



03/01/13

## Technical Report for

**XTO Energy**

**XTO Love Ranch 8**

**1108-07A**

**Accutest Job Number: D43722**

**Sampling Date: 02/20/13**

### Report to:

KRW Consulting, Inc.  
8000 West 14th Avenue  
Lakewood, CO 80214  
dknudson@krwconsulting.com; jhess@krwconsulting.com;  
crachak@krwconsulting.com; rrasnic@krwconsulting.com;  
ATTN: Dwayne Knudson

**Total number of pages in report: 181**



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: Renea Jackson 303-425-6021**

Certifications: CO, ID, NE, NM, ND (R-027) (PW), UT (NELAP CO00049), TX (T104704511-12-1)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.  
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: Summary of Hits .....</b>	<b>8</b>
<b>Section 4: Sample Results .....</b>	<b>10</b>
<b>4.1:</b> D43722-1: CUTTINGS CONTENTS RESAMPLE .....	11
<b>4.2:</b> D43722-1A: CUTTINGS CONTENTS RESAMPLE .....	17
<b>4.3:</b> D43722-2: CUTTINGS STOCKPILE RESAMPLE .....	19
<b>4.4:</b> D43722-2A: CUTTINGS STOCKPILE RESAMPLE .....	25
<b>Section 5: Misc. Forms .....</b>	<b>27</b>
<b>5.1:</b> Chain of Custody .....	28
<b>Section 6: GC/MS Volatiles - QC Data Summaries .....</b>	<b>30</b>
<b>6.1:</b> Method Blank Summary .....	31
<b>6.2:</b> Blank Spike Summary .....	32
<b>6.3:</b> Matrix Spike/Matrix Spike Duplicate Summary .....	33
<b>Section 7: GC/MS Volatiles - Raw Data .....</b>	<b>34</b>
<b>7.1:</b> Samples .....	35
<b>7.2:</b> Method Blanks .....	65
<b>Section 8: GC/MS Semi-volatiles - QC Data Summaries .....</b>	<b>72</b>
<b>8.1:</b> Method Blank Summary .....	73
<b>8.2:</b> Blank Spike Summary .....	74
<b>8.3:</b> Matrix Spike/Matrix Spike Duplicate Summary .....	75
<b>Section 9: GC/MS Semi-volatiles - Raw Data .....</b>	<b>76</b>
<b>9.1:</b> Samples .....	77
<b>9.2:</b> Method Blanks .....	107
<b>Section 10: GC Volatiles - QC Data Summaries .....</b>	<b>113</b>
<b>10.1:</b> Method Blank Summary .....	114
<b>10.2:</b> Blank Spike Summary .....	115
<b>10.3:</b> Matrix Spike/Matrix Spike Duplicate Summary .....	116
<b>Section 11: GC Volatiles - Raw Data .....</b>	<b>117</b>
<b>11.1:</b> Samples .....	118
<b>11.2:</b> Method Blanks .....	128
<b>Section 12: GC Semi-volatiles - QC Data Summaries .....</b>	<b>133</b>
<b>12.1:</b> Method Blank Summary .....	134
<b>12.2:</b> Blank Spike Summary .....	135
<b>12.3:</b> Matrix Spike/Matrix Spike Duplicate Summary .....	136
<b>Section 13: GC Semi-volatiles - Raw Data .....</b>	<b>137</b>
<b>13.1:</b> Samples .....	138
<b>13.2:</b> Method Blanks .....	144
<b>Section 14: Metals Analysis - QC Data Summaries .....</b>	<b>147</b>
<b>14.1:</b> Prep QC MP9521: Ba,Cd,Cr,Cu,Pb,Ni,Se,Ag,Zn .....	148
<b>14.2:</b> Prep QC MP9522: As .....	158
<b>14.3:</b> Prep QC MP9527: Hg .....	163

# Table of Contents

-2-

**14.4:** Prep QC MP9531: Ca,Mg,Na,Sodium Adsorption Ratio ..... 167

**Section 15: General Chemistry - QC Data Summaries ..... 177**

**15.1:** Method Blank and Spike Results Summary ..... 178

**15.2:** Duplicate Results Summary ..... 179

**15.3:** Matrix Spike Results Summary ..... 180

**15.4:** Matrix Spike Duplicate Results Summary ..... 181

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



Sample Summary

XTO Energy

Job No: D43722

XTO Love Ranch 8  
Project No: 1108-07A

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D43722-1	02/20/13	10:15 DS	02/22/13	SO	Soil	CUTTINGS CONTENTS RESAMPLE
D43722-1A	02/20/13	10:15 DS	02/22/13	SO	Soil	CUTTINGS CONTENTS RESAMPLE
D43722-2	02/20/13	10:25 DS	02/22/13	SO	Soil	CUTTINGS STOCKPILE RESAMPLE
D43722-2A	02/20/13	10:25 DS	02/22/13	SO	Soil	CUTTINGS STOCKPILE RESAMPLE

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



## CASE NARRATIVE / CONFORMANCE SUMMARY

**Client:** XTO Energy

**Job No** D43722

**Site:** XTO Love Ranch 8

**Report Date** 3/1/2013 8:53:48 AM

On 02/22/2013, 2 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 2.2 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D43722 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

**Matrix** SO

**Batch ID:** V5V1568

- All samples were analyzed within the recommended method holding time.
- Sample(s) D43738-1MS, D43738-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

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

**Matrix** SO

**Batch ID:** OP7430

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D43723-1MS, D43723-1MSD were used as the QC samples indicated.
- Sample(s) D43722-2 have surrogates outside control limits. Probable cause due to matrix interference.
- D43722-2 for Nitrobenzene-d5: Outside control limits due to possible matrix interference. Confirmed by reanalysis.

### Volatiles by GC By Method SW846 8015B

**Matrix** SO

**Batch ID:** GGB1069

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D43724-1MS, D43724-1MSD were used as the QC samples indicated.

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

**Matrix** SO

**Batch ID:** OP7429

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D43738-1MS, D43738-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

## Metals By Method SW846 6010C

**Matrix** AQ

**Batch ID:** MP9531

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D43722-2AMS, D43722-2AMSD, D43722-2ASDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Sodium 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 Magnesium are outside control limits for sample MP9531-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

**Matrix** SO

**Batch ID:** MP9521

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D43722-1MSD, D43722-1SDL, D43722-1MS, D43722-1MSD were used as the QC samples for the metals analysis.
- 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 Cadmium, Selenium, Chromium, Lead, Nickel, Zinc are outside control limits for sample MP9521-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP9521-SD1 for Nickel, Lead, Zinc, Chromium: Serial dilution indicates possible matrix interference.

## Metals By Method SW846 6020A

**Matrix** SO

**Batch ID:** MP9522

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D43722-1MS, D43722-1MSD, D43722-1SDL were used as the QC samples for the metals analysis.

## Metals By Method SW846 7471B

**Matrix** SO

**Batch ID:** MP9527

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D43722-1MS, D43722-1MSD were used as the QC samples for the metals analysis.

## Wet Chemistry By Method ASTM D1498-76M

**Matrix** SO

**Batch ID:** GN19103

- Sample(s) D43722-2DUP were used as the QC samples for the Redox Potential Vs H2 analysis.

## Wet Chemistry By Method SM 2510B-2011 MOD

**Matrix** SO

**Batch ID:** GP9427

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

## Wet Chemistry By Method SM19 2540B M

**Matrix** SO

**Batch ID:** GN19009

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

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

**Matrix** SO

**Batch ID:** GP9438

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D43722-2DUP, D43722-2MS, D43722-2MSD were used as the QC samples for the Chromium, Hexavalent analysis.

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

**Matrix** SO

**Batch ID:** R16144

- The data for SW846 3060A/7196A M meets quality control requirements.
- D43722-2 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

**Matrix** SO

**Batch ID:** R16148

- The data for SW846 3060A/7196A M meets quality control requirements.
- D43722-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

### Wet Chemistry By Method SW846 9045D

**Matrix** SO

**Batch ID:** GN19031

- The following samples were run outside of holding time for method SW846 9045D: D43722-1, D43722-2

### Wet Chemistry By Method USDA HANDBOOK 60

**Matrix** SO

**Batch ID:** MP9531

- D43722-2A for Sodium Adsorption Ratio: Calculated as:  $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$
- D43722-1A 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.

## Summary of Hits

**Job Number:** D43722  
**Account:** XTO Energy  
**Project:** XTO Love Ranch 8  
**Collected:** 02/20/13



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
---------------	------------------	-----------------	----	-----	-------	--------

### D43722-1 CUTTINGS CONTENTS RESAMPLE

Benzene	0.192	0.077	0.039	mg/kg	SW846 8260B
Toluene	0.568	0.15	0.077	mg/kg	SW846 8260B
Ethylbenzene	0.364	0.15	0.029	mg/kg	SW846 8260B
Xylene (total)	1.12	0.31	0.15	mg/kg	SW846 8260B
Chrysene	0.0303	0.011	0.0055	mg/kg	SW846 8270C BY SIM
Fluorene	0.0404	0.011	0.0064	mg/kg	SW846 8270C BY SIM
Naphthalene	0.193	0.015	0.013	mg/kg	SW846 8270C BY SIM
TPH-GRO (C6-C10)	14.9 J	15	7.7	mg/kg	SW846 8015B
TPH-DRO (C10-C28)	287	8.5	5.1	mg/kg	SW846-8015B
Arsenic	10.9	0.13		mg/kg	SW846 6020A
Barium	4710	6.7		mg/kg	SW846 6010C
Chromium	11.9	1.3		mg/kg	SW846 6010C
Copper	33.0	1.3		mg/kg	SW846 6010C
Lead	33.5	6.7		mg/kg	SW846 6010C
Nickel	17.0	4.0		mg/kg	SW846 6010C
Zinc	55.9	4.0		mg/kg	SW846 6010C
Specific Conductivity	3840	1.0		umhos/cm	SM 2510B-2011 MOD
Chromium, Trivalent <sup>a</sup>	11.9	2.3		mg/kg	SW846 3060A/7196A M
Redox Potential Vs H2	185			mv	ASTM D1498-76M
pH	10.09			su	SW846 9045D

### D43722-1A CUTTINGS CONTENTS RESAMPLE

Calcium	11.1	2.0		mg/l	SW846 6010C
Magnesium	1.44	1.0		mg/l	SW846 6010C
Sodium	820	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio <sup>b</sup>	61.5			ratio	USDA HANDBOOK 60

### D43722-2 CUTTINGS STOCKPILE RESAMPLE

Benzene	0.480	0.084	0.042	mg/kg	SW846 8260B
Toluene	1.22	0.17	0.084	mg/kg	SW846 8260B
Ethylbenzene	0.176	0.17	0.032	mg/kg	SW846 8260B
Xylene (total)	0.849	0.34	0.17	mg/kg	SW846 8260B
Chrysene	0.0517	0.011	0.0059	mg/kg	SW846 8270C BY SIM
Fluorene	0.0356 J	0.045	0.027	mg/kg	SW846 8270C BY SIM
Naphthalene	0.244	0.016	0.014	mg/kg	SW846 8270C BY SIM
TPH-DRO (C10-C28)	654	9.0	5.4	mg/kg	SW846-8015B
Arsenic	8.4	0.13		mg/kg	SW846 6020A
Barium	7900	6.5		mg/kg	SW846 6010C
Cadmium	2.9	1.3		mg/kg	SW846 6010C
Chromium	18.9	1.3		mg/kg	SW846 6010C
Copper	28.0	1.3		mg/kg	SW846 6010C



## Summary of Hits

**Job Number:** D43722  
**Account:** XTO Energy  
**Project:** XTO Love Ranch 8  
**Collected:** 02/20/13

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Analyte						
Lead		24.8	6.5		mg/kg	SW846 6010C
Nickel		16.8	3.9		mg/kg	SW846 6010C
Zinc		55.6	3.9		mg/kg	SW846 6010C
Specific Conductivity		10300	1.0		umhos/cm	SM 2510B-2011 MOD
Chromium, Trivalent <sup>a</sup>		18.9	2.3		mg/kg	SW846 3060A/7196A M
Redox Potential Vs H2		162			mv	ASTM D1498-76M
pH		10.76			su	SW846 9045D

### D43722-2A CUTTINGS STOCKPILE RESAMPLE

Calcium	7.36	2.0	mg/l	SW846 6010C
Sodium	1450	2.0	mg/l	SW846 6010C
Sodium Adsorption Ratio <sup>b</sup>	144		ratio	USDA HANDBOOK 60

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

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

Sample Results

Report of Analysis

Accutest Laboratories

## Report of Analysis

Page 1 of 1

<b>Client Sample ID:</b>	CUTTINGS CONTENTS RESAMPLE	<b>Date Sampled:</b>	02/20/13
<b>Lab Sample ID:</b>	D43722-1	<b>Date Received:</b>	02/22/13
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	78.4
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	XTO Love Ranch 8		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V25770.D	1	02/25/13	BD	n/a	n/a	V5V1568
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.01 g	5.0 ml	100 ul
Run #2			

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.192	0.077	0.039	mg/kg	
108-88-3	Toluene	0.568	0.15	0.077	mg/kg	
100-41-4	Ethylbenzene	0.364	0.15	0.029	mg/kg	
1330-20-7	Xylene (total)	1.12	0.31	0.15	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	90%		64-130%
460-00-4	4-Bromofluorobenzene	115%		62-131%
17060-07-0	1,2-Dichloroethane-D4	86%		70-130%

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>	CUTTINGS CONTENTS RESAMPLE			<b>Date Sampled:</b>	02/20/13
<b>Lab Sample ID:</b>	D43722-1			<b>Date Received:</b>	02/22/13
<b>Matrix:</b>	SO - Soil			<b>Percent Solids:</b>	78.4
<b>Method:</b>	SW846 8270C BY SIM SW846 3546				
<b>Project:</b>	XTO Love Ranch 8				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G112117.D	1	02/25/13	DC	02/25/13	OP7430	E1G940
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 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	0.011	0.0055	mg/kg	
120-12-7	Anthracene	ND	0.011	0.0055	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.011	0.0055	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.011	0.0055	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.011	0.0055	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.011	0.0055	mg/kg	
218-01-9	Chrysene	0.0303	0.011	0.0055	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.011	0.0055	mg/kg	
206-44-0	Fluoranthene	ND	0.011	0.0055	mg/kg	
86-73-7	Fluorene	0.0404	0.011	0.0064	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.011	0.0055	mg/kg	
91-20-3	Naphthalene	0.193	0.015	0.013	mg/kg	
129-00-0	Pyrene	ND	0.011	0.0055	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	34%		10-159%
321-60-8	2-Fluorobiphenyl	45%		19-131%
1718-51-0	Terphenyl-d14	71%		18-150%

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>	CUTTINGS CONTENTS RESAMPLE					<b>Date Sampled:</b>	02/20/13
<b>Lab Sample ID:</b>	D43722-1					<b>Date Received:</b>	02/22/13
<b>Matrix:</b>	SO - Soil					<b>Percent Solids:</b>	78.4
<b>Method:</b>	SW846 8015B						
<b>Project:</b>	XTO Love Ranch 8						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB19586.D	1	02/22/13	BD	n/a	n/a	GGB1069
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)	14.9	15	7.7	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	80%		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>	CUTTINGS CONTENTS RESAMPLE					<b>Date Sampled:</b>	02/20/13
<b>Lab Sample ID:</b>	D43722-1					<b>Date Received:</b>	02/22/13
<b>Matrix:</b>	SO - Soil					<b>Percent Solids:</b>	78.4
<b>Method:</b>	SW846-8015B SW846 3546						
<b>Project:</b>	XTO Love Ranch 8						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD22261.D	1	02/25/13	AV	02/25/13	OP7429	GFD1114
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	287	8.5	5.1	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	70%		35-130%		

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

**Client Sample ID:** CUTTINGS CONTENTS RESAMPLE**Lab Sample ID:** D43722-1**Matrix:** SO - Soil**Project:** XTO Love Ranch 8**Date Sampled:** 02/20/13**Date Received:** 02/22/13**Percent Solids:** 78.4**Metals Analysis**

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	10.9	0.13	mg/kg	5	02/25/13	02/26/13 JB	SW846 6020A <sup>3</sup>	SW846 3050B <sup>7</sup>
Barium	4710	6.7	mg/kg	5	02/25/13	02/27/13 JB	SW846 6010C <sup>4</sup>	SW846 3050B <sup>6</sup>
Cadmium	< 1.3	1.3	mg/kg	1	02/25/13	02/25/13 JB	SW846 6010C <sup>1</sup>	SW846 3050B <sup>6</sup>
Chromium	11.9	1.3	mg/kg	1	02/25/13	02/25/13 JB	SW846 6010C <sup>1</sup>	SW846 3050B <sup>6</sup>
Copper	33.0	1.3	mg/kg	1	02/25/13	02/27/13 JB	SW846 6010C <sup>5</sup>	SW846 3050B <sup>6</sup>
Lead	33.5	6.7	mg/kg	1	02/25/13	02/25/13 JB	SW846 6010C <sup>1</sup>	SW846 3050B <sup>6</sup>
Mercury	< 0.11	0.11	mg/kg	1	02/26/13	02/26/13 JM	SW846 7471B <sup>2</sup>	SW846 7471B <sup>8</sup>
Nickel	17.0	4.0	mg/kg	1	02/25/13	02/25/13 JB	SW846 6010C <sup>1</sup>	SW846 3050B <sup>6</sup>
Selenium	< 6.7	6.7	mg/kg	1	02/25/13	02/25/13 JB	SW846 6010C <sup>1</sup>	SW846 3050B <sup>6</sup>
Silver	< 4.0	4.0	mg/kg	1	02/25/13	02/25/13 JB	SW846 6010C <sup>1</sup>	SW846 3050B <sup>6</sup>
Zinc	55.9	4.0	mg/kg	1	02/25/13	02/25/13 JB	SW846 6010C <sup>1</sup>	SW846 3050B <sup>6</sup>

(1) Instrument QC Batch: MA3308

(2) Instrument QC Batch: MA3312

(3) Instrument QC Batch: MA3314

(4) Instrument QC Batch: MA3315

(5) Instrument QC Batch: MA3319

(6) Prep QC Batch: MP9521

(7) Prep QC Batch: MP9522

(8) Prep QC Batch: MP9527

RL = Reporting Limit

## Report of Analysis

**Client Sample ID:** CUTTINGS CONTENTS RESAMPLE**Lab Sample ID:** D43722-1**Matrix:** SO - Soil**Project:** XTO Love Ranch 8**Date Sampled:** 02/20/13**Date Received:** 02/22/13**Percent Solids:** 78.4**General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
<b>prep: DEPT.OF AG, BOOK N9</b>							
Specific Conductivity	3840	1.0	umhos/cm	1	02/26/13	JK	SM 2510B-2011 MOD
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	02/26/13	KB	SW846 3060A/7196A
Chromium, Trivalent <sup>a</sup>	11.9	2.3	mg/kg	1	02/26/13	KB	SW846 3060A/7196A M
Redox Potential Vs H2	185		mv	1	02/28/13	JD	ASTM D1498-76M
Solids, Percent	78.4		%	1	02/25/13	SWT	SM19 2540B M
pH	10.09		su	1	02/25/13 10:50	AK	SW846 9045D

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

RL = Reporting Limit



Report of Analysis

<b>Client Sample ID:</b>	CUTTINGS CONTENTS RESAMPLE	<b>Date Sampled:</b>	02/20/13
<b>Lab Sample ID:</b>	D43722-1A	<b>Date Received:</b>	02/22/13
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	78.4
<b>Project:</b>	XTO Love Ranch 8		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	11.1	2.0	mg/l	1	02/26/13	02/27/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A/M <sup>2</sup>
Magnesium	1.44	1.0	mg/l	1	02/26/13	02/27/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A/M <sup>2</sup>
Sodium	820	2.0	mg/l	1	02/26/13	02/27/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A/M <sup>2</sup>

(1) Instrument QC Batch: MA3315  
(2) Prep QC Batch: MP9531

RL = Reporting Limit

4.2  
4

Report of Analysis

<b>Client Sample ID:</b>	CUTTINGS CONTENTS RESAMPLE	<b>Date Sampled:</b>	02/20/13
<b>Lab Sample ID:</b>	D43722-1A	<b>Date Received:</b>	02/22/13
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	78.4
<b>Project:</b>	XTO Love Ranch 8		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	61.5		ratio	1	02/27/13 11:17	JB	USDA HANDBOOK 60

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

RL = Reporting Limit

Accutest Laboratories

## Report of Analysis

Page 1 of 1

<b>Client Sample ID:</b>	CUTTINGS STOCKPILE RESAMPLE	<b>Date Sampled:</b>	02/20/13
<b>Lab Sample ID:</b>	D43722-2	<b>Date Received:</b>	02/22/13
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	73.9
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	XTO Love Ranch 8		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V25771.D	1	02/25/13	BD	n/a	n/a	V5V1568
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.08 g	5.0 ml	100 ul
Run #2			

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.480	0.084	0.042	mg/kg	
108-88-3	Toluene	1.22	0.17	0.084	mg/kg	
100-41-4	Ethylbenzene	0.176	0.17	0.032	mg/kg	
1330-20-7	Xylene (total)	0.849	0.34	0.17	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	87%		64-130%
460-00-4	4-Bromofluorobenzene	116%		62-131%
17060-07-0	1,2-Dichloroethane-D4	89%		70-130%

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

Accutest Laboratories

## Report of Analysis

Page 1 of 1

<b>Client Sample ID:</b>	CUTTINGS STOCKPILE RESAMPLE	<b>Date Sampled:</b>	02/20/13
<b>Lab Sample ID:</b>	D43722-2	<b>Date Received:</b>	02/22/13
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	73.9
<b>Method:</b>	SW846 8270C BY SIM SW846 3546		
<b>Project:</b>	XTO Love Ranch 8		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G112118.D	1	02/25/13	DC	02/25/13	OP7430	E1G940
Run #2	1G112119.D	4	02/25/13	DC	02/25/13	OP7430	E1G940

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

## COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND <sup>a</sup>	0.045	0.023	mg/kg	
120-12-7	Anthracene	ND	0.011	0.0059	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.011	0.0059	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.011	0.0059	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.011	0.0059	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.011	0.0059	mg/kg	
218-01-9	Chrysene	0.0517	0.011	0.0059	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.011	0.0059	mg/kg	
206-44-0	Fluoranthene	ND	0.011	0.0059	mg/kg	
86-73-7	Fluorene	0.0356 <sup>a</sup>	0.045	0.027	mg/kg	J
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.011	0.0059	mg/kg	
91-20-3	Naphthalene	0.244	0.016	0.014	mg/kg	
129-00-0	Pyrene	ND	0.011	0.0059	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	9% <sup>b</sup>	14%	10-159%
321-60-8	2-Fluorobiphenyl	46%	55%	19-131%
1718-51-0	Terphenyl-d14	87%	102%	18-150%

(a) Result is from Run# 2

(b) Outside control limits due to possible matrix interference. Confirmed by reanalysis.

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>	CUTTINGS STOCKPILE RESAMPLE					<b>Date Sampled:</b>	02/20/13
<b>Lab Sample ID:</b>	D43722-2					<b>Date Received:</b>	02/22/13
<b>Matrix:</b>	SO - Soil					<b>Percent Solids:</b>	73.9
<b>Method:</b>	SW846 8015B						
<b>Project:</b>	XTO Love Ranch 8						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB19587.D	1	02/22/13	BD	n/a	n/a	GGB1069
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.1 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	17	8.4	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	84%		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>	CUTTINGS STOCKPILE RESAMPLE					<b>Date Sampled:</b>	02/20/13
<b>Lab Sample ID:</b>	D43722-2					<b>Date Received:</b>	02/22/13
<b>Matrix:</b>	SO - Soil					<b>Percent Solids:</b>	73.9
<b>Method:</b>	SW846-8015B SW846 3546						
<b>Project:</b>	XTO Love Ranch 8						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD22249A.D	1	02/25/13	AV	02/25/13	OP7429	GFD1114
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	654	9.0	5.4	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	74%		35-130%		

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

**Client Sample ID:** CUTTINGS STOCKPILE RESAMPLE**Lab Sample ID:** D43722-2**Matrix:** SO - Soil**Project:** XTO Love Ranch 8**Date Sampled:** 02/20/13**Date Received:** 02/22/13**Percent Solids:** 73.9**Metals Analysis**

Analyte	Result	RL	Units	DF	Prep	Analized By	Method	Prep Method
Arsenic	8.4	0.13	mg/kg	5	02/25/13	02/26/13 JB	SW846 6020A <sup>3</sup>	SW846 3050B <sup>7</sup>
Barium	7900	6.5	mg/kg	5	02/25/13	02/27/13 JB	SW846 6010C <sup>4</sup>	SW846 3050B <sup>6</sup>
Cadmium	2.9	1.3	mg/kg	1	02/25/13	02/25/13 JB	SW846 6010C <sup>1</sup>	SW846 3050B <sup>6</sup>
Chromium	18.9	1.3	mg/kg	1	02/25/13	02/25/13 JB	SW846 6010C <sup>1</sup>	SW846 3050B <sup>6</sup>
Copper	28.0	1.3	mg/kg	1	02/25/13	02/27/13 JB	SW846 6010C <sup>5</sup>	SW846 3050B <sup>6</sup>
Lead	24.8	6.5	mg/kg	1	02/25/13	02/25/13 JB	SW846 6010C <sup>1</sup>	SW846 3050B <sup>6</sup>
Mercury	< 0.11	0.11	mg/kg	1	02/26/13	02/26/13 JM	SW846 7471B <sup>2</sup>	SW846 7471B <sup>8</sup>
Nickel	16.8	3.9	mg/kg	1	02/25/13	02/25/13 JB	SW846 6010C <sup>1</sup>	SW846 3050B <sup>6</sup>
Selenium	< 6.5	6.5	mg/kg	1	02/25/13	02/25/13 JB	SW846 6010C <sup>1</sup>	SW846 3050B <sup>6</sup>
Silver	< 3.9	3.9	mg/kg	1	02/25/13	02/25/13 JB	SW846 6010C <sup>1</sup>	SW846 3050B <sup>6</sup>
Zinc	55.6	3.9	mg/kg	1	02/25/13	02/25/13 JB	SW846 6010C <sup>1</sup>	SW846 3050B <sup>6</sup>

(1) Instrument QC Batch: MA3308

(2) Instrument QC Batch: MA3312

(3) Instrument QC Batch: MA3314

(4) Instrument QC Batch: MA3315

(5) Instrument QC Batch: MA3319

(6) Prep QC Batch: MP9521

(7) Prep QC Batch: MP9522

(8) Prep QC Batch: MP9527

RL = Reporting Limit

## Report of Analysis

**Client Sample ID:** CUTTINGS STOCKPILE RESAMPLE**Lab Sample ID:** D43722-2**Matrix:** SO - Soil**Project:** XTO Love Ranch 8**Date Sampled:** 02/20/13**Date Received:** 02/22/13**Percent Solids:** 73.9**General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
<b>prep: DEPT.OF AG, BOOK N9</b>							
Specific Conductivity	10300	1.0	umhos/cm	1	02/26/13	JK	SM 2510B-2011 MOD
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	02/26/13	KB	SW846 3060A/7196A
Chromium, Trivalent <sup>a</sup>	18.9	2.3	mg/kg	1	02/26/13	KB	SW846 3060A/7196A M
Redox Potential Vs H2	162		mv	1	02/28/13	JD	ASTM D1498-76M
Solids, Percent	73.9		%	1	02/25/13	SWT	SM19 2540B M
pH	10.76		su	1	02/25/13 10:50	AK	SW846 9045D

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

RL = Reporting Limit



Report of Analysis

<b>Client Sample ID:</b>	CUTTINGS STOCKPILE RESAMPLE	<b>Date Sampled:</b>	02/20/13
<b>Lab Sample ID:</b>	D43722-2A	<b>Date Received:</b>	02/22/13
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	73.9
<b>Project:</b>	XTO Love Ranch 8		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	7.36	2.0	mg/l	1	02/26/13	02/27/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A/M <sup>2</sup>
Magnesium	< 1.0	1.0	mg/l	1	02/26/13	02/27/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A/M <sup>2</sup>
Sodium	1450	2.0	mg/l	1	02/26/13	02/27/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A/M <sup>2</sup>

(1) Instrument QC Batch: MA3315  
(2) Prep QC Batch: MP9531

RL = Reporting Limit

4.4  
4

Report of Analysis

**Client Sample ID:** CUTTINGS STOCKPILE RESAMPLE  
**Lab Sample ID:** D43722-2A  
**Matrix:** SO - Soil  
**Project:** XTO Love Ranch 8

**Date Sampled:** 02/20/13  
**Date Received:** 02/22/13  
**Percent Solids:** 73.9

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	144		ratio	1	02/27/13 10:44	JB	USDA HANDBOOK 60

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

RL = Reporting Limit

## Misc. Forms

5

### Custody Documents and Other Forms

---

Includes the following where applicable:

- Chain of Custody



## CHAIN OF CUSTODY

PAGE 1 OF 1

4036 Youngfield Street, Wheat Ridge, CO 80033  
TEL: 303-425-6021 FAX: 303-425-6854  
www.accutest.com

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest Job # <b>D43722</b>

Client / Reporting Information		Project Information		Requested Analysis (see TEST CODE sheet)										Matrix Codes			
Company Name <b>KRW Consulting</b>		Project Name: <b>XTO LOVE RAKIT 8</b>		<b>TABLE 910</b>										<div>DW - Drinking Water GW - Ground Water WW - Wastewater SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WIP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank</div>			
Street Address <b>8000 West 14th Street; Suite 200</b>		Street															
City <b>Lakewood, CO 80214</b>		City State															
Project Contact <b>Dwayne Knudson</b>		Project # <b>1108-07A</b>															
Phone # <b>(970) 488-1098</b>		Client Purchase Order #															
Sample(s) Name(s) <b>DAVID SANDERS</b>		Project Manager <b>Joe Hess</b>		Billing Information (if different from Report to)		Street Address <b>21459 CR6</b>		City <b>Rifle, CO 81650</b>		Attention: <b>Jessica Doolling</b>		LAB USE ONLY					
Accutest Sample #	Field ID / Point of Collection	MEQ/HD/Vial #	Date	Time	Sampled by	Matrix	# of bottles	HQ	NaOH	HNO3	H2SO4	None	DV Water	MEDH	SACORE		
	<b>CUTTINGS CONTENTS RESAMPLE</b>		<b>2/20/13</b>	<b>10:15</b>	<b>DS</b>	<b>SO</b>	<b>5</b>					<b>X</b>				<b>01</b>	
	<b>CUTTINGS STOCKPILE RESAMPLE</b>		<b>2/20/13</b>	<b>10:25</b>	<b>DS</b>	<b>SO</b>	<b>5</b>					<b>X</b>				<b>02</b>	
Turnaround Time (Business days)		Data Deliverable Information										Comments / Special Instructions					
<input type="checkbox"/> Std. 10 Business Days <input checked="" type="checkbox"/> Std. 6 Business Days <input type="checkbox"/> 6 Day RUSH <input type="checkbox"/> 3 Day Emergency <input type="checkbox"/> 2 Day Emergency <input type="checkbox"/> 1 Day Emergency		Approved By (Accutest PM): / Date:		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> COMMEN <input type="checkbox"/> COMMEN+		<input type="checkbox"/> State Forms Required <input type="checkbox"/> Send Forms to State <input type="checkbox"/> Report by Fax <input checked="" type="checkbox"/> Report by PDF ONLY <input type="checkbox"/> EDD Format		Please Email Results to KRW Piceance Team									
Emergency & Rush T/A data available VIA Lablink		Sample Custody must be documented below each time samples change possession, including courier delivery.															
Relinquished by Sampler:	Date Time:	Received By:	Date Time:	Relinquished By:	Date Time:	Received By:	Date Time:	Relinquished By:	Date Time:	Received By:	Date Time:	Relinquished By:	Date Time:	Received By:	Date Time:	Relinquished By:	Date Time:
1 <b>CHP</b>	<b>2/21/13 6:00</b>	<b>Time Service Center</b>		2				3				4				5	
3				4				5				6				7	
5				6				7				8				9	
Custody Seal # <b>47D1608</b>		Intact <input checked="" type="checkbox"/> Not Intact <input type="checkbox"/>		Preserved where applicable <input type="checkbox"/>		On ice <input type="checkbox"/>		Cooler Temp. <b>22</b>									

D43722: Chain of Custody

Page 1 of 2

# Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D43722

Client: KRW CONSULTING

Immediate Client Services Action Required: No

Date / Time Received: 2/22/2013 2:20:00 PM

No. Coolers: 1

Client Service Action Required at Login: No

Project: XTO LOVERANCH 8

Airbill #'s: HD-CO

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

Accutest Laboratories  
V:(303) 425-6021

4036 Youngfield Street  
F: (303) 425-6854

Wheat Ridge, CO  
www.accutest.com

## GC/MS 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:** D43722  
**Account:** XTOKRWR XTO Energy  
**Project:** XTO Love Ranch 8

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1568-MB	5V25759.D	1	02/25/13	BD	n/a	n/a	V5V1568

The QC reported here applies to the following samples:

Method: SW846 8260B

D43722-1, D43722-2

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	25	ug/kg	
100-41-4	Ethylbenzene	ND	100	19	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	84% 64-130%
460-00-4	4-Bromofluorobenzene	115% 62-131%
17060-07-0	1,2-Dichloroethane-D4	91% 70-130%

## Blank Spike Summary

Page 1 of 1

**Job Number:** D43722

**Account:** XTOKRWR XTO Energy

**Project:** XTO Love Ranch 8

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1568-BS	5V25760.D	1	02/25/13	BD	n/a	n/a	V5V1568

The QC reported here applies to the following samples:

Method: SW846 8260B

D43722-1, D43722-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	48.6	97	70-130
100-41-4	Ethylbenzene	50	50.4	101	70-130
108-88-3	Toluene	50	44.5	89	70-130
1330-20-7	Xylene (total)	150	153	102	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	89%	64-130%
460-00-4	4-Bromofluorobenzene	116%	62-131%
17060-07-0	1,2-Dichloroethane-D4	85%	70-130%

\* = Outside of Control Limits.



# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D43722  
**Account:** XTOKRWR XTO Energy  
**Project:** XTO Love Ranch 8

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D43738-1MS	5V25762.D	1	02/25/13	BD	n/a	n/a	V5V1568
D43738-1MSD	5V25763.D	1	02/25/13	BD	n/a	n/a	V5V1568
D43738-1	5V25761.D	1	02/25/13	BD	n/a	n/a	V5V1568

The QC reported here applies to the following samples:

Method: SW846 8260B

D43722-1, D43722-2

CAS No.	Compound	D43738-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	43.6	J	3290	3320	100	3490	105	5	64-139/30
100-41-4	Ethylbenzene	46.5	J	3290	3380	101	3470	104	3	68-136/30
108-88-3	Toluene	118	J	3290	3070	90	3140	92	2	60-130/30
1330-20-7	Xylene (total)	ND		9860	10400	106	10700	109	3	58-142/30

CAS No.	Surrogate Recoveries	MS	MSD	D43738-1	Limits
2037-26-5	Toluene-D8	86%	87%	84%	64-130%
460-00-4	4-Bromofluorobenzene	122%	123%	115%	62-131%
17060-07-0	1,2-Dichloroethane-D4	86%	84%	87%	70-130%

\* = Outside of Control Limits.

GC/MS Volatiles

Raw Data

7

Judy Melson  
02/26/13 11:05

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5022513.S\  
 Data File : 5V25770.D  
 Acq On : 25 Feb 2013 9:04 pm  
 Operator : BRETD  
 Sample : D43722-1  
 Misc : MS5403,V5V1568,5.011,,100,5,1  
 ALS Vial : 14 Sample Multiplier: 1

Quant Time: Feb 26 09:30:49 2013  
 Quant Method : C:\msdchem\1\METHODS\V5AP1565TVH1565.M  
 Quant Title : 8260  
 QLast Update : Fri Feb 22 10:33:44 2013  
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.613	168	183869	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.412	114	240647	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.072	117	270585	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.036	152	207701	50.00	ug/l	0.00

## System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.012	102	16302	43.23	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	86.46%
61) Toluene-d8	13.816	98	296909	44.78	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	89.56%
69) 4-Bromofluorobenzene	16.008	95	147046	57.32	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	114.64%

## Target Compounds

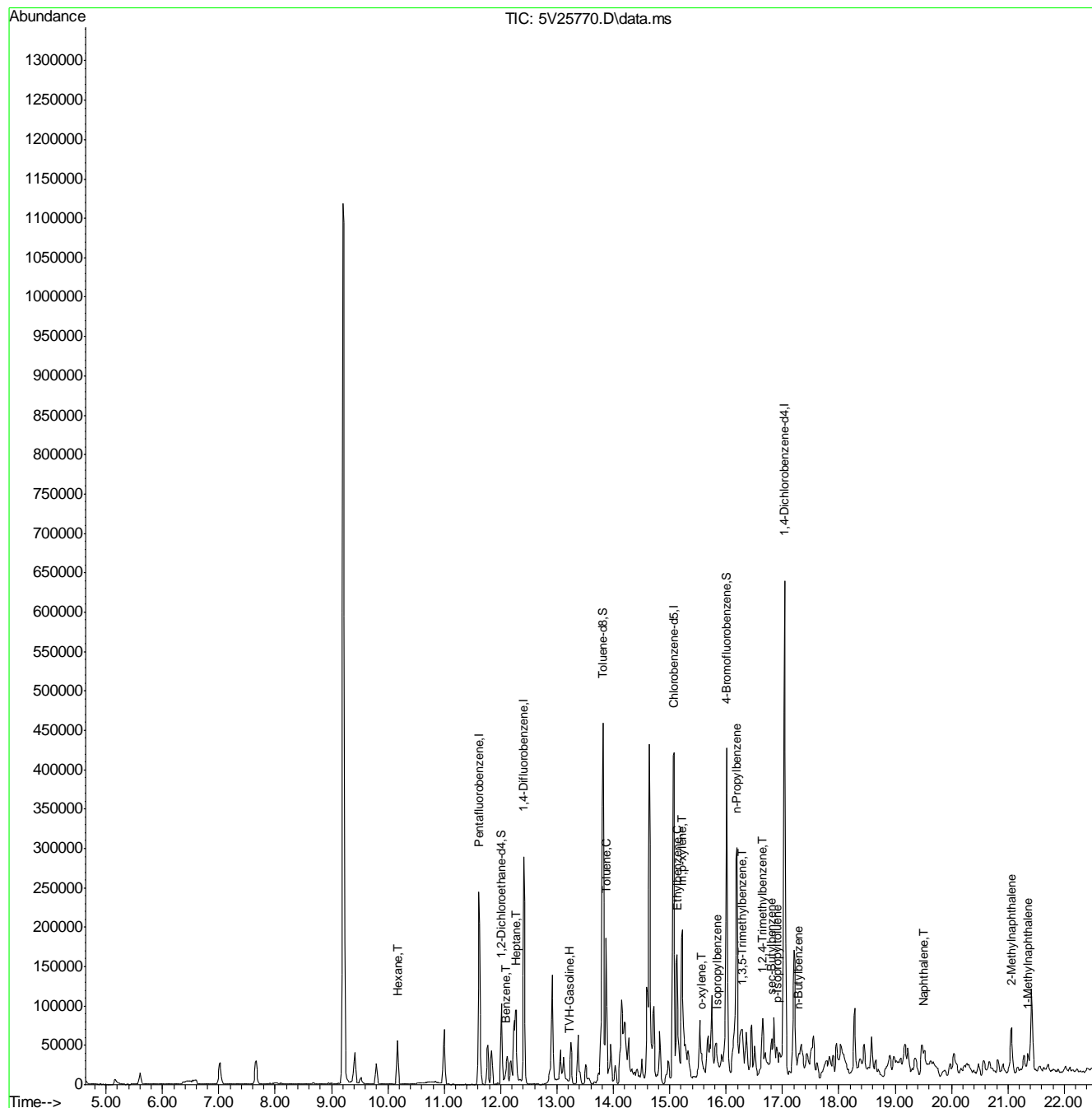
					Qvalue
1) TVH-Gasoline	13.220	TIC	7914116m	664.57	ug/l
41) Hexane	10.174	57	29204	14.62	ug/l 100
43) Heptane	12.275	43	34602	15.46	ug/l 80
50) Benzene	12.092	78	15123	2.48	ug/l 100
62) Toluene	13.873	92	35150	7.34	ug/l 99
66) Ethylbenzene	15.129	91	39095	4.70	ug/l 94
68) Isopropylbenzene	15.837	105	5804	1.55	ug/l 96
72) m,p-xylene	15.220	106	55224	12.22	ug/l 98
73) o-xylene	15.563	106	6393	2.29	ug/l 98
77) n-Propylbenzene	16.179	91	15640	1.59	ug/l 98
80) 1,3,5-Trimethylbenzene	16.282	105	7747m	1.42	ug/l
82) 1,2,4-Trimethylbenzene	16.647	105	31654	3.82	ug/l 89
83) sec-Butylbenzene	16.807	105	2746	0.87	ug/l 84
86) p-Isopropyltoluene	16.899	119	21098	2.65	ug/l 96
88) n-Butylbenzene	17.287	91	8292	1.45	ug/l # 79
91) Naphthalene	19.513	128	31165	3.89	ug/l 100
94) 2-Methylnaphthalene	21.054	142	31633	9.61	ug/l 97
95) 1-Methylnaphthalene	21.351	142	14982	5.67	ug/l 95

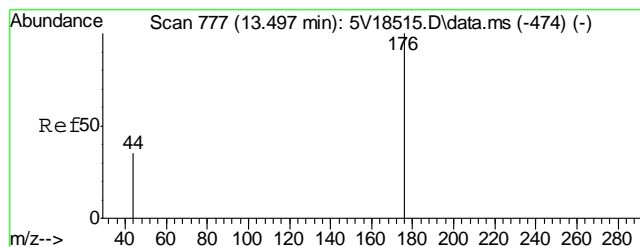
(#) = qualifier out of range (m) = manual integration (+) = signals summed

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5022513.S\  
Data File : 5V25770.D  
Acq On : 25 Feb 2013 9:04 pm  
Operator : BRETD  
Sample : D43722-1  
Misc : MS5403,V5V1568,5.011,,100,5,1  
ALS Vial : 14 Sample Multiplier: 1

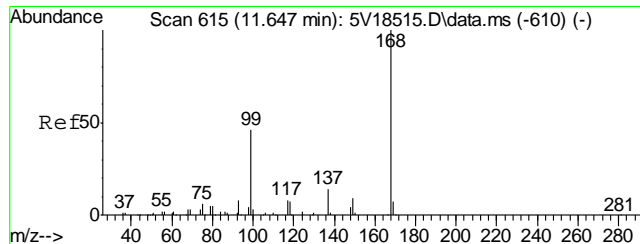
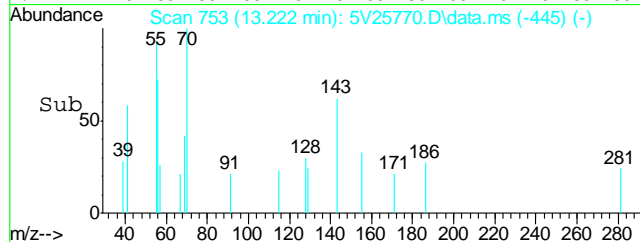
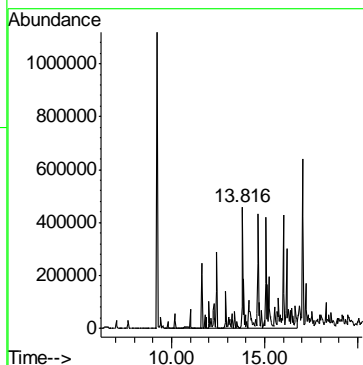
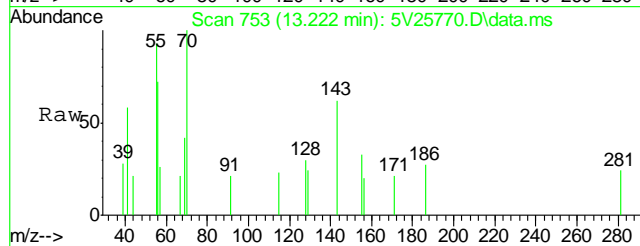
Quant Time: Feb 26 09:30:49 2013  
Quant Method : C:\msdchem\1\METHODS\V5AP1565TVH1565.M  
Quant Title : 8260  
QLast Update : Fri Feb 22 10:33:44 2013  
Response via : Initial Calibration





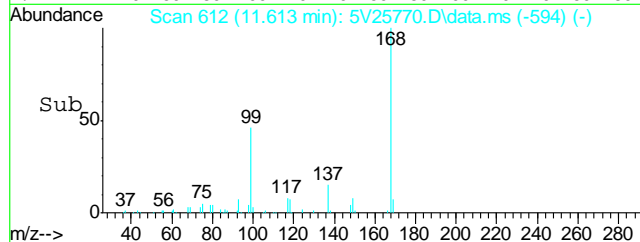
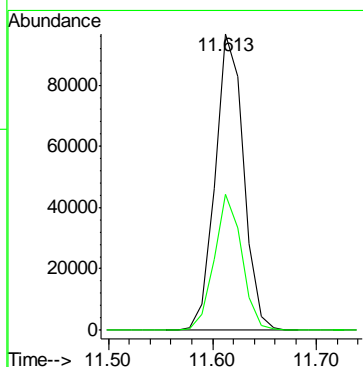
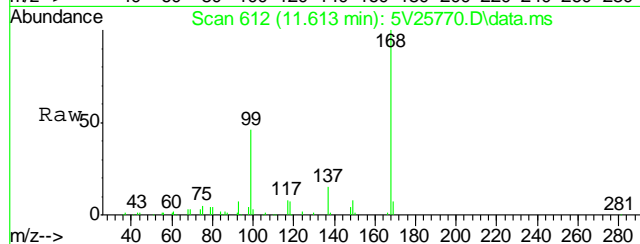
#1  
TVH-Gasoline  
Concen: 664.57 ug/l m  
RT: 13.220 min Scan# 753  
Delta R.T. 0.000 min  
Lab File: 5V25770.D  
Acq: 25 Feb 2013 9:04 pm

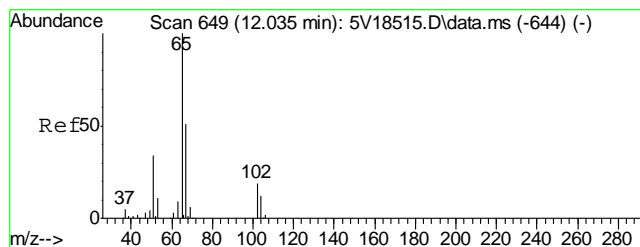
Tgt Ion:TIC Resp: 7914116



#2  
Pentafluorobenzene  
Concen: 50.00 ug/l  
RT: 11.613 min Scan# 612  
Delta R.T. -0.000 min  
Lab File: 5V25770.D  
Acq: 25 Feb 2013 9:04 pm

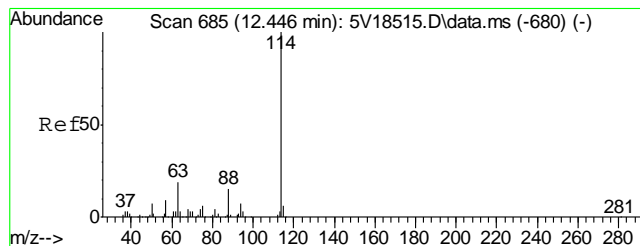
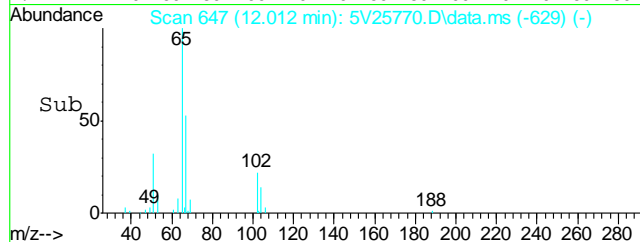
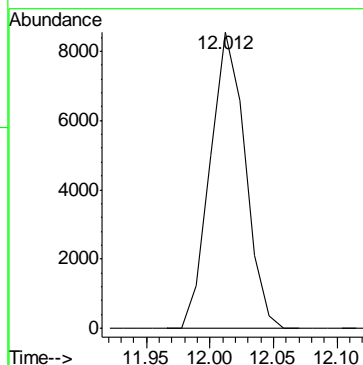
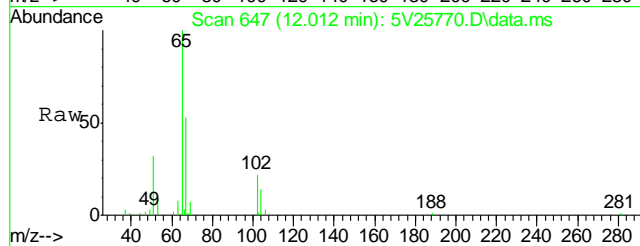
Tgt Ion:168 Resp: 183869  
Ion Ratio Lower Upper  
168 100  
99 44.4 37.4 56.2





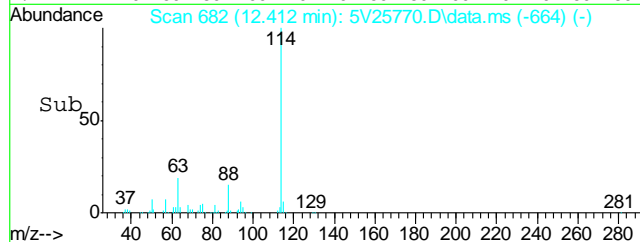
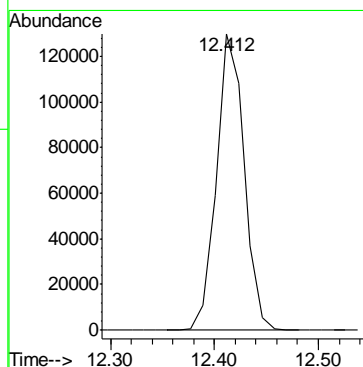
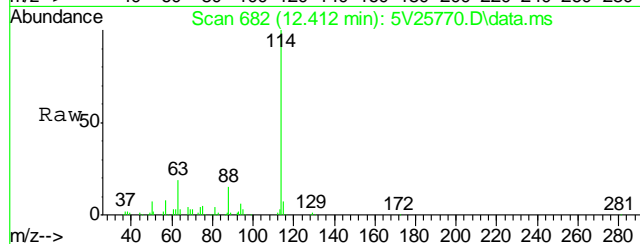
#33  
1,2-Dichloroethane-d4  
Concen: 43.23 ug/l  
RT: 12.012 min Scan# 647  
Delta R.T. -0.000 min  
Lab File: 5V25770.D  
Acq: 25 Feb 2013 9:04 pm

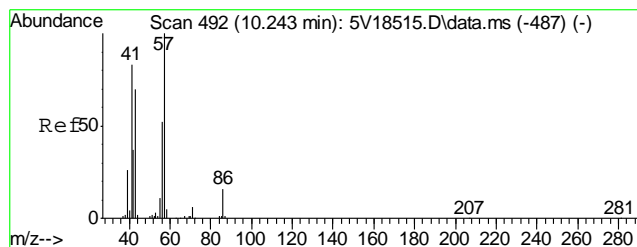
Tgt Ion:102 Resp: 16302



#35  
1,4-Difluorobenzene  
Concen: 50.00 ug/l  
RT: 12.412 min Scan# 682  
Delta R.T. -0.000 min  
Lab File: 5V25770.D  
Acq: 25 Feb 2013 9:04 pm

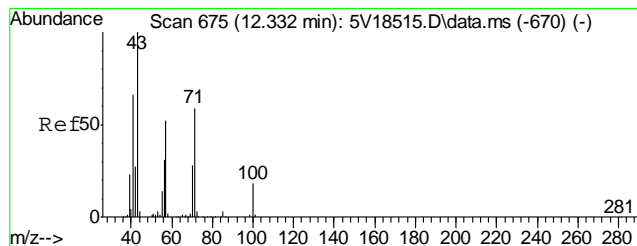
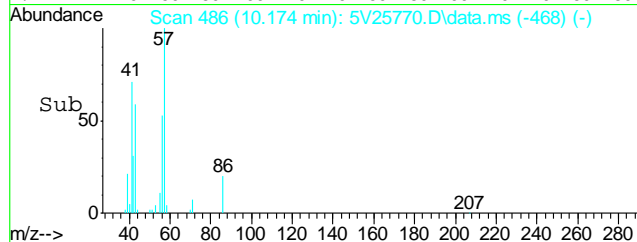
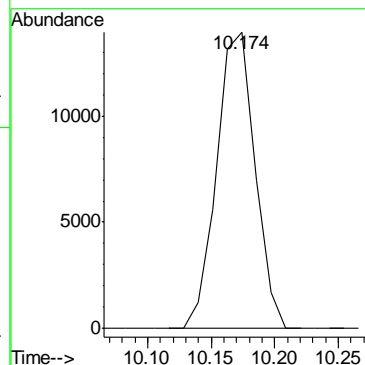
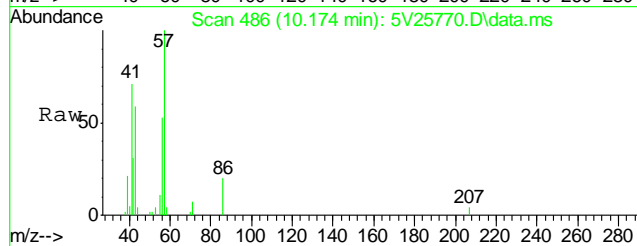
Tgt Ion:114 Resp: 240647





#41  
Hexane  
Concen: 14.62 ug/l  
RT: 10.174 min Scan# 486  
Delta R.T. 0.000 min  
Lab File: 5V25770.D  
Acq: 25 Feb 2013 9:04 pm

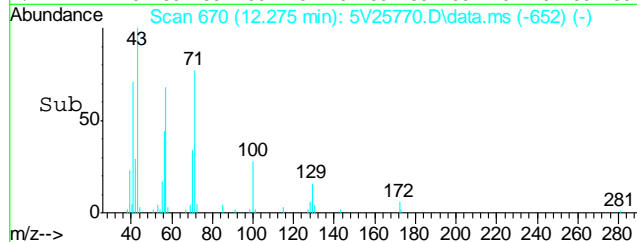
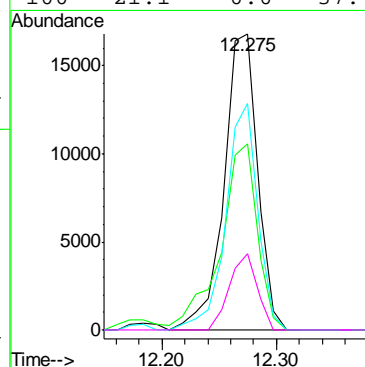
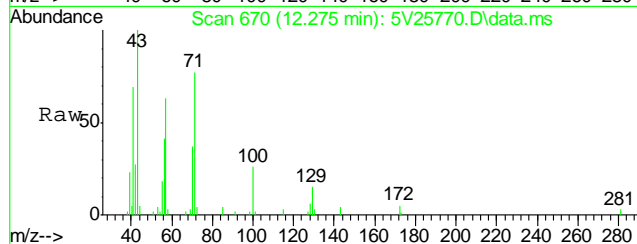
Tgt Ion: 57 Resp: 29204

