



11/10/11

## Technical Report for

**KRW Consulting, Inc.**

**XOM FRU 297-20A**

**1108-10A**

**Accutest Job Number: D29208**

**Sampling Date: 11/04/11**

### Report to:

**KRW Consulting, Inc.**  
**8000 West 14th Avenue Suite 200**  
**Lakewood, CO 80214**  
**cburger@krwconsulting.com; gknell@krwconsulting.com;**  
**dknudson@krwconsulting.com; jhess@krwconsulting.com;**  
**ATTN: Dwayne Knudson**

**Total number of pages in report: 141**



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

  
**Brad Madadian**  
**Laboratory Director**

**Client Service contact: 303-425-6021**

Certifications: CO, ID, NE, NM, ND (R-027) (PW) UT (NELAP CO00049)

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Test results relate only to samples analyzed.

# Table of Contents

-1-

<b>Section 1: Sample Summary .....</b>	<b>4</b>
<b>Section 2: Case Narrative/Conformance Summary .....</b>	<b>5</b>
<b>Section 3: Sample Results .....</b>	<b>9</b>
<b>3.1: D29208-1: RESERVE PIT CONTENTS .....</b>	<b>10</b>
<b>3.2: D29208-1A: RESERVE PIT CONTENTS .....</b>	<b>16</b>
<b>Section 4: Misc. Forms .....</b>	<b>18</b>
<b>4.1: Chain of Custody .....</b>	<b>19</b>
<b>Section 5: GC/MS Volatiles - QC Data Summaries .....</b>	<b>21</b>
<b>5.1: Method Blank Summary .....</b>	<b>22</b>
<b>5.2: Blank Spike Summary .....</b>	<b>23</b>
<b>5.3: Matrix Spike/Matrix Spike Duplicate Summary .....</b>	<b>24</b>
<b>Section 6: GC/MS Volatiles - Raw Data .....</b>	<b>25</b>
<b>6.1: Samples .....</b>	<b>26</b>
<b>6.2: Method Blanks .....</b>	<b>34</b>
<b>Section 7: GC/MS Semi-volatiles - QC Data Summaries .....</b>	<b>38</b>
<b>7.1: Method Blank Summary .....</b>	<b>39</b>
<b>7.2: Blank Spike Summary .....</b>	<b>40</b>
<b>7.3: Matrix Spike/Matrix Spike Duplicate Summary .....</b>	<b>41</b>
<b>Section 8: GC/MS Semi-volatiles - Raw Data .....</b>	<b>42</b>
<b>8.1: Samples .....</b>	<b>43</b>
<b>8.2: Method Blanks .....</b>	<b>60</b>
<b>Section 9: GC Volatiles - QC Data Summaries .....</b>	<b>77</b>
<b>9.1: Method Blank Summary .....</b>	<b>78</b>
<b>9.2: Blank Spike Summary .....</b>	<b>79</b>
<b>9.3: Matrix Spike/Matrix Spike Duplicate Summary .....</b>	<b>80</b>
<b>Section 10: GC Volatiles - Raw Data .....</b>	<b>81</b>
<b>10.1: Samples .....</b>	<b>82</b>
<b>10.2: Method Blanks .....</b>	<b>87</b>
<b>Section 11: GC Semi-volatiles - QC Data Summaries .....</b>	<b>92</b>
<b>11.1: Method Blank Summary .....</b>	<b>93</b>
<b>11.2: Blank Spike Summary .....</b>	<b>94</b>
<b>11.3: Matrix Spike/Matrix Spike Duplicate Summary .....</b>	<b>95</b>
<b>Section 12: GC Semi-volatiles - Raw Data .....</b>	<b>96</b>
<b>12.1: Samples .....</b>	<b>97</b>
<b>12.2: Method Blanks .....</b>	<b>100</b>
<b>Section 13: Metals Analysis - QC Data Summaries .....</b>	<b>103</b>
<b>13.1: Prep QC MP6206: Ba,Cd,Cr,Cu,Pb,Ni,Se,Ag,Zn .....</b>	<b>104</b>
<b>13.2: Prep QC MP6207: As .....</b>	<b>114</b>
<b>13.3: Prep QC MP6224: Hg .....</b>	<b>119</b>
<b>13.4: Prep QC MP6227: Ca,Mg,Na,Sodium Adsorption Ratio .....</b>	<b>123</b>
<b>Section 14: General Chemistry - QC Data Summaries .....</b>	<b>131</b>
<b>14.1: Method Blank and Spike Results Summary .....</b>	<b>132</b>

# Table of Contents

-2-

**14.2:** Duplicate Results Summary ..... 133

**Section 15: Misc. Forms (Accutest Labs of New England, Inc.) ..... 134**

**15.1:** Chain of Custody ..... 135

**Section 16: General Chemistry - QC Data (Accutest Labs of New England, Inc.) ..... 137**

**16.1:** Method Blank and Spike Results Summary ..... 138

**16.2:** Blank Spike Duplicate Results Summary ..... 139

**16.3:** Duplicate Results Summary ..... 140

**16.4:** Matrix Spike Results Summary ..... 141

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16



Sample Summary

KRW Consulting, Inc.

Job No: D29208

XOM FRU 297-20A  
Project No: 1108-10A

Sample Number	Collected			Received	Matrix		Client Sample ID
	Date	Time	By		Code	Type	
D29208-1	11/04/11	09:40	CB	11/05/11	SO	Sludge	RESERVE PIT CONTENTS
D29208-1A	11/04/11	09:40	CB	11/05/11	SO	Sludge	RESERVE PIT CONTENTS

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

## CASE NARRATIVE / CONFORMANCE SUMMARY

**Client:** KRW Consulting, Inc.

**Job No** D29208

**Site:** XOM FRU 297-20A

**Report Dat** 11/10/2011 3:58:32 PM

On 11/05/2011, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 3 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D29208 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

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

<b>Matrix</b> SO	<b>Batch ID:</b> V3V832
------------------	-------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D29207-1MS, D29207-1MSD were used as the QC samples indicated.

### Extractables by GCMS By Method SW846 8270C BY SIM

<b>Matrix</b> SO	<b>Batch ID:</b> OP4805
------------------	-------------------------

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D29207-1MS, D29207-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- The matrix spike (MS) and matrix spike duplicate (MSD) recovery(s) of multiple analytes are outside control limits. Probable cause due to dilution.
- The RPD(s) for the MS and MSD recoveries of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Fluorene, Indeno(1,2,3-cd)pyrene are outside control limits for sample OP4805-MSD. Probable cause due to sample homogeneity.
- D29208-1: Elevated RL due to matrix interference.

### Volatiles by GC By Method SW846 8015B

<b>Matrix</b> SO	<b>Batch ID:</b> GGB778
------------------	-------------------------

- All samples were analyzed within the recommended method holding time.
- Sample(s) D29186-1MS, D29186-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

### Extractables by GC By Method SW846-8015B

<b>Matrix</b> SO	<b>Batch ID:</b> OP4801
------------------	-------------------------

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D29207-1MS, D29207-1MSD were used as the QC samples indicated.

## Metals By Method SW846 6010B

**Matrix** AQ

**Batch ID:** MP6227

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D29236-1AMS, D29236-1AMSD were used as the QC samples for the metals analysis.

**Matrix** SO

**Batch ID:** MP6206

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D29206-1MSD, D29206-1SDL, D29206-1MS, D29206-1MSD were used as the QC samples for the metals analysis.
- The matrix spike (MS) and matrix spike duplicate (MSD) recovery(s) of Selenium are outside control limits. Spike recovery indicates possible matrix interference.
- The matrix spike (MS) recovery(s) of Barium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- The serial dilution RPD(s) for Zinc are outside control limits for sample MP6206-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- The serial dilution RPD(s) for Zinc are outside control limits for sample MP6206-SD1. Serial dilution indicates possible matrix interference.
- D29208-1 for Selenium: Elevated detection limit due to dilution required for possible matrix interference.

## Metals By Method SW846 6020

**Matrix** SO

**Batch ID:** MP6207

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D29206-1MS, D29206-1MSD, D29206-1SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Arsenic are outside control limits for sample MP6207-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

## Metals By Method SW846 7471A

**Matrix** SO

**Batch ID:** MP6224

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D29206-1MS, D29206-1MSD were used as the QC samples for the metals analysis.

## Wet Chemistry By Method ASTM D1498-76M

**Matrix** SO

**Batch ID:** GN12406

- Sample(s) D29207-1DUP were used as the QC samples for the Redox Potential Vs H2 analysis.

## Wet Chemistry By Method SM19 2540B M

**Matrix** SO

**Batch ID:** GN12361

- The data for SM19 2540B M meets quality control requirements.

## Wet Chemistry By Method SW846 3060/7196A M

**Matrix** SO

**Batch ID:** R10684

- The data for SW846 3060/7196A M meets quality control requirements.
- D29208-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

### Wet Chemistry By Method SW846 3060A/7196A

**Matrix** SO

**Batch ID:** M:GP13780

- The data for SW846 3060A/7196A meets quality control requirements.
- D29208-1 for Chromium, Hexavalent: Analysis performed at Accutest Laboratories, Marlborough, MA.

### Wet Chemistry By Method SW846 9045C

**Matrix** SO

**Batch ID:** GN12401

- The following sample was run outside of holding time for method SW846 9045C: D29208-1.

### Wet Chemistry By Method USDA HANDBOOK 60

**Matrix** SO

**Batch ID:** MP6227

- D29208-1A for Sodium Adsorption Ratio: Calculated as:  $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS'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.

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

## SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** Accutest Mountain States**Job No** D29208**Site:** KRWCCOL: XOM FRU 297-20A**Report Date** 11/10/2011 4:31:59 PM

1 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were collected on 11/04/2011 and were received at Accutest on 11/05/2011 properly preserved, at XXXXNO TEMPERATURE FOUNDXXXX Deg. C and intact. These Samples received an Accutest job number of D29208. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

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

### Wet Chemistry By Method SW846 3060A/7196A

**Matrix** SO**Batch ID:** GP13780

- All samples were distilled within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D29207-1DUP, D29207-1MS were used as the QC samples for Chromium, Hexavalent.

The Accutest Laboratories of New England certifies that all analysis were performed within method specification. It is further recommended that this report to be used in its entirety. The Accutest Laboratories of NE, Laboratory Director or assignee as verified by the signature on the cover page has authorized the release of this report(D29208).



## Sample Results

## Report of Analysis

Accutest Laboratories

## Report of Analysis

Page 1 of 1

<b>Client Sample ID:</b>	RESERVE PIT CONTENTS			<b>Date Sampled:</b>	11/04/11
<b>Lab Sample ID:</b>	D29208-1			<b>Date Received:</b>	11/05/11
<b>Matrix:</b>	SO - Sludge			<b>Percent Solids:</b>	29.2
<b>Method:</b>	SW846 8260B				
<b>Project:</b>	XOM FRU 297-20A				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V14476.D	1	11/07/11	DC	n/a	n/a	V3V832
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.04 g	5.0 ml	100 ul
Run #2			

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	290	130	ug/kg	
108-88-3	Toluene	ND	580	290	ug/kg	
100-41-4	Ethylbenzene	165	580	150	ug/kg	J
1330-20-7	Xylene (total)	764	1200	580	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	97%		61-130%
460-00-4	4-Bromofluorobenzene	96%		53-131%
17060-07-0	1,2-Dichloroethane-D4	102%		62-130%

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

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

## Report of Analysis

<b>Client Sample ID:</b>	RESERVE PIT CONTENTS	<b>Date Sampled:</b>	11/04/11
<b>Lab Sample ID:</b>	D29208-1	<b>Date Received:</b>	11/05/11
<b>Matrix:</b>	SO - Sludge	<b>Percent Solids:</b>	29.2
<b>Method:</b>	SW846 8270C BY SIM SW846 3546		
<b>Project:</b>	XOM FRU 297-20A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 <sup>a</sup>	3G06830.D	10	11/09/11	TMB	11/08/11	OP4805	E3G252
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

## COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	230	180	ug/kg	
120-12-7	Anthracene	ND	230	210	ug/kg	
56-55-3	Benzo(a)anthracene	ND	570	300	ug/kg	
50-32-8	Benzo(a)pyrene	ND	570	410	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	570	420	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	570	250	ug/kg	
218-01-9	Chrysene	ND	570	250	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	570	420	ug/kg	
206-44-0	Fluoranthene	ND	230	230	ug/kg	
86-73-7	Fluorene	ND	230	190	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	680	630	ug/kg	
91-20-3	Naphthalene	ND	230	220	ug/kg	
129-00-0	Pyrene	ND	230	220	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	101%		10-145%
321-60-8	2-Fluorobiphenyl	55%		10-130%
1718-51-0	Terphenyl-d14	63%		22-130%

(a) Elevated RL due to matrix interference.

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Accutest Laboratories

## Report of Analysis

Page 1 of 1

<b>Client Sample ID:</b>	RESERVE PIT CONTENTS					<b>Date Sampled:</b>	11/04/11
<b>Lab Sample ID:</b>	D29208-1					<b>Date Received:</b>	11/05/11
<b>Matrix:</b>	SO - Sludge					<b>Percent Solids:</b>	29.2
<b>Method:</b>	SW846 8015B						
<b>Project:</b>	XOM FRU 297-20A						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB13744.D	1	11/07/11	SK	n/a	n/a	GGB778
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	48.7	58	29	mg/kg	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	83%		60-140%		

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

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

Accutest Laboratories

## Report of Analysis

Page 1 of 1

<b>Client Sample ID:</b>	RESERVE PIT CONTENTS					<b>Date Sampled:</b>	11/04/11
<b>Lab Sample ID:</b>	D29208-1					<b>Date Received:</b>	11/05/11
<b>Matrix:</b>	SO - Sludge					<b>Percent Solids:</b>	29.2
<b>Method:</b>	SW846-8015B SW846 3546						
<b>Project:</b>	XOM FRU 297-20A						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD11389.D	1	11/08/11	TR	11/08/11	OP4801	GFD571
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	785	45	30	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	87%		61-142%		

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

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

## Report of Analysis

**Client Sample ID:** RESERVE PIT CONTENTS**Lab Sample ID:** D29208-1**Matrix:** SO - Sludge**Project:** XOM FRU 297-20A**Date Sampled:** 11/04/11**Date Received:** 11/05/11**Percent Solids:** 29.2**Metals Analysis**

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	8.2	1.3	mg/kg	5	11/07/11	11/08/11 GJ	SW846 6020 <sup>2</sup>	SW846 3050B <sup>6</sup>
Barium	29300	32	mg/kg	10	11/07/11	11/08/11 JB	SW846 6010B <sup>3</sup>	SW846 3050B <sup>5</sup>
Cadmium	< 3.2	3.2	mg/kg	1	11/07/11	11/08/11 JB	SW846 6010B <sup>1</sup>	SW846 3050B <sup>5</sup>
Chromium	31.9	3.2	mg/kg	1	11/07/11	11/08/11 JB	SW846 6010B <sup>1</sup>	SW846 3050B <sup>5</sup>
Copper	35.2	3.2	mg/kg	1	11/07/11	11/08/11 JB	SW846 6010B <sup>1</sup>	SW846 3050B <sup>5</sup>
Lead	< 16	16	mg/kg	1	11/07/11	11/08/11 JB	SW846 6010B <sup>1</sup>	SW846 3050B <sup>5</sup>
Mercury	< 0.35	0.35	mg/kg	1	11/09/11	11/09/11 JB	SW846 7471A <sup>4</sup>	SW846 7471A <sup>7</sup>
Nickel	17.9	9.6	mg/kg	1	11/07/11	11/08/11 JB	SW846 6010B <sup>1</sup>	SW846 3050B <sup>5</sup>
Selenium <sup>a</sup>	< 160	160	mg/kg	10	11/07/11	11/08/11 JB	SW846 6010B <sup>3</sup>	SW846 3050B <sup>5</sup>
Silver	< 9.6	9.6	mg/kg	1	11/07/11	11/08/11 JB	SW846 6010B <sup>1</sup>	SW846 3050B <sup>5</sup>
Zinc	60.6	9.6	mg/kg	1	11/07/11	11/08/11 JB	SW846 6010B <sup>1</sup>	SW846 3050B <sup>5</sup>

(1) Instrument QC Batch: MA1952

(2) Instrument QC Batch: MA1953

(3) Instrument QC Batch: MA1954

(4) Instrument QC Batch: MA1959

(5) Prep QC Batch: MP6206

(6) Prep QC Batch: MP6207

(7) Prep QC Batch: MP6224

(a) Elevated detection limit due to dilution required for possible matrix interference.

RL = Reporting Limit

## Report of Analysis

**Client Sample ID:** RESERVE PIT CONTENTS**Lab Sample ID:** D29208-1**Matrix:** SO - Sludge**Project:** XOM FRU 297-20A**Date Sampled:** 11/04/11**Date Received:** 11/05/11**Percent Solids:** 29.2**General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent <sup>a</sup>	< 1.4	1.4	mg/kg	1	11/10/11 15:13	AMA	SW846 3060A/7196A
Chromium, Trivalent <sup>b</sup>	30.9	4.6	mg/kg	1	11/10/11 15:13	AMA	SW846 3060/7196A M
Redox Potential Vs H2	294		mv	1	11/08/11 14:40	JK	ASTM D1498-76M
Solids, Percent	29.2		%	1	11/07/11	SWT	SM19 2540B M
Specific Conductivity	3080	1.0	umhos/cm	1	11/08/11	JD	DEPT.OF AG, BOOK N9
pH	10.52		su	1	11/08/11 11:30	JK	SW846 9045C

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

(b) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	RESERVE PIT CONTENTS	<b>Date Sampled:</b>	11/04/11
<b>Lab Sample ID:</b>	D29208-1A	<b>Date Received:</b>	11/05/11
<b>Matrix:</b>	SO - Sludge	<b>Percent Solids:</b>	29.2
<b>Project:</b>	XOM FRU 297-20A		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	18.4	2.0	mg/l	1	11/09/11	11/10/11 JB	SW846 6010B <sup>1</sup>	EPA 200.7 1994 <sup>2</sup>
Magnesium	1.57	1.0	mg/l	1	11/09/11	11/10/11 JB	SW846 6010B <sup>1</sup>	EPA 200.7 1994 <sup>2</sup>
Sodium	679	2.0	mg/l	1	11/09/11	11/10/11 JB	SW846 6010B <sup>1</sup>	EPA 200.7 1994 <sup>2</sup>

(1) Instrument QC Batch: MA1960  
(2) Prep QC Batch: MP6227

RL = Reporting Limit



Report of Analysis

<b>Client Sample ID:</b>	RESERVE PIT CONTENTS	<b>Date Sampled:</b>	11/04/11
<b>Lab Sample ID:</b>	D29208-1A	<b>Date Received:</b>	11/05/11
<b>Matrix:</b>	SO - Sludge	<b>Percent Solids:</b>	29.2
<b>Project:</b>	XOM FRU 297-20A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	40.8		ratio	1	11/10/11 11:18	JB	USDA HANDBOOK 60

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

RL = Reporting Limit

## Misc. Forms

### Custody Documents and Other Forms

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Includes the following where applicable:

- Chain of Custody

[illegible]

## D29208: Chain of Custody

# Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D29208

Client: KRW CONSULTING

Immediate Client Services Action Required: No

Date / Time Received: 11/5/2011 11:00:00 AM

No. Coolers: 1

Client Service Action Required at Login: No

Project: XOM FRU 297-20A

Airbill #'s: Fedex

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	4. Smpl Dates/Time OK	<input checked="" type="checkbox"/>		<input type="checkbox"/>

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Cooler temp verification:			Infrared gun
3. Cooler media:			Ice (bag)

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	<input type="checkbox"/>		<input type="checkbox"/>	
2. Trip Blank listed on COC:	<input type="checkbox"/>		<input type="checkbox"/>	
3. Samples preserved properly:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. VOCs headspace free:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>		<input type="checkbox"/>

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Condition of sample:			Intact

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
2. Bottles received for unspecified tests	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
3. Sufficient volume rec'd for analysis:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. Compositing instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments

## GC/MS Volatiles

5

### QC Data Summaries

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Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

**Method Blank Summary**

Page 1 of 1

**Job Number:** D29208**Account:** KRWCCOL KRW Consulting, Inc.**Project:** XOM FRU 297-20A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V832-MB	3V14464A.D 1		11/07/11	DC	n/a	n/a	V3V832

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

D29208-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	22	ug/kg	
100-41-4	Ethylbenzene	ND	100	25	ug/kg	
108-88-3	Toluene	ND	100	50	ug/kg	
1330-20-7	Xylene (total)	ND	200	100	ug/kg	

CAS No.	Surrogate Recoveries	Limits
2037-26-5	Toluene-D8	108% 61-130%
460-00-4	4-Bromofluorobenzene	99% 53-131%
17060-07-0	1,2-Dichloroethane-D4	101% 62-130%

## Blank Spike Summary

Page 1 of 1

**Job Number:** D29208

**Account:** KRWCCOL KRW Consulting, Inc.

**Project:** XOM FRU 297-20A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V832-BS	3V14465A.D 1		11/07/11	DC	n/a	n/a	V3V832

The QC reported here applies to the following samples:

Method: SW846 8260B

D29208-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	53.4	107	70-130
100-41-4	Ethylbenzene	50	54.7	109	70-130
108-88-3	Toluene	50	53.1	106	70-130
1330-20-7	Xylene (total)	150	165	110	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	107%	61-130%
460-00-4	4-Bromofluorobenzene	108%	53-131%
17060-07-0	1,2-Dichloroethane-D4	99%	62-130%

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D29208

**Account:** KRWCCOL KRW Consulting, Inc.

**Project:** XOM FRU 297-20A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D29207-1MS	3V14474.D	1	11/07/11	DC	n/a	n/a	V3V832
D29207-1MSD	3V14475.D	1	11/07/11	DC	n/a	n/a	V3V832
D29207-1	3V14473.D	1	11/07/11	DC	n/a	n/a	V3V832

The QC reported here applies to the following samples:

Method: SW846 8260B

D29208-1

CAS No.	Compound	D29207-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		3110	3260	105	3400	109	4	70-134/30
100-41-4	Ethylbenzene	ND		3110	3290	106	3380	109	3	70-137/30
108-88-3	Toluene	ND		3110	2990	96	3020	97	1	70-130/30
1330-20-7	Xylene (total)	215	J	9320	9650	101	9850	103	2	61-131/30

CAS No.	Surrogate Recoveries	MS	MSD	D29207-1	Limits
2037-26-5	Toluene-D8	98%	95%	108%	61-130%
460-00-4	4-Bromofluorobenzene	101%	98%	109%	53-131%
17060-07-0	1,2-Dichloroethane-D4	99%	100%	102%	62-130%



GC/MS Volatiles

Raw Data



## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3110711.S\  
 Data File : 3V14476.D  
 Acq On : 7 Nov 2011 8:18 pm  
 Operator : DONC  
 Sample : D29208-1, 50x  
 Misc : MS2923,V3V832,5.039,,100,5,1  
 ALS Vial : 16 Sample Multiplier: 1

Quant Time: Nov 09 11:39:48 2011  
 Quant Method : C:\msdchem\1\METHODS\V3AP830TVH830.M  
 Quant Title : 8260  
 QLast Update : Mon Nov 07 14:42:41 2011  
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.886	168	386530	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.682	114	622267	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.316	117	586247	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.312	152	277527	50.00	ug/l	0.00

## System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.284	102	52177	51.10	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	102.20%
61) Toluene-d8	14.071	98	847331	48.45	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	96.90%
69) 4-Bromofluorobenzene	16.263	95	273080	47.99	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	95.98%

## Target Compounds

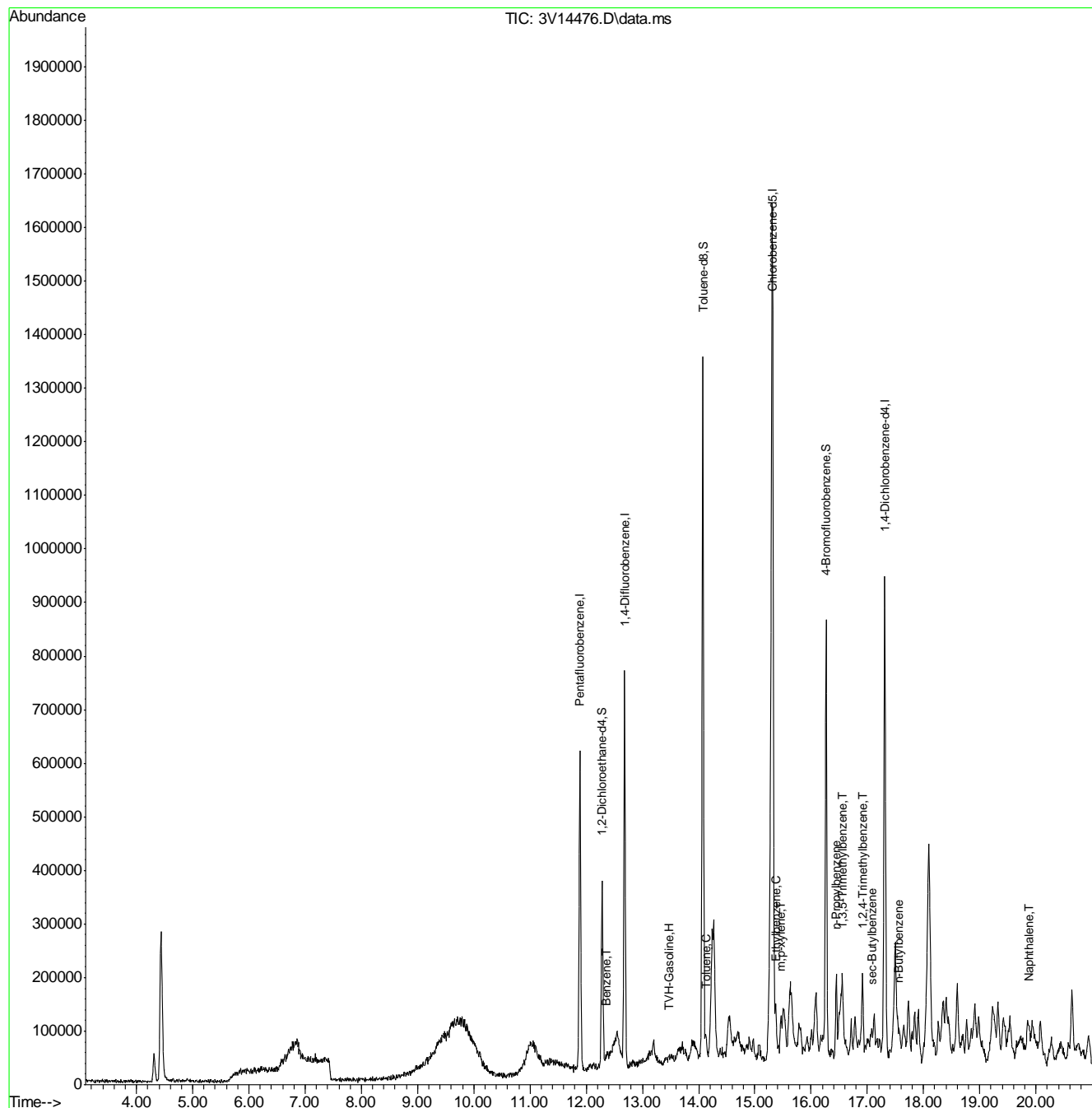
						Qvalue
1) TVH-Gasoline	13.491	TIC	10279144m	583.90	ug/l	
50) Benzene	12.374	78	6610m	0.40	ug/l	
62) Toluene	14.132	92	8242	0.69	ug/l #	82
66) Ethylbenzene	15.384	91	12772	0.57	ug/l	81
72) m,p-xylene	15.464	106	22371	2.62	ug/l #	83
77) n-Propylbenzene	16.443	91	12994	0.65	ug/l #	81
80) 1,3,5-Trimethylbenzene	16.555	105	34154m	2.32	ug/l	
82) 1,2,4-Trimethylbenzene	16.914	105	73506	4.37	ug/l	85
83) sec-Butylbenzene	17.081	105	13980	0.64	ug/l	96
88) n-Butylbenzene	17.559	91	13760	0.84	ug/l	97
91) Naphthalene	19.883	128	44024	2.87	ug/l	100

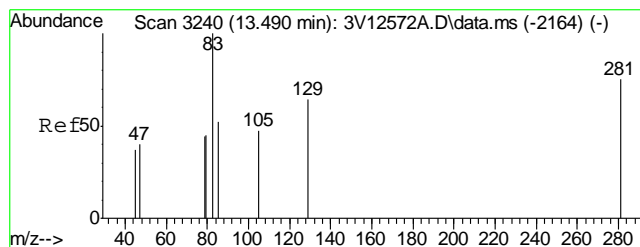
(#) = qualifier out of range (m) = manual integration (+) = signals summed

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3110711.S\  
Data File : 3V14476.D  
Acq On : 7 Nov 2011 8:18 pm  
Operator : DONC  
Sample : D29208-1, 50x  
Misc : MS2923,V3V832,5.039,,100,5,1  
ALS Vial : 16 Sample Multiplier: 1

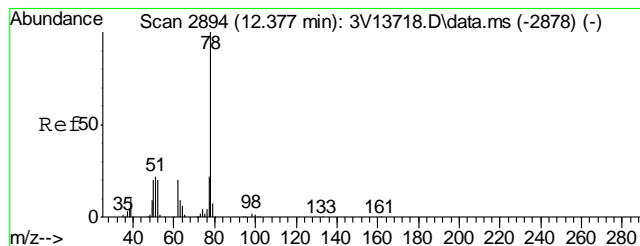
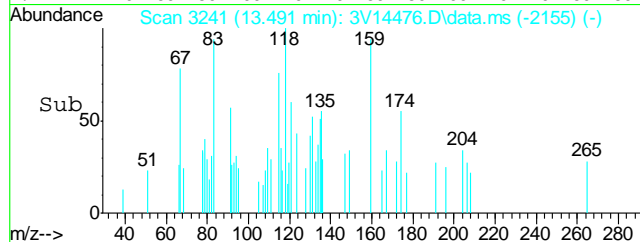
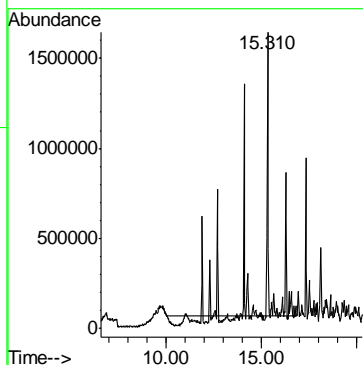
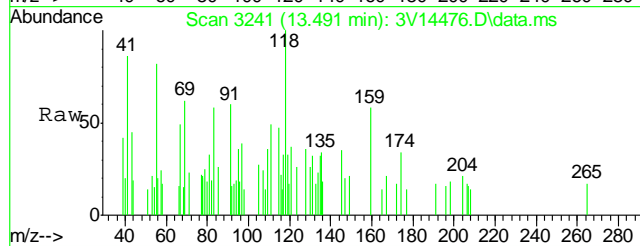
Quant Time: Nov 09 11:39:48 2011  
Quant Method : C:\msdchem\1\METHODS\V3AP830TVH830.M  
Quant Title : 8260  
QLast Update : Mon Nov 07 14:42:41 2011  
Response via : Initial Calibration





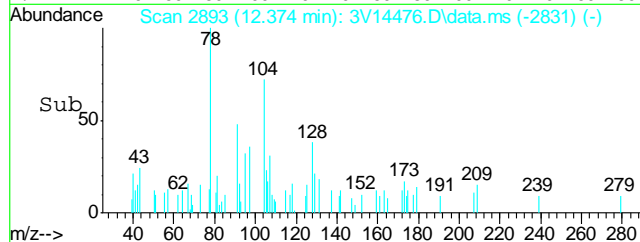
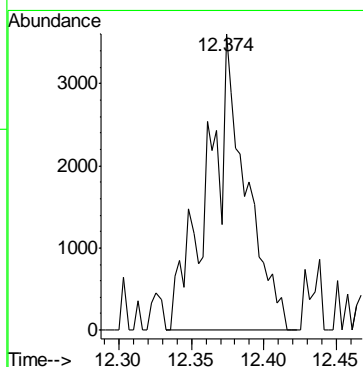
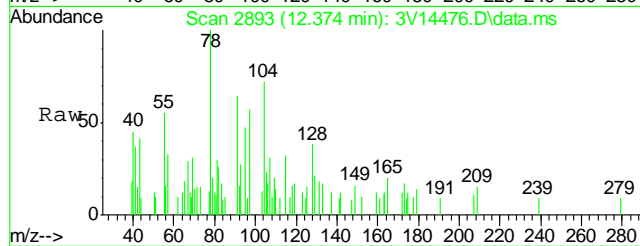
#1  
TVH-Gasoline  
Concen: 583.90 ug/l m  
RT: 13.491 min Scan# 3241  
Delta R.T. 0.000 min  
Lab File: 3V14476.D  
Acq: 7 Nov 2011 8:18 pm

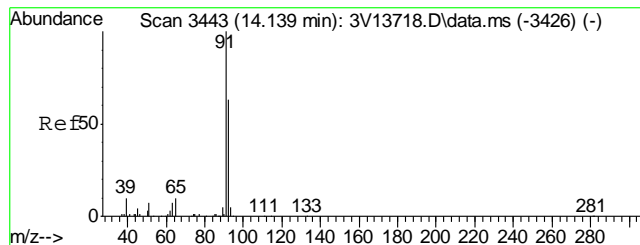
Tgt Ion:TIC Resp:10279144



#50  
Benzene  
Concen: 0.40 ug/l m  
RT: 12.374 min Scan# 2893  
Delta R.T. 0.000 min  
Lab File: 3V14476.D  
Acq: 7 Nov 2011 8:18 pm

