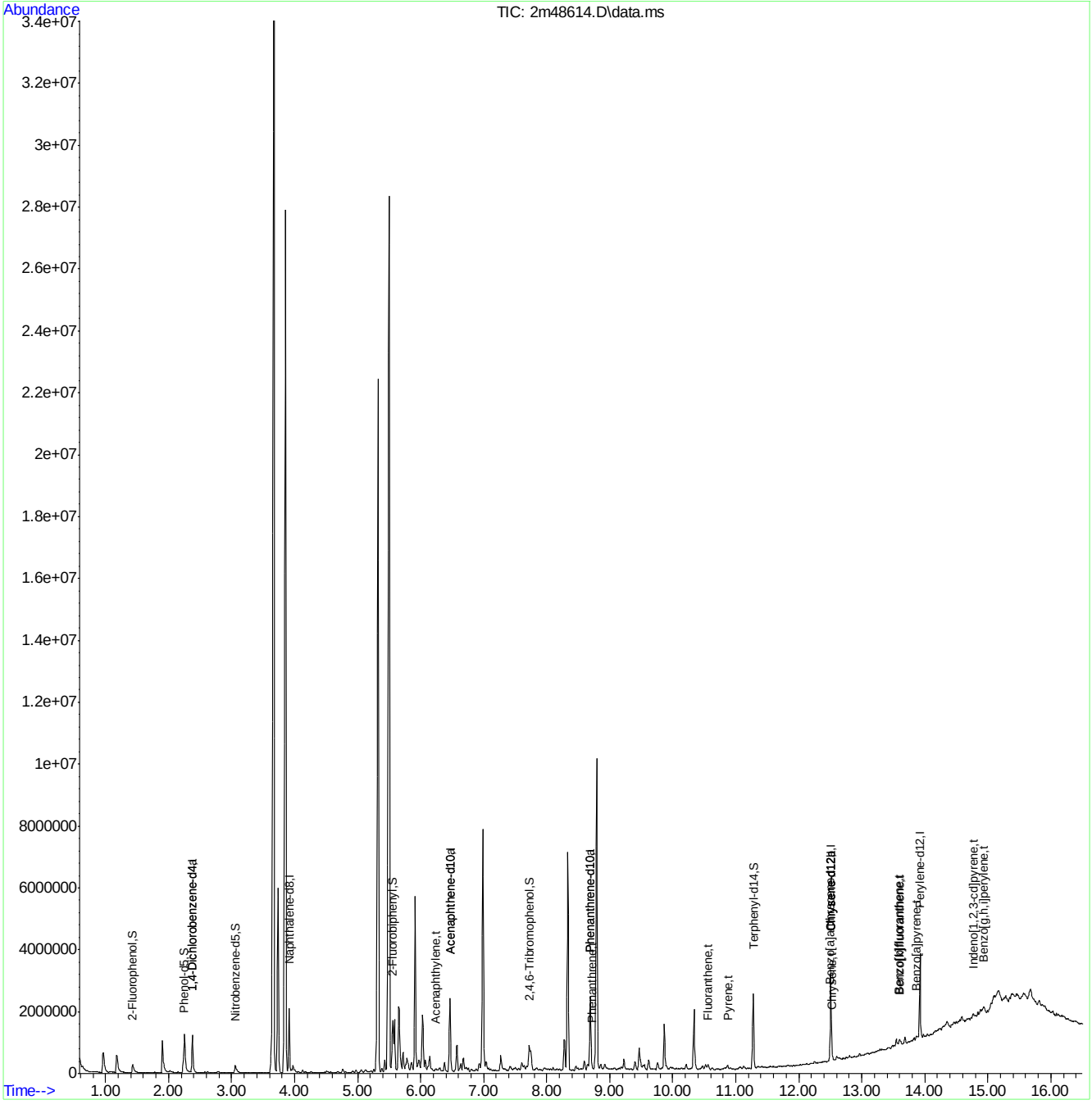
9.1.6

9

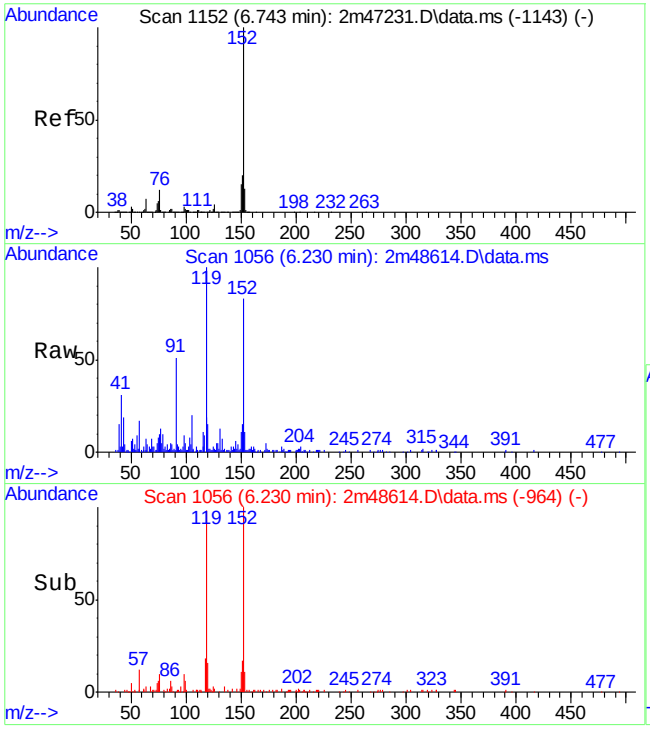
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48614.D
Acq On : 19 Dec 2012 1:59 pm
Operator : olgaa
Sample : jb22962-4
Misc : op62064,e2m2082,33.1
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Dec 19 15:42:39 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration



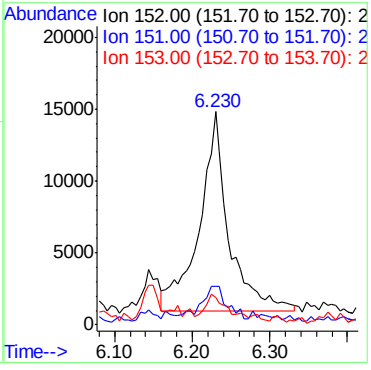
M2M2034.M Wed Dec 19 15:42:46 2012 MS2M Page: 2

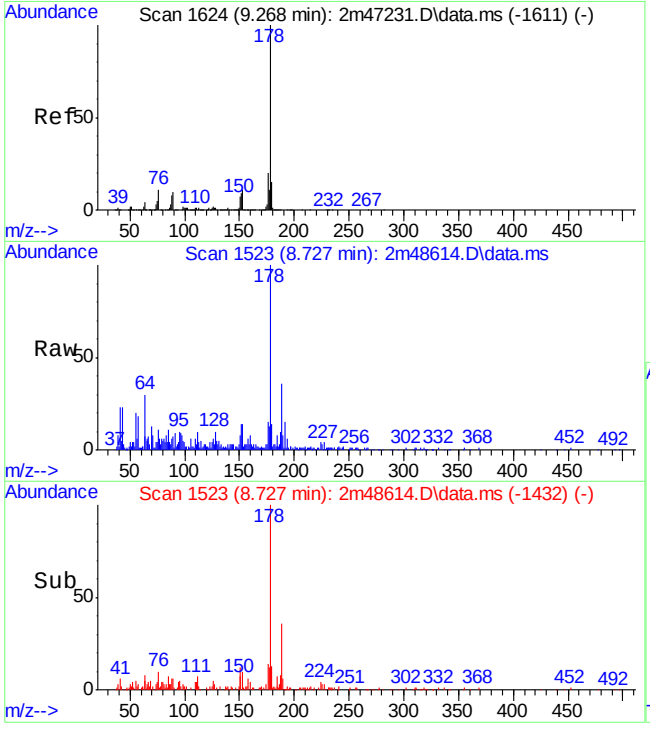


#56
Acenaphthylene
Concen: 1.03 ppb m
RT: 6.230 min Scan# 1056
Delta R.T. -0.011 min
Lab File: 2m48614.D
Acq: 19 Dec 2012 1:59 pm

Tgt Ion:152 Resp: 36620

Ion	Ratio	Lower	Upper
152	100		
151	18.1	0.0	49.4
153	13.0	0.0	43.0

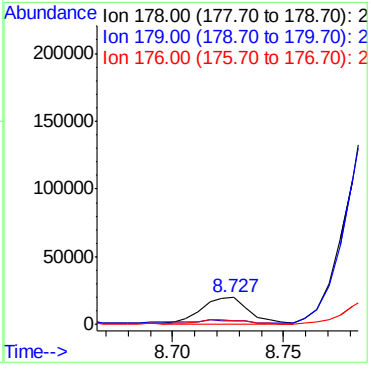


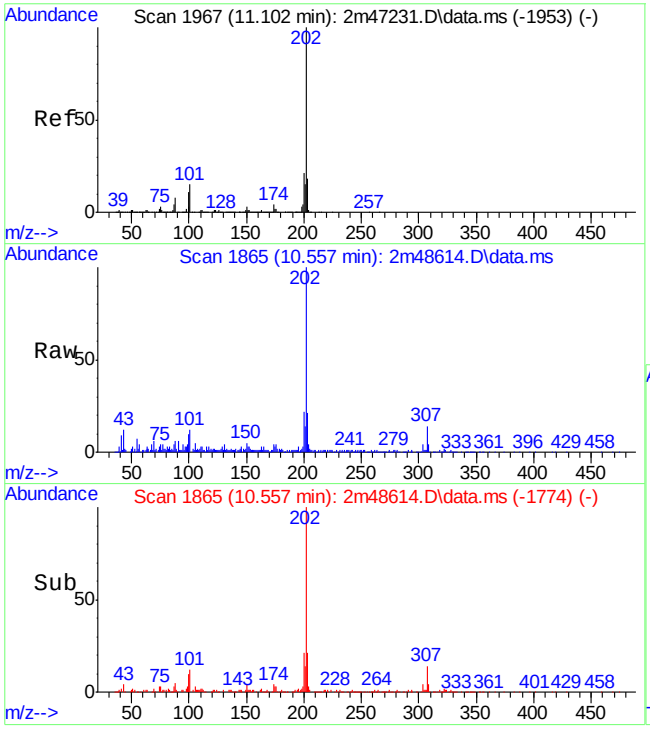


#77
Phenanthrene
Concen: 0.76 ppb
RT: 8.727 min Scan# 1523
Delta R.T. -0.016 min
Lab File: 2m48614.D
Acq: 19 Dec 2012 1:59 pm

Tgt Ion:178 Resp: 28545

Ion	Ratio	Lower	Upper
178	100		
179	8.3	0.0	44.9
176	15.3	0.0	49.1

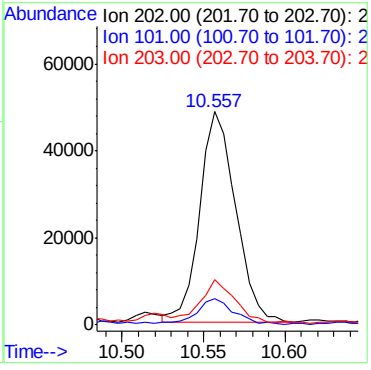


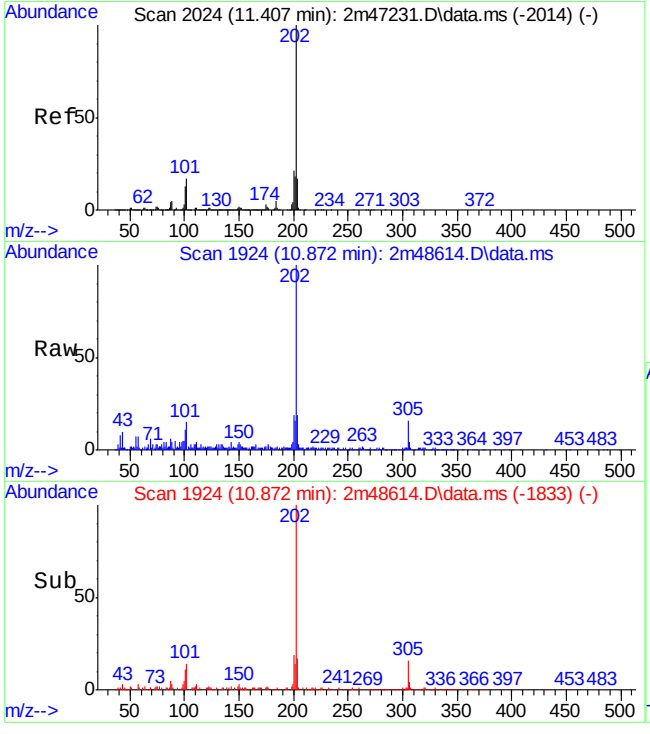


#81
Fluoranthene
Concen: 2.02 ppb
RT: 10.557 min Scan# 1865
Delta R.T. -0.016 min
Lab File: 2m48614.D
Acq: 19 Dec 2012 1:59 pm

Tgt Ion:202 Resp: 74612

Ion	Ratio	Lower	Upper
202	100		
101	11.5	0.0	43.8
203	19.0	0.0	47.5

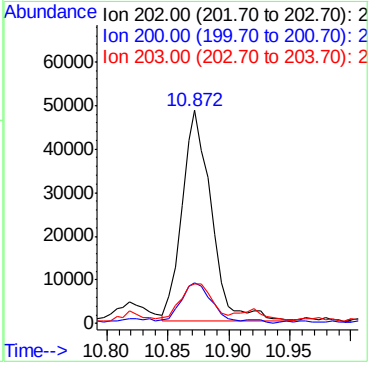


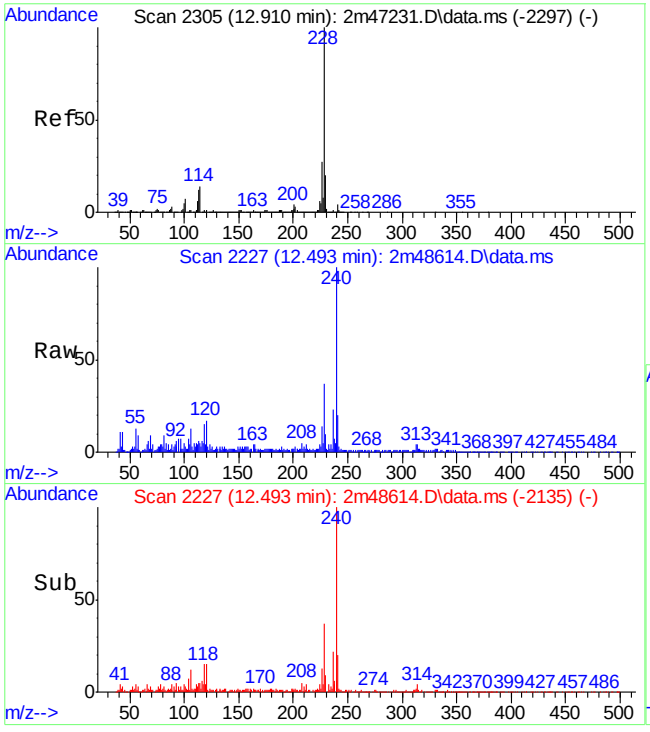


#84
Pyrene
Concen: 2.16 ppb
RT: 10.872 min Scan# 1924
Delta R.T. -0.016 min
Lab File: 2m48614.D
Acq: 19 Dec 2012 1:59 pm

Tgt Ion:202 Resp: 80246

Ion	Ratio	Lower	Upper
202	100		
200	18.5	0.0	51.3
203	17.0	0.0	47.6

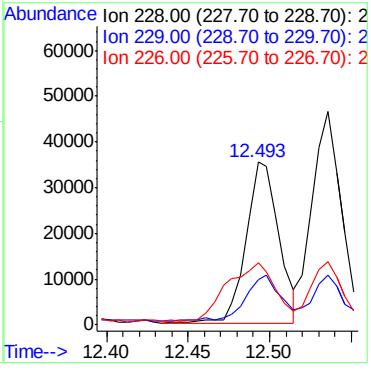


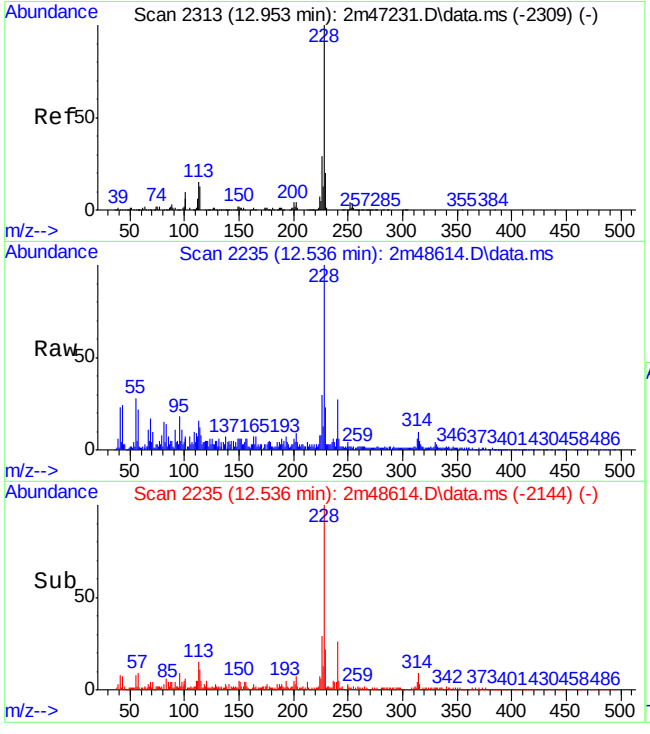


#88
Benzo[a]anthracene
Concen: 1.39 ppb
RT: 12.493 min Scan# 2227
Delta R.T. -0.011 min
Lab File: 2m48614.D
Acq: 19 Dec 2012 1:59 pm

Tgt Ion:228 Resp: 49178

Ion	Ratio	Lower	Upper
228	100		
229	24.6	0.0	49.3
226	36.8	0.0	56.0

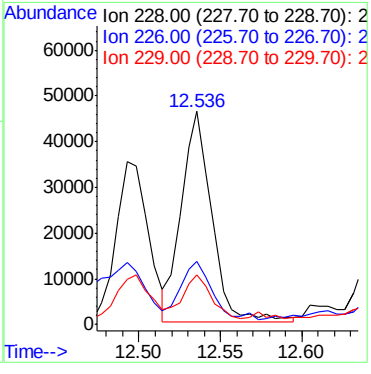




#90
Chrysene
Concen: 1.72 ppb
RT: 12.536 min Scan# 2235
Delta R.T. -0.016 min
Lab File: 2m48614.D
Acq: 19 Dec 2012 1:59 pm

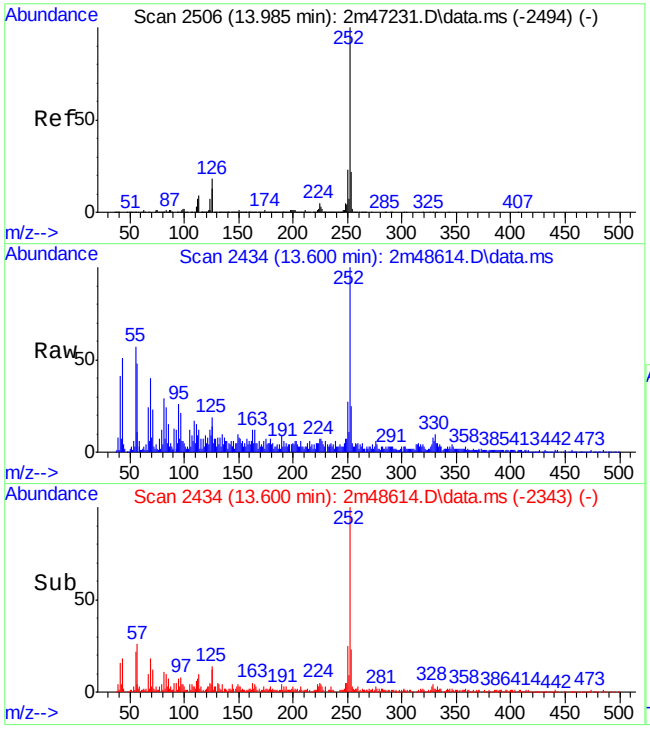
Tgt Ion:228 Resp: 60247

Ion	Ratio	Lower	Upper
228	100		
226	26.8	0.0	57.7
229	20.0	0.0	49.3



9.1.6

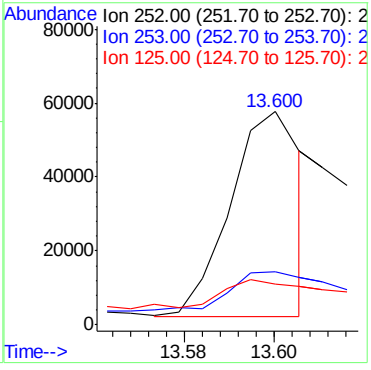
9

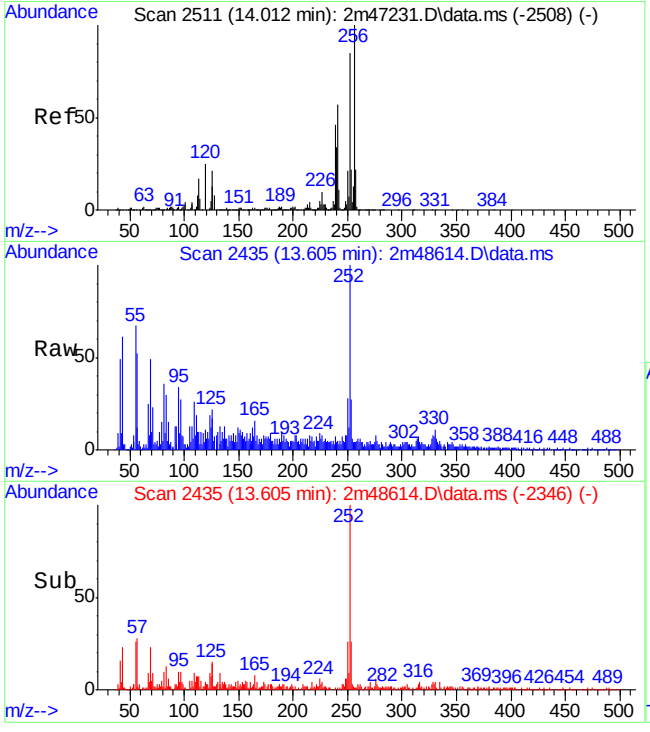


#94
Benzo[b]fluoranthene
Concen: 1.80 ppb m
RT: 13.600 min Scan# 2434
Delta R.T. -0.016 min
Lab File: 2m48614.D
Acq: 19 Dec 2012 1:59 pm

Tgt Ion:252 Resp: 60338

Ion	Ratio	Lower	Upper
252	100		
253	24.7	0.0	51.6
125	19.1	0.0	40.1

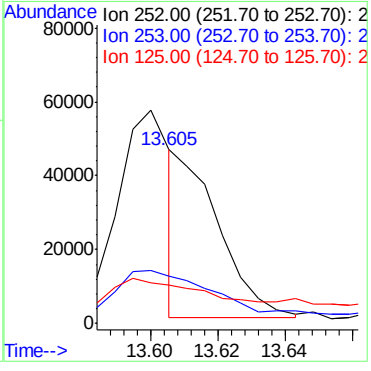




#95
Benzo[k]fluoranthene
Concen: 1.27 ppb m
RT: 13.605 min Scan# 2435
Delta R.T. -0.027 min
Lab File: 2m48614.D
Acq: 19 Dec 2012 1:59 pm

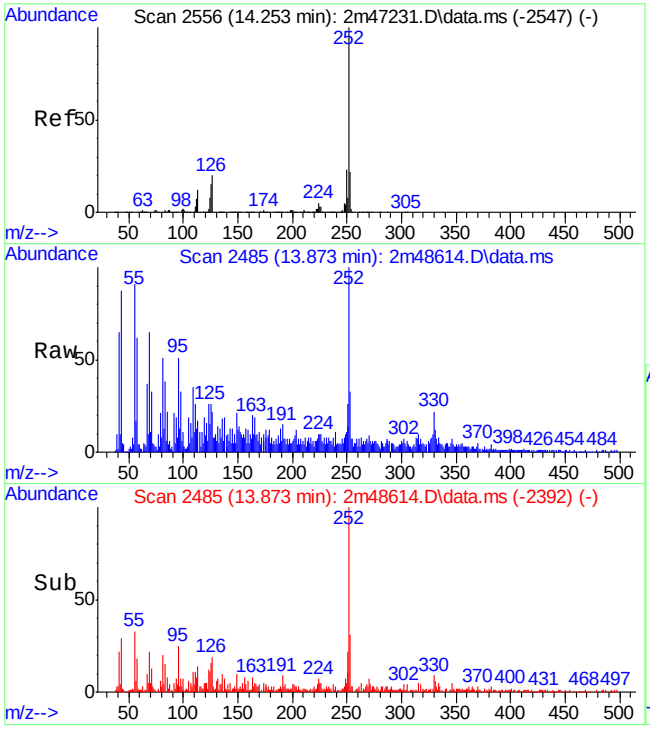
Tgt Ion:252 Resp: 38359

Ion	Ratio	Lower	Upper
252	100		
253	27.2	0.0	52.7
125	22.4	0.0	42.9



9.1.6

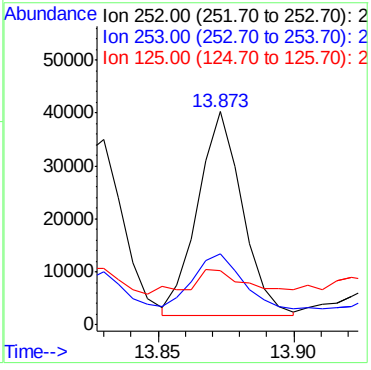
6

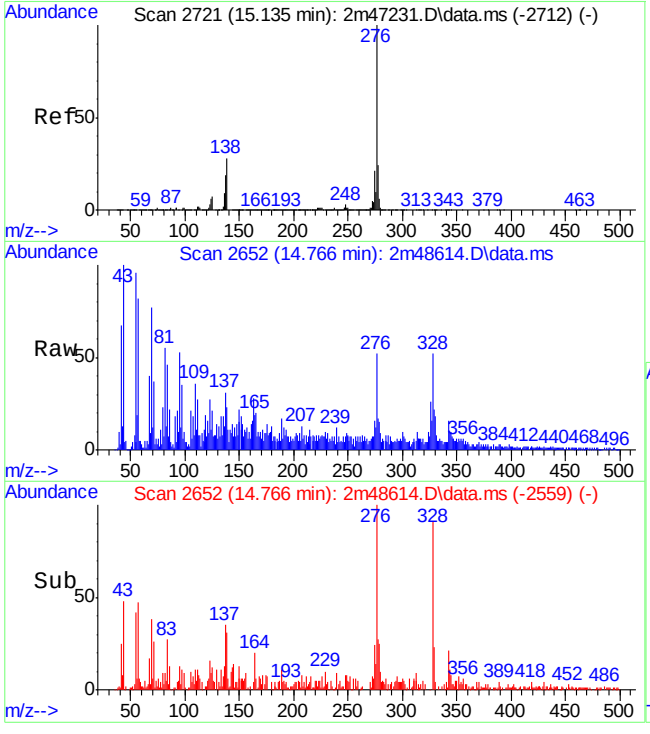


#96
Benzo[a]pyrene
Concen: 1.55 ppb
RT: 13.873 min Scan# 2485
Delta R.T. -0.005 min
Lab File: 2m48614.D
Acq: 19 Dec 2012 1:59 pm

Tgt Ion:252 Resp: 44077

Ion	Ratio	Lower	Upper
252	100		
253	27.4	0.0	52.4
125	9.1	0.0	42.7

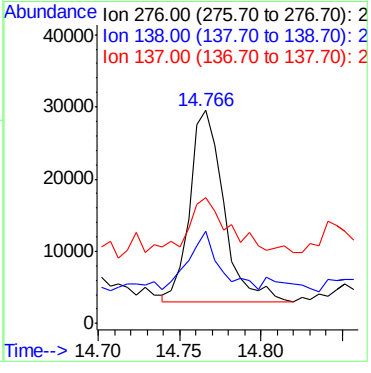


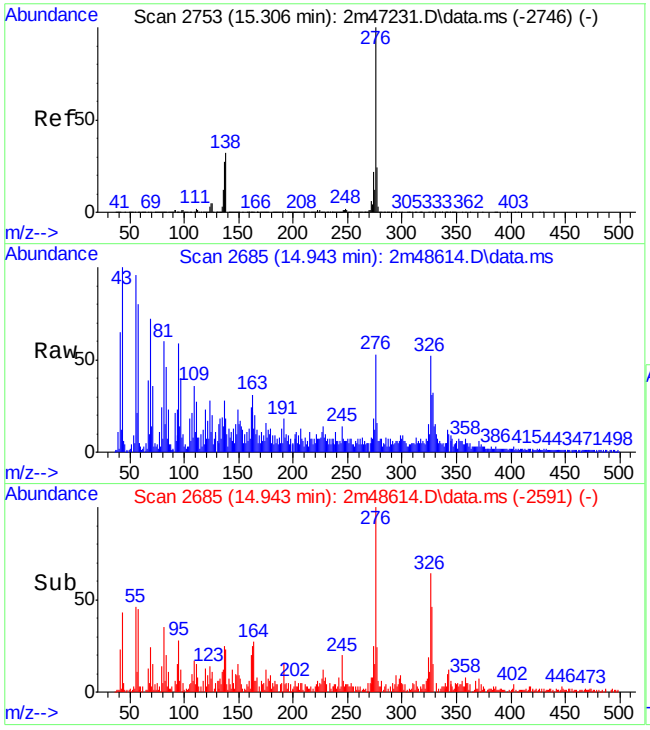


#97
Indeno[1,2,3-cd]pyrene
Concen: 1.17 ppb
RT: 14.766 min Scan# 2652
Delta R.T. -0.005 min
Lab File: 2m48614.D
Acq: 19 Dec 2012 1:59 pm

Tgt Ion:276 Resp: 38507

Ion	Ratio	Lower	Upper
276	100		
138	30.0	0.0	57.6
137	28.2	0.0	48.9

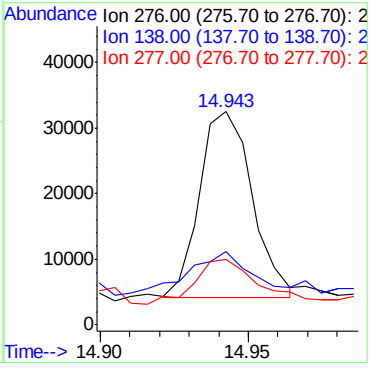




#101
Benzo[g,h,i]perylene
Concen: 1.23 ppb m
RT: 14.943 min Scan# 2685
Delta R.T. 0.000 min
Lab File: 2m48614.D
Acq: 19 Dec 2012 1:59 pm

Tgt Ion:276 Resp: 34808

Ion	Ratio	Lower	Upper
276	100		
138	34.3	0.1	60.1
277	30.6	0.0	53.2



9.1.6

9

Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 12/21/12 18:23

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48615.D
Acq On : 19 Dec 2012 2:22 pm
Operator : olgaa
Sample : jb22962-5
Misc : op62064,e2m2082,32.7
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Dec 19 15:47:30 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 15:38:35 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.389	152	219054	40.00 ppb	0.01
24) Naphthalene-d8	4.170	136	494240m	40.00 ppb	0.27
47) Acenaphthene-d10	6.524	164	601004	40.00 ppb	0.05
69) Phenanthrene-d10	8.727	188	1098524	40.00 ppb	0.02
83) Chrysene-d12	12.520	240	1041258	40.00 ppb	-0.03
92) Perylene-d12	13.926	264	868004	40.00 ppb	-0.04
102) 1,4-Dichlorobenzene-d4a	2.389	152	219054	40.00 ppb	0.01
104) Acenaphthene-d10a	6.524	164	601004	40.00 ppb	0.05
106) Chrysene-d12a	12.520	240	1041258	40.00 ppb	-0.03
108) Phenanthrene-d10a	8.727	188	1098524	40.00 ppb	0.02
110) Chrysene-d12b	12.520	240	1041258	40.00 ppb	-0.03
System Monitoring Compounds					
5) 2-Fluorophenol	1.427	112	159737	20.04 ppb	0.00
Spiked Amount 50.000			Recovery	= 40.08%	
8) Phenol-d5	2.234	99	277709	25.99 ppb	0.00
Spiked Amount 50.000			Recovery	= 51.98%	
25) Nitrobenzene-d5	3.074	82	287240	54.17 ppb	0.02
Spiked Amount 50.000			Recovery	= 108.34%	
51) 2-Fluorobiphenyl	5.732	172	854270m	43.23 ppb	0.18
Spiked Amount 50.000			Recovery	= 86.46%	
73) 2,4,6-Tribromophenol	7.765	330	127979	49.57 ppb	0.03
Spiked Amount 50.000			Recovery	= 99.14%	
85) Terphenyl-d14	11.284	244	871389	41.41 ppb	-0.02
Spiked Amount 50.000			Recovery	= 82.82%	
Target Compounds					Qvalue
77) Phenanthrene	8.754	178	143500	4.27 ppb	94
81) Fluoranthene	10.583	202	581196m	17.52 ppb	
84) Pyrene	10.888	202	562506	16.70 ppb	95
88) Benzo[a]anthracene	12.504	228	358787	11.20 ppb	90
90) Chrysene	12.541	228	434852	13.70 ppb	97
94) Benzo[b]fluoranthene	13.605	252	594400m	19.67 ppb	
95) Benzo[k]fluoranthene	13.611	252	336498m	12.37 ppb	
96) Benzo[a]pyrene	13.878	252	322800	12.58 ppb	90
97) Indeno[1,2,3-cd]pyrene	14.771	276	326467	10.95 ppb	88
99) Dibenz[a,h]anthracene	14.777	278	142171m	5.68 ppb	
101) Benzo[g,h,i]perylene	14.948	276	323964	12.73 ppb	94

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

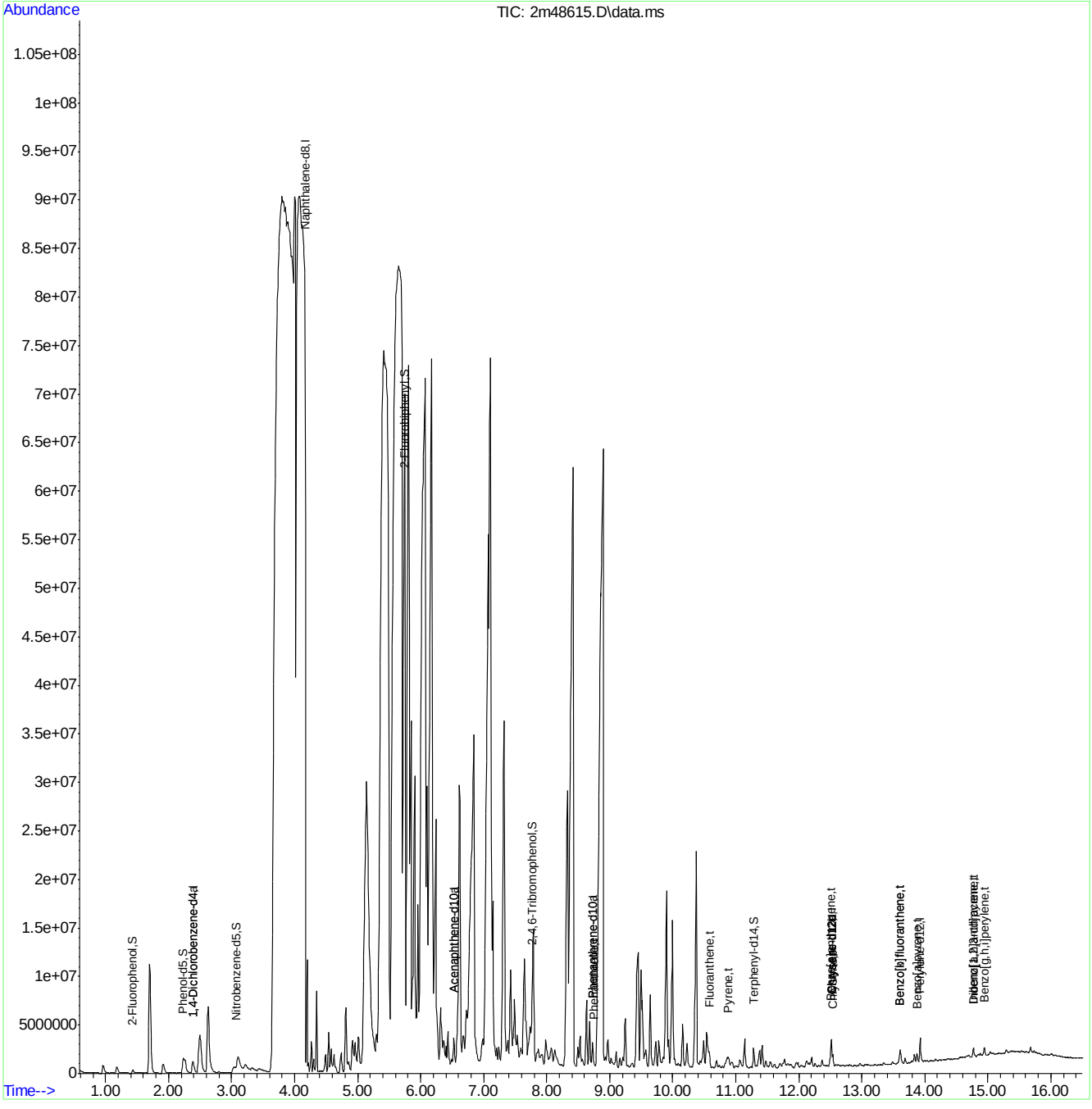
9.1.7

9

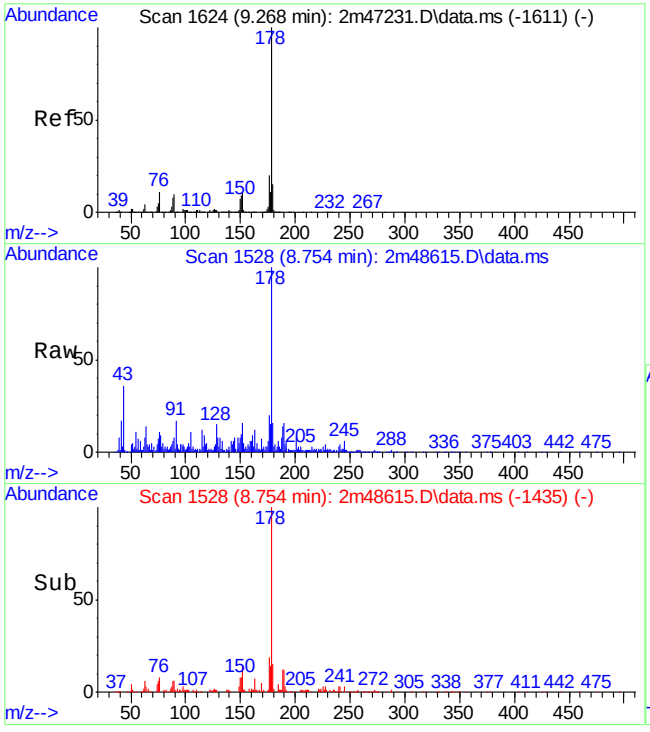
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48615.D
Acq On : 19 Dec 2012 2:22 pm
Operator : olgaa
Sample : jb22962-5
Misc : op62064,e2m2082,32.7
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Dec 19 15:47:30 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 15:38:35 2012
Response via : Initial Calibration



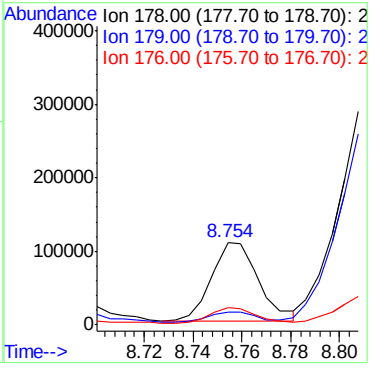
M2M2034.M Wed Dec 19 15:47:53 2012 MS2M

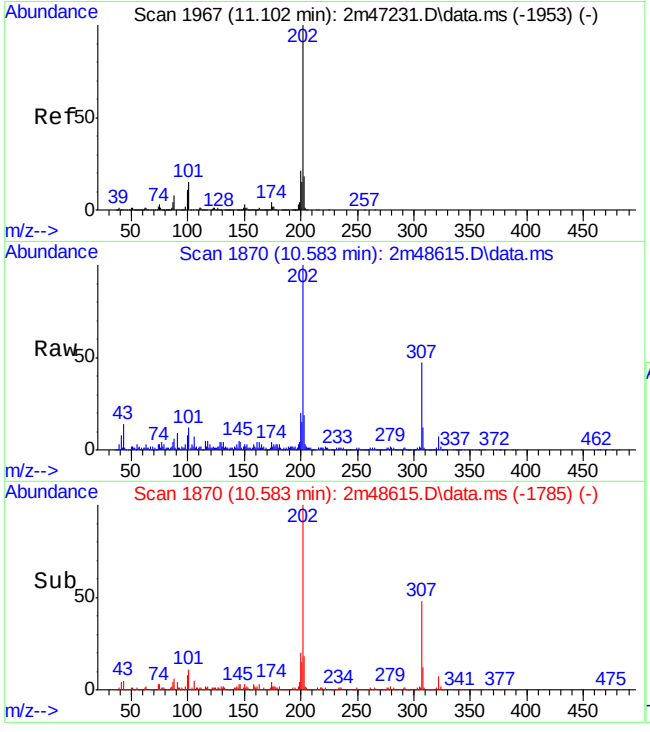


#77
Phenanthrene
Concen: 4.27 ppb
RT: 8.754 min Scan# 1528
Delta R.T. 0.000 min
Lab File: 2m48615.D
Acq: 19 Dec 2012 2:22 pm

Tgt Ion:178 Resp: 143500

Ion	Ratio	Lower	Upper
178	100		
179	10.6	0.0	44.7
176	19.8	0.0	48.7

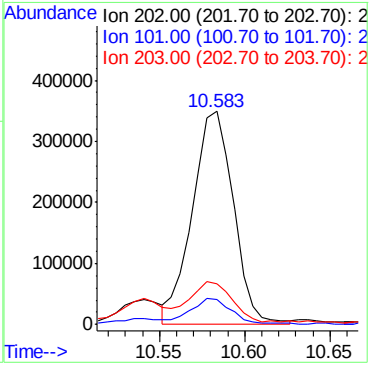


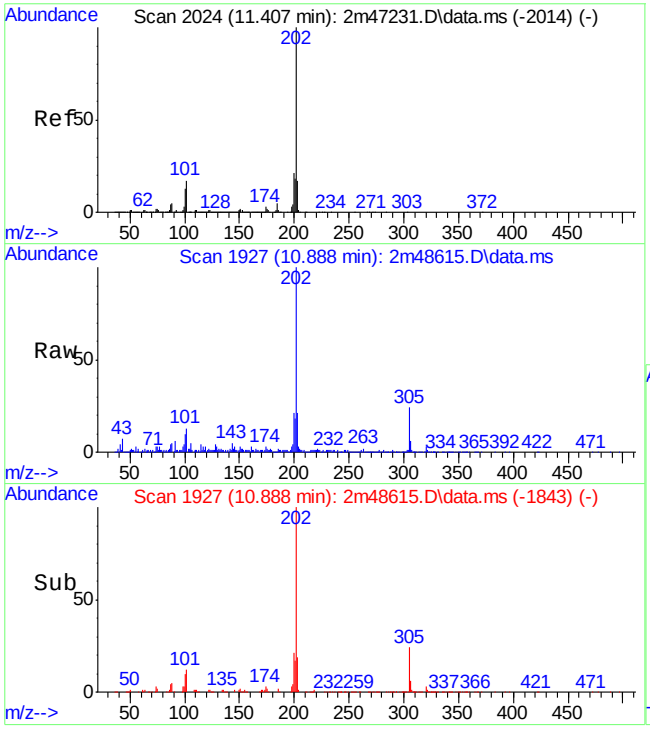


#81
Fluoranthene
Concen: 17.52 ppb m
RT: 10.583 min Scan# 1870
Delta R.T. -0.043 min
Lab File: 2m48615.D
Acq: 19 Dec 2012 2:22 pm

Tgt Ion:202 Resp: 581196

Ion	Ratio	Lower	Upper
202	100		
101	11.6	0.0	42.8
203	19.1	0.0	47.6

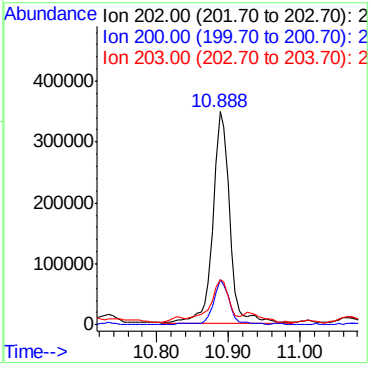


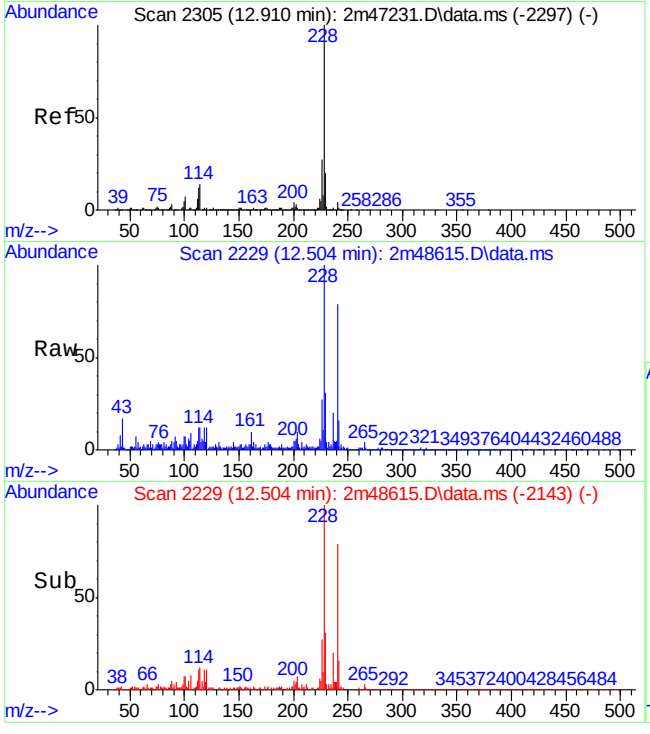


#84
Pyrene
Concen: 16.70 ppb
RT: 10.888 min Scan# 1927
Delta R.T. -0.048 min
Lab File: 2m48615.D
Acq: 19 Dec 2012 2:22 pm

Tgt Ion:202 Resp: 562506

Ion	Ratio	Lower	Upper
202	100		
200	21.1	0.0	50.1
203	20.3	0.0	46.9

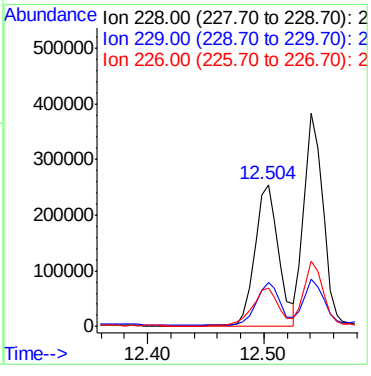


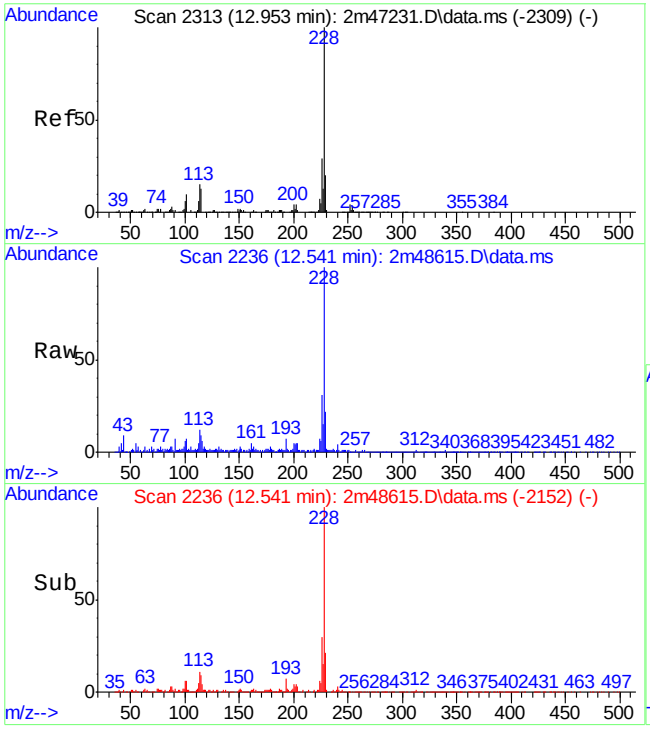


#88
Benzo[a]anthracene
Concen: 11.20 ppb
RT: 12.504 min Scan# 2229
Delta R.T. -0.037 min
Lab File: 2m48615.D
Acq: 19 Dec 2012 2:22 pm

Tgt Ion:228 Resp: 358787

Ion	Ratio	Lower	Upper
228	100		
229	30.2	0.0	50.0
226	26.1	0.0	56.0

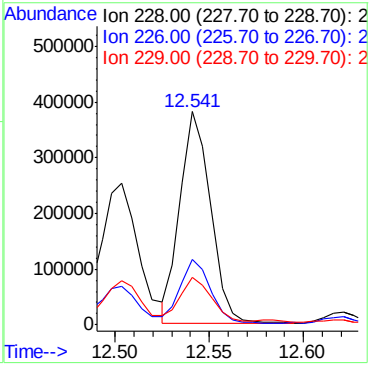


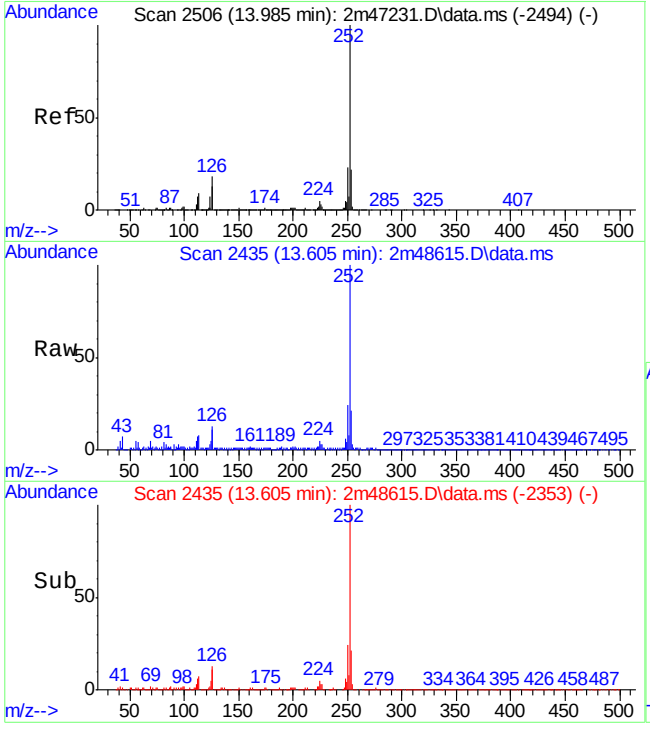


#90
Chrysene
Concen: 13.70 ppb
RT: 12.541 min Scan# 2236
Delta R.T. -0.048 min
Lab File: 2m48615.D
Acq: 19 Dec 2012 2:22 pm

Tgt Ion:228 Resp: 434852

Ion	Ratio	Lower	Upper
228	100		
226	29.9	0.0	57.7
229	20.5	0.0	50.0

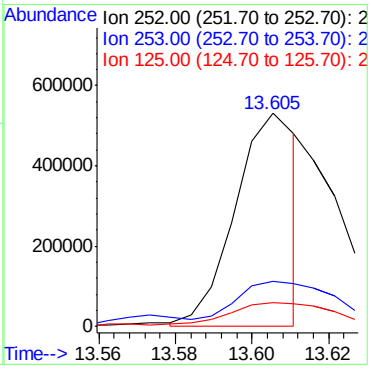


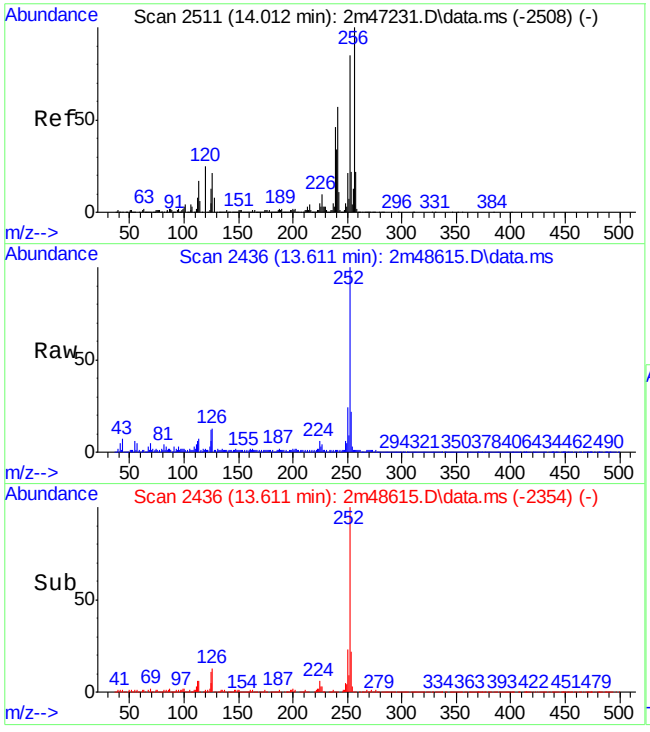


#94
Benzo[b]fluoranthene
Concen: 19.67 ppb m
RT: 13.605 min Scan# 2435
Delta R.T. -0.059 min
Lab File: 2m48615.D
Acq: 19 Dec 2012 2:22 pm

Tgt Ion:252 Resp: 594400

Ion	Ratio	Lower	Upper
252	100		
253	21.3	0.0	53.8
125	11.2	0.0	41.1

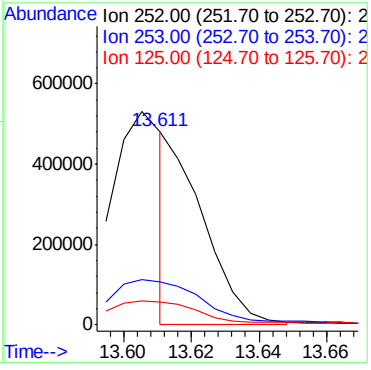


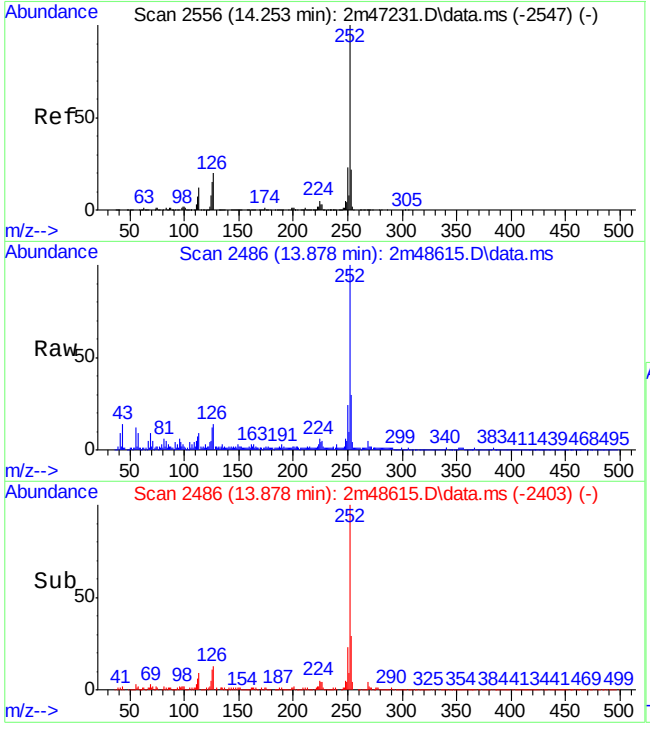


#95
Benzo[k]fluoranthene
Concen: 12.37 ppb m
RT: 13.611 min Scan# 2436
Delta R.T. -0.059 min
Lab File: 2m48615.D
Acq: 19 Dec 2012 2:22 pm

Tgt Ion:252 Resp: 336498

Ion	Ratio	Lower	Upper
252	100		
253	22.3	0.0	51.1
125	11.6	0.0	40.8

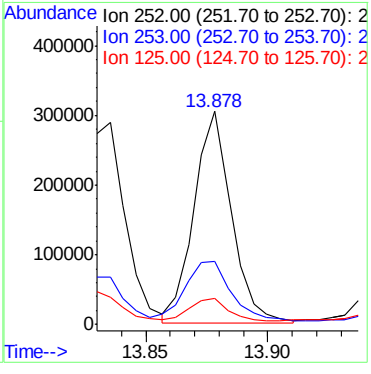




#96
Benzo[a]pyrene
Concen: 12.58 ppb
RT: 13.878 min Scan# 2486
Delta R.T. -0.053 min
Lab File: 2m48615.D
Acq: 19 Dec 2012 2:22 pm

Tgt Ion:252 Resp: 322800

Ion	Ratio	Lower	Upper
252	100		
253	26.9	0.0	51.7
125	10.6	0.0	43.4



9.1.7

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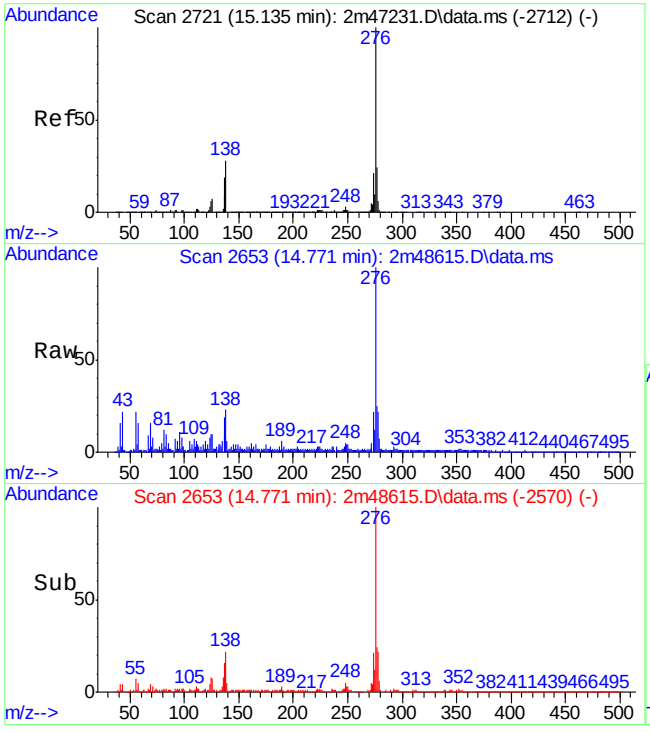
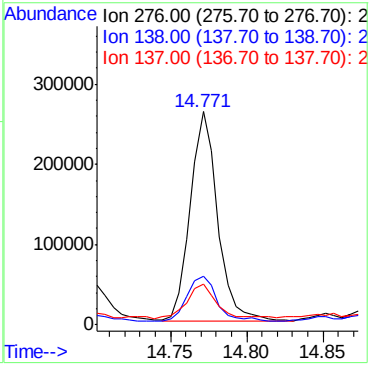
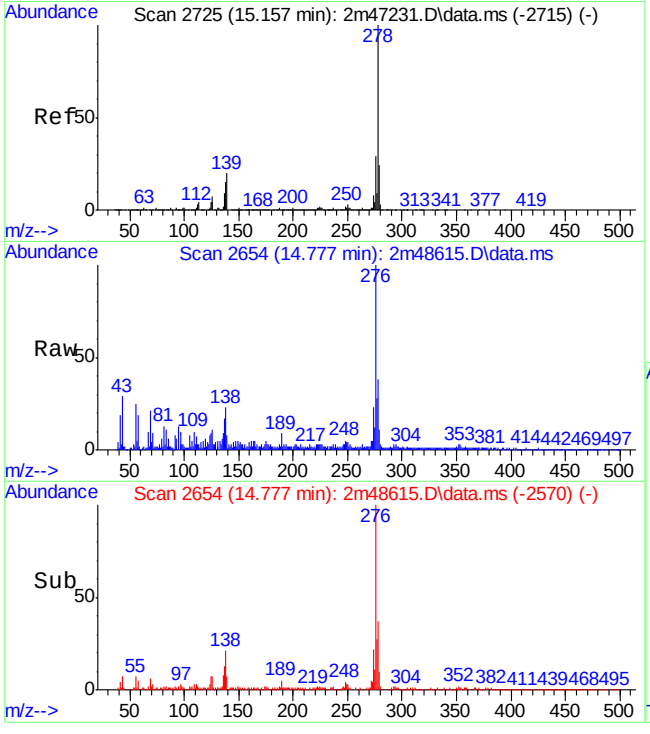


#97
Indeno[1,2,3-cd]pyrene
Concen: 10.95 ppb
RT: 14.771 min Scan# 2653
Delta R.T. -0.053 min
Lab File: 2m48615.D
Acq: 19 Dec 2012 2:22 pm

Tgt Ion:276 Resp: 326467

Ion	Ratio	Lower	Upper
276	100		
138	21.4	0.0	58.7
137	15.4	0.0	49.9

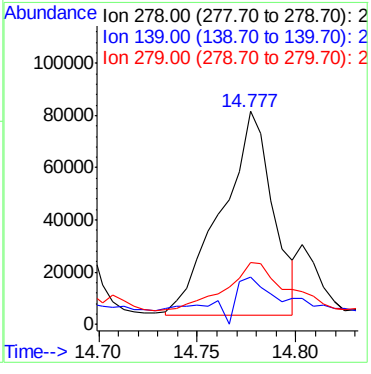


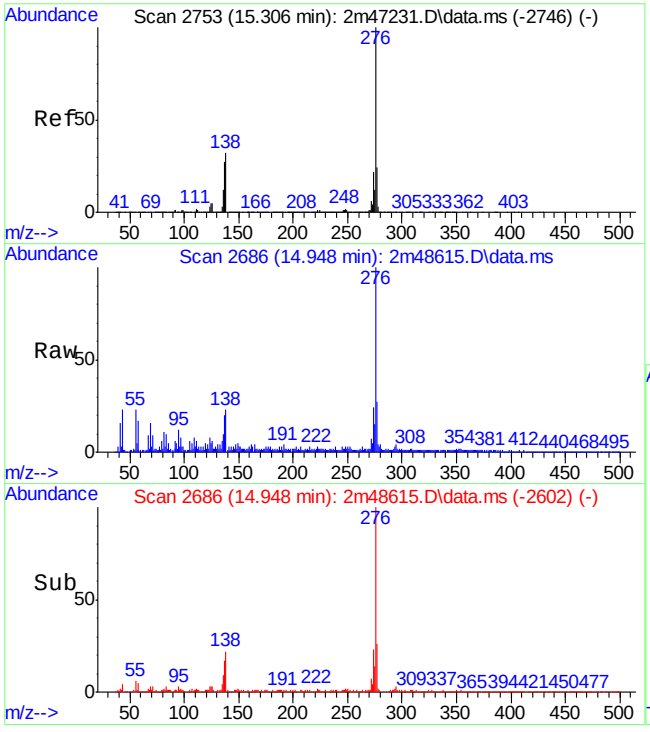


#99
Dibenz[a,h]anthracene
Concen: 5.68 ppb m
RT: 14.777 min Scan# 2654
Delta R.T. -0.048 min
Lab File: 2m48615.D
Acq: 19 Dec 2012 2:22 pm

Tgt Ion:278 Resp: 142171

Ion	Ratio	Lower	Upper
278	100		
139	22.5	0.0	49.7
279	29.0	0.0	53.7

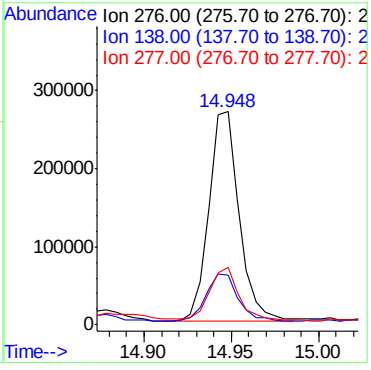




#101
Benzo[g,h,i]perylene
Concen: 12.73 ppb
RT: 14.948 min Scan# 2686
Delta R.T. -0.048 min
Lab File: 2m48615.D
Acq: 19 Dec 2012 2:22 pm

Tgt Ion:276 Resp: 323964

Ion	Ratio	Lower	Upper
276	100		
138	21.9	0.0	56.7
277	24.9	0.0	53.6



9.1.7

9

Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 12/21/12 18:23

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48631.D
Acq On : 19 Dec 2012 8:31 pm
Operator : olgaa
Sample : jb22962-5cfi
Misc : op62064,e2m2082,32.7,,,1,2
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Dec 20 12:11:16 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.400	152	187060	40.00	ppb	0.01
24) Naphthalene-d8	4.074	136	466060	40.00	ppb	0.16
47) Acenaphthene-d10	6.508	164	529608	40.00	ppb	0.03
69) Phenanthrene-d10	8.733	188	931042	40.00	ppb	0.03
83) Chrysene-d12	12.536	240	956150	40.00	ppb	0.01
92) Perylene-d12	13.948	264	844418	40.00	ppb	0.02
102) 1,4-Dichlorobenzene-d4a	2.400	152	187060	40.00	ppb	0.01
104) Acenaphthene-d10a	6.508	164	529608	40.00	ppb	0.03
106) Chrysene-d12a	12.536	240	956150	40.00	ppb	0.01
108) Phenanthrene-d10a	8.733	188	931042	40.00	ppb	0.03
110) Chrysene-d12b	12.536	240	956150	40.00	ppb	0.01

System Monitoring Compounds						
5) 2-Fluorophenol	1.448	112	60263	8.85	ppb	0.02
Spiked Amount 50.000			Recovery	=	17.70%	
8) Phenol-d5	2.256	99	105852	11.60	ppb	0.04
Spiked Amount 50.000			Recovery	=	23.20%	
25) Nitrobenzene-d5	3.085	82	117687	23.53	ppb	0.02
Spiked Amount 50.000			Recovery	=	47.06%	
51) 2-Fluorobiphenyl	5.663	172	261524m	15.02	ppb	0.10
Spiked Amount 50.000			Recovery	=	30.04%	
73) 2,4,6-Tribromophenol	7.770	330	45720	20.90	ppb	0.03
Spiked Amount 50.000			Recovery	=	41.80%	
85) Terphenyl-d14	11.300	244	329226	17.04	ppb	0.01
Spiked Amount 50.000			Recovery	=	34.08%	

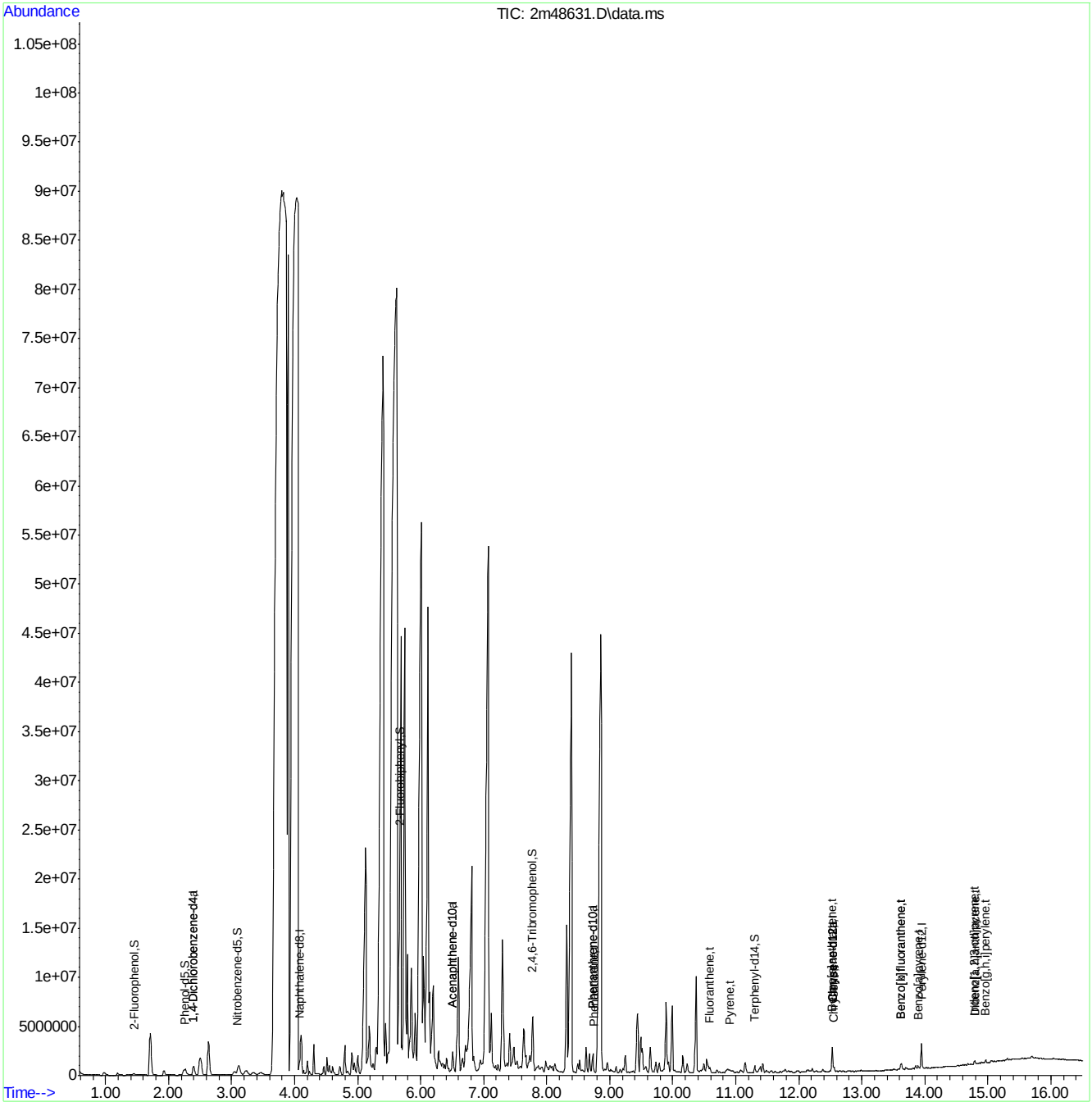
Target Compounds						Qvalue
77) Phenanthrene	8.760	178	58065	2.04	ppb	96
81) Fluoranthene	10.594	202	206144	7.33	ppb	94
84) Pyrene	10.904	202	217221	7.02	ppb	96
88) Benzo[a]anthracene	12.520	228	147703	5.02	ppb	91
90) Chrysene	12.557	228	181776	6.23	ppb	97
94) Benzo[b]fluoranthene	13.621	252	231229m	7.87	ppb	
95) Benzo[k]fluoranthene	13.627	252	158396m	5.99	ppb	
96) Benzo[a]pyrene	13.894	252	134401	5.38	ppb	87
97) Indeno[1,2,3-cd]pyrene	14.787	276	136697	4.71	ppb	85
99) Dibenz[a,h]anthracene	14.798	278	59104m	2.43	ppb	
101) Benzo[g,h,i]perylene	14.964	276	129244	5.22	ppb	90

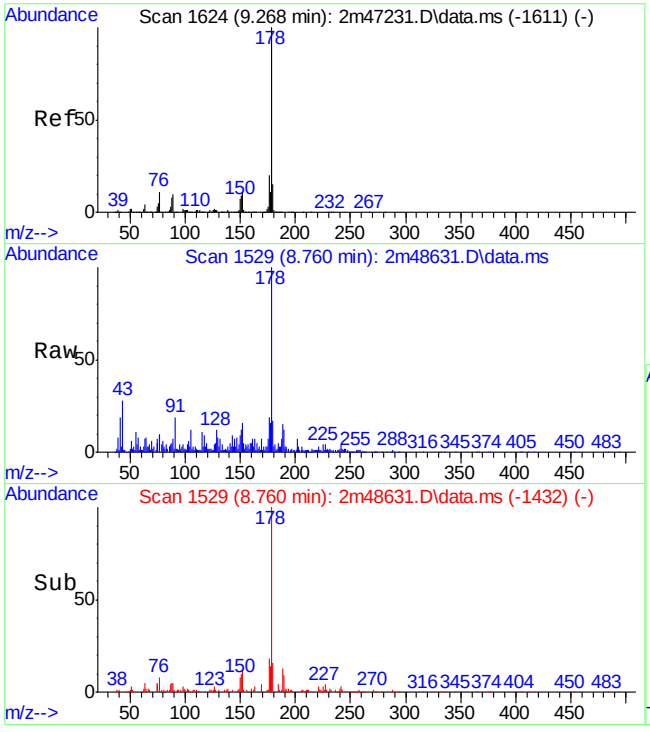
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48631.D
Acq On : 19 Dec 2012 8:31 pm
Operator : olgaa
Sample : jb22962-5cfi
Misc : op62064,e2m2082,32.7,,,1,2
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Dec 20 12:11:16 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration

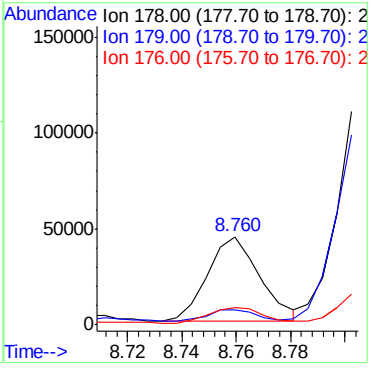


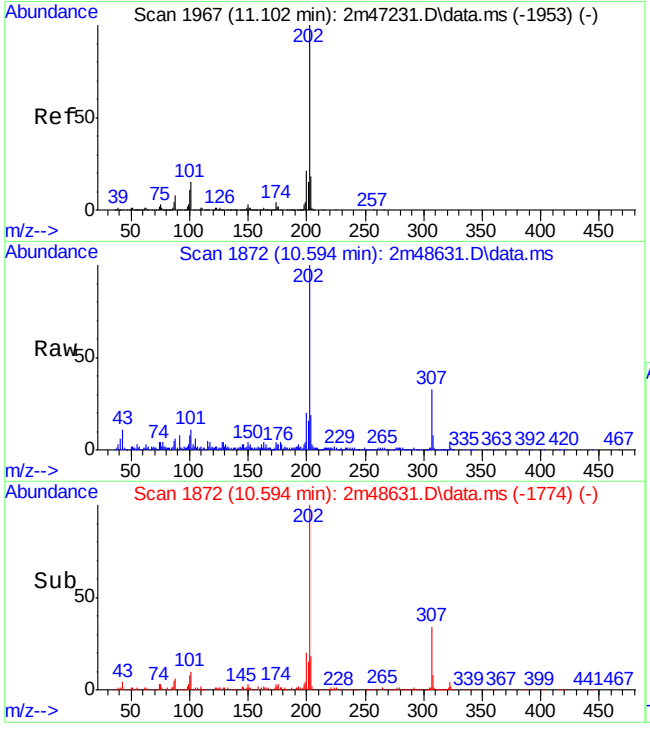


#77
Phenanthrene
Concen: 2.04 ppb
RT: 8.760 min Scan# 1529
Delta R.T. 0.016 min
Lab File: 2m48631.D
Acq: 19 Dec 2012 8:31 pm

Tgt Ion:178 Resp: 58065

Ion	Ratio	Lower	Upper
178	100		
179	12.6	0.0	44.9
176	18.2	0.0	49.1

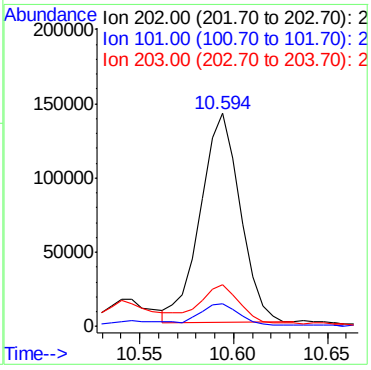




#81
Fluoranthene
Concen: 7.33 ppb
RT: 10.594 min Scan# 1872
Delta R.T. 0.021 min
Lab File: 2m48631.D
Acq: 19 Dec 2012 8:31 pm

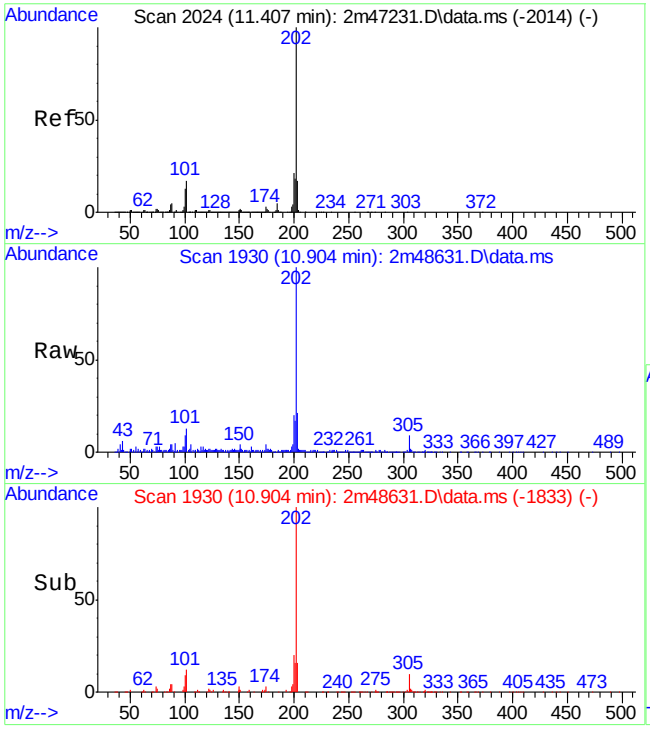
Tgt Ion:202 Resp: 206144

Ion	Ratio	Lower	Upper
202	100		
101	9.8	0.0	43.8
203	16.3	0.0	47.5



9.1.8

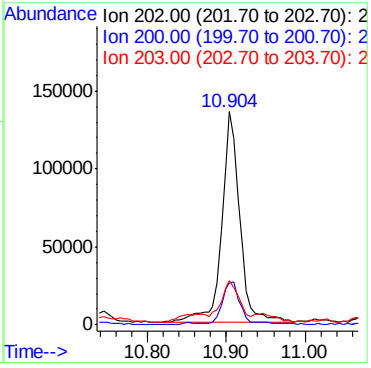
9

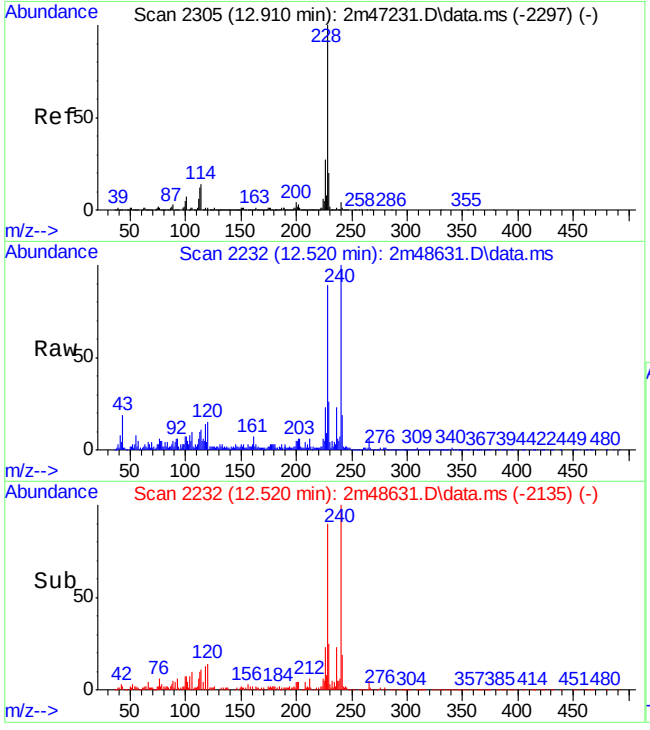


#84
Pyrene
Concen: 7.02 ppb
RT: 10.904 min Scan# 1930
Delta R.T. 0.016 min
Lab File: 2m48631.D
Acq: 19 Dec 2012 8:31 pm

Tgt Ion:202 Resp: 217221

Ion	Ratio	Lower	Upper
202	100		
200	19.5	0.0	51.3
203	19.5	0.0	47.6

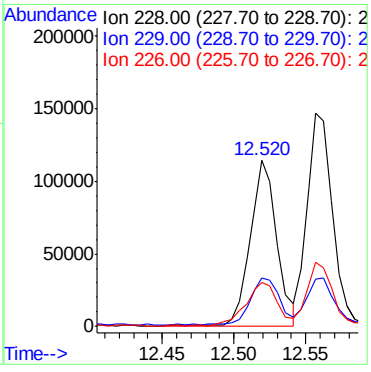




#88
Benzo[a]anthracene
Concen: 5.02 ppb
RT: 12.520 min Scan# 2232
Delta R.T. 0.016 min
Lab File: 2m48631.D
Acq: 19 Dec 2012 8:31 pm

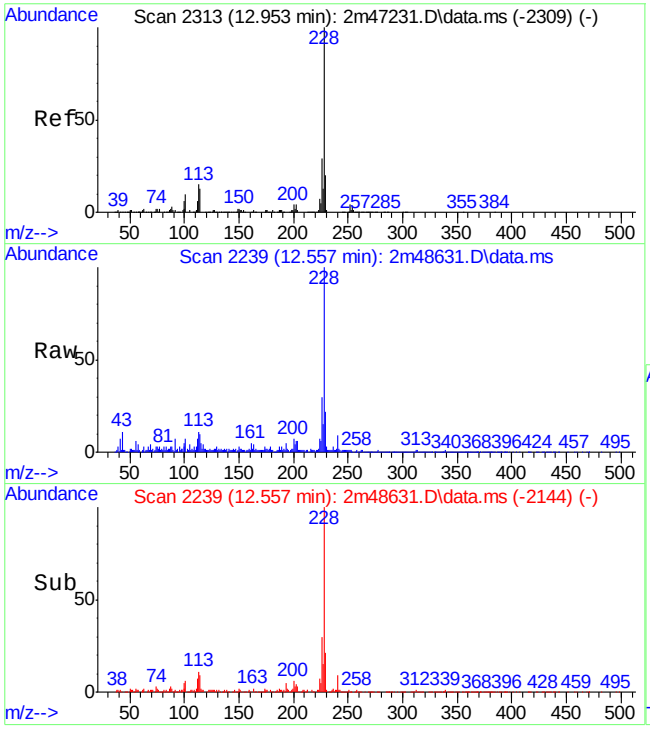
Tgt Ion:228 Resp: 147703

Ion	Ratio	Lower	Upper
228	100		
229	28.1	0.0	49.3
226	25.1	0.0	56.0



9.1.8

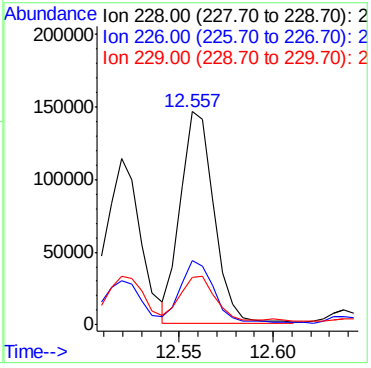
9

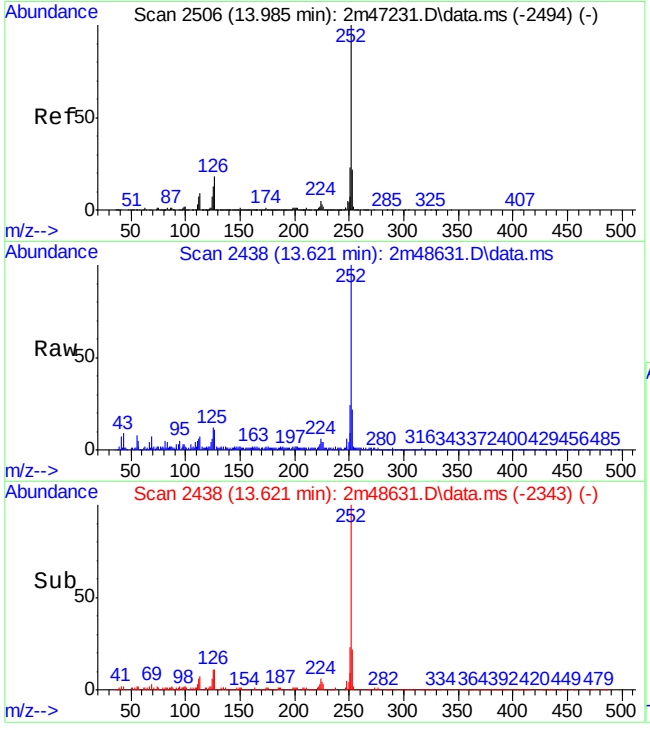


#90
Chrysene
Concen: 6.23 ppb
RT: 12.557 min Scan# 2239
Delta R.T. 0.005 min
Lab File: 2m48631.D
Acq: 19 Dec 2012 8:31 pm

Tgt Ion:228 Resp: 181776

Ion	Ratio	Lower	Upper
228	100		
226	29.4	0.0	57.7
229	20.3	0.0	49.3

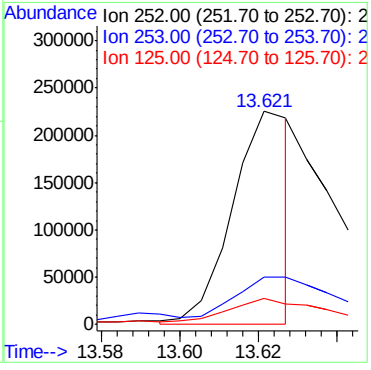




#94
Benzo[b]fluoranthene
Concen: 7.87 ppb m
RT: 13.621 min Scan# 2438
Delta R.T. 0.005 min
Lab File: 2m48631.D
Acq: 19 Dec 2012 8:31 pm

Tgt Ion:252 Resp: 231229

Ion	Ratio	Lower	Upper
252	100		
253	22.3	0.0	51.6
125	12.2	0.0	40.1



9.1.8

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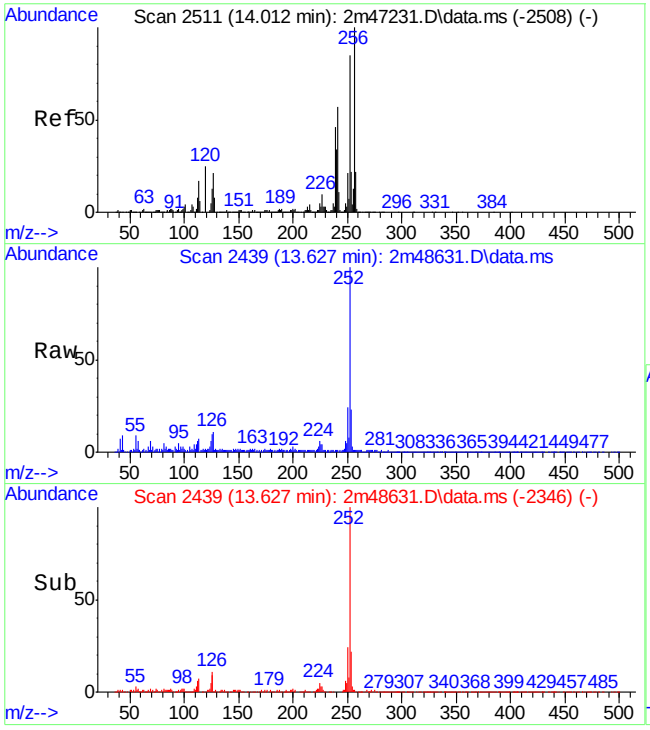
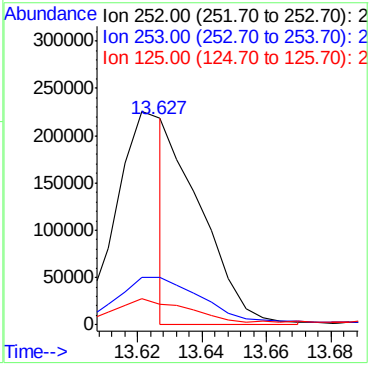
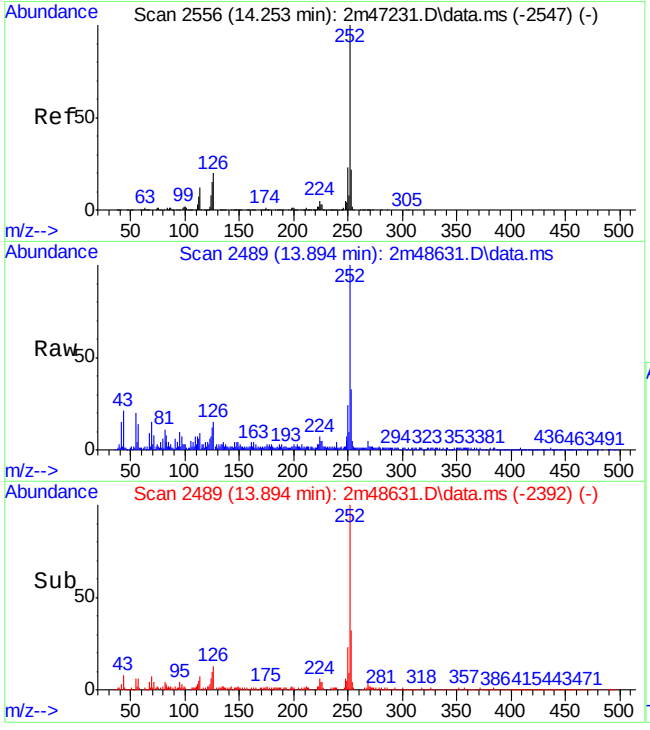


#95
Benzo[k]fluoranthene
Concen: 5.99 ppb m
RT: 13.627 min Scan# 2439
Delta R.T. -0.005 min
Lab File: 2m48631.D
Acq: 19 Dec 2012 8:31 pm

Tgt Ion:252 Resp: 158396

Ion	Ratio	Lower	Upper
252	100		
253	23.1	0.0	52.7
125	10.1	0.0	42.9

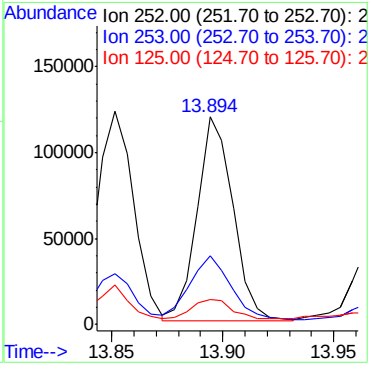


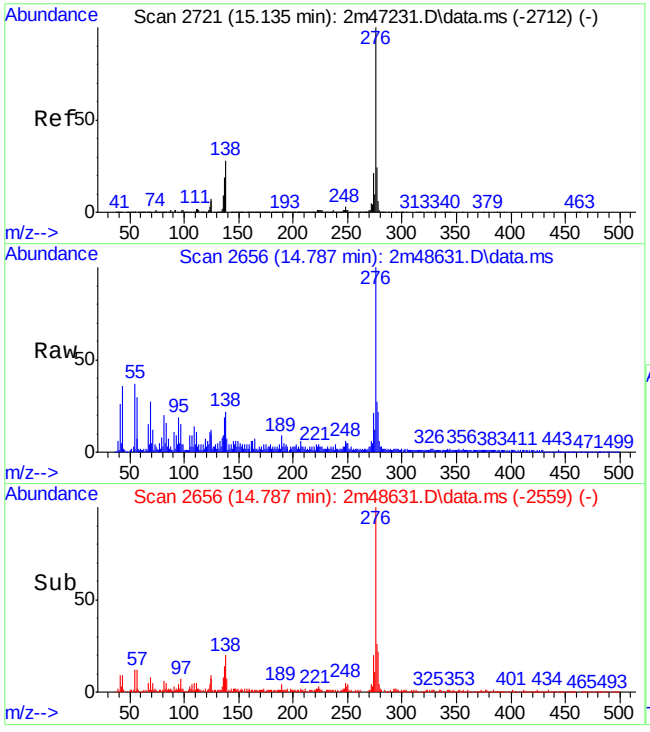


#96
Benzo[a]pyrene
Concen: 5.38 ppb
RT: 13.894 min Scan# 2489
Delta R.T. 0.016 min
Lab File: 2m48631.D
Acq: 19 Dec 2012 8:31 pm

Tgt Ion:252 Resp: 134401

Ion	Ratio	Lower	Upper
252	100		
253	30.3	0.0	52.4
125	9.8	0.0	42.7

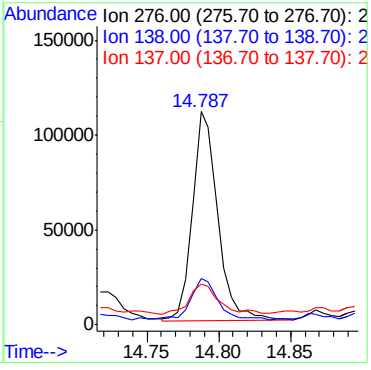


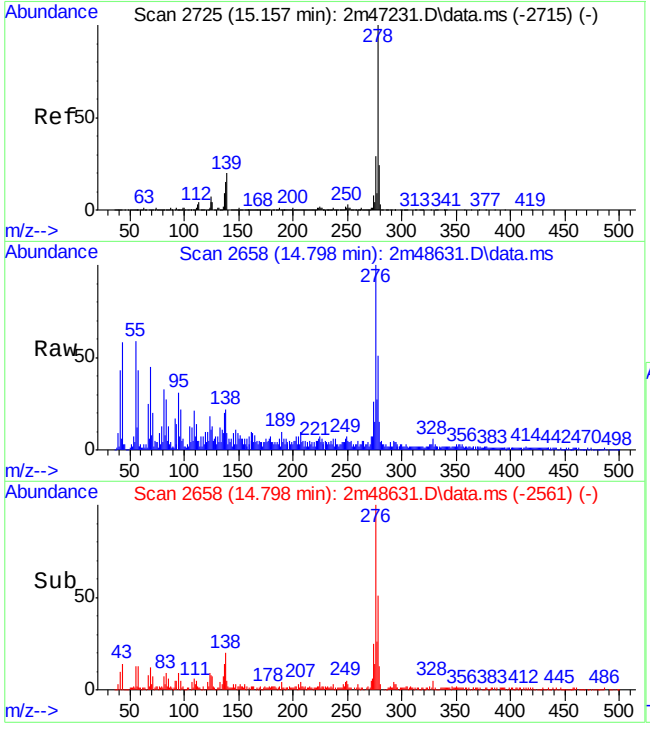


#97
Indeno[1,2,3-cd]pyrene
Concen: 4.71 ppb
RT: 14.787 min Scan# 2656
Delta R.T. 0.016 min
Lab File: 2m48631.D
Acq: 19 Dec 2012 8:31 pm

Tgt Ion:276 Resp: 136697

Ion	Ratio	Lower	Upper
276	100		
138	19.0	0.0	57.6
137	13.6	0.0	48.9

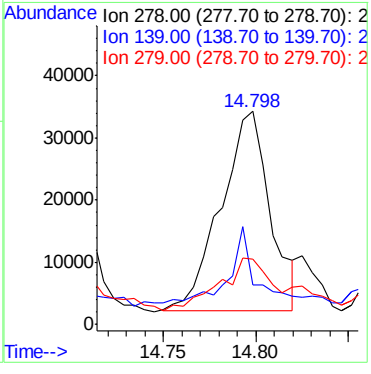


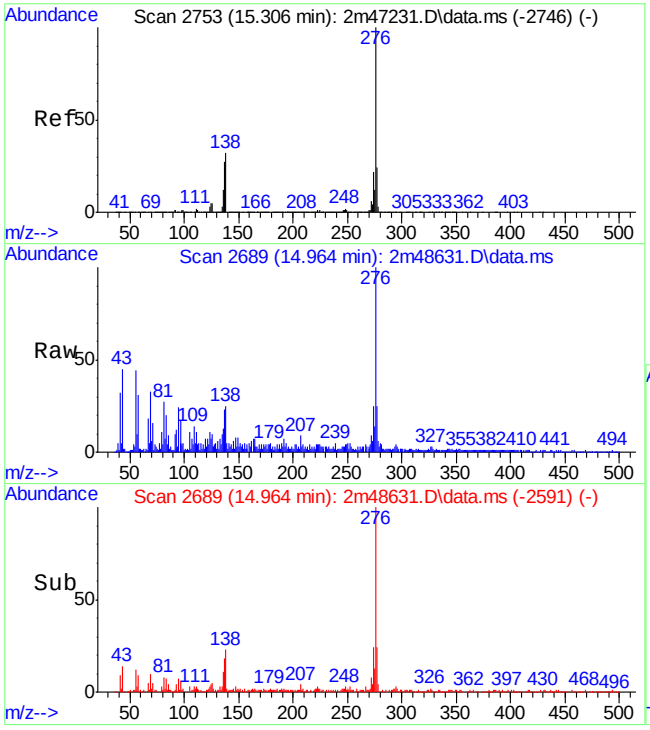


#99
Dibenz[a,h]anthracene
Concen: 2.43 ppb m
RT: 14.798 min Scan# 2658
Delta R.T. 0.016 min
Lab File: 2m48631.D
Acq: 19 Dec 2012 8:31 pm

Tgt Ion:278 Resp: 59104

Ion	Ratio	Lower	Upper
278	100		
139	18.4	0.0	52.4
279	30.4	0.0	54.1

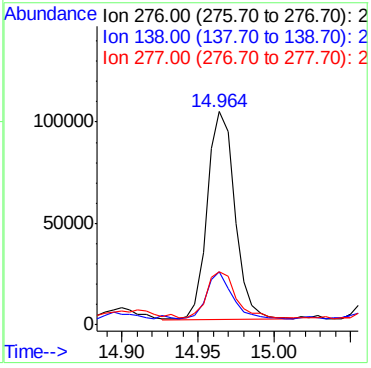




#101
Benzo[g,h,i]perylene
Concen: 5.22 ppb
RT: 14.964 min Scan# 2689
Delta R.T. 0.022 min
Lab File: 2m48631.D
Acq: 19 Dec 2012 8:31 pm

Tgt Ion:276 Resp: 129244

Ion	Ratio	Lower	Upper
276	100		
138	21.7	0.1	60.1
277	21.8	0.0	53.2



9.1.8

9

Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 12/21/12 18:23

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48623.D
Acq On : 19 Dec 2012 5:27 pm
Operator : olgaa
Sample : jb22962-6
Misc : op62064,e2m2082,33.3
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Dec 23 08:14:59 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.384	152	199553	40.00 ppb	0.00
24) Naphthalene-d8	3.935	136	925437	40.00 ppb	0.02
47) Acenaphthene-d10	6.481	164	634623	40.00 ppb	0.00
69) Phenanthrene-d10	8.711	188	1042400	40.00 ppb	0.00
83) Chrysene-d12	12.530	240	963093	40.00 ppb	0.00
92) Perylene-d12	13.948	264	864184	40.00 ppb	0.02
102) 1,4-Dichlorobenzene-d4a	2.384	152	199553	40.00 ppb	0.00
104) Acenaphthene-d10a	6.481	164	634623	40.00 ppb	0.00
106) Chrysene-d12a	12.530	240	963093	40.00 ppb	0.00
108) Phenanthrene-d10a	8.711	188	1042400	40.00 ppb	0.00
110) Chrysene-d12b	12.530	240	963093	40.00 ppb	0.00
System Monitoring Compounds					
5) 2-Fluorophenol	1.437	112	130221	17.93 ppb	0.01
Spiked Amount 50.000			Recovery	= 35.86%	
8) Phenol-d5	2.250	99	226204	23.24 ppb	0.03
Spiked Amount 50.000			Recovery	= 46.48%	
25) Nitrobenzene-d5	3.063	82	202494	20.39 ppb	0.00
Spiked Amount 50.000			Recovery	= 40.78%	
51) 2-Fluorobiphenyl	5.582	172	486517	23.31 ppb	0.02
Spiked Amount 50.000			Recovery	= 46.62%	
73) 2,4,6-Tribromophenol	7.743	330	72944	29.78 ppb	0.00
Spiked Amount 50.000			Recovery	= 59.56%	
85) Terphenyl-d14	11.295	244	537340	27.61 ppb	0.00
Spiked Amount 50.000			Recovery	= 55.22%	

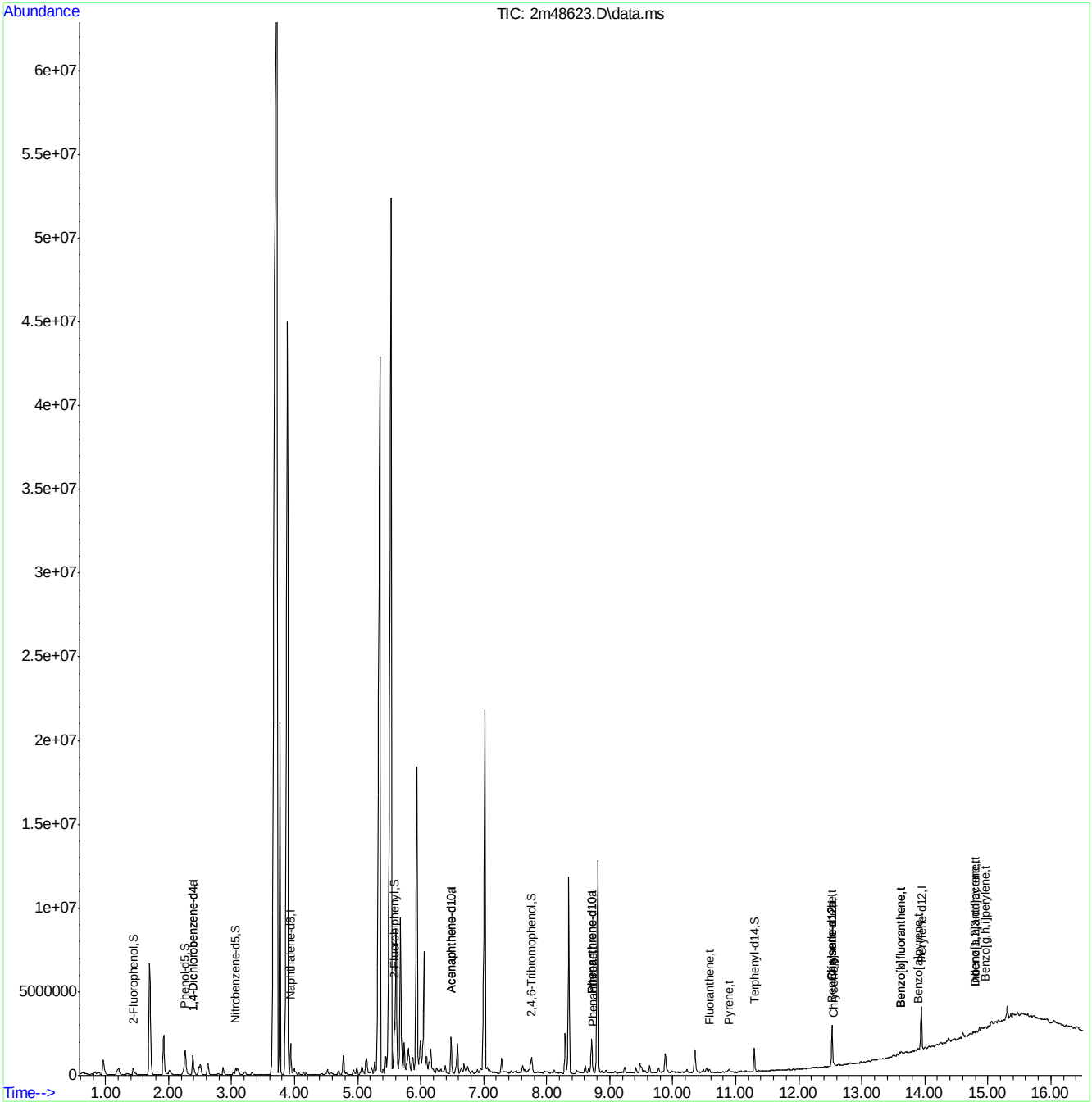
Target Compounds					Qvalue
77) Phenanthrene	8.743	178	37771	1.18 ppb	97
81) Fluoranthene	10.583	202	99037	3.15 ppb	92
84) Pyrene	10.894	202	112623	3.62 ppb	97
88) Benzo[a]anthracene	12.514	228	62060	2.09 ppb	93
90) Chrysene	12.557	228	62593	2.13 ppb	95
94) Benzo[b]fluoranthene	13.627	252	61966m	2.06 ppb	
95) Benzo[k]fluoranthene	13.627	252	36682m	1.35 ppb	
96) Benzo[a]pyrene	13.894	252	48021	1.88 ppb	94
97) Indeno[1,2,3-cd]pyrene	14.793	276	37569	1.27 ppb	82
99) Dibenz[a,h]anthracene	14.798	278	16750	0.67 ppb	94
101) Benzo[g,h,i]perylene	14.964	276	37841	1.49 ppb	92

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

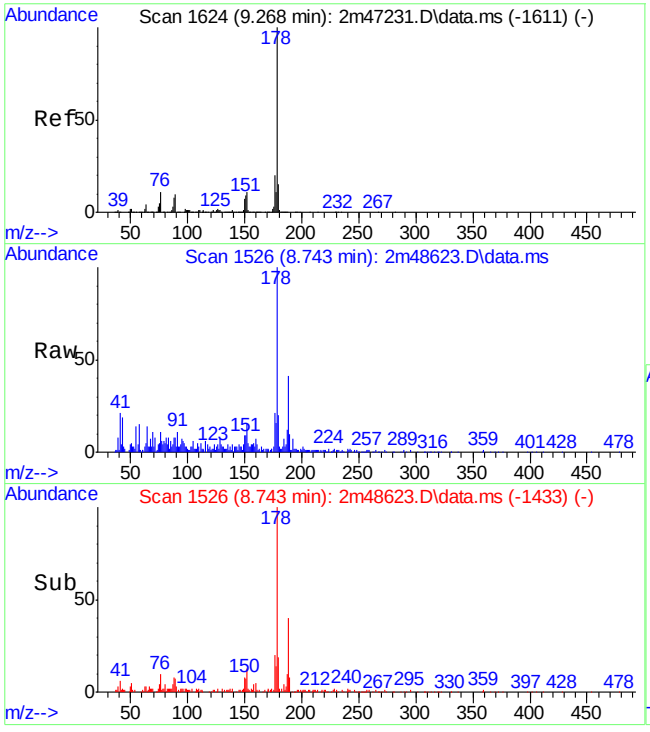
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48623.D
Acq On : 19 Dec 2012 5:27 pm
Operator : olgaa
Sample : jb22962-6
Misc : op62064,e2m2082,33.3
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Dec 23 08:14:59 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration



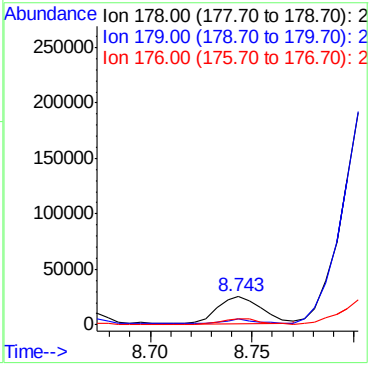
M2M2034.M Sun Dec 23 08:15:08 2012 MS2M Page: 2

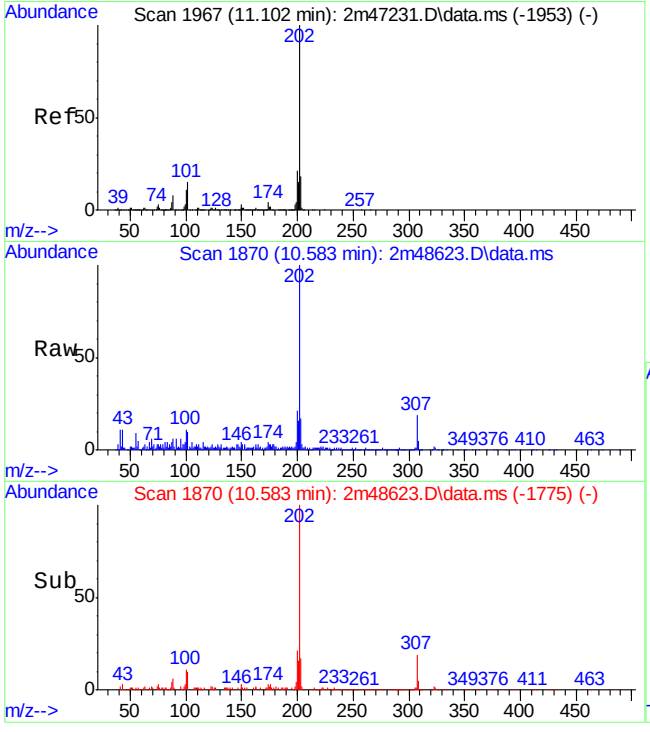


#77
Phenanthrene
Concen: 1.18 ppb
RT: 8.743 min Scan# 1526
Delta R.T. -0.000 min
Lab File: 2m48623.D
Acq: 19 Dec 2012 5:27 pm

Tgt Ion:178 Resp: 37771

Ion	Ratio	Lower	Upper
178	100		
179	15.7	0.0	44.9
176	21.0	0.0	49.1

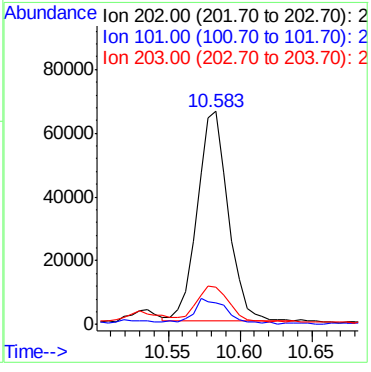


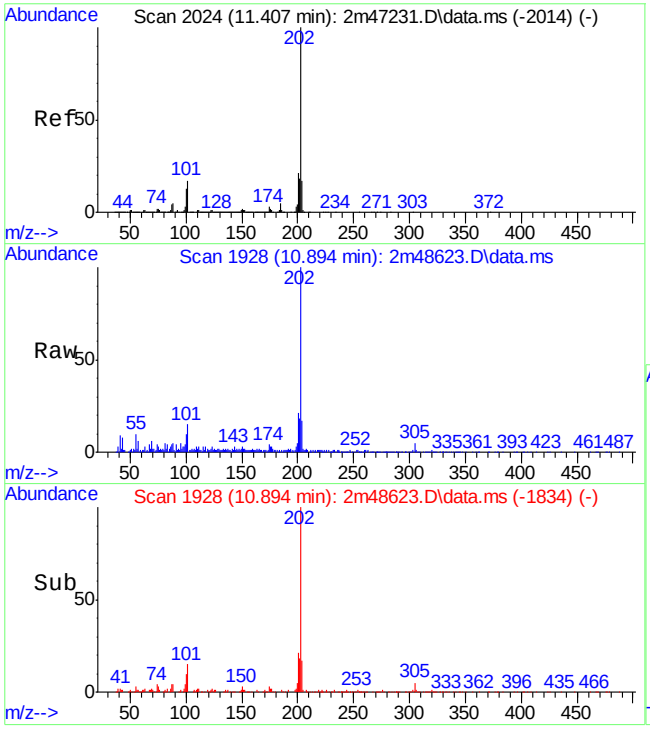


#81
Fluoranthene
Concen: 3.15 ppb
RT: 10.583 min Scan# 1870
Delta R.T. 0.011 min
Lab File: 2m48623.D
Acq: 19 Dec 2012 5:27 pm

Tgt Ion:202 Resp: 99037

Ion	Ratio	Lower	Upper
202	100		
101	9.4	0.0	43.8
203	14.7	0.0	47.5

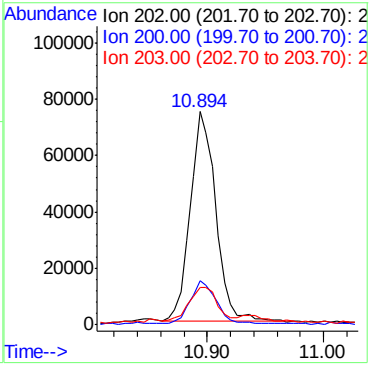


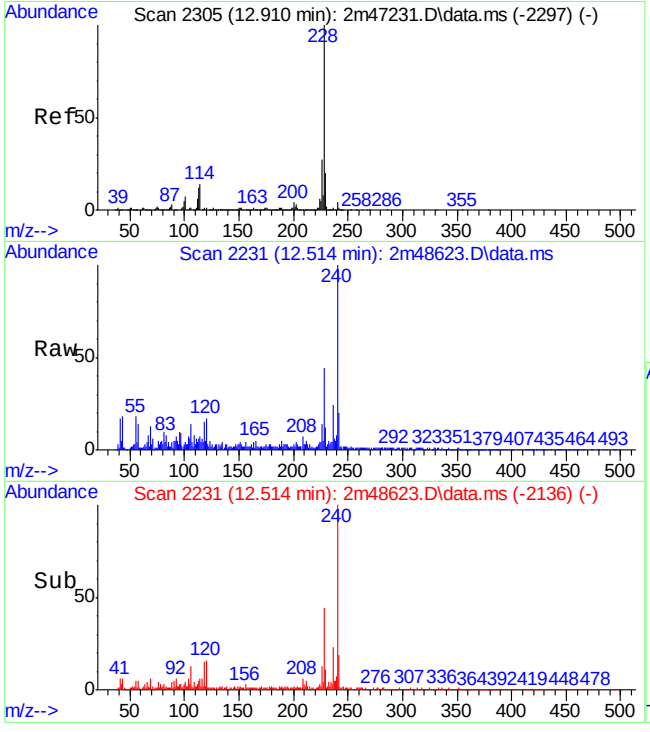


#84
Pyrene
Concen: 3.62 ppb
RT: 10.894 min Scan# 1928
Delta R.T. 0.005 min
Lab File: 2m48623.D
Acq: 19 Dec 2012 5:27 pm

Tgt Ion:202 Resp: 112623

Ion	Ratio	Lower	Upper
202	100		
200	20.3	0.0	51.3
203	16.0	0.0	47.6

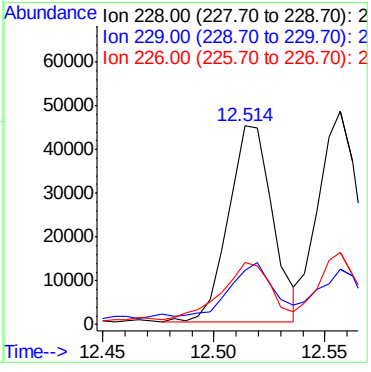




#88
Benzo[a]anthracene
Concen: 2.09 ppb
RT: 12.514 min Scan# 2231
Delta R.T. 0.011 min
Lab File: 2m48623.D
Acq: 19 Dec 2012 5:27 pm

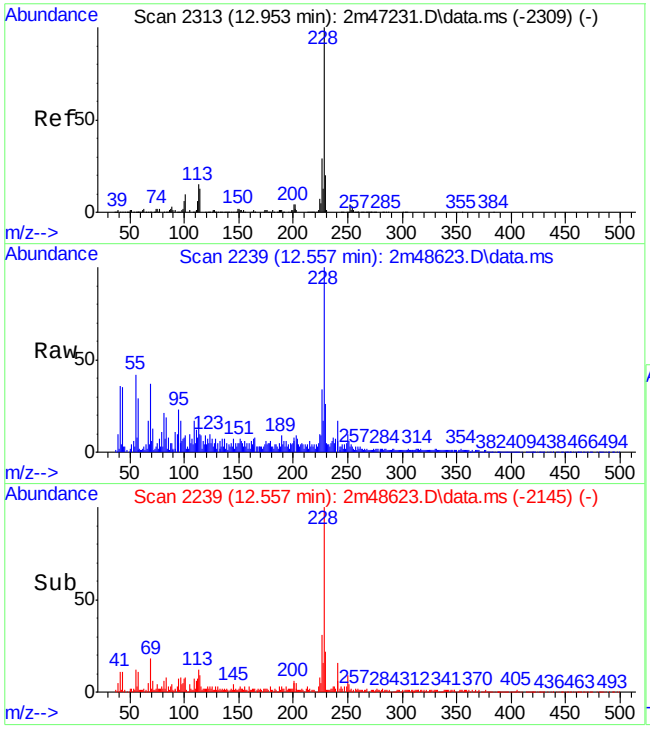
Tgt Ion:228 Resp: 62060

Ion	Ratio	Lower	Upper
228	100		
229	22.3	0.0	49.3
226	29.7	0.0	56.0



9.1.9

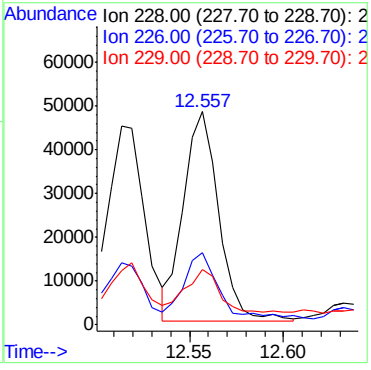
9

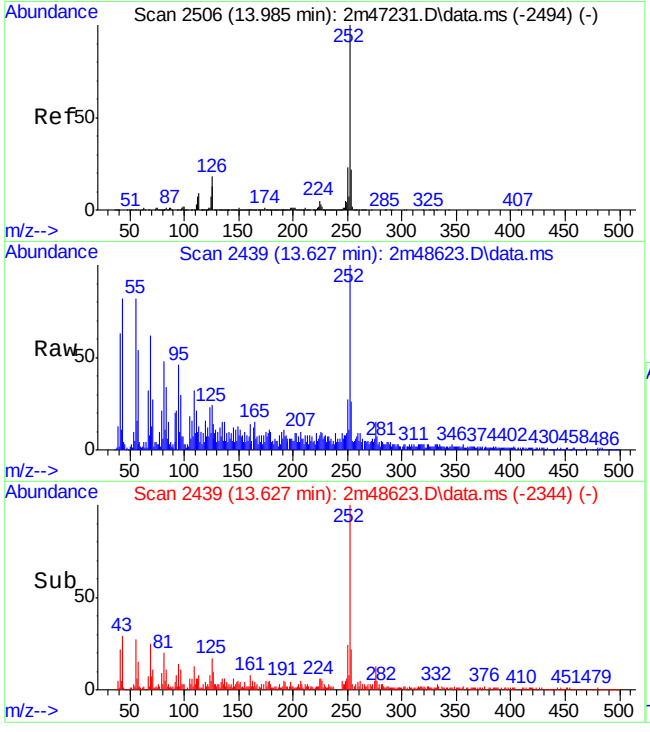


#90
Chrysene
Concen: 2.13 ppb
RT: 12.557 min Scan# 2239
Delta R.T. 0.005 min
Lab File: 2m48623.D
Acq: 19 Dec 2012 5:27 pm