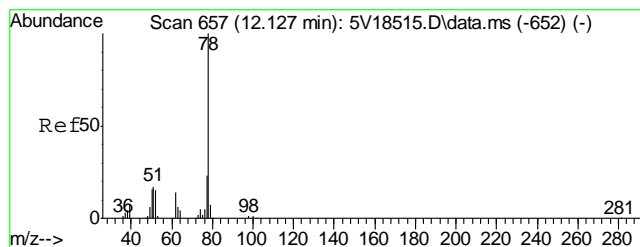


#43  
Heptane  
Concen: 15.46 ug/l  
RT: 12.275 min Scan# 670  
Delta R.T. 0.001 min  
Lab File: 5V25770.D  
Acq: 25 Feb 2013 9:04 pm

Tgt Ion: 43 Resp: 34602

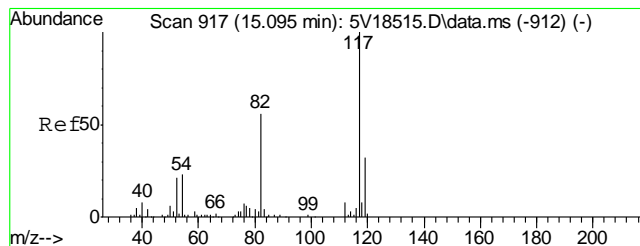
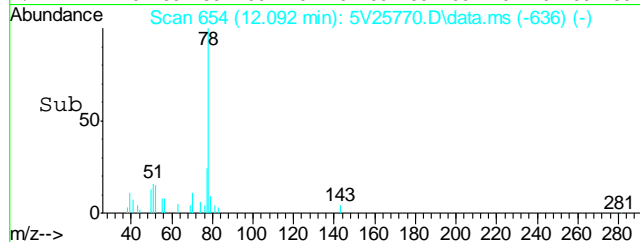
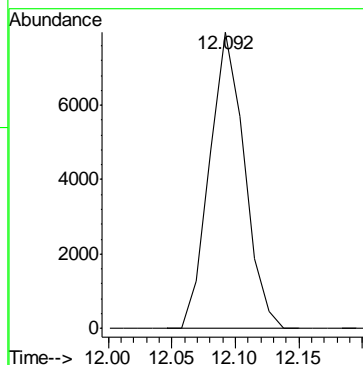
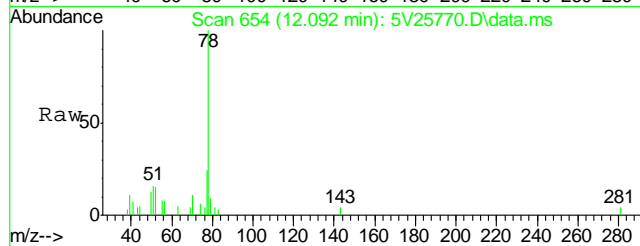
Ion	Ratio	Lower	Upper
43	100		
57	68.3	30.6	70.6
71	72.1	38.9	78.9
100	21.1	0.0	37.4





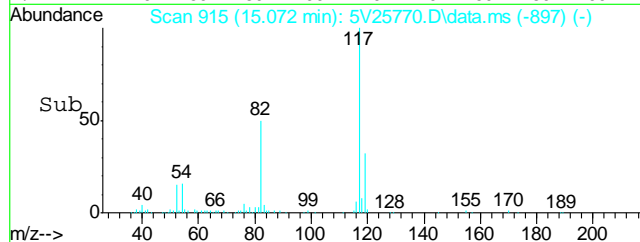
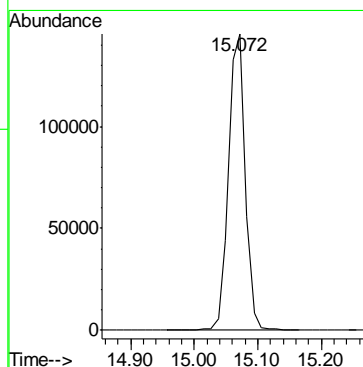
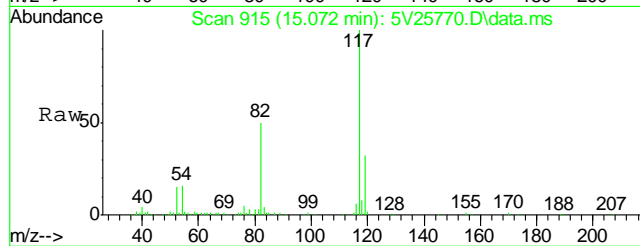
#50  
Benzene  
Concen: 2.48 ug/l  
RT: 12.092 min Scan# 654  
Delta R.T. -0.000 min  
Lab File: 5V25770.D  
Acq: 25 Feb 2013 9:04 pm

Tgt Ion: 78 Resp: 15123

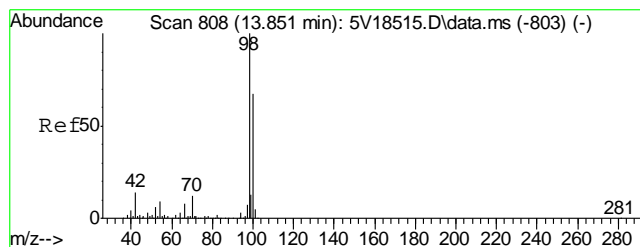


#53  
Chlorobenzene-d5  
Concen: 50.00 ug/l  
RT: 15.072 min Scan# 915  
Delta R.T. -0.000 min  
Lab File: 5V25770.D  
Acq: 25 Feb 2013 9:04 pm

Tgt Ion: 117 Resp: 270585

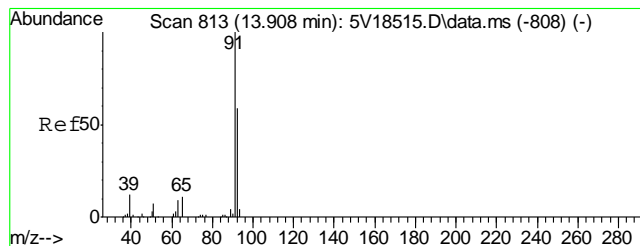
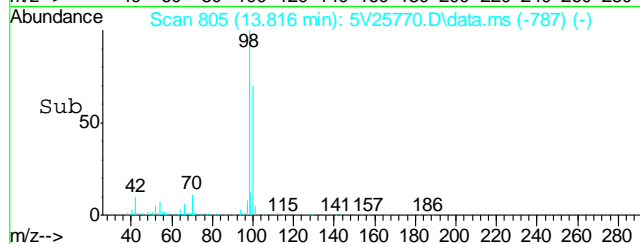
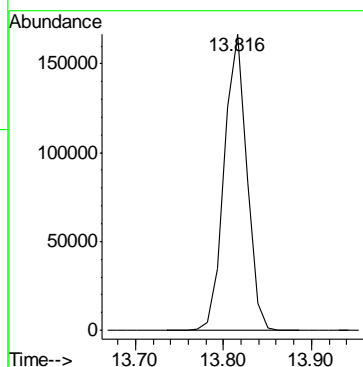
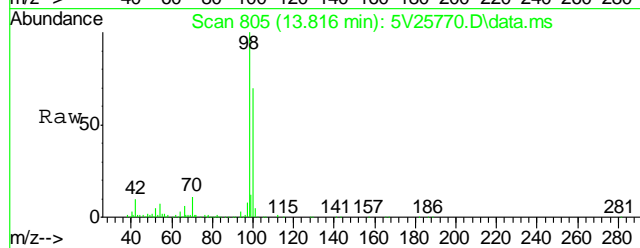






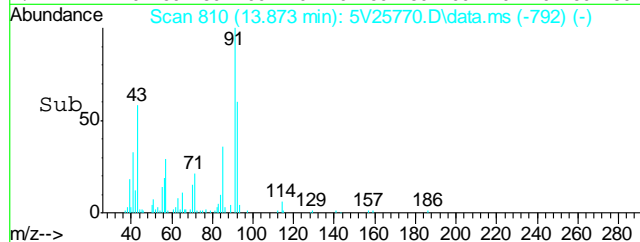
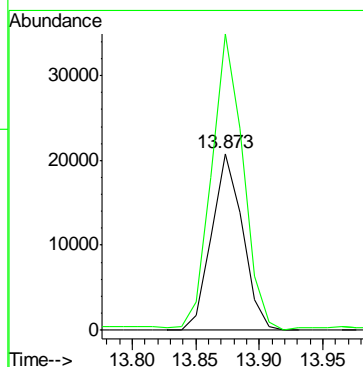
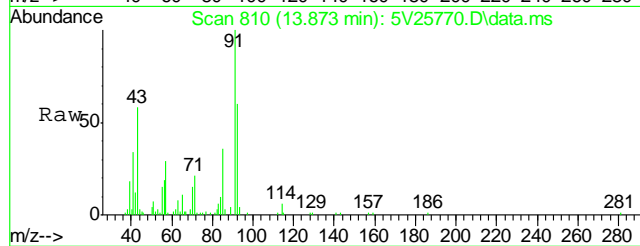
#61  
Toluene-d8  
Concen: 44.78 ug/l  
RT: 13.816 min Scan# 805  
Delta R.T. -0.000 min  
Lab File: 5V25770.D  
Acq: 25 Feb 2013 9:04 pm

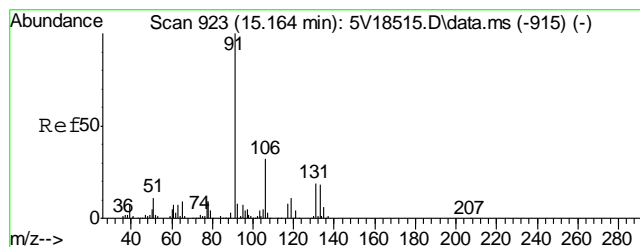
Tgt Ion: 98 Resp: 296909



#62  
Toluene  
Concen: 7.34 ug/l  
RT: 13.873 min Scan# 810  
Delta R.T. -0.000 min  
Lab File: 5V25770.D  
Acq: 25 Feb 2013 9:04 pm

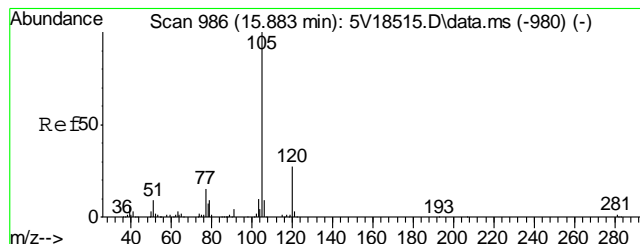
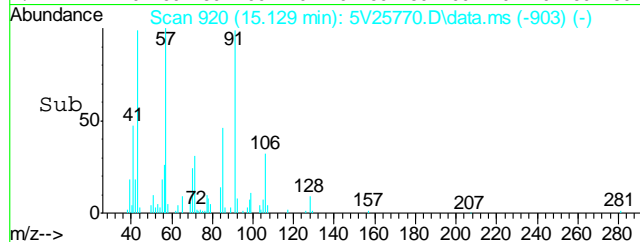
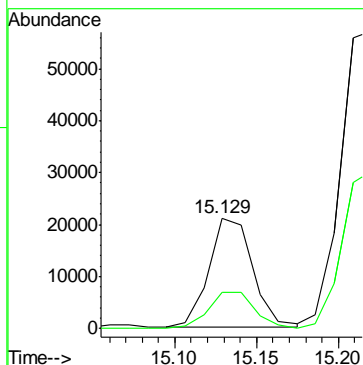
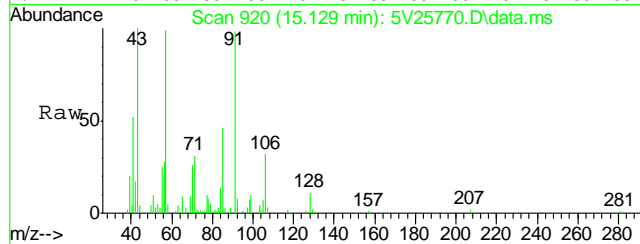
Tgt Ion: 92 Resp: 35150  
Ion Ratio Lower Upper  
92 100  
91 168.3 149.8 189.8





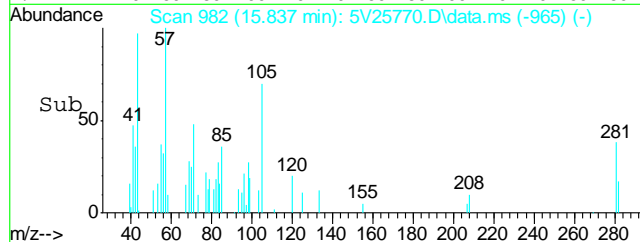
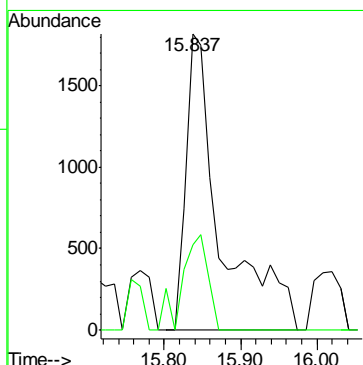
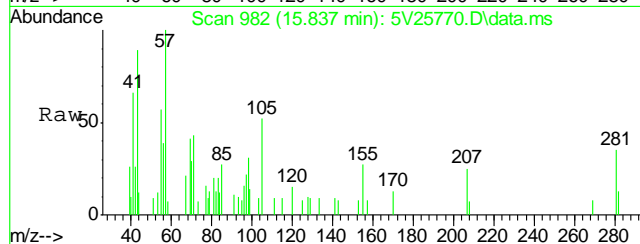
#66  
Ethylbenzene  
Concen: 4.70 ug/l  
RT: 15.129 min Scan# 920  
Delta R.T. -0.011 min  
Lab File: 5V25770.D  
Acq: 25 Feb 2013 9:04 pm

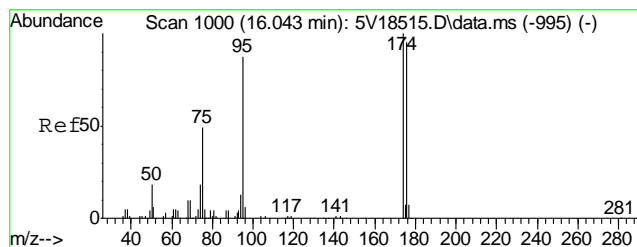
Tgt Ion: 91 Resp: 39095  
Ion Ratio Lower Upper  
91 100  
106 34.9 11.7 51.7



#68  
Isopropylbenzene  
Concen: 1.55 ug/l  
RT: 15.837 min Scan# 982  
Delta R.T. -0.011 min  
Lab File: 5V25770.D  
Acq: 25 Feb 2013 9:04 pm

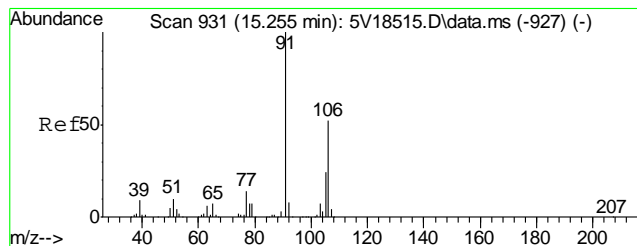
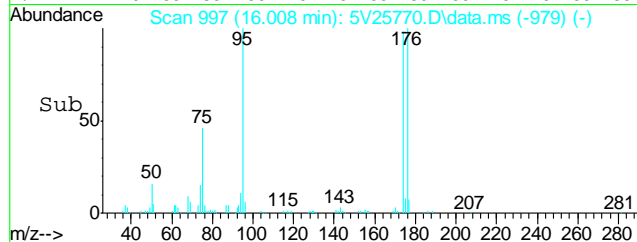
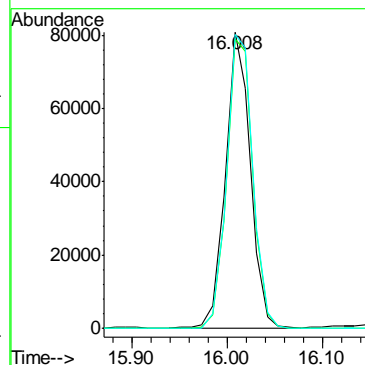
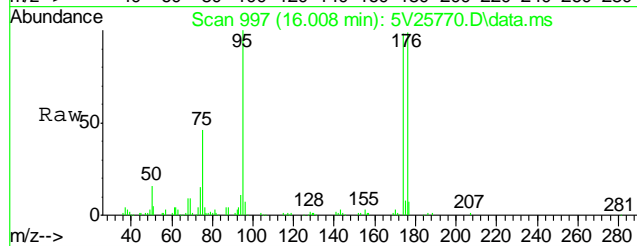
Tgt Ion: 105 Resp: 5804  
Ion Ratio Lower Upper  
105 100  
120 23.9 21.0 31.4





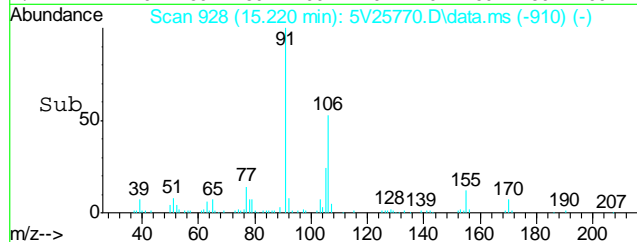
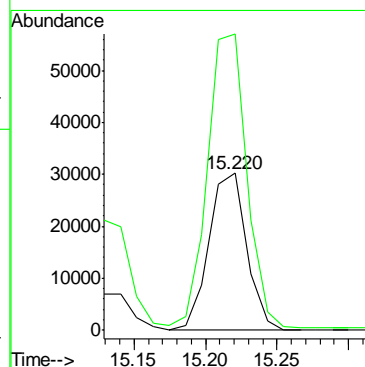
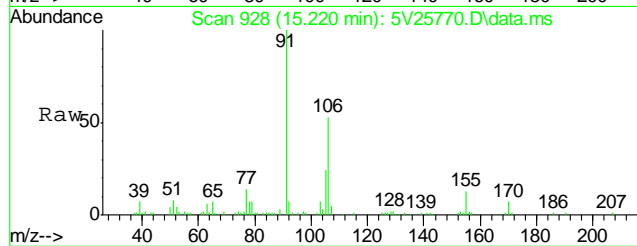
#69  
4-Bromofluorobenzene  
Concen: 57.32 ug/l  
RT: 16.008 min Scan# 997  
Delta R.T. -0.000 min  
Lab File: 5V25770.D  
Acq: 25 Feb 2013 9:04 pm

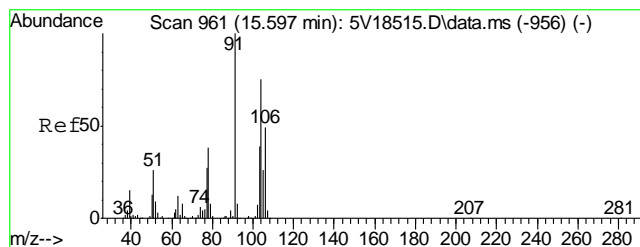
Tgt Ion	Ratio	Lower	Upper
95	100		
174	101.8	77.1	117.1
176	103.7	73.4	113.4



#72  
m,p-xylene  
Concen: 12.22 ug/l  
RT: 15.220 min Scan# 928  
Delta R.T. 0.000 min  
Lab File: 5V25770.D  
Acq: 25 Feb 2013 9:04 pm

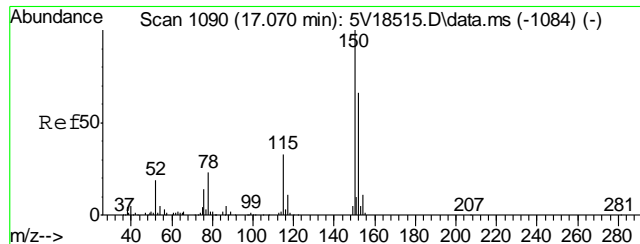
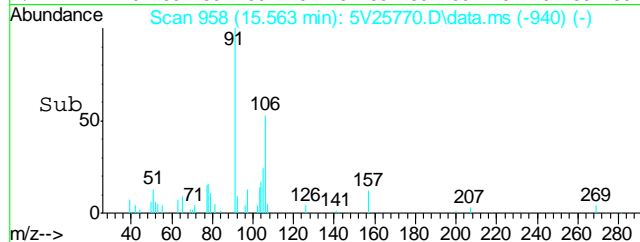
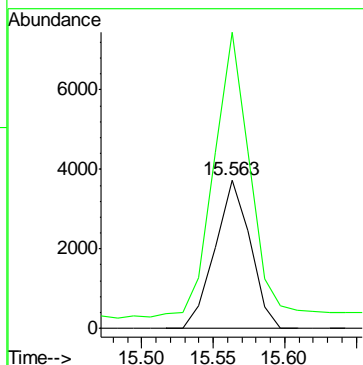
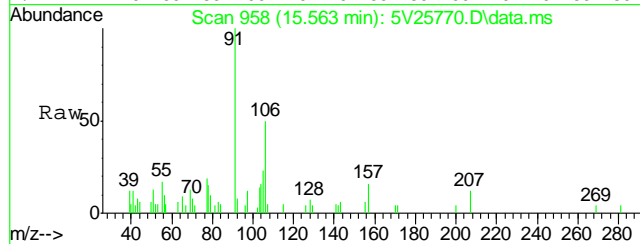
Tgt Ion	Ratio	Lower	Upper
106	100		
91	194.1	177.1	217.1





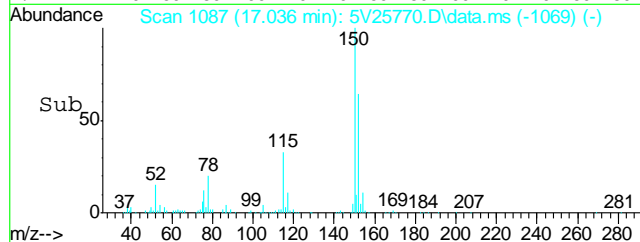
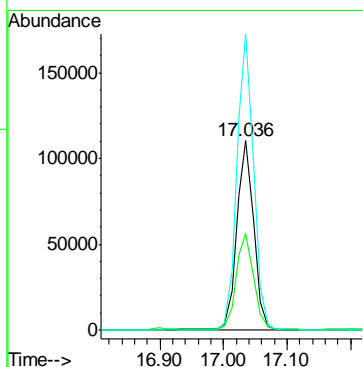
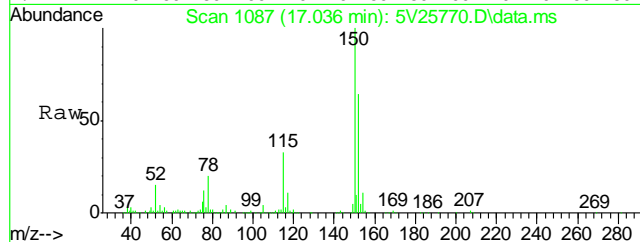
#73  
o-xylene  
Concen: 2.29 ug/l  
RT: 15.563 min Scan# 958  
Delta R.T. -0.000 min  
Lab File: 5V25770.D  
Acq: 25 Feb 2013 9:04 pm

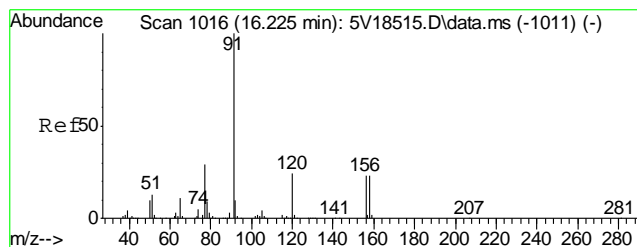
Tgt Ion:106 Resp: 6393  
Ion Ratio Lower Upper  
106 100  
91 204.7 188.2 228.2



#74  
1,4-Dichlorobenzene-d4  
Concen: 50.00 ug/l  
RT: 17.036 min Scan# 1087  
Delta R.T. -0.000 min  
Lab File: 5V25770.D  
Acq: 25 Feb 2013 9:04 pm

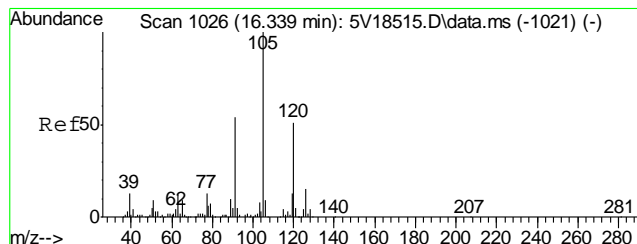
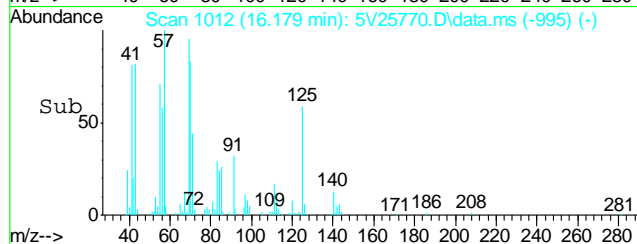
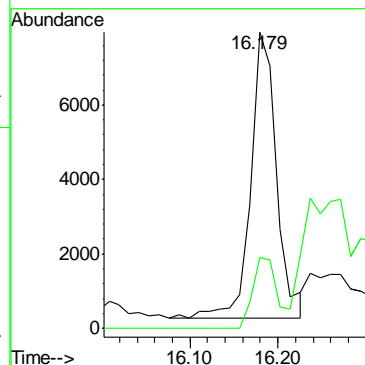
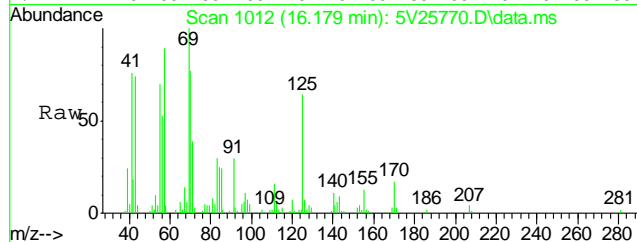
Tgt Ion:152 Resp: 207701  
Ion Ratio Lower Upper  
152 100  
115 53.8 41.4 62.0  
150 152.6 153.9 230.9#





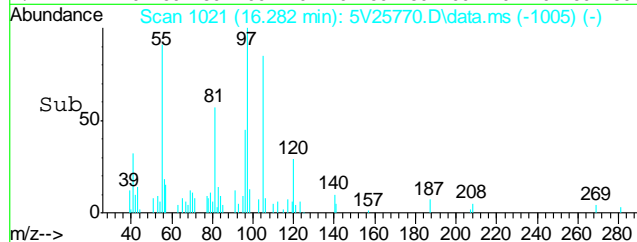
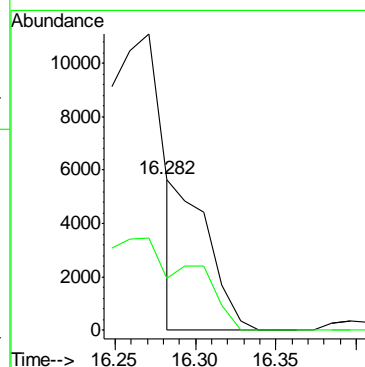
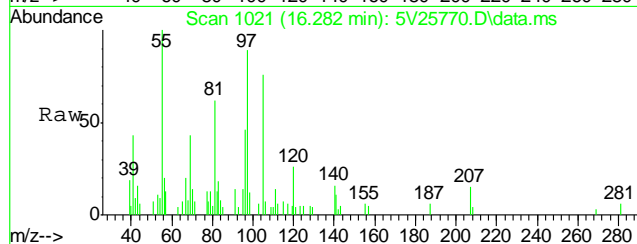
#77  
n-Propylbenzene  
Concen: 1.59 ug/l  
RT: 16.179 min Scan# 1012  
Delta R.T. -0.011 min  
Lab File: 5V25770.D  
Acq: 25 Feb 2013 9:04 pm

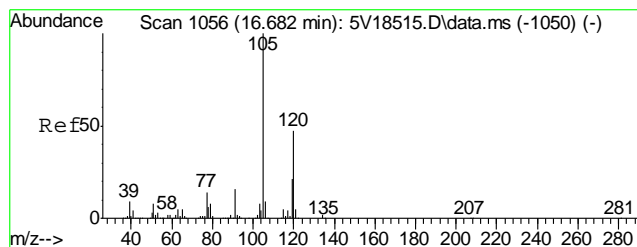
Tgt Ion: 91 Resp: 15640  
Ion Ratio Lower Upper  
91 100  
120 24.2 3.2 43.2



#80  
1,3,5-Trimethylbenzene  
Concen: 1.42 ug/l m  
RT: 16.282 min Scan# 1021  
Delta R.T. -0.023 min  
Lab File: 5V25770.D  
Acq: 25 Feb 2013 9:04 pm

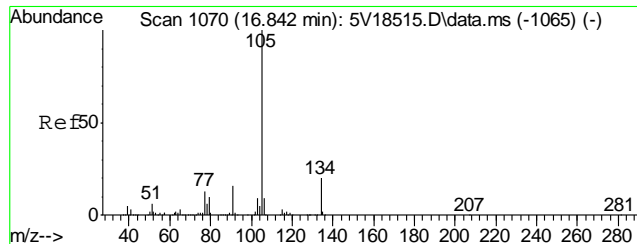
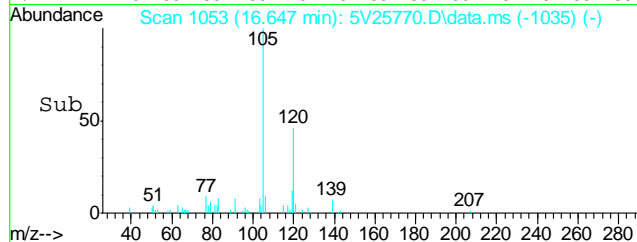
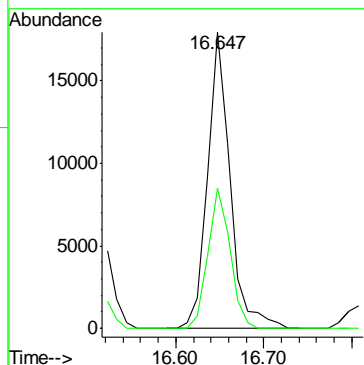
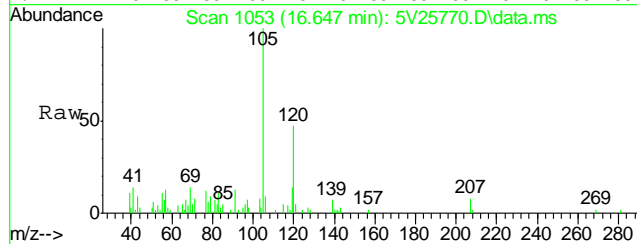
Tgt Ion: 105 Resp: 7747  
Ion Ratio Lower Upper  
105 100  
120 203.9 30.1 70.1#





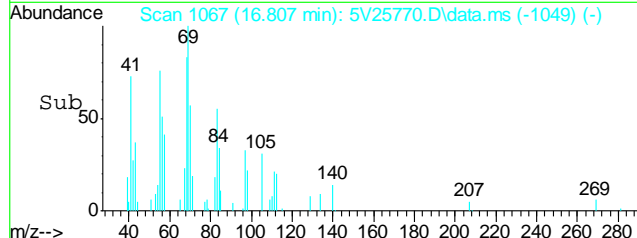
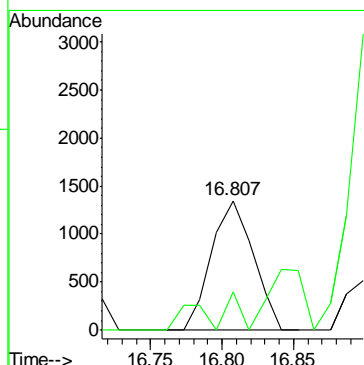
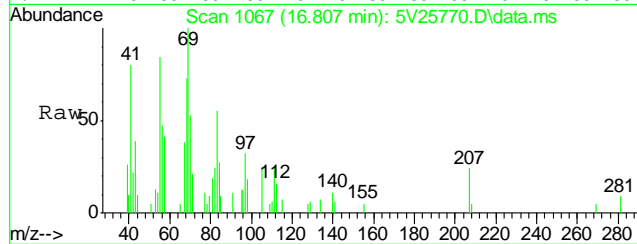
#82  
1,2,4-Trimethylbenzene  
Concen: 3.82 ug/l  
RT: 16.647 min Scan# 1053  
Delta R.T. 0.000 min  
Lab File: 5V25770.D  
Acq: 25 Feb 2013 9:04 pm

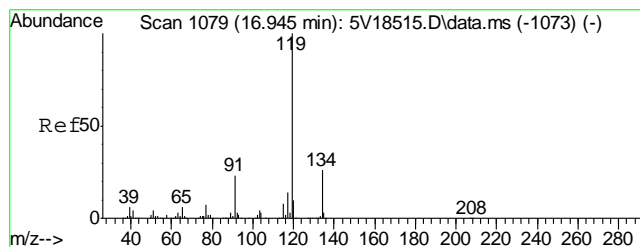
Tgt Ion	Ratio	Lower	Upper
105	100		
120	46.5	34.8	74.8



#83  
sec-Butylbenzene  
Concen: 0.87 ug/l  
RT: 16.807 min Scan# 1067  
Delta R.T. 0.000 min  
Lab File: 5V25770.D  
Acq: 25 Feb 2013 9:04 pm

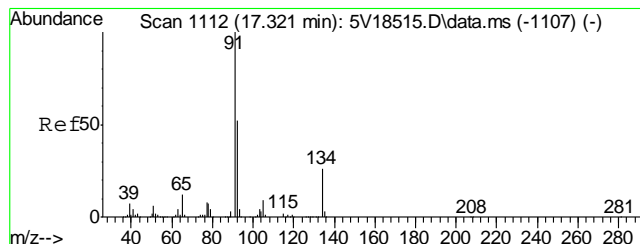
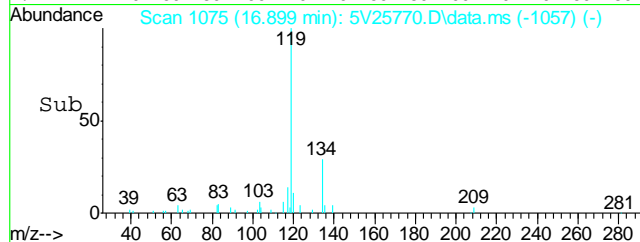
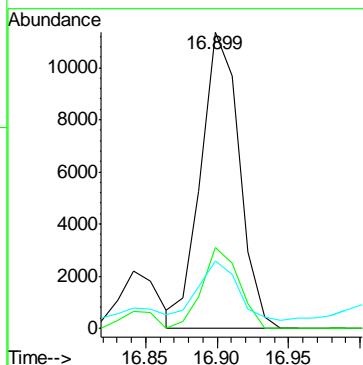
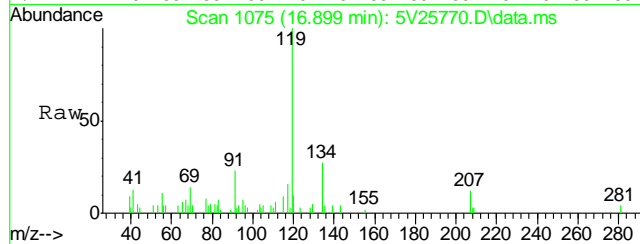
Tgt Ion	Ratio	Lower	Upper
105	100		
134	13.0	0.6	40.6





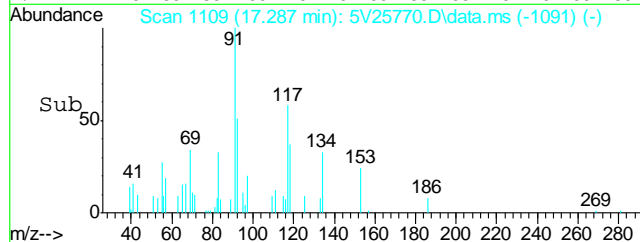
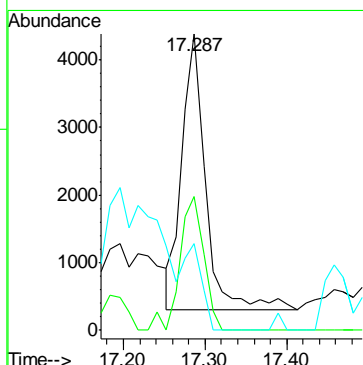
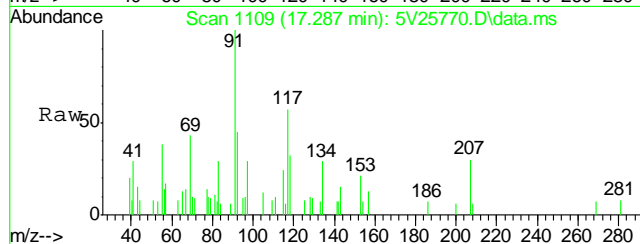
#86  
p-Isopropyltoluene  
Concen: 2.65 ug/l  
RT: 16.899 min Scan# 1075  
Delta R.T. 0.001 min  
Lab File: 5V25770.D  
Acq: 25 Feb 2013 9:04 pm

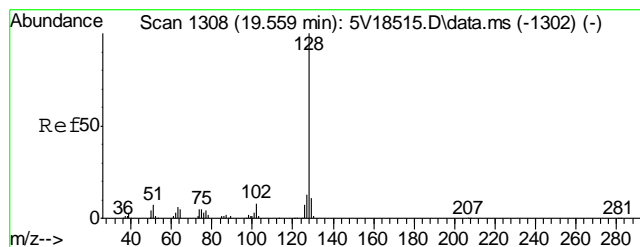
Tgt Ion	Ratio	Lower	Upper
119	100		
134	25.9	6.6	46.6
91	20.0	3.8	43.8



#88  
n-Butylbenzene  
Concen: 1.45 ug/l  
RT: 17.287 min Scan# 1109  
Delta R.T. 0.001 min  
Lab File: 5V25770.D  
Acq: 25 Feb 2013 9:04 pm

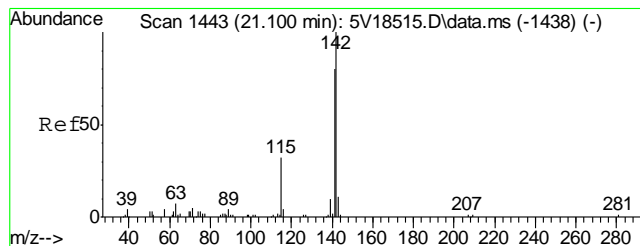
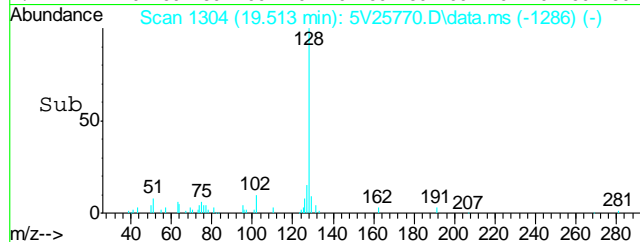
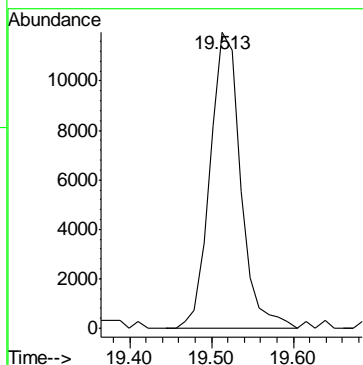
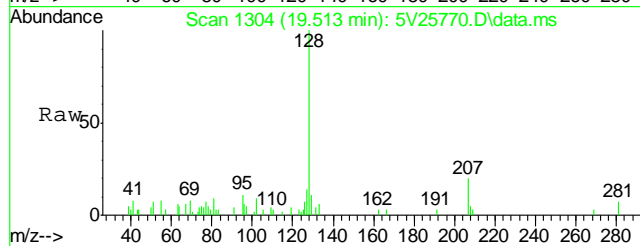
Tgt Ion	Ratio	Lower	Upper
91	100		
92	48.6	32.8	72.8
134	0.0	6.8	46.8#





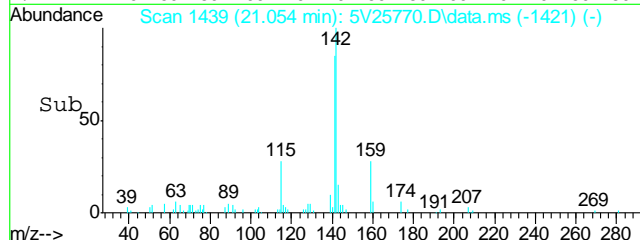
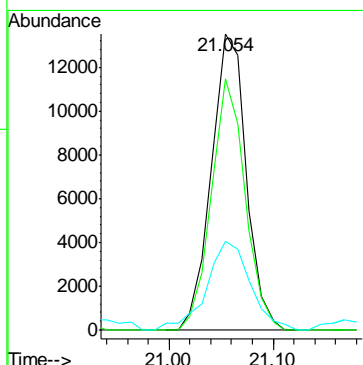
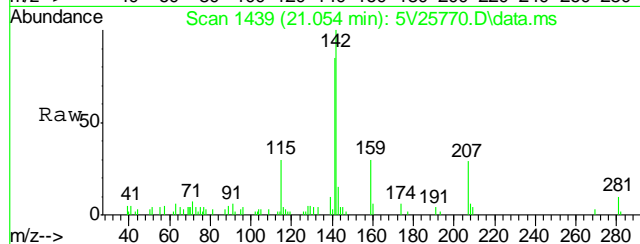
#91  
Naphthalene  
Concen: 3.89 ug/l  
RT: 19.513 min Scan# 1304  
Delta R.T. 0.000 min  
Lab File: 5V25770.D  
Acq: 25 Feb 2013 9:04 pm

Tgt Ion:128 Resp: 31165

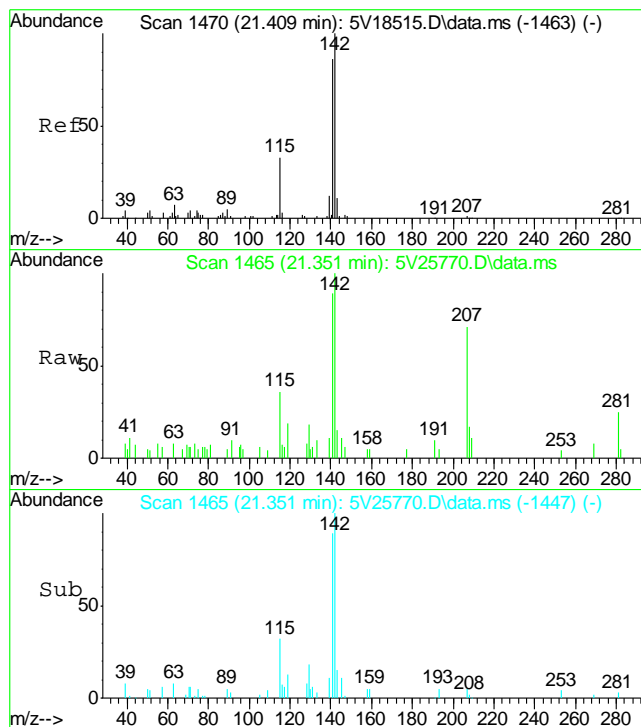


#94  
2-Methylnaphthalene  
Concen: 9.61 ug/l  
RT: 21.054 min Scan# 1439  
Delta R.T. 0.000 min  
Lab File: 5V25770.D  
Acq: 25 Feb 2013 9:04 pm

Tgt Ion:142 Resp: 31633  
Ion Ratio Lower Upper  
142 100  
141 82.2 62.8 102.8  
115 37.5 12.4 52.4

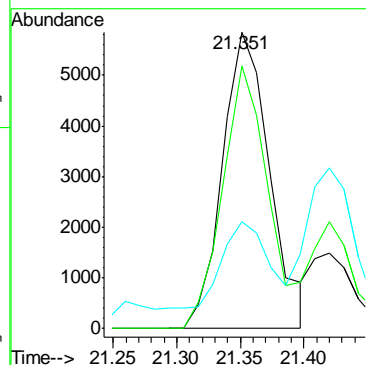






#95  
 1-Methylnaphthalene  
 Concen: 5.67 ug/l  
 RT: 21.351 min Scan# 1465  
 Delta R.T. 0.000 min  
 Lab File: 5V25770.D  
 Acq: 25 Feb 2013 9:04 pm

Tgt Ion:	142	Resp:	14982
Ion Ratio	Lower	Upper	
142	100		
141	87.0	66.1	106.1
115	43.0	14.1	54.1



## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5022513.S\  
 Data File : 5V25771.D  
 Acq On : 25 Feb 2013 9:37 pm  
 Operator : BRETD  
 Sample : D43722-2  
 Misc : MS5403,V5V1568,5.076,,100,5,1  
 ALS Vial : 15 Sample Multiplier: 1

Quant Time: Feb 26 09:46:54 2013  
 Quant Method : C:\msdchem\1\METHODS\V5AP1565TVH1565.M  
 Quant Title : 8260  
 QLast Update : Fri Feb 22 10:33:44 2013  
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.613	168	193175	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.412	114	254897	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.072	117	286842	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.036	152	217985	50.00	ug/l	0.00

## System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.012	102	17578	44.37	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	88.74%
61) Toluene-d8	13.816	98	306343	43.58	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	87.16%
69) 4-Bromofluorobenzene	16.008	95	157184	57.80	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	115.60%

## Target Compounds

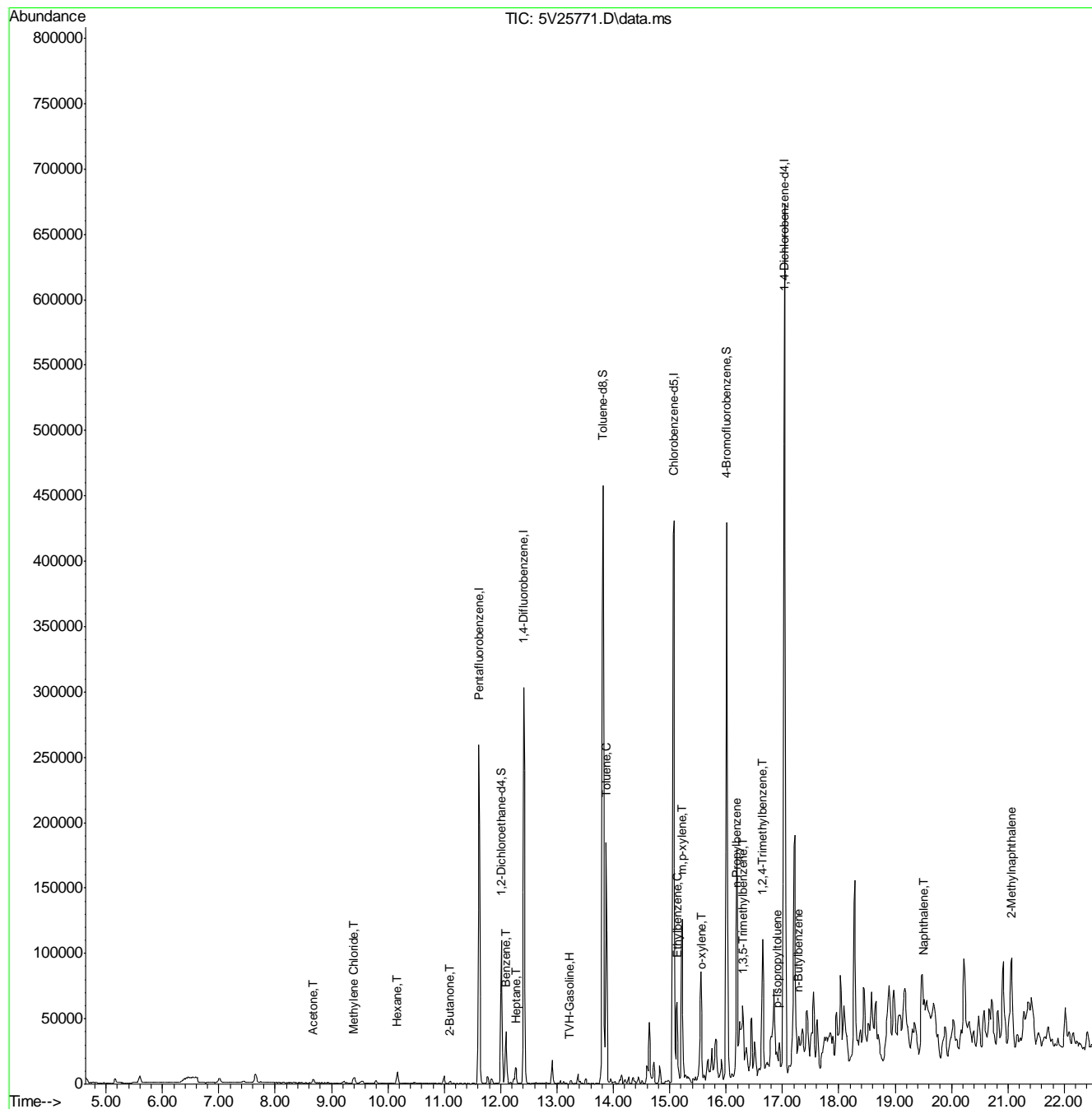
					Qvalue
1) TVH-Gasoline	13.220	TIC	2341537m	220.70	ug/l
15) Acetone	8.679	58	1383	8.81	ug/l
17) Methylene Chloride	9.386	84	1490	0.81	ug/l
25) 2-Butanone	11.099	72	745	4.07	ug/l
41) Hexane	10.163	57	4672	2.78	ug/l
43) Heptane	12.275	43	4514	2.43	ug/l
50) Benzene	12.092	78	36801	5.70	ug/l
62) Toluene	13.873	92	73205	14.43	ug/l
66) Ethylbenzene	15.129	91	16569	2.08	ug/l
72) m,p-xylene	15.220	106	42159	7.84	ug/l
73) o-xylene	15.563	106	6523	2.23	ug/l
77) n-Propylbenzene	16.179	91	9680	1.04	ug/l
80) 1,3,5-Trimethylbenzene	16.305	105	17585m	2.41	ug/l
82) 1,2,4-Trimethylbenzene	16.648	105	52781	5.74	ug/l
86) p-Isopropyltoluene	16.899	119	7340	1.35	ug/l
88) n-Butylbenzene	17.287	91	8125	1.40	ug/l #
91) Naphthalene	19.513	128	29908	3.64	ug/l
94) 2-Methylnaphthalene	21.055	142	32759	9.51	ug/l

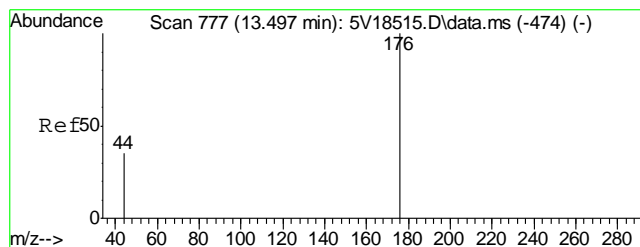
(#) = qualifier out of range (m) = manual integration (+) = signals summed

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5022513.S\  
Data File : 5V25771.D  
Acq On : 25 Feb 2013 9:37 pm  
Operator : BRETD  
Sample : D43722-2  
Misc : MS5403,V5V1568,5.076,,100,5,1  
ALS Vial : 15 Sample Multiplier: 1

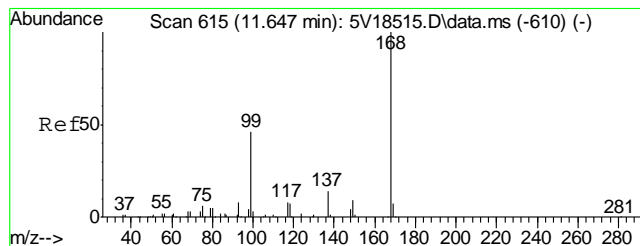
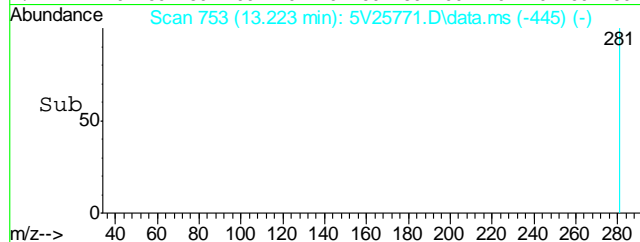
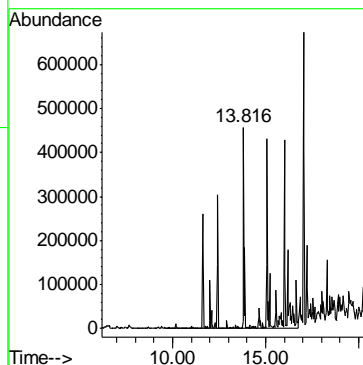
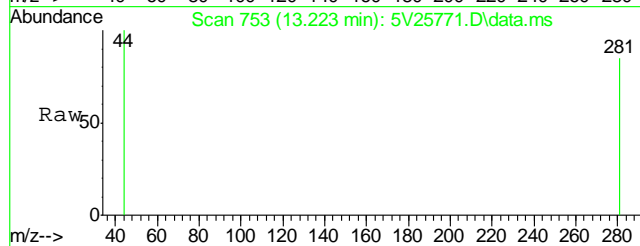
Quant Time: Feb 26 09:46:54 2013  
Quant Method : C:\msdchem\1\METHODS\V5AP1565TVH1565.M  
Quant Title : 8260  
QLast Update : Fri Feb 22 10:33:44 2013  
Response via : Initial Calibration





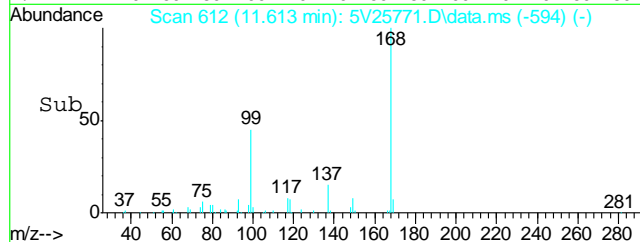
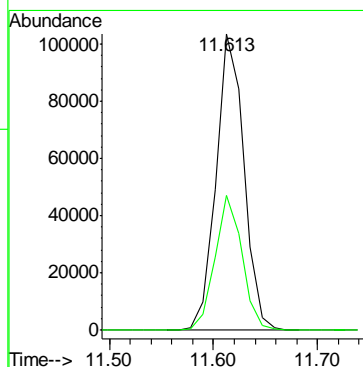
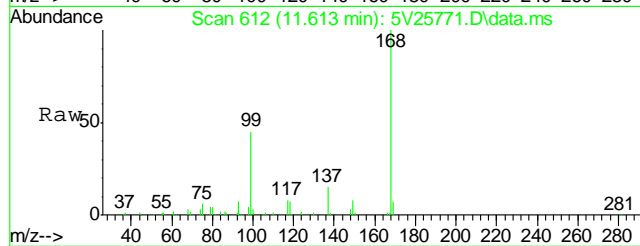
#1  
TVH-Gasoline  
Concen: 220.70 ug/l m  
RT: 13.220 min Scan# 753  
Delta R.T. 0.000 min  
Lab File: 5V25771.D  
Acq: 25 Feb 2013 9:37 pm

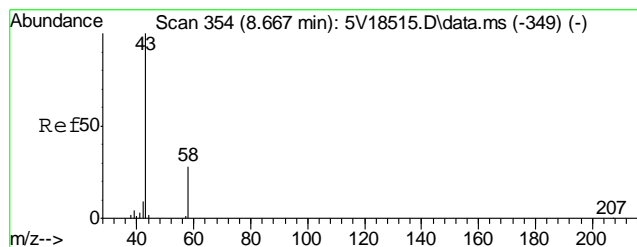
Tgt Ion:TIC Resp: 2341537



#2  
Pentafluorobenzene  
Concen: 50.00 ug/l  
RT: 11.613 min Scan# 612  
Delta R.T. -0.000 min  
Lab File: 5V25771.D  
Acq: 25 Feb 2013 9:37 pm