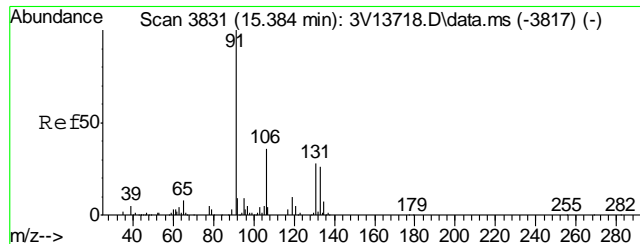
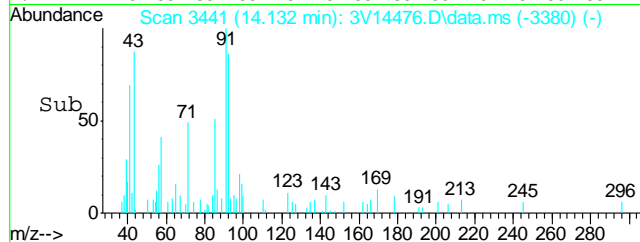
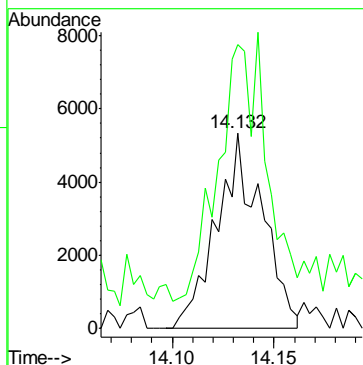
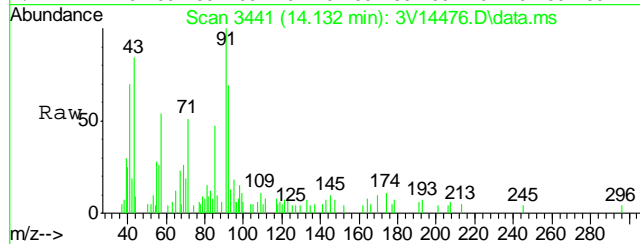
Tgt Ion: 78 Resp: 6610





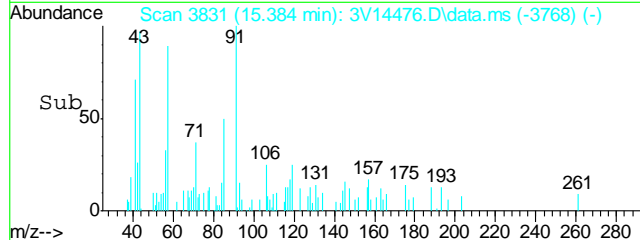
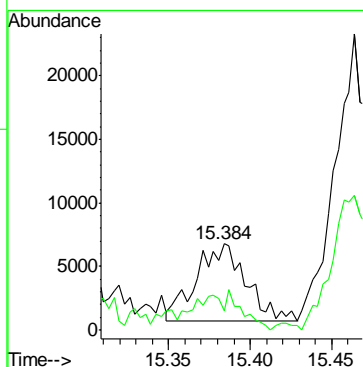
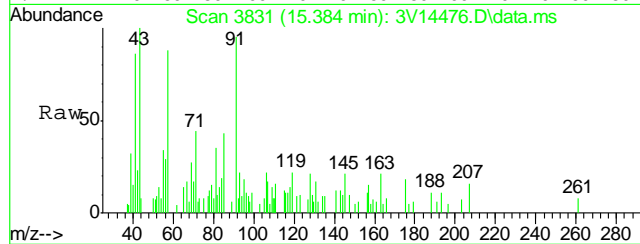
#62  
Toluene  
Concen: 0.69 ug/l  
RT: 14.132 min Scan# 3441  
Delta R.T. -0.003 min  
Lab File: 3V14476.D  
Acq: 7 Nov 2011 8:18 pm

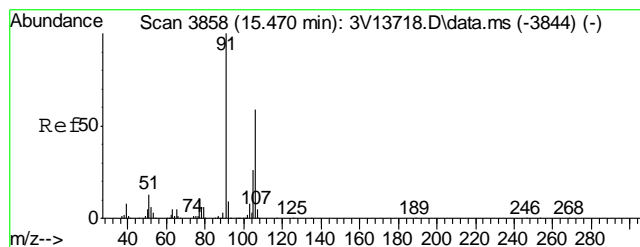
Tgt Ion: 92 Resp: 8242  
Ion Ratio Lower Upper  
92 100  
91 151.4 156.8 196.8#



#66  
Ethylbenzene  
Concen: 0.57 ug/l  
RT: 15.384 min Scan# 3831  
Delta R.T. 0.001 min  
Lab File: 3V14476.D  
Acq: 7 Nov 2011 8:18 pm

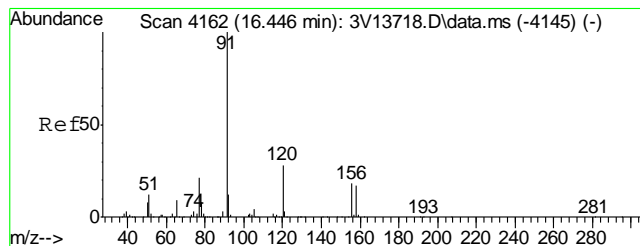
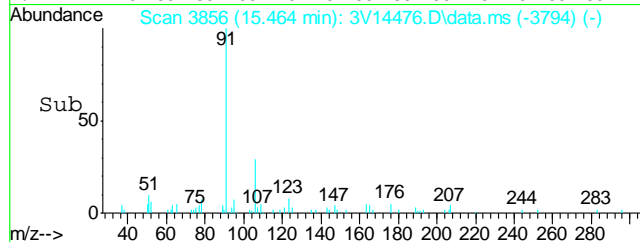
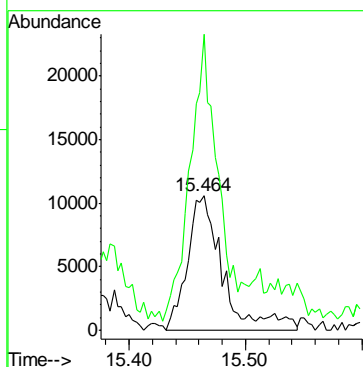
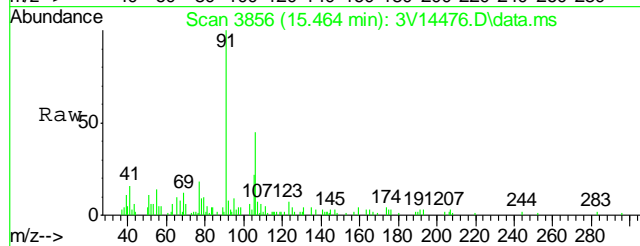
Tgt Ion: 91 Resp: 12772  
Ion Ratio Lower Upper  
91 100  
106 44.2 13.3 53.3





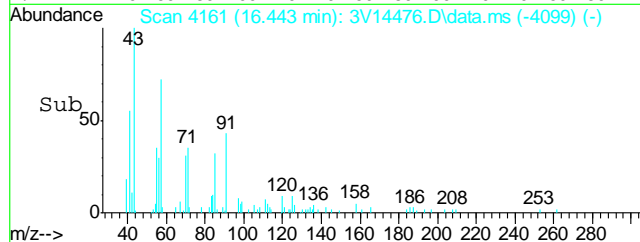
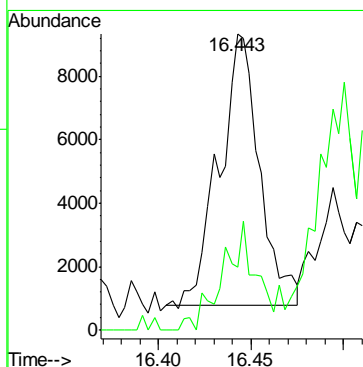
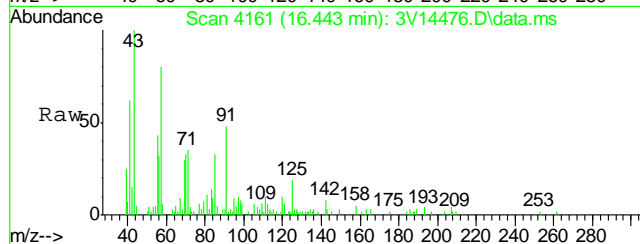
#72  
m,p-xylene  
Concen: 2.62 ug/l  
RT: 15.464 min Scan# 3856  
Delta R.T. -0.002 min  
Lab File: 3V14476.D  
Acq: 7 Nov 2011 8:18 pm

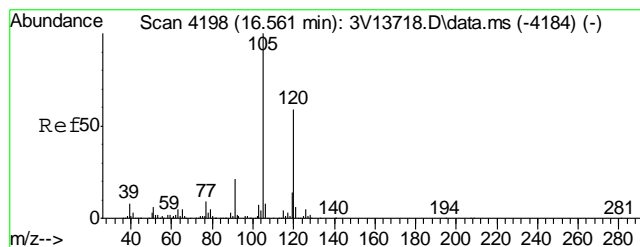
Tgt Ion: 106 Resp: 22371  
Ion Ratio Lower Upper  
106 100  
91 209.5 164.7 204.7#



#77  
n-Propylbenzene  
Concen: 0.65 ug/l  
RT: 16.443 min Scan# 4161  
Delta R.T. -0.002 min  
Lab File: 3V14476.D  
Acq: 7 Nov 2011 8:18 pm

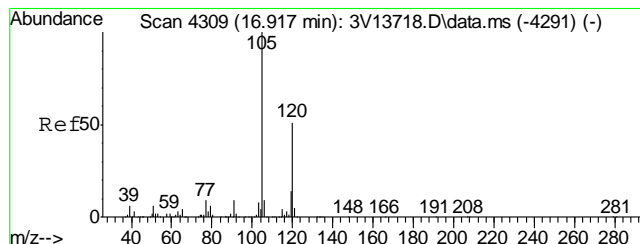
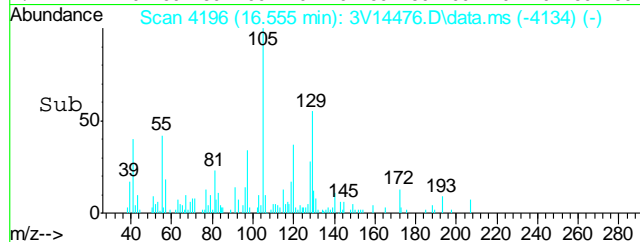
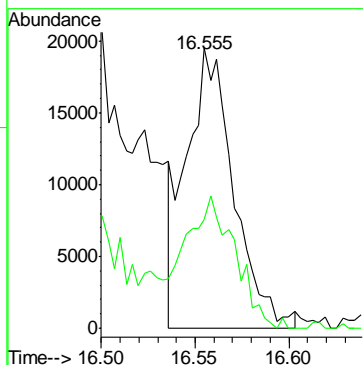
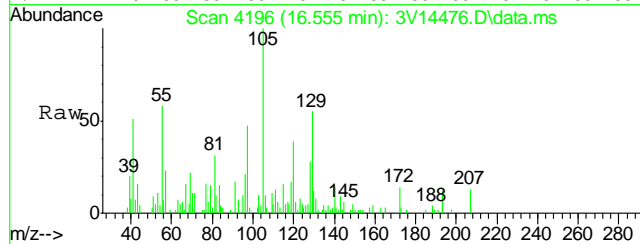
Tgt Ion: 91 Resp: 12994  
Ion Ratio Lower Upper  
91 100  
120 35.7 20.8 31.2#





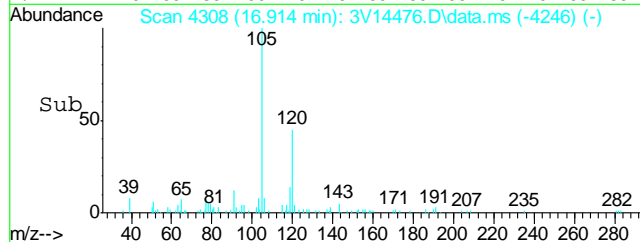
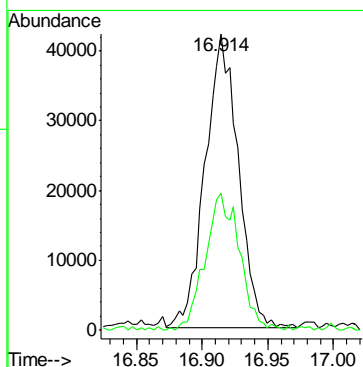
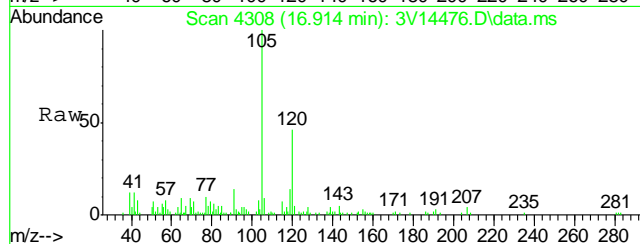
#80  
1,3,5-Trimethylbenzene  
Concen: 2.32 ug/l m  
RT: 16.555 min Scan# 4196  
Delta R.T. -0.002 min  
Lab File: 3V14476.D  
Acq: 7 Nov 2011 8:18 pm

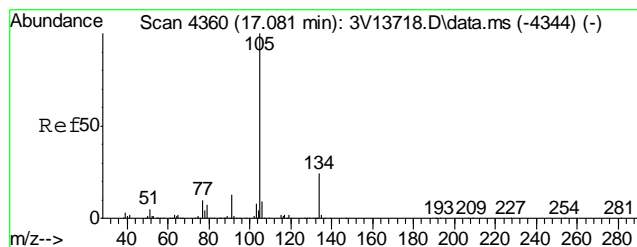
Tgt Ion	Ratio	Lower	Upper
105	100		
120	49.2	43.8	65.8



#82  
1,2,4-Trimethylbenzene  
Concen: 4.37 ug/l  
RT: 16.914 min Scan# 4308  
Delta R.T. 0.000 min  
Lab File: 3V14476.D  
Acq: 7 Nov 2011 8:18 pm

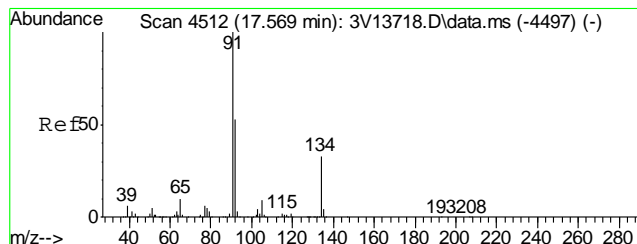
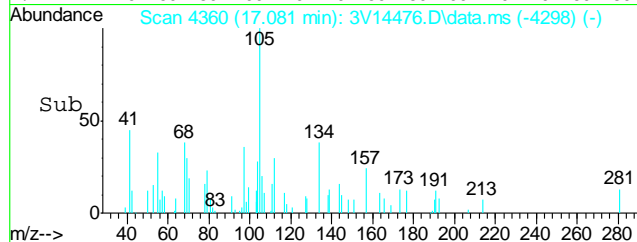
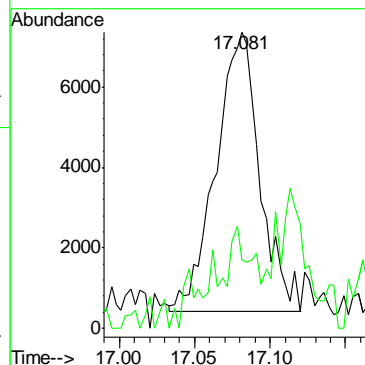
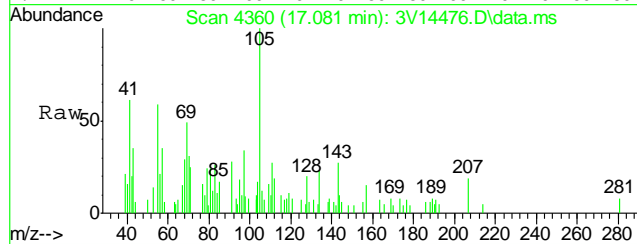
Tgt Ion	Ratio	Lower	Upper
105	100		
120	48.5	47.8	71.6





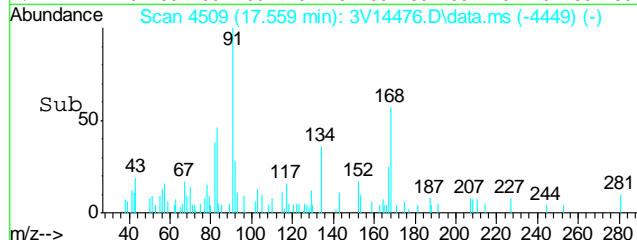
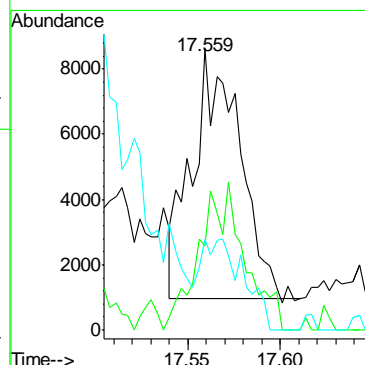
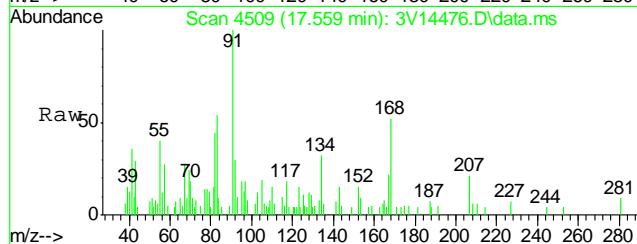
#83  
 sec-Butylbenzene  
 Concen: 0.64 ug/l  
 RT: 17.081 min Scan# 4360  
 Delta R.T. 0.000 min  
 Lab File: 3V14476.D  
 Acq: 7 Nov 2011 8:18 pm

Tgt Ion	Ratio	Lower	Upper
105	100		
134	21.3	18.4	27.6

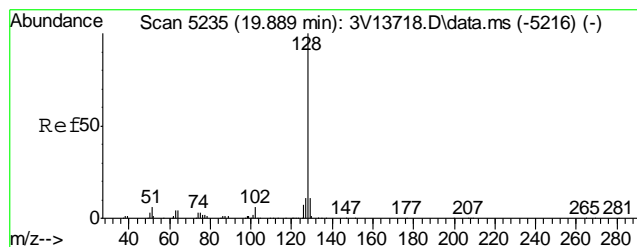


#88  
 n-Butylbenzene  
 Concen: 0.84 ug/l  
 RT: 17.559 min Scan# 4509  
 Delta R.T. -0.006 min  
 Lab File: 3V14476.D  
 Acq: 7 Nov 2011 8:18 pm

Tgt Ion	Ratio	Lower	Upper
91	100		
92	54.9	41.5	62.3
134	32.5	25.4	38.0

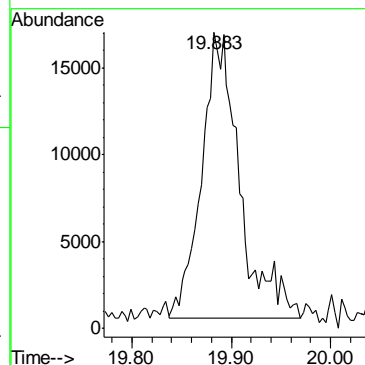
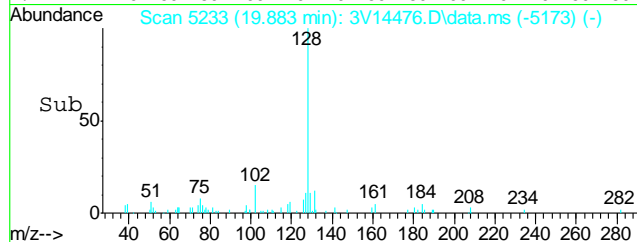
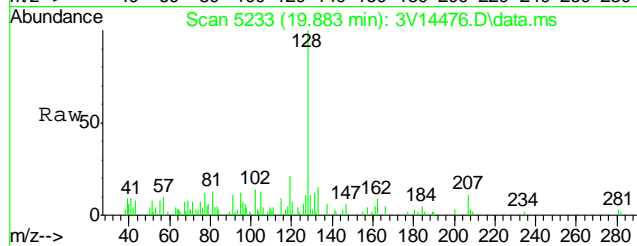






#91  
Naphthalene  
Concen: 2.87 ug/l  
RT: 19.883 min Scan# 5233  
Delta R.T. -0.006 min  
Lab File: 3V14476.D  
Acq: 7 Nov 2011 8:18 pm

Tgt Ion:128 Resp: 44024



## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3110711.S\  
Data File : 3V14464A.D  
Acq On : 7 Nov 2011 11:29 am  
Operator : DONC  
Sample : MB  
Misc : MS2923,V3V832,5,,100,5,1  
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 09 09:42:41 2011  
Quant Method : C:\msdchem\1\METHODS\V3AP830TVH830.M  
Quant Title : 8260  
QLast Update : Mon Nov 07 14:42:41 2011  
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.884	168	313896	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.683	114	498139	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.314	117	409451	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.310	152	213188	50.00	ug/l	0.00

## System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.285	102	41759	50.36	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	100.72%
61) Toluene-d8	14.072	98	658097	53.88	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	107.76%
69) 4-Bromofluorobenzene	16.264	95	196998	49.57	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	99.14%

## Target Compounds

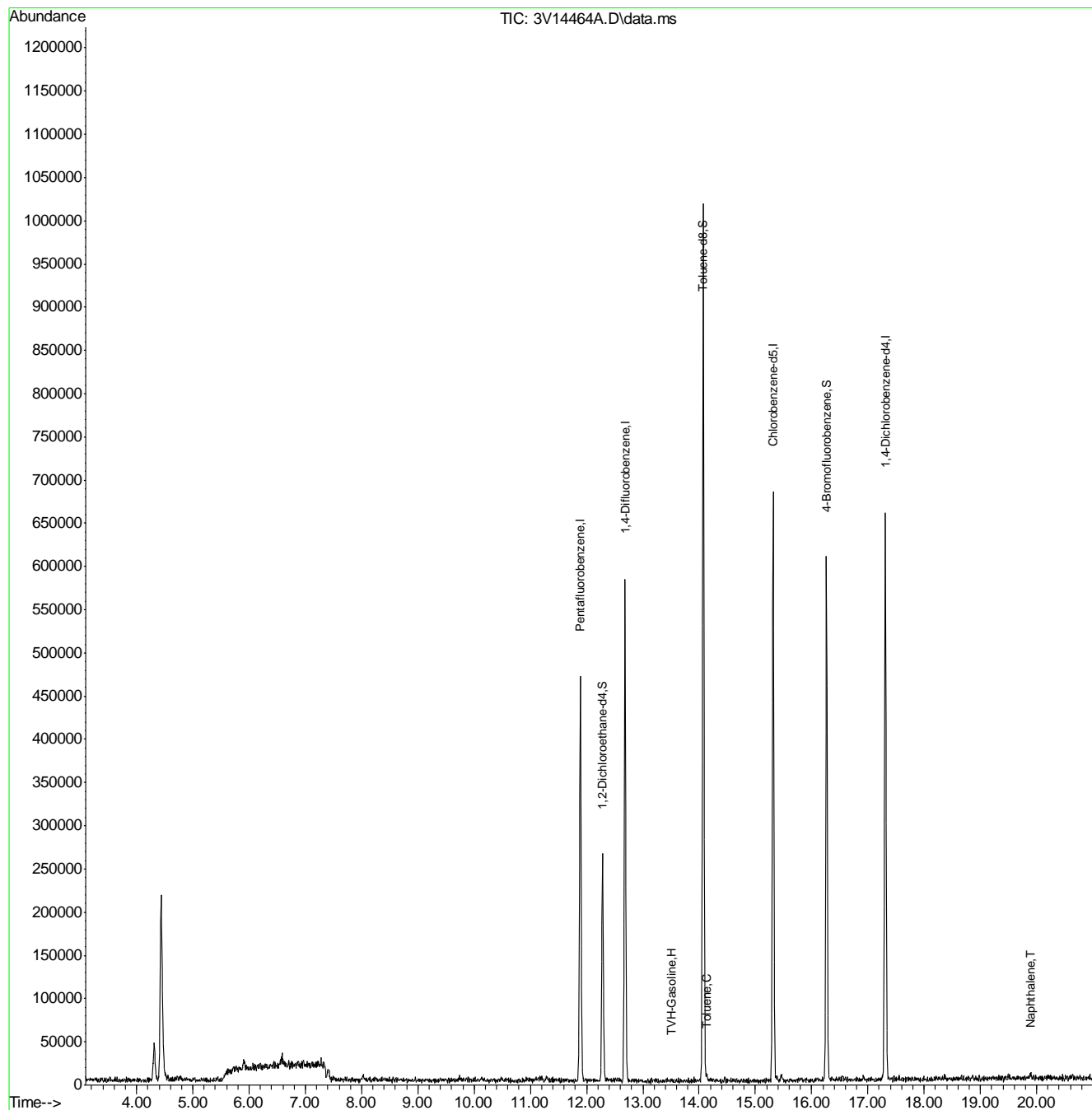
					Qvalue
1) TVH-Gasoline	13.491	TIC	124794m	19.44	ug/l
62) Toluene	14.139	92	2913	0.35	ug/l # 75
91) Naphthalene	19.899	128	5939	0.50	ug/l 100

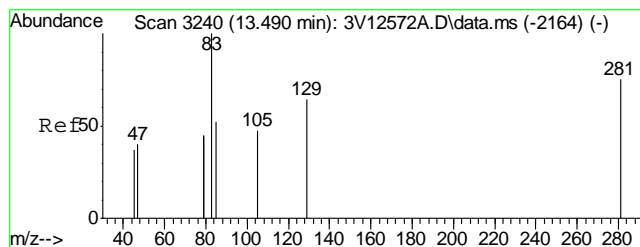
(#) = qualifier out of range (m) = manual integration (+) = signals summed

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3110711.S\  
Data File : 3V14464A.D  
Acq On : 7 Nov 2011 11:29 am  
Operator : DONC  
Sample : MB  
Misc : MS2923,V3V832,5,,100,5,1  
ALS Vial : 4 Sample Multiplier: 1

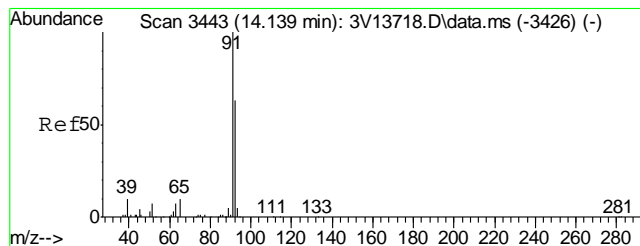
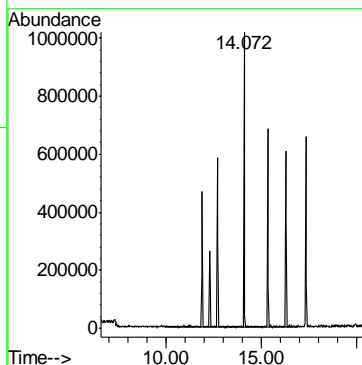
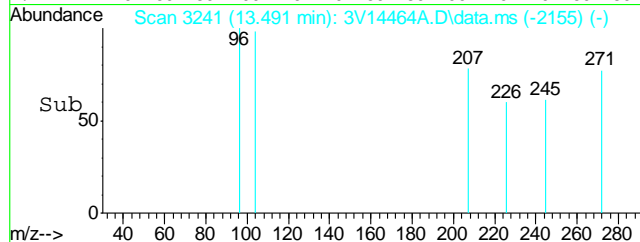
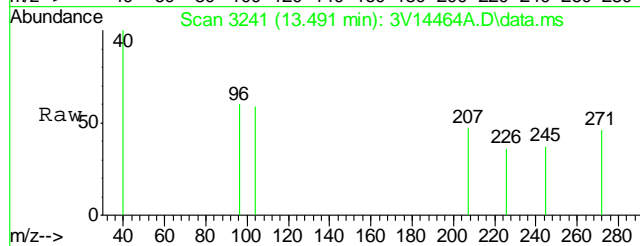
Quant Time: Nov 09 09:42:41 2011  
Quant Method : C:\msdchem\1\METHODS\V3AP830TVH830.M  
Quant Title : 8260  
QLast Update : Mon Nov 07 14:42:41 2011  
Response via : Initial Calibration





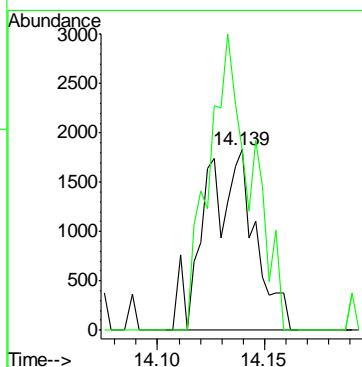
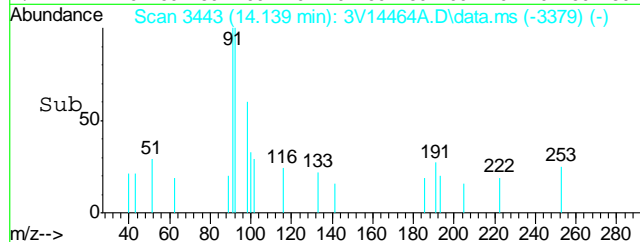
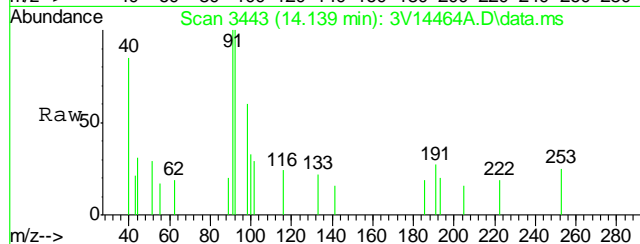
#1  
TVH-Gasoline  
Concen: 19.44 ug/l m  
RT: 13.491 min Scan# 3241  
Delta R.T. 0.000 min  
Lab File: 3V14464A.D  
Acq: 7 Nov 2011 11:29 am

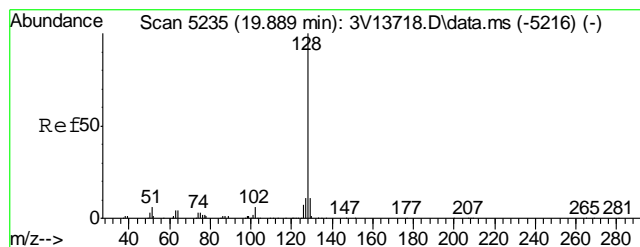
Tgt Ion:TIC Resp: 124794



#62  
Toluene  
Concen: 0.35 ug/l  
RT: 14.139 min Scan# 3443  
Delta R.T. 0.004 min  
Lab File: 3V14464A.D  
Acq: 7 Nov 2011 11:29 am

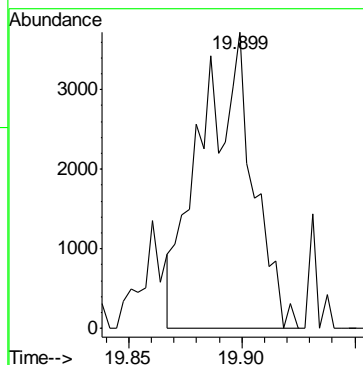
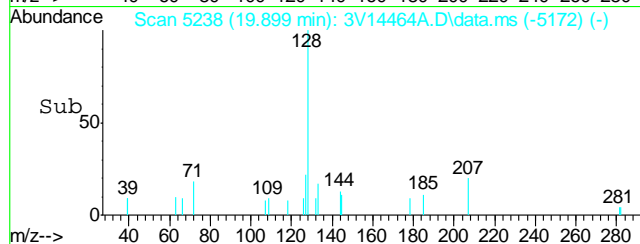
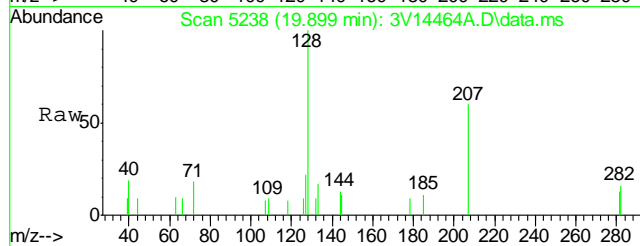
Tgt Ion: 92 Resp: 2913  
Ion Ratio Lower Upper  
92 100  
91 141.8 156.8 196.8#





#91  
Naphthalene  
Concen: 0.50 ug/l  
RT: 19.899 min Scan# 5238  
Delta R.T. 0.011 min  
Lab File: 3V14464A.D  
Acq: 7 Nov 2011 11:29 am

Tgt Ion:128 Resp: 5939



## GC/MS Semi-volatiles

### QC Data Summaries

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Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

**Method Blank Summary**

Page 1 of 1

**Job Number:** D29208  
**Account:** KRWCCOL KRW Consulting, Inc.  
**Project:** XOM FRU 297-20A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4805-MB	3G06824.D	1	11/08/11	TMB	11/08/11	OP4805	E3G252

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

D29208-1

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	6.7	5.3	ug/kg	
120-12-7	Anthracene	ND	6.7	6.0	ug/kg	
56-55-3	Benzo(a)anthracene	ND	17	8.7	ug/kg	
50-32-8	Benzo(a)pyrene	ND	17	12	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	17	12	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	17	7.3	ug/kg	
218-01-9	Chrysene	ND	17	7.3	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	17	12	ug/kg	
206-44-0	Fluoranthene	ND	6.7	6.7	ug/kg	
86-73-7	Fluorene	ND	6.7	5.7	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	20	18	ug/kg	
91-20-3	Naphthalene	ND	6.7	6.3	ug/kg	
129-00-0	Pyrene	ND	6.7	6.3	ug/kg	

CAS No.	Surrogate Recoveries	Limits
4165-60-0	Nitrobenzene-d5	71% 10-145%
321-60-8	2-Fluorobiphenyl	63% 10-130%
1718-51-0	Terphenyl-d14	111% 22-130%

## Blank Spike Summary

Page 1 of 1

**Job Number:** D29208

**Account:** KRWCCOL KRW Consulting, Inc.

**Project:** XOM FRU 297-20A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4805-BS	3G06825.D	1	11/08/11	TMB	11/08/11	OP4805	E3G252

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D29208-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	65.7	79	34-130
120-12-7	Anthracene	83.3	74.3	89	35-130
56-55-3	Benzo(a)anthracene	83.3	69.6	84	36-130
50-32-8	Benzo(a)pyrene	83.3	71.6	86	36-130
205-99-2	Benzo(b)fluoranthene	83.3	69.3	83	35-130
207-08-9	Benzo(k)fluoranthene	83.3	77.3	93	37-130
218-01-9	Chrysene	83.3	73.4	88	40-130
53-70-3	Dibenzo(a,h)anthracene	83.3	68.6	82	32-130
206-44-0	Fluoranthene	83.3	72.1	87	38-130
86-73-7	Fluorene	83.3	68.8	83	35-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	59.6	72	28-130
91-20-3	Naphthalene	83.3	70.2	84	35-130
129-00-0	Pyrene	83.3	73.5	88	37-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	98%	10-145%
321-60-8	2-Fluorobiphenyl	81%	10-130%
1718-51-0	Terphenyl-d14	103%	22-130%



# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D29208  
**Account:** KRWCCOL KRW Consulting, Inc.  
**Project:** XOM FRU 297-20A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4805-MS <sup>a</sup>	3G06852.D	10	11/10/11	TMB	11/08/11	OP4805	E3G253
OP4805-MSD <sup>a</sup>	3G06853.D	10	11/10/11	TMB	11/08/11	OP4805	E3G253
D29207-1	3G06851.D	10	11/10/11	TMB	11/08/11	OP4805	E3G253

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D29208-1

CAS No.	Compound	D29207-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		93.9	81.0	60	101	82	28	10-155/30
120-12-7	Anthracene	ND		93.9	71.7	76	89.9	96	21	10-155/30
56-55-3	Benzo(a)anthracene	ND		93.9	ND	0*	ND	0*	nc	10-175/30
50-32-8	Benzo(a)pyrene	ND		93.9	ND	0*	ND	0*	nc	10-164/30
205-99-2	Benzo(b)fluoranthene	ND		93.9	ND	0*	ND	0*	nc	10-165/30
207-08-9	Benzo(k)fluoranthene	ND		93.9	ND	0*	ND	0*	nc	10-178/30
218-01-9	Chrysene	ND		93.9	ND	0*	ND	0*	nc	10-147/30
53-70-3	Dibenzo(a,h)anthracene	ND		93.9	ND	0*	ND	0*	nc	10-144/30
206-44-0	Fluoranthene	ND		93.9	91.6	98	114	121	24	10-207/30
86-73-7	Fluorene	166		93.9	225	71	296	147	34*	10-163/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		93.9	ND	0*	ND	0*	nc	10-180/30
91-20-3	Naphthalene	ND		93.9	104	54	136	88	25	10-198/30
129-00-0	Pyrene	ND		93.9	ND	0*	74.2	79	12	10-189/30

CAS No.	Surrogate Recoveries	MS	MSD	D29207-1	Limits
4165-60-0	Nitrobenzene-d5	12%	116%	111%	10-145%
321-60-8	2-Fluorobiphenyl	66%	79%	70%	10-130%
1718-51-0	Terphenyl-d14	60%	71%	67%	22-130%

(a) Outside control limits due to dilution.