Tgt Ion:228 Resp: 62593

Ion	Ratio	Lower	Upper
228	100		
226	31.8	0.0	57.7
229	20.1	0.0	49.3

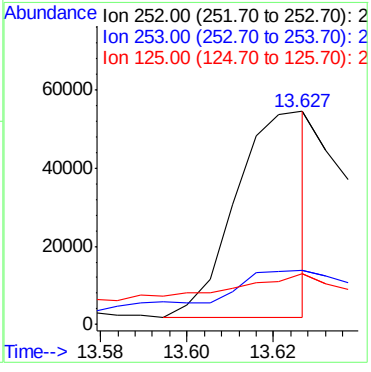


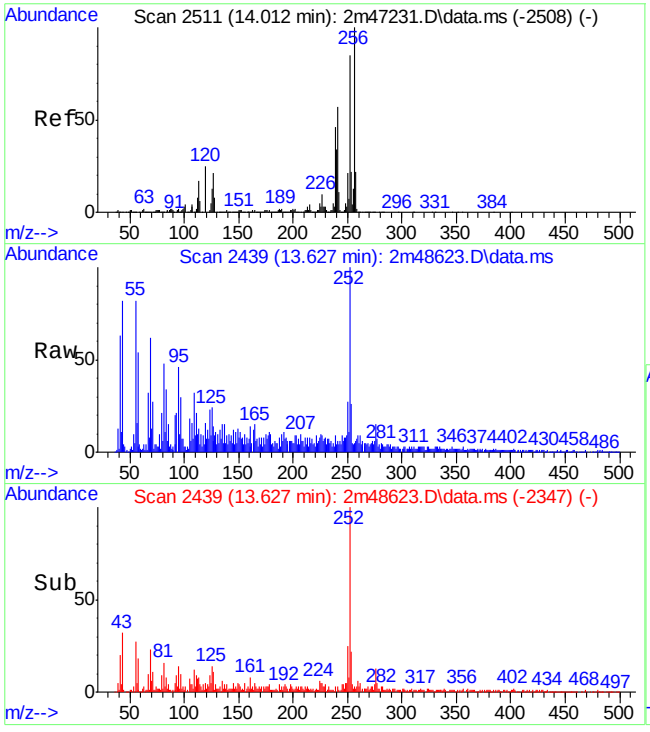


#94
Benzo[b]fluoranthene
Concen: 2.06 ppb m
RT: 13.627 min Scan# 2439
Delta R.T. 0.011 min
Lab File: 2m48623.D
Acq: 19 Dec 2012 5:27 pm

Tgt Ion:252 Resp: 61966

Ion	Ratio	Lower	Upper
252	100		
253	25.6	0.0	51.6
125	23.7	0.0	40.1

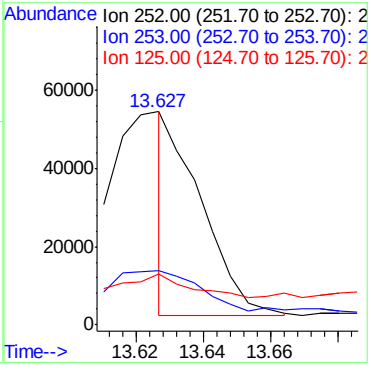


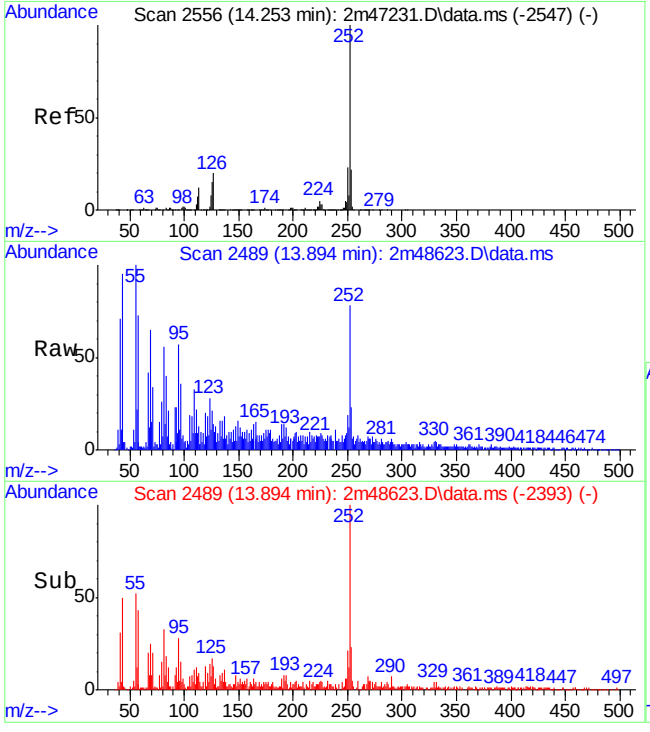


#95
Benzo[k]fluoranthene
Concen: 1.35 ppb m
RT: 13.627 min Scan# 2439
Delta R.T. -0.005 min
Lab File: 2m48623.D
Acq: 19 Dec 2012 5:27 pm

Tgt Ion:252 Resp: 36682

Ion	Ratio	Lower	Upper
252	100		
253	25.6	0.0	52.7
125	23.7	0.0	42.9

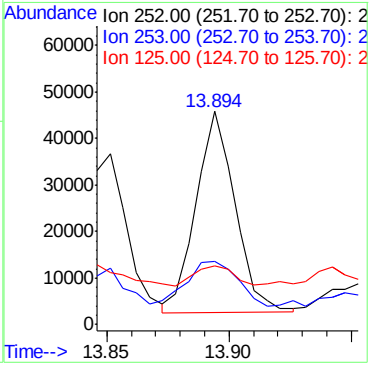


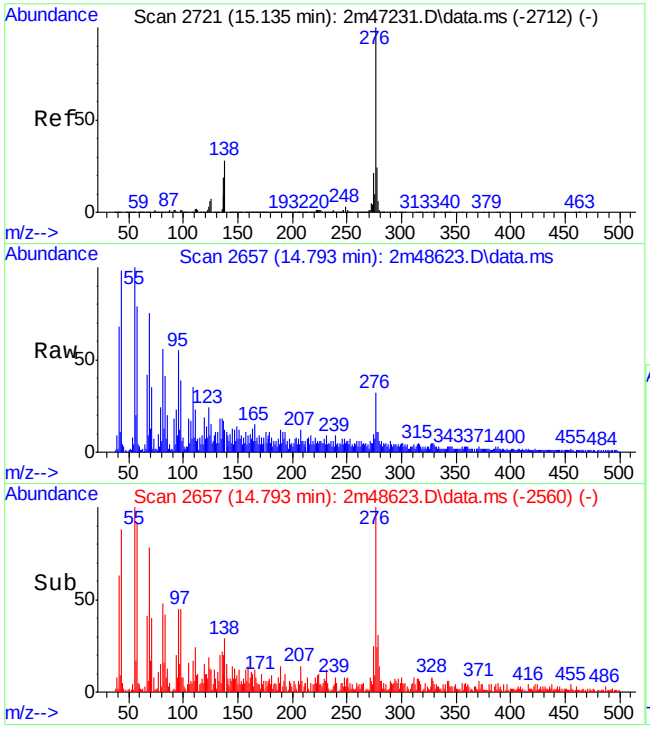


#96
Benzo[a]pyrene
Concen: 1.88 ppb
RT: 13.894 min Scan# 2489
Delta R.T. 0.016 min
Lab File: 2m48623.D
Acq: 19 Dec 2012 5:27 pm

Tgt Ion:252 Resp: 48021

Ion	Ratio	Lower	Upper
252	100		
253	20.5	0.0	52.4
125	9.0	0.0	42.7

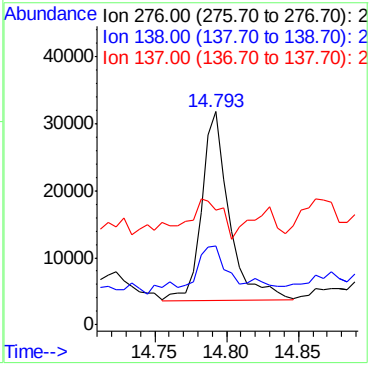


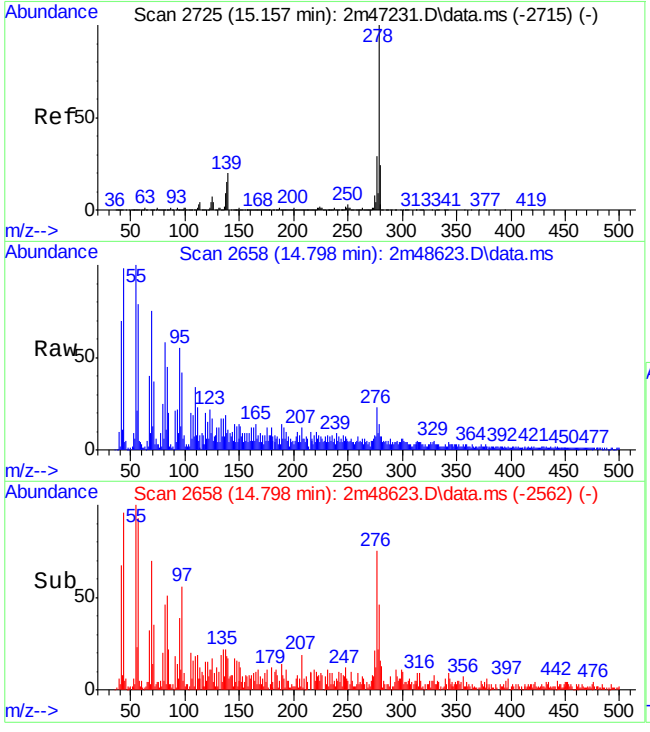


#97
Indeno[1,2,3-cd]pyrene
Concen: 1.27 ppb
RT: 14.793 min Scan# 2657
Delta R.T. 0.021 min
Lab File: 2m48623.D
Acq: 19 Dec 2012 5:27 pm

Tgt Ion:276 Resp: 37569

Ion	Ratio	Lower	Upper
276	100		
138	20.9	0.0	57.6
137	7.3	0.0	48.9

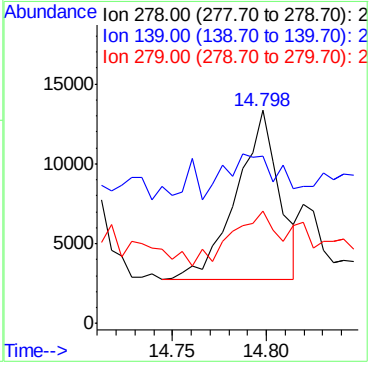


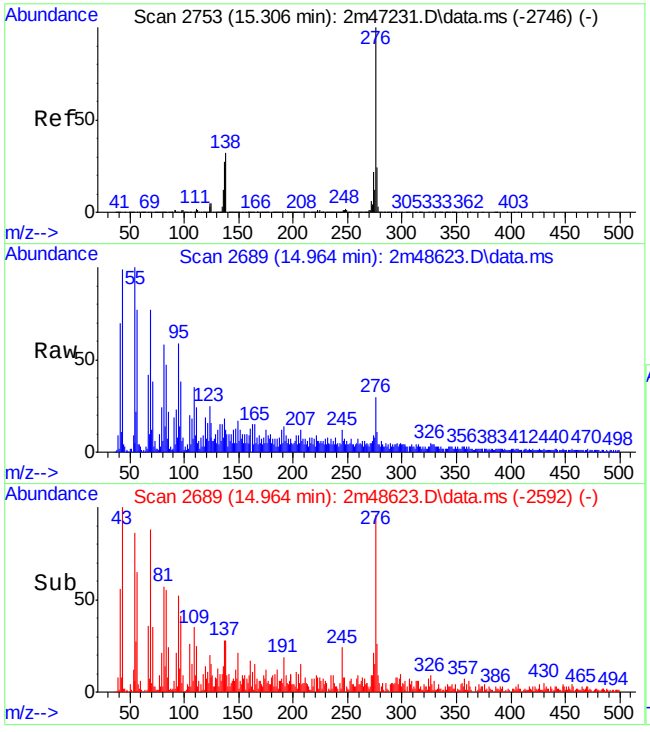


#99
Dibenz[a,h]anthracene
Concen: 0.67 ppb
RT: 14.798 min Scan# 2658
Delta R.T. 0.016 min
Lab File: 2m48623.D
Acq: 19 Dec 2012 5:27 pm

Tgt Ion:278 Resp: 16750

Ion	Ratio	Lower	Upper
278	100		
139	22.2	0.0	52.4
279	18.8	0.0	54.1

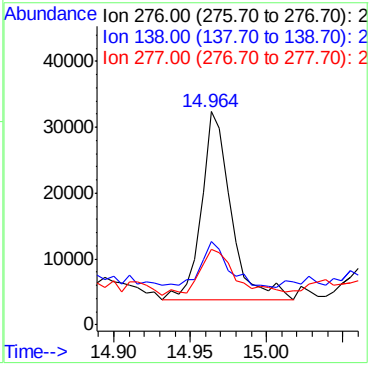




#101
Benzo[g,h,i]perylene
Concen: 1.49 ppb
RT: 14.964 min Scan# 2689
Delta R.T. 0.021 min
Lab File: 2m48623.D
Acq: 19 Dec 2012 5:27 pm

Tgt Ion:276 Resp: 37841

Ion	Ratio	Lower	Upper
276	100		
138	22.2	0.1	60.1
277	23.4	0.0	53.2



9.1.9

9

Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 12/21/12 18:23

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2083\
Data File : 2m48641.D
Acq On : 20 Dec 2012 12:51 pm
Operator : olgaa
Sample : jb22962-6cfi
Misc : op62064,e2m2083,33.3,,,1,2
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Dec 20 13:27:59 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.368	152	210680	40.00	ppb	-0.02
24) Naphthalene-d8	3.903	136	918795	40.00	ppb	-0.01
47) Acenaphthene-d10	6.454	164	585917	40.00	ppb	-0.03
69) Phenanthrene-d10	8.679	188	1000432	40.00	ppb	-0.03
83) Chrysene-d12	12.504	240	1090172	40.00	ppb	-0.02
92) Perylene-d12	13.916	264	988947	40.00	ppb	-0.01
102) 1,4-Dichlorobenzene-d4a	2.368	152	210680	40.00	ppb	-0.02
104) Acenaphthene-d10a	6.454	164	585917	40.00	ppb	-0.03
106) Chrysene-d12a	12.504	240	1090172	40.00	ppb	-0.02
108) Phenanthrene-d10a	8.679	188	1000432	40.00	ppb	-0.03
110) Chrysene-d12b	12.504	240	1090172	40.00	ppb	-0.02
System Monitoring Compounds						
5) 2-Fluorophenol	1.427	112	76645	10.00	ppb	0.00
Spiked Amount 50.000			Recovery	=	20.00%	
8) Phenol-d5	2.229	99	113177	11.01	ppb	0.01
Spiked Amount 50.000			Recovery	=	22.02%	
25) Nitrobenzene-d5	3.058	82	100689	10.21	ppb	0.00
Spiked Amount 50.000			Recovery	=	20.42%	
51) 2-Fluorobiphenyl	5.550	172	243312	12.63	ppb	-0.01
Spiked Amount 50.000			Recovery	=	25.26%	
73) 2,4,6-Tribromophenol	7.722	330	35838	15.24	ppb	-0.02
Spiked Amount 50.000			Recovery	=	30.48%	
85) Terphenyl-d14	11.268	244	305056	13.85	ppb	-0.02
Spiked Amount 50.000			Recovery	=	27.70%	
Target Compounds						Qvalue
77) Phenanthrene	8.711	178	18324	0.60	ppb	86
81) Fluoranthene	10.551	202	58800	1.95	ppb	94
84) Pyrene	10.867	202	67347	1.91	ppb	98
88) Benzo[a]anthracene	12.488	228	40108	1.20	ppb	99
90) Chrysene	12.530	228	38767	1.17	ppb	92
94) Benzo[b]fluoranthene	13.595	252	45056m	1.31	ppb	
95) Benzo[k]fluoranthene	13.605	252	17431m	0.56	ppb	
96) Benzo[a]pyrene	13.867	252	31307	1.07	ppb	92
97) Indeno[1,2,3-cd]pyrene	14.766	276	20211	0.60	ppb	90
101) Benzo[g,h,i]perylene	14.937	276	21672	0.75	ppb	79

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

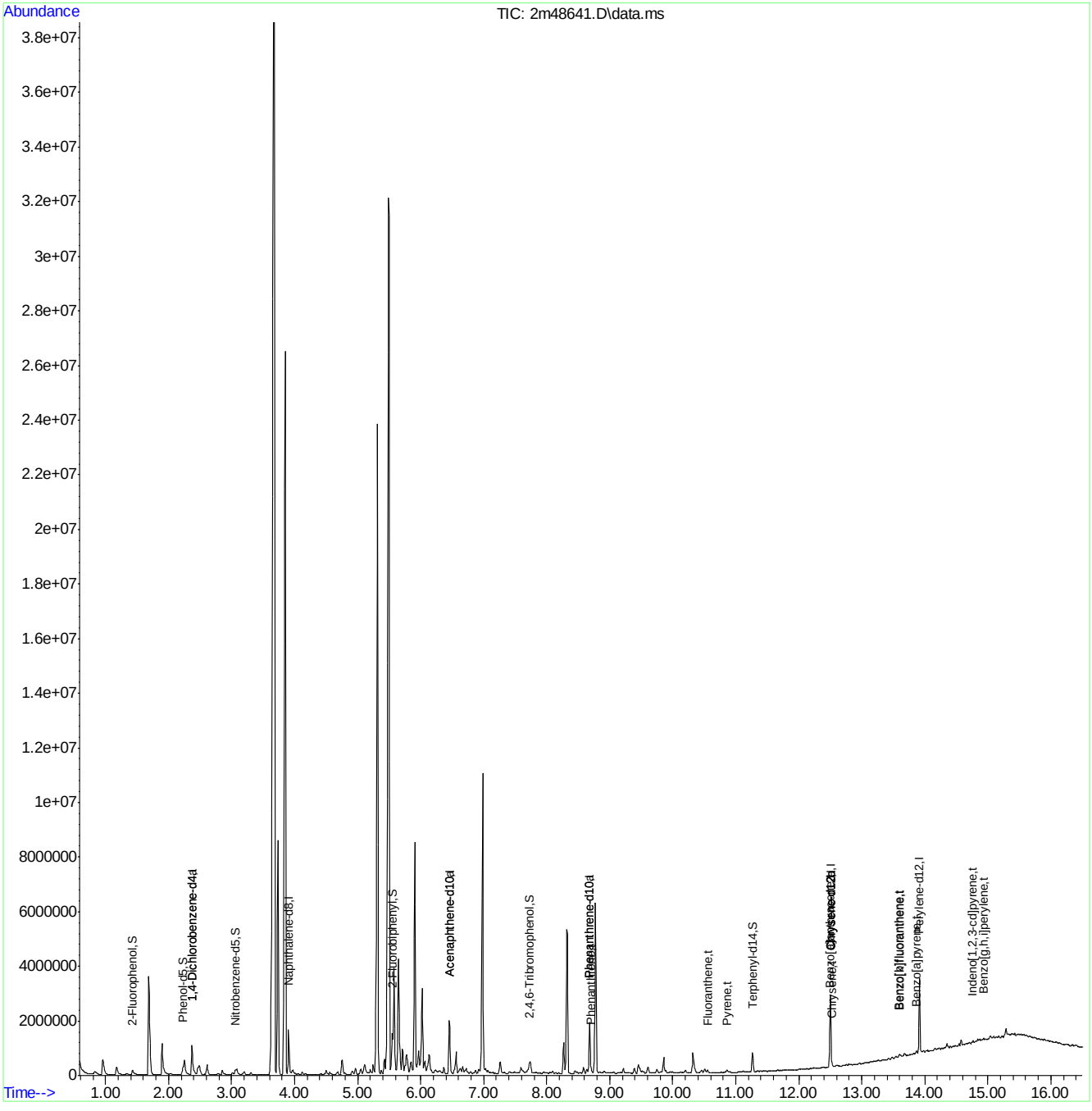
9.1.10

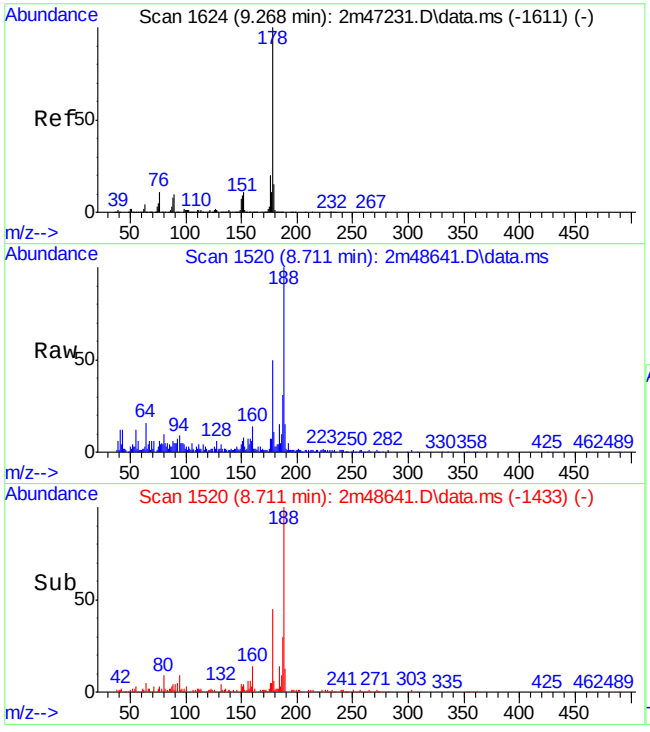
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2083\
Data File : 2m48641.D
Acq On : 20 Dec 2012 12:51 pm
Operator : olgaa
Sample : jb22962-6cfi
Misc : op62064,e2m2083,33.3,,,1,2
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Dec 20 13:27:59 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration

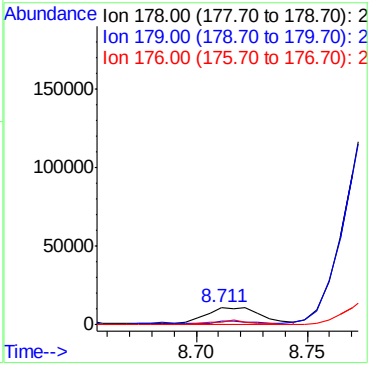


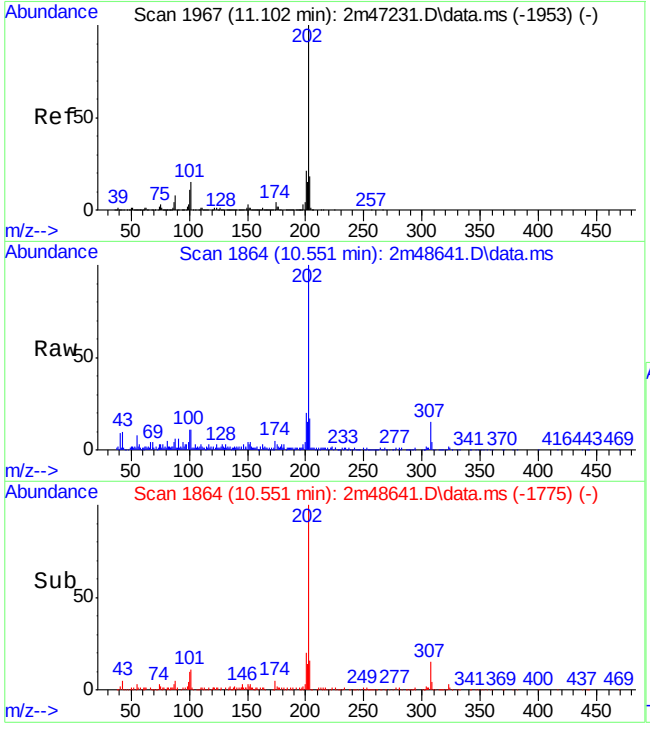


#77
Phenanthrene
Concen: 0.60 ppb
RT: 8.711 min Scan# 1520
Delta R.T. -0.032 min
Lab File: 2m48641.D
Acq: 20 Dec 2012 12:51 pm

Tgt Ion:178 Resp: 18324

Ion	Ratio	Lower	Upper
178	100		
179	8.0	0.0	44.9
176	14.1	0.0	49.1

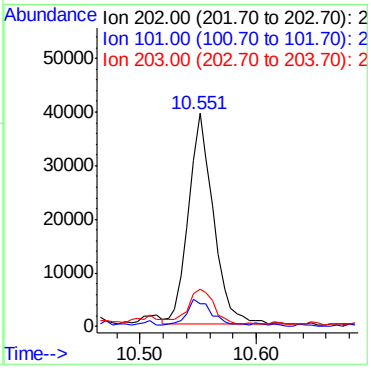




#81
Fluoranthene
Concen: 1.95 ppb
RT: 10.551 min Scan# 1864
Delta R.T. -0.021 min
Lab File: 2m48641.D
Acq: 20 Dec 2012 12:51 pm

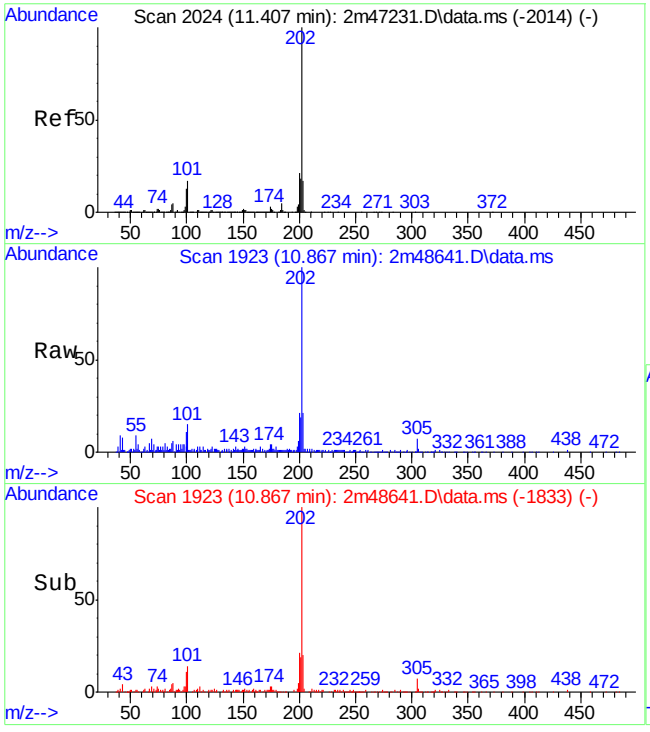
Tgt Ion:202 Resp: 58800

Ion	Ratio	Lower	Upper
202	100		
101	10.5	0.0	43.8
203	15.3	0.0	47.5



9.1.10

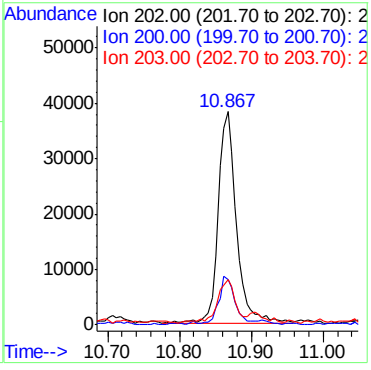
9

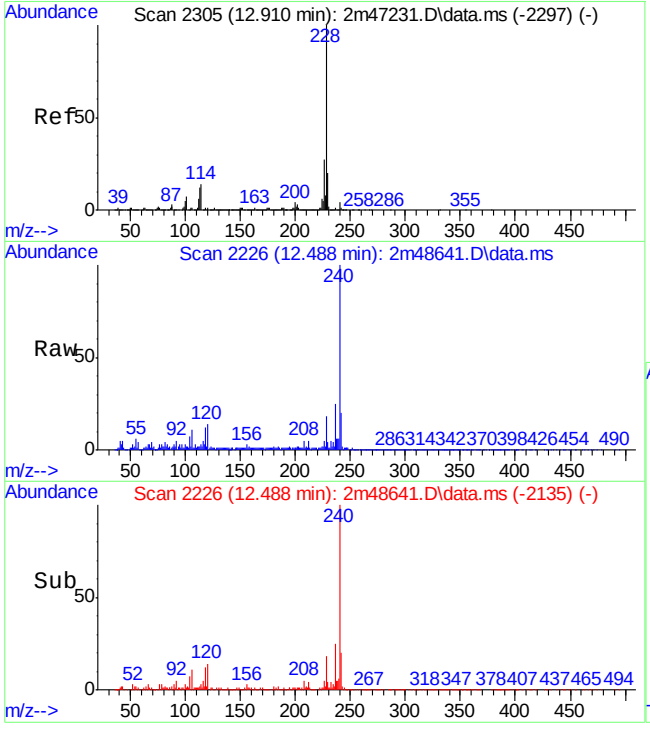


#84
Pyrene
Concen: 1.91 ppb
RT: 10.867 min Scan# 1923
Delta R.T. -0.021 min
Lab File: 2m48641.D
Acq: 20 Dec 2012 12:51 pm

Tgt Ion:202 Resp: 67347

Ion	Ratio	Lower	Upper
202	100		
200	20.9	0.0	51.3
203	19.4	0.0	47.6

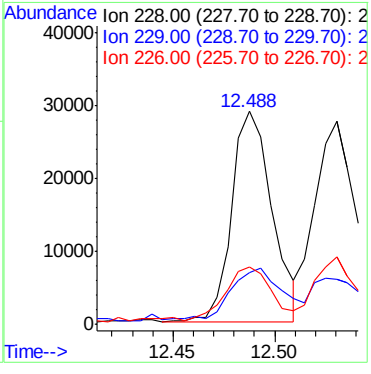




#88
Benzo[a]anthracene
Concen: 1.20 ppb
RT: 12.488 min Scan# 2226
Delta R.T. -0.016 min
Lab File: 2m48641.D
Acq: 20 Dec 2012 12:51 pm

Tgt Ion:228 Resp: 40108

Ion	Ratio	Lower	Upper
228	100		
229	19.4	0.0	49.3
226	25.1	0.0	56.0



9.1.10

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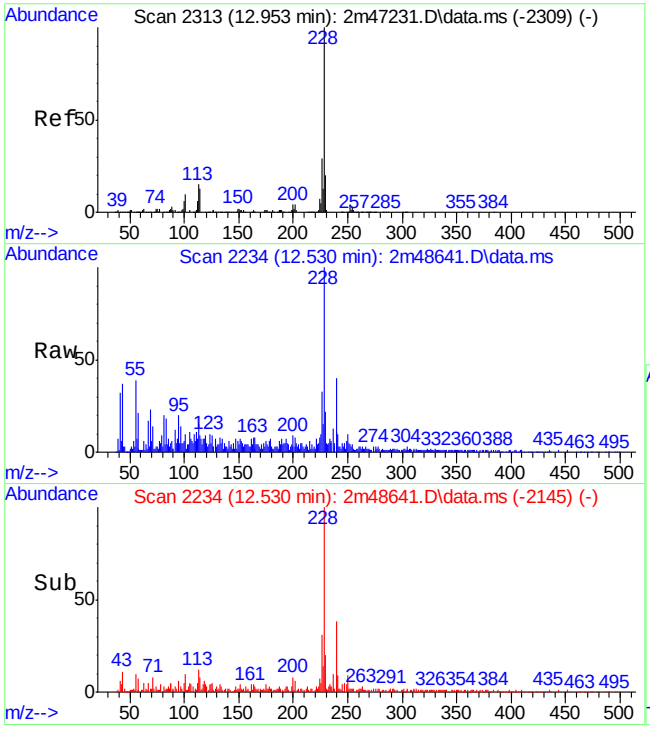
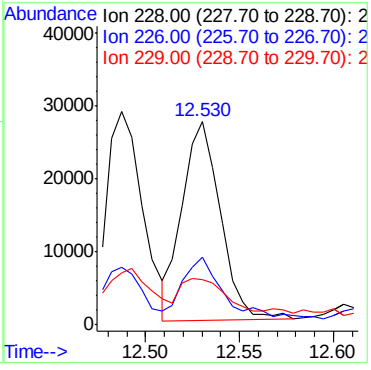
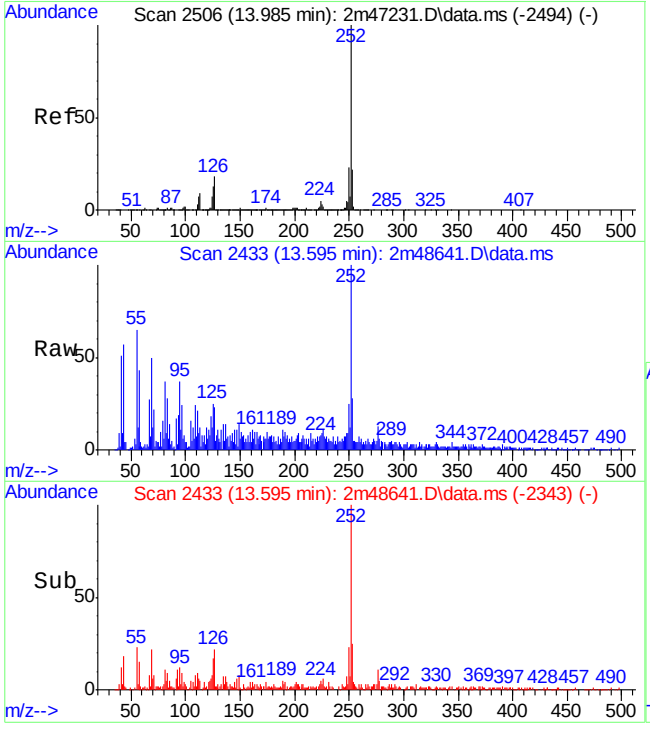


#90
Chrysene
Concen: 1.17 ppb
RT: 12.530 min Scan# 2234
Delta R.T. -0.021 min
Lab File: 2m48641.D
Acq: 20 Dec 2012 12:51 pm

Tgt Ion:228 Resp: 38767

Ion	Ratio	Lower	Upper
228	100		
226	31.6	0.0	57.7
229	15.0	0.0	49.3

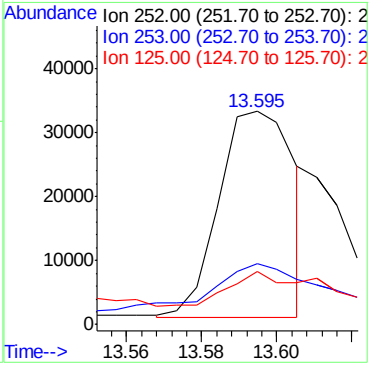


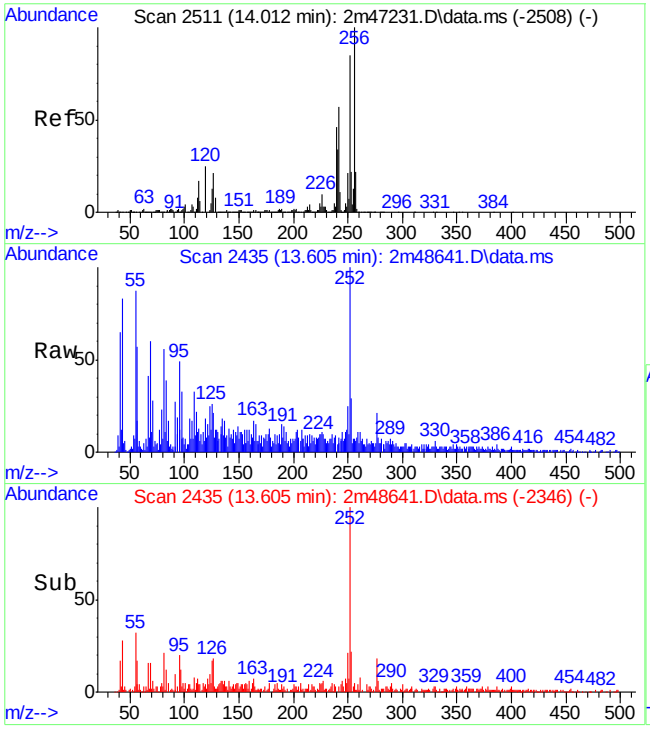


#94
Benzo[b]fluoranthene
Concen: 1.31 ppb m
RT: 13.595 min Scan# 2433
Delta R.T. -0.021 min
Lab File: 2m48641.D
Acq: 20 Dec 2012 12:51 pm

Tgt Ion:252 Resp: 45056

Ion	Ratio	Lower	Upper
252	100		
253	28.4	0.0	51.6
125	25.0	0.0	40.1

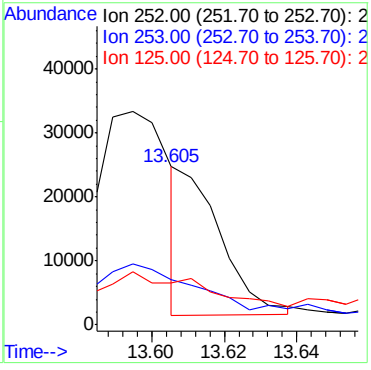


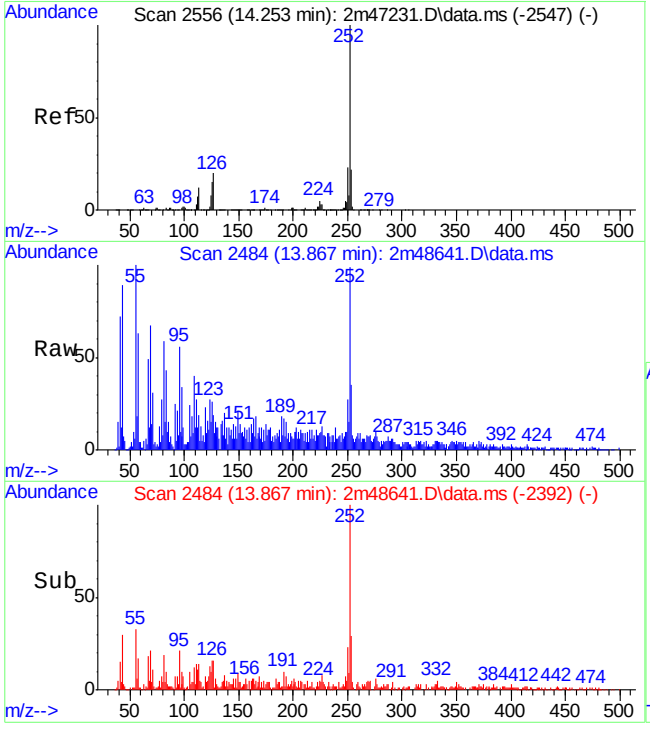


#95
Benzo[k]fluoranthene
Concen: 0.56 ppb m
RT: 13.605 min Scan# 2435
Delta R.T. -0.027 min
Lab File: 2m48641.D
Acq: 20 Dec 2012 12:51 pm

Tgt Ion:252 Resp: 17431

Ion	Ratio	Lower	Upper
252	100		
253	28.7	0.0	52.7
125	26.3	0.0	42.9

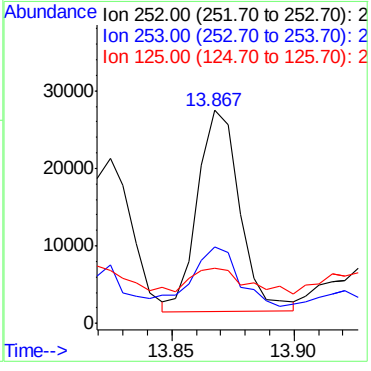




#96
Benzo[a]pyrene
Concen: 1.07 ppb
RT: 13.867 min Scan# 2484
Delta R.T. -0.011 min
Lab File: 2m48641.D
Acq: 20 Dec 2012 12:51 pm

Tgt Ion:252 Resp: 31307

Ion	Ratio	Lower	Upper
252	100		
253	27.6	0.0	52.4
125	11.8	0.0	42.7



9.1.10

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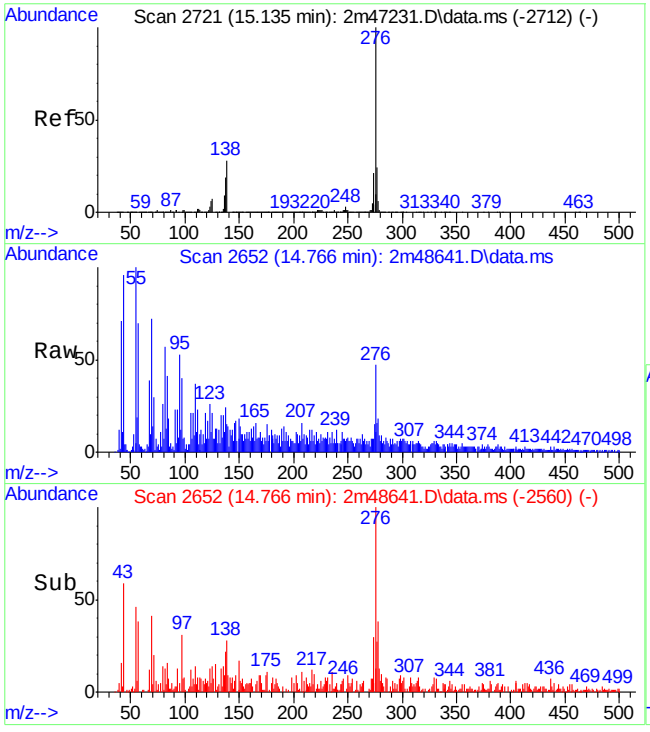
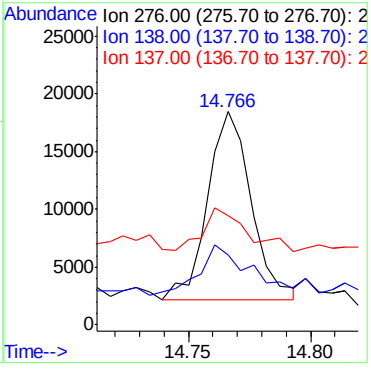
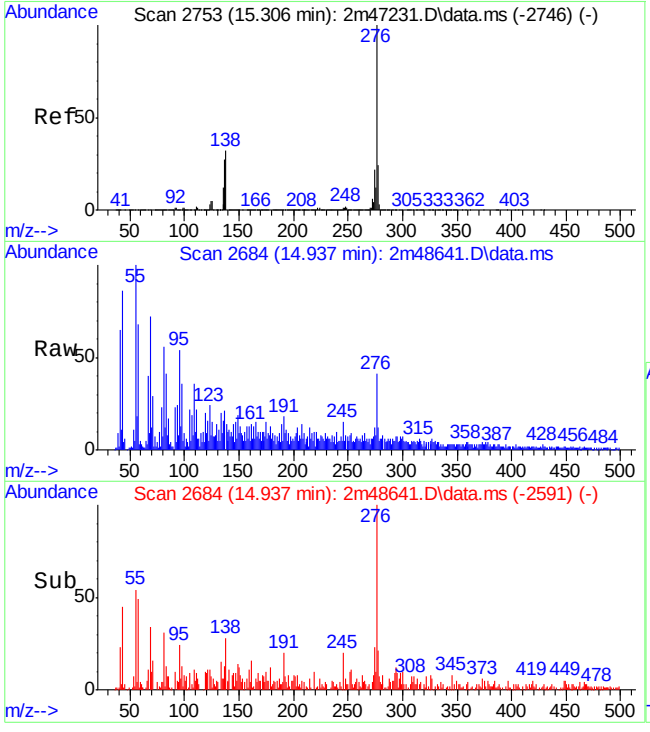


#97
Indeno[1,2,3-cd]pyrene
Concen: 0.60 ppb
RT: 14.766 min Scan# 2652
Delta R.T. -0.005 min
Lab File: 2m48641.D
Acq: 20 Dec 2012 12:51 pm

Tgt Ion:276 Resp: 20211

Ion	Ratio	Lower	Upper
276	100		
138	19.2	0.0	57.6
137	19.0	0.0	48.9

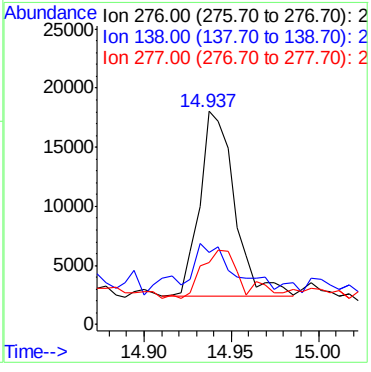




#101
Benzo[g,h,i]perylene
Concen: 0.75 ppb
RT: 14.937 min Scan# 2684
Delta R.T. -0.005 min
Lab File: 2m48641.D
Acq: 20 Dec 2012 12:51 pm

Tgt Ion:276 Resp: 21672

Ion	Ratio	Lower	Upper
276	100		
138	15.3	0.1	60.1
277	16.9	0.0	53.2



9.1.10

9

Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 12/21/12 18:23

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2018\
Data File : 3e46432.D
Acq On : 19 Dec 2012 7:03 pm
Operator : olgaa
Sample : jb22962-7
Misc : op62064,e3e2018,32.4,,,1,2
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Dec 20 11:24:45 2012
Quant Method : C:\MSDCHEM\1\METHODS\M3E1991.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Dec 06 10:24:01 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.730	152	162380	40.00	ppb	-0.07
24) Naphthalene-d8	4.425	136	683592	40.00	ppb	0.03
47) Acenaphthene-d10	6.929	164	369001	40.00	ppb	-0.07
69) Phenanthrene-d10	9.164	188	527961	40.00	ppb	-0.08
83) Chrysene-d12	12.866	240	489743	40.00	ppb	-0.07
92) Perylene-d12	14.251	264	444493	40.00	ppb	-0.07
102) 1,4-Dichlorobenzene-d4a	2.730	152	162380	40.00	ppb	-0.07
104) Acenaphthene-d10a	6.929	164	369001	40.00	ppb	-0.07
106) Phenanthrene-d10a	9.164	188	527961	40.00	ppb	-0.08
108) Chrysene-d12a	12.866	240	489743	40.00	ppb	-0.07

System Monitoring Compounds						
5) 2-Fluorophenol	1.676	112	80120	14.16	ppb	-0.06
Spiked Amount 50.000	Range 11 - 58		Recovery = 28.32%			
8) Phenol-d5	2.521	99	111300	16.17	ppb	-0.10
Spiked Amount 50.000	Range 10 - 59		Recovery = 32.34%			
25) Nitrobenzene-d5	3.425	82	80589	14.09	ppb	-0.07
Spiked Amount 50.000	Range 19 - 61		Recovery = 28.18%			
51) 2-Fluorobiphenyl	6.062	172	165473m	13.56	ppb	0.00
Spiked Amount 50.000	Range 21 - 59		Recovery = 27.12%			
73) 2,4,6-Tribromophenol	8.164	330	20134	18.04	ppb	-0.09
Spiked Amount 50.000	Range 12 - 68		Recovery = 36.08%			
85) Terphenyl-d14	11.694	244	216597	21.10	ppb	-0.08
Spiked Amount 50.000	Range 16 - 65		Recovery = 42.20%			

Target Compounds						Qvalue
38) Naphthalene	4.447	128	138630	7.19	ppb	98
44) 2-Methylnaphthalene	5.351	141	72725	6.62	ppb	89
59) Acenaphthene	6.971	153	13074	1.17	ppb	84
66) Fluorene	7.752	166	33096	2.62	ppb	94
77) Phenanthrene	9.191	178	100651	6.27	ppb	99
81) Fluoranthene	11.026	202	103539	6.53	ppb	97
84) Pyrene	11.331	202	93027	5.82	ppb	97
88) Benzo[a]anthracene	12.850	228	36136	2.53	ppb	94
90) Chrysene	12.887	228	46900	3.48	ppb	94
94) Benzo[b]fluoranthene	13.925	252	26527m	1.80	ppb	
95) Benzo[k]fluoranthene	13.935	252	13625m	0.96	ppb	
96) Benzo[a]pyrene	14.197	252	22251	1.73	ppb	95
97) Indeno[1,2,3-cd]pyrene	15.080	276	11555m	0.80	ppb	
99) Dibenz[a,h]anthracene	15.096	278	5518	0.46	ppb	89
101) Benzo[g,h,i]perylene	15.251	276	14367	1.19	ppb	94

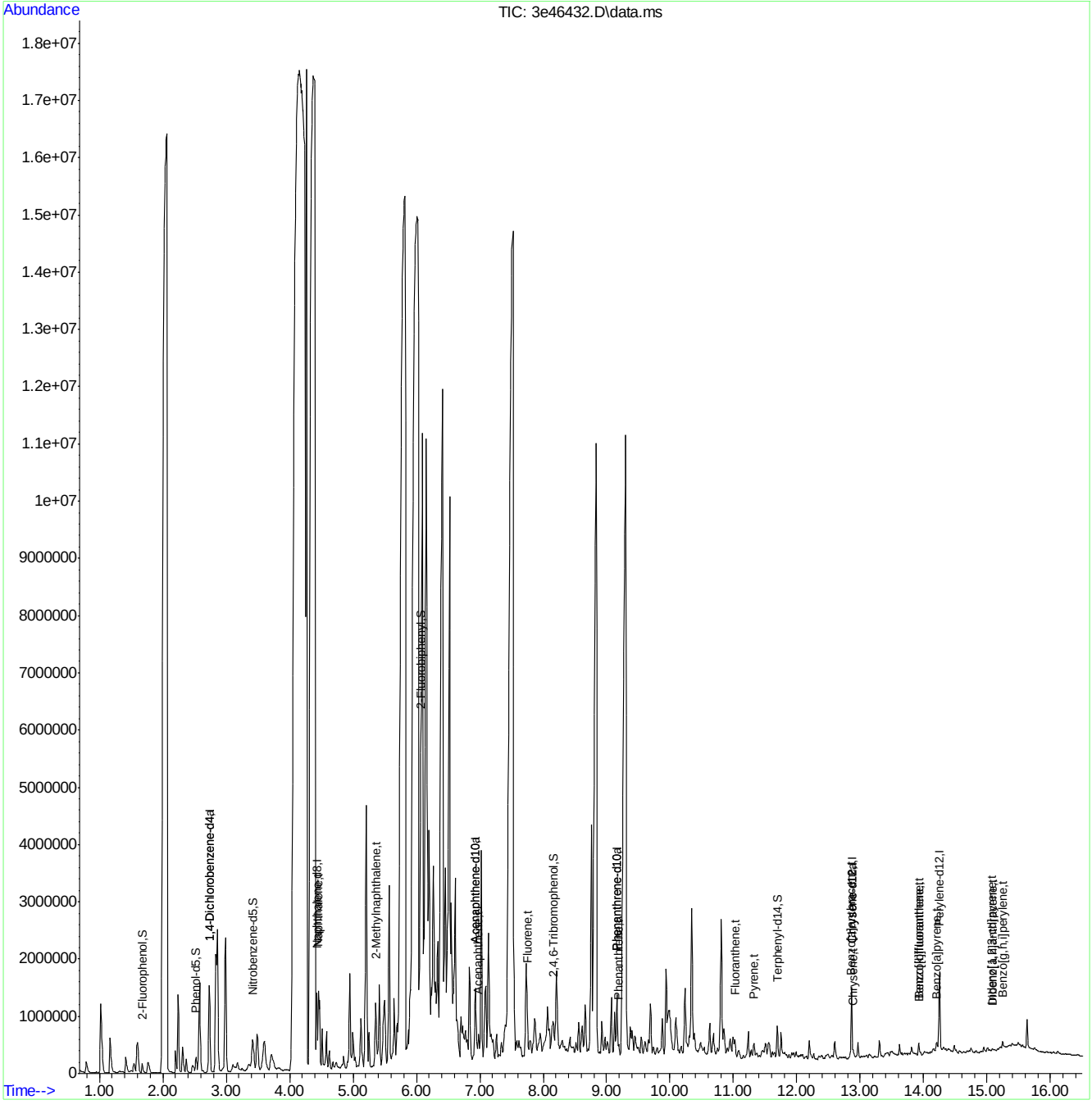
(#) = qualifier out of range (m) = manual integration (+) = signals summed

9.1.11
9

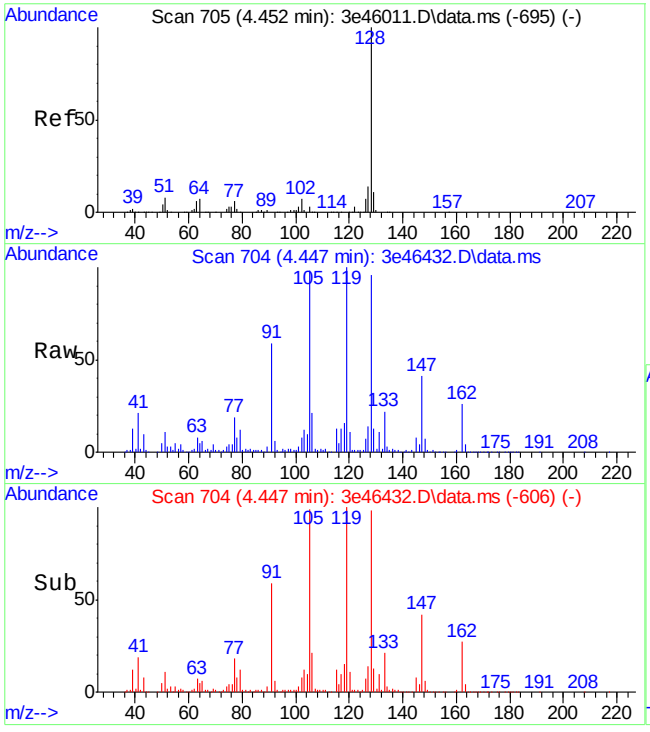
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2018\
Data File : 3e46432.D
Acq On : 19 Dec 2012 7:03 pm
Operator : olgaa
Sample : jb22962-7
Misc : op62064,e3e2018,32.4,,,1,2
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Dec 20 11:24:45 2012
Quant Method : C:\MSDCHEM\1\METHODS\M3E1991.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Dec 06 10:24:01 2012
Response via : Initial Calibration



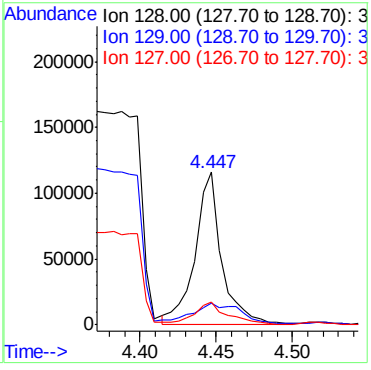
M3E1991.M Thu Dec 20 11:28:00 2012 MS3E Page: 2

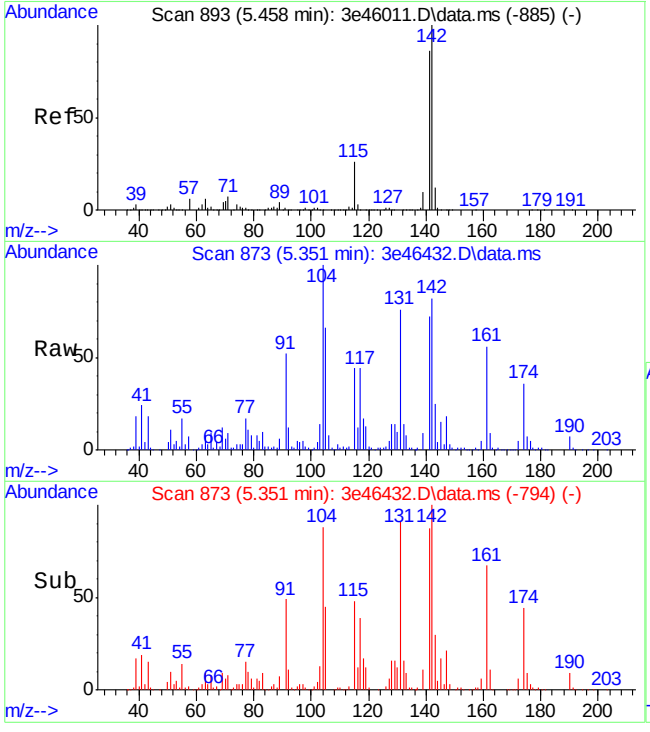


#38
Naphthalene
Concen: 7.19 ppb
RT: 4.447 min Scan# 704
Delta R.T. 0.027 min
Lab File: 3e46432.D
Acq: 19 Dec 2012 7:03 pm

Tgt Ion:128 Resp: 138630

Ion	Ratio	Lower	Upper
128	100		
129	12.6	0.0	41.7
127	14.4	0.0	43.4

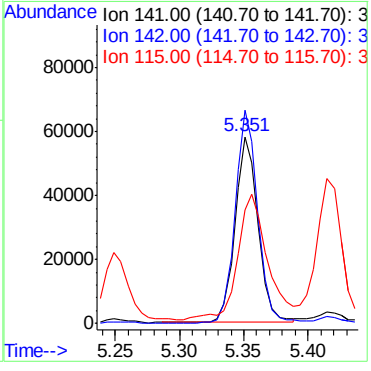




#44
2-Methylnaphthalene
Concen: 6.62 ppb
RT: 5.351 min Scan# 873
Delta R.T. -0.075 min
Lab File: 3e46432.D
Acq: 19 Dec 2012 7:03 pm

Tgt Ion:141 Resp: 72725

Ion	Ratio	Lower	Upper
141	100		
142	114.8	87.9	147.9
115	56.1	3.6	63.6



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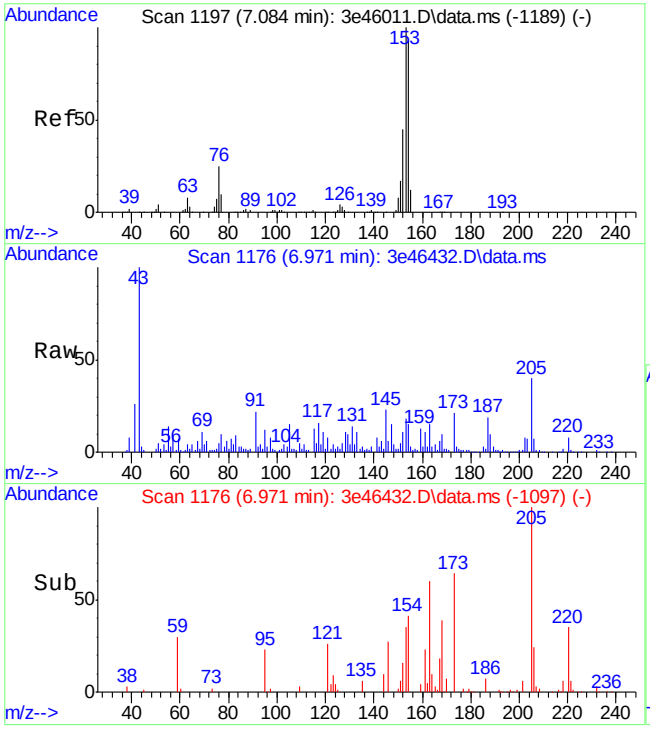
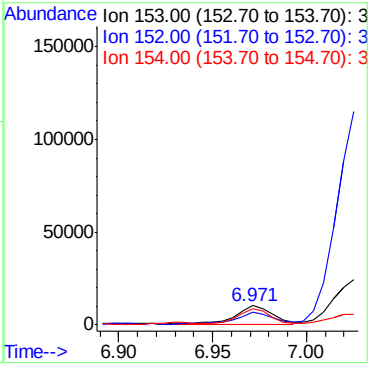
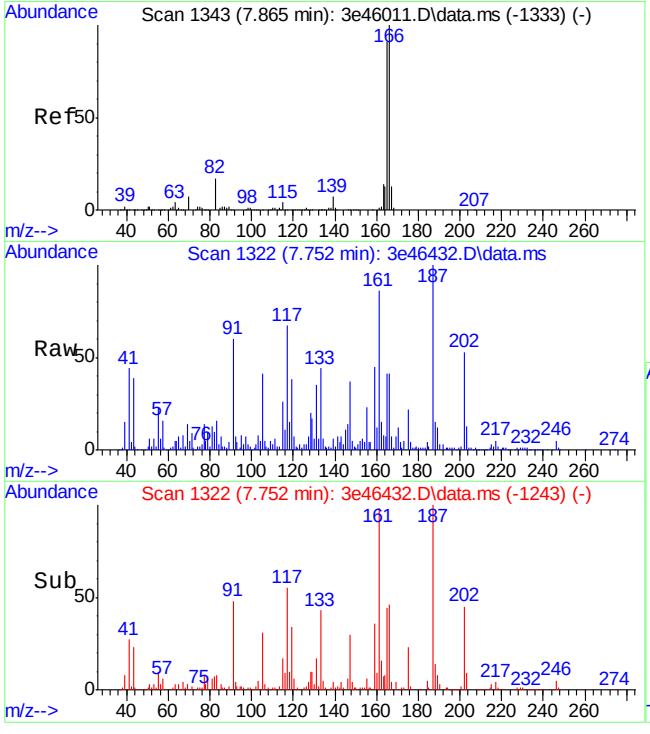


#59
Acenaphthene
Concen: 1.17 ppb
RT: 6.971 min Scan# 1176
Delta R.T. -0.075 min
Lab File: 3e46432.D
Acq: 19 Dec 2012 7:03 pm

Tgt Ion:153 Resp: 13074

Ion	Ratio	Lower	Upper
153	100		
152	60.7	16.8	76.8
154	80.5	64.4	124.4

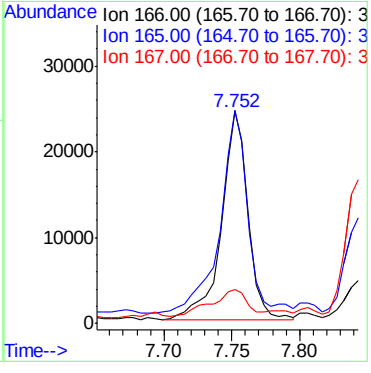


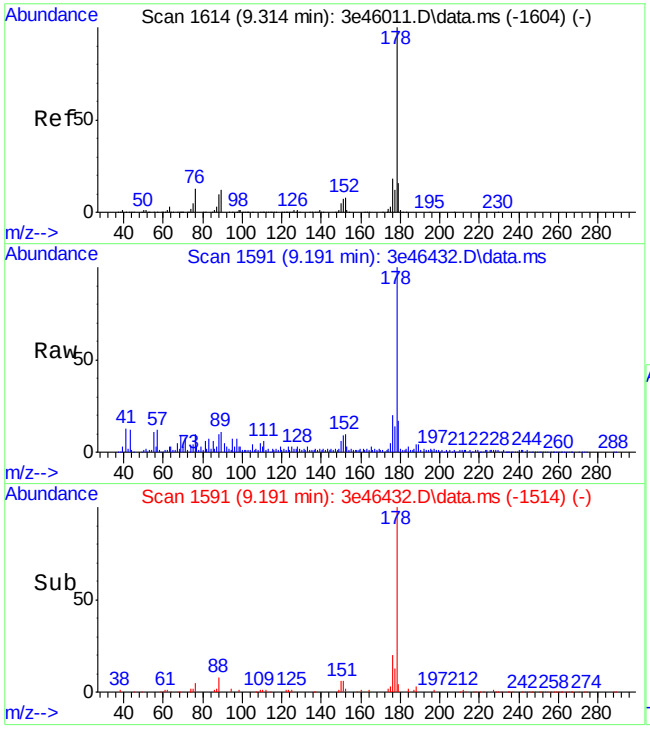


#66
Fluorene
Concen: 2.62 ppb
RT: 7.752 min Scan# 1322
Delta R.T. -0.075 min
Lab File: 3e46432.D
Acq: 19 Dec 2012 7:03 pm

Tgt Ion:166 Resp: 33096

Ion	Ratio	Lower	Upper
166	100		
165	96.7	61.1	121.1
167	12.1	0.0	43.8

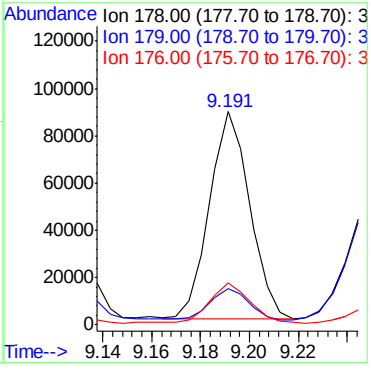


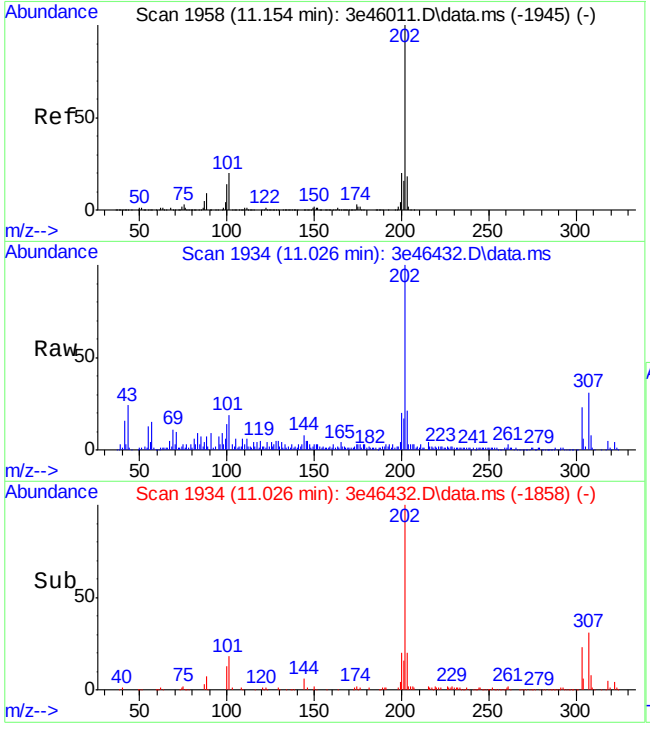


#77
Phenanthrene
Concen: 6.27 ppb
RT: 9.191 min Scan# 1591
Delta R.T. -0.086 min
Lab File: 3e46432.D
Acq: 19 Dec 2012 7:03 pm

Tgt Ion:178 Resp: 100651

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	46.0
176	19.1	0.0	48.7

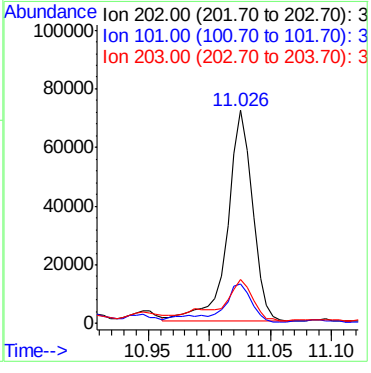


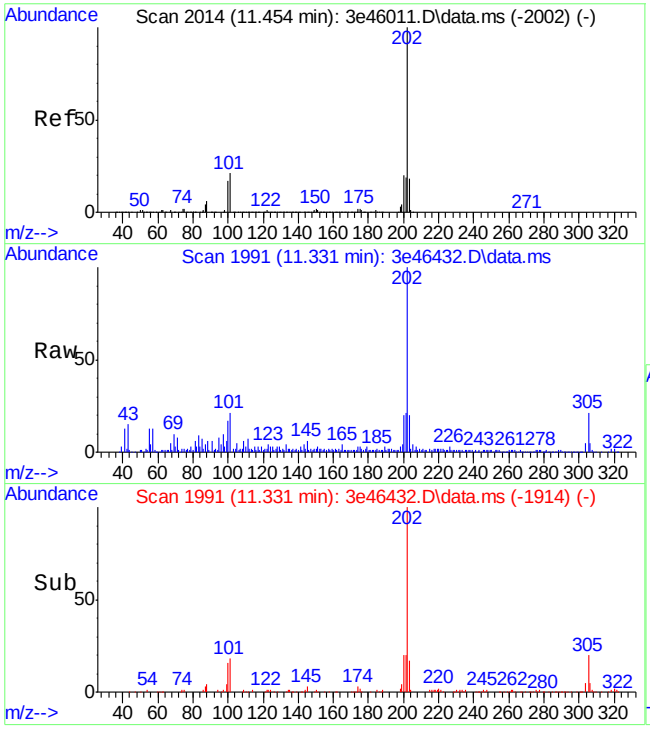


#81
Fluoranthene
Concen: 6.53 ppb
RT: 11.026 min Scan# 1934
Delta R.T. -0.091 min
Lab File: 3e46432.D
Acq: 19 Dec 2012 7:03 pm

Tgt Ion:202 Resp: 103539

Ion	Ratio	Lower	Upper
202	100		
101	17.6	0.0	45.2
203	18.6	0.0	48.0

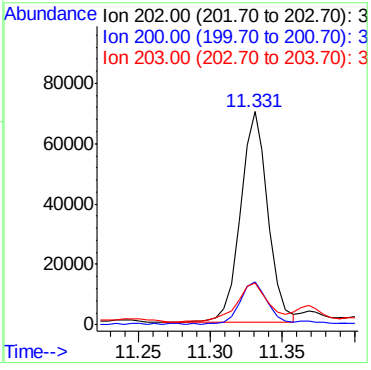


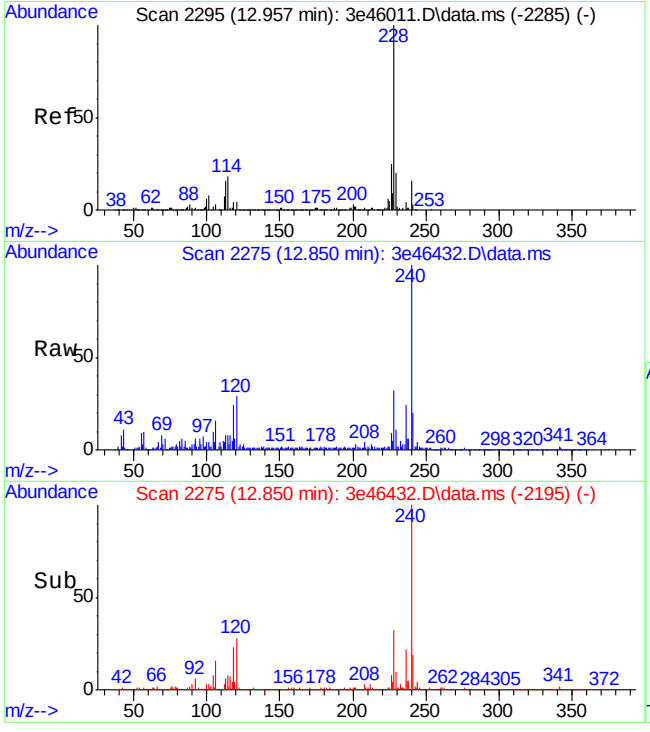


#84
Pyrene
Concen: 5.82 ppb
RT: 11.331 min Scan# 1991
Delta R.T. -0.086 min
Lab File: 3e46432.D
Acq: 19 Dec 2012 7:03 pm

Tgt Ion:202 Resp: 93027

Ion	Ratio	Lower	Upper
202	100		
200	19.7	0.0	50.7
203	16.3	0.0	47.9

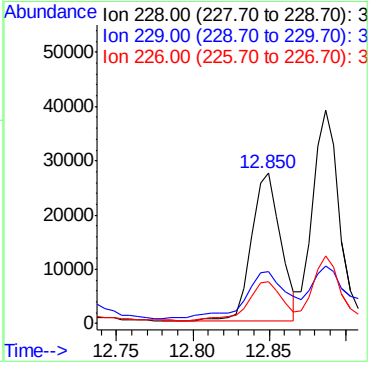




#88
Benzo[a]anthracene
Concen: 2.53 ppb
RT: 12.850 min Scan# 2275
Delta R.T. -0.070 min
Lab File: 3e46432.D
Acq: 19 Dec 2012 7:03 pm

Tgt Ion:228 Resp: 36136

Ion	Ratio	Lower	Upper
228	100		
229	26.4	0.0	50.5
226	25.9	0.0	55.9



9.1.11

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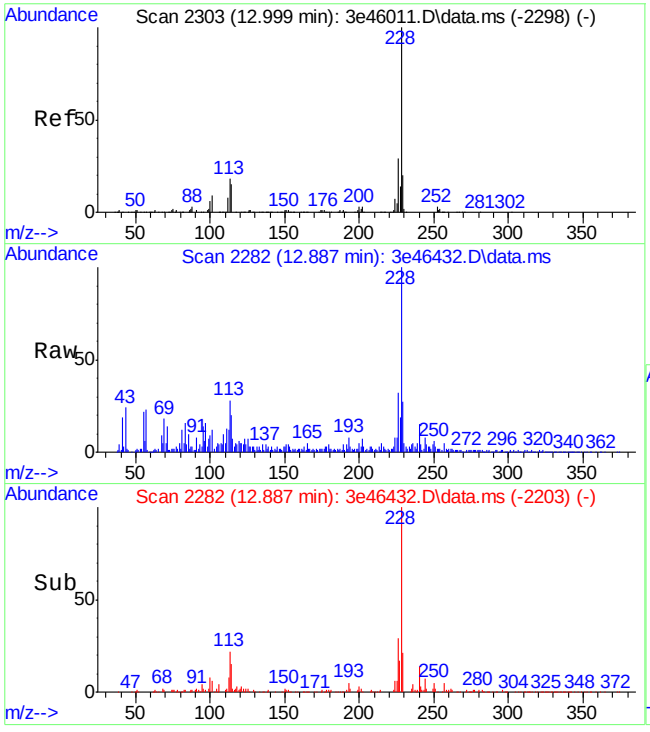
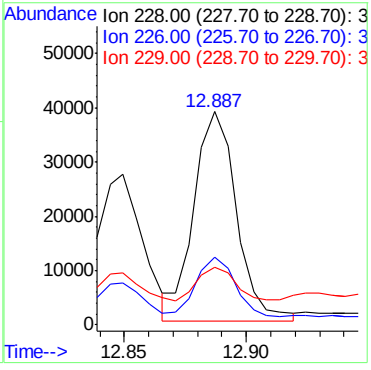
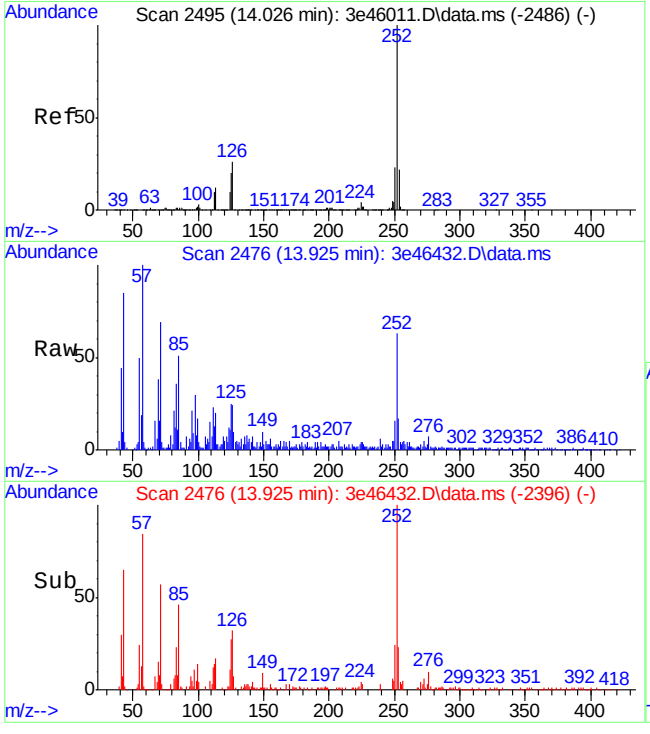


#90
Chrysene
Concen: 3.48 ppb
RT: 12.887 min Scan# 2282
Delta R.T. -0.075 min
Lab File: 3e46432.D
Acq: 19 Dec 2012 7:03 pm

Tgt Ion:228 Resp: 46900

Ion	Ratio	Lower	Upper
228	100		
226	30.0	0.0	59.2
229	15.4	0.0	50.9

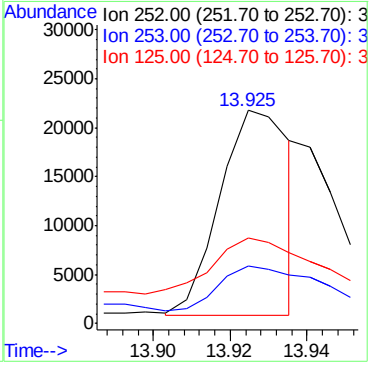




#94
Benzo[b]fluoranthene
Concen: 1.80 ppb m
RT: 13.925 min Scan# 2476
Delta R.T. -0.070 min
Lab File: 3e46432.D
Acq: 19 Dec 2012 7:03 pm

Tgt Ion:252 Resp: 26527

Ion	Ratio	Lower	Upper
252	100		
253	27.1	0.0	53.2
125	40.3	0.0	44.4



9.1.11

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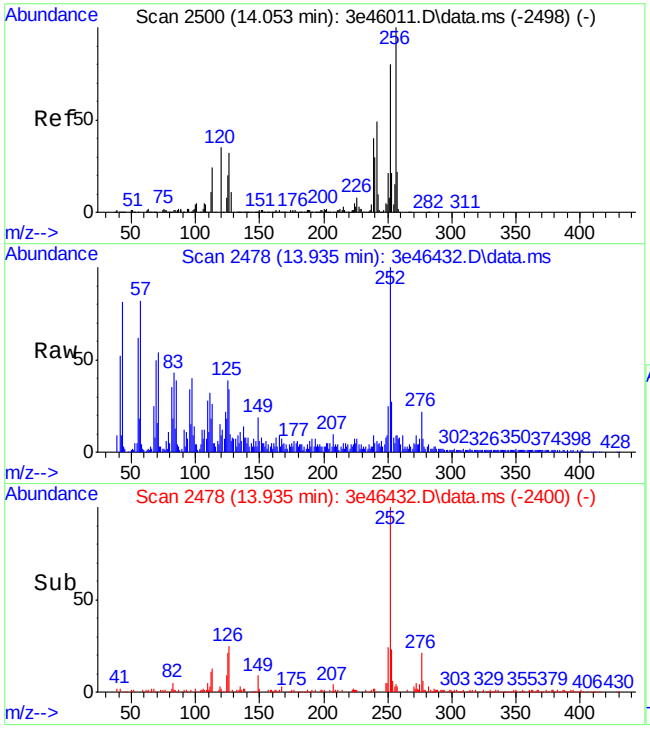
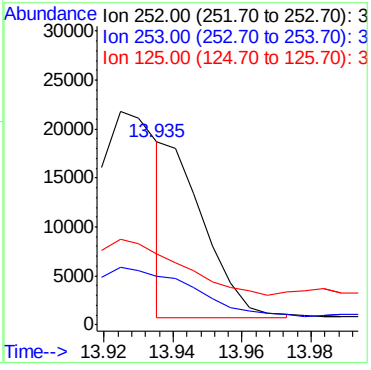
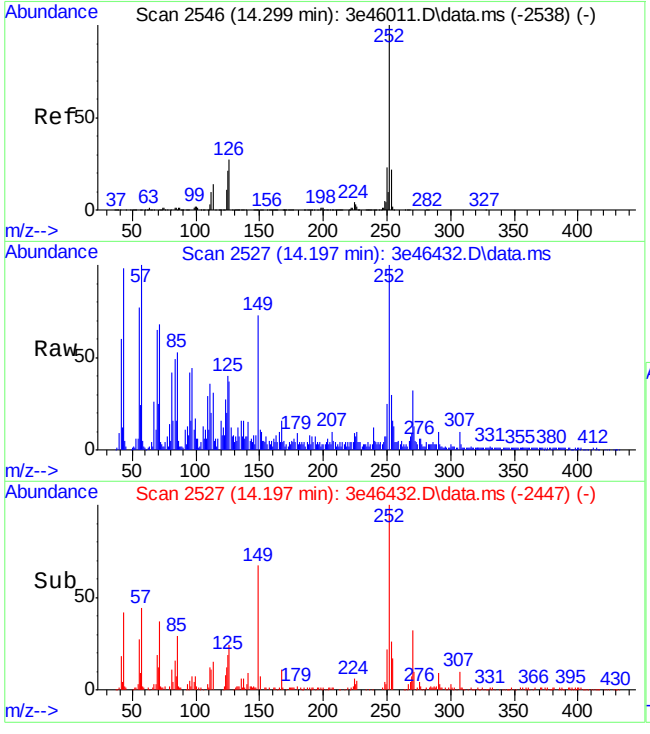


#95
Benzo[k]fluoranthene
Concen: 0.96 ppb m
RT: 13.935 min Scan# 2478
Delta R.T. -0.085 min
Lab File: 3e46432.D
Acq: 19 Dec 2012 7:03 pm

Tgt Ion:252 Resp: 13625

Ion	Ratio	Lower	Upper
252	100		
253	26.6	0.0	56.5
125	38.6	0.0	45.7

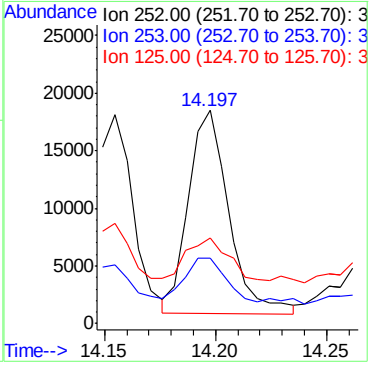




#96
Benzo[a]pyrene
Concen: 1.73 ppb
RT: 14.197 min Scan# 2527
Delta R.T. -0.070 min
Lab File: 3e46432.D
Acq: 19 Dec 2012 7:03 pm

Tgt Ion:252 Resp: 22251

Ion	Ratio	Lower	Upper
252	100		
253	20.8	0.0	52.7
125	21.0	0.0	48.6



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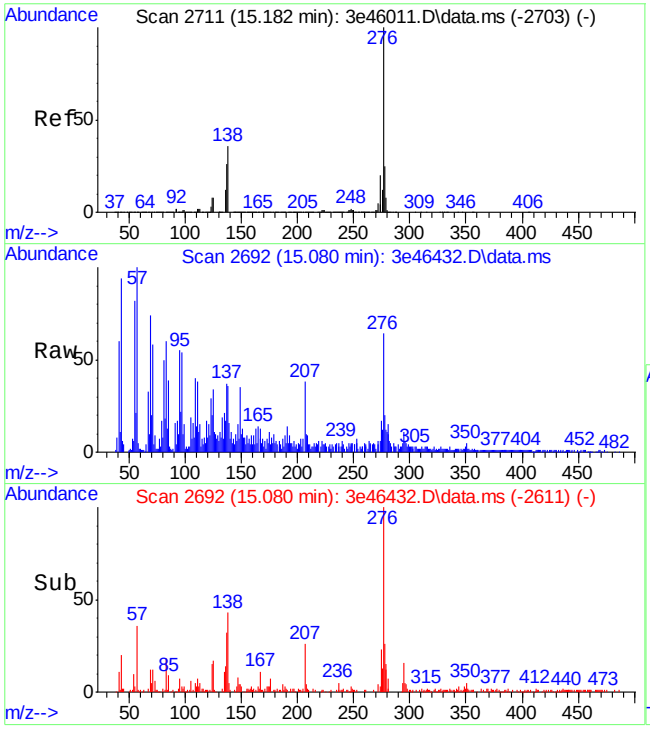
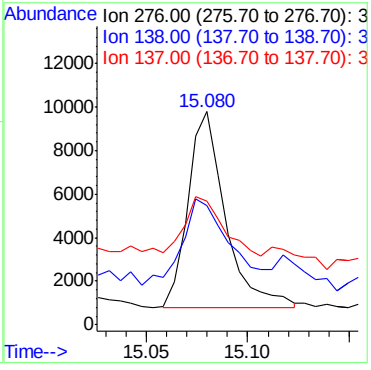
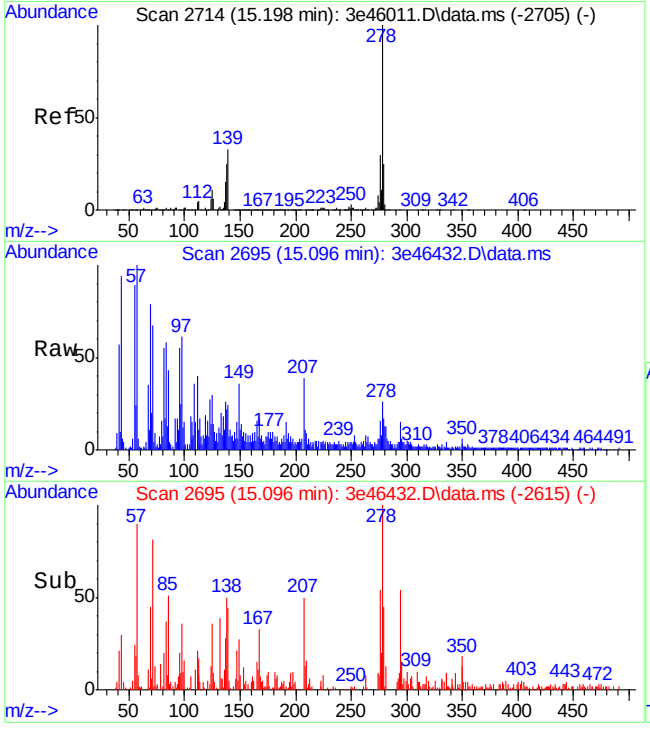


#97
Indeno[1,2,3-cd]pyrene
Concen: 0.80 ppb m
RT: 15.080 min Scan# 2692
Delta R.T. -0.064 min
Lab File: 3e46432.D
Acq: 19 Dec 2012 7:03 pm

Tgt Ion:276 Resp: 11555

Ion	Ratio	Lower	Upper
276	100		
138	55.9	1.3	61.3
137	58.1	0.0	52.6#

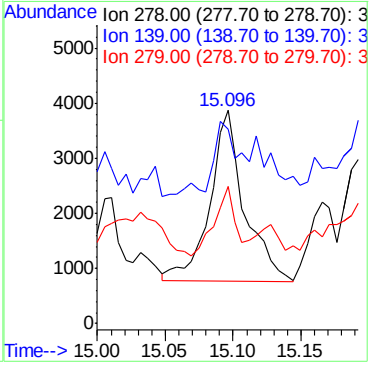




#99
Dibenz[a,h]anthracene
Concen: 0.46 ppb
RT: 15.096 min Scan# 2695
Delta R.T. -0.070 min
Lab File: 3e46432.D
Acq: 19 Dec 2012 7:03 pm

Tgt Ion:278 Resp: 5518

Ion	Ratio	Lower	Upper
278	100		
139	34.1	0.0	57.0
279	29.8	0.0	55.4



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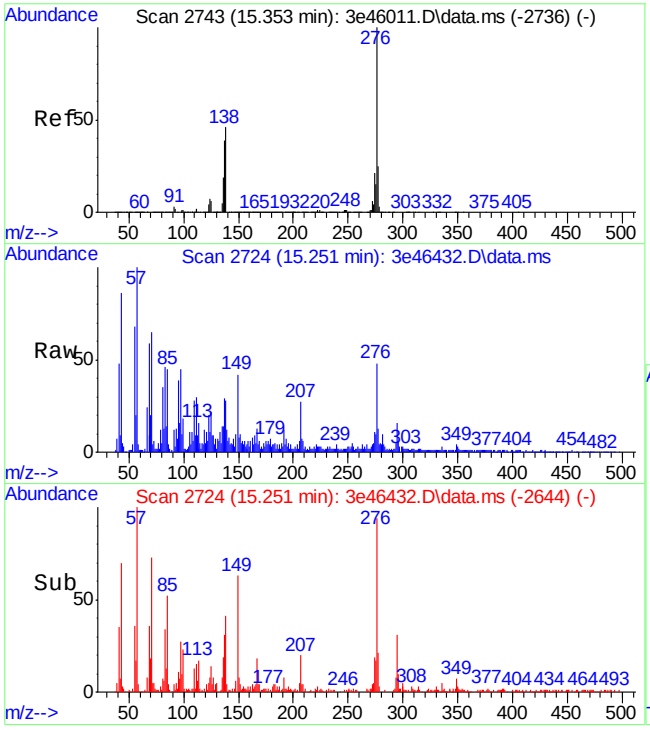
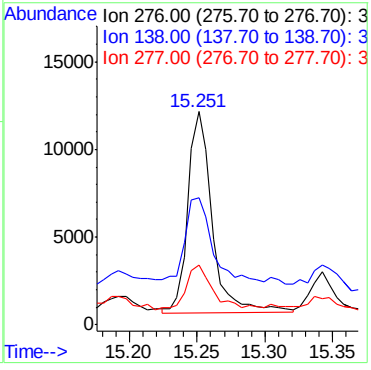


#101
Benzo[g,h,i]perylene
Concen: 1.19 ppb
RT: 15.251 min Scan# 2724
Delta R.T. -0.070 min
Lab File: 3e46432.D
Acq: 19 Dec 2012 7:03 pm

Tgt Ion:276 Resp: 14367

Ion	Ratio	Lower	Upper
276	100		
138	42.7	9.8	69.8
277	21.4	0.0	55.0



9.1.11

9

Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 12/21/12 18:23

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2018\
Data File : 3e46433.D
Acq On : 19 Dec 2012 7:26 pm
Operator : olgaa
Sample : jb22962-8
Misc : op62064,e3e2018,30.7,,,1,2
ALS Vial : 28 Sample Multiplier: 1

Quant Time: Dec 20 11:26:25 2012
Quant Method : C:\MSDCHEM\1\METHODS\M3E1991.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Dec 06 10:24:01 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.725	152	143234	40.00	ppb	-0.07
24) Naphthalene-d8	4.367	136	605621	40.00	ppb	-0.03
47) Acenaphthene-d10	6.913	164	333104	40.00	ppb	-0.09
69) Phenanthrene-d10	9.148	188	507245	40.00	ppb	-0.10
83) Chrysene-d12	12.860	240	477093	40.00	ppb	-0.08
92) Perylene-d12	14.246	264	437316	40.00	ppb	-0.07
102) 1,4-Dichlorobenzene-d4a	2.725	152	143234	40.00	ppb	-0.07
104) Acenaphthene-d10a	6.913	164	333104	40.00	ppb	-0.09
106) Phenanthrene-d10a	9.148	188	507245	40.00	ppb	-0.10
108) Chrysene-d12a	12.860	240	477093	40.00	ppb	-0.08

System Monitoring Compounds

5) 2-Fluorophenol	1.671	112	76181	15.26	ppb	-0.07
Spiked Amount 50.000	Range 11 - 58		Recovery = 30.52%			
8) Phenol-d5	2.516	99	99473	16.38	ppb	-0.10
Spiked Amount 50.000	Range 10 - 59		Recovery = 32.76%			
25) Nitrobenzene-d5	3.420	82	69530	13.72	ppb	-0.07
Spiked Amount 50.000	Range 19 - 61		Recovery = 27.44%			
51) 2-Fluorobiphenyl	6.014	172	184007	16.70	ppb	-0.05
Spiked Amount 50.000	Range 21 - 59		Recovery = 33.40%			
73) 2,4,6-Tribromophenol	8.153	330	19419	18.11	ppb	-0.10
Spiked Amount 50.000	Range 12 - 68		Recovery = 36.22%			
85) Terphenyl-d14	11.689	244	202353	20.23	ppb	-0.09
Spiked Amount 50.000	Range 16 - 65		Recovery = 40.46%			

Target Compounds						Qvalue
38) Naphthalene	4.388	128	52557	3.08	ppb	97
44) 2-Methylnaphthalene	5.340	141	26180	2.69	ppb	90
66) Fluorene	7.742	166	5328	0.47	ppb	95
77) Phenanthrene	9.180	178	24393	1.58	ppb	97
81) Fluoranthene	11.020	202	33405	2.19	ppb	100
84) Pyrene	11.320	202	26335	1.69	ppb	96
88) Benzo[a]anthracene	12.844	228	13501	0.97	ppb	96
90) Chrysene	12.882	228	15210	1.16	ppb	98
94) Benzo[b]fluoranthene	13.925	252	11055m	0.76	ppb	
95) Benzo[k]fluoranthene	13.930	252	7365m	0.53	ppb	
96) Benzo[a]pyrene	14.197	252	8498	0.67	ppb	91
97) Indeno[1,2,3-cd]pyrene	15.075	276	5138	0.36	ppb	90
101) Benzo[g,h,i]perylene	15.246	276	4732	0.40	ppb	89

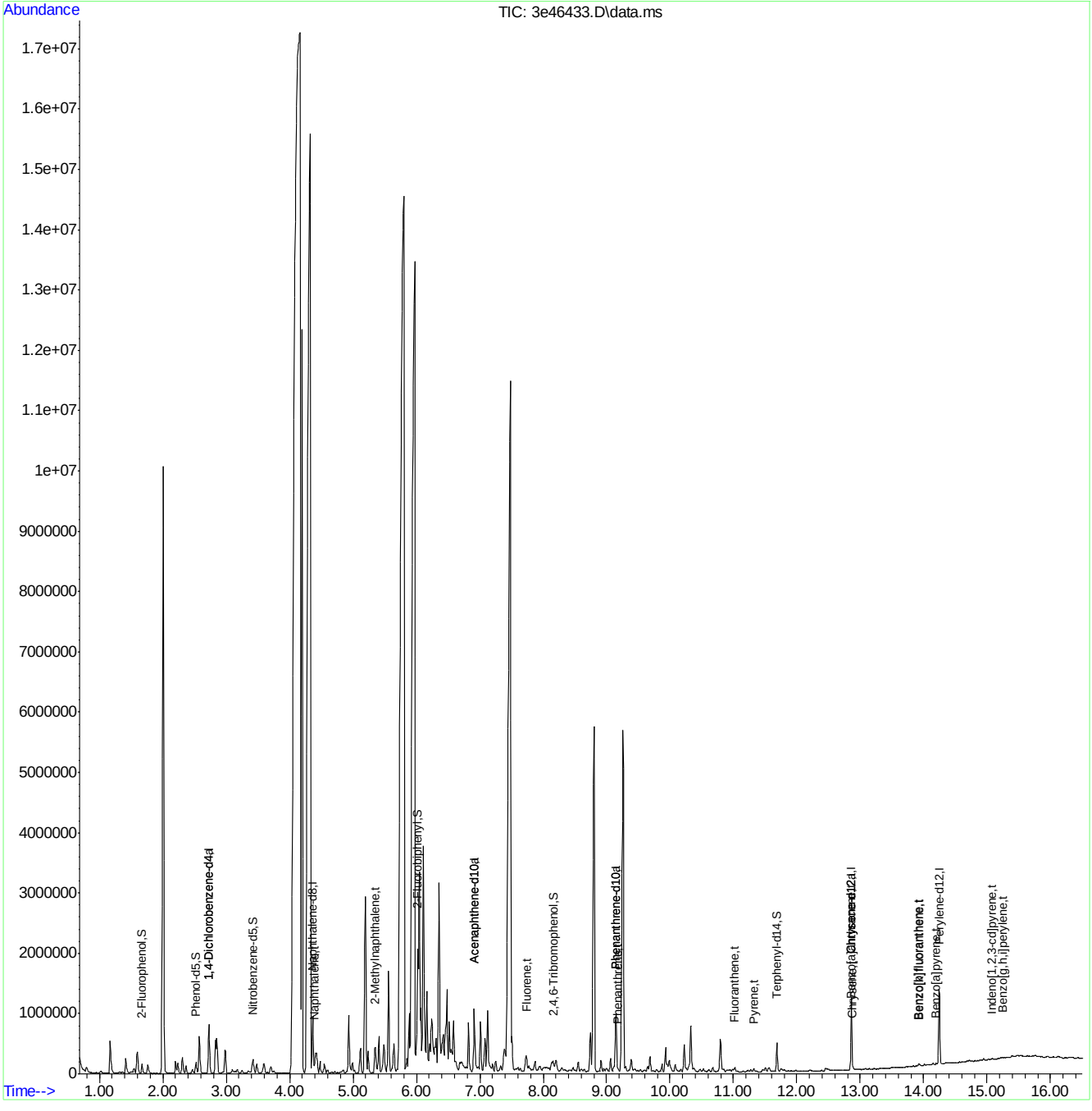
(#) = qualifier out of range (m) = manual integration (+) = signals summed

9.1.12
9

Quantitation Report (QT Reviewed)

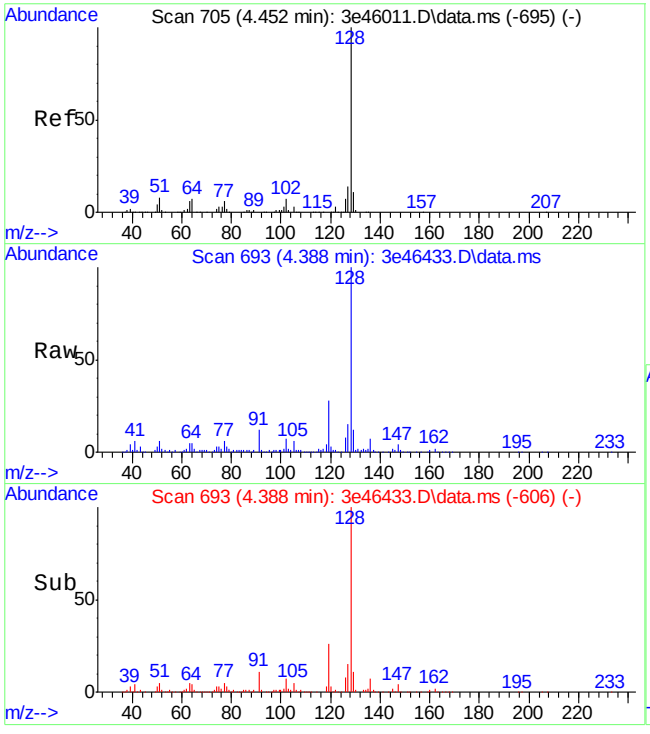
Data Path : C:\msdchem\1\DATA\E3e2018\
Data File : 3e46433.D
Acq On : 19 Dec 2012 7:26 pm
Operator : olgaa
Sample : jb22962-8
Misc : op62064,e3e2018,30.7,,,1,2
ALS Vial : 28 Sample Multiplier: 1

Quant Time: Dec 20 11:26:25 2012
Quant Method : C:\MSDCHEM\1\METHODS\M3E1991.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Dec 06 10:24:01 2012
Response via : Initial Calibration



M3E1991.M Thu Dec 20 11:27:49 2012 MS3E

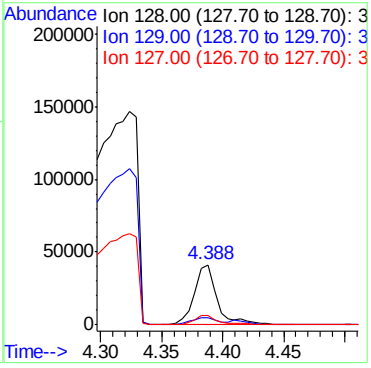
Page: 2

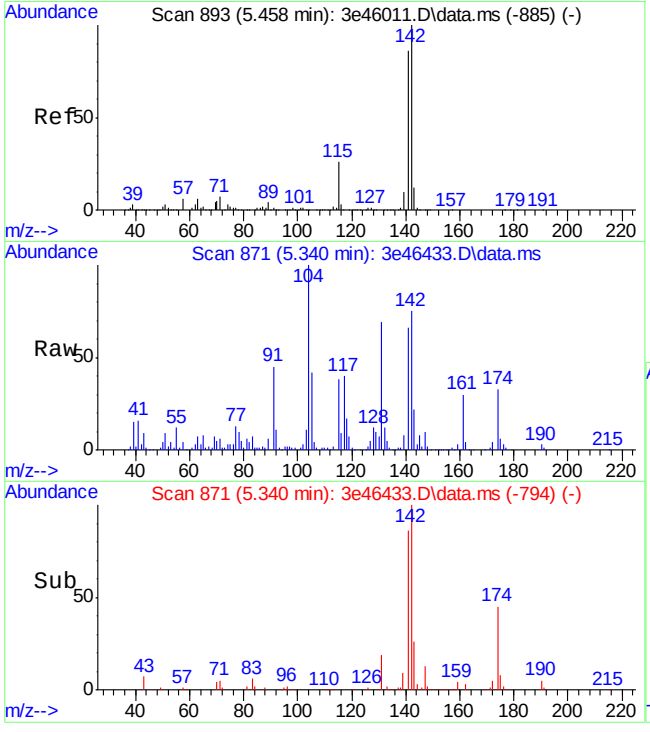


#38
Naphthalene
Concen: 3.08 ppb
RT: 4.388 min Scan# 693
Delta R.T. -0.032 min
Lab File: 3e46433.D
Acq: 19 Dec 2012 7:26 pm

Tgt Ion:128 Resp: 52557

Ion	Ratio	Lower	Upper
128	100		
129	11.2	0.0	41.7
127	15.0	0.0	43.4

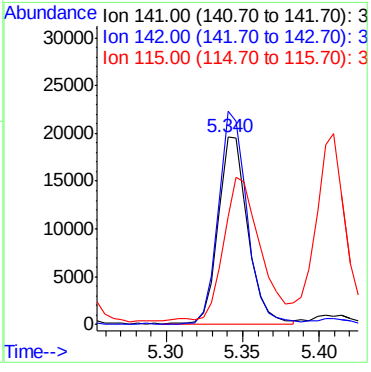




#44
2-Methylnaphthalene
Concen: 2.69 ppb
RT: 5.340 min Scan# 871
Delta R.T. -0.086 min
Lab File: 3e46433.D
Acq: 19 Dec 2012 7:26 pm

Tgt Ion:141 Resp: 26180

Ion	Ratio	Lower	Upper
141	100		
142	114.3	87.9	147.9
115	51.9	3.6	63.6



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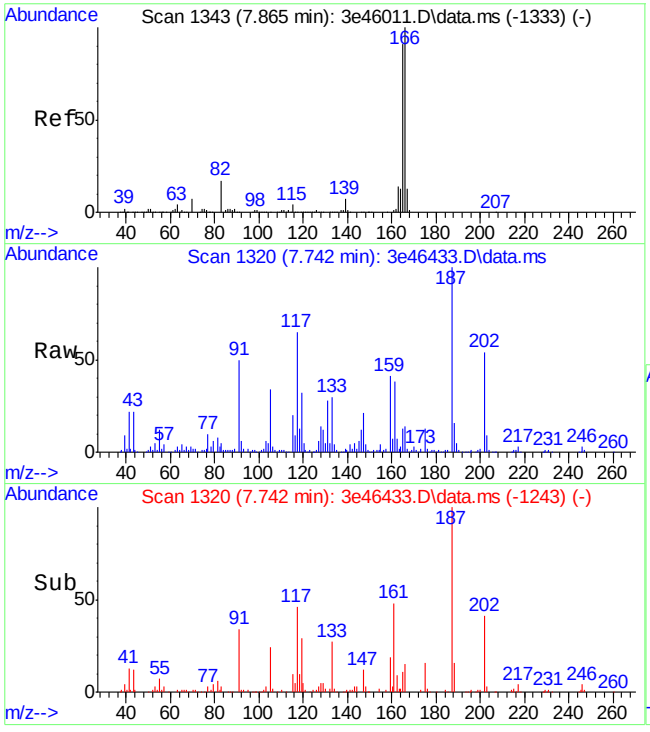
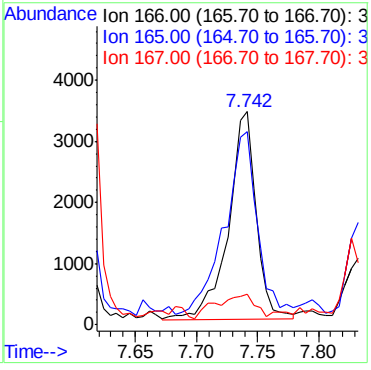
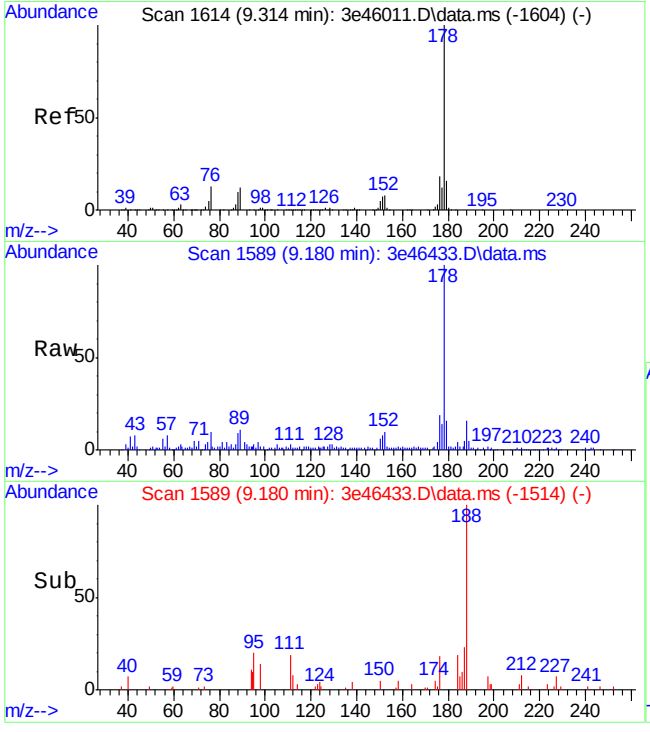


#66
Fluorene
Concen: 0.47 ppb
RT: 7.742 min Scan# 1320
Delta R.T. -0.086 min
Lab File: 3e46433.D
Acq: 19 Dec 2012 7:26 pm

Tgt Ion:166 Resp: 5328

Ion	Ratio	Lower	Upper
166	100		
165	86.9	61.1	121.1
167	9.0	0.0	43.8

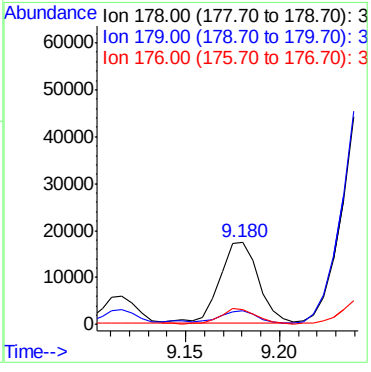




#77
Phenanthrene
Concen: 1.58 ppb
RT: 9.180 min Scan# 1589
Delta R.T. -0.096 min
Lab File: 3e46433.D
Acq: 19 Dec 2012 7:26 pm

Tgt Ion:178 Resp: 24393

Ion	Ratio	Lower	Upper
178	100		
179	14.0	0.0	46.0
176	18.0	0.0	48.7



9.1.12

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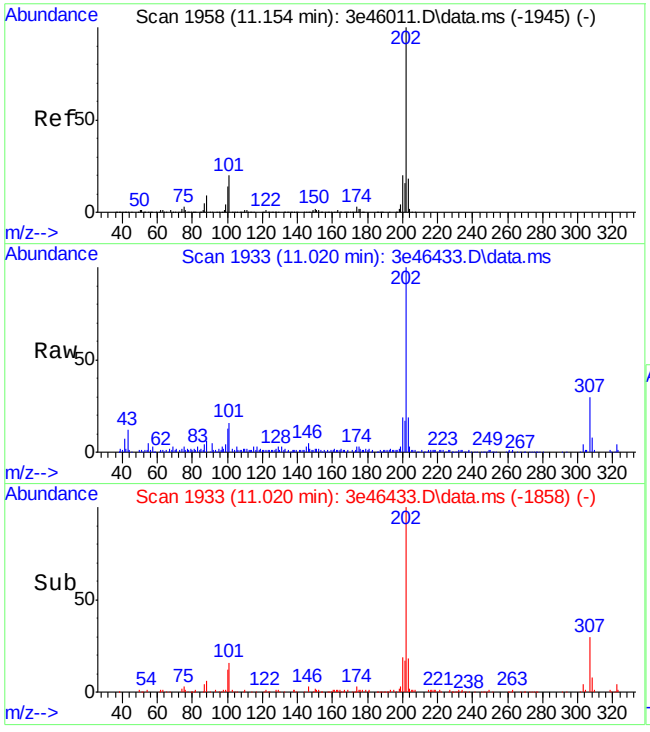
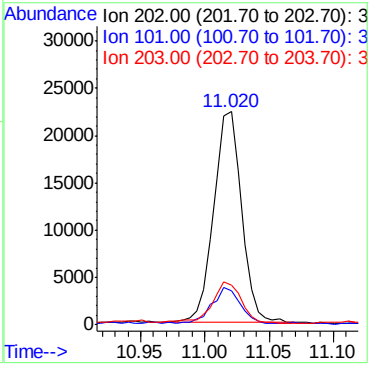
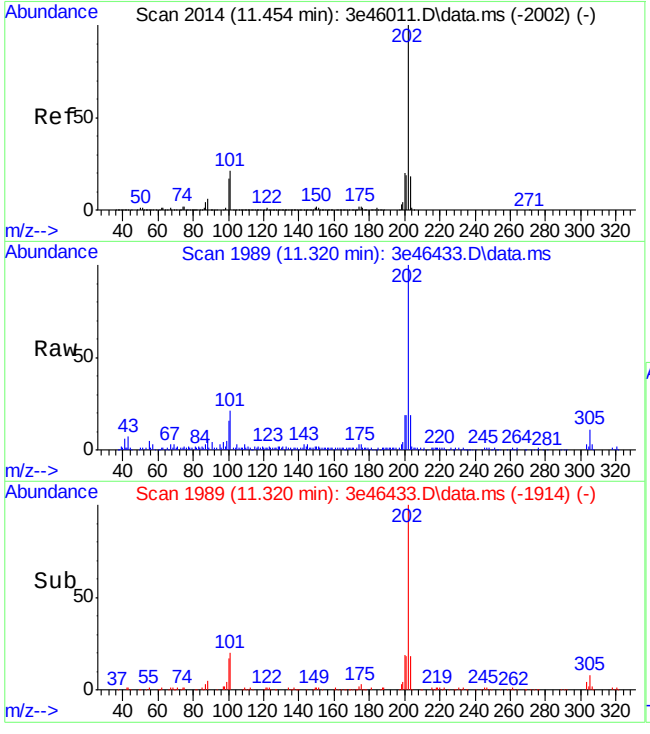


#81
Fluoranthene
Concen: 2.19 ppb
RT: 11.020 min Scan# 1933
Delta R.T. -0.096 min
Lab File: 3e46433.D
Acq: 19 Dec 2012 7:26 pm

Tgt Ion:202 Resp: 33405

Ion	Ratio	Lower	Upper
202	100		
101	15.4	0.0	45.2
203	17.9	0.0	48.0

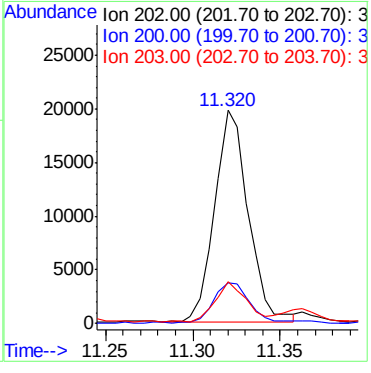


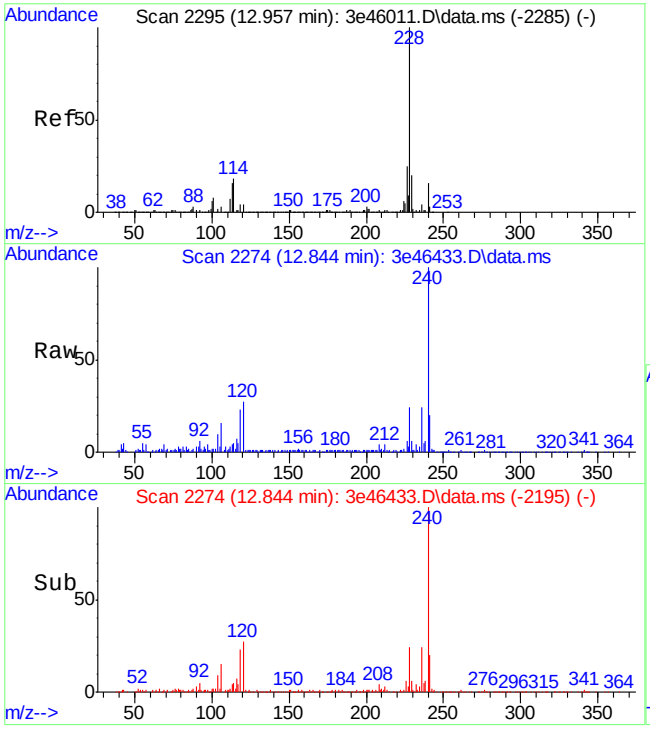


#84
Pyrene
Concen: 1.69 ppb
RT: 11.320 min Scan# 1989
Delta R.T. -0.096 min
Lab File: 3e46433.D
Acq: 19 Dec 2012 7:26 pm

Tgt Ion:202 Resp: 26335

Ion	Ratio	Lower	Upper
202	100		
200	18.7	0.0	50.7
203	16.0	0.0	47.9

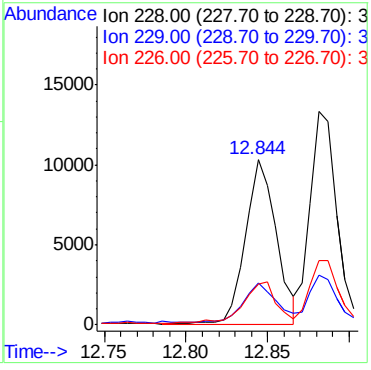


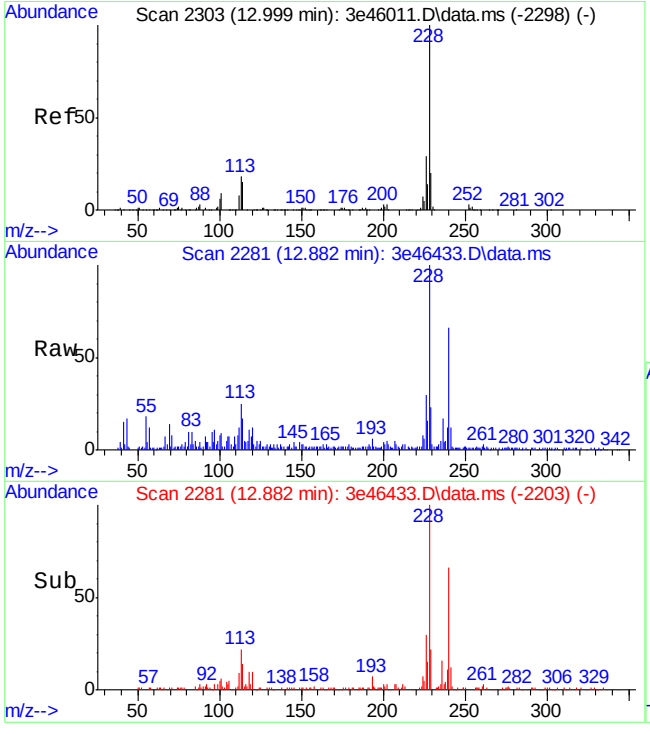


#88
Benzo[a]anthracene
Concen: 0.97 ppb
RT: 12.844 min Scan# 2274
Delta R.T. -0.075 min
Lab File: 3e46433.D
Acq: 19 Dec 2012 7:26 pm

Tgt Ion:228 Resp: 13501

Ion	Ratio	Lower	Upper
228	100		
229	22.7	0.0	50.5
226	24.2	0.0	55.9

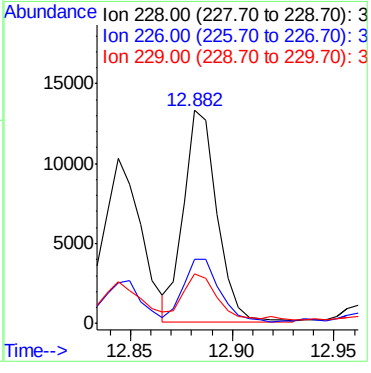




#90
Chrysene
Concen: 1.16 ppb
RT: 12.882 min Scan# 2281
Delta R.T. -0.080 min
Lab File: 3e46433.D
Acq: 19 Dec 2012 7:26 pm

Tgt Ion:228 Resp: 15210

Ion	Ratio	Lower	Upper
228	100		
226	30.4	0.0	59.2
229	21.2	0.0	50.9



9.1.12

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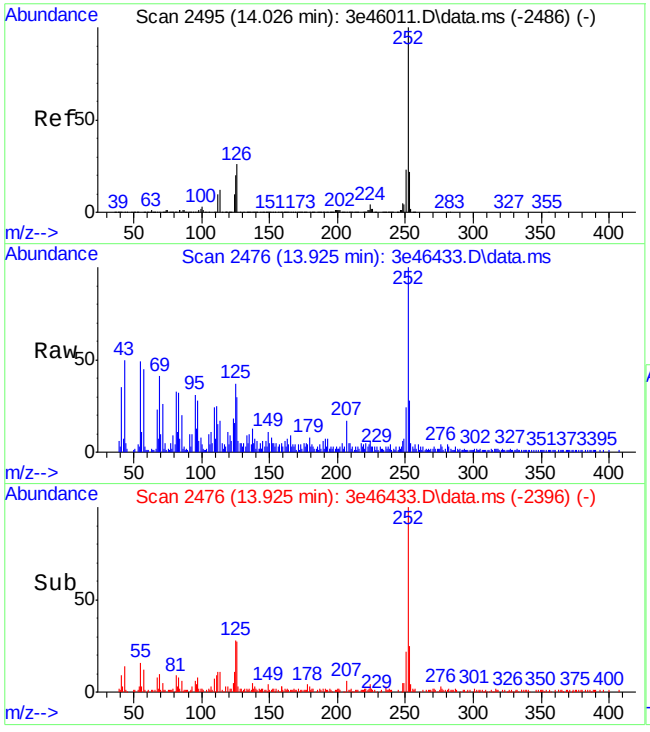
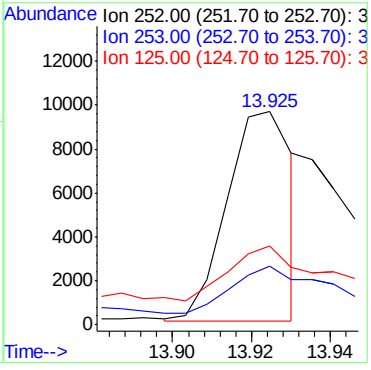
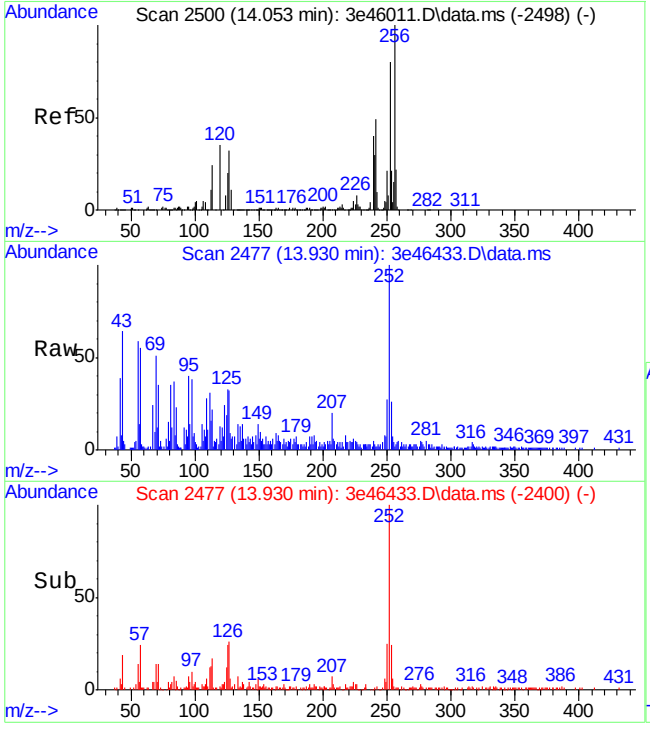


#94
Benzo[b]fluoranthene
Concen: 0.76 ppb m
RT: 13.925 min Scan# 2476
Delta R.T. -0.070 min
Lab File: 3e46433.D
Acq: 19 Dec 2012 7:26 pm