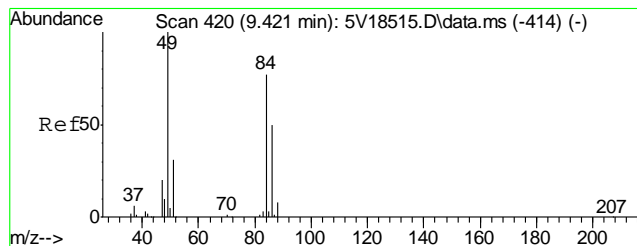
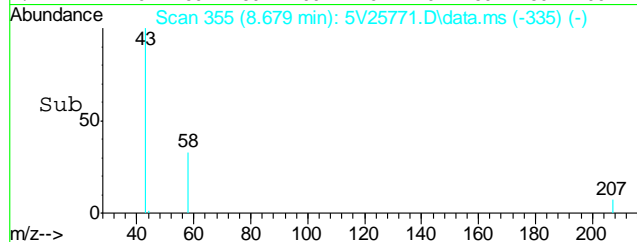
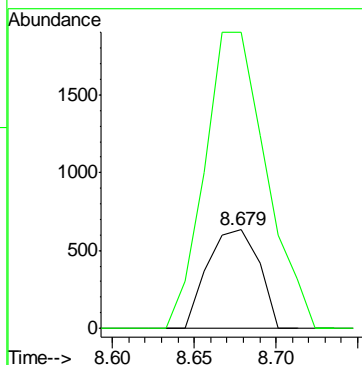
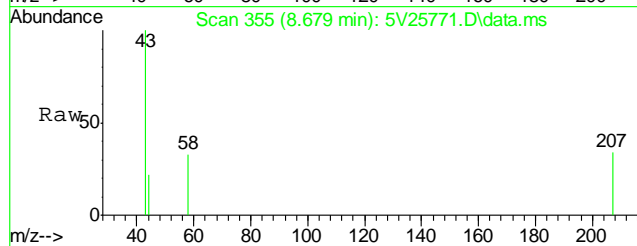
Tgt Ion:168 Resp: 193175  
Ion Ratio Lower Upper  
168 100  
99 44.2 37.4 56.2





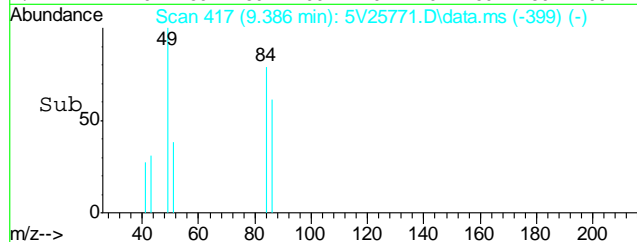
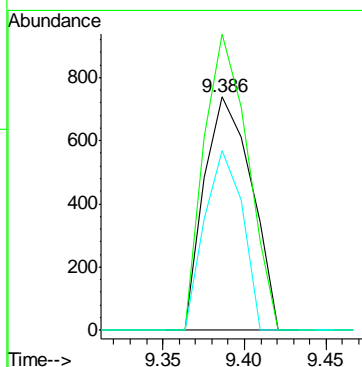
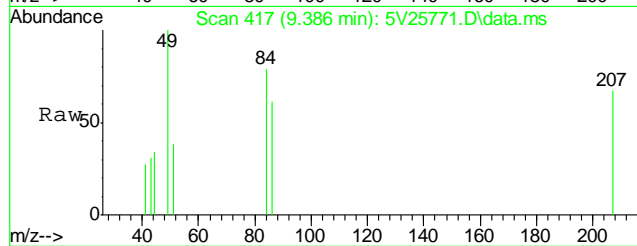
#15  
Acetone  
Concen: 8.81 ug/l  
RT: 8.679 min Scan# 355  
Delta R.T. 0.024 min  
Lab File: 5V25771.D  
Acq: 25 Feb 2013 9:37 pm

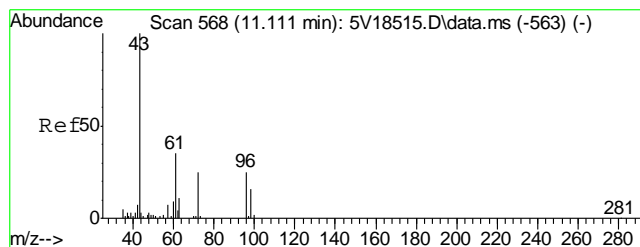
Tgt Ion: 58 Resp: 1383  
Ion Ratio Lower Upper  
58 100  
43 359.7 353.6 393.6



#17  
Methylene Chloride  
Concen: 0.81 ug/l  
RT: 9.386 min Scan# 417  
Delta R.T. -0.000 min  
Lab File: 5V25771.D  
Acq: 25 Feb 2013 9:37 pm

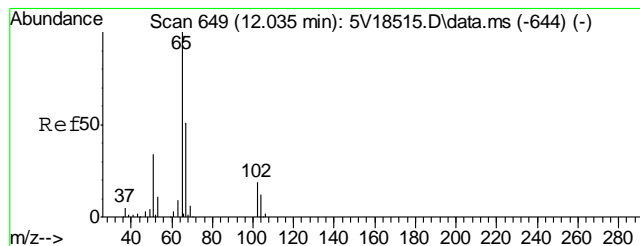
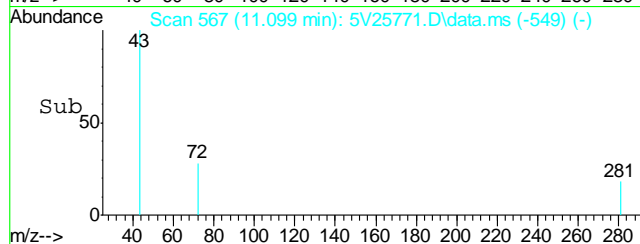
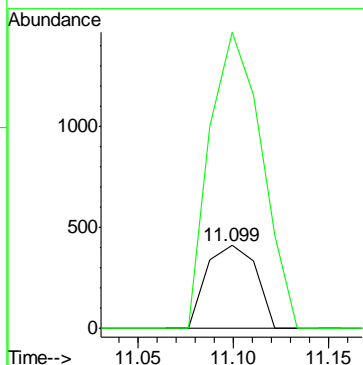
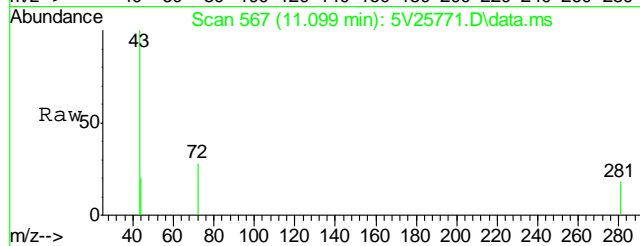
Tgt Ion: 84 Resp: 1490  
Ion Ratio Lower Upper  
84 100  
49 116.6 110.4 150.4  
86 61.2 44.0 84.0





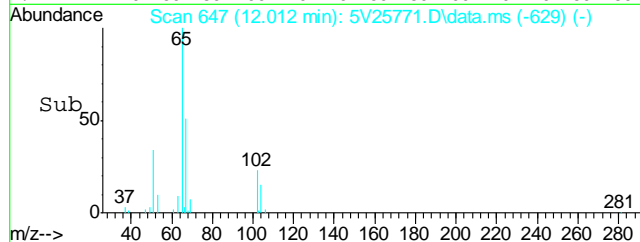
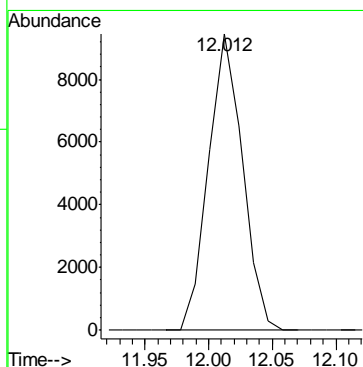
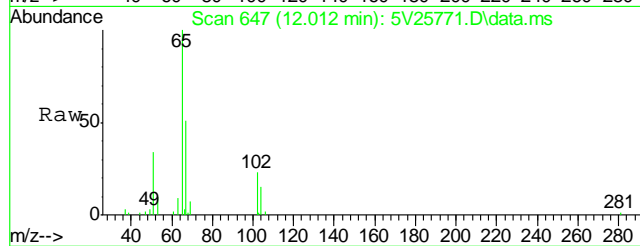
#25  
2-Butanone  
Concen: 4.07 ug/l  
RT: 11.099 min Scan# 567  
Delta R.T. -0.000 min  
Lab File: 5V25771.D  
Acq: 25 Feb 2013 9:37 pm

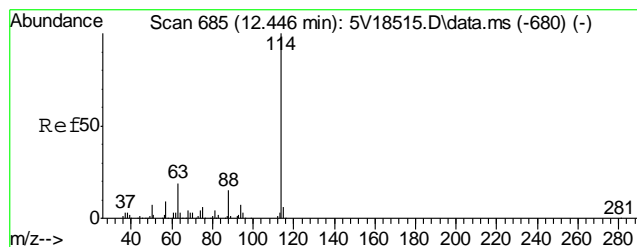
Tgt Ion: 72 Resp: 745  
Ion Ratio Lower Upper  
72 100  
43 376.4 366.0 406.0



#33  
1,2-Dichloroethane-d4  
Concen: 44.37 ug/l  
RT: 12.012 min Scan# 647  
Delta R.T. -0.000 min  
Lab File: 5V25771.D  
Acq: 25 Feb 2013 9:37 pm

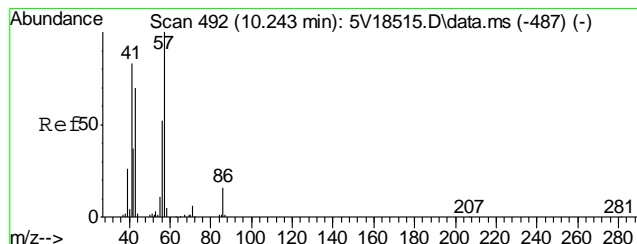
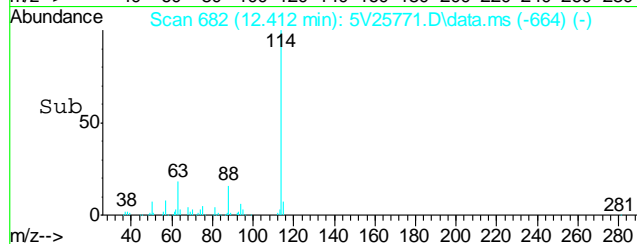
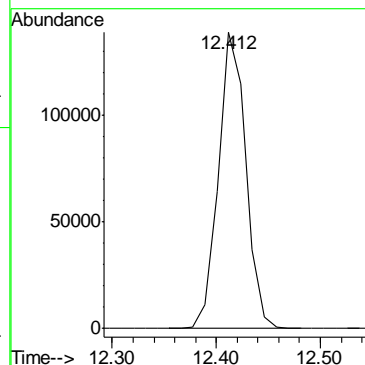
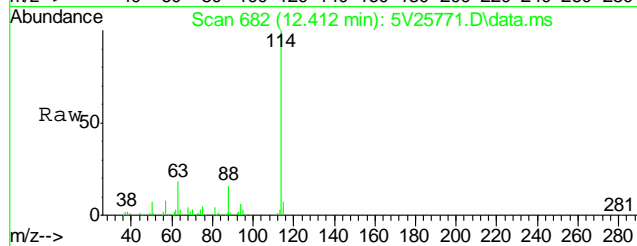
Tgt Ion: 102 Resp: 17578





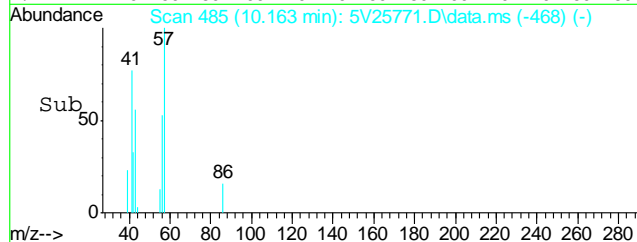
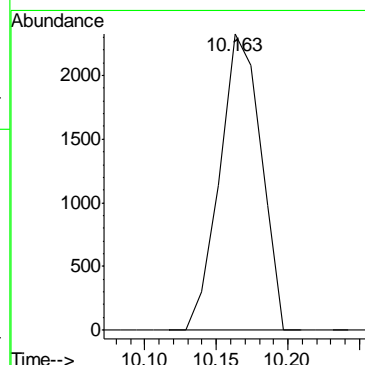
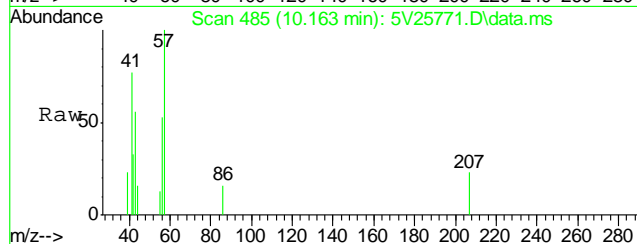
#35  
1,4-Difluorobenzene  
Concen: 50.00 ug/l  
RT: 12.412 min Scan# 682  
Delta R.T. -0.000 min  
Lab File: 5V25771.D  
Acq: 25 Feb 2013 9:37 pm

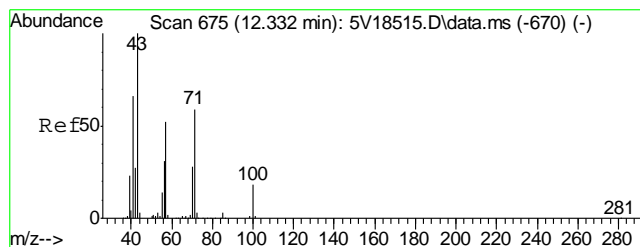
Tgt Ion: 114 Resp: 254897



#41  
Hexane  
Concen: 2.78 ug/l  
RT: 10.163 min Scan# 485  
Delta R.T. -0.011 min  
Lab File: 5V25771.D  
Acq: 25 Feb 2013 9:37 pm

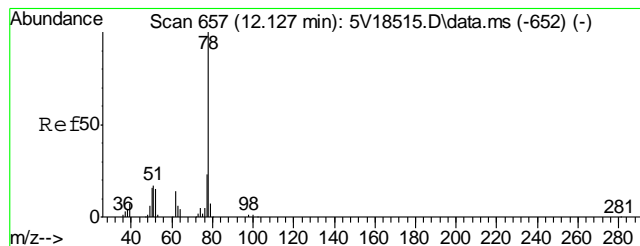
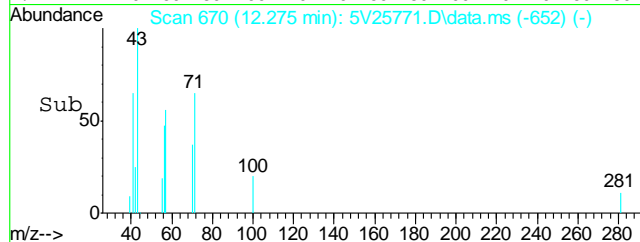
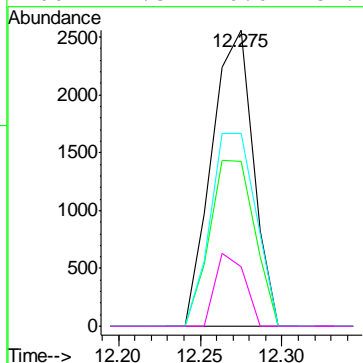
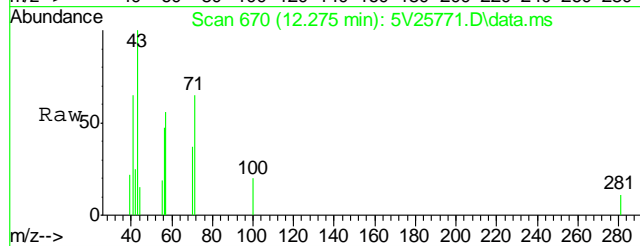
Tgt Ion: 57 Resp: 4672





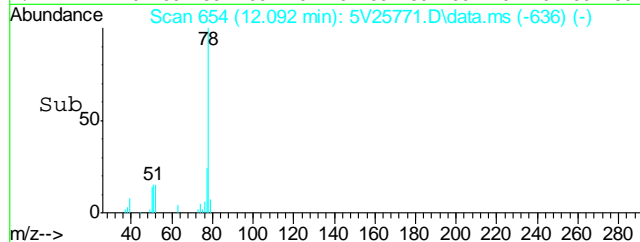
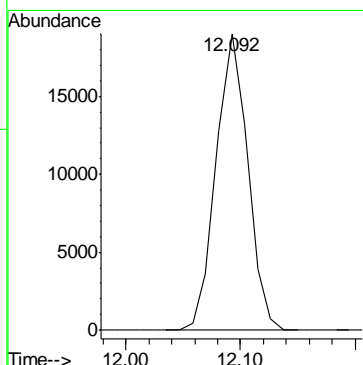
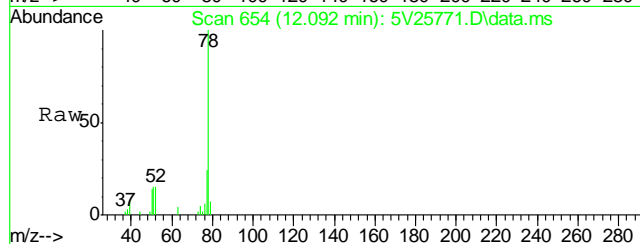
#43  
Heptane  
Concen: 2.43 ug/l  
RT: 12.275 min Scan# 670  
Delta R.T. 0.001 min  
Lab File: 5V25771.D  
Acq: 25 Feb 2013 9:37 pm

Tgt Ion:	43	Resp:	4514
Ion Ratio	Lower	Upper	
43	100		
57	60.5	30.6	70.6
71	71.2	38.9	78.9
100	17.3	0.0	37.4

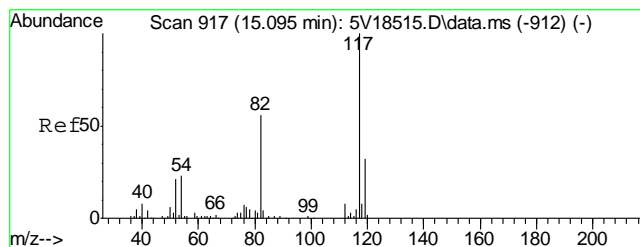


#50  
Benzene  
Concen: 5.70 ug/l  
RT: 12.092 min Scan# 654  
Delta R.T. -0.000 min  
Lab File: 5V25771.D  
Acq: 25 Feb 2013 9:37 pm

Tgt Ion: 78 Resp: 36801

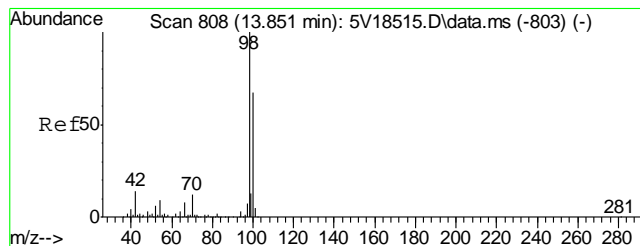
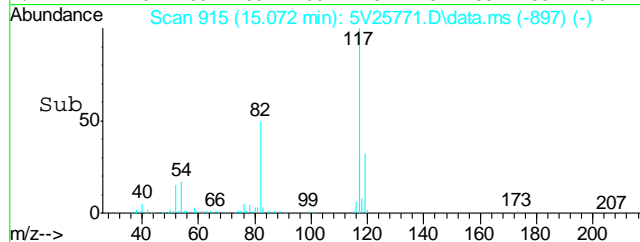
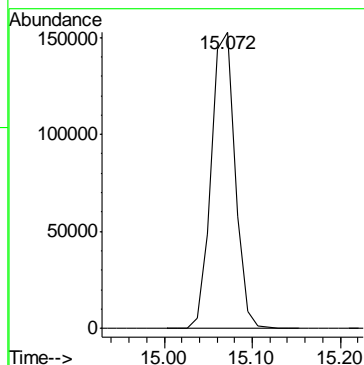
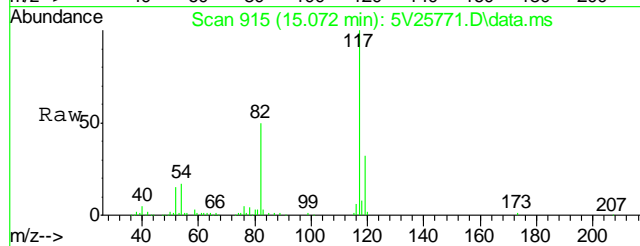






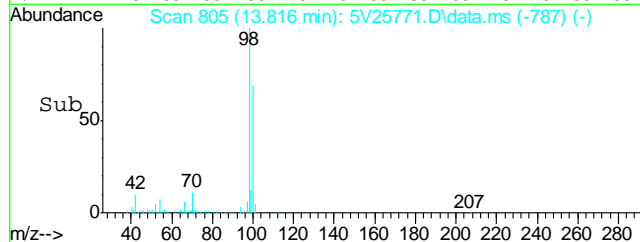
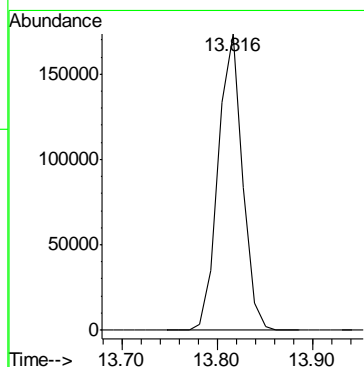
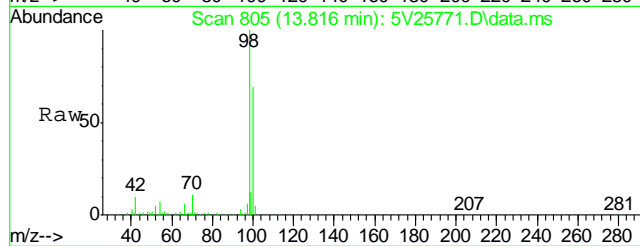
#53  
Chlorobenzene-d5  
Concen: 50.00 ug/l  
RT: 15.072 min Scan# 915  
Delta R.T. -0.000 min  
Lab File: 5V25771.D  
Acq: 25 Feb 2013 9:37 pm

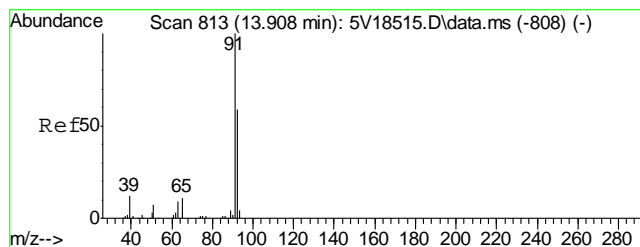
Tgt Ion:117 Resp: 286842



#61  
Toluene-d8  
Concen: 43.58 ug/l  
RT: 13.816 min Scan# 805  
Delta R.T. -0.000 min  
Lab File: 5V25771.D  
Acq: 25 Feb 2013 9:37 pm

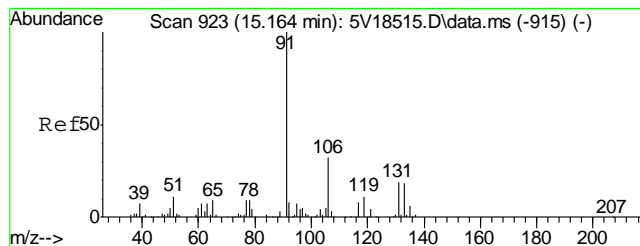
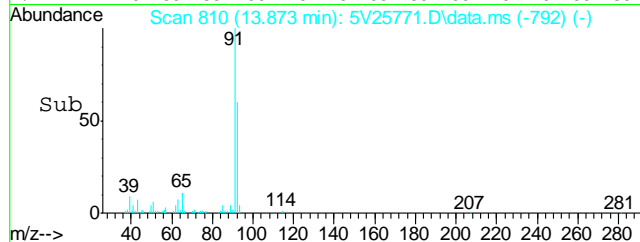
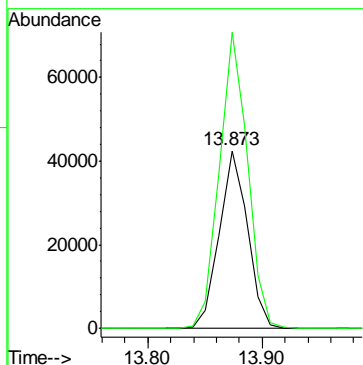
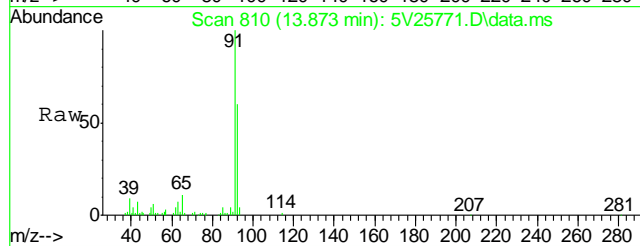
Tgt Ion: 98 Resp: 306343





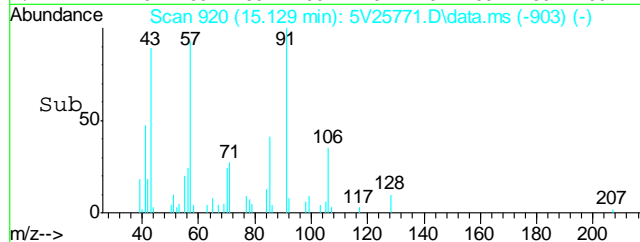
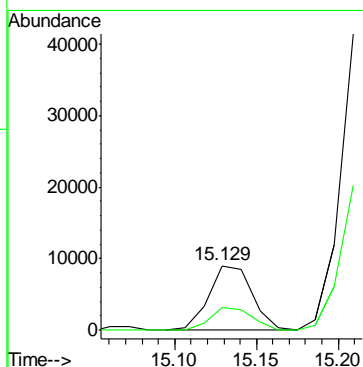
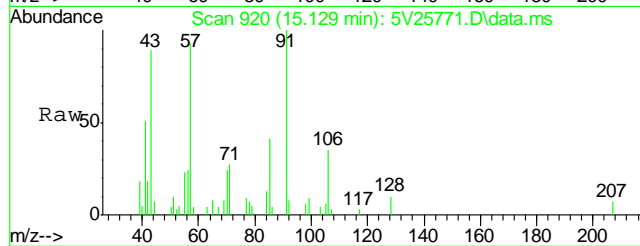
#62  
Toluene  
Concen: 14.43 ug/l  
RT: 13.873 min Scan# 810  
Delta R.T. -0.000 min  
Lab File: 5V25771.D  
Acq: 25 Feb 2013 9:37 pm

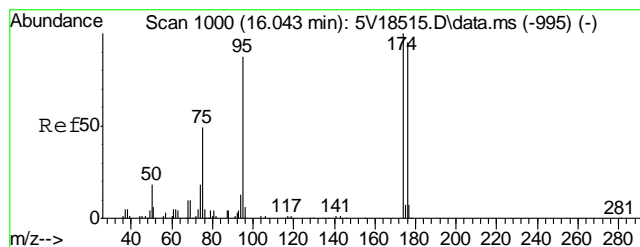
Tgt Ion: 92 Resp: 73205  
Ion Ratio Lower Upper  
92 100  
91 166.4 149.8 189.8



#66  
Ethylbenzene  
Concen: 2.08 ug/l  
RT: 15.129 min Scan# 920  
Delta R.T. -0.011 min  
Lab File: 5V25771.D  
Acq: 25 Feb 2013 9:37 pm

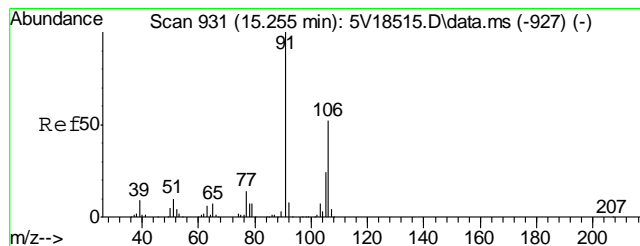
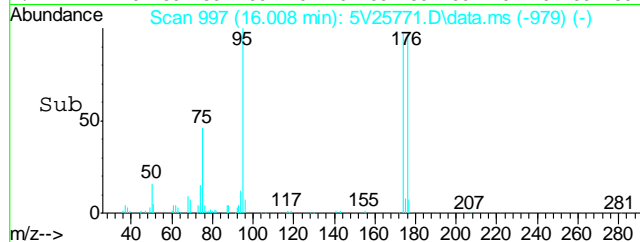
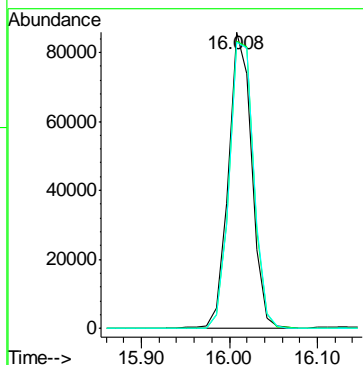
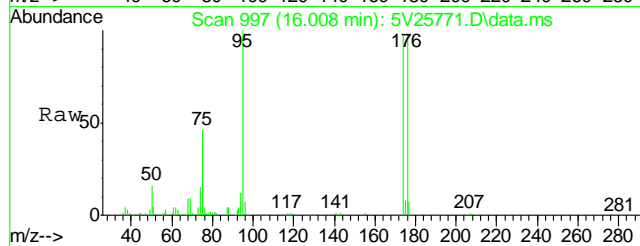
Tgt Ion: 91 Resp: 16569  
Ion Ratio Lower Upper  
91 100  
106 33.2 11.7 51.7





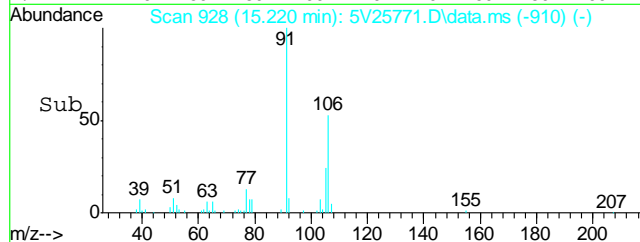
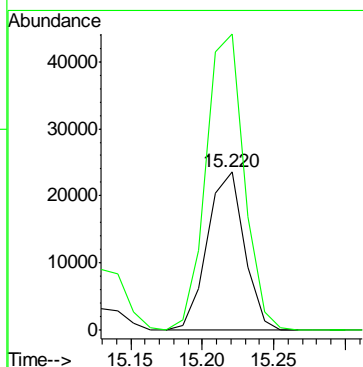
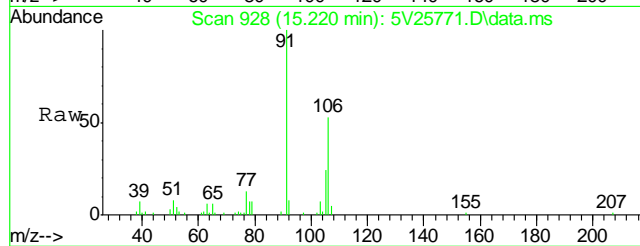
#69  
4-Bromofluorobenzene  
Concen: 57.80 ug/l  
RT: 16.008 min Scan# 997  
Delta R.T. -0.000 min  
Lab File: 5V25771.D  
Acq: 25 Feb 2013 9:37 pm

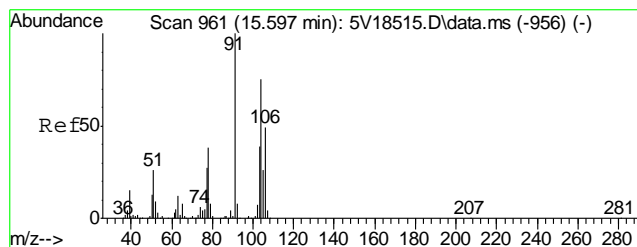
Tgt Ion	Ratio	Lower	Upper
95	100		
174	101.2	77.1	117.1
176	101.3	73.4	113.4



#72  
m,p-xylene  
Concen: 7.84 ug/l  
RT: 15.220 min Scan# 928  
Delta R.T. 0.000 min  
Lab File: 5V25771.D  
Acq: 25 Feb 2013 9:37 pm

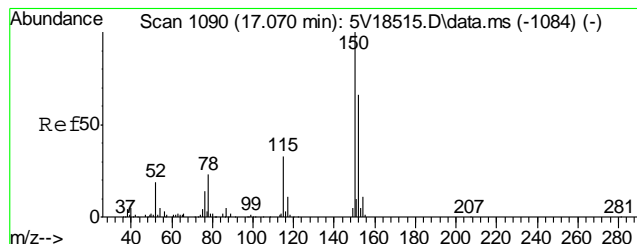
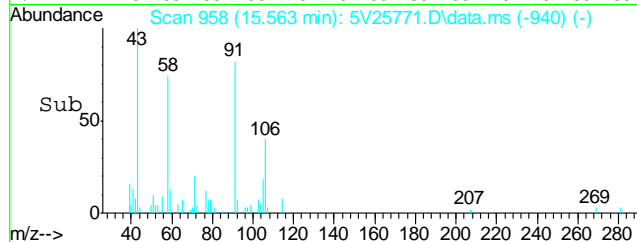
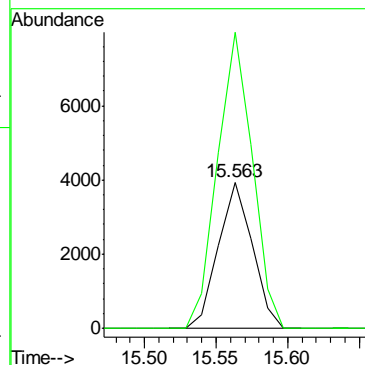
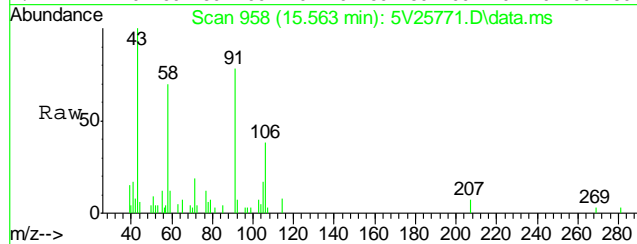
Tgt Ion	Ratio	Lower	Upper
106	100		
91	192.9	177.1	217.1





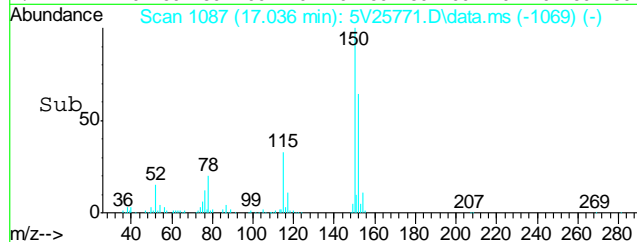
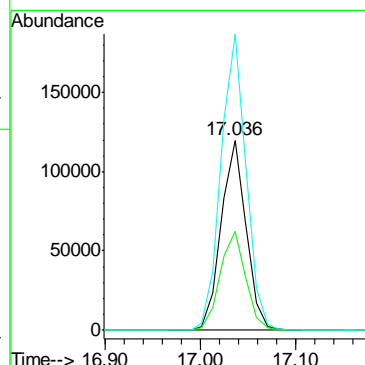
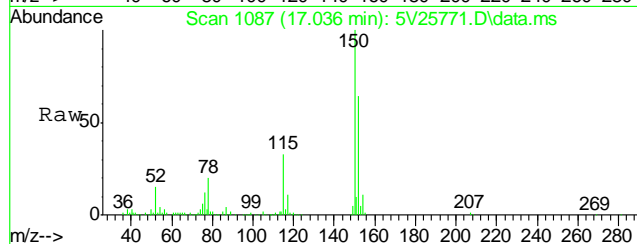
#73  
o-xylene  
Concen: 2.23 ug/l  
RT: 15.563 min Scan# 958  
Delta R.T. -0.000 min  
Lab File: 5V25771.D  
Acq: 25 Feb 2013 9:37 pm

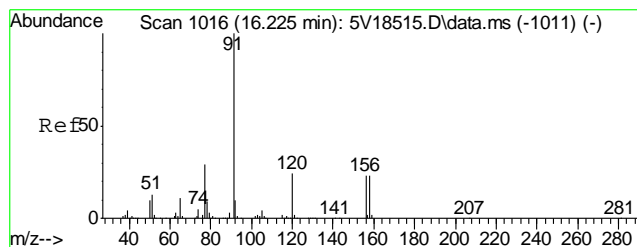
Tgt Ion:106 Resp: 6523  
Ion Ratio Lower Upper  
106 100  
91 206.8 188.2 228.2



#74  
1,4-Dichlorobenzene-d4  
Concen: 50.00 ug/l  
RT: 17.036 min Scan# 1087  
Delta R.T. -0.000 min  
Lab File: 5V25771.D  
Acq: 25 Feb 2013 9:37 pm

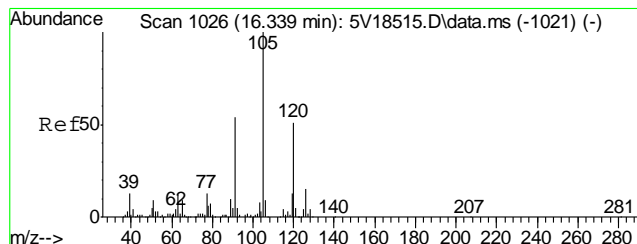
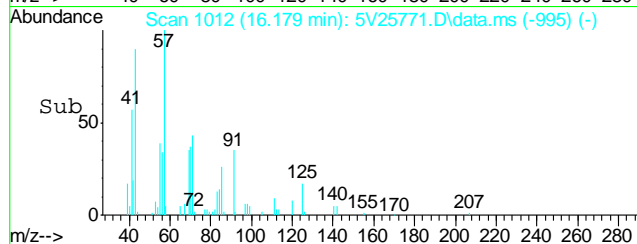
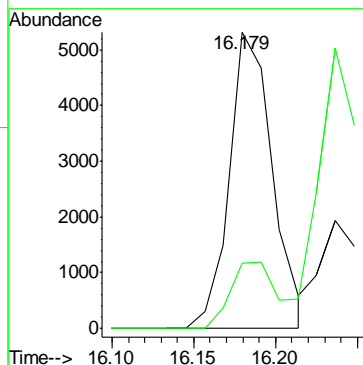
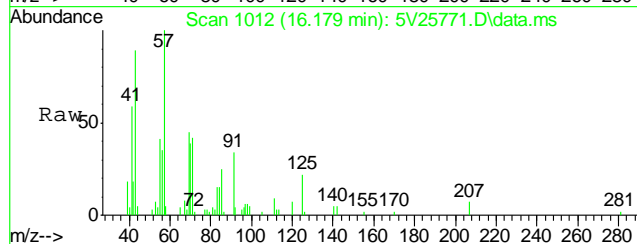
Tgt Ion:152 Resp: 217985  
Ion Ratio Lower Upper  
152 100  
115 53.0 41.4 62.0  
150 156.9 153.9 230.9





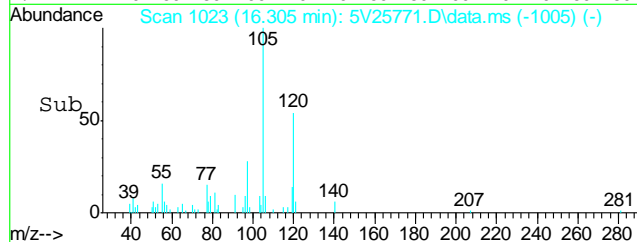
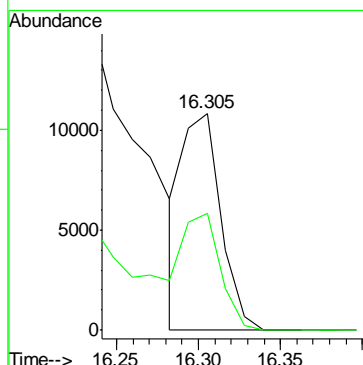
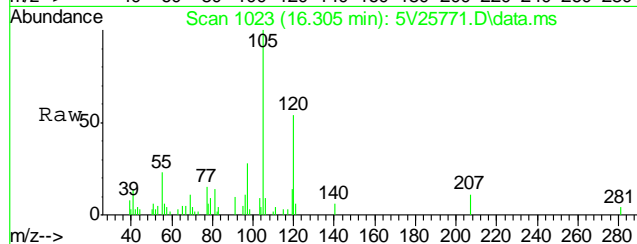
#77  
n-Propylbenzene  
Concen: 1.04 ug/l  
RT: 16.179 min Scan# 1012  
Delta R.T. -0.011 min  
Lab File: 5V25771.D  
Acq: 25 Feb 2013 9:37 pm

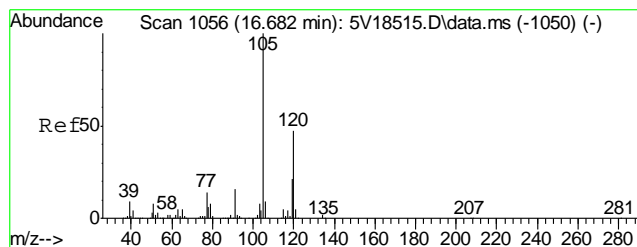
Tgt Ion: 91 Resp: 9680  
Ion Ratio Lower Upper  
91 100  
120 23.1 3.2 43.2



#80  
1,3,5-Trimethylbenzene  
Concen: 2.41 ug/l m  
RT: 16.305 min Scan# 1023  
Delta R.T. 0.000 min  
Lab File: 5V25771.D  
Acq: 25 Feb 2013 9:37 pm

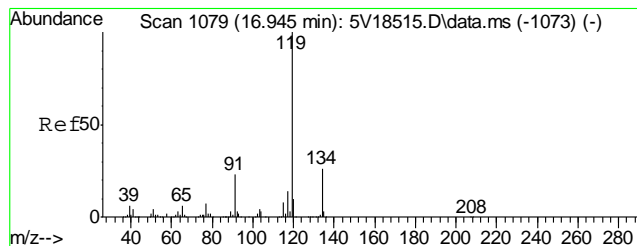
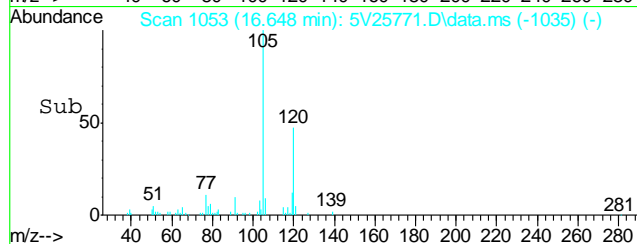
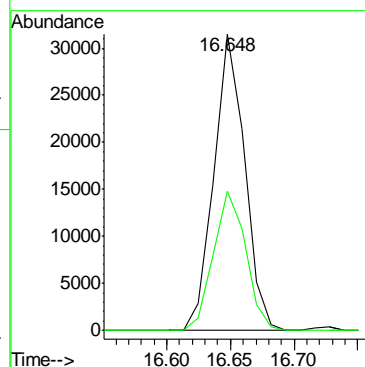
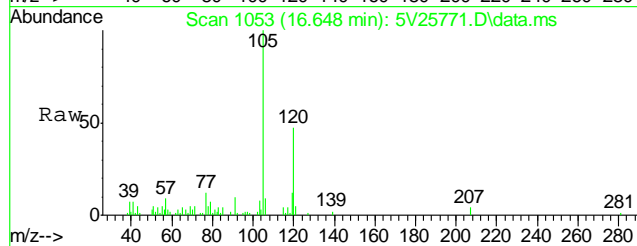
Tgt Ion: 105 Resp: 17585  
Ion Ratio Lower Upper  
105 100  
120 76.1 30.1 70.1#





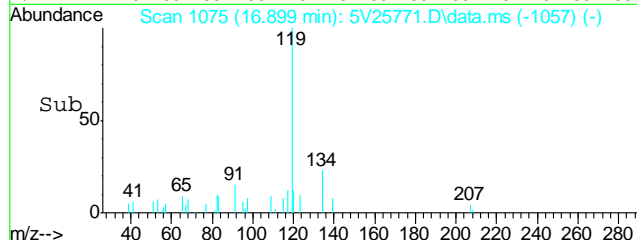
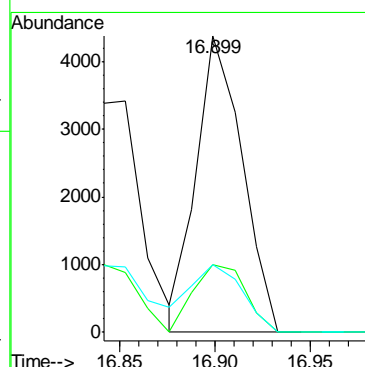
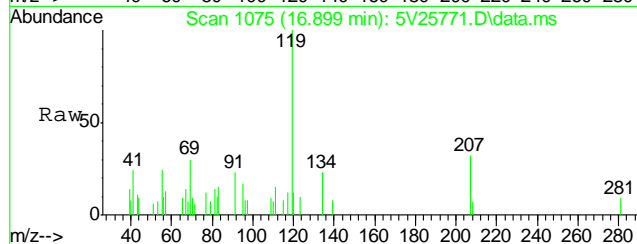
#82  
1,2,4-Trimethylbenzene  
Concen: 5.74 ug/l  
RT: 16.648 min Scan# 1053  
Delta R.T. 0.001 min  
Lab File: 5V25771.D  
Acq: 25 Feb 2013 9:37 pm

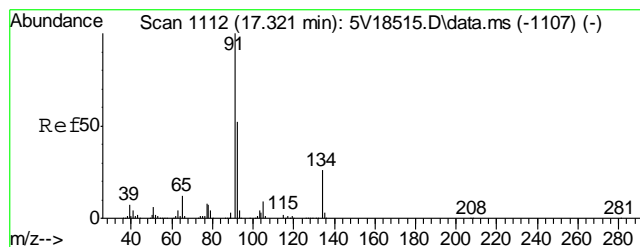
Tgt Ion	Ratio	Lower	Upper
105	100		
120	49.2	34.8	74.8



#86  
p-Isopropyltoluene  
Concen: 1.35 ug/l  
RT: 16.899 min Scan# 1075  
Delta R.T. 0.001 min  
Lab File: 5V25771.D  
Acq: 25 Feb 2013 9:37 pm

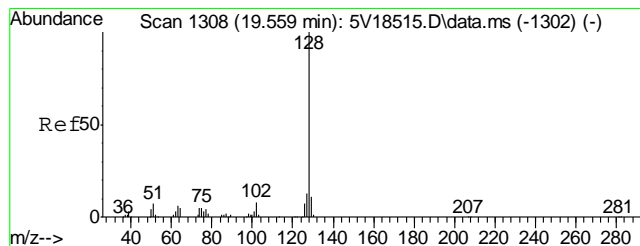
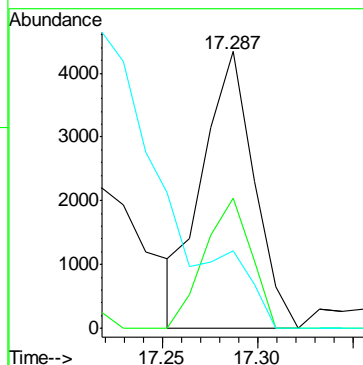
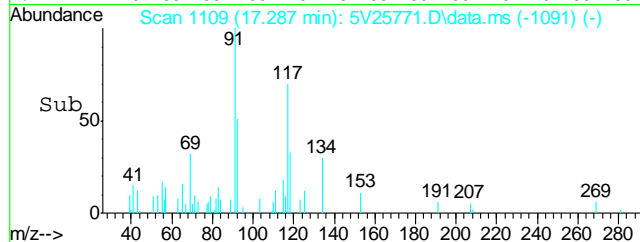
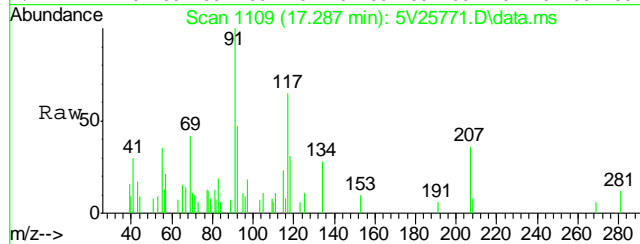
Tgt Ion	Ratio	Lower	Upper
119	100		
134	26.0	6.6	46.6
91	25.8	3.8	43.8





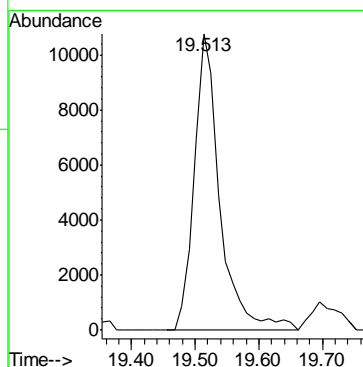
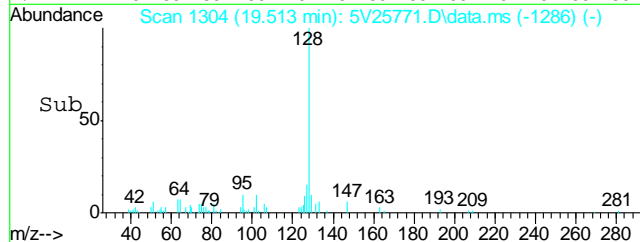
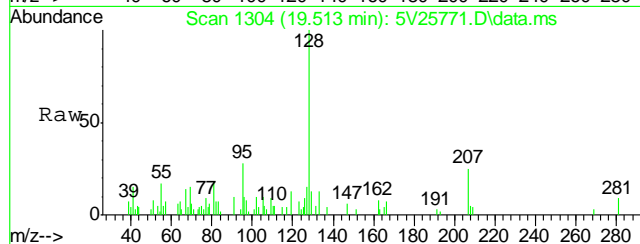
#88  
n-Butylbenzene  
Concen: 1.40 ug/l  
RT: 17.287 min Scan# 1109  
Delta R.T. 0.001 min  
Lab File: 5V25771.D  
Acq: 25 Feb 2013 9:37 pm

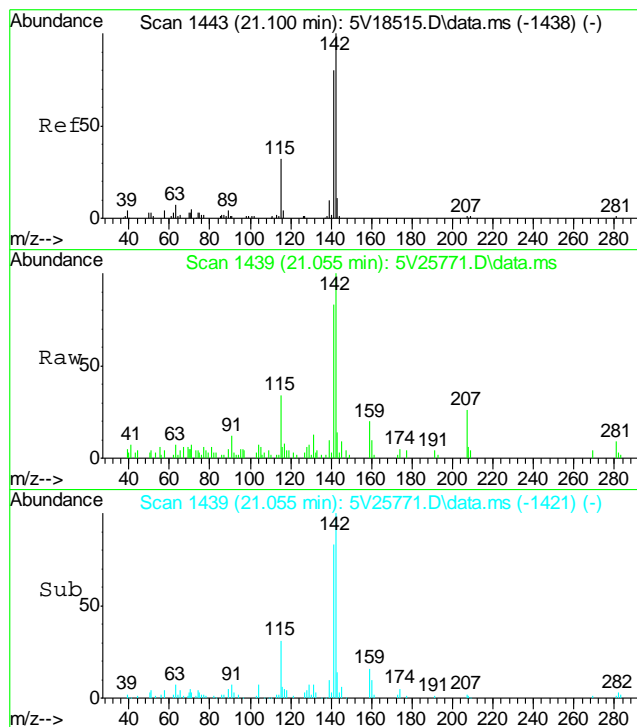
Tgt Ion	Ratio	Lower	Upper
91	100		
92	43.0	32.8	72.8
134	0.0	6.8	46.8



#91  
Naphthalene  
Concen: 3.64 ug/l  
RT: 19.513 min Scan# 1304  
Delta R.T. 0.000 min  
Lab File: 5V25771.D  
Acq: 25 Feb 2013 9:37 pm

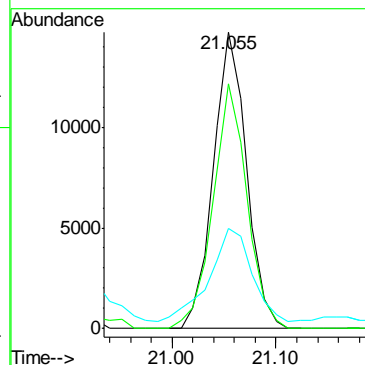
Tgt Ion: 128 Resp: 29908





#94  
 2-Methylnaphthalene  
 Concen: 9.51 ug/l  
 RT: 21.055 min Scan# 1439  
 Delta R.T. 0.001 min  
 Lab File: 5V25771.D  
 Acq: 25 Feb 2013 9:37 pm

Tgt Ion:	142	Resp:	32759
Ion Ratio	Lower	Upper	
142	100		
141	84.2	62.8	102.8
115	39.9	12.4	52.4





## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5022513.S\  
Data File : 5V25759.D  
Acq On : 25 Feb 2013 3:04 pm  
Operator : BRETD  
Sample : MB  
Misc : MS5403,V5V1568,5.00,,100,5,1  
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Feb 26 09:14:27 2013  
Quant Method : C:\msdchem\1\METHODS\V5AP1565TVH1565.M  
Quant Title : 8260  
QLast Update : Fri Feb 22 10:33:44 2013  
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.613	168	149241	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.412	114	190794	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.072	117	222301	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.036	152	173278	50.00	ug/l	0.00

## System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.012	102	13906	45.44	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	90.88%
61) Toluene-d8	13.816	98	229446	42.12	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	84.24%
69) 4-Bromofluorobenzene	16.008	95	121270	57.54	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	115.08%

## Target Compounds

					Qvalue
1) TVH-Gasoline	13.220	TIC	1288m	34.29	ug/l
17) Methylene Chloride	9.386	84	786	0.55	ug/l
91) Naphthalene	19.513	128	1731	1.13	ug/l