GC/MS Semi-volatiles

Raw Data

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## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\110811\  
 Data File : 3g06830.D  
 Acq On : 9 Nov 2011 12:35 am  
 Operator : TamiB  
 Sample : D29208-1,10x  
 Misc : OP4805,E3G252,30,,,1,10  
 ALS Vial : 18 Sample Multiplier: 1

Quant Time: Nov 09 14:46:22 2011  
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G252.M  
 Quant Title : PAHSIM BASE  
 QLast Update : Wed Nov 09 14:40:27 2011  
 Response via : Initial Calibration

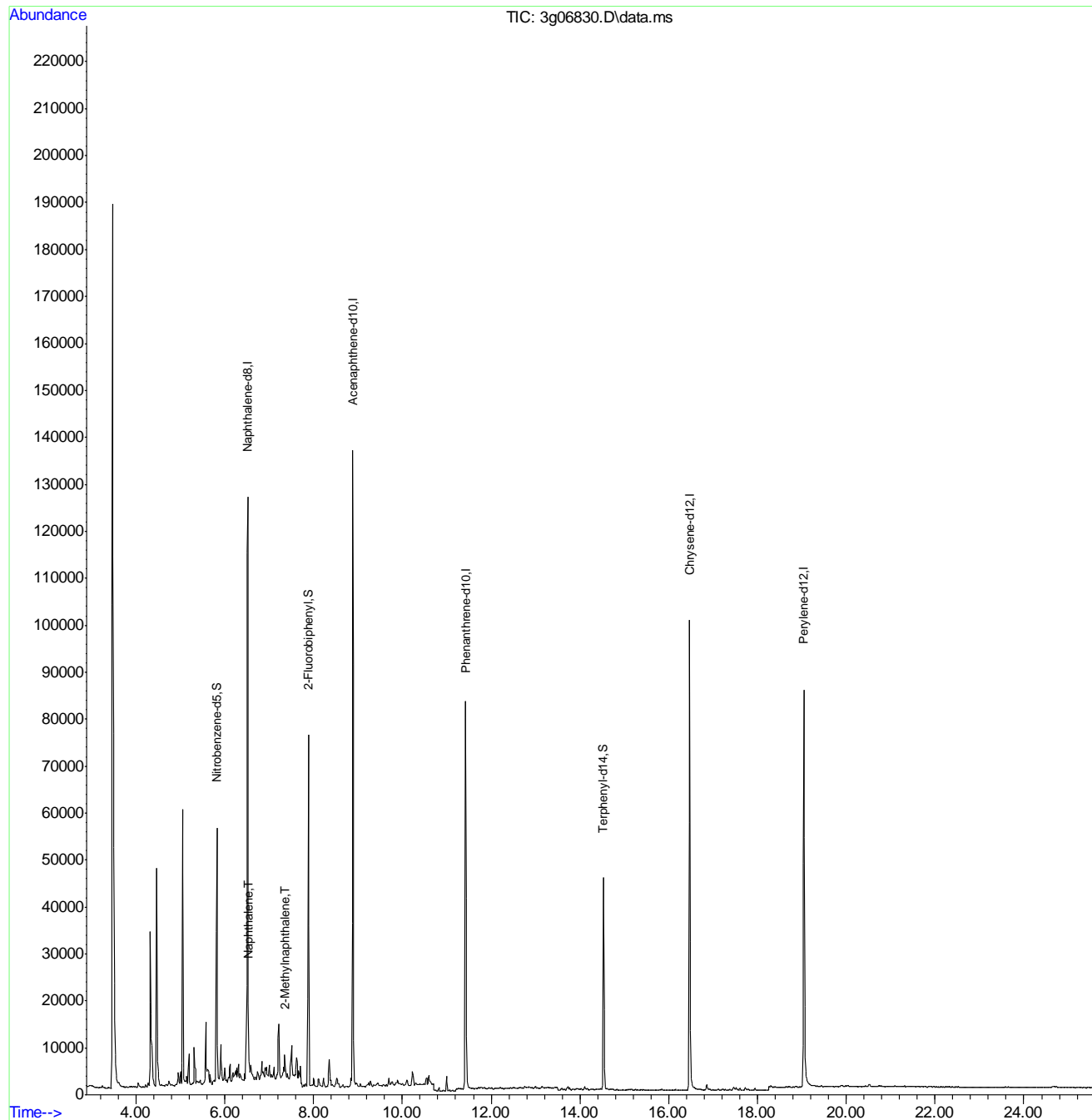
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.518	136	126104	4.00	ug/mL	0.00
6) Acenaphthene-d10	8.885	164	75400	4.00	ug/mL	0.00
14) Phenanthrene-d10	11.427	188	105557	4.00	ug/mL	0.00
18) Chrysene-d12	16.472	240	122022	4.00	ug/mL	0.00
23) Perylene-d12	19.046	264	109324	4.00	ug/mL	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	5.820	82	27758	5.04	ug/mL	0.00
7) 2-Fluorobiphenyl	7.880	172	61213	2.74	ug/mL	0.00
20) Terphenyl-d14	14.530	244	53440	3.17	ug/mL	0.00
Target Compounds						
3) N-Nitrosodimethylamine	0.000		0	N.D.		
4) N-Nitrosodi-propylamine	0.000		0	N.D. d		
5) Naphthalene	6.531	128	3543	0.11	ug/mL	88
8) 2-Methylnaphthalene	7.354	142	2492	0.12	ug/mL#	71
9) 1-Methylnaphthalene	0.000		0	N.D. d		
10) Acenaphthylene	0.000		0	N.D. d		
11) Acenaphthene	0.000		0	N.D. d		
12) Fluorene	0.000		0	N.D. d		
13) Diphenylamine	0.000		0	N.D. d		
15) Phenanthrene	0.000		0	N.D. d		
16) Anthracene	0.000		0	N.D. d		
17) Fluoranthene	0.000		0	N.D. d		
19) Pyrene	0.000		0	N.D. d		
21) Benzo(a)anthracene	0.000		0	N.D. d		
22) Chrysene	0.000		0	N.D. d		
24) Benzo(b)fluoranthene	0.000		0	N.D. d		
25) Benzo(k)fluoranthene	0.000		0	N.D. d		
26) Benzo(a)pyrene	0.000		0	N.D. d		
27) Indeno(1,2,3-cd)pyrene	0.000		0	N.D. d		
28) Dibenz(a,h)anthracene	0.000		0	N.D. d		
29) Benzo(g,h,i)perylene	0.000		0	N.D. d		

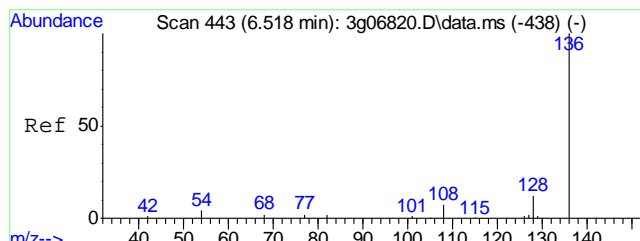
(#) = qualifier out of range (m) = manual integration (+) = signals summed

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\110811\  
Data File : 3g06830.D  
Acq On : 9 Nov 2011 12:35 am  
Operator : TamiB  
Sample : D29208-1,10x  
Misc : OP4805,E3G252,30,,,1,10  
ALS Vial : 18 Sample Multiplier: 1

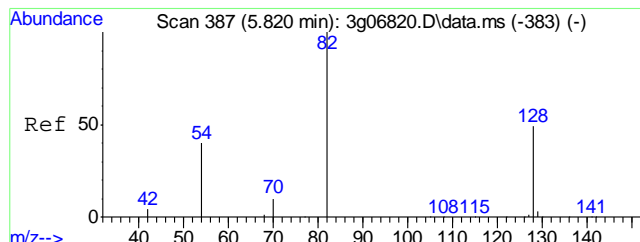
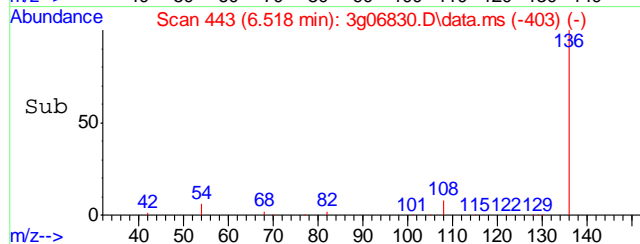
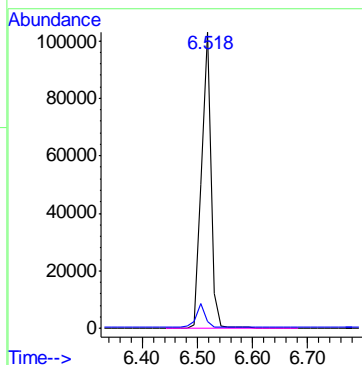
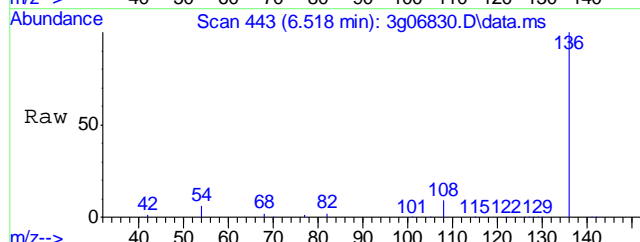
Quant Time: Nov 09 14:46:22 2011  
Quant Method : C:\msdchem\1\METHODS\SIMPE3G252.M  
Quant Title : PAHSIM BASE  
QLast Update : Wed Nov 09 14:40:27 2011  
Response via : Initial Calibration





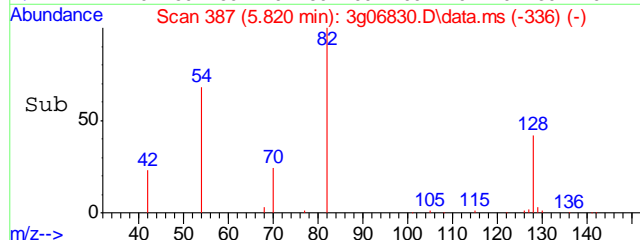
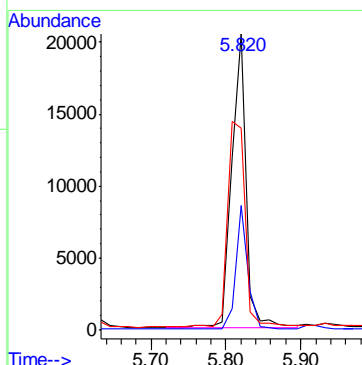
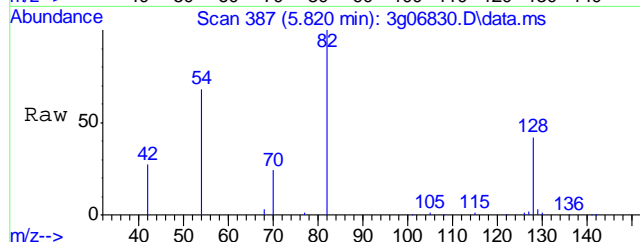
#1  
Naphthalene-d8  
Concen: 4.00 ug/mL  
RT: 6.518 min Scan# 443  
Delta R.T. -0.000 min  
Lab File: 3g06830.D  
Acq: 9 Nov 11 12:35 am

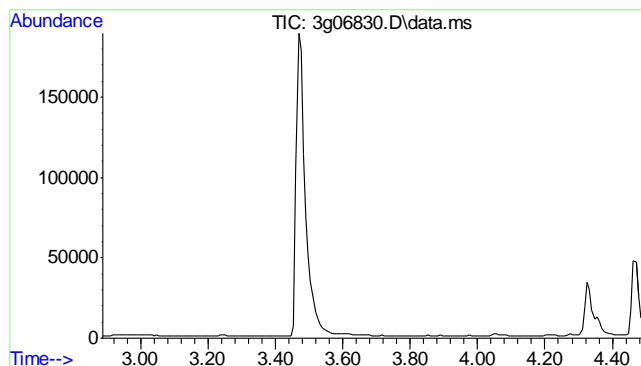
Tgt Ion: 136 Resp: 126104  
Ion Ratio Lower Upper  
136 100  
68 8.4 0.0 28.4



#2  
Nitrobenzene-d5  
Concen: 5.04 ug/mL  
RT: 5.820 min Scan# 387  
Delta R.T. -0.000 min  
Lab File: 3g06830.D  
Acq: 9 Nov 11 12:35 am

Tgt Ion: 82 Resp: 27758  
Ion Ratio Lower Upper  
82 100  
128 35.2 19.6 59.6  
54 84.6 36.6 76.6#

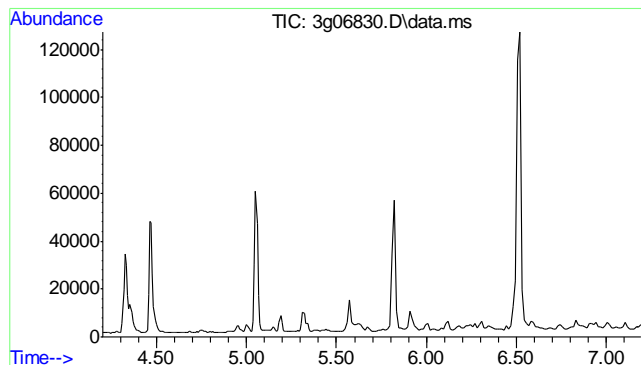
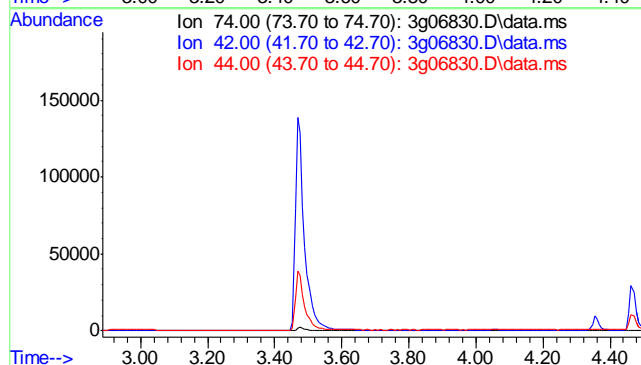




#3  
N-Nitrosodimethylamine  
Concen: N.D. ug/mL  
Expected RT: 2.99 min

Lab File: 3g06830.D  
Acq: 9 Nov 11 12:35 am

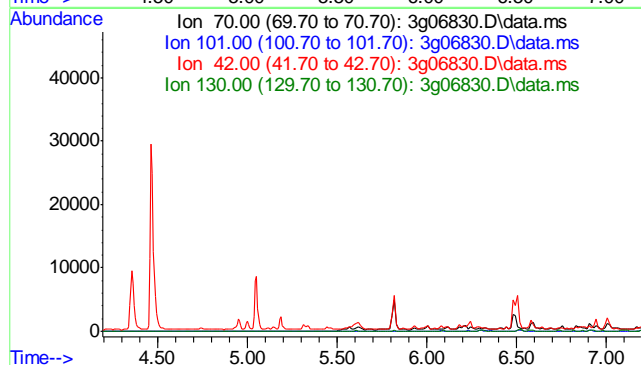
Tgt Ion	Exp Ratio
74	100
42	40.0
44	6.2

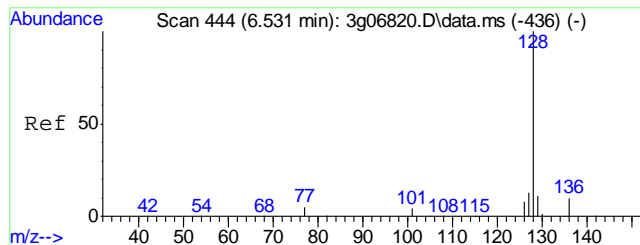


#4  
N-Nitrosodi-propylamine  
Concen: N.D. ug/mL  
Expected RT: 5.70 min

Lab File: 3g06830.D  
Acq: 9 Nov 11 12:35 am

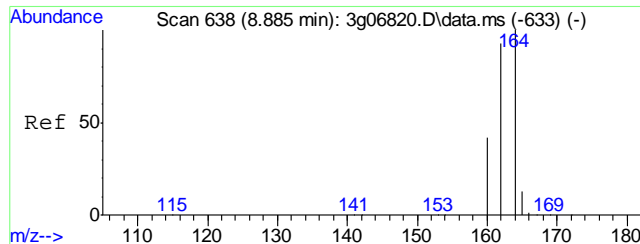
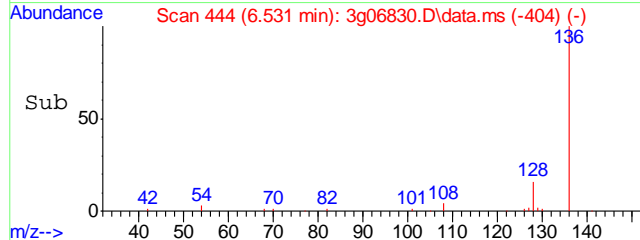
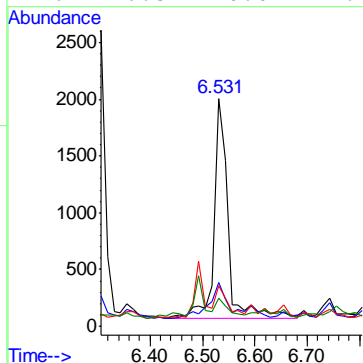
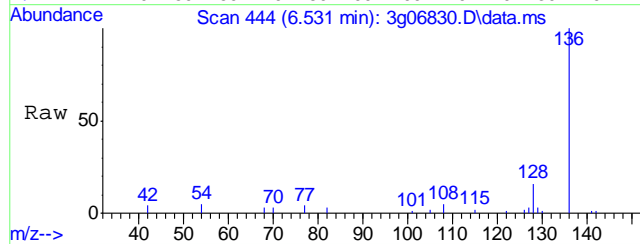
Tgt Ion	Exp Ratio
70	100
101	11.9
42	54.6
130	22.7





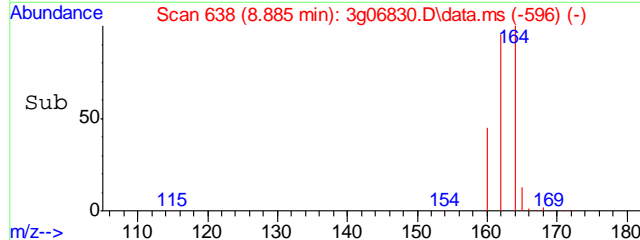
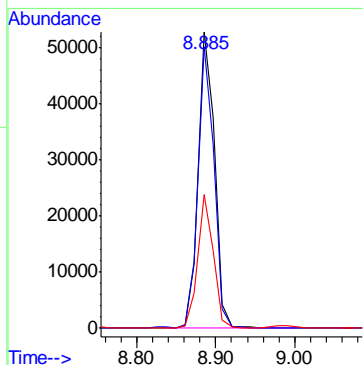
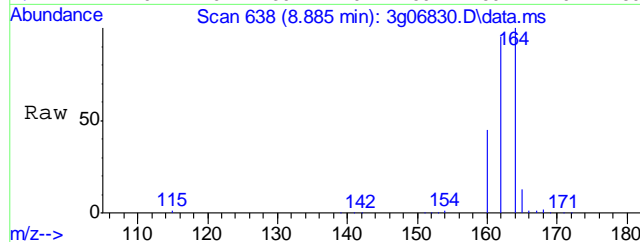
#5  
Naphthalene  
Concen: 0.11 ug/mL  
RT: 6.531 min Scan# 444  
Delta R.T. -0.000 min  
Lab File: 3g06830.D  
Acq: 9 Nov 11 12:35 am

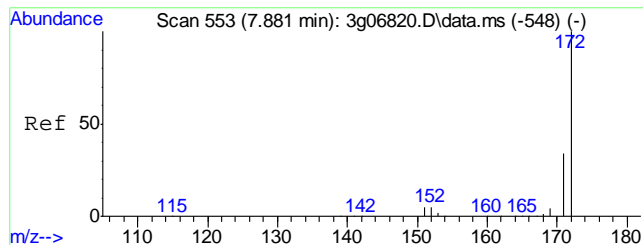
Tgt Ion:128 Resp: 3543  
Ion Ratio Lower Upper  
128 100  
129 22.7 0.0 31.0  
127 11.9 0.0 32.5  
126 6.3 0.0 27.2



#6  
Acenaphthene-d10  
Concen: 4.00 ug/mL  
RT: 8.885 min Scan# 638  
Delta R.T. -0.000 min  
Lab File: 3g06830.D  
Acq: 9 Nov 11 12:35 am

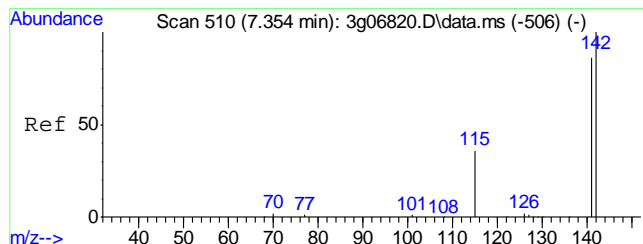
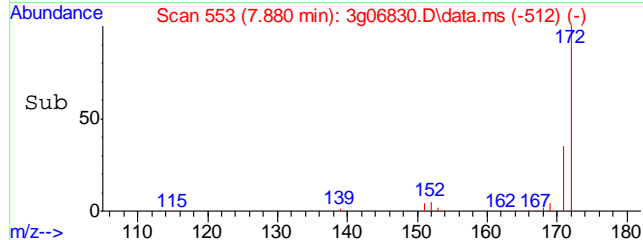
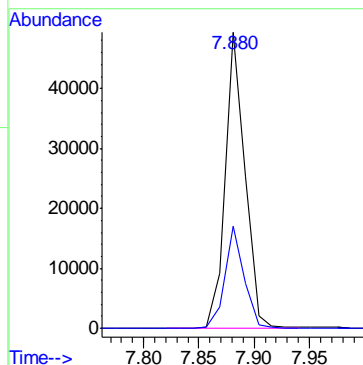
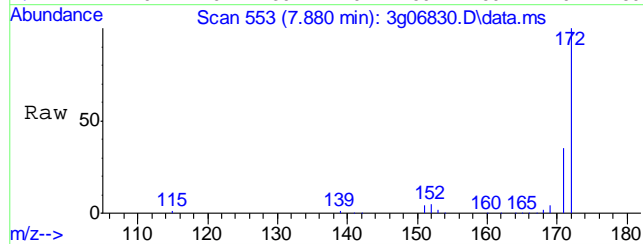
Tgt Ion:164 Resp: 75400  
Ion Ratio Lower Upper  
164 100  
162 93.2 71.6 111.6  
160 42.8 21.2 61.2





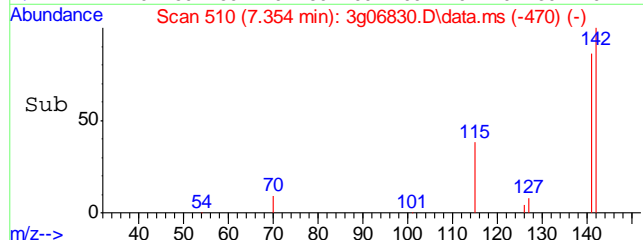
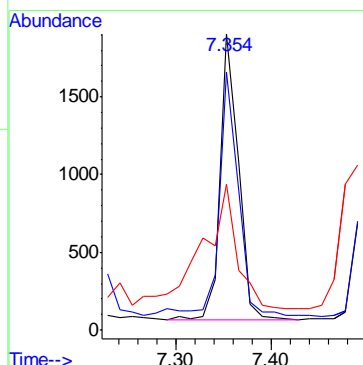
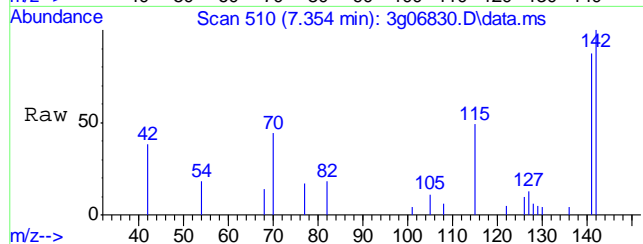
#7  
2-Fluorobiphenyl  
Concen: 2.74 ug/mL  
RT: 7.880 min Scan# 553  
Delta R.T. -0.000 min  
Lab File: 3g06830.D  
Acq: 9 Nov 11 12:35 am

Tgt Ion	Ratio	Lower	Upper
172	100		
171	33.4	13.0	53.0

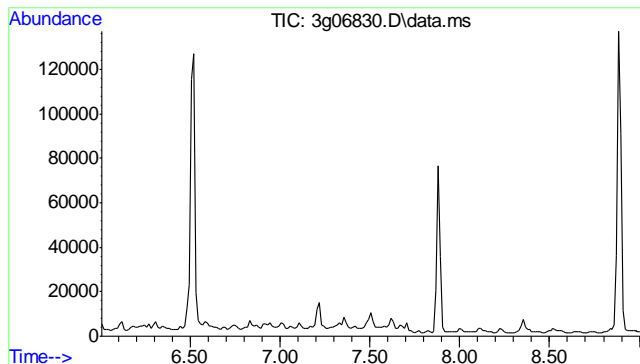


#8  
2-Methylnaphthalene  
Concen: 0.12 ug/mL  
RT: 7.354 min Scan# 510  
Delta R.T. -0.000 min  
Lab File: 3g06830.D  
Acq: 9 Nov 11 12:35 am

Tgt Ion	Ratio	Lower	Upper
142	100		
141	91.4	63.0	103.0
115	79.1	16.0	56.0



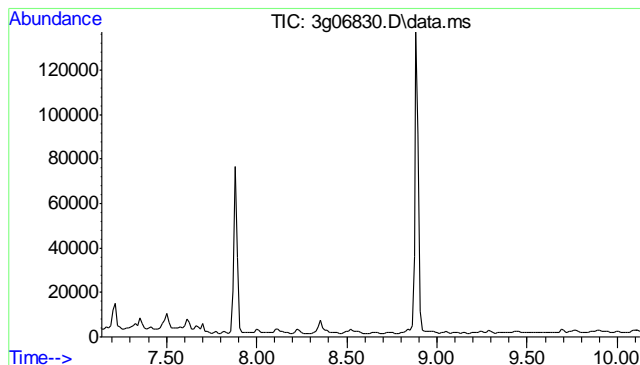
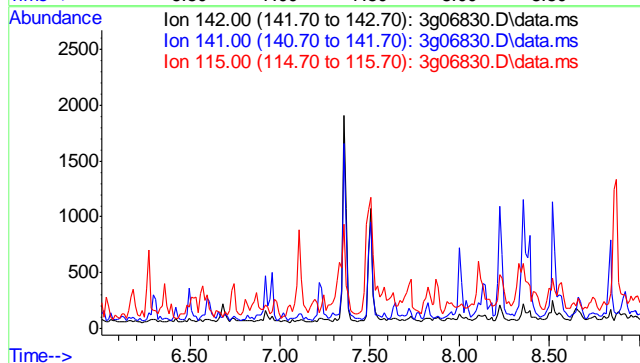




#9  
1-Methylnaphthalene  
Concen: N.D. ug/mL  
Expected RT: 7.50 min

Lab File: 3g06830.D  
Acq: 9 Nov 11 12:35 am

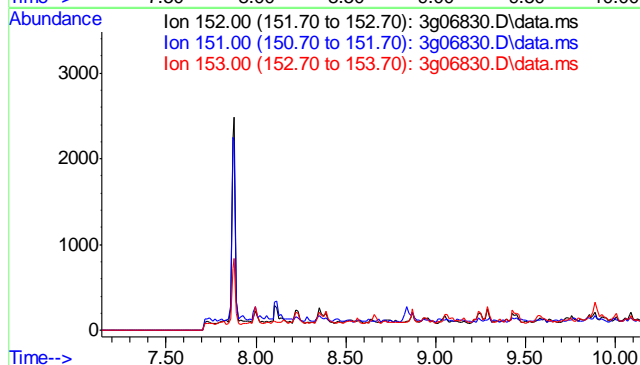
Tgt Ion	Exp Ratio
142	100
141	86.7
115	39.0

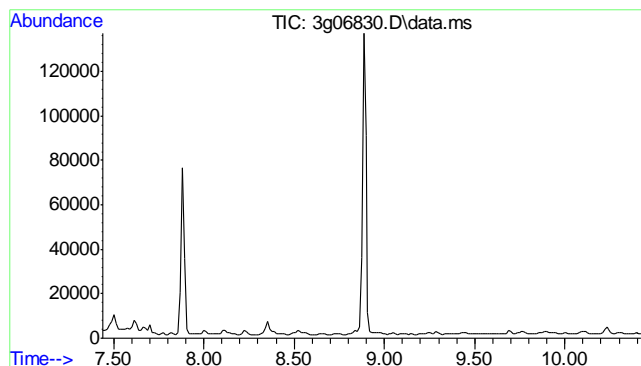


#10  
Acenaphthylene  
Concen: N.D. ug/mL  
Expected RT: 8.64 min

Lab File: 3g06830.D  
Acq: 9 Nov 11 12:35 am

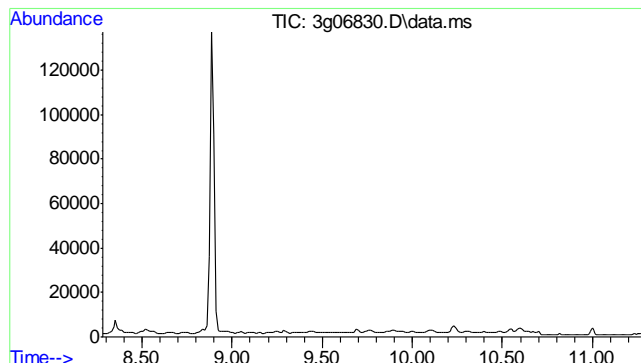
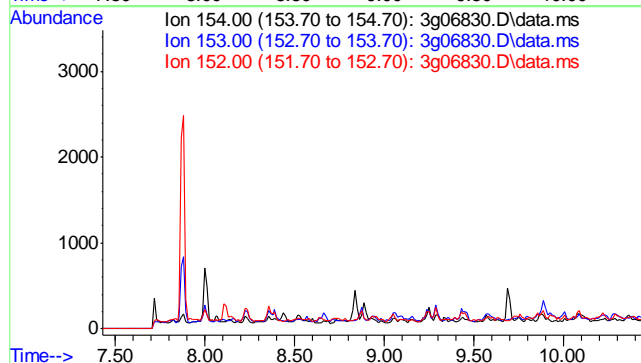
Tgt Ion	Exp Ratio
152	100
151	18.9
153	13.1