Tgt Ion:252 Resp: 11055

Ion	Ratio	Lower	Upper
252	100		
253	27.7	0.0	53.2
125	37.0	0.0	44.4

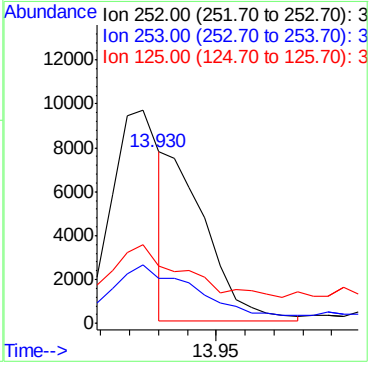




#95
Benzo[k]fluoranthene
Concen: 0.53 ppb m
RT: 13.930 min Scan# 2477
Delta R.T. -0.090 min
Lab File: 3e46433.D
Acq: 19 Dec 2012 7:26 pm

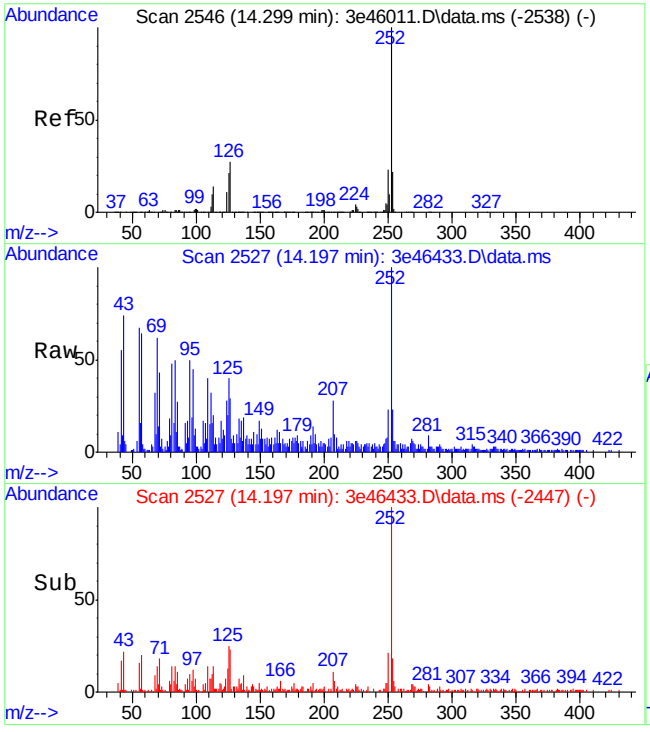
Tgt Ion:252 Resp: 7365

Ion	Ratio	Lower	Upper
252	100		
253	26.0	0.0	56.5
125	33.4	0.0	45.7



9.1.12

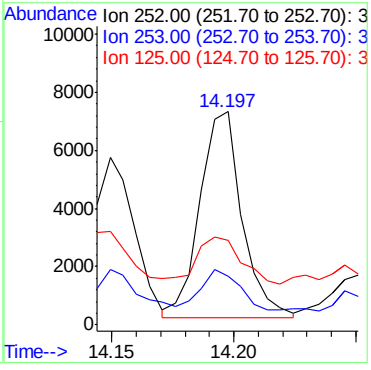
9

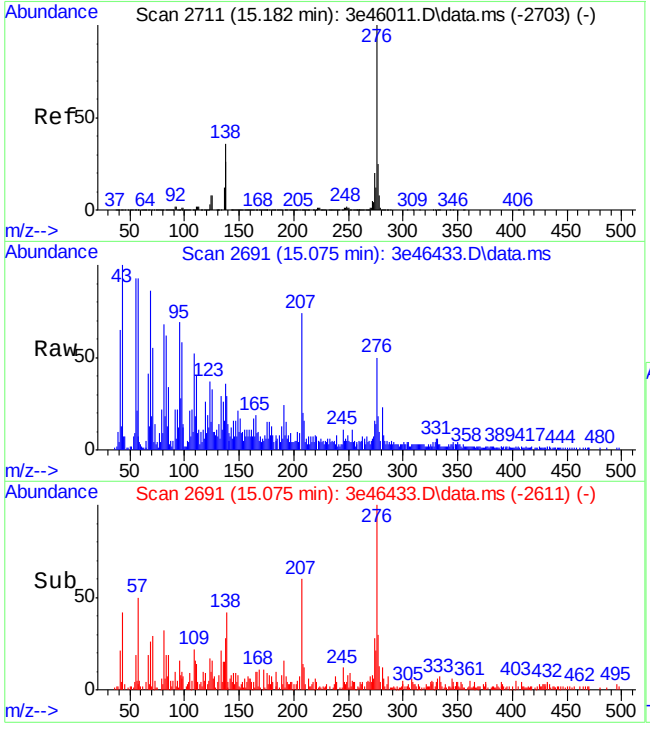


#96
Benzo[a]pyrene
Concen: 0.67 ppb
RT: 14.197 min Scan# 2527
Delta R.T. -0.070 min
Lab File: 3e46433.D
Acq: 19 Dec 2012 7:26 pm

Tgt Ion:252 Resp: 8498

Ion	Ratio	Lower	Upper
252	100		
253	14.7	0.0	52.7
125	18.9	0.0	48.6

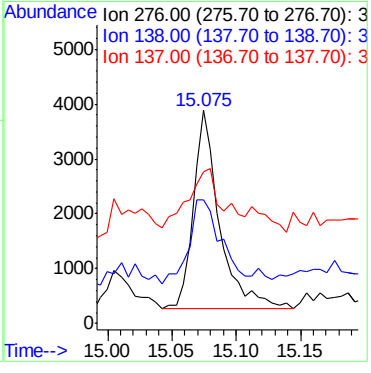




#97
Indeno[1,2,3-cd]pyrene
Concen: 0.36 ppb
RT: 15.075 min Scan# 2691
Delta R.T. -0.070 min
Lab File: 3e46433.D
Acq: 19 Dec 2012 7:26 pm

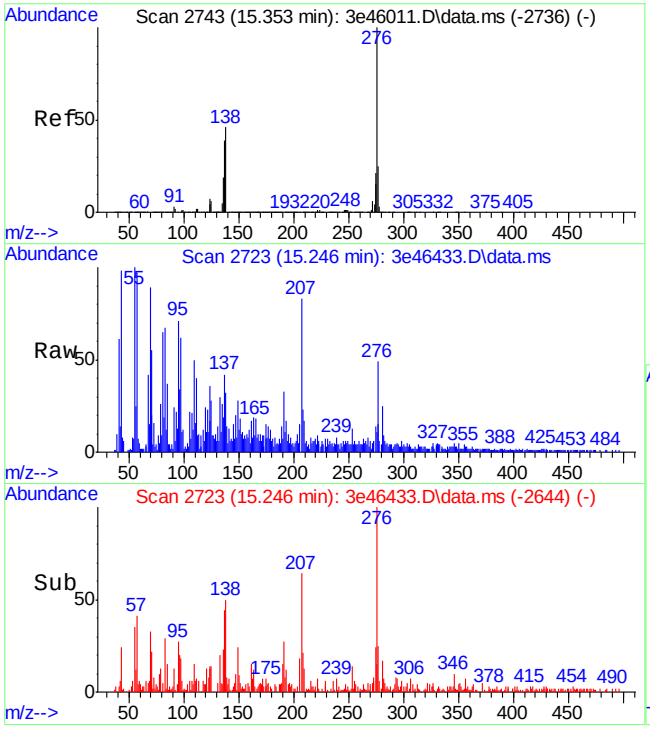
Tgt Ion:276 Resp: 5138

Ion	Ratio	Lower	Upper
276	100		
138	39.7	1.3	61.3
137	24.4	0.0	52.6



9.1.12

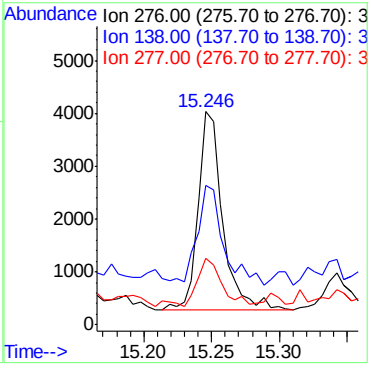
9



#101
Benzo[g,h,i]perylene
Concen: 0.40 ppb
RT: 15.246 min Scan# 2723
Delta R.T. -0.075 min
Lab File: 3e46433.D
Acq: 19 Dec 2012 7:26 pm

Tgt Ion:276 Resp: 4732

Ion	Ratio	Lower	Upper
276	100		
138	48.8	9.8	69.8
277	21.9	0.0	55.0



9.1.12

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48609.D
Acq On : 19 Dec 2012 12:03 pm
Operator : olgaa
Sample : jb22962-9
Misc : op62064,e2m2082,32.3
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 19 15:32:23 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.379	152	195182	40.00	ppb	-0.01
24) Naphthalene-d8	3.898	136	910059	40.00	ppb	-0.02
47) Acenaphthene-d10	6.460	164	595020	40.00	ppb	-0.02
69) Phenanthrene-d10	8.685	188	1053469	40.00	ppb	-0.02
83) Chrysene-d12	12.504	240	1165882	40.00	ppb	-0.02
92) Perylene-d12	13.916	264	1023965	40.00	ppb	-0.01
102) 1,4-Dichlorobenzene-d4a	2.379	152	195182	40.00	ppb	-0.01
104) Acenaphthene-d10a	6.460	164	595020	40.00	ppb	-0.02
106) Chrysene-d12a	12.504	240	1165882	40.00	ppb	-0.02
108) Phenanthrene-d10a	8.685	188	1053469	40.00	ppb	-0.02
110) Chrysene-d12b	12.504	240	1165882	40.00	ppb	-0.02

System Monitoring Compounds						
5) 2-Fluorophenol	1.421	112	137727	19.39	ppb	0.00
Spiked Amount 50.000			Recovery = 38.78%			
8) Phenol-d5	2.223	99	214600	22.54	ppb	0.00
Spiked Amount 50.000			Recovery = 45.08%			
25) Nitrobenzene-d5	3.063	82	147940	15.15	ppb	0.00
Spiked Amount 50.000			Recovery = 30.30%			
51) 2-Fluorobiphenyl	5.545	172	348514	17.81	ppb	-0.02
Spiked Amount 50.000			Recovery = 35.62%			
73) 2,4,6-Tribromophenol	7.722	330	87552	35.36	ppb	-0.02
Spiked Amount 50.000			Recovery = 70.72%			
85) Terphenyl-d14	11.273	244	802065	34.04	ppb	-0.02
Spiked Amount 50.000			Recovery = 68.08%			

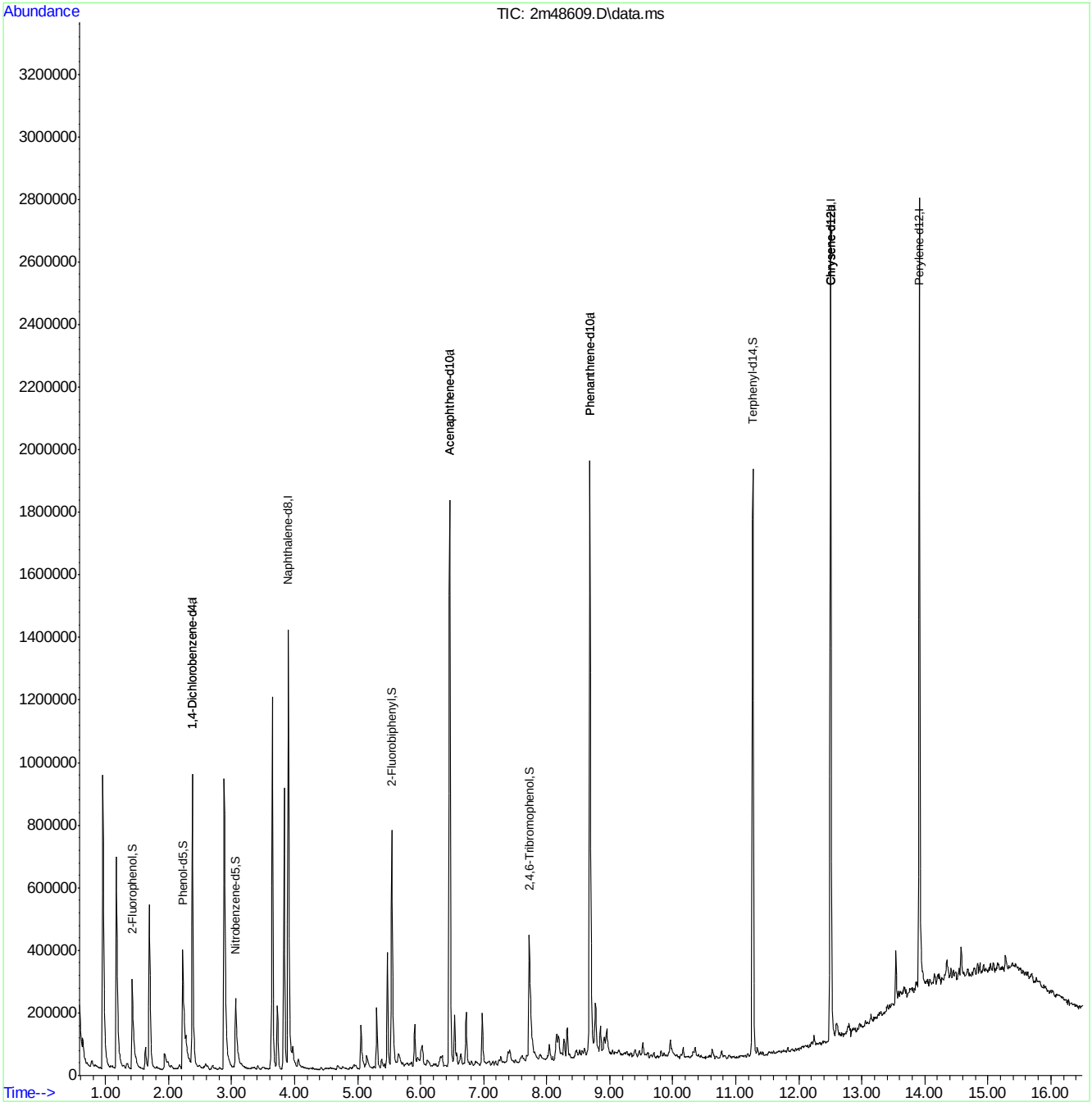
Target Compounds	Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48609.D
Acq On : 19 Dec 2012 12:03 pm
Operator : olgaa
Sample : jb22962-9
Misc : op62064,e2m2082,32.3
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 19 15:32:23 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration



M2M2034.M Wed Dec 19 15:32:37 2012 MS2M

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48618.D
Acq On : 19 Dec 2012 3:31 pm
Operator : olgaa
Sample : jb22962-10
Misc : op62064,e2m2082,35.3
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Dec 19 15:54:57 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.379	152	264170	40.00	ppb	-0.01
24) Naphthalene-d8	3.903	136	1266746	40.00	ppb	-0.01
47) Acenaphthene-d10	6.465	164	791776	40.00	ppb	-0.02
69) Phenanthrene-d10	8.695	188	1316600	40.00	ppb	-0.01
83) Chrysene-d12	12.520	240	1257132	40.00	ppb	0.00
92) Perylene-d12	13.932	264	1099193	40.00	ppb	0.00
102) 1,4-Dichlorobenzene-d4a	2.379	152	264170	40.00	ppb	-0.01
104) Acenaphthene-d10a	6.465	164	791776	40.00	ppb	-0.02
106) Chrysene-d12a	12.520	240	1257132	40.00	ppb	0.00
108) Phenanthrene-d10a	8.695	188	1316600	40.00	ppb	-0.01
110) Chrysene-d12b	12.520	240	1257132	40.00	ppb	0.00

System Monitoring Compounds						
5) 2-Fluorophenol	1.427	112	188335	19.59	ppb	0.00
Spiked Amount 50.000			Recovery	=	39.18%	
8) Phenol-d5	2.234	99	307978	23.90	ppb	0.02
Spiked Amount 50.000			Recovery	=	47.80%	
25) Nitrobenzene-d5	3.053	82	264660	19.47	ppb	-0.01
Spiked Amount 50.000			Recovery	=	38.94%	
51) 2-Fluorobiphenyl	5.545	172	537080	20.63	ppb	-0.02
Spiked Amount 50.000			Recovery	=	41.26%	
73) 2,4,6-Tribromophenol	7.727	330	117325	37.92	ppb	-0.01
Spiked Amount 50.000			Recovery	=	75.84%	
85) Terphenyl-d14	11.284	244	1010428	39.77	ppb	0.00
Spiked Amount 50.000			Recovery	=	79.54%	

Target Compounds						Qvalue
44) 2-Methylnaphthalene	4.930	141	8927	0.41	ppb	94
77) Phenanthrene	8.727	178	20298	0.50	ppb	93
81) Fluoranthene	10.562	202	27033	0.68	ppb	91
84) Pyrene	10.883	202	26400	0.65	ppb	96
88) Benzo[a]anthracene	12.498	228	22333	0.58	ppb	94
90) Chrysene	12.541	228	19753	0.52	ppb	94
96) Benzo[a]pyrene	13.878	252	14051	0.43	ppb	81

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

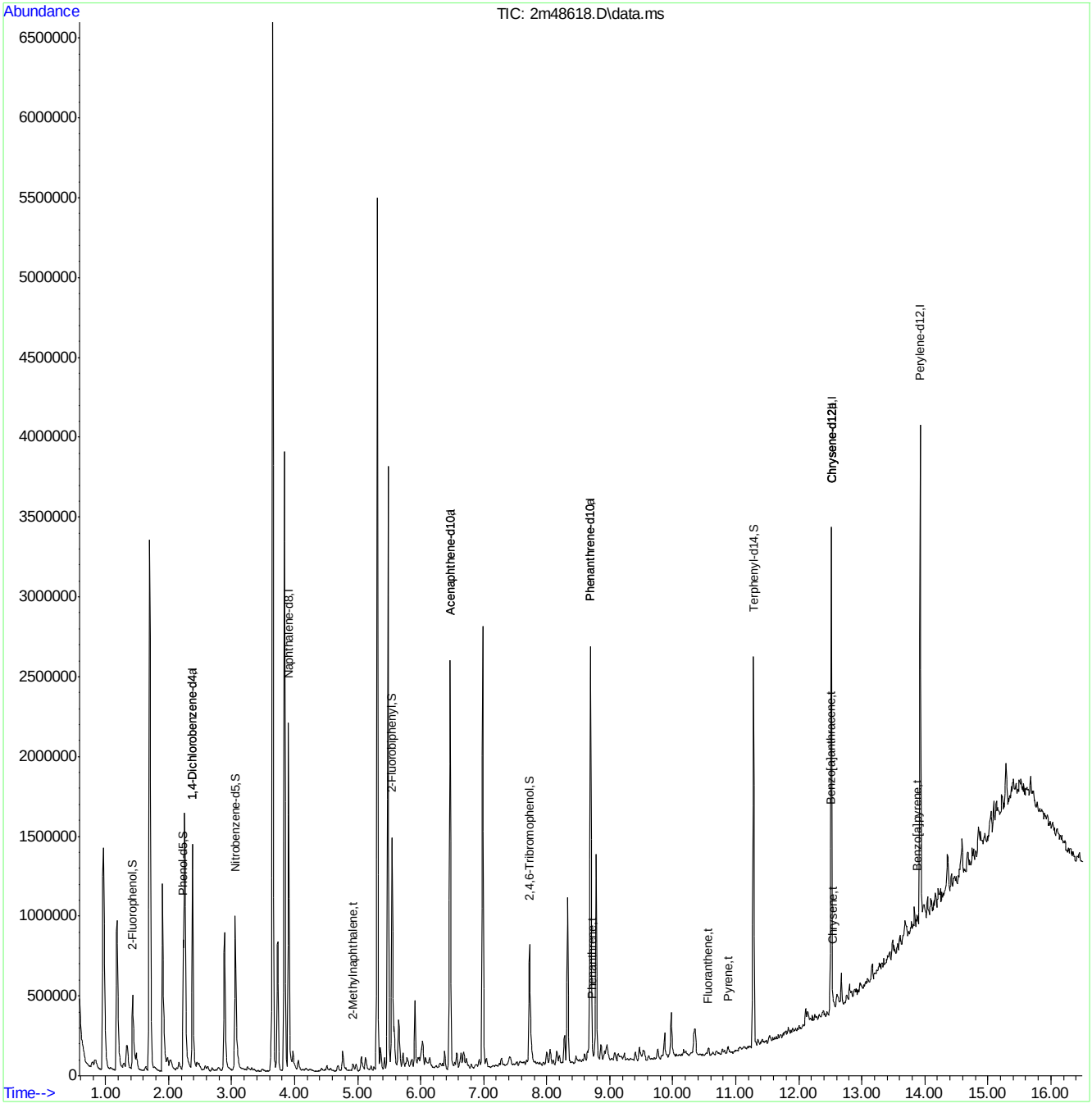
9.1.14

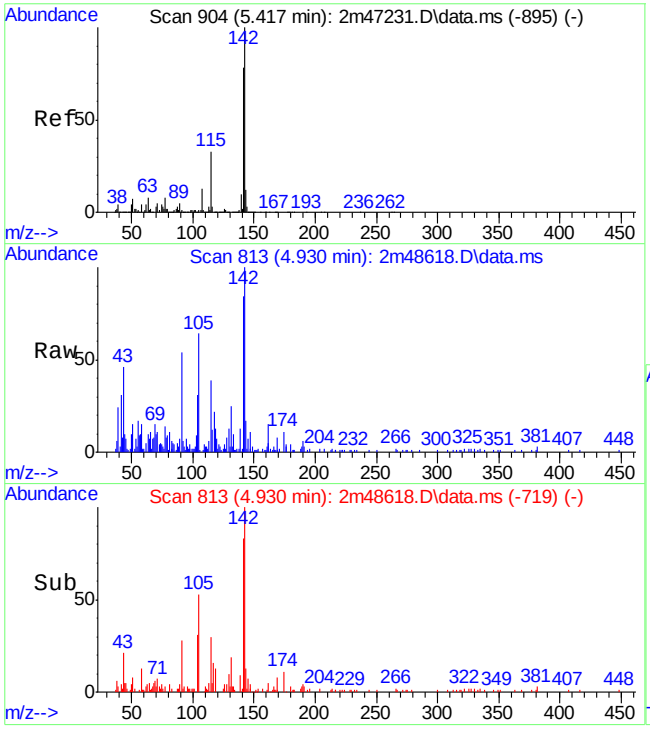
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48618.D
Acq On : 19 Dec 2012 3:31 pm
Operator : olgaa
Sample : jb22962-10
Misc : op62064,e2m2082,35.3
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Dec 19 15:54:57 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration

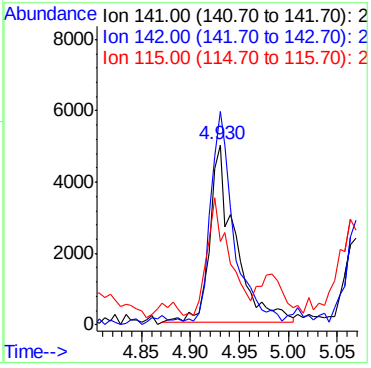


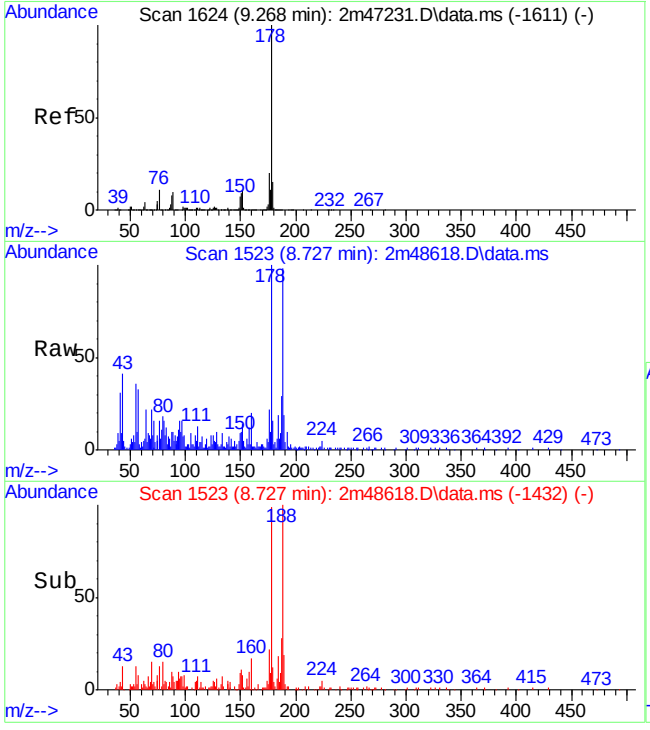


#44
2-Methylnaphthalene
Concen: 0.41 ppb
RT: 4.930 min Scan# 813
Delta R.T. 0.000 min
Lab File: 2m48618.D
Acq: 19 Dec 2012 3:31 pm

Tgt Ion:141 Resp: 8927

Ion	Ratio	Lower	Upper
141	100		
142	116.2	81.7	141.7
115	36.3	12.0	72.0

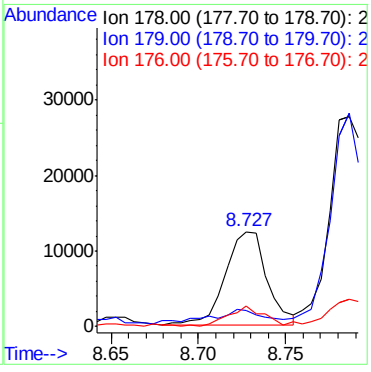


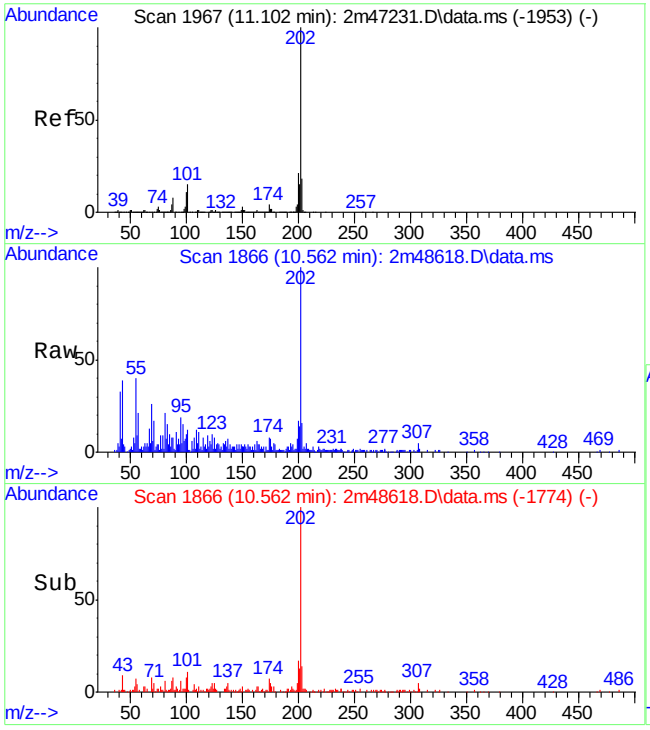


#77
Phenanthrene
Concen: 0.50 ppb
RT: 8.727 min Scan# 1523
Delta R.T. -0.016 min
Lab File: 2m48618.D
Acq: 19 Dec 2012 3:31 pm

Tgt Ion:178 Resp: 20298

Ion	Ratio	Lower	Upper
178	100		
179	9.4	0.0	44.9
176	19.8	0.0	49.1

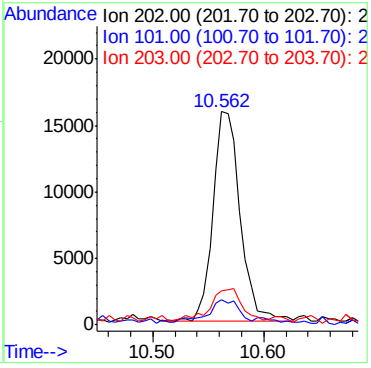


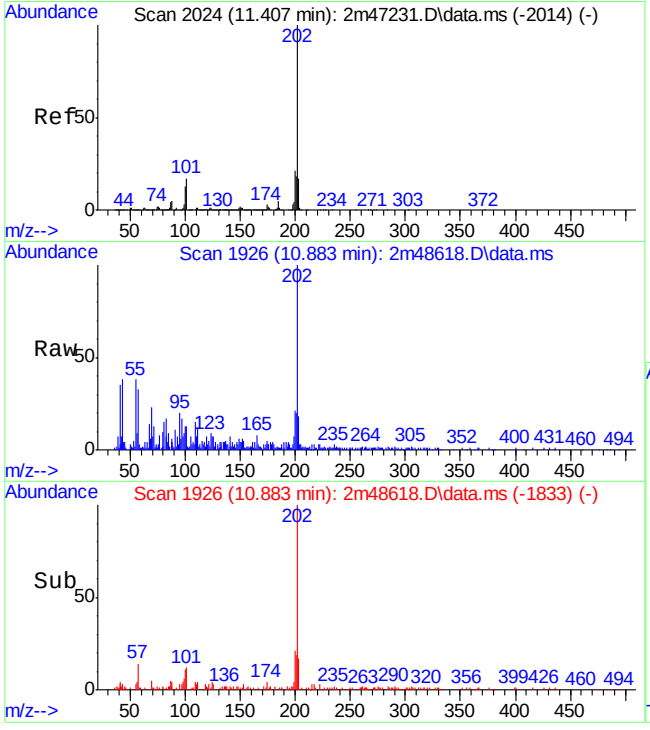


#81
Fluoranthene
Concen: 0.68 ppb
RT: 10.562 min Scan# 1866
Delta R.T. -0.011 min
Lab File: 2m48618.D
Acq: 19 Dec 2012 3:31 pm

Tgt Ion:202 Resp: 27033

Ion	Ratio	Lower	Upper
202	100		
101	10.2	0.0	43.8
203	13.5	0.0	47.5

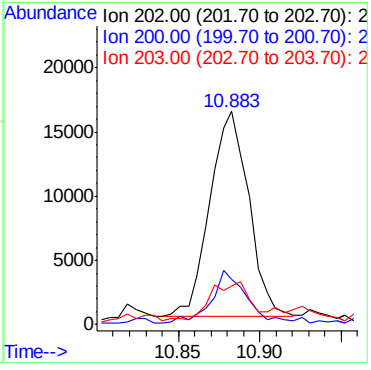


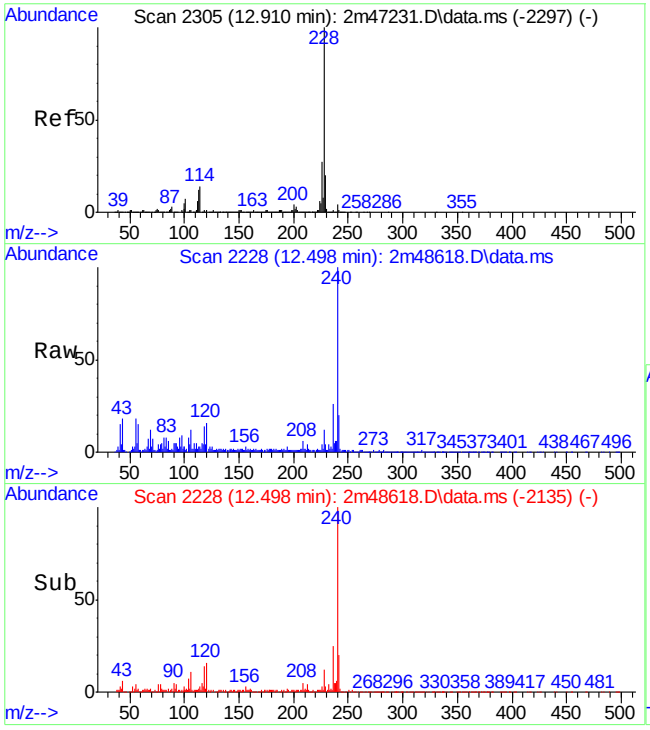


#84
Pyrene
Concen: 0.65 ppb
RT: 10.883 min Scan# 1926
Delta R.T. -0.005 min
Lab File: 2m48618.D
Acq: 19 Dec 2012 3:31 pm

Tgt Ion:202 Resp: 26400

Ion	Ratio	Lower	Upper
202	100		
200	21.2	0.0	51.3
203	14.0	0.0	47.6

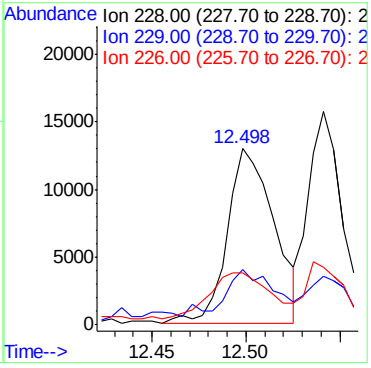


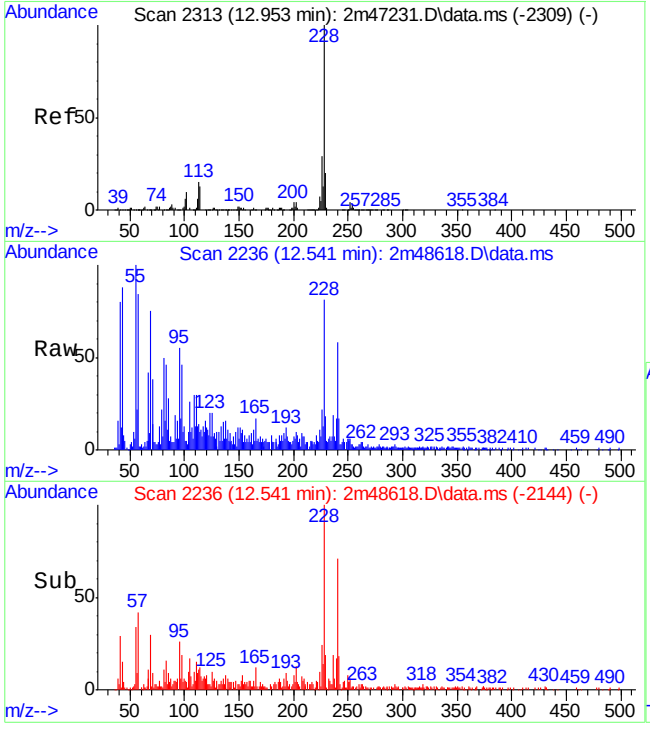


#88
Benzo[a]anthracene
Concen: 0.58 ppb
RT: 12.498 min Scan# 2228
Delta R.T. -0.005 min
Lab File: 2m48618.D
Acq: 19 Dec 2012 3:31 pm

Tgt Ion:228 Resp: 22333

Ion	Ratio	Lower	Upper
228	100		
229	25.4	0.0	49.3
226	25.8	0.0	56.0

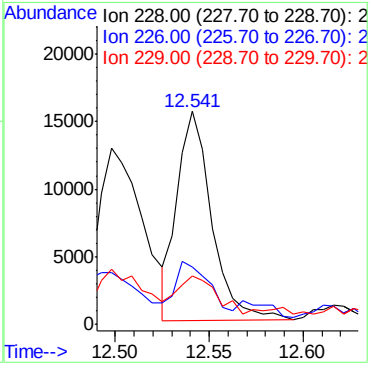




#90
Chrysene
Concen: 0.52 ppb
RT: 12.541 min Scan# 2236
Delta R.T. -0.011 min
Lab File: 2m48618.D
Acq: 19 Dec 2012 3:31 pm

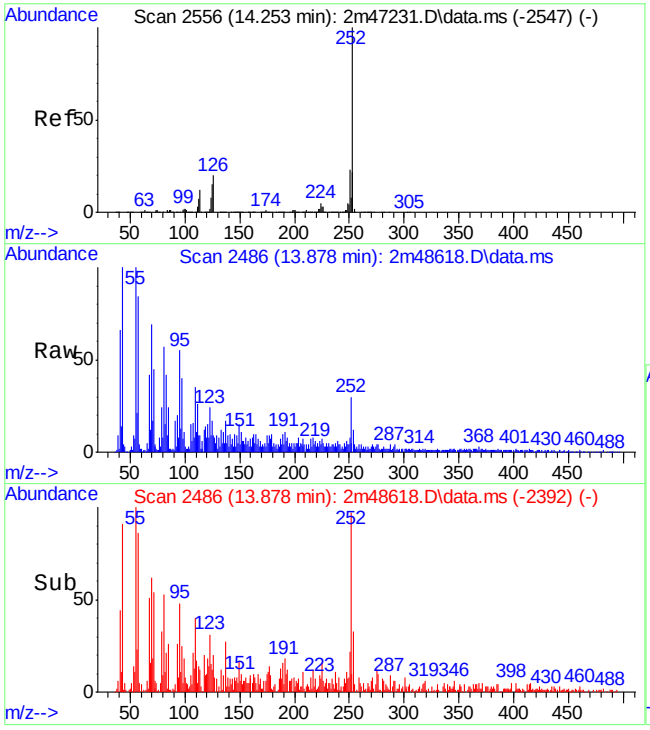
Tgt Ion:228 Resp: 19753

Ion	Ratio	Lower	Upper
228	100		
226	23.7	0.0	57.7
229	17.4	0.0	49.3



9.1.14

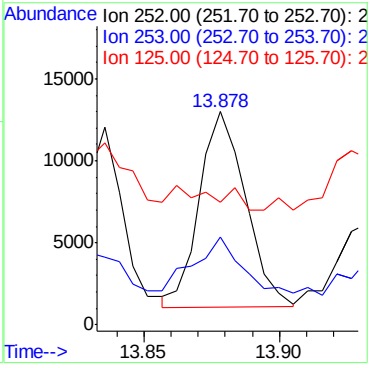
9



#96
Benzo[a]pyrene
Concen: 0.43 ppb
RT: 13.878 min Scan# 2486
Delta R.T. 0.000 min
Lab File: 2m48618.D
Acq: 19 Dec 2012 3:31 pm

Tgt Ion:252 Resp: 14051

Ion	Ratio	Lower	Upper
252	100		
253	29.1	0.0	52.4
125	2.1	0.0	42.7



9.1.14

9

Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 12/21/12 18:23

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48625.D
Acq On : 19 Dec 2012 6:13 pm
Operator : olgaa
Sample : jb22962-11
Misc : op62064,e2m2082,33.1,,,1,2
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Dec 20 11:54:13 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.389	152	220234	40.00	ppb	0.00
24) Naphthalene-d8	3.914	136	1044614	40.00	ppb	0.00
47) Acenaphthene-d10	6.481	164	632872	40.00	ppb	0.00
69) Phenanthrene-d10	8.717	188	1004344	40.00	ppb	0.01
83) Chrysene-d12	12.541	240	951766	40.00	ppb	0.02
92) Perylene-d12	13.958	264	903803	40.00	ppb	0.03
102) 1,4-Dichlorobenzene-d4a	2.389	152	220234	40.00	ppb	0.00
104) Acenaphthene-d10a	6.481	164	632872	40.00	ppb	0.00
106) Chrysene-d12a	12.541	240	951766	40.00	ppb	0.02
108) Phenanthrene-d10a	8.717	188	1004344	40.00	ppb	0.01
110) Chrysene-d12b	12.541	240	951766	40.00	ppb	0.02

System Monitoring Compounds						
5) 2-Fluorophenol	1.442	112	95444	11.91	ppb	0.02
Spiked Amount 50.000			Recovery	=	23.82%	
8) Phenol-d5	2.250	99	147093	13.69	ppb	0.03
Spiked Amount 50.000			Recovery	=	27.38%	
25) Nitrobenzene-d5	3.063	82	163997	14.63	ppb	0.00
Spiked Amount 50.000			Recovery	=	29.26%	
51) 2-Fluorobiphenyl	5.556	172	323938	15.57	ppb	0.00
Spiked Amount 50.000			Recovery	=	31.14%	
73) 2,4,6-Tribromophenol	7.749	330	51431	21.79	ppb	0.01
Spiked Amount 50.000			Recovery	=	43.58%	
85) Terphenyl-d14	11.300	244	392818	20.42	ppb	0.01
Spiked Amount 50.000			Recovery	=	40.84%	

Target Compounds						Qvalue
38) Naphthalene	3.940	128	15962	0.55	ppb	94
44) 2-Methylnaphthalene	4.935	141	26045	1.46	ppb	90
56) Acenaphthylene	6.246	152	63573	2.08	ppb	98
66) Fluorene	7.305	166	15584	0.73	ppb	91
77) Phenanthrene	8.743	178	70684	2.30	ppb	98
78) Anthracene	8.818	178	90456	2.97	ppb	95
81) Fluoranthene	10.589	202	145371	4.79	ppb	97
84) Pyrene	10.904	202	125673	4.08	ppb	97
88) Benzo[a]anthracene	12.525	228	105477	3.60	ppb	89
90) Chrysene	12.562	228	116201	4.00	ppb	95
94) Benzo[b]fluoranthene	13.632	252	168352m	5.35	ppb	
95) Benzo[k]fluoranthene	13.643	252	46553m	1.64	ppb	
96) Benzo[a]pyrene	13.905	252	115894	4.34	ppb	86
97) Indeno[1,2,3-cd]pyrene	14.803	276	122785	3.96	ppb	85
99) Dibenz[a,h]anthracene	14.809	278	68674m	2.63	ppb	
101) Benzo[g,h,i]perylene	14.980	276	210791	7.96	ppb	92

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

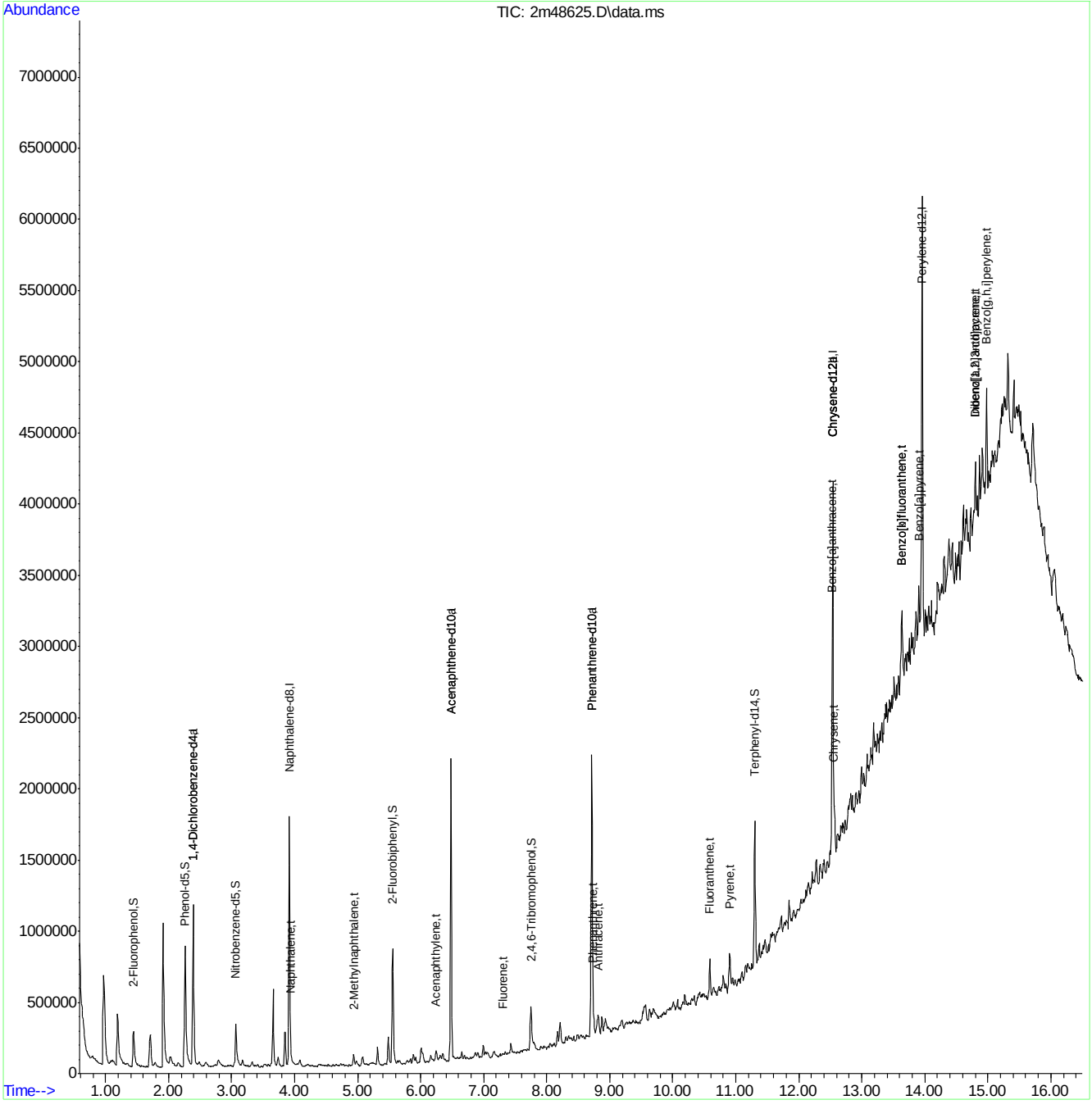
9.1.15

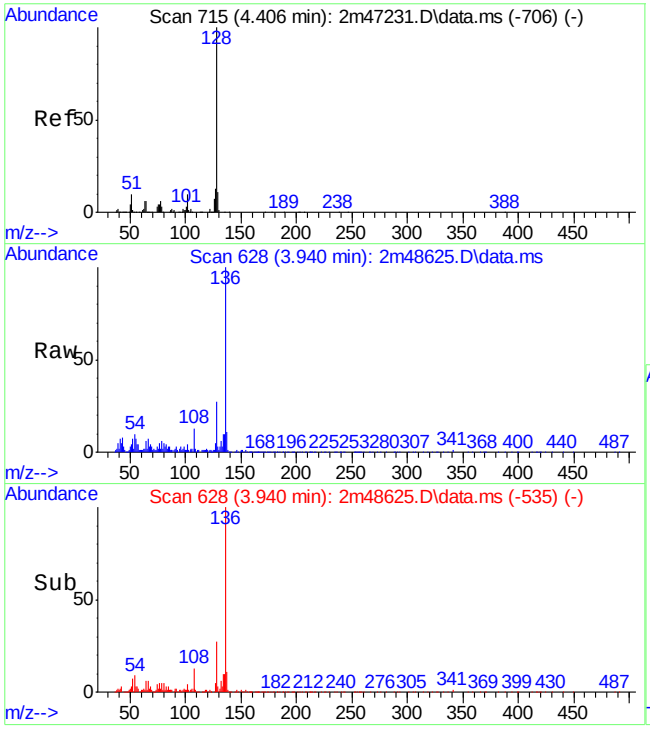
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48625.D
Acq On : 19 Dec 2012 6:13 pm
Operator : olgaa
Sample : jb22962-11
Misc : op62064,e2m2082,33.1,,,1,2
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Dec 20 11:54:13 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration

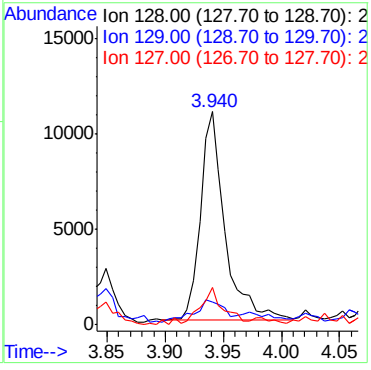


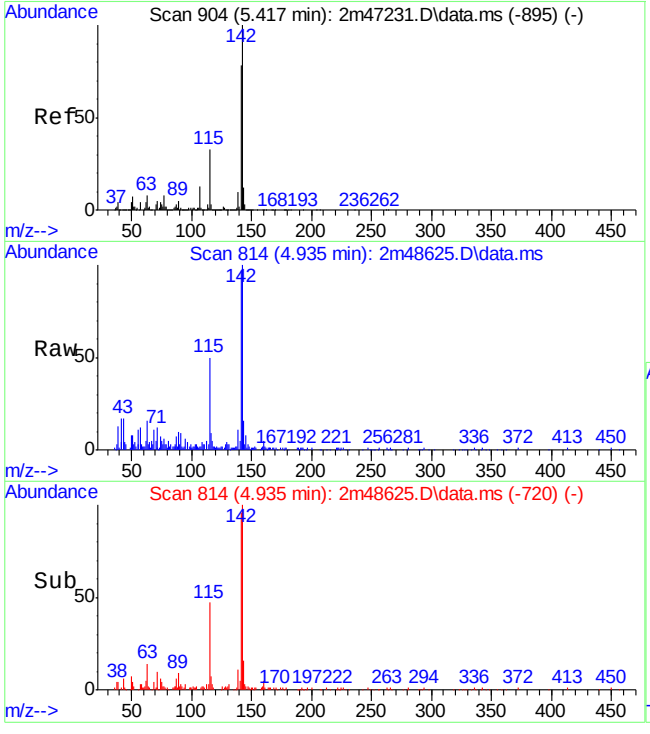


#38
Naphthalene
Concen: 0.55 ppb
RT: 3.940 min Scan# 628
Delta R.T. 0.000 min
Lab File: 2m48625.D
Acq: 19 Dec 2012 6:13 pm

Tgt Ion:128 Resp: 15962

Ion	Ratio	Lower	Upper
128	100		
129	9.0	0.0	40.9
127	15.7	0.0	43.3

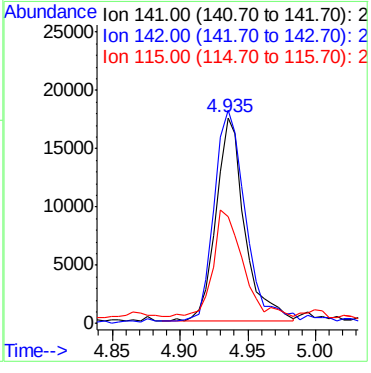


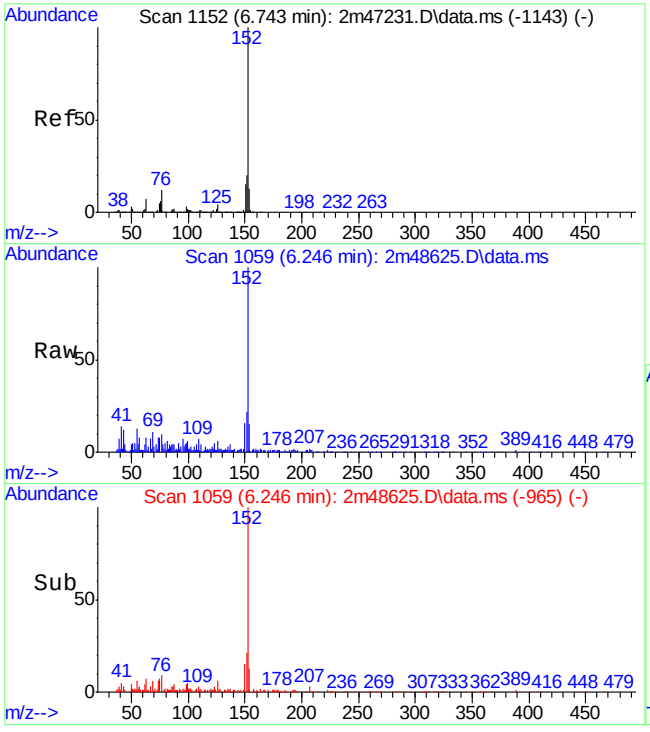


#44
2-Methylnaphthalene
Concen: 1.46 ppb
RT: 4.935 min Scan# 814
Delta R.T. 0.005 min
Lab File: 2m48625.D
Acq: 19 Dec 2012 6:13 pm

Tgt Ion:141 Resp: 26045

Ion	Ratio	Lower	Upper
141	100		
142	102.2	81.7	141.7
115	49.2	12.0	72.0

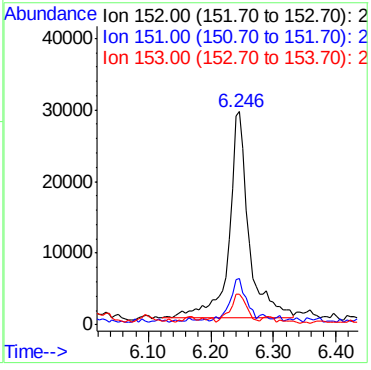


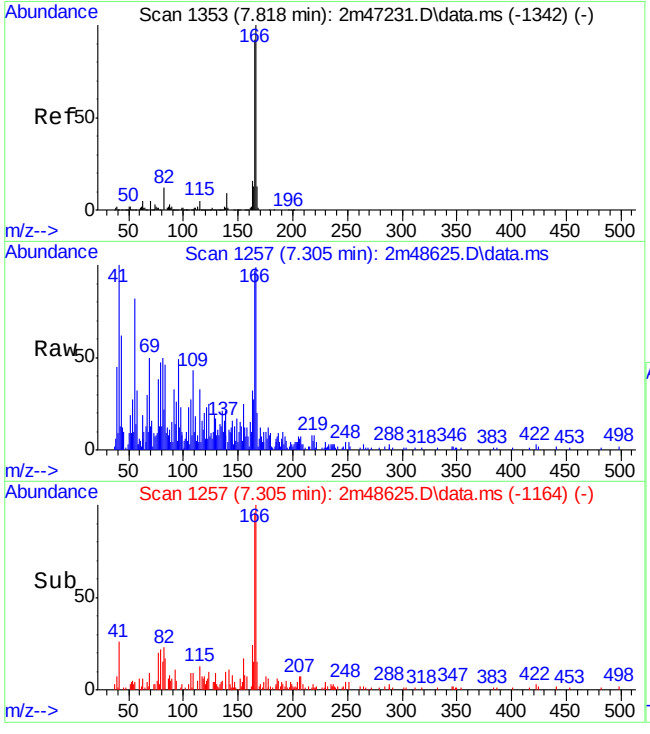


#56
Acenaphthylene
Concen: 2.08 ppb
RT: 6.246 min Scan# 1059
Delta R.T. 0.005 min
Lab File: 2m48625.D
Acq: 19 Dec 2012 6:13 pm

Tgt Ion:152 Resp: 63573

Ion	Ratio	Lower	Upper
152	100		
151	20.4	0.0	49.4
153	13.3	0.0	43.0

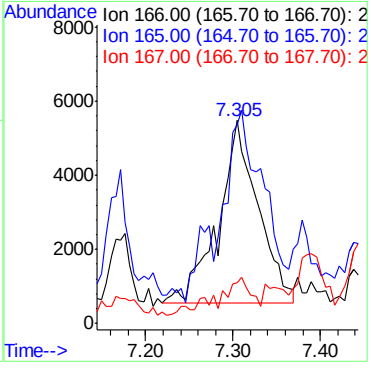




#66
Fluorene
Concen: 0.73 ppb
RT: 7.305 min Scan# 1257
Delta R.T. -0.000 min
Lab File: 2m48625.D
Acq: 19 Dec 2012 6:13 pm

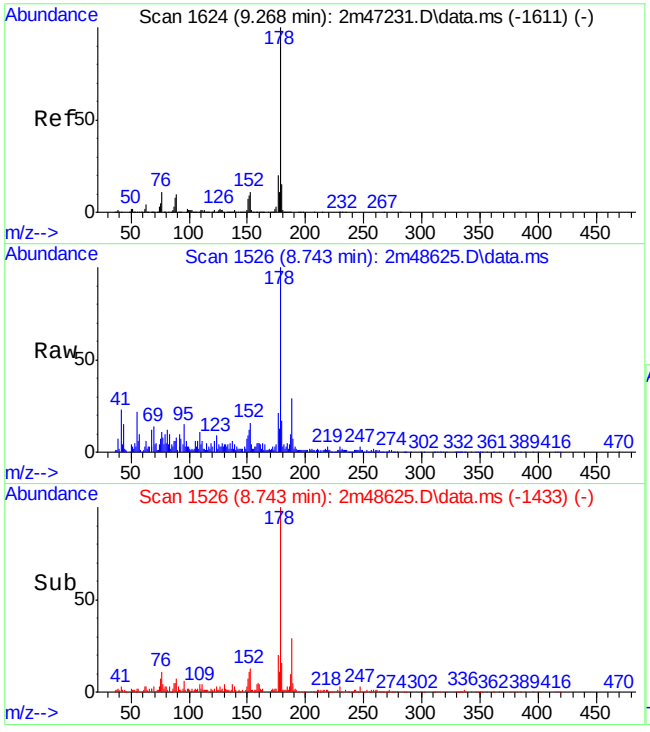
Tgt Ion:166 Resp: 15584

Ion	Ratio	Lower	Upper
166	100		
165	83.8	61.9	121.9
167	9.6	0.0	43.1



9.1.15

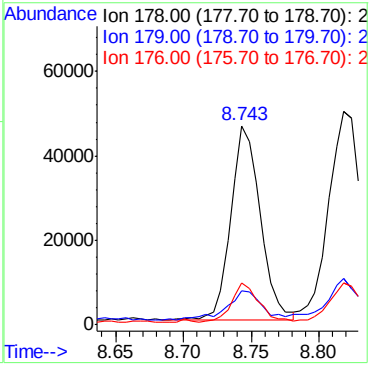
9

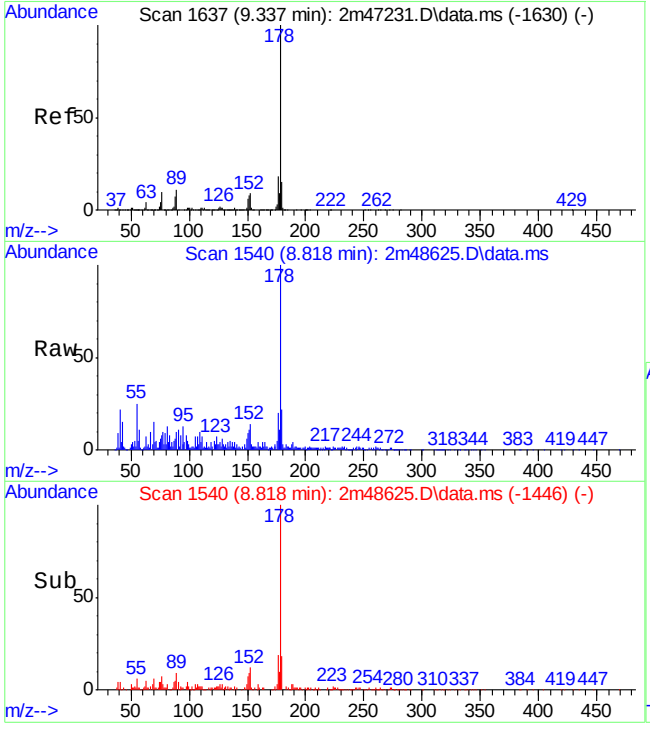


#77
Phenanthrene
Concen: 2.30 ppb
RT: 8.743 min Scan# 1526
Delta R.T. -0.000 min
Lab File: 2m48625.D
Acq: 19 Dec 2012 6:13 pm

Tgt Ion:178 Resp: 70684

Ion	Ratio	Lower	Upper
178	100		
179	13.7	0.0	44.9
176	20.1	0.0	49.1

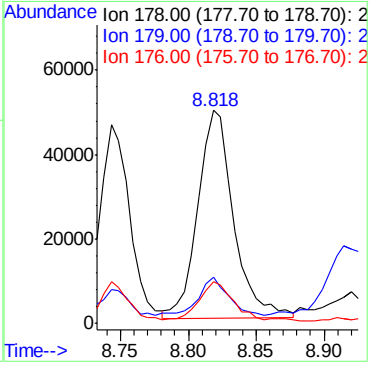




#78
Anthracene
Concen: 2.97 ppb
RT: 8.818 min Scan# 1540
Delta R.T. 0.005 min
Lab File: 2m48625.D
Acq: 19 Dec 2012 6:13 pm

Tgt Ion:178 Resp: 90456

Ion	Ratio	Lower	Upper
178	100		
179	18.0	0.0	44.3
176	19.0	0.0	48.3



9.1.15

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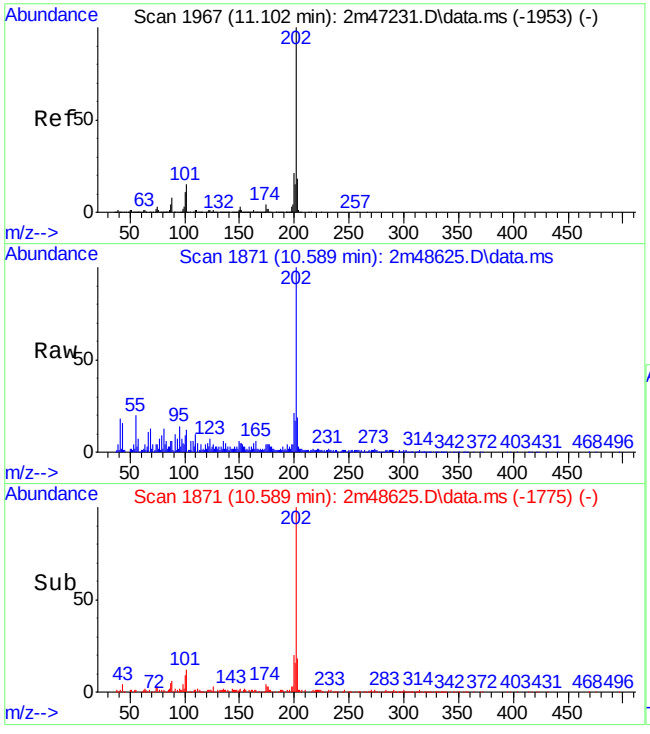
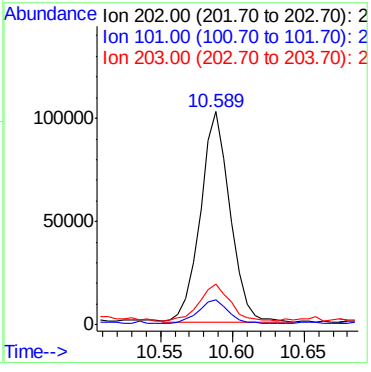
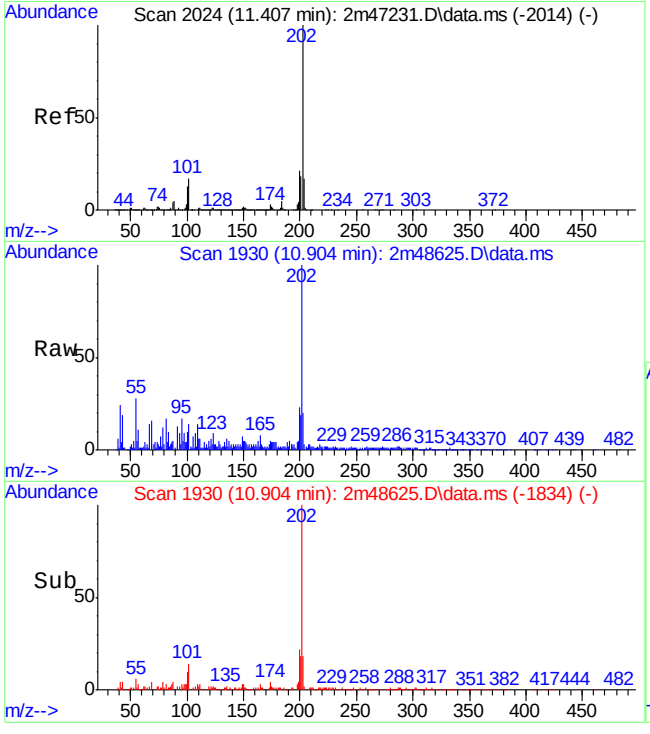


#81
Fluoranthene
Concen: 4.79 ppb
RT: 10.589 min Scan# 1871
Delta R.T. 0.016 min
Lab File: 2m48625.D
Acq: 19 Dec 2012 6:13 pm

Tgt Ion:202 Resp: 145371

Ion	Ratio	Lower	Upper
202	100		
101	11.5	0.0	43.8
203	17.4	0.0	47.5

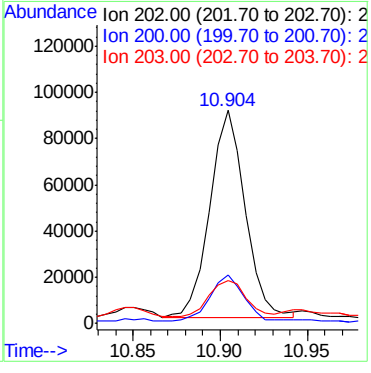




#84
Pyrene
Concen: 4.08 ppb
RT: 10.904 min Scan# 1930
Delta R.T. 0.016 min
Lab File: 2m48625.D
Acq: 19 Dec 2012 6:13 pm

Tgt Ion:202 Resp: 125673

Ion	Ratio	Lower	Upper
202	100		
200	21.8	0.0	51.3
203	15.7	0.0	47.6



9.1.15

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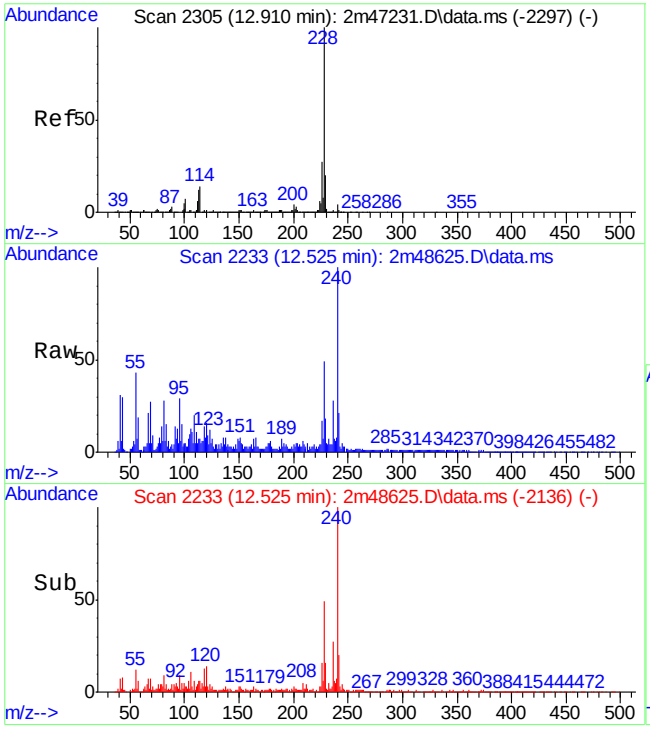
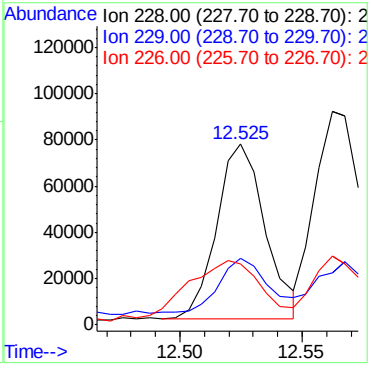
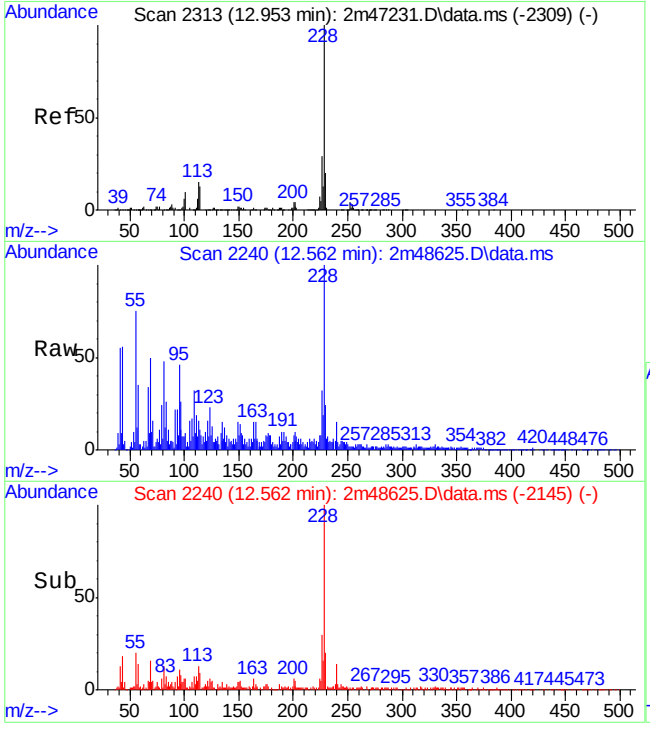


#88
Benzo[a]anthracene
Concen: 3.60 ppb
RT: 12.525 min Scan# 2233
Delta R.T. 0.021 min
Lab File: 2m48625.D
Acq: 19 Dec 2012 6:13 pm

Tgt Ion:228 Resp: 105477

Ion	Ratio	Lower	Upper
228	100		
229	29.2	0.0	49.3
226	27.6	0.0	56.0

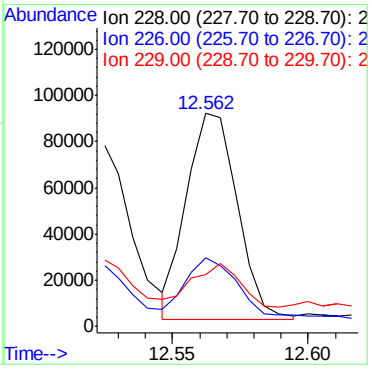




#90
Chrysene
Concen: 4.00 ppb
RT: 12.562 min Scan# 2240
Delta R.T. 0.011 min
Lab File: 2m48625.D
Acq: 19 Dec 2012 6:13 pm

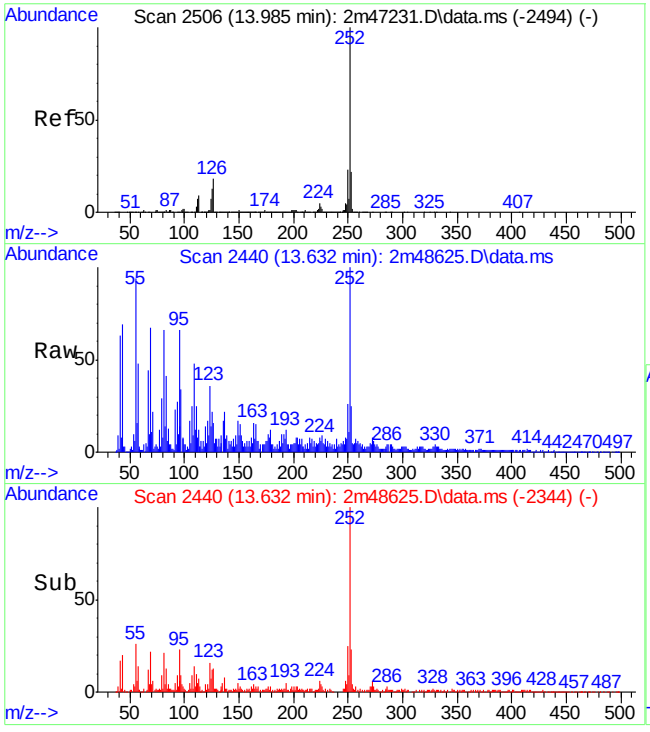
Tgt Ion:228 Resp: 116201

Ion	Ratio	Lower	Upper
228	100		
226	28.3	0.0	57.7
229	14.3	0.0	49.3



9.1.15

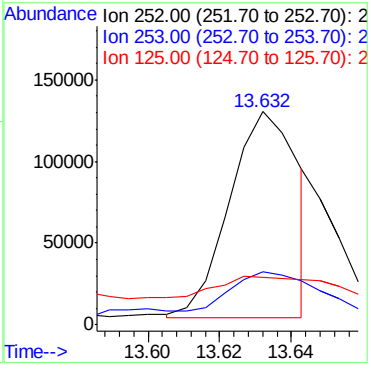
9

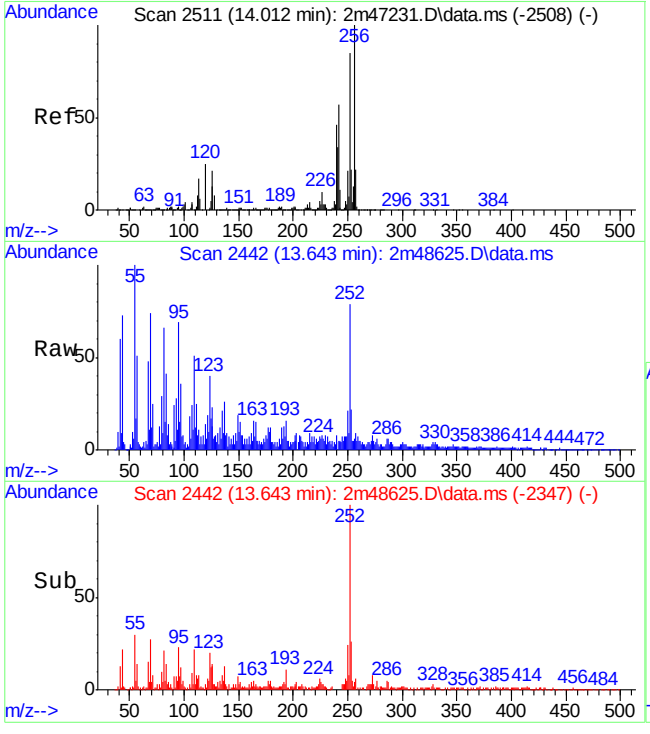


#94
Benzo[b]fluoranthene
Concen: 5.35 ppb m
RT: 13.632 min Scan# 2440
Delta R.T. 0.016 min
Lab File: 2m48625.D
Acq: 19 Dec 2012 6:13 pm

Tgt Ion:252 Resp: 168352

Ion	Ratio	Lower	Upper
252	100		
253	24.7	0.0	51.6
125	22.2	0.0	40.1

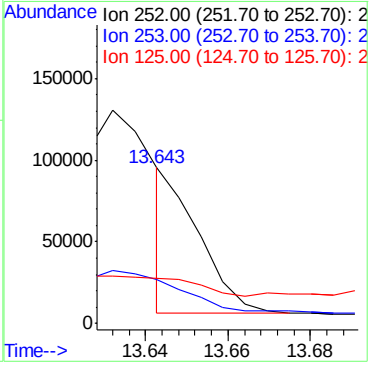




#95
Benzo[k]fluoranthene
Concen: 1.64 ppb m
RT: 13.643 min Scan# 2442
Delta R.T. 0.011 min
Lab File: 2m48625.D
Acq: 19 Dec 2012 6:13 pm

Tgt Ion:252 Resp: 46553

Ion	Ratio	Lower	Upper
252	100		
253	28.1	0.0	52.7
125	28.9	0.0	42.9



9.1.15

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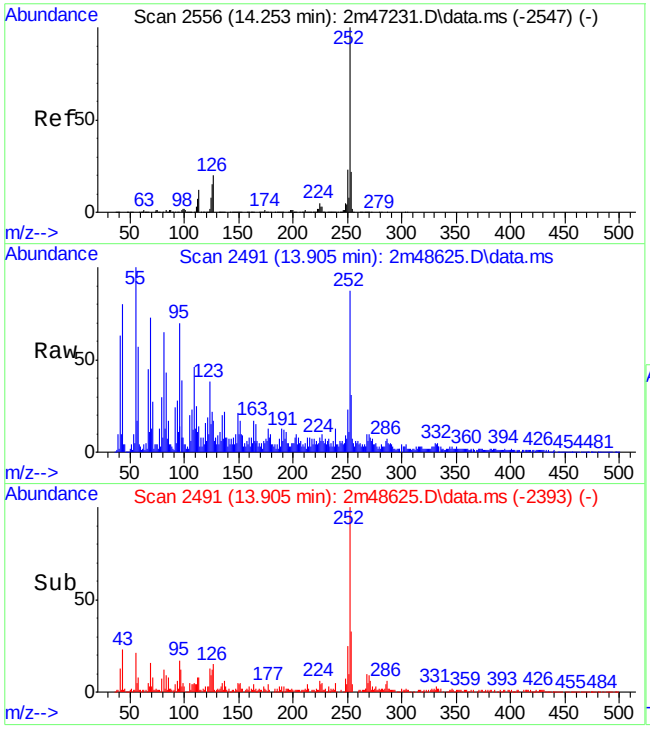
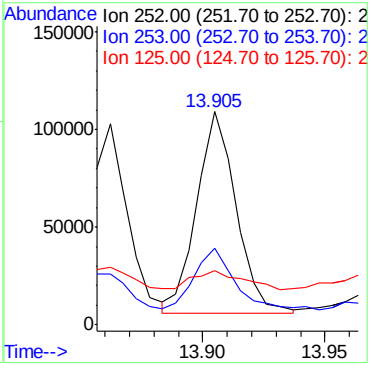
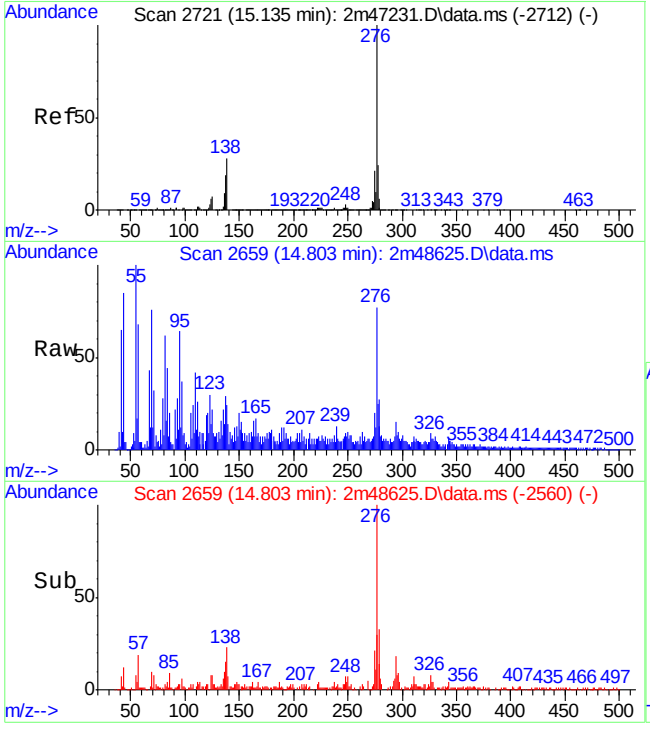


#96
Benzo[a]pyrene
Concen: 4.34 ppb
RT: 13.905 min Scan# 2491
Delta R.T. 0.027 min
Lab File: 2m48625.D
Acq: 19 Dec 2012 6:13 pm

Tgt Ion:252 Resp: 115894

Ion	Ratio	Lower	Upper
252	100		
253	30.6	0.0	52.4
125	9.4	0.0	42.7

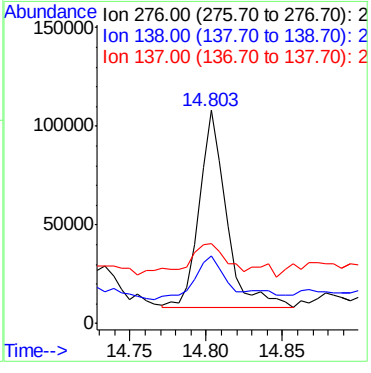




#97
Indeno[1,2,3-cd]pyrene
Concen: 3.96 ppb
RT: 14.803 min Scan# 2659
Delta R.T. 0.032 min
Lab File: 2m48625.D
Acq: 19 Dec 2012 6:13 pm

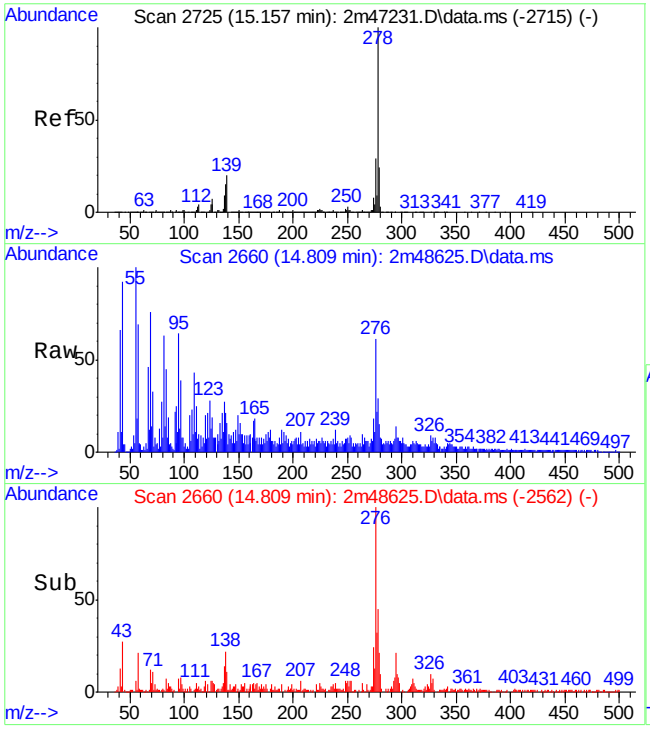
Tgt Ion:276 Resp: 122785

Ion	Ratio	Lower	Upper
276	100		
138	20.1	0.0	57.6
137	11.5	0.0	48.9



9.1.15

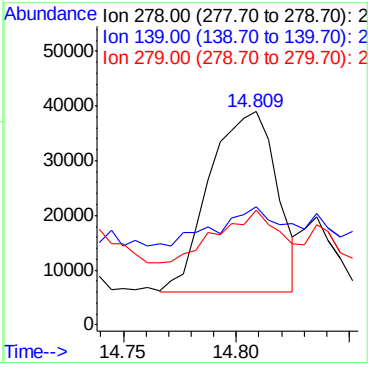
9

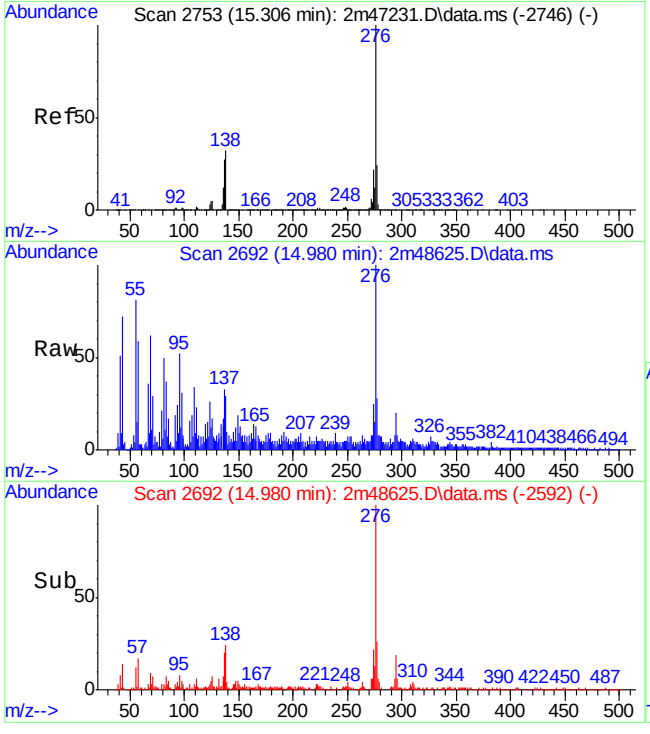


#99
Dibenz[a,h]anthracene
Concen: 2.63 ppb m
RT: 14.809 min Scan# 2660
Delta R.T. 0.027 min
Lab File: 2m48625.D
Acq: 19 Dec 2012 6:13 pm

Tgt Ion:278 Resp: 68674

Ion	Ratio	Lower	Upper
278	100		
139	55.3	0.0	52.4#
279	53.7	0.0	54.1

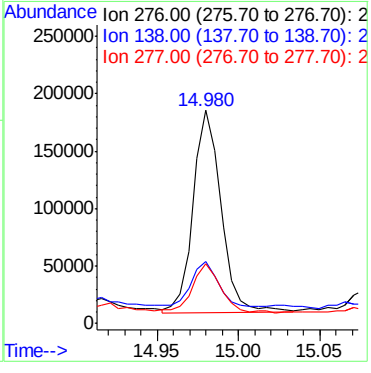




#101
Benzo[g,h,i]perylene
Concen: 7.96 ppb
RT: 14.980 min Scan# 2692
Delta R.T. 0.037 min
Lab File: 2m48625.D
Acq: 19 Dec 2012 6:13 pm

Tgt Ion:276 Resp: 210791

Ion	Ratio	Lower	Upper
276	100		
138	22.3	0.1	60.1
277	23.4	0.0	53.2



9.1.15

9

Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 12/21/12 18:23

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2083\
Data File : 2m48639.D
Acq On : 20 Dec 2012 12:05 pm
Operator : olgaa
Sample : jb22962-11cfi
Misc : op62064,e2m2083,33.1,,,1,4
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 20 13:23:59 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.368	152	188339	40.00	ppb	-0.02
24) Naphthalene-d8	3.887	136	851018	40.00	ppb	-0.03
47) Acenaphthene-d10	6.449	164	531059	40.00	ppb	-0.03
69) Phenanthrene-d10	8.674	188	890581	40.00	ppb	-0.03
83) Chrysene-d12	12.498	240	990273	40.00	ppb	-0.03
92) Perylene-d12	13.916	264	951607	40.00	ppb	-0.01
102) 1,4-Dichlorobenzene-d4a	2.368	152	188339	40.00	ppb	-0.02
104) Acenaphthene-d10a	6.449	164	531059	40.00	ppb	-0.03
106) Chrysene-d12a	12.498	240	990273	40.00	ppb	-0.03
108) Phenanthrene-d10a	8.674	188	890581	40.00	ppb	-0.03
110) Chrysene-d12b	12.498	240	990273	40.00	ppb	-0.03
System Monitoring Compounds						
5) 2-Fluorophenol	1.427	112	45419	6.63	ppb	0.00
Spiked Amount 50.000			Recovery	=	13.26%	
8) Phenol-d5	2.234	99	62994	6.86	ppb	0.02
Spiked Amount 50.000			Recovery	=	13.72%	
25) Nitrobenzene-d5	3.063	82	64115	7.02	ppb	0.00
Spiked Amount 50.000			Recovery	=	14.04%	
51) 2-Fluorobiphenyl	5.534	172	131627	7.54	ppb	-0.03
Spiked Amount 50.000			Recovery	=	15.08%	
73) 2,4,6-Tribromophenol	7.722	330	22330	10.67	ppb	-0.02
Spiked Amount 50.000			Recovery	=	21.34%	
85) Terphenyl-d14	11.263	244	199251	9.96	ppb	-0.03
Spiked Amount 50.000			Recovery	=	19.92%	
Target Compounds						Qvalue
44) 2-Methylnaphthalene	4.919	141	10440	0.72	ppb	91
56) Acenaphthylene	6.219	152	22741	0.89	ppb	92
77) Phenanthrene	8.711	178	32151	1.18	ppb	97
78) Anthracene	8.792	178	25671	0.95	ppb	92
81) Fluoranthene	10.546	202	70086	2.61	ppb	94
84) Pyrene	10.862	202	66358	2.07	ppb	96
88) Benzo[a]anthracene	12.488	228	58192	1.91	ppb	87
90) Chrysene	12.525	228	61477	2.04	ppb	91
94) Benzo[b]fluoranthene	13.589	252	84509m	2.55	ppb	
95) Benzo[k]fluoranthene	13.600	252	42088m	1.41	ppb	
96) Benzo[a]pyrene	13.868	252	61859	2.20	ppb	89
97) Indeno[1,2,3-cd]pyrene	14.761	276	65459	2.00	ppb	88
99) Dibenz[a,h]anthracene	14.766	278	36832m	1.34	ppb	
101) Benzo[g,h,i]perylene	14.932	276	105852	3.79	ppb	93

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

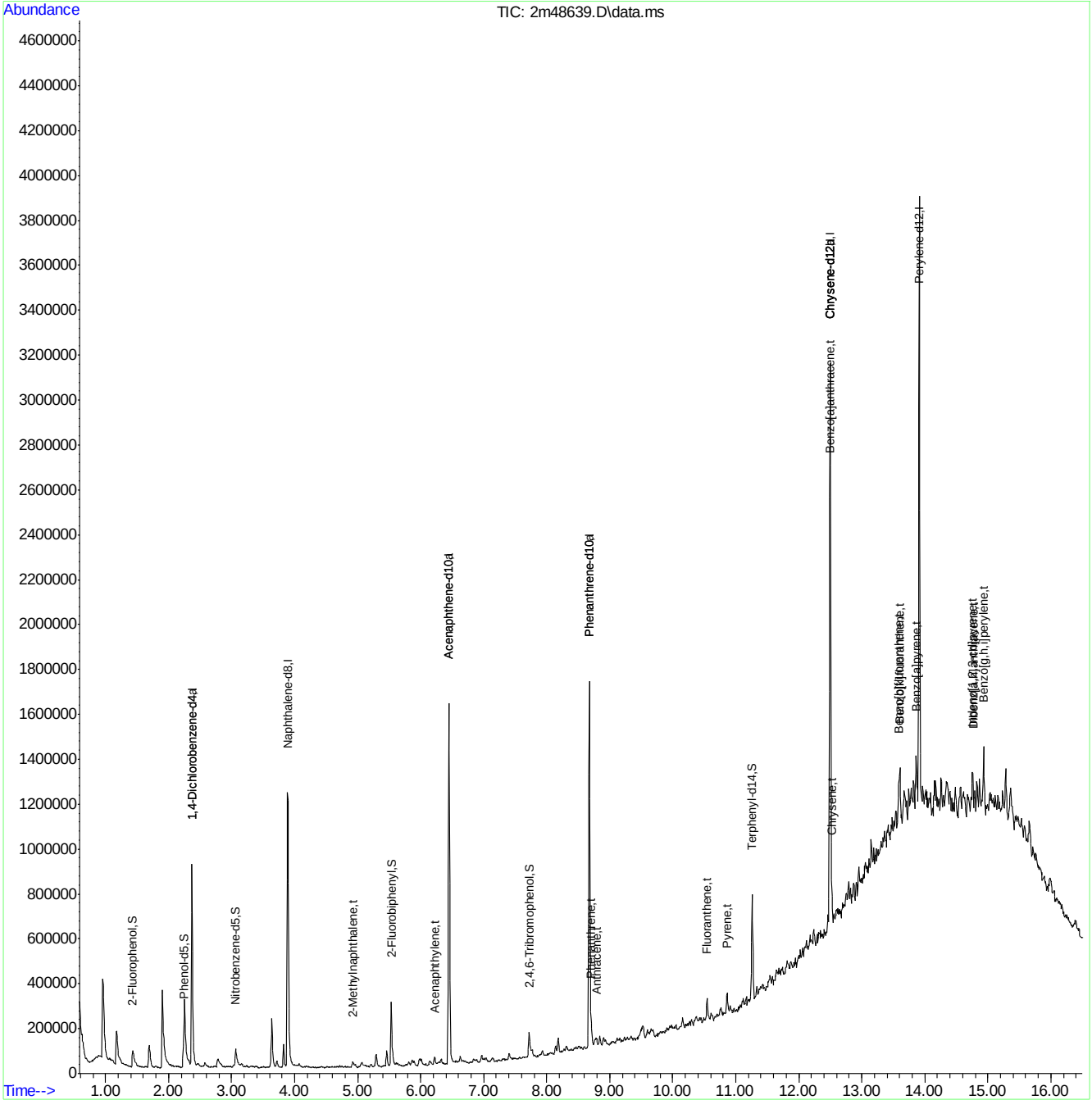
9.1.16

9

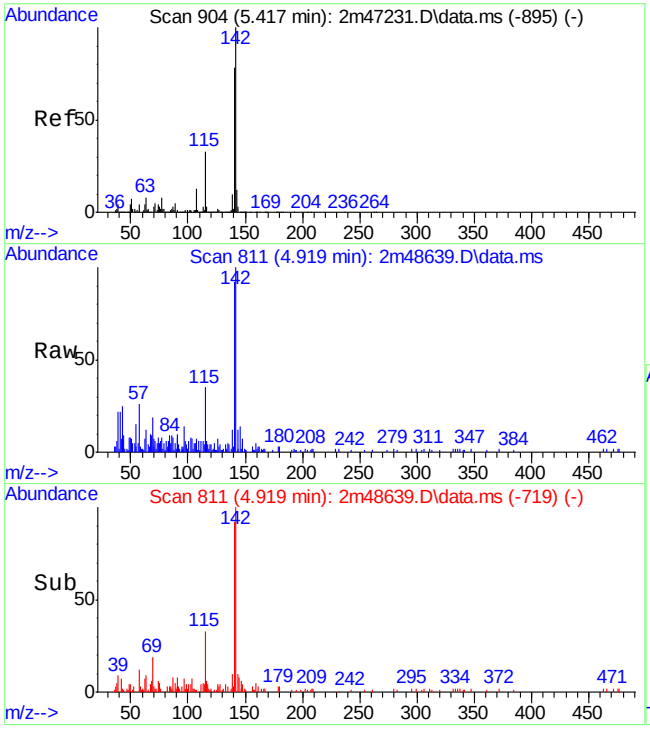
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2083\
Data File : 2m48639.D
Acq On : 20 Dec 2012 12:05 pm
Operator : olgaa
Sample : jb22962-11cfi
Misc : op62064,e2m2083,33.1,,,1,4
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 20 13:23:59 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration



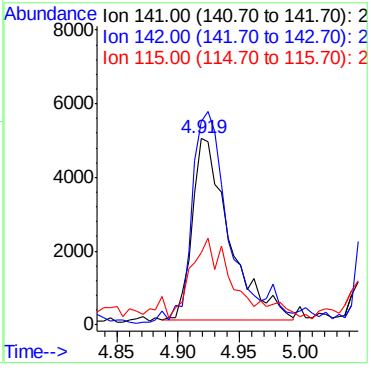
M2M2034.M Thu Dec 20 13:24:57 2012 MS2M Page: 2

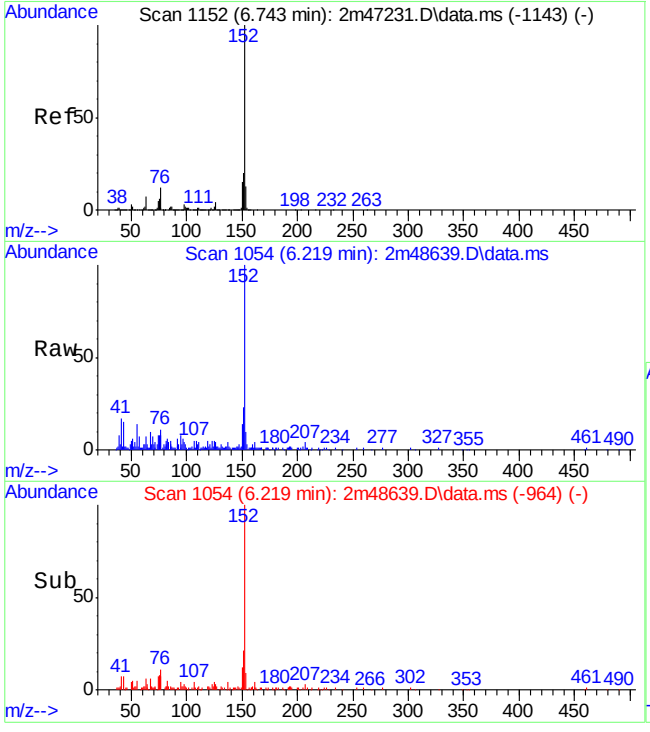


#44
2-Methylnaphthalene
Concen: 0.72 ppb
RT: 4.919 min Scan# 811
Delta R.T. -0.011 min
Lab File: 2m48639.D
Acq: 20 Dec 2012 12:05 pm

Tgt Ion:141 Resp: 10440

Ion	Ratio	Lower	Upper
141	100		
142	107.3	81.7	141.7
115	29.2	12.0	72.0

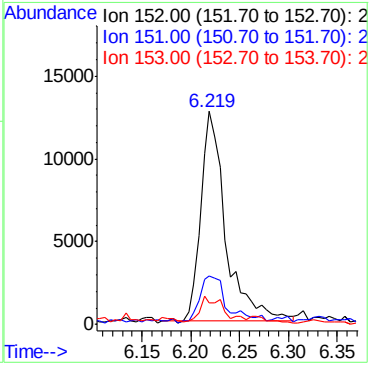




#56
Acenaphthylene
Concen: 0.89 ppb
RT: 6.219 min Scan# 1054
Delta R.T. -0.021 min
Lab File: 2m48639.D
Acq: 20 Dec 2012 12:05 pm

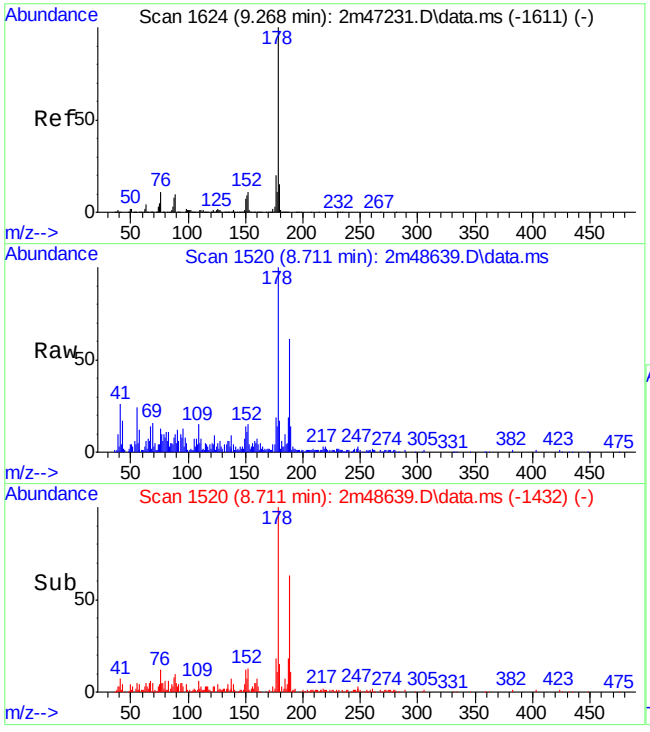
Tgt Ion:152 Resp: 22741

Ion	Ratio	Lower	Upper
152	100		
151	21.8	0.0	49.4
153	8.6	0.0	43.0



9.1.16

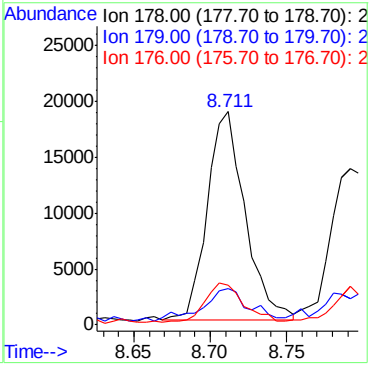
9

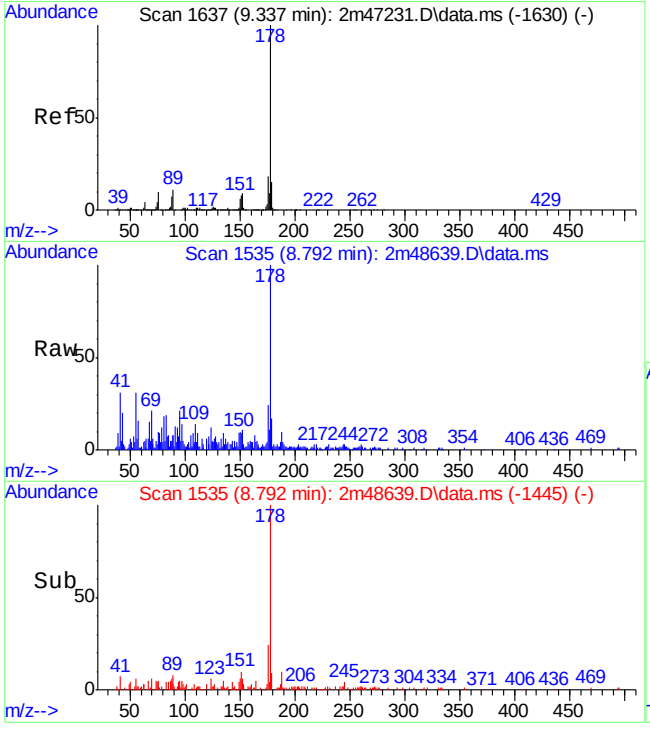


#77
Phenanthrene
Concen: 1.18 ppb
RT: 8.711 min Scan# 1520
Delta R.T. -0.032 min
Lab File: 2m48639.D
Acq: 20 Dec 2012 12:05 pm

Tgt Ion:178 Resp: 32151

Ion	Ratio	Lower	Upper
178	100		
179	13.5	0.0	44.9
176	17.6	0.0	49.1

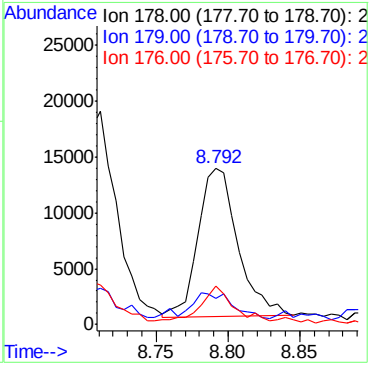




#78
Anthracene
Concen: 0.95 ppb
RT: 8.792 min Scan# 1535
Delta R.T. -0.021 min
Lab File: 2m48639.D
Acq: 20 Dec 2012 12:05 pm

Tgt Ion:178 Resp: 25671

Ion	Ratio	Lower	Upper
178	100		
179	12.1	0.0	44.3
176	22.5	0.0	48.3



9.1.16

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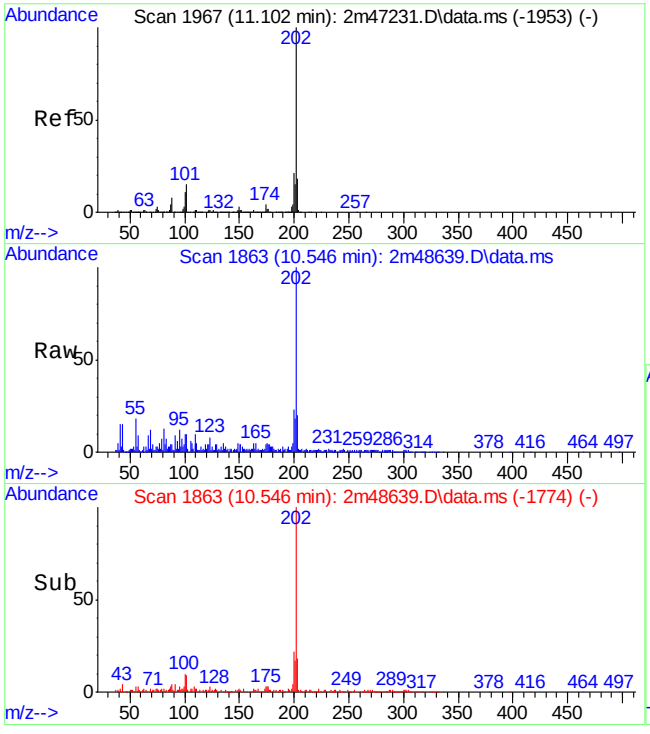
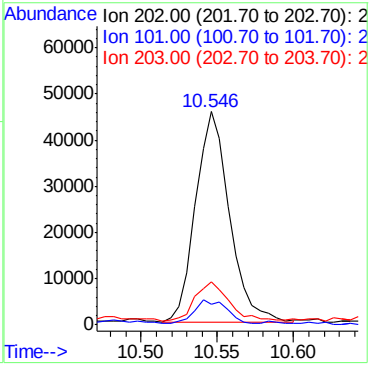
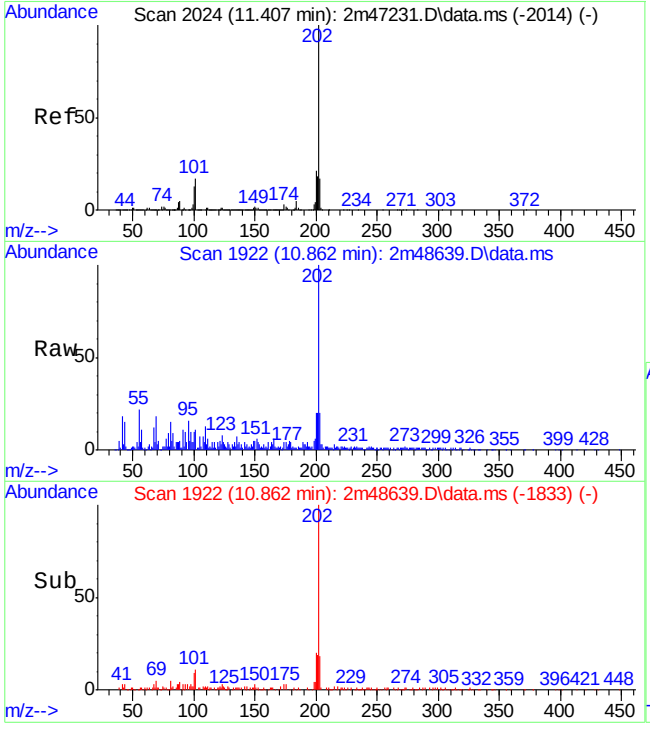


#81
Fluoranthene
Concen: 2.61 ppb
RT: 10.546 min Scan# 1863
Delta R.T. -0.027 min
Lab File: 2m48639.D
Acq: 20 Dec 2012 12:05 pm

Tgt Ion:202 Resp: 70086

Ion	Ratio	Lower	Upper
202	100		
101	9.0	0.0	43.8
203	18.1	0.0	47.5

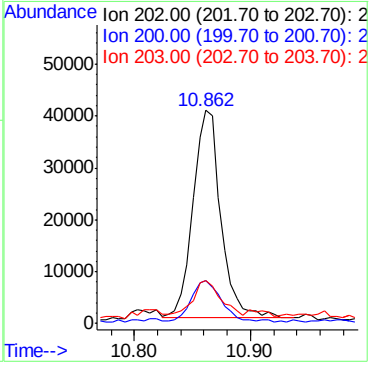




#84
Pyrene
Concen: 2.07 ppb
RT: 10.862 min Scan# 1922
Delta R.T. -0.027 min
Lab File: 2m48639.D
Acq: 20 Dec 2012 12:05 pm

Tgt Ion:202 Resp: 66358

Ion	Ratio	Lower	Upper
202	100		
200	19.3	0.0	51.3
203	16.2	0.0	47.6



9.1.16

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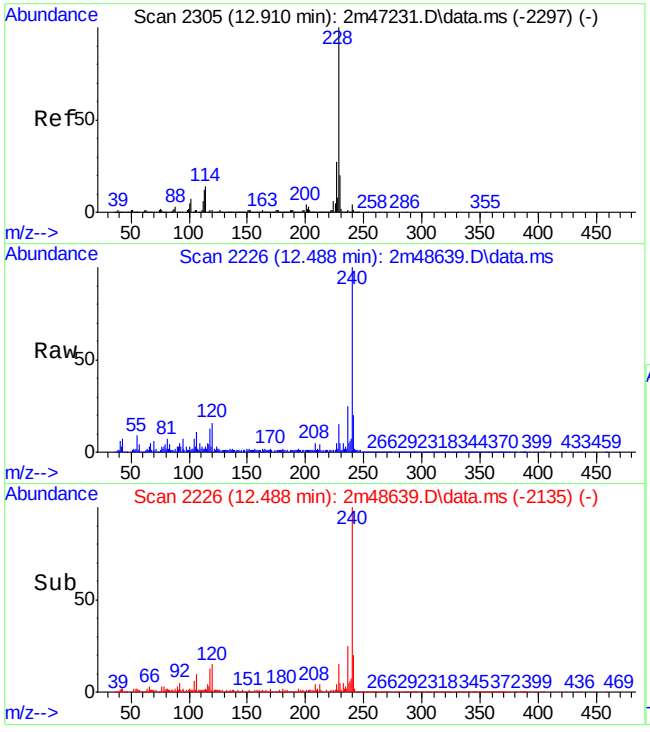
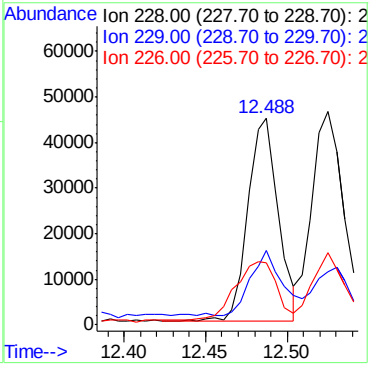
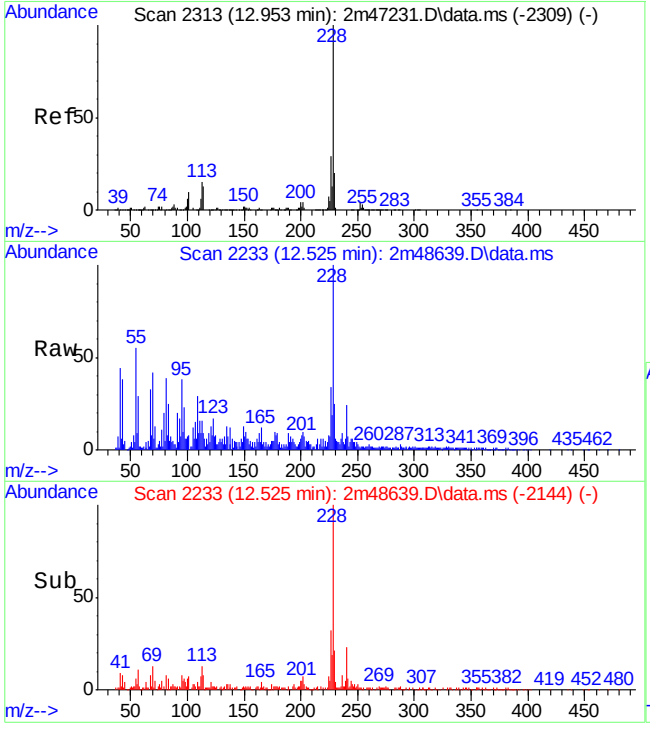


#88
Benzo[a]anthracene
Concen: 1.91 ppb
RT: 12.488 min Scan# 2226
Delta R.T. -0.016 min
Lab File: 2m48639.D
Acq: 20 Dec 2012 12:05 pm

Tgt Ion:228 Resp: 58192

Ion	Ratio	Lower	Upper
228	100		
229	29.1	0.0	49.3
226	29.0	0.0	56.0

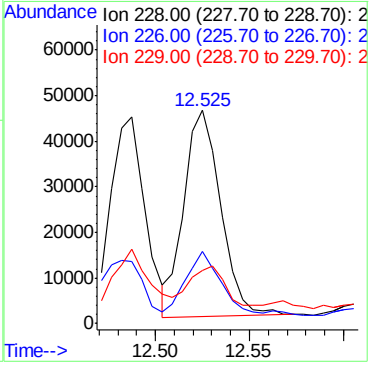




#90
Chrysene
Concen: 2.04 ppb
RT: 12.525 min Scan# 2233
Delta R.T. -0.027 min
Lab File: 2m48639.D
Acq: 20 Dec 2012 12:05 pm

Tgt Ion:228 Resp: 61477

Ion	Ratio	Lower	Upper
228	100		
226	32.5	0.0	57.7
229	15.1	0.0	49.3



9.1.16

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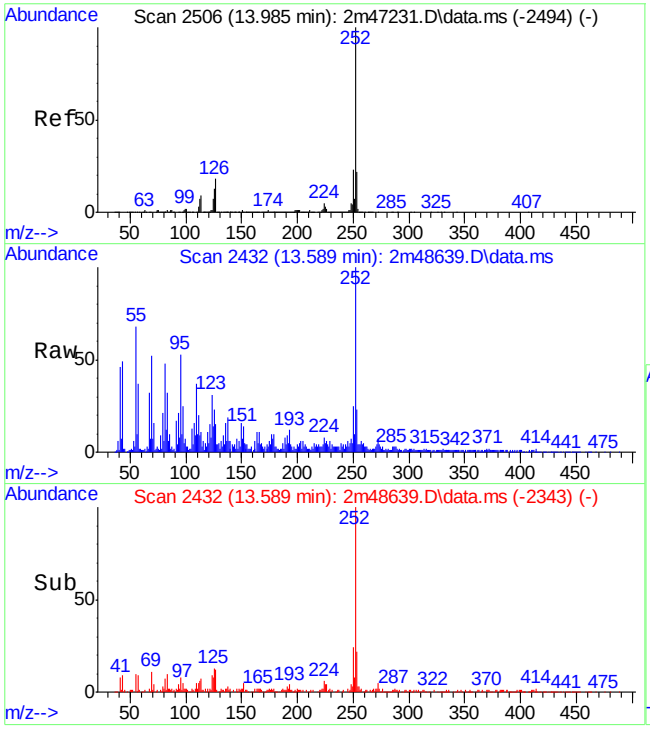
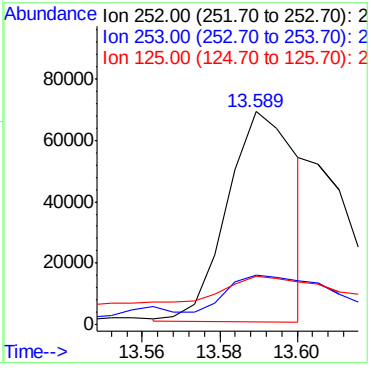
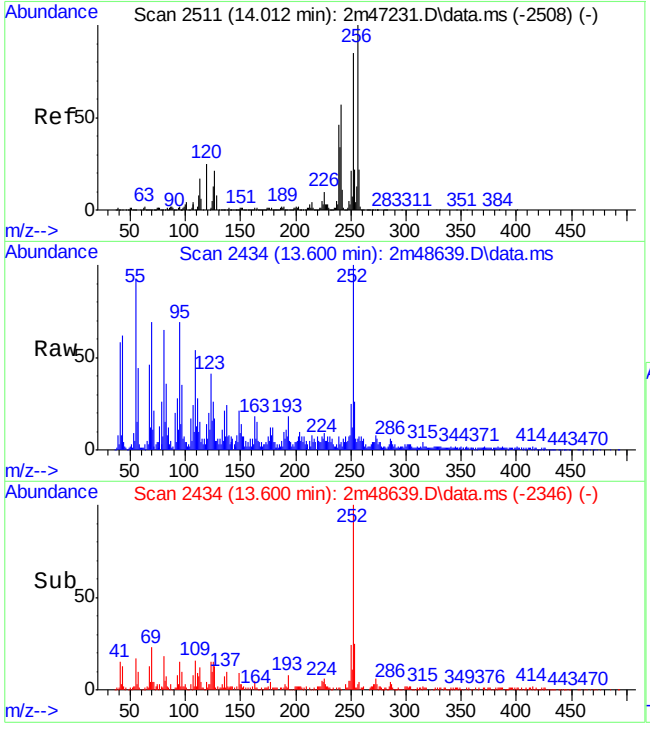


#94
Benzo[b]fluoranthene
Concen: 2.55 ppb m
RT: 13.589 min Scan# 2432
Delta R.T. -0.027 min
Lab File: 2m48639.D
Acq: 20 Dec 2012 12:05 pm

Tgt Ion:252 Resp: 84509

Ion	Ratio	Lower	Upper
252	100		
253	23.4	0.0	51.6
125	22.5	0.0	40.1

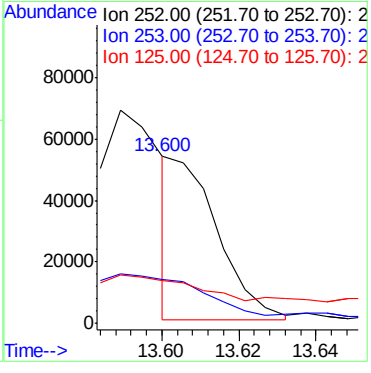




#95
Benzo[k]fluoranthene
Concen: 1.41 ppb m
RT: 13.600 min Scan# 2434
Delta R.T. -0.032 min
Lab File: 2m48639.D
Acq: 20 Dec 2012 12:05 pm

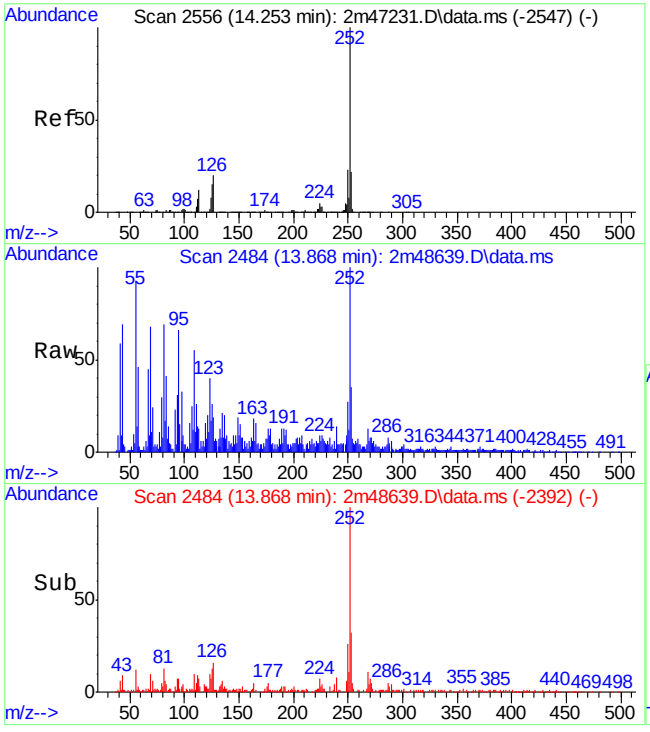
Tgt Ion:252 Resp: 42088

Ion	Ratio	Lower	Upper
252	100		
253	26.0	0.0	52.7
125	26.0	0.0	42.9



9.1.16

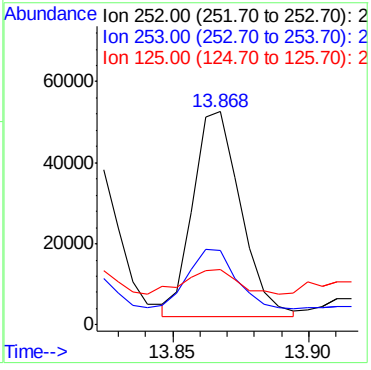
9

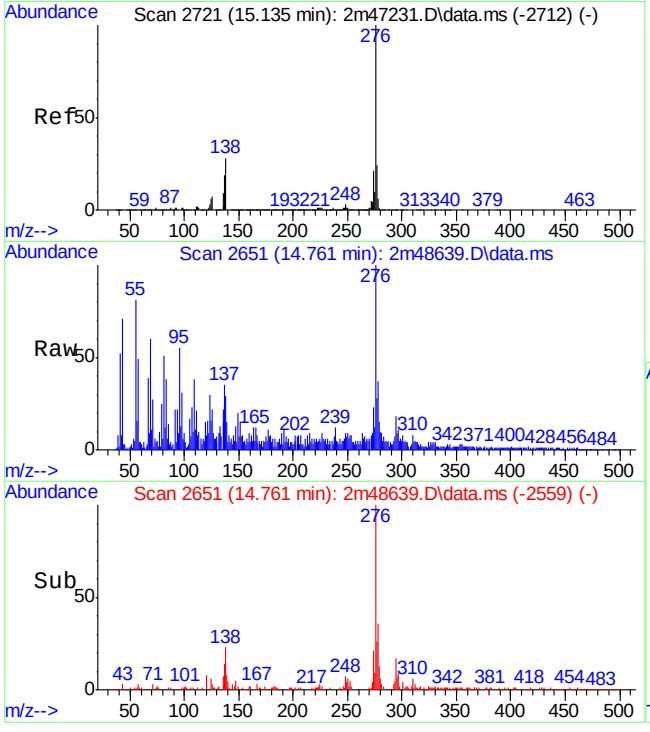


#96
Benzo[a]pyrene
Concen: 2.20 ppb
RT: 13.868 min Scan# 2484
Delta R.T. -0.011 min
Lab File: 2m48639.D
Acq: 20 Dec 2012 12:05 pm