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

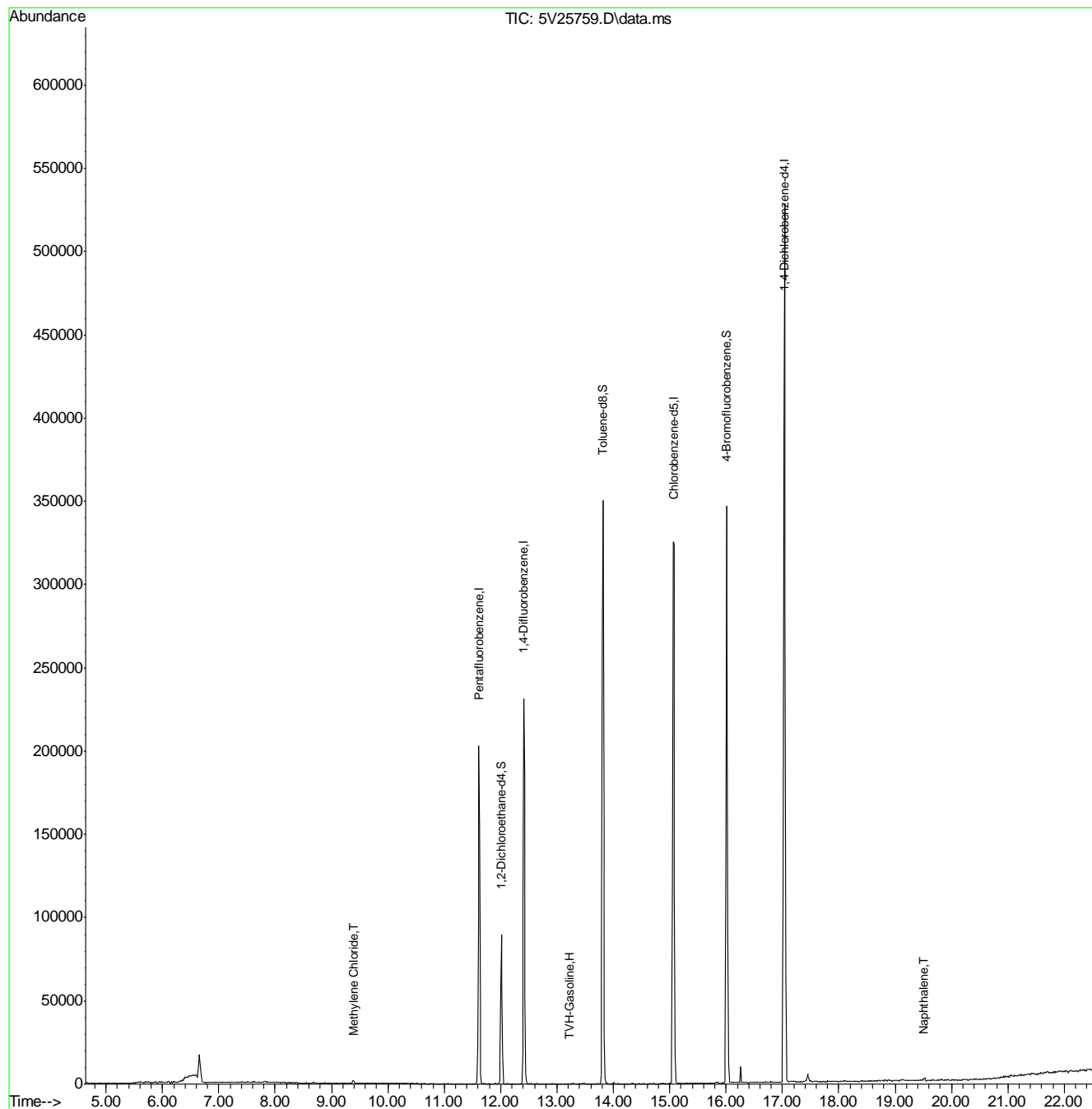
7.2.1

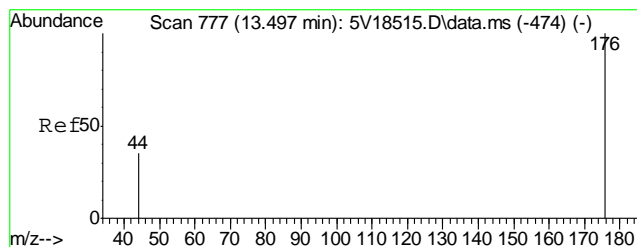
7

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5022513.S\  
Data File : 5V25759.D  
Acq On : 25 Feb 2013 3:04 pm  
Operator : BRETD  
Sample : MB  
Misc : MS5403,V5V1568,5.00,,100,5,1  
ALS Vial : 3 Sample Multiplier: 1

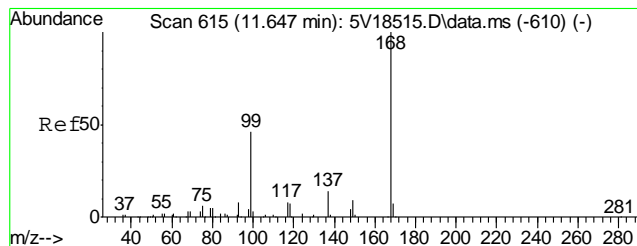
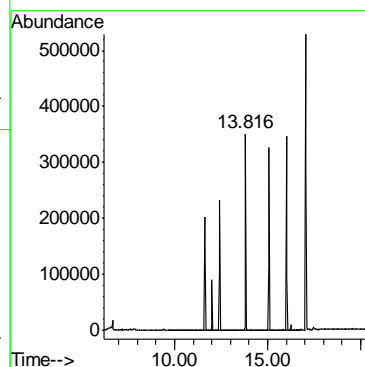
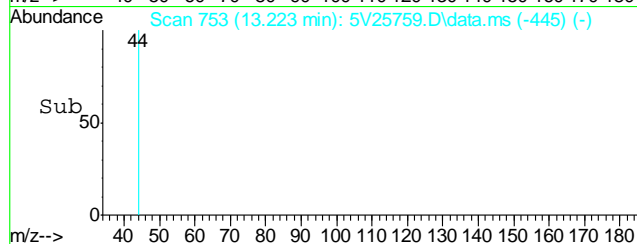
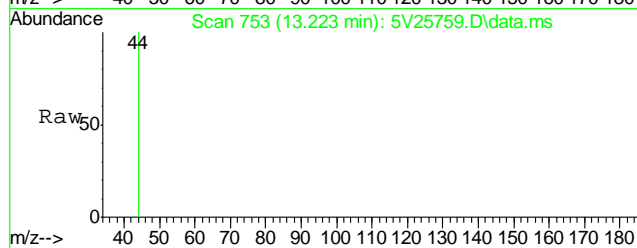
Quant Time: Feb 26 09:14:27 2013  
Quant Method : C:\msdchem\1\METHODS\V5AP1565TVH1565.M  
Quant Title : 8260  
QLast Update : Fri Feb 22 10:33:44 2013  
Response via : Initial Calibration





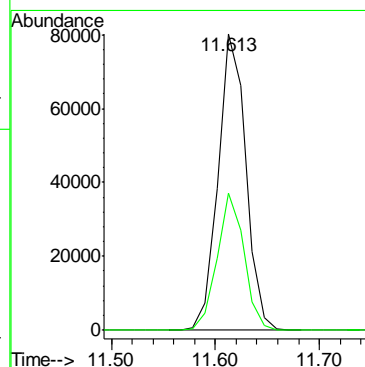
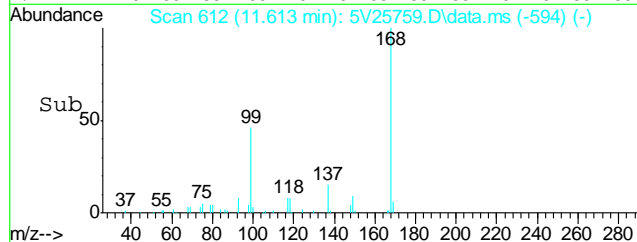
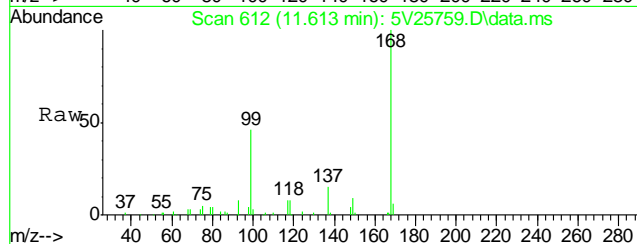
#1  
TVH-Gasoline  
Concen: 34.29 ug/l m  
RT: 13.220 min Scan# 753  
Delta R.T. 0.000 min  
Lab File: 5V25759.D  
Acq: 25 Feb 2013 3:04 pm

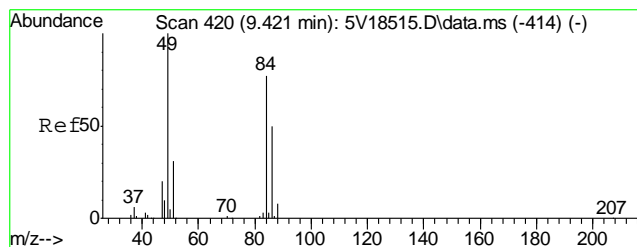
Tgt Ion:TIC Resp: 1288



#2  
Pentafluorobenzene  
Concen: 50.00 ug/l  
RT: 11.613 min Scan# 612  
Delta R.T. 0.000 min  
Lab File: 5V25759.D  
Acq: 25 Feb 2013 3:04 pm

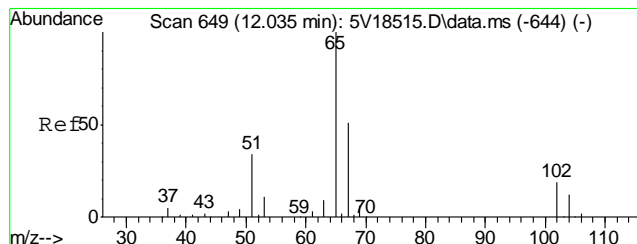
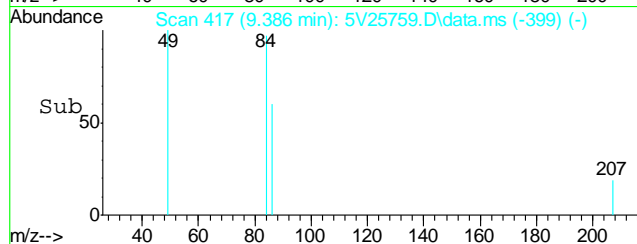
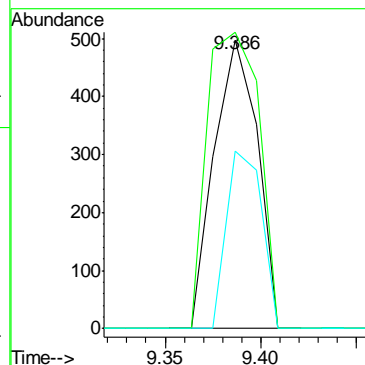
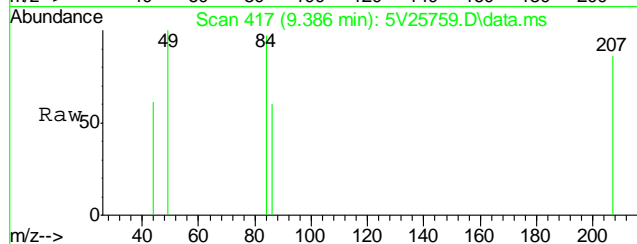
Tgt Ion:168 Resp: 149241  
Ion Ratio Lower Upper  
168 100  
99 44.6 37.4 56.2





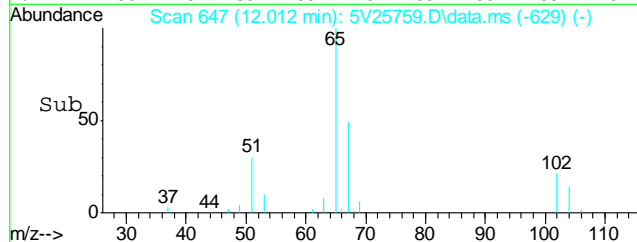
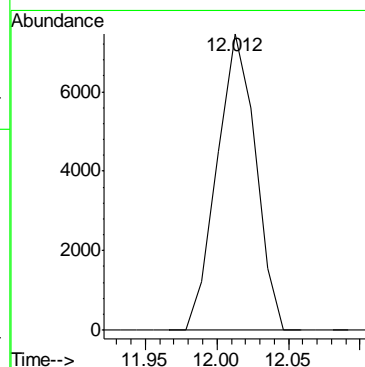
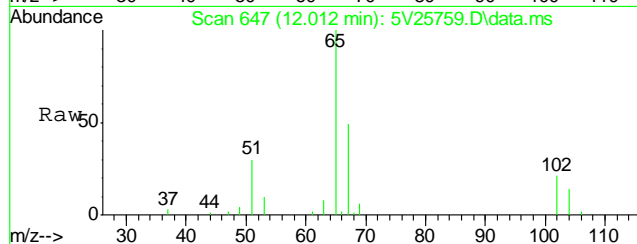
#17  
Methylene Chloride  
Concen: 0.55 ug/l  
RT: 9.386 min Scan# 417  
Delta R.T. 0.000 min  
Lab File: 5V25759.D  
Acq: 25 Feb 2013 3:04 pm

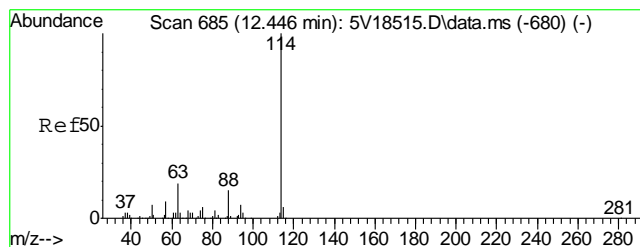
Tgt Ion: 84 Resp: 786  
Ion Ratio Lower Upper  
84 100  
49 123.8 110.4 150.4  
86 50.6 44.0 84.0



#33  
1,2-Dichloroethane-d4  
Concen: 45.44 ug/l  
RT: 12.012 min Scan# 647  
Delta R.T. 0.000 min  
Lab File: 5V25759.D  
Acq: 25 Feb 2013 3:04 pm

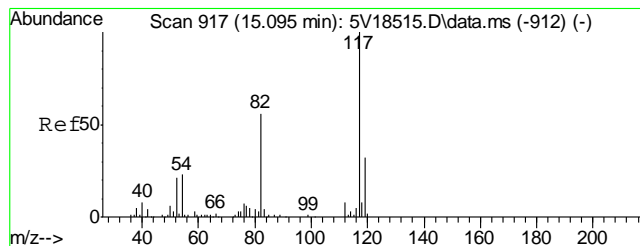
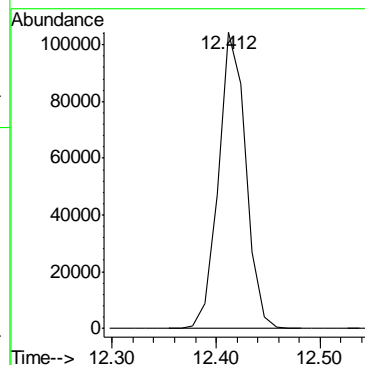
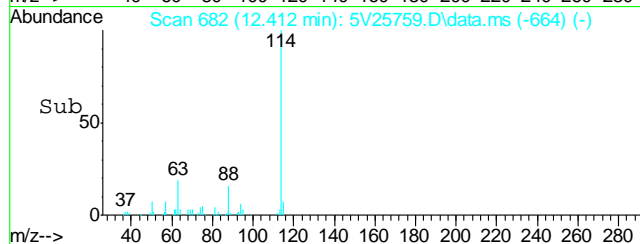
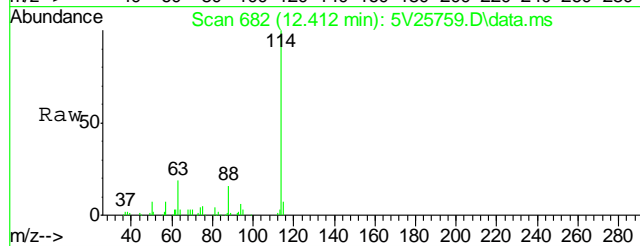
Tgt Ion: 102 Resp: 13906





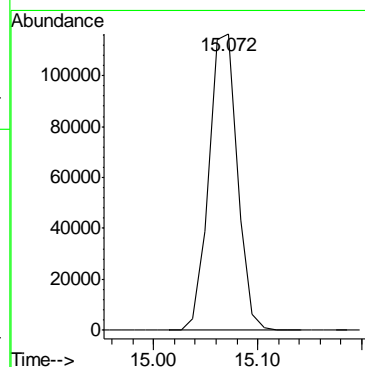
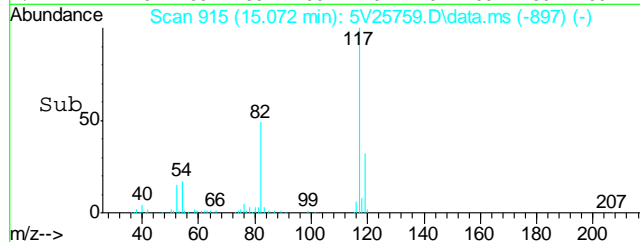
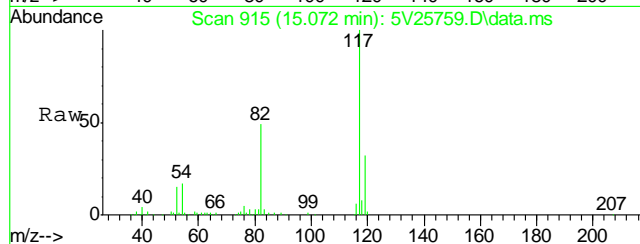
#35  
1,4-Difluorobenzene  
Concen: 50.00 ug/l  
RT: 12.412 min Scan# 682  
Delta R.T. 0.000 min  
Lab File: 5V25759.D  
Acq: 25 Feb 2013 3:04 pm

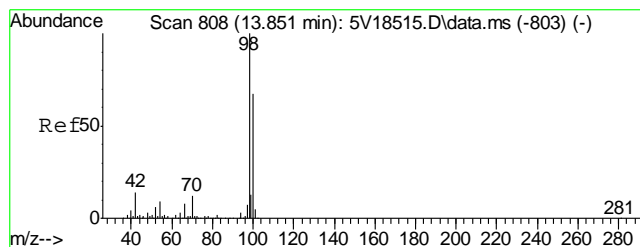
Tgt Ion:114 Resp: 190794



#53  
Chlorobenzene-d5  
Concen: 50.00 ug/l  
RT: 15.072 min Scan# 915  
Delta R.T. 0.000 min  
Lab File: 5V25759.D  
Acq: 25 Feb 2013 3:04 pm

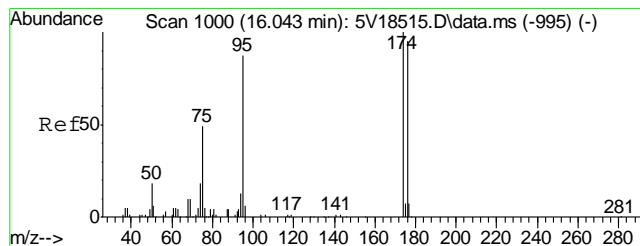
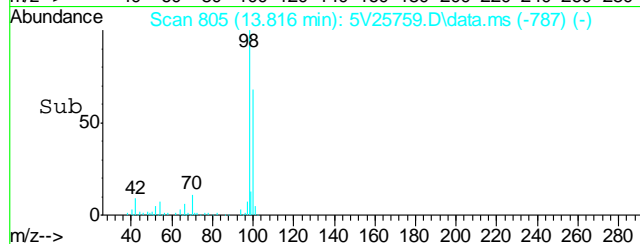
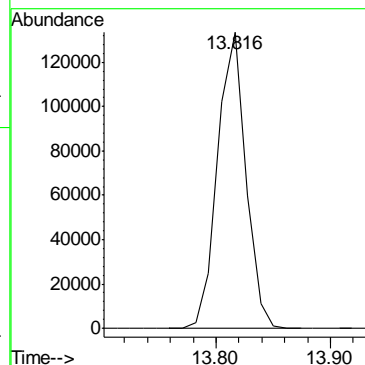
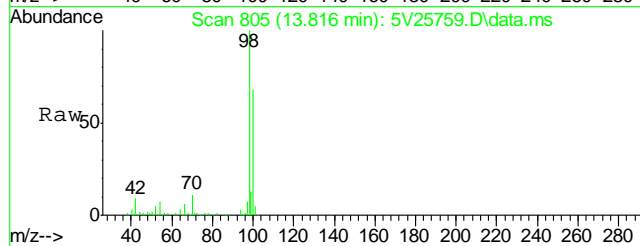
Tgt Ion:117 Resp: 222301





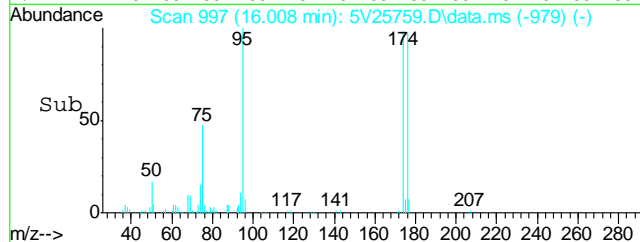
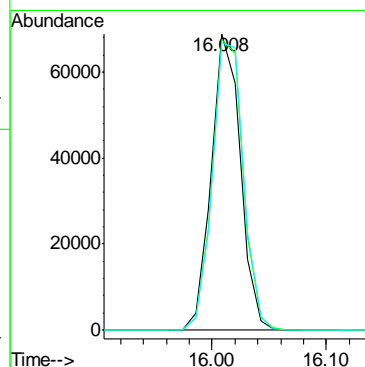
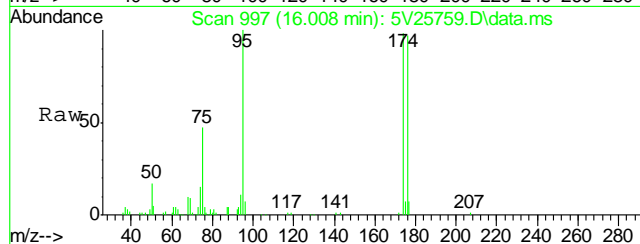
#61  
Toluene-d8  
Concen: 42.12 ug/l  
RT: 13.816 min Scan# 805  
Delta R.T. 0.000 min  
Lab File: 5V25759.D  
Acq: 25 Feb 2013 3:04 pm

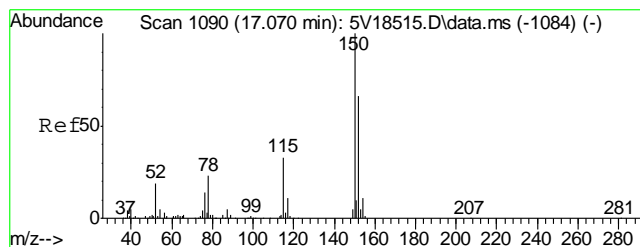
Tgt Ion: 98 Resp: 229446



#69  
4-Bromofluorobenzene  
Concen: 57.54 ug/l  
RT: 16.008 min Scan# 997  
Delta R.T. 0.000 min  
Lab File: 5V25759.D  
Acq: 25 Feb 2013 3:04 pm

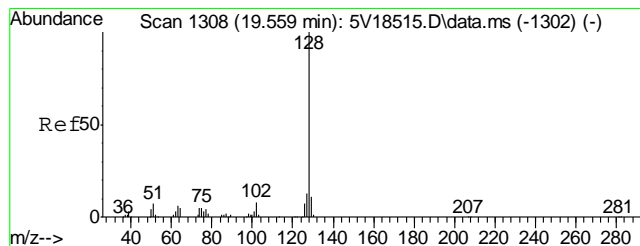
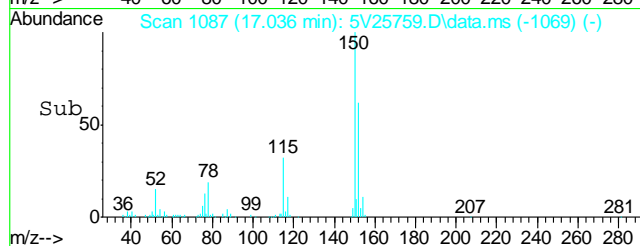
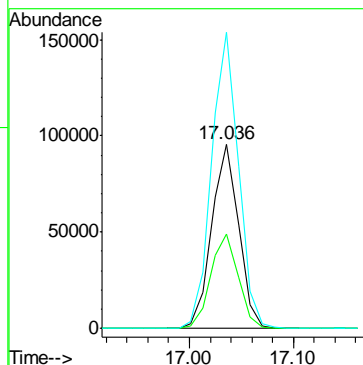
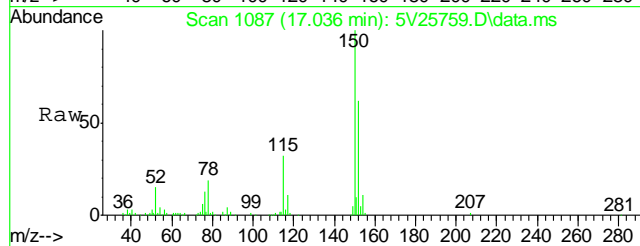
Tgt Ion: 95 Resp: 121270  
Ion Ratio Lower Upper  
95 100  
174 103.6 77.1 117.1  
176 104.3 73.4 113.4





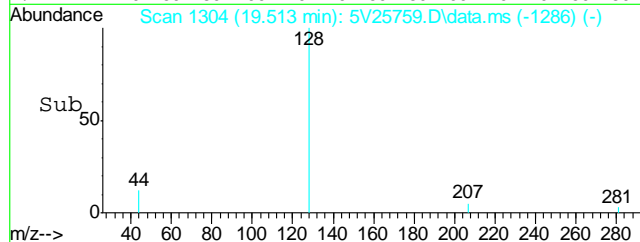
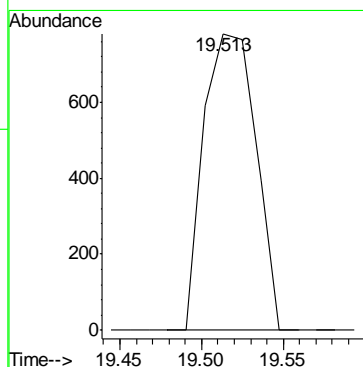
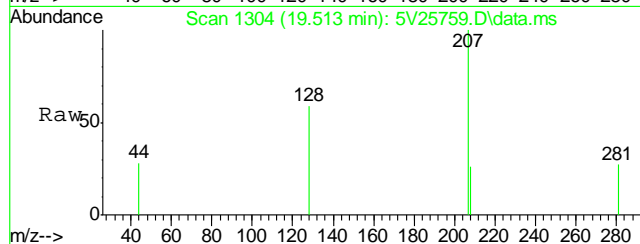
#74  
1,4-Dichlorobenzene-d4  
Concen: 50.00 ug/l  
RT: 17.036 min Scan# 1087  
Delta R.T. 0.000 min  
Lab File: 5V25759.D  
Acq: 25 Feb 2013 3:04 pm

Tgt Ion	Ratio	Lower	Upper
152	100		
115	52.0	41.4	62.0
150	160.1	153.9	230.9



#91  
Naphthalene  
Concen: 1.13 ug/l  
RT: 19.513 min Scan# 1304  
Delta R.T. 0.000 min  
Lab File: 5V25759.D  
Acq: 25 Feb 2013 3:04 pm

Tgt Ion: 128 Resp: 1731



## GC/MS Semi-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:** D43722  
**Account:** XTOKRWR XTO Energy  
**Project:** XTO Love Ranch 8

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7430-MB	1G112112.D	1	02/25/13	DC	02/25/13	OP7430	E1G940

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

D43722-1, D43722-2

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	8.3	4.3	ug/kg	
120-12-7	Anthracene	ND	8.3	4.3	ug/kg	
56-55-3	Benzo(a)anthracene	ND	8.3	4.3	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	8.3	4.3	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	8.3	4.3	ug/kg	
50-32-8	Benzo(a)pyrene	ND	8.3	4.3	ug/kg	
218-01-9	Chrysene	ND	8.3	4.3	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	8.3	4.3	ug/kg	
206-44-0	Fluoranthene	ND	8.3	4.3	ug/kg	
86-73-7	Fluorene	ND	8.3	5.0	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	8.3	4.3	ug/kg	
91-20-3	Naphthalene	ND	12	10	ug/kg	
129-00-0	Pyrene	ND	8.3	4.3	ug/kg	

CAS No.	Surrogate Recoveries	Limits
4165-60-0	Nitrobenzene-d5	88% 10-159%
321-60-8	2-Fluorobiphenyl	79% 19-131%
1718-51-0	Terphenyl-d14	101% 18-150%

8.1.1

8

## Blank Spike Summary

Page 1 of 1

**Job Number:** D43722  
**Account:** XTOKRWR XTO Energy  
**Project:** XTO Love Ranch 8

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7430-BS	1G112113.D	1	02/25/13	DC	02/25/13	OP7430	E1G940

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D43722-1, D43722-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	74.8	90	68-130
120-12-7	Anthracene	83.3	76.5	92	67-130
56-55-3	Benzo(a)anthracene	83.3	81.2	97	65-130
205-99-2	Benzo(b)fluoranthene	83.3	73.9	89	44-130
207-08-9	Benzo(k)fluoranthene	83.3	86.7	104	56-131
50-32-8	Benzo(a)pyrene	83.3	83.1	100	62-130
218-01-9	Chrysene	83.3	79.9	96	70-130
53-70-3	Dibenzo(a,h)anthracene	83.3	82.7	99	55-130
206-44-0	Fluoranthene	83.3	75.0	90	70-130
86-73-7	Fluorene	83.3	70.5	85	70-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	82.4	99	56-130
91-20-3	Naphthalene	83.3	72.8	87	70-130
129-00-0	Pyrene	83.3	80.5	97	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	88%	10-159%
321-60-8	2-Fluorobiphenyl	80%	19-131%
1718-51-0	Terphenyl-d14	103%	18-150%

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D43722  
**Account:** XTOKRWR XTO Energy  
**Project:** XTO Love Ranch 8

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7430-MS	1G112115.D	1	02/25/13	DC	02/25/13	OP7430	E1G940
OP7430-MSD	1G112116.D	1	02/25/13	DC	02/25/13	OP7430	E1G940
D43723-1	1G112114.D	1	02/25/13	DC	02/25/13	OP7430	E1G940

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D43722-1, D43722-2

CAS No.	Compound	D43723-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		94.7	63.5	67	76.4	81	18	25-151/30
120-12-7	Anthracene	ND		94.7	75.4	80	78.8	83	4	39-159/30
56-55-3	Benzo(a)anthracene	ND		94.7	82.0	87	86.2	91	5	39-168/30
205-99-2	Benzo(b)fluoranthene	ND		94.7	92.2	97	96.5	102	5	24-163/30
207-08-9	Benzo(k)fluoranthene	ND		94.7	76.1	80	88.1	93	15	10-188/30
50-32-8	Benzo(a)pyrene	ND		94.7	79.5	84	82.2	87	3	32-144/30
218-01-9	Chrysene	19.6		94.7	95.7	80	101	86	5	43-150/30
53-70-3	Dibenzo(a,h)anthracene	ND		94.7	70.8	75	73.2	77	3	21-152/30
206-44-0	Fluoranthene	ND		94.7	78.4	83	90.2	95	14	36-157/30
86-73-7	Fluorene	23.3		94.7	97.2	78	108	89	11	10-182/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		94.7	70.3	74	73.0	77	4	20-154/30
91-20-3	Naphthalene	105		94.7	187	87	207	108	10	10-163/30
129-00-0	Pyrene	ND		94.7	96.0	101	98.7	104	3	25-180/30

CAS No.	Surrogate Recoveries	MS	MSD	D43723-1	Limits
4165-60-0	Nitrobenzene-d5	46%	52%	48%	10-159%
321-60-8	2-Fluorobiphenyl	56%	60%	58%	19-131%
1718-51-0	Terphenyl-d14	88%	90%	76%	18-150%

\* = Outside of Control Limits.

GC/MS Semi-volatiles

Raw Data

6

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\022513\  
 Data File : 1g112117.D  
 Acq On : 25 Feb 2013 1:19 pm  
 Operator : DONC  
 Sample : D43722-1  
 Misc : OP7430,E1G940,30.09,,,1,1  
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Feb 25 14:19:36 2013  
 Quant Method : C:\msdchem\1\METHODS\simpelg933.m  
 Quant Title : PAHSIM BASE  
 QLast Update : Fri Feb 22 15:40:40 2013  
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.476	136	34148	4.0000	ug/mL	0.01
6) Acenaphthene-d10	7.169	164	26374	4.0000	ug/mL	0.01
15) Phenanthrene-d10	8.645	188	65471	4.0000	ug/mL	0.00
19) Chrysene-d12	11.268	240	66202	4.0000	ug/mL	0.01
24) Perylene-d12	12.596	264	60675	4.0000	ug/mL	0.01

## System Monitoring Compounds

2) Nitrobenzene-d5	4.802	82	58604	16.9890	ug/mL	0.01
Spiked Amount	50.000	Range	25 - 135	Recovery	=	33.98%
7) 2-Fluorobiphenyl	6.507	172	281867	22.6520	ug/mL	0.00
Spiked Amount	50.000	Range	25 - 135	Recovery	=	45.30%
21) Terphenyl-d14	10.232	244	488908	35.6685	ug/mL	0.00
Spiked Amount	50.000	Range	25 - 135	Recovery	=	71.34%

## Target Compounds

					Qvalue
5) Naphthalene	5.488	128	48956m	4.5431	ug/mL
8) 2-Methylnaphthalene	6.162	142	82200	10.2998	ug/mL
9) 1-Methylnaphthalene	6.261	142	32925	4.6437	ug/mL
12) Dibenzofuran	7.370	168	5466	0.4802	ug/mL#
13) Fluorene	7.713	166	8836m	0.9524	ug/mL
14) Diphenylamine	7.831	169	38818m	4.9231	ug/mL
16) Phenanthrene	8.661	178	45480	2.5042	ug/mL#
23) Chrysene	11.288	228	13431	0.7137	ug/mL#

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

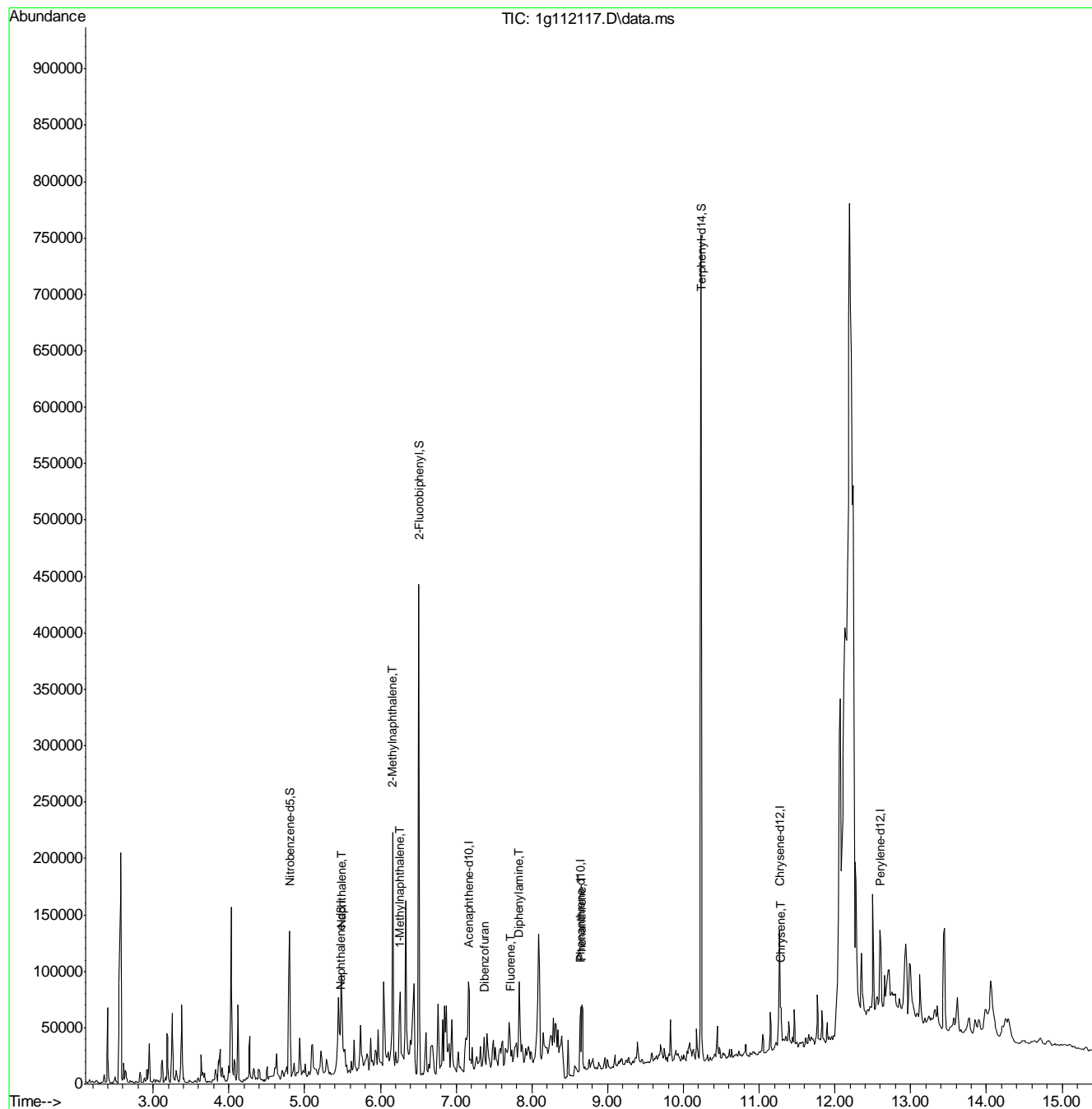
9.1.1

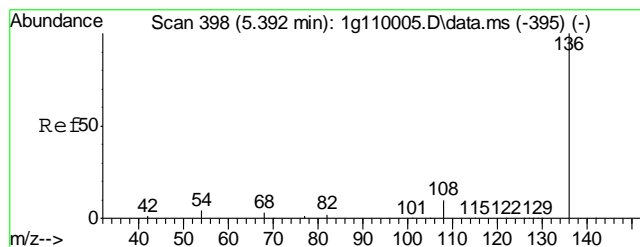
9

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\022513\  
Data File : 1g112117.D  
Acq On : 25 Feb 2013 1:19 pm  
Operator : DONC  
Sample : D43722-1  
Misc : OP7430,E1G940,30.09,,,1,1  
ALS Vial : 9 Sample Multiplier: 1

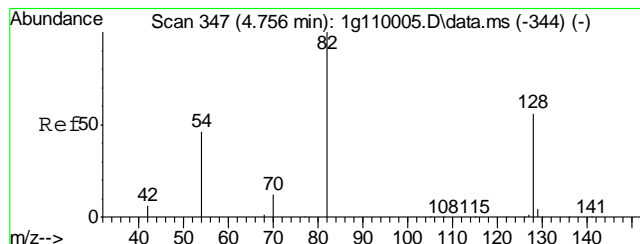
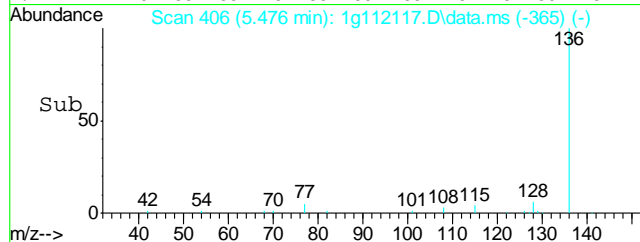
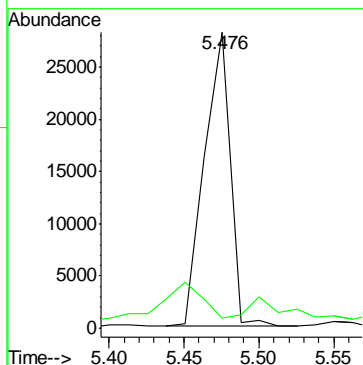
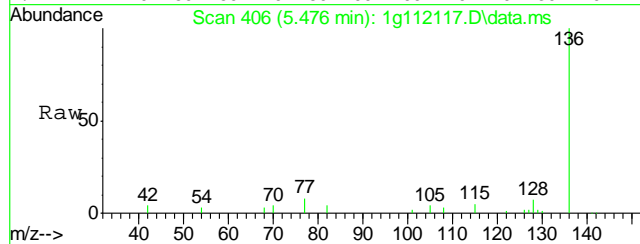
Quant Time: Feb 25 14:19:36 2013  
Quant Method : C:\msdchem\1\METHODS\simpelg933.m  
Quant Title : PAHSIM BASE  
QLast Update : Fri Feb 22 15:40:40 2013  
Response via : Initial Calibration





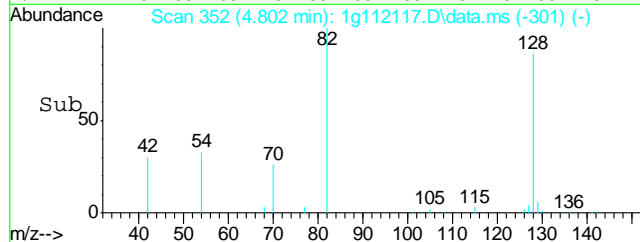
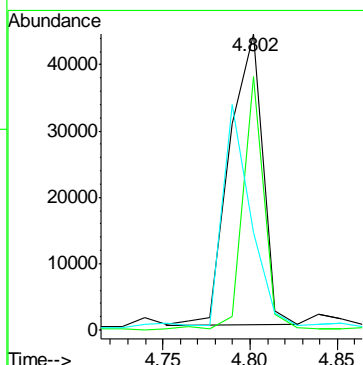
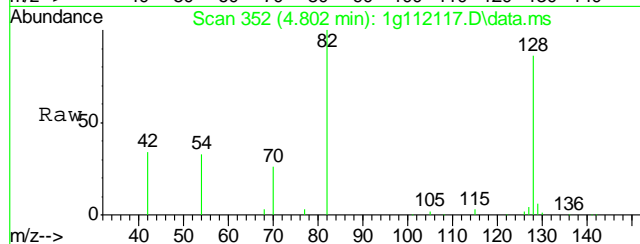
#1  
Naphthalene-d8  
Concen: 4.0000 ug/mL  
RT: 5.476 min Scan# 406  
Delta R.T. 0.012 min  
Lab File: 1g112117.D  
Acq: 25 Feb 2013 1:19 pm

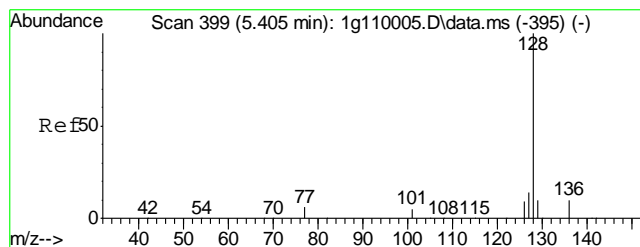
Tgt Ion: 136 Resp: 34148  
Ion Ratio Lower Upper  
136 100  
68 19.9 0.0 23.9



#2  
Nitrobenzene-d5  
Concen: 16.9890 ug/mL  
RT: 4.802 min Scan# 352  
Delta R.T. 0.012 min  
Lab File: 1g112117.D  
Acq: 25 Feb 2013 1:19 pm

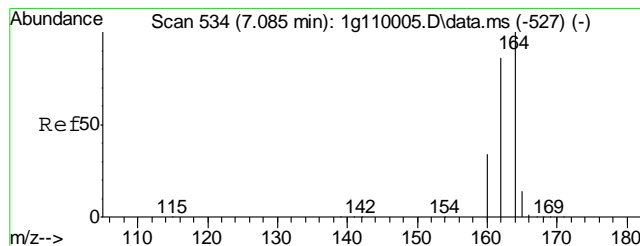
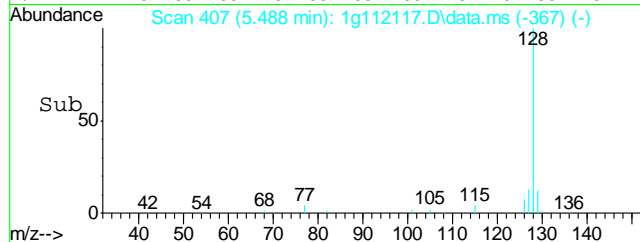
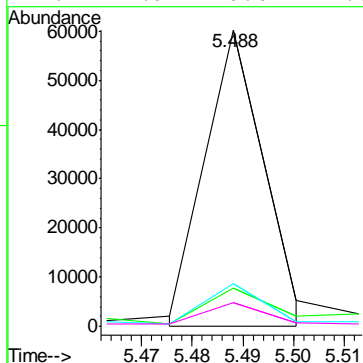
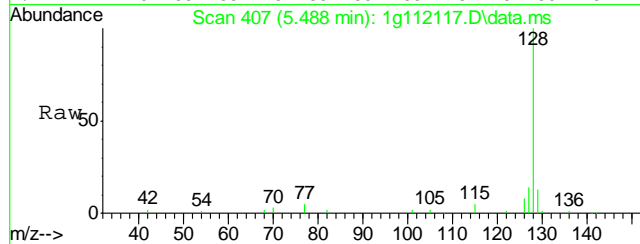
Tgt Ion: 82 Resp: 58604  
Ion Ratio Lower Upper  
82 100  
128 55.5 25.3 65.3  
54 69.5 45.9 85.9





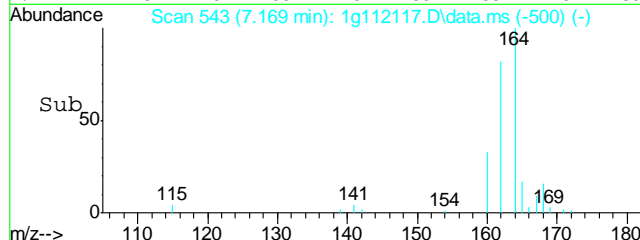
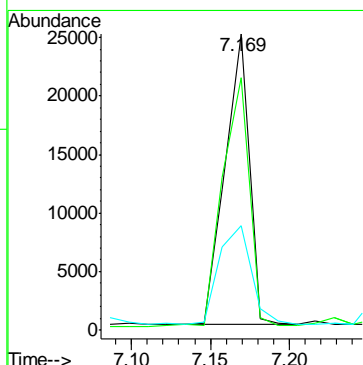
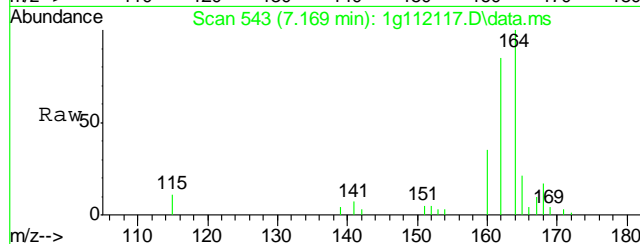
#5  
Naphthalene  
Concen: 4.5431 ug/mL m  
RT: 5.488 min Scan# 407  
Delta R.T. 0.000 min  
Lab File: 1g112117.D  
Acq: 25 Feb 2013 1:19 pm

Tgt Ion	Ratio	Lower	Upper
128	100		
129	20.9	0.0	30.9
127	17.1	0.0	33.4
126	7.9	0.0	27.3

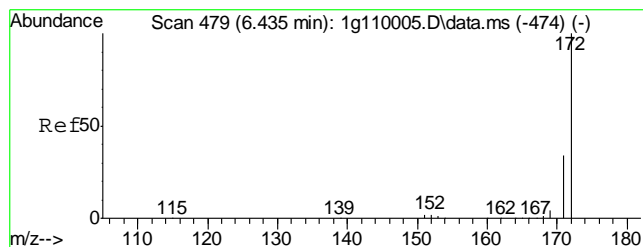


#6  
Acenaphthene-d10  
Concen: 4.0000 ug/mL  
RT: 7.169 min Scan# 543  
Delta R.T. 0.012 min  
Lab File: 1g112117.D  
Acq: 25 Feb 2013 1:19 pm

Tgt Ion	Ratio	Lower	Upper
164	100		
162	96.1	79.1	119.1
160	45.3	23.2	63.2

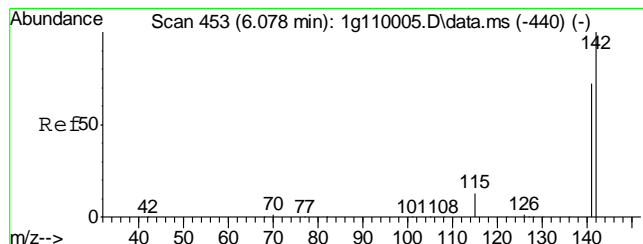
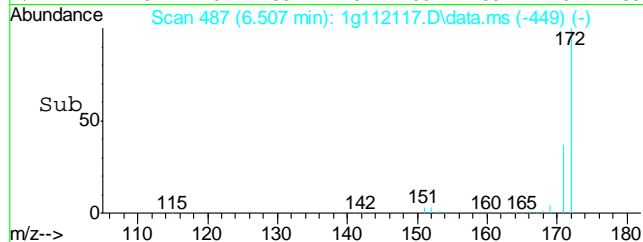
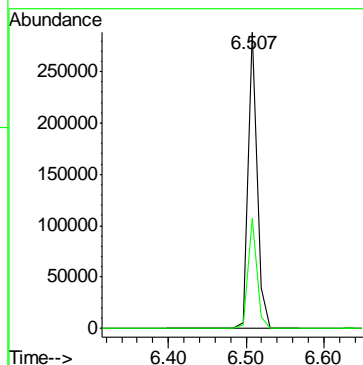
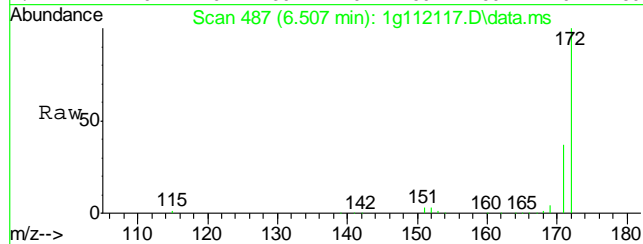






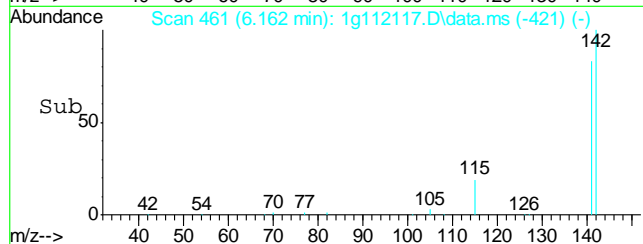
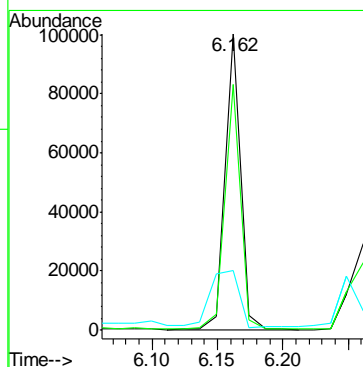
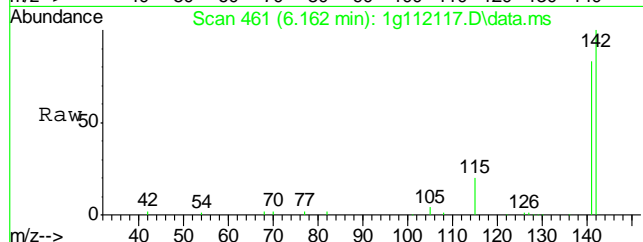
#7  
2-Fluorobiphenyl  
Concen: 22.6520 ug/mL  
RT: 6.507 min Scan# 487  
Delta R.T. 0.000 min  
Lab File: 1g112117.D  
Acq: 25 Feb 2013 1:19 pm

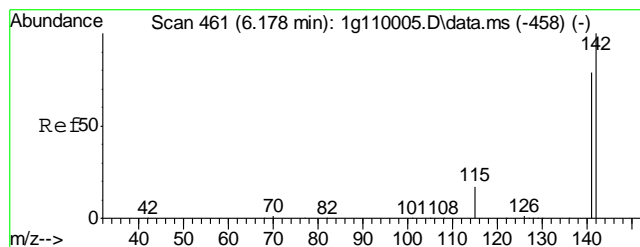
Tgt Ion	Ratio	Lower	Upper
172	100		
171	36.6	15.6	55.6



#8  
2-Methylnaphthalene  
Concen: 10.2998 ug/mL  
RT: 6.162 min Scan# 461  
Delta R.T. 0.001 min  
Lab File: 1g112117.D  
Acq: 25 Feb 2013 1:19 pm

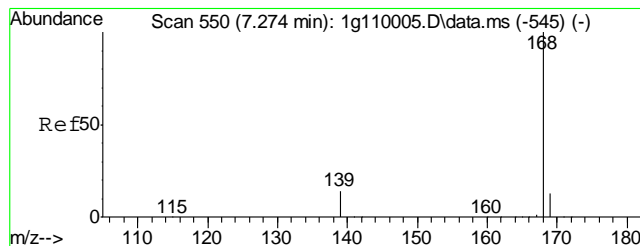
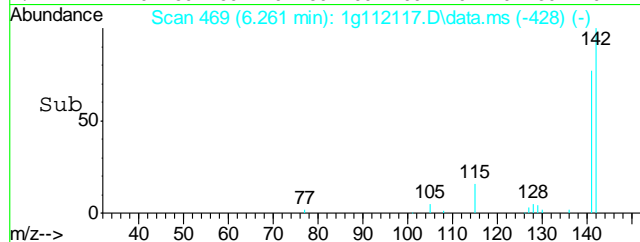
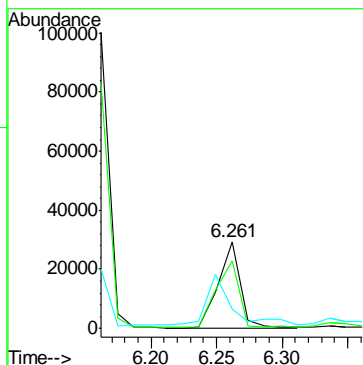
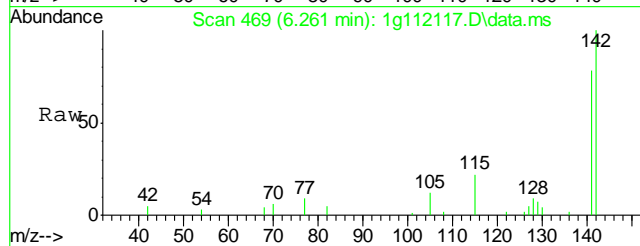
Tgt Ion	Ratio	Lower	Upper
142	100		
141	84.2	61.6	101.6
115	35.5	20.7	60.7





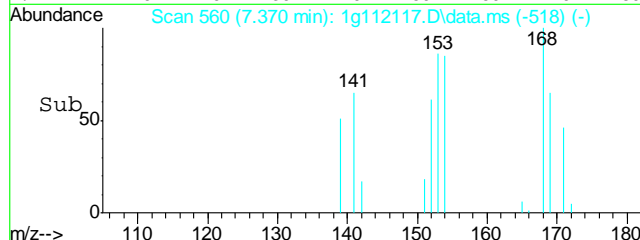
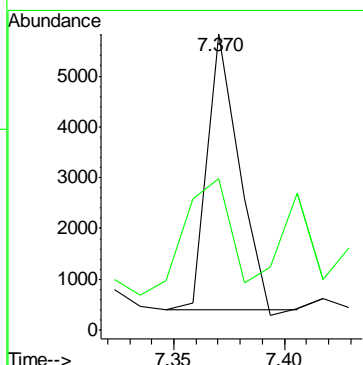
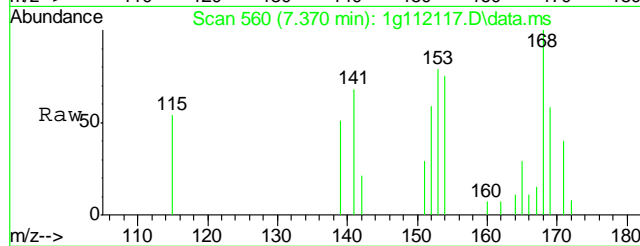
#9  
1-Methylnaphthalene  
Concen: 4.6437 ug/mL  
RT: 6.261 min Scan# 469  
Delta R.T. 0.012 min  
Lab File: 1g112117.D  
Acq: 25 Feb 2013 1:19 pm

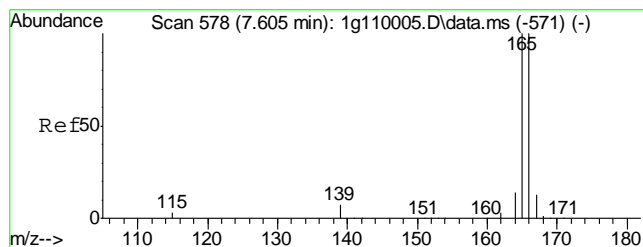
Tgt Ion	Ratio	Lower	Upper
142	100		
141	83.2	69.1	109.1
115	65.9	28.3	68.3