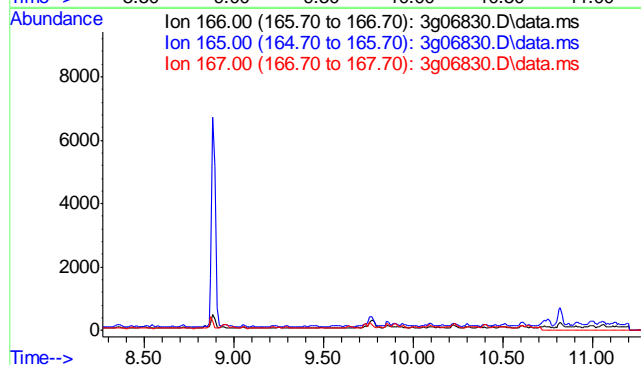
#11  
Acenaphthene  
Concen: N.D. ug/mL  
Expected RT: 8.93 min  
  
Lab File: 3g06830.D  
Acq: 9 Nov 11 12:35 am

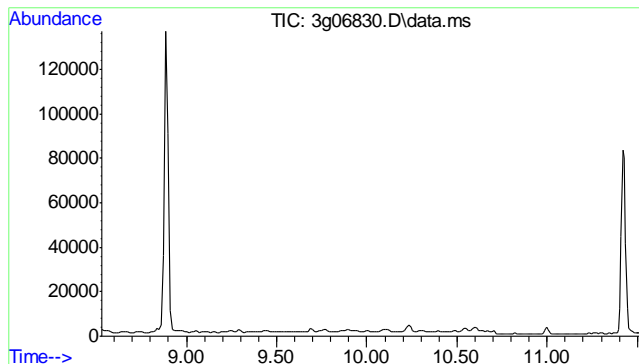
Tgt Ion: 154  
Sig Exp Ratio  
154 100  
153 102.7  
152 49.3



#12  
Fluorene  
Concen: N.D. ug/mL  
Expected RT: 9.77 min  
  
Lab File: 3g06830.D  
Acq: 9 Nov 11 12:35 am

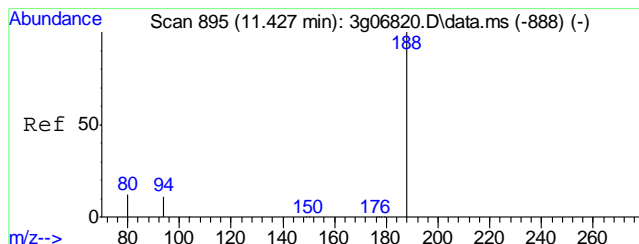
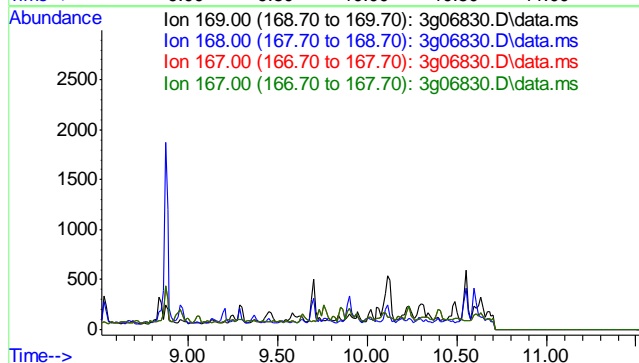
Tgt Ion: 166  
Sig Exp Ratio  
166 100  
165 90.4  
167 12.0





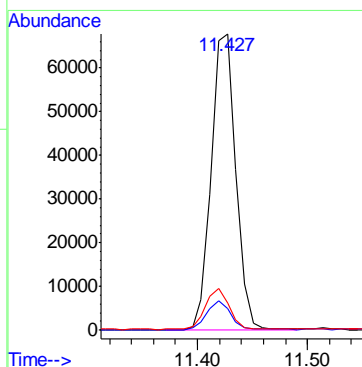
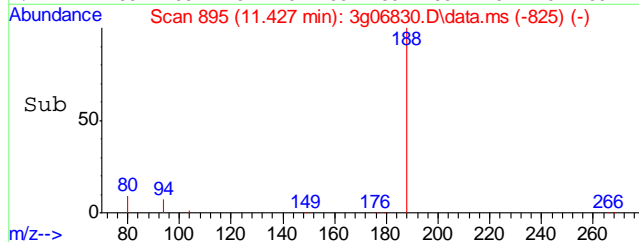
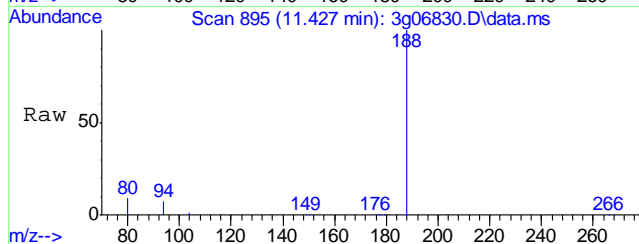
#13  
Diphenylamine  
Concen: N.D. ug/mL  
Expected RT: 10.02 min  
  
Lab File: 3g06830.D  
Acq: 9 Nov 11 12:35 am

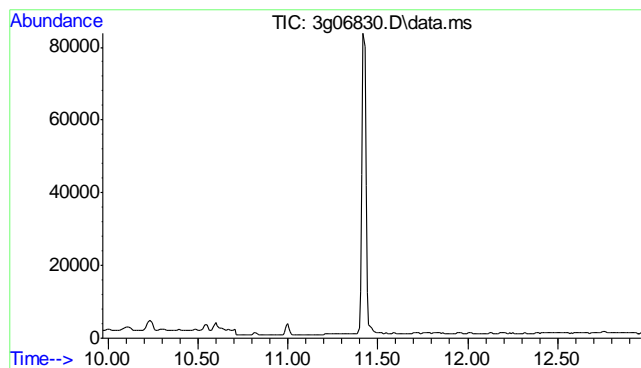
Tgt Ion: 169  
Sig Exp Ratio  
169 100  
168 60.3  
167 32.3  
167 32.3



#14  
Phenanthrene-d10  
Concen: 4.00 ug/mL  
RT: 11.427 min Scan# 895  
Delta R.T. -0.000 min  
Lab File: 3g06830.D  
Acq: 9 Nov 11 12:35 am

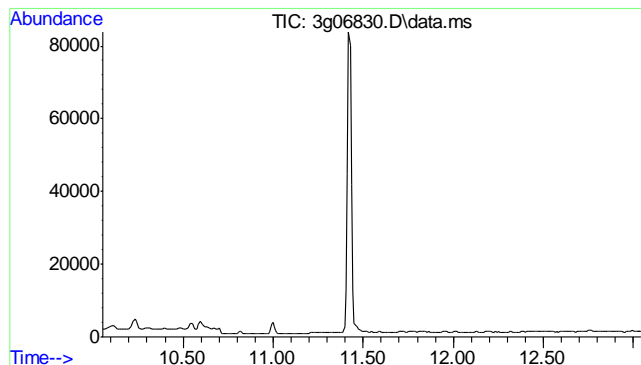
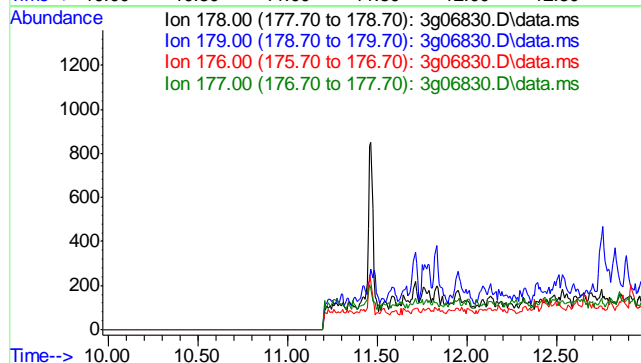
Tgt Ion: 188 Resp: 105557  
Ion Ratio Lower Upper  
188 100  
94 9.1 0.0 34.9  
80 13.3 0.0 37.4





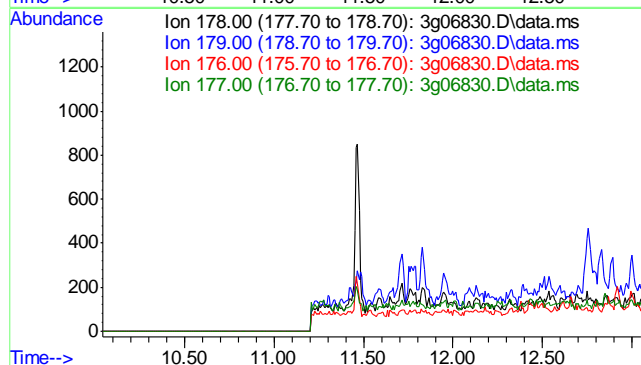
#15  
 Phenanthrene  
 Concen: N.D. ug/mL  
 Expected RT: 11.47 min  
 Lab File: 3g06830.D  
 Acq: 9 Nov 11 12:35 am

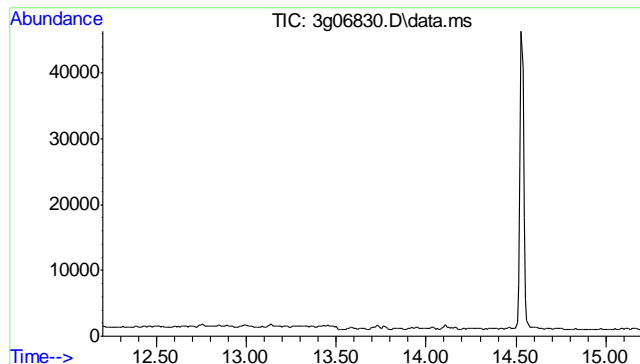
Tgt Ion	Sig	Exp Ratio
178	100	
179	15.2	
176	18.3	
177	10.1	



#16  
 Anthracene  
 Concen: N.D. ug/mL  
 Expected RT: 11.55 min  
 Lab File: 3g06830.D  
 Acq: 9 Nov 11 12:35 am

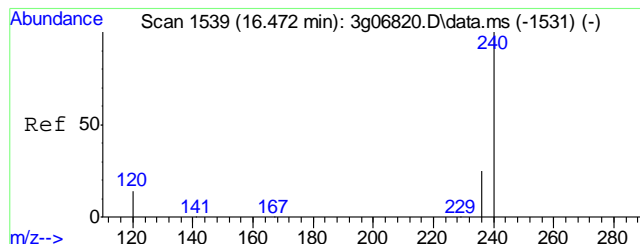
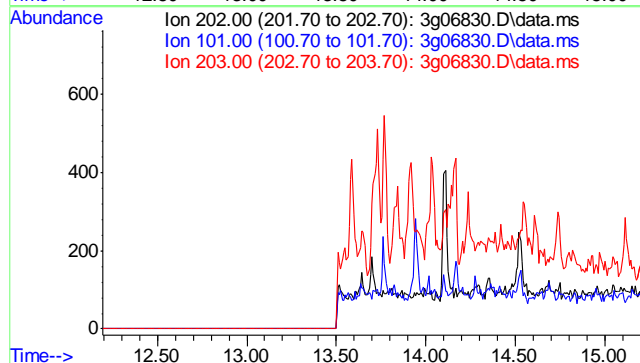
Tgt Ion	Sig	Exp Ratio
178	100	
179	15.0	
176	17.8	
177	8.5	





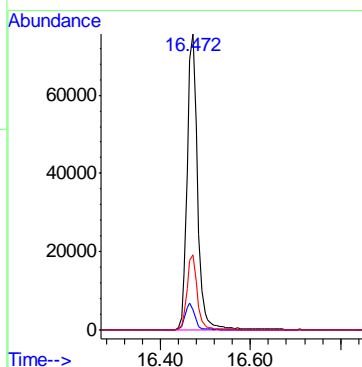
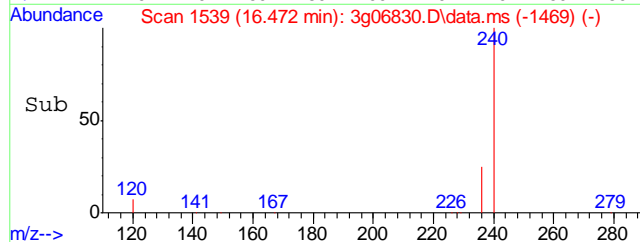
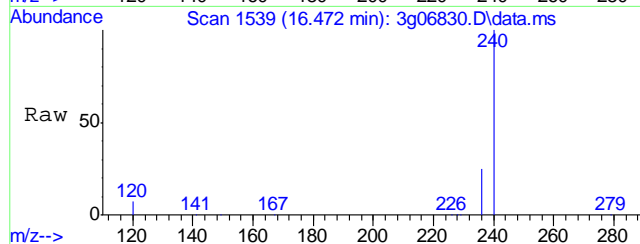
#17  
Fluoranthene  
Concen: N.D. ug/mL  
Expected RT: 13.70 min  
  
Lab File: 3g06830.D  
Acq: 9 Nov 11 12:35 am

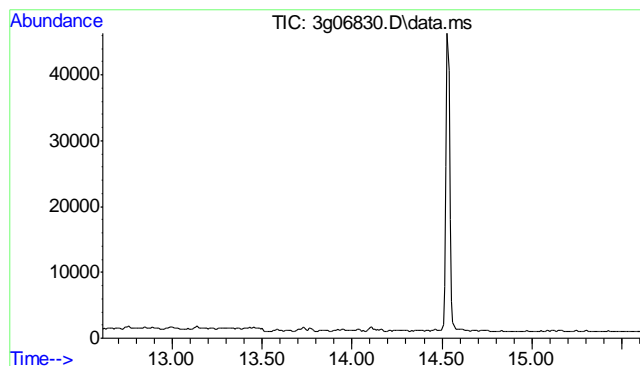
Tgt Ion: 202  
Sig Exp Ratio  
202 100  
101 17.3  
203 17.2



#18  
Chrysene-d12  
Concen: 4.00 ug/mL  
RT: 16.472 min Scan# 1539  
Delta R.T. -0.000 min  
Lab File: 3g06830.D  
Acq: 9 Nov 11 12:35 am

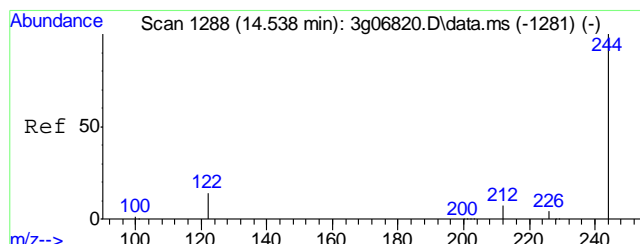
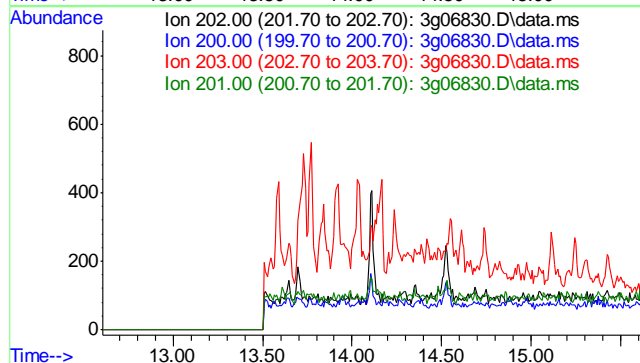
Tgt Ion: 240 Resp: 122022  
Ion Ratio Lower Upper  
240 100  
120 8.4 0.0 36.4  
236 24.9 4.9 44.9





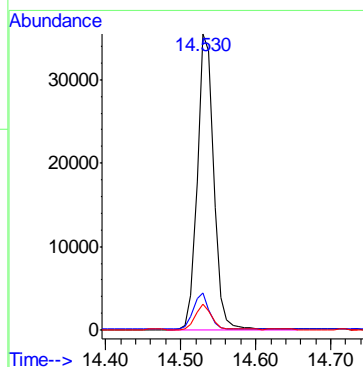
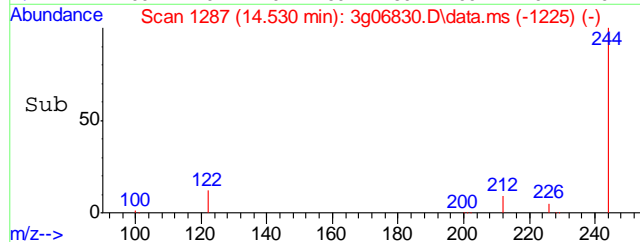
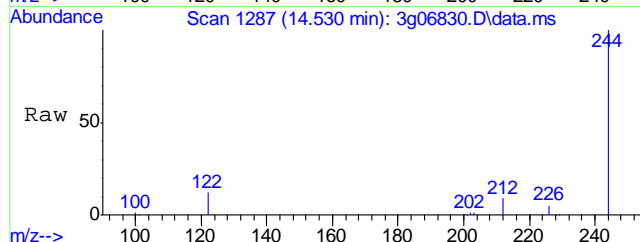
#19  
 Pyrene  
 Concen: N.D. ug/mL  
 Expected RT: 14.11 min  
  
 Lab File: 3g06830.D  
 Acq: 9 Nov 11 12:35 am

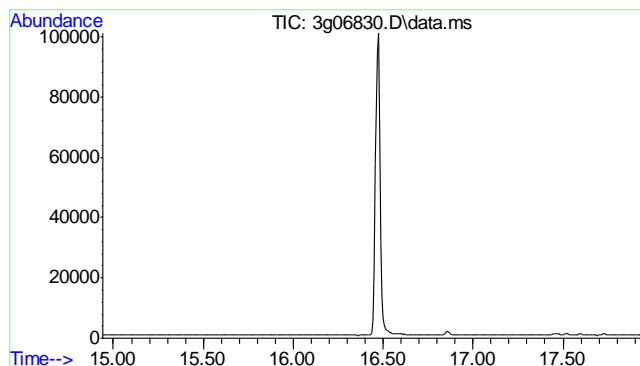
Tgt Ion	Exp Ratio
202	100
200	21.9
203	17.8
201	18.0



#20  
 Terphenyl-d14  
 Concen: 3.17 ug/mL  
 RT: 14.530 min Scan# 1287  
 Delta R.T. -0.008 min  
 Lab File: 3g06830.D  
 Acq: 9 Nov 11 12:35 am

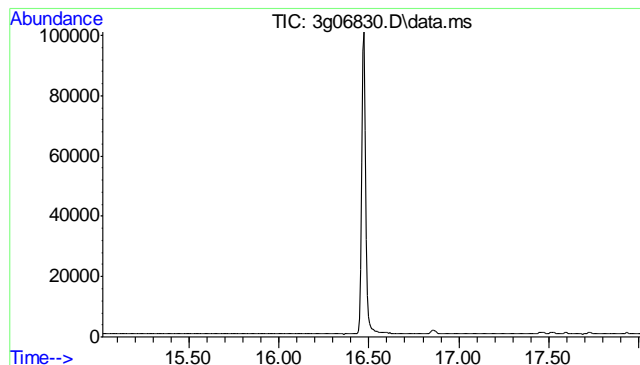
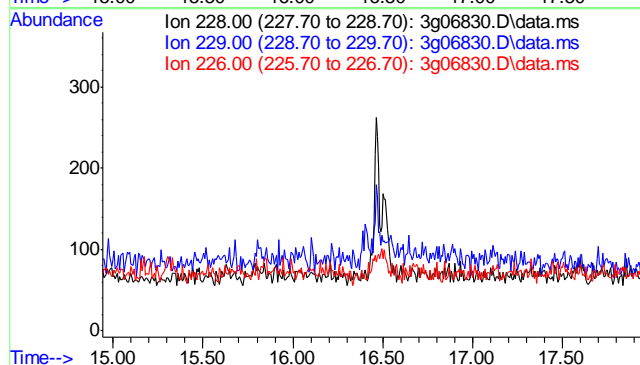
Tgt Ion	Ratio	Lower	Upper
244	100		
122	11.8	0.0	39.6
212	8.4	0.0	27.5





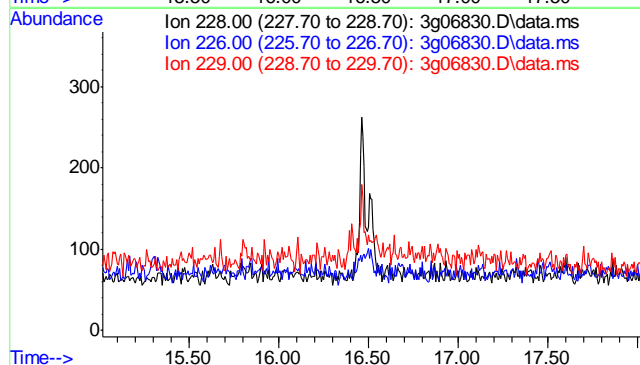
#21  
Benzo(a)anthracene  
Concen: N.D. ug/mL  
Expected RT: 16.44 min  
  
Lab File: 3g06830.D  
Acq: 9 Nov 11 12:35 am

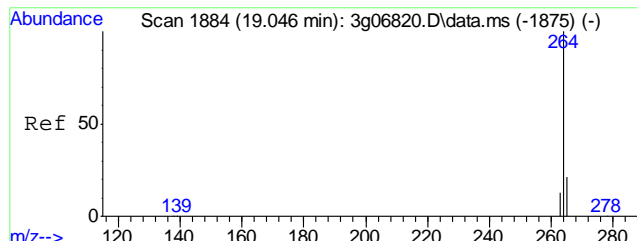
Tgt Ion	Exp Ratio
228	100
229	19.5
226	25.8



#22  
Chrysene  
Concen: N.D. ug/mL  
Expected RT: 16.52 min  
  
Lab File: 3g06830.D  
Acq: 9 Nov 11 12:35 am

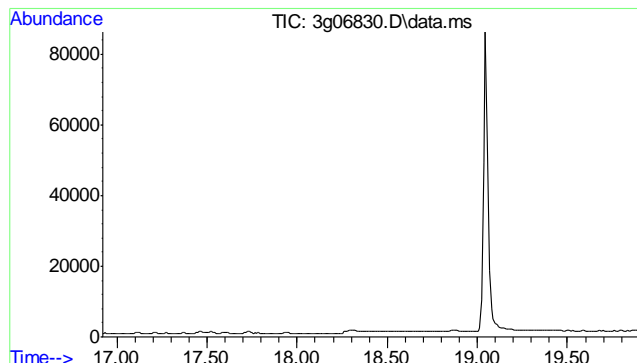
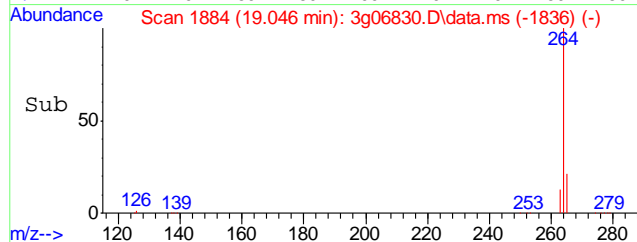
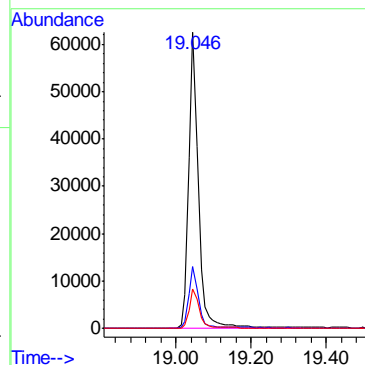
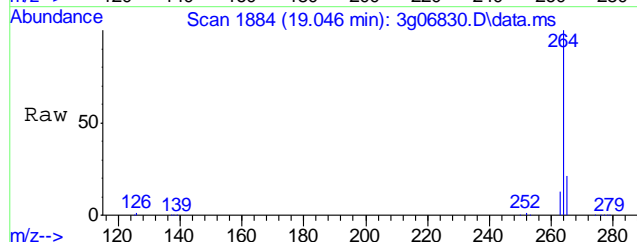
Tgt Ion	Exp Ratio
228	100
226	28.2
229	19.6





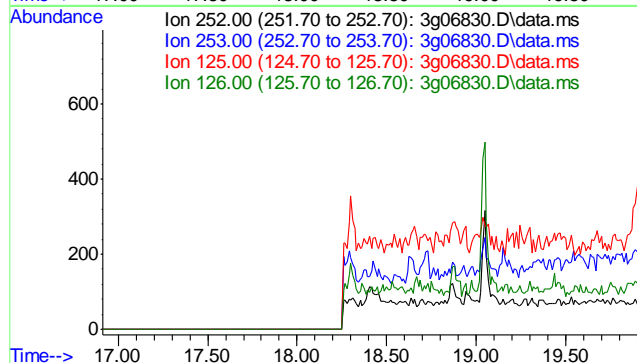
#23  
Perylene-d12  
Concen: 4.00 ug/mL  
RT: 19.046 min Scan# 1884  
Delta R.T. -0.000 min  
Lab File: 3g06830.D  
Acq: 9 Nov 11 12:35 am

Tgt Ion:	264	Resp:	109324
Ion Ratio	Lower	Upper	
264	100		
265	20.7	1.1	41.1
263	13.4	0.0	34.1

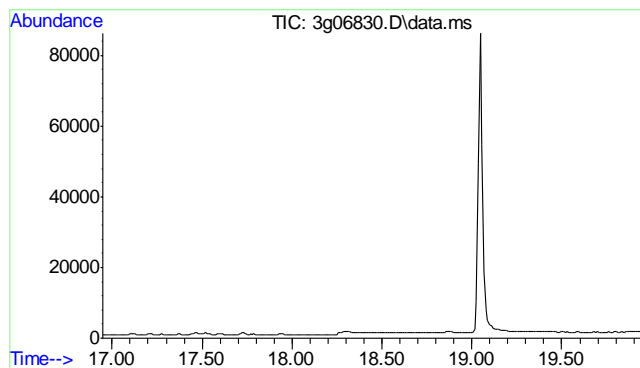


#24  
Benzo(b)fluoranthene  
Concen: N.D. ug/mL  
Expected RT: 18.41 min  
  
Lab File: 3g06830.D  
Acq: 9 Nov 11 12:35 am

Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.6
125	12.6
126	17.2

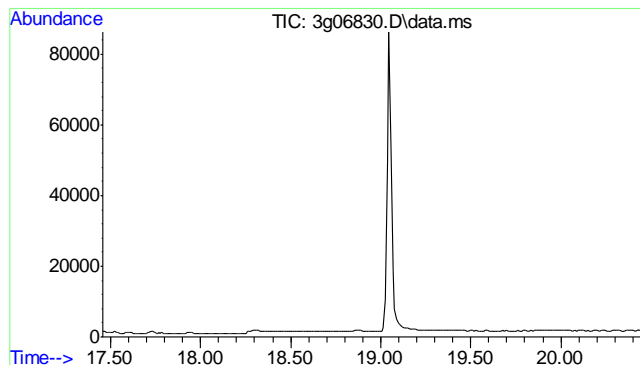
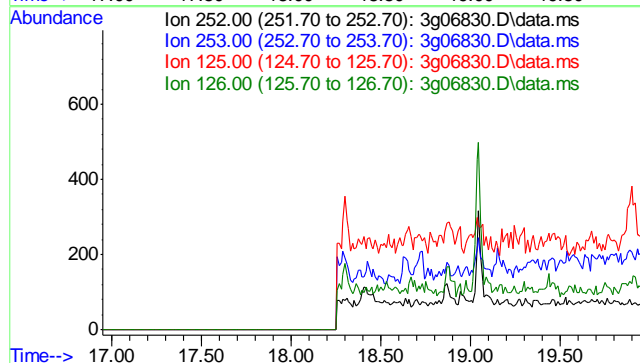






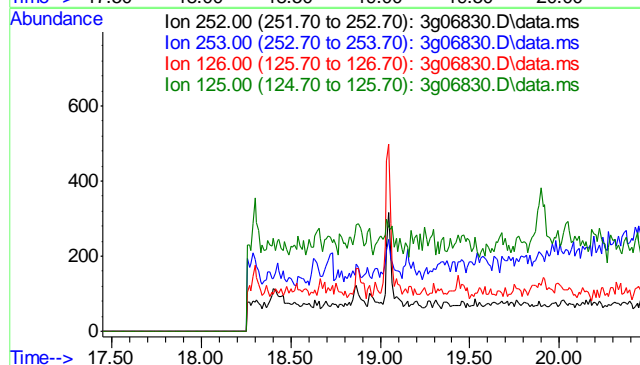
#25  
Benzo(k)fluoranthene  
Concen: N.D. ug/mL  
Expected RT: 18.45 min  
  
Lab File: 3g06830.D  
Acq: 9 Nov 11 12:35 am

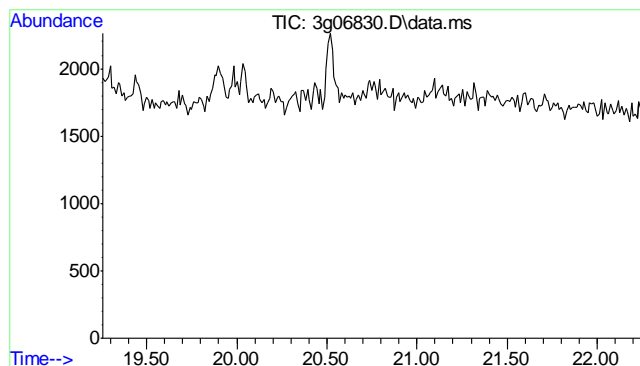
Tgt Ion	Exp Ratio
252	100
253	21.8
125	11.2
126	16.8



#26  
Benzo(a)pyrene  
Concen: N.D. ug/mL  
Expected RT: 18.95 min  
  
Lab File: 3g06830.D  
Acq: 9 Nov 11 12:35 am

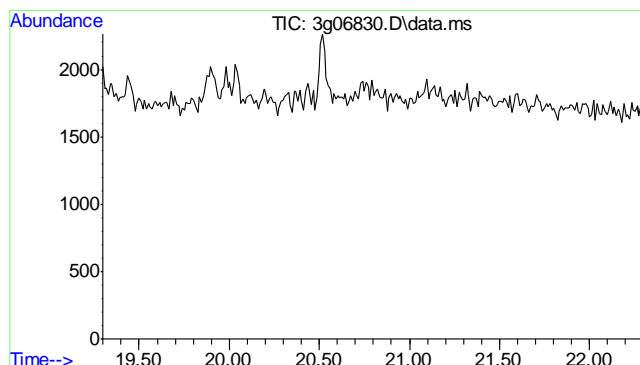
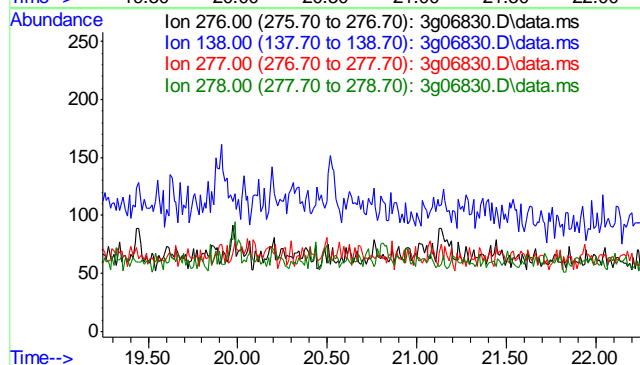
Tgt Ion	Exp Ratio
252	100
253	21.6
126	17.1
125	12.9





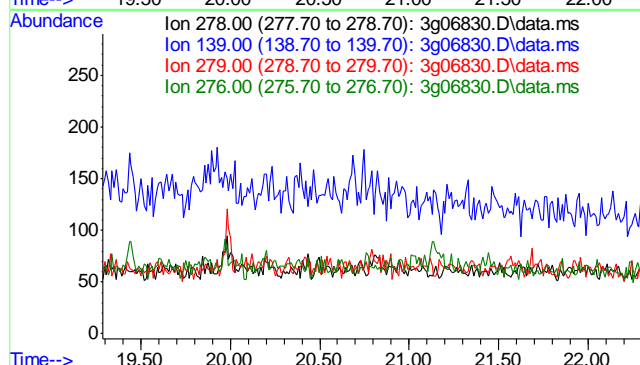
#27  
 Indeno(1,2,3-cd)pyrene  
 Concen: N.D. ug/mL  
 Expected RT: 20.75 min  
  
 Lab File: 3g06830.D  
 Acq: 9 Nov 11 12:35 am

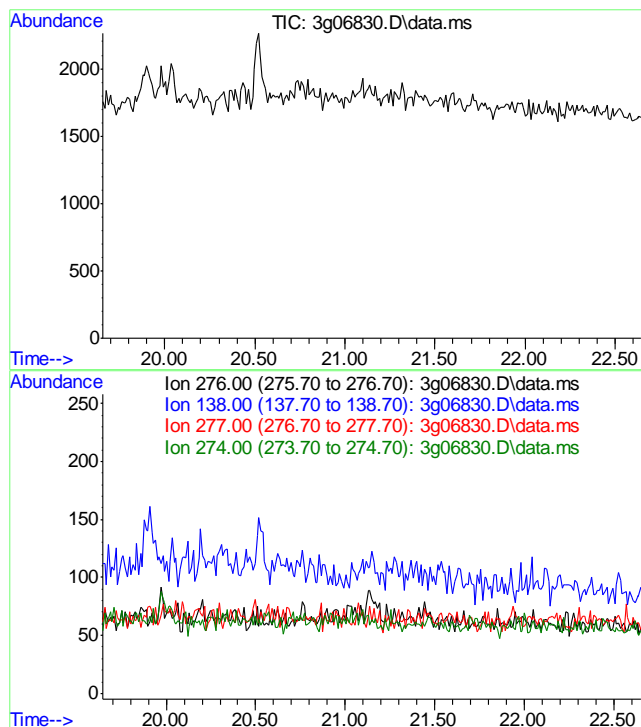
Tgt Ion	Exp Ratio
276	100
138	22.7
277	40.3
278	128.3