Tgt Ion:252 Resp: 61859

Ion	Ratio	Lower	Upper
252	100		
253	28.9	0.0	52.4
125	10.3	0.0	42.7

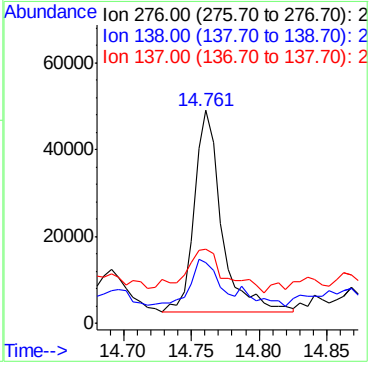


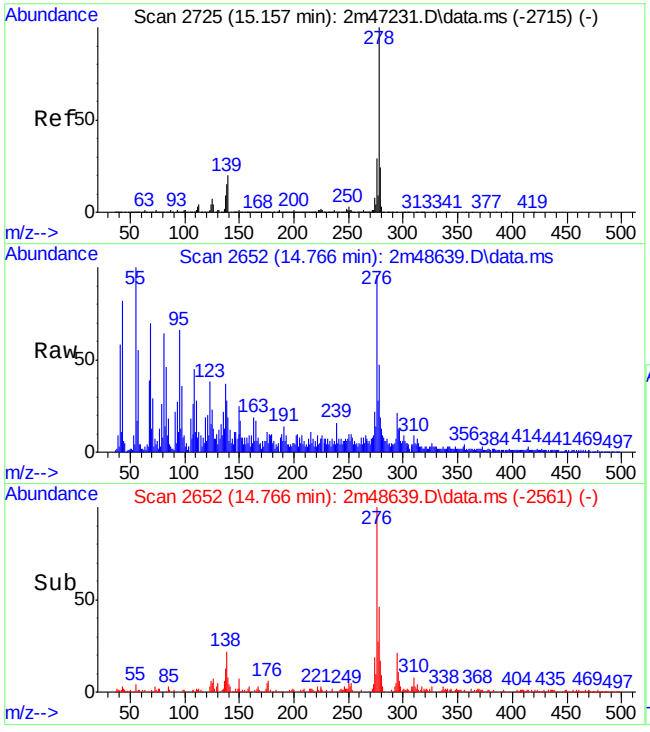


#97
Indeno[1,2,3-cd]pyrene
Concen: 2.00 ppb
RT: 14.761 min Scan# 2651
Delta R.T. -0.011 min
Lab File: 2m48639.D
Acq: 20 Dec 2012 12:05 pm

Tgt Ion:276 Resp: 65459

Ion	Ratio	Lower	Upper
276	100		
138	19.3	0.0	57.6
137	15.6	0.0	48.9

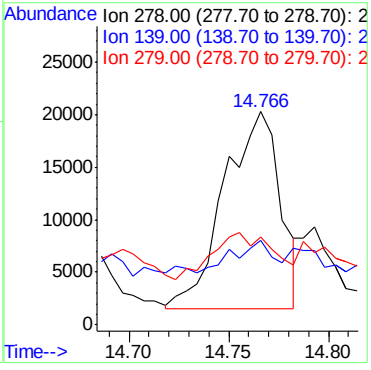


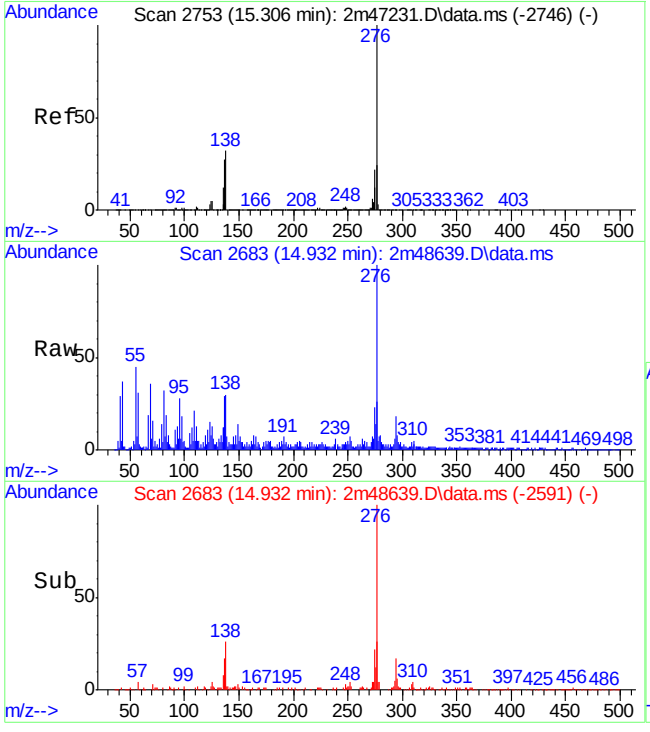


#99
Dibenz[a,h]anthracene
Concen: 1.34 ppb m
RT: 14.766 min Scan# 2652
Delta R.T. -0.016 min
Lab File: 2m48639.D
Acq: 20 Dec 2012 12:05 pm

Tgt Ion:278 Resp: 36832

Ion	Ratio	Lower	Upper
278	100		
139	39.7	0.0	52.4
279	41.1	0.0	54.1

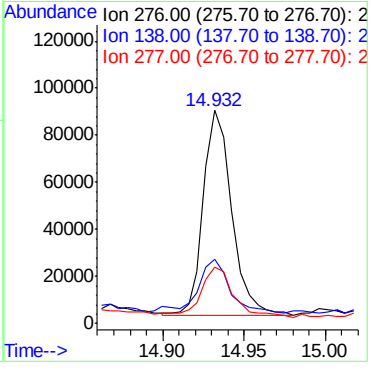




#101
Benzo[g,h,i]perylene
Concen: 3.79 ppb
RT: 14.932 min Scan# 2683
Delta R.T. -0.011 min
Lab File: 2m48639.D
Acq: 20 Dec 2012 12:05 pm

Tgt Ion:276 Resp: 105852

Ion	Ratio	Lower	Upper
276	100		
138	24.1	0.1	60.1
277	23.5	0.0	53.2



9.1.16

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48610.D
Acq On : 19 Dec 2012 12:26 pm
Operator : olgaa
Sample : jb22962-12
Misc : op62064,e2m2082,31.3
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Dec 19 15:34:01 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.373	152	186708	40.00	ppb	-0.02
24) Naphthalene-d8	3.914	136	904298	40.00	ppb	0.00
47) Acenaphthene-d10	6.460	164	621932	40.00	ppb	-0.02
69) Phenanthrene-d10	8.690	188	1080064	40.00	ppb	-0.02
83) Chrysene-d12	12.509	240	1062874	40.00	ppb	-0.02
92) Perylene-d12	13.916	264	901712	40.00	ppb	-0.01
102) 1,4-Dichlorobenzene-d4a	2.373	152	186708	40.00	ppb	-0.02
104) Acenaphthene-d10a	6.460	164	621932	40.00	ppb	-0.02
106) Chrysene-d12a	12.509	240	1062874	40.00	ppb	-0.02
108) Phenanthrene-d10a	8.690	188	1080064	40.00	ppb	-0.02
110) Chrysene-d12b	12.509	240	1062874	40.00	ppb	-0.02

System Monitoring Compounds						
5) 2-Fluorophenol	1.427	112	133916	19.71	ppb	0.00
Spiked Amount 50.000			Recovery = 39.42%			
8) Phenol-d5	2.229	99	199412	21.90	ppb	0.01
Spiked Amount 50.000			Recovery = 43.80%			
25) Nitrobenzene-d5	3.058	82	166151	17.12	ppb	0.00
Spiked Amount 50.000			Recovery = 34.24%			
51) 2-Fluorobiphenyl	5.550	172	450444	22.03	ppb	-0.01
Spiked Amount 50.000			Recovery = 44.06%			
73) 2,4,6-Tribromophenol	7.722	330	100159	39.46	ppb	-0.02
Spiked Amount 50.000			Recovery = 78.92%			
85) Terphenyl-d14	11.273	244	873630	40.68	ppb	-0.02
Spiked Amount 50.000			Recovery = 81.36%			

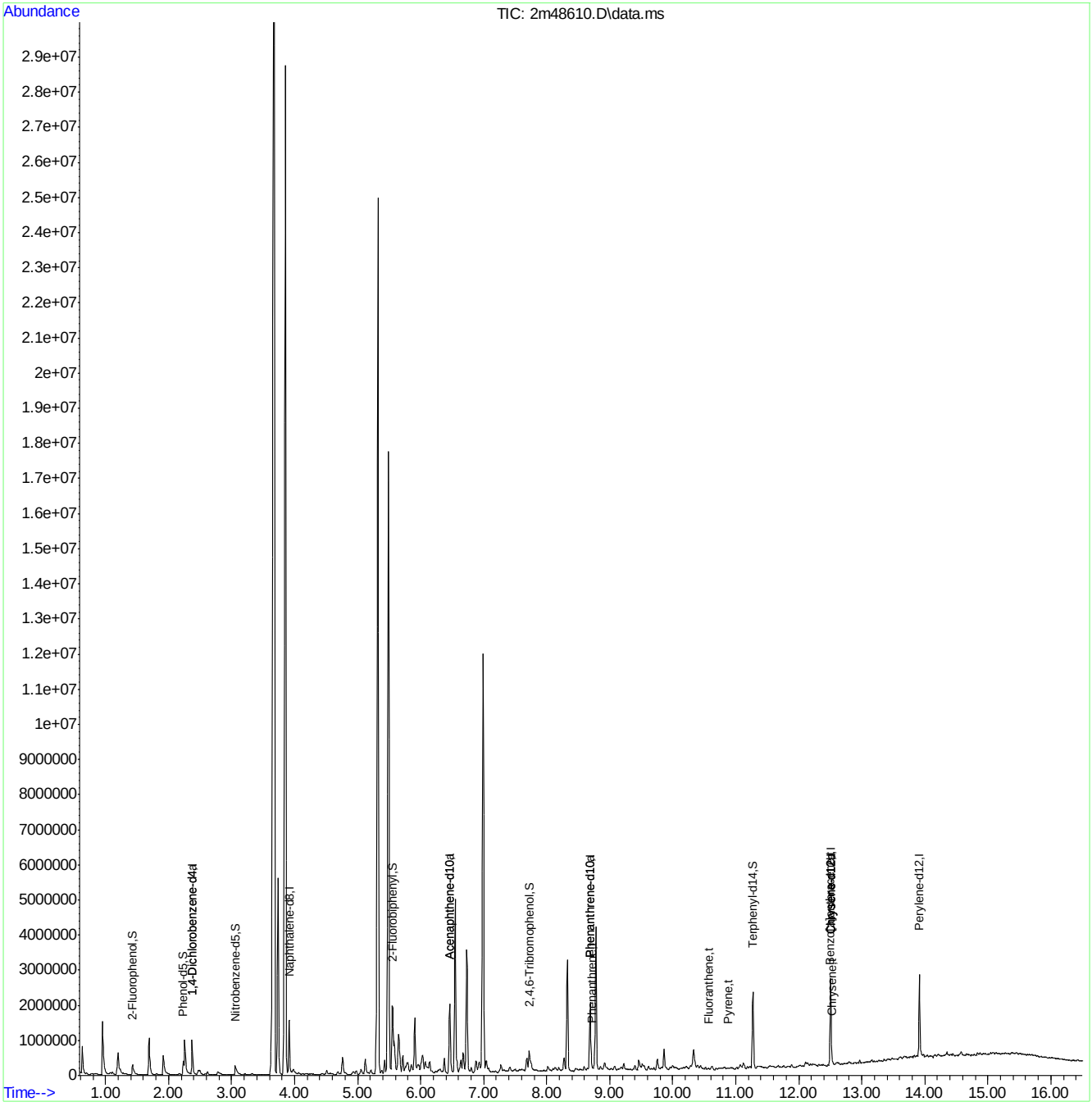
Target Compounds						Qvalue
77) Phenanthrene	8.727	178	19440	0.59	ppb	85
81) Fluoranthene	10.573	202	21281	0.65	ppb	85
84) Pyrene	10.878	202	35373	1.03	ppb	87
88) Benzo[a]anthracene	12.493	228	20923	0.64	ppb	86
90) Chrysene	12.536	228	27318	0.84	ppb	89

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

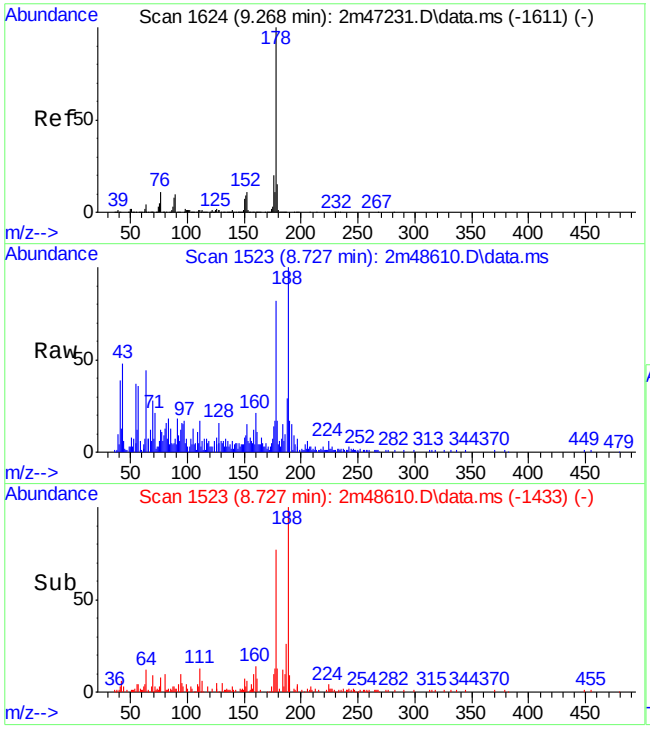
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48610.D
Acq On : 19 Dec 2012 12:26 pm
Operator : olgaa
Sample : jb22962-12
Misc : op62064,e2m2082,31.3
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Dec 19 15:34:01 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration



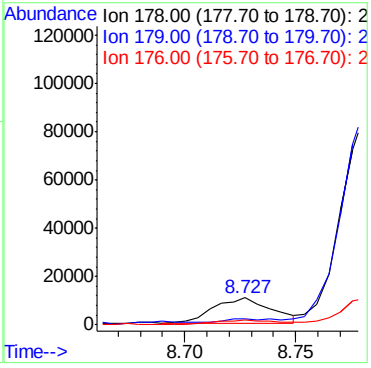
M2M2034.M Wed Dec 19 15:34:11 2012 MS2M Page: 2

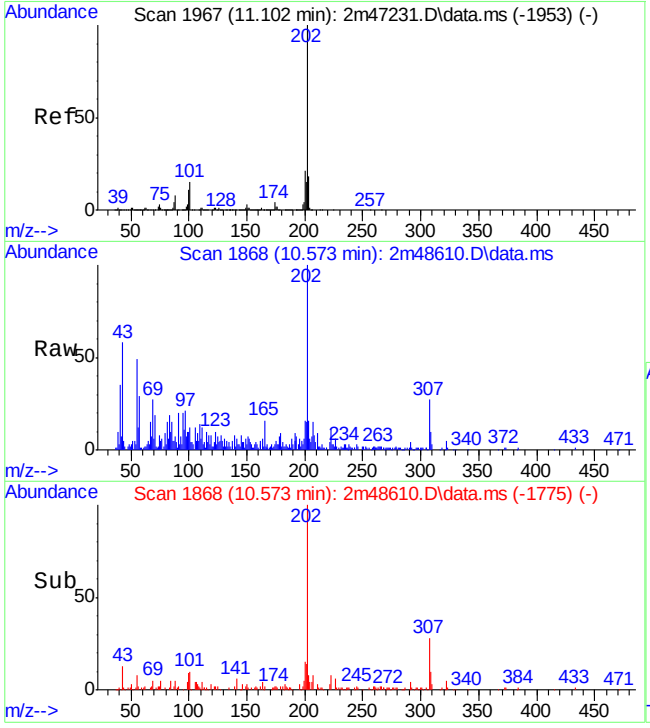


#77
Phenanthrene
Concen: 0.59 ppb
RT: 8.727 min Scan# 1523
Delta R.T. -0.016 min
Lab File: 2m48610.D
Acq: 19 Dec 2012 12:26 pm

Tgt Ion:178 Resp: 19440

Ion	Ratio	Lower	Upper
178	100		
179	5.2	0.0	44.9
176	14.9	0.0	49.1

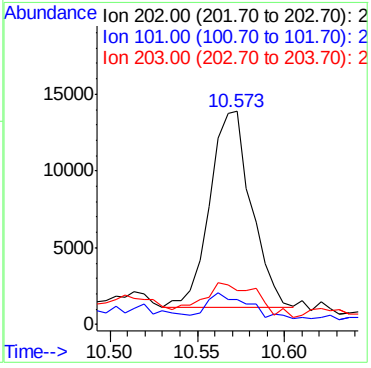


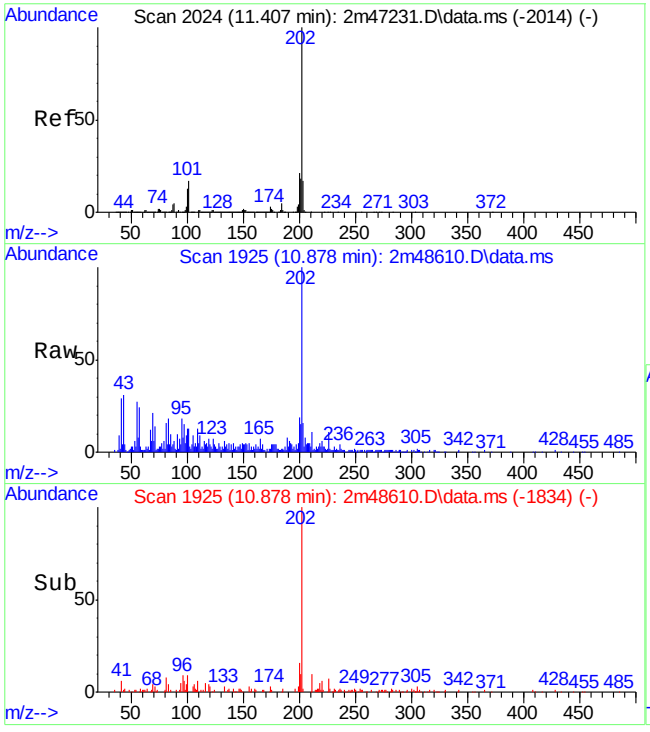


#81
Fluoranthene
Concen: 0.65 ppb
RT: 10.573 min Scan# 1868
Delta R.T. 0.000 min
Lab File: 2m48610.D
Acq: 19 Dec 2012 12:26 pm

Tgt Ion:202 Resp: 21281

Ion	Ratio	Lower	Upper
202	100		
101	7.6	0.0	43.8
203	10.9	0.0	47.5

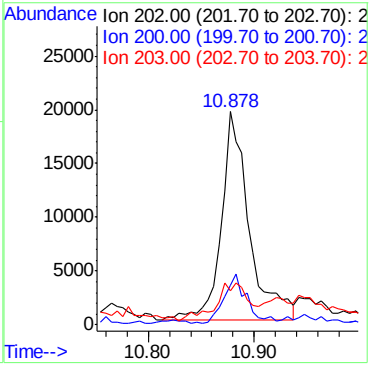


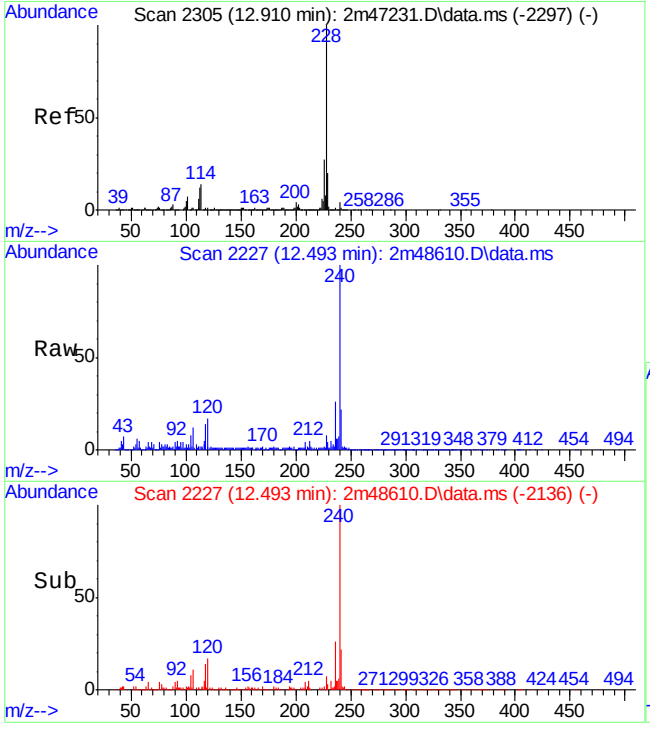


#84
Pyrene
Concen: 1.03 ppb
RT: 10.878 min Scan# 1925
Delta R.T. -0.011 min
Lab File: 2m48610.D
Acq: 19 Dec 2012 12:26 pm

Tgt Ion:202 Resp: 35373

Ion	Ratio	Lower	Upper
202	100		
200	17.6	0.0	51.3
203	9.5	0.0	47.6

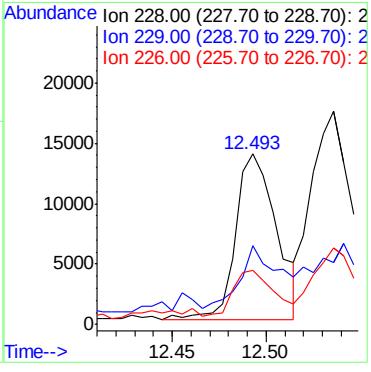




#88
Benzo[a]anthracene
Concen: 0.64 ppb
RT: 12.493 min Scan# 2227
Delta R.T. -0.011 min
Lab File: 2m48610.D
Acq: 19 Dec 2012 12:26 pm

Tgt Ion:228 Resp: 20923

Ion	Ratio	Lower	Upper
228	100		
229	32.3	0.0	49.3
226	27.5	0.0	56.0



9.1.17

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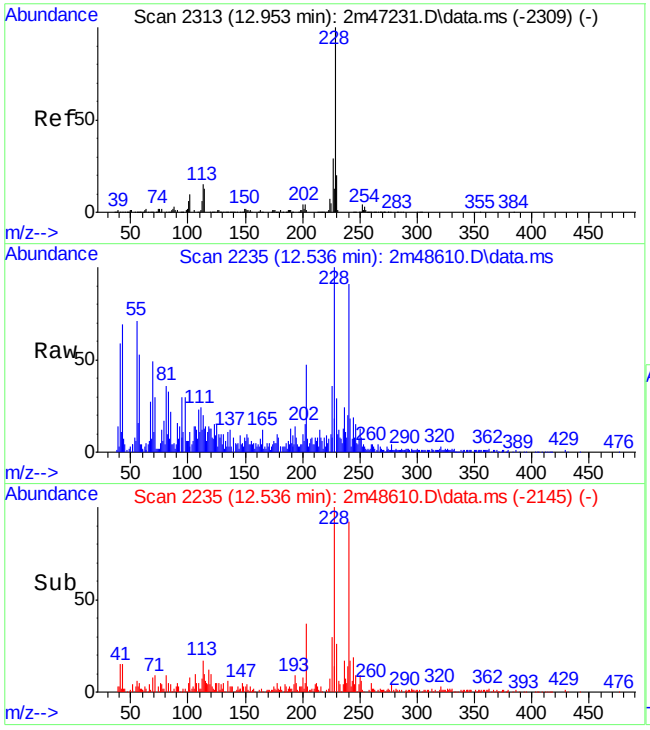
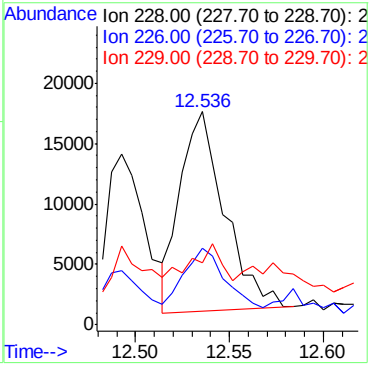


#90
Chrysene
Concen: 0.84 ppb
RT: 12.536 min Scan# 2235
Delta R.T. -0.016 min
Lab File: 2m48610.D
Acq: 19 Dec 2012 12:26 pm

Tgt Ion:228 Resp: 27318

Ion	Ratio	Lower	Upper
228	100		
226	28.0	0.0	57.7
229	7.3	0.0	49.3



9.1.17

9

Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
12/19/12 23:23

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48619.D
Acq On : 19 Dec 2012 3:54 pm
Operator : olgaa
Sample : jb22962-13
Misc : op62064,e2m2082,31.4
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Dec 19 16:21:21 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.379	152	202372	40.00	ppb	-0.01
24) Naphthalene-d8	3.903	136	984064	40.00	ppb	-0.01
47) Acenaphthene-d10	6.465	164	616350	40.00	ppb	-0.02
69) Phenanthrene-d10	8.701	188	997867	40.00	ppb	0.00
83) Chrysene-d12	12.536	240	1074904	40.00	ppb	0.01
92) Perylene-d12	13.964	264	1223180	40.00	ppb	0.04
102) 1,4-Dichlorobenzene-d4a	2.379	152	202372	40.00	ppb	-0.01
104) Acenaphthene-d10a	6.465	164	616350	40.00	ppb	-0.02
106) Chrysene-d12a	12.536	240	1074904	40.00	ppb	0.01
108) Phenanthrene-d10a	8.701	188	997867	40.00	ppb	0.00
110) Chrysene-d12b	12.536	240	1074904	40.00	ppb	0.01

System Monitoring Compounds						
5) 2-Fluorophenol	1.432	112	107810	14.64	ppb	0.00
Spiked Amount 50.000			Recovery = 29.28%			
8) Phenol-d5	2.234	99	158814	16.09	ppb	0.02
Spiked Amount 50.000			Recovery = 32.18%			
25) Nitrobenzene-d5	3.058	82	151763	14.37	ppb	0.00
Spiked Amount 50.000			Recovery = 28.74%			
51) 2-Fluorobiphenyl	5.545	172	304068	15.00	ppb	-0.02
Spiked Amount 50.000			Recovery = 30.00%			
73) 2,4,6-Tribromophenol	7.733	330	46777	19.95	ppb	0.00
Spiked Amount 50.000			Recovery = 39.90%			
85) Terphenyl-d14	11.295	244	366317	16.86	ppb	0.00
Spiked Amount 50.000			Recovery = 33.72%			

Target Compounds							Qvalue
38) Naphthalene	3.930	128	15463	0.56	ppb		91
44) 2-Methylnaphthalene	4.930	141	12812	0.76	ppb		97
56) Acenaphthylene	6.230	152	57266	1.92	ppb		94
66) Fluorene	7.294	166	10580	0.51	ppb	#	66
77) Phenanthrene	8.733	178	172288	5.64	ppb		97
78) Anthracene	8.808	178	129619	4.28	ppb		97
81) Fluoranthene	10.578	202	279632	9.28	ppb		93
84) Pyrene	10.894	202	241677	6.95	ppb		97
88) Benzo[a]anthracene	12.520	228	97533	2.95	ppb		94
90) Chrysene	12.557	228	179375	5.47	ppb		96
94) Benzo[b]fluoranthene	13.638	252	195251m	4.59	ppb		
95) Benzo[k]fluoranthene	13.648	252	51423m	1.34	ppb		
96) Benzo[a]pyrene	13.910	252	98608	2.73	ppb		92
97) Indeno[1,2,3-cd]pyrene	14.820	276	117491	2.80	ppb		87
99) Dibenz[a,h]anthracene	14.804	278	131227	3.72	ppb		69
101) Benzo[g,h,i]perylene	14.996	276	461562	12.87	ppb		96

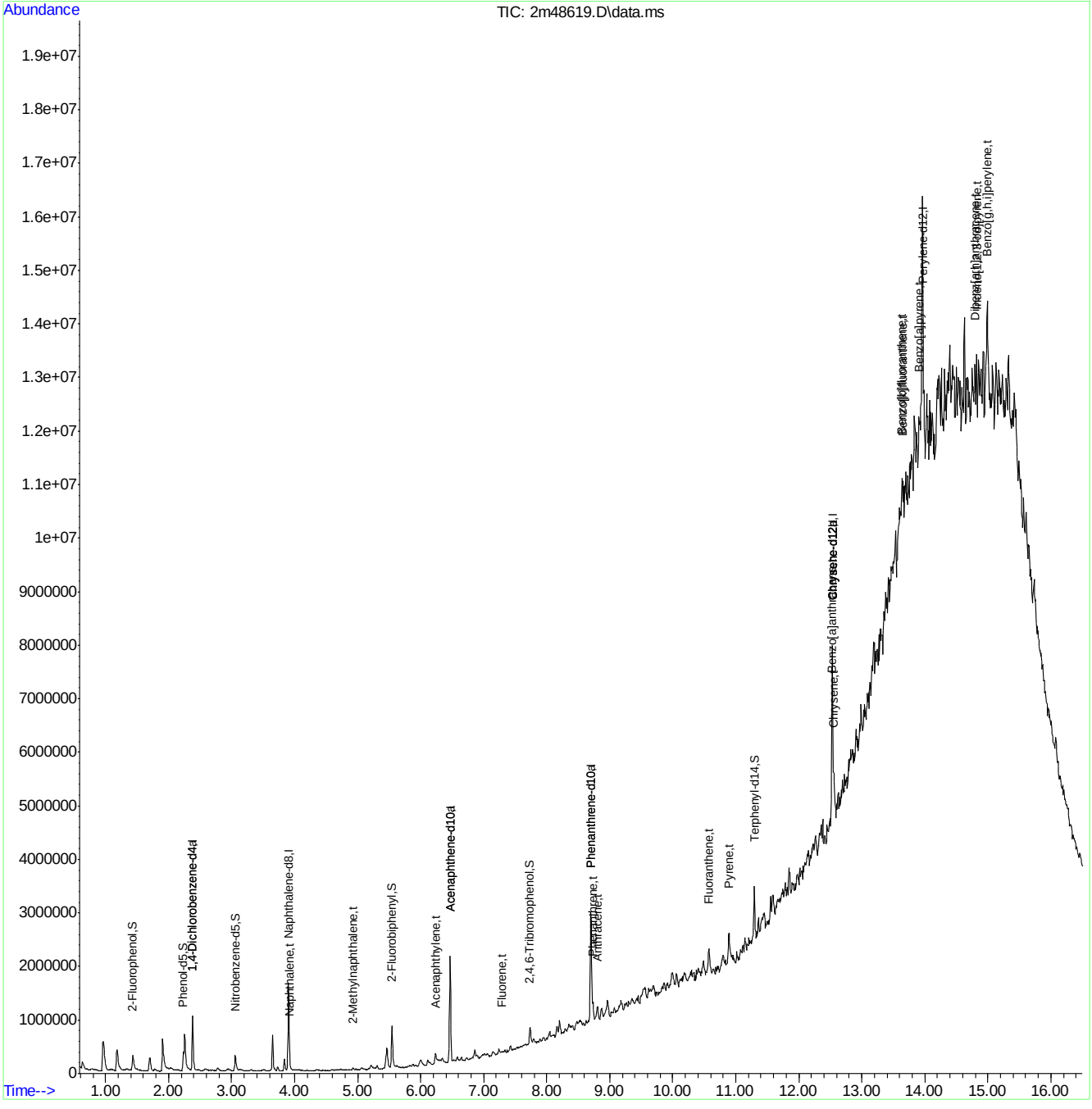
(#) = qualifier out of range (m) = manual integration (+) = signals summed

9.1.18
9

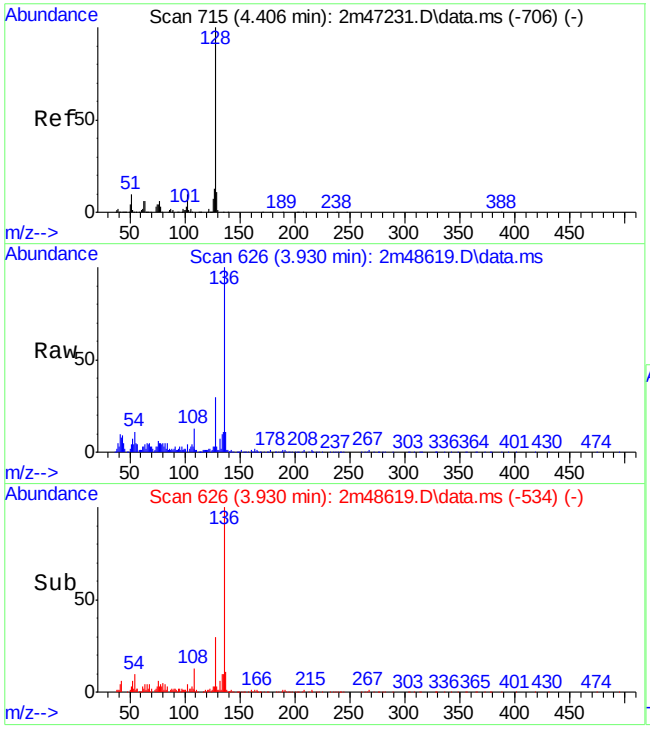
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48619.D
Acq On : 19 Dec 2012 3:54 pm
Operator : olgaa
Sample : jb22962-13
Misc : op62064,e2m2082,31.4
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Dec 19 16:21:21 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration



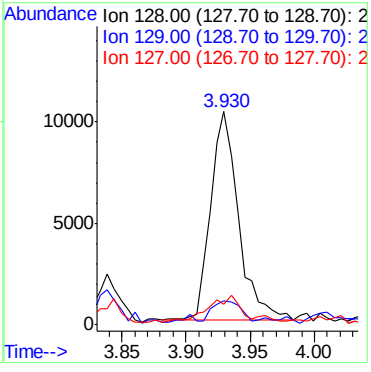
M2M2034.M Wed Dec 19 16:21:30 2012 MS2M Page: 2

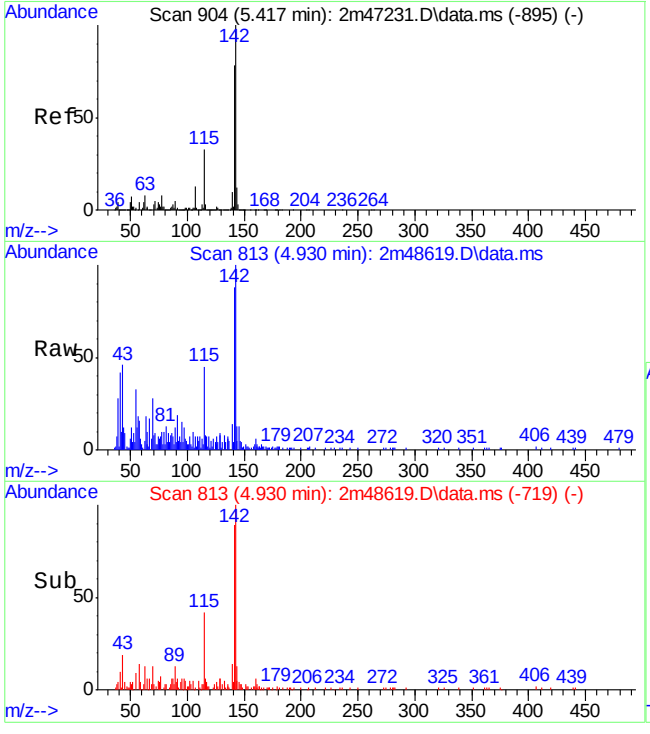


#38
Naphthalene
Concen: 0.56 ppb
RT: 3.930 min Scan# 626
Delta R.T. -0.011 min
Lab File: 2m48619.D
Acq: 19 Dec 2012 3:54 pm

Tgt Ion:128 Resp: 15463

Ion	Ratio	Lower	Upper
128	100		
129	9.5	0.0	40.9
127	7.9	0.0	43.3

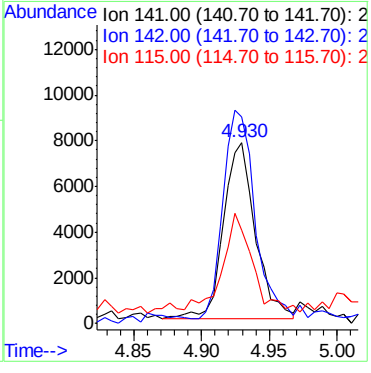


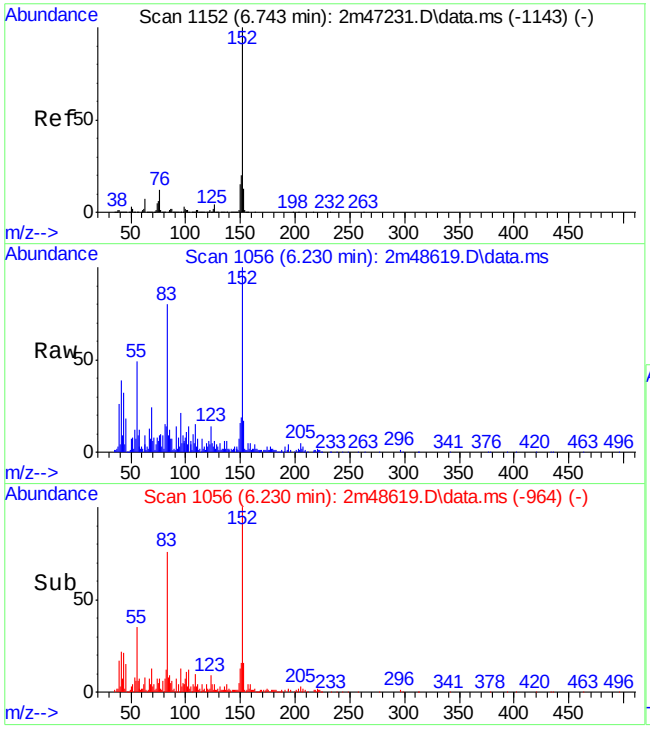


#44
2-Methylnaphthalene
Concen: 0.76 ppb
RT: 4.930 min Scan# 813
Delta R.T. 0.000 min
Lab File: 2m48619.D
Acq: 19 Dec 2012 3:54 pm

Tgt Ion:141 Resp: 12812

Ion	Ratio	Lower	Upper
141	100		
142	114.6	81.7	141.7
115	44.5	12.0	72.0

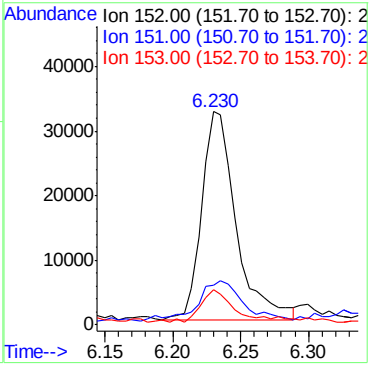


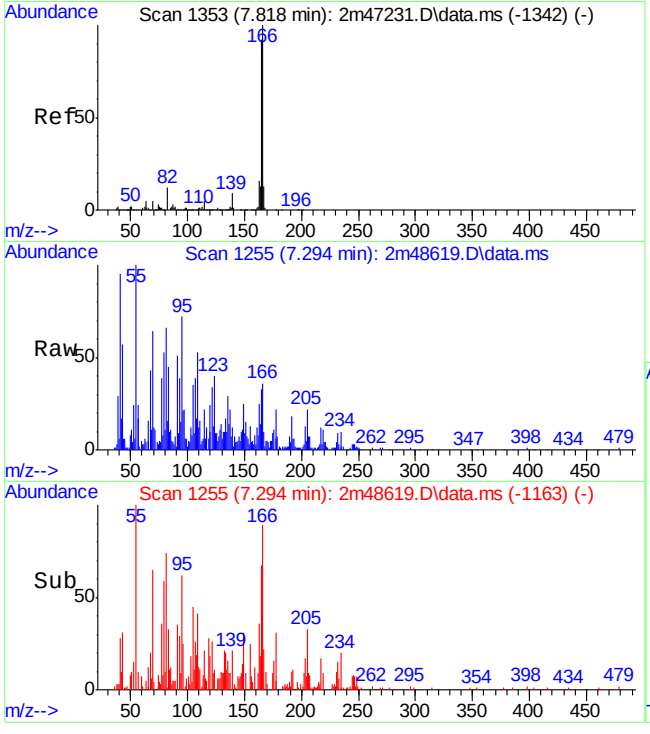


#56
Acenaphthylene
Concen: 1.92 ppb
RT: 6.230 min Scan# 1056
Delta R.T. -0.011 min
Lab File: 2m48619.D
Acq: 19 Dec 2012 3:54 pm

Tgt Ion:152 Resp: 57266

Ion	Ratio	Lower	Upper
152	100		
151	16.6	0.0	49.4
153	14.8	0.0	43.0

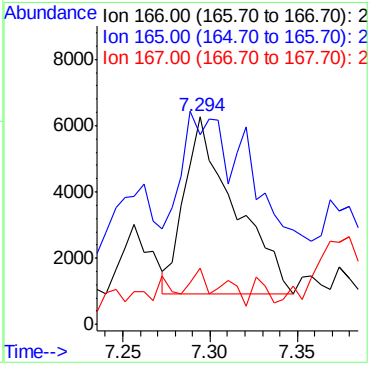




#66
Fluorene
Concen: 0.51 ppb
RT: 7.294 min Scan# 1255
Delta R.T. -0.011 min
Lab File: 2m48619.D
Acq: 19 Dec 2012 3:54 pm

Tgt Ion:166 Resp: 10580

Ion	Ratio	Lower	Upper
166	100		
165	56.9	61.9	121.9#
167	8.1	0.0	43.1



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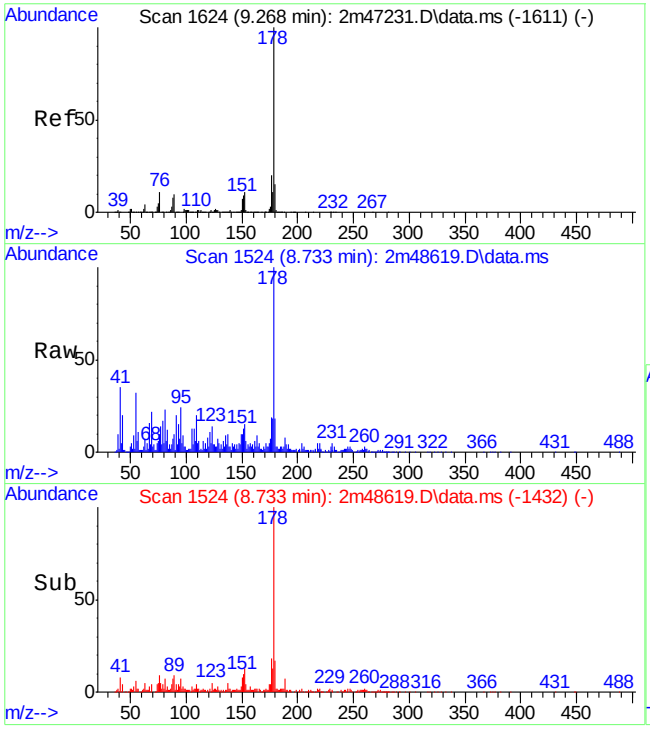
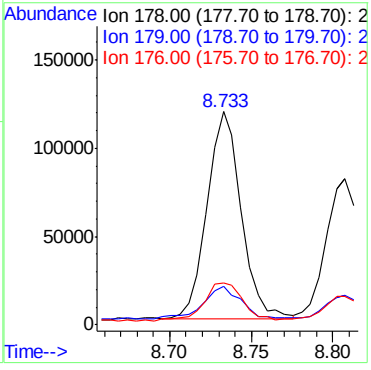
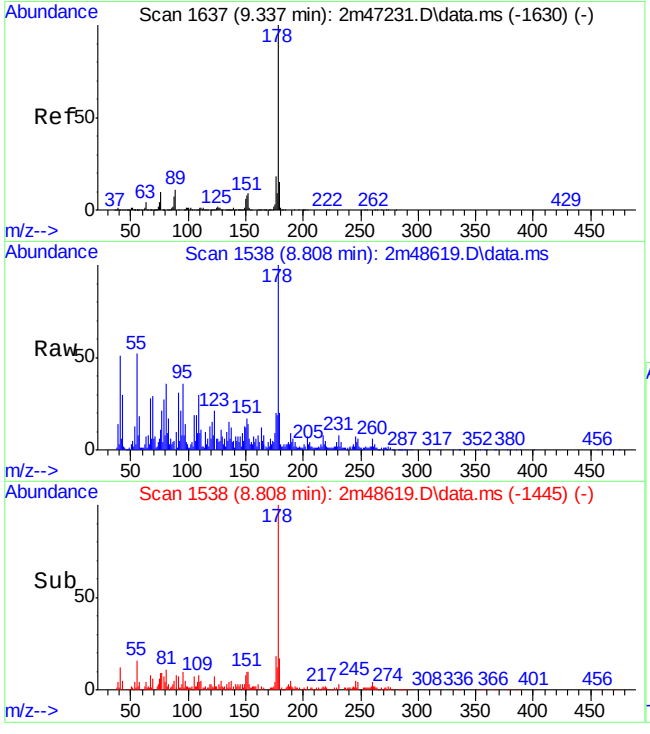


#77
Phenanthrene
Concen: 5.64 ppb
RT: 8.733 min Scan# 1524
Delta R.T. -0.011 min
Lab File: 2m48619.D
Acq: 19 Dec 2012 3:54 pm

Tgt Ion:178 Resp: 172288

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	44.9
176	17.3	0.0	49.1

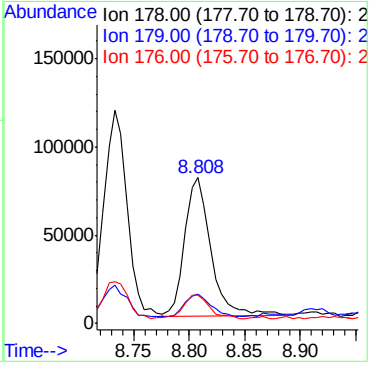


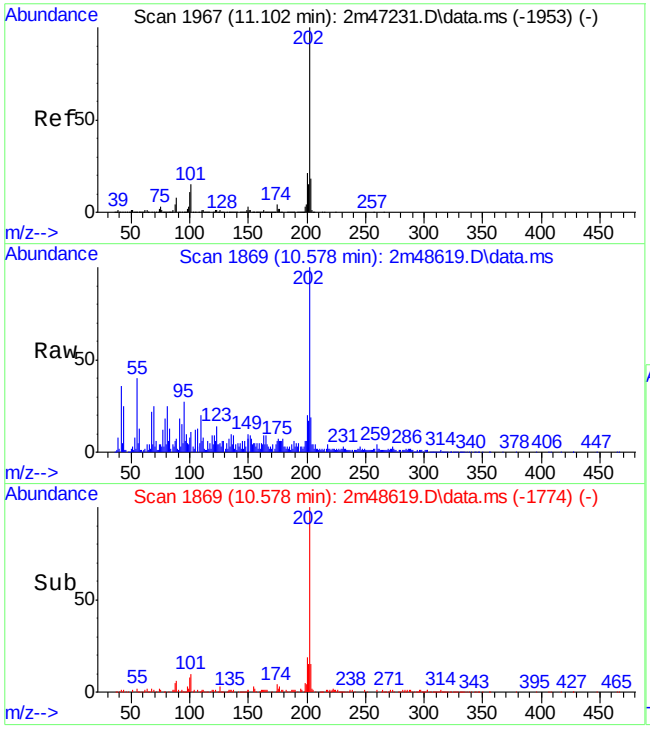


#78
Anthracene
Concen: 4.28 ppb
RT: 8.808 min Scan# 1538
Delta R.T. -0.005 min
Lab File: 2m48619.D
Acq: 19 Dec 2012 3:54 pm

Tgt Ion:178 Resp: 129619

Ion	Ratio	Lower	Upper
178	100		
179	15.6	0.0	44.3
176	16.9	0.0	48.3

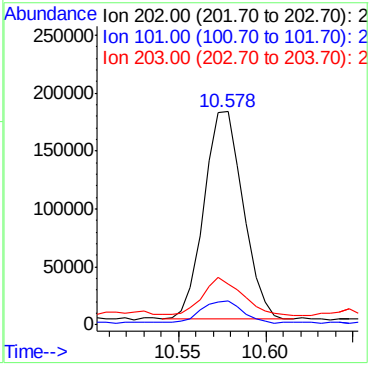


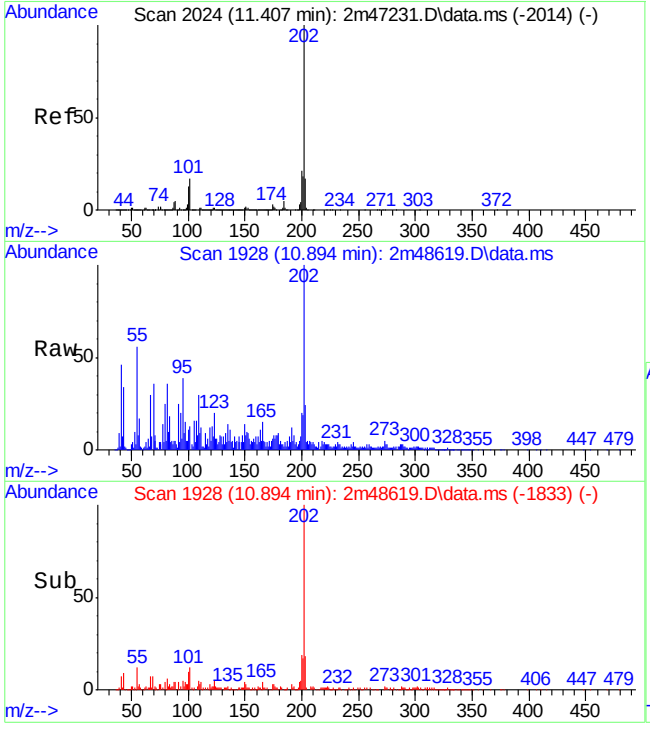


#81
Fluoranthene
Concen: 9.28 ppb
RT: 10.578 min Scan# 1869
Delta R.T. 0.005 min
Lab File: 2m48619.D
Acq: 19 Dec 2012 3:54 pm

Tgt Ion:202 Resp: 279632

Ion	Ratio	Lower	Upper
202	100		
101	10.1	0.0	43.8
203	15.1	0.0	47.5

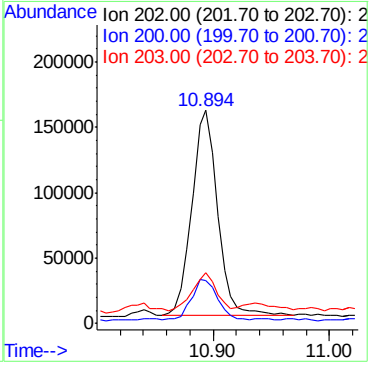


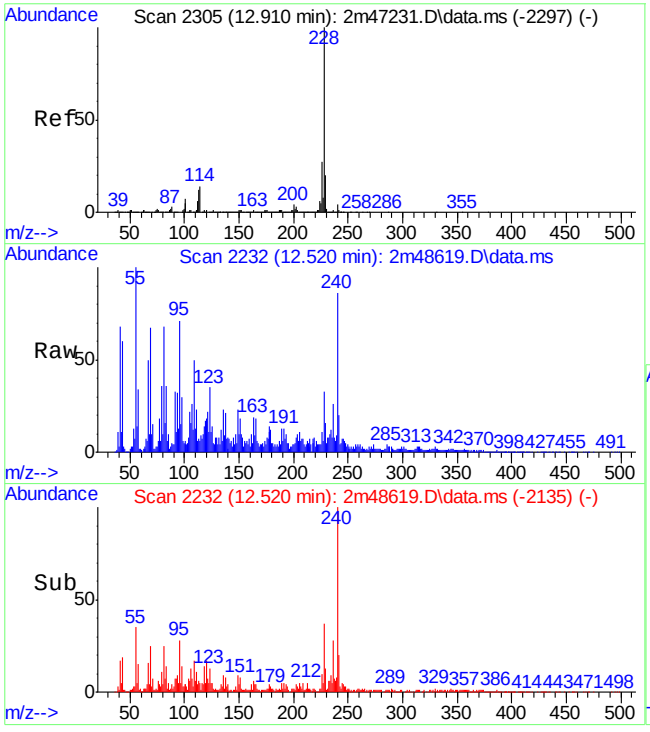


#84
Pyrene
Concen: 6.95 ppb
RT: 10.894 min Scan# 1928
Delta R.T. 0.005 min
Lab File: 2m48619.D
Acq: 19 Dec 2012 3:54 pm

Tgt Ion:202 Resp: 241677

Ion	Ratio	Lower	Upper
202	100		
200	18.7	0.0	51.3
203	17.9	0.0	47.6

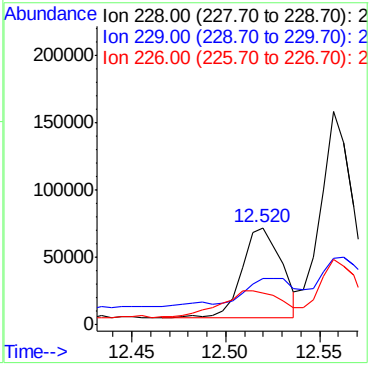


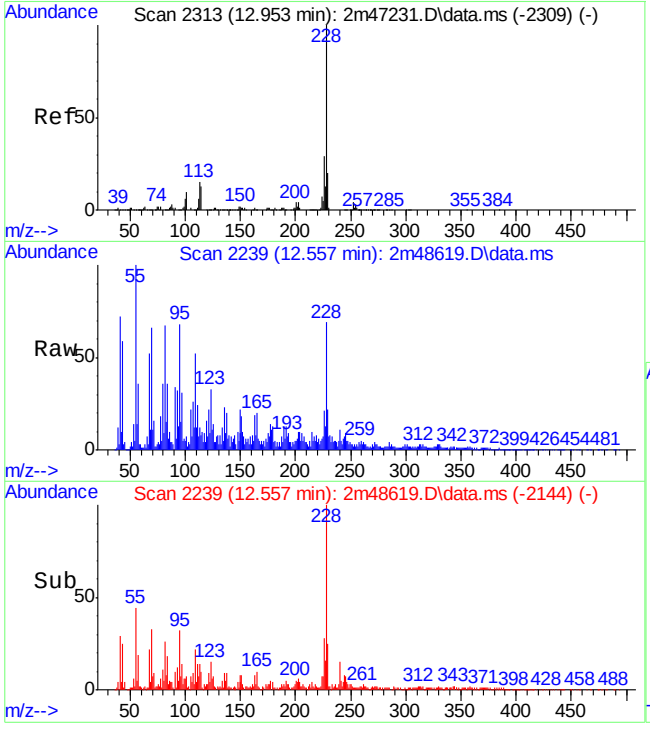


#88
Benzo[a]anthracene
Concen: 2.95 ppb
RT: 12.520 min Scan# 2232
Delta R.T. 0.016 min
Lab File: 2m48619.D
Acq: 19 Dec 2012 3:54 pm

Tgt Ion:228 Resp: 97533

Ion	Ratio	Lower	Upper
228	100		
229	24.3	0.0	49.3
226	24.6	0.0	56.0

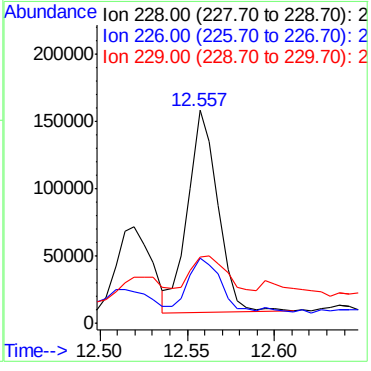


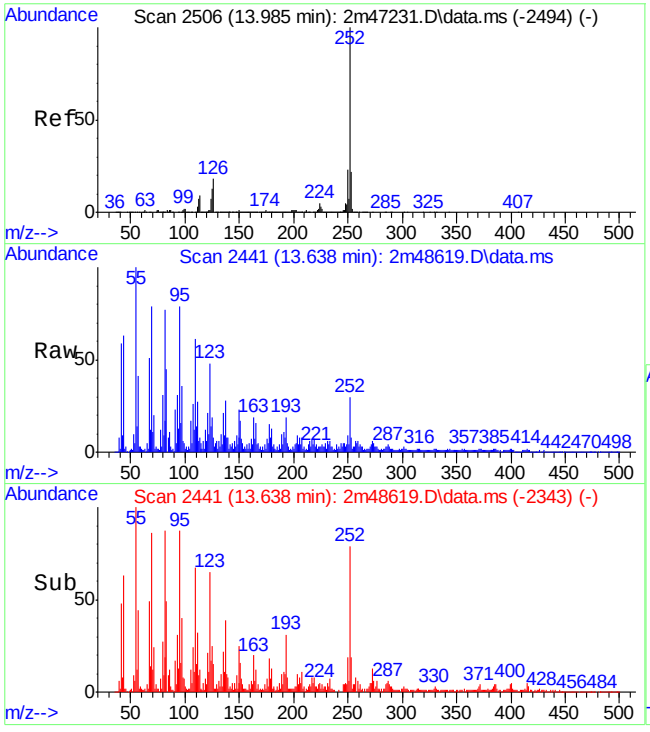


#90
Chrysene
Concen: 5.47 ppb
RT: 12.557 min Scan# 2239
Delta R.T. 0.006 min
Lab File: 2m48619.D
Acq: 19 Dec 2012 3:54 pm

Tgt Ion:228 Resp: 179375

Ion	Ratio	Lower	Upper
228	100		
226	26.8	0.0	57.7
229	16.4	0.0	49.3

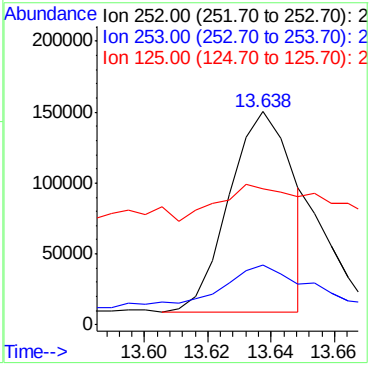


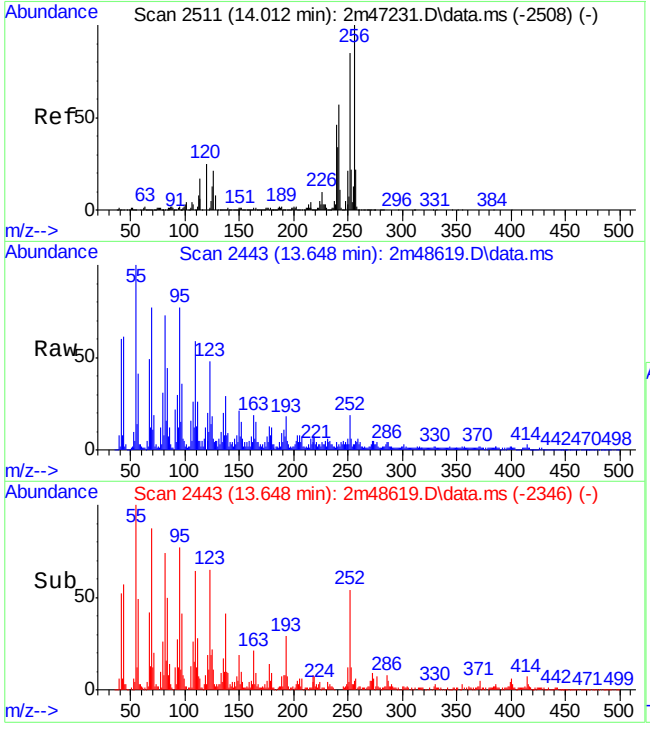


#94
Benzo[b]fluoranthene
Concen: 4.59 ppb m
RT: 13.638 min Scan# 2441
Delta R.T. 0.022 min
Lab File: 2m48619.D
Acq: 19 Dec 2012 3:54 pm

Tgt Ion:252 Resp: 195251

Ion	Ratio	Lower	Upper
252	100		
253	27.8	0.0	51.6
125	63.9	0.0	40.1#

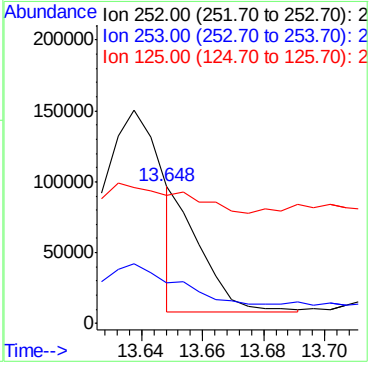




#95
Benzo[k]fluoranthene
Concen: 1.34 ppb m
RT: 13.648 min Scan# 2443
Delta R.T. 0.016 min
Lab File: 2m48619.D
Acq: 19 Dec 2012 3:54 pm

Tgt Ion:252 Resp: 51423

Ion	Ratio	Lower	Upper
252	100		
253	29.8	0.0	52.7
125	93.5	0.0	42.9#



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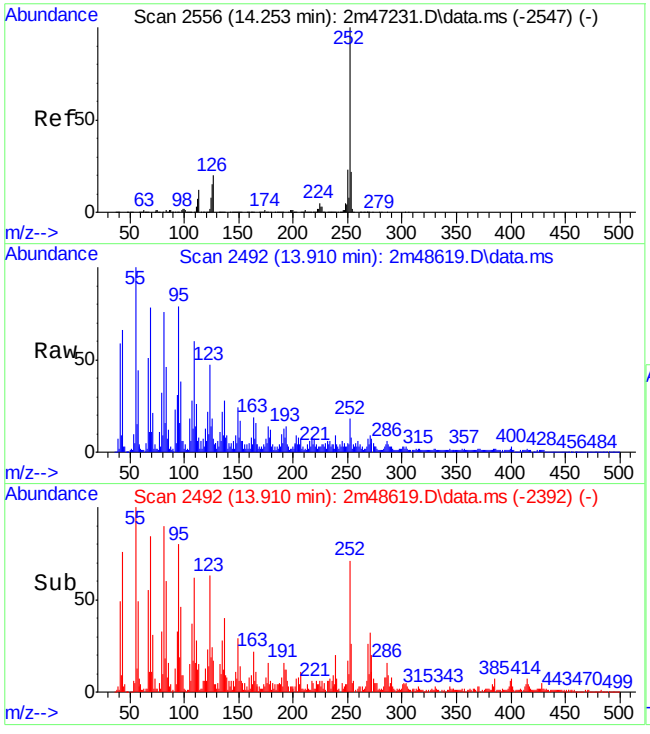
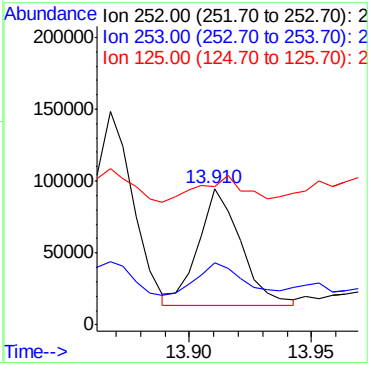
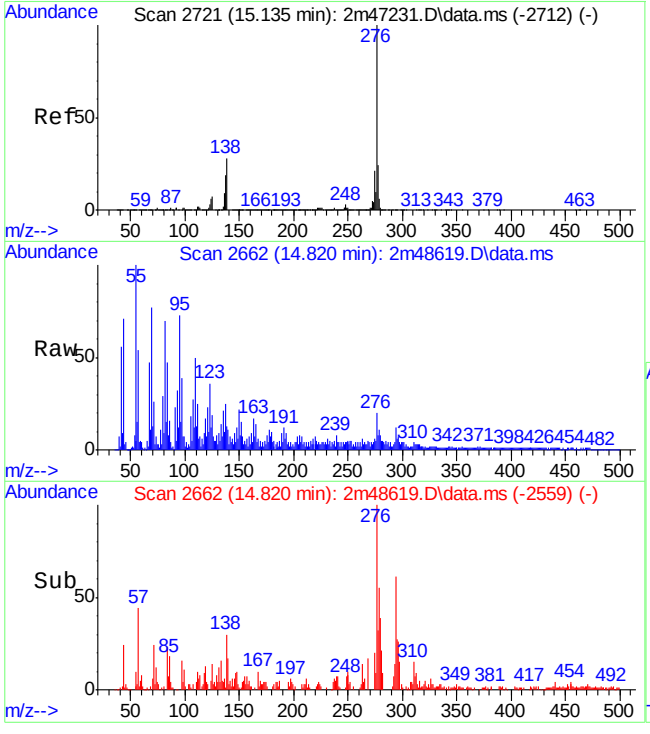


#96
Benzo[a]pyrene
Concen: 2.73 ppb
RT: 13.910 min Scan# 2492
Delta R.T. 0.032 min
Lab File: 2m48619.D
Acq: 19 Dec 2012 3:54 pm

Tgt Ion:252 Resp: 98608

Ion	Ratio	Lower	Upper
252	100		
253	26.7	0.0	52.4
125	10.4	0.0	42.7

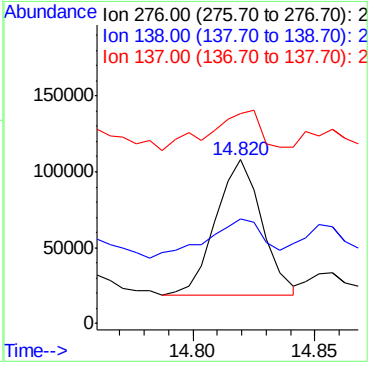




#97
Indeno[1,2,3-cd]pyrene
Concen: 2.80 ppb
RT: 14.820 min Scan# 2662
Delta R.T. 0.048 min
Lab File: 2m48619.D
Acq: 19 Dec 2012 3:54 pm

Tgt Ion:276 Resp: 117491

Ion	Ratio	Lower	Upper
276	100		
138	22.7	0.0	57.6
137	26.6	0.0	48.9



9.1.18

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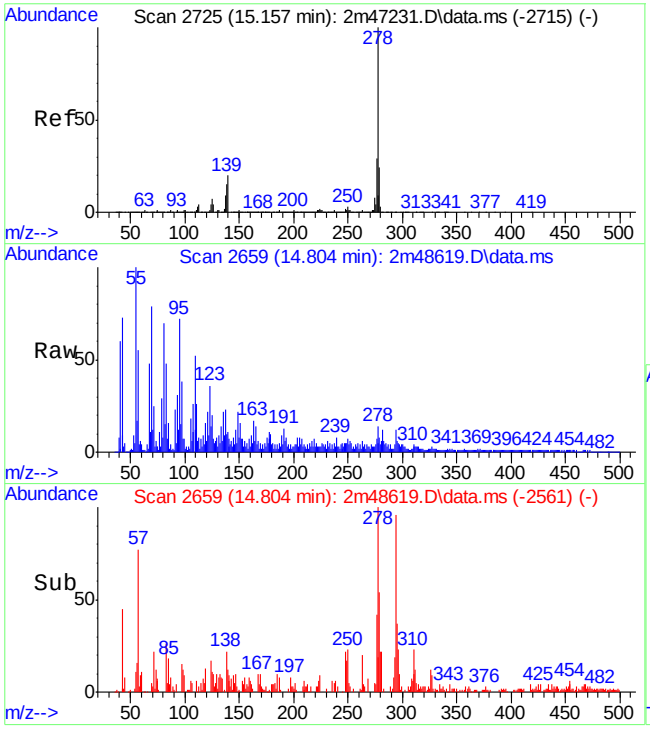
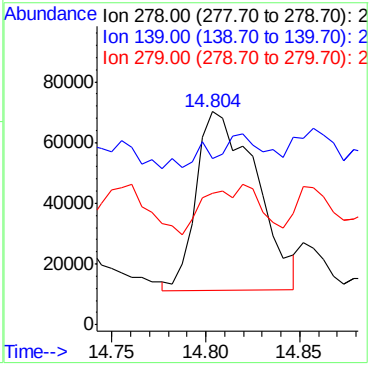
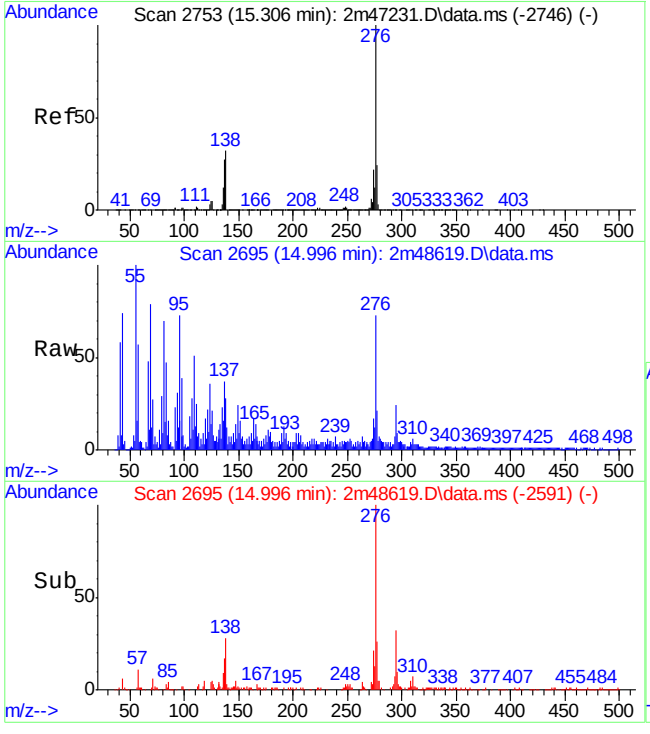


#99
Dibenz[a,h]anthracene
Concen: 3.72 ppb
RT: 14.804 min Scan# 2659
Delta R.T. 0.022 min
Lab File: 2m48619.D
Acq: 19 Dec 2012 3:54 pm

Tgt Ion:278 Resp: 131227

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	52.4
279	16.1	0.0	54.1

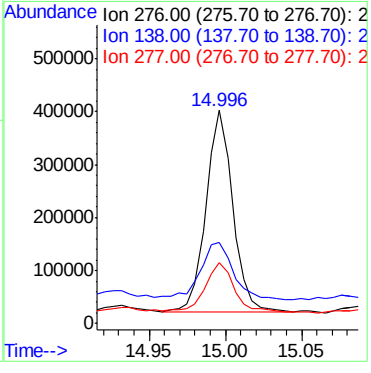




#101
Benzo[g,h,i]perylene
Concen: 12.87 ppb
RT: 14.996 min Scan# 2695
Delta R.T. 0.054 min
Lab File: 2m48619.D
Acq: 19 Dec 2012 3:54 pm

Tgt Ion:276 Resp: 461562

Ion	Ratio	Lower	Upper
276	100		
138	27.5	0.1	60.1
277	24.5	0.0	53.2



9.1.18

9

Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
12/19/12 23:23

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48620.D
Acq On : 19 Dec 2012 4:18 pm
Operator : olgaa
Sample : jb22962-14
Misc : op62064,e2m2082,31.8
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Dec 19 16:45:27 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.384	152	249895	40.00 ppb	0.00
24) Naphthalene-d8	3.908	136	1181072	40.00 ppb	0.00
47) Acenaphthene-d10	6.476	164	758475	40.00 ppb	0.00
69) Phenanthrene-d10	8.706	188	1226198	40.00 ppb	0.00
83) Chrysene-d12	12.530	240	1146529	40.00 ppb	0.00
92) Perylene-d12	13.953	264	1306522	40.00 ppb	0.03
102) 1,4-Dichlorobenzene-d4a	2.384	152	249895	40.00 ppb	0.00
104) Acenaphthene-d10a	6.476	164	758475	40.00 ppb	0.00
106) Chrysene-d12a	12.530	240	1146529	40.00 ppb	0.00
108) Phenanthrene-d10a	8.706	188	1226198	40.00 ppb	0.00
110) Chrysene-d12b	12.530	240	1146529	40.00 ppb	0.00
System Monitoring Compounds					
5) 2-Fluorophenol	1.432	112	165002	18.14 ppb	0.00
Spiked Amount 50.000			Recovery	= 36.28%	
8) Phenol-d5	2.240	99	277134	22.74 ppb	0.02
Spiked Amount 50.000			Recovery	= 45.48%	
25) Nitrobenzene-d5	3.058	82	237024	18.70 ppb	0.00
Spiked Amount 50.000			Recovery	= 37.40%	
51) 2-Fluorobiphenyl	5.550	172	513965	20.61 ppb	-0.01
Spiked Amount 50.000			Recovery	= 41.22%	
73) 2,4,6-Tribromophenol	7.738	330	90993	31.58 ppb	0.00
Spiked Amount 50.000			Recovery	= 63.16%	
85) Terphenyl-d14	11.295	244	719866	31.07 ppb	0.00
Spiked Amount 50.000			Recovery	= 62.14%	
Target Compounds					Qvalue
77) Phenanthrene	8.733	178	28255	0.75 ppb	94
81) Fluoranthene	10.573	202	101156	2.73 ppb	92
84) Pyrene	10.894	202	80045	2.16 ppb	97
88) Benzo[a]anthracene	12.514	228	79647	2.26 ppb	93
90) Chrysene	12.552	228	90534	2.59 ppb	96
94) Benzo[b]fluoranthene	13.627	252	123036m	2.70 ppb	
95) Benzo[k]fluoranthene	13.632	252	52598m	1.28 ppb	
96) Benzo[a]pyrene	13.900	252	63746	1.65 ppb	96
97) Indeno[1,2,3-cd]pyrene	14.798	276	75243	1.68 ppb	79
99) Dibenz[a,h]anthracene	14.809	278	28877m	0.77 ppb	
101) Benzo[g,h,i]perylene	14.975	276	86780	2.27 ppb	98

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

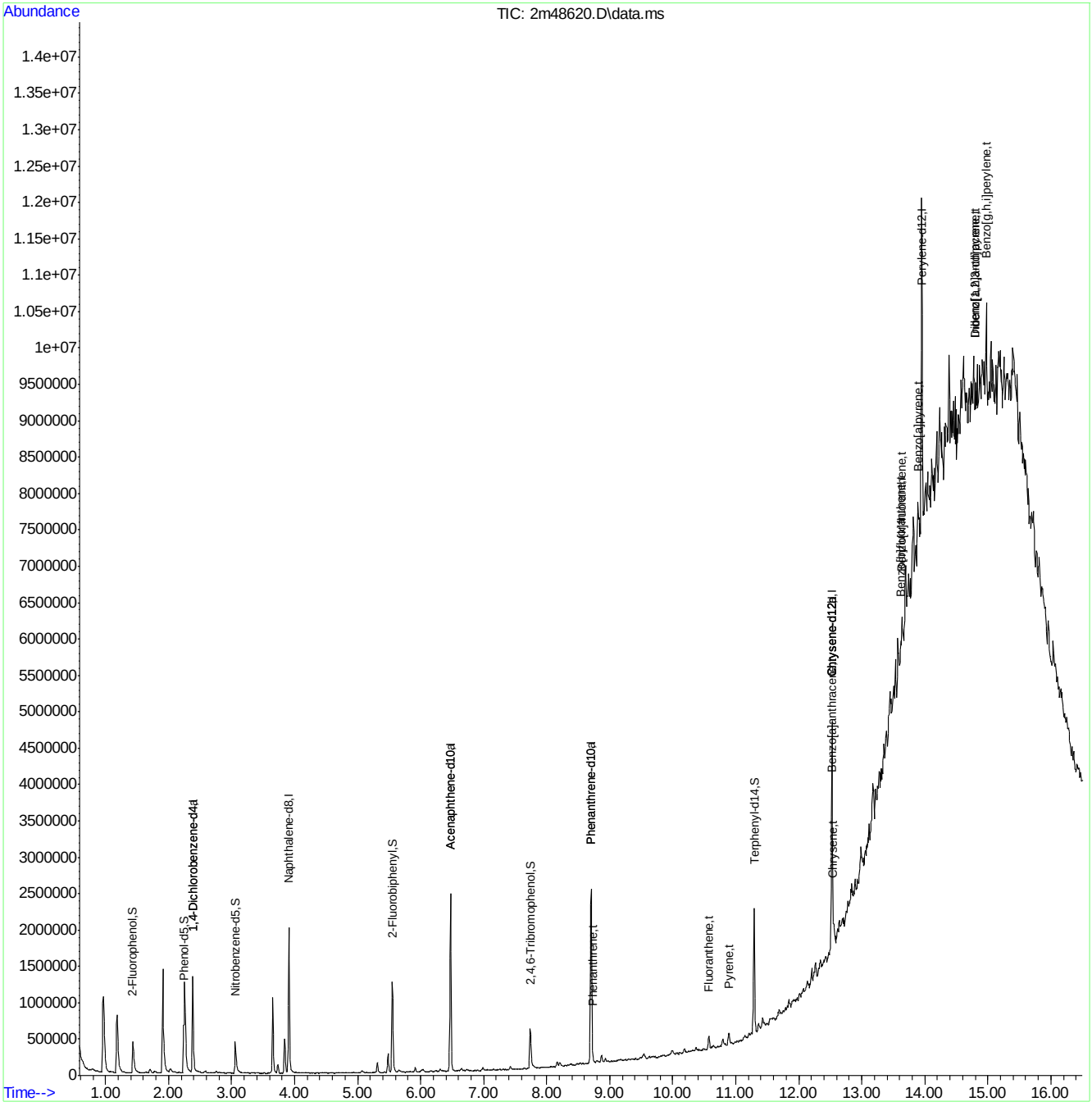
9.1.19

9

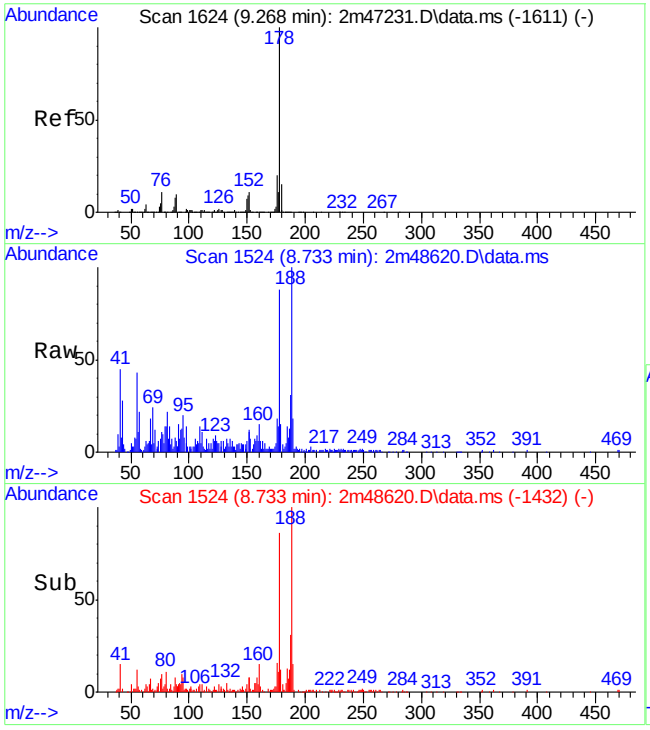
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48620.D
Acq On : 19 Dec 2012 4:18 pm
Operator : olgaa
Sample : jb22962-14
Misc : op62064,e2m2082,31.8
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Dec 19 16:45:27 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration



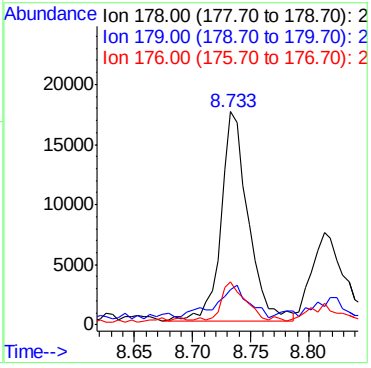
M2M2034.M Wed Dec 19 16:45:40 2012 MS2M Page: 2

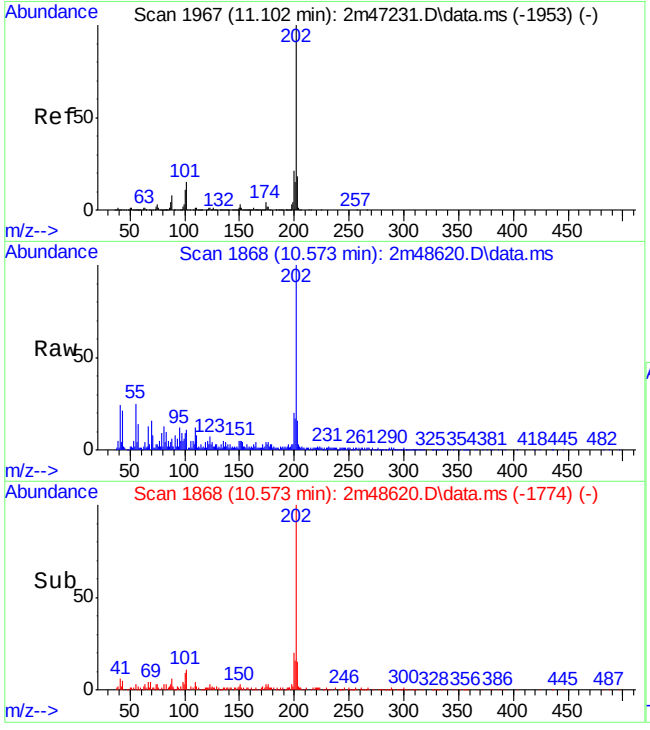


#77
Phenanthrene
Concen: 0.75 ppb
RT: 8.733 min Scan# 1524
Delta R.T. -0.011 min
Lab File: 2m48620.D
Acq: 19 Dec 2012 4:18 pm

Tgt Ion:178 Resp: 28255

Ion	Ratio	Lower	Upper
178	100		
179	11.3	0.0	44.9
176	17.7	0.0	49.1

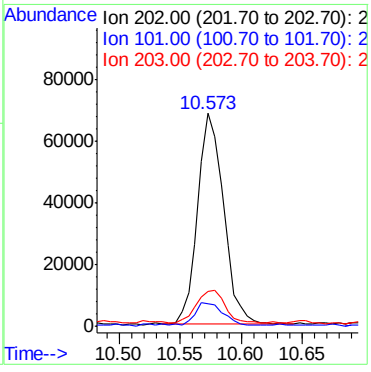




#81
Fluoranthene
Concen: 2.73 ppb
RT: 10.573 min Scan# 1868
Delta R.T. 0.000 min
Lab File: 2m48620.D
Acq: 19 Dec 2012 4:18 pm

Tgt Ion:202 Resp: 101156

Ion	Ratio	Lower	Upper
202	100		
101	10.1	0.0	43.8
203	14.3	0.0	47.5



9.1.19

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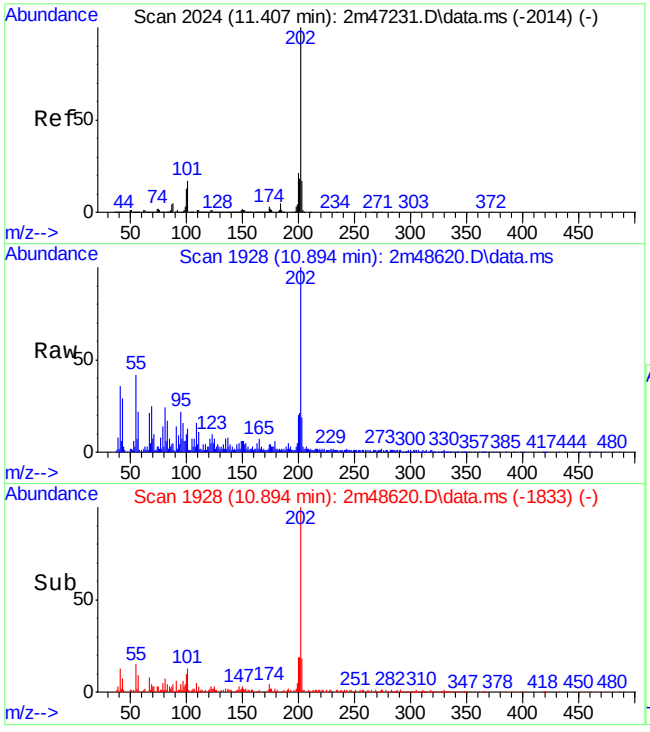
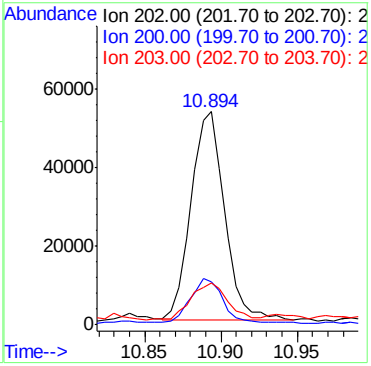
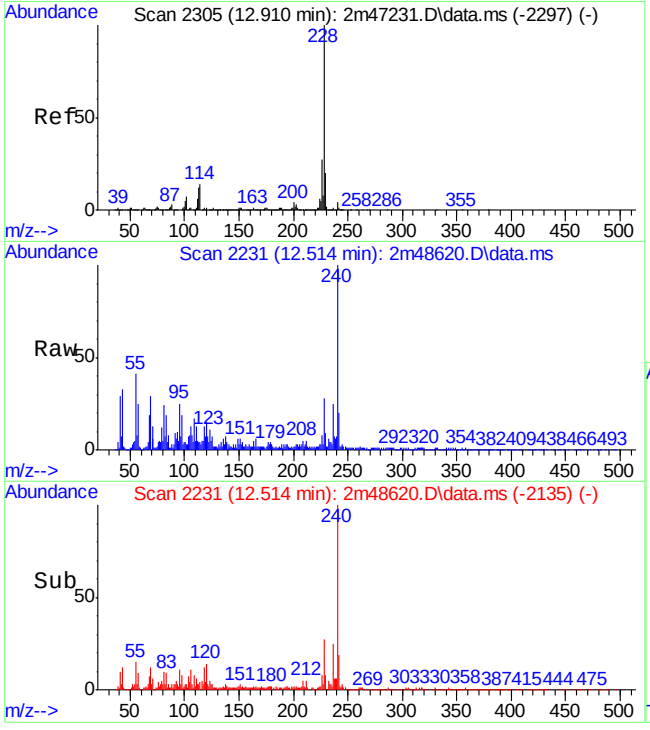


#84
Pyrene
Concen: 2.16 ppb
RT: 10.894 min Scan# 1928
Delta R.T. 0.005 min
Lab File: 2m48620.D
Acq: 19 Dec 2012 4:18 pm

Tgt Ion:202 Resp: 80045

Ion	Ratio	Lower	Upper
202	100		
200	19.6	0.0	51.3
203	16.4	0.0	47.6

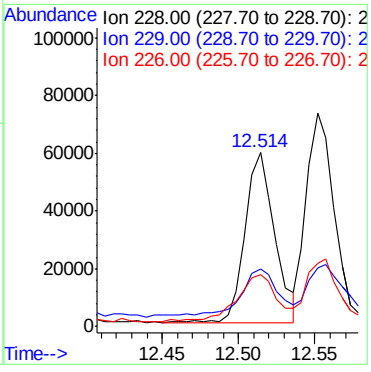




#88
Benzo[a]anthracene
Concen: 2.26 ppb
RT: 12.514 min Scan# 2231
Delta R.T. 0.011 min
Lab File: 2m48620.D
Acq: 19 Dec 2012 4:18 pm

Tgt Ion:228 Resp: 79647

Ion	Ratio	Lower	Upper
228	100		
229	26.7	0.0	49.3
226	26.3	0.0	56.0



9.1.19

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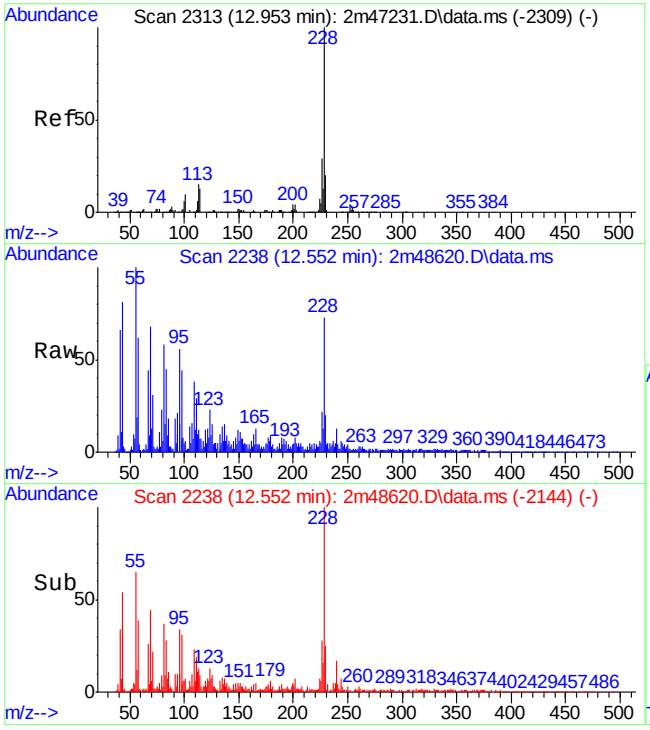
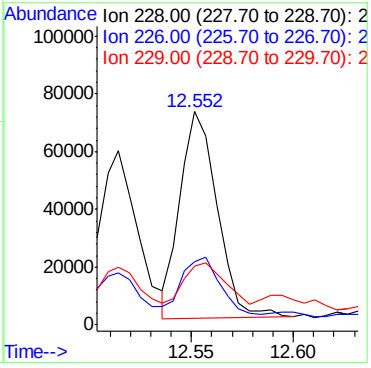
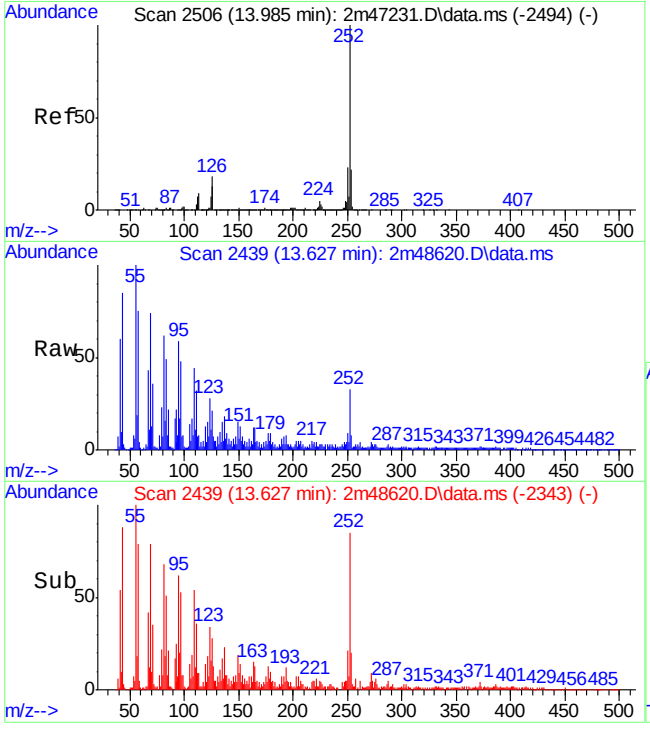


#90
Chrysene
Concen: 2.59 ppb
RT: 12.552 min Scan# 2238
Delta R.T. 0.000 min
Lab File: 2m48620.D
Acq: 19 Dec 2012 4:18 pm

Tgt Ion:228 Resp: 90534

Ion	Ratio	Lower	Upper
228	100		
226	24.9	0.0	57.7
229	18.4	0.0	49.3

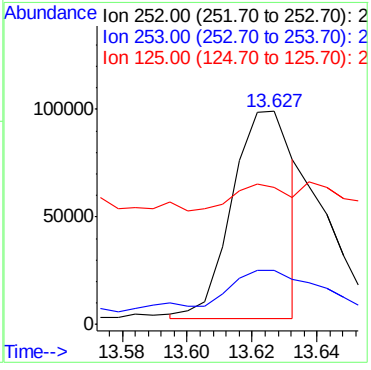




#94
Benzo[b]fluoranthene
Concen: 2.70 ppb m
RT: 13.627 min Scan# 2439
Delta R.T. 0.011 min
Lab File: 2m48620.D
Acq: 19 Dec 2012 4:18 pm

Tgt Ion:252 Resp: 123036

Ion	Ratio	Lower	Upper
252	100		
253	25.3	0.0	51.6
125	64.4	0.0	40.1#



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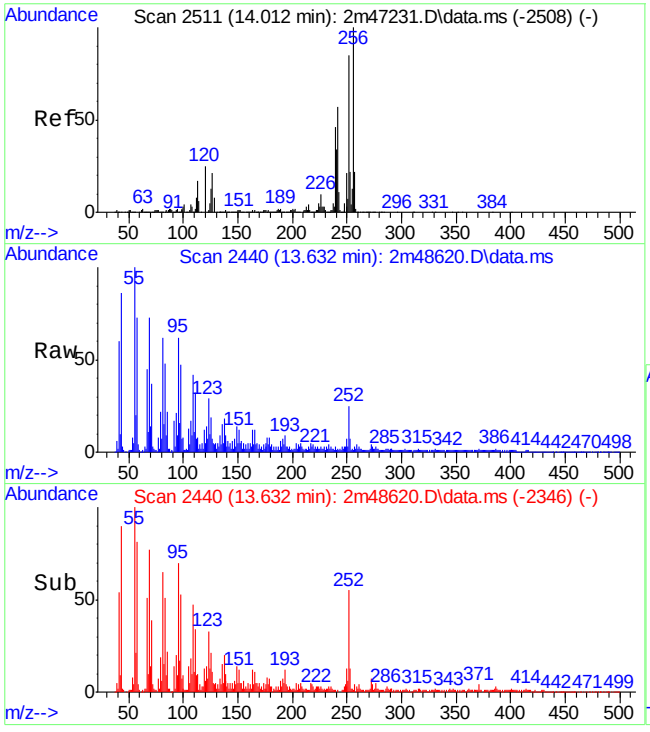
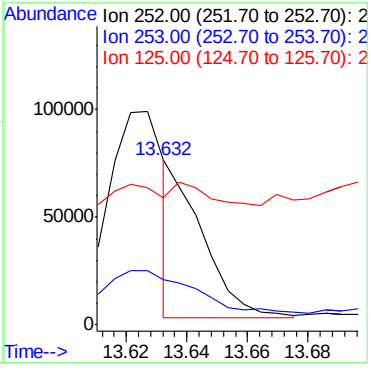
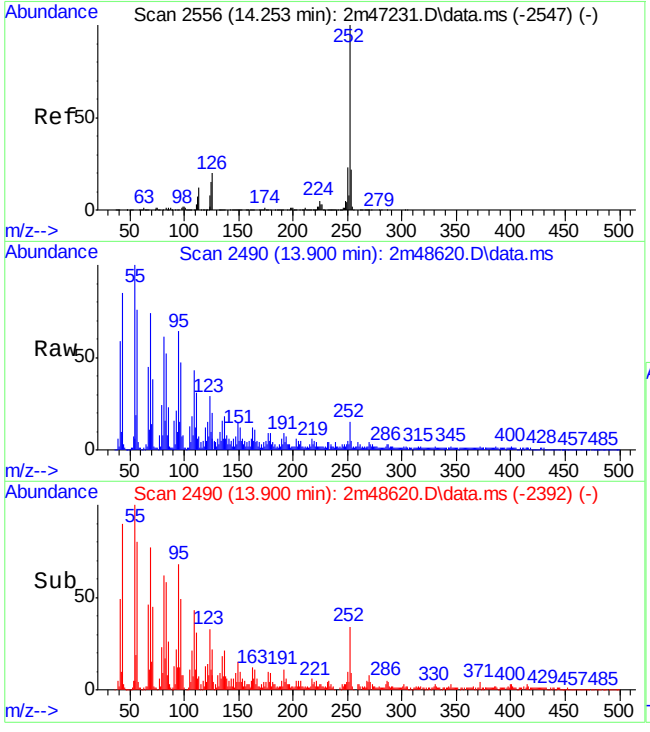


#95
Benzo[k]fluoranthene
Concen: 1.28 ppb m
RT: 13.632 min Scan# 2440
Delta R.T. 0.000 min
Lab File: 2m48620.D
Acq: 19 Dec 2012 4:18 pm

Tgt Ion:252 Resp: 52598

Ion	Ratio	Lower	Upper
252	100		
253	27.2	0.0	52.7
125	76.9	0.0	42.9#

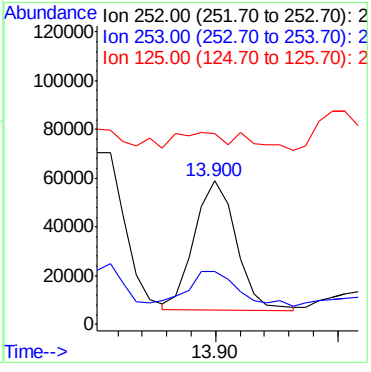




#96
Benzo[a]pyrene
Concen: 1.65 ppb
RT: 13.900 min Scan# 2490
Delta R.T. 0.021 min
Lab File: 2m48620.D
Acq: 19 Dec 2012 4:18 pm

Tgt Ion:252 Resp: 63746

Ion	Ratio	Lower	Upper
252	100		
253	25.1	0.0	52.4
125	12.7	0.0	42.7



9.1.19

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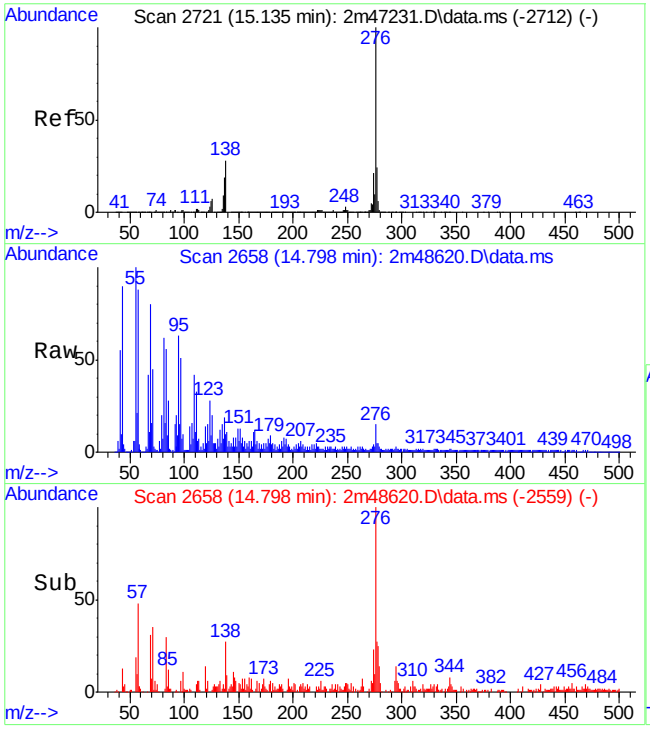
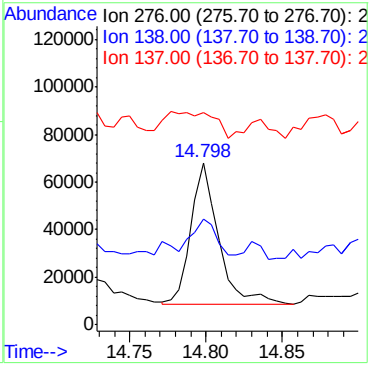
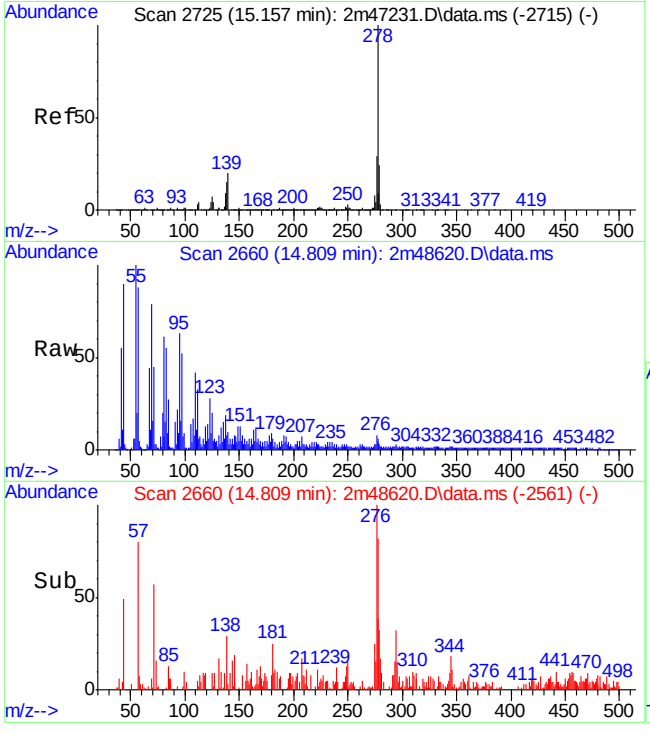


#97
Indeno[1,2,3-cd]pyrene
Concen: 1.68 ppb
RT: 14.798 min Scan# 2658
Delta R.T. 0.027 min
Lab File: 2m48620.D
Acq: 19 Dec 2012 4:18 pm

Tgt Ion:276 Resp: 75243

Ion	Ratio	Lower	Upper
276	100		
138	18.1	0.0	57.6
137	8.0	0.0	48.9

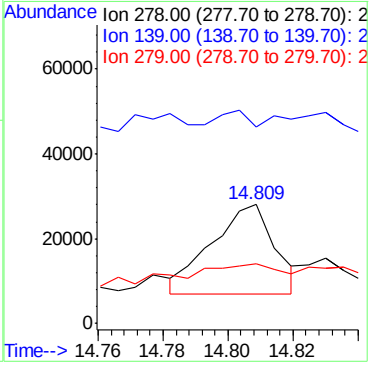




#99
Dibenz[a,h]anthracene
Concen: 0.77 ppb m
RT: 14.809 min Scan# 2660
Delta R.T. 0.027 min
Lab File: 2m48620.D
Acq: 19 Dec 2012 4:18 pm

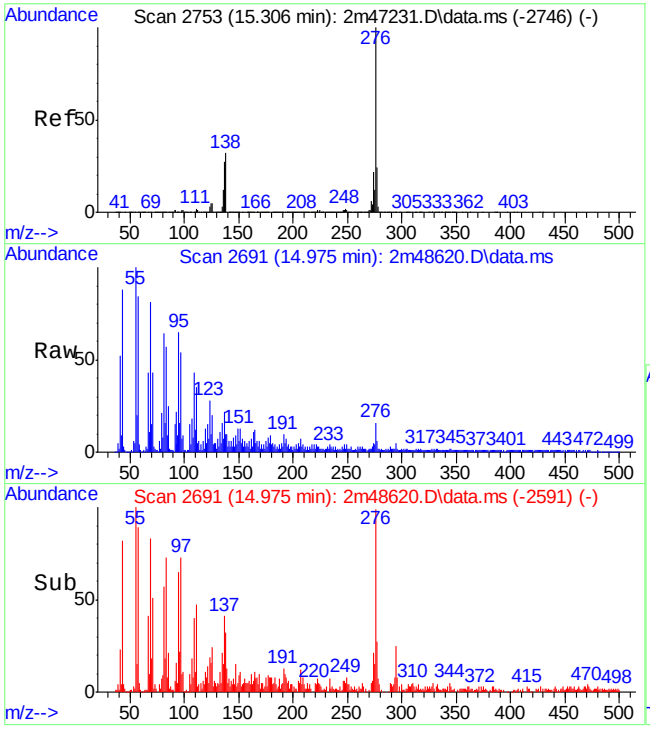
Tgt Ion:278 Resp: 28877

Ion	Ratio	Lower	Upper
278	100		
139	165.0	0.0	52.4#
279	50.4	0.0	54.1



9.1.19

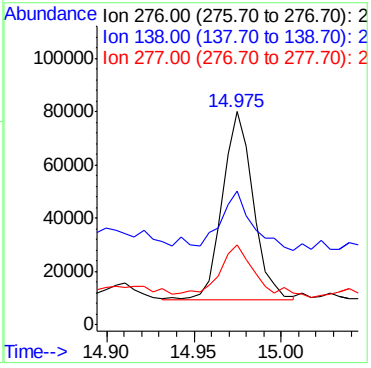
9



#101
Benzo[g,h,i]perylene
Concen: 2.27 ppb
RT: 14.975 min Scan# 2691
Delta R.T. 0.032 min
Lab File: 2m48620.D
Acq: 19 Dec 2012 4:18 pm

Tgt Ion:276 Resp: 86780

Ion	Ratio	Lower	Upper
276	100		
138	29.4	0.1	60.1
277	24.5	0.0	53.2



9.1.19

9

Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 12/21/12 18:23

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48624.D
Acq On : 19 Dec 2012 5:50 pm
Operator : olgaa
Sample : jb22962-15
Misc : op62064,e2m2082,31.7
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Dec 20 11:52:39 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration

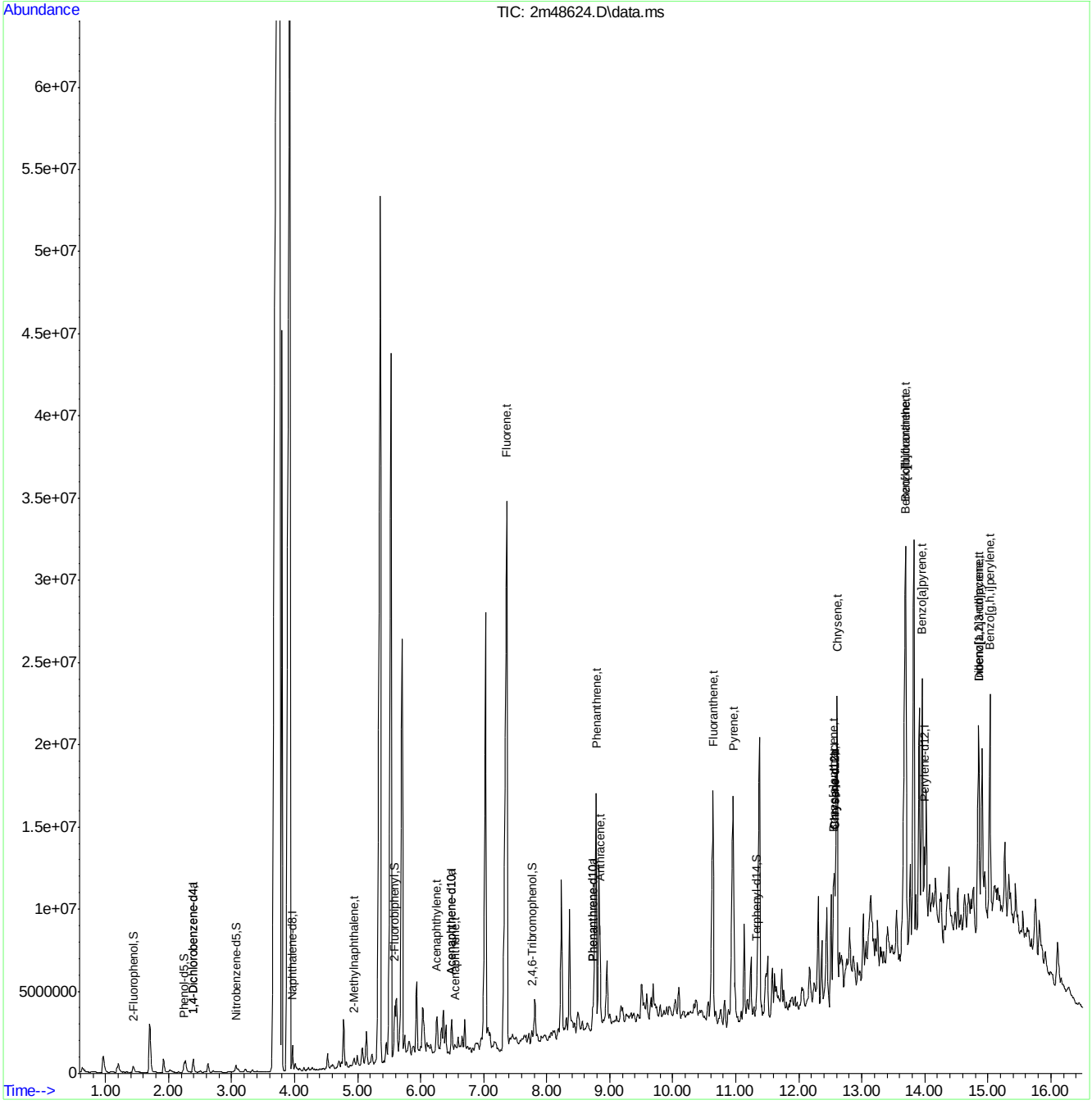
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.389	152	172378	40.00	ppb	0.00
24) Naphthalene-d8	3.967	136	711686	40.00	ppb	0.05
47) Acenaphthene-d10	6.492	164	551893	40.00	ppb	0.01
69) Phenanthrene-d10	8.733	188	945241	40.00	ppb	0.03
83) Chrysene-d12	12.568	240	1141885	40.00	ppb	0.04
92) Perylene-d12	14.001	264	1163536	40.00	ppb	0.07
102) 1,4-Dichlorobenzene-d4a	2.389	152	172378	40.00	ppb	0.00
104) Acenaphthene-d10a	6.492	164	551893	40.00	ppb	0.01
106) Chrysene-d12a	12.568	240	1141885	40.00	ppb	0.04
108) Phenanthrene-d10a	8.733	188	945241	40.00	ppb	0.03
110) Chrysene-d12b	12.568	240	1141885	40.00	ppb	0.04
System Monitoring Compounds						
5) 2-Fluorophenol	1.437	112	146995	23.43	ppb	0.01
Spiked Amount 50.000			Recovery	=	46.86%	
8) Phenol-d5	2.245	99	229855	27.34	ppb	0.03
Spiked Amount 50.000			Recovery	=	54.68%	
25) Nitrobenzene-d5	3.069	82	239938	31.42	ppb	0.00
Spiked Amount 50.000			Recovery	=	62.84%	
51) 2-Fluorobiphenyl	5.582	172	514580	28.36	ppb	0.02
Spiked Amount 50.000			Recovery	=	56.72%	
73) 2,4,6-Tribromophenol	7.759	330	86811	39.08	ppb	0.02
Spiked Amount 50.000			Recovery	=	78.16%	
85) Terphenyl-d14	11.327	244	710191	30.78	ppb	0.04
Spiked Amount 50.000			Recovery	=	61.56%	
Target Compounds						Qvalue
44) 2-Methylnaphthalene	4.941	141	33728	2.78	ppb #	71
56) Acenaphthylene	6.256	152	1148126	43.08	ppb	99
59) Acenaphthene	6.534	153	122937	7.17	ppb	99
66) Fluorene	7.364	166	22163892	1194.69	ppb	97
77) Phenanthrene	8.786	178	8448291	291.95	ppb	99
78) Anthracene	8.845	178	3241868	113.02	ppb	99
81) Fluoranthene	10.642	202	9756208	341.77	ppb	99
84) Pyrene	10.963	202	10352320	280.30	ppb	97
88) Benzo[a]anthracene	12.552	228	3405714	96.97	ppb	81
90) Chrysene	12.611	228	8199548	235.49	ppb	96
94) Benzo[b]fluoranthene	13.691	252	15593096m	384.95	ppb	
95) Benzo[k]fluoranthene	13.702	252	2416651m	66.28	ppb	
96) Benzo[a]pyrene	13.964	252	5577022	162.08	ppb	91
97) Indeno[1,2,3-cd]pyrene	14.852	276	4198507	105.08	ppb	96
99) Dibenz[a,h]anthracene	14.857	278	1946556	57.99	ppb	97
101) Benzo[g,h,i]perylene	15.033	276	3969901	116.38	ppb	98

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

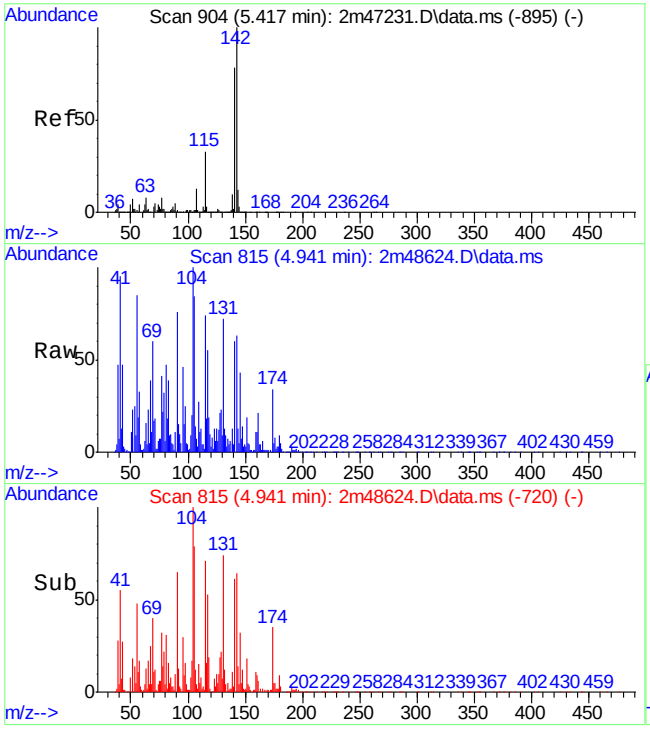
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48624.D
Acq On : 19 Dec 2012 5:50 pm
Operator : olgaa
Sample : jb22962-15
Misc : op62064,e2m2082,31.7
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Dec 20 11:52:39 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration



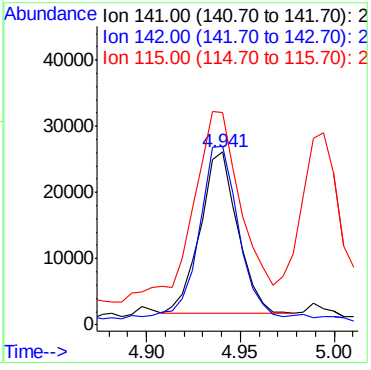
M2M2034.M Thu Dec 20 11:52:48 2012 MS2M Page: 2

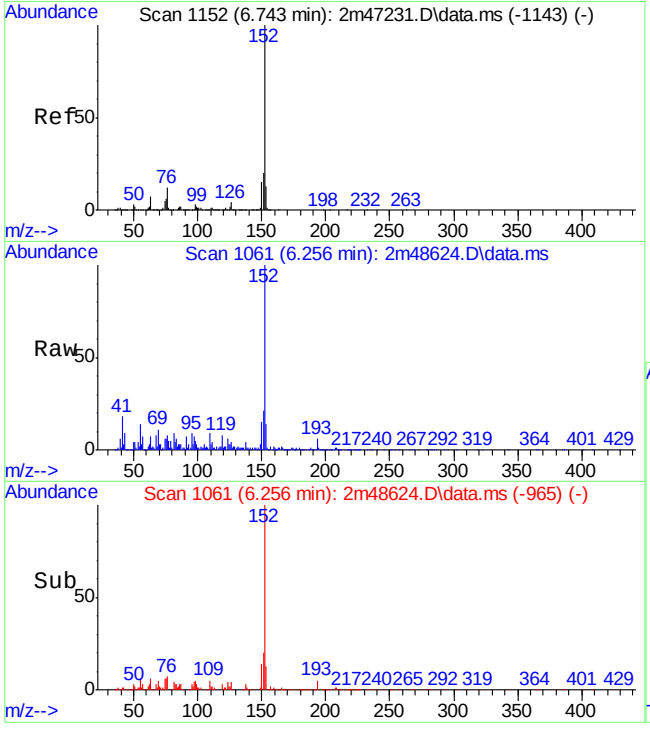


#44
2-Methylnaphthalene
Concen: 2.78 ppb
RT: 4.941 min Scan# 815
Delta R.T. 0.011 min
Lab File: 2m48624.D
Acq: 19 Dec 2012 5:50 pm

Tgt Ion:141 Resp: 33728

Ion	Ratio	Lower	Upper
141	100		
142	104.2	81.7	141.7
115	97.4	12.0	72.0#

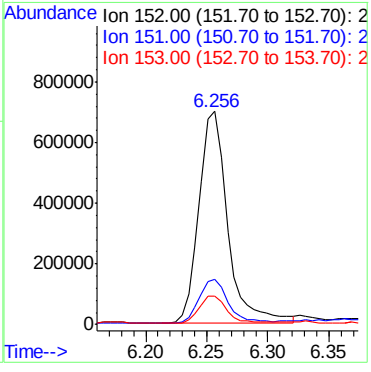




#56
Acenaphthylene
Concen: 43.08 ppb
RT: 6.256 min Scan# 1061
Delta R.T. 0.016 min
Lab File: 2m48624.D
Acq: 19 Dec 2012 5:50 pm

Tgt Ion:152 Resp: 1148126

Ion	Ratio	Lower	Upper
152	100		
151	20.3	0.0	49.4
153	13.0	0.0	43.0



9.1.20

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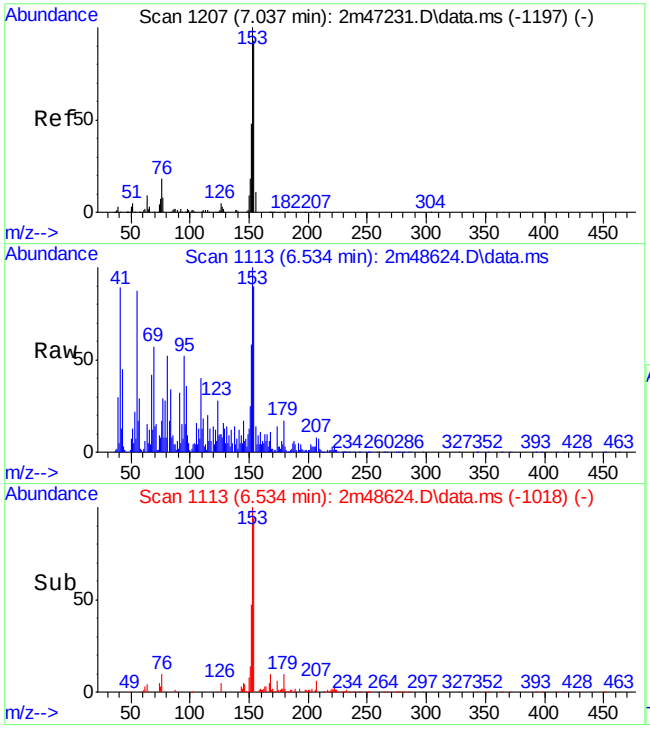
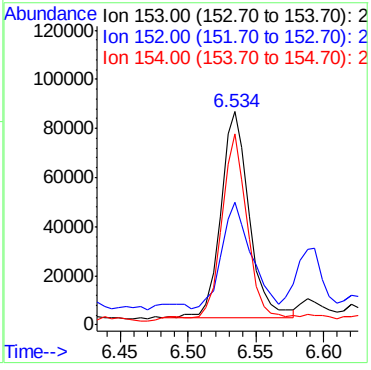
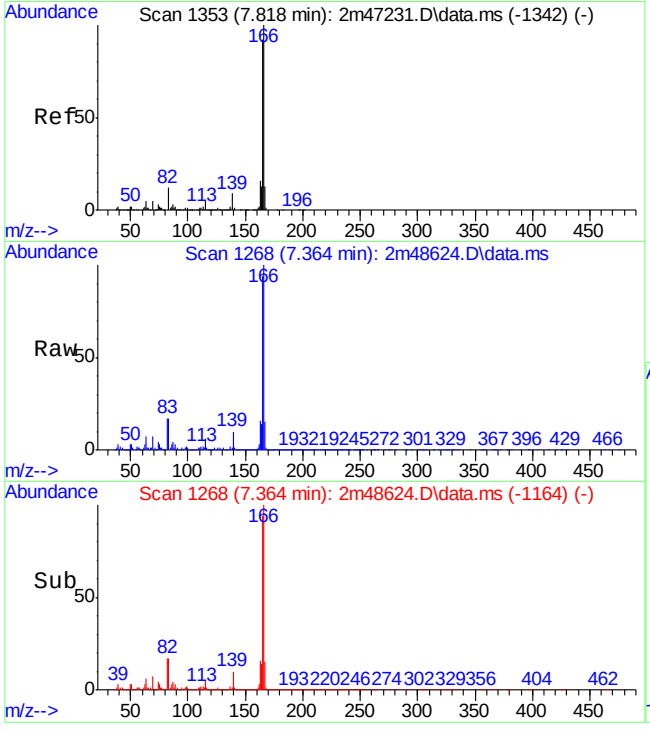