#12  
Dibenzofuran  
Concen: 0.4802 ug/mL  
RT: 7.370 min Scan# 560  
Delta R.T. 0.000 min  
Lab File: 1g112117.D  
Acq: 25 Feb 2013 1:19 pm

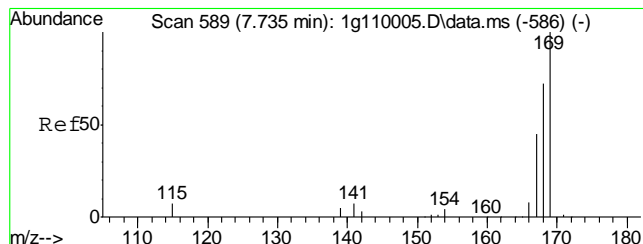
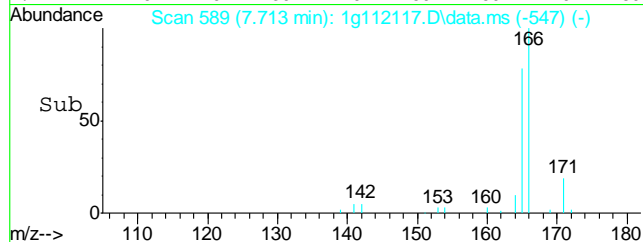
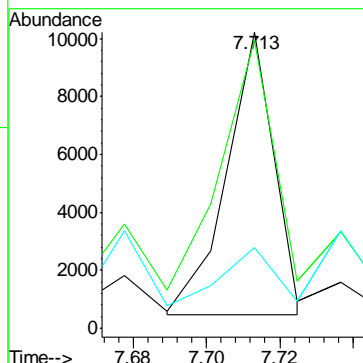
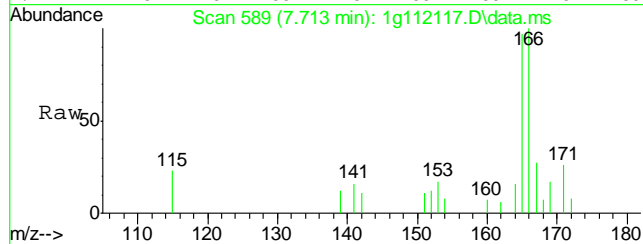
Tgt Ion	Ratio	Lower	Upper
168	100		
139	68.2	17.3	57.3#





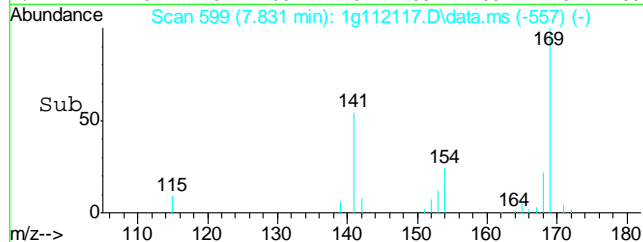
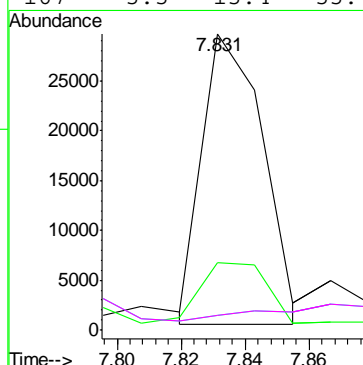
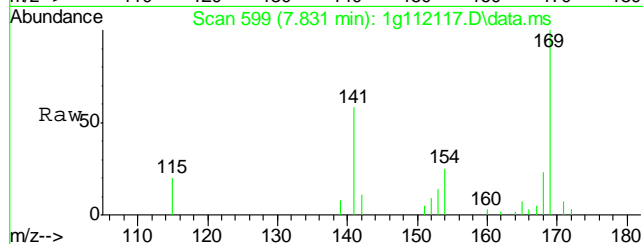
#13  
Fluorene  
Concen: 0.9524 ug/mL m  
RT: 7.713 min Scan# 589  
Delta R.T. 0.000 min  
Lab File: 1g112117.D  
Acq: 25 Feb 2013 1:19 pm

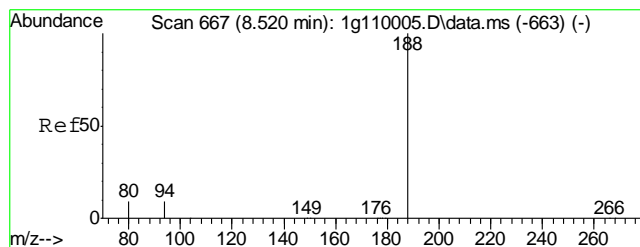
Tgt Ion	Ratio	Lower	Upper
166	100		
165	173.9	75.3	115.3#
167	15.2	0.0	33.3



#14  
Diphenylamine  
Concen: 4.9231 ug/mL m  
RT: 7.831 min Scan# 599  
Delta R.T. 0.000 min  
Lab File: 1g112117.D  
Acq: 25 Feb 2013 1:19 pm

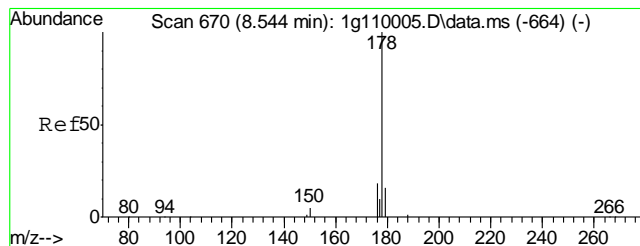
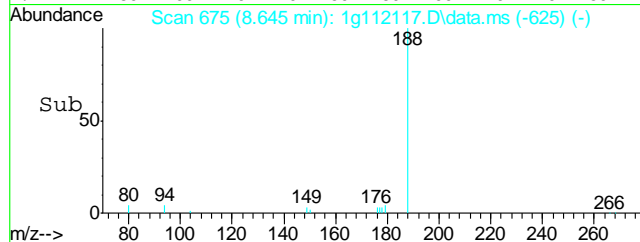
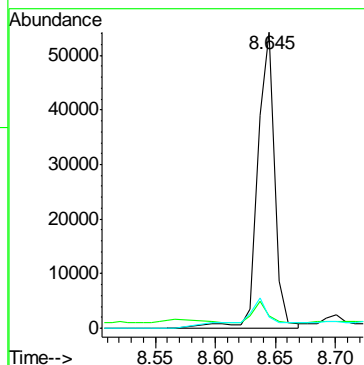
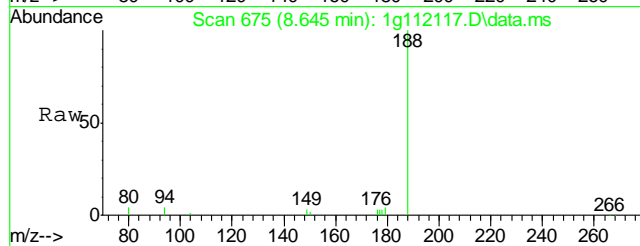
Tgt Ion	Ratio	Lower	Upper
169	100		
168	11.4	44.8	84.8#
167	5.5	15.4	55.4#
167	5.5	15.4	55.4#





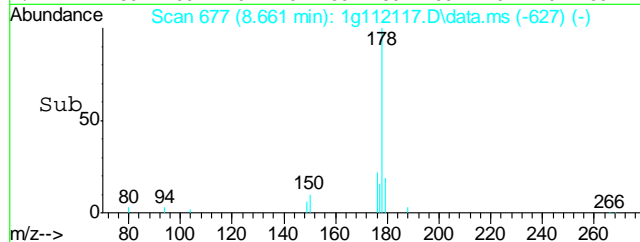
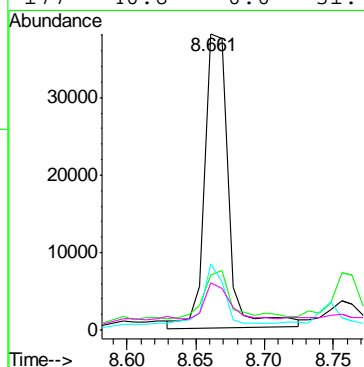
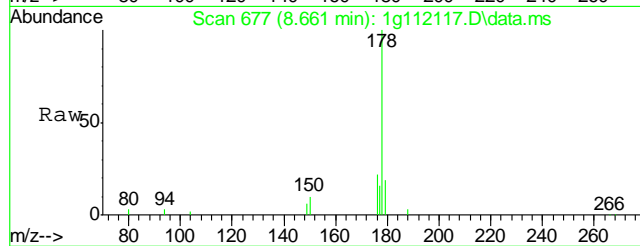
#15  
Phenanthrene-d10  
Concen: 4.0000 ug/mL  
RT: 8.645 min Scan# 675  
Delta R.T. 0.007 min  
Lab File: 1g112117.D  
Acq: 25 Feb 2013 1:19 pm

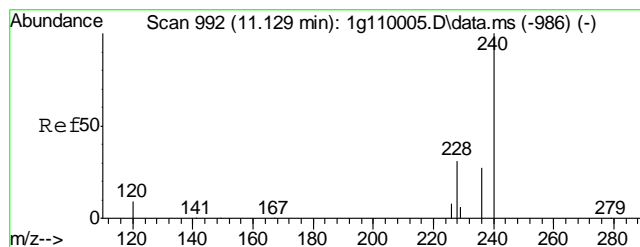
Tgt Ion	Ratio	Lower	Upper
188	100		
94	5.0	0.0	25.0
80	16.9	0.0	27.8



#16  
Phenanthrene  
Concen: 2.5042 ug/mL  
RT: 8.661 min Scan# 677  
Delta R.T. -0.001 min  
Lab File: 1g112117.D  
Acq: 25 Feb 2013 1:19 pm

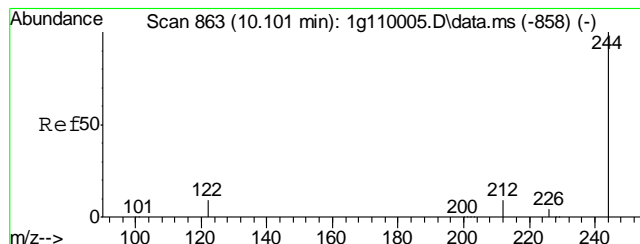
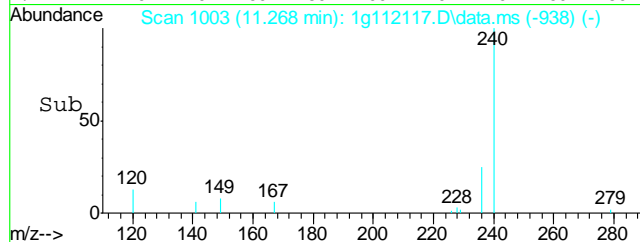
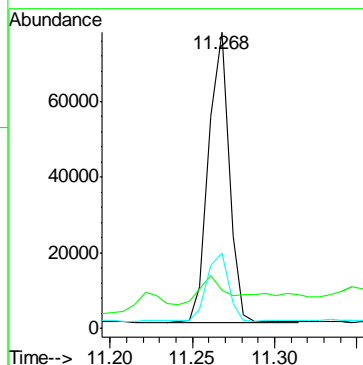
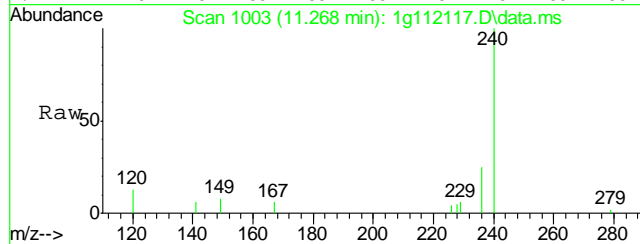
Tgt Ion	Ratio	Lower	Upper
178	100		
179	51.3	0.0	35.6#
176	33.4	0.0	35.2
177	40.8	0.0	31.7#





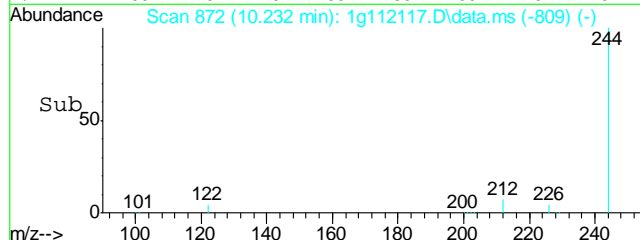
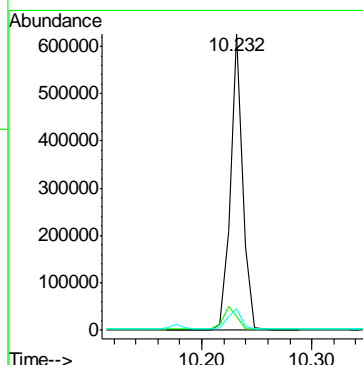
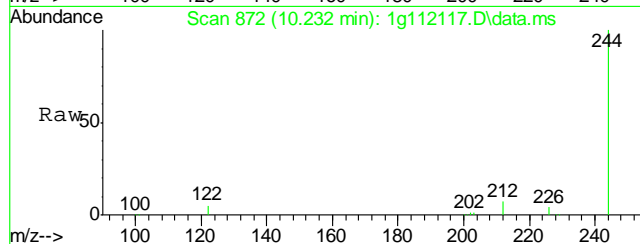
#19  
Chrysene-d12  
Concen: 4.0000 ug/mL  
RT: 11.268 min Scan# 1003  
Delta R.T. 0.013 min  
Lab File: 1g112117.D  
Acq: 25 Feb 2013 1:19 pm

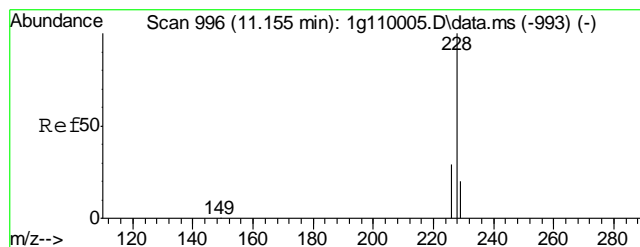
Tgt Ion	Ratio	Lower	Upper
240	100		
120	13.4	0.0	27.4
236	24.4	4.7	44.7



#21  
Terphenyl-d14  
Concen: 35.6685 ug/mL  
RT: 10.232 min Scan# 872  
Delta R.T. 0.008 min  
Lab File: 1g112117.D  
Acq: 25 Feb 2013 1:19 pm

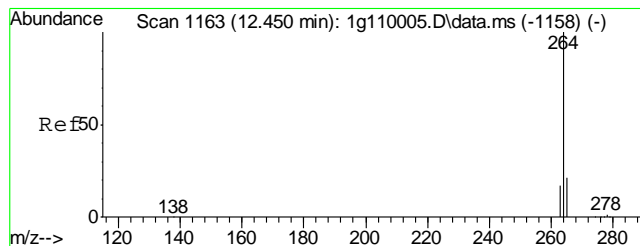
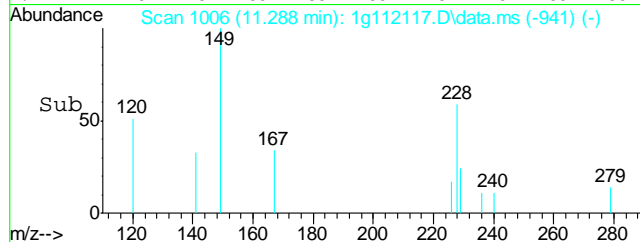
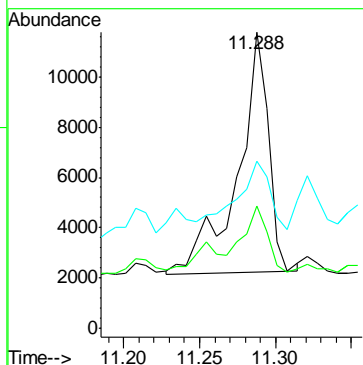
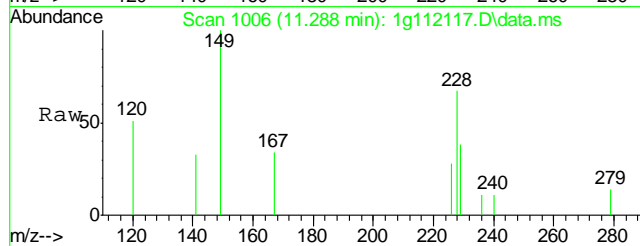
Tgt Ion	Ratio	Lower	Upper
244	100		
122	8.6	0.0	28.4
212	8.1	0.0	27.9





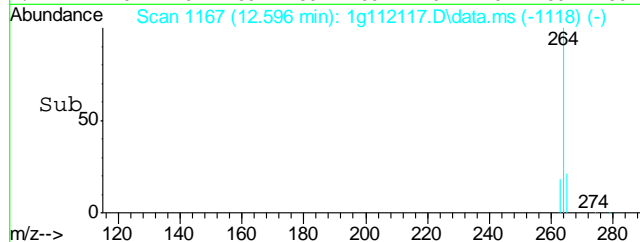
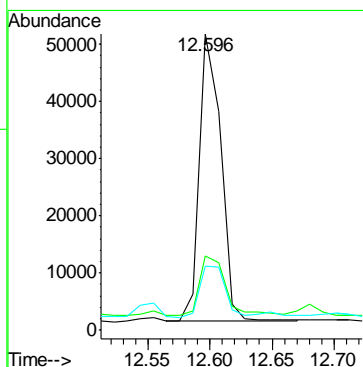
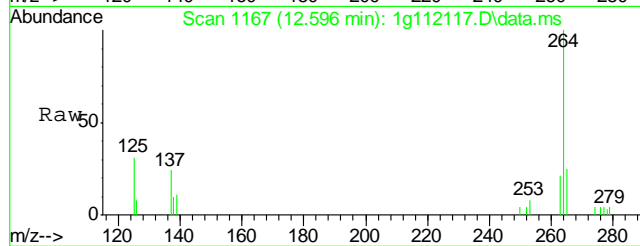
#23  
 Chrysene  
 Concen: 0.7137 ug/mL  
 RT: 11.288 min Scan# 1006  
 Delta R.T. 0.006 min  
 Lab File: 1g112117.D  
 Acq: 25 Feb 2013 1:19 pm

Tgt Ion	Ratio	Lower	Upper
228	100		
226	21.2	8.1	48.1
229	45.1	0.0	39.7



#24  
 Perylene-d12  
 Concen: 4.0000 ug/mL  
 RT: 12.596 min Scan# 1167  
 Delta R.T. 0.011 min  
 Lab File: 1g112117.D  
 Acq: 25 Feb 2013 1:19 pm

Tgt Ion	Ratio	Lower	Upper
264	100		
265	25.6	1.6	41.6
263	21.5	0.0	39.1



## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\022513\  
 Data File : 1g112118.D  
 Acq On : 25 Feb 2013 1:44 pm  
 Operator : DONC  
 Sample : D43722-2  
 Misc : OP7430,E1G940,30.00,,,1,1  
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: Feb 25 14:22:07 2013  
 Quant Method : C:\msdchem\1\METHODS\simpelg933.m  
 Quant Title : PAHSIM BASE  
 QLast Update : Fri Feb 22 15:40:40 2013  
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.476	136	46872	4.0000	ug/mL	0.01
6) Acenaphthene-d10	7.169	164	38341	4.0000	ug/mL	0.01
15) Phenanthrene-d10	8.646	188	86844	4.0000	ug/mL	0.00
19) Chrysene-d12	11.267	240	84935	4.0000	ug/mL	0.01
24) Perylene-d12	12.606	264	78076	4.0000	ug/mL	0.02

## System Monitoring Compounds

2) Nitrobenzene-d5	4.802	82	21112	4.4588	ug/mL	0.01
Spiked Amount 50.000	Range 25 - 135		Recovery =	8.92%#		
7) 2-Fluorobiphenyl	6.508	172	418131	23.1147	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	46.22%		
21) Terphenyl-d14	10.239	244	765619	43.5366	ug/mL	0.02
Spiked Amount 50.000	Range 25 - 135		Recovery =	87.08%		

## Target Compounds

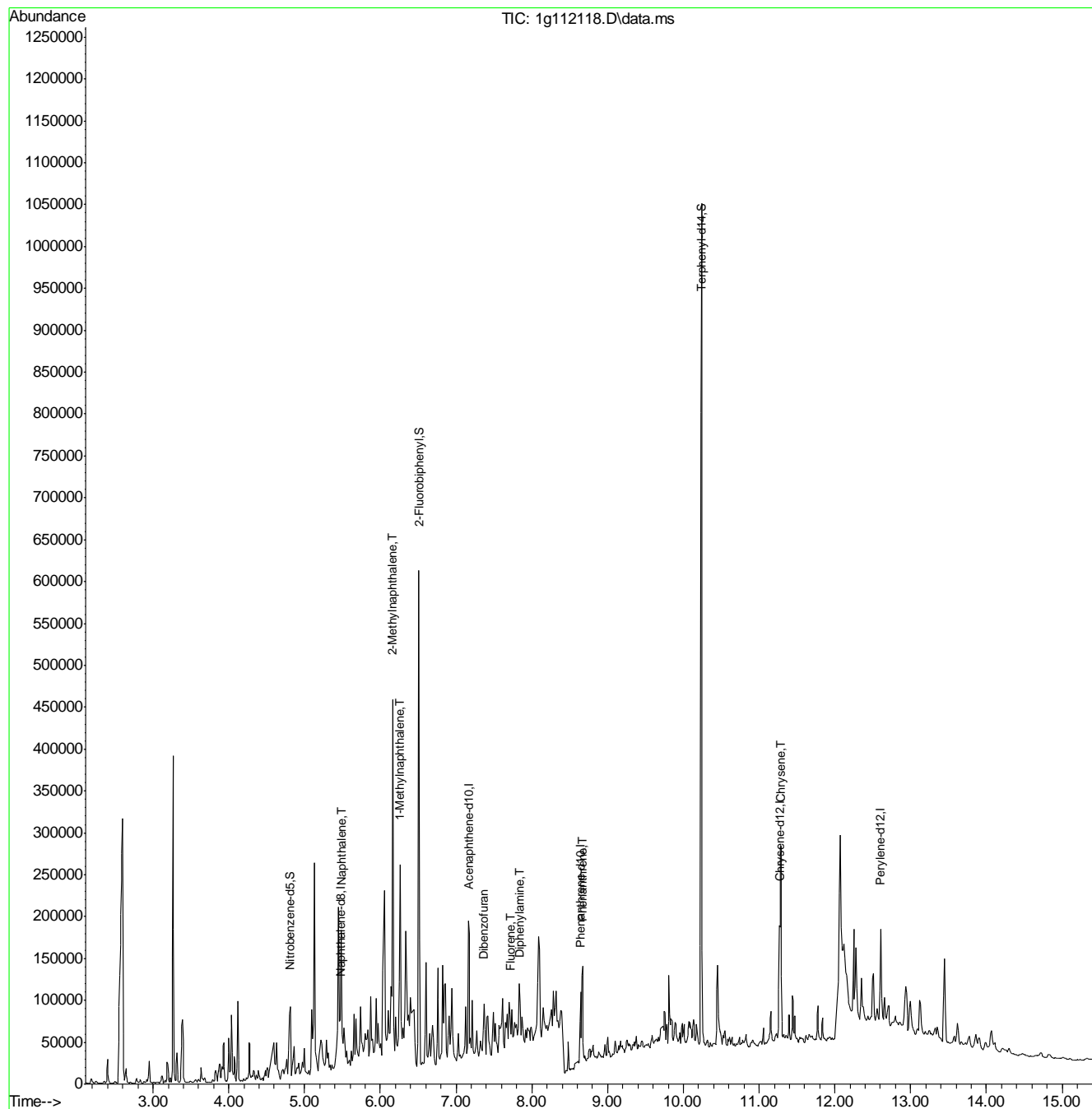
					Qvalue
5) Naphthalene	5.488	128	80065m	5.4130	ug/mL
8) 2-Methylnaphthalene	6.162	142	155520	13.4047	ug/mL 94
9) 1-Methylnaphthalene	6.262	142	70813m	6.8702	ug/mL
12) Dibenzofuran	7.370	168	12596m	0.7613	ug/mL
13) Fluorene	7.713	166	10957m	0.8124	ug/mL
14) Diphenylamine	7.843	169	47342m	4.1302	ug/mL
16) Phenanthrene	8.670	178	86972	3.6102	ug/mL# 45
23) Chrysene	11.294	228	27689	1.1468	ug/mL 82

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

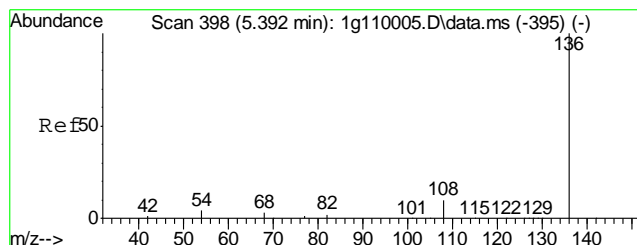
## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\022513\  
Data File : 1g112118.D  
Acq On : 25 Feb 2013 1:44 pm  
Operator : DONC  
Sample : D43722-2  
Misc : OP7430,E1G940,30.00,,,1,1  
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Feb 25 14:22:07 2013  
Quant Method : C:\msdchem\1\METHODS\simpelg933.m  
Quant Title : PAHSIM BASE  
QLast Update : Fri Feb 22 15:40:40 2013  
Response via : Initial Calibration

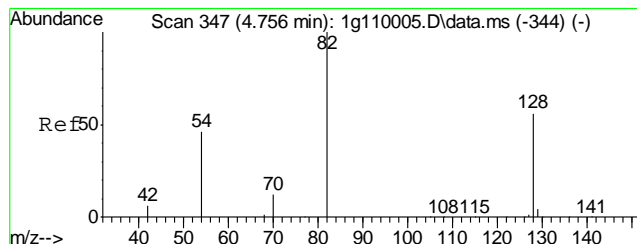
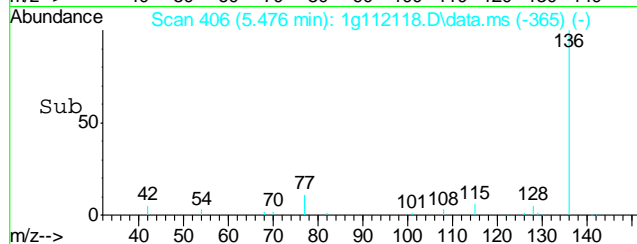
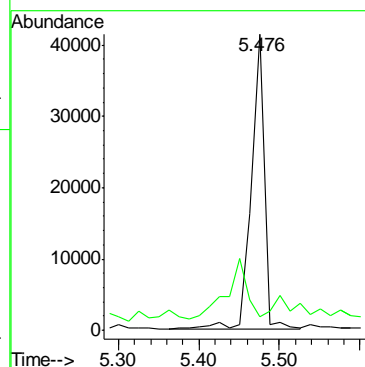
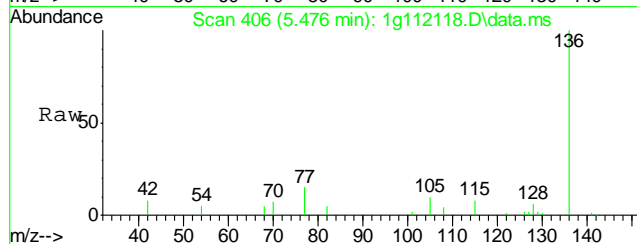






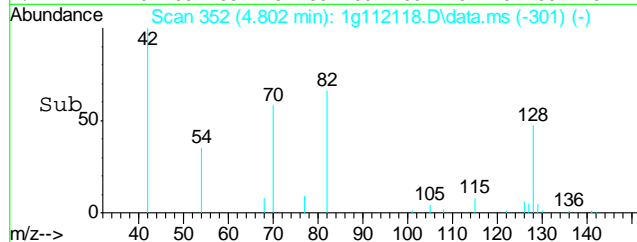
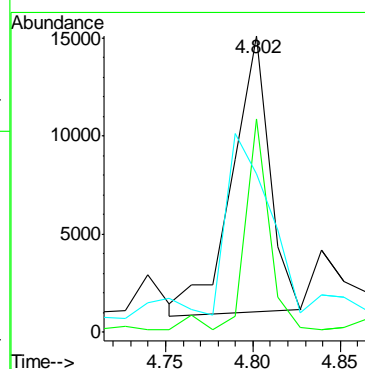
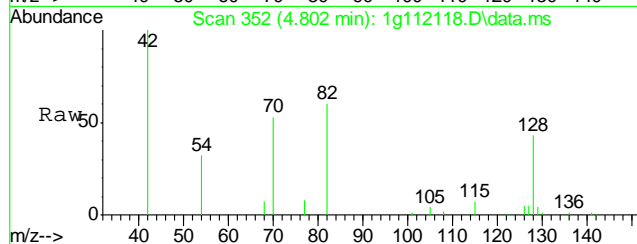
#1  
Naphthalene-d8  
Concen: 4.0000 ug/mL  
RT: 5.476 min Scan# 406  
Delta R.T. 0.012 min  
Lab File: 1g112118.D  
Acq: 25 Feb 2013 1:44 pm

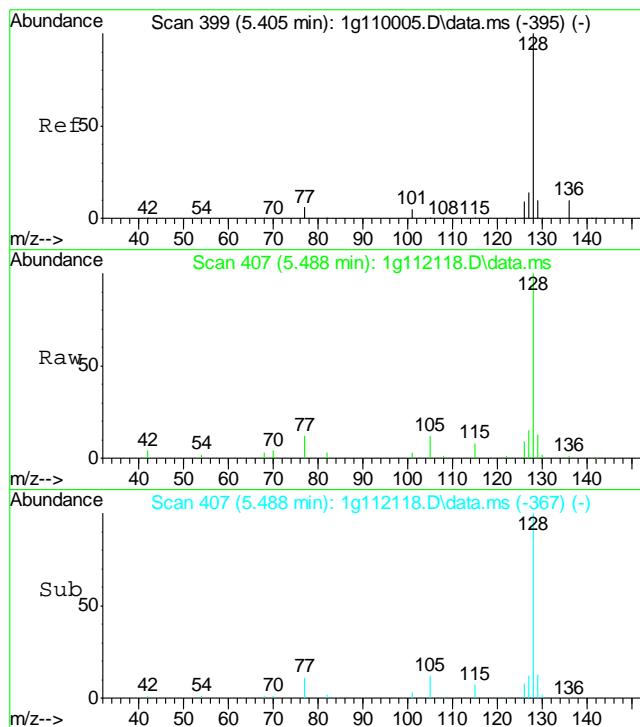
Tgt Ion: 136 Resp: 46872  
Ion Ratio Lower Upper  
136 100  
68 15.5 0.0 23.9



#2  
Nitrobenzene-d5  
Concen: 4.4588 ug/mL  
RT: 4.802 min Scan# 352  
Delta R.T. 0.012 min  
Lab File: 1g112118.D  
Acq: 25 Feb 2013 1:44 pm

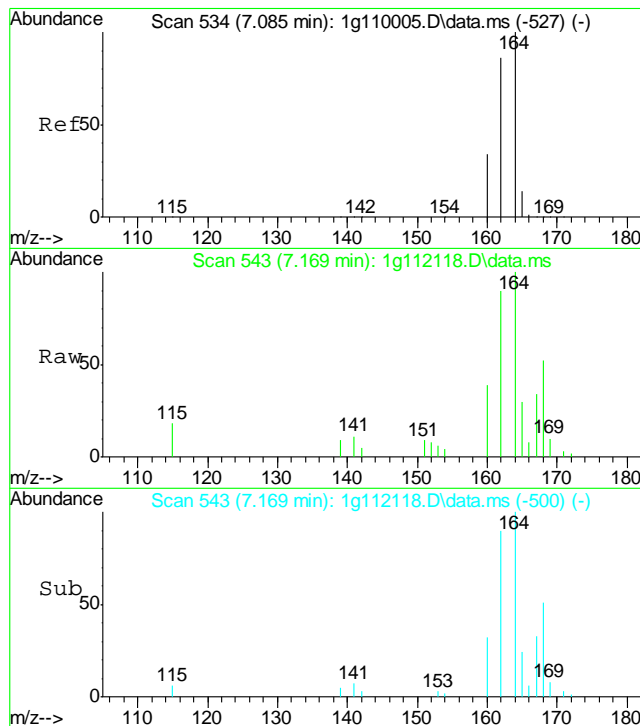
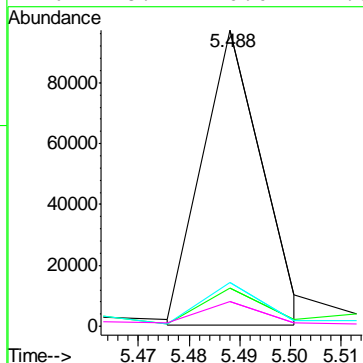
Tgt Ion: 82 Resp: 21112  
Ion Ratio Lower Upper  
82 100  
128 50.3 25.3 65.3  
54 120.0 45.9 85.9#





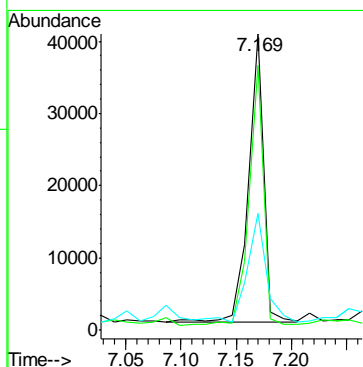
#5  
Naphthalene  
Concen: 5.4130 ug/mL m  
RT: 5.488 min Scan# 407  
Delta R.T. 0.000 min  
Lab File: 1g112118.D  
Acq: 25 Feb 2013 1:44 pm

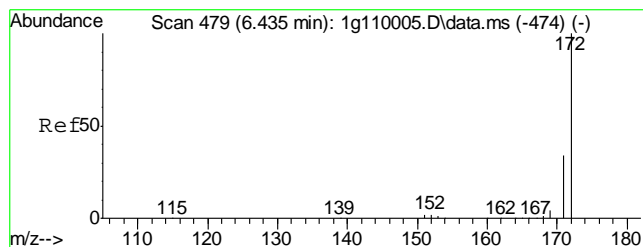
Tgt Ion	Ratio	Lower	Upper
128	100		
129	28.7	0.0	30.9
127	16.1	0.0	33.4
126	8.2	0.0	27.3



#6  
Acenaphthene-d10  
Concen: 4.0000 ug/mL  
RT: 7.169 min Scan# 543  
Delta R.T. 0.012 min  
Lab File: 1g112118.D  
Acq: 25 Feb 2013 1:44 pm

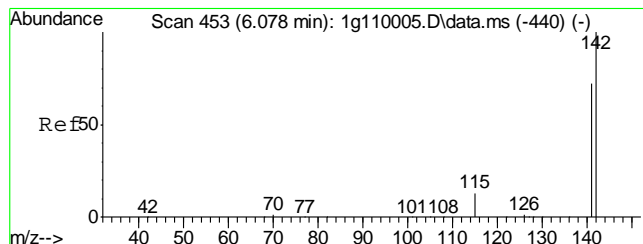
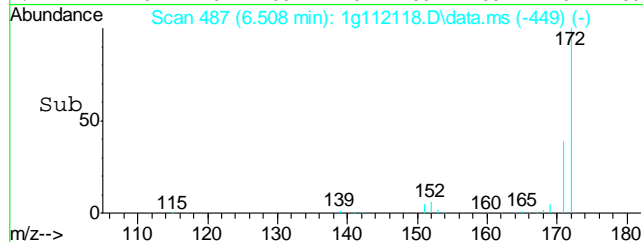
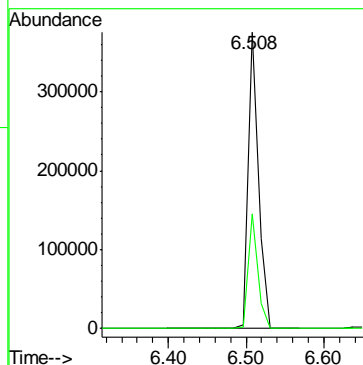
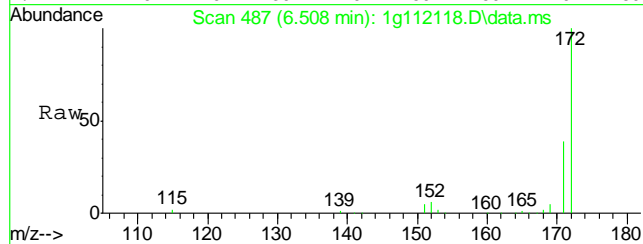
Tgt Ion	Ratio	Lower	Upper
164	100		
162	86.3	79.1	119.1
160	46.9	23.2	63.2





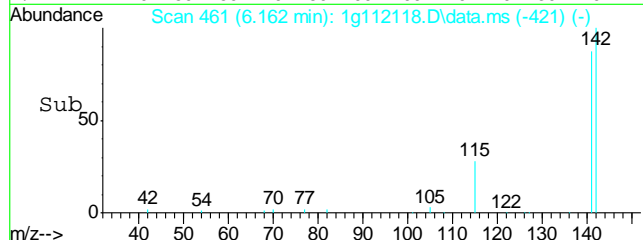
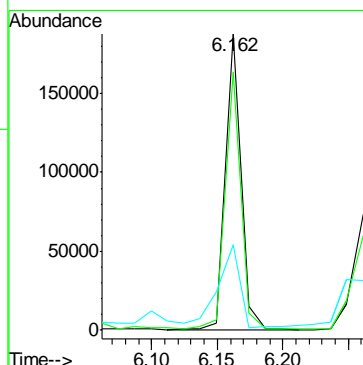
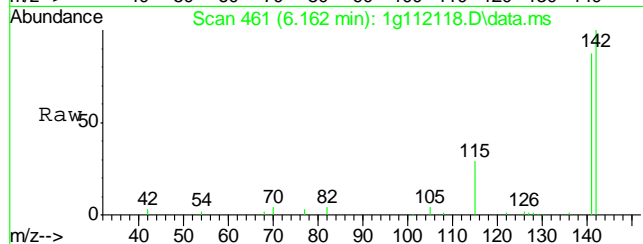
#7  
2-Fluorobiphenyl  
Concen: 23.1147 ug/mL  
RT: 6.508 min Scan# 487  
Delta R.T. 0.001 min  
Lab File: 1g112118.D  
Acq: 25 Feb 2013 1:44 pm

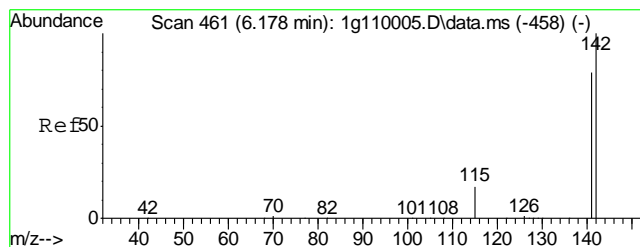
Tgt Ion	Ratio	Lower	Upper
172	100		
171	36.8	15.6	55.6



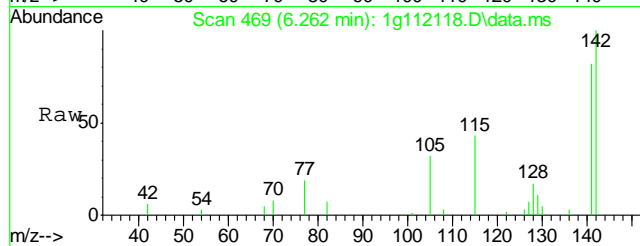
#8  
2-Methylnaphthalene  
Concen: 13.4047 ug/mL  
RT: 6.162 min Scan# 461  
Delta R.T. 0.001 min  
Lab File: 1g112118.D  
Acq: 25 Feb 2013 1:44 pm

Tgt Ion	Ratio	Lower	Upper
142	100		
141	87.7	61.6	101.6
115	37.6	20.7	60.7

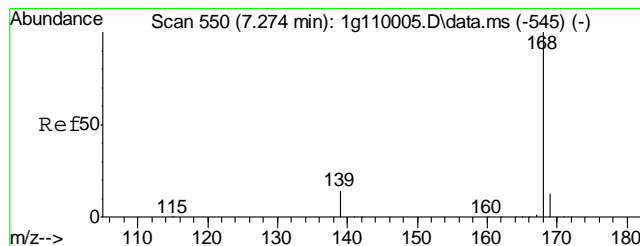
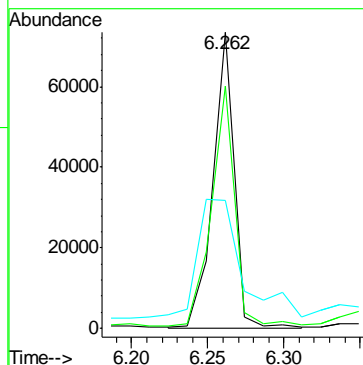
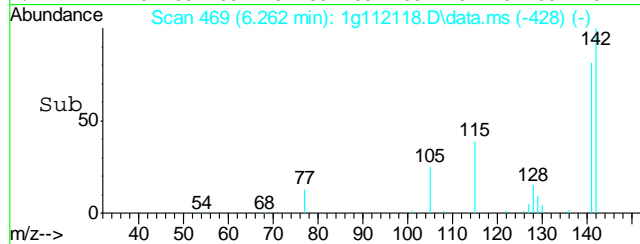




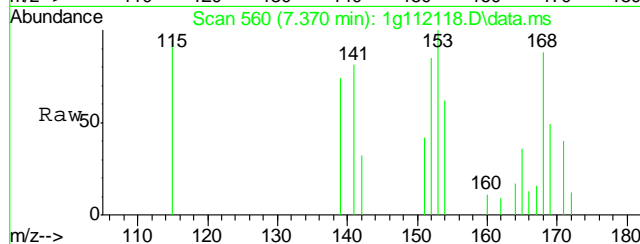
#9  
1-Methylnaphthalene  
Concen: 6.8702 ug/mL m  
RT: 6.262 min Scan# 469  
Delta R.T. 0.012 min  
Lab File: 1g112118.D  
Acq: 25 Feb 2013 1:44 pm



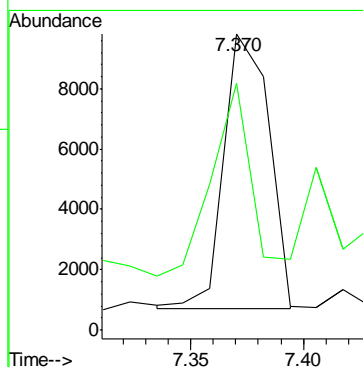
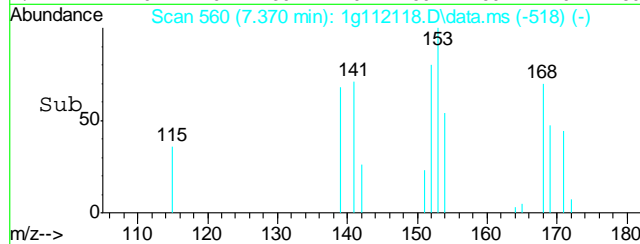
Tgt Ion:142 Resp: 70813  
Ion Ratio Lower Upper  
142 100  
141 192.6 69.1 109.1#  
115 83.1 28.3 68.3#

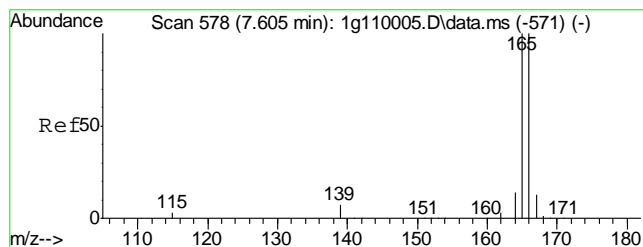


#12  
Dibenzofuran  
Concen: 0.7613 ug/mL m  
RT: 7.370 min Scan# 560  
Delta R.T. 0.001 min  
Lab File: 1g112118.D  
Acq: 25 Feb 2013 1:44 pm

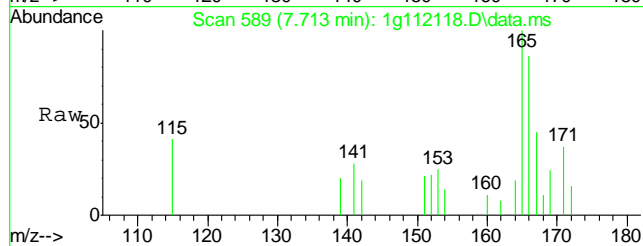


Tgt Ion:168 Resp: 12596  
Ion Ratio Lower Upper  
168 100  
139 31.7 17.3 57.3

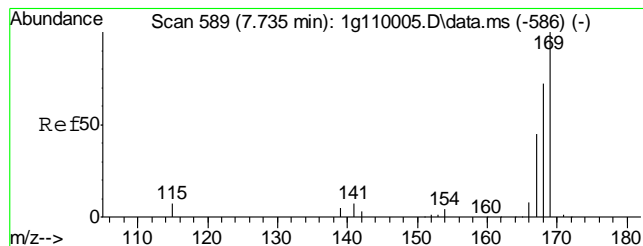
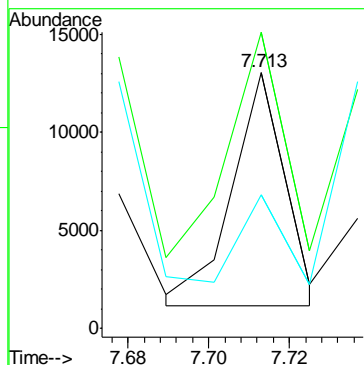
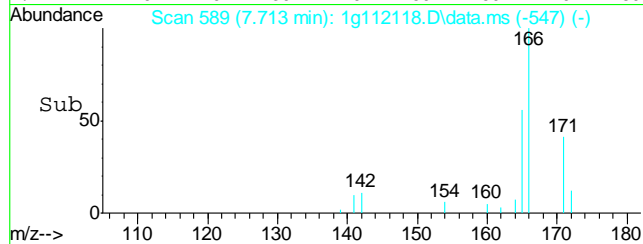




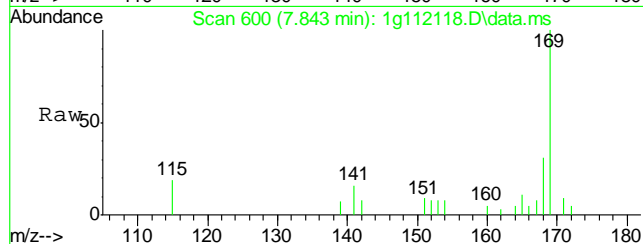
#13  
Fluorene  
Concen: 0.8124 ug/mL m  
RT: 7.713 min Scan# 589  
Delta R.T. 0.001 min  
Lab File: 1g112118.D  
Acq: 25 Feb 2013 1:44 pm



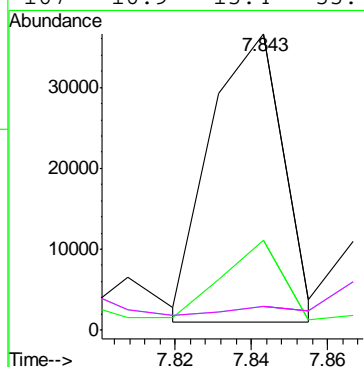
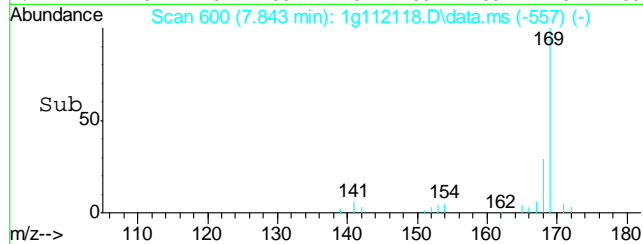
Tgt Ion:166 Resp: 10957  
Ion Ratio Lower Upper  
166 100  
165 162.4 75.3 115.3#  
167 110.6 0.0 33.3#

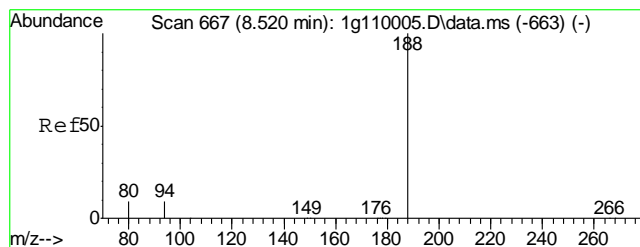


#14  
Diphenylamine  
Concen: 4.1302 ug/mL m  
RT: 7.843 min Scan# 600  
Delta R.T. 0.012 min  
Lab File: 1g112118.D  
Acq: 25 Feb 2013 1:44 pm



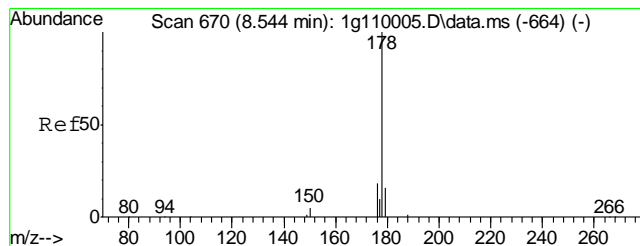
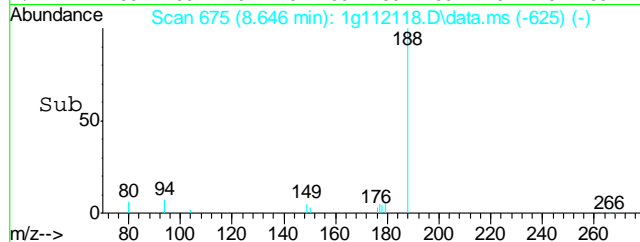
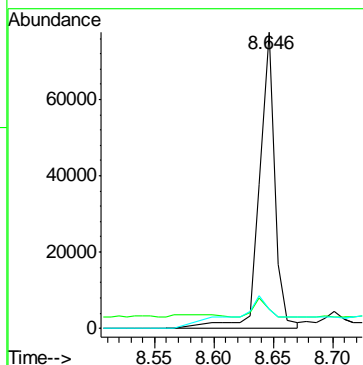
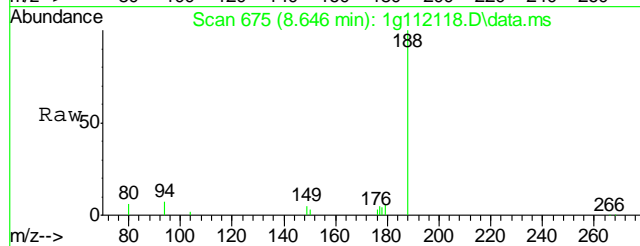
Tgt Ion:169 Resp: 47342  
Ion Ratio Lower Upper  
169 100  
168 25.8 44.8 84.8#  
167 16.9 15.4 55.4  
167 16.9 15.4 55.4





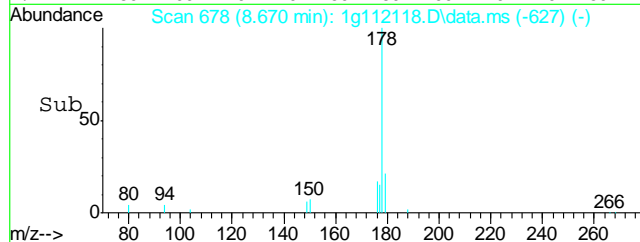
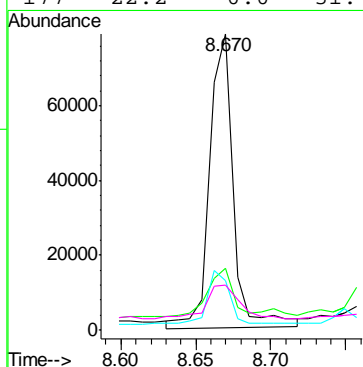
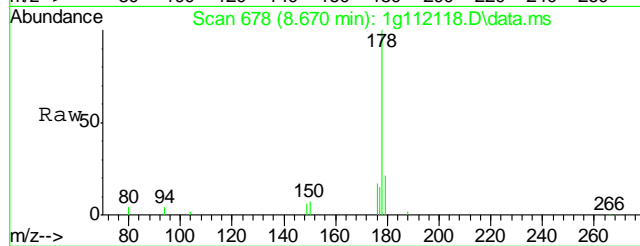
#15  
Phenanthrene-d10  
Concen: 4.0000 ug/mL  
RT: 8.646 min Scan# 675  
Delta R.T. 0.008 min  
Lab File: 1g112118.D  
Acq: 25 Feb 2013 1:44 pm

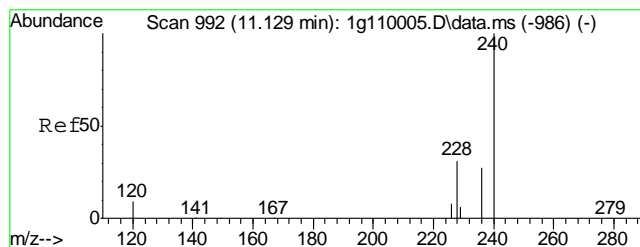
Tgt Ion	Ratio	Lower	Upper
188	100		
94	4.9	0.0	25.0
80	26.6	0.0	27.8



#16  
Phenanthrene  
Concen: 3.6102 ug/mL  
RT: 8.670 min Scan# 678  
Delta R.T. 0.008 min  
Lab File: 1g112118.D  
Acq: 25 Feb 2013 1:44 pm

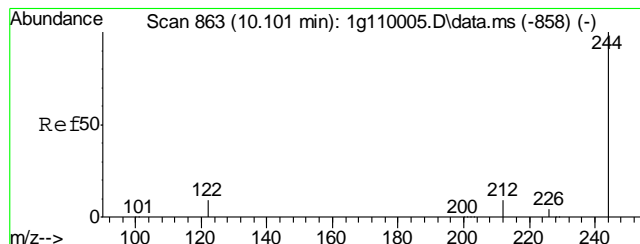
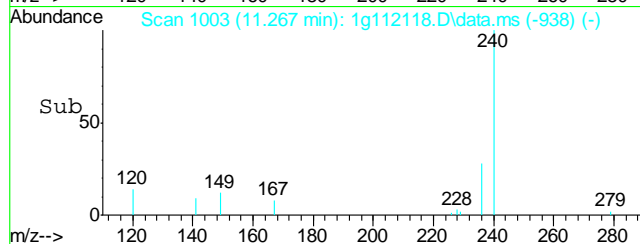
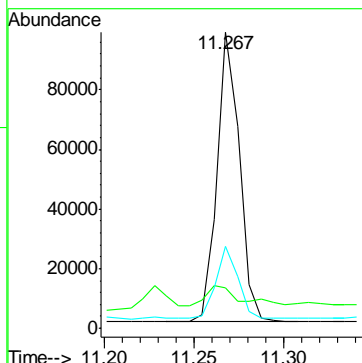
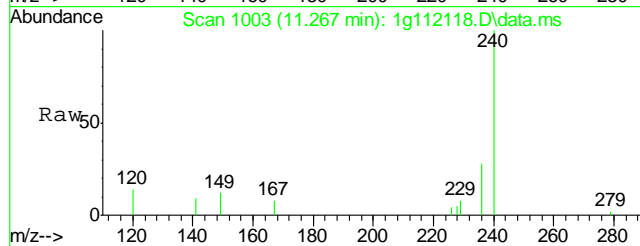
Tgt Ion	Ratio	Lower	Upper
178	100		
179	52.0	0.0	35.6#
176	34.2	0.0	35.2
177	22.2	0.0	31.7