#28  
 Dibenzo(a,h)anthracene  
 Concen: N.D. ug/mL  
 Expected RT: 20.79 min  
  
 Lab File: 3g06830.D  
 Acq: 9 Nov 11 12:35 am

Tgt Ion	Exp Ratio
278	100
139	19.2
279	23.4
276	125.5





#29  
 Benzo(g,h,i)perylene  
 Concen: N.D. ug/mL  
 Expected RT: 21.15 min

Lab File: 3g06830.D  
 Acq: 9 Nov 11 12:35 am

Tgt Ion	Sig	Exp Ratio
276	100	
138	22.5	
277	24.0	
274	21.3	

8.1.1

8

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\110811\  
 Data File : 3g06824.D  
 Acq On : 8 Nov 2011 8:44 pm  
 Operator : TamiB  
 Sample : OP4805-MB  
 Misc : OP4805,E3G252,30,,,1,1  
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Nov 09 14:42:53 2011  
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G252.M  
 Quant Title : PAHSIM BASE  
 QLast Update : Wed Nov 09 14:40:27 2011  
 Response via : Initial Calibration

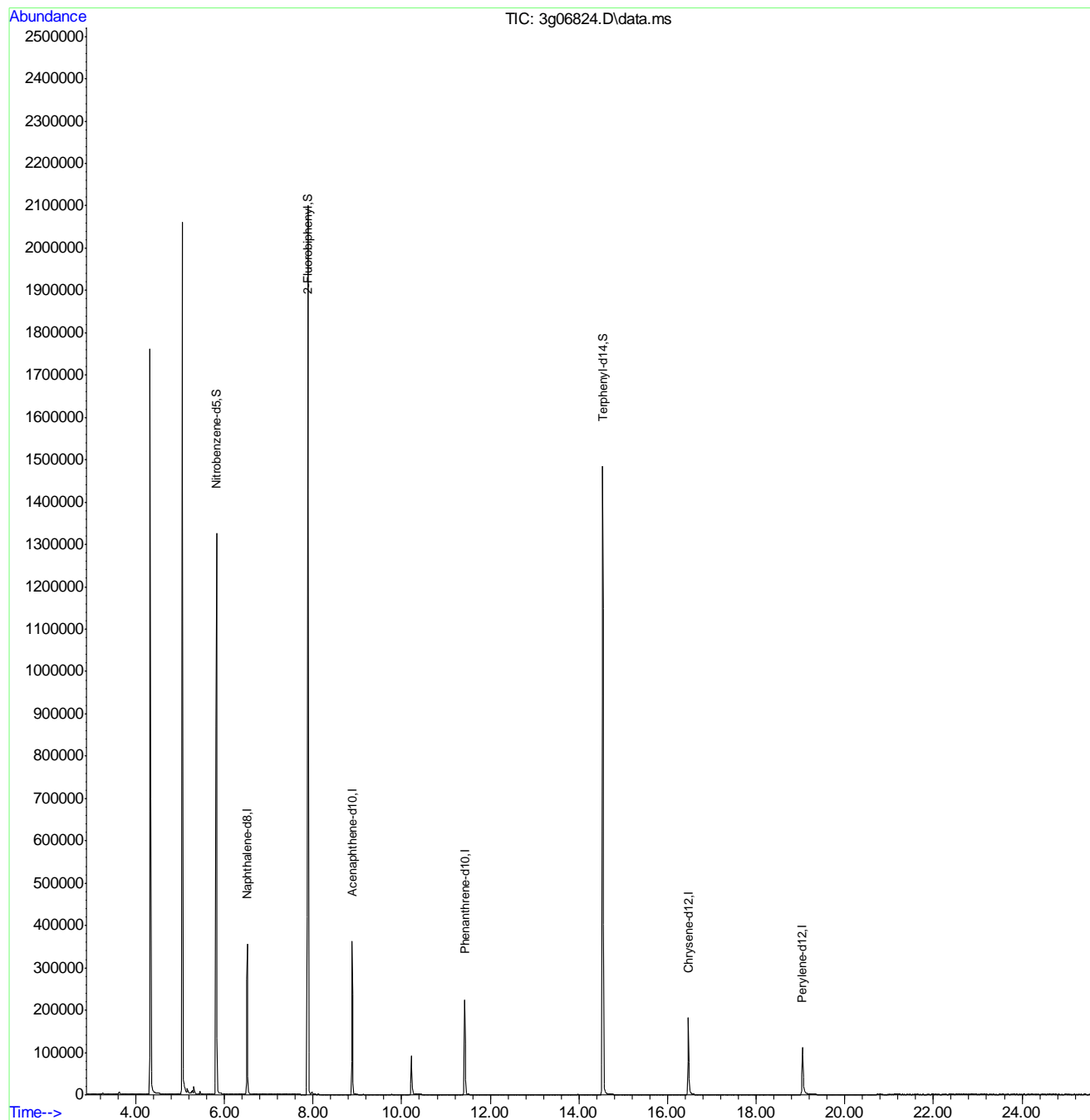
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.518	136	365591	4.00	ug/mL	0.00
6) Acenaphthene-d10	8.885	164	204639	4.00	ug/mL	0.00
14) Phenanthrene-d10	11.427	188	275930	4.00	ug/mL	0.00
18) Chrysene-d12	16.472	240	217153	4.00	ug/mL	0.00
23) Perylene-d12	19.046	264	170951	4.00	ug/mL	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	5.820	82	791946	35.55	ug/mL	0.00
7) 2-Fluorobiphenyl	7.880	172	1914243	31.52	ug/mL	0.00
20) Terphenyl-d14	14.537	244	1659673	55.37	ug/mL	0.00
Target Compounds						
					Qvalue	
3) N-Nitrosodimethylamine	0.000		0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000		0	N.D.	d	
5) Naphthalene	0.000		0	N.D.	d	
8) 2-Methylnaphthalene	0.000		0	N.D.	d	
9) 1-Methylnaphthalene	0.000		0	N.D.	d	
10) Acenaphthylene	0.000		0	N.D.	d	
11) Acenaphthene	0.000		0	N.D.	d	
12) Fluorene	0.000		0	N.D.	d	
13) Diphenylamine	0.000		0	N.D.	d	
15) Phenanthrene	0.000		0	N.D.	d	
16) Anthracene	0.000		0	N.D.	d	
17) Fluoranthene	0.000		0	N.D.	d	
19) Pyrene	0.000		0	N.D.	d	
21) Benzo(a)anthracene	0.000		0	N.D.	d	
22) Chrysene	0.000		0	N.D.	d	
24) Benzo(b)fluoranthene	0.000		0	N.D.	d	
25) Benzo(k)fluoranthene	0.000		0	N.D.	d	
26) Benzo(a)pyrene	0.000		0	N.D.	d	
27) Indeno(1,2,3-cd)pyrene	0.000		0	N.D.	d	
28) Dibenz(a,h)anthracene	0.000		0	N.D.	d	
29) Benzo(g,h,i)perylene	0.000		0	N.D.	d	

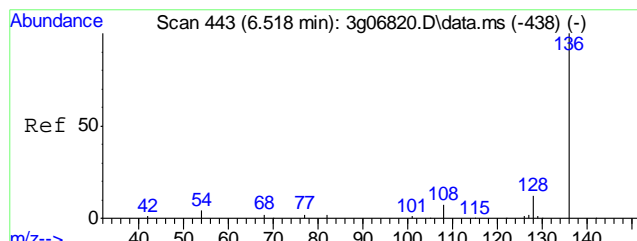
(#) = qualifier out of range (m) = manual integration (+) = signals summed

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\110811\  
Data File : 3g06824.D  
Acq On : 8 Nov 2011 8:44 pm  
Operator : TamiB  
Sample : OP4805-MB  
Misc : OP4805,E3G252,30,,,1,1  
ALS Vial : 12 Sample Multiplier: 1

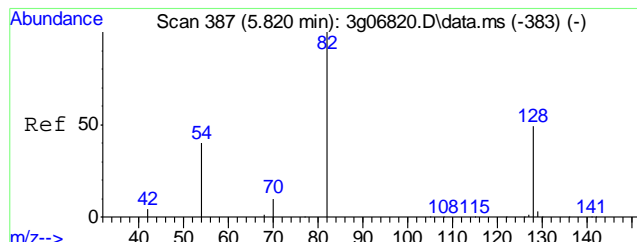
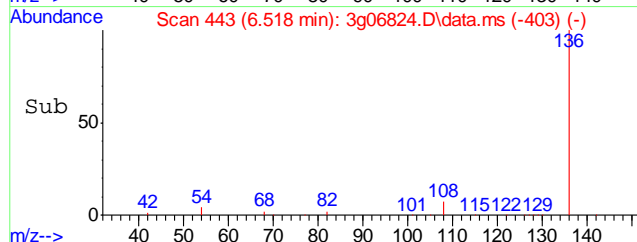
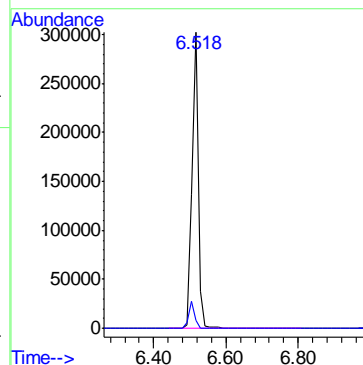
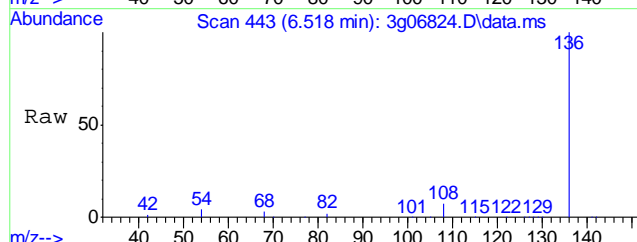
Quant Time: Nov 09 14:42:53 2011  
Quant Method : C:\msdchem\1\METHODS\SIMPE3G252.M  
Quant Title : PAHSIM BASE  
QLast Update : Wed Nov 09 14:40:27 2011  
Response via : Initial Calibration





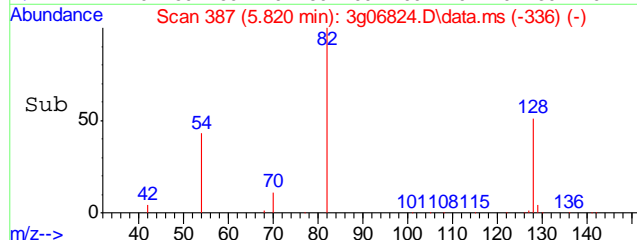
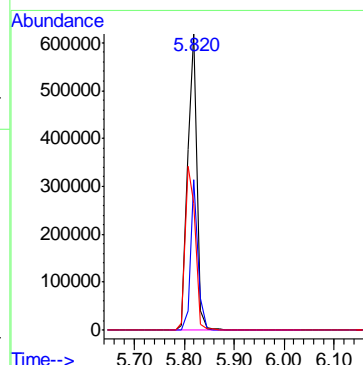
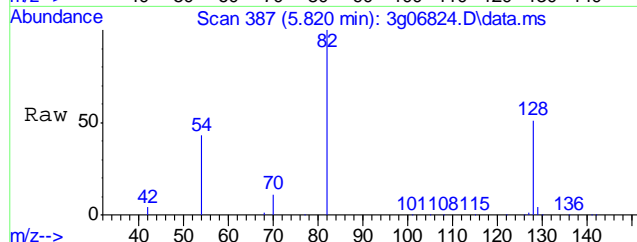
#1  
Naphthalene-d8  
Concen: 4.00 ug/mL  
RT: 6.518 min Scan# 443  
Delta R.T. -0.000 min  
Lab File: 3g06824.D  
Acq: 8 Nov 11 8:44 pm

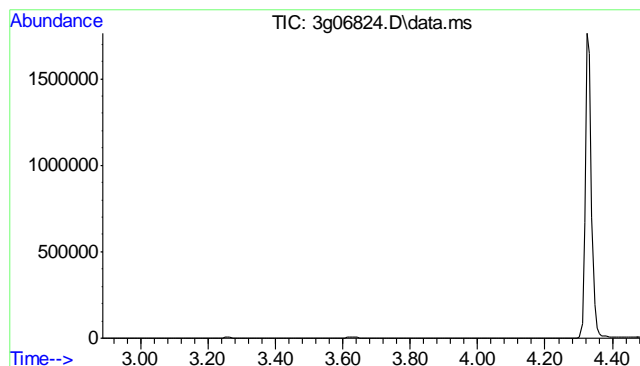
Tgt Ion:	136	Resp:	365591
Ion Ratio	Lower	Upper	
136	100		
68	8.5	0.0	28.4



#2  
Nitrobenzene-d5  
Concen: 35.55 ug/mL  
RT: 5.820 min Scan# 387  
Delta R.T. -0.000 min  
Lab File: 3g06824.D  
Acq: 8 Nov 11 8:44 pm

Tgt Ion:	82	Resp:	791946
Ion Ratio	Lower	Upper	
82	100		
128	40.3	19.6	59.6
54	60.7	36.6	76.6

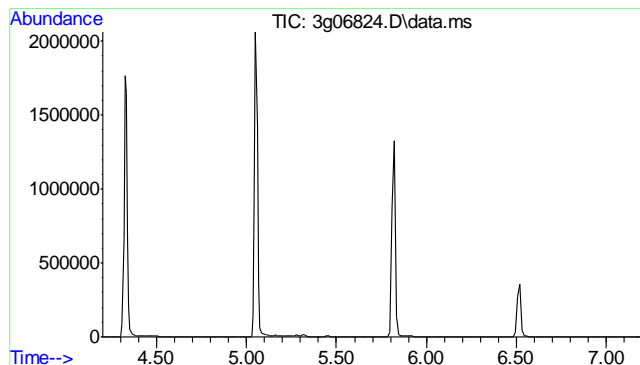
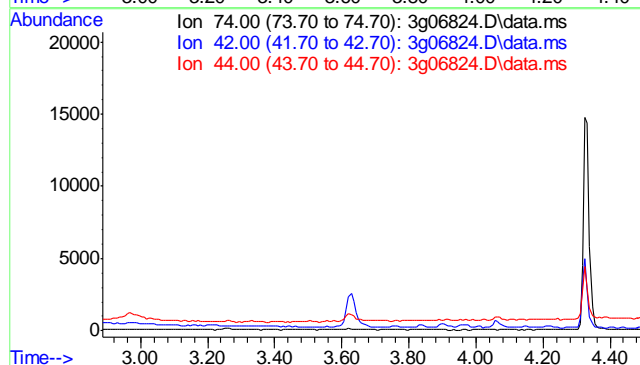




#3  
N-Nitrosodimethylamine  
Concen: N.D. ug/mL  
Expected RT: 2.99 min

Lab File: 3g06824.D  
Acq: 8 Nov 11 8:44 pm

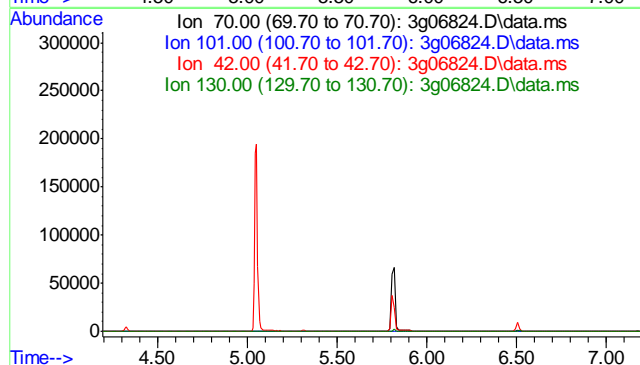
Tgt Ion:	74
Sig	Exp Ratio
74	100
42	40.0
44	6.2

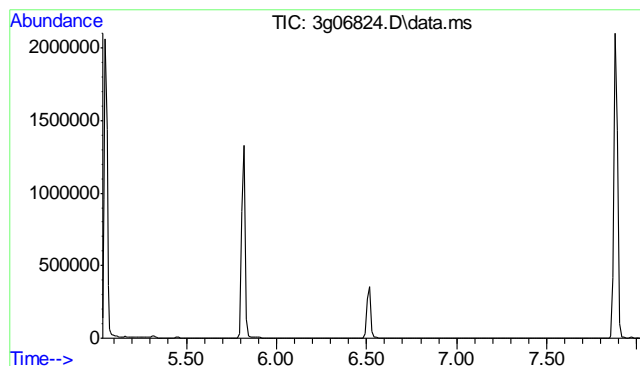


#4  
N-Nitrosodi-propylamine  
Concen: N.D. ug/mL  
Expected RT: 5.70 min

Lab File: 3g06824.D  
Acq: 8 Nov 11 8:44 pm

Tgt Ion:	70
Sig	Exp Ratio
70	100
101	11.9
42	54.6
130	22.7

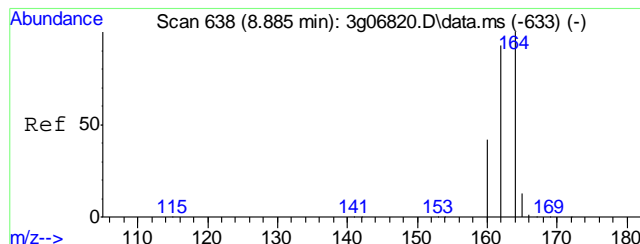
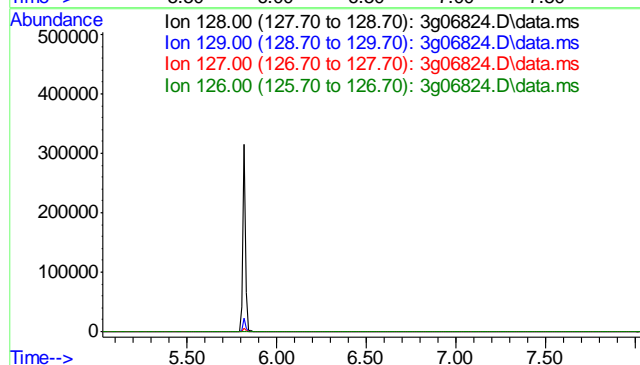




#5  
Naphthalene  
Concen: N.D. ug/mL  
Expected RT: 6.53 min

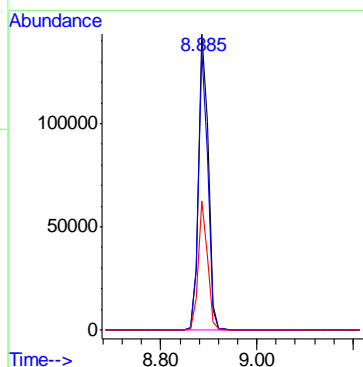
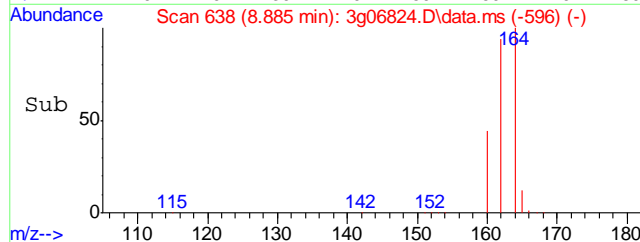
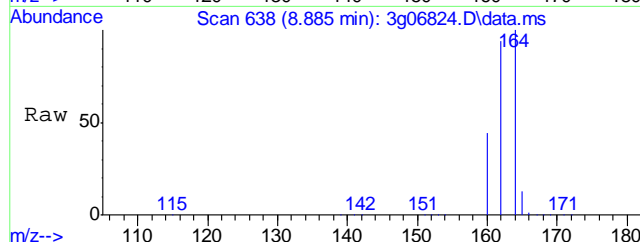
Lab File: 3g06824.D  
Acq: 8 Nov 11 8:44 pm

Tgt Ion: 128  
Sig Exp Ratio  
128 100  
129 11.0  
127 12.5  
126 7.2

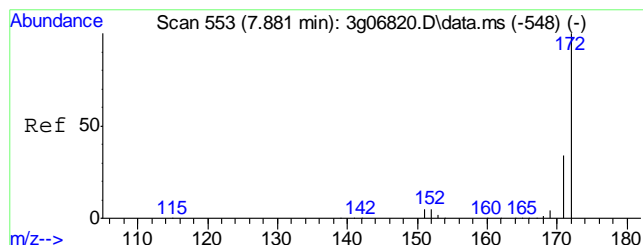


#6  
Acenaphthene-d10  
Concen: 4.00 ug/mL  
RT: 8.885 min Scan# 638  
Delta R.T. -0.000 min  
Lab File: 3g06824.D  
Acq: 8 Nov 11 8:44 pm

Tgt Ion: 164 Resp: 204639  
Ion Ratio Lower Upper  
164 100  
162 91.2 71.6 111.6  
160 41.5 21.2 61.2

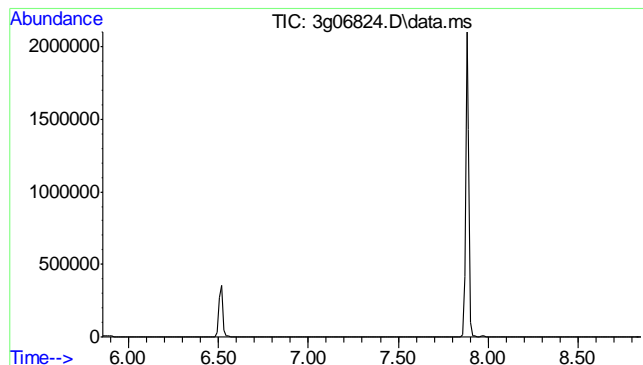
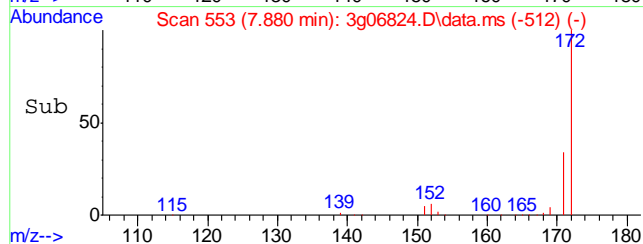
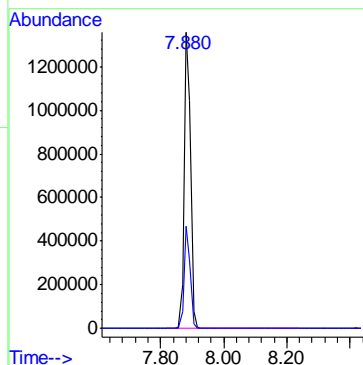
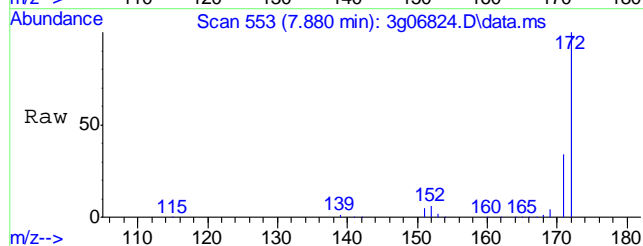






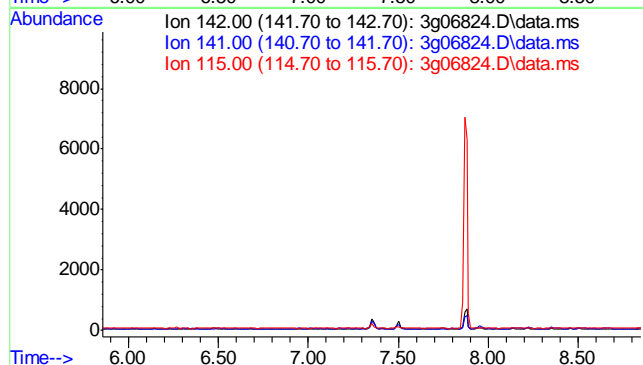
#7  
2-Fluorobiphenyl  
Concen: 31.52 ug/mL  
RT: 7.880 min Scan# 553  
Delta R.T. -0.000 min  
Lab File: 3g06824.D  
Acq: 8 Nov 11 8:44 pm

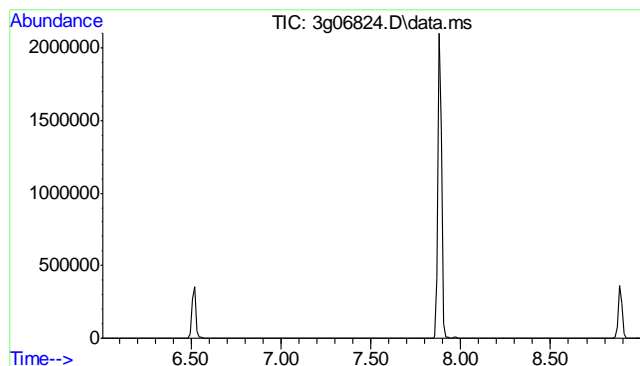
Tgt Ion: 172 Resp: 1914243  
Ion Ratio Lower Upper  
172 100  
171 32.9 13.0 53.0



#8  
2-Methylnaphthalene  
Concen: N.D. ug/mL  
Expected RT: 7.35 min  
Lab File: 3g06824.D  
Acq: 8 Nov 11 8:44 pm

Tgt Ion: 142  
Sig Exp Ratio  
142 100  
141 83.0  
115 36.0

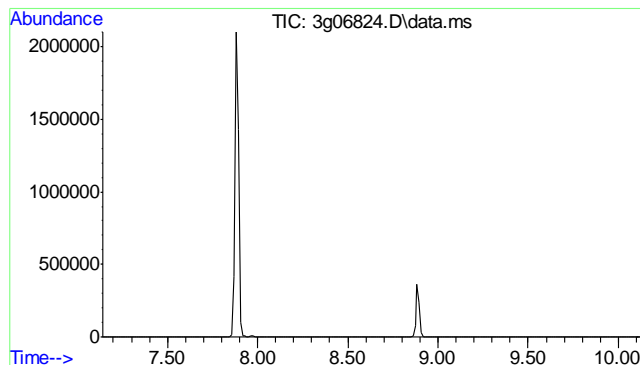
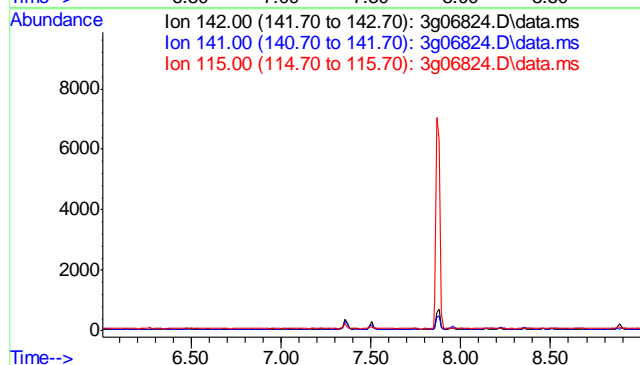




#9  
1-Methylnaphthalene  
Concen: N.D. ug/mL  
Expected RT: 7.50 min

Lab File: 3g06824.D  
Acq: 8 Nov 11 8:44 pm

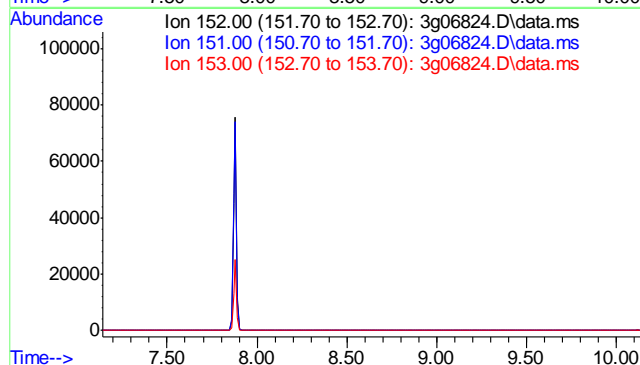
Tgt Ion:	142
Sig	Exp Ratio
142	100
141	86.7
115	39.0

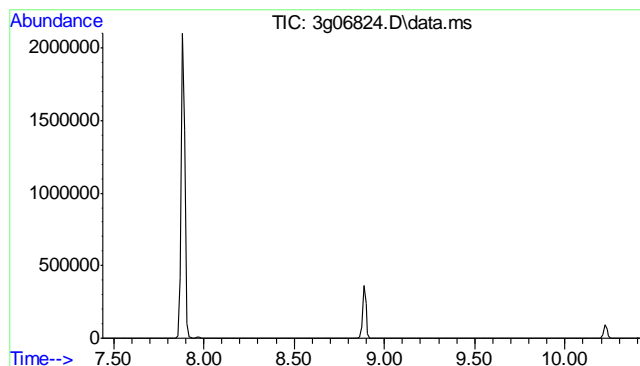


#10  
Acenaphthylene  
Concen: N.D. ug/mL  
Expected RT: 8.64 min

Lab File: 3g06824.D  
Acq: 8 Nov 11 8:44 pm

Tgt Ion:	152
Sig	Exp Ratio
152	100
151	18.9
153	13.1

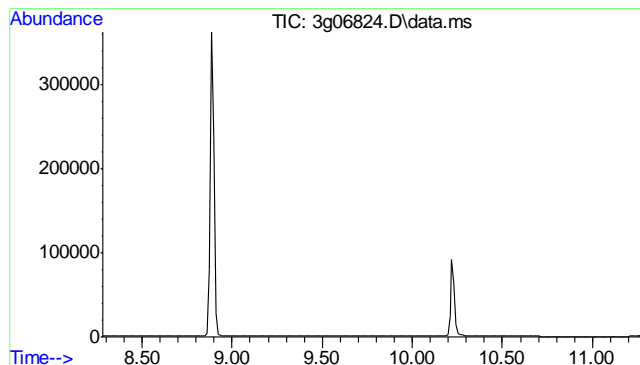
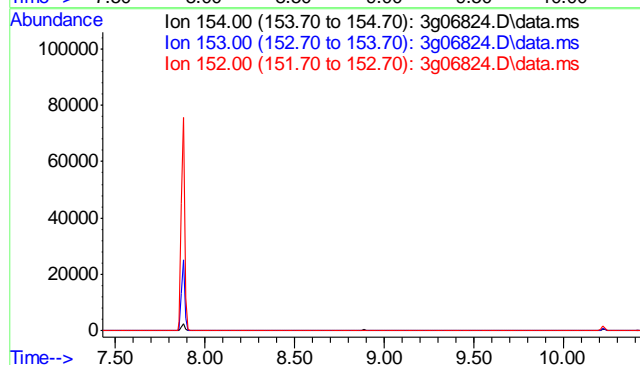




#11  
Acenaphthene  
Concen: N.D. ug/mL  
Expected RT: 8.93 min

Lab File: 3g06824.D  
Acq: 8 Nov 11 8:44 pm

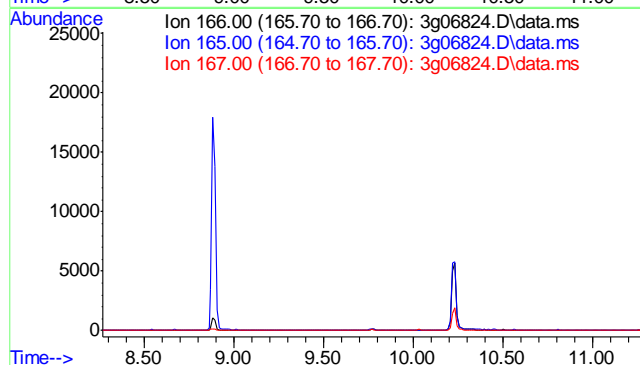
Tgt Ion: 154  
Sig Exp Ratio  
154 100  
153 102.7  
152 49.3

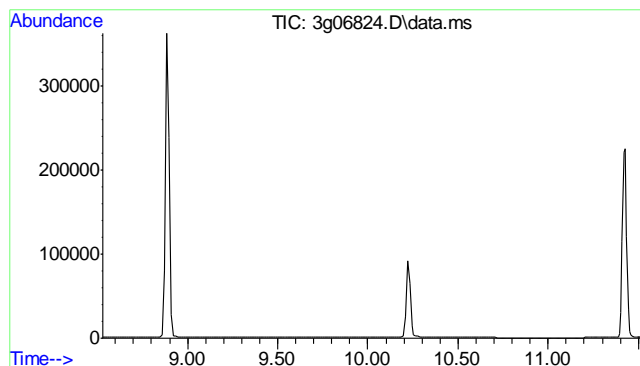


#12  
Fluorene  
Concen: N.D. ug/mL  
Expected RT: 9.77 min

Lab File: 3g06824.D  
Acq: 8 Nov 11 8:44 pm

Tgt Ion: 166  
Sig Exp Ratio  
166 100  
165 90.4  
167 12.0

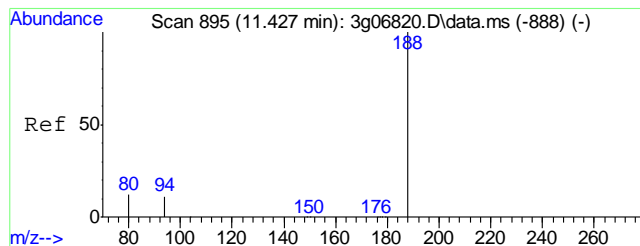
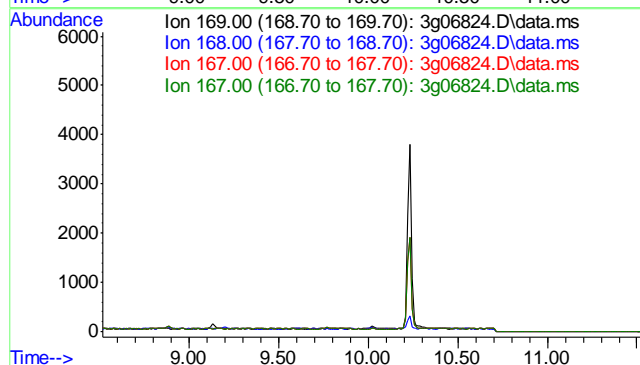