#59
Acenaphthene
Concen: 7.17 ppb
RT: 6.534 min Scan# 1113
Delta R.T. 0.011 min
Lab File: 2m48624.D
Acq: 19 Dec 2012 5:50 pm

Tgt Ion:153 Resp: 122937

Ion	Ratio	Lower	Upper
153	100		
152	45.6	15.8	75.8
154	90.5	59.7	119.7

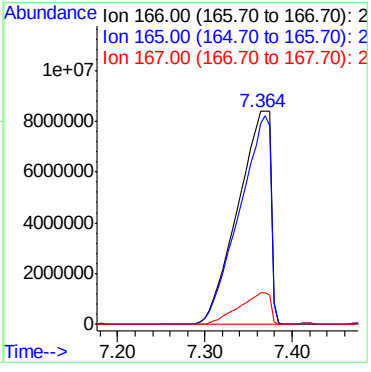




#66
Fluorene
Concen: 1194.69 ppb
RT: 7.364 min Scan# 1268
Delta R.T. 0.059 min
Lab File: 2m48624.D
Acq: 19 Dec 2012 5:50 pm

Tgt Ion:166 Resp:22163892

Ion	Ratio	Lower	Upper
166	100		
165	94.4	61.9	121.9
167	14.8	0.0	43.1



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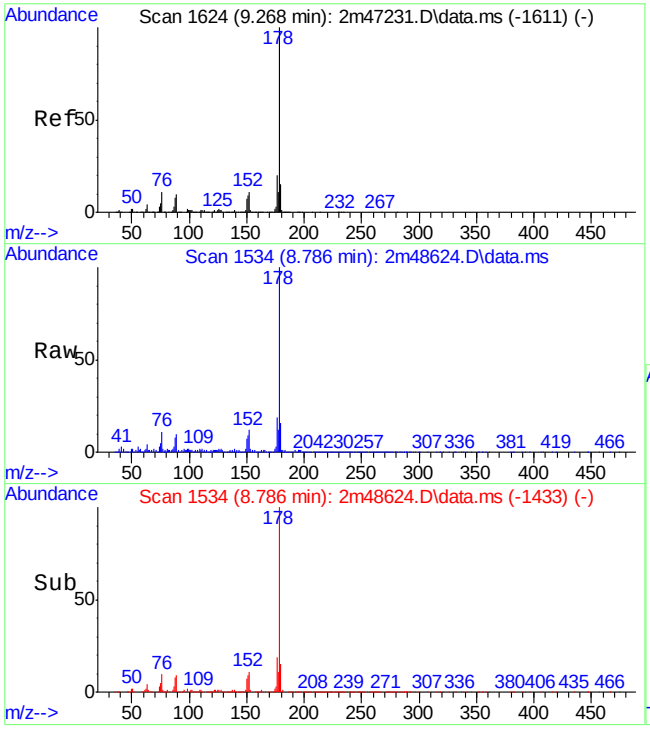
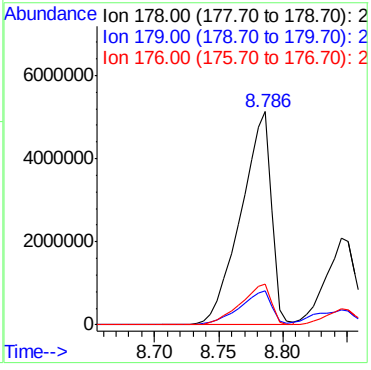
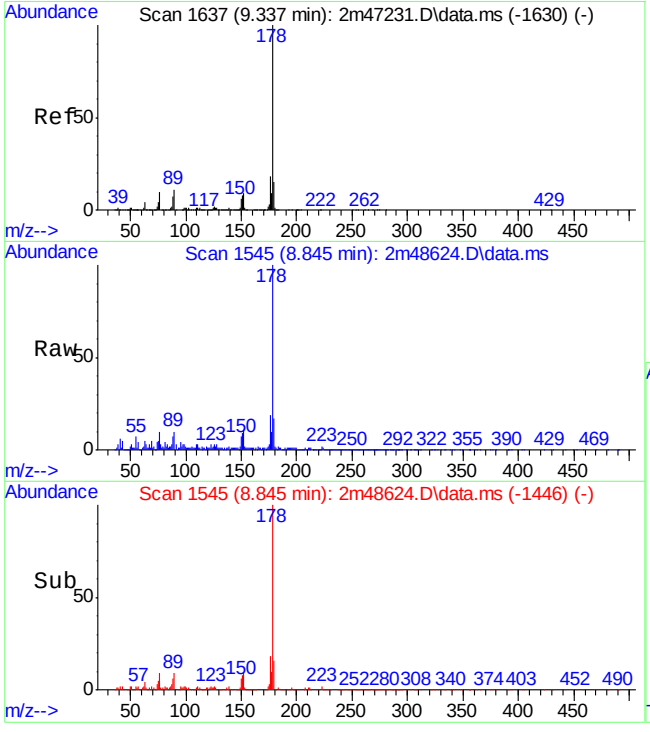


#77
Phenanthrene
Concen: 291.95 ppb
RT: 8.786 min Scan# 1534
Delta R.T. 0.043 min
Lab File: 2m48624.D
Acq: 19 Dec 2012 5:50 pm

Tgt Ion:178 Resp: 8448291

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	44.9
176	19.3	0.0	49.1

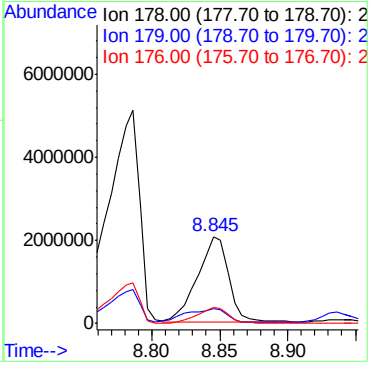




#78
Anthracene
Concen: 113.02 ppb
RT: 8.845 min Scan# 1545
Delta R.T. 0.032 min
Lab File: 2m48624.D
Acq: 19 Dec 2012 5:50 pm

Tgt Ion:178 Resp: 3241868

Ion	Ratio	Lower	Upper
178	100		
179	15.1	0.0	44.3
176	18.5	0.0	48.3



9.1.20

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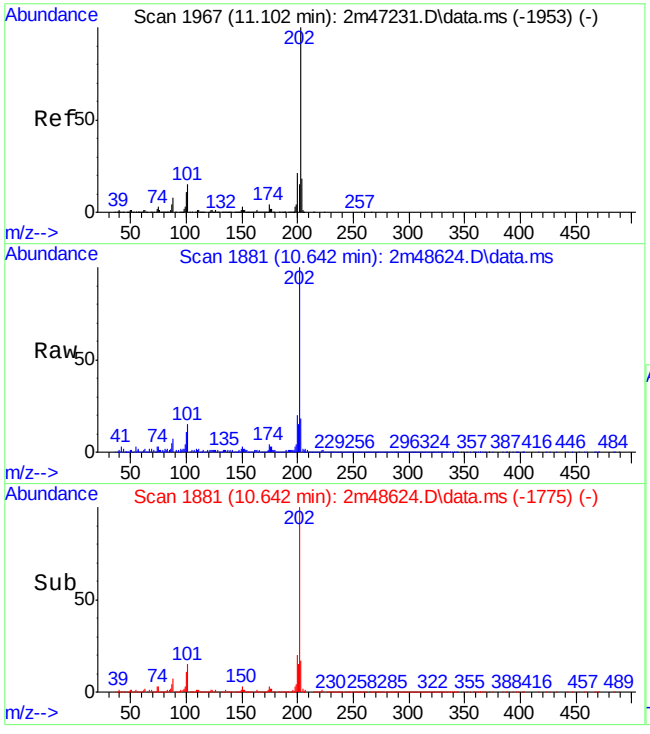
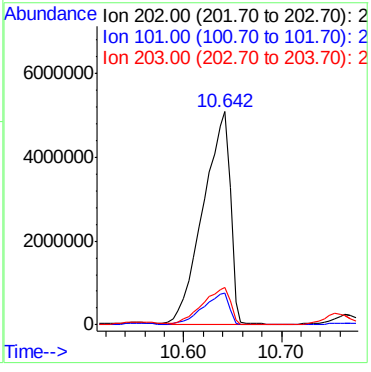
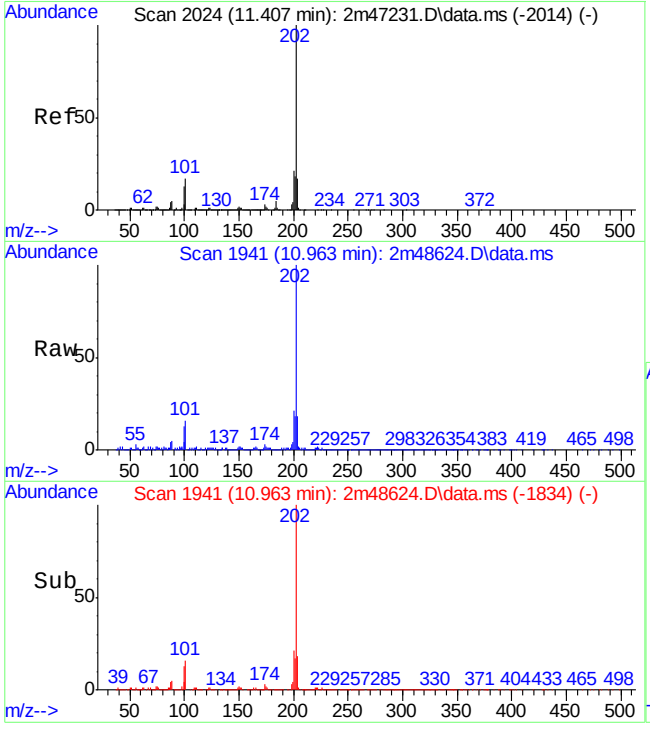


#81
Fluoranthene
Concen: 341.77 ppb
RT: 10.642 min Scan# 1881
Delta R.T. 0.070 min
Lab File: 2m48624.D
Acq: 19 Dec 2012 5:50 pm

Tgt Ion:202 Resp: 9756208

Ion	Ratio	Lower	Upper
202	100		
101	14.6	0.0	43.8
203	17.3	0.0	47.5

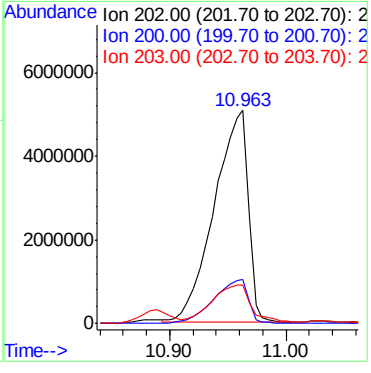




#84
Pyrene
Concen: 280.30 ppb
RT: 10.963 min Scan# 1941
Delta R.T. 0.075 min
Lab File: 2m48624.D
Acq: 19 Dec 2012 5:50 pm

Tgt Ion:202 Resp:10352320

Ion	Ratio	Lower	Upper
202	100		
200	20.6	0.0	51.3
203	15.1	0.0	47.6



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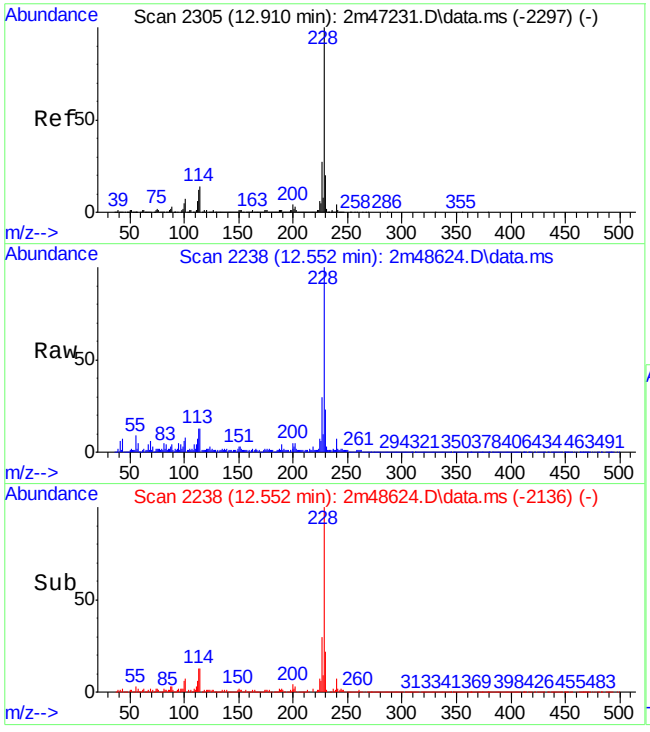
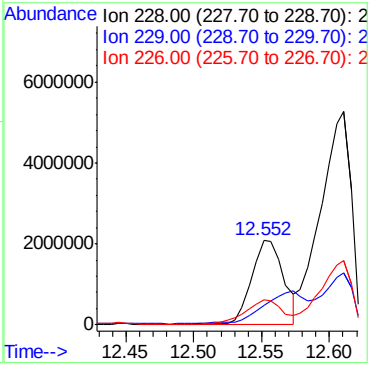
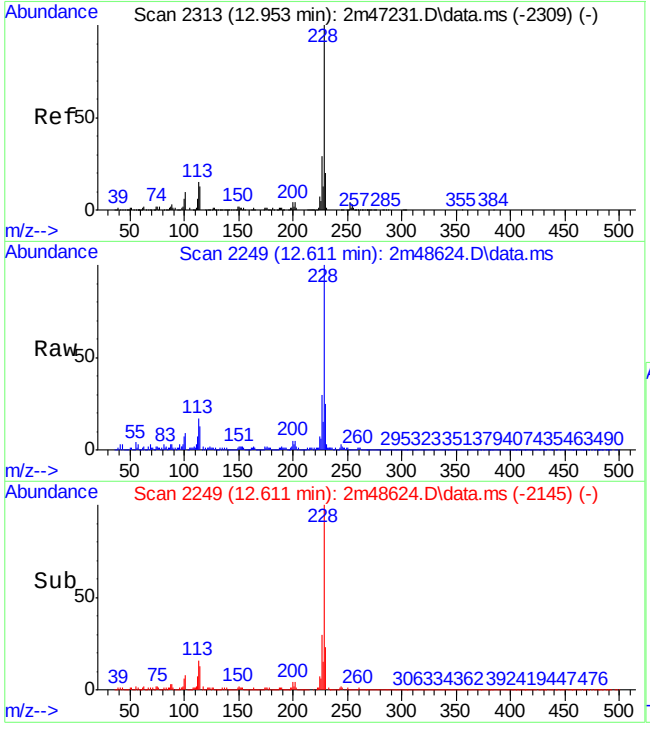


#88
Benzo[a]anthracene
Concen: 96.97 ppb
RT: 12.552 min Scan# 2238
Delta R.T. 0.048 min
Lab File: 2m48624.D
Acq: 19 Dec 2012 5:50 pm

Tgt Ion:228 Resp: 3405714

Ion	Ratio	Lower	Upper
228	100		
229	3.4	0.0	49.3
226	29.8	0.0	56.0

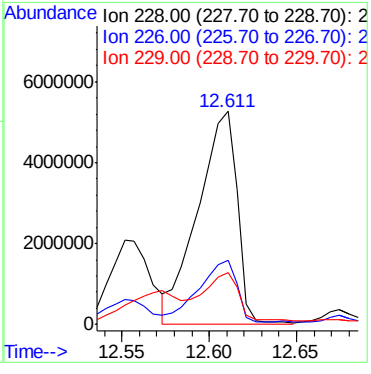




#90
Chrysene
Concen: 235.49 ppb
RT: 12.611 min Scan# 2249
Delta R.T. 0.059 min
Lab File: 2m48624.D
Acq: 19 Dec 2012 5:50 pm

Tgt Ion:228 Resp: 8199548

Ion	Ratio	Lower	Upper
228	100		
226	29.6	0.0	57.7
229	17.1	0.0	49.3



9.1.20

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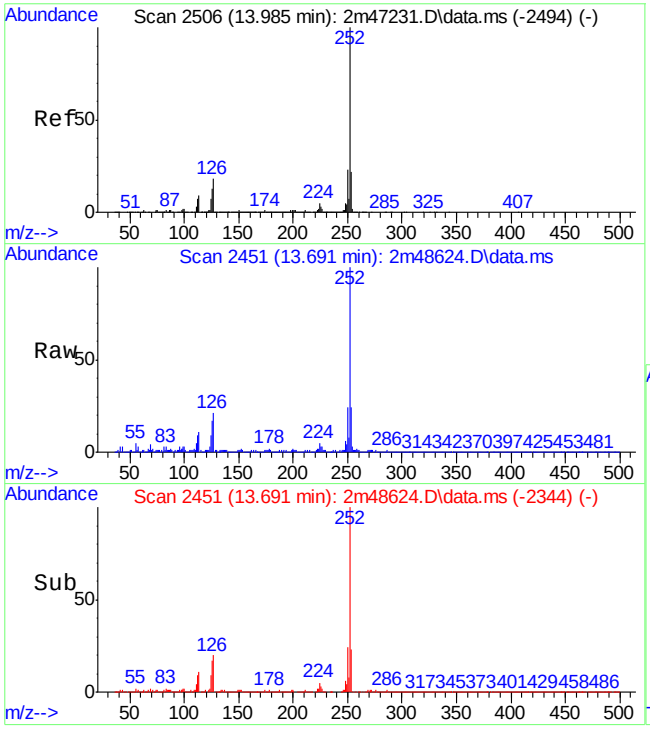
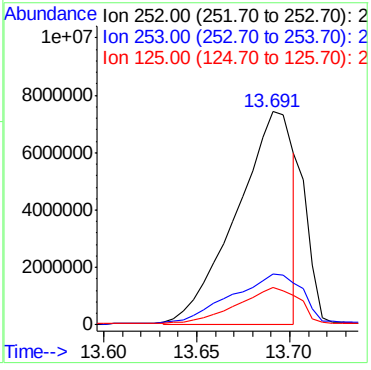
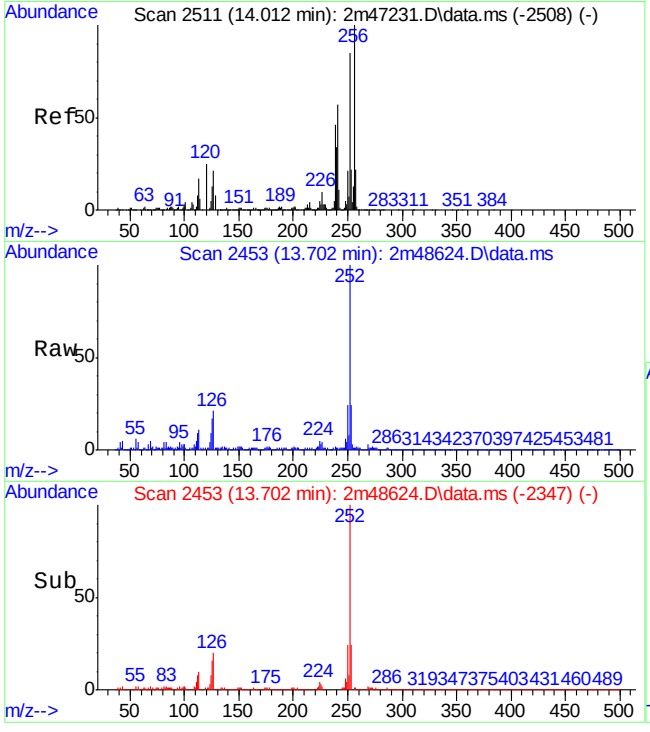


#94
Benzo[b]fluoranthene
Concen: 384.95 ppb m
RT: 13.691 min Scan# 2451
Delta R.T. 0.075 min
Lab File: 2m48624.D
Acq: 19 Dec 2012 5:50 pm

Tgt Ion:252 Resp:15593096

Ion	Ratio	Lower	Upper
252	100		
253	23.7	0.0	51.6
125	17.4	0.0	40.1

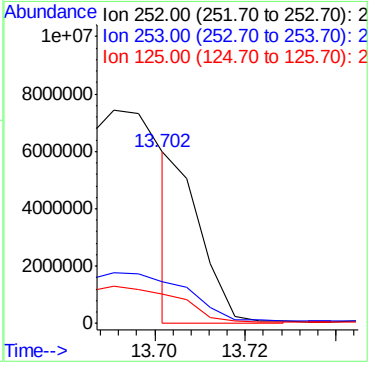




#95
Benzo[k]fluoranthene
Concen: 66.28 ppb m
RT: 13.702 min Scan# 2453
Delta R.T. 0.070 min
Lab File: 2m48624.D
Acq: 19 Dec 2012 5:50 pm

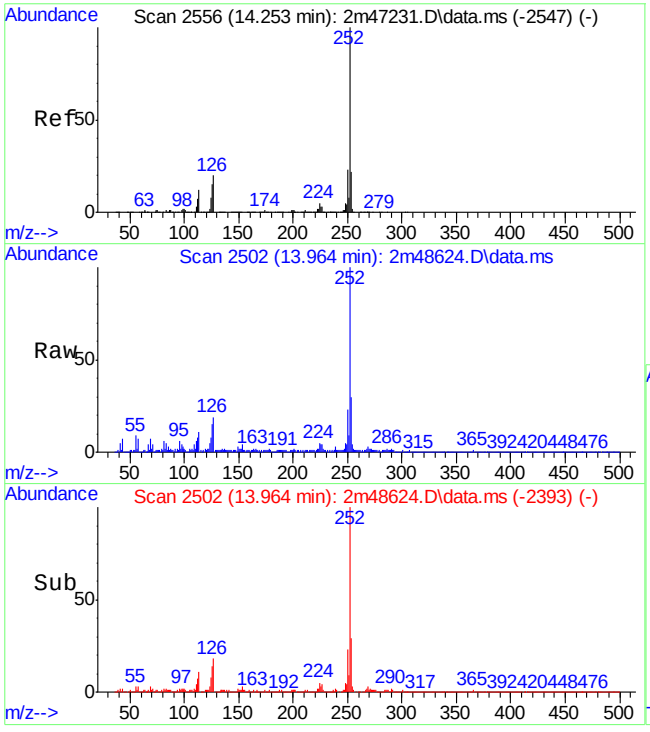
Tgt Ion:252 Resp: 2416651

Ion	Ratio	Lower	Upper
252	100		
253	24.3	0.0	52.7
125	17.0	0.0	42.9



9.1.20

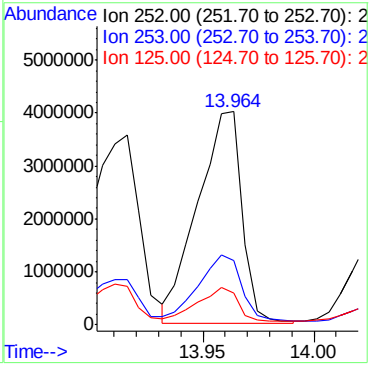
9

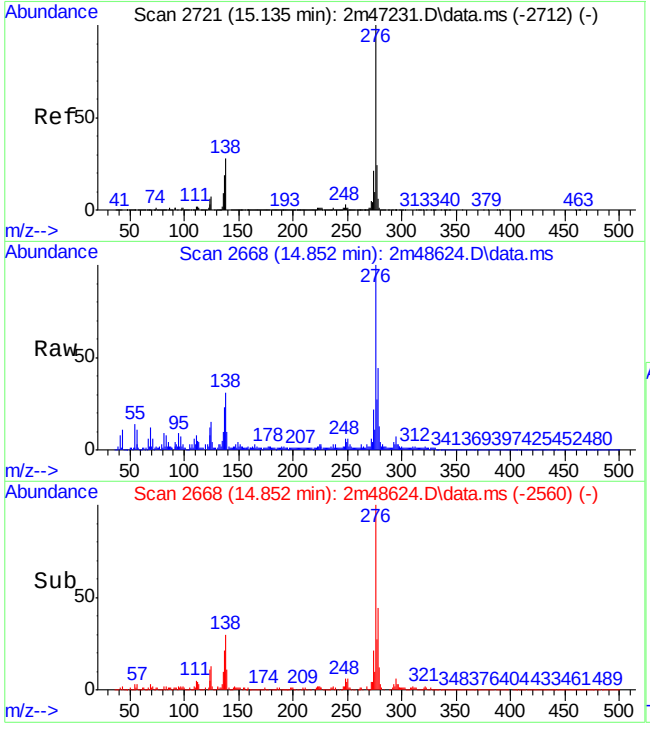


#96
Benzo[a]pyrene
Concen: 162.08 ppb
RT: 13.964 min Scan# 2502
Delta R.T. 0.086 min
Lab File: 2m48624.D
Acq: 19 Dec 2012 5:50 pm

Tgt Ion:252 Resp: 5577022

Ion	Ratio	Lower	Upper
252	100		
253	29.1	0.0	52.4
125	13.1	0.0	42.7

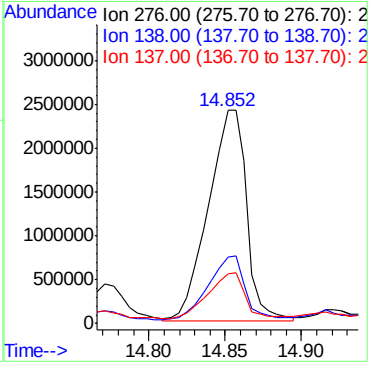




#97
Indeno[1,2,3-cd]pyrene
Concen: 105.08 ppb
RT: 14.852 min Scan# 2668
Delta R.T. 0.080 min
Lab File: 2m48624.D
Acq: 19 Dec 2012 5:50 pm

Tgt Ion:276 Resp: 4198507

Ion	Ratio	Lower	Upper
276	100		
138	29.5	0.0	57.6
137	21.0	0.0	48.9



9.1.20

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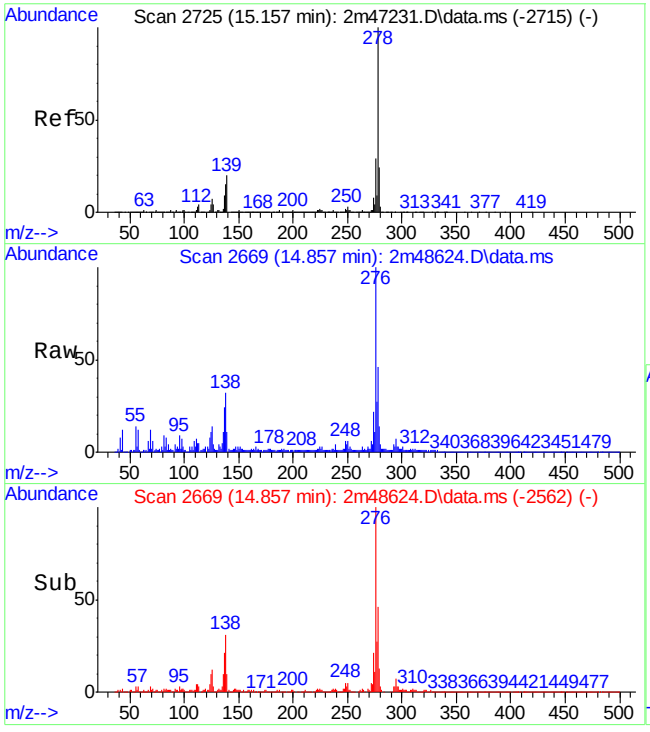
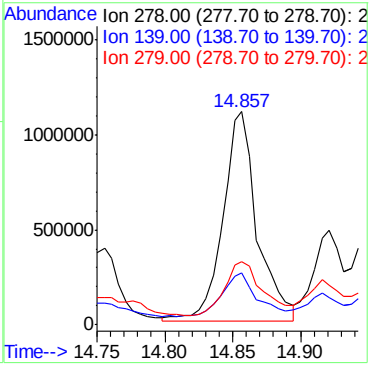
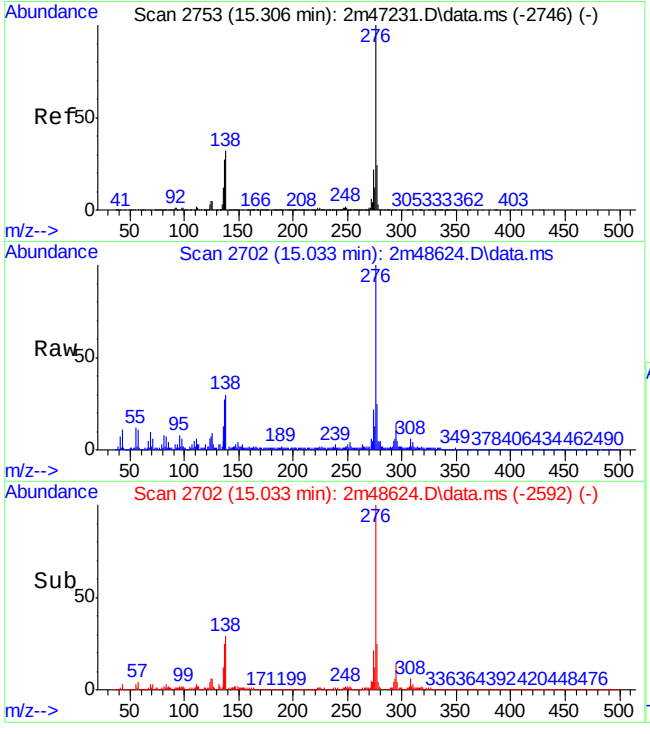


#99
Dibenz[a,h]anthracene
Concen: 57.99 ppb
RT: 14.857 min Scan# 2669
Delta R.T. 0.075 min
Lab File: 2m48624.D
Acq: 19 Dec 2012 5:50 pm

Tgt Ion:278 Resp: 1946556

Ion	Ratio	Lower	Upper
278	100		
139	20.0	0.0	52.4
279	24.3	0.0	54.1

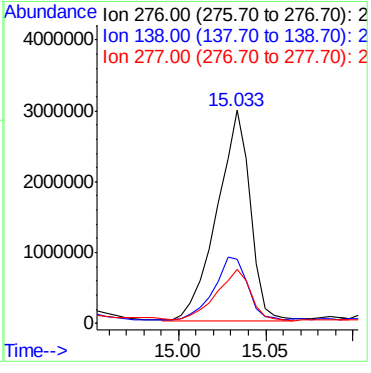




#101
Benzo[g,h,i]perylene
Concen: 116.38 ppb
RT: 15.033 min Scan# 2702
Delta R.T. 0.091 min
Lab File: 2m48624.D
Acq: 19 Dec 2012 5:50 pm

Tgt Ion:276 Resp: 3969901

Ion	Ratio	Lower	Upper
276	100		
138	29.0	0.1	60.1
277	24.1	0.0	53.2



Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 12/21/12 18:23

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2019\
Data File : 3e46443.D
Acq On : 20 Dec 2012 12:30 pm
Operator : olgaa
Sample : jb22962-15
Misc : op62064,e3e2019,31.7,,,1,20
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Dec 20 13:04:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\M3E1991.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Dec 20 12:47:48 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.714	152	111975	40.00	ppb	0.00
24) Naphthalene-d8	4.302	136	439837	40.00	ppb	0.01
47) Acenaphthene-d10	6.897	164	249955	40.00	ppb	0.01
69) Phenanthrene-d10	9.138	188	394233	40.00	ppb	0.01
83) Chrysene-d12	12.860	240	385337	40.00	ppb	0.02
92) Perylene-d12	14.246	264	345576	40.00	ppb	0.02
102) 1,4-Dichlorobenzene-d4a	2.714	152	111975	40.00	ppb	0.00
104) Acenaphthene-d10a	6.897	164	249955	40.00	ppb	0.01
106) Phenanthrene-d10a	9.138	188	394233	40.00	ppb	0.01
108) Chrysene-d12a	12.860	240	385337	40.00	ppb	0.02

System Monitoring Compounds						
5) 2-Fluorophenol	1.660	112	6224	1.60	ppb	0.01
Spiked Amount 50.000	Range 11 - 58		Recovery = 3.20%#			
8) Phenol-d5	2.511	99	8099	1.71	ppb	0.02
Spiked Amount 50.000	Range 10 - 59		Recovery = 3.42%#			
25) Nitrobenzene-d5	3.420	82	5389	1.46	ppb	0.02
Spiked Amount 50.000	Range 19 - 61		Recovery = 2.92%#			
51) 2-Fluorobiphenyl	5.961	172	12893	1.56	ppb	0.01
Spiked Amount 50.000	Range 21 - 59		Recovery = 3.12%#			
73) 2,4,6-Tribromophenol	8.148	330	1484	1.78	ppb	0.02
Spiked Amount 50.000	Range 12 - 68		Recovery = 3.56%#			
85) Terphenyl-d14	11.684	244	16697	2.07	ppb	0.02
Spiked Amount 50.000	Range 16 - 65		Recovery = 4.14%#			

Target Compounds						Qvalue
56) Acenaphthylene	6.656	152	28400	2.39	ppb	99
59) Acenaphthene	6.945	153	3754	0.50	ppb	94
66) Fluorene	7.726	166	409533	47.77	ppb	98
77) Phenanthrene	9.170	178	165734	13.82	ppb	98
78) Anthracene	9.239	178	59251	4.93	ppb	97
81) Fluoranthene	11.015	202	197783	16.71	ppb	98
84) Pyrene	11.320	202	210120	16.70	ppb	96
88) Benzo[a]anthracene	12.844	228	68259	6.08	ppb	88
90) Chrysene	12.882	228	144420	13.63	ppb	98
94) Benzo[b]fluoranthene	13.925	252	178368m	15.59	ppb	
95) Benzo[k]fluoranthene	13.930	252	100201m	9.05	ppb	
96) Benzo[a]pyrene	14.192	252	89700	8.99	ppb	94
97) Indeno[1,2,3-cd]pyrene	15.075	276	62340	5.53	ppb	81
99) Dibenz[a,h]anthracene	15.091	278	18310m	1.95	ppb	
101) Benzo[g,h,i]perylene	15.246	276	55961	5.98	ppb	93

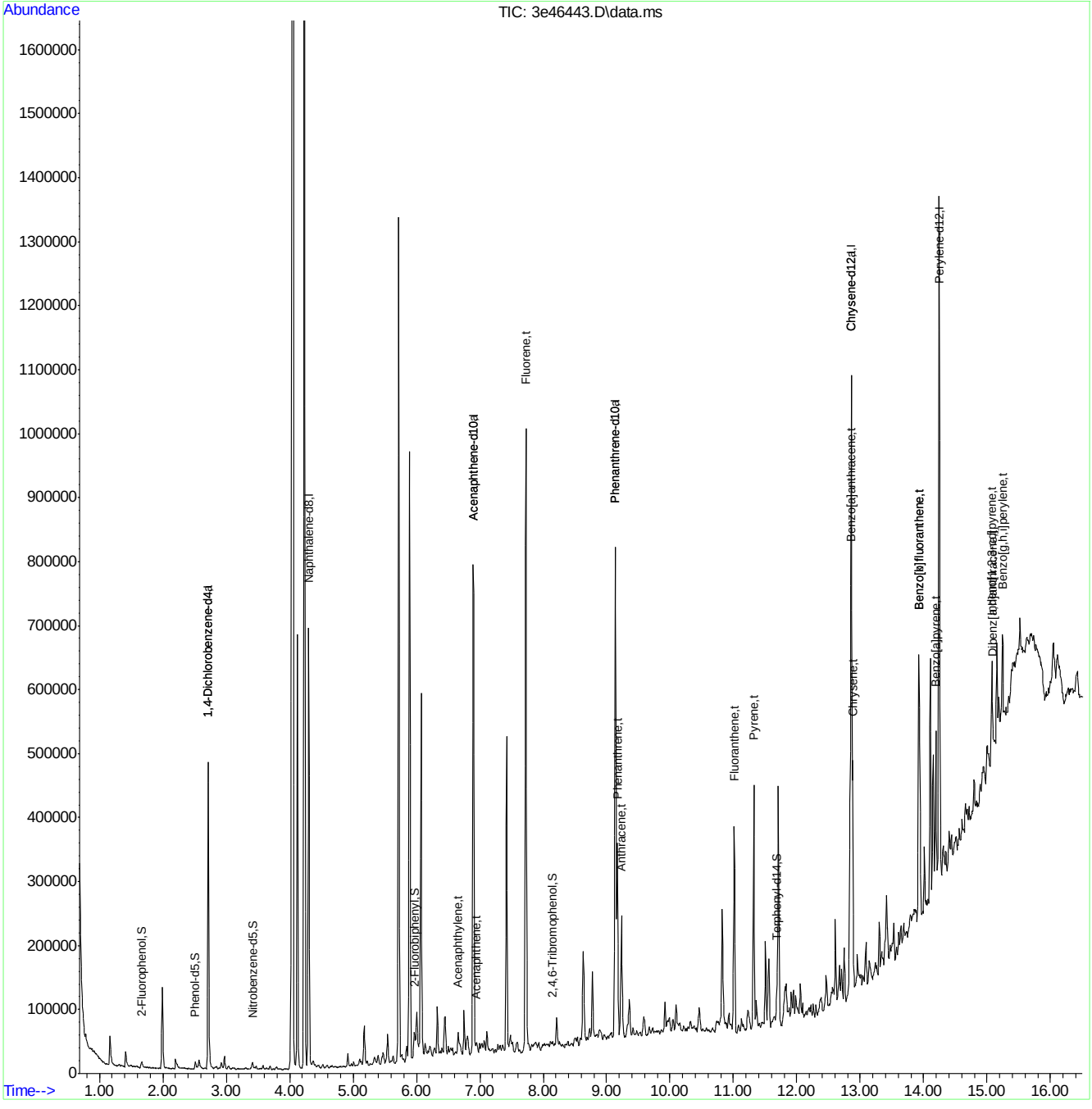
(#) = qualifier out of range (m) = manual integration (+) = signals summed

9.1.21
9

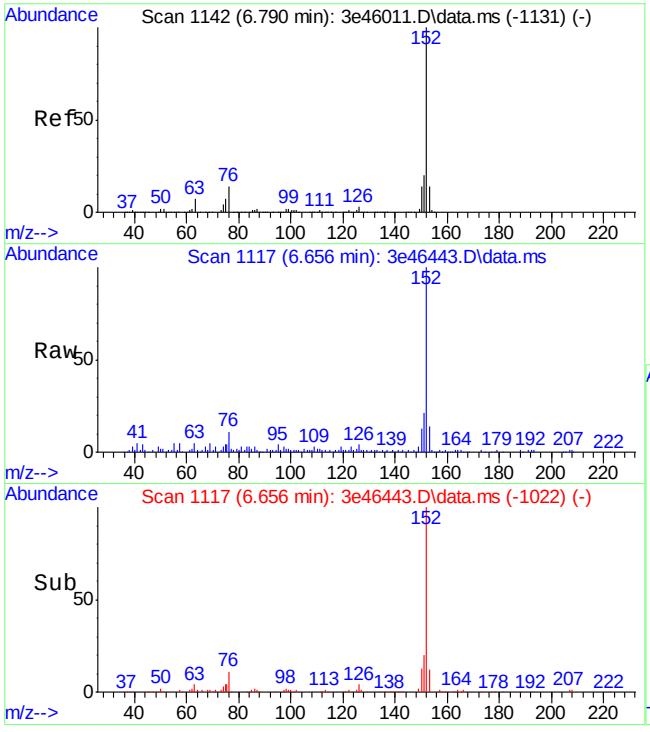
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2019\
Data File : 3e46443.D
Acq On : 20 Dec 2012 12:30 pm
Operator : olgaa
Sample : jb22962-15
Misc : op62064,e3e2019,31.7,,,1,20
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Dec 20 13:04:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\M3E1991.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Dec 20 12:47:48 2012
Response via : Initial Calibration



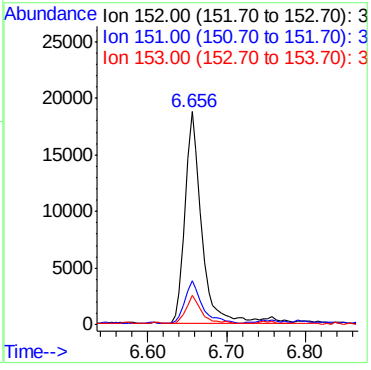
M3E1991.M Thu Dec 20 13:04:18 2012 MS3E Page: 2

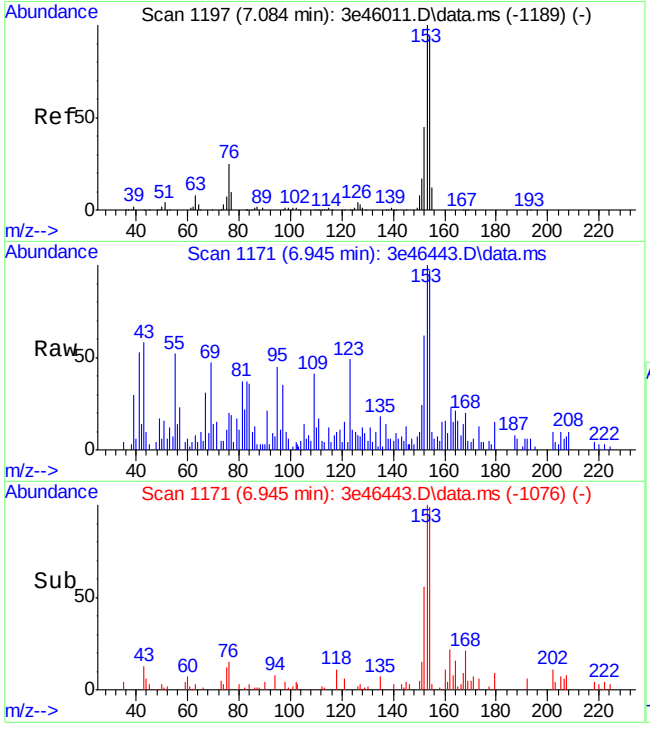


#56
Acenaphthylene
Concen: 2.39 ppb
RT: 6.656 min Scan# 1117
Delta R.T. 0.011 min
Lab File: 3e46443.D
Acq: 20 Dec 2012 12:30 pm

Tgt Ion:152 Resp: 28400

Ion	Ratio	Lower	Upper
152	100		
151	20.0	0.0	50.1
153	13.0	0.0	43.9

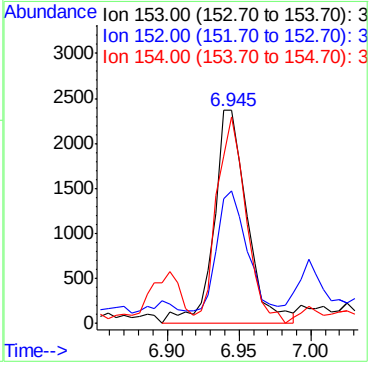




#59
Acenaphthene
Concen: 0.50 ppb
RT: 6.945 min Scan# 1171
Delta R.T. 0.011 min
Lab File: 3e46443.D
Acq: 20 Dec 2012 12:30 pm

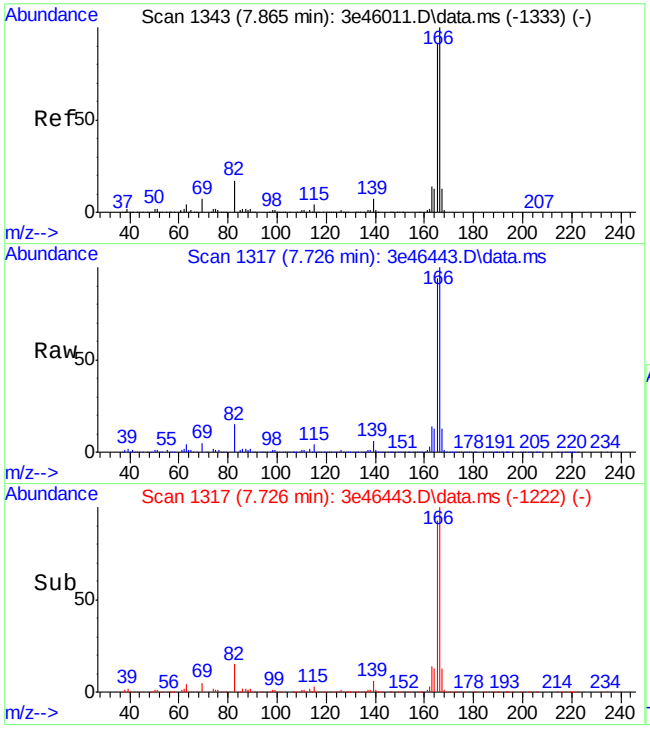
Tgt Ion:153 Resp: 3754

Ion	Ratio	Lower	Upper
153	100		
152	50.9	16.8	76.8
154	88.3	64.4	124.4



9.1.21

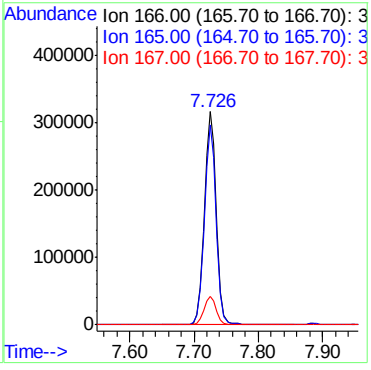
9

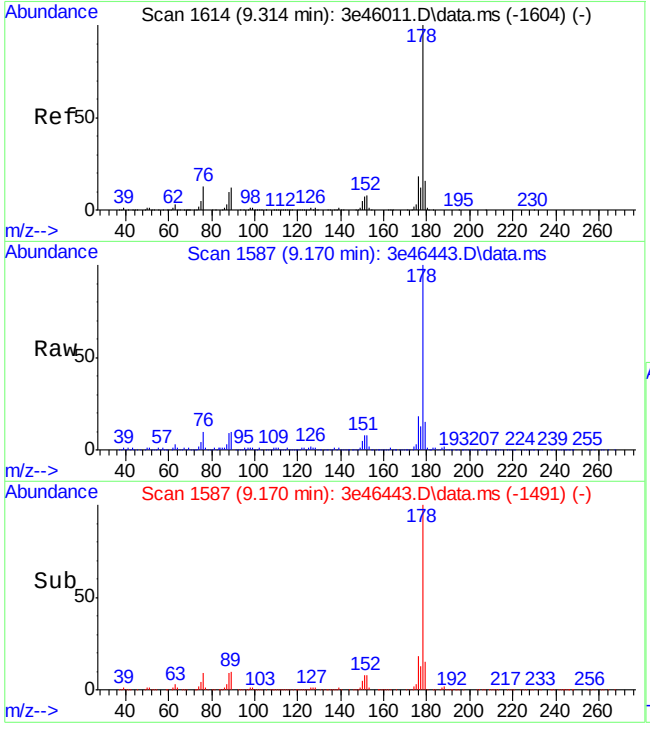


#66
Fluorene
Concen: 47.77 ppb
RT: 7.726 min Scan# 1317
Delta R.T. 0.011 min
Lab File: 3e46443.D
Acq: 20 Dec 2012 12:30 pm

Tgt Ion:166 Resp: 409533

Ion	Ratio	Lower	Upper
166	100		
165	93.4	61.1	121.1
167	13.0	0.0	43.8

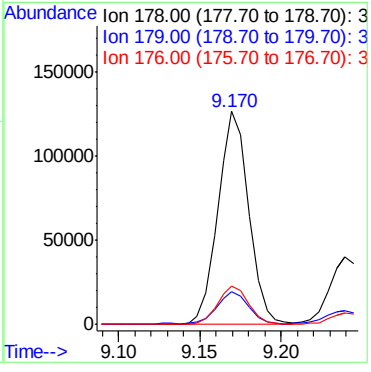


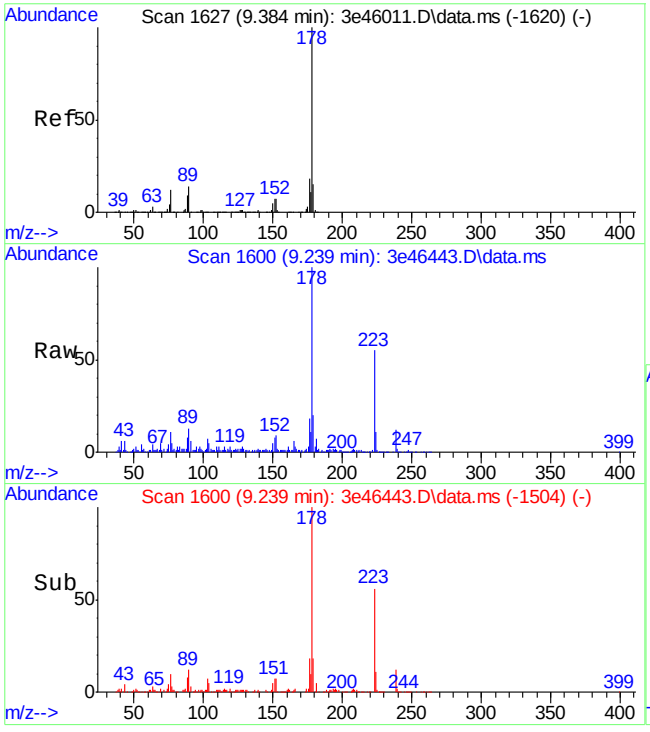


#77
Phenanthrene
Concen: 13.82 ppb
RT: 9.170 min Scan# 1587
Delta R.T. 0.016 min
Lab File: 3e46443.D
Acq: 20 Dec 2012 12:30 pm

Tgt Ion:178 Resp: 165734

Ion	Ratio	Lower	Upper
178	100		
179	15.1	0.0	46.0
176	18.2	0.0	48.7

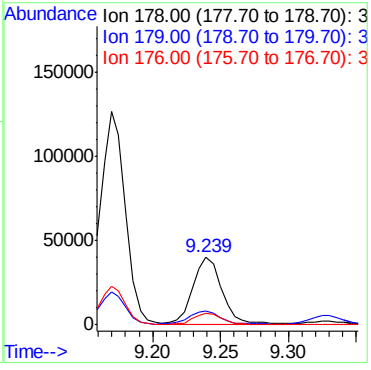


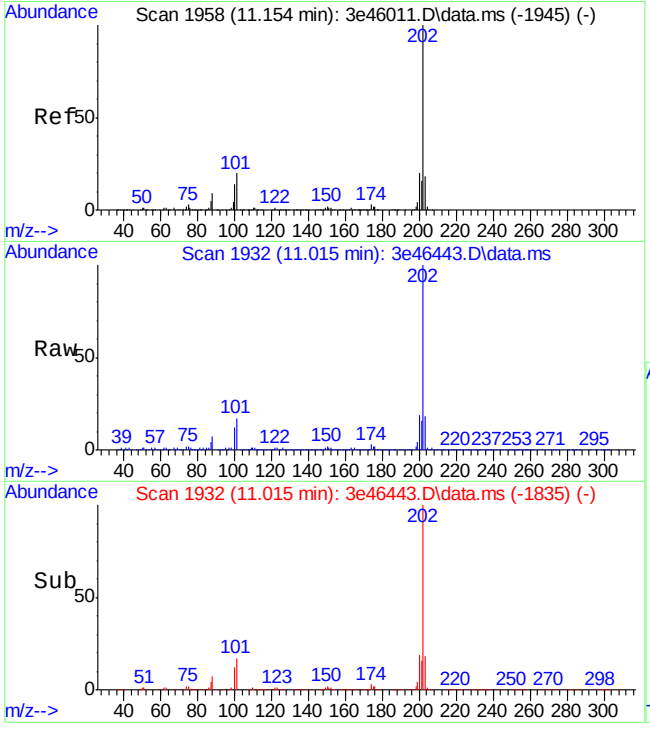


#78
Anthracene
Concen: 4.93 ppb
RT: 9.239 min Scan# 1600
Delta R.T. 0.016 min
Lab File: 3e46443.D
Acq: 20 Dec 2012 12:30 pm

Tgt Ion:178 Resp: 59251

Ion	Ratio	Lower	Upper
178	100		
179	18.6	0.0	46.3
176	17.8	0.0	48.5

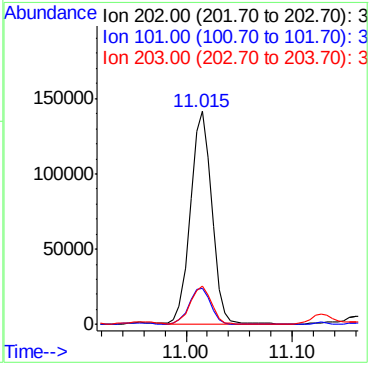




#81
Fluoranthene
Concen: 16.71 ppb
RT: 11.015 min Scan# 1932
Delta R.T. 0.021 min
Lab File: 3e46443.D
Acq: 20 Dec 2012 12:30 pm

Tgt Ion:202 Resp: 197783

Ion	Ratio	Lower	Upper
202	100		
101	16.9	0.0	45.2
203	17.5	0.0	48.0



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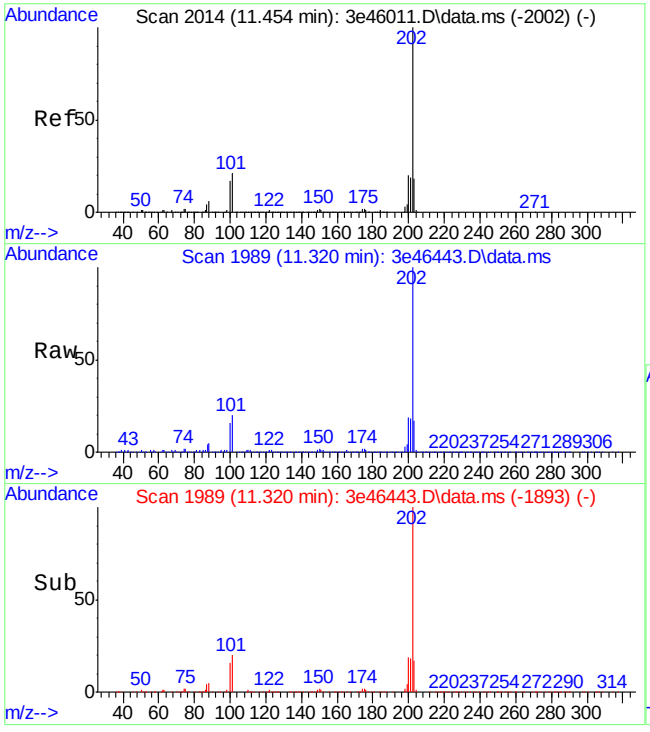
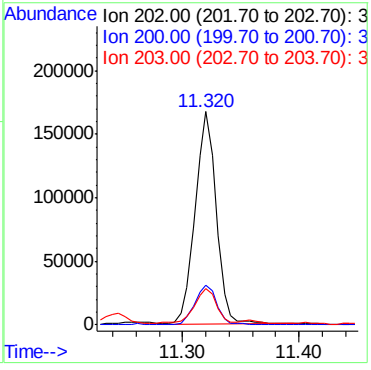
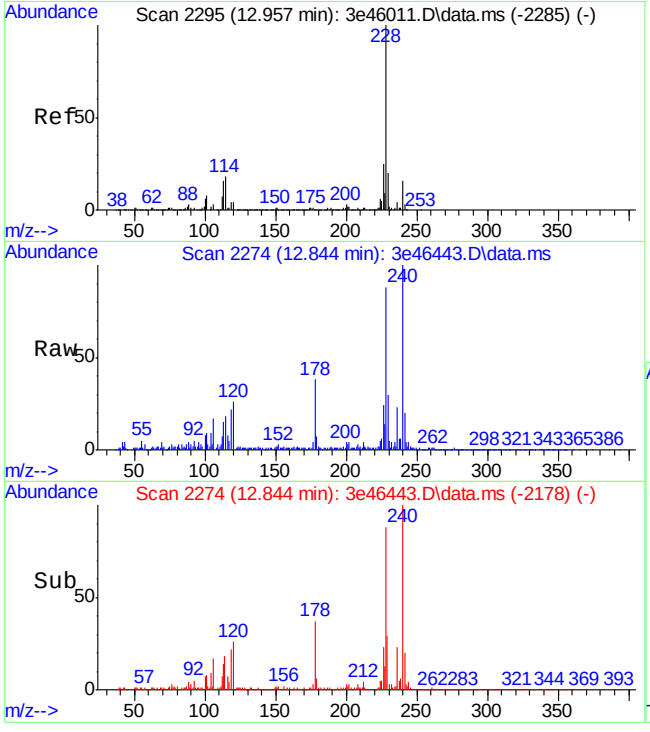


#84
Pyrene
Concen: 16.70 ppb
RT: 11.320 min Scan# 1989
Delta R.T. 0.016 min
Lab File: 3e46443.D
Acq: 20 Dec 2012 12:30 pm

Tgt Ion:202 Resp: 210120

Ion	Ratio	Lower	Upper
202	100		
200	18.7	0.0	50.7
203	16.3	0.0	47.9

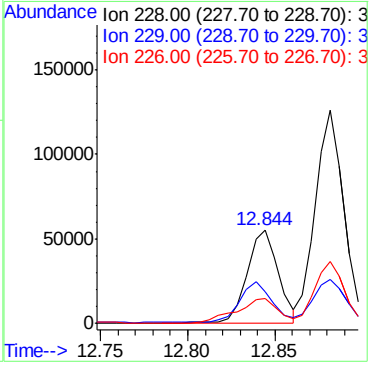




#88
Benzo[a]anthracene
Concen: 6.08 ppb
RT: 12.844 min Scan# 2274
Delta R.T. 0.016 min
Lab File: 3e46443.D
Acq: 20 Dec 2012 12:30 pm

Tgt Ion:228 Resp: 68259

Ion	Ratio	Lower	Upper
228	100		
229	32.8	0.0	50.5
226	26.1	0.0	55.9



9.1.21

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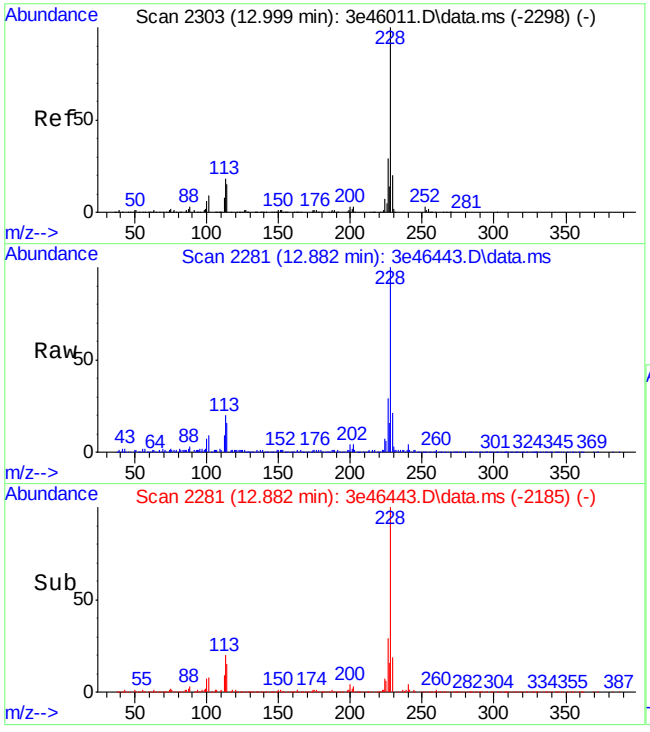
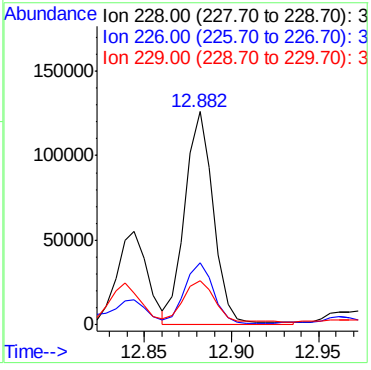
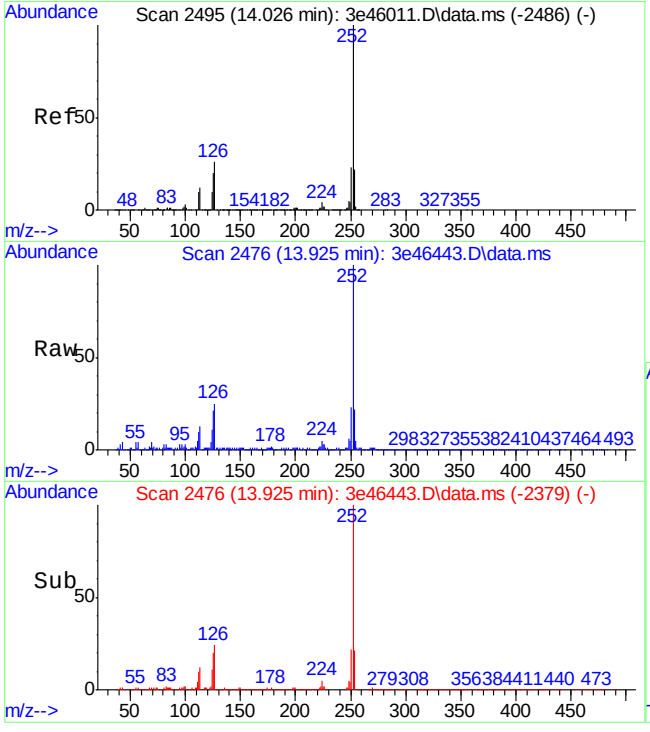


#90
Chrysene
Concen: 13.63 ppb
RT: 12.882 min Scan# 2281
Delta R.T. 0.016 min
Lab File: 3e46443.D
Acq: 20 Dec 2012 12:30 pm

Tgt Ion:228 Resp: 144420

Ion	Ratio	Lower	Upper
228	100		
226	28.7	0.0	59.2
229	19.5	0.0	50.9

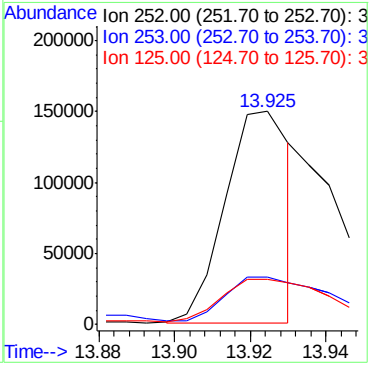


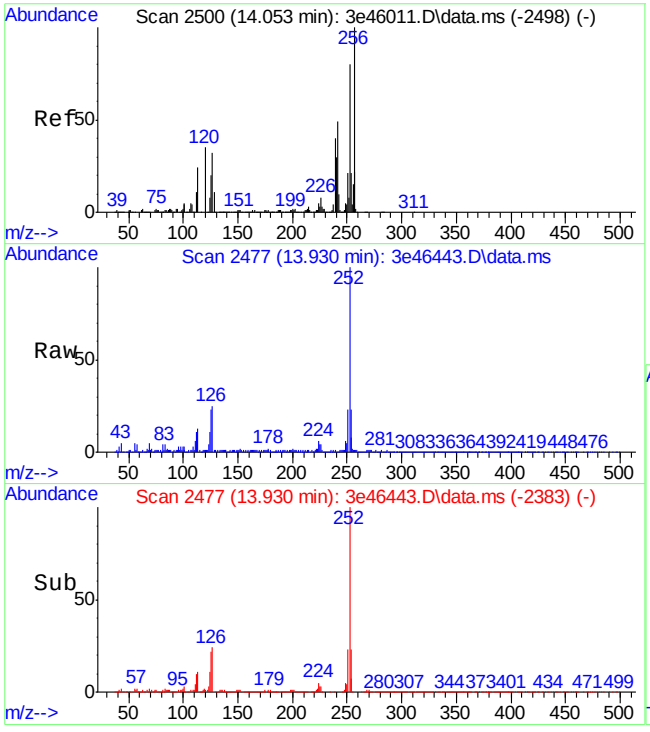


#94
Benzo[b]fluoranthene
Concen: 15.59 ppb m
RT: 13.925 min Scan# 2476
Delta R.T. 0.021 min
Lab File: 3e46443.D
Acq: 20 Dec 2012 12:30 pm

Tgt Ion:252 Resp: 178368

Ion	Ratio	Lower	Upper
252	100		
253	22.0	0.0	53.2
125	21.0	0.0	44.4

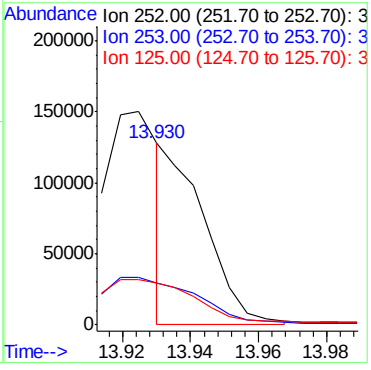


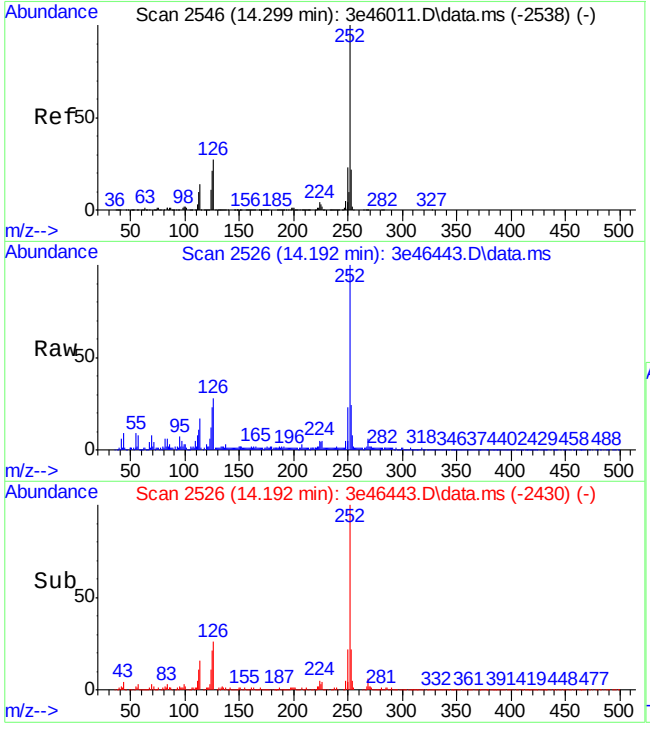


#95
Benzo[k]fluoranthene
Concen: 9.05 ppb m
RT: 13.930 min Scan# 2477
Delta R.T. 0.005 min
Lab File: 3e46443.D
Acq: 20 Dec 2012 12:30 pm

Tgt Ion:252 Resp: 100201

Ion	Ratio	Lower	Upper
252	100		
253	23.0	0.0	56.5
125	22.8	0.0	45.7

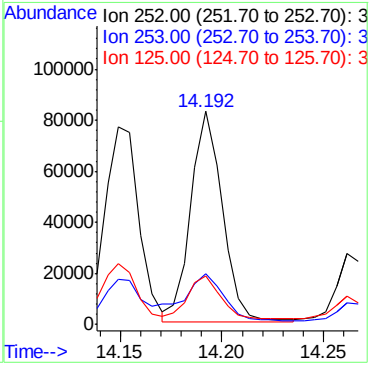




#96
Benzo[a]pyrene
Concen: 8.99 ppb
RT: 14.192 min Scan# 2526
Delta R.T. 0.016 min
Lab File: 3e46443.D
Acq: 20 Dec 2012 12:30 pm

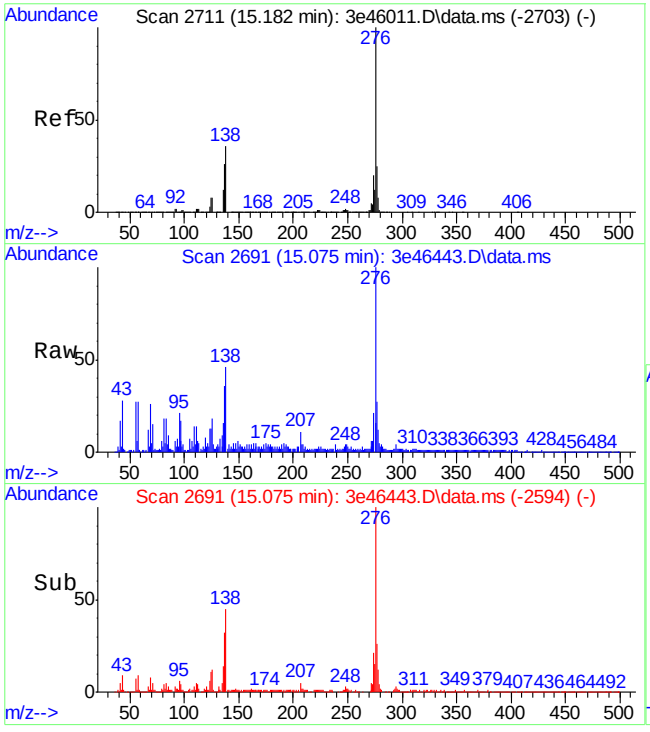
Tgt Ion:252 Resp: 89700

Ion	Ratio	Lower	Upper
252	100		
253	19.0	0.0	52.7
125	20.1	0.0	48.6



9.1.21

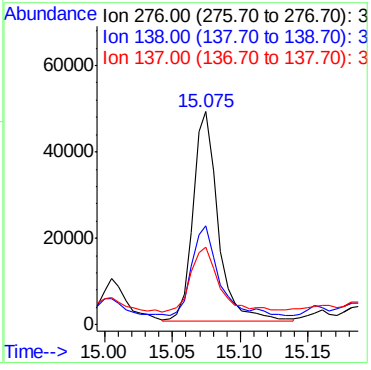
9

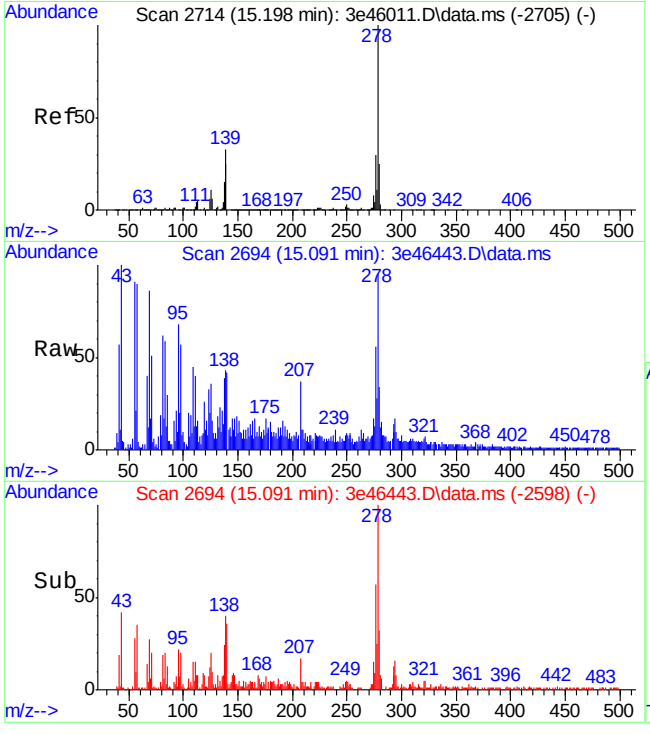


#97
Indeno[1,2,3-cd]pyrene
Concen: 5.53 ppb
RT: 15.075 min Scan# 2691
Delta R.T. 0.021 min
Lab File: 3e46443.D
Acq: 20 Dec 2012 12:30 pm

Tgt Ion:276 Resp: 62340

Ion	Ratio	Lower	Upper
276	100		
138	42.8	1.3	61.3
137	30.3	0.0	52.6

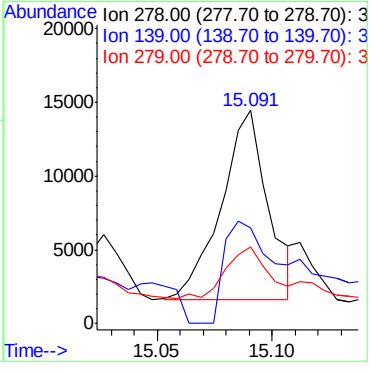


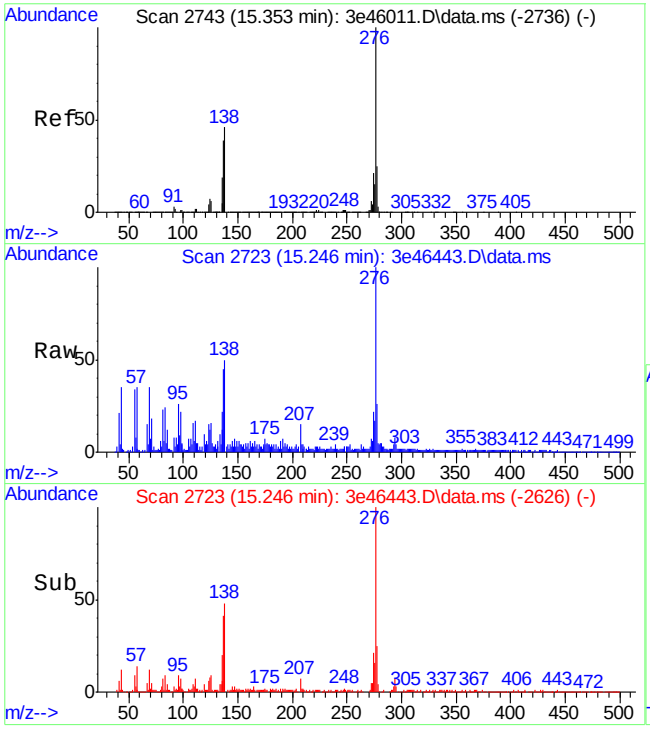


#99
Dibenz[a,h]anthracene
Concen: 1.95 ppb m
RT: 15.091 min Scan# 2694
Delta R.T. 0.016 min
Lab File: 3e46443.D
Acq: 20 Dec 2012 12:30 pm

Tgt Ion:278 Resp: 18310

Ion	Ratio	Lower	Upper
278	100		
139	44.6	0.0	57.0
279	36.2	0.0	55.4

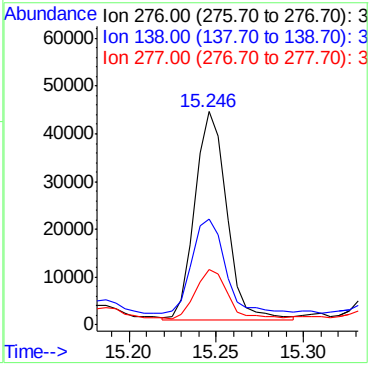




#101
Benzo[g,h,i]perylene
Concen: 5.98 ppb
RT: 15.246 min Scan# 2723
Delta R.T. 0.021 min
Lab File: 3e46443.D
Acq: 20 Dec 2012 12:30 pm

Tgt Ion:276 Resp: 55961

Ion	Ratio	Lower	Upper
276	100		
138	45.7	9.8	69.8
277	23.6	0.0	55.0



9.1.21

9

Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
12/24/12 13:44

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48621.D
Acq On : 19 Dec 2012 4:41 pm
Operator : olgaa
Sample : jb22962-16
Misc : op62064,e2m2082,33.0
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Dec 20 11:46:19 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.384	152	176217	40.00	ppb	0.00
24) Naphthalene-d8	3.914	136	888047	40.00	ppb	0.00
47) Acenaphthene-d10	6.486	164	582026	40.00	ppb	0.00
69) Phenanthrene-d10	8.727	188	1007531	40.00	ppb	0.02
83) Chrysene-d12	12.541	240	924731	40.00	ppb	0.02
92) Perylene-d12	13.958	264	898836	40.00	ppb	0.03
102) 1,4-Dichlorobenzene-d4a	2.384	152	176217	40.00	ppb	0.00
104) Acenaphthene-d10a	6.486	164	582026	40.00	ppb	0.00
106) Chrysene-d12a	12.541	240	924731	40.00	ppb	0.02
108) Phenanthrene-d10a	8.727	188	1007531	40.00	ppb	0.02
110) Chrysene-d12b	12.541	240	924731	40.00	ppb	0.02

System Monitoring Compounds						
5) 2-Fluorophenol	1.437	112	103923	16.21	ppb	0.01
Spiked Amount 50.000			Recovery	=	32.42%	
8) Phenol-d5	2.245	99	165838	19.29	ppb	0.03
Spiked Amount 50.000			Recovery	=	38.58%	
25) Nitrobenzene-d5	3.058	82	162436	17.05	ppb	0.00
Spiked Amount 50.000			Recovery	=	34.10%	
51) 2-Fluorobiphenyl	5.561	172	325755	17.02	ppb	0.00
Spiked Amount 50.000			Recovery	=	34.04%	
73) 2,4,6-Tribromophenol	7.759	330	54204	22.89	ppb	0.02
Spiked Amount 50.000			Recovery	=	45.78%	
85) Terphenyl-d14	11.311	244	371268	19.87	ppb	0.02
Spiked Amount 50.000			Recovery	=	39.74%	

Target Compounds						Qvalue
38) Naphthalene	3.935	128	57597m	2.33	ppb	
44) 2-Methylnaphthalene	4.935	141	65569m	4.33	ppb	
56) Acenaphthylene	6.251	152	41817	1.49	ppb	93
59) Acenaphthene	6.529	153	32679	1.81	ppb	93
66) Fluorene	7.315	166	67144	3.43	ppb	90
77) Phenanthrene	8.765	178	150333	4.87	ppb	94
78) Anthracene	8.840	178	51713	1.69	ppb	80
81) Fluoranthene	10.605	202	54570	1.79	ppb	70
84) Pyrene	10.920	202	117379	3.92	ppb	95
88) Benzo[a]anthracene	12.525	228	78542	2.76	ppb	82
90) Chrysene	12.568	228	108069	3.83	ppb	86
94) Benzo[b]fluoranthene	13.632	252	85757m	2.74	ppb	
95) Benzo[k]fluoranthene	13.643	252	41585m	1.48	ppb	
96) Benzo[a]pyrene	13.910	252	86634	3.26	ppb	92
97) Indeno[1,2,3-cd]pyrene	14.809	276	93805	3.04	ppb	81
99) Dibenz[a,h]anthracene	14.809	278	31221m	1.20	ppb	
101) Benzo[g,h,i]perylene	14.985	276	131500	4.99	ppb	86

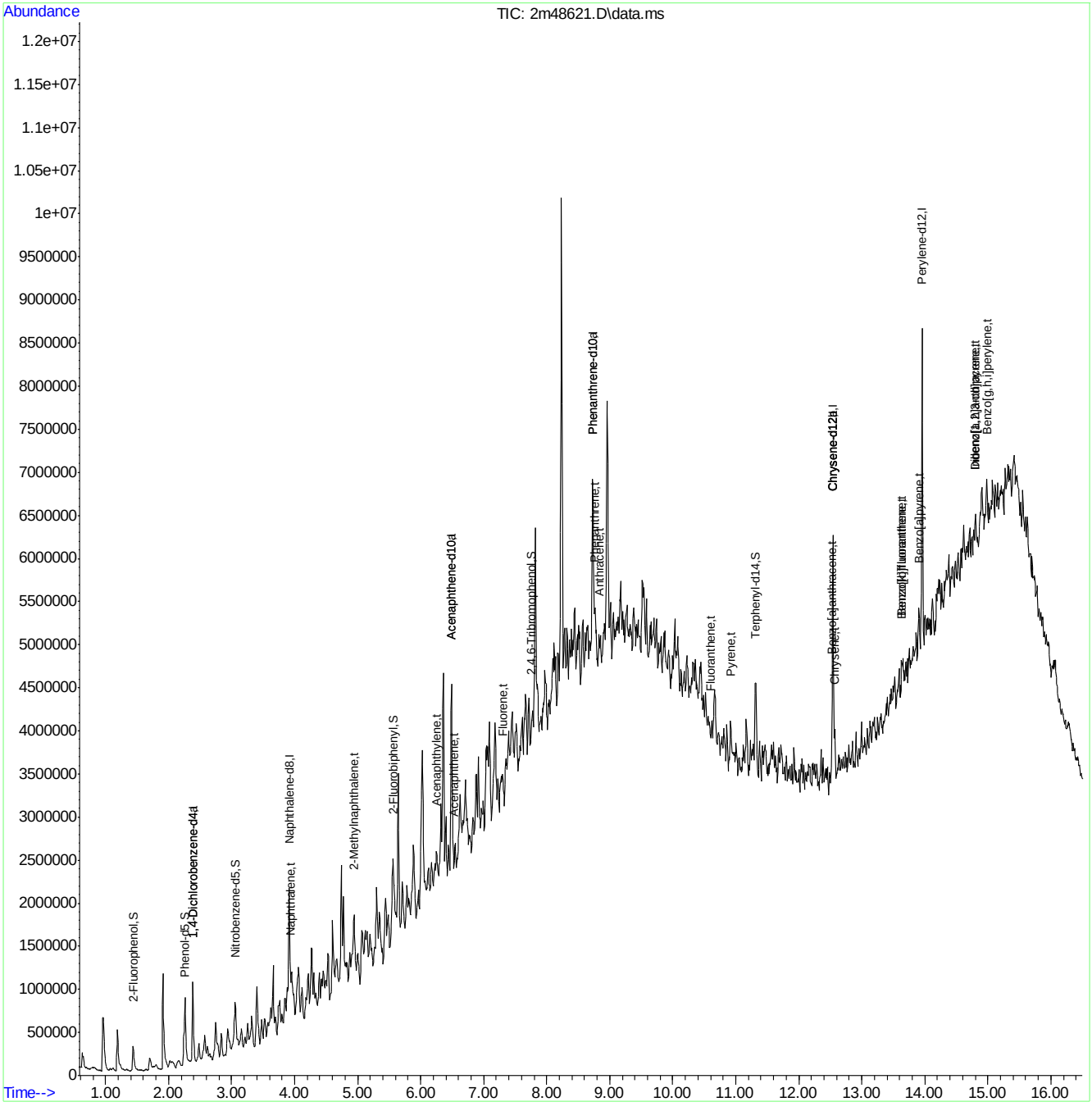
(#) = qualifier out of range (m) = manual integration (+) = signals summed

9.1.22
9

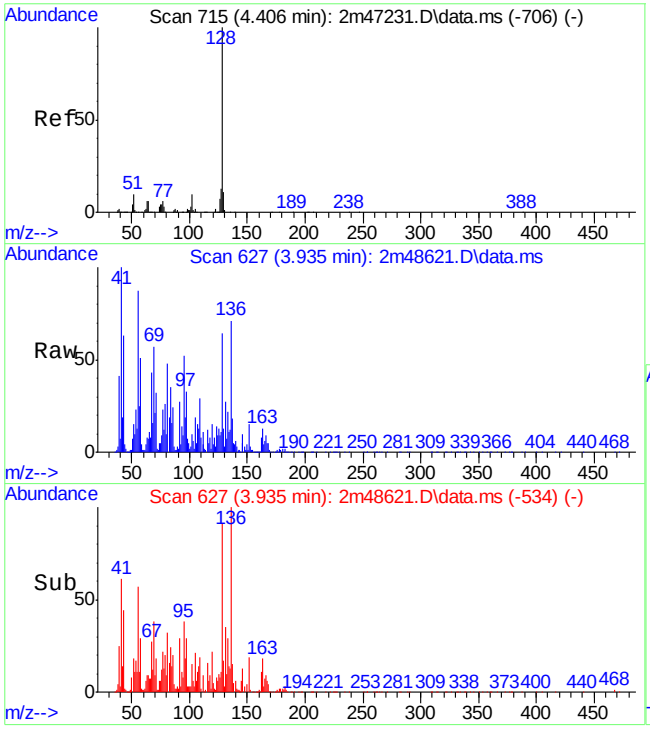
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48621.D
Acq On : 19 Dec 2012 4:41 pm
Operator : olgaa
Sample : jb22962-16
Misc : op62064,e2m2082,33.0
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Dec 20 11:46:19 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration



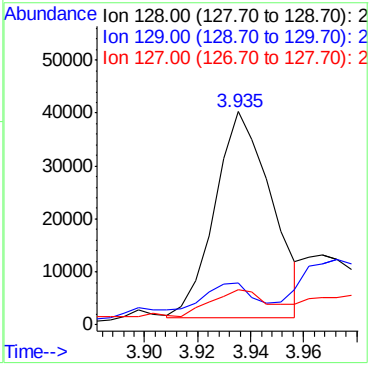
M2M2034.M Sun Dec 23 08:14:41 2012 MS2M Page: 2

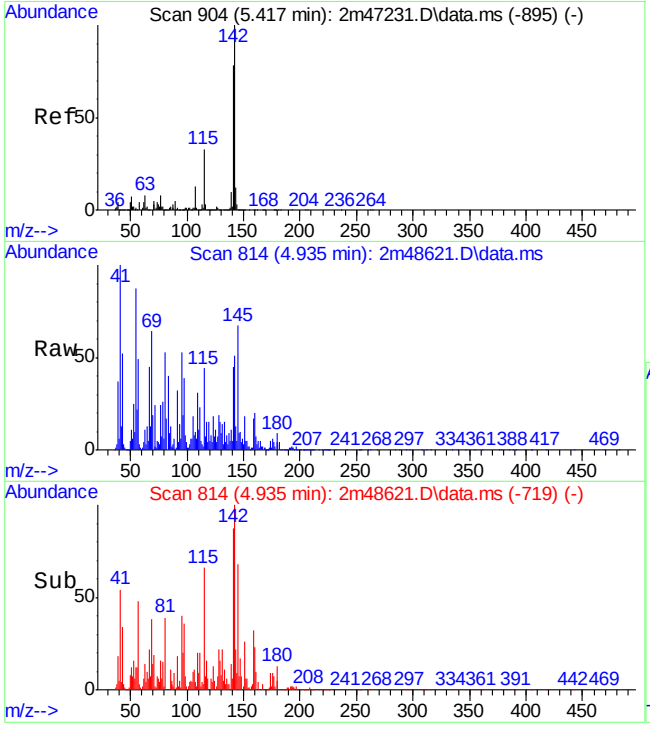


#38
Naphthalene
Concen: 2.33 ppb m
RT: 3.935 min Scan# 627
Delta R.T. -0.005 min
Lab File: 2m48621.D
Acq: 19 Dec 2012 4:41 pm

Tgt Ion:128 Resp: 57597

Ion	Ratio	Lower	Upper
128	100		
129	19.6	0.0	40.9
127	16.3	0.0	43.3

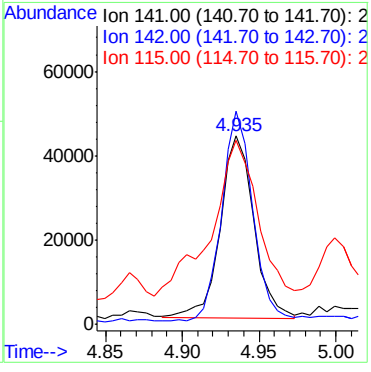




#44
2-Methylnaphthalene
Concen: 4.33 ppb m
RT: 4.935 min Scan# 814
Delta R.T. 0.005 min
Lab File: 2m48621.D
Acq: 19 Dec 2012 4:41 pm

Tgt Ion:141 Resp: 65569

Ion	Ratio	Lower	Upper
141	100		
142	113.2	81.7	141.7
115	97.5	12.0	72.0#



9.1.22

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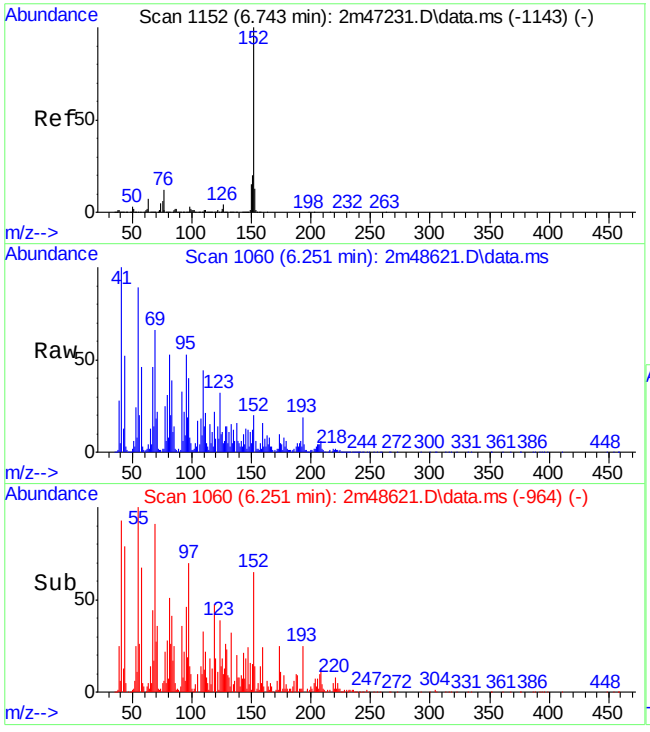
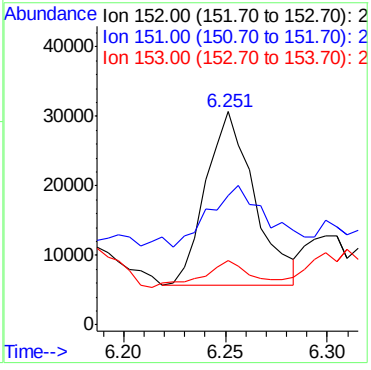
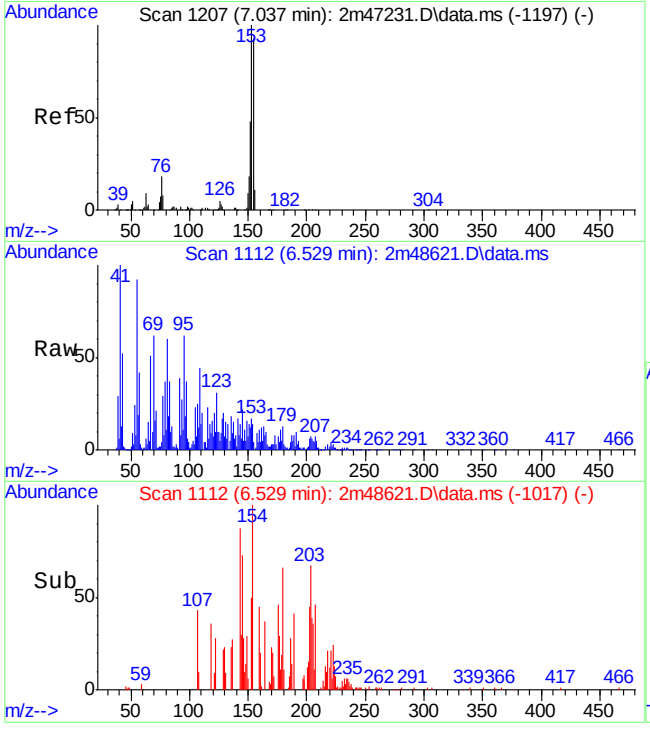


#56
Acenaphthylene
Concen: 1.49 ppb
RT: 6.251 min Scan# 1060
Delta R.T. 0.011 min
Lab File: 2m48621.D
Acq: 19 Dec 2012 4:41 pm

Tgt Ion:152 Resp: 41817

Ion	Ratio	Lower	Upper
152	100		
151	23.9	0.0	49.4
153	12.1	0.0	43.0

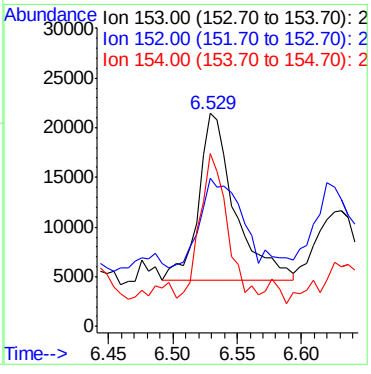




#59
Acenaphthene
Concen: 1.81 ppb
RT: 6.529 min Scan# 1112
Delta R.T. 0.006 min
Lab File: 2m48621.D
Acq: 19 Dec 2012 4:41 pm

Tgt Ion:153 Resp: 32679

Ion	Ratio	Lower	Upper
153	100		
152	51.3	15.8	75.8
154	83.7	59.7	119.7



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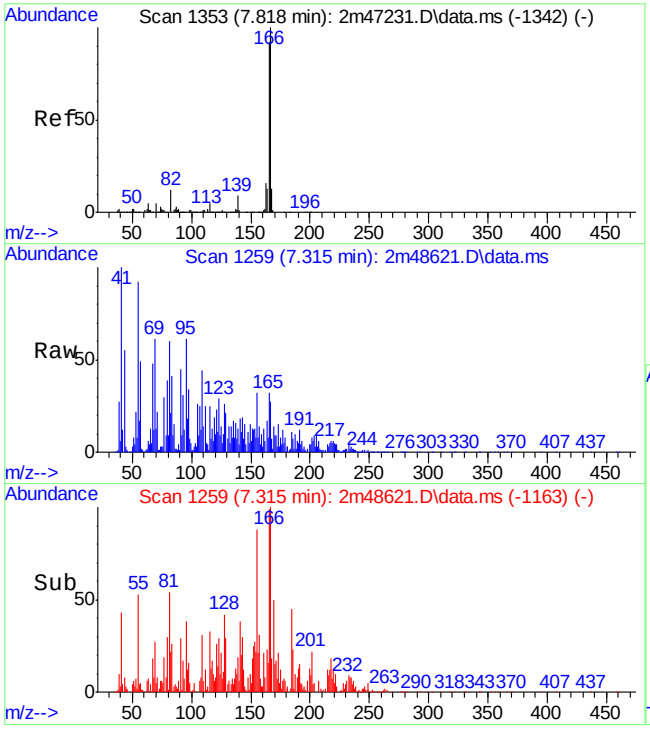
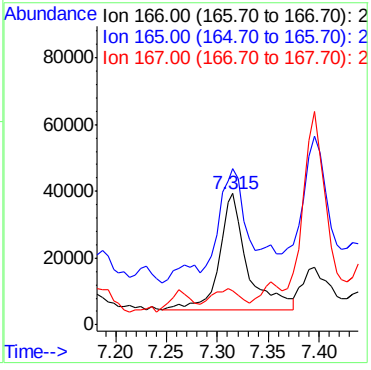
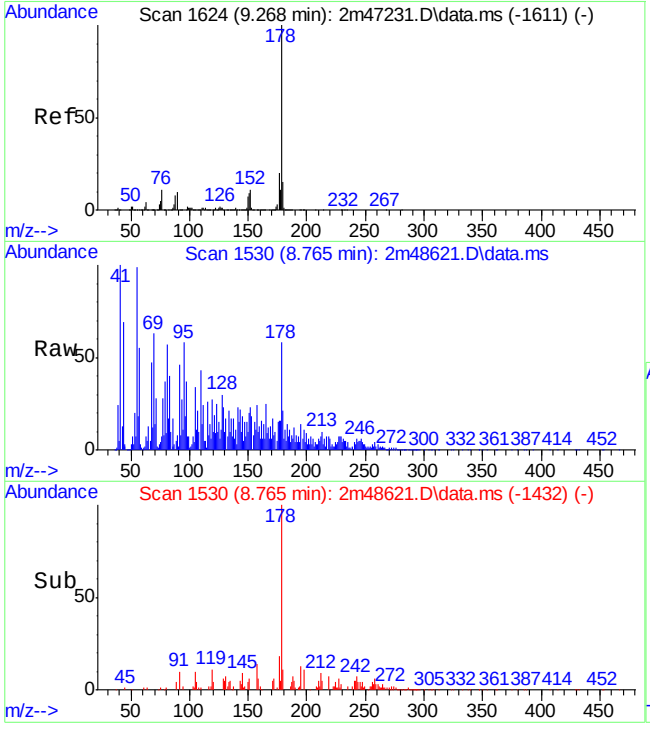


#66
Fluorene
Concen: 3.43 ppb
RT: 7.315 min Scan# 1259
Delta R.T. 0.011 min
Lab File: 2m48621.D
Acq: 19 Dec 2012 4:41 pm

Tgt Ion:166 Resp: 67144

Ion	Ratio	Lower	Upper
166	100		
165	85.9	61.9	121.9
167	0.0	0.0	43.1

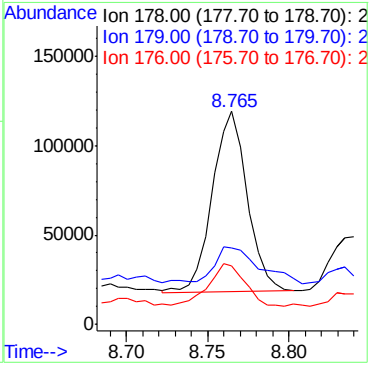


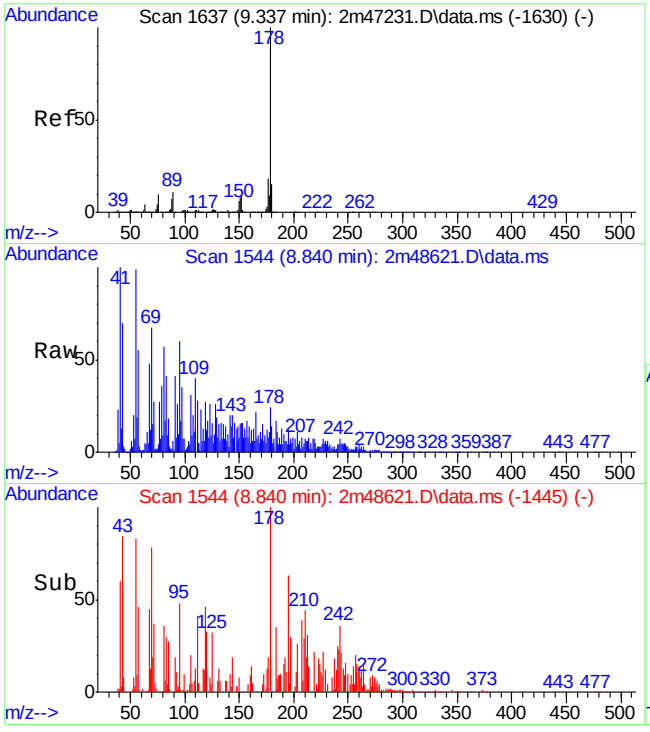


#77
Phenanthrene
Concen: 4.87 ppb
RT: 8.765 min Scan# 1530
Delta R.T. 0.022 min
Lab File: 2m48621.D
Acq: 19 Dec 2012 4:41 pm

Tgt Ion:178 Resp: 150333

Ion	Ratio	Lower	Upper
178	100		
179	17.8	0.0	44.9
176	21.5	0.0	49.1

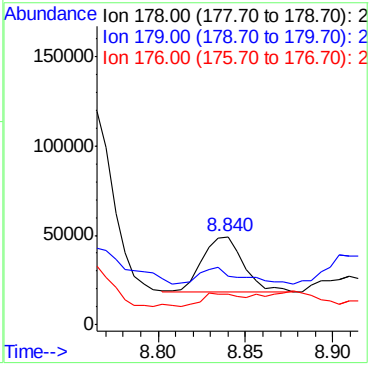


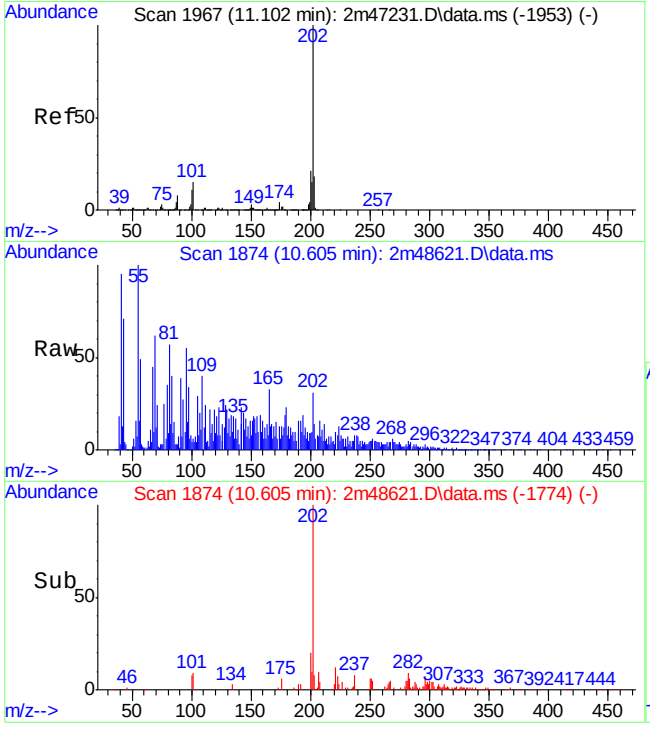


#78
Anthracene
Concen: 1.69 ppb
RT: 8.840 min Scan# 1544
Delta R.T. 0.027 min
Lab File: 2m48621.D
Acq: 19 Dec 2012 4:41 pm

Tgt Ion:178 Resp: 51713

Ion	Ratio	Lower	Upper
178	100		
179	9.9	0.0	44.3
176	6.0	0.0	48.3

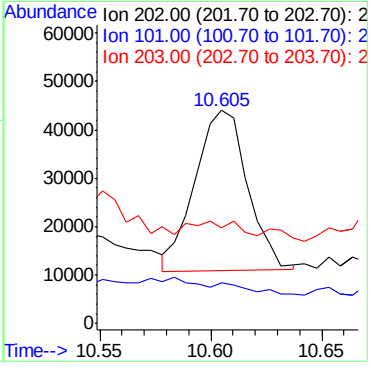


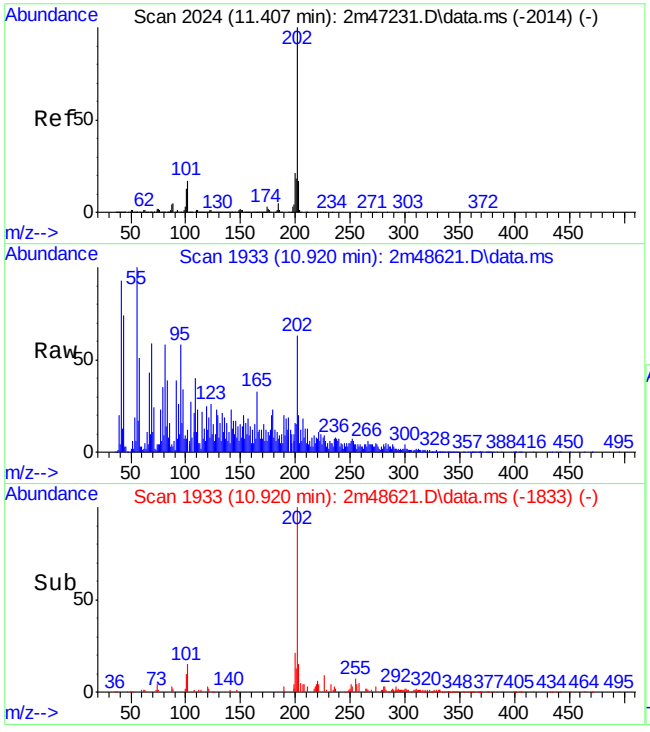


#81
Fluoranthene
Concen: 1.79 ppb
RT: 10.605 min Scan# 1874
Delta R.T. 0.032 min
Lab File: 2m48621.D
Acq: 19 Dec 2012 4:41 pm

Tgt Ion:202 Resp: 54570

Ion	Ratio	Lower	Upper
202	100		
101	3.5	0.0	43.8
203	3.1	0.0	47.5

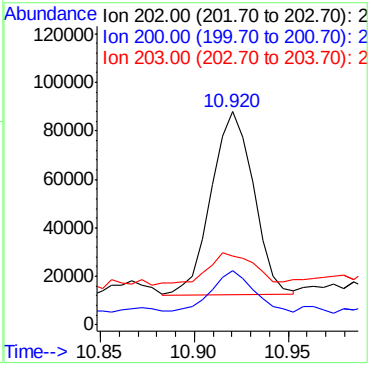


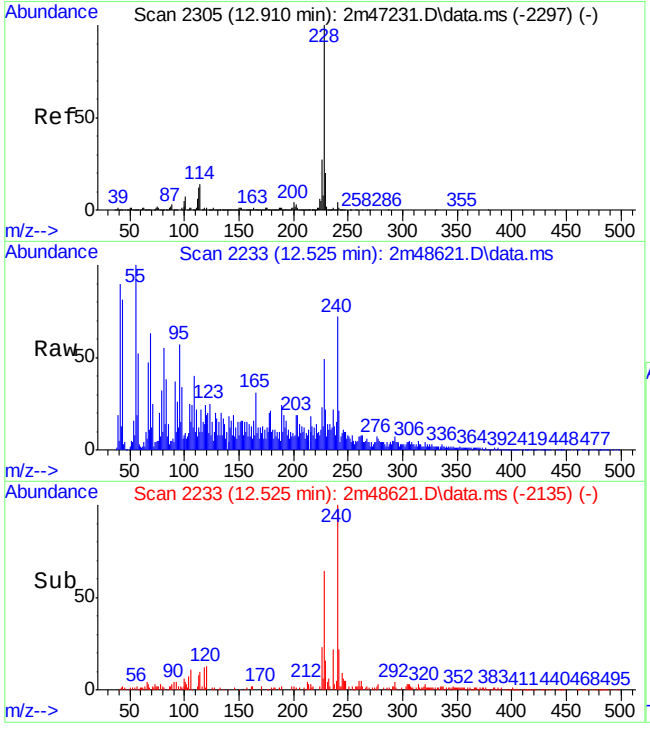


#84
Pyrene
Concen: 3.92 ppb
RT: 10.920 min Scan# 1933
Delta R.T. 0.032 min
Lab File: 2m48621.D
Acq: 19 Dec 2012 4:41 pm

Tgt Ion:202 Resp: 117379

Ion	Ratio	Lower	Upper
202	100		
200	22.4	0.0	51.3
203	14.2	0.0	47.6

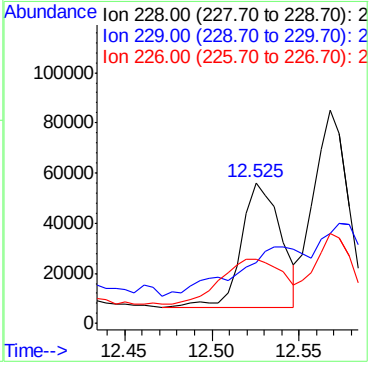




#88
Benzo[a]anthracene
Concen: 2.76 ppb
RT: 12.525 min Scan# 2233
Delta R.T. 0.022 min
Lab File: 2m48621.D
Acq: 19 Dec 2012 4:41 pm

Tgt Ion:228 Resp: 78542

Ion	Ratio	Lower	Upper
228	100		
229	10.5	0.0	49.3
226	34.3	0.0	56.0



9.1.22

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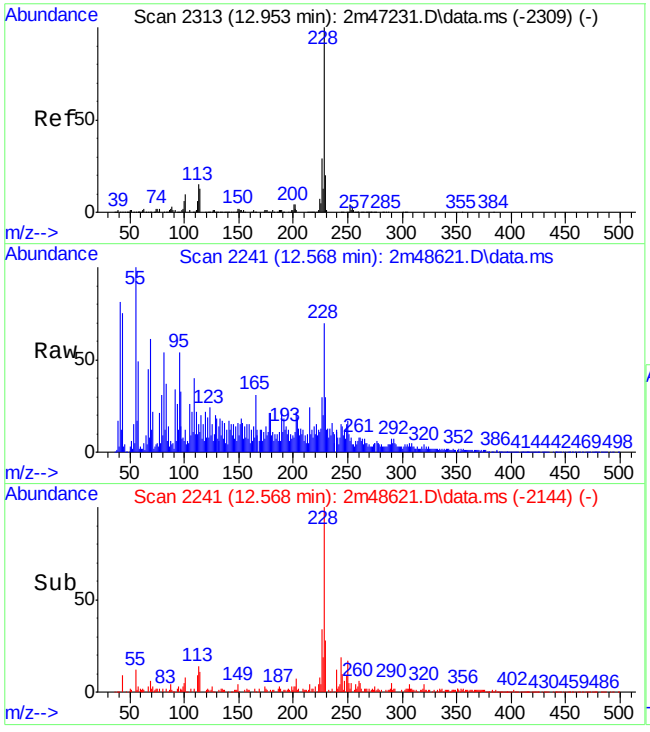
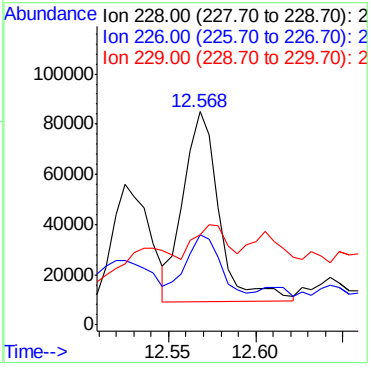
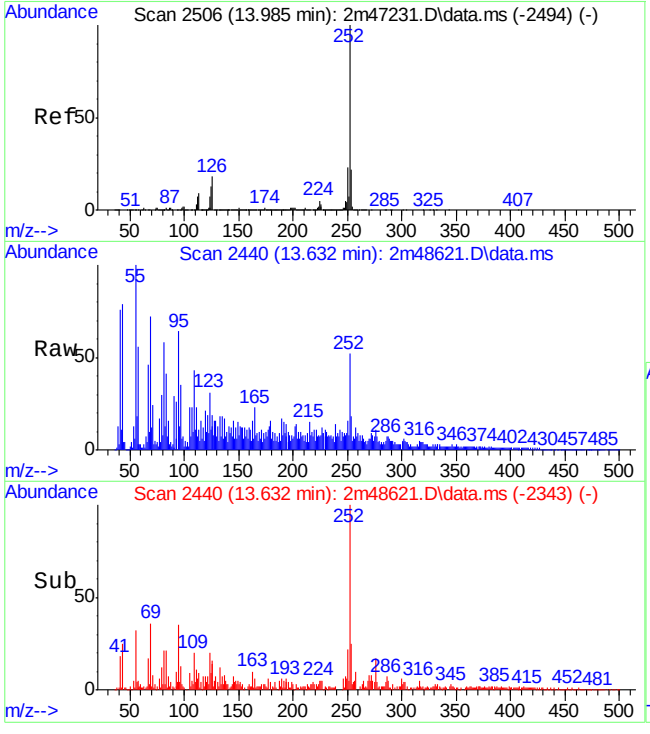


#90
Chrysene
Concen: 3.83 ppb
RT: 12.568 min Scan# 2241
Delta R.T. 0.016 min
Lab File: 2m48621.D
Acq: 19 Dec 2012 4:41 pm

Tgt Ion:228 Resp: 108069

Ion	Ratio	Lower	Upper
228	100		
226	33.6	0.0	57.7
229	11.5	0.0	49.3

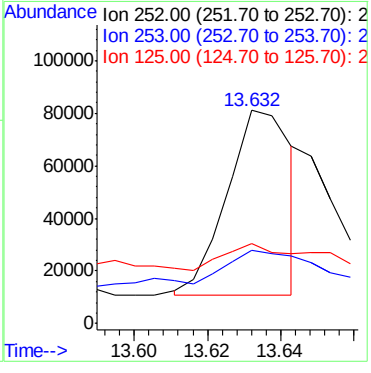




#94
Benzo[b]fluoranthene
Concen: 2.74 ppb m
RT: 13.632 min Scan# 2440
Delta R.T. 0.016 min
Lab File: 2m48621.D
Acq: 19 Dec 2012 4:41 pm

Tgt Ion:252 Resp: 85757

Ion	Ratio	Lower	Upper
252	100		
253	34.6	0.0	51.6
125	37.4	0.0	40.1



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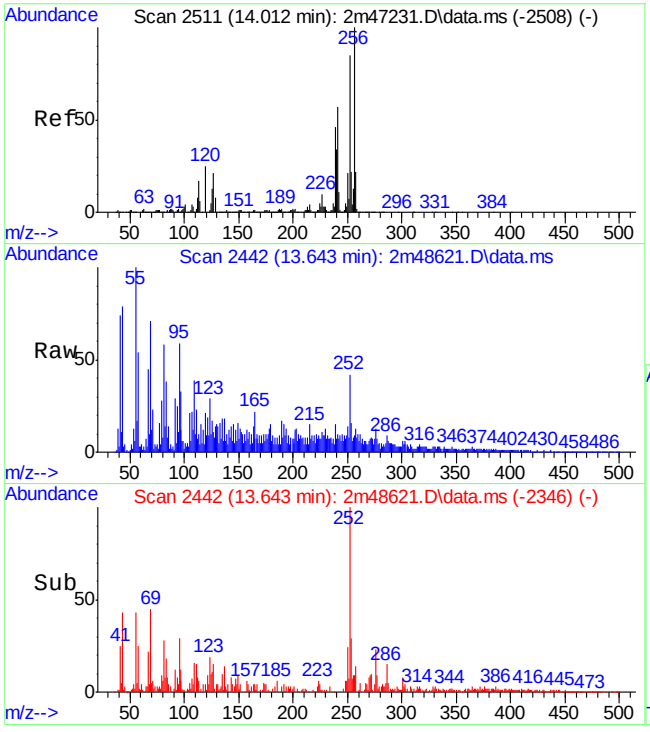
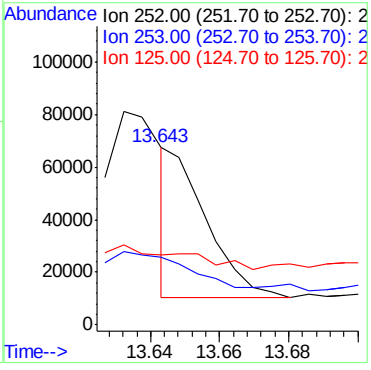
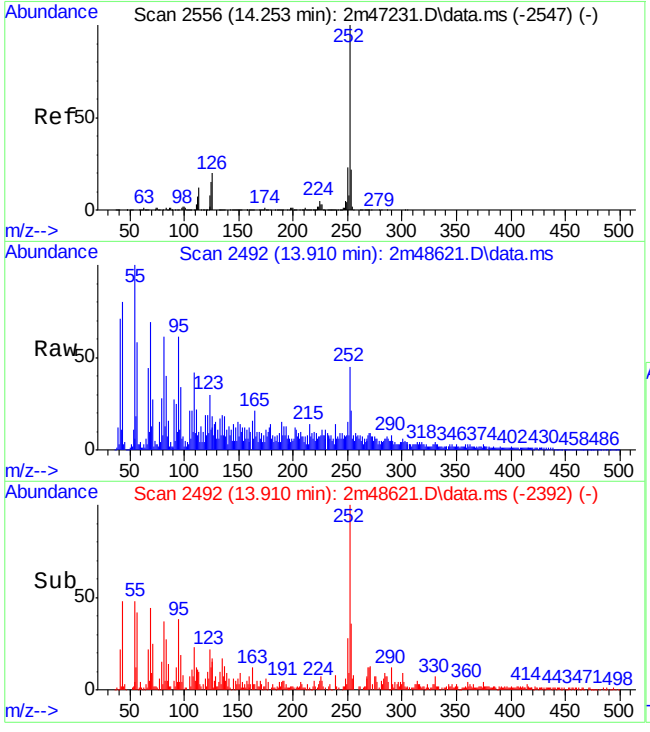


#95
Benzo[k]fluoranthene
Concen: 1.48 ppb m
RT: 13.643 min Scan# 2442
Delta R.T. 0.011 min
Lab File: 2m48621.D
Acq: 19 Dec 2012 4:41 pm

Tgt Ion:252 Resp: 41585

Ion	Ratio	Lower	Upper
252	100		
253	38.1	0.0	52.7
125	39.5	0.0	42.9

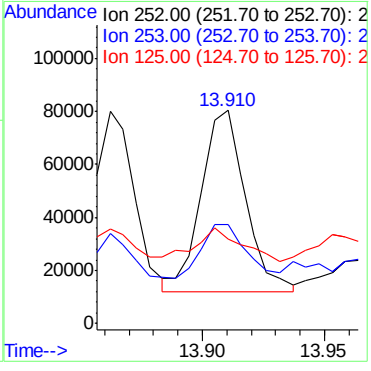




#96
Benzo[a]pyrene
Concen: 3.26 ppb
RT: 13.910 min Scan# 2492
Delta R.T. 0.032 min
Lab File: 2m48621.D
Acq: 19 Dec 2012 4:41 pm

Tgt Ion:252 Resp: 86634

Ion	Ratio	Lower	Upper
252	100		
253	26.5	0.0	52.4
125	10.2	0.0	42.7



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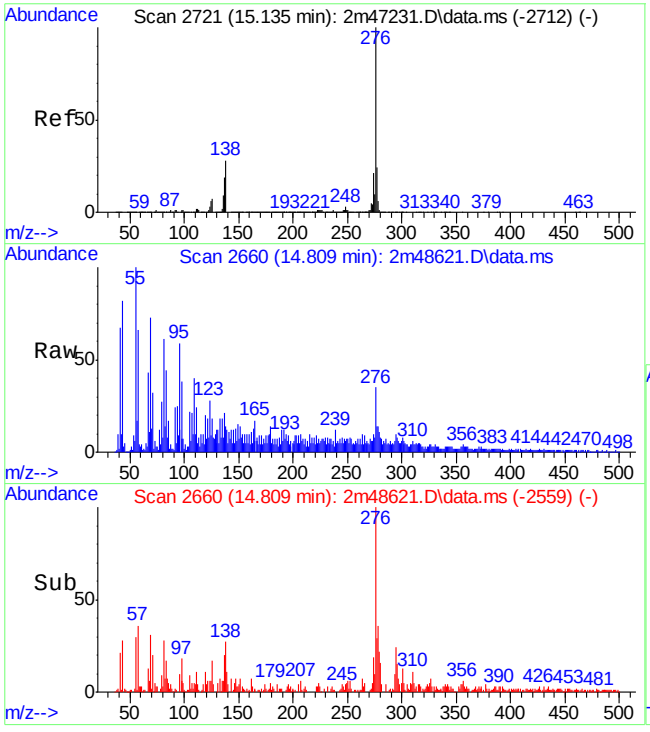
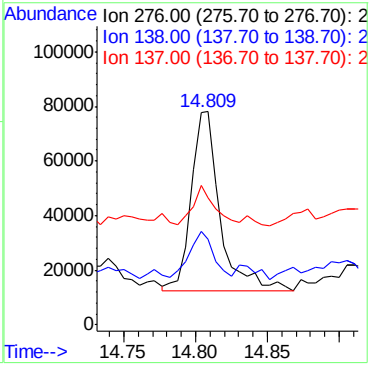
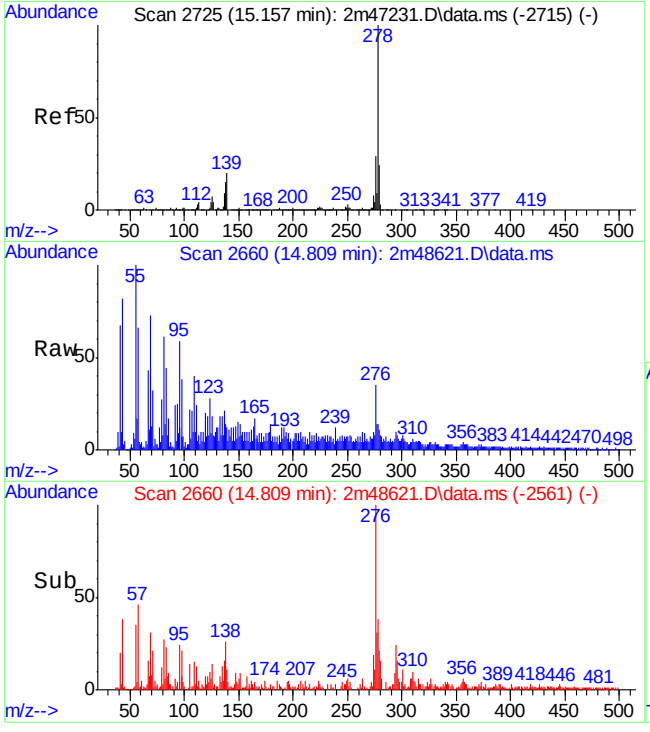