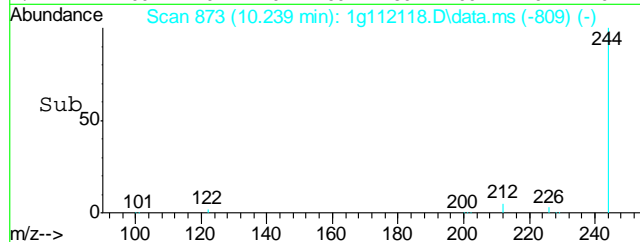
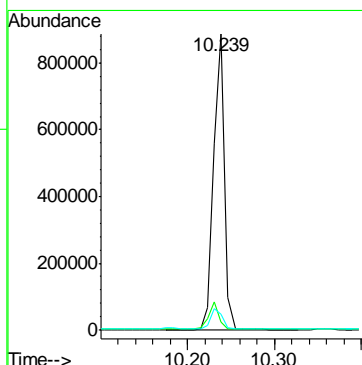
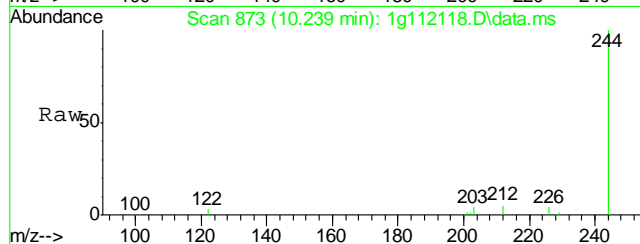
#19  
Chrysene-d12  
Concen: 4.0000 ug/mL  
RT: 11.267 min Scan# 1003  
Delta R.T. 0.012 min  
Lab File: 1g112118.D  
Acq: 25 Feb 2013 1:44 pm

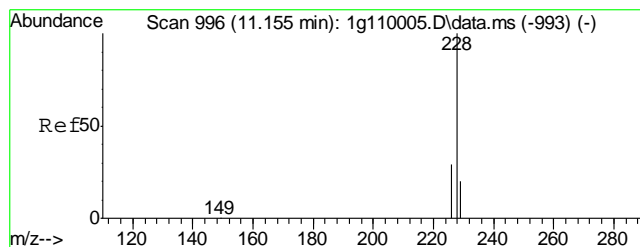
Tgt Ion	Ratio	Lower	Upper
240	100		
120	13.8	0.0	27.4
236	24.8	4.7	44.7



#21  
Terphenyl-d14  
Concen: 43.5366 ug/mL  
RT: 10.239 min Scan# 873  
Delta R.T. 0.015 min  
Lab File: 1g112118.D  
Acq: 25 Feb 2013 1:44 pm

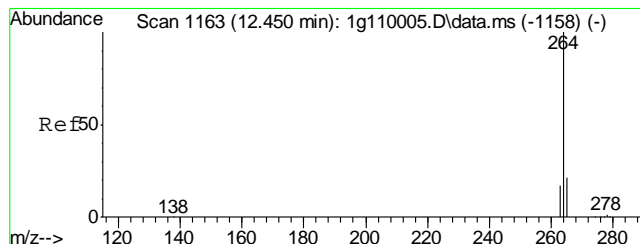
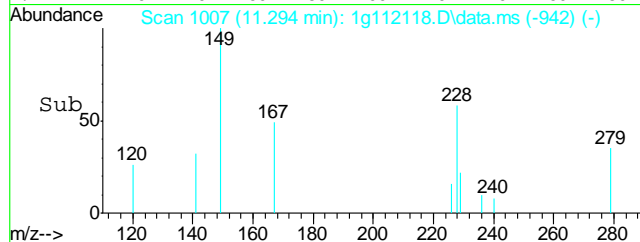
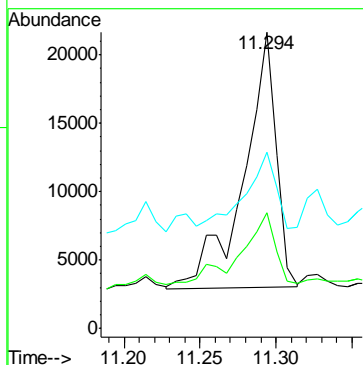
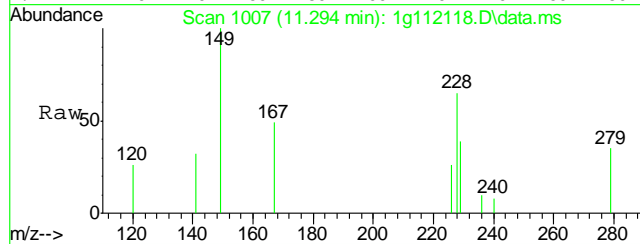
Tgt Ion	Ratio	Lower	Upper
244	100		
122	8.6	0.0	28.4
212	7.7	0.0	27.9





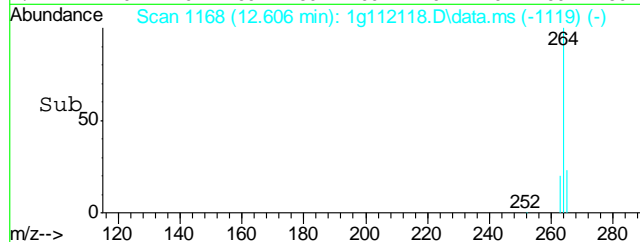
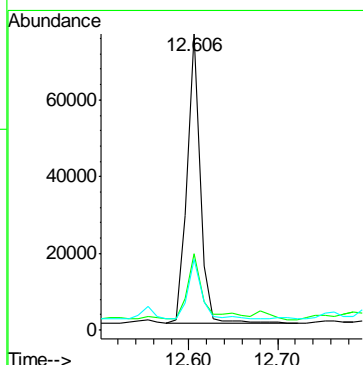
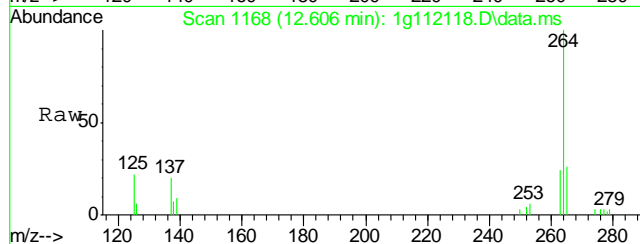
#23  
Chrysene  
Concen: 1.1468 ug/mL  
RT: 11.294 min Scan# 1007  
Delta R.T. 0.012 min  
Lab File: 1g112118.D  
Acq: 25 Feb 2013 1:44 pm

Tgt Ion	Ratio	Lower	Upper
228	100		
226	31.1	8.1	48.1
229	36.3	0.0	39.7



#24  
Perylene-d12  
Concen: 4.0000 ug/mL  
RT: 12.606 min Scan# 1168  
Delta R.T. 0.021 min  
Lab File: 1g112118.D  
Acq: 25 Feb 2013 1:44 pm

Tgt Ion	Ratio	Lower	Upper
264	100		
265	26.3	1.6	41.6
263	21.8	0.0	39.1





## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\022513\  
 Data File : 1g112119.D  
 Acq On : 25 Feb 2013 2:35 pm  
 Operator : DONC  
 Sample : D43722-2, 4x  
 Misc : OP7430,E1G940,30.00,,,1,4  
 ALS Vial : 11 Sample Multiplier: 1

Quant Time: Feb 25 15:12:25 2013  
 Quant Method : C:\msdchem\1\METHODS\simpelg933.m  
 Quant Title : PAHSIM BASE  
 QLast Update : Fri Feb 22 15:40:40 2013  
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.476	136	37013	4.0000	ug/mL	0.01
6) Acenaphthene-d10	7.169	164	27257	4.0000	ug/mL	0.01
15) Phenanthrene-d10	8.645	188	60601	4.0000	ug/mL	0.00
19) Chrysene-d12	11.268	240	61006	4.0000	ug/mL	0.01
24) Perylene-d12	12.596	264	56105	4.0000	ug/mL	0.01

## System Monitoring Compounds

2) Nitrobenzene-d5	4.802	82	6446	1.7240	ug/mL	0.01
Spiked Amount	50.000	Range	25 - 135	Recovery	=	3.44%#
7) 2-Fluorobiphenyl	6.507	172	88674	6.8954	ug/mL	0.00
Spiked Amount	50.000	Range	25 - 135	Recovery	=	13.80%#
21) Terphenyl-d14	10.232	244	161305	12.7704	ug/mL	0.00
Spiked Amount	50.000	Range	25 - 135	Recovery	=	25.54%

## Target Compounds

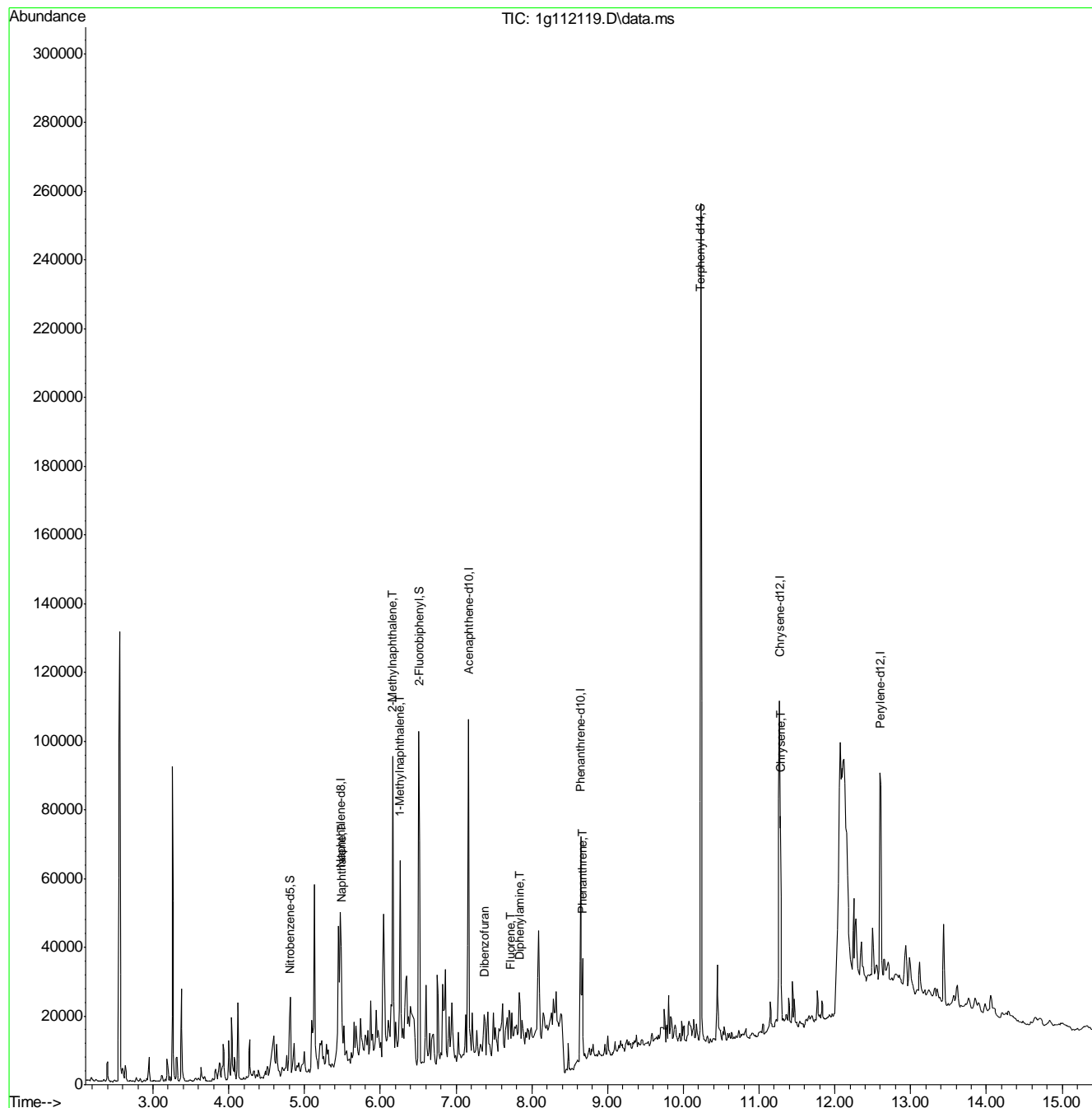
					Qvalue
5) Naphthalene	5.488	128	21057	1.8028	ug/mL 84
8) 2-Methylnaphthalene	6.162	142	32212	3.9055	ug/mL 93
9) 1-Methylnaphthalene	6.262	142	16883m	2.3040	ug/mL
12) Dibenzofuran	7.382	168	3118	0.2651	ug/mL 70
13) Fluorene	7.713	166	1892m	0.1973	ug/mL
14) Diphenylamine	7.843	169	9822m	1.2053	ug/mL
16) Phenanthrene	8.669	178	19440	1.1564	ug/mL# 38
23) Chrysene	11.288	228	5677	0.3274	ug/mL 84

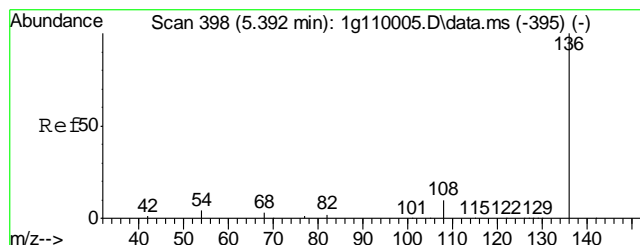
(#) = qualifier out of range (m) = manual integration (+) = signals summed

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\022513\  
Data File : 1g112119.D  
Acq On : 25 Feb 2013 2:35 pm  
Operator : DONC  
Sample : D43722-2, 4x  
Misc : OP7430,E1G940,30.00,,,1,4  
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Feb 25 15:12:25 2013  
Quant Method : C:\msdchem\1\METHODS\simpelg933.m  
Quant Title : PAHSIM BASE  
QLast Update : Fri Feb 22 15:40:40 2013  
Response via : Initial Calibration





#1

Naphthalene-d8

Concen: 4.0000 ug/mL

RT: 5.476 min Scan# 406

Delta R.T. 0.012 min

Lab File: 1g112119.D

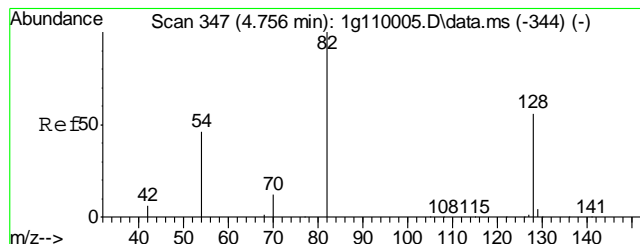
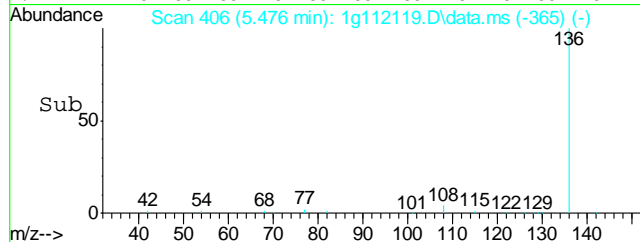
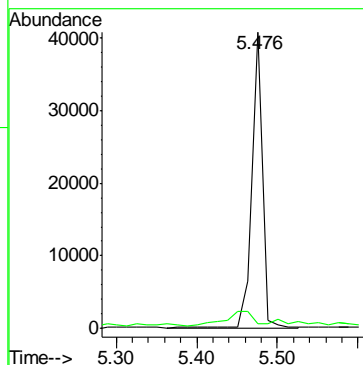
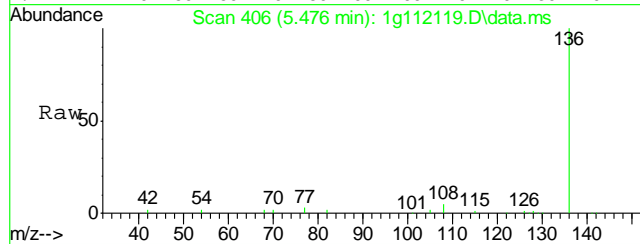
Acq: 25 Feb 2013 2:35 pm

Tgt Ion: 136 Resp: 37013

Ion Ratio Lower Upper

136 100

68 12.8 0.0 23.9



#2

Nitrobenzene-d5

Concen: 1.7240 ug/mL

RT: 4.802 min Scan# 352

Delta R.T. 0.012 min

Lab File: 1g112119.D

Acq: 25 Feb 2013 2:35 pm

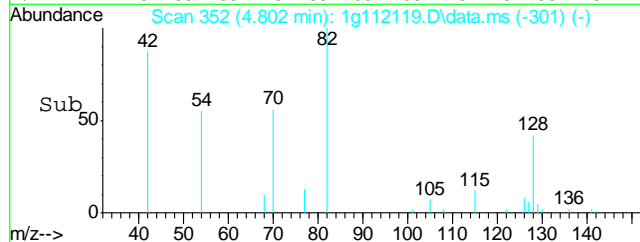
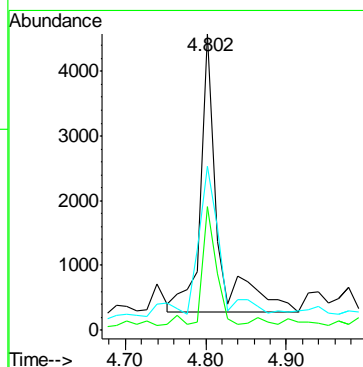
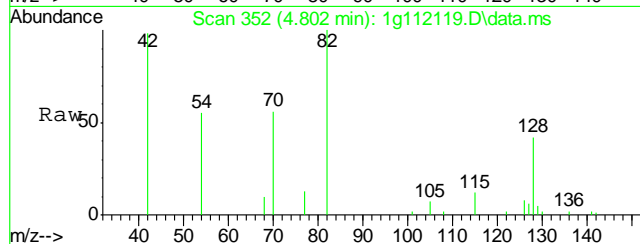
Tgt Ion: 82 Resp: 6446

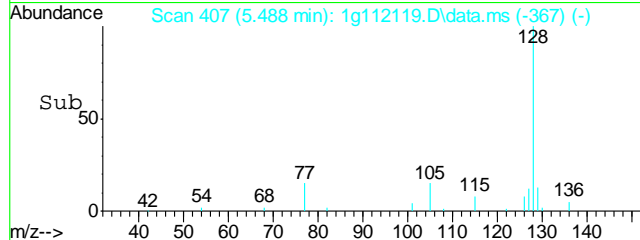
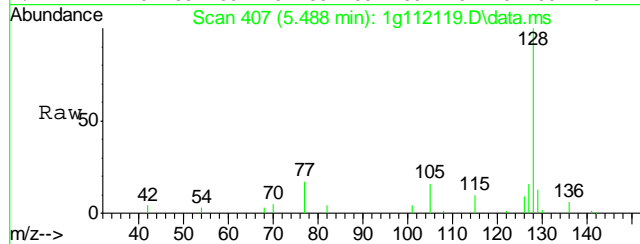
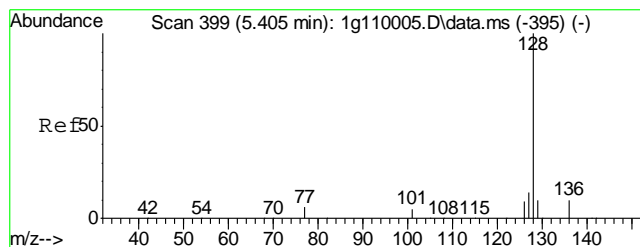
Ion Ratio Lower Upper

82 100

128 34.2 25.3 65.3

54 90.2 45.9 85.9#





#5

Naphthalene

Concen: 1.8028 ug/mL

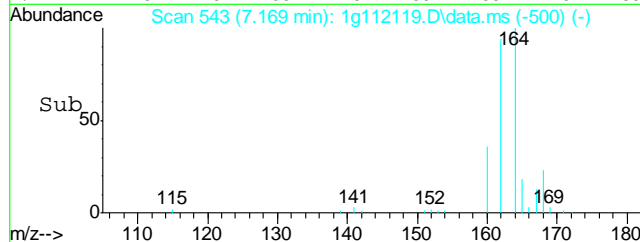
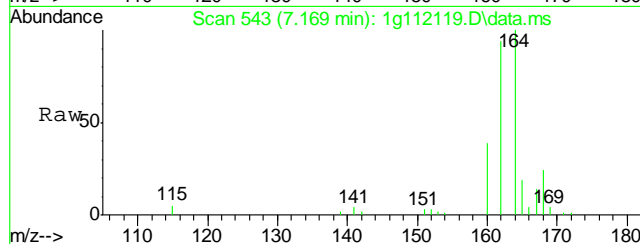
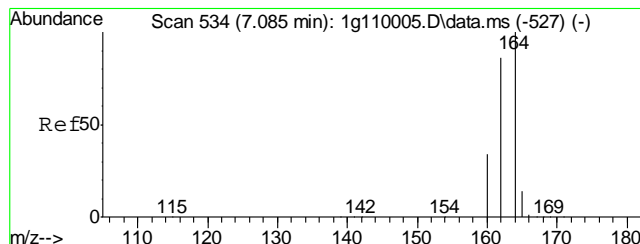
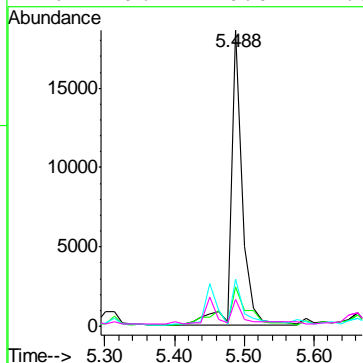
RT: 5.488 min Scan# 407

Delta R.T. 0.000 min

Lab File: 1g112119.D

Acq: 25 Feb 2013 2:35 pm

Tgt Ion:128	Resp:	21057
Ion Ratio	Lower	Upper
128	100	
129	25.0	0.0 30.9
127	15.3	0.0 33.4
126	9.7	0.0 27.3



#6

Acenaphthene-d10

Concen: 4.0000 ug/mL

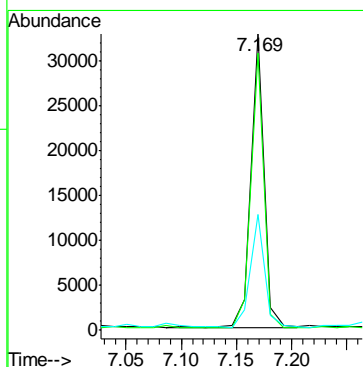
RT: 7.169 min Scan# 543

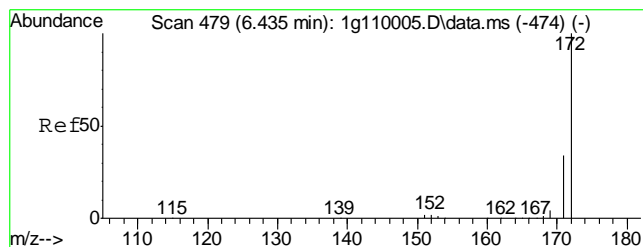
Delta R.T. 0.012 min

Lab File: 1g112119.D

Acq: 25 Feb 2013 2:35 pm

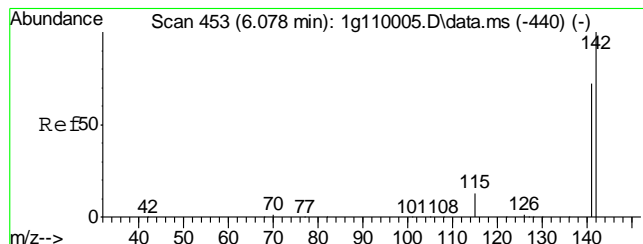
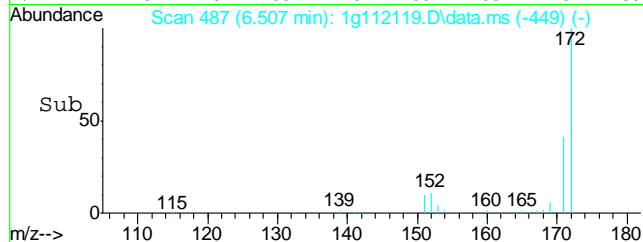
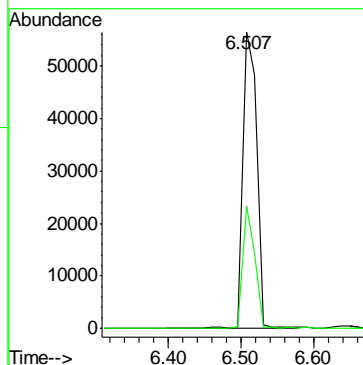
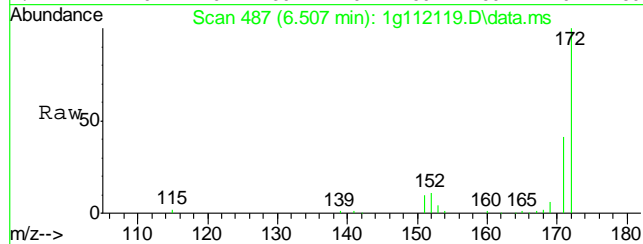
Tgt Ion:164	Resp:	27257
Ion Ratio	Lower	Upper
164	100	
162	92.9	79.1 119.1
160	42.2	23.2 63.2





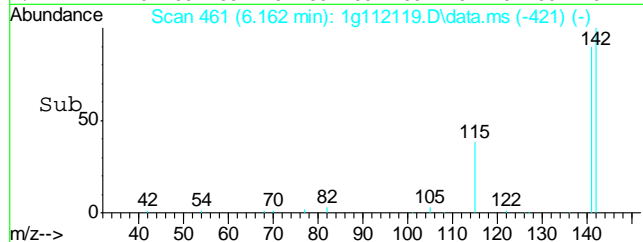
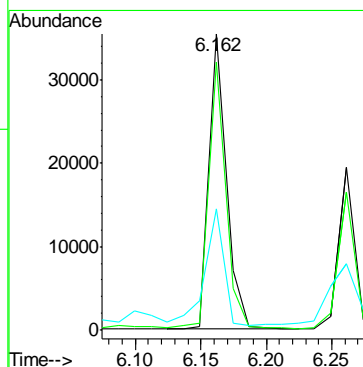
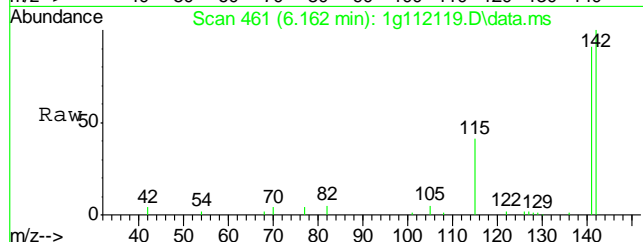
#7  
2-Fluorobiphenyl  
Concen: 6.8954 ug/mL  
RT: 6.507 min Scan# 487  
Delta R.T. 0.000 min  
Lab File: 1g112119.D  
Acq: 25 Feb 2013 2:35 pm

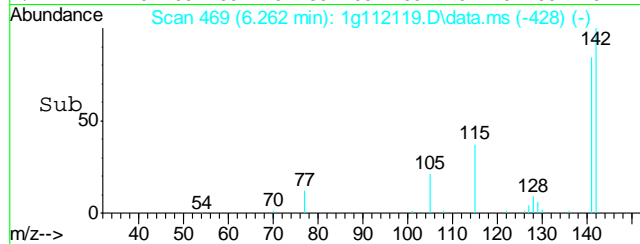
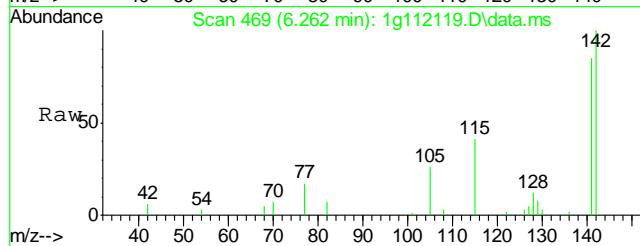
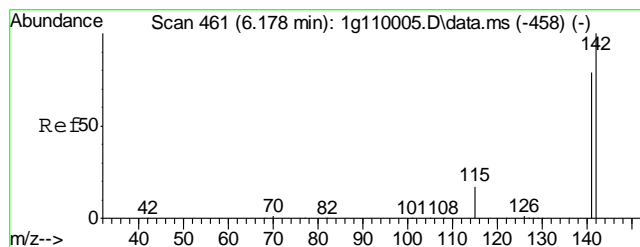
Tgt Ion:172 Resp: 88674  
Ion Ratio Lower Upper  
172 100  
171 36.3 15.6 55.6



#8  
2-Methylnaphthalene  
Concen: 3.9055 ug/mL  
RT: 6.162 min Scan# 461  
Delta R.T. 0.001 min  
Lab File: 1g112119.D  
Acq: 25 Feb 2013 2:35 pm

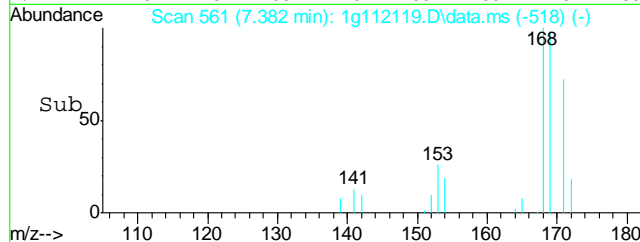
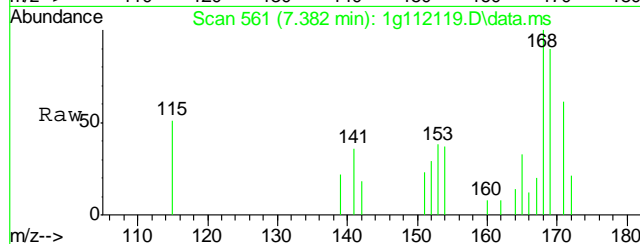
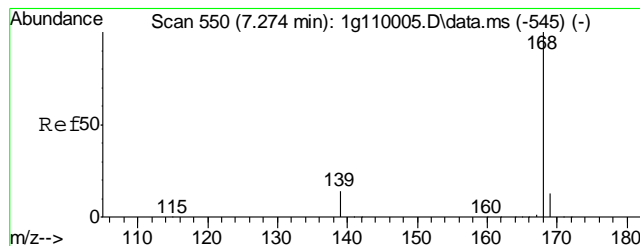
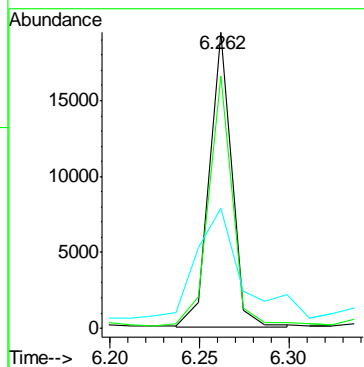
Tgt Ion:142 Resp: 32212  
Ion Ratio Lower Upper  
142 100  
141 89.0 61.6 101.6  
115 42.5 20.7 60.7





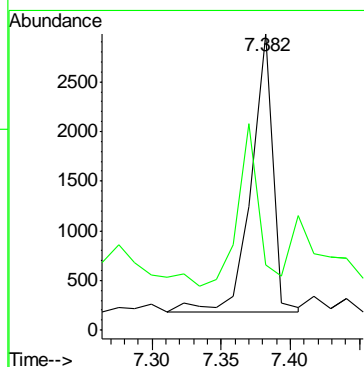
#9  
1-Methylnaphthalene  
Concen: 2.3040 ug/mL m  
RT: 6.262 min Scan# 469  
Delta R.T. 0.012 min  
Lab File: 1g112119.D  
Acq: 25 Feb 2013 2:35 pm

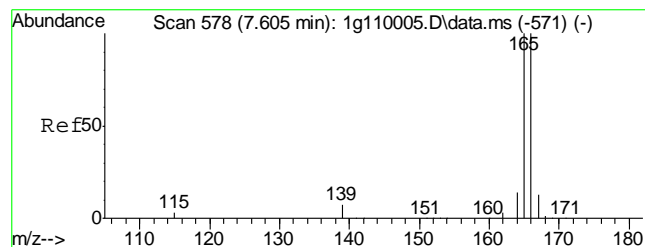
Tgt Ion	Ratio	Lower	Upper
142	100		
141	169.9	69.1	109.1#
115	81.0	28.3	68.3#



#12  
Dibenzofuran  
Concen: 0.2651 ug/mL  
RT: 7.382 min Scan# 561  
Delta R.T. 0.012 min  
Lab File: 1g112119.D  
Acq: 25 Feb 2013 2:35 pm

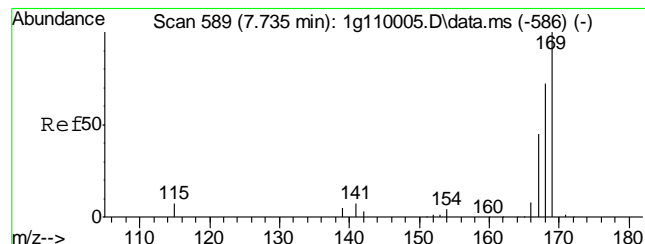
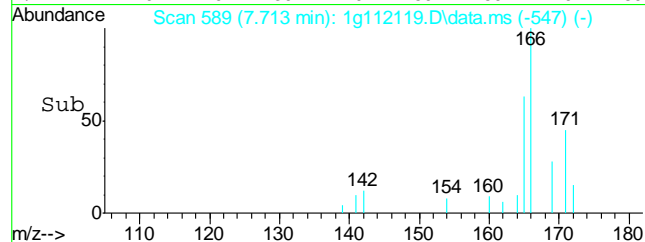
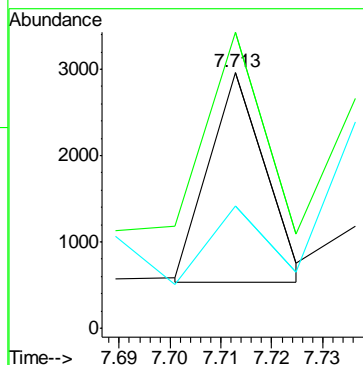
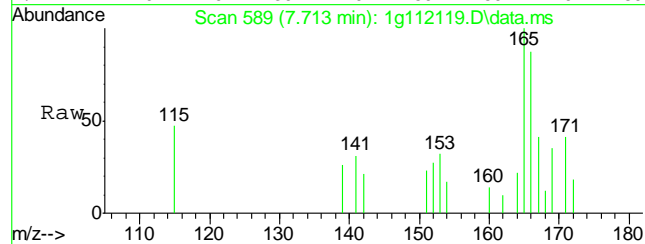
Tgt Ion	Ratio	Lower	Upper
168	100		
139	55.2	17.3	57.3





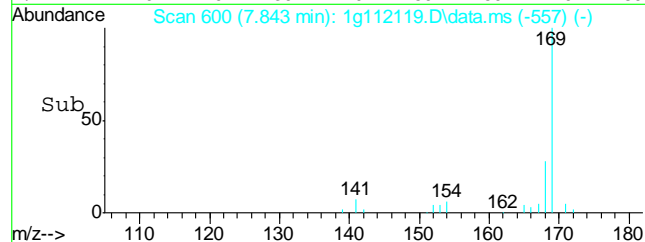
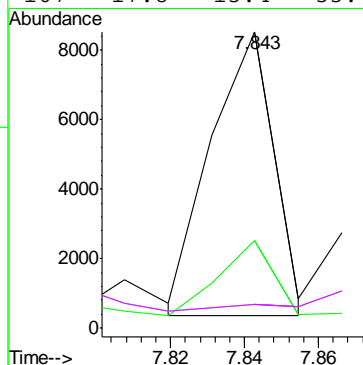
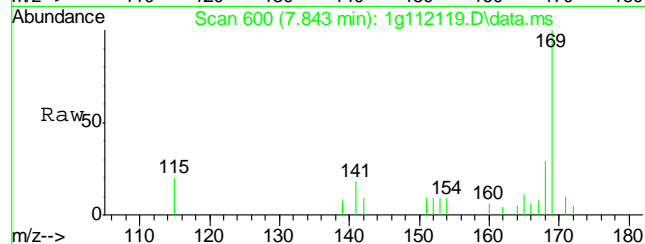
#13  
Fluorene  
Concen: 0.1973 ug/mL m  
RT: 7.713 min Scan# 589  
Delta R.T. 0.000 min  
Lab File: 1g112119.D  
Acq: 25 Feb 2013 2:35 pm

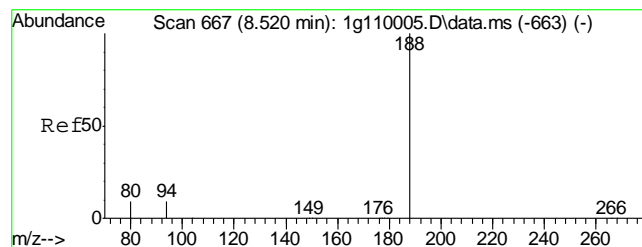
Tgt Ion	Ratio	Lower	Upper
166	100		
165	186.9	75.3	115.3#
167	166.4	0.0	33.3#



#14  
Diphenylamine  
Concen: 1.2053 ug/mL m  
RT: 7.843 min Scan# 600  
Delta R.T. 0.012 min  
Lab File: 1g112119.D  
Acq: 25 Feb 2013 2:35 pm

Tgt Ion	Ratio	Lower	Upper
169	100		
168	20.4	44.8	84.8#
167	17.8	15.4	55.4
167	17.8	15.4	55.4





#15

Phenanthrene-d10

Concen: 4.0000 ug/mL

RT: 8.645 min Scan# 675

Delta R.T. 0.007 min

Lab File: 1g112119.D

Acq: 25 Feb 2013 2:35 pm

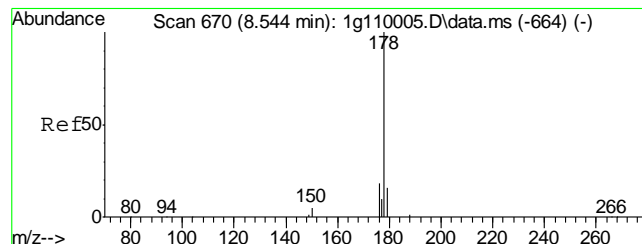
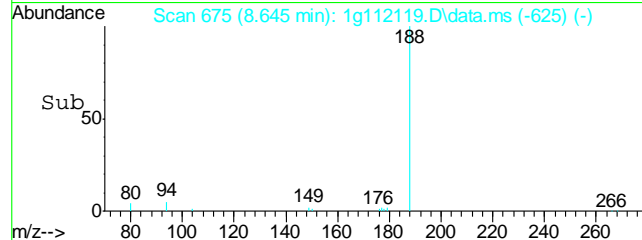
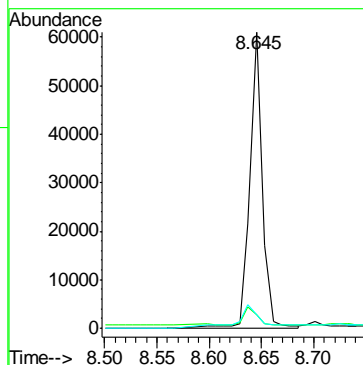
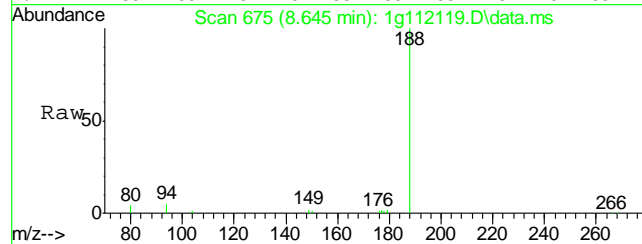
Tgt Ion:188 Resp: 60601

Ion Ratio Lower Upper

188 100

94 5.0 0.0 25.0

80 14.1 0.0 27.8



#16

Phenanthrene

Concen: 1.1564 ug/mL

RT: 8.669 min Scan# 678

Delta R.T. 0.007 min

Lab File: 1g112119.D

Acq: 25 Feb 2013 2:35 pm

Tgt Ion:178 Resp: 19440

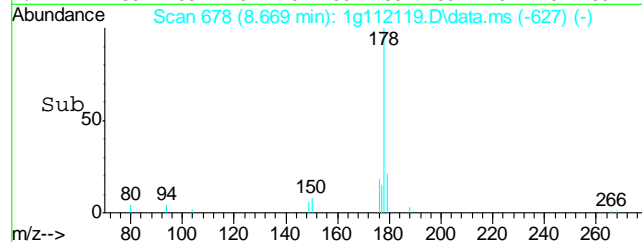
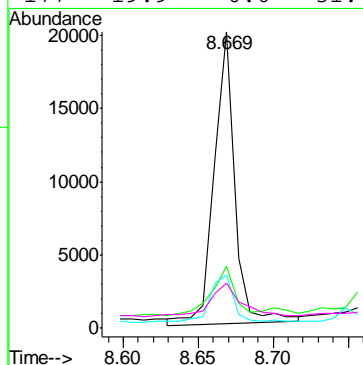
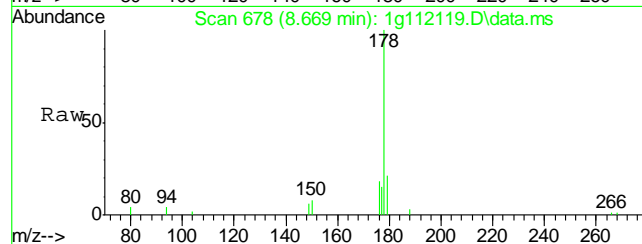
Ion Ratio Lower Upper

178 100

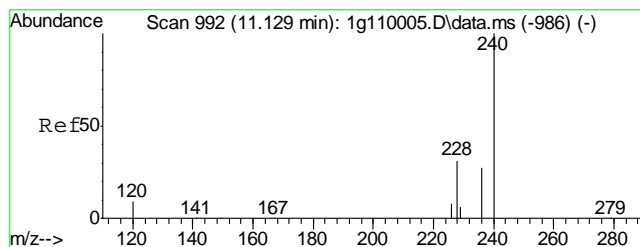
179 56.2 0.0 35.6#

176 38.9 0.0 35.2#

177 19.9 0.0 31.7







#19

Chrysene-d12

Concen: 4.0000 ug/mL

RT: 11.268 min Scan# 1003

Delta R.T. 0.013 min

Lab File: 1g112119.D

Acq: 25 Feb 2013 2:35 pm

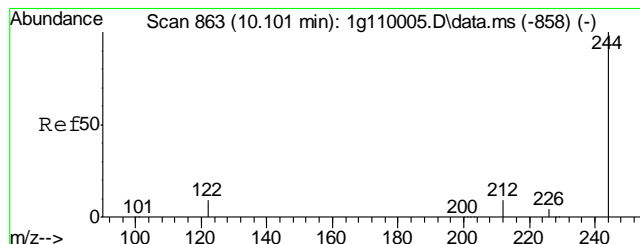
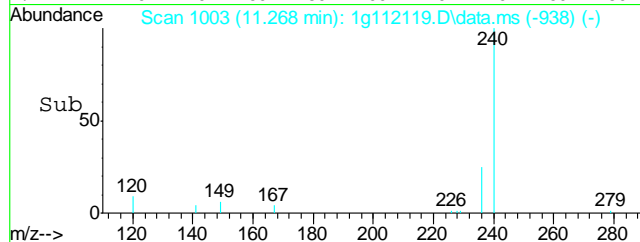
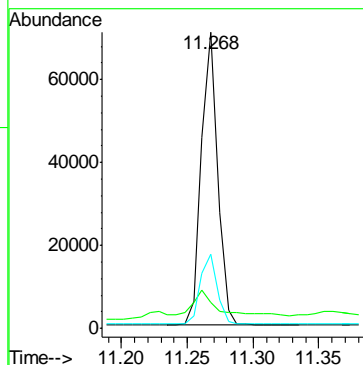
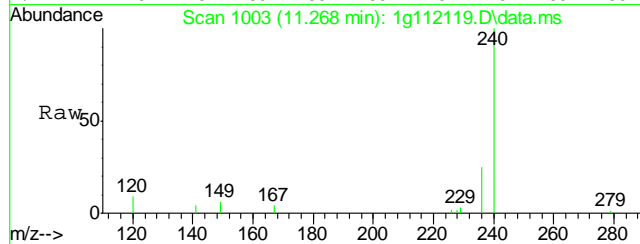
Tgt Ion: 240 Resp: 61006

Ion Ratio Lower Upper

240 100

120 31.4 0.0 27.4#

236 24.3 4.7 44.7



#21

Terphenyl-d14

Concen: 12.7704 ug/mL

RT: 10.232 min Scan# 872

Delta R.T. 0.009 min

Lab File: 1g112119.D

Acq: 25 Feb 2013 2:35 pm

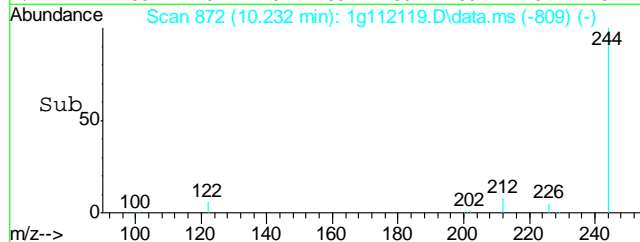
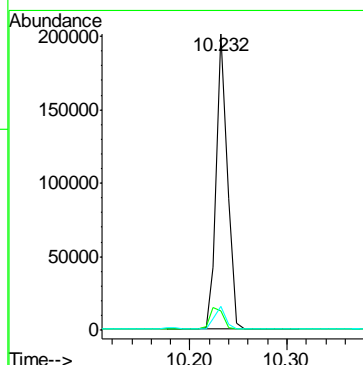
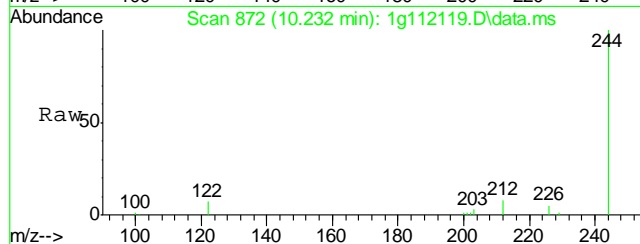
Tgt Ion: 244 Resp: 161305

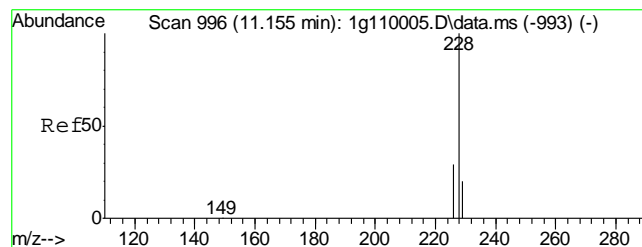
Ion Ratio Lower Upper

244 100

122 8.9 0.0 28.4

212 7.9 0.0 27.9





#23

Chrysene

Concen: 0.3274 ug/mL

RT: 11.288 min Scan# 1006

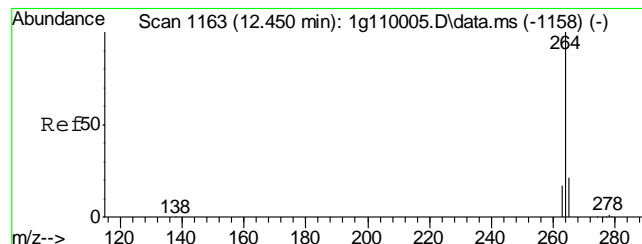
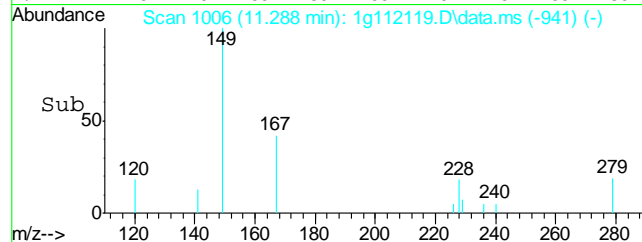
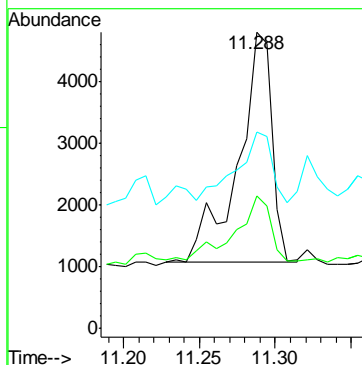
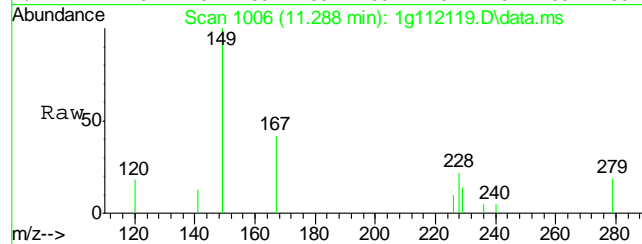
Delta R.T. 0.006 min

Lab File: 1g112119.D

Acq: 25 Feb 2013 2:35 pm

Tgt Ion: 228 Resp: 5677

Ion	Ratio	Lower	Upper
228	100		
226	29.3	8.1	48.1
229	36.4	0.0	39.7



#24

Perylene-d12

Concen: 4.0000 ug/mL

RT: 12.596 min Scan# 1167

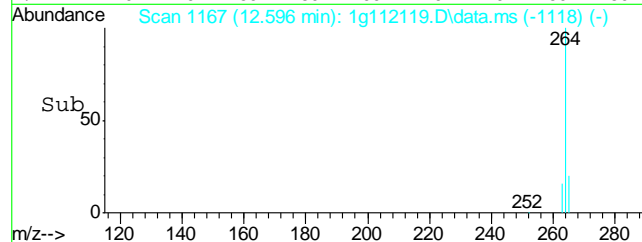
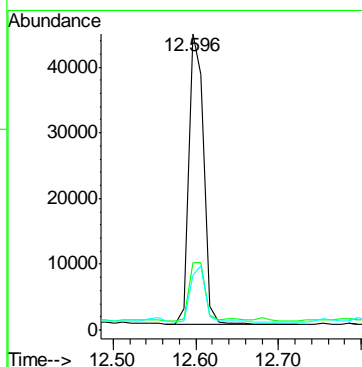
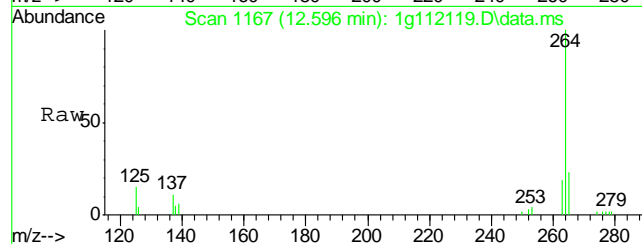
Delta R.T. 0.010 min

Lab File: 1g112119.D

Acq: 25 Feb 2013 2:35 pm

Tgt Ion: 264 Resp: 56105

Ion	Ratio	Lower	Upper
264	100		
265	22.7	1.6	41.6
263	20.4	0.0	39.1



## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\022513\  
Data File : 1g112112.D  
Acq On : 25 Feb 2013 11:17 am  
Operator : DONC  
Sample : OP7430-MB  
Misc : OP7430,E1G940,30.00,,,1,1  
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Feb 25 14:08:31 2013  
Quant Method : C:\msdchem\1\METHODS\simpelg933.m  
Quant Title : PAHSIM BASE  
QLast Update : Fri Feb 22 15:40:40 2013  
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.463	136	31118	4.0000	ug/mL	0.00
6) Acenaphthene-d10	7.168	164	22850	4.0000	ug/mL	0.01
15) Phenanthrene-d10	8.638	188	56292	4.0000	ug/mL	0.00
19) Chrysene-d12	11.261	240	57606	4.0000	ug/mL	0.00
24) Perylene-d12	12.585	264	54406	4.0000	ug/mL	0.00

## System Monitoring Compounds

2) Nitrobenzene-d5		4.789	82	138609	44.0946 ug/mL	0.00
Spiked Amount	50.000	Range	25 - 135	Recovery	= 88.18%	
7) 2-Fluorobiphenyl		6.506	172	425470	39.4658 ug/mL	0.00
Spiked Amount	50.000	Range	25 - 135	Recovery	= 78.94%	
21) Terphenyl-d14		10.224	244	603064	50.5620 ug/mL	0.00
Spiked Amount	50.000	Range	25 - 135	Recovery	= 101.12%	

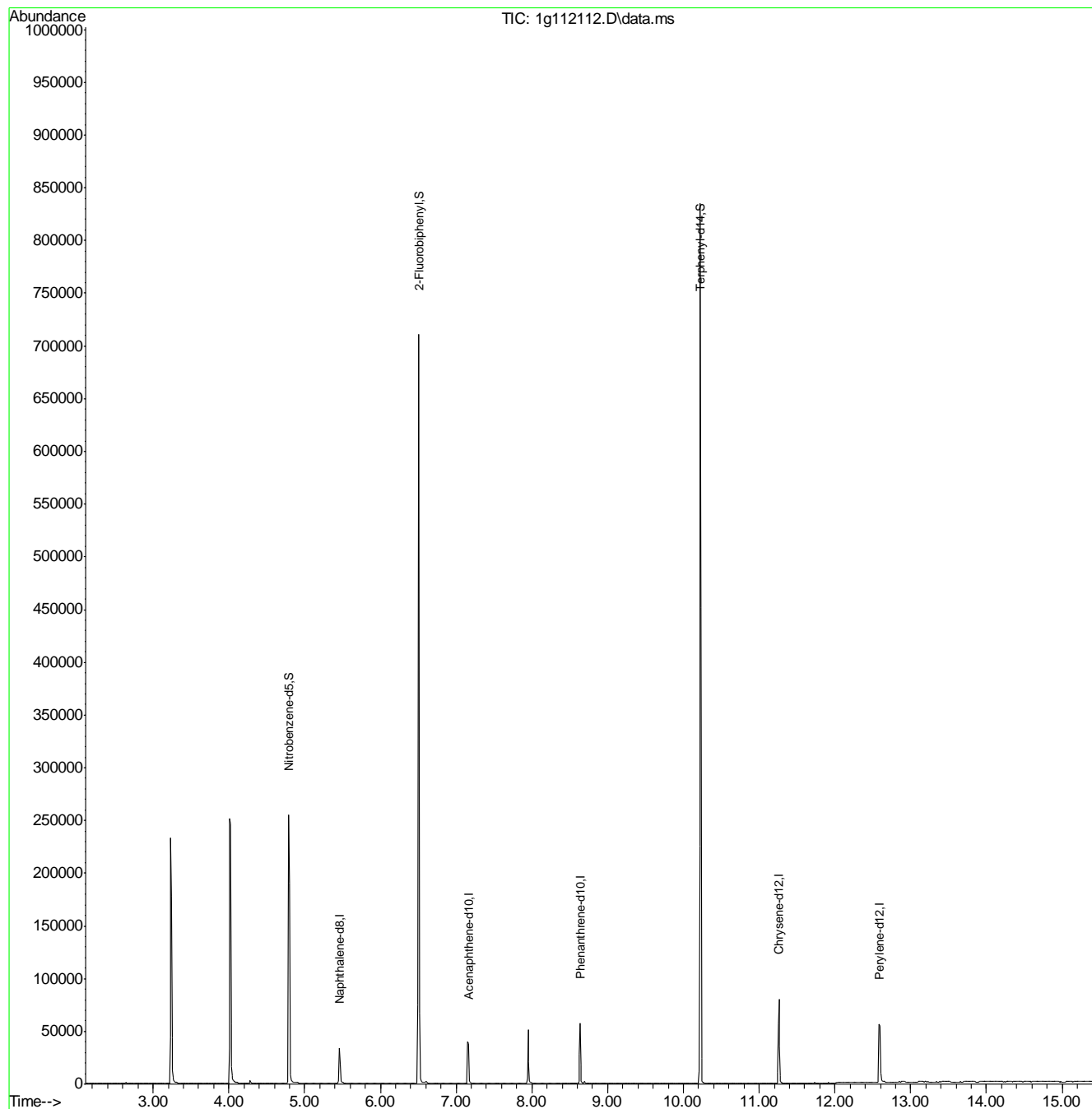
Target Compounds	Qvalue
------------------	--------