#13  
Diphenylamine  
Concen: N.D. ug/mL  
Expected RT: 10.02 min

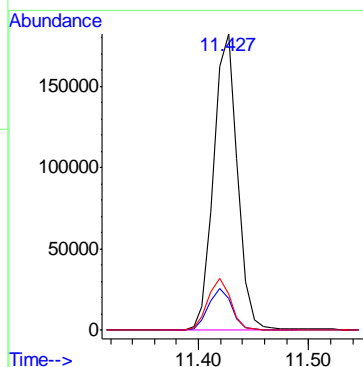
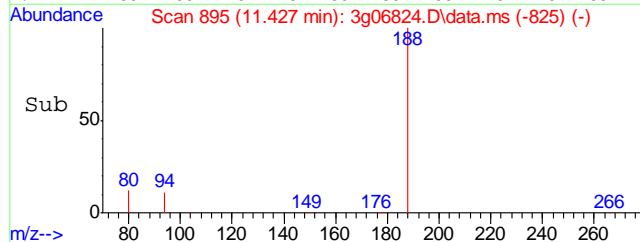
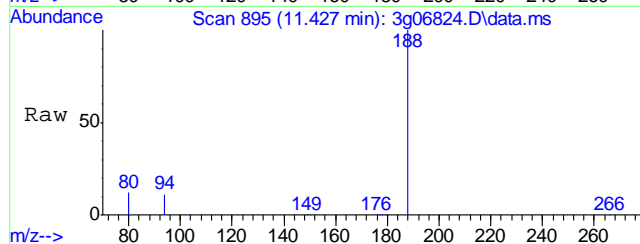
Lab File: 3g06824.D  
Acq: 8 Nov 11 8:44 pm

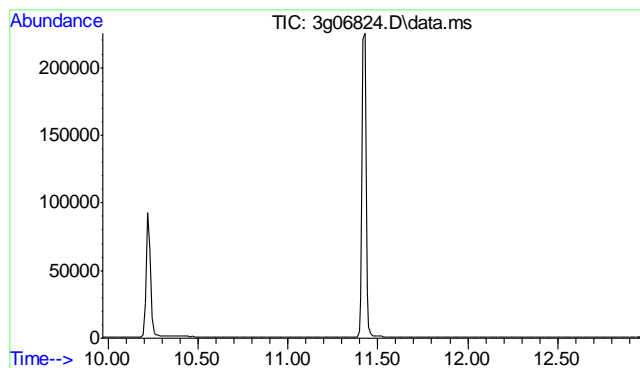
Tgt Ion: 169  
Sig Exp Ratio  
169 100  
168 60.3  
167 32.3  
167 32.3



#14  
Phenanthrene-d10  
Concen: 4.00 ug/mL  
RT: 11.427 min Scan# 895  
Delta R.T. -0.000 min  
Lab File: 3g06824.D  
Acq: 8 Nov 11 8:44 pm

Tgt Ion: 188 Resp: 275930  
Ion Ratio Lower Upper  
188 100  
94 13.7 0.0 34.9  
80 16.7 0.0 37.4

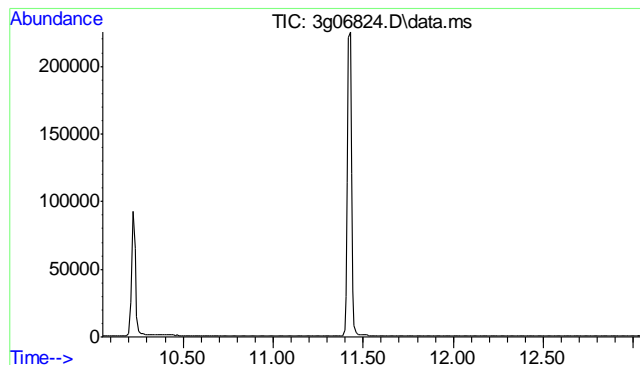
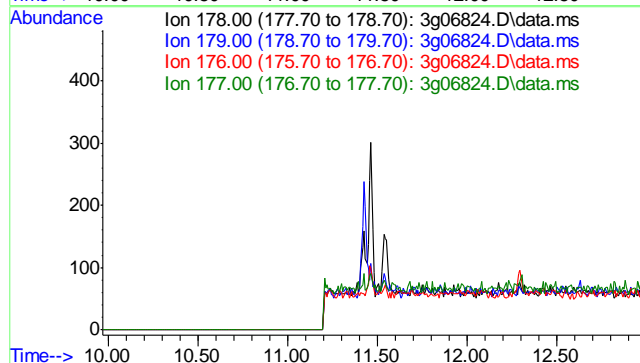




#15  
Phenanthrene  
Concen: N.D. ug/mL  
Expected RT: 11.47 min

Lab File: 3g06824.D  
Acq: 8 Nov 11 8:44 pm

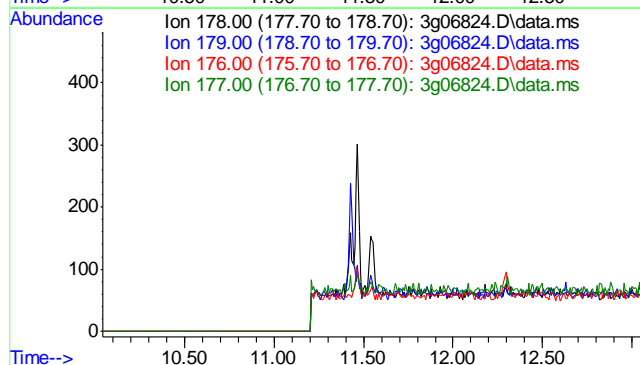
Tgt Ion: 178
Sig Exp Ratio
178 100
179 15.2
176 18.3
177 10.1

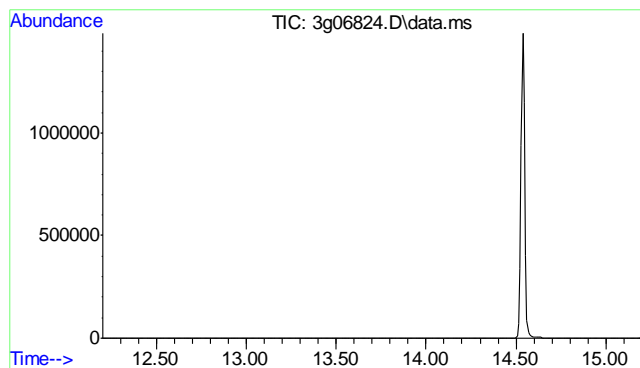


#16  
Anthracene  
Concen: N.D. ug/mL  
Expected RT: 11.55 min

Lab File: 3g06824.D  
Acq: 8 Nov 11 8:44 pm

Tgt Ion: 178
Sig Exp Ratio
178 100
179 15.0
176 17.8
177 8.5

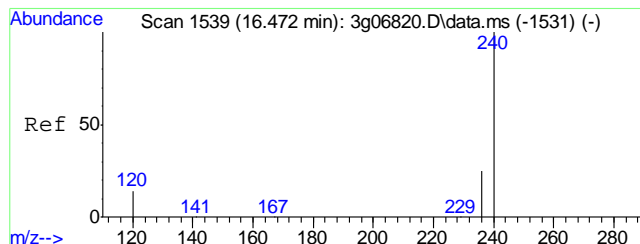
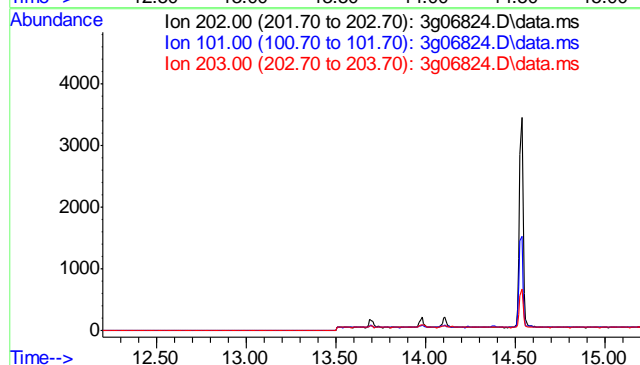




#17  
Fluoranthene  
Concen: N.D. ug/mL  
Expected RT: 13.70 min

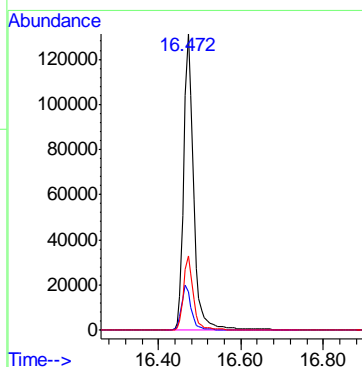
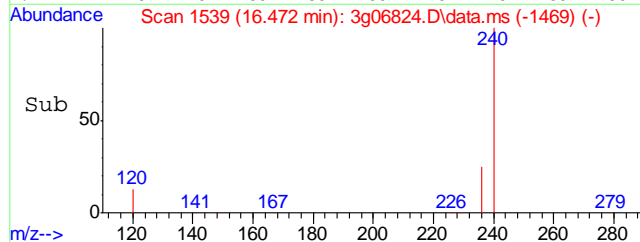
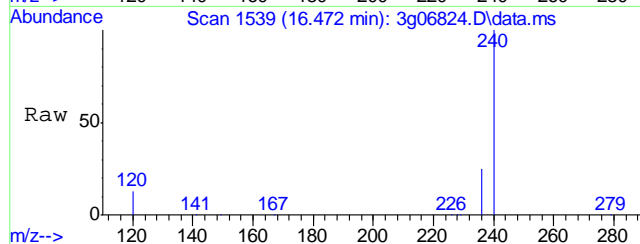
Lab File: 3g06824.D  
Acq: 8 Nov 11 8:44 pm

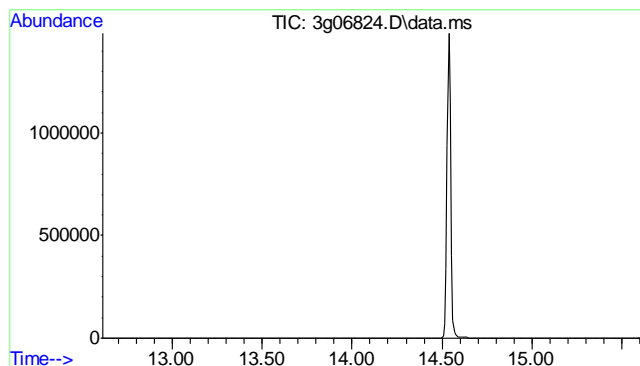
Tgt Ion: 202  
Sig Exp Ratio  
202 100  
101 17.3  
203 17.2



#18  
Chrysene-d12  
Concen: 4.00 ug/mL  
RT: 16.472 min Scan# 1539  
Delta R.T. -0.000 min  
Lab File: 3g06824.D  
Acq: 8 Nov 11 8:44 pm

Tgt Ion: 240 Resp: 217153  
Ion Ratio Lower Upper  
240 100  
120 14.9 0.0 36.4  
236 24.7 4.9 44.9

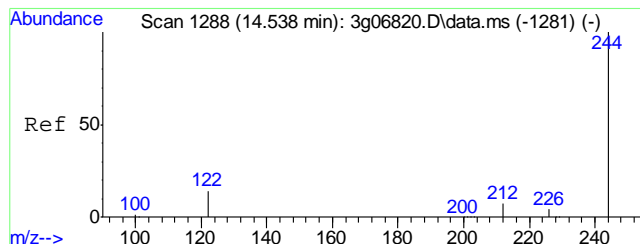
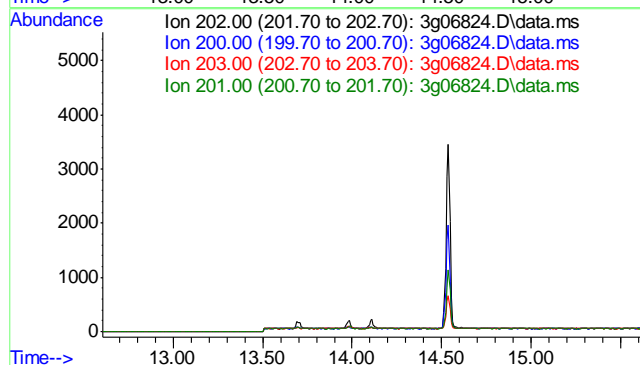




#19  
Pyrene  
Concen: N.D. ug/mL  
Expected RT: 14.11 min

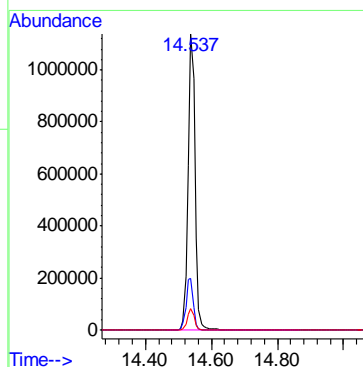
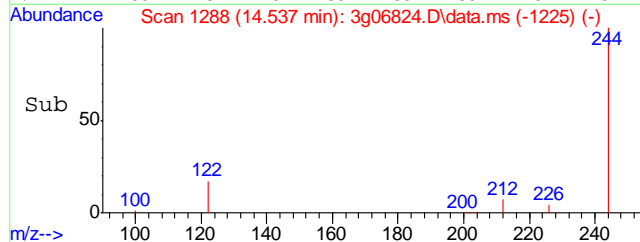
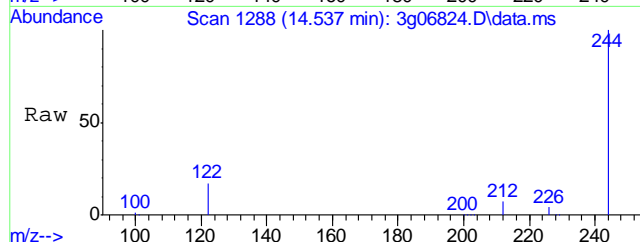
Lab File: 3g06824.D  
Acq: 8 Nov 11 8:44 pm

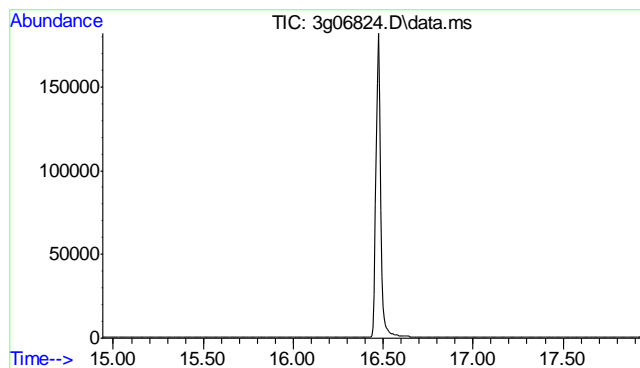
Tgt Ion: 202  
Sig Exp Ratio  
202 100  
200 21.9  
203 17.8  
201 18.0



#20  
Terphenyl-d14  
Concen: 55.37 ug/mL  
RT: 14.537 min Scan# 1288  
Delta R.T. -0.000 min  
Lab File: 3g06824.D  
Acq: 8 Nov 11 8:44 pm

Tgt Ion: 244 Resp: 1659673  
Ion Ratio Lower Upper  
244 100  
122 18.0 0.0 39.6  
212 7.3 0.0 27.5

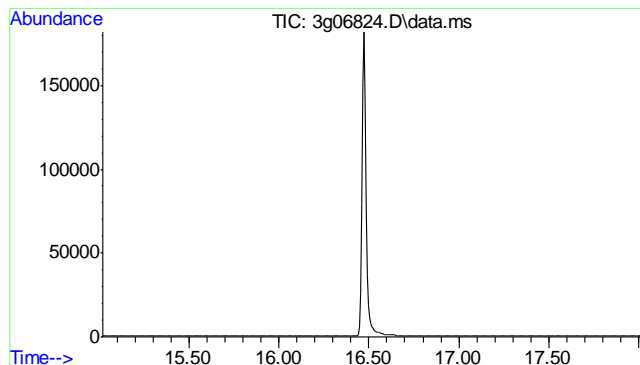
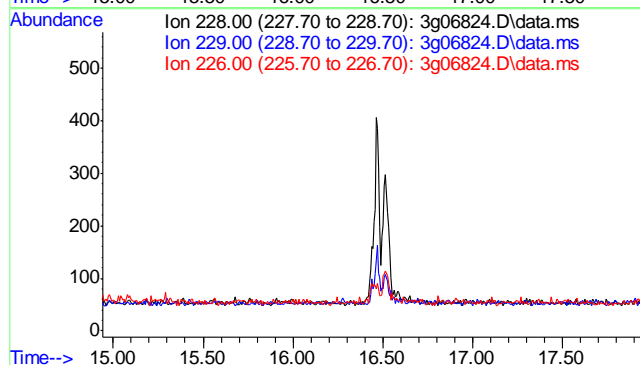




#21  
Benzo(a)anthracene  
Concen: N.D. ug/mL  
Expected RT: 16.44 min

Lab File: 3g06824.D  
Acq: 8 Nov 11 8:44 pm

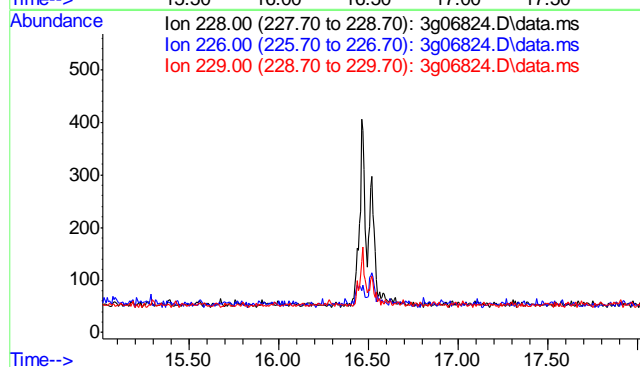
Tgt Ion:	228
Sig	Exp Ratio
228	100
229	19.5
226	25.8



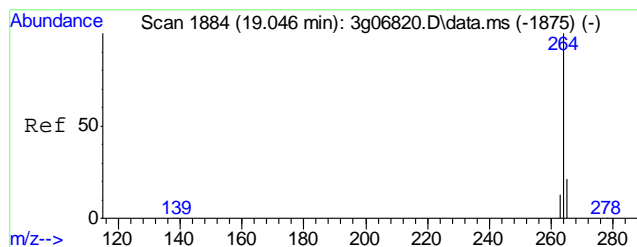
#22  
Chrysene  
Concen: N.D. ug/mL  
Expected RT: 16.52 min

Lab File: 3g06824.D  
Acq: 8 Nov 11 8:44 pm

Tgt Ion:	228
Sig	Exp Ratio
228	100
226	28.2
229	19.6

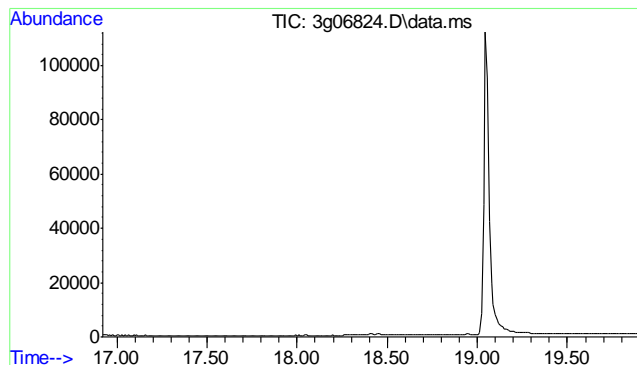
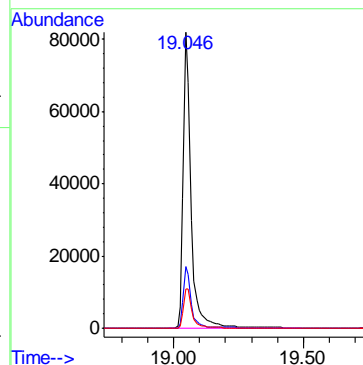
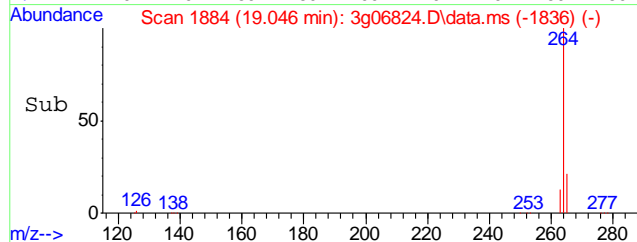
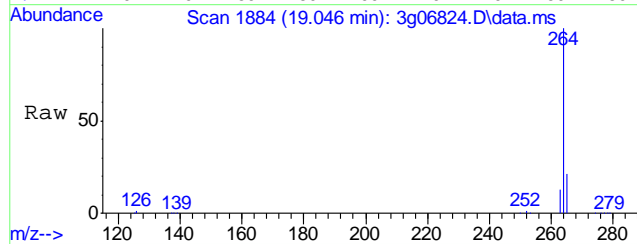






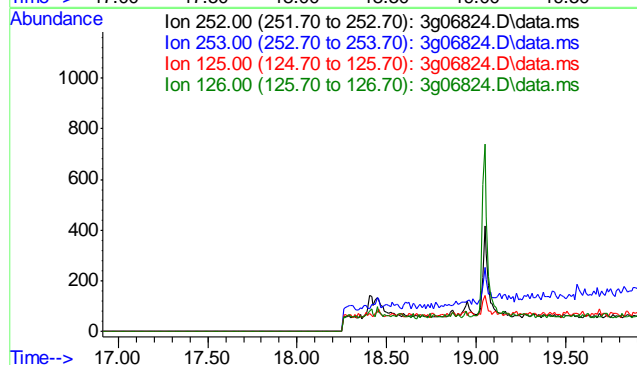
#23  
Perylene-d12  
Concen: 4.00 ug/mL  
RT: 19.046 min Scan# 1884  
Delta R.T. -0.000 min  
Lab File: 3g06824.D  
Acq: 8 Nov 11 8:44 pm

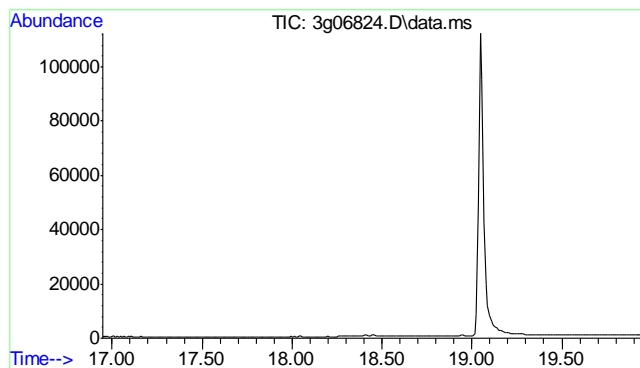
Tgt Ion:	264	Resp:	170951
Ion Ratio	Lower	Upper	
264	100		
265	20.9	1.1	41.1
263	14.5	0.0	34.1



#24  
Benzo(b)fluoranthene  
Concen: N.D. ug/mL  
Expected RT: 18.41 min  
Lab File: 3g06824.D  
Acq: 8 Nov 11 8:44 pm

Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.6
125	12.6
126	17.2

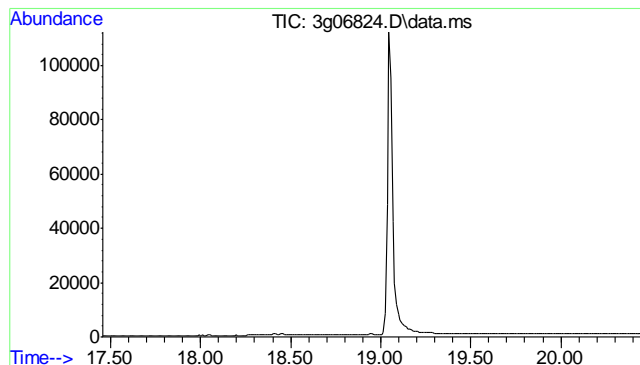
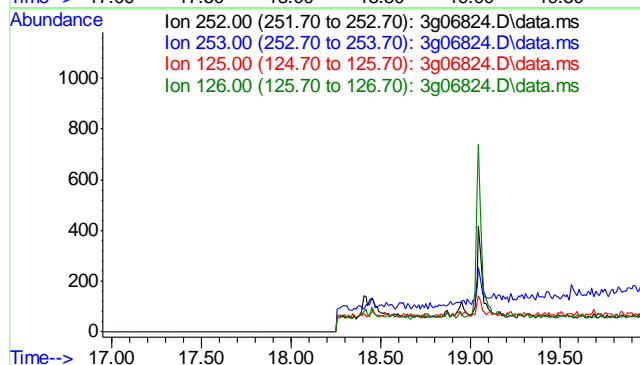




#25  
Benzo(k)fluoranthene  
Concen: N.D. ug/mL  
Expected RT: 18.45 min

Lab File: 3g06824.D  
Acq: 8 Nov 11 8:44 pm

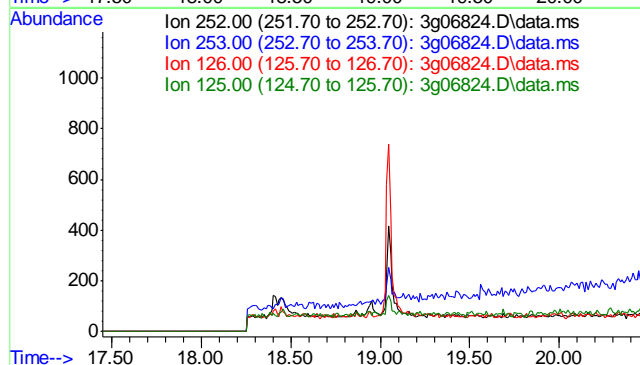
Tgt Ion: 252  
Sig Exp Ratio  
252 100  
253 21.8  
125 11.2  
126 16.8

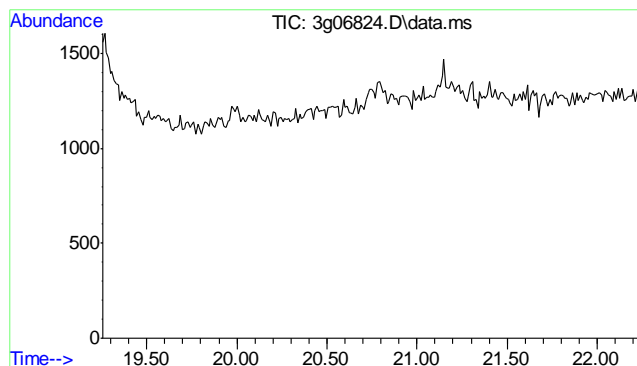


#26  
Benzo(a)pyrene  
Concen: N.D. ug/mL  
Expected RT: 18.95 min

Lab File: 3g06824.D  
Acq: 8 Nov 11 8:44 pm

Tgt Ion: 252  
Sig Exp Ratio  
252 100  
253 21.6  
126 17.1  
125 12.9

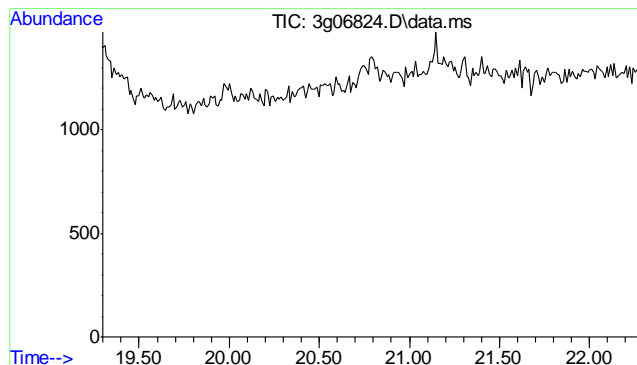
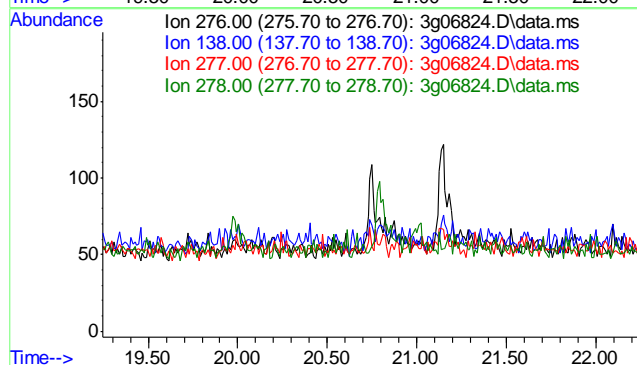




#27  
Indeno(1,2,3-cd)pyrene  
Concen: N.D. ug/mL  
Expected RT: 20.75 min

Lab File: 3g06824.D  
Acq: 8 Nov 11 8:44 pm

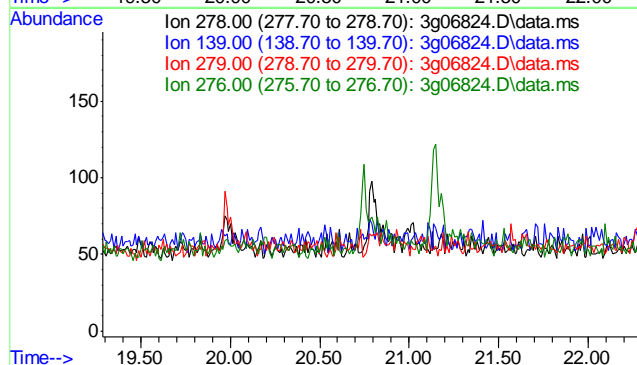
Tgt Ion:	276
Sig	Exp Ratio
276	100
138	22.7
277	40.3
278	128.3

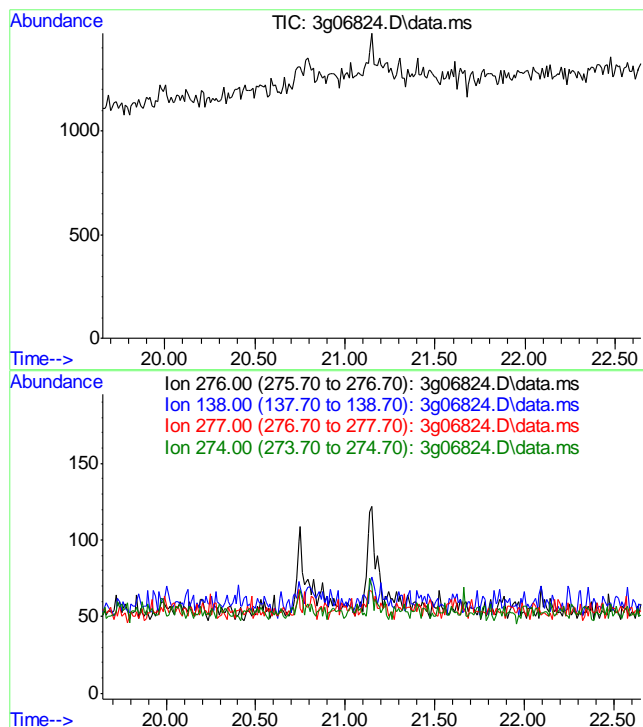


#28  
Dibenz(a,h)anthracene  
Concen: N.D. ug/mL  
Expected RT: 20.79 min

Lab File: 3g06824.D  
Acq: 8 Nov 11 8:44 pm

Tgt Ion:	278
Sig	Exp Ratio
278	100
139	19.2
279	23.4
276	125.5





#29  
Benzo(g,h,i)perylene  
Concen: N.D. ug/mL  
Expected RT: 21.15 min

Lab File: 3g06824.D  
Acq: 8 Nov 11 8:44 pm

Tgt Ion: 276  
Sig Exp Ratio  
276 100  
138 22.5  
277 24.0  
274 21.3

## GC Volatiles

### QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

**Method Blank Summary**

Page 1 of 1

**Job Number:** D29208**Account:** KRWCCOL KRW Consulting, Inc.**Project:** XOM FRU 297-20A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB778-MB	GB13732.D	1	11/07/11	SK	n/a	n/a	GGB778

**The QC reported here applies to the following samples:****Method:** SW846 8015B

D29208-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	10	5.0	mg/kg	

CAS No.	Surrogate Recoveries	Limits
120-82-1	1,2,4-Trichlorobenzene	80% 60-140%

9.1.1

9

Blank Spike Summary

Job Number: D29208  
Account: KRWCCOL KRW Consulting, Inc.  
Project: XOM FRU 297-20A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB778-BS	GB13733.D	1	11/07/11	SK	n/a	n/a	GGB778

The QC reported here applies to the following samples: Method: SW846 8015B

D29208-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	124	113	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	97%	60-140%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D29208  
Account: KRWCCOL KRW Consulting, Inc.  
Project: XOM FRU 297-20A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D29186-1MS	GB13735.D	1	11/07/11	SK	n/a	n/a	GGB778
D29186-1MSD	GB13736.D	1	11/07/11	SK	n/a	n/a	GGB778
D29186-1	GB13734.D	1	11/07/11	SK	n/a	n/a	GGB778

The QC reported here applies to the following samples: Method: SW846 8015B

D29208-1

CAS No.	Compound	D29186-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	15.0		144	168	106	167	105	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D29186-1	Limits
120-82-1	1,2,4-Trichlorobenzene	87%	84%	83%	60-140%