#97
Indeno[1,2,3-cd]pyrene
Concen: 3.04 ppb
RT: 14.809 min Scan# 2660
Delta R.T. 0.038 min
Lab File: 2m48621.D
Acq: 19 Dec 2012 4:41 pm

Tgt Ion:276 Resp: 93805

Ion	Ratio	Lower	Upper
276	100		
138	18.3	0.0	57.6
137	9.1	0.0	48.9

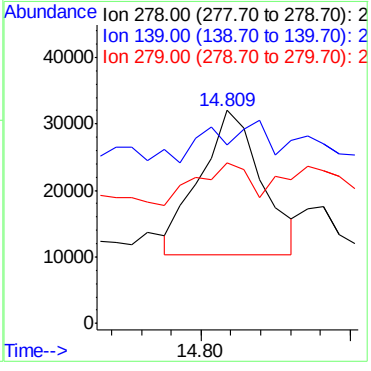




#99
Dibenz[a,h]anthracene
Concen: 1.20 ppb m
RT: 14.809 min Scan# 2660
Delta R.T. 0.027 min
Lab File: 2m48621.D
Acq: 19 Dec 2012 4:41 pm

Tgt Ion:278 Resp: 31221

Ion	Ratio	Lower	Upper
278	100		
139	83.6	0.0	52.4#
279	75.6	0.0	54.1#



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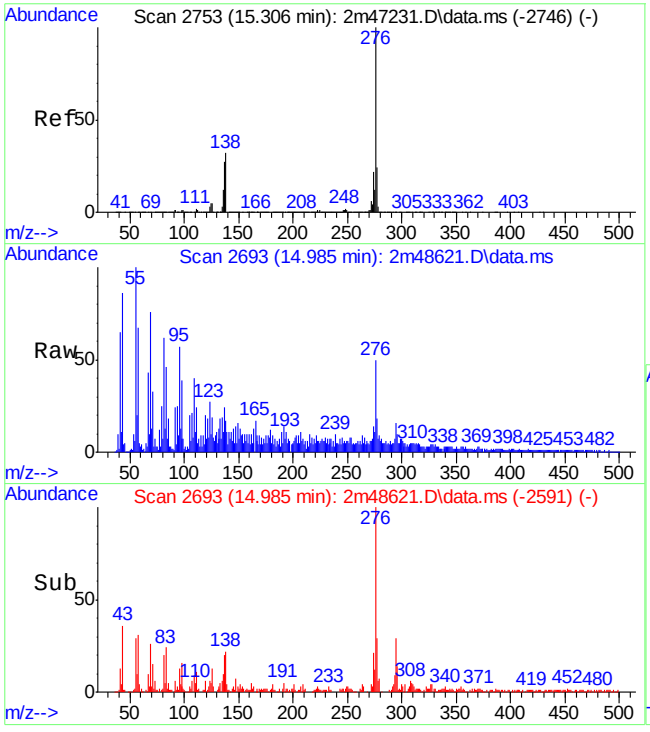
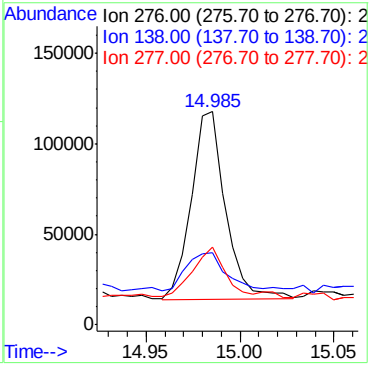


#101
Benzo[g,h,i]perylene
Concen: 4.99 ppb
RT: 14.985 min Scan# 2693
Delta R.T. 0.043 min
Lab File: 2m48621.D
Acq: 19 Dec 2012 4:41 pm

Tgt Ion:276 Resp: 131500

Ion	Ratio	Lower	Upper
276	100		
138	19.8	0.1	60.1
277	26.6	0.0	53.2



9.1.22

9

Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
12/24/12 13:45

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2083\
Data File : 2m48640.D
Acq On : 20 Dec 2012 12:28 pm
Operator : olgaa
Sample : jb22962-16cfi
Misc : op62064,e2m2083,33.0,,,1,2
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Dec 20 13:26:10 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.368	152	173826	40.00	ppb	-0.02
24) Naphthalene-d8	3.892	136	737503	40.00	ppb	-0.02
47) Acenaphthene-d10	6.454	164	458549	40.00	ppb	-0.03
69) Phenanthrene-d10	8.684	188	793462	40.00	ppb	-0.02
83) Chrysene-d12	12.509	240	917145	40.00	ppb	-0.02
92) Perylene-d12	13.921	264	876702	40.00	ppb	0.00
102) 1,4-Dichlorobenzene-d4a	2.368	152	173826	40.00	ppb	-0.02
104) Acenaphthene-d10a	6.454	164	458549	40.00	ppb	-0.03
106) Chrysene-d12a	12.509	240	917145	40.00	ppb	-0.02
108) Phenanthrene-d10a	8.684	188	793466	40.00	ppb	-0.02
110) Chrysene-d12b	12.509	240	917145	40.00	ppb	-0.02

System Monitoring Compounds						
5) 2-Fluorophenol	1.426	112	52474	8.30	ppb	0.00
Spiked Amount 50.000			Recovery	=	16.60%	
8) Phenol-d5	2.229	99	68013	8.02	ppb	0.01
Spiked Amount 50.000			Recovery	=	16.04%	
25) Nitrobenzene-d5	3.058	82	59175	7.48	ppb	0.00
Spiked Amount 50.000			Recovery	=	14.96%	
51) 2-Fluorobiphenyl	5.534	172	122138	8.10	ppb	-0.03
Spiked Amount 50.000			Recovery	=	16.20%	
73) 2,4,6-Tribromophenol	7.727	330	19585	10.50	ppb	-0.01
Spiked Amount 50.000			Recovery	=	21.00%	
85) Terphenyl-d14	11.273	244	154410	8.33	ppb	-0.02
Spiked Amount 50.000			Recovery	=	16.66%	

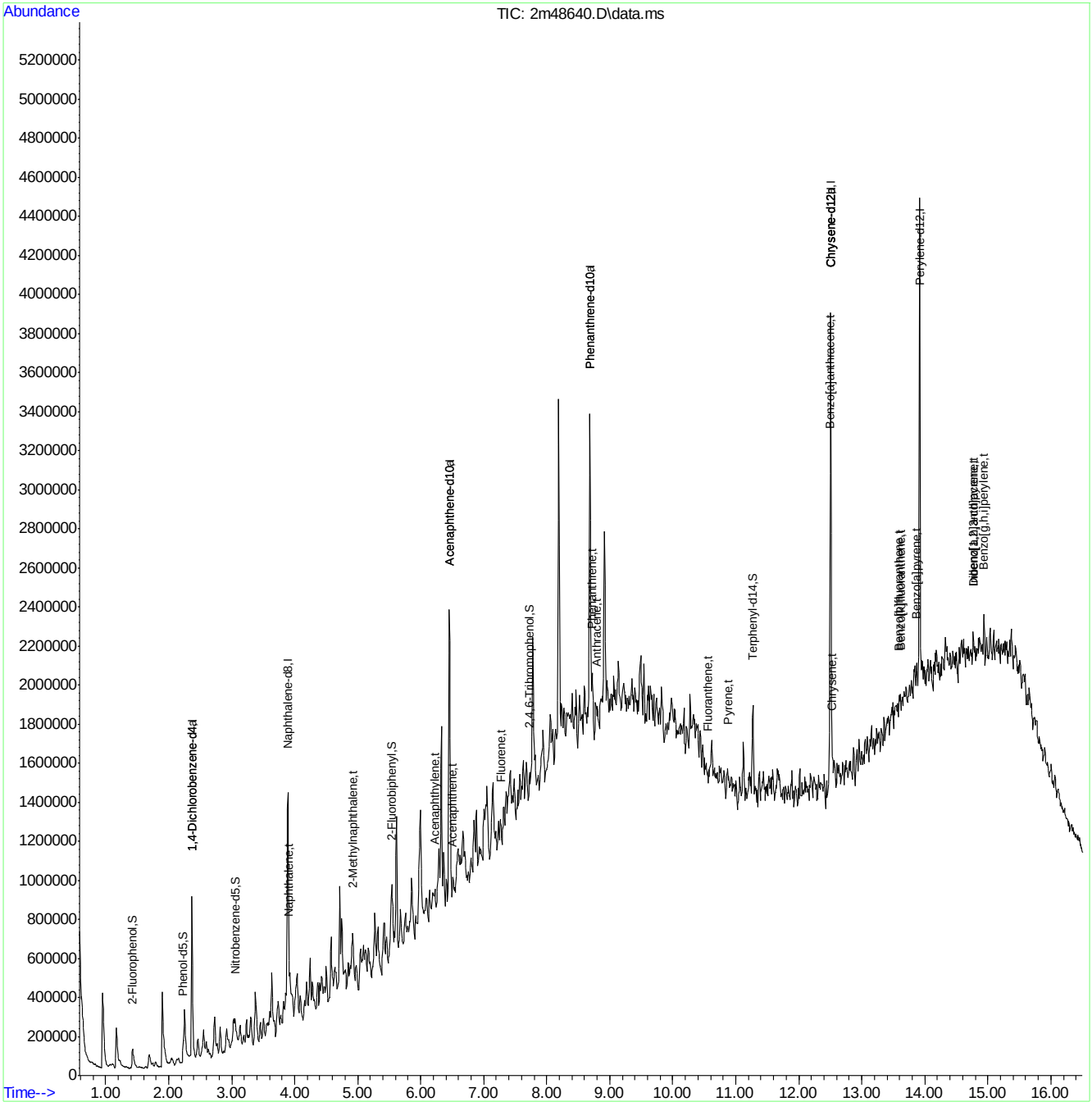
Target Compounds						Qvalue
38) Naphthalene	3.913	128	24285	1.18	ppb	93
44) 2-Methylnaphthalene	4.919	141	21544	1.71	ppb	89
56) Acenaphthylene	6.219	152	17032	0.77	ppb	95
59) Acenaphthene	6.497	153	12023	0.84	ppb	85
66) Fluorene	7.283	166	19048	1.24	ppb	85
77) Phenanthrene	8.717	178	59064	2.43	ppb	89
78) Anthracene	8.791	178	23341	0.97	ppb	86
81) Fluoranthene	10.557	202	23339	0.97	ppb	90
84) Pyrene	10.872	202	52656	1.78	ppb	98
88) Benzo[a]anthracene	12.493	228	43004	1.52	ppb	93
90) Chrysene	12.530	228	49793	1.78	ppb	87
94) Benzo[b]fluoranthene	13.595	252	52270m	1.71	ppb	
95) Benzo[k]fluoranthene	13.611	252	13424m	0.49	ppb	
96) Benzo[a]pyrene	13.873	252	41553	1.60	ppb	92
97) Indeno[1,2,3-cd]pyrene	14.766	276	41720	1.39	ppb	94
99) Dibenz[a,h]anthracene	14.766	278	14116m	0.56	ppb	
101) Benzo[g,h,i]perylene	14.937	276	57405	2.23	ppb	93

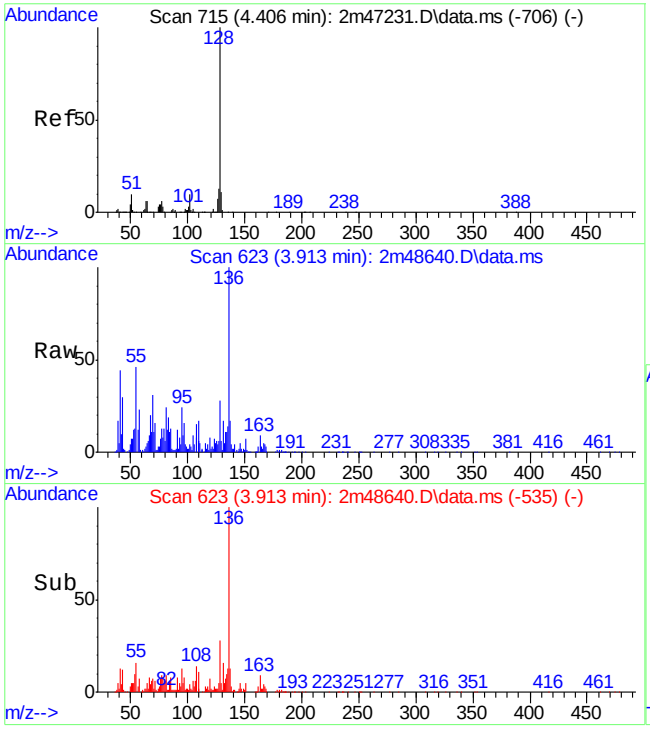
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2083\
Data File : 2m48640.D
Acq On : 20 Dec 2012 12:28 pm
Operator : olgaa
Sample : jb22962-16cfi
Misc : op62064,e2m2083,33.0,,,1,2
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Dec 20 13:26:10 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration

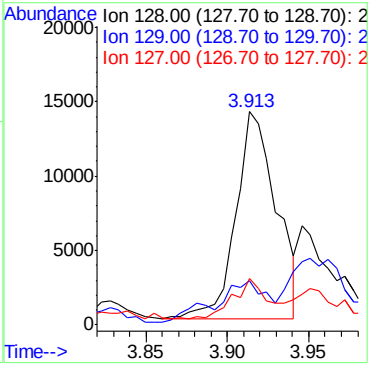


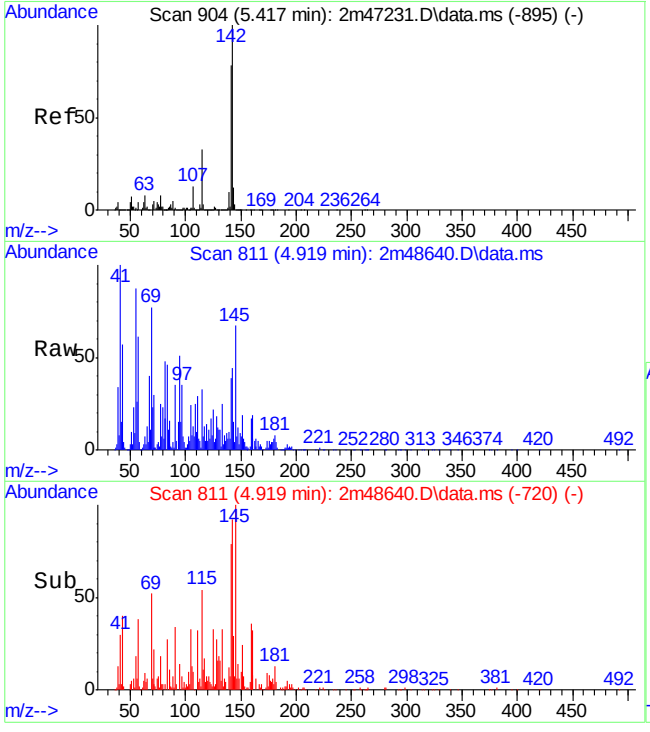


#38
Naphthalene
Concen: 1.18 ppb
RT: 3.913 min Scan# 623
Delta R.T. -0.027 min
Lab File: 2m48640.D
Acq: 20 Dec 2012 12:28 pm

Tgt Ion:128 Resp: 24285

Ion	Ratio	Lower	Upper
128	100		
129	9.6	0.0	40.9
127	17.6	0.0	43.3

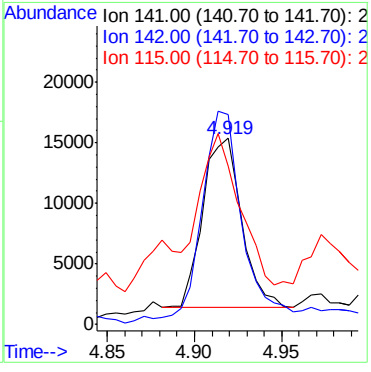




#44
2-Methylnaphthalene
Concen: 1.71 ppb
RT: 4.919 min Scan# 811
Delta R.T. -0.011 min
Lab File: 2m48640.D
Acq: 20 Dec 2012 12:28 pm

Tgt Ion:141 Resp: 21544

Ion	Ratio	Lower	Upper
141	100		
142	118.1	81.7	141.7
115	56.8	12.0	72.0



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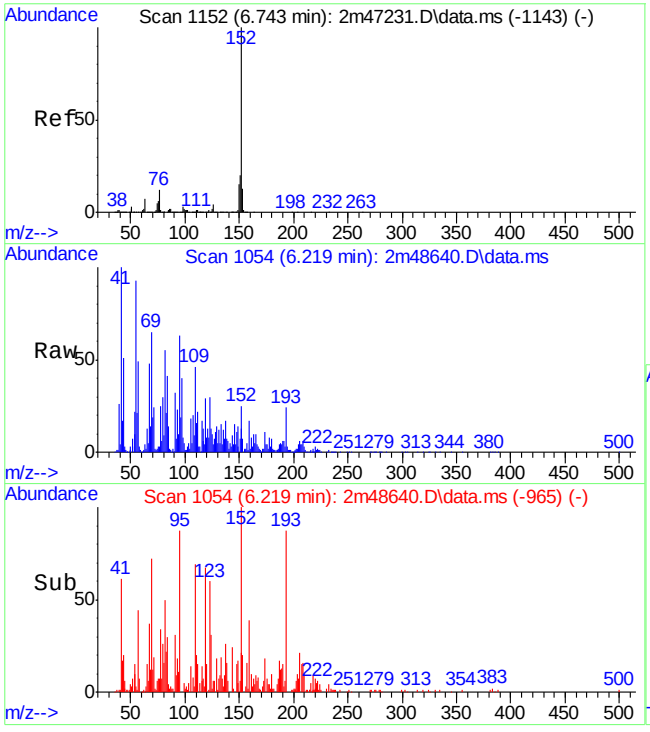
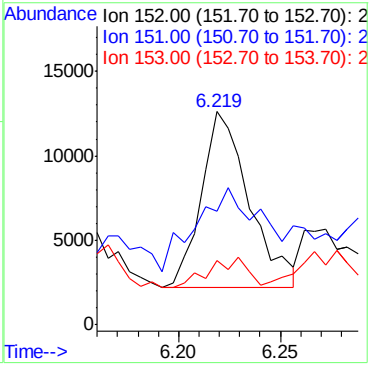
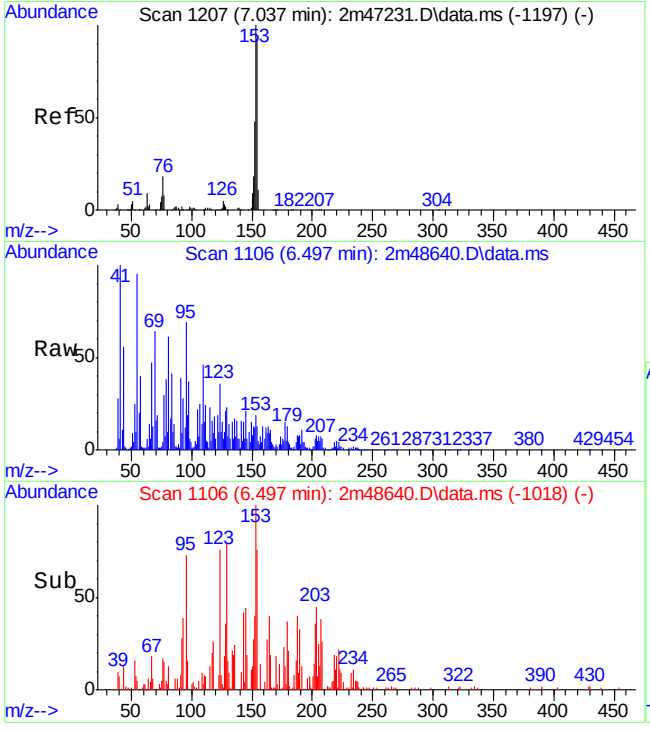


#56
Acenaphthylene
Concen: 0.77 ppb
RT: 6.219 min Scan# 1054
Delta R.T. -0.021 min
Lab File: 2m48640.D
Acq: 20 Dec 2012 12:28 pm

Tgt Ion:152 Resp: 17032

Ion	Ratio	Lower	Upper
152	100		
151	22.7	0.0	49.4
153	12.1	0.0	43.0

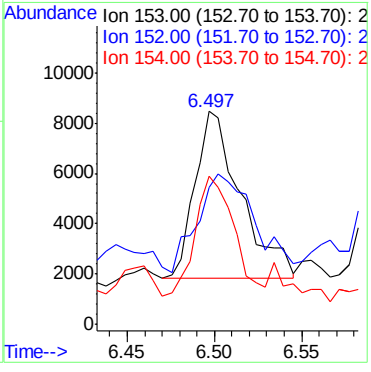




#59
Acenaphthene
Concen: 0.84 ppb
RT: 6.497 min Scan# 1106
Delta R.T. -0.027 min
Lab File: 2m48640.D
Acq: 20 Dec 2012 12:28 pm

Tgt Ion:153 Resp: 12023

Ion	Ratio	Lower	Upper
153	100		
152	47.5	15.8	75.8
154	69.4	59.7	119.7



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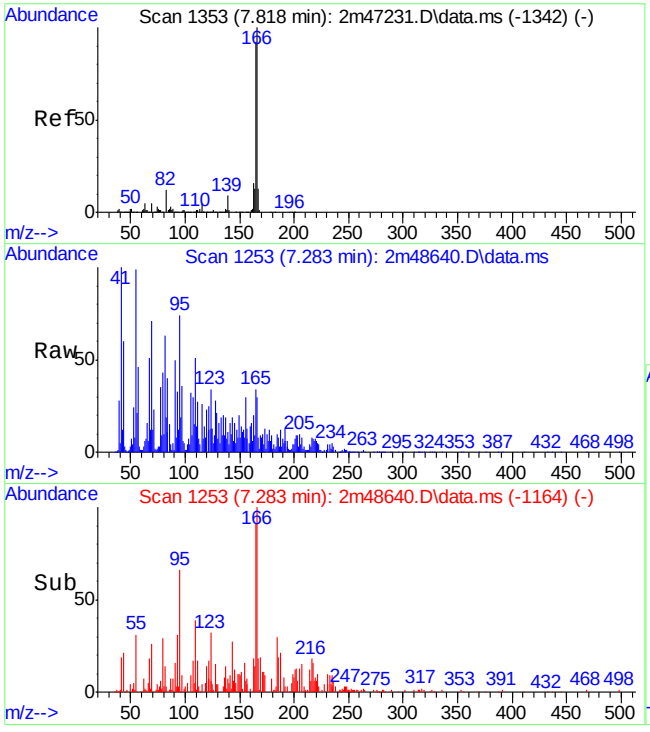
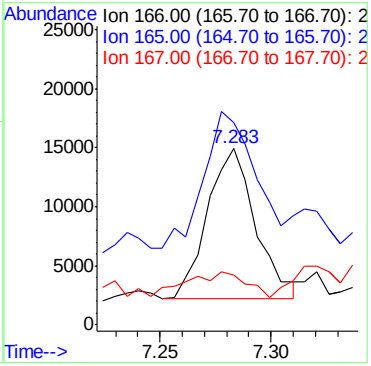
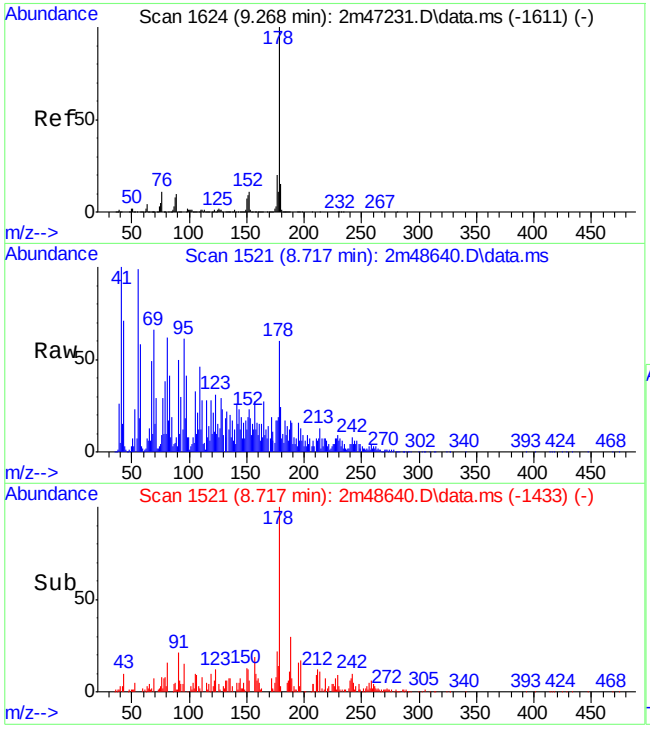


#66
Fluorene
Concen: 1.24 ppb
RT: 7.283 min Scan# 1253
Delta R.T. -0.021 min
Lab File: 2m48640.D
Acq: 20 Dec 2012 12:28 pm

Tgt Ion:166 Resp: 19048

Ion	Ratio	Lower	Upper
166	100		
165	77.4	61.9	121.9
167	6.2	0.0	43.1

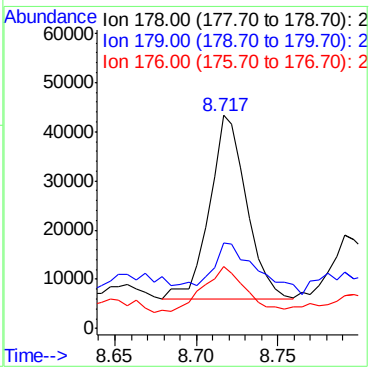




#77
Phenanthrene
Concen: 2.43 ppb
RT: 8.717 min Scan# 1521
Delta R.T. -0.027 min
Lab File: 2m48640.D
Acq: 20 Dec 2012 12:28 pm

Tgt Ion:178 Resp: 59064

Ion	Ratio	Lower	Upper
178	100		
179	20.8	0.0	44.9
176	23.1	0.0	49.1



9.1.23

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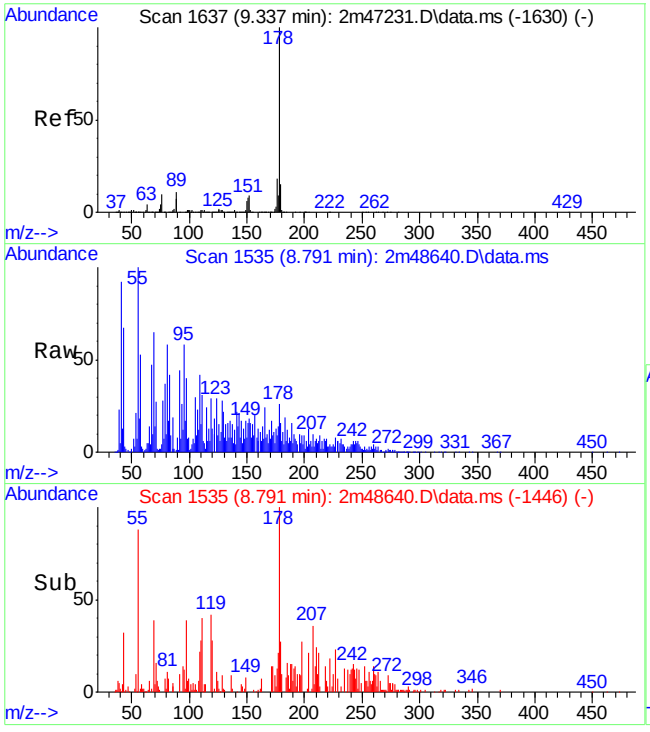
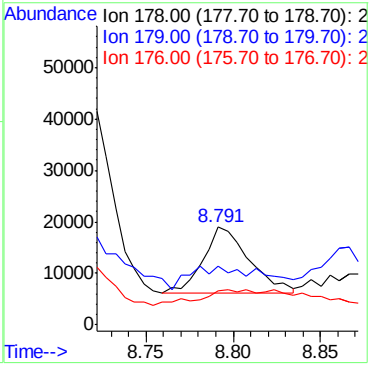
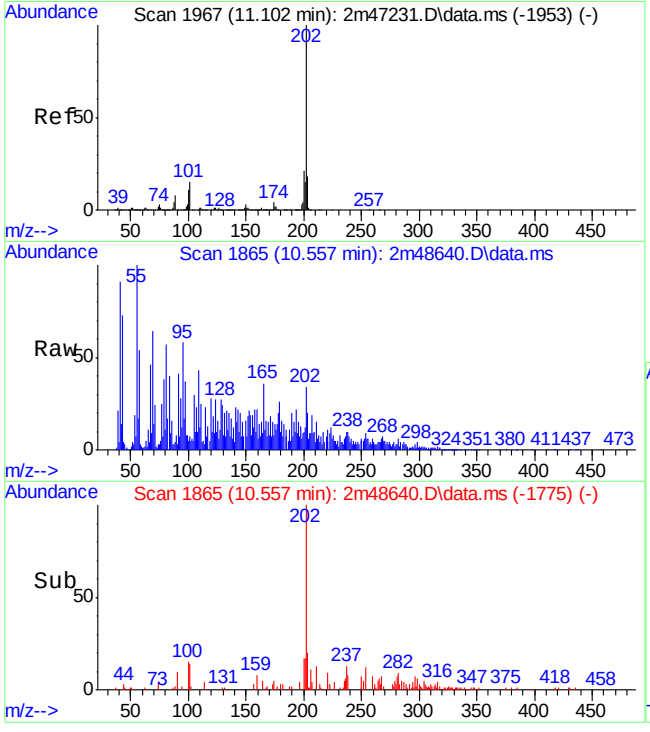


#78
Anthracene
Concen: 0.97 ppb
RT: 8.791 min Scan# 1535
Delta R.T. -0.021 min
Lab File: 2m48640.D
Acq: 20 Dec 2012 12:28 pm

Tgt Ion:178 Resp: 23341

Ion	Ratio	Lower	Upper
178	100		
179	20.5	0.0	44.3
176	12.5	0.0	48.3

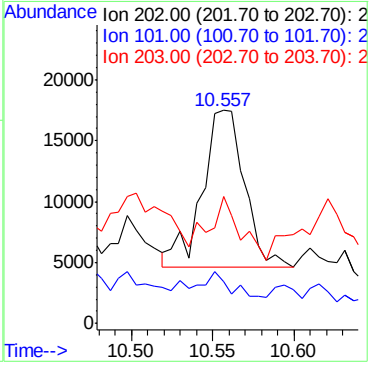




#81
Fluoranthene
Concen: 0.97 ppb
RT: 10.557 min Scan# 1865
Delta R.T. -0.016 min
Lab File: 2m48640.D
Acq: 20 Dec 2012 12:28 pm

Tgt Ion:202 Resp: 23339

Ion	Ratio	Lower	Upper
202	100		
101	4.7	0.0	43.8
203	17.5	0.0	47.5



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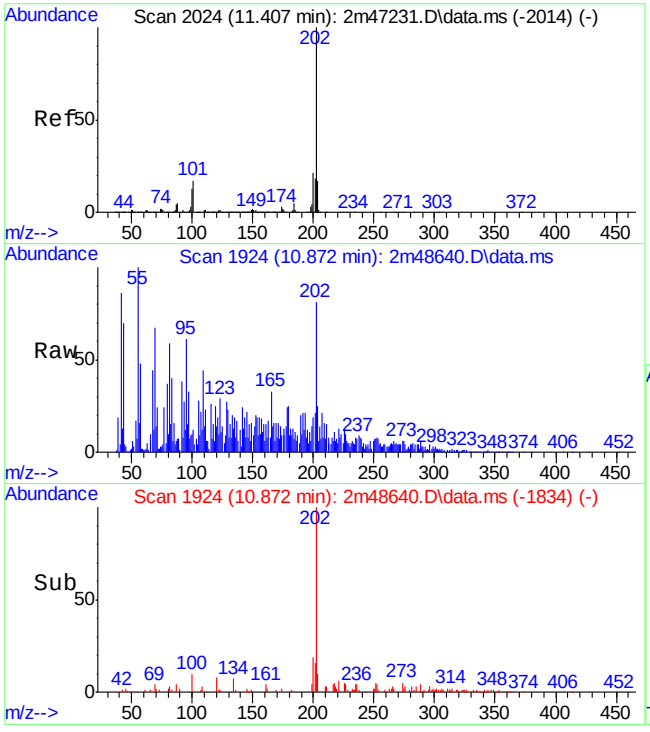
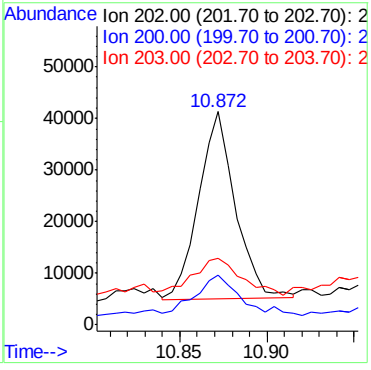
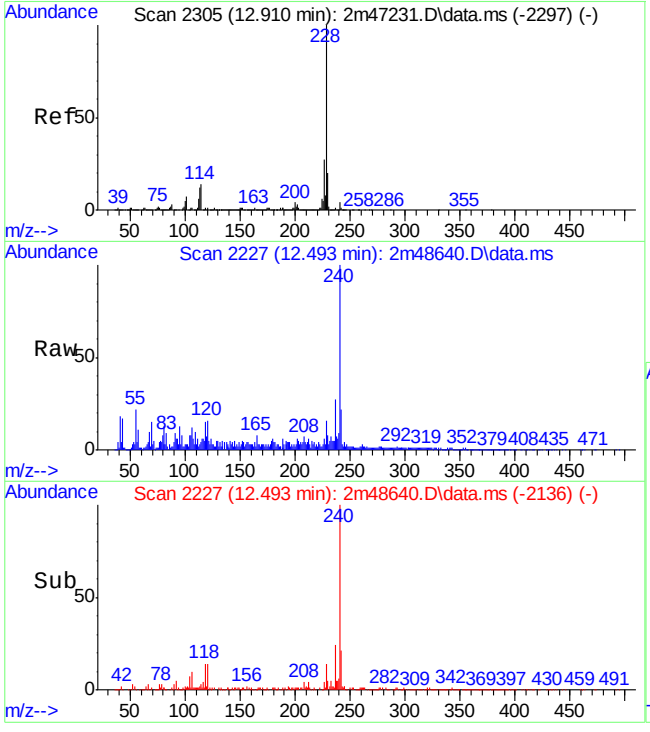


#84
Pyrene
Concen: 1.78 ppb
RT: 10.872 min Scan# 1924
Delta R.T. -0.016 min
Lab File: 2m48640.D
Acq: 20 Dec 2012 12:28 pm

Tgt Ion:202 Resp: 52656

Ion	Ratio	Lower	Upper
202	100		
200	20.3	0.0	51.3
203	16.6	0.0	47.6

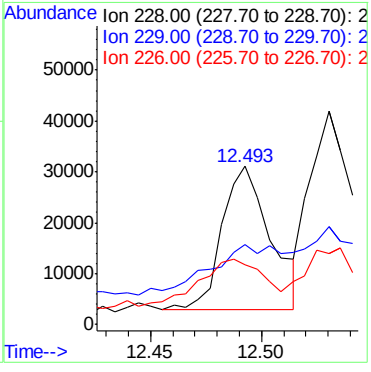




#88
Benzo[a]anthracene
Concen: 1.52 ppb
RT: 12.493 min Scan# 2227
Delta R.T. -0.011 min
Lab File: 2m48640.D
Acq: 20 Dec 2012 12:28 pm

Tgt Ion:228 Resp: 43004

Ion	Ratio	Lower	Upper
228	100		
229	22.6	0.0	49.3
226	22.5	0.0	56.0



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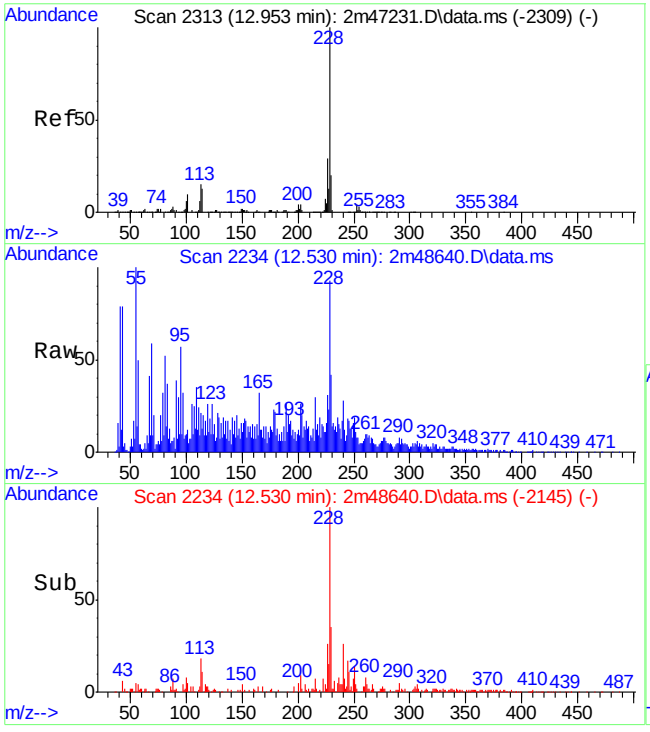
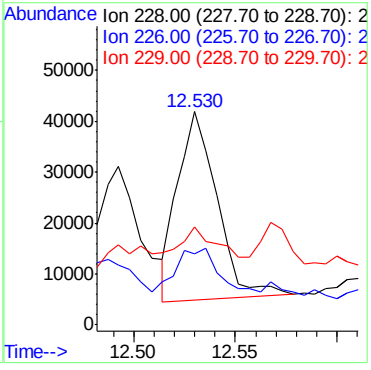
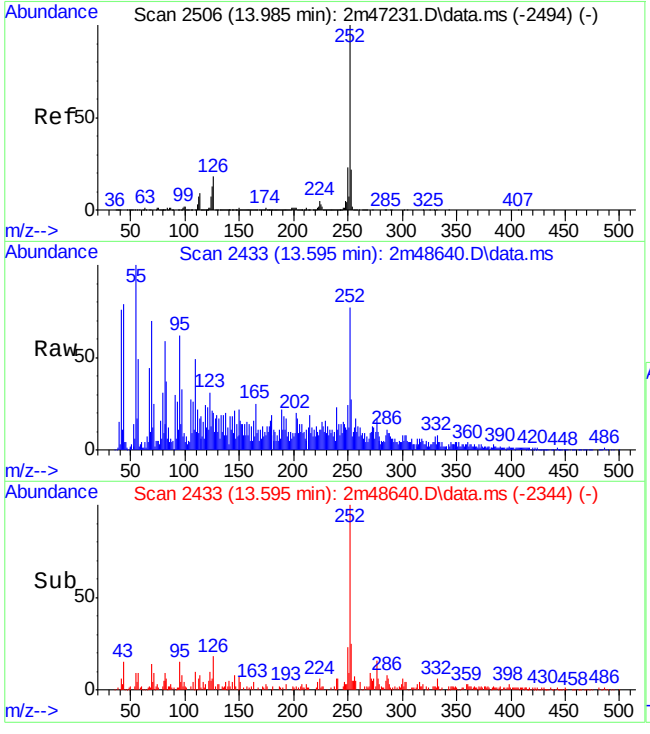


#90
Chrysene
Concen: 1.78 ppb
RT: 12.530 min Scan# 2234
Delta R.T. -0.021 min
Lab File: 2m48640.D
Acq: 20 Dec 2012 12:28 pm

Tgt Ion:228 Resp: 49793

Ion	Ratio	Lower	Upper
228	100		
226	19.8	0.0	57.7
229	14.9	0.0	49.3

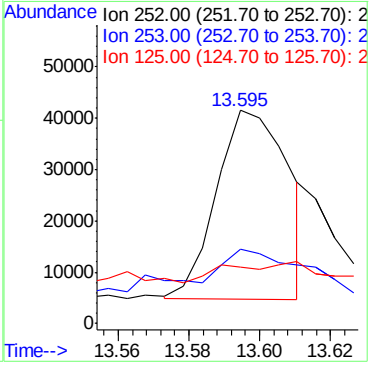




#94
Benzo[b]fluoranthene
Concen: 1.71 ppb m
RT: 13.595 min Scan# 2433
Delta R.T. -0.021 min
Lab File: 2m48640.D
Acq: 20 Dec 2012 12:28 pm

Tgt Ion:252 Resp: 52270

Ion	Ratio	Lower	Upper
252	100		
253	34.8	0.0	51.6
125	26.7	0.0	40.1



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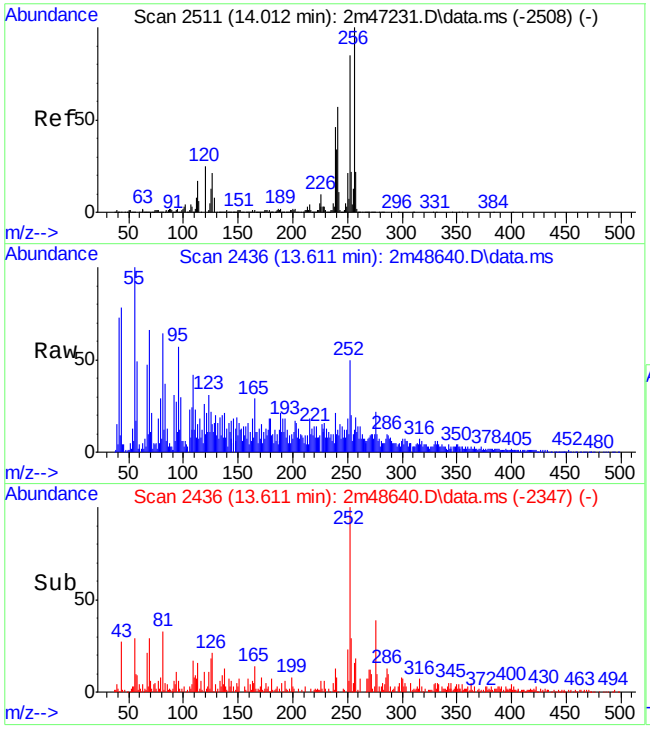
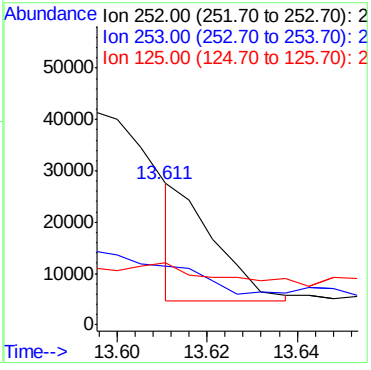
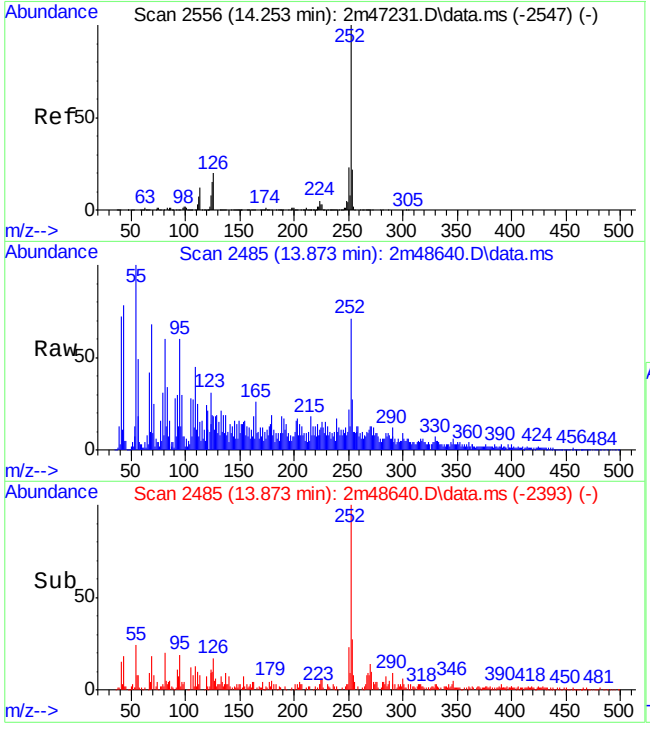


#95
Benzo[k]fluoranthene
Concen: 0.49 ppb m
RT: 13.611 min Scan# 2436
Delta R.T. -0.021 min
Lab File: 2m48640.D
Acq: 20 Dec 2012 12:28 pm

Tgt Ion:252 Resp: 13424

Ion	Ratio	Lower	Upper
252	100		
253	41.2	0.0	52.7
125	43.7	0.0	42.9#

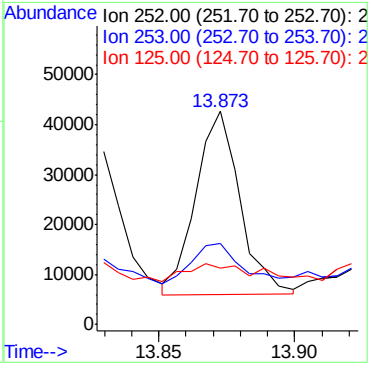




#96
Benzo[a]pyrene
Concen: 1.60 ppb
RT: 13.873 min Scan# 2485
Delta R.T. -0.005 min
Lab File: 2m48640.D
Acq: 20 Dec 2012 12:28 pm

Tgt Ion:252 Resp: 41553

Ion	Ratio	Lower	Upper
252	100		
253	20.7	0.0	52.4
125	6.3	0.0	42.7



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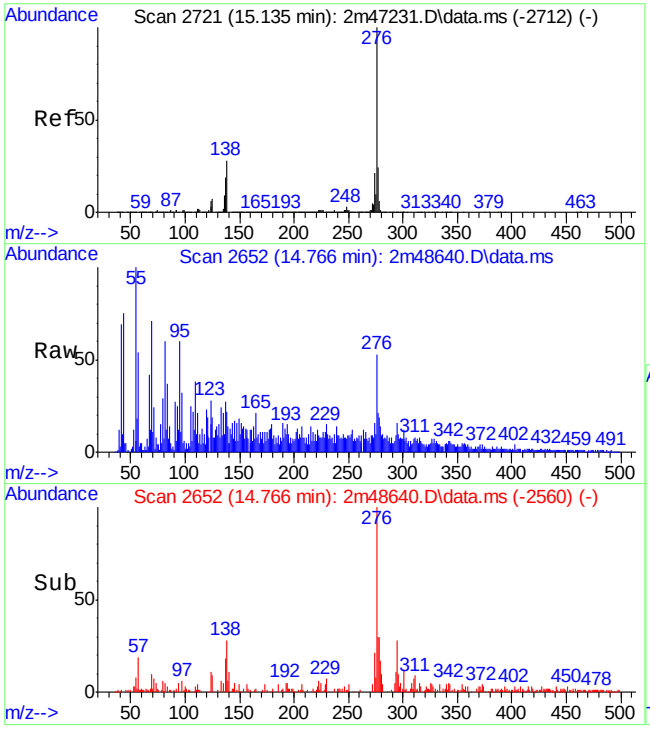
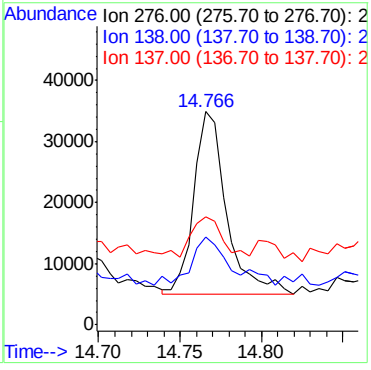
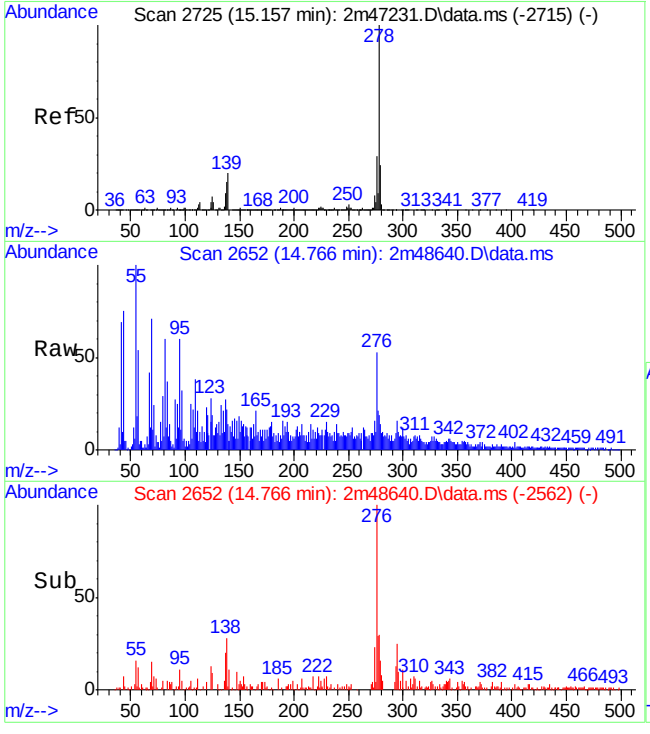


#97
Indeno[1,2,3-cd]pyrene
Concen: 1.39 ppb
RT: 14.766 min Scan# 2652
Delta R.T. -0.005 min
Lab File: 2m48640.D
Acq: 20 Dec 2012 12:28 pm

Tgt Ion:276 Resp: 41720

Ion	Ratio	Lower	Upper
276	100		
138	23.3	0.0	57.6
137	20.2	0.0	48.9

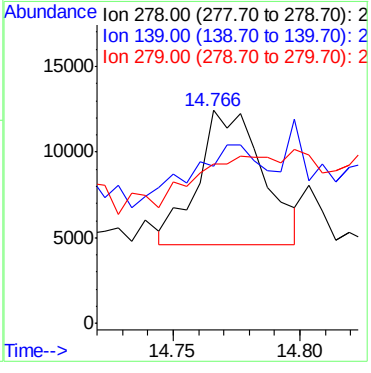




#99
Dibenz[a,h]anthracene
Concen: 0.56 ppb m
RT: 14.766 min Scan# 2652
Delta R.T. -0.016 min
Lab File: 2m48640.D
Acq: 20 Dec 2012 12:28 pm

Tgt Ion:278 Resp: 14116

Ion	Ratio	Lower	Upper
278	100		
139	74.0	0.0	52.4#
279	75.0	0.0	54.1#



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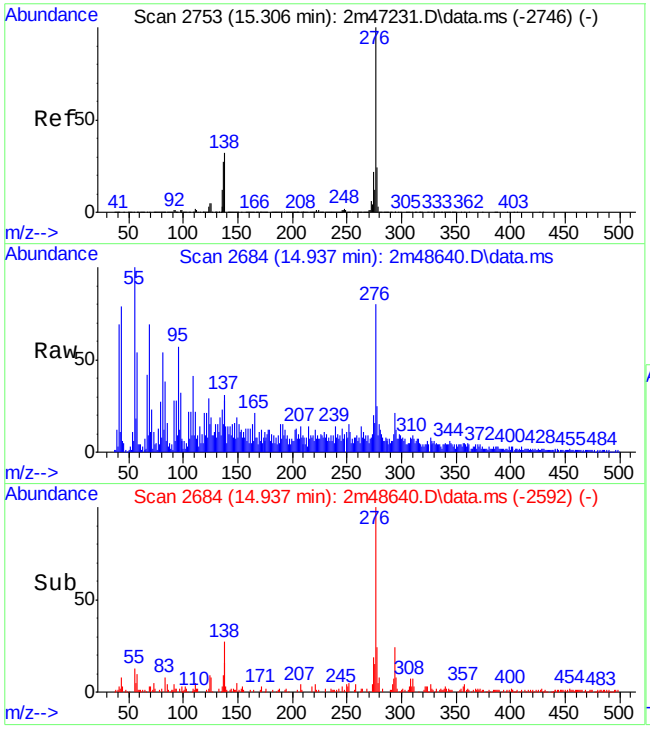
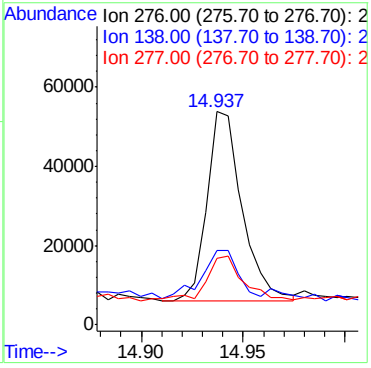


#101
Benzo[g,h,i]perylene
Concen: 2.23 ppb
RT: 14.937 min Scan# 2684
Delta R.T. -0.005 min
Lab File: 2m48640.D
Acq: 20 Dec 2012 12:28 pm

Tgt Ion:276 Resp: 57405

Ion	Ratio	Lower	Upper
276	100		
138	24.5	0.1	60.1
277	22.1	0.0	53.2



9.1.23

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Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 12/21/12 18:23

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48622.D
Acq On : 19 Dec 2012 5:04 pm
Operator : olgaa
Sample : jb22962-17
Misc : op62064,e2m2082,32.5
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Dec 20 11:47:30 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.389	152	215032	40.00	ppb	0.00
24) Naphthalene-d8	3.913	136	1048922	40.00	ppb	0.00
47) Acenaphthene-d10	6.475	164	650617	40.00	ppb	0.00
69) Phenanthrene-d10	8.711	188	1104481	40.00	ppb	0.00
83) Chrysene-d12	12.535	240	1075058	40.00	ppb	0.01
92) Perylene-d12	13.953	264	974366	40.00	ppb	0.03
102) 1,4-Dichlorobenzene-d4a	2.389	152	215032	40.00	ppb	0.00
104) Acenaphthene-d10a	6.475	164	650617	40.00	ppb	0.00
106) Chrysene-d12a	12.535	240	1075058	40.00	ppb	0.01
108) Phenanthrene-d10a	8.711	188	1104481	40.00	ppb	0.00
110) Chrysene-d12b	12.535	240	1075058	40.00	ppb	0.01

System Monitoring Compounds						
5) 2-Fluorophenol	1.442	112	91877	11.74	ppb	0.02
Spiked Amount 50.000			Recovery	=	23.48%	
8) Phenol-d5	2.245	99	164269	15.66	ppb	0.03
Spiked Amount 50.000			Recovery	=	31.32%	
25) Nitrobenzene-d5	3.063	82	144988	12.88	ppb	0.00
Spiked Amount 50.000			Recovery	=	25.76%	
51) 2-Fluorobiphenyl	5.556	172	420142	19.64	ppb	0.00
Spiked Amount 50.000			Recovery	=	39.28%	
73) 2,4,6-Tribromophenol	7.743	330	117275	45.18	ppb	0.00
Spiked Amount 50.000			Recovery	=	90.36%	
85) Terphenyl-d14	11.305	244	1019900	46.95	ppb	0.02
Spiked Amount 50.000			Recovery	=	93.90%	

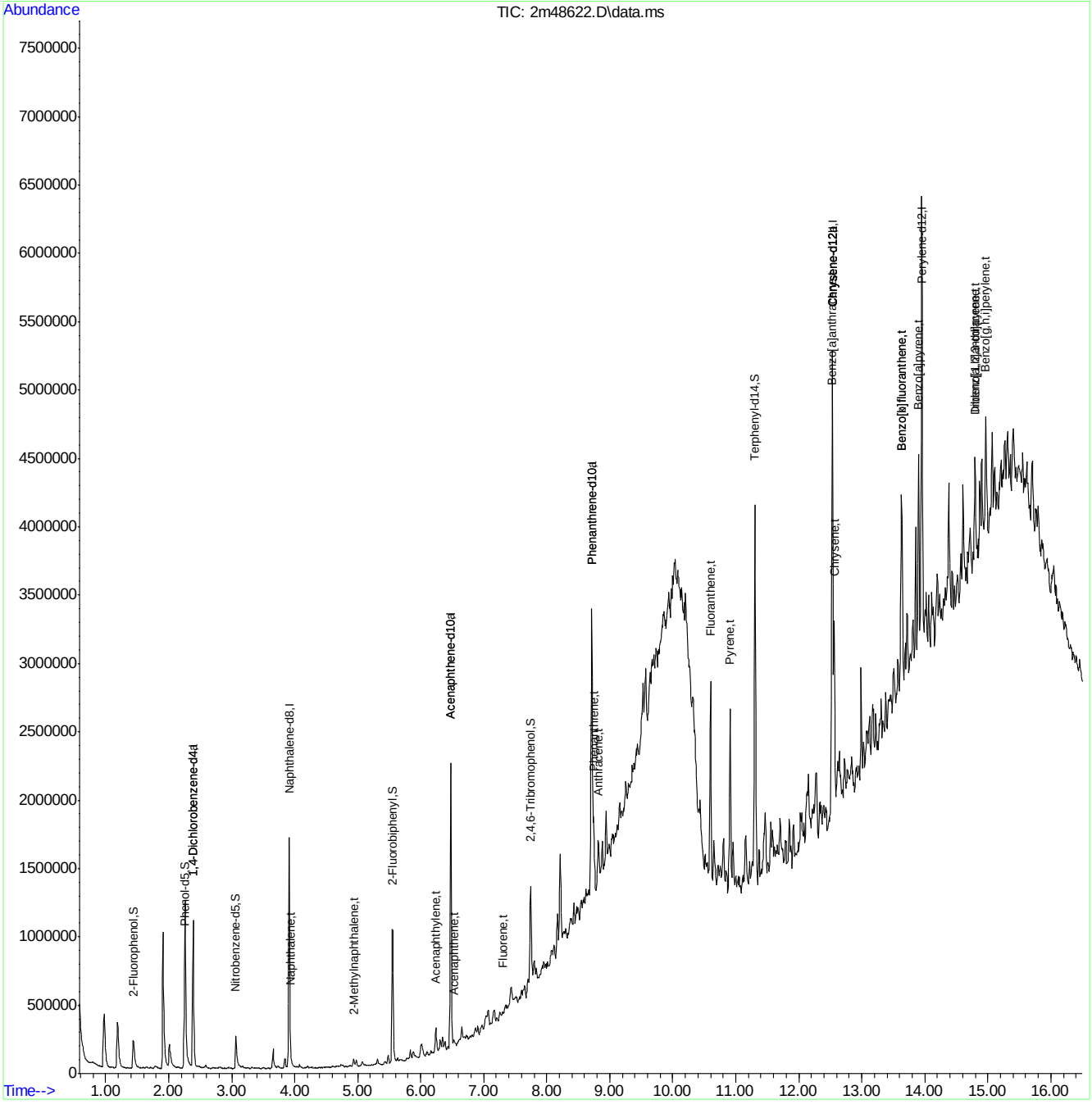
Target Compounds						Qvalue
38) Naphthalene	3.935	128	23857	0.82	ppb	97
44) 2-Methylnaphthalene	4.935	141	15848	0.89	ppb	78
56) Acenaphthylene	6.240	152	117503	3.74	ppb	97
59) Acenaphthene	6.524	153	12099	0.60	ppb	86
66) Fluorene	7.305	166	18362	0.84	ppb	72
77) Phenanthrene	8.743	178	236817	7.00	ppb	98
78) Anthracene	8.818	178	143181	4.27	ppb	96
81) Fluoranthene	10.599	202	786812	23.59	ppb	97
84) Pyrene	10.910	202	715143	20.57	ppb	99
88) Benzo[a]anthracene	12.525	228	567575	17.16	ppb	93
90) Chrysene	12.562	228	554535	16.92	ppb	99
94) Benzo[b]fluoranthene	13.632	252	589907m	17.39	ppb	
95) Benzo[k]fluoranthene	13.637	252	240817m	7.89	ppb	
96) Benzo[a]pyrene	13.899	252	490037	17.01	ppb	97
97) Indeno[1,2,3-cd]pyrene	14.793	276	307057	9.18	ppb	89
99) Dibenz[a,h]anthracene	14.803	278	119199m	4.24	ppb	
101) Benzo[g,h,i]perylene	14.969	276	276836	9.69	ppb	92

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

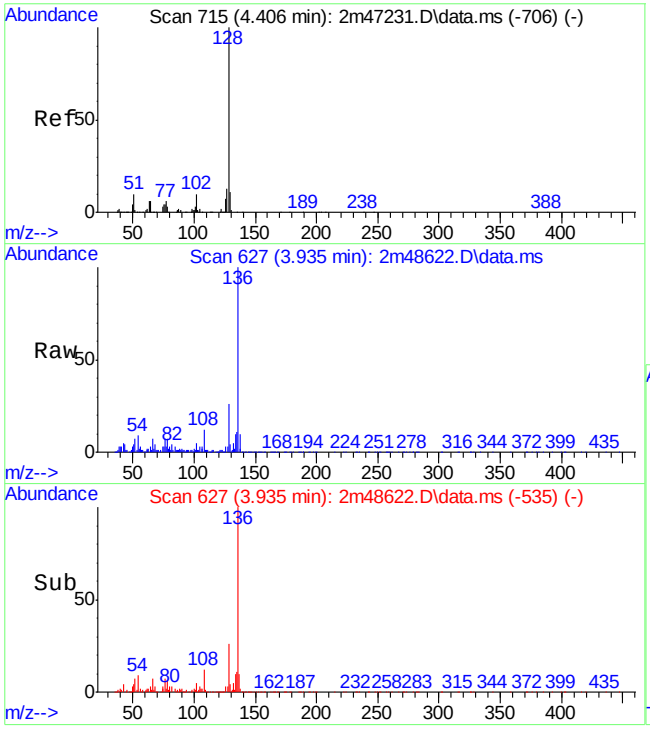
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48622.D
Acq On : 19 Dec 2012 5:04 pm
Operator : olgaa
Sample : jb22962-17
Misc : op62064,e2m2082,32.5
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Dec 20 11:47:30 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration



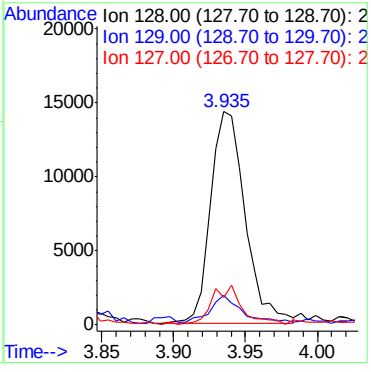
M2M2034.M Thu Dec 20 11:47:40 2012 MS2M Page: 2

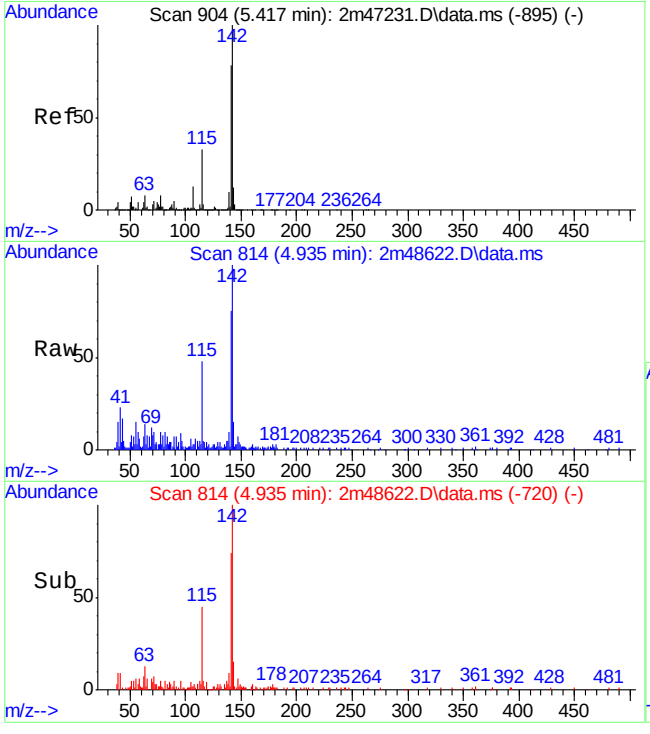


#38
Naphthalene
Concen: 0.82 ppb
RT: 3.935 min Scan# 627
Delta R.T. -0.005 min
Lab File: 2m48622.D
Acq: 19 Dec 2012 5:04 pm

Tgt Ion:128 Resp: 23857

Ion	Ratio	Lower	Upper
128	100		
129	11.7	0.0	40.9
127	12.1	0.0	43.3

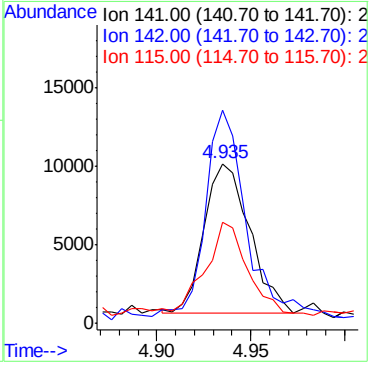


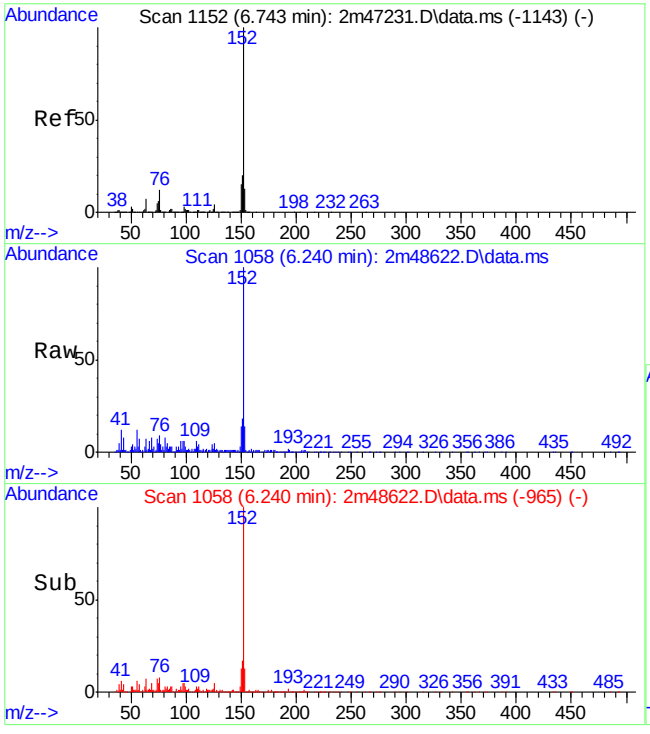


#44
2-Methylnaphthalene
Concen: 0.89 ppb
RT: 4.935 min Scan# 814
Delta R.T. 0.005 min
Lab File: 2m48622.D
Acq: 19 Dec 2012 5:04 pm

Tgt Ion:141 Resp: 15848

Ion	Ratio	Lower	Upper
141	100		
142	131.8	81.7	141.7
115	60.2	12.0	72.0

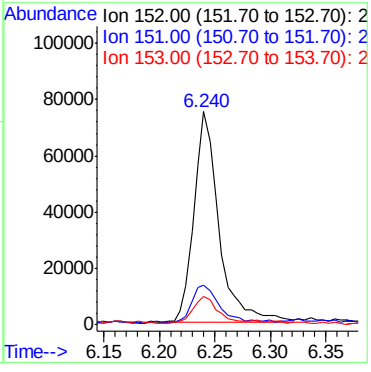


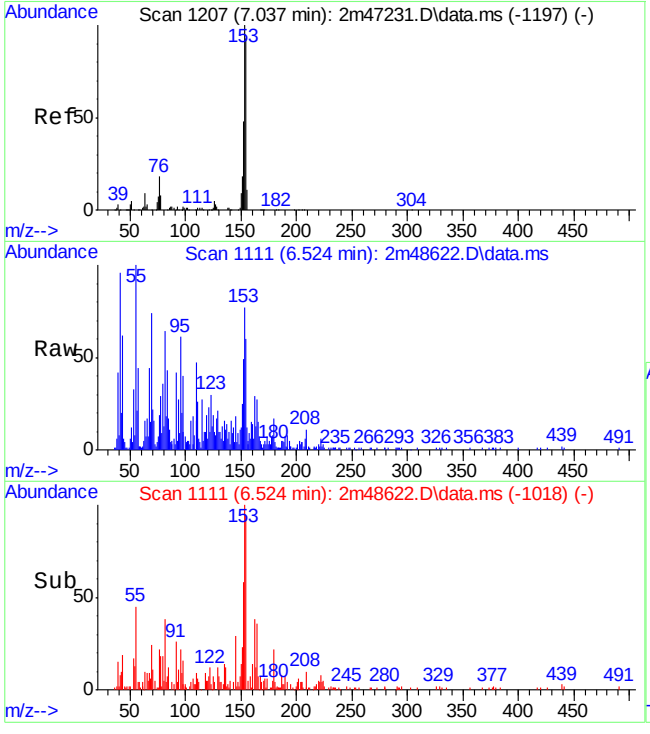


#56
Acenaphthylene
Concen: 3.74 ppb
RT: 6.240 min Scan# 1058
Delta R.T. -0.000 min
Lab File: 2m48622.D
Acq: 19 Dec 2012 5:04 pm

Tgt Ion:152 Resp: 117503

Ion	Ratio	Lower	Upper
152	100		
151	17.0	0.0	49.4
153	12.9	0.0	43.0

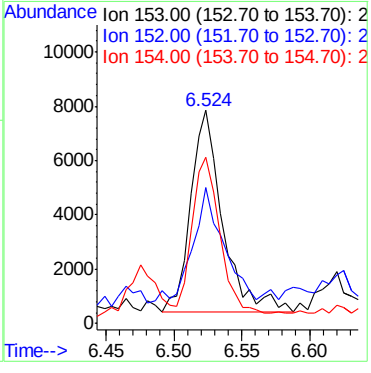




#59
Acenaphthene
Concen: 0.60 ppb
RT: 6.524 min Scan# 1111
Delta R.T. -0.000 min
Lab File: 2m48622.D
Acq: 19 Dec 2012 5:04 pm

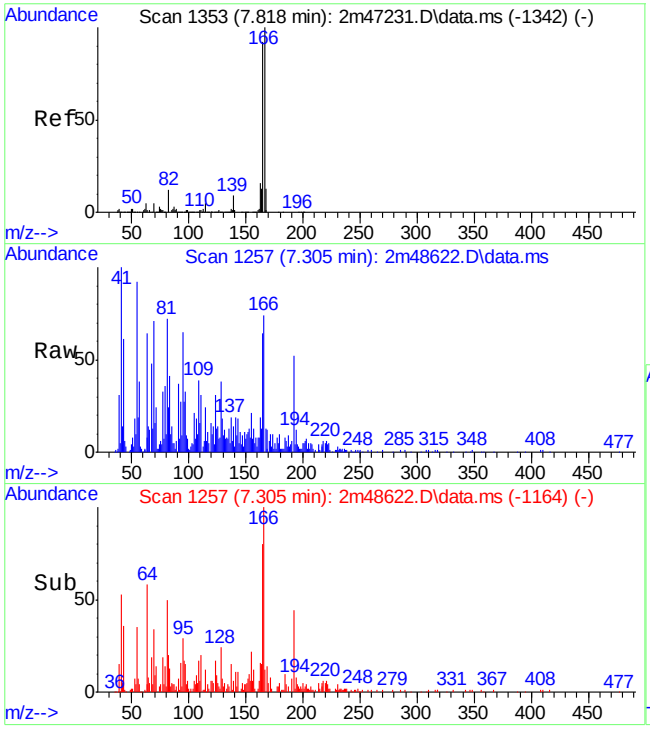
Tgt Ion:153 Resp: 12099

Ion	Ratio	Lower	Upper
153	100		
152	50.3	15.8	75.8
154	73.8	59.7	119.7



9.1.24

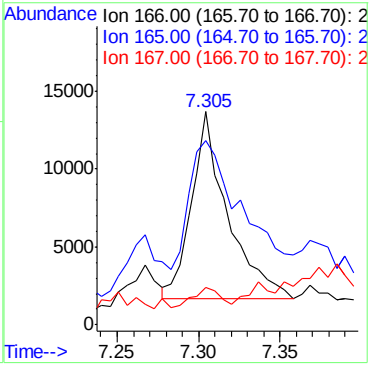
9

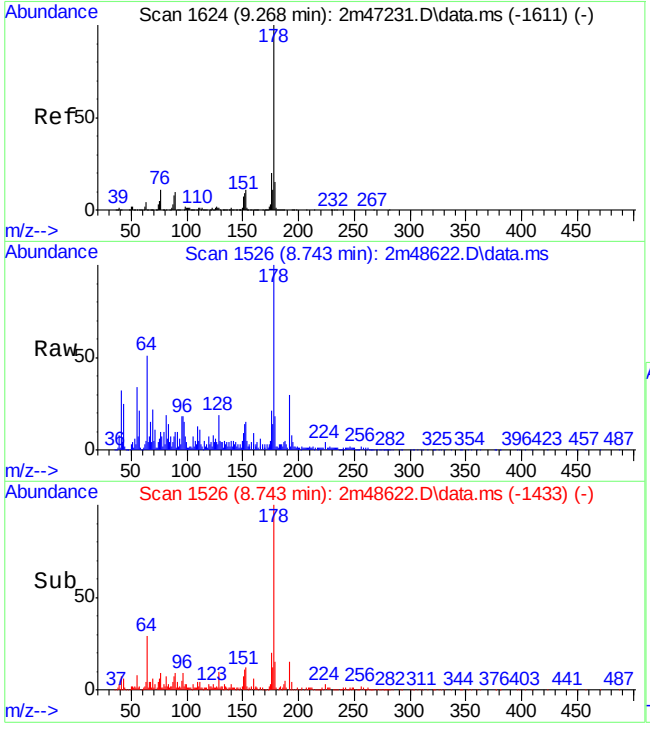


#66
Fluorene
Concen: 0.84 ppb
RT: 7.305 min Scan# 1257
Delta R.T. -0.000 min
Lab File: 2m48622.D
Acq: 19 Dec 2012 5:04 pm

Tgt Ion:166 Resp: 18362

Ion	Ratio	Lower	Upper
166	100		
165	65.0	61.9	121.9
167	2.8	0.0	43.1

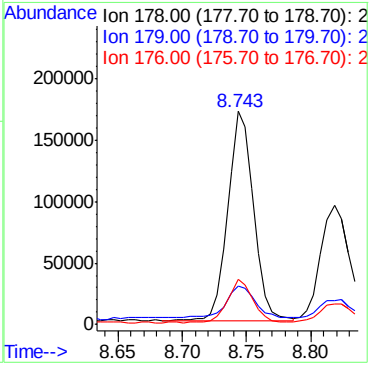




#77
Phenanthrene
Concen: 7.00 ppb
RT: 8.743 min Scan# 1526
Delta R.T. -0.000 min
Lab File: 2m48622.D
Acq: 19 Dec 2012 5:04 pm

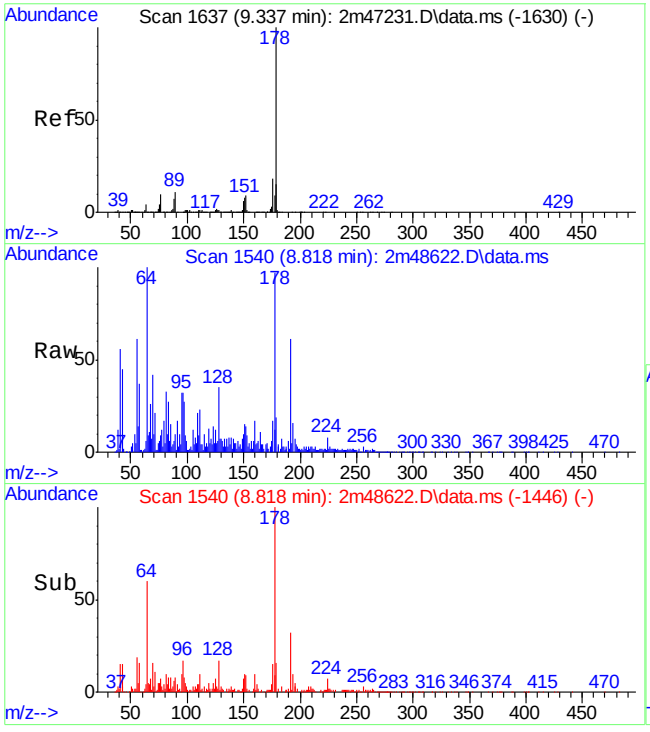
Tgt Ion:178 Resp: 236817

Ion	Ratio	Lower	Upper
178	100		
179	14.8	0.0	44.9
176	20.7	0.0	49.1



9.1.24

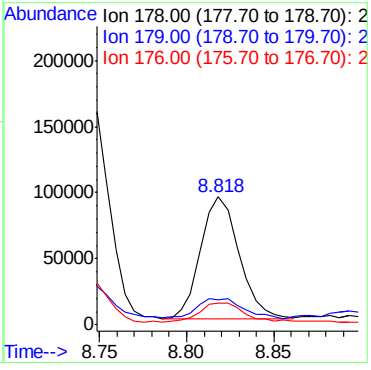
9

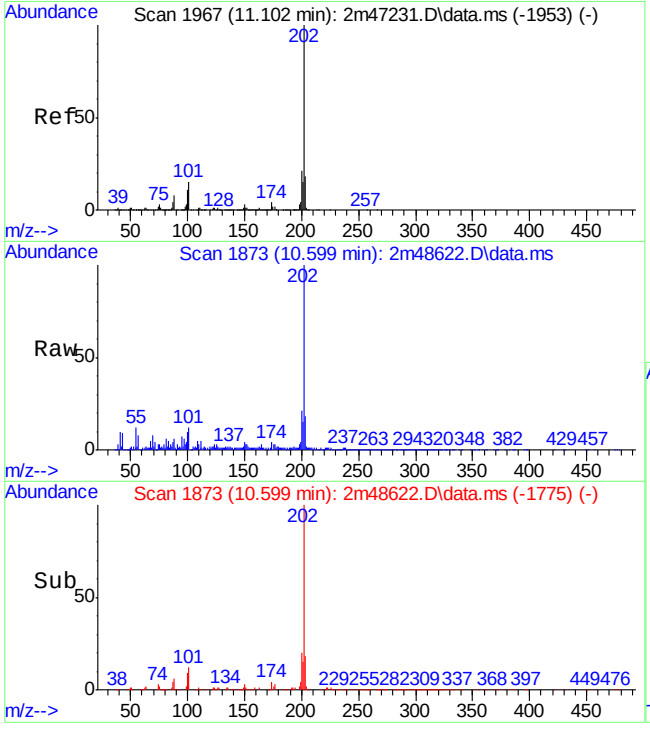


#78
Anthracene
Concen: 4.27 ppb
RT: 8.818 min Scan# 1540
Delta R.T. 0.005 min
Lab File: 2m48622.D
Acq: 19 Dec 2012 5:04 pm

Tgt Ion:178 Resp: 143181

Ion	Ratio	Lower	Upper
178	100		
179	14.8	0.0	44.3
176	15.2	0.0	48.3

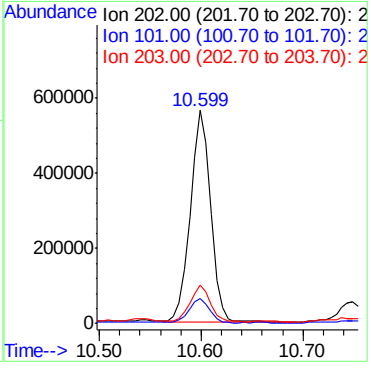


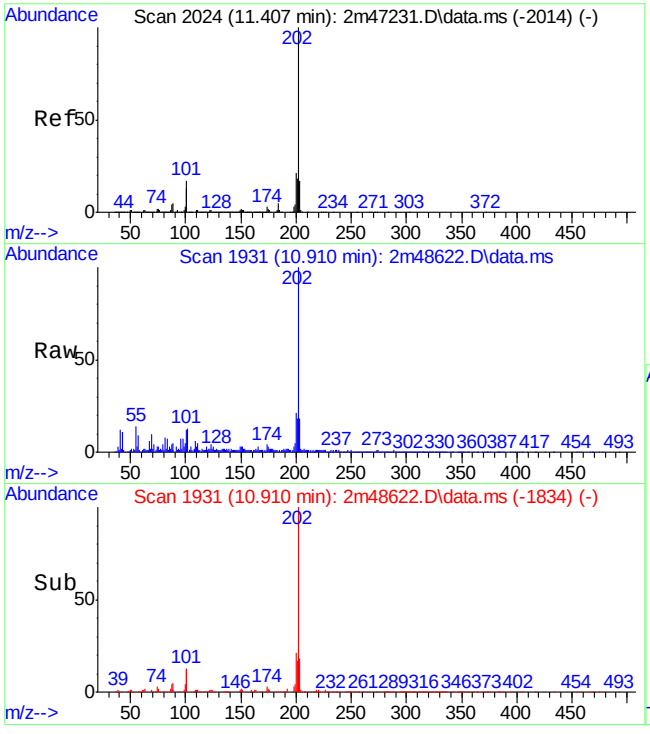


#81
Fluoranthene
Concen: 23.59 ppb
RT: 10.599 min Scan# 1873
Delta R.T. 0.027 min
Lab File: 2m48622.D
Acq: 19 Dec 2012 5:04 pm

Tgt Ion:202 Resp: 786812

Ion	Ratio	Lower	Upper
202	100		
101	11.6	0.0	43.8
203	17.2	0.0	47.5

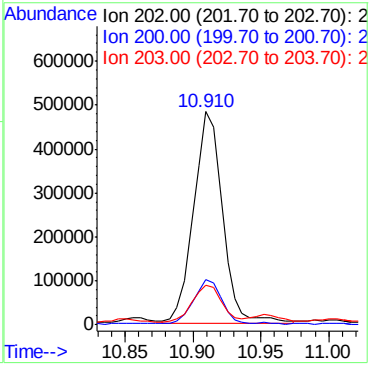


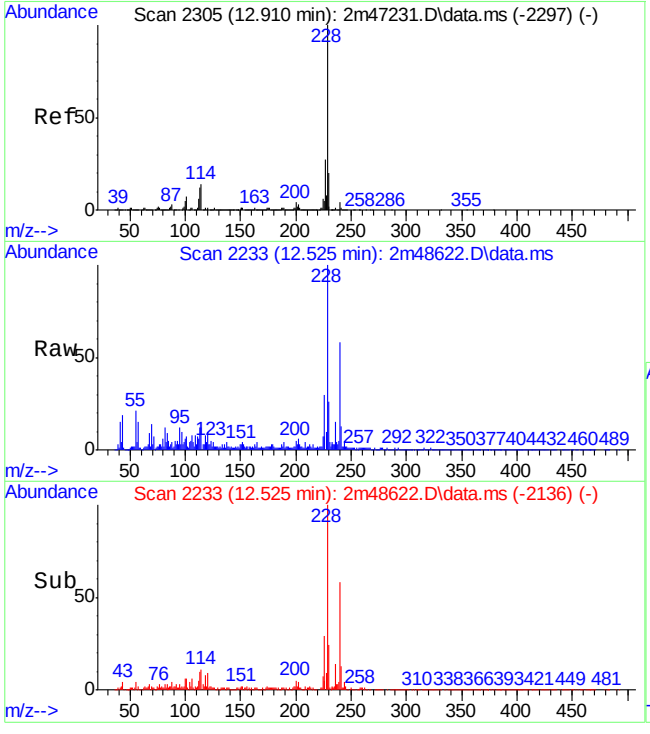


#84
Pyrene
Concen: 20.57 ppb
RT: 10.910 min Scan# 1931
Delta R.T. 0.021 min
Lab File: 2m48622.D
Acq: 19 Dec 2012 5:04 pm

Tgt Ion:202 Resp: 715143

Ion	Ratio	Lower	Upper
202	100		
200	20.9	0.0	51.3
203	17.0	0.0	47.6

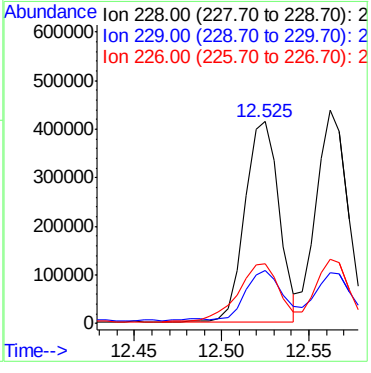




#88
Benzo[a]anthracene
Concen: 17.16 ppb
RT: 12.525 min Scan# 2233
Delta R.T. 0.021 min
Lab File: 2m48622.D
Acq: 19 Dec 2012 5:04 pm

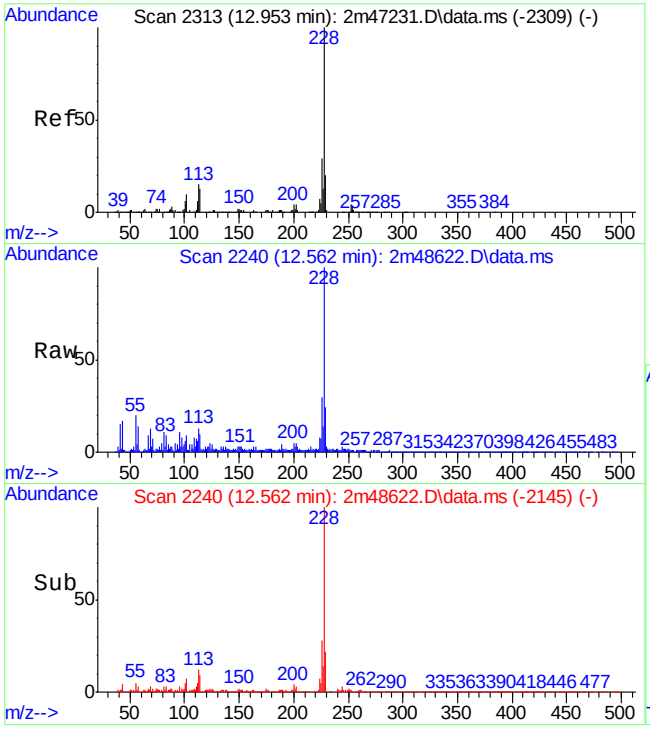
Tgt Ion:228 Resp: 567575

Ion	Ratio	Lower	Upper
228	100		
229	23.3	0.0	49.3
226	28.7	0.0	56.0



9.1.24

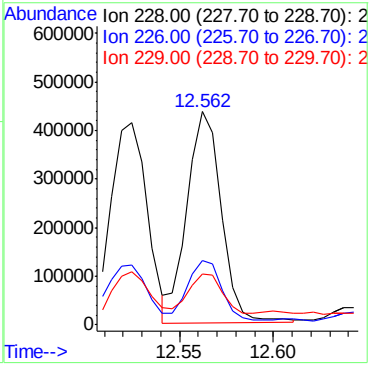
9

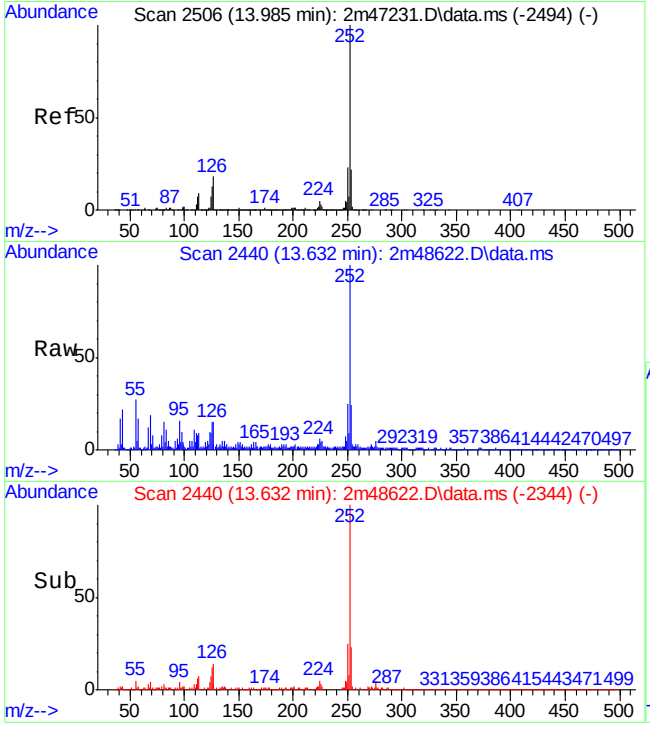


#90
Chrysene
Concen: 16.92 ppb
RT: 12.562 min Scan# 2240
Delta R.T. 0.011 min
Lab File: 2m48622.D
Acq: 19 Dec 2012 5:04 pm

Tgt Ion:228 Resp: 554535

Ion	Ratio	Lower	Upper
228	100		
226	28.3	0.0	57.7
229	18.9	0.0	49.3

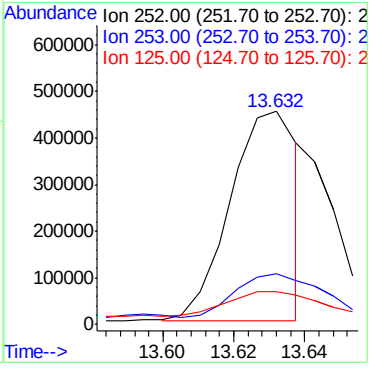


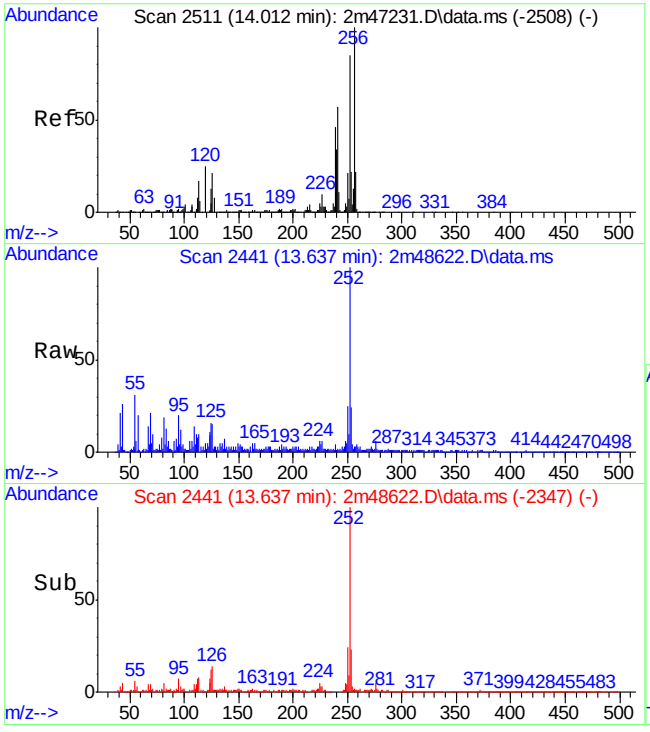


#94
Benzo[b]fluoranthene
Concen: 17.39 ppb m
RT: 13.632 min Scan# 2440
Delta R.T. 0.016 min
Lab File: 2m48622.D
Acq: 19 Dec 2012 5:04 pm

Tgt Ion:252 Resp: 589907

Ion	Ratio	Lower	Upper
252	100		
253	23.6	0.0	51.6
125	15.4	0.0	40.1

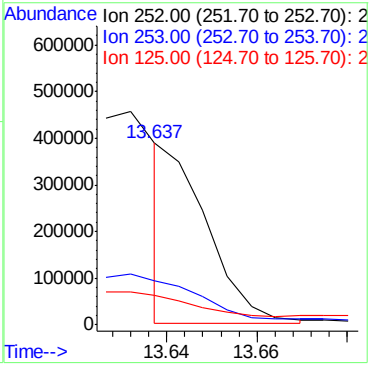


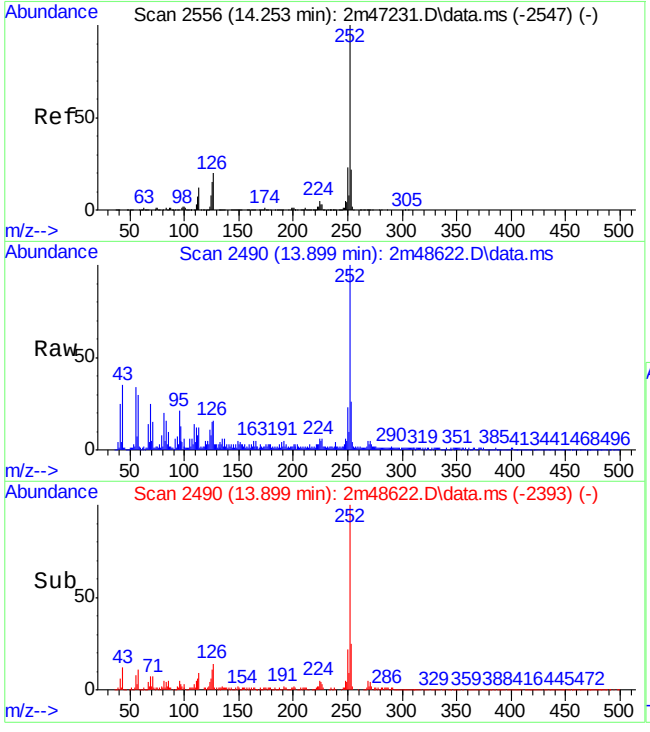


#95
Benzo[k]fluoranthene
Concen: 7.89 ppb m
RT: 13.637 min Scan# 2441
Delta R.T. 0.005 min
Lab File: 2m48622.D
Acq: 19 Dec 2012 5:04 pm

Tgt Ion:252 Resp: 240817

Ion	Ratio	Lower	Upper
252	100		
253	24.3	0.0	52.7
125	16.2	0.0	42.9

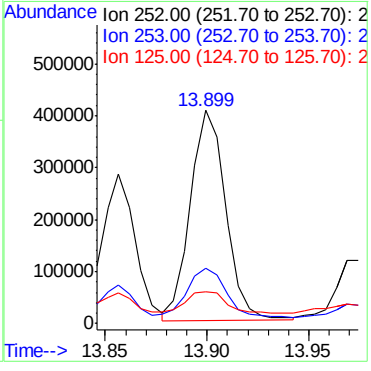




#96
Benzo[a]pyrene
Concen: 17.01 ppb
RT: 13.899 min Scan# 2490
Delta R.T. 0.021 min
Lab File: 2m48622.D
Acq: 19 Dec 2012 5:04 pm

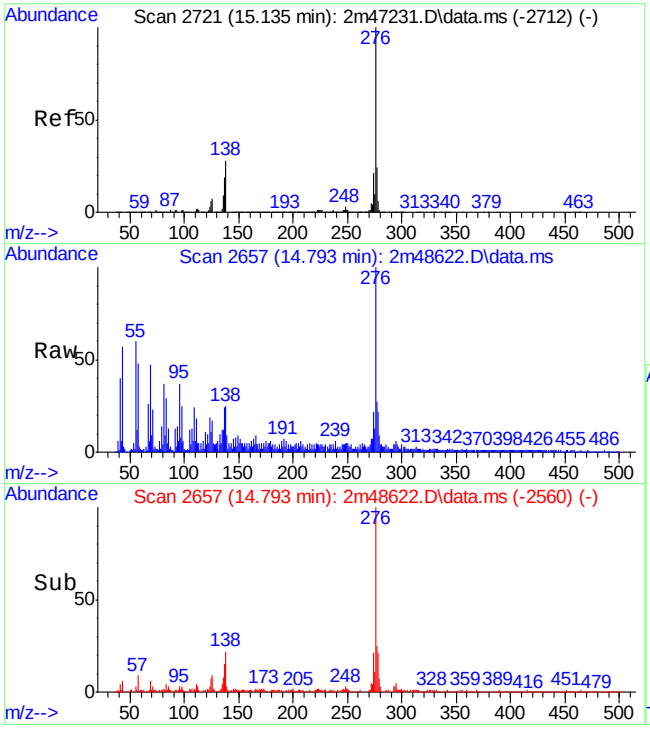
Tgt Ion:252 Resp: 490037

Ion	Ratio	Lower	Upper
252	100		
253	23.4	0.0	52.4
125	10.4	0.0	42.7



9.1.24

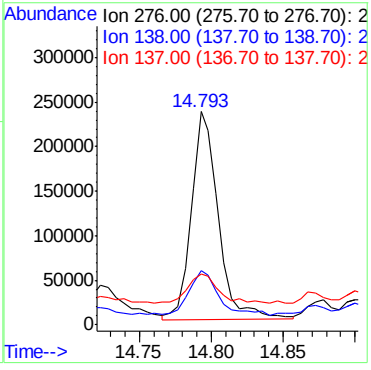
9

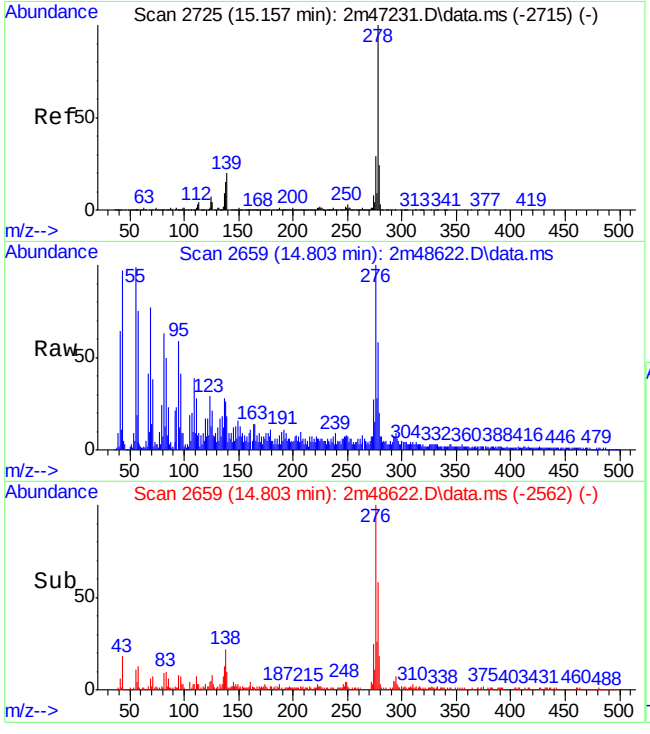


#97
Indeno[1,2,3-cd]pyrene
Concen: 9.18 ppb
RT: 14.793 min Scan# 2657
Delta R.T. 0.021 min
Lab File: 2m48622.D
Acq: 19 Dec 2012 5:04 pm

Tgt Ion:276 Resp: 307057

Ion	Ratio	Lower	Upper
276	100		
138	21.3	0.0	57.6
137	14.1	0.0	48.9

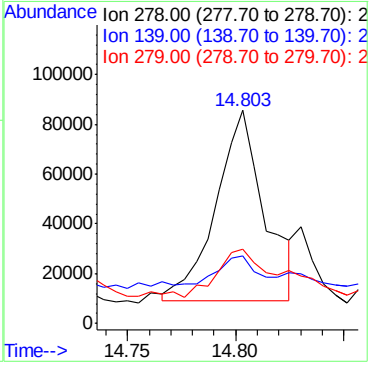




#99
Dibenz[a,h]anthracene
Concen: 4.24 ppb m
RT: 14.803 min Scan# 2659
Delta R.T. 0.021 min
Lab File: 2m48622.D
Acq: 19 Dec 2012 5:04 pm

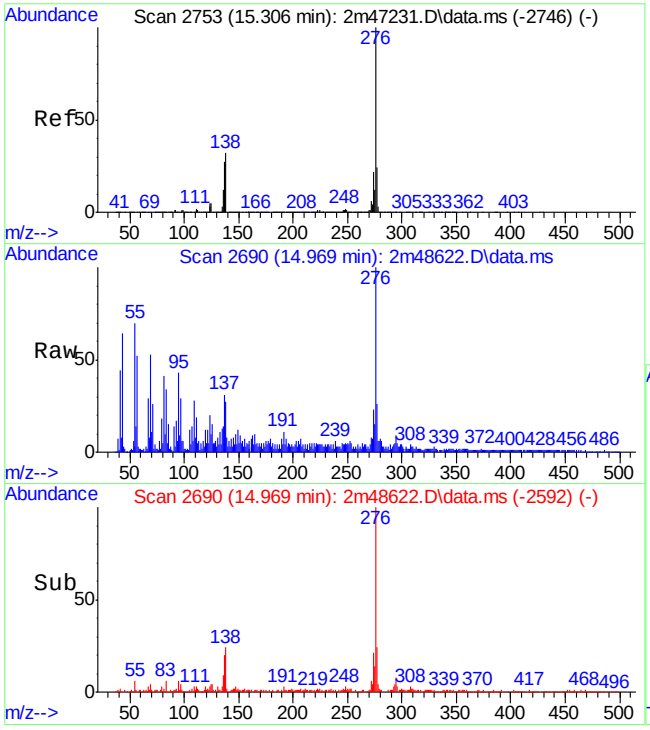
Tgt Ion:278 Resp: 119199

Ion	Ratio	Lower	Upper
278	100		
139	31.6	0.0	52.4
279	35.1	0.0	54.1



9.1.24

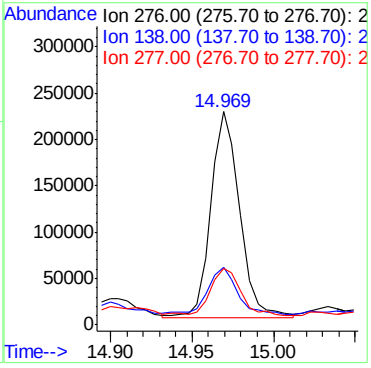
9



#101
Benzo[g,h,i]perylene
Concen: 9.69 ppb
RT: 14.969 min Scan# 2690
Delta R.T. 0.027 min
Lab File: 2m48622.D
Acq: 19 Dec 2012 5:04 pm

Tgt Ion:276 Resp: 276836

Ion	Ratio	Lower	Upper
276	100		
138	22.8	0.1	60.1
277	22.6	0.0	53.2



9.1.24

9

Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 12/21/12 18:23

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48626.D
Acq On : 19 Dec 2012 6:36 pm
Operator : olgaa
Sample : jb22962-18
Misc : op62064,e2m2082,30.8
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Dec 20 11:57:36 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Thu Dec 20 11:56:05 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.384	152	58228	40.00	ppb	0.00
24) Naphthalene-d8	3.924	136	361535	40.00	ppb	0.00
47) Acenaphthene-d10	6.540	164	273249	40.00	ppb	0.00
69) Phenanthrene-d10	8.797	188	473089	40.00	ppb	0.00
83) Chrysene-d12	12.546	240	276556	40.00	ppb	0.00
92) Perylene-d12	13.958	264	267678	40.00	ppb	0.00
102) 1,4-Dichlorobenzene-d4a	2.384	152	58228	40.00	ppb	0.00
104) Acenaphthene-d10a	6.540	164	273249	40.00	ppb	0.00
106) Chrysene-d12a	12.546	240	276556	40.00	ppb	0.00
108) Phenanthrene-d10a	8.797	188	473089	40.00	ppb	0.00
110) Chrysene-d12b	12.546	240	276556	40.00	ppb	0.00

System Monitoring Compounds						
5) 2-Fluorophenol	1.443	112	78966	37.27	ppb	0.00
Spiked Amount 50.000			Recovery = 74.54%			
8) Phenol-d5	2.277	99	174495	61.44	ppb	0.00
Spiked Amount 50.000			Recovery = 122.88%			
25) Nitrobenzene-d5	3.063	82	183344	47.27	ppb	0.00
Spiked Amount 50.000			Recovery = 94.54%			
51) 2-Fluorobiphenyl	5.588	172	297800	33.14	ppb	0.00
Spiked Amount 50.000			Recovery = 66.28%			
73) 2,4,6-Tribromophenol	7.829	330	53707	48.31	ppb	0.00
Spiked Amount 50.000			Recovery = 96.62%			
85) Terphenyl-d14	11.338	244	257317	46.04	ppb	0.00
Spiked Amount 50.000			Recovery = 92.08%			

Target Compounds						Qvalue
59) Acenaphthene	6.588	153	519191m	61.20	ppb	
66) Fluorene	7.385	166	1249116	135.99	ppb	96
77) Phenanthrene	8.840	178	3634599	250.95	ppb	97
78) Anthracene	8.904	178	297674	20.74	ppb	83
81) Fluoranthene	10.658	202	175889	12.31	ppb	83
84) Pyrene	10.963	202	190541	21.30	ppb	93
88) Benzo[a]anthracene	12.536	228	47737	5.61	ppb	92
90) Chrysene	12.573	228	68543	8.13	ppb	86
94) Benzo[b]fluoranthene	13.632	252	71039m	7.62	ppb	
95) Benzo[k]fluoranthene	13.643	252	25493m	3.04	ppb	
96) Benzo[a]pyrene	13.905	252	39586	5.00	ppb	91
97) Indeno[1,2,3-cd]pyrene	14.803	276	42868	4.66	ppb	72
99) Dibenz[a,h]anthracene	14.814	278	15999	2.07	ppb	75
101) Benzo[g,h,i]perylene	14.980	276	48351	6.16	ppb	87

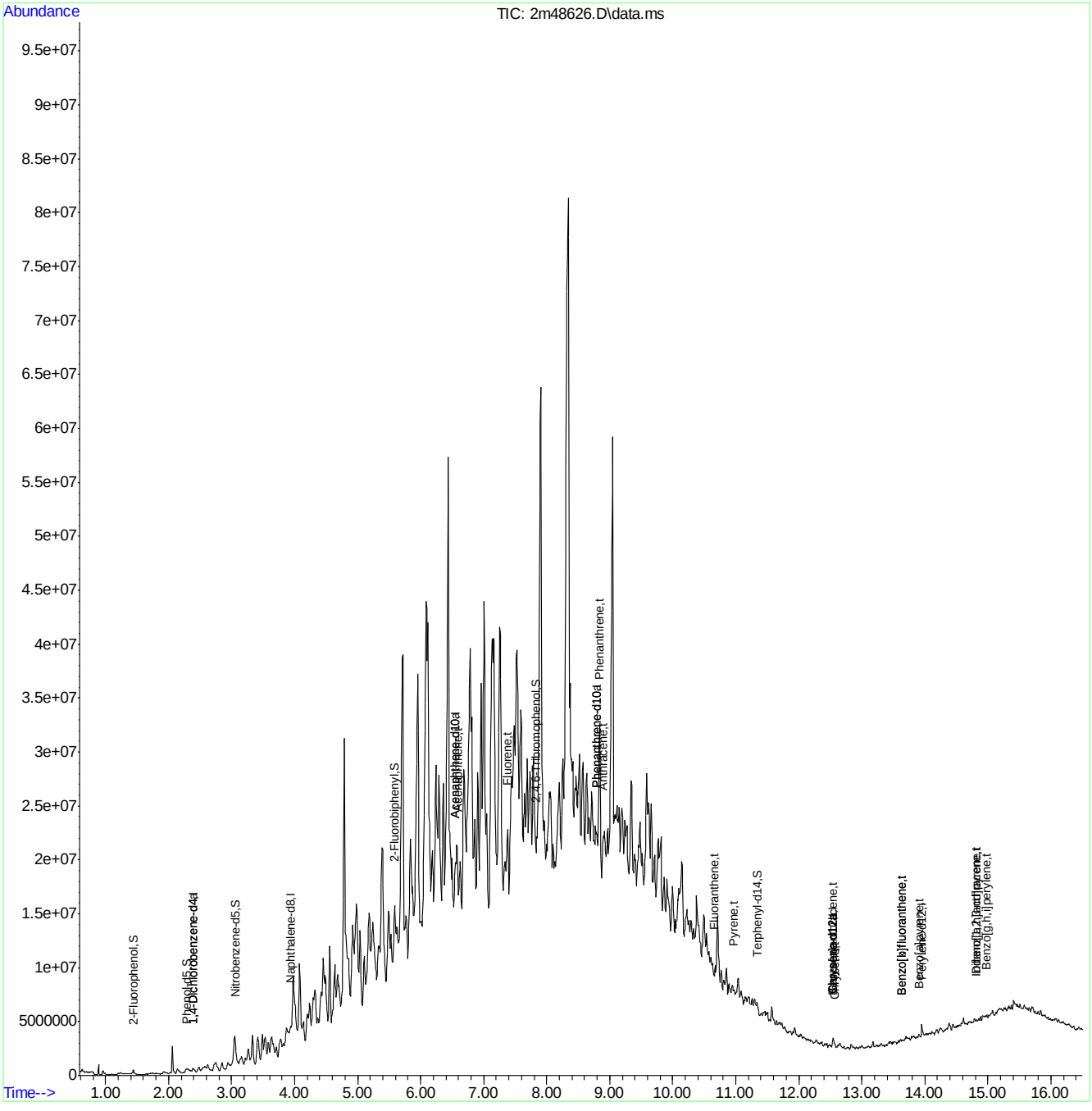
(#) = qualifier out of range (m) = manual integration (+) = signals summed

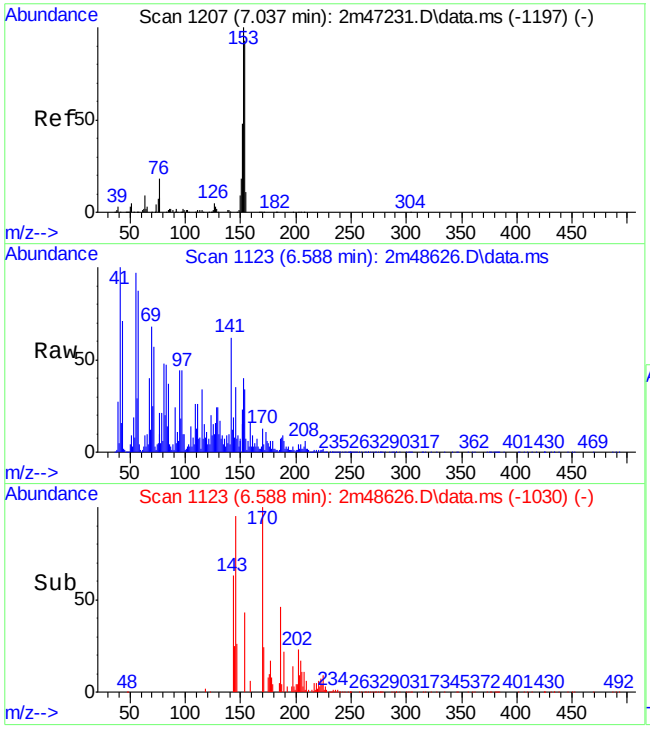
9.1.25
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48626.D
Acq On : 19 Dec 2012 6:36 pm
Operator : olgaa
Sample : jb22962-18
Misc : op62064,e2m2082,30.8
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Dec 20 11:57:36 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Thu Dec 20 11:56:05 2012
Response via : Initial Calibration

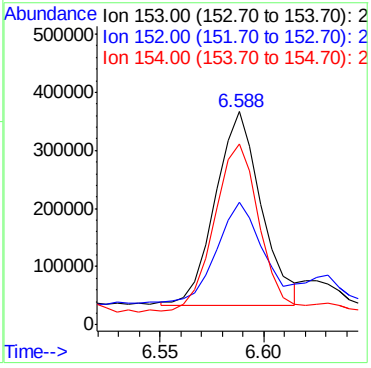


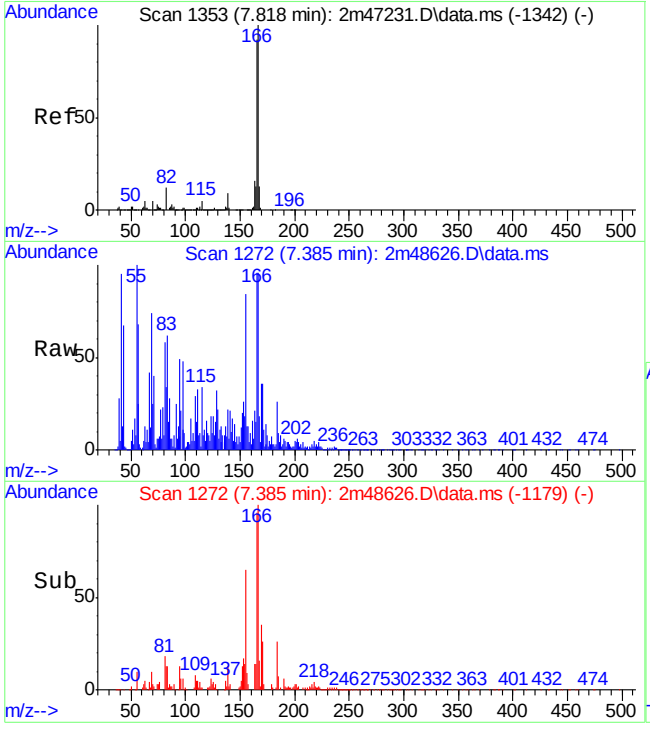


#59
Acenaphthene
Concen: 61.20 ppb m
RT: 6.588 min Scan# 1123
Delta R.T. 0.000 min
Lab File: 2m48626.D
Acq: 19 Dec 2012 6:36 pm

Tgt Ion:153 Resp: 519191

Ion	Ratio	Lower	Upper
153	100		
152	57.3	15.8	75.8
154	84.9	59.7	119.7

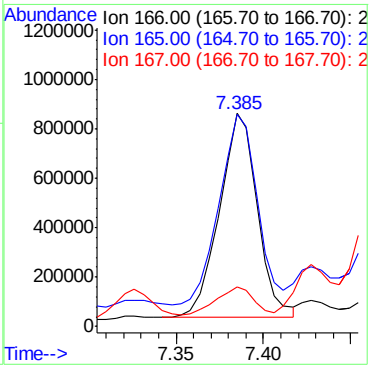




#66
Fluorene
Concen: 135.99 ppb
RT: 7.385 min Scan# 1272
Delta R.T. 0.000 min
Lab File: 2m48626.D
Acq: 19 Dec 2012 6:36 pm

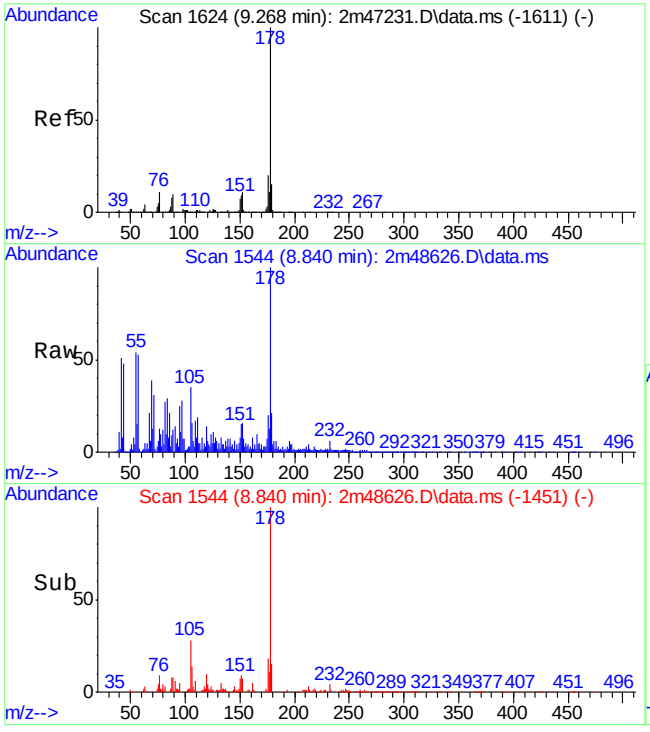
Tgt Ion:166 Resp: 1249116

Ion	Ratio	Lower	Upper
166	100		
165	89.9	61.9	121.9
167	7.0	0.0	43.1



9.1.25

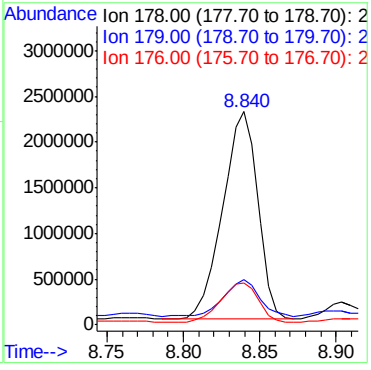
9

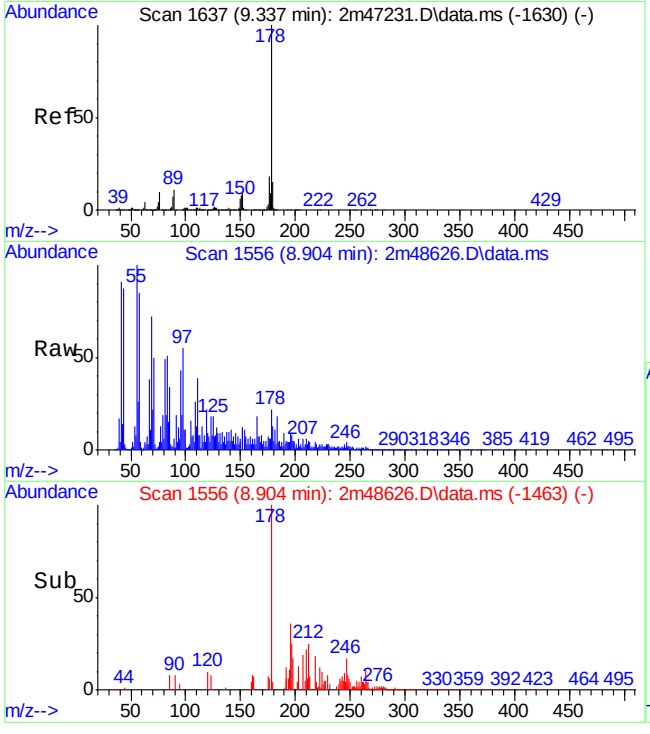


#77
Phenanthrene
Concen: 250.95 ppb
RT: 8.840 min Scan# 1544
Delta R.T. 0.000 min
Lab File: 2m48626.D
Acq: 19 Dec 2012 6:36 pm

Tgt Ion:178 Resp: 3634599

Ion	Ratio	Lower	Upper
178	100		
179	17.4	0.0	44.9
176	19.1	0.0	49.1

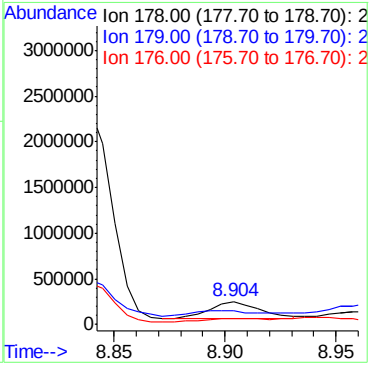




#78
Anthracene
Concen: 20.74 ppb
RT: 8.904 min Scan# 1556
Delta R.T. 0.000 min
Lab File: 2m48626.D
Acq: 19 Dec 2012 6:36 pm