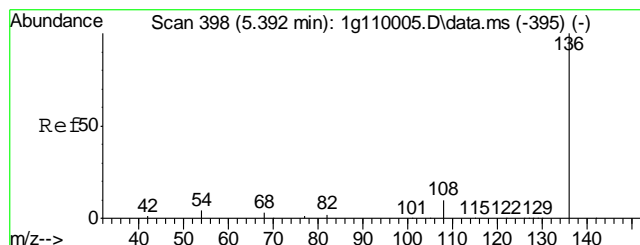
(#) = qualifier out of range (m) = manual integration (+) = signals summed

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\022513\  
Data File : 1g112112.D  
Acq On : 25 Feb 2013 11:17 am  
Operator : DONC  
Sample : OP7430-MB  
Misc : OP7430,E1G940,30.00,,,1,1  
ALS Vial : 4 Sample Multiplier: 1

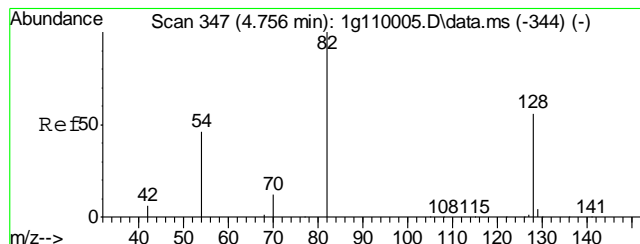
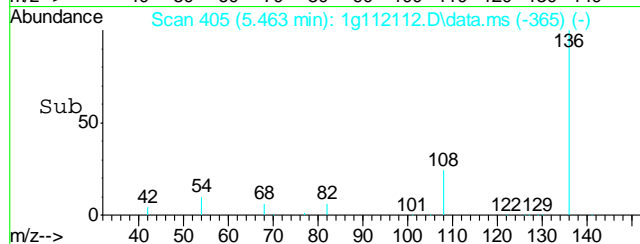
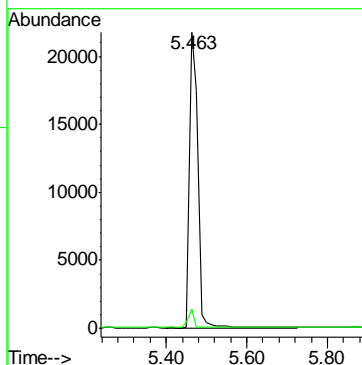
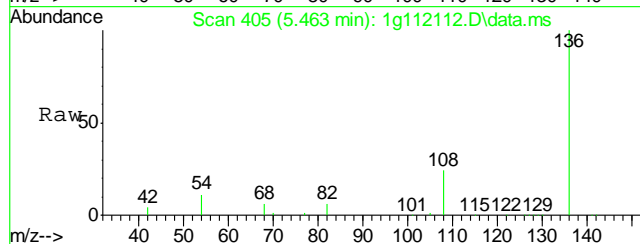
Quant Time: Feb 25 14:08:31 2013  
Quant Method : C:\msdchem\1\METHODS\simpe1g933.m  
Quant Title : PAHSIM BASE  
QLast Update : Fri Feb 22 15:40:40 2013  
Response via : Initial Calibration





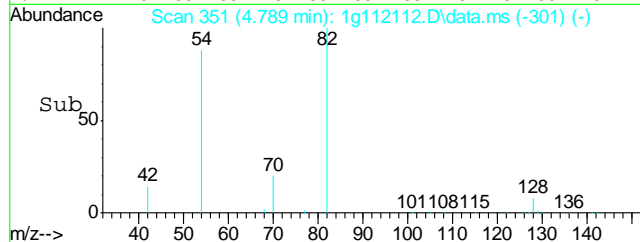
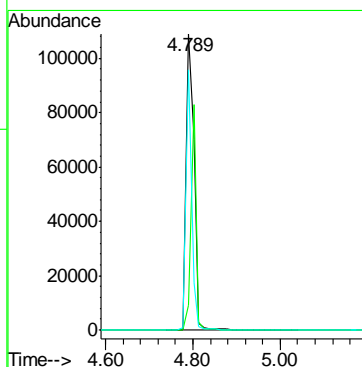
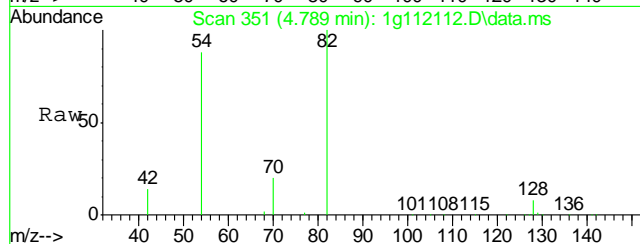
#1  
Naphthalene-d8  
Concen: 4.0000 ug/mL  
RT: 5.463 min Scan# 405  
Delta R.T. -0.001 min  
Lab File: 1g112112.D  
Acq: 25 Feb 2013 11:17 am

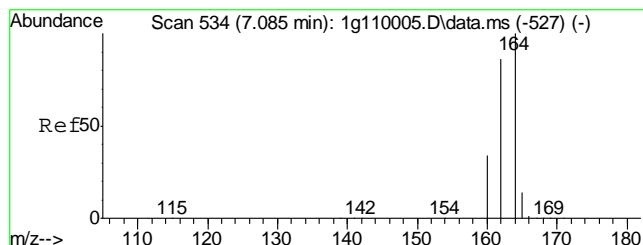
Tgt Ion: 136 Resp: 31118  
Ion Ratio Lower Upper  
136 100  
68 4.5 0.0 23.9



#2  
Nitrobenzene-d5  
Concen: 44.0946 ug/mL  
RT: 4.789 min Scan# 351  
Delta R.T. -0.001 min  
Lab File: 1g112112.D  
Acq: 25 Feb 2013 11:17 am

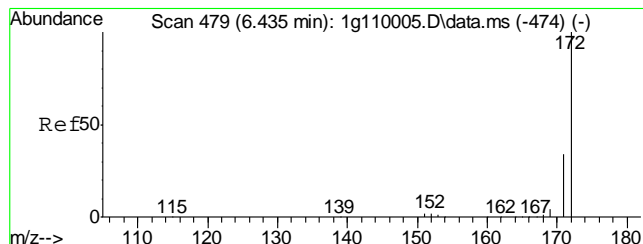
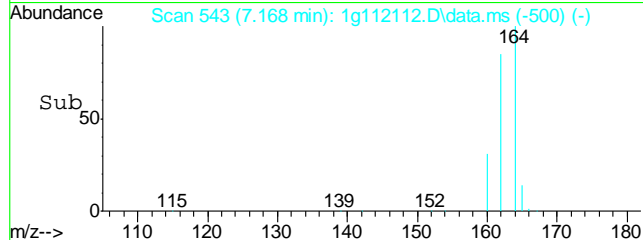
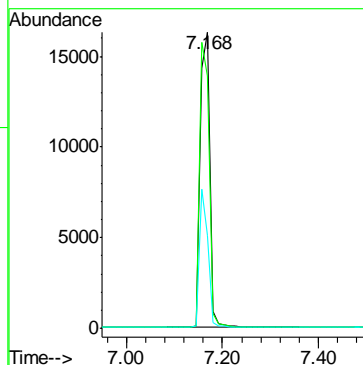
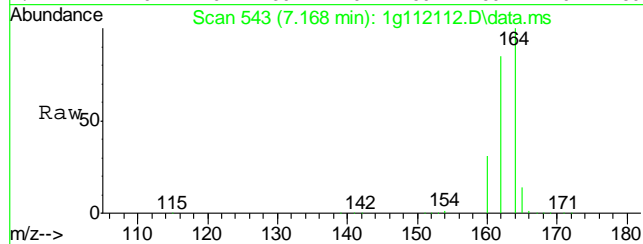
Tgt Ion: 82 Resp: 138609  
Ion Ratio Lower Upper  
82 100  
128 52.0 25.3 65.3  
54 63.1 45.9 85.9





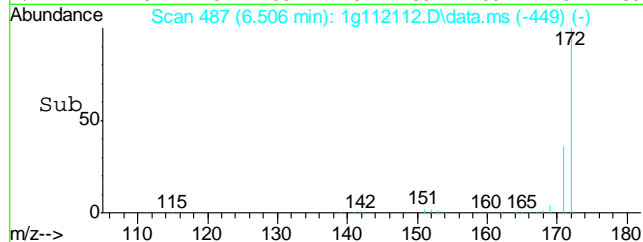
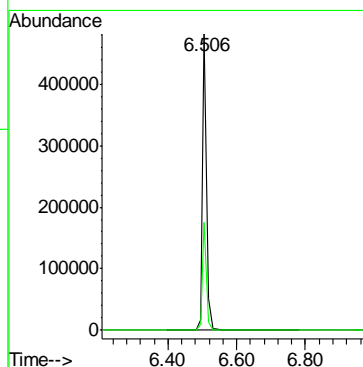
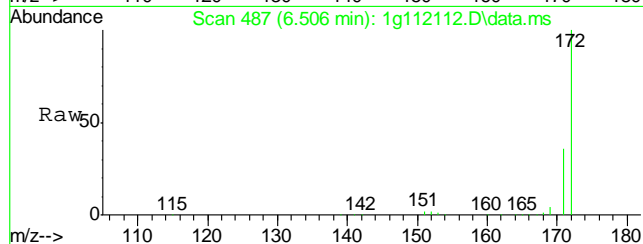
#6  
Acenaphthene-d10  
Concen: 4.0000 ug/mL  
RT: 7.168 min Scan# 543  
Delta R.T. 0.011 min  
Lab File: 1g112112.D  
Acq: 25 Feb 2013 11:17 am

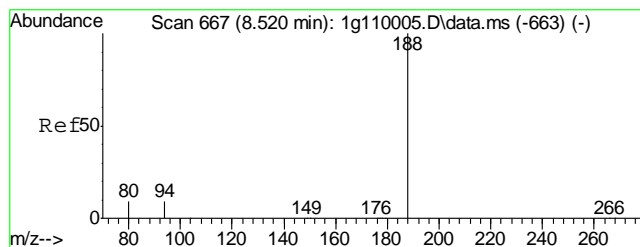
Tgt Ion:	164	Resp:	22850
Ion Ratio	Lower	Upper	
164	100		
162	96.5	79.1	119.1
160	41.4	23.2	63.2



#7  
2-Fluorobiphenyl  
Concen: 39.4658 ug/mL  
RT: 6.506 min Scan# 487  
Delta R.T. -0.001 min  
Lab File: 1g112112.D  
Acq: 25 Feb 2013 11:17 am

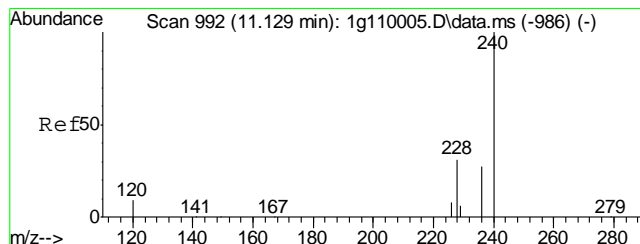
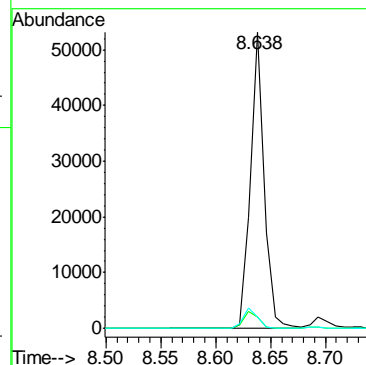
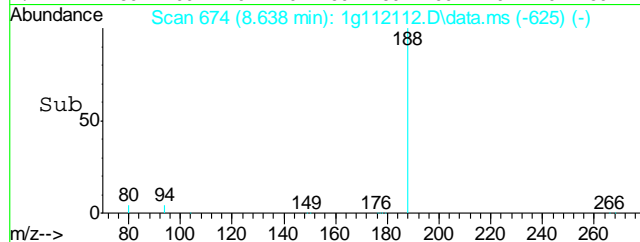
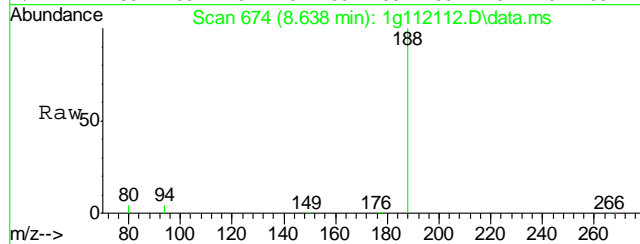
Tgt Ion:	172	Resp:	425470
Ion Ratio	Lower	Upper	
172	100		
171	36.0	15.6	55.6





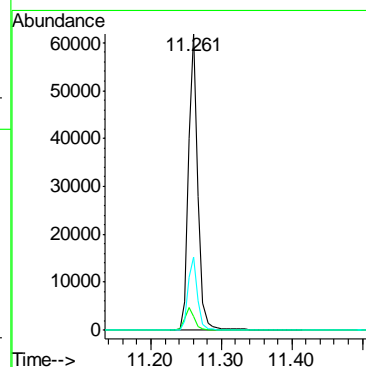
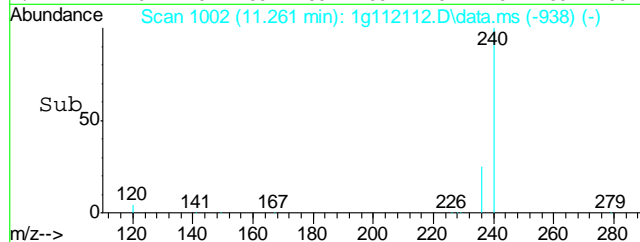
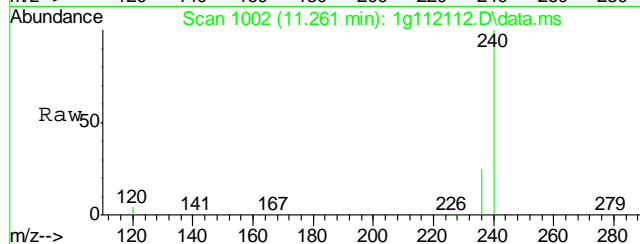
#15  
Phenanthrene-d10  
Concen: 4.0000 ug/mL  
RT: 8.638 min Scan# 674  
Delta R.T. -0.000 min  
Lab File: 1g112112.D  
Acq: 25 Feb 2013 11:17 am

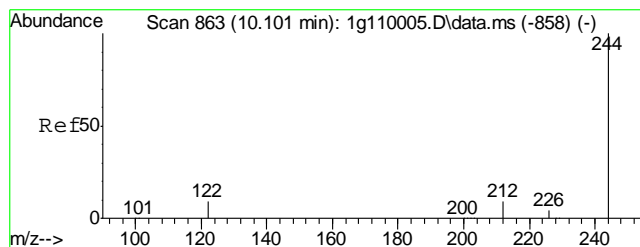
Tgt Ion: 188	Resp: 56292
Ion Ratio	Lower Upper
188 100	
94 5.1	0.0 25.0
80 7.7	0.0 27.8



#19  
Chrysene-d12  
Concen: 4.0000 ug/mL  
RT: 11.261 min Scan# 1002  
Delta R.T. 0.006 min  
Lab File: 1g112112.D  
Acq: 25 Feb 2013 11:17 am

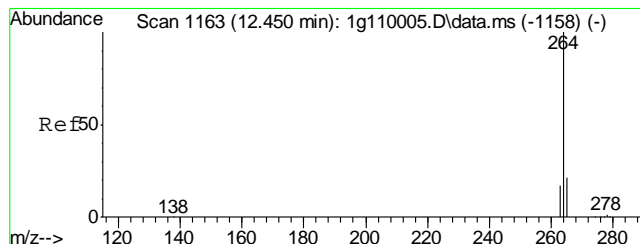
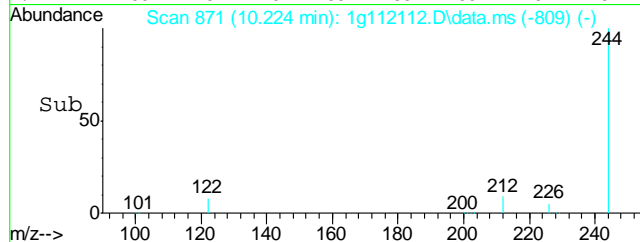
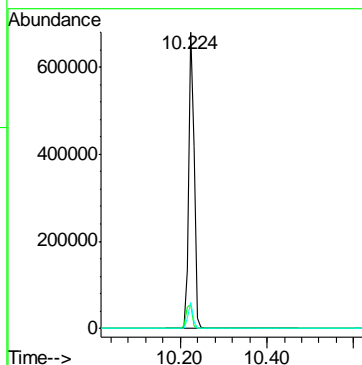
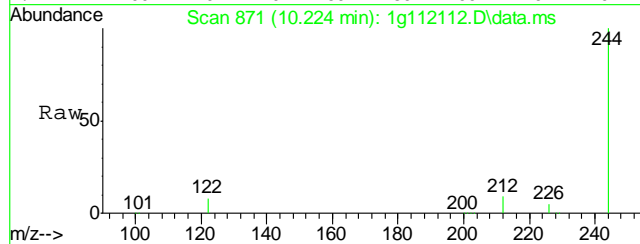
Tgt Ion: 240	Resp: 57606
Ion Ratio	Lower Upper
240 100	
120 7.4	0.0 27.4
236 25.0	4.7 44.7





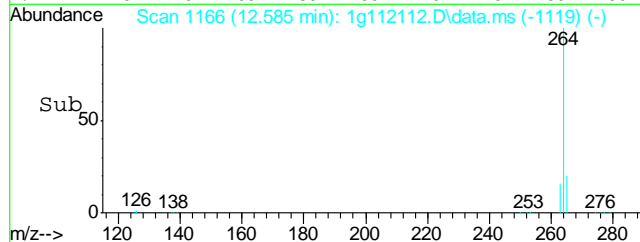
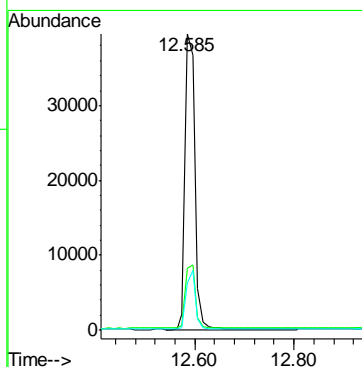
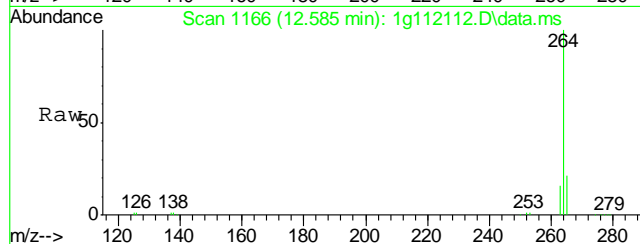
#21  
Terphenyl-d14  
Concen: 50.5620 ug/mL  
RT: 10.224 min Scan# 871  
Delta R.T. -0.000 min  
Lab File: 1g112112.D  
Acq: 25 Feb 2013 11:17 am

Tgt Ion	Ratio	Lower	Upper
244	100		
122	8.8	0.0	28.4
212	8.0	0.0	27.9



#24  
Perylene-d12  
Concen: 4.0000 ug/mL  
RT: 12.585 min Scan# 1166  
Delta R.T. -0.001 min  
Lab File: 1g112112.D  
Acq: 25 Feb 2013 11:17 am

Tgt Ion	Ratio	Lower	Upper
264	100		
265	21.7	1.6	41.6
263	19.0	0.0	39.1





## GC 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: D43722  
Account: XTOKRWR XTO Energy  
Project: XTO Love Ranch 8

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1069-MB	GB19579.D	1	02/22/13	BD	n/a	n/a	GGB1069

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

D43722-1, D43722-2

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%

10.1.1  
10

Blank Spike Summary

Job Number: D43722  
Account: XTOKRWR XTO Energy  
Project: XTO Love Ranch 8

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1069-BS	GB19580.D	1	02/22/13	BD	n/a	n/a	GGB1069

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

D43722-1, D43722-2

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	119	108	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	88%	60-140%

\* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D43722  
Account: XTOKRWR XTO Energy  
Project: XTO Love Ranch 8

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D43724-1MS	GB19582.D	1	02/22/13	BD	n/a	n/a	GGB1069
D43724-1MSD	GB19583.D	1	02/22/13	BD	n/a	n/a	GGB1069
D43724-1	GB19581.D	1	02/22/13	BD	n/a	n/a	GGB1069

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

D43722-1, D43722-2

CAS No.	Compound	D43724-1 mg/kg	Spike Q	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND	144	143	100	154	107	7	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D43724-1	Limits
120-82-1	1,2,4-Trichlorobenzene	80%	86%	76%	60-140%

\* = Outside of Control Limits.



GC Volatiles

Raw Data



Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\022213\GB19586.D\FID1A.CH Vial: 10  
Signal #2 : Y:\1\DATA\022213\GB19586.D\FID2B.CH  
Acq On : 22 Feb 2013 9:21 pm Operator: BRETD  
Sample : D43722-1 Inst : GC/MS Ins  
Misc : GC3425,GGB1069,5.011,,100,5,1 Multiplr: 1.00  
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
Quant Time: Feb 23 08:46:24 2013 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)  
Title : 8015B/8021B TVH/BTEX  
Last Update : Wed Feb 06 08:49:04 2013  
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

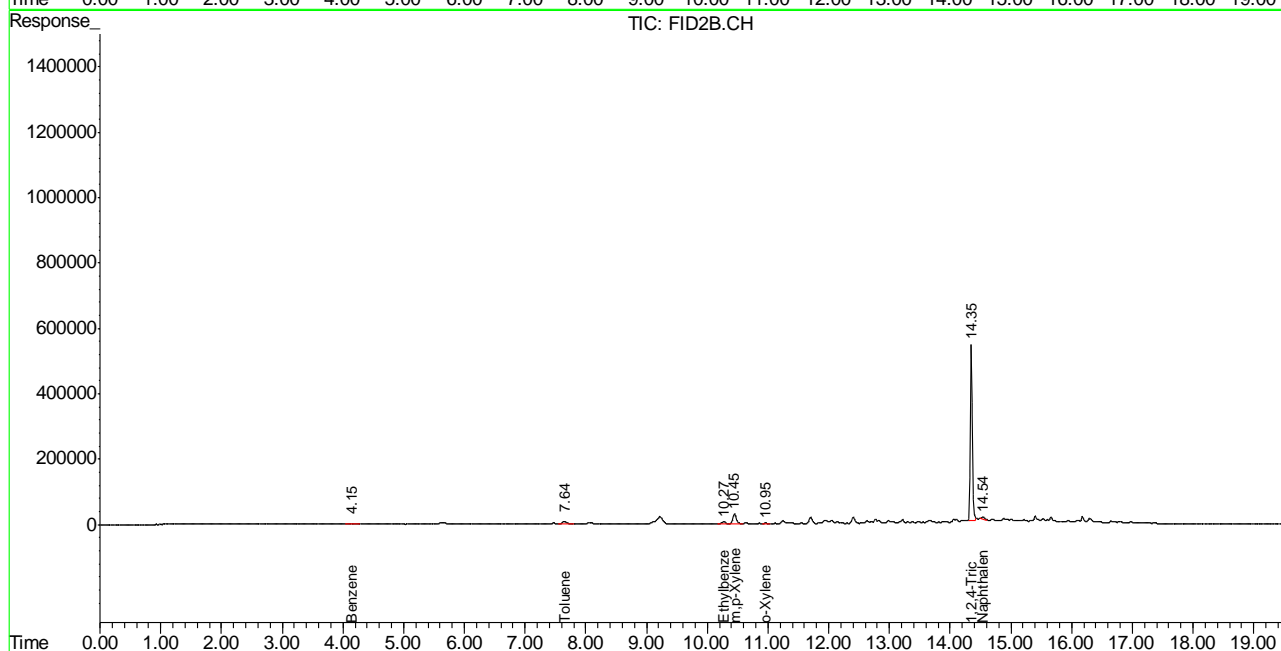
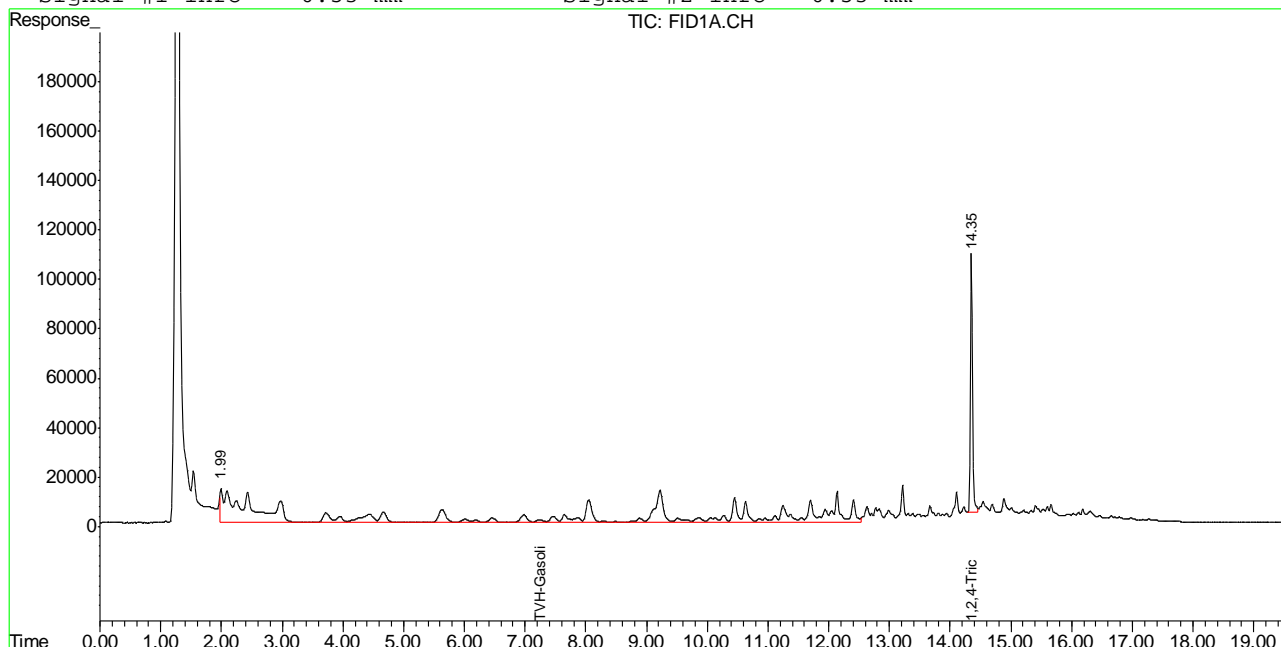
Compound	R.T.	Response	Conc	Units
-----				
System Monitoring Compounds				
2) S 1,2,4-Trichlorobenzene	14.35	2521783	80.481 %	m
10) S 1,2,4-Trichlorobenzene (P)	14.35	12628366	77.700 %	m
Target Compounds				
1) H TVH-Gasoline	7.25	14177877	0.192 mg/L	
4) T Methyl-t-butyl-ether	0.00	0	N.D. ug/L	d
5) T Benzene	4.15	177186	0.440 ug/L	m
6) T Toluene	7.64	472196	1.192 ug/L	m
7) T Ethylbenzene	10.27	262895	0.777 ug/L	m
8) T m,p-Xylene	10.45	1306174	3.205 ug/L	m
9) T o-Xylene	10.95	97224	0.296 ug/L	m
11) T Naphthalene	14.54	251523	1.275 ug/L	m

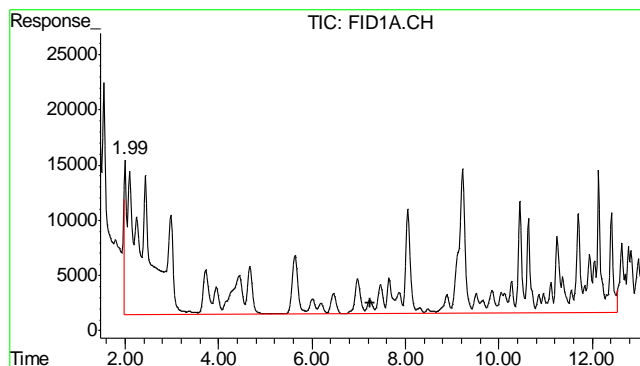
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\022213\GB19586.D\FID1A.CH Vial: 10  
 Signal #2 : Y:\1\DATA\022213\GB19586.D\FID2B.CH  
 Acq On : 22 Feb 2013 9:21 pm Operator: BRET D  
 Sample : D43722-1 Inst : GC/MS Ins  
 Misc : GC3425,GGB1069,5.011,,100,5,1 Multiplr: 1.00  
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
 Quant Time: Feb 23 8:57 2013 Quant Results File: TB868GB868SOIL.RES

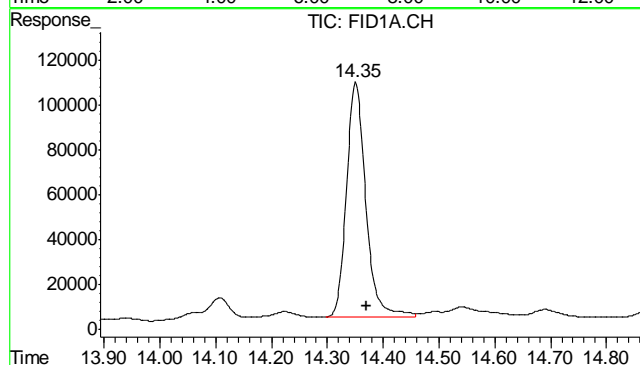
Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)  
 Title : 8015B/8021B TVH/BTEX  
 Last Update : Wed Feb 06 08:49:04 2013  
 Response via : Multiple Level Calibration  
 DataAcq Meth : TVB4.M

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

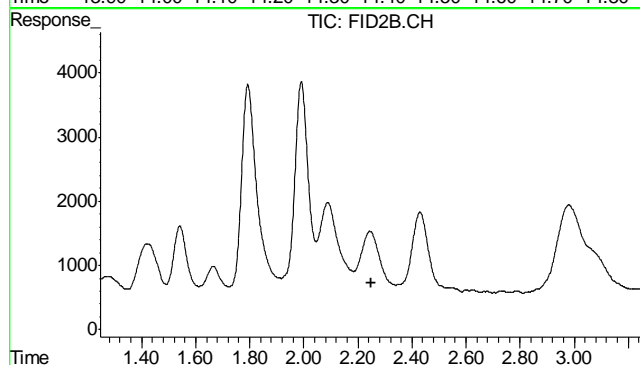




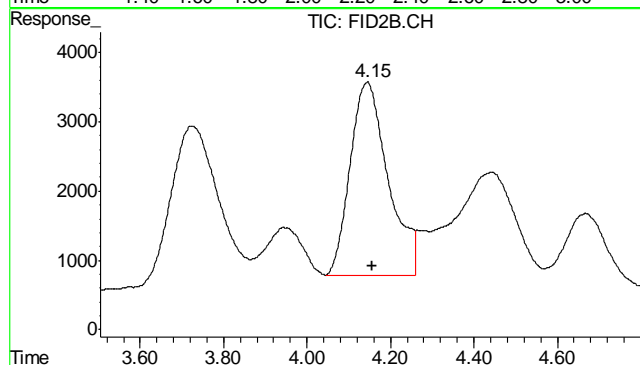
#1 TVH-Gasoline  
 R.T.: 7.255 min  
 Delta R.T.: 0.000 min  
 Response: 14177877  
 Conc: 0.19 mg/L m



#2 1,2,4-Trichlorobenzene  
 R.T.: 14.350 min  
 Delta R.T.: -0.020 min  
 Response: 2521783  
 Conc: 80.48 % m



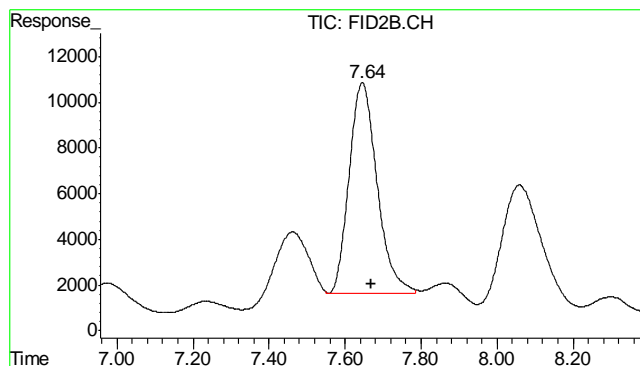
#4 Methyl-t-butyl-ether  
 R.T.: 0.000 min  
 Exp R.T.: 2.248 min  
 Response: 0  
 Conc: N.D.



#5 Benzene  
 R.T.: 4.145 min  
 Delta R.T.: -0.012 min  
 Response: 177186  
 Conc: 0.44 ug/L m

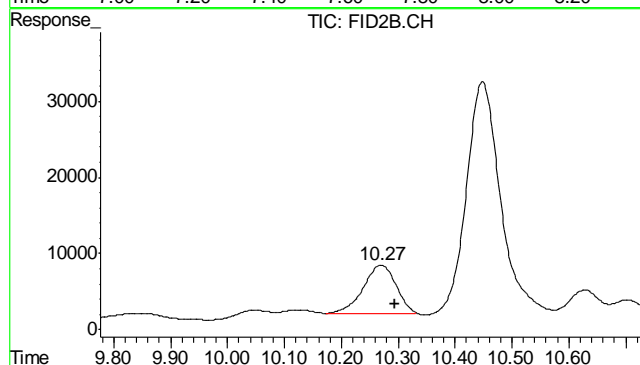
11.1.1  
 11





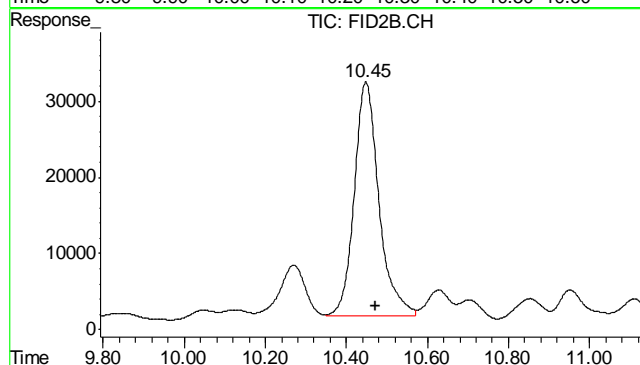
#6 Toluene

R.T.: 7.645 min  
Delta R.T.: -0.025 min  
Response: 472196  
Conc: 1.19 ug/L m



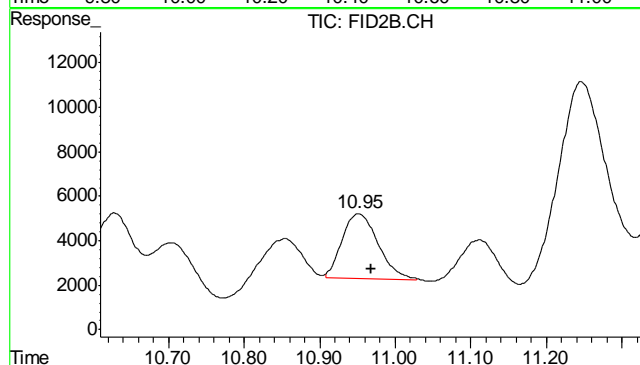
#7 Ethylbenzene

R.T.: 10.269 min  
Delta R.T.: -0.025 min  
Response: 262895  
Conc: 0.78 ug/L m



#8 m,p-Xylene

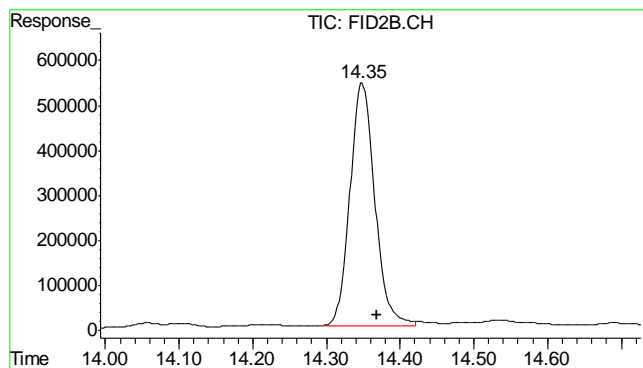
R.T.: 10.448 min  
Delta R.T.: -0.025 min  
Response: 1306174  
Conc: 3.21 ug/L m



#9 o-Xylene

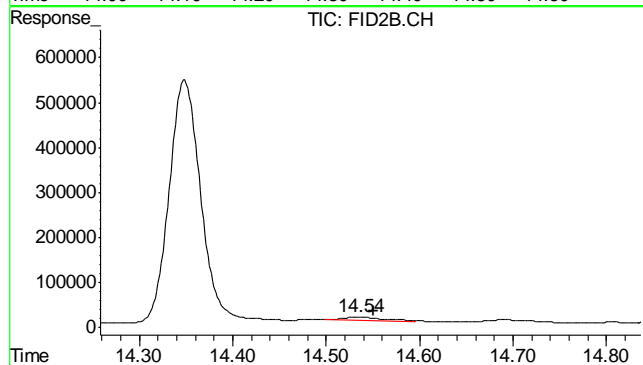
R.T.: 10.950 min  
Delta R.T.: -0.018 min  
Response: 97224  
Conc: 0.30 ug/L m

11.11



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

R.T.: 14.348 min  
 Delta R.T.: -0.021 min  
 Response: 12628366  
 Conc: 77.70 % m



#11 Naphthalene

R.T.: 14.535 min  
 Delta R.T.: -0.016 min  
 Response: 251523  
 Conc: 1.27 ug/L m

11.1.1  
11

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\022213\GB19587.D\FID1A.CH Vial: 11  
Signal #2 : Y:\1\DATA\022213\GB19587.D\FID2B.CH  
Acq On : 22 Feb 2013 9:57 pm Operator: BRETD  
Sample : D43722-2 Inst : GC/MS Ins  
Misc : GC3425,GGB1069,5.076,,100,5,1 Multiplr: 1.00  
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
Quant Time: Feb 23 08:46:28 2013 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)  
Title : 8015B/8021B TVH/BTEX  
Last Update : Wed Feb 06 08:49:04 2013  
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	14.35	2620491	83.631 %	m
10) S	1,2,4-Trichlorobenzene (P)	14.35	13157190	80.954 %	m
Target Compounds					
1) H	TVH-Gasoline	7.25	6606913	<MDL	mg/L
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L d
5) T	Benzene	4.14	172194	0.427	ug/L
6) T	Toluene	7.64	461822	1.165	ug/L m
7) T	Ethylbenzene	10.27	59839	0.177	ug/L m
8) T	m,p-Xylene	10.45	467807	0.908	ug/L m
9) T	o-Xylene	10.95	68710	0.209	ug/L m
11) T	Naphthalene	14.55	256900	1.302	uq/L m

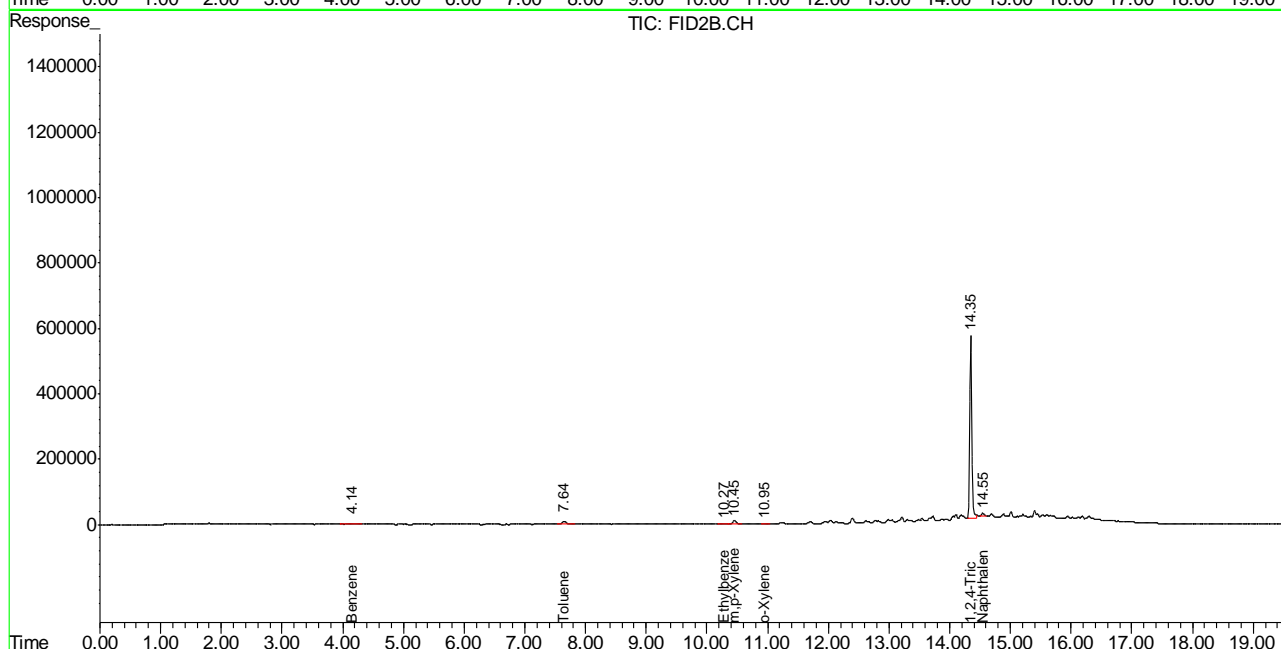
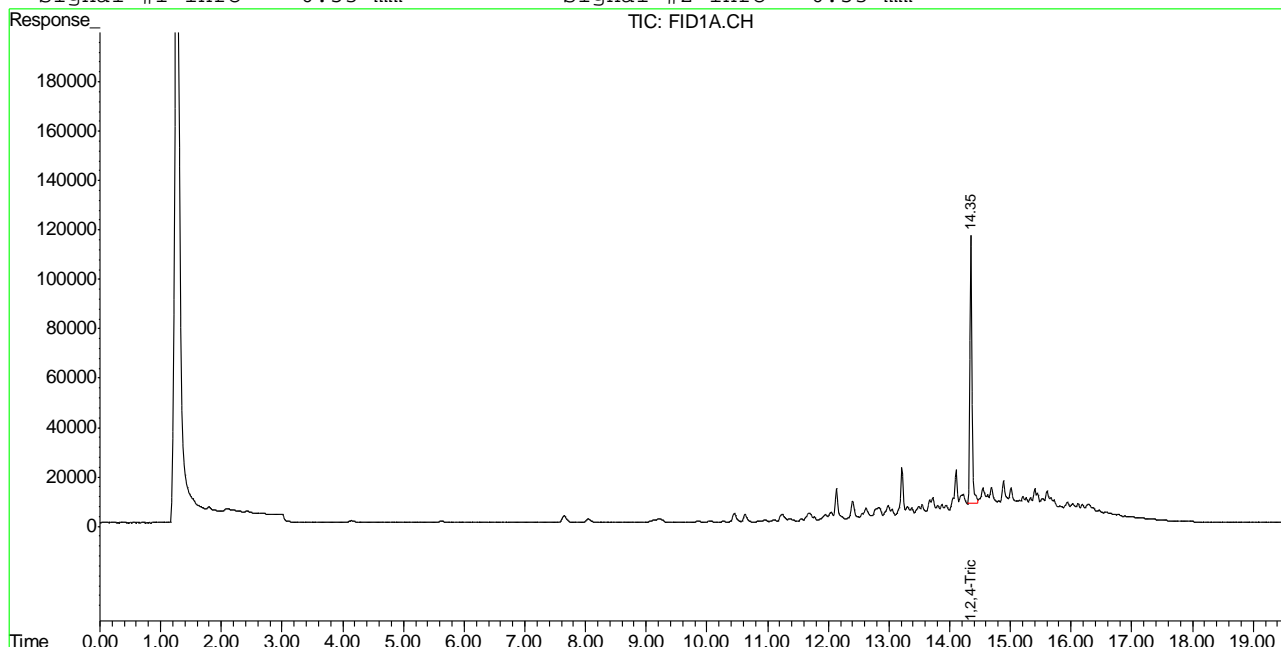
11.12  
11

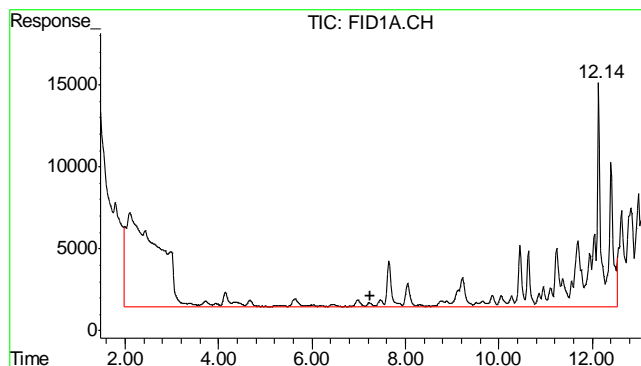
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\022213\GB19587.D\FID1A.CH Vial: 11  
 Signal #2 : Y:\1\DATA\022213\GB19587.D\FID2B.CH  
 Acq On : 22 Feb 2013 9:57 pm Operator: BRET D  
 Sample : D43722-2 Inst : GC/MS Ins  
 Misc : GC3425,GGB1069,5.076,,100,5,1 Multiplr: 1.00  
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
 Quant Time: Feb 23 8:58 2013 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)  
 Title : 8015B/8021B TVH/BTEX  
 Last Update : Wed Feb 06 08:49:04 2013  
 Response via : Multiple Level Calibration  
 DataAcq Meth : TVB4.M

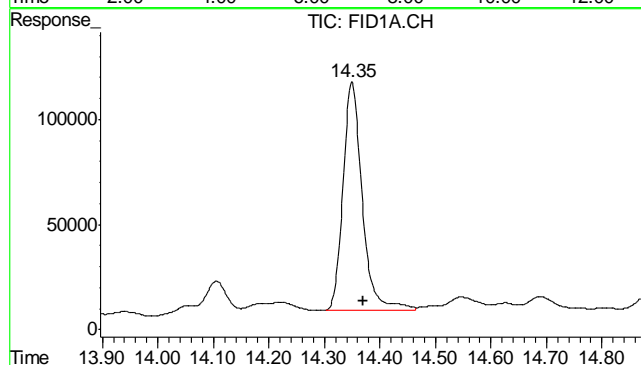
Volume Inj. :  
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624  
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





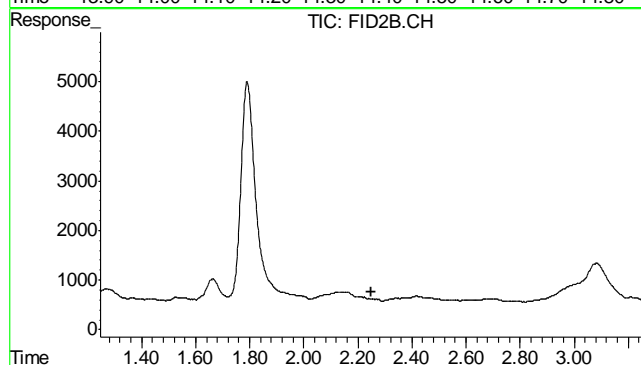
#1 TVH-Gasoline

R.T.: 7.255 min  
Delta R.T.: 0.000 min  
Response: 6606913  
Conc: N.D.



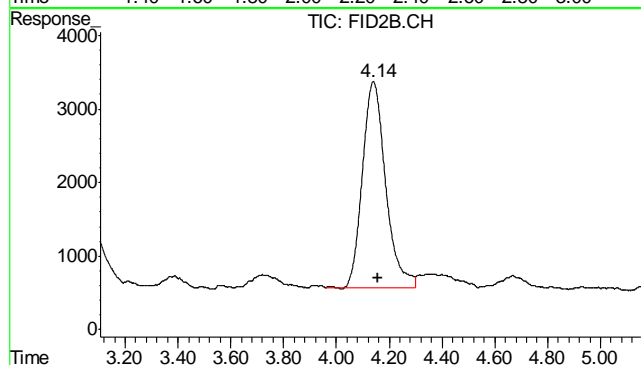
#2 1,2,4-Trichlorobenzene

R.T.: 14.349 min  
Delta R.T.: -0.021 min  
Response: 2620491  
Conc: 83.63 % m



#4 Methyl-t-butyl-ether

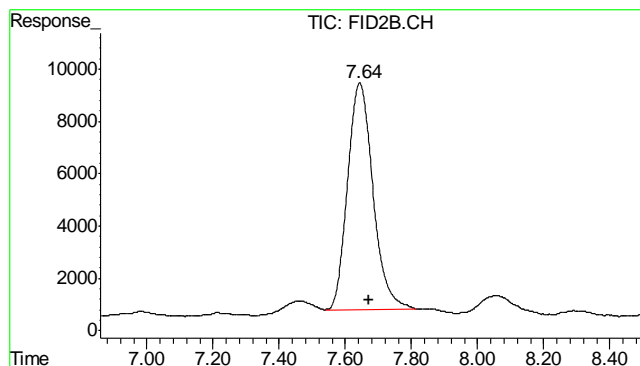
R.T.: 0.000 min  
Exp R.T.: 2.248 min  
Response: 0  
Conc: N.D.