GC Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\110711\GB13744.D\FID1A.CH Vial: 14  
Signal #2 : Y:\1\DATA\110711\GB13744.D\FID2B.CH  
Acq On : 7 Nov 2011 7:14 pm Operator: StephK  
Sample : D29208-1, 50X Inst : GC/MS Ins  
Misc : GC2383,GGB778,5.039,,100,5,1 Multiplr: 1.00  
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
Quant Time: Nov 08 08:34:55 2011 Quant Results File: TB740GB740SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB740GB740SOIL.M (Chemstation Integrator)  
Title : 8015B/8021B TVH/BTEX  
Last Update : Mon Nov 07 13:27:40 2011  
Response via : Initial Calibration  
DataAcq Meth : TVB4.M

Volume Inj. :  
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624  
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm

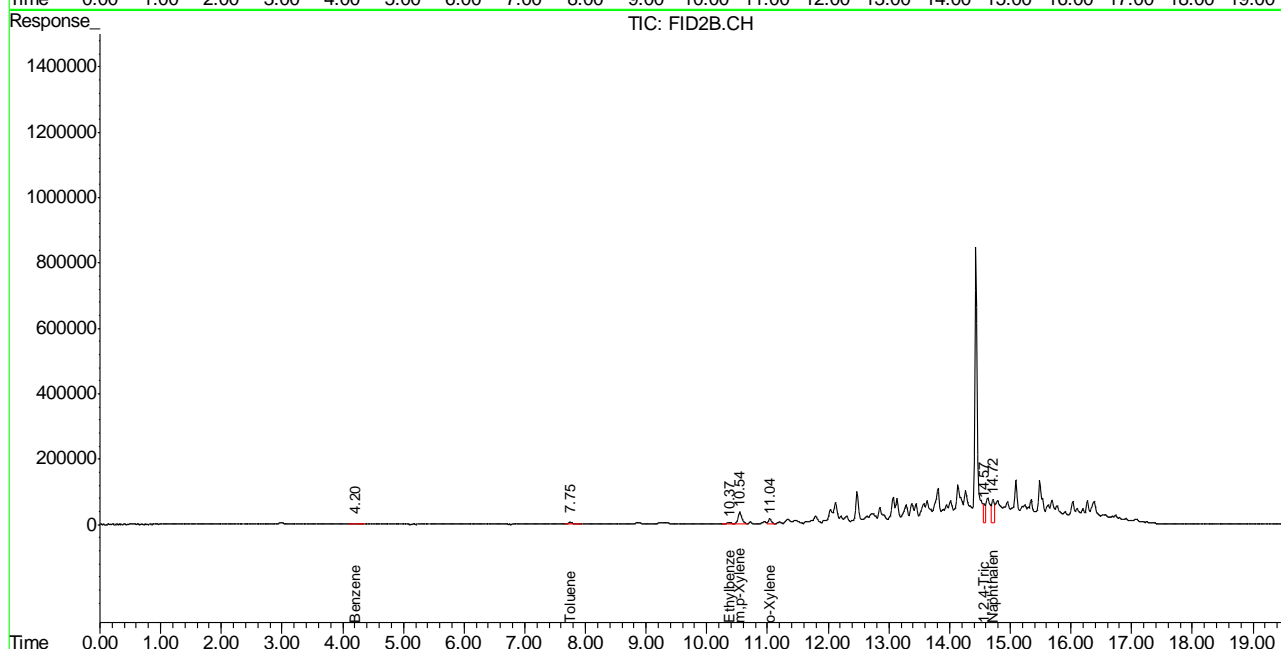
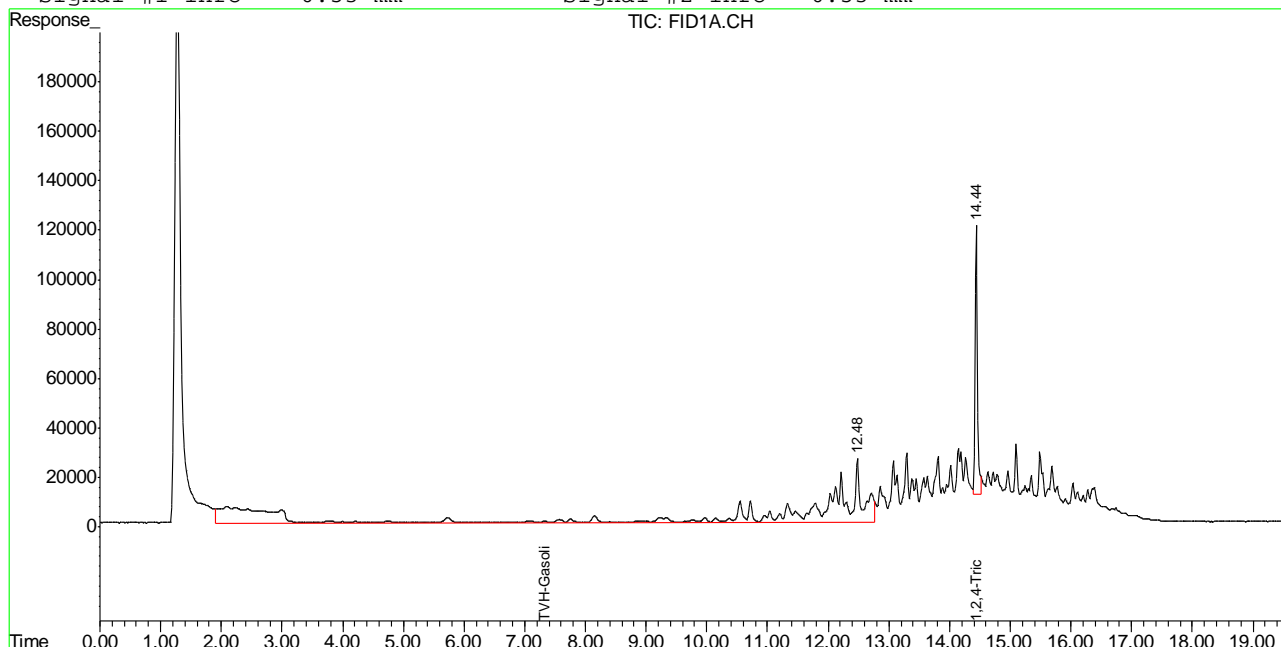
	Compound	R.T.	Response	Conc	Units
-----					
System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.44f	2868704	82.677 %	m
10) S	1,2,4-Trichlorobenzene (P)	14.56	1249215	6.212 %	
Target Compounds					
1) H	TVH-Gasoline	7.33	13320513	0.167 mg/L	
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L d
5) T	Benzene	4.21	112733	0.233 ug/L	
6) T	Toluene	7.75f	416344	0.896 ug/L	
7) T	Ethylbenzene	10.37	311585	0.774 ug/L	
8) T	m,p-Xylene	10.55	1713021	3.105 ug/L	
9) T	o-Xylene	11.04	610364	1.306 ug/L	
11) T	Naphthalene	14.72	2379622	10.411 ug/L	

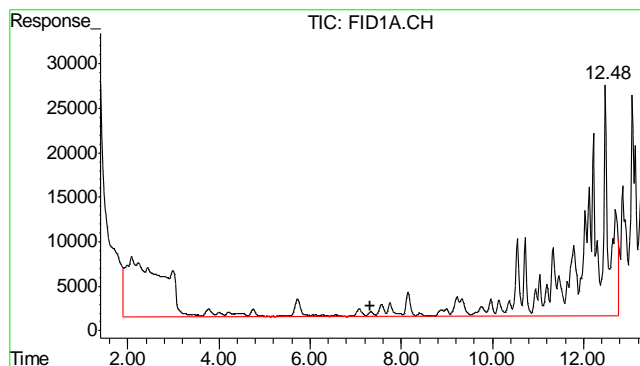
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\110711\GB13744.D\FID1A.CH Vial: 14  
 Signal #2 : Y:\1\DATA\110711\GB13744.D\FID2B.CH  
 Acq On : 7 Nov 2011 7:14 pm Operator: StephK  
 Sample : D29208-1, 50X Inst : GC/MS Ins  
 Misc : GC2383,GGB778,5.039,,100,5,1 Multiplr: 1.00  
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
 Quant Time: Nov 8 8:35 2011 Quant Results File: TB740GB740SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB740GB740SOIL.M (Chemstation Integrator)  
 Title : 8015B/8021B TVH/BTEX  
 Last Update : Mon Nov 07 13:27:40 2011  
 Response via : Multiple Level Calibration  
 DataAcq Meth : TVB4.M

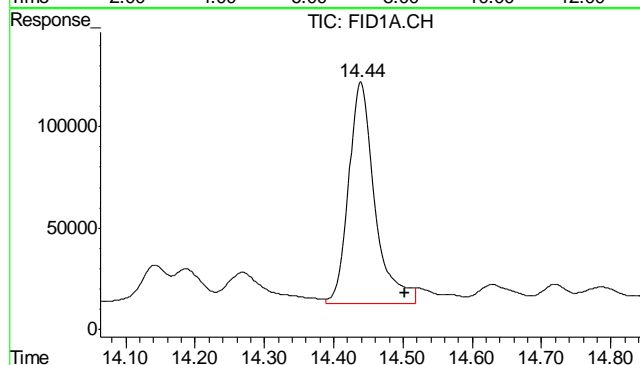
Volume Inj. :  
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624  
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





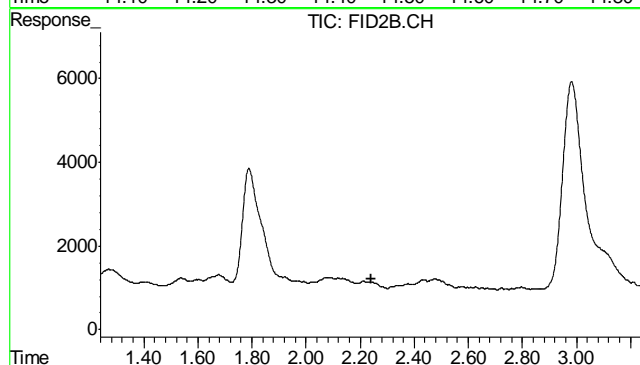
#1 TVH-Gasoline

R.T.: 7.330 min  
Delta R.T.: 0.000 min  
Response: 13320513  
Conc: 0.17 mg/L m



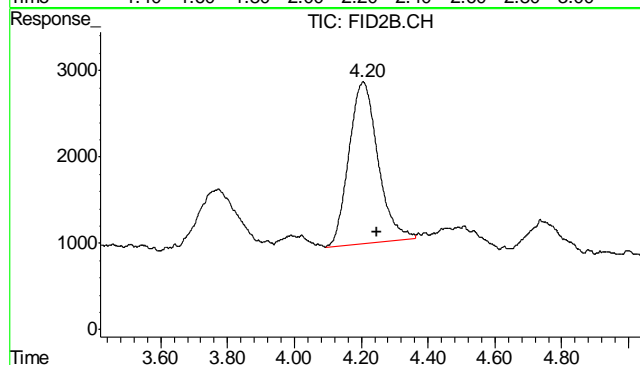
#2 1,2,4-Trichlorobenzene

R.T.: 14.438 min  
Delta R.T.: -0.065 min  
Response: 2868704  
Conc: 82.68 % m



#4 Methyl-t-butyl-ether

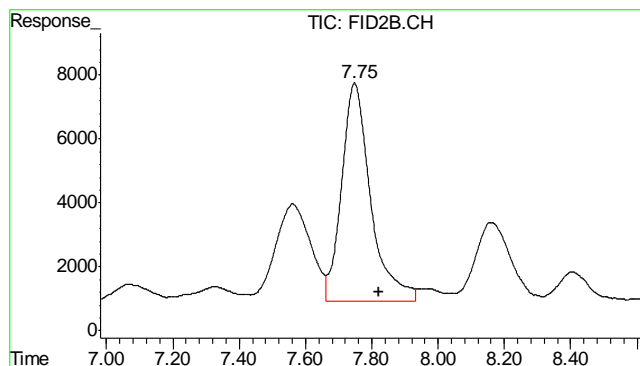
R.T.: 0.000 min  
Exp R.T.: 2.239 min  
Response: 0  
Conc: N.D.



#5 Benzene

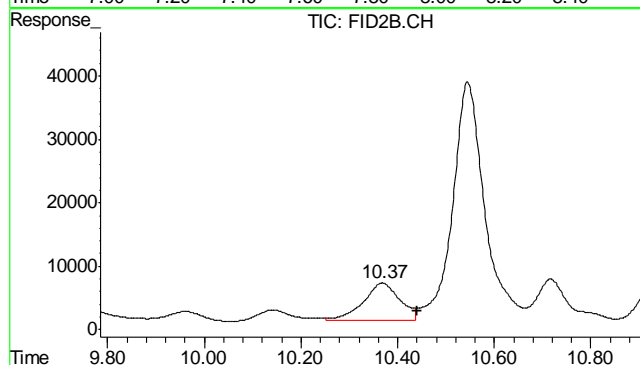
R.T.: 4.205 min  
Delta R.T.: -0.041 min  
Response: 112733  
Conc: 0.23 ug/L

10.1.1  
10



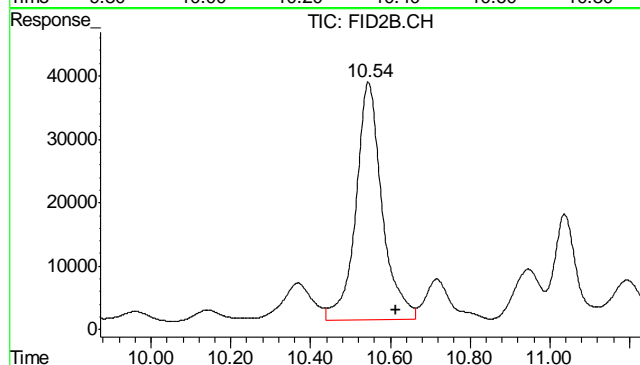
#6 Toluene

R.T.: 7.748 min  
Delta R.T.: -0.075 min  
Response: 416344  
Conc: 0.90 ug/L



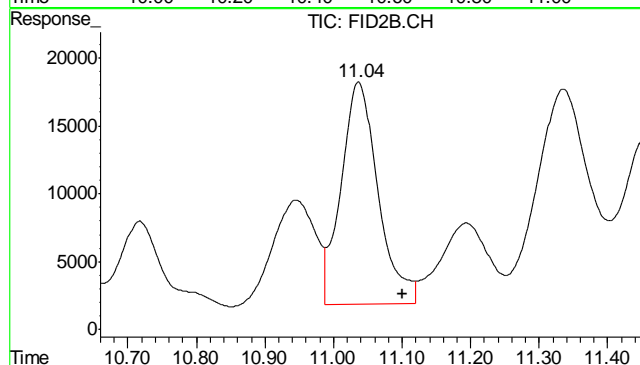
#7 Ethylbenzene

R.T.: 10.368 min  
Delta R.T.: -0.071 min  
Response: 311585  
Conc: 0.77 ug/L



#8 m,p-Xylene

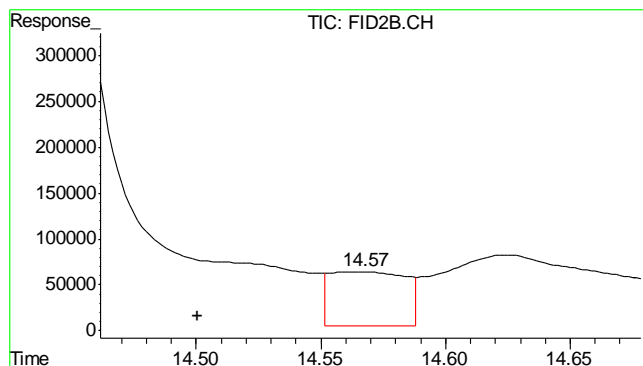
R.T.: 10.545 min  
Delta R.T.: -0.069 min  
Response: 1713021  
Conc: 3.11 ug/L



#9 o-Xylene

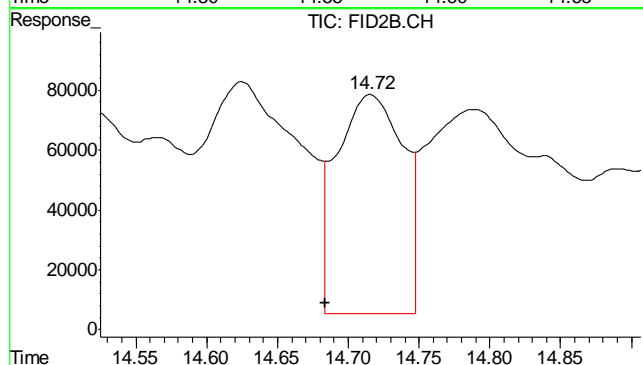
R.T.: 11.037 min  
Delta R.T.: -0.064 min  
Response: 610364  
Conc: 1.31 ug/L

10.1.1  
10



#10 1,2,4-Trichlorobenzene (P)

R.T.: 14.564 min  
Delta R.T.: 0.064 min  
Response: 1249215  
Conc: 6.21 %



#11 Naphthalene

R.T.: 14.716 min  
Delta R.T.: 0.032 min  
Response: 2379622  
Conc: 10.41 ug/L

10.1.1  
10

Judy Melson  
11/08/11 11:54

## Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\110711\GB13732.D\FID1A.CH Vial: 2  
 Signal #2 : Y:\1\DATA\110711\GB13732.D\FID2B.CH  
 Acq On : 7 Nov 2011 12:05 pm Operator: StephK  
 Sample : MB, S Inst : GC/MS Ins  
 Misc : GC2383,GGB778,5.000,,100,5,1 Multiplr: 1.00  
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
 Quant Time: Nov 07 12:02:23 2011 Quant Results File: TB740GB740SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB740GB740SOIL.M (Chemstation Integrator)  
 Title : 8015B/8021B TVH/BTEX  
 Last Update : Mon Nov 07 12:02:10 2011  
 Response via : Initial Calibration  
 DataAcq Meth : TVB4.M

Volume Inj. :  
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624  
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm

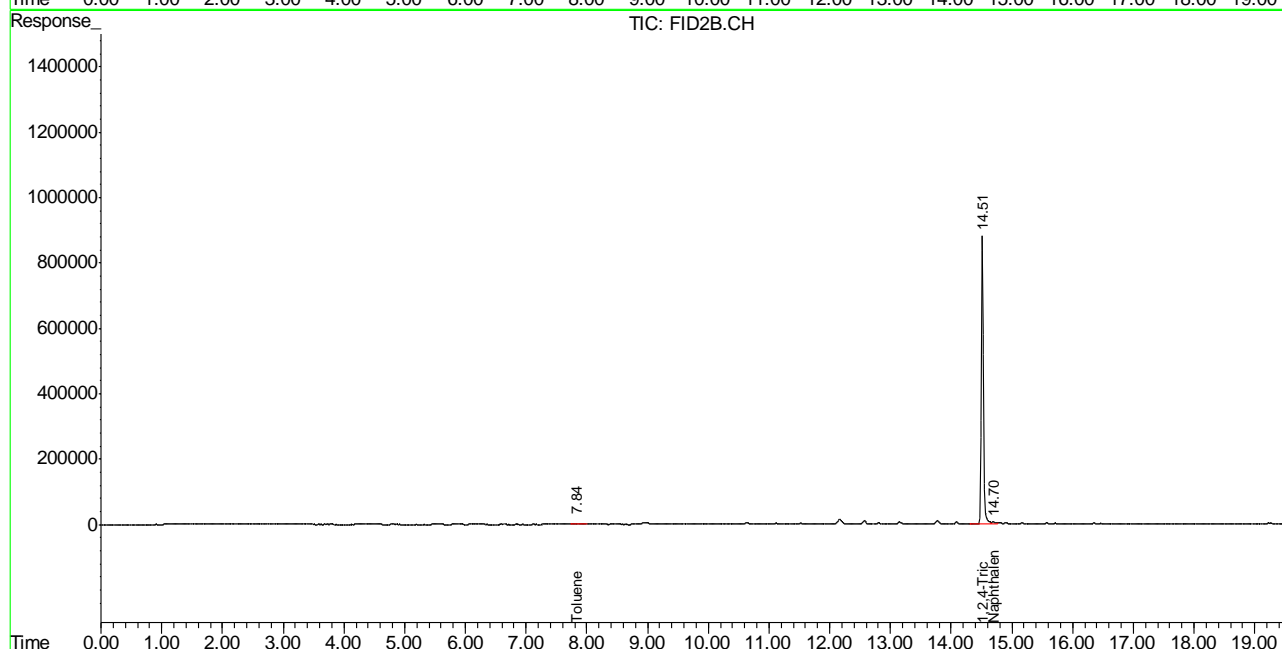
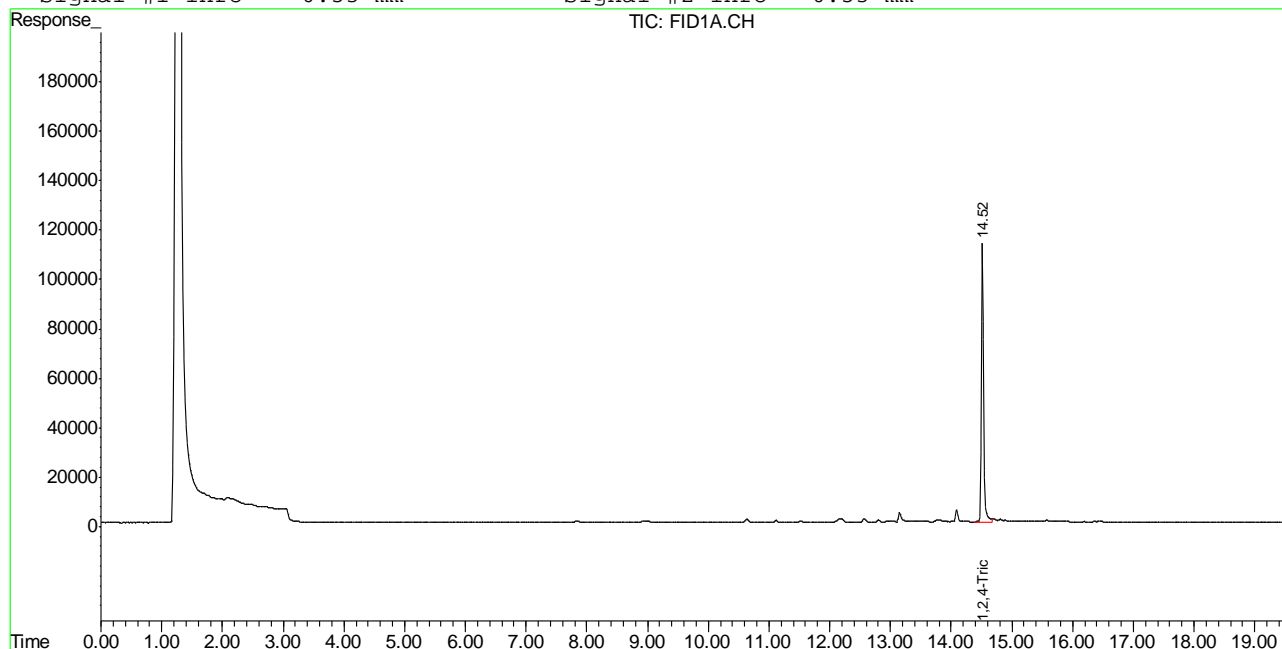
Compound	R.T.	Response	Conc	Units
-----				
System Monitoring Compounds				
2) S 1,2,4-Trichlorobenzene	14.52	2787271	80.331 %	m
10) S 1,2,4-Trichlorobenzene (P)	14.52	21007422	104.460 %	
Target Compounds				
1) H TVH-Gasoline	7.33	6371267	<MDL	mg/L
4) T Methyl-t-butyl-ether	0.00	0	N.D.	ug/L d
5) T Benzene	0.00	0	N.D.	ug/L d
6) T Toluene	7.84	149913	0.323	ug/L
7) T Ethylbenzene	0.00	0	N.D.	ug/L d
8) T m,p-Xylene	0.00	0	N.D.	ug/L d
9) T o-Xylene	0.00	0	N.D.	ug/L d
11) T Naphthalene	14.70	243196	1.297	ug/L

## Quantitation Report (QT Reviewed)

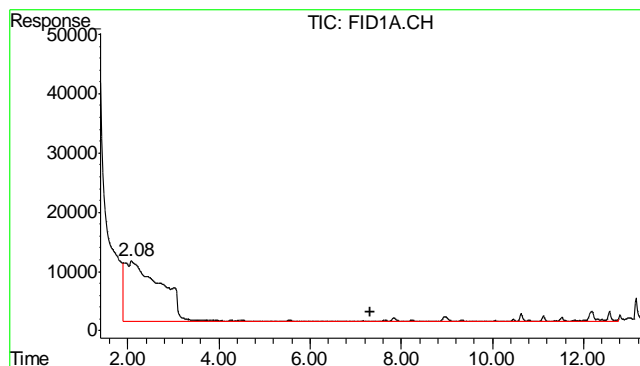
Signal #1 : Y:\1\DATA\110711\GB13732.D\FID1A.CH Vial: 2  
Signal #2 : Y:\1\DATA\110711\GB13732.D\FID2B.CH  
Acq On : 7 Nov 2011 12:05 pm Operator: StephK  
Sample : MB, S Inst : GC/MS Ins  
Misc : GC2383,GGB778,5.000,,100,5,1 Multiplr: 1.00  
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
Quant Time: Nov 7 12:02 2011 Quant Results File: TB740GB740SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB740GB740SOIL.M (Chemstation Integrator)  
Title : 8015B/8021B TVH/BTEX  
Last Update : Mon Nov 07 12:02:10 2011  
Response via : Multiple Level Calibration  
DataAcq Meth : TVB4.M

Volume Inj. :  
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624  
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm

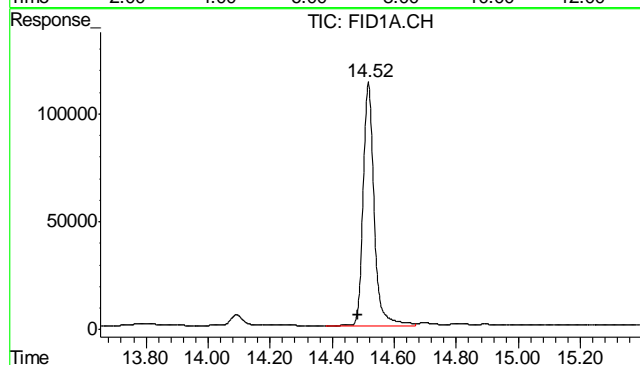






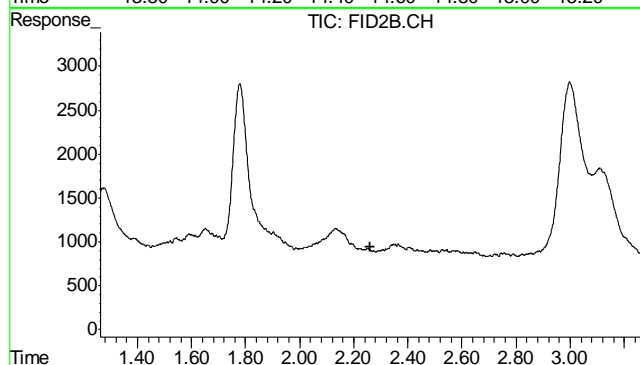
#1 TVH-Gasoline

R.T.: 7.330 min  
Delta R.T.: 0.000 min  
Response: 6371267  
Conc: N.D.



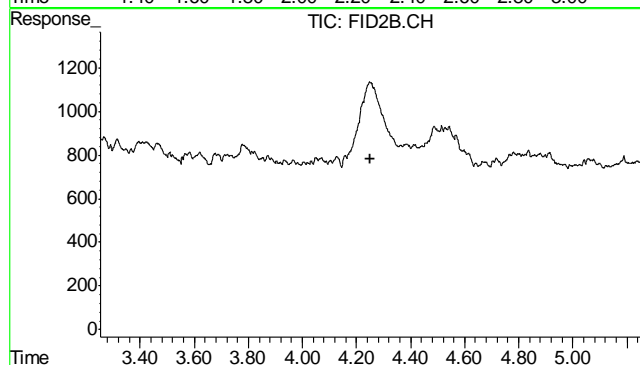
#2 1,2,4-Trichlorobenzene

R.T.: 14.516 min  
Delta R.T.: 0.035 min  
Response: 2787271  
Conc: 80.33 % m



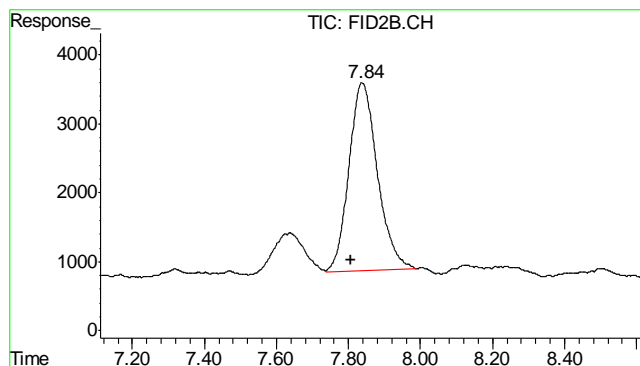
#4 Methyl-t-butyl-ether

R.T.: 0.000 min  
Exp R.T.: 2.262 min  
Response: 0  
Conc: N.D.



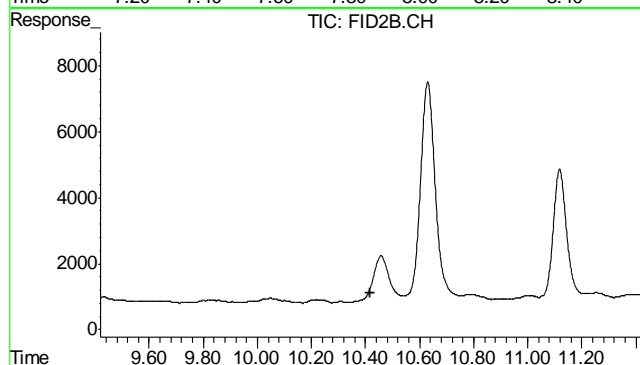
#5 Benzene

R.T.: 0.000 min  
Exp R.T.: 4.252 min  
Response: 0  
Conc: N.D.



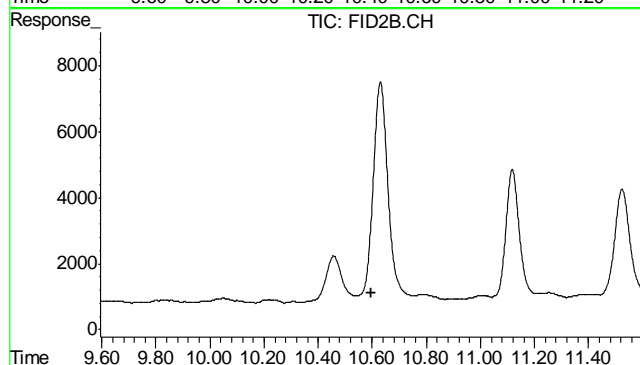
#6 Toluene

R.T.: 7.837 min  
Delta R.T.: 0.031 min  
Response: 149913  
Conc: 0.32 ug/L



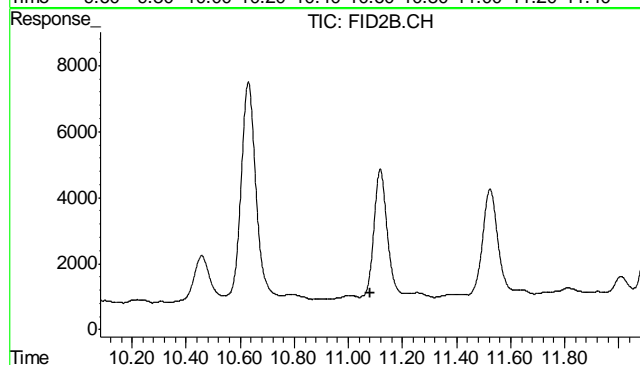
#7 Ethylbenzene

R.T.: 0.000 min  
Exp R.T.: 10.419 min  
Response: 0  
Conc: N.D.



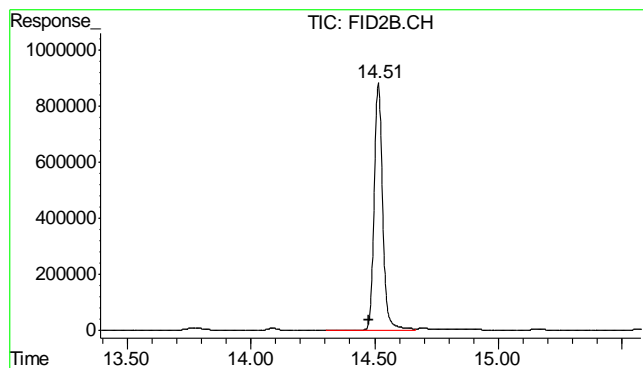
#8 m,p-Xylene

R.T.: 0.000 min  
Exp R.T.: 10.594 min  
Response: 0  
Conc: N.D.



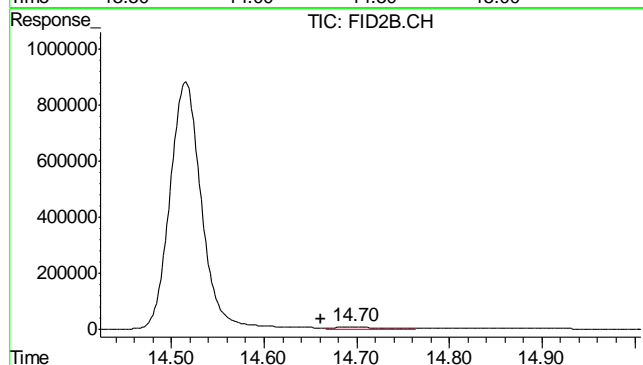
#9 o-Xylene

R.T.: 0.000 min  
Exp R.T.: 11.082 min  
Response: 0  
Conc: N.D.