Tgt Ion:178 Resp: 297674

Ion	Ratio	Lower	Upper
178	100		
179	21.2	0.0	44.3
176	10.6	0.0	48.3



9.1.25

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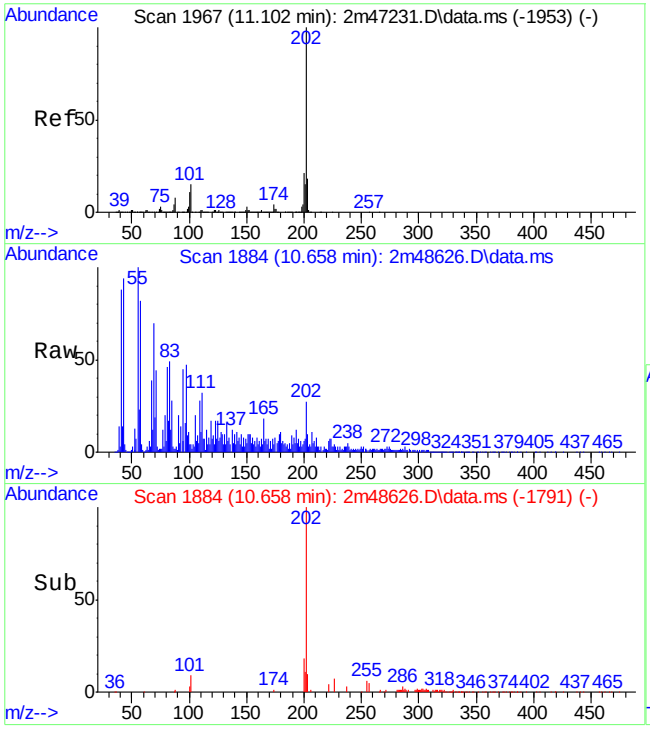
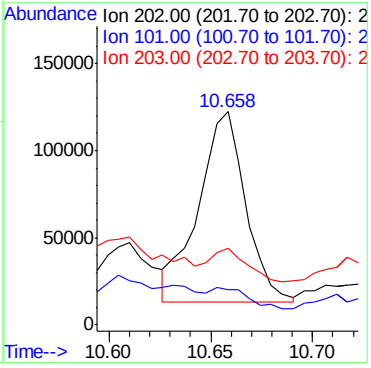
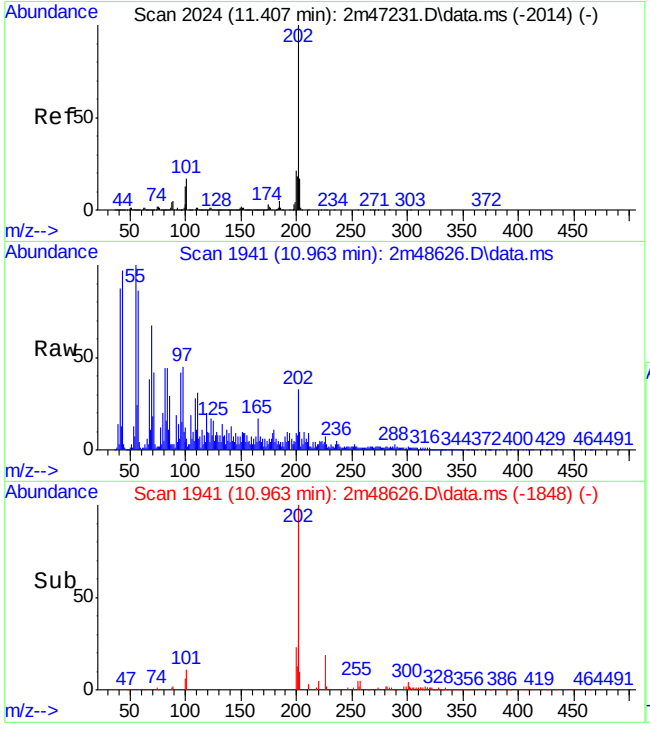


#81
Fluoranthene
Concen: 12.31 ppb
RT: 10.658 min Scan# 1884
Delta R.T. 0.000 min
Lab File: 2m48626.D
Acq: 19 Dec 2012 6:36 pm

Tgt Ion:202 Resp: 175889

Ion	Ratio	Lower	Upper
202	100		
101	5.0	0.0	43.8
203	11.5	0.0	47.5

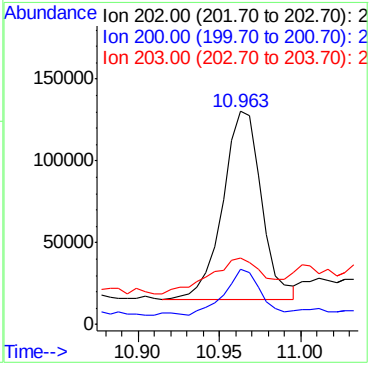




#84
Pyrene
Concen: 21.30 ppb
RT: 10.963 min Scan# 1941
Delta R.T. 0.000 min
Lab File: 2m48626.D
Acq: 19 Dec 2012 6:36 pm

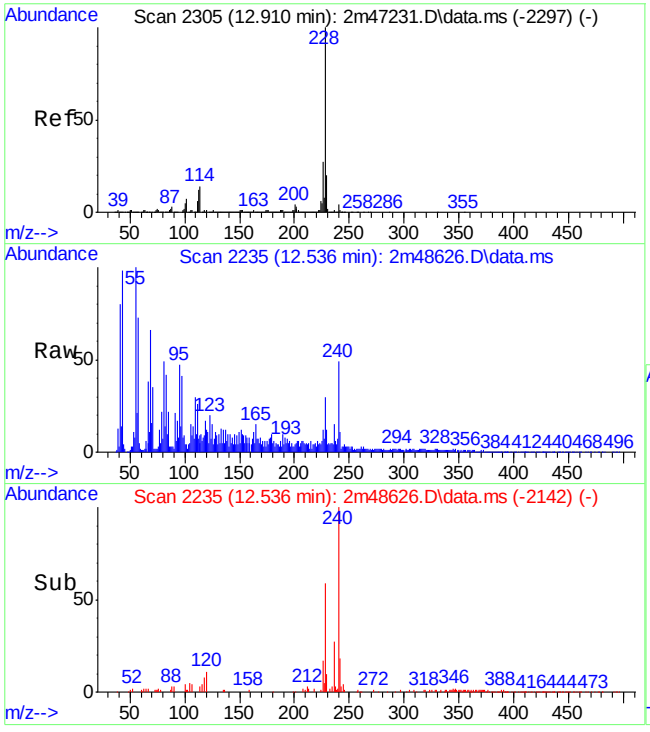
Tgt Ion:202 Resp: 190541

Ion	Ratio	Lower	Upper
202	100		
200	23.4	0.0	51.3
203	13.7	0.0	47.6



9.1.25

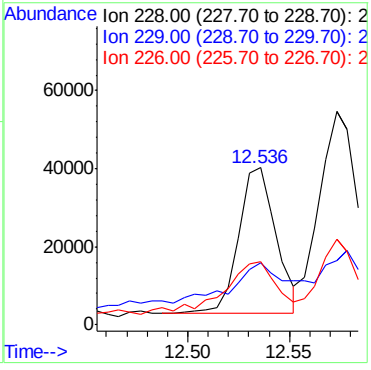
9

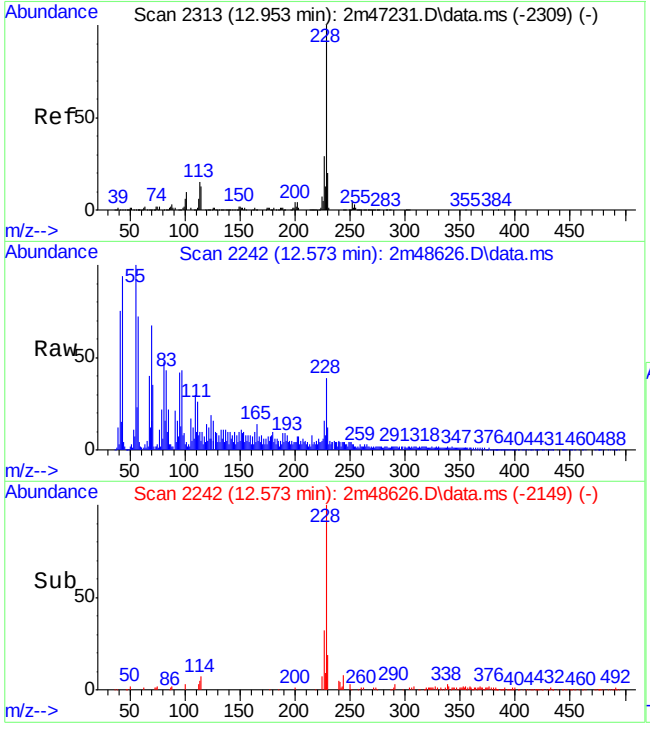


#88
Benzo[a]anthracene
Concen: 5.61 ppb
RT: 12.536 min Scan# 2235
Delta R.T. 0.000 min
Lab File: 2m48626.D
Acq: 19 Dec 2012 6:36 pm

Tgt Ion:228 Resp: 47737

Ion	Ratio	Lower	Upper
228	100		
229	20.5	0.0	49.3
226	32.3	0.0	56.0

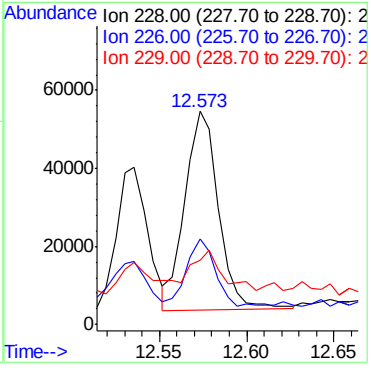


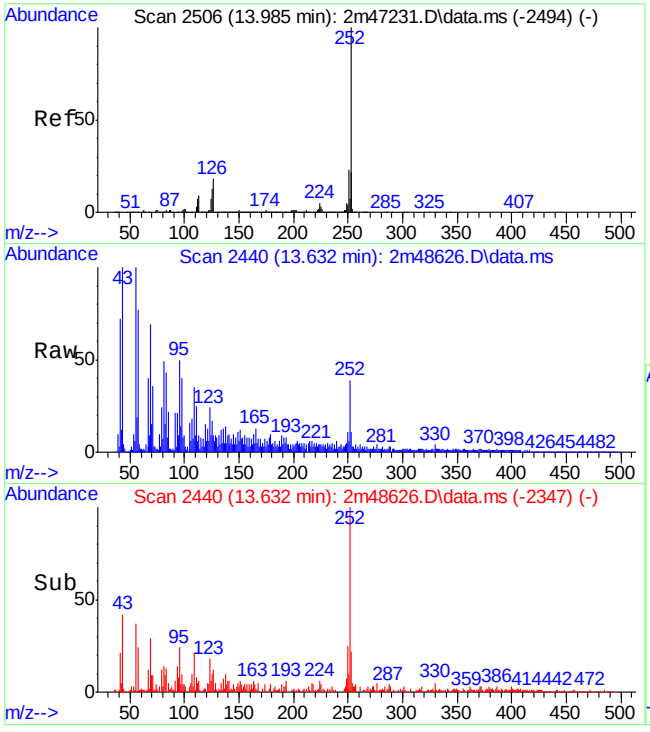


#90
Chrysene
Concen: 8.13 ppb
RT: 12.573 min Scan# 2242
Delta R.T. 0.000 min
Lab File: 2m48626.D
Acq: 19 Dec 2012 6:36 pm

Tgt Ion:228 Resp: 68543

Ion	Ratio	Lower	Upper
228	100		
226	34.8	0.0	57.7
229	13.1	0.0	49.3

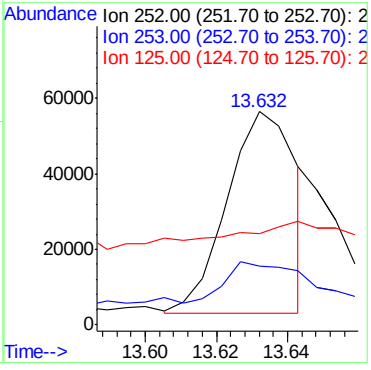


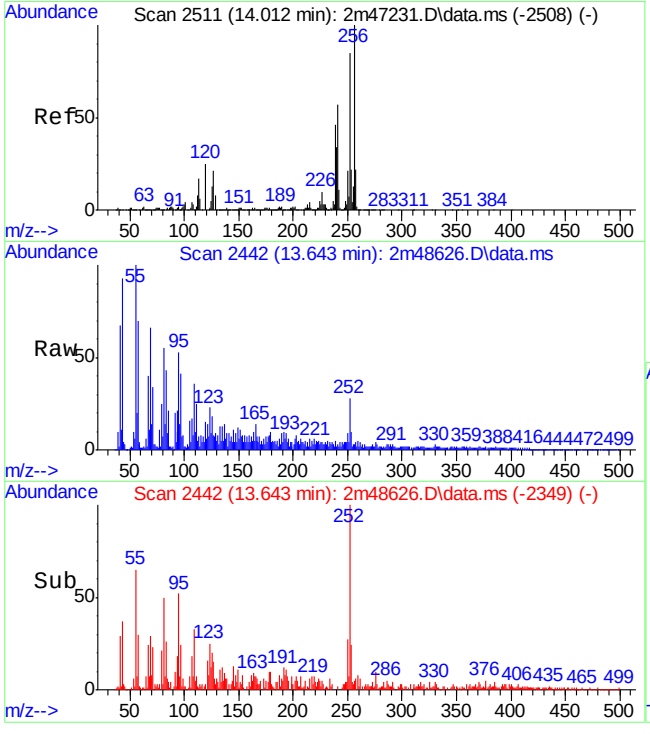


#94
Benzo[b]fluoranthene
Concen: 7.62 ppb m
RT: 13.632 min Scan# 2440
Delta R.T. 0.000 min
Lab File: 2m48626.D
Acq: 19 Dec 2012 6:36 pm

Tgt Ion:252 Resp: 71039

Ion	Ratio	Lower	Upper
252	100		
253	27.7	0.0	51.6
125	42.8	0.0	40.1#

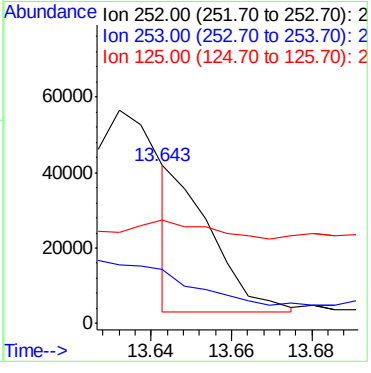




#95
Benzo[k]fluoranthene
Concen: 3.04 ppb m
RT: 13.643 min Scan# 2442
Delta R.T. 0.000 min
Lab File: 2m48626.D
Acq: 19 Dec 2012 6:36 pm

Tgt Ion:252 Resp: 25493

Ion	Ratio	Lower	Upper
252	100		
253	34.5	0.0	52.7
125	65.1	0.0	42.9#



9.1.25

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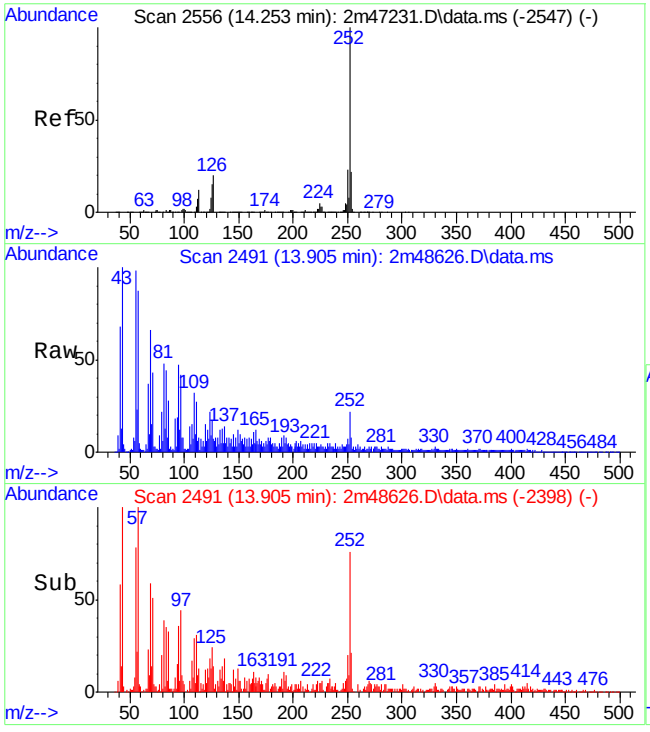
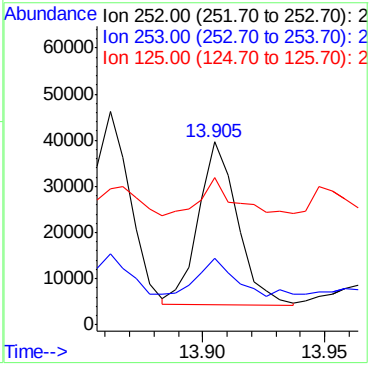
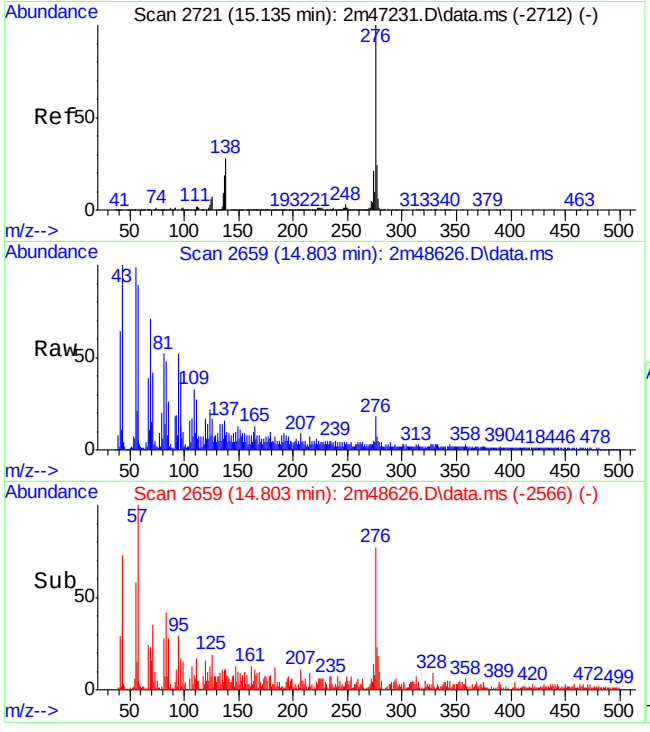


#96
Benzo[a]pyrene
Concen: 5.00 ppb
RT: 13.905 min Scan# 2491
Delta R.T. 0.000 min
Lab File: 2m48626.D
Acq: 19 Dec 2012 6:36 pm

Tgt Ion:252 Resp: 39586

Ion	Ratio	Lower	Upper
252	100		
253	22.5	0.0	52.4
125	22.9	0.0	42.7

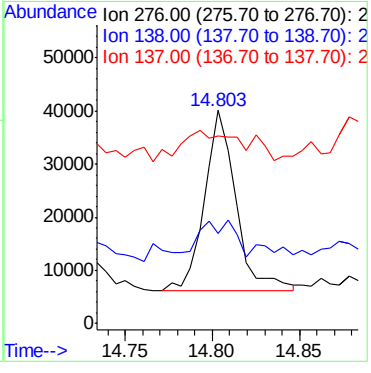


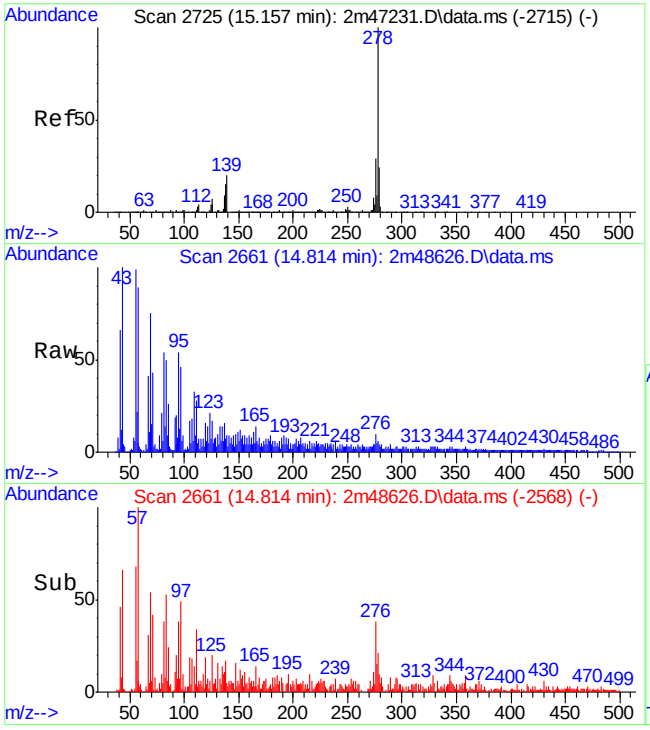


#97
Indeno[1,2,3-cd]pyrene
Concen: 4.66 ppb
RT: 14.803 min Scan# 2659
Delta R.T. 0.000 min
Lab File: 2m48626.D
Acq: 19 Dec 2012 6:36 pm

Tgt Ion:276 Resp: 42868

Ion	Ratio	Lower	Upper
276	100		
138	10.9	0.0	57.6
137	9.4	0.0	48.9

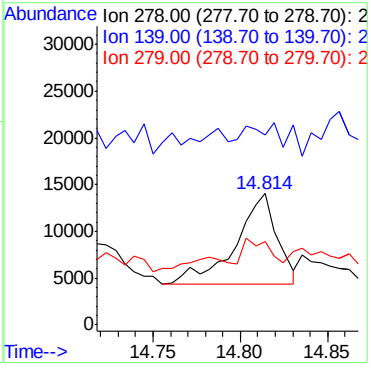


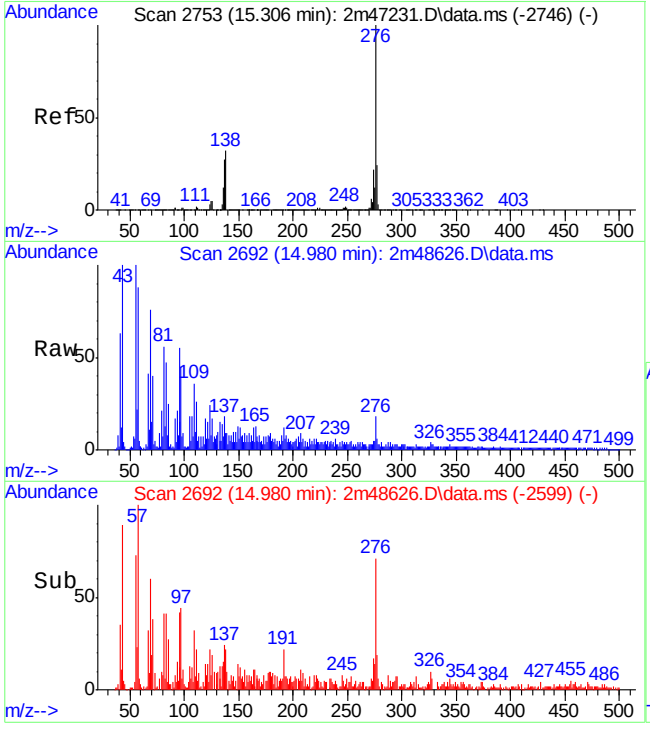


#99
Dibenz[a,h]anthracene
Concen: 2.07 ppb
RT: 14.814 min Scan# 2661
Delta R.T. 0.000 min
Lab File: 2m48626.D
Acq: 19 Dec 2012 6:36 pm

Tgt Ion:278 Resp: 15999

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	52.4
279	21.6	0.0	54.1

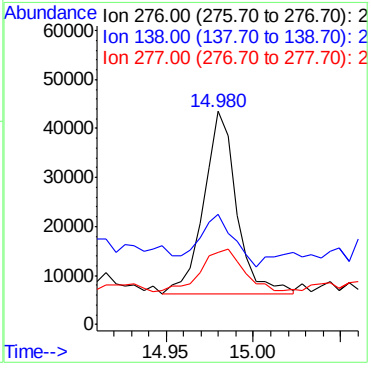




#101
Benzo[g,h,i]perylene
Concen: 6.16 ppb
RT: 14.980 min Scan# 2692
Delta R.T. 0.000 min
Lab File: 2m48626.D
Acq: 19 Dec 2012 6:36 pm

Tgt Ion:276 Resp: 48351

Ion	Ratio	Lower	Upper
276	100		
138	19.1	0.1	60.1
277	21.0	0.0	53.2



9.1.25

9

Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 12/21/12 18:23

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2083\
Data File : 2m48644.D
Acq On : 20 Dec 2012 1:14 pm
Operator : olgaa
Sample : jb22962-18
Misc : op62064,e2m2083,30.8,,,1,5
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Dec 20 13:33:51 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.373	152	177348	40.00	ppb	-0.02
24) Naphthalene-d8	3.898	136	836689	40.00	ppb	-0.02
47) Acenaphthene-d10	6.481	164	574136	40.00	ppb	0.00
69) Phenanthrene-d10	8.727	188	1028917	40.00	ppb	0.02
83) Chrysene-d12	12.514	240	947151	40.00	ppb	-0.01
92) Perylene-d12	13.921	264	881816	40.00	ppb	0.00
102) 1,4-Dichlorobenzene-d4a	2.373	152	177348	40.00	ppb	-0.02
104) Acenaphthene-d10a	6.481	164	574136	40.00	ppb	0.00
106) Chrysene-d12a	12.514	240	947151	40.00	ppb	-0.01
108) Phenanthrene-d10a	8.727	188	1028917	40.00	ppb	0.02
110) Chrysene-d12b	12.514	240	947151	40.00	ppb	-0.01

System Monitoring Compounds						
5) 2-Fluorophenol	1.432	112	23623	3.66	ppb	0.00
Spiked Amount 50.000			Recovery	=	7.32%	
8) Phenol-d5	2.240	99	36795	4.25	ppb	0.02
Spiked Amount 50.000			Recovery	=	8.50%	
25) Nitrobenzene-d5	3.063	82	42914	4.78	ppb	0.00
Spiked Amount 50.000			Recovery	=	9.56%	
51) 2-Fluorobiphenyl	5.550	172	103440	5.48	ppb	-0.01
Spiked Amount 50.000			Recovery	=	10.96%	
73) 2,4,6-Tribromophenol	7.759	330	17181	7.11	ppb	0.02
Spiked Amount 50.000			Recovery	=	14.22%	
85) Terphenyl-d14	11.289	244	131951	6.89	ppb	0.00
Spiked Amount 50.000			Recovery	=	13.78%	

Target Compounds						Qvalue
59) Acenaphthene	6.529	153	199553	11.19	ppb	94
66) Fluorene	7.315	166	442059	22.90	ppb	98
77) Phenanthrene	8.760	178	1332595	42.31	ppb	97
78) Anthracene	8.829	178	99631	3.19	ppb	80
81) Fluoranthene	10.583	202	78084	2.51	ppb	76
84) Pyrene	10.899	202	96163	3.14	ppb	95
88) Benzo[a]anthracene	12.498	228	34618	1.19	ppb	87
90) Chrysene	12.541	228	33725	1.17	ppb	85
94) Benzo[b]fluoranthene	13.600	252	45345m	1.48	ppb	
95) Benzo[k]fluoranthene	13.616	252	11869m	0.43	ppb	
96) Benzo[a]pyrene	13.873	252	19882	0.76	ppb	90
97) Indeno[1,2,3-cd]pyrene	14.771	276	18701m	0.62	ppb	
101) Benzo[g,h,i]perylene	14.948	276	19911m	0.77	ppb	

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

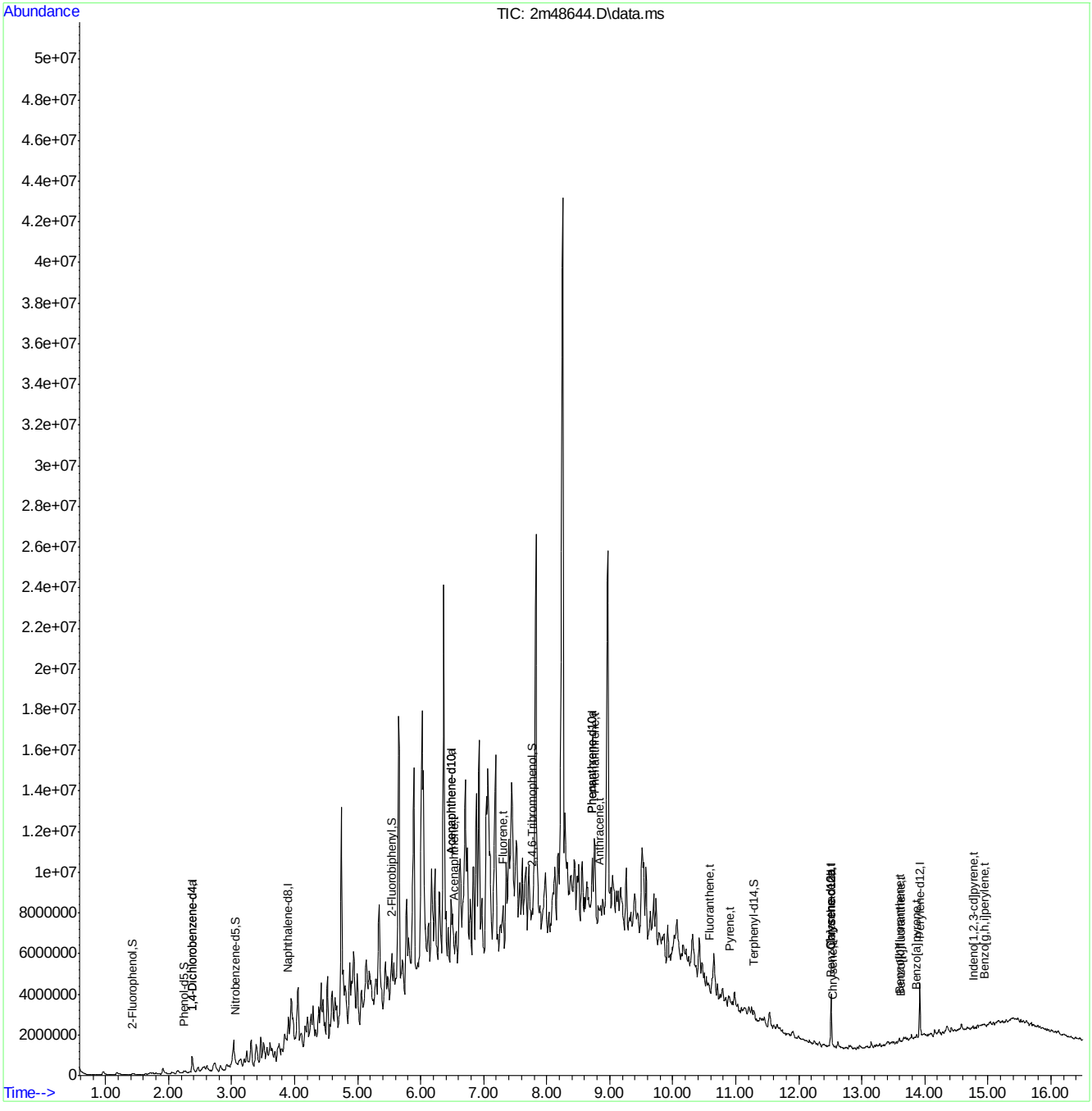
9.1.26

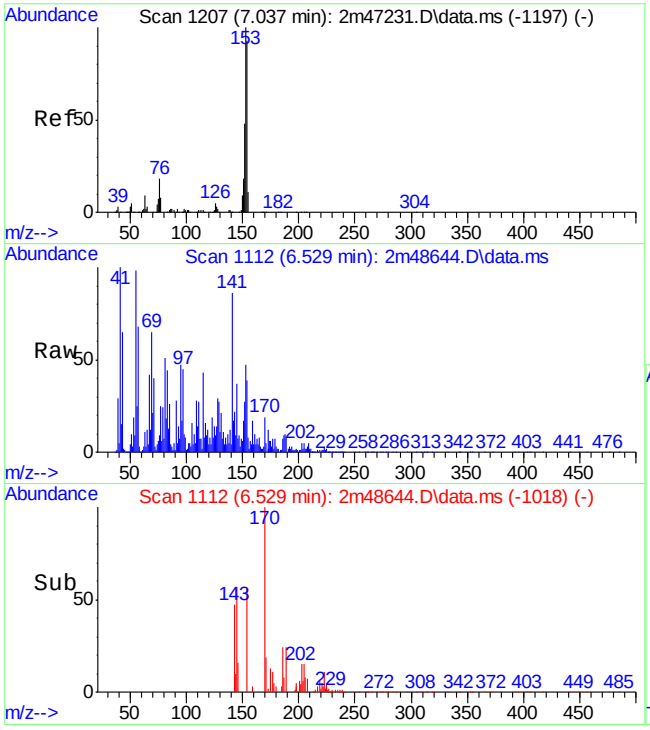
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2083\
Data File : 2m48644.D
Acq On : 20 Dec 2012 1:14 pm
Operator : olgaa
Sample : jb22962-18
Misc : op62064,e2m2083,30.8,,,1,5
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Dec 20 13:33:51 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration

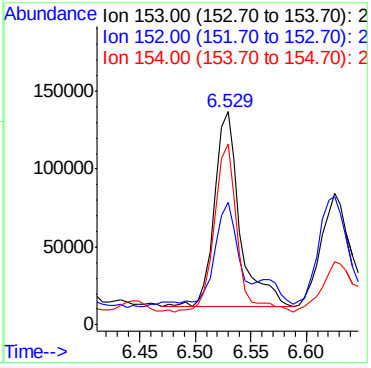


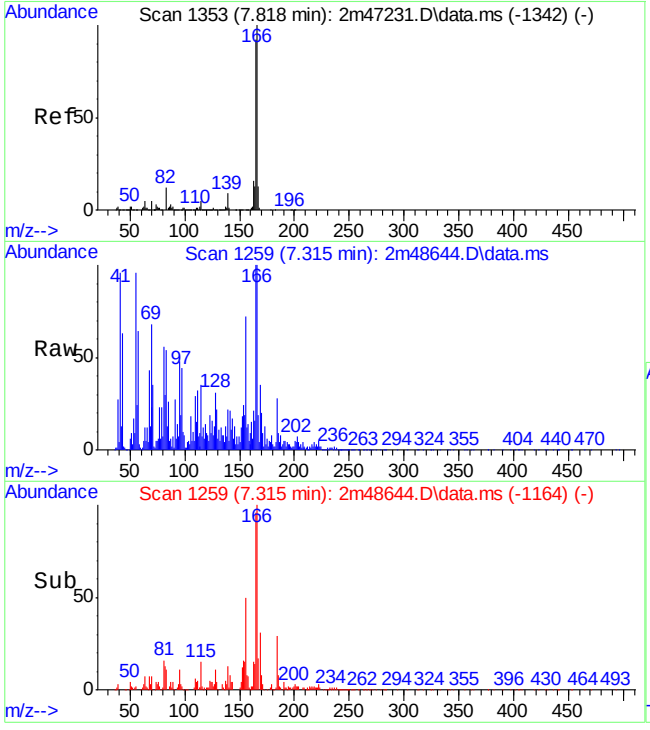


#59
Acenaphthene
Concen: 11.19 ppb
RT: 6.529 min Scan# 1112
Delta R.T. 0.005 min
Lab File: 2m48644.D
Acq: 20 Dec 2012 1:14 pm

Tgt Ion:153 Resp: 199553

Ion	Ratio	Lower	Upper
153	100		
152	51.5	15.8	75.8
154	85.9	59.7	119.7

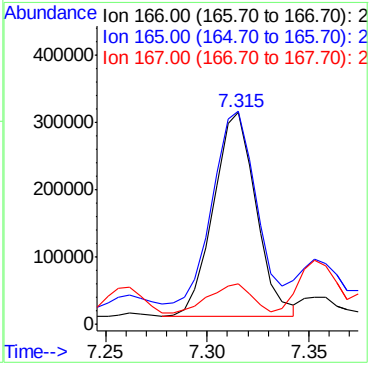




#66
Fluorene
Concen: 22.90 ppb
RT: 7.315 min Scan# 1259
Delta R.T. 0.011 min
Lab File: 2m48644.D
Acq: 20 Dec 2012 1:14 pm

Tgt Ion:166 Resp: 442059

Ion	Ratio	Lower	Upper
166	100		
165	91.3	61.9	121.9
167	10.1	0.0	43.1



9.1.26

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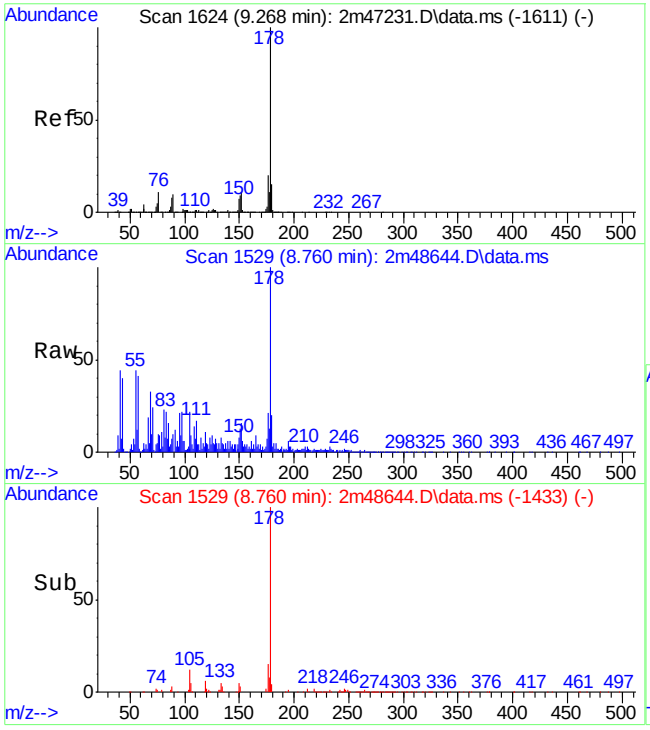
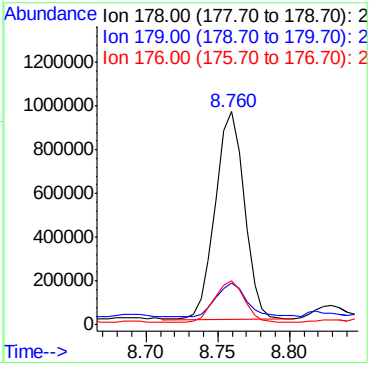
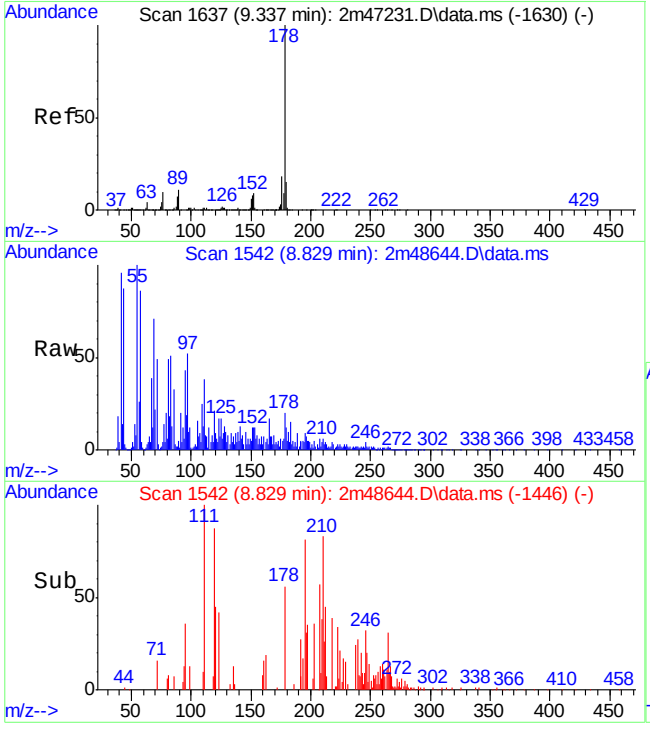


#77
Phenanthrene
Concen: 42.31 ppb
RT: 8.760 min Scan# 1529
Delta R.T. 0.016 min
Lab File: 2m48644.D
Acq: 20 Dec 2012 1:14 pm

Tgt Ion:178 Resp: 1332595

Ion	Ratio	Lower	Upper
178	100		
179	16.0	0.0	44.9
176	20.2	0.0	49.1

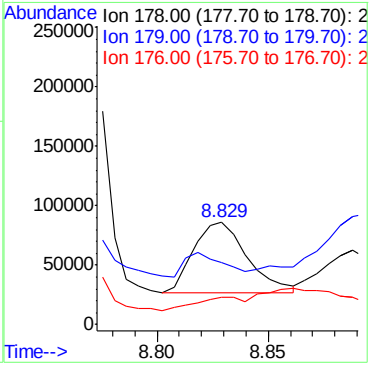




#78
Anthracene
Concen: 3.19 ppb
RT: 8.829 min Scan# 1542
Delta R.T. 0.016 min
Lab File: 2m48644.D
Acq: 20 Dec 2012 1:14 pm

Tgt Ion:178 Resp: 99631

Ion	Ratio	Lower	Upper
178	100		
179	12.6	0.0	44.3
176	3.6	0.0	48.3



9.1.26

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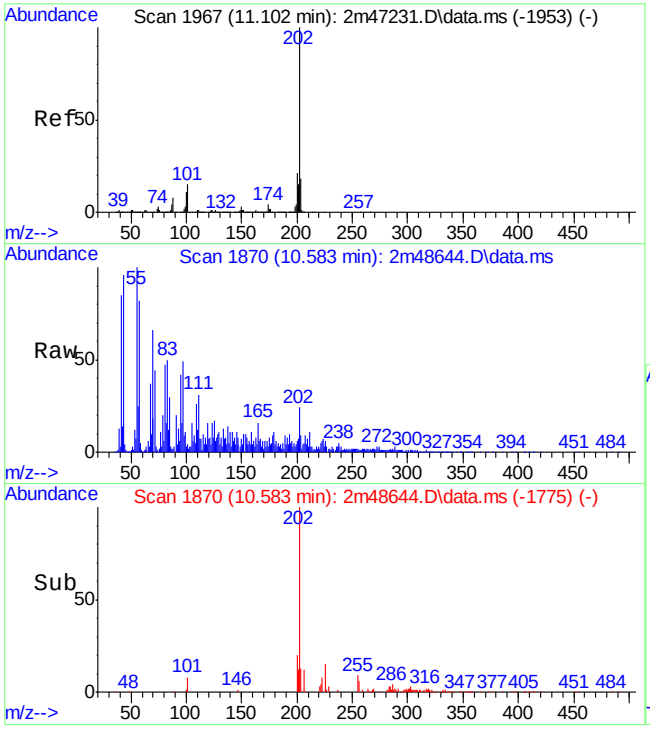
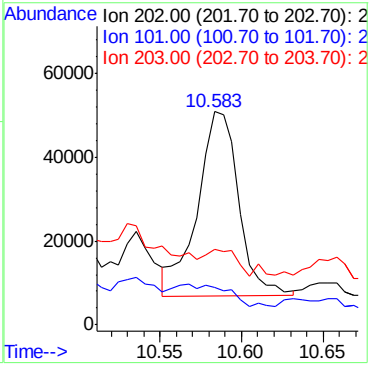
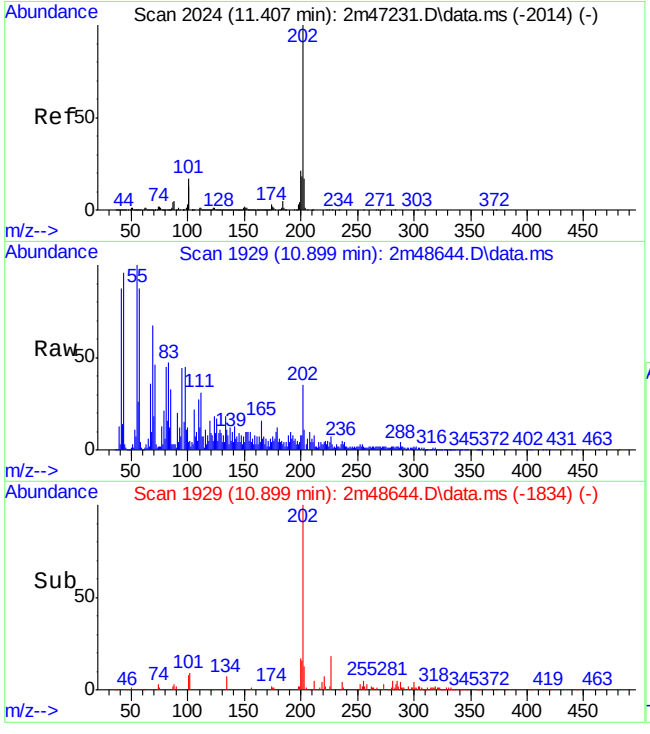


#81
Fluoranthene
Concen: 2.51 ppb
RT: 10.583 min Scan# 1870
Delta R.T. 0.011 min
Lab File: 2m48644.D
Acq: 20 Dec 2012 1:14 pm

Tgt Ion:202 Resp: 78084

Ion	Ratio	Lower	Upper
202	100		
101	5.1	0.0	43.8
203	6.3	0.0	47.5

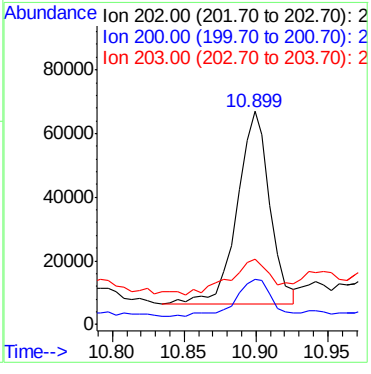




#84
Pyrene
Concen: 3.14 ppb
RT: 10.899 min Scan# 1929
Delta R.T. 0.011 min
Lab File: 2m48644.D
Acq: 20 Dec 2012 1:14 pm

Tgt Ion:202 Resp: 96163

Ion	Ratio	Lower	Upper
202	100		
200	19.3	0.0	51.3
203	15.2	0.0	47.6



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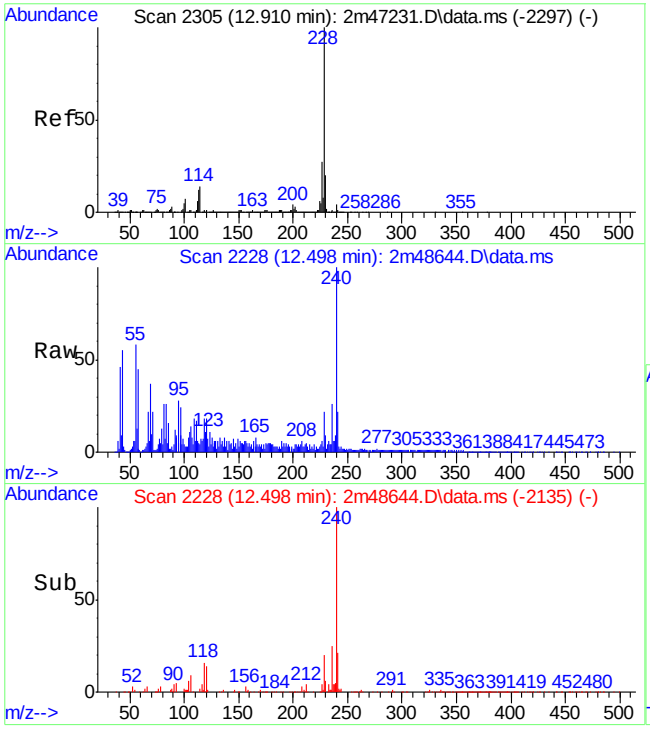
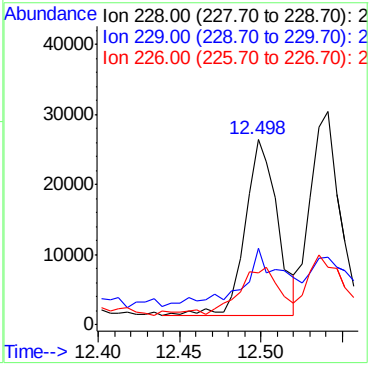
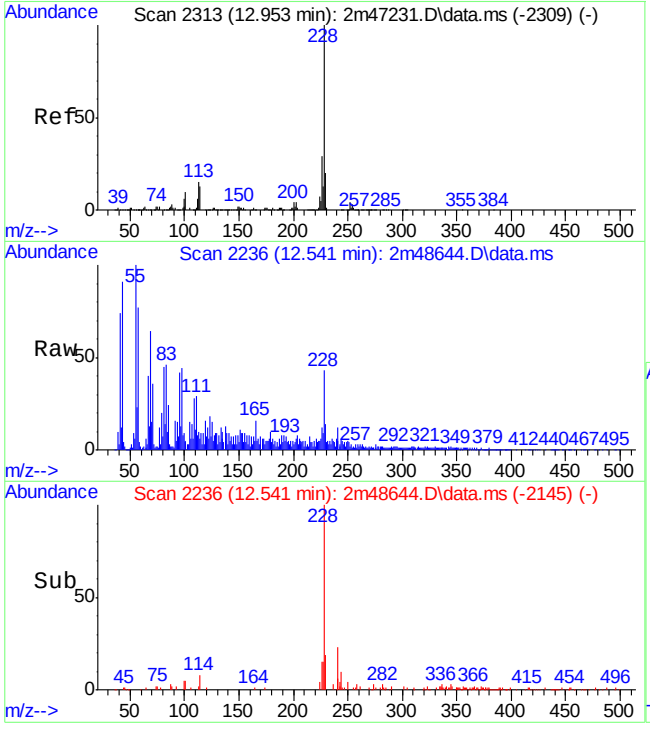


#88
Benzo[a]anthracene
Concen: 1.19 ppb
RT: 12.498 min Scan# 2228
Delta R.T. -0.005 min
Lab File: 2m48644.D
Acq: 20 Dec 2012 1:14 pm

Tgt Ion:228 Resp: 34618

Ion	Ratio	Lower	Upper
228	100		
229	28.1	0.0	49.3
226	22.1	0.0	56.0

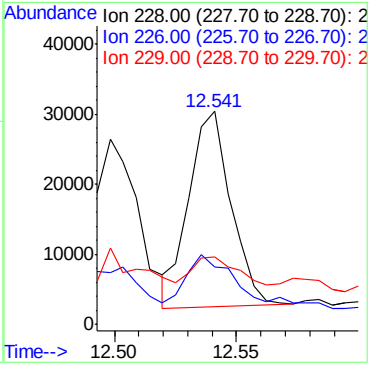




#90
Chrysene
Concen: 1.17 ppb
RT: 12.541 min Scan# 2236
Delta R.T. -0.011 min
Lab File: 2m48644.D
Acq: 20 Dec 2012 1:14 pm

Tgt Ion:228 Resp: 33725

Ion	Ratio	Lower	Upper
228	100		
226	20.0	0.0	57.7
229	11.7	0.0	49.3



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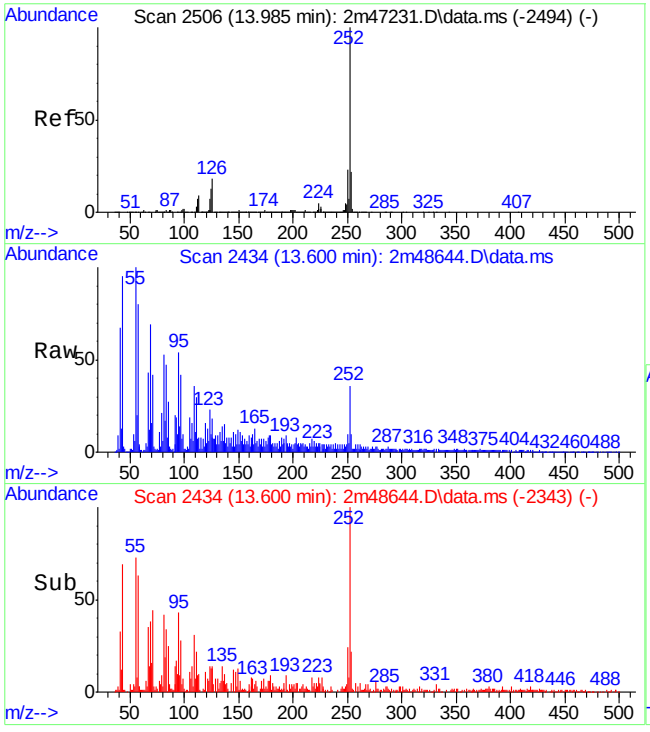
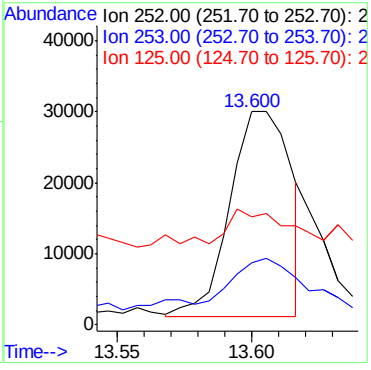
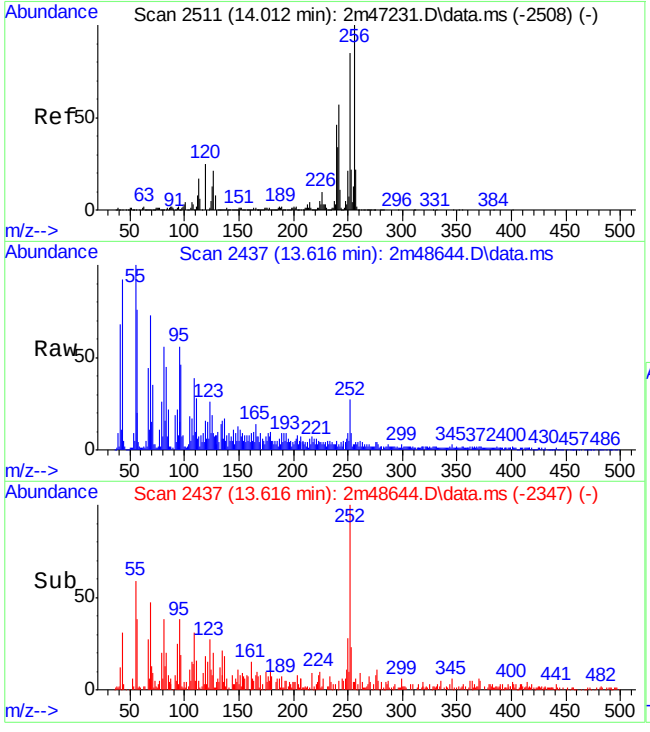


#94
Benzo[b]fluoranthene
Concen: 1.48 ppb m
RT: 13.600 min Scan# 2434
Delta R.T. -0.016 min
Lab File: 2m48644.D
Acq: 20 Dec 2012 1:14 pm

Tgt Ion:252 Resp: 45345

Ion	Ratio	Lower	Upper
252	100		
253	29.0	0.0	51.6
125	50.4	0.0	40.1#

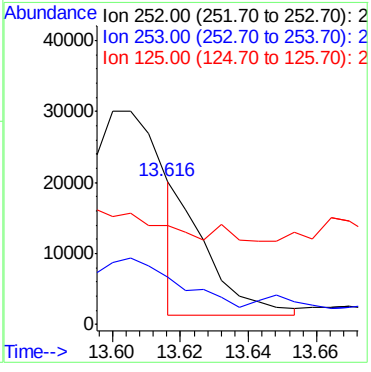




#95
Benzo[k]fluoranthene
Concen: 0.43 ppb m
RT: 13.616 min Scan# 2437
Delta R.T. -0.016 min
Lab File: 2m48644.D
Acq: 20 Dec 2012 1:14 pm

Tgt Ion:252 Resp: 11869

Ion	Ratio	Lower	Upper
252	100		
253	33.1	0.0	52.7
125	69.3	0.0	42.9#



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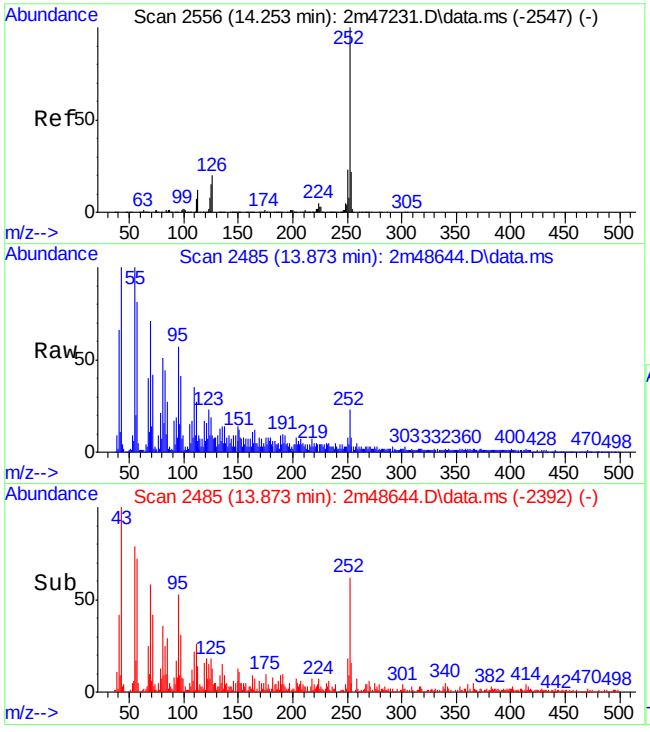
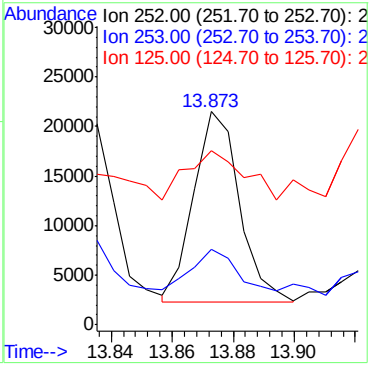
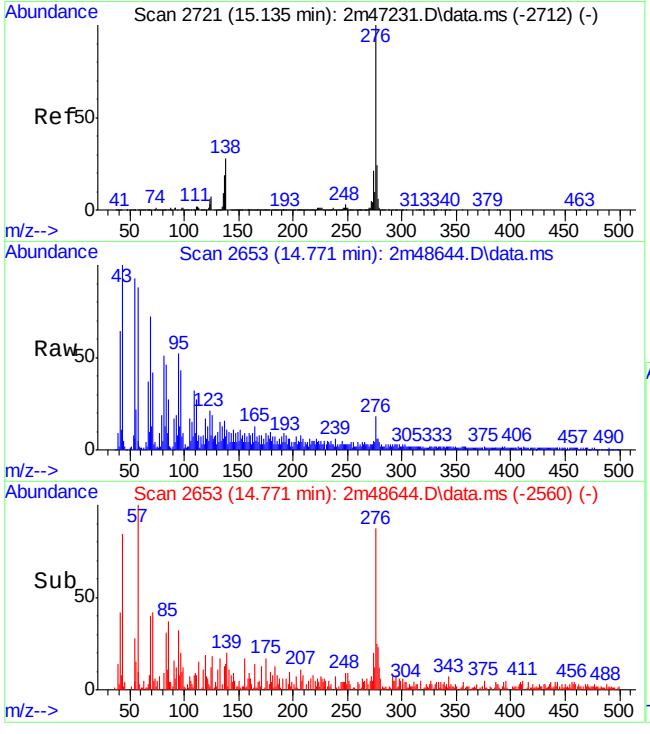


#96
Benzo[a]pyrene
Concen: 0.76 ppb
RT: 13.873 min Scan# 2485
Delta R.T. -0.005 min
Lab File: 2m48644.D
Acq: 20 Dec 2012 1:14 pm

Tgt Ion:252 Resp: 19882

Ion	Ratio	Lower	Upper
252	100		
253	20.6	0.0	52.4
125	20.9	0.0	42.7

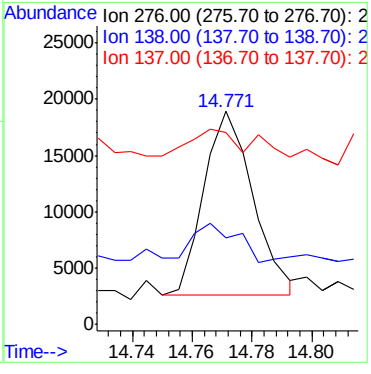




#97
Indeno[1,2,3-cd]pyrene
Concen: 0.62 ppb m
RT: 14.771 min Scan# 2653
Delta R.T. 0.000 min
Lab File: 2m48644.D
Acq: 20 Dec 2012 1:14 pm

Tgt Ion:276 Resp: 18701

Ion	Ratio	Lower	Upper
276	100		
138	40.8	0.0	57.6
137	90.2	0.0	48.9#



9.1.26

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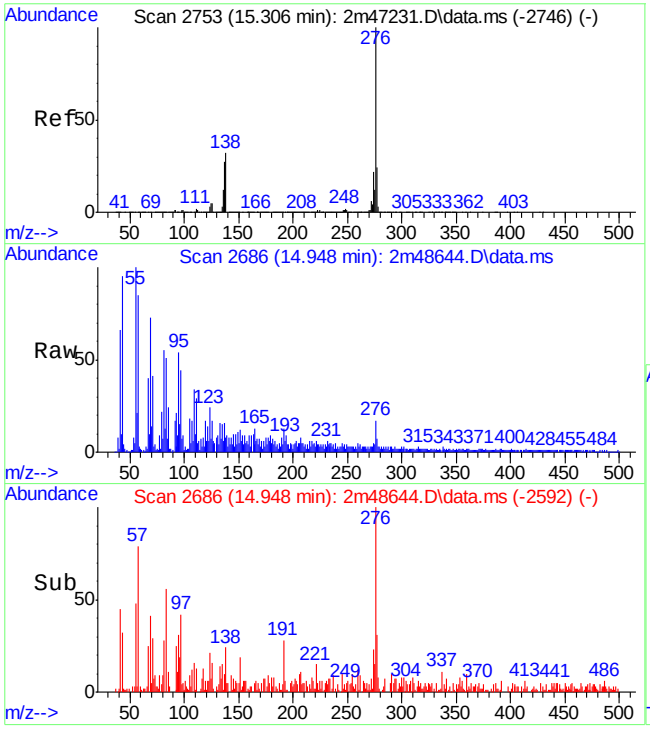
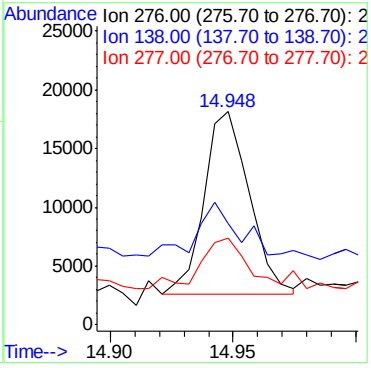


#101
Benzo[g,h,i]perylene
Concen: 0.77 ppb m
RT: 14.948 min Scan# 2686
Delta R.T. 0.005 min
Lab File: 2m48644.D
Acq: 20 Dec 2012 1:14 pm

Tgt Ion:276 Resp: 19911

Ion	Ratio	Lower	Upper
276	100		
138	47.3	0.1	60.1
277	40.5	0.0	53.2



9.1.26

9

Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
12/24/12 13:44

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48611.D
Acq On : 19 Dec 2012 12:49 pm
Operator : olgaa
Sample : jb22962-19
Misc : op62064,e2m2082,32.4
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Dec 19 15:35:13 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.379	152	245726	40.00 ppb	-0.01
24) Naphthalene-d8	3.898	136	1154929	40.00 ppb	-0.02
47) Acenaphthene-d10	6.460	164	745684	40.00 ppb	-0.02
69) Phenanthrene-d10	8.685	188	1329602	40.00 ppb	-0.02
83) Chrysene-d12	12.509	240	1331134	40.00 ppb	-0.02
92) Perylene-d12	13.921	264	1112471	40.00 ppb	0.00
102) 1,4-Dichlorobenzene-d4a	2.379	152	245726	40.00 ppb	-0.01
104) Acenaphthene-d10a	6.460	164	745684	40.00 ppb	-0.02
106) Chrysene-d12a	12.509	240	1331134	40.00 ppb	-0.02
108) Phenanthrene-d10a	8.685	188	1329602	40.00 ppb	-0.02
110) Chrysene-d12b	12.509	240	1331134	40.00 ppb	-0.02
System Monitoring Compounds					
5) 2-Fluorophenol	1.432	112	73762	8.25 ppb	0.00
Spiked Amount 50.000			Recovery	= 16.50%	
8) Phenol-d5	2.234	99	112753	9.41 ppb	0.02
Spiked Amount 50.000			Recovery	= 18.82%	
25) Nitrobenzene-d5	3.069	82	98025	7.91 ppb	0.00
Spiked Amount 50.000			Recovery	= 15.82%	
51) 2-Fluorobiphenyl	5.545	172	235228	9.59 ppb	-0.02
Spiked Amount 50.000			Recovery	= 19.18%	
73) 2,4,6-Tribromophenol	7.722	330	92457	29.59 ppb	-0.02
Spiked Amount 50.000			Recovery	= 59.18%	
85) Terphenyl-d14	11.273	244	913602	33.96 ppb	-0.02
Spiked Amount 50.000			Recovery	= 67.92%	
Target Compounds					Qvalue
66) Fluorene	7.294	166	13578	0.54 ppb	98
77) Phenanthrene	8.722	178	83107	2.04 ppb	98
78) Anthracene	8.802	178	23864	0.59 ppb	93
81) Fluoranthene	10.567	202	153738	3.83 ppb	96
84) Pyrene	10.878	202	142013	3.30 ppb	96
88) Benzo[a]anthracene	12.493	228	101318	2.47 ppb	98
90) Chrysene	12.536	228	101500	2.50 ppb	98
94) Benzo[b]fluoranthene	13.600	252	128555m	3.32 ppb	
95) Benzo[k]fluoranthene	13.611	252	62648m	1.80 ppb	
96) Benzo[a]pyrene	13.873	252	100166	3.04 ppb	97
97) Indeno[1,2,3-cd]pyrene	14.771	276	77613	2.03 ppb	91
99) Dibenz[a,h]anthracene	14.777	278	25657m	0.80 ppb	
101) Benzo[g,h,i]perylene	14.948	276	72642	2.23 ppb	85

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

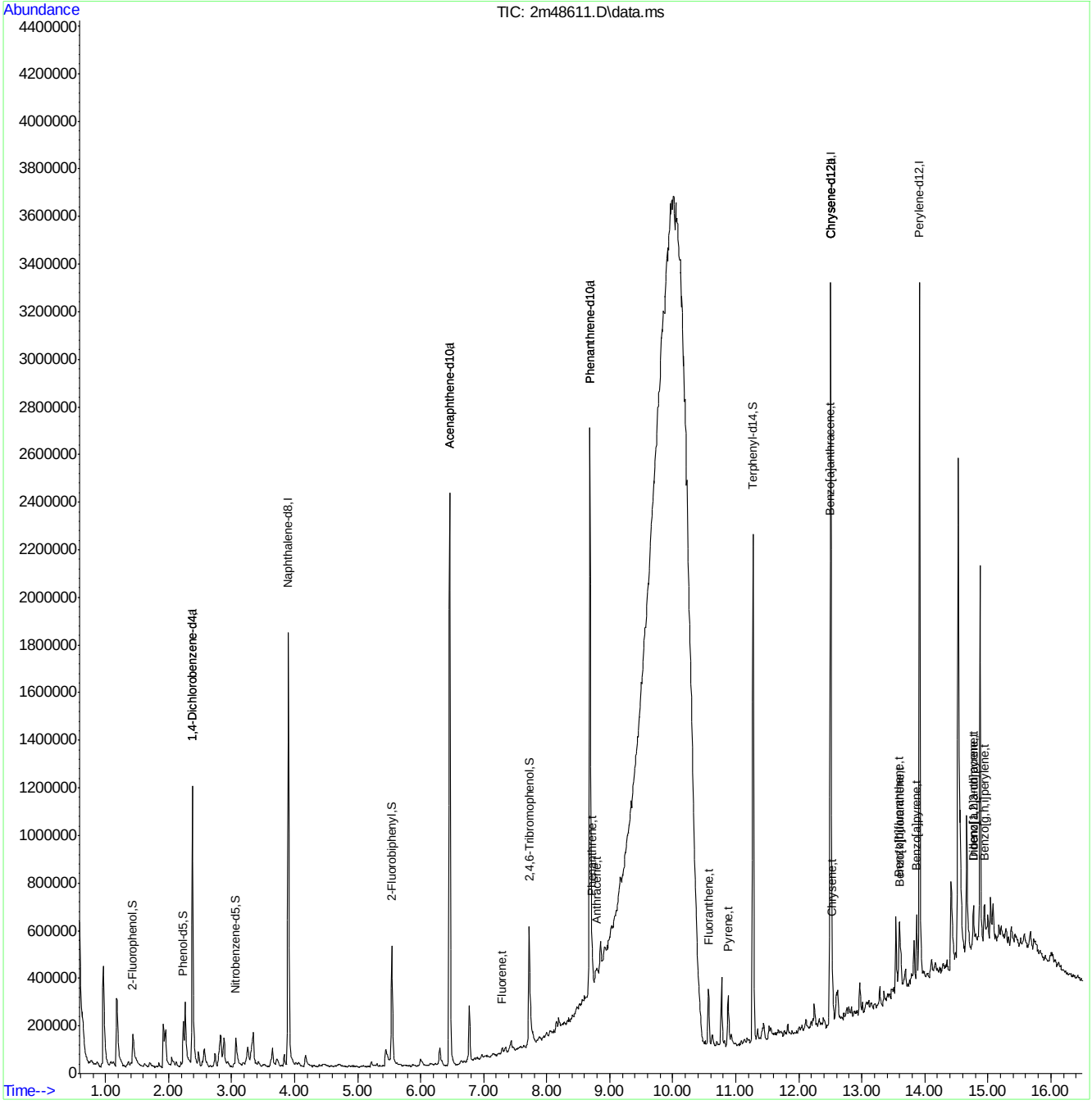
9.1.27

9

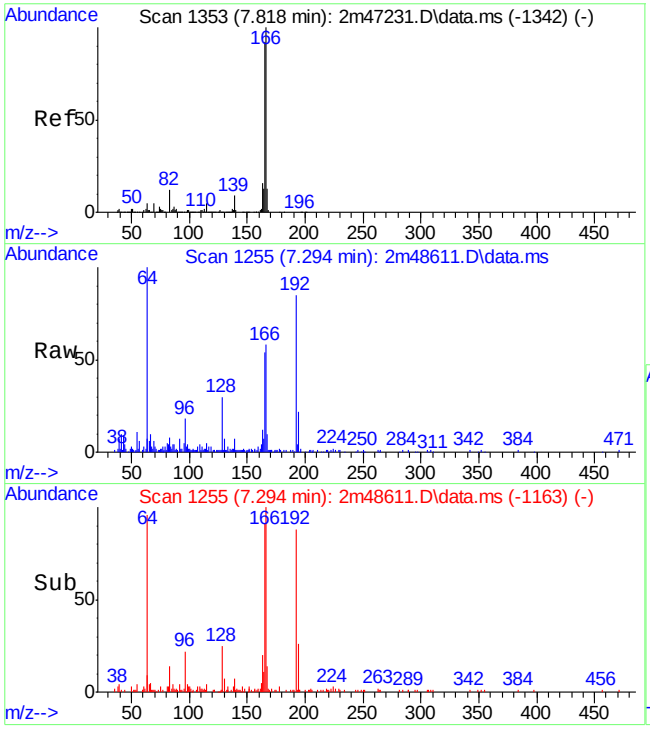
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48611.D
Acq On : 19 Dec 2012 12:49 pm
Operator : olgaa
Sample : jb22962-19
Misc : op62064,e2m2082,32.4
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Dec 19 15:35:13 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration



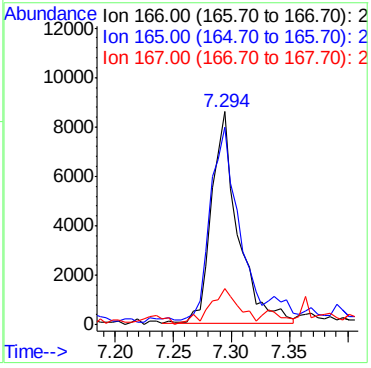
M2M2034.M Wed Dec 19 15:35:23 2012 MS2M Page: 2

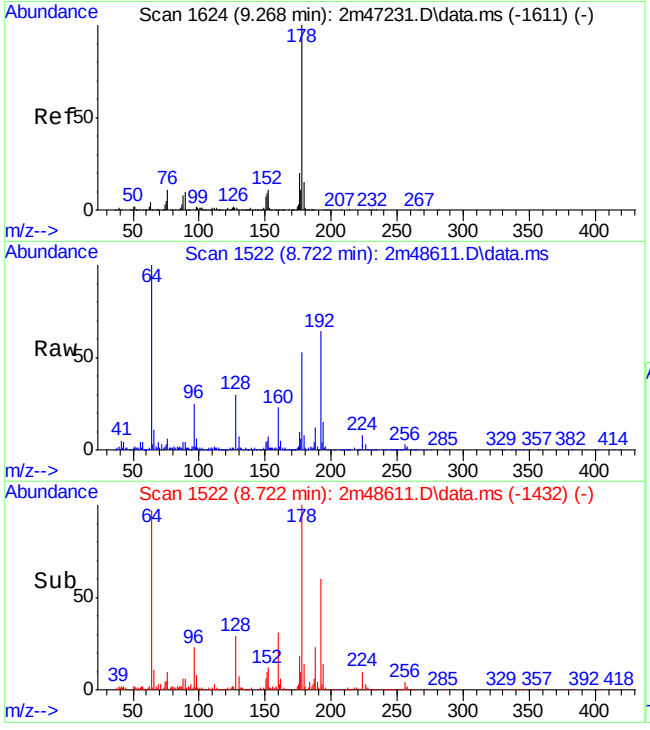


#66
Fluorene
Concen: 0.54 ppb
RT: 7.294 min Scan# 1255
Delta R.T. -0.011 min
Lab File: 2m48611.D
Acq: 19 Dec 2012 12:49 pm

Tgt Ion:166 Resp: 13578

Ion	Ratio	Lower	Upper
166	100		
165	90.6	61.9	121.9
167	14.6	0.0	43.1

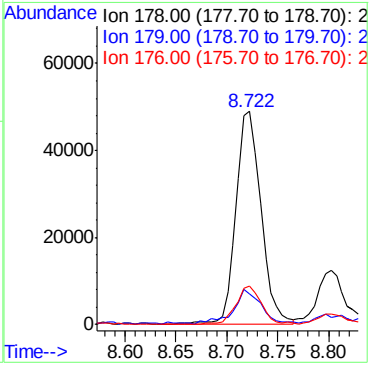




#77
Phenanthrene
Concen: 2.04 ppb
RT: 8.722 min Scan# 1522
Delta R.T. -0.021 min
Lab File: 2m48611.D
Acq: 19 Dec 2012 12:49 pm

Tgt Ion:178 Resp: 83107

Ion	Ratio	Lower	Upper
178	100		
179	14.0	0.0	44.9
176	18.1	0.0	49.1



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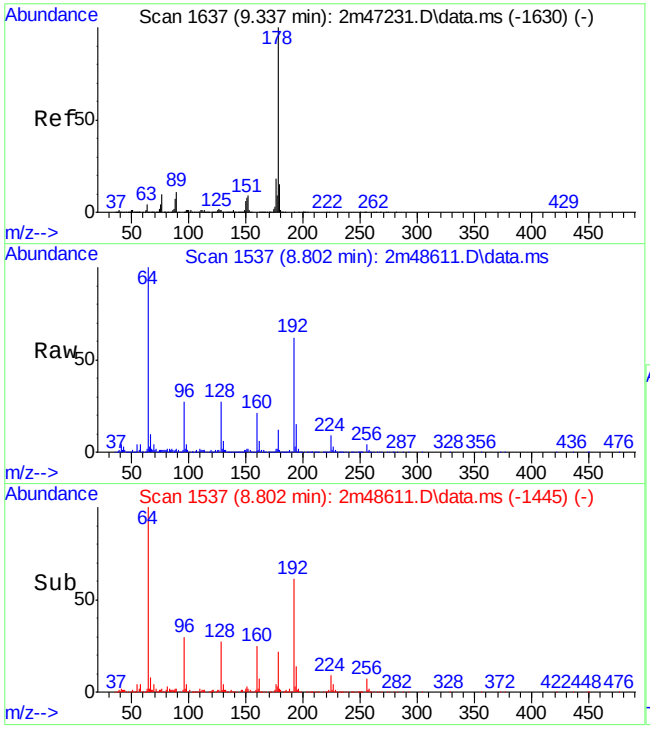
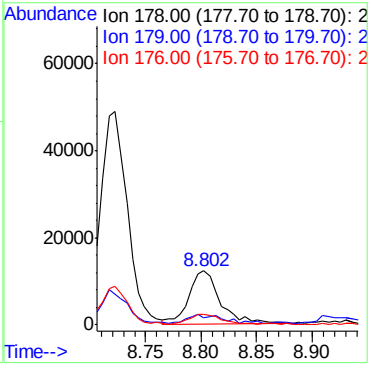
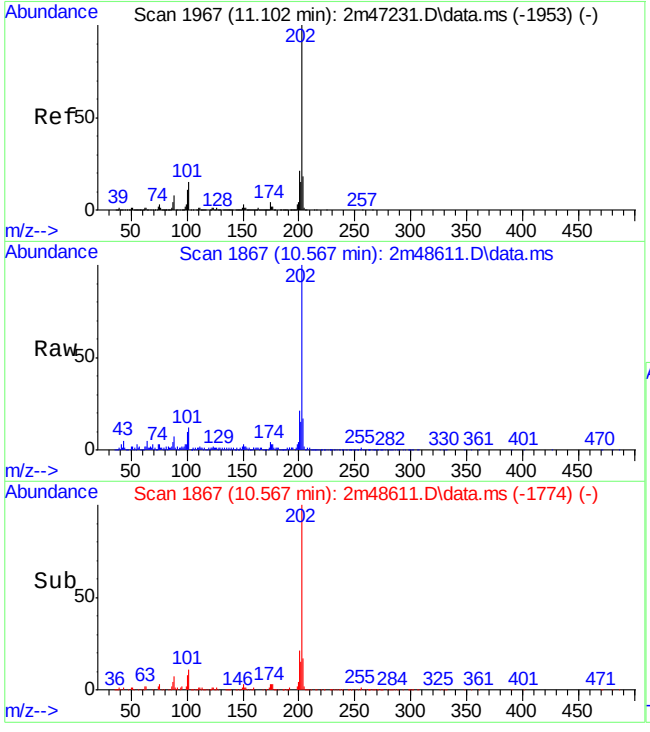


#78
Anthracene
Concen: 0.59 ppb
RT: 8.802 min Scan# 1537
Delta R.T. -0.011 min
Lab File: 2m48611.D
Acq: 19 Dec 2012 12:49 pm

Tgt Ion:178 Resp: 23864

Ion	Ratio	Lower	Upper
178	100		
179	9.1	0.0	44.3
176	17.4	0.0	48.3

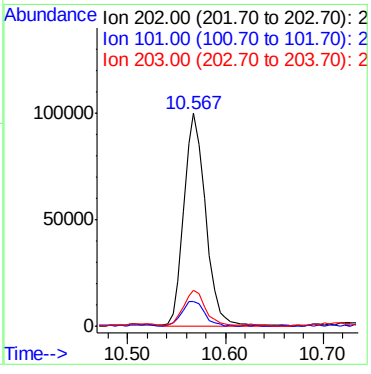


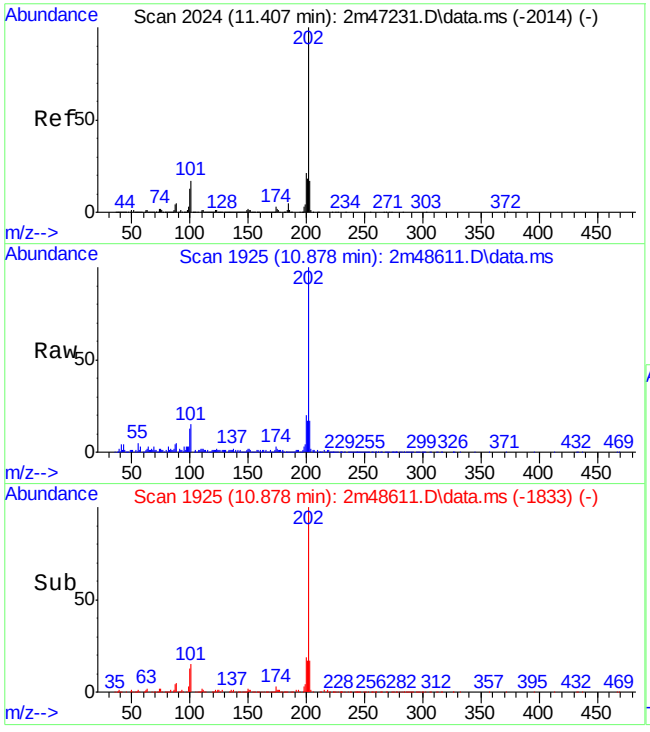


#81
Fluoranthene
Concen: 3.83 ppb
RT: 10.567 min Scan# 1867
Delta R.T. -0.005 min
Lab File: 2m48611.D
Acq: 19 Dec 2012 12:49 pm

Tgt Ion:202 Resp: 153738

Ion	Ratio	Lower	Upper
202	100		
101	11.4	0.0	43.8
203	16.6	0.0	47.5

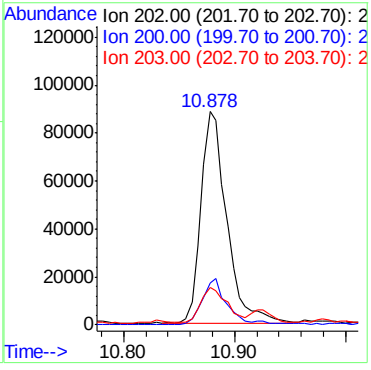


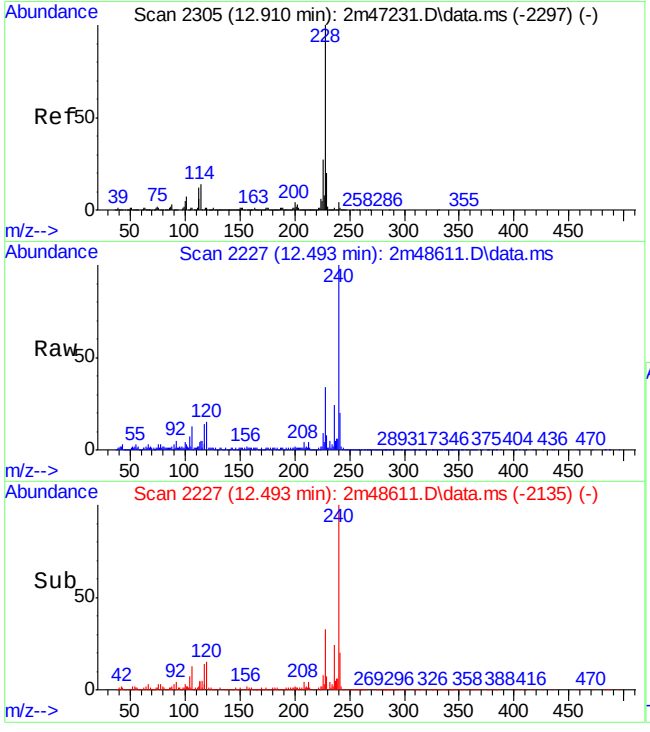


#84
Pyrene
Concen: 3.30 ppb
RT: 10.878 min Scan# 1925
Delta R.T. -0.011 min
Lab File: 2m48611.D
Acq: 19 Dec 2012 12:49 pm

Tgt Ion:202 Resp: 142013

Ion	Ratio	Lower	Upper
202	100		
200	19.4	0.0	51.3
203	16.1	0.0	47.6

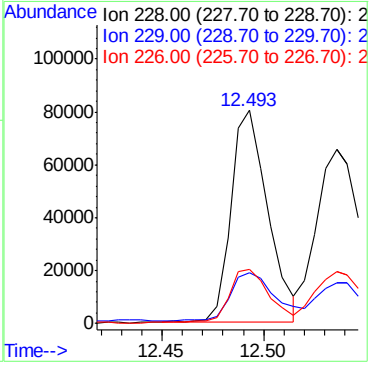




#88
Benzo[a]anthracene
Concen: 2.47 ppb
RT: 12.493 min Scan# 2227
Delta R.T. -0.011 min
Lab File: 2m48611.D
Acq: 19 Dec 2012 12:49 pm

Tgt Ion:228 Resp: 101318

Ion	Ratio	Lower	Upper
228	100		
229	20.5	0.0	49.3
226	25.1	0.0	56.0



9.1.27

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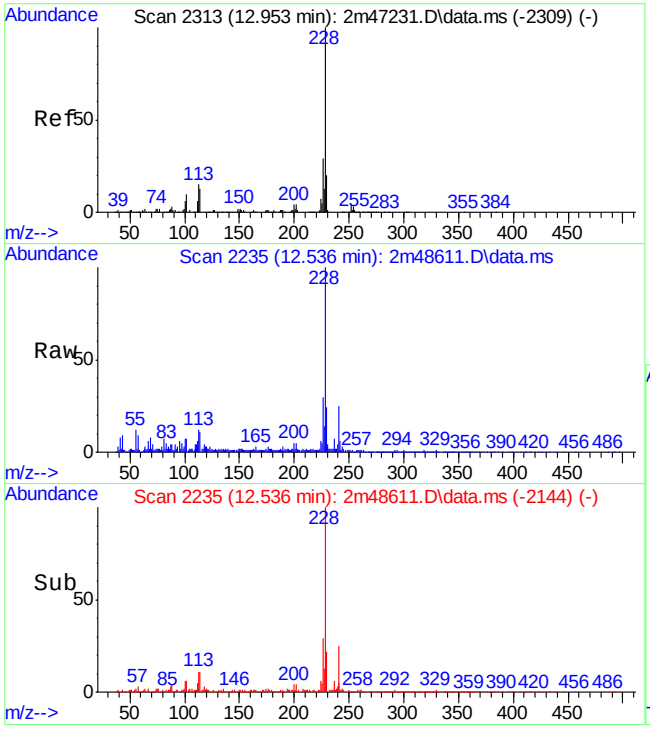
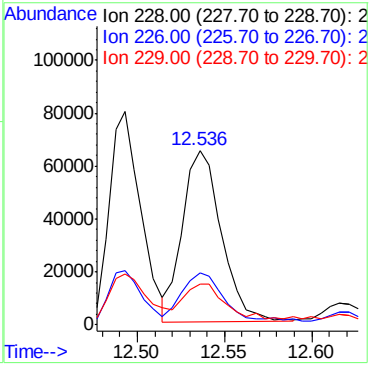
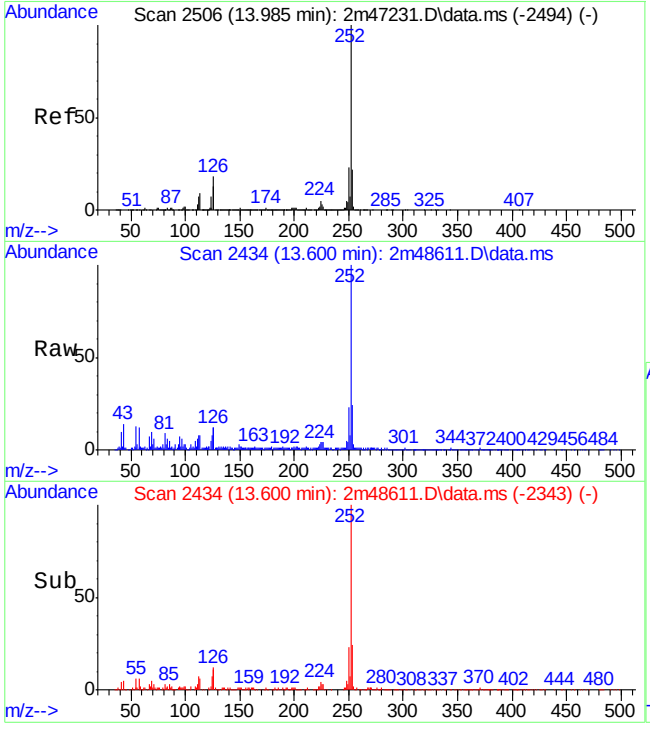


#90
Chrysene
Concen: 2.50 ppb
RT: 12.536 min Scan# 2235
Delta R.T. -0.016 min
Lab File: 2m48611.D
Acq: 19 Dec 2012 12:49 pm

Tgt Ion:228 Resp: 101500

Ion	Ratio	Lower	Upper
228	100		
226	28.1	0.0	57.7
229	17.8	0.0	49.3

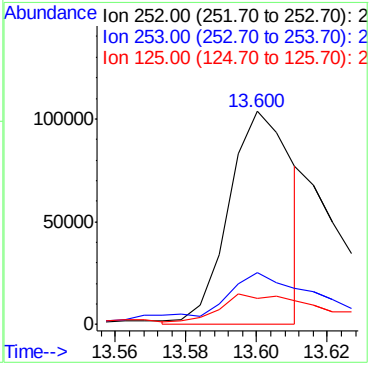


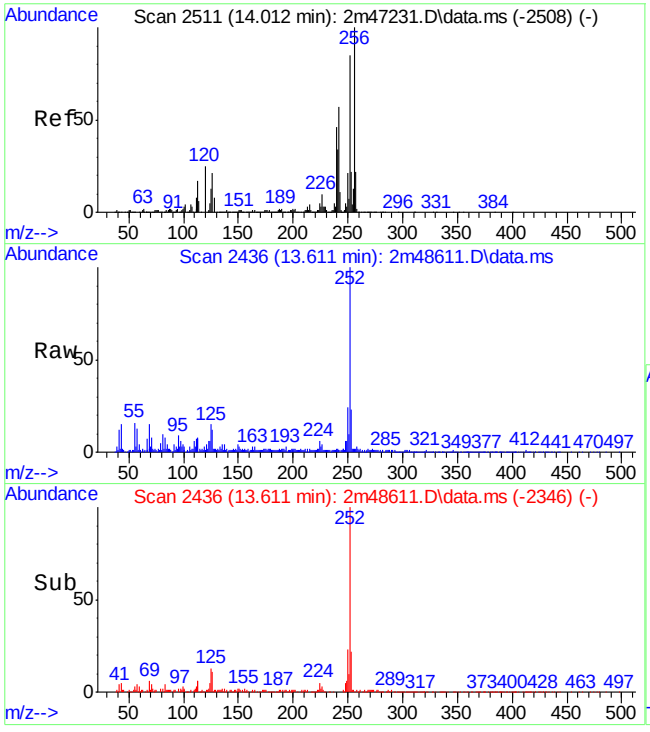


#94
Benzo[b]fluoranthene
Concen: 3.32 ppb m
RT: 13.600 min Scan# 2434
Delta R.T. -0.016 min
Lab File: 2m48611.D
Acq: 19 Dec 2012 12:49 pm

Tgt Ion:252 Resp: 128555

Ion	Ratio	Lower	Upper
252	100		
253	24.1	0.0	51.6
125	12.0	0.0	40.1

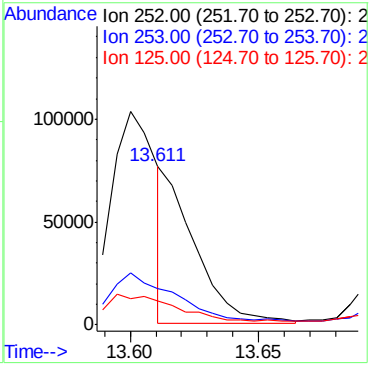


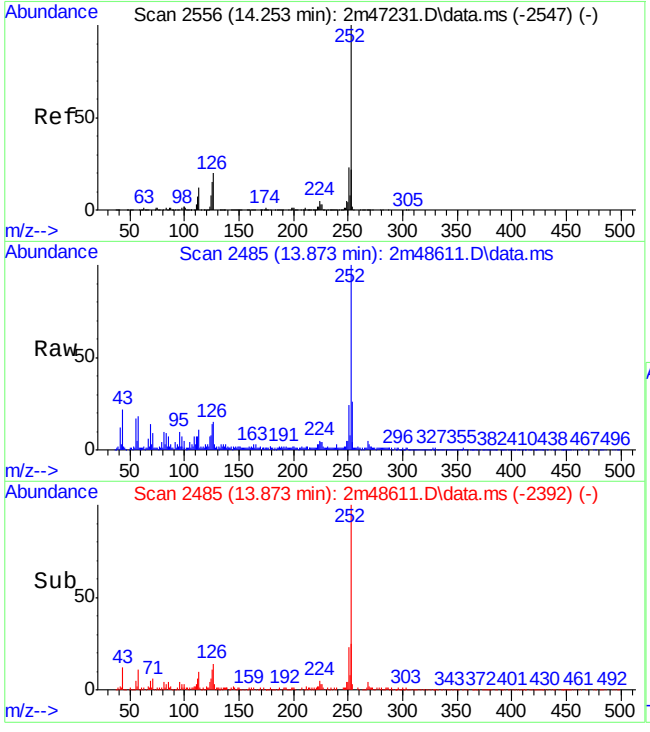


#95
Benzo[k]fluoranthene
Concen: 1.80 ppb m
RT: 13.611 min Scan# 2436
Delta R.T. -0.021 min
Lab File: 2m48611.D
Acq: 19 Dec 2012 12:49 pm

Tgt Ion:252 Resp: 62648

Ion	Ratio	Lower	Upper
252	100		
253	22.7	0.0	52.7
125	14.9	0.0	42.9

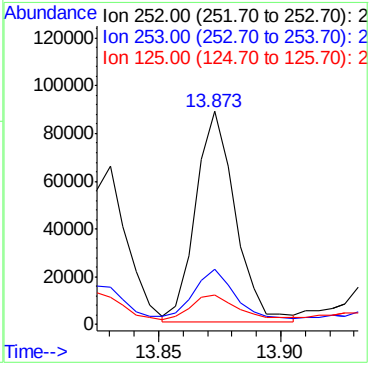




#96
Benzo[a]pyrene
Concen: 3.04 ppb
RT: 13.873 min Scan# 2485
Delta R.T. -0.005 min
Lab File: 2m48611.D
Acq: 19 Dec 2012 12:49 pm

Tgt Ion:252 Resp: 100166

Ion	Ratio	Lower	Upper
252	100		
253	23.7	0.0	52.4
125	11.2	0.0	42.7



9.1.27

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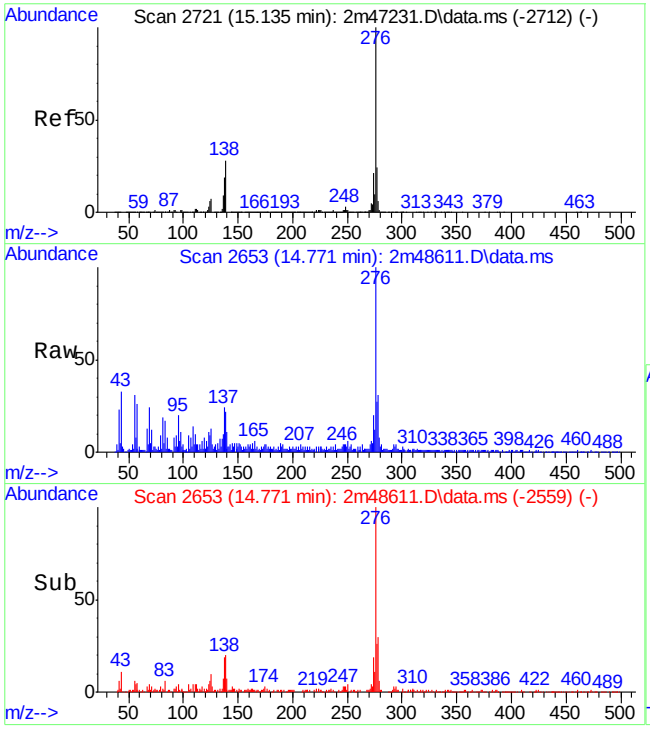
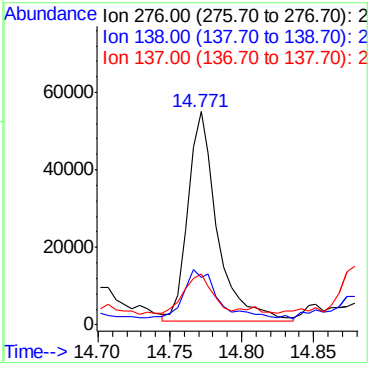
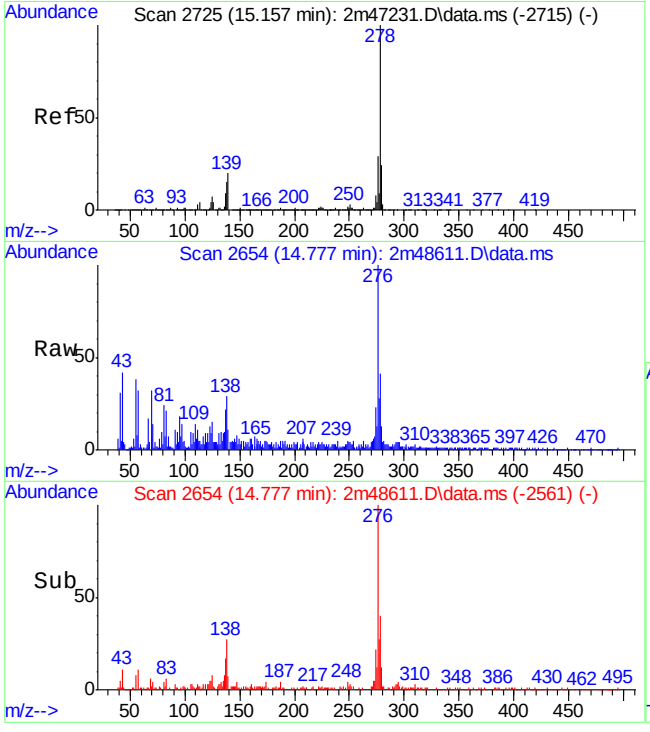


#97
Indeno[1,2,3-cd]pyrene
Concen: 2.03 ppb
RT: 14.771 min Scan# 2653
Delta R.T. 0.000 min
Lab File: 2m48611.D
Acq: 19 Dec 2012 12:49 pm

Tgt Ion:276 Resp: 77613

Ion	Ratio	Lower	Upper
276	100		
138	19.9	0.0	57.6
137	18.7	0.0	48.9

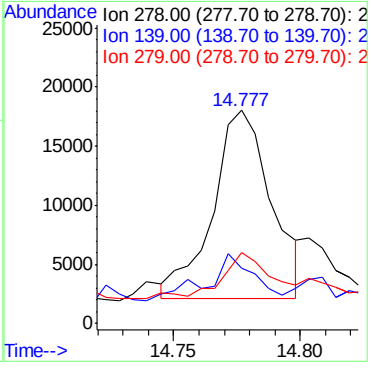


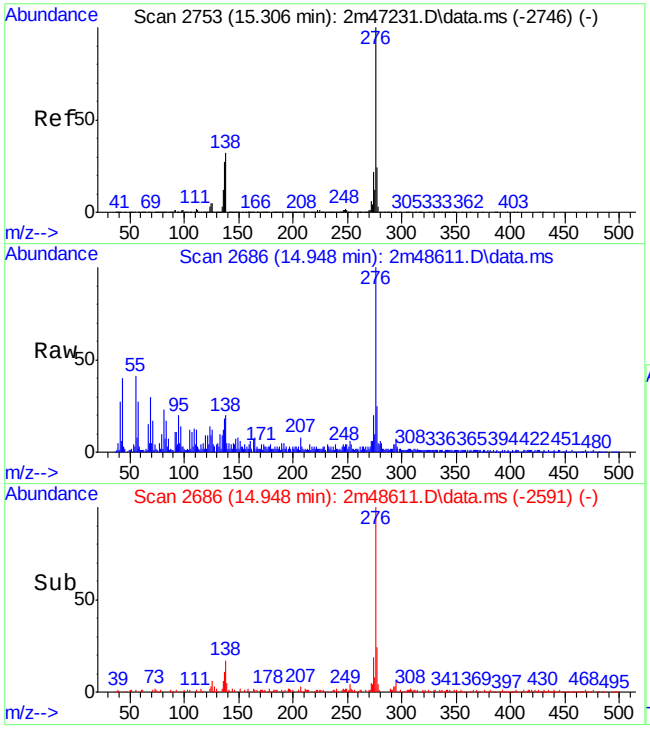


#99
Dibenz[a,h]anthracene
Concen: 0.80 ppb m
RT: 14.777 min Scan# 2654
Delta R.T. -0.005 min
Lab File: 2m48611.D
Acq: 19 Dec 2012 12:49 pm

Tgt Ion:278 Resp: 25657

Ion	Ratio	Lower	Upper
278	100		
139	26.0	0.0	52.4
279	33.1	0.0	54.1

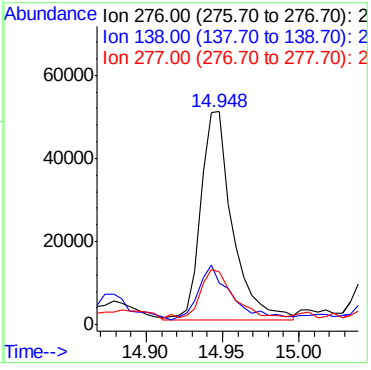




#101
Benzo[g,h,i]perylene
Concen: 2.23 ppb
RT: 14.948 min Scan# 2686
Delta R.T. 0.006 min
Lab File: 2m48611.D
Acq: 19 Dec 2012 12:49 pm

Tgt Ion:276 Resp: 72642

Ion	Ratio	Lower	Upper
276	100		
138	16.4	0.1	60.1
277	22.3	0.0	53.2



9.1.27

9

Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
12/24/12 13:44

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2020\
Data File : 3e46479.D
Acq On : 21 Dec 2012 12:29 pm
Operator : olgaa
Sample : jb22962-19cfs
Misc : op62177,e3e2020,34.9
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 21 13:04:57 2012
Quant Method : C:\MSDCHEM\1\METHODS\M3E1991.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Dec 06 10:24:01 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.698	152	143150	40.00 ppb	-0.10
24) Naphthalene-d8	4.281	136	562759	40.00 ppb	-0.11
47) Acenaphthene-d10	6.875	164	326135	40.00 ppb	-0.13
69) Phenanthrene-d10	9.116	188	489494	40.00 ppb	-0.13
83) Chrysene-d12	12.839	240	496748	40.00 ppb	-0.10
92) Perylene-d12	14.224	264	450521	40.00 ppb	-0.10
102) 1,4-Dichlorobenzene-d4a	2.698	152	143150	40.00 ppb	-0.10
104) Acenaphthene-d10a	6.875	164	326135	40.00 ppb	-0.13
106) Phenanthrene-d10a	9.116	188	489494	40.00 ppb	-0.13
108) Chrysene-d12a	12.839	240	496748	40.00 ppb	-0.10

System Monitoring Compounds					
5) 2-Fluorophenol	1.649	112	63114	12.65 ppb	-0.09
Spiked Amount 50.000	Range 11 - 58		Recovery = 25.30%		
8) Phenol-d5	2.489	99	86229	14.21 ppb	-0.13
Spiked Amount 50.000	Range 10 - 59		Recovery = 28.42%		
25) Nitrobenzene-d5	3.393	82	58172	12.35 ppb	-0.10
Spiked Amount 50.000	Range 19 - 61		Recovery = 24.70%		
51) 2-Fluorobiphenyl	5.939	172	132770	12.31 ppb	-0.12
Spiked Amount 50.000	Range 21 - 59		Recovery = 24.62%		
73) 2,4,6-Tribromophenol	8.121	330	26293	25.42 ppb	-0.13
Spiked Amount 50.000	Range 12 - 68		Recovery = 50.84%		
85) Terphenyl-d14	11.662	244	275894	26.50 ppb	-0.11
Spiked Amount 50.000	Range 16 - 65		Recovery = 53.00%		

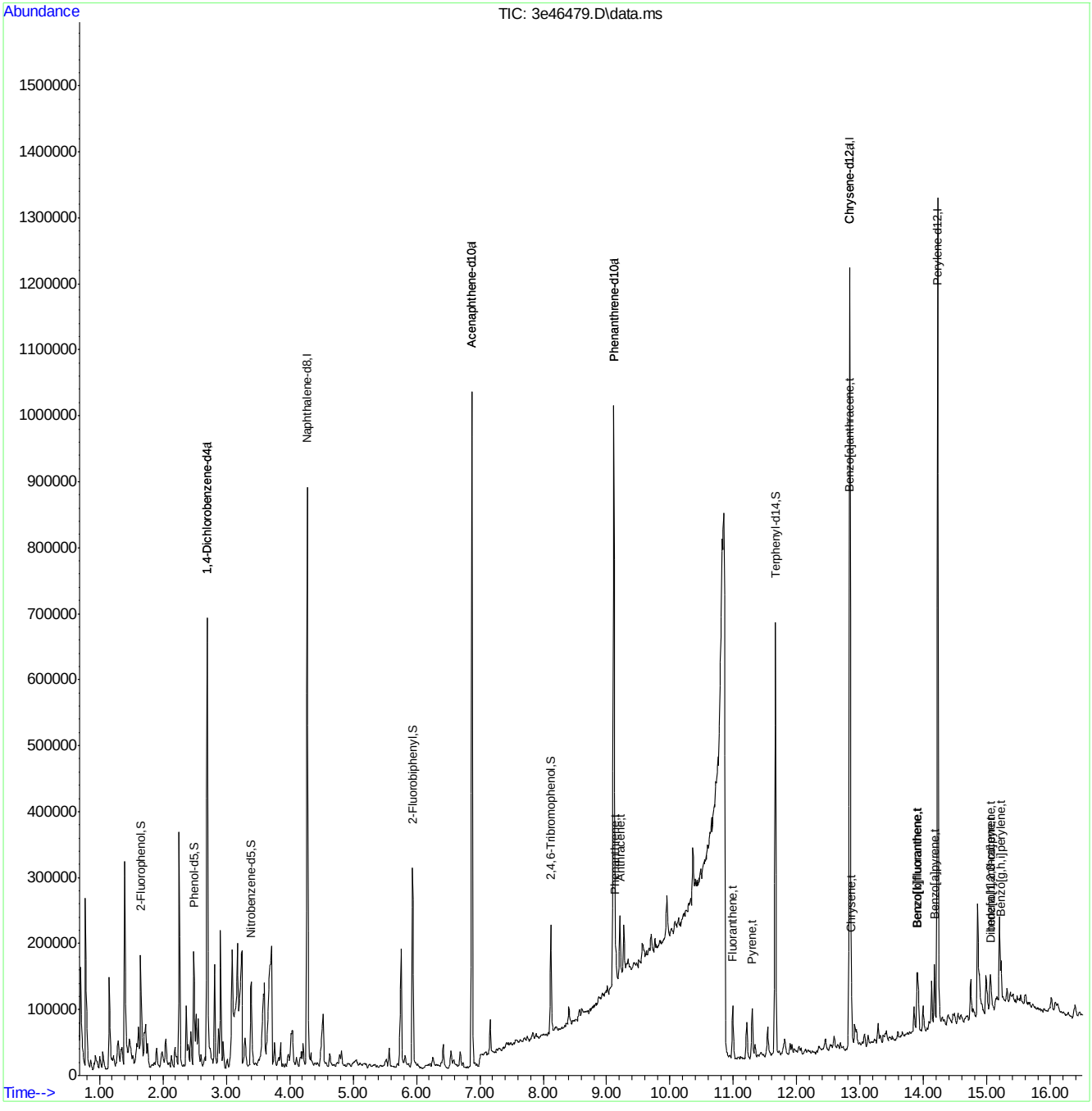
Target Compounds					Qvalue
77) Phenanthrene	9.143	178	25950	1.74 ppb	98
78) Anthracene	9.218	178	6870	0.46 ppb	95
81) Fluoranthene	10.988	202	45971	3.13 ppb	94
84) Pyrene	11.298	202	45491	2.81 ppb	97
88) Benzo[a]anthracene	12.823	228	33826	2.34 ppb	99
90) Chrysene	12.860	228	32284	2.36 ppb	96
94) Benzo[b]fluoranthene	13.903	252	38016m	2.55 ppb	
95) Benzo[k]fluoranthene	13.908	252	25089m	1.74 ppb	
96) Benzo[a]pyrene	14.171	252	36503	2.81 ppb	97
97) Indeno[1,2,3-cd]pyrene	15.053	276	27432	1.87 ppb	91
99) Dibenz[a,h]anthracene	15.069	278	8934m	0.73 ppb	
101) Benzo[g,h,i]perylene	15.224	276	24524	2.01 ppb	98

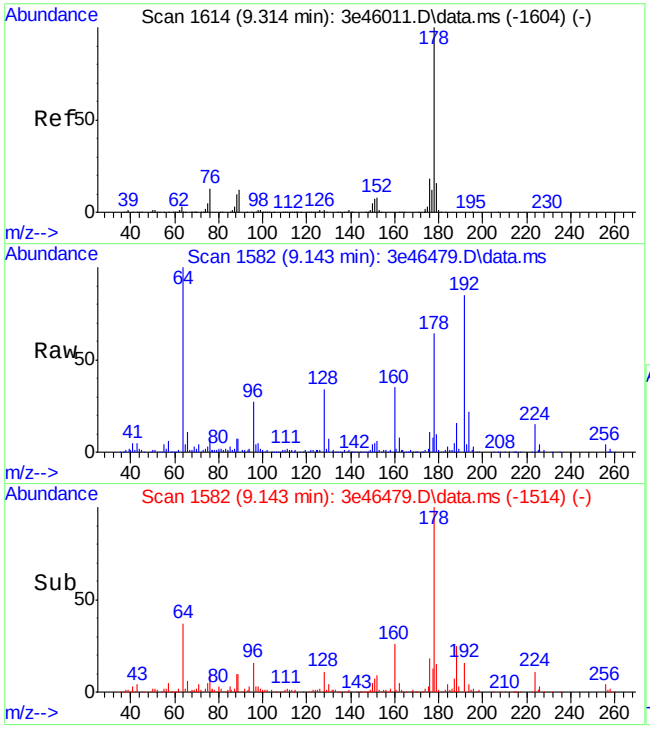
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2020\
Data File : 3e46479.D
Acq On : 21 Dec 2012 12:29 pm
Operator : olgaa
Sample : jb22962-19cfs
Misc : op62177,e3e2020,34.9
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 21 13:04:57 2012
Quant Method : C:\MSDCHEM\1\METHODS\M3E1991.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Dec 06 10:24:01 2012
Response via : Initial Calibration

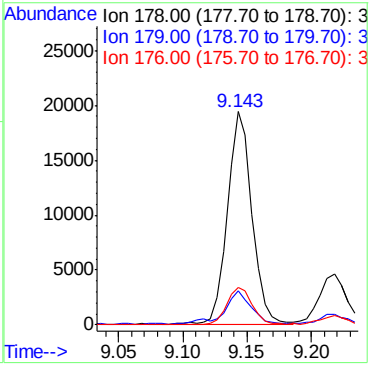


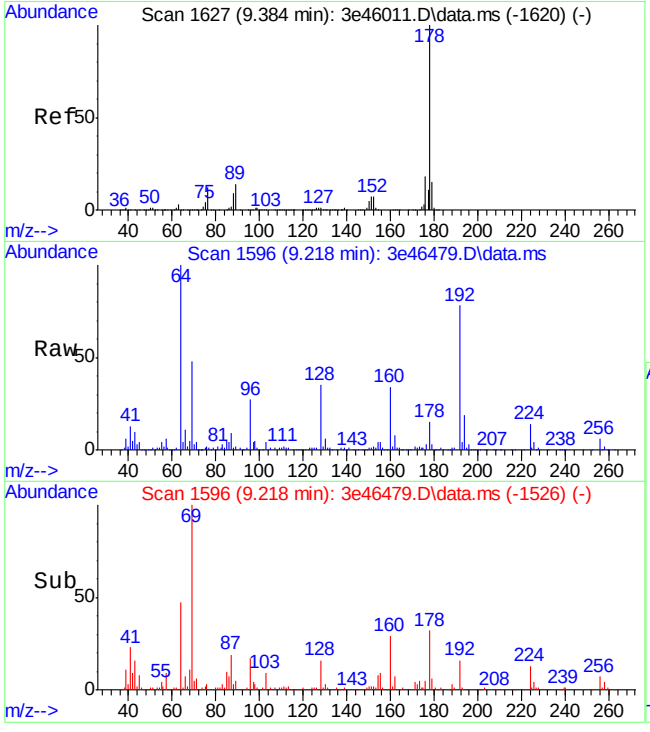


#77
Phenanthrene
Concen: 1.74 ppb
RT: 9.143 min Scan# 1582
Delta R.T. -0.134 min
Lab File: 3e46479.D
Acq: 21 Dec 2012 12:29 pm

Tgt Ion:178 Resp: 25950

Ion	Ratio	Lower	Upper
178	100		
179	15.5	0.0	46.0
176	17.2	0.0	48.7

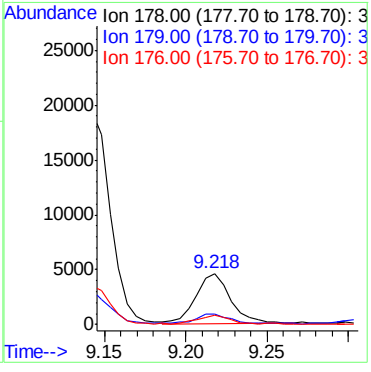




#78
Anthracene
Concen: 0.46 ppb
RT: 9.218 min Scan# 1596
Delta R.T. -0.123 min
Lab File: 3e46479.D
Acq: 21 Dec 2012 12:29 pm

Tgt Ion:178 Resp: 6870

Ion	Ratio	Lower	Upper
178	100		
179	18.7	0.0	46.3
176	16.7	0.0	48.5



9.1.28

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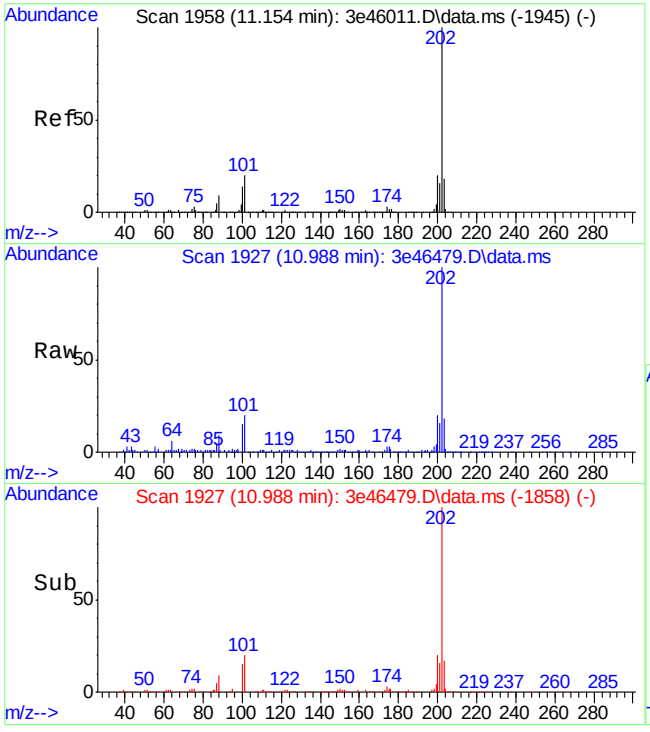
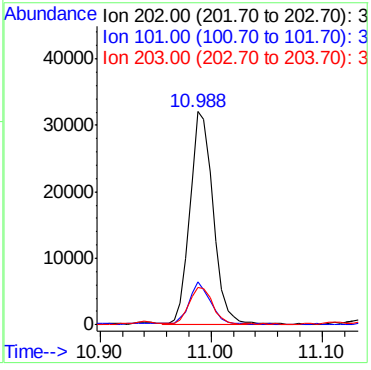
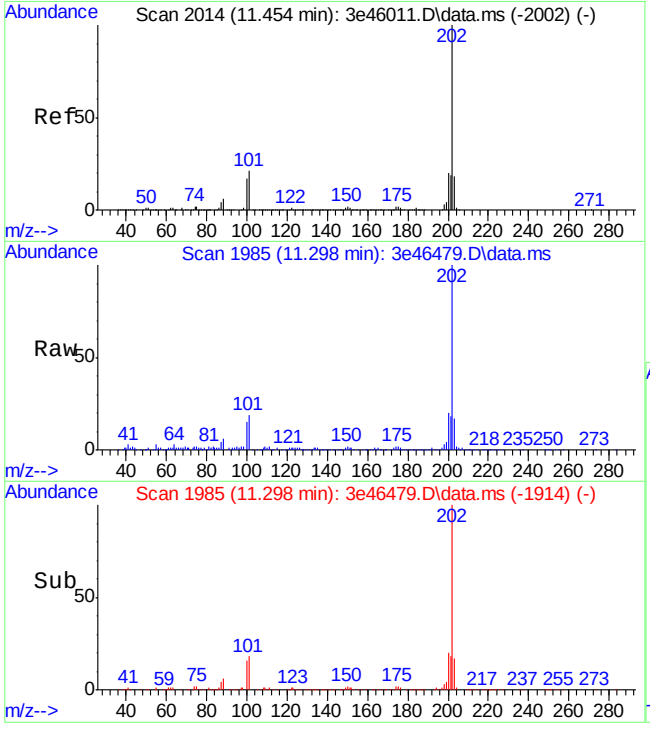


#81
Fluoranthene
Concen: 3.13 ppb
RT: 10.988 min Scan# 1927
Delta R.T. -0.129 min
Lab File: 3e46479.D
Acq: 21 Dec 2012 12:29 pm

Tgt Ion:202 Resp: 45971

Ion	Ratio	Lower	Upper
202	100		
101	19.6	0.0	45.2
203	17.4	0.0	48.0

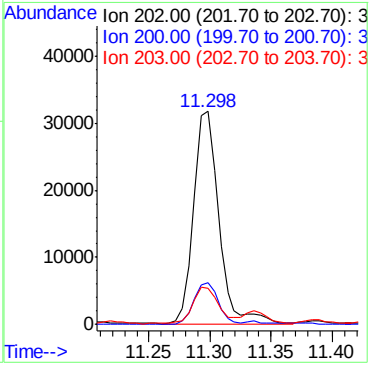




#84
Pyrene
Concen: 2.81 ppb
RT: 11.298 min Scan# 1985
Delta R.T. -0.118 min
Lab File: 3e46479.D
Acq: 21 Dec 2012 12:29 pm