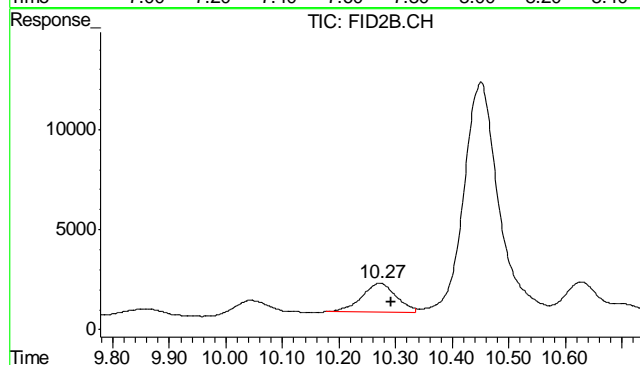
#5 Benzene

R.T.: 4.140 min  
Delta R.T.: -0.017 min  
Response: 172194  
Conc: 0.43 ug/L

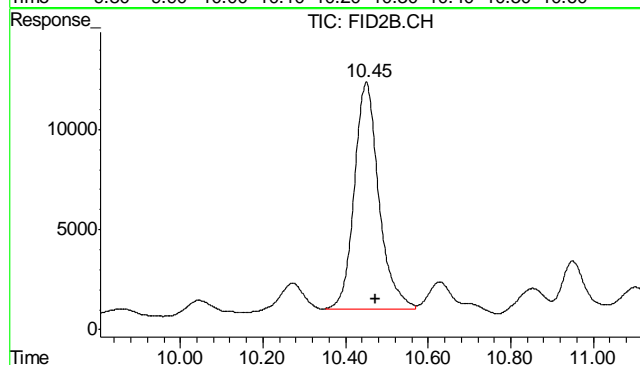
11.12  
11



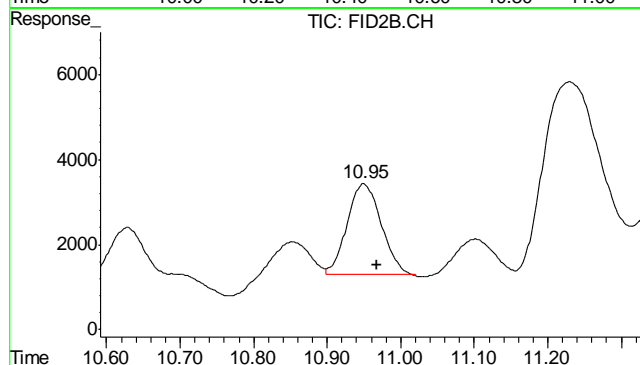
#6 Toluene  
 R.T.: 7.642 min  
 Delta R.T.: -0.028 min  
 Response: 461822  
 Conc: 1.17 ug/L m



#7 Ethylbenzene  
 R.T.: 10.272 min  
 Delta R.T.: -0.021 min  
 Response: 59839  
 Conc: 0.18 ug/L m

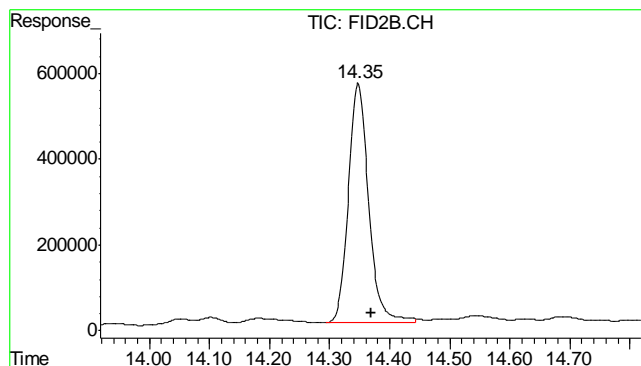


#8 m,p-Xylene  
 R.T.: 10.450 min  
 Delta R.T.: -0.022 min  
 Response: 467807  
 Conc: 0.91 ug/L m



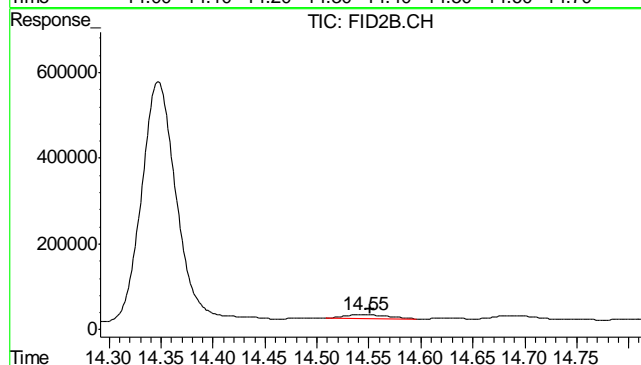
#9 o-Xylene  
 R.T.: 10.949 min  
 Delta R.T.: -0.019 min  
 Response: 68710  
 Conc: 0.21 ug/L m

11.12  
11



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

R.T.: 14.347 min  
 Delta R.T.: -0.022 min  
 Response: 13157190  
 Conc: 80.95 % m



#11 Naphthalene

R.T.: 14.545 min  
 Delta R.T.: -0.006 min  
 Response: 256900  
 Conc: 1.30 ug/L m

11.1.2  
11

Judy Melson  
02/25/13 15:16

## Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\022213\GB19579.D\FID1A.CH Vial: 3  
Signal #2 : Y:\1\DATA\022213\GB19579.D\FID2B.CH  
Acq On : 22 Feb 2013 5:13 pm Operator: BRETD  
Sample : MB Inst : GC/MS Ins  
Misc : GC3425,GGB1069,5.000,,100,5,1 Multiplr: 1.00  
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
Quant Time: Feb 23 08:45:56 2013 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)  
Title : 8015B/8021B TVH/BTEX  
Last Update : Wed Feb 06 08:49:04 2013  
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	14.35	2508694	80.063 %	m
10) S	1,2,4-Trichlorobenzene (P)	14.35	12592934	77.482 %	
Target Compounds					
1) H	TVH-Gasoline	7.25	3424033	<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	7.64	79973	0.202	ug/L m
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	14.53	29298	0.148	ug/L m

-----  
(f)=RT Delta > 1/2 Window (m)=manual int.  
GB19579.D TB868GB868SOIL.M Sat Feb 23 08:58:38 2013 GC

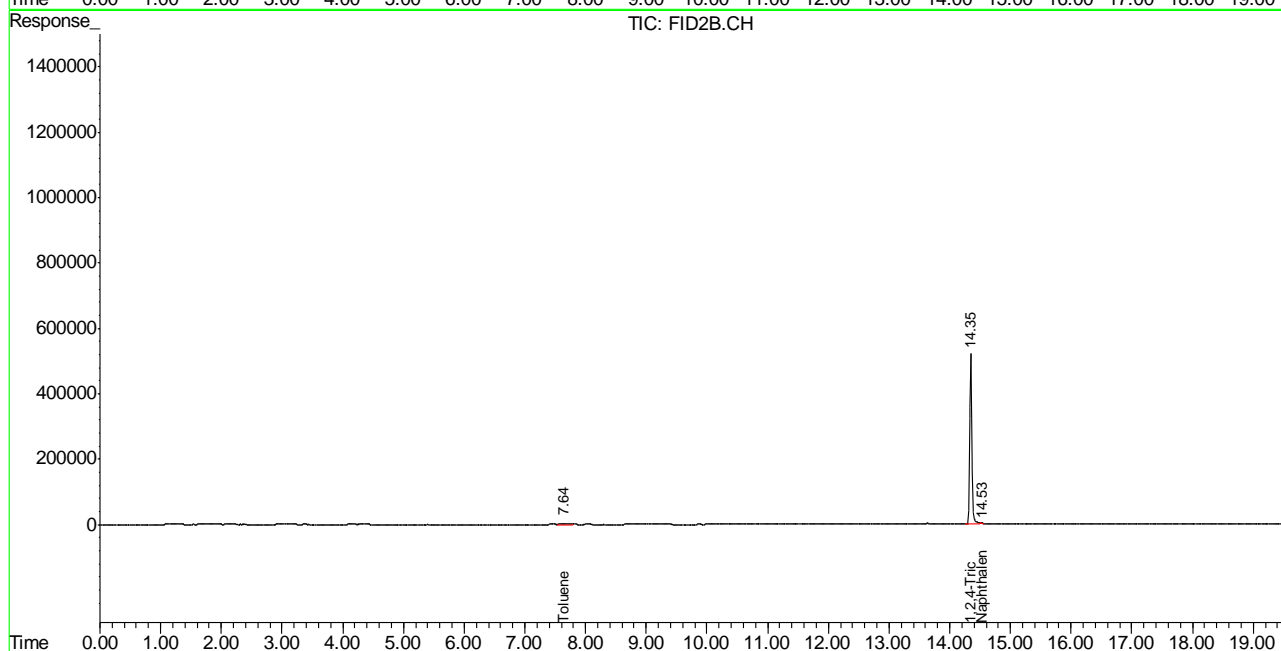
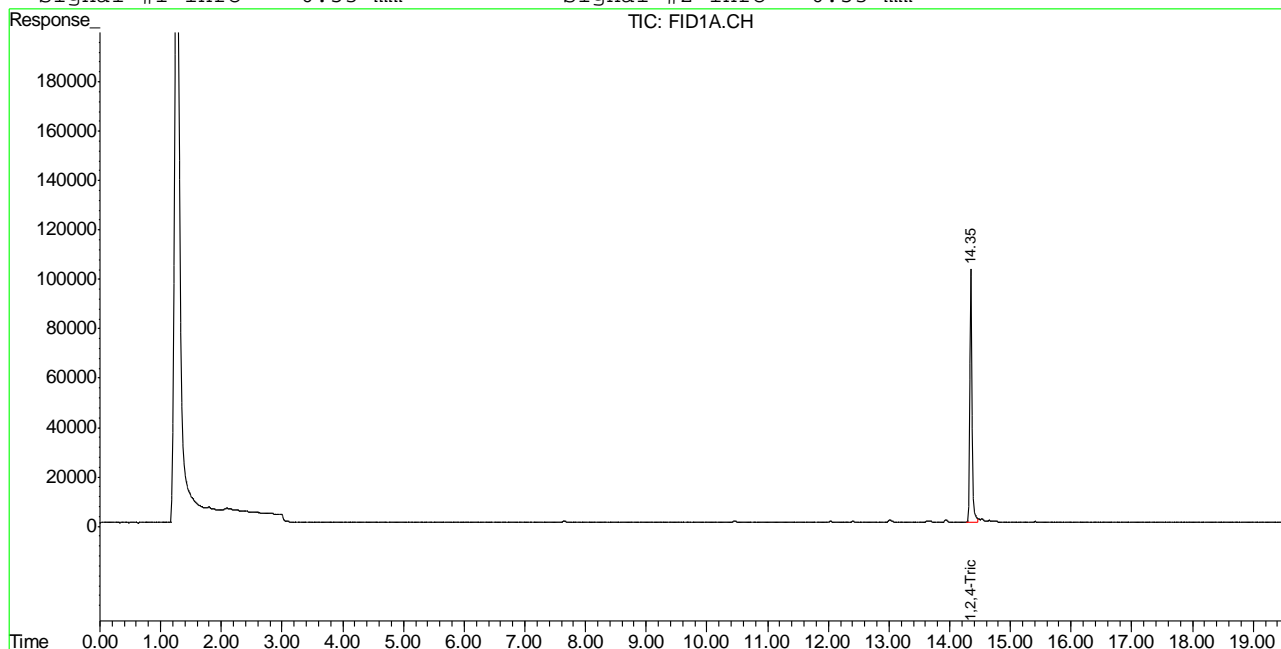


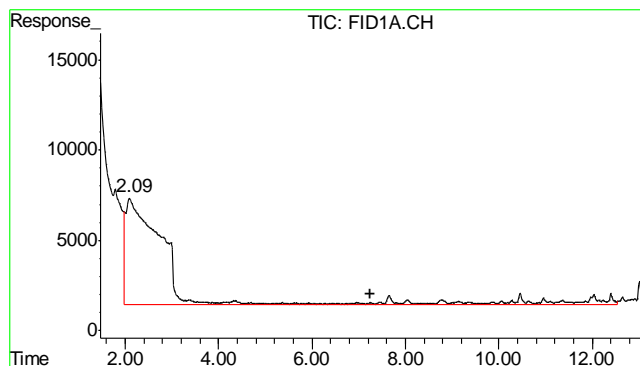
## Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\022213\GB19579.D\FID1A.CH Vial: 3  
Signal #2 : Y:\1\DATA\022213\GB19579.D\FID2B.CH  
Acq On : 22 Feb 2013 5:13 pm Operator: BRET D  
Sample : MB Inst : GC/MS Ins  
Misc : GC3425,GGB1069,5.000,,100,5,1 Multiplr: 1.00  
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
Quant Time: Feb 23 8:51 2013 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)  
Title : 8015B/8021B TVH/BTEX  
Last Update : Wed Feb 06 08:49:04 2013  
Response via : Multiple Level Calibration  
DataAcq Meth : TVB4.M

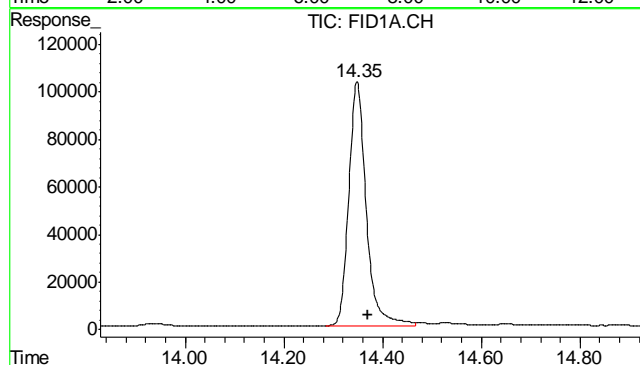
Volume Inj. :  
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624  
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





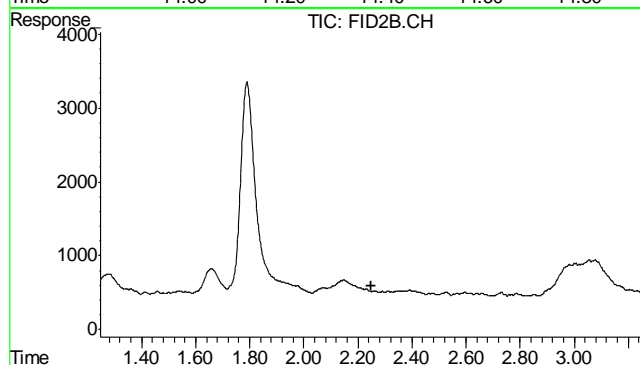
#1 TVH-Gasoline

R.T.: 7.255 min  
Delta R.T.: 0.000 min  
Response: 3424033  
Conc: N.D.



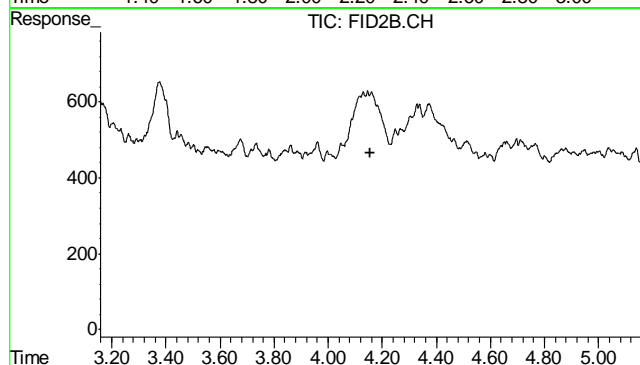
#2 1,2,4-Trichlorobenzene

R.T.: 14.348 min  
Delta R.T.: -0.022 min  
Response: 2508694  
Conc: 80.06 % m



#4 Methyl-t-butyl-ether

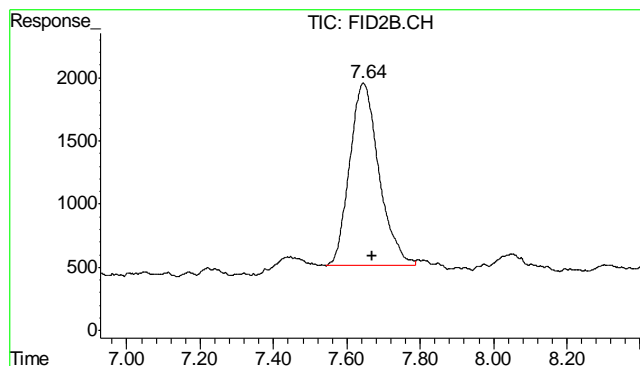
R.T.: 0.000 min  
Exp R.T.: 2.248 min  
Response: 0  
Conc: N.D.



#5 Benzene

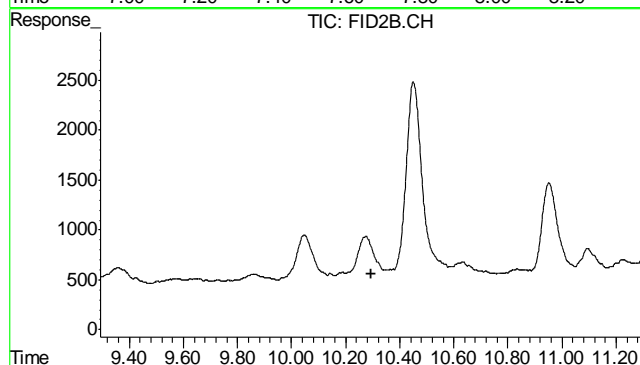
R.T.: 0.000 min  
Exp R.T.: 4.157 min  
Response: 0  
Conc: N.D.

11.21  
11



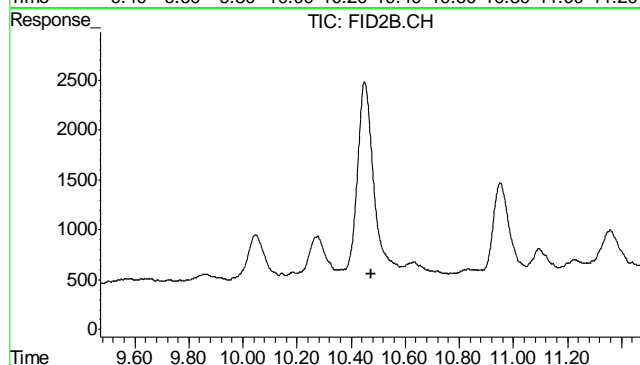
#6 Toluene

R.T.: 7.645 min  
Delta R.T.: -0.025 min  
Response: 79973  
Conc: 0.20 ug/L m



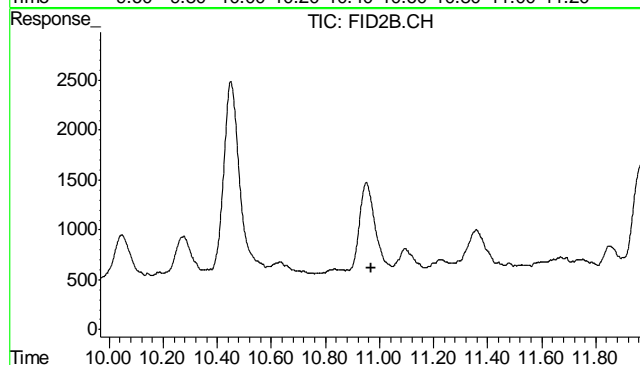
#7 Ethylbenzene

R.T.: 0.000 min  
Exp R.T. : 10.293 min  
Response: 0  
Conc: N.D.



#8 m,p-Xylene

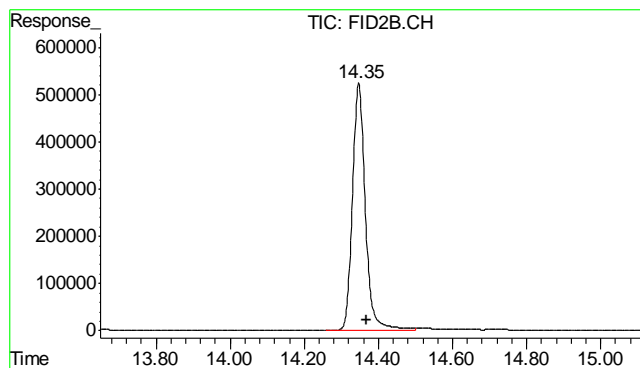
R.T.: 0.000 min  
Exp R.T. : 10.473 min  
Response: 0  
Conc: N.D.



#9 o-Xylene

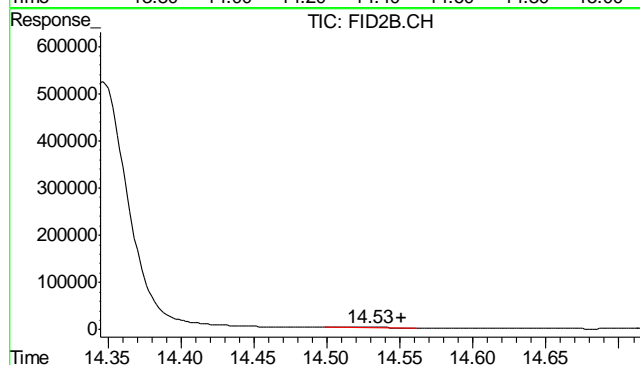
R.T.: 0.000 min  
Exp R.T. : 10.968 min  
Response: 0  
Conc: N.D.

11.21  
11



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

R.T.: 14.347 min  
Delta R.T.: -0.022 min  
Response: 12592934  
Conc: 77.48 %



#11 Naphthalene

R.T.: 14.528 min  
Delta R.T.: -0.023 min  
Response: 29298  
Conc: 0.15 ug/L m

11.2.1  
11

## 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: D43722  
Account: XTOKRWR XTO Energy  
Project: XTO Love Ranch 8

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7429-MB	FD22237.D	1	02/25/13	AV	02/25/13	OP7429	GFD1114

The QC reported here applies to the following samples: Method: SW846-8015B  
D43722-1, D43722-2

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	6.7	4.0	mg/kg	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	78% 35-130%

## Blank Spike Summary

Page 1 of 1

**Job Number:** D43722  
**Account:** XTOKRWR XTO Energy  
**Project:** XTO Love Ranch 8

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7429-BS	FD22239.D	1	02/25/13	AV	02/25/13	OP7429	GFD1114

The QC reported here applies to the following samples:

Method: SW846-8015B

D43722-1, D43722-2

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	579	87	48-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	79%	35-130%

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D43722  
**Account:** XTOKRWR XTO Energy  
**Project:** XTO Love Ranch 8

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7429-MS	FD22241.D	1	02/25/13	AV	02/25/13	OP7429	GFD1114
OP7429-MSD	FD22243.D	1	02/25/13	AV	02/25/13	OP7429	GFD1114
D43738-1	FD22246.D	1	02/25/13	AV	02/25/13	OP7429	GFD1114

The QC reported here applies to the following samples:

Method: SW846-8015B

D43722-1, D43722-2

CAS No.	Compound	D43738-1 mg/kg	Spike Q	mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	90.1	773	590	65	613	68	4	20-168/30	

CAS No.	Surrogate Recoveries	MS	MSD	D43738-1	Limits
84-15-1	o-Terphenyl	67%	69%	68%	35-130%

\* = Outside of Control Limits.



GC Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2013\FEB\FD022513.SEC\FD22261.D Vial: 67  
Acq On : 2-25-2013 08:20:44 PM Operator: ashleyv  
Sample : D43722-1 Inst : FID5  
Misc : OP7429,GFD1114,30.10,,,1,1 Multiplr: 1.00  
IntFile : autoint1.e  
Quant Time: Feb 26 08:20:51 2013 Quant Results File: DRO-GFD983R.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD983R.M (Chemstation Integrator)  
Title : 8015B TEH  
Last Update : Mon Feb 18 11:25:03 2013  
Response via : Initial Calibration  
DataAcq Meth : DRODUAL.M

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

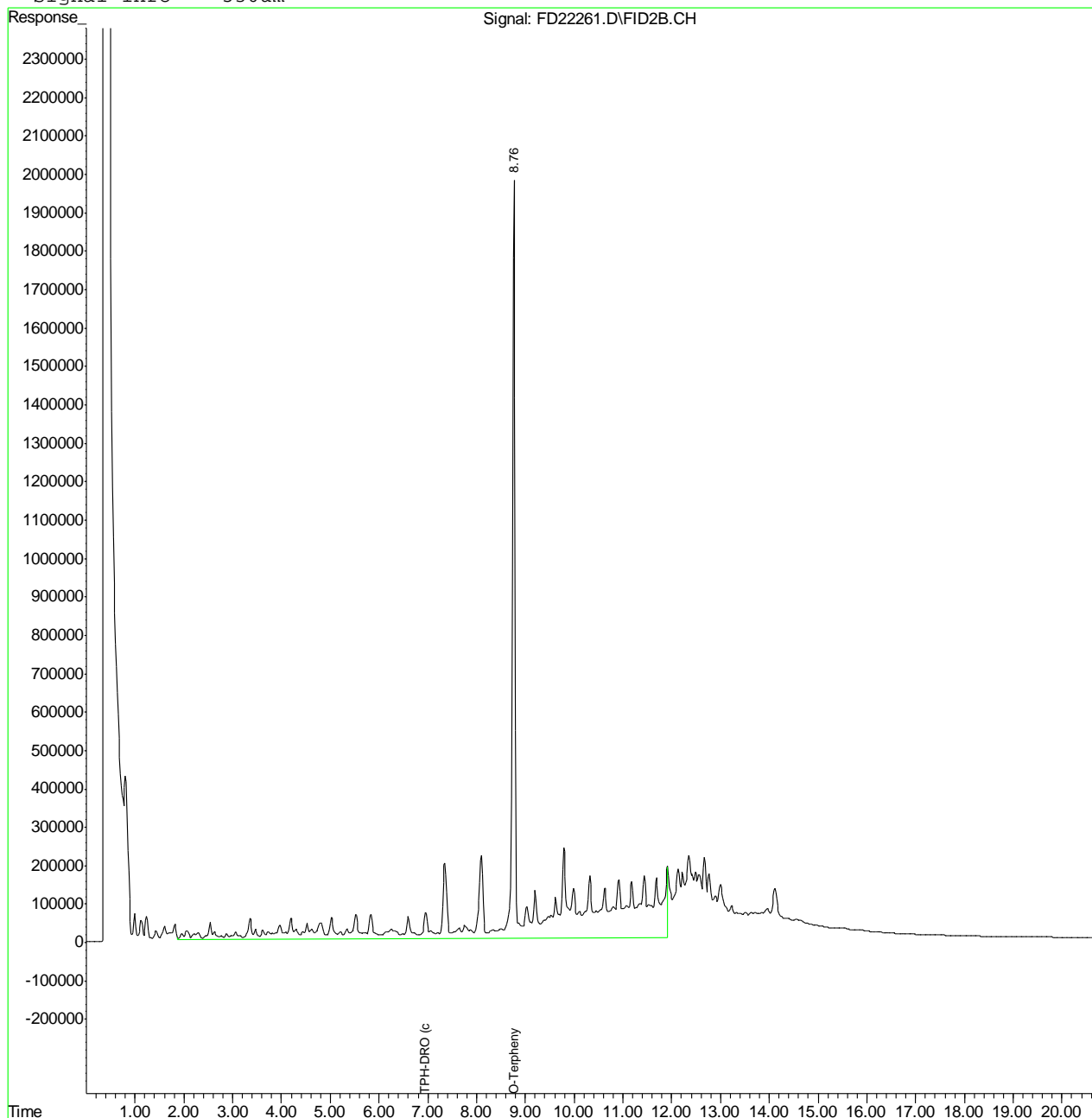
Compound	R.T.	Response	Conc Units
-----			
System Monitoring Compounds			
1) S O-Terphenyl	8.76	71120004	1390.971 mg/L m
Target Compounds			
2) H TPH-DRO (c10-c28)	6.93	250333272	6773.355 mg/L

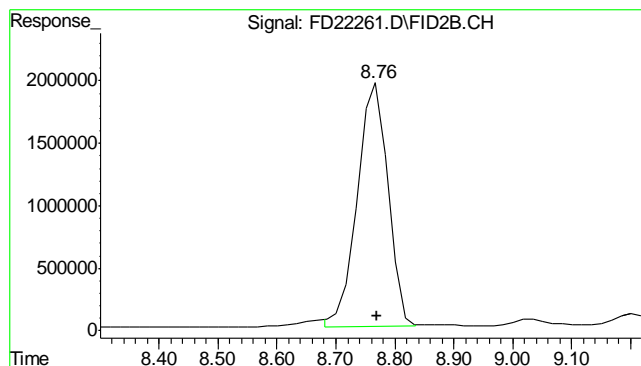
## Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2013\FEB\FD022513.SEC\FD22261.D Vial: 67  
Acq On : 2-25-2013 08:20:44 PM Operator: ashleyv  
Sample : D43722-1 Inst : FID5  
Misc : OP7429,GFD1114,30.10,,,1,1 Multiplr: 1.00  
IntFile : autoint1.e  
Quant Time: Feb 26 8:31 2013 Quant Results File: DRO-GFD983R.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD983R.M (Chemstation Integrator)  
Title : 8015B TEH  
Last Update : Mon Feb 18 11:25:03 2013  
Response via : Multiple Level Calibration  
DataAcq Meth : DRODUAL.M

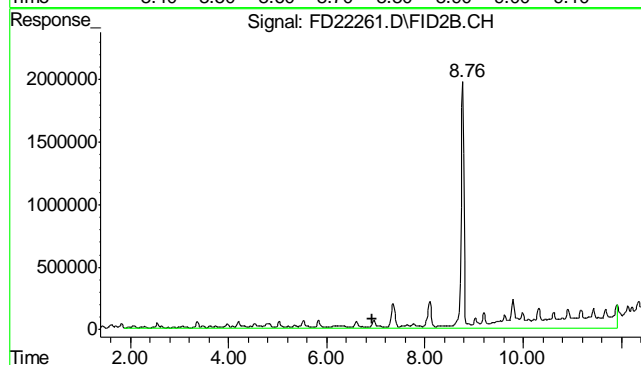
Volume Inj. : 1ul  
Signal Phase : RTX-5  
Signal Info : 530um





#1 O-Terphenyl

R.T.: 8.763 min  
 Delta R.T.: -0.007 min  
 Response: 71120004  
 Conc: 1390.97 mg/L m



#2 TPH-DRO (c10-c28)

R.T.: 6.935 min  
 Delta R.T.: 0.000 min  
 Response: 250333272  
 Conc: 6773.35 mg/L m

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2013\FEB\FD022513.SEC\FD22249A.D Vial: 6  
 Acq On : 2-25-2013 05:38:49 PM Operator: ashleyv  
 Sample : D43722-2 Inst : FID5  
 Misc : OP7429,GFD1114,30.07,,,1,1 Multiplr: 1.00  
 IntFile : autoint1.e  
 Quant Time: Feb 26 08:20:17 2013 Quant Results File: DRO-GFD983R.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD983R.M (Chemstation Integrator)  
 Title : 8015B TEH  
 Last Update : Mon Feb 18 11:25:03 2013  
 Response via : Initial Calibration  
 DataAcq Meth : DRODUAL.M

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

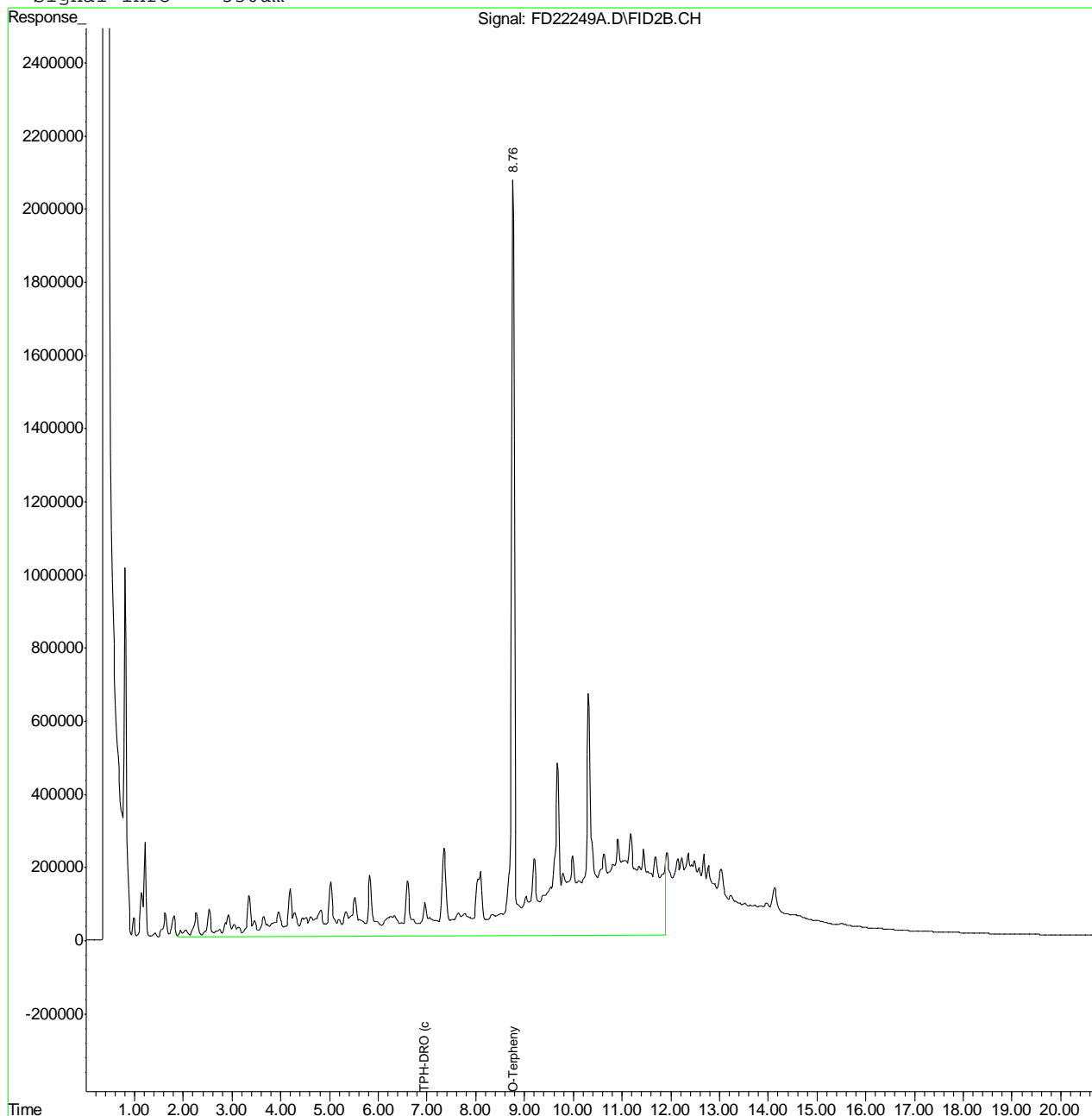
Compound	R.T.	Response	Conc Units
-----			
System Monitoring Compounds			
1) S O-Terphenyl	8.76	75345657	1473.617 mg/L m
Target Compounds			
2) H TPH-DRO (c10-c28)	6.93	536962020	14528.769 mg/L

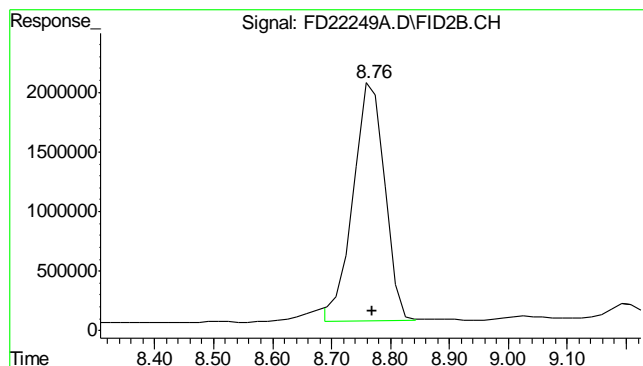
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2013\FEB\FD022513.SEC\FD22249A.D Vial: 61  
 Acq On : 2-25-2013 05:38:49 PM Operator: ashleyv  
 Sample : D43722-2 Inst : FID5  
 Misc : OP7429,GFD1114,30.07,,,1,1 Multiplr: 1.00  
 IntFile : autoint1.e  
 Quant Time: Feb 26 8:21 2013 Quant Results File: DRO-GFD983R.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD983R.M (Chemstation Integrator)  
 Title : 8015B TEH  
 Last Update : Mon Feb 18 11:25:03 2013  
 Response via : Multiple Level Calibration  
 DataAcq Meth : DRODUAL.M

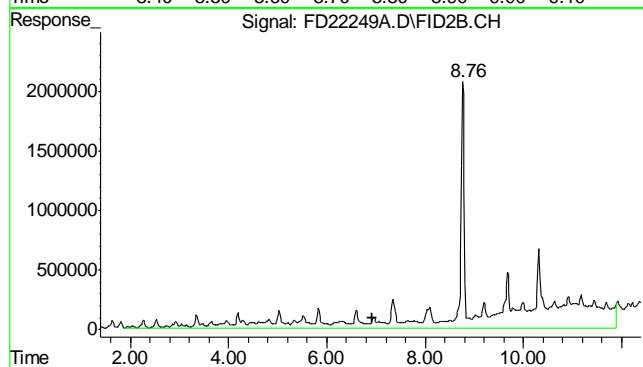
Volume Inj. : 1ul  
 Signal Phase : RTX-5  
 Signal Info : 530um





#1 O-Terphenyl

R.T.: 8.764 min  
 Delta R.T.: -0.006 min  
 Response: 75345657  
 Conc: 1473.62 mg/L m



#2 TPH-DRO (c10-c28)

R.T.: 6.935 min  
 Delta R.T.: 0.000 min  
 Response: 536962020  
 Conc: 14528.77 mg/L m

## Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2013\FEB\FD022513.SEC\FD22237.D Vial: 53  
Acq On : 25 Feb 2013 12:14 pm Operator: ashleyv  
Sample : OP7429-MB Inst : FID5  
Misc : OP7429,GFD1114,30.00,,,1,1 Multiplr: 1.00  
IntFile : autoint1.e  
Quant Time: Feb 25 13:23:10 2013 Quant Results File: DRO-GFD983R.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD983R.M (Chemstation Integrator)  
Title : 8015B TEH  
Last Update : Mon Feb 18 11:25:03 2013  
Response via : Initial Calibration  
DataAcq Meth : DRODUAL.M

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

Compound	R.T.	Response	Conc Units
-----			
System Monitoring Compounds			
1) S O-Terphenyl	8.77	79933931	1563.355 mg/L
Target Compounds			
2) H TPH-DRO (c10-c28)	6.93	1273276	34.451 mg/L

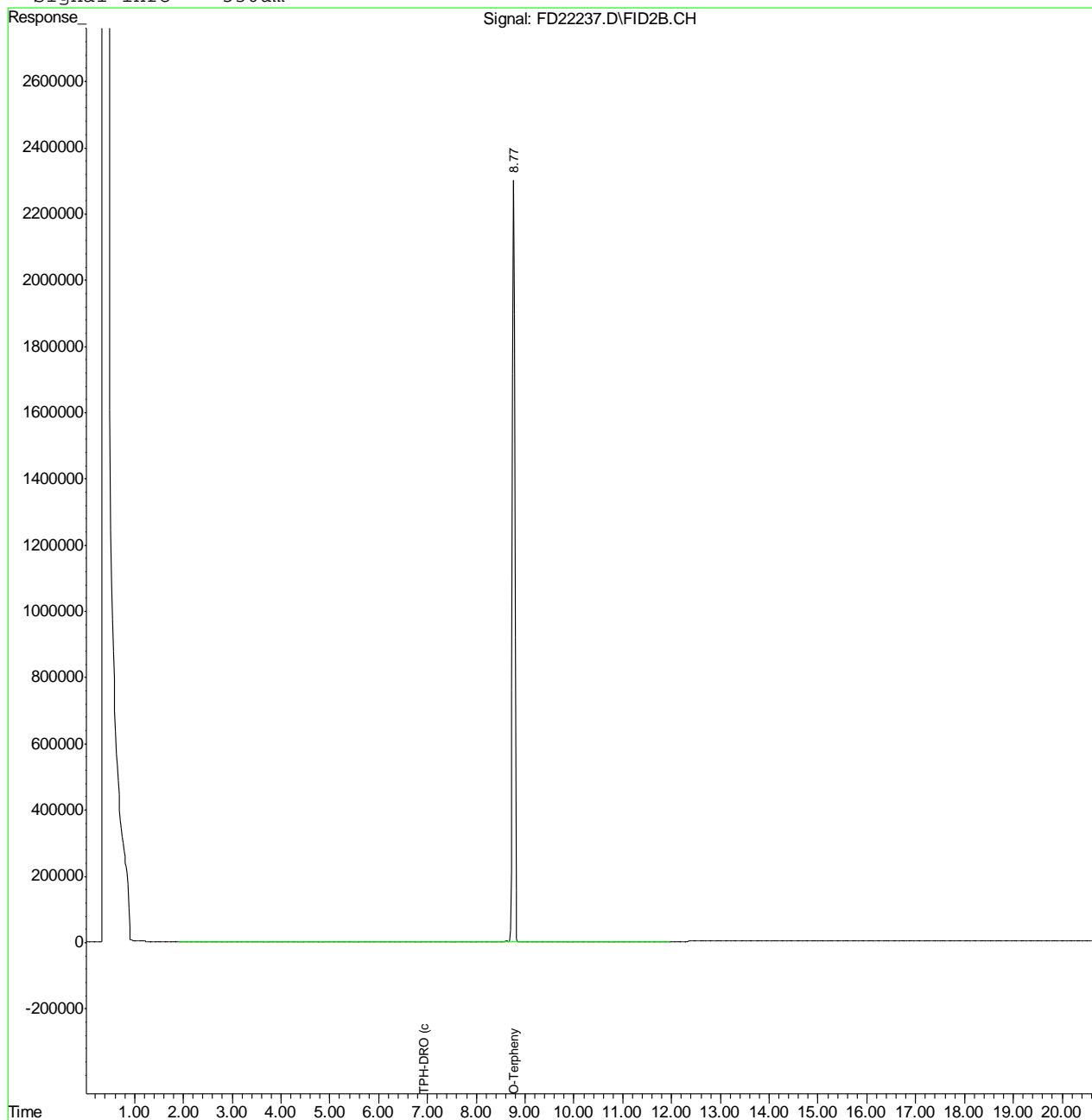


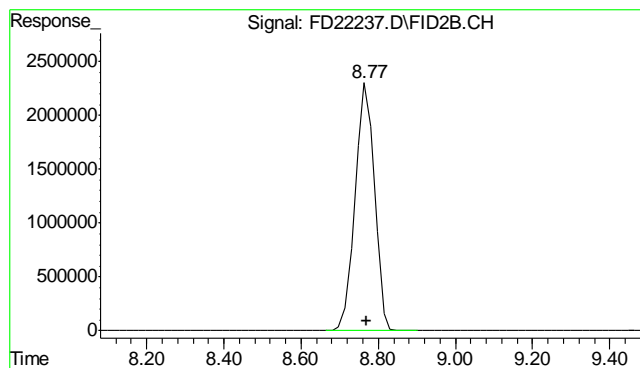
## Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2013\FEB\FD022513.SEC\FD22237.D Vial: 53  
Acq On : 25 Feb 2013 12:14 pm Operator: ashleyv  
Sample : OP7429-MB Inst : FID5  
Misc : OP7429,GFD1114,30.00,,,1,1 Multiplr: 1.00  
IntFile : autoint1.e  
Quant Time: Feb 25 13:23 2013 Quant Results File: DRO-GFD983R.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD983R.M (Chemstation Integrator)  
Title : 8015B TEH  
Last Update : Mon Feb 18 11:25:03 2013  
Response via : Multiple Level Calibration  
DataAcq Meth : DRODUAL.M

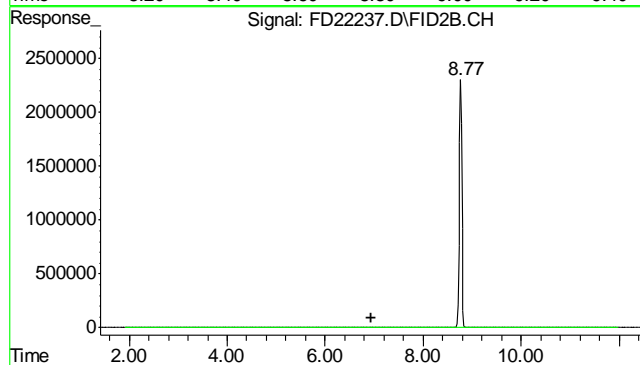
Volume Inj. : 1ul  
Signal Phase : RTX-5  
Signal Info : 530um





#1 O-Terphenyl

R.T.: 8.773 min  
Delta R.T.: 0.003 min  
Response: 79933931  
Conc: 1563.35 mg/L



#2 TPH-DRO (c10-c28)

R.T.: 6.935 min  
Delta R.T.: 0.000 min  
Response: 1273276  
Conc: 34.45 mg/L m

13.2.1  
13

## 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: D43722  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9521  
Matrix Type: SOLID

Methods: SW846 6010C  
Units: mg/kg

Prep Date: 02/25/13

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.96	.57		
Antimony	3.0	.17	.12		
Arsenic	2.5	.44	.56		
Barium	1.0	.01	.11	0.13	<1.0
Beryllium	1.0	.13	.15		
Boron	5.0	.1	.06		
Cadmium	1.0	.06	.036	0.040	<1.0
Calcium	40	.54	9		
Chromium	1.0	.03	.03	0.060	<1.0
Cobalt	0.50	.04	.07		
Copper	1.0	.12	.15	-0.17	<1.0
Iron	7.0	.12	.87		
Lead	5.0	.19	.24	-0.24	<5.0
Lithium	0.20	.05	.054		
Magnesium	20	.65	.98		
Manganese	0.50	.12	.022		
Molybdenum	1.0	.21	.08		
Nickel	3.0	.05	.026	0.060	<3.0
Phosphorus	10	1.4	1.9		
Potassium	200	6.1	7		
Selenium	5.0	.48	.36	-0.010	<5.0
Silicon	5.0	.29	.37		
Silver	3.0	.04	.06	-0.020	<3.0
Sodium	40	.59	1.9		
Strontium	5.0	.004	.017		
Thallium	1.0	.29	.53		
Tin	5.0	1.2	2		
Titanium	1.0	.01	.038		
Uranium	5.0	.22	.26		
Vanadium	1.0	.02	.036		
Zinc	3.0	.05	.37	0.15	<3.0

Associated samples MP9521: D43722-1, D43722-2

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

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D43722  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9521  
Matrix Type: SOLID

Methods: SW846 6010C  
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D43722  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9521  
Matrix Type: SOLID

Methods: SW846 6010C  
Units: mg/kg

Prep Date: 02/25/13

Metal	D43722-1 Original MS		Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr				
Antimony	anr				
Arsenic	anr				
Barium	4400	5270	260	215.1(a)	75-125
Beryllium	anr				
Boron					
Cadmium	1.1	59.4	65.1	89.6	75-125
Calcium					
Chromium	11.9	71.2	65.1	91.1	75-125
Cobalt	anr				
Copper	33.0	84.3	65.1	78.8	75-125
Iron	anr				
Lead	38.1	135	130	78.0	75-125
Lithium					
Magnesium					
Manganese	anr				
Molybdenum					
Nickel	16.2	68.2	65.1	78.7	75-125
Phosphorus					
Potassium					
Selenium	0.0	120	130	91.3	75-125
Silicon					
Silver	0.0	23.4	26	89.9	75-125
Sodium					
Strontium					
Thallium	anr				
Tin					
Titanium					
Uranium					
Vanadium	anr				
Zinc	55.9	107	65.1	78.5	75-125

Associated samples MP9521: D43722-1, D43722-2

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D43722  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9521  
Matrix Type: SOLID

Methods: SW846 6010C  
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.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D43722  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9521  
Matrix Type: SOLID

Methods: SW846 6010C  
Units: mg/kg

Prep Date: 02/25/13

Metal	D43722-1 Original MSD		SpikeLot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony	anr					
Arsenic	anr					
Barium	4400	6140	269	532.5(a)	15.2	20
Beryllium	anr					
Boron						
Cadmium	1.1	62.3	67.1	91.2	4.8	20
Calcium						
Chromium	11.9	74.8	67.1	93.7	4.9	20
Cobalt	anr					
Copper	33.0	87.4	67.1	81.0	3.6	20
Iron	anr					
Lead	38.1	140	134	79.3	3.6	20
Lithium						
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	16.2	70.7	67.1	80.0	3.6	20
Phosphorus						
Potassium						
Selenium	0.0	121	134	89.2	0.8	20
Silicon						
Silver	0.0	24.5	26.9	91.2	4.6	20
Sodium						
Strontium						
Thallium	anr					
Tin						
Titanium						
Uranium						
Vanadium	anr					
Zinc	55.9	109	67.1	79.1	1.9	20

Associated samples MP9521: D43722-1, D43722-2

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



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D43722  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9521  
Matrix Type: SOLID

Methods: SW846 6010C  
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.

## SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D43722  
 Account: XTOKRWR - XTO Energy  
 Project: XTO Love Ranch 8

QC Batch ID: MP9521  
 Matrix Type: SOLID

Methods: SW846 6010C  
 Units: mg/kg

Prep Date: 02/25/13

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	213	200	106.5	80-120
Beryllium	anr			
Boron				
Cadmium	46.9	50	93.8	80-120
Calcium				
Chromium	46.7	50	93.4	80-120
Cobalt	anr			
Copper	45.7	50	91.4	80-120
Iron	anr			
Lead	94.2	100	94.2	80-120
Lithium				
Magnesium				
Manganese	anr			
Molybdenum				
Nickel	45.6	50	91.2	80-120
Phosphorus				
Potassium				
Selenium	95.2	100	95.2	80-120
Silicon				
Silver	18.8	20	94.0	80-120
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium				
Vanadium	anr			
Zinc	45.8	50	91.6	80-120

Associated samples MP9521: D43722-1, D43722-2

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D43722  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9521  
Matrix Type: SOLID

Methods: SW846 6010C  
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D43722  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9521  
Matrix Type: SOLID

Methods: SW846 6010C  
Units: ug/l

Prep Date: 02/25/13

Metal		D43722-1 Original SDL 1:5		%DIF	QC Limits
Aluminum	anr				
Antimony	anr				
Arsenic	anr				
Barium	35100	33900	3.5	0-10	
Beryllium	anr				
Boron					
Cadmium	8.10	4.00	50.6 (a)	0-10	
Calcium					
Chromium	96.5	98.5	11.4*(b)	0-10	
Cobalt	anr				
Copper	256	244	0.9	0-10	
Iron	anr				
Lead	249	283	13.6*(b)	0-10	
Lithium					
Magnesium					
Manganese	anr				
Molybdenum					
Nickel	127	143	12.5*(b)	0-10	
Phosphorus					
Potassium					
Selenium	10.7	0.00	100.0(a)	0-10	
Silicon					
Silver	1.20	0.00	NC	0-10	
Sodium					
Strontium					
Thallium	anr				
Tin					
Titanium					
Uranium					
Vanadium	anr				
Zinc	395	492	18.2*(b)	0-10	

Associated samples MP9521: D43722-1, D43722-2

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

14.1.4  
14

SERIAL DILUTION RESULTS SUMMARY

Login Number: D43722  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9521  
Matrix Type: SOLID

Methods: SW846 6010C  
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: D43722  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9522  
Matrix Type: SOLID

Methods: SW846 6020A  
Units: mg/kg

Prep Date: 02/25/13

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.22	.31		
Antimony	0.20	.0018	.0075		
Arsenic	0.10	.006	.06	0.018	<0.10
Barium	1.0	.0065	.037		
Beryllium	0.10	.016	.09		
Boron	20	1.2	1.2		
Cadmium	0.050	.014	.021		
Calcium	200	7.9	8		
Chromium	1.0	.033	.19		
Cobalt	0.10	.0012	.015		
Copper	1.0	.017	.065		
Iron	20	.8	5		
Lead	0.25	.0011	.024		
Magnesium	50	.44	.85		
Manganese	0.50	.0043	.02		
Molybdenum	0.50	.018	.018		
Nickel	1.0	.0049	.011		
Phosphorus	30	1.4	3.6		
Potassium	100	9.8	10		
Selenium	0.20	.029	.14		
Silver	0.050	.0009	.0065		
Sodium	250	1.5	2.3		
Strontium	10	.036	.036		
Thallium	0.10	.00095	.0095		
Tin	5.0	.023	.34		
Titanium	1.0	.044	.1		
Uranium	0.25	.00085	.001		
Vanadium	2.0	.12	.21		
Zinc	5.0	.033	.35		

Associated samples MP9522: D43722-1, D43722-2

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D43722  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9522  
Matrix Type: SOLID

Methods: SW846 6020A  
Units: mg/kg

Prep Date: 02/25/13

Metal	D43722-1 Original MS		Spikelot ICPAL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	10.9	136	130	96.1	75-125
Barium					
Beryllium					
Boron					
Cadmium	anr				
Calcium					
Chromium	anr				
Cobalt					
Copper	anr				
Iron					
Lead	anr				
Magnesium					
Manganese					
Molybdenum	anr				
Nickel	anr				
Phosphorus	anr				
Potassium	anr				
Selenium	anr				
Silver					
Sodium	anr				
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	anr				

Associated samples MP9522: D43722-1, D43722-2

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(N) Matrix Spike Rec. outside of QC limits  
(anr) Analyte not requested

14.2.2  
14

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D43722  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9522  
Matrix Type: SOLID

Methods: SW846 6020A  
Units: mg/kg

Prep Date: 02/25/13

Metal	D43722-1 Original	MSD	SpikeLot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	10.9	156	134	108.1	13.7	20
Barium						
Beryllium						
Boron						
Cadmium	anr					
Calcium						
Chromium	anr					
Cobalt						
Copper	anr					
Iron						
Lead	anr					
Magnesium						
Manganese						
Molybdenum	anr					
Nickel	anr					
Phosphorus	anr					
Potassium	anr					
Selenium	anr					
Silver						
Sodium	anr					
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	anr					

Associated samples MP9522: D43722-1, D43722-2

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(N) Matrix Spike Rec. outside of QC limits  
(anr) Analyte not requested

14.2.2  
14



## SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D43722  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9522  
Matrix Type: SOLID

Methods: SW846 6020A  
Units: mg/kg

Prep Date: 02/25/13

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	101	100	101.0	80-120
Barium				
Beryllium				
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron				
Lead	anr			
Magnesium				
Manganese				
Molybdenum	anr			
Nickel	anr			
Phosphorus	anr			
Potassium	anr			
Selenium	anr			
Silver				
Sodium	anr			
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	anr			

Associated samples MP9522: D43722-1, D43722-2

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D43722  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9522  
Matrix Type: SOLID

Methods: SW846 6020A  
Units: ug/l

Prep Date: 02/25/13

Metal	D43722-1 Original	SDL 5:25	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	81.2	76.6	5.7	0-10
Barium				
Beryllium				
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron				
Lead	anr			
Magnesium				
Manganese				
Molybdenum	anr			
Nickel	anr			
Phosphorus	anr			
Potassium	anr			
Selenium	anr			
Silver				
Sodium	anr			
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	anr			

Associated samples MP9522: D43722-1, D43722-2

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

14.2.4  
14

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D43722  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9527  
Matrix Type: SOLID

Methods: SW846 7471B  
Units: mg/kg

Prep Date: 02/26/13

Metal	RL	IDL	MDL	MB	
				raw	final
Mercury	0.083	.00088	.00075	0.00090	<0.083

Associated samples MP9527: D43722-1, D43722-2

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D43722  
 Account: XTOKRWR - XTO Energy  
 Project: XTO Love Ranch 8

QC Batch ID: MP9527  
 Matrix Type: SOLID

Methods: SW846 7471B  
 Units: mg/kg

Prep Date: 02/26/13

Metal	D43722-1		Spikelot		QC
	Original	MS	HGWSR1	% Rec	Limits
Mercury	0.046	0.47	0.432	98.1	75-125

Associated samples MP9527: D43722-1, D43722-2

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (N) Matrix Spike Rec. outside of QC limits  
 (anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D43722  
 Account: XTOKRWR - XTO Energy  
 Project: XTO Love Ranch 8

QC Batch ID: MP9527  
 Matrix Type: SOLID

Methods: SW846 7471B  
 Units: mg/kg

Prep Date: 02/26/13

Metal	D43722-1		Spikelot		MSD	QC
	Original	MSD	HGWSR1	% Rec		
Mercury	0.046	0.46	0.432	95.7	2.2	20

Associated samples MP9527: D43722-1, D43722-2

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (N) Matrix Spike Rec. outside of QC limits  
 (anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D43722  
 Account: XTOKRWR - XTO Energy  
 Project: XTO Love Ranch 8

QC Batch ID: MP9527  
 Matrix Type: SOLID

Methods: SW846 7471B  
 Units: mg/kg

Prep Date: 02/26/13

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.33	0.333	99.0	80-120

Associated samples MP9527: D43722-1, D43722-2

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: D43722  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9531  
Matrix Type: AQUEOUS

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

Prep Date: 02/26/13

Metal	RL	IDL	MDL	MB raw	final
Aluminum	500	100	130		
Antimony	150	18	18		
Arsenic	130	27	42		
Barium	50	4	9		
Beryllium	50	6.5	16		
Boron	250	22	22		
Cadmium	50	3	3		
Calcium	2000	42	80	-19	<2000
Chromium	50	1.5	2.8		
Cobalt	25	2	2.1		
Copper	50	6	15		
Iron	350	9.5	100		
Lead	250	12	15		
Lithium	10	14			
Magnesium	1000	110	110	-17	<1000
Manganese	25	6	6		
Molybdenum	50	11	11		
Nickel	150	2.5	2.9		
Phosphorus	500	70	300		
Potassium	5000	730	750		
Selenium	250	31	55		
Silicon	250	33			
Silver	150	2.5	4.9		
Sodium	2000	110	490	131	<2000
Strontium	25	1	7.5		
Thallium	50	15	43		
Tin	250	60			
Titanium	50	.5			
Uranium	250	23	23		
Vanadium	50	1.5	2.4		
Zinc	150	4	12		

Associated samples MP9531: D43722-1A, D43722-2A

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

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D43722  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9531  
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D43722  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9531  
Matrix Type: AQUEOUS

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

Prep Date: 02/26/13

Metal	D43722-2A Original MS		Spikelot ICPAL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	7360	141000	125000	106.9	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	190	133000	125000	106.2	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	1450000	1640000	125000	152.0(a)	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP9531: D43722-1A, D43722-2A

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

14.4.2  
14

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D43722  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9531  
Matrix Type: AQUEOUS

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

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.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D43722  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9531  
Matrix Type: AQUEOUS

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

Prep Date: 02/26/13

Metal	D43722-2A Original	MSD	Spikelot ICPAL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	7360	138000	125000	104.5	2.2	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	190	131000	125000	104.6	1.5	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	1450000	1580000	125000	104.0	3.7	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP9531: D43722-1A, D43722-2A

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

14.4.2  
14

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D43722  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9531  
Matrix Type: AQUEOUS

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

Prep Date:

Metal

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

## SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D43722  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9531  
Matrix Type: AQUEOUS

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

Prep Date: 02/26/13

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	132000	125000	105.6	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	133000	125000	106.4	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	137000	125000	109.6	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP9531: D43722-1A, D43722-2A

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

14.4.3  
14

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D43722  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9531  
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D43722  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9531  
Matrix Type: AQUEOUS

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

Prep Date: 02/26/13

Metal	D43722-2A Original SDL 1:5		%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	1470	1480	0.5	0-10
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	38.0	0.00	100.0(a)	0-10
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	289000	297000	2.9	0-10
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP9531: D43722-1A, D43722-2A

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

14.4.4  
14

SERIAL DILUTION RESULTS SUMMARY

Login Number: D43722  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9531  
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

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

14.4.4  
14



## 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: D43722  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP9438/GN19071	1.0	0.0	mg/kg	92.9	90.9	97.9	80-120%
Specific Conductivity	GP9427/GN19049	1.0	<1.0	umhos/cm	9992	9100	91.1	90-110%
pH	GN19031			su	8.00	7.95	99.3	99.3-100.7%

Associated Samples:  
Batch GP9427: D43722-1, D43722-2  
Batch GP9438: D43722-1, D43722-2  
Batch GN19031: D43722-1, D43722-2  
(\*) Outside of QC limits

15.1  
15

DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D43722  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP9438/GN19071	D43722-2	mg/kg	0.0	0.0	0.0	0-20%
Redox Potential Vs H2	GN19103	D43722-2	mv	162	162	0.0	0-20%

Associated Samples:

Batch GP9438: D43722-1, D43722-2

Batch GN19103: D43722-1, D43722-2

(\*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D43722  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP9438/GN19071	D43722-2	mg/kg	0.0	40.0	32.9	82.3	75-125%

Associated Samples:

Batch GP9438: D43722-1, D43722-2

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D43722  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chromium, Hexavalent	GP9438/GN19071	D43722-2	mg/kg	0.0	40.0	33.7	2.4	20%

Associated Samples:  
Batch GP9438: D43722-1, D43722-2  
(\*) Outside of QC limits  
(N) Matrix Spike Rec. outside of QC limits

15.4  
15