#10 1,2,4-Trichlorobenzene (P)

R.T.: 14.515 min  
Delta R.T.: 0.037 min  
Response: 21007422  
Conc: 104.46 %



#11 Naphthalene

R.T.: 14.697 min  
Delta R.T.: 0.036 min  
Response: 243196  
Conc: 1.30 ug/L

10.2.1  
10

## GC Semi-volatiles

### QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D29208  
Account: KRWCCOL KRW Consulting, Inc.  
Project: XOM FRU 297-20A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4801-MB	FD11383.D	1	11/08/11	TR	11/08/11	OP4801	GFD571

The QC reported here applies to the following samples: Method: SW846-8015B

D29208-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	13	8.7	mg/kg	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	98% 61-142%

11.1.1  
11

Blank Spike Summary

Job Number: D29208  
Account: KRWCCOL KRW Consulting, Inc.  
Project: XOM FRU 297-20A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4801-BS	FD11384.D	1	11/08/11	TR	11/08/11	OP4801	GFD571

The QC reported here applies to the following samples: Method: SW846-8015B

D29208-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	608	91	60-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	96%	61-142%

11.2.1  
11

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D29208  
Account: KRWCCOL KRW Consulting, Inc.  
Project: XOM FRU 297-20A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4801-MS	FD11385.D	1	11/08/11	TR	11/08/11	OP4801	GFD571
OP4801-MSD	FD11386.D	1	11/08/11	TR	11/08/11	OP4801	GFD571
D29207-1	FD11387.D	1	11/08/11	TR	11/08/11	OP4801	GFD571

The QC reported here applies to the following samples: Method: SW846-8015B

D29208-1

CAS No.	Compound	D29207-1 mg/kg	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	752	752	1060	41	1100	46	4	24-157/35

CAS No.	Surrogate Recoveries	MS	MSD	D29207-1	Limits
84-15-1	o-Terphenyl	77%	78%	101%	61-142%

11.3.1  
11

GC Semi-volatiles

Raw Data



Judy Melson  
11/09/11 09:21

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\NOV\FD110811\FD11389.D Vial: 9  
Acq On : 11-8-2011 02:16:03 PM Operator: TEDR  
Sample : D29208-1 Inst : FID5  
Misc : OP4801,GFD571,30.13,,,2,1 Multiplr: 1.00  
IntFile : DF-GFC101.E  
Quant Time: Nov 09 06:52:19 2011 Quant Results File: GFD530.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD530.M (Chemstation Integrator)  
Title : 8015B TEH  
Last Update : Fri Nov 04 08:29:32 2011  
Response via : Initial Calibration  
DataAcq Meth : JH080911.M

Volume Inj. : 1ul  
Signal Phase : RTX-5  
Signal Info : 530um

Compound	R.T.	Response	Conc Units
-----			
System Monitoring Compounds			
1) S O-Terphenyl	9.68	34764742	867.358 mg/L m
Target Compounds			
2) H TPH-DRO (c10-c28)	7.48	150068375	3452.220 mg/L

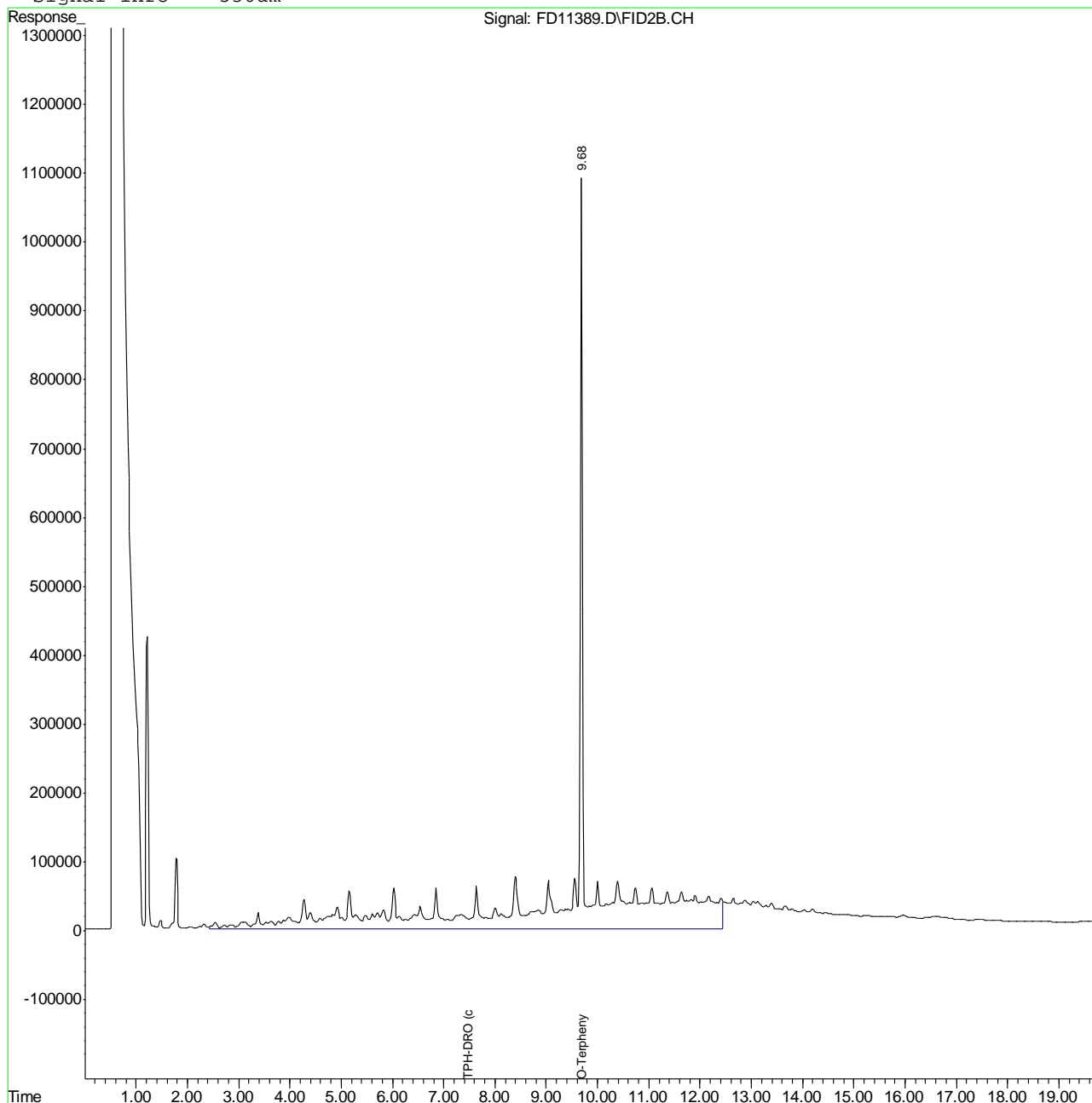
12.1.1  
12

Quantitation Report (QT Reviewed)

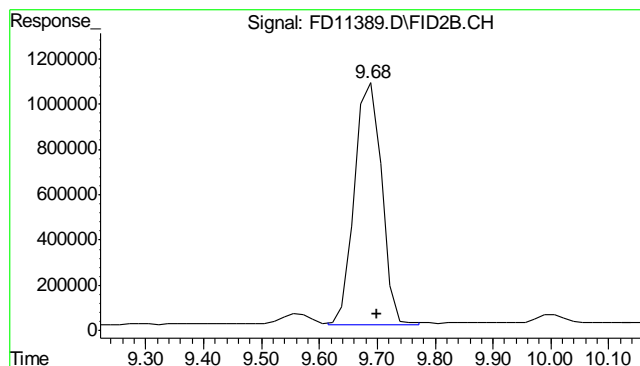
Data File : C:\MSDCHEM\2\DATA\2011\NOV\FD110811\FD11389.D Vial: 9  
 Acq On : 11-8-2011 02:16:03 PM Operator: TEDR  
 Sample : D29208-1 Inst : FID5  
 Misc : OP4801,GFD571,30.13,,,2,1 Multiplr: 1.00  
 IntFile : DF-GFC101.E  
 Quant Time: Nov 9 6:52 2011 Quant Results File: GFD530.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD530.M (Chemstation Integrator)  
 Title : 8015B TEH  
 Last Update : Fri Nov 04 08:29:32 2011  
 Response via : Multiple Level Calibration  
 DataAcq Meth : JH080911.M

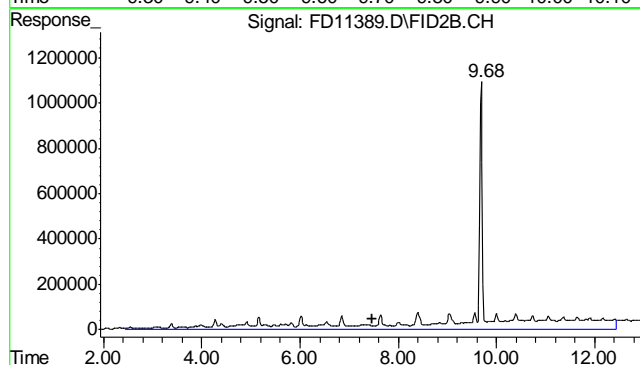
Volume Inj. : 1ul  
 Signal Phase : RTX-5  
 Signal Info : 530um



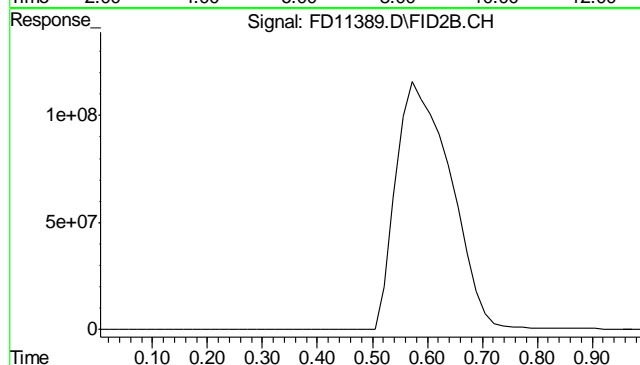
12.1.1  
12



#1 O-Terphenyl  
 R.T.: 9.684 min  
 Delta R.T.: -0.016 min  
 Response: 34764742  
 Conc: 867.36 mg/L m



#2 TPH-DRO (c10-c28)  
 R.T.: 7.480 min  
 Delta R.T.: 0.000 min  
 Response: 150068375  
 Conc: 3452.22 mg/L m



#9 5a-Androstane  
 R.T.: 0.000 min  
 Exp R.T.: 0.000 min  
 Response: 0  
 Conc: N.D.

Judy Melson  
11/09/11 09:21

## Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\NOV\FD110811\FD11383.D Vial: 3  
Acq On : 08 Nov 2011 10:48 am Operator: TEDR  
Sample : OP4801-MB Inst : FID5  
Misc : OP4801,GFD571,30.00,,,2,1 Multiplr: 1.00  
IntFile : DF-GFC101.E  
Quant Time: Nov 08 13:05:42 2011 Quant Results File: GFD530.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD530.M (Chemstation Integrator)  
Title : 8015B TEH  
Last Update : Fri Nov 04 08:29:32 2011  
Response via : Initial Calibration  
DataAcq Meth : JH080911.M

Volume Inj. : 1ul  
Signal Phase : RTX-5  
Signal Info : 530um

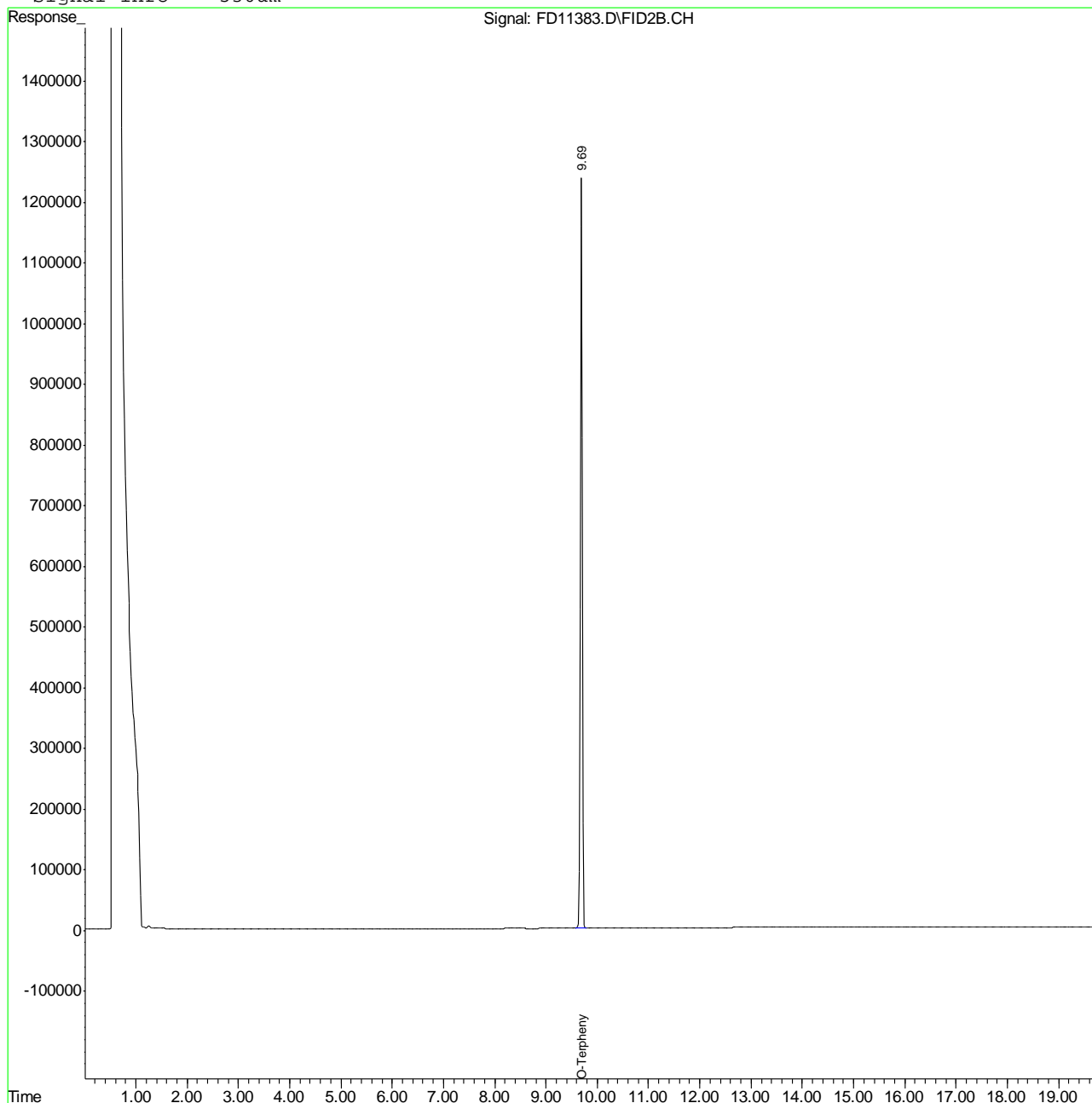
Compound	R.T.	Response	Conc Units
-----			
System Monitoring Compounds			
1) S O-Terphenyl	9.69	40126030	975.919 mg/L m
Target Compounds			

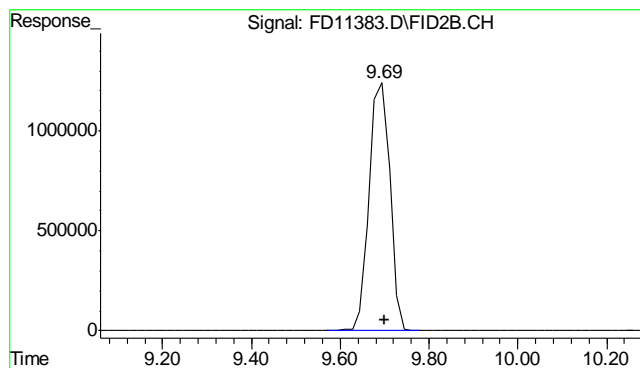
## Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\NOV\FD110811\FD11383.D Vial: 3  
Acq On : 08 Nov 2011 10:48 am Operator: TEDR  
Sample : OP4801-MB Inst : FID5  
Misc : OP4801,GFD571,30.00,,,2,1 Multiplr: 1.00  
IntFile : DF-GFC101.E  
Quant Time: Nov 8 13:06 2011 Quant Results File: GFD530.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD530.M (Chemstation Integrator)  
Title : 8015B TEH  
Last Update : Fri Nov 04 08:29:32 2011  
Response via : Multiple Level Calibration  
DataAcq Meth : JH080911.M

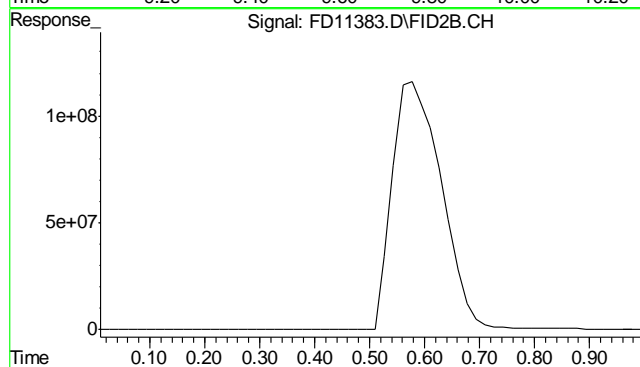
Volume Inj. : 1ul  
Signal Phase : RTX-5  
Signal Info : 530um





#1 O-Terphenyl

R.T.: 9.688 min  
Delta R.T.: -0.012 min  
Response: 40126030  
Conc: 975.92 mg/L m



#9 5a-Androstane

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

12.2.1  
12

## Metals Analysis

### QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D29208  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM FRU 297-20A

QC Batch ID: MP6206  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 11/07/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.59	.59		
Antimony	3.0	.31	.31		
Arsenic	2.5	.59	.59		
Barium	1.0	.11	.11	0.25	<1.0
Beryllium	1.0	.044	.1		
Boron	5.0	.48	.48		
Cadmium	1.0	.027	.27	0.010	<1.0
Calcium	40	.96	1.1		
Chromium	1.0	.018	.031	0.15	<1.0
Cobalt	0.50	.035	.035		
Copper	1.0	.085	.16	-0.12	<1.0
Iron	7.0	.34	2		
Lead	5.0	.16	.21	-0.070	<5.0
Lithium	0.20	.028	.031		
Magnesium	20	.58	1.4		
Manganese	0.50	.0053	.012		
Molybdenum	1.0	.045	.054		
Nickel	3.0	.043	.099	0.0	<3.0
Phosphorus	10	1.1	1.2		
Potassium	200	5.5	9.2		
Selenium	5.0	.38	.5	-0.19	<5.0
Silicon	5.0	.38	.51		
Silver	3.0	.018	.051	0.0	<3.0
Sodium	40	11	11		
Strontium	5.0		.017		
Thallium	1.0	.29	.34		
Tin	5.0	.55	1.3		
Titanium	1.0	.011	.1		
Uranium	5.0	.15	.2		
Vanadium	1.0	.016	.025		
Zinc	3.0	.028	.06	0.56	<3.0

Associated samples MP6206: D29208-1

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits



BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D29208  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM FRU 297-20A

QC Batch ID: MP6206  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

13.1.1

13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29208  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM FRU 297-20A

QC Batch ID: MP6206  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 11/07/11

Metal	D29206-1 Original MS		Spikelot MPICPALL	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium	34400	42000	971	782.8(a)	75-125
Beryllium					
Boron					
Cadmium	0.0	223	243	91.9	75-125
Calcium					
Chromium	21.2	252	243	95.1	75-125
Cobalt					
Copper	111	315	243	84.0	75-125
Iron					
Lead	89.7	480	485	80.4	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel	16.4	237	243	90.9	75-125
Phosphorus					
Potassium					
Selenium	0.0	684	485	140.9N(b)	75-125
Silicon					
Silver	0.30	93.7	97.1	96.2	75-125
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	51.1	275	243	92.2	75-125

Associated samples MP6206: D29208-1

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29208  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM FRU 297-20A

QC Batch ID: MP6206  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date:

Metal

- (N) Matrix Spike Rec. outside of QC limits
- (anr) Analyte not requested
- (a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- (b) Spike recovery indicates possible matrix interference.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29208  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM FRU 297-20A

QC Batch ID: MP6206  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 11/07/11

Metal	D29206-1 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium	34400	39100	943	498.6(a)	7.2	20
Beryllium						
Boron						
Cadmium	0.0	218	236	92.5	2.3	20
Calcium						
Chromium	21.2	244	236	94.5	3.2	20
Cobalt						
Copper	111	314	236	86.1	0.3	20
Iron						
Lead	89.7	468	471	80.3	2.5	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	16.4	230	236	90.6	3.0	20
Phosphorus						
Potassium						
Selenium	0.0	666	471	141.3N(b)	2.7	20
Silicon						
Silver	0.30	91.5	94.3	96.8	2.4	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	51.1	287	236	100.1	4.3	20

Associated samples MP6206: D29208-1

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29208  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM FRU 297-20A

QC Batch ID: MP6206  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date:

Metal

- (N) Matrix Spike Rec. outside of QC limits
- (anr) Analyte not requested
- (a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- (b) Spike recovery indicates possible matrix interference.

## SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D29208  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: XOM FRU 297-20A

QC Batch ID: MP6206  
 Matrix Type: SOLID

Methods: SW846 6010B  
 Units: mg/kg

Prep Date: 11/07/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	176	200	88.0	80-120
Beryllium				
Boron				
Cadmium	44.2	50	88.4	80-120
Calcium				
Chromium	45.2	50	90.4	80-120
Cobalt				
Copper	43.5	50	87.0	80-120
Iron				
Lead	91.3	100	91.3	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	43.9	50	87.8	80-120
Phosphorus				
Potassium				
Selenium	91.2	100	91.2	80-120
Silicon				
Silver	18.4	20	92.0	80-120
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	45.2	50	90.4	80-120

Associated samples MP6206: D29208-1

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D29208  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM FRU 297-20A

QC Batch ID: MP6206  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D29208  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: XOM FRU 297-20A

QC Batch ID: MP6206  
 Matrix Type: SOLID

Methods: SW846 6010B  
 Units: ug/l

Prep Date: 11/07/11

Metal	D29206-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	54100	70500	1.4	0-10
Beryllium				
Boron				
Cadmium	0.00	0.00	NC	0-10
Calcium				
Chromium	42.7	43.0	0.7	0-10
Cobalt				
Copper	225	222	1.2	0-10
Iron				
Lead	181	185	2.2	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	33.2	35.5	6.9	0-10
Phosphorus				
Potassium				
Selenium	11.7	190		0-10
Silicon				
Silver	0.600	3.00	400.0(a)	0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	103	141	36.6*(b)	0-10

Associated samples MP6206: D29208-1

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits

13.1.4  
13



SERIAL DILUTION RESULTS SUMMARY

Login Number: D29208  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM FRU 297-20A

QC Batch ID: MP6206  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: ug/l

Prep Date:

Metal

- (anr) Analyte not requested  
(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).  
(b) Serial dilution indicates possible matrix interference.

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D29208  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM FRU 297-20A

QC Batch ID: MP6207  
Matrix Type: SOLID

Methods: SW846 6020  
Units: mg/kg

Prep Date: 11/07/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.14	1.2		
Antimony	0.20	.001	.0095		
Arsenic	0.40	.049	.22	0.16	<0.40
Barium	1.0	.0035	.1		
Beryllium	0.10	.0075	.014		
Boron	20	.97	1		
Cadmium	0.050	.023	.048		
Calcium	200	1.8	8.2		
Chromium	1.0	.021	.24		
Cobalt	0.10	.0033	.003		
Copper	1.0	.011	.063		
Iron	20	.81	3.7		
Lead	0.25	.0012	.015		
Magnesium	50	.067	2.6		
Manganese	0.50	.007	.029		
Molybdenum	0.50	.0044	.023		
Nickel	1.0	.0029	.031		
Phosphorus	30	1.8	3.5		
Potassium	100	2	3.2		
Selenium	0.20	.075	.19		
Silver	0.050	.0008	.002		
Sodium	250	.8	4.4		
Strontium	10	.004	.04		
Thallium	0.10	.015	.02		
Tin	5.0	.006	.028		
Titanium	1.0	.035	.062		
Uranium	0.25	.00038	.0009		
Vanadium	2.0	.052	.29		
Zinc	5.0	.039	.12		

Associated samples MP6207: D29208-1

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: D29208  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: XOM FRU 297-20A

QC Batch ID: MP6207  
 Matrix Type: SOLID

Methods: SW846 6020  
 Units: mg/kg

Prep Date: 11/07/11

Metal	D29206-1 Original MS		Spikelot MPICPALL	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	5.1	500	485	101.9	75-125
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP6207: D29208-1

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: D29208  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: XOM FRU 297-20A

QC Batch ID: MP6207  
 Matrix Type: SOLID

Methods: SW846 6020  
 Units: mg/kg

Prep Date: 11/07/11

Metal	D29206-1 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	5.1	464	471	97.4	7.5	20
Barium						
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP6207: D29208-1

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: D29208  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM FRU 297-20A

QC Batch ID: MP6207  
Matrix Type: SOLID

Methods: SW846 6020  
Units: mg/kg

Prep Date: 11/07/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	97.1	100	97.1	80-120
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP6207: D29208-1

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D29208  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: XOM FRU 297-20A

QC Batch ID: MP6207  
 Matrix Type: SOLID

Methods: SW846 6020  
 Units: ug/l

Prep Date: 11/07/11

Metal		D29206-1		QC	
		Original		Limits	
		SDL 5:25 %DIF			
Aluminum					
Antimony					
Arsenic	10.3	11.7	13.3 (a)	0-10	
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP6207: D29208-1

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(anr) Analyte not requested

(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D29208  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM FRU 297-20A

QC Batch ID: MP6224  
Matrix Type: SOLID

Methods: SW846 7471A  
Units: mg/kg

Prep Date: 11/09/11

Metal	RL	IDL	MDL	MB raw	final
Mercury	0.10	.0011	.013	0.0022	<0.10

Associated samples MP6224: D29208-1

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: D29208  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: XOM FRU 297-20A

QC Batch ID: MP6224  
 Matrix Type: SOLID

Methods: SW846 7471A  
 Units: mg/kg

Prep Date: 11/09/11

Metal	D29206-1		Spikelot		QC
	Original	MS	HGWSR1	% Rec	Limits

Mercury	0.16	2.1	1.94	99.9	85-115
---------	------	-----	------	------	--------

Associated samples MP6224: D29208-1

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: D29208  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: XOM FRU 297-20A

QC Batch ID: MP6224  
 Matrix Type: SOLID

Methods: SW846 7471A  
 Units: mg/kg

Prep Date: 11/09/11

Metal	D29206-1 Original MSD		Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.16	2.0	1.9	96.7	4.9	20

Associated samples MP6224: D29208-1

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

13.3.2  
13

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D29208  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: XOM FRU 297-20A

QC Batch ID: MP6224  
 Matrix Type: SOLID

Methods: SW846 7471A  
 Units: mg/kg

Prep Date: 11/09/11

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.43	0.4	107.5	80-120

Associated samples MP6224: D29208-1

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (anr) Analyte not requested

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D29208  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM FRU 297-20A

QC Batch ID: MP6227  
Matrix Type: AQUEOUS

Methods: SW846 6010B, USDA HANDBOOK 60  
Units: ug/l

Prep Date: 11/09/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	500	30	30		
Antimony	150	16	16		
Arsenic	130	30	30		
Barium	50	5.5	5.5		
Beryllium	50	2.2	2.5		
Boron	250	24	24		
Cadmium	50	1.4	1.4		
Calcium	2000	48	75	25.5	<2000
Chromium	50	.9	4		
Cobalt	25	1.8	1.8		
Copper	50	4.3	14		
Iron	350	17	65		
Lead	250	8	11		
Lithium	10	1.4	6		
Magnesium	1000	29	50	32.0	<1000
Manganese	25	.27	1.6		
Molybdenum	50	2.3	4.4		
Nickel	150	2.2	5		
Phosphorus	500	55	100		
Potassium	5000	280	280		
Selenium	250	19	19		
Silicon	250	19	19		
Silver	150	.9	1.6		
Sodium	2000	570	570	-57	<2000
Strontium	25		1.3		
Thallium	50	15	15		
Tin	250	28	50		
Titanium	50	.55	1.6		
Uranium	250	7.5	18		
Vanadium	50	.8	1.1		
Zinc	150	1.4	9		

Associated samples MP6227: D29208-1A

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D29208  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM FRU 297-20A

QC Batch ID: MP6227  
Matrix Type: AQUEOUS

Methods: SW846 6010B, USDA HANDBOOK 60  
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29208  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM FRU 297-20A

QC Batch ID: MP6227  
Matrix Type: AQUEOUS

Methods: SW846 6010B, USDA HANDBOOK 60  
Units: ug/l

Prep Date: 11/09/11

Metal	D29236-1A Original MS		Spikelot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	37700	175000	125000	109.8	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	3850	133000	125000	103.3	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	78800	206000	125000	101.8	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP6227: D29208-1A

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits

13.4.2  
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29208  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM FRU 297-20A

QC Batch ID: MP6227  
Matrix Type: AQUEOUS

Methods: SW846 6010B, USDA HANDBOOK 60  
Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits  
(anr) Analyte not requested

13.4.2  
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29208  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: XOM FRU 297-20A

QC Batch ID: MP6227  
 Matrix Type: AQUEOUS

Methods: SW846 6010B, USDA HANDBOOK 60  
 Units: ug/l

Prep Date: 11/09/11

Metal	D29236-1A Original MSD		Spikelot MPICPAL % Rec		MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	37700	171000	125000	106.6	2.3	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	3850	132000	125000	102.5	0.8	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	78800	202000	125000	98.6	2.0	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP6227: D29208-1A

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits

13.4.2  
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29208  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM FRU 297-20A

QC Batch ID: MP6227  
Matrix Type: AQUEOUS

Methods: SW846 6010B, USDA HANDBOOK 60  
Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits  
(anr) Analyte not requested

13.4.2  
13



## SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D29208  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM FRU 297-20A

QC Batch ID: MP6227  
Matrix Type: AQUEOUS

Methods: SW846 6010B, USDA HANDBOOK 60  
Units: ug/l

Prep Date: 11/09/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	138000	125000	110.4	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	130000	125000	104.0	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	128000	125000	102.4	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP6227: D29208-1A

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D29208  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM FRU 297-20A

QC Batch ID: MP6227  
Matrix Type: AQUEOUS

Methods: SW846 6010B, USDA HANDBOOK 60  
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

## General Chemistry

### QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D29208  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM FRU 297-20A

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Specific Conductivity	GP5881/GN12392			umhos/cm	9980	9970	99.9	90-110%
pH	GN12401			su	8.00	8.01	100.1	99.3-100.7%

Associated Samples:  
Batch GN12401: D29208-1  
Batch GP5881: D29208-1  
(\*) Outside of QC limits

DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D29208  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM FRU 297-20A

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Redox Potential Vs H2	GN12406	D29207-1	mv	383	149	7.7	0-20%

Associated Samples:  
Batch GN12406: D29208-1  
(\*) Outside of QC limits

## Misc. Forms

### Custody Documents and Other Forms

(Accutest Labs of New England, Inc.)

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Includes the following where applicable:

- Chain of Custody



# Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D29208

Client: AMS

Immediate Client Services Action Required: No

Date / Time Received: 11/8/2011

Delivery Method:

Client Service Action Required at Login: No

Project:

No. Coolers: 1

Airbill #'s:

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	4. Smpl Dates/Time OK	<input checked="" type="checkbox"/>		<input type="checkbox"/>

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Cooler temp verification:			Infrared gun
3. Cooler media:			Ice (bag)

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Trip Blank listed on COC:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Samples preserved properly:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. VOCs headspace free:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>		<input type="checkbox"/>

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Condition of sample:			Intact

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
2. Bottles received for unspecified tests	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
3. Sufficient volume recvd for analysis:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. Compositing instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments



## General Chemistry

### QC Data Summaries

(Accutest Labs of New England, Inc.)

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Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D29208  
Account: ALMS - Accutest Mountain States  
Project: KRWCCOL: XOM FRU 297-20A

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP13780/GN36845	0.40	0.26	mg/kg	40	42.8	107.0	80-120%
Chromium, Hexavalent	GP13780/GN36845			mg/kg	1390	1520	109.4	80-120%

Associated Samples:  
Batch GP13780: D29208-1  
(\*) Outside of QC limits

BLANK SPIKE DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D29208  
Account: ALMS - Accutest Mountain States  
Project: KRWCCOL: XOM FRU 297-20A

Analyte	Batch ID	Units	Spike Amount	BSD Result	RPD	QC Limit
Chromium, Hexavalent	GP13780/GN36845	mg/kg	40	43.4	1.4	

Associated Samples:  
Batch GP13780: D29208-1  
(\*) Outside of QC limits

DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D29208  
Account: ALMS - Accutest Mountain States  
Project: KRWCCOL: XOM FRU 297-20A

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP13780/GN36845	D29207-1	mg/kg	0.26	0.26	0.0	0-20%

Associated Samples:  
Batch GP13780: D29208-1  
(\*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D29208  
Account: ALMS - Accutest Mountain States  
Project: KRWCCOL: XOM FRU 297-20A

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP13780/GN36845	D29207-1	mg/kg	0.26	43.9	38.2	86.4	75-125%
Chromium, Hexavalent	GP13780/GN36845	D29207-1	mg/kg	0.26	1200	1440	120.3	75-125%

Associated Samples:  
Batch GP13780: D29208-1  
(\*) Outside of QC limits  
(N) Matrix Spike Rec. outside of QC limits