Tgt Ion:202 Resp: 45491

Ion	Ratio	Lower	Upper
202	100		
200	19.7	0.0	50.7
203	16.5	0.0	47.9



9.1.28

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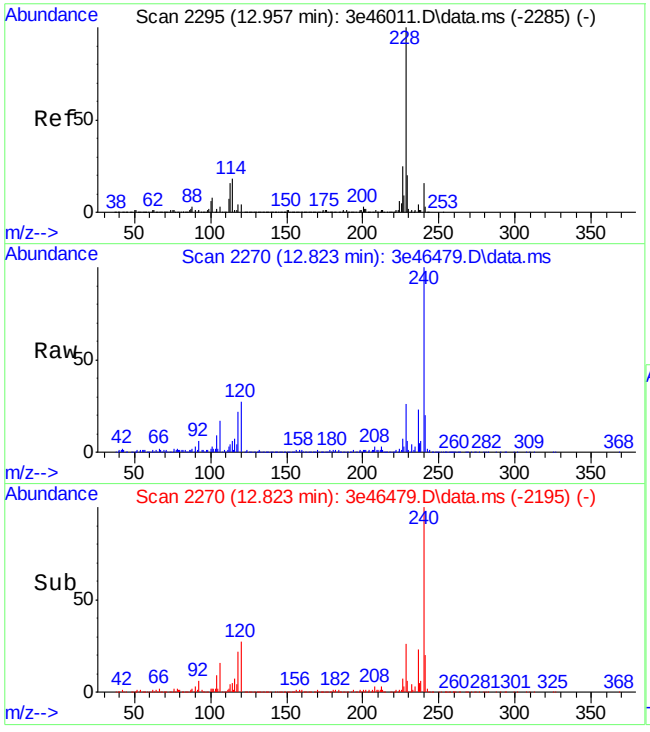
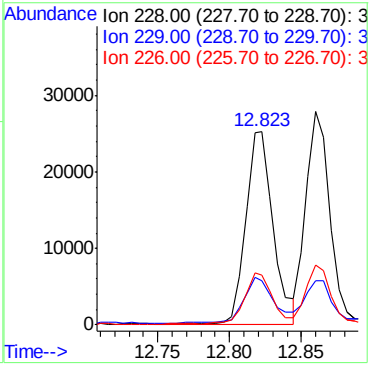
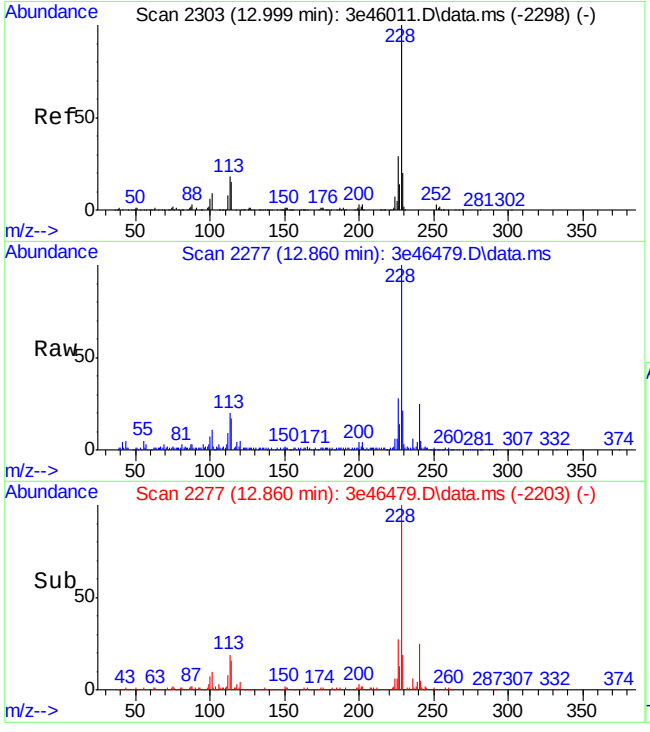


#88
Benzo[a]anthracene
Concen: 2.34 ppb
RT: 12.823 min Scan# 2270
Delta R.T. -0.096 min
Lab File: 3e46479.D
Acq: 21 Dec 2012 12:29 pm

Tgt Ion:228 Resp: 33826

Ion	Ratio	Lower	Upper
228	100		
229	20.7	0.0	50.5
226	25.6	0.0	55.9

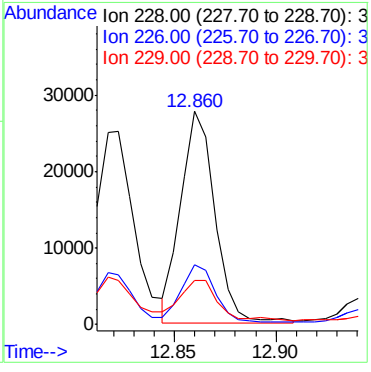




#90
Chrysene
Concen: 2.36 ppb
RT: 12.860 min Scan# 2277
Delta R.T. -0.102 min
Lab File: 3e46479.D
Acq: 21 Dec 2012 12:29 pm

Tgt Ion:228 Resp: 32284

Ion	Ratio	Lower	Upper
228	100		
226	27.6	0.0	59.2
229	18.2	0.0	50.9



9.1.28

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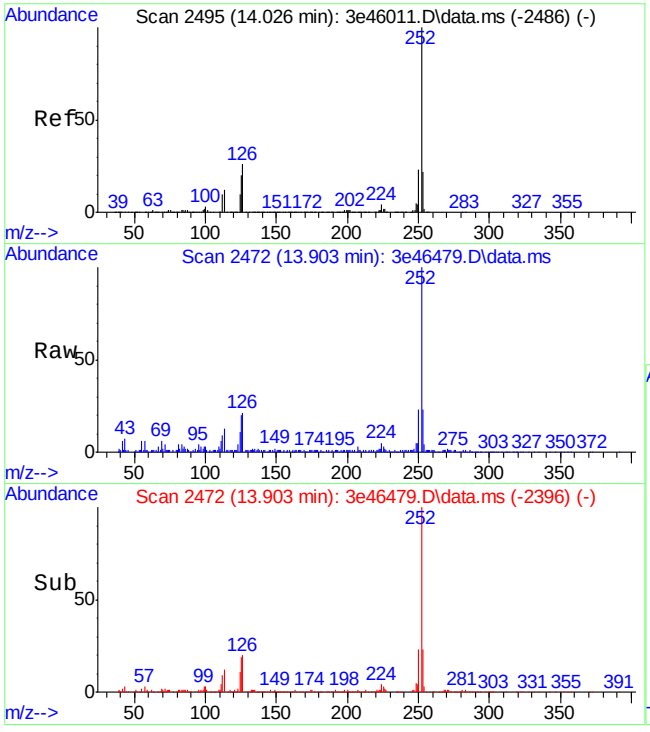
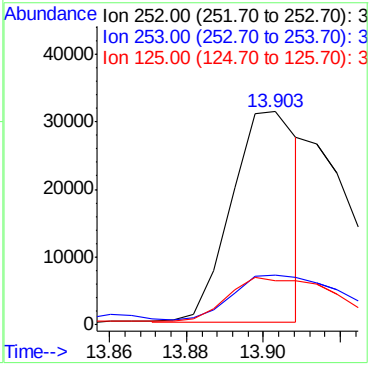
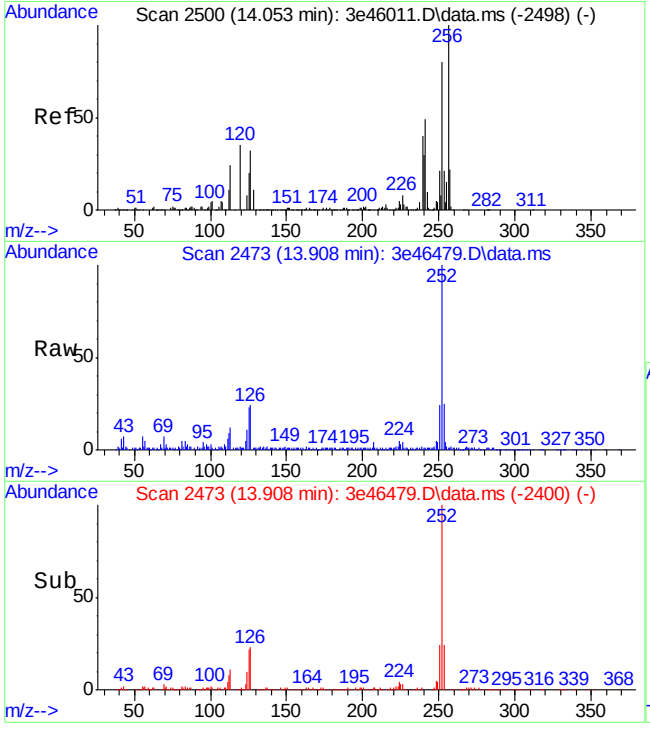


#94
Benzo[b]fluoranthene
Concen: 2.55 ppb m
RT: 13.903 min Scan# 2472
Delta R.T. -0.091 min
Lab File: 3e46479.D
Acq: 21 Dec 2012 12:29 pm

Tgt Ion:252 Resp: 38016

Ion	Ratio	Lower	Upper
252	100		
253	23.4	0.0	53.2
125	20.4	0.0	44.4

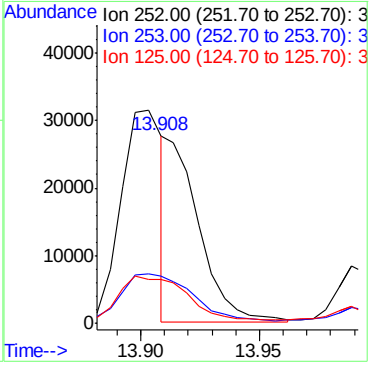




#95
Benzo[k]fluoranthene
Concen: 1.74 ppb m
RT: 13.908 min Scan# 2473
Delta R.T. -0.112 min
Lab File: 3e46479.D
Acq: 21 Dec 2012 12:29 pm

Tgt Ion:252 Resp: 25089

Ion	Ratio	Lower	Upper
252	100		
253	25.4	0.0	56.5
125	23.3	0.0	45.7



9.1.28

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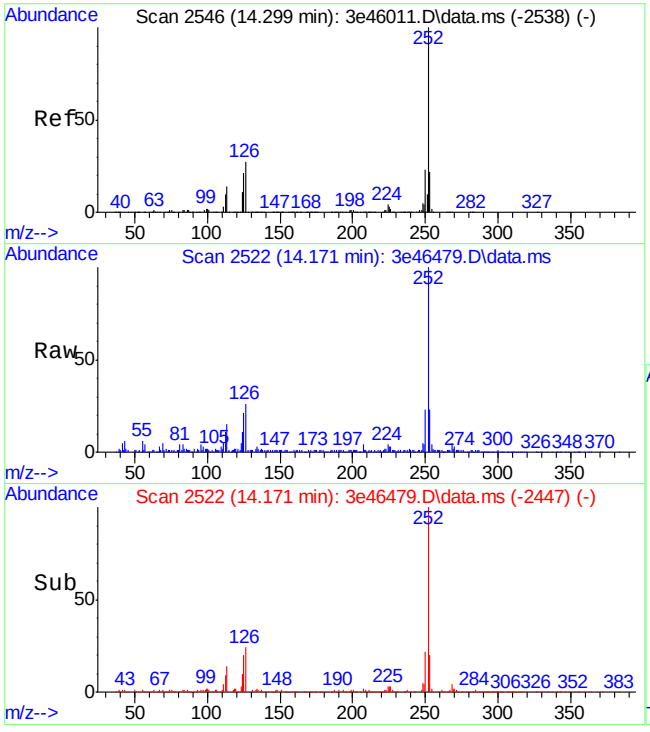
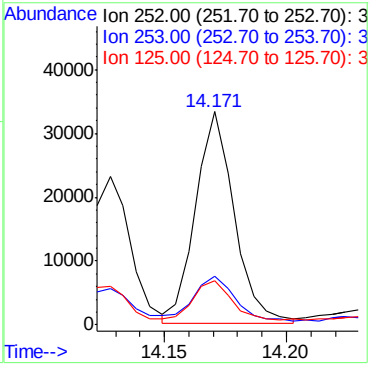
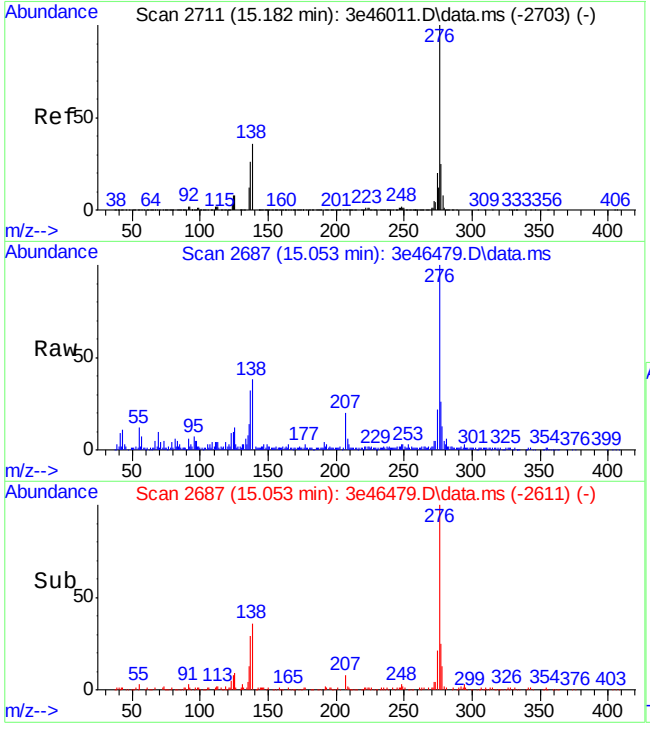


#96
Benzo[a]pyrene
Concen: 2.81 ppb
RT: 14.171 min Scan# 2522
Delta R.T. -0.096 min
Lab File: 3e46479.D
Acq: 21 Dec 2012 12:29 pm

Tgt Ion:252 Resp: 36503

Ion	Ratio	Lower	Upper
252	100		
253	20.3	0.0	52.7
125	18.7	0.0	48.6

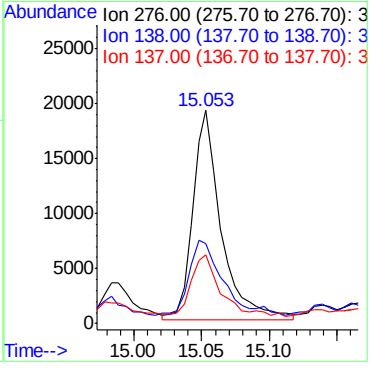




#97
Indeno[1,2,3-cd]pyrene
Concen: 1.87 ppb
RT: 15.053 min Scan# 2687
Delta R.T. -0.091 min
Lab File: 3e46479.D
Acq: 21 Dec 2012 12:29 pm

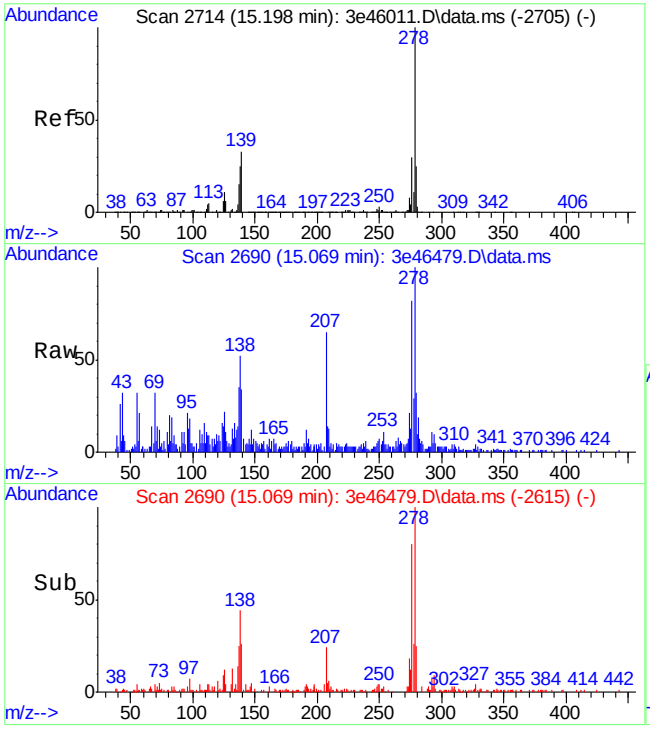
Tgt Ion:276 Resp: 27432

Ion	Ratio	Lower	Upper
276	100		
138	34.2	1.3	61.3
137	29.4	0.0	52.6



9.1.28

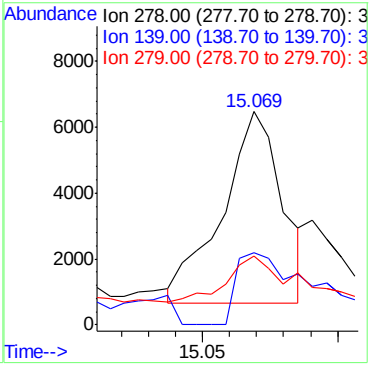
9

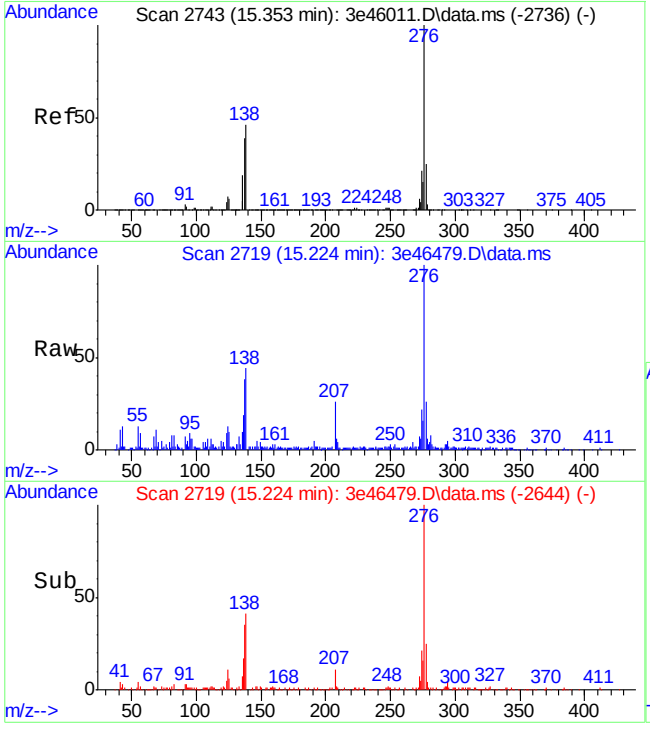


#99
Dibenz[a,h]anthracene
Concen: 0.73 ppb m
RT: 15.069 min Scan# 2690
Delta R.T. -0.096 min
Lab File: 3e46479.D
Acq: 21 Dec 2012 12:29 pm

Tgt Ion:278 Resp: 8934

Ion	Ratio	Lower	Upper
278	100		
139	34.0	0.0	57.0
279	32.5	0.0	55.4

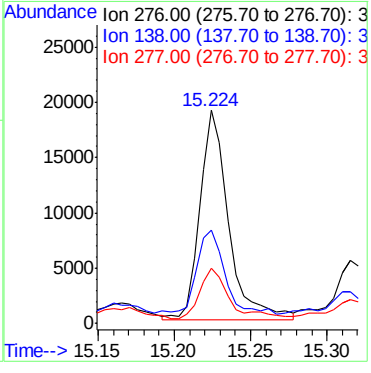




#101
Benzo[g,h,i]perylene
Concen: 2.01 ppb
RT: 15.224 min Scan# 2719
Delta R.T. -0.096 min
Lab File: 3e46479.D
Acq: 21 Dec 2012 12:29 pm

Tgt Ion:276 Resp: 24524

Ion	Ratio	Lower	Upper
276	100		
138	39.4	9.8	69.8
277	23.2	0.0	55.0



9.1.28

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48605.D
Acq On : 19 Dec 2012 10:30 am
Operator : olgaa
Sample : op62064-mb1
Misc : op62064,e2m2082,35.0
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 19 13:42:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.379	152	211730	40.00	ppb	-0.01
24) Naphthalene-d8	3.898	136	982361	40.00	ppb	-0.02
47) Acenaphthene-d10	6.460	164	649584	40.00	ppb	-0.02
69) Phenanthrene-d10	8.685	188	1171618	40.00	ppb	-0.02
83) Chrysene-d12	12.504	240	1353847	40.00	ppb	-0.02
92) Perylene-d12	13.916	264	1268602	40.00	ppb	-0.01
102) 1,4-Dichlorobenzene-d4a	2.379	152	211730	40.00	ppb	-0.01
104) Acenaphthene-d10a	6.460	164	649584	40.00	ppb	-0.02
106) Chrysene-d12a	12.504	240	1353847	40.00	ppb	-0.02
108) Phenanthrene-d10a	8.685	188	1171618	40.00	ppb	-0.02
110) Chrysene-d12b	12.504	240	1353847	40.00	ppb	-0.02

System Monitoring Compounds						
5) 2-Fluorophenol	1.421	112	222936	28.93	ppb	0.00
Spiked Amount 50.000			Recovery = 57.86%			
8) Phenol-d5	2.224	99	304511	29.49	ppb	0.00
Spiked Amount 50.000			Recovery = 58.98%			
25) Nitrobenzene-d5	3.058	82	264030	25.05	ppb	0.00
Spiked Amount 50.000			Recovery = 50.10%			
51) 2-Fluorobiphenyl	5.545	172	586054	27.44	ppb	-0.02
Spiked Amount 50.000			Recovery = 54.88%			
73) 2,4,6-Tribromophenol	7.722	330	97584	35.44	ppb	-0.02
Spiked Amount 50.000			Recovery = 70.88%			
85) Terphenyl-d14	11.273	244	1046172	38.24	ppb	-0.02
Spiked Amount 50.000			Recovery = 76.48%			

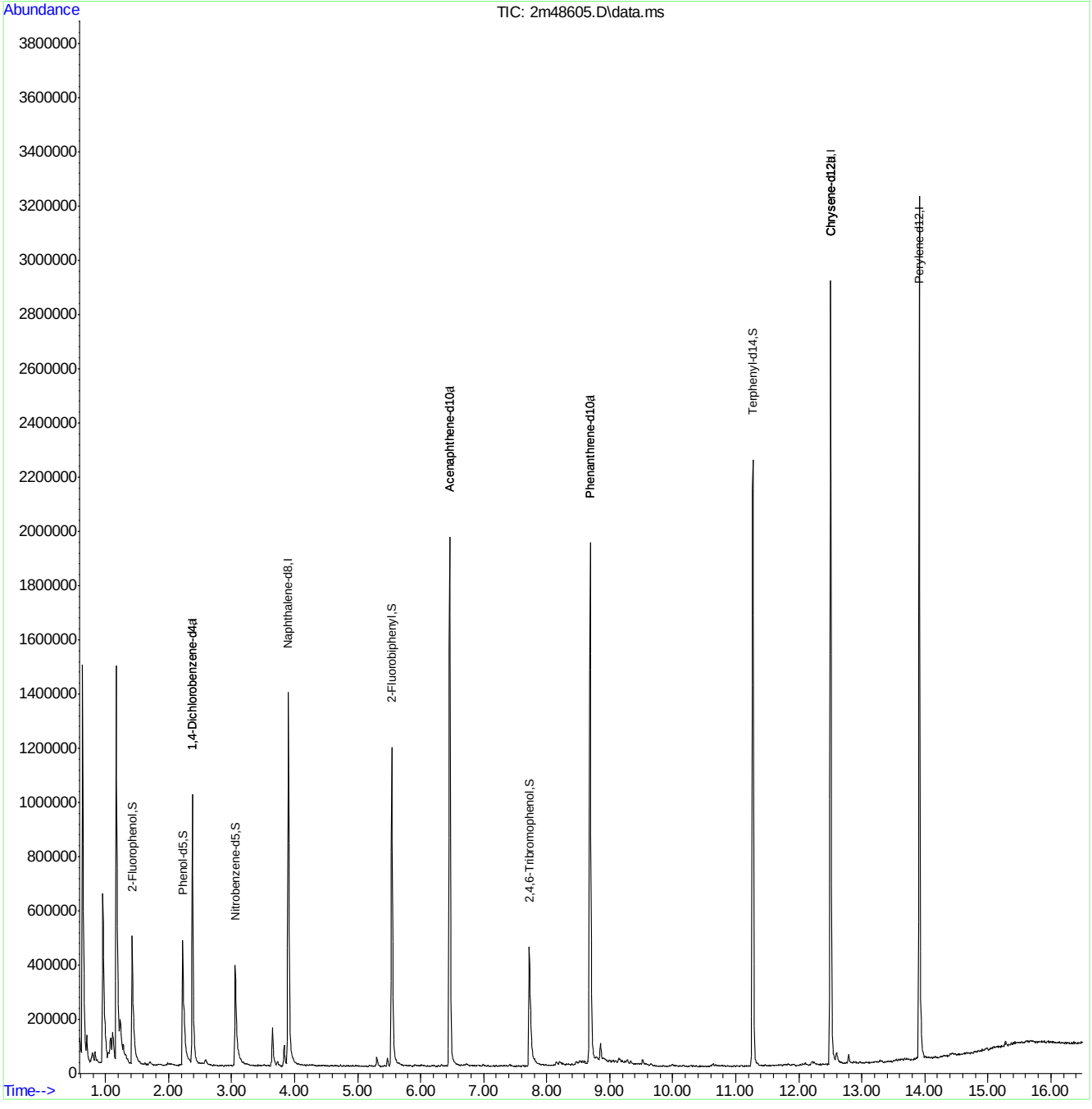
Target Compounds	Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e2m2082\
Data File : 2m48605.D
Acq On : 19 Dec 2012 10:30 am
Operator : olgaa
Sample : op62064-mb1
Misc : op62064,e2m2082,35.0
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 19 13:42:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\M2M2034.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Wed Dec 19 09:59:45 2012
Response via : Initial Calibration



M2M2034.M Wed Dec 19 13:42:44 2012 MS2M

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2018\
Data File : 3e46431.D
Acq On : 19 Dec 2012 6:40 pm
Operator : olgaa
Sample : op62064-mb1
Misc : op62064,e3e2018,35.0
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Dec 20 11:22:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\M3E1991.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Dec 06 10:24:01 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.719	152	147060	40.00	ppb	-0.08
24) Naphthalene-d8	4.302	136	655456	40.00	ppb	-0.09
47) Acenaphthene-d10	6.907	164	364557	40.00	ppb	-0.10
69) Phenanthrene-d10	9.143	188	568764	40.00	ppb	-0.10
83) Chrysene-d12	12.860	240	555274	40.00	ppb	-0.08
92) Perylene-d12	14.246	264	492366	40.00	ppb	-0.07
102) 1,4-Dichlorobenzene-d4a	2.719	152	147060	40.00	ppb	-0.08
104) Acenaphthene-d10a	6.907	164	364557	40.00	ppb	-0.10
106) Phenanthrene-d10a	9.143	188	568764	40.00	ppb	-0.10
108) Chrysene-d12a	12.860	240	555274	40.00	ppb	-0.08

System Monitoring Compounds

5) 2-Fluorophenol	1.671	112	159978	31.22	ppb	-0.07
Spiked Amount 50.000	Range 11 - 58		Recovery = 62.44%#			
8) Phenol-d5	2.516	99	200363	32.14	ppb	-0.10
Spiked Amount 50.000	Range 10 - 59		Recovery = 64.28%#			
25) Nitrobenzene-d5	3.409	82	135352	24.68	ppb	-0.09
Spiked Amount 50.000	Range 19 - 61		Recovery = 49.36%			
51) 2-Fluorobiphenyl	5.966	172	355762	29.51	ppb	-0.10
Spiked Amount 50.000	Range 21 - 59		Recovery = 59.02%#			
73) 2,4,6-Tribromophenol	8.153	330	43200	35.94	ppb	-0.10
Spiked Amount 50.000	Range 12 - 68		Recovery = 71.88%#			
85) Terphenyl-d14	11.689	244	447626	38.46	ppb	-0.09
Spiked Amount 50.000	Range 16 - 65		Recovery = 76.92%#			

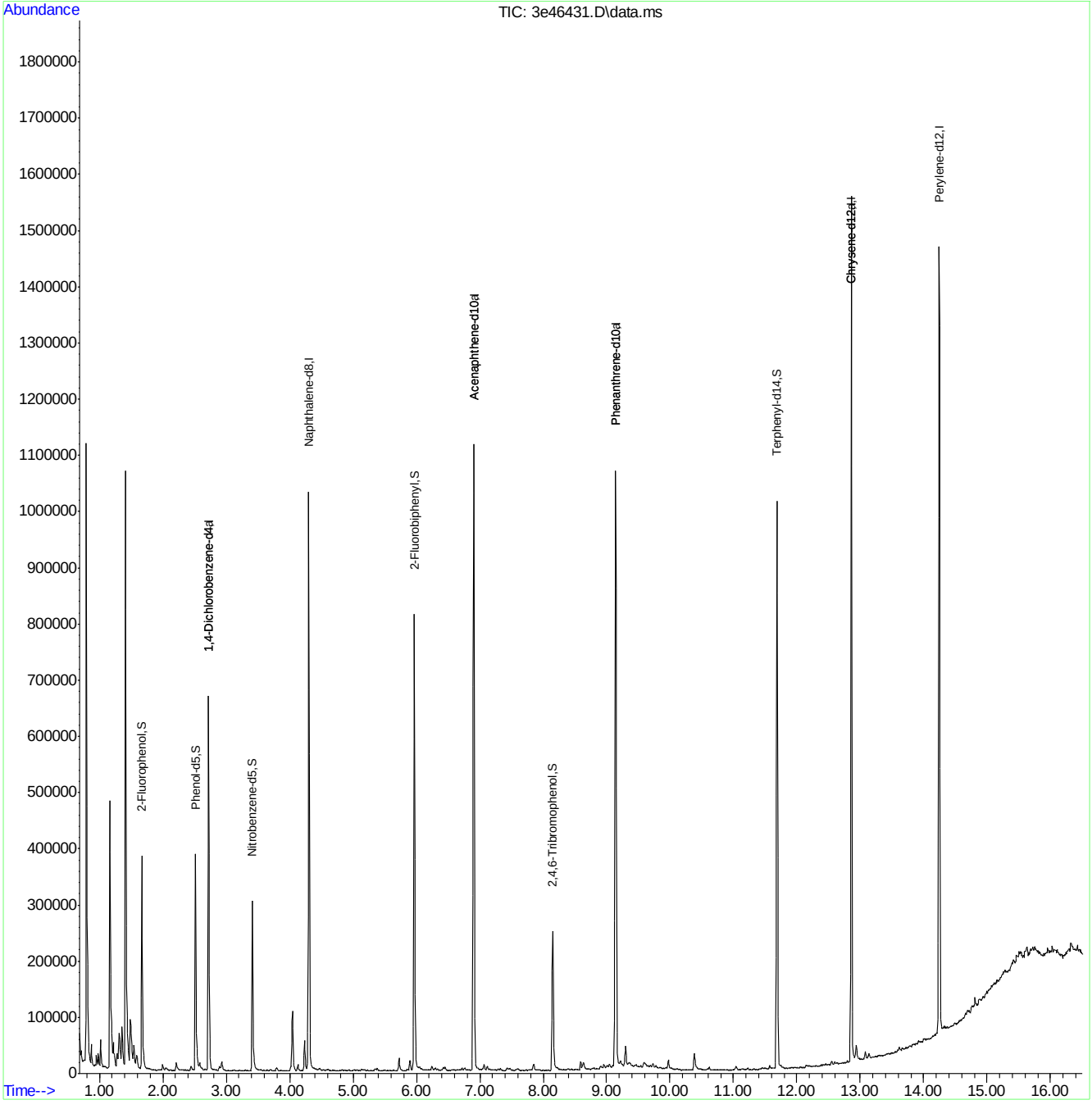
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2018\
Data File : 3e46431.D
Acq On : 19 Dec 2012 6:40 pm
Operator : olgaa
Sample : op62064-mb1
Misc : op62064,e3e2018,35.0
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Dec 20 11:22:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\M3E1991.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Dec 06 10:24:01 2012
Response via : Initial Calibration



M3E1991.M Thu Dec 20 11:22:52 2012 MS3E

New Jersey
ACCUTEST LABORATORIES

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Instrument Runlogs
- Initial and Continuing Calibration Blanks
- Initial and Continuing Calibration Checks
- High and Low Check Standards
- Interfering Element Check Standards
- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
Analyst: BL Run ID: MA30079
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
11:55	MA30079-STD1	1		STDA
12:01	MA30079-STD2	1		STDB
12:06	MA30079-STD3	1		STDC
12:12	MA30079-STD4	1		STDD
12:18	MA30079-CCV1	1		
12:24	MA30079-CCB1	1		
12:30	MA30079-CRI1	1		
12:36	MA30079-CRID1	1		
12:42	MA30079-CRIA1	1		
12:47	MA30079-ICV1	1		
12:53	MA30079-ICB1	1		
12:59	MA30079-CCV2	1		
13:05	MA30079-CCB2	1		
13:11	ZZZZZZ	1		
13:17	ZZZZZZ	1		
13:23	ZZZZZZ	1		
13:29	ZZZZZZ	1		
13:35	ZZZZZZ	1		
13:41	MA30079-ICSA1	1		
13:47	MA30079-ICSAB1	1		
13:52	MA30079-CCV3	1		
13:58	MA30079-CCB3	1		
14:04	MP68531-MB1	1		
14:10	MP68531-LC1	1		
14:16	MP68531-S1	1		
14:21	MP68531-S2	1		
14:27	JB23010-1	1		(sample used for QC only; not part of login JB22962)
14:33	MP68531-SD1	5		
14:39	ZZZZZZ	1		
14:45	ZZZZZZ	1		
14:51	MA30079-CCV4	1		
14:56	MA30079-CCB4	1		
15:02	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
Analyst: BL Run ID: MA30079
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
15:08	ZZZZZZ	1		
15:14	ZZZZZZ	1		
15:20	ZZZZZZ	1		
15:26	ZZZZZZ	1		
15:32	ZZZZZZ	1		
15:38	ZZZZZZ	1		
15:44	ZZZZZZ	1		
15:50	MA30079-CCV5	1		
15:55	MA30079-CCB5	1		
16:01	ZZZZZZ	1		
16:07	ZZZZZZ	1		
16:13	ZZZZZZ	1		
16:19	ZZZZZZ	1		
16:25	ZZZZZZ	1		
16:31	ZZZZZZ	1		
16:37	ZZZZZZ	1		
16:43	ZZZZZZ	1		
16:48	MA30079-CCV6	1		
16:54	MA30079-CCB6	1		
17:00	ZZZZZZ	1		
17:06	ZZZZZZ	1		
17:12	ZZZZZZ	1		
17:18	MP68572-MB1	1		
17:24	MP68572-LC1	1		
17:29	MP68572-S1	1		Na =580ppm
17:35	MP68572-S2	1		Na =580ppm
17:41	JB23108-1	1		(sample used for QC only; not part of login JB22962)
17:47	MP68572-SD1	5		Na =580ppm
17:53	MA30079-CCV7	1		
17:59	MA30079-CCB7	1		
18:05	ZZZZZZ	1		
18:11	ZZZZZZ	1		
18:17	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
Analyst: BL Run ID: MA30079
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
18:23	ZZZZZZ	1		
18:29	ZZZZZZ	1		
18:35	MP68504-MB1	1		Bad readings.
18:41	MP68504-LC1	1		
18:46	MP68504-B1	1		
18:52	MA30079-CCV8	1		
18:58	MA30079-CCB8	1		
19:04	MP68504-MB1	1		Tl neg.
19:10	MA30079-CRI2	1		
19:16	MA30079-CRID2	1		
19:22	MA30079-CRIA2	1		
19:28	MA30079-ICSA2	1		
19:34	MA30079-ICSAB2	1		
19:39	MA30079-CCV9	1		
19:45	MA30079-CCB9	1		
19:51	MP68504-S1	1		
19:57	MP68504-S2	1		
20:03	JB22924-11	1		(sample used for QC only; not part of login JB22962)
20:08	MP68504-SD1	5		
20:14	ZZZZZZ	1		
20:20	ZZZZZZ	1		
20:26	ZZZZZZ	1		
20:32	ZZZZZZ	1		
20:38	MA30079-CCV10	1		
20:44	MA30079-CCB10	1		
20:50	ZZZZZZ	1		
20:56	ZZZZZZ	1		
21:02	ZZZZZZ	1		
21:08	ZZZZZZ	1		
21:14	ZZZZZZ	1		
21:20	ZZZZZZ	1		
21:26	ZZZZZZ	1		
21:33	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
Analyst: BL Run ID: MA30079
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
21:39	ZZZZZZ	1		
21:45	MA30079-CCV11	1		
21:50	MA30079-CCB11	1		
21:56	MP68549-MB1	1		
22:02	MP68549-LC1	1		
22:08	MP68549-S1	1		Very bad rep.
22:14	MP68549-S2	1		
22:19	JB23032-4	1		(sample used for QC only; not part of login JB22962)
22:25	MP68549-SD1	5		
22:31	ZZZZZZ	1		
22:37	ZZZZZZ	1		
22:43	MA30079-CCV12	1		
22:49	MA30079-CCB12	1		
22:55	ZZZZZZ	1		
23:00	ZZZZZZ	1		
23:06	ZZZZZZ	1		
23:12	ZZZZZZ	1		
23:18	ZZZZZZ	1		
23:24	ZZZZZZ	1		
23:30	ZZZZZZ	1		
23:36	ZZZZZZ	1		
23:41	MA30079-CCV13	1		Be, Ca, Fe and Mg bad reps.
23:47	MA30079-CCB13	1		
23:53	ZZZZZZ	1		
23:59	ZZZZZZ	1		
00:05	ZZZZZZ	1		
00:11	ZZZZZZ	1		
00:17	ZZZZZZ	1		
00:22	ZZZZZZ	1		
00:28	ZZZZZZ	1		
00:34	ZZZZZZ	1		
00:40	ZZZZZZ	1		
00:46	MA30079-CCV14	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
Analyst: BL Run ID: MA30079
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
00:52	MA30079-CCB14	1		
00:58	MP68545-MB1	1		
01:04	MP68545-B1	1		
01:09	MP68545-S1	1		
01:15	MP68545-S2	1		
01:21	JB22962-8	1		
01:27	MP68545-SD1	5		
01:33	JB22962-1	1		
01:38	JB22962-2	1		
01:44	JB22962-3	1		
01:50	MA30079-CCV15	1		
01:56	MA30079-CCB15	1		
02:02	MA30079-CRI3	1		
02:08	MA30079-CRID3	1		
02:14	MA30079-CRIA3	1		
02:20	MA30079-ICSA3	1		
02:26	MA30079-ICSAB3	1		
02:32	MA30079-CCV16	1		
02:37	MA30079-CCB16	1		
02:43	ZZZZZZ	1		
02:49	ZZZZZZ	1		
02:55	ZZZZZZ	1		
03:01	ZZZZZZ	1		
03:07	ZZZZZZ	1		
03:13	ZZZZZZ	1		
03:19	ZZZZZZ	1		
03:25	ZZZZZZ	1		
03:31	ZZZZZZ	1		
03:37	MA30079-CCV17	1		
03:42	MA30079-CCB17	1		
03:48	JB22962-4	1		
03:54	JB22962-5	1		
04:00	JB22962-6	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
Analyst: BL Run ID: MA30079
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
04:06	JB22962-7	1		
04:12	JB22962-9	1		
04:17	JB22962-10	1		
04:23	JB22962-11	1		
04:29	JB22962-12	1		
04:35	JB22962-13	1		
04:41	JB22962-14	1		
04:47	MA30079-CCV18	1		
04:52	MA30079-CCB18	1		
04:58	JB22962-15	1		High RSD.
05:04	JB22962-16	1		
05:10	JB22962-17	1		
05:16	JB22962-18	1		
05:22	JB22962-19	1		
05:27	ZZZZZZ	1		
05:33	ZZZZZZ	1		
05:39	ZZZZZZ	1		
05:45	ZZZZZZ	1		
05:51	ZZZZZZ	1		
05:57	MA30079-CCV19	1		
06:03	MA30079-CCB19	1		
06:09	ZZZZZZ	1		
06:15	ZZZZZZ	1		
06:21	ZZZZZZ	1		
06:27	ZZZZZZ	1		
06:33	ZZZZZZ	2		
06:39	ZZZZZZ	2		
06:45	ZZZZZZ	2		
06:51	ZZZZZZ	2		
06:57	MA30079-CCV20	1		
07:03	MA30079-CCB20	1		
07:09	ZZZZZZ	10		
07:15	ZZZZZZ	10		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
Analyst: BL Run ID: MA30079
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
07:21	MA30079-CCV21	1		
07:27	MA30079-CCB21	1		
07:33	MA30079-CRI4	1		
07:39	MA30079-CRID4	1		Ag and TLNJ out.
07:45	MA30079-CRIA4	1		
07:51	MA30079-ICSA4	1		
07:57	MA30079-ICSAB4	1		

Refer to raw data for calibration curve and standards.

INTERNAL STANDARD SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
Analyst: BL Run ID: MA30079
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
11:55	MA30079-STD1	1481 R	110210 R	26903 R	4809 R
12:01	MA30079-STD2	1428	105550	26117	4551
12:06	MA30079-STD3	1389	103290	25752	4406
12:12	MA30079-STD4	1343	99278	25308	4238
12:18	MA30079-CCV1	No results reported for the elements associated with this internal standard.			
12:24	MA30079-CCB1	No results reported for the elements associated with this internal standard.			
12:30	MA30079-CRI1	1458	108460	26739	4713
12:36	MA30079-CRID1	1470	109620	26785	4765
12:42	MA30079-CRIA1	1465	109550	26779	4755
12:47	MA30079-ICV1	1376	102400	25750	4357
12:53	MA30079-ICB1	1482	110830	27195	4799
12:59	MA30079-CCV2	1387	103010	26120	4406
13:05	MA30079-CCB2	1464	109550	26896	4752
13:11	ZZZZZZ	1460	109000	26843	4734
13:17	ZZZZZZ	1446	108280	26901	4688
13:23	ZZZZZZ	1418	101210	22321	4338
13:29	ZZZZZZ	1331	98223	25433	4194
13:35	ZZZZZZ	1431	107060	26605	4750
13:41	MA30079-ICSA1	1236	92833	23627	3830
13:47	MA30079-ICSAB1	1237	92798	23602	3841
13:52	MA30079-CCV3	1381	102680	25862	4377
13:58	MA30079-CCB3	1455	109130	26913	4729
14:04	MP68531-MB1	1448	109600	26904	4741
14:10	MP68531-LC1	1401	105170	25802	4559
14:16	MP68531-S1	1359	102660	25874	4366
14:21	MP68531-S2	1354	102330	25780	4349
14:27	JB23010-1	1399	105600	26421	4552
14:33	MP68531-SD1	1429	107850	26822	4668
14:39	ZZZZZZ	1389	104750	25881	4534
14:45	ZZZZZZ	1400	105020	26360	4514
14:51	MA30079-CCV4	1371	102220	26097	4355
14:56	MA30079-CCB4	1446	109280	27109	4711
15:02	ZZZZZZ	1380	104260	26134	4482

INTERNAL STANDARD SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
Analyst: BL Run ID: MA30079
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
15:08	ZZZZZZ	1300	92215	24648	3922
15:14	ZZZZZZ	1337	100190	25654	4230
15:20	ZZZZZZ	1379	104850	25823	4530
15:26	ZZZZZZ	999999 !	162500 !	42355 !	999999 !
15:32	ZZZZZZ	1363	103740	25826	4443
15:38	ZZZZZZ	1398	104890	25965	4557
15:44	ZZZZZZ	1393	104890	25808	4542
15:50	MA30079-CCV5	1365	102290	25933	4345
15:55	MA30079-CCB5	1452	109320	27064	4731
16:01	ZZZZZZ	1371	102390	25837	4414
16:07	ZZZZZZ	1380	103340	25973	4470
16:13	ZZZZZZ	1228	90832	24562	3709
16:19	ZZZZZZ	1339	99565	25631	4228
16:25	ZZZZZZ	1397	105790	26227	4577
16:31	ZZZZZZ	1433	107580	26548	4709
16:37	ZZZZZZ	1414	107650	26443	4656
16:43	ZZZZZZ	1421	107730	26497	4643
16:48	MA30079-CCV6	1356	101340	25971	4321
16:54	MA30079-CCB6	1446	108900	26929	4725
17:00	ZZZZZZ	1346	101590	25540	4344
17:06	ZZZZZZ	1328	100480	25470	4312
17:12	ZZZZZZ	1432	108100	26339	4693
17:18	MP68572-MB1	1423	108160	26574	4683
17:24	MP68572-LC1	1389	104970	25817	4542
17:29	MP68572-S1	1118	85542	23155	3439
17:35	MP68572-S2	1115	84897	23107	3433
17:41	JB23108-1	1127	86242	23316	3478
17:47	MP68572-SD1	1304	98754	25379	4128
17:53	MA30079-CCV7	1356	101810	25729	4328
17:59	MA30079-CCB7	1436	108360	26715	4696
18:05	ZZZZZZ	1410	107550	26374	4649
18:11	ZZZZZZ	1413	107470	26365	4658
18:17	ZZZZZZ	1336	102610	26376	4329

INTERNAL STANDARD SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
Analyst: BL Run ID: MA30079
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
18:23	ZZZZZZ	1397	106200	26114	4603
18:29	ZZZZZZ	1390	106930	26264	4576
18:35	MP68504-MB1	No results reported for the elements associated with this internal standard.			
18:41	MP68504-LC1	1385	104580	25754	4538
18:46	MP68504-B1	1355	103410	25975	4407
18:52	MA30079-CCV8	1343	101510	25690	4289
18:58	MA30079-CCB8	1425	108250	26827	4675
19:04	MP68504-MB1	1393	107770	26254	4606
19:10	MA30079-CRI2	1410	106810	26528	4600
19:16	MA30079-CRID2	1417	107600	26774	4638
19:22	MA30079-CRIA2	1414	107520	26580	4644
19:28	MA30079-ICSA2	1180	90453	23033	3696
19:34	MA30079-ICSAB2	1195	91145	23001	3754
19:39	MA30079-CCV9	1336	100850	25599	4281
19:45	MA30079-CCB9	1420	107610	28105	4655
19:51	MP68504-S1	1306	100650	25095	4271
19:57	MP68504-S2	1308	100520	25027	4278
20:03	JB22924-11	1361	104090	25649	4494
20:08	MP68504-SD1	1394	106850	26385	4594
20:14	ZZZZZZ	1260	94783	24836	3989
20:20	ZZZZZZ	1268	96120	24950	4010
20:26	ZZZZZZ	1202	92348	24088	3857
20:32	ZZZZZZ	1266	96716	24959	4068
20:38	MA30079-CCV10	1319	100400	25480	4238
20:44	MA30079-CCB10	1400	107630	26758	4600
20:50	ZZZZZZ	1220	93471	24177	3930
20:56	ZZZZZZ	1378	106660	26036	4577
21:02	ZZZZZZ	1105	84802	23162	3432
21:08	ZZZZZZ	1116	84798	23026	3461
21:14	ZZZZZZ	No results reported for the elements associated with this internal standard.			
21:20	ZZZZZZ	832 !a	64680 !a	19664	2522 !a
21:26	ZZZZZZ	1220	93462	24027	3871
21:33	ZZZZZZ	1395	107410	26102	4602

INTERNAL STANDARD SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
Analyst: BL Run ID: MA30079
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
21:39	ZZZZZZ	1396	107730	26305	4614
21:45	MA30079-CCV11	1304	99618	24833	4207
21:50	MA30079-CCB11	1377	106010	25944	4552
21:56	MP68549-MB1	1365	105790	25585	4555
22:02	MP68549-LC1	1343	102280	24958	4428
22:08	MP68549-S1	No results reported for the elements associated with this internal standard.			
22:14	MP68549-S2	No results reported for the elements associated with this internal standard.			
22:19	JB23032-4	1320	102240	25109	4445
22:25	MP68549-SD1	1359	105080	25881	4506
22:31	ZZZZZZ	1363	105790	25896	4524
22:37	ZZZZZZ	1309	102250	25039	4422
22:43	MA30079-CCV12	1299	99429	24804	4182
22:49	MA30079-CCB12	1382	106730	26055	4570
22:55	ZZZZZZ	1321	104150	25254	4415
23:00	ZZZZZZ	1331	102960	25176	4444
23:06	ZZZZZZ	1286	100280	24894	4277
23:12	ZZZZZZ	1264	99727	24497	4168
23:18	ZZZZZZ	1327	103130	25065	4412
23:24	ZZZZZZ	1314	102500	24986	4393
23:30	ZZZZZZ	1326	103770	25269	4426
23:36	ZZZZZZ	1352	105200	25480	4504
23:41	MA30079-CCV13	1295	100260	25964	4181
23:47	MA30079-CCB13	1377	106270	25955	4550
23:53	ZZZZZZ	No results reported for the elements associated with this internal standard.			
23:59	ZZZZZZ	1302	101480	24718	4348
00:05	ZZZZZZ	1300	102030	24835	4397
00:11	ZZZZZZ	1305	102780	25123	4369
00:17	ZZZZZZ	1267	99199	24543	4213
00:22	ZZZZZZ	1268	99899	24637	4233
00:28	ZZZZZZ	1307	102430	24997	4355
00:34	ZZZZZZ	1301	102040	24773	4366
00:40	ZZZZZZ	1313	102930	25040	4404
00:46	MA30079-CCV14	1279	98353	24622	4149

INTERNAL STANDARD SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
Analyst: BL Run ID: MA30079
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
00:52	MA30079-CCB14	1356	105560	25696	4491
00:58	MP68545-MB1	1319	105370	25300	4423
01:04	MP68545-B1	1296	100660	24462	4293
01:09	MP68545-S1	1237	96129	23528	4021
01:15	MP68545-S2	1244	97791	23855	4055
01:21	JB22962-8	1255	99124	24312	4083
01:27	MP68545-SD1	1306	102290	25092	4306
01:33	JB22962-1	1247	99036	24416	4025
01:38	JB22962-2	1166	93672	23344	3755
01:44	JB22962-3	1252	98861	24126	4070
01:50	MA30079-CCV15	1260	97728	24313	4099
01:56	MA30079-CCB15	1369	105560	25581	4561
02:02	MA30079-CRI3	1330	103390	25353	4401
02:08	MA30079-CRID3	1348	104510	25467	4472
02:14	MA30079-CRIA3	1354	105160	25484	4502
02:20	MA30079-ICSA3	1138	88645	21836	3604
02:26	MA30079-ICSAB3	1136	88465	21924	3607
02:32	MA30079-CCV16	1276	98228	24441	4125
02:37	MA30079-CCB16	1364	105620	25605	4510
02:43	ZZZZZZ	1232	94543	23747	3979
02:49	ZZZZZZ	1352	105710	25577	4503
02:55	ZZZZZZ	999999 !	104750	25599	999999 !
03:01	ZZZZZZ	1775	105490	25645	999999 !
03:07	ZZZZZZ	1348	105570	25539	4472
03:13	ZZZZZZ	1348	104510	25601	4448
03:19	ZZZZZZ	1358	105780	25746	4505
03:25	ZZZZZZ	1317	104820	25485	4455
03:31	ZZZZZZ	1371	105060	25543	4552
03:37	MA30079-CCV17	1270	98535	24356	4117
03:42	MA30079-CCB17	1350	105130	25503	4479
03:48	JB22962-4	1219	95918	23334	3950
03:54	JB22962-5	1232	98998	24167	4056
04:00	JB22962-6	1200	95599	23561	3891

INTERNAL STANDARD SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
Analyst: BL Run ID: MA30079
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
04:06	JB22962-7	1227	97739	23896	4079
04:12	JB22962-9	1251	98219	23873	4073
04:17	JB22962-10	1258	98660	24025	4074
04:23	JB22962-11	1149	92440	23823	3685
04:29	JB22962-12	1263	98893	24435	4075
04:35	JB22962-13	1220	96874	23161	3998
04:41	JB22962-14	1147	92689	23121	3707
04:47	MA30079-CCV18	1267	98105	24100	4108
04:52	MA30079-CCB18	1364	105280	25325	4516
04:58	JB22962-15	1182	90794	22504	3817
05:04	JB22962-16	1224	97078	23564	3949
05:10	JB22962-17	1237	98786	23945	3967
05:16	JB22962-18	1253	100670	23936	3903
05:22	JB22962-19	1328	109100	24958	4210
05:27	ZZZZZZ	1242	98356	23589	4110
05:33	ZZZZZZ	1067	83400	21871	3330 !a
05:39	ZZZZZZ	922 !a	67989 !a	19517	2702 !a
05:45	ZZZZZZ	859 !a	66326 !a	18931	2501 !a
05:51	ZZZZZZ	1210	95655	23328	3980
05:57	MA30079-CCV19	1277	97704	24049	4144
06:03	MA30079-CCB19	1356	105910	25303	4503
06:09	ZZZZZZ	1216	95672	23557	4000
06:15	ZZZZZZ	1205	94861	23285	3927
06:21	ZZZZZZ	1148	89884	22559	3707
06:27	ZZZZZZ	1337	104570	24761	4473
06:33	ZZZZZZ	1211	94738	23326	3939
06:39	ZZZZZZ	1242	96496	23739	4041
06:45	ZZZZZZ	1157	89506	22674	3676
06:51	ZZZZZZ	1155	89985	22702	3659
06:57	MA30079-CCV20	1263	98238	23865	4105
07:03	MA30079-CCB20	1346	103810	25051	4469
07:09	ZZZZZZ	966 !a	72912 !a	20148	2796 !a
07:15	ZZZZZZ	1141	89213	22733	3586

INTERNAL STANDARD SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
Analyst: BL Run ID: MA30079
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
07:21	MA30079-CCV21	1272	97533	23665	4126
07:27	MA30079-CCB21	1337	104880	24956	4450
07:33	MA30079-CRI4	1329	103120	24762	4410
07:39	MA30079-CRID4	1341	104040	24736	4459
07:45	MA30079-CRIA4	1344	105100	24961	4465
07:51	MA30079-ICSA4	1126	87599	21187	3577
07:57	MA30079-ICSAB4	1128	88534	21236	3589

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %
Istd#4	Indium	70-130 %

(a) No samples reported for the elements associated with this internal standard.

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30079 Units: ug/l

Time:			12:53		13:05		13:58		14:56	
Sample ID:			ICB1		CCB2		CCB3		CCB4	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	11	anr							
Antimony	6.0	1.2	anr							
Arsenic	3.0	1.2	anr							
Barium	200	.2	anr							
Beryllium	1.0	.04	anr							
Bismuth	20	1								
Boron	100	1.1	anr							
Cadmium	3.0	.2	anr							
Calcium	5000	24	anr							
Chromium	10	.3	anr							
Cobalt	50	.2	anr							
Copper	10	.6	anr							
Iron	100	2.1	anr							
Lead	3.0	1.1	0.20	<3.0	0.30	<3.0	0.10	<3.0	0.40	<3.0
Lithium	20	.5								
Magnesium	5000	17	anr							
Manganese	15	.2	anr							
Molybdenum	20	.3								
Nickel	10	.4	anr							
Palladium	50	.9								
Potassium	10000	23	anr							
Selenium	10	1.4	anr							
Silicon	200	8.1								
Silver	10	.3	anr							
Sodium	10000	14	anr							
Sulfur	50	2.4								
Strontium	10	.2								
Thallium	2.0	1.2	anr							
Tin	10	1								
Titanium	10	.2								
Tungsten	50	3.1								
Vanadium	50	.2	anr							
Zinc	20	2.6	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30079 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.3

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30079 Units: ug/l

Time:			15:55		16:54		17:59		18:58	
Sample ID:			CCB5		CCB6		CCB7		CCB8	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	11	anr							
Antimony	6.0	1.2	anr							
Arsenic	3.0	1.2	anr							
Barium	200	.2	anr							
Beryllium	1.0	.04	anr							
Bismuth	20	1								
Boron	100	1.1	anr							
Cadmium	3.0	.2	anr							
Calcium	5000	24	anr							
Chromium	10	.3	anr							
Cobalt	50	.2	anr							
Copper	10	.6	anr							
Iron	100	2.1	anr							
Lead	3.0	1.1	0.70	<3.0	0.70	<3.0	0.50	<3.0	0.10	<3.0
Lithium	20	.5								
Magnesium	5000	17	anr							
Manganese	15	.2	anr							
Molybdenum	20	.3								
Nickel	10	.4	anr							
Palladium	50	.9								
Potassium	10000	23	anr							
Selenium	10	1.4	anr							
Silicon	200	8.1								
Silver	10	.3	anr							
Sodium	10000	14	anr							
Sulfur	50	2.4								
Strontium	10	.2								
Thallium	2.0	1.2	anr							
Tin	10	1								
Titanium	10	.2								
Tungsten	50	3.1								
Vanadium	50	.2	anr							
Zinc	20	2.6	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30079 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.3

(*) Outside of QC limits
(anr) Analyte not requested

10.1.2
10

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30079 Units: ug/l

Time:			19:45		20:44		21:50		22:49	
Sample ID:			CCB9		CCB10		CCB11		CCB12	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	11	anr							
Antimony	6.0	1.2	anr							
Arsenic	3.0	1.2	anr							
Barium	200	.2	anr							
Beryllium	1.0	.04	anr							
Bismuth	20	1								
Boron	100	1.1	anr							
Cadmium	3.0	.2	anr							
Calcium	5000	24	anr							
Chromium	10	.3	anr							
Cobalt	50	.2	anr							
Copper	10	.6	anr							
Iron	100	2.1	anr							
Lead	3.0	1.1	-0.20	<3.0	0.0	<3.0	-0.40	<3.0	0.30	<3.0
Lithium	20	.5								
Magnesium	5000	17	anr							
Manganese	15	.2	anr							
Molybdenum	20	.3								
Nickel	10	.4	anr							
Palladium	50	.9								
Potassium	10000	23	anr							
Selenium	10	1.4	anr							
Silicon	200	8.1								
Silver	10	.3	anr							
Sodium	10000	14	anr							
Sulfur	50	2.4								
Strontium	10	.2								
Thallium	2.0	1.2	anr							
Tin	10	1								
Titanium	10	.2								
Tungsten	50	3.1								
Vanadium	50	.2	anr							
Zinc	20	2.6	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30079 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.3

(*) Outside of QC limits
(anr) Analyte not requested

10.1.2
10

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30079 Units: ug/l

Time:			23:47		00:52		01:56		02:37	
Sample ID:			CCB13		CCB14		CCB15		CCB16	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	11	anr							
Antimony	6.0	1.2	anr							
Arsenic	3.0	1.2	anr							
Barium	200	.2	anr							
Beryllium	1.0	.04	anr							
Bismuth	20	1								
Boron	100	1.1	anr							
Cadmium	3.0	.2	anr							
Calcium	5000	24	anr							
Chromium	10	.3	anr							
Cobalt	50	.2	anr							
Copper	10	.6	anr							
Iron	100	2.1	anr							
Lead	3.0	1.1	-0.60	<3.0	0.80	<3.0	0.50	<3.0	0.40	<3.0
Lithium	20	.5								
Magnesium	5000	17	anr							
Manganese	15	.2	anr							
Molybdenum	20	.3								
Nickel	10	.4	anr							
Palladium	50	.9								
Potassium	10000	23	anr							
Selenium	10	1.4	anr							
Silicon	200	8.1								
Silver	10	.3	anr							
Sodium	10000	14	anr							
Sulfur	50	2.4								
Strontium	10	.2								
Thallium	2.0	1.2	anr							
Tin	10	1								
Titanium	10	.2								
Tungsten	50	3.1								
Vanadium	50	.2	anr							
Zinc	20	2.6	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30079 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.3

(*) Outside of QC limits
(anr) Analyte not requested

10.1.2
10

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30079 Units: ug/l

Time:			03:42		04:52		06:03		07:03	
Sample ID:			CCB17		CCB18		CCB19		CCB20	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	11	anr							
Antimony	6.0	1.2	anr							
Arsenic	3.0	1.2	anr							
Barium	200	.2	anr							
Beryllium	1.0	.04	anr							
Bismuth	20	1								
Boron	100	1.1	anr							
Cadmium	3.0	.2	anr							
Calcium	5000	24	anr							
Chromium	10	.3	anr							
Cobalt	50	.2	anr							
Copper	10	.6	anr							
Iron	100	2.1	anr							
Lead	3.0	1.1	0.50	<3.0	1.1	<3.0	0.50	<3.0	0.50	<3.0
Lithium	20	.5								
Magnesium	5000	17	anr							
Manganese	15	.2	anr							
Molybdenum	20	.3								
Nickel	10	.4	anr							
Palladium	50	.9								
Potassium	10000	23	anr							
Selenium	10	1.4	anr							
Silicon	200	8.1								
Silver	10	.3	anr							
Sodium	10000	14	anr							
Sulfur	50	2.4								
Strontium	10	.2								
Thallium	2.0	1.2	anr							
Tin	10	1								
Titanium	10	.2								
Tungsten	50	3.1								
Vanadium	50	.2	anr							
Zinc	20	2.6	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30079 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.3

(*) Outside of QC limits
(anr) Analyte not requested

10.1.2
10

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30079 Units: ug/l

Time:			07:27	
Sample ID:			CCB21	
Metal	RL	IDL	raw	final
Aluminum	200	11	anr	
Antimony	6.0	1.2	anr	
Arsenic	3.0	1.2	anr	
Barium	200	.2	anr	
Beryllium	1.0	.04	anr	
Bismuth	20	1		
Boron	100	1.1	anr	
Cadmium	3.0	.2	anr	
Calcium	5000	24	anr	
Chromium	10	.3	anr	
Cobalt	50	.2	anr	
Copper	10	.6	anr	
Iron	100	2.1	anr	
Lead	3.0	1.1	-0.20	<3.0
Lithium	20	.5		
Magnesium	5000	17	anr	
Manganese	15	.2	anr	
Molybdenum	20	.3		
Nickel	10	.4	anr	
Palladium	50	.9		
Potassium	10000	23	anr	
Selenium	10	1.4	anr	
Silicon	200	8.1		
Silver	10	.3	anr	
Sodium	10000	14	anr	
Sulfur	50	2.4		
Strontium	10	.2		
Thallium	2.0	1.2	anr	
Tin	10	1		
Titanium	10	.2		
Tungsten	50	3.1		
Vanadium	50	.2	anr	
Zinc	20	2.6	anr	

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30079 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.3

(*) Outside of QC limits
(anr) Analyte not requested

10.1.2
10

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30079 Units: ug/l

Time:		12:47			12:59			13:52	
Sample ID:	ICV	ICV1		CCV	CCV2		CCV	CCV3	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron	anr								
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2040	102.0	2000	2010	100.5	2000	2030	101.5
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30079 Units: ug/l

Time:	
Sample ID:	
Metal	

Zirconium

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30079 Units: ug/l

Time:		14:51			15:50			16:48	
Sample ID:	CCV	CCV4		CCV	CCV5		CCV	CCV6	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron	anr								
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2030	101.5	2000	2030	101.5	2000	2030	101.5
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30079 Units: ug/l

Time:	
Sample ID:	
Metal	
Zirconium	

(*) Outside of QC limits
(anr) Analyte not requested

10.1.3
10

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30079 Units: ug/l

Time:		17:53			18:52			19:39	
Sample ID:	CCV	CCV7		CCV	CCV8		CCV	CCV9	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron	anr								
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2030	101.5	2000	2030	101.5	2000	2020	101.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30079 Units: ug/l

Time:	
Sample ID:	
Metal	
Zirconium	

(*) Outside of QC limits
(anr) Analyte not requested

10.1.3
10

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30079 Units: ug/l

Time:		20:38			21:45			22:43	
Sample ID:	CCV	CCV10		CCV	CCV11		CCV	CCV12	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron	anr								
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2030	101.5	2000	2020	101.0	2000	2030	101.5
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30079 Units: ug/l

Time:	
Sample ID:	
Metal	
Zirconium	

(*) Outside of QC limits
(anr) Analyte not requested

10.1.3
10

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30079 Units: ug/l

Time:		23:41			00:46			01:50	
Sample ID:	CCV	CCV13		CCV	CCV14		CCV	CCV15	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron	anr								
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2030	101.5	2000	2030	101.5	2000	2040	102.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30079 Units: ug/l

Time:	
Sample ID:	
Metal	
Zirconium	

(*) Outside of QC limits
(anr) Analyte not requested

10.1.3
10

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30079 Units: ug/l

Time:		02:32			03:37			04:47	
Sample ID:	CCV	CCV16		CCV	CCV17		CCV	CCV18	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron	anr								
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2050	102.5	2000	2050	102.5	2000	2060	103.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30079 Units: ug/l

Time:	
Sample ID:	
Metal	
Zirconium	

(*) Outside of QC limits
(anr) Analyte not requested

10.1.3
10

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30079 Units: ug/l

Time:		05:57			06:57			07:21	
Sample ID:	CCV	CCV19		CCV	CCV20		CCV	CCV21	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron	anr								
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2030	101.5	2000	2050	102.5	2000	2040	102.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30079 Units: ug/l

Time:	
Sample ID:	
Metal	
Zirconium	

(*) Outside of QC limits
(anr) Analyte not requested

10.1.3
10

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30079 Units: ug/l

Time:				12:30		12:36		12:42	
Sample ID:	CRI	CRIA	CRID	CRI1		CRID1		CRIA1	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	200	500	100	anr					
Antimony	6.0	20	3.0	anr					
Arsenic	8.0	20	3.0	anr					
Barium	200		4.0	anr					
Beryllium	2.0		1.0	anr					
Bismuth	20								
Boron	100		10	anr					
Cadmium	3.0		1.0	anr					
Calcium	5000		1000	anr					
Chromium	10		2.0	anr					
Cobalt	50		3.0	anr					
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	2.7	90.0	2.0	80.0	20.6	103.0
Lithium	20								
Magnesium	5000		100	anr					
Manganese	15		3.0	anr					
Molybdenum	20		4.0						
Nickel	10		4.0	anr					
Palladium	50								
Potassium	5000		2000	anr					
Selenium	10	20	5.0	anr					
Silicon	200								
Silver	5.0		1.0	anr					
Sodium	5000		1000	anr					
Sulfur	50	50	50						
Strontium	10								
Thallium	10		2.0	anr					
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	anr					
Zinc	20		10	anr					

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30079 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	5.0

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30079 Units: ug/l

Time:				19:10		19:16		19:22	
Sample ID:	CRI	CRIA	CRID	CRI2		CRID2		CRIA2	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	200	500	100	anr					
Antimony	6.0	20	3.0	anr					
Arsenic	8.0	20	3.0	anr					
Barium	200		4.0	anr					
Beryllium	2.0		1.0	anr					
Bismuth	20								
Boron	100		10	anr					
Cadmium	3.0		1.0	anr					
Calcium	5000		1000	anr					
Chromium	10		2.0	anr					
Cobalt	50		3.0	anr					
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	3.7	123.3	3.0	120.0	20.5	102.5
Lithium	20								
Magnesium	5000		100	anr					
Manganese	15		3.0	anr					
Molybdenum	20		4.0						
Nickel	10		4.0	anr					
Palladium	50								
Potassium	5000		2000	anr					
Selenium	10	20	5.0	anr					
Silicon	200								
Silver	5.0		1.0	anr					
Sodium	5000		1000	anr					
Sulfur	50	50	50						
Strontium	10								
Thallium	10		2.0	anr					
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	anr					
Zinc	20		10	anr					

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30079 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	5.0

(*) Outside of QC limits
(anr) Analyte not requested

10.1.4
10

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30079 Units: ug/l

Time:				02:02		02:08		02:14	
Sample ID:	CRI	CRIA	CRID	CRI3		CRID3		CRIA3	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	200	500	100	anr					
Antimony	6.0	20	3.0	anr					
Arsenic	8.0	20	3.0	anr					
Barium	200		4.0	anr					
Beryllium	2.0		1.0	anr					
Bismuth	20								
Boron	100		10	anr					
Cadmium	3.0		1.0	anr					
Calcium	5000		1000	anr					
Chromium	10		2.0	anr					
Cobalt	50		3.0	anr					
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	3.2	106.7	3.0	120.0	20.4	102.0
Lithium	20								
Magnesium	5000		100	anr					
Manganese	15		3.0	anr					
Molybdenum	20		4.0						
Nickel	10		4.0	anr					
Palladium	50								
Potassium	5000		2000	anr					
Selenium	10	20	5.0	anr					
Silicon	200								
Silver	5.0		1.0	anr					
Sodium	5000		1000	anr					
Sulfur	50	50	50						
Strontium	10								
Thallium	10		2.0	anr					
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	anr					
Zinc	20		10	anr					

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30079 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	5.0

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30079 Units: ug/l

Time:				07:33		07:39		07:45	
Sample ID:	CRI	CRIA	CRID	CRI4		CRID4		CRIA4	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	200	500	100	anr					
Antimony	6.0	20	3.0	anr					
Arsenic	8.0	20	3.0	anr					
Barium	200		4.0	anr					
Beryllium	2.0		1.0	anr					
Bismuth	20								
Boron	100		10	anr					
Cadmium	3.0		1.0	anr					
Calcium	5000		1000	anr					
Chromium	10		2.0	anr					
Cobalt	50		3.0	anr					
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	3.1	103.3	2.6	104.0	20.8	104.0
Lithium	20								
Magnesium	5000		100	anr					
Manganese	15		3.0	anr					
Molybdenum	20		4.0						
Nickel	10		4.0	anr					
Palladium	50								
Potassium	5000		2000	anr					
Selenium	10	20	5.0	anr					
Silicon	200								
Silver	5.0		1.0	anr					
Sodium	5000		1000	anr					
Sulfur	50	50	50						
Strontium	10								
Thallium	10		2.0	anr					
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	anr					
Zinc	20		10	anr					

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30079 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	5.0

(*) Outside of QC limits
(anr) Analyte not requested

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA30079 Units: ug/l

Time:			13:41		13:47		19:28		19:34	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1		ICSA2		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	500000	500000	517000	103.4	510000	102.0	543000	108.6	526000	105.2
Antimony		1000	1.2		1030	103.0	0.20		1060	106.0
Arsenic		1000	0.60		1030	103.0	1.9		1060	106.0
Barium		500	-1.1		514	102.8	-1.2		528	105.6
Beryllium		500	-0.10		488	97.6	-0.10		483	96.6
Bismuth		500	-2.1		507	101.4	-2.6		521	104.2
Boron			-1.2		-4.3		-1.7		-3.9	
Cadmium		1000	1.7		1030	103.0	1.7		1050	105.0
Calcium	400000	400000	407000	101.8	389000	97.3	398000	99.5	386000	96.5
Chromium		500	-0.20		452	90.4	-0.40		450	90.0
Cobalt		500	-0.30		453	90.6	-0.10		460	92.0
Copper		500	-2.0		498	99.6	-1.8		509	101.8
Iron	200000	200000	197000	98.5	192000	96.0	198000	99.0	190000	95.0
Lead		1000	-4.0		901	90.1	-4.2		900	90.0
Lithium		500								
Magnesium	500000	500000	524000	104.8	531000	106.2	522000	104.4	524000	104.8
Manganese		500	0.70		461	92.2	0.10		461	92.2
Molybdenum		500	-4.3		483	96.6	-4.3		491	98.2
Nickel		1000	-2.7		906	90.6	-3.0		904	90.4
Palladium		500	-36		521	104.2	-36		531	106.2
Potassium			5.7		-3.7		-16		-12	
Selenium		1000	1.6		1000	100.0	-1.9		1030	103.0
Silicon			-7.5		-12		-8.1		-12	
Silver		1000	0.50		1060	106.0	-0.80		1070	107.0
Sodium			7.6		6.8		0.70		1.9	
Sulfur		500	2.6		471	94.2	0.80		481	96.2
Strontium			-1.7		-1.4		-0.70		-0.70	
Thallium		1000	0.50		919	91.9	-3.8		911	91.1
Tin			-0.10		-1.1		1.4		0.90	
Titanium			-0.30		-0.70		-0.20		-0.50	
Tungsten		500	2.8		507	101.4	-9.8		500	100.0
Vanadium		500	1.1		456	91.2	1.5		457	91.4
Zinc		1000	-0.30		898	89.8	-0.30		896	89.6

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA30079 Units: ug/l

Time:							
Sample ID:							
Metal							
Zirconium	500	-3.0	478	95.6	-3.6	481	96.2

(*) Outside of QC limits
(anr) Analyte not requested

10.1.5
10

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA30079 Units: ug/l

Time:			02:20		02:26		07:51		07:57	
Sample ID:	ICSA	ICSAB	ICSA3		ICSAB3		ICSA4		ICSAB4	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	500000	500000	553000	110.6	534000	106.8	556000	111.2	548000	109.6
Antimony		1000	1.2		1090	109.0	0.80		1100	110.0
Arsenic		1000	0.70		1100	110.0	1.7		1120	112.0
Barium		500	-1.2		545	109.0	-1.0		556	111.2
Beryllium		500	-0.20		467	93.4	-0.20		456	91.2
Bismuth		500	-3.3		543	108.6	-2.5		552	110.4
Boron			-0.30		-2.8		-0.60		-4.1	
Cadmium		1000	1.9		1090	109.0	1.9		1100	110.0
Calcium	400000	400000	385000	96.3	378000	94.5	379000	94.8	377000	94.3
Chromium		500	-0.80		452	90.4	-0.60		452	90.4
Cobalt		500	0.40		475	95.0	0.20		479	95.8
Copper		500	-1.2		523	104.6	-1.2		526	105.2
Iron	200000	200000	195000	97.5	190000	95.0	193000	96.5	186000	93.0
Lead		1000	-2.2		911	91.1	-3.5		914	91.4
Lithium		500								
Magnesium	500000	500000	503000	100.6	509000	101.8	495000	99.0	496000	99.2
Manganese		500	-1.5		460	92.0	-2.2		459	91.8
Molybdenum		500	-4.6		509	101.8	-4.4		513	102.6
Nickel		1000	-2.2		907	90.7	-2.3		906	90.6
Palladium		500	-31		543	108.6	-30		547	109.4
Potassium			-39		-41		-37		-23	
Selenium		1000	-5.9		1070	107.0	-7.5		1080	108.0
Silicon			-8.0		-14		-8.2		-13	
Silver		1000	-3.8		1080	108.0	-4.9		1080	108.0
Sodium			20.6		25.1		29.7		29.6	
Sulfur		500	-0.20		488	97.6	6.7		491	98.2
Strontium			0.30		0.20		0.90		0.30	
Thallium		1000	1.5		888	88.8	0.80		877	87.7
Tin			-0.30		-0.10		0.10		0.60	
Titanium			-0.60		-0.40		-0.30		-0.30	
Tungsten		500	-5.4		522	104.4	-2.7		531	106.2
Vanadium		500	1.9		460	92.0	2.4		460	92.0
Zinc		1000	-1.4		895	89.5	-1.7		895	89.5

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121712M1.ICP Date Analyzed: 12/17/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA30079 Units: ug/l

Time:							
Sample ID:							
Metal							
Zirconium	500	-3.8	489	97.8	-4.0	490	98.0

(*) Outside of QC limits
(anr) Analyte not requested

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
Analyst: BL Run ID: MA30091
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
10:32	MA30091-STD1	1		STDA
10:37	MA30091-STD2	1		STDB
10:43	MA30091-STD3	1		STDC
10:49	MA30091-STD4	1		STDD
10:55	MA30091-CCV1	1		
11:00	MA30091-CCB1	1		
11:06	MA30091-CRI1	1		
11:12	MA30091-CRID1	1		
11:18	MA30091-CRIA1	1		
11:30	MA30091-ICV1	1		
11:35	MA30091-ICB1	1		
11:41	MA30091-CCV2	1		
11:47	MA30091-CCB2	1		
11:53	MA30091-CRID2	1		
11:59	MA30091-CRI2	1		
12:05	ZZZZZZ	1		
12:11	ZZZZZZ	1		
12:17	ZZZZZZ	1		
12:23	ZZZZZZ	1		
12:29	MA30091-ICSA1	1		
12:35	MA30091-ICSAB1	1		
12:41	MA30091-CCV3	1		
12:46	MA30091-CCB3	1		
12:52	ZZZZZZ	20		
12:58	ZZZZZZ	20		
13:04	ZZZZZZ	10		
13:11	ZZZZZZ	3		
13:17	ZZZZZZ	10		
13:23	ZZZZZZ	1		
13:29	MP68573-MB1	1		
13:34	MP68573-LC1	1		
13:40	MA30091-CCV4	1		
13:46	MA30091-CCB4	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
Analyst: BL Run ID: MA30091
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
13:52	MP68573-S1	1		Rerun straight for Ag (neg)
13:58	MP68573-S2	1		Rerun straight for Ag (neg)
14:04	JB23173-1	1		(sample used for QC only; not part of login JB22962)
14:10	MP68573-SD1	5		Rerun straight for Ag (neg)
14:16	ZZZZZZ	1		
14:22	ZZZZZZ	1		
14:28	ZZZZZZ	1		
14:34	ZZZZZZ	1		
14:40	MA30091-CCV5	1		
14:46	MA30091-CCB5	1		
14:52	ZZZZZZ	1		
14:57	ZZZZZZ	1		
15:04	ZZZZZZ	1		
15:10	ZZZZZZ	1		
15:15	ZZZZZZ	1		
15:21	ZZZZZZ	1		
15:27	ZZZZZZ	1		
15:33	ZZZZZZ	1		
15:39	MA30091-CCV6	1		
15:45	MA30091-CCB6	1		
15:51	ZZZZZZ	1		
15:56	ZZZZZZ	1		
16:02	ZZZZZZ	1		
16:08	ZZZZZZ	1		
16:14	ZZZZZZ	1		
16:20	MP68504-MB1	1		
16:26	ZZZZZZ	2		
16:32	ZZZZZZ	2		
16:38	MA30091-CCV7	1		
16:44	MA30091-CCB7	1		
16:50	ZZZZZZ	20		
16:56	ZZZZZZ	10		
17:02	ZZZZZZ	3		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
Analyst: BL Run ID: MA30091
Parameters: Pb

	Time	Sample Description	Dilution Factor	PS Recov	Comments
	17:08	ZZZZZZ	2		
	17:14	ZZZZZZ	100		
	17:20	JB22962-15	1		
---------->	Last reportable sample/prep for job JB22962				
	17:26	MP68549-S1	1		
	17:31	MP68549-S2	1		
	17:37	ZZZZZZ	1		
	17:43	MA30091-CCV8	1		
	17:49	MA30091-CCB8	1		
	17:55	MA30091-CRI3	1		
	18:01	MA30091-CRID3	1		
	18:07	MA30091-CRIA2	1		
	18:12	MA30091-ICSA2	1		
	18:19	MA30091-ICSAB2	1		
	18:24	MA30091-CCV9	1		
	18:30	MA30091-CCB9	1		
---------->	Last reportable CCB for job JB22962				
	18:36	MP68572-S1	2		
	18:42	MA30091-CCV10	1		
	18:48	MA30091-CCB10	1		
	18:54	MP68572-S1	2		
	19:00	MP68572-S2	2		
	19:06	JB23108-1	2		(sample used for QC only; not part of login JB22962)
	19:12	MP68572-SD1	10		
	19:18	ZZZZZZ	1		
	19:24	ZZZZZZ	1		
	19:30	ZZZZZZ	1		
	19:36	ZZZZZZ	1		
	19:42	MA30091-CCV11	1		
	19:48	MA30091-CCB11	1		
	19:54	ZZZZZZ	5		
	20:00	ZZZZZZ	5		
	20:06	ZZZZZZ	5		
	20:12	ZZZZZZ	5		
	20:17	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
Analyst: BL Run ID: MA30091
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
20:23	ZZZZZZ	1		
20:29	ZZZZZZ	1		
20:35	ZZZZZZ	1		
20:41	MA30091-CCV12	1		
20:47	MA30091-CCB12	1		
20:53	MP68597-MB1	1		
20:59	MP68597-LC1	1		
21:04	MP68597-B1	1		
21:10	MP68597-S1	1		
21:16	MP68597-S2	1		
21:22	JB23938-50	1		(sample used for QC only; not part of login JB22962)
21:28	MP68597-SD1	5		
21:34	ZZZZZZ	1		
21:39	MA30091-CCV13	1		
21:45	MA30091-CCB13	1		
21:51	ZZZZZZ	1		
21:57	ZZZZZZ	1		
22:03	ZZZZZZ	1		
22:09	ZZZZZZ	1		
22:14	ZZZZZZ	1		
22:20	ZZZZZZ	1		
22:26	ZZZZZZ	1		
22:32	ZZZZZZ	1		
22:38	ZZZZZZ	1		
22:43	ZZZZZZ	1		
22:49	MA30091-CCV14	1		
22:55	MA30091-CCB14	1		
23:01	ZZZZZZ	1		
23:07	ZZZZZZ	1		
23:12	ZZZZZZ	1		
23:18	ZZZZZZ	1		
23:24	ZZZZZZ	1		
23:30	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
Analyst: BL Run ID: MA30091
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
23:36	ZZZZZZ	1		
23:41	ZZZZZZ	1		
23:47	ZZZZZZ	10		
23:53	ZZZZZZ	10		
23:59	MA30091-CCV15	1		
00:05	MA30091-CCB15	1		
00:11	MP68598-MB1	1		
00:17	MP68598-LC1	1		
00:23	MP68598-S1	1		
00:28	MP68598-S2	1		high RSD-s
00:34	JB23184-1F	1		(sample used for QC only; not part of login JB22962)
00:40	MP68598-SD1	5		
00:46	ZZZZZZ	1		
00:52	ZZZZZZ	1		
00:58	ZZZZZZ	1		
01:04	ZZZZZZ	1		
01:10	MA30091-CCV16	1		
01:15	MA30091-CCB16	1		
01:21	MA30091-CRI4	1		
01:27	MA30091-CRID4	1		
01:33	MA30091-CRIA3	1		
01:39	MA30091-ICSA3	1		
01:45	MA30091-ICSAB3	1		
01:51	MA30091-CCV17	1		
01:57	MA30091-CCB17	1		
02:03	ZZZZZZ	1		
02:09	ZZZZZZ	1		
02:15	ZZZZZZ	1		
02:21	ZZZZZZ	1		
02:26	ZZZZZZ	1		
02:32	ZZZZZZ	1		
02:38	ZZZZZZ	1		
02:44	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
Analyst: BL Run ID: MA30091
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
02:50	ZZZZZZ	1		
02:56	MA30091-CCV18	1		
03:02	MA30091-CCB18	1		
03:08	ZZZZZZ	1		
03:14	ZZZZZZ	1		
03:19	ZZZZZZ	1		
03:25	ZZZZZZ	1		
03:31	ZZZZZZ	1		
03:37	ZZZZZZ	1		
03:43	ZZZZZZ	1		
03:49	ZZZZZZ	1		
03:55	ZZZZZZ	1		
04:01	ZZZZZZ	1		
04:06	MA30091-CCV19	1		
04:12	MA30091-CCB19	1		
04:18	ZZZZZZ	1		
04:24	ZZZZZZ	1		
04:30	ZZZZZZ	1		
04:36	MP68573-S1	3		
04:42	MP68573-S2	3		
04:47	JB23173-1	3		(sample used for QC only; not part of login JB22962)
04:53	MP68573-SD1	15		
04:59	ZZZZZZ	5		
05:05	ZZZZZZ	2		
05:11	MP68602-MB1	1		
05:17	MA30091-CCV20	1		
05:23	MA30091-CCB20	1		
05:29	MP68602-MB2	1		
05:35	MP68602-LC1	1		
05:41	MP68602-S1	1		
05:47	MP68602-S2	1		
05:53	JB23193-5	1		(sample used for QC only; not part of login JB22962)
05:59	MP68602-SD1	5		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
Analyst: BL Run ID: MA30091
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
06:05	MP68602-S3	1		
06:11	MP68602-S4	1		
06:17	JB23193-5F	1		(sample used for QC only; not part of login JB22962)
06:23	MP68602-SD2	5		
06:29	MA30091-CCV21	1		
06:34	MA30091-CCB21	1		
06:40	MA30091-CRI5	1		
06:46	MA30091-CRID5	1		
06:52	MA30091-CRIA4	1		
06:58	MA30091-CRID6	1		
07:04	MA30091-ICSA4	1		
07:10	MA30091-ICSAB4	1		

Refer to raw data for calibration curve and standards.

INTERNAL STANDARD SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
Analyst: BL Run ID: MA30091
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
10:32	MA30091-STD1	1379 R	107790 R	25624 R	4375 R
10:37	MA30091-STD2	1313	102300	24771	4119
10:43	MA30091-STD3	1296	99868	24388	4041
10:49	MA30091-STD4	1245	97202	23814	3861
10:55	MA30091-CCV1	No results reported for the elements associated with this internal standard.			
11:00	MA30091-CCB1	No results reported for the elements associated with this internal standard.			
11:06	MA30091-CRI1	1357	105380	25289	4303
11:12	MA30091-CRID1	1359	106220	25436	4315
11:18	MA30091-CRIA1	1370	107060	25447	4348
11:30	MA30091-ICV1	1294	99977	24319	4020
11:35	MA30091-ICB1	1355	107030	25582	4324
11:41	MA30091-CCV2	1279	99672	24396	3989
11:47	MA30091-CCB2	1360	106270	25485	4332
11:53	MA30091-CRID2	1354	106260	25358	4309
11:59	MA30091-CRI2	1338	104790	25129	4261
12:05	ZZZZZZ	1307	95403	21694	3945
12:11	ZZZZZZ	1203	95135	23768	3737
12:17	ZZZZZZ	1315	103460	24851	4297
12:23	ZZZZZZ	1118	88722	23120	3341
12:29	MA30091-ICSA1	1122	88969	21499	3451
12:35	MA30091-ICSAB1	1126	88949	21510	3459
12:41	MA30091-CCV3	1269	99315	24098	3970
12:46	MA30091-CCB3	1356	107820	25210	4337
12:52	ZZZZZZ	1193	93766	24054	3637
12:58	ZZZZZZ	1147	89205	22908	3424
13:04	ZZZZZZ	1137	89024	22677	3403
13:11	ZZZZZZ	1133	89799	22564	3469
13:17	ZZZZZZ	1070	82965	21750	3132
13:23	ZZZZZZ	1357	105920	25178	4325
13:29	MP68573-MB1	1318	104610	24521	4251
13:34	MP68573-LC1	1295	101780	24098	4149
13:40	MA30091-CCV4	1266	98875	24047	3956
13:46	MA30091-CCB4	1344	105900	25033	4291

INTERNAL STANDARD SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
Analyst: BL Run ID: MA30091
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
13:52	MP68573-S1	985	79947	20443	3111
13:58	MP68573-S2	995	80216	20393	3138
14:04	JB23173-1	985	80084	20490	3119
14:10	MP68573-SD1	1182	93588	22966	3692
14:16	ZZZZZZ	1120	89582	22064	3515
14:22	ZZZZZZ	1201	96798	23159	3821
14:28	ZZZZZZ	1321	105200	24529	4259
14:34	ZZZZZZ	1144	89934	22444	3511
14:40	MA30091-CCV5	1266	98989	23662	3959
14:46	MA30091-CCB5	1352	105560	24933	4330
14:52	ZZZZZZ	1138	90086	22307	3489
14:57	ZZZZZZ	1050	83322	21032	3167
15:04	ZZZZZZ	1115	88689	22072	3424
15:10	ZZZZZZ	1328	105910	24551	4279
15:15	ZZZZZZ	1337	103120	24593	4295
15:21	ZZZZZZ	1281	100710	23867	4116
15:27	ZZZZZZ	1306	102250	24149	4175
15:33	ZZZZZZ	1306	103360	24363	4186
15:39	MA30091-CCV6	1267	99581	23944	3970
15:45	MA30091-CCB6	1354	105460	24924	4318
15:51	ZZZZZZ	1295	101710	24062	4139
15:56	ZZZZZZ	1322	104360	24525	4211
16:02	ZZZZZZ	1306	102380	24219	4172
16:08	ZZZZZZ	1320	104380	24390	4234
16:14	ZZZZZZ	1319	104290	24425	4229
16:20	MP68504-MB1	1327	105020	24530	4274
16:26	ZZZZZZ	1162	91425	22705	3541
16:32	ZZZZZZ	1165	91767	22630	3549
16:38	MA30091-CCV7	1279	99664	23859	3997
16:44	MA30091-CCB7	1368	106890	24935	4370
16:50	ZZZZZZ	1083	82133	21453	3097
16:56	ZZZZZZ	1169	90534	22780	3529
17:02	ZZZZZZ	1251	97862	23561	3927

INTERNAL STANDARD SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
Analyst: BL Run ID: MA30091
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
17:08	ZZZZZZ	1241	97795	23409	3892
17:14	ZZZZZZ	1242	95036	23317	3747
17:20	JB22962-15	1145	92796	22013	3580
17:26	MP68549-S1	1258	99868	23370	4071
17:31	MP68549-S2	1253	99129	23537	4059
17:37	ZZZZZZ	1290	102940	23873	4220
17:43	MA30091-CCV8	1290	100530	23796	4020
17:49	MA30091-CCB8	1365	106820	24930	4359
17:55	MA30091-CRI3	1348	105740	24921	4292
18:01	MA30091-CRID3	1372	106570	25006	4373
18:07	MA30091-CRIA2	1369	107380	24978	4364
18:12	MA30091-ICSA2	1152	90251	21436	3519
18:19	MA30091-ICSAB2	1153	90878	21292	3530
18:24	MA30091-CCV9	1298	100600	23919	4043
18:30	MA30091-CCB9	1366	107640	26814	4355
18:36	MP68572-S1	1142	89786	22280	3485
18:42	MA30091-CCV10	1288	100340	23928	4018
18:48	MA30091-CCB10	1381	107540	24954	4393
18:54	MP68572-S1	1159	89794	22300	3527
19:00	MP68572-S2	1153	90030	22236	3516
19:06	JB23108-1	1161	91150	22476	3539
19:12	MP68572-SD1	1291	100620	24143	4036
19:18	ZZZZZZ	1094	86001	21614	3289
19:24	ZZZZZZ	952 !	72842 !	19378	2684 !
19:30	ZZZZZZ	890 !	68613 !	19276	2488 !
19:36	ZZZZZZ	1247	98065	23138	3947
19:42	MA30091-CCV11	1316	101710	23872	4096
19:48	MA30091-CCB11	1385	108110	24811	4426
19:54	ZZZZZZ	1269	98969	23485	3933
20:00	ZZZZZZ	1174	90076	22244	3484
20:06	ZZZZZZ	1144	86643	21822	3354
20:12	ZZZZZZ	1349	104940	24374	4295
20:17	ZZZZZZ	1246	98103	23053	3945

INTERNAL STANDARD SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
Analyst: BL Run ID: MA30091
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
20:23	ZZZZZZ	1237	97606	23060	3877
20:29	ZZZZZZ	1197	94244	22678	3711
20:35	ZZZZZZ	1382	108270	24581	4427
20:41	MA30091-CCV12	1310	101130	23912	4076
20:47	MA30091-CCB12	1399	108590	24855	4440
20:53	MP68597-MB1	1373	108750	24834	4425
20:59	MP68597-LC1	1345	104310	23829	4174
21:04	MP68597-B1	1316	102630	23644	4185
21:10	MP68597-S1	1247	99773	22466	3972
21:16	MP68597-S2	1266	99676	22569	4017
21:22	JB23938-50	1234	100160	22846	4122
21:28	MP68597-SD1	1340	105100	23886	4320
21:34	ZZZZZZ	1373	107750	24294	4241
21:39	MA30091-CCV13	1315	102260	23468	4117
21:45	MA30091-CCB13	1401	109280	24575	4470
21:51	ZZZZZZ	1359	106800	24194	4228
21:57	ZZZZZZ	1372	107060	24164	4236
22:03	ZZZZZZ	1360	106700	24062	4232
22:09	ZZZZZZ	1363	107510	24232	4226
22:14	ZZZZZZ	1361	106940	24362	4192
22:20	ZZZZZZ	1397	108030	24357	4292
22:26	ZZZZZZ	1386	108330	24486	4260
22:32	ZZZZZZ	1442	111580	25148	4262
22:38	ZZZZZZ	1408	110150	24718	4230
22:43	ZZZZZZ	1380	106830	24232	4306
22:49	MA30091-CCV14	1327	102110	23551	4136
22:55	MA30091-CCB14	1411	110040	24710	4507
23:01	ZZZZZZ	1369	107470	24244	4202
23:07	ZZZZZZ	1372	107630	24315	4193
23:12	ZZZZZZ	1328	102740	23556	4075
23:18	ZZZZZZ	1397	108610	24369	4222
23:24	ZZZZZZ	1422	110710	24830	4253
23:30	ZZZZZZ	1371	109060	24424	4502

INTERNAL STANDARD SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
Analyst: BL Run ID: MA30091
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
23:36	ZZZZZZ	1367	109580	24340	4110
23:41	ZZZZZZ	1366	106570	24190	4047
23:47	ZZZZZZ	1270	96754	22934	3831
23:53	ZZZZZZ	1248	94893	22530	3718
23:59	MA30091-CCV15	1344	102740	23671	4176
00:05	MA30091-CCB15	1419	110470	24582	4528
00:11	MP68598-MB1	1379	108320	23891	4430
00:17	MP68598-LC1	1369	105980	23684	4366
00:23	MP68598-S1	1276	100520	22755	4051
00:28	MP68598-S2	1278	95199	22640	4056
00:34	JB23184-1F	1312	103270	23223	4195
00:40	MP68598-SD1	1389	108130	24208	4431
00:46	ZZZZZZ	1155	88863	21413	3401
00:52	ZZZZZZ	1391	109290	23861	4467
00:58	ZZZZZZ	1288	102510	23114	4127
01:04	ZZZZZZ	1340	104420	23466	4271
01:10	MA30091-CCV16	1320	102810	23611	4103
01:15	MA30091-CCB16	1421	110360	24617	4522
01:21	MA30091-CRI4	1407	109490	24333	4469
01:27	MA30091-CRID4	1423	109400	24535	4521
01:33	MA30091-CRIA3	1425	110080	24584	4514
01:39	MA30091-ICSA3	1200	93933	21249	3653
01:45	MA30091-ICSAB3	1192	93008	21018	3633
01:51	MA30091-CCV17	1343	103180	23561	4174
01:57	MA30091-CCB17	1430	111250	25165	4553
02:03	ZZZZZZ	1298	101230	22779	4015
02:09	ZZZZZZ	1435	110940	24694	4561
02:15	ZZZZZZ	1417	109750	24763	4507
02:21	ZZZZZZ	1422	110300	24722	4532
02:26	ZZZZZZ	1424	110500	24508	4525
02:32	ZZZZZZ	1429	110430	24588	4538
02:38	ZZZZZZ	1423	110580	24786	4535
02:44	ZZZZZZ	1425	110900	24567	4537

INTERNAL STANDARD SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
Analyst: BL Run ID: MA30091
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
02:50	ZZZZZZ	1416	110140	24750	4582
02:56	MA30091-CCV18	1363	104180	23580	4223
03:02	MA30091-CCB18	1441	110830	24616	4562
03:08	ZZZZZZ	1359	106580	23501	4378
03:14	ZZZZZZ	1410	109160	24058	4488
03:19	ZZZZZZ	1331	105700	23424	4284
03:25	ZZZZZZ	1384	107270	23879	4428
03:31	ZZZZZZ	1352	105870	23609	4321
03:37	ZZZZZZ	1333	105520	23420	4309
03:43	ZZZZZZ	1352	105800	23636	4303
03:49	ZZZZZZ	1405	108230	23803	4501
03:55	ZZZZZZ	1412	110140	24195	4490
04:01	ZZZZZZ	1348	105940	23452	4317
04:06	MA30091-CCV19	1353	104470	23594	4179
04:12	MA30091-CCB19	1447	111470	24658	4575
04:18	ZZZZZZ	1383	106990	23682	4403
04:24	ZZZZZZ	1346	106290	23620	4283
04:30	ZZZZZZ	1351	105490	23495	4373
04:36	MP68573-S1	1206	95558	21941	3698
04:42	MP68573-S2	1220	95320	22175	3741
04:47	JB23173-1	1228	95656	22177	3766
04:53	MP68573-SD1	1353	105050	23735	4212
04:59	ZZZZZZ	1307	100680	23029	3995
05:05	ZZZZZZ	1276	99299	22660	3910
05:11	MP68602-MB1	1429	111140	24337	4553
05:17	MA30091-CCV20	1366	104920	23454	4218
05:23	MA30091-CCB20	1453	112330	24683	4597
05:29	MP68602-MB2	1425	111150	24323	4544
05:35	MP68602-LC1	1408	108390	23748	4457
05:41	MP68602-S1	1300	100530	22931	4006
05:47	MP68602-S2	1296	100390	22853	3999
05:53	JB23193-5	1324	102250	23195	4104
05:59	MP68602-SD1	1425	109370	24375	4473

INTERNAL STANDARD SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
Analyst: BL Run ID: MA30091
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
06:05	MP68602-S3	1304	101000	22907	4029
06:11	MP68602-S4	1299	100760	22729	3998
06:17	JB23193-5F	1329	102600	23144	4111
06:23	MP68602-SD2	1407	108810	24214	4420
06:29	MA30091-CCV21	1389	106170	23885	4270
06:34	MA30091-CCB21	1469	112810	24867	4607
06:40	MA30091-CRI5	1445	111960	24663	4536
06:46	MA30091-CRID5	1458	111150	24702	4582
06:52	MA30091-CRIA4	1473	112830	24949	4621
06:58	MA30091-CRID6	1473	112600	25032	4624
07:04	MA30091-ICSA4	1232	94817	21326	3714
07:10	MA30091-ICSAB4	1240	95703	21428	3744

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %
Istd#4	Indium	70-130 %

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30091 Units: ug/l

Time:			11:35		11:47		12:46		13:46	
Sample ID:			ICB1		CCB2		CCB3		CCB4	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	11	anr							
Antimony	6.0	1.2	anr							
Arsenic	3.0	1.2	anr							
Barium	200	.2	anr							
Beryllium	1.0	.04	anr							
Bismuth	20	1								
Boron	100	1.1	anr							
Cadmium	3.0	.2	anr							
Calcium	5000	24	anr							
Chromium	10	.3	anr							
Cobalt	50	.2	anr							
Copper	10	.6	anr							
Iron	100	2.1	anr							
Lead	3.0	1.1	0.20	<3.0	-0.40	<3.0	-0.10	<3.0	0.40	<3.0
Lithium	20	.5								
Magnesium	5000	17	anr							
Manganese	15	.2	anr							
Molybdenum	20	.3								
Nickel	10	.4	anr							
Palladium	50	.9								
Potassium	10000	23	anr							
Selenium	10	1.4	anr							
Silicon	200	8.1	anr							
Silver	10	.3	anr							
Sodium	10000	14	anr							
Sulfur	50	2.4								
Strontium	10	.2								
Thallium	2.0	1.2	anr							
Tin	10	1								
Titanium	10	.2								
Tungsten	50	3.1								
Vanadium	50	.2	anr							
Zinc	20	2.6	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30091 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.3

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30091 Units: ug/l

Time:			14:46		15:45		16:44		17:49	
Sample ID:			CCB5		CCB6		CCB7		CCB8	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	11	anr							
Antimony	6.0	1.2	anr							
Arsenic	3.0	1.2	anr							
Barium	200	.2	anr							
Beryllium	1.0	.04	anr							
Bismuth	20	1								
Boron	100	1.1	anr							
Cadmium	3.0	.2	anr							
Calcium	5000	24	anr							
Chromium	10	.3	anr							
Cobalt	50	.2	anr							
Copper	10	.6	anr							
Iron	100	2.1	anr							
Lead	3.0	1.1	-0.10	<3.0	-0.20	<3.0	0.80	<3.0	0.0	<3.0
Lithium	20	.5								
Magnesium	5000	17	anr							
Manganese	15	.2	anr							
Molybdenum	20	.3								
Nickel	10	.4	anr							
Palladium	50	.9								
Potassium	10000	23	anr							
Selenium	10	1.4	anr							
Silicon	200	8.1	anr							
Silver	10	.3	anr							
Sodium	10000	14	anr							
Sulfur	50	2.4								
Strontium	10	.2								
Thallium	2.0	1.2	anr							
Tin	10	1								
Titanium	10	.2								
Tungsten	50	3.1								
Vanadium	50	.2	anr							
Zinc	20	2.6	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30091 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.3

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30091 Units: ug/l

Time:			18:30	
Sample ID:			CCB9	
Metal	RL	IDL	raw	final
Aluminum	200	11	anr	
Antimony	6.0	1.2	anr	
Arsenic	3.0	1.2	anr	
Barium	200	.2	anr	
Beryllium	1.0	.04	anr	
Bismuth	20	1		
Boron	100	1.1	anr	
Cadmium	3.0	.2	anr	
Calcium	5000	24	anr	
Chromium	10	.3	anr	
Cobalt	50	.2	anr	
Copper	10	.6	anr	
Iron	100	2.1	anr	
Lead	3.0	1.1	-0.90	<3.0
Lithium	20	.5		
Magnesium	5000	17	anr	
Manganese	15	.2	anr	
Molybdenum	20	.3		
Nickel	10	.4	anr	
Palladium	50	.9		
Potassium	10000	23	anr	
Selenium	10	1.4	anr	
Silicon	200	8.1	anr	
Silver	10	.3	anr	
Sodium	10000	14	anr	
Sulfur	50	2.4		
Strontium	10	.2		
Thallium	2.0	1.2	anr	
Tin	10	1		
Titanium	10	.2		
Tungsten	50	3.1		
Vanadium	50	.2	anr	
Zinc	20	2.6	anr	

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30091 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.3

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30091 Units: ug/l

Time:		11:30			11:41			12:41	
Sample ID:	ICV	ICV1		CCV	CCV2		CCV	CCV3	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron	anr								
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2050	102.5	2000	2050	102.5	2000	2040	102.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon	anr								
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30091 Units: ug/l

Time:	
Sample ID:	
Metal	
Zirconium	

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30091 Units: ug/l

Time:		13:40			14:40			15:39	
Sample ID:	CCV	CCV4		CCV	CCV5		CCV	CCV6	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron	anr								
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2050	102.5	2000	2050	102.5	2000	2040	102.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon	anr								
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30091 Units: ug/l

Time:	
Sample ID:	
Metal	
Zirconium	

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30091 Units: ug/l

Time:		16:38			17:43			18:24	
Sample ID:	CCV	CCV7		CCV	CCV8		CCV	CCV9	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron	anr								
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2030	101.5	2000	2040	102.0	2000	2030	101.5
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon	anr								
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30091 Units: ug/l

Time:	
Sample ID:	
Metal	
Zirconium	

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30091 Units: ug/l

Time:				11:06		11:12		11:18	
Sample ID:	CRI	CRIA	CRID	CRI1		CRID1		CRIA1	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	200	500	100	anr					
Antimony	6.0	20	3.0	anr					
Arsenic	8.0	20	3.0	anr					
Barium	200		4.0	anr					
Beryllium	2.0		1.0	anr					
Bismuth	20								
Boron	100		10	anr					
Cadmium	3.0		1.0	anr					
Calcium	5000		1000	anr					
Chromium	10		2.0	anr					
Cobalt	50		3.0	anr					
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	2.8	93.3			19.6	98.0
Lithium	20								
Magnesium	5000		100	anr					
Manganese	15		3.0	anr					
Molybdenum	20		4.0						
Nickel	10		4.0	anr					
Palladium	50								
Potassium	5000		2000	anr					
Selenium	10	20	5.0	anr					
Silicon	200			anr					
Silver	5.0		1.0	anr					
Sodium	5000		1000	anr					
Sulfur	50	50	50						
Strontium	10								
Thallium	10		2.0	anr					
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	anr					
Zinc	20		10	anr					

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30091 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	5.0

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30091 Units: ug/l

Time:				11:53		11:59		17:55	
Sample ID:	CRI	CRIA	CRID	CRID2		CRI2		CRI3	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	200	500	100	anr					
Antimony	6.0	20	3.0						
Arsenic	8.0	20	3.0	anr					
Barium	200		4.0	anr					
Beryllium	2.0		1.0	anr					
Bismuth	20								
Boron	100		10	anr					
Cadmium	3.0		1.0	anr					
Calcium	5000		1000	anr					
Chromium	10		2.0	anr					
Cobalt	50		3.0	anr					
Copper	10		2.0	anr					
Iron	100	500							
Lead	3.0	20	2.5			3.1	103.3	3.6	120.0
Lithium	20								
Magnesium	5000		100	anr					
Manganese	15		3.0	anr					
Molybdenum	20		4.0						
Nickel	10		4.0	anr					
Palladium	50								
Potassium	5000		2000	anr					
Selenium	10	20	5.0	anr					
Silicon	200								
Silver	5.0		1.0	anr					
Sodium	5000		1000	anr					
Sulfur	50	50	50						
Strontium	10								
Thallium	10		2.0	anr					
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	anr					
Zinc	20		10	anr					

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30091 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	5.0

(*) Outside of QC limits
(anr) Analyte not requested

10.2.4

10

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30091 Units: ug/l

Time:				18:01		18:07	
Sample ID:	CRI	CRIA	CRID	CRID3		CRIA2	
Metal	True	True	True	Results	% Rec	Results	% Rec
Aluminum	200	500	100	anr			
Antimony	6.0	20	3.0				
Arsenic	8.0	20	3.0	anr			
Barium	200		4.0	anr			
Beryllium	2.0		1.0	anr			
Bismuth	20						
Boron	100		10	anr			
Cadmium	3.0		1.0	anr			
Calcium	5000		1000	anr			
Chromium	10		2.0	anr			
Cobalt	50		3.0	anr			
Copper	10		2.0	anr			
Iron	100	500					
Lead	3.0	20	2.5			19.8	99.0
Lithium	20						
Magnesium	5000		100	anr			
Manganese	15		3.0	anr			
Molybdenum	20		4.0				
Nickel	10		4.0	anr			
Palladium	50						
Potassium	5000		2000	anr			
Selenium	10	20	5.0	anr			
Silicon	200						
Silver	5.0		1.0	anr			
Sodium	5000		1000	anr			
Sulfur	50	50	50				
Strontium	10						
Thallium	10		2.0	anr			
Tin	10						
Titanium	10						
Tungsten	50						
Vanadium	50		2.0	anr			
Zinc	20		10	anr			

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30091 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	5.0

(*) Outside of QC limits
(anr) Analyte not requested

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA30091 Units: ug/l

Time:			12:29		12:35		18:12		18:19	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1		ICSA2		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	500000	500000	549000	109.8	534000	106.8	535000	107.0	532000	106.4
Antimony		1000	-1.3		1050	105.0	-0.80		1040	104.0
Arsenic		1000	1.6		1060	106.0	0.0		1050	105.0
Barium		500	-1.1		521	104.2	-1.1		518	103.6
Beryllium		500	0.0		491	98.2	-0.10		484	96.8
Bismuth		500	-2.9		523	104.6	-2.5		517	103.4
Boron			0.20		-3.8		-0.80		-3.0	
Cadmium		1000	1.9		1060	106.0	1.8		1050	105.0
Calcium	400000	400000	399000	99.8	393000	98.3	406000	101.5	395000	98.8
Chromium		500	-0.30		455	91.0	-0.30		449	89.8
Cobalt		500	-0.10		461	92.2	0.10		457	91.4
Copper		500	0.30		510	102.0	-0.20		504	100.8
Iron	200000	200000	201000	100.5	195000	97.5	198000	99.0	191000	95.5
Lead		1000	3.4		905	90.5	2.7		903	90.3
Lithium		500	3.2		564	112.8	2.6		560	112.0
Magnesium	500000	500000	525000	105.0	531000	106.2	520000	104.0	522000	104.4
Manganese		500	-1.0		469	93.8	-0.80		469	93.8
Molybdenum		500	-3.7		492	98.4	-3.8		487	97.4
Nickel		1000	-1.9		916	91.6	-2.2		910	91.0
Palladium		500	-31		539	107.8	-33		535	107.0
Potassium			32.6		1.5		7.1		-0.20	
Selenium		1000	-2.4		1030	103.0	-0.80		1010	101.0
Silicon			-18		-21		-19		-22	
Silver		1000	-1.7		1090	109.0	-1.9		1080	108.0
Sodium			57.5		21.5		13.3		13.7	
Sulfur		500	9.5		488	97.6	7.1		488	97.6
Strontium			-0.50		-0.90		-1.1		-0.90	
Thallium		1000	1.6		921	92.1	0.40		913	91.3
Tin			-0.90		-1.2		-0.40		-0.50	
Titanium			0.0		-0.20		-0.10		-0.20	
Tungsten		500	14.0		510	102.0	7.3		509	101.8
Vanadium		500	1.9		463	92.6	2.0		458	91.6
Zinc		1000	-1.0		914	91.4	-1.0		914	91.4

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SA121812M1.ICP Date Analyzed: 12/18/12 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA30091 Units: ug/l

Time:							
Sample ID:							
Metal							
Zirconium	500	-3.2	484	96.8	-3.3	484	96.8

(*) Outside of QC limits
(anr) Analyte not requested

10.2.5
10

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP68545
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 12/14/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	1.1	.74		
Antimony	2.0	.12	.15		
Arsenic	2.0	.12	.13		
Barium	20	.02	.054		
Beryllium	0.20	.004	.02		
Bismuth	2.0	.1	.14		
Boron	10	.11	.14		
Cadmium	0.50	.02	.025		
Calcium	500	2.4	2.3		
Chromium	1.0	.03	.11		
Cobalt	5.0	.02	.031		
Copper	2.5	.06	.13		
Iron	50	.21	.79		
Lead	2.0	.11	.11	0.020	<2.0
Lithium	2.0	.05	.25		
Magnesium	500	1.7	3.1		
Manganese	1.5	.02	.048		
Molybdenum	2.0	.03	.074		
Nickel	4.0	.04	.11		
Palladium	5.0	.09	.17		
Potassium	1000	2.3	14		
Selenium	2.0	.14	.24		
Silicon	20	.81	1.9		
Silver	0.50	.03	.063		
Sodium	1000	1.4	13		
Strontium	1.0	.02	.17		
Sulfur	5.0	.24	.65		
Thallium	1.0	.12	.22		
Tin	5.0	.1	1.5		
Titanium	1.0	.02	.62		
Tungsten	5.0	.31	1.1		
Vanadium	5.0	.02	.1		
Zinc	2.0	.26	.19		

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP68545 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date:

Metal			
Zirconium	2.0	.03	.1

Associated samples MP68545: JB22962-1, JB22962-2, JB22962-3, JB22962-4, JB22962-5, JB22962-6, JB22962-7, JB22962-8, JB22962-9, JB22962-10, JB22962-11, JB22962-12, JB22962-13, JB22962-14, JB22962-15, JB22962-16, JB22962-17, JB22962-18, JB22962-19

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: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP68545
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 12/14/12

Metal	JB22962-8 Original	MS	Spikelot MPIRS1	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Bismuth					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead	8.7	96.9	108	82.0	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Palladium					
Potassium					
Selenium					
Silicon					
Silver					
Sodium					
Strontium					
Sulfur					
Thallium					
Tin					
Titanium					
Tungsten					
Vanadium					
Zinc					

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP68545 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date:

Metal

Zirconium

Associated samples MP68545: JB22962-1, JB22962-2, JB22962-3, JB22962-4, JB22962-5, JB22962-6, JB22962-7, JB22962-8, JB22962-9, JB22962-10, JB22962-11, JB22962-12, JB22962-13, JB22962-14, JB22962-15, JB22962-16, JB22962-17, JB22962-18, JB22962-19

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: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP68545
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 12/14/12

Metal	JB22962-8 Original	MSD	Spikelot MPIRS1	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Bismuth						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead	8.7	108	115	86.1	10.8	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Palladium						
Potassium						
Selenium						
Silicon						
Silver						
Sodium						
Strontium						
Sulfur						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium						
Zinc						

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP68545 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date:

Metal

Zirconium

Associated samples MP68545: JB22962-1, JB22962-2, JB22962-3, JB22962-4, JB22962-5, JB22962-6, JB22962-7, JB22962-8, JB22962-9, JB22962-10, JB22962-11, JB22962-12, JB22962-13, JB22962-14, JB22962-15, JB22962-16, JB22962-17, JB22962-18, JB22962-19

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: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP68545
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 12/14/12

Metal	BSP Result	Spikelot MPIRS1	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	92.1	100	92.1	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Palladium				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP68545 | Methods: SW846 6010C
Matrix Type: SOLID | Units: mg/kg

Prep Date:

Metal

Zirconium

Associated samples MP68545: JB22962-1, JB22962-2, JB22962-3, JB22962-4, JB22962-5, JB22962-6, JB22962-7, JB22962-8, JB22962-9, JB22962-10, JB22962-11, JB22962-12, JB22962-13, JB22962-14, JB22962-15, JB22962-16, JB22962-17, JB22962-18, JB22962-19

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP68545
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 12/14/12

Metal	JB22962-8 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	76.1	77.2	1.4	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Palladium				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB22962
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP68545
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal
Zirconium

Associated samples MP68545: JB22962-1, JB22962-2, JB22962-3, JB22962-4, JB22962-5, JB22962-6, JB22962-7, JB22962-8, JB22962-9, JB22962-10, JB22962-11, JB22962-12, JB22962-13, JB22962-14, JB22962-15, JB22962-16, JB22962-17, JB22962-18, JB22962-19

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

New Jersey
ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Percent Solids Raw Data Summary

Percent Solids Raw Data Summary

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: JB22962-1 **Analyzed:** 18-DEC-12 by KP **Method:** SM2540 G-97
ClientID: BH-12-123_1-1.5'

Wet Weight (Total)	32.17	g
Tare Weight	25.32	g
Dry Weight (Total)	31.1	g
Solids, Percent	84.4	%

Sample: JB22962-2 **Analyzed:** 18-DEC-12 by KP **Method:** SM2540 G-97
ClientID: BH-12-123_2-2.5'

Wet Weight (Total)	36.17	g
Tare Weight	28.02	g
Dry Weight (Total)	35.29	g
Solids, Percent	89.2	%

Sample: JB22962-3 **Analyzed:** 18-DEC-12 by KP **Method:** SM2540 G-97
ClientID: BH-12-124_3-3.5'

Wet Weight (Total)	33.17	g
Tare Weight	26.13	g
Dry Weight (Total)	32.44	g
Solids, Percent	89.6	%

Sample: JB22962-4 **Analyzed:** 18-DEC-12 by KP **Method:** SM2540 G-97
ClientID: BH-12-149_1-1.5'

Wet Weight (Total)	26.09	g
Tare Weight	18.54	g
Dry Weight (Total)	24.68	g
Solids, Percent	81.3	%

Sample: JB22962-5 **Analyzed:** 18-DEC-12 by KP **Method:** SM2540 G-97
ClientID: BH-12-149_2.5-3'

Wet Weight (Total)	32.5	g
Tare Weight	27.3	g
Dry Weight (Total)	31.72	g
Solids, Percent	85	%

Sample: JB22962-6 **Analyzed:** 18-DEC-12 by KP **Method:** SM2540 G-97
ClientID: BH-12-129_1.5-2'

Wet Weight (Total)	31.81	g
Tare Weight	22.64	g
Dry Weight (Total)	30.89	g
Solids, Percent	90	%

Percent Solids Raw Data Summary

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: JB22962-7 **Analyzed:** 18-DEC-12 by KP **Method:** SM2540 G-97
ClientID: BH-12-129_2.5-3'

Wet Weight (Total)	31.8	g
Tare Weight	25.65	g
Dry Weight (Total)	31.09	g
Solids, Percent	88.5	%

Sample: JB22962-8 **Analyzed:** 18-DEC-12 by KP **Method:** SM2540 G-97
ClientID: BH-12-126_2.5-3'

Wet Weight (Total)	32.69	g
Tare Weight	24.54	g
Dry Weight (Total)	31.83	g
Solids, Percent	89.4	%

Sample: JB22962-9 **Analyzed:** 18-DEC-12 by KP **Method:** SM2540 G-97
ClientID: BH-12-128_3-3.5'

Wet Weight (Total)	30.97	g
Tare Weight	25.32	g
Dry Weight (Total)	30.3	g
Solids, Percent	88.1	%

Sample: JB22962-10 **Analyzed:** 18-DEC-12 by KP **Method:** SM2540 G-97
ClientID: BH-12-127_2.5-3'

Wet Weight (Total)	32.73	g
Tare Weight	26.21	g
Dry Weight (Total)	32	g
Solids, Percent	88.8	%

Sample: JB22962-11 **Analyzed:** 18-DEC-12 by KP **Method:** SM2540 G-97
ClientID: BH-12-119_0.5-1'

Wet Weight (Total)	30.51	g
Tare Weight	23.12	g
Dry Weight (Total)	29.17	g
Solids, Percent	81.9	%

Sample: JB22962-12 **Analyzed:** 18-DEC-12 by KP **Method:** SM2540 G-97
ClientID: BH-12-125_2.5-3'

Wet Weight (Total)	31.2	g
Tare Weight	23.51	g
Dry Weight (Total)	30.47	g
Solids, Percent	90.5	%

Percent Solids Raw Data Summary

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: JB22962-13 **Analyzed:** 18-DEC-12 by KP **Method:** SM2540 G-97
ClientID: BH-12-120_0-1'

Wet Weight (Total)	29.64	g
Tare Weight	20.22	g
Dry Weight (Total)	27.17	g
Solids, Percent	73.8	%

Sample: JB22962-14 **Analyzed:** 18-DEC-12 by KP **Method:** SM2540 G-97
ClientID: BH-12-104_0.5-1'

Wet Weight (Total)	36.88	g
Tare Weight	27.75	g
Dry Weight (Total)	35.26	g
Solids, Percent	82.3	%

Sample: JB22962-15 **Analyzed:** 18-DEC-12 by KP **Method:** SM2540 G-97
ClientID: BH-12-130_1-2'

Wet Weight (Total)	36.21	g
Tare Weight	28	g
Dry Weight (Total)	35.14	g
Solids, Percent	87	%

Sample: JB22962-16 **Analyzed:** 18-DEC-12 by KP **Method:** SM2540 G-97
ClientID: BH-12-131_1-2'

Wet Weight (Total)	34.44	g
Tare Weight	27.86	g
Dry Weight (Total)	33.46	g
Solids, Percent	85.1	%

Sample: JB22962-17 **Analyzed:** 18-DEC-12 by KP **Method:** SM2540 G-97
ClientID: BH-12-118_2-2.5'

Wet Weight (Total)	34.29	g
Tare Weight	25.96	g
Dry Weight (Total)	33.2	g
Solids, Percent	86.9	%

Sample: JB22962-18 **Analyzed:** 18-DEC-12 by KP **Method:** SM2540 G-97
ClientID: BH-12-102_2-2.5'

Wet Weight (Total)	31.2	g
Tare Weight	25.72	g
Dry Weight (Total)	29.33	g
Solids, Percent	65.9	%

Percent Solids Raw Data Summary

Job Number: JB22962
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: JB22962-19 **Analyzed:** 18-DEC-12 by KP **Method:** SM2540 G-97
ClientID: BH-12-101_2-3'

Wet Weight (Total)	36.54	g
Tare Weight	26.98	g
Dry Weight (Total)	35.03	g
Solids, Percent	84.2	%